

Analysis
of the Comet–Tail ($A^2\Pi_i - X^2\Sigma^+$) Bands
of $^{13}\text{C}^{16}\text{O}^+$

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TABLE 1

Observed Wavenumbers (in cm^{-1}) and Rotational Assignments
for the Bands of the Comet-Tail ($A^2\Pi_i - X^2\Sigma^+$) System in the $^{13}\text{C}^{16}\text{O}^+$ Molecule ^a

The 1-0 $A^2\Pi_{1/2} - X^2\Sigma^+$ Sub-Band

J	R_{21ee}	R_{22ff}	Q_{21fe}	Q_{22ef}	P_{21ee}	P_{22ff}
0.5	21982.970(9)	21979.220*		21974.669(-14)		
1.5	21986.743(5)	21979.220*	21979.220(4)	21971.693(5)	21974.669(-1)	21967.192(16)
2.5	21989.782(11)	21978.526*	21979.220(-22)	21967.933(-19)	21971.693(16)	21960.431(1)
3.5	21992.061(-1)	21977.088*	21978.526(0)	21963.465(-7)	21967.933(12) 2	21952.891*
4.5	21993.535*	21974.884*	21977.088(18)	21958.235(-15)	21963.465*	21944.726(12)
5.5	21994.327*	21971.929*	21974.884(19)	21952.266(-20)	21958.235*	21935.751(8)
6.5	21994.426(13)	21968.244*	21971.929(14)	21945.645*	21952.266*	21926.033(4)
7.5	21993.769(-10)	21963.805(-15)	21968.244(21)	21938.110(18)	21945.561*	21915.573(-2)
8.5	21992.333(-11)	21958.646(18)	21963.805(19)	21929.922(11)	21938.026(18)	21904.391(14)
9.5	21990.151(-10)	21952.725(19)	21958.646(23)	21920.981(-13)	21929.827(-13)	21892.457(21)
10.5	21987.227(-3)	21946.051(-16)	21952.664(-9)	21911.297(14)	21920.897(-6)	21879.774(22)
11.5	21983.550(0)	21938.634(-17)	21945.996(-1)	21900.871(-11)	21911.226(15)	21866.354(19)
12.5	21979.220*	21930.499(12)	21938.582(9)	21889.706(-1)	21900.764(-10)	21852.155(1)
13.5	21973.939(0)	21921.560(21)	21930.394(-5)	21877.781(-5)	21889.605(15)	21837.299(21)
14.5	21967.934(-22)	21911.931(-6)	21921.488(13)	21865.132(15)	21877.664(4)	21821.624*
15.5	21961.328(9)	21901.699*	21911.853*	21851.713(13)	21864.951(-19)	21805.230*
16.5	21953.856(-23)	21890.223*	21901.429*	21837.541(7)	21851.546(-11)	21787.950*
17.5	21945.645*	21878.379*	21890.056*	21822.613(-6)	21837.465*	21770.009*
18.5	21936.738(8)	21865.714*	21878.231*	21806.957(5)	21822.472(14)	21751.326*
19.5	21927.023(3)	21852.329(10)	21865.563(-19)	21790.608(23)	21806.796(13)	21732.024*
20.5	21916.569(18)	21838.120(-10)	21852.154(13)	21773.411*	21790.374(17)	21711.892(-15)
21.5	21905.366*	21823.173(-10)	21837.949(6)	21755.500*	21773.214*	21691.005(15)
22.5		21807.487(9)	21822.978(-9)	21736.793*	21755.270*	21669.367(-20)
23.5		21791.005(-9)	21807.276(2)	21717.373*	21736.598*	21646.966(-13)
24.5		21773.779(-10)	21790.805(4)	21697.242*	21717.246*	21623.853(12)
25.5		21755.832(19)	21773.563(-5)	21676.424*	21697.014*	21599.945(6)
26.5		21737.052(-2)	21755.563(-9)	21654.120*	21676.210*	21575.260(18)
27.5		21717.579(17)	21736.859(14)	21631.882*	21654.041*	21549.884(11)
28.5		21697.282(17)	21717.373(19)	21608.835(9)	21631.744*	
29.5		21676.309(19)		21584.757(-18)	21608.705*	
30.5		21654.506(21)			21584.719*	
31.5		21631.929(-19)				
32.5		21608.649*				

TABLE 1 - Continued

The 1-0 A²Π_{3/2} - X²Σ⁺ Sub-Band

<i>J</i>	<i>R</i> _{11<i>ee</i>}	<i>R</i> _{12<i>ff</i>}	<i>Q</i> _{11<i>fe</i>}	<i>Q</i> _{12<i>ef</i>}	<i>P</i> _{11<i>ee</i>}	<i>P</i> _{12<i>ff</i>}
0.5	21857.896(0)	21854.120*	21853.305*	21849.724(3)		
1.5	21861.485(-15)	21853.969*	21854.120(-10)	21846.607(-17)	21849.724(16)	21842.213(11)
2.5	21864.285(-4)	21852.997*	21853.969(-4)	21842.682*	21846.607(5)	21835.349(4)
3.5	21866.318*	21851.219*	21852.997(-4)	21837.949*	21842.682(-2)	21827.684(11)
4.5	21867.428(1)	21848.617*	21851.219(3)	21832.429*	21837.949(-2)	21819.176(-14)
5.5	21867.788(14)	21845.210*	21848.617(-1)	21826.068*	21832.429(18)	21809.900(7)
6.5	21867.280(-18)	21840.998*	21845.210(3)	21818.909*	21826.068(20)*	21799.762(-19)
7.5	21866.035(6)	21835.954*	21840.998(14)	21810.879*	21818.909(17)	21788.845(-22)
8.5	21863.926(-11)	21830.175(-7)	21835.954(7)	21802.141*	21810.879(-15)	21777.100(-18)
9.5	21861.020(-11)	21823.539(7)	21830.100(0)	21792.540*	21802.141(21)	21764.596(-2)
10.5	21857.308(-5)	21816.061(-10)	21823.445(4)	21782.129*	21792.540(17)	21751.220(-19)
11.5	21852.778(5)	21807.787(-13)	21815.971(0)	21770.992*	21782.129*	21737.059*
12.5	21847.440(-1)	21798.730(11)	21807.703(12)	21758.948(8)	21770.842(-14)	21722.146(18)
13.5	21841.276(12)	21788.855(18)	21798.603(2)	21746.076(-21)	21758.808(-15)	21706.373(16)
14.5	21834.319(-5)	21778.047(19)	21788.701(-2)	21732.433(-18)	21746.000(19)	21689.782(3)
15.5	21826.541(-8)	21766.650(22)	21777.960*	21718.001(-17)	21732.341(10)	21672.382(-15)
16.5	21817.965(1)	21754.335(-16)	21766.479(-1)	21702.748(16)	21717.886(12)	21654.172*
17.5	21808.569(-2)	21741.214(14)	21754.157(0)	21686.685(12)	21702.626(15)	21635.221(1)
18.5	21798.372(4)	21727.260(-3)	21740.990*	21669.838(-2)	21686.544(0)	21615.420(-7)
19.5	21787.364(8)	21712.542(12)	21727.065*	21652.149(17)	21669.616*	21594.863(29)
20.5	21775.542(6)	21696.990(-5)	21712.352(0)	21633.709(7)	21651.992(-3)	21573.422(-17)
21.5	21762.915(6)	21680.639(15)	21696.812(5)	21614.420(-9)	21633.512(-2)	21551.258(14)
22.5	21749.480(4)	21663.538(18)	21680.459(1)	21594.297(-16)	21614.232(0)	
23.5	21735.239(3)	21645.529*	21663.306(0)	21573.422(-17)	21594.135(-14)	
24.5	21720.190(1)	21626.818(3)	21645.355(5)	21551.751(14)	21573.258(-7)	
25.5	21704.335(-3)	21607.260(-4)	21626.598(5)		21551.597(17)	
26.5	21687.711(11)	21586.945(17)	21607.028(-5)			
27.5	21670.214(-5)	21565.754(-7)	21586.663(-10)			
28.5	21651.992(19)		21565.543*			
29.5	21632.961(8)					
30.5	21613.093(-13)					

^a Figures in parentheses denote observed minus calculated values in units of the last quoted digit.

* The lines marked by asterisk are less accurate and not used in the evaluation of molecular constants.

TABLE 1 - Continued
The 3-0 A²Π_{1/2} - X²Σ⁺ Sub-Band

<i>J</i>	<i>R</i> _{21<i>ee</i>}	<i>R</i> _{22<i>ff</i>}	<i>Q</i> _{21<i>fe</i>}	<i>Q</i> _{22<i>ef</i>}	<i>P</i> _{21<i>ee</i>}	<i>P</i> _{22<i>ff</i>}
0.5	24908.118(14)	24904.391(19)	24903.713(11)	24899.946(7)		
1.5	24911.703(7)	24904.212(-9)	24904.391*	24896.838(6)	24899.946*	24892.445(15)
2.5	24914.481(11)	24903.240(-13)	24904.212(13)	24892.910(-1)	24896.838*	24885.594(21)
3.5	24916.433(5)	24901.446(-22)	24903.240(17)	24888.170(-2)	24892.910*	24877.907(7)
4.5	24917.574(7)	24898.839*	24901.446(17)	24882.599(-18)	24888.170*	24869.423(12)
5.5	24917.894(7)	24895.483*	24898.839(22)	24876.236(-9)	24882.599*	24860.117(10)
6.5	24917.402(13)	24891.245*	24895.362(-15)	24869.042(-14)	24876.173(-15)	24849.995(9)
7.5	24916.080(9)	24886.191(14)	24891.122(-18)	24861.033(-17)	24868.984(-6)	24839.054(5)
8.5	24913.934(2)	24880.320(11)	24886.065(-8)	24852.207(-18)	24860.977(2)	24827.308(14)
9.5	24910.973(1)	24873.572(3)	24880.187(1)	24842.566(-17)	24852.159(16)	24814.732(8)
10.5	24907.193(3)	24866.070(20)	24873.473(-5)	24832.107(-15)	24842.495(3)	24801.344(8)
11.5	24902.580(-4)	24857.686*	24865.950(0)	24820.831(-11)	24832.029(7)	24787.136(5)
12.5	24897.157(3)	24848.533(-10)	24857.596(-3)	24808.725(-17)	24820.733(0)	24772.130*
13.5	24890.909(10)	24838.542(-12)	24848.448*	24795.809(-12)	24808.632(8)	24756.266(1)
14.5	24883.824(6)	24827.738(-3)	24838.424(-4)	24782.066(-12)	24795.713(18)	24739.605(1)
15.5	24875.926(15)	24816.091(-12)	24827.610(4)	24767.509(-5)	24781.974*	24722.128(4)
16.5	24867.175(-1)	24803.659(21)	24815.949(-10)	24752.114(-13)	24767.379(8)	24703.821(-1)
17.5	24857.596(-15)	24790.344(-1)	24803.485(0)	24735.913(-3)	24751.979(4)	24684.700(-1)
18.5	24847.216(1)	24776.240(16)	24790.193(9)	24718.875(-7)	24735.766(10)	24664.768(12)
19.5	24835.988(-1)	24761.272(-2)	24776.063(8)	24701.014(-8)	24718.720(8)	24643.986(-4)
20.5	24823.933(3)	24745.482(-12)	24761.115(19)	24682.327(-9)	24700.863(20)	24622.379*
21.5	24811.026(-11)	24728.881(-2)	24745.317(10)	24662.816(-6)	24682.162(13)	24599.984(-5)
22.5	24797.315(6)	24711.434(-4)	24728.703(16)	24642.486(5)	24662.635(9)	24576.743(-8)
23.5	24782.750(4)	24693.158(-3)	24711.242(8)	24621.307(-5)	24642.284(7)	24552.687(-3)
24.5	24767.354(9)	24674.045(-4)	24692.956(8)	24599.308(-5)	24621.101(2)	24527.800(-1)
25.5	24751.112(6)	24654.089(-13)	24673.832(4)	24576.479(-4)	24599.088(-3)	24502.102(15)
26.5	24734.010(-18)	24633.317(-1)	24653.898*	24552.838(15)	24576.266(12)	24475.529(-15)
27.5	24716.083*	24611.690(-7)		24528.322(-8)	24552.592(8)	
28.5	24697.365(16)	24589.237(0)		24502.979*	24528.081(-1)	
29.5	24677.726(-19)	24565.935(-3)		24476.840(-4)	24502.740(-7)	
30.5	24657.280(-17)	24541.793(-6)			24476.605*	
31.5		24516.803(-15)				
32.5		24490.978(-16)				

TABLE 1 - Continued

The 3-0 $A^2\Pi_{3/2} - X^2\Sigma^+$ Sub-Band

J	R_{11ee}	R_{12ff}	Q_{11fe}	Q_{12ef}	P_{11ee}	P_{12ff}
0.5	24783.307(5)	24779.543(-6)	24779.214*	24775.184*		
1.5	24786.735(6)	24779.214(-9)	24779.543(7)	24772.020(-11)	24775.184*	24767.742*
2.5	24789.273(2)	24777.992(-21)	24779.214(12)	24767.933(-10)	24772.020(11)	24760.780*
3.5	24790.922(-6)	24775.886*	24777.992(9)	24762.959(-13)	24767.933(20)	24752.883(-19)
4.5	24791.673*	24772.903*	24775.886(7)	24757.117(0)	24762.912(-21)	24744.155(-17)
5.5	24791.591(4)	24769.028*	24772.903(12)	24750.373(-5)	24757.047(-22)	24734.556(-1)
6.5	24790.596(6)	24764.278*	24769.028(7)	24742.729*	24750.311(-10)	24724.061(1)
7.5	24788.710(2)	24758.661*	24764.278(12)	24734.228(-23)	24742.695(5)	24712.683(2)
8.5	24785.942(-1)	24752.096*	24758.661(8)	24724.854(-9)	24734.161(-16)	24700.424(3)
9.5	24782.284(-9)	24744.718*	24752.096(-11)	24714.577(-17)	24724.786(6)	24687.280(1)
10.5	24777.764(5)	24736.435*	24744.718(14)	24703.430(-13)	24714.495(-8)	24673.257(-1)
11.5	24772.338(-4)	24727.266*	24736.435(17)	24691.390(-22)	24703.324(-19)	24658.349(-7)
12.5	24766.040(-2)	24717.217*	24727.266(15)	24678.480(-19)	24691.290(-13)	24642.564(-12)
13.5	24758.840(-18)	24706.402(2)	24717.217(14)	24664.709(1)	24678.377(-5)	24625.906(-12)
14.5	24750.791(-2)	24694.624(13)	24706.277(2)	24650.049(12)	24664.579(-2)	24608.383(1)
15.5	24741.845(0)	24681.939(17)	24694.470(4)	24634.465(-13)	24649.890(-12)	24589.967(-3)
16.5	24732.018(2)	24668.370(7)	24681.779(1)	24618.040(-20)	24634.357(12)	24570.671(-11)
17.5	24721.301(-3)	24653.939(13)	24668.209(-2)	24600.737(-20)	24617.919(11)	24550.504(-15)
18.5	24709.723(10)	24638.607(-5)	24653.764(-1)	24582.567(-9)	24600.606(10)	24529.463(-19)
19.5	24697.244(3)	24622.426(7)	24638.447(5)	24563.506(-13)	24582.414(8)	24507.559(-12)
20.5	24683.890(1)	24605.359(9)	24622.245(4)	24543.574(-14)	24563.348(7)	24484.771(-17)
21.5	24669.662(4)	24587.389(-17)	24605.155(-8)	24522.781(-1)	24543.405(4)	
22.5	24654.543(-3)	24568.577(-8)	24587.200(-9)	24501.105(3)	24522.582(-4)	
23.5	24638.573(16)	24548.887(-2)	24568.383(3)	24478.547(-2)	24500.901(4)	
24.5	24621.689(2)	24528.315(-3)	24548.668(-8)		24478.335(-1)	
25.5	24603.941(0)	24506.869(-4)	24528.083(-13)			
26.5	24585.327(11)	24484.558(4)	24506.630(-12)			
27.5	24565.821(8)		24484.305(-10)			
28.5	24545.432(-2)					
29.5	24524.184(7)					
30.5	24502.037(-7)					
31.5	24479.029(-6)					

^a Figures in parentheses denote observed minus calculated values in units of the last quoted digit.

* The lines marked by asterisk are less accurate and not used in the evaluation of molecular constants.

The 4-0 A²Π_{1/2} - X²Σ⁺ Sub-Band

<i>J</i>	<i>R</i> _{21ee}	<i>R</i> _{22ff}	<i>Q</i> _{21fe}	<i>Q</i> _{22ef}	<i>P</i> _{21ee}	<i>P</i> _{22ff}
0.5	26332.268(-1)	26328.523(-9)	26327.917(-2)	26324.151(-7)		
1.5	26335.771(3)	26328.265(-12)	26328.523(4)	26320.977(-21)	26324.151(6)	26316.648(1)
2.5	26338.419(5)	26327.157*	26328.265(0)	26316.947*	26320.977(1)	26309.722(-11)
3.5	26340.210(5)	26325.206*	26327.157(-1)	26312.118(2)	26316.947(-5)	26301.971(4)
4.5	26341.138(-3)	26322.395*	26325.206(10)	26306.382(-12)	26312.118(-18)	26293.348(1)
5.5	26341.229(7)	26318.710*	26322.395(15)	26299.792(-9)	26306.382*	26283.868(-6)
6.5	26340.436(-9)	26314.196*	26318.710(2)	26292.389(-1)	26299.792*	26273.547(-1)
7.5	26338.816(3)	26308.908(18)	26314.196(16)	26284.084(-22)	26292.389*	26262.363(-5)
8.5	26336.319(-3)	26302.657(18)	26308.799(3)	26274.981(14)	26284.084*	26250.329(-6)
9.5	26332.965(-8)	26295.578(19)	26302.560(4)	26264.971(-2)	26274.859*	26237.445(-3)
10.5	26328.768(3)	26287.637(18)	26295.462(4)	26254.110(-14)	26264.826*	26223.704(-3)
11.5	26323.694(-2)	26278.832(5)	26287.509(7)	26242.444(17)	26253.972*	26209.103(-7)
12.5	26317.761(-6)	26269.161(12)	26278.689(2)	26229.838(-17)	26242.325(16)	26193.664(5)
13.5	26310.973(-3)	26258.635(7)	26269.022(10)	26216.455(22)	26229.705(-12)	26177.342(-11)
14.5	26303.325(4)	26247.240(16)	26258.496(20)	26202.174(19)	26216.337(9)	26160.191(0)
15.5	26294.797(-5)	26234.979(16)	26247.091(12)	26187.035(18)	26202.022(3)	26142.166(-5)
16.5	26285.418(-1)	26221.865(16)	26234.827(7)	26171.033(14)	26186.872(-1)	26123.289(-6)
17.5	26275.178(8)	26207.847(-14)	26221.705(8)	26154.163(2)	26170.885(18)	26103.556(-5)
18.5	26264.054(1)	26193.004(-24)	26207.721(11)	26136.444(3)	26153.993(-7)	26082.964(-4)
19.5	26252.074(5)	26177.342(23)	26192.874(15)	26117.853(-7)	26136.299(18)	26061.513(-3)
20.5	26239.220(6)	26160.746(3)	26177.142(2)	26098.419(4)	26117.687(6)	26039.200(-5)
21.5	26225.486(-4)	26143.279(-19)	26160.566(11)	26078.106(0)	26098.250(22)	26016.031(-2)
22.5	26210.883(-10)	26124.965(-19)	26143.117(15)	26056.934(0)	26077.931(20)	25991.989(-11)
23.5	26195.424(-1)	26105.804(4)	26124.793(13)	26034.891(-4)	26056.769(9)	25967.094(-10)
24.5	26179.083(2)	26085.727(-19)	26105.604(17)	26011.987(-5)	26034.706(19)	25941.339(-8)
25.5	26161.875(11)	26064.807(-12)	26085.540(16)	25988.217(-3)	26011.782(13)	25914.725(-1)
26.5	26143.771(1)	26042.992*	26064.600(11)	25963.580(0)	25988.011(22)	25887.242(2)
27.5	26124.793(-6)	26020.347(1)	26042.814*	25938.069(-3)	25963.365(8)	25858.886(-4)
28.5	26104.951(3)	25996.813(17)	26020.125(18)	25911.687(-6)	25937.836(12)	25829.668(-7)
29.5	26084.219(0)	25972.343*	25996.545(5)	25884.441(-4)		25799.589(-5)
30.5	26062.597(-12)	25947.054(-14)	25972.061*	25856.329(5)		25768.638(-7)
31.5	26040.122(4)	25920.879(-9)	25946.799(5)	25827.344(12)		25736.820(-8)
32.5	26016.743(1)	25893.819(-10)	25920.609(3)	25797.457(-9)		25704.136(-7)
33.5	25992.488(5)	25865.879(-10)	25893.547(10)	25766.717(-9)		25670.563*
34.5	25967.321(-18)	25837.058(-11)	25865.592(3)			
35.5	25941.339*	25807.365(-1)	25836.763(3)			

TABLE 1 - Continued
The 4-0 A²Π_{3/2} - X²Σ⁺ Sub-Band

J	R_{11ee}	R_{12ff}	Q_{11fe}	Q_{12ef}	P_{11ee}	P_{12ff}
0.5	26207.529(-17)	26203.780(-13)	26203.357*	26199.522(-9)		
1.5	26210.883(-1)	26203.357(-22)	26203.780(0)	26196.282(8)	26199.522(4)	26192.013(1)
2.5	26213.299(-3)	26202.022(-22)	26203.357(0)	26192.096(-3)	26196.282*	26185.000(5)
3.5	26214.808(9)	26199.757*	26202.022(9)	26187.035*	26192.096*	26177.052(-7)
4.5	26215.374(-3)	26196.575*	26199.757(6)	26180.968(-20)	26187.035*	26168.195(-8)
5.5	26215.030(-3)	26192.476*	26196.575(7)	26174.028(-17)	26180.968*	26158.419(-9)
6.5	26213.758(-12)	26187.452*	26192.476(10)	26166.171(-19)	26174.028*	26147.737(1)
7.5	26211.577(-9)	26181.514*	26187.452(7)	26157.464(14)	26166.171*	26136.134(7)
8.5	26208.476(-7)	26174.751(22)	26181.514(9)	26147.737(-4)	26157.369(12)	26123.588(-12)
9.5	26204.450(-11)	26166.901(-11)	26174.644(-3)	26137.170(8)	26147.662(3)	26110.154(-3)
10.5	26199.522(3)	26158.269(-7)	26166.837*	26125.637(16)	26137.066(13)	26095.805(8)
11.5	26193.664(7)	26148.703(10)	26158.185(9)	26113.189(17)	26125.513(2)	26080.520(-3)
12.5	26186.872(-5)	26138.196(-12)	26148.565(0)	26099.821(5)	26113.058(-4)	26064.332(-2)
13.5	26179.188(9)	26126.735(17)	26138.037(1)	26085.540(-4)	26099.633*	26047.223(-8)
14.5	26170.559(-3)	26114.379(12)	26126.576(-16)	26070.377(19)	26085.399(-19)	26029.207(-9)
15.5	26161.028(0)	26101.206(-7)	26114.226(-6)	26054.275(17)	26070.231(8)	26010.276(-11)
16.5	26150.576(0)	26086.954*	26100.957(1)	26037.254(10)	26054.119(5)	25990.444(-4)
17.5	26139.201(-6)	26071.842(20)	26086.760(-5)	26019.292(-15)	26037.080(-12)	25969.679(-18)
18.5	26126.917(-4)	26055.837(15)	26071.649(-12)	26000.444(-6)	26019.168(12)	25948.032(-5)
19.5	26113.711(-8)	26038.891(2)	26055.640(-2)	25980.708(-19)	26000.308(0)	25925.455(-12)
20.5	26099.633*	26021.064(11)	26038.706(-5)	25960.053(-13)	25980.521(-18)	25901.980(-9)
21.5	26084.565(-3)	26002.302(-3)	26020.856(-10)	25938.499(5)	25959.875(-4)	25877.606(3)
22.5	26068.608(-11)	25982.647(2)	26002.099(-10)	25915.987(-15)	25938.316(18)	25852.312(1)
23.5	26051.748(-7)	25962.077(3)	25982.439(-2)	25892.622(0)	25915.811(4)	25826.111(-1)
24.5	26033.971(-6)	25940.587(-5)	25961.846(-15)	25868.300(8)	25892.411(3)	25798.990(-18)
25.5	26015.283(-1)	25918.184(-16)	25940.368(-3)	25843.111(-4)	25868.102(2)	25771.004(5)
26.5	25995.687(10)	25894.876(-12)	25917.963(-7)	25816.980(-21)	25842.879(-6)	
27.5	25975.178(20)	25870.658(-9)	25894.657(-2)	25789.986(6)	25816.773(12)	
28.5	25953.723(-1)	25845.546(-10)	25870.432(-6)	25762.032(-21)	25789.743(11)	
29.5	25931.380(3)	25819.272*	25845.317(7)	25733.156*	25761.819(23)	
30.5	25908.119(1)	25792.628*	25819.272(0)	25703.489(7)	25732.969(14)	
31.5	25883.961(15)	25764.716*	25792.330(4)	25672.802*	25703.201(-7)	
32.5	25858.870(9)		25764.469(-3)		25672.514*	
33.5	25832.865(1)		25735.701(-9)			
34.5	25805.940(-14)		25706.056(15)			
35.5	25778.131(-1)		25675.439*			

^a Figures in parentheses denote observed minus calculated values in units of the last quoted digit.

* The lines marked by asterisk are less accurate and not used in the evaluation of molecular constants.

TABLE 1 - Continued
The 5-0 A²Π_{1/2} - X²Σ⁺ Sub-Band

<i>J</i>	<i>R</i> _{21ee}	<i>R</i> _{22ff}	<i>Q</i> _{21fe}	<i>Q</i> _{22ef}	<i>P</i> _{21ee}	<i>P</i> _{22ff}
0.5	27731.045(-1)	27727.289(-16)	27726.718*	27722.992(3)		
1.5	27734.453(-1)	27726.976(9)	27727.289(-2)	27719.765(-9)	27722.992(16)	27715.489(13)
2.5	27736.994(22)	27725.725(-12)	27726.976(11)	27715.671(2)	27719.765(13)	27708.520(14)
3.5	27738.605(8)	27723.600(-16)	27725.725(19)	27710.677(4)	27715.671*	27700.651(5)
4.5	27739.355(23)	27720.581(-23)	27723.600(23)	27704.776(-10)	27710.677*	27691.904(9)
5.5	27739.173(-1)	27716.662*	27720.581(15)	27697.992(-18)	27704.776*	27682.256(1)
6.5	27738.127(5)	27711.866*	27716.662(18)	27690.333(-9)	27697.992*	27671.728(3)
7.5	27736.178(1)	27706.167*	27711.866*	27681.765(-18)	27690.333*	27660.300(-4)
8.5	27733.351(14)	27699.581*	27706.167*	27672.308(-14)	27681.765*	27647.998(5)
9.5	27729.608(6)	27692.099*	27699.581*	27661.975(-14)	27672.308*	27634.791(0)
10.5	27724.983(12)	27683.720*	27692.099*	27650.741(-12)	27661.975*	27620.694(-4)
11.5	27719.443(-2)	27674.562*	27683.720*	27638.602(13)	27650.741*	27605.710(-5)
12.5	27713.030(11)	27664.393*	27674.406(3)	27625.616(14)	27638.602*	27589.840(1)
13.5	27705.700(4)	27653.320*	27664.244(14)	27611.662(8)	27625.473*	27573.069(-2)
14.5	27697.475(1)	27641.365*	27653.165(5)	27596.917(12)	27611.431*	27555.406(-3)
15.5	27688.355(5)	27628.503(16)	27641.195(3)	27581.211(19)	27596.745(5)	27536.857(2)
16.5	27678.327(2)	27614.743(8)	27628.313(-11)	27564.584(18)	27581.026(1)	27517.412(4)
17.5	27667.421(23)	27600.083(13)	27614.565(7)	27547.094(18)	27564.412(-2)	27497.072(7)
18.5	27655.571(4)	27584.528(11)	27599.885(-5)	27528.673(4)	27546.904(-2)	27475.812(-17)
19.5	27642.817(-16)	27568.017(-11)	27584.321(0)	27509.385(12)	27528.482(-18)	27453.694(-2)
20.5	27629.200(8)	27550.655(-7)	27567.846(-4)	27489.186(7)	27509.197(2)	27430.714*
21.5	27614.565(-11)	27532.390(-1)	27550.480(6)	27468.089(4)	27488.985(-7)	27406.739(-3)
22.5	27599.212(22)	27513.210(-5)	27532.206(11)	27446.091(1)	27467.898(8)	27381.904(-15)
23.5	27582.796*	27493.131(-2)	27513.034(13)	27423.205(12)	27445.885(-1)	27356.194(-4)
24.5	27565.563(9)	27472.149(4)	27492.859*	27399.393(-1)	27423.007(17)	27329.560(-18)
25.5	27547.357(-13)	27450.255(7)	27471.918(-5)	27374.684(-8)	27399.148(-24)	27302.042(-17)
26.5		27427.454(12)	27450.030(12)	27349.072(-15)	27374.485(23)	27273.631(-9)
27.5		27403.726(0)	27427.227(14)	27322.572(-4)	27348.832(-15)	27244.300(-20)
28.5		27379.128(18)	27403.498(20)	27295.145(-16)	27322.365(17)	27214.105(6)
29.5		27353.571(10)	27378.819(15)	27266.825(-13)	27294.875(-9)	
30.5		27327.200*	27353.310(14)	27237.576(-13)	27266.545(-18)	
31.5		27299.743(-3)	27326.903*	27207.443*	27237.270*	
32.5		27271.529(13)	27299.459(-5)		27207.184(-6)	
33.5		27242.362(-9)	27271.174(-1)			
34.5		27212.244*	27242.004(12)			
35.5			27211.796*			

TABLE 1 - Continued
The 5-0 A²Π_{3/2} - X²Σ⁺ Sub-Band

<i>J</i>	<i>R</i> _{11<i>ee</i>}	<i>R</i> _{12<i>ff</i>}	<i>Q</i> _{11<i>fe</i>}	<i>Q</i> _{12<i>ef</i>}	<i>P</i> _{11<i>ee</i>}	<i>P</i> _{12<i>ff</i>}
0.5	27606.263(-12)	27602.518(-5)	27602.004*	27598.281*		
1.5	27609.517(-8)	27602.004(-15)	27602.518(8)	27594.972*	27598.281(-18)	27590.707*
2.5	27611.836(17)	27600.541(-20)	27602.004(7)	27590.707*	27594.972(-10)	27583.248(11)
3.5	27613.122*	27598.124*	27600.541(11)	27585.502*	27590.707(-2)	27575.702(3)
4.5	27613.536(-4)	27594.738*	27598.124(15)	27579.325*	27585.502(21)	27566.711(-8)
5.5	27612.979(12)	27590.412*	27594.738(6)	27572.195*	27579.325(17)	27556.772(-14)
6.5	27611.431(-8)	27585.124*	27590.412(12)	27564.108*	27572.195*	27545.890(-10)
7.5	27608.952(-3)	27578.885*	27585.124(9)	27555.063*	27564.108*	27534.110(19)
8.5	27605.522(6)	27571.684*	27578.885(11)	27545.067*	27555.063*	27521.245(-24)
9.5	27601.122(0)	27563.539*	27571.684(3)	27534.110*	27545.067*	27507.533(7)
10.5	27595.771(-2)	27554.436*	27563.539(6)	27522.226*	27534.110*	27492.859*
11.5	27589.469(-2)	27544.492(3)	27554.436(3)	27509.385*	27522.226*	27477.168(-18)
12.5	27582.210(-4)	27533.515(13)	27544.344(16)	27495.663(15)	27509.385*	27460.584(-7)
13.5	27573.998(-4)	27521.551(7)	27533.366(-9)	27480.909(8)	27495.526(15)	27443.043(-4)
14.5	27564.821(-15)	27508.661(15)	27521.403(-16)	27465.204(13)	27480.744(-10)	27424.542(-12)
15.5	27554.698(-21)	27494.839(14)	27508.509(-1)	27448.514(-18)	27465.065(19)	27405.110(-3)
16.5	27543.640(-8)	27480.023(-3)	27494.641(-11)	27430.984(19)	27448.419(15)	27384.715(-11)
17.5	27531.618(-6)	27464.272(17)	27479.820(-23)	27412.418(12)	27430.714*	27363.363(-10)
18.5	27518.640(-9)	27447.572(-15)	27464.072(-13)	27392.903(8)	27412.216(-12)	27341.114(0)
19.5	27504.716(-5)	27429.907(5)	27447.366(-11)	27372.466(11)	27392.722(-4)	27317.861(-9)
20.5	27489.828(-14)	27411.319(15)	27429.718(-3)	27351.044(-13)	27372.276(0)	27293.702(-21)
21.5	27474.012(0)	27391.794(14)	27411.112(-5)	27328.726(-9)	27350.880(-1)	27268.558*
22.5	27457.234(3)	27371.289(19)	27391.548(-17)	27305.420*	27328.539(0)	27242.630*
23.5	27439.509(9)	27349.873(-9)	27371.058(-8)	27281.224(-10)	27305.230(12)	27215.569(2)
24.5	27420.824(4)	27327.490(7)	27349.604(-16)	27256.067(-1)	27281.039(18)	
25.5	27401.201(12)		27327.200(-19)	27229.953(-5)	27255.848(2)	
26.5	27380.619(10)		27303.894(2)	27202.908(2)	27229.725(-3)	
27.5	27359.054(-16)		27279.610(0)		27202.670(3)	
28.5	27336.627(24)		27254.424(11)			
29.5	27313.222*		27228.149*			
30.5	27288.790(-13)		27201.195*			
31.5	27263.415(3)					
32.5	27237.210(5)					
33.5	27210.142*					

^a Figures in parentheses denote observed minus calculated values in units of the last quoted digit.

* The lines marked by asterisk are less accurate and not used in the evaluation of molecular constants.

TABLE 1 - Continued
The 2-1 A²Π_{1/2} - X²Σ⁺ Sub-Band

<i>J</i>	<i>R</i> _{21<i>ee</i>}	<i>R</i> _{22<i>ff</i>}	<i>Q</i> _{21<i>fe</i>}	<i>Q</i> _{22<i>ef</i>}	<i>P</i> _{21<i>ee</i>}	<i>P</i> _{22<i>ff</i>}
0.5	21322.467*	21318.793*	21318.091*	21314.393*		
1.5	21326.184*	21318.793*	21318.793*	21311.359*	21314.393*	21306.965(15)
2.5	21329.235*	21318.091(2)	21318.793*	21307.666*	21311.359*	21300.177(-9)
3.5	21331.402(-24)	21316.644(19)	21318.091*	21303.201*	21307.666*	21292.756(7)
4.5	21332.909(-2)	21314.393(-2)	21316.644*	21297.976*	21303.201*	21284.615(0)
5.5	21333.656(5)	21311.359*	21314.393*	21292.012(11)	21297.976*	21275.661(15)
6.5	21333.656(12)	21307.666*	21311.359(-15)	21285.313(17)	21291.963*	21266.002(23)
7.5	21332.909(20)	21303.201*	21307.666(12)	21277.852(13)	21285.234*	21255.575(7)
8.5	21331.402(15)	21297.976*	21303.201(13)	21269.679(6)	21277.762(-4)	21244.112(-3)
9.5	21329.150(14)	21292.134(10)	21297.976(2)	21260.707(-9)	21269.591(23)	21232.546(9)
10.5	21326.204(17)	21285.436(13)	21292.012(-1)	21251.056(21)	21260.673(18)	21219.878(4)
11.5	21322.385(0)	21277.964(11)	21285.313(10)	21240.636(27)	21250.927(-9)	21206.501(15)
12.5	21317.902(19)	21269.800(16)	21277.852(7)	21229.457(23)	21240.476(-24)	21192.349(-3)
13.5	21312.623(-5)	21260.836(16)	21269.679*	21217.514(2)	21229.304(-13)	21177.470(-3)
14.5	21306.642(22)	21251.056(-10)	21260.673(-2)	21204.856(15)	21217.380(-6)	21161.847(0)
15.5	21299.838(-19)	21240.636(-4)	21250.927*	21191.417(-3)	21204.728(21)	21145.465(-10)
16.5	21292.344(10)	21229.457(-18)	21240.476(-21)	21177.246(-3)	21191.252(-25)	21128.366(12)
17.5	21284.063(-1)	21217.380(-14)	21229.282(5)	21162.333(6)	21177.054(-9)	21110.483(-2)
18.5	21274.981*	21204.728(-15)	21217.299(-5)	21146.644(-9)	21162.106(-11)	21091.875(9)
19.5	21265.227(-12)	21191.252(-12)	21204.564(-9)	21130.231(5)	21146.465(-19)	21072.528(9)
20.5	21254.700(12)	21176.914*	21191.063(-24)	21113.056(10)	21130.048(-1)	21052.318(-16)
21.5	21243.379(5)	21161.974*	21176.811*	21095.112(0)	21112.882(21)	21031.492(-19)
22.5	21231.305(14)	21146.304(26)	21161.813(-25)	21076.421(-1)	21094.866(7)	21009.902(12)
23.5		21129.640(18)	21146.100(25)	21056.997(21)	21076.251(12)	20987.555(7)
24.5	21204.856(0)	21112.406(14)	21129.392*	21036.809(17)	21056.872*	20964.287*
25.5	21190.469(-18)	21094.458(15)	21112.193(10)	21015.815(4)	21036.743*	20940.467(-18)
26.5	21175.326(-24)		21094.168(-16)	20994.092(1)	21015.726*	20915.881(13)
27.5		21056.048(-21)		20971.610(-1)	20993.966*	
28.5		21035.708(-25)	21055.797(-25)	20948.398(18)	20971.452*	
29.5		21014.584(-8)	21035.270*	20924.321(-9)	20948.398*	
30.5			21014.239*	20899.586(-17)		
31.5			20992.472(6)			
32.5						
33.5			20946.423(13)			

TABLE 1 - Continued
The 2-1 A²Π_{3/2} - X²Σ⁺ Sub-Band

<i>J</i>	<i>R</i> _{11<i>ee</i>}	<i>R</i> _{12<i>ff</i>}	<i>Q</i> _{11<i>fe</i>}	<i>Q</i> _{12<i>ef</i>}	<i>P</i> _{11<i>ee</i>}	<i>P</i> _{12<i>ff</i>}
0.5	21197.551*	21193.835*	21193.161*	21189.537*		
1.5	21201.103*	21193.716(19)	21193.835(-16)	21186.322*		21182.066(19)
2.5	21203.905*	21192.718(0)	21193.716(20)	21182.504(-21)	21186.322*	21175.326(3)
3.5	21205.582*	21190.891(-15)	21192.718(11)	21177.798(-22)	21182.504(9)	21167.568*
4.5	21206.892(-10)	21188.301(-19)	21190.891(4)	21172.315(12)	21177.798(17)	21159.170(-8)
5.5	21207.212(14)	21184.879(-22)	21188.301(19)	21165.970(-2)	21172.315*	21150.050(13)
6.5	21206.706(15)	21180.692(21)	21184.879*	21158.762*	21165.970(-7)	21139.856(-18)
7.5	21205.375(9)	21175.638(9)	21180.588(-18)	21150.852(-24)	21158.762(-3)	21129.015(-25)
8.5	21203.215(7)	21169.774(0)	21175.553(-2)	21142.133(22)	21150.762(-8)	21117.369(2)
9.5	21200.278(17)	21163.092(-17)	21169.693(1)	21132.537(1)	21142.012(-17)	21104.900(17)
10.5	21196.513(8)	21155.628(-5)	21163.011(-7)	21122.153(3)	21132.436(-9)	21091.628(17)
11.5	21191.941(10)	21147.375(19)	21155.544(11)	21110.952(-3)	21122.071(21)	21077.509(19)
12.5	21186.511(3)	21138.225(-25)	21147.242(4)	21098.914(-16)	21110.840(-6)	21062.575(-6)
13.5	21180.302(-2)	21128.366(22)	21138.114(-19)	21086.160(-7)	21098.820(-12)	21046.884(12)
14.5	21173.278(-10)	21117.557*	21128.224(6)	21072.528(12)	21086.011(0)	
15.5	21165.451(-11)	21106.035(-13)	21117.434*	21058.076(-12)	21072.382(0)	
16.5	21156.813(-13)	21093.714(14)	21105.936(-19)	21042.846(-8)	21057.937(-9)	
17.5	21147.375(-5)	21080.674(9)	21093.623(-4)	21026.805(-19)	21042.700(-3)	
18.5	21137.049*	21066.594*	21080.484(3)	21009.975(5)	21026.638(-16)	
19.5	21126.050(10)	21051.951(2)	21066.542(13)	20992.170*	21009.779(-22)	
20.5	21114.186(-2)	21036.319(20)	21051.813(7)	20973.864(-4)	20992.030*	
21.5	21101.526(19)	21019.870*	21036.181(-18)		20973.613(-9)	
22.5	21088.030(11)	21002.795(19)	21019.842(-2)			
23.5	21073.444*	20984.902(-14)	21002.624*			
24.5	21058.594(-26)	20965.894*	20984.696(1)			
25.5	21042.668(-13)	20946.515(-14)	20965.874(-13)			
26.5	21026.036(10)	20926.175(-18)	20946.333(-3)			
27.5	21008.416(-14)	20904.987(-10)	20925.943(-12)			
28.5	20990.138(-12)		20904.744(-7)			
29.5	20971.011(-7)		20882.770(-16)			
30.5	20951.051(-12)					

^a Figures in parentheses denote observed minus calculated values in units of the last quoted digit.

* The lines marked by asterisk are less accurate and not used in the evaluation of molecular constants.

TABLE 1 - Continued

The 7 - 1 A²Π_{1/2} - X²Σ⁺ Sub-Band

<i>J</i>	<i>R</i> _{21<i>ee</i>}	<i>R</i> _{22<i>ff</i>}	<i>Q</i> _{22<i>ef</i>}	<i>P</i> _{22<i>ff</i>}
0.5	28313.887*	28310.313(0)	28306.039(-17)	
1.5	28317.180(-16)	28309.884(2)	28302.803(17)	28298.652(4)
2.5	28319.471(-12)	28308.558(17)	28298.550(-19)	28291.713(20)
3.5	28320.895(-7)	28306.245(12)	28293.449(-15)	28283.852(11)
4.5	28321.370(8)	28303.028(13)	28287.398(-14)	28275.014(13)
5.5	28320.895(3)	28298.872(3)	28280.374*	28265.271(-6)
6.5	28319.471(-21)	28293.797(5)	28272.472(-11)	28254.570(-20)
7.5	28317.180(19)	28287.798(11)	28263.654(-23)	28243.020(12)
8.5	28313.887(-12)	28280.866(17)	28253.897(-24)	28230.494(-12)
9.5	28309.700(-5)	28273.053(23)	28243.203(-24)	28217.091*
10.5	28304.576(-1)	28264.199(20)	28231.575(-18)	28202.736*
11.5	28298.550(18)	28254.432(-13)	28219.051(1)	28187.364(2)
12.5	28291.539(19)	28243.746(-12)	28205.591(16)	28171.128(-1)
13.5	28283.616(18)	28232.172(-3)	28191.137(-12)	28153.976(-6)
14.5	28274.763(12)	28219.641(3)	28175.806(5)	28135.956*
15.5	28264.945(9)	28206.180(15)	28159.535(14)	28116.859(-10)
16.5	28254.021*	28191.653*	28142.303(-5)	28096.890(-7)
17.5	28242.368*	28176.264*	28124.147(-13)	
18.5		28160.016*	28105.072(-5)	
19.5		28142.751*		
20.5		28124.496*		
21.5		28105.413*		
22.5				
23.5				
24.5				
25.5				

TABLE 1 - Continued
The 7-1 A²Π_{3/2} - X²Σ⁺ Sub-Band

<i>J</i>	<i>R</i> _{11<i>ee</i>}	<i>Q</i> _{11<i>fε</i>}	<i>P</i> _{11<i>ee</i>}	<i>P</i> _{12<i>ff</i>}
0.5	28191.653(-3)	28187.490*		
1.5	28194.800(18)	28187.919(-7)	28183.847(22)	28176.384(-6)
2.5	28196.892(16)	28187.249*	28180.349*	28169.332(13)
3.5	28197.985(-13)	28185.659(-16)	28176.073(-21)	28161.272(16)
4.5	28198.129(1)	28183.077(-15)	28170.812(24)	28152.245(11)
5.5	28197.247(-19)	28179.506(7)	28164.496(16)	28142.155(-7)
6.5	28195.382(-20)	28174.925(10)	28157.188(6)	28131.034*
7.5	28192.569(2)	28169.332(-7)	28148.852(19)	28119.101(-8)
8.5	28188.734(4)	28162.772(-2)	28139.518(-16)	28106.121(21)
9.5	28183.987*	28155.218(0)	28129.298(-13)	
10.5	28178.090(8)	28146.653(-21)	28118.001*	
11.5	28171.249(-13)	28137.170(20)	28105.689(-12)	
12.5	28163.444(-9)	28126.616(-1)		
13.5	28154.776*	28115.090(-15)		
14.5	28144.910(12)	28102.594(-12)		
15.5	28134.203*			
16.5	28122.377(11)			
17.5	28109.606(-10)			

^a Figures in parentheses denote observed minus calculated values in units of the last quoted digit.

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