

The Schumann-Runge absorption bands ( $B(v) \ ^3\Sigma_u^- - X(3) \ ^3\Sigma_g^-$ ) of the  $^{16}\text{O}_2$ .  
 Lines with B are blended.

B(12)-X(3) band						
$N$	$R_1(N)$	$R_2(N)$	$R_3(N)$	$P_1(N)$	$P_2(N)$	$P_3(N)$
1	51185.53			51181.94		
3	51179.54	51180.49B	51180.49B	51171.67		
5	51166.85	51167.83B	51167.83B	51154.48	51155.55B	51155.55B
7	51147.19B			51130.78	51131.54B	51131.54B
9	51121.39	51122.43B	51122.43B	51100.18	51101.14	51101.30
11	51088.57	51089.76	51090.19	51063.03	51063.88B	
13	51049.19	51050.34	51050.87	51019.14	51020.48B	51020.48B
15	51003.01	51004.34	51004.88	50968.68	50969.91	50970.33
17	50950.13					
19	50890.64B	50892.03	50893.48B	50847.57	50849.03	50849.68
21	50823.82		50826.44	50776.72	50778.11	
23	50750.16B	50752.44	50753.69	50699.22		
25	50670.13			50614.89		50617.96B
27	50582.92	50585.43	50586.67	50523.39B		

B(13)-X(3) band						
$N$	$R_1(N)$	$R_2(N)$	$R_3(N)$	$P_1(N)$	$P_2(N)$	$P_3(N)$
1	51485.62					
3	51479.12B			51471.89	51473.06	51473.53
5	51465.58	51466.88	51467.08		51455.39	51455.63
7	51445.00	51446.44B	51446.44B	51429.52	51430.81B	51430.81B
9	51417.45	51419.16B	51419.50B	51397.78	51399.18	51399.47
11	51382.90	51384.55	51385.17	51359.16	51360.63B	51361.05
13	51341.28	51343.08	51343.85	51313.43	51314.97B	51315.77
15	51292.57	51294.58	51295.54	51260.72B	51262.54	51263.32
17	51236.80	51239.01	51240.15	51201.00	51203.00B	51203.89
19	51173.89	51176.28	51177.57	51134.18	51136.34	51137.44
21	51103.78	51106.42	51107.84	51060.22		51063.88B
23	51026.41	51029.24	51030.95	50979.09	50981.74	50983.18
25	50941.72	50944.87	50946.81	50890.64	50893.48	50895.27
27	50849.68B	50853.10		50795.15		50800.12

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B(14)-X(3) band						
$N$	$R_1(N)$	$R_2(N)$	$R_3(N)$	$P_1(N)$	$P_2(N)$	$P_3(N)$
1	51739.88					
3	51733.45B	51734.57B	51734.57B	51726.04	51727.76	51728.38
5	51718.16	51720.18	51720.30	51707.70	51709.49B	51709.49B
7	51696.29	51698.44	51698.79	51682.03	51683.96B	51684.19
9	51667.03	51669.09B	51669.77B	51649.06	51651.18	51651.49
11	51630.46	51632.98	51633.76	51608.70	51611.01	51611.53
13	51586.45	51589.24	51590.34	51560.99	51563.55B	51564.24
15	51535.03	51538.13B	51539.15	51505.94	51508.70	51509.69
17	51476.12	51479.12B	51481.47B	51443.49B	51446.44B	51447.72
19	51409.66			51373.37	51376.75B	51378.58B
21	51335.49B	51339.49	51341.42	51295.95	51299.57	51301.29
23	51253.81	51258.13		51210.90	51214.78	51216.82
25	51164.28	51168.97	51171.67	51118.15	51122.43	51124.76
27	51066.88	51072.03	51074.68B	51017.59	51022.32	51024.98

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B(15)-X(3) band						
$N$	$R_1(N)$	$R_2(N)$	$R_3(N)$	$P_1(N)$	$P_2(N)$	$P_3(N)$
1	51948.85B			51945.87B		
3	51941.08	51944.17B	51944.17B	51934.95	51937.70	51938.24B
5	51925.41	51928.38B	51928.38B	51916.03	51919.01B	51919.01B
7				51889.36	51892.23B	51892.23B
9	51871.15			51854.91B	51858.10	51858.52B
11	51832.31	51836.55B	51837.13B	51812.81	51816.37	51817.02
13	51785.75		51791.31	51762.87	51766.65B	51767.63B
15	51731.33	51736.30B	51737.49	51705.23	51709.49B	51710.77
17	51669.09B	51674.04	51676.08	51639.79B	51644.33	51645.99
19	51598.72	51604.21	51606.72	51566.39	51571.39	51573.78B
21	51520.20	51526.39	51529.08B	51485.05B	51490.53B	51492.91
23	51433.84	51440.34	51443.49B	51395.68	51401.65	51404.50B
25	51338.99	51346.09	51350.02	51298.14	51304.65	51308.05
27	51235.76	51243.11B	51247.96	51192.35	51199.46	51203.00B

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B(16)-X(3) band						
$N$	$R_1(N)$	$R_2(N)$	$R_3(N)$	$P_1(N)$	$P_2(N)$	$P_3(N)$
1	52116.03B					
3	52107.61	52111.87B	52111.87B		52106.87B	52106.87B
5	52090.83				52086.75B	52086.75B
7		52070.61B	52071.43	52054.73		
9	52033.10	52038.63	52039.48			52024.29B
11	51991.98		51999.18B	51974.89	51980.32	51981.03
13	51942.67			51922.65		51929.74
15	51885.14	51892.23B	51894.43	51862.19	51868.70	51870.38
17	51819.18	51826.84	51829.68B	51793.63B	51800.46	51803.36B
19	51744.92B	51753.04B		51716.658	51724.17	51726.98
21	51661.91	51670.60	51675.03	51631.17		51642.79
23	51570.34	51579.45	51584.60		51545.97	51550.28
25	51469.85	51479.12B	51485.05B	51434.66	51443.65B	51448.82B
27	51360.63B	51372.38B	51376.34B	51323.32	51332.32B	51338.24

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B(17)-X(3) band						
$N$	$R_1(N)$	$R_2(N)$	$R_3(N)$	$P_1(N)$	$P_2(N)$	$P_3(N)$
1	52246.03Q					
3	52237.19	52244.38B	52244.38B	52232.25		
5	52219.45B	52226.85B	52226.85B	52212.16	52218.12B	52219.45B
7	52193.41B	52200.11B	52201.18	52183.26	52190.08	
9		52166.15	52167.20	52145.84	52153.36B	52153.36B
11	52114.71	52123.08B	52124.87	52099.92	52107.61B	52108.92
13		52071.43B	52074.03B	52045.40	52053.68	52055.48
15		52011.37	52014.69	51982.21		51993.60
17		51941.71			51919.66	51923.22
19		51862.19	51867.61	51829.68B	51839.05	51844.69B
21	51766.65B	51780.03	51784.79	51740.13	51748.51	51753.04B
23	51669.77B	51683.96B	51688.74B		51655.36	51660.08
25	51563.55B	51578.09Q	51580.92		51548.07	51553.76B

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References:

*Atlas of the Schumann-Runge Absorption Bands of O<sub>2</sub> in the Wavelength Region 175-205 nm*, K. Yoshino, D.E. Freeman and W.H. Parkinson, J. Phys. Chem. Ref. Data, **13**, 207-227 (1984).

*The Schumann-Runge Absorption Bands of O<sub>2</sub> at 670 K and the Spectroscopic Constants of the Ground State, X <sup>3</sup>Σ<sub>g</sub><sup>-</sup>*, A.S.-C. Cheung, K. Yoshino, J.R. Esmond, and W.H. Parkinson, *J. Molec. Spectrosc.* **178**, 66-77 (1996).

*High resolution absorption cross section measurements of the Schumann-Runge bands of O<sub>2</sub> by VUV Fourier transform spectroscopy*, T. Matsui, A.S.-C. Cheung, K. W-S. Leung, K. Yoshino, W. H. Parkinson, A. P. Thorne, J. E. Murray, K. Ito, and T. Imajo, *J. Molec. Spectrosc.* **219**, 45-57 (2003).