TABLE 1

RESONANCE LINES BY ELEMENT

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
HYDROGEN = H Z = 1 A = 1:99.9885, 2:0.0115% in fresh water												
H I 1s 2S J=1/2 GROUND			IP = 109678.7717 cm-1		Ref E77,GM65=M72							
1u 2p 2Po			All Ref P98,(GRC57=WSG66)									
MltMean	1215.6700	0.	82259.16300	2	6	6.265E+08		4.164E-01	-0.079	2.704		
	1215.6736	0.	82258.91907	2	2	6.265E+08	6.265E+08	1.388E-01	-0.557	2.227		
	1215.6682	0.	82259.28496	2	4	6.265E+08	6.265E+08	2.776E-01	-0.256	2.528		
2u 3p 2Po			All Ref P98									
MltMean	1025.7222	0.	97492.28344	2	6	1.673E+08		7.914E-02	-0.801	1.909		
	1025.7230	0.	97492.21117	2	2	1.673E+08	1.897E+08	2.638E-02	-1.278	1.432		
	1025.7218	0.	97492.31958	2	4	1.673E+08	1.897E+08	5.276E-02	-0.977	1.733		
3u 4p 2Po			All Ref P98									
MltMean	972.5367	0.	102823.8790	2	6	6.819E+07		2.901E-02	-1.236	1.450		
	972.5370	0.	102823.8485	2	2	6.819E+07	8.127E+07	9.669E-03	-1.714	0.973		
	972.5366	0.	102823.8943	2	4	6.819E+07	8.127E+07	1.934E-02	-1.413	1.274		
4u 5p 2Po			All Ref P98									
MltMean	949.7430	0.	105291.6442	2	6	3.437E+07		1.395E-02	-1.555	1.122		
	949.7431	0.	105291.6286	2	2	3.438E+07	4.204E+07	4.648E-03	-2.032	0.645		
	949.7429	0.	105291.6520	2	4	3.438E+07	4.204E+07	9.297E-03	-1.731	0.946		
5u 6p 2Po			All Ref P98									
MltMean	937.8034	0.	106632.1575	2	6	1.973E+07		7.803E-03	-1.807	0.864		
	937.8035	0.	106632.1485	2	2	1.973E+07	2.450E+07	2.601E-03	-2.284	0.387		
	937.8034	0.	106632.1620	2	4	1.973E+07	2.450E+07	5.202E-03	-1.983	0.688		
6u 7p 2Po			All Ref P98									
MltMean	930.7482	0.	107440.4442	2	6	1.236E+07		4.816E-03	-2.016	0.652		
	930.7482	0.	107440.4385	2	2	1.236E+07		1.605E-03	-2.493	0.174		
	930.7482	0.	107440.4470	2	4	1.236E+07		3.211E-03	-2.192	0.475		
7u 8p 2Po			All Ref P98									
MltMean	926.2256	0.	107965.0529	2	6	8.255E+06		3.185E-03	-2.196	0.470		
	926.2257	0.	107965.0491	2	2	8.255E+06		1.062E-03	-2.673	-0.007		
	926.2256	0.	107965.0548	2	4	8.255E+06		2.123E-03	-2.372	0.294		
8u 9p 2Po			All Ref P98									
MltMean	923.1503	0.	108324.7228	2	6	5.785E+06		2.217E-03	-2.353	0.311		
	923.1503	0.	108324.7201	2	2	5.785E+06		7.391E-04	-2.830	-0.166		
	923.1503	0.	108324.7241	2	4	5.785E+06		1.478E-03	-2.529	0.135		
9u 10p 2Po			All Ref P98									
MltMean	920.9630	0.	108581.9924	2	6	4.210E+06		1.606E-03	-2.493	0.170		
	920.9630	0.	108581.9904	2	2	4.210E+06		5.354E-04	-2.970	-0.307		
	920.9630	0.	108581.9934	2	4	4.210E+06		1.071E-03	-2.669	-0.006		
10u 11p 2Po			All Ref P98									
MltMean	919.3513	0.	108772.3428	2	6	3.160E+06		1.201E-03	-2.619	0.043		
11u 12p 2Po			All Ref P98									
MltMean	918.1293	0.	108917.1197	2	6	2.432E+06		9.219E-04	-2.734	-0.072		
12u 13p 2Po			All Ref P98									
MltMean	917.1805	0.	109029.7903	2	6	1.911E+06		7.231E-04	-2.840	-0.178		
13u 14p 2Po			All Ref P98									
MltMean	916.4291	0.	109119.1909	2	6	1.529E+06		5.777E-04	-2.937	-0.276		
14u 15p 2Po			All Ref P98									
MltMean	915.8238	0.	109191.3147	2	6	1.243E+06		4.689E-04	-3.028	-0.367		
15u 16p 2Po			All Ref P98									
MltMean	915.3289	0.	109250.3428	2	6	1.024E+06		3.858E-04	-3.113	-0.452		
16u 17p 2Po			All Ref P98									
MltMean	914.9192	0.	109299.2637	2	6	8.533E+05		3.212E-04	-3.192	-0.532		
17u 18p 2Po			All Ref P98									
MltMean	914.5762	0.	109340.2600	2	6	7.186E+05		2.703E-04	-3.267	-0.607		
18u 19p 2Po			All Ref P98									
MltMean	914.2861	0.	109374.9552	2	6	6.109E+05		2.297E-04	-3.338	-0.678		
19u 20p 2Po			All Ref P98									
MltMean	914.0385	0.	109404.5773	2	6	5.237E+05		1.968E-04	-3.405	-0.745		
20u 21p 2Po			All Ref P98									
MltMean	913.8256	0.	109430.0690	2	6	4.523E+05		1.699E-04	-3.469	-0.809		
21u 22p 2Po			All Ref P98									
MltMean	913.6411	0.	109452.1650	2	6	3.933E+05		1.477E-04	-3.530	-0.870		
22u 23p 2Po			LS Ref WSG66									
MltMean	913.4803	0.	109471.4410	2	6	3.444E+05		1.293E-04	-3.588	-0.928		
23u 24p 2Po			LS Ref WSG66									
MltMean	913.3391	0.	109488.3590	2	6	3.031E+05		1.137E-04	-3.643	-0.984		
24u 25p 2Po			LS Ref WSG66									
MltMean	913.2146	0.	109503.2870	2	6	2.681E+05		1.006E-04	-3.697	-1.037		
25u 26p 2Po			LS Ref WSG66									
MltMean	913.1042	0.	109516.5260	2	6	2.383E+05		8.936E-05	-3.748	-1.088		
26u 27p 2Po			LS Ref WSG66									
MltMean	913.0059	0.	109528.3220	2	6	2.128E+05		7.978E-05	-3.797	-1.138		

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
H I 1s 2S J=1/2 GROUND				IP = 109678.7717 cm-1			Ref E77,GM65=M72					
27u 28p 2Po				LS Ref WSG66								
MltMean		912.9179	0.	109538.8770	2	6	1.907E+05		7.148E-05	-3.845	-1.185	
28u 29p 2Po				LS Ref WSG66								
MltMean		912.8389	0.	109548.3580	2	6	1.717E+05		6.435E-05	-3.890	-1.231	
29u 30p 2Po				LS Ref WSG66								
MltMean		912.7676	0.	109556.9070	2	6	1.551E+05		5.812E-05	-3.935	-1.275	
30u 31p 2Po				LS Ref WSG66								
MltMean		912.7032	0.	109564.6430	2	6	1.405E+05		5.264E-05	-3.978	-1.318	
D I 1s 2S J=1/2 GROUND				IP = 109708.6145 cm-1			Ref GM65=M72					
1u 2p 2Po				All Ref P98,(GRC57=WSG66)								
MltMean		1215.3394	0.	82281.54500	2	6	6.270E+08		4.165E-01	-0.079	2.704	
		1215.3430	0.	82281.30101	2	2	6.270E+08	6.270E+08	1.388E-01	-0.556	2.227	
		1215.3376	0.	82281.66700	2	4	6.270E+08	6.270E+08	2.777E-01	-0.255	2.528	
2u 3p 2Po				All Ref P98								
MltMean		1025.4432	0.	97518.81035	2	6	1.674E+08		7.916E-02	-0.800	1.909	
		1025.4440	0.	97518.73806	2	2	1.674E+08	1.897E+08	2.639E-02	-1.278	1.432	
		1025.4428	0.	97518.84650	2	4	1.674E+08	1.897E+08	5.278E-02	-0.977	1.733	
3u 4p 2Po				All Ref P98								
MltMean		972.2722	0.	102851.8566	2	6	6.824E+07		2.901E-02	-1.236	1.450	
		972.2725	0.	102851.8261	2	2	6.824E+07	8.127E+07	9.671E-03	-1.713	0.973	
		972.2720	0.	102851.8719	2	4	6.824E+07	8.127E+07	1.934E-02	-1.412	1.274	
4u 5p 2Po				All Ref P98								
MltMean		949.4846	0.	105320.2933	2	6	3.440E+07		1.395E-02	-1.554	1.122	
		949.4848	0.	105320.2777	2	2	3.440E+07	4.204E+07	4.650E-03	-2.032	0.645	
		949.4846	0.	105320.3011	2	4	3.440E+07	4.204E+07	9.299E-03	-1.731	0.946	
5u 6p 2Po				All Ref P98								
MltMean		937.5483	0.	106661.1714	2	6	1.974E+07		7.805E-03	-1.807	0.864	
		937.5484	0.	106661.1623	2	2	1.974E+07	2.450E+07	2.602E-03	-2.284	0.387	
		937.5483	0.	106661.1759	2	4	1.974E+07	2.450E+07	5.204E-03	-1.983	0.688	
6u 7p 2Po				All Ref P98								
MltMean		930.4950	0.	107469.6779	2	6	1.237E+07		4.818E-03	-2.016	0.652	
		930.4951	0.	107469.6722	2	2	1.237E+07		1.606E-03	-2.493	0.174	
		930.4950	0.	107469.6808	2	4	1.237E+07		3.212E-03	-2.192	0.475	
7u 8p 2Po				All Ref P98								
MltMean		925.9737	0.	107994.4295	2	6	8.261E+07		3.186E-02	-1.196	1.470	
		925.9737	0.	107994.4256	2	2	8.261E+07		1.062E-02	-1.673	0.993	
		925.9737	0.	107994.4314	2	4	8.261E+07		2.124E-02	-1.372	1.294	
8u 9p 2Po				All Ref P98								
MltMean		922.8992	0.	108354.1972	2	6	5.789E+07		2.218E-02	-1.353	1.311	
		922.8992	0.	108354.1945	2	2	5.789E+07		7.393E-03	-1.830	0.834	
		922.8992	0.	108354.1985	2	4	5.790E+07		1.479E-02	-1.529	1.135	
9u 10p 2Po				All Ref P98								
MltMean		920.7125	0.	108611.5368	2	6	4.214E+06		1.607E-03	-2.493	0.170	
		920.7125	0.	108611.5349	2	2	4.214E+06		5.355E-04	-2.970	-0.307	
		920.7125	0.	108611.5378	2	4	4.214E+06		1.071E-03	-2.669	-0.006	
10u 11p 2Po				All Ref P98								
MltMean		919.1013	0.	108801.9390	2	6	3.162E+06		1.201E-03	-2.619	0.043	
11u 12p 2Po				All Ref P98								
MltMean		917.8796	0.	108946.7553	2	6	2.434E+06		9.222E-04	-2.734	-0.072	
12u 13p 2Po				All Ref P98								
MltMean		916.9310	0.	109059.4565	2	6	1.913E+06		7.233E-04	-2.840	-0.178	
13u 14p 2Po				All Ref P98								
MltMean		916.1798	0.	109148.8814	2	6	1.531E+06		5.778E-04	-2.937	-0.276	
14u 15p 2Po				All Ref P98								
MltMean		915.5746	0.	109221.0249	2	6	1.244E+06		4.690E-04	-3.028	-0.367	
15u 16p 2Po				All Ref P98								
MltMean		915.0799	0.	109280.0690	2	6	1.025E+06		3.859E-04	-3.113	-0.452	
16u 17p 2Po				All Ref P98								
MltMean		914.6704	0.	109329.0033	2	6	8.540E+05		3.213E-04	-3.192	-0.532	
17u 18p 2Po				All Ref P98								
MltMean		914.3274	0.	109370.0107	2	6	7.192E+05		2.704E-04	-3.267	-0.607	
18u 19p 2Po				All Ref P98								
MltMean		914.0374	0.	109404.7153	2	6	6.114E+05		2.297E-04	-3.338	-0.678	
19u 20p 2Po				All Ref P98								
MltMean		913.7899	0.	109434.3455	2	6	5.241E+05		1.968E-04	-3.405	-0.745	

HELIUM = He Z = 2 A = 3:0.000137, 4: 99.999863% in air

3He I 1s2 1S J=0 GROUND IP = 198301.8808(15) cm-1 No ground-term lines >911.7 A EUVH97

4He I 1s2 1S J=0 GROUND IP = 198310.6692(15) cm-1 No ground-term lines >911.7 A EUVH97

3He II 1s 2S J=1/2 GROUND IP = 438889.1923 cm-1 No ground-term lines >911.7 A E77

4He II 1s 2S J=1/2 GROUND IP = 438908.8772 cm-1 No ground-term lines >911.7 A E77

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
LITHIUM = Li Z = 3 A = 6:7.59, 7:92.41%												
6Li I 2s 2S J=1/2 GROUND			IP = 43487 cm-1				Ref REB95,J59					
1v 2p 2Po				All Ref YTD98,JLS96,(MAH96,VS96,MABCLMRR97)								
MltMean	6707.972	6709.824	0.	14903.52	2	6	3.689E+07		7.470E-01	0.174	3.700	
	6708.0728	6709.9248	0.	14903.29679	2	2	3.689E+07	3.689E+07	2.490E-01	-0.303	3.223	22E-6
	6707.9219	6709.7738	0.	14903.63212	2	4	3.689E+07	3.689E+07	4.980E-01	-0.002	3.524	29E-6
2v 3p 2Po				LS Ref QWL99,(PSS88)								
MltMean	3232.682	3233.615	0.	30925.14	2	6	1.02E+06		4.82E-03	-2.016	1.193	
	3232.6886	3233.6218	0.	30925.0764	2	2	1.02E+06		1.61E-03	-2.493	0.716	
	3232.6786	3233.6117	0.	30925.1728	2	4	1.02E+06		3.21E-03	-2.192	1.017	
1u 4p 2Po				LS Ref QWL99,(PSS88)								
MltMean	2741.225	2742.036	0.	36469.25	2	6	1.27E+06		4.28E-03	-2.067	1.070	
	2741.2269	2742.0379	0.	36469.2259	2	2	1.27E+06		1.43E-03	-2.544	0.593	
	2741.2239	2742.0349	0.	36469.2660	2	4	1.27E+06		2.86E-03	-2.243	0.894	
2u 5p 2Po				LS Ref QWL99,(PSS88)								
MltMean	2562.338	2563.106	0.	39015.16	2	6	8.80E+05		2.60E-03	-2.284	0.824	
	2562.3391	2563.1073	0.	39015.1439	2	2	8.80E+05		8.66E-04	-2.761	0.346	
	2562.3377	2563.1059	0.	39015.1649	2	4	8.80E+05		1.73E-03	-2.460	0.647	
3u 6p 2Po				LS Ref QWL99,(PSS88)								
MltMean	2475.007	2475.755	0.	40391.72	2	6	5.74E+05		1.58E-03	-2.500	0.593	
	2475.008	2475.755	0.	40391.711	2	2	5.74E+05		5.27E-04	-2.977	0.116	
	2475.007	2475.755	0.	40391.723	2	4	5.74E+05		1.05E-03	-2.676	0.417	
7Li I 2s 2S J=1/2 GROUND			IP = 43487 cm-1				Ref REB95,J59					
1v 2p 2Po				All Ref YTD98,JLS96,(MAH96,VS96,MABCLMRR97)								
MltMean	6707.814	6709.666	0.	14903.87	2	6	3.690E+07		7.471E-01	0.174	3.700	
	6707.9147	6709.7666	0.	14903.64813	2	2	3.689E+07	3.689E+07	2.490E-01	-0.303	3.223	22E-6
	6707.7637	6709.6156	0.	14903.98347	2	4	3.690E+07	3.690E+07	4.980E-01	-0.002	3.524	29E-6
2v 3p 2Po				LS Ref QWL99,(PSS88)								
MltMean	3232.632	3233.565	0.	30925.62	2	6	1.02E+06		4.82E-03	-2.016	1.193	
	3232.6388	3233.5719	0.	30925.5530	2	2	1.02E+06		1.61E-03	-2.493	0.715	
	3232.6287	3233.5618	0.	30925.6494	2	4	1.02E+06		3.21E-03	-2.192	1.017	
1u 4p 2Po				LS Ref QWL99,(PSS88)								
MltMean	2741.185	2741.996	0.	36469.78	2	6	1.27E+06		4.28E-03	-2.067	1.070	
	2741.1872	2741.9982	0.	36469.7542	2	2	1.27E+06		1.43E-03	-2.544	0.593	
	2741.1842	2741.9952	0.	36469.7943	2	4	1.27E+06		2.86E-03	-2.243	0.894	
2u 5p 2Po				LS Ref QWL99,(PSS88)								
MltMean	2562.302	2563.070	0.	39015.71	2	6	8.80E+05		2.60E-03	-2.284	0.824	
	2562.303	2563.071	0.	39015.6988	2	2	8.80E+05		8.66E-04	-2.761	0.346	
	2562.301	2563.069	0.	39015.7199	2	4	8.80E+05		1.73E-03	-2.460	0.647	
3u 6p 2Po				LS Ref QWL99,(PSS88)								
MltMean	2475.033	2475.781	0.	40391.29	2	6	5.74E+05		1.58E-03	-2.500	0.593	
	2475.0339	2475.7817	0.	40391.283	2	2	5.74E+05		5.27E-04	-2.977	0.116	
	2475.0332	2475.7810	0.	40391.295	2	4	5.74E+05		1.05E-03	-2.676	0.417	
Li I 2s 2S J=1/2 GROUND			IP = 43487.150+-0.005cm-1 Ref J59									
4u 7p 2Po				LS Ref QWL99								
MltMean	2485.725	2486.475	0.	40217.58	2	6	3.64E+05		1.01E-03	-2.694	0.401	
5u 8p 2Po				LS Ref QWL99								
MltMean	2394.341	2395.071	0.	41752.42	2	6	2.66E+05		6.87E-04	-2.862	0.216	
9p 2Po				LS Ref QWL99								
MltMean	2373.543	2374.268	0.	42118.25	2	6	1.76E+05		4.45E-04	-3.051	0.024	
Li II 1s2 1S J=0 GROUND			IP = 610078 cm-1				No ground-term lines >911.7 A SM03					
Li III 1s 2S J=1/2 GROUND			IP = 987660.1 cm-1				No ground-term lines >911.7 A M70a					

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)		gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
BERYLLIUM = Be Z = 4 A = 9:100%													
Be I	2s2 1S J=0 GROUND			IP = 75192.64+-0.1 cm-1 Ref KM97									
	2s2p 3Po			One Ref CZ93									
	4548.538	4549.813	0.	21978.925		1	3	4.93E-01	4.93E-01	4.59E-09	-8.338	-4.680	
1u	2s2p 1Po			One Ref HMEB72,MGC74,IHCMB99,TF99									
	2348.610	2349.329	0.	42565.35		1	3	5.53E+08	5.53E+08	1.37E+00	0.138	3.509	0.010
	2s3p 3Po			One									
		1697.578	0.	58907.45		1	3						
	2s3p 1Po			One Ref C98									
		1661.479	0.	60187.34		1	3	7.26E+06		9.01E-03	-2.045	1.175	
	2s4p 3Po			One									
		1496.740	0.	66811.88		1	3						
	2s4p 1Po			One Ref C98									
		1491.765	0.	67034.70		1	3	2.30E+05		2.30E-04	-3.638	-0.465	
	2s5p 3Po			One									
		1427.238	0.	70065.40		1	3						
	2s5p 1Po			One Ref C98									
		1426.117	0.	70120.49		1	3	8.86E+05		8.10E-04	-3.092	0.063	
	2s6p 3Po			One									
		1394.105	0.	71730.62		1	3						
	2s6p 1Po			One Ref C98									
		1393.804	0.	71746.09		1	3	8.58E+05		7.50E-04	-3.125	0.019	
	2s7p 3Po			One									
		1375.567	0.	72697.32		1	3						
	2s7p 1Po			One Ref C98									
		1375.482	0.	72701.8		1	3	6.93E+05		5.90E-04	-3.229	-0.091	
	2s8p 1Po			One Ref C98									
		1364.076	0.	73309.7		1	3	5.26E+05		4.40E-04	-3.357	-0.222	
	2s9p 1Po			One Ref C98									
		1356.679	0.	73709.4		1	3	3.87E+05		3.20E-04	-3.495	-0.362	
Be II	2s 2S J=1/2 GROUND			IP = 146882.84 cm-1 Ref BWWI85,J61=M70a									
	2p 2Po			All Ref YTD98,(BBBLM69,TCE91,JLS96,FSGG98)									
MltMean	3130.637	3131.544	0.	31933.13		2	6	1.129E+08		4.981E-01	-0.002	3.193	
	3131.0667	3131.9741	0.	31928.744		2	2	1.129E+08	1.129E+08	1.660E-01	-0.479	2.716	12E-5
	3130.4219	3131.3292	0.	31935.320		2	4	1.130E+08	1.130E+08	3.321E-01	-0.178	3.017	12E-5
1	3p 2Po			All Ref FSGG98,(QWL99)									
MltMean		1036.306	0.	96496.62		2	6	1.720E+08		8.308E-02	-0.779	1.935	
		1036.319	0.	96495.34		2	2	1.720E+08	1.846E+08	2.769E-02	-1.257	1.458	
		1036.299	0.	96497.26		2	4	1.720E+08	1.846E+08	5.538E-02	-0.956	1.759	
Be III	1s2 1S J=0 GROUND			IP = 1241250+-8 cm-1 No ground-term lines >911.7 A E72,L73									
Be IV	1s 2S J=1/2 GROUND			IP = 1756018.7 cm-1 No ground-term lines >911.7 A M70a									
BORON = B Z = 5 A = 10:19.9, 11:80.1%													
B I	2s22p 2Po J=1/2 GROUND			IP = 66928.04+-0.03 cm-1 Ref RT76,JLKK93,EL01,OS79,SM03									
	2s2p2 4P			All Ref TF00									
	3464.6	3465.6	15.287	28870.0	:	4	2	8.69E-03	1.60E-01	7.82E-12	-10.505	-7.567	
	3464.0	3465.0	15.287	28875.0	:	4	4	5.30E-01	6.29E-01	9.54E-10	-8.418	-5.481	
	3463.3	3464.3	15.287	28881.3	:	4	6	3.28E+00	3.28E+00	8.85E-09	-7.451	-4.513	
	3462.8	3463.8	0.	28870.0	:	2	2	1.51E-01	1.60E-01	2.72E-10	-9.265	-6.027	
	3462.2	3463.2	0.	28875.0	:	2	4	9.94E-02	6.29E-01	3.57E-10	-9.146	-5.907	
1u	2s2(1S)3s 2S			All Ref OL92,TF00									
MltMean	2497.404	2498.157	10.19	40039.70		6	2	2.51E+08		7.82E-02	-0.329	2.291	
	2497.722	2498.475	15.287	40039.695		4	2	1.67E+08	2.50E+08	7.81E-02	-0.505	2.291	0.02
	2496.769	2497.522	0.	40039.695		2	2	8.37E+07	2.50E+08	7.83E-02	-0.805	2.291	0.02
2u	2s2p2 2D			All Ref OL92,TF00									
MltMean	2089.342	2090.006	10.19	47856.93		6	10	4.32E+07		4.72E-02	-0.548	1.994	
	2089.570	2090.235	15.287	47856.807		4	6	4.32E+07	4.32E+07	4.24E-02	-0.770	1.948	0.02
	2089.556	2090.221	15.287	47857.127		4	4	7.16E+06	4.33E+07	4.69E-03	-1.727	0.991	0.02
	2088.889	2089.553	0.	47857.127		2	4	3.61E+07	4.33E+07	4.73E-02	-1.024	1.995	0.02
3u	2s2(1S)3d 2D			All Ref OL92,TF00									
MltMean		1826.231	10.19	54767.79		6	10	2.04E+08		1.70E-01	0.009	2.492	
		1826.404	15.287	54767.698		4	4	3.39E+07	2.15E+08	1.70E-02	-1.169	1.491	0.02
		1826.399	15.287	54767.844		4	6	2.04E+08	2.15E+08	1.53E-01	-0.213	2.446	0.02
		1825.894	0.	54767.698		2	4	1.70E+08	2.15E+08	1.70E-01	-0.469	2.492	0.02
	2s2(1S)4s 2S			All									
		1818.349	15.287	55010.236		4	2						
		1817.844	0.	55010.236		2	2						
	2s2(1S)4d 2D			All									
		1667.273	15.287	59993.48		4	4						
		1667.273	15.287	59993.48		4	6						
		1666.848	0.	59993.48		2	4						

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
B I	2s22p 2Po J=1/2 GROUND		IP = 66928.04+-0.03 cm-1	Ref RT76,JLKK93,EL01,OS79,SM03								
	2s2(1S)4f 2F		One									
		1666.228	15.287	60031.08	4	6						
	2s2(1S)5s 2S		All									
		1663.030	15.287	60146.50	4	2						
		1662.607	0.	60146.50	2	2						
	2s2(1S)6s 2S		All									
		1600.845	15.287	62482.28	4	2						
		1600.454	0.	62482.28	2	2						
10B I	2s22p 2Po J=1/2 GROUND		IP = 66928.04+-0.03 cm-1	Ref JLKK93,SM03								
1u	2s2(1S)3s 2S		All	Ref OL92,TF00								
MltMean	2497.396	2498.149	10.19	40039.83	6	2	2.51E+08		7.82E-02	-0.329	2.291	
	2497.7137	2498.4668	15.287	40039.834	4	2	1.67E+08	2.50E+08	7.81E-02	-0.505	2.291	0.02
	2496.7600	2497.5129	0.	40039.834	2	2	8.37E+07	2.50E+08	7.83E-02	-0.805	2.291	0.02
2u	2s2p2 2D		All	Ref OL92,TF00								
MltMean	2089.362	2090.026	10.19	47856.48	6	10	4.32E+07		4.72E-02	-0.548	1.994	
	2089.5899	2090.2544	15.287	47856.353	4	6	4.32E+07	4.32E+07	4.24E-02	-0.770	1.948	0.02
	2089.5760	2090.2406	15.287	47856.670	4	4	7.16E+06	4.33E+07	4.69E-03	-1.727	0.991	0.02
	2088.9085	2089.5729	0.	47856.670	2	4	3.61E+07	4.33E+07	4.73E-02	-1.024	1.995	0.02
11B I	2s22p 2Po J=1/2 GROUND		IP = 66928.04+-0.03 cm-1	Ref JLKK93,SM03								
1u	2s2(1S)3s 2S		All	Ref OL92,TF00								
MltMean	2497.406	2498.160	10.19	40039.66	6	2	2.51E+08		7.82E-02	-0.329	2.291	
	2497.7245	2498.4776	15.287	40039.660	4	2	1.67E+08	2.50E+08	7.81E-02	-0.505	2.291	0.02
	2496.7709	2497.5237	0.	40039.660	2	2	8.37E+07	2.50E+08	7.83E-02	-0.805	2.291	0.02
2u	2s2p2 2D		All	Ref OL92,TF00								
MltMean	2089.337	2090.001	10.19	47857.05	6	10	4.32E+07		4.72E-02	-0.548	1.994	
	2089.5651	2090.2297	15.287	47856.920	4	6	4.32E+07	4.32E+07	4.24E-02	-0.770	1.948	0.02
	2089.5511	2090.2156	15.287	47857.241	4	4	7.16E+06	4.33E+07	4.69E-03	-1.727	0.991	0.02
	2088.8835	2089.5480	0.	47857.241	2	4	3.61E+07	4.33E+07	4.73E-02	-1.024	1.995	0.02
B II	2s2 1S J=0 GROUND		IP = 202887.0+-1.0 cm-1	Ref O70,LZJKKL98,JLZKL98,SM03								
	2s(2S)2p 3Po		One	Ref TWLT99b,(FG97,TF99)								
	2677.18	2677.97	0.	37341.65 :	1	3	1.02E+01	1.02E+01	3.30E-08	-7.481	-4.053	21E-4
1u	2s(2S)2p 1Po		One	Ref W95,GOJF95,FVHBG96b,JFG99,TF99,(BMBEM85,RM86,IHCMB99)								
		1362.463	0.	73396.51	1	3	1.19E+09	1.19E+09	9.96E-01	-0.002	3.133	0.002
10B II	2s2 1S J=0 GROUND		IP = 202887. cm-1	Ref LZJKKL98,JLZKL98								
1u	2s(2S)2p 1Po		One	Ref W95,GOJF95,FVHBG96b,JFG99,TF99,(BMBEM85,RM86,IHCMB99)								
		1362.473	0.	73395.95	1	3	1.19E+09	1.19E+09	9.96E-01	-0.002	3.133	0.002
11B II	2s2 1S J=0 GROUND		IP = 202887. cm-1	Ref LZJKKL98,JLZKL98								
1u	2s(2S)2p 1Po		One	Ref W95,GOJF95,FVHBG96b,JFG99,TF99,(BMBEM85,RM86,IHCMB99)								
		1362.460	0.	73396.65	1	3	1.19E+09	1.19E+09	9.96E-01	-0.002	3.133	0.002
B III	2s 2S J=1/2 GROUND		IP = 305931.1+-0.6 cm-1	Ref LK98,PJLPW99,O69=M70b								
	2s2p 2Po		All	Ref YTD98,(TCE91,JLS96,FSGG98)								
MltMean	2066.264	2066.924	0.	48381.06	2	6	1.892E+08		3.635E-01	-0.138	2.876	
	2067.236	2067.896	0.	48358.330	2	2	1.889E+08	1.889E+08	1.211E-01	-0.616	2.399	23E-5
	2065.779	2066.439	0.	48392.430	2	4	1.893E+08	1.893E+08	2.424E-01	-0.314	2.700	23E-5
10BIII	2s 2S J=1/2 GROUND		IP = 305931. cm-1	Ref PJLPW99								
	2s2p 2Po		All	Ref YTD98,(TCE91,JLS96,FSGG98)								
MltMean	2066.298	2066.958	0.	48380.27	2	6	1.892E+08		3.635E-01	-0.138	2.876	
	2067.2696	2067.9299	0.	48357.538	2	2	1.889E+08	1.889E+08	1.211E-01	-0.616	2.399	23E-5
	2065.8128	2066.4728	0.	48391.636	2	4	1.893E+08	1.893E+08	2.424E-01	-0.314	2.700	23E-5
11BIII	2s 2S J=1/2 GROUND		IP = 305931. cm-1	Ref PJLPW99								
	2s2p 2Po		All	Ref YTD98,(TCE91,JLS96,FSGG98)								
MltMean	2066.256	2066.916	0.	48381.26	2	6	1.892E+08		3.635E-01	-0.139	2.876	
	2067.2274	2067.8876	0.	48358.527	2	2	1.889E+08	1.889E+08	1.211E-01	-0.616	2.399	23E-5
	2065.7705	2066.4305	0.	48392.627	2	4	1.893E+08	1.893E+08	2.424E-01	-0.314	2.700	23E-5
B IV	1s2 1S J=0 GROUND		IP = 2091976+-0 cm-1	No ground-term lines >911.7 A	E74							
B V	1s 2S J=1/2 GROUND		IP = 2744105.1 cm-1	No ground-term lines >911.7 A	M70a							

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
CARBON = C Z = 6 A = 12:98.03, 13:1.07%												
C I	2s22p2 3P J=0 GROUND		IP = 90820.469+-0.015cm-1 Ref CG98,M75b,FBDMR76									
1u	2s2p3 5So		All Ref TF01,(MZS99,ZF02)									
	2967.215	2968.081	43.414	33735.214	5	5	2.06E+01	2.91E+01	2.72E-08	-6.866	-4.092	
	2964.839	2965.705	16.417	33735.214	3	5	8.48E+00	2.91E+01	1.86E-08	-7.252	-4.257	
2u	2s22p(2Po)3s 3Po		All Ref TF01,(GN87,WFD96,LLBJS00,ZF02)									
MltMean		1657.182	29.59	60373.01	9	9	3.61E+08		1.49E-01	0.126	2.391	
		1658.1211	43.414	60352.639	5	3	1.50E+08	3.60E+08	3.71E-02	-0.732	1.789	
		1657.9071	16.417	60333.429	3	1	3.60E+08	3.60E+08	4.94E-02	-0.829	1.914	
		1657.3792	16.417	60352.639	3	3	9.00E+07	3.60E+08	3.71E-02	-0.954	1.788	
		1657.0081	43.414	60393.148	5	5	2.71E+08	3.61E+08	1.11E-01	-0.254	2.266	
		1656.9284	0.	60352.639	1	3	1.20E+08	3.60E+08	1.49E-01	-0.828	2.392	
		1656.2672	16.417	60393.148	3	5	9.06E+07	3.61E+08	6.21E-02	-0.730	2.012	
2.01u	2s22p(2Po)3s 1Po		All Ref TF01,(WFD96,ZF02)									
		1614.5072	43.414	61981.818	5	3	2.66E+04	3.85E+08	6.24E-06	-4.506	-1.997	
		1613.8038	16.417	61981.818	3	3	2.60E+04	3.85E+08	1.01E-05	-4.517	-1.786	
		1613.3764	0.	61981.818	1	3	3.50E+04	3.85E+08	4.10E-05	-4.388	-1.180	
3u	2s2p3 3Do		All Ref TF01,(GN87,WFD96,ZF02)									
MltMean		1561.054	29.59	64088.87	9	15	1.27E+08		7.73E-02	-0.157	2.082	
		1561.4378	43.414	64086.951	5	7	1.27E+08	1.27E+08	6.49E-02	-0.489	2.006	
		1561.3668	43.414	64089.863	5	3	3.52E+06	1.27E+08	7.72E-04	-2.413	0.081	
		1561.3399	43.414	64090.969	5	5	3.17E+07	1.27E+08	1.16E-02	-1.237	1.258	
		1560.7089	16.417	64089.863	3	3	5.30E+07	1.27E+08	1.93E-02	-1.236	1.480	
		1560.6820	16.417	64090.969	3	5	9.54E+07	1.27E+08	5.81E-02	-0.759	1.957	
		1560.3092	0.	64089.863	1	3	7.07E+07	1.27E+08	7.74E-02	-1.111	2.082	
4u	2s2p3 3Po		All Ref TF01,(GN87,WFD96)									
MltMean		1329.339	29.59	75254.94	9	9	2.86E+08		7.58E-02	-0.166	2.003	
		1329.6004	43.414	75253.983	5	3	1.19E+08	2.88E+08	1.89E-02	-1.024	1.401	
		1329.5775	43.414	75255.276	5	5	2.15E+08	2.87E+08	5.69E-02	-0.546	1.879	
		1329.1233	16.417	75253.983	3	3	7.22E+07	2.88E+08	1.91E-02	-1.241	1.405	
		1329.1004	16.417	75255.276	3	5	7.09E+07	2.87E+08	3.13E-02	-1.027	1.619	
		1329.0849	16.417	75256.153	3	1	2.87E+08	2.89E+08	2.54E-02	-1.119	1.528	
		1328.8333	0.	75253.983	1	3	9.54E+07	2.88E+08	7.58E-02	-1.120	2.003	
4.01u	2s22p(2Po)3d 1Do		All Ref ZF02									
		1288.0553	43.414	77679.831	5	5	8.09E+04		2.01E-05	-3.997	-1.586	
		1287.6076	16.417	77679.831	3	5	1.46E+05		6.03E-05	-3.742	-1.110	
5u	2s22p(2Po)4s 3Po		All Ref ZF02,(GMN89,WFD96)									
MltMean		1280.356	29.59	78132.85	9	9	9.30E+07		2.29E-02	-0.687	1.466	
		1280.8471	43.414	78116.748	5	3	3.54E+07	1.06E+08	5.22E-03	-1.583	0.825	
		1280.5975	16.417	78104.967	3	1	8.59E+07	1.05E+08	7.04E-03	-1.675	0.955	
		1280.4043	16.417	78116.748	3	3	1.79E+07	1.06E+08	4.40E-03	-1.879	0.751	
		1280.3331	43.414	78148.089	5	5	6.20E+07	1.17E+08	1.52E-02	-1.118	1.290	
		1280.1352	0.	78116.748	1	3	3.56E+07	1.06E+08	2.63E-02	-1.580	1.527	
		1279.8907	16.417	78148.089	3	5	3.50E+07	1.17E+08	1.43E-02	-1.367	1.263	
6u	2s22p(2Po)3d 3Fo		All Ref ZF02									
		1279.4980	43.414	78199.064	5	5	1.86E+06		4.56E-04	-2.642	-0.234	
		1279.2290	43.414	78215.503	5	7	6.24E+06		2.14E-03	-1.970	0.438	
		1279.0562	16.417	78199.064	3	5	1.73E+06		7.08E-04	-2.673	-0.043	
7u	2s22p(2Po)3d 3Do		All Ref ZF02,(WFD96)									
MltMean		1277.463	29.59	78309.75	9	15	2.21E+08		9.00E-02	-0.091	2.061	
		1277.9539	43.414	78293.501	5	3	5.56E+06	2.32E+08	8.17E-04	-2.389	0.019	
		1277.7233	43.414	78307.619	5	5	6.25E+07	2.46E+08	1.53E-02	-1.116	1.291	
		1277.5501	43.414	78318.232	5	7	2.23E+08	2.44E+08	7.63E-02	-0.419	1.989	
		1277.5131	16.417	78293.501	3	3	8.59E+07	2.32E+08	2.10E-02	-1.200	1.429	
		1277.2827	16.417	78307.619	3	5	1.63E+08	2.46E+08	6.66E-02	-0.699	1.930	
		1277.2452	0.	78293.501	1	3	1.16E+08	2.32E+08	8.53E-02	-1.069	2.037	
7.01u	2s22p(2Po)4s 1Po		All Ref ZF02,(WFD96)									
		1277.1900	43.414	78340.301	5	3	2.20E+06		3.22E-04	-2.793	-0.386	
		1276.7498	16.417	78340.301	3	3	1.26E+07		3.08E-03	-2.034	0.595	
		1276.4822	0.	78340.301	1	3	8.03E+06		5.89E-03	-2.230	0.876	
8u	2s22p(2Po)3d 1Fo		One Ref ZF02									
		1274.1090	43.414	78529.633	5	7	1.65E+06		5.62E-04	-2.552	-0.145	
8.01u	2s22p(2Po)3d 1Po		Part Ref ZF02									
		1270.8440	43.414	78731.280	5	3	9.97E+01		1.45E-08	-7.140	-4.735	
		1270.4081	16.417	78731.280	3	3	1.86E+05		4.51E-05	-3.869	-1.242	
		1270.1432	0.	78731.280	1	3	5.31E+05		3.86E-04	-3.414	-0.310	
9u	2s22p(2Po)3d 3Po		All Ref ZF02,(GN87)									
MltMean		1261.268	29.59	79314.88	9	9	2.17E+08		5.17E-02	-0.333	1.814	
		1261.5519	43.414	79310.864	5	5	1.64E+08	2.36E+08	3.91E-02	-0.709	1.693	
		1261.4255	43.414	79318.804	5	3	9.13E+07	2.40E+08	1.31E-02	-1.185	1.217	
		1261.1224	16.417	79310.864	3	5	5.09E+07	2.36E+08	2.02E-02	-1.217	1.407	
		1260.9961	16.417	79318.804	3	3	5.64E+07	2.40E+08	1.34E-02	-1.394	1.229	
		1260.9262	16.417	79323.200	3	1	2.20E+08	2.41E+08	1.75E-02	-1.281	1.343	
		1260.7351	0.	79318.804	1	3	7.09E+07	2.40E+08	5.07E-02	-1.295	1.806	

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
C I	2s22p2 3P J=0 GROUND		IP = 90820.469+-0.015cm-1 Ref CG98,M75b,FBDMR76									
9.01u	2s22p(2Po)4d 1Do		All Ref ZF02									
		1198.2625	43.414	83497.585	5	5	6.75E+04		1.45E-05	-4.139	-1.760	
		1197.8750	16.417	83497.585	3	5	2.03E+05		7.30E-05	-3.660	-1.058	
9.02u	2s22p(2Po)5s 3Po		All Ref ZF02,(WFD96)									
MltMean		1194.131	29.59	83772.52	9	9	5.07E+07		1.08E-02	-1.011	1.112	
		1194.6146	43.414	83752.417	5	3	1.77E+07		2.27E-03	-1.945	0.433	
		1194.4055	16.417	83740.075	3	1	4.40E+07		3.14E-03	-2.026	0.574	
		1194.2295	16.417	83752.417	3	3	8.33E+06		1.78E-03	-2.272	0.328	
		1194.0634	43.414	83791.063	5	5	2.98E+07		6.36E-03	-1.497	0.881	
		1193.9954	0.	83752.417	1	3	1.94E+07		1.24E-02	-1.905	1.172	
		1193.6786	16.417	83791.063	3	5	2.54E+07		9.05E-03	-1.566	1.034	
10u	2s22p(2Po)4d 3Fo		Part Ref ZF02,(WFD96)									
		1194.6862	43.414	83747.405	5	5	3.42E+05		7.32E-05	-3.437	-1.058	
		1194.4885	43.414	83761.254	5	7	6.77E+06		2.03E-03	-1.994	0.384	
		1194.3010	16.417	83747.405	3	5	4.10E+06		1.46E-03	-2.358	0.242	
11u	2s22p(2Po)4d 3Do		All Ref ZF02,(WFD96)									
MltMean		1193.176	29.59	83839.54	9	15	1.11E+08		3.96E-02	-0.448	1.675	
		1193.6483	43.414	83820.188	5	3	2.25E+06		2.88E-04	-2.841	-0.463	
		1193.3928	43.414	83838.120	5	5	3.46E+07		7.38E-03	-1.433	0.945	
		1193.2637	16.417	83820.188	3	3	4.29E+07		9.15E-03	-1.561	1.038	
		1193.2401	43.414	83848.845	5	7	1.11E+08		3.32E-02	-0.780	1.597	
		1193.0300	0.	83820.188	1	3	6.39E+07		4.09E-02	-1.388	1.688	
		1193.0085	16.417	83838.120	3	5	7.90E+07		2.81E-02	-1.074	1.525	
12u	2s22p(2Po)5s 1Po		All Ref ZF02									
		1192.8332	43.414	83877.433	5	3	2.18E+06		2.80E-04	-2.855	-0.477	
		1192.4492	16.417	83877.433	3	3	7.60E+06		1.62E-03	-2.313	0.286	
		1192.2158	0.	83877.433	1	3	2.15E+06		1.37E-03	-2.863	0.214	
13u	2s22p(2Po)4d 1Fo		One Ref ZF02									
		1191.842	43.414	83947.18	5	7	2.90E+06		8.66E-04	-2.364	0.013	
13.01	2s22p(2Po)4d 1Po		Part Ref ZF02,(WFD96)									
		1190.6360	43.414	84032.136	5	3	1.26E+04		1.61E-06	-5.095	-2.718	
		1190.2535	16.417	84032.136	3	3	4.78E+05		1.02E-04	-3.516	-0.917	
		1190.0209	0.	84032.136	1	3	9.05E+05		5.76E-04	-3.239	-0.164	
14u	2s22p(2Po)4d 3Po		All Ref ZF02,(WFD96)									
MltMean		1189.345	29.59	84109.46	9	9	6.64E+07		1.41E-02	-0.897	1.224	
		1189.6307	43.414	84103.111	5	5	5.27E+07		1.12E-02	-1.252	1.124	
		1189.4468	43.414	84116.112	5	3	2.96E+07		3.76E-03	-1.726	0.651	
		1189.2488	16.417	84103.111	3	5	1.09E+07		3.85E-03	-1.937	0.661	
		1189.0650	16.417	84116.112	3	3	2.01E+07		4.26E-03	-1.893	0.705	
		1188.9928	16.417	84121.218	3	1	7.17E+07		5.07E-03	-1.818	0.780	
		1188.8329	0.	84116.112	1	3	1.95E+07		1.24E-02	-1.906	1.169	
14.01	2s22p(2Po)5d 1Do		All Ref ZF02									
		1160.8768	43.414	86185.20	5	5	1.18E+05		2.39E-05	-3.922	-1.556	
		1160.5131	16.417	86185.20	3	5	3.27E+05		1.10E-04	-3.481	-0.894	
15u	2s22p(2Po)5d 3Fo		All Ref ZF02									
		1159.0947	43.414	86317.64	5	5	3.54E+05		7.14E-05	-3.447	-1.082	
		1158.9668	43.414	86327.16	5	7	7.21E+06		2.03E-03	-1.993	0.372	
		1158.7321	16.417	86317.64	3	5	5.10E+06		1.71E-03	-2.289	0.298	
15.01	2s22p(2Po)6s 3Po		All Ref ZF02									
MltMean		1158.452	29.59	86351.65	9	9	3.17E+07		6.38E-03	-1.241	0.869	
		1158.9068	43.414	86331.63	5	3	8.36E+06		1.01E-03	-2.297	0.068	
		1158.6744	16.417	86321.94	3	1	2.19E+07		1.47E-03	-2.357	0.230	
		1158.5443	16.417	86331.63	3	3	3.35E+06		6.75E-04	-2.694	-0.107	
		1158.3971	43.414	86369.60	5	5	8.19E+06		1.65E-03	-2.084	0.281	
		1158.3240	0.	86331.63	1	3	1.09E+07		6.55E-03	-2.184	0.880	
		1158.0349	16.417	86369.60	3	5	3.10E+07		1.04E-02	-1.507	1.080	
16u	2s22p(2Po)5d 3Do		All Ref ZF02,(WFD96)									
MltMean		1157.966	29.59	86387.94	9	15	5.44E+07		1.82E-02	-0.785	1.324	
		1158.4921	43.414	86362.52	5	3	6.29E+05		7.59E-05	-3.421	-1.056	
		1158.1317	43.414	86389.38	5	5	2.58E+07		5.19E-03	-1.586	0.779	
		1158.1299	16.417	86362.52	3	3	1.97E+07		3.97E-03	-1.924	0.662	
		1158.0188	43.414	86397.80	5	7	5.56E+07		1.57E-02	-1.106	1.258	
		1157.9097	0.	86362.52	1	3	3.51E+07		2.12E-02	-1.674	1.390	
		1157.7697	16.417	86389.38	3	5	2.62E+07		8.78E-03	-1.580	1.007	
17u	2s22p(2Po)6s 1Po		All Ref ZF02									
		1157.7674	43.414	86416.55	5	3	2.50E+06		3.01E-04	-2.823	-0.458	
		1157.4056	16.417	86416.55	3	3	7.49E+06		1.50E-03	-2.346	0.241	
		1157.1857	0.	86416.55	1	3	1.45E+06		8.71E-04	-3.060	0.003	
	2s22p5g [7/2]o											
		1157.6271	43.414	86427.02	5	7						
8u	2s22p(2Po)5d 1Fo		One Ref ZF02									
		1157.3300	43.414	86449.19	5	7	3.98E+06		1.12E-03	-2.252	0.113	
	2s22p5g' [7/2]o											
		1156.7886	43.414	86489.63	5	7						

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)		gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
C I	2s22p2 3P J=0 GROUND		IP = 90820.469+-0.015cm-1 Ref CG98,M75b,FBDMR76										
18.01	2s22p(2Po)5d 1Po		All Ref ZF02										
		1156.7648	43.414	86491.41		5	3	3.25E+04		3.91E-06	-4.708	-2.344	
		1156.4037	16.417	86491.41		3	3	8.11E+05		1.63E-04	-3.312	-0.726	
		1156.1842	0.	86491.41		1	3	1.34E+06		8.09E-04	-3.092	-0.029	
	2s22p5g' [5/2]o												
		1156.6706	43.414	86498.45		5	5						
		1156.6706	43.414	86498.45		5	7						
		1156.3095	16.417	86498.45		3	5						
19u	2s22p(2Po)5d 3Po		All Ref ZF02										
MltMean		1156.294	29.59	86512.79		9	9	3.19E+07		6.40E-03	-1.239	0.870	
		1156.5603	43.414	86506.70		5	5	2.69E+07		5.39E-03	-1.569	0.795	
		1156.3895	43.414	86519.47		5	3	1.51E+07		1.81E-03	-2.043	0.321	
		1156.1992	16.417	86506.70		3	5	2.39E+06		7.99E-04	-2.621	-0.035	
		1156.0286	16.417	86519.47		3	3	1.13E+07		2.27E-03	-2.166	0.419	
		1155.9793	16.417	86523.16		3	1	3.74E+07		2.50E-03	-2.126	0.460	
		1155.8092	0.	86519.47		1	3	8.19E+06		4.92E-03	-2.308	0.755	
20u	2s22p(2Po)6d 1Do		All Ref ZF02										
		1141.6785	43.414	87633.75		5	5	2.03E+05		3.97E-05	-3.702	-1.344	
		1141.3267	16.417	87633.75		3	5	4.47E+05		1.46E-04	-3.360	-0.780	
21u	2s22p(2Po)6d 3Fo		All Ref ZF02										
		1140.7088	43.414	87708.21		5	5	1.95E+05		3.80E-05	-3.721	-1.363	
		1140.6415	43.414	87713.38		5	7	6.28E+06		1.72E-03	-2.067	0.291	
		1140.3576	16.417	87708.21		3	5	6.38E+06		2.07E-03	-2.206	0.374	
21.01	2s22p(2Po)7s 3Po		All Ref ZF02,(WFD96)										
MltMean		1140.151	29.59	87737.30		9	9	1.80E+07		3.50E-03	-1.502	0.601	
		1140.5741	43.414	87718.56		5	3	4.17E+06		4.88E-04	-2.613	-0.255	
		1140.3165	16.417	87711.37		3	1	1.15E+07		7.47E-04	-2.649	-0.069	
		1140.2230	16.417	87718.56		3	3	1.47E+06		2.86E-04	-3.067	-0.487	
		1140.1167	43.414	87753.73		5	5	1.84E+07		3.58E-03	-1.747	0.611	
		1140.0096	0.	87718.56		1	3	6.09E+06		3.56E-03	-2.448	0.609	
		1139.7659	16.417	87753.73		3	5	4.62E+06		1.50E-03	-2.347	0.233	
22u	2s22p(2Po)6d 3Do		All Ref ZF02										
MltMean		1139.759	29.59	87767.44		9	15	2.94E+07		9.54E-03	-1.066	1.036	
		1140.3562	43.414	87735.31		5	3	1.09E+05		1.28E-05	-4.195	-1.837	
		1140.0053	16.417	87735.31		3	3	9.44E+06		1.84E-03	-2.258	0.321	
		1139.8651	43.414	87773.09		5	5	1.30E+06		2.52E-04	-2.899	-0.541	
		1139.8121	43.414	87777.17		5	7	2.96E+07		8.06E-03	-1.395	0.963	
		1139.7919	0.	87735.31		1	3	2.10E+07		1.23E-02	-1.911	1.146	
		1139.5145	16.417	87773.09		3	5	2.72E+07		8.81E-03	-1.578	1.002	
22.01	2s22p(2Po)7s 1Po		All Ref ZF02										
		1139.6503	43.414	87789.63		5	3	2.25E+06		2.63E-04	-2.881	-0.523	
		1139.2998	16.417	87789.63		3	3	6.24E+06		1.21E-03	-2.439	0.141	
		1139.0867	0.	87789.63		1	3	9.29E+05		5.42E-04	-3.266	-0.209	
22.02	2s22p(2Po)6d 1Fo		One Ref ZF02										
		1139.4256	43.414	87806.93		5	7	4.31E+06		1.17E-03	-2.231	0.126	
22.03	2s22p(2Po)6d 1Po		All Ref ZF02										
		1139.1240	43.414	87830.17		5	3	3.57E+04		4.17E-06	-4.681	-2.324	
		1138.7738	16.417	87830.17		3	3	9.90E+05		1.92E-04	-3.239	-0.659	
		1138.5609	0.	87830.17		1	3	1.70E+06		9.91E-04	-3.004	0.052	
	2s22p6g' [7/2]o												
		1139.0949	43.414	87832.41		5	7						
23u	2s22p(2Po)6d 3Po		All Ref ZF02,(WFD96)										
MltMean		1138.845	29.59	87837.89		9	9	1.83E+07		3.57E-03	-1.493	0.609	
		1139.093	43.414	87832.54		5	5	1.60E+07		3.11E-03	-1.808	0.549	
		1138.947	43.414	87843.8	F	5	3	8.97E+06		1.05E-03	-2.281	0.076	
		1138.743	16.417	87832.54		3	5	1.85E+05		6.01E-05	-3.744	-1.165	
		1138.597	16.417	87843.8	F	3	3	7.30E+06		1.42E-03	-2.371	0.208	
		1138.557	16.417	87846.89		3	1	2.31E+07		1.49E-03	-2.348	0.231	
		1138.384	0.	87843.8	F	1	3	4.13E+06		2.41E-03	-2.619	0.438	
	2s22p6g' [5/2]o												
		1139.0255	43.414	87837.76		5	5						
		1139.0255	43.414	87837.76		5	7						
		1138.6754	16.417	87837.76		3	5						
23.01	2s22p(2Po)7d 1Do		All Ref ZF02										
		1130.5157	43.414	88498.62		5	5	3.04E+05		5.82E-05	-3.536	-1.182	
		1130.1708	16.417	88498.62		3	5	4.76E+05		1.52E-04	-3.341	-0.765	
24u	2s22p(2Po)7d 3Fo		All Ref ZF02										
		1129.969	43.414	88541.45		5	5	4.69E+04		8.99E-06	-4.347	-1.993	
		1129.925	43.414	88544.90		5	7	4.84E+06		1.30E-03	-2.188	0.166	
		1129.624	16.417	88541.45		3	5	7.28E+06		2.32E-03	-2.157	0.419	

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)		gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
C I	2s22p2 3P J=0 GROUND		IP = 90820.469+-0.015cm-1 Ref CG98,M75b,FBDMR76										
24.01	2s22p(2Po)8s 3Po		All Ref ZF02										
MltMean		1129.453	29.59	88568.03		9	9	1.00E+07		1.92E-03	-1.763	0.336	
		1129.8714	43.414	88549.06		5	3	2.22E+06		2.55E-04	-2.895	-0.541	
		1129.5945	16.417	88543.76		3	1	6.40E+06		4.08E-04	-2.912	-0.336	
		1129.5269	16.417	88549.06		3	3	7.22E+05		1.38E-04	-3.383	-0.807	
		1129.4222	43.414	88584.26		5	5	1.19E+07		2.28E-03	-1.942	0.411	
		1129.3175	0.	88549.06		1	3	3.46E+06		1.98E-03	-2.703	0.350	
		1129.0780	16.417	88584.26		3	5	9.90E+05		3.15E-04	-3.024	-0.448	
25u	2s22p(2Po)7d 3Do		All Ref ZF02										
MltMean		1129.093	29.59	88596.27		9	15	1.71E+07		5.45E-03	-1.309	0.789	
		1129.749	43.414	88558.65		5	3	4.79E+03		5.50E-07	-5.560	-3.206	
		1129.405	16.417	88558.65		3	3	4.86E+06		9.29E-04	-2.555	0.021	
		1129.195	0.	88558.65		1	3	1.34E+07		7.71E-03	-2.113	0.940	
		1129.161	43.414	88604.75		5	5	4.97E+05		9.50E-05	-3.323	-0.970	
		1129.141	43.414	88606.33		5	7	1.70E+07		4.55E-03	-1.643	0.711	
		1128.817	16.417	88604.75		3	5	1.60E+07		5.11E-03	-1.814	0.761	
25.01	2s22p(2Po)8s 1Po		All Ref ZF02										
		1129.0301	43.414	88615.01		5	3	1.81E+06		2.08E-04	-2.983	-0.629	
		1128.6861	16.417	88615.01		3	3	4.78E+06		9.13E-04	-2.562	0.013	
		1128.4770	0.	88615.01		1	3	5.96E+05		3.41E-04	-3.467	-0.414	
25.02	2s22p(2Po)7d 1Fo		One Ref ZF02										
		1128.9028	43.414	88625.00		5	7	3.97E+06		1.06E-03	-2.275	0.079	
26u	2s22p(2Po)7d 3Po		All Ref ZF02										
MltMean		1128.519	29.59	88641.28		9	9	1.18E+07		2.25E-03	-1.694	0.404	
		1128.752	43.414	88636.83		5	5	1.02E+07		1.94E-03	-2.014	0.340	
		1128.634	43.414	88646.10		5	3	5.80E+06		6.64E-04	-2.479	-0.125	
		1128.408	16.417	88636.83		3	5	7.27E+04		2.31E-05	-4.159	-1.583	
		1128.290	16.417	88646.10		3	3	4.96E+06		9.46E-04	-2.547	0.028	
		1128.252	16.417	88649.1	:	3	1	1.55E+07		9.87E-04	-2.528	0.047	
		1128.081	0.	88646.10		1	3	2.37E+06		1.35E-03	-2.869	0.184	
26.01	2s22p(2Po)7d 1Po		All Ref ZF02										
		1128.7241	43.414	88639.02		5	3	2.38E+04		2.73E-06	-4.865	-2.512	
		1128.3803	16.417	88639.02		3	3	9.56E+05		1.82E-04	-3.262	-0.686	
		1128.1713	0.	88639.02		1	3	1.83E+06		1.04E-03	-2.981	0.071	
26.02	2s22p(2Po)8d 1Do		All Ref ZF02										
		1123.4599	43.414	89054.16		5	5	3.75E+05		7.09E-05	-3.450	-1.099	
		1123.1192	16.417	89054.16		3	5	3.78E+05		1.19E-04	-3.446	-0.873	
	2s22p(2Po)8d 3Fo		All Ref ZF02										
		1123.135	43.414	89079.9	:	5	5	5.43E+00		1.03E-09	-8.290	-5.938	
		1123.107	43.414	89082.15		5	7	3.57E+06		9.46E-04	-2.325	0.026	
		1122.795	16.417	89079.9	:	3	5	7.24E+06		2.28E-03	-2.165	0.408	
26.03	2s22p(2Po)9s 3Po		Part Ref ZF02										
		1123.0656	43.414	89085.41		5	3	1.26E+06		1.44E-04	-3.144	-0.793	
		1122.7729	16.417	89081.62		3	1	3.77E+06		2.38E-04	-3.147	-0.574	
		1122.7252	16.417	89085.41		3	3	3.96E+05		7.48E-05	-3.649	-1.076	
		1122.5183	0.	89085.41		1	3	2.03E+06		1.15E-03	-2.939	0.111	
27u	2s22p(2Po)8d 3Do		All Ref ZF02										
MltMean		1122.290	29.59	89133.12		9	15	1.02E+07		3.22E-03	-1.538	0.557	
		1122.985	43.414	89091.83		5	3	4.09E+03		4.64E-07	-5.634	-3.283	
		1122.644	16.417	89091.83		3	3	2.72E+06		5.15E-04	-2.811	-0.238	
		1122.437	0.	89091.83		1	3	9.02E+06		5.11E-03	-2.291	0.759	
		1122.344	43.414	89142.66		5	5	3.41E+05		6.44E-05	-3.492	-1.141	
		1122.327	43.414	89144.01		5	7	1.06E+07		2.79E-03	-1.855	0.496	
		1122.004	16.417	89142.66		3	5	8.47E+06		2.66E-03	-2.097	0.476	
27.01	2s22p(2Po)9s 1Po		All Ref ZF02										
		1122.2597	43.414	89149.35		5	3	1.40E+06		1.59E-04	-3.099	-0.748	
		1121.9198	16.417	89149.35		3	3	3.59E+06		6.77E-04	-2.692	-0.119	
		1121.7132	0.	89149.35		1	3	3.96E+05		2.24E-04	-3.649	-0.599	
27.02	2s22p(2Po)8d 1Fo		One Ref ZF02										
		1122.1797	43.414	89155.70		5	7	3.37E+06		8.92E-04	-2.351	0.000	
	2s22p(2Po)8d 3Po		All Ref ZF02										
MltMean		1121.878	29.59	89165.85		9	9	8.16E+06		1.54E-03	-1.858	0.237	
		1122.098	43.414	89162.19		5	5	6.71E+06		1.27E-03	-2.199	0.152	
		1121.999	43.414	89170.07		5	3	3.95E+06		4.48E-04	-2.650	-0.299	
		1121.758	16.417	89162.19		3	5	4.25E+05		1.34E-04	-3.397	-0.824	
		1121.659	16.417	89170.07		3	3	3.49E+06		6.58E-04	-2.704	-0.132	
		1121.641	16.417	89171.5	:	3	1	1.10E+07		6.90E-04	-2.684	-0.111	
		1121.453	0.	89170.07		1	3	1.48E+06		8.39E-04	-3.076	-0.027	
27.03	2s22p(2Po)8d 1Po		All Ref ZF02										
		1122.0659	43.414	89164.74		5	3	1.19E+04		1.35E-06	-5.170	-2.819	
		1121.7261	16.417	89164.74		3	3	8.12E+05		1.53E-04	-3.338	-0.765	
		1121.5196	0.	89164.74		1	3	1.74E+06		9.83E-04	-3.007	0.042	
	2s22p(2Po)9d 1Do		All Ref ZF02										
		1118.7176	43.414	89431.48		5	5	2.43E+05		4.56E-05	-3.642	-1.292	
		1118.3798	16.417	89431.48		3	5	4.44E+06		1.39E-03	-2.380	0.191	

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)		gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
C I	2s22p2 3P J=0 GROUND		IP = 90820.469+-0.015cm-1 Ref CG98,M75b,FBDMR76										
	2s22p(2Po)9d 3Fo		Part Ref ZF02										
		1118.491	43.414	89449.60		5	7	2.64E+06		6.92E-04	-2.461	-0.111	
		1118.142	43.414	89477.46		5	5						
		1117.805	16.417	89477.46		3	5						
27.04	2s22p(2Po)10s 3Po		Part Ref ZF02										
		1118.4631	43.414	89451.82		5	3	7.68E+05		8.65E-05	-3.364	-1.014	
		1118.1254	16.417	89451.82		3	3	2.36E+05		4.43E-05	-3.877	-1.306	
		1117.9202	0.	89451.82		1	3	1.25E+06		7.01E-04	-3.154	-0.106	
29u	2s22p(2Po)9d 3Do		All Ref ZF02										
MltMean		1117.634	29.59	89504.30		9	15	7.01E+06		2.19E-03	-1.706	0.388	
		1118.408	43.414	89456.23		5	3	1.64E+04		1.84E-06	-5.036	-2.686	
		1118.070	16.417	89456.23		3	3	1.65E+06		3.09E-04	-3.033	-0.461	
		1117.865	0.	89456.23		1	3	6.32E+06		3.55E-03	-2.450	0.599	
		1117.730	43.414	89510.43		5	5	2.63E+04		4.94E-06	-4.608	-2.258	
		1117.604	43.414	89520.53		5	7	7.00E+06		1.84E-03	-2.037	0.312	
		1117.393	16.417	89510.43		3	5	6.41E+06		2.00E-03	-2.222	0.349	
	2s22p(2Po)10s 1Po		All Ref ZF02										
		1117.675	43.414	89514.86		5	3	1.08E+06		1.22E-04	-3.215	-0.866	
		1117.338	16.417	89514.86		3	3	2.71E+06		5.07E-04	-2.818	-0.247	
		1117.133	0.	89514.86		1	3	2.75E+05		1.54E-04	-3.811	-0.763	
	2s22p(2Po)9d 1Fo		One Ref ZF02										
		1117.6217	43.414	89519.13		5	7	2.77E+06		7.26E-04	-2.440	-0.091	
	2s22p(2Po)9d 3Po		Part Ref ZF02										
		1117.581	43.414	89522.39		5	5	4.58E+06		8.57E-04	-2.368	-0.019	
		1117.244	16.417	89522.39		3	5	6.86E+05		2.14E-04	-3.193	-0.622	
	2s22p(2Po)9d 1Po		All Ref ZF02										
		1117.542	43.414	89525.5	F	5	3	4.99E+03		5.60E-07	-5.552	-3.203	
		1117.205	16.417	89525.5	F	3	3	6.54E+05		1.22E-04	-3.435	-0.864	
		1117.000	0.	89525.5	F	1	3	1.55E+06		8.69E-04	-3.061	-0.013	
	2s22p(2Po)10d 3Fo		Part										
		1115.225	43.414	89711.42		5	7						
30u	2s22p(2Po)10d 3Do		All										
		1115.166	43.414	89716.16		5	3						
		1114.830	16.417	89716.16		3	3						
		1114.626	0.	89716.16		1	3						
		1114.461	43.414	89772.87		5	5						
		1114.457	43.414	89773.2	:	5	7						
		1114.126	16.417	89772.87		3	5						
	2s22p(2Po)10d 1Fo		One										
		1114.383	43.414	89779.20		5	7						
	2s22p(2Po)10d 1Po		All										
		1114.332	43.414	89783.26		5	3						
		1113.997	16.417	89783.26		3	3						
		1113.793	0.	89783.26		1	3						
	2s22p(2Po)11d 3Fo		Part										
		1112.823	43.414	89904.94		5	7						
30.01	2s22p(2Po)11d 3Do		All										
		1112.806	43.414	89906.35		5	3						
		1112.472	16.417	89906.35		3	3						
		1112.268	0.	89906.35		1	3						
		1112.060	43.414	89966.66		5	5						
		1112.058	43.414	89966.8	:	5	7						
		1111.726	16.417	89966.66		3	5						
	2s22p(2Po)11d 1Fo		One										
		1112.002	43.414	89971.35		5	7						
	2s22p(2Po)11d 1Po		All										
		1111.957	43.414	89974.96		5	3						
		1111.623	16.417	89974.96		3	3						
		1111.420	0.	89974.96		1	3						
	2s22p(2Po)12d 3Fo		Part										
		1111.010	43.414	90051.59		5	7						
	2s22p(2Po)12d 3Do		Part										
		1110.976	43.414	90054.34	M	5	3						
		1110.643	16.417	90054.34	M	3	3						
		1110.441	0.	90054.34	M	1	3						
	2s22p(2Po)13s 1Po		All										
		1110.216	43.414	90116.0		5	3						
		1109.883	16.417	90116.0		3	3						
		1109.681	0.	90116.0		1	3						
	2s22p(2Po)12d 1Fo		One										
		1110.198	43.414	90117.43		5	7						
	2s22p(2Po)12d 1Po		All										
		1110.168	43.414	90119.88		5	3						
		1109.835	16.417	90119.88		3	3						
		1109.633	0.	90119.88		1	3						

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)		gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
C I	2s22p2 3P J=0 GROUND		IP = 90820.469+-0.015cm-1 Ref CG98,M75b,FBDMR76										
	2s22p(2Po)13d 3Fo		Part										
		1109.605	43.414	90165.61		5	7						
	2s22p(2Po)13d 3Do		Part										
		1109.575	43.414	90167.98		5	3						
		1109.243	16.417	90167.98		3	3						
		1109.041	0.	90167.98		1	3						
	2s22p(2Po)14s 1Po		All										
		1108.815	43.414	90229.78		5	3						
		1108.483	16.417	90229.78		3	3						
		1108.282	0.	90229.78		1	3						
	2s22p(2Po)13d 1Fo		One										
		1108.803	43.414	90230.79		5	7						
	2s22p(2Po)13d 1Po		All										
		1108.794	43.414	90231.47		5	3						
		1108.462	16.417	90231.47		3	3						
		1108.261	0.	90231.47		1	3						
	2s22p(2Po)14d 3Fo		Part										
		1108.487	43.414	90256.51		5	7						
	2s22p(2Po)14d 3Do		Part										
		1108.441	43.414	90260.18		5	3						
		1108.110	16.417	90260.18		3	3						
		1107.908	0.	90260.18		1	3						
	2s22p(2Po)14d 1Fo		One										
		1107.702	43.414	90320.43		5	7						
	2s22p(2Po)14d 1Po		All										
		1107.678	43.414	90322.33		5	3						
		1107.347	16.417	90322.33		3	3						
		1107.146	0.	90322.33		1	3						
	2s22p(2Po)15d 3Fo		Part										
		1107.590	43.414	90329.52		5	7						
	2s22p(2Po)15d 3Do		Part										
		1107.576	43.414	90330.7	M	5	3						
		1107.245	16.417	90330.7	M	3	3						
		1107.043	0.	90330.7	M	1	3						
	2s22p(2Po)15d 1Fo		One										
		1106.800	43.414	90393.99		5	7						
	2s22p(2Po)15d 1Po		All										
		1106.781	43.414	90395.50		5	3						
		1106.451	16.417	90395.50		3	3						
		1106.250	0.	90395.50		1	3						
	2s22p(2Po)16d 3Fo		Part										
		1106.861	43.414	90389.0		5	7						
	2s22p(2Po)16d 3Do		Part										
		1106.847	43.414	90390.1	M	5	3						
		1106.517	16.417	90390.1	M	3	3						
		1106.316	0.	90390.1	M	1	3						
	2s22p(2Po)16d 1Fo		One										
		1106.075	43.414	90453.16		5	7						
	2s22p(2Po)16d 1Po		All										
		1106.060	43.414	90454.40		5	3						
		1105.730	16.417	90454.40		3	3						
		1105.529	0.	90454.40		1	3						
	2s22p(2Po)17d 3Fo		Part										
		1106.260	43.414	90438.05		5	7						
	2s22p(2Po)17d 1Fo		One										
		1105.474	43.414	90502.34		5	7						
	2s22p(2Po)17d 1Po		All										
		1105.472	43.414	90502.53		5	3						
		1105.142	16.417	90502.53		3	3						
		1104.941	0.	90502.53		1	3						
	2s22p(2Po)18d 3Fo		Part										
		1105.755	43.414	90479.39		5	7						
	2s22p(2Po)18d 1Fo		One										
		1104.966	43.414	90543.97		5	7						
	2s22p(2Po)18d 1Po		All										
		1104.955	43.414	90544.85		5	3						
		1104.625	16.417	90544.85		3	3						
		1104.425	0.	90544.85		1	3						
	2s22p(2Po)19d 3Fo		Part										
		1105.329	43.414	90514.21		5	7						
	2s22p(2Po)19d 1Fo		One										
		1104.542	43.414	90578.67		5	7						
	2s22p(2Po)19d 1Po		All										
		1104.534	43.414	90579.3		5	3						
		1104.205	16.417	90579.3		3	3						
		1104.005	0.	90579.3		1	3						

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
C I	2s22p2 3P J=0 GROUND		IP = 90820.469+-0.015cm-1 Ref CG98,M75b,FBDMR76									
	2s22p(2Po)20d 3Fo		Part									
		1104.946	43.414	90545.6	5	7						
	2s22p(2Po)20d 1Fo		One									
		1104.164	43.414	90609.68	5	7						
	2s22p(2Po)20d 1Po		All									
		1104.165	43.414	90609.6	5	3						
		1103.836	16.417	90609.6	3	3						
		1103.636	0.	90609.6	1	3						
	2s22p(2Po)21d 3Fo		Part									
		1104.644	43.414	90570.32	5	7						
	2s22p(2Po)21d 1Fo		One									
		1103.866	43.414	90634.1	5	7						
	2s22p(2Po)22d 3Fo		Part									
		1104.374	43.414	90592.48	5	7						
	2s22p(2Po)24d 1Fo		One									
		1103.187	43.414	90689.85	5	7						
	2s22p(2Po)27d 1Fo		One									
		1102.664	43.414	90732.85	5	7						
	2s22p(2Po)28d 1Fo		One									
		1102.550	43.414	90742.21	5	7						
	2s22p(2Po)29d 1Fo		One									
		1102.409	43.414	90753.83	5	7						
	2s2p3 1Do Autoionization		All									
		1022.13	43.414	97878. :	5	5						
		1021.85	16.417	97878. :	3	5						
31u	2s2p3 3So Autoionization		LS Ref LP89=WFD96									
MltMean		945.456	29.59	105798.70	9	3	3.41E+09		1.52E-01	0.137	2.158	
		945.579	43.414	105798.7	5	3	1.89E+09		1.52E-01	-0.118	2.158	
		945.338	16.417	105798.7	3	3	1.14E+09		1.52E-01	-0.340	2.158	
		945.191	0.	105798.7	1	3	3.79E+08		1.52E-01	-0.817	2.158	
13C I	2s22p2 3P J=0 GROUND		IP =				Ref BH80,HH94					
1u	2s2p3 5So		All Ref TF01,(MZS99)									
	2967.156	2968.022	43.412	33735.884	5	5	2.06E+01	2.91E+01	2.72E-08	-6.866	-4.092	
	2964.780	2965.646	16.417	33735.884	3	5	8.48E+00	2.91E+01	1.86E-08	-7.252	-4.257	
2u	2s22p(2Po)3s 3Po		All Ref TF01,(GN87,WFD96,ZF02)									
MltMean		1657.186	29.59	60372.84	9	9	3.61E+08		1.49E-01	0.126	2.391	
		1658.125	43.412	60352.49	5	3	1.50E+08	3.60E+08	3.71E-02	-0.732	1.789	
		1657.916	16.417	60333.12 :	3	1	3.60E+08	3.60E+08	4.94E-02	-0.829	1.914	
		1657.383	16.417	60352.49	3	3	9.00E+07	3.60E+08	3.71E-02	-0.954	1.788	
		1657.012	43.412	60392.99	5	5	2.71E+08	3.61E+08	1.11E-01	-0.254	2.266	
		1656.932	0.	60352.49	1	3	1.20E+08	3.60E+08	1.49E-01	-0.828	2.392	
		1656.272	16.417	60392.99	3	5	9.06E+07	3.61E+08	6.21E-02	-0.730	2.012	
3u	2s2p3 3Do		All Ref TF01,(GN87,WFD96,ZF02)									
MltMean		1561.038	29.59	64089.51	9	15	1.27E+08		7.73E-02	-0.157	2.082	
		1561.424	43.412	64087.51	5	7	1.27E+08	1.27E+08	6.49E-02	-0.489	2.006	
		1561.350	43.412	64090.56	5	3	3.52E+06	1.27E+08	7.72E-04	-2.413	0.081	
		1561.322	43.412	64091.69	5	5	3.17E+07	1.27E+08	1.16E-02	-1.237	1.258	
		1560.692	16.417	64090.56	3	3	5.30E+07	1.27E+08	1.93E-02	-1.236	1.480	
		1560.664	16.417	64091.69	3	5	9.54E+07	1.27E+08	5.81E-02	-0.759	1.957	
		1560.292	0.	64090.56	1	3	7.07E+07	1.27E+08	7.74E-02	-1.111	2.082	
4u	2s2p3 3Po		All Ref TF01,(GN87,WFD96,ZF02)									
MltMean		1329.332	29.59	75255.35	9	9	2.86E+08		7.58E-02	-0.166	2.003	
		1329.593	43.412	75254.42	5	3	1.19E+08	2.87E+08	1.89E-02	-1.024	1.401	
		1329.571	43.412	75255.67	5	5	2.15E+08	2.85E+08	5.69E-02	-0.546	1.879	
		1329.116	16.417	75254.42	3	3	7.22E+07	2.87E+08	1.91E-02	-1.241	1.405	
		1329.093	16.417	75255.67	3	5	7.09E+07	2.85E+08	3.13E-02	-1.027	1.619	
		1329.079	16.417	75256.50	3	1	2.87E+08	2.87E+08	2.54E-02	-1.119	1.528	
		1328.826	0.	75254.42	1	3	9.54E+07	2.87E+08	7.58E-02	-1.120	2.003	
C II	2s2(1S)2p 2Po J=1/2 GROUND		IP = 196664.7 cm-1				Ref M70b					
0.01u	2s2p2 4P		All Ref TGKTW99a,TF00,CH02									
	2328.1229	2328.8374	63.42	43003.3	4	2	6.68E+01	1.26E+02	2.72E-08	-6.964	-4.199	.0031
	2326.9306	2327.6449	63.42	43025.3	4	4	8.25E+00	9.61E+00	6.70E-09	-7.572	-4.807	.0023
	2325.3987	2326.1126	63.42	43053.6	4	6	4.54E+01	4.54E+01	5.52E-08	-6.656	-3.892	.0014
	2324.6892	2325.4029	0.	43003.3	2	2	5.90E+01	1.26E+02	4.78E-08	-7.019	-3.954	.0031
	2323.5004	2324.2139	0.	43025.3	2	4	1.36E+00	9.61E+00	2.20E-09	-8.356	-5.291	.0023
1u	2s2p2 2D		LS Ref JFG96=WFD96,(YTS87)									
MltMean		1335.313	42.28	74931.11	6	10	2.88E+08		1.28E-01	-0.114	2.234	
		1335.7077	63.42	74930.10	4	6	2.88E+08	2.88E+08	1.15E-01	-0.336	2.188	
		1335.6627	63.42	74932.62	4	4	4.80E+07	2.88E+08	1.28E-02	-1.290	1.234	
		1334.5323	0.	74932.62	2	4	2.40E+08	2.88E+08	1.28E-01	-0.590	2.234	

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
C II 2s2(1S)2p 2Po J=1/2 GROUND IP = 196664.7 cm-1 Ref M70b												
2u 2s2p2 2S LS Ref JFG96=WFD96,(RHNM86,YTS87)												
MltMean	1036.791		42.28	96493.74	6	2	2.20E+09		1.18E-01	-0.149	2.088	
	1037.0182		63.42	96493.74	4	2	1.47E+09	2.20E+09	1.18E-01	-0.325	2.088	
	1036.3367		0.	96493.74	2	2	7.34E+08	2.20E+09	1.18E-01	-0.626	2.088	
13C II 2s2(1S)2p 2Po J=1/2 GROUND IP = Ref HH94												
1u 2s2p2 2D LS Ref JFG96=WFD96,(YTS87)												
MltMean	1335.298		42.26	74931.93	6	10	2.88E+08		1.28E-01	-0.114	2.234	
	1335.692		63.395	74930.97	4	6	2.88E+08	2.88E+08	1.15E-01	-0.336	2.188	
	1335.649		63.395	74933.37	4	4	4.80E+07	2.88E+08	1.28E-02	-1.290	1.234	
	1334.519		0.	74933.37	2	4	2.40E+08	2.88E+08	1.28E-01	-0.590	2.234	
C III 2s2 1S J=0 GROUND IP = 386241.0+-2. cm-1 Ref M70b												
0.01u 2s(2S)2p 3Po One Ref DTWSU97,(CE96,FG97,JF98,TF99)												
	1908.734		0.	52390.75	1	3	1.029E+02	1.029E+02	1.687E-07	-6.773	-3.492	59E-5
1u 2s(2S)2p 1Po One Ref FG97,JF98,(RHNM86,FHS94,CE96,TF99,F00)												
	977.0201		0.	102352.04	1	3	1.76E+09	1.76E+09	7.57E-01	-0.121	2.869	23E-5
C IV 2s 2S J=1/2 GROUND IP = 520175.3+-1.5 cm-1 Ref GK00,TEJK97												
1u 2p 2Po All Ref YTD98,(PSS88=WFD96,JLS96,FSGG98,KBND71)												
MltMean	1549.062		0.	64555.21	2	6	2.638E+08		2.847E-01	-0.245	2.644	
	1550.781		0.	64483.65	2	2	2.628E+08	2.628E+08	9.475E-02	-0.722	2.167	7E-4
	1548.204		0.	64590.99	2	4	2.642E+08	2.643E+08	1.899E-01	-0.420	2.468	7E-4
C V 1s2 1S J=0 GROUND IP = 3162395+-30 cm-1 No ground-term lines >911.7 A M70b												
C VI 1s 2S J=1/2 GROUND IP = 3952061.3 cm-1 No ground-term lines >911.7 A M70b												
NITROGEN = N Z = 7 A = 14:99.632, 15:0.368%												
N I 2s22p3 4So J=3/2 GROUND IP = 117225.7+-0.3 cm-1 Ref M75												
1u 2s22p2(3P)3s 4P All Ref TF02a,(GMNPZB86,WFD96)												
MltMean	1199.967		0.	83335.60	4	12	4.04E+08		2.62E-01	0.020	2.497	
	1200.7098		0.	83284.070	4	2	4.00E+08	4.00E+08	4.32E-02	-0.763	1.715	
	1200.2233		0.	83317.830	4	4	4.02E+08	4.02E+08	8.69E-02	-0.459	2.018	
	1199.5496		0.	83364.620	4	6	4.07E+08	4.07E+08	1.32E-01	-0.278	2.199	
1.01u 2s22p2(3P)3s 2P All Ref TF02a,(HDK85)												
	1160.9366		0.	86137.350	4	2	2.72E+04	4.70E+08	2.75E-06	-4.959	-2.496	
	1159.8168		0.	86220.510	4	4	4.94E+04	4.70E+08	9.95E-06	-4.400	-1.938	
2u 2s2p4 4P All Ref TF02a,(GLMN92,WFD96)												
MltMean	1134.656		0.	88132.45	4	12	1.47E+08		8.49E-02	-0.469	1.984	
	1134.9803		0.	88107.260	4	6	1.44E+08	1.44E+08	4.16E-02	-0.779	1.674	
	1134.4149		0.	88151.170	4	4	1.49E+08	1.49E+08	2.87E-02	-0.941	1.512	
	1134.1653		0.	88170.570	4	2	1.51E+08	1.51E+08	1.46E-02	-1.234	1.219	
2.01u 2s22p2(1D)3s 2D All Ref TF02a												
	1003.3771		0.	99663.427	4	6	8.40E+02	3.99E+08	1.90E-07	-6.119	-3.719	
	1003.3722		0.	99663.912	4	4	1.86E+02	3.99E+08	2.81E-08	-6.950	-4.550	
3u 2s22p2(3P)4s 4P All Ref TF02a,(GLMN92,WFD96)												
MltMean	964.377		0.	103693.88	4	12	5.78E+07		2.42E-02	-1.015	1.367	
	965.0413		0.	103622.51	4	2	5.52E+07	8.16E+07	3.86E-03	-1.812	0.571	
	964.6256		0.	103667.16	4	4	5.66E+07	8.31E+07	7.90E-03	-1.500	0.882	
	963.9903		0.	103735.48	4	6	5.94E+07	8.55E+07	1.24E-02	-1.304	1.078	
3.01u 2s22p2(3P)4s 2P All Ref TF02a												
	960.2014		0.	104144.820	4	2	1.69E+05	1.32E+08	1.17E-05	-4.332	-1.951	
	959.4937		0.	104221.630	4	4	3.75E+05	1.18E+08	5.18E-05	-3.684	-1.304	
3.02u 2s22p2(3P)3d 2P All Ref TF02a												
	955.8816		0.	104615.470	4	4	4.29E+05	1.26E+08	5.88E-05	-3.629	-1.250	
	955.5294		0.	104654.030	4	2	2.63E+05	1.13E+08	1.80E-05	-4.142	-1.764	
3.03u 2s22p2(3P)3d 4F All Ref TF02a												
	955.4372		0.	104664.130	4	4	1.40E+04	4.01E+07	1.91E-06	-5.116	-2.738	
	955.2644		0.	104683.060	4	6	3.37E+05	4.22E+07	6.92E-05	-3.558	-1.180	
3.04u 2s22p2(3P)3d 2F One Ref TF02a												
	954.1042		0.	104810.360	4	6	1.95E+07	1.41E+08	4.00E-03	-1.796	0.582	
3.05u 2s22p2(3P)3d 4P All Ref TF02a,(LYBM78,GLMN92,WFD96)												
MltMean	953.772		0.	104846.82	4	12	1.73E+08		7.07E-02	-0.548	1.829	
	953.9699		0.	104825.110	4	6	1.62E+08	2.03E+08	3.31E-02	-0.878	1.499	
	953.6549		0.	104859.73	4	4	1.81E+08	2.10E+08	2.47E-02	-1.005	1.372	
	953.4152		0.	104886.10	4	2	1.90E+08	2.19E+08	1.29E-02	-1.286	1.091	
3.06u 2s22p2(3P)3d 4D All Ref TF02a,(LYBM78,GLMN92,WFD96)												
	952.5227		0.	104984.37	4	2	7.62E+06	4.47E+07	5.18E-04	-2.684	-0.307	
	952.4148		0.	104996.27	4	4	1.45E+07	5.13E+07	1.97E-03	-2.103	0.274	
	952.3034		0.	105008.55	4	6	1.12E+07	4.81E+07	2.29E-03	-2.039	0.338	

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
N I	2s22p3 4So J=3/2 GROUND		IP = 117225.7+-0.3 cm-1	Ref M75								
3.07u	2s22p2(3P)3d 2D		All	Ref TF02a								
		951.2948	0.	105119.880	4	4	1.71E+05	1.29E+08	2.32E-05	-4.033	-1.656	
		951.0792	0.	105143.710	4	6	8.29E+05	1.30E+08	1.69E-04	-3.171	-0.795	
N II	2s22p2 3P J=0 GROUND		IP =238750.5+-1.3 cm-1	Ref E83,M75								
0.01u	2s2p3 5So		All	Ref TWPLKCBB98,MBDW96,BWG96,CGL97,(BHL97,MZS99)								
	2142.775	2143.450	130.80	46784.56	5	5	1.19E+02	1.70E+02	8.19E-08	-6.388	-3.756	0.005
	2139.009	2139.683	48.67	46784.56	3	5	5.12E+01	1.70E+02	5.86E-08	-6.755	-3.902	0.014
1u	2s2p3 3Do		All	Ref TF01,(DBG74,WFD96)								
MltMean		1085.128	88.89	92243.94	9	15	3.73E+08		1.10E-01	-0.006	2.076	
		1085.7096	130.80	92236.46	5	7	3.72E+08	3.72E+08	9.21E-02	-0.337	2.000	
		1085.5511	130.80	92249.91	5	5	9.10E+07	3.73E+08	1.61E-02	-1.095	1.242	
		1085.5328	130.80	92251.46	5	3	9.96E+06	3.74E+08	1.06E-03	-2.277	0.059	
		1084.5841	48.67	92249.91	3	5	2.82E+08	3.73E+08	8.30E-02	-0.604	1.954	
		1084.5659	48.67	92251.46	3	3	1.54E+08	3.74E+08	2.72E-02	-1.088	1.470	
		1083.9937	0.	92251.46	1	3	2.10E+08	3.74E+08	1.11E-01	-0.956	2.079	
2u	2s2p3 3Po		All	Ref TF01,(DBG74,WFD96)								
MltMean		916.350	88.89	109217.48	9	9	1.27E+09		1.60E-01	0.158	2.166	
		916.7109	130.80	109216.44	5	3	5.27E+08	1.27E+09	3.99E-02	-0.701	1.563	
		916.7068	130.80	109216.93	5	5	9.55E+08	1.27E+09	1.20E-01	-0.221	2.042	
		916.0213	48.67	109216.44	3	3	3.21E+08	1.27E+09	4.04E-02	-0.916	1.569	
		916.0172	48.67	109216.93	3	5	3.14E+08	1.27E+09	6.58E-02	-0.705	1.780	
		915.9634	48.67	109223.34	3	1	1.27E+09	1.27E+09	5.34E-02	-0.796	1.689	
		915.6131	0.	109216.44	1	3	4.23E+08	1.27E+09	1.59E-01	-0.798	2.164	
N III	2s2(1S)2p 2Po J=1/2 GROUND		IP = 382703.8 cm-1	Ref M75								
0.01u	2s2p2 4P		All	Ref TGKTW99a,TF00,CH02								
		1753.995	174.4	57187.1	4	2	3.84E+02	7.55E+02	8.86E-08	-6.451	-3.809	0.020
		1752.160	174.4	57246.8	4	4	6.27E+01	7.18E+01	2.89E-08	-6.938	-4.296	0.007
		1749.674	174.4	57327.9	4	6	3.05E+02	3.05E+02	2.10E-07	-6.076	-3.435	0.009
		1748.646	0.	57187.1	2	2	3.71E+02	7.55E+02	1.70E-07	-6.468	-3.527	0.020
		1746.823	0.	57246.8	2	4	9.08E+00	7.18E+01	8.31E-09	-7.780	-4.838	0.007
1u	2s2p2 2D		All	Ref WFD96=YTS87+BHSB95,(TF00)								
MltMean		990.979	116.27	101026.58	6	10	4.98E+08		1.22E-01	-0.135	2.083	
		991.577	174.4	101023.9	4	6	4.97E+08	4.97E+08	1.10E-01	-0.357	2.037	0.04
		991.511	174.4	101030.6	4	4	8.17E+07	5.00E+08	1.20E-02	-1.317	1.077	0.04
		989.799	0.	101030.6	2	4	4.18E+08	5.00E+08	1.23E-01	-0.610	2.085	0.04
N IV	2s2 1S J=0 GROUND		IP = 624866+-3 cm-1	Ref M71								
0.01u	2s(2S)2p 3Po		One	Ref FBBVHGF95=WFD96,(NS79,DTGWKHGSSF95,CE96,TF99,F00)								
		1486.496	0.	67272.3	1	3	5.80E+02	5.80E+02	5.76E-07	-6.239	-3.067	0.007
N V	2s 2S J=1/2 GROUND		IP = 789537.2+-3.0 cm-1	Ref M71								
1u	2p 2Po		All	Ref YTD98,(PSS88=WFD96,JLS96,FSGG98)								
MltMean		1240.146	0.	80635.67	2	6	3.379E+08		2.337E-01	-0.330	2.462	
		1242.804	0.	80463.2	2	2	3.356E+08	3.356E+08	7.770E-02	-0.809	1.985	27E-5
		1238.821	0.	80721.9	2	4	3.391E+08	3.391E+08	1.560E-01	-0.506	2.286	27E-5
N VI	1s2 1S J=0 GROUND		IP = 4452758 cm-1	No ground-term lines >911.7 A	M71							
N VII	1s 2S J=1/2 GROUND		IP = 5380089 cm-1	No ground-term lines >911.7 A	M71							
OXYGEN = O Z = 8 A = 16:99.757, 17:0.038, 18:0.205%												
O I	2s22p4 3P J=2 GROUND		IP = 109837.02+-0.06 cm-1	Ref M76								
1u	2s22p3(4So)3s 5So		All	Ref J72,WZ74,NBF78,M90,BZ92,WFD96								
		1358.5123	158.265	73768.200	3	5	1.36E+03	5.56E+03	6.27E-07	-5.726	-3.070	
		1355.5977	0.	73768.200	5	5	4.20E+03	5.56E+03	1.16E-06	-5.238	-2.805	
2u	2s22p3(4So)3s 3So		All	Ref TF02a,(GN94,WFD96)								
MltMean		1303.492	77.97	76794.98	9	3	5.65E+08		4.79E-02	-0.365	1.796	
		1306.0286	226.977	76794.978	1	3	6.23E+07	5.65E+08	4.78E-02	-1.321	1.795	
		1304.8576	158.265	76794.978	3	3	1.87E+08	5.65E+08	4.78E-02	-0.843	1.795	
		1302.1685	0.	76794.978	5	3	3.15E+08	5.65E+08	4.80E-02	-0.620	1.796	
2.01u	2s22p3(4So)4s 5So		All	Ref TF02a								
		1049.1147	158.265	95476.728	3	5	1.25E+02	2.93E+07	3.44E-08	-6.986	-4.443	
		1047.3756	0.	95476.728	5	5	4.30E+02	2.93E+07	7.08E-08	-6.451	-4.130	
3u	2s22p3(4So)4s 3So		All	Ref TF02a,(GN94,WFD96)								
MltMean		1040.073	77.97	96225.05	9	3	1.67E+08		9.05E-03	-1.089	0.974	
		1041.6876	226.977	96225.049	1	3	1.84E+07	1.87E+08	9.00E-03	-2.046	0.972	
		1040.9425	158.265	96225.049	3	3	5.55E+07	1.87E+08	9.02E-03	-1.568	0.973	
		1039.2304	0.	96225.049	5	3	9.34E+07	1.87E+08	9.07E-03	-1.343	0.974	

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f	Error (A) (dex)
O I	2s22p4 3P J=2 GROUND		IP = 109837.02+-0.06 cm-1 Ref M76									
3.01u	2s22p3(4So)3d 5Do		All Ref TF02a									
		1028.8705	226.977	97420.942	1	3	3.02E+02	4.59E+07	1.44E-07	-6.843	-3.831	
		1028.1447	158.265	97420.839	3	5	1.39E+02	4.59E+07	3.68E-08	-6.957	-4.422	
		1028.1436	158.265	97420.942	3	3	2.26E+02	4.59E+07	3.58E-08	-6.969	-4.434	
		1028.1431	158.265	97420.991	3	1						
		1026.4757	0.	97420.716	5	7	3.94E+02	4.58E+07	8.71E-08	-6.361	-4.049	
		1026.4744	0.	97420.839	5	5	4.62E+01	4.59E+07	7.30E-09	-7.437	-5.125	
		1026.4733	0.	97420.942	5	3	1.51E+01	4.59E+07	1.43E-09	-8.147	-5.834	
4u	2s22p3(4So)3d 3Do		All Ref TF02a,(GN94,WFD96)									
MltMean		1026.583	77.97	97488.48	9	15	7.38E+07		1.94E-02	-0.757	1.300	
		1028.1571	226.977	97488.378	1	3	4.08E+07	1.02E+08	1.94E-02	-1.712	1.300	
		1027.4313	158.265	97488.378	3	3	3.06E+07	1.02E+08	4.85E-03	-1.837	0.697	
		1027.4305	158.265	97488.448	3	5	5.52E+07	1.02E+08	1.46E-02	-1.360	1.175	
		1025.7633	0.	97488.378	5	3	2.05E+06	1.02E+08	1.94E-04	-3.014	-0.702	
		1025.7626	0.	97488.448	5	5	1.84E+07	1.02E+08	2.91E-03	-1.837	0.475	
		1025.7616	0.	97488.538	5	7	7.40E+07	1.02E+08	1.63E-02	-1.088	1.224	
5u	2s22p3(2Do)3s 3Do		LS Ref BZ91,HBGV91b,BZ92,WFD96									
MltMean		989.458	77.97	101143.45	9	15	2.26E+08		5.53E-02	-0.303	1.738	
		990.8010	226.977	101155.422	1	3	1.25E+08		5.52E-02	-1.258	1.738	
		990.2043	158.265	101147.526	3	5	1.69E+08		4.14E-02	-0.906	1.613	
		990.1269	158.265	101155.422	3	3	9.40E+07		1.38E-02	-1.383	1.136	
		988.7734	0.	101135.407	5	7	2.26E+08		4.65E-02	-0.634	1.662	
		988.6549	0.	101147.526	5	5	5.66E+07		8.30E-03	-1.382	0.914	
		988.5778	0.	101155.422	5	3	6.29E+06		5.53E-04	-2.558	-0.262	
6u	2s22p3(4So)5s 5So		All									
		980.7918	158.265	102116.698	3	5						
		979.2718	0.	102116.698	5	5						
7u	2s22p3(4So)5s 3So		LS Ref ZSM77=BZ91=WFD96									
MltMean		977.192	77.97	102411.99	9	3	6.93E+07		3.31E-03	-1.526	0.509	
		978.6170	226.977	102411.995	1	3	7.67E+06		3.30E-03	-2.481	0.509	
		977.9594	158.265	102411.995	3	3	2.30E+07		3.30E-03	-2.004	0.509	
		976.4481	0.	102411.995	5	3	3.86E+07		3.31E-03	-1.781	0.509	
8u	2s22p3(2Do3/2)3s 1Do		All Ref BZ92=WFD96									
		975.5740	158.265	102662.026	3	5	2.20E+04		5.23E-06	-4.804	-2.292	
		974.0700	0.	102662.026	5	5	1.10E+05		1.56E-05	-4.107	-1.817	
9u	2s22p3(4So)4d 5Do		All									
		974.2916	226.977	102865.655	1	3						
		973.6402	158.265	102865.606	3	5						
		973.6398	158.265	102865.655	3	3						
		973.6395	158.265	102865.679	3	1						
		972.1429	0.	102865.54	5	7						
		972.1422	0.	102865.606	5	5						
		972.1418	0.	102865.655	5	3						
10u	2s22p3(4So)4d 3Do		LS Ref BZ91,HBGV91b,WFD96									
MltMean		972.475	77.97	102908.42	9	15	5.84E+07		1.38E-02	-0.906	1.128	
		973.8852	226.977	102908.489	1	3	3.23E+07		1.38E-02	-1.861	1.128	
		973.2343	158.265	102908.443	3	5	4.37E+07		1.03E-02	-1.508	1.003	
		973.2339	158.265	102908.489	3	3	2.43E+07		3.45E-03	-1.985	0.526	
		971.7382	0.	102908.374	5	7	5.85E+07		1.16E-02	-1.237	1.052	
		971.7376	0.	102908.443	5	5	1.46E+07		2.07E-03	-1.985	0.304	
		971.7371	0.	102908.489	5	3	1.63E+06		1.38E-04	-3.161	-0.872	
	2s22p3(4So)6s 5So		All									
		953.6430	158.265	105019.307	3	5						
		952.2059	0.	105019.307	5	5						
11u	2s22p3(4So)6s 3So		LS Ref ZSM77=BZ91=WFD96									
MltMean		951.590	77.97	105165.23	9	3	3.48E+07		1.57E-03	-1.849	0.176	
		952.9413	226.977	105165.232	1	3	3.85E+06		1.57E-03	-2.803	0.176	
		952.3178	158.265	105165.232	3	3	1.16E+07		1.57E-03	-2.326	0.176	
		950.8846	0.	105165.232	5	3	1.94E+07		1.58E-03	-2.103	0.176	
	2s22p3(4So)5d 5Do		All Ref									
		950.9458	226.977	105385.436	1	3						
		950.3251	158.265	105385.409	3	5						
		950.3249	158.265	105385.436	3	3						
		950.3248	158.265	105385.449	3	1						
		948.8983	0.	105385.377	5	7						
		948.8980	0.	105385.409	5	5						
		948.8977	0.	105385.436	5	3						
12u	2s22p3(4So)5d 3Do		LS Ref BZ91=WFD96									
MltMean		949.388	77.97	105409.01	9	15	2.80E+07		6.31E-03	-1.246	0.777	
		950.7327	226.977	105409.008	1	3	1.55E+07		6.30E-03	-2.201	0.777	
		950.1121	158.265	105409.008	3	8			6.30E-03	-1.297	0.777	
		948.6855	0.	105409.008	5	15			6.31E-03	-1.024	0.778	
	2s22p3(4So)7s 5So		All									
		939.9637	158.265	106545.354	3	5						
		938.5674	0.	106545.354	5	5						

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
O I	2s22p4 3P J=2 GROUND		IP = 109837.02+-0.06 cm-1 Ref M76									
13u	2s22p3(4So)7s 3So		LS Ref ZSM77=BZ91=WFD96									
MltMean		938.527	77.97	106627.93	9	3	1.99E+07		8.76E-04	-2.103	-0.085	
		939.8412	226.977	106627.934	1	3	2.20E+06		8.75E-04	-3.058	-0.085	
		939.2346	158.265	106627.934	3	3	6.62E+06		8.75E-04	-2.581	-0.085	
		937.8405	0.	106627.934	5	3	1.11E+07		8.77E-04	-2.358	-0.085	
	2s22p3(4So)6d 5Do		All Ref									
		938.7511	226.977	106751.487	1	3						
		938.1461	158.265	106751.474	3	5						
		938.1460	158.265	106751.487	3	3						
		938.1459	158.265	106751.494	3	1						
		936.7554	0.	106751.458	5	7						
		936.7552	0.	106751.474	5	5						
		936.7551	0.	106751.487	5	3						
14u	2s22p3(4So)6d 3Do		LS Ref BZ91=WFD96									
MltMean		937.314	77.97	106765.80	9	15	1.66E+07		3.64E-03	-1.484	0.533	
		938.6249	226.977	106765.803	1	3	9.18E+06		3.64E-03	-2.439	0.533	
		938.0200	158.265	106765.803	3	8			3.64E-03	-1.536	0.533	
		936.6295	0.	106765.803	5	15			3.65E-03	-1.262	0.534	
	2s22p3(4So)6g 5Go,3Go											
		937.8257	158.265	106787.891	3	5						
		936.4358	0.	106787.891	5	7						
		936.4358	0.	106787.891	5	5						
	2s22p3(4So)8s 5So		All									
		932.0727	158.265	107446.036	3	5						
		930.6998	0.	107446.036	5	5						
15u	2s22p3(4So)8s 3So		LS Ref ZSM77=BZ91=WFD96									
MltMean		930.932	77.97	107497.22	9	3	1.24E+07		5.37E-04	-2.316	-0.301	
		932.2249	226.977	107497.224	1	3	1.37E+06		5.36E-04	-3.271	-0.301	
		931.6282	158.265	107497.224	3	3	4.12E+06		5.37E-04	-2.793	-0.301	
		930.2566	0.	107497.224	5	3	6.90E+06		5.37E-04	-2.571	-0.301	
	2s22p3(4So)7d 5Do		All									
		931.5625	226.977	107573.504	1	3						
		930.9667	158.265	107573.495	3	5						
		930.9666	158.265	107573.504	3	3						
		930.9666	158.265	107573.508	3	1						
		929.5971	0.	107573.484	5	7						
		929.5970	0.	107573.495	5	5						
		929.5969	0.	107573.504	5	3						
16u	2s22p3(4So)7d 3Do		LS Ref BZ91=WFD96									
MltMean		930.191	77.97	107582.78	9	15	1.06E+07		2.29E-03	-1.686	0.329	
		931.4820	226.977	107582.777	1	3	5.86E+06		2.29E-03	-2.640	0.329	
		930.8862	158.265	107582.777	3	8			2.29E-03	-1.737	0.329	
		929.5168	0.	107582.777	5	15			2.29E-03	-1.463	0.329	
17u	2s22p3(4So)9s 3So		LS Ref ZSM77=BZ91									
MltMean		926.114	77.97	108056.00	9	3	8.26E+06		3.54E-04	-2.497	-0.484	
		927.394	226.977	108056.0	1	3	9.14E+05		3.54E-04	-3.452	-0.484	
		926.804	158.265	108056.0	3	3	2.75E+06		3.54E-04	-2.974	-0.484	
		925.446	0.	108056.0	5	3	4.60E+06		3.54E-04	-2.752	-0.484	
	2s22p3(4So)8d 5Do		All									
		926.9635	226.977	108106.091	1	3						
		926.3735	158.265	108106.085	3	5						
		926.3735	158.265	108106.091	3	3						
		926.3734	158.265	108106.094	3	1						
		925.0174	0.	108106.077	5	7						
		925.0173	0.	108106.085	5	5						
		925.0173	0.	108106.091	5	3						
18u	2s22p3(4So)8d 3Do		LS Ref BZ91=WFD96									
MltMean		925.617	77.97	108114.00	9	15	7.20E+06		1.54E-03	-1.858	0.154	
		926.896	226.977	108114.0	1	3	3.98E+06		1.54E-03	-2.813	0.154	
		926.306	158.265	108114.0	3	8			1.54E-03	-1.909	0.154	
		924.950	0.	108114.0	5	15			1.54E-03	-1.636	0.155	
19u	2s22p3(4So)10s 3So		LS Ref ZSM77=BZ91									
MltMean		922.864	77.97	108436.30	9	3	5.76E+06		2.45E-04	-2.656	-0.645	
		924.135	226.977	108436.3	1	3	6.37E+05		2.45E-04	-3.611	-0.645	
		923.548	158.265	108436.3	3	3	1.92E+06		2.45E-04	-3.134	-0.645	
		922.200	0.	108436.3	5	3	3.21E+06		2.45E-04	-2.911	-0.645	
20u	2s22p3(4So)9d 3Do		LS Ref BZ91									
MltMean		922.520	77.97	108476.70	9	15	5.08E+06		1.08E-03	-2.012	-0.002	
		923.790	226.977	108476.7	1	3	2.81E+06		1.08E-03	-2.967	-0.002	
		923.204	158.265	108476.7	3	8			1.08E-03	-2.064	-0.002	
		921.857	0.	108476.7	5	15			1.08E-03	-1.790	-0.001	
21u	2s22p3(4So)11s 3So		LS Ref ZSM77									
MltMean		920.577	77.97	108705.50	9	3	4.18E+06		1.77E-04	-2.798	-0.788	
		921.841	226.977	108705.5	1	3	4.63E+05		1.77E-04	-3.753	-0.788	
		921.258	158.265	108705.5	3	3	1.39E+06		1.77E-04	-3.275	-0.788	
		919.917	0.	108705.5	5	3	2.33E+06		1.77E-04	-3.053	-0.788	

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
O I	2s22p4 3P J=2 GROUND		IP = 109837.02+-0.06 cm-1 Ref M76									
22u	2s22p3(4So)10d 3Do		LS	Ref BZ91								
MltMean		920.318	77.97	108736.10	9	15	3.74E+06		7.92E-04	-2.147	-0.138	
		921.581	226.977	108736.1	1	3	2.07E+06		7.90E-04	-3.102	-0.138	
		920.998	158.265	108736.1	3	8			7.91E-04	-2.199	-0.138	
		919.658	0.	108736.1	5	15			7.92E-04	-1.925	-0.137	
23u	2s22p3(4So)12s 3So		LS	Ref ZSM77								
MltMean		918.880	77.97	108906.10	9	3	3.12E+06		1.32E-04	-2.926	-0.917	
		920.140	226.977	108906.1	1	3	3.45E+05		1.31E-04	-3.881	-0.917	
		919.559	158.265	108906.1	3	3	1.04E+06		1.32E-04	-3.404	-0.917	
		918.222	0.	108906.1	5	3	1.74E+06		1.32E-04	-3.181	-0.917	
24u	2s22p3(4So)11d 3Do		LS	Ref ZSM77								
MltMean		918.702	77.97	108927.20	9	15	2.91E+06		6.14E-04	-2.258	-0.249	
		919.961	226.977	108927.2	1	3	1.61E+06		6.13E-04	-3.213	-0.249	
		919.380	158.265	108927.2	3	8			6.13E-04	-2.309	-0.249	
		918.044	0.	108927.2	5	15			6.14E-04	-2.036	-0.248	
25u	2s22p3(4So)13s 3So		LS	Ref ZSM77								
MltMean		917.616	77.97	109056.00	9	3	2.39E+06		1.01E-04	-3.043	-1.035	
		918.873	226.977	109056.0	1	3	2.64E+05		1.00E-04	-3.998	-1.035	
		918.293	158.265	109056.0	3	3	7.95E+05		1.00E-04	-3.521	-1.035	
		916.960	0.	109056.0	5	3	1.33E+06		1.01E-04	-3.298	-1.035	
26u	2s22p3(4So)12d 3Do		LS	Ref ZSM77								
MltMean		917.471	77.97	109073.30	9	15	2.25E+06		4.73E-04	-2.371	-0.362	
		918.726	226.977	109073.3	1	3	1.24E+06		4.73E-04	-3.326	-0.362	
		918.147	158.265	109073.3	3	8			4.73E-04	-2.422	-0.362	
		916.815	0.	109073.3	5	15			4.74E-04	-2.149	-0.362	
27u	2s22p3(4So)14s 3So		LS	Ref ZSM77								
MltMean		916.643	77.97	109171.70	9	3	1.87E+06		7.85E-05	-3.151	-1.143	
		917.897	226.977	109171.7	1	3	2.07E+05		7.84E-05	-4.106	-1.143	
		917.318	158.265	109171.7	3	3	6.22E+05		7.85E-05	-3.628	-1.143	
		915.988	0.	109171.7	5	3	1.04E+06		7.86E-05	-3.406	-1.143	
28u	2s22p3(4So)13d 3Do		LS	Ref ZSM77								
MltMean		916.520	77.97	109186.30	9	15	1.78E+06		3.74E-04	-2.473	-0.465	
		917.774	226.977	109186.3	1	3	9.85E+05		3.73E-04	-3.428	-0.465	
		917.195	158.265	109186.3	3	8			3.73E-04	-2.525	-0.465	
		915.866	0.	109186.3	5	15			3.74E-04	-2.251	-0.465	
29u	2s22p3(4So)15s 3So		LS	Ref ZSM77								
MltMean		915.852	77.97	109265.90	9	3	1.49E+06		6.25E-05	-3.250	-1.243	
		917.104	226.977	109265.9	1	3	1.65E+05		6.24E-05	-4.205	-1.243	
		916.526	158.265	109265.9	3	3	4.96E+05		6.24E-05	-3.728	-1.243	
		915.199	0.	109265.9	5	3	8.30E+05		6.25E-05	-3.505	-1.243	
30u	2s22p3(4So)14d 3Do		LS	Ref ZSM77								
MltMean		915.749	77.97	109278.20	9	15	1.42E+06		2.98E-04	-2.572	-0.565	
		917.000	226.977	109278.2	1	3	7.86E+05		2.97E-04	-3.527	-0.565	
		916.423	158.265	109278.2	3	8			2.97E-04	-2.624	-0.565	
		915.096	0.	109278.2	5	15			2.98E-04	-2.350	-0.564	
31u	2s22p3(4So)16s 3So		LS	Ref ZSM77								
MltMean		915.223	77.97	109341.00	9	3	1.21E+06		5.06E-05	-3.341	-1.334	
		916.472	226.977	109341.0	1	3	1.34E+05		5.06E-05	-4.296	-1.334	
		915.896	158.265	109341.0	3	3	4.02E+05		5.06E-05	-3.819	-1.334	
		914.570	0.	109341.0	5	3	6.74E+05		5.07E-05	-3.596	-1.334	
32u	2s22p3(4So)15d 3Do		LS	Ref ZSM77								
MltMean		915.157	77.97	109348.90	9	15	1.16E+06		2.43E-04	-2.661	-0.653	
		916.406	226.977	109348.9	1	3	6.42E+05		2.42E-04	-3.615	-0.653	
		915.829	158.265	109348.9	3	8			2.43E-04	-2.712	-0.653	
		914.504	0.	109348.9	5	15			2.43E-04	-2.438	-0.653	
33u	2s22p3(4So)17s 3So		LS	Ref ZSM77								
MltMean		914.709	77.97	109402.40	9	3	1.00E+06		4.18E-05	-3.424	-1.417	
		915.957	226.977	109402.4	1	3	1.11E+05		4.18E-05	-4.379	-1.417	
		915.381	158.265	109402.4	3	3	3.33E+05		4.18E-05	-3.902	-1.417	
		914.057	0.	109402.4	5	3	5.57E+05		4.18E-05	-3.679	-1.417	
34u	2s22p3(4So)16d 3Do		LS	Ref ZSM77								
MltMean		914.649	77.97	109409.50	9	15	9.57E+05		2.00E-04	-2.745	-0.738	
		915.898	226.977	109409.5	1	3	5.29E+05		2.00E-04	-3.699	-0.738	
		915.321	158.265	109409.5	3	8			2.00E-04	-2.796	-0.738	
		913.997	0.	109409.5	5	15			2.00E-04	-2.522	-0.737	
35u	2s22p3(4So)18s 3So		LS	Ref ZSM77								
MltMean		914.271	77.97	109454.70	9	3	8.33E+05		3.48E-05	-3.504	-1.497	
		915.518	226.977	109454.7	1	3	9.22E+04		3.47E-05	-4.459	-1.497	
		914.943	158.265	109454.7	3	3	2.77E+05		3.48E-05	-3.982	-1.497	
		913.620	0.	109454.7	5	3	4.64E+05		3.48E-05	-3.759	-1.497	
36u	2s22p3(4So)17d 3Do		LS	Ref ZSM77								
MltMean		914.247	77.97	109457.60	9	15	7.98E+05		1.67E-04	-2.824	-0.817	
		915.494	226.977	109457.6	1	3	4.42E+05		1.66E-04	-3.779	-0.817	
		914.919	158.265	109457.6	3	8			1.67E-04	-2.875	-0.817	
		913.596	0.	109457.6	5	15			1.67E-04	-2.602	-0.816	

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
O I	2s22p4 3P J=2 GROUND		IP = 109837.02+-0.06 cm-1 Ref M76									
37u	2s22p3(4So)18d 3Do		LS	Ref ZSM77								
MltMean		913.909	77.97	109498.00	9	15	6.73E+05		1.40E-04	-2.898	-0.892	
		915.156	226.977	109498.0	1	3	3.72E+05		1.40E-04	-3.853	-0.892	
		914.581	158.265	109498.0	3	8			1.40E-04	-2.950	-0.892	
		913.259	0.	109498.0	5	15			1.41E-04	-2.676	-0.891	
38u	2s22p3(4So)19s 3So		LS	Ref ZSM77								
MltMean		913.901	77.97	109499.00	9	3	7.02E+05		2.93E-05	-3.579	-1.572	
		915.147	226.977	109499.0	1	3	7.77E+04		2.93E-05	-4.534	-1.572	
		914.572	158.265	109499.0	3	3	2.33E+05		2.93E-05	-4.056	-1.572	
		913.250	0.	109499.0	5	3	3.91E+05		2.93E-05	-3.834	-1.572	
39u	2s22p3(4So)19d 3Do		LS	Ref ZSM77								
MltMean		913.616	77.97	109533.20	9	15	5.72E+05		1.19E-04	-2.969	-0.963	
		914.861	226.977	109533.2	1	3	3.16E+05		1.19E-04	-3.924	-0.963	
		914.286	158.265	109533.2	3	8			1.19E-04	-3.021	-0.963	
		912.965	0.	109533.2	5	15			1.19E-04	-2.747	-0.962	
40u	2s22p3(4So)20s 3So		LS	Ref ZSM77								
MltMean		913.615	77.97	109533.30	9	3	5.96E+05		2.49E-05	-3.650	-1.644	
		914.860	226.977	109533.3	1	3	6.60E+04		2.48E-05	-4.605	-1.644	
		914.285	158.265	109533.3	3	3	1.98E+05		2.48E-05	-4.128	-1.644	
		912.964	0.	109533.3	5	3	3.32E+05		2.49E-05	-3.905	-1.644	
41u	2s22p3(4So)20d 3Do		LS	Ref ZSM77								
MltMean		913.379	77.97	109561.50	9	15	4.91E+05		1.02E-04	-3.036	-1.029	
		914.624	226.977	109561.5	1	3	2.72E+05		1.02E-04	-3.991	-1.029	
		914.050	158.265	109561.5	3	8			1.02E-04	-3.087	-1.029	
		912.729	0.	109561.5	5	15			1.02E-04	-2.814	-1.029	
42u	2s22p3(4So)21s 3So		LS	Ref ZSM77								
MltMean		913.373	77.97	109562.30	9	3	5.11E+05		2.13E-05	-3.717	-1.711	
		914.618	226.977	109562.3	1	3	5.65E+04		2.13E-05	-4.672	-1.711	
		914.043	158.265	109562.3	3	3	1.70E+05		2.13E-05	-4.195	-1.711	
		912.723	0.	109562.3	5	3	2.84E+05		2.13E-05	-3.972	-1.711	
43u	2s22p3(4So)22s 3So		LS	Ref ZSM77								
MltMean		913.150	77.97	109589.00	9	3	4.41E+05		1.84E-05	-3.781	-1.775	
		914.394	226.977	109589.0	1	3	4.88E+04		1.84E-05	-4.736	-1.775	
		913.820	158.265	109589.0	3	3	1.47E+05		1.84E-05	-4.259	-1.775	
		912.500	0.	109589.0	5	3	2.46E+05		1.84E-05	-4.036	-1.775	
44u	2s22p3(4So)21d 3Do		LS	Ref ZSM77								
MltMean		913.148	77.97	109589.30	9	15	4.24E+05		8.83E-05	-3.100	-1.093	
		914.392	226.977	109589.3	1	3	2.35E+05		8.82E-05	-4.054	-1.093	
		913.818	158.265	109589.3	3	8			8.83E-05	-3.151	-1.093	
		912.498	0.	109589.3	5	15			8.84E-05	-2.877	-1.093	
45u	2s22p3(4So)23s 3So		LS	Ref ZSM77								
MltMean		912.971	77.97	109610.50	9	3	3.83E+05		1.60E-05	-3.843	-1.837	
		914.214	226.977	109610.5	1	3	4.24E+04		1.59E-05	-4.798	-1.837	
		913.641	158.265	109610.5	3	3	1.27E+05		1.59E-05	-4.320	-1.837	
		912.321	0.	109610.5	5	3	2.13E+05		1.60E-05	-4.098	-1.837	
46u	2s22p3(4So)22d 3Do		LS	Ref ZSM77								
MltMean		912.971	77.97	109610.50	9	15	3.69E+05		7.69E-05	-3.160	-1.154	
		914.214	226.977	109610.5	1	3	2.04E+05		7.67E-05	-4.115	-1.154	
		913.641	158.265	109610.5	3	8			7.68E-05	-3.212	-1.154	
		912.321	0.	109610.5	5	15			7.69E-05	-2.938	-1.153	
47u	2s22p3(4So)24s 3So		LS	Ref ZSM77								
MltMean		912.808	77.97	109630.00	9	3	3.36E+05		1.40E-05	-3.900	-1.894	
		914.052	226.977	109630.0	1	3	3.72E+04		1.40E-05	-4.855	-1.894	
		913.478	158.265	109630.0	3	3	1.12E+05		1.40E-05	-4.377	-1.894	
		912.159	0.	109630.0	5	3	1.87E+05		1.40E-05	-4.155	-1.894	
O II	2s22p3 4So J=3/2 GROUND		IP = 283270.9+-0.5 cm-1		No ground-term lines >911.7 A		MKM93					
O III	2s22p2 3P J=0 GROUND		IP = 443084.7+-2 cm-1		Ref M85							
0.01u	2s2p3 5So		All	Ref JSK84,TCGGTW00,FB97,MZS99								
		1666.150	306.174	60324.79	5	5	5.02E+02	8.23E+02	2.09E-07	-5.981	-3.458	0.005
		1660.809	113.178	60324.79	3	5	2.30E+02	8.23E+02	1.59E-07	-6.323	-3.580	0.005
O IV	2s22p 2Po J=1/2 GROUND		IP = 624382.0 cm-1		Ref M83							
0.01u	2s2p2 4P		All	Ref TF00,CH02,(BJB96=WFD96)								
		1407.382	385.9	71439.8	4	2	1.46E+03	2.94E+03	2.17E-07	-6.062	-3.516	
		1404.806	385.9	71570.1	4	4	2.92E+02	3.30E+02	8.64E-08	-6.461	-3.916	
		1401.157	385.9	71755.5	4	6	1.18E+03	1.18E+03	5.21E-07	-5.681	-3.137	
		1399.780	0.	71439.8	2	2	1.48E+03	2.94E+03	4.35E-07	-6.061	-3.216	
		1397.232	0.	71570.1	2	4	3.83E+01	3.30E+02	2.24E-08	-7.348	-4.504	

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
O V	2s2 1S J=0 GROUND		IP = 918657+-4 cm-1		Ref M80							
0.01u	2s(2S)2p 3Po		One Ref FBHVG96a,(NS79,DTGWKHGSSF95,CE96,TF99,F00)									
		1218.344	0.	82078.6	1	3	2.28E+03	2.28E+03	1.52E-06	-5.818	-2.732	
O VI	2s 2S J=1/2 GROUND		IP = 1114010 cm-1		Ref KM89,M79							
1u	2p 2Po		All Ref YTD98,(PSS88=WFD96,JLS96,FSGG98,KBND71,PILK74)									
MltMean		1033.816	0.	96729.01	2	6	4.125E+08		1.983E-01	-0.402	2.312	
		1037.6167	0.	96374.702	2	2	4.076E+08	4.076E+08	6.580E-02	-0.881	1.834	37E-5
		1031.9261	0.	96906.164	2	4	4.149E+08	4.149E+08	1.325E-01	-0.577	2.136	37E-5
O VII	1s2 1S J=0 GROUND		IP = 5962800+-300 cm-1		No ground-term lines >911.7 A		M79					
FLUORINE = F Z = 9 A = 19:100%												
F I	2s22p5 2Po J=3/2 GROUND		IP = 140524.5+-0.4 cm-1		Ref L49,LB82,A95,SM03,M70a							
	2s22p4(3P)3s 4P		All Ref TF02									
		977.7436	404.141	102680.439	2	4	3.44E+05	2.60E+06	9.87E-05	-3.704	-1.015	
		976.5080	0.	102405.714	4	6	2.72E+04	2.72E+04	5.83E-06	-4.633	-2.245	
		976.2170	404.141	102840.378	2	2	5.84E+05	7.00E+05	8.34E-05	-3.778	-1.089	
		973.8953	0.	102680.439	4	4	2.26E+06	2.60E+06	3.21E-04	-2.891	-0.505	
		972.3807	0.	102840.378	4	2	1.16E+05	7.00E+05	8.24E-06	-4.482	-2.096	
1u	2s22p4(3P)3s 2P		All Ref TF02,(IL73,PILK76)									
MltMean		955.067	134.71	104839.46	6	6	7.14E+08		9.77E-02	-0.232	1.970	
		958.5255	404.141	104731.048	2	4	1.15E+08	7.14E+08	3.18E-02	-1.196	1.484	0.02
		955.5466	404.141	105056.283	2	2	4.74E+08	7.16E+08	6.49E-02	-0.887	1.792	0.02
		954.8267	0.	104731.048	4	4	5.98E+08	7.14E+08	8.17E-02	-0.485	1.892	0.02
		951.8707	0.	105056.283	4	2	2.42E+08	7.16E+08	1.65E-02	-1.181	1.195	0.02
F II	2s22p4 3P J=2 GROUND		IP = 282058.6+-1.5 cm-1		No ground-term lines >911.7 A		P69=M70a					
F III	2s22p3 4So J=3/2 GROUND		IP = 505777+-5 cm-1		No ground-term lines >911.7 A		P70=M70a					
F IV	2s22p2 3P J=0 GROUND		IP = 702830. cm-1		Ref P71,M70a							
	2s2p3 5So		All Ref TF01,(MZS99,AKM01)									
		1359.052	614.0	74194.7	5	5	2.04E+03	2.85E+03	5.65E-07	-5.549	-3.115	
		1351.923	226.0	74194.7	3	5	8.09E+02	2.85E+03	3.69E-07	-5.955	-3.301	
F V	2s22p 2Po J=1/2 GROUND		IP = 921430 cm-1		Ref P71,M70a							
	2s2p2 4P		All Ref TF00,(NS79)									
		1175.838	744.5	85790.2	4	2	4.63E+03	9.54E+03	4.80E-07	-5.717	-3.249	
		1172.347	744.5	86043.5	4	4	1.02E+03	1.15E+03	2.10E-07	-6.075	-3.608	
		1167.372	744.5	86407.0	4	6	3.94E+03	3.94E+03	1.21E-06	-5.316	-2.851	
		1165.634	0.	85790.2	2	2	4.91E+03	9.54E+03	1.00E-06	-5.699	-2.933	
		1162.203	0.	86043.5	2	4	1.28E+02	1.15E+03	5.18E-08	-6.984	-4.220	
F VI	2s2 1So J=0 GROUND		IP = 1267606+-2 cm-1		Ref E85							
	2s(2S)2p 3Po		One Ref TF99,(NS79,CE96)									
		1032.52	0.	96850.	1	3	7.17E+03	7.17E+03	3.44E-06	-5.464	-2.450	
F VII	2s 2S J=1/2 GROUND		IP = 1493632+-5 cm-1		No ground-term lines >911.7 A		E84					
NEON = Ne Z = 10 A = 20:90.48, 21:0.27, 22:9.25% in air												
Ne I	2s22p6 1S J=0 GROUND		IP = 173929.75+-0.06 cm-1		No ground-term lines >911.7 A		KM72					
Ne II	2s22p5 2Po J=3/2 GROUND		IP = 330388.6+-0.3 cm-1		No ground-term lines >911.7 A		Per71					
Ne III	2s22p4 3P J=2 GROUND		IP = 511539+-4 cm-1		No ground-term lines >911.7 A		PWJD91					
Ne IV	2s22p3 4So J=3/2 GROUND		IP = 783300 cm-1		No ground-term lines >911.7 A		BBDGKB97,M70a					
Ne V	2s22p2 3P J=0 GROUND		IP = 1018000 cm-1		Ref BBRK93,KL95,M70,(EPBHB69)							
	2s2p3 5So		All Ref TF01(MZS89)									
		1145.649	1131.6	88418.4	5	5	6.02E+03	8.41E+03	1.18E-06	-5.227	-2.867	
		1136.271	411.256	88418.4	3	5	2.39E+03	8.41E+03	7.71E-07	-5.636	-3.057	

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Ne VI 2s2(1S)2p 2Po J=3/2 GROUND			IP = 1273800 cm-1				Ref EPBHB69,M70a					
	2s2p2 4P			All Ref TF00(DT78)								
	1010.6	1310.	100261.		4	2	1.24E+04	2.61E+04	9.49E-07	-5.421	-3.018	
	1006.1	1310.	100705.		4	4	2.94E+03	3.29E+03	4.46E-07	-5.748	-3.348	
	999.6	1310.	101350.		4	6	1.10E+04	1.10E+04	2.47E-06	-5.005	-2.607	
	997.4	0.	100261.		2	2	1.37E+04	2.61E+04	2.04E-06	-5.389	-2.691	
	993.0	0.	100705.		2	4	3.52E+02	3.29E+03	1.04E-07	-6.682	-3.986	
Ne VII 2s2 1S J=0 GROUND			IP = 1671792 cm-1				No ground-term lines >911.7 A M70a					
SODIUM = Na Z = 11 A = 23:100%												
Na I 3s 2S J=1/2 GROUND			IP =41449.451+-0.002 cm-1 Ref JPHC81,MZ81,CBLB92,BBLB98									
1v	3p 2Po		LS Ref CJSF92,JJLPTW96,OVH96,TKR96,VMLSS96									
MltMean	5891.941	5893.574	0.	16967.63	2	6	6.151E+07		9.609E-01	0.284	3.753	
	5895.9242	5897.5581	0.	16956.17025	2	2	6.139E+07	6.139E+07	3.201E-01	-0.194	3.276	33E-5
	5889.9510	5891.5833	0.	16973.36616	2	4	6.157E+07	6.157E+07	6.408E-01	0.108	3.577	33E-5
2v	4p 2Po		LS Ref FP29									
MltMean	3302.572	3303.523	0.	30270.72	2	6	2.81E+06		1.38E-02	-1.559	1.659	
	3302.978	3303.929	0.	30266.99	2	2	2.81E+06		4.60E-03	-2.036	1.182	
	3302.369	3303.319	0.	30272.58	2	4	2.81E+06		9.20E-03	-1.735	1.483	
1u	5p 2Po		LS Ref FP29									
MltMean	2852.878	2853.716	0.	35042.03	2	6	5.54E+05		2.03E-03	-2.392	0.763	
	2853.012	2853.850	0.	35040.38	2	2	5.54E+05		6.77E-04	-2.869	0.286	
	2852.811	2853.649	0.	35042.85	2	4	5.54E+05		1.35E-03	-2.568	0.587	
2u	6p 2Po		LS Ref FP29									
MltMean	2680.372	2681.168	0.	37297.18	2	6	1.93E+05		6.23E-04	-2.904	0.223	
	2680.433	2681.230	0.	37296.32	2	2	1.93E+05		2.08E-04	-3.382	-0.254	
	2680.341	2681.137	0.	37297.61	2	4	1.93E+05		4.15E-04	-3.081	0.047	
3u	7p 2Po		LS Ref FP29									
MltMean	2593.885	2594.661	0.	38540.68	2	6	8.32E+04		2.52E-04	-3.298	-0.185	
	2593.919	2594.695	0.	38540.18	2	2	8.32E+04		8.40E-05	-3.775	-0.662	
	2593.869	2594.644	0.	38540.93	2	4	8.32E+04		1.68E-04	-3.474	-0.361	
4u	8p 2Po		LS Ref FP29									
MltMean	2543.851	2544.615	0.	39298.68	2	6	4.57E+04		1.33E-04	-3.575	-0.471	
	2543.872	2544.636	0.	39298.35	2	2	4.57E+04		4.43E-05	-4.052	-0.948	
	2543.841	2544.604	0.	39298.84	2	4	4.57E+04		8.87E-05	-3.751	-0.647	
5u	9p 2Po		LS Ref FP29									
MltMean	2512.141	2512.897	0.	39794.70	2	6	2.81E+04		7.99E-05	-3.796	-0.697	
	2512.155	2512.911	0.	39794.480	2	2	2.81E+04		2.66E-05	-4.274	-1.174	
	2512.134	2512.891	0.	39794.810	2	4	2.81E+04		5.33E-05	-3.973	-0.873	
6u	10p 2P		LS Ref FP29									
MltMean	2490.718	2491.469	0.	40136.96	2	6	1.89E+04		5.28E-05	-3.976	-0.881	
	2490.727	2491.479	0.	40136.805	2	2	1.89E+04		1.76E-05	-4.454	-1.358	
	2490.713	2491.464	0.	40137.039	2	4	1.89E+04		3.52E-05	-4.152	-1.057	
	11p 2P		LS Ref FP29									
MltMean	2475.540	2476.287	0.	40383.03	2	6	1.37E+04		3.78E-05	-4.121	-1.029	
	2475.547	2476.294	0.	40382.920	2	2	1.37E+04		1.26E-05	-4.598	-1.506	
	2475.536	2476.284	0.	40383.091	2	4	1.37E+04		2.52E-05	-4.297	-1.205	
	12p 2P		LS Ref FP29									
MltMean	2464.382	2465.127	0.	40565.86	2	6	1.02E+04		2.80E-05	-4.252	-1.161	
	2464.387	2465.132	0.	40565.777	2	2	1.02E+04		9.33E-06	-4.729	-1.638	
	2464.379	2465.124	0.	40565.906	2	4	1.02E+04		1.87E-05	-4.428	-1.337	
	13p 2P		LS Ref FP29									
MltMean	2455.933	2456.676	0.	40705.40	2	6	7.88E+03		2.14E-05	-4.369	-1.279	
	2455.937	2456.680	0.	40705.337	2	2	7.88E+03		7.13E-06	-4.846	-1.756	
	2455.931	2456.674	0.	40705.437	2	4	7.88E+03		1.43E-05	-4.545	-1.455	
	14p 2P		LS Ref FP29									
MltMean	2449.379	2450.121	0.	40814.32	2	6	6.33E+03		1.71E-05	-4.466	-1.378	
	2449.382	2450.124	0.	40814.265	2	2	6.33E+03		5.70E-06	-4.943	-1.855	
	2449.377	2450.119	0.	40814.344	2	4	6.33E+03		1.14E-05	-4.642	-1.554	
	15p 2P		LS Ref FP29									
MltMean	2444.190	2444.931	0.	40900.96	2	6	5.13E+03		1.38E-05	-4.559	-1.472	
	2444.192	2444.933	0.	40900.913	2	2	5.13E+03		4.60E-06	-5.036	-1.949	
	2444.189	2444.929	0.	40900.976	2	4	5.13E+03		9.20E-06	-4.735	-1.648	
	16p 2P		LS Ref FP29									
MltMean	2440.011	2440.751	0.	40971.00	2	6	4.25E+03		1.14E-05	-4.642	-1.556	
	2440.013	2440.753	0.	40970.967	2	2	4.25E+03		3.80E-06	-5.119	-2.033	
	2440.010	2440.750	0.	40971.019	2	4	4.26E+03		7.60E-06	-4.818	-1.732	
	17p 2P		LS Ref FP29									
MltMean	2436.595	2437.334	0.	41028.44	2	6	3.42E+03		9.13E-06	-4.739	-1.653	
	2436.597	2437.335	0.	41028.410	2	2	3.42E+03		3.04E-06	-5.216	-2.130	
	2436.594	2437.333	0.	41028.453	2	4	3.42E+03		6.09E-06	-4.915	-1.829	

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Na I	3s 2S J=1/2 GROUND			IP =41449.451+-0.002 cm-1 Ref JPHC81,MZ81,CBLB92,BBLB98								
	18p 2P			LS Ref FP29								
MltMean	2433.766	2434.505	0.	41076.12	2	6	2.78E+03		7.40E-06	-4.830	-1.744	
	2433.768	2434.506	0.	41076.096	2	2	2.78E+03		2.47E-06	-5.307	-2.221	
	2433.765	2434.504	0.	41076.132	2	4	2.78E+03		4.93E-06	-5.006	-1.920	
Na II	2s22p6 1So J=0 GROUND			IP = 381390.2+-2 cm-1			No ground-term lines >911.7 A MZ81					
Na III	2s22p5 2Po J=3/2 GROUND			IP = 577654 cm-1			No ground-term lines >911.7 A MZ81					
MAGNESIUM = Mg Z = 12 A = 24:78.99, 25:10.00, 26:11.01%												
Mg I	3s2 1S J=0 GROUND			IP = 61671.05+-0.03 cm-1 Ref MZ80,KM91a,PTW98								
1v	3s3p 3Po			One Ref FWB75,KSP82,GN92,(LV74,CCH93,SGM96,JF97)								
	4571.0956	4572.3767	0.	21870.464	1	3	2.14E+02	2.13E+02	2.01E-06	-5.696	-2.036	0.03
1u	3s3p 1Po			One Ref L64,SG66,ADJS70,SL71,LEHM73,MR73,KM78,LLMVJ80,S87,LS93								
	2852.1251	2852.9631	0.	35051.277	1	3	5.00E+08	5.00E+08	1.83E+00	0.263	3.718	0.009
	3s4p 3Po			One Ref LV74								
	2089.4436	2090.1082	0.	47844.414	1	3	7.50E+01		1.47E-07	-6.832	-3.511	
2u	3s4p 1Po			One Ref Mit75,(MZ87,MS88,CT90)								
	2025.8242	2026.4768	0.	49346.729	1	3	6.12E+07		1.13E-01	-0.947	2.360	0.012
	3s5p 3Po			One Ref LV74								
		1843.3151	0.	54250.086	1	3	4.11E+01		6.28E-08	-7.202	-3.936	
	3s5p 1Po			One Ref Mit75,(MZ87,MS88,CT90)								
		1827.9351	0.	54706.536	1	3	1.61E+07		2.42E-02	-1.616	1.646	0.025
	3s6p 3Po			One								
		1753.8406	0.	57017.724	1	3						
	3s6p 1Po			One Ref Mit75,(MZ87,MS88,CT90)								
		1747.7937	0.	57214.992	1	3	6.61E+06		9.08E-03	-2.042	1.201	0.025
	3s7p 3Po			One								
		1710.0735	0.	58477.020	1	3						
	3s7p 1Po			One Ref Mit75,(MZ87,MS88,CT90)								
		1707.0606	0.	58580.23	1	3	3.33E+06		4.37E-03	-2.360	0.873	0.04
	3s8p 3Po			One								
		1685.133	0.	59342.51	1	3						
	3s8p 1Po			One Ref Mit75,(MS88,CT90)								
		1683.4116	0.	59403.18	1	3	1.95E+06		2.49E-03	-2.604	0.622	0.029
	3s9p 3Po			One								
		1669.509	0.	59897.86	1	3						
	3s9p 1Po			One Ref MS88								
		1668.4288	0.	59936.63	1	3	1.28E+06		1.60E-03	-2.796	0.426	
	3s10p 1Po			One								
		1658.312	0.	60302.30	1	3						
	3s11p 1Po			One								
		1651.164	0.	60563.35	1	3						
	3s12p 1Po			One								
		1645.924	0.	60756.13	1	3						
	3s13p 1Po			One								
		1641.957	0.	60902.93	1	3						
	3s14p 1Po			One								
		1638.889	0.	61016.93	1	3						
	3s15p 1Po			One								
		1636.465	0.	61107.34	1	3						
	3s16p 1Po			One								
		1634.515	0.	61180.24	1	3						
26Mg I	3s2 1S J=0 GROUND			IP = 61671.05+-0.03 cm-1 Ref MZ80,KM91a,K57								
1v	3s3p 3Po			One Ref FWB75,KSP82,GN92								
	4571.0783	4572.3593	0.	21870.547	1	3	2.14E+02	2.13E+02	2.01E-06	-5.696	-2.036	0.03
24Mg I	3s2 1S J=0 GROUND			IP = 61671.0 cm-1 Ref PTW98								
1u	3s3p 1Po			One Ref L64,SG66,ADJS70,SL71,LEHM73,MR73,KM78,LLMVJ80,S87,								
	2852.1256	2852.9636	0.	35051.271	1	3	2.73E+08	5.00E+08	1.00E+00		3.455	0.009
25Mg I	3s2 1S J=0 GROUND			IP = 61671.0 cm-1 Ref PTW98,K57,H79								
1u	3s3p 1Po			One Ref L64,SG66,ADJS70,SL71,LEHM73,MR73,KM78,LLMVJ80,S87,								
	2852.1236	2852.9616	0.	35051.295	1	3	2.73E+08	5.00E+08	1.00E+00		3.455	0.009
26Mg I	3s2 1S J=0 GROUND			IP = 61671.1 cm-1 Ref PTW98,K57,H79								
1u	3s3p 1Po			One Ref L64,SG66,ADJS70,SL71,LEHM73,MR73,KM78,LLMVJ80,S87,								
	2852.1217	2852.9598	0.	35051.318	1	3	2.73E+08	5.00E+08	1.00E+00		3.455	0.009

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Mg II 3s 2S J=1/2 GROUND				IP = 121267.64+-0.05 cm-1 Ref MZ80,KM91a,PTW98								
1u 3p 2Po				All Ref ALP89,(TC88,JLS96,SMK98,FHBV98,GF99,ThFe99,MMGDMM0								
MltMean	2797.918	2798.743	0.	35730.33	2	6	2.61E+08		9.21E-01	0.265	3.411	
	2802.7056	2803.5315	0.	35669.298	2	2	2.60E+08	2.60E+08	3.06E-01	-0.214	2.933	0.003
	2795.5301	2796.3543	0.	35760.848	2	4	2.63E+08	2.63E+08	6.15E-01	0.090	3.236	0.004
4p 2Po				All Ref TF99,(F97,FHBV98,GF99,MMGDMM02)								
MltMean		1240.082	0.	80639.85	2	6	1.43E+06		9.88E-04	-2.704	0.088	
		1240.3947	0.	80619.50	2	2	1.54E+06		3.56E-04	-3.148	-0.355	
		1239.9253	0.	80650.02	2	4	1.37E+06		6.32E-04	-2.898	-0.106	
5p 2Po				All Ref MMGDMM02								
MltMean		1026.016	0.	97464.32	2	6	2.40E+06		1.13E-03	-2.644	0.066	
		1026.1134	0.	97455.12	2	2	2.48E+06		3.92E-04	-3.106	-0.395	
		1025.9681	0.	97468.92	2	4	2.35E+06		7.43E-04	-2.828	-0.118	
6p 2Po				All Ref MMGDMM02								
MltMean		946.725	0.	105627.26	2	6	6.73E+04		2.71E-05	-4.266	-1.590	
		946.7694	0.	105622.34	2	2	5.65E+04		7.59E-06	-4.819	-2.143	
		946.7033	0.	105629.72	2	4	7.27E+04		1.95E-05	-4.408	-1.733	
24MgII 3s 2S J=1/2 GROUND				IP = 121267.6 cm-1			Ref PTW98,DWB80					
1u 3p 2Po				All Ref ALP89								
MltMean	2797.919	2798.744	0.	35730.32	2	6	2.61E+08		9.21E-01	0.265	3.411	
	2802.7065	2803.5324	0.	35669.286	2	2	2.60E+08	2.60E+08	3.06E-01	-0.214	2.933	0.003
	2795.5311	2796.3553	0.	35760.835	2	4	2.63E+08	2.63E+08	6.15E-01	0.090	3.236	0.004
25MgII 3s 2S J=1/2 GROUND				IP = 121267.6 cm-1			Ref PTW98,DWB80					
1u 3p 2Po				All Ref ALP89								
MltMean	2797.915	2798.739	0.	35730.37	2	6	2.61E+08		9.21E-01	0.265	3.411	
	2802.7023	2803.5283	0.	35669.339	2	2	2.60E+08	2.60E+08	3.06E-01	-0.214	2.933	0.003
	2795.5270	2796.3511	0.	35760.888	2	4	2.63E+08	2.63E+08	6.15E-01	0.090	3.236	0.004
26MgII 3s 2S J=1/2 GROUND				IP = 121267.6 cm-1			Ref PTW98,DWB80					
1u 3p 2Po				All Ref ALP89								
MltMean	2797.911	2798.736	0.	35730.42	2	6	2.61E+08		9.21E-01	0.265	3.411	
	2802.6985	2803.5244	0.	35669.388	2	2	2.60E+08	2.60E+08	3.06E-01	-0.214	2.933	0.003
	2795.5231	2796.3473	0.	35760.937	2	4	2.63E+08	2.63E+08	6.15E-01	0.090	3.236	0.004
Mg III 2s22p6 1S J=0 GROUND				IP = 646402+-5 cm-1			No ground-term lines >911.7 A MZ80,KM91a					
Mg IV 2s22p5 2Po J=3/2 GROUND				IP = 881285+-10 cm-1			No ground-term lines >911.7 A MZ80,KM91a					
ALUMINIUM = Al Z = 13 A = 27:100%												
Al I 3s2(1S)3p 2Po J=1/2 GROUND				IP =48278.480+-0.025 cm-1 Ref KM91b								
1vis 3s2(1S)4s 2S				LS Ref D95 from 9 lifetimes								
MltMean	3955.665	3956.784	74.71	25347.76	6	2	1.48E+08		1.16E-01	-0.158	2.661	
	3961.5201	3962.6410	112.061	25347.756	4	2	9.82E+07	1.48E+08	1.16E-01	-0.335	2.661	0.011
	3944.0060	3945.1224	0.	25347.756	2	2	4.98E+07	1.48E+08	1.16E-01	-0.634	2.661	0.011
2v 3s3p2 4P				All								
	3458.218	3459.208	112.061	29020.41	4	2						
	3452.658	3453.647	112.061	29066.96	4	4						
	3444.863	3445.851	0.	29020.41	2	2						
	3443.640	3444.627	112.061	29142.78	4	6						
	3439.346	3440.332	0.	29066.96	2	4						
3v 3s2(1S)3d 2D				LS Ref D95 from 8 lifetimes								
MltMean	3089.189	3090.087	74.71	32436.26	6	10	7.41E+07		1.77E-01	0.026	2.737	
	3092.8369	3093.7347	112.061	32435.453	4	4	1.23E+07	7.45E+07	1.77E-02	-1.151	1.737	0.008
	3092.7084	3093.6062	112.061	32436.796	4	6	7.38E+07	7.38E+07	1.59E-01	-0.197	2.692	0.008
	3082.1510	3083.0462	0.	32435.453	2	4	6.22E+07	7.45E+07	1.77E-01	-0.451	2.737	0.008
1u 3s2(1S)5s 2S				LS Ref BDHS86								
MltMean	2657.744	2658.535	74.71	37689.41	6	2	4.25E+07		1.50E-02	-1.045	1.601	
	2660.3863	2661.1778	112.061	37689.407	4	2	2.82E+07	5.05E+07	1.50E-02	-1.222	1.601	0.05
	2652.4758	2653.2654	0.	37689.407	2	2	1.43E+07	5.05E+07	1.50E-02	-1.522	1.601	0.05
2u 3s2(1S)nd y 2D				LS Ref BDHS86								
MltMean	2572.739	2573.510	74.71	38932.15	6	10	2.27E+07		3.76E-02	-0.647	1.985	
	2575.3962	2576.1675	112.061	38929.413	4	4	3.77E+06	3.39E+07	3.75E-03	-1.824	0.985	0.07
	2575.0940	2575.8652	112.061	38933.968	4	6	2.26E+07	3.39E+07	3.38E-02	-0.869	1.940	0.07
	2567.9823	2568.7518	0.	38929.413	2	4	1.90E+07	3.39E+07	3.76E-02	-1.123	1.985	0.07
3u 3s2(1S)6s 2S				LS Ref PS65								
MltMean	2376.282	2377.007	74.71	42144.41	6	2	1.45E+07		4.09E-03	-1.610	0.988	
	2378.3941	2379.1199	112.061	42144.411	4	2	9.64E+06		4.09E-03	-1.786	0.988	
	2372.0695	2372.7939	0.	42144.411	2	2	4.86E+06		4.10E-03	-2.086	0.988	

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Al I	3s2(1S)3p 2Po J=1/2 GROUND		IP =48278.480+-0.025 cm-1 Ref KM91b									
4u	3s2(1S)4d 2D		LS	Ref DVD90								
MltMean	2371.110	2371.834	74.71	42236.17	6	10	7.50E+07		1.05E-01	-0.199	2.398	
	2373.3497	2374.0743	112.061	42233.742	4	4	1.25E+07	7.58E+07	1.05E-02	-1.375	1.398	0.011
	2373.1220	2373.8466	112.061	42237.783	4	6	7.48E+07	7.58E+07	9.48E-02	-0.421	2.352	0.011
	2367.0518	2367.7750	0.	42233.742	2	4	6.28E+07	7.58E+07	1.06E-01	-0.675	2.398	0.011
5u	3s2(1S)5d 2D		LS	Ref DVD90								
MltMean	2267.224	2267.925	74.71	44167.87	6	10	6.93E+07		8.91E-02	-0.272	2.305	
	2269.2225	2269.9241	112.061	44166.398	4	4	1.15E+07	7.14E+07	8.90E-03	-1.449	1.305	0.007
	2269.0963	2269.7979	112.061	44168.847	4	6	6.91E+07	7.14E+07	8.01E-02	-0.494	2.260	0.007
	2263.4644	2264.1647	0.	44166.398	2	4	5.80E+07	7.14E+07	8.92E-02	-0.749	2.305	0.007
6u	3s2(1S)7s 2S		LS	Ref PS65								
MltMean	2261.824	2262.524	74.71	44273.13	6	2	1.13E+07		2.89E-03	-1.761	0.816	
	2263.7374	2264.4378	112.061	44273.133	4	2	7.51E+06		2.89E-03	-1.937	0.816	
	2258.0070	2258.7062	0.	44273.133	2	2	3.79E+06		2.90E-03	-2.237	0.816	
7u	3s2(1S)6d 2D		LS	Ref DVD90								
MltMean	2208.264	2208.953	74.71	45345.02	6	10	4.46E+07		5.44E-02	-0.486	2.080	
	2210.1301	2210.8191	112.061	45344.165	4	4	7.41E+06	4.70E+07	5.43E-03	-1.663	1.080	0.016
	2210.0603	2210.7493	112.061	45345.594	4	6	4.45E+07	4.70E+07	4.89E-02	-0.709	2.034	0.016
	2204.6676	2205.3554	0.	45344.165	2	4	3.73E+07	4.70E+07	5.45E-02	-0.963	2.080	0.016
8u	3s2(1S)8s 2S		LS	Ref PS65								
MltMean	2202.803	2203.491	74.71	45457.24	6	2	5.30E+06		1.29E-03	-2.113	0.452	
	2204.6181	2205.3059	112.061	45457.244	4	2	3.52E+06		1.28E-03	-2.289	0.452	
	2199.1827	2199.8694	0.	45457.244	2	2	1.78E+06		1.29E-03	-2.589	0.452	
9u	3s2(1S)7d 2D		LS	Ref DVD90								
MltMean	2172.322	2173.004	74.71	46093.96	6	10	3.11E+07		3.67E-02	-0.657	1.902	
	2174.1127	2174.7942	112.061	46093.424	4	4	5.17E+06	3.41E+07	3.67E-03	-1.834	0.902	0.016
	2174.0707	2174.7522	112.061	46094.312	4	6	3.10E+07	3.41E+07	3.30E-02	-0.879	1.856	0.016
	2168.8265	2169.5069	0.	46093.424	2	4	2.60E+07	3.41E+07	3.68E-02	-1.134	1.902	0.016
	3s2(1S)9s 2S		All									
MltMean	2168.084	2168.765	74.71	46183.89	6	2						
	2169.8429	2170.5235	112.061	46183.895	4	2						
	2164.5774	2165.2570	0.	46183.895	2	2						
	3s2(1S)8d 2D		LS	Ref DVD90								
MltMean	2148.983	2149.660	74.71	46593.70	6	10	1.53E+07		1.77E-02	-0.975	1.580	
	2150.728	2151.405	112.061	46593.32	4	4	2.54E+06	2.19E+07	1.77E-03	-2.151	0.580	0.06
	2150.699	2151.376	112.061	46593.95	4	6	1.53E+07	2.19E+07	1.59E-02	-1.197	1.534	0.06
	2145.555	2146.230	0.	46593.32	2	4	1.28E+07	2.19E+07	1.77E-02	-1.451	1.580	0.06
	3s2(1S)10s 2S		All									
MltMean	2145.835	2146.511	74.71	46661.93	6	2						
	2147.56	2148.23	112.061	46661.93	4	2						
	2142.40	2143.07	0.	46661.93	2	2						
	3s2(1S)9d 2D		LS	Ref PS65								
MltMean	2133.042	2133.715	74.71	46941.32	6	10	1.94E+07		2.21E-02	-0.878	1.673	
	2134.760	2135.433	112.061	46940.97	4	4	3.23E+06		2.21E-03	-2.055	0.673	
	2134.733	2135.407	112.061	46941.55	4	6	1.94E+07		1.98E-02	-1.100	1.627	
	2129.663	2130.335	0.	46940.97	2	4	1.62E+07		2.21E-02	-1.355	1.673	
	3s2(1S)11s 2S		All									
MltMean	2130.687	2131.360	74.71	46993.11	6	2						
	2132.39	2133.06	112.061	46993.11	4	2						
	2127.30	2127.97	0.	46993.11	2	2						
	3s2(1S)10d 2D		LS	Ref PS65								
MltMean	2121.677	2122.348	74.71	47192.33	6	10	1.30E+07		1.46E-02	-1.057	1.492	
	2123.362	2124.033	112.061	47192.3	4	6	1.30E+07		1.32E-02	-1.279	1.446	
	2123.359	2124.030	112.061	47192.38	4	4	2.16E+06		1.46E-03	-2.233	0.492	
	2118.316	2118.986	0.	47192.38	2	4	1.09E+07		1.47E-02	-1.533	1.492	
	3s2(1S)12s 2S		All									
MltMean	2119.892	2120.563	74.71	47232.00	6	2						
	2121.57	2122.24	112.061	47232.00	4	2						
	2116.54	2117.21	0.	47232.00	2	2						
	3s2(1S)11d 2D		All									
MltMean	2113.305	2113.975	74.71	47378.96	6	10						
	2114.99	2115.66	112.061	47378.7	4	4						
	2114.97	2115.64	112.061	47379.14	4	6						
	2109.98	2110.65	0.	47378.7	2	4						
	3s2(1S)13s 2S		All									
MltMean	2111.921	2112.590	74.71	47409.97	6	2						
	2113.59	2114.26	112.061	47409.97	4	2						
	2108.59	2109.26	0.	47409.97	2	2						
	3s2(1S)12d 2D		All									
MltMean	2106.973	2107.642	74.71	47521.10	6	10						
	2108.63	2109.30	112.061	47521.1	4	4						
	2108.63	2109.30	112.061	47521.1	4	6						
	2103.66	2104.33	0.	47521.1	2	4						

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Al I	**3s2(1S)3p 2Po J=1/2 GROUND**		**IP =48278.480+-0.025 cm-1 Ref KM91b**									
	3s2(1S)14s 2S		All									
MltMean	2105.863	2106.531	74.71	47546.12	6	2						
	2107.52	2108.19	112.061	47546.12	4	2						
	2102.55	2103.22	0.	47546.12	2	2						
	3s2(1S)13d 2D		All									
MltMean	2102.033	2102.700	74.71	47632.60	6	10						
	2103.69	2104.35	112.061	47632.6	4	4						
	2103.69	2104.35	112.061	47632.6	4	6						
	2098.74	2099.40	0.	47632.6	2	4						
	3s2(1S)15s 2S		All									
MltMean	2101.150	2101.817	74.71	47652.58	6	2						
	2102.80	2103.47	112.061	47652.58	4	2						
	2097.86	2098.52	0.	47652.58	2	2						
	3s2(1S)14d 2D		All									
MltMean	2098.119	2098.786	74.71	47721.30	6	10						
	2099.77	2100.43	112.061	47721.3	4	4						
	2099.77	2100.43	112.061	47721.3	4	6						
	2094.83	2095.50	0.	47721.3	2	4						
	3s2(1S)16s 2S		All									
MltMean	2097.410	2098.077	74.71	47737.41	6	2						
	2099.06	2099.72	112.061	47737.41	4	2						
	2094.13	2094.79	0.	47737.41	2	2						
	3s2(1S)15d 2D		All									
MltMean	2094.966	2095.632	74.71	47793.00	6	10						
	2096.61	2097.27	112.061	47793.0	4	4						
	2096.61	2097.27	112.061	47793.0	4	6						
	2091.69	2092.36	0.	47793.0	2	4						
	3s2(1S)16d 2D		All									
MltMean	2092.427	2093.093	74.71	47850.90	6	10						
	2094.07	2094.73	112.061	47850.9	4	4						
	2094.07	2094.73	112.061	47850.9	4	6						
	2089.16	2089.82	0.	47850.9	2	4						
	3s3p2 2S Autoionization		All Ref KP73									
MltMean		1935.060	74.71	51752.70	6	2	4.26E+08		7.97E-02	-0.321	2.188	
		1936.459	112.061	51752.7	4	2	2.77E+08	6.54E+12	7.80E-02	-0.506	2.179	
		1932.266	0.	51752.7	2	2	1.48E+08	6.54E+12	8.30E-02	-0.780	2.205	
	3s3p2 2P Autoionization		All Ref LCK81									
MltMean		1766.132	74.71	56695.63	6	6	1.85E+09		8.67E-01	0.716	3.185	
		1769.1327	112.061	56636.933	4	2	6.57E+08	1.06E+10	1.54E-01	-0.210	2.436	0.04
		1766.3813	112.061	56724.980	4	4	1.54E+09	4.20E+10	7.21E-01	0.460	3.105	0.03
		1765.6323	0.	56636.933	2	2	1.26E+09	1.06E+10	5.87E-01	0.070	3.016	0.05
		1762.8918	0.	56724.980	2	4	2.82E+08	4.20E+10	2.62E-01	-0.280	2.665	0.03
	3s3p(3Po)4p 2P Autoionization All											
		1416.484	112.061	70709.4	4	2						
		1415.399	112.061	70763.5	4	4						
		1414.239	0.	70709.4	2	2						
		1413.158	0.	70763.5	2	4						
	3s3p(3Po)4p 2D Autoionization Part											
		1397.80	112.061	71653.	4	6						
Al II	**3s2 1S J=0 GROUND**		**IP = 151862.5+-0.4 cm-1 Ref MZ79,KM91b,GK00**									
1u	3s3p 3Po		One Ref JSP86,TWLT99(LV79,HK87,CCH93,ZF00,TF02c)									
	2669.155	2669.948	0.	37453.91	1	3	3.30E+03	3.30E-01	1.06E-05	-4.976	-1.549	0.010
2u	3s3p 1Po		One Ref CCH93,JF97,ZF00,TF02c,(KPOBD79)									
		1670.7886	0.	59851.976	1	3	1.39E+09	1.39E+09	1.74E+00	0.241	3.463	
	3s4p 3Po		One									
		948.3932	0.	105441.50	1	3						
	3s4p 1Po		One Ref BMZ84b,(VSL76)									
		935.2738	0.	106920.56	1	3	6.41E+06		2.52E-03	-2.599	0.372	
Al III	**3s 2S J=1/2 GROUND**		**IP = 229445.7=-0.2 cm-1 Ref KM91b,GK00**									
1u	3p 2Po		All Ref TC88,JLS96,SMK98,(BBB70)									
MltMean		1857.401	0.	53838.66	2	6	5.39E+08		8.37E-01	0.224	3.192	
		1862.7910	0.	53682.888	2	2	5.34E+08	5.34E+08	2.78E-01	-0.255	2.714	
		1854.7184	0.	53916.542	2	4	5.42E+08	5.42E+08	5.59E-01	0.048	3.016	
Al IV	**2s22p6 1S J=0 GROUND**		**IP = 967804+-15 cm-1**				**No ground-term lines >911.7 A**		**KM91b**			
Al V	**2s22p5 2Po J=3/2 GROUND**		**IP = 1240684+-20 cm-1**				**No ground-term lines >911.7 A**		**KM91b**			

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
SILICON = Si Z = 14 A = 28:92.2297, 29:4.6832, 30:3.0872%												
Si I 3s23p2 3P J=0 GROUND IP = 65747.76+-0.25 cm-1 Ref M02,SM03,MZ83												
0.01v 3s3p3 5So			All									
	3020.0053	3020.8849	223.157	33326.040	5	5						
	3006.7395	3007.6158	77.112	33326.040	3	5						
1u 3s23p4s 3Po			All Ref SHTGCL87,OL91									
MltMean	2517.484	2518.242	149.68	39859.92	9	9	2.21E+08		2.11E-01	0.278	2.725	
	2528.5079	2529.2682	223.157	39760.285	5	3	9.04E+07	2.22E+08	5.20E-02	-0.585	2.119	0.022
	2524.1078	2524.8670	77.112	39683.158	3	1	2.22E+08	2.22E+08	7.07E-02	-0.673	2.252	0.021
	2519.2017	2519.9598	77.112	39760.285	3	3	5.49E+07	2.22E+08	5.23E-02	-0.805	2.120	0.022
	2516.1123	2516.8697	223.157	39955.051	5	5	1.68E+08	2.22E+08	1.60E-01	-0.098	2.604	0.022
	2514.3156	2515.0725	0.	39760.285	1	3	7.40E+07	2.22E+08	2.11E-01	-0.677	2.724	0.022
	2506.8970	2507.6522	77.112	39955.051	3	5	5.47E+07	2.22E+08	8.59E-02	-0.589	2.333	0.022
2u 3s23p4s 1Po			All Ref SHTGCL87,OL91									
	2452.1177	2452.8603	223.157	40991.888	5	3	5.81E+05	2.33E+08	3.14E-04	-2.804	-0.113	0.042
	2443.3643	2444.1048	77.112	40991.888	3	3	6.28E+05	2.33E+08	5.62E-04	-2.773	0.138	0.037
	2438.7676	2439.5071	0.	40991.888	1	3	7.91E+05	2.33E+08	2.12E-03	-2.674	0.713	0.032
3u 3s3p3 3Do			All Ref SHTGCL87,OL91									
MltMean	2213.971	2214.661	149.68	45303.31	9	15	4.54E+07		5.56E-02	-0.300	2.091	
	2218.9157	2219.6065	223.157	45276.187	5	3	1.05E+06	4.55E+07	4.65E-04	-2.633	0.014	0.057
	2218.0572	2218.7479	223.157	45293.623	5	5	1.09E+07	4.55E+07	8.04E-03	-1.396	1.252	0.022
	2216.6689	2217.3593	223.157	45321.848	5	7	4.54E+07	4.55E+07	4.69E-02	-0.630	2.017	0.021
	2211.7453	2212.4347	77.112	45276.187	3	3	1.81E+07	4.55E+07	1.33E-02	-1.400	1.468	0.023
	2210.8924	2211.5815	77.112	45293.623	3	5	3.45E+07	4.55E+07	4.22E-02	-0.898	1.970	0.021
	2207.9780	2208.6666	0.	45276.187	1	3	2.62E+07	4.55E+07	5.75E-02	-1.240	2.104	0.022
4u 3s23p3d 1Do			All Ref SHTGCL87,OL91									
	2121.1922	2121.8630	223.157	47351.553	5	5	1.07E+05	4.44E+07	7.22E-05	-3.442	-0.815	0.057
	2114.6385	2115.3079	77.112	47351.553	3	5						
6u 3s23p3d 3Fo			All									
	2014.3542	2015.0047	223.157	49850.832	5	5						
	2010.9924	2011.6423	223.157	49933.783	5	7						
	2008.4428	2009.0923	77.112	49850.832	3	5						
7u 3s23p3d 3Po			All Ref SHTGCL87,OL91									
MltMean		1984.767	149.68	50533.43	9	9	8.67E+07		5.12E-02	-0.337	2.007	
		1988.9935	223.157	50499.843	5	5	6.57E+07	8.77E+07	3.90E-02	-0.710	1.889	0.021
		1986.3633	223.157	50566.414	5	3	3.65E+07	8.55E+07	1.30E-02	-1.189	1.410	0.021
		1983.2325	77.112	50499.843	3	5	2.18E+07	8.77E+07	2.14E-02	-1.192	1.628	0.021
		1980.6176	77.112	50566.414	3	3	2.07E+07	8.55E+07	1.22E-02	-1.437	1.382	0.022
		1979.2056	77.112	50602.435	3	1	8.70E+07	8.70E+07	1.70E-02	-1.292	1.528	0.021
		1977.5972	0.	50566.414	1	3	2.79E+07	8.55E+07	4.91E-02	-1.309	1.987	0.021
8u 3s23p3d 1Fo			One Ref SHTGCL87,OL91									
		1881.8534	223.157	53362.258	5	7	5.00E+06	3.00E+06	3.72E-03	-1.731	0.845	.050
9u 3s23p3d 1Po			All Ref SHTGCL87,OL91									
		1880.9655	223.157	53387.342	5	3	2.94E+05	1.18E+08	9.36E-05	-3.330	-0.755	0.039
		1875.8126	77.112	53387.342	3	3	2.24E+06	1.18E+08	1.18E-03	-2.450	0.346	0.048
		1873.1032	0.	53387.342	1	3	1.65E+06	1.18E+08	2.60E-03	-2.584	0.688	0.046
10u 3s23p3d 3Do			LS Ref N93									
MltMean		1849.251	149.68	54225.61	9	15	3.15E+08		2.69E-01	0.384	2.697	
		1853.1525	223.157	54185.257	5	3	8.70E+06		2.69E-03	-1.872	0.697	
		1852.4719	223.157	54205.083	5	5	7.84E+07		4.03E-02	-0.695	1.873	
		1850.6723	223.157	54257.574	5	7	3.14E+08		2.26E-01	0.053	2.622	
		1848.1506	77.112	54185.257	3	3	1.32E+08		6.74E-02	-0.694	2.095	
		1847.4736	77.112	54205.083	3	5	2.37E+08		2.02E-01	-0.217	2.572	
		1845.5205	0.	54185.257	1	3	1.76E+08		2.70E-01	-0.569	2.697	
11u 3s23p5s 3Po			LS Ref N93									
MltMean		1842.448	149.68	54425.28	9	9	5.73E+07		2.92E-02	-0.581	1.731	
		1848.7480	223.157	54313.817	5	3	2.37E+07		7.27E-03	-1.439	1.128	
		1846.1115	77.112	54245.021	3	1	5.70E+07		9.71E-03	-1.536	1.253	
		1843.7698	77.112	54313.817	3	3	1.43E+07		7.29E-03	-1.660	1.128	
		1841.4490	223.157	54528.218	5	5	4.31E+07		2.19E-02	-0.961	1.606	
		1841.1521	0.	54313.817	1	3	1.92E+07		2.92E-02	-1.535	1.731	
		1836.5100	77.112	54528.218	3	5	1.45E+07		1.22E-02	-1.437	1.350	
12u 3s23p5s 1Po			All									
		1829.8975	223.157	54871.027	5	3						
		1825.0202	77.112	54871.027	3	3						
		1822.4554	0.	54871.027	1	3						
13u 3s23p4d 1Do			All									
		1776.8241	223.157	56503.348	5	5						
		1772.2252	77.112	56503.348	3	5						
14u 3s23p4d 3Po			LS Ref N93									
MltMean		1768.376	149.68	56698.73	9	9	2.56E+07		1.20E-02	-0.967	1.326	
		1770.9225	223.157	56690.902	5	5	1.91E+07		8.98E-03	-1.348	1.201	
		1770.6302	223.157	56700.225	5	3	1.06E+07		2.99E-03	-1.825	0.724	
		1766.3541	77.112	56690.902	3	5	6.42E+06		5.00E-03	-1.824	0.946	
		1766.0633	77.112	56700.225	3	3	6.42E+06		3.00E-03	-2.046	0.724	
		1765.0301	77.112	56733.370	3	1	2.57E+07		4.00E-03	-1.920	0.849	
		1763.6614	0.	56700.225	1	3	8.59E+06		1.20E-02	-1.920	1.326	

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Si I	3s23p2 3P J=0 GROUND		IP = 65747.76+-0.25 cm-1	Ref M02,SM03,MZ83								
15u	3s23p4d 3Fo		All									
		1749.8075	223.157	57372.302	5	5						
		1747.4139	223.157	57450.583	5	7						
		1745.3472	77.112	57372.302	3	5						
16u	3s23p4d 1Po		All									
		1707.1148	223.157	58801.525	5	3						
		1702.8693	77.112	58801.525	3	3						
		1700.6362	0.	58801.525	1	3						
17u	3s23p4d 1Fo		One									
		1704.4427	223.157	58893.362	5	7						
18u	3s23p4d 3Do		LS	Ref N93								
MltMean		1697.003	149.68	59077.09	9	15	2.16E+08		1.55E-01	0.145	2.421	
		1700.4195	223.157	59032.174	5	5	5.36E+07		2.32E-02	-0.935	1.597	
		1699.7166	223.157	59056.494	5	3	5.96E+06		1.55E-03	-2.111	0.421	
		1697.9418	223.157	59117.991	5	7	2.15E+08		1.30E-01	-0.186	2.345	
		1696.2072	77.112	59032.174	3	5	1.62E+08		1.16E-01	-0.457	2.296	
		1695.5078	77.112	59056.494	3	3	9.01E+07		3.88E-02	-0.934	1.818	
		1693.2939	0.	59056.494	1	3	1.21E+08		1.56E-01	-0.808	2.421	
21u	3s23p(2Po1/2)6s1/2 (1/2,1/2)o		All									
		1693.4684	223.157	59273.565	5	3						
		1690.7890	77.112	59221.098	3	1						
		1689.2904	77.112	59273.565	3	3						
		1687.0927	0.	59273.565	1	3						
21,22	3s23p(2Po3/2)6s1/2 (3/2,1/2)o		All									
		1686.8187	223.157	59506.352	5	5						
		1683.1189	223.157	59636.665	5	3						
		1682.6734	77.112	59506.352	3	5						
		1678.9918	77.112	59636.665	3	3						
		1676.8208	0.	59636.665	1	3						
23u	3s23pnd u 3Po		LS	Ref N93								
MltMean		1671.888	149.68	59962.28	9	9	8.19E+07		3.43E-02	-0.510	1.759	
		1675.2054	223.157	59917.331	5	5	6.11E+07		2.57E-02	-0.891	1.634	
		1672.5961	223.157	60010.454	5	3	3.41E+07		8.58E-03	-1.367	1.157	
		1671.1169	77.112	59917.331	3	5	2.05E+07		1.43E-02	-1.367	1.379	
		1668.5203	77.112	60010.454	3	3	2.06E+07		8.60E-03	-1.588	1.157	
		1667.6280	77.112	60042.523	3	1	8.26E+07		1.15E-02	-1.463	1.282	
		1666.3763	0.	60010.454	1	3	2.76E+07		3.45E-02	-1.463	1.759	
24u	3s23p5d 1Do		All									
		1664.5111	223.157	60300.859	5	5						
		1660.4746	77.112	60300.859	3	5						
25u	3s23p5d 3Fo		All									
		1655.0185	223.157	60645.443	5	5						
		1653.3761	223.157	60705.462	5	7						
		1651.0278	77.112	60645.443	3	5						
26u	3s23p5d 1Po		All									
		1637.129	223.157	61305.70	5	3						
		1633.224	77.112	61305.70	3	3						
		1631.170	0.	61305.70	1	3						
	3s23p(2Po1/2)5g 2[7/2]o		One									
		1636.0376	223.157	61346.447	5	7						
	3s23p(2Po1/2)5g 2[9/2]o		One									
		1636.0286	223.157	61346.784	5	7						
28u	3s23p5d 1Fo		One									
		1633.9850	223.157	61423.230	5	7						
27u	3s23p5d 3Do		LS	Ref N93								
MltMean		1629.455	149.68	61519.88	9	15	1.28E+08		8.50E-02	-0.116	2.141	
		1633.3277	223.157	61447.858	5	5	3.18E+07		1.27E-02	-1.197	1.317	
		1631.6252	223.157	61511.744	5	3	3.54E+06		8.49E-04	-2.372	0.141	
		1629.9477	223.157	61574.819	5	7	1.28E+08		7.14E-02	-0.448	2.066	
		1629.4408	77.112	61447.858	3	5	9.61E+07		6.37E-02	-0.718	2.016	
		1627.7464	77.112	61511.744	3	3	5.35E+07		2.13E-02	-1.195	1.539	
		1625.7058	0.	61511.744	1	3	7.17E+07		8.52E-02	-1.070	2.141	
29u	3s23p(2Po1/2)7s1/2 (1/2,1/2)o		All									
		1629.4002	223.157	61595.434	5	3						
		1627.0505	77.112	61538.020	3	1						
		1625.5320	77.112	61595.434	3	3						
		1623.4970	0.	61595.434	1	3						
	3s23p(2Po3/2)5g 2[7/2]o		One									
		1628.4954	223.157	61629.531	5	7						
	3s23p(2Po3/2)5g 2[5/2]o		All									
		1627.8389	223.157	61654.298	5	5						
		1627.8389	223.157	61654.298	5	7						
		1623.9781	77.112	61654.298	3	5						

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Si I	3s23p2 3P J=0 GROUND		IP = 65747.76+-0.25 cm-1	Ref M02,SM03,MZ83								
29,31	3s23p(2Po3/2)7s1/2 (3/2,1/2)o All											
		1623.3661	223.157	61823.555	5	5						
		1621.8374	223.157	61881.619	5	3						
		1619.5265	77.112	61823.555	3	5						
		1618.0050	77.112	61881.619	3	3						
		1615.9887	0.	61881.619	1	3						
30u	3s23p5d 3Po		LS	Ref N93								
MltMean		1619.779	149.68	61886.48	9	9	7.44E+07		2.92E-02	-0.580	1.676	
		1622.8819	223.157	61841.935	5	5	5.54E+07		2.19E-02	-0.961	1.551	
		1620.4048	223.157	61936.133	5	3	3.09E+07		7.31E-03	-1.437	1.073	
		1619.0445	77.112	61841.935	3	5	1.86E+07		1.22E-02	-1.437	1.295	
		1616.5791	77.112	61936.133	3	3	1.87E+07		7.33E-03	-1.658	1.073	
		1615.9486	77.112	61960.270	3	1	7.49E+07		9.77E-03	-1.533	1.198	
		1614.5664	0.	61936.133	1	3	2.50E+07		2.93E-02	-1.533	1.676	
32u	3s23p6d 1Do		All									
		1614.6305	223.157	62156.830	5	5						
		1610.8321	77.112	62156.830	3	5						
33u	3s23p6d 3Fo		All									
		1609.6124	223.157	62349.915	5	5						
		1608.9156	223.157	62376.823	5	7						
		1605.8375	77.112	62349.915	3	5						
33.01	3s23p6d 1Po		All									
		1601.459	223.157	62666.23	5	3						
		1597.722	77.112	62666.23	3	3						
		1595.756	0.	62666.23	1	3						
	3s23p(2Po1/2)6g 2[7/2]o		One									
		1600.7846	223.157	62692.523	5	7						
	3s23p6d 3Do		LS	Ref N93								
MltMean		1594.117	149.68	62880.35	9	15	7.91E+07		5.02E-02	-0.345	1.903	
		1598.674	223.157	62774.99	5	5	1.96E+07		7.51E-03	-1.425	1.079	
		1594.950	77.112	62774.99	3	5	5.92E+07		3.76E-02	-0.947	1.778	
		1594.830	223.157	62925.753	5	3	2.19E+06		5.02E-04	-2.600	-0.097	
		1594.566	223.157	62936.14	5	7	7.90E+07		4.22E-02	-0.676	1.828	
		1591.124	77.112	62925.753	3	3	3.31E+07		1.26E-02	-1.423	1.301	
		1589.174	0.	62925.753	1	3	4.43E+07		5.04E-02	-1.298	1.903	
35u	3s23p6d 1Fo		One									
		1597.962	223.157	62802.86	5	7						
	3s23p(2Po1/2)8s1/2 (1/2,1/2)o All											
		1597.698	223.157	62813.22	5	3						
		1594.146	77.112	62806.62	3	1						
		1593.978	77.112	62813.22	3	3						
		1592.022	0.	62813.22	1	3						
	3s23p(2Po3/2)6g 2[7/2]o		One									
		1593.5444	223.157	62976.349	5	7						
	3s23p(2Po3/2)6g 2[5/2]o		All									
		1593.169	223.157	62991.156	5	5						
		1593.167	223.157	62991.20	5	7						
		1589.470	77.112	62991.156	3	5						
	3s23p6d 3Po		All									
		1592.425	223.157	63020.45	5	5						
		1590.478	223.157	63097.33	5	3						
		1588.730	77.112	63020.45	3	5						
		1586.792	77.112	63097.33	3	3						
		1586.137	77.112	63123.35	3	1						
		1584.853	0.	63097.33	1	3						
	3s23p(2Po3/2)8s1/2 (3/2,1/2)o All											
		1590.578	223.157	63093.38	5	5						
		1589.640	223.157	63130.48	5	3						
		1586.892	77.112	63093.38	3	5						
		1585.958	77.112	63130.48	3	3						
		1584.021	0.	63130.48	1	3						
	3s23p7d 3Fo		All									
		1587.762	223.157	63204.87	5	5						
		1584.346	223.157	63340.699	5	7						
		1584.089	77.112	63204.87	3	5						
37.01	3s23p7d 1Do		All									
		1583.956	223.157	63356.22	5	5						
		1580.300	77.112	63356.22	3	5						
37.03	3s23p7d 1Po		All									
		1580.683	223.157	63486.94	5	3						
		1577.043	77.112	63486.94	3	3						
		1575.127	0.	63486.94	1	3						

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Si I	3s23p2 3P J=0 GROUND		IP = 65747.76+-0.25 cm-1	Ref M02,SM03,MZ83								
40u	3s23p7d 3Do		LS	Ref N93								
MltMean		1573.639	149.68	63696.66	9	15	5.12E+07		3.17E-02	-0.545	1.698	
		1578.476	223.157	63575.39	5	5	1.27E+07		4.74E-03	-1.625	0.874	
		1574.846	77.112	63575.39	3	5	3.83E+07		2.38E-02	-1.147	1.573	
		1574.128	223.157	63750.41	5	3	1.42E+06		3.17E-04	-2.800	-0.302	
		1573.884	223.157	63760.25	5	7	5.12E+07		2.66E-02	-0.876	1.622	
		1570.517	77.112	63750.41	3	3	2.15E+07		7.94E-03	-1.623	1.096	
		1568.617	0.	63750.41	1	3	2.87E+07		3.18E-02	-1.498	1.698	
	3s23p(2Po1/2)9s1/2 (1/2,1/2)o		All									
		1578.257	223.157	63584.21	5	3						
		1574.810	77.112	63576.84	3	1						
		1574.627	77.112	63584.21	3	3						
		1572.718	0.	63584.21	1	3						
39u	3s23p7d 1Fo		One									
		1576.824	223.157	63641.76	5	7						
	3s23pnd o		Part									
		1573.635	223.157	63770.30	5	5						
		1570.027	77.112	63770.30	3	5						
	3s23p(2Po3/2)7g 2[7/2]o		One									
		1573.1862	223.157	63788.425	5	7						
	3s23p7d 3Po		Part									
		1571.7959	223.157	63844.65	5	3						
		1568.1960	77.112	63844.65	3	3						
		1567.7257	77.112	63863.78	?	3	1					
		1566.3020	0.	63844.65		1	3					
41.01	3s23p8d 3Fo		All									
		1571.406	223.157	63860.43	5	5						
		1569.318	223.157	63945.11	5	7						
		1567.808	77.112	63860.43	3	5						
	3s23p(2Po3/2)9s1/2 (3/2,1/2)o		All									
		1571.323	223.157	63863.81	5	5						
		1570.809	223.157	63884.64	5	3						
		1567.725	77.112	63863.81	3	5						
		1567.213	77.112	63884.64	3	3						
		1565.321	0.	63884.64	1	3						
	3s23p8d 1Do		All									
		1568.196	223.157	63990.71	5	5						
		1564.612	77.112	63990.71	3	5						
41.02	3s23p8d 1Po		All									
		1567.465	223.157	64020.44	5	3						
		1563.885	77.112	64020.44	3	3						
		1562.001	0.	64020.44	1	3						
	3s23p(2Po1/2)10s1/2 (1/2,1/2)o		All									
		1565.859	223.157	64085.86	5	3						
		1562.436	77.112	64079.73	3	1						
		1562.286	77.112	64085.86	3	3						
		1560.407	0.	64085.86	1	3						
	3s23pnd o		Part									
		1565.393	223.157	64104.86	5	5						
		1561.823	77.112	64104.86	3	5						
41.04	3s23p8d 1Fo		One									
		1563.363	223.157	64187.82	5	7						
	3s23p9d 3Fo		All									
		1562.008	223.157	64243.31	5	5						
		1559.363	223.157	64351.90	5	7						
		1558.453	77.112	64243.31	3	5						
41.12	3s3p3 3So Autoionization		All									
		1258.798	223.157	79664.0	5	3						
		1256.488	77.112	79664.0	3	3						
		1255.272	0.	79664.0	1	3						
Si II	3s2(1S)3p 2Po J=1/2 GROUND		IP = 131838.14+-0.30 cm-1	Ref MZ83,GK00								
0.01u	3s3p2 4P		All	Ref CSB93,(N77,DKHSBA91)								
	2350.172	2350.892	287.24	42824.29	4	2	4.41E+03	9.61E+03	1.83E-06	-5.136	-2.367	0.09
	2344.202	2344.920	287.24	42932.62	4	4	1.22E+03	1.23E+03	1.01E-06	-5.395	-2.627	0.04
	2334.605	2335.321	287.24	43107.91	4	6	2.46E+03	2.46E+03	3.02E-06	-4.918	-2.152	0.035
	2334.407	2335.123	0.	42824.29	2	2	5.20E+03	9.61E+03	4.25E-06	-5.070	-2.003	0.08
	2328.517	2329.231	0.	42932.62	2	4	1.00E+01	1.23E+03	1.63E-08	-7.488	-4.421	0.25
1u	3s3p2 2D		All	Ref BL93b,(HOS92,DKHOS92)								
MltMean		1813.982	191.49	55318.84	6	10	2.29E+06		1.89E-03	-1.946	0.534	
		1817.4515	287.24	55309.3404	4	4	2.60E+05	2.38E+06	1.29E-04	-3.288	-0.631	0.05
		1816.9285	287.24	55325.18	4	6	2.24E+06	2.24E+06	1.66E-03	-2.177	0.480	0.04
		1808.0129	0.	55309.3404	2	4	2.12E+06	2.38E+06	2.08E-03	-2.381	0.575	0.04

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Si II 3s2(1S)3p 2Po J=1/2 GROUND			IP = 131838.14+-0.30 cm-1 Ref MZ83,GK00									
2u 3s2(1S)4s 2S			LS Ref HOS92,N98,(SPC98)									
MltMean	1531.183	191.49	65500.45	6	2	1.13E+09		1.32E-01	-0.100	2.307		
	1533.4316	287.24	65500.4538	4	2	7.50E+08	1.13E+09	1.32E-01	-0.277	2.307	0.02	
	1526.7070	0.	65500.4538	2	2	3.80E+08	1.13E+09	1.33E-01	-0.576	2.307	0.02	
3u 3s3p2 2S			LS Ref HOS92,N98									
MltMean	1307.636	191.49	76665.35	6	2	1.01E+09		8.61E-02	-0.287	2.052		
	1309.2757	287.24	76665.35	4	2	6.69E+08	1.01E+09	8.60E-02	-0.463	2.052	0.02	
	1304.3702	0.	76665.35	2	2	3.39E+08	1.01E+09	8.63E-02	-0.763	2.052	0.02	
4u 3s2(1S)3d 2D			LS Ref HOS92,N98									
MltMean	1263.313	191.49	79348.41	6	10	2.94E+09		1.17E+00	0.847	3.171		
	1265.0020	287.24	79338.50	4	4	4.88E+08	2.95E+09	1.17E-01	-0.329	2.171	0.02	
	1264.7377	287.24	79355.02	4	6	2.93E+09	2.93E+09	1.05E+00	0.625	3.125	0.02	
	1260.4221	0.	79338.50	2	4	2.47E+09	2.95E+09	1.18E+00	0.371	3.171	0.02	
5u 3s3p2 2P			LS Ref HOS92,N98									
MltMean	1194.096	191.49	83936.82	6	6	4.08E+09		8.72E-01	0.719	3.018		
	1197.3938	287.24	83801.95	4	2	1.35E+09	4.07E+09	1.45E-01	-0.237	2.239	0.02	
	1194.5002	287.24	84004.26	4	4	3.40E+09	4.08E+09	7.27E-01	0.463	2.938	0.02	
	1193.2897	0.	83801.95	2	2	2.73E+09	4.07E+09	5.82E-01	0.066	2.842	0.02	
	1190.4158	0.	84004.26	2	4	6.86E+08	4.08E+09	2.92E-01	-0.234	2.541	0.02	
5.01u 3s2(1S)5s 2S			LS Ref HOS92,N98,CM00,(SPC98)									
MltMean	1022.698	191.49	97972.09	6	2	3.21E+08		1.68E-02	-0.997	1.234		
	1023.7002	287.24	97972.09	4	2	2.13E+08		1.68E-02	-1.174	1.234	0.01	
	1020.6989	0.	97972.09	2	2	1.08E+08		1.68E-02	-1.473	1.234	0.1	
6u 3s2(1S)4d 2D			LS Ref HOS92,N98,CM00									
MltMean	991.745	191.49	101023.83	6	10	6.93E+08		1.70E-01	0.009	2.228		
	992.6956	287.24	101023.05	4	4	1.15E+08		1.70E-02	-1.167	1.228	0.02	
	992.6828	287.24	101024.35	4	6	6.91E+08		1.53E-01	-0.213	2.182	0.02	
	989.8731	0.	101023.05	2	4	5.81E+08		1.71E-01	-0.467	2.228	0.02	
Si III 3s2 1S J=0 GROUND			IP = 270139.3+-0.7 cm-1 Ref MZ83									
1u 3s3p 3Po			One Ref KJSP83,(CCH93,ZF00)									
	1892.030	0.	52853.28	1	3	1.67E+04	1.67E+04	2.69E-05	-4.570	-1.294	0.013	
2u 3s3p 1Po			One Ref CCH93,ZF00,(IL73,LGBDBG76)									
	1206.500	0.	82884.41	1	3	2.48E+09	2.48E+09	1.63E+00	0.211	3.293	0.01	
Si IV 3s 2S J=1/2 GROUND			IP = 364093.1+-0.6 cm-1 Ref GK00,MZ83									
1u 3p 2Po			All Ref TC88,JLS96,SMK98,(MTC93)									
MltMean	1396.752	0.	71594.70	2	6	8.74E+08		7.67E-01	0.186	3.030		
	1402.7729	0.	71287.376	2	2	8.61E+08	8.62E+08	2.54E-01	-0.294	2.552	0.019	
	1393.7602	0.	71748.355	2	4	8.81E+08	8.80E+08	5.13E-01	0.011	2.854	0.019	
Si V 2s22p6 1So J=0 GROUND			IP = 1345070+-25 cm-1 No ground-term lines >911.7 A MZ83									
Si VI 2s22p5 2Po J= 3/2 GROUND			IP = 1655590+-150 cm-1 No ground-term lines >911.7 A MZ83									
PHOSPHORUS = P Z = 15 A = 31:100%												
P I 3s23p3 4So J=3/2 GROUND			IP = 84580.83+-0.12 cm-1 Ref MZM85									
1u 3s23p2(3P)4s 4P			All Ref SL66,CMB71,LKIP75,MR95									
MltMean	1779.678	0.	56189.94	4	12	2.40E+08		3.42E-01	0.137	2.785		
	1787.6481	0.	55939.421	4	2	2.52E+08	2.52E+08	6.04E-02	-0.617	2.033		
	1782.8291	0.	56090.626	4	4	2.38E+08	2.38E+08	1.13E-01	-0.343	2.306		
	1774.9487	0.	56339.656	4	6	2.38E+08	2.38E+08	1.69E-01	-0.171	2.476		
3s23p2(3P)4s 2P			All									
	1727.8148	0.	57876.574	4	2							
	1718.9702	0.	58174.366	4	4							
2u 3s3p4 4P			All Ref F86									
MltMean	1676.653	0.	59642.64	4	12	8.04E+07		1.02E-01	-0.391	2.232		
	1679.6969	0.	59534.549	4	6	8.45E+07		5.36E-02	-0.669	1.954		
	1674.5953	0.	59715.921	4	4	7.73E+07		3.25E-02	-0.886	1.736		
	1671.6713	0.	59820.371	4	2	7.45E+07		1.56E-02	-1.205	1.416		
3s23p2(3P)3d 2P			All									
	1472.5559	0.	67909.136	4	4							
	1467.8553	0.	68126.607	4	2							
3s23p2(3P)3d 4F			All									
	1466.6372	0.	68183.186	4	4							
	1464.9407	0.	68262.151	4	6							
3s23p2(3P)3d 4D			All									
	1431.0649	0.	69878.033	4	2							
	1430.7317	0.	69894.307	4	4							
	1430.1149	0.	69924.453	4	6							

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
P I	3s23p3 4So J=3/2 GROUND		IP = 84580.83+-0.12 cm-1	Ref MZM85								
	3s23p2(3P)5s 4P		All									
		1381.6353	0.	72378.000	4	2						
		1377.9343	0.	72572.400	4	4						
		1373.4905	0.	72807.203.	4	6						
	3s23p2(3P)3d 4P		All	Ref F86								
MltMean		1380.058	0.	72460.74	4	12	7.53E+08		6.45E-01	0.412	2.949	
		1381.4760	0.	72386.347	4	6	7.36E+08		3.16E-01	0.102	2.640	
		1379.4282	0.	72493.806	4	4	7.68E+08		2.19E-01	-0.057	2.480	
		1377.0730	0.	72617.789	4	2	7.74E+08		1.10E-01	-0.357	2.180	
	3s23p2(3P)3d 2D		All									
		1374.7252	0.	72741.808	4	4						
		1372.0270	0.	72884.865	4	6						
	3s23p2(3P)4d 2P		All									
		1321.421	0.	75676.09	4	4						
		1319.022	0.	75813.72	4	2						
	3s23p2(3P)4d 2F		One									
		1318.684	0.	75833.18	4	6						
	3s23p2(3P)4d 4F		All									
		1316.665	0.	75949.47	4	4						
		1314.994	0.	76045.99	4	6						
	3s23p2(3P)4d 4P		All									
		1286.444	0.	77733.68	4	6						
		1283.881	0.	77888.81	4	4						
		1282.619	0.	77965.5	4	2						
	3s23p2(3P)6s 4P		All									
		1285.8511	0.	77769.50	4	2						
		1282.9963	0.	77942.55	4	4						
		1278.5870	0.	78211.34	4	6						
	3s23p2(3P)4d 2D		All									
		1284.790	0.	77833.75	4	4						
		1282.928	0.	77946.70	4	6						
	3s23p2(3P)5d 2P		All									
		1263.868	0.	79122.19	4	4						
		1262.315	0.	79219.56	4	2						
	3s23p2(3P)5d 4F		All									
		1260.408	0.	79339.38	4	4						
		1259.413	0.	79402.10	4	6						
	3s23p2(3P)7s 4P		All									
		1246.565	0.	80220.46	4	2						
		1244.083	0.	80380.49	4	4						
		1239.475	0.	80679.30	4	6						
	3s23p2(3P)5d 4P		All									
		1245.200	0.	80308.41	4	6						
		1243.375	0.	80426.27	4	4						
		1242.110	0.	80508.15	4	2						
	3s23p2(3P)6d 4F		All									
		1233.503	0.	81069.94	4	4						
		1232.686	0.	81123.64	4	6						
P II	3s23p2 3P J=0 GROUND		IP = 159451.5+-1.0 cm-1	Ref MZM85								
	3s3p3 5So		All	Ref CHP92,BF93,LL93a,LL93b,(H93)								
	2210.3356	2211.0246	469.12	45697.02	5	5	4.45E+03	5.99E+03	3.26E-06	-4.788	-2.142	0.04
	2195.5659	2196.2518	164.90	45697.02	3	5	1.54E+03	5.99E+03	1.86E-06	-5.254	-2.390	0.04
1u	3s3p3 3Do		All	Ref H88								
MltMean		1539.200	315.59	65284.42	9	15	4.77E+06		2.82E-03	-1.595	0.638	
		1543.6308	469.12	65251.45	5	3	8.82E+04	4.77E+06	1.89E-05	-4.024	-1.535	
		1543.1330	469.12	65272.35	5	5	9.14E+05	4.76E+06	3.26E-04	-2.787	-0.298	
		1542.3042	469.12	65307.17	5	7	4.77E+06	4.77E+06	2.38E-03	-1.924	0.565	
		1536.4157	164.90	65251.45	3	3	1.81E+06	4.77E+06	6.41E-04	-2.716	-0.007	
		1535.9225	164.90	65272.35	3	5	3.85E+06	4.76E+06	2.27E-03	-2.167	0.542	
		1532.5330	0.	65251.45	1	3	2.87E+06	4.77E+06	3.03E-03	-2.518	0.667	
2u	3s3p3 3Po		All	Ref H88,(LKIP75								
MltMean		1307.683	315.59	76786.71	9	9	4.60E+07		1.18E-02	-0.974	1.188	
		1310.7029	469.12	76764.06	5	5	3.28E+07	4.33E+07	8.45E-03	-1.374	1.044	
		1309.8742	469.12	76812.33	5	3	1.82E+07	4.82E+07	2.81E-03	-1.852	0.566	
		1305.4973	164.90	76764.06	3	5	1.05E+07	4.33E+07	4.47E-03	-1.872	0.766	
		1304.6752	164.90	76812.33	3	3	1.33E+07	4.82E+07	3.39E-03	-1.992	0.646	
		1304.4917	164.90	76823.11	3	1	5.29E+07	5.29E+07	4.50E-03	-1.870	0.769	
		1301.8743	0.	76812.33	1	3	1.67E+07	4.82E+07	1.27E-02	-1.895	1.219	
	3s23p3d 1Do		All	Ref H88								
		1294.6480	469.12	77710.19	5	5	9.70E+05		2.44E-04	-2.914	-0.501	
		1289.5690	164.90	77710.19	3	5						

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
P II 3s23p2 3P J=0 GROUND			IP = 159451.5+-1.0 cm-1	Ref MZM85								
3u 3s23p4s 3Po			All	Ref H88,(LKIP75)								
MltMean	1154.420	315.59	86939.16		9	9	1.24E+09		2.47E-01	0.347	2.455	
	1159.0865	469.12	86743.96		5	3	5.13E+08	1.23E+09	6.20E-02	-0.509	1.856	
	1156.9702	164.90	86597.55		3	1	1.22E+09	1.22E+09	8.16E-02	-0.611	1.975	
	1155.0137	164.90	86743.96		3	3	3.05E+08	1.23E+09	6.10E-02	-0.738	1.848	
	1153.9951	469.12	87124.60		5	5	9.31E+08	1.25E+09	1.86E-01	-0.032	2.331	
	1152.8180	0.	86743.96		1	3	4.10E+08	1.23E+09	2.45E-01	-0.611	2.451	
	1149.9580	164.90	87124.60		3	5	3.15E+08	1.25E+09	1.04E-01	-0.505	2.078	
3s23p3d 3Fo			All									
	1145.0166	469.12	87804.10		5	5						
	1142.8873	469.12	87966.81		5	7						
	1141.0419	164.90	87804.10		3	5						
3s23p4s 1Po			All	Ref H88								
	1130.9134	469.12	88893.22		5	3	1.20E+06		1.38E-04	-3.161	-0.807	
	1127.0359	164.90	88893.22		3	3	3.28E+06		6.25E-04	-2.727	-0.152	
	1124.9452	0.	88893.22		1	3	4.36E+06		2.48E-03	-2.605	0.446	
3s23p3d 1Po			All	Ref H88								
	977.2387	469.12	102798.26		5	3	2.16E+07		1.86E-03	-2.033	0.258	
	974.3421	164.90	102798.26		3	3	4.26E+06		6.06E-04	-2.740	-0.229	
	972.7791	0.	102798.26		1	3	4.93E+07		2.10E-02	-1.678	1.310	
3s23p3d 3Po			All	Ref H88								
MltMean	967.205	315.59	103706.29		9	9	4.00E+09		5.61E-01	0.703	2.734	
	969.3625	469.12	103629.70		5	5	9.07E+08	4.01E+09	1.28E-01	-0.195	2.093	
	968.1780	469.12	103755.91		5	3	6.47E+08	4.14E+09	5.46E-02	-0.564	1.723	
	966.5123	164.90	103629.70		3	5	3.10E+09	4.01E+09	7.24E-01	0.337	2.845	
	965.3347	164.90	103755.91		3	3	1.60E+06	4.14E+09	2.24E-04	-3.174	-0.666	
	963.8005	0.	103755.91		1	3	3.49E+09	4.14E+09	1.46E+00	0.164	3.148	
	963.6188	164.90	103940.38		3	1	3.69E+09	3.69E+09	1.71E-01	-0.289	2.217	
3s23p3d 3Do			All	Ref H88,(LKIP75)								
MltMean	963.832	315.59	104068.14		9	15	5.38E+09		1.25E+00	1.051	3.080	
	965.4266	469.12	104050.27		5	7	5.59E+09	5.59E+09	1.09E+00	0.738	3.024	
	965.3936	469.12	104053.81		5	3	9.44E+08	5.09E+09	7.91E-02	-0.403	1.883	
	964.9470	469.12	104101.75		5	5	3.22E+09	5.22E+09	4.49E-01	0.352	2.637	
	962.5666	164.90	104053.81		3	3	3.31E+09	5.09E+09	4.60E-01	0.140	2.646	
	962.1227	164.90	104101.75		3	5	2.00E+09	5.22E+09	4.63E-01	0.142	2.648	
	961.0412	0.	104053.81		1	3	8.40E+08	5.09E+09	3.49E-01	-0.457	2.525	
3s23p3d 1Fo			One									
	935.5313	469.12	107360.25		5	7						
P III 3s2(1S)3p 2Po J=1/2 GROUND			IP = 243600.7+-0.7 cm-1	Ref MZM85								
3s3p2 4P			All									
	1774.2284	559.14	56921.67		4	2						
	1767.8202	559.14	57125.98		4	4						
	1757.6280	559.14	57454.00		4	6						
	1756.8002	0.	56921.67		2	2						
	1750.5170	0.	57125.98		2	4						
1u 3s3p2 2D			LS	Ref CMB71,LKIP75								
MltMean	1341.175	372.76	74934.26		6	10	6.25E+07		2.81E-02	-0.773	1.576	
	1344.8505	559.14	74916.85		4	4	1.03E+07	6.32E+07	2.80E-03	-1.951	0.576	0.04
	1344.3260	559.14	74945.86		4	6	6.21E+07	6.21E+07	2.52E-02	-0.996	1.530	0.04
	1334.8132	0.	74916.85		2	4	5.28E+07	6.32E+07	2.82E-02	-1.248	1.576	0.04
2u 3s3p2 2S			LS	Ref LKIP75								
MltMean	1001.726	372.76	100200.44		6	2	2.22E+09		1.11E-01	-0.175	2.047	
	1003.5999	559.14	100200.44		4	2	1.47E+09	2.22E+09	1.11E-01	-0.352	2.047	0.07
	997.9996	0.	100200.44		2	2	7.48E+08	2.22E+09	1.12E-01	-0.651	2.047	0.07
3u 3s3p2 2P			LS	Ref CMB71,LKIP75								
MltMean	918.147	372.76	109287.74		6	6	4.79E+09		6.05E-01	0.560	2.745	
	921.8450	559.14	109037.25		4	2	1.58E+09	4.78E+09	1.00E-01	-0.396	1.967	0.04
	918.6630	559.14	109412.98		4	4	3.98E+09	4.79E+09	5.04E-01	0.305	2.666	0.04
	917.1178	0.	109037.25		2	2	3.20E+09	4.78E+09	4.04E-01	-0.093	2.569	0.04
	913.9683	0.	109412.98		2	4	8.09E+08	4.79E+09	2.03E-01	-0.392	2.268	0.04
P IV 3s2 1S J=0 GROUND			IP = 414922.8+-1.0		Ref MZM85							
3s3p 3Po			One	Ref CCH93,ZF00								
	1467.4272	0.	68146.48		1	3	5.77E+04	5.77E+04	5.59E-05	-4.253	-1.086	
3s3p 1Po			One	Ref CCH93,ZF00,(CMB71,LKIP75)								
	950.6569	0.	105190.42		1	3	3.67E+09	3.67E+09	1.49E+00	0.174	3.152	
P V 3s 2S J=1/2 GROUND			IP = 524462.9+-1.0 cm-1	Ref MZM85								
1u 3p 2Po			All	Ref TC88,JLS96,SMK98,(CMB71,LKIP75)								
MltMean	1121.301	0.	89182.12		2	6	1.25E+09		7.05E-01	0.149	2.898	
	1128.0078	0.	88651.87		2	2	1.22E+09	1.22E+09	2.33E-01	-0.332	2.420	
	1117.9774	0.	89447.25		2	4	1.26E+09	1.26E+09	4.72E-01	-0.025	2.722	

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
P VI	2s22p6 1S J=0 GROUND		IP = 1777820+-100 cm-1		No ground-term lines >911.7 A				MZM85			
P VII	2s22p5 2Po J=3/2 GROUND		IP = 2125800+-500 cm-1		No ground-term lines >911.7 A				MZM85			
SULPHUR = S Z = 16 A = 32:94.93, 33:0.0.76, 34:4.29, 36:0.02%												
S I	3s23p4 3P J=2 GROUND		IP = 83559.1+-1.0 cm-1		Ref MZM90,KM93							
1u	3s23p3(4So)4s 5So		All	Ref DEK90,(BSZ96)								
	1914.6970	396.055	52623.640		3	5	2.82E+04	1.09E+05	2.58E-05	-4.111	-1.306	0.05
	1900.2866	0.	52623.640		5	5	8.04E+04	1.09E+05	4.35E-05	-3.662	-1.082	0.05
2u	3s23p3(4So)4s 3So		All	Ref BSFE94,RM94,(BSZ96,ZT02)								
MltMean	1813.728	195.76	55330.81		9	3	5.33E+08		8.76E-02	-0.103	2.201	
	1826.2448	573.640	55330.811		1	3	5.49E+07	5.33E+08	8.24E-02	-1.084	2.177	0.022
	1820.3412	396.055	55330.811		3	3	1.70E+08	5.33E+08	8.45E-02	-0.596	2.187	0.022
	1807.3113	0.	55330.811		5	3	3.08E+08	5.33E+08	9.05E-02	-0.344	2.214	0.022
3u	3s23p3(2Do)4s 3Do		LS	Ref D90,BSFE94,(ZT02)								
MltMean	1478.504	195.76	67831.67		9	15	1.80E+08		9.83E-02	-0.053	2.162	
	1487.1500	573.640	67816.351		1	3	9.83E+07		9.77E-02	-1.010	2.162	0.03
	1483.2329	396.055	67816.351		3	3	7.43E+07		2.45E-02	-1.134	1.560	0.03
	1483.0385	396.055	67825.188		3	5	1.34E+08		7.35E-02	-0.657	2.038	0.03
	1474.5706	0.	67816.351		5	3	5.04E+06		9.86E-04	-2.307	0.162	0.03
	1474.3785	0.	67825.188		5	5	4.54E+07		1.48E-02	-1.131	1.339	0.03
	1473.9943	0.	67842.867		5	7	1.82E+08		8.28E-02	-0.383	2.087	0.03
4u	3s23p3(4So)3d 5Do		All	Ref M68=WSM69								
	1485.6217	573.640	67885.527		1	3	2.32E+06		2.30E-03	-2.638	0.534	0.1
	1481.7428	396.055	67884.150		3	1						
	1481.7126	396.055	67885.527		3	3						
	1481.6627	396.055	67887.797		3	5						
	1473.0680	0.	67885.527		5	3						
	1473.0188	0.	67887.797		5	5						
	1472.9708	0.	67890.008		5	7						
	3s23p3(2Do)3d 1Do		All									
	1452.6052	396.055	69237.886		3	5						
	1444.2960	0.	69237.886		5	5						
5u	3s23p3(4So)3d 3Do		LS	Ref D90,BSFE94,(ZT02)								
MltMean	1429.107	195.76	70169.51		9	15	2.90E+08		1.48E-01	0.124	2.325	
	1436.9672	573.640	70164.650		1	3	1.58E+08		1.47E-01	-0.832	2.325	0.03
	1433.3096	396.055	70164.650		3	3	1.20E+08		3.69E-02	-0.956	1.723	0.03
	1433.2781	396.055	70166.187		3	5	2.16E+08		1.11E-01	-0.479	2.200	0.03
	1425.2191	0.	70164.650		5	3	8.12E+06		1.48E-03	-2.130	0.325	0.03
	1425.1879	0.	70166.187		5	5	7.31E+07		2.23E-02	-0.954	1.501	0.03
	1425.0300	0.	70173.96		5	7	2.92E+08		1.25E-01	-0.205	2.250	0.03
	3s23p3(4So)5s 5So		All									
	1422.3388	396.055	70702.790		3	5						
	1414.3713	0.	70702.790		5	5						
6u	3s23p3(4So)5s 3So		All	Ref BCZSB97,BGFLS98,(ZT02)								
MltMean	1405.370	195.76	71351.40		9	3	1.28E+08		1.26E-02	-0.945	1.249	
	1412.8732	573.640	71351.399		1	3	1.37E+07	1.41E+08	1.23E-02	-1.910	1.240	0.03
	1409.3371	396.055	71351.399		3	3	4.19E+07	1.41E+08	1.25E-02	-1.426	1.246	0.03
	1401.5142	0.	71351.399		5	3	7.22E+07	1.41E+08	1.28E-02	-1.195	1.253	0.03
7u	3s3p5 3Po		All	Ref M68=WSM69								
MltMean	1388.730	195.76	72204.01		9	9	1.18E+06		3.40E-04	-2.514	-0.325	
	1396.1130	396.055	72023.495		3	5	5.75E+05		2.80E-04	-3.076	-0.408	0.1
	1392.5892	573.640	72382.328		1	3	5.16E+05		4.50E-04	-3.347	-0.203	0.1
	1389.1537	396.055	72382.328		3	3	1.69E+05		4.90E-05	-3.833	-1.167	0.1
	1388.4358	0.	72023.495		5	5	5.54E+05		1.60E-04	-3.097	-0.653	0.1
	1385.5103	396.055	72571.63		3	1	1.25E+06		1.20E-04	-3.444	-0.779	0.1
	1381.5527	0.	72382.328		5	3	5.42E+05		9.30E-05	-3.333	-0.891	0.1
	3s23p3(4So)4d 5Do		All									
	1344.0423	573.640	74976.06		1	3						
	1340.8576	396.055	74975.19		3	5						
	1340.8420	396.055	74976.06		3	3						
	1340.8321	396.055	74976.61		3	1						
	1333.7939	0.	74974.10		5	7						
	1333.7745	0.	74975.19		5	5						
	1333.7591	0.	74976.06		5	3						
8u	3s23p3(4So)4d 3Do		All	Ref BCZSB97,BGFLS98,(ZT02)								
MltMean	1319.985	195.76	75954.22		9	15	7.78E+07		3.39E-02	-0.516	1.651	
	1326.6416	573.640	75951.95		1	3	4.32E+07	7.94E+07	3.42E-02	-1.466	1.656	0.05
	1323.5235	396.055	75951.95		3	3	3.30E+07	7.94E+07	8.67E-03	-1.585	1.060	0.05
	1323.5165	396.055	75952.35		3	5	5.87E+07	8.00E+07	2.57E-02	-1.113	1.531	0.03
	1316.6219	0.	75951.95		5	3	2.30E+06	7.94E+07	3.58E-04	-2.747	-0.326	0.05
	1316.6150	0.	75952.35		5	5	2.04E+07	8.00E+07	5.30E-03	-1.576	0.844	0.03
	1316.5425	0.	75956.53		5	7	7.67E+07	7.75E+07	2.79E-02	-0.856	1.565	0.04
	3s23p3(4So)6s 5So		All									
	1314.6132	396.055	76464.06		3	5						
	1307.8040	0.	76464.06		5	5						

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
S I	3s23p4 3P J=2 GROUND		IP = 83559.1+-1.0 cm-1	Ref MZM90,KM93								
	3s23p3(4So)6s 3So		All Ref BCZSB97,BGFLS98,(ZT02)									
MltMean	1306.764	195.76	76720.65		9	3	5.03E+07		4.29E-03	-1.413	0.749	
	1313.2492	573.640	76720.65		1	3	5.36E+06	5.65E+07	4.15E-03	-2.382	0.737	0.03
	1310.1937	396.055	76720.65		3	3	1.64E+07	5.65E+07	4.22E-03	-1.898	0.742	0.03
	1303.4300	0.	76720.65		5	3	2.85E+07	5.65E+07	4.36E-03	-1.662	0.754	0.03
9u	3s23p3(2Po)4s 3Po		All Ref BSFE94									
MltMean	1299.208	195.76	77165.74		9	9						
	1305.8837	573.640	77150.14		1	3	1.96E+08		1.50E-01	-0.824	2.292	0.04
	1303.1105	396.055	77135.52		3	1						
	1302.8623	396.055	77150.14		3	3	1.53E+08		3.90E-02	-0.932	1.706	0.07
	1302.3361	396.055	77181.15		3	5	1.20E+08		5.10E-02	-0.815	1.822	0.04
	1296.1739	0.	77150.14		5	3	1.46E+08		2.20E-02	-0.959	1.455	0.04
	1295.6531	0.	77181.15		5	5	3.46E+08		8.70E-02	-0.362	2.052	0.03
	3s23p3(4So)5d 5Do		Part									
	1284.1102	396.055	78270.99		3	5						
	1277.6202	0.	78270.52		5	7						
	1277.6126	0.	78270.99		5	5						
	3s23p3(2Po)4s 1Po		All									
	1286.7562	573.640	78288.44		1	3						
	1283.8225	396.055	78288.44		3	3						
	1277.3278	0.	78288.44		5	3						
	3s23p3(4So)5d 3Do		All Ref BCZSB97,BGFLS98									
MltMean	1273.950	195.76	78691.80		9	15	2.45E+07		9.92E-03	-1.049	1.102	
	1280.1001	573.640	78692.53		1	3	1.31E+07	2.44E+07	9.67E-03	-2.015	1.093	0.04
	1277.2156	396.055	78691.37		3	5	1.79E+07	2.47E+07	7.28E-03	-1.661	0.969	0.05
	1277.1967	396.055	78692.53		3	3	1.02E+07	2.44E+07	2.50E-03	-2.124	0.505	0.04
	1270.7874	0.	78691.37		5	5	6.52E+06	2.47E+07	1.58E-03	-2.103	0.302	0.05
	1270.7804	0.	78691.80		5	7	2.47E+07	2.50E+07	8.37E-03	-1.378	1.027	0.05
	1270.7686	0.	78692.53		5	3	7.40E+05	2.44E+07	1.08E-04	-3.270	-0.864	0.04
	3s23p3(4So)7s 5So		All									
	1271.2621	396.055	79058.04		3	5						
	1264.8935	0.	79058.04		5	5						
	3s23p3(4So)7s 3So		All Ref BCZSB97,BGFLS98									
MltMean	1265.990	195.76	79185.35		9	3	2.47E+07		1.98E-03	-1.749	0.399	
	1272.0751	573.640	79185.35		1	3	2.53E+06	2.81E+07	1.84E-03	-2.735	0.370	0.05
	1269.2080	396.055	79185.35		3	3	7.91E+06	2.81E+07	1.91E-03	-2.242	0.385	0.05
	1262.8599	0.	79185.35		5	3	1.43E+07	2.81E+07	2.05E-03	-1.990	0.412	0.05
	3s23p3(4So)6d 5Do		Part									
	1256.3375	396.055	79992.50		3	5						
	1250.1200	0.	79992.32		5	7						
	1250.1172	0.	79992.50		5	5						
	3s23p3(4So)6d 3Do		All Ref LPSGB98,BGFLS98									
MltMean	1250.193	195.76	80183.40		9	15	1.32E+07		5.14E-03	-1.335	0.808	
	1256.0927	573.640	80185.60		1	3	7.77E+06	1.33E+07	5.51E-03	-2.259	0.840	0.05
	1253.3248	396.055	80183.83		3	5	1.04E+07	1.33E+07	4.09E-03	-1.911	0.710	0.05
	1253.2970	396.055	80185.60		3	3	5.13E+06	1.33E+07	1.21E-03	-2.441	0.180	0.05
	1247.1602	0.	80182.16		5	7	1.32E+07	1.33E+07	4.30E-03	-1.668	0.729	0.05
	1247.1342	0.	80183.83		5	5	2.74E+06	1.33E+07	6.38E-04	-2.496	-0.099	0.05
	1247.1067	0.	80185.60		5	3	2.61E+05	1.33E+07	3.66E-05	-3.738	-1.341	0.05
	3s23p3(4So)8s 5So		All									
	1249.1717	396.055	80449.10		3	5						
	1243.0220	0.	80449.10		5	5						
	3s23p3(4So)8s 3So		All Ref LPSGB98,BGFLS98									
MltMean	1244.932	195.76	80521.46		9	3	2.19E+07		1.69E-03	-1.817	0.324	
	1250.8158	573.640	80521.46		1	3	2.58E+06	2.50E+07	1.81E-03	-2.742	0.356	0.06
	1248.0436	396.055	80521.46		3	3	7.46E+06	2.50E+07	1.74E-03	-2.282	0.338	0.06
	1241.9050	0.	80521.46		5	3	1.18E+07	2.50E+07	1.64E-03	-2.087	0.309	0.06
	3s23p3(4So)7d 3Do		All									
MltMean	1236.306	195.76	81081.89		9	15						
	1242.0658	573.640	81084.67		1	3						
	1239.3662	396.055	81082.46		3	5						
	1239.3322	396.055	81084.67		3	3						
	1233.3454	0.	81080.29		5	7						
	1233.3124	0.	81082.46		5	5						
	1233.2787	0.	81084.67		5	3						
	3s23p3(4So)9s 5So		All									
	1236.3155	396.055	81281.56		3	5						
	1230.2913	0.	81281.56		5	5						
	3s23p3(4So)9s 3So		All									
	1238.3415	573.640	81326.81		1	3						
	1235.6242	396.055	81326.81		3	3						
	1229.6068	0.	81326.81		5	3						
	3s23p3(2Do)3d 1Po		All									
	1236.6341	573.640	81438.30		1	3						
	1233.9244	396.055	81438.30		3	3						
	1227.9235	0.	81438.30		5	3						

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
S I	3s23p4 3P J=2 GROUND		IP = 83559.1+-1.0 cm-1	Ref MZM90,KM93								
	3s23p3(4So)8d 3Do		All									
		1233.1324	573.640	81667.93	1	3						
		1230.4731	396.055	81665.61	3	5						
		1230.4380	396.055	81667.93	3	3						
		1224.5440	0.	81663.05	5	7						
		1224.5056	0.	81665.61	5	5						
		1224.4709	0.	81667.93	5	3						
	3s23p3(4So)10s 5So		All									
		1228.1520	396.055	81819.20	3	5						
		1222.2070	0.	81819.20	5	5						
	3s23p3(4So)10s 3So		All									
		1230.3749	573.640	81849.68	1	3						
		1227.6924	396.055	81849.68	3	3						
		1221.7519	0.	81849.68	5	3						
	3s23p3(4So)9d 3Do		All									
		1227.0905	573.640	82067.22	1	3						
		1224.4796	396.055	82063.40	3	5						
		1224.4224	396.055	82067.22	3	3						
		1218.5953	0.	82061.70	5	7						
		1218.5700	0.	82063.40	5	5						
		1218.5133	0.	82067.22	5	3						
	3s23p3(4So)11s 3So		All									
		1224.972	573.640	82208.17	1	3						
		1222.313	396.055	82208.17	3	3						
		1216.424	0.	82208.17	5	3						
	3s23p3(4So)10d 3Do		All									
		1222.7987	573.640	82353.25	1	3						
		1220.1625	396.055	82352.35	3	5						
		1220.1491	396.055	82353.25	3	3						
		1214.3177	0.	82350.77	5	7						
		1214.2944	0.	82352.35	5	5						
		1214.2812	0.	82353.25	5	3						
	3s23p3(4So)11d 3Do		All									
		1219.650	573.640	82564.4	1	3						
		1217.026	396.055	82563.6	3	5						
		1217.014	396.055	82564.4	3	3						
		1211.212	0.	82561.9	5	7						
		1211.187	0.	82563.6	5	5						
		1211.176	0.	82564.4	5	3						
	3s23p3(2Do)30d 1Fo		One									
		1210.589	0.	82604.41	5	7						
	3s23p3(4So)12d 3Do		All									
		1217.271	573.640	82724.6	1	3						
		1214.646	396.055	82724.6	3	3						
		1214.640	396.055	82725.0	3	5						
		1208.851	0.	82723.2	5	7						
		1208.830	0.	82724.6	5	3						
		1208.824	0.	82725.0	5	5						
	3s23p3(4So)13d 3Do		Part									
		1212.794	396.055	82850.3	3	5						
		1207.015	0.	82849.0	5	7						
		1206.996	0.	82850.3	5	5						
	3s23p3(4So)14d 3Do		All									
		1213.96	573.640	82948.7	1	3						
		1211.35	396.055	82948.7	3	5						
		1211.35	396.055	82948.7	3	3						
		1205.56	0.	82948.7	5	7						
		1205.56	0.	82948.7	5	5						
		1205.56	0.	82948.7	5	3						
S II	3s23p3 4So J=3/2 GROUND		IP = 188232.7+-2.0 cm-1	Ref MZM90,KM93								
1u	3s3p4 4P		All	Ref OH89,(L69,N97)								
MltMean		1256.114	0.	79610.64	4	12	4.64E+07		3.29E-02	-0.880	1.617	
		1259.518	0.	79395.45	4	6	4.65E+07	4.65E+07	1.66E-02	-1.178	1.320	0.04
		1253.805	0.	79757.22	4	4	4.62E+07	4.62E+07	1.09E-02	-1.361	1.136	0.04
		1250.578	0.	79963.03	4	2	4.63E+07	4.63E+07	5.43E-03	-1.663	0.832	0.04
	3s3p4 2D		All									
		1021.539	0.	97891.51	4	4						
		1021.254	0.	97918.86	4	6						
	3s23p2(3P)3d 2P		All									
		946.978	0.	105599.06	4	4						
		943.003	0.	106044.24	4	2						

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
S II 3s23p3 4So J=3/2 GROUND			IP = 188232.7+-2.0 cm-1 Ref MZM90,KM93									
2u 3s23p2(3P)4s 4P			LS Ref OH89,(N97)									
MltMean	909.054	0.	110004.48	4	12	1.13E+09		4.20E-01	0.225	2.582		
	912.735	0.	109560.83	4	2	1.12E+09	1.12E+09	6.97E-02	-0.555	1.804		
	910.484	0.	109831.69	4	4	1.12E+09	1.12E+09	1.40E-01	-0.253	2.105		
	906.885	0.	110267.56	4	6	1.14E+09	1.14E+09	2.10E-01	-0.075	2.281		
S III 3s23p2 3P J=0 GROUND			IP = 280600 cm-1				Ref KM93,(MZM90)					
3s3p3 5So			All Ref HSC95,H86,BF93,(LL93b)									
	1728.942	833.08	58671.92	5	5	1.54E+04	2.08E+04	6.90E-06	-4.462	-1.923	0.07	
	1713.114	298.69	58671.92	3	5	5.40E+03	2.08E+04	3.96E-06	-4.925	-2.169	0.07	
1u 3s3p3 3Do			LS Ref NP93,T95,(HH87,BSMBB70,LGBDBG76)									
MltMean	1197.556	562.39	84065.81	9	15	6.56E+07		2.35E-02	-0.675	1.449		
	1202.122	833.08	84019.3	5	3	1.80E+06	6.65E+07	2.34E-04	-2.931	-0.551	0.02	
	1201.726	833.08	84046.7	5	5	1.62E+07	6.59E+07	3.51E-03	-1.755	0.626	0.02	
	1200.966	833.08	84099.4	5	7	6.50E+07	6.50E+07	1.97E-02	-1.007	1.374	0.02	
	1194.449	298.69	84019.3	3	3	2.75E+07	6.65E+07	5.89E-03	-1.753	0.847	0.02	
	1194.058	298.69	84046.7	3	5	4.96E+07	6.59E+07	1.77E-02	-1.275	1.325	0.02	
	1190.203	0.	84019.3	1	3	3.71E+07	6.65E+07	2.37E-02	-1.626	1.449	0.02	
2u 3s3p3 3Po			LS Ref NP93,T95,(HH87,LGBDBG76)									
MltMean	1018.405	562.39	98755.16	9	9	2.80E+08		4.35E-02	-0.407	1.647		
	1021.323	833.08	98745.3	5	5	2.08E+08	2.79E+08	3.26E-02	-0.788	1.522	0.09	
	1021.108	833.08	98765.9	5	3	1.16E+08	2.81E+08	1.09E-02	-1.265	1.045	0.09	
	1015.779	298.69	98745.3	3	5	7.05E+07	2.79E+08	1.82E-02	-1.263	1.267	0.09	
	1015.567	298.69	98765.9	3	3	7.06E+07	2.81E+08	1.09E-02	-1.485	1.045	0.09	
	1015.502	298.69	98772.2	3	1	2.82E+08	2.82E+08	1.46E-02	-1.360	1.170	0.09	
	1012.495	0.	98765.9	1	3	9.50E+07	2.81E+08	4.38E-02	-1.359	1.647	0.09	
3s23p3d 1Do			All									
	967.805	833.08	104159.7	5	5							
	962.825	298.69	104159.7	3	5							
S IV 3s2(1S)3p 2Po J=1/2 GROUND			IP = 380870+-100 cm-1				Ref KM93,(MZM90)					
3s3p2 4P			All Ref HBF02									
	1423.839	951.43	71184.1	4	2	4.72E+04	1.11E+05	7.17E-06	-4.542	-1.991		
	1416.887	951.43	71528.7	4	4	2.16E+04	2.27E+04	6.50E-06	-4.585	-2.036		
	1406.016	951.43	72074.4	4	6	5.13E+04	5.13E+04	2.28E-05	-4.040	-1.494		
	1404.808	0.	71184.1	2	2	6.39E+04	1.11E+05	1.89E-05	-4.422	-1.576		
	1398.040	0.	71528.7	2	4	1.05E+03	2.27E+04	6.15E-07	-5.910	-3.065		
1u 3s3p2 2D			All Ref HBF02,(F02)									
MltMean	1069.551	634.29	94131.48	6	10	1.65E+08		4.72E-02	-0.548	1.703		
	1073.518	951.43	94103.1	4	4	2.25E+07	1.69E+08	3.89E-03	-1.808	0.620		
	1072.973	951.43	94150.4	4	6	1.63E+08	1.63E+08	4.22E-02	-0.773	1.656		
	1062.664	0.	94103.1	2	4	1.46E+08	1.69E+08	4.94E-02	-1.005	1.720		
S V 3s2 1S J=0 GROUND			IP = 585514.1+-3.0 cm-1 Ref MZM90,KM93									
3s3p 3Po			One Ref CCH93,ZF00,(LV79)									
	1199.134	0.	83393.5	1	3	1.60E+05	1.60E+05	1.03E-04	-3.985	-0.906		
S VI 3s 2S J=1/2 GROUND			IP = 710194.7+-3.0 cm-1 Ref MZM90,KM93									
3p 2Po			All Ref TC88,JLS96,SMK98,(EEBDHJJLTM83)									
MltMean	937.064	0.	106716.33	2	6	1.65E+09		6.52E-01	0.115	2.786		
	944.523	0.	105873.6	2	2	1.61E+09	1.61E+09	2.15E-01	-0.367	2.308	0.01	
	933.378	0.	107137.7	2	4	1.67E+09	1.67E+09	4.37E-01	-0.058	2.611	0.01	
S VII 2s22p6 1S J=0 GROUND			IP = 2266000+-100 cm-1 No ground-term lines >911.7 A MZM90,KM93									
CHLORINE = Cl Z = 17 A =35:75.78, 37:24.22%												
Cl I 3s23p5 2Po J=3/2 GROUND			IP = 104591.0+-0.3 cm-1 Ref RK69,UH87									
1u 3s23p4(3P)4s 4P			All Ref BGZ94									
	1396.5268	882.353	72488.568	2	4	1.13E+06	1.08E+07	6.58E-04	-2.881	-0.037		
	1389.9567	882.353	72827.038	2	2	2.33E+06	2.66E+06	6.76E-04	-2.869	-0.027		
	1389.6925	0.	71958.363	4	6	2.99E+05	2.99E+05	1.30E-04	-3.284	-0.743		
	1379.5279	0.	72488.568	4	4	9.64E+06	1.08E+07	2.75E-03	-1.959	0.579		
	1373.1164	0.	72827.038	4	2	3.26E+05	2.66E+06	4.61E-05	-3.734	-1.199		
2u 3s23p4(3P)4s 2P			All Ref SFBE93,BGZ94									
MltMean	1348.709	294.12	74439.12	6	6	6.66E+08		1.82E-01	0.037	2.389		
	1363.4475	882.353	74225.846	2	4	9.87E+07	6.62E+08	5.50E-02	-0.959	1.875	0.03	
	1351.6561	882.353	74865.667	2	2	4.42E+08	6.76E+08	1.21E-01	-0.616	2.214		
	1347.2396	0.	74225.846	4	4	5.62E+08	6.62E+08	1.53E-01	-0.213	2.314	0.03	
	1335.7258	0.	74865.667	4	2	2.34E+08	6.76E+08	3.13E-02	-0.902	1.621		

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Cl I	3s23p5 2Po J=3/2 GROUND		IP = 104591.0+-0.3 cm-1		Ref	RK69,UH87						
	3s23p4(1D)4s 2D		All	Ref BGZ94								
MltMean	1192.936	294.12	84120.91		6	10	2.20E+08		7.83E-02	-0.328	1.970	
	1201.3524	882.353	84121.872		2	4	1.93E+08	2.19E+08	8.35E-02	-0.777	2.001	
	1188.7742	0.	84120.263		4	6	2.21E+08	2.21E+08	7.01E-02	-0.552	1.921	
	1188.7515	0.	84121.872		4	4	2.60E+07	2.19E+08	5.50E-03	-1.658	0.815	
	3s3p6 z 2S		All									
	1179.2927	882.353	85678.94		2	2						
	1167.1480	0.	85678.94		4	2						
	3s23p4(3P)3d 4D		All	Ref BGZ94								
	1145.3941	882.353	88188.55		2	4	1.86E+05		7.30E-05	-3.836	-1.078	
	1144.2909	882.353	88272.72		2	2	3.20E+05		6.28E-05	-3.901	-1.144	
	1135.3310	0.	88080.042		4	6	2.98E+05		8.64E-05	-3.461	-1.008	
	1133.9341	0.	88188.55		4	4	3.95E+05		7.62E-05	-3.516	-1.063	
	1132.8528	0.	88272.72		4	2	1.76E+05		1.69E-05	-4.170	-1.718	
	3s23p4(3P)3d 4F		All	Ref BGZ94								
	1110.2947	882.353	90948.53		2	4	8.39E+07		3.10E-02	-1.208	1.537	
	1101.9361	0.	90749.36		4	6	4.14E+07		1.13E-02	-1.345	1.095	
	1099.5230	0.	90948.53		4	4	6.29E+07		1.14E-02	-1.341	1.098	
	3s23p4(3P)3d 4P		All	Ref BGZ94								
	1108.8114	882.353	91069.02		2	2	1.89E+04		3.48E-06	-5.157	-2.414	
	1103.0692	882.353	91538.50		2	4	1.97E+07		7.17E-03	-1.843	0.898	
	1098.0683	0.	91069.02		4	2	2.97E+06		2.68E-04	-2.970	-0.531	
	1092.4365	0.	91538.50		4	4	1.27E+07		2.27E-03	-2.042	0.394	
	1090.9815	0.	91660.58		4	6	3.81E+06		1.02E-03	-2.389	0.046	
	3s23p4(3P)3d 2F		One	Ref SFBE93								
	1088.0589	0.	91906.79		4	6	3.04E+08		8.10E-02	-0.489	1.945	0.04
	3s23p4(3P)3d 2D		All	Ref SFBE93,BGZ94								
	1107.5282	882.353	91173.51		2	4	3.48E+07		1.28E-02	-1.592	1.152	
	1097.3692	0.	91127.03		4	6	3.25E+07		8.80E-03	-1.453	0.985	0.07
	1096.8098	0.	91173.51		4	4	6.04E+07		1.09E-02	-1.361	1.078	
	3s23p4(3P<2>)5s 2[2]		Ref BGZ94									
	1101.3381	882.353	91680.99		2	4	1.84E+07		6.71E-03	-1.872	0.869	
	1094.7686	0.	91343.50		4	6	6.16E+07		1.66E-02	-1.178	1.259	
	1090.7387	0.	91680.99		4	4	3.81E+07		6.80E-03	-1.565	0.870	
	3s23p4(3P)3d 2P		All	Ref BGZ94								
MltMean	1090.630	294.12	91984.23		6	6	1.77E+08		3.16E-02	-0.722	1.538	
	1102.7553	882.353	91564.30		2	2	6.80E+07		1.24E-02	-1.606	1.136	
	1095.1483	882.353	92194.19		2	4	4.20E+07		1.51E-02	-1.520	1.218	
	1092.1287	0.	91564.30		4	2	1.97E+07		1.76E-03	-2.152	0.284	
	1084.6670	0.	92194.19		4	4	1.81E+08		3.20E-02	-0.893	1.540	
	3s23p4(3P<1>)5s 2[1]		Ref BGZ94									
	1095.7971	882.353	92140.127		2	4	1.92E+08		6.93E-02	-0.858	1.880	
	1095.6619	882.353	92151.38		2	2	8.06E+06		1.45E-03	-2.538	0.201	
	1085.3035	0.	92140.127		4	4	3.29E+06		5.81E-04	-2.634	-0.200	
	1085.1709	0.	92151.38		4	2	8.29E+05		7.32E-05	-3.533	-1.100	
	3s23p4(3P<0>)5s 2[0]		Ref BGZ94									
	1090.2706	882.353	92602.70		2	2	1.38E+08		2.46E-02	-1.308	1.428	
	1079.8821	0.	92602.70		4	2	7.99E+07		6.98E-03	-1.554	0.877	
	3s23p4(3P<2>)4d 2[3]											
	1031.5070	0.	96945.536		4	6						
	3s23p4(3P<2>)4d 2[2]											
	1052.4631	882.353	95897.565		2	4						
	1043.9857	0.	95786.752		4	6						
	1042.7793	0.	95897.565		4	4						
	3s23p4(3P<2>)4d 2[1]											
	1051.3787	882.353	95995.561		2	2						
	1041.7148	0.	95995.561		4	2						
	1040.3475	882.353	97004.081		2	4						
	1030.8845	0.	97004.081		4	4						
	3s23p4(3P<2>)4d 2[0]											
	1041.1480	882.353	96930.181		2	2						
	1031.6704	0.	96930.181		4	2						
	3p4(3P<1>)4d 2[1]											
	1038.7779	882.353	97149.323		2	2						
	1037.5870	882.353	97259.811		2	4						
	1029.3433	0.	97149.323		4	2						
	1028.1739	0.	97259.811		4	4						
	3s23p4(3P<1>)4d 2[3]											
	1027.3386	0.	97338.887		4	6						
	3s23p4(3P<2>)6s 2[2]											
	1035.2148	882.353	97480.664		2	4						
	1028.4075	0.	97237.723		4	6						
	1025.8445	0.	97480.664		4	4						
	3s23p4(3P<1>)4d 2[2]											
	1036.5734	882.353	97354.057		2	4						
	1027.1786	0.	97354.057		4	4						
	1025.2821	0.	97534.130		4	6						

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Cl I	3s23p5 2Po J=3/2 GROUND		IP = 104591.0+-0.3 cm-1		Ref	RK69,UH87						
	3s23p4(3P<0>)4d 2[2]											
	1031.3486	882.353	97842.783		2	4						
	1022.4142	0.	97807.723		4	6						
	1022.0478	0.	97842.783		4	4						
	3p4(3P<1>)6s 2[1]											
	1029.2023	882.353	98044.980		2	4						
	1028.6162	882.353	98100.340		2	2						
	1019.9400	0.	98044.980		4	4						
	1019.3645	0.	98100.340		4	2						
	3s23p4(3P<0>)6s 2[0]											
	1025.5528	882.353	98390.740		2	2						
	1016.3558	0.	98390.740		4	2						
	3s23p4(3P<2>)5d 2[3]											
	1002.3464	0.	99765.906		4	6						
	3s23p4(3P<2>)5d 2[2]											
	1015.5138	882.353	99354.670		2	4						
	1007.3626	0.	99269.121		4	6						
	1006.4952	0.	99354.670		4	4						
	3s23p4(3P<2>)5d 2[1]											
	1014.9651	882.353	99407.907		2	2						
	1012.1505	882.353	99681.887		2	4						
	1005.9562	0.	99407.907		4	2						
	1003.1913	0.	99681.887		4	4						
	3s23p4(1S)4s 2S											
	1013.6635	882.353	99534.419		2	2						
	1004.6776	0.	99534.419		4	2						
	3s23p4(3P<2>)5d 2[0]											
	1011.8492	882.353	99711.309		2	2						
	1002.8953	0.	99711.309		4	2						
	3s23p4(3P<1>)5d 2[1]											
	1009.1857	882.353	99972.144		2	2						
	1007.1647	882.353	100170.980		2	4						
	1000.2786	0.	99972.144		4	2						
	998.2931	0.	100170.980		4	4						
	3s23p4(3P<2>)7s 2[2]											
	1008.3859	882.353	100050.736		2	4						
	1000.1150	0.	99988.501		4	6						
	999.4929	0.	100050.736		4	4						
Cl II	3s23p4 3P J=2 GROUND		IP = 192070+-1 cm-1		Ref	RK74						
1u	3s3p5 3Po		LS	Ref L69,BM71								
MltMean	1071.318	342.72	93685.70		9	9	1.16E+08		2.00E-02	-0.746	1.330	
	1079.0797	696.00	93367.56		3	5	2.84E+07	1.65E+08	8.26E-03	-1.606	0.950	0,015
	1075.2294	996.47	93999.88		1	3	3.82E+07	1.67E+08	1.99E-02	-1.701	1.330	0.015
	1071.7668	696.00	93999.88		3	3	2.90E+07	1.67E+08	4.99E-03	-1.825	0.728	0.015
	1071.0358	0.	93367.56		5	5	8.71E+07	1.65E+08	1.50E-02	-1.126	1.205	0.015
	1067.9443	696.00	94333.84		3	1	1.17E+08	1.67E+08	6.67E-03	-1.698	0.853	0.015
	1063.8311	0.	93999.88		5	3	4.94E+07	1.67E+08	5.03E-03	-1.600	0.728	0.015
	3p3(4So)4s 5So		All									
	932.9780	696.00	107879.66		3	5						
	926.9588	0.	107879.66		5	5						
Cl III	3s23p3 4So J=3/2 GROUND		IP = 319500		Ref	RSVUMJ92,M70b						
1u	3s3p4 4P		LS	Ref BM71								
MltMean	1011.299	0.	98882.68		4	12	9.35E+07		4.30E-02	-0.764	1.638	
	1015.0249	0.	98519.75		4	6	9.25E+07	9.25E+07	2.14E-02	-1.067	1.337	0.03
	1008.7670	0.	99130.92		4	4	9.42E+07	9.42E+07	1.44E-02	-1.240	1.161	0.03
	1005.2779	0.	99474.98		4	2	9.52E+07	9.52E+07	7.21E-03	-1.540	0.860	0.03
Cl IV	3s23p2 3P J=0 GROUND		IP = 431226		Ref	RSVUMJ92,EM84,M70b						
	3s3p3 5So		All	Ref LL93								
	1436.2	1342.9	70972.	:	5	5	9.48E+04	1.32E+06	2.93E-05	-3.834	-1.376	
	1418.9	492.5	70972.	:	3	5	3.69E+04	1.32E+06	1.86E-05	-4.254	-1.579	
	3s3p3 3Do		LS	Ref BM71								
MltMean	981.247	910.22	102821.40		9	15	1.83E+08		4.40E-02	-0.402	1.635	
	986.076	1342.9	102755.0		5	3	5.01E+06	1.86E+08	4.38E-04	-2.659	-0.365	0.025
	985.732	1342.9	102790.4		5	5	4.51E+07	1.84E+08	6.57E-03	-1.483	0.812	0.025
	984.939	1342.9	102872.0		5	7	1.81E+08	1.81E+08	3.68E-02	-0.735	1.560	0.025
	977.876	492.5	102755.0		3	3	7.70E+07	1.86E+08	1.10E-02	-1.480	1.033	0.025
	977.537	492.5	102790.4		3	5	1.39E+08	1.84E+08	3.31E-02	-1.002	1.511	0.025
	973.189	0.	102755.0		1	3	1.04E+08	1.86E+08	4.44E-02	-1.353	1.635	0.025

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Cl V	3s23p 2Po J=1/2 GROUND		IP = 547000					Ref RSVUMJ92,JC96,M70b				
	3s3p2 4P		All Ref F02									
	1189.03	1490.5	85592.9		4	2	1.07E+05	2.54E+05	1.13E-05	-4.343	-1.870	
	1181.50	1490.5	86128.8		4	4	4.38E+04	4.72E+04	9.17E-06	-4.436	-1.965	
	1169.82	1490.5	86973.5		4	6	1.26E+05	1.26E+05	3.88E-05	-3.809	-1.343	
	1168.32	0.	85592.9		2	2	1.47E+05	2.54E+05	3.01E-05	-4.221	-1.454	
	1161.05	0.	86128.8		2	4	3.39E+03	4.72E+04	1.37E-06	-5.562	-2.798	
Cl VI	3s2 1S J=0 GROUND		IP = 782600:					Ref L91,M70b				
	3s3p 3Po		One Ref CCH93,(LV79,C91)									
	1014.0	0.	98621.		1	3	3.81E+05	3.81E+05	1.76E-04	-3.754	-0.748	
Cl VII	3s 2S J=0 GROUND		IP = 921051					No ground-term lines >911.7 A M70b				
ARGON = Ar Z = 18 A = 36:0.3365, 38:0.0632, 40:99.6003% in air												
40Ar I	3s23p6 1S J=0 GROUND		IP = 127109.842+-0.004					Ref Min73,VHU99				
1u	3p5(2Po3/2)4s 3/2[3/2]o		Ref LRLS98,(CCGBB92)									
	1066.6598	0.	93750.603		1	3	1.32E+08	1.32E+08	6.75E-02	-1.171	1.857	0.005
2u	3p5(2Po1/2)4s 1/2[1/2]o		Ref LRLS98,(CCGBB92)									
	1048.2199	0.	95399.833		1	3	5.32E+08	3.18E+07	2.63E-01	-0.580	2.440	.004
Ar II	3s23p5 2Po J=3/2 GROUND		IP = 222848.2 cm-1					Ref Min71,M70b				
1u	3s3p6 2S		All Ref JMKUWS97,LLVSLDPS99									
MltMean	923.836	477.19	108721.53		6	2	2.13E+08		9.09E-03	-1.264	0.924	
	932.0537	1431.58	108721.53		2	2	7.00E+07	2.13E+08	9.12E-03	-1.739	0.929	0.017
	919.7810	0.	108721.53		4	2	1.43E+08	2.13E+08	9.07E-03	-1.440	0.921	0.017
Ar III	3s23p4 3P J=2 GROUND		IP = 328550+-100 cm-1					No ground-term lines >911.7 A KW96				
Ar IV	3s23p3 4So J=3/2 GROUND		IP = 482400 cm-1					No ground-term lines >911.7 A M70b				
Ar V	3s23p2 3P J=0 GROUND		IP = 605100 cm-1					Ref THEBBK88a,KL95,(RSVUMJ92),M70b				
	3s3p3 5So		All Ref BF93,KFFS98									
	1192.4	2028.80	85896.		5	5	9.88E+04	1.31E+05	2.11E-05	-3.978	-1.600	
	1174.6	763.23	85896.		3	5	3.26E+04	1.31E+05	1.12E-05	-4.472	-1.879	
Ar VI	3s23p 2Po J=1/2 GROUND		IP = 734040 cm-1					Ref THHM88b,M70b				
	3s3p2 4P		All Ref F02									
	1021.19	2232.	100157.		4	2	2.23E+05	5.49E+05	1.74E-05	-4.157	-1.750	
	1012.68	2232.	100980.		4	4	9.82E+04	1.06E+05	1.51E-05	-4.219	-1.816	
	1000.17	2232.	102215.		4	6	2.92E+05	2.92E+05	6.57E-05	-3.580	-1.182	
	998.43	0.	100157.		2	2	3.26E+05	5.49E+05	4.87E-05	-4.011	-1.313	
	990.30	0.	100980.		2	4	7.79E+03	1.06E+05	2.29E-06	-5.339	-2.644	
Ar VII	3s2 1S J=0 GROUND		IP = 1002730 cm-1					No ground-term lines >911.7 A M70b				
POTASSIUM = K Z = 19 A = 39:93.2581, 40:0.0117, 41:6.7302%												
K I	4s 2S J=1/2 GROUND		IP = 35009.8140+-0.0007					Ref E99,SC85				
1v	4p 2Po		All Ref VS96,WLWWGS97,(L92)									
MltMean	7676.221	7678.334	0.	13023.66	2	6	3.775E+07		1.001E+00	0.301	3.886	
	7698.9645	7701.0835	0.	12985.1858	2	2	3.742E+07	3.742E+07	3.327E-01	-0.177	3.409	67E-5
	7664.8991	7667.0089	0.	13042.8960	2	4	3.791E+07	3.791E+07	6.682E-01	0.126	3.710	67E-5
3v	5p 2Po		All Ref SK84,(MK98)									
MltMean	4045.165	4046.308	0.	24713.89	2	6	1.13E+06		8.32E-03	-1.779	1.527	
	4047.2132	4048.3565	0.	24701.382	2	2	1.07E+06		2.64E-03	-2.277	1.029	
	4044.1422	4045.2847	0.	24720.139	2	4	1.16E+06		5.68E-03	-1.945	1.361	
4v	6p 2Po		All Ref SK84,(MK98)									
MltMean	3446.706	3447.694	0.	29004.90	2	6	1.59E+05		8.49E-04	-2.770	0.467	
	3447.375	3448.363	0.	28999.27	2	2	1.45E+05		2.59E-04	-3.286	-0.049	
	3446.372	3447.359	0.	29007.71	2	4	1.66E+05		5.90E-04	-2.928	0.309	
1u	7p 2Po		All Ref SK84,(MK98)									
MltMean	3217.309	3218.238	0.	31072.90	2	6	4.64E+04		2.16E-04	-3.364	-0.158	
	3217.620	3218.549	0.	31069.90	2	2	3.98E+04		6.18E-05	-3.908	-0.701	
	3217.154	3218.083	0.	31074.40	2	4	4.97E+04		1.54E-04	-3.510	-0.304	
2u	8p 2Po		All Ref SK84,(MK98)									
MltMean	3101.874	3102.774	0.	32229.22	2	6	1.49E+04		6.43E-05	-3.890	-0.700	
	3102.046	3102.946	0.	32227.44	2	2	1.22E+04		1.76E-05	-4.452	-1.262	
	3101.789	3102.689	0.	32230.11	2	4	1.62E+04		4.67E-05	-4.030	-0.839	

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
K I	4s 2S J=1/2 GROUND		IP = 35009.8140+-0.0007 Ref E99,SC85									
3	9p 2Po		All Ref SK84,(MK98)									
MltMean	3034.815	3035.698	0.	32941.35	2	6	6.08E+03		2.52E-05	-4.297	-1.116	
	3034.921	3035.804	0.	32940.2030	2	2	4.78E+03		6.60E-06	-4.879	-1.698	
	3034.762	3035.645	0.	32941.9262	2	4	6.74E+03		1.86E-05	-4.429	-1.248	
4u	10p 2Po		All Ref SK84,MK98									
MltMean	2992.153	2993.025	0.	33411.01	2	6	2.83E+03		1.14E-05	-4.643	-1.467	
	2992.2225	2993.0952	0.	33410.2306	2	2	2.17E+03		2.92E-06	-5.234	-2.058	
	2992.1179	2992.9905	0.	33411.3986	2	4	3.15E+03		8.47E-06	-4.771	-1.596	
5u	11p 2Po		All Ref SK84,MK98									
MltMean	2963.235	2964.100	0.	33737.05	2	6	1.52E+03		6.02E-06	-4.919	-1.748	
	2963.2833	2964.1488	0.	33736.4979	2	2	1.14E+03		1.50E-06	-5.524	-2.353	
	2963.2104	2964.0758	0.	33737.3284	2	4	1.72E+03		4.53E-06	-5.043	-1.872	
6u	12p 2Po		All Ref SK84,MK98									
MltMean	2942.687	2943.548	0.	33972.61	2	6	9.80E+02		3.82E-06	-5.117	-1.949	
	2942.7223	2943.5827	0.	33972.2064	2	2	7.14E+02		9.28E-07	-5.731	-2.564	
	2942.6696	2943.5300	0.	33972.8148	2	4	1.11E+03		2.89E-06	-5.238	-2.070	
	13p 2Po		All Ref SK84,MK98									
MltMean	2927.544	2928.401	0.	34148.33	2	6	7.01E+02		2.70E-06	-5.267	-2.102	
	2927.5701	2928.4268	0.	34148.0284	2	2	5.00E+02		6.43E-07	-5.891	-2.725	
	2927.5309	2928.3875	0.	34148.4861	2	4	8.01E+02		2.06E-06	-5.385	-2.220	
	14p 2Po		All Ref SK84,MK98									
MltMean	2916.052	2916.906	0.	34282.90	2	6	5.09E+02		1.95E-06	-5.410	-2.246	
	2916.0729	2916.9267	0.	34282.6573	2	2	3.55E+02		4.53E-07	-6.043	-2.879	
	2916.0423	2916.8960	0.	34283.0181	2	4	5.86E+02		1.49E-06	-5.525	-2.361	
K II	3s23p6 1S J=0 GROUND		IP = 255100+-300 cm-1 No ground-term lines >911.7 A SC85									
K III	3s23p5 2Po J=3/2 GROUND		IP = 369450+-100 cm-1 No ground-term lines >911.7 A SC85									
CALCIUM = Ca Z = 20 A = 40:96.941, 42:0.647, 43:0.135, 44:2.086, 46:0.004, 48:0.187%												
Ca I	4s2 1S J=0 GROUND		IP = 49305.95+-0.08 cm-1 Ref SC85									
1v	4s4p 3Po		One Ref BFVGH93,(PRT76)									
	6572.779	6574.595	0.	15210.063	1	3	2.50E+03	2.50E+03	4.86E-05	-4.313	-0.495	
2v	4s4p 1Po		One Ref D95									
	4226.728	4227.918	0.	23652.304	1	3	2.20E+08	2.20E+08	1.77E+00	0.248	3.874	0.009
1u	4s5p 3Po		One									
	2734.813	2735.623	0.	36554.749	1	3						
2u	4s5p 1Po		One Ref PRT76									
	2721.644	2722.450	0.	36731.615	1	3	2.74E+05		9.12E-04	-3.040	0.395	0.09
3u	3d4p 3Do		One									
	2617.541	2618.323	0.	38192.392	1	3						
4u	3d4p 3Po		One									
	2541.481	2542.244	0.	39335.322	1	3						
5u	4s6p 1Po		One Ref PRT76									
	2398.559	2399.289	0.	41679.008	1	3	1.57E+07		4.07E-02	-1.390	1.990	0.06
	4s6p 3Po		One									
	2351.186	2351.906	0.	42518.708	1	3						
6u	4snp 1Po		One Ref PRT76									
	2275.466	2276.169	0.	43933.477	1	3	2.84E+07		6.61E-02	-1.180	2.177	0.06
	4s7p 3Po		One									
	2223.623	2224.315	0.	44957.655	1	3						
7u	4s7p 1Po		One Ref PRT76									
	2200.727	2201.414	0.	45425.358	1	3	1.48E+07		3.24E-02	-1.490	1.853	0.06
	4s8p 3Po		One									
	2159.838	2160.516	0.	46285.23	1	3						
8u	4s8p 1Po		One Ref PRT76									
	2150.795	2151.472	0.	46479.813	1	3	5.91E+06		1.23E-02	-1.910	1.423	0.06
	4s9p 3Po		Part									
	2123.130	2123.801	0.	47085.38	1	3						
	4s9p 1Po		One Ref PRT76									
	2118.676	2119.346	0.	47184.370	1	3	2.72E+06		5.50E-03	-2.260	1.066	0.05
	4s10p 3Po		Part									
	2099.964	2100.631	0.	47604.75	1	3						
	4s10p 1Po		One Ref PRT76									
	2097.437	2098.103	0.	47662.10	1	3	1.63E+06		3.24E-03	-2.490	0.832	0.05
	4s11p 1Po		One Ref PRT76									
	2082.779	2083.442	0.	47997.49	1	3	1.05E+06		2.04E-03	-2.690	0.629	0.05
	4s12p 1Po		One Ref PRT76									
	2072.284	2072.946	0.	48240.53	1	3	7.14E+05		1.38E-03	-2.860	0.457	0.05
	4s13p 1Po		One Ref PRT76									
	2064.513	2065.173	0.	48422.09	1	3	4.54E+05		8.71E-04	-3.060	0.255	0.06
	4s14p 1Po		One Ref PRT76									
	2058.603	2059.261	0.	48561.10	1	3	3.63E+05		6.92E-04	-3.160	0.154	0.09
	4s15p 1Po		One Ref PRT76									
	2054.003	2054.661	0.	48669.83	1	3	2.89E+05		5.50E-04	-3.260	0.053	0.09

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Ca I	4s2 1S J=0 GROUND			IP = 49305.95+-0.08 cm-1	Ref	SC85						
	4s16p 1Po			One	Ref	PRT76						
	2050.354	2051.011	0.	48756.45	1	3	2.31E+05		4.37E-04	-3.360	-0.048	0.09
auto	3d5p 1Po			One								
		1883.24	0.	53100.	1	3						
auto	3d6p 1Po			One								
		1765.19	0.	56651.	1	3						
Ca II	4s 2S J=1/2 GROUND			IP = 95751.87+-0.03 cm-1	Ref	L99,SC85						
1v	4p 2Po			All	Ref	JC94,L95,(GPA88,RHS97)						
MltMean	3945.195	3946.312	0.	25340.12	2	6	1.340E+08		9.383E-01	0.273	3.569	
	3968.4673	3969.5901	0.	25191.5182	2	2	1.319E+08	1.409E+08	3.116E-01	-0.205	3.092	12E-4
	3933.6614	3934.7750	0.	25414.4137	2	4	1.350E+08	1.444E+08	6.267E-01	0.098	3.392	12E-4
1u	5p 2Po			All	Ref	TCN95						
MltMean		1650.568	0.	60585.19	2	6	1.85E+06		2.27E-03	-2.343	0.573	
		1651.991	0.	60533.02	2	2	2.22E+06		9.10E-04	-2.740	0.177	
		1649.858	0.	60611.28	2	4	1.66E+06		1.36E-03	-2.566	0.350	
2u	6p 2Po			All	Ref	TCN95						
MltMean		1342.111	0.	74509.47	2	6	3.78E+06		3.07E-03	-2.213	0.614	
		1342.554	0.	74484.92	2	2	4.15E+06		1.12E-03	-2.649	0.178	
		1341.890	0.	74521.75	2	4	3.60E+06		1.94E-03	-2.410	0.416	
Ca III	3s23p6 1So J=0 GROUND			IP = 410642+-2 cm-1		No ground-term lines >911.7 A			SC85			
Ca IV	4s 2S J=1/2 GROUND			IP = 542600+-1000 cm-1		No ground-term lines >911.7 A			SC85			
SCANDIUM = Sc Z = 21 A = 45:100%												
Sc I	3s23p63d4s2 2D J=3/2 GROUND			IP = 52922.0+-0.5 cm-1	Ref	SC85						
1v	3d 4s(3D)4p 4Fo			All	Ref	PRT76						
	6448.067	6449.849	168.34	15672.58	6	4	2.65E+04		1.10E-04	-3.180	-0.149	0.09
	6413.324	6415.097	168.34	15756.57	6	6	1.32E+05		8.16E-04	-2.310	0.719	0.08
	6378.807	6380.570	0.	15672.58	4	4	1.56E+05		9.50E-04	-2.420	0.783	0.08
	6362.232	6363.991	168.34	15881.75	6	8						
	6344.805	6346.559	0.	15756.57	4	6	2.40E+04		2.18E-04	-3.060	0.140	0.1
3v	3d 4s(3D)4p 4Do			All	Ref	MDLDR88,LD89						
	6306.019	6307.763	168.34	16021.82	6	4	8.70E+04	1.23E+06	3.46E-04	-2.683	0.339	0.04
	6258.943	6260.674	168.34	16141.06	6	6	4.50E+05	8.90E+05	2.64E-03	-1.800	1.219	0.04
	6244.459	6246.186	0.	16009.77	4	2						
	6239.762	6241.488	0.	16021.82	4	4	7.10E+05	1.23E+06	4.15E-03	-1.780	1.413	0.04
	6231.715	6233.439	168.34	16210.85	6	8						
	6193.666	6195.380	0.	16141.06	4	6	3.60E+04	8.90E+05	3.11E-04	-2.906	0.284	0.04
2v	3d 4s(1D)4p 2Do			All	Ref	MDLDR88,LD89						
MltMean	6267.311	6269.045	101.00	16052.40	10	10	1.61E+06		9.51E-03	-1.022	1.775	
	6305.658	6307.401	168.34	16022.73	6	6	1.61E+06	2.18E+06	9.60E-03	-1.239	1.782	0.04
	6276.295	6278.031	168.34	16096.90	6	4	1.05E+05	1.88E+06	4.14E-04	-2.605	0.414	0.04
	6239.408	6241.134	0.	16022.73	4	6	1.52E+05	2.18E+06	1.33E-03	-2.274	0.920	0.04
	6210.658	6212.376	0.	16096.90	4	4	1.28E+06	1.88E+06	7.41E-03	-1.528	1.663	0.04
4v	4s2 4p 2Po			All	Ref	MDLDR88,LD89						
MltMean	5344.250	5345.737	101.00	18807.50	10	6	5.48E+05		1.41E-03	-1.851	0.877	
	5349.711	5351.199	168.34	18855.74	6	4	4.10E+05	5.14E+05	1.17E-03	-2.152	0.798	0.022
	5342.958	5344.444	0.	18711.02	4	2	6.20E+05	6.20E+05	1.33E-03	-2.275	0.851	0.022
	5301.950	5303.425	0.	18855.74	4	4	1.04E+05	5.14E+05	4.39E-04	-2.756	0.367	0.022
5v	3d 4s(1D)4p 2Fo			All	Ref	MDLDR88,LD89						
MltMean	4769.183	4770.517	101.00	21063.09	10	14	1.06E+06		5.04E-03	-1.297	1.381	
	4791.511	4792.851	168.34	21032.75	6	6	1.97E+05	1.28E+06	6.78E-04	-2.390	0.512	0.024
	4779.348	4780.684	168.34	21085.85	6	8	8.90E+05	8.90E+05	4.07E-03	-1.613	1.289	0.022
	4753.161	4754.490	0.	21032.75	4	6	1.08E+06	1.28E+06	5.49E-03	-1.658	1.417	0.022
6v	3d 4s(1D)4p 2Po			All	Ref	MDLDR88,LD89						
MltMean	4071.204	4072.354	101.00	24656.83	10	6	4.41E+07		6.58E-02	-0.182	2.428	
	4082.390	4083.543	168.34	24656.88	6	4	4.10E+07	4.41E+07	6.83E-02	-0.387	2.446	0.022
	4054.544	4055.689	0.	24656.72	4	2	4.41E+07	4.41E+07	5.44E-02	-0.663	2.343	0.022
	4054.518	4055.663	0.	24656.88	4	4	3.08E+06	4.41E+07	7.60E-03	-1.517	1.489	0.022
7v	3d 4s(3D)4p 2Do			All	Ref	MDLDR88,LD89						
MltMean	4022.362	4023.499	101.00	24954.99	10	10	1.80E+08		4.37E-01	0.641	3.245	
	4047.795	4048.939	168.34	24866.17	6	4	1.54E+07	1.78E+08	2.52E-02	-0.820	2.009	0.025
	4023.677	4024.814	168.34	25014.21	6	6	1.65E+08	1.81E+08	4.01E-01	0.381	3.208	0.022
	4020.392	4021.528	0.	24866.17	4	4	1.63E+08	1.78E+08	3.95E-01	0.199	3.201	0.022
	3996.598	3997.728	0.	25014.21	4	6	1.65E+07	1.81E+08	5.93E-02	-0.625	2.375	0.027
8v	3d 4s(3D)4p 2Fo			All	Ref	MDLDR88,LD89						
MltMean	3910.695	3911.803	101.00	25664.66	10	14	1.80E+08		5.79E-01	0.763	3.355	
	3933.369	3934.483	168.34	25584.64	6	6	1.62E+07	1.82E+08	3.76E-02	-0.647	2.170	0.027
	3911.815	3912.923	168.34	25724.68	6	8	1.79E+08	1.79E+08	5.48E-01	0.517	3.331	0.022
	3907.488	3908.595	0.	25584.64	4	6	1.66E+08	1.82E+08	5.70E-01	0.358	3.348	0.022

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Sc I	3s23p63d4s2 2D J=3/2 GROUND		IP = 52922.0+-0.5 cm-1		Ref SC85							
9v	3d 4s(3D)4p 2Po		All	Ref MDLDR88,LD89								
MltMean	3271.184	3272.127	101.00	30662.16	10	6	3.13E+08		3.01E-01	0.479	2.994	
	3273.631	3274.574	168.34	30706.66	6	4	2.81E+08	3.13E+08	3.01E-01	0.257	2.994	0.022
	3269.899	3270.842	0.	30573.17	4	2	3.13E+08	3.13E+08	2.51E-01	0.002	2.914	0.022
	3255.684	3256.623	0.	30706.66	4	4	3.20E+07	3.13E+08	5.09E-02	-0.691	2.219	0.027
	3d2(3F)4p 4Do		All	Ref PRT76,MDLDR88								
	3076.885	3077.779	168.34	32659.30	6	4						
	3073.334	3074.227	168.34	32696.84	6	6	7.42E+05	1.11E+08	1.05E-03	-2.200	0.510	0.1
	3068.178	3069.070	168.34	32751.50	6	8	5.59E+05	1.10E+08	1.05E-03	-2.200	0.509	0.1
	3063.079	3063.970	0.	32637.40	4	2						
	3061.025	3061.915	0.	32659.30	4	4	8.71E+05	1.10E+08	1.22E-03	-2.310	0.574	0.09
	3057.511	3058.400	0.	32696.84	4	6						
	3d2(3F)4p 2Go		One	Ref PRT76								
	3039.771	3040.656	168.34	33055.98	6	8	5.31E+05	4.67E+07	9.81E-04	-2.230	0.475	0.09
10v	3d2(3F)4p 2Fo		All	Ref MDLDR88,LD89								
MltMean	3018.081	3018.960	101.00	33225.00	10	14	8.75E+07		1.67E-01	0.223	2.703	
	3030.757	3031.640	168.34	33153.79	6	6	1.00E+07	1.45E+08	1.38E-02	-1.083	1.621	0.03
	3019.351	3020.230	168.34	33278.40	6	8	8.70E+07	1.45E+08	1.59E-01	-0.021	2.680	0.03
	3015.368	3016.246	0.	33153.79	4	6	7.80E+07	1.45E+08	1.60E-01	-0.195	2.682	0.03
11v	3d2(3F)4p 2Do		All	Ref MDLDR88,LD89								
MltMean	2978.053	2978.923	101.00	33670.19	10	10	6.17E+07		8.20E-02	-0.086	2.388	
	2988.974	2989.846	168.34	33614.88	6	4	6.98E+06	1.28E+08	6.24E-03	-1.427	1.271	0.05
	2980.759	2981.628	168.34	33707.06	6	6	5.40E+07	1.27E+08	7.20E-02	-0.365	2.332	0.05
	2974.005	2974.873	0.	33614.88	4	4	5.50E+07	1.28E+08	7.30E-02	-0.535	2.337	0.05
	2965.871	2966.738	0.	33707.06	4	6	7.50E+06	1.27E+08	1.48E-02	-1.226	1.644	0.05
	3d2(1D)4p 2Fo		All	Ref PRT76								
	2739.060	2739.870	168.34	36666.42	6	6						
	2734.287	2735.097	168.34	36730.12	6	8						
	2726.484	2727.291	0.	36666.42	4	6	1.21E+06		2.03E-03	-2.090	0.744	0.1
	3d2(3P)4p 4Do		All	Ref PRT76								
	2729.544	2730.352	168.34	36793.65	6	4						
	2724.593	2725.400	168.34	36860.20	6	6	1.57E+06		1.75E-03	-1.980	0.677	0.09
	2719.232	2720.037	0.	36764.20	4	2						
	2717.274	2718.079	168.34	36959.03	6	8						
	2717.055	2717.860	0.	36793.65	4	4	3.58E+06		3.96E-03	-1.800	1.032	0.1
	2712.149	2712.953	0.	36860.20	4	6						
1u	3d2(1D)4p 2Do		All	Ref MDLDR88,LD89								
MltMean	2709.495	2710.299	101.00	36997.31	10	10	3.32E+07		3.65E-02	-0.437	1.996	
	2719.130	2719.936	168.34	36933.91	6	4	3.90E+05	9.62E+07	2.88E-04	-2.762	-0.105	0.07
	2711.338	2712.142	168.34	37039.57	6	6	3.20E+07	9.71E+07	3.53E-02	-0.674	1.981	0.04
	2706.736	2707.539	0.	36933.91	4	4	3.10E+07	9.62E+07	3.41E-02	-0.866	1.965	0.04
	2699.015	2699.815	0.	37039.57	4	6	2.40E+06	9.71E+07	3.93E-03	-1.803	1.026	0.04
2u	3d2(1D)4p 2Po		All	Ref MDLDR88,LD89								
MltMean	2702.036	2702.838	101.00	37099.15	10	6	1.57E+07		1.03E-02	-0.986	1.446	
	2707.926	2708.729	168.34	37086.02	6	4	1.49E+07	1.00E+08	1.09E-02	-1.183	1.471	0.05
	2695.634	2696.434	0.	37086.02	4	4	6.00E+05	1.00E+08	6.54E-04	-2.582	0.246	0.07
	2692.774	2693.574	0.	37125.40	4	2	1.61E+07	1.00E+08	8.76E-03	-1.456	1.373	0.05
	3d 4s(3D)5p 2Fo		All									
	2503.261	2504.016	168.34	40104.19	6	6						
	2500.326	2501.079	168.34	40151.08	6	8						
	2492.753	2493.505	0.	40104.19	4	6						
	3d 4s(3D)5p 2Do		All									
	2488.111	2488.862	168.34	40347.34	6	4						
	2487.866	2488.617	168.34	40351.30	6	6						
	2477.730	2478.478	0.	40347.34	4	4						
	2477.487	2478.235	0.	40351.30	4	6						
	3d 4s(3D)5p 2Po		All	Ref PRT76								
	2472.925	2473.672	168.34	40594.07	6	4	2.92E+06		1.79E-03	-1.970	0.645	0.09
	2468.407	2469.153	0.	40499.71	4	2	4.88E+06		2.23E-03	-2.050	0.740	0.1
	2462.669	2463.414	0.	40594.07	4	4	2.08E+06		1.90E-03	-2.120	0.669	0.1
	3d2(3P)4p 2Do		All	Ref PRT76								
MltMean	2434.847	2435.586	101.00	41158.88	10	10	2.60E+07		2.31E-02	-0.637	1.750	
	2439.173	2439.912	168.34	41153.42	6	4	2.17E+06		1.29E-03	-2.110	0.499	0.09
	2438.631	2439.371	168.34	41162.52	6	6	2.10E+07		1.87E-02	-0.950	1.659	0.1
	2429.194	2429.932	0.	41153.42	4	4	2.82E+07		2.50E-02	-1.000	1.784	0.09
	2428.657	2429.395	0.	41162.52	4	6	2.07E+06		2.74E-03	-1.960	0.823	0.09
	3d 4s(1D)5p 2Po		All	Ref PRT76								
MltMean	2341.617	2342.335	101.00	42793.44	10	6	1.69E+07		8.32E-03	-1.080	1.290	
	2346.034	2346.753	168.34	42780.41	6	4	1.32E+07		7.28E-03	-1.360	1.232	0.08
	2336.802	2337.519	0.	42780.41	4	4	3.67E+06		3.01E-03	-1.920	0.847	0.1
	2334.669	2335.385	0.	42819.49	4	2	1.68E+07		6.89E-03	-1.560	1.206	0.1
	3d 4s(1D)5p 2Fo		All	Ref PRT76								
	2337.346	2338.063	168.34	42938.79	6	6						
	2335.161	2335.877	168.34	42978.81	6	8	3.58E+06		3.91E-03	-1.630	0.960	0.1
	2328.182	2328.897	0.	42938.79	4	6	4.59E+06		5.60E-03	-1.650	1.115	0.08

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Sc I	3s23p63d4s2 2D J=3/2 GROUND		IP = 52922.0+-0.5 cm-1		Ref SC85							
	3d 4s(1D)5p 2Do			All	Ref PRT76							
MltMean	2318.466	2319.179	101.00	43219.72	10	10			2.20E-03	-1.880	0.708	0.09
	2324.754	2325.467	168.34	43170.45	6	4	4.07E+06					
	2320.323	2321.035	168.34	43252.56	6	6	2.37E+07		1.91E-02	-0.940	1.648	0.1
	2315.688	2316.399	0.	43170.45	4	4	2.47E+07		1.99E-02	-1.100	1.663	0.09
	2311.291	2312.002	0.	43252.56	4	6	4.06E+06		4.87E-03	-1.710	1.052	0.1
	3d2(1G)4p 2Fo			All	Ref PRT76							
MltMean	2285.204	2285.910	101.00	43847.26	10	14	2.86E+07		3.13E-02	-0.504	1.855	
	2289.627	2290.333	168.34	43830.12	6	6	4.13E+06		3.25E-03	-1.710	0.872	0.08
	2288.054	2288.760	168.34	43860.12	6	8	2.58E+07		2.70E-02	-0.790	1.791	0.08
	2280.832	2281.536	0.	43830.12	4	6	2.82E+07		3.30E-02	-0.880	1.876	0.08
	3d2(3P)4p 2Po			All	Ref PRT76							
MltMean	2268.913	2269.615	101.00	44161.34	10	6	5.03E+07		2.33E-02	-0.632	1.724	
	2270.944	2271.646	168.34	44189.29	6	4	4.56E+07		2.35E-02	-0.850	1.728	0.1
	2266.592	2267.293	0.	44105.45	4	2	4.81E+07		1.85E-02	-1.130	1.623	0.08
	2262.292	2262.992	0.	44189.29	4	4	5.79E+06		4.45E-03	-1.750	1.003	0.08
	3d2(3F)5p 2Do			All	Ref PRT76							
MltMean	2118.892	2119.563	101.00	47280.53	10	10						
	2124.221	2124.893	168.34	47229.54	6	4						
	2120.392	2121.062	168.34	47314.53	6	6	2.01E+07		1.35E-02	-1.090	1.458	0.07
	2116.649	2117.319	0.	47229.54	4	4	2.04E+07		1.37E-02	-1.260	1.464	0.1
	2112.847	2113.516	0.	47314.53	4	6	3.21E+06		3.22E-03	-1.890	0.833	0.1
Sc II	3s23p63d4s 3D J=1 GROUND		IP = 103237.1+-2 cm-1		Ref SC85							
1v	3d 4p 1Do			All	Ref MDLDR88,LD89							
	3859.376	3860.470	177.76	26081.34	7	5						
	3843.050	3844.140	67.72	26081.34	5	5	1.69E+06	1.33E+08	3.74E-03	-1.728	1.158	0.04
	3833.071	3834.159	0.	26081.34	3	5	8.80E+05	1.33E+08	3.23E-03	-2.013	1.093	0.05
2v	3d 4p 3Fo			All	Ref MDLDR88,LD89							
MltMean	3627.213	3628.248	105.53	27667.04	15	21	1.47E+08		4.06E-01	0.785	3.169	
	3666.534	3667.578	177.76	27443.71	7	5	1.60E+06	1.61E+08	2.30E-03	-1.792	0.927	0.05
	3651.795	3652.836	67.72	27443.71	5	5	3.00E+07	1.61E+08	6.00E-02	-0.523	2.341	0.029
	3645.311	3646.349	177.76	27602.45	7	7	2.74E+07	1.64E+08	5.46E-02	-0.418	2.299	0.022
	3642.784	3643.822	0.	27443.71	3	5	1.13E+08	1.61E+08	3.75E-01	0.051	3.135	0.023
	3630.742	3631.777	67.72	27602.45	5	7	1.20E+08	1.64E+08	3.32E-01	0.220	3.082	0.022
	3613.829	3614.860	177.76	27841.35	7	9	1.48E+08	1.64E+08	3.73E-01	0.417	3.130	0.023
3v	3d 4p 3Do			All	Ref MDLDR88,LD89							
MltMean	3575.474	3576.495	105.53	28065.87	15	15	1.69E+08		3.24E-01	0.686	3.064	
	3590.474	3591.499	177.76	28021.29	7	5	2.90E+07	2.13E+08	4.01E-02	-0.552	2.158	0.03
	3589.632	3590.657	67.72	27917.78	5	3	4.60E+07	2.13E+08	5.33E-02	-0.574	2.282	0.03
	3580.925	3581.947	0.	27917.78	3	3	1.23E+08	2.13E+08	2.37E-01	-0.149	2.928	0.03
	3576.340	3577.361	67.72	28021.29	5	5	1.06E+08	2.13E+08	2.03E-01	0.007	2.862	0.03
	3572.526	3573.546	177.76	28161.17	7	7	1.38E+08	2.13E+08	2.64E-01	0.267	2.975	0.03
	3567.696	3568.715	0.	28021.29	3	5	3.50E+07	2.13E+08	1.11E-01	-0.476	2.599	0.03
	3558.532	3559.549	67.72	28161.17	5	7	3.00E+07	2.13E+08	7.98E-02	-0.399	2.453	0.03
4v	3d 4p 3Po			All	Ref MDLDR88,LD89							
MltMean	3368.145	3369.113	105.53	29786.93	15	9	1.20E+08		1.22E-01	0.264	2.615	
	3372.148	3373.117	177.76	29823.93	7	5	9.90E+07	1.35E+08	1.21E-01	-0.073	2.609	0.022
	3368.936	3369.904	67.72	29742.16	5	3	8.30E+07	1.32E+08	8.48E-02	-0.373	2.456	0.022
	3361.931	3362.897	0.	29736.27	3	1	1.17E+08	1.30E+08	6.61E-02	-0.703	2.347	0.022
	3361.265	3362.231	0.	29742.16	3	3	3.40E+07	1.32E+08	5.76E-02	-0.762	2.287	0.026
	3359.678	3360.643	67.72	29823.93	5	5	2.16E+07	1.35E+08	3.66E-02	-0.738	2.090	0.024
	3352.049	3353.012	0.	29823.93	3	5	1.60E+06	1.35E+08	4.49E-03	-1.870	1.178	0.05
5v	3d 4p 1Po			All	Ref MDLDR88,LD89							
	3251.308	3252.246	67.72	30815.70	5	3	2.30E+06	1.14E+08	2.19E-03	-1.961	0.852	0.06
	3244.163	3245.099	0.	30815.70	3	3						
1u	4s4p 3Po			All	Ref MDLDR88,LD89							
MltMean	2555.142	2555.909	105.53	39230.55	15	9	2.66E+08		1.57E-01	0.371	2.602	
	2563.190	2563.958	0.	39002.20	3	1	2.70E+08	2.70E+08	8.87E-02	-0.575	2.357	0.022
	2560.228	2560.995	67.72	39115.04	5	3	2.01E+08	2.70E+08	1.19E-01	-0.227	2.482	0.022
	2555.795	2556.561	0.	39115.04	3	3	6.90E+07	2.70E+08	6.76E-02	-0.693	2.238	0.025
	2552.354	2553.120	177.76	39345.52	7	5	2.21E+08	2.63E+08	1.54E-01	0.033	2.595	0.022
	2545.203	2545.967	67.72	39345.52	5	5	4.00E+07	2.63E+08	3.89E-02	-0.711	1.995	0.022
	2540.822	2541.585	0.	39345.52	3	5	2.60E+06	2.63E+08	4.20E-03	-1.900	1.028	0.05
	3d 5p 3Do			All								
		1507.957	177.76	66492.66	7	5						
		1507.795	67.72	66389.74	5	3						
		1506.257	0.	66389.74	3	3						
		1505.886	177.76	66583.86	7	7						
		1505.459	67.72	66492.66	5	5						
		1503.925	0.	66492.66	3	5						
		1503.395	67.72	66583.86	5	7						

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Sc II 3s23p63d4s 3D J=1 GROUND			IP = 103237.1+-2 cm-1				Ref SC85					
	3d 5p 3Fo		All									
		1508.708	177.76	66459.64	7	5						
		1506.342	177.76	66563.73	7	7						
		1506.207	67.72	66459.64	5	5						
		1504.673	0.	66459.64	3	5						
		1503.850	67.72	66563.73	5	7						
		1502.828	177.76	66718.99	7	9						
Sc III 3s23p63d 2D J=3/2 GROUND			IP = 199677.37+-0.1 cm-1				Ref SC85					
1u	3p6(1S)4p 2Po		LS	Ref W67=MFW88								
MltMean		1605.094	118.58	62420.22	10	6	4.50E+08		1.04E-01	0.018	2.224	
		1610.194	0.	62104.30	4	2	4.46E+08		8.66E-02	-0.460	2.145	
		1603.064	197.64	62578.18	6	4	4.07E+08		1.04E-01	-0.203	2.224	
		1598.001	0.	62578.18	4	4	4.56E+07		1.75E-02	-1.156	1.446	
Sc IV 3s23p6 1S J=0 GROUND			IP = 592732+-3 cm-1				No ground-term lines >911.7 A SC85					
Sc V 3s23p5 2Po J=3/2 GROUND			IP = 741000+-2000 cm-1				No ground-term lines >911.7 A SC85					
TITANIUM = Ti Z = 22 A = 46:8.25, 47:7.44, 48:73.72, 49:5.41, 50:5.18%												
Ti I 3s23p63d24s2 a 3F J=2 GROUND			IP = 55072.5+-0.3 cm-1				Ref F91,SZK90					
1v	3d2(3F)4s4p(3P) z 5Go		All									
	6413.108	6414.880	386.875	15975.630	9	7						
	6364.850	6366.610	170.134	15877.080	7	5						
	6359.889	6361.647	386.875	16106.075	9	9						
	6325.164	6326.913	170.134	15975.630	7	7						
	6296.646	6298.387	0.	15877.080	5	5						
	6295.248	6296.989	386.875	16267.481	9	11						
	6273.389	6275.124	170.134	16106.075	7	9						
	6257.803	6259.534	0.	15975.630	5	7						
2v	3d2(3F)4s4p(3P) z 5Fo		All									
	6031.670	6033.340	386.875	16961.441	9	7						
	5990.533	5992.192	386.875	17075.258	9	9						
	5984.579	5986.236	170.134	16875.121	7	5						
	5953.813	5955.463	170.134	16961.441	7	7						
	5944.660	5946.307	0.	16817.160	5	3						
	5940.649	5942.295	386.875	17215.389	9	11						
	5924.242	5925.883	0.	16875.121	5	5						
	5913.728	5915.366	170.134	17075.258	7	9						
	5894.092	5895.725	0.	16961.441	5	7						
3v	3d2(3F)4s4p(3P) z 5Do		All	Ref BPSL82,BMP83								
	5490.846	5492.372	386.875	18593.946	9	7						
	5460.499	5462.016	386.875	18695.133	9	9	4.50E+04		2.01E-04	-2.742	0.041	0.012
	5446.615	5448.129	170.134	18525.059	7	5						
	5426.250	5427.758	170.134	18593.946	7	7	3.68E+04		1.63E-04	-2.944	-0.054	0.012
	5408.940	5410.444	0.	18482.772	5	3	1.28E+04		3.37E-05	-3.774	-0.740	0.012
	5396.611	5398.111	170.134	18695.133	7	9						
	5396.593	5398.093	0.	18525.059	5	5						
	5376.599	5378.095	0.	18593.946	5	7						
4v	3d2(3F)4s4p(3P) z 3Fo		All	Ref BPSL82,SL90,L91,LH91								
MltMean	5195.814	5197.262	222.51	19463.42	21	21	4.52E+06		1.83E-02	-0.415	1.978	
	5252.100	5253.562	386.875	19421.580	9	7	1.42E+05	4.88E+06	4.57E-04	-2.386	0.380	0.012
	5219.702	5221.155	170.134	19322.984	7	5	2.88E+05	4.95E+06	8.41E-04	-2.230	0.643	0.012
	5210.385	5211.836	386.875	19573.973	9	9	4.11E+06	4.78E+06	1.67E-02	-0.822	1.941	0.012
	5192.969	5194.415	170.134	19421.580	7	7	4.02E+06	4.88E+06	1.63E-02	-0.944	1.926	0.012
	5173.743	5175.184	0.	19322.984	5	5	4.38E+06	4.95E+06	1.76E-02	-1.056	1.959	0.012
	5152.184	5153.619	170.134	19573.973	7	9	3.05E+05	4.78E+06	1.56E-03	-1.962	0.905	0.012
	5147.478	5148.912	0.	19421.580	5	7	4.03E+05	4.88E+06	2.24E-03	-1.950	1.063	0.012
5v	3d2(3F)4s4p(3P) z 3Do		All	Ref BPSL82,BMP83,RH82,SL90,L91,LH91,SK78								
MltMean	5042.501	5043.908	222.51	20048.41	21	15						
	5064.653	5066.065	386.875	20126.060	9	7	4.37E+06	5.25E+06	1.31E-02	-0.929	1.821	0.012
	5039.957	5041.362	170.134	20006.042	7	5	4.49E+06	5.57E+06	1.22E-02	-1.068	1.789	0.012
	5014.187	5015.585	0.	19937.852	5	3	6.11E+06	5.97E+06	1.38E-02	-1.160	1.841	0.10
	5009.645	5011.043	170.134	20126.060	7	7	2.41E+05	5.25E+06	9.08E-04	-2.197	0.658	0.012
	4997.096	4998.490	0.	20006.042	5	5	4.69E+05	5.57E+06	1.76E-03	-2.056	0.944	0.012
	4967.296	4968.682	0.	20126.060	5	7						

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Ti I	3s23p63d24s2 a 3F J=2 GROUND IP = 55072.5+-0.3 cm-1 Ref F91,SZK90											
6v	3d2(3F)4s4p(3P) z 3Go		All Ref BPSL82,RH82,SL90,L91,LH91									
MltMean	4672.303	4673.611	222.51	21619.25	21	27						
	4741.919	4743.245	386.875	21469.487	9	7						
	4715.302	4716.621	386.875	21588.494	9	9						
	4693.665	4694.978	170.134	21469.487	7	7						
	4681.909	4683.220	386.875	21739.707	9	11	2.71E+06	3.09E+06	1.09E-02	-1.009	1.707	0.012
	4667.585	4668.892	170.134	21588.494	7	9	2.51E+06	3.00E+06	1.05E-02	-1.132	1.692	0.012
	4656.469	4657.773	0.	21469.487	5	7	2.29E+06	2.74E+06	1.04E-02	-1.283	1.686	0.012
7v	3d2(3F)4s4p(3P) z 1Do		All Ref BPSL82									
	4562.628	4563.907	170.134	22081.187	7	5	1.63E+05		3.64E-04	-2.594	0.220	0.012
	4527.472	4528.742	0.	22081.187	5	5						
8v	3d2(3F)4s4p(3P) z 1Fo		All Ref BPSL82									
	4540.493	4541.766	386.875	22404.740	9	7						
	4496.232	4497.494	170.134	22404.740	7	7						
	4462.089	4463.341	0.	22404.740	5	7	4.28E+04		1.79E-04	-3.048	-0.097	0.012
9v	3d2(3F)4s4p(3P) z 1Go		All Ref BPSL82									
	4112.709	4113.869	386.875	24694.892	9	9	8.82E+05		2.24E-03	-1.696	0.964	0.012
	4076.361	4077.512	170.134	24694.892	7	9						
10v	3d2(3P)4s4p(3P) z 3So		One									
	4011.528	4012.662	0.	24921.115	5	3						
11v	3d2(3P)4s4p(3P) z 5So		All Ref BPSL82,SL90,SK78									
	4009.657	4010.791	170.134	25102.874	7	5	1.39E+06	8.62E+06	2.40E-03	-1.775	0.983	0.012
	3982.481	3983.608	0.	25102.874	5	5	5.18E+06	8.62E+06	1.23E-02	-1.210	1.691	0.19
12v	3d2(3F)4s4p(1P) y 3Fo		All Ref BPSL82,RH82,SL90,LH91									
MltMean	3991.647	3992.777	222.51	25267.74	21	21	5.34E+07		1.28E-01	0.428	2.707	
	4024.572	4025.709	386.875	25227.220	9	7	6.91E+06	5.91E+07	1.31E-02	-0.930	1.721	0.012
	4008.928	4010.061	170.134	25107.410	7	5	8.07E+06	5.60E+07	1.39E-02	-1.012	1.746	0.012
	3998.636	3999.767	386.875	25388.331	9	9	4.81E+07	5.40E+07	1.15E-01	0.016	2.664	0.012
	3989.759	3990.887	170.134	25227.220	7	7	4.48E+07	5.91E+07	1.07E-01	-0.126	2.630	0.012
	3981.762	3982.888	0.	25107.410	5	5	4.42E+07	5.60E+07	1.05E-01	-0.279	2.622	0.012
	3964.269	3965.391	170.134	25388.331	7	9	3.64E+06	5.40E+07	1.10E-02	-1.112	1.641	0.012
	3962.851	3963.972	0.	25227.220	5	7	4.71E+06	5.91E+07	1.55E-02	-1.110	1.789	0.012
13v	3d3(4F)4p y 3Do		All Ref BPSL82,RH82,SL90,LH91									
MltMean	3953.365	3954.485	222.51	25510.26	21	15	5.22E+07		8.75E-02	0.264	2.539	
	3958.206	3959.326	386.875	25643.699	9	7	4.88E+07	6.82E+07	8.93E-02	-0.095	2.548	0.012
	3956.334	3957.454	170.134	25438.906	7	5	3.46E+07	5.38E+07	5.81E-02	-0.391	2.361	0.012
	3948.670	3949.788	0.	25317.815	5	3	5.60E+07	6.76E+07	7.85E-02	-0.406	2.492	0.012
	3929.874	3930.987	0.	25438.906	5	5	8.51E+06	5.38E+07	1.97E-02	-1.006	1.890	0.012
	3924.527	3925.638	170.134	25643.699	7	7	8.10E+06	6.82E+07	1.87E-02	-0.883	1.866	0.012
	3898.489	3899.593	0.	25643.699	5	7	3.77E+05	6.82E+07	1.20E-03	-2.221	0.671	0.012
14v	3d2(1D)4s4p(3P) z 3Po		All Ref BPSL82,RH82,SL90,LH91,SK78									
	3947.768	3948.886	170.134	25493.734	7	5	8.75E+06	1.75E+07	1.46E-02	-0.990	1.761	0.16
	3921.422	3922.532	0.	25493.734	5	5	2.48E+06	1.75E+07	5.73E-03	-1.543	1.352	0.012
	3914.734	3915.843	0.	25537.284	5	3						
15v	3d2(3P)4s4p(3P) y 5Do		All Ref BPSL82,SL90,L91,LH91									
	3934.233	3935.347	386.875	25797.594	9	7						
	3915.874	3916.983	170.134	25699.984	7	5						
	3914.335	3915.443	386.875	25926.766	9	9						
	3900.959	3902.064	170.134	25797.594	7	7	1.47E+06	2.49E+06	3.36E-03	-1.629	1.117	0.012
	3899.702	3900.807	0.	25635.723	5	3						
	3889.951	3891.053	0.	25699.984	5	5						
	3881.395	3882.495	170.134	25926.766	7	9						
	3875.232	3876.330	0.	25797.594	5	7						
16v	3d3(4F)4p y 5Go		All Ref BPSL82,SL90,LH91,WST77									
	3818.987	3820.071	386.875	26564.398	9	7						
	3805.465	3806.545	386.875	26657.416	9	9						
	3797.708	3798.786	170.134	26494.330	7	5						
	3788.799	3789.875	386.875	26772.969	9	11	1.44E+07	7.61E+07	3.79E-02	-0.467	2.157	0.08
	3787.626	3788.702	170.134	26564.398	7	7						
	3774.325	3775.397	170.134	26657.416	7	9	3.72E+04	7.52E+07	1.02E-04	-3.146	-0.414	0.012
	3773.321	3774.392	0.	26494.330	5	5						
	3763.368	3764.437	0.	26564.398	5	7						
17v	3d2(1D)4s4p(3P) x 3Fo		All Ref BPSL82,RH82,SL90,LH91,SK78									
MltMean	3743.414	3744.479	222.51	26928.50	21	21						
	3771.651	3772.722	386.875	26892.935	9	7	6.95E+06	6.33E+07	1.15E-02	-0.984	1.638	0.012
	3753.633	3754.700	170.134	26803.420	7	5	9.46E+06	6.28E+07	1.43E-02	-1.000	1.729	0.16
	3752.859	3753.925	386.875	27025.658	9	9	5.81E+07	6.50E+07	1.23E-01	0.043	2.663	0.012
	3741.059	3742.123	170.134	26892.935	7	7	4.81E+07	6.33E+07	1.01E-01	-0.151	2.577	0.012
	3729.807	3730.867	0.	26803.420	5	5	4.93E+07	6.28E+07	1.03E-01	-0.289	2.584	0.012
	3722.570	3723.629	170.134	27025.658	7	9	3.87E+06	6.50E+07	1.03E-02	-1.140	1.586	0.10
	3717.391	3718.449	0.	26892.935	5	7	4.88E+06	6.33E+07	1.42E-02	-1.150	1.721	0.10

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Ti I	3s23p63d24s2 a 3F J=2 GROUND IP = 55072.5+-0.3 cm-1 Ref F91,SZK90											
18v	3d2(1D)4s4p(3P) x 3Do		All Ref BPSL82,SL90,LH91,SK78									
MltMean	3673.820	3674.867	222.51	27434.39	21	15						
	3689.914	3690.964	386.875	27480.066	9	7	4.07E+06	1.11E+07	6.47E-03	-1.235	1.378	0.012
	3668.963	3670.008	170.134	27418.030	7	5	6.25E+06	1.13E+07	9.01E-03	-1.200	1.520	0.10
	3660.629	3661.672	170.134	27480.066	7	7	3.48E+06	1.11E+07	7.00E-03	-1.310	1.409	0.11
	3654.590	3655.631	0.	27355.059	5	3	1.00E+07	1.19E+07	1.21E-02	-1.220	1.644	0.19
	3646.196	3647.235	0.	27418.030	5	5	3.03E+06	1.13E+07	6.04E-03	-1.520	1.343	0.12
	3637.965	3639.001	0.	27480.066	5	7	2.17E+06	1.11E+07	6.04E-03	-1.520	1.342	0.12
19v	3d2(3F)4s4p(1P) y 3Go		All Ref BPSL82,RH82,SL90,LH91,WST77									
MltMean	3646.286	3647.325	222.51	27639.87	21	27	9.22E+07		2.36E-01	0.696	2.936	
	3687.339	3688.389	386.875	27498.983	9	7	3.68E+05	1.05E+08	5.83E-04	-2.280	0.333	0.08
	3671.671	3672.716	386.875	27614.678	9	9	5.06E+06	1.02E+08	1.02E-02	-1.036	1.575	0.012
	3658.095	3659.137	170.134	27498.983	7	7	6.42E+06	1.05E+08	1.29E-02	-1.045	1.673	0.012
	3653.494	3654.535	386.875	27750.136	9	11	8.69E+07	9.58E+07	2.13E-01	0.282	2.891	0.012
	3642.673	3643.711	170.134	27614.678	7	9	8.95E+07	1.02E+08	2.29E-01	0.205	2.921	0.012
	3635.462	3636.498	0.	27498.983	5	7	9.09E+07	1.05E+08	2.52E-01	0.101	2.963	0.012
20v	3d2(3P)4s4p(3P) z 5Po		All									
	3635.205	3636.241	386.875	27887.800	9	7						
	3626.083	3627.117	170.134	27740.240	7	5						
	3613.593	3614.623	0.	27665.401	5	3						
	3606.779	3607.807	170.134	27887.800	7	7						
	3603.843	3604.871	0.	27740.240	5	5						
	3584.774	3585.797	0.	27887.800	5	7						
21v	3d2(1D)4s4p(1P) y 1Do		All									
	3604.280	3605.309	170.134	27907.011	7	5						
	3582.306	3583.329	0.	27907.011	5	5						
22v	3d3(4F)4p y 5Fo		All Ref SK78									
	3530.575	3531.584	386.875	28702.777	9	7						
	3519.934	3520.940	386.875	28788.378	9	9						
	3511.625	3512.629	170.134	28638.840	7	5						
	3506.639	3507.642	386.875	28896.055	9	11	7.81E+05		1.76E-03	-1.800	0.791	0.14
	3503.755	3504.758	170.134	28702.777	7	7						
	3495.954	3496.954	0.	28596.312	5	3						
	3493.275	3494.274	170.134	28788.378	7	9						
	3490.763	3491.762	0.	28638.840	5	5						
	3482.986	3483.983	0.	28702.777	5	7						
23v	3d2(3F)4s4p(1P) w 3Do		All Ref SK78									
MltMean	3378.355	3379.327	222.51	29814.21	21	15						
	3385.941	3386.913	386.875	29912.283	9	7	5.75E+07		7.69E-02	-0.160	2.416	0.08
	3377.575	3378.545	170.134	29768.674	7	5	7.90E+07		9.66E-02	-0.170	2.514	0.10
	3370.434	3371.402	0.	29661.248	5	3	8.74E+07		8.93E-02	-0.350	2.479	0.11
	3361.266	3362.232	170.134	29912.283	7	7						
	3358.271	3359.236	0.	29768.674	5	5	8.76E+06		1.48E-02	-1.130	1.697	0.11
	3342.147	3343.108	0.	29912.283	5	7						
24v	3d2(1G)4s4p(3P) x 3Go		All Ref SK78									
MltMean	3359.057	3360.023	222.51	29984.21	21	27						
	3385.660	3386.632	386.875	29914.736	9	7						
	3379.211	3380.182	386.875	29971.084	9	9	7.11E+06		1.22E-02	-0.960	1.615	0.16
	3371.452	3372.420	386.875	30039.168	9	11	8.65E+07		1.80E-01	0.210	2.784	0.10
	3360.989	3361.955	170.134	29914.736	7	7						
	3354.634	3355.598	170.134	29971.084	7	9	8.48E+07		1.84E-01	0.110	2.791	0.08
	3341.873	3342.834	0.	29914.736	5	7	7.43E+07		1.74E-01	-0.060	2.765	0.12
27v	3d3(4F)4p w 3Go		All Ref SK78									
MltMean	3194.609	3195.533	222.51	31516.20	21	27						
	3226.235	3227.167	386.875	31373.807	9	7						
	3214.237	3215.165	386.875	31489.476	9	9	7.51E+06		1.16E-02	-0.980	1.573	0.09
	3203.825	3204.751	170.134	31373.807	7	7	8.27E+06		1.27E-02	-1.050	1.611	0.11
	3199.914	3200.839	386.875	31628.686	9	11	1.08E+08		2.02E-01	0.260	2.811	0.06
	3191.992	3192.915	170.134	31489.476	7	9	9.81E+07		1.93E-01	0.130	2.789	0.05
	3186.451	3187.372	0.	31373.807	5	7	9.17E+07		1.95E-01	-0.010	2.794	0.06
29v	3d3(4F)4p w 3Fo		All Ref SK78									
MltMean	2987.702	2988.574	222.51	33683.29	21	21						
	3002.726	3003.601	386.875	33680.247	9	7						
	3000.865	3001.740	386.875	33700.885	9	9	1.40E+07		1.89E-02	-0.770	1.753	0.09
	2985.475	2986.346	170.134	33655.869	7	5						
	2983.303	2984.174	170.134	33680.247	7	7	1.23E+07		1.64E-02	-0.940	1.690	0.09
	2981.467	2982.337	170.134	33700.885	7	9						
	2970.383	2971.250	0.	33655.869	5	5	8.50E+06		1.12E-02	-1.250	1.524	0.11
	2968.233	2969.099	0.	33680.247	5	7						

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Ti I	3s23p63d24s2 a 3F J=2 GROUND IP = 55072.5+-0.3 cm-1			Ref F91,SZK90								
30=1u	3d2(1G)4s4p(3P) v 3Fo		All	Ref SK78								
MltMean	2950.127	2950.990	222.51	34109.45	21	21						
	2967.221	2968.088	386.875	34078.604	9	7						
	2956.795	2957.659	170.134	33980.654	7	5	2.06E+07		1.93E-02	-0.870	1.756	0.15
	2956.132	2956.996	386.875	34204.985	9	9	1.12E+08		1.46E-01	0.120	2.637	0.08
	2948.254	2949.116	170.134	34078.604	7	7	1.07E+08		1.40E-01	-0.010	2.615	0.06
	2941.991	2942.851	0.	33980.654	5	5	1.20E+08		1.55E-01	-0.110	2.660	0.06
	2937.306	2938.165	170.134	34204.985	7	9						
	2933.534	2934.393	0.	34078.604	5	7	1.11E+07		2.00E-02	-1.000	1.769	0.12
2u	3d3(2G)4p v 3Go		All	Ref SK78								
MltMean	2672.387	2673.182	222.51	37631.11	21	27						
	2689.675	2690.473	386.875	37555.056	9	7						
	2685.135	2685.932	386.875	37617.893	9	9						
	2679.921	2680.717	386.875	37690.325	9	11	1.47E+07		1.93E-02	-0.760	1.714	0.09
	2674.080	2674.875	170.134	37555.056	7	7						
	2669.593	2670.387	170.134	37617.893	7	9	1.17E+07		1.60E-02	-0.950	1.631	0.09
	2661.965	2662.757	0.	37555.056	5	7	1.02E+07		1.52E-02	-1.120	1.606	0.10
5u	3d2(3P)4s4p(1P) u 3Do		All	Ref SK78								
MltMean	2643.702	2644.491	222.51	38036.97	21	15						
	2646.635	2647.423	386.875	38159.457	9	7	1.71E+08		1.40E-01	0.100	2.569	0.08
	2644.263	2645.051	170.134	37976.589	7	5	1.62E+08		1.22E-01	-0.070	2.507	0.09
	2641.095	2641.882	0.	37851.801	5	3	2.06E+08		1.29E-01	-0.190	2.533	0.06
	2632.416	2633.201	0.	37976.589	5	5	3.05E+07		3.17E-02	-0.800	1.922	0.15
	2631.534	2632.319	170.134	38159.457	7	7	1.99E+07		2.06E-02	-0.840	1.735	0.15
	2619.801	2620.582	0.	38159.457	5	7						
6u	3d3(2G)4p t 3Fo		All	Ref SK78								
MltMean	2606.522	2607.302	222.51	38576.35	21	21						
	2619.939	2620.721	386.875	38544.315	9	7	2.36E+07		1.89E-02	-0.770	1.694	0.08
	2611.470	2612.250	170.134	38451.309	7	5						
	2611.288	2612.068	386.875	38670.722	9	9	7.34E+07		7.51E-02	-0.170	2.293	0.10
	2605.140	2605.919	170.134	38544.315	7	7	7.36E+07		7.50E-02	-0.280	2.291	0.11
	2599.915	2600.692	0.	38451.309	5	5	7.67E+07		7.78E-02	-0.410	2.306	0.07
	2596.587	2597.363	170.134	38670.722	7	9	7.96E+06		1.03E-02	-1.140	1.429	0.10
	2593.641	2594.416	0.	38544.315	5	7						
8u	3d3(2D2)4p s 3Do		All	Ref SK78								
MltMean	2532.652	2533.414	222.51	39694.94	21	15						
	2541.918	2542.681	386.875	39715.436	9	7						
	2529.871	2530.632	170.134	39685.962	7	5	4.35E+07		2.98E-02	-0.680	1.878	0.08
	2527.985	2528.745	170.134	39715.436	7	7						
	2520.541	2521.300	0.	39662.082	5	3	4.40E+07		2.52E-02	-0.900	1.803	0.08
	2519.025	2519.783	0.	39685.962	5	5						
	2517.155	2517.913	0.	39715.436	5	7						
10u	3d3(2H)4p u 3Go		All	Ref SK78								
MltMean	2435.560	2436.299	222.51	41268.38	21	27						
	2451.252	2451.994	386.875	41170.005	9	7						
	2446.125	2446.866	386.875	41255.477	9	9						
	2440.984	2441.724	386.875	41341.550	9	11	8.27E+06		9.03E-03	-1.090	1.343	0.18
	2438.293	2439.032	170.134	41170.005	7	7						
	2433.220	2433.958	170.134	41255.477	7	9						
	2428.216	2428.953	0.	41170.005	5	7						
11u	3d4s2 4p s 3Fo		All	Ref SK78								
MltMean	2421.863	2422.600	222.51	41500.49	21	21						
	2434.084	2434.822	386.875	41457.640	9	7						
	2428.357	2429.094	170.134	41337.747	7	5						
	2424.250	2424.986	386.875	41624.220	9	9	1.91E+07		1.68E-02	-0.820	1.610	0.15
	2421.305	2422.040	170.134	41457.640	7	7	1.48E+07		1.30E-02	-1.040	1.499	0.17
	2418.362	2419.097	0.	41337.747	5	5						
	2411.574	2412.307	170.134	41624.220	7	9						
	2411.367	2412.101	0.	41457.640	5	7						
14u	3d2 4s(4F)5p r 3Fo		All	Ref SK78								
MltMean	2303.307	2304.017	222.51	43624.97	21	21						
	2314.292	2315.003	386.875	43583.354	9	7						
	2308.897	2309.607	170.134	43467.537	7	5						
	2305.674	2306.384	386.875	43744.793	9	9	5.94E+07		4.74E-02	-0.370	2.039	0.11
	2302.737	2303.446	170.134	43583.354	7	7	6.52E+07		5.19E-02	-0.440	2.077	0.12
	2299.859	2300.567	0.	43467.537	5	5	7.97E+07		6.32E-02	-0.500	2.163	0.12
	2294.205	2294.912	170.134	43744.793	7	9						
	2293.747	2294.454	0.	43583.354	5	7						
15u	3d2 4s(4F)5p o 3Do		All	Ref SK78								
MltMean	2276.772	2277.477	222.51	44130.75	21	15						
	2279.967	2280.671	386.875	44233.619	9	7	1.08E+08		6.54E-02	-0.230	2.174	0.10
	2276.702	2277.405	170.134	44079.760	7	5	1.45E+08		8.03E-02	-0.250	2.262	0.11
	2273.280	2273.982	0.	43975.718	5	3						
	2268.751	2269.453	170.134	44233.619	7	7						
	2267.914	2268.615	0.	44079.760	5	5						
	2260.024	2260.724	0.	44233.619	5	7						

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Ti I 3s23p63d24s2 a 3F J=2 GROUND IP = 55072.5+-0.3 cm-1 Ref F91,SZK90												
	3d2 4s(4F)5p 3Go			All Ref SK78								
MltMean	2269.110	2269.812	222.51	44279.02	21	27						
	2284.032	2284.737	386.875	44155.594	9	7						
	2278.747	2279.451	386.875	44257.097	9	9						
	2272.776	2273.479	170.134	44155.594	7	7						
	2272.613	2273.315	386.875	44375.501	9	11						
	2267.543	2268.244	170.134	44257.097	7	9						
	2264.018	2264.719	0.	44155.594	5	7	2.62E+07		2.83E-02	-0.850	1.806	0.15
Ti II 3s23p63d2(3F)4s a4F J=3/2 GRND IP = 109494+-20 cm-1 Ref ZJL0?,SC85												
1v	3d2(3F)4p z 4Go			All Ref BHNGBTL93,PTP01,PTP02								
MltMean	3364.739	3365.706	225.17	29936.62	28	36	1.69E+08		3.70E-01	1.015	3.095	
	3409.8084	3410.7866	225.701	29544.451	8	6	9.96E+05	1.75E+08	1.30E-03	-1.982	0.648	0.031
	3407.2024	3408.1799	393.444	29734.618	10	8	7.15E+05	1.79E+08	9.96E-04	-2.002	0.531	0.030
	3394.5721	3395.5464	94.110	29544.451	6	6	2.69E+07	1.75E+08	4.65E-02	-0.554	2.198	0.034
	3387.8336	3388.8062	225.701	29734.618	8	8	2.81E+07	1.79E+08	4.84E-02	-0.412	2.215	0.031
	3383.7588	3384.7304	0.	29544.451	4	6	1.39E+08	1.75E+08	3.58E-01	0.156	3.084	0.034
	3380.2767	3381.2474	393.444	29968.328	10	10	1.37E+07	1.79E+08	2.35E-02	-0.629	1.900	0.070
	3372.7926	3373.7613	94.110	29734.618	6	8	1.41E+08	1.79E+08	3.21E-01	0.284	3.034	0.031
	3361.2120	3362.1778	225.701	29968.328	8	10	1.58E+08	1.79E+08	3.35E-01	0.428	3.051	0.10
	3349.4022	3350.3650	393.444	30240.938	10	12	1.68E+08	1.79E+08	3.39E-01	0.531	3.056	0.09
2v	3d2(3F)4p z 4Fo			All Ref BHNGBTL93,PTP01,PTP02								
MltMean	3237.135	3238.070	225.17	31107.76	28	28	1.90E+08		2.99E-01	0.923	2.986	
	3254.2454	3255.1840	393.444	31113.674	10	8	2.17E+07	2.44E+08	2.76E-02	-0.559	1.953	0.026
	3252.9057	3253.8440	225.701	30958.582	8	6	3.44E+07	2.44E+08	4.10E-02	-0.485	2.125	0.026
	3251.9078	3252.8458	94.110	30836.422	6	4	4.09E+07	2.44E+08	4.33E-02	-0.586	2.148	0.026
	3241.9829	3242.9184	0.	30836.422	4	4	1.47E+08	2.44E+08	2.32E-01	-0.033	2.876	0.027
	3239.0365	3239.9712	94.110	30958.582	6	6	1.26E+08	2.44E+08	1.98E-01	0.075	2.808	0.026
	3236.5720	3237.5061	225.701	31113.674	8	8	1.37E+08	2.44E+08	2.15E-01	0.236	2.843	0.027
	3234.5146	3235.4482	393.444	31301.063	10	10	1.71E+08	2.44E+08	2.68E-01	0.429	2.939	0.027
	3229.1899	3230.1221	0.	30958.582	4	6	2.93E+07	2.44E+08	6.87E-02	-0.561	2.346	0.026
	3222.8413	3223.7719	94.110	31113.674	6	8	3.07E+07	2.44E+08	6.38E-02	-0.417	2.313	0.026
	3217.0543	3217.9834	225.701	31301.063	8	10	2.09E+07	2.44E+08	4.06E-02	-0.489	2.116	0.026
3v	3d2(3F)4p z 2Fo			All Ref BHNGBTL93,PTP01,PTP02								
	3226.7690	3227.7006	225.701	31207.509	8	6	1.55E+06	1.47E+08	1.82E-03	-1.838	0.768	0.032
	3214.7670	3215.6956	393.444	31490.915	10	8						
	3213.1212	3214.0494	94.110	31207.509	6	6	9.18E+05	1.47E+08	1.42E-03	-2.069	0.660	0.041
	3203.4313	3204.3570	0.	31207.509	4	6	1.61E+06	1.47E+08	3.72E-03	-1.828	1.076	0.032
	3197.5186	3198.4428	225.701	31490.915	8	8						
	3184.1166	3185.0375	94.110	31490.915	6	8						
4v	3d2(3F)4p z 2Do			All								
	3157.3933	3158.3074	94.110	31756.639	6	4						
	3148.0361	3148.9478	0.	31756.639	4	4						
	3143.7545	3144.6652	225.701	32025.589	8	6						
	3130.7985	3131.7059	94.110	32025.589	6	6						
	3121.5980	3122.5031	0.	32025.589	4	6						
5v	3d2(3F)4p z 4Do			All Ref BHNGBTL93,PTP01,PTP02								
MltMean	3079.354	3080.250	225.17	32690.07	28	20	1.70E+08		1.73E-01	0.685	2.726	
	3088.0257	3088.9224	393.444	32767.194	10	8	1.50E+08	2.50E+08	1.72E-01	0.235	2.724	0.028
	3078.6441	3079.5384	225.701	32698.100	8	6	1.34E+08	2.50E+08	1.43E-01	0.058	2.643	0.028
	3075.2239	3076.1173	94.110	32602.623	6	4	1.34E+08	2.50E+08	1.27E-01	-0.119	2.591	0.028
	3072.9704	3073.8633	0.	32532.351	4	2	1.71E+08	2.56E+08	1.21E-01	-0.315	2.571	0.027
	3072.1071	3072.9998	225.701	32767.194	8	8	2.12E+07	2.50E+08	3.00E-02	-0.620	1.965	0.027
	3066.3467	3067.2379	0.	32602.623	4	4	3.47E+07	2.50E+08	4.89E-02	-0.708	2.176	0.027
	3066.2181	3067.1093	94.110	32698.100	6	6	3.01E+07	2.50E+08	4.25E-02	-0.594	2.115	0.027
	3059.7337	3060.6232	94.110	32767.194	6	8	2.40E+06	2.50E+08	4.49E-03	-1.569	1.138	0.027
	3057.3927	3058.2817	0.	32698.100	4	6	1.98E+06	2.50E+08	4.16E-03	-1.778	1.105	0.028
1u	3d2(3F)4p z 2Go			All Ref BHNGBTL93,PTP01,PTP02								
	2927.4067	2928.2633	393.444	34543.378	10	8						
	2913.0971	2913.9501	225.701	34543.378	8	8	1.55E+05	2.17E+08	1.97E-04	-2.802	-0.240	0.12
	2909.9272	2910.7795	393.444	34748.503	10	10	4.88E+05	2.17E+08	6.20E-04	-2.208	0.256	0.041
	2901.9690	2902.8193	94.110	34543.378	6	8						
	2895.7875	2896.6363	225.701	34748.503	8	10						
2u	3d2(3P)4p y 4Do			All Ref BHNGBTL93,PTP01								
MltMean	2475.303	2476.052	225.17	40612.04	28	20						
	2478.7758	2479.5245	0.	40330.314	4	2						
	2478.6964	2479.4451	94.110	40425.715	6	4	5.12E+05	2.22E+08	3.15E-04	-2.724	-0.108	0.14
	2477.2024	2477.9508	225.701	40581.628	8	6						
	2474.1943	2474.9420	393.444	40798.432	10	8	6.51E+05	2.38E+08	4.78E-04	-2.320	0.073	0.068
	2472.9257	2473.6730	0.	40425.715	4	4	2.08E+06	2.22E+08	1.91E-03	-2.117	0.674	0.050
	2469.1506	2469.8970	94.110	40581.628	6	6						
	2463.9644	2464.7096	225.701	40798.432	8	8						
	2463.4241	2464.1693	0.	40581.628	4	6						
	2455.9981	2456.7416	94.110	40798.432	6	8						

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Ti II 3s23p63d2(3F)4s a4F J=3/2 GRND IP = 109494+-20 cm-1 Ref ZJL0?,SC85												
	3d(2D)4s4p(3P) 4Fo		All Ref BHNGBTL93,WFL01									
MltMean	1904.174	225.17	52741.37		28	28						
	1914.3966	94.110	52329.889		6	4						
	1914.0151	225.701	52471.893		8	6						
	1911.6148	393.444	52705.239		10	8						
	1910.9538	0.	52329.889		4	4	1.79E+08	1.43E+08	9.80E-02	-0.407	2.272	0.013
	1909.2064	94.110	52471.893		6	6						
	1905.7822	0.	52471.893		4	6						
	1905.5046	225.701	52705.239		8	8						
	1900.7385	94.110	52705.239		6	8						
	1897.4212	393.444	53096.555		10	10						
	1891.4013	225.701	53096.555		8	10						
3u	3d(2D)4s4p(3P) 4Do		All Ref BHNGBTL93,WFL01									
MltMean	1907.350	225.17	52653.92		28	20						
	1910.6123	0.	52339.243		4	2	3.80E+08	4.17E+08	1.04E-01	-0.381	2.298	0.017
	1909.6622	94.110	52459.393		6	4						
	1908.2084	225.701	52630.878		8	6						
	1906.4436	393.444	52847.132		10	8						
	1906.2363	0.	52459.393		4	4						
	1903.4289	94.110	52630.878		6	6						
	1900.3664	225.701	52847.132		8	8						
	1900.0253	0.	52630.878		4	6						
	1895.6260	94.110	52847.132		6	8						
	3d2(3F)4f 4So		All									
	1215.4197	94.110	82370.218		6	4						
	1214.0310	0.	82370.218		4	4						
Ti III 3s23p63d2 3F J=2 GROUND IP = 221735.6+-2.0 cm-1 Ref SC85												
	3d4p 1Do		All Ref RU98									
	1333.097	184.9	75198.21		7	5	7.75E+04		1.48E-05	-3.986	-1.706	
	1329.819	0.	75198.21		5	5	6.23E+06		1.65E-03	-2.083	0.342	
1u	3d4p 3Do		All Ref RU98									
MltMean	1298.497	241.80	77253.93		21	15	5.90E+08		1.06E-01	0.350	2.141	
	1298.996	184.9	77167.43		7	5	4.15E+08		7.50E-02	-0.280	1.989	
	1298.697	0.	77000.23		5	3	6.35E+08		9.64E-02	-0.317	2.098	
	1298.633	420.4	77424.45		9	7	4.28E+08		8.41E-02	-0.121	2.038	
	1295.884	0.	77167.43		5	5	1.66E+08		4.18E-02	-0.680	1.734	
	1294.674	184.9	77424.45		7	7	1.43E+08		3.59E-02	-0.600	1.667	
	1291.582	0.	77424.45		5	7	7.63E+06		2.67E-03	-1.874	0.538	
2u	3d4p 3Fo		All Ref RU98									
MltMean	1288.593	241.80	77845.80		21	21	2.68E+08		6.68E-02	0.147	1.935	
	1294.717	184.9	77421.86		7	5	1.77E+08		3.18E-02	-0.653	1.614	
	1293.225	420.4	77746.44		9	7	1.77E+08		3.46E-02	-0.507	1.650	
	1291.625	0.	77421.86		5	5	1.06E+08		2.65E-02	-0.878	1.534	
	1289.299	184.9	77746.44		7	7	1.05E+08		2.62E-02	-0.737	1.528	
	1286.369	420.4	78158.61		9	9	2.22E+08		5.52E-02	-0.304	1.851	
	1286.233	0.	77746.44		5	7	1.26E+07		4.37E-03	-1.661	0.749	
	1282.484	184.9	78158.61		7	9	1.50E+07		4.75E-03	-1.478	0.785	
	3d4p 3Po		All Ref RU98									
	1237.018	184.9	81024.47		7	5	7.42E+05		1.22E-04	-3.070	-0.823	
	1235.495	0.	80939.19		5	3	6.64E+05		9.12E-05	-3.341	-0.948	
	1234.195	0.	81024.47		5	5	1.08E+05		2.46E-05	-3.910	-1.518	
	3d4p 1Fo		All Ref RU98									
	1209.241	420.4	83116.93		9	7	4.15E+05		7.08E-05	-3.196	-1.068	
	1205.807	184.9	83116.93		7	7	1.41E+05		3.08E-05	-3.666	-1.430	
	1203.124	0.	83116.93		5	7	2.58E+04		7.83E-06	-4.407	-2.026	
	3d4p 1Po		One Ref RU98									
	1193.362	0.	83796.86		5	3	6.06E+05		7.76E-05	-3.411	-1.033	
Ti IV 3s23p63d 2D J=3/2 GROUND IP = 348973.3+-1.5 cm-1 No ground-term lines >911.7 A SC85												
Ti V 3s23p6 1S J=0 GROUND IP = 800900+-100 cm-1 No ground-term lines >911.7 A SC85												

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
VANADIUM = V Z = 23 A = 50:0.250, 51:99.750%												
V I	3s23p63d34s2 a 4F J=3/2 GROUND IP = 54411.67+-0.17 cm-1 Ref SC85,JKLCOS94											
	3d3(4F)4s4p(3Po) z 6Go		All									
	6240.600	6242.326	552.96	16572.63	10	8						
	6199.281	6200.997	323.46	16449.90	8	6						
	6180.345	6182.055	552.96	16728.81	10	10						
	6161.957	6163.662	137.38	16361.50	6	4						
	6152.458	6154.160	323.46	16572.63	8	8						
	6128.564	6130.261	137.38	16449.90	6	6						
	6110.218	6111.909	0.	16361.50	4	4						
	6109.176	6110.867	552.96	16917.25	10	12						
	6093.886	6095.572	323.46	16728.81	8	10						
	6082.799	6084.483	137.38	16572.63	6	8						
	6077.382	6079.064	0.	16449.90	4	6						
1v	3d3(4F)4s4p(3Po) z 6Do		All	Ref WHLBG85,MFW88								
	5632.462	5634.025	552.96	18302.26	10	8	1.60E+04	2.60E+06	6.09E-05	-3.215	-0.464	0.05
	5592.972	5594.525	323.46	18198.08	8	6	2.10E+04	2.53E+06	7.39E-05	-3.228	-0.384	0.04
	5589.707	5591.259	552.96	18438.02	10	10	3.00E+03	2.70E+06	1.41E-05	-3.852	-1.104	0.05
	5560.562	5562.106	323.46	18302.26	8	8	6.40E+03	2.60E+06	2.97E-05	-3.624	-0.782	0.04
	5557.456	5558.999	137.38	18126.23	6	4	2.00E+04	2.53E+06	6.18E-05	-3.431	-0.464	0.04
	5535.347	5536.884	137.38	18198.08	6	6	8.90E+03	2.53E+06	4.09E-05	-3.610	-0.645	0.04
	5527.618	5529.154	0.	18085.95	4	2	1.10E+04	2.56E+06	2.52E-05	-3.996	-0.856	0.08
	5518.888	5520.421	323.46	18438.02	8	10						
	5515.335	5516.867	0.	18126.23	4	4	6.50E+03	2.53E+06	2.97E-05	-3.926	-0.786	0.06
	5503.600	5505.129	137.38	18302.26	6	8						
	5493.559	5495.085	0.	18198.08	4	6						
2v	3d3(4F)4s4p(3Po) z 6Fo		All									
	5610.294	5611.852	552.96	18372.39	10	8						
	5574.009	5575.556	323.46	18258.89	8	6						
	5566.256	5567.802	552.96	18513.37	10	10						
	5542.718	5544.258	137.38	18174.06	6	4						
	5538.956	5540.495	323.46	18372.39	8	8						
	5517.201	5518.733	0.	18120.10	4	2						
	5516.771	5518.304	137.38	18258.89	6	6						
	5515.079	5516.611	552.96	18680.03	10	12						
	5500.820	5502.348	0.	18174.06	4	4						
	5496.026	5497.553	323.46	18513.37	8	10						
	5482.433	5483.956	137.38	18372.39	6	8						
	5475.263	5476.784	0.	18258.89	4	6						
3v	3d3(4F)4s4p(3Po) z 4Do		All	Ref WHLBG85,MFW88								
MltMean	4867.092	4868.452	319.34	20859.75	28	20	9.42E+06		2.39E-02	-0.174	2.066	
	4881.556	4882.920	552.96	21032.51	10	8	7.70E+06	1.08E+07	2.20E-02	-0.657	2.031	0.013
	4875.493	4876.855	323.46	20828.48	8	6	7.30E+06	1.12E+07	1.95E-02	-0.806	1.979	0.018
	4864.731	4866.090	137.38	20687.76	6	4	7.70E+06	1.20E+07	1.82E-02	-0.961	1.948	0.017
	4851.482	4852.838	0.	20606.50	4	2	1.03E+07	1.16E+07	1.82E-02	-1.138	1.946	0.017
	4832.426	4833.776	0.	20687.76	4	4	2.23E+06	1.20E+07	7.81E-03	-1.505	1.577	0.020
	4831.646	4832.996	137.38	20828.48	6	6	2.00E+06	1.12E+07	7.00E-03	-1.377	1.530	0.022
	4827.458	4828.807	323.46	21032.51	8	8	1.19E+06	1.08E+07	4.16E-03	-1.478	1.303	0.011
	4799.777	4801.118	0.	20828.48	4	6	1.27E+05	1.12E+07	6.58E-04	-2.580	0.500	0.018
	4784.467	4785.804	137.38	21032.51	6	8	7.70E+04	1.08E+07	3.53E-04	-2.675	0.227	0.017
4v	3d3(4F)4s4p(3Po) z 4Go		All	Ref WHLBG85,MFW88								
MltMean	4589.168	4590.454	319.34	22103.68	28	36	5.48E+06		2.23E-02	-0.205	2.010	
	4669.301	4670.608	552.96	21963.45	10	8	1.10E+04	5.59E+06	2.88E-05	-3.541	-0.872	0.020
	4645.980	4647.281	323.46	21841.42	8	6	2.31E+04	5.46E+06	5.61E-05	-3.348	-0.584	0.011
	4635.177	4636.475	552.96	22121.07	10	10	3.70E+05	5.75E+06	1.19E-03	-1.924	0.743	0.023
	4619.780	4621.074	323.46	21963.45	8	8	6.20E+05	5.59E+06	1.98E-03	-1.799	0.962	0.021
	4606.147	4607.437	137.38	21841.42	6	6	6.90E+05	5.46E+06	2.20E-03	-1.880	1.005	0.07
	4594.124	4595.411	552.96	22313.80	10	12	5.60E+06	5.95E+06	2.13E-02	-0.672	1.990	0.015
	4586.374	4587.659	323.46	22121.07	8	10	5.10E+06	5.75E+06	2.01E-02	-0.793	1.965	0.009
	4580.393	4581.677	137.38	21963.45	6	8	4.71E+06	5.59E+06	1.98E-02	-0.926	1.957	0.007
	4577.174	4578.457	0.	21841.42	4	6	4.75E+06	5.46E+06	2.24E-02	-1.048	2.011	0.007
5v	3d3(4F)4s4p(3Po) z 4Fo		All	Ref WHLBG85,OP58,MFW88								
MltMean	4341.901	4343.123	319.34	23344.25	28	28	1.28E+16		3.61E+07	9.004	11.195	
	4368.050	4369.277	323.46	23210.54	8	6	1.01E+06	7.58E+06	2.17E-03	-1.761	0.976	0.013
	4355.945	4357.169	137.38	23088.06	6	4	1.05E+06	6.90E+06	1.99E-03	-1.922	0.939	0.013
	4352.867	4354.090	552.96	23519.87	10	10	5.80E+06	7.52E+06	1.65E-02	-0.783	1.856	0.07
	4341.010	4342.230	323.46	23353.10	8	8	5.00E+06	7.81E+06	1.41E-02	-0.947	1.788	0.07
	4332.822	4334.040	137.38	23210.54	6	6	4.60E+06	7.58E+06	1.30E-02	-1.109	1.749	0.010
	4330.026	4331.243	0.	23088.06	4	4	5.20E+06	6.90E+06	1.46E-02	-1.233	1.802	0.016
	4309.800	4311.012	323.46	23519.87	8	10	9.40E+05	7.52E+06	3.27E-03	-1.582	1.150	0.07
	4307.176	4308.387	0.	23210.54	4	6	1.11E+06	7.58E+06	4.63E-03	-1.732	1.300	0.012
	4306.215	4307.426	137.38	23353.10	6	8	1.20E+06	7.81E+06	4.45E-03	-1.573	1.283	0.07

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
V I	3s23p63d34s2 a 4F J=3/2 GROUND IP = 54411.67+-0.17 cm-1 Ref SC85,JKLCOS94											
6v	3d3(4F)4s4p(3Po) z 2Do		All Ref K47,MFW88									
	4259.307	4260.506	137.38	23608.77	6	4	6.20E+05		1.12E-03	-2.171	0.681	0.10
	4234.522	4235.714	0.	23608.77	4	4	6.90E+05		1.86E-03	-2.129	0.895	0.10
	4234.003	4235.196	323.46	23935.12	8	6	4.80E+05		9.68E-04	-2.111	0.613	0.10
	4200.896	4202.080	137.38	23935.12	6	6	7.80E+04		2.06E-04	-2.907	-0.062	0.10
	4176.784	4177.961	0.	23935.12	4	6	4.60E+04		1.81E-04	-3.141	-0.122	0.10
	3d4(5D)4p z 4Po		All Ref WHLBG85,MFW88									
	4035.891	4037.031	0.	24770.68	4	2						
	4034.736	4035.876	137.38	24915.15	6	4						
	4029.894	4031.033	323.46	25131.00	8	6	1.00E+05	4.00E+06	1.83E-04	-2.835	-0.133	0.022
	4012.488	4013.622	0.	24915.15	4	4						
	3999.890	4001.021	137.38	25131.00	6	6						
	3978.024	3979.149	0.	25131.00	4	6						
	3d4(5D)4p y 6Fo		All Ref K47,MFW88									
	4090.512	4091.666	552.96	24992.88	10	8						
	4070.759	4071.908	552.96	25111.47	10	10	9.70E+04		2.41E-04	-2.618	-0.008	0.10
	4067.976	4069.125	323.46	24898.77	8	6	2.00E+05		3.72E-04	-2.526	0.180	0.10
	4052.457	4053.602	323.46	24992.88	8	8	4.80E+04		1.18E-04	-3.024	-0.319	0.10
	4048.612	4049.755	137.38	24830.23	6	4	2.60E+05		4.26E-04	-2.592	0.237	0.10
	4047.363	4048.506	552.96	25253.43	10	12						
	4037.405	4038.545	137.38	24898.77	6	6						
	4033.069	4034.208	323.46	25111.47	8	10						
	4032.846	4033.986	0.	24789.38	4	2	2.90E+05		3.54E-04	-2.849	0.154	0.10
	4026.211	4027.349	0.	24830.23	4	4						
	4022.118	4023.254	137.38	24992.88	6	8						
	4015.128	4016.263	0.	24898.77	4	6						
7v	3d4(5D)4p y 4Fo		All Ref WHLBG85,MFW88									
MltMean	3879.693	3880.794	319.34	26087.26	28	28	3.45E+07		7.79E-02	0.339	2.481	
	3909.860	3910.968	552.96	26122.08	10	8	4.30E+06	5.68E+07	7.89E-03	-1.103	1.489	0.012
	3902.254	3903.359	552.96	26171.92	10	10	2.68E+07	5.21E+07	6.12E-02	-0.213	2.378	0.015
	3892.861	3893.964	323.46	26004.23	8	6	8.20E+06	6.94E+07	1.40E-02	-0.951	1.736	0.016
	3875.897	3876.995	137.38	25930.55	6	4	8.30E+06	6.99E+07	1.25E-02	-1.126	1.684	0.017
	3875.078	3876.176	323.46	26122.08	8	8	2.36E+07	5.68E+07	5.32E-02	-0.371	2.314	0.015
	3867.606	3868.702	323.46	26171.92	8	10	2.54E+06	5.21E+07	7.12E-03	-1.244	1.440	0.015
	3864.856	3865.952	137.38	26004.23	6	6	2.70E+07	6.94E+07	6.05E-02	-0.440	2.369	0.018
	3855.362	3856.455	0.	25930.55	4	4	3.30E+07	6.99E+07	7.36E-02	-0.531	2.453	0.017
	3847.327	3848.418	137.38	26122.08	6	8	4.80E+06	5.68E+07	1.42E-02	-1.069	1.738	0.018
	3844.438	3845.528	0.	26004.23	4	6	6.00E+06	6.94E+07	2.00E-02	-1.098	1.885	0.015
8v	3d3(4F)4s4p(3Po) z 2Go		All Ref WHLBG85,MFW88									
	3925.237	3926.348	552.96	26021.92	10	8	9.70E+05	1.49E+07	1.79E-03	-1.746	0.848	0.018
	3890.181	3891.284	323.46	26021.92	8	8	6.60E+06	1.49E+07	1.50E-02	-0.921	1.766	0.020
	3876.082	3877.180	552.96	26344.90	10	10	9.10E+06	2.04E+07	2.05E-02	-0.688	1.900	0.029
	3862.215	3863.310	137.38	26021.92	6	8	1.13E+06	1.49E+07	3.37E-03	-1.694	1.115	0.023
	3841.895	3842.985	323.46	26344.90	8	10	9.60E+05	2.04E+07	2.66E-03	-1.673	1.009	0.027
9v	3d4(5D)4p y 4Do		All Ref WHLBG85,MFW88									
MltMean	3838.164	3839.254	319.34	26366.07	28	20	6.71E+07		1.06E-01	0.472	2.609	
	3855.841	3856.934	552.96	26480.29	10	8	5.78E+07	8.00E+07	1.03E-01	0.013	2.600	0.019
	3840.751	3841.841	323.46	26352.65	8	6	5.48E+07	8.06E+07	9.09E-02	-0.138	2.543	0.03
	3828.556	3829.642	137.38	26249.48	6	4	5.33E+07	8.13E+07	7.81E-02	-0.329	2.476	0.018
	3822.009	3823.093	323.46	26480.29	8	8	8.10E+06	8.00E+07	1.77E-02	-0.848	1.832	0.021
	3818.242	3819.326	0.	26182.63	4	2	6.73E+07	8.13E+07	7.36E-02	-0.531	2.449	0.020
	3813.488	3814.571	137.38	26352.65	6	6	1.19E+07	8.06E+07	2.60E-02	-0.808	1.996	0.11
	3808.518	3809.599	0.	26249.48	4	4	1.48E+07	8.13E+07	3.22E-02	-0.890	2.089	0.020
	3795.010	3796.088	137.38	26480.29	6	8	4.70E+05	8.00E+07	1.35E-03	-2.090	0.711	0.05
	3793.608	3794.685	0.	26352.65	4	6	7.90E+05	8.06E+07	2.56E-03	-1.990	0.987	0.03
10v	3d4(5D)4p y 6Do		All Ref K47,WHLBG85,MFW88									
	3837.412	3838.500	552.96	26604.80	10	8						
	3818.266	3819.349	323.46	26505.93	8	6						
	3817.844	3818.928	552.96	26738.32	10	10	1.17E+06	1.27E+08	2.56E-03	-1.592	0.990	0.03
	3803.901	3804.981	323.46	26604.80	8	8	5.40E+05	1.28E+08	1.17E-03	-2.028	0.649	0.03
	3801.165	3802.244	137.38	26437.64	6	4						
	3791.320	3792.397	137.38	26505.93	6	6	1.40E+05	1.27E+08	3.02E-04	-2.742	0.059	0.10
	3787.156	3788.232	0.	26397.54	4	2	8.00E+04	1.30E+08	8.61E-05	-3.463	-0.487	0.17
	3784.673	3785.748	323.46	26738.32	8	10	3.40E+05	1.27E+08	9.13E-04	-2.136	0.539	0.04
	3781.412	3782.486	0.	26437.64	4	4						
	3777.157	3778.230	137.38	26604.80	6	8	8.00E+04	1.28E+08	2.28E-04	-2.863	-0.064	0.11
	3771.669	3772.741	0.	26505.93	4	6						
11v	3d3(4F)4s4p(3Po) z 2Go		All Ref K47,MFW88									
	3721.354	3722.412	323.46	27187.76	8	6	1.20E+05		1.87E-04	-2.825	-0.157	0.10
	3713.953	3715.010	552.96	27470.79	10	8	2.80E+05		4.63E-04	-2.334	0.236	0.10
	3695.754	3696.806	137.38	27187.76	6	6						
	3682.555	3683.604	323.46	27470.79	8	8						
	3677.079	3678.126	0.	27187.76	4	6						
	3657.484	3658.526	137.38	27470.79	6	8						

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
V I	3s23p63d34s2 a 4F J=3/2 GROUND IP = 54411.67+-0.17 cm-1 Ref SC85,JKLCOS94											
12v	3d3(2G)4s4p(3Po) y 4Go		All Ref K47,MFW88									
MltMean	3283.843	3284.790	319.34	30762.69	28	36						
	3316.743	3317.697	552.96	30694.35	10	8						
	3308.249	3309.202	552.96	30771.73	10	10	1.80E+05		2.96E-04	-2.529	-0.010	0.10
	3298.149	3299.099	552.96	30864.27	10	12	2.00E+06		3.92E-03	-1.407	1.111	0.10
	3298.060	3299.009	323.46	30635.59	8	6						
	3291.678	3292.627	323.46	30694.35	8	8	3.90E+05		6.34E-04	-2.295	0.320	0.10
	3283.313	3284.259	323.46	30771.73	8	10	3.70E+06		7.48E-03	-1.223	1.390	0.10
	3277.936	3278.881	137.38	30635.59	6	6	6.80E+05		1.10E-03	-2.182	0.556	0.10
	3271.633	3272.576	137.38	30694.35	6	8	4.80E+06		1.03E-02	-1.210	1.527	0.10
	3263.237	3264.177	0.	30635.59	4	6	7.10E+06		1.70E-02	-1.167	1.745	0.10
13v	3d3(2G)4s4p(3Po) x 4Fo		All Ref K47,MFW88									
MltMean	3230.261	3231.195	319.34	31267.65	28	28						
	3254.784	3255.722	552.96	31268.11	10	8	1.50E+05		1.91E-04	-2.720	-0.207	0.10
	3249.564	3250.502	552.96	31317.44	10	10	6.90E+05		1.09E-03	-1.961	0.551	0.10
	3234.729	3235.663	323.46	31229.03	8	6						
	3230.644	3231.576	323.46	31268.11	8	8	6.20E+05		9.71E-04	-2.110	0.496	0.10
	3225.502	3226.433	323.46	31317.44	8	10						
	3218.358	3219.288	137.38	31200.15	6	4						
	3215.369	3216.298	137.38	31229.03	6	6	6.20E+05		9.62E-04	-2.239	0.490	0.10
	3211.332	3212.260	137.38	31268.11	6	8						
	3204.187	3205.113	0.	31200.15	4	4	6.50E+05		1.00E-03	-2.397	0.506	0.10
	3201.224	3202.149	0.	31229.03	4	6						
14v	3d3(4F)4s4p(1Po) x 4Go		All Ref WHLBG85,MFW88									
MltMean	3185.810	3186.731	319.34	31699.46	28	36	2.79E+08		5.46E-01	1.185	3.241	
	3226.104	3227.036	552.96	31541.15	10	8	7.00E+05	2.80E+08	8.74E-04	-2.058	0.450	0.06
	3217.157	3218.086	323.46	31397.83	8	6	1.30E+06	2.80E+08	1.51E-03	-1.917	0.688	0.07
	3207.415	3208.342	552.96	31721.71	10	10	2.60E+07	2.80E+08	4.01E-02	-0.397	2.110	0.06
	3202.387	3203.312	323.46	31541.15	8	8	4.00E+07	2.80E+08	6.15E-02	-0.308	2.295	0.07
	3198.006	3198.930	137.38	31397.83	6	6	3.90E+07	2.80E+08	5.98E-02	-0.445	2.282	0.06
	3185.384	3186.306	552.96	31937.27	10	12	2.80E+08	2.80E+08	5.11E-01	0.709	3.212	0.06
	3184.013	3184.933	0.	31397.83	4	6	2.40E+08	2.80E+08	5.47E-01	0.340	3.241	0.07
	3183.970	3184.891	323.46	31721.71	8	10	2.50E+08	2.80E+08	4.75E-01	0.580	3.180	0.07
	3183.410	3184.331	137.38	31541.15	6	8	2.40E+08	2.80E+08	4.86E-01	0.465	3.190	0.06
15v	3d3(2P)4s4p(3Po) x 4Do		All Ref K47,MFW88									
MltMean	3089.203	3090.102	319.34	32680.74	28	20						
	3093.238	3094.136	137.38	32456.58	6	4	3.80E+05		3.64E-04	-2.661	0.051	0.10
	3091.541	3092.439	323.46	32660.40	8	6	8.60E+05		9.25E-04	-2.131	0.456	0.10
	3091.435	3092.332	552.96	32891.01	10	8	1.40E+06		1.61E-03	-1.794	0.696	0.10
	3090.392	3091.289	0.	32348.96	4	2						
	3080.145	3081.039	0.	32456.58	4	4	6.10E+05		8.68E-04	-2.459	0.427	0.10
	3073.852	3074.745	137.38	32660.40	6	6						
	3069.649	3070.541	323.46	32891.01	8	8	1.00E+07		1.41E-02	-0.947	1.638	0.10
	3060.922	3061.812	0.	32660.40	4	6	3.90E+05		8.22E-04	-2.483	0.401	0.10
	3052.209	3053.097	137.38	32891.01	6	8	2.40E+06		4.47E-03	-1.571	1.135	0.10
16v	3d3(4P)4s4p(3Po) z 2Po		All Ref K47,MFW88									
	3063.720	3064.611	137.38	32767.95	6	4	3.80E+06		3.57E-03	-1.670	1.039	0.10
	3054.892	3055.780	0.	32724.87	4	2						
	3050.875	3051.762	0.	32767.95	4	4	1.90E+07		2.65E-02	-0.974	1.908	0.10
17v	3d3(4F)4s4p(1Po) w 4Fo		All Ref K47,OP58,MFW88									
MltMean	3060.706	3061.596	319.34	32982.04	28	28						
	3082.110	3083.006	552.96	32988.84	10	8	2.10E+07		2.39E-02	-0.621	1.868	0.10
	3073.820	3074.713	323.46	32846.82	8	6						
	3066.523	3067.414	137.38	32738.13	6	4	3.20E+07		3.01E-02	-0.743	1.965	0.10
	3066.373	3067.264	552.96	33155.30	10	10	2.10E+08		2.96E-01	0.472	2.958	0.07
	3060.455	3061.345	323.46	32988.84	8	8	1.40E+08		1.97E-01	0.197	2.780	0.07
	3056.333	3057.221	137.38	32846.82	6	6	1.30E+08		1.82E-01	0.039	2.746	0.07
	3053.654	3054.542	0.	32738.13	4	4	1.30E+08		1.82E-01	-0.138	2.745	0.07
	3044.938	3045.824	323.46	33155.30	8	10	1.20E+07		2.09E-02	-0.778	1.803	0.10
	3043.549	3044.435	0.	32846.82	4	6	1.80E+07		3.75E-02	-0.824	2.058	0.10
	3043.119	3044.005	137.38	32988.84	6	8	2.30E+07		4.26E-02	-0.592	2.113	0.10
18=1u	3d3(4P)4s4p(3Po) w 4Do		All Ref DKKWZ85									
MltMean	2962.672	2963.539	319.34	34062.78	28	20						
	2977.541	2978.410	552.96	34127.92	10	8	3.11E+07		3.31E-02	-0.480	1.994	0.07
	2962.777	2963.643	323.46	34065.72	8	6	4.29E+07		4.24E-02	-0.470	2.099	0.05
	2957.326	2958.190	323.46	34127.92	8	8	1.29E+07		1.69E-02	-0.870	1.698	0.07
	2954.334	2955.197	137.38	33976.07	6	4	2.19E+07		1.91E-02	-0.940	1.752	0.06
	2946.527	2947.389	137.38	34065.72	6	6	1.28E+07		1.67E-02	-1.000	1.691	0.06
	2943.188	2944.049	0.	33966.83	4	2	7.00E+07		4.55E-02	-0.740	2.127	0.06
	2942.388	2943.248	0.	33976.07	4	4						
	2941.135	2941.995	137.38	34127.92	6	8						
	2934.644	2935.502	0.	34065.72	4	6						

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
V I	3s23p63d34s2 a 4F J=3/2 GROUND IP = 54411.67+-0.17 cm-1 Ref SC85,JKLCOS94											
	3d3(2P)4s4p(3Po) 2Do		All	Ref DKKWZ85								
	2953.833	2954.696	323.46	34167.89	8	6						
	2949.627	2950.490	137.38	34030.06	6	4	3.74E+07		3.25E-02	-0.710	1.982	0.06
	2937.719	2938.578	0.	34030.06	4	4						
	2937.680	2938.540	137.38	34167.89	6	6						
	2925.868	2926.724	0.	34167.89	4	6						
	3d3(a2D)4s4p(3Po) 4Fo		All	Ref DKKWZ85								
MltMean	2928.038	2928.896	319.34	34461.90	28	28						
	2955.799	2956.662	552.96	34374.88	10	8						
	2942.318	2943.178	552.96	34529.84	10	10						
	2935.876	2936.735	323.46	34374.88	8	8	1.04E+07		1.34E-02	-0.970	1.595	0.06
	2926.262	2927.119	323.46	34486.75	8	6						
	2922.576	2923.431	323.46	34529.84	8	10						
	2919.919	2920.774	137.38	34374.88	6	8						
	2915.328	2916.181	137.38	34428.80	6	4						
	2910.409	2911.262	137.38	34486.75	6	6						
	2903.694	2904.545	0.	34428.80	4	4						
	2898.815	2899.664	0.	34486.75	4	6						
5u	3d3(4F)4s4p(1Po) v 4Do		All	Ref DKKWZ85								
MltMean	2912.849	2913.703	319.34	34639.93	28	20						
	2923.620	2924.476	552.96	34747.12	10	8	8.89E+07		9.12E-02	-0.040	2.426	0.06
	2914.927	2915.780	323.46	34619.60	8	6						
	2906.133	2906.984	137.38	34537.29	6	4	4.03E+07		3.40E-02	-0.690	1.995	0.06
	2904.128	2904.979	323.46	34747.12	8	8						
	2899.601	2900.451	0.	34477.40	4	2	3.96E+07		2.50E-02	-1.000	1.860	0.08
	2899.196	2900.045	137.38	34619.60	6	6	1.48E+07		1.87E-02	-0.950	1.734	0.08
	2894.573	2895.421	0.	34537.29	4	4						
	2888.513	2889.360	137.38	34747.12	6	8						
	2887.690	2888.537	0.	34619.60	4	6						
6u	3d3(a2D)4s4p(3Po) u 4Do		All	Ref DKKWZ85								
MltMean	2862.870	2863.712	319.34	35239.05	28	20						
	2870.547	2871.390	552.96	35379.30	10	8	3.51E+07		3.47E-02	-0.460	1.998	0.07
	2864.361	2865.202	323.46	35225.01	8	6	4.28E+07		3.95E-02	-0.500	2.054	0.05
	2859.970	2860.810	137.38	35092.52	6	4	4.46E+07		3.65E-02	-0.660	2.018	0.06
	2855.222	2856.061	0.	35013.26	4	2	7.27E+07		4.45E-02	-0.750	2.104	0.06
	2851.754	2852.592	323.46	35379.30	8	8						
	2849.170	2850.007	137.38	35225.01	6	6						
	2848.773	2849.610	0.	35092.52	4	4						
	2838.057	2838.892	0.	35225.01	4	6						
	2836.696	2837.530	137.38	35379.30	6	8						
13u	3d4(3H)4p t 4Do		All									
	2661.422	2662.213	552.96	38115.69	10	8						
	2656.223	2657.014	323.46	37959.70	8	6						
	2651.892	2652.682	137.38	37835.08	6	4						
	2647.706	2648.494	0.	37757.30	4	2						
	2645.259	2646.047	323.46	38115.69	8	8						
	2643.154	2643.941	137.38	37959.70	6	6						
	2642.263	2643.050	0.	37835.08	4	4						
	2633.588	2634.373	0.	37959.70	4	6						
	2632.297	2633.082	137.38	38115.69	6	8						
15u	3d4(a3F)4p u 4Fo		All									
	2577.290	2578.062	552.96	39341.79	10	8						
	2574.019	2574.790	552.96	39391.08	10	10						
	2564.840	2565.609	323.46	39300.56	8	6						
	2562.130	2562.898	323.46	39341.79	8	8						
	2558.897	2559.664	323.46	39391.08	8	10						
	2554.863	2555.630	137.38	39266.68	6	4						
	2552.653	2553.419	137.38	39300.56	6	6						
	2549.968	2550.733	137.38	39341.79	6	8						
	2545.924	2546.688	0.	39266.68	4	4						
	2543.729	2544.493	0.	39300.56	4	6						
17u	3d4(a3F)4p s 4Do		All									
	2526.221	2526.981	552.96	40125.88	10	8						
	2519.626	2520.384	323.46	39999.95	8	6						
	2511.945	2512.702	137.38	39935.18	6	4						
	2511.654	2512.410	323.46	40125.88	8	8						
	2507.864	2508.619	137.38	39999.95	6	6						
	2506.906	2507.661	0.	39877.80	4	2						
	2503.303	2504.058	0.	39935.18	4	4						
	2499.965	2500.719	137.38	40125.88	6	8						
	2499.250	2500.003	0.	39999.95	4	6						

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
V I	3s23p63d34s2 a 4F J=3/2 GROUND IP = 54411.67+-0.17 cm-1 Ref SC85,JKLCOS94											
19u	3d4(3H)4p u 4Go			All								
	2534.205	2534.967	552.96	40001.21	10	8						
	2531.780	2532.541	552.96	40038.99	10	10						
	2530.185	2530.945	552.96	40063.89	10	12						
	2522.027	2522.786	323.46	39962.18	8	6						
	2519.546	2520.304	323.46	40001.21	8	8						
	2517.149	2517.907	323.46	40038.99	8	10						
	2510.242	2510.998	137.38	39962.18	6	6						
	2507.784	2508.540	137.38	40001.21	6	8						
	2501.612	2502.366	0.	39962.18	4	6						
23u	3d4(3G)4p t 4Fo			Part								
	2423.371	2424.107	137.38	41389.68	6	4						
	2415.327	2416.061	0.	41389.68	4	4						
	3d4(3G)4p o											
	2418.737	2419.472	323.46	41654.79	8	6						
	2407.896	2408.628	137.38	41654.79	6	6						
	2399.954	2400.684	0.	41654.79	4	6						
	3d34s(5F)4d q 4Fo			All								
	2241.215	2241.911	552.96	45157.77	10	8						
	2237.231	2237.926	552.96	45237.19	10	10						
	2232.258	2232.951	323.46	45107.24	8	6						
	2229.742	2230.435	323.46	45157.77	8	8						
	2225.798	2226.491	323.46	45237.19	8	10						
	2225.036	2225.728	137.38	45066.49	6	4						
	2223.020	2223.712	137.38	45107.24	6	6						
	2220.525	2221.216	137.38	45157.77	6	8						
	2218.253	2218.944	0.	45066.49	4	4						
	2216.249	2216.939	0.	45107.24	4	6						
	3d3(2F)4s4p(3Po) r 4Go			All								
	2192.966	2193.651	552.96	46139.06	10	8						
	2187.941	2188.625	552.96	46243.74	10	10						
	2186.100	2186.784	323.46	46052.72	8	6						
	2182.223	2182.906	552.96	46363.46	10	12						
	2181.980	2182.663	323.46	46139.06	8	8						
	2177.239	2177.921	137.38	46052.72	6	6						
	2177.005	2177.687	323.46	46243.74	8	10						
	2173.152	2173.834	137.38	46139.06	6	8						
	2170.744	2171.424	0.	46052.72	4	6						
V II	3s23p63d4 a 5D J=0 GROUND IP = 117900+-30 cm-1 Ref ICD88											
	3d3(4F)4p z 5Go			All								
	2907.490	2908.341	208.89	34592.75	7	5						
	2905.576	2906.427	339.21	34745.72	9	7						
	2898.868	2899.717	106.63	34592.75	5	5						
	2894.611	2895.460	208.89	34745.72	7	7						
	2892.947	2893.795	36.05	34592.75	3	5						
	2888.713	2889.560	339.21	34946.55	9	9						
	2886.065	2886.912	106.63	34745.72	5	7						
	2877.876	2878.720	208.89	34946.55	7	9						
	2868.276	2869.118	339.21	35193.13	9	11						
2,1u	3d3(4F)4p z 3Do			All	Ref KMZKK86=MFW88,BGFMLW89							
	2747.744	2748.557	106.63	36489.36	5	3						
	2742.424	2743.235	36.05	36489.36	3	3	6.30E+06		7.11E-03	-1.671	1.290	0.05
	2739.714	2740.525	0.	36489.36	1	3	3.00E+07		1.01E-01	-0.994	2.444	0.04
	2714.209	2715.013	208.89	37041.12	7	5	9.62E+06	2.38E+08	7.59E-03	-1.274	1.314	0.04
	2711.740	2712.543	339.21	37204.98	9	7	8.44E+06	2.17E+08	7.24E-03	-1.186	1.293	0.04
	2706.694	2707.496	106.63	37041.12	5	5	2.07E+07	2.38E+08	2.27E-02	-0.944	1.790	0.04
	2702.187	2702.988	208.89	37204.98	7	7	2.85E+07	2.17E+08	3.12E-02	-0.661	1.926	0.07
	2701.531	2702.332	36.05	37041.12	3	5	1.94E+06	2.38E+08	3.54E-03	-1.974	0.981	0.04
	2694.738	2695.538	106.63	37204.98	5	7	1.87E+05	2.17E+08	2.85E-04	-2.846	-0.114	0.04
1,2u	3d3(4F)4p z 5Fo			All	Ref KMZKK86=MFW88							
MltMean	2710.948	2711.752	206.26	37082.78	25	35	3.22E+07		4.97E-02	0.094	2.129	
	2741.575	2742.387	208.89	36673.48	7	5	3.24E+05	2.08E+08	2.61E-04	-2.738	-0.145	0.04
	2733.908	2734.717	106.63	36673.48	5	5	2.81E+06	2.08E+08	3.15E-03	-1.803	0.935	0.04
	2732.925	2733.734	339.21	36919.21	9	7	2.83E+05	2.22E+08	2.47E-04	-2.654	-0.171	0.05
	2728.641	2729.449	36.05	36673.48	3	5	2.16E+07	2.08E+08	4.02E-02	-0.919	2.040	0.04
	2723.223	2724.030	208.89	36919.21	7	7	1.53E+06	2.22E+08	1.70E-03	-1.924	0.666	0.05
	2715.752	2716.557	339.21	37150.51	9	9	2.04E+06	2.33E+08	2.26E-03	-1.692	0.788	0.04
	2715.658	2716.463	106.63	36919.21	5	7	3.13E+07	2.22E+08	4.85E-02	-0.615	2.120	0.04
	2713.047	2713.851	106.63	36954.63	5	3	6.71E+06	2.13E+08	4.45E-03	-1.653	1.081	0.05
	2707.860	2708.663	36.05	36954.63	3	3	1.32E+07	2.13E+08	1.45E-02	-1.361	1.595	0.05
	2706.171	2706.974	208.89	37150.51	7	9	3.36E+07	2.33E+08	4.75E-02	-0.479	2.109	0.04
	2705.219	2706.021	0.	36954.63	1	3	4.31E+06	2.13E+08	1.42E-02	-1.848	1.584	0.05
	2700.935	2701.736	339.21	37352.45	9	11	3.45E+07	2.33E+08	4.61E-02	-0.382	2.096	0.04

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
V II	3s23p63d4 a 5D J=0 GROUND		IP = 117900+-30 cm-1		Ref ICD88							
3u	3d3(4F)4p z 5Do		All	Ref KMZKK86=MFW88								
MltMean	2684.222	2685.020	206.26	37449.92	25	25	8.43E+07		9.11E-02	0.357	2.388	
	2690.791	2691.590	106.63	37259.39	5	3	5.21E+07	2.86E+08	3.40E-02	-0.770	1.961	0.05
	2690.262	2691.061	208.89	37368.96	7	5	3.45E+07	2.86E+08	2.68E-02	-0.728	1.857	0.04
	2689.883	2690.682	36.05	37201.35	3	1	9.26E+07	2.86E+08	3.35E-02	-0.998	1.955	0.04
	2688.721	2689.520	339.21	37520.57	9	7	1.47E+07	2.70E+08	1.24E-02	-0.952	1.523	0.05
	2687.962	2688.760	339.21	37531.08	9	9	7.67E+07	2.86E+08	8.31E-02	-0.126	2.349	0.04
	2685.689	2686.486	36.05	37259.39	3	3	6.67E+06	2.86E+08	7.22E-03	-1.665	1.288	0.04
	2683.090	2683.887	0.	37259.39	1	3	3.37E+07	2.86E+08	1.09E-01	-0.962	2.467	0.04
	2682.879	2683.675	106.63	37368.96	5	5	1.99E+07	2.86E+08	2.15E-02	-0.969	1.761	0.04
	2679.330	2680.126	208.89	37520.57	7	7	3.39E+07	2.70E+08	3.65E-02	-0.593	1.991	0.05
	2678.575	2679.371	208.89	37531.08	7	9	1.16E+07	2.86E+08	1.61E-02	-0.949	1.634	0.05
	2677.806	2678.602	36.05	37368.96	3	5	3.36E+07	2.86E+08	6.02E-02	-0.743	2.208	0.04
	2672.006	2672.801	106.63	37520.57	5	7	2.30E+07	2.70E+08	3.45E-02	-0.763	1.965	0.05
4u	3d3(4F)4p z 3Go		All									
	2570.265	2571.035	339.21	39234.05	9	7						
	2561.681	2562.449	208.89	39234.05	7	7						
	2559.100	2559.867	339.21	39403.74	9	9						
	2554.986	2555.752	106.63	39234.05	5	7						
	2550.590	2551.356	208.89	39403.74	7	9						
	2545.466	2546.230	339.21	39612.96	9	11						
5u	3d3(4F)4p z 3Fo		All									
	2512.260	2513.017	208.89	40001.70	7	5						
	2508.257	2509.013	339.21	40195.52	9	7						
	2505.820	2506.575	106.63	40001.70	5	5						
	2501.395	2502.149	36.05	40001.70	3	5						
	2500.082	2500.836	208.89	40195.52	7	7						
	2493.705	2494.457	106.63	40195.52	5	7						
	2493.584	2494.336	339.21	40430.04	9	9						
	2485.504	2486.254	208.89	40430.04	7	9						
8,6u	3d3(4P)4p y 5Do		All	Ref K98								
MltMean	2128.687	2129.361	206.26	47168.71	25	25	1.66E+07		1.13E-02	-0.549	1.381	
	2147.537	2148.213	36.05	46586.37	3	1	1.04E+07		2.40E-03	-2.142	0.713	
	2145.994	2146.669	106.63	46690.42	5	3	7.12E+06		2.95E-03	-1.831	0.802	
	2142.747	2143.422	36.05	46690.42	3	3	9.39E+05		6.47E-04	-2.712	0.142	
	2141.092	2141.767	0.	46690.42	1	3	3.90E+06		8.05E-03	-2.094	1.237	
	2134.163	2134.836	339.21	47181.21	9	7	1.24E+07		6.59E-03	-1.227	1.148	
	2131.842	2132.514	208.89	47101.89	7	5	1.25E+07		6.11E-03	-1.369	1.115	
	2128.241	2128.913	208.89	47181.21	7	7	4.33E+06		2.94E-03	-1.686	0.797	
	2127.202	2127.874	106.63	47101.89	5	5	7.49E+03		5.08E-06	-4.595	-1.966	
	2124.012	2124.683	36.05	47101.89	3	5	1.05E+06		1.19E-03	-2.449	0.401	
	2123.617	2124.289	106.63	47181.21	5	7	3.59E+06		3.40E-03	-1.770	0.858	
	2123.326	2123.997	339.21	47420.25	9	9	1.47E+07		9.93E-03	-1.049	1.324	
	2117.464	2118.134	208.89	47420.25	7	9	2.97E+06		2.57E-03	-1.745	0.736	
6,8u	3d3(4P)4p z 3Po		All									
	2148.424	2149.100	208.89	46739.99	7	5						
	2143.712	2144.388	106.63	46739.99	5	5						
	2140.472	2141.147	36.05	46739.99	3	5						
	2127.354	2128.026	36.05	47027.95	3	1						
	2126.926	2127.598	106.63	47107.99	5	3						
	2123.737	2124.408	36.05	47107.99	3	3						
	2122.111	2122.782	0.	47107.99	1	3						
7u	3d3(4P)4p z 5Po		All	Ref K98								
MltMean	2139.331	2140.007	206.26	46935.08	25	15	1.87E+08		7.72E-02	0.286	2.218	
	2143.041	2143.716	106.63	46754.59	5	3	6.47E+07		2.67E-02	-0.874	1.758	
	2141.984	2142.659	208.89	46879.88	7	5	1.03E+08		5.05E-02	-0.452	2.034	
	2140.073	2140.748	339.21	47051.86	9	7	1.41E+08		7.53E-02	-0.169	2.207	
	2139.803	2140.478	36.05	46754.59	3	3	8.75E+07		6.01E-02	-0.744	2.109	
	2138.153	2138.827	0.	46754.59	1	3	3.99E+07		8.20E-02	-1.086	2.244	
	2137.974	2137.974	106.63	46879.88	5	5	6.14E+07		4.21E-02	-0.677	1.954	
	2134.119	2134.792	208.89	47051.86	7	7	4.34E+07		2.96E-02	-0.683	1.801	
	2134.080	2134.753	36.05	46879.88	3	5	1.53E+07		1.74E-02	-1.282	1.570	
	2129.469	2130.142	106.63	47051.86	5	7	6.99E+06		6.65E-03	-1.478	1.151	
	3d3(4F3/2)4f 2[5/2]o			Ref K98								
		1112.353	339.21	90238.75	9	7	1.15E+06		1.66E-04	-2.825	-0.733	
		1110.743	208.89	90238.75	7	7	4.38E+07		8.11E-03	-1.246	0.955	
		1110.586	208.89	90251.48	7	5	7.96E+06		1.05E-03	-2.133	0.067	
		1109.482	106.63	90238.75	5	7	2.39E+08		6.17E-02	-0.511	1.835	
		1109.326	106.63	90251.48	5	5	7.00E+06		1.29E-03	-2.190	0.156	
		1108.458	36.05	90251.48	3	5	1.41E+08		4.34E-02	-0.885	1.683	
	3d3(4F3/2)4f 2[7/2]o			Ref K98								
		1111.840	339.21	90280.22	9	7	1.39E+06		2.00E-04	-2.744	-0.652	
		1111.469	339.21	90310.26	9	9	8.65E+05		1.60E-04	-2.841	-0.749	
		1110.231	208.89	90280.22	7	7	4.16E+07		7.69E-03	-1.269	0.931	
		1109.861	208.89	90310.26	7	9	6.31E+07		1.50E-02	-0.979	1.221	
		1108.972	106.63	90280.22	5	7	2.36E+07		6.10E-03	-1.516	0.830	

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
V II	3s23p63d4 a 5D J=0 GROUND		IP = 117900+-30 cm-1		Ref ICD88							
	3d3(4F5/2)4f 2[1/2]o			Ref K98								
		1107.878	106.63	90369.29	5	3	1.33E+07		1.47E-03	-2.134	0.212	
		1107.012	36.05	90369.29	3	3	6.42E+07		1.18E-02	-1.451	1.116	
		1106.571	0.	90369.29	1	3	2.24E+08		1.23E-01	-0.909	2.135	
		1106.335	36.05	90424.58	3	1	2.71E+08		1.66E-02	-1.303	1.264	
	3d3(4F5/2)4f 2[3/2]o			Ref K98								
		1108.920	208.89	90386.74	7	5	1.42E+06		1.87E-04	-2.882	-0.682	
		1107.756	106.63	90379.25	5	3	1.26E+08		1.39E-02	-1.157	1.188	
		1107.664	106.63	90386.74	5	5	2.76E+07		5.08E-03	-1.595	0.750	
		1106.890	36.05	90379.25	3	3	4.03E+07		7.41E-03	-1.653	0.914	
		1106.798	36.05	90386.74	3	5	2.31E+07		7.08E-03	-1.673	0.894	
		1106.449	0.	90379.25	1	3	4.34E+07		2.39E-02	-1.622	1.422	
	3d3(4F5/2)4f 2[7/2]o			Ref K98								
		1110.202	339.21	90412.89	9	7	1.32E+07		1.90E-03	-1.767	0.324	
		1109.953	339.21	90433.15	9	9	2.93E+07		5.42E-03	-1.312	0.779	
		1108.598	208.89	90412.89	7	7	7.39E+07		1.36E-02	-1.021	1.179	
		1108.349	208.89	90433.15	7	9	2.27E+08		5.37E-02	-0.425	1.775	
		1107.343	106.63	90412.89	5	7	3.87E+07		9.95E-03	-1.303	1.042	
	3d3(4F5/2)4f 2[5/2]o			Ref K98								
		1108.699	339.21	90535.05	9	7	4.24E+06		6.08E-04	-2.262	-0.171	
		1107.555	208.89	90497.90	7	5	4.48E+07		5.89E-03	-1.385	0.814	
		1107.099	208.89	90535.05	7	7	6.80E+06		1.25E-03	-2.058	0.141	
		1106.302	106.63	90497.90	5	5	3.24E+06		5.94E-04	-2.527	-0.182	
		1105.847	106.63	90535.05	5	7	2.26E+06		5.81E-04	-2.537	-0.192	
		1105.438	36.05	90497.90	3	5	1.04E+08		3.19E-02	-1.019	1.547	
	3d3(4F7/2)4f 2[1/2]o			Ref K98								
		1105.634	106.63	90552.45	5	3	1.22E+08		1.34E-02	-1.175	1.170	
		1104.772	36.05	90552.45	3	3	8.92E+07		1.63E-02	-1.310	1.256	
		1104.380	36.05	90584.6	3	1	2.64E+08		1.61E-02	-1.317	1.249	
		1104.332	0.	90552.45	1	3	6.50E+06		3.56E-03	-2.448	0.595	
	3d3(4F7/2)4f 2[5/2]o			Ref K98								
		1107.737	339.21	90613.31	9	7	4.29E+07		6.13E-03	-1.258	0.832	
		1106.160	208.89	90611.74	7	5	1.41E+07		1.85E-03	-1.888	0.311	
		1106.141	208.89	90613.31	7	7	1.81E+06		3.32E-04	-2.634	-0.435	
		1104.910	106.63	90611.74	5	5	1.26E+08		2.31E-02	-0.938	1.406	
		1104.891	106.63	90613.31	5	7	1.11E+08		2.84E-02	-0.848	1.496	
		1104.049	36.05	90611.74	3	5	4.49E+06		1.37E-03	-2.387	0.179	
	3d3(4F7/2)4f 2[7/2]o			Ref K98								
		1107.707	339.21	90615.78	9	9	1.58E+08		2.90E-02	-0.583	1.507	
		1106.560	339.21	90709.33	9	7	2.90E+05		4.15E-05	-3.428	-1.338	
		1106.110	208.89	90615.78	7	9	3.47E+07		8.18E-03	-1.242	0.957	
		1104.967	208.89	90709.33	7	7	1.01E+07		1.86E-03	-1.886	0.312	
		1103.720	106.63	90709.33	5	7	7.18E+05		1.84E-04	-3.037	-0.693	
	3d3(4F7/2)4f 2[9/2]o			Ref K98								
		1107.531	339.21	90630.12	9	11	1.64E+08		3.68E-02	-0.480	1.610	
		1107.197	339.21	90657.34	9	9	1.25E+07		2.29E-03	-1.686	0.404	
		1105.602	208.89	90657.34	7	9	2.63E+07		6.21E-03	-1.362	0.837	
	3d3(4F9/2)4f 2[5/2]o			Ref K98								
		1105.501	339.21	90795.91	9	7	2.79E+08		3.98E-02	-0.446	1.643	
		1103.911	208.89	90795.91	7	7	3.67E+07		6.70E-03	-1.329	0.869	
		1102.666	106.63	90795.91	5	7	1.60E+05		4.09E-05	-3.689	-1.346	
	3d3(4F9/2)4f 2[7/2]o			Ref K98								
		1104.894	339.21	90845.61	9	7	9.38E+05		1.34E-04	-2.920	-0.831	
		1104.801	339.21	90853.28	9	9	3.10E+08		5.67E-02	-0.292	1.797	
		1103.306	208.89	90845.61	7	7	8.60E+06		1.57E-03	-1.959	0.239	
		1103.212	208.89	90853.28	7	9	5.49E+07		1.29E-02	-1.045	1.153	
		1102.062	106.63	90845.61	5	7	1.17E+07		2.97E-03	-1.828	0.515	
	3d3(4F9/2)4f 2[9/2]o			Ref K98								
		1104.538	339.21	90874.76	9	11	1.89E+08		4.22E-02	-0.420	1.669	
		1104.455	339.21	90881.62	9	9	2.59E+06		4.73E-04	-2.371	-0.282	
		1102.867	208.89	90881.62	7	9	4.26E+06		1.00E-03	-2.155	0.042	
V III	3s23p63d3 a 4F J=3/2 GROUND		IP = 236410+-20 cm-1		Ref SC85							
1u MltMean	3d2(3F)4p z 4Go			All Ref K98								
		1163.999	337.25	86247.96	28	36	6.84E+07		1.79E-02	-0.301	1.318	
		1173.950	341.5	85524.00	8	6	1.32E+00		2.05E-10	-8.786	-6.619	
		1172.444	583.8	85875.74	10	8	2.57E+04		4.24E-06	-4.373	-2.304	
		1171.255	145.5	85524.00	6	6	4.17E+06		8.57E-04	-2.289	0.002	
		1169.262	0.	85524.00	4	6	6.25E+07		1.92E-02	-1.114	1.352	
		1169.122	341.5	85875.74	8	8	2.62E+06		5.37E-04	-2.367	-0.202	
		1166.554	583.8	86306.40	10	10	7.12E+05		1.45E-04	-2.838	-0.771	
		1166.450	145.5	85875.74	6	8	6.61E+07		1.80E-02	-0.967	1.322	
		1163.265	341.5	86306.40	8	10	6.90E+07		1.75E-02	-0.854	1.309	
		1159.749	583.8	86809.39	10	12	6.81E+07		1.65E-02	-0.783	1.281	

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
V III	3s23p63d3 a 4F J=3/2 GROUND		IP = 236410+-20 cm-1		Ref SC85							
2u	3d2(3F)4p z 4Fo		All	Ref K98								
MltMean		1151.198	337.25	87203.26	28	28	6.32E+08		1.26E-01	0.546	2.160	
		1155.117	145.5	86716.84	6	4	1.08E+08		1.44E-02	-1.064	1.220	
		1154.781	341.5	86938.01	8	6	9.42E+07		1.41E-02	-0.947	1.212	
		1154.266	583.8	87218.92	10	8	5.53E+07		8.83E-03	-1.054	1.008	
		1153.179	0.	86716.84	4	4	5.17E+08		1.03E-01	-0.385	2.075	
		1152.173	145.5	86938.01	6	6	4.57E+08		9.10E-02	-0.263	2.020	
		1151.047	341.5	87218.92	8	8	5.01E+08		9.95E-02	-0.099	2.059	
		1150.245	0.	86938.01	4	6	7.88E+07		2.34E-02	-1.028	1.431	
		1149.945	583.8	87544.46	10	10	5.90E+08		1.17E-01	0.068	2.129	
		1148.456	145.5	87218.92	6	8	7.64E+07		2.01E-02	-0.918	1.364	
		1146.750	341.5	87544.46	8	10	4.59E+07		1.13E-02	-1.043	1.113	
	3d2(3F)4p z 2Fo		All									
		1142.343	341.5	87880.85	8	6						
		1139.791	145.5	87880.85	6	6						
		1139.677	583.8	88327.96	10	8						
		1137.904	0.	87880.85	4	6						
		1136.539	341.5	88327.96	8	8						
		1134.012	145.5	88327.96	6	8						
	3d2(3F)4p 2Do		All	Ref K98								
		1131.048	145.5	88559.08	6	4	1.33E+08		1.70E-02	-0.991	1.284	
		1129.190	0.	88559.08	4	4	5.35E+06		1.02E-03	-2.388	0.063	
		1122.131	341.5	89457.67	8	6	2.14E+08		3.03E-02	-0.615	1.532	
		1119.668	145.5	89457.67	6	6	5.44E+07		1.02E-02	-1.212	1.059	
		1117.847	0.	89457.67	4	6	3.50E+06		9.84E-04	-2.405	0.041	
3u	3d2(3F)4p 4Do		All	Ref K98								
MltMean		1125.463	337.25	89189.57	28	20	4.66E+08		6.31E-02	0.248	1.852	
		1128.631	341.5	88944.38	8	6	2.77E+08		3.96E-02	-0.499	1.650	
		1126.140	145.5	88944.38	6	6	3.11E+07		5.91E-03	-1.450	0.823	
		1125.699	583.8	89417.50	10	8	5.10E+08		7.74E-02	-0.111	1.940	
		1124.298	0.	88944.38	4	6	5.93E+05		1.69E-04	-3.171	-0.722	
		1123.524	0.	89005.64	4	2	5.93E+08		5.61E-02	-0.649	1.800	
		1122.990	145.5	89193.47	6	4	3.58E+08		4.52E-02	-0.567	1.705	
		1122.637	341.5	89417.50	8	8	4.35E+07		8.22E-03	-1.182	0.965	
		1121.158	0.	89193.47	4	4	1.03E+08		1.94E-02	-1.110	1.338	
		1120.172	145.5	89417.50	6	8	1.42E+06		3.56E-04	-2.670	-0.399	
	3d2(3P)4p y 4Do		All	Ref K98								
MltMean		1007.913	337.25	99552.13	28	20	2.77E+08		3.02E-02	-0.073	1.483	
		1009.734	145.5	99181.50	6	4	2.22E+08		2.26E-02	-0.868	1.358	
		1009.354	0.	99073.23	4	2	2.90E+08		2.21E-02	-1.053	1.349	
		1009.096	341.5	99440.10	8	6	2.18E+08		2.50E-02	-0.699	1.402	
		1008.253	0.	99181.50	4	4	5.39E+07		8.22E-03	-1.483	0.919	
		1007.104	145.5	99440.10	6	6	4.58E+07		6.96E-03	-1.379	0.846	
		1006.468	583.8	99941.20	10	8	2.53E+08		3.07E-02	-0.513	1.490	
		1005.631	0.	99440.10	4	6	2.52E+06		5.74E-04	-2.639	-0.239	
		1004.019	341.5	99941.20	8	8	2.93E+07		4.42E-03	-1.451	0.648	
		1002.047	145.5	99941.20	6	8	1.51E+06		3.04E-04	-2.739	-0.516	
V IV	3s23p63d2 3F J=2 GROUND		IP = 376730+-40 cm-1		No ground-term lines >911.7 A		SC85					
V V	3s23p63d 2D J=3/2 GROUND		IP = 526532+-1 cm-1		No ground-term lines >911.7 A		SC85					
CHROMIUM = Cr	Z = 24	A = 50:4.345, 52:83.789, 53:9.501, 54:2.365%										
Cr I	3s23p63d5(6S)4s a 7S J=3 GRND		IP = 54575.6+-0.3 cm-1		Ref SC85							
1v	3d5(6S)4p z 7Po		All	Ref MFW88								
MltMean		4269.529	4270.731	0.	23415.19	7	21	3.13E+07		2.56E-01	0.254	3.039	
		4289.716	4290.923	0.	23305.01	7	5	3.16E+07	3.16E+07	6.23E-02	-0.360	2.427	0.04
		4274.796	4275.999	0.	23386.35	7	7	3.07E+07	3.07E+07	8.42E-02	-0.230	2.556	0.04
		4254.332	4255.529	0.	23498.84	7	9	3.15E+07	3.15E+07	1.10E-01	-0.114	2.670	0.04
	3d4(5D)4s4p(3Po) z 7Fo		All									
		3984.652	3985.779	0.	25089.20	7	5						
		3966.184	3967.306	0.	25206.02	7	7						
		3942.161	3943.277	0.	25359.62	7	9						
2v	3d5(6S)4p z 5Po		All	Ref MFW88								
		3732.023	3733.084	0.	26787.50	7	7	1.60E+05		3.34E-04	-2.631	0.096	0.07
		3730.800	3731.861	0.	26796.28	7	5	1.60E+05		2.39E-04	-2.777	-0.050	0.07
3v	3d4(5D)4s4p(3Po) z 7Do		All	Ref MFW88								
		3650.970	3652.010	0.	27382.18	7	5						
		3635.279	3636.315	0.	27500.37	7	7	1.50E+04		2.97E-05	-3.682	-0.966	0.15
		3615.643	3616.674	0.	27649.71	7	9	5.10E+04		1.29E-04	-3.046	-0.333	0.15
4v	3d4(5D)4s4p(3Po) y 7Po		All	Ref MFW88								
MltMean		3589.926	3590.951	0.	27847.78	7	21	1.52E+08		8.82E-01	0.790	3.501	
		3605.321	3606.350	0.	27728.87	7	5	1.62E+08	1.62E+08	2.26E-01	0.198	2.910	0.04
		3593.481	3594.507	0.	27820.23	7	7	1.50E+08	1.50E+08	2.91E-01	0.308	3.019	0.04
		3578.684	3579.705	0.	27935.26	7	9	1.48E+08	1.48E+08	3.66E-01	0.408	3.117	0.04

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Cr I	3s23p63d5(6S)4s a 7S J=3 GRND IP = 54575.6+-0.3 cm-1 Ref SC85											
5v	3d4(5D)4s4p(3Po) y 5Po			All Ref MFW88								
	3379.164	3380.135	0.	29584.62	7	5	9.90E+04		1.21E-04	-3.072	-0.388	0.07
	3351.957	3352.920	0.	29824.75	7	7	1.20E+05		2.02E-04	-2.849	-0.169	0.04
1u	3d5(6S)5p x 7Po			All Ref MFW88								
MltMean	2365.619	2366.342	0.	42259.32	7	21	5.75E+06		1.45E-02	-0.994	1.535	
	2366.811	2367.534	0.	42238.04	7	5	6.90E+06		4.14E-03	-1.538	0.991	0.10
	2365.911	2366.634	0.	42254.11	7	7	5.50E+06		4.62E-03	-1.490	1.039	0.10
	2364.730	2365.453	0.	42275.20	7	9	5.30E+06		5.72E-03	-1.398	1.131	0.10
2u	3d5(6S)6p w 7Po			All Ref MFW88								
MltMean	2095.312	2095.978	0.	47710.43	7	21	1.14E+06		2.26E-03	-1.801	0.675	
	2095.883	2096.549	0.	47697.44	7	5	1.10E+06		5.18E-04	-2.441	0.036	0.10
	2095.393	2096.059	0.	47708.59	7	7	1.10E+06		7.25E-04	-2.295	0.181	0.10
	2094.932	2095.598	0.	47719.08	7	9	1.20E+06		1.02E-03	-2.148	0.328	0.10
	3d5(6S)7p 7Po			Part								
		1992.6	0.	50185.	7	7						
		1992.2	0.	50197.	7	9						
	3d5(6S)8p 7Po			All								
		1940.64	0.	51529.4	7	5						
		1940.56	0.	51531.5	7	7						
		1940.45	0.	51534.4	7	9						
	3d5(6S)9p 7Po			Part								
		1910.5	0.	52341.	7	7						
	3d5(6S)10p 7Po			Part								
		1891.89	0.	52857.3	7	7						
Cr II	3s23p63d5 a 6S J=5/2 GROUND IP = 132966+-10 cm-1 Ref SC85,PTMLJZW00											
	3d4(5D)4p z 6Fo			All								
	2131.288	2131.961	0.	46905.17	6	4						
	2125.163	2125.835	0.	47040.35	6	6						
	2116.752	2117.422	0.	47227.24	6	8						
1	3d4(5D)4p z 6Po			All Ref SMH90,BL93,PJGBVB93								
MltMean	2059.784	2060.444	0.	48533.24	6	18	1.21E+08		2.30E-01	0.140	2.676	
	2065.5041	2066.1640	0.	48398.868	6	4	1.20E+08	4.17E+08	5.12E-02	-0.513	2.024	0.025
	2061.5769	2062.2361	0.	48491.053	6	6	1.19E+08	4.06E+08	7.59E-02	-0.342	2.194	0.023
	2055.5988	2056.2569	0.	48632.055	6	8	1.22E+08	4.07E+08	1.03E-01	-0.209	2.326	0.024
	3d4(5D)4p z 4Po			All Ref RU98								
	2039.914	2040.569	0.	49005.93	6	4	3.52E+06		1.47E-03	-2.056	0.476	
	2011.166	2011.816	0.	49706.33	6	6	8.33E+05		5.06E-04	-2.518	0.007	
	3d4(5D)4p z 6Do			All Ref RU98								
	2025.616	2026.269	0.	49351.80	6	6	2.11E+06		1.30E-03	-2.109	0.420	
	2016.918	2017.569	0.	49564.60	6	4	2.82E+05		1.15E-04	-3.162	-0.635	
	2013.620	2014.270	0.	49645.77	6	8	1.57E+05		1.27E-04	-3.117	-0.591	
	3d4(5D)5p 6Do			All Ref RU98								
		1068.668	0.	93574.44	6	4	1.19E+06		1.36E-04	-3.089	-0.838	
		1066.369	0.	93776.15	6	6	3.27E+06		5.57E-04	-2.476	-0.226	
		1064.210	0.	93966.45	6	8	2.60E+06		5.89E-04	-2.452	-0.203	
	3d4(5D)5p 4Po			Part Ref RU98								
		1066.776	0.	93740.40	6	4	4.58E+07		5.21E-03	-1.505	0.745	
		1064.124	0.	93974.03	6	6	4.70E+07		7.98E-03	-1.320	0.929	
	3d3(4P)4s4p(3Po) x 6Do			All Ref RU98								
		1062.720	0.	94098.13	6	4	4.92E+06		5.56E-04	-2.477	-0.229	
		1060.828	0.	94265.99	6	6	4.38E+06		7.39E-04	-2.353	-0.106	
		1058.732	0.	94452.57	6	8	7.52E+06		1.69E-03	-1.995	0.252	
	3d4(5D)5p 6Po			All Ref RU98								
MltMean		1061.455	0.	94210.27	6	18	2.27E+07		1.15E-02	-1.160	1.088	
		1063.801	0.	94002.56	6	4	3.12E+05		3.53E-05	-3.674	-1.425	
		1062.198	0.	94144.43	6	6	3.68E+06		6.22E-04	-2.428	-0.180	
		1059.732	0.	94363.51	6	8	4.85E+07		1.09E-02	-1.185	1.062	
	3d4(5D)4f 4Po			All Ref RU98								
		951.273	0.	105122.26	6	6	8.10E+06		1.10E-03	-2.181	0.019	
		949.817	0.	105283.47	6	4	1.26E+06		1.14E-04	-3.165	-0.966	
	3d4 4f 6Po			Part Ref RU98								
		950.810	0.	105173.47	6	8	1.49E+08		2.68E-02	-0.793	1.407	
		948.688	0.	105408.72	6	4	5.38E+07		4.84E-03	-1.537	0.662	
	3d4(5D)4f 6Ho			Part Ref RU98								
		950.594	0.	105197.38	6	8	4.03E+07		7.28E-03	-1.360	0.840	
	3d4(5D)4f 6Do			Part Ref RU98								
		948.586	0.	105420.09	6	8	1.89E+07		3.40E-03	-1.691	0.508	
		947.011	0.	105595.35	6	6	3.88E+07		5.22E-03	-1.504	0.694	
	3d4(5D)4f 6Go			All Ref RU98								
		948.422	0.	105438.32	6	6	4.47E+07		6.02E-03	-1.442	0.757	
		946.885	0.	105609.47 ?	6	4	3.32E+07		2.97E-03	-1.749	0.449	
		945.492	0.	105765.04	6	8						

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Cr II	3s23p63d5 a 6S J=5/2 GROUND		IP = 132966+-10 cm-1				Ref SC85,PTMLJZW00					
	3d4(5D)4f 4Do			Part Ref RU98								
		947.800	0.	105507.52	6	8	3.00E+06		5.39E-04	-2.490	-0.291	
		947.578	0.	105532.18	6	6	7.74E+06		1.04E-03	-2.204	-0.006	
	3d4(5D)4f 6Fo			Part Ref RU98								
		947.174	0.	105577.19	6	4	1.80E+07		1.62E-03	-2.013	0.185	
		944.966	0.	105823.86	6	8	3.06E+06		5.46E-04	-2.485	-0.288	
Cr III	3s23p63d4 5D J=0 GROUND		IP = 249700+-200 cm-1				Ref SC85					
	3d3(4F)4p 5Go			All								
		1070.558	356.00	93765.20	7	5						
		1070.055	575.73	94028.89	9	7						
		1068.573	182.44	93765.20	5	5						
		1067.545	356.00	94028.89	7	7						
		1067.197	61.76	93765.20	3	5						
		1066.104	575.73	94375.18	9	9						
		1065.570	182.44	94028.89	5	7						
		1063.613	356.00	94375.18	7	9						
		1061.288	575.73	94800.82	9	11						
2u MltMean	3d3(4F)4p 5Fo			All Ref K98								
		1033.066	350.84	97150.04	25	35	4.63E+08		1.04E-01	0.414	2.030	
		1042.037	182.44	96148.35	5	3	2.40E+07		2.34E-03	-1.931	0.388	
		1041.349	356.00	96385.29	7	5	8.13E+07		9.44E-03	-1.180	0.992	
		1040.728	61.76	96148.35	3	3	3.88E+07		6.31E-03	-1.723	0.817	
		1040.059	0.	96148.35	1	3	2.51E+08		1.22E-01	-0.913	2.104	
		1039.470	182.44	96385.29	5	5	1.29E+06		2.09E-04	-2.981	-0.663	
		1038.168	61.76	96385.29	3	5	4.09E+08		1.10E-01	-0.481	2.058	
		1035.790	575.73	97120.44	9	7	1.19E+08		1.49E-02	-0.872	1.189	
		1033.437	356.00	97120.44	7	7	4.91E+08		7.87E-02	-0.259	1.910	
		1033.236	575.73	97359.02	9	9	4.41E+08		7.06E-02	-0.197	1.863	
		1031.587	182.44	97120.44	5	7	2.84E+06		6.35E-04	-2.498	-0.183	
		1030.896	356.00	97359.02	7	9	7.37E+07		1.51E-02	-0.976	1.192	
		1030.471	575.73	97618.71	9	11	3.50E+08		6.80E-02	-0.213	1.846	
1u MltMean	3d3(4F)4p 5Do			All Ref K98								
		1035.746	350.84	96899.61	25	25	8.18E+08		1.32E-01	0.517	2.134	
		1040.178	575.73	96713.15	9	7	9.63E+07		1.22E-02	-0.961	1.102	
		1037.806	356.00	96713.15	7	7	1.19E+08		1.93E-02	-0.870	1.301	
		1036.035	575.73	97097.59	9	9	4.92E+08		7.92E-02	-0.147	1.914	
		1035.940	182.44	96713.15	5	7	4.81E+08		1.08E-01	-0.266	2.050	
		1035.569	356.00	96921.25	7	5	3.23E+08		3.71E-02	-0.586	1.584	
		1035.293	182.44	96773.47	5	3	6.00E+08		5.78E-02	-0.539	1.777	
		1034.861	61.76	96693.12	3	1	1.06E+09		5.66E-02	-0.770	1.768	
		1034.001	61.76	96773.47	3	3	1.95E+08		3.13E-02	-1.027	1.510	
		1033.711	182.44	96921.25	5	5	4.03E+08		6.46E-02	-0.491	1.824	
		1033.682	356.00	97097.59	7	9	3.95E+08		8.13E-02	-0.245	1.924	
		1033.341	0.	96773.47	1	3	1.33E+08		6.40E-02	-1.194	1.820	
		1032.423	61.76	96921.25	3	5	2.93E+07		7.81E-03	-1.630	0.907	
3u	3d3(4F)4p 3Do			All Ref K98								
		1032.048	182.44	97077.12	5	3	1.44E+07		1.38E-03	-2.162	0.153	
		1031.464	356.00	97305.61	7	5	2.95E+07		3.36E-03	-1.629	0.539	
		1030.765	61.76	97077.12	3	3	1.78E+07		2.83E-03	-2.071	0.465	
		1030.109	0.	97077.12	1	3	1.31E+08		6.25E-02	-1.204	1.809	
		1029.788	575.73	97683.06	9	7	1.30E+07		1.61E-03	-1.839	0.220	
		1029.620	182.44	97305.61	5	5	1.94E+06		3.08E-04	-2.812	-0.498	
		1028.343	61.76	97305.61	3	5	1.27E+08		3.36E-02	-0.997	1.538	
		1027.463	356.00	97683.06	7	7	2.39E+07		3.78E-03	-1.577	0.590	
		1025.635	182.44	97683.06	5	7	5.78E+07		1.28E-02	-1.195	1.117	
	3d3(4F)4p 3Go			All Ref K98								
		1007.404	575.73	99840.73	9	7	2.59E+04		3.06E-06	-4.560	-2.511	
		1005.179	356.00	99840.73	7	7	2.75E+05		4.17E-05	-3.535	-1.378	
		1004.783	575.73	100099.66	9	9	8.59E+05		1.30E-04	-2.932	-0.884	
		1003.429	182.44	99840.73	5	7	3.11E+05		6.56E-05	-3.484	-1.181	
		1002.570	356.00	100099.66	7	9	1.61E+06		3.13E-04	-2.660	-0.504	
		1001.539	575.73	100422.08	9	11	6.16E+06		1.13E-03	-1.992	0.054	
	3d3(4F)4p 3Fo			All Ref K98								
		989.243	356.00	101443.44	7	5	9.52E+04		9.97E-06	-4.156	-2.006	
		988.440	575.73	101745.28	9	7	2.50E+05		2.85E-05	-3.591	-1.550	
		987.547	182.44	101443.44	5	5	9.98E+04		1.46E-05	-4.137	-1.841	
		986.372	61.76	101443.44	3	5	2.07E+04		5.02E-06	-4.822	-2.305	
		986.298	356.00	101745.28	7	7	6.40E+05		9.33E-05	-3.185	-1.036	
		984.989	575.73	102099.72	9	9	3.10E+06		4.52E-04	-2.391	-0.352	
		984.612	182.44	101745.28	5	7	1.86E+05		3.78E-05	-3.724	-1.430	
		982.862	356.00	102099.72	7	9	5.19E+05		9.66E-05	-3.170	-1.023	

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Cr III 3s23p63d4 5D J=0 GROUND			IP = 249700+-200 cm-1		Ref SC85							
4u	3d3(4P)4p 5Po			All Ref K98								
MltMean		924.015	350.84	108574.25	25	15	1.04E+09		8.00E-02	0.301	1.869	
		925.349	182.44	108249.81	5	3	3.58E+08		2.75E-02	-0.861	1.406	
		925.032	356.00	108460.34	7	5	5.69E+08		5.21E-02	-0.438	1.683	
		924.317	61.76	108249.81	3	3	4.70E+08		6.02E-02	-0.743	1.746	
		924.053	575.73	108794.65	9	7	7.96E+08		7.92E-02	-0.147	1.864	
		923.789	0.	108249.81	1	3	2.11E+08		8.11E-02	-1.091	1.875	
		923.549	182.44	108460.34	5	5	3.67E+08		4.70E-02	-0.629	1.637	
		922.521	61.76	108460.34	3	5	9.67E+07		2.06E-02	-1.210	1.278	
		922.180	356.00	108794.65	7	7	2.20E+08		2.80E-02	-0.707	1.413	
		920.707	182.44	108794.65	5	7	3.29E+07		5.86E-03	-1.533	0.732	
	3d3(4P)4p 5Do			Part Ref K98								
		920.516	61.76	108696.52	3	1	4.11E+07		1.74E-03	-2.282	0.205	
		920.121	182.44	108863.78	5	3	2.45E+07		1.87E-03	-2.030	0.235	
		919.101	61.76	108863.78	3	3	4.55E+06		5.77E-04	-2.762	-0.276	
		918.579	0.	108863.78	1	3	1.61E+07		6.11E-03	-2.214	0.749	
		916.204	575.73	109721.70	9	7	3.02E+07		2.96E-03	-1.575	0.433	
		915.635	356.00	109569.84	7	5	3.96E+07		3.56E-03	-1.604	0.513	
		914.363	356.00	109721.70	7	7	2.34E+07		2.93E-03	-1.688	0.428	
		914.182	182.44	109569.84	5	5	5.84E+05		7.31E-05	-3.437	-1.175	
		913.175	61.76	109569.84	3	5	5.53E+06		1.15E-03	-2.461	0.022	
		912.915	182.44	109721.70	5	7	1.63E+07		2.84E-03	-1.847	0.414	
		912.589	575.73	110154.05	9	9	5.71E+07		7.12E-03	-1.193	0.813	
		910.763	356.00	110154.05	7	9	1.17E+07		1.87E-03	-1.882	0.232	
	3d3(4P)4p 3Po			All Ref K98								
		920.676	356.00	108971.82	7	5	5.32E+06		4.83E-04	-2.471	-0.352	
		919.207	182.44	108971.82	5	5	1.43E+07		1.81E-03	-2.044	0.220	
		918.189	61.76	108971.82	3	5	1.46E+07		3.08E-03	-2.035	0.451	
		914.184	182.44	109569.58	5	3	2.23E+07		1.68E-03	-2.077	0.185	
		914.116	61.76	109457.12	3	1	2.26E+07		9.44E-04	-2.548	-0.064	
		913.177	61.76	109569.58	3	3	1.16E+05		1.45E-05	-4.361	-1.878	
		912.662	0.	109569.58	1	3	2.12E+06		7.93E-04	-3.101	-0.141	
Cr IV 3s23p63d3 4F J=3/2 GROUND			IP = 396500+-400 cm-1		No ground-term lines >911.7 A SC85							
Cr V 3s23p63d2 3F J=2 GROUND			IP = 560200+-300 cm-1		No ground-term lines >911.7 A SC85							
MANGANESE = Mn Z = 25 A = 55:100%												
Mn I 3s23p63d54s2 a 6S J=5/2 GROUND			IP = 59959.4+-0.1 cm-1		Ref SC85,ASVW89							
1v	3d5(6S)4s4p(3Po) z 8Po			All Ref BBPS84=MFW88								
	5432.546	5434.056	0.	18402.46	6	6	6.04E+03		2.67E-05	-3.795	-0.838	0.04
	5394.677	5396.176	0.	18531.64	6	8	8.99E+03		5.23E-05	-3.503	-0.549	0.04
2v	3d5(6S)4s4p(3Po) z 6Po			All Ref BBPS84=MFW88,Mar75								
MltMean	4032.351	4033.491	0.	24792.42	6	18	1.67E+07		1.22E-01	-0.134	2.693	
	4034.483	4035.623	0.	24779.32	6	4	1.58E+07		2.58E-02	-0.811	2.017	0.04
	4033.062	4034.202	0.	24788.05	6	6	1.65E+07		4.02E-02	-0.618	2.210	0.04
	4030.753	4031.892	0.	24802.25	6	8	1.74E+07	1.81E+07	5.65E-02	-0.470	2.357	0.04
3v	3d5(6S)4s4p(3Po) z 4Po			All Ref BBPS84=MFW88								
	3224.756	3225.687	0.	31001.15	6	6	3.77E+05		5.89E-04	-2.452	0.278	0.04
	3216.945	3217.874	0.	31076.42	6	4	2.45E+05		2.53E-04	-2.818	-0.089	0.04
1u	3d5(6S)4s4p(1Po) y 6Po			All Ref OP57,MFW88								
MltMean	2797.357	2798.182	0.	35737.49	6	18	3.62E+08		1.27E+00	0.883	3.552	
	2801.081	2801.907	0.	35689.98	6	4	3.69E+08		2.90E-01	0.240	2.909	0.10
	2798.269	2799.094	0.	35725.85	6	6	3.56E+08		4.19E-01	0.400	3.069	0.10
	2794.817	2795.641	0.	35769.97	6	8	3.61E+08		5.65E-01	0.530	3.198	0.10
2u	3d6(5D)4p z 6Do			All Ref K98								
	2384.050	2384.777	0.	41932.64	6	8	4.89E+05		5.56E-04	-2.477	0.122	
	2377.185	2377.910	0.	42053.73	6	6	3.95E+05		3.35E-04	-2.697	-0.099	
	2372.117	2372.841	0.	42143.57	6	4	1.76E+05		9.88E-05	-3.227	-0.630	
2.03u	3d6(5D)4p x 6Po			All Ref K98								
MltMean	2216.263	2216.954	0.	45106.93	6	18	7.57E+07		1.67E-01	0.002	2.569	
	2221.831	2222.523	0.	44993.92	6	8	7.95E+07		7.85E-02	-0.327	2.242	
	2213.850	2214.540	0.	45156.11	6	6	7.40E+07		5.44E-02	-0.486	2.081	
	2208.808	2209.497	0.	45259.17	6	4	7.05E+07		3.44E-02	-0.685	1.881	
2.04u	3d6(5D)4p z 4Do			All Ref K98								
	2184.905	2185.588	0.	45754.27	6	8	2.46E+05		2.35E-04	-2.851	-0.290	
	2176.026	2176.708	0.	45940.93	6	6	5.95E+04		4.23E-05	-3.596	-1.036	
	2169.275	2169.956	0.	46083.89	6	4	6.10E+03		2.87E-06	-4.764	-2.206	
2.07u	3d5 4s(7S)5p w 6Po			All Ref K98								
MltMean	2101.674	2102.343	0.	47565.99	6	18	3.46E+06		6.87E-03	-1.385	1.160	
	2109.587	2110.256	0.	47387.62	6	8	2.99E+06		2.67E-03	-1.796	0.750	
	2097.551	2098.217	0.	47659.52	6	6	3.05E+06		2.01E-03	-1.918	0.626	
	2092.154	2092.819	0.	47782.43	6	4	5.02E+06		2.20E-03	-1.880	0.663	

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Mn I 3s23p63d54s2 a 6S J=5/2 GROUND IP = 59959.4+-0.1 cm-1 Ref SC85,ASVW89												
2.08u	3d5(4P)4s4p(3Po) y 6Do			All Ref K98								
	2106.074	2106.742	0.	47466.66	6	4	1.68E+06		7.46E-04	-2.349	0.196	
	2093.401	2094.066	0.	47753.99	6	6	2.65E+06		1.75E-03	-1.980	0.563	
	2092.501	2093.166	0.	47774.52	6	8	1.11E+06		9.68E-04	-2.236	0.307	
2.10u	3d5(4P)4s4p(3Po) v 6Po			All Ref K98								
MltMean	2000.297	2000.944	0.	49976.40	6	18	7.62E+07		1.37E-01	-0.084	2.439	
	2003.841	2004.490	0.	49888.01	6	8	7.57E+07		6.08E-02	-0.438	2.086	
		1999.500	0.	50012.50	6	6	7.62E+07		4.57E-02	-0.562	1.961	
		1996.047	0.	50099.03	6	4	7.72E+07		3.08E-02	-0.734	1.788	
2.14u	3d5(4P)4s4p(3Po) x 4Po			All Ref K98								
		1949.116	0.	51305.31	6	6	4.56E+05		2.60E-04	-2.807	-0.295	
		1943.803	0.	51445.55	6	4	3.20E+05		1.21E-04	-3.140	-0.629	
2.18u	3d5(4D)4s4p(3Po) x 6Do			All Ref K98								
		1891.432	0.	52869.99	6	8	7.63E+05		5.46E-04	-2.485	0.014	
		1890.939	0.	52883.79	6	6	3.48E+05		1.87E-04	-2.951	-0.452	
		1890.939	0.	52883.79	6	4	1.14E+05		4.09E-05	-3.610	-1.111	
2.20u	3d5 4s(7S)6p t 6Po			All Ref K98								
MltMean		1876.797	0.	53282.26	6	18	1.26E+06		2.00E-03	-1.920	0.575	
		1877.545	0.	53261.05	6	8	1.53E+06		1.08E-03	-2.188	0.307	
		1876.479	0.	53291.30	6	6	1.15E+06		6.05E-04	-2.440	0.055	
		1875.781	0.	53311.12	6	4	9.01E+05		3.17E-04	-2.721	-0.226	
2.25u	3d54s(7S)7p 6Po			Part Ref K98								
		1802.048	0.	55492.41	6	8	1.07E+06		6.95E-04	-2.380	0.098	
		1802.013	0.	55493.51	6	6	9.83E+05		4.78E-04	-2.542	-0.064	
2.27u	3d54s(5S)5p s 6Po			All Ref K98								
MltMean		1785.471	0.	56007.64	6	18	1.92E+07		2.75E-02	-0.782	1.691	
		1785.813	0.	55996.90	6	4	1.89E+07		6.04E-03	-1.441	1.033	
		1785.453	0.	56008.18	6	6	1.91E+07		9.12E-03	-1.262	1.212	
		1785.312	0.	56012.61	6	8	1.94E+07		1.24E-02	-1.130	1.344	
2.29u	3d54s(7S)8p 6Po			All Ref K98								
MltMean		1756.553	0.	56929.67	6	18	7.55E+06		1.05E-02	-1.202	1.265	
		1756.657	0.	56926.32	6	8	7.49E+06		4.62E-03	-1.557	0.910	
		1756.508	0.	56931.14	6	6	7.69E+06		3.56E-03	-1.671	0.795	
		1756.414	0.	56934.17	6	4	7.44E+06		2.30E-03	-1.861	0.605	
2.32u	3d54s(7S)9p 8Po			Part Ref K98								
		1735.408	0.	57623.33	6	6	3.01E+06		1.36E-03	-2.089	0.372	
		1735.368	0.	57624.65	6	8						
2.34u	3d54s(7S)10p 8Po			Part Ref K98								
		1718.738	0.	58182.24	6	6	1.11E+06		4.92E-04	-2.530	-0.073	
		1718.738	0.	58182.24	6	8	3.04E+05		1.79E-04	-2.968	-0.511	
2.37u	3d54s(7S)11p 6Po			All Ref K98								
MltMean		1706.492	0.	58599.75	6	18	5.11E+05		6.69E-04	-2.396	0.058	
		1706.522	0.	58598.73	6	8	2.68E+03		1.56E-06	-5.028	-2.574	
		1706.475	0.	58600.33	6	6	1.53E+06		6.67E-04	-2.398	0.056	
		1706.458	0.	58600.92	6	4	3.66E+03		1.06E-06	-5.195	-2.741	
2.92u	3d5(4F)4s4p(3Po) 6Go			Part Ref K98								
		1620.457	0.	61710.98	6	8	1.27E+06		6.67E-04	-2.398	0.033	
		1620.029	0.	61727.28	6	6	7.55E+02		2.97E-07	-5.749	-3.318	
2.102	3d6(3G)4p v 4Fo			All Ref K98								
		1602.816	0.	62390.20	6	4	7.88E+06		2.02E-03	-1.916	0.511	
		1600.333	0.	62486.99	6	6	1.45E+07		5.57E-03	-1.476	0.950	
		1599.868	0.	62505.14	6	8	8.32E+04		4.25E-05	-3.593	-1.167	
	3d5(4P)4s4p(1Po) 4So			One Ref K98								
		1503.650	0.	66504.85	6	4	1.66E+07		3.75E-03	-1.648	0.751	
	3d5(4D)4s4p(1Po) 4Po			Part Ref K98								
		1494.533	0.	66910.54	6	6	1.07E+08		3.57E-02	-0.669	1.727	
2.143	3d5(4D)4s4p(1Po) 4Do			Part Ref K98								
		1492.954	0.	66981.30	6	6	1.78E+08		5.94E-02	-0.448	1.948	
2.144	3d5(a 2F)4s4p(3Po) 2Do			Part Ref K98								
		1492.353	0.	67008.29	6	6	1.66E+06		5.53E-04	-2.479	-0.083	
2.155	3d5(2H)4s4p(3Po) t 4Go			All Ref K98								
		1472.941	0.	67891.36	6	8	1.16E+06		5.02E-04	-2.521	-0.131	
		1471.335	0.	67965.5	6	6	2.14E+05		6.95E-05	-3.380	-0.990	
Mn II 3s23p63d5(6S)4s a 7S J=3 GRND IP = 126145.0+-0.6 cm-1 Ref SC85												
1u	3d5(6S)4p z 7Po			All Ref KMWZ82,PGJBAB92,SBK95,KG00,(K98,KSG98)								
MltMean	2588.964	2589.739	0.	38613.93	7	21	2.78E+08		8.38E-01	0.769	3.337	
	2605.684	2606.462	0.	38366.18	7	5	2.72E+08	2.72E+08	1.98E-01	0.141	2.712	0.021
	2593.724	2594.499	0.	38543.08	7	7	2.77E+08	2.78E+08	2.80E-01	0.292	2.860	0.020
	2576.105	2576.877	0.	38806.67	7	9	2.82E+08	2.82E+08	3.61E-01	0.403	2.969	0.006
2u	3d5(6S)4p z 5Po			All Ref KMWZ82,PGJBAB92,SBK95,KG00,(K98)								
	2305.005	2305.714	0.	43370.51	7	7	1.44E+06	2.42E+08	1.15E-03	-2.095	0.423	0.05
	2298.955	2299.663	0.	43484.64	7	5	8.50E+05	2.41E+08	4.81E-04	-2.472	0.044	0.11

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Mn II	3s23p63d5(6S)4s a 7S J=3 GRND IP = 126145.0+-0.6 cm-1 Ref SC85											
	3d5(4F)4p x 5Fo			All Ref K98								
		1219.604	0.	81993.85	7	9	5.12E+05		1.47E-04	-2.988	-0.747	
		1218.745	0.	82051.62	7	7	1.46E+05		3.24E-05	-3.644	-1.403	
		1218.704	0.	82054.35	7	5	6.27E+04		9.97E-06	-4.156	-1.915	
	3d5(a2F)4p w 3Do			All Ref K98								
		1213.305	0.	82419.48	7	7	2.14E+02		4.73E-08	-6.480	-4.241	
		1203.790	0.	83070.97	7	5	9.93E+05		1.54E-04	-2.967	-0.732	
	3d5(4F)4p x 5Do			All Ref K98								
		1210.576	0.	82605.29	7	9	3.33E+06		9.42E-04	-2.181	0.057	
		1209.006	0.	82712.55	7	7	2.52E+06		5.53E-04	-2.412	-0.175	
		1208.674	0.	82735.29	7	5	9.15E+05		1.43E-04	-2.999	-0.762	
	3d5(a2F)4p w 3Fo			All Ref K98								
		1207.281	0.	82830.75	7	9	3.31E+03		9.31E-07	-5.186	-2.949	
		1206.014	0.	82917.78	7	5	5.21E+05		8.11E-05	-3.246	-1.010	
		1205.749	0.	82936.01	7	7	2.63E+05		5.73E-05	-3.397	-1.161	
3u MltMean	3d4(5D)4s4p(3Po) y 7Po			All Ref K98,(DMPY74,LBYO82)								
		1198.854	0.	83412.97	7	21	7.85E+08		5.07E-01	0.550	2.784	
		1201.118	0.	83255.79	7	5	7.85E+08		1.21E-01	-0.071	2.163	
		1199.391	0.	83375.63	7	7	7.85E+08		1.69E-01	0.074	2.308	
		1197.184	0.	83529.33	7	9	7.84E+08		2.17E-01	0.181	2.414	
4u MltMean	3d5(6S)5p x 7Po			All Ref K98,(ASJ90,WHLMSY99)								
		1162.973	0.	85986.51	7	21	3.63E+07		2.21E-02	-0.811	1.409	
		1164.208	0.	85895.30	7	5	3.24E+07		4.70E-03	-1.483	0.738	
		1163.326	0.	85960.46	7	7	3.55E+07		7.21E-03	-1.297	0.924	
		1162.015	0.	86057.44	7	9	3.90E+07		1.02E-02	-1.148	1.072	
	3d4(5D)4s4p(3Po) w 5Po			All Ref K98								
		1150.779	0.	86897.67	7	7	1.26E+05		2.51E-05	-3.755	-1.539	
		1150.261	0.	86936.81	7	5	6.25E+04		8.85E-06	-4.208	-1.992	
	3d5(6S)5p v 5Po			All Ref K98								
		1122.597	0.	89079.2	7	5	3.73E+05		5.03E-05	-3.453	-1.248	
		1118.206	0.	89429.0	7	7	4.89E+05		9.16E-05	-3.193	-0.990	
	3d4(5D)4s4p(3Po) w 5Do			All Ref K98								
		1053.891	0.	94886.5	7	5	5.27E+03		6.26E-07	-5.358	-3.180	
		1052.746	0.	94989.7	7	7	1.20E+05		1.99E-05	-3.855	-1.678	
		1050.351	0.	95206.3	7	9	3.57E+05		7.58E-05	-3.275	-1.099	
	3d4(b3F)4s4p(3Po) u 5Po			All Ref K98								
		936.768	0.	106750.0	7	5	2.28E+04		2.14E-06	-4.824	-2.697	
		933.072	0.	107172.9	7	7	2.19E+04		2.86E-06	-4.699	-2.574	
Mn III	3s23p63d5 6S J=5/2 GROUND IP = 271550+-100 cm-1 No ground-term lines >911.7 A SC85											
Mn IV	3s23p63d4 5D J=0 GROUND IP = 413000+-1000 cm-1 No ground-term lines >911.7 A SC85											
IRON = Fe	Z = 26 A = 54:5.845, 56:91.754, 57:2.119, 58:0.282%											
Fe I	3d64s2 a 5D J=4 GROUND IP = 63737.0+-1 cm-1 Ref NJLTB94,WCDCMPC84,BGJT88,PG90											
1	3d6(5D)4s4p(3P) z 7Do			All Ref BIPS79+BIPW76=FMW88								
	5254.9554	5256.4181	888.132	19912.494	3	5	8.31E+02		5.74E-06	-4.764	-1.520	0.01
	5250.2092	5251.6706	978.074	20019.634	1	3	9.30E+02		1.15E-05	-4.938	-1.218	0.01
	5247.0502	5248.5107	704.007	19757.031	5	7	3.92E+02		2.26E-06	-4.946	-1.925	0.01
	5225.5263	5226.9811	888.132	20019.634	3	3	1.32E+03		5.42E-06	-4.789	-1.548	0.01
	5221.4316	5222.8853	415.933	19562.438	7	9						
	5204.5829	5206.0321	704.007	19912.494	5	5	2.29E+03		9.31E-06	-4.332	-1.314	0.01
	5175.7137	5177.1553	704.007	20019.634	5	3						
	5168.8976	5170.3373	415.933	19757.031	7	7	3.83E+03		1.53E-05	-3.969	-1.101	0.01
	5166.2820	5167.7210	0.	19350.890	9	11	1.45E+03		7.09E-06	-4.195	-1.436	0.01
	5127.6810	5129.1097	415.933	19912.494	7	5	3.80E+01		1.07E-07	-6.125	-3.260	0.01
	5110.4131	5111.8373	0.	19562.438	9	9	4.93E+03		1.93E-05	-3.760	-1.006	0.01
	5060.0785	5061.4892	0.	19757.031	9	7	1.23E+02		3.68E-07	-5.480	-2.730	0.02
2	3d6(5D)4s4p(3P) z 7Fo			All Ref BIPS79=FMW88,OWLWB91								
	4489.7391	4490.9987	978.074	23244.836	1	3	1.19E+04		1.08E-04	-3.966	-0.314	0.01
	4482.1695	4483.4271	888.132	23192.498	3	5	2.09E+04		1.05E-04	-3.501	-0.327	0.01
	4471.6764	4472.9313	888.132	23244.836	3	3	1.12E+02		3.37E-07	-5.995	-2.822	0.01
	4466.5726	4467.8261	888.132	23270.382	3	1						
	4461.6528	4462.9050	704.007	23110.937	5	7	2.95E+04		1.23E-04	-3.210	-0.259	0.01
	4445.4711	4446.7190	704.007	23192.498	5	5	2.44E+02		7.24E-07	-5.441	-2.492	0.01
	4435.1489	4436.3941	704.007	23244.836	5	3	4.72E+03		8.36E-06	-4.379	-1.431	0.01
	4427.3099	4428.5530	415.933	22996.672	7	9	3.41E+04		1.29E-04	-3.044	-0.243	0.01
	4405.0188	4406.2561	415.933	23110.937	7	7	2.95E+02		8.59E-07	-5.221	-2.422	0.05
	4389.2446	4390.4777	415.933	23192.498	7	5	1.81E+03		3.73E-06	-4.583	-1.786	0.01
	4375.9297	4377.1593	0.	22845.867	9	11	2.95E+04		1.03E-04	-3.031	-0.344	0.01
	4347.2332	4348.4553	0.	22996.672	9	9	1.23E+02		3.49E-07	-5.503	-2.819	0.01
	4325.7393	4326.9557	0.	23110.937	9	7						

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Fe I	3d64s2 a 5D J=4 GROUND		IP = 63737.0+-1 cm-1		Ref NJLTB94,WCDCMPC84,BGJT88,PG90							
3	3d6(5D)4s4p(3P) z 7Po		All	Ref BIPS79=FMW88,OWLWB91								
	4291.4633	4292.6707	415.933	23711.454	7	9	3.35E+03		1.19E-05	-4.079	-1.291	0.04
	4258.3160	4259.5147	704.007	24180.860	5	7	2.54E+03		9.66E-06	-4.316	-1.386	0.01
	4232.7265	4233.9184	888.132	24506.915	3	5	8.78E+02		3.93E-06	-4.928	-1.778	0.01
	4216.1835	4217.3711	0.	23711.454	9	9	1.84E+04		4.90E-05	-3.356	-0.685	0.01
	4206.6965	4207.8816	415.933	24180.860	7	7	5.90E+03		1.57E-05	-3.960	-1.181	0.15
	4199.9840	4201.1674	704.007	24506.915	5	5						
	4149.7607	4150.9308	415.933	24506.915	7	5						
	4134.3361	4135.5022	0.	24180.860	9	7	1.06E+03		2.11E-06	-4.721	-2.059	0.01
4	3d6(5D)4s4p(3P) z 5Do		All	Ref BIPS79=FMW88,BKK91,OWLWB91								
MltMean	3882.730	3883.832	402.96	26150.73	25	25	9.05E+06		2.05E-02	-0.291	1.900	
	3930.2967	3931.4095	704.007	26140.177	5	7	1.99E+06	1.23E+07	6.46E-03	-1.491	1.405	0.022
	3927.9198	3929.0319	888.132	26339.694	3	5	2.60E+06	1.18E+07	1.00E-02	-1.522	1.595	0.022
	3922.9116	3924.0224	415.933	25899.987	7	9	1.08E+06	1.28E+07	3.19E-03	-1.651	1.098	0.01
	3920.2578	3921.3679	978.074	26479.379	1	3	2.60E+06	1.18E+07	1.79E-02	-1.746	1.847	0.01
	3906.4795	3907.5861	888.132	26479.379	3	3	8.32E+05	1.18E+07	1.90E-03	-2.243	0.872	0.01
	3899.7074	3900.8122	704.007	26339.694	5	5	2.58E+06	1.18E+07	5.89E-03	-1.531	1.361	0.01
	3895.6563	3896.7600	888.132	26550.477	3	1	9.39E+06	1.14E+07	7.13E-03	-1.670	1.444	0.01
	3886.2821	3887.3834	415.933	26140.177	7	7	1.24E+06	1.23E+07	2.81E-03	-1.706	1.039	0.01
	3878.5731	3879.6724	704.007	26479.379	5	3	6.39E+06	1.18E+07	8.65E-03	-1.364	1.526	0.022
	3859.9114	3861.0058	0.	25899.987	9	9	9.69E+06	1.28E+07	2.17E-02	-0.710	1.922	0.01
	3856.3715	3857.4650	415.933	26339.694	7	5	4.64E+06	1.18E+07	7.39E-03	-1.286	1.455	0.01
	3824.4436	3825.5288	0.	26140.177	9	7	2.83E+06	1.23E+07	4.83E-03	-1.362	1.266	0.01
5	3d6(5D)4s4p(3P) z 5Fo		All	Ref BIPS79=FMW88,OWLWB91								
MltMean	3727.985	3729.047	402.96	27219.46	25	35	1.54E+07		4.49E-02	0.050	2.224	
	3748.2622	3749.3276	888.132	27559.581	3	5	9.15E+06	1.47E+07	3.21E-02	-1.016	2.081	0.01
	3745.8994	3746.9642	978.074	27666.346	1	3	7.32E+06	1.45E+07	4.62E-02	-1.335	2.239	0.01
	3745.5611	3746.6259	704.007	27394.689	5	7	1.15E+07	1.51E+07	3.39E-02	-0.771	2.104	0.01
	3737.1315	3738.1941	415.933	27166.818	7	9	1.41E+07	1.57E+07	3.81E-02	-0.574	2.154	0.01
	3733.3174	3734.3790	888.132	27666.346	3	3	6.48E+06	1.45E+07	1.35E-02	-1.391	1.704	0.022
	3722.5630	3723.6218	704.007	27559.581	5	5	4.97E+06	1.47E+07	1.03E-02	-1.287	1.585	0.01
	3719.9347	3720.9928	0.	26874.548	9	11	1.63E+07	1.65E+07	4.13E-02	-0.430	2.186	0.01
	3707.8221	3708.8770	704.007	27666.346	5	3	6.35E+05	1.45E+07	7.85E-04	-2.406	0.464	0.030
	3705.5658	3706.6201	415.933	27394.689	7	7	3.21E+06	1.51E+07	6.62E-03	-1.334	1.390	0.01
	3683.0546	3684.1032	415.933	27559.581	7	5	2.65E+05	1.47E+07	3.85E-04	-2.570	0.151	0.022
	3679.9134	3680.9611	0.	27166.818	9	9	1.38E+06	1.57E+07	2.80E-03	-1.599	1.013	0.01
	3649.3028	3650.3426	0.	27394.689	9	7	4.50E+04	1.51E+07	6.99E-05	-3.201	-0.593	0.05
6	3d6(5D)4s4p(3P) z 5Po		All	Ref OWLWB91								
MltMean	3456.082	3457.072	402.96	29329.17	25	15						
	3526.0408	3527.0488	704.007	29056.322	5	7	1.14E+06		2.98E-03	-1.827	1.021	0.04
	3497.8406	3498.8414	888.132	29469.022	3	5	3.08E+06		9.42E-03	-1.549	1.518	0.04
	3490.5738	3491.5727	415.933	29056.322	7	7	6.14E+06		1.12E-02	-1.105	1.593	0.04
	3476.7018	3477.6972	978.074	29732.734	1	3	5.73E+06		3.12E-02	-1.506	2.035	0.04
	3475.4502	3476.4453	704.007	29469.022	5	5	9.75E+06		1.77E-02	-1.054	1.788	0.04
	3465.8606	3466.8532	888.132	29732.734	3	3	1.19E+07		2.14E-02	-1.192	1.871	0.035
	3443.8765	3444.8634	704.007	29732.734	5	3	7.93E+06		8.46E-03	-1.373	1.465	0.04
	3440.9886	3441.9748	415.933	29469.022	7	5	1.24E+07		1.57E-02	-0.958	1.734	0.035
	3440.6057	3441.5918	0.	29056.322	9	7	1.71E+07		2.36E-02	-0.673	1.910	0.035
7	3d6(5D)4s4p(3P) z 3Fo		All	Ref OWLWB91								
	3236.2223	3237.1563	415.933	31307.243	7	9	2.18E+05		4.40E-04	-2.511	0.154	0.04
	3214.3958	3215.3243	704.007	31805.069	5	7	2.22E+05		4.82E-04	-2.618	0.190	0.06
	3199.4996	3200.4243	888.132	32133.989	3	5	1.23E+05		3.15E-04	-3.025	0.003	0.05
	3193.2259	3194.1490	0.	31307.243	9	9	4.43E+05		6.78E-04	-2.215	0.335	0.04
	3184.8946	3185.8156	415.933	31805.069	7	7	2.35E+05		3.58E-04	-2.602	0.057	0.04
	3180.7554	3181.6754	704.007	32133.989	5	5	1.23E+05		1.87E-04	-3.030	-0.226	0.05
	3151.8656	3152.7783	415.933	32133.989	7	5	1.37E+04		1.46E-05	-3.991	-1.337	0.06
	3143.2424	3144.1529	0.	31805.069	9	7	1.27E+04		1.46E-05	-3.880	-1.337	0.05
8	3d6(5D)4s4p(3P) z 3Do		All	Ref OWLWB91								
	3265.0469	3265.9882	704.007	31322.611	5	7	8.90E+04	3.94E+06	1.99E-04	-3.002	-0.187	0.05
	3246.0047	3246.9412	888.132	31686.349	3	5	1.68E+05	4.08E+06	4.43E-04	-2.877	0.157	0.04
	3234.6131	3235.5467	415.933	31322.611	7	7	1.15E+05	3.94E+06	1.80E-04	-2.898	-0.234	0.04
	3229.1203	3230.0525	978.074	31937.323	1	3	1.67E+05	4.22E+06	7.84E-04	-3.106	0.403	0.06
	3226.7134	3227.6450	704.007	31686.349	5	5						
	3219.7660	3220.6958	888.132	31937.323	3	3	1.80E+04	4.22E+06	2.80E-05	-4.076	-1.045	0.07
	3200.7843	3201.7094	704.007	31937.323	5	3	5.90E+04	4.22E+06	5.44E-05	-3.565	-0.759	0.06
	3196.9867	3197.9108	415.933	31686.349	7	5	1.94E+05	4.08E+06	2.12E-04	-2.828	-0.168	0.04
	3191.6591	3192.5819	0.	31322.611	9	7	2.37E+05	3.94E+06	2.82E-04	-2.596	-0.046	0.04

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Fe I	3d64s2 a 5D J=4 GROUND		IP = 63737.0+-1 cm-1				Ref NJLTB94,WCDCMPC84,BGJT88,PG90					
9	3d7(4F)4p y 5Do			All	Ref BIPS79=FMW88,OWLWB91,BK94							
MltMean	3020.194	3021.075	402.96	33503.76	25	25	9.74E+07		1.33E-01	0.522	2.605	
	3059.0856	3059.9750	415.933	33095.939	7	9	1.63E+07	1.69E+08	2.94E-02	-0.687	1.954	0.05
	3047.6046	3048.4911	704.007	33507.121	5	7	2.84E+07	1.75E+08	5.53E-02	-0.558	2.227	0.01
	3037.3887	3038.2727	888.132	33801.570	3	5	3.15E+07	1.55E+08	7.26E-02	-0.662	2.344	0.04
	3025.8424	3026.7235	978.074	34017.101	1	3	3.48E+07	1.72E+08	1.43E-01	-0.844	2.637	0.01
	3021.0727	3021.9526	415.933	33507.121	7	7	4.55E+07	1.75E+08	6.24E-02	-0.360	2.275	0.01
	3020.6390	3021.5187	0.	33095.939	9	9	7.59E+07	1.69E+08	1.04E-01	-0.029	2.497	0.03
	3020.4907	3021.3705	704.007	33801.570	5	5	2.01E+07	1.55E+08	2.75E-02	-0.862	1.919	0.04
	3017.6272	3018.5063	888.132	34017.101	3	3	6.81E+06	1.72E+08	9.31E-03	-1.554	1.449	0.01
	3008.1381	3009.0148	888.132	34121.601	3	1	1.07E+08	1.72E+08	4.85E-02	-0.837	2.164	0.01
	3000.9478	3001.8226	704.007	34017.101	5	3	6.42E+07	1.72E+08	5.20E-02	-0.585	2.193	0.01
	2994.4268	2995.3000	415.933	33801.570	7	5	4.22E+07	1.55E+08	4.05E-02	-0.547	2.084	0.03
	2983.5697	2984.4402	0.	33507.121	9	7	2.79E+07	1.75E+08	2.90E-02	-0.583	1.938	0.01
10	3d7(4F)4p y 5Fo			All	Ref BIPS79=FMW88,OWLWB91							
MltMean	2965.196	2966.064	402.96	34117.68	25	35						
	2973.2352	2974.1032	415.933	34039.514	7	9	1.83E+07	1.30E+08	3.13E-02	-0.660	1.968	0.01
	2973.1325	2974.0004	704.007	34328.750	5	7	1.35E+07	1.30E+08	2.51E-02	-0.901	1.873	0.01
	2970.0996	2970.9668	888.132	34547.209	3	5	1.08E+07	1.30E+08	2.38E-02	-1.147	1.849	0.01
	2966.8982	2967.7646	0.	33695.395	9	11	2.72E+07	1.27E+08	4.38E-02	-0.404	2.114	0.01
	2965.2545	2966.1205	978.074	34692.146	1	3	1.16E+07	1.28E+08	4.60E-02	-1.337	2.135	0.01
	2957.3645	2958.2286	888.132	34692.146	3	3	1.77E+07	1.28E+08	2.32E-02	-1.157	1.837	0.01
	2953.9400	2954.8032	704.007	34547.209	5	5	1.89E+07	1.30E+08	2.47E-02	-0.908	1.864	0.01
	2947.8760	2948.7376	415.933	34328.750	7	7	1.83E+07	1.30E+08	2.39E-02	-0.777	1.848	0.03
	2941.3428	2942.2029	704.007	34692.146	5	3	5.12E+06	1.28E+08	3.99E-03	-1.700	1.070	0.03
	2936.9033	2937.7623	0.	34039.514	9	9	1.40E+07	1.30E+08	1.81E-02	-0.788	1.726	0.05
	2929.0071	2929.8641	415.933	34547.209	7	5	5.10E+06	1.30E+08	4.69E-03	-1.484	1.138	0.035
	2912.1574	2913.0102	0.	34328.750	9	7	2.61E+06	1.30E+08	2.58E-03	-1.634	0.876	0.25
11	3d6(5D)4s4p(3P) z 3Po			All	Ref BIPS79=FMW88,OWLWB91							
	3024.0327	3024.9133	888.132	33946.931	3	5	4.87E+06	2.61E+07	1.11E-02	-1.476	1.528	0.01
	3007.2825	3008.1590	704.007	33946.931	5	5	2.73E+06	2.61E+07	3.71E-03	-1.732	1.047	0.01
	2994.5021	2995.3754	978.074	34362.871	1	3	1.49E+06	1.00E+07	6.01E-03	-2.221	1.255	0.01
	2986.4560	2987.3272	888.132	34362.871	3	3	2.19E+05	1.00E+07	2.92E-04	-3.057	-0.059	0.01
	2981.4450	2982.3151	415.933	33946.931	7	5	6.53E+06	2.61E+07	6.22E-03	-1.361	1.268	0.01
	2970.1184	2970.9856	704.007	34362.871	5	3	3.43E+06	1.00E+07	2.72E-03	-1.866	0.908	0.01
	2969.3598	2970.2268	888.132	34555.595	3	1	3.66E+06	8.93E+06	1.61E-03	-2.315	0.681	0.01
12	3d7(4F)4p z 5Go			All	Ref OWLWB91,(BKK91 larger by 0.24 to 0.27 dex)							
MltMean	2877.634	2878.482	402.96	35143.50	25	45	7.04E+05		1.57E-03	-1.405	0.656	
	2874.1722	2875.0157	0.	34782.419	9	11	9.31E+05	8.62E+07	1.41E-03	-1.897	0.608	0.04
	2869.3074	2870.1496	415.933	35257.322	7	9	9.26E+05	9.26E+07	1.47E-03	-1.987	0.625	0.04
	2863.8634	2864.7044	704.007	35611.623	5	7	5.69E+05	9.80E+07	9.80E-04	-2.310	0.448	0.05
	2858.8959	2859.7356	888.132	35856.400	3	5	2.12E+05	1.01E+08	4.33E-04	-2.886	0.093	0.04
	2843.9205	2844.7565	704.007	35856.400	5	5	2.73E+05	1.01E+08	3.31E-04	-2.781	-0.026	0.05
	2840.4218	2841.2570	415.933	35611.623	7	7	4.12E+05	9.80E+07	4.99E-04	-2.457	0.151	0.06
	2835.4563	2836.2903	0.	35257.322	9	9	3.24E+05	9.26E+07	3.91E-04	-2.454	0.045	0.07
	2820.8029	2821.6332	415.933	35856.400	7	5	6.10E+04	1.01E+08	5.20E-05	-3.439	-0.833	0.13
	2807.2449	2808.0720	0.	35611.623	9	7	1.67E+05	9.80E+07	1.54E-04	-2.860	-0.365	0.25
12	3d7(4F)4p z 5Go			All	Ref BKK91,(OWLWB91 smaller by 0.24 to 0.27 dex)							
MltMean	2877.634	2878.482	402.96	35143.50	25	45						
	2874.1722	2875.0157	0.	34782.419	9	11						
	2869.3074	2870.1496	415.933	35257.322	7	9	1.59E+06	8.93E+07	2.52E-03	-1.753	0.860	0.04
	2863.8634	2864.7044	704.007	35611.623	5	7						
	2858.8959	2859.7356	888.132	35856.400	3	5						
	2843.9205	2844.7565	704.007	35856.400	5	5						
	2840.4218	2841.2570	415.933	35611.623	7	7						
	2835.4563	2836.2903	0.	35257.322	9	9	6.00E+05	8.93E+07	7.24E-04	-2.186	0.312	0.04
	2820.8029	2821.6332	415.933	35856.400	7	5						
	2807.2449	2808.0720	0.	35611.623	9	7						
13	3d7(4F)4p z 3Go			All	Ref OWLWB91							
	2827.8919	2828.7240	415.933	35767.562	7	9	1.48E+05	9.26E+07	2.28E-04	-2.796	-0.190	0.05
	2825.9945	2826.8261	704.007	36079.370	5	7						
	2825.6875	2826.5191	0.	35379.206	9	11	8.80E+04	9.80E+07	1.29E-04	-2.936	-0.439	0.05
	2803.1662	2803.9922	415.933	36079.370	7	7	6.00E+04	8.55E+07	7.07E-05	-3.305	-0.703	0.09
	2795.0053	2795.8294	0.	35767.562	9	9	9.30E+04	9.26E+07	1.09E-04	-3.008	-0.516	0.05
	2770.8489	2771.6670	0.	36079.370	9	7						
14	3d7(4F)4p y 3Fo			All	Ref CSS89,OWLWB91							
	2756.2666	2757.0812	415.933	36686.174	7	9	6.88E+05	1.05E+08	1.01E-03	-2.151	0.444	0.07
	2742.0156	2742.8268	704.007	37162.744	5	7	4.30E+05	1.04E+08	6.79E-04	-2.469	0.270	0.09
	2728.9692	2729.7772	888.132	37521.158	3	5	1.64E+04	1.05E+08	3.05E-05	-4.038	-1.079	0.12
	2725.0155	2725.8225	0.	36686.174	9	9	3.25E+04	1.05E+08	3.62E-05	-3.487	-1.006	0.13
	2720.5186	2721.3246	415.933	37162.744	7	7						
	2715.3207	2716.1254	704.007	37521.158	5	5						
	2694.2386	2695.0382	415.933	37521.158	7	5						
	2690.0683	2690.8670	0.	37162.744	9	7	2.64E+05	1.04E+08	2.23E-04	-2.698	-0.222	0.05

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Fe I	3d64s2 a 5D J=4 GROUND		IP = 63737.0+-1 cm-1				Ref NJLTB94,WCDCMPC84,BGJT88,PG90					
15	3d6(5D)4s4p(1P) y 5Po		All Ref OWLWB91									
MltMean	2729.737	2730.545	402.96	37025.68	25	15	1.68E+08		1.13E-01	0.449	2.488	
	2772.1100	2772.9285	704.007	36766.964	5	7	4.12E+06	1.75E+08	6.65E-03	-1.478	1.266	0.03
	2756.3281	2757.1427	888.132	37157.564	3	5	1.41E+07	1.67E+08	2.68E-02	-1.095	1.868	0.03
	2750.1405	2750.9536	415.933	36766.964	7	7	2.74E+07	1.75E+08	3.11E-02	-0.662	1.932	0.03
	2744.0674	2744.8790	978.074	37409.552	1	3	3.09E+07	1.61E+08	1.05E-01	-0.980	2.459	0.03
	2742.4053	2743.2165	704.007	37157.564	5	5	4.70E+07	1.67E+08	5.30E-02	-0.577	2.163	0.05
	2737.3091	2738.1192	888.132	37409.552	3	3	7.25E+07	1.61E+08	8.15E-02	-0.612	2.349	0.03
	2723.5773	2724.3840	704.007	37409.552	5	3	5.69E+07	1.61E+08	3.80E-02	-0.721	2.015	0.04
	2720.9022	2721.7082	415.933	37157.564	7	5	1.04E+08	1.67E+08	8.25E-02	-0.238	2.351	0.03
	2719.0273	2719.8329	0.	36766.964	9	7	1.42E+08	1.75E+08	1.22E-01	0.042	2.523	0.022
16	3d7(4F)4p y 3Do		All Ref OWLWB91,(BKK91,BK94 larger by 0.16 to 0.61 dex)									
	2667.9126	2668.7059	704.007	38175.352	5	7	1.69E+05	1.41E+08	2.53E-04	-2.899	-0.171	0.04
	2647.5574	2648.3458	415.933	38175.352	7	7	5.21E+05	1.41E+08	5.48E-04	-2.416	0.162	0.04
	2645.4215	2646.2094	888.132	38678.036	3	5	3.38E+05	1.41E+08	5.91E-04	-2.751	0.194	0.09
	2632.5939	2633.3787	704.007	38678.036	5	5	9.01E+05	1.41E+08	9.37E-04	-2.329	0.392	0.09
	2629.5725	2630.3566	978.074	38995.733	1	3						
	2623.3657	2624.1484	888.132	38995.733	3	3	8.61E+05	1.39E+08	8.89E-04	-2.574	0.368	0.25
	2618.7097	2619.4912	0.	38175.352	9	7	5.21E+05	1.41E+08	4.17E-04	-2.426	0.038	0.04
	2612.7720	2613.5521	415.933	38678.036	7	5	5.07E+05	1.41E+08	3.71E-04	-2.586	-0.014	0.09
	2610.7506	2611.5302	704.007	38995.733	5	3	3.61E+05	1.39E+08	2.21E-04	-2.956	-0.238	0.25
16	3d7(4F)4p y 3Do		All Ref BKK91,BK94,(OWLWB91 smaller by 0.16 to 0.61 dex)									
	2667.9126	2668.7059	704.007	38175.352	5	7	3.26E+05	1.45E+08	4.88E-04	-2.613	0.114	0.07
	2647.5574	2648.3458	415.933	38175.352	7	7	1.47E+06	1.45E+08	1.54E-03	-1.966	0.612	0.05
	2645.4215	2646.2094	888.132	38678.036	3	5	4.92E+05	1.45E+08	8.61E-04	-2.588	0.358	0.07
	2632.5939	2633.3787	704.007	38678.036	5	5	1.66E+06	1.45E+08	1.73E-03	-2.064	0.658	0.05
	2629.5725	2630.3566	978.074	38995.733	1	3	2.00E+06	1.39E+08	6.21E-03	-2.207	1.213	0.08
	2623.3657	2624.1484	888.132	38995.733	3	3	3.41E+06	1.39E+08	3.52E-03	-1.976	0.966	0.07
	2618.7097	2619.4912	0.	38175.352	9	7	1.21E+06	1.45E+08	9.68E-04	-2.060	0.404	0.05
	2612.7720	2613.5521	415.933	38678.036	7	5	1.16E+06	1.45E+08	8.49E-04	-2.226	0.346	0.06
	2610.7506	2611.5302	704.007	38995.733	5	3	1.48E+06	1.39E+08	9.10E-04	-2.342	0.376	0.08
17	3d6(5D)4s4p(1P) x 5Do		All Ref OWLWB91,LSH95,(BH73)									
MltMean	2526.511	2527.273	402.96	39971.31	25	25	2.86E+08		2.74E-01	0.835	2.840	
	2549.6132	2550.3784	415.933	39625.801	7	9	2.24E+07	3.73E+08	2.81E-02	-0.706	1.855	0,04
	2545.9784	2546.7427	704.007	39969.850	5	7	6.95E+07	3.73E+08	9.46E-02	-0.325	2.382	0.06
	2540.9721	2541.7352	888.132	40231.333	3	5	9.31E+07	3.73E+08	1.50E-01	-0.346	2.582	0.06
	2535.6070	2536.3689	978.074	40404.515	1	3	9.29E+07	3.73E+08	2.69E-01	-0.571	2.834	0.04
	2529.8354	2530.5960	888.132	40404.515	3	3	3.73E+07	3.73E+08	3.58E-02	-0.969	1.957	0.04
	2529.1350	2529.8954	704.007	40231.333	5	5	9.62E+07	3.73E+08	9.23E-02	-0.336	2.368	0.04
	2527.4346	2528.1946	415.933	39969.850	7	7	1.87E+08	3.73E+08	1.79E-01	0.098	2.656	0.04
	2524.2925	2525.0517	888.132	40491.281	3	1	3.13E+08	3.73E+08	9.97E-02	-0.524	2.401	0.035
	2522.8494	2523.6083	0.	39625.801	9	9	2.07E+08	3.73E+08	1.98E-01	0.250	2.698	0.04
	2518.1016	2518.8595	704.007	40404.515	5	3	1.87E+08	3.73E+08	1.07E-01	-0.273	2.429	0.035
	2510.8349	2511.5910	415.933	40231.333	7	5	1.25E+08	3.73E+08	8.44E-02	-0.228	2.326	0.035
	2501.1319	2501.8858	0.	39969.850	9	7	6.56E+07	3.73E+08	4.79E-02	-0.366	2.078	0.06
18	3d5(6S)4s2 4p y 7Po		All Ref OWLWB91,(BH73)									
	2552.6060	2553.3719	888.132	40052.032	3	5	6.20E+05	2.25E+06	1.01E-03	-2.519	0.411	0.030
	2540.6605	2541.4236	704.007	40052.032	5	5	1.41E+06	2.25E+06	1.37E-03	-2.166	0.540	0.022
	2530.6874	2531.4481	704.007	40207.088	5	7	6.40E+05	6.85E+06	8.61E-04	-2.366	0.338	0.035
	2522.1938	2522.9526	415.933	40052.032	7	5						
	2512.3648	2513.1213	415.933	40207.088	7	7	2.00E+06	6.85E+06	1.89E-03	-1.878	0.678	0.022
	2498.8716	2499.6249	415.933	40421.935	7	9	5.90E+04	3.24E+06	7.11E-05	-3.303	-0.751	0.035
	2486.3732	2487.1237	0.	40207.088	9	7	3.08E+06	6.85E+06	2.22E-03	-1.699	0.742	0.022
	2473.1569	2473.9043	0.	40421.935	9	9	2.75E+06	3.24E+06	2.52E-03	-1.644	0.795	0.022
19	3d6(5D)4s4p(1P) x 5Fo		All Ref OWLWB91,LSH95,(BH73)									
MltMean	2484.242	2484.995	402.96	40644.50	25	35						
	2491.1550	2491.9065	888.132	41018.048	3	5	2.76E+08	4.74E+08	4.28E-01	0.109	3.028	0.04
	2490.6443	2491.3957	704.007	40842.151	5	7	3.22E+08	4.70E+08	4.19E-01	0.322	3.019	0.04
	2489.7524	2490.5036	978.074	41130.596	1	3	2.18E+08	4.72E+08	6.08E-01	-0.216	3.180	0.05
	2488.1427	2488.8936	415.933	40594.429	7	9	3.98E+08	4.74E+08	4.75E-01	0.522	3.073	0.04
	2484.1874	2484.9373	888.132	41130.596	3	3	2.13E+08	4.72E+08	1.97E-01	-0.228	2.690	0.05
	2483.2711	2484.0209	0.	40257.311	9	11	4.60E+08	4.78E+08	5.20E-01	0.670	3.111	0.04
	2479.7764	2480.5253	704.007	41018.048	5	5	1.65E+08	4.74E+08	1.52E-01	-0.119	2.577	0.04
	2472.8949	2473.6422	415.933	40842.151	7	7	1.21E+08	4.70E+08	1.11E-01	-0.110	2.439	0.04
	2472.8722	2473.6195	704.007	41130.596	5	3	1.98E+07	4.72E+08	1.09E-02	-1.264	1.431	0.10
	2462.6473	2463.3922	0.	40594.429	9	9	5.54E+07	4.74E+08	5.04E-02	-0.343	2.094	0.06
	2462.1810	2462.9259	415.933	41018.048	7	5	1.04E+07	4.74E+08	6.76E-03	-1.325	1.221	0.06
	2447.7093	2448.4509	0.	40842.151	9	7	3.08E+06	4.70E+08	2.15E-03	-1.713	0.722	0.14
20	3d6(3P)4s4p(3P) z 5So		All Ref OWLWB91									
	2498.8183	2499.5716	888.132	40894.987	3	5	1.22E+05	2.71E+07	1.90E-04	-3.243	-0.322	0.07
	2487.3698	2488.1205	704.007	40894.987	5	5	2.74E+06	2.71E+07	2.54E-03	-1.896	0.801	0.05
	2469.6669	2470.4135	415.933	40894.987	7	5						

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Fe I	3d64s2 a 5D J=4 GROUND		IP = 63737.0+-1 cm-1				Ref NJLTB94,WCDCMPC84,BGJT88,PG90					
21	3d6(3P)4s4p(3P) x 5Po		All	Ref OWLWB91								
MltMean	2360.661	2361.384	402.96	42751.01	25	15						
	2389.9729	2390.7013	704.007	42532.738	5	7	4.47E+06	2.15E+07	5.36E-03	-1.572	1.108	0.04
	2381.8345	2382.5610	888.132	42859.775	3	5	4.34E+06	3.29E+07	6.16E-03	-1.734	1.166	0.05
	2374.5187	2375.2435	978.074	43079.020	1	3	3.15E+06	1.08E+07	7.99E-03	-2.097	1.278	0.04
	2373.6245	2374.3491	415.933	42532.738	7	7	6.53E+06	2.15E+07	5.52E-03	-1.413	1.117	0.04
	2371.4304	2372.1546	704.007	42859.775	5	5	2.67E+06	3.29E+07	2.25E-03	-1.948	0.728	0.05
	2369.4563	2370.1800	888.132	43079.020	3	3	2.53E+06	1.08E+07	2.13E-03	-2.194	0.703	0.04
	2359.1599	2359.8813	704.007	43079.020	5	3						
	2355.3338	2356.0544	415.933	42859.775	7	5						
	2350.4106	2351.1301	0.	42532.738	9	7	1.61E+05	2.15E+07	1.04E-04	-3.030	-0.613	0.25
22	3d6(3H)4s4p(3P) y 5Go		All	Ref OWLWB91								
MltMean	2348.763	2349.485	402.96	42965.49	25	45						
	2362.1213	2362.8434	888.132	43210.022	3	5						
	2355.9092	2356.6299	704.007	43137.484	5	7	5.17E+05	4.88E+07	6.03E-04	-2.521	0.152	0.09
	2351.8884	2352.6082	704.007	43210.022	5	5						
	2346.3109	2347.0295	415.933	43022.982	7	9						
	2340.0218	2340.7390	415.933	43137.484	7	7						
	2336.0551	2336.7713	415.933	43210.022	7	5						
	2329.6403	2330.3552	0.	42911.914	9	11						
	2323.6256	2324.3391	0.	43022.982	9	9						
	2317.4574	2318.1695	0.	43137.484	9	7						
23	3d6(3H)4s4p(3P) z 5Ho		Part									
	2345.4903	2346.2087	704.007	43325.961	5	7						
	2341.5879	2342.3054	415.933	43108.914	7	9						
	2329.7427	2330.4576	415.933	43325.961	7	7						
	2325.3168	2326.0307	0.	42991.694	9	11						
	2318.9934	2319.7059	0.	43108.914	9	9						
	2307.3750	2308.0850	0.	43325.961	9	7						
24	3d6(3H)4s4p(3P) z 5Io		Part									
	2323.4211	2324.1345	415.933	43442.702	7	9						
	2301.1740	2301.8826	0.	43442.702	9	9						
	2300.2518	2300.9602	0.	43460.118	9	11						
25	3d6(3P)4s4p(3P) w 5Do		All	Ref OWLWB91,(BH73)								
	2320.3577	2321.0705	415.933	43499.502	7	9	1.41E+07	1.35E+08	1.46E-02	-0.989	1.531	
	2313.1043	2313.8155	704.007	43922.665	5	7	1.18E+07	1.18E+08	1.33E-02	-1.179	1.487	0.12
	2308.9989	2309.7092	888.132	44183.625	3	5	1.02E+07	1.12E+08	1.36E-02	-1.389	1.497	0.08
	2301.6837	2302.3924	978.074	44411.157	1	3	8.69E+06	9.52E+07	2.07E-02	-1.684	1.679	0.022
	2299.2201	2299.9282	704.007	44183.625	5	5	7.03E+06	1.12E+08	5.57E-03	-1.555	1.108	0.08
	2298.1690	2298.8769	0.	43499.502	9	9	3.09E+07	1.35E+08	2.45E-02	-0.657	1.750	0.09
	2297.7870	2298.4949	415.933	43922.665	7	7	1.44E+07	1.18E+08	1.14E-02	-1.098	1.419	0.12
	2296.9268	2297.6344	888.132	44411.157	3	3	4.04E+06	9.52E+07	3.20E-03	-2.018	0.866	0.12
	2294.4080	2295.1151	888.132	44458.931	3	1	3.61E+07	8.70E+07	9.50E-03	-1.545	1.339	0.030
	2287.2496	2287.9552	704.007	44411.157	5	3	2.23E+07	9.52E+07	1.05E-02	-1.280	1.381	0.022
	2284.0855	2284.7903	415.933	44183.625	7	5	1.29E+07	1.12E+08	7.21E-03	-1.297	1.217	0.08
	2276.0258	2276.7289	0.	43922.665	9	7	1.25E+07	1.18E+08	7.56E-03	-1.168	1.236	0.12
26	3d6(3F)4s4p(3P) v 5Do		All	Ref OWLWB91,BH73								
MltMean	2276.740	2277.445	402.96	44311.82	25	25						
	2300.1418	2300.8501	704.007	44166.203	5	7	4.99E+06	1.46E+07	5.54E-03	-1.557	1.106	0.03
	2292.5247	2293.2314	415.933	44022.522	7	9	2.97E+06	1.04E+07	3.01E-03	-1.676	0.839	0.03
	2284.9951	2285.7002	415.933	44166.203	7	7						
	2283.6551	2284.3599	888.132	44664.072	3	5	1.53E+06	3.15E+07	1.99E-03	-2.223	0.659	0.09
	2283.3041	2284.0088	978.074	44760.743	1	3	2.59E+06	4.67E+07	6.08E-03	-2.216	1.142	0.022
	2278.6227	2279.3264	888.132	44760.743	3	3						
	2275.1917	2275.8946	888.132	44826.897	3	1	6.20E+06	6.13E+07	1.60E-03	-2.317	0.563	0.13
	2274.0892	2274.7919	704.007	44664.072	5	5						
	2270.8626	2271.5645	0.	44022.522	9	9						
	2269.0989	2269.8005	704.007	44760.743	5	3						
	2263.4743	2264.1747	0.	44166.203	9	7						
	2259.2826	2259.9821	415.933	44664.072	7	5	1.28E+06	3.15E+07	7.00E-04	-2.310	0.199	0.07
27	3d6(3F)4s4p(3P) w 5Fo		All	Ref OWLWB91,(BH73)								
MltMean	2273.892	2274.597	402.96	44366.79	25	35						
	2303.5807	2304.2898	888.132	44285.451	3	5	4.84E+06	1.85E+07	6.42E-03	-1.715	1.170	0.05
	2303.4243	2304.1334	978.074	44378.339	1	3	7.33E+06	2.40E+07	1.75E-02	-1.757	1.606	0.07
	2298.6602	2299.3682	888.132	44378.339	3	3	1.59E+06	2.40E+07	1.26E-03	-2.422	0.462	0.11
	2293.8476	2294.5545	704.007	44285.451	5	5	1.09E+06	1.85E+07	8.60E-04	-2.366	0.295	0.05
	2288.9685	2289.6744	704.007	44378.339	5	3						
	2279.9369	2280.6408	704.007	44551.332	5	7	1.88E+06	2.40E+07	2.05E-03	-1.989	0.670	0.022
	2278.7834	2279.4871	415.933	44285.451	7	5						
	2272.0696	2272.7718	415.933	44415.071	7	9	2.92E+06	2.43E+07	2.91E-03	-1.691	0.820	0.022
	2265.0543	2265.7550	415.933	44551.332	7	7	1.43E+06	2.40E+07	1.10E-03	-2.113	0.397	0.09
	2259.5102	2260.2097	0.	44243.682	9	11	5.66E+06	2.56E+07	5.30E-03	-1.322	1.078	0.022
	2250.7904	2251.4880	0.	44415.071	9	9	1.23E+06	2.43E+07	9.35E-04	-2.075	0.323	0.05
	2243.9056	2244.6018	0.	44551.332	9	7						

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Fe I	3d64s2 a 5D J=4 GROUND		IP = 63737.0+-1 cm-1				Ref NJLTB94,WCDCMPC84,BGJT88,PG90					
28	3d7(4P)4p y 5So		All Ref OWLWB91,(BH73)									
	2291.6266	2292.3331	888.132	44511.809	3	5						
	2281.9940	2282.6984	704.007	44511.809	5	5						
	2267.0846	2267.7858	415.933	44511.809	7	5	4.57E+06	7.35E+07	2.52E-03	-1.754	0.756	0.035
29	3d6(3P)4s4p(3P) x 3Do		All Ref BH73=FMW88									
	2251.8741	2252.5720	888.132	45281.830	3	5						
	2245.6529	2246.3495	704.007	45220.678	5	7						
	2242.7800	2243.4759	978.074	45551.764	1	3						
	2242.5720	2243.2679	704.007	45281.830	5	5						
	2238.2631	2238.9581	888.132	45551.764	3	3						
	2231.2130	2231.9065	415.933	45220.678	7	7						
	2229.0729	2229.7659	704.007	45551.764	5	3						
	2228.1716	2228.8644	415.933	45281.830	7	5	2.08E+06		1.11E-03	-2.110	0.393	0.15
	2210.6886	2211.3777	0.	45220.678	9	7						
30	3d6(3H)4s4p(3P) y 3Go		All									
	2228.5160	2229.2089	704.007	45562.971	5	7						
	2220.9155	2221.6068	415.933	45428.399	7	9						
	2214.2949	2214.9847	415.933	45562.971	7	7						
	2207.0685	2207.7569	0.	45294.843	9	11						
	2200.5792	2201.2662	0.	45428.399	9	9						
	2194.0791	2194.7647	0.	45562.971	9	7						
31	3d6(3F)4s4p(3P) x 5Go		All									
	2217.7444	2218.4350	888.132	45964.954	3	5						
	2211.2359	2211.9251	704.007	45913.494	5	7						
	2208.7216	2209.4102	704.007	45964.954	5	5						
	2201.1177	2201.8048	415.933	45833.220	7	9						
	2197.2337	2197.9200	415.933	45913.494	7	7						
	2194.7511	2195.4369	415.933	45964.954	7	5						
	2186.2495	2186.9335	0.	45726.127	9	11						
	2181.1406	2181.8236	0.	45833.220	9	9						
	2177.3268	2178.0089	0.	45913.494	9	7						
32	3d7(4P)4p w 5Po		All Ref BH73=FMW88									
MltMean	2180.455	2181.139	402.96	46250.56	25	15						
	2200.7244	2201.4114	888.132	46313.534	3	5	2.82E+07		3.41E-02	-0.990	1.876	0.08
	2200.3901	2201.0770	978.074	46410.378	1	3	8.95E+07		1.95E-01	-0.710	2.633	0.07
	2200.3521	2201.0391	704.007	46137.094	5	7						
	2196.0421	2196.7282	888.132	46410.378	3	3	1.18E+08		8.57E-02	-0.590	2.275	0.06
	2191.8392	2192.5244	704.007	46313.534	5	5	1.16E+08		8.34E-02	-0.380	2.262	0.05
	2187.1946	2187.8788	704.007	46410.378	5	3						
	2186.4870	2187.1711	415.933	46137.094	7	7						
	2178.0808	2178.7631	415.933	46313.534	7	5						
	2166.7734	2167.4534	0.	46137.094	9	7	2.74E+08		1.50E-01	0.130	2.512	0.12
33	3d6(3P)4s4p(3P) z 3So		All Ref BH73=FMW88									
	2191.2043	2191.8893	978.074	46600.815	1	3	7.33E+06		1.58E-02	-1.800	1.541	0.08
	2186.8926	2187.5767	888.132	46600.815	3	3						
	2178.1184	2178.8008	704.007	46600.815	5	3						
34	3d6(3P)4s4p(3P) y 3Po		All Ref BH73=FMW88									
	2183.4664	2184.1498	888.132	46672.537	3	1						
	2180.8685	2181.5514	888.132	46727.071	3	5						
	2176.8402	2177.5223	978.074	46901.829	1	3	1.03E+07		2.19E-02	-1.660	1.678	0.06
	2172.5848	2173.2659	888.132	46901.829	3	3						
	2172.1425	2172.8236	704.007	46727.071	5	5						
	2163.9248	2164.6042	704.007	46901.829	5	3						
	2158.6295	2159.3078	415.933	46727.071	7	5						
35	3d7(4P)4p u 5Do		All Ref BH73=FMW88									
MltMean	2153.056	2153.735	402.96	46833.93	25	25						
	2173.2137	2173.8950	888.132	46888.514	3	5	8.33E+06		9.84E-03	-1.530	1.330	0.15
	2171.2971	2171.9780	704.007	46744.990	5	7	5.07E+06		5.02E-03	-1.600	1.038	0.15
	2164.5488	2165.2283	704.007	46888.514	5	5						
	2163.8623	2164.5417	978.074	47177.231	1	3						
	2159.9235	2160.6020	888.132	47171.528	3	1						
	2159.6573	2160.3358	888.132	47177.231	3	3						
	2158.9200	2159.5984	415.933	46720.839	7	9						
	2157.7945	2158.4726	415.933	46744.990	7	7						
	2151.1297	2151.8065	415.933	46888.514	7	5						
	2151.0999	2151.7767	704.007	47177.231	5	3						
	2139.6981	2140.3725	0.	46720.839	9	9						
	2138.5925	2139.2667	0.	46744.990	9	7	2.81E+06		1.50E-03	-1.870	0.506	0.15

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Fe I	3d64s2 a 5D J=4 GROUND		IP = 63737.0+-1 cm-1				Ref NJLTB94,WCDCMPC84,BGJT88,PG90					
36	3d6(3F)4s4p(3P) x 3Fo		All	Ref BH73=FMW88								
	2158.7350	2159.4133	888.132	47197.007	3	5						
	2155.0197	2155.6973	704.007	47092.709	5	7						
	2151.1008	2151.7775	415.933	46889.139	7	9						
	2150.1848	2150.8614	704.007	47197.007	5	5						
	2141.7182	2142.3930	415.933	47092.709	7	7						
	2136.9427	2137.6166	415.933	47197.007	7	5						
	2132.0171	2132.6900	0.	46889.139	9	9	7.62E+06		5.20E-03	-1.330	1.045	0.05
	2122.7999	2123.4710	0.	47092.709	9	7						
37	3d6(3H)4s4p(3P) z 3Ho		All									
	2141.0864	2141.7611	415.933	47106.481	7	9						
	2126.6090	2127.2808	0.	47008.368	9	11						
	2122.1792	2122.8501	0.	47106.481	9	9						
38	3d7(4P)4p w 3Do		All	Ref BH73=FMW88								
	2161.5791	2162.2580	888.132	47136.081	3	5	4.96E+06		5.79E-03	-1.760	1.098	0.15
	2159.4310	2160.1095	978.074	47272.024	1	3						
	2158.5344	2159.2127	704.007	47017.185	5	7						
	2155.2432	2155.9209	888.132	47272.024	3	3						
	2153.0065	2153.6837	704.007	47136.081	5	5	6.90E+06		4.80E-03	-1.620	1.014	0.07
	2146.7207	2147.3966	704.007	47272.024	5	3						
	2145.1895	2145.8651	415.933	47017.185	7	7	5.70E+06		3.93E-03	-1.560	0.927	0.09
	2139.7297	2140.4042	415.933	47136.081	7	5						
	2126.2101	2126.8819	0.	47017.185	9	7						
45	3d54s2(6S)4p v 5Po		All	Ref BH73=FMW88								
MltMean	2096.037	2096.704	402.96	48096.86	25	15						
	2115.1694	2115.8390	704.007	47966.582	5	7						
	2114.5996	2115.2690	888.132	48163.443	3	5						
	2112.9688	2113.6379	978.074	48289.868	1	3	1.89E+07		3.80E-02	-1.420	1.905	0.3
	2108.9590	2109.6274	888.132	48289.868	3	3						
	2106.3947	2107.0625	704.007	48163.443	5	5						
	2102.3537	2103.0207	415.933	47966.582	7	7	8.78E+06		5.82E-03	-1.390	1.088	0.2
	2100.7978	2101.4646	704.007	48289.868	5	3						
	2093.6847	2094.3501	415.933	48163.443	7	5						
	2084.1213	2084.7848	0.	47966.582	9	7	3.72E+07		1.89E-02	-0.770	1.595	0.2
53	3d64s(6D)5p u 5Fo		All	Ref BH73=FMW88								
MltMean		1959.883	402.96	51426.41	25	35						
		1964.0552	704.007	51619.073	5	7						
		1963.1217	888.132	51827.410	3	5						
		1962.1108	415.933	51381.454	7	9						
		1962.0254	978.074	51945.814	1	3						
		1960.1441	0.	51016.657	9	11						
		1958.5691	888.132	51945.814	3	3						
		1956.0513	704.007	51827.410	5	5						
		1953.0052	415.933	51619.073	7	7						
		1951.5315	704.007	51945.814	5	3						
		1946.2275	0.	51381.454	9	9						
		1945.0910	415.933	51827.410	7	5						
		1937.2684	0.	51619.073	9	7	2.16E+07		9.46E-03	-1.070	1.263	0.06
57	3d64s(6D)5p u 5Po		All	Ref BH73=FMW88								
MltMean		1943.369	402.96	51859.98	25	15						
		1961.2458	704.007	51692.007	5	7						
		1958.6088	888.132	51944.781	3	5						
		1955.7024	978.074	52110.598	1	3						
		1952.2684	888.132	52110.598	3	3						
		1951.5708	704.007	51944.781	5	5						
		1950.2273	415.933	51692.007	7	7						
		1945.2758	704.007	52110.598	5	3						
		1940.6605	415.933	51944.781	7	5	2.57E+07		1.03E-02	-1.140	1.303	0.15
		1934.5351	0.	51692.007	9	7	2.55E+07		1.11E-02	-1.000	1.332	0.06
64	3d7(4F)5p 5Fo		All									
		1888.3221	704.007	53661.075	5	7						
		1887.7648	415.933	53388.633	7	9						
		1883.7789	0.	53084.785	9	11						
		1881.3121	888.132	54042.523	3	5						
		1878.1056	415.933	53661.075	7	7						
		1878.0633	978.074	54224.416	1	3						
		1874.8963	888.132	54224.416	3	3						
		1874.8178	704.007	54042.523	5	5						
		1873.0579	0.	53388.633	9	9						
		1868.4461	704.007	54224.416	5	3						
		1864.7466	415.933	54042.523	7	5						
		1863.5482	0.	53661.075	9	7						

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Fe I	3d64s2 a 5D J=4 GROUND		IP = 63737.0+-1 cm-1				Ref NJLTB94,WCDCMPC84,BGJT88,PG90					
67	3d7(4F)5p 5Do		Part									
		1883.9225	704.007	53784.746	5	7						
		1879.8945	415.933	53610.408	7	9						
		1873.7535	415.933	53784.746	7	7						
		1865.3094	0.	53610.408	9	9						
		1864.7997	978.074	54603.136	1	3						
		1864.1929	888.132	54530.649	3	5						
		1861.6772	888.132	54603.136	3	3						
		1859.2632	0.	53784.746	9	7						
		1857.8161	704.007	54530.649	5	5						
		1855.3176	704.007	54603.136	5	3						
		1847.9262	415.933	54530.649	7	5						
68	3d6(3D)4s4p(3P) 5Fo		All									
		1896.8569	978.074	53696.863	1	3						
		1893.6263	888.132	53696.863	3	3						
		1892.6868	888.132	53723.075	3	5						
		1887.0468	704.007	53696.863	5	3						
		1886.1139	704.007	53723.075	5	5						
		1884.3186	704.007	53773.59	5	7						
		1875.9212	415.933	53723.075	7	5						
		1874.1453	415.933	53773.59	7	7						
		1870.3521	415.933	53881.802	7	9						
		1859.6489	0.	53773.59	9	7						
		1855.9142	0.	53881.802	9	9						
		1851.3805	0.	54013.748	9	11						
72	3d6(3D)4s4p(3P) 5Do		Part									
		1886.8755	978.074	53975.74	1	3						
		1885.9070	888.132	53913.016	3	5						
		1883.6788	888.132	53975.74	3	3						
		1880.1405	704.007	53891.522	5	7						
		1879.3810	704.007	53913.016	5	5						
		1877.1681	704.007	53975.74	5	3						
		1870.0121	415.933	53891.522	7	7						
		1869.2608	415.933	53913.016	7	5						
		1855.7901	415.933	54301.336	7	9						
		1855.5794	0.	53891.522	9	7						
		1841.5753	0.	54301.336	9	9						
74	3d6(3D)4s4p(3P) t 5Po		All									
		1878.8483	888.132	54112.226	3	5						
		1876.4196	978.074	54271.058	1	3						
		1876.1477	704.007	54004.714	5	7						
		1873.2581	888.132	54271.058	3	3						
		1872.3710	704.007	54112.226	5	5						
		1866.8192	704.007	54271.058	5	3						
		1866.0622	415.933	54004.714	7	7						
		1862.3260	415.933	54112.226	7	5						
		1851.6902	0.	54004.714	9	7						
82	3d64s(4D)5p 5Do		Part									
		1744.3028	704.007	58033.502	5	7						
		1743.7434	415.933	57763.820	7	9						
		1740.8734	888.132	58330.564	3	5						
		1737.8633	978.074	58519.999	1	3						
		1735.5817	415.933	58033.502	7	7						
		1735.3110	704.007	58330.564	5	5						
		1735.1511	888.132	58519.999	3	3						
		1731.1874	0.	57763.820	9	9						
		1729.6253	704.007	58519.999	5	3						
		1726.6794	415.933	58330.564	7	5						
		1723.1426	0.	58033.502	9	7						
83	3d64s(4D)5p 5Fo		All									
		1724.1551	978.074	58977.498	1	3						
		1723.6036	888.132	58906.112	3	5						
		1722.5456	704.007	58757.624	5	7						
		1722.1971	415.933	58481.297	7	9						
		1721.4855	888.132	58977.498	3	3						
		1719.7791	0.	58147.003	9	11						
		1718.1509	704.007	58906.112	5	5						
		1716.0462	704.007	58977.498	5	3						
		1714.0401	415.933	58757.624	7	7						
		1709.9484	0.	58481.297	9	9						
		1709.6887	415.933	58906.112	7	5						
		1701.9068	0.	58757.624	9	7						

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Fe I	3d64s2 a 5D J=4 GROUND		IP = 63737.0+-1 cm-1		Ref NJLTB94,WCDCMPC84,BGJT88,PG90							
84	3d64s(4D)5p 5Po		Part									
		1725.0169	704.007	58674.455	5	7						
		1717.7066	888.132	59105.292	3	5						
		1716.4871	415.933	58674.455	7	7						
		1712.8532	978.074	59360.194	1	3						
		1712.2911	704.007	59105.292	5	5						
		1710.2185	888.132	59360.194	3	3						
		1704.8500	704.007	59360.194	5	3						
		1704.3192	0.	58674.455	9	7						
		1703.8864	415.933	59105.292	7	5						
Fe II	3d6(5D)4s a 6D J=10 GROUND		IP = 130563+-10 cm-1		Ref J78=SC85,J84							
1u	3d6(5D)4p z 6Do		All	Ref BMWLLJ96,BBKAP91,(SMH88,HLGN92,SSK99,SK00)								
MltMean	2610.625	2611.406	416.30	38709.84	30	30	2.69E+08		2.75E-01	0.917	2.857	
	2631.3236	2632.1081	667.683	38660.043	6	8	6.21E+07	2.72E+08	8.60E-02	-0.287	2.355	0.018
	2631.0476	2631.8321	862.613	38858.958	4	6	8.39E+07	2.75E+08	1.31E-01	-0.281	2.537	0.018
	2628.2938	2629.0777	977.053	39013.206	2	4	8.35E+07	2.61E+08	1.73E-01	-0.461	2.658	0.019
	2625.6679	2626.4511	384.790	38458.981	8	10	3.41E+07	2.70E+08	4.41E-02	-0.452	2.064	0.018
	2621.6696	2622.4518	977.053	39109.307	2	2	5.43E+07	2.66E+08	5.60E-02	-0.951	2.167	0.020
	2620.4093	2621.1912	862.613	39013.206	4	4	3.81E+06	2.61E+08	3.93E-03	-1.804	1.012	0.06
	2617.6178	2618.3991	667.683	38858.958	6	6	4.91E+07	2.75E+08	5.05E-02	-0.519	2.121	0.022
	2613.8247	2614.6051	862.613	39109.307	4	2	2.11E+08	2.66E+08	1.08E-01	-0.365	2.451	0.012
	2611.8743	2612.6542	384.790	38660.043	8	8	1.23E+08	2.72E+08	1.26E-01	0.004	2.518	0.009
	2607.0876	2607.8664	667.683	39013.206	6	4	1.74E+08	2.61E+08	1.18E-01	-0.150	2.488	0.013
	2599.3959	2600.1729	0.	38458.981	10	10	2.36E+08	2.70E+08	2.39E-01	0.378	2.793	0.007
	2598.3698	2599.1465	384.790	38858.958	8	6	1.42E+08	2.75E+08	1.08E-01	-0.063	2.448	0.012
	2585.8762	2586.6500	0.	38660.043	10	8	8.61E+07	2.72E+08	6.91E-02	-0.161	2.252	0.016
2u	3d6(5D)4p z 6Fo		All	Ref BMWLLJ96,BBKAP91,SMH88,RU98,(HLGN92)								
MltMean	2394.246	2394.977	416.30	42170.35	30	42						
	2413.3113	2414.0450	977.053	42401.302	2	4	1.00E+08	2.99E+08	1.75E-01	-0.455	2.627	0.020
	2411.0691	2411.8023	977.053	42439.822	2	2	2.41E+08	3.03E+08	2.10E-01	-0.377	2.705	0.004
	2410.5203	2411.2533	862.613	42334.822	4	6	1.61E+08	3.00E+08	2.10E-01	-0.076	2.704	0.016
	2406.6621	2407.3942	862.613	42401.302	4	4	1.70E+08	2.99E+08	1.48E-01	-0.228	2.551	0.016
	2404.8868	2405.6186	667.683	42237.033	6	8	2.05E+08	3.07E+08	2.37E-01	0.152	2.755	0.015
	2404.4322	2405.1638	862.613	42439.822	4	2	6.00E+07	3.03E+08	2.60E-02	-0.983	1.796	0.04
	2399.2423	2399.9728	667.683	42334.822	6	6	1.37E+08	3.00E+08	1.19E-01	-0.148	2.455	0.016
	2395.6263	2396.3559	384.790	42114.818	8	10	2.67E+08	3.09E+08	2.88E-01	0.362	2.838	0.007
	2395.4201	2396.1497	667.683	42401.302	6	4	2.67E+07	2.99E+08	1.53E-02	-1.036	1.565	0.028
	2388.6301	2389.3582	384.790	42237.033	8	8	9.64E+07	3.07E+08	8.25E-02	-0.180	2.295	0.020
	2383.0616	2383.7884	384.790	42334.822	8	6	8.72E+06	3.00E+08	5.57E-03	-1.351	1.123	
	2382.0386	2382.7652	0.	41968.046	10	12	3.13E+08	3.13E+08	3.20E-01	0.505	2.882	0.005
	2373.7365	2374.4612	0.	42114.818	10	10	3.70E+07	3.09E+08	3.13E-02	-0.504	1.871	0.020
	2366.8674	2367.5905	0.	42237.033	10	8	3.21E+04	3.07E+08	2.16E-05	-3.666	-1.291	
3u	3d6(5D)4p z 6Po		All	Ref BMWLLJ96,BBKAP91,GAPJB92,RU98,(SMH88,HLGN92)								
MltMean	2343.984	2344.703	416.30	43065.62	30	18	2.73E+08		1.35E-01	0.607	2.500	
	2380.7624	2381.4887	667.683	42658.224	6	8	2.98E+07	2.68E+08	3.38E-02	-0.693	1.906	0.028
	2364.8292	2365.5518	384.790	42658.224	8	8	5.90E+07	2.68E+08	4.95E-02	-0.402	2.069	0.019
	2359.1064	2359.8278	862.613	43238.586	4	6	5.42E+07	2.62E+08	6.79E-02	-0.566	2.205	
	2348.3033	2349.0223	667.683	43238.586	6	6	1.09E+08	2.62E+08	8.98E-02	-0.269	2.324	
	2344.2830	2345.0011	977.053	43620.957	2	4	9.28E+07	2.70E+08	1.53E-01	-0.514	2.555	0.015
	2343.4959	2344.2139	0.	42658.224	10	8	1.73E+08	2.68E+08	1.14E-01	0.057	2.427	0.008
	2338.0081	2338.7248	862.613	43620.957	4	4	1.09E+08	2.70E+08	8.97E-02	-0.445	2.322	0.017
	2332.8000	2333.5156	384.790	43238.586	8	6	1.27E+08	2.62E+08	7.78E-02	-0.206	2.259	
	2327.3969	2328.1112	667.683	43620.957	6	4	6.37E+07	2.70E+08	3.45E-02	-0.684	1.905	0.018
4u	3d6(5D)4p z 4Fo		All	Ref BMWLLJ96,BML94,GAPJB92,RU98,(HLGN92)								
	2279.9163	2280.6202	384.790	44232.512	8	10	4.49E+06	2.58E+08	4.37E-03	-1.456	0.999	0.022
	2267.5866	2268.2878	667.683	44753.799	6	8	3.52E+06	2.75E+08	3.62E-03	-1.664	0.914	0.04
	2260.8602	2261.5600	862.613	45079.879	4	6	1.96E+06	2.67E+08	2.25E-03	-2.046	0.707	0.05
	2260.0809	2260.7805	0.	44232.512	10	10	3.18E+06	2.58E+08	2.44E-03	-1.613	0.742	0.03
	2255.9882	2256.6869	977.053	45289.801	2	4	7.63E+05		1.17E-03	-2.632	0.420	
	2253.1273	2253.8254	384.790	44753.799	8	8	4.23E+06	2.75E+08	3.23E-03	-1.588	0.861	
	2250.9361	2251.6338	667.683	45079.879	6	6	2.89E+06	2.67E+08	2.20E-03	-1.879	0.695	0.05
	2250.1764	2250.8739	862.613	45289.801	4	4	1.78E+06		1.35E-03	-2.266	0.484	
	2240.3457	2241.0411	667.683	45289.801	6	4	2.28E+05		1.14E-04	-3.163	-0.591	
	2236.6877	2237.3823	384.790	45079.879	8	6	7.85E+04	2.67E+08	4.42E-05	-3.452	-1.005	
	2233.7532	2234.4472	0.	44753.799	10	8	4.22E+04	2.75E+08	2.52E-05	-3.598	-1.249	

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Fe II	3d6(5D)4s a 6D J=10 GROUND		IP = 130563+-10 cm-1		Ref J78=SC85,J84							
5u	3d6(5D)4p z 4Do		All Ref BMWLLJ96,BML94,GAPJB92,RU98,(HLGN92,SSK99)									
	2283.4853	2284.1900	667.683	44446.878	6	8						
	2276.0526	2276.7557	862.613	44784.761	4	6	2.27E+05		2.64E-04	-2.976	-0.221	
	2268.8232	2269.5248	384.790	44446.878	8	8	3.96E+05	3.31E+08	3.06E-04	-2.611	-0.158	0.05
	2268.5644	2269.2659	977.053	45044.168	2	4	6.00E+05		9.27E-04	-2.732	0.323	
	2265.9950	2266.6959	667.683	44784.761	6	6	1.00E+06		7.71E-04	-2.335	0.242	
	2262.6878	2263.3880	862.613	45044.168	4	4	1.88E+06		1.45E-03	-2.238	0.515	
	2260.2400	2260.9397	977.053	45206.450	2	2	3.44E+06		2.64E-03	-2.278	0.775	
	2254.4064	2255.1048	862.613	45206.450	4	2	5.53E+05		2.11E-04	-3.074	-0.323	
	2252.7477	2253.4457	667.683	45044.168	6	4	6.74E+03		3.42E-06	-4.688	-2.113	
	2251.5559	2252.2537	384.790	44784.761	8	6	9.79E+05		5.58E-04	-2.350	0.100	
	2249.1795	2249.8768	0.	44446.878	10	8	3.00E+06	3.31E+08	1.82E-03	-1.740	0.612	0.03
6u	3d6(5D)4p z 4Po		All Ref RU98									
	2168.2898	2168.9701	862.613	46967.444	4	6	3.51E+04		3.71E-05	-3.828	-1.094	
	2159.1600	2159.8384	667.683	46967.444	6	6	2.77E+04		1.94E-05	-3.934	-1.378	
	2153.9041	2154.5815	977.053	47389.779	2	4	6.69E+04		9.31E-05	-3.730	-0.698	
	2148.6057	2149.2820	862.613	47389.779	4	4	5.88E+04		4.07E-05	-3.788	-1.058	
	2146.0461	2146.7218	384.790	46967.444	8	6	4.53E+05		2.35E-04	-2.726	-0.297	
	2142.9925	2143.6676	977.053	47626.076	2	2	1.83E+05		1.26E-04	-3.598	-0.568	
	2139.6405	2140.3149	667.683	47389.779	6	4	5.48E+05		2.51E-04	-2.822	-0.270	
	2137.7475	2138.4216	862.613	47626.076	4	2	5.15E+05		1.77E-04	-3.151	-0.423	
7u	3d5(6S)4s4p(3P) z 8Po		All Ref RU98									
		1944.134	862.613	52299.39	4	6	1.36E+04		1.16E-05	-4.334	-1.647	
		1936.794	667.683	52299.39	6	6	4.70E+04		2.64E-05	-3.800	-1.291	
		1926.240	384.790	52299.39	8	6	7.72E+04		3.22E-05	-3.589	-1.207	
		1926.232	667.683	52582.51	6	8	3.21E+03		2.38E-06	-4.845	-2.338	
		1915.792	384.790	52582.51	8	8	2.97E+04		1.64E-05	-3.883	-1.504	
		1901.827	384.790	52965.82	8	10						
		1901.773	0.	52582.51	10	8	1.61E+05		7.00E-05	-3.155	-0.876	
		1888.010	0.	52965.82	10	10	6.79E+03		3.63E-06	-4.440	-2.164	
	3d6(a3P)4p z 2Do		All Ref RU98									
		1660.2801	862.613	61093.413	4	6						
		1654.9242	667.683	61093.413	6	6						
		1647.2125	384.790	61093.413	8	6						
		1635.3618	977.053	62125.600	2	4	1.27E+06		1.02E-03	-2.691	0.222	
		1632.3070	862.613	62125.600	4	4	1.74E+06		6.97E-04	-2.555	0.056	
		1627.1297	667.683	62125.600	6	4	1.16E+06		3.07E-04	-2.735	-0.302	
	3d6(a3P)4p y 4Do		Part Ref RU98									
		1637.7765	667.683	61726.077	6	8						
		1630.2234	384.790	61726.077	8	8	2.22E+04		8.83E-06	-4.151	-1.842	
		1620.0608	0.	61726.077	10	8	8.87E+04		2.79E-05	-3.554	-1.344	
		1617.4094	862.613	62689.880	4	6	8.72E+03		5.13E-06	-4.688	-2.081	
		1616.7620	977.053	62829.075	2	2						
		1613.7762	862.613	62829.075	4	2						
		1613.2896	977.053	62962.205	2	4	6.88E+03		5.37E-06	-4.969	-2.062	
		1612.3260	667.683	62689.880	6	6	1.71E+04		6.67E-06	-4.398	-1.969	
		1610.3165	862.613	62962.205	4	4						
		1605.2776	667.683	62962.205	6	4						
		1605.0053	384.790	62689.880	8	6	2.11E+04		6.11E-06	-4.311	-2.009	
	3d6(3H)4p z 2Go		Part Ref RU98									
		1621.9351	667.683	62322.431	6	8						
		1620.7897	384.790	62083.108	8	10						
		1614.5271	384.790	62322.431	8	8	3.50E+03		1.37E-06	-4.961	-2.656	
		1610.7441	0.	62083.108	10	10						
		1604.5587	0.	62322.431	10	8	7.75E+03		2.39E-06	-4.621	-2.416	
	3d6(a3F)4p y 4Fo		All Ref RU98,SSKLNJLR99,PJS01									
		1632.1876	977.053	62244.520	2	4						
		1631.6155	862.613	62151.561	4	6	2.19E+04		1.31E-05	-4.280	-1.669	
		1629.1446	862.613	62244.520	4	4						
		1628.7218	667.683	62065.521	6	8	1.96E+05	2.86E+08	1.04E-04	-3.204	-0.770	
		1626.4426	667.683	62151.561	6	6	6.24E+04		2.48E-05	-3.828	-1.395	
		1623.9873	667.683	62244.520	6	4						
		1621.2519	384.790	62065.521	8	8	1.25E+06	2.86E+08	4.93E-04	-2.404	-0.097	
		1618.9935	384.790	62151.561	8	6	9.30E+04		2.74E-05	-3.659	-1.353	
		1618.8218	384.790	62158.110	8	10						
		1611.2005	0.	62065.521	10	8	4.43E+06	2.86E+08	1.38E-03	-1.860	0.347	0.08
		1608.8005	0.	62158.110	10	10						

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Fe II	3d6(5D)4s a 6D J=10 GROUND		IP = 130563+-10 cm-1		Ref J78=SC85,J84							
8u	3d5(6S)4s4p(3P) y 6Po		All	Ref LLBJS00,PDNHJ02,(MSL97,DH99)								
MltMean		1621.514	416.30	62087.04	30	18	2.51E+08		5.94E-02	0.251	1.984	
		1639.4012	977.053	61974.933	2	4	7.18E+07	2.56E+08	5.79E-02	-0.937	1.977	0.030
		1636.3313	862.613	61974.933	4	4	1.01E+08	2.56E+08	4.05E-02	-0.790	1.822	0.030
		1634.3498	862.613	62049.025	4	6	3.41E+07	2.63E+08	2.05E-02	-1.087	1.525	0.035
		1631.1285	667.683	61974.933	6	4	7.00E+07	2.56E+08	1.86E-02	-0.952	1.482	0.030
		1629.1596	667.683	62049.025	6	6	9.22E+07	2.63E+08	3.67E-02	-0.657	1.776	0.030
		1625.9123	667.683	62171.615	6	8	1.15E+07	2.74E+08	6.08E-03	-1.438	0.995	0.052
		1621.6856	384.790	62049.025	8	6	1.29E+08	2.63E+08	3.81E-02	-0.515	1.791	0.026
		1618.4680	384.790	62171.615	8	8	5.46E+07	2.74E+08	2.14E-02	-0.766	1.540	0.030
		1608.4511	0.	62171.615	10	8	1.86E+08	2.74E+08	5.77E-02	-0.239	1.968	0.026
	3d6(a3F)4p x 4Do		Part	Ref RU98								
		1605.7201	667.683	62945.038	6	8	1.42E+04		7.34E-06	-4.356	-1.928	
		1602.2980	862.613	63272.976	4	6	7.81E+03		4.51E-06	-4.744	-2.141	
		1600.3058	977.053	63465.109	2	4						
		1598.4591	384.790	62945.038	8	8	8.25E+04		3.16E-05	-3.597	-1.296	
		1597.8924	977.053	63559.488	2	2						
		1597.3804	862.613	63465.109	4	4						
		1597.3090	667.683	63272.976	6	6	1.66E+04		6.34E-06	-4.420	-1.995	
		1594.9758	862.613	63559.488	4	2						
		1592.4220	667.683	63465.109	6	4	1.26E+04		3.20E-06	-4.717	-2.293	
		1590.1238	384.790	63272.976	8	6	7.13E+04		2.03E-05	-3.790	-1.492	
		1588.6876	0.	62945.038	10	8	4.89E+05		1.48E-04	-2.830	-0.629	
	3d6(a3F)4p y 4Go		Part	Ref RU98								
		1581.6577	862.613	64087.418	4	6						
		1577.9540	667.683	64040.886	6	8						
		1576.7962	667.683	64087.418	6	6						
		1573.2175	384.790	63948.790	8	10	3.32E+03		1.54E-06	-4.909	-2.615	
		1570.9415	384.790	64040.886	8	8						
		1569.7939	384.790	64087.418	8	6						
		1565.5255	0.	63876.317	10	12	1.74E+04		7.66E-06	-4.116	-1.921	
		1563.7512	0.	63948.790	10	10	3.97E+03		1.46E-06	-4.837	-2.643	
		1561.5024	0.	64040.886	10	8						
	3d6(a3F)4p z 2Fo		Part	Ref RU98								
		1573.2474	862.613	64425.408	4	6						
		1571.8658	667.683	64286.345	6	8						
		1568.4374	667.683	64425.408	6	6						
		1564.9071	384.790	64286.345	8	8						
		1561.5090	384.790	64425.408	8	6						
		1555.5403	0.	64286.345	10	8	4.57E+03		1.33E-06	-4.877	-2.685	
	3d6(3G)4p x 4Go		Part	Ref RU98								
		1533.3741	862.613	66078.269	4	6						
		1532.2465	667.683	65931.334	6	8						
		1531.1298	384.790	65696.038	8	10	3.42E+03		1.50E-06	-4.920	-2.638	
		1528.8045	667.683	66078.269	6	6						
		1525.6334	384.790	65931.334	8	8						
		1524.8542	0.	65580.041	10	12						
		1522.2211	384.790	66078.269	8	6						
		1522.1618	0.	65696.038	10	10	1.01E+04		3.49E-06	-4.457	-2.275	
		1516.7295	0.	65931.334	10	8						
	3d6(3G)4p x 4Fo		Part	Ref RU98								
		1523.7408	384.790	66012.750	8	10	3.68E+03		1.60E-06	-4.892	-2.612	
		1523.5634	977.053	66612.656	2	4						
		1523.0044	862.613	66522.304	4	6						
		1521.8476	667.683	66377.283	6	8						
		1520.9116	862.613	66612.656	4	4						
		1518.4963	667.683	66522.304	6	6						
		1516.4158	667.683	66612.656	6	4						
		1515.3239	384.790	66377.283	8	8	4.43E+03		1.52E-06	-4.914	-2.637	
		1514.8589	0.	66012.750	10	10	1.47E+04		5.06E-06	-4.296	-2.116	
		1512.0012	384.790	66522.304	8	6						
		1506.5395	0.	66377.283	10	8						
	3d6(a1D)4p w 2Po		All	Ref JBLNW95								
		1284.2756	977.053	78841.96	2	2						
		1282.3908	862.613	78841.96	4	2						
		1277.6851	977.053	79243.60	2	4	2.34E+07		1.15E-02	-1.640	1.165	
		1275.8196	862.613	79243.60	4	4	3.24E+07		7.91E-03	-1.500	1.004	
		1272.6546	667.683	79243.60	6	4	2.15E+07		3.48E-03	-1.680	0.647	

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Fe II	3d6(5D)4s a 6D J=10 GROUND		IP = 130563+-10 cm-1		Ref J78=SC85,J84							
9u	3d5(6S)4s4p(1P) x 6Po		All	Ref JBLNW95								
MltMean		1267.736	416.30	79297.07	30	18	1.63E+08		2.36E-02	-0.151	1.475	
		1277.643	977.053	79246.17	2	4	3.54E+07		1.73E-02	-1.460	1.345	
		1275.778	862.613	79246.17	4	4	4.90E+07		1.20E-02	-1.320	1.184	
		1275.144	862.613	79285.11	4	6	2.26E+07		8.28E-03	-1.480	1.023	
		1272.613	667.683	79246.17	6	4	3.26E+07		5.27E-03	-1.500	0.827	
		1271.983	667.683	79285.11	6	6	6.87E+07		1.67E-02	-1.000	1.326	
		1271.232	667.683	79331.50	6	8	6.35E+06		2.05E-03	-1.910	0.416	
		1267.422	384.790	79285.11	8	6	9.34E+07		1.69E-02	-0.870	1.330	
		1266.677	384.790	79331.50	8	8	3.76E+07		9.06E-03	-1.140	1.060	
		1260.533	0.	79331.50	10	8	1.26E+08		2.40E-02	-0.620	1.481	
10u	3d5(4G)4s4p(3P) y 6Fo		All	Ref RU98,WBL02 for 10-12								
MltMean		1148.399	416.30	87494.06	30	42	3.47E+08		9.59E-02	0.459	2.042	
		1154.3985	977.053	87602.25	2	4	4.56E+07		1.82E-02	-1.438	1.323	
		1153.2719	862.613	87572.431	4	6	1.22E+08		3.66E-02	-0.834	1.626	
		1152.8755	862.613	87602.25	4	4	6.63E+07		1.32E-02	-1.277	1.183	
		1151.1458	667.683	87537.652	6	8	2.23E+08		5.90E-02	-0.451	1.832	
		1150.6851	667.683	87572.431	6	6	1.07E+08		2.13E-02	-0.894	1.389	
		1150.4691	977.053	87898.12	2	2	3.10E+08		6.15E-02	-0.910	1.850	
		1150.2904	667.683	87602.25	6	4	4.34E+07		5.74E-03	-1.463	0.820	
		1148.9564	862.613	87898.12	4	2	7.95E+07		7.87E-03	-1.502	0.956	
		1148.2773	384.790	87471.765	8	10	3.35E+08		8.28E-02	-0.179	1.978	
		1147.4092	384.790	87537.652	8	8	1.24E+08		2.45E-02	-0.707	1.450	
		1146.9516	384.790	87572.431	8	6	4.42E+07		6.55E-03	-1.281	0.875	
		1144.9379	0.	87340.983	10	12	3.52E+08		8.30E-02	-0.081	1.978	0.03
		1143.2260	0.	87471.765	10	10	9.81E+07		1.92E-02	-0.716	1.342	
		1142.3656	0.	87537.652	10	8	2.56E+07		4.01E-03	-1.397	0.661	
11u	3d5(4P)4s4p(3P) 6Do		All	Ref RU98								
MltMean		1138.598	416.30	88243.58	30	30	1.19E+08		2.31E-02	-0.160	1.420	
		1153.9500	977.053	87635.92	2	2	2.65E+07		5.30E-03	-1.975	0.786	
		1152.4281	862.613	87635.92	4	2	2.31E+07		2.30E-03	-2.037	0.423	
		1149.5892	977.053	87964.65	2	4	8.36E+07		3.31E-02	-1.179	1.581	
		1148.0788	862.613	87964.65	4	4	1.91E+08		3.77E-02	-0.822	1.636	
		1146.8315	862.613	88059.38	4	6	5.62E+07		1.66E-02	-1.177	1.280	
		1145.5152	667.683	87964.65	6	4	1.96E+07		2.57E-03	-1.812	0.469	
		1144.2735	667.683	88059.38	6	6	9.75E+07		1.91E-02	-0.940	1.340	
		1142.3119	667.683	88209.45	6	8	4.67E+07		1.22E-02	-1.136	1.144	
		1140.5813	384.790	88059.38	8	6	3.70E+05		5.42E-05	-3.363	-1.209	
		1138.6324	384.790	88209.45	8	8	5.45E+07		1.06E-02	-1.072	1.081	
		1133.6654	0.	88209.45	10	8	3.06E+07		4.72E-03	-1.326	0.728	
		1133.4048	384.790	88614.52	8	10	2.60E+07		6.25E-03	-1.301	0.850	
		1128.4832	0.	88614.52	10	10	3.00E+05		5.73E-05	-3.242	-1.190	
	3d6(5D)5p 6Do		All	Ref RU98								
MltMean		1129.281	416.30	88968.22	30	30						
		1133.9688	667.683	88853.533	6	8	3.01E+04		7.74E-06	-4.333	-2.057	
		1133.0566	862.613	89119.457	4	6						
		1132.0079	384.790	88723.400	8	10	6.96E+06		1.67E-03	-1.874	0.277	
		1131.8089	977.053	89331.195	2	4	1.19E+05		4.57E-05	-4.039	-1.286	
		1130.5596	667.683	89119.457	6	6	1.40E+07		2.69E-03	-1.792	0.483	
		1130.3448	862.613	89331.195	4	4	1.24E+07		2.38E-03	-2.021	0.430	
		1130.3427	384.790	88853.533	8	8	9.26E+06		1.77E-03	-1.848	0.302	
		1130.0161	977.053	89471.365	2	2	4.04E+06		7.73E-04	-2.811	-0.059	
		1128.5567	862.613	89471.365	4	2	8.87E+06		8.47E-04	-2.470	-0.020	
		1127.8597	667.683	89331.195	6	4	2.77E+07		3.52E-03	-1.675	0.599	
		1127.0984	0.	88723.400	10	10	5.89E+06		1.12E-03	-1.950	0.102	
		1126.9553	384.790	89119.457	8	6	5.54E+07		7.91E-03	-1.199	0.950	
		1125.4477	0.	88853.533	10	8	1.03E+08		1.56E-02	-0.807	1.244	
12-14	3d5(4P)4s4p(3P) 6Po		All	Ref RU98								
MltMean		1124.504	416.30	89344.39	30	18	3.47E+08		3.95E-02	0.074	1.647	
		1130.4432	667.683	89128.561	6	8	3.07E+07		7.85E-03	-1.327	0.948	
		1128.8995	862.613	89444.458	4	6	6.33E+07		1.82E-02	-1.139	1.312	
		1128.0457	977.053	89625.940	2	4	1.40E+08		5.36E-02	-0.970	1.781	
		1126.8397	384.790	89128.561	8	8	6.33E+07		1.20E-02	-1.016	1.133	
		1126.5914	862.613	89625.940	4	4	1.71E+08		3.26E-02	-0.885	1.565	
		1126.4207	667.683	89444.458	6	6	1.30E+08		2.48E-02	-0.827	1.447	
		1124.1227	667.683	89625.940	6	4	1.14E+08		1.43E-02	-1.065	1.208	
		1122.8427	384.790	89444.458	8	6	1.81E+08		2.57E-02	-0.687	1.460	
		1121.9748	0.	89128.561	10	8	1.92E+08		2.90E-02	-0.538	1.512	

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Fe II	3d6(5D)4s a 6D J=10 GROUND		IP = 130563+-10 cm-1				Ref J78=SC85,J84					
	3d6(5D)5p 6Fo			All Ref RU98								
MltMean		1113.680	416.30	90208.71	30	42	9.62E+06		2.50E-03	-1.124	0.445	
		1115.8666	977.053	90593.497	2	4	1.51E+05		5.64E-05	-3.948	-1.201	
		1115.7577	862.613	90487.810	4	6	2.60E+06		7.28E-04	-2.536	-0.090	
		1115.6612	667.683	90300.625	6	8	2.43E+06		6.04E-04	-2.441	-0.172	
		1115.1857	977.053	90648.217	2	2	3.97E+06		7.40E-04	-2.830	-0.084	
		1115.0440	384.790	90067.347	8	10	2.00E+06		4.67E-04	-2.428	-0.284	
		1114.4435	862.613	90593.497	4	4	6.14E+05		1.14E-04	-3.340	-0.895	
		1113.7643	862.613	90648.217	4	2	1.64E+06		1.52E-04	-3.216	-0.771	
		1113.3362	667.683	90487.810	6	6	7.14E+06		1.33E-03	-2.099	0.169	
		1112.1512	384.790	90300.625	8	8	5.09E+06		9.44E-04	-2.122	0.021	
		1112.0480	0.	89924.175	10	12	2.00E+07		4.46E-03	-1.351	0.695	
		1112.0277	667.683	90593.497	6	4	2.66E+04		3.29E-06	-4.705	-2.437	
		1110.2803	0.	90067.347	10	10	8.94E+05		1.65E-04	-2.782	-0.737	
		1109.8407	384.790	90487.810	8	6	4.25E+05		5.89E-05	-3.327	-1.185	
		1107.4120	0.	90300.625	10	8	2.12E+04		3.11E-06	-4.507	-2.463	
	3d6(b3F)4p 4Go			All Ref RU98								
		1125.3059	862.613	89727.342	4	6						
		1122.8428	667.683	89727.342	6	6						
		1120.7911	667.683	89890.373	6	8	2.14E+04		5.37E-06	-4.492	-2.221	
		1119.2875	384.790	89727.342	8	6						
		1117.2487	384.790	89890.373	8	8	7.74E+03		1.45E-06	-4.936	-2.791	
		1115.3496	384.790	90042.779	8	10	4.72E+06		1.10E-03	-2.055	0.089	
		1112.4662	0.	89890.373	10	8						
		1110.5832	0.	90042.779	10	10	2.54E+06		4.69E-04	-2.329	-0.283	
		1108.5037	0.	90211.70	10	12	2.03E+05		4.48E-05	-3.349	-1.304	
15,17	3d6(5D)5p 4Fo			All Ref RU98								
		1111.0897	384.790	90386.528	8	10	5.43E+06		1.26E-03	-1.998	0.145	
		1109.7186	667.683	90780.621	6	8	9.22E+05		2.27E-04	-2.866	-0.599	
		1108.5499	862.613	91070.547	4	6	1.25E+04		3.46E-06	-4.859	-2.416	
		1108.2563	977.053	91208.887	2	4						
		1106.8525	862.613	91208.887	4	4	1.14E+05		2.10E-05	-4.076	-1.634	
		1106.3596	0.	90386.528	10	10	2.15E+06		3.94E-04	-2.404	-0.360	
		1106.2457	384.790	90780.621	8	8	1.27E+06		2.34E-04	-2.728	-0.587	
		1106.1596	667.683	91070.547	6	6	7.32E+05		1.34E-04	-3.094	-0.828	
		1104.4695	667.683	91208.887	6	4	4.12E+04		5.02E-06	-4.521	-2.256	
		1102.7090	384.790	91070.547	8	6						
		1101.5567	0.	90780.621	10	8	1.63E+04		2.38E-06	-4.624	-2.582	
	3d6(5D)5p 4Do			All Ref RU98								
		1114.4522	667.683	90397.868	6	8	2.67E+06		6.64E-04	-2.400	-0.131	
		1113.8809	862.613	90638.822	4	6	2.08E+04		5.81E-06	-4.634	-2.189	
		1111.4675	667.683	90638.822	6	6	1.19E+05		2.20E-05	-3.879	-1.611	
		1110.9497	384.790	90397.868	8	8	2.53E+06		4.69E-04	-2.426	-0.283	
		1110.2328	977.053	91048.256	2	4	2.87E+05		1.06E-04	-3.674	-0.930	
		1108.8239	862.613	91048.256	4	4	1.19E+05		2.19E-05	-4.057	-1.614	
		1108.3686	977.053	91199.746	2	2						
		1107.9837	384.790	90638.822	8	6	2.77E+05		3.82E-05	-3.515	-1.374	
		1106.9645	862.613	91199.746	4	2	8.05E+04		7.40E-06	-4.529	-2.087	
		1106.4325	667.683	91048.256	6	4						
		1106.2208	0.	90397.868	10	8	6.72E+04		9.86E-06	-4.006	-1.962	
	3d6(b3P)4p 4So			All Ref RU98								
		1115.4135	977.053	90629.902	2	4	1.44E+06		5.37E-04	-2.969	-0.223	
		1113.9915	862.613	90629.902	4	4	4.72E+06		8.79E-04	-2.454	-0.009	
		1111.5777	667.683	90629.902	6	4	1.22E+06		1.50E-04	-3.045	-0.777	
18u	3d6(5D)5p 6Po			All Ref RU98								
MltMean		1098.449	416.30	91453.79	30	18	2.55E+08		2.77E-02	-0.081	1.483	
		1104.9693	667.683	91167.937	6	8	7.28E+06		1.78E-03	-1.972	0.293	
		1102.3836	862.613	91575.139	4	6	2.30E+07		6.29E-03	-1.599	0.841	
		1101.5260	384.790	91167.937	8	8	4.52E+07		8.22E-03	-1.182	0.957	
		1100.5166	977.053	91843.470	2	4	6.38E+07		2.32E-02	-1.334	1.407	
		1100.0198	667.683	91575.139	6	6	7.42E+07		1.35E-02	-1.093	1.170	
		1099.1323	862.613	91843.470	4	4	7.31E+07		1.32E-02	-1.276	1.163	
		1096.8769	0.	91167.937	10	8	2.26E+08		3.27E-02	-0.486	1.554	
		1096.7824	667.683	91843.470	6	4	8.37E+07		1.01E-02	-1.219	1.043	
		1096.6073	384.790	91575.139	8	6	1.50E+08		2.03E-02	-0.790	1.347	
	3d6(b3F)4p u 2Go			All Ref RU98								
		1089.4798	384.790	92171.716	8	10	1.37E+06		3.05E-04	-2.613	-0.479	
		1087.7248	667.683	92602.703	6	8	4.67E+04		1.10E-05	-4.179	-1.921	
		1084.9315	0.	92171.716	10	10	2.72E+04		4.81E-06	-4.318	-2.283	
		1084.3880	384.790	92602.703	8	8						
		1079.8821	0.	92602.703	10	8						

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Fe II	3d6(5D)4s a 6D J=10 GROUND		IP = 130563+-10 cm-1				Ref J78=SC85,J84					
	3d5(4G)4s4p(3P) x 4Ho		Part Ref RU98									
	1093.8337	667.683	92089.26		6	8	8.09E+05		1.94E-04	-2.935	-0.674	
	1090.4594	384.790	92089.26		8	8	6.76E+05		1.20E-04	-3.016	-0.881	
	1090.1322	384.790	92116.78		8	10	2.04E+05		4.55E-05	-3.439	-1.305	
	1085.9030	0.	92089.26		10	8	1.96E+04		2.77E-06	-4.558	-2.522	
	1085.5785	0.	92116.78		10	10	3.23E+05		5.71E-05	-3.243	-1.207	
	1084.9917	0.	92166.60		10	12	8.42E+05		1.78E-04	-2.749	-0.714	
	3d5(4G)4s4p(3P) v 4Fo		Part Ref RU98									
	1094.3127	977.053	92358.61		2	4						
	1093.2872	862.613	92329.89		4	6	1.38E+05		3.70E-05	-3.830	-1.393	
	1092.9440	862.613	92358.61		4	4						
	1091.5270	667.683	92282.46		6	8	8.34E+03		1.99E-06	-4.924	-2.664	
	1090.9622	667.683	92329.89		6	6	7.64E+04		1.36E-05	-4.087	-1.827	
	1090.6204	667.683	92358.61		6	4						
	1088.1669	384.790	92282.46		8	8	5.68E+05		1.01E-04	-3.093	-0.959	
	1087.6055	384.790	92329.89		8	6	3.99E+04		5.31E-06	-4.372	-2.239	
	1086.4583	384.790	92426.98		8	10	5.13E+05		1.13E-04	-3.042	-0.909	
	1083.6295	0.	92282.46		10	8	1.80E+04		2.54E-06	-4.595	-2.560	
	1081.9352	0.	92426.98		10	10	6.69E+05		1.17E-04	-2.930	-0.896	
	3d5(4D)4s4p(3P) 6Fo		All Ref RU98									
MltMean	1089.377	416.30	92211.89		30	42	7.09E+07		1.77E-02	-0.276	1.284	
	1100.4288	977.053	91850.722		2	2	7.06E+07		1.28E-02	-1.591	1.150	
	1099.6395	977.053	91915.95		2	4	1.49E+07		5.39E-03	-1.967	0.773	
	1099.0447	862.613	91850.722		4	2	2.32E+07		2.10E-03	-2.075	0.364	
	1098.2574	862.613	91915.95		4	4	7.03E+07		1.27E-02	-1.294	1.145	
	1097.0191	862.613	92018.729		4	6	3.04E+07		8.24E-03	-1.482	0.956	
	1095.9112	667.683	91915.95		6	4	6.05E+06		7.26E-04	-2.361	-0.099	
	1094.6782	667.683	92018.729		6	6	4.75E+07		8.53E-03	-1.291	0.970	
	1093.0577	667.683	92154.165		6	8	3.92E+07		9.35E-03	-1.251	1.009	
	1091.2987	384.790	92018.729		8	6	3.71E+06		4.96E-04	-2.401	-0.266	
	1089.6881	384.790	92154.165		8	8	3.12E+07		5.56E-03	-1.352	0.782	
	1087.9559	384.790	92300.277		8	10	4.82E+07		1.07E-02	-1.068	1.066	
	1085.1381	0.	92154.165		10	8	8.98E+05		1.27E-04	-2.897	-0.862	
	1083.4204	0.	92300.277		10	10	1.59E+07		2.80E-03	-1.553	0.482	
	1081.8748	0.	92432.136		10	12	5.98E+07		1.26E-02	-0.900	1.134	
	3d6(b3F)4p 4Do		Part Ref RU98									
	1093.1780	977.053	92453.46		2	2	5.23E+04		9.37E-06	-4.727	-1.989	
	1091.8122	862.613	92453.46		4	2						
	1090.8640	977.053	92647.51		2	4	9.74E+04		3.48E-05	-4.158	-1.421	
	1089.5039	862.613	92647.51		4	4						
	1087.1949	667.683	92647.51		6	4						
	1086.5244	862.613	92899.20		4	6	1.84E+05		4.87E-05	-3.710	-1.276	
	1084.2281	667.683	92899.20		6	6	5.89E+04		1.04E-05	-4.206	-1.949	
	1081.5228	667.683	93129.90		6	8	1.21E+04		2.82E-06	-4.771	-2.515	
	1080.9127	384.790	92899.20		8	6						
	1078.2240	384.790	93129.90		8	8	2.45E+04		4.27E-06	-4.466	-2.336	
	1073.7690	0.	93129.90		10	8	3.34E+04		4.61E-06	-4.336	-2.305	
	3d6(b3F)4p u 4Fo		Part Ref RU98									
	1082.8203	977.053	93328.48		2	4						
	1081.4802	862.613	93328.48		4	4	5.31E+04		9.31E-06	-4.429	-1.997	
	1080.6985	862.613	93395.36		4	6	1.62E+04		4.25E-06	-4.770	-2.338	
	1079.2050	667.683	93328.48		6	4	3.37E+04		3.93E-06	-4.628	-2.373	
	1078.4267	667.683	93395.36		6	6	2.12E+05		3.69E-05	-3.655	-1.400	
	1077.3544	667.683	93487.65		6	8	2.15E+04		5.00E-06	-4.523	-2.269	
	1075.1466	384.790	93395.36		8	6	4.99E+04		6.49E-06	-4.285	-2.157	
	1074.1163	384.790	93484.58		8	10	2.69E+05		5.82E-05	-3.332	-1.204	
	1074.0809	384.790	93487.65		8	8	5.64E+04		9.75E-06	-4.108	-1.980	
	1069.6951	0.	93484.58		10	10	1.34E+05		2.30E-05	-3.638	-1.609	
	1069.6600	0.	93487.65		10	8						
19u	3d5(4D)4s4p(3P) 6Do		All Ref RU98									
MltMean	1068.986	416.30	93962.91		30	30	2.90E+08		4.97E-02	0.174	1.726	
	1076.8518	977.053	93840.34		2	4	1.12E+08		3.90E-02	-1.108	1.623	
	1075.6347	862.613	93830.979		4	6	9.37E+07		2.44E-02	-1.011	1.419	
	1075.5264	862.613	93840.34		4	4	2.19E+07		3.79E-03	-1.819	0.611	
	1074.6411	977.053	94031.378		2	2	4.95E+07		8.57E-03	-1.766	0.964	
	1073.3841	667.683	93830.979		6	6	5.83E+07		1.01E-02	-1.219	1.034	
	1073.3211	862.613	94031.378		4	2	1.68E+08		1.45E-02	-1.237	1.192	
	1073.2763	667.683	93840.34		6	4	4.13E+07		4.75E-03	-1.545	0.708	
	1071.5842	667.683	93987.457		6	8	1.14E+08		2.61E-02	-0.805	1.447	
	1070.1346	384.790	93830.979		8	6	2.74E+07		3.53E-03	-1.549	0.577	
	1068.3456	384.790	93987.457		8	8	1.59E+08		2.72E-02	-0.662	1.464	
	1067.5437	384.790	94057.773		8	10	8.25E+07		1.76E-02	-0.851	1.274	
	1063.9718	0.	93987.457		10	8	3.50E+07		4.75E-03	-1.323	0.704	
	1063.1764	0.	94057.773		10	10	3.23E+08		5.47E-02	-0.262	1.765	

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Fe II	3d6(5D)4s a 6D J=10 GROUND		IP = 130563+-10 cm-1				Ref J78=SC85,J84					
	3d5(4G)4s4p(3P) w 4Go			All Ref RU98								
		1073.8191	862.613	93988.17	4	6	3.16E+05		8.20E-05	-3.484	-1.055	
		1071.5761	667.683	93988.17	6	6	3.42E+05		5.89E-05	-3.452	-1.200	
		1070.6001	667.683	94073.24	6	8	1.31E+06		3.00E-04	-2.745	-0.494	
		1068.3375	384.790	93988.17	8	6	1.65E+05		2.11E-05	-3.772	-1.646	
		1067.3674	384.790	94073.24	8	8	2.95E+06		5.03E-04	-2.395	-0.270	
		1066.5106	384.790	94148.51	8	10	2.87E+06		6.11E-04	-2.311	-0.186	
		1063.0016	0.	94073.24	10	8	6.15E+05		8.34E-05	-3.079	-1.052	
		1062.1517	0.	94148.51	10	10	1.72E+07		2.91E-03	-1.536	0.490	
		1061.6852	0.	94189.88	10	12	2.08E+05		4.23E-05	-3.374	-1.348	
20u	3d5(4P)4s4p(3P) 4Po			All Ref RU98								
		1071.2473	862.613	94211.739	4	6	2.26E+07		5.82E-03	-1.633	0.795	
		1069.0150	667.683	94211.739	6	6	1.49E+07		2.55E-03	-1.816	0.435	
		1066.5288	977.053	94739.17	2	4	6.22E+07		2.12E-02	-1.372	1.355	
		1065.7919	384.790	94211.739	8	6	5.39E+06		6.89E-04	-2.259	-0.134	
		1065.2287	862.613	94739.17	4	4	2.23E+05		3.79E-05	-3.819	-1.394	
		1064.9209	977.053	94880.74	2	2	4.07E+07		6.92E-03	-1.859	0.867	
		1063.6247	862.613	94880.74	4	2	1.36E+08		1.16E-02	-1.335	1.090	
		1063.0214	667.683	94739.17	6	4	1.23E+08		1.39E-02	-1.080	1.168	
21u	3d5(4D)4s4p(3P) 6Po			Part Ref RU98								
		1065.8427	862.613	94685.09	4	6	6.74E+07		1.72E-02	-1.162	1.264	
		1063.6328	667.683	94685.09	6	6	1.65E+07		2.79E-03	-1.776	0.473	
		1062.7497	667.683	94763.219	6	8	3.12E+07		7.04E-03	-1.374	0.874	
		1060.4420	384.790	94685.09	8	6	1.22E+08		1.54E-02	-0.908	1.214	
		1059.5642	384.790	94763.219	8	8	3.24E+07		5.46E-03	-1.360	0.762	
		1055.2617	0.	94763.219	10	8	4.61E+07		6.15E-03	-1.211	0.812	
	3d6(b3F)4p 2Fo			Part Ref RU98								
		1061.7572	862.613	95046.10	4	6						
		1059.5643	667.683	95046.10	6	6						
		1059.1879	667.683	95079.64	6	8	9.08E+04		2.04E-05	-3.913	-1.666	
		1056.3978	384.790	95046.10	8	6						
		1056.0236	384.790	95079.64	8	8	1.03E+05		1.73E-05	-3.860	-1.739	
		1051.7499	0.	95079.64	10	8	5.76E+04		7.64E-06	-4.117	-2.095	
	3d5(4P)4s4p(3P) 4Do			All Ref RU98								
		1054.9564	977.053	95767.70	2	2	2.98E+05		4.97E-05	-4.003	-1.281	
		1053.9518	977.053	95858.05	2	4	1.93E+06		6.41E-04	-2.892	-0.170	
		1053.6843	862.613	95767.70	4	2	2.42E+06		2.02E-04	-3.093	-0.672	
		1052.6821	862.613	95858.05	4	4	1.37E+05		2.27E-05	-4.041	-1.621	
		1051.1591	862.613	95995.69	4	6	2.45E+06		6.09E-04	-2.613	-0.193	
		1050.5265	667.683	95858.05	6	4	4.04E+06		4.46E-04	-2.573	-0.330	
		1049.0097	667.683	95995.69	6	6	1.41E+06		2.33E-04	-2.854	-0.611	
		1046.5754	667.683	96217.42	6	8	1.64E+06		3.60E-04	-2.666	-0.424	
		1045.9059	384.790	95995.69	8	6	3.12E+06		3.84E-04	-2.513	-0.397	
		1043.4859	384.790	96217.42	8	8	2.86E+06		4.68E-04	-2.427	-0.312	
		1039.3128	0.	96217.42	10	8	8.14E+05		1.05E-04	-2.977	-0.960	
	3d5(4D)4s4p(3P) 4Fo			Part Ref RU98								
		1028.6061	977.053	98196.00	2	4	4.76E+04		1.51E-05	-4.520	-1.809	
		1027.3967	862.613	98196.00	4	4						
		1025.7247	862.613	98354.66	4	6	2.39E+05		5.65E-05	-3.646	-1.237	
		1025.3432	667.683	98196.00	6	4	2.82E+04		2.96E-06	-4.750	-2.517	
		1023.6779	667.683	98354.66	6	6	4.49E+04		7.05E-06	-4.373	-2.141	
		1021.7827	667.683	98535.85	6	8	8.34E+04		1.74E-05	-3.981	-1.750	
		1020.7220	384.790	98354.66	8	6	1.38E+05		1.62E-05	-3.887	-1.781	
		1018.8377	384.790	98535.85	8	8	5.83E+04		9.08E-06	-4.139	-2.034	
		1018.2070	384.790	98596.65	8	10	5.71E+05		1.11E-04	-3.052	-0.947	
		1014.8591	0.	98535.85	10	8	2.17E+05		2.69E-05	-3.571	-1.565	
		1014.2332	0.	98596.65	10	10	1.40E+06		2.16E-04	-2.666	-0.660	
	3d6(b1G)4p 2Go			Part Ref RU98								
		1008.6673	667.683	99808.40	6	8						
		1006.3163	384.790	99757.12	8	10						
		1005.7973	384.790	99808.40	8	8						
		1002.4347	0.	99757.12	10	10	1.02E+04		1.53E-06	-4.814	-2.813	
		1001.9197	0.	99808.40	10	8						
	3d6(5D)4f 4[5]o			Ref RU98								
		975.9281	384.790	102851.36	8	10	7.07E+04		1.26E-05	-3.996	-1.910	
		972.4664	0.	102831.32	10	12	5.67E+04		9.64E-06	-4.016	-2.028	
		972.2769	0.	102851.36	10	10						
	3d6(5D)4f 4[6]o			One Ref RU98								
		971.8798	0.	102893.38	10	12	1.94E+04		3.29E-06	-4.483	-2.495	
	3d6(5D)4f 4[4]o			Ref RU98								
		978.2875	667.683	102887.12	6	8	8.36E+04		1.60E-05	-4.018	-1.806	
		975.6328	384.790	102882.37	8	10	8.29E+04		1.48E-05	-3.927	-1.841	
		975.5876	384.790	102887.12	8	8						
		971.9838	0.	102882.37	10	10	1.71E+04		2.42E-06	-4.616	-2.628	
		971.9390	0.	102887.12	10	8	1.60E+04		1.82E-06	-4.741	-2.753	

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Fe II	3d6(5D)4s a 6D J=10 GROUND		IP = 130563+-10 cm-1				Ref J78=SC85,J84					
	3d6(5D)4f 4[3]o			Ref RU98								
		979.5326	862.613	102952.12	4	6	8.30E+04		1.79E-05	-4.145	-1.756	
		977.7607	667.683	102942.20	6	8	8.46E+04		1.62E-05	-4.013	-1.801	
		977.6658	667.683	102952.12	6	6						
		975.0636	384.790	102942.20	8	8						
		974.9693	384.790	102952.12	8	6	5.73E+04		6.12E-06	-4.310	-2.224	
		971.4189	0.	102942.20	10	8	6.20E+04		7.01E-06	-4.154	-2.167	
	3d6(5D)4f 3[5]			Ref RU98								
		971.1765	384.790	103352.68	8	10						
		967.8111	0.	103325.95	10	12	7.18E+04		1.21E-05	-3.917	-1.931	
		967.5608	0.	103352.68	10	10	2.70E+04		3.79E-06	-4.421	-2.435	
	3d6(5D)4f 3[4]			Ref RU98								
		973.9663	667.683	103340.64	6	8						
		971.4244	384.790	103326.41	8	10	6.18E+04		1.09E-05	-4.058	-1.974	
		971.2901	384.790	103340.64	8	8	2.02E+04		2.86E-06	-4.640	-2.556	
		967.8068	0.	103326.41	10	10	9.20E+04		1.29E-05	-3.889	-1.903	
		967.6735	0.	103340.64	10	8	7.79E+04		8.75E-06	-4.058	-2.072	
	3d6(5D)4f 3[3]			Ref RU98								
		975.5886	862.613	103364.84	4	6	1.43E+04		3.05E-06	-4.913	-2.526	
		973.7368	667.683	103364.84	6	6						
		973.5388	667.683	103385.73	6	8						
		971.0619	384.790	103364.84	8	6	6.99E+04		7.41E-06	-4.227	-2.143	
		970.8649	384.790	103385.73	8	8						
		967.2515	0.	103385.73	10	8	3.85E+04		4.32E-06	-4.365	-2.379	
	3d6(5D)4f 2[3]			Ref RU98								
		972.4237	862.613	103698.44	4	6						
		970.7880	667.683	103676.78	6	8	4.74E+04		8.93E-06	-4.271	-2.062	
		970.5840	667.683	103698.44	6	6	4.45E+04		6.28E-06	-4.424	-2.215	
		968.1293	384.790	103676.78	8	8						
		967.9263	384.790	103698.44	8	6						
		964.5361	0.	103676.78	10	8	7.97E+04		8.89E-06	-4.051	-2.067	
	3d6(5D)4f 2[4]			Ref RU98								
		970.4603	667.683	103711.57	6	8						
		968.0931	384.790	103680.64	8	10						
		967.8033	384.790	103711.57	8	8	2.52E+04		3.54E-06	-4.548	-2.465	
		964.5002	0.	103680.64	10	10	1.43E+05		2.00E-05	-3.700	-1.716	
		964.2126	0.	103711.57	10	8						
	3d6(5D)4f 2[5]			Ref RU98								
		967.8956	384.790	103701.72	8	10						
		964.4034	0.	103691.05	10	12						
		964.3042	0.	103701.72	10	10	3.39E+04		4.73E-06	-4.325	-2.341	
	3d6(5D)4f 1[4]			Ref RU98								
		968.8515	667.683	103882.68	6	8						
		966.2844	384.790	103873.99	8	10						
		966.2033	384.790	103882.68	8	8	9.61E+03		1.35E-06	-4.968	-2.886	
		962.7049	0.	103873.99	10	10	1.03E+04		1.43E-06	-4.845	-2.862	
		962.6244	0.	103882.68	10	8						
	3d6(5D)4f 1[3]			Ref RU98								
		969.6940	862.613	103987.93	4	6						
		968.0347	667.683	103969.76	6	8	2.21E+04		4.15E-06	-4.604	-2.396	
		967.8645	667.683	103987.93	6	6						
		965.3910	384.790	103969.76	8	8	7.17E+04		1.00E-05	-4.096	-2.014	
		965.2217	384.790	103987.93	8	6						
		961.8181	0.	103969.76	10	8	2.31E+04		2.56E-06	-4.592	-2.609	
	3d6(5D)4f 0[3]			Ref RU98								
		969.1450	862.613	104046.35	4	6						
		967.5371	667.683	104022.89	6	8	2.59E+04		4.84E-06	-4.537	-2.329	
		967.3176	667.683	104046.35	6	6	2.13E+04		2.99E-06	-4.746	-2.539	
		964.8961	384.790	104022.89	8	8	1.93E+05		2.69E-05	-3.667	-1.586	
		964.6777	384.790	104046.35	8	6						
		961.3269	0.	104022.89	10	8	3.60E+04		3.99E-06	-4.399	-2.416	
	3d5(2I)4s4p(3P) 4Ho			Part Ref K99								
		958.213	667.683	105028.6	6	8	9.02E+02		1.66E-07	-6.003	-3.800	
		956.453	384.790	104937.8	8	10	8.49E+03		1.46E-06	-4.934	-2.856	
		955.623	384.790	105028.6	8	8	4.85E+02		6.64E-08	-6.275	-4.198	
		954.046	0.	104816.80	10	12	7.71E+03		1.26E-06	-4.899	-2.919	
		952.945	0.	104937.8	10	10	7.26E+02		9.89E-08	-6.005	-4.026	
		952.122	0.	105028.6	10	8	9.99E-01		1.09E-10	-8.964	-6.985	
J	3d6(5D)6p 6Do			Part Ref K99								
		943.6059	384.790	106361.232	8	10	4.34E+06		7.24E-04	-2.237	-0.165	
		940.1922	0.	106361.232	10	10	9.39E+06		1.24E-03	-1.905	0.068	

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Fe II	3d6(5D)4s a 6D J=10 GROUND		IP = 130563+-10 cm-1				Ref J78=SC85,J84					
J	3d5(4F)4s4p(3P) 6Fo			Part Ref K99								
		948.5760	977.053	106398.228	2	4	4.81E+07		1.30E-02	-1.586	1.090	
		947.5474	862.613	106398.228	4	4	2.41E+07		3.24E-03	-1.887	0.488	
		945.8083	862.613	106592.286	4	6	4.24E+07		8.53E-03	-1.467	0.907	
		945.8005	667.683	106398.228	6	4	1.46E+06		1.30E-04	-3.107	-0.909	
		945.0871	667.683	106478.039	6	8	3.14E+07		5.61E-03	-1.473	0.724	
		944.0677	667.683	106592.286	6	6	1.96E+07		2.62E-03	-1.803	0.394	
		942.5670	384.790	106478.039	8	8	2.33E+06		3.10E-04	-2.605	-0.534	
		941.5531	384.790	106592.286	8	6	4.28E+05		4.26E-05	-3.467	-1.396	
		941.2653	384.790	106624.761	8	10	7.51E+07		1.25E-02	-1.001	1.070	
		939.1608	0.	106478.039	10	8	6.12E+06		6.47E-04	-2.189	-0.216	
		937.8685	0.	106624.761	10	10	1.52E+07		2.00E-03	-1.698	0.274	
		937.6496	0.	106649.650	10	12	1.07E+04		1.69E-06	-4.771	-2.799	
	3d5(2I)4s4p(3P) 2Ho			Part Ref RU98								
		937.8966	384.790	107006.35	8	10						
		937.2935	0.	106690.17	10	12	5.29E+06		8.36E-04	-2.078	-0.106	
		934.5240	0.	107006.35	10	10						
J	3d6(5D)6p 6Fo			Part Ref K99								
		936.0399	384.790	107217.847	8	10	7.30E+07		1.20E-02	-1.018	1.050	
		935.5175	0.	106892.710	10	12	1.63E+08		2.56E-02	-0.592	1.379	
		932.6805	0.	107217.847	10	10	1.72E+05		2.25E-05	-3.648	-1.678	
24u J	3d5(2F)4s4p(3P) 4Go			Part Ref K99								
		932.0590	384.790	107674.134	8	10	1.94E+06		3.15E-04	-2.598	-0.532	
		928.7282	0.	107674.134	10	10	6.77E+05		8.75E-05	-3.058	-1.090	
J	3d5(2F)4s4p(3P) 4Do			Part Ref K99								
		932.6690	667.683	107886.862	6	8	5.17E+07		8.99E-03	-1.268	0.924	
		930.2146	384.790	107886.862	8	8	1.52E+08		1.97E-02	-0.803	1.262	
		926.8969	0.	107886.862	10	8	5.50E+07		5.66E-03	-1.247	0.720	
25-28	J 3d5(4F)4s4p(3P) 6Do			Part Ref K99								
		932.7068	977.053	108191.885	2	4						
		932.2452	862.613	108130.532	4	6	9.44E+07		1.84E-02	-1.132	1.235	
		931.7123	862.613	108191.885	4	4	1.82E+07		2.37E-03	-2.023	0.344	
		930.5541	667.683	108130.532	6	6	9.69E+07		1.26E-02	-1.122	1.069	
		930.0232	667.683	108191.885	6	4	2.12E+08		1.83E-02	-0.959	1.231	
		929.6127	667.683	108239.366	6	8	3.17E+07		5.48E-03	-1.483	0.707	
		929.5249	384.790	107966.635	8	10	3.67E+07		5.94E-03	-1.323	0.742	
		928.1109	384.790	108130.532	8	6	1.40E+08		1.35E-02	-0.966	1.099	
		927.1744	384.790	108239.366	8	8	1.03E+08		1.32E-02	-0.975	1.089	
		926.2121	0.	107966.635	10	10	4.29E+08		5.52E-02	-0.258	1.709	
		923.8783	0.	108239.366	10	8	3.65E+07		3.73E-03	-1.428	0.538	
29u J	3d6(3D)5p 4So			All Ref K99								
		931.1405	977.053	108372.231	2	4	9.21E+06		2.39E-03	-2.320	0.348	
		930.1493	862.613	108372.231	4	4	1.34E+06		1.74E-04	-3.158	-0.792	
		928.4659	667.683	108372.231	6	4	1.72E+07		1.49E-03	-2.050	0.140	
	3d5(4G)4s4p(1P) 4Go			All Ref RU98								
		927.9310	862.613	108629.25	4	6	2.32E+05		4.50E-05	-3.745	-1.380	
		926.2555	667.683	108629.25	6	6	1.68E+05		2.16E-05	-3.888	-1.699	
		926.2398	667.683	108631.09	6	8	4.32E+05		7.41E-05	-3.352	-1.163	
		924.3360	384.790	108570.56	8	10						
		923.8348	384.790	108629.25	8	6	2.88E+05		2.77E-05	-3.655	-1.592	
		923.8191	384.790	108631.09	8	8	1.14E+06		1.46E-04	-2.933	-0.871	
		921.7960	0.	108483.87	10	12	1.57E+05		2.40E-05	-3.619	-1.654	
		921.0600	0.	108570.56	10	10	1.18E+05		1.51E-05	-3.822	-1.858	
		920.5468	0.	108631.09	10	8	4.57E+05		4.65E-05	-3.333	-1.369	
	3d5(2I)4s4p(3P) 2Io			One Ref K99								
		915.1500	0.	109271.71	10	12	2.47E+04		3.72E-06	-4.429	-2.468	
Fe III	3s23p63d6 5D J=4 GROUND		IP = 247220+-100 cm-1				Ref E93,SC85					
	3d5(6S)4p 7Po			All Ref RU98,(E93)								
		1233.505	932.06	82001.88	3	5	6.97E+04		2.65E-05	-4.100	-1.486	
		1230.567	738.55	82001.88	5	5	2.97E+05		6.74E-05	-3.472	-1.081	
		1226.000	435.80	82001.88	7	5	5.43E+05		8.74E-05	-3.213	-0.970	
		1225.555	738.55	82334.23	5	7	3.00E+04		9.46E-06	-4.325	-1.936	
		1221.025	435.80	82334.23	7	7	2.68E+05		5.99E-05	-3.377	-1.136	
		1214.562	0.	82334.23	9	7	1.39E+06		2.39E-04	-2.667	-0.537	
		1213.432	435.80	82846.70	7	9	3.69E+03		1.05E-06	-5.135	-2.896	
		1207.049	0.	82846.70	9	9	1.92E+04		4.19E-06	-4.423	-2.296	

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Fe III 3s23p63d6 5D J=4 GROUND IP = 247220+-100 cm-1 Ref E93,SC85												
1u	3d5(6S)4p 5Po		All Ref RU98,(E93)									
MltMean	1125.786	422.66	89249.49		25	15	4.71E+08		5.37E-02	0.128	1.782	
	1131.908	738.55	89084.95		5	7	1.32E+07		3.55E-03	-1.751	0.604	
	1131.189	932.06	89334.63		3	5	4.15E+07		1.33E-02	-1.400	1.176	
	1130.397	1027.00	89491.50		1	3	9.22E+07		5.30E-02	-1.276	1.777	
	1129.185	932.06	89491.50		3	3	2.08E+08		3.98E-02	-0.923	1.652	
	1128.718	738.55	89334.63		5	5	1.63E+08		3.11E-02	-0.808	1.546	
	1128.042	435.80	89084.95		7	7	9.40E+07		1.79E-02	-0.901	1.306	
	1126.723	738.55	89491.50		5	3	1.63E+08		1.86E-02	-1.031	1.322	
	1124.874	435.80	89334.63		7	5	2.64E+08		3.58E-02	-0.601	1.605	
	1122.524	0.	89084.95		9	7	3.70E+08		5.44E-02	-0.310	1.786	
Fe IV 3s23p63d5 6S J=5/2 GROUND IP = 442000+-1000 cm-1 No ground-term lines >911.7 A SC85												
Fe V 3s23p63d4 5D J=0 GROUND IP = 605000+-1200 cm-1 No ground-term lines >911.7 A SC85												
COBALT = Co Z = 27 A = 59:100%												
Co I 3s23p63d74s2 a 4F J=9/2 GROUND IP = 63564.6+-1 cm-1 Ref PT96,PG90												
1v	3d7(4F)4s4p(3Po) z 6Fo		All									
	4361.9276	4363.1535	1406.852	24326.055		6	8					
	4361.0262	4362.2519	1809.313	24733.253		4	6					
	4339.1343	4340.3543	816.000	23855.594		8	10					
	4303.2347	4304.4451	1809.313	25041.111		4	4					
	4285.7821	4286.9879	1406.852	24733.253		6	6					
	4268.0289	4269.2301	1809.313	25232.740		4	2					
	4252.3021	4253.4992	816.000	24326.055		8	8					
	4233.9973	4235.1896	0.	23611.694		10	12					
	4229.9548	4231.1460	1406.852	25041.111		6	4					
	4190.7080	4191.8889	0.	23855.594		10	10					
	4179.9041	4181.0822	816.000	24733.253		8	6					
	4109.6590	4110.8186	0.	24326.055		10	8					
2v	3d7(4F)4s4p(3Po) z 6Do		All									
	4198.4256	4199.6086	816.000	24627.743		8	10					
	4189.5218	4190.7024	1406.852	25269.200		6	8					
	4177.5918	4178.7693	1809.313	25739.804		4	6					
	4121.8976	4123.0605	1809.313	26063.141		4	4					
	4108.4941	4109.6534	1406.852	25739.804		6	6					
	4090.3049	4091.4595	1809.313	26250.469		4	2					
	4088.2903	4089.4443	816.000	25269.200		8	8					
	4059.3149	4060.4614	0.	24627.743		10	10					
	4054.6151	4055.7604	1406.852	26063.141		6	4					
	4011.0948	4012.2286	816.000	25739.804		8	6					
	3956.2673	3957.3869	0.	25269.200		10	8					
3v	3d7(4F)4s4p(3Po) z 6Go		All Ref CSSTW82=FMW88									
	4057.1970	4058.3429	1809.313	26449.912		4	6					
	4033.0248	4034.1644	1809.313	26597.594		4	4					
	4027.0321	4028.1701	1406.852	26232.020		6	8					
	3991.9934	3993.1222	1406.852	26449.912		6	6					
	3979.5183	3980.6439	816.000	25937.564		8	10	8.80E+04		2.61E-04	-2.680	0.017	0.13
	3968.5896	3969.7124	1406.852	26597.594		6	4					
	3933.4127	3934.5263	816.000	26232.020		8	8					
	3909.9343	3911.0418	0.	25568.635		10	12	1.10E+05		3.02E-04	-2.520	0.072	0.10
	3899.9774	3901.0823	816.000	26449.912		8	6					
	3854.3192	3855.4122	0.	25937.564		10	10					
	3811.0532	3812.1349	0.	26232.020		10	8					
4v	3d7(4F)4s4p(3Po) z 4Fo		All Ref NBL95,NKWL99									
MltMean	3565.767	3566.788	793.08	28829.51		28	28	1.28E+07		2.44E-02	-0.165	1.940	
	3652.5435	3653.5841	1406.852	28777.236		6	8	7.18E+05	1.27E+07	1.92E-03	-1.939	0.845	0.03
	3647.6623	3648.7017	1809.313	29216.322		4	6	8.27E+05	1.22E+07	2.48E-03	-2.004	0.956	0.03
	3631.3904	3632.4256	816.000	28345.814		8	10	5.73E+05	1.46E+07	1.42E-03	-1.946	0.712	0.03
	3602.0828	3603.1105	1809.313	29563.111		4	4	8.58E+06	1.22E+07	1.67E-02	-1.175	1.779	0.02
	3594.8716	3595.8974	1406.852	29216.322		6	6	7.36E+06	1.22E+07	1.43E-02	-1.067	1.710	0.02
	3575.3591	3576.3798	816.000	28777.236		8	8	8.70E+06	1.27E+07	1.67E-02	-0.875	1.776	0.02
	3550.5938	3551.6082	1406.852	29563.111		6	4	3.50E+06	1.22E+07	4.41E-03	-1.577	1.195	0.02
	3526.8495	3527.8578	0.	28345.814		10	10	1.37E+07	1.46E+07	2.56E-02	-0.592	1.955	0.02
	3520.0803	3521.0868	816.000	29216.322		8	6	3.79E+06	1.22E+07	5.28E-03	-1.374	1.270	0.02
	3473.9742	3474.9689	0.	28777.236		10	8	2.99E+06	1.27E+07	4.33E-03	-1.363	1.177	0.03

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Co I	3s23p63d74s2 a 4F J=9/2 GROUND IP = 63564.6+-1 cm-1							Ref PT96,PG90				
5v	3d7(4F)4s4p(3Po) z 4Go			All	Ref NBL95,NKWL99							
MltMean	3498.264	3499.269	793.08	29370.48	28	36	9.37E+06		2.21E-02	-0.208	1.889	
	3533.3584	3534.3683	1809.313	30102.912	4	6	8.30E+06	9.09E+06	2.33E-02	-1.030	1.916	0.02
	3529.0327	3530.0415	1406.852	29735.131	6	8	8.45E+06	9.26E+06	2.10E-02	-0.899	1.871	0.02
	3513.4797	3514.4845	816.000	29269.675	8	10	8.85E+06	9.43E+06	2.05E-02	-0.785	1.857	0.03
	3483.8018	3484.7990	1406.852	30102.912	6	6	2.43E+05	9.09E+06	4.42E-04	-2.576	0.188	0.02
	3465.7929	3466.7855	0.	28845.165	10	12	1.06E+07	1.10E+07	2.29E-02	-0.640	1.900	0.02
	3456.9283	3457.9186	816.000	29735.131	8	8	1.89E+05	9.26E+06	3.39E-04	-2.567	0.069	0.03
	3415.5256	3416.5053	0.	29269.675	10	10	3.24E+04	9.43E+06	5.67E-05	-3.246	-0.713	0.04
	3413.5153	3414.4945	816.000	30102.912	8	6	2.20E+04	9.09E+06	2.88E-05	-3.637	-1.007	0.05
	3362.0593	3363.0254	0.	29735.131	10	8	2.50E+03	9.26E+06	3.39E-06	-4.470	-1.943	0.07
6v	3d7(4F)4s4p(3Po) z 4Do			All	Ref CSSTW82=FMW88							
MltMean	3438.713	3439.699	793.08	29865.39	28	20	1.67E+07		2.11E-02	-0.228	1.861	
	3584.7961	3585.8192	1406.852	29294.482	6	8	2.00E+05		5.15E-04	-2.510	0.266	0.07
	3552.7190	3553.7339	1809.313	29948.730	4	6	2.06E+05		5.86E-04	-2.630	0.319	0.07
	3510.4191	3511.4231	816.000	29294.482	8	8	3.80E+06		7.03E-03	-1.250	1.392	0.07
	3502.6217	3503.6237	1406.852	29948.730	6	6	5.21E+06		9.59E-03	-1.240	1.526	0.07
	3491.3181	3492.3172	1809.313	30443.596	4	4	4.96E+06		9.08E-03	-1.440	1.501	0.07
	3455.2363	3456.2261	1809.313	30742.605	4	2	1.89E+07		1.69E-02	-1.170	1.767	0.11
	3442.9256	3443.9123	1406.852	30443.596	6	4	1.20E+07		1.42E-02	-1.070	1.689	0.07
	3431.5816	3432.5654	816.000	29948.730	8	6	1.08E+07		1.44E-02	-0.940	1.693	0.07
	3412.6332	3413.6122	0.	29294.482	10	8	1.19E+07		1.66E-02	-0.780	1.753	0.07
7v	3d7(4F)4s4p(3Po) z 2Go			All	Ref NBL95,NKWL99							
	3237.0263	3237.9605	816.000	31699.638	8	10	5.50E+05	2.38E+07	1.08E-03	-2.063	0.544	0.04
	3191.2979	3192.2206	1406.852	32733.008	6	8	6.60E+04	2.98E+07	1.34E-04	-3.093	-0.367	0.12
	3153.6970	3154.6102	0.	31699.638	10	10						
	3132.2180	3133.1258	816.000	32733.008	8	8	7.00E+04	2.98E+07	1.03E-04	-3.084	-0.491	0.06
	3054.1320	3055.0202	0.	32733.008	10	8	2.70E+04	2.98E+07	3.02E-05	-3.520	-1.035	0.07
8v	3d7(4F)4s4p(3Po) z 2Fo			All	Ref NBL95,NKWL99							
	3281.5888	3282.5344	1406.852	31871.118	6	8	1.30E+04	1.96E+07	2.80E-05	-3.775	-1.037	0.09
	3227.7534	3228.6853	1809.313	32781.672	4	6						
	3219.1515	3220.0811	816.000	31871.118	8	8	3.39E+05	1.96E+07	5.27E-04	-2.375	0.230	0.04
	3186.3479	3187.2693	1406.852	32781.672	6	6						
	3136.7281	3137.6370	0.	31871.118	10	8	1.59E+05	1.96E+07	1.88E-04	-2.726	-0.230	0.04
	3127.4494	3128.3559	816.000	32781.672	8	6						
9v	3d8(3F)4p y 4Do			All	Ref NBL95,NKWL99							
MltMean	3144.804	3145.716	793.08	32582.35	28	20						
	3264.8353	3265.7766	1406.852	32027.440	6	8						
	3241.0655	3242.0008	1809.313	32654.463	4	6						
	3203.0278	3203.9534	816.000	32027.440	8	8	7.10E+04	1.00E+08	1.09E-04	-3.058	-0.456	0.05
	3199.3200	3200.2447	1406.852	32654.463	6	6	7.90E+04	1.15E+08	1.21E-04	-3.138	-0.411	0.08
	3189.7556	3190.6778	1809.313	33150.616	4	4	2.88E+05	1.19E+08	4.40E-04	-2.755	0.147	0.04
	3159.6643	3160.5789	1809.313	33449.086	4	2						
	3149.3130	3150.2250	1406.852	33150.616	6	4	2.50E+06	1.19E+08	2.48E-03	-1.827	0.893	0.03
	3139.9454	3140.8551	816.000	32654.463	8	6	2.50E+06	1.15E+08	2.77E-03	-1.654	0.940	0.04
	3121.4176	3122.3226	0.	32027.440	10	8	2.50E+06	1.00E+08	2.92E-03	-1.534	0.960	0.05
10v	3d8(3F)4p y 4Go			All	Ref CSSTW82=FMW88,NBL95,NKWL99							
MltMean	3115.859	3116.768	793.08	32877.61	28	36						
	3158.7742	3159.6886	816.000	32464.688	8	10	2.26E+06	1.03E+08	4.24E-03	-1.470	1.127	0.03
	3137.3291	3138.2382	1809.313	33674.326	4	6	4.71E+06	1.45E+08	1.04E-02	-1.380	1.515	0.06
	3118.2502	3119.1544	1406.852	33466.823	6	8	2.31E+05	1.18E+08	4.49E-04	-2.570	0.146	0.06
	3098.1968	3099.0960	1406.852	33674.326	6	6	2.21E+06	1.45E+08	3.18E-03	-1.720	0.993	0.07
	3082.6184	3083.5137	0.	32430.535	10	12	2.67E+06	1.15E+08	4.57E-03	-1.340	1.149	0.07
	3079.3754	3080.2699	0.	32464.688	10	10						
	3061.8199	3062.7099	816.000	33466.823	8	8	1.58E+07	1.18E+08	2.22E-02	-0.750	1.833	0.05
	3042.4834	3043.3687	816.000	33674.326	8	6	1.86E+06	1.45E+08	1.94E-03	-1.810	0.770	0.06
	2987.1624	2988.0339	0.	33466.823	10	8	4.90E+06	1.18E+08	5.25E-03	-1.280	1.195	0.04
11v	3d8(3F)4p y 4Fo			All	Ref CSSTW82=FMW88							
MltMean	3069.083	3069.977	793.08	33366.62	28	28	1.78E+07		2.51E-02	-0.153	1.887	
	3147.0627	3147.9742	1406.852	33173.313	6	8	4.52E+06	1.33E+08	8.95E-03	-1.270	1.450	0.06
	3121.5661	3122.4712	816.000	32841.916	8	10	1.01E+06	1.33E+08	1.85E-03	-1.830	0.761	0.07
	3110.8210	3111.7233	1809.313	33945.846	4	6	2.63E+05	1.45E+08	5.73E-04	-2.640	0.251	0.07
	3089.5944	3090.4915	816.000	33173.313	8	8	2.35E+06	1.33E+08	3.36E-03	-1.570	1.017	0.06
	3086.7781	3087.6745	1809.313	34196.147	4	4	1.92E+07	1.56E+08	2.74E-02	-0.960	1.928	0.07
	3072.3431	3073.2358	1406.852	33945.846	6	6	1.48E+07	1.45E+08	2.10E-02	-0.900	1.809	0.06
	3048.8890	3049.7758	1406.852	34196.147	6	4	7.47E+06	1.56E+08	6.95E-03	-1.380	1.326	0.07
	3044.0037	3044.8893	0.	32841.916	10	10	1.85E+07	1.33E+08	2.57E-02	-0.590	1.894	0.06
	3017.5473	3018.4263	816.000	33945.846	8	6	6.86E+06	1.45E+08	7.03E-03	-1.250	1.327	0.06
	3013.5933	3014.4713	0.	33173.313	10	8	1.42E+06	1.33E+08	1.55E-03	-1.810	0.669	0.06
13v	3d8(3F)4p y 2Go			All	Ref CSSTW82=FMW88,NBL95,NKWL99							
	3064.3692	3065.2599	816.000	33439.661	8	10	5.50E+05	1.11E+08	9.68E-04	-2.111	0.473	0.07
	3054.7221	3055.6104	1406.852	34133.537	6	8	1.70E+05	1.04E+08	3.17E-04	-2.720	-0.013	0.07
	3000.5476	3001.4223	816.000	34133.537	8	8	7.40E+05	1.04E+08	9.99E-04	-2.097	0.477	0.04
	2989.5889	2990.4609	0.	33439.661	10	10	3.80E+06	1.11E+08	5.09E-03	-1.293	1.183	0.06
	2928.8131	2929.6700	0.	34133.537	10	8	2.20E+05	1.04E+08	2.26E-04	-2.645	-0.178	0.05

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Co I	3s23p63d74s2 a 4F J=9/2 GROUND IP = 63564.6+-1 cm-1						Ref PT96,PG90					
12v	3d7(4F)4s4p(3Po) z 2Do		All	Ref CSSTW82=FMW88								
	3158.2958	3159.2101	1809.313	33462.795	4	6	3.86E+03	1.54E+07	8.67E-06	-4.460	-1.562	0.27
	3118.6420	3119.5464	1406.852	33462.795	6	6	2.56E+04	1.54E+07	3.73E-05	-3.650	-0.934	0.14
	3071.9606	3072.8532	1809.313	34352.358	4	4	1.09E+06	2.94E+07	1.54E-03	-2.210	0.675	0.08
	3062.1976	3063.0878	816.000	33462.795	8	6	4.01E+05	1.54E+07	4.24E-04	-2.470	0.113	0.10
	3034.4321	3035.3153	1406.852	34352.358	6	4	1.44E+06	2.94E+07	1.32E-03	-2.100	0.604	0.07
	3d7(4P)4s4p(3Po) 6So		All									
	3124.7244	3125.6303	1809.313	33802.860	4	6						
	3085.9040	3086.8001	1406.852	33802.860	6	6						
	3030.6279	3031.5101	816.000	33802.860	8	6						
1u	3d8(3F)4p y 2Fo		All	Ref CSSTW82=FMW88								
	2936.5464	2937.4053	1406.852	35450.503	6	8						
	2895.9788	2896.8277	1809.313	36329.834	4	6						
	2886.4477	2887.2942	816.000	35450.503	8	8	1.62E+06	1.72E+08	2.03E-03	-1.790	0.767	0.07
	2862.6033	2863.4439	1406.852	36329.834	6	6	6.64E+05		8.16E-04	-2.310	0.369	0.10
	2820.0043	2820.8344	0.	35450.503	10	8						
	2814.9752	2815.8041	816.000	36329.834	8	6						
2u	3d8(3F)4p y 2Do		All									
	2916.0347	2916.8885	1809.313	36092.420	4	6						
	2882.1980	2883.0435	1406.852	36092.420	6	6						
	2850.9457	2851.7835	1809.313	36875.089	4	4						
	2833.9212	2834.7548	816.000	36092.420	8	6						
	2818.5942	2819.4240	1406.852	36875.089	6	4						
	3d7(4P)4s4p(3Po) 6Do		Part									
	2695.0880	2695.8879	1809.313	38902.844	4	6						
	2689.4340	2690.2325	1809.313	38980.822	4	4						
	2670.2518	2671.0457	1406.852	38845.373	6	8						
	2666.1588	2666.9517	1406.852	38902.844	6	6						
	2660.6254	2661.4169	1406.852	38980.822	6	4						
	2629.6721	2630.4563	816.000	38832.218	8	10						
	2628.7624	2629.5464	816.000	38845.373	8	8						
	2624.7955	2625.5785	816.000	38902.844	8	6						
	2574.4102	2575.1813	0.	38832.218	10	10						
	2573.5383	2574.3092	0.	38845.373	10	8						
3u	3d7(4F)4s4p(1Po) x 4Do		All	Ref CSSTW82=FMW88								
MltMean	2534.345	2535.108	793.08	40239.14	28	20						
	2614.1269	2614.9074	1406.852	39649.124	6	8						
	2594.1603	2594.9361	1809.313	40345.908	4	6						
	2574.3502	2575.1212	816.000	39649.124	8	8	1.74E+07		1.73E-02	-0.860	1.648	0.07
	2567.3463	2568.1157	1406.852	40345.908	6	6	3.00E+07		2.96E-02	-0.750	1.881	0.07
	2562.1253	2562.8935	1809.313	40827.712	4	4	3.93E+07		3.87E-02	-0.810	1.997	0.07
	2544.2547	2545.0186	1809.313	41101.756	4	2	3.03E+08		1.47E-01	-0.230	2.574	0.12
	2535.9660	2536.7280	1406.852	40827.712	6	4	1.92E+08		1.24E-01	-0.130	2.496	0.09
	2528.9698	2529.7301	816.000	40345.908	8	6	2.82E+08		2.03E-01	0.210	2.710	0.12
	2521.3652	2522.1238	0.	39649.124	10	8	3.00E+08		2.29E-01	0.360	2.762	0.12
4u	3d7(4P)4s4p(3Po) z 4So		All									
	2575.7331	2576.5045	1809.313	40621.588	4	4						
	2549.2967	2550.0618	1406.852	40621.588	6	4						
	3d7(4P)4s4p(3Po) 6Po		All	Ref CSSTW82=FMW88								
	2544.0503	2544.8142	1809.313	41104.912	4	6						
	2534.8463	2535.6081	1809.313	41247.585	4	4						
	2522.2959	2523.0547	1406.852	41041.348	6	8						
	2518.2569	2519.0148	1406.852	41104.912	6	6						
	2509.2382	2509.9940	1406.852	41247.585	6	4						
	2485.2445	2485.9947	816.000	41041.348	8	8						
	2481.3232	2482.0725	816.000	41104.912	8	6						
	2435.8283	2436.5671	0.	41041.348	10	8	1.89E+06		1.35E-03	-1.870	0.517	0.12
5u	3d7(4F)4s4p(1Po) x 4Fo		All	Ref CSSTW82=FMW88								
MltMean	2431.526	2432.268	793.08	41906.98	28	28						
	2473.9052	2474.6528	816.000	41225.710	8	10						
	2467.6887	2468.4348	1406.852	41918.353	6	8	7.02E+06		8.55E-03	-1.290	1.324	0.12
	2460.8032	2461.5477	1809.313	42434.160	4	6	1.18E+07		1.61E-02	-1.190	1.599	0.12
	2439.0398	2439.7794	1809.313	42796.626	4	4	2.68E+08		2.39E-01	-0.020	2.765	0.07
	2436.6620	2437.4010	1406.852	42434.160	6	6	2.64E+08		2.35E-01	0.150	2.759	0.12
	2432.2128	2432.9507	816.000	41918.353	8	8	2.56E+08		2.27E-01	0.260	2.743	0.12
	2424.9345	2425.6708	0.	41225.710	10	10	3.20E+08		2.82E-01	0.450	2.835	0.07
	2415.3216	2416.0557	1406.852	42796.626	6	4						
	2402.0661	2402.7972	816.000	42434.160	8	6	5.06E+07		3.29E-02	-0.580	1.898	0.09
	2384.8627	2385.5899	0.	41918.353	10	8	2.43E+07		1.66E-02	-0.780	1.598	0.07

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Co I	3s23p63d74s2 a 4F J=9/2 GROUND IP = 63564.6+-1 cm-1						Ref PT96,PG90					
6u	3d7(4F)4s4p(1Po) x 4Go		All	Ref CSSTW82=FMW88								
MltMean	2408.624	2409.362	793.08	42297.84	28	36						
	2415.2903	2416.0244	1809.313	43199.624	4	6	3.63E+08		4.76E-01	0.280	3.061	0.07
	2414.4626	2415.1965	1406.852	42811.351	6	8	3.35E+08		3.91E-01	0.370	2.975	0.09
	2411.6240	2412.3573	816.000	42269.229	8	10						
	2407.2552	2407.9875	0.	41528.455	10	12	3.64E+08		3.80E-01	0.580	2.962	0.09
	2392.0294	2392.7583	1406.852	43199.624	6	6	3.96E+07		3.40E-02	-0.690	1.911	0.12
	2380.4897	2381.2160	816.000	42811.351	8	8						
	2365.0644	2365.7872	0.	42269.229	10	10	1.28E+07		1.07E-02	-0.970	1.404	0.11
	2358.6805	2359.4018	816.000	43199.624	8	6						
	2335.1130	2335.8291	0.	42811.351	10	8						
7u	3d8(3P)4p z 4Po		All	Ref CSSTW82=FMW88								
	2489.3190	2490.0702	1809.313	41968.824	4	6						
	2489.2569	2490.0080	1809.313	41969.827	4	2						
	2488.4648	2489.2157	1809.313	41982.609	4	4						
	2464.6180	2465.3634	1406.852	41968.824	6	6						
	2463.7806	2464.5258	1406.852	41982.609	6	4						
	2429.2296	2429.9669	816.000	41968.824	8	6	4.73E+06		3.14E-03	-1.600	0.883	0.12
	3d7(2G)4s4p(3Po) 4Ho		Part									
	2391.3737	2392.1024	1406.852	43211.083	6	8						
	2370.5160	2371.2400	816.000	42988.029	8	10						
	2358.0429	2358.7641	816.000	43211.083	8	8						
	2332.0969	2332.8123	0.	42866.715	10	12						
	2325.5151	2326.2290	0.	42988.029	10	10						
	2313.5098	2314.2211	0.	43211.083	10	8						
9u	3d8(1D)4p z 2Po		All									
	2419.3497	2420.0847	1809.313	43130.181	4	2						
	2395.7229	2396.4525	1809.313	43537.659	4	4						
	2372.8355	2373.5600	1406.852	43537.659	6	4						
10u	3d7(4P)4s4p(3Po) w 4Do		All	Ref CSSTW82=FMW88								
MltMean	2350.256	2350.979	793.08	43328.55	28	20						
	2412.7672	2413.5007	1809.313	43242.903	4	6	6.47E+07		8.47E-02	-0.470	2.311	0.12
	2411.5676	2412.3009	1809.313	43263.512	4	4						
	2401.6012	2402.3322	1809.313	43435.530	4	2						
	2389.5547	2390.2830	1406.852	43242.903	6	6						
	2388.3781	2389.1061	1406.852	43263.512	6	4						
	2380.6964	2381.4227	1406.852	43398.557	6	8						
	2356.2743	2356.9950	816.000	43242.903	8	6						
	2347.6606	2348.3794	816.000	43398.557	8	8						
	2303.5150	2304.2241	0.	43398.557	10	8						
11u	3d7(2G)4s4p(3Po) w 4Fo		All	Ref CSSTW82=FMW88								
MltMean	2323.005	2323.722	793.08	43827.49	28	28						
	2358.1846	2358.9058	1809.313	44201.849	4	6	1.45E+07		1.81E-02	-1.140	1.631	0.12
	2355.4894	2356.2100	1406.852	43847.891	6	8	1.34E+07		1.49E-02	-1.050	1.544	0.12
	2353.3680	2354.0881	816.000	43295.293	8	10	1.48E+07		1.54E-02	-0.910	1.559	0.12
	2338.6650	2339.3819	1809.313	44555.647	4	4	7.65E+07		6.28E-02	-0.600	2.167	0.14
	2336.0055	2336.7217	1406.852	44201.849	6	6	5.11E+07		4.19E-02	-0.600	1.990	0.09
	2323.1445	2323.8579	816.000	43847.891	8	8	5.00E+07		4.04E-02	-0.490	1.973	0.07
	2316.8498	2317.5618	1406.852	44555.647	6	4						
	2309.0096	2309.7199	0.	43295.293	10	10	5.59E+07		4.47E-02	-0.350	2.014	0.05
	2304.1898	2304.8990	816.000	44201.849	8	6						
	2279.9075	2280.6114	0.	43847.891	10	8						
12u	3d8(1D)4p x 2Fo		All	Ref CSSTW82=FMW88								
	2402.1705	2402.9016	1809.313	43425.665	4	6						
	2379.1604	2379.8864	1406.852	43425.665	6	6						
	2371.8508	2372.5750	1406.852	43555.150	6	8	7.25E+06		8.16E-03	-1.310	1.287	0.12
	2346.1669	2346.8854	816.000	43425.665	8	6						
	2339.0582	2339.7751	816.000	43555.150	8	8						
	2295.2325	2295.9397	0.	43555.150	10	8	2.18E+07		1.38E-02	-0.860	1.501	0.07
13u	3d8(1D)4p x 2Do		All									
	2374.4594	2375.1843	1809.313	43911.309	4	4						
	2373.8662	2374.5909	1809.313	43921.830	4	6						
	2351.9746	2352.6944	1406.852	43911.309	6	4						
	2351.3925	2352.1122	1406.852	43921.830	6	6						
	2319.1593	2319.8718	816.000	43921.830	8	6						
14u	3d7(2G)4s4p(3Po) w 4Go		All	Ref CSSTW82=FMW88								
MltMean	2302.153	2302.867	793.08	44217.22	28	36						
	2337.9670	2338.6837	1809.313	44568.409	4	6						
	2325.5433	2326.2572	1406.852	44394.360	6	8	1.12E+07		1.21E-02	-1.140	1.449	0.12
	2316.1647	2316.8766	1406.852	44568.409	6	6						
	2305.1824	2305.8918	816.000	44183.169	8	10						
	2294.0099	2294.7169	816.000	44394.360	8	8						
	2284.8834	2285.5884	816.000	44568.409	8	6						
	2274.5114	2275.2141	0.	43951.907	10	12						
	2262.6051	2263.3053	0.	44183.169	10	10						
	2251.8405	2252.5384	0.	44394.360	10	8						

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Co I	3s23p63d74s2 a 4F J=9/2 GROUND IP = 63564.6+-1 cm-1							Ref PT96,PG90				
16,20	3d8(3P)4p 2Do			All								
	2278.3035	2279.0071	1809.313	45688.071	4	6						
	2257.5947	2258.2937	1406.852	45688.071	6	6						
	2252.7203	2253.4184	1809.313	46186.336	4	4						
	2232.4718	2233.1655	1406.852	46186.336	6	4						
	2227.8650	2228.5577	816.000	45688.071	8	6						
19u	3d8(3P)4p 4Do			All								
	2245.4718	2246.1683	1809.313	46329.575	4	6						
	2243.2561	2243.9521	1406.852	45971.083	6	8						
	2236.8045	2237.4991	1809.313	46502.068	4	2						
	2233.7696	2234.4636	1809.313	46562.784	4	4						
	2225.3527	2226.0449	1406.852	46329.575	6	6						
	2213.9003	2214.5901	816.000	45971.083	8	8						
	2213.8587	2214.5485	1406.852	46562.784	6	4						
	2196.4606	2197.1467	816.000	46329.575	8	6						
	2174.5989	2175.2805	0.	45971.083	10	8						
	3d7(4P)4s4p(3Po) 2Do			All								
	2239.1687	2239.8639	1809.313	46454.883	4	4						
	2228.3370	2229.0298	1809.313	46671.880	4	6						
	2219.1620	2219.8528	1406.852	46454.883	6	4						
	2208.5224	2209.2110	1406.852	46671.880	6	6						
	2180.0627	2180.7454	816.000	46671.880	8	6						
22u	3d8(3P)4p y 2Po			All								
	2227.6670	2228.3597	1809.313	46685.371	4	4						
	2207.8643	2208.5528	1406.852	46685.371	6	4						
	2207.7052	2208.3937	1809.313	47091.095	4	2						
23u	3d7(2P)4s4p(3Po) u 4Do			All								
	2198.7685	2199.4551	1406.852	46872.659	6	8						
	2193.0389	2193.7243	1809.313	47393.893	4	6						
	2182.5895	2183.2728	1809.313	47612.110	4	4						
	2173.8442	2174.5256	1406.852	47393.893	6	6						
	2170.5579	2171.2387	816.000	46872.659	8	8						
	2168.7107	2169.3910	1809.313	47905.198	4	2						
	2163.5765	2164.2559	1406.852	47612.110	6	4						
	2146.2655	2146.9413	816.000	47393.893	8	6						
	2132.7668	2133.4399	0.	46872.659	10	8						
	3d7(a2D)4s4p(3Po) 2Po			All								
		1917.4259	1809.313	53962.567	4	2						
		1910.0035	1809.313	54165.239	4	4						
		1895.4332	1406.852	54165.239	6	4						
	Unassigned odd level											
		1747.8951	1809.313	59020.985	4	6						
		1735.6852	1406.852	59020.985	6	6						
		1718.0659	816.000	59020.985	8	6						
Co II	3s23p63d8 a 3F J=4 GROUND		IP = 137795+-10 cm-1					Ref PRUJ98,SC85				
1u	3d7(4F)4p z 5Fo			All	Ref RPU98							
	2252.8314	2253.5295	1597.197	45972.033	5	7						
	2250.1137	2250.8112	950.324	45378.751	7	9						
	2228.6881	2229.3810	1597.197	46452.697	5	5						
	2220.4595	2221.1507	950.324	45972.033	7	7	2.92E+05		2.16E-04	-2.821	-0.320	
	2212.2283	2212.9177	1597.197	46786.406	5	3						
	2211.8122	2212.5016	0.	45197.708	9	11						
	2202.9871	2203.6746	0.	45378.751	9	9	4.25E+05		3.10E-04	-2.555	-0.166	
	2197.0013	2197.6876	950.324	46452.697	7	5						
	2174.5540	2175.2355	0.	45972.033	9	7						
	3d7(4F)4p z 5Do			All								
	2203.3875	2204.0751	950.324	46320.829	7	9						
	2199.9251	2200.6120	1597.197	47039.102	5	7						
	2176.0626	2176.7445	1597.197	47537.362	5	5						
	2169.0451	2169.7256	950.324	47039.102	7	7						
	2161.4094	2162.0883	1597.197	47848.778	5	3						
	2158.1778	2158.8560	0.	46320.829	9	9						
	2145.8441	2146.5198	950.324	47537.362	7	5						
	2125.2194	2125.8909	0.	47039.102	9	7						
2u	3d7(4F)4p z 5Go			All	Ref RPU98							
	2147.3791	2148.0551	1597.197	48150.937	5	7						
	2136.4783	2137.1521	1597.197	48388.439	5	5	3.28E+05		2.24E-04	-2.950	-0.319	
	2133.4721	2134.1453	950.324	47807.490	7	9	5.49E+05		4.82E-04	-2.472	0.012	
	2117.9464	2118.6166	950.324	48150.937	7	7	4.93E+05		3.32E-04	-2.634	-0.153	
	2111.4491	2112.1179	0.	47345.842	9	11	1.86E+06		1.52E-03	-1.863	0.507	
	2107.3415	2108.0096	950.324	48388.439	7	5						
	2091.0576	2091.7224	0.	47807.490	9	9	4.85E+05		3.18E-04	-2.543	-0.177	
	2076.1408	2076.8028	0.	48150.937	9	7						

Mult No.		Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Co II	3s23p63d8 a 3F J=4 GROUND		IP = 137795+-10 cm-1		Ref PRUJ98,SC85								
3u	3d7(4F)4p z 3Go			All	Ref MCL98,RPU98								
MltMean		2060.900	2061.564	697.06	49203.91	21	27						
		2065.5421	2066.2021	950.324	49348.301	7	9	1.48E+07	3.03E+08	1.22E-02	-1.070	1.400	0.05
		2063.7863	2064.4459	1597.197	50036.345	5	7	1.38E+07	2.86E+08	1.23E-02	-1.211	1.405	
		2058.8170	2059.4756	0.	48556.049	9	11	9.67E+06	2.78E+08	7.51E-03	-1.170	1.190	0.04
		2036.5853	2037.2399	950.324	50036.345	7	7	7.16E+06	2.86E+08	4.46E-03	-1.506	0.958	
		2025.7596	2026.4122	0.	49348.301	9	9	2.03E+07	3.03E+08	1.25E-02	-0.950	1.402	0.05
			1998.5473	0.	50036.345	9	7						
4u	3d7(4F)4p z 3Fo			All	Ref MCL98,RPU98								
MltMean		2018.801	2019.455	697.06	50215.37	21	21						
		2050.7361	2051.3933	950.324	49697.680	7	9	2.15E+05	3.45E+08	1.75E-04	-2.913	-0.446	
		2049.1735	2049.8304	1597.197	50381.721	5	7	1.79E+06	3.45E+08	1.58E-03	-2.103	0.510	
		2027.0404	2027.6932	1597.197	50914.322	5	5	8.73E+07	3.45E+08	5.38E-02	-0.570	2.038	0.04
		2022.3538	2023.0057	950.324	50381.721	7	7	7.53E+07	3.45E+08	4.62E-02	-0.490	1.971	0.04
		2011.5163	2012.1664	0.	49697.680	9	9	6.06E+07	3.45E+08	3.68E-02	-0.480	1.869	0.03
		2000.7930	2001.4411	950.324	50914.322	7	5	2.36E+06	3.45E+08	1.01E-03	-2.150	0.306	0.11
			1984.8468	0.	50381.721	9	7	5.21E+05	3.45E+08	2.39E-04	-2.667	-0.324	
5u	3d7(4F)4p z 3Do			All	Ref MLZF98,RPU98								
MltMean			1949.742	697.06	51985.89	21	15						
		2002.7546	2003.4031	1597.197	51512.265	5	7						
			1977.7722	950.324	51512.265	7	7						
			1975.0151	1597.197	52229.722	5	5	1.71E+06	4.35E+08	1.00E-03	-2.301	0.296	
			1957.4286	1597.197	52684.630	5	3	9.57E+07	4.17E+08	3.30E-02	-0.783	1.810	0.04
			1950.1009	950.324	52229.722	7	5	7.37E+07	4.35E+08	3.00E-02	-0.678	1.767	0.04
			1941.2852	0.	51512.265	9	7	7.74E+07	4.35E+08	3.40E-02	-0.514	1.820	0.04
	3d7(4P)4p z 5So			All									
			1837.7869	1597.197	56010.471	5	5						
			1816.1957	950.324	56010.471	7	5						
	3d7(4P)4p y 5Do			All									
			1676.6274	1597.197	61240.742	5	7						
			1676.0773	1597.197	61260.315	5	5						
			1673.5543	1597.197	61350.264	5	3						
			1658.6384	950.324	61240.742	7	7						
			1658.1001	950.324	61260.315	7	5						
			1654.5903	950.324	61388.246	7	9						
			1632.8999	0.	61240.742	9	7						
			1628.9763	0.	61388.246	9	9						
	3d7(4P)4p z 3So			One									
			1643.5778	1597.197	62440.074	5	3						
	3d7(2G)4p z 3Ho			All									
			1591.2826	950.324	63792.713	7	9						
			1579.6121	0.	63306.682	9	11						
			1567.5772	0.	63792.713	9	9						
	3d7(4P)4p z 5Po			All									
			1619.5084	1597.197	63344.329	5	7						
			1618.9054	1597.197	63367.329	5	5						
			1611.1364	1597.197	63665.188	5	3						
			1602.7181	950.324	63344.329	7	7						
			1602.1275	950.324	63367.329	7	5						
			1578.6733	0.	63344.329	9	7						
	3d7(2G)4p y 3Fo			All	Ref MLZF98								
MltMean			1575.916	697.06	64152.21	21	21						
			1598.4693	950.324	63510.176	7	9						
			1593.2992	1597.197	64360.046	5	7						
			1577.0452	950.324	64360.046	7	7	8.31E+07		3.10E-02	-0.664	1.689	0.04
			1576.7968	1597.197	65016.911	5	5	1.53E+08		5.70E-02	-0.545	1.954	0.04
			1574.5508	0.	63510.176	9	9	6.73E+07		2.50E-02	-0.648	1.595	0.04
			1560.8760	950.324	65016.911	7	5						
			1553.7590	0.	64360.046	9	7						
6u	3d7(4P)4p y 3Do			All	Ref MLZF98								
MltMean			1588.430	697.06	63652.29	21	15						
			1613.1690	1597.197	63586.983	5	7						
			1612.4146	1597.197	63615.986	5	5						
			1605.9621	1597.197	63865.166	5	3						
			1596.5092	950.324	63586.983	7	7						
			1595.7703	950.324	63615.986	7	5						
			1572.6489	0.	63586.983	9	7	4.16E+07		1.20E-02	-0.967	1.276	0.04
	3d7(2G)4p z 1Go			All	Ref MLZF98,RPU98								
			1576.0185	950.324	64401.355	7	9	1.70E+06		8.13E-04	-2.245	0.108	
			1552.7624	0.	64401.355	9	9	3.21E+07		1.16E-02	-0.981	1.256	0.03
	3d7(2G)4p y 3Go			All	Ref RPU98								
			1572.8845	1597.197	65174.657	5	7	1.54E+07		7.98E-03	-1.399	1.099	
			1557.5423	950.324	65154.037	7	9	1.50E+07		7.01E-03	-1.309	1.038	
			1557.0423	950.324	65174.657	7	7	3.07E+07		1.11E-02	-1.108	1.239	
			1547.9451	0.	64601.774	9	11	2.53E+07		1.11E-02	-1.000	1.236	
			1534.8243	0.	65154.037	9	9	6.60E+06		2.33E-03	-1.678	0.554	
			1534.3387	0.	65174.657	9	7	1.78E+06		4.87E-04	-2.358	-0.126	

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Co II	3s23p63d8 a 3F J=4 GROUND		IP = 137795+-10 cm-1				Ref PRUJ98,SC85					
	3d7(2P)4p z 3Po		All	Ref RPU98								
		1576.5085	1597.197	65028.508	5	3	2.05E+06		4.58E-04	-2.640	-0.141	
		1567.1239	1597.197	65408.361	5	5	1.15E+06		4.22E-04	-2.676	-0.180	
		1551.3969	950.324	65408.361	7	5	1.22E+06		3.15E-04	-2.656	-0.310	
	3d7(4P)4p y 3Po		All	Ref RPU98								
		1579.3440	1597.197	64914.626	5	5	2.30E+07		8.59E-03	-1.367	1.133	
		1563.3720	950.324	64914.626	7	5	2.54E+06		6.64E-04	-2.333	0.016	
		1561.0354	1597.197	65657.245	5	3						
	3d7(2G)4p z 1Ho		One	Ref RPU98								
		1539.4686	0.	64957.478	9	11	4.39E+06		1.90E-03	-1.766	0.467	
	3d7(2G)4p z 1Fo		All	Ref RPU98								
		1552.3022	1597.197	66017.643	5	7	7.59E+06		3.84E-03	-1.717	0.775	
		1536.8698	950.324	66017.643	7	7						
		1514.7466	0.	66017.643	9	7	4.17E+06		1.12E-03	-1.998	0.228	
	3d7(2P)4p z 1Do		All	Ref RPU98								
		1524.1101	1597.197	67209.253	5	5						
		1509.2306	950.324	67209.253	7	5	6.79E+07		1.66E-02	-0.936	1.398	
	3d7(2P)4p x 3Do		All	Ref MLZF98								
MltMean		1491.970	697.06	67722.54	21	15						
		1516.8334	1597.197	67524.016	5	7						
		1509.9539	1597.197	67824.384	5	3						
		1507.3369	1597.197	67939.365	5	5						
		1502.0949	950.324	67524.016	7	7						
		1492.7815	950.324	67939.365	7	5						
		1480.9546	0.	67524.016	9	7	4.65E+07		1.19E-02	-0.970	1.246	0.04
	3d7(2H)4p x 3Go		All	Ref MLZF98								
MltMean		1470.190	697.06	68715.46	21	27						
		1475.8179	1597.197	69356.235	5	7						
		1472.9037	950.324	68843.423	7	9						
		1466.2110	0.	68203.007	9	11	7.87E+07		3.10E-02	-0.554	1.658	0.04
		1461.8620	950.324	69356.235	7	7						
		1452.5716	0.	68843.423	9	9						
		1441.8314	0.	69356.235	9	7						
	3d7(2H)4p z 3Io		One									
		1452.8666	0.	68829.446	9	11						
	3d7(a2D)4p w 3Do		All	Ref MLZF98								
MltMean		1457.585	697.06	69303.67	21	15						
		1482.3021	1597.197	69059.828	5	7						
		1476.6714	1597.197	69317.072	5	3						
		1469.7276	1597.197	69637.018	5	5						
		1468.2239	950.324	69059.828	7	7						
		1455.8861	950.324	69637.018	7	5						
		1448.0198	0.	69059.828	9	7	3.23E+07		7.90E-03	-1.148	1.058	0.15
	3d7(a2D)4p x 3Fo		All	Ref RPU98								
MltMean		1434.316	697.06	70416.70	21	21	3.72E+07		1.15E-02	-0.618	1.216	
		1452.2148	1597.197	70457.533	5	7	5.83E+05		2.58E-04	-2.889	-0.426	
		1445.5532	1597.197	70774.864	5	5	2.71E+07		8.49E-03	-1.372	1.089	
		1444.3431	950.324	70185.950	7	9	4.86E+06		1.95E-03	-1.864	0.451	
		1438.6997	950.324	70457.533	7	7	2.95E+07		9.14E-03	-1.194	1.119	
		1432.1612	950.324	70774.864	7	5	8.75E+06		1.92E-03	-1.871	0.440	
		1424.7866	0.	70185.950	9	9	3.58E+07		1.09E-02	-1.008	1.192	
		1419.2947	0.	70457.533	9	7	3.73E+06		8.77E-04	-2.103	0.095	
	3d7(2P)4p y 3So		One	Ref RPU98								
		1456.2673	1597.197	70265.910	5	3	6.39E+06		1.22E-03	-2.215	0.249	
	3d7(2P)4p z 1Po		One	Ref RPU98								
		1443.8379	1597.197	70857.048	5	3	6.92E+07		1.30E-02	-1.188	1.273	
	3d7(a2D)4p x 3Po		All	Ref RPU98								
		1423.5030	1597.197	71846.436	5	5	1.63E+06		4.95E-04	-2.606	-0.152	
		1410.5146	950.324	71846.436	7	5	1.49E+06		3.18E-04	-2.653	-0.349	
		1397.6800	1597.197	73144.333	5	3	2.03E+06		3.57E-04	-2.748	-0.302	
	3d7(a2D)4p y 1Fo		All	Ref RPU98								
		1409.6836	1597.197	72535.103	5	7	1.75E+06		7.28E-04	-2.439	0.011	
		1396.9450	950.324	72535.103	7	7	2.71E+06		7.92E-04	-2.256	0.044	
		1378.6428	0.	72535.103	9	7						
	3d7(a2D)4p y 1Do		All	Ref RPU98								
		1407.3224	1597.197	72654.122	5	5	7.07E+05		2.10E-04	-2.979	-0.530	
		1394.6263	950.324	72654.122	7	5						
	3d7(2F)4p w 3Go		All	Ref RPU98								
MltMean		1207.406	697.06	83519.23	21	27						
		1226.79	1597.197	83110.656 +	5	7						
		1217.13	950.324	83110.656 +	7	7	8.40E+05		1.87E-04	-2.884	-0.644	
		1212.88	950.324	83398.693 +	7	9						
		1203.22	0.	83110.656 +	9	7						
		1199.06	0.	83398.693 +	9	9	1.29E+06		2.78E-04	-2.601	-0.476	
		1192.21	0.	83877.857 +	9	11						

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Co II 3s23p63d8 a 3F J=4 GROUND IP = 137795+-10 cm-1 Ref PRUJ98,SC85												
3d7(2F)4p w 3Fo Part Ref RPU98												
	1215.57	1597.197	83862.837 +		5	7	1.54E+06		4.78E-04	-2.622	-0.236	
	1206.09	950.324	83862.837 +		7	7	1.37E+07		2.98E-03	-1.681	0.555	
	1202.06	950.324	84140.647 +		7	9	1.03E+06		2.86E-04	-2.699	-0.464	
	1192.42	0.	83862.837 +		9	7						
	1188.49	0.	84140.647 +		9	9	1.09E+07		2.31E-03	-1.682	0.439	
3d7(2F)4p v 3Do All Ref RPU98												
MltMean	1195.893	697.06	84316.59		21	15						
	1210.37	1597.197	84216.732 +		5	7						
	1207.77	1597.197	84394.602 +		5	5	5.92E+06		1.29E-03	-2.189	0.194	
	1207.40	1597.197	84419.579 +		5	3	5.17E+07		6.78E-03	-1.470	0.913	
	1200.96	950.324	84216.732 +		7	7	1.94E+06		4.20E-04	-2.532	-0.298	
	1198.40	950.324	84394.602 +		7	5	4.10E+07		6.31E-03	-1.355	0.879	
	1187.41	0.	84216.732 +		9	7	4.52E+07		7.43E-03	-1.175	0.945	
3d7(4F)5p 5Fo All Ref RPU98												
	1053.7530	1597.197	96496.097		5	7						
	1052.3408	950.324	95976.573		7	9						
	1049.3866	1597.197	96890.960		5	5	1.22E+06		2.01E-04	-2.997	-0.675	
	1047.6026	0.	95456.041		9	11						
	1046.6188	950.324	96496.097		7	7	2.91E+06		4.79E-04	-2.475	-0.300	
	1046.5009	1597.197	97153.732		5	3						
	1042.3112	950.324	96890.960		7	5						
	1041.9209	0.	95976.573		9	9	5.31E+06		8.64E-04	-2.109	-0.045	
	1036.3113	0.	96496.097		9	7						
3d7(4F)5p 5Go All Ref RPU98												
	1044.5121	1597.197	97335.678		5	7						
	1042.4053	950.324	96882.304		7	9	3.12E+06		6.54E-04	-2.339	-0.166	
	1041.3279	1597.197	97628.427		5	5						
	1037.5020	950.324	97335.678		7	7	9.21E+05		1.49E-04	-2.983	-0.812	
	1034.3604	950.324	97628.427		7	5						
	1032.1802	0.	96882.304		9	9	1.34E+06		2.14E-04	-2.715	-0.655	
	1031.5433	0.	96942.124		9	11	3.70E+06		7.22E-04	-2.187	-0.128	
	1027.3725	0.	97335.678		9	7						
3d7(4F)5p 3Go All Ref RPU98												
MltMean	1035.643	697.06	97255.47		21	27						
	1039.1058	0.	96236.588		9	11	4.42E+06		8.74E-04	-2.104	-0.042	
	1034.3255	1597.197	98278.558		5	7	1.51E+06		3.40E-04	-2.770	-0.454	
	1033.5413	950.324	97705.049		7	9	2.81E+06		5.79E-04	-2.392	-0.223	
	1027.4511	950.324	98278.558		7	7	1.43E+07		2.26E-03	-1.800	0.367	
	1023.4886	0.	97705.049		9	9	8.72E+06		1.37E-03	-1.909	0.147	
	1017.5159	0.	98278.558		9	7	6.87E+06		8.29E-04	-2.127	-0.074	
3d7(4F)5p 3Fo All Ref RPU98												
MltMean	1031.364	697.06	97656.07		21	21	2.97E+17		4.74E+07	8.998	10.690	
	1040.4473	950.324	97062.837		7	9	4.21E+06		8.79E-04	-2.211	-0.039	
	1037.6620	1597.197	97967.690		5	7	5.47E+06		1.24E-03	-2.209	0.108	
	1034.2285	1597.197	98287.633		5	5	4.58E+07		7.35E-03	-1.435	0.881	
	1030.7433	950.324	97967.690		7	7	9.07E+06		1.45E-03	-1.995	0.173	
	1030.2604	0.	97062.837		9	9	5.37E+07		8.55E-03	-1.114	0.945	
	1020.7447	0.	97967.690		9	7	2.79E+07		3.39E-03	-1.516	0.539	
3d7(4F)5p 3Do Part Ref RPU98												
	1042.7613	1597.197	97496.421		5	7	2.65E+06		6.05E-04	-2.519	-0.200	
	1035.7747	950.324	97496.421		7	7	2.09E+07		3.36E-03	-1.629	0.541	
	1030.3828	1597.197	98648.509		5	5	7.42E+06		1.18E-03	-2.229	0.085	
	1025.6787	0.	97496.421		9	7	2.05E+07		2.51E-03	-1.646	0.411	
	1023.5605	950.324	98648.509		7	5	4.93E+07		5.53E-03	-1.412	0.753	
Co III 3s23p63d7 a 4F J=9/2 GROUND IP = 270200+-500 cm-1 Ref SC85												
3d6(5D)4p z 6Do Part Ref K98												
	1031.391	1867.5	98823.9		4	6	1.96E+04		4.69E-06	-4.727	-2.316	
	1029.920	1451.4	98546.3		6	8	2.50E+04		5.31E-06	-4.497	-2.262	
	1029.055	1867.5	99044.0		4	4	1.19E+05		1.89E-05	-4.122	-1.712	
	1027.587	1867.5	99182.9		4	2	1.13E+05		8.93E-06	-4.447	-2.037	
	1026.984	1451.4	98823.9		6	6	2.56E+05		4.04E-05	-3.615	-1.382	
	1026.173	841.5	98291.0		8	10	5.93E+03		1.17E-06	-5.029	-2.921	
	1024.668	1451.4	99044.0		6	4	3.30E+05		3.47E-05	-3.682	-1.450	
	1023.491	841.5	98546.3		8	8	2.94E+05		4.62E-05	-3.432	-1.325	
	1020.591	841.5	98823.9		8	6	6.97E+05		8.16E-05	-3.185	-1.079	
	1017.387	0.	98291.0		10	10	6.06E+04		9.40E-06	-4.027	-2.020	
	1014.751	0.	98546.3		10	8	1.08E+06		1.33E-04	-2.875	-0.869	

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Co III 3s23p63d7 a 4F J=9/2 GROUND IP = 270200+-500 cm-1 Ref SC85												
	3d6(5D)4p z 6Fo			All Ref K98								
		983.029	1867.5	103593.9	4	6	9.86E+04		2.14E-05	-4.067	-1.676	
		982.428	1867.5	103656.1	4	4	1.26E+05		1.83E-05	-4.136	-1.746	
		982.089	1867.5	103691.3	4	2	1.04E+07		7.52E-04	-2.522	-0.132	
		979.906	1451.4	103502.0	6	8	5.12E+05		9.84E-05	-3.229	-1.016	
		979.024	1451.4	103593.9	6	6	1.25E+05		1.80E-05	-3.967	-1.754	
		978.429	1451.4	103656.1	6	4	1.13E+07		1.08E-03	-2.189	0.023	
		975.177	841.5	103387.0	8	10	6.40E+05		1.14E-04	-3.040	-0.954	
		974.084	841.5	103502.0	8	8	2.10E+06		2.99E-04	-2.621	-0.535	
		973.213	841.5	103593.9	8	6	1.25E+07		1.33E-03	-1.973	0.112	
		968.567	0.	103245.3	10	12	1.80E+04		3.04E-06	-4.517	-2.531	
		967.240	0.	103387.0	10	10	8.75E+06		1.23E-03	-1.911	0.075	
		966.165	0.	103502.0	10	8	1.10E+07		1.23E-03	-1.911	0.074	
	3d6(5D)4p z 6Po			All Ref K98								
		965.643	1451.4	105009.3	6	8	6.30E+05		1.17E-04	-3.152	-0.945	
		960.630	1867.5	105965.8	4	6	7.65E+05		1.59E-04	-3.197	-0.817	
		959.990	841.5	105009.3	8	8	1.06E+07		1.47E-03	-1.931	0.148	
		956.806	1451.4	105965.8	6	6	1.24E+07		1.70E-03	-1.992	0.211	
		954.881	1867.5	106592.6	4	4	4.88E+06		6.67E-04	-2.574	-0.196	
		952.297	0.	105009.3	10	8	7.37E+07		8.02E-03	-1.096	0.883	
		951.255	841.5	105965.8	8	6	4.88E+07		4.96E-03	-1.401	0.674	
		951.102	1451.4	106592.6	6	4	1.72E+07		1.55E-03	-2.031	0.169	
1u	3d6(5D)4p z 4Do			All Ref K98								
MltMean		942.736	818.23	106892.43	28	20	1.01E+09		9.59E-02	0.429	1.956	
		952.036	1451.4	106489.4	6	8	9.90E+06		1.79E-03	-1.968	0.233	
		951.590	1867.5	106954.8	4	6	1.42E+07		2.90E-03	-1.936	0.440	
		948.499	1867.5	107297.2	4	4	2.36E+08		3.18E-02	-0.895	1.480	
		947.837	1451.4	106954.8	6	6	2.15E+08		2.90E-02	-0.760	1.439	
		946.608	1867.5	107507.9	4	2	1.03E+09		6.95E-02	-0.556	1.818	
		946.540	841.5	106489.4	8	8	1.47E+08		1.98E-02	-0.801	1.272	
		944.771	1451.4	107297.2	6	4	7.82E+08		6.98E-02	-0.378	1.819	
		942.389	841.5	106954.8	8	6	7.61E+08		7.60E-02	-0.216	1.855	
		939.061	0.	106489.4	10	8	8.49E+08		8.97E-02	-0.047	1.926	
2u	3d6(5D)4p z 4Fo			All Ref K98								
MltMean		937.422	818.23	107493.74	28	28	4.01E+08		5.28E-02	0.170	1.695	
		944.078	841.5	106765.0	8	10	3.29E+07		5.49E-03	-1.357	0.715	
		942.696	1451.4	107530.1	6	8	4.73E+07		8.41E-03	-1.297	0.899	
		941.748	1867.5	108053.0	4	6	4.70E+07		9.37E-03	-1.426	0.946	
		938.645	1867.5	108404.0	4	4	2.75E+08		3.64E-02	-0.837	1.533	
		938.072	1451.4	108053.0	6	6	2.20E+08		2.90E-02	-0.759	1.435	
		937.307	841.5	107530.1	8	8	2.48E+08		3.27E-02	-0.583	1.486	
		936.637	0.	106765.0	10	10	3.65E+08		4.80E-02	-0.319	1.653	
		934.994	1451.4	108404.0	6	4	1.19E+08		1.04E-02	-1.205	0.988	
		932.736	841.5	108053.0	8	6	1.35E+08		1.32E-02	-0.977	1.090	
		929.972	0.	107530.1	10	8	1.15E+08		1.19E-02	-0.925	1.043	
Co IV 3s23p63d6 5D J=4 GROUND IP = 413500+-800 cm-1 No ground-term lines >911.7 A SC85												
Co V 3s23p63d5 6S J=5/2 GROUND IP = 641000+-1600 cm-1 No ground-term lines >911.7 A SC85												
NICKEL = Ni Z = 28 A = 58:68.0769, 60:26.2231, 61:1.1399, 62:3.6345, 64:0.9256%												
Ni I 3s23p63d8(3F)4s2 3F J=4 GROUND IP = 61619.1+-1 cm-1 Ref LBT93,PG90												
1v	3d8(3F)4s4p(3Po) 5Do			All Ref BBPL89,BL93c,HS80=FMW88								
	4093.6157	4094.7712	1332.164	25753.553	7	9	9.02E+01		2.92E-07	-5.690	-2.923	0.11
	4088.9362	4090.0905	2216.550	26665.887	5	7						
	3967.3964	3968.5189	2216.550	27414.868	5	5						
	3946.1908	3947.3077	1332.164	26665.887	7	7	2.07E+02		4.84E-07	-5.470	-2.719	0.12
	3885.8697	3886.9709	2216.550	27943.524	5	3	4.05E+03		5.51E-06	-4.560	-1.669	0.10
	3881.8592	3882.9594	0.	25753.553	9	9						
	3832.8709	3833.9583	1332.164	27414.868	7	5	2.19E+04		3.44E-05	-3.618	-0.879	0.009
	3749.0440	3750.1096	0.	26665.887	9	7	3.15E+04		5.17E-05	-3.332	-0.712	0.009
2v	3d8(3F)4s4p(3Po) 5Go			All Ref BBPL89,BL93c,HS80,DK85=FMW88								
	3792.3386	3793.4155	2216.550	28578.018	5	7	3.81E+04		1.15E-04	-3.240	-0.360	0.09
	3739.2260	3740.2891	1332.164	28068.065	7	9	9.64E+04		2.60E-04	-2.740	-0.012	0.009
	3730.7480	3731.8089	2216.550	29013.206	5	5						
	3669.2382	3670.2832	1332.164	28578.018	7	7	1.49E+05		3.01E-04	-2.677	0.043	0.009
	3624.7309	3625.7644	0.	27580.391	9	11	1.71E+05		4.11E-04	-2.432	0.173	0.009
	3611.5507	3612.5808	1332.164	29013.206	7	5						
	3561.7506	3562.7679	0.	28068.065	9	9	2.93E+05		5.57E-04	-2.300	0.298	0.04
	3498.1921	3499.1930	0.	28578.018	9	7	1.12E+03		1.61E-06	-4.840	-2.250	0.12

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Ni I	3s23p63d8(3F)4s2 3F J=4 GROUND IP = 61619.1+-1 cm-1						Ref LBT93,PG90					
3v	3d8(3F)4s4p(3Po) 5Fo				All	Ref	BBPL89,BL93c,HS80,DK85=FMW88,					
	3620.0269	3621.0592	2216.550	29832.779	5	7	4.28E+03	1.41E+07	1.18E-05	-4.230	-1.370	0.09
	3602.2783	3603.3060	1332.164	29084.456	7	9	3.80E+05	3.22E+07	9.50E-04	-2.177	0.535	0.009
	3577.2349	3578.2561	2216.550	30163.124	5	5	1.58E+04	5.26E+06	3.03E-05	-3.820	-0.965	0.09
	3548.1750	3549.1887	2216.550	30392.003	5	3						
	3507.6929	3508.6962	1332.164	29832.779	7	7	2.39E+05	1.41E+07	4.41E-04	-2.510	0.190	0.04
	3502.5938	3503.5958	0.	28542.105	9	11	1.46E+05		3.28E-04	-2.530	0.060	0.04
	3467.5006	3468.4936	1332.164	30163.124	7	5	1.16E+06	5.26E+06	1.50E-03	-1.980	0.715	0.05
	3437.2774	3438.2627	0.	29084.456	9	9	4.03E+06	3.22E+07	7.14E-03	-1.192	1.390	0.009
	3351.0544	3352.0176	0.	29832.779	9	7	2.81E+03	1.41E+07	3.68E-06	-4.480	-1.909	0.09
4v	3d9(2D)4p 3Po				All	Ref	BBPL89,BL93c					
	3793.6071	3794.6844	2216.550	28569.203	5	5	9.84E+04	1.19E+08	2.12E-04	-2.974	-0.094	0.009
	3670.4258	3671.4710	1332.164	28569.203	7	5	4.09E+05	1.19E+08	5.90E-04	-2.384	0.336	0.009
	3664.0914	3665.1351	2216.550	29500.674	5	3	1.27E+06	1.20E+08	1.53E-03	-2.115	0.750	0.009
5v	3d9(2D)4p 3Fo				All	Ref	BBPL89,BL93c,HS80=FMW88					
MltMean	3480.067	3481.066	971.80	29698.63	21	21	6.42E+06		1.17E-02	-0.611	1.608	
	3688.4135	3689.4635	2216.550	29320.762	5	7	3.27E+05	8.06E+07	9.33E-04	-2.331	0.537	0.009
	3571.8637	3572.8835	1332.164	29320.762	7	7	5.42E+06	8.06E+07	1.04E-02	-1.139	1.569	0.009
	3551.5316	3552.5462	1332.164	29480.989	7	9	1.21E+05	6.99E+07	2.95E-04	-2.685	0.020	0.009
	3519.7653	3520.7717	2216.550	30619.414	5	5	4.22E+06	8.26E+07	7.83E-03	-1.407	1.441	0.009
	3413.4759	3414.4551	1332.164	30619.414	7	5	3.79E+06	8.26E+07	4.73E-03	-1.480	1.208	0.10
	3409.5744	3410.5526	0.	29320.762	9	7	2.89E+05	8.06E+07	3.92E-04	-2.452	0.127	0.009
	3391.0430	3392.0165	0.	29480.989	9	9	5.79E+06	6.99E+07	9.99E-03	-1.046	1.530	0.009
6v	3d9(2D)4p 3Do				All	Ref	BBPL89,BL93c,HS80,DK85=FMW88					
MltMean	3445.021	3446.010	971.80	29990.87	21	15	1.47E+07		1.87E-02	-0.406	1.809	
	3641.6385	3642.6763	2216.550	29668.893	5	7	8.44E+03	6.02E+07	2.35E-05	-3.930	-1.068	0.09
	3612.7404	3613.7707	2216.550	29888.477	5	5	3.99E+06	6.37E+07	7.82E-03	-1.408	1.451	0.009
	3527.9803	3528.9888	1332.164	29668.893	7	7	4.20E+05	6.02E+07	7.85E-04	-2.260	0.443	0.06
	3500.8511	3501.8526	1332.164	29888.477	7	5	5.72E+06	6.37E+07	7.51E-03	-1.279	1.420	0.009
	3483.7766	3484.7738	2216.550	30912.817	5	3	1.42E+07	5.18E+07	1.55E-02	-1.110	1.733	0.10
	3369.5656	3370.5336	0.	29668.893	9	7	1.84E+07	6.02E+07	2.43E-02	-0.660	1.913	0.05
7v	3d8(3F)4s4p(3Po) 3Go				All	Ref	BBPL89,BL93c,HS80,DK85=FMW88					
MltMean	3310.981	3311.940	971.80	31165.59	21	27	4.32E+06		9.14E-03	-0.717	1.481	
	3380.8794	3381.8503	2216.550	31786.162	5	7	3.81E+06	5.18E+06	9.14E-03	-1.340	1.490	0.11
	3371.9875	3372.9560	1332.164	30979.749	7	9	2.59E+06	3.28E+06	5.69E-03	-1.400	1.283	0.11
	3282.6953	3283.6411	1332.164	31786.162	7	7	5.97E+05	5.18E+06	9.66E-04	-2.170	0.501	0.04
	3232.9335	3233.8667	0.	30922.734	9	11	5.63E+06	5.94E+06	1.08E-02	-1.013	1.542	0.009
	3226.9834	3227.9151	0.	30979.749	9	9	2.25E+05	3.28E+06	3.51E-04	-2.500	0.055	0.17
	3145.1121	3146.0231	0.	31786.162	9	7	2.11E+04	5.18E+06	2.43E-05	-3.660	-1.116	0.09
8v	3d9(2D)4p 1Fo				All	Ref	BBPL89,BL93c					
	3469.4850	3470.4785	2216.550	31031.020	5	7	1.20E+06	9.35E+07	3.03E-03	-1.820	1.021	0.009
	3366.1660	3367.1331	1332.164	31031.020	7	7	3.18E+06	9.35E+07	5.41E-03	-1.422	1.260	0.009
	3221.6515	3222.5818	0.	31031.020	9	7	1.14E+06	9.35E+07	1.38E-03	-1.905	0.649	0.009
9v	3d9(2D)4p 1Do				All	Ref	BBPL89,BL93c					
	3420.7370	3421.7180	2216.550	31441.635	5	5	5.84E+04	6.58E+07	1.03E-04	-3.290	-0.455	0.009
	3320.2587	3321.2141	1332.164	31441.635	7	5	4.63E+06	6.58E+07	5.47E-03	-1.417	1.259	0.009
10v	3d9(2D)4p 1Po				One	Ref	DK85=FMW88					
	3249.4346	3250.3719	2216.550	32982.260	5	3	4.10E+05	1.52E+08	3.90E-04	-2.710	0.103	0.02
11,12	3d8(3F)4s4p(3Po) 3Fo				All	Ref	BBPL89,BL93c,DK85=FMW88					
MltMean	3092.087	3092.988	971.80	33303.00	21	21	2.69E+06		3.86E-03	-1.092	1.076	
	3235.7537	3236.6876	2216.550	33112.334	5	7	6.44E+04	1.12E+08	1.42E-04	-3.150	-0.339	0.03
	3159.5206	3160.4352	1332.164	32973.376	7	9	2.95E+04	6.49E+07	5.69E-05	-3.400	-0.745	0.03
	3145.7051	3146.6163	1332.164	33112.334	7	7	4.19E+05	1.12E+08	6.22E-04	-2.361	0.292	0.009
	3129.3054	3130.2124	2216.550	34163.264	5	5	3.93E+05	9.62E+07	5.77E-04	-2.540	0.257	0.009
	3045.0066	3045.8925	1332.164	34163.264	7	5	2.24E+06	9.62E+07	2.23E-03	-1.807	0.832	0.009
	3031.8672	3032.7498	0.	32973.376	9	9	1.09E+06	6.49E+07	1.51E-03	-1.868	0.660	0.009
	3019.1433	3020.0227	0.	33112.334	9	7	4.69E+06	1.12E+08	4.99E-03	-1.348	1.178	0.009
12,11	3d8(3F)4s4p(3Po) 3Do				All	Ref	BBPL89,BL93c,DK85=FMW88					
MltMean	3052.801	3053.691	971.80	33719.06	21	15	5.13E+06		5.13E-03	-0.968	1.195	
	3195.5707	3196.4944	2216.550	33500.822	5	7	5.75E+05	1.08E+08	1.23E-03	-2.210	0.596	0.02
	3184.3666	3185.2875	2216.550	33610.890	5	5	7.48E+05	1.25E+08	1.14E-03	-2.245	0.559	0.009
	3107.7143	3108.6158	1332.164	33500.822	7	7	1.33E+05	1.08E+08	1.93E-04	-2.870	-0.223	0.02
	3105.4603	3106.3613	2216.550	34408.555	5	3	7.10E+06	1.45E+08	6.17E-03	-1.511	1.282	0.009
	3097.1168	3098.0157	1332.164	33610.890	7	5	4.26E+06	1.25E+08	4.37E-03	-1.514	1.132	0.009
	2984.1307	2985.0014	0.	33500.822	9	7	3.44E+06	1.08E+08	3.58E-03	-1.492	1.029	0.009
13v	3d8(3F)4s4p(3Po) 1Go				All	Ref	DK85=FMW88					
	3099.1100	3100.0095	1332.164	33590.130	7	9	2.08E+06	1.09E+07	3.85E-03	-1.570	1.076	0.02
	2976.1963	2977.0650	0.	33590.130	9	9						
14=1u	3d8(3F)4s4p(3Po) 1Fo				All	Ref	DK85=FMW88					
	2991.1175	2991.9900	2216.550	35639.122	5	7	1.22E+05		2.30E-04	-2.940	-0.163	0.06
	2914.0073	2914.8606	1332.164	35639.122	7	7	5.75E+05		7.33E-04	-2.290	0.330	0.04
	2805.0788	2805.9053	0.	35639.122	9	7	8.77E+05		8.05E-04	-2.140	0.354	0.05
2u	3d8(3F)4s4p(3Po) 1Do				All	Ref	DK85=FMW88					
	2907.4574	2908.3091	2216.550	36600.791	5	5	1.99E+06		2.52E-03	-1.900	0.865	0.07
	2834.5474	2835.3811	1332.164	36600.791	7	5	6.61E+05		5.69E-04	-2.400	0.208	0.07

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Ni I	3s23p63d8(3F)4s2 3F J=4 GROUND IP = 61619.1+-1 cm-1						Ref LBT93,PG90					
3,4u	3d8(3P)4s4p(3Po) 5Po		All	Ref HS80=FMW88								
MltMean	2530.114	2530.878	971.80	40483.79	21	15						
	2620.8142	2621.5963	2216.550	40361.249	5	7						
	2612.3924	2613.1724	2216.550	40484.212	5	5						
	2593.0937	2593.8691	2216.550	40768.996	5	3						
	2561.4238	2562.1918	1332.164	40361.249	7	7	3.73E+05		3.67E-04	-2.590	-0.026	0.22
	2553.3787	2554.1448	1332.164	40484.212	7	5	6.04E+05		4.22E-04	-2.530	0.032	0.22
	2476.8758	2477.6240	0.	40361.249	9	7	2.58E+06		1.84E-03	-1.780	0.660	0.11
	3d8(1D)4s4p(3Po) 3Fo		All	Ref HS80=FMW88								
	2465.2664	2466.0120	2216.550	42767.853	5	7						
	2453.9885	2454.7315	2216.550	42954.203	5	5						
	2423.3274	2424.0633	1332.164	42585.212	7	9						
	2412.6450	2413.3785	1332.164	42767.853	7	7						
	2401.8423	2402.5733	1332.164	42954.203	7	5						
	2347.5142	2348.2330	0.	42585.212	9	9	2.23E+07		1.84E-02	-0.780	1.636	0.22
	2337.4882	2338.2048	0.	42767.853	9	7						
	3d8(1D)4s4p(3Po) 3Do		All	Ref HS80=FMW88								
MltMean	2399.238	2399.973	971.80	42638.94	21	15						
	2474.2277	2474.9753	2216.550	42620.994	5	7						
	2472.2287	2472.9759	2216.550	42653.661	5	5						
	2472.0680	2472.8152	2216.550	42656.289	5	3						
	2421.2271	2421.9626	1332.164	42620.994	7	7						
	2419.3128	2420.0479	1332.164	42653.661	7	5	1.98E+07		1.24E-02	-1.060	1.479	0.27
	2345.5432	2346.2616	0.	42620.994	9	7	2.23E+08		1.43E-01	0.110	2.526	0.10
	3d8(3F)4s4p(1Po) 3Go		All	Ref HS80=FMW88								
MltMean	2329.804	2330.527	971.80	43880.55	21	27						
	2360.6377	2361.3595	2216.550	44565.037	5	7						
	2325.8012	2326.5152	1332.164	44314.904	7	9	3.52E+08		3.67E-01	0.410	2.932	0.10
	2320.0341	2320.7468	0.	43089.578	9	11	6.94E+08		6.85E-01	0.790	3.201	0.11
	2312.3437	2313.0547	1332.164	44565.037	7	7	5.50E+08		4.41E-01	0.490	3.009	0.11
	2255.8784	2256.5772	0.	44314.904	9	9						
	2243.2155	2243.9115	0.	44565.037	9	7						
	3d8(3F)4s4p(1Po) 3Fo		All	Ref HS80=FMW88								
MltMean	2299.437	2300.154	971.80	44447.15	21	21						
	2384.3957	2385.1228	1332.164	43258.726	7	9						
	2321.3831	2322.0961	2216.550	45281.089	5	7	5.59E+08		6.32E-01	0.500	3.167	0.27
	2313.9827	2314.6940	2216.550	45418.804	5	5	4.97E+08		3.99E-01	0.300	2.966	0.27
	2310.9616	2311.6723	0.	43258.726	9	9						
	2274.6657	2275.3685	1332.164	45281.089	7	7	5.19E+06		4.03E-03	-1.550	0.962	0.22
	2267.5596	2268.2609	1332.164	45418.804	7	5	8.01E+06		4.41E-03	-1.510	1.001	0.22
	2207.7390	2208.4275	0.	45281.089	9	7						
	3d8(1D)4s4p(3Po) 3Po		Part	Ref HS80=FMW88								
	2423.6574	2424.3934	2216.550	43463.981	5	3						
	2396.3826	2397.1125	2216.550	43933.408	5	5						
	2346.6307	2347.3493	1332.164	43933.408	7	5	5.55E+07		3.27E-02	-0.640	1.885	0.22
	3d8(3F)4s4p(1Po) 3Do		All	Ref HS80=FMW88								
MltMean	2311.426	2312.139	971.80	44221.80	21	15						
	2412.4899	2413.2233	2216.550	43654.903	5	7						
	2365.6622	2366.3851	2216.550	44475.099	5	5						
	2362.0740	2362.7960	1332.164	43654.903	7	7						
	2329.9705	2330.6854	2216.550	45122.383	5	3	5.27E+08		2.58E-01	0.110	2.779	0.10
	2317.1645	2317.8766	1332.164	44475.099	7	5	3.76E+08		2.16E-01	0.180	2.700	0.10
	2289.9873	2290.6934	0.	43654.903	9	7	2.09E+08		1.28E-01	0.060	2.466	0.10
	3d8(3P)4s4p(3Po) 5Do		All	Ref HS80=FMW88								
	2387.2052	2387.9329	2216.550	44093.773	5	5						
	2385.0137	2385.7409	2216.550	44132.250	5	3						
	2380.8187	2381.5450	2216.550	44206.099	5	7						
	2337.8296	2338.5462	1332.164	44093.773	7	5						
	2331.7041	2332.4195	1332.164	44206.099	7	7						
	2313.6556	2314.3669	1332.164	44540.525	7	9						
	2261.4314	2262.1313	0.	44206.099	9	7	9.12E+06		5.44E-03	-1.310	1.090	0.10
	2244.4501	2245.1464	0.	44540.525	9	9						
15u	3d8(3P)4s4p(3Po) 3Po		All	Ref HS80=FMW88								
	2256.3157	2257.0146	2216.550	46522.866	5	5						
	2221.9457	2222.6372	2216.550	47208.149	5	3	2.15E+07		9.57E-03	-1.320	1.328	0.17
	2212.1552	2212.8446	1332.164	46522.866	7	5	5.82E+06		3.05E-03	-1.670	0.830	0.20
16u	3d8(3P)4s4p(3Po) 3Do		All	Ref HS80=FMW88								
MltMean	2165.053	2165.738	971.80	47145.45	21	15						
	2230.7745	2231.4678	2216.550	47030.102	5	7						
	2225.3496	2226.0418	2216.550	47139.337	5	5						
	2211.2971	2211.9864	2216.550	47424.785	5	3						
	2187.5983	2188.2825	1332.164	47030.102	7	7						
	2182.3810	2183.0642	1332.164	47139.337	7	5	1.34E+07		6.84E-03	-1.320	1.174	0.10
	2125.6261	2126.2977	0.	47030.102	9	7	5.06E+06		2.67E-03	-1.620	0.753	0.10
	3d8(3P)4s4p(3Po) 5So		All									
	2216.0034	2216.6936	2216.550	47328.784	5	5						
	2173.3915	2174.0728	1332.164	47328.784	7	5						

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Ni I	3s23p63d8(3F)4s2 3F J=4 GROUND IP = 61619.1+-1 cm-1							Ref LBT93,PG90				
	3d9(2D)5p 1Fo			All	Ref HS80=FMW88							
	2151.9208	2152.5977	2216.550	48672.049	5	7	3.19E+06		3.10E-03	-1.810	0.824	0.10
	2111.7148	2112.3837	1332.164	48672.049	7	7	6.45E+06		4.31E-03	-1.520	0.960	0.10
	2053.9095	2054.5673	0.	48672.049	9	7	7.47E+05		3.68E-04	-2.480	-0.122	0.17
	3d9(2D)5p 3Fo			All	Ref HS80=FMW88							
MltMean	2059.720	2060.380	971.80	49506.53	21	21						
	2109.7743	2110.4428	1332.164	48715.586	7	9	1.52E+06		1.30E-03	-2.040	0.439	0.11
	2090.3950	2091.0598	2216.550	50039.191	5	5						
	2085.8671	2086.5309	2216.550	50142.991	5	7						
	2052.4344	2053.0918	1332.164	50039.191	7	5	3.16E+06		1.43E-03	-2.000	0.467	0.11
	2052.0737	2052.7311	0.	48715.586	9	9	9.67E+06		6.11E-03	-1.260	1.098	0.11
	2048.0691	2048.7258	1332.164	50142.991	7	7						
		1994.2967	0.	50142.991	9	7	5.75E+06		2.67E-03	-1.620	0.726	0.10
	3d9(2D)5p 3Po			All								
	2148.9950	2149.6713	2216.550	48735.290	5	5						
	2127.9100	2128.5821	2216.550	49196.181	5	3						
	2108.8972	2109.5655	1332.164	48735.290	7	5						
	3d8(3P)4s4p(3Po) 1Po			One								
	2145.1759	2145.8515	2216.550	48818.097	5	3						
	3d9(2D)5p 1Do			All								
	2135.3311	2136.0047	2216.550	49032.926	5	5						
	2095.7368	2096.4026	1332.164	49032.926	7	5						
	3d8(3P)4s4p(3Po) 1Do			All	Ref HS80=FMW88							
	2128.4103	2129.0825	2216.550	49185.138	5	5	5.61E+06		3.81E-03	-1.720	0.909	0.10
	2089.0698	2089.7343	1332.164	49185.138	7	5	9.66E+06		4.52E-03	-1.500	0.975	0.17
	3d9(2D)5p 3Do			All	Ref HS80=FMW88							
MltMean	2035.393	2036.049	971.80	50086.53	21	15						
	2121.9490	2122.6199	2216.550	49328.140	5	7						
	2082.8447	2083.5080	1332.164	49328.140	7	7	8.54E+06		5.56E-03	-1.410	1.064	0.10
	2062.3474	2063.0067	2216.550	50689.489	5	5	4.64E+06		2.96E-03	-1.830	0.786	0.27
	2055.4892	2056.1473	2216.550	50851.199	5	3	3.32E+07		1.26E-02	-1.200	1.414	0.10
	2026.5877	2027.2404	0.	49328.140	9	7	2.43E+07		1.16E-02	-0.980	1.373	0.11
	2025.3892	2026.0417	1332.164	50689.489	7	5	2.30E+07		1.01E-02	-1.150	1.312	0.22
	3d8(3P)4s4p(3Po) 3So			One								
	2118.5649	2119.2351	2216.550	49403.386	5	3						
	3d9(2D)5p 1Po			One								
	2072.2367	2072.8979	2216.550	50458.192	5	3						
23u	3d8(1G)4s4p(3Po) 3Fo			All	Ref HS80=FMW88							
MltMean		1997.553	971.80	51033.05	21	21						
	2043.9947	2044.6506	2216.550	51124.662	5	7						
	2034.8864	2035.5407	2216.550	51343.547	5	5						
	2021.3010	2021.9528	1332.164	50789.303	7	9						
	2007.6853	2008.3347	1332.164	51124.662	7	7	8.98E+06		5.43E-03	-1.420	1.038	0.10
		1999.5448	1332.164	51343.547	7	5						
		1968.9185	0.	50789.303	9	9	4.48E+06		2.60E-03	-1.630	0.710	0.10
		1956.0032	0.	51124.662	9	7						
	3d8(1G)4s4p(3Po) 3Go			Part								
		1840.6416	0.	54328.882	9	11						
	3d8(3F)4s(4F)5p 5Do			All								
		1850.2949	2216.550	56261.989	5	7						
		1844.1757	1332.164	55556.931	7	9						
		1820.5046	1332.164	56261.989	7	7						
		1808.3041	2216.550	57516.982	5	3						
		1799.9554	0.	55556.931	9	9						
		1777.3989	0.	56261.989	9	7						
		1732.3827	2216.550	59940.517	5	5						
		1706.2414	1332.164	59940.517	7	5						
	3d8(3F)4s(4F)5p 5Fo			All								
		1825.9082	2216.550	56983.815	5	7						
		1817.9518	1332.164	56339.123	7	9						
		1807.9676	2216.550	57527.275	5	5						
		1796.8919	1332.164	56983.815	7	7						
		1793.6633	0.	55751.823	9	11						
		1792.8722	2216.550	57992.973	5	3						
		1779.5142	1332.164	57527.275	7	5						
		1774.9655	0.	56339.123	9	9						
		1754.8843	0.	56983.815	9	7						
	3d8(3F)4s(4F)5p 5Go			All								
		1807.3004	2216.550	57547.696	5	7						
		1798.4732	1332.164	56934.882	7	9						
		1794.3933	2216.550	57945.693	5	5						
		1778.8678	1332.164	57547.696	7	7						
		1777.9742	0.	56243.785	9	11						
		1766.3622	1332.164	57945.693	7	5						
		1756.3925	0.	56934.882	9	9						
		1737.6890	0.	57547.696	9	7						

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Ni I	3s23p63d8(3F)4s2 3F J=4 GROUND IP = 61619.1+-1 cm-1							Ref LBT93,PG90				
	3d8(3F)4s(4F)5p 3Go		Part									
		1760.4640	1332.164	58135.369	7	9						
		1746.6678	0.	57251.871	9	11						
		1720.1233	0.	58135.369	9	9						
	3d8(3F)4s(4F)5p 3Fo		Part									
		1780.2457	1332.164	57504.186	7	9						
		1775.5964	2216.550	58535.655	5	7						
		1748.1451	1332.164	58535.655	7	7						
		1739.0038	0.	57504.186	9	9						
		1708.3605	0.	58535.655	9	7						
	3d8(1D)4s4p(1P) 1Po		One									
		1765.2232	2216.550	58866.611	5	3						
Ni I	3d9(2D)4s 3D J=1,2,3							Ref LBT93 Excited lower term				
15v	3d8(3F)4s4p(3Po) 5Do		All	Ref HS80=FMW88								
	3912.9751	3914.0834	204.787	25753.553	7	9						
	3889.6788	3890.7810	1713.087	27414.868	3	5						
	3876.9638	3878.0627	879.816	26665.887	5	7						
	3811.2832	3812.3650	1713.087	27943.524	3	3						
	3778.0592	3779.1324	204.787	26665.887	7	7						
	3772.5258	3773.5976	1713.087	28212.998	3	1						
	3767.5297	3768.6001	879.816	27414.868	5	5						
	3693.9338	3694.9852	879.816	27943.524	5	3						
	3674.0623	3675.1085	204.787	27414.868	7	5	2.66E+05		3.85E-04	-2.570	0.150	0.22
16v	3d8(3F)4s4p(3Po) 5Go		All	Ref HS80,DK85=FMW88								
	3661.9446	3662.9877	1713.087	29013.206	3	5						
	3609.3132	3610.3426	879.816	28578.018	5	7	5.94E+05		1.63E-03	-2.090	0.769	0.06
	3587.9292	3588.9532	204.787	28068.065	7	9	2.63E+05		6.53E-04	-2.340	0.370	0.04
	3553.4801	3554.4952	879.816	29013.206	5	5						
	3523.4414	3524.4488	204.787	28578.018	7	7	2.72E+05		5.07E-04	-2.450	0.252	0.09
	3470.2138	3471.2075	204.787	29013.206	7	5						
17v	3d8(3F)4s4p(3Po) 5Fo		All	Ref BBPL89,BL93,HS80,DK85=FMW88								
	3513.9290	3514.9339	1713.087	30163.124	3	5	1.06E+06	5.26E+06	3.26E-03	-2.010	1.059	0.12
	3485.8844	3486.8821	1713.087	30392.003	3	3	1.29E+06		2.36E-03	-2.150	0.915	0.04
	3461.6521	3462.6436	204.787	29084.456	7	9	2.78E+07	3.22E+07	6.43E-02	-0.347	2.347	0.009
	3452.8887	3453.8779	879.816	29832.779	5	7	9.83E+06	1.41E+07	2.46E-02	-0.910	1.929	0.09
	3413.9355	3414.9147	879.816	30163.124	5	5	2.18E+06	5.26E+06	3.81E-03	-1.720	1.114	0.09
	3387.4582	3388.4307	879.816	30392.003	5	3						
	3374.2174	3375.1865	204.787	29832.779	7	7	1.45E+06	1.41E+07	2.48E-03	-1.760	0.923	0.04
	3337.0094	3337.9690	204.787	30163.124	7	5	8.28E+03	5.26E+06	9.88E-06	-4.160	-1.482	0.09
18v	3d9(2D)4p 3Po		All	Ref HS80,DK85=FMW88								
MltMean	3528.995	3530.005	731.46	29060.03	15	9	1.16E+08		1.30E-01	0.290	2.661	
	3722.4879	3723.5466	1713.087	28569.203	3	5	8.00E+05	1.19E+08	2.77E-03	-2.080	1.014	0.09
	3610.4622	3611.4920	879.816	28569.203	5	5	7.26E+06	1.19E+08	1.42E-02	-1.149	1.710	0.009
	3597.7027	3598.7292	1713.087	29500.674	3	3	1.36E+07	1.20E+08	2.65E-02	-1.100	1.979	0.009
	3524.5365	3525.5441	204.787	28569.203	7	5	1.09E+08	1.19E+08	1.46E-01	0.008	2.710	0.009
	3510.3350	3511.3390	1713.087	30192.251	3	1	1.16E+08	1.23E+08	7.13E-02	-0.670	2.398	0.09
	3492.9558	3493.9554	879.816	29500.674	5	3	1.02E+08	1.20E+08	1.12E-01	-0.250	2.594	0.009
19v	3d9(2D)4p 3Fo		All	Ref BBPL89,BL93								
MltMean	3451.189	3452.183	731.46	29698.63	15	21	6.49E+07		1.62E-01	0.387	2.749	
	3515.0522	3516.0574	879.816	29320.762	5	7	4.74E+07	8.06E+07	1.23E-01	-0.211	2.636	0.009
	3458.4596	3459.4502	1713.087	30619.414	3	5	6.67E+07	8.26E+07	1.99E-01	-0.223	2.839	0.009
	3433.5564	3434.5407	204.787	29320.762	7	7	1.74E+07	8.06E+07	3.07E-02	-0.668	2.023	0.009
	3414.7641	3415.7436	204.787	29480.989	7	9	6.15E+07	6.99E+07	1.38E-01	-0.014	2.674	0.009
	3361.5543	3362.5202	879.816	30619.414	5	5	4.25E+06	8.26E+07	7.21E-03	-1.443	1.385	0.009
	3286.9448	3287.8917	204.787	30619.414	7	5	3.44E+05	8.26E+07	3.98E-04	-2.555	0.117	0.009
20v	3d9(2D)4p 3Do		All	Ref BBPL89,BL93,HS80,DK85=FMW88								
MltMean	3416.720	3417.703	731.46	29990.87	15	15						
	3548.1829	3549.1967	1713.087	29888.477	3	5	2.85E+06	6.37E+07	8.97E-03	-1.570	1.503	0.09
	3472.5453	3473.5396	879.816	29668.893	5	7	1.22E+07	6.02E+07	3.10E-02	-0.810	2.032	0.09
	3446.2588	3447.2463	879.816	29888.477	5	5	4.55E+07	6.37E+07	8.11E-02	-0.392	2.447	0.009
	3423.7074	3424.6892	1713.087	30912.817	3	3	3.29E+07	5.18E+07	5.79E-02	-0.760	2.297	0.04
	3392.9862	3393.9601	204.787	29668.893	7	7	2.39E+07	6.02E+07	4.12E-02	-0.540	2.146	0.09
	3367.8859	3368.8534	204.787	29888.477	7	5	1.66E+05	6.37E+07	2.02E-04	-2.850	-0.168	0.009
	3328.7131	3329.6706	879.816	30912.817	5	3						
21v	3d8(3F)4s4p(3Po) 3Go		All	Ref HS80,DK85=FMW88								
	3248.4576	3249.3948	204.787	30979.749	7	9	4.75E+05	3.28E+06	9.66E-04	-2.170	0.497	0.11
	3234.6478	3235.5815	879.816	31786.162	5	7	2.04E+06	5.18E+06	4.48E-03	-1.650	1.161	0.05
	3165.5071	3166.4232	204.787	31786.162	7	7	4.34E+04	5.18E+06	6.53E-05	-3.340	-0.685	0.09
22v	3d9(2D)4p 1Fo		All	Ref BBPL89,BL93								
	3315.6629	3316.6171	879.816	31031.020	5	7	5.16E+06	9.35E+07	1.19E-02	-1.225	1.597	0.009
	3243.0545	3243.9903	204.787	31031.020	7	7	4.58E+06	9.35E+07	7.23E-03	-1.296	1.370	0.009

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Ni I	3d9(2D)4s 3D J=1,2,3							Ref LBT93 Excited lower term				
23v	3d9(2D)4p 1Do			All Ref BBPL89,BL93								
	3362.8039	3363.7701	1713.087	31441.635	3	5	3.28E+04	6.58E+07	9.29E-05	-3.555	-0.505	0.009
	3271.1137	3272.0565	879.816	31441.635	5	5	5.77E+05	6.58E+07	9.27E-04	-2.334	0.482	0.009
	3200.4224	3201.3473	204.787	31441.635	7	5	1.37E+05	6.58E+07	1.51E-04	-2.977	-0.317	0.009
24v	3d9(2D)4p 1Po			All Ref DK85=FMW88								
	3197.1138	3198.0379	1713.087	32982.260	3	3	2.87E+06	1.52E+08	4.39E-03	-1.880	1.148	0.02
	3114.1244	3115.0276	879.816	32982.260	5	3	5.76E+06	1.52E+08	5.02E-03	-1.600	1.194	0.02
25,26	3d8(3F)4s4p(3Po) 3Fo			All Ref BBPL89,BL93,HS80,DK85=FMW88								
MltMean	3069.267	3070.164	731.46	33303.00	15	21	8.01E+07		1.58E-01	0.376	2.687	
	3101.5569	3102.4570	879.816	33112.334	5	7	6.99E+07	1.12E+08	1.41E-01	-0.151	2.642	0.009
	3080.7525	3081.6473	1713.087	34163.264	3	5	8.84E+06	9.62E+07	2.10E-02	-1.201	1.811	0.009
	3050.8156	3051.7030	204.787	32973.376	7	9	6.04E+07	6.49E+07	1.08E-01	-0.120	2.519	0.03
	3037.9325	3038.8166	204.787	33112.334	7	7	3.11E+07	1.12E+08	4.30E-02	-0.521	2.117	0.009
	3003.6209	3004.4964	879.816	34163.264	5	5	7.27E+07	9.62E+07	9.84E-02	-0.308	2.471	0.009
	2943.9121	2944.7728	204.787	34163.264	7	5	1.06E+07	9.62E+07	9.88E-03	-1.160	1.464	0.11
26,25	3d8(3F)4s4p(3Po) 3Do			All Ref BBPL89,BL93								
MltMean	3030.558	3031.442	731.46	33719.06	15	15	1.13E+08		1.56E-01	0.369	2.675	
	3134.1039	3135.0122	1713.087	33610.890	3	5	7.49E+07	1.25E+08	1.84E-01	-0.258	2.761	0.009
	3064.6186	3065.5094	879.816	33500.822	5	7	6.82E+06	1.08E+08	1.35E-02	-1.172	1.616	0.009
	3057.6388	3058.5279	1713.087	34408.555	3	3	1.04E+08	1.45E+08	1.45E-01	-0.361	2.647	0.009
	3054.3125	3055.2007	879.816	33610.890	5	5	3.54E+07	1.25E+08	4.95E-02	-0.606	2.180	0.009
	3002.4854	3003.3606	204.787	33500.822	7	7	9.03E+07	1.08E+08	1.22E-01	-0.068	2.565	0.009
	2992.5922	2993.4650	204.787	33610.890	7	5	9.35E+06	1.25E+08	8.97E-03	-1.202	1.429	0.009
	2981.6459	2982.5160	879.816	34408.555	5	3	2.61E+07	1.45E+08	2.08E-02	-0.982	1.794	0.009
27v	3d8(3F)4s4p(3Po) 1Go			One Ref BBPL89,BL93								
	2994.4532	2995.3264	204.787	33590.130	7	9	9.18E+06	1.09E+07	1.59E-02	-0.954	1.677	0.009
25u	3d8(3F)4s4p(3Po) 1Fo			All Ref HS80,DK85=FMW88								
	2876.0835	2876.9274	879.816	35639.122	5	7						
	2821.2911	2822.1215	204.787	35639.122	7	7	4.87E+06		5.82E-03	-1.390	1.215	0.04
26u	3d8(3F)4s4p(3Po) 1Do			All Ref HS80,DK85=FMW88								
	2865.4981	2866.3394	1713.087	36600.791	3	5	1.82E+06		3.74E-03	-1.950	1.030	0.06
	2798.6507	2799.4757	879.816	36600.791	5	5	5.77E+06		6.78E-03	-1.470	1.278	0.05
	2746.7421	2747.5544	204.787	36600.791	7	5	1.65E+06		1.33E-03	-2.030	0.564	0.04
	3d8(3P)4s4p(3Po) 5Po			All								
	2578.4671	2579.2391	1713.087	40484.212	3	5						
	2559.6645	2560.4320	1713.087	40768.996	3	3						
	2532.0750	2532.8361	879.816	40361.249	5	7						
	2524.2130	2524.9722	879.816	40484.212	5	5						
	2506.1904	2506.9455	879.816	40768.996	5	3						
	2489.5081	2490.2592	204.787	40361.249	7	7						
	2481.9077	2482.6571	204.787	40484.212	7	5						
	3d8(1D)4s4p(3Po) 3Fo			All Ref HS80=FMW88								
MltMean	2380.082	2380.811	731.46	42733.95	15	21						
	2424.0285	2424.7646	1713.087	42954.203	3	5						
	2386.5889	2387.3165	879.816	42767.853	5	7						
	2376.0177	2376.7429	879.816	42954.203	5	5						
	2358.8586	2359.5799	204.787	42585.212	7	9						
	2348.7357	2349.4548	204.787	42767.853	7	7	2.17E+07		1.80E-02	-0.900	1.626	0.27
	2338.4964	2339.2132	204.787	42954.203	7	5						
	3d8(1D)4s4p(3Po) 3Do			All								
	2441.8245	2442.5647	1713.087	42653.661	3	5						
	2441.6678	2442.4079	1713.087	42656.289	3	3						
	2394.9863	2395.7158	879.816	42620.994	5	7						
	2393.1133	2393.8424	879.816	42653.661	5	5						
	2392.9627	2393.6918	879.816	42656.289	5	3						
	2356.8685	2357.5894	204.787	42620.994	7	7						
	2355.0546	2355.7751	204.787	42653.661	7	5						
	3d8(3F)4s4p(1Po) 3Go			All Ref HS80=FMW88								
	2288.3979	2289.1037	879.816	44565.037	5	7	8.12E+06		8.93E-03	-1.350	1.311	0.22
	2266.3526	2267.0536	204.787	44314.904	7	9	2.29E+06		2.26E-03	-1.800	0.710	0.22
	2253.5722	2254.2704	204.787	44565.037	7	7	1.92E+07		1.46E-02	-0.990	1.518	0.11
	3d8(3F)4s4p(1Po) 3Fo			All Ref HS80=FMW88								
MltMean	2286.795	2287.508	731.46	44447.15	15	21						
	2321.9547	2322.6679	204.787	43258.726	7	9						
	2287.3246	2288.0302	1713.087	45418.804	3	5	1.85E+07		2.41E-02	-1.140	1.742	0.22
	2251.4899	2252.1877	879.816	45281.089	5	7	4.02E+06		4.28E-03	-1.670	0.984	0.17
	2244.5276	2245.2239	879.816	45418.804	5	5	3.83E+07		2.89E-02	-0.840	1.812	0.10
	2217.7700	2218.4606	204.787	45281.089	7	7						
	2211.0143	2211.7035	204.787	45418.804	7	5						
	3d8(1D)4s4p(3Po) 3Po			Part								
	2394.4289	2395.1583	1713.087	43463.981	3	3						
	2367.8043	2368.5277	1713.087	43933.408	3	5						
	2347.5719	2348.2907	879.816	43463.981	5	3						
	2321.9734	2322.6866	879.816	43933.408	5	5						
	2286.1265	2286.8318	204.787	43933.408	7	5						

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Ni I	3d9(2D)4s 3D J=1,2,3							Ref LBT93 Excited lower term				
	3d8(3F)4s4p(1Po) 3Do		All	Ref HS80=FMW88								
MltMean	2298.649	2299.361	731.46	44221.80	15	15						
	2337.8075	2338.5242	1713.087	44475.099	3	5						
	2337.0929	2337.8094	879.816	43654.903	5	7						
	2302.9451	2303.6540	1713.087	45122.383	3	3	4.49E+07		3.57E-02	-0.970	1.915	0.11
	2300.7813	2301.4898	204.787	43654.903	7	7	7.50E+07		5.96E-02	-0.380	2.137	0.10
	2293.1193	2293.8261	879.816	44475.099	5	5	3.84E+07		3.03E-02	-0.820	1.842	0.10
	2259.5672	2260.2667	879.816	45122.383	5	3	1.99E+07		9.14E-03	-1.340	1.315	0.10
	2258.1509	2258.8501	204.787	44475.099	7	5	1.73E+07		9.44E-03	-1.180	1.329	0.10
	3d8(3P)4s4p(3Po) 5Do		All	Ref HS80=FMW88								
	2358.8440	2359.5654	1713.087	44093.773	3	5						
	2356.7042	2357.4251	1713.087	44132.250	3	3						
	2341.1005	2341.8179	1713.087	44414.955	3	1						
	2313.3559	2314.0672	879.816	44093.773	5	5						
	2311.2978	2312.0086	879.816	44132.250	5	3						
	2307.3579	2308.0678	879.816	44206.099	5	7	1.56E+07		1.74E-02	-1.060	1.604	0.11
	2277.7725	2278.4760	204.787	44093.773	7	5						
	2271.9573	2272.6595	204.787	44206.099	7	7	4.97E+06		3.85E-03	-1.570	0.941	0.10
	2254.8183	2255.5168	204.787	44540.525	7	9						
36u	3d8(3P)4s4p(3Po) 3Po		All	Ref HS80=FMW88								
MltMean	2166.207	2166.888	731.46	46880.60	15	9	1.09E+08		4.59E-02	-0.163	1.997	
	2230.9623	2231.6557	1713.087	46522.866	3	5	5.22E+06		6.50E-03	-1.710	1.162	0.27
	2197.3544	2198.0407	1713.087	47208.149	3	3	7.82E+07		5.66E-02	-0.770	2.095	0.10
	2190.2292	2190.9141	879.816	46522.866	5	5	2.98E+07		2.14E-02	-0.970	1.672	0.10
	2174.4846	2175.1661	1713.087	47686.587	3	1	8.90E+07		2.10E-02	-1.200	1.660	0.27
	2158.3059	2158.9842	204.787	46522.866	7	5	6.87E+07		3.43E-02	-0.620	1.869	0.10
	2157.8282	2158.5063	879.816	47208.149	5	3	4.06E+07		1.70E-02	-1.070	1.565	0.10
37u	3d8(3P)4s4p(3Po) 3Do		All	Ref HS80=FMW88								
MltMean	2153.843	2154.523	731.46	47145.45	15	15						
	2200.6834	2201.3704	1713.087	47139.337	3	5	8.31E+06		1.01E-02	-1.520	1.346	0.10
	2186.9397	2187.6238	1713.087	47424.785	3	3						
	2166.1540	2166.8338	879.816	47030.102	5	7	6.57E+06		6.47E-03	-1.490	1.147	0.10
	2161.0384	2161.7172	879.816	47139.337	5	5	1.28E+07		8.93E-03	-1.350	1.286	0.10
	2147.7838	2148.4599	879.816	47424.785	5	3	4.71E+07		1.95E-02	-1.010	1.623	0.10
	2134.9235	2135.5970	204.787	47030.102	7	7						
	2129.9541	2130.6266	204.787	47139.337	7	5	4.15E+06		2.02E-03	-1.850	0.633	0.10
38u	3d8(3P)4s4p(3Po) 5So		All	Ref HS80=FMW88								
	2191.5427	2192.2278	1713.087	47328.784	3	5						
	2152.2234	2152.9004	879.816	47328.784	5	5	3.16E+06		2.19E-03	-1.960	0.674	0.10
	2121.3903	2122.0611	204.787	47328.784	7	5						
	3d9(2D)5p 1Fo		All									
	2091.7252	2092.3902	879.816	48672.049	5	7						
	2062.5890	2063.2484	204.787	48672.049	7	7						
	3d9(2D)5p 3Fo		All	Ref HS80=FMW88								
MltMean	2049.564	2050.227	731.46	49506.53	15	21						
	2068.6145	2069.2750	1713.087	50039.191	3	5						
	2060.7376	2061.3967	204.787	48715.586	7	9						
	2033.5460	2034.2000	879.816	50039.191	5	5	3.01E+06		1.87E-03	-2.030	0.579	0.22
	2029.2606	2029.9138	879.816	50142.991	5	7	2.26E+06		1.95E-03	-2.010	0.599	0.11
	2005.9968	2006.6459	204.787	50039.191	7	5						
	2001.8266	2002.4749	204.787	50142.991	7	7	7.34E+06		4.41E-03	-1.510	0.946	0.10
	3d9(2D)5p 3Po		All	Ref HS80=FMW88								
MltMean	2069.158	2069.820	731.46	49044.83	15	9						
	2125.9832	2126.6549	1713.087	48735.290	3	5						
	2105.3451	2106.0127	1713.087	49196.181	3	3						
	2088.9607	2089.6251	879.816	48735.290	5	5	4.22E+06		2.76E-03	-1.860	0.761	0.22
	2069.0315	2069.6921	879.816	49196.181	5	3						
	2064.3735	2065.0332	1713.087	50138.458	3	1	4.02E+07		8.57E-03	-1.590	1.248	0.22
	2059.9008	2060.5597	204.787	48735.290	7	5	2.12E+07		9.66E-03	-1.170	1.299	0.22
41u	3d8(3P)4s4p(3Po) 1Po		All	Ref HS80=FMW88								
	2122.2455	2122.9164	1713.087	48818.097	3	3						
	2085.3518	2086.0156	879.816	48818.097	5	3	7.73E+06		3.03E-03	-1.820	0.800	0.11
42u	3d9(2D)5p 1Do		All	Ref HS80=FMW88								
	2112.6095	2113.2785	1713.087	49032.926	3	5						
	2076.0471	2076.7091	879.816	49032.926	5	5						
	2047.3429	2047.9994	204.787	49032.926	7	5	1.83E+07		8.22E-03	-1.240	1.226	0.10
	3d8(3P)4s4p(3Po) 1Do		All	Ref HS80=FMW88								
	2105.8349	2106.5026	1713.087	49185.138	3	5	3.01E+06		3.33E-03	-2.000	0.846	0.11
	2069.5046	2070.1653	879.816	49185.138	5	5	1.10E+07		7.10E-03	-1.450	1.167	0.22
	2040.9797	2041.6350	204.787	49185.138	7	5						

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Ni I	3d9(2D)4s 3D J=1,2,3							Ref LBT93 Excited lower term				
	3d9(2D)5p 3Do		All	Ref HS80=FMW88								
MltMean	2025.478	2026.134	731.46	50086.53	15	15						
	2063.3953	2064.0549	879.816	49328.140	5	7	5.01E+06		4.48E-03	-1.650	0.966	0.22
	2041.1442	2041.7996	1713.087	50689.489	3	5	3.20E+06		3.33E-03	-2.000	0.833	0.22
	2035.0374	2035.6917	204.787	49328.140	7	7						
	2034.4261	2035.0802	1713.087	50851.199	3	3						
	2006.9929	2007.6422	879.816	50689.489	5	5						
	2000.4972	2001.1453	879.816	50851.199	5	3	5.43E+06		1.95E-03	-2.010	0.592	0.11
		1980.7981	204.787	50689.489	7	5						
	3d8(3P)4s4p(3Po) 3So		All	Ref HS80=FMW88								
	2096.1967	2096.8625	1713.087	49403.386	3	3						
	2060.1952	2060.8541	879.816	49403.386	5	3	2.29E+07		8.73E-03	-1.360	1.255	0.27
45u	3d9(2D)5p 1Po		All	Ref HS80=FMW88								
	2050.8308	2051.4880	1713.087	50458.192	3	3	7.64E+06		4.82E-03	-1.840	0.995	0.27
	2016.3575	2017.0084	879.816	50458.192	5	3						
47u	3d8(1G)4s4p(3Po) 3Fo		All	Ref HS80=FMW88								
MltMean		1988.009	731.46	51033.05	15	21						
	2014.2411	2014.8917	1713.087	51343.547	3	5	9.26E+07		9.39E-02	-0.550	2.277	0.10
		1990.2539	879.816	51124.662	5	7	8.34E+07		6.93E-02	-0.460	2.140	0.10
		1981.6212	879.816	51343.547	5	5	1.32E+07		7.78E-03	-1.410	1.188	0.11
		1976.8895	204.787	50789.303	7	9	1.07E+08		8.03E-02	-0.250	2.201	0.11
		1963.8697	204.787	51124.662	7	7	1.10E+07		6.38E-03	-1.350	1.098	0.10
		1955.4639	204.787	51343.547	7	5						
	3d8(3F)4s(4F)5p 5Do		All									
		1806.6148	204.787	55556.931	7	9						
		1805.6352	879.816	56261.989	5	7						
		1791.9896	1713.087	57516.982	3	3						
		1783.8921	204.787	56261.989	7	7						
		1781.2666	1713.087	57852.914	3	1						
		1765.6251	879.816	57516.982	5	3						
		1717.4036	1713.087	59940.517	3	5						
		1693.1733	879.816	59940.517	5	5						
		1674.0400	204.787	59940.517	7	5						
	3d8(3F)4s(4F)5p 5Fo		All									
		1791.6591	1713.087	57527.275	3	5						
		1782.4041	879.816	56983.815	5	7						
		1781.4409	204.787	56339.123	7	9						
		1776.8337	1713.087	57992.973	3	3						
		1765.3042	879.816	57527.275	5	5						
		1761.2137	204.787	56983.815	7	7						
		1750.9100	879.816	57992.973	5	3						
		1744.5160	204.787	57527.275	7	5						
	3d8(3F)4s(4F)5p 3Fo		Part									
		1745.2190	204.787	57504.186	7	9						
		1734.4297	879.816	58535.655	5	7						
		1714.3582	204.787	58535.655	7	7						
	3d8(1D)4s4p(1P) 1Fo		All									
		1797.0878	879.816	56525.401	5	7						
		1775.5488	204.787	56525.401	7	7						
Ni II	3s23p63d9 2D J=5/2 GROUND		IP = 146541.56+-0.2 cm-1				Ref SC85,PTMLZW00					
1u	3d8(3F)4p 4Do		All									
		1951.924	1506.94	52738.45	4	6						
		1939.569	0.	51557.85	6	8						
		1918.367	1506.94	53634.62	4	4						
		1898.639	1506.94	54176.26	4	2						
		1896.150	0.	52738.45	6	6						
		1864.467	0.	53634.62	6	4						
	3d8(3F)4p 4Go		All									
		1868.748	1506.94	55018.71	4	6						
		1842.889	0.	54262.63	6	8						
		1817.564	0.	55018.71	6	6						
2u	3d8(3F)4p 4Fo		All									
		1832.565	1506.94	56075.26	4	6						
		1820.912	1506.94	56424.49	4	4						
		1804.473	0.	55417.83	6	8						
		1783.318	0.	56075.26	6	6						
		1772.280	0.	56424.49	6	4						
3u	3d8(3F)4p 2Go		One									
		1773.949	0.	56371.41	6	8						
4u	3d8(3F)4p 2Fo		All	Ref FL99,FWL00								
MltMean		1751.834	602.78	57685.81	10	14	6.51E+07		4.20E-02	-0.377	1.866	
		1754.8129	1506.94	58493.071	4	6	2.30E+07	4.35E+08	1.59E-02	-1.197	1.446	0.05
		1751.9157	0.	57080.373	6	8	4.52E+07	3.70E+08	2.77E-02	-0.779	1.686	0.04
		1709.6042	0.	58493.071	6	6	7.39E+07	4.35E+08	3.24E-02	-0.711	1.743	0.04

Mult No.		Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Ni II	3s23p63d9 2D J=5/2 GROUND		IP = 146541.56+-0.2 cm-1	Ref SC85,PTMLZW00									
5u	3d8(3F)4p 2Do			All	Ref FL99,FWL00								
MltMean		1744.241	602.78	57934.29		10	10						
		1788.4905	1506.94	57420.013		4	6	3.50E+07	5.00E+08	2.52E-02	-0.997	1.654	0.05
		1748.2894	1506.94	58705.707		4	4						
		1741.5531	0.	57420.013		6	6	9.39E+07	5.00E+08	4.27E-02	-0.591	1.871	0.04
		1703.4119	0.	58705.707		6	4	2.07E+07	5.00E+08	6.00E-03	-1.444	1.009	
	3d8(3P)4p 4Po			All									
		1536.939	1506.94	66571.34		4	6						
		1536.741	1506.94	66579.71		4	4						
		1526.156	1506.94	67031.02		4	2						
		1502.148	0.	66571.34		6	6						
		1501.959	0.	66579.71		6	4						
6u	3d8(1D)4p 2Fo			All	Ref FWL00,ZF98								
		1510.855	1506.94	67694.64		4	6						
		1477.222	0.	67694.64		6	6	2.97E+06		9.72E-04	-2.234	0.157	
		1467.756	0.	68131.21		6	8	2.30E+07		9.90E-03	-1.226	1.162	0.07
7u	3d8(1D)4p 2Do			All	Ref FWL00								
MltMean		1472.742	602.78	68503.31		10	10						
		1500.434	1506.94	68154.31		4	4						
		1487.452	1506.94	68735.98		4	6						
		1467.259	0.	68154.31		6	4	2.93E+07		6.30E-03	-1.423	0.966	0.08
		1454.842	0.	68735.98		6	6	1.02E+08		3.23E-02	-0.713	1.672	0.12
	3d8(1D)4p 2Po			All	Ref ZF988,FWL00								
MltMean		1467.677	602.78	68737.64		10	6						
		1497.574	1506.94	68281.62		4	2						
		1482.388	1506.94	68965.65		4	4						
		1449.997	0.	68965.65		6	4	8.33E+06		1.75E-03	-1.979	0.404	
	3d8(3P)4p 4Do			All	Ref ZF988,FWL00								
		1446.581	1506.94	70635.46		4	6						
		1445.090	1506.94	70706.77		4	4						
		1444.215	1506.94	70748.70		4	2						
		1415.720	0.	70635.46		6	6	1.06E+07		3.19E-03	-1.718	0.655	
		1414.292	0.	70706.77		6	4						
		1412.866	0.	70778.12		6	8	8.90E+06		3.55E-03	-1.672	0.700	
	3d8(3P)4p 2Do			All	Ref ZF98,FLW00								
MltMean		1400.366	602.78	72012.67		10	10						
		1423.206	1506.94	71770.83		4	6						
		1411.065	1506.94	72375.42		4	4						
		1393.324	0.	71770.83		6	6	3.47E+07		1.01E-02	-1.218	1.148	
		1381.685	0.	72375.42		6	4						
8u	3d8(3P)4p 2Po			All	Ref ZF988,FWL00								
MltMean		1375.729	602.78	73291.52		10	6						
		1399.018	1506.94	72985.65		4	4						
		1381.286	1506.94	73903.25		4	2						
		1370.132	0.	72985.65		6	4	4.10E+08		7.69E-02	-0.336	2.023	
9u	3d8(3P)4p 2So			One									
		1374.072	1506.94	74283.33		4	2						
	3d8(3P)4p 4So			All	Ref ZF988,FWL00								
		1373.740	1506.94	74300.93		4	4						
		1345.878	0.	74300.93		6	4	4.25E+07		7.69E-03	-1.336	1.015	
10u	3d8(1G)4p 2Fo			All									
		1335.201	1506.94	76402.03		4	6						
		1317.217	0.	75917.63		6	8						
		1308.866	0.	76402.03		6	6						
	3d8(1G)4p 2Go			One									
		1252.771	0.	79823.03		6	8						
	3d7(4F)4s4p(3Po) 4Fo			Part									
		1055.900	0.	94705.93		6	8						
	3d7(4F)4s4p(3Po) 4Do			Part									
		1044.202	1506.94	97273.83		4	6						
		1028.026	0.	97273.83		6	6						
	3d7(4F)4s4p(3Po) 2Go			One									
		1001.561	0.	99844.13		6	8						
	3d7(4F)4s4p(3Po) 2Fo			Part									
		1009.061	1506.94	100609.01		4	6						
		1005.848	0.	99418.61		6	8						
		993.947	0.	100609.01		6	6						
	3d7(4F)4s4p(3Po) 2Do			Part									
		997.528	1506.94	101754.80		4	6						
		987.793	1506.94	102742.74		4	4						
		982.755	0.	101754.80		6	6						
		973.305	0.	102742.74		6	4						
	3d8(3F)5p 4Do			Part									
		970.909	1506.94	104503.22		4	6						
		956.908	0.	104503.22		6	6						
	3d8(3F)5p 2Go			One									
		937.906	0.	106620.53		6	8						

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Ni II	3s23p63d9 2D J=5/2 GROUND		IP = 146541.56+-0.2 cm-1	Ref SC85,PTMLZW00								
	3d8(3F)5p 4Go		Part									
	954.415	1506.94	106283.16		4	6						
	947.876	0.	105499.05		6	8						
	940.883	0.	106283.16		6	6						
	3d8(3F)5p 4Fo		Part									
	960.044	1506.94	105668.78		4	6						
	946.353	0.	105668.78		6	6						
	3d8(3F)5p o											
	955.598	0.	104646.52		6	8						
	3d8(3F)5p 2Fo		All									
	947.192	1506.94	107082.21		4	6						
	944.840	0.	105838.06		6	8						
	933.862	0.	107082.21		6	6						
	3d8(3F)5p 2Do		All									
	958.274	1506.94	105861.19		4	6						
	946.654	1506.94	107142.12		4	4						
	944.633	0.	105861.19		6	6						
	933.340	0.	107142.12		6	4						
	3d7(4P)4s4p(3Po) 4So		Part									
	941.346	1506.94	107737.81		4	4						
	928.179	0.	107737.81		6	4						
Ni III	3s23p63d8 3F J=4 GROUND		IP = 283800+-200 cm-1	No ground-term lines >911.7 A SC85								
Ni IV	3s23p63d7 4F J=9/2 GROUND		IP = 443000+-2000 cm-1	No ground-term lines >911.7 A SC85								
COPPER = Cu Z = 29 A = 63:69.17, 65:30.83%												
Cu I	3s23p63d10(1S)4s 2S J=1/2 GRND		IP = 62317.4+-0.1 cm-1	Ref SM90,LBG80,LBS99								
1v	3d10(1S)4p 2Po		All Ref KR68,CSS89=D95									
MltMean	3256.295	3257.234	0.	30700.89	2	6	1.37E+08		6.52E-01	0.115	3.327	
	3273.9544	3274.8980	0.	30535.302	2	2	1.36E+08	1.38E+08	2.18E-01	-0.361	2.854	0.004
	3247.5370	3248.4739	0.	30783.686	2	4	1.37E+08	1.39E+08	4.34E-01	-0.061	3.149	0.004
1u	3d9(2D)4s4p(3Po) 4Po		All Ref HM78									
	2492.1441	2492.8959	0.	40113.99	2	4	2.79E+06		5.20E-03	-1.983	1.113	0.03
	2441.6363	2442.3764	0.	40943.73	2	2	2.01E+06		1.80E-03	-2.444	0.643	0.04
	3d9(2D)4s4p(3Po) 4Fo		One Ref HM78									
	2363.2058	2363.9282	0.	42302.47	2	4	6.57E+04		1.10E-04	-3.658	-0.585	0.2
2u	3d9(2D)4s4p(3Po) 4Do		All Ref HM78									
	2244.2673	2244.9636	0.	44544.153	2	4	1.85E+06		2.80E-03	-2.252	0.798	0.05
	2225.7052	2226.3975	0.	44915.61	2	2	4.44E+07		3.30E-02	-1.180	1.866	0.05
3u	3d9(2D)4s4p(3Po) 2Po		All Ref HM78									
MltMean	2179.873	2180.555	0.	45859.87	2	6	9.40E+07		2.01E-01	-0.396	2.642	
	2181.7224	2182.4054	0.	45821.00	2	2	9.94E+07		7.10E-02	-0.848	2.190	0.06
	2178.9492	2179.6317	0.	45879.311	2	4	9.13E+07		1.30E-01	-0.585	2.452	0.07
4u	3d9(2D)4s4p(3Po) o		Ref HM78									
	2165.0957	2165.7753	0.	46172.842	2	4	5.47E+07		7.70E-02	-0.812	2.222	0.06
5u	3d10(1S)5p 2Po		LS Ref HM78									
MltMean	2024.334	2024.986	0.	49383.05	2	6	9.76E+06		1.80E-02	-1.444	1.562	
	2024.338	2024.990	0.	49382.95	2	4	9.76E+06		1.20E-02	-1.620	1.386	0.04
	2024.325	2024.978	0.	49383.26	2	2	9.76E+06		6.00E-03	-1.921	1.085	0.04
	3d10(1S)6p 2Po		All									
	1825.348	0.	54784.06		2	4						
	1817.265	0.	55027.74		2	2						
	3d9(2D)4s4p(1Po) 2Po		All									
	1774.820	0.	56343.74		2	4						
	1713.364	0.	58364.73		2	2						
	3d9(2D)4s4p(1Po) 2Do		One									
	1703.843	0.	58690.86		2	4						
	3d10(1S)7p 2Po		All									
	1741.576	0.	57419.26		2	2						
	1725.668	0.	57948.57		2	4						
	3d10(1S)8p 2Po		All									
	1687.053	0.	59274.97		2	4						
	1685.695	0.	59322.71		2	2						
	3d10(1S)9p 2Po		All									
	1664.719	0.	60070.18		2	4						
	1664.313	0.	60084.84		2	2						
	3d10(1S)10p 2Po		All									
	1650.299	0.	60595.07		2	4						
	1650.133	0.	60601.18		2	2						
	3d10(1S)11p 2Po		All									
	1640.518	0.	60956.35		2	4						
	1640.436	0.	60959.42		2	2						

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)	gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)
Cu I	3s23p63d10(1S)4s 2S J=1/2 GRND IP = 62317.4+-0.1 cm-1			Ref SM90,LBG80,LBS99								
	3d10(1S)12p 2Po			All								
		1633.583	0.	61215.13	2	4						
		1633.537	0.	61216.84	2	2						
	3d10(1S)13p 2Po			All								
		1628.485	0.	61406.75	2	4						
		1628.466	0.	61407.50	2	2						
Cu II	3s23p63d10 1S J=0 GROUND			IP = 163669.2+-0.5 cm-1			Ref SM90					
1u	3d9(2D)4p 3Po			One Ref DHB99,(PRKB97)								
		1472.3951	0.	67916.555	1	3	2.23E+07	3.60E+08	2.17E-02	-1.663	1.505	
2u	3d9(2D)4p 3Do			One Ref DHB99								
		1367.9509	0.	73102.038	1	3	2.13E+08	6.23E+08	1.79E-01	-0.747	2.390	
3u	3d9(2D)4p 1Po			One Ref DHB99,(PRKB97)								
		1358.7730	0.	73595.813	1	3	3.17E+08	7.20E+08	2.63E-01	-0.580	2.553	
Cu III	3s23p63d9 2D J=5/2 GROUND			IP = 297140+-100 cm-1			No ground-term lines >911.7 A		SM90			
Cu IV	3s23p63d8 3F J=4 GROUND			IP = 462800+-400 cm-1			No ground-term lines >911.7 A		SM90			
ZINC = Zn Z = 30 A = 64:48.63, 66:27.90, 67:4.10, 68:18.75, 70:0.62%												
Zn I	3s23p63d104s2 1So J=0 GROUND			IP = 75769.33+-0.18 cm-1			Ref GL00,SM95					
1v	3d104s(2S)4p 3Po			One Ref CBK91								
	3075.8970	3076.7906	0.	32501.399	1	3	3.75E+04	3.75E+04	1.60E-04	-3.797	-0.309	0.04
1u	3d104s(2S)4p 1Po			One Ref D95								
	2138.5735	2139.2477	0.	46745.404	1	3	7.14E+08	7.14E+08	1.47E+00	0.167	3.497	0.009
2u	3d104s(2S)5p 3Po			One								
		1632.001	0.	61274.455	1	3						
3u	3d104s(2S)5p 1Po			One								
		1589.561	0.	62910.45	1	3						
	3d104s(2S)6p 3Po			One								
		1468.845	0.	68080.70	1	3						
4u	3d104s(2S)6p 1Po			One								
		1457.572	0.	68607.26	1	3						
	3d104s(2S)7p 3Po			One								
		1408.808	0.	70982.00	1	3						
	3d104s(2S)7p 1Po			One								
		1404.119	0.	71219.02	1	3						
	3d104s(2S)8p 3Po			One								
		1379.337	0.	72498.58	1	3						
	3d104s(2S)8p 1Po			One								
		1376.911	0.	72626.32	1	3						
	3d104s(2S)9p 1Po			One								
		1361.111	0.	73469.37	1	3						
	3d104s(2S10p 1Po			One								
		1351.098	0.	74013.87	1	3						
	3d104s(2S)11p 1Po			One								
		1344.343	0.	74385.80	1	3						
	3d104s(2S)12p 1Po			One								
		1339.569	0.	74650.87	1	3						
	3d104s(2S)13p 1Po			One								
		1336.067	0.	74846.54	1	3						
	3d104s(2S)14p 1Po			One								
		1333.422	0.	74994.99	1	3						
	3d104s(2S)15p 1Po			One								
		1331.375	0.	75110.31	1	3						
Zn II	3s23p63d104s 2S J=1/2 GROUND			IP = 144892.6+-2 cm-1			Ref GL00,SM95					
1u	3d10 4p 2Po			LS Ref BL93a,(MB79,CT89)								
MltMean	2037.510	2038.167	0.	49063.69	2	6	4.00E+08		7.47E-01	0.175	3.183	
	2062.0012	2062.6604	0.	48481.077	2	2	3.86E+08	3.86E+08	2.46E-01	-0.308	2.706	0.03
	2025.4845	2026.1370	0.	49355.003	2	4	4.07E+08	4.07E+08	5.01E-01	0.001	3.007	0.03
2u	3d10 5p 2Po			All								
		986.5237	0.	101366.038	2	2						
		984.1414	0.	101611.418	2	4						
	3d9(2D)4s4p(3Po) 4Po			All								
		949.463	0.	105322.7	2	4						
		938.713	0.	106528.8	2	2						
	3d9(2D)4s4p(3Po) 4Fo			One								
		923.976	0.	108227.9	2	4						
Zn III	3d10 1So J=0 GROUND			IP = 320390+-1 cm-1			No ground-term lines >911.7 A		SM95			
Zn IV	3d9 2D J=5/2 GROUND			IP = 480490+-150 cm-1			No ground-term lines >911.7 A		SM95			

Mult No.	Air Wavelength (A)	Vacuum (A)	Elow (cm-1)	Eup (cm-1)		gl	gu	A (s-1)	Gamma (s-1)	f	Log gf	Log !f (A)	Error (dex)

GALLIUM = Ga Z = 31 A = 69:60.108, 71:39.892%

Ga I 3d104s2(1S)4p 2Po J=1/2 GROUND IP =48387.634+-0.010 cm-1 Ref JL67,ND82,KL00

1v	4s2(1S)5s 2S			All Ref PS65,CL67,NG71,AS72,ES76,HBW77,TE84,VKP89									
MltMean	4124.632	4125.798	550.79	24788.53		6	2	1.43E+08		1.22E-01	-0.136	2.701	
	4172.039	4173.215	826.19	24788.530		4	2	9.45E+07	1.43E+08	1.23E-01	-0.307	2.712	0.03
	4032.984	4034.124	0.	24788.530		2	2	4.85E+07	1.43E+08	1.18E-01	-0.626	2.679	0.03
1u	4s2(1S)4d 2D			All Ref PS65									
MltMean	2920.166	2921.023	550.79	34785.37		6	10	1.38E+08		2.94E-01	0.247	2.934	
	2944.173	2945.034	826.19	34781.66		4	4	2.61E+07	1.43E+08	3.40E-02	-0.866	2.001	0.03
	2943.636	2944.497	826.19	34787.85		4	6	1.34E+08	1.34E+08	2.62E-01	0.020	2.887	0.03
	2874.235	2875.078	0.	34781.66		2	4	1.17E+08	1.43E+08	2.90E-01	-0.237	2.921	0.03
	4s2(1S)6s 2S			All Ref PS65									
MltMean	2699.420	2700.223	550.79	37584.77		6	2	3.57E+07		1.30E-02	-1.108	1.545	
	2719.648	2720.453	826.19	37584.77		4	2	2.34E+07		1.30E-02	-1.284	1.549	0.07
	2659.861	2660.652	0.	37584.77		2	2	1.22E+07		1.30E-02	-1.585	1.539	0.07
	4s4p2 4P			All									
	2691.0218	2691.8206	826.19	37975.768		4	2						
	2664.7701	2665.5626	826.19	38341.722		4	4						
	2632.4733	2633.2581	0.	37975.768		2	2						
	2624.6748	2625.4578	826.19	38914.786		4	6						
	2607.3461	2608.1249	0.	38341.722		2	4						
	4s2(1S)5d 2D			All Ref PS65									
MltMean	2483.277	2484.029	550.79	40807.97		6	10						
	2500.706	2501.460	826.19	40802.84		4	4	5.54E+06		5.20E-03	-1.682	1.114	0.07
	2500.172	2500.925	826.19	40811.39		4	6	3.34E+07		4.70E-02	-0.726	2.070	0.07
	2450.068	2450.810	0.	40802.84		2	4	2.78E+07		5.00E-02	-1.000	2.088	0.07
	4s2(1S)7s 2S			All Ref PS65									
MltMean	2402.653	2403.386	550.79	42158.75		6	2	1.56E+07		4.50E-03	-1.569	1.034	
	2418.665	2419.400	826.19	42158.75		4	2	1.00E+07		4.40E-03	-1.754	1.027	0.07
	2371.263	2371.987	0.	42158.75		2	2	5.57E+06		4.70E-03	-2.027	1.047	0.07
	4s2(1S)6d 2D			All Ref PS65									
MltMean	2323.379	2324.095	550.79	43578.29		6	10						
	2338.525	2339.241	826.19	43575.09		4	4	1.58E+06		1.30E-03	-2.284	0.483	0.07
	2338.233	2338.950	826.19	43580.42		4	6	9.75E+06		1.20E-02	-1.319	1.448	0.07
	2294.182	2294.889	0.	43575.09		2	4	6.97E+06		1.10E-02	-1.658	1.402	0.07
	4s2(1S)8s 2S			All Ref PS65									
MltMean	2283.365	2284.072	550.79	44332.25		6	2	8.69E+06		2.27E-03	-1.867	0.714	
	2297.823	2298.530	826.19	44332.25		4	2	5.56E+06		2.20E-03	-2.056	0.704	0.07
	2254.996	2255.694	0.	44332.25		2	2	3.15E+06		2.40E-03	-2.319	0.733	0.07
	4s2(1S)7d 2D			All									
	2259.415	2260.115	826.19	45071.73		4	4						
	2259.212	2259.912	826.19	45075.71		4	6						
	2217.995	2218.686	0.	45071.73		2	4						
	4s2(1S)9s 2S			All Ref PS65									
MltMean	2222.226	2222.920	550.79	45536.66		6	2	5.94E+06		1.47E-03	-2.055	0.513	
	2235.918	2236.613	826.19	45536.66	M	4	2	4.00E+06		1.50E-03	-2.222	0.526	0.07
	2195.347	2196.033	0.	45536.66	M	2	2	1.94E+06		1.40E-03	-2.553	0.488	0.07
	4s2(1S)8d 2D			All Ref PS65									
MltMean	2200.979	2201.669	550.79	45970.88		6	10						
	2214.492	2215.182	826.19	45969.2	M	4	4	5.30E+05		3.90E-04	-2.807	-0.064	0.07
	2214.355	2215.045	826.19	45972.00	M	4	6	3.17E+06		3.50E-03	-1.854	0.889	0.07
	2174.688	2175.370	0.	45969.2	M	2	4						
	4s2(1S)10s 2S			All Ref PS65									
MltMean	2186.391	2187.078	550.79	46273.90		6	2						
	2199.64	2200.33	826.19	46273.9	M	4	2	3.11E+06		1.13E-03	-2.345	0.396	0.07
	2160.37	2161.05	0.	46273.9	M	2	2						

Ga II 3d104s2 1S J = 0 GROUND IP = 165465.8+-1 cm-1 Ref IL85,KL00

1u	4s(2S)4p 3Po			One Ref FH95,(C00)									
	2090.7679	2091.4327	0.	47814.113		1	3	4.09E+05	4.09E+05	8.05E-04	-3.094	0.226	
2u	4s(2S)4p 1Po			One Ref AEPR79,E82,APBK85									
		1414.402	0.	70701.27		1	3	1.97E+09	1.97E+09	1.77E+00	0.249	3.399	0.02

Ga III 3d104s 2S J=1/2 GROUND IP = 247820+-2 cm-1 Ref IL86

	4p 2Po			All Ref CT89,(APBK85)									
MltMean		1507.957	0.	66314.89		2	6	7.83E+08		8.01E-01	0.205	3.082	
		1534.462	0.	65169.40		2	2	7.42E+08	7.42E+08	2.62E-01	-0.281	2.604	
		1495.045	0.	66887.63		2	4	8.05E+08	8.05E+08	5.39E-01	0.033	2.907	

Ga IV 3d10 1S J=0 GROUND IP = 517600 cm-1 No ground-term lines >911.7 A M70a