Supplementary Table. Measured $^{23}Na^{39}K$ $3^1\Pi_{\Omega=1}(v = 6,\ J,\ e/f)$ and $3^3\Pi_{\Omega=0,\,1,\,2}(v = 32,\ J,\ e/f)$ ro-vibrational level energies, along with ground state and intermediate state levels and PUMP and PROBE laser frequencies for each PFOODR transition studied in this work. Measured $^{23}Na^{39}K$ $3^1\Pi_{\Omega=1}(v = 6,\ J,\ e/f)$ and $3^3\Pi_{\Omega=0,\,1,\,2}(v = 32,\ J,\ e/f)$ level energies are compared to those determined from the deperturbation analysis described in the text.

$^{23}Na^{39}K$ $3^1\Pi(v = 6)$ Data

J	Ω	*e/f*	intermediate state level $1(b)^3\Pi(v, J)$ or $2(A)^1\Sigma^+(v, J)$ or mixture	predominant character (singlet or triplet) of mixed intermediate state	ground state level $1(X)^1\Sigma^+(v, J)$	ground state level energy (cm^{-1})	PUMP laser frequency (cm^{-1})	PROBE laser frequency (cm^{-1})	$E[3^1\Pi(v=6, J)]$ measured value (cm^{-1})	$E[3^1\Pi(v=6, J)]$ from calculations (cm^{-1})	E[measured] − E[calculated] (cm^{-1})
9	1	*e*	$2^1\Sigma^+(16, 10)$		(0, 11)	74.3952	13349.1088	12401.7566	25825.2606	25825.2563	0.0043
10	1	*f*	$2^1\Sigma^+(16, 10)$		(0, 11)	74.3952	13349.1088	12402.8419	25826.3459	25826.3424	0.0035
11	1	*e*	$2^1\Sigma^+(16, 10)$		(0, 11)	74.3952	13349.1088	12404.0398	25827.5438	25827.5413	0.0025
17	1	*e*	$2^1\Sigma^+(16, 18)$		(0, 17)	90.9088	13346.7649	12399.3112	25836.9849	25836.9950	-0.0101
17	1	*e*	$2^1\Sigma^+(16, 18)$		(0, 17)	90.9088	13346.7649	12399.3190	25836.9927	25836.9950	-0.0023
18	1	*e*	$2^1\Sigma^+(16, 19)$		(0, 18)	94.3237	13345.6738	12398.9460	25838.9435	25838.9480	-0.0045
18	1	*e*	$2^1\Sigma^+(16, 19)$		(0, 18)	94.3237	13345.6738	12398.9495	25838.9470	25838.9480	-0.0010
18	1	*e*	$2^1\Sigma^+(16, 19)$		(0, 18)	94.3237	13345.6738	12398.9479	25838.9454	25838.9480	-0.0026
18	1	*e*	$2^1\Sigma^+(16, 19)$		(0, 18)	94.3237	13345.6738	12398.9513	25838.9488	25838.9480	0.0008
18	1	*e*	$2^1\Sigma^+(16, 19)$		(0, 20)	101.7207	13338.2768	12398.9541	25838.9516	25838.9480	0.0036
18	1	*e*	$2^1\Sigma^+(16, 19)$		(0, 20)	101.7207	13338.2768	12398.9509	25838.9484	25838.9480	0.0004
18	1	*e*	$1^3\Pi(17, 19)$~$2^1\Sigma^+(18, 19)$	T	(0, 20)	101.7207	13479.4727	12257.7478	25838.9412	25838.9480	-0.0068
18	1	*e*	$1^3\Pi(17, 19)$~$2^1\Sigma^+(18, 19)$	T	(0, 20)	101.7207	13479.4727	12257.7410	25838.9344	25838.9480	-0.0136
18	1	*e*	$1^3\Pi(17, 19)$~$2^1\Sigma^+(18, 19)$	T	(0, 20)	101.7207	13479.4727	12257.7411	25838.9345	25838.9480	-0.0135
18	1	*f*	$2^1\Sigma^+(16, 18)$		(0, 17)	90.9088	13346.7649	12401.2666	25838.9403	25838.9412	-0.0009
18	1	*f*	$2^1\Sigma^+(16, 18)$		(0, 17)	90.9088	13346.7649	12401.2608	25838.9345	25838.9412	-0.0067
18	1	*f*	$2^1\Sigma^+(16, 18)$		(0, 17)	90.9088	13346.7649	12401.2596	25838.9333	25838.9412	-0.0079
19	1	*e*	$2^1\Sigma^+(16, 18)$		(0, 17)	90.9088	13346.7649	12403.3175	25840.9912	25840.9935	-0.0023
19	1	*e*	$2^1\Sigma^+(16, 18)$		(0, 17)	90.9088	13346.7649	12403.3202	25840.9939	25840.9935	0.0004
19	1	*e*	$2^1\Sigma^+(16, 18)$		(0, 17)	90.9088	13346.7649	12403.3094	25840.9831	25840.9935	-0.0104
19	1	*e*	$1^3\Pi(17, 18)$~$2^1\Sigma^+(18, 18)$	S	(0, 19)	97.9277	13488.6823	12254.3873	25840.9973	25840.9935	0.0038
19	1	*e*	$1^3\Pi(17, 20)$~$2^1\Sigma^+(18, 20)$	T	(0, 19)	97.9277	13486.6555	12256.4253	25841.0085	25840.9935	0.0150
19	1	*e*	$1^3\Pi(17, 20)$~$2^1\Sigma^+(18, 20)$	T	(0, 19)	97.9277	13486.6555	12256.4167	25840.9999	25840.9935	0.0064
19	1	*e*	$1^3\Pi(17, 20)$~$2^1\Sigma^+(18, 20)$	T	(0, 19)	97.9277	13486.6555	12256.4113	25840.9945	25840.9935	0.0010
19	1	*e*	$1^3\Pi(17, 20)$~$2^1\Sigma^+(18, 20)$	S	(0, 19)	97.9277	13493.6168	12249.4496	25840.9941	25840.9935	0.0006
19	1	*e*	$1^3\Pi(17, 20)$~$2^1\Sigma^+(18, 20)$	T	(0, 21)	105.7026	13478.8761	12256.4106	25840.9893	25840.9935	-0.0042
19	1	*f*	$2^1\Sigma^+(16, 19)$		(0, 18)	94.3237	13345.6738	12400.9846	25840.9821	25840.9887	-0.0066
19	1	*f*	$2^1\Sigma^+(16, 19)$		(0, 18)	94.3237	13345.6738	12400.9858	25840.9833	25840.9887	-0.0054
19	1	*f*	$2^1\Sigma^+(16, 19)$		(0, 18)	94.3237	13345.6738	12400.9819	25840.9794	25840.9887	-0.0093

J	Ω	*e/f*	intermediate state level $1(b)^3\Pi(v, J)$ or $2(A)^1\Sigma^+(v, J)$ or mixture	predominant character (singlet or triplet) of mixed intermediate state	ground state level $1(X)^1\Sigma^+(v, J)$	ground state level energy (cm^{-1})	PUMP laser frequency (cm^{-1})	PROBE laser frequency (cm^{-1})	$E[3^1\Pi(v=6, J)]$ measured value (cm^{-1})	$E[3^1\Pi(v=6, J)]$ from calculations (cm^{-1})	E[measured] – E[calculated] (cm^{-1})
19	1	*f*	$2^1\Sigma^+(16, 19)$		(0, 18)	94.3237	13345.6738	12400.9856	25840.9831	25840.9887	-0.0056
19	1	*f*	$2^1\Sigma^+(16, 19)$		(0, 20)	101.7207	13338.2768	12400.9853	25840.9836	25840.9887	-0.0051
19	1	*f*	$2^1\Sigma^+(16, 19)$		(0, 20)	101.7207	13338.2768	12400.9874	25840.9849	25840.9887	-0.0038
19	1	*f*	$1^3\Pi(17, 19)$~$2^1\Sigma^+(18, 19)$	T	(0, 20)	101.7207	13479.4727	12259.7759	25840.9693	25840.9887	-0.0194
19	1	*f*	$1^3\Pi(17, 19)$~$2^1\Sigma^+(18, 19)$	T	(0, 20)	101.7207	13479.4727	12259.7885	25840.9819	25840.9887	-0.0068
20	1	*e*	$2^1\Sigma^+(16, 19)$		(0, 18)	94.3237	13345.6738	12403.1801	25843.1776	25843.1799	-0.0023
20	1	*e*	$2^1\Sigma^+(16, 19)$		(0, 18)	94.3237	13345.6738	12403.1794	25843.1769	25843.1799	-0.0030
20	1	*e*	$2^1\Sigma^+(16, 19)$		(0, 18)	94.3237	13345.6738	12403.1808	25843.1783	25843.1799	-0.0016
20	1	*e*	$2^1\Sigma^+(16, 19)$		(0, 18)	94.3237	13345.6738	12403.1830	25843.1805	25843.1799	0.0006
20	1	*e*	$2^1\Sigma^+(16, 19)$		(0, 20)	101.7207	13338.2768	12403.1827	25843.1802	25843.1799	0.0003
20	1	*e*	$2^1\Sigma^+(16, 19)$		(0, 20)	101.7207	13338.2768	12403.1829	25843.1804	25843.1799	0.0005
20	1	*e*	$2^1\Sigma^+(16, 19)$		(0, 20)	101.7207	13338.2768	12403.1843	25843.1818	25843.1799	0.0019
20	1	*e*	$1^3\Pi(17, 19)$~$2^1\Sigma^+(18, 19)$	T	(0, 20)	101.7207	13479.4727	12261.9806	25843.1740	25843.1799	-0.0059
20	1	*e*	$1^3\Pi(17, 19)$~$2^1\Sigma^+(18, 19)$	T	(0, 20)	101.7207	13479.4727	12261.9693	25843.1627	25843.1799	-0.0172
20	1	*e*	$1^3\Pi(17, 19)$~$2^1\Sigma^+(18, 19)$	T	(0, 20)	101.7207	13479.4727	12261.9713	25843.1647	25843.1799	-0.0152
20	1	*e*	$1^3\Pi(17, 21)$~$2^1\Sigma^+(18, 21)$	T	(0, 20)	101.7207	13486.3459	12255.1101	25843.1767	25843.1799	-0.0032
20	1	*e*	$1^3\Pi(17, 21)$~$2^1\Sigma^+(18, 21)$	T	(0, 20)	101.7207	13486.3459	12255.1083	25843.1749	25843.1799	-0.0050
20	1	*e*	$1^3\Pi(17, 21)$~$2^1\Sigma^+(18, 21)$	T	(0, 22)	109.8732	13478.1874	12255.1103	25843.1709	25843.1799	-0.0090
20	1	*e*	$1^3\Pi(17, 21)$~$2^1\Sigma^+(18, 21)$	T	(0, 22)	109.8732	13478.1874	12255.1129	25843.1735	25843.1799	-0.0064
26	1	*e*	$2^1\Sigma^+(16, 27)$		(0, 28)	138.8539	13324.0399	12395.5339	25858.4277	25858.4360	-0.0083
26	1	*f*	$2^1\Sigma^+(16, 26)$		(0, 25)	123.5164	13336.0915	12398.8191	25858.4270	25858.4221	0.0049
27	1	*e*	$2^1\Sigma^+(16, 26)$		(0, 25)	123.5164	13336.0915	12401.7387	25861.3466	25861.3489	-0.0023
27	1	*e*	$2^1\Sigma^+(16, 26)$		(0, 25)	123.5164	13336.0915	12401.7409	25861.3488	25861.3489	-0.0001
27	1	*f*	$2^1\Sigma^+(16, 27)$		(0, 26)	128.4408	13334.4530	12398.4371	25861.3309	25861.3340	-0.0031
27	1	*f*	$2^1\Sigma^+(16, 27)$		(0, 26)	128.4408	13334.4530	12398.4362	25861.3300	25861.3340	-0.0040
27	1	*f*	$2^1\Sigma^+(16, 27)$		(0, 26)	128.4408	13334.4530	12398.4321	25861.3259	25861.3340	-0.0081
27	1	*f*	$2^1\Sigma^+(16, 27)$		(0, 28)	138.8539	13324.0399	12398.4344	25861.3282	25861.3340	-0.0058
28	1	*e*	$2^1\Sigma^+(16, 27)$		(0, 28)	138.8539	13324.0399	12401.4820	25864.3758	25864.3885	-0.0127
28	1	*e*	$2^1\Sigma^+(16, 27)$		(0, 28)	138.8539	13324.0399	12401.4825	25864.3763	25864.3885	-0.0122
28	1	*f*	$2^1\Sigma^+(16, 28)$		(0, 27)	133.5534	13332.7417	12398.0731	25864.3682	25864.3736	-0.0054
28	1	*f*	$2^1\Sigma^+(16, 28)$		(0, 27)	133.5534	13332.7417	12398.0734	25864.3685	25864.3736	-0.0051
29	1	*e*	$2^1\Sigma^+(16, 30)$		(0, 31)	155.8817	13317.5770	12394.0477	25867.5064	25867.5066	-0.0002
29	1	*e*	$2^1\Sigma^+(16, 30)$		(0, 31)	155.8817	13317.5770	12394.0304	25867.4891	25867.5066	-0.0175
29	1	*e*	$2^1\Sigma^+(16, 30)$		(0, 31)	155.8817	13317.5770	12394.0312	25867.4899	25867.5066	-0.0167
29	1	*e*	$2^1\Sigma^+(16, 30)$		(0, 31)	155.8817	13317.5770	12394.0336	25867.4923	25867.5066	-0.0143
30	1	*f*	$2^1\Sigma^+(16, 30)$		(0, 31)	155.8817	13317.5770	12397.2682	25870.7269	25870.7198	0.0071
31	1	*e*	$2^1\Sigma^+(16, 30)$		(0, 31)	155.8817	13317.5770	12400.6214	25874.0801	25874.0762	0.0039
33	1	*e*	$2^1\Sigma^+(16, 34)$		(0, 33)	168.1706	13321.0645	12391.7923	25881.0274	25881.0671	-0.0397
34	1	*e*	$2^1\Sigma^+(16, 35)$		(0, 34)	174.5956	13318.8890	12391.2221	25884.7067	25884.7186	-0.0119

J	Ω	*e/f*	intermediate state level $1(b)^3\Pi(v, J)$ or $2(A)^1\Sigma^+(v, J)$ or mixture	predominant character (singlet or triplet) of mixed intermediate state	ground state level $1(X)^1\Sigma^+(v, J)$	ground state level energy (cm^{-1})	PUMP laser frequency (cm^{-1})	PROBE laser frequency (cm^{-1})	$E[3^1\Pi(v=6, J)]$ measured value (cm^{-1})	$E[3^1\Pi(v=6, J)]$ from calculations (cm^{-1})	E[measured] – E[calculated] (cm^{-1})
34	1	*e*	$2^1\Sigma^+(16, 35)$		(0, 34)	174.5956	13318.8890	12391.2217	25884.7063	25884.7186	-0.0123
34	1	*f*	$2^1\Sigma^+(16, 34)$		(0, 33)	168.1706	13321.0645	12395.4599	25884.6950	25884.6950	0.0000
34	1	*f*	$2^1\Sigma^+(16, 34)$		(0, 33)	168.1706	13321.0645	12395.4576	25884.6927	25884.6950	-0.0023
35	1	*e*	$2^1\Sigma^+(16, 34)$		(0, 33)	168.1706	13321.0645	12399.2256	25888.4607	25888.4807	-0.0200
35	1	*e*	$2^1\Sigma^+(16, 34)$		(0, 33)	168.1706	13321.0645	12399.2247	25888.4598	25888.4807	-0.0209
35	1	*f*	$2^1\Sigma^+(16, 35)$		(0, 34)	174.5956	13318.8890	12394.9684	25888.4530	25888.4559	-0.0029
35	1	*f*	$2^1\Sigma^+(16, 35)$		(0, 34)	174.5956	13318.8890	12394.9721	25888.4567	25888.4559	0.0008
35	1	*f*	$2^1\Sigma^+(16, 35)$		(0, 34)	174.5956	13318.8890	12394.9721	25888.4567	25888.4559	0.0008
35	1	*f*	$2^1\Sigma^+(16, 35)$		(0, 34)	174.5956	13318.8890	12394.9710	25888.4556	25888.4559	-0.0003
36	1	*e*	$2^1\Sigma^+(16, 35)$		(0, 36)	188.0058	13305.4788	12398.8457	25892.3303	25892.3393	-0.0090
42	1	*e*	$2^1\Sigma^+(17, 43)$		(1, 44)	371.2133	13236.4530	12310.0171	25917.6834	25917.6713	0.0121
43	1	*f*	$2^1\Sigma^+(17, 43)$		(1, 44)	371.2133	13236.4530	12314.5816	25922.2479	25922.2139	0.0340
44	1	*e*	$2^1\Sigma^+(17, 43)$		(1, 44)	371.2133	13236.4530	12319.2831	25926.9494	25926.9336	0.0158
55	1	*e*	$2^1\Sigma^+(16, 56)$		(0, 55)	352.3482	13257.5979	12375.1011	25985.0472	25985.0264	0.0208
56	1	*f*	$2^1\Sigma^+(16, 56)$		(0, 55)	352.3482	13257.5979	12380.9407	25990.8868	25990.8328	0.0540
57	1	*e*	$2^1\Sigma^+(16, 56)$		(0, 55)	352.3482	13257.5979	12386.9404	25996.8865	25996.8632	0.0233

$^{23}Na^{39}K$ $3^3\Pi_\Omega(v = 32)$ Data

J	Ω	e/f	intermediate state level $1(b)^3\Pi(v, J)$ or $2(A)^1\Sigma^+(v, J)$ or mixture	predominant character (singlet or triplet) of mixed intermediate state	ground state level $1(X)^1\Sigma^+(v, J)$	ground state level energy (cm^{-1})	PUMP laser frequency (cm^{-1})	PROBE laser frequency (cm^{-1})	$E[3^1\Pi(v=6, J)]$ measured value (cm^{-1})	$E[3^1\Pi(v=6, J)]$ from calculations (cm^{-1})	E[measured] – E[calculated] (cm^{-1})
17	0	*e*	$2^1\Sigma^+(16, 18)$		(0, 17)	90.9088	13346.7649	12399.9779	25837.6516	25837.6824	-0.0308
17	0	*e*	$2^1\Sigma^+(16, 18)$		(0, 17)	90.9088	13346.7649	12399.9769	25837.6506	25837.6824	-0.0318
18	0	*e*	$2^1\Sigma^+(16, 19)$		(0, 18)	94.3237	13345.6738	12399.2979	25839.2954	25839.3073	-0.0119
18	0	*e*	$2^1\Sigma^+(16, 19)$		(0, 18)	94.3237	13345.6738	12399.2991	25839.2966	25839.3073	-0.0107
18	0	*e*	$2^1\Sigma^+(16, 19)$		(0, 18)	94.3237	13345.6738	12399.2988	25839.2963	25839.3073	-0.0110
18	0	*e*	$2^1\Sigma^+(16, 19)$		(0, 20)	101.7207	13338.2768	12399.3037	25839.3012	25839.3073	-0.0061
18	0	*e*	$2^1\Sigma^+(16, 19)$		(0, 20)	101.7207	13338.2768	12399.3052	25839.3027	25839.3073	-0.0046
18	0	*e*	$1^3\Pi(17, 19)$~$2^1\Sigma^+(18, 19)$	T	(0, 20)	101.7207	13479.4727	12258.1019	25839.2953	25839.3073	-0.0120
18	0	*e*	$1^3\Pi(17, 19)$~$2^1\Sigma^+(18, 19)$	T	(0, 20)	101.7207	13479.4727	12258.1011	25839.2945	25839.3073	-0.0128
18	0	*e*	$1^3\Pi(17, 19)$~$2^1\Sigma^+(18, 19)$	T	(0, 20)	101.7207	13479.4727	12258.0924	25839.2858	25839.3073	-0.0215
18	0	*e*	$1^3\Pi(17, 19)$~$2^1\Sigma^+(18, 19)$	T	(0, 20)	101.7207	13479.4727	12258.0925	25839.2859	25839.3073	-0.0214
18	0	*f*	$2^1\Sigma^+(16, 18)$		(0, 17)	90.9088	13346.7649	12401.5984	25839.2721	25839.3073	-0.0352
19	0	*e*	$2^1\Sigma^+(16, 18)$		(0, 17)	90.9088	13346.7649	12403.3597	25841.0334	25841.0339	-0.0005
19	0	*e*	$2^1\Sigma^+(16, 18)$		(0, 17)	90.9088	13346.7649	12403.3531	25841.0268	25841.0339	-0.0071
19	0	*e*	$1^3\Pi(17, 18)$~$2^1\Sigma^+(18, 18)$	T	(0, 19)	97.9277	13480.0377	12263.0694	25841.0348	25841.0339	0.0009
19	0	*e*	$1^3\Pi(17, 18)$~$2^1\Sigma^+(18, 18)$	T	(0, 19)	97.9277	13480.0377	12263.0607	25841.0261	25841.0339	-0.0078
19	0	*e*	$1^3\Pi(17, 18)$~$2^1\Sigma^+(18, 18)$	S	(0, 19)	97.9277	13488.6823	12254.4301	25841.0401	25841.0339	0.0062
19	0	*e*	$1^3\Pi(17, 20)$~$2^1\Sigma^+(18, 20)$	S	(0, 19)	97.9277	13493.6168	12249.4929	25841.0374	25841.0339	0.0035
19	0	*f*	$2^1\Sigma^+(16, 19)$		(0, 18)	94.3237	13345.6738	12401.0245	25841.0220	25841.0311	-0.0091
19	0	*f*	$2^1\Sigma^+(16, 19)$		(0, 18)	94.3237	13345.6738	12401.0251	25841.0226	25841.0311	-0.0085
19	0	*f*	$2^1\Sigma^+(16, 19)$		(0, 18)	94.3237	13345.6738	12401.0227	25841.0202	25841.0311	-0.0109
19	0	*f*	$2^1\Sigma^+(16, 19)$		(0, 18)	94.3237	13345.6738	12401.0238	25841.0213	25841.0311	-0.0098
19	0	*f*	$2^1\Sigma^+(16, 19)$		(0, 20)	101.7207	13338.2768	12401.0248	25841.0223	25841.0311	-0.0088
19	0	*f*	$2^1\Sigma^+(16, 19)$		(0, 20)	101.7207	13338.2768	12401.0270	25841.0245	25841.0311	-0.0066
19	0	*f*	$1^3\Pi(17, 19)$~$2^1\Sigma^+(18, 19)$	T	(0, 20)	101.7207	13479.4727	12259.8168	25841.0102	25841.0311	-0.0209
19	0	*f*	$1^3\Pi(17, 19)$~$2^1\Sigma^+(18, 19)$	T	(0, 20)	101.7207	13479.4727	12259.8288	25841.0222	25841.0311	-0.0089
20	0	*e*	$2^1\Sigma^+(16, 19)$		(0, 18)	94.3237	13345.6738	12402.8334	25842.8309	25842.8129	0.0180
20	0	*e*	$2^1\Sigma^+(16, 19)$		(0, 18)	94.3237	13345.6738	12402.8331	25842.8306	25842.8129	0.0177
20	0	*e*	$2^1\Sigma^+(16, 19)$		(0, 18)	94.3237	13345.6738	12402.8364	25842.8339	25842.8129	0.0210
20	0	*e*	$2^1\Sigma^+(16, 19)$		(0, 20)	101.7207	13338.2768	12402.8350	25842.8325	25842.8129	0.0196
20	0	*e*	$2^1\Sigma^+(16, 19)$		(0, 20)	101.7207	13338.2768	12402.8358	25842.8333	25842.8129	0.0204
20	0	*e*	$2^1\Sigma^+(16, 19)$		(0, 20)	101.7207	13338.2768	12402.8369	25842.8344	25842.8129	0.0215
20	0	*e*	$1^3\Pi(17, 19)$~$2^1\Sigma^+(18, 19)$	T	(0, 20)	101.7207	13479.4727	12261.6319	25842.8253	25842.8129	0.0124
20	0	*e*	$1^3\Pi(17, 19)$~$2^1\Sigma^+(18, 19)$	T	(0, 20)	101.7207	13479.4727	12261.6233	25842.8167	25842.8129	0.0038
20	0	*e*	$1^3\Pi(17, 19)$~$2^1\Sigma^+(18, 19)$	T	(0, 20)	101.7207	13479.4727	12261.6218	25842.8152	25842.8129	0.0023

J	Ω	*e/f*	intermediate state level $1(b)^3\Pi(v, J)$ or $2(A)^1\Sigma^+(v, J)$ or mixture	predominant character (singlet or triplet) of mixed intermediate state	ground state level $1(X)^1\Sigma^+(v, J)$	ground state level energy (cm^{-1})	PUMP laser frequency (cm^{-1})	PROBE laser frequency (cm^{-1})	$E[3^1\Pi(v=6, J)]$ measured value (cm^{-1})	$E[3^1\Pi(v=6, J)]$ from calculations (cm^{-1})	E[measured] – E[calculated] (cm^{-1})
20	0	*e*	$1^3\Pi(17, 21)\sim2^1\Sigma^+(18, 21)$	T	(0, 20)	101.7207	13486.3459	12254.7603	25842.8269	25842.8129	0.0140
20	0	*e*	$1^3\Pi(17, 21)\sim2^1\Sigma^+(18, 21)$	T	(0, 20)	101.7207	13486.3459	12254.7613	25842.8279	25842.8129	0.0150
20	0	*e*	$1^3\Pi(17, 21)\sim2^1\Sigma^+(18, 21)$	T	(0, 22)	109.8732	13478.1874	12254.7629	25842.8235	25842.8129	0.0106
20	0	*e*	$1^3\Pi(17, 21)\sim2^1\Sigma^+(18, 21)$	T	(0, 22)	109.8732	13478.1874	12254.7615	25842.8221	25842.8129	0.0092
21	0	*e*	$1^3\Pi(17, 20)\sim2^1\Sigma^+(18, 20)$	T	(0, 19)	97.9277	13486.6555	12260.1499	25844.7331	25844.6958	0.0373
25	0	*e*	$1^3\Pi(17, 26)\sim2^1\Sigma^+(18, 26)$	T	(0, 25)	123.5164	13488.0442	12241.5881	25853.1487	25853.0663	0.0824
25	0	*e*	$1^3\Pi(17, 26)\sim2^1\Sigma^+(18, 26)$	T	(0, 25)	123.5164	13488.0442	12241.5876	25853.1482	25853.0663	0.0819
25	0	*e*	$1^3\Pi(17, 26)\sim2^1\Sigma^+(18, 26)$	T	(0, 25)	123.5164	13488.0442	12241.5874	25853.1480	25853.0663	0.0817
26	1	*f*	$2^1\Sigma^+(16, 26)$		(0, 25)	123.5164	13336.0915	12399.7213	25859.3292	25859.2993	0.0299
27	0	*e*	$1^3\Pi(17, 26)\sim2^1\Sigma^+(18, 26)$	T	(0, 25)	123.5164	13488.0442	12246.0527	25857.6133	25857.7467	-0.1334
27	0	*e*	$1^3\Pi(17, 26)\sim2^1\Sigma^+(18, 26)$	T	(0, 25)	123.5164	13488.0442	12246.0538	25857.6144	25857.7467	-0.1323
27	1	*e*	$2^1\Sigma^+(16, 26)$		(0, 25)	123.5164	13336.0915	12402.1363	25861.7442	25861.7282	0.0160
27	1	*f*	$2^1\Sigma^+(16, 27)$		(0, 26)	128.4408	13334.4530	12398.8502	25861.7440	25861.7280	0.0160
27	1	*f*	$2^1\Sigma^+(16, 27)$		(0, 26)	128.4408	13334.4530	12398.8488	25861.7426	25861.7280	0.0146
27	1	*f*	$2^1\Sigma^+(16, 27)$		(0, 28)	138.8539	13324.0399	12398.8531	25861.7469	25861.7280	0.0189
28	1	*e*	$2^1\Sigma^+(16, 27)$		(0, 28)	138.8539	13324.0399	12401.3330	25864.2268	25864.2170	0.0098
28	1	*f*	$2^1\Sigma^+(16, 28)$		(0, 27)	133.5534	13332.7417	12397.9371	25864.2322	25864.2157	0.0165
29	1	*e*	$2^1\Sigma^+(16, 30)$		(0, 31)	155.8817	13317.5770	12393.3561	25866.8148	25866.8130	0.0018
29	1	*e*	$2^1\Sigma^+(16, 30)$		(0, 31)	155.8817	13317.5770	12393.3575	25866.8162	25866.8130	0.0032
29	1	*e*	$2^1\Sigma^+(16, 30)$		(0, 31)	155.8817	13317.5770	12393.3573	25866.8160	25866.8130	0.0030
34	2	*e*	$2^1\Sigma^+(16, 35)$		(0, 34)	174.5956	13318.8890	12391.6350	25885.1196	25885.1449	-0.0253
34	2	*e*	$2^1\Sigma^+(16, 35)$		(0, 34)	174.5956	13318.8890	12391.6391	25885.1237	25885.1449	-0.0212
34	2	*f*	$2^1\Sigma^+(16, 34)$		(0, 33)	168.1706	13321.0645	12395.8888	25885.1239	25885.1448	-0.0209
35	2	*e*	$2^1\Sigma^+(16, 34)$		(0, 33)	168.1706	13321.0645	12398.9862	25888.2213	25888.2316	-0.0103
35	2	*e*	$2^1\Sigma^+(16, 34)$		(0, 33)	168.1706	13321.0645	12398.9858	25888.2209	25888.2316	-0.0107
35	2	*f*	$2^1\Sigma^+(16, 35)$		(0, 34)	174.5956	13318.8890	12394.7507	25888.2353	25888.2312	0.0041
35	2	*f*	$2^1\Sigma^+(16, 35)$		(0, 34)	174.5956	13318.8890	12394.7508	25888.2354	25888.2312	0.0042
35	2	*f*	$2^1\Sigma^+(16, 35)$		(0, 34)	174.5956	13318.8890	12394.7516	25888.2362	25888.2312	0.0050
35	2	*f*	$2^1\Sigma^+(16, 35)$		(0, 34)	174.5956	13318.8890	12394.7516	25888.2362	25888.2312	0.0050
35	2	*f*	$2^1\Sigma^+(16, 35)$		(0, 36)	188.0058	13305.4788	12394.7520	25888.2366	25888.2312	0.0054
36	2	*e*	$2^1\Sigma^+(16, 35)$		(0, 34)	174.5956	13318.8890	12397.9253	25891.4099	25891.3987	0.0112
36	2	*e*	$2^1\Sigma^+(16, 35)$		(0, 34)	174.5956	13318.8890	12397.9253	25891.4099	25891.3987	0.0112
36	2	*e*	$2^1\Sigma^+(16, 35)$		(0, 36)	188.0058	13305.4788	12397.9289	25891.4135	25891.3987	0.0148
37	0	*e*	$1^3\Pi(12, 38)\sim2^1\Sigma^+(11, 38)$	T	(0, 37)	194.9907	12934.4448	12756.4450	25885.8805	25885.8798	0.0007
39	0	*e*	$1^3\Pi(12, 38)\sim2^1\Sigma^+(11, 38)$	T	(0, 37)	194.9907	12934.4448	12762.9597	25892.3952	25892.4153	-0.0201
44	0	*e*	$1^3\Pi(18, 45)\sim2^1\Sigma^+(20, 45)$	T	(0, 46)	266.2096	13572.0030	12071.8072	25910.0198	25910.0239	-0.0041
44	0	*e*	$1^3\Pi(18, 45)\sim2^1\Sigma^+(20, 45)$	S	(0, 46)	266.2096	13567.5007	12076.3095	25910.0198	25910.0239	-0.0041
46	0	*e*	$1^3\Pi(18, 45)\sim2^1\Sigma^+(20, 45)$	T	(0, 46)	266.2096	13572.0030	12079.3968	25917.6094	25917.5674	0.0420
86	0	*e*	$1^3\Pi(22, 87)\sim2^1\Sigma^+(28, 87)$	T	(4, 86)	1232.1940	13488.0442	11417.4697	26137.7079	26137.7080	-0.0001