



15:19:19 26-08-25

## Experiment Information

Parameter	F1	F2
Nucleus	N/A	$^1\text{H}$
Transmitter Frequency (MHz)	N/A	499.86
Sweep Width (Hz)	50	5000
Sweep Width (ppm)	N/A	10.003
Transmitter Offset (Hz)	0	2500
Transmitter Offset (ppm)	N/A	5.0014

## 8.140 - 8.050 ppm

Osc.	$a$	$\phi$ ( $^\circ$ )	$f_1$ (Hz)	$f_2$ (Hz)	$f_2$ (ppm)	$\eta_1$ ( $\text{s}^{-1}$ )	$\eta_2$ ( $\text{s}^{-1}$ )	$\int$
1	$6.512 \times 10^{-2}$ $\pm 1.9604 \times 10^{-4}$	0.87163 $\pm 0.19203$	-4.451 $\pm 9.5282 \times 10^{-4}$	$4.0406 \times 10^3$ $\pm 2.1265 \times 10^{-3}$	8.0834 $\pm 4.2542 \times 10^{-6}$	1.6953 $\pm 4.9766 \times 10^{-3}$	4.5554 $\pm 1.2586 \times 10^{-2}$	5.1217
2	$6.1963 \times 10^{-2}$ $\pm 1.8505 \times 10^{-4}$	-1.7661 $\pm 0.20485$	-3.4434 $\pm 9.7806 \times 10^{-4}$	$4.0416 \times 10^3$ $\pm 2.1368 \times 10^{-3}$	8.0854 $\pm 4.2747 \times 10^{-6}$	1.6556 $\pm 4.8994 \times 10^{-3}$	4.4352 $\pm 1.2544 \times 10^{-2}$	4.8167
3	$6.7289 \times 10^{-2}$ $\pm 1.6866 \times 10^{-4}$	3.1831 $\pm 0.21211$	3.4443 $\pm 9.9392 \times 10^{-4}$	$4.0484 \times 10^3$ $\pm 2.1578 \times 10^{-3}$	8.0991 $\pm 4.3168 \times 10^{-6}$	1.7508 $\pm 5.0886 \times 10^{-3}$	4.5932 $\pm 1.2882 \times 10^{-2}$	5.1604
4	$2.6894 \times 10^{-2}$ $\pm 8.1699 \times 10^{-4}$	0.90191 $\pm 2.6488$	4.32 $\pm 3.0291 \times 10^{-3}$	$4.0493 \times 10^3$ $\pm 6.2093 \times 10^{-3}$	8.1008 $\pm 1.2422 \times 10^{-5}$	1.1363 $\pm 2.3247 \times 10^{-2}$	4.0988 $\pm 7.7286 \times 10^{-3}$	2.1314

5	$2.8863 \times 10^{-2}$ $\pm 5.5102 \times 10^{-4}$	0.813 37 $\pm 2.0457$	4.5564 $\pm 3.8253 \times 10^{-3}$	$4.0495 \times 10^3$ $\pm 1.0891 \times 10^{-3}$	8.1013 $\pm 2.1788 \times 10^{-6}$	1.1301 $\pm 1.795 \times 10^{-2}$	4.0007 $\pm 3.8435 \times 10^{-2}$	2.5283
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## 7.300 - 7.050 ppm

Osc.	$a$	$\phi$ (°)	$f_1$ (Hz)	$f_2$ (Hz)	$f_2$ (ppm)	$\eta_1$ (s <sup>-1</sup> )	$\eta_2$ (s <sup>-1</sup> )	$\int$
1	$2.8684 \times 10^{-2}$ $\pm 2.7347 \times 10^{-4}$	-0.549 76 $\pm 0.539 99$	-7.9106 $\pm 1.9475 \times 10^{-3}$	$3.5396 \times 10^3$ $\pm 6.3782 \times 10^{-3}$	7.0811 $\pm 1.276 \times 10^{-5}$	1.1594 $\pm 1.2261 \times 10^{-2}$	4.2234 $\pm 3.9328 \times 10^{-2}$	2.4494
2	$2.7562 \times 10^{-2}$ $\pm 2.6026 \times 10^{-4}$	-0.766 63 $\pm 0.563 81$	-6.9249 $\pm 1.9715 \times 10^{-3}$	$3.5406 \times 10^3$ $\pm 6.3033 \times 10^{-3}$	7.0831 $\pm 1.261 \times 10^{-5}$	1.1356 $\pm 1.2051 \times 10^{-2}$	4.0786 $\pm 3.8083 \times 10^{-2}$	2.3783
3	$5.7559 \times 10^{-2}$ $\pm 2.968 \times 10^{-4}$	0.736 28 $\pm 0.308 95$	-0.495 69 $\pm 1.2174 \times 10^{-3}$	$3.547 \times 10^3$ $\pm 3.5176 \times 10^{-3}$	7.0959 $\pm 7.0372 \times 10^{-6}$	1.3113 $\pm 7.186 \times 10^{-3}$	4.299 $\pm 2.1476 \times 10^{-2}$	4.6852
4	$5.7478 \times 10^{-2}$ $\pm 2.9736 \times 10^{-4}$	-0.373 82 $\pm 0.309 15$	0.496 63 $\pm 1.2202 \times 10^{-3}$	$3.548 \times 10^3$ $\pm 3.5244 \times 10^{-3}$	7.0979 $\pm 7.0507 \times 10^{-6}$	1.3109 $\pm 7.1961 \times 10^{-3}$	4.3063 $\pm 2.1591 \times 10^{-2}$	4.6698
5	$2.9565 \times 10^{-2}$ $\pm 2.7112 \times 10^{-4}$	1.6459 $\pm 0.550 58$	6.9252 $\pm 1.9396 \times 10^{-3}$	$3.5544 \times 10^3$ $\pm 6.2137 \times 10^{-3}$	7.1107 $\pm 1.2431 \times 10^{-5}$	1.1676 $\pm 1.1976 \times 10^{-2}$	4.2053 $\pm 3.8199 \times 10^{-2}$	2.5362
6	$3.0627 \times 10^{-2}$ $\pm 2.8925 \times 10^{-4}$	1.2816 $\pm 0.5239$	7.908 $\pm 1.9421 \times 10^{-3}$	$3.5554 \times 10^3$ $\pm 6.2373 \times 10^{-3}$	7.1127 $\pm 1.2478 \times 10^{-5}$	1.2207 $\pm 1.2689 \times 10^{-2}$	4.2752 $\pm 3.8726 \times 10^{-2}$	2.5808
7	$5.9303 \times 10^{-2}$ $\pm 3.2591 \times 10^{-4}$	-0.252 68 $\pm 0.361 87$	-4.3331 $\pm 1.7947 \times 10^{-3}$	$3.5786 \times 10^3$ $\pm 4.1355 \times 10^{-3}$	7.1592 $\pm 8.2733 \times 10^{-6}$	1.6282 $\pm 8.8948 \times 10^{-3}$	4.4596 $\pm 2.414 \times 10^{-2}$	4.5755
8	$6.4412 \times 10^{-2}$ $\pm 3.2804 \times 10^{-4}$	-0.419 57 $\pm 0.335 17$	-3.1517 $\pm 1.6659 \times 10^{-3}$	$3.5798 \times 10^3$ $\pm 3.8184 \times 10^{-3}$	7.1616 $\pm 7.6388 \times 10^{-6}$	1.6509 $\pm 8.4134 \times 10^{-3}$	4.454 $\pm 2.2396 \times 10^{-2}$	5.0754
9	$6.3166 \times 10^{-2}$ $\pm 3.2407 \times 10^{-4}$	0.398 24 $\pm 0.335 15$	3.1513 $\pm 1.6607 \times 10^{-3}$	$3.5861 \times 10^3$ $\pm 3.8799 \times 10^{-3}$	7.1742 $\pm 7.7619 \times 10^{-6}$	1.6101 $\pm 8.2196 \times 10^{-3}$	4.5158 $\pm 2.3106 \times 10^{-2}$	4.9969
10	$5.8357 \times 10^{-2}$ $\pm 3.2092 \times 10^{-4}$	$9.5571 \times 10^{-2}$ $\pm 0.362 99$	4.3328 $\pm 1.7922 \times 10^{-3}$	$3.5873 \times 10^3$ $\pm 4.175 \times 10^{-3}$	7.1766 $\pm 8.3522 \times 10^{-6}$	1.5971 $\pm 8.7247 \times 10^{-3}$	4.5107 $\pm 2.487 \times 10^{-2}$	4.5099
11	$3.1547 \times 10^{-2}$ $\pm 2.6361 \times 10^{-4}$	-0.605 47 $\pm 0.471 42$	-8.2049 $\pm 1.7735 \times 10^{-3}$	$3.6185 \times 10^3$ $\pm 5.9247 \times 10^{-3}$	7.239 $\pm 1.1853 \times 10^{-5}$	1.1884 $\pm 1.1205 \times 10^{-2}$	4.3241 $\pm 3.7519 \times 10^{-2}$	2.4744
12	$2.8388 \times 10^{-2}$ $\pm 2.4963 \times 10^{-4}$	-1.2234 $\pm 0.524 04$	-7.0287 $\pm 1.8785 \times 10^{-3}$	$3.6197 \times 10^3$ $\pm 6.2858 \times 10^{-3}$	7.2414 $\pm 1.2575 \times 10^{-5}$	1.1361 $\pm 1.1412 \times 10^{-2}$	4.2167 $\pm 3.8938 \times 10^{-2}$	2.3546
13	$2.7945 \times 10^{-2}$ $\pm 6.274 \times 10^{-4}$	0.536 06 $\pm 1.4705$	-0.856 22 $\pm 3.8782 \times 10^{-3}$	$3.6258 \times 10^3$ $\pm 8.1608 \times 10^{-3}$	7.2537 $\pm 1.6326 \times 10^{-5}$	1.1601 $\pm 2.1284 \times 10^{-2}$	4.1257 $\pm 4.8234 \times 10^{-2}$	2.3696
14	$2.9472 \times 10^{-2}$ $\pm 1.0249 \times 10^{-3}$	0.203 $\pm 2.0394$	-0.321 $\pm 5.0094 \times 10^{-3}$	$3.6264 \times 10^3$ $\pm 8.4024 \times 10^{-3}$	7.2548 $\pm 1.6809 \times 10^{-5}$	1.1744 $\pm 3.0368 \times 10^{-2}$	4.1171 $\pm 5.0206 \times 10^{-2}$	2.3893

15	$2.9454 \times 10^{-2}$ $\pm 1.0649 \times 10^{-3}$	$1.7244 \times 10^{-2}$ $\pm 1.9786$	0.32086 $\pm 4.9277 \times 10^{-3}$	$3.627 \times 10^3$ $\pm 8.3759 \times 10^{-3}$	7.256 $\pm 1.6756 \times 10^{-5}$	1.1753 $\pm 3.1396 \times 10^{-2}$	4.1185 $\pm 5.0596 \times 10^{-2}$	2.3884
16	$2.7539 \times 10^{-2}$ $\pm 5.9535 \times 10^{-4}$	-0.3402 $\pm 1.5391$	0.85633 $\pm 3.9622 \times 10^{-3}$	$3.6276 \times 10^3$ $\pm 8.1583 \times 10^{-3}$	7.2571 $\pm 1.6321 \times 10^{-5}$	1.1451 $\pm 2.0844 \times 10^{-2}$	4.1002 $\pm 4.8207 \times 10^{-2}$	2.3408
17	$2.6892 \times 10^{-2}$ $\pm 2.4096 \times 10^{-4}$	0.84776 $\pm 0.5379$	7.029 $\pm 1.9088 \times 10^{-3}$	$3.6337 \times 10^3$ $\pm 6.3195 \times 10^{-3}$	7.2694 $\pm 1.2643 \times 10^{-5}$	1.1251 $\pm 1.1618 \times 10^{-2}$	4.0407 $\pm 3.7563 \times 10^{-2}$	2.2427
18	$2.9946 \times 10^{-2}$ $\pm 2.5303 \times 10^{-4}$	0.71407 $\pm 0.48641$	8.2068 $\pm 1.7875 \times 10^{-3}$	$3.6349 \times 10^3$ $\pm 5.9901 \times 10^{-3}$	7.2718 $\pm 1.1984 \times 10^{-5}$	1.1535 $\pm 1.1086 \times 10^{-2}$	4.2206 $\pm 3.7173 \times 10^{-2}$	2.3543

## 5.960 - 5.870 ppm

Osc.	$a$	$\phi$ (°)	$f_1$ (Hz)	$f_2$ (Hz)	$f_2$ (ppm)	$\eta_1$ (s <sup>-1</sup> )	$\eta_2$ (s <sup>-1</sup> )	$\int$
1	$3.3711 \times 10^{-2}$ $\pm 3.685 \times 10^{-4}$	-2.5215 $\pm 0.94753$	-7.4859 $\pm 7.9789 \times 10^{-3}$	$2.9493 \times 10^3$ $\pm 1.1946 \times 10^{-3}$	5.9003 $\pm 2.3898 \times 10^{-6}$	2.6554 $\pm 1.8168 \times 10^{-2}$	4.9155 $\pm 5.7727 \times 10^{-2}$	2.4172
2	$3.3707 \times 10^{-2}$ $\pm 3.6939 \times 10^{-4}$	-3.7449 $\pm 1.6993$	-5.6364 $\pm 1.447 \times 10^{-2}$	$2.9511 \times 10^3$ $\pm 8.7402 \times 10^{-3}$	5.9039 $\pm 1.7485 \times 10^{-5}$	2.639 $\pm 2.8034 \times 10^{-2}$	4.8684 $\pm 6.3625 \times 10^{-2}$	2.4295
3	$6.8426 \times 10^{-2}$ $\pm 8.0739 \times 10^{-4}$	7.8196 $\pm 0.99702$	-0.99932 $\pm 1.161 \times 10^{-2}$	$2.9558 \times 10^3$ $\pm 1.5413 \times 10^{-2}$	5.9132 $\pm 3.0834 \times 10^{-5}$	4.3272 $\pm 4.5961 \times 10^{-2}$	6.9028 $\pm 6.9872 \times 10^{-2}$	4.3433
4	$7.0232 \times 10^{-2}$ $\pm 8.1088 \times 10^{-4}$	-8.1009 $\pm 1.0022$	1.0021 $\pm 1.1781 \times 10^{-2}$	$2.9577 \times 10^3$ $\pm 1.5537 \times 10^{-2}$	5.917 $\pm 3.1083 \times 10^{-5}$	4.3936 $\pm 4.5842 \times 10^{-2}$	6.9371 $\pm 6.8603 \times 10^{-2}$	4.4442
5	$3.3131 \times 10^{-2}$ $\pm 3.7348 \times 10^{-4}$	3.0082 $\pm 1.5639$	5.6382 $\pm 1.3343 \times 10^{-2}$	$2.9623 \times 10^3$ $\pm 6.95 \times 10^{-3}$	5.9263 $\pm 1.3904 \times 10^{-5}$	2.6329 $\pm 2.8302 \times 10^{-2}$	4.8267 $\pm 6.3927 \times 10^{-2}$	2.3944
6	$3.3358 \times 10^{-2}$ $\pm 3.0837 \times 10^{-4}$	1.7427 $\pm 0.82082$	7.4917 $\pm 6.7731 \times 10^{-3}$	$2.9641 \times 10^3$ $\pm 4.5788 \times 10^{-3}$	5.9299 $\pm 9.16 \times 10^{-6}$	2.6247 $\pm 1.8861 \times 10^{-2}$	4.9293 $\pm 5.9584 \times 10^{-2}$	2.3956

## 4.350 - 4.000 ppm

Osc.	$a$	$\phi$ (°)	$f_1$ (Hz)	$f_2$ (Hz)	$f_2$ (ppm)	$\eta_1$ (s <sup>-1</sup> )	$\eta_2$ (s <sup>-1</sup> )	$\int$
1	$5.493 \times 10^{-2}$ $\pm 3.5658 \times 10^{-4}$	-0.53219 $\pm 0.37123$	-9.9663 $\pm 1.4753 \times 10^{-3}$	$2.0213 \times 10^3$ $\pm 5.1071 \times 10^{-3}$	4.0437 $\pm 1.0217 \times 10^{-5}$	1.1779 $\pm 9.2568 \times 10^{-3}$	4.2646 $\pm 3.2008 \times 10^{-2}$	4.7732

2	$5.4325 \times 10^{-2}$ $\pm 3.5055 \times 10^{-4}$	$8.1875 \times 10^{-3}$ $\pm 0.373\,36$	$-3.8348$ $\pm 1.4625 \times 10^{-3}$	$2.0274 \times 10^3$ $\pm 5.068 \times 10^{-3}$	$4.056$ $\pm 1.0139 \times 10^{-5}$	$1.1607$ $\pm 9.0933 \times 10^{-3}$	$4.2143$ $\pm 3.1402 \times 10^{-2}$	4.5898
3	$5.6011 \times 10^{-2}$ $\pm 3.5543 \times 10^{-4}$	$0.335\,42$ $\pm 0.365\,98$	$3.8345$ $\pm 1.4572 \times 10^{-3}$	$2.0351 \times 10^3$ $\pm 4.9805 \times 10^{-3}$	$4.0713$ $\pm 9.9638 \times 10^{-6}$	$1.196$ $\pm 9.257 \times 10^{-3}$	$4.2069$ $\pm 3.0781 \times 10^{-2}$	4.7123
4	$5.5378 \times 10^{-2}$ $\pm 3.5434 \times 10^{-4}$	$0.679\,52$ $\pm 0.369\,48$	$9.9652$ $\pm 1.468 \times 10^{-3}$	$2.0412 \times 10^3$ $\pm 5.0249 \times 10^{-3}$	$4.0836$ $\pm 1.0053 \times 10^{-5}$	$1.1941$ $\pm 9.3365 \times 10^{-3}$	$4.1965$ $\pm 3.093 \times 10^{-2}$	4.8028
5	$5.5565 \times 10^{-2}$ $\pm 3.5417 \times 10^{-4}$	$-1.0022$ $\pm 0.367\,36$	$-10.382$ $\pm 1.4587 \times 10^{-3}$	$2.0641 \times 10^3$ $\pm 4.9902 \times 10^{-3}$	$4.1294$ $\pm 9.9832 \times 10^{-6}$	$1.1897$ $\pm 9.2491 \times 10^{-3}$	$4.199$ $\pm 3.088 \times 10^{-2}$	4.7722
6	$5.5278 \times 10^{-2}$ $\pm 3.5503 \times 10^{-4}$	$-0.383$ $\pm 0.369\,88$	$-3.415$ $\pm 1.472 \times 10^{-3}$	$2.0711 \times 10^3$ $\pm 5.0251 \times 10^{-3}$	$4.1433$ $\pm 1.0053 \times 10^{-5}$	$1.1941$ $\pm 9.3544 \times 10^{-3}$	$4.1996$ $\pm 3.1104 \times 10^{-2}$	4.5567
7	$5.4009 \times 10^{-2}$ $\pm 3.5064 \times 10^{-4}$	$-0.201\,03$ $\pm 0.375\,78$	$3.4157$ $\pm 1.4753 \times 10^{-3}$	$2.0779 \times 10^3$ $\pm 5.0997 \times 10^{-3}$	$4.157$ $\pm 1.0202 \times 10^{-5}$	$1.1632$ $\pm 9.1657 \times 10^{-3}$	$4.2127$ $\pm 3.1593 \times 10^{-2}$	4.4724
8	$5.6547 \times 10^{-2}$ $\pm 3.6156 \times 10^{-4}$	$0.198\,11$ $\pm 0.363\,15$	$10.385$ $\pm 1.4574 \times 10^{-3}$	$2.0849 \times 10^3$ $\pm 5.0568 \times 10^{-3}$	$4.1709$ $\pm 1.0116 \times 10^{-5}$	$1.1857$ $\pm 9.1385 \times 10^{-3}$	$4.3352$ $\pm 3.2228 \times 10^{-2}$	4.8374
9	$2.9773 \times 10^{-2}$ $\pm 3.4701 \times 10^{-4}$	$-0.413\,22$ $\pm 0.683\,67$	$-7.5551$ $\pm 2.6515 \times 10^{-3}$	$2.1359 \times 10^3$ $\pm 9.0805 \times 10^{-3}$	$4.2729$ $\pm 1.8166 \times 10^{-5}$	$1.1615$ $\pm 1.6486 \times 10^{-2}$	$4.1299$ $\pm 5.516 \times 10^{-2}$	2.5303
10	$6.103 \times 10^{-2}$ $\pm 3.5891 \times 10^{-4}$	$-0.186\,84$ $\pm 0.341\,99$	$-4.2319$ $\pm 1.3527 \times 10^{-3}$	$2.1392 \times 10^3$ $\pm 4.5912 \times 10^{-3}$	$4.2795$ $\pm 9.185 \times 10^{-6}$	$1.1862$ $\pm 8.3597 \times 10^{-3}$	$4.224$ $\pm 2.8472 \times 10^{-2}$	4.9025
11	$2.9553 \times 10^{-2}$ $\pm 3.6505 \times 10^{-4}$	$3.5945 \times 10^{-3}$ $\pm 0.721\,69$	$-0.909\,67$ $\pm 2.7235 \times 10^{-3}$	$2.1425 \times 10^3$ $\pm 9.2944 \times 10^{-3}$	$4.2862$ $\pm 1.8594 \times 10^{-5}$	$1.151$ $\pm 1.6787 \times 10^{-2}$	$4.1736$ $\pm 5.7158 \times 10^{-2}$	2.5702
12	$2.9668 \times 10^{-2}$ $\pm 3.6513 \times 10^{-4}$	$-0.201\,58$ $\pm 0.719\,25$	$0.909\,73$ $\pm 2.7216 \times 10^{-3}$	$2.1443 \times 10^3$ $\pm 9.2359 \times 10^{-3}$	$4.2898$ $\pm 1.8477 \times 10^{-5}$	$1.1585$ $\pm 1.6861 \times 10^{-2}$	$4.1524$ $\pm 5.6573 \times 10^{-2}$	2.5717
13	$6.0381 \times 10^{-2}$ $\pm 3.5803 \times 10^{-4}$	$8.797 \times 10^{-3}$ $\pm 0.344\,57$	$4.2321$ $\pm 1.3545 \times 10^{-3}$	$2.1476 \times 10^3$ $\pm 4.6322 \times 10^{-3}$	$4.2965$ $\pm 9.267 \times 10^{-6}$	$1.1762$ $\pm 8.3626 \times 10^{-3}$	$4.2332$ $\pm 2.8778 \times 10^{-2}$	4.8574
14	$2.942 \times 10^{-2}$ $\pm 3.436 \times 10^{-4}$	$0.308\,09$ $\pm 0.688\,79$	$7.5568$ $\pm 2.6465 \times 10^{-3}$	$2.151 \times 10^3$ $\pm 9.1236 \times 10^{-3}$	$4.3031$ $\pm 1.8252 \times 10^{-5}$	$1.1405$ $\pm 1.6175 \times 10^{-2}$	$4.1361$ $\pm 5.5484 \times 10^{-2}$	2.5137

## 4.000 - 3.640 ppm

Osc.	$a$	$\phi$ ( $^\circ$ )	$f_1$ (Hz)	$f_2$ (Hz)	$f_2$ (ppm)	$\eta_1$ ( $s^{-1}$ )	$\eta_2$ ( $s^{-1}$ )	$\int$
1	$3.0515 \times 10^{-2}$ $\pm 7.1215 \times 10^{-5}$	$-0.262\,27$ $\pm 0.134\,15$	$-9.0998$ $\pm 5.0084 \times 10^{-4}$	$1.8485 \times 10^3$ $\pm 1.698 \times 10^{-3}$	$3.6979$ $\pm 3.3968 \times 10^{-6}$	$1.1686$ $\pm 3.1295 \times 10^{-3}$	$4.2415$ $\pm 1.0567 \times 10^{-2}$	2.5516
2	$3.1299 \times 10^{-2}$ $\pm 7.0884 \times 10^{-5}$	$-0.326\,22$ $\pm 0.118\,73$	$-7.4872$ $\pm 9.375 \times 10^{-5}$	$1.8501 \times 10^3$ $\pm 2.812 \times 10^{-3}$	$3.7011$ $\pm 5.6256 \times 10^{-6}$	$1.1786$ $\pm 6.7802 \times 10^{-3}$	$4.0863$ $\pm 1.9745 \times 10^{-2}$	2.5229

3	$2.8542 \times 10^{-2}$ $\pm 8.4494 \times 10^{-5}$	$-0.31296$ $\pm 0.16298$	$-7.3087$ $\pm 1.1584 \times 10^{-3}$	$1.8503 \times 10^3$ $\pm 3.627 \times 10^{-3}$	$3.7016$ $\pm 7.2559 \times 10^{-6}$	$1.1355$ $\pm 1.6718 \times 10^{-3}$	$4.1412$ $\pm 1.9386 \times 10^{-2}$	2.4015
4	$3.0419 \times 10^{-2}$ $\pm 7.0775 \times 10^{-5}$	$-0.54518$ $\pm 0.13502$	$-5.6982$ $\pm 5.0422 \times 10^{-4}$	$1.8519 \times 10^3$ $\pm 1.698 \times 10^{-3}$	$3.7047$ $\pm 3.3969 \times 10^{-6}$	$1.1672$ $\pm 3.116 \times 10^{-3}$	$4.2405$ $\pm 1.0605 \times 10^{-2}$	2.6187
5	$2.9711 \times 10^{-2}$ $\pm 6.7349 \times 10^{-5}$	$-0.11959$ $\pm 0.13331$	$5.6998$ $\pm 4.9658 \times 10^{-4}$	$1.8633 \times 10^3$ $\pm 1.6816 \times 10^{-3}$	$3.7275$ $\pm 3.364 \times 10^{-6}$	$1.1367$ $\pm 2.9911 \times 10^{-3}$	$4.1822$ $\pm 1.0373 \times 10^{-2}$	2.5715
6	$6.3748 \times 10^{-2}$ $\pm 7.9998 \times 10^{-5}$	$0.31076$ $\pm 7.6056 \times 10^{-2}$	$7.3997$ $\pm 3.4378 \times 10^{-4}$	$1.865 \times 10^3$ $\pm 9.6271 \times 10^{-4}$	$3.7309$ $\pm 1.926 \times 10^{-6}$	$1.4363$ $\pm 1.9551 \times 10^{-3}$	$4.405$ $\pm 5.9001 \times 10^{-3}$	4.9718
7	$2.9836 \times 10^{-2}$ $\pm 6.786 \times 10^{-5}$	$0.26551$ $\pm 0.13273$	$9.0996$ $\pm 4.9587 \times 10^{-4}$	$1.8667 \times 10^3$ $\pm 1.683 \times 10^{-3}$	$3.7343$ $\pm 3.3669 \times 10^{-6}$	$1.1435$ $\pm 3.0227 \times 10^{-3}$	$4.1923$ $\pm 1.0406 \times 10^{-2}$	2.508
8	$0.12294$ $\pm 6.4459 \times 10^{-5}$	$-0.31052$ $\pm 3.0169 \times 10^{-2}$	$-5.2045$ $\pm 1.1963 \times 10^{-4}$	$1.9242 \times 10^3$ $\pm 4.1308 \times 10^{-4}$	$3.8495$ $\pm 8.2639 \times 10^{-7}$	$1.1775$ $\pm 7.5007 \times 10^{-4}$	$4.248$ $\pm 2.5796 \times 10^{-3}$	10.335
9	$0.12277$ $\pm 6.4327 \times 10^{-5}$	$0.21548$ $\pm 3.0195 \times 10^{-2}$	$5.205$ $\pm 1.1961 \times 10^{-4}$	$1.9346 \times 10^3$ $\pm 4.1293 \times 10^{-4}$	$3.8704$ $\pm 8.2609 \times 10^{-7}$	$1.1752$ $\pm 7.4783 \times 10^{-4}$	$4.2442$ $\pm 2.5762 \times 10^{-3}$	10.344
10	$6.0869 \times 10^{-2}$ $\pm 6.5334 \times 10^{-5}$	$-3.3723 \times 10^{-2}$ $\pm 6.2224 \times 10^{-2}$	$-3.3751$ $\pm 2.4082 \times 10^{-4}$	$1.9775 \times 10^3$ $\pm 8.2994 \times 10^{-4}$	$3.9562$ $\pm 1.6603 \times 10^{-6}$	$1.1616$ $\pm 1.4927 \times 10^{-3}$	$4.2316$ $\pm 5.1772 \times 10^{-3}$	5.187
11	$6.0867 \times 10^{-2}$ $\pm 6.8235 \times 10^{-5}$	$-0.12115$ $\pm 6.4822 \times 10^{-2}$	$-0.95458$ $\pm 2.4624 \times 10^{-4}$	$1.98 \times 10^3$ $\pm 8.4096 \times 10^{-4}$	$3.961$ $\pm 1.6824 \times 10^{-6}$	$1.1666$ $\pm 1.5303 \times 10^{-3}$	$4.2341$ $\pm 5.2341 \times 10^{-3}$	5.312
12	$6.0296 \times 10^{-2}$ $\pm 6.7803 \times 10^{-5}$	$-0.11125$ $\pm 6.5216 \times 10^{-2}$	$0.95528$ $\pm 2.4689 \times 10^{-4}$	$1.9819 \times 10^3$ $\pm 8.4097 \times 10^{-4}$	$3.9648$ $\pm 1.6824 \times 10^{-6}$	$1.1619$ $\pm 1.5299 \times 10^{-3}$	$4.2089$ $\pm 5.2189 \times 10^{-3}$	5.2566
13	$5.9973 \times 10^{-2}$ $\pm 6.4873 \times 10^{-5}$	$-0.1301$ $\pm 6.2887 \times 10^{-2}$	$3.3757$ $\pm 2.4298 \times 10^{-4}$	$1.9843 \times 10^3$ $\pm 8.3338 \times 10^{-4}$	$3.9697$ $\pm 1.6672 \times 10^{-6}$	$1.1597$ $\pm 1.5028 \times 10^{-3}$	$4.1909$ $\pm 5.1519 \times 10^{-3}$	5.101

### 3.300 - 3.050 ppm

Osc.	$a$	$\phi$ ( $^\circ$ )	$f_1$ (Hz)	$f_2$ (Hz)	$f_2$ (ppm)	$\eta_1$ ( $s^{-1}$ )	$\eta_2$ ( $s^{-1}$ )	$f$
1	$6.0817 \times 10^{-2}$ $\pm 1.4414 \times 10^{-4}$	$-0.67764$ $\pm 0.13633$	$-10.342$ $\pm 5.387 \times 10^{-4}$	$1.5555 \times 10^3$ $\pm 1.8516 \times 10^{-3}$	$3.1118$ $\pm 3.7042 \times 10^{-6}$	$1.1769$ $\pm 3.3736 \times 10^{-3}$	$4.229$ $\pm 1.1541 \times 10^{-2}$	5.2913
2	$5.9836 \times 10^{-2}$ $\pm 1.4373 \times 10^{-4}$	$-0.97957$ $\pm 0.13818$	$-6.9962$ $\pm 5.3958 \times 10^{-4}$	$1.5588 \times 10^3$ $\pm 1.8511 \times 10^{-3}$	$3.1185$ $\pm 3.7033 \times 10^{-6}$	$1.1654$ $\pm 3.3686 \times 10^{-3}$	$4.1695$ $\pm 1.1397 \times 10^{-2}$	4.9829
3	$1.3494 \times 10^{-2}$ $\pm 2.3849 \times 10^{-4}$	$-0.31057$ $\pm 1.9465$	$-5.5205$ $\pm 1.6878 \times 10^{-2}$	$1.569 \times 10^3$ $\pm 1.9542 \times 10^{-3}$	$3.1389$ $\pm 3.9096 \times 10^{-6}$	$2.4112$ $\pm 3.2915 \times 10^{-2}$	$4.4277$ $\pm 7.7153 \times 10^{-2}$	1
4	$2.7191 \times 10^{-2}$ $\pm 1.4229 \times 10^{-4}$	$-0.48444$ $\pm 0.87945$	$-3.7128$ $\pm 5.2068 \times 10^{-3}$	$1.5708 \times 10^3$ $\pm 9.2569 \times 10^{-3}$	$3.1424$ $\pm 1.8519 \times 10^{-5}$	$2.3418$ $\pm 1.8908 \times 10^{-2}$	$5.012$ $\pm 4.5612 \times 10^{-2}$	1.9985

5	$4.0452 \times 10^{-2}$ $\pm 5.9299 \times 10^{-4}$	0.20261 $\pm 1.5949$	-1.9085 $\pm 1.1317 \times 10^{-2}$	$1.5726 \times 10^3$ $\pm 1.3499 \times 10^{-2}$	3.1461 $\pm 2.7006 \times 10^{-5}$	3.2211 $\pm 3.3546 \times 10^{-2}$	6.0701 $\pm 5.848 \times 10^{-2}$	2.7422
6	$6.0062 \times 10^{-2}$ $\pm 1.4875 \times 10^{-4}$	-0.23848 $\pm 0.14364$	6.9993 $\pm 5.5082 \times 10^{-4}$	$1.5728 \times 10^3$ $\pm 1.878 \times 10^{-3}$	3.1465 $\pm 3.757 \times 10^{-6}$	1.1659 $\pm 3.4061 \times 10^{-3}$	4.1968 $\pm 1.1591 \times 10^{-2}$	4.9793
7	$8.8381 \times 10^{-2}$ $\pm 2.0932 \times 10^{-3}$	-0.82565 $\pm 1.0522$	$4.2286 \times 10^{-3}$ $\pm 1.3974 \times 10^{-2}$	$1.5745 \times 10^3$ $\pm 1.6526 \times 10^{-2}$	3.1499 $\pm 3.3061 \times 10^{-5}$	5.7971 $\pm 7.9215 \times 10^{-2}$	8.4613 $\pm 8.3912 \times 10^{-2}$	5.1992
8	$5.9912 \times 10^{-2}$ $\pm 1.4642 \times 10^{-4}$	-0.14155 $\pm 0.14172$	10.344 $\pm 5.4829 \times 10^{-4}$	$1.5762 \times 10^3$ $\pm 1.8703 \times 10^{-3}$	3.1532 $\pm 3.7417 \times 10^{-6}$	1.1688 $\pm 3.4166 \times 10^{-3}$	4.1913 $\pm 1.1542 \times 10^{-2}$	5.2286
9	$4.1159 \times 10^{-2}$ $\pm 5.6887 \times 10^{-4}$	-1.5469 $\pm 1.8686$	1.913 $\pm 1.3116 \times 10^{-2}$	$1.5764 \times 10^3$ $\pm 1.4973 \times 10^{-2}$	3.1537 $\pm 2.9955 \times 10^{-5}$	3.2938 $\pm 3.3788 \times 10^{-2}$	5.9759 $\pm 5.6548 \times 10^{-2}$	2.7838
10	$2.8068 \times 10^{-2}$ $\pm 1.7092 \times 10^{-4}$	-0.89883 $\pm 0.8923$	3.7202 $\pm 5.277 \times 10^{-3}$	$1.5782 \times 10^3$ $\pm 9.1707 \times 10^{-3}$	3.1573 $\pm 1.8347 \times 10^{-5}$	2.3708 $\pm 1.888 \times 10^{-2}$	5.0561 $\pm 4.6206 \times 10^{-2}$	2.0569
11	$1.3746 \times 10^{-2}$ $\pm 2.5077 \times 10^{-4}$	-0.99408 $\pm 1.9919$	5.5434 $\pm 1.7265 \times 10^{-2}$	$1.58 \times 10^3$ $\pm 1.9801 \times 10^{-3}$	3.1609 $\pm 3.9614 \times 10^{-6}$	2.3976 $\pm 3.0923 \times 10^{-2}$	4.4955 $\pm 7.7673 \times 10^{-2}$	1.0183
12	$3.0915 \times 10^{-2}$ $\pm 1.4553 \times 10^{-4}$	-0.85558 $\pm 0.26948$	-11.307 $\pm 1.0796 \times 10^{-3}$	$1.598 \times 10^3$ $\pm 3.7158 \times 10^{-3}$	3.1969 $\pm 7.4337 \times 10^{-6}$	1.1936 $\pm 6.8133 \times 10^{-3}$	4.283 $\pm 2.336 \times 10^{-2}$	2.4338
13	$2.7479 \times 10^{-2}$ $\pm 4.9486 \times 10^{-4}$	-1.0087 $\pm 0.84207$	-7.094 $\pm 3.1229 \times 10^{-3}$	$1.6022 \times 10^3$ $\pm 1.5734 \times 10^{-3}$	3.2052 $\pm 3.1477 \times 10^{-6}$	1.1161 $\pm 1.5263 \times 10^{-2}$	3.9947 $\pm 3.5421 \times 10^{-2}$	2.3281
14	$3.1712 \times 10^{-2}$ $\pm 2.7474 \times 10^{-4}$	-1.1494 $\pm 1.0425$	-6.8113 $\pm 2.3608 \times 10^{-3}$	$1.6025 \times 10^3$ $\pm 5.6798 \times 10^{-3}$	3.2059 $\pm 1.1363 \times 10^{-5}$	1.2125 $\pm 1.8809 \times 10^{-2}$	4.1112 $\pm 1.741 \times 10^{-2}$	2.7264
15	$3.0049 \times 10^{-2}$ $\pm 1.4131 \times 10^{-4}$	-0.60637 $\pm 0.27466$	-2.5869 $\pm 1.0695 \times 10^{-3}$	$1.6067 \times 10^3$ $\pm 3.6794 \times 10^{-3}$	3.2143 $\pm 7.3609 \times 10^{-6}$	1.1616 $\pm 6.6362 \times 10^{-3}$	4.1742 $\pm 2.263 \times 10^{-2}$	2.577
16	$2.9749 \times 10^{-2}$ $\pm 1.4076 \times 10^{-4}$	-0.58787 $\pm 0.27746$	2.5916 $\pm 1.0832 \times 10^{-3}$	$1.6119 \times 10^3$ $\pm 3.7064 \times 10^{-3}$	3.2247 $\pm 7.4149 \times 10^{-6}$	1.1602 $\pm 6.6373 \times 10^{-3}$	4.1545 $\pm 2.2595 \times 10^{-2}$	2.5369
17	$6.6248 \times 10^{-2}$ $\pm 1.7294 \times 10^{-4}$	0.46099 $\pm 0.17083$	6.9518 $\pm 1.0868 \times 10^{-3}$	$1.6162 \times 10^3$ $\pm 2.3978 \times 10^{-3}$	3.2334 $\pm 4.7969 \times 10^{-6}$	1.8249 $\pm 5.2876 \times 10^{-3}$	4.5467 $\pm 1.4317 \times 10^{-2}$	5.1517
18	$3.0035 \times 10^{-2}$ $\pm 1.4245 \times 10^{-4}$	0.56485 $\pm 0.27449$	11.308 $\pm 1.0802 \times 10^{-3}$	$1.6206 \times 10^3$ $\pm 3.7311 \times 10^{-3}$	3.2421 $\pm 7.4644 \times 10^{-6}$	1.163 $\pm 6.6764 \times 10^{-3}$	4.2346 $\pm 2.3261 \times 10^{-2}$	2.3612

### 3.000 - 2.560 ppm

Osc.	$a$	$\phi$ ( $^\circ$ )	$f_1$ (Hz)	$f_2$ (Hz)	$f_2$ (ppm)	$\eta_1$ ( $s^{-1}$ )	$\eta_2$ ( $s^{-1}$ )	$\int$
1	$5.9944 \times 10^{-2}$ $\pm 8.7518 \times 10^{-5}$	$-9.2906 \times 10^{-2}$ $\pm 8.4442 \times 10^{-2}$	-12.902 $\pm 3.3062 \times 10^{-4}$	$1.3213 \times 10^3$ $\pm 1.1467 \times 10^{-3}$	2.6433 $\pm 2.2941 \times 10^{-6}$	1.1588 $\pm 2.0556 \times 10^{-3}$	4.2221 $\pm 7.1304 \times 10^{-3}$	4.7046

2	$6.0499 \times 10^{-2}$ $\pm 8.7881 \times 10^{-5}$	0.1443 $\pm 8.3996 \times 10^{-2}$	-4.4396 $\pm 3.3199 \times 10^{-4}$	$1.3298 \times 10^3$ $\pm 1.139 \times 10^{-3}$	2.6603 $\pm 2.2785 \times 10^{-6}$	1.173 $\pm 2.0669 \times 10^{-3}$	4.2078 $\pm 7.061 \times 10^{-3}$	5.1486
3	$6.1039 \times 10^{-2}$ $\pm 8.8348 \times 10^{-5}$	0.17438 $\pm 8.3513 \times 10^{-2}$	4.4379 $\pm 3.3035 \times 10^{-4}$	$1.3386 \times 10^3$ $\pm 1.1392 \times 10^{-3}$	2.678 $\pm 2.279 \times 10^{-6}$	1.1746 $\pm 2.0633 \times 10^{-3}$	4.2403 $\pm 7.1053 \times 10^{-3}$	5.1799
4	$6.1488 \times 10^{-2}$ $\pm 8.8754 \times 10^{-5}$	0.18593 $\pm 8.304 \times 10^{-2}$	12.903 $\pm 3.296 \times 10^{-4}$	$1.3471 \times 10^3$ $\pm 1.137 \times 10^{-3}$	2.695 $\pm 2.2746 \times 10^{-6}$	1.1793 $\pm 2.0654 \times 10^{-3}$	4.2554 $\pm 7.1155 \times 10^{-3}$	4.8198
5	0.12229 $\pm 8.8452 \times 10^{-5}$	-0.35689 $\pm 4.1679 \times 10^{-2}$	-7.3992 $\pm 1.6467 \times 10^{-4}$	$1.3645 \times 10^3$ $\pm 5.6837 \times 10^{-4}$	2.7298 $\pm 1.1371 \times 10^{-6}$	1.1748 $\pm 1.0313 \times 10^{-3}$	4.2365 $\pm 3.5424 \times 10^{-3}$	9.6513
6	0.12284 $\pm 8.8631 \times 10^{-5}$	0.33701 $\pm 4.1518 \times 10^{-2}$	7.3994 $\pm 1.6441 \times 10^{-4}$	$1.3793 \times 10^3$ $\pm 5.6732 \times 10^{-4}$	2.7594 $\pm 1.135 \times 10^{-6}$	1.178 $\pm 1.0319 \times 10^{-3}$	4.2427 $\pm 3.5406 \times 10^{-3}$	9.6872
7	$3.0516 \times 10^{-2}$ $\pm 8.8503 \times 10^{-5}$	$2.4834 \times 10^{-2}$ $\pm 0.16691$	-15.889 $\pm 6.5989 \times 10^{-4}$	$1.4224 \times 10^3$ $\pm 2.2756 \times 10^{-3}$	2.8457 $\pm 4.5524 \times 10^{-6}$	1.1768 $\pm 4.1445 \times 10^{-3}$	4.2304 $\pm 1.4164 \times 10^{-2}$	2.566
8	$3.2144 \times 10^{-2}$ $\pm 9.1912 \times 10^{-4}$	$6.9644 \times 10^{-2}$ $\pm 1.8763$	-7.0885 $\pm 4.9711 \times 10^{-3}$	$1.4312 \times 10^3$ $\pm 8.6823 \times 10^{-3}$	2.8631 $\pm 1.7369 \times 10^{-5}$	1.2218 $\pm 1.0887 \times 10^{-2}$	4.1666 $\pm 2.3366 \times 10^{-2}$	2.6753
9	$2.7601 \times 10^{-2}$ $\pm 7.3103 \times 10^{-4}$	$3.5212 \times 10^{-2}$ $\pm 2.3955$	-6.8021 $\pm 2.7931 \times 10^{-3}$	$1.4316 \times 10^3$ $\pm 4.9809 \times 10^{-3}$	2.864 $\pm 9.9645 \times 10^{-6}$	1.1314 $\pm 2.9897 \times 10^{-2}$	4.0527 $\pm 5.2813 \times 10^{-2}$	2.4081
10	$2.9871 \times 10^{-2}$ $\pm 8.7572 \times 10^{-5}$	0.21419 $\pm 0.17352$	-1.9904 $\pm 6.6978 \times 10^{-4}$	$1.4363 \times 10^3$ $\pm 2.3009 \times 10^{-3}$	2.8735 $\pm 4.6031 \times 10^{-6}$	1.1598 $\pm 4.1147 \times 10^{-3}$	4.1931 $\pm 1.4161 \times 10^{-2}$	2.3696
11	$2.9039 \times 10^{-2}$ $\pm 8.573 \times 10^{-5}$	0.31415 $\pm 0.17429$	1.9886 $\pm 6.6495 \times 10^{-4}$	$1.4403 \times 10^3$ $\pm 2.3159 \times 10^{-3}$	2.8815 $\pm 4.6331 \times 10^{-6}$	1.1235 $\pm 4.0111 \times 10^{-3}$	4.1776 $\pm 1.4218 \times 10^{-2}$	2.3071
12	$2.9887 \times 10^{-2}$ $\pm 1.9375 \times 10^{-4}$	0.32652 $\pm 0.57526$	6.8088 $\pm 1.6506 \times 10^{-3}$	$1.4452 \times 10^3$ $\pm 3.6667 \times 10^{-3}$	2.8912 $\pm 7.3353 \times 10^{-6}$	1.1855 $\pm 1.2222 \times 10^{-2}$	4.0457 $\pm 1.9623 \times 10^{-2}$	2.5851
13	$2.8841 \times 10^{-2}$ $\pm 2.9971 \times 10^{-4}$	0.31821 $\pm 0.40855$	7.0894 $\pm 1.913 \times 10^{-3}$	$1.4454 \times 10^3$ $\pm 3.1041 \times 10^{-3}$	2.8916 $\pm 6.2099 \times 10^{-6}$	1.1519 $\pm 1.0331 \times 10^{-2}$	4.0314 $\pm 2.1525 \times 10^{-2}$	2.4349
14	$3.0706 \times 10^{-2}$ $\pm 8.8885 \times 10^{-5}$	0.19689 $\pm 0.16607$	15.889 $\pm 6.6017 \times 10^{-4}$	$1.4542 \times 10^3$ $\pm 2.2717 \times 10^{-3}$	2.9092 $\pm 4.5447 \times 10^{-6}$	1.1877 $\pm 4.1856 \times 10^{-3}$	4.228 $\pm 1.4106 \times 10^{-2}$	2.576

## 2.450 - 2.250 ppm

Osc.	$a$	$\phi$ (°)	$f_1$ (Hz)	$f_2$ (Hz)	$f_2$ (ppm)	$\eta_1$ (s <sup>-1</sup> )	$\eta_2$ (s <sup>-1</sup> )	$\int$
1	$3.0288 \times 10^{-2}$ $\pm 5.8497 \times 10^{-5}$	-0.88376 $\pm 0.11164$	-11.395 $\pm 4.4155 \times 10^{-4}$	$1.1683 \times 10^3$ $\pm 1.5201 \times 10^{-3}$	2.3372 $\pm 3.0411 \times 10^{-6}$	1.1691 $\pm 2.748 \times 10^{-3}$	4.2276 $\pm 9.4831 \times 10^{-3}$	2.4437
2	$3.0172 \times 10^{-2}$ $\pm 1.8479 \times 10^{-4}$	-0.26856 $\pm 0.45141$	-7.2843 $\pm 1.4289 \times 10^{-3}$	$1.1724 \times 10^3$ $\pm 1.2948 \times 10^{-3}$	2.3454 $\pm 2.5904 \times 10^{-6}$	1.1496 $\pm 8.1228 \times 10^{-3}$	4.0986 $\pm 1.6996 \times 10^{-2}$	2.5737

3	$2.9612 \times 10^{-2}$ $\pm 4.494 \times 10^{-5}$	$-0.34709$ $\pm 0.55925$	$-7.0649$ $\pm 1.3543 \times 10^{-3}$	$1.1726 \times 10^3$ $\pm 2.9768 \times 10^{-3}$	$2.3459$ $\pm 5.9553 \times 10^{-6}$	$1.1425$ $\pm 8.9311 \times 10^{-3}$	$4.0974$ $\pm 9.9811 \times 10^{-3}$	2.4707
4	$2.9888 \times 10^{-2}$ $\pm 5.7725 \times 10^{-5}$	$0.17475$ $\pm 0.11249$	$-2.9568$ $\pm 4.4026 \times 10^{-4}$	$1.1767 \times 10^3$ $\pm 1.5182 \times 10^{-3}$	$2.3541$ $\pm 3.0373 \times 10^{-6}$	$1.1533$ $\pm 2.7117 \times 10^{-3}$	$4.1938$ $\pm 9.3969 \times 10^{-3}$	2.6185
5	$2.9531 \times 10^{-2}$ $\pm 5.7253 \times 10^{-5}$	$-0.13989$ $\pm 0.11341$	$2.9564$ $\pm 4.4021 \times 10^{-4}$	$1.1826 \times 10^3$ $\pm 1.5235 \times 10^{-3}$	$2.3659$ $\pm 3.0478 \times 10^{-6}$	$1.1422$ $\pm 2.7006 \times 10^{-3}$	$4.1782$ $\pm 9.3993 \times 10^{-3}$	2.5967
6	$2.9591 \times 10^{-2}$ $\pm 3.8779 \times 10^{-5}$	$0.5027$ $\pm 0.48955$	$7.0656$ $\pm 1.2899 \times 10^{-3}$	$1.1867 \times 10^3$ $\pm 2.9487 \times 10^{-3}$	$2.3741$ $\pm 5.899 \times 10^{-6}$	$1.144$ $\pm 7.9875 \times 10^{-3}$	$4.0937$ $\pm 1.067 \times 10^{-2}$	2.4751
7	$2.9999 \times 10^{-2}$ $\pm 1.6193 \times 10^{-4}$	$0.42142$ $\pm 0.38501$	$7.284$ $\pm 1.275 \times 10^{-3}$	$1.187 \times 10^3$ $\pm 1.3409 \times 10^{-3}$	$2.3746$ $\pm 2.6826 \times 10^{-6}$	$1.1573$ $\pm 7.792 \times 10^{-3}$	$4.0328$ $\pm 1.6594 \times 10^{-2}$	2.5619
8	$3.0484 \times 10^{-2}$ $\pm 5.8484 \times 10^{-5}$	$0.9142$ $\pm 0.11097$	$11.395$ $\pm 4.3932 \times 10^{-4}$	$1.1911 \times 10^3$ $\pm 1.5134 \times 10^{-3}$	$2.3828$ $\pm 3.0275 \times 10^{-6}$	$1.1722$ $\pm 2.74 \times 10^{-3}$	$4.2253$ $\pm 9.4076 \times 10^{-3}$	2.4582

## 2.000 - 1.740 ppm

Osc.	$a$	$\phi$ (°)	$f_1$ (Hz)	$f_2$ (Hz)	$f_2$ (ppm)	$\eta_1$ (s <sup>-1</sup> )	$\eta_2$ (s <sup>-1</sup> )	$\int$
1	0.12297 $\pm 6.0486 \times 10^{-5}$	$-0.32818$ $\pm 2.8475 \times 10^{-2}$	$-6.6489$ $\pm 1.1253 \times 10^{-4}$	937.94 $\pm 3.9135 \times 10^{-4}$	1.8764 $\pm 7.8292 \times 10^{-7}$	1.1767 $\pm 7.0123 \times 10^{-4}$	4.2864 $\pm 2.4364 \times 10^{-3}$	9.6469
2	6.1868 $\times 10^{-2}$ $\pm 3.3673 \times 10^{-4}$	0.14623 $\pm 0.42015$	$-2.437$ $\pm 8.1667 \times 10^{-4}$	942.12 $\pm 1.4092 \times 10^{-3}$	1.8848 $\pm 2.8193 \times 10^{-6}$	1.181 $\pm 5.2026 \times 10^{-3}$	4.19 $\pm 9.0687 \times 10^{-3}$	5.2692
3	5.6121 $\times 10^{-2}$ $\pm 3.4443 \times 10^{-4}$	5.0046 $\times 10^{-2}$ $\pm 0.44676$	$-2.1376$ $\pm 9.5569 \times 10^{-4}$	942.5 $\pm 1.613 \times 10^{-3}$	1.8855 $\pm 3.2269 \times 10^{-6}$	1.1129 $\pm 4.5261 \times 10^{-3}$	4.1348 $\pm 8.7356 \times 10^{-3}$	4.952
4	5.9911 $\times 10^{-2}$ $\pm 3.9927 \times 10^{-4}$	0.13527 $\pm 0.45525$	2.1409 $\pm 8.4521 \times 10^{-4}$	946.75 $\pm 1.3307 \times 10^{-3}$	1.894 $\pm 2.6622 \times 10^{-6}$	1.1627 $\pm 6.2971 \times 10^{-3}$	4.1917 $\pm 8.7767 \times 10^{-3}$	5.2077
5	5.899 $\times 10^{-2}$ $\pm 4.1785 \times 10^{-4}$	9.4644 $\times 10^{-2}$ $\pm 0.44491$	2.4397 $\pm 1.055 \times 10^{-3}$	947 $\pm 1.4647 \times 10^{-3}$	1.8945 $\pm 2.9303 \times 10^{-6}$	1.156 $\pm 4.9892 \times 10^{-3}$	4.1572 $\pm 8.0503 \times 10^{-3}$	5.0553
6	0.12366 $\pm 6.0716 \times 10^{-5}$	0.31832 $\pm 2.8195 \times 10^{-2}$	6.649 $\pm 1.1206 \times 10^{-4}$	951.24 $\pm 3.8651 \times 10^{-4}$	1.903 $\pm 7.7324 \times 10^{-7}$	1.1863 $\pm 7.0599 \times 10^{-4}$	4.2577 $\pm 2.4094 \times 10^{-3}$	9.7235

## 1.550 - 1.350 ppm



Osc.	$a$	$\phi$ (°)	$f_1$ (Hz)	$f_2$ (Hz)	$f_2$ (ppm)	$\eta_1$ (s <sup>-1</sup> )	$\eta_2$ (s <sup>-1</sup> )	$\int$
1	$2.9978 \times 10^{-2}$	-0.1796	-9.3677	721.21	1.4428	1.15	4.2183	2.4845
	$\pm 6.4222 \times 10^{-5}$	$\pm 0.125\,19$	$\pm 4.6964 \times 10^{-4}$	$\pm 1.6063 \times 10^{-3}$	$\pm 3.2135 \times 10^{-6}$	$\pm 2.8867 \times 10^{-3}$	$\pm 9.9834 \times 10^{-3}$	
2	$3.0096 \times 10^{-2}$	$-3.3183 \times 10^{-2}$	-7.4049	723.17	1.4467	1.1819	4.1161	2.3716
	$\pm 1.6859 \times 10^{-4}$	$\pm 0.324\,83$	$\pm 9.4831 \times 10^{-4}$	$\pm 2.0369 \times 10^{-3}$	$\pm 4.075 \times 10^{-6}$	$\pm 5.4547 \times 10^{-3}$	$\pm 1.2016 \times 10^{-2}$	
3	$2.8998 \times 10^{-2}$	-0.495 04	-6.946	723.64	1.4477	1.143	4.0938	2.4811
	$\pm 1.5588 \times 10^{-4}$	$\pm 0.3515$	$\pm 9.3004 \times 10^{-4}$	$\pm 2.0286 \times 10^{-3}$	$\pm 4.0583 \times 10^{-6}$	$\pm 5.5087 \times 10^{-3}$	$\pm 1.2333 \times 10^{-2}$	
4	$2.988 \times 10^{-2}$	-0.352 85	-4.9838	725.59	1.4516	1.1473	4.1993	2.4625
	$\pm 6.3904 \times 10^{-5}$	$\pm 0.125\,51$	$\pm 4.7006 \times 10^{-4}$	$\pm 1.6028 \times 10^{-3}$	$\pm 3.2065 \times 10^{-6}$	$\pm 2.8745 \times 10^{-3}$	$\pm 9.9137 \times 10^{-3}$	
5	$2.975 \times 10^{-2}$	0.650 12	4.9821	735.55	1.4715	1.1499	4.1877	2.4538
	$\pm 6.4059 \times 10^{-5}$	$\pm 0.125\,91$	$\pm 4.7091 \times 10^{-4}$	$\pm 1.6079 \times 10^{-3}$	$\pm 3.2168 \times 10^{-6}$	$\pm 2.9054 \times 10^{-3}$	$\pm 9.913 \times 10^{-3}$	
6	$2.967 \times 10^{-2}$	0.714 53	6.9451	737.5	1.4754	1.1666	4.1258	2.5282
	$\pm 1.604 \times 10^{-4}$	$\pm 0.346\,06$	$\pm 9.19 \times 10^{-4}$	$\pm 2.0206 \times 10^{-3}$	$\pm 4.0424 \times 10^{-6}$	$\pm 5.6663 \times 10^{-3}$	$\pm 1.2419 \times 10^{-2}$	
7	$3.0153 \times 10^{-2}$	0.468 39	7.4055	737.97	1.4763	1.1818	4.1345	2.3736
	$\pm 1.7329 \times 10^{-4}$	$\pm 0.320\,38$	$\pm 9.3625 \times 10^{-4}$	$\pm 2.0419 \times 10^{-3}$	$\pm 4.0849 \times 10^{-6}$	$\pm 5.5578 \times 10^{-3}$	$\pm 1.2147 \times 10^{-2}$	
8	$3.0108 \times 10^{-2}$	0.309 88	9.3676	739.93	1.4803	1.1639	4.2039	2.4934
	$\pm 6.4641 \times 10^{-5}$	$\pm 0.124\,99$	$\pm 4.7166 \times 10^{-4}$	$\pm 1.6072 \times 10^{-3}$	$\pm 3.2153 \times 10^{-6}$	$\pm 2.9297 \times 10^{-3}$	$\pm 9.9126 \times 10^{-3}$	

## 1.350 - 1.200 ppm

Osc.	$a$	$\phi$ (°)	$f_1$ (Hz)	$f_2$ (Hz)	$f_2$ (ppm)	$\eta_1$ (s <sup>-1</sup> )	$\eta_2$ (s <sup>-1</sup> )	$\int$
1	$2.9839 \times 10^{-2}$	-0.142 07	-8.5035	629.19	1.2587	1.1526	4.1954	2.5398
	$\pm 6.018 \times 10^{-5}$	$\pm 0.117\,54$	$\pm 4.6138 \times 10^{-4}$	$\pm 1.5907 \times 10^{-3}$	$\pm 3.1823 \times 10^{-6}$	$\pm 2.8362 \times 10^{-3}$	$\pm 9.8499 \times 10^{-3}$	
2	$6.066 \times 10^{-2}$	-0.315 91	-5.2052	632.48	1.2653	1.1722	4.2129	5.1184
	$\pm 6.1387 \times 10^{-5}$	$\pm 5.8541 \times 10^{-2}$	$\pm 2.3137 \times 10^{-4}$	$\pm 7.9489 \times 10^{-4}$	$\pm 1.5902 \times 10^{-6}$	$\pm 1.4421 \times 10^{-3}$	$\pm 4.9234 \times 10^{-3}$	
3	$2.937 \times 10^{-2}$	0.488 96	-1.9108	635.77	1.2719	1.1354	4.1529	2.3436
	$\pm 5.9519 \times 10^{-5}$	$\pm 0.119\,25$	$\pm 4.6116 \times 10^{-4}$	$\pm 1.5869 \times 10^{-3}$	$\pm 3.1747 \times 10^{-6}$	$\pm 2.8035 \times 10^{-3}$	$\pm 9.7707 \times 10^{-3}$	
4	$2.9818 \times 10^{-2}$	0.491 09	1.9093	639.59	1.2795	1.1499	4.2065	2.3758
	$\pm 6.0478 \times 10^{-5}$	$\pm 0.118\,24$	$\pm 4.6213 \times 10^{-4}$	$\pm 1.5965 \times 10^{-3}$	$\pm 3.1939 \times 10^{-6}$	$\pm 2.8362 \times 10^{-3}$	$\pm 9.9037 \times 10^{-3}$	
5	$6.0945 \times 10^{-2}$	0.7304	5.2049	642.88	1.2861	1.1765	4.2246	5.1272
	$\pm 6.1657 \times 10^{-5}$	$\pm 5.837 \times 10^{-2}$	$\pm 2.3123 \times 10^{-4}$	$\pm 7.9528 \times 10^{-4}$	$\pm 1.591 \times 10^{-6}$	$\pm 1.447 \times 10^{-3}$	$\pm 4.9333 \times 10^{-3}$	

6	$2.9908 \times 10^{-2}$ $\pm 6.0251 \times 10^{-5}$	0.762 37 $\pm 0.117\ 28$	8.5021 $\pm 4.6128 \times 10^{-4}$	646.17 $\pm 1.5844 \times 10^{-3}$	1.2927 $\pm 3.1696 \times 10^{-6}$	1.1578 $\pm 2.848 \times 10^{-3}$	4.1838 $\pm 9.8068 \times 10^{-3}$	2.55
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Estimation performed using NMR-EsPy.

Author: Simon Hulse

For more information:



<https://foroozandehgroup.github.io/NMR-EsPy>



<https://github.com/foroozandehgroup/NMR-EsPy>



[simon.hulse@chem.ox.ac.uk](mailto:simon.hulse@chem.ox.ac.uk)

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