

Supplementary Material

Gas-phase spectroscopic identification of the chlorovinyl radical

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Table SI. Optimized geometries (xyz format, in Angstrom) for three isomers of the chlorovinyl radical.

| <i>trans</i> - β -CIVR | <i>x</i> | <i>y</i> | <i>z</i> |
|------------------------------|----------|----------|----------|
| H | -1.9751 | -1.3314 | 0 |
| C | -1.7468 | 0.2818 | 0 |
| C | -0.7173 | -0.5175 | 0 |
| Cl | 0.9247 | 0.0885 | 0 |
| H | -0.7715 | -1.5951 | 0 |

| <i>cis</i> - β -CIVR | <i>x</i> | <i>y</i> | <i>z</i> |
|----------------------------|----------|----------|----------|
| H | -2.7993 | -0.26560 | 0 |
| C | -1.7276 | -0.34231 | 0 |
| C | -0.7045 | 0.46901 | 0 |
| Cl | 0.9382 | -0.08047 | 0 |
| H | -0.7946 | 1.54910 | 0 |

| α -CIVR | <i>x</i> | <i>y</i> | <i>z</i> |
|----------------|----------|----------|----------|
| Cl | -0.9615 | 0.06061 | 0 |
| C | 1.7872 | 0.18879 | 0 |
| C | 0.6328 | -0.44101 | 0 |
| H | 1.8372 | 1.27263 | 0 |
| H | 2.7096 | -0.37288 | 0 |

Table III. Observed transition frequencies for the ^{35}Cl isotopic species of *trans*- β -CIVR.

| N' | K_a' | K_c' | J' | F_1' | F_2' | F' | N'' | K_a'' | K_c'' | J'' | F_1'' | F_2'' | F'' | $\nu_{\text{obs.}}$ | $\nu_{\text{obs.}} - \nu_{\text{cal.}}$ |
|------|--------|--------|------|--------|--------|------|-------|---------|---------|-------|---------|---------|-------|---------------------|---|
| 1 | 0 | 1 | 0.5 | 1 | 1.5 | 2 | 0 | 0 | 0 | 0.5 | 2 | 2.5 | 3 | 12141.923 | 0.000 |
| | | | 0.5 | 1 | 0.5 | 1 | | | | 0.5 | 2 | 1.5 | 2 | 12151.444 | 0.000 |
| | | | 0.5 | 1 | 1.5 | 1 | | | | 0.5 | 2 | 2.5 | 2 | 12203.097 | 0.001 |
| | | | 0.5 | 1 | 1.5 | 1 | | | | 0.5 | 2 | 1.5 | 1 | 12209.121 | -0.002 |
| | | | 0.5 | 1 | 0.5 | 0 | | | | 0.5 | 2 | 1.5 | 1 | 12212.123 | 0.002 |
| | | | 0.5 | 1 | 1.5 | 2 | | | | 0.5 | 1 | 1.5 | 1 | 12230.479 | -0.001 |
| | | | 0.5 | 1 | 1.5 | 1 | | | | 0.5 | 1 | 0.5 | 0 | 12259.708 | 0.002 |
| | | | 0.5 | 1 | 1.5 | 2 | | | | 0.5 | 1 | 0.5 | 1 | 12263.073 | 0.001 |
| | | | 0.5 | 1 | 1.5 | 1 | | | | 0.5 | 1 | 1.5 | 1 | 12263.379 | 0.001 |
| | | | 0.5 | 1 | 0.5 | 0 | | | | 0.5 | 1 | 1.5 | 1 | 12266.376 | 0.000 |
| | | | 0.5 | 1 | 0.5 | 1 | | | | 0.5 | 1 | 0.5 | 1 | 12266.880 | 0.001 |
| | | | 0.5 | 1 | 1.5 | 2 | | | | 0.5 | 1 | 1.5 | 2 | 12267.058 | 0.001 |
| | | | 0.5 | 1 | 0.5 | 1 | | | | 0.5 | 1 | 1.5 | 2 | 12270.865 | 0.001 |
| | | | 1.5 | 3 | 2.5 | 2 | | | | 0.5 | 2 | 2.5 | 3 | 12274.323 | 0.000 |
| | | | 0.5 | 2 | 1.5 | 1 | | | | 0.5 | 2 | 1.5 | 2 | 12276.559 | -0.001 |
| | | | 1.5 | 0 | 0.5 | 1 | | | | 0.5 | 2 | 1.5 | 2 | 12277.098 | 0.000 |
| | | | 0.5 | 2 | 2.5 | 2 | | | | 0.5 | 2 | 2.5 | 3 | 12277.330 | -0.001 |
| | | | 1.5 | 2 | 1.5 | 1 | | | | 0.5 | 1 | 0.5 | 0 | 12292.597 | 0.000 |
| | | | 1.5 | 2 | 2.5 | 2 | | | | 0.5 | 1 | 1.5 | 1 | 12293.295 | 0.001 |
| | | | 1.5 | 1 | 0.5 | 1 | | | | 0.5 | 2 | 1.5 | 2 | 12293.681 | 0.002 |
| | | | 1.5 | 1 | 1.5 | 2 | | | | 0.5 | 2 | 2.5 | 3 | 12294.073 | 0.000 |
| | | | 0.5 | 2 | 1.5 | 2 | | | | 0.5 | 1 | 0.5 | 1 | 12295.849 | 0.002 |
| | | | 0.5 | 2 | 2.5 | 3 | | | | 0.5 | 1 | 1.5 | 2 | 12295.897 | -0.001 |
| | | | 1.5 | 2 | 1.5 | 1 | | | | 0.5 | 1 | 1.5 | 1 | 12296.269 | 0.000 |
| | | | 0.5 | 2 | 1.5 | 1 | | | | 0.5 | 2 | 2.5 | 2 | 12299.122 | 0.001 |
| | | | 0.5 | 2 | 1.5 | 2 | | | | 0.5 | 1 | 1.5 | 2 | 12299.831 | -0.001 |
| | | | 1.5 | 2 | 1.5 | 2 | | | | 0.5 | 2 | 2.5 | 3 | 12302.521 | 0.003 |
| | | | 1.5 | 3 | 2.5 | 2 | | | | 0.5 | 2 | 2.5 | 2 | 12302.600 | 0.001 |
| | | | 0.5 | 2 | 2.5 | 2 | | | | 0.5 | 2 | 2.5 | 2 | 12305.606 | -0.001 |
| | | | 1.5 | 0 | 0.5 | 1 | | | | 0.5 | 2 | 1.5 | 1 | 12305.687 | 0.001 |
| | | | 1.5 | 2 | 2.5 | 3 | | | | 0.5 | 2 | 2.5 | 3 | 12307.850 | 0.000 |
| | | | 1.5 | 2 | 1.5 | 2 | | | | 0.5 | 2 | 1.5 | 2 | 12308.233 | 0.000 |
| | | | 1.5 | 3 | 2.5 | 2 | | | | 0.5 | 2 | 1.5 | 1 | 12308.626 | 0.001 |
| | | | 1.5 | 3 | 3.5 | 3 | | | | 0.5 | 2 | 2.5 | 2 | 12309.381 | 0.001 |
| | | | 1.5 | 3 | 2.5 | 3 | | | | 0.5 | 2 | 1.5 | 2 | 12309.940 | 0.001 |
| | | | 1.5 | 3 | 3.5 | 4 | | | | 0.5 | 2 | 2.5 | 3 | 12310.038 | 0.001 |
| | | | 0.5 | 2 | 2.5 | 2 | | | | 0.5 | 2 | 1.5 | 1 | 12311.633 | -0.001 |
| | | | 1.5 | 1 | 0.5 | 1 | | | | 0.5 | 2 | 2.5 | 2 | 12316.243 | 0.002 |
| | | | 1.5 | 1 | 0.5 | 1 | | | | 0.5 | 2 | 1.5 | 1 | 12322.268 | 0.000 |
| | | | 1.5 | 1 | 1.5 | 2 | | | | 0.5 | 2 | 2.5 | 2 | 12322.348 | 0.000 |
| | | | 1.5 | 1 | 1.5 | 2 | | | | 0.5 | 2 | 1.5 | 1 | 12328.375 | 0.000 |
| | | | 1.5 | 2 | 1.5 | 1 | | | | 0.5 | 1 | 0.5 | 1 | 12328.862 | 0.001 |
| | | | 1.5 | 2 | 2.5 | 2 | | | | 0.5 | 1 | 1.5 | 2 | 12329.873 | 0.002 |
| | | | 1.5 | 2 | 1.5 | 1 | | | | 0.5 | 1 | 1.5 | 2 | 12332.848 | 0.002 |
| | | | 1.5 | 1 | 1.5 | 1 | | | | 0.5 | 1 | 0.5 | 1 | 12334.162 | 0.001 |
| | | | 1.5 | 1 | 0.5 | 0 | | | | 0.5 | 1 | 0.5 | 1 | 12337.214 | 0.000 |
| | | | 1.5 | 1 | 1.5 | 1 | | | | 0.5 | 1 | 1.5 | 2 | 12338.146 | 0.000 |
| | | | 1.5 | 0 | 0.5 | 0 | | | | 0.5 | 1 | 1.5 | 1 | 12350.447 | 0.000 |
| | | | 0.5 | 2 | 1.5 | 1 | | | | 0.5 | 1 | 0.5 | 0 | 12355.730 | -0.001 |
| | | | 0.5 | 2 | 1.5 | 1 | | | | 0.5 | 1 | 1.5 | 1 | 12359.407 | 0.004 |
| | | | 1.5 | 1 | 0.5 | 1 | | | | 0.5 | 1 | 0.5 | 0 | 12372.851 | 0.001 |
| | | | 1.5 | 1 | 1.5 | 2 | | | | 0.5 | 1 | 1.5 | 1 | 12382.626 | -0.004 |
| | | | 1.5 | 1 | 1.5 | 2 | | | | 0.5 | 1 | 1.5 | 2 | 12419.212 | 0.005 |
| 2 | 1 | 2 | 1.5 | 2 | 2.5 | 2 | 1 | 1 | 1 | 0.5 | 1 | 1.5 | 1 | 23872.290 | -0.001 |
| | | | 1.5 | 1 | 0.5 | 0 | | | | 0.5 | 1 | 1.5 | 1 | 23889.762 | 0.000 |
| | | | 1.5 | 2 | 1.5 | 1 | | | | 0.5 | 1 | 0.5 | 0 | 23895.494 | -0.002 |
| | | | 1.5 | 2 | 1.5 | 1 | | | | 0.5 | 1 | 1.5 | 1 | 23895.950 | -0.004 |

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|-----|---|-----|---|-----|---|-----|---|-----------|--------|
| 1.5 | 2 | 1.5 | 2 | 1.5 | 1 | 0.5 | 1 | 23897.091 | 0.001 |
| 1.5 | 2 | 1.5 | 2 | 0.5 | 2 | 1.5 | 1 | 23901.444 | 0.001 |
| 1.5 | 2 | 2.5 | 3 | 1.5 | 1 | 1.5 | 2 | 23902.726 | -0.002 |
| 1.5 | 0 | 0.5 | 0 | 0.5 | 1 | 0.5 | 1 | 23906.116 | -0.007 |
| 1.5 | 3 | 2.5 | 2 | 1.5 | 1 | 1.5 | 1 | 23907.287 | 0.001 |
| 2.5 | 2 | 1.5 | 1 | 0.5 | 1 | 1.5 | 2 | 23907.770 | 0.003 |
| 1.5 | 1 | 1.5 | 1 | 0.5 | 1 | 1.5 | 2 | 23911.485 | 0.001 |
| 1.5 | 3 | 2.5 | 3 | 1.5 | 1 | 1.5 | 2 | 23912.652 | 0.001 |
| 2.5 | 2 | 2.5 | 2 | 0.5 | 1 | 1.5 | 2 | 23913.750 | 0.001 |
| 2.5 | 2 | 1.5 | 2 | 1.5 | 3 | 2.5 | 3 | 23913.962 | 0.004 |
| 2.5 | 2 | 1.5 | 1 | 1.5 | 3 | 2.5 | 2 | 23914.764 | -0.001 |
| 1.5 | 1 | 1.5 | 2 | 0.5 | 2 | 1.5 | 1 | 23915.976 | 0.002 |
| 1.5 | 2 | 2.5 | 2 | 1.5 | 1 | 1.5 | 1 | 23916.659 | 0.002 |
| 1.5 | 1 | 0.5 | 1 | 1.5 | 1 | 0.5 | 1 | 23916.997 | 0.004 |
| 1.5 | 1 | 1.5 | 2 | 1.5 | 1 | 1.5 | 2 | 23921.586 | -0.001 |
| 2.5 | 3 | 3.5 | 3 | 0.5 | 1 | 1.5 | 2 | 23922.373 | 0.003 |
| 2.5 | 1 | 1.5 | 2 | 1.5 | 2 | 2.5 | 3 | 23924.881 | 0.001 |
| 2.5 | 3 | 2.5 | 3 | 1.5 | 3 | 2.5 | 3 | 23926.144 | -0.004 |
| 2.5 | 3 | 2.5 | 2 | 1.5 | 3 | 2.5 | 2 | 23926.188 | 0.007 |
| 1.5 | 2 | 2.5 | 3 | 0.5 | 2 | 2.5 | 3 | 23926.542 | -0.001 |
| 2.5 | 3 | 3.5 | 3 | 1.5 | 3 | 3.5 | 3 | 23927.179 | -0.005 |
| 1.5 | 3 | 2.5 | 2 | 0.5 | 2 | 2.5 | 2 | 23927.891 | 0.000 |
| 2.5 | 3 | 3.5 | 4 | 1.5 | 3 | 3.5 | 4 | 23928.220 | 0.000 |
| 1.5 | 2 | 2.5 | 3 | 0.5 | 2 | 1.5 | 2 | 23928.872 | -0.001 |
| 2.5 | 3 | 3.5 | 4 | 1.5 | 3 | 2.5 | 3 | 23929.019 | 0.002 |
| 2.5 | 3 | 3.5 | 3 | 1.5 | 3 | 2.5 | 2 | 23929.367 | 0.000 |
| 1.5 | 3 | 2.5 | 2 | 1.5 | 1 | 0.5 | 1 | 23930.595 | -0.004 |
| 2.5 | 1 | 1.5 | 2 | 0.5 | 1 | 1.5 | 2 | 23931.762 | -0.005 |
| 1.5 | 1 | 1.5 | 2 | 1.5 | 0 | 0.5 | 1 | 23932.348 | -0.002 |
| 1.5 | 2 | 1.5 | 2 | 0.5 | 2 | 1.5 | 2 | 23933.205 | 0.003 |
| 2.5 | 1 | 1.5 | 2 | 1.5 | 2 | 1.5 | 2 | 23933.747 | 0.002 |
| 1.5 | 3 | 3.5 | 3 | 0.5 | 2 | 2.5 | 2 | 23933.956 | -0.001 |
| 2.5 | 1 | 1.5 | 2 | 0.5 | 1 | 0.5 | 1 | 23934.310 | 0.004 |
| 2.5 | 4 | 3.5 | 3 | 1.5 | 2 | 1.5 | 2 | 23934.838 | 0.003 |
| 1.5 | 3 | 2.5 | 2 | 0.5 | 2 | 1.5 | 1 | 23934.949 | -0.004 |
| 1.5 | 3 | 3.5 | 4 | 0.5 | 2 | 2.5 | 3 | 23935.236 | -0.001 |
| 1.5 | 1 | 0.5 | 1 | 1.5 | 0 | 0.5 | 0 | 23935.506 | 0.002 |
| 2.5 | 4 | 4.5 | 4 | 1.5 | 3 | 3.5 | 3 | 23935.984 | 0.000 |
| 2.5 | 4 | 4.5 | 5 | 1.5 | 3 | 3.5 | 4 | 23936.298 | 0.001 |
| 2.5 | 2 | 2.5 | 3 | 1.5 | 2 | 2.5 | 3 | 23936.367 | -0.004 |
| 2.5 | 4 | 3.5 | 3 | 1.5 | 3 | 3.5 | 3 | 23937.670 | -0.001 |
| 2.5 | 2 | 2.5 | 2 | 1.5 | 2 | 2.5 | 2 | 23937.994 | -0.001 |
| 2.5 | 4 | 3.5 | 4 | 1.5 | 3 | 3.5 | 4 | 23938.310 | -0.001 |
| 2.5 | 2 | 1.5 | 2 | 1.5 | 2 | 1.5 | 2 | 23938.505 | 0.002 |
| 1.5 | 3 | 2.5 | 3 | 0.5 | 2 | 1.5 | 2 | 23938.797 | 0.000 |
| 2.5 | 4 | 3.5 | 4 | 1.5 | 3 | 2.5 | 3 | 23939.107 | -0.001 |
| 2.5 | 4 | 3.5 | 3 | 1.5 | 3 | 2.5 | 2 | 23939.854 | 0.000 |
| 1.5 | 2 | 2.5 | 2 | 1.5 | 1 | 0.5 | 1 | 23939.963 | -0.006 |
| 2.5 | 3 | 2.5 | 3 | 1.5 | 2 | 2.5 | 3 | 23941.829 | 0.002 |
| 2.5 | 2 | 2.5 | 3 | 0.5 | 1 | 1.5 | 2 | 23943.257 | -0.001 |
| 2.5 | 3 | 2.5 | 2 | 0.5 | 1 | 1.5 | 1 | 23944.034 | 0.001 |
| 1.5 | 2 | 2.5 | 2 | 0.5 | 2 | 1.5 | 1 | 23944.320 | -0.003 |
| 2.5 | 3 | 3.5 | 4 | 1.5 | 2 | 2.5 | 3 | 23944.698 | 0.002 |
| 2.5 | 2 | 2.5 | 3 | 1.5 | 2 | 1.5 | 2 | 23945.235 | -0.001 |
| 2.5 | 3 | 3.5 | 3 | 1.5 | 2 | 2.5 | 2 | 23946.617 | 0.001 |
| 2.5 | 2 | 2.5 | 2 | 1.5 | 2 | 1.5 | 1 | 23946.676 | 0.013 |
| 2.5 | 3 | 2.5 | 3 | 1.5 | 2 | 1.5 | 2 | 23950.693 | 0.000 |
| 2.5 | 3 | 2.5 | 2 | 1.5 | 2 | 1.5 | 1 | 23952.101 | 0.003 |
| 1.5 | 0 | 0.5 | 1 | 1.5 | 0 | 0.5 | 1 | 23954.694 | -0.003 |
| 2.5 | 3 | 2.5 | 3 | 1.5 | 3 | 2.5 | 2 | 23955.705 | -0.006 |

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|---|---|---|-----|---|-----|---|---|---|---|-----|---|-----|---|-----------|--------|
| | | | 2.5 | 1 | 1.5 | 1 | | | | 1.5 | 0 | 0.5 | 1 | 23955.818 | 0.002 |
| | | | 2.5 | 1 | 0.5 | 0 | | | | 1.5 | 0 | 0.5 | 1 | 23964.293 | 0.002 |
| 2 | 0 | 2 | 1.5 | 0 | 0.5 | 1 | 1 | 0 | 1 | 1.5 | 0 | 0.5 | 1 | 24524.664 | -0.002 |
| | | | 1.5 | 0 | 0.5 | 1 | | | | 0.5 | 2 | 1.5 | 1 | 24525.204 | 0.000 |
| | | | 1.5 | 1 | 0.5 | 0 | | | | 0.5 | 2 | 1.5 | 1 | 24528.918 | 0.001 |
| | | | 1.5 | 0 | 0.5 | 1 | | | | 1.5 | 0 | 0.5 | 0 | 24534.157 | -0.003 |
| | | | 1.5 | 1 | 1.5 | 2 | | | | 1.5 | 1 | 1.5 | 1 | 24545.479 | 0.000 |
| | | | 1.5 | 1 | 0.5 | 1 | | | | 1.5 | 1 | 0.5 | 0 | 24546.375 | 0.000 |
| | | | 1.5 | 1 | 0.5 | 1 | | | | 1.5 | 1 | 1.5 | 1 | 24549.439 | 0.010 |
| | | | 2.5 | 2 | 1.5 | 1 | | | | 1.5 | 2 | 1.5 | 2 | 24562.209 | -0.001 |
| | | | 2.5 | 2 | 2.5 | 2 | | | | 1.5 | 2 | 2.5 | 3 | 24562.766 | -0.001 |
| | | | 2.5 | 1 | 0.5 | 0 | | | | 1.5 | 1 | 0.5 | 1 | 24562.814 | 0.002 |
| | | | 2.5 | 1 | 1.5 | 1 | | | | 1.5 | 1 | 1.5 | 2 | 24566.561 | 0.002 |
| | | | 1.5 | 2 | 2.5 | 3 | | | | 0.5 | 2 | 2.5 | 3 | 24566.654 | -0.001 |
| | | | 1.5 | 2 | 1.5 | 2 | | | | 0.5 | 2 | 1.5 | 2 | 24566.919 | 0.000 |
| | | | 1.5 | 2 | 2.5 | 2 | | | | 1.5 | 2 | 2.5 | 2 | 24569.518 | 0.000 |
| | | | 2.5 | 3 | 3.5 | 3 | | | | 1.5 | 2 | 2.5 | 3 | 24570.279 | -0.001 |
| | | | 1.5 | 2 | 1.5 | 1 | | | | 1.5 | 2 | 1.5 | 1 | 24570.694 | 0.000 |
| | | | 2.5 | 3 | 2.5 | 2 | | | | 1.5 | 2 | 1.5 | 2 | 24571.439 | -0.001 |
| | | | 2.5 | 1 | 1.5 | 1 | | | | 1.5 | 1 | 0.5 | 1 | 24572.667 | 0.000 |
| | | | 1.5 | 1 | 1.5 | 1 | | | | 1.5 | 1 | 0.5 | 0 | 24576.875 | 0.001 |
| | | | 1.5 | 1 | 1.5 | 1 | | | | 1.5 | 1 | 1.5 | 1 | 24579.928 | 0.001 |
| | | | 2.5 | 3 | 3.5 | 3 | | | | 1.5 | 1 | 1.5 | 2 | 24584.055 | -0.002 |
| | | | 2.5 | 1 | 1.5 | 2 | | | | 1.5 | 2 | 2.5 | 3 | 24584.346 | 0.000 |
| | | | 1.5 | 3 | 3.5 | 4 | | | | 0.5 | 2 | 2.5 | 3 | 24585.098 | -0.001 |
| | | | 1.5 | 3 | 2.5 | 3 | | | | 0.5 | 2 | 1.5 | 2 | 24585.314 | 0.000 |
| | | | 1.5 | 3 | 3.5 | 3 | | | | 1.5 | 2 | 2.5 | 2 | 24585.394 | 0.000 |
| | | | 2.5 | 3 | 2.5 | 2 | | | | 1.5 | 1 | 0.5 | 1 | 24585.990 | -0.003 |
| | | | 1.5 | 3 | 2.5 | 2 | | | | 1.5 | 2 | 1.5 | 1 | 24586.224 | 0.001 |
| | | | 2.5 | 2 | 1.5 | 2 | | | | 1.5 | 2 | 2.5 | 3 | 24587.307 | 0.002 |
| | | | 1.5 | 3 | 2.5 | 2 | | | | 1.5 | 2 | 2.5 | 2 | 24589.198 | 0.000 |
| | | | 1.5 | 3 | 2.5 | 3 | | | | 0.5 | 2 | 2.5 | 3 | 24589.245 | -0.003 |
| | | | 2.5 | 2 | 2.5 | 3 | | | | 1.5 | 3 | 3.5 | 4 | 24590.609 | -0.002 |
| | | | 2.5 | 1 | 0.5 | 1 | | | | 1.5 | 1 | 1.5 | 2 | 24591.799 | 0.001 |
| | | | 2.5 | 2 | 1.5 | 2 | | | | 1.5 | 2 | 1.5 | 2 | 24592.637 | 0.000 |
| | | | 2.5 | 2 | 2.5 | 3 | | | | 1.5 | 2 | 2.5 | 3 | 24592.797 | -0.001 |
| | | | 2.5 | 2 | 2.5 | 2 | | | | 0.5 | 2 | 2.5 | 2 | 24593.287 | 0.001 |
| | | | 2.5 | 2 | 1.5 | 1 | | | | 1.5 | 0 | 0.5 | 1 | 24593.342 | -0.003 |
| | | | 2.5 | 2 | 1.5 | 1 | | | | 0.5 | 2 | 1.5 | 1 | 24593.884 | 0.001 |
| | | | 2.5 | 3 | 2.5 | 3 | | | | 1.5 | 2 | 2.5 | 3 | 24595.007 | 0.000 |
| | | | 1.5 | 2 | 2.5 | 3 | | | | 0.5 | 1 | 1.5 | 2 | 24595.495 | -0.001 |
| | | | 1.5 | 2 | 1.5 | 2 | | | | 0.5 | 1 | 0.5 | 1 | 24595.885 | -0.001 |
| | | | 2.5 | 2 | 2.5 | 2 | | | | 1.5 | 3 | 2.5 | 2 | 24596.292 | -0.002 |
| | | | 2.5 | 2 | 2.5 | 3 | | | | 1.5 | 3 | 2.5 | 3 | 24596.425 | 0.001 |
| | | | 2.5 | 3 | 2.5 | 2 | | | | 0.5 | 2 | 2.5 | 2 | 24596.627 | 0.000 |
| | | | 2.5 | 3 | 3.5 | 3 | | | | 1.5 | 3 | 3.5 | 3 | 24597.024 | -0.001 |
| | | | 2.5 | 3 | 3.5 | 4 | | | | 1.5 | 3 | 3.5 | 4 | 24597.410 | -0.001 |
| | | | 2.5 | 1 | 0.5 | 1 | | | | 1.5 | 1 | 0.5 | 1 | 24597.906 | 0.000 |
| | | | 2.5 | 1 | 1.5 | 2 | | | | 1.5 | 1 | 1.5 | 2 | 24598.125 | 0.001 |
| | | | 2.5 | 3 | 2.5 | 3 | | | | 1.5 | 3 | 2.5 | 3 | 24598.631 | -0.001 |
| | | | 2.5 | 2 | 2.5 | 2 | | | | 1.5 | 0 | 0.5 | 1 | 24599.232 | -0.001 |
| | | | 1.5 | 2 | 2.5 | 2 | | | | 0.5 | 1 | 1.5 | 1 | 24599.434 | 0.001 |
| | | | 2.5 | 3 | 3.5 | 4 | | | | 1.5 | 2 | 2.5 | 3 | 24599.597 | -0.001 |
| | | | 2.5 | 2 | 2.5 | 2 | | | | 0.5 | 2 | 1.5 | 1 | 24599.767 | -0.004 |
| | | | 2.5 | 4 | 3.5 | 3 | | | | 1.5 | 3 | 3.5 | 3 | 24600.284 | 0.004 |
| | | | 2.5 | 3 | 2.5 | 3 | | | | 1.5 | 2 | 1.5 | 2 | 24600.337 | -0.001 |
| | | | 2.5 | 4 | 3.5 | 4 | | | | 1.5 | 3 | 3.5 | 4 | 24600.469 | 0.000 |
| | | | 1.5 | 2 | 1.5 | 1 | | | | 0.5 | 1 | 0.5 | 0 | 24600.589 | 0.002 |
| | | | 2.5 | 3 | 3.5 | 3 | | | | 0.5 | 2 | 2.5 | 2 | 24600.799 | 0.000 |
| | | | 2.5 | 2 | 1.5 | 2 | | | | 1.5 | 1 | 1.5 | 2 | 24601.084 | 0.001 |

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|-----|---|-----|-----|-----|-----|-----|-----|-----------|-----------|-------|
| 2.5 | 3 | 2.5 | 2 | 1.5 | 0 | 0.5 | 1 | 24602.574 | 0.000 | |
| 2.5 | 4 | 3.5 | 4 | 1.5 | 2 | 2.5 | 3 | 24602.655 | -0.001 | |
| 2.5 | 2 | 1.5 | 1 | 1.5 | 0 | 0.5 | 0 | 24602.838 | -0.001 | |
| 2.5 | 3 | 2.5 | 2 | 0.5 | 2 | 1.5 | 1 | 24603.107 | -0.005 | |
| 2.5 | 3 | 3.5 | 4 | 1.5 | 3 | 2.5 | 3 | 24603.222 | -0.001 | |
| 1.5 | 2 | 1.5 | 1 | 0.5 | 1 | 1.5 | 1 | 24603.585 | 0.000 | |
| 2.5 | 3 | 3.5 | 3 | 1.5 | 3 | 2.5 | 2 | 24603.805 | -0.002 | |
| 2.5 | 4 | 3.5 | 3 | 0.5 | 2 | 2.5 | 2 | 24604.054 | 0.000 | |
| 2.5 | 1 | 1.5 | 2 | 1.5 | 1 | 0.5 | 1 | 24604.226 | -0.005 | |
| 2.5 | 4 | 4.5 | 4 | 1.5 | 3 | 3.5 | 3 | 24605.215 | 0.000 | |
| 2.5 | 4 | 4.5 | 5 | 1.5 | 3 | 3.5 | 4 | 24605.538 | -0.002 | |
| 2.5 | 4 | 3.5 | 4 | 1.5 | 3 | 2.5 | 3 | 24606.280 | -0.001 | |
| 2.5 | 2 | 2.5 | 3 | 1.5 | 1 | 1.5 | 2 | 24606.574 | -0.002 | |
| 2.5 | 4 | 3.5 | 3 | 1.5 | 3 | 2.5 | 2 | 24607.060 | -0.002 | |
| 2.5 | 2 | 1.5 | 2 | 1.5 | 1 | 0.5 | 1 | 24607.190 | 0.000 | |
| 2.5 | 3 | 2.5 | 3 | 1.5 | 1 | 1.5 | 2 | 24608.783 | -0.001 | |
| 1.5 | 1 | 1.5 | 2 | 0.5 | 1 | 0.5 | 1 | 24612.761 | 0.000 | |
| 2.5 | 1 | 0.5 | 1 | 0.5 | 2 | 1.5 | 1 | 24615.027 | 0.002 | |
| 1.5 | 1 | 1.5 | 2 | 0.5 | 1 | 1.5 | 2 | 24616.567 | -0.001 | |
| 1.5 | 1 | 0.5 | 1 | 0.5 | 1 | 0.5 | 1 | 24616.709 | -0.002 | |
| 1.5 | 0 | 0.5 | 1 | 0.5 | 1 | 0.5 | 0 | 24618.228 | -0.003 | |
| 2.5 | 2 | 2.5 | 3 | 1.5 | 3 | 3.5 | 3 | 24619.544 | 0.000 | |
| 1.5 | 1 | 0.5 | 1 | 0.5 | 1 | 1.5 | 2 | 24620.517 | -0.001 | |
| 1.5 | 0 | 0.5 | 1 | 0.5 | 1 | 1.5 | 1 | 24621.226 | -0.003 | |
| 2.5 | 1 | 1.5 | 2 | 0.5 | 2 | 1.5 | 1 | 24621.350 | -0.001 | |
| 2.5 | 1 | 0.5 | 1 | 1.5 | 0 | 0.5 | 0 | 24623.983 | 0.001 | |
| 1.5 | 1 | 0.5 | 0 | 0.5 | 1 | 1.5 | 1 | 24624.940 | -0.003 | |
| 2.5 | 1 | 0.5 | 0 | 1.5 | 1 | 1.5 | 1 | 24637.769 | 0.004 | |
| 2.5 | 1 | 1.5 | 1 | 1.5 | 1 | 0.5 | 0 | 24644.567 | 0.000 | |
| 2.5 | 1 | 1.5 | 1 | 1.5 | 1 | 1.5 | 1 | 24647.625 | 0.005 | |
| 1.5 | 0 | 0.5 | 0 | 0.5 | 1 | 0.5 | 1 | 24650.595 | 0.001 | |
| 1.5 | 1 | 1.5 | 1 | 0.5 | 1 | 1.5 | 2 | 24651.016 | 0.000 | |
| 2.5 | 2 | 2.5 | 2 | 1.5 | 1 | 1.5 | 1 | 24657.605 | 0.000 | |
| 2 | 1 | 1 | 1.5 | 0 | 0.5 | 1 | 0.5 | 0 | 25212.388 | 0.002 |
| 1.5 | 2 | 2.5 | 3 | 1.5 | 1 | 1.5 | 2 | 25219.555 | -0.003 | |
| 1.5 | 2 | 2.5 | 2 | 1.5 | 1 | 1.5 | 1 | 25221.917 | 0.004 | |
| 1.5 | 2 | 1.5 | 2 | 1.5 | 1 | 0.5 | 1 | 25227.635 | 0.000 | |
| 1.5 | 2 | 1.5 | 2 | 0.5 | 2 | 1.5 | 1 | 25230.063 | 0.001 | |
| 1.5 | 1 | 1.5 | 2 | 1.5 | 1 | 1.5 | 2 | 25243.353 | 0.000 | |
| 2.5 | 1 | 1.5 | 1 | 0.5 | 1 | 1.5 | 2 | 25245.629 | 0.002 | |
| 2.5 | 2 | 2.5 | 3 | 1.5 | 3 | 3.5 | 4 | 25247.744 | 0.001 | |
| 1.5 | 1 | 0.5 | 1 | 0.5 | 2 | 1.5 | 1 | 25248.571 | 0.000 | |
| 2.5 | 2 | 2.5 | 2 | 1.5 | 3 | 3.5 | 3 | 25251.668 | 0.003 | |
| 1.5 | 3 | 3.5 | 3 | 1.5 | 1 | 1.5 | 2 | 25251.993 | -0.003 | |
| 1.5 | 2 | 2.5 | 2 | 1.5 | 1 | 1.5 | 2 | 25254.871 | -0.003 | |
| 2.5 | 1 | 0.5 | 1 | 1.5 | 2 | 1.5 | 2 | 25255.883 | 0.000 | |
| 1.5 | 2 | 2.5 | 2 | 1.5 | 1 | 0.5 | 1 | 25256.115 | -0.003 | |
| 1.5 | 1 | 0.5 | 1 | 1.5 | 0 | 0.5 | 0 | 25256.352 | -0.001 | |
| 1.5 | 2 | 2.5 | 3 | 0.5 | 2 | 1.5 | 2 | 25258.477 | -0.001 | |
| 2.5 | 2 | 2.5 | 2 | 0.5 | 1 | 1.5 | 2 | 25260.552 | -0.003 | |
| 1.5 | 1 | 1.5 | 2 | 1.5 | 0 | 0.5 | 1 | 25260.593 | 0.003 | |
| 2.5 | 3 | 3.5 | 4 | 1.5 | 3 | 3.5 | 4 | 25261.542 | 0.001 | |
| 1.5 | 1 | 0.5 | 1 | 1.5 | 0 | 0.5 | 1 | 25262.137 | 0.000 | |
| 2.5 | 3 | 3.5 | 3 | 1.5 | 3 | 3.5 | 3 | 25265.139 | 0.002 | |
| 2.5 | 3 | 2.5 | 3 | 1.5 | 3 | 2.5 | 3 | 25261.542 | -3.706 | |
| 1.5 | 3 | 3.5 | 4 | 0.5 | 2 | 2.5 | 3 | 25265.292 | -0.002 | |
| 1.5 | 3 | 2.5 | 2 | 1.5 | 1 | 0.5 | 1 | 25266.054 | -0.002 | |
| 1.5 | 3 | 3.5 | 3 | 0.5 | 2 | 2.5 | 2 | 25267.199 | 0.002 | |
| 1.5 | 3 | 2.5 | 3 | 0.5 | 2 | 1.5 | 2 | 25267.669 | 0.000 | |
| 1.5 | 2 | 2.5 | 3 | 0.5 | 2 | 2.5 | 3 | 25268.237 | -0.001 | |

| | | | | | | | | | | | | | | | |
|---|---|---|-----|---|-----|---|---|---|---|-----|---|-----|---|-----------|--------|
| | | | 1.5 | 3 | 2.5 | 2 | | | | 0.5 | 2 | 1.5 | 1 | 25268.481 | -0.003 |
| | | | 2.5 | 2 | 1.5 | 2 | | | | 1.5 | 2 | 1.5 | 2 | 25272.335 | 0.002 |
| | | | 2.5 | 2 | 2.5 | 3 | | | | 1.5 | 2 | 2.5 | 3 | 25273.138 | -0.001 |
| | | | 2.5 | 3 | 3.5 | 3 | | | | 0.5 | 1 | 1.5 | 2 | 25274.027 | 0.001 |
| | | | 2.5 | 4 | 4.5 | 4 | | | | 1.5 | 2 | 2.5 | 3 | 25276.288 | 0.002 |
| | | | 1.5 | 3 | 2.5 | 3 | | | | 0.5 | 2 | 2.5 | 3 | 25277.431 | 0.002 |
| | | | 2.5 | 4 | 3.5 | 3 | | | | 1.5 | 3 | 2.5 | 2 | 25279.558 | 0.001 |
| | | | 2.5 | 4 | 3.5 | 4 | | | | 1.5 | 3 | 2.5 | 3 | 25280.081 | 0.000 |
| | | | 2.5 | 4 | 4.5 | 5 | | | | 1.5 | 3 | 3.5 | 4 | 25281.319 | 0.002 |
| | | | 2.5 | 4 | 3.5 | 3 | | | | 0.5 | 1 | 1.5 | 2 | 25282.741 | -0.001 |
| | | | 2.5 | 4 | 4.5 | 4 | | | | 1.5 | 3 | 3.5 | 3 | 25283.969 | 0.003 |
| | | | 2.5 | 3 | 2.5 | 3 | | | | 1.5 | 2 | 1.5 | 2 | 25285.760 | 0.001 |
| | | | 2.5 | 3 | 2.5 | 2 | | | | 1.5 | 2 | 1.5 | 1 | 25286.248 | 0.007 |
| | | | 2.5 | 2 | 2.5 | 3 | | | | 1.5 | 3 | 2.5 | 2 | 25286.525 | 0.001 |
| | | | 2.5 | 3 | 3.5 | 4 | | | | 1.5 | 2 | 2.5 | 3 | 25286.936 | -0.001 |
| | | | 2.5 | 3 | 3.5 | 3 | | | | 1.5 | 2 | 2.5 | 2 | 25288.343 | 0.002 |
| | | | 2.5 | 1 | 1.5 | 2 | | | | 1.5 | 2 | 2.5 | 2 | 25289.369 | 0.001 |
| | | | 2.5 | 2 | 1.5 | 2 | | | | 0.5 | 1 | 0.5 | 1 | 25293.129 | -0.002 |
| | | | 2.5 | 3 | 3.5 | 4 | | | | 1.5 | 3 | 3.5 | 3 | 25294.617 | 0.000 |
| | | | 1.5 | 2 | 1.5 | 1 | | | | 1.5 | 0 | 0.5 | 1 | 25296.988 | -0.006 |
| | | | 2.5 | 3 | 2.5 | 3 | | | | 0.5 | 1 | 1.5 | 2 | 25298.512 | -0.002 |
| | | | 2.5 | 2 | 1.5 | 2 | | | | 1.5 | 2 | 1.5 | 1 | 25303.035 | -0.001 |
| | | | 2.5 | 2 | 2.5 | 3 | | | | 1.5 | 2 | 2.5 | 2 | 25304.023 | 0.000 |
| | | | 2.5 | 1 | 1.5 | 2 | | | | 0.5 | 1 | 1.5 | 1 | 25304.231 | 0.000 |
| | | | 2.5 | 2 | 2.5 | 2 | | | | 1.5 | 1 | 1.5 | 1 | 25314.207 | -0.008 |
| 3 | 0 | 3 | 2.5 | 1 | 1.5 | 2 | | | | 1.5 | 1 | 1.5 | 1 | 25328.718 | 0.005 |
| | | | 2.5 | 3 | 3.5 | 4 | 2 | 0 | 2 | 1.5 | 3 | 3.5 | 4 | 36847.540 | 0.000 |
| | | | 2.5 | 3 | 2.5 | 3 | | | | 1.5 | 3 | 2.5 | 3 | 36847.617 | -0.001 |
| | | | 2.5 | 3 | 3.5 | 3 | | | | 1.5 | 3 | 3.5 | 3 | 36849.563 | 0.001 |
| | | | 2.5 | 3 | 2.5 | 2 | | | | 1.5 | 3 | 2.5 | 2 | 36849.981 | 0.001 |
| | | | 3.5 | 2 | 1.5 | 1 | | | | 2.5 | 2 | 1.5 | 2 | 36850.819 | 0.002 |
| | | | 3.5 | 2 | 2.5 | 2 | | | | 2.5 | 2 | 2.5 | 3 | 36851.335 | 0.003 |
| | | | 3.5 | 4 | 4.5 | 4 | | | | 2.5 | 3 | 3.5 | 4 | 36853.476 | -0.001 |
| | | | 3.5 | 4 | 3.5 | 3 | | | | 2.5 | 3 | 2.5 | 3 | 36853.768 | -0.003 |
| | | | 3.5 | 3 | 3.5 | 3 | | | | 2.5 | 2 | 2.5 | 3 | 36854.229 | 0.001 |
| | | | 3.5 | 3 | 2.5 | 2 | | | | 2.5 | 2 | 1.5 | 2 | 36854.693 | -0.001 |
| | | | 2.5 | 2 | 2.5 | 2 | | | | 1.5 | 1 | 1.5 | 1 | 36857.313 | -0.002 |
| | | | 2.5 | 2 | 1.5 | 1 | | | | 1.5 | 0 | 0.5 | 0 | 36857.763 | -0.002 |
| | | | 3.5 | 2 | 2.5 | 2 | | | | 2.5 | 1 | 1.5 | 2 | 36859.783 | -0.001 |
| | | | 3.5 | 2 | 1.5 | 1 | | | | 2.5 | 1 | 0.5 | 1 | 36860.102 | 0.001 |
| | | | 2.5 | 2 | 1.5 | 1 | | | | 1.5 | 1 | 1.5 | 1 | 36861.153 | 0.003 |
| | | | 2.5 | 2 | 2.5 | 3 | | | | 1.5 | 1 | 1.5 | 2 | 36861.247 | -0.002 |
| | | | 2.5 | 2 | 1.5 | 2 | | | | 1.5 | 1 | 0.5 | 1 | 36861.382 | 0.001 |
| | | | 2.5 | 4 | 4.5 | 4 | | | | 1.5 | 3 | 3.5 | 3 | 36863.071 | 0.002 |
| | | | 2.5 | 4 | 4.5 | 5 | | | | 1.5 | 3 | 3.5 | 4 | 36863.137 | 0.001 |
| | | | 2.5 | 4 | 3.5 | 4 | | | | 1.5 | 3 | 2.5 | 3 | 36863.243 | -0.001 |
| | | | 2.5 | 1 | 1.5 | 2 | | | | 1.5 | 0 | 0.5 | 1 | 36863.348 | -0.005 |
| | | | 2.5 | 4 | 3.5 | 3 | | | | 1.5 | 3 | 2.5 | 2 | 36863.383 | 0.002 |
| | | | 2.5 | 1 | 0.5 | 1 | | | | 1.5 | 1 | 0.5 | 0 | 36863.765 | -0.003 |
| | | | 2.5 | 3 | 3.5 | 3 | | | | 1.5 | 2 | 2.5 | 2 | 36865.440 | 0.002 |
| | | | 2.5 | 3 | 2.5 | 2 | | | | 1.5 | 2 | 1.5 | 1 | 36865.510 | 0.001 |
| | | | 2.5 | 3 | 3.5 | 4 | | | | 1.5 | 2 | 2.5 | 3 | 36866.015 | 0.031 |
| | | | 2.5 | 3 | 2.5 | 3 | | | | 1.5 | 2 | 1.5 | 2 | 36866.015 | 0.002 |
| | | | 2.5 | 4 | 3.5 | 3 | | | | 1.5 | 3 | 3.5 | 3 | 36867.183 | -0.002 |
| | | | 2.5 | 1 | 0.5 | 1 | | | | 1.5 | 0 | 0.5 | 1 | 36867.478 | -0.003 |
| | | | 2.5 | 3 | 2.5 | 2 | | | | 1.5 | 2 | 2.5 | 2 | 36869.660 | 0.000 |
| | | | 2.5 | 3 | 2.5 | 3 | | | | 1.5 | 2 | 2.5 | 3 | 36870.210 | -0.001 |
| | | | 3.5 | 2 | 1.5 | 2 | | | | 2.5 | 3 | 2.5 | 3 | 36871.304 | 0.001 |
| | | | 3.5 | 2 | 2.5 | 3 | | | | 2.5 | 3 | 3.5 | 4 | 36872.503 | 0.001 |
| | | | 3.5 | 4 | 4.5 | 4 | | | | 2.5 | 4 | 4.5 | 4 | 36874.605 | 0.001 |

| | | | | | | | | | | | | | | | |
|---|---|---|-----|---|-----|---|---|---|---|-----|---|-----|---|-----------|--------|
| | | | 3.5 | 4 | 4.5 | 5 | | | | 2.5 | 4 | 4.5 | 5 | 36874.717 | -0.003 |
| | | | 3.5 | 4 | 3.5 | 4 | | | | 2.5 | 4 | 3.5 | 4 | 36875.210 | -0.003 |
| | | | 3.5 | 4 | 3.5 | 3 | | | | 2.5 | 4 | 3.5 | 3 | 36875.245 | 0.002 |
| | | | 3.5 | 3 | 2.5 | 3 | | | | 2.5 | 3 | 2.5 | 3 | 36875.880 | -0.007 |
| | | | 3.5 | 3 | 3.5 | 4 | | | | 2.5 | 3 | 3.5 | 4 | 36876.471 | -0.001 |
| | | | 3.5 | 3 | 3.5 | 3 | | | | 2.5 | 3 | 3.5 | 3 | 36876.746 | -0.001 |
| | | | 3.5 | 2 | 2.5 | 3 | | | | 2.5 | 3 | 2.5 | 3 | 36877.092 | -0.001 |
| | | | 3.5 | 4 | 3.5 | 4 | | | | 2.5 | 3 | 3.5 | 4 | 36878.270 | -0.001 |
| | | | 3.5 | 4 | 3.5 | 3 | | | | 2.5 | 3 | 3.5 | 3 | 36878.497 | -0.001 |
| | | | 3.5 | 2 | 1.5 | 2 | | | | 2.5 | 2 | 1.5 | 2 | 36879.004 | 0.000 |
| | | | 3.5 | 2 | 2.5 | 3 | | | | 2.5 | 2 | 2.5 | 3 | 36879.301 | 0.000 |
| | | | 3.5 | 5 | 4.5 | 4 | | | | 2.5 | 4 | 4.5 | 4 | 36880.867 | -0.002 |
| | | | 3.5 | 3 | 3.5 | 3 | | | | 2.5 | 3 | 2.5 | 2 | 36880.912 | -0.006 |
| | | | 3.5 | 5 | 4.5 | 5 | | | | 2.5 | 4 | 4.5 | 5 | 36881.045 | -0.002 |
| | | | 3.5 | 2 | 1.5 | 1 | | | | 2.5 | 2 | 1.5 | 1 | 36881.246 | 0.002 |
| | | | 3.5 | 2 | 2.5 | 2 | | | | 2.5 | 2 | 2.5 | 2 | 36881.362 | -0.001 |
| | | | 3.5 | 2 | 1.5 | 2 | | | | 2.5 | 1 | 1.5 | 2 | 36881.964 | 0.001 |
| | | | 2.5 | 2 | 1.5 | 2 | | | | 1.5 | 2 | 1.5 | 2 | 36882.205 | -0.001 |
| | | | 2.5 | 2 | 2.5 | 3 | | | | 1.5 | 2 | 2.5 | 3 | 36882.318 | -0.003 |
| | | | 3.5 | 4 | 3.5 | 3 | | | | 2.5 | 3 | 2.5 | 2 | 36882.671 | 0.001 |
| | | | 3.5 | 4 | 4.5 | 4 | | | | 2.5 | 3 | 3.5 | 3 | 36882.792 | -0.003 |
| | | | 3.5 | 4 | 4.5 | 5 | | | | 2.5 | 3 | 3.5 | 4 | 36882.846 | -0.003 |
| | | | 3.5 | 4 | 3.5 | 4 | | | | 2.5 | 3 | 2.5 | 3 | 36882.864 | 0.002 |
| | | | 3.5 | 3 | 3.5 | 4 | | | | 2.5 | 2 | 2.5 | 3 | 36883.272 | 0.000 |
| | | | 3.5 | 3 | 2.5 | 3 | | | | 2.5 | 2 | 1.5 | 2 | 36883.588 | 0.000 |
| | | | 3.5 | 3 | 3.5 | 3 | | | | 2.5 | 2 | 2.5 | 2 | 36884.260 | 0.000 |
| | | | 3.5 | 2 | 2.5 | 3 | | | | 2.5 | 2 | 1.5 | 2 | 36884.792 | -0.002 |
| | | | 3.5 | 3 | 2.5 | 2 | | | | 2.5 | 2 | 1.5 | 1 | 36885.121 | 0.000 |
| | | | 3.5 | 2 | 1.5 | 1 | | | | 2.5 | 1 | 1.5 | 1 | 36885.341 | 0.001 |
| | | | 3.5 | 5 | 4.5 | 4 | | | | 2.5 | 4 | 3.5 | 3 | 36885.807 | 0.003 |
| | | | 3.5 | 5 | 5.5 | 5 | | | | 2.5 | 4 | 4.5 | 4 | 36885.917 | -0.001 |
| | | | 3.5 | 5 | 5.5 | 6 | | | | 2.5 | 4 | 4.5 | 5 | 36886.122 | -0.003 |
| | | | 3.5 | 3 | 2.5 | 3 | | | | 2.5 | 1 | 1.5 | 2 | 36886.549 | 0.002 |
| | | | 3.5 | 2 | 2.5 | 3 | | | | 2.5 | 1 | 1.5 | 2 | 36887.753 | 0.000 |
| | | | 3.5 | 2 | 1.5 | 2 | | | | 2.5 | 1 | 0.5 | 1 | 36888.290 | 0.001 |
| | | | 3.5 | 5 | 4.5 | 4 | | | | 2.5 | 3 | 3.5 | 3 | 36889.060 | 0.001 |
| | | | 3.5 | 5 | 4.5 | 5 | | | | 2.5 | 3 | 3.5 | 4 | 36889.175 | -0.001 |
| | | | 3.5 | 2 | 2.5 | 2 | | | | 2.5 | 1 | 1.5 | 1 | 36891.349 | 0.001 |
| | | | 2.5 | 2 | 1.5 | 1 | | | | 1.5 | 1 | 0.5 | 1 | 36891.648 | 0.000 |
| | | | 2.5 | 2 | 2.5 | 2 | | | | 1.5 | 1 | 1.5 | 2 | 36891.761 | -0.001 |
| | | | 2.5 | 1 | 1.5 | 1 | | | | 1.5 | 0 | 0.5 | 0 | 36892.994 | 0.003 |
| | | | 3.5 | 2 | 1.5 | 1 | | | | 2.5 | 1 | 0.5 | 0 | 36895.193 | -0.002 |
| | | | 2.5 | 1 | 1.5 | 1 | | | | 1.5 | 1 | 1.5 | 1 | 36896.378 | 0.002 |
| | | | 2.5 | 1 | 0.5 | 0 | | | | 1.5 | 1 | 1.5 | 1 | 36900.006 | 0.001 |
| 1 | 1 | 0 | 1.5 | 3 | 3.5 | 3 | 1 | 0 | 1 | 1.5 | 3 | 3.5 | 4 | 51622.198 | 0.004 |
| | | | 1.5 | 2 | 2.5 | 2 | | | | 1.5 | 3 | 3.5 | 3 | 51627.927 | 0.005 |
| | | | 1.5 | 2 | 2.5 | 3 | | | | 1.5 | 3 | 3.5 | 4 | 51629.877 | 0.002 |
| | | | 1.5 | 2 | 1.5 | 2 | | | | 1.5 | 3 | 2.5 | 3 | 51631.866 | -0.006 |
| | | | 1.5 | 3 | 2.5 | 3 | | | | 1.5 | 3 | 2.5 | 3 | 51652.379 | -0.004 |
| | | | 1.5 | 3 | 3.5 | 4 | | | | 1.5 | 3 | 3.5 | 4 | 51655.269 | -0.001 |
| | | | 1.5 | 2 | 2.5 | 3 | | | | 1.5 | 3 | 3.5 | 3 | 51658.808 | 0.001 |

Table III. Observed transition frequencies for the ^{37}Cl isotopic species of *trans*- β -CIVR.

| N' | K_a' | K_c' | J' | F_1' | F_2' | F' | N'' | K_a'' | K_c'' | J'' | F_1'' | F_2'' | F'' | $\nu_{\text{obs.}}$ | $\nu_{\text{obs.}} - \nu_{\text{cal.}}$ |
|------|--------|--------|------|--------|--------|------|-------|---------|---------|-------|---------|---------|-------|---------------------|---|
| 1 | 0 | 1 | 0.5 | 1 | 1.5 | 1 | 0 | 0 | 0 | 0.5 | 1 | 0.5 | 0 | 12015.827 | 0.000 |
| | | | 0.5 | 1 | 1.5 | 1 | | | | 0.5 | 1 | 1.5 | 1 | 12019.592 | 0.000 |
| | | | 0.5 | 1 | 1.5 | 2 | | | | 0.5 | 1 | 0.5 | 1 | 12022.166 | 0.000 |
| | | | 0.5 | 1 | 0.5 | 0 | | | | 0.5 | 1 | 1.5 | 1 | 12022.166 | -0.039 |
| | | | 0.5 | 1 | 0.5 | 1 | | | | 0.5 | 1 | 0.5 | 1 | 12025.907 | 0.002 |
| | | | 0.5 | 1 | 1.5 | 2 | | | | 0.5 | 1 | 1.5 | 2 | 12025.983 | 0.001 |
| | | | 1.5 | 2 | 2.5 | 2 | | | | 0.5 | 2 | 2.5 | 3 | 12028.475 | -0.001 |
| | | | 0.5 | 2 | 1.5 | 1 | | | | 0.5 | 2 | 1.5 | 2 | 12029.579 | 0.002 |
| | | | 0.5 | 1 | 0.5 | 1 | | | | 0.5 | 1 | 1.5 | 2 | 12029.721 | 0.000 |
| | | | 1.5 | 2 | 1.5 | 1 | | | | 0.5 | 1 | 0.5 | 0 | 12046.264 | 0.002 |
| | | | 0.5 | 2 | 2.5 | 2 | | | | 0.5 | 1 | 1.5 | 1 | 12046.411 | 0.000 |
| | | | 1.5 | 1 | 0.5 | 1 | | | | 0.5 | 2 | 1.5 | 2 | 12047.790 | 0.002 |
| | | | 1.5 | 1 | 1.5 | 2 | | | | 0.5 | 2 | 2.5 | 3 | 12048.054 | -0.014 |
| | | | 0.5 | 2 | 2.5 | 3 | | | | 0.5 | 1 | 1.5 | 2 | 12048.736 | -0.001 |
| | | | 0.5 | 2 | 1.5 | 2 | | | | 0.5 | 1 | 0.5 | 1 | 12048.869 | 0.000 |
| | | | 1.5 | 2 | 1.5 | 1 | | | | 0.5 | 1 | 1.5 | 1 | 12050.029 | 0.001 |
| | | | 0.5 | 2 | 1.5 | 1 | | | | 0.5 | 2 | 2.5 | 2 | 12050.140 | 0.000 |
| | | | 0.5 | 2 | 1.5 | 2 | | | | 0.5 | 1 | 1.5 | 2 | 12052.686 | 0.000 |
| | | | 1.5 | 0 | 0.5 | 1 | | | | 0.5 | 2 | 2.5 | 2 | 12055.045 | 0.002 |
| | | | 1.5 | 3 | 2.5 | 2 | | | | 0.5 | 2 | 2.5 | 2 | 12058.052 | -0.002 |
| | | | 1.5 | 2 | 2.5 | 3 | | | | 0.5 | 2 | 2.5 | 3 | 12060.213 | -0.001 |
| | | | 1.5 | 3 | 3.5 | 3 | | | | 0.5 | 2 | 2.5 | 2 | 12062.990 | 0.002 |
| | | | 1.5 | 3 | 2.5 | 3 | | | | 0.5 | 2 | 1.5 | 2 | 12063.687 | 0.001 |
| | | | 1.5 | 3 | 2.5 | 2 | | | | 0.5 | 2 | 1.5 | 1 | 12063.787 | 0.002 |
| | | | 1.5 | 3 | 3.5 | 4 | | | | 0.5 | 2 | 2.5 | 3 | 12063.872 | 0.001 |
| | | | 1.5 | 1 | 1.5 | 2 | | | | 0.5 | 2 | 2.5 | 2 | 12074.308 | -0.003 |
| | | | 1.5 | 1 | 0.5 | 0 | | | | 0.5 | 1 | 0.5 | 1 | 12085.111 | 0.003 |
| | | | 1.5 | 0 | 0.5 | 0 | | | | 0.5 | 1 | 1.5 | 1 | 12094.847 | 0.002 |
| 2 | 1 | 2 | 1.5 | 3 | 3.5 | 3 | 1 | 1 | 1 | 0.5 | 2 | 2.5 | 2 | 23465.656 | 0.000 |
| | | | 1.5 | 3 | 3.5 | 4 | | | | 0.5 | 2 | 2.5 | 3 | 23466.260 | -0.002 |
| | | | 2.5 | 4 | 4.5 | 4 | | | | 1.5 | 3 | 3.5 | 3 | 23469.098 | 0.001 |
| | | | 2.5 | 4 | 4.5 | 5 | | | | 1.5 | 3 | 3.5 | 4 | 23469.235 | 0.000 |
| | | | 1.5 | 3 | 2.5 | 3 | | | | 0.5 | 2 | 1.5 | 2 | 23470.196 | 0.001 |
| | | | 2.5 | 4 | 3.5 | 4 | | | | 1.5 | 3 | 2.5 | 3 | 23471.805 | -0.001 |
| | | | 2.5 | 3 | 3.5 | 4 | | | | 1.5 | 2 | 2.5 | 3 | 23476.108 | 0.000 |
| 2 | 0 | 2 | 1.5 | 1 | 1.5 | 2 | 1 | 0 | 1 | 1.5 | 1 | 1.5 | 1 | 24058.495 | -0.004 |
| | | | 2.5 | 1 | 1.5 | 1 | | | | 1.5 | 1 | 1.5 | 2 | 24075.920 | 0.001 |
| | | | 1.5 | 2 | 2.5 | 3 | | | | 0.5 | 2 | 2.5 | 3 | 24077.898 | -0.001 |
| | | | 1.5 | 2 | 1.5 | 2 | | | | 0.5 | 2 | 1.5 | 2 | 24078.167 | 0.000 |
| | | | 1.5 | 2 | 2.5 | 2 | | | | 0.5 | 2 | 2.5 | 2 | 24078.427 | 0.001 |
| | | | 1.5 | 0 | 0.5 | 1 | | | | 1.5 | 1 | 1.5 | 1 | 24085.296 | -0.001 |
| | | | 1.5 | 3 | 3.5 | 3 | | | | 0.5 | 2 | 2.5 | 2 | 24091.817 | 0.000 |
| | | | 1.5 | 3 | 3.5 | 4 | | | | 0.5 | 2 | 2.5 | 3 | 24092.179 | 0.018 |
| | | | 1.5 | 3 | 2.5 | 2 | | | | 1.5 | 2 | 1.5 | 1 | 24092.332 | -0.001 |
| | | | 1.5 | 3 | 2.5 | 3 | | | | 0.5 | 2 | 1.5 | 2 | 24092.424 | -0.001 |
| | | | 1.5 | 2 | 2.5 | 3 | | | | 0.5 | 1 | 1.5 | 2 | 24100.651 | -0.003 |
| | | | 1.5 | 2 | 1.5 | 2 | | | | 0.5 | 1 | 0.5 | 1 | 24101.131 | -0.001 |
| | | | 2.5 | 2 | 1.5 | 2 | | | | 1.5 | 2 | 1.5 | 2 | 24101.917 | 0.004 |
| | | | 2.5 | 2 | 2.5 | 3 | | | | 1.5 | 2 | 2.5 | 3 | 24102.010 | -0.001 |
| | | | 2.5 | 3 | 2.5 | 3 | | | | 1.5 | 2 | 2.5 | 3 | 24103.294 | 0.001 |
| | | | 2.5 | 2 | 2.5 | 3 | | | | 1.5 | 3 | 2.5 | 3 | 24104.221 | 0.001 |
| | | | 2.5 | 2 | 2.5 | 2 | | | | 1.5 | 0 | 0.5 | 1 | 24104.418 | -0.002 |
| | | | 2.5 | 3 | 3.5 | 4 | | | | 1.5 | 3 | 3.5 | 4 | 24104.529 | 0.000 |
| | | | 1.5 | 2 | 2.5 | 2 | | | | 0.5 | 1 | 1.5 | 1 | 24105.244 | -0.001 |
| | | | 2.5 | 3 | 3.5 | 4 | | | | 1.5 | 2 | 2.5 | 3 | 24108.185 | -0.001 |
| | | | 2.5 | 3 | 2.5 | 3 | | | | 1.5 | 2 | 1.5 | 2 | 24108.772 | -0.001 |
| | | | 2.5 | 3 | 3.5 | 4 | | | | 1.5 | 3 | 2.5 | 3 | 24110.394 | -0.001 |

| | | | | | | | | | | | | | | | |
|---|---|---|-----|---|-----|---|---|---|---|-----|---|-----|---|-----------|--------|
| | | | 2.5 | 3 | 2.5 | 2 | | | | 0.5 | 2 | 1.5 | 1 | 24111.699 | 0.176 |
| | | | 2.5 | 4 | 3.5 | 4 | | | | 1.5 | 2 | 2.5 | 3 | 24111.942 | 0.381 |
| | | | 2.5 | 3 | 3.5 | 3 | | | | 1.5 | 2 | 2.5 | 2 | 24111.626 | -0.001 |
| | | | 2.5 | 4 | 3.5 | 3 | | | | 1.5 | 3 | 2.5 | 2 | 24112.358 | 0.000 |
| | | | 2.5 | 4 | 4.5 | 4 | | | | 1.5 | 3 | 3.5 | 3 | 24112.517 | -0.001 |
| | | | 2.5 | 4 | 4.5 | 5 | | | | 1.5 | 3 | 3.5 | 4 | 24113.109 | -0.002 |
| | | | 2.5 | 4 | 3.5 | 4 | | | | 1.5 | 3 | 2.5 | 3 | 24113.768 | -0.001 |
| | | | 2.5 | 2 | 2.5 | 3 | | | | 1.5 | 1 | 1.5 | 2 | 24114.156 | -0.001 |
| | | | 2.5 | 2 | 1.5 | 2 | | | | 1.5 | 1 | 0.5 | 1 | 24114.540 | 0.001 |
| | | | 1.5 | 1 | 1.5 | 2 | | | | 0.5 | 1 | 1.5 | 2 | 24118.228 | -0.001 |
| | | | 2.5 | 1 | 1.5 | 2 | | | | 1.5 | 0 | 0.5 | 1 | 24126.126 | -0.001 |
| 2 | 1 | 1 | 1.5 | 3 | 3.5 | 4 | 1 | 1 | 0 | 0.5 | 2 | 2.5 | 3 | 24745.134 | 0.001 |
| | | | 1.5 | 3 | 2.5 | 3 | | | | 0.5 | 2 | 1.5 | 2 | 24748.025 | -0.001 |
| | | | 2.5 | 3 | 3.5 | 3 | | | | 1.5 | 3 | 3.5 | 3 | 24748.829 | 0.000 |
| | | | 1.5 | 3 | 3.5 | 3 | | | | 0.5 | 2 | 2.5 | 2 | 24749.913 | 0.000 |
| | | | 2.5 | 4 | 3.5 | 3 | | | | 1.5 | 3 | 2.5 | 2 | 24761.467 | 0.001 |
| | | | 2.5 | 4 | 3.5 | 4 | | | | 1.5 | 3 | 2.5 | 3 | 24762.233 | -0.001 |
| | | | 2.5 | 4 | 4.5 | 5 | | | | 1.5 | 3 | 3.5 | 4 | 24763.433 | 0.001 |
| | | | 2.5 | 4 | 3.5 | 3 | | | | 0.5 | 1 | 1.5 | 2 | 24765.178 | 0.000 |
| | | | 2.5 | 4 | 4.5 | 4 | | | | 1.5 | 3 | 3.5 | 3 | 24766.180 | 0.001 |
| | | | 2.5 | 3 | 2.5 | 3 | | | | 1.5 | 2 | 1.5 | 2 | 24767.021 | 0.000 |
| | | | 2.5 | 3 | 3.5 | 4 | | | | 1.5 | 2 | 2.5 | 3 | 24767.997 | -0.001 |

Table SIV. Observed transition frequencies for the ^{35}Cl isotopic species of $\alpha\text{-CIVR}$.

| N' | K_a' | K_c' | J' | F_1' | F_2' | F' | N'' | K_a'' | K_c'' | J'' | F_1'' | F_2'' | F'' | $\nu_{\text{obs.}}$ | $\nu_{\text{obs.}} - \nu_{\text{cal.}}$ |
|------|--------|--------|------|--------|--------|------|-------|---------|---------|-------|---------|---------|-------|---------------------|---|
| 1 | 0 | 1 | 1.5 | 2 | 2.5 | 2 | 0 | 0 | 0 | 0.5 | 2 | 1.5 | 2 | 11279.843 | 0.003 |
| | | | 1.5 | 3 | 2.5 | 3 | | | | 0.5 | 2 | 2.5 | 3 | 11292.251 | 0.000 |
| | | | 1.5 | 2 | 1.5 | 2 | | | | 0.5 | 2 | 2.5 | 2 | 11300.972 | -0.001 |
| | | | 1.5 | 3 | 3.5 | 3 | | | | 0.5 | 2 | 2.5 | 3 | 11308.098 | 0.001 |
| | | | 1.5 | 1 | 0.5 | 1 | | | | 0.5 | 1 | 0.5 | 1 | 11314.062 | 0.000 |
| | | | 0.5 | 2 | 2.5 | 2 | | | | 0.5 | 2 | 2.5 | 2 | 11316.425 | 0.000 |
| | | | 0.5 | 2 | 1.5 | 2 | | | | 0.5 | 2 | 2.5 | 3 | 11316.646 | -0.002 |
| | | | 1.5 | 3 | 2.5 | 3 | | | | 0.5 | 2 | 2.5 | 2 | 11317.708 | 0.000 |
| | | | 1.5 | 0 | 0.5 | 1 | | | | 0.5 | 2 | 1.5 | 1 | 11318.120 | 0.000 |
| | | | 1.5 | 2 | 1.5 | 2 | | | | 0.5 | 1 | 0.5 | 1 | 11331.732 | 0.001 |
| | | | 1.5 | 3 | 3.5 | 3 | | | | 0.5 | 2 | 2.5 | 2 | 11333.556 | 0.001 |
| | | | 1.5 | 1 | 1.5 | 1 | | | | 0.5 | 1 | 1.5 | 1 | 11333.678 | 0.001 |
| | | | 1.5 | 1 | 1.5 | 2 | | | | 0.5 | 1 | 1.5 | 2 | 11333.892 | 0.001 |
| | | | 1.5 | 0 | 0.5 | 1 | | | | 0.5 | 1 | 1.5 | 2 | 11335.144 | 0.001 |
| | | | 0.5 | 2 | 2.5 | 2 | | | | 0.5 | 2 | 1.5 | 2 | 11336.048 | 0.000 |
| | | | 1.5 | 2 | 1.5 | 1 | | | | 0.5 | 2 | 1.5 | 1 | 11337.191 | 0.001 |
| | | | 1.5 | 3 | 2.5 | 3 | | | | 0.5 | 2 | 1.5 | 2 | 11337.333 | 0.001 |
| | | | 1.5 | 2 | 2.5 | 3 | | | | 0.5 | 2 | 2.5 | 3 | 11337.467 | 0.000 |
| | | | 1.5 | 1 | 0.5 | 1 | | | | 0.5 | 1 | 0.5 | 0 | 11337.899 | 0.000 |
| | | | 1.5 | 3 | 3.5 | 4 | | | | 0.5 | 2 | 2.5 | 3 | 11338.324 | 0.001 |
| | | | 1.5 | 0 | 0.5 | 0 | | | | 0.5 | 1 | 1.5 | 1 | 11338.893 | 0.001 |
| | | | 0.5 | 2 | 1.5 | 2 | | | | 0.5 | 2 | 2.5 | 2 | 11342.104 | -0.002 |
| | | | 1.5 | 1 | 0.5 | 0 | | | | 0.5 | 2 | 1.5 | 1 | 11343.003 | 0.001 |
| | | | 1.5 | 2 | 2.5 | 2 | | | | 0.5 | 1 | 1.5 | 1 | 11346.158 | 0.000 |
| | | | 1.5 | 3 | 2.5 | 2 | | | | 0.5 | 2 | 1.5 | 1 | 11347.588 | 0.001 |
| | | | 0.5 | 2 | 1.5 | 1 | | | | 0.5 | 1 | 0.5 | 1 | 11351.213 | 0.001 |
| | | | 0.5 | 2 | 2.5 | 3 | | | | 0.5 | 1 | 1.5 | 2 | 11351.366 | 0.000 |
| | | | 1.5 | 3 | 3.5 | 3 | | | | 0.5 | 2 | 1.5 | 2 | 11353.180 | 0.001 |
| | | | 1.5 | 2 | 1.5 | 1 | | | | 0.5 | 1 | 1.5 | 2 | 11354.214 | 0.000 |
| | | | 0.5 | 2 | 1.5 | 2 | | | | 0.5 | 2 | 1.5 | 2 | 11361.728 | -0.001 |
| | | | 1.5 | 2 | 2.5 | 3 | | | | 0.5 | 2 | 2.5 | 2 | 11362.925 | 0.001 |
| | | | 0.5 | 2 | 1.5 | 2 | | | | 0.5 | 1 | 0.5 | 1 | 11372.863 | -0.001 |
| | | | 0.5 | 2 | 1.5 | 1 | | | | 0.5 | 1 | 0.5 | 0 | 11375.049 | 0.000 |

| | | | | | | | | | | | | | | | |
|---|---|---|-----|---|-----|---|---|---|---|-----|---|-----|---|-----------|--------|
| | | | 0.5 | 1 | 1.5 | 2 | | | | 0.5 | 2 | 2.5 | 3 | 11378.928 | 0.001 |
| | | | 0.5 | 1 | 0.5 | 0 | | | | 0.5 | 1 | 0.5 | 1 | 11380.983 | 0.000 |
| | | | 0.5 | 1 | 0.5 | 1 | | | | 0.5 | 2 | 2.5 | 2 | 11381.287 | 0.000 |
| | | | 0.5 | 1 | 1.5 | 1 | | | | 0.5 | 2 | 1.5 | 2 | 11381.522 | 0.001 |
| | | | 1.5 | 2 | 2.5 | 3 | | | | 0.5 | 2 | 1.5 | 2 | 11382.549 | 0.001 |
| | | | 0.5 | 1 | 0.5 | 1 | | | | 0.5 | 2 | 1.5 | 2 | 11400.910 | 0.000 |
| | | | 0.5 | 2 | 2.5 | 2 | | | | 0.5 | 1 | 1.5 | 1 | 11402.366 | 0.000 |
| | | | 0.5 | 1 | 1.5 | 2 | | | | 0.5 | 2 | 2.5 | 2 | 11404.386 | 0.001 |
| 2 | 1 | 2 | 1.5 | 3 | 3.5 | 4 | 1 | 1 | 1 | 0.5 | 2 | 2.5 | 3 | 22329.405 | 0.002 |
| | | | 1.5 | 3 | 3.5 | 3 | | | | 0.5 | 2 | 2.5 | 2 | 22333.402 | -0.001 |
| | | | 1.5 | 3 | 2.5 | 3 | | | | 0.5 | 2 | 1.5 | 2 | 22347.114 | 0.000 |
| | | | 1.5 | 3 | 2.5 | 3 | | | | 0.5 | 2 | 2.5 | 3 | 22357.015 | 0.005 |
| | | | 1.5 | 2 | 2.5 | 3 | | | | 0.5 | 1 | 1.5 | 2 | 22358.316 | 0.001 |
| | | | 2.5 | 3 | 2.5 | 3 | | | | 1.5 | 3 | 2.5 | 3 | 22364.435 | -0.001 |
| | | | 2.5 | 2 | 2.5 | 3 | | | | 1.5 | 2 | 1.5 | 2 | 22382.129 | 0.004 |
| | | | 2.5 | 4 | 4.5 | 4 | | | | 1.5 | 2 | 2.5 | 3 | 22385.766 | 0.002 |
| | | | 2.5 | 3 | 3.5 | 3 | | | | 1.5 | 2 | 2.5 | 2 | 22386.549 | 0.000 |
| | | | 2.5 | 2 | 2.5 | 2 | | | | 1.5 | 1 | 1.5 | 1 | 22388.649 | -0.001 |
| | | | 2.5 | 3 | 3.5 | 4 | | | | 1.5 | 3 | 3.5 | 3 | 22389.304 | -0.003 |
| | | | 2.5 | 4 | 4.5 | 5 | | | | 1.5 | 3 | 3.5 | 4 | 22390.019 | 0.000 |
| | | | 2.5 | 4 | 3.5 | 4 | | | | 1.5 | 3 | 2.5 | 3 | 22397.840 | -0.002 |
| | | | 1.5 | 2 | 1.5 | 1 | | | | 0.5 | 1 | 1.5 | 1 | 22404.347 | -0.004 |
| 2 | 0 | 2 | 1.5 | 3 | 2.5 | 3 | 1 | 0 | 1 | 0.5 | 1 | 1.5 | 2 | 22630.596 | -0.001 |
| | | | 2.5 | 4 | 3.5 | 4 | | | | 1.5 | 3 | 3.5 | 4 | 22632.557 | 0.000 |
| | | | 1.5 | 3 | 2.5 | 2 | | | | 0.5 | 1 | 0.5 | 1 | 22639.201 | 0.004 |
| | | | 2.5 | 3 | 3.5 | 3 | | | | 1.5 | 3 | 3.5 | 3 | 22644.662 | 0.000 |
| | | | 2.5 | 4 | 4.5 | 4 | | | | 1.5 | 3 | 3.5 | 4 | 22648.337 | -0.001 |
| | | | 2.5 | 2 | 1.5 | 2 | | | | 1.5 | 3 | 2.5 | 2 | 22651.987 | -0.001 |
| | | | 2.5 | 1 | 1.5 | 2 | | | | 1.5 | 2 | 1.5 | 2 | 22661.447 | -0.001 |
| | | | 2.5 | 1 | 0.5 | 1 | | | | 1.5 | 2 | 1.5 | 1 | 22661.990 | 0.000 |
| | | | 1.5 | 2 | 2.5 | 3 | | | | 0.5 | 1 | 1.5 | 2 | 22662.509 | 0.000 |
| | | | 2.5 | 1 | 0.5 | 0 | | | | 1.5 | 2 | 1.5 | 1 | 22665.062 | 0.000 |
| | | | 2.5 | 2 | 1.5 | 2 | | | | 0.5 | 2 | 2.5 | 3 | 22665.232 | 0.000 |
| | | | 1.5 | 2 | 1.5 | 2 | | | | 0.5 | 1 | 0.5 | 1 | 22669.255 | -0.001 |
| | | | 2.5 | 2 | 2.5 | 2 | | | | 1.5 | 2 | 2.5 | 2 | 22670.079 | 0.000 |
| | | | 1.5 | 2 | 2.5 | 2 | | | | 0.5 | 1 | 1.5 | 1 | 22671.172 | 0.000 |
| | | | 1.5 | 3 | 2.5 | 3 | | | | 1.5 | 2 | 2.5 | 3 | 22672.058 | 0.000 |
| | | | 2.5 | 3 | 2.5 | 2 | | | | 1.5 | 3 | 2.5 | 2 | 22672.352 | 0.003 |
| | | | 2.5 | 2 | 2.5 | 3 | | | | 0.5 | 2 | 2.5 | 3 | 22672.417 | -0.001 |
| | | | 2.5 | 1 | 1.5 | 1 | | | | 1.5 | 0 | 0.5 | 0 | 22676.954 | -0.001 |
| | | | 2.5 | 3 | 3.5 | 3 | | | | 1.5 | 2 | 1.5 | 2 | 22677.244 | 0.000 |
| | | | 2.5 | 4 | 4.5 | 4 | | | | 1.5 | 3 | 3.5 | 3 | 22678.565 | 0.002 |
| | | | 2.5 | 4 | 3.5 | 4 | | | | 1.5 | 3 | 2.5 | 3 | 22678.629 | -0.001 |
| | | | 2.5 | 4 | 4.5 | 5 | | | | 1.5 | 3 | 3.5 | 4 | 22678.861 | 0.000 |
| | | | 2.5 | 1 | 1.5 | 2 | | | | 1.5 | 1 | 0.5 | 1 | 22679.117 | 0.000 |
| | | | 2.5 | 2 | 1.5 | 1 | | | | 1.5 | 1 | 0.5 | 0 | 22679.553 | 0.000 |
| | | | 2.5 | 1 | 0.5 | 1 | | | | 1.5 | 0 | 0.5 | 1 | 22681.061 | 0.000 |
| | | | 2.5 | 2 | 1.5 | 2 | | | | 1.5 | 0 | 0.5 | 1 | 22681.455 | 0.000 |
| | | | 2.5 | 1 | 1.5 | 1 | | | | 1.5 | 1 | 1.5 | 1 | 22682.171 | 0.001 |
| | | | 2.5 | 1 | 0.5 | 1 | | | | 1.5 | 1 | 1.5 | 2 | 22682.313 | 0.000 |
| | | | 2.5 | 2 | 2.5 | 2 | | | | 1.5 | 1 | 1.5 | 1 | 22682.560 | 0.000 |
| | | | 2.5 | 2 | 1.5 | 2 | | | | 1.5 | 1 | 1.5 | 2 | 22682.706 | -0.001 |
| | | | 2.5 | 3 | 2.5 | 2 | | | | 1.5 | 2 | 1.5 | 1 | 22682.746 | 0.000 |
| | | | 2.5 | 1 | 0.5 | 0 | | | | 1.5 | 0 | 0.5 | 1 | 22684.132 | 0.000 |
| | | | 2.5 | 2 | 1.5 | 1 | | | | 1.5 | 2 | 1.5 | 1 | 22685.365 | 0.000 |
| | | | 2.5 | 3 | 2.5 | 3 | | | | 1.5 | 2 | 2.5 | 2 | 22686.008 | 0.000 |
| | | | 1.5 | 2 | 1.5 | 1 | | | | 0.5 | 1 | 0.5 | 0 | 22686.361 | 0.000 |
| | | | 1.5 | 2 | 1.5 | 2 | | | | 1.5 | 2 | 2.5 | 3 | 22687.618 | 0.000 |
| | | | 2.5 | 3 | 3.5 | 4 | | | | 1.5 | 3 | 3.5 | 4 | 22688.024 | 0.000 |
| | | | 1.5 | 1 | 1.5 | 2 | | | | 0.5 | 1 | 1.5 | 2 | 22688.572 | -0.003 |

| | | | | | | | | | | | | | | | |
|---|---|---|-----|---|-----|---|---|---|---|-----|---|-----|---|-----------|--------|
| | | | 2.5 | 3 | 3.5 | 4 | | | | 1.5 | 2 | 2.5 | 3 | 22688.881 | 0.001 |
| | | | 2.5 | 4 | 3.5 | 3 | | | | 1.5 | 3 | 2.5 | 2 | 22689.241 | 0.000 |
| | | | 2.5 | 2 | 2.5 | 3 | | | | 1.5 | 1 | 1.5 | 2 | 22689.893 | 0.000 |
| | | | 1.5 | 3 | 2.5 | 3 | | | | 0.5 | 2 | 1.5 | 2 | 22692.878 | 0.002 |
| | | | 1.5 | 3 | 3.5 | 4 | | | | 0.5 | 2 | 2.5 | 3 | 22693.081 | -0.001 |
| | | | 1.5 | 3 | 3.5 | 3 | | | | 1.5 | 3 | 2.5 | 3 | 22693.579 | 0.000 |
| | | | 1.5 | 1 | 1.5 | 1 | | | | 0.5 | 1 | 0.5 | 1 | 22693.766 | -0.001 |
| | | | 1.5 | 3 | 3.5 | 3 | | | | 0.5 | 2 | 2.5 | 2 | 22694.863 | 0.000 |
| | | | 1.5 | 1 | 0.5 | 1 | | | | 0.5 | 1 | 1.5 | 1 | 22696.678 | -0.001 |
| | | | 1.5 | 3 | 2.5 | 2 | | | | 0.5 | 2 | 1.5 | 1 | 22700.030 | 0.001 |
| | | | 1.5 | 2 | 2.5 | 3 | | | | 1.5 | 3 | 3.5 | 4 | 22703.113 | 0.000 |
| | | | 1.5 | 2 | 2.5 | 3 | | | | 1.5 | 2 | 2.5 | 3 | 22703.970 | 0.000 |
| | | | 1.5 | 1 | 0.5 | 0 | | | | 0.5 | 1 | 1.5 | 1 | 22705.786 | 0.001 |
| | | | 1.5 | 2 | 1.5 | 2 | | | | 0.5 | 2 | 1.5 | 2 | 22708.438 | 0.001 |
| | | | 1.5 | 0 | 0.5 | 1 | | | | 0.5 | 1 | 1.5 | 2 | 22709.198 | -0.001 |
| | | | 1.5 | 0 | 0.5 | 0 | | | | 0.5 | 1 | 0.5 | 1 | 22711.085 | -0.001 |
| | | | 1.5 | 2 | 2.5 | 2 | | | | 1.5 | 3 | 2.5 | 3 | 22715.361 | -0.001 |
| | | | 1.5 | 2 | 1.5 | 1 | | | | 0.5 | 2 | 1.5 | 1 | 22716.132 | 0.000 |
| | | | 1.5 | 2 | 2.5 | 2 | | | | 0.5 | 2 | 2.5 | 2 | 22716.645 | 0.000 |
| | | | 1.5 | 3 | 2.5 | 3 | | | | 1.5 | 3 | 2.5 | 3 | 22717.273 | 0.000 |
| | | | 1.5 | 3 | 2.5 | 2 | | | | 1.5 | 2 | 1.5 | 2 | 22719.511 | 0.000 |
| | | | 1.5 | 1 | 1.5 | 2 | | | | 1.5 | 2 | 2.5 | 3 | 22730.035 | -0.001 |
| | | | 1.5 | 2 | 2.5 | 2 | | | | 1.5 | 2 | 1.5 | 2 | 22732.095 | -0.002 |
| | | | 1.5 | 1 | 1.5 | 1 | | | | 0.5 | 2 | 1.5 | 2 | 22732.948 | 0.000 |
| | | | 1.5 | 2 | 2.5 | 3 | | | | 1.5 | 3 | 3.5 | 3 | 22733.339 | 0.000 |
| | | | 1.5 | 3 | 2.5 | 2 | | | | 1.5 | 1 | 0.5 | 1 | 22737.178 | -0.001 |
| | | | 1.5 | 1 | 0.5 | 1 | | | | 0.5 | 2 | 2.5 | 2 | 22742.151 | -0.001 |
| | | | 1.5 | 2 | 1.5 | 2 | | | | 1.5 | 2 | 1.5 | 2 | 22749.570 | 0.000 |
| | | | 1.5 | 3 | 3.5 | 3 | | | | 1.5 | 2 | 2.5 | 2 | 22751.070 | -0.001 |
| | | | 1.5 | 2 | 1.5 | 1 | | | | 1.5 | 1 | 0.5 | 1 | 22753.282 | 0.000 |
| | | | 1.5 | 1 | 1.5 | 1 | | | | 0.5 | 2 | 2.5 | 2 | 22758.629 | 0.000 |
| | | | 1.5 | 1 | 1.5 | 2 | | | | 1.5 | 3 | 3.5 | 3 | 22759.405 | 0.000 |
| 2 | 1 | 1 | 1.5 | 3 | 2.5 | 2 | 1 | 1 | 0 | 0.5 | 2 | 1.5 | 1 | 22939.923 | 0.001 |
| | | | 1.5 | 3 | 3.5 | 4 | | | | 0.5 | 2 | 2.5 | 3 | 22940.407 | -0.001 |
| | | | 1.5 | 1 | 1.5 | 2 | | | | 0.5 | 1 | 1.5 | 2 | 22951.112 | -0.007 |
| | | | 1.5 | 2 | 2.5 | 2 | | | | 0.5 | 2 | 2.5 | 2 | 22975.984 | 0.000 |
| | | | 1.5 | 2 | 2.5 | 3 | | | | 0.5 | 2 | 2.5 | 3 | 22976.420 | 0.000 |
| | | | 1.5 | 0 | 0.5 | 1 | | | | 0.5 | 1 | 1.5 | 2 | 22978.183 | 0.005 |
| | | | 2.5 | 3 | 2.5 | 3 | | | | 1.5 | 2 | 2.5 | 3 | 22982.517 | 0.002 |
| | | | 2.5 | 2 | 1.5 | 2 | | | | 1.5 | 1 | 1.5 | 2 | 22991.997 | -0.001 |
| | | | 2.5 | 2 | 2.5 | 3 | | | | 1.5 | 2 | 1.5 | 2 | 23002.195 | 0.001 |
| | | | 2.5 | 3 | 2.5 | 2 | | | | 1.5 | 2 | 1.5 | 1 | 23004.270 | 0.000 |
| | | | 2.5 | 1 | 1.5 | 2 | | | | 1.5 | 1 | 0.5 | 1 | 23004.608 | 0.000 |
| | | | 2.5 | 3 | 3.5 | 4 | | | | 1.5 | 2 | 2.5 | 3 | 23004.898 | 0.002 |
| | | | 2.5 | 3 | 3.5 | 3 | | | | 1.5 | 2 | 2.5 | 2 | 23006.821 | 0.001 |
| | | | 2.5 | 4 | 3.5 | 3 | | | | 1.5 | 3 | 2.5 | 2 | 23007.505 | 0.000 |
| | | | 2.5 | 4 | 4.5 | 4 | | | | 1.5 | 3 | 3.5 | 3 | 23008.798 | 0.002 |
| | | | 2.5 | 2 | 2.5 | 2 | | | | 1.5 | 1 | 1.5 | 1 | 23010.067 | 0.005 |
| | | | 2.5 | 3 | 2.5 | 3 | | | | 1.5 | 1 | 1.5 | 2 | 23010.986 | 0.000 |
| | | | 2.5 | 4 | 3.5 | 4 | | | | 1.5 | 3 | 2.5 | 3 | 23011.288 | -0.005 |
| | | | 2.5 | 1 | 0.5 | 1 | | | | 1.5 | 0 | 0.5 | 1 | 23012.116 | -0.004 |
| | | | 2.5 | 4 | 4.5 | 5 | | | | 1.5 | 3 | 3.5 | 4 | 23014.326 | -0.003 |
| 3 | 0 | 3 | 3.5 | 5 | 4.5 | 5 | 2 | 0 | 2 | 2.5 | 4 | 4.5 | 5 | 33973.857 | 0.001 |
| | | | 3.5 | 4 | 4.5 | 4 | | | | 2.5 | 4 | 3.5 | 4 | 33975.210 | -0.002 |
| | | | 3.5 | 3 | 3.5 | 4 | | | | 2.5 | 4 | 4.5 | 4 | 33985.354 | -0.001 |
| | | | 3.5 | 2 | 2.5 | 3 | | | | 2.5 | 3 | 3.5 | 3 | 34004.505 | 0.000 |
| | | | 3.5 | 3 | 3.5 | 3 | | | | 2.5 | 3 | 2.5 | 3 | 34007.189 | 0.000 |
| | | | 3.5 | 4 | 3.5 | 3 | | | | 2.5 | 4 | 3.5 | 3 | 34008.697 | 0.000 |
| | | | 3.5 | 4 | 3.5 | 4 | | | | 1.5 | 3 | 3.5 | 4 | 34009.606 | -0.001 |
| | | | 3.5 | 3 | 2.5 | 3 | | | | 2.5 | 2 | 2.5 | 3 | 34018.833 | 0.000 |

| | | | | | | | | | |
|-----|---|-----|---|-----|---|-----|---|-----------|--------|
| 3.5 | 3 | 3.5 | 4 | 2.5 | 3 | 3.5 | 3 | 34019.256 | 0.000 |
| 3.5 | 5 | 5.5 | 6 | 2.5 | 4 | 4.5 | 5 | 34020.082 | 0.002 |
| 3.5 | 5 | 4.5 | 5 | 2.5 | 4 | 3.5 | 4 | 34020.157 | -0.003 |
| 3.5 | 5 | 5.5 | 5 | 2.5 | 4 | 4.5 | 4 | 34020.197 | 0.001 |
| 3.5 | 2 | 2.5 | 3 | 2.5 | 1 | 1.5 | 2 | 34020.296 | -0.005 |
| 3.5 | 2 | 2.5 | 2 | 2.5 | 1 | 1.5 | 1 | 34020.577 | 0.000 |
| 3.5 | 2 | 1.5 | 1 | 2.5 | 1 | 0.5 | 0 | 34020.642 | 0.000 |
| 3.5 | 2 | 1.5 | 2 | 2.5 | 2 | 1.5 | 2 | 34021.582 | -0.001 |
| 3.5 | 2 | 1.5 | 2 | 2.5 | 1 | 0.5 | 1 | 34021.976 | -0.001 |
| 3.5 | 3 | 2.5 | 2 | 2.5 | 2 | 1.5 | 1 | 34022.570 | 0.000 |
| 3.5 | 3 | 3.5 | 3 | 2.5 | 2 | 2.5 | 2 | 34023.118 | -0.001 |
| 3.5 | 2 | 1.5 | 1 | 2.5 | 1 | 0.5 | 1 | 34023.714 | 0.000 |
| 2.5 | 2 | 2.5 | 3 | 1.5 | 1 | 1.5 | 2 | 34025.289 | -0.005 |
| 3.5 | 4 | 4.5 | 4 | 2.5 | 3 | 2.5 | 3 | 34025.326 | 0.001 |
| 3.5 | 4 | 3.5 | 3 | 2.5 | 3 | 2.5 | 2 | 34025.588 | -0.001 |
| 3.5 | 3 | 2.5 | 3 | 2.5 | 2 | 1.5 | 2 | 34026.019 | -0.001 |
| 3.5 | 5 | 4.5 | 4 | 2.5 | 4 | 3.5 | 3 | 34029.536 | 0.000 |
| 3.5 | 4 | 3.5 | 4 | 2.5 | 2 | 2.5 | 3 | 34030.269 | -0.001 |
| 2.5 | 3 | 3.5 | 4 | 1.5 | 2 | 2.5 | 3 | 34030.281 | 0.002 |
| 3.5 | 4 | 4.5 | 5 | 2.5 | 3 | 3.5 | 4 | 34030.370 | -0.001 |
| 2.5 | 3 | 2.5 | 2 | 1.5 | 1 | 1.5 | 1 | 34032.200 | 0.001 |
| 2.5 | 4 | 3.5 | 4 | 1.5 | 3 | 2.5 | 3 | 34033.017 | 0.001 |
| 2.5 | 4 | 4.5 | 5 | 1.5 | 3 | 3.5 | 4 | 34033.719 | 0.000 |
| 2.5 | 1 | 1.5 | 2 | 1.5 | 1 | 0.5 | 1 | 34034.145 | 0.000 |
| 2.5 | 3 | 2.5 | 3 | 1.5 | 2 | 2.5 | 2 | 34034.724 | 0.000 |
| 2.5 | 4 | 3.5 | 3 | 1.5 | 2 | 1.5 | 2 | 34035.728 | 0.001 |
| 2.5 | 2 | 1.5 | 1 | 1.5 | 0 | 0.5 | 0 | 34035.795 | -0.003 |
| 2.5 | 4 | 4.5 | 4 | 1.5 | 3 | 3.5 | 3 | 34038.393 | 0.001 |
| 3.5 | 4 | 4.5 | 5 | 2.5 | 4 | 4.5 | 5 | 34039.536 | 0.002 |
| 2.5 | 3 | 3.5 | 3 | 1.5 | 3 | 2.5 | 2 | 34039.754 | 0.001 |
| 2.5 | 2 | 2.5 | 2 | 1.5 | 2 | 1.5 | 1 | 34039.820 | 0.000 |
| 2.5 | 1 | 0.5 | 1 | 1.5 | 0 | 0.5 | 1 | 34040.469 | 0.001 |
| 2.5 | 3 | 3.5 | 4 | 2.5 | 3 | 3.5 | 4 | 34045.368 | -0.001 |
| 2.5 | 1 | 0.5 | 0 | 1.5 | 0 | 0.5 | 1 | 34046.565 | 0.001 |
| 2.5 | 2 | 1.5 | 2 | 1.5 | 1 | 1.5 | 2 | 34046.775 | 0.000 |
| 2.5 | 3 | 2.5 | 3 | 1.5 | 3 | 2.5 | 2 | 34047.313 | 0.003 |
| 2.5 | 1 | 1.5 | 1 | 1.5 | 1 | 0.5 | 1 | 34047.384 | 0.001 |
| 2.5 | 3 | 3.5 | 3 | 1.5 | 3 | 3.5 | 3 | 34048.950 | 0.001 |
| 2.5 | 4 | 3.5 | 3 | 1.5 | 3 | 2.5 | 3 | 34051.289 | 0.001 |
| 2.5 | 2 | 2.5 | 3 | 1.5 | 2 | 2.5 | 3 | 34051.360 | 0.000 |
| 2.5 | 2 | 1.5 | 1 | 1.5 | 1 | 1.5 | 1 | 34053.117 | 0.000 |
| 2.5 | 4 | 4.5 | 4 | 2.5 | 4 | 3.5 | 4 | 34053.339 | -0.002 |
| 2.5 | 4 | 3.5 | 4 | 2.5 | 4 | 4.5 | 4 | 34055.879 | -0.001 |
| 2.5 | 2 | 2.5 | 2 | 1.5 | 3 | 2.5 | 2 | 34055.924 | 0.002 |
| 2.5 | 3 | 2.5 | 3 | 1.5 | 3 | 3.5 | 3 | 34056.506 | 0.000 |
| 2.5 | 3 | 2.5 | 2 | 1.5 | 2 | 1.5 | 2 | 34056.711 | 0.001 |
| 2.5 | 1 | 1.5 | 2 | 1.5 | 2 | 2.5 | 2 | 34059.651 | -0.001 |
| 2.5 | 1 | 0.5 | 1 | 1.5 | 1 | 1.5 | 2 | 34061.092 | 0.000 |
| 2.5 | 3 | 3.5 | 4 | 1.5 | 3 | 2.5 | 3 | 34062.194 | 0.003 |
| 2.5 | 4 | 3.5 | 3 | 1.5 | 3 | 2.5 | 2 | 34065.786 | 0.000 |
| 2.5 | 2 | 2.5 | 3 | 2.5 | 3 | 3.5 | 4 | 34066.450 | 0.001 |
| 2.5 | 1 | 1.5 | 1 | 1.5 | 2 | 1.5 | 1 | 34069.375 | 0.002 |
| 2.5 | 4 | 3.5 | 4 | 2.5 | 4 | 3.5 | 4 | 34071.661 | 0.001 |
| 2.5 | 2 | 1.5 | 2 | 1.5 | 2 | 2.5 | 3 | 34072.842 | 0.001 |

Table SV. Observed transition frequencies for the ^{37}Cl isotopic species of $\alpha\text{-CIVR}$.

| N' | K_a' | K_c' | J' | F_1' | F_2' | F' | N'' | K_a'' | K_c'' | J'' | F_1'' | F_2'' | F'' | $\nu_{\text{obs.}}$ | $\nu_{\text{obs.}}-\nu_{\text{cal.}}$ |
|------|--------|--------|------|--------|--------|------|-------|---------|---------|-------|---------|---------|-------|---------------------|---------------------------------------|
| 1 | 0 | 1 | 1.5 | 3 | 2.5 | 3 | 0 | 0 | 0 | 0.5 | 2 | 2.5 | 3 | 11069.613 | -0.001 |
| | | | 1.5 | 2 | 1.5 | 2 | | | | 0.5 | 2 | 2.5 | 2 | 11082.242 | -0.002 |
| | | | 1.5 | 3 | 3.5 | 3 | | | | 0.5 | 2 | 2.5 | 3 | 11084.965 | -0.003 |
| | | | 1.5 | 1 | 0.5 | 1 | | | | 0.5 | 1 | 0.5 | 1 | 11094.405 | 0.003 |
| | | | 1.5 | 0 | 0.5 | 1 | | | | 0.5 | 2 | 1.5 | 1 | 11096.103 | -0.001 |
| | | | 1.5 | 2 | 1.5 | 2 | | | | 0.5 | 1 | 0.5 | 1 | 11107.644 | 0.000 |
| | | | 1.5 | 3 | 3.5 | 3 | | | | 0.5 | 2 | 2.5 | 2 | 11108.188 | -0.001 |
| | | | 1.5 | 1 | 1.5 | 1 | | | | 0.5 | 1 | 1.5 | 1 | 11109.351 | 0.000 |
| | | | 1.5 | 1 | 1.5 | 2 | | | | 0.5 | 1 | 1.5 | 2 | 11110.502 | -0.001 |
| | | | 1.5 | 0 | 0.5 | 1 | | | | 0.5 | 1 | 1.5 | 2 | 11110.710 | -0.001 |
| | | | 1.5 | 3 | 3.5 | 4 | | | | 0.5 | 2 | 2.5 | 3 | 11112.472 | 0.001 |
| | | | 1.5 | 3 | 2.5 | 3 | | | | 0.5 | 2 | 1.5 | 2 | 11112.785 | 0.000 |
| | | | 1.5 | 0 | 0.5 | 0 | | | | 0.5 | 1 | 1.5 | 1 | 11113.252 | 0.005 |
| | | | 1.5 | 2 | 1.5 | 1 | | | | 0.5 | 2 | 1.5 | 1 | 11113.497 | 0.000 |
| | | | 0.5 | 2 | 2.5 | 2 | | | | 0.5 | 2 | 1.5 | 2 | 11114.550 | -0.002 |
| | | | 1.5 | 2 | 2.5 | 3 | | | | 0.5 | 2 | 2.5 | 3 | 11115.460 | 0.000 |
| | | | 1.5 | 1 | 0.5 | 0 | | | | 0.5 | 2 | 1.5 | 1 | 11118.727 | 0.000 |
| | | | 0.5 | 2 | 1.5 | 2 | | | | 0.5 | 2 | 2.5 | 2 | 11120.445 | -0.001 |
| | | | 1.5 | 2 | 2.5 | 2 | | | | 0.5 | 1 | 1.5 | 1 | 11120.552 | 0.000 |
| | | | 1.5 | 3 | 2.5 | 2 | | | | 0.5 | 2 | 1.5 | 1 | 11121.692 | 0.000 |
| | | | 0.5 | 2 | 2.5 | 3 | | | | 0.5 | 1 | 1.5 | 2 | 11125.576 | -0.001 |
| | | | 0.5 | 2 | 1.5 | 1 | | | | 0.5 | 1 | 0.5 | 1 | 11128.129 | -0.010 |
| | | | 1.5 | 2 | 2.5 | 3 | | | | 0.5 | 2 | 2.5 | 2 | 11138.681 | 0.000 |
| | | | 0.5 | 2 | 1.5 | 2 | | | | 0.5 | 1 | 0.5 | 1 | 11145.845 | -0.001 |
| | | | 0.5 | 2 | 1.5 | 1 | | | | 0.5 | 1 | 0.5 | 0 | 11146.197 | 0.001 |
| | | | 0.5 | 1 | 1.5 | 2 | | | | 0.5 | 2 | 2.5 | 3 | 11149.961 | 0.000 |
| | | | 0.5 | 1 | 0.5 | 0 | | | | 0.5 | 1 | 0.5 | 1 | 11151.089 | -0.002 |
| | | | 0.5 | 1 | 0.5 | 1 | | | | 0.5 | 2 | 2.5 | 2 | 11151.612 | -0.001 |
| | | | 0.5 | 1 | 1.5 | 1 | | | | 0.5 | 2 | 1.5 | 2 | 11153.106 | 0.000 |
| | | | 0.5 | 2 | 2.5 | 2 | | | | 0.5 | 1 | 1.5 | 1 | 11170.485 | 0.047 |
| 2 | 0 | 2 | 2.5 | 1 | 1.5 | 2 | 1 | 0 | 1 | 1.5 | 2 | 1.5 | 2 | 22215.847 | -0.001 |
| | | | 1.5 | 2 | 2.5 | 3 | | | | 0.5 | 1 | 1.5 | 2 | 22218.629 | -0.001 |
| | | | 2.5 | 2 | 2.5 | 2 | | | | 1.5 | 2 | 2.5 | 2 | 22221.351 | -0.001 |
| | | | 2.5 | 3 | 2.5 | 3 | | | | 0.5 | 2 | 2.5 | 3 | 22224.628 | 0.001 |
| | | | 2.5 | 3 | 2.5 | 2 | | | | 1.5 | 3 | 2.5 | 2 | 22225.363 | 0.000 |
| | | | 1.5 | 3 | 2.5 | 2 | | | | 0.5 | 1 | 0.5 | 1 | 22225.555 | 0.000 |
| | | | 1.5 | 2 | 2.5 | 2 | | | | 0.5 | 1 | 1.5 | 1 | 22226.103 | -0.001 |
| | | | 2.5 | 2 | 2.5 | 3 | | | | 1.5 | 2 | 1.5 | 2 | 22227.733 | 0.001 |
| | | | 2.5 | 4 | 4.5 | 4 | | | | 1.5 | 3 | 3.5 | 3 | 22228.174 | 0.001 |
| | | | 2.5 | 4 | 4.5 | 5 | | | | 1.5 | 3 | 3.5 | 4 | 22228.869 | 0.001 |
| | | | 2.5 | 1 | 1.5 | 2 | | | | 1.5 | 1 | 0.5 | 1 | 22229.091 | 0.001 |
| | | | 2.5 | 4 | 3.5 | 4 | | | | 1.5 | 3 | 2.5 | 3 | 22229.410 | 0.001 |
| | | | 2.5 | 2 | 1.5 | 1 | | | | 1.5 | 1 | 0.5 | 0 | 22230.736 | -0.002 |
| | | | 2.5 | 1 | 0.5 | 1 | | | | 1.5 | 0 | 0.5 | 1 | 22231.679 | 0.000 |
| | | | 2.5 | 1 | 0.5 | 1 | | | | 1.5 | 1 | 1.5 | 2 | 22231.887 | -0.001 |
| | | | 2.5 | 2 | 1.5 | 2 | | | | 1.5 | 0 | 0.5 | 1 | 22232.407 | 0.001 |
| | | | 2.5 | 2 | 2.5 | 2 | | | | 1.5 | 1 | 1.5 | 1 | 22232.555 | 0.002 |
| | | | 2.5 | 2 | 1.5 | 2 | | | | 1.5 | 1 | 1.5 | 2 | 22232.613 | -0.001 |
| | | | 2.5 | 3 | 2.5 | 2 | | | | 1.5 | 2 | 1.5 | 1 | 22233.558 | 0.000 |
| | | | 2.5 | 1 | 0.5 | 0 | | | | 1.5 | 0 | 0.5 | 1 | 22234.012 | 0.000 |
| | | | 2.5 | 3 | 3.5 | 3 | | | | 1.5 | 2 | 2.5 | 2 | 22235.456 | 0.001 |
| | | | 2.5 | 2 | 1.5 | 1 | | | | 1.5 | 2 | 1.5 | 1 | 22235.967 | -0.001 |
| | | | 2.5 | 4 | 3.5 | 3 | | | | 1.5 | 3 | 2.5 | 2 | 22238.625 | 0.000 |
| | | | 2.5 | 3 | 3.5 | 4 | | | | 1.5 | 2 | 2.5 | 3 | 22238.741 | 0.000 |
| | | | 1.5 | 2 | 1.5 | 1 | | | | 0.5 | 1 | 0.5 | 0 | 22238.992 | 0.002 |
| | | | 2.5 | 3 | 2.5 | 3 | | | | 1.5 | 1 | 1.5 | 2 | 22239.702 | 0.001 |
| | | | 1.5 | 1 | 1.5 | 2 | | | | 0.5 | 1 | 1.5 | 2 | 22240.565 | 0.000 |

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|-----|---|-----|---|---|---|---|--|--|--|--|--|--|--|--|-----|-----|-----|-----|-----------|-----------|--------|
| | | | 2.5 | 3 | 3.5 | 4 | | | | | | | | | | | | | 1.5 | 3 | 3.5 | 4 | 22241.730 | 0.000 |
| | | | 1.5 | 3 | 3.5 | 4 | | | | | | | | | | | | | 0.5 | 2 | 2.5 | 3 | 22242.552 | 0.000 |
| | | | 1.5 | 3 | 2.5 | 3 | | | | | | | | | | | | | 0.5 | 2 | 1.5 | 2 | 22242.705 | 0.001 |
| | | | 1.5 | 3 | 3.5 | 3 | | | | | | | | | | | | | 0.5 | 2 | 2.5 | 2 | 22245.237 | -0.002 |
| | | | 1.5 | 1 | 1.5 | 1 | | | | | | | | | | | | | 0.5 | 1 | 0.5 | 1 | 22245.352 | 0.003 |
| | | | 1.5 | 3 | 3.5 | 3 | | | | | | | | | | | | | 1.5 | 3 | 2.5 | 3 | 22247.017 | 0.011 |
| | | | 1.5 | 1 | 0.5 | 1 | | | | | | | | | | | | | 0.5 | 1 | 1.5 | 1 | 22247.072 | -0.002 |
| | | | 1.5 | 2 | 1.5 | 2 | | | | | | | | | | | | | 0.5 | 2 | 1.5 | 1 | 22249.003 | -0.001 |
| | | | 1.5 | 2 | 2.5 | 3 | | | | | | | | | | | | | 1.5 | 2 | 2.5 | 3 | 22253.131 | -0.001 |
| | | | 1.5 | 3 | 2.5 | 3 | | | | | | | | | | | | | 1.5 | 3 | 3.5 | 3 | 22254.962 | 0.001 |
| | | | 1.5 | 1 | 0.5 | 0 | | | | | | | | | | | | | 0.5 | 1 | 1.5 | 1 | 22255.492 | 0.001 |
| | | | 1.5 | 2 | 2.5 | 3 | | | | | | | | | | | | | 1.5 | 3 | 3.5 | 4 | 22256.119 | -0.002 |
| | | | 1.5 | 2 | 2.5 | 2 | | | | | | | | | | | | | 0.5 | 2 | 1.5 | 1 | 22256.522 | -0.001 |
| | | | 1.5 | 3 | 2.5 | 2 | | | | | | | | | | | | | 0.5 | 2 | 1.5 | 2 | 22256.722 | 0.000 |
| | | | 1.5 | 0 | 0.5 | 1 | | | | | | | | | | | | | 0.5 | 1 | 1.5 | 2 | 22258.068 | 0.000 |
| | | | 1.5 | 0 | 0.5 | 0 | | | | | | | | | | | | | 0.5 | 1 | 0.5 | 1 | 22259.345 | 0.001 |
| | | | 1.5 | 2 | 1.5 | 1 | | | | | | | | | | | | | 0.5 | 2 | 1.5 | 1 | 22261.945 | 0.003 |
| | | | 1.5 | 2 | 2.5 | 2 | | | | | | | | | | | | | 0.5 | 2 | 2.5 | 2 | 22264.658 | 0.000 |
| | | | 1.5 | 1 | 1.5 | 2 | | | | | | | | | | | | | 1.5 | 2 | 2.5 | 3 | 22275.067 | 0.000 |
| | | | 1.5 | 1 | 1.5 | 1 | | | | | | | | | | | | | 0.5 | 2 | 1.5 | 2 | 22276.516 | 0.000 |
| | | | 1.5 | 2 | 2.5 | 3 | | | | | | | | | | | | | 1.5 | 3 | 3.5 | 3 | 22283.622 | -0.002 |
| | | | 1.5 | 1 | 0.5 | 1 | | | | | | | | | | | | | 0.5 | 2 | 2.5 | 2 | 22285.629 | 0.001 |
| | | | 1.5 | 3 | 3.5 | 3 | | | | | | | | | | | | | 1.5 | 2 | 2.5 | 2 | 22295.123 | -0.002 |
| 3 | 0 | 3 | 3.5 | 4 | 3.5 | 4 | 2 | 0 | 2 | | | | | | | | | 1.5 | 3 | 3.5 | 4 | 33337.522 | 0.002 | |
| | | | 3.5 | 3 | 2.5 | 3 | | | | | | | | | | | | | 2.5 | 3 | 2.5 | 3 | 33344.573 | 0.002 |
| | | | 3.5 | 3 | 3.5 | 4 | | | | | | | | | | | | | 2.5 | 2 | 2.5 | 3 | 33345.073 | 0.002 |
| | | | 3.5 | 5 | 5.5 | 5 | | | | | | | | | | | | | 2.5 | 4 | 4.5 | 4 | 33345.395 | 0.002 |
| | | | 3.5 | 5 | 5.5 | 6 | | | | | | | | | | | | | 2.5 | 4 | 4.5 | 5 | 33345.593 | 0.000 |
| | | | 3.5 | 2 | 2.5 | 3 | | | | | | | | | | | | | 2.5 | 1 | 1.5 | 2 | 33345.751 | 0.000 |
| | | | 3.5 | 5 | 4.5 | 5 | | | | | | | | | | | | | 2.5 | 4 | 3.5 | 4 | 33346.232 | 0.000 |
| | | | 3.5 | 2 | 2.5 | 2 | | | | | | | | | | | | | 2.5 | 1 | 1.5 | 1 | 33346.241 | -0.008 |
| | | | 3.5 | 2 | 1.5 | 2 | | | | | | | | | | | | | 2.5 | 2 | 1.5 | 2 | 33347.379 | -0.001 |
| | | | 3.5 | 2 | 1.5 | 2 | | | | | | | | | | | | | 2.5 | 1 | 0.5 | 1 | 33348.105 | -0.001 |
| | | | 3.5 | 3 | 3.5 | 3 | | | | | | | | | | | | | 2.5 | 2 | 2.5 | 2 | 33348.407 | -0.001 |
| | | | 3.5 | 3 | 2.5 | 2 | | | | | | | | | | | | | 2.5 | 2 | 1.5 | 1 | 33348.864 | -0.002 |
| | | | 3.5 | 4 | 4.5 | 4 | | | | | | | | | | | | | 2.5 | 3 | 3.5 | 3 | 33350.187 | 0.002 |
| | | | 3.5 | 4 | 3.5 | 3 | | | | | | | | | | | | | 2.5 | 3 | 2.5 | 2 | 33351.333 | 0.001 |
| | | | 3.5 | 3 | 2.5 | 3 | | | | | | | | | | | | | 2.5 | 2 | 1.5 | 2 | 33351.659 | 0.001 |
| | | | 2.5 | 2 | 2.5 | 3 | | | | | | | | | | | | | 1.5 | 1 | 1.5 | 2 | 33353.098 | 0.000 |
| | | | 3.5 | 5 | 4.5 | 4 | | | | | | | | | | | | | 2.5 | 4 | 3.5 | 3 | 33354.299 | 0.000 |
| | | | 3.5 | 4 | 3.5 | 4 | | | | | | | | | | | | | 2.5 | 3 | 2.5 | 3 | 33355.447 | 0.002 |
| | | | 3.5 | 4 | 4.5 | 5 | | | | | | | | | | | | | 2.5 | 3 | 3.5 | 4 | 33356.007 | -0.001 |
| | | | 2.5 | 3 | 3.5 | 4 | | | | | | | | | | | | | 1.5 | 2 | 2.5 | 3 | 33356.936 | 0.000 |
| | | | 2.5 | 4 | 4.5 | 5 | | | | | | | | | | | | | 1.5 | 3 | 3.5 | 4 | 33358.458 | -0.001 |
| | | | 2.5 | 4 | 3.5 | 4 | | | | | | | | | | | | | 1.5 | 3 | 2.5 | 3 | 33358.688 | -0.001 |
| | | | 2.5 | 3 | 2.5 | 2 | | | | | | | | | | | | | 1.5 | 1 | 1.5 | 1 | 33359.632 | 0.001 |
| | | | 2.5 | 1 | 1.5 | 2 | | | | | | | | | | | | | 1.5 | 1 | 0.5 | 1 | 33360.652 | 0.001 |
| | | | 2.5 | 3 | 2.5 | 3 | | | | | | | | | | | | | 1.5 | 2 | 2.5 | 2 | 33361.926 | 0.000 |
| | | | 2.5 | 4 | 3.5 | 3 | | | | | | | | | | | | | 1.5 | 3 | 2.5 | 2 | 33362.339 | -0.002 |
| | | | 2.5 | 3 | 3.5 | 3 | | | | | | | | | | | | | 1.5 | 2 | 1.5 | 2 | 33363.752 | 0.001 |
| | | | 2.5 | 4 | 4.5 | 4 | | | | | | | | | | | | | 1.5 | 3 | 3.5 | 3 | 33364.212 | -0.001 |
| | | | 2.5 | 2 | 2.5 | 2 | | | | | | | | | | | | | 1.5 | 2 | 1.5 | 1 | 33364.822 | 0.003 |
| | | | 3.5 | 4 | 4.5 | 5 | | | | | | | | | | | | | 2.5 | 4 | 4.5 | 5 | 33368.869 | 0.000 |
| | | | 2.5 | 3 | 3.5 | 4 | | | | | | | | | | | | | 2.5 | 3 | 3.5 | 4 | 33371.339 | 0.012 |
| | | | 2.5 | 2 | 1.5 | 2 | | | | | | | | | | | | | 1.5 | 1 | 1.5 | 2 | 33371.324 | -0.013 |
| | | | 2.5 | 2 | 2.5 | 3 | | | | | | | | | | | | | 1.5 | 2 | 2.5 | 3 | 33375.032 | -0.001 |
| | | | 2.5 | 4 | 3.5 | 3 | | | | | | | | | | | | | 1.5 | 3 | 2.5 | 3 | 33376.356 | -0.003 |
| | | | 2.5 | 3 | 2.5 | 2 | | | | | | | | | | | | | 1.5 | 3 | 2.5 | 2 | 33379.425 | 0.001 |