

Supplementary Table Assignments,^a frequencies (MHz), uncertainties (kHz), source,^b and residuals o-c (kHz) with respect to the *S* and *A* reduced Hamiltonians of transitions of H₂¹³CO.

Transition	frequency	unc.	s.	o-c(<i>S</i>)	o-c(<i>A</i>)
3 _{3,0} - 3 _{3,1}	0.5590	0.5	6	1.3	1.3
4 _{3,1} - 4 _{3,2}	3.9035	0.3	6	0.3	0.3
5 _{3,2} - 5 _{3,3}	15.6075	0.5	6	0.2	0.2
6 _{3,3} - 6 _{3,4}	46.7965	0.5	6	-0.0	-0.0
1 _{1,0} - 1 _{1,1}	4593.08854	0.06	6	-0.06	-0.06
7 _{2,5} - 7 _{2,6}	8012.1751	0.2	K	-0.1	-0.1
32 _{5,27} - 32 _{5,28}	8205.9687	4.0	K	5.0	5.1
24 _{3,21} - 25 _{1,24}	8458.425	10.	6	-9.	-8.
15 _{3,12} - 15 _{3,13}	10063.2000	2.8	K	-1.3	-1.1
33 _{5,28} - 33 _{5,29}	11007.7661	0.3	K	0.2	0.3
24 _{4,20} - 24 _{4,21}	11691.8768	0.2	K	0.1	0.1
8 _{2,6} - 8 _{2,7}	13287.3240	0.2	K	-0.1	-0.1
2 _{1,1} - 2 _{1,2}	13778.80413	0.15	6	0.02	0.02
33 _{2,31} - 32 _{4,28}	14519.0053	8.0	K	2.4	2.8
16 _{3,13} - 16 _{3,14}	14592.4143	0.5	K	-1.4	-1.2
34 _{5,29} - 34 _{5,30}	14615.5631	2.8	K	0.9	0.9
42 _{3,39} - 41 _{5,36}	15255.5194	5.1	K	-0.1	-0.1
25 _{4,21} - 25 _{4,22}	15973.4718	0.7	K	0.6	0.6
35 _{5,30} - 35 _{5,31}	19216.1019	0.2	K	-0.2	-0.2
45 _{6,39} - 45 _{6,40}	20218.4408	6.7	K	0.4	3.4
17 _{3,14} - 17 _{3,15}	20649.2351	0.4	K	0.6	0.9
9 _{2,7} - 9 _{2,8}	20736.2512	3.0	K	3.7	3.6
26 _{1,25} - 25 _{3,22}	20938.172	10.	6	1.	0.
26 _{4,22} - 26 _{4,23}	21518.4606	0.2	K	-0.1	-0.1
31 _{1,30} - 30 _{3,27}	23637.145	10.	6	-29.	-30.
36 _{5,31} - 36 _{5,32}	25027.1086	0.2	K	0.1	0.1
46 _{6,40} - 46 _{6,41}	25817.8143	12.7	K	-1.0	-5.3
3 _{1,2} - 3 _{1,3}	27555.673	10.	6	8.	8.
18 _{3,15} - 18 _{3,16}	28582.350	10.	6	-4.	-3.
27 _{4,23} - 27 _{4,24}	28606.523	10.	6	3.	3.
10 _{2,8} - 10 _{2,9}	30819.202	10.	6	2.	2.
37 _{5,32} - 37 _{5,33}	32299.148	10.	6	-1.	-1.
28 _{4,24} - 28 _{4,25}	37553.751	10.	6	0.	1.
19 _{3,16} - 19 _{3,17}	38774.709	10.	6	-1.	-1.

$32_{3,29} - 33_{1,32}$	40848.916	20.	6	-77.	-85.
$27_{1,26} - 26_{3,23}$	40854.804	20.	6	-7.	-9.
$38_{5,33} - 38_{5,34}$	41316.628	20.	6	11.	10.
$11_{2,9} - 11_{2,10}$	43992.640	20.	6	-17.	-18.
$4_{1,3} - 4_{1,4}$	45920.064	10.	14	6.	6.
$29_{4,25} - 29_{4,26}$	48710.574	20.	6	38.	39.
$28_{1,27} - 27_{3,24}$	51077.029	20.	6	-22.	-24.
$29_{1,28} - 28_{3,25}$	51541.860	20.	6	-11.	-14.
$20_{3,17} - 20_{3,18}$	51635.034	20.	6	32.	32.
$39_{5,34} - 39_{5,35}$	52397.434	20.	6	-21.	-23.
$21_{3,18} - 21_{3,19}$	67585.830	40.	6	-13.	-12.
$5_{1,4} - 5_{1,5}$	68864.551	28.	14	-13.	-13.
$1_{0,1} - 0_{0,0}$	71024.788	10.	6	8.	7.
$33_{4,29} - 33_{4,30}$	123310.3368	12.0	C	-10.3	-4.2
$16_{2,14} - 17_{0,17}$	126629.3013	10.0	C	-4.7	-6.2
$7_{1,6} - 7_{1,7}$	128431.4301	4.0	C	9.9	9.7
$17_{2,15} - 18_{0,18}$	130311.4174	10.0	C	-0.3	-1.4
$15_{2,13} - 16_{0,16}$	131337.3207	8.0	C	5.5	3.9
$15_{2,13} - 15_{2,14}$	135465.1712	5.0	C	-0.1	-1.1
$2_{1,2} - 1_{1,1}$	137449.9503	4.0	C	-3.3	-3.6
$24_{3,21} - 24_{3,22}$	138093.5908	8.0	C	-0.5	0.7
$2_{0,2} - 1_{0,1}$	141983.7404	4.0	C	-6.2	-6.5
$18_{2,16} - 19_{0,19}$	142299.0907	10.0	C	-4.5	-4.7
$14_{2,12} - 15_{0,15}$	144399.9431	10.0	C	5.4	3.9
$2_{1,1} - 1_{1,0}$	146635.6717	4.0	C	2.6	2.3
$21_{3,18} - 22_{1,21}$	149145.9718	7.0	C	-4.1	-4.3
$34_{4,30} - 34_{4,31}$	151500.6034	15.0	C	-5.0	3.8
$19_{2,17} - 20_{0,20}$	162408.0050	15.0	C	-8.3	-7.3
$8_{1,7} - 8_{1,8}$	164997.3691	5.0	C	6.4	6.1
$13_{2,11} - 14_{0,14}$	165644.2228	10.0	C	-1.4	-2.7
$16_{2,14} - 16_{2,15}$	169466.3174	5.0	C	2.8	1.4
$25_{3,22} - 25_{3,23}$	170362.7203	7.0	C	-6.6	-4.9
$9_{1,8} - 9_{1,9}$	206023.667	10.	6	18.	17.
$3_{1,3} - 2_{1,2}$	206131.626	10.	6	7.	7.
$3_{0,3} - 2_{0,2}$	212811.184	10.	6	-6.	-6.
$3_{2,2} - 2_{2,1}$	213037.340	85.	6	60.	60.
$3_{2,1} - 2_{2,0}$	213293.565	85.	6	1.	0.
$3_{1,2} - 2_{1,1}$	219908.525	56.	6	45.	44.
$4_{1,4} - 3_{1,3}$	274762.112	10.	6	10.	9.
$4_{0,4} - 3_{0,3}$	283441.876	10.	6	9.	8.

$4_{2,3} - 3_{2,2}$	283992.510	160.	6	43.	42.
$4_{3,2} - 3_{3,1}$	284117.450	160.	6	150.	149.
$4_{3,1} - 3_{3,0}$	284120.620	160.	6	-25.	-27.
$4_{2,2} - 3_{2,1}$	284632.420	160.	6	-130.	-131.
$4_{1,3} - 3_{1,2}$	293126.515	46.	14	20.	20.
$5_{1,5} - 4_{1,4}$	343325.713	30.	6	59.	59.
$29_{3,26} - 29_{3,27}$	349480.112	50.	L	-19.	-13.
$20_{2,18} - 20_{2,19}$	353304.496	50.	L	-42.	-44.
$5_{0,5} - 4_{0,4}$	353811.872	25.	6,L	9.	8.
$18_{3,15} - 19_{1,18}$	354393.869	50.	L	-15.	-15.
$5_{2,4} - 4_{2,3}$	354898.595	50.	L	-28.	-29.
$5_4 - 4_4$	355028.955	50.	L	-17.	-18.
$12_{1,11} - 12_{1,12}$	355041.791	50.	L	-41.	-41.
$5_{3,3} - 4_{3,2}$	355190.900	50.	L	-6.	-8.
$5_{3,2} - 4_{3,1}$	355202.601	50.	L	-10.	-11.
$5_{2,3} - 4_{2,2}$	356176.243	100.	L	-52.	-53.
$5_{1,4} - 4_{1,3}$	366270.152	50.	L	-8.	-9.
$39_{4,35} - 39_{4,36}$	366822.983	50.	L	-32.	-13.
$24_{2,22} - 25_{0,25}$	373598.415	50.	L	-38.	-25.
$8_{2,6} - 9_{0,9}$	378521.577	50.	L	47.	48.
$6_{0,6} - 5_{0,5}$	423860.165	30.	6	-1.	-2.
$6_{2,5} - 5_{2,4}$	425743.498	50.	L	-44.	-45.
$6_5 - 5_5$	425867.772	50.	L	-41.	-42.
$6_4 - 5_4$	426064.017	50.	L	-11.	-12.
$6_{3,4} - 5_{3,3}$	426290.974	50.	L	-24.	-25.
$6_{3,3} - 5_{3,2}$	426322.158	50.	L	-30.	-31.
$6_{2,4} - 5_{2,3}$	427971.827	50.	L	-2.	-3.
$17_{3,14} - 18_{1,17}$	433357.359	50.	L	-65.	-65.
$25_{2,23} - 26_{0,26}$	435102.382	50.	L	-105.	-90.
$6_{1,5} - 5_{1,4}$	439318.781	50.	L	-26.	-27.
$31_{3,28} - 31_{3,29}$	469818.642	50.	L	-11.	-3.
$22_{2,20} - 22_{2,21}$	473118.858	10.	C	2.	-0.
$7_{1,7} - 6_{1,6}$	480194.687	20.	C	-6.	-6.
$7_{0,7} - 6_{0,6}$	493531.105	10.	C	8.	7.
$7_{2,6} - 6_{2,5}$	496515.067	10.	C	-1.	-2.
$7_6 - 6_6$	496616.397	30.	C	-14.	-15.
$7_5 - 6_5$	496861.805	20.	C	-4.	-6.
$7_4 - 6_4$	497115.042	10.	C	12.	11.
$7_{3,5} - 6_{3,4}$	497419.902	10.	C	7.	6.
$7_{3,4} - 6_{3,3}$	497489.991	10.	C	-7.	-8.

$7_{2,5} - 6_{2,4}$	500060.814	10.	C	-5.	-6.
$6_{2,4} - 7_{0,7}$	500326.943	15.	C	-9.	-7.
$26_{2,24} - 27_{0,27}$	501924.320	40.	C	-20.	-4.
$7_{1,6} - 6_{1,5}$	512250.361	10.	C	-1.	-2.
$16_{3,13} - 17_{1,16}$	516187.082	30.	C	27.	26.
$26_{4,22} - 27_{2,25}$	525112.358	80.	C	15.	36.
$32_{3,29} - 32_{3,30}$	537401.975	20.	C	-5.	5.
$23_{2,21} - 23_{2,22}$	539485.803	10.	C	-4.	-7.
$15_{1,14} - 15_{1,15}$	540004.969	10.	C	3.	3.
$8_{1,8} - 7_{1,7}$	548475.110	10.	C	-8.	-8.
$8_{0,8} - 7_{0,7}$	562777.574	10.	C	-2.	-2.
$5_{2,3} - 6_{0,6}$	565886.209	15.	C	-11.	-9.
$8_{2,7} - 7_{2,6}$	567201.127	15.	C	-1.	-1.
$8_7 - 7_7$	567257.150	20.	C	8.	8.
$8_6 - 7_6$	567565.978	20.	C	3.	2.
$8_5 - 7_5$	567863.184	15.	C	2.	1.
$8_{4,5} - 7_{4,4}$	568183.974	50.	C	5.	4.
$8_{4,4} - 7_{4,3}$	568185.273	50.	C	-18.	-19.
$8_{3,6} - 7_{3,5}$	568578.375	10.	C	1.	0.
$8_{3,5} - 7_{3,4}$	568718.359	10.	C	-9.	-10.
$8_{2,6} - 7_{2,5}$	572476.275	15.	C	-2.	-3.
$8_{1,7} - 7_{1,6}$	585041.059	10.	C	-1.	-2.
$15_{3,12} - 16_{1,15}$	602083.584	10.	C	5.	5.
$16_{1,15} - 16_{1,16}$	608647.425	10.	C	3.	5.
$24_{2,22} - 24_{2,23}$	609865.380	80.	C	18.	15.
$9_{1,9} - 8_{1,8}$	616638.883	10.	C	-0.	-0.
$9_{0,9} - 8_{0,8}$	631564.941	15.	C	-1.	-1.
$9_8 - 8_8$	637772.781	40.	C	-44.	-43.
$9_{2,8} - 8_{2,7}$	637789.770	15.	C	2.	2.
$9_7 - 8_7$	638157.239	10.	C	-1.	-1.
$9_6 - 8_6$	638517.255	30.	C	-6.	-7.
$9_5 - 8_5$	638872.973	10.	C	1.	-0.
$9_{4,6} - 8_{4,5}$	639273.921	40.	C	17.	17.
$9_{4,5} - 8_{4,4}$	639277.036	40.	C	-36.	-37.
$9_{3,7} - 8_{3,6}$	639765.485	10.	C	-4.	-5.
$9_{3,6} - 8_{3,5}$	640021.607	10.	C	-0.	-0.
$9_{1,8} - 8_{1,7}$	657665.168	10.	C	-2.	-2.
$17_{1,16} - 17_{1,17}$	680289.541	10.	C	2.	5.
$25_{2,23} - 25_{2,24}$	683994.702	10.	C	-3.	-6.
$34_{3,31} - 34_{3,32}$	686388.132	20.	C	-1.	4.

14 _{3,11} - 15 _{1,14}	690301.028	10.	C	-1.	-0.
10 ₉ - 9 ₉	708146.472	10.	C	-3.	-1.
10 ₈ - 9 ₈	708617.723	10.	C	-3.	-2.
10 ₇ - 9 ₇	709054.824	10.	C	-3.	-3.
10 ₆ - 9 ₆	709470.468	10.	C	-2.	-3.
10 ₅ - 9 ₅	709892.214	10.	C	-5.	-5.
29 _{2,27} - 30 _{0,30}	728936.892	80.	C	66.	63.
10 _{1,9} - 9 _{1,8}	730094.750	15.	C	2.	3.
18 _{1,17} - 18 _{1,18}	754572.861	10.	C	-1.	3.
26 _{2,24} - 26 _{2,25}	761576.979	10.	C	-0.	-4.
35 _{3,32} - 35 _{3,33}	767263.223	10.	C	5.	4.
11 _{0,11} - 10 _{0,10}	767707.807	10.	C	-3.	-2.
2 _{2,0} - 3 _{0,3}	772897.697	80.	C	-10.	-7.
11 ₁₀ - 10 ₁₀	778361.217	10.	C	-2.	-3.
11 _{2,10} - 10 _{2,9}	778627.867	20.	C	-6.	-5.
11 ₉ - 10 ₉	778930.116	10.	C	6.	7.
11 ₈ - 10 ₈	779456.685	10.	C	5.	5.
11 ₇ - 10 ₇	779949.614	10.	C	4.	3.
13 _{3,10} - 14 _{1,13}	780155.524	10.	C	4.	4.
11 ₆ - 10 ₆	780425.805	15.	C	5.	4.
11 ₅ - 10 ₅	780921.969	10.	C	9.	9.
11 _{4,8} - 10 _{4,7}	781524.879	15.	C	32.	33.
11 _{4,7} - 10 _{4,6}	781538.528	15.	C	-13.	-12.
11 _{3,9} - 10 _{3,8}	782212.463	10.	C	1.	3.
11 _{3,8} - 10 _{3,7}	782921.228	10.	C	0.	1.
34 _{5,29} - 35 _{3,32}	790327.647	80.	C	18.	1.
11 _{2,9} - 10 _{2,8}	791801.333	10.	C	2.	4.
11 _{1,10} - 10 _{1,9}	802299.452	10.	C	-1.	-0.
30 _{2,28} - 31 _{0,31}	811571.357	80.	C	115.	93.
12 _{1,12} - 11 _{1,11}	820358.746	20.	C	-10.	-8.
19 _{1,18} - 19 _{1,19}	831103.267	30.	C	-10.	-4.
12 _{0,12} - 11 _{0,11}	835085.166	10.	C	2.	4.
15 _{0,15} - 14 _{0,14}	1034953.744	300.	L	-7.	-2.
12 _{2,11} - 12 _{0,12}	1036107.763	300.	L	-72.	-70.
13 _{2,12} - 13 _{0,13}	1052998.896	300.	L	-311.	-308.
15 _{2,14} - 14 _{2,13}	1058636.087	300.	L	-248.	-242.
17 _{2,16} - 16 _{2,15}	1197646.855	300.	L	-33.	-23.
17 ₁₃ - 16 ₁₃	1199255.134	300.	L	251.	211.
17 ₁₂ - 16 ₁₂	1200393.699	400.	L	-101.	-102.
17 ₁₁ - 16 ₁₁	1201461.847	300.	L	-106.	-103.

$17_{10} - 16_{10}$	1202465.611	300.	L	-346.	-351.
$17_9 - 16_9$	1203416.223	300.	L	-206.	-217.
$17_8 - 16_8$	1204330.518	500.	L	-748.	-760.
$17_7 - 16_7$	1205242.139	300.	L	-461.	-468.
$18_{12} - 17_{12}$	1270884.600	400.	L	162.	185.
$18_{11} - 17_{11}$	1272023.550	300.	L	-405.	-393.
$18_{10} - 17_{10}$	1273098.782	500.	L	342.	338.
$18_9 - 17_9$	1274120.989	500.	L	489.	476.
$18_8 - 17_8$	1275111.425	300.	L	37.	23.
$18_{5,14} - 17_{5,13}$	1278505.433	300.	L	-432.	-425.
$18_{5,13} - 17_{5,12}$	1278518.175	300.	L	-388.	-381.
$18_{4,15} - 17_{4,14}$	1280280.243	300.	L	89.	101.
$18_{3,16} - 17_{3,15}$	1280648.639	300.	L	-322.	-309.
$18_{4,14} - 17_{4,13}$	1280732.549	300.	L	-323.	-311.
$23_8 - 22_8$	1628835.001	1000.	L	-590.	-628.
$23_7 - 22_7$	1630356.600	1000.	L	-491.	-520.
$23_{6,18} - 22_{6,17}$	1632122.238	1000.	L	-1089.	-1098.
$23_{6,17} - 22_{6,16}$	1632126.024	1000.	L	-582.	-593.
$23_{5,19} - 22_{5,18}$	1634430.689	1000.	L	352.	359.
$23_{5,18} - 22_{5,17}$	1634546.367	1000.	L	-1065.	-1059.
$23_{4,20} - 22_{4,19}$	1637183.075	1000.	L	-1482.	-1465.
$23_{1,22} - 22_{1,21}$	1638614.474	1000.	L	-725.	-705.
$23_{4,19} - 22_{4,18}$	1639631.981	1000.	L	-1129.	-1111.
$26_{1,25} - 25_{1,24}$	1836873.370	100.	C	55.	76.
$26_{6,21} - 25_{6,20}$	1845136.078	250.	C	103.	71.
$26_{6,20} - 25_{6,19}$	1845148.752	250.	C	2.	-30.
$26_{3,24} - 25_{3,23}$	1845226.649	100.	C	92.	141.
$26_{4,22} - 25_{4,21}$	1856779.863	150.	C	62.	72.
$27_{2,26} - 26_{2,25}$	1880901.994	70.	C	-78.	-60.

^aSince $K_a + K_c = J$ or $J + 1$, K_c has been omitted for prolate paired transitions.

^bK, L, C refers to lines measured in Kiel, Lille, and Cologne, respectively; the remaining lines are from Ref. 14 or have been summarized in Ref. 6.
