ANL-7209
Chemistry (TID-4500)
AEC Research and
Development Report

CFSTI PRICES

ARGONNE NATIONAL LABORATORY
9700 South Cass Avenue
Argonne, Illinois 60439

H.C. \$ 2.00; MN 50

AVERAGES OF INTERFEROMETRIC
MEASUREMENTS OF THORIUM LINES

by

Athos Giacchetti

Chemistry Division

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May 1966

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AVERAGES OF INTERFEROMETRIC MEASUREMENTS OF THORIUM LINES

by

Athos Giacchetti

This report is a compilation of the interferometric measurements of thorium lines that have been published up to this moment.¹⁻⁵

Data concerning 701 lines are collected in Table I. Columns 1 and 2 of this table contain the averages of the vacuum and air wavelengths, respectively, for those lines that have two or more interferometric measurements. The wavelengths of those lines that have only one interferometric measurement are reported as they appear in their respective publications.

Columns 3 and 4 contain the intensity and the ion classification as from the Monograph of Zalubas.⁶

Column 5 lists the average deviations, in units of 10^{-4} Ångström. A blank in this column indicates that only one interferometric measurement has been published for that particular line.

Column 6 contains the number of measurements (one for each publication).

The next five columns contain the deviations, in units of 10^{-4} Ångström, for each independent measurement. A blank in any one of these columns indicates that no interferometric measurement was published by the respective reference for that line. A dot (decimal point without any value for the deviation) could appear in one of these five columns, the other four columns being blank. This indicates that the line has only one interferometric measurement and that it has been published by the reference cited in that column. In this case, Column 6 contains the number 1.

In Table II are listed 40 lines that have not been included in Table I, nor in the computation of the averages, for the following reasons: the wavelengths of 38 lines have been given to only three decimal places, and two lines do not appear in the Zalubas' Monograph.

TABLE I. Averages of Interferometric Measurements

VACUUM	AIR	ION	AVERAGE	NO	DEVIATIONS				
WAVELENGTH	WAVELENGTH	INT	CLASS	DEVIAT.	MEAS	REF1	REF2	REF3	REF4: REF5
2566.3615	2565.5926	250	II		1				.
2567.3570	2566.5878	125	II		1				.
2577.4595	2576.6879	125	II		1				.
2589.8332	2589.0587	100	II		1				.
2597.8229	2597.0465	250	II		1				.
2601.6597	2600.8824	250	II		1				.
2619.7891	2619.0075	150	II		1				.
2624.2308	2623.4481	250	II		1				.
2626.5199	2625.7367	300	II		1				.
2642.2749	2641.4879	500	II		1				.
2651.3718	2650.5827	750	II	4.5	2		4.5		-4.5
2659.4547	2658.6636	300	II		1		.		
2680.6797	2679.8835	40	I		1		.		
2685.0856	2684.2884	3000	II		1				.
2687.9321	2687.1342	500	II	21.5	3		-15.6	-16.6	32.3
2688.4503	2687.6523	200	II		1				.
2693.2153	2692.4161	2000	II		1				.
2696.3523	2695.5524	500	II	4.5	2			4.5	-4.5
2698.3463	2697.5459	150	II		1		.		
2704.7588	2703.9568	1000	II		1				.
2708.9788	2708.1758	700	II	4.0	2			4.0	-4.0
2722.4974	2721.6912	500	II	1.0	2			1.0	-1.0
2723.1857	2722.3793	100	II	5.0	2			6.0	-6.0
2730.1348	2729.3268	500	II	5.0	2			5.0	-5.0
2733.6171	2732.8082	500	II		1				.
2739.1343	2738.3240	100	II		1		.		
2743.8744	2743.0630	300	II		1				.
2747.9679	2747.1555	100	II		1				.
2750.3440	2749.5310	150	II	2.5	2			2.5	-2.5
2752.9798	2752.1662	750	II		1				.
2761.2060	2760.3904	250	II	4.5	2		4.5		-4.5
2764.4215	2763.6051	500	II		1				.
2765.4533	2764.6367	200	II	6.5	2			6.5	-6.5
2765.9402	2765.1234	200	II	2.5	2			2.5	-2.5
2769.6588	2768.8411	1000	II		1				.
2771.6330	2770.8148	1000	II		1				.

CONT. TABLE I

VACUUM WAVELENGTH	AIR WAVELENGTH	ION INT	AVERAGE CLASS	NO DEVIAT.	MEAS	REF1	REF2	REF3	REF4	REF5
2772.8287	2772.0103	100	II		1					.
2774.7707	2773.9518	100	II	5.0	2			-5.0		5.0
2781.5150	2780.6944	200	II		1					.
2787.9517	2787.1296	150	II	9.0	2			-9.0		9.0
2795.0787	2794.2548	400	II		1					.
2798.5611	2797.7364	150	II	2.0	2			2.0		-2.0
2808.6543	2807.8271	30	II		1					.
2815.1480	2814.3190	200	II	2.5	2			2.5		-2.5
2816.8996	2816.0704	125	II	2.0	2			2.0		-2.0
2820.1521	2819.3221	200	II		1					.
2821.1655	2820.3353	100	II	4.5	2			4.5		-4.5
2822.8557	2822.0250	200	II	2.5	2			-2.5		2.5
2827.6871	2826.8553	500	II	3.0	2			3.0		-3.0
2831.2746	2830.4416	300	II	5.5	2			5.5		-5.5
2833.1475	2832.3143	300	II		1					.
2838.1289	2837.2945	2000	II		1					.
2843.6477	2842.8119	1000	II		1					.
2850.1635	2849.3262	40	I		1		.			.
2852.0981	2851.2603	800	II		1					.
2855.1810	2854.3424	75	I		1		.			.
2871.2480	2870.4055	1500	II		1					.
2879.5016	2878.6570	100	II		1		.			.
2885.1351	2884.2891	1500	II	8.5	2			8.5		-8.5
2885.8943	2885.0482	900	II		1					.
2888.6644	2887.8176	500	II	3.5	2		3.5			-3.5
2892.0968	2891.2491	200	II	9.5	2			9.5		-9.5
2900.5700	2899.7202	600	II	5.0	2			5.0		-5.0
2903.5642	2902.7137	75	I		1		.			.
2912.8617	2912.0089	400	II		1		.			.
2918.2651	2917.4110	600	II		1					.
2919.7768	2918.9223	50	I		1		.			.
2920.6954	2919.8407	300	II	2.0	2		2.0			-2.0
2925.9066	2925.0506	800	II		1					.
2929.1109	2928.2541	1000	II	7.5	2			7.5		-7.5
2943.7199	2942.8595	1500	II		1					.
2944.5896	2943.7290	50	I		1		.			.

CONT. TABLE I

VACUUM	AIR	ICN	AVERAGE	NO	DEVIATIONS					
WAVELENGTH	WAVELENGTH	INT	CLASS	DEVIAT.	MEAS	REF1	REF2	REF3	REF4	REF5
2949.9296	2949.0676	400	II	3.5	2		3.5			-3.5
2958.4444	2957.5803	600	II		1					.
2960.7181	2959.8535	50	II		1		.			
2969.5535	2968.6867	1000	II	6.5	2			6.5		-6.5
2971.4332	2970.5659	50	I		1		.			
2974.8749	2974.0112	900	II		1					.
2986.1138	2985.2428	600	II		1		.			
2989.1032	2988.2315	1400	II		1					.
3003.2759	3002.4007	800	I		1					.
3005.1238	3004.2481	75	I		1		.			
3009.3737	3008.4969	200	II	6.0	2			6.0		-6.0
3011.6130	3010.7357	100	I		1		.			
3027.4562	3026.5749	400	II	3.5	2			5.5		-5.5
3028.1103	3027.2289	100	II		1		.			
3034.9484	3034.0653	600	II	3.5	2		3.5			-3.5
3035.9932	3035.1098	400	II	7.0	2			7.0		-7.0
3042.8257	3041.9406	50	I		1		.			
3047.8379	3046.9515	400	II		1		.			
3049.9791	3049.0922	1500	II	2.0	2			2.0		-2.0
3062.5896	3061.6996	150	II		1					.
3068.6210	3067.7294	1000	II	3.5	2		3.5			-3.5
3073.0080	3072.1153	600	II		1		.			
3077.3040	3076.4103	50	I		1		.			
3079.7229	3078.8286	2000	II	1.5	2			1.5		-1.5
3081.1118	3080.2171	1000	II	2.0	2			2.0		-2.0
3089.3665	3088.4697	400	II	7.0	2			7.0		-7.0
3090.9908	3090.0936	250	II		1		.			
3103.5641	3102.6638	500	II	3.5	2			3.5		-3.5
3107.9274	3107.0260	400	II		1		.			
3109.1984	3108.2967	1500	II	.5	2			.5		-.5
3116.4413	3115.5377	50	I		1		.			
3120.4304	3119.5258	1000	II		1					.
3123.8682	3122.9628	1000	II	3.5	2			3.5		-3.5
3125.2929	3124.3871	400	II	3.0	2			3.0		-3.0
3126.1146	3125.2086	300	II		1					.
3126.4131	3125.5070	800	II		1					.

CONT. TABLE 1

VACUUM	AIR	ION AVERAGE		NO		DEVIATIONS				
WAVELENGTH	WAVELENGTH	INT	CLASS	DEVIAT.	MEAS	REF1	REF2	REF3	REF4	REF5
3126.6507	3125.7446	500	II		1					.
3131.9768	3131.0693	200	II	5.5	2			5.5		-5.5
3137.1244	3136.2156	700	I		1					.
3140.2157	3139.3062	2000	II	2.5	2			2.5		-2.5
3146.5480	3145.6369	400	I		1					.
3146.9546	3146.0434	200	II	2.0	2			2.0		-2.0
3151.3674	3150.4551	300	II	1.0	2			1.0		-1.0
3155.2143	3154.3010	1000	II	1.0	2		-1.0			1.0
3155.6887	3154.7753	800	II	1.5	2			-1.5		1.5
3167.0148	3166.0985	300	II	1.5	2			1.5		-1.5
3170.2452	3169.3281	150	II	1.0	2		1.0			-1.0
3176.6451	3175.7264	500	II	5.0	2		-5.0			5.0
3179.9675	3179.0479	500	II	3.5	2			3.5		-3.5
3181.1135	3180.1936	2000	II		1					.
3185.1982	3184.2773	200	I		1		.			.
3185.8698	3184.9488	500	II	.5	2			.5		-.5
3189.1558	3188.2339	500	II		1					.
3196.2443	3195.3206	100	II		1					.
3201.4110	3200.4860	20	II		1		.			.
3209.4538	3208.5268	100	I		1		.			.
3211.2361	3210.3086	400	II	.5	2			.5		-.5
3211.7062	3210.7786	100	I		1		.			.
3221.2807	3220.3507	600	II		1		.			.
3222.2215	3221.2912	1000	II	5.0	2			5.0		-5.0
3229.9418	3229.0096	1500	II	5.5	2			5.5		-5.5
3231.7837	3230.8510	300	II		1		.			.
3237.5072	3236.5731	150	I		1		.			.
3239.0505	3238.1160	2000	II	2.0	2			2.0		-2.0
3245.3844	3244.4483	800	I		1					.
3250.2817	3249.3443	75	I		1		.			.
3252.8541	3251.9161	2000	II		1					.
3257.2128	3256.2737	1500	II		1					.
3258.3057	3257.3663	1300	I		1					.
3263.6095	3262.6688	3000	II	4.0	3			0.0	-6.0	6.0
3271.0424	3270.0998	100	I		1		.			.
3272.9913	3272.0482	800	I		1		.			.

CONT. TABLE I

VACUUM	AIR	ION		AVERAGE	NO	DEVIATIONS				
WAVELENGTH	WAVELENGTH	INT	CLASS	DEVIAT.	MEAS	REF1	REF2	REF3	REF4	REF5
3274.8374	3273.8938	600	II		1				.	
3278.6464	3277.7018	75	I		1		.			
3279.6774	3278.7326	300	II		1		.			
3284.6168	3283.6707	100	I		1		.			
3286.6984	3285.7518	900	I		1				.	
3288.7358	3287.7887	1600	II	.8	4	-1.2	1.7		-.2	-.2
3292.6868	3291.7387	3000	II		1				.	
3293.4687	3292.5204	3000	II	3.2	4	-.7	5.2		1.2	-5.7
3294.8969	3293.9482	400	II		1		.			
3303.1432	3302.1924	200	I		1		.			
3305.1896	3304.2383	3000	I	1.3	3	-1.0			-1.0	2.0
3309.0107	3308.0584	200	II		1		.			
3310.3180	3309.3654	800	I	2.8	3	-2.6			-1.6	4.3
3319.3451	3318.3904	200	I		1		.			
3321.4317	3320.4763	400	I		1				.	
3325.7088	3324.7523	2000	II	1.2	4	.7	1.7		-.2	-2.2
3326.0769	3325.1203	3000	II	1.6	4	-.7	3.2		-1.7	-.7
3327.4222	3326.4652	400	II		1		.			
3331.4346	3330.4766	1800	I	1.1	3	-.3			-1.3	1.6
3333.4377	3332.4792	100	I		1		.			
3334.0872	3333.1285	1000	I		1				.	
3338.8300	3337.8701	2000	II	2.5	4	-2.5	2.5		-2.5	2.5
3351.3147	3350.3516	200	II		1		.			
3352.1913	3351.2280	2500	II	1.5	4	-1.0	3.0		-1.0	-1.0
3359.5669	3358.6017	2000	II	1.5	4	-1.5	2.5		-1.5	.5
3367.4846	3366.5174	300	II		1		.			
3368.7860	3367.8185	1200	II		1				.	
3375.9439	3374.9746	1600	I	1.3	3	1.0			1.0	-2.0
3379.5436	3378.5733	400	II	2.5	2		2.5		-2.5	
3381.8302	3380.8594	900	I	1.5	3	1.6			-2.3	.6
3386.5032	3385.5312	800	II	1.2	4	1.2	1.2		-.7	-1.7
3391.8224	3390.8490	200	II		1		.			
3393.0084	3392.0347	6000	II	1.5	3	1.6			-2.3	.6
3394.9671	3393.9929	200	I		1		.			
3397.7021	3396.7272	1400	I	2.2	3	1.6			1.6	-3.3
3399.5201	3398.5447	1600	I		1				.	

CONT. TABLE I

VACUUM	AIR	ION	AVERAGE	NO	DEVIATIONS					
WAVELENGTH	WAVELENGTH	INT	CLASS	DEVIAT.	MEAS	REF1	REF2	REF3	REF4	REF5
3403.6744	3402.6977	1500	II		1			.		
3406.5349	3405.5577	1400	I	1.3	3	-1.0			-1.0	2.0
3413.9918	3413.0127	1800	I	1.7	3	1.3			1.3	-2.6
3422.1909	3421.2097	2500	I	.6	3	1.0			0.0	-1.0
3424.9714	3423.9895	1600	I		1				.	
3434.9829	3433.9985	3000	II	1.1	3	1.3			-1.6	.3
3438.2923	3437.3070	2500	I		1				.	
3443.5651	3442.5784	800	I	3.3	4	1.2		3.2	2.2	-6.7
3452.6910	3451.7020	900	I	1.1	3	-.3			-1.3	1.6
3458.0588	3457.0685	800	I		1				.	
3463.8421	3462.8502	2000	II	3.1	3	-2.3		4.6	-2.3	
3469.2123	3468.2190	2000	II	4.7	4	3.5		3.5	2.5	-9.5
3480.1684	3479.1723	800	II	1.1	3	-.3		1.6	-1.3	
3487.5248	3486.5269	3500	II		1				.	
3494.5177	3493.5179	2000	II	2.4	3	-2.3		3.6	-1.3	
3499.6224	3498.6213	900	I	7.2	4	-6.5		-1.5	-6.5	14.5
3504.7881	3503.7857	500	I	4.0	3	-5.0		6.0	-1.0	
3512.1612	3511.1570	1000	I	2.7	4	.7		4.7	-2.2	-3.2
3519.4096	3518.4035	1000	I	.4	3	-.6			.3	.3
3522.0660	3521.0592	500	I		1				.	
3531.5236	3530.5144	500	II		1				.	
3532.4595	3531.4501	1000	I		1				.	
3540.3335	3539.3220	800	II		1				.	
3540.5987	3539.5872	4000	II	3.5	3	-3.6			-1.6	5.3
3545.0305	3544.0177	1500	I	2.7	4	-.5		5.5	-1.5	-3.5
3550.6096	3549.5955	1200	I		1				.	
3552.4160	3551.4014	1000	I	.3	4	-.2		.7	-.2	-.2
3556.0284	3555.0129	1500	I		1				.	
3560.4666	3559.4498	2500	II	10.2	3	-7.6		15.3	-7.6	
3564.3930	3563.3753	800	I		1				.	
3568.2822	3567.2635	1200	I	2.0	3	1.0			2.0	-3.0
3573.4119	3572.3919	1000	II		1				.	
3577.5782	3576.5570	1000	I	3.8	4	3.2		1.2	3.2	-7.7
3585.1983	3584.1753	800	I	2.6	3	1.0			3.0	-4.0
3592.4771	3591.4522	1000	I		1				.	
3593.8047	3592.7793	2000	I	5.7	4	-4.5		11.5	-4.5	-2.5

CONT. TABLE I

VACUUM	AIR	ION	AVERAGE	NO	DEVIATIONS					
WAVELENGTH	WAVELENGTH	INT	CLASS	DEVIAT.	MEAS	REF1	REF2	REF3	REF4	REF5
3599.1464	3598.1198	2000	I	.6	3	-1.0			0.0	1.0
3609.4067	3608.3774	1200	I		1				.	
3613.4574	3612.4271	1400	I	2.0	3	1.0			2.0	-3.0
3616.1636	3615.1325	2000	II	1.2	4	-.7		.2	-1.7	2.2
3623.8281	3622.7950	800	I	.8	4	1.2		.2	.2	-1.7
3626.6612	3625.6275	500	II		1				.	
3633.8658	3632.8301	1000	I	3.5	4	-2.0		7.0	-2.0	-3.0
3636.9796	3635.9432	1900	I		1				.	
3643.2868	3642.2488	2200	I	.6	3	0.0			-1.0	1.0
3650.7746	3649.7346	1200	I		1				.	
3657.7351	3656.6933	1000	I	3.5	4	3.0		1.0	3.0	-7.0
3662.6653	3661.6223	500	II		1				.	
3669.1848	3668.1401	1000	I	4.7	4	-4.2		6.7	-5.2	2.7
3671.0135	3669.9683	750	I	5.7	3	5.3			3.3	-8.6
3672.5853	3671.5397	700	I		1				.	
3676.6136	3675.5670	1000	II		1				.	
3683.5345	3682.4860	1000	I	1.0	4	1.0		1.0	0.0	-2.0
3691.6742	3690.6237	1000	I		1				.	
3693.6170	3692.5660	1200	I	3.6	4	1.7		3.7	1.7	-7.2
3699.1584	3698.1059	1300	I		1				.	
3702.0313	3700.9780	300	I	1.3	4	.2		1.2	1.2	-2.7
3707.8219	3706.7672	2400	I		1				.	
3712.3597	3711.3037	600	II	.4	3	.3		-.6	.3	
3720.4928	3719.4348	3000	I	1.5	3	-1.6			-.6	2.3
3728.9629	3727.9027	800	I	4.2	3	-3.6			-2.6	6.3
3734.0467	3732.9852	500	I		1				.	
3734.7340	3733.6723	500	I		1				.	
3742.2464	3741.1828	3000	II		1				.	
3743.9872	3742.9231	1100	I	1.3	3	1.0			1.0	-2.0
3748.6040	3747.5387	900	II		1				.	
3753.6350	3752.5684	3500	II	3.1	4	1.7		2.7	1.7	-6.2
3758.7620	3757.6941	1000	I		1				.	
3764.0028	3762.9337	1200	I	4.2	3	4.6			1.6	-6.3
3771.1268	3770.0557	1300	I		1				.	
3772.4419	3771.3704	1500	I	.4	3	.3			.3	-.6
3777.3435	3776.2708	600	I		1				.	

CONT. TABLE I

VACUUM WAVELENGTH	AIR WAVELENGTH	ION INT	AVERAGE CLASS	NO DEVIAT.	MEAS.	REF1	REF2	REF3	REF4	REF5
3782.0401	3780.9661	350	I	2.2	4	1.7		2.7	-3.2	-1.2
3786.6752	3785.5999	1000	II	1.6	4	-1.7		-.7	-.7	3.2
3790.2449	3789.1688	1500	I		1					
3796.4632	3795.3855	500	II		1					
3804.1547	3803.0750	4000	I	.4	3	.6			-.3	-.3
3808.9554	3807.8745	1200	II		1					
3814.1500	3813.0676	1200	II	1.2	4	-1.7		1.2	-.7	1.2
3819.7691	3818.6853	500	I	1.7	4	1.7		-2.2	-1.2	1.7
3829.4708	3828.3845	3200	I	.4	3	.6			-.3	-.3
3831.8604	3830.7735	800	I		1					
3838.9638	3837.8751	2000	I		1					
3840.7838	3839.6946	2500	I	4.6	3	-4.0			-3.0	7.0
3843.0498	3841.9599	1200	II	2.8	4	1.2		3.2	1.2	-5.7
3853.2270	3852.1346	600	I	3.5	2				8.5	-8.5
3855.6035	3854.5103	1200	II	3.8	4	2.2		3.2	2.2	-7.7
3860.9343	3859.8398	500	II	1.5	2				-1.5	1.5
3864.5009	3863.4054	1200	II	3.7	4	1.5		3.5	2.5	-7.5
3870.7601	3869.6630	600	I	6.0	4	5.0		4.0	3.0	-12.0
3875.9601	3874.8617	1800	I	1.0	2				1.0	-1.0
3876.4723	3875.3738	1500	I	0.0	2				0.0	0.0
3880.7432	3879.6436	1000	I	3.5	2				3.5	-3.5
3885.9251	3884.8241	400	II		1					
3888.0157	3886.9142	700	I		1					
3896.5221	3895.4184	2400	I	8.0	2				8.0	-8.0
3901.9535	3900.8484	1500	II		1					
3904.2082	3903.1025	1500	I		1					
3905.1676	3904.0616	1000	II		1					
3906.2926	3905.1862	1500	II	1.7	4	-.5		-.5	-2.5	3.5
3913.0168	3911.9088	600	I	3.0	2				3.0	-3.0
3913.3905	3912.2824	300	II		1					
3917.5259	3916.4167	500	I	7.5	2				7.5	-7.5
3920.1331	3919.0233	800	I	5.0	2				5.0	-5.0
3924.9104	3923.7992	400	I	3.8	4	1.2		4.2	2.2	-7.7
3926.2046	3925.0932	1000	I	.5	2				.5	-.5
3930.7815	3929.6689	2500	II	3.5	2				3.5	-3.5
3934.0242	3932.9107	1400	I	3.1	3	2.3			2.3	-4.6

CONT. TABLE I

VACUUM	AIR	ION	AVERAGE	NO	DEVIATIONS					
WAVELENGTH	WAVELENGTH	INT	CLASS	DEVIAT.	MEAS	REF1	REF2	REF3	REF4	REF5
3938.1548	3937.0402	400	II		1					
3944.5112	3943.3950	400	II		1					
3950.0815	3948.9637	1000	II	1.3	3	-1.0		2.0	-1.0	
3953.8796	3952.7609	500	I		1					
3960.4204	3959.3000	1000	I		1					
3968.5144	3967.3919	2000	I	1.5	3	.6			1.6	-2.3
3973.2783	3972.1546	1400	I	0.0	2				0.0	0.0
3974.3198	3973.1958	1100	I	2.5	2				2.5	-2.5
3981.2149	3980.0890	1100	I	5.2	4	2.5		5.5	2.5	-10.5
3988.3509	3987.2232	600	I		1					
3991.6204	3990.4919	800	I	2.0	2				2.0	-2.0
3995.6787	3994.5490	1200	I	1.2	4	.5		.5	1.5	-2.5
4002.1889	4001.0576	800	I	4.5	2				4.5	-4.5
4003.0251	4001.8936	150	I	2.0	2				2.0	-2.0
4004.4393	4003.3074	200	II		1					
4009.3433	4008.2102	1600	I	2.4	3	3.3			.3	-3.6
4012.8728	4011.7387	800	I		1					
4013.6292	4012.4949	2000	I	2.8	3	1.6			2.6	-4.3
4019.2344	4018.0987	400	I		1					
4020.2646	4019.1286	1200	II	4.2	3	3.6			2.6	-6.3
4025.9385	4024.8010	100	I		1					
4028.1470	4027.0089	1000	I	0.0	2				0.0	0.0
4031.4312	4030.2923	200	I	2.0	2				2.0	-2.0
4031.9811	4030.8420	1800	I	4.5	2				4.5	-4.5
4037.1878	4036.0474	1800	I	1.2	4	1.7		-2.2	.7	-.2
4037.7053	4036.5647	400	II	3.0	2				3.0	-3.0
4044.5367	4043.3944	800	I	3.1	3	2.3			2.3	-4.6
4052.0321	4050.8878	800	I	5.5	2				-5.5	5.5
4054.6722	4053.5272	1000	I	5.0	2				5.0	-5.0
4060.3990	4059.2525	1000	I	3.1	4	.7		1.7	3.7	-6.2
4064.5546	4063.4070	800	II	1.0	2				1.0	-1.0
4065.4793	4064.3315	400	I	0.0	2				0.0	0.0
4068.5993	4067.4506	400	I	1.2	4	1.2		-1.7	1.2	-.7
4070.3506	4069.2015	750	II	2.0	2				2.0	-2.0
4070.6099	4069.4607	400	I	1.0	2				-1.0	1.0
4073.7782	4072.6282	400	I	5.0	2				5.0	-5.0

CONT. TABLE I

VACUUM WAVELENGTH	AIR WAVELENGTH	ION INT	AVERAGE CLASS	NO DEVIAT.	MEAS	REF1	REF2	REF3	REF4	REF5
4076.6534	4075.5027	400	I	2.0	2				2.0	-2.0
4082.5200	4081.3677	800	I		1				.	
4087.6738	4086.5202	1600	II	3.7	4	3.7		-3.2	3.7	-4.2
4089.8819	4088.7277	400	I	3.5	2				-3.5	3.5
4090.2919	4089.1376	400	I	1.5	2				1.5	-1.5
4095.9027	4094.7468	1600	II	2.2	4	2.2		-1.7	2.2	-2.7
4098.9041	4097.7475	800	I	1.5	2				1.5	-1.5
4101.4984	4100.3412	1100	I	1.3	3	1.0			1.0	-2.0
4109.5791	4108.4196	800	II	.7	4	-.5		-.5	1.5	-.5
4110.4822	4109.3226	400	I	10.5	2				10.5	-10.5
4113.9149	4112.7544	1700	I	1.5	2				1.5	-1.5
4116.9199	4115.7586	800	I	2.7	4	1.7		-.2	3.7	-5.2
4117.8751	4116.7136	1600	II	3.5	2				3.5	-3.5
4128.5759	4127.4115	1000	I	2.0	4	2.0		-1.0	2.0	-3.0
4132.1670	4131.0017	800	I	5.5	2				5.5	-5.5
4133.9192	4132.7535	600	II	2.0	4	0.0		-4.0	0.0	4.0
4141.4028	4140.2351	400	II		1				.	
4151.1566	4149.9863	800	II	3.2	4	2.7		-2.2	3.7	-4.2
4159.7073	4158.5347	800	I	5.0	4	4.0		3.0	3.0	-10.0
4166.9404	4165.7659	1000	I	2.0	4	0.0		2.0	2.0	-4.0
4171.7090	4170.5334	500	I		1				.	
4179.2374	4178.0597	3000	II	2.0	4	1.0		-2.0	3.0	-2.0
4185.3170	4184.1378	500	I		1				.	
4194.1981	4193.0166	900	I	3.2	4	-.2		3.7	2.7	-6.2
4196.1176	4194.9356	350	I	2.5	2				2.5	-2.5
4203.0308	4201.8469	500	II		1				.	
4210.0759	4208.8901	3000	I	5.5	4	6.0		-7.0	5.0	-4.0
4211.9510	4210.7648	400	I	1.0	2				1.0	-1.0
4212.1093	4210.9231	1200	I	3.0	2				3.0	-3.0
4214.2537	4213.0669	400	I	5.5	2				5.5	-5.5
4216.0156	4214.8282	200	I	1.5	4	1.0		-2.0	2.0	-1.0
4228.5780	4227.3874	400	I		1				.	
4231.6204	4230.4290	600	I	32.8	4	-21.2		-24.2	-20.2	65.7
4236.6562	4235.4634	600	I	2.5	4	1.5		-3.5	3.5	-1.5
4249.1853	4247.9893	400	II		1				.	
4251.5113	4250.3147	1200	I		1				.	

CONT. TABLE I

VACUUM	AIR		ION	AVERAGE	NO	DEVIATIONS				
WAVELENGTH	WAVELENGTH	INT	CLASS	DEVIAT.	MEAS	REF1	REF2	REF3	REF4	REF5
4254.7366	4253.5392	800	I	3.5	2				-3.5	3.5
4257.4526	4256.2545	500	I		1					.
4258.6945	4257.4959	700	I	1.5	4	0.0		-3.0	3.0	0.0
4259.7193	4258.5206	500	I		1					.
4261.5321	4260.3328	800	I	1.0	2				1.0	-1.0
4271.1445	4269.9428	200	I		1				.	
4274.5599	4273.3573	1000	II	2.7	4	1.7		-.2	3.7	-5.2
4278.5173	4277.3135	1200	II	6.0	4	7.0		-5.0	5.0	-7.0
4283.2464	4282.0415	2000	II	0.0	2				0.0	0.0
4293.0178	4291.8103	400	I	.8	4	-.2		1.7	-1.2	-.2
4298.5155	4297.3066	400	I		1				.	
4301.0486	4299.8389	600	I	3.3	4	4.2		6.2	6.2	-16.7
4308.3878	4307.1762	700	I	2.5	4	1.0		-5.0	1.0	3.0
4314.2100	4312.9969	1000	I		1					.
4316.4682	4315.2544	400	I	2.5	4	0.0		-3.0	-2.0	5.0
4319.6303	4318.4158	700	I	2.2	4	2.7		1.7	-1.2	-3.2
4321.3375	4320.1226	300	II	39.0	2				39.0	-39.0
4330.1325	4328.9152	400	I	4.0	2				4.0	-4.0
4332.0617	4330.8438	300	I	2.7	4	3.2		-2.7	2.2	-2.7
4338.4969	4337.2774	900	I	2.5	2				2.5	-2.5
4342.1161	4340.8957	400	I		1					.
4343.4759	4342.2551	300	II	6.1	4	4.7		1.7	5.7	-12.2
4343.6656	4342.4448	500	I		1					.
4345.5477	4344.3264	300	II	2.0	2				2.0	-2.0
4347.6586	4346.4367	500	I	1.0	2				1.0	-1.0
4350.2947	4349.0721	400	I	3.5	2				3.5	-3.5
4354.6724	4353.4487	500	I		1				.	
4360.5972	4359.3719	600	I		1				.	
4367.1573	4365.9302	600	I	2.2	4	1.5		.5	2.5	-4.5
4371.1035	4369.8755	200	I	3.5	2				3.5	-3.5
4375.3533	4374.1240	600	I	3.5	4	4.0		-3.0	3.0	-4.0
4377.7648	4376.5350	200	I		1					.
4379.4073	4378.1770	500	I	2.8	4	-2.2		-1.2	-2.2	5.7
4383.0915	4381.8602	900	I	2.0	4	2.0		-2.0	2.0	-2.0
4392.3442	4391.1104	3000	II	.7	4	-.5		-.5	1.5	-.5
4394.2082	4392.9741	400	I	2.5	2				2.5	-2.5

CONT. TABLE I

VACUUM	AIR	ION	AVERAGE	NO	DEVIATIONS					
WAVELENGTH	WAVELENGTH	INT	CLASS	DEVIAT.	MEAS	REF1	REF2	REF3	REF4	REF5
4402.8178	4401.5813	400	I	4.0	4	4.0		4.0	0.0	-8.0
4404.1639	4402.9271	400	I	1.2	4	-0.7		2.2	.2	-1.7
4410.1211	4408.8827	600	I	2.7	4	1.5		3.5	.5	-5.5
4415.7260	4414.4862	400	I		1				.	
4423.2900	4422.0482	350	I		1				.	
4434.2071	4432.9627	600	II	7.3	3	5.0			6.0	-11.0
4446.5638	4445.3159	300	I	100.9	3	-75.6			-75.6	151.3
4447.1495	4445.9014	200	I		1				.	
4453.8148	4452.5650	200	I		1				.	
4454.8159	4453.5658	10	I		1					.
4459.2530	4458.0017	600	I	2.1	4	1.7		1.7	.7	-4.2
4462.4933	4461.2412	600	I	0.0	2				0.0	0.0
4466.5939	4465.3407	300	II	4.7	4	-0.2		8.7	.7	-9.2
4470.7800	4469.5257	400	I		1				.	
4476.1257	4474.8700	200	I		1					.
4476.4771	4475.2213	250	I		1					.
4483.4271	4482.1694	300	I	2.0	4	.5		3.5	-0.5	-3.5
4488.1565	4486.8976	200	I	2.0	2				-2.0	2.0
4494.5943	4493.3337	1200	I	.6	3	-1.0			0.0	1.0
4500.2025	4498.9404	800	I	2.5	2				-2.5	2.5
4501.2462	4499.9839	500	I	2.5	2				-2.5	2.5
4506.4799	4505.2162	400	I		1				.	
4511.7911	4510.5258	800	II	1.5	3	-1.6		2.3	-0.6	
4516.3846	4515.1183	300	I	1.0	2				-1.0	1.0
4531.5895	4530.3192	160	I		1				.	
4536.5265	4535.2548	300	I	3.1	3			4.6	-0.3	-4.3
4542.2722	4540.9990	300	I	1.5	2				-1.5	1.5
4547.1898	4545.9153	350	I	2.5	2				2.5	-2.5
4557.0896	4555.8124	500	I	5.1	3			.3	7.3	-7.6
4562.6266	4561.3481	500	I		1				.	
4568.5207	4567.2406	160	I		1					.
4572.2534	4570.9724	500	I	6.0	4	-6.5		8.5	-5.5	3.5
4575.3256	4574.0437	100	I		1					.
4589.7119	4588.4261	400	I	5.6	4	4.7		1.7	4.7	-11.2
4593.9550	4592.6682	400	I		1					.
4596.7081	4595.4204	600	I	4.5	4	-5.5		7.5	1.5	-3.5

CONT. TABLE I

VACUUM	AIR	ION	AVERAGE	NO	DEVIATIONS					
WAVELENGTH	WAVELENGTH	INT	CLASS	DEVIAT.	MEAS	REF1	REF2	REF3	REF4	REF5
4622.4590	4621.1646	200	I	25.0	2				-25.0	25.0
4633.0572	4631.7600	300	II	13.2	3	11.6			12.6	-24.3
4639.9875	4638.6885	100	I		1					.
4664.5079	4663.2024	200	I	1.1	3	-1.6			1.4	-1.4
4669.4789	4668.1721	700	I	2.4	3	.3			-3.6	3.3
4671.2916	4669.9843	400	I	.5	2				.5	-1.5
4674.9693	4673.6611	600	I	1.7	3	-2.3			-1.3	2.6
4677.3649	4676.0560	350	II		1					.
4687.5062	4686.1946	400	I	1.5	3	-1.6			-1.6	2.3
4696.3531	4695.0391	400	I	10.5	2				-10.5	10.5
4705.3062	4703.9899	500	I	.8	3	-1.3			.6	.6
4713.7713	4712.4528	500	I		1				.	
4719.9363	4718.6162	200	II		1				.	
4724.7594	4723.4380	400	II		1					.
4725.1041	4723.7826	600	I		1					.
4730.4504	4729.1275	250	I	3.5	2				3.5	-3.5
4741.8552	4740.5293	400	II		1				.	
4750.5286	4749.2003	200	I		1					.
4753.7430	4752.4139	500	II	1.5	3	.6			1.6	-2.3
4762.4415	4761.1101	400	II		1				.	
4767.9332	4766.6003	200	I	.5	2	-1.5			.5	
4779.6300	4778.2940	300	I	.5	2				.5	-1.5
4790.7254	4789.3865	300	I	3.3	3	3.0			2.0	-5.0
4809.4775	4808.1336	350	I	.4	3	-1.6			.4	.4
4810.9590	4809.6147	300	I	6.5	2				-6.5	6.5
4824.2023	4822.8545	300	I	4.0	2				4.0	-4.0
4828.0489	4826.7001	300	I	1.5	2				1.5	-1.5
4832.4709	4831.1209	350	I	1.5	2				1.5	-1.5
4842.1954	4840.8429	400	I	1.5	2	-1.5				1.5
4849.7173	4848.3628	250	I	4.5	2				-4.5	4.5
4859.6895	4858.3323	300	II		1				.	
4864.5307	4863.1722	1000	II	1.5	3	.6			-2.3	1.6
4866.8360	4865.4769	350	I	2.2	3	.6			2.6	-3.3
4880.0958	4878.7332	200	I	2.5	2				-2.5	2.5
4896.3218	4894.9549	350	I	1.3	3	-2.0			0.0	2.0
4908.5795	4907.2093	150	I		1				.	

CONT. TABLE I

VACUUM WAVELENGTH	AIR WAVELENGTH	INT	ICN CLASS	AVERAGE DEVIAT.	NO MEAS	REF1	REF2	REF3	REF4	REF5
4921.1892	4919.8157	600	II	1.1	3	-1.3			-.3	1.6
4929.1564	4927.7808	140	I		1				.	
4941.0207	4939.6419	350	I	.6	3	-1.0			1.0	0.0
4946.8387	4945.4584	140	I		1				.	
4967.1169	4965.7312	250	I		1				.	
4981.5757	4980.1862	600	I		1				.	
4986.7636	4985.3727	300	I		1				.	
4990.7005	4989.3085	200	I		1				.	
5003.4924	5002.0970	400	I	.6	3	-1.0			0.0	1.0
5018.6541	5017.2547	500	II	.5	2	-.5			.5	
5030.0585	5028.6561	400	II	3.3	3	4.0			1.0	-5.0
5040.6359	5039.2307	200	I		1				.	
5046.1266	5044.7199	400	I	2.5	2				2.5	-2.5
5051.2043	5049.7963	400	I	3.5	3	-2.6			-2.6	5.3
5061.2716	5059.8609	200	I		1				.	
5069.3866	5067.9737	900	I	4.2	3	2.6			3.6	-6.3
5097.9046	5096.4842	200	I		1				.	
5102.0426	5100.6210	200	I		1				.	
5116.4701	5115.0447	250	I	1.7	3	-2.6			1.3	1.3
5127.3781	5125.9498	150	I		1				.	
5129.9184	5128.4894	125	I		1				.	
5136.1764	5134.7458	150	I		1				.	
5145.3493	5143.9162	200	I		1				.	
5153.0468	5151.6117	400	II	4.0	2				4.0	-4.0
5155.6791	5154.2433	400	I	2.0	3	-3.0			0.0	3.0
5160.0415	5158.6045	700	I	2.6	3	-3.0			-1.0	4.0
5164.8975	5163.4592	300	I	7.0	2				-7.0	7.0
5178.4027	5176.9608	400	I	1.7	3	-1.3			-1.3	2.6
5183.9704	5182.5270	200	II		1				.	
5197.2618	5195.8149	400	I	12.5	2				-12.5	12.5
5200.6114	5199.1636	800	I	2.0	2				2.0	-2.0
5212.6815	5211.2305	400	I	1.0	2				1.0	-1.0
5220.5635	5219.1104	500	I	4.5	2				-4.5	4.5
5232.6161	5231.1598	900	I	.4	3	-.6			.3	.3
5234.6822	5233.2253	350	II		1				.	
5249.1148	5247.6541	400	II		1				.	

CONT. TABLE I

VACUUM WAVELENGTH	AIR WAVELENGTH	ION INT	AVERAGE CLASS	NO DEVIAT.	MEAS	REF1	REF2	REF3	REF4	REF5
5259.8242	5258.3606	300	I	2.4	3	3.6			-2.3	-1.3
5268.1760	5266.7102	200	I	.5	2				.5	-.5
5278.9689	5277.5002	400	II	1.0	2	1.0			-1.0	
5297.7529	5296.2792	200	I		1				.	
5299.2158	5297.7417	250	I		1				.	
5308.9423	5307.4657	300	II		1				.	
5313.4791	5312.0012	400	I	4.0	2				4.0	-4.0
5326.6264	5325.1450	300	II		1				.	
5328.4576	5326.9757	400	I	.8	3	-.6			1.3	-.6
5345.0676	5343.5813	500	I	1.7	3	1.3			1.3	-2.6
5352.6146	5351.1263	120	I		1				.	
5361.6410	5360.1503	250	I		1				.	
5374.1973	5372.7033	200	I		1				.	
5388.1086	5386.6108	300	I	1.5	3	2.3			-.6	-1.6
5396.2611	5394.7612	400	I	3.0	2				-3.0	3.0
5409.1571	5407.6537	200	I	.6	3	-1.0			0.0	1.0
5412.2733	5410.7691	180	I		1				.	
5418.9918	5417.4858	200	I	.4	3	-.6			.3	.3
5427.1864	5425.6782	250	II	0.0	2	0.0			0.0	
5432.6214	5431.1118	300	I	.5	2	-.5			.5	
5437.4039	5435.8930	400	II		1				.	
5450.9935	5449.4790	150	II		1				.	
5453.7342	5452.2189	250	I	.5	2	.5			-.5	
5465.7236	5464.2051	75	I		1				.	
5472.2790	5470.7588	100	I		1				.	
5500.7832	5499.2554	250	I	1.3	3	-1.0			-1.0	2.0
5505.8312	5504.3020	100	I		1				.	
5511.5240	5509.9933	300	I	6.6	3	5.0			5.0	-10.0
5516.4051	5514.8731	160	I		1				.	
5526.1178	5524.5832	100	I		1				.	
5540.8003	5539.2618	400	I	1.5	3	-2.3			1.6	.6
5549.7169	5548.1760	300	I	2.0	3	2.0			1.0	-3.0
5558.5885	5557.0452	200	I	1.5	2				1.5	-1.5
5559.8857	5558.3421	400	I	8.0	3	6.0			6.0	-12.0
5572.7360	5571.1890	300	I	29.0	2				29.0	-29.0
5574.9022	5573.3546	350	I	7.5	3	-6.6			-4.6	11.3

CONT. TABLE I

VACUUM	AIR	ION	AVERAGE	NO	DEVIATIONS					
WAVELENGTH	WAVELENGTH	INT	CLASS	DEVIAT.	MEAS	REF1	REF2	REF3	REF4	REF5
5580.9078	5579.3586	300	I	.4	3	.3			.3	-.6
5588.5780	5587.0267	500	I	.8	3	-.6			1.3	-.6
5596.6170	5595.0636	200	I	2.0	2				-2.0	2.0
5603.1590	5601.6038	150	I	3.0	2				-3.0	3.0
5612.2424	5610.6848	160	I		1					.
5613.6262	5612.0682	100	I		1				.	
5616.8790	5615.3202	350	I	1.3	3	1.0			-2.0	1.0
5631.8595	5630.2967	60	I		1				.	
5641.3117	5639.7463	250	II	.4	3	-.6			.3	.3
5659.4960	5657.9258	100	I	1.5	2	1.5			-1.5	
5666.7532	5665.1810	140	I		1				.	
5686.7695	5685.1920	150	I		1				.	
5702.0326	5700.4510	200	II		1					.
5702.4993	5700.9176	150	II		1				.	
5708.6869	5707.1035	150	II	.8	3	-.6			-.6	1.3
5721.2097	5719.6230	200	I	.5	2				.5	-.5
5721.7702	5720.1833	400	I	2.0	2				-2.0	-2.0
5726.9769	5725.3886	250	I	1.5	3	2.3			-1.6	-.6
5750.3331	5748.7386	150	I	16.5	2				16.5	-16.5
5754.6225	5753.0268	100	I		1				.	
5762.1485	5760.5508	600	I	4.6	3	3.0			4.0	-7.0
5764.4087	5762.8104	75	I		1					.
5765.1270	5763.5285	80	I		1				.	
5769.7813	5768.1816	150	I		1				.	
5775.5466	5773.9453	150	I	12.0	2				12.0	-12.0
5791.2504	5789.6449	200	I	3.6	3	-9.0			-4.0	13.0
5794.0371	5792.4309	150	I	7.5	2				-7.5	7.5
5797.6760	5796.0688	150	I	1.0	2				-1.0	1.0
5802.4381	5800.8296	175	I	.5	2				-.5	.5
5805.7508	5804.1414	300	I	.8	3	1.3			-.6	-.6
5814.5842	5812.9725	150	I		1				.	
5817.0346	5815.4222	175	II		1				.	
5833.9875	5832.3706	125	I		1				.	
5854.3041	5852.6818	200	I	1.7	3	.3			2.3	-2.6
5855.7424	5854.1197	100	I		1				.	
5861.2904	5859.6662	140	II		1				.	

CONT. TABLE I

VACUUM WAVELENGTH	AIR WAVELENGTH	ION INT.	AVERAGE CLASS	NO DEVIAT.	MEAS	REF1	REF2	REF3	REF4	REF5
5869.9996	5868.3731	125	I		1				.	
5887.3329	5885.7017	120	I	.8	3	.6			.6	-1.3
5893.0838	5891.4511	70	I		1				.	
5907.2070	5905.5705	100	I	1.5	2				-1.5	1.5
5916.3093	5914.6704	140	I	2.5	2				2.5	-2.5
5927.8742	5926.2322	100	I	2.0	2				2.0	-2.0
5940.1024	5938.4571	75	I		1					.
5940.4706	5938.8252	140	I	2.4	3	3.6			-.3	-3.3
5946.2946	5944.6476	75	II		1				.	
5975.3199	5973.6652	250	I	.4	3	.6			-.3	-.3
5976.7206	5975.0655	250	I	2.0	3	2.0			-3.0	1.0
5990.7034	5989.0445	150	II		1				.	
5995.7897	5994.1295	200	I		1				.	
6008.7362	6007.0725	180	I	.6	3	1.0			0.0	-1.0
6011.8247	6010.1602	90	I	6.0	2				6.0	-6.0
6022.7035	6021.0359	140	I	6.4	3	6.3			3.3	-9.6
6039.3694	6037.6975	140	I	4.6	3	4.0			3.0	-7.0
6050.7258	6049.0508	100	I	1.5	3	2.3			-.6	-1.6
6055.0569	6053.3808	300	I		1				.	
6074.7856	6073.1042	50	II		1				.	
6087.0534	6085.3687	100	I	60.6	3	59.0			62.0-121.0	
6089.7165	6088.0311	125	I	4.6	3	-4.0			-3.0	7.0
6104.2842	6102.5949	90	I	2.2	3	-1.6			-1.6	3.3
6114.5300	6112.8379	125	II		1				.	
6123.1031	6121.4087	75	I		1				.	
6153.6958	6151.9932	125	I	2.4	3	1.3			2.3	-3.6
6163.0585	6161.3534	50	I		1				.	
6166.1854	6164.4795	75	I	2.0	2				2.0	-2.0
6171.5296	6169.8223	500	I	3.0	2				3.0	-3.0
6180.1417	6178.4320	100	I		1				.	
6184.3329	6182.6221	400	I	1.5	3	-.6			2.3	-1.6
6189.8382	6188.1259	160	I	1.0	2				-1.0	1.0
6193.6189	6191.9056	100	I	.4	3	-.6			.3	.3
6199.9376	6198.2226	80	I	4.0	2				4.0	-4.0
6202.1555	6200.4399	100	II		1					.
6205.2095	6203.4931	100	I		1				.	

CONT. TABLE I

VACUUM	AIR	ION	AVERAGE	NO	DEVIATIONS					
WAVELENGTH	WAVELENGTH	INT	CLASS	DEVIAT.	MEAS	REF1	REF2	REF3	REF4	REF5
6208.9378	6207.2204	160	I	1.3	3	2.0			-1.0	-1.0
6226.2493	6224.5273	100	I	3.5	3	2.6			2.6	-5.3
6236.5804	6234.8556	200	I		1				.	
6259.1550	6257.4241	100	I	1.7	3	-2.6			.3	2.3
6263.1498	6261.4179	180	I	.4	3	-.6			.3	.3
6275.8522	6274.1169	100	II		1				.	
6292.9314	6291.1915	30	I		1				.	
6304.9940	6303.2508	40	I		1				.	
6329.0282	6327.2786	180	I	4.0	3	3.0			3.0	-6.0
6339.3728	6337.6204	40	I		1				.	
6344.6137	6342.8599	300	I	3.3	3	2.0			3.0	-5.0
6350.4928	6348.7374	40	I		1				.	
6357.6686	6355.9113	40	I		1				.	
6370.9008	6369.1409	120	I		1				.	
6373.7056	6371.9440	50	I		1				.	
6378.6934	6376.9305	350	I	9.7	3	6.3			8.3	-14.6
6389.1617	6387.3959	50	I	7.5	2				7.5	-7.5
6408.2169	6406.4460	75	I	4.0	2				4.0	-4.0
6413.6717	6411.8994	250	I	4.4	3	3.3			3.3	-6.6
6415.3873	6413.6145	200	I	8.8	3	7.6			5.6	-13.3
6426.5890	6424.8132	30	II		1				.	
6439.5405	6437.7612	50	I		1				.	
6448.5530	6446.7713	50	I		1				.	
6459.0678	6457.2833	500	I	.4	3	.3			-.6	.3
6464.3999	6462.6139	400	II	3.5	2				3.5	-3.5
6492.5313	6490.7378	120	I	1.5	3	.6			1.6	-2.3
6494.9922	6493.1980	75	I		1				.	
6514.1634	6512.3641	75	I	1.0	2				1.0	-1.0
6523.8458	6522.0439	40	II		1				.	
6533.1465	6531.3421	400	I	5.3	3	3.0			5.0	-8.0
6555.9709	6554.1603	100	I	3.7	3	3.3			2.3	-5.6
6579.0326	6577.2158	50	I	10.5	2				10.5	-10.5
6585.7248	6583.9062	200	I	5.1	3	4.3			3.3	-7.6
6590.3595	6588.5397	200	I	3.3	3	2.0			3.0	-5.0
6593.3055	6591.4849	100	I	2.6	3	1.0			3.0	-4.0
6595.7610	6593.9397	200	I	1.5	3	.6			1.6	-2.3

CONT. TABLE I

VACUUM	AIR	ION	AVERAGE	NO	DEVIATIONS					
WAVELENGTH	WAVELENGTH	INT	CLASS	DEVIAT.	MEAS	REF1	REF2	REF3	REF4	REF5
6607.2410	6605.4167	30	II		1				.	
6621.7752	6619.9470	20	II		1				.	
6640.7452	6638.9119	100	I		1				.	
6660.5163	6658.6776	50	I	1.0	2	-1.0			1.0	
6664.1093	6662.2697	250	I	1.5	3	-1.6			-0.6	2.3
6676.5405	6674.6975	30	I	5.0	2				-5.0	5.0
6680.5514	6678.7074	30	I	3.0	2	3.0			-3.0	
6729.3164	6727.4592	200	I	7.3	3	-6.0			-5.0	11.0
6758.3187	6756.4537	250	I	10.0	3	-8.0			-7.0	15.0
6781.9972	6780.1259	90	I		1					.
6782.2860	6780.4146	140	I		1					.
6830.9222	6829.0377	150	I	27.7	3	-21.3			-20.3	41.6
6836.8115	6834.9254	75	I	4.6	3	-4.0			-3.0	7.0
6913.1340	6911.2272	400	I	4.2	3	-2.6			-3.6	6.3
6945.5269	6943.6116	600	I	4.2	3	-2.6			-3.6	6.3
6991.5842	6989.6565	900	I	3.7	3	-2.3			-3.3	5.6
7002.7366	7000.8059	300	I		1					.
7020.5050	7018.5695	200	I		1					.
7086.1241	7084.1709	500	I		1					.
7126.5264	7124.5623	180	I		1					.
7152.2559	7150.2849	90	I		1					.
7170.8724	7168.8964	500	I		1					.
7209.9944	7208.0078	600	I		1					.
7220.0449	7218.0556	180	I		1					.
7286.9118	7284.9045	120	I		1					.
7343.1749	7341.1525	140	I		1					.
7387.5381	7385.5037	300	I		1					.
7430.9893	7428.9432	350	I		1					.
7432.3012	7430.2547	160	I		1					.
7649.4852	7647.3802	500	I		1					.
7791.0803	7788.9370	250	I		1					.
7800.5056	7798.3598	90	I		1					.
7819.9220	7817.7710	350	I		1					.
7849.7019	7847.5428	250	I		1					.
7902.5333	7900.3600	180	I		1					.
7981.1713	7978.9767	400	I		1					.

CONT. TABLE I

VACUUM	AIR	ION	AVERAGE	NO	DEVIATIONS					
WAVELENGTH	WAVELENGTH	INT.	CLASS	DEVIAT.	MEAS	REF1	REF2	REF3	REF4	REF5
8034.6424	8032.4334	180	I		1					.
8095.8171	8093.5916	80	I		1					.
8140.7148	8138.4771	180	I		1					.
8161.9723	8159.7289	200	I		1					.
8172.0357	8169.7896	120	I		1					.
8189.1644	8186.9137	250	I		1					.
8254.6630	8252.3946	80	I		1					.
8323.1447	8320.8578	250	I		1					.
8332.7414	8330.4519	500	I		1					.
8423.5413	8421.2272	300	I		1					.
8480.6879	8478.3584	300	I		1					.
8575.4779	8573.1228	180	I		1					.
8667.8683	8665.4882	160	I		1					.
8711.6275	8709.2355	90	I		1					.
8750.4354	8748.0329	300	I		1					.
8760.6500	8758.2448	250	I		1					.
9050.7361	9048.2524	100	I		1					.

TABLE II. Measurements Not Included in Table I

VACUUM WAVELENGTH	AIR WAVELENGTH	REF	INT	ION CLASS
3276.011	3275.067	4	400	II
3302.207	3301.256	4	600	II
3314.022	3313.068	4	400	I
3349.731	3348.768	4	3000	I
3605.711	3604.683	4	800	I
3606.222	3605.194	4	500	I
3905.169	3904.063	4	1000	II
4010.190	4009.057	4	1600	I
4221.253	4220.064	4	750	I
4251.511	4250.314	4	1200	I
4259.719	4258.520	4	500	I
4440.370	4439.124	4	400	II
4442.114	4440.867	4	400	II
4522.489	4521.221	4	500	I
4536.526	4535.254	1	300	I
4557.090	4555.813	1	500	I
4593.953	4592.666	4	400	I
4604.461	4603.171	4	175	I
4641.344	4640.045	4	500	II
4652.857	4651.555	4	500	II
4842.195	4840.843	4	400	I
4880.096	4878.733	1	200	I
5086.411	5084.994	4	150	I
5370.773	5369.280	4	200	I
5494.168	5492.642	4	100	I
5676.561	5674.986	4	120	I
6079.554	6077.871	4	75	I
6126.178	6124.483	4	75	I
6328.117	6326.368	4	60	II
6390.583	6388.817	4	40	I
6646.488	6644.653	4	30	II
6715.824	6713.969	4	100	I
6780.183	6778.312	4	80	I
6782.285	6780.414	4	140	I
6793.110	6791.236	4	80	I
6826.561	6824.678	4	100	I
7002.735	7000.804	4	300	I
7020.504	7018.568	4	200	I
3021.9360	3021.0561	2		
3133.0109	3132.1032	2		

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