

| Frequency (MHz) | J upper | Ka upper | J lower | Ka lower | $\Delta V$ (km/s) | Ta (K) |
|-----------------|---------|----------|---------|----------|-------------------|--------|
| 220539.4128     | 12      | 7        | 11      | 7        | 1.360301074       | 0.800  |
| 220594.4923     | 12      | 6        | 11      | 6        | 1.359961425       | 1.800  |
| 220641.12       | 12      | 5        | 11      | 5        | 1.359674026       | 2.200  |
| 220679.32       | 12      | 4        | 11      | 4        | 1.359438664       | 2.600  |
| 220709.08       | 12      | 3        | 11      | 3        | 1.35925536        | 5.500  |
| 220730.27       | 12      | 2        | 11      | 2        | 1.359124872       | 4.6    |
| 220742.99       | 12      | 1        | 11      | 1        | 1.359046555       | 6.7    |
| 220747.24       | 12      | 0        | 11      | 0        | 1.359020389       | 7.600  |

| El (cm-1) | El (MHz)      | Eu (MHz)      | $8k\pi/hc^3$ | $e^{-hEl/kT}$<br>(@300K) | $e^{-hEu/kT}$<br>(@300K) |
|-----------|---------------|---------------|--------------|--------------------------|--------------------------|
| 283.6085  | 8502368.93247 | 8722908.34527 | 1.9436E-05   | 0.25662055               | 0.24772469               |
| 219.1546  | 6570089.62160 | 6790684.11390 | 1.9436E-05   | 0.34957311               | 0.33745203               |
| 164.5919  | 4934341.02679 | 5154982.14679 | 1.9436E-05   | 0.45413282               | 0.43838298               |
| 119.9327  | 3595491.89276 | 3816171.21276 | 1.9436E-05   | 0.56260095               | 0.54308598               |
| 85.1873   | 2553851.00574 | 2774560.08574 | 1.9436E-05   | 0.66461365               | 0.64155711               |
| 60.3634   | 1809649.20592 | 2030379.47592 | 1.9436E-05   | 0.74864037               | 0.72266636               |
| 45.4669   | 1363063.37086 | 1583806.36086 | 1.9436E-05   | 0.80408162               | 0.77618250               |
| 40.501    | 1214189.43415 | 1434936.67415 | 1.9436E-05   | 0.82346143               | 0.79488935               |

Intensities:

| Line # | LOG int. | 10 <sup>^(LOG int)</sup> | Sum         | Icat (nm <sup>2</sup> MHz) | Q (300 K)  |
|--------|----------|--------------------------|-------------|----------------------------|------------|
| 1      | -3.3181  | 0.000480729              | 0.001452313 | 0.001452313                | 41079.2740 |
|        | -5.4734  | 3.36202E-06              |             | 0.004500496                | 41079.2740 |
|        | -5.4734  | 3.36202E-06              |             | 0.003207340                | 41079.2740 |
|        | -8.2331  | 5.84655E-09              |             | 0.004275715                | 41079.2740 |
|        | -3.2816  | 0.000522878              |             | 0.010656357                | 41079.2740 |
|        | -3.3546  | 0.000441977              |             | 0.006225518                | 41079.2740 |
| 2      | -4.9822  | 1.04184E-05              | 0.004500496 | 0.006830354                | 41079.2740 |
|        | -2.8269  | 0.001489704              |             | 0.007044911                | 41079.2740 |
|        | -2.7904  | 0.001620317              |             |                            |            |
|        | -7.7419  | 1.81176E-08              |             |                            |            |
|        | -2.8634  | 0.00136962               |             |                            |            |
|        | -4.9822  | 1.04184E-05              |             |                            |            |
| 3      | -2.97    | 0.001066596              | 0.003207340 |                            |            |
|        | -2.9355  | 0.001160112              |             |                            |            |
|        | -3.0085  | 0.000980618              |             |                            |            |
|        | -7.887   | 1.29718E-08              |             |                            |            |
| 4      | -2.8471  | 0.001422001              | 0.004275715 |                            |            |
|        | -2.8836  | 0.001307374              |             |                            |            |
|        | -2.8107  | 0.001546322              |             |                            |            |
|        | -7.7622  | 1.72902E-08              |             |                            |            |
| 5      | -2.4505  | 0.003544051              | 0.010656357 |                            |            |
|        | -2.487   | 0.003258367              |             |                            |            |
|        | -2.4141  | 0.003853896              |             |                            |            |
|        | -7.3655  | 4.31023E-08              |             |                            |            |
| 6      | -2.684   | 0.002070141              | 0.006225518 |                            |            |
|        | -2.7204  | 0.001903707              |             |                            |            |
|        | -2.6475  | 0.002251645              |             |                            |            |
|        | -7.599   | 2.51768E-08              |             |                            |            |
| 7      | -2.6802  | 0.002088334              | 0.006830354 |                            |            |
|        | -2.6437  | 0.002271433              |             |                            |            |
|        | -2.6072  | 0.002470586              |             |                            |            |
| 8      | -2.6667  | 0.002154269              | 0.007044911 |                            |            |
|        | -2.6303  | 0.00234261               |             |                            |            |
|        | -2.5938  | 0.002548003              |             |                            |            |
|        | -7.5453  | 2.84905E-08              |             |                            |            |

| A g         | ln term     | Eu (K)      | intercept | e <sup>intercept</sup> | Q rot       | N        |
|-------------|-------------|-------------|-----------|------------------------|-------------|----------|
| 0.092841353 | 20.88791243 | 418.4728627 | 22.82300  | 8.16E+09               | 18334.31267 | 1.50E+14 |
| 0.21125508  | 20.87691821 | 325.7763247 |           |                        |             |          |
| 0.115915605 | 21.67800418 | 247.3051477 | slope     | T                      |             |          |
| 0.124757313 | 21.77172341 | 183.077023  | -0.0052   | 192.3076923            |             |          |
| 0.263243616 | 21.77438536 | 133.1067639 |           |                        |             |          |
| 0.136541218 | 22.25224295 | 97.40543843 |           |                        |             |          |
| 0.139485947 | 22.60701446 | 75.98153685 |           |                        |             |          |
| 0.14048447  | 22.72594135 | 68.83966151 |           |                        |             |          |

Partition Function:

| T         | Q          |
|-----------|------------|
| 300.00000 | 41079.274  |
| 225.00000 | 23622.3423 |
| 150.00000 | 11400.261  |
| 75        | 3803.0012  |
| 37.5      | 1347.2433  |
| 18.75     | 492.9504   |