

Appendix 1

Assigned transitions, observed transition frequencies (in cm^{-1}) and observed minus calculated frequencies (in cm^{-1}) of the HCSi radical in the $\tilde{A}^2\Sigma^+(010) - \tilde{X}^2\Pi(000)$, $\tilde{A}^2\Sigma^+(010) - \tilde{X}^2\Pi(010)$ and $\tilde{A}^2\Sigma^+(020) - \tilde{X}^2\Pi(010)$ bands

J' parity	J'' parity	OBS	O-C	J' parity	J'' parity	OBS	O-C	J' parity	J'' parity	OBS	O-C	
$\tilde{A}^2\Sigma^+(010) F_1 - \tilde{X}^2\Pi_{3/2}(000)$				$\tilde{A}^2\Sigma^+(010) F_2 - \tilde{X}^2\Pi_{3/2}(000)$				$\tilde{A}^2\Sigma^+(010) F_1 - \tilde{X}^2\Pi_{1/2}(000)$				
3.5 e - 2.5 e		12520.044	.012	18.5 e - 19.5 e		12504.042	.003	10.5 e - 10.5 f		12531.685	-.007	
5.5 e - 4.5 e		12522.224	-.009	20.5 e - 21.5 e		12505.094	.002	2.5 e - 1.5 e		12448.117	.016	
6.5 e - 5.5 e		12523.529	.023	21.5 e - 22.5 e		12505.785	-.005	3.5 e - 2.5 e		12448.994	.013	
7.5 e - 6.5 e		12524.903	.008	22.5 e - 23.5 e		12506.602	-.001	5.5 e - 4.5 e		12451.025	-.007	
8.5 e - 7.5 e		12526.402	.002	23.5 e - 24.5 e		12507.532	.002	6.5 e - 5.5 e		12452.233	.030	
9.5 e - 8.5 e		12528.017	-.003	24.5 e - 25.5 e		12508.570	-.001	7.5 e - 6.5 e		12453.474	.004	
10.5 e - 9.5 e		12529.746	-.008	25.5 e - 26.5 e		12509.725	-.001	8.5 e - 7.5 e		12454.836	.002	
11.5 e - 10.5 e		12531.585	-.020	26.5 e - 27.5 e		12511.005	.010	9.5 e - 8.5 e		12456.289	-.006	
12.5 e - 11.5 e		12533.527	-.043	27.5 e - 28.5 e		12512.385	.006	10.5 e - 9.5 e		12457.844	-.008	
13.5 e - 12.5 e		12535.753	.103	28.5 e - 29.5 e		12513.874	-.002	11.5 e - 10.5 e		12459.490	-.017	
14.5 e - 13.5 e		12537.869	.024					12.5 e - 11.5 e		12461.215	-.043	
15.5 e - 14.5 e		12540.168	.013	3.5 f - 2.5 f		12525.071	.007	13.5 e - 12.5 e		12463.200	.094	
2.5 f - 1.5 f		12519.127	.013	4.5 f - 3.5 f		12527.364	-.001	14.5 e - 13.5 e		12465.080	.028	
3.5 f - 2.5 f		12520.044	-.006	5.5 f - 4.5 f		12529.783	.003	15.5 e - 14.5 e		12467.107	.013	
5.5 f - 4.5 f		12522.262	-.015	6.5 f - 5.5 f		12532.314	.003	2.5 f - 1.5 f		12448.117	.012	
6.5 f - 5.5 f		12523.584	.016	7.5 f - 6.5 f		12534.955	-.003	3.5 f - 2.5 f		12448.994	.001	
7.5 f - 6.5 f		12524.985	.008	8.5 f - 7.5 f		12537.724	.005	4.5 f - 3.5 f		12449.967	-.013	
8.5 f - 7.5 f		12526.505	.001	9.5 f - 8.5 f		12540.594	-.002	5.5 f - 4.5 f		12451.055	-.012	
9.5 f - 8.5 f		12528.149	-.001	3.5 e - 2.5 e		12525.091	-.003	6.5 f - 5.5 f		12452.279	.026	
10.5 f - 9.5 f		12529.909	-.005	4.5 e - 3.5 e		12527.398	-.011	8.5 f - 7.5 f		12454.928	.003	
11.5 f - 10.5 f		12531.785	-.011	5.5 e - 4.5 e		12529.843	.001	9.5 f - 8.5 f		12456.412	.002	
12.5 f - 11.5 f		12533.769	-.026	6.5 e - 5.5 e		12532.392	-.002	10.5 f - 9.5 f		12457.991	-.005	
13.5 f - 12.5 f		12535.753	-.160	7.5 e - 6.5 e		12535.064	.000	11.5 f - 10.5 f		12459.668	-.013	
14.5 f - 13.5 f		12538.187	.039	9.5 e - 8.5 e		12540.758	-.001	12.5 f - 11.5 f		12461.444	-.022	
15.5 f - 14.5 f		12540.522	.021	3.5 f - 2.5 f		12515.850	-.002	14.5 f - 13.5 f		12465.376	.039	
3.5 f - 4.5 f		12510.835	-.003	4.5 f - 5.5 f		12515.854	.004	2.5 e - 3.5 e		12441.097	.017	
4.5 f - 5.5 f		12509.592	.003	5.5 f - 6.5 f		12515.963	.000	3.5 e - 4.5 e		12439.628	.008	
7.5 f - 8.5 f		12506.558	.004	6.5 f - 7.5 f		12516.190	-.001	6.5 e - 7.5 e		12435.845	.024	
8.5 f - 9.5 f		12505.786	.007	7.5 f - 8.5 f		12516.537	.002	8.5 e - 9.5 e		12433.776	.003	
9.5 f - 10.5 f		12505.126	.004	8.5 f - 9.5 f		12516.993	-.001	9.5 e - 10.5 e		12432.890	-.005	
10.5 f - 11.5 f		12504.578	-.006	9.5 f - 10.5 f		12517.569	.001	11.5 e - 12.5 e		12431.417	-.014	
11.5 f - 12.5 f		12504.145	-.019	10.5 f - 11.5 f		12518.261	.004	12.5 e - 13.5 e		12430.803	-.042	
12.5 f - 13.5 f		12503.839	-.023	11.5 f - 12.5 f		12519.061	-.001	14.5 e - 15.5 e		12429.989	.023	
13.5 f - 14.5 f		12503.519	-.159	12.5 f - 13.5 f		12519.980	-.001	15.5 e - 16.5 e		12429.686	.012	
14.5 f - 15.5 f		12503.651	.039	14.5 f - 15.5 f		12522.170	.005	16.5 e - 17.5 e		12429.486	.007	
15.5 f - 16.5 f		12503.684	.020	15.5 f - 16.5 f		12523.429	.001	17.5 e - 18.5 e		12429.388	.005	
17.5 f - 18.5 f		12504.130	.010	16.5 f - 17.5 f		12524.807	.000	18.5 e - 19.5 e		12429.388	.003	
18.5 f - 19.5 f		12504.525	.000	17.5 f - 18.5 f		12526.295	-.004	19.5 e - 20.5 e		12429.486	.001	
19.5 f - 20.5 f		12505.052	.004	18.5 f - 19.5 f		12527.905	-.002	20.5 e - 21.5 e		12429.686	.002	
20.5 f - 21.5 f		12505.681	-.006	19.5 f - 20.5 f		12529.626	-.002	21.5 e - 22.5 e		12429.989	.007	
21.5 f - 22.5 f		12506.447	.003	20.5 f - 21.5 f		12531.459	-.004	25.5 e - 26.5 e		12432.158	-.006	
22.5 f - 23.5 f		12507.320	.001	21.5 f - 22.5 f		12533.437	.024	26.5 e - 27.5 e		12432.951	-.007	
23.5 f - 24.5 f		12508.311	.001	22.5 f - 23.5 f		12535.480	.004	27.5 e - 28.5 e		12433.861	.009	
24.5 f - 25.5 f		12509.415	-.003	23.5 f - 24.5 f		12537.651	-.002	2.5 f - 3.5 f		12441.097	.016	
25.5 f - 26.5 f		12510.643	.000	24.5 f - 25.5 f		12539.947	.004	3.5 f - 4.5 f		12439.628	.000	
26.5 f - 27.5 f		12511.982	-.003	3.5 e - 4.5 e		12515.886	.004	4.5 f - 5.5 f		12438.270	-.004	
27.5 f - 28.5 f		12513.434	-.009	4.5 e - 5.5 e		12515.886	-.008	6.5 f - 7.5 f		12435.889	.022	
28.5 f - 29.5 f		12515.017	.000	5.5 e - 6.5 e		12516.024	-.001	8.5 f - 9.5 f		12433.861	.000	
29.5 f - 30.5 f		12516.707	-.001	6.5 e - 7.5 e		12516.270	-.004	9.5 f - 10.5 f		12433.007	.000	
30.5 f - 31.5 f		12518.517	.001	7.5 e - 8.5 e		12516.635	-.007	10.5 f - 11.5 f		12432.248	-.007	
31.5 f - 32.5 f		12520.435	-.004	8.5 e - 9.5 e		12517.125	-.003	11.5 f - 12.5 f		12431.591	-.012	
33.5 f - 34.5 f		12524.631	-.003	9.5 e - 10.5 e		12517.730	-.002	13.5 f - 14.5 f		12430.443	-.157	
1.5 e - 2.5 e		12513.714	.026	10.5 e - 11.5 e		12518.449	-.006	14.5 f - 15.5 f		12430.287	.037	
2.5 e - 3.5 e		12512.216	.020	11.5 e - 12.5 e		12519.293	-.002	15.5 f - 16.5 f		12430.022	.021	
3.5 e - 4.5 e		12510.835	.015	12.5 e - 13.5 e		12520.254	.000	16.5 f - 17.5 f		12429.867	.014	
4.5 e - 5.5 e		12509.561	.001	14.5 e - 15.5 e		12522.521	-.004	17.5 f - 18.5 f		12429.818	.011	
5.5 e - 6.5 e		12508.412	-.004	15.5 e - 16.5 e		12523.836	-.001	18.5 f - 19.5 f		12429.867	.005	
7.5 e - 8.5 e		12506.479	.006	16.5 e - 17.5 e		12525.263	-.004	19.5 f - 20.5 f		12430.022	.004	
8.5 e - 9.5 e		12505.681	.006	17.5 e - 18.5 e		12526.810	-.005	20.5 f - 21.5 f		12430.287	.010	
9.5 e - 10.5 e		12504.991	-.002	18.5 e - 19.5 e		12528.478	-.002	21.5 f - 22.5 f		12430.637	.000	
10.5 e - 11.5 e		12504.421	-.005	19.5 e - 20.5 e		12530.258	-.005	24.5 f - 25.5 f		12432.329	-.002	
11.5 e - 12.5 e		12503.961	-.013	20.5 e - 21.5 e		12532.161	-.001	25.5 f - 26.5 f		12433.103	.002	
12.5 e - 13.5 e		12503.600	-.038	21.5 e - 22.5 e		12534.165	-.014	17.5 f - 17.5 e		12451.470	.010	
13.5 e - 14.5 e		12503.519	.102	24.5 e - 25.5 e		12540.935	.004	21.5 f - 21.5 e		12456.953	.003	
14.5 e - 15.5 e		12503.335	.023	2.5 e - 2.5 f		12520.012	-.006					
15.5 e - 16.5 e		12503.335	.014	4.5 e - 4.5 f		12522.224	-.003					
16.5 e - 17.5 e		12503.453	.008	6.5 e - 6.5 f		12524.903	-.006					
17.5 e - 18.5 e		12503.684	-.001	9.5 e - 9.5 f		12529.812	-.007	$\tilde{A}^2\Sigma^+(010) F_2 - \tilde{X}^2\Pi_{1/2}(000)$		2.5 e - 1.5 e	12451.899	.007

3.5 e - 2.5 e	12454.045	.002	19.5 f - 20.5 f	11903.698	.003	11.5 e - 12.5 e	12063.864	-.024
4.5 e - 3.5 e	12456.289	-.004	20.5 f - 21.5 f	11904.684	.005	12.5 e - 13.5 e	12063.864	-.036
5.5 e - 4.5 e	12458.645	.003	21.5 f - 22.5 f	11905.775	.004	13.5 e - 14.5 e	12064.119	.105
6.5 e - 5.5 e	12461.091	.000	22.5 f - 23.5 f	11906.973	.000	14.5 e - 15.5 e	12064.254	.024
7.5 e - 6.5 e	12463.639	.000	23.5 f - 24.5 f	11908.281	-.002	15.5 e - 16.5 e	12064.560	.013
8.5 e - 7.5 e	12466.286	-.001	25.5 f - 26.5 f	11911.229	-.001	16.5 e - 17.5 e	12064.974	.007
3.5 f - 2.5 f	12454.011	.004	2.5 e - 2.5 f	11907.232	.016	17.5 e - 18.5 e	12065.491	.003
4.5 f - 3.5 f	12456.233	-.007	3.5 e - 3.5 f	11907.503	.011	18.5 e - 19.5 e	12066.114	.002
5.5 f - 4.5 f	12458.572	.002	4.5 e - 4.5 f	11907.876	.002	19.5 e - 20.5 e	12066.839	.002
7.5 f - 6.5 f	12463.517	-.003	5.5 e - 5.5 f	11908.352	-.011	20.5 e - 21.5 e	12067.664	-.001
8.5 f - 7.5 f	12466.138	-.001	6.5 e - 6.5 f	11908.984	.026	21.5 e - 22.5 e	12068.594	-.001
5.5 e - 6.5 e	12444.604	.004	7.5 e - 7.5 f	11909.668	.007	22.5 e - 23.5 e	12069.623	-.003
7.5 e - 8.5 e	12444.910	-.007	8.5 e - 8.5 f	11910.471	.002	23.5 e - 24.5 e	12070.763	.003
8.5 e - 9.5 e	12445.233	.007	9.5 e - 9.5 f	11911.382	-.002	24.5 e - 25.5 e	12071.992	-.004
9.5 e - 10.5 e	12445.633	-.001	10.5 e - 10.5 f	11912.396	-.010	25.5 e - 26.5 e	12073.331	-.003
10.5 e - 11.5 e	12446.139	-.004	11.5 e - 11.5 f	11913.518	-.015	26.5 e - 27.5 e	12074.770	-.004
11.5 e - 12.5 e	12446.750	-.002	12.5 e - 12.5 f	11914.726	-.041	27.5 e - 28.5 e	12076.309	-.007
12.5 e - 13.5 e	12447.458	-.003	13.5 e - 13.5 f	11916.219	.111	2.5 f - 2.5 e	12071.935	.018
13.5 e - 14.5 e	12448.270	.000	15.5 e - 15.5 f	11919.119	.012	3.5 f - 3.5 e	12072.194	.007
14.5 e - 15.5 e	12449.177	-.003	16.5 e - 16.5 f	11920.772	.006	4.5 f - 4.5 e	12072.563	.002
15.5 e - 16.5 e	12450.189	-.001	17.5 e - 17.5 f	11922.534	.003	5.5 f - 5.5 e	12073.027	-.013
16.5 e - 17.5 e	12451.298	-.003	18.5 e - 18.5 f	11924.403	.001	6.5 f - 6.5 e	12073.646	.023
17.5 e - 18.5 e	12452.521	.008	19.5 e - 19.5 f	11926.383	.005	7.5 f - 7.5 e	12074.318	.006
18.5 e - 19.5 e	12453.826	.000	21.5 e - 21.5 f	11930.648	-.001	8.5 f - 8.5 e	12075.108	.004
19.5 e - 20.5 e	12455.231	-.009	22.5 e - 22.5 f	11932.945	.002	9.5 f - 9.5 e	12076.003	.001
20.5 e - 21.5 e	12456.751	-.004	23.5 e - 23.5 f	11935.351	.008	10.5 f - 10.5 e	12077.001	-.003
21.5 e - 22.5 e	12458.357	-.014	24.5 e - 24.5 f	11937.846	-.002	11.5 f - 11.5 e	12078.100	-.011
22.5 e - 23.5 e	12460.092	.003	25.5 e - 25.5 f	11940.451	-.008	12.5 f - 12.5 e	12079.297	-.025
23.5 e - 24.5 e	12461.908	-.001	26.5 e - 26.5 f	11943.172	-.003	14.5 f - 14.5 e	12082.098	.040
24.5 e - 25.5 e	12463.829	-.001	27.5 e - 27.5 f	11945.990	-.006			
25.5 e - 26.5 e	12465.863	.010	28.5 e - 28.5 f	11948.923	.000			
3.5 f - 4.5 f	12444.646	.004				$A^2\Sigma^+(010) F_2 - X(010)\mu^2\Sigma$		
4.5 f - 5.5 f	12444.529	-.006				3.5 f - 2.5 f	12077.546	-.001
5.5 f - 6.5 f	12444.529	.005	$A^2\Sigma^+(010) F_2 - X(010)\kappa^2\Sigma$			4.5 f - 3.5 f	12079.261	-.005
6.5 f - 7.5 f	12444.604	-.007	4.5 e - 3.5 e	11914.641	-.007	5.5 f - 4.5 f	12081.088	.001
7.5 f - 8.5 f	12444.794	-.001	8.5 e - 7.5 e	11922.756	-.002	3.5 f - 4.5 f	12067.158	-.001
8.5 f - 9.5 f	12445.076	.001	9.5 e - 8.5 e	11925.056	-.003	4.5 f - 5.5 f	12066.549	.001
9.5 f - 10.5 f	12445.447	-.006	6.5 e - 7.5 e	11901.176	-.004	5.5 f - 6.5 f	12066.040	.000
10.5 f - 11.5 f	12445.928	.000	7.5 e - 8.5 e	11900.940	-.002	6.5 f - 7.5 f	12065.633	.000
11.5 f - 12.5 f	12446.499	-.002	9.5 e - 10.5 e	11900.804	.006	7.5 f - 8.5 f	12065.340	.011
12.5 f - 13.5 f	12447.167	-.003	11.5 e - 12.5 e	11901.090	-.004	8.5 f - 9.5 f	12065.131	.003
13.5 f - 14.5 f	12447.935	-.003	14.5 e - 15.5 e	11902.369	.005	9.5 f - 10.5 f	12065.029	.001
14.5 f - 15.5 f	12448.803	.000	16.5 e - 17.5 e	11903.757	-.004	10.5 f - 11.5 f	12065.029	-.002
15.5 f - 16.5 f	12449.767	.001	17.5 e - 18.5 e	11904.626	.001	11.5 f - 12.5 f	12065.131	-.006
16.5 f - 17.5 f	12450.826	-.001	18.5 e - 19.5 e	11905.596	-.004	12.5 f - 13.5 f	12065.340	-.005
17.5 f - 18.5 f	12451.985	-.001	19.5 e - 20.5 e	11906.678	-.006	13.5 f - 14.5 f	12065.651	-.005
18.5 f - 19.5 f	12453.235	-.008	20.5 e - 21.5 e	11907.876	-.003	14.5 f - 15.5 f	12066.069	-.001
19.5 f - 20.5 f	12454.596	-.003	21.5 e - 22.5 e	11909.170	-.014	15.5 f - 16.5 f	12066.586	.000
20.5 f - 21.5 f	12456.046	-.007	23.5 e - 24.5 e	11912.126	.000	16.5 f - 17.5 f	12067.205	-.001
21.5 f - 22.5 f	12457.629	.024	24.5 e - 25.5 e	11913.768	.006	18.5 f - 19.5 f	12068.752	-.001
23.5 f - 24.5 f	12461.005	-.002	3.5 f - 3.5 e	11908.281	.007	19.5 f - 20.5 f	12069.679	-.003
25.5 f - 26.5 f	12464.811	.006	4.5 f - 4.5 e	11908.850	-.002	20.5 f - 21.5 f	12070.711	-.003
7.5 f - 7.5 e	12454.761	.004	5.5 f - 5.5 e	11909.538	.001	21.5 f - 22.5 f	12071.873	.024
2.5 e - 2.5 f	12448.956	-.005	6.5 f - 6.5 e	11910.329	.000	22.5 f - 23.5 f	12073.094	.006
6.5 e - 6.5 f	12453.474	.003	7.5 f - 7.5 e	11911.229	.001	23.5 f - 24.5 f	12074.433	.003
7.5 e - 7.5 f	12454.836	-.012	8.5 f - 8.5 e	11912.231	-.003	24.5 f - 25.5 f	12075.874	-.002
			11.5 f - 11.5 e	11915.893	.000	25.5 f - 26.5 f	12077.430	.005
			12.5 f - 12.5 e	11917.325	-.002	27.5 f - 28.5 f	12080.844	.007
			13.5 f - 13.5 e	11918.865	-.002	3.5 e - 3.5 f	12072.968	.004
			14.5 f - 14.5 e	11920.515	.000	4.5 e - 4.5 f	12073.524	-.009
			15.5 f - 15.5 e	11922.265	-.004	5.5 e - 5.5 f	12074.211	.004
			16.5 f - 16.5 e	11924.130	.000	6.5 e - 6.5 f	12074.987	.001
			17.5 f - 17.5 e	11926.098	-.001	7.5 e - 7.5 f	12075.874	.004
			21.5 f - 21.5 e	11935.063	.021	8.5 e - 8.5 f	12076.856	-.003
			23.5 f - 23.5 e	11940.161	.005	9.5 e - 9.5 f	12077.953	.000
			25.5 f - 25.5 e	11945.699	.001	10.5 e - 10.5 f	12079.151	-.001
						11.5 e - 11.5 f	12080.460	.004
						12.5 e - 12.5 f	12081.865	-.001
			$A^2\Sigma^+(010) F_1 - X(010)\mu^2\Sigma$					
			3.5 e - 2.5 e	12075.721	.007			
			4.5 e - 3.5 e	12077.249	.007	$A^2\Sigma^+(010) F_1 - X(010)^2\Delta_{3/2}$		
			5.5 e - 4.5 e	12078.862	-.009	3.5 e - 2.5 e	11944.158	.003
			6.5 e - 5.5 e	12080.628	.026	5.5 e - 4.5 e	11946.175	-.012
			7.5 e - 6.5 e	12082.442	.007	10.5 e - 9.5 e	11952.922	-.002
			2.5 e - 3.5 e	12068.379	.016	11.5 e - 10.5 e	11954.531	-.025
			3.5 e - 4.5 e	12067.467	.008	5.5 f - 4.5 f	11946.223	-.008
			4.5 e - 5.5 e	12066.656	.000	11.5 f - 10.5 f	11954.738	-.012
			5.5 e - 6.5 e	12065.947	-.008	15.5 f - 14.5 f	11962.397	.012
			6.5 e - 7.5 e	12065.381	.025	23.5 f - 22.5 f	11982.377	-.003
			7.5 e - 8.5 e	12064.866	.007	3.5 f - 3.5 e	11940.062	-.006
			8.5 e - 9.5 e	12064.466	.003	7.5 f - 7.5 e	11939.897	.010
			9.5 e - 10.5 e	12064.164	-.006	9.5 f - 9.5 e	11940.380	-.004
			10.5 e - 11.5 e	12063.966	-.012	10.5 f - 10.5 e	11940.771	-.008

11.5 f - 11.5 e	11941.255	-.017	9.5 e - 9.5 f	11952.987	-.004	11.5 f - 12.5 f	11998.276	-.013
12.5 f - 12.5 e	11941.834	-.029	10.5 e - 10.5 f	11954.648	.002	12.5 f - 13.5 f	11997.931	-.030
13.5 f - 13.5 e	11942.387	-.165	11.5 e - 11.5 f	11956.396	-.003	13.5 f - 14.5 f	11997.584	-.165
14.5 f - 14.5 e	11943.379	.039	12.5 e - 12.5 f	11958.248	-.001	14.5 f - 15.5 f	11997.691	.038
15.5 f - 15.5 e	11944.238	.012	13.5 e - 13.5 f	11960.198	.000	15.5 f - 16.5 f	11997.691	.017
16.5 f - 16.5 e	11945.225	.014	14.5 e - 14.5 f	11962.243	-.002	16.5 f - 17.5 f	11997.823	.013
17.5 f - 17.5 e	11946.303	.008	15.5 e - 15.5 f	11964.388	-.002	17.5 f - 18.5 f	11998.073	.011
3.5 e - 3.5 f	11940.062	.011	16.5 e - 16.5 f	11966.634	.000	18.5 f - 19.5 f	11998.437	.007
5.5 e - 5.5 f	11939.734	-.005	18.5 e - 18.5 f	11971.413	-.003	20.5 f - 21.5 f	11999.518	.005
7.5 e - 7.5 f	11939.810	.005	19.5 e - 19.5 f	11973.953	-.003	21.5 f - 22.5 f	12000.231	.004
9.5 e - 9.5 f	11940.247	-.004	21.5 e - 21.5 f	11979.313	-.018	22.5 f - 23.5 f	12001.061	.004
10.5 e - 10.5 f	11940.617	.000	22.5 e - 22.5 f	11982.159	-.008	25.5 f - 26.5 f	12004.238	.001
11.5 e - 11.5 f	11941.062	-.016	23.5 e - 23.5 f	11985.102	.000	26.5 f - 27.5 f	12005.527	.000
12.5 e - 12.5 f	11941.591	-.043	25.5 e - 25.5 f	11991.275	.004	27.5 f - 28.5 f	12006.936	.004
13.5 e - 13.5 f	11942.387	.102	26.5 e - 26.5 f	11994.510	.006	28.5 f - 29.5 f	12008.454	.003
14.5 e - 14.5 f	11943.061	.029	29.5 e - 29.5 f	12004.805	.001	29.5 f - 30.5 f	12010.098	.013
15.5 e - 15.5 f	11943.876	.002	30.5 e - 30.5 f	12008.459	.021	30.5 f - 31.5 f	12011.828	-.006
16.5 e - 16.5 f	11944.817	.005	33.5 e - 33.5 f	12019.988	.047	31.5 f - 32.5 f	12013.687	-.010
17.5 e - 17.5 f	11945.848	.002				6.5 f - 6.5 e	12010.343	.020
18.5 e - 18.5 f	11946.979	.004				7.5 f - 7.5 e	12010.573	.006
19.5 e - 19.5 f	11948.199	-.002	$A^2\Sigma^+(010) F_1 - X(010)^2\Delta_{5/2}$			8.5 f - 8.5 e	12010.932	.005
20.5 e - 20.5 f	11949.520	-.003	5.5 e - 4.5 e	12016.482	-.014	10.5 f - 10.5 e	12011.991	-.004
21.5 e - 21.5 f	11950.944	.003	7.5 e - 6.5 e	12019.146	.011	11.5 f - 11.5 e	12012.691	-.013
22.5 e - 22.5 f	11952.458	.002	8.5 e - 7.5 e	12020.629	.005	12.5 f - 12.5 e	12013.503	-.026
23.5 e - 23.5 f	11954.065	-.003	9.5 e - 8.5 e	12022.222	-.005	13.5 f - 13.5 e	12014.305	-.165
			10.5 e - 9.5 e	12023.932	-.011	14.5 f - 14.5 e	12015.564	.038
$A^2\Sigma^+(010) F_2 - X(010)^2\Delta_{3/2}$			11.5 e - 10.5 e	12025.755	-.018	15.5 f - 15.5 e	12016.719	.020
4.5 e - 5.5 e	11939.734	.001	12.5 e - 11.5 e	12027.673	-.042	16.5 f - 16.5 e	12018.002	.015
5.5 e - 6.5 e	11939.734	.007	13.5 e - 12.5 e	12029.876	.106	17.5 f - 17.5 e	12019.399	.008
8.5 e - 9.5 e	11940.297	-.001	14.5 e - 13.5 e	12031.959	.020	18.5 f - 18.5 e	12020.918	.007
9.5 e - 10.5 e	11940.686	.003	16.5 e - 15.5 e	12036.619	.006	19.5 f - 19.5 e	12022.551	.005
10.5 e - 11.5 e	11941.167	.000	17.5 e - 16.5 e	12039.125	.006	20.5 f - 20.5 e	12024.299	.003
11.5 e - 12.5 e	11941.750	.000	18.5 e - 17.5 e	12041.740	.002	21.5 f - 21.5 e	12026.162	.001
12.5 e - 13.5 e	11942.426	-.004	19.5 e - 18.5 e	12044.468	-.001	22.5 f - 22.5 e	12028.145	.003
13.5 e - 14.5 e	11943.205	-.004	20.5 e - 19.5 e	12047.312	.000	23.5 f - 23.5 e	12030.236	-.001
14.5 e - 15.5 e	11944.082	-.004	6.5 f - 5.5 f	12017.839	.019	24.5 f - 24.5 e	12032.446	-.002
16.5 e - 17.5 e	11946.135	-.001	8.5 f - 7.5 f	12020.737	.007	25.5 f - 25.5 e	12034.770	-.003
17.5 e - 18.5 e	11947.301	-.009	9.5 f - 8.5 f	12022.364	.005	26.5 f - 26.5 e	12037.210	-.002
18.5 e - 19.5 e	11948.584	.002	10.5 f - 9.5 f	12024.101	-.004	27.5 f - 27.5 e	12039.768	.002
20.5 e - 21.5 e	11951.430	.005	11.5 f - 10.5 f	12025.959	-.008	28.5 f - 28.5 e	12042.434	-.001
21.5 e - 22.5 e	11952.988	-.007	12.5 f - 11.5 f	12027.920	-.024	29.5 f - 29.5 e	12045.217	.000
3.5 f - 4.5 f	11939.810	.003	13.5 f - 12.5 f	12029.876	-.162	30.5 f - 30.5 e	12048.117	.004
5.5 f - 6.5 f	11939.677	.011	14.5 f - 13.5 f	12032.284	.037	2.5 e - 2.5 f	12010.529	.024
6.5 f - 7.5 f	11939.734	-.003	15.5 f - 14.5 f	12034.592	.020	3.5 e - 3.5 f	12010.283	.009
7.5 f - 8.5 f	11939.897	-.007	16.5 f - 15.5 f	12037.026	.014	5.5 e - 5.5 f	12010.144	-.008
8.5 f - 9.5 f	11940.162	-.003	17.5 f - 16.5 f	12039.578	.010	6.5 e - 6.5 f	12010.283	.021
10.5 f - 11.5 f	11940.975	.001	18.5 f - 17.5 f	12042.246	.006	7.5 e - 7.5 f	12010.496	.011
11.5 f - 12.5 f	11941.523	.002	19.5 f - 18.5 f	12045.035	.009	8.5 e - 8.5 f	12010.824	.003
12.5 f - 13.5 f	11942.163	.000	20.5 f - 19.5 f	12047.933	.005	9.5 e - 9.5 f	12011.270	-.001
13.5 f - 14.5 f	11942.894	-.006	1.5 e - 2.5 e	12007.995	.028	10.5 e - 10.5 f	12011.827	-.007
14.5 f - 15.5 f	11943.731	-.003	2.5 e - 3.5 e	12006.486	.018	11.5 e - 11.5 f	12012.492	-.018
17.5 f - 18.5 f	11946.811	.003	3.5 e - 4.5 e	12005.099	.015	12.5 e - 12.5 f	12013.258	-.042
19.5 f - 20.5 f	11949.331	-.006	5.5 e - 6.5 e	12002.643	-.012	13.5 e - 13.5 f	12014.305	.103
21.5 f - 22.5 f	11952.278	.026	6.5 e - 7.5 e	12001.635	.024	14.5 e - 14.5 f	12015.254	.036
22.5 f - 23.5 f	11953.861	.006	7.5 e - 8.5 e	12000.687	.006	15.5 e - 15.5 f	12016.361	.014
25.5 f - 26.5 f	11959.247	.003	8.5 e - 9.5 e	11999.865	.001	16.5 e - 16.5 f	12017.594	.006
28.5 f - 29.5 f	11965.525	.017	9.5 e - 10.5 e	11999.158	-.003	19.5 e - 19.5 f	12021.989	.001
3.5 f - 3.5 e	11945.088	.005	10.5 e - 11.5 e	11998.561	-.010	20.5 e - 20.5 f	12023.678	-.001
4.5 f - 4.5 e	11946.135	-.002	11.5 e - 12.5 e	11998.073	-.022	21.5 e - 21.5 f	12025.485	.002
6.5 f - 6.5 e	11948.532	.002	13.5 e - 14.5 e	11997.584	.102	22.5 e - 22.5 f	12027.394	-.005
7.5 f - 7.5 e	11949.866	-.002	14.5 e - 15.5 e	11997.373	.028	23.5 e - 23.5 f	12029.426	-.001
8.5 f - 8.5 e	11951.304	.003	15.5 e - 16.5 e	11997.334	.013	24.5 e - 24.5 f	12031.563	-.004
9.5 f - 9.5 e	11952.829	.000	16.5 e - 17.5 e	11997.420	.009	26.5 e - 26.5 f	12036.177	-.005
10.5 f - 10.5 e	11954.454	.002	17.5 e - 18.5 e	11997.620	.007	27.5 e - 27.5 f	12038.652	-.004
11.5 f - 11.5 e	11956.166	-.003	18.5 e - 19.5 e	11997.931	.003	28.5 e - 28.5 f	12041.245	.003
12.5 f - 12.5 e	11957.981	-.001	19.5 e - 20.5 e	11998.357	.001	29.5 e - 29.5 f	12043.939	-.001
13.5 f - 13.5 e	11959.890	.000	20.5 e - 21.5 e	11998.904	.008	30.5 e - 30.5 f	12046.748	.000
14.5 f - 14.5 e	11961.892	-.001	21.5 e - 22.5 e	11999.545	-.004	31.5 e - 31.5 f	12049.666	-.002
15.5 f - 15.5 e	11963.997	.006	22.5 e - 23.5 e	12000.313	-.001			
16.5 f - 16.5 e	11966.185	.000	23.5 e - 24.5 e	12001.189	-.003			
17.5 f - 17.5 e	11968.476	.002	25.5 e - 26.5 e	12003.280	-.003	$A^2\Sigma^+(010) F_2 - X(010)^2\Delta_{5/2}$		
18.5 f - 18.5 e	11970.859	.000	26.5 e - 27.5 e	12004.488	-.009	9.5 e - 10.5 e	12011.899	-.001
19.5 f - 19.5 e	11973.339	.000	27.5 e - 28.5 e	12005.816	-.006	10.5 e - 11.5 e	12012.600	.000
25.5 f - 25.5 e	11990.245	.005	28.5 e - 29.5 e	12007.262	.003	11.5 e - 12.5 e	12013.413	-.003
28.5 f - 28.5 e	12000.006	.012	29.5 e - 30.5 e	12008.805	-.003	12.5 e - 13.5 e	12014.346	-.001
29.5 f - 29.5 e	12003.451	.012	2.5 f - 3.5 f	12006.486	.009	15.5 e - 16.5 e	12017.839	.001
30.5 f - 30.5 e	12006.995	.014	3.5 f - 4.5 f	12005.100	-.001	17.5 e - 18.5 e	12020.737	-.006
4.5 e - 4.5 f	11946.175	-.006	4.5 f - 5.5 f	12003.847	.005	18.5 e - 19.5 e	12022.364	-.005
6.5 e - 6.5 f	11948.615	.003	5.5 f - 6.5 f	12002.688	-.011	19.5 e - 20.5 e	12024.101	-.009
7.5 e - 7.5 f	11949.969	-.005	8.5 f - 9.5 f	11999.971	.001	20.5 e - 21.5 e	12025.959	-.008
8.5 e - 8.5 f	11951.430	-.003	9.5 f - 10.5 f	11999.291	-.002	21.5 e - 22.5 e	12027.920	-.018
			10.5 f - 11.5 f	11998.725	-.008	23.5 e - 24.5 e	12032.229	.003

24.5 e - 25.5 e	12034.545	.003	17.5 f - 18.5 f	12709.364	.000	8.5 e - 9.5 e	12751.914	-.002
25.5 e - 26.5 e	12036.978	.006	18.5 f - 19.5 f	12709.658	.005	9.5 e - 10.5 e	12751.619	.000
26.5 e - 27.5 e	12039.518	.001	10.5 e - 9.5 e	12735.771	.008	10.5 e - 11.5 e	12751.429	.006
3.5 f - 4.5 f	12010.119	.003	11.5 e - 10.5 e	12737.638	.047	11.5 e - 12.5 e	12751.327	-.001
4.5 f - 5.5 f	12010.098	-.004	12.5 e - 11.5 e	12739.566	.036	12.5 e - 13.5 e	12751.327	-.007
6.5 f - 7.5 f	12010.417	.000	13.5 e - 12.5 e	12741.592	.012	13.5 e - 14.5 e	12751.429	-.013
7.5 f - 8.5 f	12010.740	-.004	14.5 e - 13.5 e	12743.742	.003	14.5 e - 15.5 e	12751.655	.004
8.5 f - 9.5 f	12011.185	.000	15.5 e - 14.5 e	12746.005	-.003	15.5 e - 16.5 e	12751.960	-.001
9.5 f - 10.5 f	12011.734	-.005	16.5 e - 15.5 e	12748.382	-.003	16.5 e - 17.5 e	12752.371	-.002
10.5 f - 11.5 f	12012.402	-.004	17.5 e - 16.5 e	12750.871	.000	17.5 e - 18.5 e	12752.879	-.007
11.5 f - 12.5 f	12013.188	.001	18.5 e - 17.5 e	12753.459	-.004	18.5 e - 19.5 e	12753.493	-.007
14.5 f - 15.5 f	12016.207	.001	19.5 e - 18.5 e	12756.151	-.010	19.5 e - 20.5 e	12754.210	-.006
15.5 f - 16.5 f	12017.437	-.001	10.5 f - 9.5 f	12735.771	.008	20.5 e - 21.5 e	12755.042	.010
17.5 f - 18.5 f	12020.241	.000	11.5 f - 10.5 f	12737.638	.047	21.5 e - 22.5 e	12755.952	.002
19.5 f - 20.5 f	12023.493	-.001	12.5 f - 11.5 f	12739.566	.036	22.5 e - 23.5 e	12756.972	.003
20.5 f - 21.5 f	12025.287	-.001	13.5 f - 12.5 f	12741.592	.012	23.5 e - 24.5 e	12758.089	.000
4.5 f - 4.5 e	12016.439	-.007	14.5 f - 13.5 f	12743.742	.003	24.5 e - 25.5 e	12759.312	.002
7.5 f - 7.5 e	12020.544	-.004	15.5 f - 14.5 f	12746.005	-.003	25.5 e - 26.5 e	12760.627	-.005
8.5 f - 8.5 e	12022.144	.003	16.5 f - 15.5 f	12748.382	-.003	26.5 e - 27.5 e	12762.053	-.002
9.5 f - 9.5 e	12023.847	-.001	17.5 f - 16.5 f	12750.871	.000	27.5 e - 28.5 e	12763.580	.000
10.5 f - 10.5 e	12025.668	-.001	18.5 f - 17.5 f	12753.459	-.004	28.5 e - 29.5 e	12765.211	.006
11.5 f - 11.5 e	12027.604	.002	19.5 f - 18.5 f	12756.151	-.010	2.5 e - 1.5 e	12761.752	-.005
12.5 f - 12.5 e	12029.649	.001				3.5 e - 2.5 e	12763.189	.008
13.5 f - 13.5 e	12031.805	-.002	$A^2\Sigma^+(020)^2 F_2 - X(010)^2\Delta_{5/2}$			4.5 e - 3.5 e	12764.721	.014
14.5 f - 14.5 e	12034.079	.000	8.5 e - 9.5 e	12722.990	.006	5.5 e - 4.5 e	12766.337	.003
15.5 f - 15.5 e	12036.462	-.002	10.5 e - 11.5 e	12724.196	-.004	7.5 e - 6.5 e	12769.892	.000
16.5 f - 16.5 e	12038.961	.000	12.5 e - 13.5 e	12725.857	-.003	8.5 e - 7.5 e	12771.829	.006
18.5 f - 18.5 e	12044.295	.003	13.5 e - 14.5 e	12726.847	-.009	9.5 e - 8.5 e	12773.853	-.001
19.5 f - 19.5 e	12047.125	-.001	15.5 e - 16.5 e	12729.185	.010			
2.5 e - 2.5 f	12014.305	.008	16.5 e - 17.5 e	12730.512	.015	$A^2\Sigma^+(020)^0 F_2 - X(010)\mu^2\Sigma$		
4.5 e - 4.5 f	12016.482	-.008	8.5 f - 9.5 f	12722.990	.006	1.5 f - 2.5 f	12756.151	-.005
5.5 e - 5.5 f	12017.765	.003	10.5 f - 11.5 f	12724.196	-.004	2.5 f - 3.5 f	12755.342	.001
6.5 e - 6.5 f	12019.146	-.003	12.5 f - 13.5 f	12725.857	-.003	3.5 f - 4.5 f	12754.615	-.012
7.5 e - 7.5 f	12020.654	.001	13.5 f - 14.5 f	12726.847	-.009	4.5 f - 5.5 f	12754.007	-.008
8.5 e - 8.5 f	12022.274	.001	15.5 f - 16.5 f	12729.185	.010	5.5 f - 6.5 f	12753.493	-.011
9.5 e - 9.5 f	12024.017	.007	16.5 f - 17.5 f	12730.512	.015	6.5 f - 7.5 f	12753.095	-.001
11.5 e - 11.5 f	12027.830	-.001	8.5 e - 7.5 e	12743.742	-.002	7.5 f - 8.5 f	12752.783	-.006
12.5 e - 12.5 f	12029.914	-.001	9.5 e - 8.5 e	12746.601	-.001	8.5 f - 9.5 f	12752.579	-.005
13.5 e - 13.5 f	12032.111	-.005	10.5 e - 9.5 e	12749.570	-.002	9.5 f - 10.5 f	12752.479	-.002
14.5 e - 14.5 f	12034.430	-.001	11.5 e - 10.5 e	12752.644	-.009	10.5 f - 11.5 f	12752.479	-.001
15.5 e - 15.5 f	12036.859	-.004	12.5 e - 11.5 e	12755.836	-.008	11.5 f - 12.5 f	12752.579	-.002
16.5 e - 16.5 f	12039.409	-.001	13.5 e - 12.5 e	12759.136	-.009	12.5 f - 13.5 f	12752.783	.000
17.5 e - 17.5 f	12042.070	-.002	14.5 e - 13.5 e	12762.551	-.004	13.5 f - 14.5 f	12753.095	.007
18.5 e - 18.5 f	12044.846	-.004	15.5 e - 14.5 e	12766.077	.004	14.5 f - 15.5 f	12753.493	-.002
19.5 e - 19.5 f	12047.739	-.003	16.5 e - 15.5 e	12769.706	.007	15.5 f - 16.5 f	12754.007	.002
			8.5 f - 7.5 f	12743.742	-.002	16.5 f - 17.5 f	12754.615	-.001
$A^2\Sigma^+(020)^2 F_1 - X(010)^2\Delta_{5/2}$			9.5 f - 8.5 f	12746.601	-.001	17.5 f - 18.5 f	12755.342	.012
10.5 e - 11.5 e	12710.389	-.002	10.5 f - 9.5 f	12749.570	-.002	18.5 f - 19.5 f	12756.151	.005
11.5 e - 12.5 e	12709.960	.047	11.5 f - 10.5 f	12752.644	-.009	19.5 f - 20.5 f	12757.072	.008
12.5 e - 13.5 e	12709.568	.021	12.5 f - 11.5 f	12755.836	-.008	20.5 f - 21.5 f	12758.089	.004
13.5 e - 14.5 e	12709.301	.010	13.5 f - 12.5 f	12759.136	-.009	21.5 f - 22.5 f	12759.208	.000
14.5 e - 15.5 e	12709.147	.001	14.5 f - 13.5 f	12762.551	-.004	22.5 f - 23.5 f	12760.439	.005
15.5 e - 16.5 e	12709.104	-.006	15.5 f - 14.5 f	12766.077	.004	23.5 f - 24.5 f	12761.752	-.010
16.5 e - 17.5 e	12709.180	-.003	16.5 f - 15.5 f	12769.706	.007	24.5 f - 25.5 f	12763.189	-.004
17.5 e - 18.5 e	12709.364	.000				25.5 f - 26.5 f	12764.721	-.005
18.5 e - 19.5 e	12709.658	.005	$A^2\Sigma^+(020)^0 F_1 - X(010)\mu^2\Sigma$			26.5 f - 27.5 f	12766.362	.000
10.5 f - 11.5 f	12710.389	-.002	1.5 e - 2.5 e	12756.847	.008	2.5 f - 1.5 f	12763.402	.004
11.5 f - 12.5 f	12709.960	.047	2.5 e - 3.5 e	12755.836	.004	3.5 f - 2.5 f	12765.015	.000
12.5 f - 13.5 f	12709.568	.021	3.5 e - 4.5 e	12754.929	.003	4.5 f - 3.5 f	12766.735	.003
13.5 f - 14.5 f	12709.301	.010	4.5 e - 5.5 e	12754.123	.002	5.5 f - 4.5 f	12768.552	.000
14.5 f - 15.5 f	12709.147	.001	5.5 e - 6.5 e	12753.418	.000	6.5 f - 5.5 f	12770.467	-.005
15.5 f - 16.5 f	12709.104	-.006	6.5 e - 7.5 e	12752.819	.003			
16.5 f - 17.5 f	12709.180	-.003	7.5 e - 8.5 e	12752.316	.000			