Supplementary Materials Table 1

NaCs pump transitions used in the present work. Note that there is some ambiguity in the vibrational numbering of the intermediate state $[2(A)^1\Sigma^+ \sim 1(b)^3\Pi_{\Omega=0}]$ levels. We follow the numbering scheme introduced by Zaharova *et al.*[49] where levels are labeled by the vibrational quantum number of the $2(A)^1\Sigma^+$ component of each mixed level. Thus there may be two distinct levels labeled with the same vibrational and rotational quantum numbers (one with predominantly $2(A)^1\Sigma^+$ character and one with predominantly $1(b)^3\Pi_{\Omega=0}$ character). For $2(A)^1\Sigma^+ \sim 1(b)^3\Pi_{\Omega=0}$ levels listed in Table I of the supplementary materials to Zaharova *et al.*,[49] we report the level number used by those authors in column 8. The next four columns give the squares of the $2(A)^1\Sigma^+$, $1(b)^3\Pi_{\Omega=0}$, $1(b)^3\Pi_{\Omega=1}$, and $1(b)^3\Pi_{\Omega=2}$ mixing amplitudes determined by Zaharova *et al*. for these levels. Column 13 provides some additional information for those levels used in the present work that are not listed in the Zaharova table.

v'	J'	v''	J''	Ground State Level Energy (cm^{-1})	Pump Laser Frequency (cm^{-1})	Intermediate State Level Energy (cm^{-1})	Zaharova Level #	Amplitudes Squared (%)				Comments
								$A^1\Sigma^+$	$b^3\Pi_0$	$b^3\Pi_1$	$b^3\Pi_2$	
14	10	0	9	54.5686	11296.0585	11350.6271						A
14	11	0	10	55.7261	11295.7972	11351.5233						A
14	12	0	11	56.9994	11295.5226	11352.5220						A
14	13	0	12	58.3883	11295.2236	11353.6119						A
14	13	0	14	61.5130	11292.1017	11353.6147						A
14	14	0	13	59.8928	11294.8916	11354.7844						A
14	14	0	15	63.2487	11291.5377	11354.7864						A
14	15	0	14	61.5130	11294.5290	11356.0420						A
14	15	0	16	65.1000	11290.9420	11356.0420						A
14	16	0	15	63.2487	11294.1364	11357.3851						A
14	16	0	17	67.0668	11290.3155	11357.3823						A
14	17	0	16	65.1000	11293.7127	11358.8127						A
14	17	0	18	69.1491	11289.6608	11358.8099						A
14	18	0	17	67.0668	11293.2569	11360.3237						A
14	18	0	19	71.3469	11288.9770	11360.3239						A
14	19	0	18	69.1491	11292.7758	11361.9249						A
14	19	0	20	73.6601	11288.2634	11361.9235						A
14	20	0	19	71.3469	11292.2661	11363.6130						A
14	20	0	21	76.0887	11287.5221	11363.6108						A
14	21	0	20	73.6601	11291.7299	11365.3900						A
14	21	0	22	78.6326	11286.7594	11365.3920						A

v'	J'	v''	J''	Ground State Level Energy (cm^{-1})	Pump Laser Frequency (cm^{-1})	Intermediate State Level Energy (cm^{-1})	Zaharova Level #	Amplitudes Squared (%)				Comments
								$A^1\Sigma^+$	$b^3\Pi_0$	$b^3\Pi_1$	$b^3\Pi_2$	
14	22	0	21	76.0887	11291.1666	11367.2553						A
14	22	0	23	81.2919	11285.9659	11367.2578						A
14	23	0	22	78.6326	11290.5820	11369.2146						A
14	23	0	24	84.0664	11285.1492	11369.2156						A
14	24	0	23	81.2919	11289.9720	11371.2639						A
14	24	0	25	86.9561	11284.3092	11371.2653						A
14	25	0	24	84.0664	11289.3408	11373.4072						A
14	25	0	24	84.0664	11289.3417	11373.4081						A
14	25	0	26	89.9610	11283.4486	11373.4096						A
14	26	0	25	86.9561	11288.6884	11375.6445						A
14	26	0	25	86.9561	11288.6891	11375.6452						A
14	26	0	27	93.0810	11282.5598	11375.6408						A
14	26	0	27	93.0810	11282.5661	11375.6471						A
14	27	0	26	89.9610	11288.0180	11377.9790						A
14	27	0	26	89.9610	11288.0217	11377.9827						A
14	27	0	28	96.3160	11281.6688	11377.9848						A
14	28	0	27	93.0810	11287.3362	11380.4172						A
14	28	0	27	93.0810	11287.3384	11380.4194						A
14	28	0	29	99.6661	11280.7517	11380.4178						A
14	28	0	29	99.6661	11280.7534	11380.4195						A
14	29	0	28	96.3160	11286.6405	11382.9565						A
14	29	0	28	96.3160	11286.6447	11382.9607						A
14	29	0	30	103.1311	11279.8264	11382.9575						A
14	29	0	30	103.1311	11279.8273	11382.9584						A
14	30	0	29	99.6661	11285.9381	11385.6042						A
14	30	0	29	99.6661	11285.9396	11385.6057						A
14	30	0	31	106.7110	11278.8918	11385.6028						A
14	30	0	31	106.7110	11278.8919	11385.6029						A
14	31	0	30	103.1311	11285.2233	11388.3544						A
14	31	0	30	103.1311	11285.2267	11388.3578						A
14	31	0	32	110.4058	11277.9488	11388.3546						A
14	31	0	32	110.4058	11277.9507	11388.3565						A
14	32	0	31	106.7110	11284.5096	11391.2206						A
14	32	0	31	106.7110	11284.5105	11391.2215						A
14	33	0	32	110.4058	11283.7972	11394.2030						A
14	33	0	32	110.4058	11283.7976	11394.2034						A
14	34	0	33	114.2153	11283.0880	11397.3033						A

v'	J'	v''	J''	Ground State Level Energy (cm^{-1})	Pump Laser Frequency (cm^{-1})	Intermediate State Level Energy (cm^{-1})	Zaharova Level #	Amplitudes Squared (%)				Comments
								$A^1\Sigma^+$	$b^3\Pi_0$	$b^3\Pi_1$	$b^3\Pi_2$	
14	34	0	35	122.1785	11275.1218	11397.3003						A
14	35	0	34	118.1396	11282.3904	11400.5300						A
14	35	0	36	126.3320	11274.1917	11400.5237						A
14	36	0	35	122.1785	11281.7050	11403.8835						A
14	36	0	37	130.6000	11273.2833	11403.8833						A
14	37	0	36	126.3320	11281.0363	11407.3683						A
14	37	0	38	134.9825	11272.3825	11407.3650						A
14	38	0	37	130.6000	11280.3868	11410.9868						A
14	38	0	39	139.4793	11271.5070	11410.9863						A
14	39	0	38	134.9825	11279.7515	11414.7340						A
14	39	0	40	144.0904	11270.6461	11414.7365						A
14	40	0	39	139.4793	11279.1459	11418.6252						A
14	40	0	41	148.8158	11269.8145	11418.6303						A
14	41	0	40	144.0904	11278.5679	11422.6583						A
14	41	0	42	153.6552	11269.0014	11422.6566						A
14	42	0	41	148.8158	11278.0159	11426.8317						A
14	42	0	43	158.6088	11268.2232	11426.8320						A
14	43	0	42	153.6552	11277.4912	11431.1464						A
14	43	0	44	163.6763	11267.4660	11431.1423						A
14	43	0	44	163.6763	11267.4703	11431.1466						A
14	44	0	43	158.6088	11276.9882	11435.5970	1079	36.1	62.4	1.5	0.0	
14	44	0	45	168.8578	11266.7389	11435.5967						A
14	44	0	45	168.8578	11266.7440	11435.6018						A
14	45	0	44	163.6763	11276.5092	11440.1855						A
14	45	0	46	174.1530	11266.0337	11440.1867						A
14	45	0	46	174.1530	11266.0378	11440.1908						A
14	46	0	45	168.8578	11276.0585	11444.9163						A
14	46	0	47	179.5620	11265.3492	11444.9112	1080	32.1	65.3	2.6	0.0	
14	47	0	46	174.1530	11275.6240	11449.7770						A
14	47	0	48	185.0846	11264.6917	11449.7763						A
14	47	0	48	185.0846	11264.6959	11449.7805						A
14	47	0	48	185.0846	11264.6963	11449.7809						A
14	48	0	47	179.5620	11275.2132	11454.7752						A
14	48	0	49	190.7208	11264.0534	11454.7742						A
14	48	0	49	190.7208	11264.0554	11454.7762						A
14	48	0	49	190.7208	11264.0558	11454.7766						A
14	49	0	48	185.0846	11274.8232	11459.9078						A

v'	J'	v''	J''	Ground State Level Energy (cm^{-1})	Pump Laser Frequency (cm^{-1})	Intermediate State Level Energy (cm^{-1})	Zaharova Level #	Amplitudes Squared (%)				Comments
								$A^1\Sigma^+$	$b^3\Pi_0$	$b^3\Pi_1$	$b^3\Pi_2$	
14	49	0	50	196.4704	11263.4394	11459.9098						A
14	49	0	50	196.4704	11263.4400	11459.9104						A
14	49	0	50	196.4704	11263.4564	11459.9268						A
14	50	0	49	190.7208	11274.4553	11465.1761						A
14	50	0	51	202.3334	11262.8423	11465.1757						A
14	50	0	51	202.3334	11262.8454	11465.1788						A
14	50	0	51	202.3334	11262.8466	11465.1800						A
14	51	0	50	196.4704	11274.1159	11470.5863						A
14	51	0	52	208.3097	11262.2813	11470.5910						A
14	51	0	52	208.3097	11262.2850	11470.5947						A
14	51	0	52	208.3097	11262.2854	11470.5951						A
14	52	0	51	202.3334	11273.8332	11476.1666						A
14	52	0	53	214.3991	11261.7658	11476.1649						A
14	52	0	53	214.3991	11261.7695	11476.1686						A
14	52	0	53	214.3991	11261.7708	11476.1699						A
14	53	0	52	208.3097	11272.4848	11480.7945						A
14	53	0	54	220.6016	11260.1955	11480.7971						A
14	53	0	54	220.6016	11260.1969	11480.7985						A
14	54	0	53	214.3991	11272.3245	11486.7236						A
14	54	0	53	214.3991	11272.3292	11486.7283						A
14	54	0	55	226.9170	11259.8077	11486.7247						A
14	54	0	55	226.9170	11259.8086	11486.7256						A
14	55	0	54	220.6016	11272.0756	11492.6772						A
14	55	0	54	220.6016	11272.0770	11492.6786						A
14	55	0	56	233.3453	11259.3315	11492.6768						A
14	55	0	56	233.3453	11259.3320	11492.6773						A
14	56	0	55	226.9170	11271.7613	11498.6783						A
14	56	0	55	226.9170	11271.7644	11498.6814						A
14	56	0	57	239.8864	11258.7892	11498.6756						A
14	56	0	57	239.8864	11258.7928	11498.6792						A
14	57	0	56	233.3453	11271.4118	11504.7571						A
14	57	0	56	233.3453	11271.4141	11504.7594						A
14	57	0	58	246.5401	11258.2173	11504.7574						A
14	57	0	58	246.5401	11258.2177	11504.7578						A
14	58	0	57	239.8864	11271.0367	11510.9231						A
14	58	0	57	239.8864	11271.0375	11510.9239						A
14	58	0	59	253.3063	11257.6137	11510.9200						A

v'	J'	v''	J''	Ground State Level Energy (cm^{-1})	Pump Laser Frequency (cm^{-1})	Intermediate State Level Energy (cm^{-1})	Zaharova Level #	Amplitudes Squared (%)				Comments
								$A^1\Sigma^+$	$b^3\Pi_0$	$b^3\Pi_1$	$b^3\Pi_2$	
14	58	0	59	253.3063	11257.6145	11510.9208						A
14	59	0	58	246.5401	11270.6308	11517.1709						A
14	59	0	58	246.5401	11270.6320	11517.1721						A
14	59	0	60	260.1850	11256.9833	11517.1683						A
14	59	0	60	260.1850	11256.9844	11517.1694						A
14	60	0	59	253.3063	11270.1901	11523.4964						A
14	60	0	59	253.3063	11270.1928	11523.4991						A
14	60	0	61	267.1759	11256.3217	11523.4976						A
14	60	0	61	267.1759	11256.3252	11523.5011						A
14	61	0	60	260.1850	11269.7209	11529.9059						A
14	61	0	62	274.2791	11255.6252	11529.9043						A
14	62	0	61	267.1759	11269.1919	11536.3678						A
14	62	0	63	281.4944	11254.8712	11536.3656						A
14	63	0	62	274.2791	11268.5938	11542.8729						A
14	63	0	64	288.8216	11254.0501	11542.8717						A
14	64	0	63	281.4944	11267.8990	11549.3934						A
14	64	0	65	296.2607	11253.1305	11549.3912						A
14	65	0	64	288.8216	11267.0597	11555.8813						A
14	65	0	66	303.8114	11252.0698	11555.8812						A
14	66	0	65	296.2607	11266.0407	11562.3014						A
14	66	0	67	311.4738	11250.8277	11562.3015						A
14	67	0	68	319.2477	11249.3552	11568.6029						A
14	67	0	68	319.2477	11249.3563	11568.6040						A
14	68	0	69	327.1329	11247.6304	11574.7633						A
14	68	0	69	327.1329	11247.6343	11574.7672						A
14	69	0	70	335.1293	11245.6725	11580.8018						A
14	70	0	71	343.2368	11243.5168	11586.7536						A
14	71	0	72	351.4553	11241.2003	11592.6556						A
16	44	0	45	168.8578	11375.6664	11544.5242	1083	65.4	34.5	0.1	0.0	
18	1	0	2	49.7061	11524.7952	11574.5013						B
18	2	0	3	50.0535	11524.6056	11574.6591						B
18	2	0	3	50.0535	11524.6071	11574.6606						B
18	3	0	2	49.7061	11525.1833	11574.8894						B
18	3	0	4	50.5166	11524.3769	11574.8935						B
18	3	0	4	50.5166	11524.3783	11574.8949						B
18	4	0	3	50.0535	11525.1508	11575.2043						B
18	4	0	5	51.0955	11524.1096	11575.2051						B

v'	J'	v''	J''	Ground State Level Energy (cm^{-1})	Pump Laser Frequency (cm^{-1})	Intermediate State Level Energy (cm^{-1})	Zaharova Level #	Amplitudes Squared (%)				Comments
								$A^1\Sigma^+$	$b^3\Pi_0$	$b^3\Pi_1$	$b^3\Pi_2$	
18	4	0	5	51.0955	11524.1099	11575.2054						B
18	5	0	4	50.5166	11525.0796	11575.5962						B
18	5	0	6	51.7902	11523.8069	11575.5971						B
18	5	0	6	51.7902	11523.8095	11575.5997						B
18	6	0	5	51.0955	11524.9708	11576.0663						B
18	6	0	7	52.6006	11523.4641	11576.0647						B
18	6	0	7	52.6006	11523.4661	11576.0667						B
18	7	0	6	51.7902	11524.8243	11576.6145						B
18	7	0	6	51.7902	11524.8279	11576.6181						B
18	7	0	8	53.5267	11523.0866	11576.6133						B
18	7	0	8	53.5267	11523.0876	11576.6143						B
18	8	0	7	52.6006	11524.6400	11577.2406						B
18	8	0	7	52.6006	11524.6418	11577.2424						B
18	8	0	9	54.5686	11522.6728	11577.2414						B
18	8	0	9	54.5686	11522.6730	11577.2416						B
18	9	0	8	53.5267	11524.4210	11577.9477						B
18	9	0	8	53.5267	11524.4222	11577.9489						B
18	9	0	10	55.7261	11522.2194	11577.9455						B
18	9	0	10	55.7261	11522.2226	11577.9487						B
18	10	0	9	54.5686	11524.1603	11578.7289						B
18	10	0	9	54.5686	11524.1617	11578.7303						B
18	10	0	11	56.9994	11521.7293	11578.7287						B
18	10	0	11	56.9994	11521.7343	11578.7337						B
18	11	0	10	55.7261	11523.8658	11579.5919						B
18	11	0	10	55.7261	11523.8659	11579.5920						B
18	11	0	12	58.3883	11521.2049	11579.5932						B
18	11	0	12	58.3883	11521.2103	11579.5986						B
18	12	0	11	56.9994	11523.5327	11580.5321						B
18	12	0	11	56.9994	11523.5354	11580.5348						B
18	12	0	13	59.8928	11520.6372	11580.5300						B
18	12	0	13	59.8928	11520.6462	11580.5390						B
18	13	0	12	58.3883	11523.1616	11581.5499						B
18	13	0	12	58.3883	11523.1632	11581.5515						B
18	13	0	14	61.5130	11520.0355	11581.5485						B
18	13	0	14	61.5130	11520.0374	11581.5504						B
18	14	0	13	59.8928	11522.7529	11582.6457						B
18	14	0	13	59.8928	11522.7533	11582.6461						B

v'	J'	v''	J''	Ground State Level Energy (cm^{-1})	Pump Laser Frequency (cm^{-1})	Intermediate State Level Energy (cm^{-1})	Zaharova Level #	Amplitudes Squared (%)				Comments
								$A^1\Sigma^+$	$b^3\Pi_0$	$b^3\Pi_1$	$b^3\Pi_2$	
18	14	0	15	63.2487	11519.3974	11582.6461						B
18	14	0	15	63.2487	11519.4024	11582.6511						B
18	15	0	14	61.5130	11522.3090	11583.8220						B
18	15	0	14	61.5130	11522.3106	11583.8236						B
18	15	0	16	65.1000	11518.7253	11583.8253						B
18	15	0	16	65.1000	11518.7262	11583.8262						B
18	16	0	15	63.2487	11521.8289	11585.0776						B
18	16	0	15	63.2487	11521.8300	11585.0787						B
18	16	0	17	67.0668	11518.0110	11585.0778						B
18	16	0	17	67.0668	11518.0141	11585.0809						B
18	17	0	16	65.1000	11521.3128	11586.4128						B
18	17	0	16	65.1000	11521.3140	11586.4140						B
18	17	0	18	69.1491	11517.2603	11586.4094						B
18	17	0	18	69.1491	11517.2606	11586.4097						B
18	18	0	17	67.0668	11520.7558	11587.8226						B
18	18	0	17	67.0668	11520.7583	11587.8251						B
18	18	0	19	71.3469	11516.4752	11587.8221						B
18	18	0	19	71.3469	11516.4794	11587.8263						B
18	19	0	18	69.1491	11520.1649	11589.3140						B
18	19	0	18	69.1491	11520.1652	11589.3143						B
18	19	0	20	73.6601	11515.6528	11589.3129						B
18	19	0	20	73.6601	11515.6548	11589.3149						B
18	20	0	19	71.3469	11519.5342	11590.8811						B
18	20	0	19	71.3469	11519.5361	11590.8830						B
18	20	0	21	76.0887	11514.7868	11590.8755						B
18	20	0	21	76.0887	11514.7965	11590.8852						B
18	21	0	20	73.6601	11518.8710	11592.5311						B
18	21	0	20	73.6601	11518.8717	11592.5318						B
18	21	0	22	78.6326	11513.8897	11592.5223						B
18	22	0	21	76.0887	11518.1692	11594.2579						B
18	22	0	21	76.0887	11518.1695	11594.2582						B
18	22	0	23	81.2919	11512.9577	11594.2496						B
18	23	0	22	78.6326	11517.4320	11596.0646						B
18	23	0	22	78.6326	11517.4330	11596.0656						B
18	23	0	24	84.0664	11511.9898	11596.0562						B
18	24	0	23	81.2919	11516.6592	11597.9511						B
18	24	0	23	81.2919	11516.6607	11597.9526						B

v'	J'	v''	J''	Ground State Level Energy (cm^{-1})	Pump Laser Frequency (cm^{-1})	Intermediate State Level Energy (cm^{-1})	Zaharova Level #	Amplitudes Squared (%)				Comments
								$A^1\Sigma^+$	$b^3\Pi_0$	$b^3\Pi_1$	$b^3\Pi_2$	
18	24	0	25	86.9561	11510.9849	11597.9410						B
18	24	0	25	86.9561	11510.9943	11597.9504						B
18	25	0	24	84.0664	11515.8496	11599.9160						B
18	25	0	24	84.0664	11515.8523	11599.9187						B
18	25	0	26	89.9610	11509.9461	11599.9071						B
18	25	0	26	89.9610	11509.9534	11599.9144						B
18	26	0	25	86.9561	11514.9964	11601.9525						B
18	26	0	25	86.9561	11515.0060	11601.9621						B
18	26	0	27	93.0810	11508.8724	11601.9534						B
18	26	0	27	93.0810	11508.8820	11601.9630						B
18	27	0	26	89.9610	11514.1192	11604.0802						B
18	27	0	28	96.3160	11507.7612	11604.0772						B
18	27	0	28	96.3160	11507.7728	11604.0888						B
18	28	0	27	93.0810	11513.2024	11606.2834						B
18	28	0	29	99.6661	11506.6160	11606.2821						B
18	28	0	29	99.6661	11506.6260	11606.2921						B
18	29	0	28	96.3160	11512.2546	11608.5706						B
18	29	0	30	103.1311	11505.4420	11608.5731						B
18	29	0	30	103.1311	11505.4472	11608.5783						B
18	30	0	29	99.6661	11511.2710	11610.9371						B
18	30	0	29	99.6661	11511.2805	11610.9466						B
18	30	0	31	106.7110	11504.2269	11610.9379						B
18	31	0	30	103.1311	11510.2620	11613.3931						B
18	31	0	30	103.1311	11510.2642	11613.3953						B
18	31	0	32	110.4058	11502.9840	11613.3898						B
18	32	0	31	106.7110	11509.2106	11615.9216						B
18	32	0	31	106.7110	11509.2121	11615.9231						B
18	32	0	33	114.2153	11501.7060	11615.9213						B
18	33	0	32	110.4058	11508.1254	11618.5312						B
18	33	0	32	110.4058	11508.1287	11618.5345						B
18	33	0	34	118.1396	11500.3933	11618.5329						B
18	34	0	33	114.2153	11507.0082	11621.2235						B
18	34	0	33	114.2153	11507.0108	11621.2261						B
18	34	0	35	122.1785	11499.0464	11621.2249						B
18	35	0	34	118.1396	11505.8625	11624.0021						B
18	35	0	34	118.1396	11505.8685	11624.0081						B
18	35	0	36	126.3320	11497.6697	11624.0017						B

v'	J'	v''	J''	Ground State Level Energy (cm^{-1})	Pump Laser Frequency (cm^{-1})	Intermediate State Level Energy (cm^{-1})	Zaharova Level #	Amplitudes Squared (%)				Comments
								$A^1\Sigma^+$	$b^3\Pi_0$	$b^3\Pi_1$	$b^3\Pi_2$	
18	36	0	35	122.1785	11504.6831	11626.8616						B
18	36	0	37	130.6000	11496.2628	11626.8628						B
18	37	0	36	126.3320	11503.4764	11629.8084						B
18	37	0	38	134.9825	11494.8220	11629.8045						B
18	38	0	37	130.6000	11502.2344	11632.8344						B
18	38	0	39	139.4793	11493.3569	11632.8362						B
18	39	0	38	134.9825	11500.9679	11635.9504						B
18	39	0	40	144.0904	11491.8594	11635.9498						B
18	40	0	39	139.4793	11499.6715	11639.1508						B
18	40	0	41	148.8158	11490.3353	11639.1511						B
18	41	0	40	144.0904	11498.3509	11642.4413						B
18	41	0	42	153.6552	11488.7856	11642.4408						B
18	42	0	41	148.8158	11497.0048	11645.8206						B
18	42	0	43	158.6088	11487.2109	11645.8197						B
18	43	0	42	153.6552	11495.6336	11649.2888						B
18	43	0	44	163.6763	11485.6108	11649.2871						B
18	44	0	43	158.6088	11494.2413	11652.8501	1087	81.6	18.3	0.1	0.0	
18	44	0	45	168.8578	11483.9910	11652.8488	1087	81.6	18.3	0.1	0.0	
18	45	0	44	163.6763	11492.8280	11656.5043						B
18	45	0	46	174.1530	11482.3493	11656.5023						B
18	46	0	45	168.8578	11491.3975	11660.2553	1088	80.0	20.0	0.1	0.0	
18	46	0	47	179.5620	11480.6909	11660.2529	1088	80.0	20.0	0.1	0.0	
18	47	0	46	174.1530	11489.9483	11664.1013						B
18	47	0	48	185.0846	11479.0159	11664.1005						B
18	48	0	47	179.5620	11488.4845	11668.0465						B
18	48	0	49	190.7208	11477.3273	11668.0481						B
18	49	0	48	185.0846	11487.0103	11672.0949						B
18	49	0	50	196.4704	11475.6242	11672.0946						B
18	50	0	49	190.7208	11485.5249	11676.2457						B
18	50	0	51	202.3334	11473.9174	11676.2508						B
18	51	0	50	196.4704	11484.0403	11680.5107						B
18	51	0	52	208.3097	11472.2003	11680.5100						B
18	52	0	51	202.3334	11482.5491	11684.8825						B
18	52	0	53	214.3991	11470.4851	11684.8842						B
18	53	0	52	208.3097	11481.0621	11689.3718						B
18	54	0	53	214.3991	11479.5772	11693.9763						B
18	55	0	54	220.6016	11478.1036	11698.7052						B

v'	J'	v''	J''	Ground State Level Energy (cm^{-1})	Pump Laser Frequency (cm^{-1})	Intermediate State Level Energy (cm^{-1})	Zaharova Level #	Amplitudes Squared (%)				Comments
								$A^1\Sigma^+$	$b^3\Pi_0$	$b^3\Pi_1$	$b^3\Pi_2$	
18	56	0	55	226.9170	11476.6434	11703.5604						B
18	57	0	56	233.3453	11475.1970	11708.5423						B
18	58	0	57	239.8864	11473.7761	11713.6625						B
18	59	0	58	246.5401	11472.3764	11718.9165						B
18	60	0	59	253.3063	11471.0104	11724.3167						B
21	4	0	3	50.0535	11685.3955	11735.4490						C
21	5	0	4	50.5166	11685.3443	11735.8609						C
21	6	0	5	51.0955	11685.2629	11736.3584						C
21	6	0	7	52.6006	11683.7600	11736.3606						C
21	7	0	6	51.7902	11685.1477	11736.9379						C
21	7	0	8	53.5267	11683.4075	11736.9342						C
21	8	0	7	52.6006	11684.9989	11737.5995						C
21	8	0	9	54.5686	11683.0295	11737.5981						C
21	9	0	8	53.5267	11684.8142	11738.3409	403	77.0	23.0	0.0	0.0	
21	9	0	10	55.7261	11682.6143	11738.3404	403	77.0	23.0	0.0	0.0	
21	10	0	9	54.5686	11684.5964	11739.1650	404	77.2	22.8	0.0	0.0	
21	10	0	11	56.9994	11682.1654	11739.1648	404	77.2	22.8	0.0	0.0	
21	11	0	10	55.7261	11684.3424	11740.0685						C
21	11	0	12	58.3883	11681.6803	11740.0686						C
21	12	0	11	56.9994	11684.0556	11741.0550	405	77.7	22.3	0.0	0.0	
21	12	0	13	59.8928	11681.1609	11741.0537	405	77.7	22.3	0.0	0.0	
21	13	0	12	58.3883	11683.7342	11742.1225						C
21	13	0	14	61.5130	11680.6096	11742.1226						C
21	14	0	13	59.8928	11683.3656	11743.2584	406	78.3	21.7	0.0	0.0	
21	14	0	13	59.8928	11683.3736	11743.2664	406	78.3	21.7	0.0	0.0	
21	14	0	15	63.2487	11680.0118	11743.2605	406	78.3	21.7	0.0	0.0	
21	14	0	15	63.2487	11680.0213	11743.2700	406	78.3	21.7	0.0	0.0	
21	15	0	14	61.5130	11682.9820	11744.4950						C
21	15	0	16	65.1000	11679.3945	11744.4945						C
21	16	0	15	63.2487	11682.5535	11745.8022						C
21	16	0	17	67.0668	11678.7342	11745.8010						C
21	17	0	16	65.1000	11682.0906	11747.1906						C
21	18	0	17	67.0668	11681.5859	11748.6527						C
21	19	0	18	69.1491	11681.0458	11750.1949						C
21	20	0	19	71.3469	11680.4706	11751.8175						C
21	21	0	20	73.6601	11679.8583	11753.5184						C
21	22	0	21	76.0887	11679.2064	11755.2951						C

v'	J'	v''	J''	Ground State Level Energy (cm^{-1})	Pump Laser Frequency (cm^{-1})	Intermediate State Level Energy (cm^{-1})	Zaharova Level #	Amplitudes Squared (%)				Comments
								$A^1\Sigma^+$	$b^3\Pi_0$	$b^3\Pi_1$	$b^3\Pi_2$	
21	23	0	22	78.6326	11678.5173	11757.1499						C
21	35	0	36	126.3320	11658.9999	11785.3319						C
21	36	0	37	130.6000	11657.5735	11788.1735						C
21	37	0	38	134.9825	11656.1047	11791.0872						C
21	38	0	39	139.4793	11654.5964	11794.0757						C
21	39	0	40	144.0904	11653.0502	11797.1406						C
21	40	0	41	148.8158	11651.4705	11800.2863						C
21	41	0	40	144.0904	11659.4151	11803.5055						C
21	41	0	42	153.6552	11649.8482	11803.5034						C
21	42	0	41	148.8158	11657.9851	11806.8009						C
21	42	0	43	158.6088	11648.1917	11806.8005						C
21	43	0	42	153.6552	11656.5231	11810.1783						C
21	43	0	44	163.6763	11646.5002	11810.1765						C
21	44	0	43	158.6088	11655.0146	11813.6234						C
21	44	0	43	158.6088	11655.0227	11813.6315						C
21	44	0	45	168.8578	11644.7612	11813.6190						C
21	44	0	45	168.8578	11644.7701	11813.6279						C
21	45	0	44	163.6763	11653.4918	11817.1681						C
21	45	0	46	174.1530	11643.0119	11817.1649						C
21	46	0	45	168.8578	11651.9272	11820.7850						C
21	46	0	47	179.5620	11641.2210	11820.7830						C
21	47	0	46	174.1530	11650.3341	11824.4871						C
21	48	0	47	179.5620	11648.7108	11828.2728						C
21	49	0	48	185.0846	11647.0709	11832.1555						C
21	50	0	49	190.7208	11645.4055	11836.1263						C
21	51	0	50	196.4704	11643.7329	11840.2033						C
21	52	0	51	202.3334	11642.0551	11844.3885						C
23	50	1	49	288.3752	11655.0093	11943.3845	472	87.2	12.7	0.0	0.0	
23	50	1	51	299.9401	11643.4301	11943.3702	472	87.2	12.7	0.0	0.0	
25	9	1	8	151.7396	11787.9861	11939.7257						D
25	10	1	9	152.7773	11787.9356	11940.7129						D
25	11	1	10	153.9302	11787.8713	11941.8015						D
25	12	1	11	155.1983	11787.7869	11942.9852						D
25	13	1	12	156.5815	11787.6855	11944.2670						D
25	14	1	13	158.0800	11787.5678	11945.6478						D
25	15	1	14	159.6936	11787.4326	11947.1262						D
25	15	1	16	163.2661	11783.8612	11947.1273						D

v'	J'	v''	J''	Ground State Level Energy (cm^{-1})	Pump Laser Frequency (cm^{-1})	Intermediate State Level Energy (cm^{-1})	Zaharova Level #	Amplitudes Squared (%)				Comments
								$A^1\Sigma^+$	$b^3\Pi_0$	$b^3\Pi_1$	$b^3\Pi_2$	
25	16	1	15	161.4223	11787.2804	11948.7027						D
25	16	1	17	165.2250	11783.4756	11948.7006						D
25	17	1	16	163.2661	11787.1076	11950.3737						D
25	17	1	18	167.2989	11783.0710	11950.3699						D
25	18	0	17	67.0668	11885.0757	11952.1425						D
25	18	1	17	165.2250	11786.9133	11952.1383						D
25	18	1	19	169.4878	11782.6521	11952.1399						D
25	19	0	18	69.1491	11884.8539	11954.0030						D
25	19	1	18	167.2989	11786.7004	11953.9993						D
25	20	0	19	71.3469	11884.6112	11955.9581						D
25	20	0	21	76.0887	11879.8683	11955.9570						D
25	20	1	19	169.4878	11786.4675	11955.9553						D
25	20	1	21	174.2104	11781.7455	11955.9559						D
25	21	0	20	73.6601	11884.3478	11958.0079						D
25	21	0	22	78.6326	11879.3723	11958.0049						D
25	21	1	20	171.7916	11786.2125	11958.0041						D
25	21	1	22	176.7440	11781.2600	11958.0040						D
25	22	0	21	76.0887	11884.0589	11960.1476						D
25	22	0	23	81.2919	11878.8551	11960.1470						D
25	22	1	21	174.2104	11785.9350	11960.1454						D
25	22	1	23	179.3925	11780.7517	11960.1442						D
25	23	0	22	78.6326	11883.7468	11962.3794						D
25	23	0	24	84.0664	11878.3129	11962.3793						D
25	23	1	22	176.7440	11785.6339	11962.3779						D
25	23	1	24	182.1557	11780.2240	11962.3797						D
25	24	0	23	81.2919	11883.4116	11964.7035						D
25	24	0	25	86.9561	11877.7471	11964.7032						D
25	24	1	23	179.3925	11785.3093	11964.7018						D
25	24	1	25	185.0337	11779.6663	11964.7000						D
25	25	0	24	84.0664	11883.0459	11967.1123						D
25	25	0	26	89.9610	11877.1511	11967.1121						D
25	25	1	24	182.1557	11784.9532	11967.1089						D
25	25	1	26	188.0264	11779.0818	11967.1082						D
25*	25	1	24	182.1557	11817.3450	11999.5007	537	69.1	30.9	0.0	0.0	
25	26	0	25	86.9561	11882.6584	11969.6145						D
25	26	0	27	93.0810	11876.5313	11969.6123						D
25	26	1	25	185.0337	11784.5772	11969.6109						D

v'	J'	v''	J''	Ground State Level Energy (cm^{-1})	Pump Laser Frequency (cm^{-1})	Intermediate State Level Energy (cm^{-1})	Zaharova Level #	Amplitudes Squared (%)				Comments
								$A^1\Sigma^+$	$b^3\Pi_0$	$b^3\Pi_1$	$b^3\Pi_2$	
25	26	1	27	191.1337	11778.4759	11969.6096						D
25	27	0	26	89.9610	11882.2369	11972.1979						D
25	27	0	28	96.3160	11875.8808	11972.1968						D
25	27	0	28	96.3160	11875.8814	11972.1974						D
25	27	1	26	188.0264	11784.1677	11972.1941						D
25	27	1	28	194.3556	11777.7673	11972.1229						D
25	28	0	27	93.0810	11881.7855	11974.8665						D
25	28	0	29	99.6661	11875.1982	11974.8643						D
25	28	1	27	191.1337	11783.7303	11974.8640						D
25	28	1	29	197.6921	11777.1733	11974.8654						D
25	29	0	28	96.3160	11881.3024	11977.6184						D
25	29	0	30	103.1311	11874.4855	11977.6166						D
25	29	1	28	194.3556	11783.2580	11977.6136						D
25	29	1	30	201.1431	11776.4719	11977.6150						D
25	30	0	29	99.6661	11880.7837	11980.4498						D
25	30	0	31	106.7110	11873.7402	11980.4512						D
25	30	1	29	197.6921	11782.7557	11980.4478						D
25	31	0	32	110.4058	11872.9547	11983.3605						D
25	31	1	30	201.1431	11782.2143	11983.3574						D
25	32	0	31	106.7110	11879.6364	11986.3474						D
25	32	0	33	114.2153	11872.1327	11986.3480						D
25	32	1	31	204.7084	11781.6391	11986.3475						D
25	33	0	32	110.4058	11879.0034	11989.4092						D
25	33	0	32	110.4058	11879.0062	11989.4120						D
25	33	0	34	118.1396	11871.2713	11989.4109						D
25	33	1	32	208.3882	11781.0199	11989.4081						D
25	34	0	33	114.2153	11878.3280	11992.5433						D
25	34	0	33	114.2153	11878.3287	11992.5440						D
25	34	0	35	122.1785	11870.3638	11992.5423						D
25	34	1	33	212.1822	11780.3613	11992.5435						D
25	35	0	34	118.1396	11877.6054	11995.7450						D
25	35	0	34	118.1396	11877.6093	11995.7489						D
25	35	0	36	126.3320	11869.4104	11995.7424						D
25	36	0	35	122.1785	11876.8418	11999.0203						D
25	36	0	35	122.1785	11876.8423	11999.0208						D
25	36	0	37	130.6000	11868.4187	11999.0187						D
25	37	0	36	126.3320	11876.0234	12002.3554						D

v'	J'	v''	J''	Ground State Level Energy (cm^{-1})	Pump Laser Frequency (cm^{-1})	Intermediate State Level Energy (cm^{-1})	Zaharova Level #	Amplitudes Squared (%)				Comments
								$A^1\Sigma^+$	$b^3\Pi_0$	$b^3\Pi_1$	$b^3\Pi_2$	
25	37	0	36	126.3320	11876.0248	12002.3568						D
25	37	0	38	134.9825	11867.3742	12002.3567						D
25	38	0	37	130.6000	11875.1565	12005.7565						D
25	38	0	39	139.4793	11866.2797	12005.7590						D
25	39	0	38	134.9825	11874.2375	12009.2200						D
25	39	0	40	144.0904	11865.1298	12009.2202						D
25	40	0	39	139.4793	11873.2604	12012.7397	539	61.6	38.3	0.0	0.0	
25	40	0	41	148.8158	11863.9240	12012.7398	539	61.6	38.3	0.0	0.0	
25	41	0	40	144.0904	11872.2298	12016.3202	540	63.4	36.5	0.0	0.0	
25	41	0	42	153.6552	11862.6637	12016.3189	540	63.4	36.5	0.0	0.0	
25	42	0	41	148.8158	11871.1417	12019.9575	541	65.2	34.7	0.0	0.0	
25	42	0	43	158.6088	11861.3467	12019.9555	541	65.2	34.7	0.0	0.0	
25	43	0	42	153.6552	11869.9920	12023.6472	542	67.0	33.0	0.0	0.0	
25	44	0	43	158.6088	11868.7792	12027.3880	1101	68.7	31.2	0.0	0.0	
25	45	0	44	163.6763	11867.3742	12031.0505	543	70.4	29.5	0.0	0.0	
25	46	0	45	168.8578	11866.1814	12035.0392	1102	72.1	27.9	0.0	0.0	
25	47	0	46	174.1530	11864.7851	12038.9381	544	73.7	26.3	0.0	0.0	
25	48	0	47	179.5620	11863.3327	12042.8947	545	75.2	24.8	0.0	0.0	
27**	11	0	10	55.7261	12189.1260	12244.8521	1047	88.6	11.4	0.0	0.0	
27**	11	0	12	58.3883	12186.4660	12244.8543	1047	88.6	11.4	0.0	0.0	
27**	11	1	10	153.9302	12090.9260	12244.8562	1047	88.6	11.4	0.0	0.0	
27**	11	1	12	156.5815	12088.2660	12244.8475	1047	88.6	11.4	0.0	0.0	
27	33	1	32	208.3882	11877.3955	12085.7837						E
27	34	1	33	212.1822	11877.0304	12089.2126	665	28.3	71.6	0.1	0.0	
27	35	1	34	216.0905	11876.6384	12092.7289	667	28.8	71.1	0.1	0.0	
27	36	1	35	220.1130	11876.2292	12096.3422	669	29.5	70.5	0.1	0.0	
27	36	1	37	228.5002	11867.8394	12096.3396	669	29.5	70.5	0.1	0.0	
27	37	1	36	224.2496	11875.7896	12100.0392	671	30.2	69.7	0.1	0.0	
27	37	1	38	232.8648	11867.1734	12100.0382	671	30.2	69.7	0.1	0.0	
27	38	1	37	228.5002	11875.3294	12103.8296	673	31.1	68.8	0.1	0.0	
27	38	1	39	237.3433	11866.4852	12103.8285	673	31.1	68.8	0.1	0.0	
27	39	1	38	232.8648	11874.8370	12107.7018	675	32.2	67.8	0.1	0.0	
27	39	1	40	241.9356	11865.7659	12107.7015	675	32.2	67.8	0.1	0.0	
27	40	1	39	237.3433	11874.3132	12111.6565	677	33.3	66.6	0.1	0.0	
27	40	1	41	246.6416	11865.0136	12111.6552	677	33.3	66.6	0.1	0.0	
27	41	1	40	241.9356	11873.7540	12115.6896	679	34.6	65.3	0.1	0.0	
27	41	1	42	251.4614	11864.2217	12115.6831	679	34.6	65.3	0.1	0.0	

v'	J'	v''	J''	Ground State Level Energy (cm^{-1})	Pump Laser Frequency (cm^{-1})	Intermediate State Level Energy (cm^{-1})	Zaharova Level #	Amplitudes Squared (%)				Comments
								$A^1\Sigma^+$	$b^3\Pi_0$	$b^3\Pi_1$	$b^3\Pi_2$	
27	42	1	41	246.6416	11873.1502	12119.7918	681	36.1	63.8	0.1	0.0	
27	42	1	43	256.3947	11863.3995	12119.7942	681	36.1	63.8	0.1	0.0	
27	43	1	42	251.4614	11872.5113	12123.9727	683	37.7	62.2	0.1	0.0	
27	43	1	44	261.4415	11862.5304	12123.9719	683	37.7	62.2	0.1	0.0	
27	44	1	43	256.3947	11871.8198	12128.2145	1105	39.5	60.4	0.1	0.0	
27	44	1	45	266.6017	11861.6103	12128.2120	1105	39.5	60.4	0.1	0.0	
27	45	1	44	261.4415	11871.0794	12132.5209	685	41.5	58.5	0.1	0.0	
27	45	1	46	271.8753	11860.6438	12132.5191	685	41.5	58.5	0.1	0.0	
27	46	1	45	266.6017	11870.2821	12136.8838	1106	43.6	56.4	0.1	0.0	
27	46	1	47	277.2621	11859.6239	12136.8860	1106	43.6	56.4	0.1	0.0	
27	47	1	46	271.8753	11869.4259	12141.3012						E
27	47	1	48	282.7621	11858.5398	12141.3019						E
27	48	1	47	277.2621	11868.5053	12145.7674						E
27	48	1	49	288.3752	11857.3936	12145.7688						E
27	49	1	48	282.7621	11867.5168	12150.2789						E
27	49	1	50	294.1012	11856.1772	12150.2784						E
27	50	1	49	288.3752	11866.4530	12154.8282						E
27	50	1	51	299.9401	11854.8871	12154.8272						E
27	51	1	50	294.1012	11865.3142	12159.4154						E
27	51	1	52	305.8918	11853.5227	12159.4145						E
27	52	1	51	299.9401	11864.0988	12164.0389						E
27	52	1	53	311.9562	11852.0818	12164.0380						E
27	53	1	52	305.8918	11862.7991	12168.6909						E
27	53	1	54	318.1332	11850.5574	12168.6906						E
27	54	1	53	311.9562	11861.4193	12173.3755						E
27	55	1	54	318.1332	11859.9568	12178.0900						E
27	56	1	55	324.4226	11858.4043	12182.8269	686	68.8	31.2	0.0	0.0	
27	81	0	80	421.1807	11900.1115	12321.2922	714	48.0	46.9	5.1	0.1	
27	81	0	82	439.7118	11881.5808	12321.2926	714	48.0	46.9	5.1	0.1	
27	81	1	80	517.8775	11803.4163	12321.2938	714	48.0	46.9	5.1	0.1	
27	81	1	82	536.3305	11784.9627	12321.2932	714	48.0	46.9	5.1	0.1	
27	83	0	82	439.7118	11897.4115	12337.1233	718	26.1	43.7	30.0	0.3	
27	83	0	84	458.6804	11878.4414	12337.1218	718	26.1	43.7	30.0	0.3	
27	83	1	82	536.3305	11800.7932	12337.1237	718	26.1	43.7	30.0	0.3	
27	83	1	84	555.2190	11781.9037	12337.1227	718	26.1	43.7	30.0	0.3	
30**	11	1	10	153.9302	12260.4570	12414.3872	1053	82.5	17.5	0.0	0.0	
30**	11	1	12	156.5815	12257.7978	12414.3793	1053	82.5	17.5	0.0	0.0	

v'	J'	v''	J''	Ground State Level Energy (cm^{-1})	Pump Laser Frequency (cm^{-1})	Intermediate State Level Energy (cm^{-1})	Zaharova Level #	Amplitudes Squared (%)				Comments
								$A^1\Sigma^+$	$b^3\Pi_0$	$b^3\Pi_1$	$b^3\Pi_2$	
30**	11	2	10	251.4770	12162.9095	12414.3865	1053	82.5	17.5	0.0	0.0	
30**	11	2	12	254.1175	12160.2670	12414.3845	1053	82.5	17.5	0.0	0.0	
31	61	0	60	260.1850	12146.1326	12406.3176						F
31	61	0	62	274.2791	12132.0377	12406.3168						F
31	61	1	60	357.5533	12048.7620	12406.3153						F
31	61	1	62	371.5891	12034.7267	12406.3158						F
31	61	2	60	454.2555	11952.0603	12406.3158						F
31	61	2	62	468.2324	11938.0845	12406.3169						F
31	61	3	60	550.2861	11856.0312	12406.3173						F
31	61	3	62	564.2035	11842.1140	12406.3175						F
31	61	4	60	645.6410	11760.6773	12406.3183						F
31	61	4	62	659.4982	11746.8164	12406.3146						F
32	46	1	45	266.6017	12144.7880	12411.3897						G
32	47	1	46	271.8753	12144.4308	12416.3061						G
32	47	1	48	282.7621	12133.5430	12416.3051						G
32	48	1	47	277.2621	12144.0735	12421.3356						G
32	48	1	49	288.3752	12132.9555	12421.3307						G
32	49	1	48	282.7621	12143.7098	12426.4719						G
32	49	1	50	294.1012	12132.3678	12426.4690						G
32	50	1	49	288.3752	12143.3486	12431.7238						G
32	50	1	51	299.9401	12131.7813	12431.7214						G
32	51	1	50	294.1012	12142.9733	12437.0745						G
32	51	1	52	305.8918	12131.1824	12437.0742						G
32	52	1	51	299.9401	12142.6026	12442.5427						G
32	52	1	53	311.9562	12130.5833	12442.5395						G
32	53	1	52	305.8918	12142.2203	12448.1121						G
33**	11	2	10	251.4770	12268.5050	12519.9820	1059	82.8	17.2	0.0	0.0	
33**	11	2	12	254.1175	12265.8650	12519.9825	1059	82.8	17.2	0.0	0.0	
33**	11	3	10	348.3613	12171.6141	12519.9754	1059	82.8	17.2	0.0	0.0	
33**	11	3	12	350.9908	12168.9841	12519.9749	1059	82.8	17.2	0.0	0.0	
34	28	2	27	288.5276	12193.3358	12481.8634	999	70.2	29.8	0.0	0.0	
34	28	2	29	295.0590	12186.8054	12481.8644	999	70.2	29.8	0.0	0.0	
34	36	2	37	325.7399	12176.9831	12502.7230						H
34	37	2	38	330.0864	12175.5351	12505.6215						H
34	38	2	39	334.5464	12174.0365	12508.5829						H
34	39	2	40	339.1197	12172.4881	12511.6078						H
34	40	2	41	343.8062	12170.8907	12514.6969						H

v'	J'	v''	J''	Ground State Level Energy (cm^{-1})	Pump Laser Frequency (cm^{-1})	Intermediate State Level Energy (cm^{-1})	Zaharova Level #	Amplitudes Squared (%)				Comments
								$A^1\Sigma^+$	$b^3\Pi_0$	$b^3\Pi_1$	$b^3\Pi_2$	
34	41	2	42	348.6060	12169.2434	12517.8494						H
34	42	2	41	343.8062	12177.2543	12521.0605						H
34	42	2	43	353.5188	12167.5403	12521.0591						H
34	43	2	42	348.6060	12175.7312	12524.3372						H
34	43	2	44	358.5447	12165.7908	12524.3355						H
34	44	2	43	353.5188	12174.1594	12527.6782	1121	85.8	14.2	0.0	0.0	
34	44	2	45	363.6835	12163.9933	12527.6768	1121	85.8	14.2	0.0	0.0	
34	44	2	45	363.6835	12163.9933	12527.6768	1121	85.8	14.2	0.0	0.0	
34	45	2	44	358.5447	12172.5354	12531.0801						H
34	45	2	46	368.9352	12162.1441	12531.0793						H
34	45	2	46	368.9352	12162.1439	12531.0791						H
34	46	2	45	363.6835	12170.8655	12534.5490	1122	87.0	13.0	0.0	0.0	
34	46	2	47	374.2997	12160.2504	12534.5501	1122	87.0	13.0	0.0	0.0	
34	46	2	47	374.2997	12160.2464	12534.5461	1122	87.0	13.0	0.0	0.0	
34	47	2	46	368.9352	12169.1433	12538.0785						H
34	47	2	48	379.7768	12158.3001	12538.0769						H
34	47	2	48	379.7768	12158.2993	12538.0761						H
34	47	2	48	379.7768	12158.3032	12538.0800						H
34	48	2	47	374.2997	12167.3699	12541.6696						H
34	48	2	49	385.3665	12156.3036	12541.6701						H
34	49	2	48	379.7768	12165.5521	12545.3289						H
34	49	2	50	391.0686	12154.2593	12545.3279						H
34	50	2	49	385.3665	12163.6854	12549.0519						H
34	50	2	49	385.3665	12163.6927	12549.0592						H
34	50	2	51	396.8832	12152.1697	12549.0529						H
34	51	2	50	391.0686	12161.7725	12552.8411						H
34	51	2	50	391.0686	12161.7702	12552.8388						H
34	51	2	52	402.8101	12150.0319	12552.8420						H
34	52	2	51	396.8832	12159.8162	12556.6994						H
34	52	2	51	396.8832	12159.8122	12556.6954						H
34	52	2	53	408.8492	12147.8460	12556.6952						H
34	53	2	52	402.8101	12157.8084	12560.6185						H
34	53	2	54	415.0003	12145.6191	12560.6194						H
34	54	2	53	408.8492	12155.7565	12564.6057						H
34	54	2	55	421.2635	12143.3427	12564.6062						H
34	55	2	54	415.0003	12153.6566	12568.6569						H
34	55	2	56	427.6386	12141.0245	12568.6631						H

v'	J'	v''	J''	Ground State Level Energy (cm^{-1})	Pump Laser Frequency (cm^{-1})	Intermediate State Level Energy (cm^{-1})	Zaharova Level #	Amplitudes Squared (%)				Comments
								$A^1\Sigma^+$	$b^3\Pi_0$	$b^3\Pi_1$	$b^3\Pi_2$	
34	56	0	55	226.9170	12345.8683	12572.7853						H
34	56	0	57	239.8864	12332.8970	12572.7834						H
34	56	1	55	324.4226	12248.3596	12572.7822						H
34	56	1	57	337.3385	12235.4440	12572.7825						H
34	56	2	55	421.2635	12151.5168	12572.7803						H
34	56	2	55	421.2635	12151.5168	12572.7803						H
34	56	2	57	434.1254	12138.6560	12572.7814						H
34	56	2	57	434.1254	12138.6562	12572.7816						H
34	56	3	55	517.4344	12055.3470	12572.7814						H
34	56	3	57	530.2417	12042.5403	12572.7820						H
34	57	2	56	427.6386	12149.3329	12576.9715						H
34	57	2	58	440.7239	12136.2503	12576.9742						H
34	58	2	57	434.1254	12147.1174	12581.2428						H
34	58	2	59	447.4340	12133.8108	12581.2448						H
34	59	2	58	440.7239	12144.8559	12585.5798						H
34	59	2	58	440.7239	12144.8634	12585.5873						H
34	60	2	59	447.4340	12142.5768	12590.0108						H
34	61	2	60	454.2555	12140.2829	12594.5384						H
34	62	2	61	461.1883	12138.0473	12599.2356						H
35	15	2	16	260.7747	12263.3810	12524.1557	1003	83.5	16.5	0.0	0.0	
35	15	3	14	354.0771	12170.0810	12524.1581	1003	83.5	16.5	0.0	0.0	
35	15	3	16	357.6202	12166.5410	12524.1612	1003	83.5	16.5	0.0	0.0	
35	68	2	67	505.1168	12173.9369	12679.0537	1139	87.1	12.8	0.1	0.0	
35	68	2	69	520.6449	12158.4102	12679.0551	1139	87.1	12.8	0.1	0.0	
35	87	1	86	574.5418	12204.3720	12778.9138	1004	64.8	35.0	0.2	0.0	
35	87	1	88	594.2976	12184.6169	12778.9145	1004	64.8	35.0	0.2	0.0	
35	87	1	88	594.2976	12184.6174	12778.9150	1004	64.8	35.0	0.2	0.0	
35	87	2	86	670.3225	12108.5920	12778.9145	1004	64.8	35.0	0.2	0.0	
35	87	2	88	689.9932	12088.9220	12778.9152	1004	64.8	35.0	0.2	0.0	
37	43	0	42	153.6552	12538.3586	12692.0138						I
37	43	0	44	163.6763	12528.3367	12692.0130						I
37	43	1	42	251.4614	12440.5500	12692.0114						I
37	43	1	44	261.4415	12430.5680	12692.0095						I
37	43	2	42	348.6060	12343.3962	12692.0022						I
37	43	2	44	358.5447	12333.4582	12692.0029						I
37	43	3	42	445.0838	12246.9178	12692.0016						I
37	43	3	44	454.9807	12237.0207	12692.0014						I

v'	J'	v''	J''	Ground State Level Energy (cm^{-1})	Pump Laser Frequency (cm^{-1})	Intermediate State Level Energy (cm^{-1})	Zaharova Level #	Amplitudes Squared (%)				Comments
								$A^1\Sigma^+$	$b^3\Pi_0$	$b^3\Pi_1$	$b^3\Pi_2$	
37	43	4	42	540.8905	12151.1112	12692.0017						I
37	43	4	44	550.7451	12141.2656	12692.0107						I
37	43	4	44	550.7451	12141.2662	12692.0113						I
37	43	5	42	636.0219	12055.9891	12692.0110						I
37	43	5	44	645.8338	12046.1752	12692.0090						I
37	43	6	42	730.4736	11961.5374	12692.0110						I
37	43	6	44	740.2423	11951.7691	12692.0114						I
37	43	7	42	824.2409	11867.7698	12692.0107						I
37	43	7	44	833.9660	11858.0448	12692.0108						I
37	43	8	42	917.3187	11774.6932	12692.0119						I
37	43	8	44	926.9997	11765.0128	12692.0125						I
37	43	9	42	1009.7019	11682.3104	12692.0123						I
37	43	9	44	1019.3382	11672.6752	12692.0134						I
37	43	10	42	1101.3848	11590.6303	12692.0151						I
37	43	10	44	1110.9760	11581.0373	12692.0133						I
37	43	11	42	1192.3619	11499.6519	12692.0138						I
37	43	11	44	1201.9074	11490.1068	12692.0142						I
37	43	12	42	1282.6272	11409.3872	12692.0144						I
37	43	12	44	1292.1266	11399.8877	12692.0143						I
37	43	13	42	1372.1746	11319.8412	12692.0158						I
37	43	13	44	1381.6272	11310.3869	12692.0141						I
37	43	15	42	1549.0895	11142.9242	12692.0137						I
37	43	15	44	1558.4466	11133.5681	12692.0147						I
37	68	2	69	520.6449	12261.4650	12782.1099	1141	74.2	25.6	0.1	0.0	
37	68	3	67	600.9304	12181.1850	12782.1154	1141	74.2	25.6	0.1	0.0	
37	68	3	69	616.3919	12165.7150	12782.1069	1141	74.2	25.6	0.1	0.0	
39	68	3	67	600.9304	12301.6740	12902.6044	1143	66.7	33.2	0.2	0.0	
39	68	3	69	616.3919	12286.2040	12902.5959	1143	66.7	33.2	0.2	0.0	
40	84	3	85	755.7903	12275.7409	13031.5312						J
40	84	4	83	831.3895	12200.1515	13031.5410						J
40	84	4	85	850.2468	12181.2857	13031.5325						J
41	108	3	107	992.1903	12248.1750	13240.3653	1013	87.1	12.7	0.3	0.0	
41	108	3	109	1016.1938	12224.1750	13240.3688	1013	87.1	12.7	0.3	0.0	
41	108	4	107	1085.5866	12154.7750	13240.3616	1013	87.1	12.7	0.3	0.0	
41	108	4	109	1109.4808	12130.8850	13240.3658	1013	87.1	12.7	0.3	0.0	

* This level is labeled v=25, J=25 in Zaharova. It has primarily $A^1\Sigma^+$ character. The level just above, which is also labeled v=25, J=25 is part of series D and is primarily of $b^3\Pi_0$ character.

** It appears that the vibrational assignments in Zaharova's Table I are sometimes not consistent with the conventional energy arguments based on the adiabatic version of the oscillation theorem [see Pupyshev *et al*. Phys. Chem. Chem. Phys. **12**, 4809-4812 (2010)], especially for some J=11 and J=13 levels with higher v. For example, level 652 (v =27, J=21) in Zaharova has an energy of 12096.941 cm^{-1}, whereas level 1047 (v =27, J=11) is reported at the energy 12244.846 cm^{-1}. Again we note that vibrational assignments are difficult and not as meaningful in this strongly coupled system.

A Levels 1079 and 1080 of Zaharova are part of this series. These levels appear to have primarily $b^3\Pi_0$ character.

B Levels 1087 and 1088 of Zaharova are part of this series.

C Levels 403-406 of Zaharova are part of this series.

D Levels 539-545 and levels 1101-1102 of Zaharova are part of this series. Although levels 539-545 and 1101-1102 have primarily $A^1\Sigma^+$ character, most of the other levels in this series with lower J reported here probably have primarily $b^3\Pi_0$ character.

E Levels 665, 667, 669, 671, 673, 675, 677, 679, 681, 683, 1105, 685, 1106, and 686 of Zaharova are part of this series.

F This level appears to be part of the series which includes levels 909, 911, 913, 915, 917, 919, 920, 922, 924, 926, 928, 930, 932, 934, and 936-950 of Zaharova. It most likely has primarily $b^3\Pi_0$ character.

G These levels probably have primarily $b^3\Pi_0$ character. They lie between 5 and 17 cm^{-1} below the v=32 series of levels labeled 1115, 1116, 953-972 by Zaharova.

H These levels are part of the series labeled v=34 (levels 999, 1121 and 1122) in Zaharova. They probably have primarily $A^1\Sigma^+$ character.

I This level, with J=43, lies approximately 80 cm^{-1} below Zaharova's level 1140 (v=37, J=66), and hence we have also labeled it as v=37.

J This level, with J=84, lies approximately 382 cm^{-1} below Zaharova's level 1012 (v=40, J=136) and hence we have also labeled it as v=40.

Supplementary Materials Table 2

NaCs $5^3\Pi_{\Omega=0}(v,J)$ levels studied in the present work. The table lists the (v,J) quantum numbers of the ground state $1(X)^1\Sigma^+$, intermediate state $2(A)^1\Sigma^+$ before collision, intermediate state $2(A)^1\Sigma^+$ after collision, and upper state $5^3\Pi_0$ levels of the double resonance transition: $5^3\Pi_{\Omega=0}(v,J) \xleftarrow{\text{probe laser}} A^1\Sigma^+(v_c',J_c') \xleftarrow{\text{collision}} A^1\Sigma^+(v',J') \xleftarrow{\text{pump laser}} X^1\Sigma^+(v'',J'')$, along with the pump and probe laser frequencies, and the ground state, intermediate state (before and after collision) and upper state energies. Measured $5^3\Pi_{\Omega=0}(v,J)$ level energies are listed in column 15 and values calculated from the final IPA $5^3\Pi_0$ potential curve are listed in column 16. The differences between observed and calculated energies are listed in the final column. Note that all intermediate levels are actually mixed $1(b)^3\Pi \sim 2(A)^1\Sigma^+$ levels as listed in Table 1 of the supplementary materials. Vibrational numbers for these levels are assigned according to the vibrational numbering of the $2(A)^1\Sigma^+$ component of the mixed level.

upper level $5^3\Pi_0$		inter-mediate level $2(A)^1\Sigma^+$ after collision		inter-mediate level $2(A)^1\Sigma^+$ before collision		ground state level $1(X)^1\Sigma^+$		ground state $X^1\Sigma^+(v'',J'')$ level energy (cm^{-1})	Pump laser frequency (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy before collision (cm^{-1})	energy transfer in collision (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy after collision (cm^{-1})	Probe laser frequency (cm^{-1})	measured upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	calculated upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	difference (observed – calculated) (cm^{-1})
v	J	v_c'	J_c'	v'	J'	v''	J''									
0	25	14	26	14	26	0	25	86.9561	11288.6883	11375.6444	0.0000	11375.6444	13190.1729	24565.8173	24565.7986	0.0187
0	27	14	26	14	26	0	25	86.9561	11288.6883	11375.6444	0.0000	11375.6444	13194.1267	24569.7711	24569.7532	0.0179
0	31	14	32	14	32	0	33	114.2153	11277.0058	11391.2211	0.0000	11391.2211	13187.3480	24578.5691	24578.5530	0.0161
0	33	14	32	14	32	0	33	114.2153	11277.0058	11391.2211	0.0000	11391.2211	13192.1924	24583.4135	24583.3977	0.0158
0	43	14	44	14	44	0	43	158.6088	11276.9897	11435.5985	0.0000	11435.5985	13176.4576	24612.0561	24612.0533	0.0028
0	45	14	44	14	44	0	43	158.6088	11276.9897	11435.5985	0.0000	11435.5985	13183.0711	24618.6696	24618.6680	0.0016
1	25	14	26	14	26	0	25	86.9561	11288.6883	11375.6444	0.0000	11375.6444	13250.3392	24625.9836	24625.9731	0.0105
1	27	14	26	14	26	0	25	86.9561	11288.6883	11375.6444	0.0000	11375.6444	13254.2907	24629.9351	24629.9290	0.0061
1	31	14	32	14	32	0	33	114.2153	11277.0058	11391.2211	0.0000	11391.2211	13247.5071	24638.7282	24638.7315	-0.0033
1	33	14	32	14	32	0	33	114.2153	11277.0058	11391.2211	0.0000	11391.2211	13252.3523	24643.5734	24643.5775	-0.0041
2	25	14	26	14	26	0	25	86.9561	11288.6883	11375.6444	0.0000	11375.6444	13309.8103	24685.4547	24685.5138	-0.0591
2	27	14	26	14	26	0	25	86.9561	11288.6883	11375.6444	0.0000	11375.6444	13313.7703	24689.4147	24689.4618	-0.0471
2	31	14	32	14	32	0	33	114.2153	11277.0058	11391.2211	0.0000	11391.2211	13307.0285	24698.2496	24698.2462	0.0034
2	33	14	32	14	32	0	33	114.2153	11277.0058	11391.2211	0.0000	11391.2211	13311.8993	24703.1204	24703.0819	0.0385
2	43	14	44	14	44	0	43	158.6088	11276.9897	11435.5985	0.0000	11435.5985	13296.0827	24731.6812	24731.6783	0.0029
2	45	14	44	14	44	0	43	158.6088	11276.9897	11435.5985	0.0000	11435.5985	13302.7437	24738.3422	24738.2777	0.0645
3	12	14	11	14	26	0	25	86.9561	11288.6883	11375.6444	-24.1211	11351.5233	13373.6464	24725.1697	24725.1552	0.0145
3	13	14	12	14	26	0	25	86.9561	11288.6883	11375.6444	-23.1224	11352.5220	13373.6150	24726.1370	24726.1249	0.0121
3	14	14	13	14	26	0	25	86.9561	11288.6883	11375.6444	-22.0311	11353.6133	13373.5718	24727.1851	24727.1691	0.0160
3	15	14	14	14	26	0	25	86.9561	11288.6883	11375.6444	-20.8590	11354.7854	13373.5187	24728.3041	24728.2878	0.0163

upper level $5^3\Pi_0$		inter-mediate level $2(A)^1\Sigma^+$ after collision		inter-mediate level $2(A)^1\Sigma^+$ before collision		ground state level $1(X)^1\Sigma^+$		ground state $X^1\Sigma^+(v'',J'')$ level energy (cm^{-1})	Pump laser frequency (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy before collision (cm^{-1})	energy transfer in collision (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy after collision (cm^{-1})	Probe laser frequency (cm^{-1})	measured upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	calculated upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	difference (observed – calculated) (cm^{-1})
v	J	v_c'	J_c'	v'	J'	v''	J''									
3	16	14	15	14	26	0	25	86.9561	11288.6883	11375.6444	-19.6024	11356.0420	13373.4557	24729.4977	24729.4808	0.0169
3	17	14	16	14	26	0	25	86.9561	11288.6883	11375.6444	-18.2607	11357.3837	13373.3801	24730.7638	24730.7483	0.0155
3	17	14	18	14	26	0	25	86.9561	11288.6883	11375.6444	-15.3206	11360.3238	13370.4389	24730.7627	24730.7483	0.0144
3	18	14	17	14	26	0	25	86.9561	11288.6883	11375.6444	-16.8331	11358.8113	13373.2937	24732.1050	24732.0901	0.0149
3	18	14	19	14	26	0	25	86.9561	11288.6883	11375.6444	-13.7202	11361.9242	13370.1782	24732.1024	24732.0901	0.0123
3	19	14	18	14	26	0	25	86.9561	11288.6883	11375.6444	-15.3206	11360.3238	13373.1950	24733.5188	24733.5062	0.0126
3	19	14	20	14	26	0	25	86.9561	11288.6883	11375.6444	-12.0325	11363.6119	13369.9053	24733.5172	24733.5062	0.0110
3	20	14	19	14	26	0	25	86.9561	11288.6883	11375.6444	-13.7202	11361.9242	13373.0846	24735.0088	24734.9966	0.0122
3	20	14	21	14	26	0	25	86.9561	11288.6883	11375.6444	-10.2534	11365.3910	13369.6172	24735.0082	24734.9966	0.0116
3	21	14	20	14	26	0	25	86.9561	11288.6883	11375.6444	-12.0325	11363.6119	13372.9560	24736.5679	24736.5613	0.0066
3	21	14	22	14	26	0	25	86.9561	11288.6883	11375.6444	-8.3878	11367.2566	13369.3135	24736.5701	24736.5613	0.0088
3	22	14	21	14	26	0	25	86.9561	11288.6883	11375.6444	-10.2534	11365.3910	13372.8165	24738.2075	24738.2002	0.0073
3	22	14	23	14	26	0	25	86.9561	11288.6883	11375.6444	-6.4293	11369.2151	13368.9932	24738.2083	24738.2002	0.0081
3	23	14	22	14	26	0	25	86.9561	11288.6883	11375.6444	-8.3878	11367.2566	13372.6606	24739.9172	24739.9133	0.0039
3	23	14	24	14	26	0	25	86.9561	11288.6883	11375.6444	-4.3798	11371.2646	13368.6537	24739.9183	24739.9133	0.0050
3	24	14	23	14	26	0	25	86.9561	11288.6883	11375.6444	-6.4293	11369.2151	13372.4912	24741.7063	24741.7004	0.0059
3	24	14	25	14	26	0	25	86.9561	11288.6883	11375.6444	-2.2361	11373.4083	13368.2985	24741.7068	24741.7004	0.0064
3	25	14	24	14	26	0	25	86.9561	11288.6883	11375.6444	-4.3798	11371.2646	13372.3028	24743.5674	24743.5617	0.0057
3	25	14	26	14	26	0	25	86.9561	11288.6883	11375.6444	0.0000	11375.6444	13367.9317	24743.5761	24743.5617	0.0144
3	26	14	25	14	26	0	25	86.9561	11288.6883	11375.6444	-2.2361	11373.4083	13372.0887	24745.4970	24745.4970	0.0000
3	26	14	27	14	26	0	25	86.9561	11288.6883	11375.6444	2.3378	11377.9822	13367.5135	24745.4957	24745.4970	-0.0013
3	27	14	26	14	26	0	25	86.9561	11288.6883	11375.6444	0.0000	11375.6444	13371.8721	24747.5165	24747.5063	0.0102
3	27	14	28	14	26	0	25	86.9561	11288.6883	11375.6444	4.7741	11380.4185	13367.0852	24747.5037	24747.5063	-0.0026
3	28	14	27	14	26	0	25	86.9561	11288.6883	11375.6444	2.3378	11377.9822	13371.6058	24749.5880	24749.5896	-0.0016
3	28	14	29	14	26	0	25	86.9561	11288.6883	11375.6444	7.3139	11382.9583	13366.6329	24749.5912	24749.5896	0.0016
3	29	14	28	14	26	0	25	86.9561	11288.6883	11375.6444	4.7741	11380.4185	13371.3302	24751.7487	24751.7467	0.0020
3	29	14	30	14	26	0	25	86.9561	11288.6883	11375.6444	9.9595	11385.6039	13366.1474	24751.7513	24751.7467	0.0046
3	30	14	29	14	26	0	25	86.9561	11288.6883	11375.6444	7.3139	11382.9583	13371.0140	24753.9723	24753.9777	-0.0054
3	30	14	31	14	26	0	25	86.9561	11288.6883	11375.6444	12.7114	11388.3558	13365.6162	24753.9720	24753.9777	-0.0057
3	31	14	30	14	26	0	25	86.9561	11288.6883	11375.6444	9.9595	11385.6039	13370.6754	24756.2793	24756.2824	-0.0031
3	31	14	32	14	26	0	25	86.9561	11288.6883	11375.6444	15.5767	11391.2211	13365.0544	24756.2755	24756.2824	-0.0069
3	31	14	32	14	32	0	33	114.2153	11277.0058	11391.2211	0.0000	11391.2211	13365.0544	24756.2755	24756.2824	-0.0069
3	32	14	31	14	26	0	25	86.9561	11288.6883	11375.6444	12.7114	11388.3558	13370.2978	24758.6536	24758.6609	-0.0073
3	33	14	32	14	32	0	33	114.2153	11277.0058	11391.2211	0.0000	11391.2211	13369.8813	24761.1024	24761.1130	-0.0106
3	35	14	34	14	44	0	45	168.8578	11266.7407	11435.5985	-38.2967	11397.3018	13368.9500	24766.2518	24766.2380	0.0138
3	36	14	35	14	44	0	45	168.8578	11266.7407	11435.5985	-35.0716	11400.5269	13368.3815	24768.9084	24768.9108	-0.0024

upper level $5^3\Pi_0$		inter-mediate level $2(A)^1\Sigma^+$ after collision		inter-mediate level $2(A)^1\Sigma^+$ before collision		ground state level $1(X)^1\Sigma^+$		ground state $X^1\Sigma^+(v'',J'')$ level energy (cm^{-1})	Pump laser frequency (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy before collision (cm^{-1})	energy transfer in collision (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy after collision (cm^{-1})	Probe laser frequency (cm^{-1})	measured upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	calculated upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	difference (observed – calculated) (cm^{-1})
v	J	v_c'	J_c'	v'	J'	v''	J''									
3	37	14	36	14	44	0	45	168.8578	11266.7407	11435.5985	-31.7151	11403.8834	13367.7665	24771.6499	24771.6569	-0.0070
3	38	14	37	14	44	0	45	168.8578	11266.7407	11435.5985	-28.2318	11407.3667	13367.1001	24774.4668	24774.4764	-0.0096
3	38	14	39	14	44	0	45	168.8578	11266.7407	11435.5985	-20.8632	11414.7353	13359.7352	24774.4705	24774.4764	-0.0059
3	39	14	38	14	44	0	45	168.8578	11266.7407	11435.5985	-24.6119	11410.9866	13366.3773	24777.3639	24777.3691	-0.0052
3	39	14	40	14	44	0	45	168.8578	11266.7407	11435.5985	-16.9707	11418.6278	13358.7293	24777.3571	24777.3691	-0.0120
3	40	14	39	14	44	0	45	168.8578	11266.7407	11435.5985	-20.8632	11414.7353	13365.5863	24780.3216	24780.3350	-0.0134
3	40	14	41	14	44	0	45	168.8578	11266.7407	11435.5985	-12.9410	11422.6575	13357.6613	24780.3188	24780.3350	-0.0162
3	41	14	40	14	44	0	45	168.8578	11266.7407	11435.5985	-16.9707	11418.6278	13364.7379	24783.3657	24783.3741	-0.0084
3	41	14	42	14	44	0	45	168.8578	11266.7407	11435.5985	-8.7666	11426.8319	13356.5310	24783.3629	24783.3741	-0.0112
3	42	14	41	14	44	0	45	168.8578	11266.7407	11435.5985	-12.9410	11422.6575	13363.8142	24786.4717	24786.4862	-0.0145
3	42	14	43	14	44	0	45	168.8578	11266.7407	11435.5985	-4.4534	11431.1451	13355.3277	24786.4728	24786.4862	-0.0134
3	43	14	42	14	44	0	45	168.8578	11266.7407	11435.5985	-8.7666	11426.8319	13362.8275	24789.6594	24789.6712	-0.0118
3	43	14	44	14	44	0	43	158.6088	11276.9897	11435.5985	0.0000	11435.5985	13354.0594	24789.6579	24789.6712	-0.0133
3	43	14	44	14	44	0	45	168.8578	11266.7407	11435.5985	0.0000	11435.5985	13354.0625	24789.6610	24789.6712	-0.0102
3	44	14	43	14	44	0	45	168.8578	11266.7407	11435.5985	-4.4534	11431.1451	13361.7735	24792.9186	24792.9292	-0.0106
3	44	14	45	14	44	0	45	168.8578	11266.7407	11435.5985	4.5892	11440.1877	13352.7284	24792.9161	24792.9292	-0.0131
3	45	14	44	14	44	0	43	158.6088	11276.9897	11435.5985	0.0000	11435.5985	13360.6485	24796.2470	24796.2599	-0.0129
3	45	14	44	14	44	0	45	168.8578	11266.7407	11435.5985	0.0000	11435.5985	13360.6510	24796.2495	24796.2599	-0.0104
3	45	14	46	14	44	0	45	168.8578	11266.7407	11435.5985	9.3153	11444.9138	13351.3300	24796.2438	24796.2599	-0.0161
3	46	14	45	14	44	0	45	168.8578	11266.7407	11435.5985	4.5892	11440.1877	13359.4672	24799.6549	24799.6634	-0.0085
3	46	14	47	14	44	0	45	168.8578	11266.7407	11435.5985	14.1802	11449.7787	13349.8760	24799.6547	24799.6634	-0.0087
3	47	14	46	14	44	0	45	168.8578	11266.7407	11435.5985	9.3153	11444.9138	13358.2156	24803.1294	24803.1395	-0.0101
3	47	14	48	14	44	0	45	168.8578	11266.7407	11435.5985	19.1771	11454.7756	13348.3564	24803.1320	24803.1395	-0.0075
3	48	14	47	14	44	0	45	168.8578	11266.7407	11435.5985	14.1802	11449.7787	13356.9053	24806.6840	24806.6881	-0.0041
3	49	14	48	14	44	0	45	168.8578	11266.7407	11435.5985	19.1771	11454.7756	13355.5318	24810.3074	24810.3092	-0.0018
3	59	14	60	14	60	0	59	253.3063	11270.1923	11523.4986	0.0000	11523.4986	13327.1344	24850.6330	24850.4841	0.1489
3	61	14	60	14	60	0	59	253.3063	11270.1923	11523.4986	0.0000	11523.4986	13336.4766	24859.9752	24859.3786	0.5966
4	23	14	24	14	24	0	23	81.2919	11289.9727	11371.2646	0.0000	11371.2646	13424.7291	24795.9937	24795.9675	0.0262
4	25	14	24	14	24	0	23	81.2919	11289.9727	11371.2646	0.0000	11371.2646	13428.3532	24799.6178	24799.6022	0.0156
4	27	14	28	14	28	0	27	93.0810	11287.3375	11380.4185	0.0000	11380.4185	13423.1207	24803.5392	24803.5316	0.0076
4	29	14	30	14	30	0	29	99.6661	11285.9378	11385.6039	0.0000	11385.6039	13422.1504	24807.7543	24807.7551	-0.0008
4	31	14	32	14	32	0	31	106.7110	11284.5101	11391.2211	0.0000	11391.2211	13421.0422	24812.2633	24812.2723	-0.0090
4	31	14	32	14	32	0	33	114.2153	11277.0058	11391.2211	0.0000	11391.2211	13421.0432	24812.2643	24812.2723	-0.0080
4	33	14	32	14	32	0	33	114.2153	11277.0058	11391.2211	0.0000	11391.2211	13425.8441	24817.0652	24817.0826	-0.0174
5	17	14	18	14	24	0	25	86.9561	11284.3085	11371.2646	-10.9408	11360.3238	13479.9746	24840.2984	24840.2351	0.0633
5	18	14	19	14	24	0	25	86.9561	11284.3085	11371.2646	-9.3404	11361.9242	13479.6983	24841.6225	24841.5640	0.0585

upper level $5^3\Pi_0$		inter-mediate level $2(A)^1\Sigma^+$ after collision		inter-mediate level $2(A)^1\Sigma^+$ before collision		ground state level $1(X)^1\Sigma^+$		ground state $X^1\Sigma^+(v'',J'')$ level energy (cm^{-1})	Pump laser frequency (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy before collision (cm^{-1})	energy transfer in collision (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy after collision (cm^{-1})	Probe laser frequency (cm^{-1})	measured upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	calculated upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	difference (observed – calculated) (cm^{-1})
v	J	v_c'	J_c'	v'	J'	v''	J''									
5	19	14	20	14	24	0	25	86.9561	11284.3085	11371.2646	-7.6527	11363.6119	13479.4054	24843.0173	24842.9664	0.0509
5	20	14	21	14	24	0	25	86.9561	11284.3085	11371.2646	-5.8736	11365.3910	13479.1024	24844.4934	24844.4424	0.0510
5	21	14	22	14	24	0	25	86.9561	11284.3085	11371.2646	-4.0080	11367.2566	13478.7821	24846.0387	24845.9918	0.0469
5	22	14	23	14	24	0	25	86.9561	11284.3085	11371.2646	-2.0495	11369.2151	13478.4376	24847.6527	24847.6147	0.0380
5	23	14	24	14	24	0	25	86.9561	11284.3085	11371.2646	0.0000	11371.2646	13478.0792	24849.3438	24849.3109	0.0329
5	23	14	24	14	24	0	25	86.9561	11284.3085	11371.2646	0.0000	11371.2646	13478.0816	24849.3462	24849.3109	0.0353
5	24	14	25	14	24	0	25	86.9561	11284.3085	11371.2646	2.1437	11373.4083	13477.7024	24851.1107	24851.0805	0.0302
5	25	14	24	14	24	0	25	86.9561	11284.3085	11371.2646	0.0000	11371.2646	13481.6775	24852.9421	24852.9233	0.0188
5	25	14	26	14	24	0	25	86.9561	11284.3085	11371.2646	4.3798	11375.6444	13477.2957	24852.9401	24852.9233	0.0168
5	26	14	27	14	24	0	25	86.9561	11284.3085	11371.2646	6.7176	11377.9822	13476.8708	24854.8530	24854.8393	0.0137
5	27	14	26	14	32	0	31	106.7110	11284.5101	11391.2211	-15.5767	11375.6444	13481.1719	24856.8163	24856.8285	-0.0122
5	27	14	28	14	24	0	25	86.9561	11284.3085	11371.2646	9.1539	11380.4185	13476.4185	24856.8370	24856.8285	0.0085
5	28	14	27	14	32	0	31	106.7110	11284.5101	11391.2211	-13.2389	11377.9822	13480.9311	24858.9133	24858.8908	0.0225
5	28	14	29	14	24	0	25	86.9561	11284.3085	11371.2646	11.6937	11382.9583	13475.9355	24858.8938	24858.8908	0.0030
5	29	14	28	14	32	0	31	106.7110	11284.5101	11391.2211	-10.8026	11380.4185	13480.6536	24861.0721	24861.0261	0.0460
5	29	14	30	14	24	0	25	86.9561	11284.3085	11371.2646	14.3393	11385.6039	13475.4258	24861.0297	24861.0261	0.0036
5	30	14	29	14	32	0	31	106.7110	11284.5101	11391.2211	-8.2628	11382.9583	13480.2827	24863.2410	24863.2344	0.0066
5	30	18	29	18	32	0	33	114.2153	11501.7067	11615.9220	-7.3480	11608.5740	13254.6650	24863.2390	24863.2344	0.0046
5	31	14	30	14	32	0	31	106.7110	11284.5101	11391.2211	-5.6172	11385.6039	13479.9090	24865.5129	24865.5156	-0.0027
5	31	14	32	14	32	0	31	106.7110	11284.5101	11391.2211	0.0000	11391.2211	13474.2885	24865.5096	24865.5156	-0.0060
5	31	14	32	14	32	0	33	114.2153	11277.0058	11391.2211	0.0000	11391.2211	13474.2836	24865.5047	24865.5156	-0.0109
5	31	18	30	18	32	0	33	114.2153	11501.7067	11615.9220	-4.9815	11610.9405	13254.5782	24865.5187	24865.5156	0.0031
5	31	18	32	18	32	0	33	114.2153	11501.7067	11615.9220	0.0000	11615.9220	13249.5760	24865.4980	24865.5156	-0.0176
5	32	14	31	14	32	0	31	106.7110	11284.5101	11391.2211	-2.8653	11388.3558	13479.5021	24867.8579	24867.8696	-0.0117
5	32	18	31	18	32	0	33	114.2153	11501.7067	11615.9220	-2.5293	11613.3927	13254.4507	24867.8434	24867.8696	-0.0262
5	32	18	31	18	32	0	33	114.2153	11501.7067	11615.9220	-2.5293	11613.3927	13254.4795	24867.8722	24867.8696	0.0026
5	33	14	32	14	32	0	31	106.7110	11284.5101	11391.2211	0.0000	11391.2211	13479.0524	24870.2735	24870.2964	-0.0229
5	33	14	32	14	32	0	31	106.7110	11284.5101	11391.2211	0.0000	11391.2211	13479.0551	24870.2762	24870.2964	-0.0202
5	33	14	32	14	32	0	33	114.2153	11277.0058	11391.2211	0.0000	11391.2211	13479.0595	24870.2806	24870.2964	-0.0158
5	33	14	32	14	32	0	33	114.2153	11277.0058	11391.2211	0.0000	11391.2211	13479.0552	24870.2763	24870.2964	-0.0201
5	33	18	32	18	32	0	33	114.2153	11501.7067	11615.9220	0.0000	11615.9220	13254.3434	24870.2654	24870.2964	-0.0310
5	33	18	32	18	32	0	33	114.2153	11501.7067	11615.9220	0.0000	11615.9220	13254.3687	24870.2907	24870.2964	-0.0057
5	33	18	32	18	32	0	33	114.2153	11501.7067	11615.9220	0.0000	11615.9220	13254.3434	24870.2654	24870.2964	-0.0310
5	34	18	33	18	32	0	33	114.2153	11501.7067	11615.9220	2.6109	11618.5329	13254.2286	24872.7615	24872.7959	-0.0344
5	34	18	33	18	32	0	33	114.2153	11501.7067	11615.9220	2.6109	11618.5329	13254.2493	24872.7822	24872.7959	-0.0137
5	35	18	34	18	32	0	33	114.2153	11501.7067	11615.9220	5.3028	11621.2248	13254.1246	24875.3494	24875.3679	-0.0185

upper level $5^3\Pi_0$		inter-mediate level $2(A)^1\Sigma^+$ after collision		inter-mediate level $2(A)^1\Sigma^+$ before collision		ground state level $1(X)^1\Sigma^+$		ground state $X^1\Sigma^+(v'',J'')$ level energy (cm^{-1})	Pump laser frequency (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy before collision (cm^{-1})	energy transfer in collision (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy after collision (cm^{-1})	Probe laser frequency (cm^{-1})	measured upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	calculated upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	difference (observed – calculated) (cm^{-1})
v	J	v_c'	J_c'	v'	J'	v''	J''									
5	36	18	35	18	32	0	33	114.2153	11501.7067	11615.9220	8.0820	11624.0040	13253.9838	24877.9878	24878.0125	-0.0247
5	37	18	36	18	32	0	33	114.2153	11501.7067	11615.9220	10.9402	11626.8622	13253.8397	24880.7019	24880.7296	-0.0277
5	43	14	44	14	44	0	45	168.8578	11266.7407	11435.5985	0.0000	11435.5985	13463.1883	24898.7868	24898.5486	0.2382
5	59	14	60	14	60	0	59	253.3063	11270.1923	11523.4986	0.0000	11523.4986	13435.0260	24958.5246	24958.6476	-0.1230
5	61	14	60	14	60	0	59	253.3063	11270.1923	11523.4986	0.0000	11523.4986	13443.8063	24967.3049	24967.4313	-0.1264
6	15	14	14	14	24	0	25	86.9561	11284.3085	11371.2646	-16.4792	11354.7854	13534.6872	24889.4726	24889.4527	0.0199
6	16	14	15	14	24	0	25	86.9561	11284.3085	11371.2646	-15.2226	11356.0420	13534.6074	24890.6494	24890.6283	0.0211
6	17	14	16	14	24	0	25	86.9561	11284.3085	11371.2646	-13.8809	11357.3837	13534.5162	24891.8999	24891.8771	0.0228
6	17	14	18	14	24	0	25	86.9561	11284.3085	11371.2646	-10.9408	11360.3238	13531.5750	24891.8988	24891.8771	0.0217
6	18	14	17	14	24	0	25	86.9561	11284.3085	11371.2646	-12.4533	11358.8113	13534.4091	24893.2204	24893.1991	0.0213
6	18	14	19	14	24	0	25	86.9561	11284.3085	11371.2646	-9.3404	11361.9242	13531.2936	24893.2178	24893.1991	0.0187
6	19	14	18	14	24	0	25	86.9561	11284.3085	11371.2646	-10.9408	11360.3238	13534.2863	24894.6101	24894.5944	0.0157
6	19	14	20	14	24	0	25	86.9561	11284.3085	11371.2646	-7.6527	11363.6119	13530.9990	24894.6109	24894.5944	0.0165
6	20	14	19	14	24	0	25	86.9561	11284.3085	11371.2646	-9.3404	11361.9242	13534.1551	24896.0793	24896.0628	0.0165
6	20	14	21	14	24	0	25	86.9561	11284.3085	11371.2646	-5.8736	11365.3910	13530.6878	24896.0788	24896.0628	0.0160
6	21	14	20	14	24	0	25	86.9561	11284.3085	11371.2646	-7.6527	11363.6119	13534.0033	24897.6152	24897.6044	0.0108
6	21	14	22	14	24	0	25	86.9561	11284.3085	11371.2646	-4.0080	11367.2566	13530.3591	24897.6157	24897.6044	0.0113
6	22	14	21	14	24	0	25	86.9561	11284.3085	11371.2646	-5.8736	11365.3910	13533.8456	24899.2366	24899.2191	0.0175
6	22	14	23	14	24	0	25	86.9561	11284.3085	11371.2646	-2.0495	11369.2151	13530.0181	24899.2332	24899.2191	0.0141
6	23	14	22	14	24	0	25	86.9561	11284.3085	11371.2646	-4.0080	11367.2566	13533.6622	24900.9188	24900.9068	0.0120
6	23	14	24	14	24	0	25	86.9561	11284.3085	11371.2646	0.0000	11371.2646	13529.6546	24900.9192	24900.9068	0.0124
6	24	14	23	14	24	0	25	86.9561	11284.3085	11371.2646	-2.0495	11369.2151	13533.4671	24902.6822	24902.6676	0.0146
6	24	14	25	14	24	0	25	86.9561	11284.3085	11371.2646	2.1437	11373.4083	13529.2720	24902.6803	24902.6676	0.0127
6	25	14	24	14	24	0	25	86.9561	11284.3085	11371.2646	0.0000	11371.2646	13533.2464	24904.5110	24904.5013	0.0097
6	25	14	26	14	24	0	25	86.9561	11284.3085	11371.2646	4.3798	11375.6444	13528.8711	24904.5155	24904.5013	0.0142
6	26	14	25	14	24	0	25	86.9561	11284.3085	11371.2646	2.1437	11373.4083	13533.0083	24906.4166	24906.4079	0.0087
6	26	14	25	14	32	0	31	106.7110	11284.5101	11391.2211	-17.8128	11373.4083	13533.0075	24906.4158	24906.4079	0.0079
6	26	14	27	14	24	0	25	86.9561	11284.3085	11371.2646	6.7176	11377.9822	13528.4346	24906.4168	24906.4079	0.0089
6	26	14	27	14	32	0	31	106.7110	11284.5101	11391.2211	-13.2389	11377.9822	13528.4305	24906.4127	24906.4079	0.0048
6	27	14	26	14	24	0	25	86.9561	11284.3085	11371.2646	4.3798	11375.6444	13532.7526	24908.3970	24908.3874	0.0096
6	27	14	26	14	32	0	31	106.7110	11284.5101	11391.2211	-15.5767	11375.6444	13532.7461	24908.3905	24908.3874	0.0031
6	27	14	28	14	24	0	25	86.9561	11284.3085	11371.2646	9.1539	11380.4185	13527.9798	24908.3983	24908.3874	0.0109
6	27	14	28	14	32	0	31	106.7110	11284.5101	11391.2211	-10.8026	11380.4185	13527.9717	24908.3902	24908.3874	0.0028
6	28	14	27	14	24	0	25	86.9561	11284.3085	11371.2646	6.7176	11377.9822	13532.4672	24910.4494	24910.4397	0.0097
6	28	14	27	14	32	0	31	106.7110	11284.5101	11391.2211	-13.2389	11377.9822	13532.4623	24910.4445	24910.4397	0.0048
6	28	14	29	14	24	0	25	86.9561	11284.3085	11371.2646	11.6937	11382.9583	13527.4901	24910.4484	24910.4397	0.0087

upper level $5^3\Pi_0$		inter-mediate level $2(A)^1\Sigma^+$ after collision		inter-mediate level $2(A)^1\Sigma^+$ before collision		ground state level $1(X)^1\Sigma^+$		ground state $X^1\Sigma^+(v'',J'')$ level energy (cm^{-1})	Pump laser frequency (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy before collision (cm^{-1})	energy transfer in collision (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy after collision (cm^{-1})	Probe laser frequency (cm^{-1})	measured upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	calculated upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	difference (observed – calculated) (cm^{-1})
v	J	v_c'	J_c'	v'	J'	v''	J''									
6	28	14	29	14	32	0	31	106.7110	11284.5101	11391.2211	-8.2628	11382.9583	13527.4845	24910.4428	24910.4397	0.0031
6	29	14	28	14	24	0	25	86.9561	11284.3085	11371.2646	9.1539	11380.4185	13532.1510	24912.5695	24912.5647	0.0048
6	29	14	28	14	32	0	31	106.7110	11284.5101	11391.2211	-10.8026	11380.4185	13532.1477	24912.5662	24912.5647	0.0015
6	29	14	30	14	32	0	31	106.7110	11284.5101	11391.2211	-5.6172	11385.6039	13526.9616	24912.5655	24912.5647	0.0008
6	30	14	29	14	24	0	25	86.9561	11284.3085	11371.2646	11.6937	11382.9583	13531.8115	24914.7698	24914.7625	0.0073
6	30	14	29	14	32	0	31	106.7110	11284.5101	11391.2211	-8.2628	11382.9583	13531.8025	24914.7608	24914.7625	-0.0017
6	30	14	31	14	32	0	31	106.7110	11284.5101	11391.2211	-2.8653	11388.3558	13526.4081	24914.7639	24914.7625	0.0014
6	31	14	30	14	24	0	25	86.9561	11284.3085	11371.2646	14.3393	11385.6039	13531.4369	24917.0408	24917.0329	0.0079
6	31	14	30	14	32	0	31	106.7110	11284.5101	11391.2211	-5.6172	11385.6039	13531.4282	24917.0321	24917.0329	-0.0008
6	31	14	32	14	32	0	31	106.7110	11284.5101	11391.2211	0.0000	11391.2211	13525.8092	24917.0303	24917.0329	-0.0026
6	31	14	32	14	32	0	31	106.7110	11284.5101	11391.2211	0.0000	11391.2211	13525.8106	24917.0317	24917.0329	-0.0012
6	32	14	31	14	32	0	31	106.7110	11284.5101	11391.2211	-2.8653	11388.3558	13531.0149	24919.3707	24919.3759	-0.0052
6	32	14	33	14	32	0	31	106.7110	11284.5101	11391.2211	2.9821	11394.2032	13525.1731	24919.3763	24919.3759	0.0004
6	33	14	32	14	32	0	31	106.7110	11284.5101	11391.2211	0.0000	11391.2211	13530.5673	24921.7884	24921.7914	-0.0030
6	33	14	32	14	32	0	31	106.7110	11284.5101	11391.2211	0.0000	11391.2211	13530.5643	24921.7854	24921.7914	-0.0060
6	34	14	33	14	32	0	31	106.7110	11284.5101	11391.2211	2.9821	11394.2032	13530.0721	24924.2753	24924.2793	-0.0040
6	35	14	34	14	32	0	31	106.7110	11284.5101	11391.2211	6.0807	11397.3018	13529.5302	24926.8320	24926.8397	-0.0077
6	36	14	35	14	32	0	31	106.7110	11284.5101	11391.2211	9.3058	11400.5269	13528.9343	24929.4612	24929.4724	-0.0112
6	37	14	36	14	32	0	31	106.7110	11284.5101	11391.2211	12.6623	11403.8834	13528.2878	24932.1712	24932.1773	-0.0061
6	38	14	37	14	32	0	31	106.7110	11284.5101	11391.2211	16.1456	11407.3667	13527.5799	24934.9466	24934.9545	-0.0079
6	38	14	39	14	44	0	45	168.8578	11266.7407	11435.5985	-20.8632	11414.7353	13520.2212	24934.9565	24934.9545	0.0020
6	39	14	38	14	32	0	31	106.7110	11284.5101	11391.2211	19.7655	11410.9866	13526.8114	24937.7980	24937.8038	-0.0058
6	39	14	40	14	44	0	45	168.8578	11266.7407	11435.5985	-16.9707	11418.6278	13519.1739	24937.8017	24937.8038	-0.0021
6	40	14	39	14	32	0	31	106.7110	11284.5101	11391.2211	23.5142	11414.7353	13525.9798	24940.7151	24940.7251	-0.0100
6	40	14	41	14	44	0	45	168.8578	11266.7407	11435.5985	-12.9410	11422.6575	13518.0610	24940.7185	24940.7251	-0.0066
6	41	14	42	14	44	0	45	168.8578	11266.7407	11435.5985	-8.7666	11426.8319	13516.8767	24943.7086	24943.7184	-0.0098
6	42	14	43	14	44	0	45	168.8578	11266.7407	11435.5985	-4.4534	11431.1451	13515.6260	24946.7711	24946.7836	-0.0125
6	42	14	43	14	49	0	50	196.4704	11263.4433	11459.9137	-28.7686	11431.1451	13515.6324	24946.7775	24946.7836	-0.0061
6	43	14	44	14	44	0	45	168.8578	11266.7407	11435.5985	0.0000	11435.5985	13514.3142	24949.9127	24949.9206	-0.0079
6	43	14	44	14	44	0	45	168.8578	11266.7407	11435.5985	0.0000	11435.5985	13514.3105	24949.9090	24949.9206	-0.0116
6	43	14	44	14	49	0	50	196.4704	11263.4433	11459.9137	-24.3152	11435.5985	13514.3164	24949.9149	24949.9206	-0.0057
6	44	14	45	14	44	0	45	168.8578	11266.7407	11435.5985	4.5892	11440.1877	13512.9263	24953.1140	24953.1294	-0.0154
6	44	14	45	14	49	0	50	196.4704	11263.4433	11459.9137	-19.7260	11440.1877	13512.9322	24953.1199	24953.1294	-0.0095
6	45	14	44	14	44	0	45	168.8578	11266.7407	11435.5985	0.0000	11435.5985	13520.8027	24956.4012	24956.4098	-0.0086
6	45	14	44	14	44	0	45	168.8578	11266.7407	11435.5985	0.0000	11435.5985	13520.8054	24956.4039	24956.4098	-0.0059
6	45	14	46	14	49	0	50	196.4704	11263.4433	11459.9137	-14.9999	11444.9138	13511.4862	24956.4000	24956.4098	-0.0098

upper level $5^3\Pi_0$		inter-mediate level $2(A)^1\Sigma^+$ after collision		inter-mediate level $2(A)^1\Sigma^+$ before collision		ground state level $1(X)^1\Sigma^+$		ground state $X^1\Sigma^+(v'',J'')$ level energy (cm^{-1})	Pump laser frequency (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy before collision (cm^{-1})	energy transfer in collision (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy after collision (cm^{-1})	Probe laser frequency (cm^{-1})	measured upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	calculated upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	difference (observed – calculated) (cm^{-1})
v	J	v_c'	J_c'	v'	J'	v''	J''									
6	46	14	45	14	44	0	45	168.8578	11266.7407	11435.5985	4.5892	11440.1877	13519.5622	24959.7499	24959.7618	-0.0119
6	46	14	47	14	49	0	50	196.4704	11263.4433	11459.9137	-10.1350	11449.7787	13509.9684	24959.7471	24959.7618	-0.0147
6	47	14	46	14	44	0	45	168.8578	11266.7407	11435.5985	9.3153	11444.9138	13518.2601	24963.1739	24963.1853	-0.0114
6	47	14	48	14	49	0	50	196.4704	11263.4433	11459.9137	-5.1381	11454.7756	13508.3990	24963.1746	24963.1853	-0.0107
6	48	14	47	14	49	0	50	196.4704	11263.4433	11459.9137	-10.1350	11449.7787	13516.8966	24966.6753	24966.6803	-0.0050
6	48	14	49	14	49	0	50	196.4704	11263.4433	11459.9137	0.0000	11459.9137	13506.7679	24966.6816	24966.6803	0.0013
6	49	14	48	14	44	0	45	168.8578	11266.7407	11435.5985	19.1771	11454.7756	13515.4583	24970.2339	24970.2465	-0.0126
6	49	14	48	14	49	0	50	196.4704	11263.4433	11459.9137	-5.1381	11454.7756	13515.4622	24970.2378	24970.2465	-0.0087
6	49	14	50	14	49	0	50	196.4704	11263.4433	11459.9137	5.2640	11465.1777	13505.0567	24970.2344	24970.2465	-0.0121
6	50	14	49	14	44	0	45	168.8578	11266.7407	11435.5985	24.3152	11459.9137	13513.9612	24973.8749	24973.8840	-0.0091
6	50	14	49	14	49	0	50	196.4704	11263.4433	11459.9137	0.0000	11459.9137	13513.9629	24973.8766	24973.8840	-0.0074
6	50	14	51	14	49	0	50	196.4704	11263.4433	11459.9137	10.6781	11470.5918	13503.2872	24973.8790	24973.8840	-0.0050
6	51	14	50	14	49	0	50	196.4704	11263.4433	11459.9137	5.2640	11465.1777	13512.4035	24977.5812	24977.5927	-0.0115
6	51	14	52	14	49	0	50	196.4704	11263.4433	11459.9137	16.2538	11476.1675	13501.4125	24977.5800	24977.5927	-0.0127
6	52	14	51	14	49	0	50	196.4704	11263.4433	11459.9137	10.6781	11470.5918	13510.7723	24981.3641	24981.3724	-0.0083
6	52	14	53	14	60	0	61	267.1759	11256.3227	11523.4986	-42.7019	11480.7967	13500.5698	24981.3665	24981.3724	-0.0059
6	53	14	52	14	49	0	50	196.4704	11263.4433	11459.9137	16.2538	11476.1675	13509.0495	24985.2170	24985.2232	-0.0062
6	53	14	54	14	60	0	61	267.1759	11256.3227	11523.4986	-36.7730	11486.7256	13498.4883	24985.2139	24985.2232	-0.0093
6	54	14	55	14	60	0	61	267.1759	11256.3227	11523.4986	-30.8211	11492.6775	13496.4619	24989.1394	24989.1448	-0.0054
6	55	14	56	14	60	0	61	267.1759	11256.3227	11523.4986	-24.8200	11498.6786	13494.4472	24993.1258	24993.1371	-0.0113
6	56	14	57	14	60	0	61	267.1759	11256.3227	11523.4986	-18.7407	11504.7579	13492.4358	24997.1937	24997.2002	-0.0065
6	56	14	57	14	63	0	62	274.2791	11268.5932	11542.8723	-38.1144	11504.7579	13492.4319	24997.1898	24997.2002	-0.0104
6	57	14	56	14	60	0	61	267.1759	11256.3227	11523.4986	-24.8200	11498.6786	13502.6462	25001.3248	25001.3339	-0.0091
6	57	14	58	14	60	0	61	267.1759	11256.3227	11523.4986	-12.5766	11510.9220	13490.4061	25001.3281	25001.3339	-0.0058
6	57	14	58	14	63	0	62	274.2791	11268.5932	11542.8723	-31.9503	11510.9220	13490.4055	25001.3275	25001.3339	-0.0064
6	58	14	57	14	60	0	61	267.1759	11256.3227	11523.4986	-18.7407	11504.7579	13500.7716	25005.5295	25005.5381	-0.0086
6	58	14	57	14	63	0	62	274.2791	11268.5932	11542.8723	-38.1144	11504.7579	13500.7677	25005.5256	25005.5381	-0.0125
6	58	14	59	14	60	0	61	267.1759	11256.3227	11523.4986	-6.3284	11517.1702	13488.3580	25005.5282	25005.5381	-0.0099
6	58	14	59	14	63	0	62	274.2791	11268.5932	11542.8723	-25.7021	11517.1702	13488.3591	25005.5293	25005.5381	-0.0088
6	59	14	58	14	60	0	61	267.1759	11256.3227	11523.4986	-12.5766	11510.9220	13498.8869	25009.8089	25009.8127	-0.0038
6	59	14	58	14	63	0	62	274.2791	11268.5932	11542.8723	-31.9503	11510.9220	13498.8847	25009.8067	25009.8127	-0.0060
6	59	14	60	14	60	0	59	253.3063	11270.1923	11523.4986	0.0000	11523.4986	13486.3071	25009.8057	25009.8127	-0.0070
6	59	14	60	14	60	0	61	267.1759	11256.3227	11523.4986	0.0000	11523.4986	13486.3134	25009.8120	25009.8127	-0.0007
6	59	14	60	14	60	0	61	267.1759	11256.3227	11523.4986	0.0000	11523.4986	13486.3049	25009.8035	25009.8127	-0.0092
6	59	14	60	14	63	0	62	274.2791	11268.5932	11542.8723	-19.3737	11523.4986	13486.3010	25009.7996	25009.8127	-0.0131
6	60	14	59	14	60	0	61	267.1759	11256.3227	11523.4986	-6.3284	11517.1702	13496.9773	25014.1475	25014.1577	-0.0102

upper level $5^3\Pi_0$		inter-mediate level $2(A)^1\Sigma^+$ after collision		inter-mediate level $2(A)^1\Sigma^+$ before collision		ground state level $1(X)^1\Sigma^+$		ground state $X^1\Sigma^+(v'',J'')$ level energy (cm^{-1})	Pump laser frequency (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy before collision (cm^{-1})	energy transfer in collision (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy after collision (cm^{-1})	Probe laser frequency (cm^{-1})	measured upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	calculated upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	difference (observed – calculated) (cm^{-1})
v	J	v_c'	J_c'	v'	J'	v''	J''									
6	60	14	59	14	63	0	62	274.2791	11268.5932	11542.8723	-25.7021	11517.1702	13496.9784	25014.1486	25014.1577	-0.0091
6	60	14	61	14	60	0	61	267.1759	11256.3227	11523.4986	6.4065	11529.9051	13484.2619	25014.1670	25014.1577	0.0093
6	60	14	61	14	63	0	62	274.2791	11268.5932	11542.8723	-12.9672	11529.9051	13484.2462	25014.1513	25014.1577	-0.0064
6	61	14	60	14	60	0	59	253.3063	11270.1923	11523.4986	0.0000	11523.4986	13495.0678	25018.5664	25018.5728	-0.0064
6	61	14	60	14	60	0	61	267.1759	11256.3227	11523.4986	0.0000	11523.4986	13495.0726	25018.5712	25018.5728	-0.0016
6	61	14	60	14	63	0	62	274.2791	11268.5932	11542.8723	-19.3737	11523.4986	13495.0671	25018.5657	25018.5728	-0.0071
6	61	14	62	14	60	0	61	267.1759	11256.3227	11523.4986	12.8681	11536.3667	13482.2138	25018.5805	25018.5728	0.0077
6	61	14	62	14	63	0	62	274.2791	11268.5932	11542.8723	-6.5056	11536.3667	13482.2120	25018.5787	25018.5728	0.0059
6	62	14	61	14	60	0	61	267.1759	11256.3227	11523.4986	6.4065	11529.9051	13493.1496	25023.0547	25023.0580	-0.0033
6	62	14	61	14	63	0	62	274.2791	11268.5932	11542.8723	-12.9672	11529.9051	13493.1507	25023.0558	25023.0580	-0.0022
6	62	14	63	14	60	0	61	267.1759	11256.3227	11523.4986	19.3737	11542.8723	13480.1924	25023.0647	25023.0580	0.0067
6	62	14	63	14	63	0	62	274.2791	11268.5932	11542.8723	0.0000	11542.8723	13480.1906	25023.0629	25023.0580	0.0049
6	62	14	63	14	67	0	68	319.2477	11249.3558	11568.6035	-25.7312	11542.8723	13480.1771	25023.0494	25023.0580	-0.0086
6	63	14	62	14	60	0	61	267.1759	11256.3227	11523.4986	12.8681	11536.3667	13491.2483	25027.6150	25027.6133	0.0017
6	63	14	62	14	63	0	62	274.2791	11268.5932	11542.8723	-6.5056	11536.3667	13491.2444	25027.6111	25027.6133	-0.0022
6	63	14	64	14	60	0	61	267.1759	11256.3227	11523.4986	25.8937	11549.3923	13478.2294	25027.6217	25027.6133	0.0084
6	63	14	64	14	63	0	62	274.2791	11268.5932	11542.8723	6.5200	11549.3923	13478.2309	25027.6232	25027.6133	0.0099
6	63	14	64	14	67	0	68	319.2477	11249.3558	11568.6035	-19.2112	11549.3923	13478.2157	25027.6080	25027.6133	-0.0053
6	64	14	63	14	60	0	61	267.1759	11256.3227	11523.4986	19.3737	11542.8723	13489.3703	25032.2426	25032.2384	0.0042
6	64	14	63	14	63	0	62	274.2791	11268.5932	11542.8723	0.0000	11542.8723	13489.3631	25032.2354	25032.2384	-0.0030
6	64	14	65	14	60	0	61	267.1759	11256.3227	11523.4986	32.3827	11555.8813	13476.3698	25032.2511	25032.2384	0.0127
6	64	14	65	14	63	0	62	274.2791	11268.5932	11542.8723	13.0090	11555.8813	13476.3646	25032.2459	25032.2384	0.0075
6	64	14	65	14	67	0	68	319.2477	11249.3558	11568.6035	-12.7222	11555.8813	13476.3561	25032.2374	25032.2384	-0.0010
6	65	14	64	14	60	0	61	267.1759	11256.3227	11523.4986	25.8937	11549.3923	13487.5508	25036.9431	25036.9334	0.0097
6	65	14	64	14	63	0	62	274.2791	11268.5932	11542.8723	6.5200	11549.3923	13487.5469	25036.9392	25036.9334	0.0058
6	65	14	66	14	63	0	62	274.2791	11268.5932	11542.8723	19.4292	11562.3015	13474.6434	25036.9449	25036.9334	0.0115
6	65	14	66	14	67	0	68	319.2477	11249.3558	11568.6035	-6.3020	11562.3015	13474.6316	25036.9331	25036.9334	-0.0003
6	66	14	65	14	63	0	62	274.2791	11268.5932	11542.8723	13.0090	11555.8813	13485.8190	25041.7003	25041.6980	0.0023
6	66	14	67	14	63	0	62	274.2791	11268.5932	11542.8723	25.7312	11568.6035	13473.1107	25041.7142	25041.6980	0.0162
6	66	14	67	14	67	0	68	319.2477	11249.3558	11568.6035	0.0000	11568.6035	13473.1006	25041.7041	25041.6980	0.0061
6	67	14	68	14	63	0	62	274.2791	11268.5932	11542.8723	31.8930	11574.7653	13471.7814	25046.5467	25046.5323	0.0144
6	67	14	68	14	67	0	68	319.2477	11249.3558	11568.6035	6.1618	11574.7653	13471.7713	25046.5366	25046.5323	0.0043
6	68	14	67	14	67	0	68	319.2477	11249.3558	11568.6035	0.0000	11568.6035	13482.8367	25051.4402	25051.4360	0.0042
6	68	14	69	14	67	0	68	319.2477	11249.3558	11568.6035	12.1983	11580.8018	13470.6422	25051.4440	25051.4360	0.0080
6	70	14	71	14	71	0	70	335.1293	11257.5263	11592.6556	0.0000	11592.6556	13468.8140	25061.4696	25061.4515	0.0181
6	72	14	71	14	71	0	70	335.1293	11257.5263	11592.6556	0.0000	11592.6556	13479.1050	25071.7606	25071.7436	0.0170

upper level $5^3\Pi_0$		inter-mediate level $2(A)^1\Sigma^+$ after collision		inter-mediate level $2(A)^1\Sigma^+$ before collision		ground state level $1(X)^1\Sigma^+$		ground state $X^1\Sigma^+(v'',J'')$ level energy (cm^{-1})	Pump laser frequency (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy before collision (cm^{-1})	energy transfer in collision (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy after collision (cm^{-1})	Probe laser frequency (cm^{-1})	measured upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	calculated upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	difference (observed – calculated) (cm^{-1})
v	J	v_c'	J_c'	v'	J'	v''	J''									
7	31	14	32	14	32	0	31	106.7110	11284.5101	11391.2211	0.0000	11391.2211	13576.8736	24968.0947	24968.0660	0.0287
7	33	14	32	14	32	0	31	106.7110	11284.5101	11391.2211	0.0000	11391.2211	13581.6293	24972.8504	24972.8201	0.0303
7	54	14	55	14	60	0	59	253.3063	11270.1923	11523.4986	-30.8211	11492.6775	13547.4806	25040.1581	25040.1561	0.0020
7	55	14	56	14	60	0	59	253.3063	11270.1923	11523.4986	-24.8200	11498.6786	13545.4709	25044.1495	25044.1499	-0.0004
7	56	14	57	14	60	0	59	253.3063	11270.1923	11523.4986	-18.7407	11504.7579	13543.4562	25048.2141	25048.2147	-0.0006
7	57	14	58	14	60	0	59	253.3063	11270.1923	11523.4986	-12.5766	11510.9220	13541.4214	25052.3434	25052.3504	-0.0070
7	58	14	57	14	60	0	59	253.3063	11270.1923	11523.4986	-18.7407	11504.7579	13551.7903	25056.5482	25056.5569	-0.0087
7	58	14	59	14	60	0	59	253.3063	11270.1923	11523.4986	-6.3284	11517.1702	13539.3784	25056.5486	25056.5569	-0.0083
7	59	14	58	14	60	0	59	253.3063	11270.1923	11523.4986	-12.5766	11510.9220	13549.9056	25060.8276	25060.8341	-0.0065
7	59	14	60	14	60	0	59	253.3063	11270.1923	11523.4986	0.0000	11523.4986	13537.3197	25060.8183	25060.8341	-0.0158
7	59	14	60	14	60	0	59	253.3063	11270.1923	11523.4986	0.0000	11523.4986	13537.3253	25060.8239	25060.8341	-0.0102
7	60	14	59	14	60	0	59	253.3063	11270.1923	11523.4986	-6.3284	11517.1702	13548.0043	25065.1745	25065.1820	-0.0075
7	60	14	61	14	60	0	59	253.3063	11270.1923	11523.4986	6.4065	11529.9051	13535.2722	25065.1773	25065.1820	-0.0047
7	61	14	60	14	60	0	59	253.3063	11270.1923	11523.4986	0.0000	11523.4986	13546.0871	25069.5857	25069.6004	-0.0147
7	61	14	60	14	60	0	59	253.3063	11270.1923	11523.4986	0.0000	11523.4986	13546.0880	25069.5866	25069.6004	-0.0138
7	62	14	61	14	60	0	59	253.3063	11270.1923	11523.4986	6.4065	11529.9051	13544.1717	25074.0768	25074.0892	-0.0124
7	63	14	62	14	60	0	59	253.3063	11270.1923	11523.4986	12.8681	11536.3667	13542.2654	25078.6321	25078.6484	-0.0163
7	64	14	63	14	60	0	59	253.3063	11270.1923	11523.4986	19.3737	11542.8723	13540.3841	25083.2564	25083.2779	-0.0215
8	59	14	60	14	60	0	59	253.3063	11270.1923	11523.4986	0.0000	11523.4986	13589.0225	25112.5211	25112.2890	0.2321
8	60	14	61	14	61	0	62	274.2791	11255.6260	11529.9051	0.0000	11529.9051	13587.1423	25117.0474	25116.6447	0.4027
8	61	14	60	14	60	0	59	253.3063	11270.1923	11523.4986	0.0000	11523.4986	13597.0614	25120.5600	25121.0714	-0.5114
8	61	14	60	14	60	0	59	253.3063	11270.1923	11523.4986	0.0000	11523.4986	13597.0636	25120.5622	25121.0714	-0.5092
8	62	14	61	14	60	0	59	253.3063	11270.1923	11523.4986	6.4065	11529.9051	13595.3135	25125.2186	25125.5690	-0.3504
8	62	14	61	14	61	0	62	274.2791	11255.6260	11529.9051	0.0000	11529.9051	13595.3093	25125.2144	25125.5690	-0.3546
8	62	14	63	14	63	0	62	274.2791	11268.5932	11542.8723	0.0000	11542.8723	13582.3401	25125.2124	25125.5690	-0.3566
8	63	14	62	14	60	0	59	253.3063	11270.1923	11523.4986	12.8681	11536.3667	13593.4989	25129.8656	25130.1375	-0.2719
8	64	14	63	14	60	0	59	253.3063	11270.1923	11523.4986	19.3737	11542.8723	13591.6660	25134.5383	25134.7767	-0.2384
8	64	14	63	14	63	0	62	274.2791	11268.5932	11542.8723	0.0000	11542.8723	13591.6654	25134.5377	25134.7767	-0.2390
9	18	14	19	14	24	0	25	86.9561	11284.3085	11371.2646	-9.3404	11361.9242	13685.7919	25047.7161	25047.7207	-0.0046
9	19	14	20	14	24	0	25	86.9561	11284.3085	11371.2646	-7.6527	11363.6119	13685.5014	25049.1133	25049.1157	-0.0024
9	20	14	21	14	24	0	25	86.9561	11284.3085	11371.2646	-5.8736	11365.3910	13685.1960	25050.5870	25050.5839	0.0031
9	21	14	20	14	24	0	25	86.9561	11284.3085	11371.2646	-7.6527	11363.6119	13688.5173	25052.1292	25052.1254	0.0038
9	21	14	22	14	24	0	25	86.9561	11284.3085	11371.2646	-4.0080	11367.2566	13684.8723	25052.1289	25052.1254	0.0035
9	22	14	21	14	24	0	25	86.9561	11284.3085	11371.2646	-5.8736	11365.3910	13688.3571	25053.7481	25053.7401	0.0080
9	22	14	23	14	24	0	25	86.9561	11284.3085	11371.2646	-2.0495	11369.2151	13684.5321	25053.7472	25053.7401	0.0071
9	23	14	22	14	24	0	25	86.9561	11284.3085	11371.2646	-4.0080	11367.2566	13688.1804	25055.4370	25055.4279	0.0091

upper level $5^3\Pi_0$		inter-mediate level $2(A)^1\Sigma^+$ after collision		inter-mediate level $2(A)^1\Sigma^+$ before collision		ground state level $1(X)^1\Sigma^+$		ground state $X^1\Sigma^+(v'',J'')$ level energy (cm^{-1})	Pump laser frequency (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy before collision (cm^{-1})	energy transfer in collision (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy after collision (cm^{-1})	Probe laser frequency (cm^{-1})	measured upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	calculated upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	difference (observed – calculated) (cm^{-1})
v	J	v_c'	J_c'	v'	J'	v''	J''									
9	23	14	24	14	24	0	25	86.9561	11284.3085	11371.2646	0.0000	11371.2646	13684.1752	25055.4398	25055.4279	0.0119
9	24	14	23	14	24	0	25	86.9561	11284.3085	11371.2646	-2.0495	11369.2151	13687.9845	25057.1996	25057.1889	0.0107
9	24	14	25	14	24	0	25	86.9561	11284.3085	11371.2646	2.1437	11373.4083	13683.7909	25057.1992	25057.1889	0.0103
9	25	14	24	14	24	0	25	86.9561	11284.3085	11371.2646	0.0000	11371.2646	13687.7812	25059.0458	25059.0231	0.0227
9	25	14	26	14	24	0	25	86.9561	11284.3085	11371.2646	4.3798	11375.6444	13683.3901	25059.0345	25059.0231	0.0114
9	26	14	25	14	24	0	25	86.9561	11284.3085	11371.2646	2.1437	11373.4083	13687.5389	25060.9472	25060.9303	0.0169
9	26	14	27	14	24	0	25	86.9561	11284.3085	11371.2646	6.7176	11377.9822	13682.9627	25060.9449	25060.9303	0.0146
9	31	14	32	14	32	0	31	106.7110	11284.5101	11391.2211	0.0000	11391.2211	13680.3898	25071.6109	25071.5615	0.0494
9	31	14	32	14	32	0	33	114.2153	11277.0058	11391.2211	0.0000	11391.2211	13680.3870	25071.6081	25071.5615	0.0466
9	33	14	32	14	32	0	31	106.7110	11284.5101	11391.2211	0.0000	11391.2211	13685.1626	25076.3837	25076.3243	0.0594
9	33	14	32	14	32	0	33	114.2153	11277.0058	11391.2211	0.0000	11391.2211	13685.1626	25076.3837	25076.3243	0.0594
9	45	14	44	14	44	0	43	158.6088	11276.9897	11435.5985	0.0000	11435.5985	13673.7687	25109.3672	25111.0029	-1.6357
9	59	14	60	14	60	0	59	253.3063	11270.1923	11523.4986	0.0000	11523.4986	13640.9436	25164.4422	25164.5877	-0.1455
9	61	14	60	14	60	0	59	253.3063	11270.1923	11523.4986	0.0000	11523.4986	13649.7450	25173.2436	25173.3869	-0.1433
10	11	14	10	14	24	0	25	86.9561	11284.3085	11371.2646	-20.6375	11350.6271	13742.2936	25092.9207	25092.9252	-0.0045
10	12	14	11	14	24	0	25	86.9561	11284.3085	11371.2646	-19.7413	11351.5233	13742.2579	25093.7812	25093.8072	-0.0260
10	13	14	12	14	24	0	25	86.9561	11284.3085	11371.2646	-18.7426	11352.5220	13742.2122	25094.7342	25094.7627	-0.0285
10	14	14	13	14	24	0	25	86.9561	11284.3085	11371.2646	-17.6513	11353.6133	13742.1558	25095.7691	25095.7915	-0.0224
10	15	14	14	14	24	0	25	86.9561	11284.3085	11371.2646	-16.4792	11354.7854	13742.0878	25096.8732	25096.8938	-0.0206
10	16	14	15	14	24	0	25	86.9561	11284.3085	11371.2646	-15.2226	11356.0420	13742.0156	25098.0576	25098.0694	-0.0118
10	17	14	16	14	24	0	25	86.9561	11284.3085	11371.2646	-13.8809	11357.3837	13741.9169	25099.3006	25099.3184	-0.0178
10	17	14	18	14	24	0	25	86.9561	11284.3085	11371.2646	-10.9408	11360.3238	13738.9814	25099.3052	25099.3184	-0.0132
10	18	14	17	14	24	0	25	86.9561	11284.3085	11371.2646	-12.4533	11358.8113	13741.8140	25100.6253	25100.6407	-0.0154
10	18	14	19	14	24	0	25	86.9561	11284.3085	11371.2646	-9.3404	11361.9242	13738.7042	25100.6284	25100.6407	-0.0123
10	19	14	18	14	24	0	25	86.9561	11284.3085	11371.2646	-10.9408	11360.3238	13741.6986	25102.0224	25102.0364	-0.0140
10	19	14	20	14	24	0	25	86.9561	11284.3085	11371.2646	-7.6527	11363.6119	13738.4121	25102.0240	25102.0364	-0.0124
10	20	14	19	14	24	0	25	86.9561	11284.3085	11371.2646	-9.3404	11361.9242	13741.5682	25103.4924	25103.5053	-0.0129
10	20	14	21	14	24	0	25	86.9561	11284.3085	11371.2646	-5.8736	11365.3910	13738.1025	25103.4935	25103.5053	-0.0118
10	21	14	20	14	24	0	25	86.9561	11284.3085	11371.2646	-7.6527	11363.6119	13741.4230	25105.0349	25105.0476	-0.0127
10	21	14	22	14	24	0	25	86.9561	11284.3085	11371.2646	-4.0080	11367.2566	13737.7789	25105.0355	25105.0476	-0.0121
10	21	14	22	14	32	0	31	106.7110	11284.5101	11391.2211	-23.9645	11367.2566	13737.7847	25105.0413	25105.0476	-0.0063
10	22	14	21	14	24	0	25	86.9561	11284.3085	11371.2646	-5.8736	11365.3910	13741.2612	25106.6522	25106.6630	-0.0108
10	22	14	23	14	24	0	25	86.9561	11284.3085	11371.2646	-2.0495	11369.2151	13737.4419	25106.6570	25106.6630	-0.0060
10	22	14	23	14	32	0	31	106.7110	11284.5101	11391.2211	-22.0060	11369.2151	13737.4462	25106.6613	25106.6630	-0.0017
10	23	14	22	14	24	0	25	86.9561	11284.3085	11371.2646	-4.0080	11367.2566	13741.0853	25108.3419	25108.3517	-0.0098
10	23	14	22	14	32	0	31	106.7110	11284.5101	11391.2211	-23.9645	11367.2566	13741.0904	25108.3470	25108.3517	-0.0047

upper level $5^3\Pi_0$		inter-mediate level $2(A)^1\Sigma^+$ after collision		inter-mediate level $2(A)^1\Sigma^+$ before collision		ground state level $1(X)^1\Sigma^+$		ground state $X^1\Sigma^+(v'',J'')$ level energy (cm^{-1})	Pump laser frequency (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy before collision (cm^{-1})	energy transfer in collision (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy after collision (cm^{-1})	Probe laser frequency (cm^{-1})	measured upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	calculated upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	difference (observed – calculated) (cm^{-1})
v	J	v_c'	J_c'	v'	J'	v''	J''									
10	23	14	24	14	24	0	25	86.9561	11284.3085	11371.2646	0.0000	11371.2646	13737.0810	25108.3456	25108.3517	-0.0061
10	23	14	24	14	32	0	31	106.7110	11284.5101	11391.2211	-19.9565	11371.2646	13737.0826	25108.3472	25108.3517	-0.0045
10	24	14	23	14	24	0	25	86.9561	11284.3085	11371.2646	-2.0495	11369.2151	13740.8927	25110.1078	25110.1136	-0.0058
10	24	14	23	14	32	0	31	106.7110	11284.5101	11391.2211	-22.0060	11369.2151	13740.8952	25110.1103	25110.1136	-0.0033
10	24	14	25	14	24	0	25	86.9561	11284.3085	11371.2646	2.1437	11373.4083	13736.6992	25110.1075	25110.1136	-0.0061
10	24	14	25	14	32	0	31	106.7110	11284.5101	11391.2211	-17.8128	11373.4083	13736.7023	25110.1106	25110.1136	-0.0030
10	25	14	24	14	24	0	25	86.9561	11284.3085	11371.2646	0.0000	11371.2646	13740.6869	25111.9515	25111.9486	0.0029
10	25	14	24	14	32	0	31	106.7110	11284.5101	11391.2211	-19.9565	11371.2646	13740.6834	25111.9480	25111.9486	-0.0006
10	25	14	26	14	24	0	25	86.9561	11284.3085	11371.2646	4.3798	11375.6444	13736.2975	25111.9419	25111.9486	-0.0067
10	25	14	26	14	32	0	31	106.7110	11284.5101	11391.2211	-15.5767	11375.6444	13736.3020	25111.9464	25111.9486	-0.0022
10	26	14	25	14	24	0	25	86.9561	11284.3085	11371.2646	2.1437	11373.4083	13740.4462	25113.8545	25113.8568	-0.0023
10	26	14	25	14	32	0	31	106.7110	11284.5101	11391.2211	-17.8128	11373.4083	13740.4433	25113.8516	25113.8568	-0.0052
10	26	14	27	14	24	0	25	86.9561	11284.3085	11371.2646	6.7176	11377.9822	13735.8684	25113.8506	25113.8568	-0.0062
10	26	14	27	14	32	0	31	106.7110	11284.5101	11391.2211	-13.2389	11377.9822	13735.8717	25113.8539	25113.8568	-0.0029
10	27	14	26	14	24	0	25	86.9561	11284.3085	11371.2646	4.3798	11375.6444	13740.1915	25115.8359	25115.8381	-0.0022
10	27	14	26	14	32	0	31	106.7110	11284.5101	11391.2211	-15.5767	11375.6444	13740.1914	25115.8358	25115.8381	-0.0023
10	27	14	28	14	24	0	25	86.9561	11284.3085	11371.2646	9.1539	11380.4185	13735.4187	25115.8372	25115.8381	-0.0009
10	27	14	28	14	32	0	31	106.7110	11284.5101	11391.2211	-10.8026	11380.4185	13735.4214	25115.8399	25115.8381	0.0018
10	28	14	27	14	24	0	25	86.9561	11284.3085	11371.2646	6.7176	11377.9822	13739.9109	25117.8931	25117.8924	0.0007
10	28	14	27	14	32	0	31	106.7110	11284.5101	11391.2211	-13.2389	11377.9822	13739.9112	25117.8934	25117.8924	0.0010
10	28	14	29	14	24	0	25	86.9561	11284.3085	11371.2646	11.6937	11382.9583	13734.9348	25117.8931	25117.8924	0.0007
10	28	14	29	14	32	0	31	106.7110	11284.5101	11391.2211	-8.2628	11382.9583	13734.9377	25117.8960	25117.8924	0.0036
10	29	14	28	14	24	0	25	86.9561	11284.3085	11371.2646	9.1539	11380.4185	13739.6047	25120.0232	25120.0198	0.0034
10	29	14	28	14	32	0	31	106.7110	11284.5101	11391.2211	-10.8026	11380.4185	13739.6043	25120.0228	25120.0198	0.0030
10	29	14	30	14	24	0	25	86.9561	11284.3085	11371.2646	14.3393	11385.6039	13734.4178	25120.0217	25120.0198	0.0019
10	29	14	30	14	32	0	31	106.7110	11284.5101	11391.2211	-5.6172	11385.6039	13734.4240	25120.0279	25120.0198	0.0081
10	30	14	29	14	24	0	25	86.9561	11284.3085	11371.2646	11.6937	11382.9583	13739.2652	25122.2235	25122.2201	0.0034
10	30	14	29	14	32	0	31	106.7110	11284.5101	11391.2211	-8.2628	11382.9583	13739.2658	25122.2241	25122.2201	0.0040
10	30	14	31	14	32	0	31	106.7110	11284.5101	11391.2211	-2.8653	11388.3558	13733.8720	25122.2278	25122.2201	0.0077
10	30	14	31	14	32	0	31	106.7110	11284.5101	11391.2211	-2.8653	11388.3558	13733.8671	25122.2229	25122.2201	0.0028
10	31	14	30	14	24	0	25	86.9561	11284.3085	11371.2646	14.3393	11385.6039	13738.8968	25124.5007	25124.4935	0.0072
10	31	14	30	14	32	0	31	106.7110	11284.5101	11391.2211	-5.6172	11385.6039	13738.8972	25124.5011	25124.4935	0.0076
10	31	14	30	14	32	0	31	106.7110	11284.5101	11391.2211	-5.6172	11385.6039	13738.9070	25124.5109	25124.4935	0.0174
10	31	14	32	14	32	0	31	106.7110	11284.5101	11391.2211	0.0000	11391.2211	13733.2805	25124.5016	25124.4935	0.0081
10	31	14	32	14	32	0	31	106.7110	11284.5101	11391.2211	0.0000	11391.2211	13733.2858	25124.5069	25124.4935	0.0134
10	31	14	32	14	32	0	31	106.7110	11284.5101	11391.2211	0.0000	11391.2211	13733.2760	25124.4971	25124.4935	0.0036

upper level $5^3\Pi_0$		inter-mediate level $2(A)^1\Sigma^+$ after collision		inter-mediate level $2(A)^1\Sigma^+$ before collision		ground state level $1(X)^1\Sigma^+$		ground state $X^1\Sigma^+(v'',J'')$ level energy (cm^{-1})	Pump laser frequency (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy before collision (cm^{-1})	energy transfer in collision (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy after collision (cm^{-1})	Probe laser frequency (cm^{-1})	measured upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	calculated upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	difference (observed – calculated) (cm^{-1})
v	J	v_c'	J_c'	v'	J'	v''	J''									
10	32	14	31	14	24	0	25	86.9561	11284.3085	11371.2646	17.0912	11388.3558	13738.4918	25126.8476	25126.8397	0.0079
10	32	14	31	14	32	0	31	106.7110	11284.5101	11391.2211	-2.8653	11388.3558	13738.4919	25126.8477	25126.8397	0.0080
10	32	14	31	14	32	0	31	106.7110	11284.5101	11391.2211	-2.8653	11388.3558	13738.4965	25126.8523	25126.8397	0.0126
10	32	14	33	14	32	0	31	106.7110	11284.5101	11391.2211	2.9821	11394.2032	13732.6495	25126.8527	25126.8397	0.0130
10	32	14	33	14	32	0	31	106.7110	11284.5101	11391.2211	2.9821	11394.2032	13732.6470	25126.8502	25126.8397	0.0105
10	33	14	32	14	32	0	31	106.7110	11284.5101	11391.2211	0.0000	11391.2211	13738.0476	25129.2687	25129.2588	0.0099
10	33	14	32	14	32	0	31	106.7110	11284.5101	11391.2211	0.0000	11391.2211	13738.0578	25129.2789	25129.2588	0.0201
10	33	14	32	14	32	0	31	106.7110	11284.5101	11391.2211	0.0000	11391.2211	13738.0481	25129.2692	25129.2588	0.0104
10	33	14	34	14	32	0	31	106.7110	11284.5101	11391.2211	6.0807	11397.3018	13731.9690	25129.2708	25129.2588	0.0120
10	34	14	33	14	32	0	31	106.7110	11284.5101	11391.2211	2.9821	11394.2032	13737.5612	25131.7644	25131.7508	0.0136
10	34	14	33	14	32	0	31	106.7110	11284.5101	11391.2211	2.9821	11394.2032	13737.5610	25131.7642	25131.7508	0.0134
10	34	14	35	14	32	0	31	106.7110	11284.5101	11391.2211	9.3058	11400.5269	13731.2368	25131.7637	25131.7508	0.0129
10	35	14	34	14	32	0	31	106.7110	11284.5101	11391.2211	6.0807	11397.3018	13737.0242	25134.3260	25134.3156	0.0104
10	35	14	34	14	32	0	31	106.7110	11284.5101	11391.2211	6.0807	11397.3018	13737.0235	25134.3253	25134.3156	0.0097
10	35	14	36	14	32	0	31	106.7110	11284.5101	11391.2211	12.6623	11403.8834	13730.4480	25134.3314	25134.3156	0.0158
10	36	14	35	14	32	0	31	106.7110	11284.5101	11391.2211	9.3058	11400.5269	13736.4354	25136.9623	25136.9531	0.0092
10	37	14	36	14	32	0	31	106.7110	11284.5101	11391.2211	12.6623	11403.8834	13735.8000	25139.6834	25139.6633	0.0201
10	37	14	38	14	32	0	31	106.7110	11284.5101	11391.2211	19.7655	11410.9866	13728.7001	25139.6867	25139.6633	0.0234
10	38	14	37	14	32	0	31	106.7110	11284.5101	11391.2211	16.1456	11407.3667	13735.0995	25142.4662	25142.4462	0.0200
10	38	14	39	14	32	0	31	106.7110	11284.5101	11391.2211	23.5142	11414.7353	13727.7328	25142.4681	25142.4462	0.0219
10	39	14	38	14	32	0	31	106.7110	11284.5101	11391.2211	19.7655	11410.9866	13734.3323	25145.3189	25145.3017	0.0172
10	39	14	40	14	32	0	31	106.7110	11284.5101	11391.2211	27.4067	11418.6278	13726.6854	25145.3132	25145.3017	0.0115
10	40	14	39	14	32	0	31	106.7110	11284.5101	11391.2211	23.5142	11414.7353	13733.5151	25148.2504	25148.2298	0.0206
10	40	14	41	14	32	0	31	106.7110	11284.5101	11391.2211	31.4364	11422.6575	13725.5863	25148.2438	25148.2298	0.0140
10	45	14	44	14	44	0	43	158.6088	11276.9897	11435.5985	0.0000	11435.5985	13727.7214	25163.3199	25163.9571	-0.6372
10	59	14	60	14	60	0	59	253.3063	11270.1923	11523.4986	0.0000	11523.4986	13694.0588	25217.5574	25217.5773	-0.0199
10	61	14	60	14	60	0	59	253.3063	11270.1923	11523.4986	0.0000	11523.4986	13702.8515	25226.3501	25226.3828	-0.0327
11	31	14	32	14	32	0	31	106.7110	11284.5101	11391.2211	0.0000	11391.2211	13786.8561	25178.0772	25178.1033	-0.0261
11	33	14	32	14	32	0	31	106.7110	11284.5101	11391.2211	0.0000	11391.2211	13791.6273	25182.8484	25182.8667	-0.0183
11	43	14	44	14	44	0	43	158.6088	11276.9897	11435.5985	0.0000	11435.5985	13775.4514	25211.0499	25211.0399	0.0100
11	45	14	44	14	44	0	43	158.6088	11276.9897	11435.5985	0.0000	11435.5985	13781.9642	25217.5627	25217.5429	0.0198
11	59	14	60	14	60	0	59	253.3063	11270.1923	11523.4986	0.0000	11523.4986	13747.6870	25271.1856	25271.1070	0.0786
11	61	14	60	14	60	0	59	253.3063	11270.1923	11523.4986	0.0000	11523.4986	13756.4782	25279.9768	25279.9013	0.0755
12	31	14	32	14	32	0	31	106.7110	11284.5101	11391.2211	0.0000	11391.2211	13840.6732	25231.8943	25231.9967	-0.1024
12	33	14	32	14	32	0	31	106.7110	11284.5101	11391.2211	0.0000	11391.2211	13845.4349	25236.6560	25236.7581	-0.1021
12	59	14	60	14	60	0	59	253.3063	11270.1923	11523.4986	0.0000	11523.4986	13801.4756	25324.9742	25324.8777	0.0965

upper level $5^3\Pi_0$		inter-mediate level $2(A)^1\Sigma^+$ after collision		inter-mediate level $2(A)^1\Sigma^+$ before collision		ground state level $1(X)^1\Sigma^+$		ground state $X^1\Sigma^+(v'',J'')$ level energy (cm^{-1})	Pump laser frequency (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy before collision (cm^{-1})	energy transfer in collision (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy after collision (cm^{-1})	Probe laser frequency (cm^{-1})	measured upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	calculated upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	difference (observed – calculated) (cm^{-1})
v	J	v_c'	J_c'	v'	J'	v''	J''									
14	28	14	29	14	32	0	31	106.7110	11284.5101	11391.2211	-8.2628	11382.9583	13949.5754	25332.5337	25332.5193	0.0144
14	29	14	30	14	32	0	31	106.7110	11284.5101	11391.2211	-5.6172	11385.6039	13949.0518	25334.6557	25334.6371	0.0186
14	30	14	29	14	32	0	31	106.7110	11284.5101	11391.2211	-8.2628	11382.9583	13953.8869	25336.8452	25336.8275	0.0177
14	30	14	31	14	32	0	31	106.7110	11284.5101	11391.2211	-2.8653	11388.3558	13948.4875	25336.8433	25336.8275	0.0158
14	31	14	30	14	32	0	31	106.7110	11284.5101	11391.2211	-5.6172	11385.6039	13953.5059	25339.1098	25339.0903	0.0195
14	31	14	32	14	32	0	31	106.7110	11284.5101	11391.2211	0.0000	11391.2211	13947.8868	25339.1079	25339.0903	0.0176
14	31	14	32	14	32	0	31	106.7110	11284.5101	11391.2211	0.0000	11391.2211	13947.8832	25339.1043	25339.0903	0.0140
14	32	14	31	14	32	0	31	106.7110	11284.5101	11391.2211	-2.8653	11388.3558	13953.0893	25341.4451	25341.4255	0.0196
14	32	14	33	14	32	0	31	106.7110	11284.5101	11391.2211	2.9821	11394.2032	13947.2401	25341.4433	25341.4255	0.0178
14	33	14	32	14	32	0	31	106.7110	11284.5101	11391.2211	0.0000	11391.2211	13952.6277	25343.8488	25343.8330	0.0158
14	33	14	32	14	32	0	31	106.7110	11284.5101	11391.2211	0.0000	11391.2211	13952.6270	25343.8481	25343.8330	0.0151
14	34	14	33	14	32	0	31	106.7110	11284.5101	11391.2211	2.9821	11394.2032	13952.1341	25346.3373	25346.3128	0.0245
14	43	14	44	14	44	0	43	158.6088	11276.9897	11435.5985	0.0000	11435.5985	13936.2916	25371.8901	25371.8720	0.0181
14	43	16	44	16	44	0	45	168.8578	11375.6664	11544.5242	0.0000	11544.5242	13827.3560	25371.8802	25371.8720	0.0082
14	45	16	44	16	44	0	45	168.8578	11375.6664	11544.5242	0.0000	11544.5242	13833.8283	25378.3525	25378.3409	0.0116
14	80	27	81	27	81	0	82	439.7118	11881.5812	12321.2930	0.0000	12321.2930	13215.6636	25536.9566	25537.0366	-0.0800
14	82	27	81	27	81	0	80	421.1807	11900.1123	12321.2930	0.0000	12321.2930	13227.2685	25548.5615	25548.6462	-0.0847
14	82	27	81	27	81	0	82	439.7118	11881.5812	12321.2930	0.0000	12321.2930	13227.2685	25548.5615	25548.6462	-0.0847
14	84	27	83	27	83	0	84	458.6804	11878.4425	12337.1229	0.0000	12337.1229	13223.3157	25560.4386	25560.5233	-0.0847
15	27	14	28	14	32	0	31	106.7110	11284.5101	11391.2211	-10.8026	11380.4185	14003.1350	25383.5535	25383.5624	-0.0089
15	28	14	29	14	32	0	31	106.7110	11284.5101	11391.2211	-8.2628	11382.9583	14002.6388	25385.5971	25385.6004	-0.0033
15	29	14	30	14	32	0	31	106.7110	11284.5101	11391.2211	-5.6172	11385.6039	14002.0985	25387.7024	25387.7106	-0.0082
15	30	14	31	14	32	0	31	106.7110	11284.5101	11391.2211	-2.8653	11388.3558	14001.5259	25389.8817	25389.8930	-0.0113
15	31	14	30	14	32	0	31	106.7110	11284.5101	11391.2211	-5.6172	11385.6039	14006.5377	25392.1416	25392.1475	-0.0059
15	31	14	32	14	32	0	31	106.7110	11284.5101	11391.2211	0.0000	11391.2211	14000.9229	25392.1440	25392.1475	-0.0035
15	31	14	32	14	32	0	31	106.7110	11284.5101	11391.2211	0.0000	11391.2211	14000.9234	25392.1445	25392.1475	-0.0030
15	32	14	31	14	32	0	31	106.7110	11284.5101	11391.2211	-2.8653	11388.3558	14006.1128	25394.4686	25394.4741	-0.0055
15	33	14	32	14	32	0	31	106.7110	11284.5101	11391.2211	0.0000	11391.2211	14005.6467	25396.8678	25396.8728	-0.0050
15	33	14	32	14	32	0	31	106.7110	11284.5101	11391.2211	0.0000	11391.2211	14005.6439	25396.8650	25396.8728	-0.0078
15	43	14	44	14	44	0	43	158.6088	11276.9897	11435.5985	0.0000	11435.5985	13989.2038	25424.8023	25424.8057	-0.0034
15	43	18	44	18	44	0	43	158.6088	11494.2407	11652.8495	0.0000	11652.8495	13771.9362	25424.7857	25424.8057	-0.0200
15	43	18	44	18	44	0	43	158.6088	11494.2407	11652.8495	0.0000	11652.8495	13771.9414	25424.7909	25424.8057	-0.0148
15	45	18	44	18	44	0	43	158.6088	11494.2407	11652.8495	0.0000	11652.8495	13778.3917	25431.2412	25431.2495	-0.0083
15	45	18	44	18	44	0	43	158.6088	11494.2407	11652.8495	0.0000	11652.8495	13778.3922	25431.2417	25431.2495	-0.0078
15	82	27	83	27	83	0	84	458.6804	11878.4425	12337.1229	0.0000	12337.1229	13263.6712	25600.7941	25600.8616	-0.0675
15	84	27	83	27	83	0	84	458.6804	11878.4425	12337.1229	0.0000	12337.1229	13275.5067	25612.6296	25612.6909	-0.0613

upper level $5^3\Pi_0$		inter-mediate level $2(A)^1\Sigma^+$ after collision		inter-mediate level $2(A)^1\Sigma^+$ before collision		ground state level $1(X)^1\Sigma^+$		ground state $X^1\Sigma^+(v'',J'')$ level energy (cm^{-1})	Pump laser frequency (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy before collision (cm^{-1})	energy transfer in collision (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy after collision (cm^{-1})	Probe laser frequency (cm^{-1})	measured upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	calculated upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	difference (observed – calculated) (cm^{-1})
v	J	v_c'	J_c'	v'	J'	v''	J''									
16	1	18	2	18	10	0	11	56.9994	11521.7310	11578.7304	-4.0705	11574.6599	13834.1257	25408.7856	25408.7905	-0.0049
16	2	18	3	18	10	0	11	56.9994	11521.7310	11578.7304	-3.8378	11574.8926	13834.0361	25408.9287	25408.9360	-0.0073
16	3	18	4	18	10	0	11	56.9994	11521.7310	11578.7304	-3.5255	11575.2049	13833.9381	25409.1430	25409.1542	-0.0112
16	4	18	5	18	10	0	11	56.9994	11521.7310	11578.7304	-3.1327	11575.5977	13833.8394	25409.4371	25409.4451	-0.0080
16	5	18	6	18	10	0	11	56.9994	11521.7310	11578.7304	-2.6645	11576.0659	13833.7340	25409.7999	25409.8087	-0.0088
16	6	18	7	18	10	0	11	56.9994	11521.7310	11578.7304	-2.1153	11576.6151	13833.6203	25410.2354	25410.2450	-0.0096
16	7	18	8	18	10	0	11	56.9994	11521.7310	11578.7304	-1.4889	11577.2415	13833.5049	25410.7464	25410.7541	-0.0077
16	8	18	9	18	10	0	11	56.9994	11521.7310	11578.7304	-0.7827	11577.9477	13833.3838	25411.3315	25411.3358	-0.0043
16	8	18	9	18	24	0	25	86.9561	11510.9927	11597.9488	-20.0011	11577.9477	13833.3818	25411.3295	25411.3358	-0.0063
16	9	18	10	18	10	0	11	56.9994	11521.7310	11578.7304	0.0000	11578.7304	13833.2560	25411.9864	25411.9901	-0.0037
16	9	18	10	18	24	0	25	86.9561	11510.9927	11597.9488	-19.2184	11578.7304	13833.2491	25411.9795	25411.9901	-0.0106
16	10	18	11	18	10	0	11	56.9994	11521.7310	11578.7304	0.8635	11579.5939	13833.1174	25412.7113	25412.7172	-0.0059
16	10	18	11	18	24	0	25	86.9561	11510.9927	11597.9488	-18.3549	11579.5939	13833.1171	25412.7110	25412.7172	-0.0062
16	11	18	12	18	10	0	11	56.9994	11521.7310	11578.7304	1.8036	11580.5340	13832.9755	25413.5095	25413.5168	-0.0073
16	11	18	12	18	24	0	25	86.9561	11510.9927	11597.9488	-17.4148	11580.5340	13832.9744	25413.5084	25413.5168	-0.0084
16	12	18	13	18	10	0	11	56.9994	11521.7310	11578.7304	2.8197	11581.5501	13832.8319	25414.3820	25414.3890	-0.0070
16	12	18	13	18	24	0	25	86.9561	11510.9927	11597.9488	-16.3987	11581.5501	13832.8320	25414.3821	25414.3890	-0.0069
16	13	18	14	18	10	0	11	56.9994	11521.7310	11578.7304	3.9169	11582.6473	13832.6809	25415.3282	25415.3339	-0.0057
16	13	18	14	18	24	0	25	86.9561	11510.9927	11597.9488	-15.3015	11582.6473	13832.6781	25415.3254	25415.3339	-0.0085
16	14	18	15	18	10	0	11	56.9994	11521.7310	11578.7304	5.0939	11583.8243	13832.5224	25416.3467	25416.3512	-0.0045
16	14	18	15	18	24	0	25	86.9561	11510.9927	11597.9488	-14.1245	11583.8243	13832.5196	25416.3439	25416.3512	-0.0073
16	15	18	16	18	10	0	11	56.9994	11521.7310	11578.7304	6.3484	11585.0788	13832.3596	25417.4384	25417.4412	-0.0028
16	15	18	16	18	24	0	25	86.9561	11510.9927	11597.9488	-12.8700	11585.0788	13832.3561	25417.4349	25417.4412	-0.0063
16	16	18	17	18	10	0	11	56.9994	11521.7310	11578.7304	7.6811	11586.4115	13832.1879	25418.5994	25418.6036	-0.0042
16	16	18	17	18	24	0	25	86.9561	11510.9927	11597.9488	-11.5373	11586.4115	13832.1868	25418.5983	25418.6036	-0.0053
16	17	18	18	18	10	0	11	56.9994	11521.7310	11578.7304	9.0936	11587.8240	13832.0128	25419.8368	25419.8384	-0.0016
16	17	18	18	18	24	0	25	86.9561	11510.9927	11597.9488	-10.1248	11587.8240	13832.0101	25419.8341	25419.8384	-0.0043
16	18	18	19	18	10	0	11	56.9994	11521.7310	11578.7304	10.5836	11589.3140	13831.8285	25421.1425	25421.1458	-0.0033
16	18	18	19	18	24	0	25	86.9561	11510.9927	11597.9488	-8.6348	11589.3140	13831.8274	25421.1414	25421.1458	-0.0044
16	19	18	20	18	10	0	11	56.9994	11521.7310	11578.7304	12.1508	11590.8812	13831.6385	25422.5197	25422.5255	-0.0058
16	19	18	20	18	24	0	25	86.9561	11510.9927	11597.9488	-7.0676	11590.8812	13831.6374	25422.5186	25422.5255	-0.0069
16	20	18	21	18	10	0	11	56.9994	11521.7310	11578.7304	13.7980	11592.5284	13831.4451	25423.9735	25423.9775	-0.0040
16	20	18	21	18	24	0	25	86.9561	11510.9927	11597.9488	-5.4204	11592.5284	13831.4441	25423.9725	25423.9775	-0.0050
16	21	18	22	18	10	0	11	56.9994	11521.7310	11578.7304	15.5248	11594.2552	13831.2111	25425.4663	25425.5019	-0.0356
16	21	18	22	18	10	0	11	56.9994	11521.7310	11578.7304	15.5248	11594.2552	13831.2434	25425.4986	25425.5019	-0.0033
16	21	18	22	18	24	0	25	86.9561	11510.9927	11597.9488	-3.6936	11594.2552	13831.2465	25425.5017	25425.5019	-0.0002

upper level $5^3\Pi_0$		inter-mediate level $2(A)^1\Sigma^+$ after collision		inter-mediate level $2(A)^1\Sigma^+$ before collision		ground state level $1(X)^1\Sigma^+$		ground state $X^1\Sigma^+(v'',J'')$ level energy (cm^{-1})	Pump laser frequency (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy before collision (cm^{-1})	energy transfer in collision (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy after collision (cm^{-1})	Probe laser frequency (cm^{-1})	measured upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	calculated upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	difference (observed – calculated) (cm^{-1})
v	J	v_c'	J_c'	v'	J'	v''	J''									
16	22	18	23	18	10	0	11	56.9994	11521.7310	11578.7304	17.3317	11596.0621	13831.0360	25427.0981	25427.0986	-0.0005
16	22	18	23	18	24	0	25	86.9561	11510.9927	11597.9488	-1.8867	11596.0621	13831.0349	25427.0970	25427.0986	-0.0016
16	23	18	24	18	10	0	11	56.9994	11521.7310	11578.7304	19.2184	11597.9488	13830.8194	25428.7682	25428.7676	0.0006
16	23	18	24	18	24	0	25	86.9561	11510.9927	11597.9488	0.0000	11597.9488	13830.8219	25428.7707	25428.7676	0.0031
16	23	18	24	18	24	0	25	86.9561	11510.9927	11597.9488	0.0000	11597.9488	13830.8158	25428.7646	25428.7676	-0.0030
16	24	18	25	18	10	0	11	56.9994	11521.7310	11578.7304	21.1837	11599.9141	13830.5994	25430.5135	25430.5087	0.0048
16	24	18	25	18	24	0	25	86.9561	11510.9927	11597.9488	1.9653	11599.9141	13830.6016	25430.5157	25430.5087	0.0070
16	25	18	26	18	24	0	25	86.9561	11510.9927	11597.9488	4.0090	11601.9578	13830.3004	25432.2582	25432.3220	-0.0638
16	25	18	26	18	24	0	25	86.9561	11510.9927	11597.9488	4.0090	11601.9578	13830.4141	25432.3719	25432.3220	0.0499
16	26	18	27	18	24	0	25	86.9561	11510.9927	11597.9488	6.1333	11604.0821	13830.1062	25434.1883	25434.2073	-0.0190
16	27	18	28	18	24	0	25	86.9561	11510.9927	11597.9488	8.3371	11606.2859	13829.8647	25436.1506	25436.1648	-0.0142
16	28	18	29	18	24	0	25	86.9561	11510.9927	11597.9488	10.6252	11608.5740	13829.6091	25438.1831	25438.1942	-0.0111
16	29	18	30	18	24	0	25	86.9561	11510.9927	11597.9488	12.9917	11610.9405	13829.3460	25440.2865	25440.2956	-0.0091
16	30	18	31	18	24	0	25	86.9561	11510.9927	11597.9488	15.4439	11613.3927	13829.1120	25442.5047	25442.4688	0.0359
16	31	18	32	18	24	0	25	86.9561	11510.9927	11597.9488	17.9732	11615.9220	13828.7957	25444.7177	25444.7139	0.0038
16	31	25	32	25	32	0	31	106.7110	11879.6366	11986.3476	0.0000	11986.3476	13458.3602	25444.7078	25444.7139	-0.0061
16	32	18	33	18	24	0	25	86.9561	11510.9927	11597.9488	20.5841	11618.5329	13828.5053	25447.0382	25447.0308	0.0074
16	33	18	34	18	24	0	25	86.9561	11510.9927	11597.9488	23.2760	11621.2248	13828.2016	25449.4264	25449.4194	0.0070
16	33	25	32	25	32	0	31	106.7110	11879.6366	11986.3476	0.0000	11986.3476	13463.0788	25449.4264	25449.4194	0.0070
16	34	18	35	18	24	0	25	86.9561	11510.9927	11597.9488	26.0552	11624.0040	13827.8828	25451.8868	25451.8796	0.0072
16	34	18	35	18	44	0	43	158.6088	11494.2407	11652.8495	-28.8455	11624.0040	13827.9206	25451.9246	25451.8796	0.0450
16	35	18	34	18	44	0	43	158.6088	11494.2407	11652.8495	-31.6247	11621.2248	13833.1864	25454.4112	25454.4114	-0.0002
16	35	18	36	18	24	0	25	86.9561	11510.9927	11597.9488	28.9134	11626.8622	13827.5592	25454.4214	25454.4114	0.0100
16	35	18	36	18	44	0	43	158.6088	11494.2407	11652.8495	-25.9873	11626.8622	13827.5538	25454.4160	25454.4114	0.0046
16	36	18	35	18	44	0	43	158.6088	11494.2407	11652.8495	-28.8455	11624.0040	13833.0180	25457.0220	25457.0148	0.0072
16	36	18	37	18	24	0	25	86.9561	11510.9927	11597.9488	31.8577	11629.8065	13827.2157	25457.0222	25457.0148	0.0074
16	36	18	37	18	44	0	43	158.6088	11494.2407	11652.8495	-23.0430	11629.8065	13827.2127	25457.0192	25457.0148	0.0044
16	37	18	36	18	44	0	43	158.6088	11494.2407	11652.8495	-25.9873	11626.8622	13832.8329	25459.6951	25459.6895	0.0056
16	37	18	38	18	24	0	25	86.9561	11510.9927	11597.9488	34.8865	11632.8353	13826.8654	25459.7007	25459.6895	0.0112
16	37	18	38	18	44	0	43	158.6088	11494.2407	11652.8495	-20.0142	11632.8353	13826.8559	25459.6912	25459.6895	0.0017
16	38	18	37	18	44	0	43	158.6088	11494.2407	11652.8495	-23.0430	11629.8065	13832.6362	25462.4427	25462.4357	0.0070
16	38	18	39	18	44	0	43	158.6088	11494.2407	11652.8495	-16.8994	11635.9501	13826.4965	25462.4466	25462.4357	0.0109
16	39	18	38	18	44	0	43	158.6088	11494.2407	11652.8495	-20.0142	11632.8353	13832.4329	25465.2682	25465.2532	0.0150
16	39	18	40	18	44	0	43	158.6088	11494.2407	11652.8495	-13.6985	11639.1510	13826.1164	25465.2674	25465.2532	0.0142
16	40	18	39	18	44	0	43	158.6088	11494.2407	11652.8495	-16.8994	11635.9501	13832.2221	25468.1722	25468.1419	0.0303
16	40	18	41	18	44	0	43	158.6088	11494.2407	11652.8495	-10.4084	11642.4411	13825.7330	25468.1741	25468.1419	0.0322

upper level $5^3\Pi_0$		inter-mediate level $2(A)^1\Sigma^+$ after collision		inter-mediate level $2(A)^1\Sigma^+$ before collision		ground state level $1(X)^1\Sigma^+$		ground state $X^1\Sigma^+(v'',J'')$ level energy (cm^{-1})	Pump laser frequency (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy before collision (cm^{-1})	energy transfer in collision (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy after collision (cm^{-1})	Probe laser frequency (cm^{-1})	measured upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	calculated upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	difference (observed – calculated) (cm^{-1})
v	J	v_c'	J_c'	v'	J'	v''	J''									
16	41	18	40	18	44	0	43	158.6088	11494.2407	11652.8495	-13.6985	11639.1510	13831.9416	25471.0926	25471.1017	-0.0091
16	41	18	42	18	44	0	43	158.6088	11494.2407	11652.8495	-7.0293	11645.8202	13825.2799	25471.1001	25471.1017	-0.0016
16	42	18	41	18	44	0	43	158.6088	11494.2407	11652.8495	-10.4084	11642.4411	13831.6975	25474.1386	25474.1327	0.0059
16	42	18	43	18	44	0	43	158.6088	11494.2407	11652.8495	-3.5615	11649.2880	13824.8516	25474.1396	25474.1327	0.0069
16	43	18	42	18	44	0	43	158.6088	11494.2407	11652.8495	-7.0293	11645.8202	13831.4246	25477.2448	25477.2346	0.0102
16	43	18	44	18	44	0	43	158.6088	11494.2407	11652.8495	0.0000	11652.8495	13824.3911	25477.2406	25477.2346	0.0060
16	43	18	44	18	44	0	43	158.6088	11494.2407	11652.8495	0.0000	11652.8495	13824.3993	25477.2488	25477.2346	0.0142
16	43	18	44	18	44	0	43	158.6088	11494.2407	11652.8495	0.0000	11652.8495	13824.3927	25477.2422	25477.2346	0.0076
16	44	18	43	18	44	0	43	158.6088	11494.2407	11652.8495	-3.5615	11649.2880	13831.1324	25480.4204	25480.4075	0.0129
16	44	18	45	18	44	0	43	158.6088	11494.2407	11652.8495	3.6538	11656.5033	13823.9180	25480.4213	25480.4075	0.0138
16	45	18	44	18	44	0	43	158.6088	11494.2407	11652.8495	0.0000	11652.8495	13830.8204	25483.6699	25483.6512	0.0187
16	45	18	44	18	44	0	43	158.6088	11494.2407	11652.8495	0.0000	11652.8495	13830.8213	25483.6708	25483.6512	0.0196
16	45	18	44	18	44	0	45	168.8578	11483.9917	11652.8495	0.0000	11652.8495	13830.8219	25483.6714	25483.6512	0.0202
16	45	18	46	18	44	0	43	158.6088	11494.2407	11652.8495	7.4046	11660.2541	13823.4168	25483.6709	25483.6512	0.0197
16	46	18	45	18	44	0	43	158.6088	11494.2407	11652.8495	3.6538	11656.5033	13830.4834	25486.9867	25486.9657	0.0210
16	46	18	47	18	44	0	43	158.6088	11494.2407	11652.8495	11.2514	11664.1009	13822.8939	25486.9948	25486.9657	0.0291
16	47	18	46	18	44	0	43	158.6088	11494.2407	11652.8495	7.4046	11660.2541	13830.1307	25490.3848	25490.3508	0.0340
16	47	18	48	18	44	0	43	158.6088	11494.2407	11652.8495	15.1978	11668.0473	13822.3387	25490.3860	25490.3508	0.0352
16	48	18	47	18	44	0	43	158.6088	11494.2407	11652.8495	11.2514	11664.1009	13829.7497	25493.8506	25493.8065	0.0441
16	48	18	49	18	44	0	43	158.6088	11494.2407	11652.8495	19.2453	11672.0948	13821.7494	25493.8442	25493.8065	0.0377
16	49	18	48	18	44	0	43	158.6088	11494.2407	11652.8495	15.1978	11668.0473	13829.3381	25497.3854	25497.3327	0.0527
16	49	18	50	18	44	0	43	158.6088	11494.2407	11652.8495	23.3988	11676.2483	13821.1303	25497.3786	25497.3327	0.0459
16	50	18	49	18	44	0	43	158.6088	11494.2407	11652.8495	19.2453	11672.0948	13828.8900	25500.9848	25500.9293	0.0555
16	50	18	51	18	44	0	43	158.6088	11494.2407	11652.8495	27.6609	11680.5104	13820.4656	25500.9760	25500.9293	0.0467
17	11	25	12	25	25	0	26	89.9610	11877.1494	11967.1104	-24.1252	11942.9852	13522.7291	25465.7143	25465.7228	-0.0085
17	12	25	13	25	25	0	26	89.9610	11877.1494	11967.1104	-22.8434	11944.2670	13522.3108	25466.5778	25466.5916	-0.0138
17	13	25	14	25	25	0	26	89.9610	11877.1494	11967.1104	-21.4626	11945.6478	13521.8751	25467.5229	25467.5327	-0.0098
17	14	25	15	25	25	0	26	89.9610	11877.1494	11967.1104	-19.9836	11947.1268	13521.4137	25468.5405	25468.5461	-0.0056
17	15	25	16	25	25	0	26	89.9610	11877.1494	11967.1104	-18.4087	11948.7017	13520.9240	25469.6257	25469.6318	-0.0061
17	16	25	17	25	25	0	26	89.9610	11877.1494	11967.1104	-16.7386	11950.3718	13520.4137	25470.7855	25470.7896	-0.0041
17	17	25	18	25	25	0	26	89.9610	11877.1494	11967.1104	-14.9702	11952.1402	13519.8701	25472.0103	25472.0197	-0.0094
17	18	25	17	25	25	0	26	89.9610	11877.1494	11967.1104	-16.7386	11950.3718	13522.9407	25473.3125	25473.3219	-0.0094
17	18	25	19	25	25	0	26	89.9610	11877.1494	11967.1104	-13.1092	11954.0012	13519.3065	25473.3077	25473.3219	-0.0142
17	19	25	18	25	25	0	26	89.9610	11877.1494	11967.1104	-14.9702	11952.1402	13522.5515	25474.6917	25474.6962	-0.0045
17	19	25	20	25	25	0	26	89.9610	11877.1494	11967.1104	-11.1538	11955.9566	13518.7339	25474.6905	25474.6962	-0.0057
17	20	25	19	25	25	0	26	89.9610	11877.1494	11967.1104	-13.1092	11954.0012	13522.1366	25476.1378	25476.1426	-0.0048

upper level $5^3\Pi_0$		inter-mediate level $2(A)^1\Sigma^+$ after collision		inter-mediate level $2(A)^1\Sigma^+$ before collision		ground state level $1(X)^1\Sigma^+$		ground state $X^1\Sigma^+(v'',J'')$ level energy (cm^{-1})	Pump laser frequency (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy before collision (cm^{-1})	energy transfer in collision (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy after collision (cm^{-1})	Probe laser frequency (cm^{-1})	measured upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	calculated upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	difference (observed – calculated) (cm^{-1})
v	J	v_c'	J_c'	v'	J'	v''	J''									
17	20	25	21	25	25	0	26	89.9610	11877.1494	11967.1104	-9.1052	11958.0052	13518.1331	25476.1383	25476.1426	-0.0043
17	21	25	20	25	25	0	26	89.9610	11877.1494	11967.1104	-11.1538	11955.9566	13521.6992	25477.6558	25477.6610	-0.0052
17	21	25	22	25	25	0	26	89.9610	11877.1494	11967.1104	-6.9643	11960.1461	13517.5056	25477.6517	25477.6610	-0.0093
17	21	25	22	25	29	0	28	96.3160	11881.2999	11977.6159	-17.4698	11960.1461	13517.5088	25477.6549	25477.6610	-0.0061
17	22	25	21	25	25	0	26	89.9610	11877.1494	11967.1104	-9.1052	11958.0052	13521.2394	25479.2446	25479.2514	-0.0068
17	22	25	23	25	25	0	26	89.9610	11877.1494	11967.1104	-4.7313	11962.3791	13516.8658	25479.2449	25479.2514	-0.0065
17	22	25	23	25	29	0	28	96.3160	11881.2999	11977.6159	-15.2368	11962.3791	13516.8682	25479.2473	25479.2514	-0.0041
17	23	25	22	25	25	0	26	89.9610	11877.1494	11967.1104	-6.9643	11960.1461	13520.7805	25480.9266	25480.9138	0.0128
17	23	25	24	25	25	0	26	89.9610	11877.1494	11967.1104	-2.4083	11964.7021	13516.2160	25480.9181	25480.9138	0.0043
17	23	25	24	25	29	0	28	96.3160	11881.2999	11977.6159	-12.9138	11964.7021	13516.2216	25480.9237	25480.9138	0.0099
17	24	14	23	14	32	0	31	106.7110	11284.5101	11391.2211	-22.0060	11369.2151	14113.4480	25482.6631	25482.6481	0.0150
17	24	25	23	25	25	0	26	89.9610	11877.1494	11967.1104	-4.7313	11962.3791	13520.2634	25482.6425	25482.6481	-0.0056
17	24	25	25	25	25	0	26	89.9610	11877.1494	11967.1104	0.0000	11967.1104	13515.5288	25482.6392	25482.6481	-0.0089
17	24	25	25	25	25	1	24	182.1557	11784.9547	11967.1104	0.0000	11967.1104	13515.5358	25482.6462	25482.6481	-0.0019
17	24	25	25	25	29	0	28	96.3160	11881.2999	11977.6159	-10.5055	11967.1104	13515.5278	25482.6382	25482.6481	-0.0099
17	24	25	25	25	37	0	36	126.3320	11876.0243	12002.3563	-35.2459	11967.1104	13515.5344	25482.6448	25482.6481	-0.0033
17	25	14	24	14	32	0	31	106.7110	11284.5101	11391.2211	-19.9565	11371.2646	14113.2073	25484.4719	25484.4543	0.0176
17	25	25	24	25	25	0	26	89.9610	11877.1494	11967.1104	-2.4083	11964.7021	13519.7531	25484.4552	25484.4543	0.0009
17	25	25	26	25	25	0	26	89.9610	11877.1494	11967.1104	2.5014	11969.6118	13514.8391	25484.4509	25484.4543	-0.0034
17	25	25	26	25	29	0	28	96.3160	11881.2999	11977.6159	-8.0041	11969.6118	13514.8414	25484.4532	25484.4543	-0.0011
17	25	25	26	25	37	0	36	126.3320	11876.0243	12002.3563	-32.7445	11969.6118	13514.8456	25484.4574	25484.4543	0.0031
17	26	14	25	14	32	0	31	106.7110	11284.5101	11391.2211	-17.8128	11373.4083	14112.9434	25486.3517	25486.3323	0.0194
17	26	25	25	25	25	0	26	89.9610	11877.1494	11967.1104	0.0000	11967.1104	13519.2149	25486.3253	25486.3323	-0.0070
17	26	25	25	25	25	1	24	182.1557	11784.9547	11967.1104	0.0000	11967.1104	13519.2218	25486.3322	25486.3323	-0.0001
17	26	25	27	25	25	0	26	89.9610	11877.1494	11967.1104	5.0862	11972.1966	13514.1387	25486.3353	25486.3323	0.0030
17	26	25	27	25	29	0	28	96.3160	11881.2999	11977.6159	-5.4193	11972.1966	13514.1402	25486.3368	25486.3323	0.0045
17	26	25	27	25	37	0	36	126.3320	11876.0243	12002.3563	-30.1597	11972.1966	13514.1418	25486.3384	25486.3323	0.0061
17	26	25*	25	25*	25	1	24	182.1557	11817.3450	11999.5007	0.0000	11999.5007	13486.8290	25486.3297	25486.3323	-0.0026
17	27	14	26	14	32	0	31	106.7110	11284.5101	11391.2211	-15.5767	11375.6444	14112.6529	25488.2973	25488.2820	0.0153
17	27	25	26	25	25	0	26	89.9610	11877.1494	11967.1104	2.5014	11969.6118	13518.6667	25488.2785	25488.2820	-0.0035
17	27	25	28	25	29	0	28	96.3160	11881.2999	11977.6159	-2.7508	11974.8651	13513.4180	25488.2831	25488.2820	0.0011
17	27	25	28	25	37	0	36	126.3320	11876.0243	12002.3563	-27.4912	11974.8651	13513.4213	25488.2864	25488.2820	0.0044
17	28	14	27	14	32	0	31	106.7110	11284.5101	11391.2211	-13.2389	11377.9822	14112.3375	25490.3197	25490.3035	0.0162
17	28	25	27	25	25	0	26	89.9610	11877.1494	11967.1104	5.0862	11972.1966	13518.1123	25490.3089	25490.3035	0.0054
17	28	25	29	25	29	0	28	96.3160	11881.2999	11977.6159	0.0000	11977.6159	13512.6866	25490.3025	25490.3035	-0.0010
17	28	25	29	25	37	0	36	126.3320	11876.0243	12002.3563	-24.7404	11977.6159	13512.6875	25490.3034	25490.3035	-0.0001

upper level $5^3\Pi_0$		inter-mediate level $2(A)^1\Sigma^+$ after collision		inter-mediate level $2(A)^1\Sigma^+$ before collision		ground state level $1(X)^1\Sigma^+$		ground state $X^1\Sigma^+(v'',J'')$ level energy (cm^{-1})	Pump laser frequency (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy before collision (cm^{-1})	energy transfer in collision (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy after collision (cm^{-1})	Probe laser frequency (cm^{-1})	measured upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	calculated upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	difference (observed – calculated) (cm^{-1})
v	J	v_c'	J_c'	v'	J'	v''	J''									
17	29	14	28	14	32	0	31	106.7110	11284.5101	11391.2211	-10.8026	11380.4185	14111.9940	25492.4125	25492.3966	0.0159
17	29	25	28	25	25	0	26	89.9610	11877.1494	11967.1104	7.7547	11974.8651	13517.5306	25492.3957	25492.3966	-0.0009
17	29	25	28	25	29	0	28	96.3160	11881.2999	11977.6159	-2.7508	11974.8651	13517.5343	25492.3994	25492.3966	0.0028
17	29	25	28	25	37	0	36	126.3320	11876.0243	12002.3563	-27.4912	11974.8651	13517.5375	25492.4026	25492.3966	0.0060
17	29	25	30	25	29	0	28	96.3160	11881.2999	11977.6159	2.8337	11980.4496	13511.9484	25492.3980	25492.3966	0.0014
17	29	25	30	25	37	0	36	126.3320	11876.0243	12002.3563	-21.9067	11980.4496	13511.9519	25492.4015	25492.3966	0.0049
17	30	14	29	14	32	0	31	106.7110	11284.5101	11391.2211	-8.2628	11382.9583	14111.6254	25494.5837	25494.5613	0.0224
17	30	25	29	25	25	0	26	89.9610	11877.1494	11967.1104	10.5055	11977.6159	13516.9455	25494.5614	25494.5613	0.0001
17	30	25	29	25	29	0	28	96.3160	11881.2999	11977.6159	0.0000	11977.6159	13516.9499	25494.5658	25494.5613	0.0045
17	30	25	29	25	37	0	36	126.3320	11876.0243	12002.3563	-24.7404	11977.6159	13516.9504	25494.5663	25494.5613	0.0050
17	30	25	31	25	29	0	28	96.3160	11881.2999	11977.6159	5.7431	11983.3590	13511.2081	25494.5671	25494.5613	0.0058
17	30	25	31	25	37	0	36	126.3320	11876.0243	12002.3563	-18.9973	11983.3590	13511.2098	25494.5688	25494.5613	0.0075
17	31	14	30	14	32	0	31	106.7110	11284.5101	11391.2211	-5.6172	11385.6039	14111.2163	25496.8202	25496.7976	0.0226
17	31	14	32	14	32	0	31	106.7110	11284.5101	11391.2211	0.0000	11391.2211	14105.5974	25496.8185	25496.7976	0.0209
17	31	25	30	25	25	0	26	89.9610	11877.1494	11967.1104	13.3392	11980.4496	13516.3463	25496.7959	25496.7976	-0.0017
17	31	25	30	25	29	0	28	96.3160	11881.2999	11977.6159	2.8337	11980.4496	13516.3503	25496.7999	25496.7976	0.0023
17	31	25	30	25	37	0	36	126.3320	11876.0243	12002.3563	-21.9067	11980.4496	13516.3550	25496.8046	25496.7976	0.0070
17	31	25	32	25	29	0	28	96.3160	11881.2999	11977.6159	8.7317	11986.3476	13510.4612	25496.8088	25496.7976	0.0112
17	31	25	32	25	32	0	31	106.7110	11879.6366	11986.3476	0.0000	11986.3476	13510.4632	25496.8108	25496.7976	0.0132
17	31	25	32	25	37	0	36	126.3320	11876.0243	12002.3563	-16.0087	11986.3476	13510.4626	25496.8102	25496.7976	0.0126
17	32	14	31	14	32	0	31	106.7110	11284.5101	11391.2211	-2.8653	11388.3558	14110.7748	25499.1306	25499.1053	0.0253
17	32	25	31	25	25	0	26	89.9610	11877.1494	11967.1104	16.2486	11983.3590	13515.7528	25499.1118	25499.1053	0.0065
17	32	25	31	25	29	0	28	96.3160	11881.2999	11977.6159	5.7431	11983.3590	13515.7527	25499.1117	25499.1053	0.0064
17	32	25	31	25	37	0	36	126.3320	11876.0243	12002.3563	-18.9973	11983.3590	13515.7562	25499.1152	25499.1053	0.0099
17	32	25	33	25	29	0	28	96.3160	11881.2999	11977.6159	11.7942	11989.4101	13509.7053	25499.1154	25499.1053	0.0101
17	32	25	33	25	37	0	36	126.3320	11876.0243	12002.3563	-12.9462	11989.4101	13509.7087	25499.1188	25499.1053	0.0135
17	33	14	32	14	32	0	31	106.7110	11284.5101	11391.2211	0.0000	11391.2211	14110.2876	25501.5087	25501.4845	0.0242
17	33	14	32	14	32	0	31	106.7110	11284.5101	11391.2211	0.0000	11391.2211	14110.2893	25501.5104	25501.4845	0.0259
17	33	25	32	25	25	0	26	89.9610	11877.1494	11967.1104	19.2372	11986.3476	13515.1486	25501.4962	25501.4845	0.0117
17	33	25	32	25	29	0	28	96.3160	11881.2999	11977.6159	8.7317	11986.3476	13515.1469	25501.4945	25501.4845	0.0100
17	33	25	32	25	32	0	31	106.7110	11879.6366	11986.3476	0.0000	11986.3476	13515.1547	25501.5023	25501.4845	0.0178
17	33	25	32	25	37	0	36	126.3320	11876.0243	12002.3563	-16.0087	11986.3476	13515.1508	25501.4984	25501.4845	0.0139
17	33	25	34	25	29	0	28	96.3160	11881.2999	11977.6159	14.9274	11992.5433	13508.9518	25501.4951	25501.4845	0.0106
17	33	25	34	25	37	0	36	126.3320	11876.0243	12002.3563	-9.8130	11992.5433	13508.9582	25501.5015	25501.4845	0.0170
17	34	25	33	25	25	0	26	89.9610	11877.1494	11967.1104	22.2997	11989.4101	13514.5346	25503.9447	25503.9350	0.0097
17	34	25	33	25	29	0	28	96.3160	11881.2999	11977.6159	11.7942	11989.4101	13514.5352	25503.9453	25503.9350	0.0103

upper level $5^3\Pi_0$		inter-mediate level $2(A)^1\Sigma^+$ after collision		inter-mediate level $2(A)^1\Sigma^+$ before collision		ground state level $1(X)^1\Sigma^+$		ground state $X^1\Sigma^+(v'',J'')$ level energy (cm^{-1})	Pump laser frequency (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy before collision (cm^{-1})	energy transfer in collision (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy after collision (cm^{-1})	Probe laser frequency (cm^{-1})	measured upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	calculated upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	difference (observed – calculated) (cm^{-1})
v	J	v_c'	J_c'	v'	J'	v''	J''									
17	34	25	33	25	37	0	36	126.3320	11876.0243	12002.3563	-12.9462	11989.4101	13514.5387	25503.9488	25503.9350	0.0138
17	34	25	35	25	29	0	28	96.3160	11881.2999	11977.6159	18.1295	11995.7454	13508.1957	25503.9411	25503.9350	0.0061
17	34	25	35	25	37	0	36	126.3320	11876.0243	12002.3563	-6.6109	11995.7454	13508.2027	25503.9481	25503.9350	0.0131
17	35	25	34	25	29	0	28	96.3160	11881.2999	11977.6159	14.9274	11992.5433	13513.9294	25506.4727	25506.4568	0.0159
17	35	25	34	25	37	0	36	126.3320	11876.0243	12002.3563	-9.8130	11992.5433	13513.9333	25506.4766	25506.4568	0.0198
17	35	25	36	25	29	0	28	96.3160	11881.2999	11977.6159	21.4040	11999.0199	13507.4605	25506.4804	25506.4568	0.0236
17	35	25	36	25	37	0	36	126.3320	11876.0243	12002.3563	-3.3364	11999.0199	13507.4605	25506.4804	25506.4568	0.0236
17	36	25	35	25	37	0	36	126.3320	11876.0243	12002.3563	-6.6109	11995.7454	13513.3246	25509.0700	25509.0498	0.0202
17	36	25	37	25	37	0	36	126.3320	11876.0243	12002.3563	0.0000	12002.3563	13506.7208	25509.0771	25509.0498	0.0273
17	36	25	37	25	37	0	36	126.3320	11876.0243	12002.3563	0.0000	12002.3563	13506.7184	25509.0747	25509.0498	0.0249
17	36	25	37	25	37	0	36	126.3320	11876.0243	12002.3563	0.0000	12002.3563	13506.7180	25509.0743	25509.0498	0.0245
17	37	25	36	25	37	0	36	126.3320	11876.0243	12002.3563	-3.3364	11999.0199	13512.7208	25511.7407	25511.7139	0.0268
17	37	25	38	25	37	0	36	126.3320	11876.0243	12002.3563	3.4015	12005.7578	13505.9845	25511.7423	25511.7139	0.0284
17	38	25	37	25	37	0	36	126.3320	11876.0243	12002.3563	0.0000	12002.3563	13512.1212	25514.4775	25514.4492	0.0283
17	38	25	37	25	37	0	36	126.3320	11876.0243	12002.3563	0.0000	12002.3563	13512.1204	25514.4767	25514.4492	0.0275
17	38	25	37	25	37	0	36	126.3320	11876.0243	12002.3563	0.0000	12002.3563	13512.1253	25514.4816	25514.4492	0.0324
17	38	25	39	25	37	0	36	126.3320	11876.0243	12002.3563	6.8638	12009.2201	13505.2607	25514.4808	25514.4492	0.0316
17	39	25	40	25	40	1	39	237.3433	11775.3965	12012.7398	0.0000	12012.7398	13504.5457	25517.2855	25517.2554	0.0301
18	3	21	4	21	14	0	13	59.8928	11683.3710	11743.2638	-7.8148	11735.4490	13777.6454	25513.0944	25513.1362	-0.0418
18	4	21	5	21	14	0	13	59.8928	11683.3710	11743.2638	-7.4029	11735.8609	13777.5209	25513.3818	25513.4245	-0.0427
18	5	21	6	21	14	0	13	59.8928	11683.3710	11743.2638	-6.9043	11736.3595	13777.3873	25513.7468	25513.7849	-0.0381
18	6	21	7	21	14	0	13	59.8928	11683.3710	11743.2638	-6.3277	11736.9361	13777.2420	25514.1781	25514.2174	-0.0393
18	7	21	8	21	14	0	13	59.8928	11683.3710	11743.2638	-5.6650	11737.5988	13777.0877	25514.6865	25514.7219	-0.0354
18	8	21	9	21	14	0	13	59.8928	11683.3710	11743.2638	-4.9231	11738.3407	13776.9234	25515.2641	25515.2984	-0.0343
18	9	21	10	21	14	0	13	59.8928	11683.3710	11743.2638	-4.0989	11739.1649	13776.7508	25515.9157	25515.9470	-0.0313
18	10	21	11	21	14	0	13	59.8928	11683.3710	11743.2638	-3.1952	11740.0686	13776.5640	25516.6326	25516.6675	-0.0349
18	11	21	12	21	14	0	13	59.8928	11683.3710	11743.2638	-2.2094	11741.0544	13776.3756	25517.4300	25517.4601	-0.0301
18	12	21	13	21	14	0	13	59.8928	11683.3710	11743.2638	-1.1412	11742.1226	13776.1782	25518.3008	25518.3246	-0.0238
18	13	21	14	21	14	0	13	59.8928	11683.3710	11743.2638	0.0000	11743.2638	13775.9707	25519.2345	25519.2610	-0.0265
18	13	21	14	21	14	0	13	59.8928	11683.3710	11743.2638	0.0000	11743.2638	13775.9727	25519.2365	25519.2610	-0.0245
18	15	21	14	21	14	0	13	59.8928	11683.3710	11743.2638	0.0000	11743.2638	13778.0836	25521.3474	25521.3495	-0.0021
18	23	25	24	25	24	0	23	81.2919	11883.4102	11964.7021	0.0000	11964.7021	13567.8129	25532.5150	25532.5748	-0.0598
18	25	25	24	25	24	0	23	81.2919	11883.4102	11964.7021	0.0000	11964.7021	13571.3337	25536.0358	25536.0973	-0.0615
18	27	25	28	25	28	0	27	93.0810	11881.7841	11974.8651	0.0000	11974.8651	13564.9861	25539.8512	25539.9056	-0.0544
18	29	25	28	25	28	0	27	93.0810	11881.7841	11974.8651	0.0000	11974.8651	13569.0836	25543.9487	25543.9991	-0.0504
18	31	25	32	25	32	0	31	106.7110	11879.6366	11986.3476	0.0000	11986.3476	13561.9846	25548.3322	25548.3775	-0.0453

upper level $5^3\Pi_0$		inter-mediate level $2(A)^1\Sigma^+$ after collision		inter-mediate level $2(A)^1\Sigma^+$ before collision		ground state level $1(X)^1\Sigma^+$		ground state $X^1\Sigma^+(v'',J'')$ level energy (cm^{-1})	Pump laser frequency (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy before collision (cm^{-1})	energy transfer in collision (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy after collision (cm^{-1})	Probe laser frequency (cm^{-1})	measured upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	calculated upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	difference (observed – calculated) (cm^{-1})
v	J	v_c'	J_c'	v'	J'	v''	J''									
18	31	25	32	25	32	0	31	106.7110	11879.6366	11986.3476	0.0000	11986.3476	13561.9942	25548.3418	25548.3775	-0.0357
18	33	25	32	25	32	0	31	106.7110	11879.6366	11986.3476	0.0000	11986.3476	13566.6511	25552.9987	25553.0403	-0.0416
18	43	21	44	21	44	0	43	158.6088	11655.0167	11813.6255	0.0000	11813.6255	13766.9614	25580.5869	25580.5998	-0.0129
18	43	21	44	21	44	0	43	158.6088	11655.0167	11813.6255	0.0000	11813.6255	13766.9646	25580.5901	25580.5998	-0.0097
18	43	21	44	21	44	0	45	168.8578	11644.7677	11813.6255	0.0000	11813.6255	13766.9668	25580.5923	25580.5998	-0.0075
18	43	21	44	21	44	1	43	256.3947	11557.2308	11813.6255	0.0000	11813.6255	13766.9676	25580.5931	25580.5998	-0.0067
18	45	21	44	21	44	0	43	158.6088	11655.0167	11813.6255	0.0000	11813.6255	13773.3261	25586.9516	25586.9565	-0.0049
18	45	21	44	21	44	0	45	168.8578	11644.7677	11813.6255	0.0000	11813.6255	13773.3276	25586.9531	25586.9565	-0.0034
18	45	21	44	21	44	1	43	256.3947	11557.2308	11813.6255	0.0000	11813.6255	13773.3293	25586.9548	25586.9565	-0.0017
19	31	25	32	25	32	0	31	106.7110	11879.6366	11986.3476	0.0000	11986.3476	13612.9983	25599.3459	25599.3739	-0.0280
19	33	25	32	25	32	0	31	106.7110	11879.6366	11986.3476	0.0000	11986.3476	13617.6441	25603.9917	25604.0101	-0.0184
19	34	21	35	21	44	0	43	158.6088	11655.0167	11813.6255	-28.2936	11785.3319	13821.0835	25606.4154	25606.4340	-0.0186
19	35	21	36	21	44	0	43	158.6088	11655.0167	11813.6255	-25.4520	11788.1735	13820.7481	25608.9216	25608.9285	-0.0069
19	36	21	35	21	44	0	43	158.6088	11655.0167	11813.6255	-28.2936	11785.3319	13826.1502	25611.4821	25611.4933	-0.0112
19	36	21	37	21	44	0	43	158.6088	11655.0167	11813.6255	-22.5383	11791.0872	13820.3995	25611.4867	25611.4933	-0.0066
19	37	21	36	21	44	0	43	158.6088	11655.0167	11813.6255	-25.4520	11788.1735	13825.9501	25614.1236	25614.1286	-0.0050
19	37	21	38	21	44	0	43	158.6088	11655.0167	11813.6255	-19.5498	11794.0757	13820.0476	25614.1233	25614.1286	-0.0053
19	38	21	37	21	44	0	43	158.6088	11655.0167	11813.6255	-22.5383	11791.0872	13825.7466	25616.8338	25616.8341	-0.0003
19	38	21	39	21	44	0	43	158.6088	11655.0167	11813.6255	-16.4849	11797.1406	13819.6907	25616.8313	25616.8341	-0.0028
19	39	21	38	21	44	0	43	158.6088	11655.0167	11813.6255	-19.5498	11794.0757	13825.5364	25619.6121	25619.6098	0.0023
19	39	21	40	21	44	0	43	158.6088	11655.0167	11813.6255	-13.3392	11800.2863	13819.3238	25619.6101	25619.6098	0.0003
19	40	21	39	21	44	0	43	158.6088	11655.0167	11813.6255	-16.4849	11797.1406	13825.3163	25622.4569	25622.4557	0.0012
19	40	21	41	21	44	0	43	158.6088	11655.0167	11813.6255	-10.1210	11803.5045	13818.9552	25622.4597	25622.4557	0.0040
19	41	21	40	21	44	0	43	158.6088	11655.0167	11813.6255	-13.3392	11800.2863	13825.0961	25625.3824	25625.3716	0.0108
19	41	21	42	21	44	0	43	158.6088	11655.0167	11813.6255	-6.8248	11806.8007	13818.5816	25625.3823	25625.3716	0.0107
19	42	21	41	21	44	0	43	158.6088	11655.0167	11813.6255	-10.1210	11803.5045	13824.8693	25628.3738	25628.3575	0.0163
19	42	21	43	21	44	0	43	158.6088	11655.0167	11813.6255	-3.4481	11810.1774	13818.2014	25628.3788	25628.3575	0.0213
19	43	21	42	21	44	0	43	158.6088	11655.0167	11813.6255	-6.8248	11806.8007	13824.6325	25631.4332	25631.4133	0.0199
19	43	21	44	21	44	0	43	158.6088	11655.0167	11813.6255	0.0000	11813.6255	13817.8066	25631.4321	25631.4133	0.0188
19	43	21	44	21	44	0	43	158.6088	11655.0167	11813.6255	0.0000	11813.6255	13817.8103	25631.4358	25631.4133	0.0225
19	43	21	44	21	44	0	43	158.6088	11655.0167	11813.6255	0.0000	11813.6255	13817.8078	25631.4333	25631.4133	0.0200
19	43	21	44	21	44	0	45	168.8578	11644.7677	11813.6255	0.0000	11813.6255	13817.8052	25631.4307	25631.4133	0.0174
19	43	21	44	21	44	0	45	168.8578	11644.7677	11813.6255	0.0000	11813.6255	13817.8124	25631.4379	25631.4133	0.0246
19	43	21	44	21	44	1	43	256.3947	11557.2308	11813.6255	0.0000	11813.6255	13817.8107	25631.4362	25631.4133	0.0229
19	44	21	43	21	44	0	43	158.6088	11655.0167	11813.6255	-3.4481	11810.1774	13824.3873	25634.5647	25634.5389	0.0258
19	44	21	45	21	44	0	43	158.6088	11655.0167	11813.6255	3.5410	11817.1665	13817.4008	25634.5673	25634.5389	0.0284

upper level $5^3\Pi_0$		inter-mediate level $2(A)^1\Sigma^+$ after collision		inter-mediate level $2(A)^1\Sigma^+$ before collision		ground state level $1(X)^1\Sigma^+$		ground state $X^1\Sigma^+(v'',J'')$ level energy (cm^{-1})	Pump laser frequency (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy before collision (cm^{-1})	energy transfer in collision (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy after collision (cm^{-1})	Probe laser frequency (cm^{-1})	measured upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	calculated upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	difference (observed – calculated) (cm^{-1})
v	J	v_c'	J_c'	v'	J'	v''	J''									
19	45	21	44	21	44	0	43	158.6088	11655.0167	11813.6255	0.0000	11813.6255	13824.1316	25637.7571	25637.7342	0.0229
19	45	21	44	21	44	0	43	158.6088	11655.0167	11813.6255	0.0000	11813.6255	13824.1395	25637.7650	25637.7342	0.0308
19	45	21	44	21	44	0	43	158.6088	11655.0167	11813.6255	0.0000	11813.6255	13824.1321	25637.7576	25637.7342	0.0234
19	45	21	44	21	44	0	45	168.8578	11644.7677	11813.6255	0.0000	11813.6255	13824.1436	25637.7691	25637.7342	0.0349
19	45	21	44	21	44	1	43	256.3947	11557.2308	11813.6255	0.0000	11813.6255	13824.1393	25637.7648	25637.7342	0.0306
19	45	21	46	21	44	0	43	158.6088	11655.0167	11813.6255	7.1585	11820.7840	13816.9788	25637.7628	25637.7342	0.0286
19	46	21	45	21	44	0	43	158.6088	11655.0167	11813.6255	3.5410	11817.1665	13823.8619	25641.0284	25640.9991	0.0293
19	46	21	47	21	44	0	43	158.6088	11655.0167	11813.6255	10.8616	11824.4871	13816.5469	25641.0340	25640.9991	0.0349
19	47	21	46	21	44	0	43	158.6088	11655.0167	11813.6255	7.1585	11820.7840	13823.5834	25644.3674	25644.3336	0.0338
19	47	21	48	21	44	0	43	158.6088	11655.0167	11813.6255	14.6473	11828.2728	13816.0982	25644.3710	25644.3336	0.0374
19	48	21	47	21	44	0	43	158.6088	11655.0167	11813.6255	10.8616	11824.4871	13823.2865	25647.7736	25647.7376	0.0360
19	48	21	49	21	44	0	43	158.6088	11655.0167	11813.6255	18.5300	11832.1555	13815.6229	25647.7784	25647.7376	0.0408
19	49	21	48	21	44	0	43	158.6088	11655.0167	11813.6255	14.6473	11828.2728	13822.9747	25651.2475	25651.2109	0.0366
19	49	21	50	21	44	0	43	158.6088	11655.0167	11813.6255	22.5008	11836.1263	13815.1276	25651.2539	25651.2109	0.0430
19	49	23	50	23	50	1	51	299.9401	11643.4373	11943.3774	0.0000	11943.3774	13707.8672	25651.2446	25651.2109	0.0337
19	50	21	49	21	44	0	43	158.6088	11655.0167	11813.6255	18.5300	11832.1555	13822.6444	25654.7999	25654.7535	0.0464
19	50	21	51	21	44	0	43	158.6088	11655.0167	11813.6255	26.5778	11840.2033	13814.5955	25654.7988	25654.7535	0.0453
19	51	23	50	23	50	1	49	288.3752	11655.0022	11943.3774	0.0000	11943.3774	13715.0258	25658.4032	25658.3652	0.0380
19	51	23	50	23	50	1	51	299.9401	11643.4373	11943.3774	0.0000	11943.3774	13715.0307	25658.4081	25658.3652	0.0429
20	43	21	44	21	44	0	43	158.6088	11655.0167	11813.6255	0.0000	11813.6255	13867.9031	25681.5286	25681.7023	-0.1737
20	45	21	44	21	44	0	43	158.6088	11655.0167	11813.6255	0.0000	11813.6255	13874.1683	25687.7938	25687.9920	-0.1982
22	37	27	38	27	44	1	45	266.6017	11861.6116	12128.2133	-24.3842	12103.8291	13661.3465	25765.1756	25765.1738	0.0018
22	38	27	37	27	44	1	45	266.6017	11861.6116	12128.2133	-28.1746	12100.0387	13667.8176	25767.8563	25767.8682	-0.0119
22	38	27	39	27	44	1	45	266.6017	11861.6116	12128.2133	-20.5116	12107.7017	13660.1574	25767.8591	25767.8682	-0.0091
22	39	27	38	27	44	1	45	266.6017	11861.6116	12128.2133	-24.3842	12103.8291	13666.7735	25770.6026	25770.6332	-0.0306
22	39	27	40	27	44	1	45	266.6017	11861.6116	12128.2133	-16.5574	12111.6559	13658.9482	25770.6041	25770.6332	-0.0291
22	40	27	39	27	44	1	45	266.6017	11861.6116	12128.2133	-20.5116	12107.7017	13665.7228	25773.4245	25773.4686	-0.0441
22	40	27	41	27	44	1	45	266.6017	11861.6116	12128.2133	-12.5269	12115.6864	13657.7357	25773.4221	25773.4686	-0.0465
22	41	27	40	27	44	1	45	266.6017	11861.6116	12128.2133	-16.5574	12111.6559	13664.6554	25776.3113	25776.3744	-0.0631
22	41	27	42	27	44	1	45	266.6017	11861.6116	12128.2133	-8.4203	12119.7930	13656.5182	25776.3112	25776.3744	-0.0632
22	42	27	41	27	44	1	45	266.6017	11861.6116	12128.2133	-12.5269	12115.6864	13663.5830	25779.2694	25779.3507	-0.0813
22	42	27	43	27	44	1	45	266.6017	11861.6116	12128.2133	-4.2410	12123.9723	13655.3007	25779.2730	25779.3507	-0.0777
22	43	27	42	27	44	1	45	266.6017	11861.6116	12128.2133	-8.4203	12119.7930	13662.5106	25782.3036	25782.3973	-0.0937
22	43	27	44	27	44	1	45	266.6017	11861.6116	12128.2133	0.0000	12128.2133	13654.0884	25782.3017	25782.3973	-0.0956
22	44	27	43	27	44	1	45	266.6017	11861.6116	12128.2133	-4.2410	12123.9723	13661.4316	25785.4039	25785.5142	-0.1103
22	45	27	44	27	44	1	45	266.6017	11861.6116	12128.2133	0.0000	12128.2133	13660.3711	25788.5844	25788.7015	-0.1171

upper level $5^3\Pi_0$		inter-mediate level $2(A)^1\Sigma^+$ after collision		inter-mediate level $2(A)^1\Sigma^+$ before collision		ground state level $1(X)^1\Sigma^+$		ground state $X^1\Sigma^+(v'',J'')$ level energy (cm^{-1})	Pump laser frequency (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy before collision (cm^{-1})	energy transfer in collision (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy after collision (cm^{-1})	Probe laser frequency (cm^{-1})	measured upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	calculated upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	difference (observed – calculated) (cm^{-1})
v	J	v_c'	J_c'	v'	J'	v''	J''									
22	46	27	45	27	44	1	45	266.6017	11861.6116	12128.2133	4.3067	12132.5200	13659.3018	25791.8218	25791.9590	-0.1372
22	47	27	46	27	44	1	45	266.6017	11861.6116	12128.2133	8.6716	12136.8849	13658.2594	25795.1443	25795.2867	-0.1424
22	48	27	47	27	44	1	45	266.6017	11861.6116	12128.2133	13.0883	12141.3016	13657.2353	25798.5369	25798.6846	-0.1477
27	57	34	56	34	56	2	55	421.2635	12151.5185	12572.7820	0.0000	12572.7820	13495.4142	26068.1962		
27	57	34	58	34	58	2	57	434.1254	12147.1184	12581.2438	0.0000	12581.2438	13486.9575	26068.2013		
27	59	34	58	34	58	2	57	434.1254	12147.1184	12581.2438	0.0000	12581.2438	13494.8011	26076.0449		
29	53	34	54	34	54	2	53	408.8492	12155.7568	12564.6060	0.0000	12564.6060	13579.8272	26144.4332		
29	55	34	54	34	54	2	53	408.8492	12155.7568	12564.6060	0.0000	12564.6060	13586.5702	26151.1762		
29	55	34	56	34	56	2	55	421.2635	12151.5185	12572.7820	0.0000	12572.7820	13578.3947	26151.1767		
32	51	34	50	34	56	2	55	421.2635	12151.5185	12572.7820	-23.7274	12549.0547	13723.6868	26272.7415		
32	51	34	52	34	52	2	53	408.8492	12147.8475	12556.6967	0.0000	12556.6967	13716.0423	26272.7390		
32	52	34	51	34	56	2	55	421.2635	12151.5185	12572.7820	-19.9414	12552.8406	13723.1258	26275.9665		
32	53	34	52	34	52	2	53	408.8492	12147.8475	12556.6967	0.0000	12556.6967	13722.5565	26279.2532		
32	53	34	52	34	56	2	55	421.2635	12151.5185	12572.7820	-16.0854	12556.6967	13722.5615	26279.2581		
32	53	34	54	34	56	2	55	421.2635	12151.5185	12572.7820	-8.1761	12564.6060	13714.5847	26279.1907		
32	53	34	54	34	56	2	55	421.2635	12151.5185	12572.7820	-8.1761	12564.6060	13714.3680	26278.9739		
32	54	34	53	34	56	2	55	421.2635	12151.5185	12572.7820	-12.1631	12560.6190	13721.9913	26282.6102		
32	54	34	55	34	56	2	55	421.2635	12151.5185	12572.7820	-4.1220	12568.6600	13713.9534	26282.6134		
32	54	34	55	34	56	2	55	421.2635	12151.5185	12572.7820	-4.1220	12568.6600	13713.9517	26282.6117		
32	55	34	54	34	56	2	55	421.2635	12151.5185	12572.7820	-8.1761	12564.6060	13721.4211	26286.0271		
32	55	34	56	34	56	2	55	421.2635	12151.5185	12572.7820	0.0000	12572.7820	13713.2450	26286.0270		
32	55	34	56	34	56	2	55	421.2635	12151.5185	12572.7820	0.0000	12572.7820	13713.2442	26286.0263		
32	55	34	56	34	56	2	55	421.2635	12151.5185	12572.7820	0.0000	12572.7820	13713.2404	26286.0224		
32	55	34	56	34	56	2	55	421.2635	12151.5185	12572.7820	0.0000	12572.7820	13713.2458	26286.0278		
32	56	34	55	34	56	2	55	421.2635	12151.5185	12572.7820	-4.1220	12568.6600	13720.8370	26289.4970		
32	56	34	57	34	56	2	55	421.2635	12151.5185	12572.7820	4.1908	12576.9729	13712.5213	26289.4941		
32	56	34	57	34	56	2	55	421.2635	12151.5185	12572.7820	4.1908	12576.9729	13712.5272	26289.5000		
32	57	34	56	34	56	2	55	421.2635	12151.5185	12572.7820	0.0000	12572.7820	13720.2535	26293.0355		
32	57	34	56	34	56	2	55	421.2635	12151.5185	12572.7820	0.0000	12572.7820	13720.2559	26293.0379		
32	57	34	56	34	56	2	55	421.2635	12151.5185	12572.7820	0.0000	12572.7820	13720.2610	26293.0430		
32	57	34	58	34	56	2	55	421.2635	12151.5185	12572.7820	8.4618	12581.2438	13711.7923	26293.0361		
32	58	34	57	34	56	2	55	421.2635	12151.5185	12572.7820	4.1908	12576.9729	13719.6593	26296.6322		
32	58	34	59	34	56	2	55	421.2635	12151.5185	12572.7820	12.8016	12585.5836	13711.0527	26296.6363		
32	59	34	58	34	56	2	55	421.2635	12151.5185	12572.7820	8.4618	12581.2438	13719.0609	26300.3047		
32	60	34	59	34	56	2	55	421.2635	12151.5185	12572.7820	12.8016	12585.5836	13718.4252	26304.0088		
33	46	34	47	34	54	2	55	421.2635	12143.3425	12564.6060	-26.5281	12538.0779	13758.9102	26296.9881		

upper level $5^3\Pi_0$		inter-mediate level $2(A)^1\Sigma^+$ after collision		inter-mediate level $2(A)^1\Sigma^+$ before collision		ground state level $1(X)^1\Sigma^+$		ground state $X^1\Sigma^+(v'',J'')$ level energy (cm^{-1})	Pump laser frequency (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy before collision (cm^{-1})	energy transfer in collision (cm^{-1})	intermediate $A^1\Sigma^+(v',J')$ level energy after collision (cm^{-1})	Probe laser frequency (cm^{-1})	measured upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	calculated upper state $5^3\Pi_0(v,J)$ level energy (cm^{-1})	difference (observed – calculated) (cm^{-1})
v	J	v_c'	J_c'	v'	J'	v''	J''									
33	47	34	48	34	54	2	55	421.2635	12143.3425	12564.6060	-22.9361	12541.6699	13758.2487	26299.9186		
33	48	34	49	34	54	2	55	421.2635	12143.3425	12564.6060	-19.2776	12545.3284	13757.5873	26302.9157		
33	49	34	50	34	54	2	55	421.2635	12143.3425	12564.6060	-15.5513	12549.0547	13756.9242	26305.9789		
33	50	34	51	34	54	2	55	421.2635	12143.3425	12564.6060	-11.7653	12552.8406	13756.2586	26309.0992		
33	51	34	52	34	54	2	55	421.2635	12143.3425	12564.6060	-7.9093	12556.6967	13755.5847	26312.2814		
33	52	34	53	34	54	2	55	421.2635	12143.3425	12564.6060	-3.9870	12560.6190	13754.8943	26315.5132		
33	54	34	55	34	54	2	55	421.2635	12143.3425	12564.6060	4.0540	12568.6600	13753.0734	26321.7334		
33	55	34	54	34	54	2	55	421.2635	12143.3425	12564.6060	0.0000	12564.6060	13760.5025	26325.1085		
33	55	34	56	34	54	2	55	421.2635	12143.3425	12564.6060	8.1761	12572.7820	13752.3331	26325.1151		
33	55	34	56	34	56	2	55	421.2635	12151.5185	12572.7820	0.0000	12572.7820	13752.3300	26325.1120		
33	56	34	57	34	54	2	55	421.2635	12143.3425	12564.6060	12.3669	12576.9729	13751.6269	26328.5997		
33	57	34	58	34	54	2	55	421.2635	12143.3425	12564.6060	16.6378	12581.2438	13750.9223	26332.1661		
33	58	34	59	34	54	2	55	421.2635	12143.3425	12564.6060	20.9776	12585.5836	13750.2077	26335.7913		
34	51	34	52	34	52	2	53	408.8492	12147.8475	12556.6967	0.0000	12556.6967	13794.4928	26351.1895		
34	51	34	52	34	52	2	53	408.8492	12147.8475	12556.6967	0.0000	12556.6967	13794.4934	26351.1901		
34	53	34	52	34	52	2	53	408.8492	12147.8475	12556.6967	0.0000	12556.6967	13801.1477	26357.8444		
34	53	34	54	34	54	2	55	421.2635	12143.3425	12564.6060	0.0000	12564.6060	13793.2246	26357.8306		
34	55	34	56	34	56	2	55	421.2635	12151.5185	12572.7820	0.0000	12572.7820	13791.8700	26364.6520		

Supplementary Materials Table 3

NaCs $5^3\Pi_0$ RKR potential energy curve. The bottom of the $5^3\Pi_0$ well is located 24511.79 cm^{-1} above the bottom of the ground state ($X^1\Sigma^+$) well.

v	R_{min} (Å)	R_{max} (Å)	Energy (cm^{-1})
–0.5	4.8175		0.0000
–0.4	4.7449	4.8916	6.4066
–0.2	4.6921	4.9473	19.1173
0.0	4.6558	4.9867	31.6956
0.2	4.6261	5.0193	44.1463
0.4	4.6004	5.0481	56.4743
0.6	4.5774	5.0743	68.6843
0.8	4.5562	5.0986	80.7811
1.0	4.5366	5.1214	92.7691
1.2	4.5182	5.1430	104.6528
1.4	4.5007	5.1637	116.4367
1.6	4.4841	5.1835	128.1252
1.8	4.4683	5.2027	139.7223
2.0	4.4531	5.2212	151.2324
2.2	4.4384	5.2392	162.6594
2.4	4.4243	5.2567	174.0074
2.6	4.4106	5.2738	185.2802
2.8	4.3973	5.2905	196.4816
3.0	4.3845	5.3068	207.6155
3.2	4.3719	5.3227	218.6853
3.4	4.3598	5.3384	229.6948
3.6	4.3479	5.3537	240.6474
3.8	4.3364	5.3687	251.5463
4.0	4.3251	5.3835	262.3951
4.2	4.3141	5.3980	273.1968
4.4	4.3034	5.4123	283.9547
4.6	4.2929	5.4263	294.6717
4.8	4.2826	5.4401	305.3509
5.0	4.2726	5.4537	315.9950
5.2	4.2627	5.4670	326.6070
5.4	4.2531	5.4802	337.1895
5.6	4.2437	5.4931	347.7452
5.8	4.2345	5.5059	358.2765
6.0	4.2255	5.5185	368.7860
6.2	4.2166	5.5308	379.2760
6.4	4.2079	5.5430	389.7488
6.6	4.1994	5.5551	400.2065
6.8	4.1911	5.5669	410.6515
7.0	4.1829	5.5786	421.0855

v	R_{min} (Å)	R_{max} (Å)	Energy (cm^{-1})
7.2	4.1749	5.5901	431.5107
7.4	4.1671	5.6014	441.9288
7.6	4.1594	5.6126	452.3416
7.8	4.1518	5.6237	462.7509
8.0	4.1444	5.6346	473.1582
8.2	4.1371	5.6453	483.5651
8.4	4.1299	5.6559	493.9729
8.6	4.1229	5.6663	504.3831
8.8	4.1160	5.6766	514.7969
9.0	4.1092	5.6867	525.2155
9.2	4.1025	5.6967	535.6400
9.4	4.0959	5.7066	546.0714
9.6	4.0894	5.7163	556.5107
9.8	4.0829	5.7259	566.9586
10.0	4.0766	5.7354	577.4159
10.2	4.0704	5.7447	587.8834
10.4	4.0643	5.7539	598.3615
10.6	4.0582	5.7630	608.8508
10.8	4.0523	5.7720	619.3518
11.0	4.0464	5.7809	629.8647
11.2	4.0406	5.7897	640.3898
11.4	4.0348	5.7984	650.9273
11.6	4.0292	5.8070	661.4772
11.8	4.0236	5.8156	672.0396
12.0	4.0180	5.8240	682.6143
12.2	4.0126	5.8324	693.2011
12.4	4.0072	5.8407	703.7999
12.6	4.0019	5.8489	714.4102
12.8	3.9966	5.8571	725.0317
13.0	3.9914	5.8652	735.6637
13.2	3.9862	5.8733	746.3058
13.4	3.9812	5.8814	756.9573
13.6	3.9761	5.8894	767.6172
13.8	3.9712	5.8974	778.2849
14.0	3.9663	5.9054	788.9594
14.2	3.9614	5.9134	799.6395
14.4	3.9566	5.9213	810.3244
14.6	3.9519	5.9293	821.0126
14.8	3.9472	5.9373	831.7030
15.0	3.9425	5.9453	842.3942
15.2	3.9379	5.9533	853.0847
15.4	3.9334	5.9614	863.7731
15.6	3.9289	5.9695	874.4576
15.8	3.9245	5.9776	885.1366
16.0	3.9201	5.9858	895.8083

v	R_{min} (Å)	R_{max} (Å)	Energy (cm^{-1})
16.2	3.9158	5.9941	906.4708
16.4	3.9115	6.0024	917.1222
16.6	3.9072	6.0109	927.7604
16.8	3.9031	6.0194	938.3833
17.0	3.8989	6.0280	948.9886
17.2	3.8948	6.0367	959.5742
17.4	3.8908	6.0456	970.1375
17.6	3.8868	6.0545	980.6761
17.8	3.8829	6.0636	991.1876
18.0	3.8790	6.0729	1001.6691
18.2	3.8751	6.0823	1012.1181
18.4	3.8713	6.0919	1022.5317
18.6	3.8676	6.1016	1032.9069
18.8	3.8639	6.1116	1043.2409
19.0	3.8603	6.1217	1053.5306
19.2	3.8567	6.1321	1063.7728
19.4	3.8531	6.1427	1073.9643
19.6	3.8496	6.1535	1084.1018
19.8	3.8462	6.1646	1094.1818
20.0	3.8427	6.1760	1104.2009
20.2	3.8394	6.1877	1114.1555
20.4	3.8361	6.1996	1124.0420
20.6	3.8328	6.2119	1133.8566
20.8	3.8296	6.2245	1143.5954
21.0	3.8265	6.2375	1153.2547
21.2	3.8234	6.2508	1162.8303
21.4	3.8203	6.2646	1172.3182
21.6	3.8173	6.2787	1181.7143
22.0	3.8115	6.3084	1200.2136
22.5	3.8045	6.3483	1222.7435
23.0	3.7978	6.3917	1244.5463