



Full wwPDB EM Validation Report ⓘ

Nov 4, 2024 – 12:28 am GMT

PDB ID : 7PJZ
EMDB ID : EMD-13465
Title : Structure of the 70S-EF-G-GDP ribosome complex with tRNAs in chimeric state 2 (CHI2-EF-G-GDP)
Authors : Petrychenko, V.; Peng, B.Z.; Schwarzer, A.C.; Peske, F.; Rodnina, M.V.; Fischer, N.
Deposited on : 2021-08-24
Resolution : 6.00 Å (reported)
Based on initial models : 4AQY, 6YSS, 5LZD, 5J9Z

This is a Full wwPDB EM Validation Report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

The following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

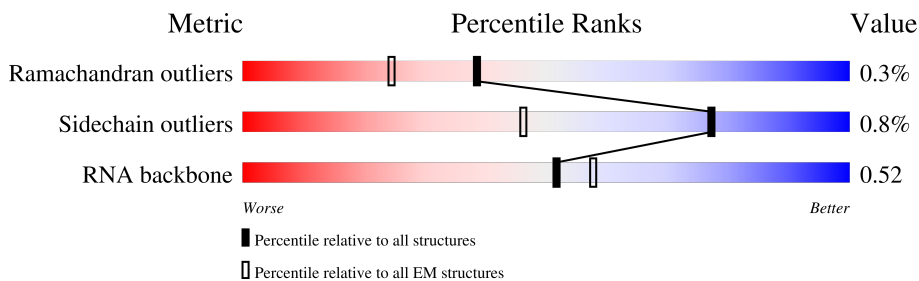
EMDB validation analysis : 0.0.1.dev113
Mogul : 1.8.4, CSD as541be (2020)
MolProbity : 4.02b-467
buster-report : 1.1.7 (2018)
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.39

1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:
ELECTRON MICROSCOPY

The reported resolution of this entry is 6.00 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



| Metric | Whole archive (#Entries) | EM structures (#Entries) |
|-----------------------|-----------------------------|-----------------------------|
| Ramachandran outliers | 207382 | 16835 |
| Sidechain outliers | 206894 | 16415 |
| RNA backbone | 6643 | 2191 |

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion $< 40\%$). The numeric value is given above the bar.

| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 1 | 0 | 57 | |
| 2 | 1 | 55 | |
| 3 | 2 | 46 | |
| 4 | 3 | 65 | |
| 5 | 4 | 38 | |
| 6 | 5 | 165 | |
| 7 | 6 | 70 | |
| 8 | A | 2903 | |

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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 9 | B | 120 | 32% 59% 9% |
| 10 | C | 273 | 5% 96% .. |
| 11 | D | 209 | 100% |
| 12 | E | 201 | 100% |
| 13 | F | 179 | 98% .. |
| 14 | G | 177 | 97% .. |
| 15 | H | 149 | 47% 99% . |
| 16 | I | 142 | 43% 99% .. |
| 17 | J | 142 | 6% 99% . |
| 18 | K | 123 | 10% 96% .. |
| 19 | L | 144 | 6% 97% .. |
| 20 | M | 136 | 97% . |
| 21 | N | 127 | 93% . 6% |
| 22 | O | 117 | 97% .. |
| 23 | P | 115 | 5% 98% .. |
| 24 | Q | 118 | 98% .. |
| 25 | R | 103 | 98% . |
| 26 | S | 110 | 96% . |
| 27 | T | 100 | 90% . 7% |
| 28 | U | 104 | 94% .. |
| 29 | V | 94 | 99% . |
| 30 | W | 85 | 87% . 12% |
| 31 | X | 78 | 94% 5% . |
| 32 | Y | 63 | 98% . |
| 33 | Z | 59 | 98% . |


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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 34 | a | 1542 | 39% 49% 11% |
| 35 | b | 240 | 21% 88% 9% |
| 36 | c | 233 | 88% 12% |
| 37 | d | 206 | 5% 97% |
| 38 | e | 167 | 92% 6% |
| 39 | f | 135 | 74% 26% |
| 40 | g | 179 | 16% 83% 16% |
| 41 | h | 130 | 6% 99% |
| 42 | i | 130 | 5% 97% |
| 43 | j | 103 | 5% 94% 5% |
| 44 | k | 129 | 89% 10% |
| 45 | l | 124 | 5% 96% |
| 46 | m | 118 | 5% 97% |
| 47 | n | 102 | 5% 98% |
| 48 | o | 89 | 98% |
| 49 | p | 82 | 6% 99% |
| 50 | q | 84 | 94% 5% |
| 51 | r | 75 | 84% 13% |
| 52 | s | 92 | 86% 11% |
| 53 | t | 87 | 98% |
| 54 | u | 71 | 8% 90% 8% |
| 55 | v | 77 | 43% 47% 10% |
| 56 | w | 76 | 11% 46% 42% 12% |
| 57 | x | 704 | 21% 92% 5% |
| 58 | y | 2 | 50% 50% |

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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|--|
| 59 | z | 33 |  21% 9% 70% |

2 Entry composition

There are 62 unique types of molecules in this entry. The entry contains 152440 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called 50S ribosomal protein L32.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 1 | 0 | 56 | 444 | 269 | 94 | 80 | 1 | 0 | 0 |

- Molecule 2 is a protein called 50S ribosomal protein L33.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---------|-------|
| | | | Total | C | N | O | | |
| 2 | 1 | 50 | 409 | 263 | 75 | 71 | 0 | 0 |

- Molecule 3 is a protein called 50S ribosomal protein L34.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 3 | 2 | 46 | 377 | 228 | 90 | 57 | 2 | 0 | 0 |

- Molecule 4 is a protein called 50S ribosomal protein L35.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 4 | 3 | 64 | 504 | 323 | 105 | 74 | 2 | 0 | 0 |

- Molecule 5 is a protein called 50S ribosomal protein L36.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 5 | 4 | 38 | 302 | 185 | 65 | 48 | 4 | 0 | 0 |

- Molecule 6 is a protein called 50S ribosomal protein L10.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| | | | Total | C | N | O | | |
| 6 | 5 | 131 | 647 | 385 | 131 | 131 | 0 | 0 |

- Molecule 7 is a protein called 50S ribosomal protein L31.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 7 | 6 | 66 | 522 | 323 | 99 | 94 | 6 | 0 | 0 |

- Molecule 8 is a RNA chain called 23S ribosomal RNA.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-------|-------|-------|------|---------|-------|
| | | | Total | C | N | O | P | | |
| 8 | A | 2903 | 62338 | 27816 | 11471 | 20148 | 2903 | 0 | 0 |

- Molecule 9 is a RNA chain called 5S ribosomal RNA.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|-----|---------|-------|
| | | | Total | C | N | O | P | | |
| 9 | B | 120 | 2570 | 1144 | 468 | 838 | 120 | 0 | 0 |

- Molecule 10 is a protein called 50S ribosomal protein L2.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 10 | C | 271 | 2082 | 1288 | 423 | 364 | 7 | 0 | 0 |

- Molecule 11 is a protein called 50S ribosomal protein L3.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 11 | D | 209 | 1565 | 979 | 288 | 294 | 4 | 0 | 0 |

- Molecule 12 is a protein called 50S ribosomal protein L4.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 12 | E | 201 | 1552 | 974 | 283 | 290 | 5 | 0 | 0 |

- Molecule 13 is a protein called 50S ribosomal protein L5.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 13 | F | 177 | 1410 | 899 | 249 | 256 | 6 | 0 | 0 |

- Molecule 14 is a protein called 50S ribosomal protein L6.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 14 | G | 176 | Total | C | N | O | S | 0 | 0 |
| | | | 1323 | 832 | 243 | 246 | 2 | | |

- Molecule 15 is a protein called 50S ribosomal protein L9.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 15 | H | 149 | Total | C | N | O | S | 0 | 0 |
| | | | 1111 | 699 | 197 | 214 | 1 | | |

- Molecule 16 is a protein called 50S ribosomal protein L11.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 16 | I | 141 | Total | C | N | O | 0 | 0 |
| | | | 693 | 411 | 141 | 141 | | |

- Molecule 17 is a protein called 50S ribosomal protein L13.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 17 | J | 142 | Total | C | N | O | S | 0 | 0 |
| | | | 1129 | 714 | 212 | 199 | 4 | | |

- Molecule 18 is a protein called 50S ribosomal protein L14.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 18 | K | 122 | Total | C | N | O | S | 0 | 0 |
| | | | 938 | 587 | 180 | 165 | 6 | | |

- Molecule 19 is a protein called 50S ribosomal protein L15.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 19 | L | 143 | Total | C | N | O | S | 0 | 0 |
| | | | 1045 | 649 | 206 | 189 | 1 | | |

- Molecule 20 is a protein called 50S ribosomal protein L16.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 20 | M | 136 | Total | C | N | O | S | 0 | 0 |
| | | | 1074 | 686 | 205 | 177 | 6 | | |

- Molecule 21 is a protein called 50S ribosomal protein L17.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 21 | N | 120 | 960 | 593 | 196 | 166 | 5 | 0 | 0 |

- Molecule 22 is a protein called 50S ribosomal protein L18.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 22 | O | 116 | 892 | 552 | 178 | 162 | | 0 | 0 |

- Molecule 23 is a protein called 50S ribosomal protein L19.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 23 | P | 114 | 917 | 574 | 179 | 163 | 1 | 0 | 0 |

- Molecule 24 is a protein called 50S ribosomal protein L20.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 24 | Q | 117 | 947 | 604 | 192 | 151 | | 0 | 0 |

- Molecule 25 is a protein called 50S ribosomal protein L21.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 25 | R | 103 | 816 | 516 | 153 | 145 | 2 | 0 | 0 |

- Molecule 26 is a protein called 50S ribosomal protein L22.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 26 | S | 110 | 857 | 532 | 166 | 156 | 3 | 0 | 0 |

- Molecule 27 is a protein called 50S ribosomal protein L23.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 27 | T | 93 | 738 | 466 | 139 | 131 | 2 | 0 | 0 |

- Molecule 28 is a protein called 50S ribosomal protein L24.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 28 | U | 102 | Total | C | N | O | 0 | 0 |
| | | | 779 | 492 | 146 | 141 | | |

- Molecule 29 is a protein called 50S ribosomal protein L25.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 29 | V | 94 | Total | C | N | O | S | 0 | 0 |
| | | | 753 | 479 | 137 | 134 | 3 | | |

- Molecule 30 is a protein called 50S ribosomal protein L27.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 30 | W | 75 | Total | C | N | O | S | 0 | 0 |
| | | | 575 | 356 | 116 | 102 | 1 | | |

- Molecule 31 is a protein called 50S ribosomal protein L28.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 31 | X | 77 | Total | C | N | O | S | 0 | 0 |
| | | | 625 | 388 | 129 | 106 | 2 | | |

- Molecule 32 is a protein called 50S ribosomal protein L29.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 32 | Y | 63 | Total | C | N | O | S | 0 | 0 |
| | | | 509 | 313 | 99 | 95 | 2 | | |

- Molecule 33 is a protein called 50S ribosomal protein L30.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 33 | Z | 58 | Total | C | N | O | S | 0 | 0 |
| | | | 449 | 281 | 87 | 79 | 2 | | |

- Molecule 34 is a RNA chain called 16S ribosomal RNA.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-------|------|-------|------|---------|-------|
| 34 | a | 1540 | Total | C | N | O | P | 0 | 0 |
| | | | 33050 | 14748 | 6057 | 10705 | 1540 | | |

- Molecule 35 is a protein called 30S ribosomal protein S2.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 35 | b | 218 | 1704 | 1081 | 305 | 311 | 7 | 0 | 0 |

- Molecule 36 is a protein called 30S ribosomal protein S3.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 36 | c | 206 | 1624 | 1028 | 305 | 288 | 3 | 0 | 0 |

- Molecule 37 is a protein called 30S ribosomal protein S4.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 37 | d | 205 | 1643 | 1026 | 315 | 298 | 4 | 0 | 0 |

- Molecule 38 is a protein called 30S ribosomal protein S5.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 38 | e | 157 | 1141 | 709 | 218 | 208 | 6 | 0 | 0 |

- Molecule 39 is a protein called 30S ribosomal protein S6.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 39 | f | 100 | 817 | 515 | 148 | 148 | 6 | 0 | 0 |

- Molecule 40 is a protein called 30S ribosomal protein S7.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 40 | g | 151 | 1181 | 735 | 227 | 215 | 4 | 0 | 0 |

- Molecule 41 is a protein called 30S ribosomal protein S8.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 41 | h | 129 | 979 | 616 | 173 | 184 | 6 | 0 | 0 |

- Molecule 42 is a protein called 30S ribosomal protein S9.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 42 | i | 127 | 1022 | 634 | 206 | 179 | 3 | 0 | 0 |

- Molecule 43 is a protein called 30S ribosomal protein S10.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 43 | j | 98 | 786 | 493 | 150 | 142 | 1 | 0 | 0 |

- Molecule 44 is a protein called 30S ribosomal protein S11.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 44 | k | 116 | 869 | 535 | 173 | 158 | 3 | 0 | 0 |

- Molecule 45 is a protein called 30S ribosomal protein S12.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 45 | l | 123 | 955 | 590 | 196 | 165 | 4 | 0 | 0 |

- Molecule 46 is a protein called 30S ribosomal protein S13.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 46 | m | 114 | 883 | 546 | 178 | 156 | 3 | 0 | 0 |

- Molecule 47 is a protein called 30S ribosomal protein S14.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 47 | n | 101 | 799 | 498 | 165 | 133 | 3 | 0 | 0 |

There is a discrepancy between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|-----------|------------|
| n | 35 | ALA | - | insertion | UNP C3SR07 |

- Molecule 48 is a protein called 30S ribosomal protein S15.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 48 | o | 88 | Total | C | N | O | S | 0 | 0 |
| | | | 714 | 439 | 144 | 130 | 1 | | |

- Molecule 49 is a protein called 30S ribosomal protein S16.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 49 | p | 82 | Total | C | N | O | S | 0 | 0 |
| | | | 649 | 406 | 128 | 114 | 1 | | |

- Molecule 50 is a protein called 30S ribosomal protein S17.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 50 | q | 80 | Total | C | N | O | S | 0 | 0 |
| | | | 648 | 411 | 121 | 113 | 3 | | |

- Molecule 51 is a protein called 30S ribosomal protein S18.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|-------|
| 51 | r | 65 | Total | C | N | O | S | 0 | 0 |
| | | | 535 | 339 | 100 | 95 | 1 | | |

- Molecule 52 is a protein called 30S ribosomal protein S19.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 52 | s | 82 | Total | C | N | O | S | 0 | 0 |
| | | | 658 | 421 | 125 | 110 | 2 | | |

- Molecule 53 is a protein called 30S ribosomal protein S20.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 53 | t | 85 | Total | C | N | O | S | 0 | 0 |
| | | | 665 | 411 | 137 | 114 | 3 | | |

- Molecule 54 is a protein called 30S ribosomal protein S21.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|-------|
| 54 | u | 65 | Total | C | N | O | S | 0 | 0 |
| | | | 506 | 313 | 105 | 87 | 1 | | |

- Molecule 55 is a RNA chain called P-site tRNA(fMet).

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace | |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|---|
| | | | Total | C | N | O | P | | | S |
| 55 | v | 77 | 1642 | 733 | 297 | 534 | 77 | 1 | 0 | 0 |

- Molecule 56 is a RNA chain called P-site fMet-Phe-tRNA(Phe).

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace | |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|---|
| | | | Total | C | N | O | P | | | S |
| 56 | w | 76 | 1631 | 731 | 291 | 531 | 76 | 2 | 0 | 0 |

- Molecule 57 is a protein called Elongation factor G.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| | | | Total | C | N | O | S | | |
| 57 | x | 669 | 5192 | 3275 | 900 | 994 | 23 | 1 | 0 |

- Molecule 58 is a protein called Dipeptide (FME-PHE).

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|----|---|---|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 58 | y | 2 | 21 | 15 | 2 | 3 | 1 | 0 | 0 |

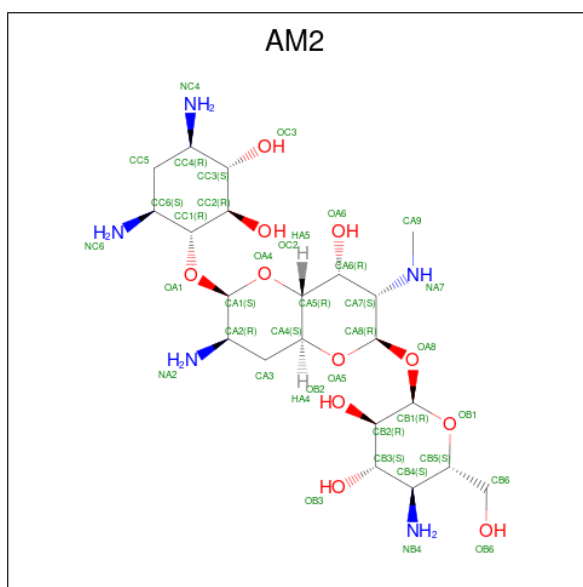
- Molecule 59 is a RNA chain called mRNA.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|----|----|----|----|---------|-------|
| | | | Total | C | N | O | P | | |
| 59 | z | 10 | 208 | 93 | 29 | 76 | 10 | 0 | 0 |

- Molecule 60 is ZINC ION (three-letter code: ZN) (formula: Zn).

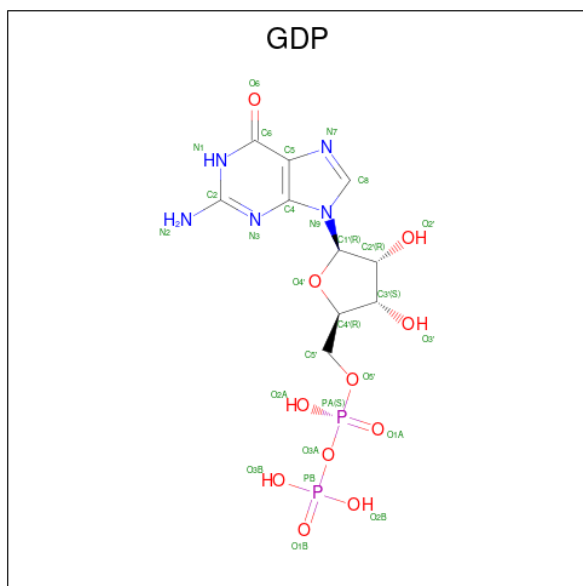
| Mol | Chain | Residues | Atoms | | AltConf |
|-----|-------|----------|-------|----|---------|
| | | | Total | Zn | |
| 60 | 6 | 1 | 1 | 1 | 0 |

- Molecule 61 is APRAMYCIN (three-letter code: AM2) (formula: C₂₁H₄₁N₅O₁₁).



| Mol | Chain | Residues | Atoms | | | | AltConf |
|-----|-------|----------|-------|----|---|----|---------|
| | | | Total | C | N | O | |
| 61 | a | 1 | 37 | 21 | 5 | 11 | 0 |

- Molecule 62 is GUANOSINE-5'-DIPHOSPHATE (three-letter code: GDP) (formula: $C_{10}H_{15}N_5O_{11}P_2$).

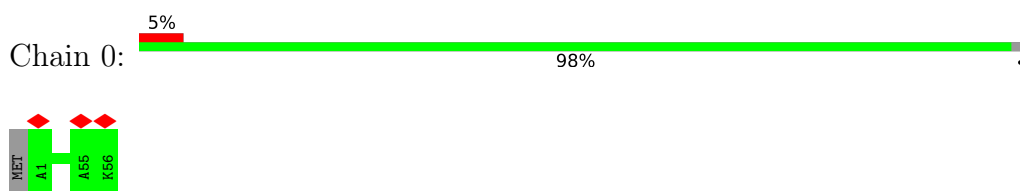


| Mol | Chain | Residues | Atoms | | | | | AltConf |
|-----|-------|----------|-------|----|---|----|---|---------|
| | | | Total | C | N | O | P | |
| 62 | x | 1 | 28 | 10 | 5 | 11 | 2 | 0 |

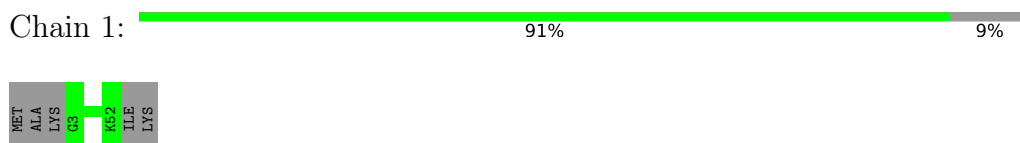
3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

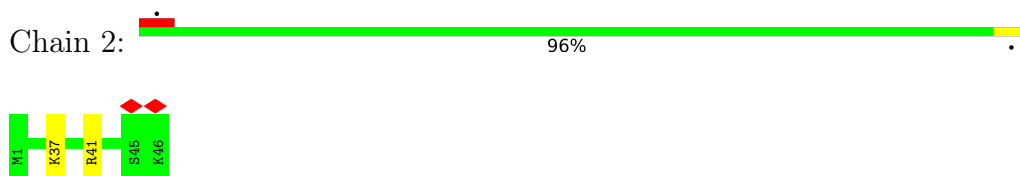
- Molecule 1: 50S ribosomal protein L32



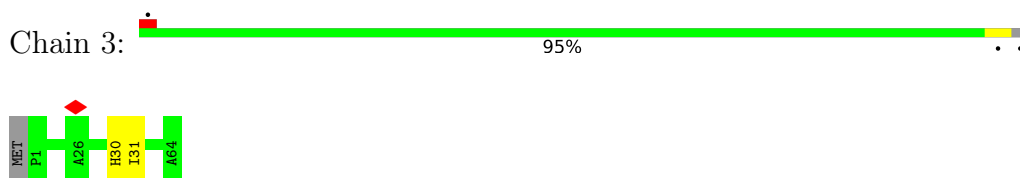
- Molecule 2: 50S ribosomal protein L33



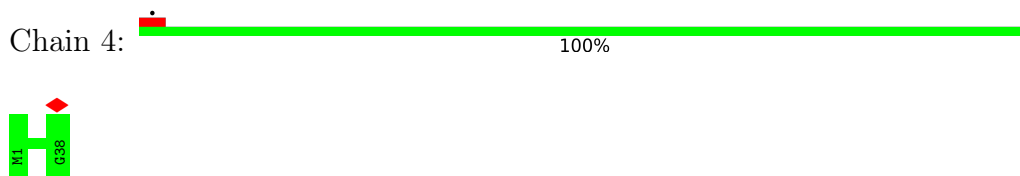
- Molecule 3: 50S ribosomal protein L34



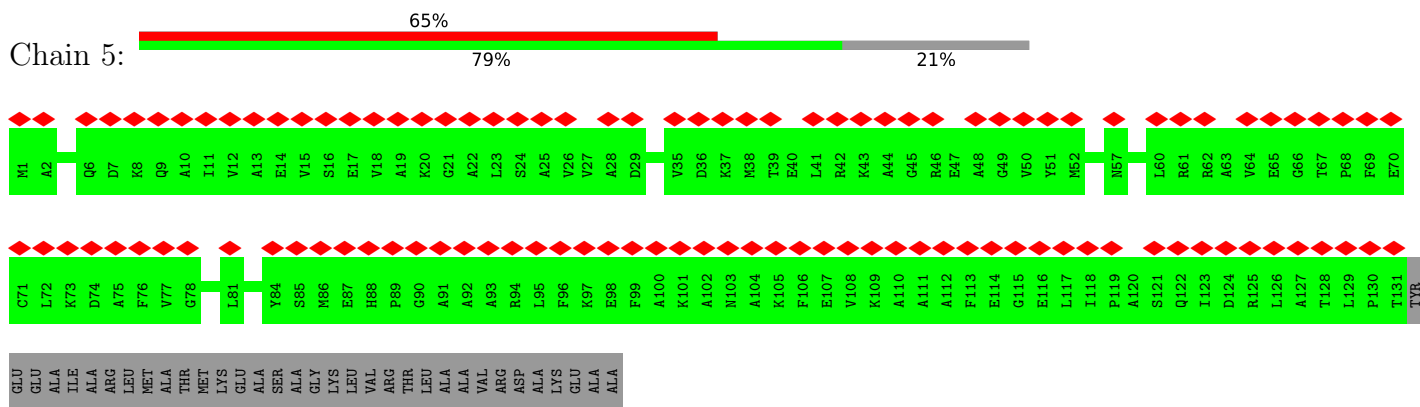
- Molecule 4: 50S ribosomal protein L35



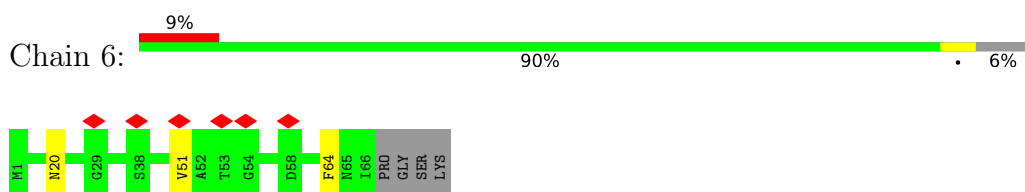
- Molecule 5: 50S ribosomal protein L36



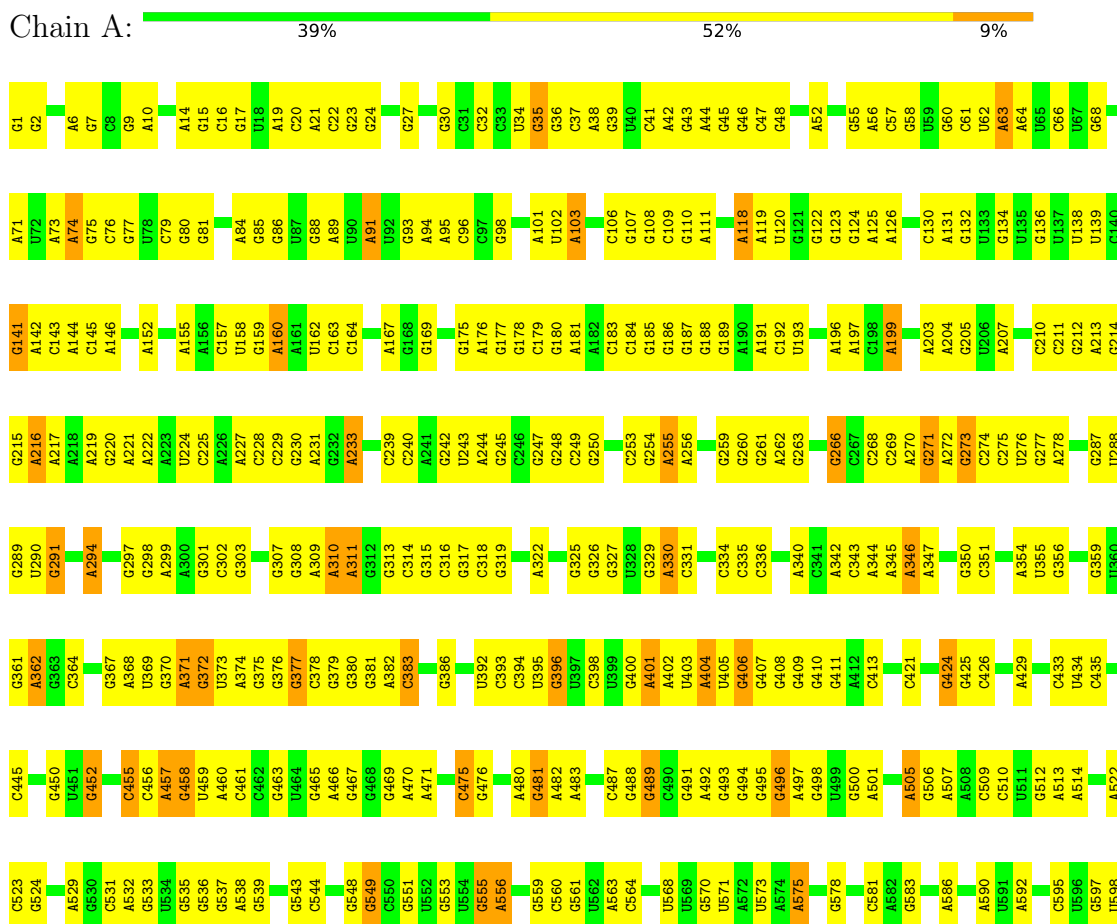
• Molecule 6: 50S ribosomal protein L10



• Molecule 7: 50S ribosomal protein L31

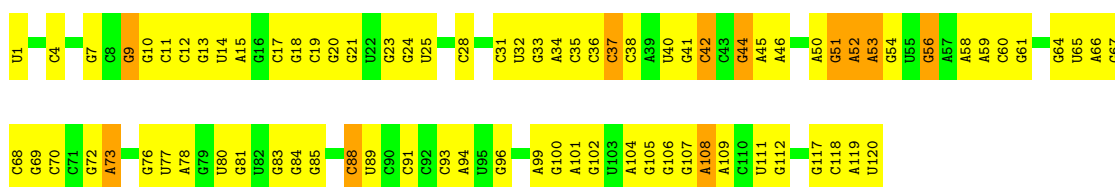


• Molecule 8: 23S ribosomal RNA

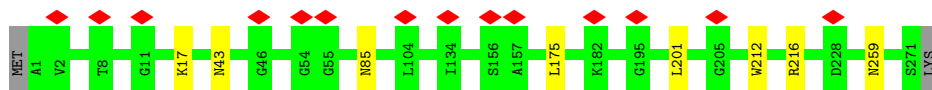




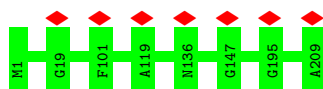
• Molecule 9: 5S ribosomal RNA



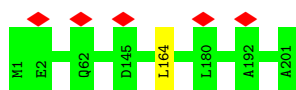
• Molecule 10: 50S ribosomal protein L2



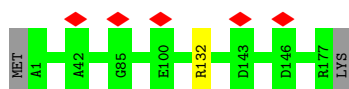
• Molecule 11: 50S ribosomal protein L3



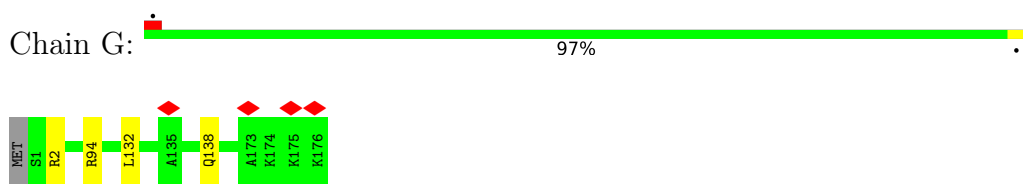
• Molecule 12: 50S ribosomal protein L4



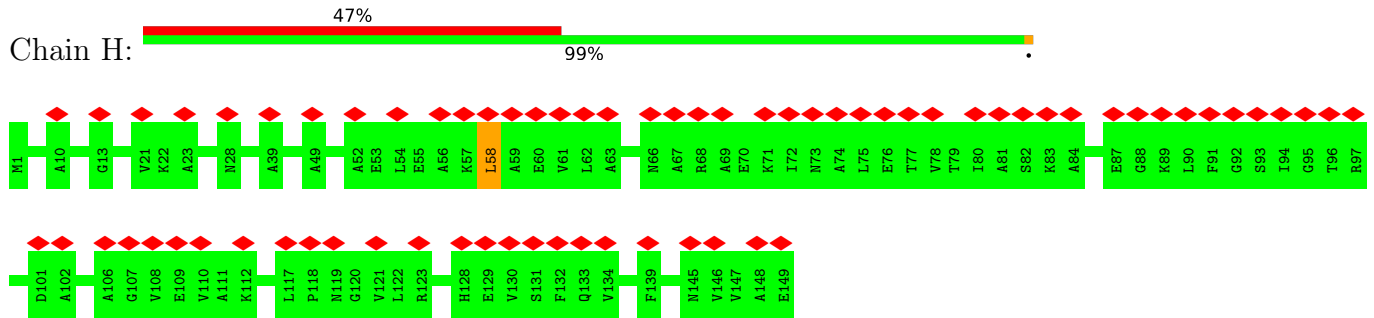
• Molecule 13: 50S ribosomal protein L5



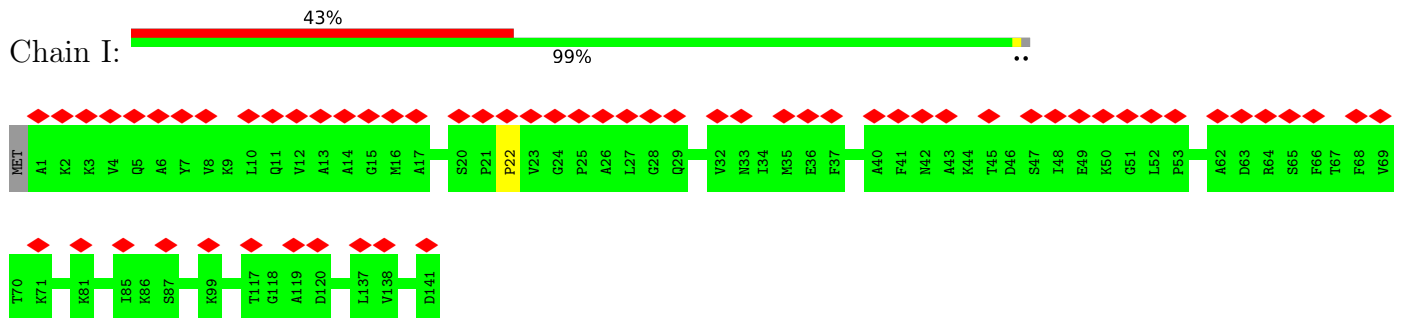
- Molecule 14: 50S ribosomal protein L6



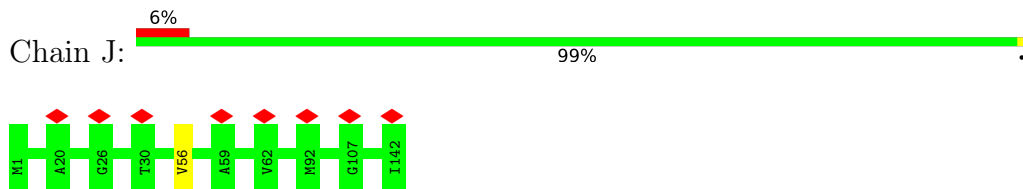
- Molecule 15: 50S ribosomal protein L9



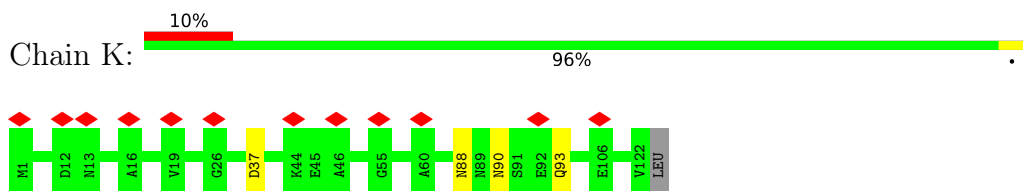
- Molecule 16: 50S ribosomal protein L11



- Molecule 17: 50S ribosomal protein L13

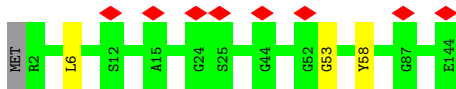


- Molecule 18: 50S ribosomal protein L14

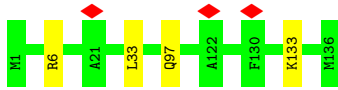


- Molecule 19: 50S ribosomal protein L15





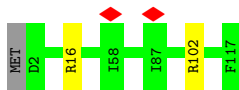
- Molecule 20: 50S ribosomal protein L16



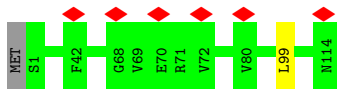
- Molecule 21: 50S ribosomal protein L17



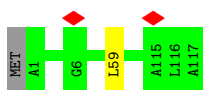
- Molecule 22: 50S ribosomal protein L18



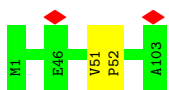
- Molecule 23: 50S ribosomal protein L19



- Molecule 24: 50S ribosomal protein L20



- Molecule 25: 50S ribosomal protein L21




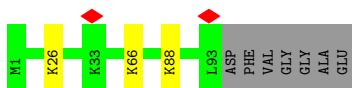
- Molecule 26: 50S ribosomal protein L22

Chain S:  96%



- Molecule 27: 50S ribosomal protein L23

Chain T:  90% 7%



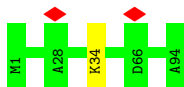
- Molecule 28: 50S ribosomal protein L24

Chain U:  94%



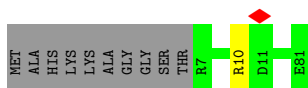
- Molecule 29: 50S ribosomal protein L25

Chain V:  99%



- Molecule 30: 50S ribosomal protein L27

Chain W:  87% 12%



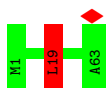
- Molecule 31: 50S ribosomal protein L28

Chain X:  94% 5%



- Molecule 32: 50S ribosomal protein L29

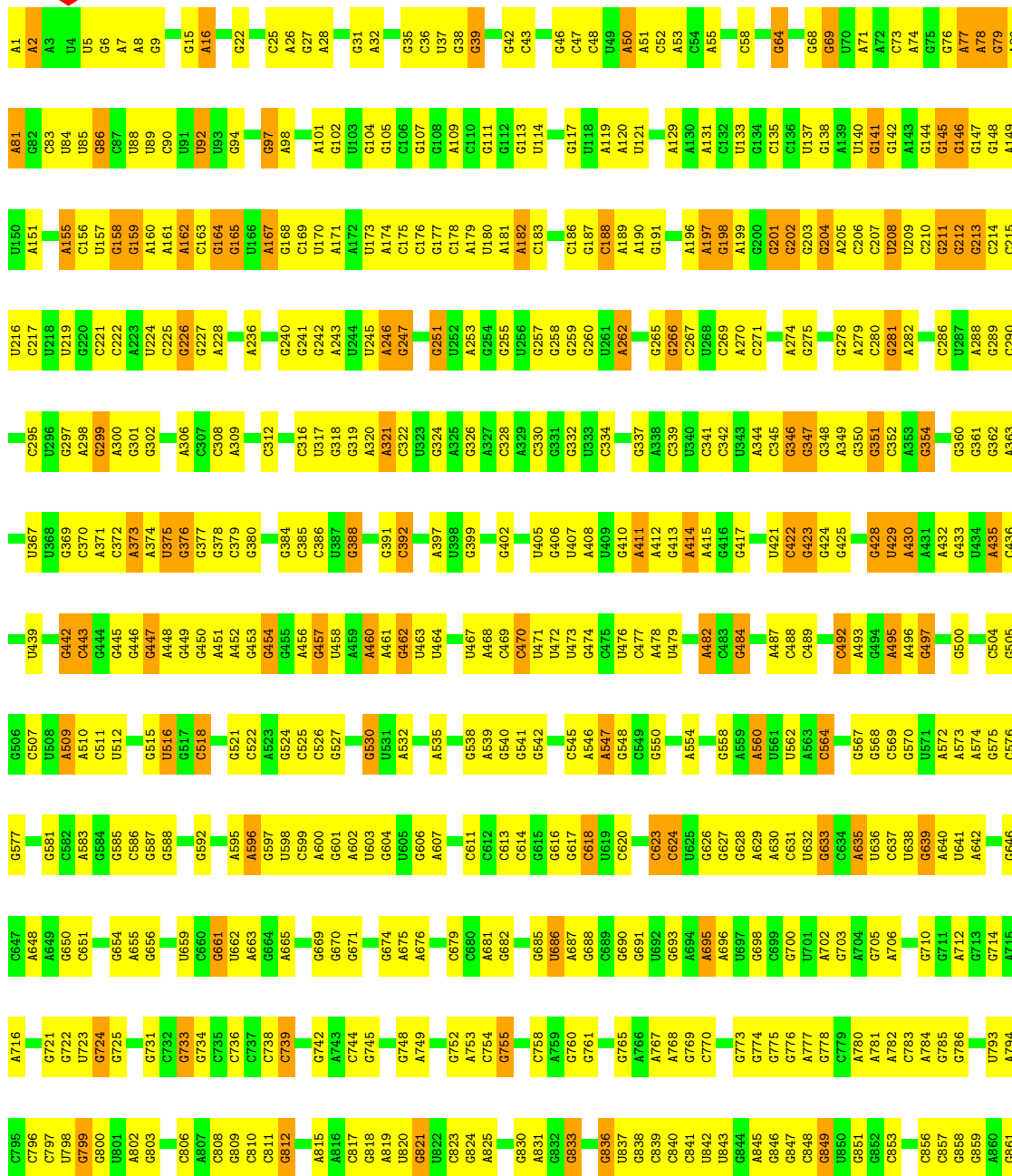
Chain Y:  98%

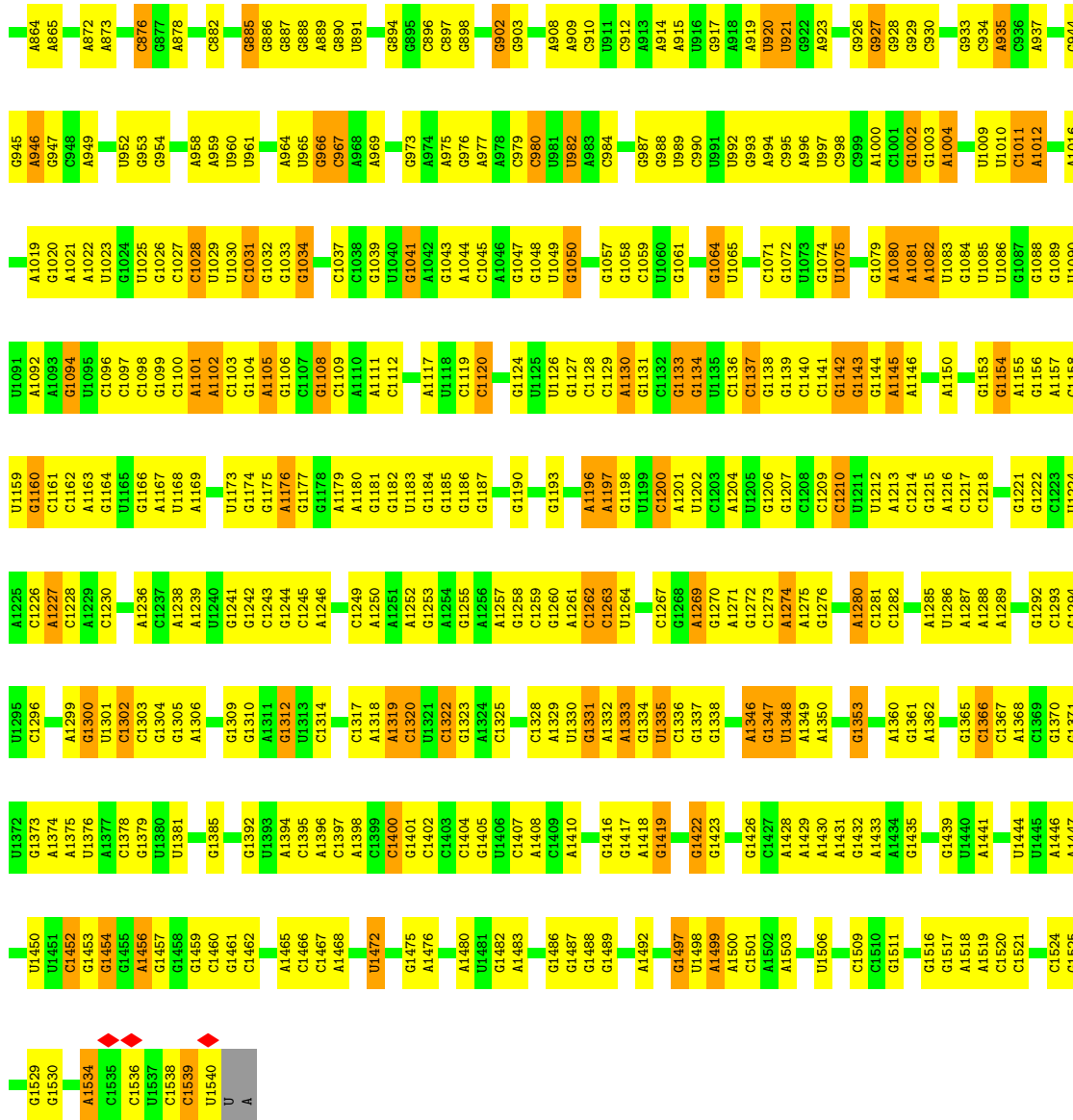


• Molecule 33: 50S ribosomal protein L30

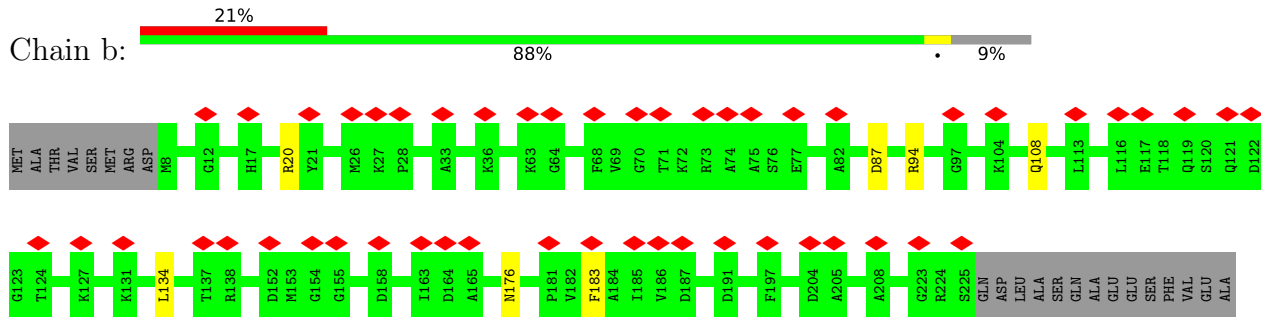


• Molecule 34: 16S ribosomal RNA

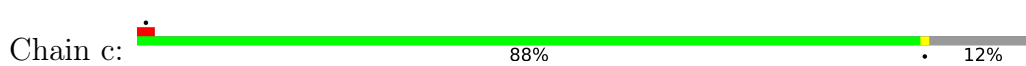




• Molecule 35: 30S ribosomal protein S2

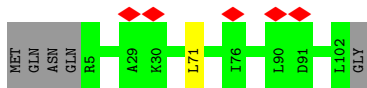
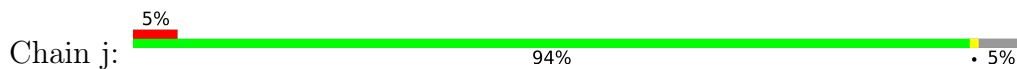


• Molecule 36: 30S ribosomal protein S3

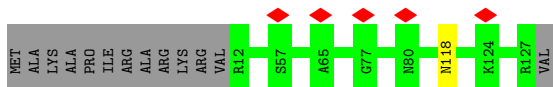
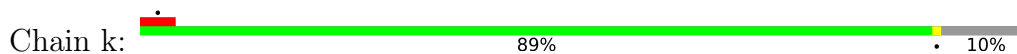




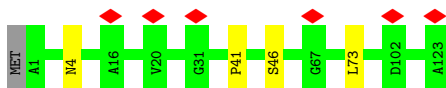
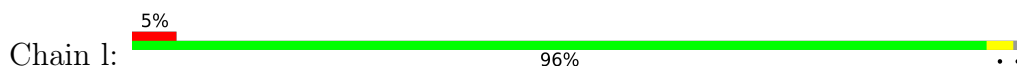
- Molecule 43: 30S ribosomal protein S10



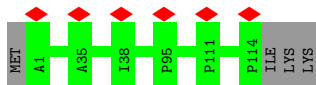
- Molecule 44: 30S ribosomal protein S11



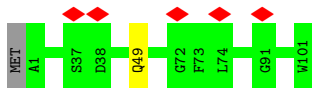
- Molecule 45: 30S ribosomal protein S12



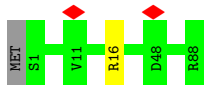
- Molecule 46: 30S ribosomal protein S13



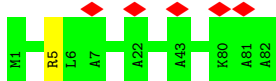
- Molecule 47: 30S ribosomal protein S14



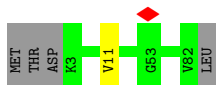
- Molecule 48: 30S ribosomal protein S15



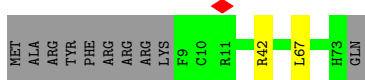
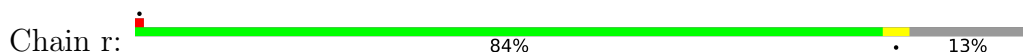
- Molecule 49: 30S ribosomal protein S16



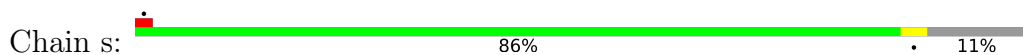
- Molecule 50: 30S ribosomal protein S17



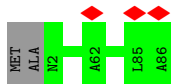
- Molecule 51: 30S ribosomal protein S18



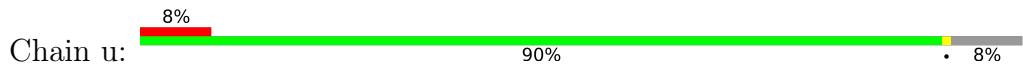
- Molecule 52: 30S ribosomal protein S19



- Molecule 53: 30S ribosomal protein S20



- Molecule 54: 30S ribosomal protein S21



- Molecule 55: P-site tRNA(fMet)

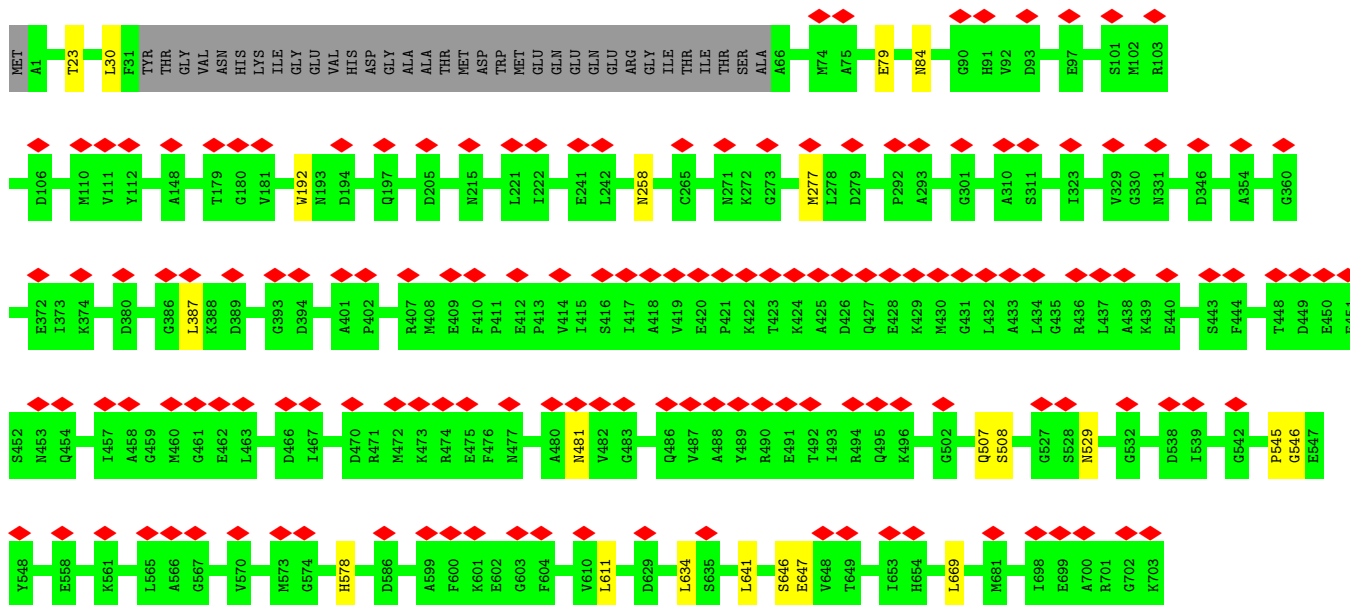
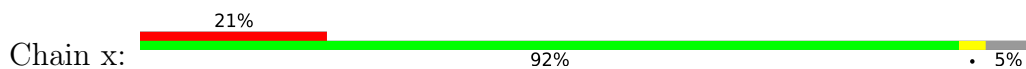




• Molecule 56: P-site fMet-Phe-tRNA(Phe)



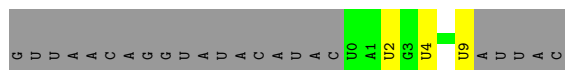
• Molecule 57: Elongation factor G



• Molecule 58: Dipeptide (FME-PHE)



• Molecule 59: mRNA



4 Experimental information

| Property | Value | Source |
|--------------------------------------|---|-----------|
| EM reconstruction method | SINGLE PARTICLE | Depositor |
| Imposed symmetry | POINT, Not provided | |
| Number of particles used | 6168 | Depositor |
| Resolution determination method | FSC 0.143 CUT-OFF | Depositor |
| CTF correction method | PHASE FLIPPING AND AMPLITUDE CORRECTION | Depositor |
| Microscope | FEI TITAN KRIOS | Depositor |
| Voltage (kV) | 300 | Depositor |
| Electron dose ($e^-/\text{\AA}^2$) | 30 | Depositor |
| Minimum defocus (nm) | 500 | Depositor |
| Maximum defocus (nm) | 1200 | Depositor |
| Magnification | 59000 | Depositor |
| Image detector | FEI FALCON III (4k x 4k) | Depositor |
| Maximum map value | 10.963 | Depositor |
| Minimum map value | -5.358 | Depositor |
| Average map value | 0.000 | Depositor |
| Map value standard deviation | 1.000 | Depositor |
| Recommended contour level | 1.5 | Depositor |
| Map size (Å) | 334.08, 334.08, 334.08 | wwPDB |
| Map dimensions | 288, 288, 288 | wwPDB |
| Map angles (°) | 90.0, 90.0, 90.0 | wwPDB |
| Pixel spacing (Å) | 1.16, 1.16, 1.16 | Depositor |

5 Model quality i

5.1 Standard geometry i

Bond lengths and bond angles in the following residue types are not validated in this section: 6MZ, OMG, MIA, FME, 2MG, 5MU, H2U, 4OC, 1MG, MA6, PSU, 3TD, 5MC, 2MA, OMU, UR3, GDP, AM2, G7M, ZN, 4SU, OMC

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

| Mol | Chain | Bond lengths | | Bond angles | |
|-----|-------|--------------|------------------|-------------|--------------------|
| | | RMSZ | # Z >5 | RMSZ | # Z >5 |
| 1 | 0 | 0.81 | 0/450 | 1.06 | 0/599 |
| 2 | 1 | 0.71 | 0/416 | 1.15 | 0/554 |
| 3 | 2 | 0.82 | 0/380 | 1.08 | 1/498 (0.2%) |
| 4 | 3 | 0.81 | 0/513 | 1.07 | 0/676 |
| 5 | 4 | 0.77 | 0/303 | 1.17 | 0/397 |
| 6 | 5 | 0.31 | 0/646 | 0.62 | 0/898 |
| 7 | 6 | 0.76 | 0/531 | 1.04 | 0/709 |
| 8 | A | 1.65 | 635/69266 (0.9%) | 1.90 | 2790/108055 (2.6%) |
| 9 | B | 1.68 | 28/2873 (1.0%) | 2.02 | 154/4478 (3.4%) |
| 10 | C | 0.78 | 1/2121 (0.0%) | 1.05 | 4/2852 (0.1%) |
| 11 | D | 0.76 | 0/1586 | 0.99 | 0/2134 |
| 12 | E | 0.74 | 0/1571 | 0.99 | 1/2113 (0.0%) |
| 13 | F | 0.79 | 0/1434 | 0.99 | 1/1926 (0.1%) |
| 14 | G | 0.76 | 0/1343 | 0.98 | 2/1816 (0.1%) |
| 15 | H | 0.62 | 0/1122 | 0.87 | 1/1515 (0.1%) |
| 16 | I | 0.37 | 0/692 | 0.66 | 0/960 |
| 17 | J | 0.82 | 0/1152 | 1.03 | 1/1551 (0.1%) |
| 18 | K | 0.73 | 0/947 | 1.01 | 0/1268 |
| 19 | L | 0.72 | 0/1054 | 1.17 | 2/1403 (0.1%) |
| 20 | M | 0.83 | 0/1093 | 1.08 | 3/1460 (0.2%) |
| 21 | N | 0.77 | 1/973 (0.1%) | 1.14 | 1/1301 (0.1%) |
| 22 | O | 0.73 | 0/902 | 0.94 | 2/1209 (0.2%) |
| 23 | P | 0.81 | 0/929 | 1.02 | 1/1242 (0.1%) |
| 24 | Q | 0.82 | 0/960 | 1.04 | 1/1278 (0.1%) |
| 25 | R | 0.81 | 0/829 | 1.04 | 0/1107 |
| 26 | S | 0.79 | 0/864 | 1.10 | 4/1156 (0.3%) |
| 27 | T | 0.82 | 0/744 | 1.10 | 1/994 (0.1%) |
| 28 | U | 0.93 | 1/787 (0.1%) | 1.12 | 1/1051 (0.1%) |
| 29 | V | 0.93 | 0/766 | 0.99 | 0/1025 |
| 30 | W | 0.76 | 0/582 | 1.02 | 0/769 |
| 31 | X | 0.87 | 2/635 (0.3%) | 1.17 | 2/848 (0.2%) |

| Mol | Chain | Bond lengths | | Bond angles | |
|-----|-------|--------------|-------------------|-------------|--------------------|
| | | RMSZ | # Z >5 | RMSZ | # Z >5 |
| 32 | Y | 0.77 | 0/510 | 1.08 | 1/677 (0.1%) |
| 33 | Z | 0.78 | 0/453 | 1.12 | 0/605 |
| 34 | a | 1.52 | 254/36725 (0.7%) | 1.85 | 1350/57285 (2.4%) |
| 35 | b | 0.62 | 0/1735 | 0.86 | 2/2338 (0.1%) |
| 36 | c | 0.73 | 0/1651 | 0.93 | 1/2225 (0.0%) |
| 37 | d | 0.70 | 0/1665 | 0.96 | 1/2227 (0.0%) |
| 38 | e | 0.73 | 0/1154 | 1.00 | 1/1554 (0.1%) |
| 39 | f | 0.71 | 0/835 | 0.89 | 0/1128 |
| 40 | g | 0.63 | 0/1195 | 0.86 | 1/1602 (0.1%) |
| 41 | h | 0.66 | 0/989 | 0.86 | 0/1326 |
| 42 | i | 0.65 | 0/1034 | 0.93 | 1/1375 (0.1%) |
| 43 | j | 0.66 | 0/796 | 0.94 | 1/1077 (0.1%) |
| 44 | k | 0.65 | 0/885 | 0.94 | 0/1195 |
| 45 | l | 0.75 | 0/969 | 1.09 | 1/1300 (0.1%) |
| 46 | m | 0.65 | 0/892 | 0.95 | 0/1193 |
| 47 | n | 0.68 | 0/811 | 0.97 | 0/1081 |
| 48 | o | 0.66 | 0/722 | 0.97 | 0/964 |
| 49 | p | 0.70 | 0/659 | 0.96 | 1/884 (0.1%) |
| 50 | q | 0.81 | 0/657 | 1.00 | 1/881 (0.1%) |
| 51 | r | 0.73 | 1/544 (0.2%) | 0.98 | 1/731 (0.1%) |
| 52 | s | 0.66 | 0/675 | 1.02 | 2/908 (0.2%) |
| 53 | t | 0.79 | 0/671 | 0.90 | 0/888 |
| 54 | u | 0.59 | 0/512 | 0.91 | 0/683 |
| 55 | v | 1.45 | 16/1745 (0.9%) | 1.88 | 65/2716 (2.4%) |
| 56 | w | 1.09 | 2/1650 (0.1%) | 1.48 | 27/2569 (1.1%) |
| 57 | x | 0.72 | 1/5288 (0.0%) | 0.95 | 6/7152 (0.1%) |
| 58 | y | 0.29 | 0/11 | 0.79 | 0/13 |
| 59 | z | 0.89 | 0/230 | 1.17 | 0/355 |
| All | All | 1.39 | 942/164127 (0.6%) | 1.68 | 4436/244774 (1.8%) |

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

| Mol | Chain | #Chirality outliers | #Planarity outliers |
|-----|-------|---------------------|---------------------|
| 4 | 3 | 0 | 1 |
| 25 | R | 0 | 1 |
| 28 | U | 0 | 1 |
| 32 | Y | 0 | 1 |
| 35 | b | 0 | 1 |
| 37 | d | 0 | 3 |

Continued on next page...

Continued from previous page...

| Mol | Chain | #Chirality outliers | #Planarity outliers |
|-----|-------|---------------------|---------------------|
| 54 | u | 0 | 1 |
| 57 | x | 0 | 1 |
| All | All | 0 | 10 |

All (942) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|-------|--------|-------------|----------|
| 8 | A | 1 | G | OP3-P | -10.75 | 1.48 | 1.61 |
| 9 | B | 1 | U | OP3-P | -10.72 | 1.48 | 1.61 |
| 55 | v | 1 | C | OP3-P | -10.66 | 1.48 | 1.61 |
| 8 | A | 1055 | G | N9-C4 | -10.60 | 1.29 | 1.38 |
| 34 | a | 640 | A | N9-C4 | -9.66 | 1.32 | 1.37 |
| 8 | A | 1139 | G | N9-C4 | -9.09 | 1.30 | 1.38 |
| 34 | a | 101 | A | N9-C4 | -9.00 | 1.32 | 1.37 |
| 34 | a | 1155 | A | N9-C4 | -8.98 | 1.32 | 1.37 |
| 8 | A | 482 | A | N9-C4 | -8.90 | 1.32 | 1.37 |
| 8 | A | 843 | G | N9-C4 | -8.69 | 1.30 | 1.38 |
| 34 | a | 604 | G | N9-C4 | -8.66 | 1.31 | 1.38 |
| 34 | a | 201 | G | N9-C4 | -8.46 | 1.31 | 1.38 |
| 34 | a | 1081 | A | O3'-P | 8.44 | 1.71 | 1.61 |
| 8 | A | 1548 | A | N9-C4 | -8.43 | 1.32 | 1.37 |
| 8 | A | 2763 | G | N9-C4 | -8.37 | 1.31 | 1.38 |
| 34 | a | 858 | G | N9-C4 | -8.32 | 1.31 | 1.38 |
| 8 | A | 1025 | G | N9-C4 | -8.31 | 1.31 | 1.38 |
| 8 | A | 2235 | G | N9-C4 | -8.26 | 1.31 | 1.38 |
| 8 | A | 2814 | A | N9-C4 | -8.23 | 1.32 | 1.37 |
| 8 | A | 1687 | G | N9-C4 | -8.21 | 1.31 | 1.38 |
| 8 | A | 1425 | G | N9-C4 | -8.19 | 1.31 | 1.38 |
| 8 | A | 217 | A | N9-C4 | -8.18 | 1.32 | 1.37 |
| 8 | A | 2576 | G | N3-C4 | -8.11 | 1.29 | 1.35 |
| 8 | A | 1277 | G | N9-C4 | -8.10 | 1.31 | 1.38 |
| 8 | A | 126 | A | N9-C4 | -8.05 | 1.33 | 1.37 |
| 34 | a | 542 | G | N9-C4 | -7.97 | 1.31 | 1.38 |
| 34 | a | 1431 | A | N9-C4 | -7.94 | 1.33 | 1.37 |
| 8 | A | 920 | A | N9-C4 | -7.92 | 1.33 | 1.37 |
| 8 | A | 344 | A | N9-C4 | -7.88 | 1.33 | 1.37 |
| 8 | A | 780 | G | N9-C4 | -7.80 | 1.31 | 1.38 |
| 8 | A | 2657 | A | N9-C4 | -7.78 | 1.33 | 1.37 |
| 8 | A | 1165 | A | N9-C4 | -7.76 | 1.33 | 1.37 |
| 9 | B | 119 | A | N9-C4 | -7.68 | 1.33 | 1.37 |
| 34 | a | 461 | A | N9-C4 | -7.67 | 1.33 | 1.37 |
| 8 | A | 522 | A | N9-C4 | -7.62 | 1.33 | 1.37 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|-------|-------|-------------|----------|
| 34 | a | 321 | A | N9-C4 | -7.60 | 1.33 | 1.37 |
| 34 | a | 954 | G | N9-C4 | -7.56 | 1.31 | 1.38 |
| 34 | a | 628 | G | N9-C4 | -7.54 | 1.31 | 1.38 |
| 8 | A | 1022 | G | N9-C4 | -7.53 | 1.31 | 1.38 |
| 8 | A | 1492 | G | N9-C4 | -7.53 | 1.31 | 1.38 |
| 8 | A | 2228 | G | N9-C4 | -7.51 | 1.31 | 1.38 |
| 8 | A | 505 | A | N9-C4 | -7.50 | 1.33 | 1.37 |
| 8 | A | 2097 | A | N9-C4 | -7.50 | 1.33 | 1.37 |
| 8 | A | 2461 | A | N9-C4 | -7.50 | 1.33 | 1.37 |
| 8 | A | 1674 | G | N9-C4 | -7.49 | 1.31 | 1.38 |
| 8 | A | 1650 | A | N9-C4 | -7.48 | 1.33 | 1.37 |
| 34 | a | 888 | G | N9-C4 | -7.47 | 1.31 | 1.38 |
| 55 | v | 12 | G | N9-C4 | -7.47 | 1.31 | 1.38 |
| 8 | A | 1385 | A | N9-C4 | -7.47 | 1.33 | 1.37 |
| 34 | a | 460 | A | N9-C4 | -7.47 | 1.33 | 1.37 |
| 8 | A | 1450 | G | N9-C4 | -7.46 | 1.31 | 1.38 |
| 8 | A | 2770 | G | N9-C4 | -7.45 | 1.31 | 1.38 |
| 8 | A | 180 | G | N9-C4 | -7.45 | 1.31 | 1.38 |
| 8 | A | 2418 | A | N9-C4 | -7.44 | 1.33 | 1.37 |
| 34 | a | 1289 | A | N9-C4 | -7.41 | 1.33 | 1.37 |
| 8 | A | 1433 | A | N9-C4 | -7.40 | 1.33 | 1.37 |
| 8 | A | 1642 | G | N9-C4 | -7.40 | 1.32 | 1.38 |
| 8 | A | 457 | A | N9-C4 | -7.38 | 1.33 | 1.37 |
| 34 | a | 768 | A | N9-C4 | -7.37 | 1.33 | 1.37 |
| 8 | A | 2225 | A | N9-C4 | -7.36 | 1.33 | 1.37 |
| 8 | A | 1522 | A | N9-C4 | -7.35 | 1.33 | 1.37 |
| 34 | a | 909 | A | N9-C4 | -7.32 | 1.33 | 1.37 |
| 8 | A | 1684 | G | N9-C4 | -7.32 | 1.32 | 1.38 |
| 8 | A | 2199 | A | N9-C4 | -7.32 | 1.33 | 1.37 |
| 8 | A | 2525 | G | N9-C4 | -7.31 | 1.32 | 1.38 |
| 8 | A | 2389 | G | N9-C4 | -7.31 | 1.32 | 1.38 |
| 34 | a | 617 | G | N9-C4 | -7.30 | 1.32 | 1.38 |
| 8 | A | 2727 | A | N9-C4 | -7.30 | 1.33 | 1.37 |
| 8 | A | 347 | A | N9-C4 | -7.29 | 1.33 | 1.37 |
| 8 | A | 1503 | A | N9-C4 | -7.29 | 1.33 | 1.37 |
| 55 | v | 72 | A | N9-C4 | -7.28 | 1.33 | 1.37 |
| 34 | a | 592 | G | N9-C4 | -7.28 | 1.32 | 1.38 |
| 8 | A | 2663 | G | N9-C4 | -7.27 | 1.32 | 1.38 |
| 34 | a | 42 | G | N9-C4 | -7.24 | 1.32 | 1.38 |
| 34 | a | 413 | G | N9-C4 | -7.24 | 1.32 | 1.38 |
| 8 | A | 1371 | G | N9-C4 | -7.23 | 1.32 | 1.38 |
| 8 | A | 2706 | A | N9-C4 | -7.22 | 1.33 | 1.37 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|-------|-------|-------------|----------|
| 34 | a | 274 | A | N9-C4 | -7.21 | 1.33 | 1.37 |
| 8 | A | 207 | A | N9-C4 | -7.18 | 1.33 | 1.37 |
| 8 | A | 1843 | C | N1-C6 | -7.17 | 1.32 | 1.37 |
| 8 | A | 2010 | G | N9-C4 | -7.17 | 1.32 | 1.38 |
| 34 | a | 831 | A | N9-C4 | -7.17 | 1.33 | 1.37 |
| 8 | A | 1055 | G | C2-N3 | -7.16 | 1.27 | 1.32 |
| 8 | A | 1374 | G | N9-C4 | -7.16 | 1.32 | 1.38 |
| 8 | A | 2813 | A | N9-C4 | -7.15 | 1.33 | 1.37 |
| 34 | a | 1012 | A | N9-C4 | -7.11 | 1.33 | 1.37 |
| 8 | A | 761 | A | N9-C4 | -7.11 | 1.33 | 1.37 |
| 8 | A | 833 | A | N9-C4 | -7.10 | 1.33 | 1.37 |
| 8 | A | 1525 | A | N9-C4 | -7.10 | 1.33 | 1.37 |
| 34 | a | 1488 | G | N9-C4 | -7.09 | 1.32 | 1.38 |
| 34 | a | 262 | A | N9-C4 | -7.09 | 1.33 | 1.37 |
| 8 | A | 315 | G | N9-C4 | -7.07 | 1.32 | 1.38 |
| 8 | A | 45 | G | N9-C4 | -7.06 | 1.32 | 1.38 |
| 34 | a | 1417 | G | N9-C4 | -7.06 | 1.32 | 1.38 |
| 8 | A | 1749 | A | N9-C4 | -7.04 | 1.33 | 1.37 |
| 34 | a | 228 | A | N9-C4 | -7.04 | 1.33 | 1.37 |
| 34 | a | 265 | G | N9-C4 | -7.03 | 1.32 | 1.38 |
| 8 | A | 1593 | A | N9-C4 | -7.01 | 1.33 | 1.37 |
| 8 | A | 1970 | A | N9-C4 | -6.98 | 1.33 | 1.37 |
| 8 | A | 340 | A | N9-C4 | -6.97 | 1.33 | 1.37 |
| 8 | A | 2458 | G | N9-C4 | -6.97 | 1.32 | 1.38 |
| 34 | a | 521 | G | N9-C4 | -6.97 | 1.32 | 1.38 |
| 8 | A | 2566 | A | N9-C4 | -6.96 | 1.33 | 1.37 |
| 8 | A | 1745 | A | N9-C4 | -6.96 | 1.33 | 1.37 |
| 9 | B | 20 | G | N9-C4 | -6.96 | 1.32 | 1.38 |
| 34 | a | 1156 | G | N9-C4 | -6.95 | 1.32 | 1.38 |
| 8 | A | 1016 | G | N9-C4 | -6.95 | 1.32 | 1.38 |
| 9 | B | 23 | G | N9-C4 | -6.94 | 1.32 | 1.38 |
| 34 | a | 155 | A | N9-C4 | -6.94 | 1.33 | 1.37 |
| 9 | B | 34 | A | N9-C4 | -6.93 | 1.33 | 1.37 |
| 8 | A | 943 | A | N9-C4 | -6.93 | 1.33 | 1.37 |
| 8 | A | 1596 | A | N9-C4 | -6.93 | 1.33 | 1.37 |
| 8 | A | 1216 | G | N9-C4 | -6.92 | 1.32 | 1.38 |
| 8 | A | 1347 | A | N9-C4 | -6.91 | 1.33 | 1.37 |
| 8 | A | 1292 | G | N9-C4 | -6.91 | 1.32 | 1.38 |
| 8 | A | 1867 | G | N9-C4 | -6.90 | 1.32 | 1.38 |
| 8 | A | 1091 | G | N9-C4 | -6.90 | 1.32 | 1.38 |
| 8 | A | 1021 | A | N9-C4 | -6.90 | 1.33 | 1.37 |
| 8 | A | 800 | A | N9-C4 | -6.89 | 1.33 | 1.37 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|-------|-------|-------------|----------|
| 8 | A | 1570 | A | N9-C4 | -6.88 | 1.33 | 1.37 |
| 34 | a | 889 | A | N9-C4 | -6.88 | 1.33 | 1.37 |
| 8 | A | 2435 | A | N9-C4 | -6.88 | 1.33 | 1.37 |
| 8 | A | 2576 | G | C2-N3 | -6.87 | 1.27 | 1.32 |
| 8 | A | 44 | A | N9-C4 | -6.86 | 1.33 | 1.37 |
| 34 | a | 988 | G | N9-C4 | -6.85 | 1.32 | 1.38 |
| 34 | a | 1432 | G | N9-C4 | -6.85 | 1.32 | 1.38 |
| 34 | a | 648 | A | N9-C4 | -6.84 | 1.33 | 1.37 |
| 8 | A | 354 | A | N9-C4 | -6.84 | 1.33 | 1.37 |
| 8 | A | 2040 | G | N9-C4 | -6.84 | 1.32 | 1.38 |
| 34 | a | 1244 | G | N9-C4 | -6.83 | 1.32 | 1.38 |
| 8 | A | 1336 | A | N9-C4 | -6.82 | 1.33 | 1.37 |
| 8 | A | 310 | A | N9-C4 | -6.82 | 1.33 | 1.37 |
| 55 | v | 46 | A | N9-C4 | -6.82 | 1.33 | 1.37 |
| 8 | A | 1527 | G | N9-C4 | -6.81 | 1.32 | 1.38 |
| 34 | a | 411 | A | N9-C4 | -6.81 | 1.33 | 1.37 |
| 34 | a | 241 | G | N9-C4 | -6.81 | 1.32 | 1.38 |
| 8 | A | 2536 | G | N9-C4 | -6.79 | 1.32 | 1.38 |
| 8 | A | 1220 | G | N9-C4 | -6.79 | 1.32 | 1.38 |
| 8 | A | 188 | G | N9-C4 | -6.79 | 1.32 | 1.38 |
| 34 | a | 201 | G | C2-N3 | -6.78 | 1.27 | 1.32 |
| 8 | A | 111 | A | N9-C4 | -6.78 | 1.33 | 1.37 |
| 8 | A | 1047 | G | N9-C4 | -6.78 | 1.32 | 1.38 |
| 34 | a | 77 | A | N9-C4 | -6.78 | 1.33 | 1.37 |
| 8 | A | 2411 | A | N9-C4 | -6.77 | 1.33 | 1.37 |
| 9 | B | 54 | G | N9-C4 | -6.77 | 1.32 | 1.38 |
| 8 | A | 1266 | G | N9-C4 | -6.77 | 1.32 | 1.38 |
| 34 | a | 246 | A | N9-C4 | -6.76 | 1.33 | 1.37 |
| 8 | A | 708 | G | N9-C4 | -6.75 | 1.32 | 1.38 |
| 8 | A | 696 | G | N9-C4 | -6.73 | 1.32 | 1.38 |
| 8 | A | 2351 | G | N9-C4 | -6.72 | 1.32 | 1.38 |
| 8 | A | 2665 | A | N9-C4 | -6.71 | 1.33 | 1.37 |
| 8 | A | 301 | G | N9-C4 | -6.71 | 1.32 | 1.38 |
| 8 | A | 1952 | A | N9-C4 | -6.71 | 1.33 | 1.37 |
| 8 | A | 1905 | C | N1-C6 | -6.69 | 1.33 | 1.37 |
| 34 | a | 1142 | G | N9-C4 | -6.68 | 1.32 | 1.38 |
| 8 | A | 2353 | G | N9-C4 | -6.68 | 1.32 | 1.38 |
| 8 | A | 146 | A | N9-C4 | -6.67 | 1.33 | 1.37 |
| 8 | A | 1022 | G | N3-C4 | -6.67 | 1.30 | 1.35 |
| 8 | A | 1906 | G | N9-C8 | -6.67 | 1.33 | 1.37 |
| 8 | A | 1228 | G | N9-C4 | -6.67 | 1.32 | 1.38 |
| 8 | A | 203 | A | N9-C4 | -6.67 | 1.33 | 1.37 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|-------|-------|-------------|----------|
| 8 | A | 2576 | G | N9-C4 | -6.67 | 1.32 | 1.38 |
| 8 | A | 2803 | G | N9-C4 | -6.67 | 1.32 | 1.38 |
| 8 | A | 1721 | G | N9-C4 | -6.66 | 1.32 | 1.38 |
| 8 | A | 124 | G | N9-C4 | -6.66 | 1.32 | 1.38 |
| 8 | A | 536 | G | N9-C4 | -6.65 | 1.32 | 1.38 |
| 8 | A | 949 | G | N9-C4 | -6.65 | 1.32 | 1.38 |
| 8 | A | 2432 | A | N9-C4 | -6.64 | 1.33 | 1.37 |
| 8 | A | 2481 | G | N9-C4 | -6.64 | 1.32 | 1.38 |
| 8 | A | 1750 | G | N9-C4 | -6.63 | 1.32 | 1.38 |
| 8 | A | 24 | G | N9-C4 | -6.63 | 1.32 | 1.38 |
| 8 | A | 514 | A | N9-C4 | -6.63 | 1.33 | 1.37 |
| 8 | A | 523 | C | N1-C6 | -6.61 | 1.33 | 1.37 |
| 34 | a | 151 | A | C6-N6 | -6.59 | 1.28 | 1.33 |
| 8 | A | 213 | A | N9-C4 | -6.59 | 1.33 | 1.37 |
| 34 | a | 1329 | A | N9-C4 | -6.58 | 1.33 | 1.37 |
| 8 | A | 260 | G | N9-C4 | -6.58 | 1.32 | 1.38 |
| 8 | A | 2003 | A | N9-C4 | -6.58 | 1.33 | 1.37 |
| 8 | A | 1713 | A | N9-C4 | -6.57 | 1.33 | 1.37 |
| 8 | A | 2485 | G | N9-C4 | -6.57 | 1.32 | 1.38 |
| 8 | A | 666 | A | N9-C4 | -6.56 | 1.33 | 1.37 |
| 8 | A | 1 | G | N9-C4 | -6.56 | 1.32 | 1.38 |
| 8 | A | 1163 | G | N9-C4 | -6.55 | 1.32 | 1.38 |
| 8 | A | 14 | A | C6-N6 | -6.55 | 1.28 | 1.33 |
| 34 | a | 167 | A | N9-C4 | -6.54 | 1.33 | 1.37 |
| 8 | A | 74 | A | N9-C4 | -6.54 | 1.33 | 1.37 |
| 8 | A | 2369 | A | N9-C4 | -6.54 | 1.33 | 1.37 |
| 34 | a | 809 | G | N9-C4 | -6.53 | 1.32 | 1.38 |
| 8 | A | 2632 | A | N9-C4 | -6.52 | 1.33 | 1.37 |
| 8 | A | 1543 | G | N9-C4 | -6.52 | 1.32 | 1.38 |
| 34 | a | 923 | A | N9-C4 | -6.52 | 1.33 | 1.37 |
| 8 | A | 2323 | G | N9-C4 | -6.51 | 1.32 | 1.38 |
| 8 | A | 2557 | G | N9-C4 | -6.51 | 1.32 | 1.38 |
| 34 | a | 212 | G | N9-C8 | -6.51 | 1.33 | 1.37 |
| 8 | A | 1218 | G | N9-C4 | -6.50 | 1.32 | 1.38 |
| 55 | v | 9 | G | N9-C4 | -6.50 | 1.32 | 1.38 |
| 8 | A | 231 | A | N9-C4 | -6.49 | 1.33 | 1.37 |
| 8 | A | 2640 | G | N9-C4 | -6.49 | 1.32 | 1.38 |
| 8 | A | 2876 | G | N9-C4 | -6.49 | 1.32 | 1.38 |
| 8 | A | 1631 | G | N9-C4 | -6.49 | 1.32 | 1.38 |
| 34 | a | 663 | A | N9-C4 | -6.49 | 1.33 | 1.37 |
| 8 | A | 1367 | A | N9-C4 | -6.48 | 1.33 | 1.37 |
| 34 | a | 780 | A | N9-C4 | -6.48 | 1.33 | 1.37 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 8 | A | 2775 | G | N9-C4 | -6.47 | 1.32 | 1.38 |
| 34 | a | 1497 | G | N9-C4 | -6.46 | 1.32 | 1.38 |
| 8 | A | 1187 | G | N9-C4 | -6.46 | 1.32 | 1.38 |
| 8 | A | 2005 | A | N9-C4 | -6.46 | 1.33 | 1.37 |
| 8 | A | 671 | C | N1-C6 | -6.46 | 1.33 | 1.37 |
| 8 | A | 289 | G | N9-C4 | -6.45 | 1.32 | 1.38 |
| 8 | A | 1202 | G | N9-C4 | -6.45 | 1.32 | 1.38 |
| 8 | A | 1922 | G | N9-C4 | -6.45 | 1.32 | 1.38 |
| 34 | a | 260 | G | N9-C4 | -6.43 | 1.32 | 1.38 |
| 8 | A | 1984 | G | N9-C4 | -6.43 | 1.32 | 1.38 |
| 34 | a | 78 | A | N9-C4 | -6.43 | 1.33 | 1.37 |
| 8 | A | 1337 | G | N9-C4 | -6.42 | 1.32 | 1.38 |
| 8 | A | 818 | G | N9-C4 | -6.42 | 1.32 | 1.38 |
| 34 | a | 1143 | G | N9-C4 | -6.42 | 1.32 | 1.38 |
| 8 | A | 42 | A | N9-C4 | -6.42 | 1.33 | 1.37 |
| 8 | A | 38 | A | N9-C4 | -6.41 | 1.34 | 1.37 |
| 8 | A | 176 | A | N9-C4 | -6.41 | 1.34 | 1.37 |
| 34 | a | 1374 | A | C5-C6 | -6.41 | 1.35 | 1.41 |
| 8 | A | 2414 | G | N9-C4 | -6.40 | 1.32 | 1.38 |
| 8 | A | 2058 | A | N9-C4 | -6.39 | 1.34 | 1.37 |
| 34 | a | 432 | A | N9-C4 | -6.39 | 1.34 | 1.37 |
| 8 | A | 2472 | G | N9-C4 | -6.39 | 1.32 | 1.38 |
| 8 | A | 1423 | G | N9-C4 | -6.39 | 1.32 | 1.38 |
| 8 | A | 1424 | G | N9-C4 | -6.38 | 1.32 | 1.38 |
| 34 | a | 1430 | A | N9-C4 | -6.38 | 1.34 | 1.37 |
| 8 | A | 214 | G | N9-C4 | -6.38 | 1.32 | 1.38 |
| 34 | a | 1476 | A | N9-C4 | -6.38 | 1.34 | 1.37 |
| 8 | A | 793 | A | N9-C4 | -6.37 | 1.34 | 1.37 |
| 8 | A | 1378 | A | N9-C4 | -6.37 | 1.34 | 1.37 |
| 9 | B | 59 | A | N9-C4 | -6.37 | 1.34 | 1.37 |
| 34 | a | 326 | G | N9-C4 | -6.37 | 1.32 | 1.38 |
| 34 | a | 1089 | G | N9-C4 | -6.36 | 1.32 | 1.38 |
| 34 | a | 629 | A | N9-C4 | -6.36 | 1.34 | 1.37 |
| 34 | a | 1306 | A | N9-C4 | -6.36 | 1.34 | 1.37 |
| 34 | a | 921 | U | C5'-C4' | 6.35 | 1.58 | 1.51 |
| 8 | A | 988 | A | N9-C4 | -6.33 | 1.34 | 1.37 |
| 55 | v | 15 | G | N9-C4 | -6.33 | 1.32 | 1.38 |
| 34 | a | 1098 | C | N1-C2 | -6.33 | 1.33 | 1.40 |
| 8 | A | 1904 | G | N9-C4 | -6.32 | 1.32 | 1.38 |
| 8 | A | 144 | A | N9-C4 | -6.31 | 1.34 | 1.37 |
| 8 | A | 85 | G | N9-C4 | -6.31 | 1.32 | 1.38 |
| 8 | A | 1142 | A | N9-C4 | -6.30 | 1.34 | 1.37 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|-------|-------|-------------|----------|
| 8 | A | 1918 | A | N9-C4 | -6.30 | 1.34 | 1.37 |
| 8 | A | 2894 | G | N9-C4 | -6.30 | 1.32 | 1.38 |
| 8 | A | 951 | C | N1-C6 | -6.30 | 1.33 | 1.37 |
| 8 | A | 1735 | A | N9-C4 | -6.29 | 1.34 | 1.37 |
| 8 | A | 73 | A | N9-C4 | -6.29 | 1.34 | 1.37 |
| 34 | a | 1133 | G | N9-C4 | -6.28 | 1.32 | 1.38 |
| 8 | A | 469 | G | C5-C6 | -6.28 | 1.36 | 1.42 |
| 34 | a | 1088 | G | C2-N3 | -6.28 | 1.27 | 1.32 |
| 8 | A | 844 | A | N9-C4 | -6.28 | 1.34 | 1.37 |
| 8 | A | 1106 | G | N9-C4 | -6.27 | 1.32 | 1.38 |
| 8 | A | 1664 | A | N9-C4 | -6.27 | 1.34 | 1.37 |
| 8 | A | 1674 | G | N9-C8 | -6.26 | 1.33 | 1.37 |
| 8 | A | 1735 | A | C5-C6 | -6.26 | 1.35 | 1.41 |
| 8 | A | 2844 | G | N9-C4 | -6.26 | 1.32 | 1.38 |
| 8 | A | 1762 | A | N9-C4 | -6.26 | 1.34 | 1.37 |
| 8 | A | 814 | C | N1-C6 | -6.26 | 1.33 | 1.37 |
| 8 | A | 1237 | A | N9-C4 | -6.25 | 1.34 | 1.37 |
| 8 | A | 2603 | G | N9-C4 | -6.25 | 1.32 | 1.38 |
| 9 | B | 33 | G | N9-C4 | -6.25 | 1.32 | 1.38 |
| 8 | A | 830 | G | N9-C4 | -6.25 | 1.32 | 1.38 |
| 8 | A | 297 | G | N9-C4 | -6.24 | 1.32 | 1.38 |
| 8 | A | 2765 | A | N9-C4 | -6.24 | 1.34 | 1.37 |
| 34 | a | 1111 | A | N9-C4 | -6.23 | 1.34 | 1.37 |
| 8 | A | 410 | G | N9-C4 | -6.23 | 1.32 | 1.38 |
| 34 | a | 919 | A | N9-C4 | -6.23 | 1.34 | 1.37 |
| 8 | A | 1723 | G | N9-C4 | -6.23 | 1.32 | 1.38 |
| 34 | a | 98 | A | N9-C4 | -6.22 | 1.34 | 1.37 |
| 34 | a | 1050 | G | N9-C4 | -6.22 | 1.32 | 1.38 |
| 8 | A | 2719 | G | N9-C4 | -6.22 | 1.32 | 1.38 |
| 8 | A | 1377 | G | N9-C4 | -6.22 | 1.32 | 1.38 |
| 8 | A | 1890 | A | N9-C4 | -6.22 | 1.34 | 1.37 |
| 8 | A | 2624 | G | N9-C4 | -6.21 | 1.32 | 1.38 |
| 8 | A | 303 | G | N9-C4 | -6.21 | 1.32 | 1.38 |
| 8 | A | 704 | G | N9-C4 | -6.21 | 1.32 | 1.38 |
| 8 | A | 1652 | A | N9-C4 | -6.21 | 1.34 | 1.37 |
| 34 | a | 1179 | A | N9-C4 | -6.21 | 1.34 | 1.37 |
| 8 | A | 1251 | C | N1-C6 | -6.21 | 1.33 | 1.37 |
| 34 | a | 987 | G | N9-C4 | -6.20 | 1.32 | 1.38 |
| 34 | a | 456 | A | N3-C4 | -6.20 | 1.31 | 1.34 |
| 8 | A | 2416 | C | N1-C6 | -6.19 | 1.33 | 1.37 |
| 8 | A | 655 | A | N9-C4 | -6.19 | 1.34 | 1.37 |
| 8 | A | 1230 | A | N9-C4 | -6.19 | 1.34 | 1.37 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|-------|-------|-------------|----------|
| 8 | A | 255 | A | N9-C4 | -6.18 | 1.34 | 1.37 |
| 8 | A | 1449 | G | N9-C4 | -6.18 | 1.33 | 1.38 |
| 34 | a | 478 | A | N9-C4 | -6.18 | 1.34 | 1.37 |
| 34 | a | 1405 | G | N9-C4 | -6.18 | 1.33 | 1.38 |
| 8 | A | 682 | G | N9-C4 | -6.18 | 1.33 | 1.38 |
| 8 | A | 2009 | A | N9-C4 | -6.17 | 1.34 | 1.37 |
| 8 | A | 2857 | G | N9-C4 | -6.16 | 1.33 | 1.38 |
| 8 | A | 1009 | A | N9-C4 | -6.15 | 1.34 | 1.37 |
| 8 | A | 1029 | A | N9-C4 | -6.15 | 1.34 | 1.37 |
| 8 | A | 1112 | G | N9-C4 | -6.15 | 1.33 | 1.38 |
| 8 | A | 1465 | G | N9-C4 | -6.15 | 1.33 | 1.38 |
| 34 | a | 1108 | G | N9-C4 | -6.14 | 1.33 | 1.38 |
| 8 | A | 751 | A | N9-C4 | -6.14 | 1.34 | 1.37 |
| 8 | A | 2513 | A | C6-N1 | -6.14 | 1.31 | 1.35 |
| 8 | A | 270 | A | N9-C4 | -6.13 | 1.34 | 1.37 |
| 8 | A | 722 | A | N9-C4 | -6.13 | 1.34 | 1.37 |
| 8 | A | 1381 | G | N9-C4 | -6.13 | 1.33 | 1.38 |
| 8 | A | 2284 | A | N9-C4 | -6.13 | 1.34 | 1.37 |
| 8 | A | 1317 | G | N9-C4 | -6.13 | 1.33 | 1.38 |
| 34 | a | 775 | G | N9-C4 | -6.13 | 1.33 | 1.38 |
| 34 | a | 1312 | G | N9-C4 | -6.12 | 1.33 | 1.38 |
| 34 | a | 1088 | G | N9-C4 | -6.11 | 1.33 | 1.38 |
| 34 | a | 1480 | A | N9-C4 | -6.11 | 1.34 | 1.37 |
| 34 | a | 920 | U | O3'-P | 6.11 | 1.68 | 1.61 |
| 34 | a | 778 | G | N9-C4 | -6.11 | 1.33 | 1.38 |
| 8 | A | 123 | G | N9-C4 | -6.10 | 1.33 | 1.38 |
| 34 | a | 1221 | G | N9-C4 | -6.10 | 1.33 | 1.38 |
| 8 | A | 178 | G | N9-C4 | -6.10 | 1.33 | 1.38 |
| 8 | A | 1383 | A | N9-C4 | -6.10 | 1.34 | 1.37 |
| 8 | A | 1655 | A | N9-C4 | -6.10 | 1.34 | 1.37 |
| 8 | A | 1960 | A | N9-C4 | -6.10 | 1.34 | 1.37 |
| 9 | B | 101 | A | N9-C4 | -6.10 | 1.34 | 1.37 |
| 8 | A | 2448 | A | N9-C4 | -6.09 | 1.34 | 1.37 |
| 8 | A | 940 | G | N9-C4 | -6.09 | 1.33 | 1.38 |
| 8 | A | 1193 | G | N9-C4 | -6.09 | 1.33 | 1.38 |
| 8 | A | 2524 | G | N9-C4 | -6.09 | 1.33 | 1.38 |
| 9 | B | 21 | G | N9-C4 | -6.09 | 1.33 | 1.38 |
| 8 | A | 1767 | G | N9-C4 | -6.08 | 1.33 | 1.38 |
| 8 | A | 2316 | G | N9-C4 | -6.08 | 1.33 | 1.38 |
| 34 | a | 1375 | A | N9-C4 | -6.08 | 1.34 | 1.37 |
| 8 | A | 771 | G | N9-C4 | -6.08 | 1.33 | 1.38 |
| 34 | a | 1435 | G | N9-C4 | -6.08 | 1.33 | 1.38 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|-------|-------|-------------|----------|
| 34 | a | 1323 | G | N9-C8 | -6.07 | 1.33 | 1.37 |
| 34 | a | 259 | G | N9-C4 | -6.06 | 1.33 | 1.38 |
| 8 | A | 636 | G | N9-C4 | -6.06 | 1.33 | 1.38 |
| 8 | A | 1358 | G | N9-C4 | -6.06 | 1.33 | 1.38 |
| 8 | A | 888 | C | N1-C6 | -6.05 | 1.33 | 1.37 |
| 8 | A | 1139 | G | N3-C4 | -6.05 | 1.31 | 1.35 |
| 8 | A | 1626 | A | N9-C4 | -6.04 | 1.34 | 1.37 |
| 34 | a | 1333 | A | N9-C4 | -6.04 | 1.34 | 1.37 |
| 34 | a | 462 | G | N7-C5 | -6.03 | 1.35 | 1.39 |
| 8 | A | 673 | C | N1-C6 | -6.03 | 1.33 | 1.37 |
| 8 | A | 1540 | G | N9-C4 | -6.03 | 1.33 | 1.38 |
| 8 | A | 39 | G | N9-C4 | -6.03 | 1.33 | 1.38 |
| 8 | A | 1311 | G | N9-C4 | -6.03 | 1.33 | 1.38 |
| 8 | A | 2631 | G | N9-C4 | -6.03 | 1.33 | 1.38 |
| 34 | a | 833 | G | N9-C4 | -6.03 | 1.33 | 1.38 |
| 34 | a | 1323 | G | N9-C4 | -6.02 | 1.33 | 1.38 |
| 8 | A | 1186 | G | N9-C4 | -6.02 | 1.33 | 1.38 |
| 8 | A | 1974 | C | N1-C6 | -6.02 | 1.33 | 1.37 |
| 8 | A | 2694 | G | N9-C4 | -6.02 | 1.33 | 1.38 |
| 8 | A | 271 | G | N9-C4 | -6.01 | 1.33 | 1.38 |
| 8 | A | 2846 | G | N9-C4 | -6.01 | 1.33 | 1.38 |
| 8 | A | 401 | A | N9-C4 | -6.00 | 1.34 | 1.37 |
| 8 | A | 1169 | A | N9-C4 | -6.00 | 1.34 | 1.37 |
| 34 | a | 509 | A | N9-C4 | -6.00 | 1.34 | 1.37 |
| 8 | A | 317 | G | N9-C4 | -5.99 | 1.33 | 1.38 |
| 34 | a | 849 | G | N9-C4 | -5.99 | 1.33 | 1.38 |
| 34 | a | 1428 | A | N9-C4 | -5.99 | 1.34 | 1.37 |
| 8 | A | 254 | G | N9-C8 | -5.99 | 1.33 | 1.37 |
| 8 | A | 1425 | G | N3-C4 | -5.98 | 1.31 | 1.35 |
| 8 | A | 679 | C | N1-C6 | -5.98 | 1.33 | 1.37 |
| 8 | A | 259 | G | N9-C4 | -5.97 | 1.33 | 1.38 |
| 8 | A | 926 | G | N9-C4 | -5.97 | 1.33 | 1.38 |
| 8 | A | 1139 | G | C5-C4 | -5.97 | 1.34 | 1.38 |
| 8 | A | 1666 | G | N9-C4 | -5.97 | 1.33 | 1.38 |
| 8 | A | 2223 | G | N9-C4 | -5.97 | 1.33 | 1.38 |
| 9 | B | 102 | G | N9-C4 | -5.97 | 1.33 | 1.38 |
| 8 | A | 1805 | A | N9-C4 | -5.97 | 1.34 | 1.37 |
| 8 | A | 551 | G | N9-C4 | -5.97 | 1.33 | 1.38 |
| 8 | A | 1034 | G | N9-C4 | -5.97 | 1.33 | 1.38 |
| 8 | A | 1697 | G | N9-C4 | -5.97 | 1.33 | 1.38 |
| 8 | A | 2444 | G | N9-C4 | -5.97 | 1.33 | 1.38 |
| 34 | a | 627 | G | N9-C4 | -5.96 | 1.33 | 1.38 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|-------|-------|-------------|----------|
| 34 | a | 446 | G | N9-C4 | -5.95 | 1.33 | 1.38 |
| 8 | A | 1530 | G | N9-C4 | -5.95 | 1.33 | 1.38 |
| 34 | a | 802 | A | N9-C4 | -5.95 | 1.34 | 1.37 |
| 8 | A | 1588 | G | N9-C4 | -5.94 | 1.33 | 1.38 |
| 8 | A | 368 | A | N9-C4 | -5.94 | 1.34 | 1.37 |
| 34 | a | 917 | G | N9-C4 | -5.94 | 1.33 | 1.38 |
| 34 | a | 921 | U | P-O5' | 5.94 | 1.65 | 1.59 |
| 8 | A | 21 | A | N9-C4 | -5.93 | 1.34 | 1.37 |
| 8 | A | 381 | G | N9-C4 | -5.93 | 1.33 | 1.38 |
| 8 | A | 404 | A | N9-C4 | -5.93 | 1.34 | 1.37 |
| 8 | A | 630 | G | N9-C4 | -5.93 | 1.33 | 1.38 |
| 8 | A | 1746 | A | N9-C4 | -5.93 | 1.34 | 1.37 |
| 8 | A | 1047 | G | C2-N3 | -5.93 | 1.28 | 1.32 |
| 8 | A | 1667 | G | N9-C4 | -5.93 | 1.33 | 1.38 |
| 34 | a | 410 | G | N9-C4 | -5.93 | 1.33 | 1.38 |
| 8 | A | 382 | A | N9-C4 | -5.92 | 1.34 | 1.37 |
| 8 | A | 778 | G | N9-C4 | -5.92 | 1.33 | 1.38 |
| 34 | a | 1276 | G | N9-C4 | -5.92 | 1.33 | 1.38 |
| 8 | A | 592 | A | N9-C4 | -5.91 | 1.34 | 1.37 |
| 34 | a | 1019 | A | N9-C4 | -5.91 | 1.34 | 1.37 |
| 55 | v | 6 | G | N9-C4 | -5.91 | 1.33 | 1.38 |
| 55 | v | 73 | A | N9-C4 | -5.91 | 1.34 | 1.37 |
| 8 | A | 638 | G | N9-C4 | -5.91 | 1.33 | 1.38 |
| 34 | a | 1061 | G | N9-C4 | -5.91 | 1.33 | 1.38 |
| 8 | A | 706 | A | N9-C4 | -5.90 | 1.34 | 1.37 |
| 8 | A | 2686 | G | N9-C4 | -5.90 | 1.33 | 1.38 |
| 34 | a | 949 | A | N9-C4 | -5.90 | 1.34 | 1.37 |
| 34 | a | 332 | G | N9-C4 | -5.89 | 1.33 | 1.38 |
| 9 | B | 24 | G | N9-C4 | -5.89 | 1.33 | 1.38 |
| 8 | A | 1977 | A | N9-C4 | -5.89 | 1.34 | 1.37 |
| 34 | a | 402 | G | N9-C4 | -5.88 | 1.33 | 1.38 |
| 34 | a | 319 | G | N9-C4 | -5.88 | 1.33 | 1.38 |
| 9 | B | 44 | G | N9-C4 | -5.88 | 1.33 | 1.38 |
| 28 | U | 59 | GLU | CA-CB | -5.88 | 1.41 | 1.53 |
| 8 | A | 58 | G | N9-C4 | -5.87 | 1.33 | 1.38 |
| 8 | A | 629 | G | N9-C4 | -5.87 | 1.33 | 1.38 |
| 8 | A | 94 | A | N9-C4 | -5.87 | 1.34 | 1.37 |
| 34 | a | 181 | A | C5-C6 | -5.87 | 1.35 | 1.41 |
| 8 | A | 2077 | A | N9-C4 | -5.86 | 1.34 | 1.37 |
| 34 | a | 1362 | A | N9-C4 | -5.86 | 1.34 | 1.37 |
| 8 | A | 675 | A | N9-C4 | -5.86 | 1.34 | 1.37 |
| 8 | A | 1281 | G | N9-C4 | -5.86 | 1.33 | 1.38 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|-------|-------|-------------|----------|
| 34 | a | 320 | A | N9-C4 | -5.86 | 1.34 | 1.37 |
| 34 | a | 786 | G | N9-C4 | -5.86 | 1.33 | 1.38 |
| 8 | A | 1678 | A | N9-C4 | -5.86 | 1.34 | 1.37 |
| 34 | a | 915 | A | N9-C4 | -5.86 | 1.34 | 1.37 |
| 8 | A | 1154 | G | N9-C4 | -5.85 | 1.33 | 1.38 |
| 8 | A | 1826 | G | N9-C4 | -5.85 | 1.33 | 1.38 |
| 8 | A | 1973 | G | N9-C4 | -5.85 | 1.33 | 1.38 |
| 34 | a | 722 | G | N9-C4 | -5.85 | 1.33 | 1.38 |
| 8 | A | 122 | G | N9-C4 | -5.84 | 1.33 | 1.38 |
| 8 | A | 1178 | C | N1-C6 | -5.84 | 1.33 | 1.37 |
| 8 | A | 1308 | A | N9-C4 | -5.83 | 1.34 | 1.37 |
| 34 | a | 50 | A | N9-C4 | -5.83 | 1.34 | 1.37 |
| 8 | A | 2373 | G | N9-C4 | -5.82 | 1.33 | 1.38 |
| 8 | A | 2816 | G | N9-C4 | -5.82 | 1.33 | 1.38 |
| 8 | A | 2191 | A | N9-C4 | -5.82 | 1.34 | 1.37 |
| 8 | A | 1501 | G | N9-C4 | -5.82 | 1.33 | 1.38 |
| 8 | A | 2671 | G | N9-C4 | -5.82 | 1.33 | 1.38 |
| 8 | A | 977 | G | N9-C4 | -5.82 | 1.33 | 1.38 |
| 8 | A | 1420 | A | N9-C4 | -5.82 | 1.34 | 1.37 |
| 8 | A | 1538 | G | N9-C4 | -5.82 | 1.33 | 1.38 |
| 8 | A | 2899 | A | C5-C6 | -5.82 | 1.35 | 1.41 |
| 8 | A | 1873 | G | N9-C4 | -5.81 | 1.33 | 1.38 |
| 34 | a | 68 | G | N9-C4 | -5.81 | 1.33 | 1.38 |
| 8 | A | 2071 | A | N9-C4 | -5.81 | 1.34 | 1.37 |
| 8 | A | 2730 | C | N1-C6 | -5.81 | 1.33 | 1.37 |
| 8 | A | 1106 | G | C2-N3 | -5.80 | 1.28 | 1.32 |
| 55 | v | 21 | A | N9-C4 | -5.80 | 1.34 | 1.37 |
| 34 | a | 1487 | G | N9-C4 | -5.79 | 1.33 | 1.38 |
| 8 | A | 1194 | A | N9-C4 | -5.79 | 1.34 | 1.37 |
| 34 | a | 408 | A | N9-C4 | -5.79 | 1.34 | 1.37 |
| 8 | A | 1875 | G | N9-C4 | -5.78 | 1.33 | 1.38 |
| 9 | B | 104 | A | N9-C4 | -5.78 | 1.34 | 1.37 |
| 8 | A | 219 | A | N9-C4 | -5.78 | 1.34 | 1.37 |
| 8 | A | 152 | A | N9-C4 | -5.78 | 1.34 | 1.37 |
| 8 | A | 1025 | G | C2-N3 | -5.78 | 1.28 | 1.32 |
| 8 | A | 936 | A | N9-C4 | -5.77 | 1.34 | 1.37 |
| 34 | a | 452 | A | C6-N1 | -5.77 | 1.31 | 1.35 |
| 8 | A | 359 | G | N9-C4 | -5.77 | 1.33 | 1.38 |
| 34 | a | 1418 | A | N9-C4 | -5.77 | 1.34 | 1.37 |
| 8 | A | 95 | A | N9-C4 | -5.76 | 1.34 | 1.37 |
| 8 | A | 1025 | G | N3-C4 | -5.76 | 1.31 | 1.35 |
| 8 | A | 952 | G | N9-C4 | -5.76 | 1.33 | 1.38 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|-------|-------|-------------|----------|
| 8 | A | 2569 | G | N9-C4 | -5.76 | 1.33 | 1.38 |
| 8 | A | 2471 | A | N9-C4 | -5.76 | 1.34 | 1.37 |
| 8 | A | 2437 | G | N9-C4 | -5.75 | 1.33 | 1.38 |
| 8 | A | 1011 | G | N9-C4 | -5.75 | 1.33 | 1.38 |
| 8 | A | 481 | G | N9-C4 | -5.75 | 1.33 | 1.38 |
| 8 | A | 2436 | G | N9-C4 | -5.75 | 1.33 | 1.38 |
| 34 | a | 752 | G | N9-C4 | -5.75 | 1.33 | 1.38 |
| 34 | a | 1108 | G | N3-C4 | -5.75 | 1.31 | 1.35 |
| 9 | B | 78 | A | N9-C4 | -5.74 | 1.34 | 1.37 |
| 9 | B | 73 | A | N9-C4 | -5.74 | 1.34 | 1.37 |
| 8 | A | 2669 | G | N9-C4 | -5.74 | 1.33 | 1.38 |
| 8 | A | 497 | A | N9-C4 | -5.73 | 1.34 | 1.37 |
| 8 | A | 861 | A | N9-C4 | -5.73 | 1.34 | 1.37 |
| 8 | A | 1417 | C | N1-C6 | -5.73 | 1.33 | 1.37 |
| 34 | a | 300 | A | N9-C4 | -5.73 | 1.34 | 1.37 |
| 8 | A | 1192 | G | N9-C4 | -5.72 | 1.33 | 1.38 |
| 34 | a | 1374 | A | C6-N6 | -5.72 | 1.29 | 1.33 |
| 8 | A | 1189 | A | N9-C4 | -5.72 | 1.34 | 1.37 |
| 8 | A | 2577 | A | N9-C4 | -5.72 | 1.34 | 1.37 |
| 8 | A | 1933 | G | N9-C4 | -5.71 | 1.33 | 1.38 |
| 34 | a | 830 | G | N9-C4 | -5.71 | 1.33 | 1.38 |
| 8 | A | 997 | G | N9-C4 | -5.71 | 1.33 | 1.38 |
| 8 | A | 2415 | G | N9-C4 | -5.71 | 1.33 | 1.38 |
| 8 | A | 2526 | G | N9-C4 | -5.71 | 1.33 | 1.38 |
| 34 | a | 606 | G | N9-C4 | -5.71 | 1.33 | 1.38 |
| 8 | A | 1482 | G | N9-C4 | -5.70 | 1.33 | 1.38 |
| 55 | v | 26 | G | N9-C4 | -5.70 | 1.33 | 1.38 |
| 8 | A | 843 | G | C2-N3 | -5.70 | 1.28 | 1.32 |
| 8 | A | 590 | A | N9-C4 | -5.69 | 1.34 | 1.37 |
| 34 | a | 380 | G | N9-C4 | -5.69 | 1.33 | 1.38 |
| 8 | A | 2501 | C | N1-C6 | -5.69 | 1.33 | 1.37 |
| 8 | A | 2355 | G | N9-C4 | -5.69 | 1.33 | 1.38 |
| 8 | A | 924 | G | N9-C4 | -5.69 | 1.33 | 1.38 |
| 8 | A | 1225 | G | N9-C4 | -5.69 | 1.33 | 1.38 |
| 55 | v | 52 | G | N9-C4 | -5.69 | 1.33 | 1.38 |
| 34 | a | 1104 | G | N9-C4 | -5.68 | 1.33 | 1.38 |
| 8 | A | 618 | G | N9-C4 | -5.68 | 1.33 | 1.38 |
| 8 | A | 633 | A | N9-C4 | -5.68 | 1.34 | 1.37 |
| 8 | A | 1771 | C | N3-C4 | -5.67 | 1.29 | 1.33 |
| 8 | A | 1863 | G | N9-C4 | -5.67 | 1.33 | 1.38 |
| 8 | A | 1661 | G | N9-C4 | -5.67 | 1.33 | 1.38 |
| 34 | a | 749 | A | N9-C4 | -5.67 | 1.34 | 1.37 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|-------|-------|-------------|----------|
| 8 | A | 802 | A | N9-C4 | -5.67 | 1.34 | 1.37 |
| 34 | a | 146 | G | N9-C4 | -5.67 | 1.33 | 1.38 |
| 34 | a | 1074 | G | N3-C4 | -5.67 | 1.31 | 1.35 |
| 8 | A | 91 | A | N9-C4 | -5.67 | 1.34 | 1.37 |
| 34 | a | 1461 | G | N9-C4 | -5.67 | 1.33 | 1.38 |
| 8 | A | 2670 | A | N9-C4 | -5.66 | 1.34 | 1.37 |
| 8 | A | 55 | G | N9-C4 | -5.66 | 1.33 | 1.38 |
| 8 | A | 2328 | A | N9-C4 | -5.66 | 1.34 | 1.37 |
| 9 | B | 105 | G | N9-C4 | -5.66 | 1.33 | 1.38 |
| 34 | a | 706 | A | N9-C4 | -5.66 | 1.34 | 1.37 |
| 8 | A | 261 | G | N9-C4 | -5.65 | 1.33 | 1.38 |
| 8 | A | 1182 | G | N9-C4 | -5.65 | 1.33 | 1.38 |
| 8 | A | 35 | G | N9-C4 | -5.65 | 1.33 | 1.38 |
| 8 | A | 2435 | A | C6-N6 | -5.65 | 1.29 | 1.33 |
| 34 | a | 373 | A | N9-C4 | -5.65 | 1.34 | 1.37 |
| 8 | A | 836 | G | N9-C4 | -5.64 | 1.33 | 1.38 |
| 34 | a | 947 | G | N9-C4 | -5.64 | 1.33 | 1.38 |
| 34 | a | 824 | G | N9-C4 | -5.64 | 1.33 | 1.38 |
| 8 | A | 713 | G | N9-C4 | -5.64 | 1.33 | 1.38 |
| 34 | a | 361 | G | N9-C4 | -5.64 | 1.33 | 1.38 |
| 8 | A | 575 | A | N9-C4 | -5.64 | 1.34 | 1.37 |
| 34 | a | 682 | G | N9-C4 | -5.64 | 1.33 | 1.38 |
| 8 | A | 1566 | A | N9-C4 | -5.63 | 1.34 | 1.37 |
| 8 | A | 693 | A | N9-C4 | -5.63 | 1.34 | 1.37 |
| 8 | A | 1115 | G | N9-C4 | -5.63 | 1.33 | 1.38 |
| 8 | A | 2840 | C | N1-C6 | -5.63 | 1.33 | 1.37 |
| 34 | a | 243 | A | N9-C4 | -5.63 | 1.34 | 1.37 |
| 8 | A | 469 | G | N9-C4 | -5.62 | 1.33 | 1.38 |
| 8 | A | 342 | A | N9-C4 | -5.62 | 1.34 | 1.37 |
| 8 | A | 2839 | G | N9-C4 | -5.62 | 1.33 | 1.38 |
| 34 | a | 630 | A | N9-C4 | -5.61 | 1.34 | 1.37 |
| 34 | a | 1190 | G | N9-C4 | -5.61 | 1.33 | 1.38 |
| 8 | A | 256 | A | N9-C4 | -5.61 | 1.34 | 1.37 |
| 55 | v | 43 | A | N9-C4 | -5.60 | 1.34 | 1.37 |
| 8 | A | 1492 | G | C2-N3 | -5.59 | 1.28 | 1.32 |
| 8 | A | 1569 | A | N9-C4 | -5.59 | 1.34 | 1.37 |
| 55 | v | 63 | G | N9-C4 | -5.58 | 1.33 | 1.38 |
| 8 | A | 2088 | A | N9-C4 | -5.58 | 1.34 | 1.37 |
| 8 | A | 2170 | A | N9-C4 | -5.57 | 1.34 | 1.37 |
| 34 | a | 451 | A | N9-C4 | -5.57 | 1.34 | 1.37 |
| 34 | a | 1134 | G | C2-N3 | -5.57 | 1.28 | 1.32 |
| 34 | a | 1092 | A | N9-C4 | -5.57 | 1.34 | 1.37 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|-------|-------|-------------|----------|
| 34 | a | 117 | G | N9-C4 | -5.56 | 1.33 | 1.38 |
| 8 | A | 2853 | C | N1-C6 | -5.56 | 1.33 | 1.37 |
| 34 | a | 255 | G | N9-C4 | -5.56 | 1.33 | 1.38 |
| 34 | a | 691 | G | N9-C4 | -5.56 | 1.33 | 1.38 |
| 34 | a | 104 | G | N9-C4 | -5.55 | 1.33 | 1.38 |
| 8 | A | 309 | A | N9-C4 | -5.55 | 1.34 | 1.37 |
| 8 | A | 2744 | G | N9-C4 | -5.55 | 1.33 | 1.38 |
| 8 | A | 362 | A | O3'-P | -5.54 | 1.54 | 1.61 |
| 34 | a | 825 | A | N9-C4 | -5.54 | 1.34 | 1.37 |
| 9 | B | 100 | G | N9-C4 | -5.53 | 1.33 | 1.38 |
| 8 | A | 899 | A | N9-C4 | -5.53 | 1.34 | 1.37 |
| 34 | a | 655 | A | N9-C4 | -5.53 | 1.34 | 1.37 |
| 8 | A | 1401 | G | N9-C4 | -5.53 | 1.33 | 1.38 |
| 8 | A | 1681 | G | N9-C4 | -5.53 | 1.33 | 1.38 |
| 34 | a | 1253 | G | N9-C4 | -5.53 | 1.33 | 1.38 |
| 34 | a | 1459 | G | N9-C4 | -5.53 | 1.33 | 1.38 |
| 9 | B | 60 | C | N1-C2 | -5.52 | 1.34 | 1.40 |
| 8 | A | 553 | G | N9-C4 | -5.52 | 1.33 | 1.38 |
| 8 | A | 2644 | G | N9-C4 | -5.52 | 1.33 | 1.38 |
| 34 | a | 742 | G | N9-C4 | -5.52 | 1.33 | 1.38 |
| 8 | A | 6 | A | N9-C4 | -5.51 | 1.34 | 1.37 |
| 8 | A | 2509 | G | N9-C4 | -5.51 | 1.33 | 1.38 |
| 8 | A | 1378 | A | C5-C6 | -5.51 | 1.36 | 1.41 |
| 8 | A | 1274 | A | N9-C4 | -5.51 | 1.34 | 1.37 |
| 8 | A | 1456 | G | N9-C4 | -5.51 | 1.33 | 1.38 |
| 34 | a | 1074 | G | N9-C4 | -5.51 | 1.33 | 1.38 |
| 8 | A | 2553 | G | N9-C4 | -5.51 | 1.33 | 1.38 |
| 8 | A | 134 | G | N9-C4 | -5.50 | 1.33 | 1.38 |
| 8 | A | 2664 | G | N9-C4 | -5.50 | 1.33 | 1.38 |
| 8 | A | 233 | A | N9-C4 | -5.50 | 1.34 | 1.37 |
| 34 | a | 1252 | A | N9-C4 | -5.49 | 1.34 | 1.37 |
| 34 | a | 1098 | C | C2-N3 | -5.49 | 1.31 | 1.35 |
| 8 | A | 1719 | G | N9-C4 | -5.49 | 1.33 | 1.38 |
| 8 | A | 307 | G | N9-C4 | -5.49 | 1.33 | 1.38 |
| 8 | A | 2590 | A | N9-C4 | -5.48 | 1.34 | 1.37 |
| 8 | A | 1419 | A | N9-C4 | -5.48 | 1.34 | 1.37 |
| 8 | A | 1551 | A | N9-C4 | -5.48 | 1.34 | 1.37 |
| 8 | A | 2227 | A | N9-C4 | -5.48 | 1.34 | 1.37 |
| 8 | A | 971 | G | N9-C4 | -5.48 | 1.33 | 1.38 |
| 8 | A | 2218 | G | N9-C4 | -5.47 | 1.33 | 1.38 |
| 8 | A | 212 | G | N9-C4 | -5.47 | 1.33 | 1.38 |
| 8 | A | 1945 | G | N9-C4 | -5.47 | 1.33 | 1.38 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|-------|-------|-------------|----------|
| 34 | a | 1048 | G | N9-C4 | -5.46 | 1.33 | 1.38 |
| 8 | A | 1040 | A | N9-C4 | -5.46 | 1.34 | 1.37 |
| 8 | A | 1966 | A | N9-C4 | -5.46 | 1.34 | 1.37 |
| 8 | A | 2574 | G | N9-C4 | -5.46 | 1.33 | 1.38 |
| 8 | A | 1278 | C | N1-C6 | -5.46 | 1.33 | 1.37 |
| 8 | A | 1686 | C | C2-N3 | -5.45 | 1.31 | 1.35 |
| 8 | A | 319 | G | N9-C4 | -5.45 | 1.33 | 1.38 |
| 8 | A | 595 | C | N1-C6 | -5.45 | 1.33 | 1.37 |
| 8 | A | 925 | A | N9-C4 | -5.45 | 1.34 | 1.37 |
| 8 | A | 2426 | A | N9-C4 | -5.45 | 1.34 | 1.37 |
| 34 | a | 1299 | A | N9-C4 | -5.45 | 1.34 | 1.37 |
| 8 | A | 2530 | A | N9-C4 | -5.44 | 1.34 | 1.37 |
| 8 | A | 668 | A | N9-C4 | -5.44 | 1.34 | 1.37 |
| 8 | A | 1171 | G | N3-C4 | -5.44 | 1.31 | 1.35 |
| 8 | A | 2430 | A | C5-C6 | -5.44 | 1.36 | 1.41 |
| 8 | A | 1010 | A | N9-C4 | -5.43 | 1.34 | 1.37 |
| 34 | a | 859 | G | N9-C4 | -5.43 | 1.33 | 1.38 |
| 8 | A | 2070 | A | N9-C4 | -5.43 | 1.34 | 1.37 |
| 8 | A | 1388 | G | N9-C4 | -5.43 | 1.33 | 1.38 |
| 8 | A | 93 | G | N9-C4 | -5.43 | 1.33 | 1.38 |
| 8 | A | 792 | A | N9-C4 | -5.42 | 1.34 | 1.37 |
| 8 | A | 1958 | C | N1-C6 | -5.42 | 1.33 | 1.37 |
| 8 | A | 1987 | A | N9-C4 | -5.42 | 1.34 | 1.37 |
| 8 | A | 1519 | G | N9-C4 | -5.42 | 1.33 | 1.38 |
| 8 | A | 266 | G | C6-N1 | -5.42 | 1.35 | 1.39 |
| 8 | A | 1861 | G | N9-C4 | -5.42 | 1.33 | 1.38 |
| 8 | A | 1800 | C | N1-C6 | -5.41 | 1.33 | 1.37 |
| 8 | A | 2407 | A | C5-C6 | -5.41 | 1.36 | 1.41 |
| 51 | r | 42 | ARG | CA-C | -5.41 | 1.38 | 1.52 |
| 8 | A | 2253 | G | N9-C4 | -5.41 | 1.33 | 1.38 |
| 8 | A | 506 | G | N9-C4 | -5.41 | 1.33 | 1.38 |
| 8 | A | 1807 | G | N9-C4 | -5.41 | 1.33 | 1.38 |
| 34 | a | 493 | A | N9-C4 | -5.41 | 1.34 | 1.37 |
| 8 | A | 2270 | A | N9-C4 | -5.41 | 1.34 | 1.37 |
| 9 | B | 107 | G | N9-C4 | -5.40 | 1.33 | 1.38 |
| 34 | a | 27 | G | N9-C4 | -5.40 | 1.33 | 1.38 |
| 8 | A | 9 | G | N9-C4 | -5.40 | 1.33 | 1.38 |
| 8 | A | 470 | A | N9-C4 | -5.40 | 1.34 | 1.37 |
| 34 | a | 959 | A | N9-C4 | -5.40 | 1.34 | 1.37 |
| 8 | A | 1121 | C | N1-C6 | -5.40 | 1.33 | 1.37 |
| 34 | a | 935 | A | N9-C4 | -5.40 | 1.34 | 1.37 |
| 8 | A | 555 | G | N9-C4 | -5.39 | 1.33 | 1.38 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|-------|-------|-------------|----------|
| 8 | A | 636 | G | N9-C8 | -5.39 | 1.34 | 1.37 |
| 8 | A | 1177 | G | N9-C4 | -5.39 | 1.33 | 1.38 |
| 8 | A | 311 | A | N9-C4 | -5.39 | 1.34 | 1.37 |
| 8 | A | 2094 | A | N9-C4 | -5.39 | 1.34 | 1.37 |
| 34 | a | 1117 | A | N9-C4 | -5.39 | 1.34 | 1.37 |
| 57 | x | 192 | TRP | CB-CG | -5.39 | 1.40 | 1.50 |
| 8 | A | 1171 | G | C2-N3 | -5.39 | 1.28 | 1.32 |
| 34 | a | 1329 | A | C5-C4 | -5.39 | 1.34 | 1.38 |
| 8 | A | 2705 | A | N9-C4 | -5.38 | 1.34 | 1.37 |
| 34 | a | 1088 | G | N3-C4 | -5.38 | 1.31 | 1.35 |
| 8 | A | 340 | A | C5-C6 | -5.38 | 1.36 | 1.41 |
| 8 | A | 1797 | G | N9-C4 | -5.38 | 1.33 | 1.38 |
| 8 | A | 2821 | A | N9-C4 | -5.38 | 1.34 | 1.37 |
| 34 | a | 487 | A | N9-C4 | -5.38 | 1.34 | 1.37 |
| 34 | a | 878 | A | N9-C4 | -5.38 | 1.34 | 1.37 |
| 34 | a | 492 | C | N1-C2 | -5.38 | 1.34 | 1.40 |
| 34 | a | 541 | G | N9-C4 | -5.38 | 1.33 | 1.38 |
| 8 | A | 425 | G | N9-C4 | -5.38 | 1.33 | 1.38 |
| 8 | A | 262 | A | N9-C4 | -5.37 | 1.34 | 1.37 |
| 8 | A | 2781 | A | N9-C4 | -5.37 | 1.34 | 1.37 |
| 31 | X | 16 | ASN | CA-CB | -5.37 | 1.39 | 1.53 |
| 8 | A | 1214 | A | N9-C4 | -5.37 | 1.34 | 1.37 |
| 8 | A | 2679 | A | N9-C4 | -5.37 | 1.34 | 1.37 |
| 34 | a | 1204 | A | N9-C4 | -5.37 | 1.34 | 1.37 |
| 8 | A | 2898 | U | C2-N3 | -5.37 | 1.33 | 1.37 |
| 8 | A | 48 | G | N9-C4 | -5.37 | 1.33 | 1.38 |
| 8 | A | 1889 | A | N9-C4 | -5.37 | 1.34 | 1.37 |
| 8 | A | 2082 | A | C6-N6 | -5.36 | 1.29 | 1.33 |
| 8 | A | 1093 | G | N9-C4 | -5.36 | 1.33 | 1.38 |
| 8 | A | 1479 | G | N9-C4 | -5.36 | 1.33 | 1.38 |
| 55 | v | 12 | G | C2-N3 | -5.36 | 1.28 | 1.32 |
| 8 | A | 820 | A | N9-C4 | -5.36 | 1.34 | 1.37 |
| 8 | A | 1998 | A | C6-N1 | -5.36 | 1.31 | 1.35 |
| 8 | A | 2778 | A | N9-C4 | -5.36 | 1.34 | 1.37 |
| 8 | A | 1587 | G | N9-C4 | -5.35 | 1.33 | 1.38 |
| 8 | A | 1095 | A | N9-C4 | -5.35 | 1.34 | 1.37 |
| 8 | A | 1568 | G | C6-N1 | -5.35 | 1.35 | 1.39 |
| 34 | a | 257 | G | N9-C4 | -5.35 | 1.33 | 1.38 |
| 34 | a | 585 | G | N9-C4 | -5.35 | 1.33 | 1.38 |
| 34 | a | 1145 | A | N9-C4 | -5.35 | 1.34 | 1.37 |
| 8 | A | 2465 | C | N1-C6 | -5.34 | 1.33 | 1.37 |
| 8 | A | 2840 | C | C5-C6 | -5.34 | 1.30 | 1.34 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 34 | a | 288 | A | N9-C4 | -5.34 | 1.34 | 1.37 |
| 34 | a | 432 | A | C5-C6 | -5.34 | 1.36 | 1.41 |
| 8 | A | 823 | C | N1-C6 | -5.34 | 1.33 | 1.37 |
| 8 | A | 1178 | C | C4-N4 | -5.34 | 1.29 | 1.33 |
| 8 | A | 1549 | A | N9-C4 | -5.34 | 1.34 | 1.37 |
| 8 | A | 2235 | G | C2-N3 | -5.34 | 1.28 | 1.32 |
| 8 | A | 192 | C | N1-C6 | -5.34 | 1.33 | 1.37 |
| 8 | A | 197 | A | N9-C4 | -5.33 | 1.34 | 1.37 |
| 8 | A | 1426 | G | N9-C4 | -5.33 | 1.33 | 1.38 |
| 8 | A | 2412 | A | N9-C4 | -5.33 | 1.34 | 1.37 |
| 8 | A | 424 | G | N9-C4 | -5.33 | 1.33 | 1.38 |
| 8 | A | 2407 | A | N9-C4 | -5.33 | 1.34 | 1.37 |
| 9 | B | 64 | G | N9-C4 | -5.33 | 1.33 | 1.38 |
| 8 | A | 460 | A | N9-C4 | -5.32 | 1.34 | 1.37 |
| 8 | A | 2051 | A | N9-C4 | -5.32 | 1.34 | 1.37 |
| 34 | a | 1368 | A | N9-C4 | -5.32 | 1.34 | 1.37 |
| 9 | B | 42 | C | N1-C6 | -5.32 | 1.33 | 1.37 |
| 55 | v | 29 | G | N9-C4 | -5.32 | 1.33 | 1.38 |
| 8 | A | 2900 | A | N9-C4 | -5.32 | 1.34 | 1.37 |
| 8 | A | 1369 | G | N9-C4 | -5.31 | 1.33 | 1.38 |
| 8 | A | 1682 | G | N9-C4 | -5.31 | 1.33 | 1.38 |
| 34 | a | 838 | G | N9-C4 | -5.31 | 1.33 | 1.38 |
| 8 | A | 1435 | G | N9-C4 | -5.30 | 1.33 | 1.38 |
| 8 | A | 2641 | G | N9-C4 | -5.30 | 1.33 | 1.38 |
| 8 | A | 953 | G | N9-C4 | -5.30 | 1.33 | 1.38 |
| 8 | A | 1384 | A | N9-C4 | -5.30 | 1.34 | 1.37 |
| 8 | A | 2230 | G | N9-C4 | -5.30 | 1.33 | 1.38 |
| 8 | A | 1653 | G | N9-C4 | -5.29 | 1.33 | 1.38 |
| 8 | A | 1803 | A | N9-C4 | -5.29 | 1.34 | 1.37 |
| 8 | A | 2708 | G | N9-C4 | -5.29 | 1.33 | 1.38 |
| 34 | a | 1433 | A | N9-C4 | -5.29 | 1.34 | 1.37 |
| 8 | A | 549 | G | N9-C4 | -5.29 | 1.33 | 1.38 |
| 8 | A | 697 | G | N9-C4 | -5.29 | 1.33 | 1.38 |
| 8 | A | 1643 | G | N9-C4 | -5.29 | 1.33 | 1.38 |
| 34 | a | 129 | A | N9-C4 | -5.29 | 1.34 | 1.37 |
| 34 | a | 1500 | A | N9-C4 | -5.29 | 1.34 | 1.37 |
| 8 | A | 1008 | A | N9-C4 | -5.28 | 1.34 | 1.37 |
| 8 | A | 2571 | U | C2-N3 | -5.28 | 1.34 | 1.37 |
| 8 | A | 2516 | A | N9-C4 | -5.28 | 1.34 | 1.37 |
| 8 | A | 2890 | G | N9-C4 | -5.28 | 1.33 | 1.38 |
| 34 | a | 1081 | A | C3'-O3' | 5.28 | 1.49 | 1.42 |
| 8 | A | 966 | G | N9-C4 | -5.28 | 1.33 | 1.38 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|-------|-------|-------------|----------|
| 8 | A | 1075 | C | C2-N3 | -5.27 | 1.31 | 1.35 |
| 8 | A | 2082 | A | C5-C4 | -5.27 | 1.35 | 1.38 |
| 8 | A | 1557 | C | N1-C6 | -5.26 | 1.33 | 1.37 |
| 8 | A | 463 | G | N9-C4 | -5.26 | 1.33 | 1.38 |
| 8 | A | 1846 | G | N9-C4 | -5.26 | 1.33 | 1.38 |
| 8 | A | 672 | C | N1-C6 | -5.26 | 1.33 | 1.37 |
| 8 | A | 862 | G | N9-C4 | -5.26 | 1.33 | 1.38 |
| 8 | A | 2792 | A | N9-C4 | -5.26 | 1.34 | 1.37 |
| 8 | A | 216 | A | N9-C4 | -5.26 | 1.34 | 1.37 |
| 8 | A | 1362 | C | N1-C6 | -5.25 | 1.33 | 1.37 |
| 34 | a | 800 | G | N9-C4 | -5.25 | 1.33 | 1.38 |
| 34 | a | 1176 | A | N9-C4 | -5.25 | 1.34 | 1.37 |
| 8 | A | 1139 | G | C2-N3 | -5.25 | 1.28 | 1.32 |
| 8 | A | 2095 | A | N9-C4 | -5.25 | 1.34 | 1.37 |
| 34 | a | 535 | A | N9-C4 | -5.25 | 1.34 | 1.37 |
| 34 | a | 638 | U | C2-N3 | -5.25 | 1.34 | 1.37 |
| 8 | A | 888 | C | N3-C4 | -5.25 | 1.30 | 1.33 |
| 8 | A | 1703 | G | N9-C4 | -5.25 | 1.33 | 1.38 |
| 8 | A | 1858 | A | N9-C4 | -5.25 | 1.34 | 1.37 |
| 34 | a | 1163 | A | N9-C4 | -5.25 | 1.34 | 1.37 |
| 8 | A | 88 | G | C6-N1 | -5.25 | 1.35 | 1.39 |
| 8 | A | 1017 | G | N9-C4 | -5.25 | 1.33 | 1.38 |
| 8 | A | 1013 | C | N1-C6 | -5.24 | 1.34 | 1.37 |
| 8 | A | 1117 | C | N1-C6 | -5.24 | 1.34 | 1.37 |
| 8 | A | 1448 | G | N9-C4 | -5.24 | 1.33 | 1.38 |
| 8 | A | 2281 | A | C6-N6 | -5.24 | 1.29 | 1.33 |
| 34 | a | 1319 | A | N9-C4 | -5.24 | 1.34 | 1.37 |
| 34 | a | 908 | A | N9-C4 | -5.24 | 1.34 | 1.37 |
| 8 | A | 2829 | A | N9-C4 | -5.24 | 1.34 | 1.37 |
| 9 | B | 50 | A | N9-C4 | -5.24 | 1.34 | 1.37 |
| 34 | a | 716 | A | N9-C4 | -5.24 | 1.34 | 1.37 |
| 8 | A | 2547 | A | C6-N1 | -5.24 | 1.31 | 1.35 |
| 34 | a | 903 | G | N9-C4 | -5.24 | 1.33 | 1.38 |
| 56 | w | 38 | A | N9-C4 | -5.24 | 1.34 | 1.37 |
| 8 | A | 621 | A | N9-C4 | -5.23 | 1.34 | 1.37 |
| 8 | A | 1477 | A | N9-C4 | -5.23 | 1.34 | 1.37 |
| 8 | A | 1517 | G | N9-C4 | -5.23 | 1.33 | 1.38 |
| 8 | A | 1169 | A | C5-C6 | -5.23 | 1.36 | 1.41 |
| 8 | A | 728 | G | N9-C4 | -5.23 | 1.33 | 1.38 |
| 34 | a | 1057 | G | N9-C4 | -5.23 | 1.33 | 1.38 |
| 8 | A | 2012 | G | N9-C4 | -5.23 | 1.33 | 1.38 |
| 34 | a | 1182 | G | N9-C4 | -5.23 | 1.33 | 1.38 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|-------|-------|-------------|----------|
| 34 | a | 1154 | G | N9-C4 | -5.22 | 1.33 | 1.38 |
| 8 | A | 721 | A | N9-C4 | -5.22 | 1.34 | 1.37 |
| 8 | A | 2567 | G | N9-C4 | -5.22 | 1.33 | 1.38 |
| 8 | A | 81 | G | N9-C4 | -5.22 | 1.33 | 1.38 |
| 8 | A | 732 | C | N1-C6 | -5.22 | 1.34 | 1.37 |
| 8 | A | 2659 | G | N9-C4 | -5.22 | 1.33 | 1.38 |
| 8 | A | 2826 | A | N9-C4 | -5.22 | 1.34 | 1.37 |
| 8 | A | 2848 | G | N9-C4 | -5.22 | 1.33 | 1.38 |
| 9 | B | 10 | G | N9-C4 | -5.22 | 1.33 | 1.38 |
| 34 | a | 53 | A | N9-C4 | -5.22 | 1.34 | 1.37 |
| 8 | A | 2080 | A | N9-C4 | -5.21 | 1.34 | 1.37 |
| 8 | A | 2484 | G | N9-C4 | -5.21 | 1.33 | 1.38 |
| 34 | a | 378 | G | N9-C4 | -5.21 | 1.33 | 1.38 |
| 34 | a | 1322 | C | N1-C6 | -5.21 | 1.34 | 1.37 |
| 8 | A | 1057 | A | N9-C4 | -5.21 | 1.34 | 1.37 |
| 8 | A | 1628 | G | N9-C4 | -5.21 | 1.33 | 1.38 |
| 8 | A | 1260 | A | N9-C4 | -5.21 | 1.34 | 1.37 |
| 8 | A | 2281 | A | N9-C4 | -5.21 | 1.34 | 1.37 |
| 8 | A | 2464 | G | N9-C4 | -5.21 | 1.33 | 1.38 |
| 34 | a | 654 | G | C6-N1 | -5.21 | 1.35 | 1.39 |
| 34 | a | 898 | G | N9-C4 | -5.21 | 1.33 | 1.38 |
| 8 | A | 495 | G | N9-C4 | -5.21 | 1.33 | 1.38 |
| 8 | A | 1072 | C | N1-C6 | -5.21 | 1.34 | 1.37 |
| 8 | A | 1342 | A | N9-C4 | -5.21 | 1.34 | 1.37 |
| 8 | A | 2654 | A | N9-C4 | -5.21 | 1.34 | 1.37 |
| 8 | A | 340 | A | C6-N6 | -5.20 | 1.29 | 1.33 |
| 34 | a | 947 | G | N9-C8 | -5.20 | 1.34 | 1.37 |
| 8 | A | 1811 | G | N9-C4 | -5.20 | 1.33 | 1.38 |
| 34 | a | 1274 | A | N9-C4 | -5.20 | 1.34 | 1.37 |
| 34 | a | 1456 | A | N9-C4 | -5.20 | 1.34 | 1.37 |
| 8 | A | 1120 | G | N9-C4 | -5.20 | 1.33 | 1.38 |
| 34 | a | 2 | A | N9-C4 | -5.20 | 1.34 | 1.37 |
| 8 | A | 1975 | G | N9-C4 | -5.20 | 1.33 | 1.38 |
| 34 | a | 767 | A | N9-C4 | -5.19 | 1.34 | 1.37 |
| 34 | a | 500 | G | N9-C4 | -5.19 | 1.33 | 1.38 |
| 34 | a | 1310 | G | N9-C4 | -5.19 | 1.33 | 1.38 |
| 8 | A | 1638 | C | N1-C6 | -5.19 | 1.34 | 1.37 |
| 34 | a | 428 | G | N9-C4 | -5.19 | 1.33 | 1.38 |
| 34 | a | 581 | G | N9-C4 | -5.19 | 1.33 | 1.38 |
| 8 | A | 726 | G | N9-C4 | -5.19 | 1.33 | 1.38 |
| 34 | a | 1044 | A | N9-C4 | -5.19 | 1.34 | 1.37 |
| 9 | B | 28 | C | N1-C6 | -5.18 | 1.34 | 1.37 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|-------|-------|-------------|----------|
| 10 | C | 212 | TRP | CB-CG | -5.18 | 1.41 | 1.50 |
| 8 | A | 2271 | G | N9-C4 | -5.18 | 1.33 | 1.38 |
| 8 | A | 2663 | G | N3-C4 | -5.18 | 1.31 | 1.35 |
| 34 | a | 1465 | A | N9-C4 | -5.18 | 1.34 | 1.37 |
| 8 | A | 220 | G | C6-N1 | -5.18 | 1.35 | 1.39 |
| 34 | a | 1120 | C | N1-C6 | -5.18 | 1.34 | 1.37 |
| 8 | A | 2097 | A | C5-C6 | -5.18 | 1.36 | 1.41 |
| 8 | A | 2217 | G | N9-C4 | -5.18 | 1.33 | 1.38 |
| 8 | A | 2678 | C | N1-C6 | -5.17 | 1.34 | 1.37 |
| 8 | A | 834 | G | N9-C4 | -5.17 | 1.33 | 1.38 |
| 8 | A | 2515 | C | N1-C6 | -5.17 | 1.34 | 1.37 |
| 34 | a | 760 | G | N9-C4 | -5.17 | 1.33 | 1.38 |
| 8 | A | 14 | A | C5-C6 | -5.17 | 1.36 | 1.41 |
| 34 | a | 928 | G | N9-C4 | -5.17 | 1.33 | 1.38 |
| 8 | A | 1711 | A | C6-N1 | -5.17 | 1.31 | 1.35 |
| 8 | A | 856 | G | N9-C4 | -5.16 | 1.33 | 1.38 |
| 8 | A | 979 | A | N9-C4 | -5.16 | 1.34 | 1.37 |
| 8 | A | 1194 | A | C6-N1 | -5.16 | 1.31 | 1.35 |
| 34 | a | 242 | G | N9-C4 | -5.16 | 1.33 | 1.38 |
| 34 | a | 592 | G | C2-N3 | -5.16 | 1.28 | 1.32 |
| 8 | A | 950 | G | N9-C4 | -5.16 | 1.33 | 1.38 |
| 34 | a | 1454 | G | N9-C4 | -5.16 | 1.33 | 1.38 |
| 8 | A | 1989 | G | N9-C4 | -5.15 | 1.33 | 1.38 |
| 8 | A | 2864 | G | N9-C4 | -5.15 | 1.33 | 1.38 |
| 34 | a | 1222 | G | N9-C4 | -5.15 | 1.33 | 1.38 |
| 8 | A | 2383 | G | N9-C4 | -5.15 | 1.33 | 1.38 |
| 8 | A | 1022 | G | C2-N3 | -5.15 | 1.28 | 1.32 |
| 8 | A | 2268 | A | N9-C4 | -5.15 | 1.34 | 1.37 |
| 34 | a | 119 | A | N9-C4 | -5.15 | 1.34 | 1.37 |
| 8 | A | 2758 | A | N9-C4 | -5.15 | 1.34 | 1.37 |
| 8 | A | 1039 | A | N9-C4 | -5.14 | 1.34 | 1.37 |
| 34 | a | 765 | G | N9-C4 | -5.14 | 1.33 | 1.38 |
| 34 | a | 1157 | A | N9-C4 | -5.14 | 1.34 | 1.37 |
| 8 | A | 1410 | G | N9-C4 | -5.14 | 1.33 | 1.38 |
| 8 | A | 327 | G | N9-C4 | -5.14 | 1.33 | 1.38 |
| 8 | A | 939 | G | N9-C4 | -5.14 | 1.33 | 1.38 |
| 8 | A | 2661 | G | N9-C4 | -5.14 | 1.33 | 1.38 |
| 8 | A | 247 | G | N9-C4 | -5.13 | 1.33 | 1.38 |
| 34 | a | 16 | A | N9-C4 | -5.13 | 1.34 | 1.37 |
| 34 | a | 602 | A | C5-C6 | -5.13 | 1.36 | 1.41 |
| 34 | a | 1047 | G | N9-C4 | -5.13 | 1.33 | 1.38 |
| 34 | a | 654 | G | C5-C6 | -5.12 | 1.37 | 1.42 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|-------|-------|-------------|----------|
| 8 | A | 1005 | C | N3-C4 | -5.12 | 1.30 | 1.33 |
| 8 | A | 1502 | A | N9-C4 | -5.12 | 1.34 | 1.37 |
| 34 | a | 38 | G | N9-C4 | -5.12 | 1.33 | 1.38 |
| 8 | A | 556 | A | N9-C4 | -5.12 | 1.34 | 1.37 |
| 8 | A | 80 | G | N9-C4 | -5.12 | 1.33 | 1.38 |
| 8 | A | 1725 | U | C2-N3 | -5.12 | 1.34 | 1.37 |
| 8 | A | 2575 | C | N1-C6 | -5.12 | 1.34 | 1.37 |
| 8 | A | 1055 | G | N3-C4 | -5.12 | 1.31 | 1.35 |
| 8 | A | 15 | G | C6-N1 | -5.11 | 1.35 | 1.39 |
| 56 | w | 53 | G | N9-C4 | -5.11 | 1.33 | 1.38 |
| 8 | A | 1425 | G | C2-N3 | -5.11 | 1.28 | 1.32 |
| 34 | a | 286 | C | N1-C6 | -5.11 | 1.34 | 1.37 |
| 8 | A | 136 | G | N9-C4 | -5.11 | 1.33 | 1.38 |
| 8 | A | 1370 | C | N1-C6 | -5.11 | 1.34 | 1.37 |
| 8 | A | 2335 | A | N9-C4 | -5.11 | 1.34 | 1.37 |
| 8 | A | 1104 | C | N1-C2 | -5.11 | 1.35 | 1.40 |
| 8 | A | 2777 | G | N9-C4 | -5.11 | 1.33 | 1.38 |
| 34 | a | 1039 | G | N9-C4 | -5.11 | 1.33 | 1.38 |
| 8 | A | 230 | G | N9-C4 | -5.10 | 1.33 | 1.38 |
| 34 | a | 861 | G | N9-C4 | -5.10 | 1.33 | 1.38 |
| 34 | a | 1404 | C | N1-C2 | -5.10 | 1.35 | 1.40 |
| 34 | a | 81 | A | C5-C6 | -5.10 | 1.36 | 1.41 |
| 8 | A | 132 | G | N9-C4 | -5.10 | 1.33 | 1.38 |
| 8 | A | 429 | A | N9-C4 | -5.10 | 1.34 | 1.37 |
| 8 | A | 877 | A | N9-C4 | -5.09 | 1.34 | 1.37 |
| 34 | a | 318 | G | N9-C4 | -5.09 | 1.33 | 1.38 |
| 8 | A | 2843 | G | N9-C4 | -5.09 | 1.33 | 1.38 |
| 34 | a | 227 | G | N9-C4 | -5.09 | 1.33 | 1.38 |
| 34 | a | 109 | A | N9-C4 | -5.08 | 1.34 | 1.37 |
| 34 | a | 1186 | G | N9-C4 | -5.08 | 1.33 | 1.38 |
| 34 | a | 52 | C | N1-C6 | -5.08 | 1.34 | 1.37 |
| 8 | A | 1335 | C | N1-C6 | -5.08 | 1.34 | 1.37 |
| 8 | A | 2663 | G | C2-N3 | -5.08 | 1.28 | 1.32 |
| 8 | A | 118 | A | N9-C4 | -5.08 | 1.34 | 1.37 |
| 9 | B | 84 | G | N9-C4 | -5.08 | 1.33 | 1.38 |
| 8 | A | 2544 | G | N9-C4 | -5.08 | 1.33 | 1.38 |
| 34 | a | 602 | A | N9-C4 | -5.08 | 1.34 | 1.37 |
| 8 | A | 1656 | C | N1-C6 | -5.07 | 1.34 | 1.37 |
| 34 | a | 362 | G | N9-C4 | -5.07 | 1.33 | 1.38 |
| 9 | B | 96 | G | N9-C4 | -5.07 | 1.33 | 1.38 |
| 34 | a | 1103 | C | N1-C6 | -5.07 | 1.34 | 1.37 |
| 8 | A | 1238 | G | N9-C4 | -5.07 | 1.33 | 1.38 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|-------|-------|-------------|----------|
| 8 | A | 1685 | C | N1-C6 | -5.07 | 1.34 | 1.37 |
| 8 | A | 1824 | G | N9-C4 | -5.07 | 1.33 | 1.38 |
| 34 | a | 247 | G | N9-C4 | -5.07 | 1.33 | 1.38 |
| 34 | a | 1331 | G | N9-C4 | -5.07 | 1.33 | 1.38 |
| 8 | A | 998 | C | N1-C6 | -5.07 | 1.34 | 1.37 |
| 8 | A | 1672 | A | N9-C4 | -5.07 | 1.34 | 1.37 |
| 8 | A | 2190 | G | N9-C4 | -5.07 | 1.33 | 1.38 |
| 34 | a | 138 | G | N9-C4 | -5.07 | 1.33 | 1.38 |
| 34 | a | 278 | G | N9-C4 | -5.07 | 1.33 | 1.38 |
| 8 | A | 2435 | A | C5-C6 | -5.06 | 1.36 | 1.41 |
| 34 | a | 595 | A | N9-C4 | -5.06 | 1.34 | 1.37 |
| 8 | A | 180 | G | C2-N3 | -5.06 | 1.28 | 1.32 |
| 8 | A | 2547 | A | N9-C4 | -5.06 | 1.34 | 1.37 |
| 34 | a | 980 | C | N1-C6 | -5.06 | 1.34 | 1.37 |
| 34 | a | 35 | G | N9-C4 | -5.06 | 1.33 | 1.38 |
| 8 | A | 1686 | C | N1-C2 | -5.06 | 1.35 | 1.40 |
| 8 | A | 1403 | A | C6-N1 | -5.06 | 1.32 | 1.35 |
| 8 | A | 43 | G | N9-C4 | -5.05 | 1.33 | 1.38 |
| 8 | A | 2780 | G | N9-C4 | -5.05 | 1.33 | 1.38 |
| 8 | A | 812 | C | N1-C6 | -5.05 | 1.34 | 1.37 |
| 8 | A | 1930 | G | N9-C4 | -5.05 | 1.33 | 1.38 |
| 34 | a | 812 | G | N9-C4 | -5.05 | 1.33 | 1.38 |
| 8 | A | 1634 | A | N9-C4 | -5.05 | 1.34 | 1.37 |
| 8 | A | 2516 | A | C5-C6 | -5.05 | 1.36 | 1.41 |
| 8 | A | 1999 | C | N3-C4 | -5.04 | 1.30 | 1.33 |
| 8 | A | 2279 | G | N9-C4 | -5.04 | 1.33 | 1.38 |
| 34 | a | 1058 | G | N9-C4 | -5.04 | 1.33 | 1.38 |
| 8 | A | 2897 | U | N1-C2 | -5.04 | 1.34 | 1.38 |
| 8 | A | 1147 | A | N9-C4 | -5.04 | 1.34 | 1.37 |
| 34 | a | 79 | G | N9-C4 | -5.04 | 1.33 | 1.38 |
| 8 | A | 1743 | G | N9-C4 | -5.04 | 1.33 | 1.38 |
| 8 | A | 1932 | A | N9-C4 | -5.04 | 1.34 | 1.37 |
| 8 | A | 2349 | G | N9-C4 | -5.04 | 1.33 | 1.38 |
| 34 | a | 151 | A | N9-C4 | -5.03 | 1.34 | 1.37 |
| 21 | N | 107 | ASN | C-N | -5.03 | 1.22 | 1.34 |
| 34 | a | 430 | A | N9-C4 | -5.03 | 1.34 | 1.37 |
| 8 | A | 583 | G | N9-C4 | -5.03 | 1.33 | 1.38 |
| 8 | A | 900 | A | N9-C8 | -5.03 | 1.33 | 1.37 |
| 34 | a | 953 | G | N9-C4 | -5.03 | 1.33 | 1.38 |
| 8 | A | 1553 | A | N9-C4 | -5.03 | 1.34 | 1.37 |
| 8 | A | 1749 | A | C5-C6 | -5.03 | 1.36 | 1.41 |
| 8 | A | 2082 | A | N9-C4 | -5.03 | 1.34 | 1.37 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|-------|-------|-------------|----------|
| 9 | B | 46 | A | N9-C4 | -5.03 | 1.34 | 1.37 |
| 34 | a | 1102 | A | C6-N1 | -5.03 | 1.32 | 1.35 |
| 8 | A | 1696 | G | N9-C4 | -5.02 | 1.33 | 1.38 |
| 8 | A | 2377 | A | N9-C4 | -5.02 | 1.34 | 1.37 |
| 8 | A | 1477 | A | C6-N6 | -5.02 | 1.29 | 1.33 |
| 55 | v | 4 | G | N9-C4 | -5.02 | 1.33 | 1.38 |
| 8 | A | 1421 | G | N9-C4 | -5.02 | 1.33 | 1.38 |
| 8 | A | 1869 | G | N9-C4 | -5.02 | 1.33 | 1.38 |
| 8 | A | 2077 | A | C5-C6 | -5.02 | 1.36 | 1.41 |
| 8 | A | 488 | G | N9-C4 | -5.01 | 1.33 | 1.38 |
| 8 | A | 2877 | G | N9-C4 | -5.01 | 1.33 | 1.38 |
| 8 | A | 2199 | A | C5-C6 | -5.01 | 1.36 | 1.41 |
| 8 | A | 2854 | G | N9-C4 | -5.01 | 1.33 | 1.38 |
| 8 | A | 2470 | G | N9-C4 | -5.01 | 1.33 | 1.38 |
| 31 | X | 28 | PHE | C-N | -5.01 | 1.22 | 1.34 |
| 8 | A | 1333 | G | N9-C4 | -5.00 | 1.33 | 1.38 |
| 8 | A | 2014 | A | N9-C4 | -5.00 | 1.34 | 1.37 |
| 8 | A | 189 | G | N9-C4 | -5.00 | 1.33 | 1.38 |
| 8 | A | 1037 | G | N9-C4 | -5.00 | 1.33 | 1.38 |
| 8 | A | 2834 | G | N9-C4 | -5.00 | 1.33 | 1.38 |
| 34 | a | 656 | G | N9-C4 | -5.00 | 1.33 | 1.38 |
| 8 | A | 1216 | G | C2-N3 | -5.00 | 1.28 | 1.32 |
| 8 | A | 1740 | G | N9-C4 | -5.00 | 1.33 | 1.38 |
| 8 | A | 2721 | A | N9-C4 | -5.00 | 1.34 | 1.37 |
| 8 | A | 2802 | G | N9-C4 | -5.00 | 1.33 | 1.38 |

All (4436) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|--------|-------------|----------|
| 8 | A | 1055 | G | N3-C4-C5 | 16.27 | 136.74 | 128.60 |
| 34 | a | 921 | U | C6-N1-C2 | -14.36 | 112.39 | 121.00 |
| 8 | A | 1055 | G | N3-C4-N9 | -14.11 | 117.53 | 126.00 |
| 34 | a | 201 | G | N3-C4-C5 | 12.85 | 135.03 | 128.60 |
| 34 | a | 604 | G | N3-C4-C5 | 12.82 | 135.01 | 128.60 |
| 8 | A | 469 | G | C4-C5-N7 | 12.69 | 115.87 | 110.80 |
| 34 | a | 920 | U | OP1-P-O3' | 12.60 | 132.93 | 105.20 |
| 34 | a | 201 | G | N3-C4-N9 | -12.60 | 118.44 | 126.00 |
| 8 | A | 469 | G | N9-C4-C5 | -12.48 | 100.41 | 105.40 |
| 34 | a | 797 | C | C6-N1-C2 | 12.38 | 125.25 | 120.30 |
| 8 | A | 843 | G | N3-C4-C5 | 12.33 | 134.76 | 128.60 |
| 34 | a | 456 | A | N1-C2-N3 | 12.17 | 135.38 | 129.30 |
| 34 | a | 921 | U | O4'-C1'-N1 | 12.16 | 117.93 | 108.20 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|--------|-------------|----------|
| 8 | A | 1604 | C | C6-N1-C2 | 11.96 | 125.08 | 120.30 |
| 34 | a | 921 | U | C5-C6-N1 | 11.84 | 128.62 | 122.70 |
| 8 | A | 2235 | G | N3-C4-C5 | 11.79 | 134.49 | 128.60 |
| 55 | v | 12 | G | N3-C4-C5 | 11.78 | 134.49 | 128.60 |
| 34 | a | 1088 | G | N3-C4-N9 | -11.77 | 118.94 | 126.00 |
| 8 | A | 2767 | C | C6-N1-C2 | 11.69 | 124.98 | 120.30 |
| 34 | a | 1143 | G | N3-C4-C5 | 11.42 | 134.31 | 128.60 |
| 8 | A | 1687 | G | N3-C4-N9 | -11.40 | 119.16 | 126.00 |
| 34 | a | 858 | G | N3-C4-N9 | -11.40 | 119.16 | 126.00 |
| 34 | a | 921 | U | OP1-P-OP2 | -11.30 | 102.65 | 119.60 |
| 8 | A | 180 | G | N3-C4-C5 | 11.24 | 134.22 | 128.60 |
| 8 | A | 1492 | G | N3-C4-C5 | 11.20 | 134.20 | 128.60 |
| 34 | a | 542 | G | N3-C4-C5 | 11.19 | 134.19 | 128.60 |
| 34 | a | 1129 | C | C6-N1-C2 | 11.12 | 124.75 | 120.30 |
| 8 | A | 1277 | G | N3-C4-C5 | 11.10 | 134.15 | 128.60 |
| 34 | a | 920 | U | P-O3'-C3' | 11.04 | 132.95 | 119.70 |
| 8 | A | 2576 | G | N3-C2-N2 | -11.02 | 112.19 | 119.90 |
| 9 | B | 31 | C | C6-N1-C2 | 10.98 | 124.69 | 120.30 |
| 8 | A | 2198 | A | N1-C6-N6 | -10.96 | 112.02 | 118.60 |
| 8 | A | 814 | C | C6-N1-C2 | 10.96 | 124.68 | 120.30 |
| 8 | A | 780 | G | N3-C4-N9 | -10.92 | 119.45 | 126.00 |
| 8 | A | 1022 | G | N3-C4-N9 | -10.86 | 119.48 | 126.00 |
| 8 | A | 1492 | G | N3-C4-N9 | -10.83 | 119.50 | 126.00 |
| 8 | A | 1450 | G | N3-C4-C5 | 10.74 | 133.97 | 128.60 |
| 8 | A | 1810 | A | N1-C6-N6 | 10.74 | 125.04 | 118.60 |
| 34 | a | 592 | G | N3-C4-C5 | 10.73 | 133.97 | 128.60 |
| 55 | v | 17 | C | O4'-C1'-N1 | -10.73 | 99.62 | 108.20 |
| 34 | a | 241 | G | N3-C4-C5 | 10.71 | 133.95 | 128.60 |
| 8 | A | 1425 | G | N3-C4-C5 | 10.69 | 133.94 | 128.60 |
| 34 | a | 1134 | G | N3-C4-N9 | -10.65 | 119.61 | 126.00 |
| 34 | a | 1081 | A | P-O3'-C3' | 10.62 | 132.44 | 119.70 |
| 8 | A | 2663 | G | N3-C4-N9 | -10.59 | 119.65 | 126.00 |
| 8 | A | 2763 | G | N3-C4-C5 | 10.57 | 133.89 | 128.60 |
| 34 | a | 858 | G | N3-C4-C5 | 10.51 | 133.86 | 128.60 |
| 34 | a | 42 | G | N3-C4-C5 | 10.50 | 133.85 | 128.60 |
| 8 | A | 2146 | C | C6-N1-C2 | 10.49 | 124.50 | 120.30 |
| 8 | A | 1684 | G | N3-C4-C5 | 10.45 | 133.82 | 128.60 |
| 8 | A | 1117 | C | C6-N1-C2 | 10.45 | 124.48 | 120.30 |
| 34 | a | 954 | G | N3-C4-C5 | 10.41 | 133.81 | 128.60 |
| 34 | a | 201 | G | C2-N3-C4 | -10.40 | 106.70 | 111.90 |
| 8 | A | 2663 | G | N3-C4-C5 | 10.38 | 133.79 | 128.60 |
| 34 | a | 158 | G | O4'-C1'-N9 | -10.37 | 99.90 | 108.20 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|--------|-------------|----------|
| 34 | a | 1244 | G | N3-C4-C5 | 10.37 | 133.78 | 128.60 |
| 8 | A | 1022 | G | N3-C2-N2 | -10.35 | 112.66 | 119.90 |
| 8 | A | 2010 | G | N3-C4-C5 | 10.35 | 133.77 | 128.60 |
| 8 | A | 1091 | G | N3-C4-C5 | 10.34 | 133.77 | 128.60 |
| 8 | A | 1025 | G | N3-C4-C5 | 10.32 | 133.76 | 128.60 |
| 8 | A | 1686 | C | C6-N1-C2 | 10.32 | 124.43 | 120.30 |
| 8 | A | 1013 | C | C6-N1-C2 | 10.29 | 124.42 | 120.30 |
| 34 | a | 181 | A | C5-C6-N6 | -10.29 | 115.47 | 123.70 |
| 8 | A | 1378 | A | N1-C6-N6 | 10.28 | 124.77 | 118.60 |
| 8 | A | 536 | G | N3-C4-N9 | -10.27 | 119.84 | 126.00 |
| 34 | a | 190 | A | N1-C6-N6 | 10.26 | 124.75 | 118.60 |
| 34 | a | 1082 | A | OP1-P-OP2 | -10.25 | 104.23 | 119.60 |
| 8 | A | 2839 | G | C2-N3-C4 | -10.24 | 106.78 | 111.90 |
| 8 | A | 1016 | G | N3-C4-C5 | 10.23 | 133.72 | 128.60 |
| 8 | A | 1047 | G | N3-C4-N9 | -10.21 | 119.87 | 126.00 |
| 8 | A | 1527 | G | N3-C4-C5 | 10.20 | 133.70 | 128.60 |
| 8 | A | 318 | C | C6-N1-C2 | 10.19 | 124.38 | 120.30 |
| 55 | v | 12 | G | N3-C4-N9 | -10.17 | 119.90 | 126.00 |
| 34 | a | 988 | G | N3-C4-C5 | 10.14 | 133.67 | 128.60 |
| 8 | A | 314 | C | C6-N1-C2 | 10.14 | 124.36 | 120.30 |
| 9 | B | 76 | G | O5'-P-OP1 | -10.13 | 96.58 | 105.70 |
| 8 | A | 2803 | G | N3-C4-C5 | 10.08 | 133.64 | 128.60 |
| 8 | A | 1908 | C | C6-N1-C2 | 10.07 | 124.33 | 120.30 |
| 8 | A | 1025 | G | N3-C4-N9 | -10.05 | 119.97 | 126.00 |
| 8 | A | 696 | G | N3-C4-C5 | 10.03 | 133.62 | 128.60 |
| 8 | A | 1371 | G | N3-C4-C5 | 10.02 | 133.61 | 128.60 |
| 34 | a | 521 | G | N3-C4-C5 | 10.00 | 133.60 | 128.60 |
| 8 | A | 1216 | G | N3-C4-C5 | 9.99 | 133.59 | 128.60 |
| 9 | B | 20 | G | N3-C4-C5 | 9.98 | 133.59 | 128.60 |
| 8 | A | 1721 | G | N3-C4-C5 | 9.97 | 133.59 | 128.60 |
| 34 | a | 1050 | G | N3-C4-N9 | -9.97 | 120.02 | 126.00 |
| 8 | A | 1652 | A | N1-C6-N6 | 9.96 | 124.58 | 118.60 |
| 34 | a | 1143 | G | C8-N9-C4 | 9.94 | 110.37 | 106.40 |
| 34 | a | 888 | G | N3-C4-C5 | 9.93 | 133.56 | 128.60 |
| 34 | a | 920 | U | OP2-P-O3' | -9.91 | 83.39 | 105.20 |
| 8 | A | 1674 | G | N3-C4-C5 | 9.91 | 133.56 | 128.60 |
| 8 | A | 752 | A | O4'-C1'-N9 | 9.89 | 116.11 | 108.20 |
| 8 | A | 1642 | G | N3-C4-C5 | 9.89 | 133.54 | 128.60 |
| 34 | a | 1418 | A | C8-N9-C4 | 9.89 | 109.75 | 105.80 |
| 8 | A | 2338 | C | C6-N1-C2 | 9.88 | 124.25 | 120.30 |
| 34 | a | 1050 | G | N3-C4-C5 | 9.88 | 133.54 | 128.60 |
| 34 | a | 175 | C | C6-N1-C2 | 9.87 | 124.25 | 120.30 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34 | a | 888 | G | N3-C4-N9 | -9.84 | 120.10 | 126.00 |
| 34 | a | 617 | G | N3-C4-C5 | 9.84 | 133.52 | 128.60 |
| 8 | A | 1789 | A | C2'-C3'-O3' | 9.83 | 131.13 | 109.50 |
| 8 | A | 2576 | G | N1-C2-N2 | 9.83 | 125.05 | 116.20 |
| 34 | a | 181 | A | N1-C6-N6 | 9.80 | 124.48 | 118.60 |
| 8 | A | 2414 | G | N3-C4-N9 | -9.79 | 120.13 | 126.00 |
| 8 | A | 2525 | G | C8-N9-C4 | 9.78 | 110.31 | 106.40 |
| 8 | A | 1604 | C | N3-C4-C5 | 9.76 | 125.80 | 121.90 |
| 9 | B | 54 | G | N3-C4-C5 | 9.73 | 133.46 | 128.60 |
| 8 | A | 1064 | C | N1-C2-O2 | -9.70 | 113.08 | 118.90 |
| 8 | A | 2576 | G | N3-C4-N9 | -9.67 | 120.20 | 126.00 |
| 34 | a | 1108 | G | N3-C2-N2 | -9.66 | 113.14 | 119.90 |
| 55 | v | 9 | G | N3-C4-C5 | 9.66 | 133.43 | 128.60 |
| 8 | A | 2389 | G | N3-C4-N9 | -9.63 | 120.22 | 126.00 |
| 8 | A | 1139 | G | N3-C4-C5 | 9.62 | 133.41 | 128.60 |
| 8 | A | 2525 | G | N3-C4-C5 | 9.62 | 133.41 | 128.60 |
| 8 | A | 52 | A | N1-C6-N6 | 9.60 | 124.36 | 118.60 |
| 8 | A | 2496 | C | N1-C2-O2 | 9.60 | 124.66 | 118.90 |
| 8 | A | 301 | G | N3-C4-C5 | 9.59 | 133.39 | 128.60 |
| 8 | A | 180 | G | N3-C4-N9 | -9.59 | 120.25 | 126.00 |
| 8 | A | 1178 | C | N3-C4-C5 | 9.57 | 125.73 | 121.90 |
| 8 | A | 2430 | A | N1-C6-N6 | 9.56 | 124.34 | 118.60 |
| 34 | a | 640 | A | C8-N9-C4 | 9.56 | 109.62 | 105.80 |
| 8 | A | 1025 | G | C2-N3-C4 | -9.55 | 107.13 | 111.90 |
| 8 | A | 1425 | G | N3-C4-N9 | -9.55 | 120.27 | 126.00 |
| 8 | A | 1745 | A | C8-N9-C4 | 9.53 | 109.61 | 105.80 |
| 34 | a | 651 | C | C6-N1-C2 | 9.54 | 124.11 | 120.30 |
| 8 | A | 1465 | G | N3-C4-C5 | 9.53 | 133.37 | 128.60 |
| 8 | A | 1054 | A | N9-C4-C5 | -9.52 | 101.99 | 105.80 |
| 34 | a | 1088 | G | C5-C6-O6 | 9.50 | 134.30 | 128.60 |
| 8 | A | 2665 | A | C8-N9-C4 | 9.49 | 109.60 | 105.80 |
| 34 | a | 628 | G | N3-C4-C5 | 9.48 | 133.34 | 128.60 |
| 34 | a | 1156 | G | N3-C4-C5 | 9.48 | 133.34 | 128.60 |
| 55 | v | 17 | C | N1-C1'-C2' | 9.47 | 126.32 | 114.00 |
| 8 | A | 1904 | G | N3-C4-C5 | 9.46 | 133.33 | 128.60 |
| 8 | A | 289 | G | N3-C4-C5 | 9.43 | 133.32 | 128.60 |
| 8 | A | 1941 | C | C6-N1-C2 | 9.43 | 124.07 | 120.30 |
| 8 | A | 1642 | G | N3-C4-N9 | -9.42 | 120.34 | 126.00 |
| 8 | A | 2254 | C | C6-N1-C2 | 9.42 | 124.07 | 120.30 |
| 8 | A | 2381 | A | C4'-C3'-O3' | 9.41 | 131.81 | 113.00 |
| 8 | A | 45 | G | N3-C4-C5 | 9.39 | 133.29 | 128.60 |
| 8 | A | 780 | G | N3-C4-C5 | 9.38 | 133.29 | 128.60 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 2526 | G | C2-N3-C4 | -9.38 | 107.21 | 111.90 |
| 34 | a | 1289 | A | N1-C6-N6 | 9.37 | 124.22 | 118.60 |
| 8 | A | 2235 | G | N3-C4-N9 | -9.37 | 120.38 | 126.00 |
| 8 | A | 260 | G | N3-C4-C5 | 9.37 | 133.28 | 128.60 |
| 8 | A | 178 | G | N3-C4-C5 | 9.36 | 133.28 | 128.60 |
| 9 | B | 54 | G | C2-N3-C4 | -9.34 | 107.23 | 111.90 |
| 8 | A | 2154 | A | N1-C6-N6 | 9.34 | 124.20 | 118.60 |
| 8 | A | 1277 | G | N3-C4-N9 | -9.32 | 120.41 | 126.00 |
| 8 | A | 2763 | G | N3-C4-N9 | -9.31 | 120.41 | 126.00 |
| 8 | A | 2338 | C | N3-C4-C5 | 9.30 | 125.62 | 121.90 |
| 8 | A | 1266 | G | N3-C4-N9 | -9.30 | 120.42 | 126.00 |
| 8 | A | 1543 | G | N3-C4-C5 | 9.30 | 133.25 | 128.60 |
| 8 | A | 2153 | C | C6-N1-C2 | 9.29 | 124.02 | 120.30 |
| 8 | A | 1163 | G | N3-C4-C5 | 9.29 | 133.25 | 128.60 |
| 8 | A | 1317 | G | N3-C4-C5 | 9.29 | 133.24 | 128.60 |
| 8 | A | 359 | G | N3-C4-N9 | -9.28 | 120.43 | 126.00 |
| 8 | A | 1631 | G | N3-C4-N9 | -9.27 | 120.44 | 126.00 |
| 8 | A | 536 | G | N3-C4-C5 | 9.27 | 133.23 | 128.60 |
| 8 | A | 1425 | G | C2-N3-C4 | -9.26 | 107.27 | 111.90 |
| 8 | A | 2770 | G | N3-C4-C5 | 9.23 | 133.22 | 128.60 |
| 8 | A | 843 | G | N3-C4-N9 | -9.23 | 120.46 | 126.00 |
| 34 | a | 1227 | A | N1-C6-N6 | -9.23 | 113.06 | 118.60 |
| 56 | w | 15 | G | N1-C2-N2 | -9.21 | 107.91 | 116.20 |
| 8 | A | 469 | G | C8-N9-C4 | 9.21 | 110.08 | 106.40 |
| 34 | a | 1253 | G | N3-C4-N9 | -9.19 | 120.48 | 126.00 |
| 8 | A | 2803 | G | C8-N9-C4 | 9.19 | 110.08 | 106.40 |
| 34 | a | 987 | G | N3-C4-C5 | 9.19 | 133.19 | 128.60 |
| 8 | A | 124 | G | N3-C4-C5 | 9.19 | 133.19 | 128.60 |
| 8 | A | 1424 | G | N3-C4-C5 | 9.19 | 133.19 | 128.60 |
| 34 | a | 1432 | G | N3-C4-C5 | 9.19 | 133.19 | 128.60 |
| 8 | A | 708 | G | N3-C4-C5 | 9.18 | 133.19 | 128.60 |
| 8 | A | 2631 | G | N3-C4-C5 | 9.18 | 133.19 | 128.60 |
| 8 | A | 2770 | G | N3-C4-N9 | -9.17 | 120.50 | 126.00 |
| 8 | A | 949 | G | N3-C4-C5 | 9.17 | 133.18 | 128.60 |
| 8 | A | 1922 | G | N3-C4-C5 | 9.17 | 133.18 | 128.60 |
| 34 | a | 1088 | G | N3-C4-C5 | 9.16 | 133.18 | 128.60 |
| 34 | a | 1222 | G | C2-N3-C4 | -9.12 | 107.34 | 111.90 |
| 8 | A | 1687 | G | N3-C4-C5 | 9.12 | 133.16 | 128.60 |
| 8 | A | 1449 | G | N3-C4-N9 | -9.11 | 120.54 | 126.00 |
| 8 | A | 1022 | G | O4'-C1'-N9 | 9.09 | 115.47 | 108.20 |
| 8 | A | 1171 | G | N3-C2-N2 | -9.09 | 113.54 | 119.90 |
| 8 | A | 1867 | G | N3-C4-C5 | 9.09 | 133.14 | 128.60 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|----------|-------|-------------|----------|
| 34 | a | 1488 | G | N3-C4-C5 | 9.09 | 133.14 | 128.60 |
| 56 | w | 68 | C | C6-N1-C2 | 9.09 | 123.93 | 120.30 |
| 8 | A | 2551 | C | N3-C4-N4 | -9.08 | 111.64 | 118.00 |
| 8 | A | 1374 | G | N3-C4-C5 | 9.06 | 133.13 | 128.60 |
| 8 | A | 2458 | G | N3-C4-C5 | 9.06 | 133.13 | 128.60 |
| 8 | A | 865 | C | N3-C4-N4 | -9.04 | 111.67 | 118.00 |
| 34 | a | 1088 | G | C2-N3-C4 | -9.04 | 107.38 | 111.90 |
| 8 | A | 297 | G | N3-C4-C5 | 9.03 | 133.11 | 128.60 |
| 8 | A | 1530 | G | N3-C4-C5 | 9.02 | 133.11 | 128.60 |
| 34 | a | 617 | G | N3-C4-N9 | -9.02 | 120.59 | 126.00 |
| 34 | a | 809 | G | N3-C4-C5 | 9.01 | 133.10 | 128.60 |
| 8 | A | 1482 | G | N3-C4-C5 | 9.00 | 133.10 | 128.60 |
| 8 | A | 482 | A | C8-N9-C4 | 9.00 | 109.40 | 105.80 |
| 34 | a | 1432 | G | N3-C4-N9 | -8.99 | 120.61 | 126.00 |
| 8 | A | 1909 | C | C6-N1-C2 | 8.99 | 123.89 | 120.30 |
| 8 | A | 1656 | C | C6-N1-C2 | 8.97 | 123.89 | 120.30 |
| 8 | A | 1072 | C | C6-N1-C2 | 8.97 | 123.89 | 120.30 |
| 34 | a | 42 | G | C2-N3-C4 | -8.96 | 107.42 | 111.90 |
| 34 | a | 682 | G | N3-C4-C5 | 8.97 | 133.08 | 128.60 |
| 8 | A | 315 | G | N3-C4-C5 | 8.96 | 133.08 | 128.60 |
| 8 | A | 307 | G | N3-C4-C5 | 8.96 | 133.08 | 128.60 |
| 34 | a | 1142 | G | N3-C4-C5 | 8.96 | 133.08 | 128.60 |
| 34 | a | 637 | C | C6-N1-C2 | 8.95 | 123.88 | 120.30 |
| 34 | a | 592 | G | C2-N3-C4 | -8.94 | 107.43 | 111.90 |
| 8 | A | 2485 | G | N3-C4-C5 | 8.94 | 133.07 | 128.60 |
| 8 | A | 2496 | C | N3-C2-O2 | -8.94 | 115.64 | 121.90 |
| 8 | A | 361 | G | C4-C5-N7 | 8.94 | 114.37 | 110.80 |
| 34 | a | 413 | G | N3-C4-C5 | 8.93 | 133.06 | 128.60 |
| 34 | a | 1276 | G | N3-C4-C5 | 8.93 | 133.06 | 128.60 |
| 8 | A | 1450 | G | C2-N3-C4 | -8.93 | 107.44 | 111.90 |
| 8 | A | 1666 | G | N3-C4-N9 | -8.93 | 120.64 | 126.00 |
| 8 | A | 1220 | G | N3-C4-C5 | 8.92 | 133.06 | 128.60 |
| 34 | a | 1289 | A | C5-C6-N6 | -8.92 | 116.56 | 123.70 |
| 8 | A | 1894 | C | C6-N1-C2 | 8.91 | 123.87 | 120.30 |
| 8 | A | 1721 | G | C2-N3-C4 | -8.90 | 107.45 | 111.90 |
| 8 | A | 2223 | G | N3-C4-N9 | -8.90 | 120.66 | 126.00 |
| 8 | A | 672 | C | C6-N1-C2 | 8.88 | 123.85 | 120.30 |
| 8 | A | 24 | G | N3-C4-C5 | 8.87 | 133.03 | 128.60 |
| 8 | A | 673 | C | C6-N1-C2 | 8.86 | 123.84 | 120.30 |
| 9 | B | 23 | G | N3-C4-C5 | 8.86 | 133.03 | 128.60 |
| 34 | a | 320 | A | C8-N9-C4 | 8.85 | 109.34 | 105.80 |
| 8 | A | 2154 | A | C5-C6-N6 | -8.85 | 116.62 | 123.70 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-----------|-------|-------------|----------|
| 8 | A | 2223 | G | N3-C4-C5 | 8.85 | 133.02 | 128.60 |
| 8 | A | 1311 | G | N3-C4-C5 | 8.85 | 133.02 | 128.60 |
| 8 | A | 1449 | G | N3-C4-C5 | 8.84 | 133.02 | 128.60 |
| 34 | a | 917 | G | N3-C4-C5 | 8.84 | 133.02 | 128.60 |
| 8 | A | 675 | A | N1-C6-N6 | 8.84 | 123.90 | 118.60 |
| 8 | A | 217 | A | C8-N9-C4 | 8.84 | 109.33 | 105.80 |
| 34 | a | 1133 | G | N3-C4-C5 | 8.83 | 133.02 | 128.60 |
| 55 | v | 9 | G | N3-C4-N9 | -8.83 | 120.70 | 126.00 |
| 34 | a | 1089 | G | N3-C4-C5 | 8.81 | 133.01 | 128.60 |
| 34 | a | 1241 | G | N3-C4-C5 | 8.80 | 133.00 | 128.60 |
| 34 | a | 1405 | G | N3-C4-C5 | 8.80 | 133.00 | 128.60 |
| 8 | A | 2526 | G | N3-C4-C5 | 8.79 | 133.00 | 128.60 |
| 34 | a | 953 | G | C8-N9-C4 | 8.79 | 109.92 | 106.40 |
| 8 | A | 303 | G | N3-C4-C5 | 8.79 | 133.00 | 128.60 |
| 8 | A | 781 | A | N1-C6-N6 | -8.79 | 113.33 | 118.60 |
| 8 | A | 1606 | C | C6-N1-C2 | 8.79 | 123.81 | 120.30 |
| 34 | a | 1025 | U | C5-C6-N1 | 8.78 | 127.09 | 122.70 |
| 8 | A | 2040 | G | N3-C4-C5 | 8.78 | 132.99 | 128.60 |
| 8 | A | 675 | A | C5-C6-N6 | -8.78 | 116.68 | 123.70 |
| 34 | a | 1417 | G | N3-C4-C5 | 8.78 | 132.99 | 128.60 |
| 34 | a | 1418 | A | N9-C4-C5 | -8.76 | 102.30 | 105.80 |
| 8 | A | 578 | G | N1-C2-N2 | -8.76 | 108.32 | 116.20 |
| 8 | A | 2894 | G | N3-C4-C5 | 8.76 | 132.98 | 128.60 |
| 34 | a | 1081 | A | C4-N9-C1' | 8.76 | 142.06 | 126.30 |
| 8 | A | 1423 | G | N3-C4-C5 | 8.75 | 132.97 | 128.60 |
| 8 | A | 2857 | G | N3-C4-C5 | 8.74 | 132.97 | 128.60 |
| 9 | B | 102 | G | N3-C4-C5 | 8.74 | 132.97 | 128.60 |
| 8 | A | 214 | G | N3-C4-C5 | 8.73 | 132.97 | 128.60 |
| 34 | a | 823 | C | C6-N1-C2 | 8.73 | 123.79 | 120.30 |
| 8 | A | 1450 | G | N3-C4-N9 | -8.73 | 120.76 | 126.00 |
| 8 | A | 2536 | G | N3-C4-C5 | 8.73 | 132.96 | 128.60 |
| 8 | A | 2557 | G | N3-C4-C5 | 8.72 | 132.96 | 128.60 |
| 9 | B | 119 | A | C8-N9-C4 | 8.72 | 109.29 | 105.80 |
| 55 | v | 9 | G | C4-N9-C1' | -8.72 | 115.17 | 126.50 |
| 8 | A | 2848 | G | N3-C4-N9 | -8.71 | 120.77 | 126.00 |
| 8 | A | 1984 | G | N3-C4-C5 | 8.70 | 132.95 | 128.60 |
| 34 | a | 592 | G | N3-C4-N9 | -8.70 | 120.78 | 126.00 |
| 8 | A | 1216 | G | C2-N3-C4 | -8.70 | 107.55 | 111.90 |
| 8 | A | 818 | G | N3-C4-C5 | 8.69 | 132.95 | 128.60 |
| 8 | A | 1718 | G | C2-N3-C4 | -8.69 | 107.56 | 111.90 |
| 8 | A | 381 | G | N3-C4-C5 | 8.68 | 132.94 | 128.60 |
| 8 | A | 271 | G | N3-C4-C5 | 8.68 | 132.94 | 128.60 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-----------|-------|-------------|----------|
| 8 | A | 1631 | G | N3-C4-C5 | 8.68 | 132.94 | 128.60 |
| 8 | A | 2857 | G | N3-C4-N9 | -8.66 | 120.80 | 126.00 |
| 8 | A | 2472 | G | N3-C4-C5 | 8.66 | 132.93 | 128.60 |
| 8 | A | 2894 | G | N3-C4-N9 | -8.66 | 120.80 | 126.00 |
| 8 | A | 469 | G | C5-C6-O6 | -8.66 | 123.40 | 128.60 |
| 34 | a | 847 | G | C2-N3-C4 | -8.66 | 107.57 | 111.90 |
| 8 | A | 2362 | C | C6-N1-C2 | 8.65 | 123.76 | 120.30 |
| 34 | a | 461 | A | C2-N3-C4 | -8.65 | 106.27 | 110.60 |
| 8 | A | 1106 | G | N3-C4-C5 | 8.64 | 132.92 | 128.60 |
| 8 | A | 188 | G | N3-C4-C5 | 8.64 | 132.92 | 128.60 |
| 8 | A | 1767 | G | N3-C4-C5 | 8.63 | 132.92 | 128.60 |
| 8 | A | 1735 | A | N9-C4-C5 | -8.63 | 102.35 | 105.80 |
| 8 | A | 818 | G | C2-N3-C4 | -8.63 | 107.59 | 111.90 |
| 8 | A | 1202 | G | N3-C4-C5 | 8.63 | 132.91 | 128.60 |
| 8 | A | 2665 | A | N9-C4-C5 | -8.62 | 102.35 | 105.80 |
| 8 | A | 1022 | G | N3-C4-C5 | 8.61 | 132.91 | 128.60 |
| 34 | a | 833 | G | N3-C4-C5 | 8.61 | 132.90 | 128.60 |
| 34 | a | 1081 | A | C8-N9-C1' | -8.60 | 112.21 | 127.70 |
| 9 | B | 11 | C | C5-C4-N4 | -8.58 | 114.19 | 120.20 |
| 8 | A | 2353 | G | N3-C4-N9 | -8.58 | 120.86 | 126.00 |
| 34 | a | 1209 | C | C6-N1-C2 | 8.57 | 123.73 | 120.30 |
| 8 | A | 1112 | G | N3-C4-C5 | 8.57 | 132.89 | 128.60 |
| 8 | A | 1292 | G | N3-C4-C5 | 8.57 | 132.89 | 128.60 |
| 8 | A | 696 | G | C8-N9-C4 | 8.56 | 109.82 | 106.40 |
| 34 | a | 117 | G | C8-N9-C4 | 8.54 | 109.82 | 106.40 |
| 8 | A | 1652 | A | C5-C6-N6 | -8.53 | 116.88 | 123.70 |
| 55 | v | 15 | G | N3-C4-C5 | 8.52 | 132.86 | 128.60 |
| 8 | A | 32 | C | C6-N1-C2 | 8.52 | 123.71 | 120.30 |
| 8 | A | 1218 | G | N3-C4-C5 | 8.52 | 132.86 | 128.60 |
| 8 | A | 1650 | A | C8-N9-C4 | 8.52 | 109.21 | 105.80 |
| 8 | A | 315 | G | N3-C4-N9 | -8.51 | 120.89 | 126.00 |
| 8 | A | 778 | G | N3-C4-C5 | 8.51 | 132.85 | 128.60 |
| 8 | A | 1218 | G | C2-N3-C4 | -8.51 | 107.65 | 111.90 |
| 34 | a | 1374 | A | N9-C4-C5 | -8.50 | 102.40 | 105.80 |
| 8 | A | 2716 | C | C6-N1-C2 | 8.50 | 123.70 | 120.30 |
| 34 | a | 631 | C | C6-N1-C2 | 8.50 | 123.70 | 120.30 |
| 8 | A | 726 | G | C2-N3-C4 | -8.50 | 107.65 | 111.90 |
| 8 | A | 425 | G | N3-C4-C5 | 8.49 | 132.85 | 128.60 |
| 9 | B | 33 | G | N3-C4-C5 | 8.49 | 132.85 | 128.60 |
| 8 | A | 2846 | G | N3-C4-N9 | -8.48 | 120.91 | 126.00 |
| 8 | A | 2010 | G | N3-C4-N9 | -8.48 | 120.91 | 126.00 |
| 8 | A | 361 | G | N9-C4-C5 | -8.48 | 102.01 | 105.40 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 1232 | G | C2-N3-C4 | -8.48 | 107.66 | 111.90 |
| 8 | A | 220 | G | C2-N3-C4 | -8.47 | 107.66 | 111.90 |
| 8 | A | 1106 | G | N3-C4-N9 | -8.47 | 120.92 | 126.00 |
| 8 | A | 1 | G | N3-C4-C5 | 8.46 | 132.83 | 128.60 |
| 8 | A | 551 | G | N3-C4-C5 | 8.46 | 132.83 | 128.60 |
| 8 | A | 2501 | C | C6-N1-C2 | 8.46 | 123.68 | 120.30 |
| 9 | B | 56 | G | C8-N9-C4 | 8.45 | 109.78 | 106.40 |
| 8 | A | 1750 | G | N3-C4-C5 | 8.45 | 132.82 | 128.60 |
| 34 | a | 380 | G | N3-C4-N9 | -8.45 | 120.93 | 126.00 |
| 8 | A | 1674 | G | C2-N3-C4 | -8.45 | 107.67 | 111.90 |
| 8 | A | 2378 | A | N1-C6-N6 | 8.44 | 123.67 | 118.60 |
| 8 | A | 2876 | G | N3-C4-C5 | 8.45 | 132.82 | 128.60 |
| 34 | a | 908 | A | C8-N9-C4 | 8.44 | 109.18 | 105.80 |
| 34 | a | 1312 | G | N3-C4-C5 | 8.44 | 132.82 | 128.60 |
| 8 | A | 2524 | G | N3-C4-C5 | 8.43 | 132.82 | 128.60 |
| 8 | A | 144 | A | N9-C4-C5 | -8.42 | 102.43 | 105.80 |
| 34 | a | 1226 | C | C6-N1-C2 | 8.41 | 123.66 | 120.30 |
| 8 | A | 1028 | A | C5-C6-N6 | -8.41 | 116.97 | 123.70 |
| 8 | A | 1009 | A | C8-N9-C4 | 8.40 | 109.16 | 105.80 |
| 34 | a | 79 | G | N3-C4-C5 | 8.40 | 132.80 | 128.60 |
| 8 | A | 2316 | G | N3-C4-C5 | 8.40 | 132.80 | 128.60 |
| 8 | A | 638 | G | N3-C4-C5 | 8.39 | 132.79 | 128.60 |
| 8 | A | 1617 | C | O4'-C1'-N1 | 8.39 | 114.91 | 108.20 |
| 8 | A | 2420 | C | C6-N1-C2 | 8.39 | 123.66 | 120.30 |
| 34 | a | 158 | G | C5-C6-O6 | -8.38 | 123.57 | 128.60 |
| 34 | a | 859 | G | N3-C4-C5 | 8.38 | 132.79 | 128.60 |
| 8 | A | 1540 | G | N3-C4-C5 | 8.38 | 132.79 | 128.60 |
| 8 | A | 2414 | G | N3-C4-C5 | 8.38 | 132.79 | 128.60 |
| 8 | A | 2353 | G | N3-C4-C5 | 8.38 | 132.79 | 128.60 |
| 34 | a | 265 | G | N3-C4-C5 | 8.38 | 132.79 | 128.60 |
| 8 | A | 1465 | G | C2-N3-C4 | -8.37 | 107.71 | 111.90 |
| 8 | A | 706 | A | C8-N9-C4 | 8.37 | 109.15 | 105.80 |
| 8 | A | 940 | G | N3-C4-C5 | 8.37 | 132.78 | 128.60 |
| 34 | a | 786 | G | N3-C4-C5 | 8.36 | 132.78 | 128.60 |
| 34 | a | 1098 | C | C6-N1-C1' | 8.36 | 130.83 | 120.80 |
| 34 | a | 1104 | G | N3-C4-C5 | 8.35 | 132.78 | 128.60 |
| 8 | A | 618 | G | N3-C4-C5 | 8.35 | 132.77 | 128.60 |
| 9 | B | 54 | G | N3-C4-N9 | -8.33 | 121.00 | 126.00 |
| 34 | a | 1190 | G | N3-C4-C5 | 8.33 | 132.77 | 128.60 |
| 34 | a | 1454 | G | N3-C4-C5 | 8.33 | 132.77 | 128.60 |
| 8 | A | 1588 | G | N3-C4-C5 | 8.33 | 132.76 | 128.60 |
| 8 | A | 1538 | G | N3-C4-C5 | 8.33 | 132.76 | 128.60 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-----------|-------|-------------|----------|
| 8 | A | 1861 | G | N3-C4-N9 | -8.33 | 121.00 | 126.00 |
| 8 | A | 704 | G | N3-C4-N9 | -8.32 | 121.00 | 126.00 |
| 8 | A | 2640 | G | N3-C4-C5 | 8.32 | 132.76 | 128.60 |
| 8 | A | 1527 | G | N3-C4-N9 | -8.32 | 121.01 | 126.00 |
| 55 | v | 6 | G | N3-C4-C5 | 8.31 | 132.76 | 128.60 |
| 34 | a | 1190 | G | N3-C4-N9 | -8.31 | 121.01 | 126.00 |
| 8 | A | 1369 | G | C2-N3-C4 | -8.31 | 107.75 | 111.90 |
| 8 | A | 2228 | G | N3-C4-N9 | -8.31 | 121.02 | 126.00 |
| 8 | A | 1960 | A | N9-C4-C5 | -8.31 | 102.48 | 105.80 |
| 8 | A | 1667 | G | N3-C4-N9 | -8.29 | 121.02 | 126.00 |
| 8 | A | 359 | G | N3-C4-C5 | 8.29 | 132.75 | 128.60 |
| 8 | A | 2624 | G | N3-C4-N9 | -8.29 | 121.03 | 126.00 |
| 8 | A | 1158 | C | C6-N1-C2 | 8.29 | 123.61 | 120.30 |
| 34 | a | 752 | G | N3-C4-C5 | 8.29 | 132.74 | 128.60 |
| 8 | A | 330 | A | N1-C6-N6 | -8.29 | 113.63 | 118.60 |
| 8 | A | 1054 | A | C8-N9-C4 | 8.29 | 109.11 | 105.80 |
| 8 | A | 1337 | G | N3-C4-C5 | 8.29 | 132.74 | 128.60 |
| 34 | a | 920 | U | C6-N1-C2 | -8.28 | 116.03 | 121.00 |
| 8 | A | 812 | C | C6-N1-C2 | 8.28 | 123.61 | 120.30 |
| 56 | w | 15 | G | N3-C2-N2 | 8.28 | 125.69 | 119.90 |
| 34 | a | 797 | C | N3-C4-C5 | 8.27 | 125.21 | 121.90 |
| 8 | A | 997 | G | N3-C4-C5 | 8.26 | 132.73 | 128.60 |
| 34 | a | 1405 | G | N3-C4-N9 | -8.26 | 121.04 | 126.00 |
| 8 | A | 887 | A | O5'-P-OP2 | -8.26 | 98.27 | 105.70 |
| 8 | A | 2228 | G | N3-C4-C5 | 8.26 | 132.73 | 128.60 |
| 34 | a | 980 | C | C6-N1-C2 | 8.26 | 123.60 | 120.30 |
| 8 | A | 704 | G | C4-N9-C1' | -8.25 | 115.78 | 126.50 |
| 8 | A | 2512 | C | N3-C4-N4 | -8.25 | 112.23 | 118.00 |
| 34 | a | 290 | C | C6-N1-C2 | 8.25 | 123.60 | 120.30 |
| 8 | A | 85 | G | N3-C4-C5 | 8.24 | 132.72 | 128.60 |
| 8 | A | 2694 | G | N3-C4-C5 | 8.24 | 132.72 | 128.60 |
| 55 | v | 4 | G | N3-C4-N9 | -8.24 | 121.05 | 126.00 |
| 34 | a | 270 | A | N9-C4-C5 | -8.24 | 102.50 | 105.80 |
| 8 | A | 469 | G | N3-C2-N2 | 8.24 | 125.67 | 119.90 |
| 34 | a | 446 | G | N3-C4-C5 | 8.23 | 132.71 | 128.60 |
| 8 | A | 1041 | G | N3-C4-C5 | 8.22 | 132.71 | 128.60 |
| 8 | A | 1169 | A | N9-C4-C5 | -8.22 | 102.51 | 105.80 |
| 8 | A | 977 | G | N3-C4-C5 | 8.21 | 132.71 | 128.60 |
| 34 | a | 1156 | G | N3-C4-N9 | -8.21 | 121.08 | 126.00 |
| 8 | A | 45 | G | N3-C4-N9 | -8.20 | 121.08 | 126.00 |
| 8 | A | 1524 | G | C2-N3-C4 | -8.21 | 107.80 | 111.90 |
| 8 | A | 1745 | A | N9-C4-C5 | -8.20 | 102.52 | 105.80 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 1139 | G | C8-N9-C4 | 8.20 | 109.68 | 106.40 |
| 8 | A | 2323 | G | N3-C4-C5 | 8.19 | 132.70 | 128.60 |
| 34 | a | 260 | G | N3-C4-C5 | 8.19 | 132.69 | 128.60 |
| 34 | a | 1375 | A | O4'-C1'-N9 | -8.19 | 101.65 | 108.20 |
| 8 | A | 1228 | G | N3-C4-C5 | 8.19 | 132.69 | 128.60 |
| 34 | a | 1098 | C | C2-N1-C1' | -8.19 | 109.80 | 118.80 |
| 8 | A | 673 | C | N3-C4-C5 | 8.18 | 125.17 | 121.90 |
| 8 | A | 559 | G | C2-N3-C4 | -8.18 | 107.81 | 111.90 |
| 8 | A | 1186 | G | N3-C4-C5 | 8.18 | 132.69 | 128.60 |
| 34 | a | 1048 | G | N3-C4-C5 | 8.18 | 132.69 | 128.60 |
| 34 | a | 1418 | A | C5-C6-N6 | -8.18 | 117.16 | 123.70 |
| 8 | A | 42 | A | C8-N9-C4 | 8.16 | 109.07 | 105.80 |
| 9 | B | 21 | G | N3-C4-C5 | 8.16 | 132.68 | 128.60 |
| 34 | a | 1221 | G | N3-C4-C5 | 8.16 | 132.68 | 128.60 |
| 34 | a | 388 | G | O5'-P-OP1 | -8.16 | 98.36 | 105.70 |
| 8 | A | 1541 | C | C6-N1-C2 | 8.15 | 123.56 | 120.30 |
| 8 | A | 297 | G | N3-C4-N9 | -8.15 | 121.11 | 126.00 |
| 8 | A | 2767 | C | N3-C4-C5 | 8.15 | 125.16 | 121.90 |
| 9 | B | 31 | C | N3-C4-C5 | 8.15 | 125.16 | 121.90 |
| 34 | a | 1244 | G | C8-N9-C4 | 8.15 | 109.66 | 106.40 |
| 8 | A | 1012 | U | C5-C4-O4 | -8.15 | 121.01 | 125.90 |
| 8 | A | 951 | C | C6-N1-C2 | 8.14 | 123.56 | 120.30 |
| 8 | A | 1501 | G | N3-C4-C5 | 8.13 | 132.66 | 128.60 |
| 8 | A | 303 | G | C8-N9-C4 | 8.12 | 109.65 | 106.40 |
| 55 | v | 46 | A | N1-C6-N6 | 8.12 | 123.47 | 118.60 |
| 8 | A | 1320 | C | N3-C4-C5 | 8.12 | 125.15 | 121.90 |
| 9 | B | 20 | G | N3-C4-N9 | -8.12 | 121.13 | 126.00 |
| 8 | A | 14 | A | C5-C6-N6 | -8.12 | 117.21 | 123.70 |
| 8 | A | 2639 | A | N1-C6-N6 | 8.12 | 123.47 | 118.60 |
| 8 | A | 1367 | A | C8-N9-C4 | 8.11 | 109.05 | 105.80 |
| 8 | A | 819 | A | C5-C6-N6 | -8.11 | 117.21 | 123.70 |
| 8 | A | 2624 | G | N3-C4-C5 | 8.11 | 132.66 | 128.60 |
| 8 | A | 1723 | G | N3-C4-C5 | 8.11 | 132.65 | 128.60 |
| 34 | a | 120 | A | O4'-C1'-N9 | 8.11 | 114.69 | 108.20 |
| 8 | A | 2082 | A | C5-C6-N6 | -8.10 | 117.22 | 123.70 |
| 10 | C | 175 | LEU | CA-CB-CG | 8.10 | 133.92 | 115.30 |
| 34 | a | 849 | G | N3-C4-C5 | 8.09 | 132.65 | 128.60 |
| 8 | A | 2481 | G | N3-C4-C5 | 8.09 | 132.64 | 128.60 |
| 8 | A | 2521 | C | C6-N1-C2 | 8.09 | 123.53 | 120.30 |
| 8 | A | 39 | G | N3-C4-C5 | 8.07 | 132.63 | 128.60 |
| 34 | a | 1418 | A | N1-C6-N6 | 8.07 | 123.44 | 118.60 |
| 8 | A | 134 | G | N3-C4-C5 | 8.06 | 132.63 | 128.60 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 34 | a | 1142 | G | C2-N3-C4 | -8.06 | 107.87 | 111.90 |
| 34 | a | 604 | G | N3-C4-N9 | -8.06 | 121.16 | 126.00 |
| 8 | A | 816 | C | N3-C4-C5 | 8.06 | 125.12 | 121.90 |
| 34 | a | 432 | A | C8-N9-C4 | 8.06 | 109.02 | 105.80 |
| 8 | A | 361 | G | N1-C6-O6 | 8.06 | 124.73 | 119.90 |
| 8 | A | 2472 | G | C8-N9-C4 | 8.06 | 109.62 | 106.40 |
| 8 | A | 989 | G | O4'-C1'-N9 | 8.05 | 114.64 | 108.20 |
| 8 | A | 1378 | A | C5-C6-N6 | -8.05 | 117.26 | 123.70 |
| 8 | A | 1401 | G | N3-C4-C5 | 8.05 | 132.62 | 128.60 |
| 8 | A | 1028 | A | N1-C6-N6 | 8.04 | 123.43 | 118.60 |
| 8 | A | 2430 | A | C5-C6-N6 | -8.04 | 117.26 | 123.70 |
| 8 | A | 481 | G | N3-C4-C5 | 8.04 | 132.62 | 128.60 |
| 8 | A | 1055 | G | C4-N9-C1' | -8.04 | 116.05 | 126.50 |
| 34 | a | 560 | A | O4'-C1'-N9 | -8.03 | 101.77 | 108.20 |
| 8 | A | 1666 | G | N3-C4-C5 | 8.03 | 132.62 | 128.60 |
| 34 | a | 742 | G | N3-C4-N9 | -8.03 | 121.18 | 126.00 |
| 8 | A | 126 | A | N1-C6-N6 | 8.03 | 123.42 | 118.60 |
| 8 | A | 2143 | C | C5-C4-N4 | -8.03 | 114.58 | 120.20 |
| 34 | a | 259 | G | N3-C4-C5 | 8.02 | 132.61 | 128.60 |
| 34 | a | 1050 | G | C4-N9-C1' | -8.02 | 116.08 | 126.50 |
| 8 | A | 469 | G | N9-C1'-C2' | -8.02 | 103.18 | 112.00 |
| 8 | A | 2603 | G | N3-C4-C5 | 8.02 | 132.61 | 128.60 |
| 34 | a | 775 | G | N3-C4-C5 | 8.01 | 132.60 | 128.60 |
| 8 | A | 317 | G | N3-C4-C5 | 8.01 | 132.60 | 128.60 |
| 8 | A | 180 | G | C4-N9-C1' | -8.00 | 116.10 | 126.50 |
| 34 | a | 1417 | G | N3-C4-N9 | -8.00 | 121.20 | 126.00 |
| 34 | a | 954 | G | C2-N3-C4 | -8.00 | 107.90 | 111.90 |
| 8 | A | 268 | C | C6-N1-C2 | 8.00 | 123.50 | 120.30 |
| 34 | a | 1253 | G | N3-C4-C5 | 8.00 | 132.60 | 128.60 |
| 8 | A | 1047 | G | N3-C4-C5 | 7.99 | 132.60 | 128.60 |
| 34 | a | 346 | G | C4-C5-N7 | 7.99 | 114.00 | 110.80 |
| 34 | a | 1098 | C | N3-C4-N4 | -7.99 | 112.40 | 118.00 |
| 8 | A | 2199 | A | C8-N9-C4 | 7.99 | 109.00 | 105.80 |
| 34 | a | 921 | U | O5'-P-OP2 | 7.99 | 120.29 | 110.70 |
| 8 | A | 664 | G | C2-N3-C4 | -7.99 | 107.91 | 111.90 |
| 8 | A | 301 | G | N3-C4-N9 | -7.99 | 121.21 | 126.00 |
| 34 | a | 1108 | G | N3-C4-N9 | -7.99 | 121.21 | 126.00 |
| 55 | v | 64 | G | N3-C4-C5 | 7.99 | 132.59 | 128.60 |
| 8 | A | 940 | G | C8-N9-C4 | 7.98 | 109.59 | 106.40 |
| 8 | A | 830 | G | N3-C4-C5 | 7.98 | 132.59 | 128.60 |
| 9 | B | 38 | C | C6-N1-C2 | 7.98 | 123.49 | 120.30 |
| 8 | A | 1381 | G | N3-C4-C5 | 7.98 | 132.59 | 128.60 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 2093 | G | C8-N9-C4 | 7.98 | 109.59 | 106.40 |
| 34 | a | 27 | G | N3-C4-C5 | 7.98 | 132.59 | 128.60 |
| 34 | a | 410 | G | N3-C4-C5 | 7.98 | 132.59 | 128.60 |
| 34 | a | 606 | G | N3-C4-C5 | 7.97 | 132.58 | 128.60 |
| 34 | a | 1435 | G | C2-N3-C4 | -7.97 | 107.92 | 111.90 |
| 8 | A | 2225 | A | C8-N9-C4 | 7.96 | 108.99 | 105.80 |
| 8 | A | 2671 | G | N3-C4-C5 | 7.96 | 132.58 | 128.60 |
| 8 | A | 2 | G | N9-C4-C5 | -7.96 | 102.22 | 105.40 |
| 8 | A | 974 | G | O4'-C1'-N9 | 7.96 | 114.56 | 108.20 |
| 8 | A | 1170 | C | C5-C6-N1 | 7.96 | 124.98 | 121.00 |
| 34 | a | 838 | G | N3-C4-C5 | 7.96 | 132.58 | 128.60 |
| 34 | a | 1461 | G | C2-N3-C4 | -7.96 | 107.92 | 111.90 |
| 34 | a | 308 | C | C6-N1-C2 | 7.95 | 123.48 | 120.30 |
| 34 | a | 151 | A | C5-C6-N1 | 7.94 | 121.67 | 117.70 |
| 8 | A | 289 | G | C2-N3-C4 | -7.94 | 107.93 | 111.90 |
| 34 | a | 361 | G | N3-C4-C5 | 7.93 | 132.57 | 128.60 |
| 55 | v | 63 | G | N3-C4-C5 | 7.93 | 132.57 | 128.60 |
| 8 | A | 583 | G | N3-C4-N9 | -7.93 | 121.24 | 126.00 |
| 8 | A | 1492 | G | C4-N9-C1' | -7.93 | 116.19 | 126.50 |
| 34 | a | 312 | C | C6-N1-C2 | 7.93 | 123.47 | 120.30 |
| 8 | A | 2659 | G | N3-C4-C5 | 7.92 | 132.56 | 128.60 |
| 8 | A | 1374 | G | N3-C4-N9 | -7.92 | 121.25 | 126.00 |
| 8 | A | 1192 | G | C8-N9-C4 | 7.92 | 109.57 | 106.40 |
| 34 | a | 1047 | G | N3-C4-C5 | 7.91 | 132.55 | 128.60 |
| 8 | A | 303 | G | C2-N3-C4 | -7.90 | 107.95 | 111.90 |
| 34 | a | 1019 | A | C8-N9-C4 | 7.90 | 108.96 | 105.80 |
| 8 | A | 2389 | G | N3-C4-C5 | 7.89 | 132.55 | 128.60 |
| 8 | A | 1055 | G | C2-N3-C4 | -7.89 | 107.95 | 111.90 |
| 8 | A | 2667 | C | N3-C4-N4 | -7.89 | 112.48 | 118.00 |
| 34 | a | 1497 | G | N3-C4-C5 | 7.89 | 132.54 | 128.60 |
| 34 | a | 830 | G | N3-C4-C5 | 7.89 | 132.54 | 128.60 |
| 9 | B | 23 | G | C2-N3-C4 | -7.88 | 107.96 | 111.90 |
| 8 | A | 1193 | G | C8-N9-C4 | 7.88 | 109.55 | 106.40 |
| 8 | A | 2631 | G | N3-C4-N9 | -7.88 | 121.27 | 126.00 |
| 8 | A | 410 | G | N3-C4-C5 | 7.88 | 132.54 | 128.60 |
| 8 | A | 1091 | G | N3-C4-N9 | -7.88 | 121.27 | 126.00 |
| 8 | A | 1824 | G | C2-N3-C4 | -7.87 | 107.96 | 111.90 |
| 8 | A | 1519 | G | N3-C4-C5 | 7.87 | 132.53 | 128.60 |
| 8 | A | 1804 | C | C6-N1-C2 | 7.86 | 123.44 | 120.30 |
| 8 | A | 1381 | G | N3-C4-N9 | -7.86 | 121.28 | 126.00 |
| 34 | a | 770 | C | C6-N1-C2 | 7.86 | 123.44 | 120.30 |
| 34 | a | 1273 | C | C6-N1-C2 | 7.86 | 123.44 | 120.30 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 2899 | A | C4-C5-N7 | 7.86 | 114.63 | 110.70 |
| 8 | A | 1404 | C | N3-C4-C5 | 7.85 | 125.04 | 121.90 |
| 34 | a | 954 | G | C8-N9-C4 | 7.85 | 109.54 | 106.40 |
| 8 | A | 188 | G | N3-C4-N9 | -7.85 | 121.29 | 126.00 |
| 9 | B | 108 | A | C5-C6-N6 | -7.84 | 117.43 | 123.70 |
| 8 | A | 1863 | G | N3-C4-C5 | 7.84 | 132.52 | 128.60 |
| 8 | A | 1455 | G | C2-N3-C4 | -7.83 | 107.98 | 111.90 |
| 8 | A | 2154 | A | C4-C5-N7 | 7.83 | 114.61 | 110.70 |
| 8 | A | 1774 | C | C6-N1-C2 | 7.83 | 123.43 | 120.30 |
| 34 | a | 1323 | G | C8-N9-C4 | 7.83 | 109.53 | 106.40 |
| 8 | A | 998 | C | C6-N1-C2 | 7.83 | 123.43 | 120.30 |
| 8 | A | 816 | C | C6-N1-C2 | 7.82 | 123.43 | 120.30 |
| 8 | A | 2686 | G | N3-C4-C5 | 7.82 | 132.51 | 128.60 |
| 8 | A | 1867 | G | N3-C4-N9 | -7.82 | 121.31 | 126.00 |
| 8 | A | 136 | G | N3-C4-C5 | 7.82 | 132.51 | 128.60 |
| 8 | A | 1861 | G | N3-C4-C5 | 7.82 | 132.51 | 128.60 |
| 8 | A | 570 | G | N1-C2-N2 | -7.81 | 109.17 | 116.20 |
| 8 | A | 1186 | G | N3-C4-N9 | -7.81 | 121.31 | 126.00 |
| 34 | a | 1423 | G | C2-N3-C4 | -7.80 | 108.00 | 111.90 |
| 8 | A | 2569 | G | N3-C4-C5 | 7.80 | 132.50 | 128.60 |
| 8 | A | 1 | G | N3-C4-N9 | -7.79 | 121.32 | 126.00 |
| 8 | A | 1112 | G | C2-N3-C4 | -7.79 | 108.00 | 111.90 |
| 8 | A | 1091 | G | C2-N3-C4 | -7.79 | 108.00 | 111.90 |
| 8 | A | 2669 | G | N3-C4-C5 | 7.79 | 132.49 | 128.60 |
| 34 | a | 627 | G | N3-C4-C5 | 7.79 | 132.49 | 128.60 |
| 34 | a | 1098 | C | C5-C4-N4 | 7.78 | 125.65 | 120.20 |
| 8 | A | 837 | C | C6-N1-C2 | 7.78 | 123.41 | 120.30 |
| 8 | A | 1591 | A | N9-C4-C5 | -7.78 | 102.69 | 105.80 |
| 34 | a | 851 | G | O4'-C1'-N9 | -7.78 | 101.98 | 108.20 |
| 8 | A | 926 | G | N3-C4-C5 | 7.77 | 132.49 | 128.60 |
| 8 | A | 578 | G | N3-C2-N2 | 7.76 | 125.33 | 119.90 |
| 8 | A | 1538 | G | N3-C4-N9 | -7.76 | 121.34 | 126.00 |
| 8 | A | 2339 | C | C6-N1-C2 | 7.76 | 123.41 | 120.30 |
| 8 | A | 1374 | G | C2-N3-C4 | -7.76 | 108.02 | 111.90 |
| 8 | A | 1960 | A | C8-N9-C4 | 7.76 | 108.90 | 105.80 |
| 8 | A | 2699 | C | C6-N1-C2 | 7.76 | 123.40 | 120.30 |
| 55 | v | 26 | G | N3-C4-N9 | -7.76 | 121.34 | 126.00 |
| 8 | A | 1423 | G | N3-C4-N9 | -7.76 | 121.35 | 126.00 |
| 34 | a | 1134 | G | N3-C4-C5 | 7.76 | 132.48 | 128.60 |
| 8 | A | 123 | G | C2-N3-C4 | -7.75 | 108.02 | 111.90 |
| 8 | A | 704 | G | N3-C4-C5 | 7.75 | 132.48 | 128.60 |
| 8 | A | 1905 | C | C6-N1-C2 | 7.75 | 123.40 | 120.30 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 1941 | C | N3-C4-C5 | 7.75 | 125.00 | 121.90 |
| 34 | a | 456 | A | C2-N3-C4 | -7.75 | 106.72 | 110.60 |
| 8 | A | 1735 | A | C4-C5-N7 | 7.75 | 114.57 | 110.70 |
| 9 | B | 24 | G | O4'-C1'-N9 | -7.75 | 102.00 | 108.20 |
| 8 | A | 506 | G | N3-C4-C5 | 7.75 | 132.47 | 128.60 |
| 8 | A | 2470 | G | C8-N9-C4 | 7.75 | 109.50 | 106.40 |
| 8 | A | 2440 | C | C6-N1-C2 | 7.75 | 123.40 | 120.30 |
| 8 | A | 124 | G | N3-C4-N9 | -7.74 | 121.35 | 126.00 |
| 8 | A | 671 | C | C6-N1-C2 | 7.74 | 123.40 | 120.30 |
| 8 | A | 2050 | C | N1-C2-O2 | 7.74 | 123.54 | 118.90 |
| 8 | A | 848 | C | C6-N1-C2 | 7.74 | 123.39 | 120.30 |
| 8 | A | 2545 | G | C2-N3-C4 | -7.73 | 108.03 | 111.90 |
| 34 | a | 858 | G | N3-C2-N2 | -7.73 | 114.49 | 119.90 |
| 8 | A | 1011 | G | C2-N3-C4 | -7.73 | 108.04 | 111.90 |
| 8 | A | 1903 | G | C8-N9-C4 | 7.73 | 109.49 | 106.40 |
| 8 | A | 37 | C | C6-N1-C2 | 7.72 | 123.39 | 120.30 |
| 8 | A | 819 | A | N1-C6-N6 | 7.72 | 123.23 | 118.60 |
| 8 | A | 122 | G | N3-C4-C5 | 7.71 | 132.46 | 128.60 |
| 8 | A | 1719 | G | N3-C4-C5 | 7.71 | 132.46 | 128.60 |
| 8 | A | 2510 | C | C6-N1-C2 | 7.70 | 123.38 | 120.30 |
| 34 | a | 474 | G | N3-C4-C5 | 7.70 | 132.45 | 128.60 |
| 8 | A | 630 | G | N3-C4-C5 | 7.70 | 132.45 | 128.60 |
| 34 | a | 1459 | G | N3-C4-C5 | 7.70 | 132.45 | 128.60 |
| 34 | a | 1374 | A | C5-C6-N6 | -7.70 | 117.54 | 123.70 |
| 8 | A | 1721 | G | C8-N9-C4 | 7.70 | 109.48 | 106.40 |
| 8 | A | 1193 | G | N3-C4-C5 | 7.69 | 132.44 | 128.60 |
| 8 | A | 629 | G | N3-C4-C5 | 7.69 | 132.44 | 128.60 |
| 8 | A | 273 | G | N3-C4-C5 | 7.68 | 132.44 | 128.60 |
| 8 | A | 2481 | G | C2-N3-C4 | -7.68 | 108.06 | 111.90 |
| 8 | A | 1435 | G | N3-C4-C5 | 7.68 | 132.44 | 128.60 |
| 8 | A | 2632 | A | C8-N9-C4 | 7.68 | 108.87 | 105.80 |
| 8 | A | 696 | G | C2-N3-C4 | -7.68 | 108.06 | 111.90 |
| 9 | B | 21 | G | C2-N3-C4 | -7.68 | 108.06 | 111.90 |
| 8 | A | 1543 | G | N3-C4-N9 | -7.67 | 121.40 | 126.00 |
| 8 | A | 2606 | C | N3-C2-O2 | -7.67 | 116.53 | 121.90 |
| 34 | a | 1061 | G | N3-C4-C5 | 7.67 | 132.44 | 128.60 |
| 8 | A | 1904 | G | C8-N9-C4 | 7.67 | 109.47 | 106.40 |
| 34 | a | 492 | C | C2-N1-C1' | -7.67 | 110.36 | 118.80 |
| 8 | A | 2576 | G | N9-C4-C5 | 7.67 | 108.47 | 105.40 |
| 8 | A | 189 | G | C8-N9-C4 | 7.67 | 109.47 | 106.40 |
| 8 | A | 1986 | C | C6-N1-C2 | 7.67 | 123.37 | 120.30 |
| 8 | A | 2661 | G | C2-N3-C4 | -7.67 | 108.07 | 111.90 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 8 | A | 2667 | C | C5-C4-N4 | 7.67 | 125.57 | 120.20 |
| 8 | A | 47 | C | C6-N1-C2 | 7.66 | 123.36 | 120.30 |
| 8 | A | 2606 | C | N1-C2-O2 | 7.66 | 123.50 | 118.90 |
| 8 | A | 2864 | G | C8-N9-C4 | 7.66 | 109.46 | 106.40 |
| 34 | a | 1222 | G | N1-C2-N3 | 7.66 | 128.49 | 123.90 |
| 8 | A | 299 | A | C8-N9-C4 | 7.65 | 108.86 | 105.80 |
| 8 | A | 630 | G | N3-C4-N9 | -7.65 | 121.41 | 126.00 |
| 34 | a | 542 | G | N3-C4-N9 | -7.65 | 121.41 | 126.00 |
| 8 | A | 843 | G | C8-N9-C4 | 7.65 | 109.46 | 106.40 |
| 8 | A | 991 | C | C6-N1-C2 | 7.65 | 123.36 | 120.30 |
| 8 | A | 713 | G | N3-C4-N9 | -7.64 | 121.41 | 126.00 |
| 34 | a | 1487 | G | N3-C4-C5 | 7.64 | 132.42 | 128.60 |
| 8 | A | 1404 | C | C6-N1-C2 | 7.64 | 123.36 | 120.30 |
| 34 | a | 265 | G | C2-N3-C4 | -7.64 | 108.08 | 111.90 |
| 9 | B | 105 | G | C8-N9-C4 | 7.64 | 109.45 | 106.40 |
| 8 | A | 126 | A | C8-N9-C4 | 7.63 | 108.85 | 105.80 |
| 8 | A | 424 | G | N3-C4-C5 | 7.63 | 132.41 | 128.60 |
| 8 | A | 1038 | G | N3-C4-C5 | 7.63 | 132.41 | 128.60 |
| 8 | A | 2073 | C | C6-N1-C2 | 7.63 | 123.35 | 120.30 |
| 56 | w | 9 | A | C4'-C3'-O3' | 7.63 | 128.25 | 113.00 |
| 8 | A | 103 | A | N1-C6-N6 | 7.62 | 123.17 | 118.60 |
| 34 | a | 203 | G | C4-N9-C1' | -7.62 | 116.59 | 126.50 |
| 8 | A | 336 | C | C6-N1-C2 | 7.62 | 123.35 | 120.30 |
| 34 | a | 1293 | C | C6-N1-C2 | 7.62 | 123.35 | 120.30 |
| 8 | A | 1281 | G | N3-C4-C5 | 7.61 | 132.41 | 128.60 |
| 8 | A | 1661 | G | N3-C4-C5 | 7.61 | 132.41 | 128.60 |
| 8 | A | 2657 | A | C8-N9-C4 | 7.61 | 108.84 | 105.80 |
| 8 | A | 1875 | G | N3-C4-C5 | 7.61 | 132.40 | 128.60 |
| 34 | a | 1108 | G | N3-C4-C5 | 7.61 | 132.40 | 128.60 |
| 8 | A | 1482 | G | C2-N3-C4 | -7.60 | 108.10 | 111.90 |
| 8 | A | 1588 | G | C2-N3-C4 | -7.60 | 108.10 | 111.90 |
| 34 | a | 247 | G | N3-C4-C5 | 7.59 | 132.40 | 128.60 |
| 34 | a | 628 | G | C8-N9-C4 | 7.59 | 109.44 | 106.40 |
| 8 | A | 1823 | G | C2-N3-C4 | -7.59 | 108.10 | 111.90 |
| 8 | A | 307 | G | C8-N9-C4 | 7.58 | 109.43 | 106.40 |
| 8 | A | 1653 | G | C2-N3-C4 | -7.58 | 108.11 | 111.90 |
| 34 | a | 228 | A | C8-N9-C4 | 7.58 | 108.83 | 105.80 |
| 34 | a | 803 | G | N1-C2-N2 | -7.58 | 109.37 | 116.20 |
| 8 | A | 2077 | A | N9-C4-C5 | -7.58 | 102.77 | 105.80 |
| 8 | A | 1279 | G | N9-C4-C5 | -7.58 | 102.37 | 105.40 |
| 34 | a | 241 | G | C2-N3-C4 | -7.58 | 108.11 | 111.90 |
| 9 | B | 105 | G | N3-C4-C5 | 7.58 | 132.39 | 128.60 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|----------|-------|-------------|----------|
| 8 | A | 1076 | C | N1-C2-O2 | 7.57 | 123.44 | 118.90 |
| 8 | A | 2775 | G | N3-C4-C5 | 7.57 | 132.38 | 128.60 |
| 9 | B | 51 | G | C8-N9-C4 | 7.57 | 109.43 | 106.40 |
| 8 | A | 2714 | G | C2-N3-C4 | -7.57 | 108.12 | 111.90 |
| 55 | v | 15 | G | C2-N3-C4 | -7.57 | 108.12 | 111.90 |
| 34 | a | 889 | A | C8-N9-C4 | 7.57 | 108.83 | 105.80 |
| 8 | A | 1587 | G | N3-C4-C5 | 7.56 | 132.38 | 128.60 |
| 9 | B | 64 | G | N3-C4-C5 | 7.56 | 132.38 | 128.60 |
| 34 | a | 599 | C | C6-N1-C2 | 7.56 | 123.32 | 120.30 |
| 8 | A | 1086 | A | C8-N9-C4 | -7.56 | 102.78 | 105.80 |
| 8 | A | 1975 | G | C8-N9-C4 | 7.56 | 109.42 | 106.40 |
| 8 | A | 2641 | G | N3-C4-C5 | 7.56 | 132.38 | 128.60 |
| 8 | A | 2744 | G | N3-C4-C5 | 7.56 | 132.38 | 128.60 |
| 8 | A | 482 | A | C4-C5-C6 | -7.56 | 113.22 | 117.00 |
| 9 | B | 56 | G | N9-C4-C5 | -7.55 | 102.38 | 105.40 |
| 8 | A | 103 | A | C5-C6-N6 | -7.55 | 117.66 | 123.70 |
| 8 | A | 939 | G | C2-N3-C4 | -7.55 | 108.13 | 111.90 |
| 34 | a | 1071 | C | N3-C4-C5 | 7.55 | 124.92 | 121.90 |
| 8 | A | 974 | G | C2-N3-C4 | -7.55 | 108.13 | 111.90 |
| 34 | a | 646 | G | C2-N3-C4 | -7.55 | 108.13 | 111.90 |
| 8 | A | 256 | A | C8-N9-C4 | 7.54 | 108.82 | 105.80 |
| 8 | A | 1946 | U | C6-N1-C2 | 7.54 | 125.53 | 121.00 |
| 9 | B | 7 | G | C2-N3-C4 | -7.54 | 108.13 | 111.90 |
| 34 | a | 380 | G | N3-C4-C5 | 7.54 | 132.37 | 128.60 |
| 8 | A | 55 | G | N3-C4-C5 | 7.54 | 132.37 | 128.60 |
| 8 | A | 2890 | G | N3-C4-C5 | 7.54 | 132.37 | 128.60 |
| 8 | A | 1875 | G | N3-C4-N9 | -7.53 | 121.48 | 126.00 |
| 8 | A | 1945 | G | C2-N3-C4 | -7.53 | 108.14 | 111.90 |
| 8 | A | 2234 | G | C2-N3-C4 | -7.53 | 108.14 | 111.90 |
| 34 | a | 269 | C | C6-N1-C2 | 7.53 | 123.31 | 120.30 |
| 8 | A | 2844 | G | C2-N3-C4 | -7.52 | 108.14 | 111.90 |
| 34 | a | 797 | C | N3-C4-N4 | -7.52 | 112.73 | 118.00 |
| 8 | A | 1169 | A | C4-C5-N7 | 7.52 | 114.46 | 110.70 |
| 8 | A | 2045 | C | N3-C4-C5 | 7.52 | 124.91 | 121.90 |
| 8 | A | 2228 | G | C2-N3-C4 | -7.52 | 108.14 | 111.90 |
| 34 | a | 319 | G | N3-C4-C5 | 7.52 | 132.36 | 128.60 |
| 8 | A | 461 | C | C6-N1-C2 | 7.51 | 123.31 | 120.30 |
| 8 | A | 638 | G | C2-N3-C4 | -7.51 | 108.14 | 111.90 |
| 8 | A | 1200 | C | C6-N1-C2 | 7.51 | 123.31 | 120.30 |
| 8 | A | 1652 | A | N9-C4-C5 | -7.51 | 102.80 | 105.80 |
| 34 | a | 146 | G | N3-C4-C5 | 7.51 | 132.36 | 128.60 |
| 8 | A | 1216 | G | N3-C4-N9 | -7.51 | 121.49 | 126.00 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-----------|-------|-------------|----------|
| 8 | A | 1482 | G | N3-C4-N9 | -7.51 | 121.49 | 126.00 |
| 34 | a | 1404 | C | C6-N1-C2 | 7.51 | 123.30 | 120.30 |
| 8 | A | 2641 | G | N3-C4-N9 | -7.51 | 121.50 | 126.00 |
| 8 | A | 1643 | G | N3-C4-N9 | -7.51 | 121.50 | 126.00 |
| 55 | v | 9 | G | C8-N9-C1' | 7.51 | 136.76 | 127.00 |
| 8 | A | 76 | C | C6-N1-C2 | 7.50 | 123.30 | 120.30 |
| 34 | a | 1227 | A | C5-C6-N6 | 7.50 | 129.70 | 123.70 |
| 34 | a | 181 | A | N9-C4-C5 | -7.50 | 102.80 | 105.80 |
| 8 | A | 318 | C | N3-C4-C5 | 7.49 | 124.90 | 121.90 |
| 8 | A | 1430 | G | C2-N3-C4 | -7.49 | 108.15 | 111.90 |
| 34 | a | 1294 | G | C8-N9-C4 | 7.49 | 109.40 | 106.40 |
| 34 | a | 1016 | A | N1-C6-N6 | 7.49 | 123.09 | 118.60 |
| 8 | A | 814 | C | N3-C4-C5 | 7.49 | 124.90 | 121.90 |
| 8 | A | 1770 | G | C2-N3-C4 | -7.49 | 108.16 | 111.90 |
| 34 | a | 1405 | G | C4-N9-C1' | -7.49 | 116.76 | 126.50 |
| 8 | A | 1425 | G | N3-C2-N2 | -7.48 | 114.66 | 119.90 |
| 8 | A | 2470 | G | N3-C4-C5 | 7.48 | 132.34 | 128.60 |
| 8 | A | 2846 | G | N3-C4-C5 | 7.48 | 132.34 | 128.60 |
| 34 | a | 1500 | A | N1-C6-N6 | -7.48 | 114.11 | 118.60 |
| 8 | A | 1933 | G | C2-N3-C4 | -7.48 | 108.16 | 111.90 |
| 34 | a | 278 | G | N3-C4-C5 | 7.48 | 132.34 | 128.60 |
| 8 | A | 707 | G | C2-N3-C4 | -7.48 | 108.16 | 111.90 |
| 8 | A | 549 | G | N3-C4-C5 | 7.47 | 132.34 | 128.60 |
| 8 | A | 2444 | G | N3-C4-N9 | -7.47 | 121.52 | 126.00 |
| 8 | A | 1459 | G | N3-C4-N9 | -7.47 | 121.52 | 126.00 |
| 8 | A | 510 | C | C6-N1-C2 | -7.47 | 117.31 | 120.30 |
| 34 | a | 159 | G | N1-C6-O6 | -7.47 | 115.42 | 119.90 |
| 34 | a | 617 | G | C2-N3-C4 | -7.47 | 108.16 | 111.90 |
| 8 | A | 2190 | G | N3-C4-C5 | 7.47 | 132.34 | 128.60 |
| 8 | A | 1987 | A | C8-N9-C4 | 7.47 | 108.79 | 105.80 |
| 8 | A | 1705 | A | N9-C4-C5 | -7.47 | 102.81 | 105.80 |
| 34 | a | 748 | G | N3-C4-C5 | 7.47 | 132.33 | 128.60 |
| 14 | G | 132 | LEU | CA-CB-CG | 7.46 | 132.47 | 115.30 |
| 8 | A | 2844 | G | N3-C4-C5 | 7.46 | 132.33 | 128.60 |
| 8 | A | 1922 | G | C2-N3-C4 | -7.45 | 108.17 | 111.90 |
| 8 | A | 1968 | G | C8-N9-C4 | 7.45 | 109.38 | 106.40 |
| 8 | A | 728 | G | C2-N3-C4 | -7.45 | 108.17 | 111.90 |
| 34 | a | 1182 | G | N3-C4-C5 | 7.45 | 132.32 | 128.60 |
| 8 | A | 2541 | A | N1-C6-N6 | -7.45 | 114.13 | 118.60 |
| 8 | A | 793 | A | N1-C6-N6 | 7.45 | 123.07 | 118.60 |
| 8 | A | 1022 | G | C2-N3-C4 | -7.45 | 108.18 | 111.90 |
| 8 | A | 1192 | G | N3-C4-C5 | 7.45 | 132.32 | 128.60 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 289 | G | N3-C4-N9 | -7.44 | 121.53 | 126.00 |
| 8 | A | 84 | A | C8-N9-C4 | 7.44 | 108.78 | 105.80 |
| 34 | a | 696 | A | N1-C6-N6 | 7.44 | 123.06 | 118.60 |
| 8 | A | 445 | C | C6-N1-C2 | 7.43 | 123.27 | 120.30 |
| 8 | A | 1807 | G | N3-C4-C5 | 7.43 | 132.32 | 128.60 |
| 34 | a | 990 | C | C6-N1-C2 | 7.43 | 123.27 | 120.30 |
| 8 | A | 2688 | G | C8-N9-C4 | 7.43 | 109.37 | 106.40 |
| 34 | a | 432 | A | N9-C4-C5 | -7.43 | 102.83 | 105.80 |
| 8 | A | 660 | C | C6-N1-C2 | 7.43 | 123.27 | 120.30 |
| 34 | a | 824 | G | C8-N9-C4 | 7.42 | 109.37 | 106.40 |
| 8 | A | 455 | C | N3-C4-N4 | -7.42 | 112.81 | 118.00 |
| 8 | A | 1139 | G | N3-C4-N9 | -7.41 | 121.55 | 126.00 |
| 8 | A | 344 | A | C8-N9-C4 | 7.41 | 108.77 | 105.80 |
| 8 | A | 1639 | C | C6-N1-C2 | 7.41 | 123.27 | 120.30 |
| 34 | a | 487 | A | C5-C6-N6 | -7.41 | 117.77 | 123.70 |
| 8 | A | 2816 | G | N3-C4-C5 | 7.41 | 132.30 | 128.60 |
| 34 | a | 361 | G | N3-C4-N9 | -7.41 | 121.56 | 126.00 |
| 8 | A | 952 | G | N3-C4-C5 | 7.40 | 132.30 | 128.60 |
| 8 | A | 2008 | C | C6-N1-C2 | 7.40 | 123.26 | 120.30 |
| 8 | A | 261 | G | N3-C4-C5 | 7.40 | 132.30 | 128.60 |
| 8 | A | 1399 | C | C6-N1-C2 | 7.40 | 123.26 | 120.30 |
| 34 | a | 518 | C | O4'-C1'-N1 | -7.39 | 102.29 | 108.20 |
| 8 | A | 1358 | G | N3-C4-C5 | 7.39 | 132.29 | 128.60 |
| 34 | a | 332 | G | N3-C4-C5 | 7.39 | 132.29 | 128.60 |
| 8 | A | 1037 | G | N3-C4-C5 | 7.39 | 132.29 | 128.60 |
| 8 | A | 2509 | G | N3-C4-C5 | 7.39 | 132.29 | 128.60 |
| 9 | B | 51 | G | N9-C4-C5 | -7.38 | 102.45 | 105.40 |
| 34 | a | 1154 | G | N3-C4-C5 | 7.38 | 132.29 | 128.60 |
| 34 | a | 651 | C | N3-C4-C5 | 7.38 | 124.85 | 121.90 |
| 8 | A | 1034 | G | N3-C4-C5 | 7.38 | 132.29 | 128.60 |
| 34 | a | 851 | G | C2-N3-C4 | -7.38 | 108.21 | 111.90 |
| 34 | a | 181 | A | C4-C5-N7 | 7.38 | 114.39 | 110.70 |
| 8 | A | 178 | G | C2-N3-C4 | -7.37 | 108.21 | 111.90 |
| 8 | A | 1225 | G | N3-C4-C5 | 7.37 | 132.29 | 128.60 |
| 8 | A | 1631 | G | C4-N9-C1' | -7.37 | 116.92 | 126.50 |
| 34 | a | 408 | A | C8-N9-C4 | 7.37 | 108.75 | 105.80 |
| 34 | a | 1255 | G | N3-C4-C5 | 7.37 | 132.29 | 128.60 |
| 34 | a | 604 | G | C2-N3-C4 | -7.37 | 108.22 | 111.90 |
| 8 | A | 2277 | G | N3-C4-C5 | 7.37 | 132.28 | 128.60 |
| 34 | a | 257 | G | N3-C4-C5 | 7.37 | 132.28 | 128.60 |
| 8 | A | 212 | G | N3-C4-C5 | 7.37 | 132.28 | 128.60 |
| 34 | a | 1429 | A | C8-N9-C4 | 7.36 | 108.75 | 105.80 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 1177 | G | N3-C4-C5 | 7.36 | 132.28 | 128.60 |
| 8 | A | 2557 | G | N3-C4-N9 | -7.36 | 121.58 | 126.00 |
| 34 | a | 806 | C | C6-N1-C2 | 7.36 | 123.24 | 120.30 |
| 8 | A | 123 | G | N3-C4-C5 | 7.36 | 132.28 | 128.60 |
| 8 | A | 2281 | A | C8-N9-C4 | 7.36 | 108.74 | 105.80 |
| 9 | B | 33 | G | N3-C4-N9 | -7.36 | 121.58 | 126.00 |
| 8 | A | 2481 | G | N3-C4-N9 | -7.35 | 121.59 | 126.00 |
| 34 | a | 278 | G | N3-C4-N9 | -7.35 | 121.59 | 126.00 |
| 8 | A | 1182 | G | N3-C4-C5 | 7.35 | 132.28 | 128.60 |
| 8 | A | 393 | C | C6-N1-C2 | 7.34 | 123.24 | 120.30 |
| 8 | A | 1154 | G | C8-N9-C4 | 7.34 | 109.34 | 106.40 |
| 21 | N | 10 | LEU | CA-CB-CG | 7.34 | 132.19 | 115.30 |
| 56 | w | 6 | G | N3-C4-C5 | 7.34 | 132.27 | 128.60 |
| 34 | a | 255 | G | N3-C4-C5 | 7.34 | 132.27 | 128.60 |
| 34 | a | 332 | G | C2-N3-C4 | -7.34 | 108.23 | 111.90 |
| 34 | a | 1323 | G | N3-C4-C5 | 7.34 | 132.27 | 128.60 |
| 34 | a | 682 | G | N3-C4-N9 | -7.34 | 121.60 | 126.00 |
| 8 | A | 609 | A | N1-C6-N6 | 7.34 | 123.00 | 118.60 |
| 8 | A | 205 | G | O4'-C1'-N9 | 7.34 | 114.07 | 108.20 |
| 8 | A | 771 | G | N3-C4-C5 | 7.34 | 132.27 | 128.60 |
| 8 | A | 1553 | A | N1-C6-N6 | 7.34 | 123.00 | 118.60 |
| 34 | a | 360 | G | N3-C4-C5 | 7.33 | 132.27 | 128.60 |
| 34 | a | 654 | G | C4-C5-N7 | 7.33 | 113.73 | 110.80 |
| 8 | A | 79 | C | C6-N1-C2 | 7.33 | 123.23 | 120.30 |
| 8 | A | 1894 | C | N3-C4-N4 | -7.33 | 112.87 | 118.00 |
| 34 | a | 119 | A | N1-C6-N6 | 7.33 | 123.00 | 118.60 |
| 8 | A | 2395 | C | C6-N1-C2 | 7.32 | 123.23 | 120.30 |
| 34 | a | 630 | A | C8-N9-C4 | 7.32 | 108.73 | 105.80 |
| 8 | A | 2316 | G | C2-N3-C4 | -7.32 | 108.24 | 111.90 |
| 8 | A | 81 | G | N3-C4-C5 | 7.32 | 132.26 | 128.60 |
| 34 | a | 320 | A | N9-C4-C5 | -7.32 | 102.87 | 105.80 |
| 34 | a | 987 | G | N3-C4-N9 | -7.32 | 121.61 | 126.00 |
| 8 | A | 146 | A | N9-C4-C5 | -7.32 | 102.87 | 105.80 |
| 34 | a | 953 | G | N9-C4-C5 | -7.31 | 102.47 | 105.40 |
| 8 | A | 319 | G | N3-C4-C5 | 7.31 | 132.26 | 128.60 |
| 8 | A | 343 | C | C6-N1-C2 | 7.31 | 123.22 | 120.30 |
| 8 | A | 2153 | C | N3-C2-O2 | 7.31 | 127.02 | 121.90 |
| 34 | a | 141 | G | N3-C4-C5 | 7.31 | 132.25 | 128.60 |
| 34 | a | 742 | G | N3-C4-C5 | 7.31 | 132.25 | 128.60 |
| 34 | a | 775 | G | N3-C4-N9 | -7.31 | 121.61 | 126.00 |
| 34 | a | 346 | G | N9-C4-C5 | -7.30 | 102.48 | 105.40 |
| 34 | a | 838 | G | C8-N9-C4 | 7.30 | 109.32 | 106.40 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 34 | a | 1524 | C | C6-N1-C2 | 7.30 | 123.22 | 120.30 |
| 34 | a | 1488 | G | C2-N3-C4 | -7.29 | 108.25 | 111.90 |
| 8 | A | 1062 | G | N3-C2-N2 | 7.29 | 125.01 | 119.90 |
| 8 | A | 2780 | G | N3-C4-C5 | 7.29 | 132.25 | 128.60 |
| 8 | A | 950 | G | C2-N3-C4 | -7.29 | 108.25 | 111.90 |
| 55 | v | 6 | G | N3-C4-N9 | -7.29 | 121.62 | 126.00 |
| 8 | A | 259 | G | N3-C4-C5 | 7.29 | 132.25 | 128.60 |
| 8 | A | 735 | A | C8-N9-C4 | 7.29 | 108.72 | 105.80 |
| 34 | a | 541 | G | N3-C4-C5 | 7.29 | 132.24 | 128.60 |
| 34 | a | 518 | C | N3-C4-N4 | 7.29 | 123.10 | 118.00 |
| 34 | a | 1048 | G | C8-N9-C4 | 7.29 | 109.31 | 106.40 |
| 8 | A | 1332 | G | O4'-C1'-N9 | 7.28 | 114.02 | 108.20 |
| 8 | A | 2248 | C | C2-N1-C1' | 7.28 | 126.81 | 118.80 |
| 34 | a | 521 | G | C2-N3-C4 | -7.28 | 108.26 | 111.90 |
| 55 | v | 12 | G | C2-N3-C4 | -7.28 | 108.26 | 111.90 |
| 55 | v | 76 | A | O4'-C1'-N9 | 7.28 | 114.02 | 108.20 |
| 8 | A | 780 | G | C2-N3-C4 | -7.28 | 108.26 | 111.90 |
| 8 | A | 249 | C | C6-N1-C2 | 7.28 | 123.21 | 120.30 |
| 8 | A | 1169 | A | C5-N7-C8 | -7.28 | 100.26 | 103.90 |
| 8 | A | 2199 | A | N9-C4-C5 | -7.27 | 102.89 | 105.80 |
| 8 | A | 80 | G | N3-C4-C5 | 7.27 | 132.24 | 128.60 |
| 8 | A | 1182 | G | C2-N3-C4 | -7.27 | 108.26 | 111.90 |
| 8 | A | 770 | G | N3-C4-C5 | 7.27 | 132.24 | 128.60 |
| 8 | A | 2464 | G | N3-C4-N9 | -7.27 | 121.64 | 126.00 |
| 34 | a | 809 | G | N3-C4-N9 | -7.27 | 121.64 | 126.00 |
| 34 | a | 655 | A | C8-N9-C4 | 7.27 | 108.71 | 105.80 |
| 8 | A | 1930 | G | C8-N9-C4 | 7.27 | 109.31 | 106.40 |
| 8 | A | 927 | A | N1-C6-N6 | 7.26 | 122.96 | 118.60 |
| 8 | A | 2549 | G | C8-N9-C4 | 7.26 | 109.30 | 106.40 |
| 9 | B | 100 | G | C2-N3-C4 | -7.26 | 108.27 | 111.90 |
| 34 | a | 318 | G | N3-C4-N9 | -7.26 | 121.65 | 126.00 |
| 8 | A | 636 | G | N3-C4-C5 | 7.25 | 132.23 | 128.60 |
| 8 | A | 2363 | G | N3-C4-C5 | 7.25 | 132.23 | 128.60 |
| 8 | A | 93 | G | C2-N3-C4 | -7.25 | 108.28 | 111.90 |
| 8 | A | 496 | G | C8-N9-C4 | 7.25 | 109.30 | 106.40 |
| 34 | a | 453 | G | C8-N9-C1' | -7.25 | 117.58 | 127.00 |
| 8 | A | 2444 | G | C2-N3-C4 | -7.25 | 108.28 | 111.90 |
| 8 | A | 728 | G | N3-C4-C5 | 7.25 | 132.22 | 128.60 |
| 8 | A | 2663 | G | N3-C2-N2 | -7.24 | 114.83 | 119.90 |
| 8 | A | 2715 | C | N3-C4-C5 | 7.24 | 124.80 | 121.90 |
| 34 | a | 1011 | C | N3-C4-N4 | -7.24 | 112.93 | 118.00 |
| 8 | A | 407 | G | N3-C4-C5 | 7.24 | 132.22 | 128.60 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 326 | G | N3-C4-C5 | 7.24 | 132.22 | 128.60 |
| 34 | a | 604 | G | C8-N9-C4 | 7.24 | 109.30 | 106.40 |
| 8 | A | 1221 | C | C6-N1-C2 | 7.24 | 123.19 | 120.30 |
| 34 | a | 1312 | G | C2-N3-C4 | -7.24 | 108.28 | 111.90 |
| 34 | a | 824 | G | N3-C4-C5 | 7.24 | 132.22 | 128.60 |
| 8 | A | 371 | A | N1-C6-N6 | 7.23 | 122.94 | 118.60 |
| 8 | A | 2603 | G | N3-C4-N9 | -7.23 | 121.66 | 126.00 |
| 8 | A | 2708 | G | C8-N9-C4 | 7.23 | 109.29 | 106.40 |
| 34 | a | 1294 | G | N3-C4-C5 | 7.23 | 132.22 | 128.60 |
| 34 | a | 1487 | G | C2-N3-C4 | -7.23 | 108.28 | 111.90 |
| 34 | a | 158 | G | N1-C6-O6 | 7.23 | 124.24 | 119.90 |
| 8 | A | 2877 | G | C8-N9-C4 | 7.23 | 109.29 | 106.40 |
| 8 | A | 1775 | U | C6-N1-C2 | 7.22 | 125.33 | 121.00 |
| 8 | A | 960 | A | N1-C6-N6 | 7.22 | 122.93 | 118.60 |
| 34 | a | 670 | G | N3-C4-C5 | 7.22 | 132.21 | 128.60 |
| 34 | a | 1488 | G | C8-N9-C4 | 7.22 | 109.29 | 106.40 |
| 8 | A | 1187 | G | N3-C4-N9 | -7.22 | 121.67 | 126.00 |
| 34 | a | 487 | A | N1-C6-N6 | 7.22 | 122.93 | 118.60 |
| 34 | a | 857 | C | C6-N1-C2 | 7.22 | 123.19 | 120.30 |
| 8 | A | 481 | G | C4-N9-C1' | -7.22 | 117.12 | 126.50 |
| 34 | a | 953 | G | C4-C5-N7 | 7.22 | 113.69 | 110.80 |
| 34 | a | 1476 | A | C8-N9-C4 | 7.22 | 108.69 | 105.80 |
| 8 | A | 191 | A | N1-C6-N6 | 7.21 | 122.93 | 118.60 |
| 8 | A | 506 | G | C4-N9-C1' | -7.21 | 117.12 | 126.50 |
| 8 | A | 1377 | G | N3-C4-C5 | 7.21 | 132.21 | 128.60 |
| 8 | A | 2110 | G | C4-N9-C1' | 7.21 | 135.88 | 126.50 |
| 9 | B | 81 | G | C2-N3-C4 | -7.21 | 108.30 | 111.90 |
| 34 | a | 1312 | G | O4'-C1'-N9 | -7.21 | 102.43 | 108.20 |
| 34 | a | 1244 | G | C4-N9-C1' | -7.21 | 117.13 | 126.50 |
| 34 | a | 104 | G | N3-C4-N9 | -7.20 | 121.68 | 126.00 |
| 34 | a | 1312 | G | C8-N9-C4 | 7.20 | 109.28 | 106.40 |
| 8 | A | 1202 | G | C8-N9-C4 | 7.20 | 109.28 | 106.40 |
| 8 | A | 58 | G | N3-C4-N9 | -7.19 | 121.68 | 126.00 |
| 34 | a | 800 | G | N3-C4-C5 | 7.19 | 132.20 | 128.60 |
| 8 | A | 888 | C | O4'-C1'-N1 | 7.19 | 113.95 | 108.20 |
| 34 | a | 859 | G | N3-C4-N9 | -7.19 | 121.69 | 126.00 |
| 8 | A | 1081 | U | O4'-C1'-N1 | 7.19 | 113.95 | 108.20 |
| 9 | B | 80 | U | C6-N1-C2 | 7.19 | 125.31 | 121.00 |
| 8 | A | 1317 | G | C2-N3-C4 | -7.18 | 108.31 | 111.90 |
| 8 | A | 2253 | G | C2-N3-C4 | -7.18 | 108.31 | 111.90 |
| 8 | A | 1371 | G | N3-C4-N9 | -7.18 | 121.69 | 126.00 |
| 8 | A | 2190 | G | C2-N3-C4 | -7.18 | 108.31 | 111.90 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-----------|-------|-------------|----------|
| 34 | a | 1433 | A | N1-C6-N6 | 7.18 | 122.91 | 118.60 |
| 8 | A | 2391 | G | C4-N9-C1' | -7.18 | 117.17 | 126.50 |
| 34 | a | 1227 | A | N9-C4-C5 | 7.18 | 108.67 | 105.80 |
| 34 | a | 402 | G | N3-C4-C5 | 7.17 | 132.19 | 128.60 |
| 8 | A | 1047 | G | N3-C2-N2 | -7.17 | 114.88 | 119.90 |
| 8 | A | 2383 | G | N3-C4-C5 | 7.17 | 132.19 | 128.60 |
| 8 | A | 2715 | C | C6-N1-C2 | 7.17 | 123.17 | 120.30 |
| 34 | a | 1323 | G | C2-N3-C4 | -7.17 | 108.31 | 111.90 |
| 8 | A | 1968 | G | N9-C4-C5 | -7.17 | 102.53 | 105.40 |
| 34 | a | 1374 | A | C4-C5-N7 | 7.17 | 114.28 | 110.70 |
| 8 | A | 14 | A | C5-C6-N1 | 7.17 | 121.28 | 117.70 |
| 8 | A | 2854 | G | N3-C4-C5 | 7.17 | 132.18 | 128.60 |
| 8 | A | 1178 | C | N3-C4-N4 | -7.17 | 112.98 | 118.00 |
| 8 | A | 875 | G | N3-C4-C5 | 7.16 | 132.18 | 128.60 |
| 8 | A | 1388 | G | N3-C4-C5 | 7.16 | 132.18 | 128.60 |
| 8 | A | 2415 | G | N3-C4-N9 | -7.16 | 121.70 | 126.00 |
| 8 | A | 240 | C | C6-N1-C2 | 7.16 | 123.16 | 120.30 |
| 34 | a | 671 | G | N3-C4-C5 | 7.16 | 132.18 | 128.60 |
| 8 | A | 469 | G | C5-N7-C8 | -7.16 | 100.72 | 104.30 |
| 8 | A | 2719 | G | N3-C4-C5 | 7.16 | 132.18 | 128.60 |
| 9 | B | 96 | G | N3-C4-C5 | 7.16 | 132.18 | 128.60 |
| 34 | a | 1050 | G | C8-N9-C1' | 7.16 | 136.30 | 127.00 |
| 8 | A | 2456 | C | C6-N1-C2 | 7.15 | 123.16 | 120.30 |
| 8 | A | 570 | G | N3-C4-N9 | 7.15 | 130.29 | 126.00 |
| 8 | A | 1697 | G | N3-C4-C5 | 7.15 | 132.18 | 128.60 |
| 34 | a | 661 | G | C8-N9-C4 | 7.15 | 109.26 | 106.40 |
| 8 | A | 371 | A | C5-C6-N6 | -7.15 | 117.98 | 123.70 |
| 8 | A | 721 | A | N9-C4-C5 | -7.15 | 102.94 | 105.80 |
| 34 | a | 445 | G | N3-C4-C5 | 7.15 | 132.17 | 128.60 |
| 8 | A | 381 | G | C8-N9-C4 | 7.15 | 109.26 | 106.40 |
| 8 | A | 247 | G | N3-C4-C5 | 7.14 | 132.17 | 128.60 |
| 34 | a | 928 | G | N3-C4-C5 | 7.14 | 132.17 | 128.60 |
| 8 | A | 899 | A | N1-C6-N6 | 7.14 | 122.88 | 118.60 |
| 34 | a | 1486 | G | C2-N3-C4 | -7.14 | 108.33 | 111.90 |
| 34 | a | 1105 | A | N9-C4-C5 | -7.14 | 102.95 | 105.80 |
| 8 | A | 713 | G | N3-C4-C5 | 7.13 | 132.17 | 128.60 |
| 8 | A | 2686 | G | C2-N3-C4 | -7.13 | 108.33 | 111.90 |
| 8 | A | 2839 | G | N3-C4-C5 | 7.13 | 132.17 | 128.60 |
| 8 | A | 1810 | A | C5-C6-N6 | -7.13 | 117.99 | 123.70 |
| 8 | A | 1178 | C | C2-N3-C4 | -7.13 | 116.33 | 119.90 |
| 8 | A | 1456 | G | N3-C4-C5 | 7.13 | 132.16 | 128.60 |
| 8 | A | 361 | G | C5-N7-C8 | -7.13 | 100.74 | 104.30 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 8 | A | 2508 | G | C8-N9-C4 | 7.13 | 109.25 | 106.40 |
| 8 | A | 510 | C | N3-C2-O2 | -7.12 | 116.91 | 121.90 |
| 8 | A | 707 | G | N3-C4-C5 | 7.12 | 132.16 | 128.60 |
| 34 | a | 929 | G | N3-C4-C5 | 7.12 | 132.16 | 128.60 |
| 8 | A | 1873 | G | N3-C4-C5 | 7.12 | 132.16 | 128.60 |
| 8 | A | 2206 | C | C6-N1-C2 | 7.12 | 123.15 | 120.30 |
| 8 | A | 2734 | A | C8-N9-C4 | 7.12 | 108.65 | 105.80 |
| 8 | A | 327 | G | N3-C4-C5 | 7.12 | 132.16 | 128.60 |
| 8 | A | 1028 | A | N9-C4-C5 | -7.11 | 102.96 | 105.80 |
| 34 | a | 1472 | U | C2-N1-C1' | 7.11 | 126.23 | 117.70 |
| 8 | A | 1156 | A | C8-N9-C4 | 7.11 | 108.64 | 105.80 |
| 8 | A | 2844 | G | N3-C4-N9 | -7.11 | 121.74 | 126.00 |
| 34 | a | 851 | G | N9-C4-C5 | -7.11 | 102.56 | 105.40 |
| 34 | a | 518 | C | C6-N1-C1' | -7.10 | 112.28 | 120.80 |
| 34 | a | 1375 | A | C8-N9-C4 | 7.10 | 108.64 | 105.80 |
| 8 | A | 1408 | G | C2-N3-C4 | -7.10 | 108.35 | 111.90 |
| 8 | A | 1745 | A | C5-C6-N6 | -7.10 | 118.02 | 123.70 |
| 8 | A | 2349 | G | N3-C4-C5 | 7.10 | 132.15 | 128.60 |
| 34 | a | 243 | A | N1-C2-N3 | 7.10 | 132.85 | 129.30 |
| 34 | a | 246 | A | N1-C6-N6 | 7.10 | 122.86 | 118.60 |
| 34 | a | 698 | G | N3-C4-N9 | -7.10 | 121.74 | 126.00 |
| 8 | A | 2218 | G | C2-N3-C4 | -7.10 | 108.35 | 111.90 |
| 8 | A | 1220 | G | N3-C4-N9 | -7.10 | 121.74 | 126.00 |
| 34 | a | 460 | A | O4'-C1'-N9 | -7.10 | 102.52 | 108.20 |
| 8 | A | 2437 | G | N3-C4-C5 | 7.10 | 132.15 | 128.60 |
| 8 | A | 2208 | C | C2'-C3'-O3' | 7.10 | 125.11 | 109.50 |
| 8 | A | 24 | G | C2-N3-C4 | -7.09 | 108.35 | 111.90 |
| 34 | a | 542 | G | C8-N9-C4 | 7.09 | 109.24 | 106.40 |
| 8 | A | 2843 | G | N3-C4-C5 | 7.09 | 132.15 | 128.60 |
| 34 | a | 691 | G | C4-N9-C1' | -7.09 | 117.28 | 126.50 |
| 8 | A | 2248 | C | C6-N1-C1' | -7.09 | 112.29 | 120.80 |
| 8 | A | 52 | A | C5-C6-N6 | -7.09 | 118.03 | 123.70 |
| 9 | B | 40 | U | O4'-C1'-N1 | -7.09 | 102.53 | 108.20 |
| 8 | A | 1378 | A | C4-C5-N7 | 7.09 | 114.24 | 110.70 |
| 8 | A | 2524 | G | C8-N9-C4 | 7.09 | 109.23 | 106.40 |
| 34 | a | 104 | G | N3-C4-C5 | 7.09 | 132.14 | 128.60 |
| 8 | A | 260 | G | C2-N3-C4 | -7.08 | 108.36 | 111.90 |
| 8 | A | 2899 | A | N9-C4-C5 | -7.08 | 102.97 | 105.80 |
| 34 | a | 1112 | C | C6-N1-C2 | 7.08 | 123.13 | 120.30 |
| 8 | A | 122 | G | N3-C4-N9 | -7.08 | 121.75 | 126.00 |
| 8 | A | 2168 | G | P-O3'-C3' | -7.08 | 111.20 | 119.70 |
| 8 | A | 1178 | C | N3-C2-O2 | -7.08 | 116.94 | 121.90 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 9 | B | 102 | G | C8-N9-C4 | 7.08 | 109.23 | 106.40 |
| 9 | B | 84 | G | N3-C4-C5 | 7.08 | 132.14 | 128.60 |
| 26 | S | 42 | LYS | CA-CB-CG | 7.08 | 128.97 | 113.40 |
| 8 | A | 48 | G | N3-C4-C5 | 7.07 | 132.14 | 128.60 |
| 34 | a | 518 | C | C5-C4-N4 | -7.07 | 115.25 | 120.20 |
| 34 | a | 545 | C | C6-N1-C2 | 7.07 | 123.13 | 120.30 |
| 34 | a | 1143 | G | N9-C4-C5 | -7.07 | 102.57 | 105.40 |
| 34 | a | 585 | G | N3-C4-C5 | 7.07 | 132.13 | 128.60 |
| 8 | A | 2840 | C | C6-N1-C2 | 7.07 | 123.13 | 120.30 |
| 34 | a | 639 | G | C8-N9-C4 | 7.07 | 109.23 | 106.40 |
| 34 | a | 550 | G | N3-C4-C5 | 7.06 | 132.13 | 128.60 |
| 8 | A | 27 | G | O4'-C1'-N9 | 7.06 | 113.85 | 108.20 |
| 8 | A | 1016 | G | N3-C4-N9 | -7.06 | 121.76 | 126.00 |
| 8 | A | 629 | G | C8-N9-C4 | 7.06 | 109.22 | 106.40 |
| 8 | A | 1333 | G | C8-N9-C4 | 7.06 | 109.22 | 106.40 |
| 8 | A | 1642 | G | C2-N3-C4 | -7.06 | 108.37 | 111.90 |
| 8 | A | 1900 | A | O4'-C1'-N9 | 7.06 | 113.85 | 108.20 |
| 8 | A | 956 | G | N3-C4-C5 | 7.06 | 132.13 | 128.60 |
| 34 | a | 241 | G | N3-C4-N9 | -7.06 | 121.77 | 126.00 |
| 34 | a | 953 | G | N3-C4-C5 | 7.06 | 132.13 | 128.60 |
| 34 | a | 1487 | G | N3-C4-N9 | -7.06 | 121.77 | 126.00 |
| 8 | A | 815 | C | N3-C4-C5 | 7.05 | 124.72 | 121.90 |
| 8 | A | 1337 | G | N3-C4-N9 | -7.05 | 121.77 | 126.00 |
| 8 | A | 2235 | G | C2-N3-C4 | -7.05 | 108.37 | 111.90 |
| 34 | a | 362 | G | N3-C4-C5 | 7.05 | 132.13 | 128.60 |
| 34 | a | 898 | G | N3-C4-C5 | 7.05 | 132.13 | 128.60 |
| 8 | A | 1721 | G | N3-C4-N9 | -7.05 | 121.77 | 126.00 |
| 34 | a | 348 | G | C8-N9-C4 | 7.05 | 109.22 | 106.40 |
| 34 | a | 799 | G | C8-N9-C4 | 7.05 | 109.22 | 106.40 |
| 8 | A | 1115 | G | N3-C4-C5 | 7.04 | 132.12 | 128.60 |
| 8 | A | 2373 | G | N3-C4-C5 | 7.04 | 132.12 | 128.60 |
| 34 | a | 833 | G | N3-C4-N9 | -7.04 | 121.78 | 126.00 |
| 8 | A | 350 | G | C2-N3-C4 | -7.04 | 108.38 | 111.90 |
| 8 | A | 1766 | G | C8-N9-C4 | 7.04 | 109.22 | 106.40 |
| 8 | A | 1843 | C | N1-C2-O2 | 7.04 | 123.12 | 118.90 |
| 8 | A | 1973 | G | N3-C4-C5 | 7.04 | 132.12 | 128.60 |
| 8 | A | 2355 | G | N3-C4-C5 | 7.04 | 132.12 | 128.60 |
| 8 | A | 996 | A | C8-N9-C4 | 7.03 | 108.61 | 105.80 |
| 8 | A | 2618 | G | N1-C6-O6 | -7.03 | 115.68 | 119.90 |
| 34 | a | 800 | G | C2-N3-C4 | -7.03 | 108.38 | 111.90 |
| 8 | A | 939 | G | N3-C4-C5 | 7.03 | 132.12 | 128.60 |
| 8 | A | 1190 | G | C8-N9-C4 | 7.03 | 109.21 | 106.40 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-----------|-------|-------------|----------|
| 8 | A | 2040 | G | C8-N9-C4 | 7.03 | 109.21 | 106.40 |
| 34 | a | 226 | G | N3-C2-N2 | 7.03 | 124.82 | 119.90 |
| 8 | A | 488 | G | N3-C4-C5 | 7.03 | 132.12 | 128.60 |
| 8 | A | 2282 | G | N1-C6-O6 | -7.03 | 115.68 | 119.90 |
| 8 | A | 1154 | G | N3-C4-C5 | 7.02 | 132.11 | 128.60 |
| 9 | B | 19 | C | C6-N1-C2 | 7.02 | 123.11 | 120.30 |
| 8 | A | 1893 | C | C6-N1-C2 | 7.02 | 123.11 | 120.30 |
| 34 | a | 1174 | G | N3-C4-C5 | 7.02 | 132.11 | 128.60 |
| 8 | A | 188 | G | C2-N3-C4 | -7.02 | 108.39 | 111.90 |
| 8 | A | 954 | G | C2-N3-C4 | -7.01 | 108.39 | 111.90 |
| 8 | A | 2557 | G | C8-N9-C4 | 7.01 | 109.21 | 106.40 |
| 34 | a | 1 | A | N7-C8-N9 | 7.01 | 117.31 | 113.80 |
| 34 | a | 81 | A | C4-C5-N7 | 7.01 | 114.21 | 110.70 |
| 34 | a | 848 | C | C6-N1-C2 | 7.01 | 123.10 | 120.30 |
| 8 | A | 2719 | G | N3-C4-N9 | -7.00 | 121.80 | 126.00 |
| 8 | A | 705 | A | N1-C6-N6 | 7.00 | 122.80 | 118.60 |
| 8 | A | 2407 | A | N9-C4-C5 | -7.00 | 103.00 | 105.80 |
| 8 | A | 1055 | G | C4-C5-C6 | -7.00 | 114.60 | 118.80 |
| 8 | A | 2869 | G | N3-C4-N9 | -7.00 | 121.80 | 126.00 |
| 34 | a | 1020 | G | C8-N9-C4 | 7.00 | 109.20 | 106.40 |
| 34 | a | 326 | G | C2-N3-C4 | -6.99 | 108.40 | 111.90 |
| 8 | A | 672 | C | N3-C4-C5 | 6.99 | 124.70 | 121.90 |
| 34 | a | 1019 | A | N9-C4-C5 | -6.99 | 103.00 | 105.80 |
| 34 | a | 1104 | G | C8-N9-C4 | 6.99 | 109.20 | 106.40 |
| 8 | A | 1377 | G | N3-C4-N9 | -6.99 | 121.81 | 126.00 |
| 8 | A | 2198 | A | C5-C6-N6 | 6.99 | 129.29 | 123.70 |
| 34 | a | 742 | G | N3-C2-N2 | -6.99 | 115.01 | 119.90 |
| 34 | a | 1435 | G | N3-C4-C5 | 6.99 | 132.09 | 128.60 |
| 34 | a | 887 | G | N3-C4-C5 | 6.99 | 132.09 | 128.60 |
| 8 | A | 682 | G | N3-C4-C5 | 6.99 | 132.09 | 128.60 |
| 8 | A | 1279 | G | C4-C5-N7 | 6.99 | 113.59 | 110.80 |
| 34 | a | 521 | G | C8-N9-C4 | 6.99 | 109.19 | 106.40 |
| 8 | A | 1060 | U | C5-C4-O4 | -6.98 | 121.71 | 125.90 |
| 8 | A | 35 | G | N3-C4-C5 | 6.98 | 132.09 | 128.60 |
| 8 | A | 1684 | G | C4-N9-C1' | -6.98 | 117.42 | 126.50 |
| 34 | a | 696 | A | N9-C4-C5 | -6.98 | 103.01 | 105.80 |
| 34 | a | 1025 | U | C2-N1-C1' | 6.98 | 126.08 | 117.70 |
| 8 | A | 500 | G | N3-C4-C5 | 6.98 | 132.09 | 128.60 |
| 8 | A | 917 | A | N1-C6-N6 | 6.97 | 122.78 | 118.60 |
| 8 | A | 1681 | G | N3-C4-C5 | 6.97 | 132.09 | 128.60 |
| 8 | A | 2198 | A | C6-C5-N7 | 6.97 | 137.18 | 132.30 |
| 8 | A | 2708 | G | N3-C4-C5 | 6.97 | 132.09 | 128.60 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-----------|-------|-------------|----------|
| 8 | A | 2864 | G | N3-C4-C5 | 6.97 | 132.09 | 128.60 |
| 8 | A | 1479 | G | N3-C4-C5 | 6.97 | 132.08 | 128.60 |
| 34 | a | 242 | G | N3-C4-C5 | 6.96 | 132.08 | 128.60 |
| 34 | a | 1011 | C | C2-N1-C1' | -6.96 | 111.14 | 118.80 |
| 8 | A | 2 | G | C4-C5-N7 | 6.96 | 113.58 | 110.80 |
| 34 | a | 626 | G | C2-N3-C4 | -6.96 | 108.42 | 111.90 |
| 8 | A | 1093 | G | N3-C4-C5 | 6.96 | 132.08 | 128.60 |
| 8 | A | 2549 | G | N9-C4-C5 | -6.96 | 102.62 | 105.40 |
| 55 | v | 26 | G | N3-C4-C5 | 6.96 | 132.08 | 128.60 |
| 8 | A | 1163 | G | C8-N9-C4 | 6.96 | 109.18 | 106.40 |
| 8 | A | 93 | G | N3-C4-C5 | 6.96 | 132.08 | 128.60 |
| 34 | a | 886 | G | N3-C4-C5 | 6.96 | 132.08 | 128.60 |
| 34 | a | 1439 | G | N3-C4-C5 | 6.96 | 132.08 | 128.60 |
| 8 | A | 1574 | C | C6-N1-C2 | 6.96 | 123.08 | 120.30 |
| 8 | A | 1227 | G | C2-N3-C4 | -6.95 | 108.42 | 111.90 |
| 8 | A | 334 | C | C6-N1-C2 | 6.95 | 123.08 | 120.30 |
| 8 | A | 413 | C | C6-N1-C2 | 6.95 | 123.08 | 120.30 |
| 8 | A | 1897 | G | N3-C4-C5 | 6.95 | 132.07 | 128.60 |
| 34 | a | 1175 | G | C2-N3-C4 | -6.95 | 108.43 | 111.90 |
| 34 | a | 53 | A | C8-N9-C4 | 6.94 | 108.58 | 105.80 |
| 8 | A | 830 | G | N3-C4-N9 | -6.94 | 121.83 | 126.00 |
| 34 | a | 518 | C | C2-N1-C1' | 6.94 | 126.44 | 118.80 |
| 8 | A | 1048 | A | N1-C6-N6 | 6.94 | 122.76 | 118.60 |
| 8 | A | 144 | A | C4-C5-N7 | 6.94 | 114.17 | 110.70 |
| 8 | A | 2567 | G | N3-C4-C5 | 6.94 | 132.07 | 128.60 |
| 8 | A | 340 | A | C8-N9-C4 | 6.93 | 108.57 | 105.80 |
| 8 | A | 2551 | C | C6-N1-C2 | 6.93 | 123.07 | 120.30 |
| 8 | A | 1989 | G | N3-C4-C5 | 6.93 | 132.06 | 128.60 |
| 8 | A | 2507 | C | C6-N1-C2 | 6.93 | 123.07 | 120.30 |
| 8 | A | 1807 | G | N3-C4-N9 | -6.92 | 121.84 | 126.00 |
| 8 | A | 2868 | A | N1-C6-N6 | 6.92 | 122.75 | 118.60 |
| 34 | a | 1043 | G | N3-C4-C5 | 6.92 | 132.06 | 128.60 |
| 34 | a | 274 | A | C8-N9-C4 | 6.92 | 108.57 | 105.80 |
| 8 | A | 1548 | A | C8-N9-C4 | 6.92 | 108.57 | 105.80 |
| 8 | A | 335 | C | C6-N1-C2 | 6.92 | 123.07 | 120.30 |
| 8 | A | 463 | G | N3-C4-C5 | 6.92 | 132.06 | 128.60 |
| 34 | a | 151 | A | C5-C6-N6 | -6.92 | 118.16 | 123.70 |
| 34 | a | 760 | G | N3-C4-C5 | 6.92 | 132.06 | 128.60 |
| 8 | A | 795 | C | N3-C4-C5 | 6.92 | 124.67 | 121.90 |
| 8 | A | 1233 | C | N3-C4-N4 | -6.92 | 113.16 | 118.00 |
| 8 | A | 1723 | G | C2-N3-C4 | -6.91 | 108.44 | 111.90 |
| 8 | A | 523 | C | C6-N1-C2 | 6.91 | 123.06 | 120.30 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-----------|-------|-------------|----------|
| 8 | A | 1797 | G | N3-C4-C5 | 6.91 | 132.06 | 128.60 |
| 8 | A | 2567 | G | N3-C4-N9 | -6.91 | 121.85 | 126.00 |
| 55 | v | 26 | G | N3-C2-N2 | -6.91 | 115.06 | 119.90 |
| 8 | A | 708 | G | C2-N3-C4 | -6.91 | 108.45 | 111.90 |
| 8 | A | 1171 | G | C8-N9-C4 | -6.91 | 103.64 | 106.40 |
| 8 | A | 1628 | G | C8-N9-C4 | 6.91 | 109.16 | 106.40 |
| 8 | A | 2735 | G | C2-N3-C4 | -6.91 | 108.44 | 111.90 |
| 34 | a | 117 | G | N3-C4-C5 | 6.91 | 132.05 | 128.60 |
| 8 | A | 1708 | C | C6-N1-C2 | 6.91 | 123.06 | 120.30 |
| 8 | A | 1631 | G | C6-C5-N7 | 6.91 | 134.54 | 130.40 |
| 8 | A | 1697 | G | N3-C4-N9 | -6.90 | 121.86 | 126.00 |
| 8 | A | 461 | C | N3-C4-N4 | -6.90 | 113.17 | 118.00 |
| 8 | A | 553 | G | N3-C4-C5 | 6.90 | 132.05 | 128.60 |
| 8 | A | 560 | C | C6-N1-C2 | 6.90 | 123.06 | 120.30 |
| 34 | a | 413 | G | C2-N3-C4 | -6.90 | 108.45 | 111.90 |
| 34 | a | 628 | G | N3-C4-N9 | -6.90 | 121.86 | 126.00 |
| 34 | a | 211 | G | C2-N3-C4 | 6.90 | 115.35 | 111.90 |
| 34 | a | 295 | C | C6-N1-C2 | 6.90 | 123.06 | 120.30 |
| 8 | A | 950 | G | N3-C4-C5 | 6.90 | 132.05 | 128.60 |
| 8 | A | 1054 | A | C4-C5-N7 | 6.90 | 114.15 | 110.70 |
| 8 | A | 506 | G | N3-C4-N9 | -6.89 | 121.86 | 126.00 |
| 8 | A | 2878 | U | C6-N1-C2 | 6.89 | 125.14 | 121.00 |
| 34 | a | 921 | U | C6-N1-C1' | 6.89 | 130.85 | 121.20 |
| 8 | A | 2391 | G | C8-N9-C4 | 6.89 | 109.16 | 106.40 |
| 34 | a | 1079 | G | N3-C4-C5 | 6.89 | 132.05 | 128.60 |
| 55 | v | 4 | G | N3-C4-C5 | 6.89 | 132.05 | 128.60 |
| 8 | A | 1062 | G | N1-C2-N2 | -6.89 | 110.00 | 116.20 |
| 8 | A | 1686 | C | N3-C4-C5 | 6.89 | 124.66 | 121.90 |
| 8 | A | 1717 | A | N1-C6-N6 | 6.89 | 122.73 | 118.60 |
| 8 | A | 1277 | G | C8-N9-C4 | 6.88 | 109.15 | 106.40 |
| 34 | a | 1143 | G | C2-N3-C4 | -6.88 | 108.46 | 111.90 |
| 8 | A | 2867 | G | C4-N9-C1' | -6.88 | 117.56 | 126.50 |
| 8 | A | 322 | A | N1-C6-N6 | -6.88 | 114.47 | 118.60 |
| 8 | A | 359 | G | C4-N9-C1' | -6.88 | 117.56 | 126.50 |
| 8 | A | 2399 | G | N3-C4-C5 | 6.88 | 132.04 | 128.60 |
| 8 | A | 1424 | G | N3-C4-N9 | -6.88 | 121.88 | 126.00 |
| 34 | a | 39 | G | N3-C4-C5 | 6.88 | 132.04 | 128.60 |
| 8 | A | 1304 | A | C8-N9-C4 | 6.87 | 108.55 | 105.80 |
| 8 | A | 1933 | G | N3-C4-C5 | 6.87 | 132.04 | 128.60 |
| 8 | A | 1013 | C | N3-C4-C5 | 6.87 | 124.65 | 121.90 |
| 8 | A | 1652 | A | C4-C5-N7 | 6.87 | 114.14 | 110.70 |
| 8 | A | 1719 | G | N3-C4-N9 | -6.87 | 121.88 | 126.00 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 2458 | G | C2-N3-C4 | -6.87 | 108.47 | 111.90 |
| 8 | A | 2536 | G | N3-C4-N9 | -6.87 | 121.88 | 126.00 |
| 34 | a | 201 | G | C4-N9-C1' | -6.87 | 117.57 | 126.50 |
| 8 | A | 2218 | G | N3-C4-C5 | 6.87 | 132.03 | 128.60 |
| 8 | A | 2631 | G | C4-N9-C1' | -6.87 | 117.57 | 126.50 |
| 9 | B | 17 | C | C6-N1-C2 | 6.87 | 123.05 | 120.30 |
| 34 | a | 1157 | A | C8-N9-C4 | 6.87 | 108.55 | 105.80 |
| 8 | A | 877 | A | C8-N9-C4 | 6.86 | 108.55 | 105.80 |
| 8 | A | 2164 | C | O4'-C1'-N1 | -6.86 | 102.71 | 108.20 |
| 8 | A | 675 | A | C4-C5-N7 | 6.86 | 114.13 | 110.70 |
| 8 | A | 2576 | G | C6-C5-N7 | 6.86 | 134.52 | 130.40 |
| 34 | a | 903 | G | N3-C4-C5 | 6.86 | 132.03 | 128.60 |
| 34 | a | 119 | A | C5-C6-N6 | -6.86 | 118.22 | 123.70 |
| 55 | v | 5 | G | N3-C4-C5 | 6.86 | 132.03 | 128.60 |
| 8 | A | 862 | G | N3-C4-C5 | 6.85 | 132.03 | 128.60 |
| 55 | v | 43 | A | N9-C4-C5 | -6.85 | 103.06 | 105.80 |
| 8 | A | 317 | G | C8-N9-C4 | 6.85 | 109.14 | 106.40 |
| 8 | A | 2669 | G | C8-N9-C4 | 6.85 | 109.14 | 106.40 |
| 8 | A | 618 | G | N3-C4-N9 | -6.85 | 121.89 | 126.00 |
| 8 | A | 949 | G | C2-N3-C4 | -6.85 | 108.48 | 111.90 |
| 8 | A | 1975 | G | N3-C4-C5 | 6.85 | 132.02 | 128.60 |
| 8 | A | 41 | C | C6-N1-C2 | 6.84 | 123.04 | 120.30 |
| 8 | A | 1713 | A | C8-N9-C4 | 6.84 | 108.54 | 105.80 |
| 8 | A | 843 | G | C2-N3-C4 | -6.84 | 108.48 | 111.90 |
| 8 | A | 1333 | G | N3-C4-C5 | 6.84 | 132.02 | 128.60 |
| 8 | A | 2496 | C | C2-N1-C1' | 6.84 | 126.32 | 118.80 |
| 34 | a | 410 | G | N3-C4-N9 | -6.84 | 121.90 | 126.00 |
| 8 | A | 2484 | G | N3-C4-C5 | 6.84 | 132.02 | 128.60 |
| 8 | A | 2525 | G | N3-C4-N9 | -6.84 | 121.90 | 126.00 |
| 8 | A | 2815 | C | C6-N1-C2 | 6.84 | 123.03 | 120.30 |
| 34 | a | 270 | A | C4-C5-N7 | 6.84 | 114.12 | 110.70 |
| 8 | A | 1426 | G | C2-N3-C4 | -6.83 | 108.48 | 111.90 |
| 8 | A | 2659 | G | N3-C4-N9 | -6.83 | 121.90 | 126.00 |
| 8 | A | 1501 | G | C2-N3-C4 | -6.83 | 108.48 | 111.90 |
| 8 | A | 2045 | C | C6-N1-C2 | 6.83 | 123.03 | 120.30 |
| 34 | a | 151 | A | N9-C4-C5 | -6.83 | 103.07 | 105.80 |
| 8 | A | 45 | G | C2-N3-C4 | -6.83 | 108.48 | 111.90 |
| 8 | A | 126 | A | N9-C4-C5 | -6.83 | 103.07 | 105.80 |
| 8 | A | 1244 | A | N9-C4-C5 | -6.83 | 103.07 | 105.80 |
| 34 | a | 954 | G | N3-C4-N9 | -6.83 | 121.90 | 126.00 |
| 8 | A | 259 | G | N3-C4-N9 | -6.83 | 121.91 | 126.00 |
| 34 | a | 225 | C | C6-N1-C2 | 6.83 | 123.03 | 120.30 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 936 | A | N9-C4-C5 | -6.82 | 103.07 | 105.80 |
| 8 | A | 1165 | A | C8-N9-C4 | 6.82 | 108.53 | 105.80 |
| 8 | A | 1218 | G | N3-C4-N9 | -6.82 | 121.91 | 126.00 |
| 55 | v | 52 | G | N3-C4-C5 | 6.82 | 132.01 | 128.60 |
| 8 | A | 2671 | G | N3-C4-N9 | -6.82 | 121.91 | 126.00 |
| 8 | A | 2848 | G | N3-C4-C5 | 6.82 | 132.01 | 128.60 |
| 34 | a | 445 | G | N3-C4-N9 | -6.81 | 121.91 | 126.00 |
| 8 | A | 2414 | G | C4-N9-C1' | -6.81 | 117.64 | 126.50 |
| 9 | B | 60 | C | C6-N1-C2 | 6.81 | 123.03 | 120.30 |
| 34 | a | 266 | G | O4'-C1'-N9 | 6.81 | 113.65 | 108.20 |
| 34 | a | 691 | G | N3-C4-C5 | 6.81 | 132.01 | 128.60 |
| 9 | B | 24 | G | N3-C4-C5 | 6.81 | 132.01 | 128.60 |
| 8 | A | 771 | G | N3-C4-N9 | -6.81 | 121.92 | 126.00 |
| 8 | A | 2277 | G | N3-C4-N9 | -6.81 | 121.91 | 126.00 |
| 8 | A | 2157 | G | O5'-P-OP1 | -6.81 | 99.57 | 105.70 |
| 8 | A | 2525 | G | C4-N9-C1' | -6.81 | 117.65 | 126.50 |
| 34 | a | 894 | G | N3-C4-N9 | -6.81 | 121.92 | 126.00 |
| 8 | A | 2628 | C | N3-C4-C5 | 6.80 | 124.62 | 121.90 |
| 9 | B | 64 | G | C8-N9-C4 | 6.80 | 109.12 | 106.40 |
| 9 | B | 78 | A | C8-N9-C4 | 6.80 | 108.52 | 105.80 |
| 34 | a | 226 | G | N1-C2-N2 | -6.80 | 110.08 | 116.20 |
| 8 | A | 2230 | G | C2-N3-C4 | -6.80 | 108.50 | 111.90 |
| 34 | a | 142 | G | N3-C4-N9 | -6.80 | 121.92 | 126.00 |
| 34 | a | 68 | G | N3-C4-C5 | 6.79 | 132.00 | 128.60 |
| 8 | A | 2803 | G | C4-N9-C1' | -6.79 | 117.67 | 126.50 |
| 34 | a | 1374 | A | C5-C6-N1 | 6.79 | 121.10 | 117.70 |
| 8 | A | 220 | G | O4'-C1'-N9 | -6.79 | 102.77 | 108.20 |
| 34 | a | 1081 | A | O3'-P-O5' | 6.79 | 116.90 | 104.00 |
| 8 | A | 247 | G | N3-C4-N9 | -6.79 | 121.93 | 126.00 |
| 8 | A | 1705 | A | C4-C5-N7 | 6.79 | 114.09 | 110.70 |
| 9 | B | 107 | G | N3-C4-N9 | -6.79 | 121.93 | 126.00 |
| 8 | A | 718 | A | N9-C4-C5 | -6.78 | 103.09 | 105.80 |
| 8 | A | 1266 | G | N3-C4-C5 | 6.78 | 131.99 | 128.60 |
| 34 | a | 1432 | G | C2-N3-C4 | -6.78 | 108.51 | 111.90 |
| 8 | A | 1403 | A | N9-C4-C5 | -6.78 | 103.09 | 105.80 |
| 9 | B | 64 | G | C2-N3-C4 | -6.78 | 108.51 | 111.90 |
| 34 | a | 640 | A | N3-C4-C5 | 6.78 | 131.55 | 126.80 |
| 34 | a | 688 | G | N3-C4-C5 | 6.78 | 131.99 | 128.60 |
| 8 | A | 1115 | G | C2-N3-C4 | -6.78 | 108.51 | 111.90 |
| 34 | a | 453 | G | C4-N9-C1' | 6.78 | 135.31 | 126.50 |
| 8 | A | 1178 | C | N1-C2-O2 | 6.78 | 122.97 | 118.90 |
| 8 | A | 313 | G | N3-C4-C5 | 6.77 | 131.99 | 128.60 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 1743 | G | N3-C4-C5 | 6.77 | 131.99 | 128.60 |
| 34 | a | 164 | G | N3-C4-C5 | 6.77 | 131.99 | 128.60 |
| 8 | A | 398 | C | C6-N1-C2 | 6.77 | 123.01 | 120.30 |
| 8 | A | 1387 | A | N9-C4-C5 | -6.77 | 103.09 | 105.80 |
| 34 | a | 1102 | A | N9-C4-C5 | -6.77 | 103.09 | 105.80 |
| 8 | A | 1346 | G | N3-C4-C5 | 6.77 | 131.98 | 128.60 |
| 9 | B | 51 | G | C8-N9-C1' | -6.77 | 118.20 | 127.00 |
| 8 | A | 1767 | G | N3-C4-N9 | -6.76 | 121.94 | 126.00 |
| 9 | B | 83 | G | C8-N9-C4 | 6.76 | 109.10 | 106.40 |
| 8 | A | 888 | C | N3-C2-O2 | -6.76 | 117.17 | 121.90 |
| 8 | A | 924 | G | N3-C4-C5 | 6.76 | 131.98 | 128.60 |
| 8 | A | 953 | G | C8-N9-C4 | 6.76 | 109.10 | 106.40 |
| 8 | A | 1517 | G | C2-N3-C4 | -6.76 | 108.52 | 111.90 |
| 8 | A | 2351 | G | N3-C4-C5 | 6.76 | 131.98 | 128.60 |
| 34 | a | 38 | G | N3-C4-C5 | 6.76 | 131.98 | 128.60 |
| 34 | a | 696 | A | C5-C6-N6 | -6.76 | 118.29 | 123.70 |
| 34 | a | 988 | G | N3-C4-N9 | -6.76 | 121.95 | 126.00 |
| 8 | A | 813 | U | C6-N1-C2 | 6.75 | 125.05 | 121.00 |
| 8 | A | 1382 | G | N3-C4-C5 | 6.75 | 131.98 | 128.60 |
| 8 | A | 1477 | A | C4-C5-N7 | 6.75 | 114.08 | 110.70 |
| 34 | a | 109 | A | N1-C6-N6 | 6.75 | 122.65 | 118.60 |
| 8 | A | 271 | G | C2-N3-C4 | -6.75 | 108.52 | 111.90 |
| 8 | A | 1017 | G | N3-C4-C5 | 6.75 | 131.97 | 128.60 |
| 8 | A | 2235 | G | C4-N9-C1' | -6.75 | 117.72 | 126.50 |
| 8 | A | 2142 | A | O4'-C1'-N9 | -6.75 | 102.80 | 108.20 |
| 34 | a | 1462 | C | C6-N1-C2 | 6.75 | 123.00 | 120.30 |
| 8 | A | 1034 | G | C2-N3-C4 | -6.75 | 108.53 | 111.90 |
| 8 | A | 1517 | G | N3-C4-C5 | 6.75 | 131.97 | 128.60 |
| 10 | C | 201 | LEU | CA-CB-CG | -6.75 | 99.79 | 115.30 |
| 8 | A | 1846 | G | N3-C4-C5 | 6.74 | 131.97 | 128.60 |
| 34 | a | 199 | A | N9-C4-C5 | -6.74 | 103.10 | 105.80 |
| 8 | A | 1336 | A | C8-N9-C4 | 6.74 | 108.50 | 105.80 |
| 34 | a | 778 | G | N3-C4-C5 | 6.74 | 131.97 | 128.60 |
| 34 | a | 1483 | A | N1-C6-N6 | 6.74 | 122.64 | 118.60 |
| 9 | B | 111 | U | C6-N1-C2 | 6.74 | 125.04 | 121.00 |
| 8 | A | 2876 | G | N3-C4-N9 | -6.74 | 121.96 | 126.00 |
| 55 | v | 15 | G | N3-C4-N9 | -6.74 | 121.96 | 126.00 |
| 9 | B | 37 | C | N3-C4-N4 | -6.73 | 113.29 | 118.00 |
| 8 | A | 2678 | C | N3-C4-C5 | 6.73 | 124.59 | 121.90 |
| 34 | a | 1417 | G | C2-N3-C4 | -6.73 | 108.53 | 111.90 |
| 8 | A | 1092 | C | C6-N1-C2 | 6.73 | 122.99 | 120.30 |
| 8 | A | 1904 | G | C2-N3-C4 | -6.73 | 108.53 | 111.90 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 34 | a | 1061 | G | C2-N3-C4 | -6.73 | 108.53 | 111.90 |
| 8 | A | 2235 | G | C8-N9-C4 | 6.73 | 109.09 | 106.40 |
| 8 | A | 2444 | G | N3-C4-C5 | 6.73 | 131.96 | 128.60 |
| 34 | a | 297 | G | N3-C4-C5 | 6.73 | 131.96 | 128.60 |
| 56 | w | 53 | G | N3-C4-C5 | 6.73 | 131.96 | 128.60 |
| 8 | A | 1093 | G | N3-C4-N9 | -6.73 | 121.97 | 126.00 |
| 8 | A | 335 | C | N3-C4-C5 | 6.72 | 124.59 | 121.90 |
| 8 | A | 425 | G | C8-N9-C4 | 6.72 | 109.09 | 106.40 |
| 8 | A | 340 | A | C5-C6-N6 | -6.72 | 118.32 | 123.70 |
| 8 | A | 916 | G | C4-C5-N7 | 6.72 | 113.49 | 110.80 |
| 8 | A | 1826 | G | N3-C4-C5 | 6.72 | 131.96 | 128.60 |
| 8 | A | 570 | G | C4-N9-C1' | 6.72 | 135.23 | 126.50 |
| 8 | A | 1338 | G | C2-N3-C4 | -6.72 | 108.54 | 111.90 |
| 8 | A | 2458 | G | N3-C4-N9 | -6.71 | 121.97 | 126.00 |
| 8 | A | 1123 | C | N3-C4-N4 | -6.71 | 113.30 | 118.00 |
| 8 | A | 1220 | G | C4-N9-C1' | -6.71 | 117.77 | 126.50 |
| 8 | A | 2803 | G | N3-C4-N9 | -6.71 | 121.97 | 126.00 |
| 34 | a | 602 | A | N9-C4-C5 | -6.71 | 103.11 | 105.80 |
| 34 | a | 1196 | A | N1-C6-N6 | 6.71 | 122.63 | 118.60 |
| 34 | a | 1020 | G | N3-C4-C5 | 6.71 | 131.95 | 128.60 |
| 8 | A | 2542 | A | N1-C6-N6 | -6.71 | 114.58 | 118.60 |
| 34 | a | 432 | A | C5-C6-N6 | -6.71 | 118.34 | 123.70 |
| 8 | A | 1090 | A | P-O3'-C3' | 6.70 | 127.75 | 119.70 |
| 8 | A | 2279 | G | N3-C4-C5 | 6.70 | 131.95 | 128.60 |
| 8 | A | 729 | G | O4'-C1'-N9 | 6.70 | 113.56 | 108.20 |
| 8 | A | 2093 | G | N3-C4-C5 | 6.70 | 131.95 | 128.60 |
| 8 | A | 1239 | G | N3-C4-C5 | 6.70 | 131.95 | 128.60 |
| 34 | a | 691 | G | N3-C4-N9 | -6.70 | 121.98 | 126.00 |
| 34 | a | 1043 | G | N3-C4-N9 | -6.70 | 121.98 | 126.00 |
| 34 | a | 1310 | G | N3-C4-C5 | 6.70 | 131.95 | 128.60 |
| 8 | A | 2138 | G | N3-C4-C5 | 6.70 | 131.95 | 128.60 |
| 9 | B | 102 | G | C2-N3-C4 | -6.70 | 108.55 | 111.90 |
| 8 | A | 1426 | G | N3-C4-C5 | 6.70 | 131.95 | 128.60 |
| 8 | A | 1682 | G | N3-C4-C5 | 6.70 | 131.95 | 128.60 |
| 34 | a | 425 | G | N3-C4-N9 | -6.70 | 121.98 | 126.00 |
| 9 | B | 83 | G | N3-C4-C5 | 6.69 | 131.95 | 128.60 |
| 34 | a | 1190 | G | N3-C2-N2 | -6.69 | 115.22 | 119.90 |
| 34 | a | 1419 | G | C4-N9-C1' | 6.69 | 135.20 | 126.50 |
| 34 | a | 25 | C | C6-N1-C2 | 6.69 | 122.98 | 120.30 |
| 9 | B | 112 | G | N3-C4-C5 | 6.69 | 131.94 | 128.60 |
| 34 | a | 626 | G | N3-C4-C5 | 6.69 | 131.94 | 128.60 |
| 34 | a | 888 | G | N3-C2-N2 | -6.69 | 115.22 | 119.90 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 8 | A | 988 | A | C8-N9-C4 | 6.69 | 108.47 | 105.80 |
| 8 | A | 1590 | A | N9-C4-C5 | -6.69 | 103.13 | 105.80 |
| 8 | A | 1844 | C | N3-C4-C5 | 6.68 | 124.57 | 121.90 |
| 8 | A | 2121 | G | O4'-C1'-N9 | 6.68 | 113.55 | 108.20 |
| 8 | A | 37 | C | N3-C4-C5 | 6.68 | 124.57 | 121.90 |
| 8 | A | 466 | A | N1-C6-N6 | -6.68 | 114.59 | 118.60 |
| 8 | A | 1477 | A | N9-C4-C5 | -6.68 | 103.13 | 105.80 |
| 8 | A | 1062 | G | N9-C4-C5 | -6.67 | 102.73 | 105.40 |
| 34 | a | 1423 | G | N3-C4-C5 | 6.67 | 131.94 | 128.60 |
| 8 | A | 1684 | G | N3-C4-N9 | -6.67 | 122.00 | 126.00 |
| 34 | a | 1300 | G | C2-N3-C4 | -6.67 | 108.56 | 111.90 |
| 8 | A | 524 | G | N3-C4-C5 | 6.67 | 131.94 | 128.60 |
| 8 | A | 537 | G | C8-N9-C4 | 6.67 | 109.07 | 106.40 |
| 34 | a | 1003 | G | N3-C4-C5 | 6.67 | 131.94 | 128.60 |
| 8 | A | 303 | G | N9-C4-C5 | -6.67 | 102.73 | 105.40 |
| 34 | a | 402 | G | C2-N3-C4 | -6.67 | 108.57 | 111.90 |
| 56 | w | 13 | C | C2'-C3'-O3' | 6.66 | 124.36 | 113.70 |
| 8 | A | 1492 | G | C8-N9-C1' | 6.66 | 135.66 | 127.00 |
| 34 | a | 410 | G | C4-N9-C1' | -6.66 | 117.84 | 126.50 |
| 34 | a | 886 | G | C2-N3-C4 | -6.66 | 108.57 | 111.90 |
| 8 | A | 669 | G | N3-C2-N2 | -6.66 | 115.24 | 119.90 |
| 8 | A | 2663 | G | C2-N3-C4 | -6.66 | 108.57 | 111.90 |
| 34 | a | 1461 | G | N3-C4-C5 | 6.66 | 131.93 | 128.60 |
| 34 | a | 141 | G | N3-C4-N9 | -6.65 | 122.01 | 126.00 |
| 34 | a | 1258 | G | N3-C4-C5 | 6.65 | 131.93 | 128.60 |
| 34 | a | 765 | G | N3-C4-C5 | 6.65 | 131.93 | 128.60 |
| 8 | A | 712 | G | N3-C4-C5 | 6.65 | 131.93 | 128.60 |
| 8 | A | 1186 | G | C2-N3-C4 | -6.65 | 108.57 | 111.90 |
| 34 | a | 917 | G | C2-N3-C4 | -6.65 | 108.58 | 111.90 |
| 8 | A | 2575 | C | N3-C4-C5 | 6.65 | 124.56 | 121.90 |
| 8 | A | 2323 | G | N3-C4-N9 | -6.65 | 122.01 | 126.00 |
| 8 | A | 2867 | G | N3-C4-N9 | -6.65 | 122.01 | 126.00 |
| 34 | a | 1025 | U | C6-N1-C2 | -6.65 | 117.01 | 121.00 |
| 55 | v | 53 | G | N3-C4-C5 | 6.65 | 131.92 | 128.60 |
| 8 | A | 843 | G | C4-N9-C1' | -6.64 | 117.86 | 126.50 |
| 8 | A | 1158 | C | N3-C4-N4 | -6.64 | 113.35 | 118.00 |
| 8 | A | 1628 | G | N3-C4-C5 | 6.64 | 131.92 | 128.60 |
| 8 | A | 401 | A | O4'-C1'-N9 | -6.64 | 102.89 | 108.20 |
| 34 | a | 227 | G | N3-C4-C5 | 6.64 | 131.92 | 128.60 |
| 8 | A | 1540 | G | C2-N3-C4 | -6.64 | 108.58 | 111.90 |
| 34 | a | 616 | G | C8-N9-C4 | 6.63 | 109.05 | 106.40 |
| 34 | a | 705 | G | C2-N3-C4 | -6.63 | 108.58 | 111.90 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 34 | a | 1117 | A | N1-C6-N6 | 6.63 | 122.58 | 118.60 |
| 34 | a | 1322 | C | O4'-C1'-N1 | 6.63 | 113.50 | 108.20 |
| 8 | A | 469 | G | N1-C6-O6 | 6.63 | 123.88 | 119.90 |
| 34 | a | 778 | G | N3-C4-N9 | -6.63 | 122.02 | 126.00 |
| 34 | a | 830 | G | C2-N3-C4 | -6.63 | 108.59 | 111.90 |
| 55 | v | 46 | A | C5-C6-N6 | -6.63 | 118.40 | 123.70 |
| 8 | A | 1401 | G | C2-N3-C4 | -6.63 | 108.59 | 111.90 |
| 8 | A | 1717 | A | C5-C6-N6 | -6.62 | 118.40 | 123.70 |
| 8 | A | 2207 | C | C6-N1-C2 | 6.62 | 122.95 | 120.30 |
| 8 | A | 2378 | A | C6-C5-N7 | -6.62 | 127.66 | 132.30 |
| 8 | A | 1016 | G | C8-N9-C4 | 6.62 | 109.05 | 106.40 |
| 34 | a | 187 | G | N3-C4-C5 | 6.62 | 131.91 | 128.60 |
| 8 | A | 1849 | G | N3-C4-C5 | 6.62 | 131.91 | 128.60 |
| 34 | a | 1094 | G | N1-C2-N2 | -6.62 | 110.24 | 116.20 |
| 34 | a | 1362 | A | C8-N9-C4 | 6.62 | 108.45 | 105.80 |
| 8 | A | 617 | G | C8-N9-C4 | 6.62 | 109.05 | 106.40 |
| 8 | A | 1120 | G | N3-C4-C5 | 6.62 | 131.91 | 128.60 |
| 8 | A | 2174 | C | C6-N1-C1' | 6.62 | 128.74 | 120.80 |
| 34 | a | 920 | U | C5-C6-N1 | 6.62 | 126.01 | 122.70 |
| 8 | A | 494 | G | N3-C4-N9 | -6.61 | 122.03 | 126.00 |
| 8 | A | 2217 | G | N3-C4-C5 | 6.61 | 131.91 | 128.60 |
| 8 | A | 2502 | G | N3-C4-C5 | 6.61 | 131.91 | 128.60 |
| 34 | a | 435 | A | N9-C4-C5 | -6.61 | 103.16 | 105.80 |
| 34 | a | 319 | G | N3-C4-N9 | -6.61 | 122.03 | 126.00 |
| 34 | a | 838 | G | N9-C4-C5 | -6.61 | 102.76 | 105.40 |
| 8 | A | 1266 | G | C2-N3-C4 | -6.61 | 108.60 | 111.90 |
| 8 | A | 2877 | G | N3-C4-C5 | 6.61 | 131.90 | 128.60 |
| 34 | a | 1245 | C | C6-N1-C2 | 6.61 | 122.94 | 120.30 |
| 8 | A | 2677 | G | N3-C4-C5 | 6.60 | 131.90 | 128.60 |
| 34 | a | 1106 | G | N3-C4-N9 | -6.60 | 122.04 | 126.00 |
| 8 | A | 2527 | C | N3-C4-N4 | -6.60 | 113.38 | 118.00 |
| 8 | A | 493 | G | C2-N3-C4 | -6.60 | 108.60 | 111.90 |
| 8 | A | 132 | G | C2-N3-C4 | -6.60 | 108.60 | 111.90 |
| 8 | A | 953 | G | N3-C4-C5 | 6.60 | 131.90 | 128.60 |
| 8 | A | 2640 | G | N3-C4-N9 | -6.60 | 122.04 | 126.00 |
| 8 | A | 2834 | G | N3-C4-C5 | 6.59 | 131.90 | 128.60 |
| 34 | a | 488 | C | C6-N1-C1' | -6.59 | 112.89 | 120.80 |
| 8 | A | 1238 | G | N3-C4-C5 | 6.59 | 131.90 | 128.60 |
| 8 | A | 2461 | A | C8-N9-C4 | 6.59 | 108.44 | 105.80 |
| 34 | a | 1185 | G | C8-N9-C4 | 6.59 | 109.04 | 106.40 |
| 8 | A | 178 | G | N3-C4-N9 | -6.58 | 122.05 | 126.00 |
| 8 | A | 346 | A | N1-C6-N6 | 6.58 | 122.55 | 118.60 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 1399 | C | N3-C4-C5 | 6.58 | 124.53 | 121.90 |
| 8 | A | 408 | G | C2-N3-C4 | -6.58 | 108.61 | 111.90 |
| 8 | A | 2010 | G | C2-N3-C4 | -6.58 | 108.61 | 111.90 |
| 8 | A | 2436 | G | N3-C4-C5 | 6.58 | 131.89 | 128.60 |
| 34 | a | 1241 | G | C8-N9-C4 | 6.58 | 109.03 | 106.40 |
| 8 | A | 359 | G | C8-N9-C1' | 6.58 | 135.56 | 127.00 |
| 8 | A | 856 | G | N3-C4-C5 | 6.58 | 131.89 | 128.60 |
| 8 | A | 1703 | G | N3-C4-C5 | 6.58 | 131.89 | 128.60 |
| 8 | A | 1398 | C | N3-C4-C5 | 6.58 | 124.53 | 121.90 |
| 8 | A | 494 | G | N3-C4-C5 | 6.57 | 131.89 | 128.60 |
| 8 | A | 1171 | G | N3-C4-N9 | -6.57 | 122.06 | 126.00 |
| 35 | b | 134 | LEU | CA-CB-CG | 6.57 | 130.42 | 115.30 |
| 8 | A | 1295 | C | C6-N1-C2 | 6.57 | 122.93 | 120.30 |
| 8 | A | 1469 | A | N9-C1'-C2' | -6.57 | 104.77 | 112.00 |
| 34 | a | 639 | G | N3-C4-C5 | 6.57 | 131.88 | 128.60 |
| 8 | A | 966 | G | N3-C4-C5 | 6.57 | 131.88 | 128.60 |
| 52 | s | 28 | LYS | CB-CG-CD | -6.57 | 94.52 | 111.60 |
| 8 | A | 2665 | A | N1-C6-N6 | 6.56 | 122.54 | 118.60 |
| 34 | a | 851 | G | C4-C5-N7 | 6.56 | 113.43 | 110.80 |
| 34 | a | 1361 | G | C2-N3-C4 | -6.56 | 108.62 | 111.90 |
| 34 | a | 1521 | C | C6-N1-C2 | 6.56 | 122.93 | 120.30 |
| 8 | A | 1120 | G | C2-N3-C4 | -6.56 | 108.62 | 111.90 |
| 8 | A | 1456 | G | N3-C4-N9 | -6.56 | 122.06 | 126.00 |
| 8 | A | 2363 | G | N3-C4-N9 | -6.56 | 122.06 | 126.00 |
| 34 | a | 1089 | G | N3-C4-N9 | -6.56 | 122.06 | 126.00 |
| 8 | A | 681 | G | C2-N3-C4 | -6.56 | 108.62 | 111.90 |
| 8 | A | 1123 | C | C6-N1-C2 | 6.56 | 122.92 | 120.30 |
| 8 | A | 1888 | G | N3-C4-C5 | 6.56 | 131.88 | 128.60 |
| 8 | A | 1984 | G | N3-C4-N9 | -6.56 | 122.07 | 126.00 |
| 34 | a | 348 | G | N3-C4-C5 | 6.56 | 131.88 | 128.60 |
| 34 | a | 752 | G | N3-C4-N9 | -6.56 | 122.07 | 126.00 |
| 8 | A | 1149 | G | C8-N9-C4 | 6.56 | 109.02 | 106.40 |
| 8 | A | 848 | C | N3-C4-C5 | 6.55 | 124.52 | 121.90 |
| 8 | A | 974 | G | C6-C5-N7 | -6.55 | 126.47 | 130.40 |
| 34 | a | 1108 | G | N1-C2-N2 | 6.55 | 122.10 | 116.20 |
| 34 | a | 1314 | C | C6-N1-C2 | 6.55 | 122.92 | 120.30 |
| 8 | A | 107 | G | N3-C4-C5 | 6.55 | 131.88 | 128.60 |
| 8 | A | 1149 | G | N3-C4-C5 | 6.55 | 131.88 | 128.60 |
| 8 | A | 424 | G | C8-N9-C4 | 6.54 | 109.02 | 106.40 |
| 8 | A | 475 | C | O4'-C1'-N1 | 6.54 | 113.43 | 108.20 |
| 8 | A | 498 | G | N3-C4-N9 | -6.54 | 122.07 | 126.00 |
| 8 | A | 2436 | G | C8-N9-C4 | 6.54 | 109.02 | 106.40 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 34 | a | 768 | A | C8-N9-C4 | 6.54 | 108.42 | 105.80 |
| 34 | a | 1081 | A | OP2-P-O3' | 6.54 | 119.59 | 105.20 |
| 34 | a | 682 | G | C4-N9-C1' | -6.54 | 118.00 | 126.50 |
| 8 | A | 319 | G | C2-N3-C4 | -6.54 | 108.63 | 111.90 |
| 8 | A | 1075 | C | C6-N1-C2 | 6.54 | 122.92 | 120.30 |
| 8 | A | 1663 | G | N3-C4-C5 | 6.54 | 131.87 | 128.60 |
| 8 | A | 549 | G | C2-N3-C4 | -6.54 | 108.63 | 111.90 |
| 8 | A | 118 | A | C8-N9-C4 | 6.54 | 108.42 | 105.80 |
| 8 | A | 189 | G | N3-C4-C5 | 6.54 | 131.87 | 128.60 |
| 8 | A | 2812 | G | N3-C4-C5 | 6.54 | 131.87 | 128.60 |
| 8 | A | 1367 | A | N9-C4-C5 | -6.53 | 103.19 | 105.80 |
| 34 | a | 1057 | G | C2-N3-C4 | -6.53 | 108.63 | 111.90 |
| 34 | a | 204 | G | N9-C1'-C2' | -6.53 | 104.81 | 112.00 |
| 8 | A | 899 | A | N9-C4-C5 | -6.53 | 103.19 | 105.80 |
| 8 | A | 1810 | A | C6-C5-N7 | -6.53 | 127.73 | 132.30 |
| 8 | A | 2411 | A | C5-C6-N6 | -6.53 | 118.47 | 123.70 |
| 55 | v | 12 | G | C4-N9-C1' | -6.53 | 118.01 | 126.50 |
| 8 | A | 1139 | G | C4-C5-C6 | -6.53 | 114.88 | 118.80 |
| 8 | A | 2652 | C | N3-C4-C5 | 6.53 | 124.51 | 121.90 |
| 8 | A | 1 | G | C2-N3-C4 | -6.53 | 108.64 | 111.90 |
| 8 | A | 268 | C | N3-C4-C5 | 6.53 | 124.51 | 121.90 |
| 8 | A | 340 | A | N9-C4-C5 | -6.53 | 103.19 | 105.80 |
| 34 | a | 882 | C | C6-N1-C2 | 6.53 | 122.91 | 120.30 |
| 8 | A | 917 | A | C5-C6-N6 | -6.52 | 118.48 | 123.70 |
| 8 | A | 1858 | A | C8-N9-C4 | 6.52 | 108.41 | 105.80 |
| 8 | A | 2073 | C | N3-C4-C5 | 6.52 | 124.51 | 121.90 |
| 8 | A | 409 | G | C2-N3-C4 | -6.52 | 108.64 | 111.90 |
| 34 | a | 445 | G | C4-N9-C1' | -6.52 | 118.02 | 126.50 |
| 8 | A | 2665 | A | C5-C6-N6 | -6.52 | 118.48 | 123.70 |
| 8 | A | 549 | G | C8-N9-C4 | 6.52 | 109.01 | 106.40 |
| 8 | A | 2153 | C | N1-C2-O2 | -6.52 | 114.99 | 118.90 |
| 34 | a | 798 | U | C6-N1-C2 | 6.52 | 124.91 | 121.00 |
| 34 | a | 1111 | A | C8-N9-C4 | 6.52 | 108.41 | 105.80 |
| 8 | A | 370 | G | O4'-C1'-N9 | -6.51 | 102.99 | 108.20 |
| 34 | a | 1244 | G | C2-N3-C4 | -6.51 | 108.64 | 111.90 |
| 8 | A | 695 | G | C2-N3-C4 | -6.51 | 108.64 | 111.90 |
| 9 | B | 13 | G | N3-C4-C5 | 6.51 | 131.86 | 128.60 |
| 8 | A | 997 | G | C2-N3-C4 | -6.51 | 108.64 | 111.90 |
| 8 | A | 1960 | A | C4-C5-N7 | 6.51 | 113.95 | 110.70 |
| 8 | A | 2253 | G | N3-C4-C5 | 6.51 | 131.85 | 128.60 |
| 34 | a | 1134 | G | C8-N9-C1' | 6.51 | 135.46 | 127.00 |
| 8 | A | 85 | G | C2-N3-C4 | -6.51 | 108.65 | 111.90 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 721 | A | C8-N9-C4 | 6.51 | 108.40 | 105.80 |
| 8 | A | 1465 | G | N3-C4-N9 | -6.51 | 122.10 | 126.00 |
| 8 | A | 2802 | G | C2-N3-C4 | -6.51 | 108.65 | 111.90 |
| 34 | a | 606 | G | N3-C4-N9 | -6.51 | 122.10 | 126.00 |
| 34 | a | 1075 | U | O4'-C1'-N1 | -6.51 | 102.99 | 108.20 |
| 34 | a | 784 | A | N9-C4-C5 | -6.50 | 103.20 | 105.80 |
| 8 | A | 86 | G | C8-N9-C4 | 6.50 | 109.00 | 106.40 |
| 8 | A | 1919 | A | O4'-C1'-N9 | -6.50 | 103.00 | 108.20 |
| 8 | A | 2659 | G | C4-N9-C1' | -6.50 | 118.05 | 126.50 |
| 34 | a | 449 | G | C2-N3-C4 | -6.50 | 108.65 | 111.90 |
| 8 | A | 1165 | A | C4-C5-C6 | -6.50 | 113.75 | 117.00 |
| 8 | A | 1436 | G | C2-N3-C4 | -6.50 | 108.65 | 111.90 |
| 8 | A | 1867 | G | C2-N3-C4 | -6.50 | 108.65 | 111.90 |
| 8 | A | 551 | G | N3-C4-N9 | -6.50 | 122.10 | 126.00 |
| 34 | a | 767 | A | C8-N9-C4 | 6.50 | 108.40 | 105.80 |
| 34 | a | 758 | C | C6-N1-C2 | 6.50 | 122.90 | 120.30 |
| 8 | A | 1873 | G | N3-C4-N9 | -6.49 | 122.10 | 126.00 |
| 9 | B | 107 | G | N3-C4-C5 | 6.49 | 131.85 | 128.60 |
| 34 | a | 190 | A | C5-C6-N6 | -6.49 | 118.51 | 123.70 |
| 34 | a | 1501 | C | N3-C4-C5 | 6.49 | 124.50 | 121.90 |
| 8 | A | 1306 | C | C6-N1-C2 | 6.49 | 122.90 | 120.30 |
| 8 | A | 1424 | G | C2-N3-C4 | -6.49 | 108.66 | 111.90 |
| 8 | A | 1686 | C | N3-C4-N4 | -6.49 | 113.46 | 118.00 |
| 8 | A | 1334 | G | C2-N3-C4 | -6.49 | 108.66 | 111.90 |
| 8 | A | 2882 | A | C8-N9-C4 | 6.49 | 108.40 | 105.80 |
| 8 | A | 833 | A | C8-N9-C4 | 6.49 | 108.39 | 105.80 |
| 8 | A | 1844 | C | C6-N1-C2 | 6.49 | 122.89 | 120.30 |
| 8 | A | 1511 | G | N3-C4-C5 | 6.48 | 131.84 | 128.60 |
| 8 | A | 261 | G | N3-C4-N9 | -6.48 | 122.11 | 126.00 |
| 8 | A | 2230 | G | N3-C4-C5 | 6.48 | 131.84 | 128.60 |
| 8 | A | 2661 | G | N3-C4-C5 | 6.48 | 131.84 | 128.60 |
| 34 | a | 391 | G | N3-C4-C5 | 6.48 | 131.84 | 128.60 |
| 8 | A | 52 | A | N9-C4-C5 | -6.48 | 103.21 | 105.80 |
| 8 | A | 1311 | G | N3-C4-N9 | -6.48 | 122.11 | 126.00 |
| 34 | a | 1141 | C | C6-N1-C2 | -6.48 | 117.71 | 120.30 |
| 8 | A | 1557 | C | C6-N1-C2 | 6.48 | 122.89 | 120.30 |
| 34 | a | 846 | G | N9-C4-C5 | -6.48 | 102.81 | 105.40 |
| 8 | A | 9 | G | N3-C4-N9 | -6.48 | 122.11 | 126.00 |
| 8 | A | 1011 | G | N3-C4-C5 | 6.48 | 131.84 | 128.60 |
| 8 | A | 1479 | G | N3-C4-N9 | -6.48 | 122.11 | 126.00 |
| 8 | A | 1448 | G | N3-C4-C5 | 6.47 | 131.84 | 128.60 |
| 8 | A | 2126 | A | O4'-C1'-N9 | -6.47 | 103.02 | 108.20 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 522 | A | O4'-C1'-N9 | -6.47 | 103.02 | 108.20 |
| 8 | A | 1544 | A | C5-C6-N6 | -6.47 | 118.53 | 123.70 |
| 8 | A | 2008 | C | N3-C4-C5 | 6.47 | 124.49 | 121.90 |
| 8 | A | 697 | G | N3-C4-C5 | 6.47 | 131.83 | 128.60 |
| 8 | A | 2716 | C | N3-C4-C5 | 6.47 | 124.49 | 121.90 |
| 8 | A | 14 | A | N9-C4-C5 | -6.47 | 103.21 | 105.80 |
| 8 | A | 179 | C | C6-N1-C2 | 6.47 | 122.89 | 120.30 |
| 8 | A | 260 | G | N3-C4-N9 | -6.47 | 122.12 | 126.00 |
| 8 | A | 1279 | G | C8-N9-C4 | 6.47 | 108.99 | 106.40 |
| 8 | A | 2083 | G | N3-C2-N2 | 6.47 | 124.43 | 119.90 |
| 8 | A | 450 | G | N3-C4-C5 | 6.46 | 131.83 | 128.60 |
| 8 | A | 1973 | G | C2-N3-C4 | -6.46 | 108.67 | 111.90 |
| 8 | A | 2281 | A | N9-C4-C5 | -6.46 | 103.21 | 105.80 |
| 9 | B | 52 | A | C5-C6-N6 | -6.46 | 118.53 | 123.70 |
| 34 | a | 1419 | G | C8-N9-C1' | -6.46 | 118.60 | 127.00 |
| 8 | A | 319 | G | N3-C4-N9 | -6.46 | 122.12 | 126.00 |
| 8 | A | 871 | U | C6-N1-C2 | 6.46 | 124.88 | 121.00 |
| 8 | A | 2414 | G | C6-C5-N7 | 6.46 | 134.28 | 130.40 |
| 8 | A | 2842 | G | N3-C4-C5 | 6.46 | 131.83 | 128.60 |
| 34 | a | 337 | G | N3-C4-C5 | 6.46 | 131.83 | 128.60 |
| 34 | a | 1198 | G | N3-C4-C5 | 6.46 | 131.83 | 128.60 |
| 8 | A | 1448 | G | N3-C4-N9 | -6.46 | 122.12 | 126.00 |
| 34 | a | 227 | G | C2-N3-C4 | -6.46 | 108.67 | 111.90 |
| 34 | a | 191 | G | C2-N3-C4 | -6.46 | 108.67 | 111.90 |
| 8 | A | 1930 | G | N3-C4-C5 | 6.46 | 131.83 | 128.60 |
| 8 | A | 2643 | G | C2-N3-C4 | -6.46 | 108.67 | 111.90 |
| 8 | A | 2867 | G | C8-N9-C1' | 6.46 | 135.39 | 127.00 |
| 34 | a | 774 | G | N3-C4-N9 | -6.46 | 122.13 | 126.00 |
| 34 | a | 1134 | G | C5-C6-O6 | 6.46 | 132.47 | 128.60 |
| 8 | A | 1348 | C | O4'-C1'-N1 | -6.45 | 103.04 | 108.20 |
| 34 | a | 602 | A | C4-C5-N7 | 6.45 | 113.93 | 110.70 |
| 8 | A | 294 | A | O4'-C1'-N9 | -6.45 | 103.04 | 108.20 |
| 8 | A | 507 | A | C8-N9-C4 | 6.45 | 108.38 | 105.80 |
| 8 | A | 1740 | G | C2-N3-C4 | -6.45 | 108.67 | 111.90 |
| 9 | B | 52 | A | N1-C6-N6 | 6.45 | 122.47 | 118.60 |
| 8 | A | 570 | G | N3-C2-N2 | 6.45 | 124.41 | 119.90 |
| 10 | C | 17 | LYS | CA-CB-CG | 6.45 | 127.59 | 113.40 |
| 8 | A | 1933 | G | N3-C4-N9 | -6.45 | 122.13 | 126.00 |
| 8 | A | 1969 | A | C5-C6-N6 | -6.45 | 118.54 | 123.70 |
| 8 | A | 2619 | C | N3-C4-N4 | -6.45 | 113.49 | 118.00 |
| 8 | A | 2688 | G | N3-C4-C5 | 6.45 | 131.82 | 128.60 |
| 34 | a | 722 | G | N3-C4-C5 | 6.45 | 131.82 | 128.60 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 34 | a | 259 | G | N3-C4-N9 | -6.44 | 122.13 | 126.00 |
| 34 | a | 912 | C | N1-C2-O2 | 6.44 | 122.77 | 118.90 |
| 8 | A | 2234 | G | N3-C4-C5 | 6.44 | 131.82 | 128.60 |
| 8 | A | 44 | A | C8-N9-C4 | 6.44 | 108.38 | 105.80 |
| 9 | B | 93 | C | C6-N1-C1' | -6.44 | 113.07 | 120.80 |
| 8 | A | 406 | G | C2-N3-C4 | -6.44 | 108.68 | 111.90 |
| 8 | A | 543 | G | N3-C4-C5 | 6.44 | 131.82 | 128.60 |
| 8 | A | 452 | G | C2-N3-C4 | -6.44 | 108.68 | 111.90 |
| 34 | a | 442 | G | C4-C5-N7 | 6.43 | 113.37 | 110.80 |
| 34 | a | 1289 | A | C4-C5-N7 | 6.43 | 113.92 | 110.70 |
| 8 | A | 1041 | G | C8-N9-C4 | 6.43 | 108.97 | 106.40 |
| 8 | A | 2168 | G | O4'-C1'-N9 | -6.43 | 103.06 | 108.20 |
| 34 | a | 55 | A | N1-C6-N6 | 6.43 | 122.46 | 118.60 |
| 34 | a | 1039 | G | N3-C4-C5 | 6.42 | 131.81 | 128.60 |
| 8 | A | 2217 | G | C2-N3-C4 | -6.42 | 108.69 | 111.90 |
| 36 | c | 126 | ARG | NE-CZ-NH2 | -6.42 | 117.09 | 120.30 |
| 8 | A | 2082 | A | N1-C6-N6 | 6.42 | 122.45 | 118.60 |
| 8 | A | 2863 | C | N1-C2-O2 | 6.42 | 122.75 | 118.90 |
| 9 | B | 108 | A | N9-C4-C5 | -6.42 | 103.23 | 105.80 |
| 34 | a | 371 | A | N9-C4-C5 | -6.42 | 103.23 | 105.80 |
| 34 | a | 1133 | G | C8-N9-C4 | 6.42 | 108.97 | 106.40 |
| 8 | A | 2430 | A | O4'-C1'-N9 | 6.42 | 113.33 | 108.20 |
| 34 | a | 774 | G | N3-C4-C5 | 6.42 | 131.81 | 128.60 |
| 8 | A | 819 | A | N9-C4-C5 | -6.41 | 103.23 | 105.80 |
| 34 | a | 654 | G | C2-N3-C4 | -6.41 | 108.69 | 111.90 |
| 8 | A | 77 | G | C2-N3-C4 | -6.41 | 108.69 | 111.90 |
| 34 | a | 378 | G | N3-C4-C5 | 6.41 | 131.81 | 128.60 |
| 8 | A | 38 | A | C4-C5-C6 | -6.41 | 113.80 | 117.00 |
| 9 | B | 119 | A | N3-C4-C5 | 6.41 | 131.29 | 126.80 |
| 8 | A | 708 | G | C8-N9-C4 | 6.41 | 108.96 | 106.40 |
| 8 | A | 1274 | A | C8-N9-C4 | 6.41 | 108.36 | 105.80 |
| 8 | A | 2002 | G | N3-C4-C5 | 6.41 | 131.81 | 128.60 |
| 8 | A | 2174 | C | C2-N1-C1' | -6.41 | 111.75 | 118.80 |
| 34 | a | 841 | C | C6-N1-C2 | 6.41 | 122.86 | 120.30 |
| 9 | B | 70 | C | C6-N1-C2 | 6.41 | 122.86 | 120.30 |
| 8 | A | 1783 | A | C5-C6-N6 | -6.41 | 118.58 | 123.70 |
| 23 | P | 99 | LEU | CA-CB-CG | -6.41 | 100.56 | 115.30 |
| 34 | a | 282 | A | N1-C6-N6 | 6.41 | 122.44 | 118.60 |
| 34 | a | 808 | C | C6-N1-C2 | 6.41 | 122.86 | 120.30 |
| 34 | a | 1500 | A | C5-C6-N6 | 6.41 | 128.82 | 123.70 |
| 34 | a | 831 | A | C8-N9-C4 | 6.40 | 108.36 | 105.80 |
| 8 | A | 2127 | G | O4'-C1'-N9 | -6.40 | 103.08 | 108.20 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34 | a | 346 | G | C5-C6-O6 | -6.40 | 124.76 | 128.60 |
| 34 | a | 921 | U | P-O5'-C5' | 6.40 | 131.14 | 120.90 |
| 8 | A | 476 | G | N3-C4-C5 | 6.40 | 131.80 | 128.60 |
| 8 | A | 2612 | C | C6-N1-C2 | 6.40 | 122.86 | 120.30 |
| 8 | A | 2411 | A | C8-N9-C4 | 6.40 | 108.36 | 105.80 |
| 8 | A | 457 | A | C8-N9-C4 | 6.40 | 108.36 | 105.80 |
| 34 | a | 656 | G | N3-C4-C5 | 6.40 | 131.80 | 128.60 |
| 8 | A | 748 | G | N3-C4-C5 | 6.39 | 131.80 | 128.60 |
| 8 | A | 1277 | G | C2-N3-C4 | -6.39 | 108.70 | 111.90 |
| 8 | A | 1726 | C | C6-N1-C2 | 6.39 | 122.86 | 120.30 |
| 34 | a | 987 | G | C4-N9-C1' | -6.39 | 118.19 | 126.50 |
| 8 | A | 1158 | C | N3-C4-C5 | 6.39 | 124.46 | 121.90 |
| 8 | A | 2652 | C | C6-N1-C2 | 6.39 | 122.86 | 120.30 |
| 34 | a | 604 | G | C4-N9-C1' | -6.39 | 118.19 | 126.50 |
| 8 | A | 2134 | A | C5'-C4'-C3' | -6.39 | 105.78 | 116.00 |
| 9 | B | 10 | G | N3-C4-C5 | 6.39 | 131.79 | 128.60 |
| 8 | A | 132 | G | N3-C4-C5 | 6.39 | 131.79 | 128.60 |
| 8 | A | 496 | G | N3-C4-C5 | 6.39 | 131.79 | 128.60 |
| 8 | A | 1674 | G | N3-C4-N9 | -6.39 | 122.17 | 126.00 |
| 8 | A | 2467 | C | C6-N1-C2 | 6.39 | 122.86 | 120.30 |
| 8 | A | 875 | G | C2-N3-C4 | -6.38 | 108.71 | 111.90 |
| 34 | a | 522 | C | N3-C4-C5 | 6.38 | 124.45 | 121.90 |
| 34 | a | 1134 | G | C4-N9-C1' | -6.38 | 118.20 | 126.50 |
| 34 | a | 346 | G | C6-C5-N7 | -6.38 | 126.57 | 130.40 |
| 8 | A | 141 | G | N3-C4-C5 | 6.38 | 131.79 | 128.60 |
| 8 | A | 1667 | G | N3-C4-C5 | 6.38 | 131.79 | 128.60 |
| 8 | A | 1369 | G | N3-C4-C5 | 6.38 | 131.79 | 128.60 |
| 9 | B | 10 | G | C2-N3-C4 | -6.38 | 108.71 | 111.90 |
| 34 | a | 1162 | C | C6-N1-C2 | 6.38 | 122.85 | 120.30 |
| 8 | A | 469 | G | N1-C2-N2 | -6.38 | 110.46 | 116.20 |
| 8 | A | 1029 | A | N1-C6-N6 | 6.38 | 122.43 | 118.60 |
| 8 | A | 2864 | G | N9-C4-C5 | -6.38 | 102.85 | 105.40 |
| 34 | a | 830 | G | N3-C4-N9 | -6.38 | 122.17 | 126.00 |
| 8 | A | 1542 | U | C6-N1-C2 | 6.37 | 124.82 | 121.00 |
| 8 | A | 2862 | G | N3-C4-C5 | 6.37 | 131.79 | 128.60 |
| 8 | A | 618 | G | C2-N3-C4 | -6.37 | 108.72 | 111.90 |
| 34 | a | 1329 | A | C4-C5-C6 | -6.37 | 113.81 | 117.00 |
| 8 | A | 1295 | C | N3-C4-C5 | 6.37 | 124.45 | 121.90 |
| 8 | A | 2 | G | C8-N9-C4 | 6.37 | 108.95 | 106.40 |
| 8 | A | 748 | G | C4-N9-C1' | -6.37 | 118.22 | 126.50 |
| 8 | A | 1099 | G | N3-C4-N9 | -6.37 | 122.18 | 126.00 |
| 34 | a | 339 | C | N3-C4-N4 | -6.37 | 113.54 | 118.00 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 1041 | G | C4-N9-C1' | -6.37 | 118.22 | 126.50 |
| 8 | A | 1389 | G | N3-C4-C5 | 6.37 | 131.78 | 128.60 |
| 9 | B | 85 | G | C8-N9-C4 | 6.37 | 108.95 | 106.40 |
| 8 | A | 245 | G | N3-C4-C5 | 6.37 | 131.78 | 128.60 |
| 8 | A | 1643 | G | N3-C4-C5 | 6.37 | 131.78 | 128.60 |
| 8 | A | 2133 | G | N3-C4-N9 | -6.37 | 122.18 | 126.00 |
| 8 | A | 786 | C | C6-N1-C2 | 6.36 | 122.85 | 120.30 |
| 8 | A | 2140 | G | N3-C4-N9 | -6.36 | 122.18 | 126.00 |
| 34 | a | 540 | G | N3-C4-N9 | -6.36 | 122.18 | 126.00 |
| 8 | A | 794 | A | C5-C6-N1 | 6.36 | 120.88 | 117.70 |
| 8 | A | 962 | G | C2-N3-C4 | -6.36 | 108.72 | 111.90 |
| 8 | A | 1684 | G | C8-N9-C4 | 6.36 | 108.94 | 106.40 |
| 8 | A | 1735 | A | C5-N7-C8 | -6.36 | 100.72 | 103.90 |
| 8 | A | 2005 | A | C8-N9-C4 | 6.36 | 108.34 | 105.80 |
| 8 | A | 2536 | G | C2-N3-C4 | -6.36 | 108.72 | 111.90 |
| 9 | B | 59 | A | C8-N9-C4 | 6.36 | 108.34 | 105.80 |
| 34 | a | 371 | A | C8-N9-C4 | 6.36 | 108.34 | 105.80 |
| 8 | A | 1028 | A | C4-C5-N7 | 6.36 | 113.88 | 110.70 |
| 8 | A | 2295 | C | N1-C2-O2 | 6.36 | 122.72 | 118.90 |
| 8 | A | 682 | G | C2-N3-C4 | -6.36 | 108.72 | 111.90 |
| 8 | A | 1371 | G | C2-N3-C4 | -6.36 | 108.72 | 111.90 |
| 8 | A | 88 | G | C8-N9-C4 | 6.35 | 108.94 | 106.40 |
| 8 | A | 1116 | G | N3-C4-C5 | 6.35 | 131.78 | 128.60 |
| 34 | a | 243 | A | C2-N3-C4 | -6.35 | 107.42 | 110.60 |
| 34 | a | 446 | G | N3-C4-N9 | -6.35 | 122.19 | 126.00 |
| 34 | a | 1104 | G | C2-N3-C4 | -6.35 | 108.72 | 111.90 |
| 8 | A | 2512 | C | C5-C4-N4 | 6.35 | 124.65 | 120.20 |
| 34 | a | 215 | C | C6-N1-C2 | 6.35 | 122.84 | 120.30 |
| 8 | A | 1530 | G | N3-C4-N9 | -6.35 | 122.19 | 126.00 |
| 34 | a | 812 | G | N3-C4-N9 | -6.35 | 122.19 | 126.00 |
| 8 | A | 693 | A | N9-C4-C5 | -6.35 | 103.26 | 105.80 |
| 34 | a | 722 | G | N3-C4-N9 | -6.35 | 122.19 | 126.00 |
| 8 | A | 1281 | G | N3-C4-N9 | -6.35 | 122.19 | 126.00 |
| 8 | A | 881 | G | N1-C6-O6 | 6.34 | 123.71 | 119.90 |
| 34 | a | 151 | A | C4-C5-N7 | 6.34 | 113.87 | 110.70 |
| 8 | A | 180 | G | C8-N9-C1' | 6.34 | 135.24 | 127.00 |
| 8 | A | 598 | U | C6-N1-C2 | 6.34 | 124.80 | 121.00 |
| 8 | A | 2406 | A | O4'-C1'-N9 | -6.34 | 103.13 | 108.20 |
| 34 | a | 1071 | C | C6-N1-C2 | 6.34 | 122.84 | 120.30 |
| 8 | A | 1863 | G | C2-N3-C4 | -6.34 | 108.73 | 111.90 |
| 8 | A | 2657 | A | N9-C4-C5 | -6.33 | 103.27 | 105.80 |
| 8 | A | 2474 | U | C2-N1-C1' | 6.33 | 125.30 | 117.70 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34 | a | 98 | A | C8-N9-C4 | 6.33 | 108.33 | 105.80 |
| 34 | a | 165 | G | C2-N3-C4 | -6.33 | 108.73 | 111.90 |
| 8 | A | 1112 | G | N3-C4-N9 | -6.33 | 122.20 | 126.00 |
| 8 | A | 2154 | A | N9-C4-C5 | -6.33 | 103.27 | 105.80 |
| 34 | a | 1164 | G | N3-C4-C5 | 6.33 | 131.76 | 128.60 |
| 34 | a | 1221 | G | N3-C4-N9 | -6.33 | 122.20 | 126.00 |
| 8 | A | 2543 | G | C2-N3-C4 | -6.33 | 108.74 | 111.90 |
| 34 | a | 42 | G | N3-C4-N9 | -6.33 | 122.20 | 126.00 |
| 34 | a | 146 | G | C2-N3-C4 | -6.33 | 108.74 | 111.90 |
| 8 | A | 20 | C | N3-C4-N4 | -6.32 | 113.57 | 118.00 |
| 8 | A | 122 | G | C2-N3-C4 | -6.32 | 108.74 | 111.90 |
| 8 | A | 655 | A | C8-N9-C4 | 6.32 | 108.33 | 105.80 |
| 8 | A | 1858 | A | N9-C4-C5 | -6.32 | 103.27 | 105.80 |
| 8 | A | 2485 | G | N3-C4-N9 | -6.32 | 122.20 | 126.00 |
| 8 | A | 2644 | G | N3-C4-C5 | 6.32 | 131.76 | 128.60 |
| 56 | w | 45 | U | C4'-C3'-O3' | 6.32 | 125.64 | 113.00 |
| 8 | A | 1631 | G | C8-N9-C4 | 6.32 | 108.93 | 106.40 |
| 9 | B | 108 | A | N1-C6-N6 | 6.32 | 122.39 | 118.60 |
| 8 | A | 2 | G | C2-N3-C4 | -6.32 | 108.74 | 111.90 |
| 8 | A | 1311 | G | O4'-C1'-N9 | -6.32 | 103.14 | 108.20 |
| 8 | A | 1358 | G | C2-N3-C4 | -6.32 | 108.74 | 111.90 |
| 34 | a | 521 | G | N3-C4-N9 | -6.32 | 122.21 | 126.00 |
| 34 | a | 748 | G | N3-C4-N9 | -6.32 | 122.21 | 126.00 |
| 8 | A | 1895 | C | C6-N1-C2 | 6.32 | 122.83 | 120.30 |
| 8 | A | 406 | G | N3-C4-N9 | -6.32 | 122.21 | 126.00 |
| 8 | A | 1036 | G | N3-C4-C5 | 6.32 | 131.76 | 128.60 |
| 34 | a | 369 | G | N3-C4-C5 | 6.32 | 131.76 | 128.60 |
| 34 | a | 1259 | C | C6-N1-C2 | 6.32 | 122.83 | 120.30 |
| 34 | a | 1457 | G | N3-C4-C5 | 6.32 | 131.76 | 128.60 |
| 8 | A | 869 | G | C2-N3-C4 | -6.32 | 108.74 | 111.90 |
| 8 | A | 1313 | U | C2-N1-C1' | 6.32 | 125.28 | 117.70 |
| 8 | A | 378 | C | N3-C4-N4 | -6.31 | 113.58 | 118.00 |
| 8 | A | 2190 | G | C4-C5-N7 | 6.31 | 113.33 | 110.80 |
| 8 | A | 2629 | U | O4'-C1'-N1 | 6.31 | 113.25 | 108.20 |
| 8 | A | 1519 | G | C2-N3-C4 | -6.31 | 108.74 | 111.90 |
| 8 | A | 1805 | A | C8-N9-C4 | 6.31 | 108.33 | 105.80 |
| 8 | A | 2221 | G | C2-N3-C4 | -6.31 | 108.74 | 111.90 |
| 34 | a | 247 | G | C2-N3-C4 | -6.31 | 108.74 | 111.90 |
| 34 | a | 1230 | C | N1-C2-O2 | 6.31 | 122.69 | 118.90 |
| 34 | a | 255 | G | N3-C4-N9 | -6.31 | 122.21 | 126.00 |
| 8 | A | 1389 | G | C8-N9-C4 | 6.31 | 108.92 | 106.40 |
| 8 | A | 1810 | A | N9-C4-C5 | -6.31 | 103.28 | 105.80 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 2714 | G | N1-C2-N2 | -6.31 | 110.52 | 116.20 |
| 34 | a | 839 | C | N3-C4-C5 | 6.31 | 124.42 | 121.90 |
| 34 | a | 821 | G | C8-N9-C4 | 6.31 | 108.92 | 106.40 |
| 8 | A | 2501 | C | N3-C4-C5 | 6.30 | 124.42 | 121.90 |
| 9 | B | 15 | A | N1-C6-N6 | -6.30 | 114.82 | 118.60 |
| 34 | a | 202 | G | C8-N9-C4 | 6.30 | 108.92 | 106.40 |
| 34 | a | 1155 | A | N3-C4-C5 | 6.30 | 131.21 | 126.80 |
| 8 | A | 882 | G | C2-N3-C4 | -6.29 | 108.75 | 111.90 |
| 8 | A | 1170 | C | C2-N1-C1' | 6.29 | 125.72 | 118.80 |
| 55 | v | 43 | A | C8-N9-C4 | 6.29 | 108.32 | 105.80 |
| 8 | A | 2810 | A | N1-C6-N6 | 6.29 | 122.38 | 118.60 |
| 34 | a | 187 | G | N3-C4-N9 | -6.29 | 122.22 | 126.00 |
| 34 | a | 1312 | G | N9-C4-C5 | -6.29 | 102.88 | 105.40 |
| 8 | A | 763 | G | N3-C4-N9 | -6.29 | 122.23 | 126.00 |
| 8 | A | 1846 | G | C2-N3-C4 | -6.29 | 108.75 | 111.90 |
| 8 | A | 2077 | A | C4-C5-N7 | 6.29 | 113.84 | 110.70 |
| 8 | A | 2839 | G | C8-N9-C4 | 6.29 | 108.92 | 106.40 |
| 8 | A | 2004 | G | C2-N3-C4 | -6.29 | 108.76 | 111.90 |
| 34 | a | 326 | G | N3-C4-N9 | -6.29 | 122.23 | 126.00 |
| 8 | A | 1740 | G | N3-C4-C5 | 6.29 | 131.74 | 128.60 |
| 8 | A | 1765 | U | C6-N1-C2 | 6.29 | 124.77 | 121.00 |
| 9 | B | 100 | G | N3-C4-C5 | 6.29 | 131.74 | 128.60 |
| 34 | a | 1134 | G | N9-C4-C5 | 6.29 | 107.91 | 105.40 |
| 9 | B | 119 | A | N9-C4-C5 | -6.28 | 103.29 | 105.80 |
| 8 | A | 361 | G | C5-C6-O6 | -6.28 | 124.83 | 128.60 |
| 34 | a | 886 | G | C8-N9-C4 | 6.28 | 108.91 | 106.40 |
| 8 | A | 1572 | A | C5-C6-N6 | -6.28 | 118.68 | 123.70 |
| 34 | a | 1043 | G | C4-N9-C1' | -6.28 | 118.34 | 126.50 |
| 8 | A | 1600 | C | C6-N1-C2 | 6.28 | 122.81 | 120.30 |
| 34 | a | 97 | G | N3-C4-N9 | -6.28 | 122.23 | 126.00 |
| 34 | a | 675 | A | C5-N7-C8 | -6.28 | 100.76 | 103.90 |
| 8 | A | 1863 | G | C8-N9-C4 | 6.28 | 108.91 | 106.40 |
| 8 | A | 262 | A | C8-N9-C4 | 6.27 | 108.31 | 105.80 |
| 8 | A | 1885 | A | C8-N9-C4 | 6.27 | 108.31 | 105.80 |
| 8 | A | 2489 | U | O4'-C1'-N1 | -6.27 | 103.19 | 108.20 |
| 34 | a | 451 | A | C8-N9-C4 | 6.27 | 108.31 | 105.80 |
| 8 | A | 22 | C | C6-N1-C2 | 6.27 | 122.81 | 120.30 |
| 8 | A | 253 | C | C6-N1-C2 | 6.27 | 122.81 | 120.30 |
| 8 | A | 570 | G | C8-N9-C1' | -6.27 | 118.85 | 127.00 |
| 8 | A | 2505 | G | C8-N9-C1' | -6.27 | 118.85 | 127.00 |
| 34 | a | 442 | G | N1-C2-N2 | -6.27 | 110.56 | 116.20 |
| 34 | a | 1294 | G | N9-C4-C5 | -6.27 | 102.89 | 105.40 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 56 | w | 53 | G | C2-N3-C4 | -6.27 | 108.77 | 111.90 |
| 8 | A | 764 | A | N1-C6-N6 | -6.26 | 114.84 | 118.60 |
| 8 | A | 936 | A | C4-C5-N7 | 6.26 | 113.83 | 110.70 |
| 8 | A | 96 | C | C6-N1-C2 | 6.26 | 122.81 | 120.30 |
| 8 | A | 2840 | C | N3-C4-C5 | 6.26 | 124.41 | 121.90 |
| 34 | a | 847 | G | N3-C4-C5 | 6.26 | 131.73 | 128.60 |
| 8 | A | 204 | A | N1-C6-N6 | 6.26 | 122.36 | 118.60 |
| 34 | a | 167 | A | N9-C4-C5 | -6.26 | 103.30 | 105.80 |
| 34 | a | 260 | G | N3-C4-N9 | -6.26 | 122.24 | 126.00 |
| 8 | A | 1473 | G | N3-C4-C5 | 6.26 | 131.73 | 128.60 |
| 34 | a | 623 | C | N3-C4-C5 | 6.26 | 124.40 | 121.90 |
| 8 | A | 2091 | C | N3-C4-N4 | -6.26 | 113.62 | 118.00 |
| 8 | A | 98 | G | N3-C4-N9 | -6.26 | 122.25 | 126.00 |
| 8 | A | 1092 | C | N3-C4-C5 | 6.26 | 124.40 | 121.90 |
| 8 | A | 2857 | G | C4-N9-C1' | -6.26 | 118.37 | 126.50 |
| 9 | B | 44 | G | N3-C4-C5 | 6.26 | 131.73 | 128.60 |
| 9 | B | 42 | C | C6-N1-C2 | 6.25 | 122.80 | 120.30 |
| 8 | A | 923 | G | C8-N9-C4 | 6.25 | 108.90 | 106.40 |
| 8 | A | 1036 | G | C2-N3-C4 | -6.25 | 108.77 | 111.90 |
| 8 | A | 1459 | G | N3-C4-C5 | 6.25 | 131.73 | 128.60 |
| 8 | A | 2430 | A | C4-C5-N7 | 6.25 | 113.83 | 110.70 |
| 34 | a | 450 | G | N3-C4-N9 | -6.25 | 122.25 | 126.00 |
| 34 | a | 685 | G | N3-C4-C5 | 6.25 | 131.73 | 128.60 |
| 8 | A | 1323 | C | N3-C4-C5 | 6.25 | 124.40 | 121.90 |
| 8 | A | 1867 | G | C8-N9-C4 | 6.25 | 108.90 | 106.40 |
| 8 | A | 570 | G | C6-C5-N7 | -6.25 | 126.65 | 130.40 |
| 34 | a | 500 | G | N3-C4-C5 | 6.25 | 131.72 | 128.60 |
| 8 | A | 2516 | A | C5-N7-C8 | -6.25 | 100.78 | 103.90 |
| 8 | A | 302 | C | C6-N1-C2 | 6.24 | 122.80 | 120.30 |
| 8 | A | 1086 | A | N7-C8-N9 | 6.24 | 116.92 | 113.80 |
| 8 | A | 1410 | G | N3-C4-C5 | 6.24 | 131.72 | 128.60 |
| 8 | A | 2082 | A | C8-N9-C4 | 6.24 | 108.30 | 105.80 |
| 34 | a | 695 | A | N9-C1'-C2' | -6.24 | 105.14 | 112.00 |
| 34 | a | 1329 | A | C8-N9-C4 | 6.24 | 108.30 | 105.80 |
| 9 | B | 99 | A | N1-C6-N6 | 6.24 | 122.34 | 118.60 |
| 34 | a | 1134 | G | C6-C5-N7 | 6.24 | 134.14 | 130.40 |
| 34 | a | 1371 | G | C2-N3-C4 | -6.24 | 108.78 | 111.90 |
| 8 | A | 696 | G | N3-C4-N9 | -6.24 | 122.26 | 126.00 |
| 8 | A | 2308 | G | N3-C4-C5 | 6.24 | 131.72 | 128.60 |
| 34 | a | 474 | G | N3-C4-N9 | -6.24 | 122.26 | 126.00 |
| 8 | A | 704 | G | C8-N9-C1' | 6.23 | 135.10 | 127.00 |
| 8 | A | 1479 | G | C2-N3-C4 | -6.23 | 108.78 | 111.90 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 34 | a | 492 | C | N1-C2-O2 | -6.23 | 115.16 | 118.90 |
| 8 | A | 690 | G | N3-C4-N9 | -6.23 | 122.26 | 126.00 |
| 8 | A | 726 | G | N3-C4-C5 | 6.23 | 131.72 | 128.60 |
| 34 | a | 1041 | G | N3-C4-C5 | 6.23 | 131.72 | 128.60 |
| 8 | A | 2180 | U | O4'-C1'-N1 | -6.23 | 103.22 | 108.20 |
| 8 | A | 634 | C | C6-N1-C2 | 6.23 | 122.79 | 120.30 |
| 34 | a | 1348 | U | C5-C4-O4 | -6.23 | 122.16 | 125.90 |
| 34 | a | 947 | G | C2-N3-C4 | -6.23 | 108.79 | 111.90 |
| 34 | a | 1422 | G | N9-C4-C5 | -6.23 | 102.91 | 105.40 |
| 8 | A | 43 | G | N3-C4-C5 | 6.22 | 131.71 | 128.60 |
| 8 | A | 1922 | G | N3-C4-N9 | -6.22 | 122.27 | 126.00 |
| 34 | a | 1497 | G | N3-C4-N9 | -6.22 | 122.27 | 126.00 |
| 8 | A | 1891 | G | C8-N9-C4 | 6.22 | 108.89 | 106.40 |
| 34 | a | 1057 | G | N3-C4-C5 | 6.22 | 131.71 | 128.60 |
| 8 | A | 144 | A | C8-N9-C4 | 6.22 | 108.29 | 105.80 |
| 34 | a | 1197 | A | N9-C4-C5 | -6.22 | 103.31 | 105.80 |
| 8 | A | 778 | G | N3-C4-N9 | -6.22 | 122.27 | 126.00 |
| 8 | A | 1388 | G | C2-N3-C4 | -6.22 | 108.79 | 111.90 |
| 8 | A | 471 | A | N1-C6-N6 | 6.22 | 122.33 | 118.60 |
| 8 | A | 1684 | G | C2-N3-C4 | -6.22 | 108.79 | 111.90 |
| 8 | A | 1036 | G | C8-N9-C4 | 6.22 | 108.89 | 106.40 |
| 8 | A | 1823 | G | N3-C4-C5 | 6.22 | 131.71 | 128.60 |
| 34 | a | 982 | U | C5-C4-O4 | -6.22 | 122.17 | 125.90 |
| 8 | A | 146 | A | C4-C5-N7 | 6.21 | 113.81 | 110.70 |
| 8 | A | 1029 | A | C5-N7-C8 | -6.21 | 100.79 | 103.90 |
| 8 | A | 1055 | G | C8-N9-C1' | 6.21 | 135.08 | 127.00 |
| 8 | A | 1906 | G | C2-N3-C4 | -6.21 | 108.79 | 111.90 |
| 8 | A | 2083 | G | N1-C2-N2 | -6.21 | 110.61 | 116.20 |
| 8 | A | 1077 | A | N1-C6-N6 | 6.21 | 122.33 | 118.60 |
| 8 | A | 2685 | G | C2-N3-C4 | -6.21 | 108.80 | 111.90 |
| 8 | A | 371 | A | N9-C4-C5 | -6.21 | 103.32 | 105.80 |
| 8 | A | 2553 | G | N3-C4-C5 | 6.21 | 131.70 | 128.60 |
| 34 | a | 540 | G | N3-C4-C5 | 6.21 | 131.70 | 128.60 |
| 34 | a | 318 | G | N3-C4-C5 | 6.20 | 131.70 | 128.60 |
| 34 | a | 1286 | U | N1-C1'-C2' | -6.20 | 105.18 | 112.00 |
| 55 | v | 29 | G | N3-C4-C5 | 6.20 | 131.70 | 128.60 |
| 34 | a | 509 | A | N1-C6-N6 | 6.20 | 122.32 | 118.60 |
| 8 | A | 629 | G | C4-N9-C1' | -6.20 | 118.44 | 126.50 |
| 34 | a | 495 | A | N9-C4-C5 | -6.20 | 103.32 | 105.80 |
| 34 | a | 1016 | A | C5-C6-N6 | -6.20 | 118.74 | 123.70 |
| 8 | A | 2846 | G | C2-N3-C4 | -6.20 | 108.80 | 111.90 |
| 8 | A | 726 | G | N3-C4-N9 | -6.20 | 122.28 | 126.00 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 1567 | G | N3-C4-C5 | 6.20 | 131.70 | 128.60 |
| 8 | A | 2679 | A | C8-N9-C4 | 6.20 | 108.28 | 105.80 |
| 34 | a | 1088 | G | N9-C4-C5 | 6.20 | 107.88 | 105.40 |
| 8 | A | 402 | A | C5-C6-N6 | -6.19 | 118.75 | 123.70 |
| 8 | A | 749 | A | N1-C6-N6 | -6.19 | 114.88 | 118.60 |
| 55 | v | 28 | C | C6-N1-C2 | 6.19 | 122.78 | 120.30 |
| 8 | A | 14 | A | C4-C5-N7 | 6.19 | 113.80 | 110.70 |
| 8 | A | 1107 | G | N3-C4-C5 | 6.19 | 131.70 | 128.60 |
| 8 | A | 1588 | G | N3-C4-N9 | -6.19 | 122.28 | 126.00 |
| 34 | a | 176 | C | C6-N1-C2 | 6.19 | 122.78 | 120.30 |
| 34 | a | 661 | G | N9-C4-C5 | -6.19 | 102.92 | 105.40 |
| 8 | A | 409 | G | N3-C4-C5 | 6.19 | 131.70 | 128.60 |
| 8 | A | 537 | G | N3-C4-C5 | 6.19 | 131.69 | 128.60 |
| 8 | A | 1920 | C | N3-C4-C5 | 6.19 | 124.38 | 121.90 |
| 8 | A | 2763 | G | C2-N3-C4 | -6.19 | 108.81 | 111.90 |
| 34 | a | 145 | G | N3-C2-N2 | -6.19 | 115.57 | 119.90 |
| 8 | A | 461 | C | N3-C4-C5 | 6.19 | 124.38 | 121.90 |
| 34 | a | 1154 | G | C2-N3-C4 | -6.19 | 108.81 | 111.90 |
| 8 | A | 1435 | G | C2-N3-C4 | -6.19 | 108.81 | 111.90 |
| 8 | A | 2003 | A | C8-N9-C4 | 6.19 | 108.28 | 105.80 |
| 8 | A | 2400 | G | N3-C4-C5 | 6.18 | 131.69 | 128.60 |
| 34 | a | 488 | C | O4'-C1'-N1 | -6.18 | 103.25 | 108.20 |
| 34 | a | 947 | G | N3-C4-C5 | 6.18 | 131.69 | 128.60 |
| 8 | A | 56 | A | N9-C4-C5 | -6.18 | 103.33 | 105.80 |
| 8 | A | 298 | G | C8-N9-C4 | 6.18 | 108.87 | 106.40 |
| 8 | A | 992 | C | C6-N1-C2 | 6.18 | 122.77 | 120.30 |
| 8 | A | 1977 | A | C8-N9-C4 | 6.18 | 108.27 | 105.80 |
| 8 | A | 2640 | G | C2-N3-C4 | -6.18 | 108.81 | 111.90 |
| 34 | a | 1112 | C | N3-C4-C5 | 6.18 | 124.37 | 121.90 |
| 8 | A | 1735 | A | C8-N9-C4 | 6.18 | 108.27 | 105.80 |
| 8 | A | 2015 | A | O4'-C1'-N9 | -6.18 | 103.25 | 108.20 |
| 34 | a | 454 | G | C2-N3-C4 | -6.18 | 108.81 | 111.90 |
| 34 | a | 851 | G | N3-C4-C5 | 6.18 | 131.69 | 128.60 |
| 8 | A | 675 | A | C5-N7-C8 | -6.18 | 100.81 | 103.90 |
| 8 | A | 891 | G | N3-C4-C5 | 6.18 | 131.69 | 128.60 |
| 8 | A | 1503 | A | C8-N9-C4 | 6.18 | 108.27 | 105.80 |
| 8 | A | 2694 | G | C2-N3-C4 | -6.18 | 108.81 | 111.90 |
| 34 | a | 724 | G | C8-N9-C4 | 6.18 | 108.87 | 106.40 |
| 8 | A | 1731 | G | N3-C4-C5 | 6.18 | 131.69 | 128.60 |
| 9 | B | 28 | C | C6-N1-C2 | 6.18 | 122.77 | 120.30 |
| 34 | a | 1221 | G | C2-N3-C4 | -6.18 | 108.81 | 111.90 |
| 8 | A | 1292 | G | C2-N3-C4 | -6.17 | 108.81 | 111.90 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 9 | B | 119 | A | C4-C5-C6 | -6.17 | 113.91 | 117.00 |
| 34 | a | 1099 | G | N3-C4-C5 | 6.17 | 131.69 | 128.60 |
| 8 | A | 183 | C | C6-N1-C2 | 6.17 | 122.77 | 120.30 |
| 34 | a | 748 | G | C2-N3-C4 | -6.17 | 108.81 | 111.90 |
| 34 | a | 760 | G | C2-N3-C4 | -6.17 | 108.81 | 111.90 |
| 34 | a | 1429 | A | N9-C4-C5 | -6.17 | 103.33 | 105.80 |
| 8 | A | 2154 | A | C5-N7-C8 | -6.17 | 100.82 | 103.90 |
| 9 | B | 99 | A | C5-C6-N6 | -6.17 | 118.77 | 123.70 |
| 55 | v | 12 | G | C8-N9-C4 | 6.17 | 108.87 | 106.40 |
| 8 | A | 1653 | G | N3-C4-C5 | 6.17 | 131.68 | 128.60 |
| 34 | a | 627 | G | C8-N9-C4 | 6.17 | 108.87 | 106.40 |
| 34 | a | 800 | G | N3-C4-N9 | -6.17 | 122.30 | 126.00 |
| 8 | A | 2148 | G | C2-N3-C4 | -6.17 | 108.82 | 111.90 |
| 34 | a | 98 | A | C2-N3-C4 | -6.17 | 107.52 | 110.60 |
| 8 | A | 1124 | G | N3-C4-C5 | 6.16 | 131.68 | 128.60 |
| 8 | A | 1807 | G | N3-C2-N2 | -6.16 | 115.58 | 119.90 |
| 55 | v | 42 | G | N3-C4-C5 | 6.16 | 131.68 | 128.60 |
| 8 | A | 1016 | G | C2-N3-C4 | -6.16 | 108.82 | 111.90 |
| 8 | A | 1639 | C | N3-C4-C5 | 6.16 | 124.36 | 121.90 |
| 8 | A | 2610 | C | N3-C4-C5 | 6.16 | 124.36 | 121.90 |
| 34 | a | 302 | G | N3-C4-N9 | -6.16 | 122.30 | 126.00 |
| 34 | a | 1150 | A | C8-N9-C4 | -6.16 | 103.34 | 105.80 |
| 34 | a | 1439 | G | C2-N3-C4 | -6.16 | 108.82 | 111.90 |
| 8 | A | 1842 | G | C2-N3-C4 | -6.16 | 108.82 | 111.90 |
| 8 | A | 732 | C | C6-N1-C2 | 6.16 | 122.76 | 120.30 |
| 8 | A | 1674 | G | C8-N9-C4 | 6.16 | 108.86 | 106.40 |
| 8 | A | 1826 | G | N3-C4-N9 | -6.16 | 122.31 | 126.00 |
| 34 | a | 1186 | G | N3-C4-C5 | 6.16 | 131.68 | 128.60 |
| 8 | A | 301 | G | C2-N3-C4 | -6.15 | 108.82 | 111.90 |
| 34 | a | 1289 | A | N9-C4-C5 | -6.15 | 103.34 | 105.80 |
| 8 | A | 24 | G | N3-C4-N9 | -6.15 | 122.31 | 126.00 |
| 8 | A | 325 | G | C8-N9-C4 | 6.15 | 108.86 | 106.40 |
| 8 | A | 2332 | C | N3-C4-N4 | -6.15 | 113.69 | 118.00 |
| 34 | a | 1253 | G | C6-C5-N7 | 6.15 | 134.09 | 130.40 |
| 34 | a | 1328 | C | C6-N1-C2 | 6.15 | 122.76 | 120.30 |
| 34 | a | 1426 | G | C2-N3-C4 | -6.15 | 108.83 | 111.90 |
| 8 | A | 488 | G | N3-C4-N9 | -6.15 | 122.31 | 126.00 |
| 8 | A | 2304 | G | N3-C4-C5 | 6.15 | 131.67 | 128.60 |
| 34 | a | 1379 | G | N3-C4-C5 | 6.15 | 131.67 | 128.60 |
| 34 | a | 259 | G | C2-N3-C4 | -6.15 | 108.83 | 111.90 |
| 34 | a | 540 | G | C2-N3-C4 | -6.15 | 108.83 | 111.90 |
| 9 | B | 88 | C | O4'-C1'-N1 | -6.15 | 103.28 | 108.20 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 34 | a | 487 | A | N9-C4-C5 | -6.15 | 103.34 | 105.80 |
| 8 | A | 20 | C | N3-C4-C5 | 6.14 | 124.36 | 121.90 |
| 8 | A | 42 | A | C4-C5-C6 | -6.14 | 113.93 | 117.00 |
| 8 | A | 956 | G | C8-N9-C4 | 6.14 | 108.86 | 106.40 |
| 8 | A | 2160 | C | O4'-C1'-N1 | -6.14 | 103.29 | 108.20 |
| 8 | A | 2628 | C | C6-N1-C2 | 6.14 | 122.76 | 120.30 |
| 9 | B | 37 | C | C5-C4-N4 | 6.14 | 124.50 | 120.20 |
| 34 | a | 101 | A | N3-C4-C5 | 6.14 | 131.10 | 126.80 |
| 34 | a | 217 | C | N3-C2-O2 | -6.14 | 117.60 | 121.90 |
| 8 | A | 867 | C | N3-C4-N4 | -6.14 | 113.70 | 118.00 |
| 34 | a | 190 | A | N9-C4-C5 | -6.14 | 103.34 | 105.80 |
| 8 | A | 856 | G | C2-N3-C4 | -6.14 | 108.83 | 111.90 |
| 8 | A | 2544 | G | C2-N3-C4 | -6.14 | 108.83 | 111.90 |
| 8 | A | 977 | G | N3-C4-N9 | -6.13 | 122.32 | 126.00 |
| 8 | A | 482 | A | N3-C4-C5 | 6.13 | 131.09 | 126.80 |
| 8 | A | 659 | G | N1-C2-N2 | -6.13 | 110.68 | 116.20 |
| 8 | A | 2238 | G | O4'-C1'-N9 | 6.13 | 113.11 | 108.20 |
| 34 | a | 903 | G | C2-N3-C4 | -6.13 | 108.83 | 111.90 |
| 8 | A | 1565 | C | C6-N1-C2 | 6.13 | 122.75 | 120.30 |
| 8 | A | 2678 | C | C6-N1-C2 | 6.13 | 122.75 | 120.30 |
| 34 | a | 541 | G | N3-C4-N9 | -6.13 | 122.32 | 126.00 |
| 8 | A | 2485 | G | C2-N3-C4 | -6.13 | 108.83 | 111.90 |
| 8 | A | 2895 | G | C2-N3-C4 | -6.13 | 108.83 | 111.90 |
| 34 | a | 626 | G | C8-N9-C4 | 6.13 | 108.85 | 106.40 |
| 8 | A | 66 | C | C6-N1-C2 | 6.13 | 122.75 | 120.30 |
| 8 | A | 106 | C | C6-N1-C2 | 6.13 | 122.75 | 120.30 |
| 34 | a | 769 | G | N3-C4-C5 | 6.13 | 131.66 | 128.60 |
| 34 | a | 1314 | C | N3-C4-C5 | 6.13 | 124.35 | 121.90 |
| 56 | w | 51 | C | C6-N1-C2 | 6.13 | 122.75 | 120.30 |
| 8 | A | 2814 | A | C8-N9-C4 | 6.13 | 108.25 | 105.80 |
| 9 | B | 54 | G | C5-C6-O6 | 6.13 | 132.28 | 128.60 |
| 8 | A | 907 | G | C2-N3-C4 | -6.12 | 108.84 | 111.90 |
| 8 | A | 1403 | A | C8-N9-C4 | 6.12 | 108.25 | 105.80 |
| 8 | A | 1048 | A | C5-C6-N6 | -6.12 | 118.80 | 123.70 |
| 8 | A | 1092 | C | N3-C4-N4 | -6.12 | 113.71 | 118.00 |
| 8 | A | 1681 | G | N3-C4-N9 | -6.12 | 122.33 | 126.00 |
| 34 | a | 635 | A | C4-C5-N7 | 6.12 | 113.76 | 110.70 |
| 34 | a | 849 | G | C2-N3-C4 | -6.12 | 108.84 | 111.90 |
| 8 | A | 217 | A | N3-C4-C5 | 6.12 | 131.08 | 126.80 |
| 8 | A | 1154 | G | N9-C4-C5 | -6.12 | 102.95 | 105.40 |
| 34 | a | 1374 | A | C8-N9-C4 | 6.12 | 108.25 | 105.80 |
| 34 | a | 1072 | G | C2-N3-C4 | -6.11 | 108.84 | 111.90 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 34 | a | 1106 | G | N3-C4-C5 | 6.11 | 131.66 | 128.60 |
| 34 | a | 1293 | C | N3-C4-C5 | 6.11 | 124.34 | 121.90 |
| 8 | A | 2525 | G | C4-C5-C6 | -6.11 | 115.13 | 118.80 |
| 8 | A | 2828 | G | N1-C2-N2 | -6.11 | 110.70 | 116.20 |
| 34 | a | 1155 | A | C8-N9-C4 | 6.11 | 108.24 | 105.80 |
| 8 | A | 239 | C | C6-N1-C2 | 6.11 | 122.74 | 120.30 |
| 8 | A | 289 | G | C8-N9-C1' | 6.11 | 134.94 | 127.00 |
| 34 | a | 236 | A | C4-C5-N7 | 6.11 | 113.75 | 110.70 |
| 55 | v | 64 | G | C2-N3-C4 | -6.11 | 108.85 | 111.90 |
| 8 | A | 80 | G | C8-N9-C4 | 6.11 | 108.84 | 106.40 |
| 34 | a | 1431 | A | N1-C6-N6 | 6.11 | 122.26 | 118.60 |
| 8 | A | 960 | A | C5-C6-N6 | -6.10 | 118.82 | 123.70 |
| 8 | A | 455 | C | C6-N1-C2 | 6.10 | 122.74 | 120.30 |
| 8 | A | 359 | G | N3-C2-N2 | -6.10 | 115.63 | 119.90 |
| 8 | A | 2775 | G | C8-N9-C4 | 6.10 | 108.84 | 106.40 |
| 34 | a | 632 | U | O4'-C1'-N1 | -6.10 | 103.32 | 108.20 |
| 34 | a | 885 | G | C8-N9-C4 | 6.10 | 108.84 | 106.40 |
| 8 | A | 510 | C | N1-C2-O2 | 6.10 | 122.56 | 118.90 |
| 8 | A | 1811 | G | C8-N9-C4 | 6.10 | 108.84 | 106.40 |
| 8 | A | 1905 | C | C2-N3-C4 | -6.10 | 116.85 | 119.90 |
| 8 | A | 2418 | A | C8-N9-C4 | 6.10 | 108.24 | 105.80 |
| 52 | s | 46 | LEU | CA-CB-CG | -6.10 | 101.28 | 115.30 |
| 8 | A | 778 | G | C2-N3-C4 | -6.10 | 108.85 | 111.90 |
| 8 | A | 2022 | U | O4'-C1'-N1 | -6.10 | 103.32 | 108.20 |
| 9 | B | 9 | G | N9-C4-C5 | -6.10 | 102.96 | 105.40 |
| 8 | A | 230 | G | C2-N3-C4 | -6.09 | 108.85 | 111.90 |
| 8 | A | 1945 | G | N3-C4-C5 | 6.09 | 131.65 | 128.60 |
| 34 | a | 424 | G | C2-N3-C4 | -6.09 | 108.85 | 111.90 |
| 34 | a | 432 | A | N1-C6-N6 | 6.09 | 122.26 | 118.60 |
| 8 | A | 925 | A | N9-C4-C5 | -6.09 | 103.36 | 105.80 |
| 8 | A | 1868 | C | C6-N1-C2 | 6.09 | 122.74 | 120.30 |
| 34 | a | 203 | G | C8-N9-C1' | 6.09 | 134.92 | 127.00 |
| 8 | A | 2137 | U | C4-C5-C6 | -6.09 | 116.05 | 119.70 |
| 8 | A | 1042 | G | C2-N3-C4 | -6.09 | 108.86 | 111.90 |
| 8 | A | 1606 | C | N3-C4-C5 | 6.09 | 124.33 | 121.90 |
| 34 | a | 1198 | G | N3-C4-N9 | -6.09 | 122.35 | 126.00 |
| 9 | B | 37 | C | C2-N1-C1' | -6.08 | 112.11 | 118.80 |
| 9 | B | 61 | G | N1-C2-N2 | -6.08 | 110.72 | 116.20 |
| 34 | a | 50 | A | C8-N9-C4 | 6.08 | 108.23 | 105.80 |
| 34 | a | 733 | G | C2-N3-C4 | -6.08 | 108.86 | 111.90 |
| 8 | A | 1961 | C | C6-N1-C2 | 6.08 | 122.73 | 120.30 |
| 34 | a | 1143 | G | C4-C5-N7 | 6.08 | 113.23 | 110.80 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 34 | a | 755 | G | N3-C4-C5 | 6.08 | 131.64 | 128.60 |
| 34 | a | 930 | C | C6-N1-C2 | 6.08 | 122.73 | 120.30 |
| 8 | A | 954 | G | N3-C4-C5 | 6.08 | 131.64 | 128.60 |
| 8 | A | 2744 | G | C2-N3-C4 | -6.08 | 108.86 | 111.90 |
| 8 | A | 191 | A | C5-C6-N6 | -6.08 | 118.84 | 123.70 |
| 8 | A | 465 | G | N3-C4-C5 | 6.08 | 131.64 | 128.60 |
| 8 | A | 1347 | A | C8-N9-C4 | 6.08 | 108.23 | 105.80 |
| 8 | A | 2040 | G | C2-N3-C4 | -6.08 | 108.86 | 111.90 |
| 34 | a | 581 | G | N3-C4-C5 | 6.08 | 131.64 | 128.60 |
| 8 | A | 897 | C | N1-C2-O2 | 6.07 | 122.54 | 118.90 |
| 9 | B | 20 | G | C2-N3-C4 | -6.07 | 108.86 | 111.90 |
| 34 | a | 1347 | G | C8-N9-C4 | 6.07 | 108.83 | 106.40 |
| 8 | A | 495 | G | N3-C4-C5 | 6.07 | 131.64 | 128.60 |
| 8 | A | 1528 | A | C5-C6-N6 | -6.07 | 118.84 | 123.70 |
| 8 | A | 1225 | G | N3-C4-N9 | -6.07 | 122.36 | 126.00 |
| 8 | A | 1356 | G | C2-N3-C4 | -6.07 | 108.87 | 111.90 |
| 8 | A | 1781 | U | C6-N1-C2 | 6.07 | 124.64 | 121.00 |
| 34 | a | 568 | G | N3-C4-C5 | 6.07 | 131.63 | 128.60 |
| 8 | A | 1357 | C | C6-N1-C2 | 6.07 | 122.73 | 120.30 |
| 8 | A | 1767 | G | C8-N9-C4 | 6.07 | 108.83 | 106.40 |
| 8 | A | 2014 | A | O5'-P-OP1 | -6.07 | 100.24 | 105.70 |
| 8 | A | 2239 | G | C2-N3-C4 | -6.07 | 108.87 | 111.90 |
| 34 | a | 341 | C | C6-N1-C2 | 6.07 | 122.73 | 120.30 |
| 34 | a | 679 | C | C6-N1-C2 | 6.07 | 122.73 | 120.30 |
| 8 | A | 9 | G | N3-C4-C5 | 6.06 | 131.63 | 128.60 |
| 34 | a | 495 | A | C8-N9-C4 | 6.06 | 108.23 | 105.80 |
| 8 | A | 1026 | G | C8-N9-C1' | -6.06 | 119.12 | 127.00 |
| 34 | a | 1305 | G | C2-N3-C4 | -6.06 | 108.87 | 111.90 |
| 8 | A | 996 | A | N9-C4-C5 | -6.06 | 103.38 | 105.80 |
| 8 | A | 347 | A | C8-N9-C4 | 6.06 | 108.22 | 105.80 |
| 34 | a | 1405 | G | C8-N9-C1' | 6.06 | 134.87 | 127.00 |
| 9 | B | 23 | G | O4'-C1'-N9 | -6.06 | 103.36 | 108.20 |
| 8 | A | 455 | C | C5-C4-N4 | 6.05 | 124.44 | 120.20 |
| 8 | A | 1334 | G | N3-C4-C5 | 6.05 | 131.63 | 128.60 |
| 34 | a | 92 | U | O4'-C1'-N1 | -6.05 | 103.36 | 108.20 |
| 8 | A | 1521 | G | N3-C4-C5 | 6.05 | 131.63 | 128.60 |
| 8 | A | 555 | G | N3-C4-N9 | -6.05 | 122.37 | 126.00 |
| 8 | A | 808 | G | C8-N9-C4 | 6.05 | 108.82 | 106.40 |
| 8 | A | 1734 | G | C2-N3-C4 | -6.05 | 108.88 | 111.90 |
| 8 | A | 88 | G | N9-C4-C5 | -6.05 | 102.98 | 105.40 |
| 8 | A | 1477 | A | C5-C6-N6 | -6.04 | 118.86 | 123.70 |
| 8 | A | 2414 | G | C8-N9-C1' | 6.04 | 134.86 | 127.00 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34 | a | 386 | C | N1-C2-O2 | 6.04 | 122.53 | 118.90 |
| 34 | a | 602 | A | C5-N7-C8 | -6.04 | 100.88 | 103.90 |
| 8 | A | 536 | G | N3-C2-N2 | -6.04 | 115.67 | 119.90 |
| 34 | a | 600 | A | N9-C4-C5 | -6.04 | 103.38 | 105.80 |
| 55 | v | 52 | G | N3-C4-N9 | -6.04 | 122.38 | 126.00 |
| 8 | A | 270 | A | O4'-C1'-N9 | 6.04 | 113.03 | 108.20 |
| 8 | A | 1194 | A | C8-N9-C4 | 6.04 | 108.22 | 105.80 |
| 8 | A | 180 | G | C2-N3-C4 | -6.04 | 108.88 | 111.90 |
| 8 | A | 1422 | G | N3-C4-C5 | 6.04 | 131.62 | 128.60 |
| 8 | A | 1512 | C | N3-C4-N4 | -6.04 | 113.77 | 118.00 |
| 8 | A | 1591 | A | C4-C5-N7 | 6.04 | 113.72 | 110.70 |
| 8 | A | 2100 | G | C2-N3-C4 | -6.04 | 108.88 | 111.90 |
| 8 | A | 2381 | A | C2'-C3'-O3' | 6.04 | 123.36 | 113.70 |
| 34 | a | 413 | G | C8-N9-C4 | 6.04 | 108.81 | 106.40 |
| 34 | a | 449 | G | N3-C4-C5 | 6.04 | 131.62 | 128.60 |
| 8 | A | 843 | G | C4-C5-C6 | -6.04 | 115.18 | 118.80 |
| 8 | A | 751 | A | C8-N9-C4 | 6.04 | 108.21 | 105.80 |
| 34 | a | 786 | G | N3-C4-N9 | -6.04 | 122.38 | 126.00 |
| 8 | A | 469 | G | C6-C5-N7 | -6.03 | 126.78 | 130.40 |
| 8 | A | 671 | C | N3-C4-C5 | 6.03 | 124.31 | 121.90 |
| 8 | A | 1840 | G | C2-N3-C4 | -6.03 | 108.88 | 111.90 |
| 8 | A | 2395 | C | N3-C4-C5 | 6.03 | 124.31 | 121.90 |
| 34 | a | 442 | G | C2-N3-C4 | -6.03 | 108.88 | 111.90 |
| 34 | a | 1350 | A | C8-N9-C4 | 6.03 | 108.21 | 105.80 |
| 8 | A | 1797 | G | C2-N3-C4 | -6.03 | 108.88 | 111.90 |
| 8 | A | 2154 | A | C6-C5-N7 | -6.03 | 128.08 | 132.30 |
| 8 | A | 2840 | C | C4-C5-C6 | -6.03 | 114.38 | 117.40 |
| 34 | a | 691 | G | C8-N9-C1' | 6.03 | 134.84 | 127.00 |
| 8 | A | 1133 | A | O4'-C1'-N9 | 6.03 | 113.02 | 108.20 |
| 34 | a | 433 | G | C2-N3-C4 | -6.03 | 108.89 | 111.90 |
| 34 | a | 803 | G | C2-N3-C4 | -6.03 | 108.89 | 111.90 |
| 8 | A | 2050 | C | N3-C2-O2 | -6.03 | 117.68 | 121.90 |
| 34 | a | 1331 | G | N3-C4-N9 | -6.03 | 122.38 | 126.00 |
| 34 | a | 1459 | G | N3-C4-N9 | -6.03 | 122.38 | 126.00 |
| 8 | A | 469 | G | C2-N3-C4 | -6.03 | 108.89 | 111.90 |
| 8 | A | 538 | A | C8-N9-C4 | 6.03 | 108.21 | 105.80 |
| 8 | A | 1382 | G | C2-N3-C4 | -6.03 | 108.89 | 111.90 |
| 34 | a | 101 | A | N3-C4-N9 | -6.03 | 122.58 | 127.40 |
| 8 | A | 997 | G | N3-C4-N9 | -6.02 | 122.39 | 126.00 |
| 34 | a | 178 | C | C6-N1-C2 | -6.02 | 117.89 | 120.30 |
| 34 | a | 443 | C | O4'-C1'-N1 | -6.02 | 103.38 | 108.20 |
| 34 | a | 1465 | A | C8-N9-C4 | 6.02 | 108.21 | 105.80 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 8 | A | 1532 | A | N9-C4-C5 | -6.02 | 103.39 | 105.80 |
| 34 | a | 350 | G | C2-N3-C4 | -6.02 | 108.89 | 111.90 |
| 8 | A | 1689 | A | C8-N9-C4 | 6.02 | 108.21 | 105.80 |
| 9 | B | 84 | G | C8-N9-C4 | 6.02 | 108.81 | 106.40 |
| 8 | A | 1972 | G | C5'-C4'-O4' | 6.02 | 116.32 | 109.10 |
| 8 | A | 2097 | A | C4-C5-N7 | 6.02 | 113.71 | 110.70 |
| 8 | A | 2729 | G | C2-N3-C4 | -6.02 | 108.89 | 111.90 |
| 31 | X | 70 | LEU | CA-CB-CG | -6.02 | 101.46 | 115.30 |
| 34 | a | 988 | G | C8-N9-C4 | 6.02 | 108.81 | 106.40 |
| 34 | a | 1102 | A | C8-N9-C4 | 6.02 | 108.21 | 105.80 |
| 8 | A | 214 | G | N3-C4-N9 | -6.01 | 122.39 | 126.00 |
| 8 | A | 361 | G | C6-C5-N7 | -6.01 | 126.79 | 130.40 |
| 8 | A | 1047 | G | C6-C5-N7 | 6.01 | 134.01 | 130.40 |
| 34 | a | 841 | C | N1-C1'-C2' | -6.01 | 105.38 | 112.00 |
| 8 | A | 2464 | G | N3-C4-C5 | 6.01 | 131.61 | 128.60 |
| 34 | a | 538 | G | N3-C4-C5 | 6.01 | 131.61 | 128.60 |
| 34 | a | 1182 | G | N3-C4-N9 | -6.01 | 122.39 | 126.00 |
| 8 | A | 245 | G | C8-N9-C4 | 6.01 | 108.80 | 106.40 |
| 8 | A | 1836 | C | N3-C4-N4 | -6.01 | 113.79 | 118.00 |
| 8 | A | 2729 | G | C4-C5-N7 | 6.01 | 113.20 | 110.80 |
| 8 | A | 2816 | G | C8-N9-C4 | 6.01 | 108.81 | 106.40 |
| 9 | B | 73 | A | N1-C6-N6 | 6.01 | 122.21 | 118.60 |
| 55 | v | 41 | C | N3-C4-C5 | 6.01 | 124.31 | 121.90 |
| 8 | A | 820 | A | C8-N9-C4 | 6.01 | 108.20 | 105.80 |
| 8 | A | 2876 | G | C2-N3-C4 | -6.01 | 108.90 | 111.90 |
| 8 | A | 63 | A | C2-N3-C4 | -6.01 | 107.60 | 110.60 |
| 8 | A | 2574 | G | C2-N3-C4 | -6.01 | 108.90 | 111.90 |
| 8 | A | 1590 | A | C8-N9-C4 | 6.00 | 108.20 | 105.80 |
| 8 | A | 1904 | G | N3-C4-N9 | -6.00 | 122.40 | 126.00 |
| 34 | a | 1334 | G | C4-N9-C1' | -6.00 | 118.70 | 126.50 |
| 34 | a | 8 | A | C8-N9-C4 | 6.00 | 108.20 | 105.80 |
| 34 | a | 586 | C | N3-C4-N4 | -6.00 | 113.80 | 118.00 |
| 34 | a | 639 | G | N9-C4-C5 | -6.00 | 103.00 | 105.40 |
| 8 | A | 2830 | C | C6-N1-C1' | -6.00 | 113.60 | 120.80 |
| 8 | A | 39 | G | C2-N3-C4 | -6.00 | 108.90 | 111.90 |
| 34 | a | 623 | C | C6-N1-C1' | -6.00 | 113.60 | 120.80 |
| 34 | a | 1263 | C | C6-N1-C2 | 6.00 | 122.70 | 120.30 |
| 8 | A | 77 | G | N3-C4-C5 | 6.00 | 131.60 | 128.60 |
| 8 | A | 377 | G | C2-N3-C4 | -6.00 | 108.90 | 111.90 |
| 34 | a | 190 | A | C6-C5-N7 | -6.00 | 128.10 | 132.30 |
| 8 | A | 660 | C | N3-C4-C5 | 6.00 | 124.30 | 121.90 |
| 8 | A | 126 | A | C5-C6-N6 | -5.99 | 118.91 | 123.70 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-----------|-------|-------------|----------|
| 8 | A | 426 | C | C6-N1-C2 | 5.99 | 122.70 | 120.30 |
| 8 | A | 2834 | G | N3-C4-N9 | -5.99 | 122.41 | 126.00 |
| 34 | a | 42 | G | C5-N7-C8 | -5.99 | 101.30 | 104.30 |
| 34 | a | 1 | A | C5-N7-C8 | -5.99 | 100.91 | 103.90 |
| 34 | a | 79 | G | N3-C4-N9 | -5.99 | 122.41 | 126.00 |
| 34 | a | 921 | U | N3-C2-O2 | -5.99 | 118.01 | 122.20 |
| 34 | a | 1048 | G | N9-C4-C5 | -5.99 | 103.00 | 105.40 |
| 8 | A | 2394 | C | O5'-P-OP1 | -5.99 | 100.31 | 105.70 |
| 8 | A | 2735 | G | N3-C4-C5 | 5.99 | 131.59 | 128.60 |
| 34 | a | 656 | G | C4-N9-C1' | -5.99 | 118.72 | 126.50 |
| 34 | a | 933 | G | N3-C4-C5 | 5.99 | 131.59 | 128.60 |
| 34 | a | 1509 | C | N3-C4-N4 | -5.99 | 113.81 | 118.00 |
| 8 | A | 1166 | G | N1-C2-N2 | -5.99 | 110.81 | 116.20 |
| 8 | A | 2516 | A | C4-C5-N7 | 5.99 | 113.69 | 110.70 |
| 34 | a | 783 | C | C6-N1-C2 | 5.99 | 122.69 | 120.30 |
| 34 | a | 1119 | C | C6-N1-C2 | 5.99 | 122.69 | 120.30 |
| 34 | a | 1483 | A | N9-C4-C5 | -5.99 | 103.41 | 105.80 |
| 8 | A | 1401 | G | N3-C4-N9 | -5.98 | 122.41 | 126.00 |
| 8 | A | 1492 | G | C2-N3-C4 | -5.98 | 108.91 | 111.90 |
| 8 | A | 58 | G | N3-C4-C5 | 5.98 | 131.59 | 128.60 |
| 8 | A | 1228 | G | C2-N3-C4 | -5.98 | 108.91 | 111.90 |
| 8 | A | 1368 | G | N3-C4-C5 | 5.98 | 131.59 | 128.60 |
| 9 | B | 73 | A | C5-C6-N6 | -5.98 | 118.92 | 123.70 |
| 13 | F | 132 | ARG | CA-CB-CG | -5.98 | 100.24 | 113.40 |
| 34 | a | 246 | A | C2-N3-C4 | -5.98 | 107.61 | 110.60 |
| 34 | a | 637 | C | N3-C4-C5 | 5.98 | 124.29 | 121.90 |
| 8 | A | 330 | A | C5-C6-N1 | 5.98 | 120.69 | 117.70 |
| 8 | A | 1567 | G | C8-N9-C4 | 5.98 | 108.79 | 106.40 |
| 8 | A | 2316 | G | N3-C4-N9 | -5.98 | 122.41 | 126.00 |
| 34 | a | 917 | G | N3-C4-N9 | -5.98 | 122.41 | 126.00 |
| 8 | A | 1760 | C | C6-N1-C2 | 5.98 | 122.69 | 120.30 |
| 8 | A | 2729 | G | C5-N7-C8 | -5.98 | 101.31 | 104.30 |
| 8 | A | 2812 | G | C2-N3-C4 | -5.98 | 108.91 | 111.90 |
| 8 | A | 2642 | G | N3-C4-C5 | 5.98 | 131.59 | 128.60 |
| 34 | a | 1081 | A | C8-N9-C4 | -5.98 | 103.41 | 105.80 |
| 8 | A | 2901 | C | N3-C4-C5 | 5.97 | 124.29 | 121.90 |
| 9 | B | 102 | G | N3-C4-N9 | -5.97 | 122.42 | 126.00 |
| 8 | A | 1378 | A | C5-N7-C8 | -5.97 | 100.91 | 103.90 |
| 8 | A | 1210 | G | N3-C4-C5 | 5.97 | 131.59 | 128.60 |
| 8 | A | 2551 | C | N3-C4-C5 | 5.97 | 124.29 | 121.90 |
| 8 | A | 425 | G | N3-C4-N9 | -5.97 | 122.42 | 126.00 |
| 8 | A | 1047 | G | C4-N9-C1' | -5.97 | 118.74 | 126.50 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 34 | a | 754 | C | C2-N3-C4 | 5.97 | 122.89 | 119.90 |
| 34 | a | 902 | G | N3-C4-C5 | 5.97 | 131.59 | 128.60 |
| 34 | a | 947 | G | C5-N7-C8 | -5.97 | 101.31 | 104.30 |
| 34 | a | 1217 | C | C6-N1-C2 | 5.97 | 122.69 | 120.30 |
| 8 | A | 1028 | A | C8-N9-C4 | 5.97 | 108.19 | 105.80 |
| 8 | A | 1358 | G | C4-C5-N7 | 5.97 | 113.19 | 110.80 |
| 8 | A | 1750 | G | C2-N3-C4 | -5.97 | 108.92 | 111.90 |
| 8 | A | 2683 | C | C5-C4-N4 | 5.97 | 124.38 | 120.20 |
| 8 | A | 375 | G | C8-N9-C4 | 5.96 | 108.78 | 106.40 |
| 8 | A | 1548 | A | N9-C4-C5 | -5.96 | 103.41 | 105.80 |
| 8 | A | 1661 | G | C2-N3-C4 | -5.96 | 108.92 | 111.90 |
| 8 | A | 2050 | C | N3-C4-N4 | -5.96 | 113.83 | 118.00 |
| 28 | U | 46 | LYS | CD-CE-NZ | -5.96 | 97.98 | 111.70 |
| 34 | a | 297 | G | N3-C4-N9 | -5.96 | 122.42 | 126.00 |
| 8 | A | 1048 | A | N9-C4-C5 | -5.96 | 103.42 | 105.80 |
| 9 | B | 56 | G | C4-C5-N7 | 5.96 | 113.19 | 110.80 |
| 34 | a | 497 | G | N3-C4-C5 | 5.96 | 131.58 | 128.60 |
| 8 | A | 1906 | G | C5-C6-O6 | 5.96 | 132.18 | 128.60 |
| 34 | a | 1238 | A | C5-C6-N6 | -5.96 | 118.93 | 123.70 |
| 8 | A | 21 | A | C8-N9-C4 | 5.96 | 108.18 | 105.80 |
| 8 | A | 57 | C | C6-N1-C2 | 5.96 | 122.68 | 120.30 |
| 8 | A | 1168 | G | N3-C4-C5 | 5.96 | 131.58 | 128.60 |
| 8 | A | 2294 | G | C8-N9-C4 | 5.96 | 108.78 | 106.40 |
| 34 | a | 585 | G | C2-N3-C4 | -5.96 | 108.92 | 111.90 |
| 8 | A | 1384 | A | N1-C6-N6 | 5.96 | 122.17 | 118.60 |
| 34 | a | 79 | G | C8-N9-C4 | 5.96 | 108.78 | 106.40 |
| 8 | A | 1515 | A | C5-C6-N6 | -5.96 | 118.94 | 123.70 |
| 8 | A | 1862 | G | N1-C2-N2 | -5.96 | 110.84 | 116.20 |
| 9 | B | 23 | G | N3-C4-N9 | -5.96 | 122.43 | 126.00 |
| 8 | A | 134 | G | C2-N3-C4 | -5.95 | 108.92 | 111.90 |
| 9 | B | 85 | G | N3-C4-C5 | 5.95 | 131.58 | 128.60 |
| 34 | a | 1329 | A | C4-N9-C1' | -5.95 | 115.58 | 126.30 |
| 8 | A | 2040 | G | N3-C4-N9 | -5.95 | 122.43 | 126.00 |
| 8 | A | 900 | A | C5-N7-C8 | -5.95 | 100.92 | 103.90 |
| 8 | A | 1593 | A | C4-C5-N7 | 5.95 | 113.67 | 110.70 |
| 8 | A | 2496 | C | C6-N1-C1' | -5.95 | 113.66 | 120.80 |
| 27 | T | 66 | LYS | CD-CE-NZ | 5.95 | 125.39 | 111.70 |
| 34 | a | 1034 | G | N3-C2-N2 | -5.95 | 115.73 | 119.90 |
| 8 | A | 1382 | G | N3-C4-N9 | -5.95 | 122.43 | 126.00 |
| 9 | B | 112 | G | N3-C4-N9 | -5.95 | 122.43 | 126.00 |
| 34 | a | 509 | A | O4'-C1'-N9 | 5.95 | 112.96 | 108.20 |
| 34 | a | 1088 | G | N1-C6-O6 | -5.95 | 116.33 | 119.90 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 34 | a | 1098 | C | N1-C2-N3 | 5.95 | 123.36 | 119.20 |
| 8 | A | 1422 | G | C2-N3-C4 | -5.95 | 108.93 | 111.90 |
| 8 | A | 2339 | C | N3-C4-C5 | 5.95 | 124.28 | 121.90 |
| 34 | a | 988 | G | C2-N3-C4 | -5.95 | 108.93 | 111.90 |
| 34 | a | 1028 | C | O4'-C1'-N1 | -5.95 | 103.44 | 108.20 |
| 8 | A | 175 | G | C2-N3-C4 | -5.94 | 108.93 | 111.90 |
| 8 | A | 1726 | C | N3-C4-C5 | 5.94 | 124.28 | 121.90 |
| 8 | A | 2092 | U | C5-C4-O4 | -5.94 | 122.33 | 125.90 |
| 8 | A | 2808 | G | N3-C4-C5 | 5.94 | 131.57 | 128.60 |
| 34 | a | 724 | G | N3-C4-C5 | 5.94 | 131.57 | 128.60 |
| 34 | a | 809 | G | C4-N9-C1' | -5.94 | 118.77 | 126.50 |
| 8 | A | 425 | G | C2-N3-C4 | -5.94 | 108.93 | 111.90 |
| 8 | A | 704 | G | C8-N9-C4 | 5.94 | 108.78 | 106.40 |
| 8 | A | 2557 | G | N1-C6-O6 | -5.94 | 116.33 | 119.90 |
| 34 | a | 542 | G | C2-N3-C4 | -5.94 | 108.93 | 111.90 |
| 34 | a | 1328 | C | N3-C4-C5 | 5.94 | 124.28 | 121.90 |
| 56 | w | 6 | G | C2-N3-C4 | -5.94 | 108.93 | 111.90 |
| 8 | A | 2664 | G | N3-C4-C5 | 5.94 | 131.57 | 128.60 |
| 34 | a | 274 | A | N9-C4-C5 | -5.94 | 103.42 | 105.80 |
| 8 | A | 61 | C | C6-N1-C2 | 5.93 | 122.67 | 120.30 |
| 8 | A | 402 | A | N1-C6-N6 | 5.93 | 122.16 | 118.60 |
| 8 | A | 1969 | A | N1-C6-N6 | 5.93 | 122.16 | 118.60 |
| 8 | A | 289 | G | C4-N9-C1' | -5.93 | 118.79 | 126.50 |
| 8 | A | 728 | G | N3-C4-N9 | -5.93 | 122.44 | 126.00 |
| 8 | A | 2256 | G | N3-C4-C5 | 5.93 | 131.56 | 128.60 |
| 8 | A | 340 | A | C4-C5-N7 | 5.93 | 113.66 | 110.70 |
| 34 | a | 796 | C | C6-N1-C2 | 5.93 | 122.67 | 120.30 |
| 34 | a | 838 | G | C2-N3-C4 | -5.93 | 108.94 | 111.90 |
| 8 | A | 364 | C | N1-C2-O2 | 5.93 | 122.46 | 118.90 |
| 34 | a | 654 | G | N9-C4-C5 | -5.93 | 103.03 | 105.40 |
| 34 | a | 725 | G | N3-C4-C5 | 5.93 | 131.56 | 128.60 |
| 8 | A | 2508 | G | N3-C4-C5 | 5.92 | 131.56 | 128.60 |
| 8 | A | 2524 | G | N3-C4-N9 | -5.92 | 122.45 | 126.00 |
| 34 | a | 928 | G | N3-C4-N9 | -5.92 | 122.44 | 126.00 |
| 55 | v | 30 | G | N3-C4-C5 | 5.92 | 131.56 | 128.60 |
| 8 | A | 2616 | C | C6-N1-C2 | 5.92 | 122.67 | 120.30 |
| 34 | a | 257 | G | C2-N3-C4 | -5.92 | 108.94 | 111.90 |
| 34 | a | 1309 | G | N9-C4-C5 | -5.92 | 103.03 | 105.40 |
| 9 | B | 52 | A | N9-C4-C5 | -5.92 | 103.43 | 105.80 |
| 34 | a | 360 | G | N3-C4-N9 | -5.92 | 122.45 | 126.00 |
| 8 | A | 506 | G | C8-N9-C1' | 5.92 | 134.69 | 127.00 |
| 8 | A | 899 | A | C8-N9-C4 | 5.92 | 108.17 | 105.80 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 8 | A | 2739 | U | C2-N1-C1' | -5.92 | 110.60 | 117.70 |
| 8 | A | 2775 | G | N3-C4-N9 | -5.92 | 122.45 | 126.00 |
| 56 | w | 16 | U | C5'-C4'-O4' | 5.92 | 116.20 | 109.10 |
| 8 | A | 103 | A | N9-C4-C5 | -5.92 | 103.43 | 105.80 |
| 8 | A | 1544 | A | N9-C4-C5 | -5.92 | 103.43 | 105.80 |
| 8 | A | 1907 | G | C8-N9-C4 | 5.92 | 108.77 | 106.40 |
| 8 | A | 2369 | A | C2-N3-C4 | -5.92 | 107.64 | 110.60 |
| 8 | A | 945 | A | N1-C6-N6 | 5.92 | 122.15 | 118.60 |
| 8 | A | 1387 | A | C4-C5-N7 | 5.92 | 113.66 | 110.70 |
| 8 | A | 307 | G | C4-N9-C1' | -5.91 | 118.81 | 126.50 |
| 8 | A | 831 | G | C4-N9-C1' | -5.91 | 118.81 | 126.50 |
| 8 | A | 1374 | G | C8-N9-C4 | 5.91 | 108.77 | 106.40 |
| 8 | A | 2196 | C | C6-N1-C2 | 5.91 | 122.67 | 120.30 |
| 8 | A | 2864 | G | C4-C5-N7 | 5.91 | 113.17 | 110.80 |
| 34 | a | 1002 | G | N3-C4-C5 | 5.91 | 131.56 | 128.60 |
| 8 | A | 2190 | G | O4'-C1'-N9 | -5.91 | 103.47 | 108.20 |
| 34 | a | 760 | G | C8-N9-C4 | 5.91 | 108.77 | 106.40 |
| 8 | A | 647 | G | C8-N9-C4 | 5.91 | 108.76 | 106.40 |
| 8 | A | 900 | A | N7-C8-N9 | 5.91 | 116.75 | 113.80 |
| 34 | a | 973 | G | N1-C6-O6 | -5.91 | 116.35 | 119.90 |
| 8 | A | 2659 | G | C8-N9-C4 | 5.91 | 108.76 | 106.40 |
| 9 | B | 23 | G | C5-N7-C8 | -5.91 | 101.35 | 104.30 |
| 8 | A | 998 | C | N3-C4-N4 | -5.91 | 113.87 | 118.00 |
| 8 | A | 2736 | A | N9-C4-C5 | -5.91 | 103.44 | 105.80 |
| 34 | a | 334 | C | C6-N1-C1' | -5.91 | 113.71 | 120.80 |
| 34 | a | 1422 | G | C8-N9-C4 | 5.91 | 108.76 | 106.40 |
| 34 | a | 1466 | C | N3-C2-O2 | -5.91 | 117.77 | 121.90 |
| 8 | A | 146 | A | C8-N9-C4 | 5.90 | 108.16 | 105.80 |
| 34 | a | 1472 | U | C6-N1-C1' | -5.90 | 112.94 | 121.20 |
| 8 | A | 2505 | G | C4-N9-C1' | 5.90 | 134.17 | 126.50 |
| 8 | A | 2624 | G | C2-N3-C4 | -5.90 | 108.95 | 111.90 |
| 34 | a | 265 | G | N3-C4-N9 | -5.90 | 122.46 | 126.00 |
| 34 | a | 933 | G | C2-N3-C4 | -5.90 | 108.95 | 111.90 |
| 8 | A | 1238 | G | C2-N3-C4 | -5.90 | 108.95 | 111.90 |
| 8 | A | 2179 | C | O4'-C1'-N1 | -5.90 | 103.48 | 108.20 |
| 8 | A | 2407 | A | C5-C6-N6 | -5.90 | 118.98 | 123.70 |
| 8 | A | 2825 | G | N3-C2-N2 | -5.90 | 115.77 | 119.90 |
| 34 | a | 775 | G | C8-N9-C4 | 5.90 | 108.76 | 106.40 |
| 8 | A | 1093 | G | N3-C2-N2 | -5.90 | 115.77 | 119.90 |
| 8 | A | 1162 | G | N3-C4-C5 | 5.90 | 131.55 | 128.60 |
| 8 | A | 1718 | G | N3-C4-C5 | 5.90 | 131.55 | 128.60 |
| 34 | a | 1079 | G | N3-C4-N9 | -5.90 | 122.46 | 126.00 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-----------|-------|-------------|----------|
| 34 | a | 1418 | A | C4-C5-N7 | 5.90 | 113.65 | 110.70 |
| 8 | A | 1746 | A | C8-N9-C4 | 5.90 | 108.16 | 105.80 |
| 8 | A | 2442 | C | N3-C4-N4 | -5.90 | 113.87 | 118.00 |
| 34 | a | 158 | G | C5-N7-C8 | -5.90 | 101.35 | 104.30 |
| 8 | A | 845 | A | N9-C4-C5 | -5.89 | 103.44 | 105.80 |
| 34 | a | 146 | G | N3-C4-N9 | -5.89 | 122.46 | 126.00 |
| 34 | a | 1144 | G | N3-C4-N9 | -5.89 | 122.46 | 126.00 |
| 8 | A | 664 | G | N3-C4-C5 | 5.89 | 131.55 | 128.60 |
| 34 | a | 1004 | A | O5'-P-OP1 | -5.89 | 100.40 | 105.70 |
| 8 | A | 191 | A | N9-C4-C5 | -5.89 | 103.44 | 105.80 |
| 8 | A | 536 | G | C6-C5-N7 | 5.89 | 133.93 | 130.40 |
| 8 | A | 1596 | A | C4-C5-C6 | -5.89 | 114.06 | 117.00 |
| 8 | A | 1715 | G | N3-C4-C5 | 5.89 | 131.54 | 128.60 |
| 8 | A | 2557 | G | C5-C6-O6 | 5.89 | 132.13 | 128.60 |
| 8 | A | 2665 | A | C4-C5-N7 | 5.89 | 113.64 | 110.70 |
| 34 | a | 629 | A | C8-N9-C4 | 5.89 | 108.16 | 105.80 |
| 8 | A | 273 | G | C2-N3-C4 | -5.89 | 108.96 | 111.90 |
| 8 | A | 1163 | G | N3-C4-N9 | -5.89 | 122.47 | 126.00 |
| 8 | A | 1750 | G | N3-C4-N9 | -5.88 | 122.47 | 126.00 |
| 34 | a | 77 | A | C8-N9-C4 | 5.88 | 108.15 | 105.80 |
| 34 | a | 78 | A | C2-N3-C4 | -5.88 | 107.66 | 110.60 |
| 8 | A | 854 | C | N3-C4-C5 | 5.88 | 124.25 | 121.90 |
| 34 | a | 640 | A | C2-N3-C4 | -5.88 | 107.66 | 110.60 |
| 34 | a | 1243 | C | C6-N1-C2 | 5.88 | 122.65 | 120.30 |
| 8 | A | 1308 | A | C8-N9-C4 | 5.88 | 108.15 | 105.80 |
| 8 | A | 2114 | A | P-O3'-C3' | -5.88 | 112.65 | 119.70 |
| 8 | A | 2780 | G | N3-C4-N9 | -5.88 | 122.47 | 126.00 |
| 34 | a | 167 | A | C4-C5-N7 | 5.88 | 113.64 | 110.70 |
| 8 | A | 1530 | G | C2-N3-C4 | -5.88 | 108.96 | 111.90 |
| 34 | a | 778 | G | C2-N3-C4 | -5.88 | 108.96 | 111.90 |
| 8 | A | 1317 | G | N3-C4-N9 | -5.88 | 122.47 | 126.00 |
| 8 | A | 2437 | G | N3-C4-N9 | -5.88 | 122.47 | 126.00 |
| 34 | a | 460 | A | C2-N3-C4 | -5.88 | 107.66 | 110.60 |
| 34 | a | 487 | A | C4-C5-N7 | 5.88 | 113.64 | 110.70 |
| 34 | a | 604 | G | C4-C5-N7 | 5.88 | 113.15 | 110.80 |
| 34 | a | 1047 | G | N3-C4-N9 | -5.88 | 122.47 | 126.00 |
| 8 | A | 865 | C | C5-C4-N4 | 5.87 | 124.31 | 120.20 |
| 8 | A | 1244 | A | C4-C5-N7 | 5.87 | 113.64 | 110.70 |
| 8 | A | 630 | G | C4-N9-C1' | -5.87 | 118.87 | 126.50 |
| 8 | A | 780 | G | C4-N9-C1' | -5.87 | 118.87 | 126.50 |
| 8 | A | 2270 | A | C8-N9-C4 | 5.87 | 108.15 | 105.80 |
| 34 | a | 920 | U | C2-N1-C1' | 5.87 | 124.75 | 117.70 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 493 | G | N3-C4-C5 | 5.87 | 131.53 | 128.60 |
| 8 | A | 1216 | G | C8-N9-C4 | 5.87 | 108.75 | 106.40 |
| 8 | A | 1292 | G | N3-C4-N9 | -5.87 | 122.48 | 126.00 |
| 34 | a | 858 | G | C2-N3-C4 | -5.87 | 108.97 | 111.90 |
| 34 | a | 1241 | G | C2-N3-C4 | -5.87 | 108.97 | 111.90 |
| 8 | A | 48 | G | C8-N9-C4 | 5.87 | 108.75 | 106.40 |
| 8 | A | 897 | C | C2-N1-C1' | 5.87 | 125.25 | 118.80 |
| 8 | A | 949 | G | N3-C4-N9 | -5.87 | 122.48 | 126.00 |
| 8 | A | 1239 | G | N3-C4-N9 | -5.87 | 122.48 | 126.00 |
| 34 | a | 35 | G | N3-C4-C5 | 5.87 | 131.53 | 128.60 |
| 34 | a | 260 | G | C2-N3-C4 | -5.87 | 108.97 | 111.90 |
| 34 | a | 550 | G | C4-N9-C1' | -5.87 | 118.87 | 126.50 |
| 34 | a | 1153 | G | N3-C4-C5 | 5.87 | 131.53 | 128.60 |
| 34 | a | 1422 | G | C2-N3-C4 | -5.87 | 108.97 | 111.90 |
| 34 | a | 833 | G | C2-N3-C4 | -5.87 | 108.97 | 111.90 |
| 34 | a | 1111 | A | N9-C4-C5 | -5.87 | 103.45 | 105.80 |
| 34 | a | 1206 | G | C2-N3-C4 | -5.86 | 108.97 | 111.90 |
| 8 | A | 498 | G | N3-C4-C5 | 5.86 | 131.53 | 128.60 |
| 9 | B | 11 | C | N3-C4-N4 | 5.86 | 122.10 | 118.00 |
| 8 | A | 175 | G | N3-C4-C5 | 5.86 | 131.53 | 128.60 |
| 8 | A | 1095 | A | O4'-C1'-N9 | -5.86 | 103.51 | 108.20 |
| 8 | A | 1435 | G | N3-C4-N9 | -5.86 | 122.48 | 126.00 |
| 34 | a | 1058 | G | C2-N3-C4 | -5.86 | 108.97 | 111.90 |
| 8 | A | 731 | C | C6-N1-C2 | 5.86 | 122.64 | 120.30 |
| 8 | A | 2597 | G | N3-C4-C5 | 5.86 | 131.53 | 128.60 |
| 34 | a | 428 | G | N3-C4-C5 | 5.86 | 131.53 | 128.60 |
| 8 | A | 1793 | C | N3-C4-N4 | -5.86 | 113.90 | 118.00 |
| 8 | A | 2792 | A | N9-C4-C5 | -5.86 | 103.46 | 105.80 |
| 8 | A | 2869 | G | C2-N3-C4 | -5.86 | 108.97 | 111.90 |
| 34 | a | 81 | A | N9-C4-C5 | -5.86 | 103.46 | 105.80 |
| 8 | A | 1165 | A | N3-C4-C5 | 5.86 | 130.90 | 126.80 |
| 8 | A | 2083 | G | N9-C4-C5 | -5.86 | 103.06 | 105.40 |
| 8 | A | 2355 | G | N3-C4-N9 | -5.86 | 122.49 | 126.00 |
| 9 | B | 11 | C | C6-N1-C1' | -5.86 | 113.77 | 120.80 |
| 34 | a | 755 | G | C8-N9-C4 | 5.86 | 108.74 | 106.40 |
| 34 | a | 894 | G | N3-C4-C5 | 5.86 | 131.53 | 128.60 |
| 34 | a | 1048 | G | C4-C5-N7 | 5.86 | 113.14 | 110.80 |
| 34 | a | 1187 | G | N3-C4-C5 | 5.86 | 131.53 | 128.60 |
| 8 | A | 677 | A | N1-C6-N6 | -5.85 | 115.09 | 118.60 |
| 8 | A | 1755 | A | N1-C6-N6 | -5.85 | 115.09 | 118.60 |
| 34 | a | 745 | G | N3-C4-C5 | 5.85 | 131.53 | 128.60 |
| 8 | A | 39 | G | N3-C4-N9 | -5.85 | 122.49 | 126.00 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 623 | C | C6-N1-C2 | 5.85 | 122.64 | 120.30 |
| 8 | A | 758 | C | C6-N1-C2 | 5.85 | 122.64 | 120.30 |
| 8 | A | 1169 | A | N1-C6-N6 | 5.85 | 122.11 | 118.60 |
| 8 | A | 1378 | A | N9-C4-C5 | -5.85 | 103.46 | 105.80 |
| 8 | A | 2460 | U | C6-N1-C2 | 5.85 | 124.51 | 121.00 |
| 8 | A | 2472 | G | N3-C4-N9 | -5.85 | 122.49 | 126.00 |
| 8 | A | 2827 | C | C6-N1-C2 | 5.85 | 122.64 | 120.30 |
| 9 | B | 117 | G | N3-C4-C5 | 5.85 | 131.53 | 128.60 |
| 34 | a | 504 | C | C6-N1-C2 | 5.85 | 122.64 | 120.30 |
| 34 | a | 624 | C | N3-C4-N4 | -5.85 | 113.90 | 118.00 |
| 8 | A | 553 | G | C2-N3-C4 | -5.85 | 108.97 | 111.90 |
| 8 | A | 1055 | G | C8-N9-C4 | 5.85 | 108.74 | 106.40 |
| 34 | a | 616 | G | N3-C4-C5 | 5.85 | 131.53 | 128.60 |
| 8 | A | 350 | G | N9-C4-C5 | -5.85 | 103.06 | 105.40 |
| 8 | A | 1117 | C | N3-C4-C5 | 5.85 | 124.24 | 121.90 |
| 8 | A | 1652 | A | C5-N7-C8 | -5.85 | 100.98 | 103.90 |
| 8 | A | 2671 | G | C2-N3-C4 | -5.85 | 108.97 | 111.90 |
| 34 | a | 69 | G | N3-C4-C5 | 5.85 | 131.53 | 128.60 |
| 8 | A | 2759 | G | N3-C4-C5 | 5.85 | 131.52 | 128.60 |
| 9 | B | 60 | C | N3-C2-O2 | 5.85 | 125.99 | 121.90 |
| 34 | a | 838 | G | C4-C5-N7 | 5.85 | 113.14 | 110.80 |
| 34 | a | 1094 | G | N3-C2-N2 | 5.85 | 123.99 | 119.90 |
| 8 | A | 227 | A | N1-C6-N6 | -5.85 | 115.09 | 118.60 |
| 8 | A | 1830 | C | C6-N1-C2 | 5.84 | 122.64 | 120.30 |
| 34 | a | 878 | A | O5'-P-OP1 | -5.84 | 100.44 | 105.70 |
| 34 | a | 888 | G | N1-C2-N2 | 5.84 | 121.46 | 116.20 |
| 34 | a | 944 | G | N3-C4-N9 | -5.84 | 122.49 | 126.00 |
| 8 | A | 1553 | A | C5-C6-N6 | -5.84 | 119.03 | 123.70 |
| 8 | A | 2859 | G | N3-C4-C5 | 5.84 | 131.52 | 128.60 |
| 34 | a | 442 | G | N3-C2-N2 | 5.84 | 123.99 | 119.90 |
| 34 | a | 597 | G | N3-C4-C5 | 5.84 | 131.52 | 128.60 |
| 8 | A | 670 | A | N1-C6-N6 | 5.84 | 122.10 | 118.60 |
| 8 | A | 2482 | A | C8-N9-C4 | 5.84 | 108.14 | 105.80 |
| 34 | a | 1325 | C | N1-C2-O2 | 5.84 | 122.40 | 118.90 |
| 8 | A | 1345 | C | C6-N1-C2 | 5.84 | 122.64 | 120.30 |
| 8 | A | 1418 | G | N3-C4-C5 | 5.84 | 131.52 | 128.60 |
| 8 | A | 1512 | C | C6-N1-C2 | 5.84 | 122.63 | 120.30 |
| 8 | A | 2391 | G | N3-C4-C5 | 5.84 | 131.52 | 128.60 |
| 34 | a | 347 | G | N3-C4-C5 | 5.84 | 131.52 | 128.60 |
| 34 | a | 493 | A | O4'-C1'-N9 | -5.84 | 103.53 | 108.20 |
| 8 | A | 144 | A | C5-N7-C8 | -5.83 | 100.98 | 103.90 |
| 8 | A | 989 | G | N3-C4-N9 | -5.83 | 122.50 | 126.00 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-----------|-------|-------------|----------|
| 8 | A | 1650 | A | C4-C5-C6 | -5.83 | 114.08 | 117.00 |
| 8 | A | 2294 | G | N3-C4-C5 | 5.83 | 131.52 | 128.60 |
| 8 | A | 2718 | G | C8-N9-C4 | 5.83 | 108.73 | 106.40 |
| 8 | A | 570 | G | N3-C4-C5 | -5.83 | 125.68 | 128.60 |
| 8 | A | 2419 | U | C6-N1-C2 | 5.83 | 124.50 | 121.00 |
| 34 | a | 28 | A | C4-C5-N7 | 5.83 | 113.62 | 110.70 |
| 34 | a | 785 | G | N3-C4-C5 | 5.83 | 131.52 | 128.60 |
| 8 | A | 1038 | G | C8-N9-C4 | 5.83 | 108.73 | 106.40 |
| 8 | A | 303 | G | C4-C5-N7 | 5.83 | 113.13 | 110.80 |
| 34 | a | 211 | G | P-O5'-C5' | -5.83 | 111.57 | 120.90 |
| 8 | A | 549 | G | N9-C4-C5 | -5.83 | 103.07 | 105.40 |
| 8 | A | 831 | G | N3-C4-C5 | 5.83 | 131.51 | 128.60 |
| 8 | A | 2165 | C | C6-N1-C2 | 5.83 | 122.63 | 120.30 |
| 8 | A | 2351 | G | N3-C4-N9 | -5.83 | 122.50 | 126.00 |
| 55 | v | 76 | A | C8-N9-C4 | 5.83 | 108.13 | 105.80 |
| 31 | X | 21 | LEU | CA-CB-CG | -5.83 | 101.90 | 115.30 |
| 34 | a | 203 | G | C6-C5-N7 | 5.83 | 133.90 | 130.40 |
| 8 | A | 1616 | A | C8-N9-C4 | 5.83 | 108.13 | 105.80 |
| 34 | a | 1047 | G | C2-N3-C4 | -5.83 | 108.99 | 111.90 |
| 8 | A | 555 | G | N3-C4-C5 | 5.82 | 131.51 | 128.60 |
| 8 | A | 2351 | G | C8-N9-C4 | 5.82 | 108.73 | 106.40 |
| 34 | a | 1185 | G | N3-C4-C5 | 5.82 | 131.51 | 128.60 |
| 34 | a | 1459 | G | C2-N3-C4 | -5.82 | 108.99 | 111.90 |
| 8 | A | 350 | G | N3-C4-C5 | 5.82 | 131.51 | 128.60 |
| 8 | A | 564 | C | C6-N1-C2 | 5.82 | 122.63 | 120.30 |
| 8 | A | 1408 | G | N3-C4-C5 | 5.82 | 131.51 | 128.60 |
| 8 | A | 2137 | U | N3-C4-O4 | -5.82 | 115.33 | 119.40 |
| 34 | a | 1304 | G | N3-C4-C5 | 5.82 | 131.51 | 128.60 |
| 8 | A | 185 | G | C4-N9-C1' | -5.82 | 118.94 | 126.50 |
| 8 | A | 212 | G | C2-N3-C4 | -5.82 | 108.99 | 111.90 |
| 8 | A | 244 | A | C8-N9-C4 | 5.82 | 108.13 | 105.80 |
| 8 | A | 271 | G | C8-N9-C4 | 5.82 | 108.73 | 106.40 |
| 8 | A | 383 | C | N3-C4-C5 | 5.82 | 124.23 | 121.90 |
| 8 | A | 1173 | U | C2-N1-C1' | 5.82 | 124.68 | 117.70 |
| 8 | A | 1492 | G | N3-C2-N2 | -5.82 | 115.83 | 119.90 |
| 8 | A | 2355 | G | C2-N3-C4 | -5.82 | 108.99 | 111.90 |
| 8 | A | 2655 | G | N3-C4-C5 | 5.82 | 131.51 | 128.60 |
| 8 | A | 2901 | C | N1-C2-O2 | 5.81 | 122.39 | 118.90 |
| 8 | A | 63 | A | N1-C2-N3 | 5.81 | 132.21 | 129.30 |
| 8 | A | 291 | G | C2-N3-C4 | -5.81 | 108.99 | 111.90 |
| 34 | a | 117 | G | N9-C4-C5 | -5.81 | 103.08 | 105.40 |
| 34 | a | 1090 | U | C6-N1-C2 | 5.81 | 124.49 | 121.00 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-----------|-------|-------------|----------|
| 8 | A | 2150 | C | N3-C4-C5 | 5.81 | 124.22 | 121.90 |
| 34 | a | 236 | A | N9-C4-C5 | -5.81 | 103.48 | 105.80 |
| 8 | A | 1237 | A | C2-N3-C4 | -5.81 | 107.69 | 110.60 |
| 34 | a | 803 | G | N3-C2-N2 | 5.81 | 123.97 | 119.90 |
| 34 | a | 1373 | G | C8-N9-C4 | 5.81 | 108.72 | 106.40 |
| 8 | A | 1511 | G | C2-N3-C4 | -5.81 | 109.00 | 111.90 |
| 8 | A | 2407 | A | C4-C5-N7 | 5.81 | 113.60 | 110.70 |
| 8 | A | 2544 | G | N3-C4-N9 | -5.81 | 122.52 | 126.00 |
| 34 | a | 998 | C | N3-C4-N4 | -5.81 | 113.94 | 118.00 |
| 34 | a | 1371 | G | N3-C4-C5 | 5.81 | 131.50 | 128.60 |
| 34 | a | 76 | G | N3-C4-C5 | 5.80 | 131.50 | 128.60 |
| 8 | A | 73 | A | C8-N9-C4 | 5.80 | 108.12 | 105.80 |
| 8 | A | 314 | C | N3-C4-C5 | 5.80 | 124.22 | 121.90 |
| 8 | A | 380 | G | C8-N9-C4 | 5.80 | 108.72 | 106.40 |
| 8 | A | 2465 | C | C6-N1-C2 | 5.80 | 122.62 | 120.30 |
| 34 | a | 681 | A | N9-C4-C5 | -5.80 | 103.48 | 105.80 |
| 34 | a | 784 | A | C8-N9-C4 | 5.80 | 108.12 | 105.80 |
| 34 | a | 1133 | G | C4-N9-C1' | -5.80 | 118.96 | 126.50 |
| 34 | a | 1331 | G | N3-C4-C5 | 5.80 | 131.50 | 128.60 |
| 8 | A | 1449 | G | C4-N9-C1' | -5.80 | 118.96 | 126.50 |
| 8 | A | 1529 | G | C8-N9-C1' | -5.80 | 119.46 | 127.00 |
| 34 | a | 654 | G | N1-C6-O6 | 5.80 | 123.38 | 119.90 |
| 8 | A | 96 | C | N3-C4-C5 | 5.80 | 124.22 | 121.90 |
| 8 | A | 367 | G | C2-N3-C4 | -5.80 | 109.00 | 111.90 |
| 8 | A | 155 | A | N9-C4-C5 | -5.79 | 103.48 | 105.80 |
| 8 | A | 375 | G | N1-C2-N2 | -5.79 | 110.99 | 116.20 |
| 8 | A | 2461 | A | N9-C4-C5 | -5.79 | 103.48 | 105.80 |
| 34 | a | 312 | C | N3-C4-C5 | 5.79 | 124.22 | 121.90 |
| 34 | a | 1059 | C | N3-C4-N4 | -5.79 | 113.95 | 118.00 |
| 8 | A | 1966 | A | N1-C6-N6 | 5.79 | 122.07 | 118.60 |
| 34 | a | 321 | A | C8-N9-C4 | 5.79 | 108.11 | 105.80 |
| 34 | a | 1143 | G | N1-C6-O6 | 5.79 | 123.37 | 119.90 |
| 8 | A | 270 | A | C4-C5-C6 | -5.79 | 114.11 | 117.00 |
| 8 | A | 1528 | A | N1-C6-N6 | 5.79 | 122.07 | 118.60 |
| 34 | a | 255 | G | C2-N3-C4 | -5.79 | 109.01 | 111.90 |
| 34 | a | 1043 | G | C8-N9-C1' | 5.79 | 134.52 | 127.00 |
| 55 | v | 72 | A | C8-N9-C4 | 5.79 | 108.11 | 105.80 |
| 8 | A | 1465 | G | C5-N7-C8 | -5.78 | 101.41 | 104.30 |
| 34 | a | 1244 | G | N3-C4-N9 | -5.78 | 122.53 | 126.00 |
| 8 | A | 2378 | A | N7-C8-N9 | 5.78 | 116.69 | 113.80 |
| 8 | A | 535 | G | C2-N3-C4 | -5.78 | 109.01 | 111.90 |
| 8 | A | 856 | G | C8-N9-C4 | 5.78 | 108.71 | 106.40 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 1099 | G | C2-N3-C4 | -5.78 | 109.01 | 111.90 |
| 8 | A | 1228 | G | C8-N9-C4 | 5.78 | 108.71 | 106.40 |
| 8 | A | 2483 | C | C6-N1-C2 | 5.78 | 122.61 | 120.30 |
| 20 | M | 33 | LEU | CA-CB-CG | -5.78 | 102.01 | 115.30 |
| 34 | a | 324 | G | C4-N9-C1' | -5.78 | 118.99 | 126.50 |
| 34 | a | 442 | G | C6-C5-N7 | -5.78 | 126.93 | 130.40 |
| 34 | a | 27 | G | C8-N9-C4 | 5.78 | 108.71 | 106.40 |
| 8 | A | 1193 | G | N9-C4-C5 | -5.78 | 103.09 | 105.40 |
| 8 | A | 2343 | U | P-O3'-C3' | 5.78 | 126.63 | 119.70 |
| 34 | a | 203 | G | O4'-C1'-N9 | 5.77 | 112.82 | 108.20 |
| 34 | a | 1272 | G | N3-C4-C5 | 5.77 | 131.49 | 128.60 |
| 8 | A | 1471 | G | C8-N9-C1' | -5.77 | 119.50 | 127.00 |
| 34 | a | 611 | C | N3-C4-N4 | -5.77 | 113.96 | 118.00 |
| 34 | a | 1482 | G | C2-N3-C4 | -5.77 | 109.01 | 111.90 |
| 8 | A | 310 | A | C8-N9-C4 | 5.77 | 108.11 | 105.80 |
| 8 | A | 1115 | G | N3-C4-N9 | -5.77 | 122.54 | 126.00 |
| 8 | A | 1271 | G | C8-N9-C4 | 5.77 | 108.71 | 106.40 |
| 12 | E | 164 | LEU | CA-CB-CG | -5.77 | 102.03 | 115.30 |
| 34 | a | 809 | G | C8-N9-C4 | 5.77 | 108.71 | 106.40 |
| 34 | a | 927 | G | N3-C4-C5 | 5.77 | 131.49 | 128.60 |
| 8 | A | 793 | A | C5-C6-N6 | -5.77 | 119.08 | 123.70 |
| 8 | A | 2516 | A | N9-C4-C5 | -5.77 | 103.49 | 105.80 |
| 34 | a | 241 | G | C8-N9-C4 | 5.77 | 108.71 | 106.40 |
| 8 | A | 376 | G | N3-C4-N9 | -5.77 | 122.54 | 126.00 |
| 8 | A | 1385 | A | C8-N9-C4 | 5.77 | 108.11 | 105.80 |
| 8 | A | 1655 | A | C8-N9-C4 | 5.77 | 108.11 | 105.80 |
| 8 | A | 1893 | C | N3-C4-N4 | -5.77 | 113.96 | 118.00 |
| 8 | A | 2694 | G | C8-N9-C4 | 5.77 | 108.71 | 106.40 |
| 8 | A | 2777 | G | N3-C4-C5 | 5.77 | 131.48 | 128.60 |
| 34 | a | 1511 | G | C4-C5-N7 | 5.77 | 113.11 | 110.80 |
| 8 | A | 68 | G | C8-N9-C4 | 5.77 | 108.71 | 106.40 |
| 8 | A | 2018 | G | C2-N3-C4 | -5.77 | 109.02 | 111.90 |
| 34 | a | 628 | G | C2-N3-C4 | -5.77 | 109.02 | 111.90 |
| 56 | w | 68 | C | N3-C4-C5 | 5.77 | 124.21 | 121.90 |
| 8 | A | 401 | A | N9-C4-C5 | -5.76 | 103.49 | 105.80 |
| 8 | A | 531 | C | O4'-C1'-N1 | -5.76 | 103.59 | 108.20 |
| 8 | A | 536 | G | C4-N9-C1' | -5.76 | 119.01 | 126.50 |
| 8 | A | 1894 | C | N3-C4-C5 | 5.76 | 124.21 | 121.90 |
| 8 | A | 2618 | G | C5-C6-O6 | 5.76 | 132.06 | 128.60 |
| 34 | a | 274 | A | N3-C4-C5 | 5.76 | 130.84 | 126.80 |
| 34 | a | 429 | U | O4'-C1'-N1 | -5.76 | 103.59 | 108.20 |
| 8 | A | 2198 | A | C4-C5-C6 | -5.76 | 114.12 | 117.00 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 9 | B | 58 | A | O5'-P-OP2 | -5.76 | 100.51 | 105.70 |
| 34 | a | 362 | G | N3-C4-N9 | -5.76 | 122.54 | 126.00 |
| 34 | a | 435 | A | C4-C5-N7 | 5.76 | 113.58 | 110.70 |
| 34 | a | 1224 | U | O4'-C1'-N1 | -5.76 | 103.59 | 108.20 |
| 8 | A | 1094 | U | O4'-C1'-N1 | 5.76 | 112.81 | 108.20 |
| 8 | A | 1152 | C | C6-N1-C2 | 5.76 | 122.60 | 120.30 |
| 8 | A | 1649 | G | C8-N9-C4 | 5.76 | 108.70 | 106.40 |
| 8 | A | 2547 | A | N9-C4-C5 | -5.76 | 103.50 | 105.80 |
| 34 | a | 201 | G | C8-N9-C1' | 5.76 | 134.49 | 127.00 |
| 8 | A | 998 | C | N3-C4-C5 | 5.76 | 124.20 | 121.90 |
| 8 | A | 2143 | C | N3-C4-N4 | 5.76 | 122.03 | 118.00 |
| 8 | A | 2400 | G | C2-N3-C4 | -5.76 | 109.02 | 111.90 |
| 8 | A | 2874 | C | C6-N1-C2 | 5.76 | 122.60 | 120.30 |
| 34 | a | 656 | G | N3-C4-N9 | -5.76 | 122.54 | 126.00 |
| 57 | x | 669 | LEU | CA-CB-CG | 5.76 | 128.55 | 115.30 |
| 9 | B | 34 | A | C2-N3-C4 | -5.76 | 107.72 | 110.60 |
| 8 | A | 853 | C | N3-C4-C5 | 5.76 | 124.20 | 121.90 |
| 8 | A | 1532 | A | C4-C5-N7 | 5.76 | 113.58 | 110.70 |
| 34 | a | 1280 | A | N1-C6-N6 | -5.76 | 115.15 | 118.60 |
| 8 | A | 145 | C | N3-C4-C5 | 5.75 | 124.20 | 121.90 |
| 8 | A | 1233 | C | C6-N1-C2 | 5.75 | 122.60 | 120.30 |
| 8 | A | 1008 | A | C8-N9-C4 | 5.75 | 108.10 | 105.80 |
| 8 | A | 1703 | G | C8-N9-C4 | 5.75 | 108.70 | 106.40 |
| 8 | A | 2839 | G | N9-C4-C5 | -5.75 | 103.10 | 105.40 |
| 9 | B | 61 | G | N3-C2-N2 | 5.75 | 123.93 | 119.90 |
| 34 | a | 821 | G | N3-C4-C5 | 5.75 | 131.48 | 128.60 |
| 8 | A | 271 | G | N1-C6-O6 | 5.75 | 123.35 | 119.90 |
| 8 | A | 697 | G | C2-N3-C4 | -5.75 | 109.02 | 111.90 |
| 8 | A | 2012 | G | C4-C5-N7 | 5.75 | 113.10 | 110.80 |
| 8 | A | 2792 | A | C8-N9-C4 | 5.75 | 108.10 | 105.80 |
| 34 | a | 242 | G | N3-C4-N9 | -5.75 | 122.55 | 126.00 |
| 34 | a | 586 | C | C6-N1-C2 | 5.75 | 122.60 | 120.30 |
| 34 | a | 929 | G | C2-N3-C4 | -5.75 | 109.03 | 111.90 |
| 8 | A | 1303 | G | N3-C4-C5 | 5.75 | 131.47 | 128.60 |
| 34 | a | 526 | C | N3-C4-C5 | 5.75 | 124.20 | 121.90 |
| 8 | A | 551 | G | C2-N3-C4 | -5.75 | 109.03 | 111.90 |
| 8 | A | 581 | C | C2-N1-C1' | 5.75 | 125.12 | 118.80 |
| 8 | A | 469 | G | N3-C4-C5 | 5.75 | 131.47 | 128.60 |
| 8 | A | 512 | G | N3-C4-C5 | 5.75 | 131.47 | 128.60 |
| 34 | a | 81 | A | C5-C6-N6 | -5.75 | 119.10 | 123.70 |
| 8 | A | 177 | G | C2-N3-C4 | -5.74 | 109.03 | 111.90 |
| 8 | A | 467 | G | N3-C4-C5 | 5.74 | 131.47 | 128.60 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 8 | A | 2801 | G | C8-N9-C4 | 5.74 | 108.70 | 106.40 |
| 34 | a | 1081 | A | N7-C8-N9 | 5.74 | 116.67 | 113.80 |
| 8 | A | 1527 | G | C2-N3-C4 | -5.74 | 109.03 | 111.90 |
| 55 | v | 46 | A | C8-N9-C4 | 5.74 | 108.10 | 105.80 |
| 8 | A | 382 | A | C8-N9-C4 | 5.74 | 108.10 | 105.80 |
| 8 | A | 2323 | G | C2-N3-C4 | -5.74 | 109.03 | 111.90 |
| 55 | v | 21 | A | C4-C5-C6 | -5.74 | 114.13 | 117.00 |
| 8 | A | 2080 | A | C8-N9-C4 | 5.74 | 108.10 | 105.80 |
| 8 | A | 2510 | C | N3-C4-N4 | -5.74 | 113.98 | 118.00 |
| 34 | a | 347 | G | C2-N3-C4 | -5.74 | 109.03 | 111.90 |
| 34 | a | 423 | G | O4'-C1'-N9 | 5.74 | 112.79 | 108.20 |
| 56 | w | 47 | U | C5'-C4'-O4' | 5.74 | 115.98 | 109.10 |
| 8 | A | 1952 | A | C8-N9-C4 | 5.73 | 108.09 | 105.80 |
| 8 | A | 2735 | G | C8-N9-C4 | 5.73 | 108.69 | 106.40 |
| 34 | a | 1128 | C | C6-N1-C2 | 5.73 | 122.59 | 120.30 |
| 8 | A | 316 | C | C6-N1-C2 | 5.73 | 122.59 | 120.30 |
| 8 | A | 2109 | U | O5'-P-OP1 | 5.73 | 117.58 | 110.70 |
| 8 | A | 2828 | G | C2-N3-C4 | -5.73 | 109.03 | 111.90 |
| 8 | A | 381 | G | N3-C4-N9 | -5.73 | 122.56 | 126.00 |
| 8 | A | 631 | A | C8-N9-C4 | 5.73 | 108.09 | 105.80 |
| 8 | A | 1492 | G | C6-C5-N7 | 5.73 | 133.84 | 130.40 |
| 8 | A | 2574 | G | N3-C4-C5 | 5.73 | 131.46 | 128.60 |
| 8 | A | 481 | G | C8-N9-C1' | 5.73 | 134.45 | 127.00 |
| 8 | A | 1356 | G | N3-C4-C5 | 5.73 | 131.46 | 128.60 |
| 8 | A | 2641 | G | C4-N9-C1' | -5.73 | 119.05 | 126.50 |
| 34 | a | 910 | C | C6-N1-C2 | 5.73 | 122.59 | 120.30 |
| 8 | A | 270 | A | N1-C6-N6 | -5.73 | 115.17 | 118.60 |
| 8 | A | 1153 | C | C2-N1-C1' | 5.73 | 125.10 | 118.80 |
| 8 | A | 1166 | G | C2-N3-C4 | -5.73 | 109.04 | 111.90 |
| 8 | A | 705 | A | C8-N9-C4 | 5.72 | 108.09 | 105.80 |
| 8 | A | 1905 | C | C5-C6-N1 | -5.72 | 118.14 | 121.00 |
| 8 | A | 2411 | A | N9-C4-C5 | -5.72 | 103.51 | 105.80 |
| 8 | A | 2592 | G | C2-N3-C4 | -5.72 | 109.04 | 111.90 |
| 34 | a | 102 | G | N3-C4-C5 | 5.72 | 131.46 | 128.60 |
| 34 | a | 1276 | G | C4-C5-N7 | 5.72 | 113.09 | 110.80 |
| 8 | A | 655 | A | N9-C4-C5 | -5.72 | 103.51 | 105.80 |
| 8 | A | 1062 | G | C4-C5-N7 | 5.72 | 113.09 | 110.80 |
| 8 | A | 2092 | U | C6-N1-C1' | -5.72 | 113.19 | 121.20 |
| 8 | A | 2275 | C | C6-N1-C2 | -5.72 | 118.01 | 120.30 |
| 34 | a | 177 | G | C8-N9-C1' | -5.72 | 119.56 | 127.00 |
| 34 | a | 550 | G | N3-C4-N9 | -5.72 | 122.57 | 126.00 |
| 34 | a | 674 | G | C4-N9-C1' | 5.72 | 133.94 | 126.50 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 539 | G | C2-N3-C4 | -5.72 | 109.04 | 111.90 |
| 8 | A | 1192 | G | C2-N3-C4 | -5.72 | 109.04 | 111.90 |
| 8 | A | 2204 | G | C2-N3-C4 | -5.72 | 109.04 | 111.90 |
| 8 | A | 2305 | U | C6-N1-C2 | 5.72 | 124.43 | 121.00 |
| 8 | A | 20 | C | C6-N1-C2 | 5.72 | 122.59 | 120.30 |
| 8 | A | 2383 | G | N3-C4-N9 | -5.72 | 122.57 | 126.00 |
| 34 | a | 35 | G | C2-N3-C4 | -5.72 | 109.04 | 111.90 |
| 34 | a | 42 | G | C4-C5-N7 | 5.72 | 113.09 | 110.80 |
| 34 | a | 1312 | G | C4-C5-N7 | 5.72 | 113.09 | 110.80 |
| 8 | A | 834 | G | N3-C4-C5 | 5.72 | 131.46 | 128.60 |
| 8 | A | 1378 | A | O4'-C1'-N9 | -5.72 | 103.63 | 108.20 |
| 8 | A | 1661 | G | N3-C4-N9 | -5.72 | 122.57 | 126.00 |
| 34 | a | 28 | A | N9-C4-C5 | -5.72 | 103.51 | 105.80 |
| 34 | a | 428 | G | C4-N9-C1' | -5.72 | 119.07 | 126.50 |
| 8 | A | 1568 | G | C2-N3-C4 | -5.71 | 109.04 | 111.90 |
| 34 | a | 399 | G | N3-C4-C5 | 5.71 | 131.46 | 128.60 |
| 34 | a | 604 | G | C4-C5-C6 | -5.71 | 115.37 | 118.80 |
| 8 | A | 2894 | G | C4-N9-C1' | -5.71 | 119.07 | 126.50 |
| 34 | a | 164 | G | C2-N3-C4 | -5.71 | 109.04 | 111.90 |
| 8 | A | 664 | G | N1-C2-N2 | -5.71 | 111.06 | 116.20 |
| 8 | A | 1745 | A | N1-C6-N6 | 5.71 | 122.03 | 118.60 |
| 8 | A | 2366 | A | N1-C6-N6 | 5.71 | 122.03 | 118.60 |
| 34 | a | 457 | G | N3-C4-C5 | 5.71 | 131.46 | 128.60 |
| 8 | A | 1857 | G | C2-N3-C4 | -5.71 | 109.05 | 111.90 |
| 8 | A | 2116 | G | C8-N9-C4 | 5.71 | 108.68 | 106.40 |
| 8 | A | 2433 | A | N1-C6-N6 | -5.71 | 115.17 | 118.60 |
| 8 | A | 2199 | A | C4-C5-N7 | 5.71 | 113.56 | 110.70 |
| 9 | B | 42 | C | N1-C1'-C2' | -5.71 | 105.72 | 112.00 |
| 9 | B | 112 | G | C2-N3-C4 | -5.71 | 109.05 | 111.90 |
| 34 | a | 198 | G | C2-N3-C4 | -5.71 | 109.05 | 111.90 |
| 34 | a | 349 | A | N9-C4-C5 | -5.71 | 103.52 | 105.80 |
| 8 | A | 674 | G | N9-C1'-C2' | -5.71 | 105.72 | 112.00 |
| 8 | A | 1037 | G | N3-C4-N9 | -5.71 | 122.58 | 126.00 |
| 8 | A | 2044 | C | O4'-C1'-N1 | -5.71 | 103.64 | 108.20 |
| 9 | B | 44 | G | C2-N3-C4 | -5.71 | 109.05 | 111.90 |
| 34 | a | 319 | G | C4-N9-C1' | -5.71 | 119.08 | 126.50 |
| 34 | a | 1262 | C | C6-N1-C1' | -5.71 | 113.95 | 120.80 |
| 8 | A | 2414 | G | C2-N3-C4 | -5.71 | 109.05 | 111.90 |
| 8 | A | 2899 | A | C5-N7-C8 | -5.71 | 101.05 | 103.90 |
| 9 | B | 54 | G | C5-C6-N1 | -5.71 | 108.65 | 111.50 |
| 34 | a | 1196 | A | C5-C6-N6 | -5.71 | 119.14 | 123.70 |
| 8 | A | 155 | A | C4-C5-N7 | 5.70 | 113.55 | 110.70 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 951 | C | N3-C4-C5 | 5.70 | 124.18 | 121.90 |
| 8 | A | 2367 | G | C8-N9-C4 | 5.70 | 108.68 | 106.40 |
| 9 | B | 76 | G | C2-N3-C4 | -5.70 | 109.05 | 111.90 |
| 34 | a | 429 | U | C2-N1-C1' | -5.70 | 110.86 | 117.70 |
| 34 | a | 927 | G | C2-N3-C4 | -5.70 | 109.05 | 111.90 |
| 34 | a | 1396 | A | C5-C6-N1 | 5.70 | 120.55 | 117.70 |
| 34 | a | 1430 | A | C8-N9-C4 | 5.70 | 108.08 | 105.80 |
| 34 | a | 836 | G | C8-N9-C4 | 5.70 | 108.68 | 106.40 |
| 8 | A | 269 | C | N3-C4-C5 | 5.70 | 124.18 | 121.90 |
| 8 | A | 372 | G | C2-N3-C4 | -5.70 | 109.05 | 111.90 |
| 8 | A | 785 | G | C2-N3-C4 | -5.70 | 109.05 | 111.90 |
| 8 | A | 854 | C | C6-N1-C2 | 5.70 | 122.58 | 120.30 |
| 8 | A | 1099 | G | N3-C4-C5 | 5.70 | 131.45 | 128.60 |
| 8 | A | 1277 | G | C4-C5-C6 | -5.70 | 115.38 | 118.80 |
| 8 | A | 1889 | A | C8-N9-C4 | 5.70 | 108.08 | 105.80 |
| 8 | A | 1966 | A | C8-N9-C4 | 5.70 | 108.08 | 105.80 |
| 8 | A | 2508 | G | C2-N3-C4 | -5.70 | 109.05 | 111.90 |
| 34 | a | 101 | A | C4-C5-C6 | -5.70 | 114.15 | 117.00 |
| 8 | A | 1604 | C | N3-C4-N4 | -5.70 | 114.01 | 118.00 |
| 8 | A | 30 | G | C2-N3-C4 | -5.70 | 109.05 | 111.90 |
| 8 | A | 86 | G | N3-C4-C5 | 5.70 | 131.45 | 128.60 |
| 8 | A | 697 | G | O4'-C1'-N9 | -5.70 | 103.64 | 108.20 |
| 8 | A | 815 | C | C6-N1-C2 | 5.70 | 122.58 | 120.30 |
| 34 | a | 1081 | A | N3-C4-C5 | -5.70 | 122.81 | 126.80 |
| 8 | A | 2713 | U | O4'-C1'-N1 | -5.69 | 103.64 | 108.20 |
| 9 | B | 9 | G | C8-N9-C1' | -5.69 | 119.60 | 127.00 |
| 34 | a | 585 | G | N3-C4-N9 | -5.69 | 122.58 | 126.00 |
| 8 | A | 354 | A | C8-N9-C4 | 5.69 | 108.08 | 105.80 |
| 8 | A | 693 | A | C8-N9-C4 | 5.69 | 108.08 | 105.80 |
| 34 | a | 674 | G | N1-C2-N3 | 5.69 | 127.31 | 123.90 |
| 8 | A | 27 | G | C2-N3-C4 | -5.69 | 109.06 | 111.90 |
| 8 | A | 271 | G | C4-C5-N7 | 5.69 | 113.08 | 110.80 |
| 8 | A | 313 | G | C2-N3-C4 | -5.69 | 109.05 | 111.90 |
| 8 | A | 1685 | C | C6-N1-C2 | 5.69 | 122.58 | 120.30 |
| 8 | A | 2297 | A | C2-N3-C4 | -5.69 | 107.75 | 110.60 |
| 8 | A | 2643 | G | N3-C4-C5 | 5.69 | 131.45 | 128.60 |
| 55 | v | 41 | C | N3-C4-N4 | -5.69 | 114.02 | 118.00 |
| 8 | A | 497 | A | N1-C6-N6 | -5.69 | 115.19 | 118.60 |
| 8 | A | 636 | G | N3-C4-N9 | -5.69 | 122.59 | 126.00 |
| 8 | A | 1048 | A | C8-N9-C4 | 5.69 | 108.08 | 105.80 |
| 8 | A | 837 | C | N3-C4-N4 | -5.69 | 114.02 | 118.00 |
| 34 | a | 413 | G | N1-C6-O6 | 5.69 | 123.31 | 119.90 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 2097 | A | N9-C4-C5 | -5.69 | 103.53 | 105.80 |
| 34 | a | 674 | G | C2-N3-C4 | -5.69 | 109.06 | 111.90 |
| 34 | a | 846 | G | C4-C5-N7 | 5.69 | 113.07 | 110.80 |
| 34 | a | 1230 | C | N3-C4-C5 | 5.69 | 124.17 | 121.90 |
| 8 | A | 481 | G | N3-C4-N9 | -5.68 | 122.59 | 126.00 |
| 8 | A | 1984 | G | C2-N3-C4 | -5.68 | 109.06 | 111.90 |
| 8 | A | 2280 | G | N3-C4-C5 | 5.68 | 131.44 | 128.60 |
| 8 | A | 1001 | A | N1-C6-N6 | 5.68 | 122.01 | 118.60 |
| 8 | A | 2054 | A | C8-N9-C4 | 5.68 | 108.07 | 105.80 |
| 8 | A | 2430 | A | C5-N7-C8 | -5.68 | 101.06 | 103.90 |
| 8 | A | 398 | C | N3-C4-N4 | -5.68 | 114.02 | 118.00 |
| 22 | O | 16 | ARG | CG-CD-NE | -5.68 | 99.87 | 111.80 |
| 8 | A | 410 | G | N3-C4-N9 | -5.68 | 122.59 | 126.00 |
| 8 | A | 956 | G | N3-C4-N9 | -5.68 | 122.59 | 126.00 |
| 8 | A | 1074 | G | N3-C4-N9 | -5.68 | 122.59 | 126.00 |
| 8 | A | 1916 | A | N9-C1'-C2' | -5.68 | 105.75 | 112.00 |
| 34 | a | 1096 | C | C6-N1-C2 | 5.68 | 122.57 | 120.30 |
| 8 | A | 770 | G | C8-N9-C4 | 5.68 | 108.67 | 106.40 |
| 8 | A | 1587 | G | C8-N9-C4 | 5.68 | 108.67 | 106.40 |
| 8 | A | 2846 | G | N3-C2-N2 | -5.68 | 115.92 | 119.90 |
| 34 | a | 213 | G | N3-C4-N9 | -5.68 | 122.59 | 126.00 |
| 8 | A | 57 | C | N3-C4-C5 | 5.68 | 124.17 | 121.90 |
| 8 | A | 1361 | G | C2-N3-C4 | -5.67 | 109.06 | 111.90 |
| 8 | A | 108 | G | C2-N3-C4 | -5.67 | 109.06 | 111.90 |
| 8 | A | 952 | G | N3-C4-N9 | -5.67 | 122.60 | 126.00 |
| 8 | A | 1543 | G | C4-N9-C1' | -5.67 | 119.12 | 126.50 |
| 34 | a | 1185 | G | C2-N3-C4 | -5.67 | 109.06 | 111.90 |
| 34 | a | 1309 | G | C4-C5-N7 | 5.67 | 113.07 | 110.80 |
| 8 | A | 488 | G | C4-N9-C1' | -5.67 | 119.13 | 126.50 |
| 8 | A | 1696 | G | C2-N3-C4 | -5.67 | 109.06 | 111.90 |
| 8 | A | 2718 | G | N3-C4-C5 | 5.67 | 131.44 | 128.60 |
| 34 | a | 326 | G | N3-C4-C5 | 5.67 | 131.44 | 128.60 |
| 8 | A | 1346 | G | C8-N9-C4 | 5.67 | 108.67 | 106.40 |
| 8 | A | 2137 | U | N1-C2-N3 | -5.67 | 111.50 | 114.90 |
| 9 | B | 88 | C | C2-N1-C1' | 5.67 | 125.04 | 118.80 |
| 8 | A | 326 | G | N3-C4-N9 | -5.67 | 122.60 | 126.00 |
| 8 | A | 2110 | G | C8-N9-C1' | -5.67 | 119.63 | 127.00 |
| 34 | a | 885 | G | N3-C4-C5 | 5.67 | 131.43 | 128.60 |
| 8 | A | 1421 | G | N3-C4-C5 | 5.67 | 131.43 | 128.60 |
| 8 | A | 1719 | G | C2-N3-C4 | -5.67 | 109.07 | 111.90 |
| 8 | A | 2415 | G | N3-C4-C5 | 5.67 | 131.43 | 128.60 |
| 8 | A | 2839 | G | N1-C2-N2 | -5.67 | 111.10 | 116.20 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 396 | G | C4-C5-N7 | 5.67 | 113.07 | 110.80 |
| 9 | B | 14 | U | C6-N1-C2 | 5.66 | 124.40 | 121.00 |
| 34 | a | 450 | G | N3-C4-C5 | 5.66 | 131.43 | 128.60 |
| 55 | v | 72 | A | N3-C4-C5 | 5.66 | 130.76 | 126.80 |
| 8 | A | 2674 | G | C8-N9-C4 | 5.66 | 108.67 | 106.40 |
| 8 | A | 923 | G | N3-C4-C5 | 5.66 | 131.43 | 128.60 |
| 8 | A | 938 | G | N3-C4-C5 | 5.66 | 131.43 | 128.60 |
| 8 | A | 2142 | A | C4-N9-C1' | 5.66 | 136.49 | 126.30 |
| 8 | A | 2407 | A | N1-C6-N6 | 5.66 | 122.00 | 118.60 |
| 34 | a | 167 | A | C8-N9-C4 | 5.66 | 108.06 | 105.80 |
| 8 | A | 91 | A | C8-N9-C4 | 5.66 | 108.06 | 105.80 |
| 8 | A | 919 | U | C6-N1-C2 | 5.66 | 124.39 | 121.00 |
| 8 | A | 2326 | C | N3-C4-N4 | -5.66 | 114.04 | 118.00 |
| 8 | A | 497 | A | C8-N9-C4 | 5.66 | 108.06 | 105.80 |
| 8 | A | 693 | A | C4-C5-N7 | 5.66 | 113.53 | 110.70 |
| 8 | A | 1106 | G | C4-N9-C1' | -5.66 | 119.15 | 126.50 |
| 8 | A | 1189 | A | N1-C6-N6 | 5.66 | 121.99 | 118.60 |
| 8 | A | 1230 | A | N9-C4-C5 | -5.66 | 103.54 | 105.80 |
| 8 | A | 2736 | A | C8-N9-C4 | 5.66 | 108.06 | 105.80 |
| 55 | v | 5 | G | N3-C4-N9 | -5.65 | 122.61 | 126.00 |
| 34 | a | 1331 | G | C6-C5-N7 | 5.65 | 133.79 | 130.40 |
| 8 | A | 675 | A | N9-C4-C5 | -5.65 | 103.54 | 105.80 |
| 8 | A | 2440 | C | N3-C4-C5 | 5.65 | 124.16 | 121.90 |
| 34 | a | 181 | A | C5-N7-C8 | -5.65 | 101.07 | 103.90 |
| 8 | A | 425 | G | C4-N9-C1' | -5.65 | 119.16 | 126.50 |
| 8 | A | 1933 | G | C5-C6-O6 | 5.65 | 131.99 | 128.60 |
| 8 | A | 2549 | G | C4-C5-N7 | 5.65 | 113.06 | 110.80 |
| 8 | A | 684 | G | C2-N3-C4 | -5.65 | 109.08 | 111.90 |
| 9 | B | 11 | C | O4'-C1'-N1 | -5.65 | 103.68 | 108.20 |
| 8 | A | 2544 | G | N3-C4-C5 | 5.64 | 131.42 | 128.60 |
| 34 | a | 1190 | G | N1-C2-N2 | 5.64 | 121.28 | 116.20 |
| 8 | A | 126 | A | N3-C4-C5 | 5.64 | 130.75 | 126.80 |
| 8 | A | 971 | G | N3-C4-C5 | 5.64 | 131.42 | 128.60 |
| 8 | A | 1142 | A | C2-N3-C4 | -5.64 | 107.78 | 110.60 |
| 34 | a | 1002 | G | N3-C4-N9 | -5.64 | 122.61 | 126.00 |
| 8 | A | 1615 | C | C6-N1-C2 | 5.64 | 122.56 | 120.30 |
| 8 | A | 1974 | C | N3-C4-C5 | 5.64 | 124.16 | 121.90 |
| 8 | A | 2077 | A | C8-N9-C4 | 5.64 | 108.06 | 105.80 |
| 34 | a | 542 | G | N9-C4-C5 | -5.64 | 103.14 | 105.40 |
| 8 | A | 1558 | C | C6-N1-C2 | 5.64 | 122.56 | 120.30 |
| 8 | A | 2121 | G | C6-C5-N7 | -5.64 | 127.02 | 130.40 |
| 9 | B | 118 | C | C6-N1-C2 | 5.64 | 122.56 | 120.30 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 1 | G | O4'-C1'-N9 | -5.63 | 103.69 | 108.20 |
| 8 | A | 375 | G | C2-N3-C4 | -5.63 | 109.08 | 111.90 |
| 8 | A | 1278 | C | C6-N1-C2 | 5.63 | 122.55 | 120.30 |
| 8 | A | 2742 | G | N3-C4-C5 | 5.63 | 131.42 | 128.60 |
| 34 | a | 433 | G | N3-C4-C5 | 5.63 | 131.42 | 128.60 |
| 8 | A | 134 | G | C4-C5-N7 | 5.63 | 113.05 | 110.80 |
| 8 | A | 763 | G | N3-C4-C5 | 5.63 | 131.42 | 128.60 |
| 8 | A | 1743 | G | C2-N3-C4 | -5.63 | 109.08 | 111.90 |
| 8 | A | 2550 | G | N3-C4-C5 | 5.63 | 131.42 | 128.60 |
| 34 | a | 227 | G | C8-N9-C4 | 5.63 | 108.65 | 106.40 |
| 8 | A | 695 | G | N3-C4-C5 | 5.63 | 131.42 | 128.60 |
| 8 | A | 1007 | C | C6-N1-C2 | 5.63 | 122.55 | 120.30 |
| 8 | A | 2123 | G | C8-N9-C4 | 5.63 | 108.65 | 106.40 |
| 8 | A | 2426 | A | C8-N9-C4 | 5.63 | 108.05 | 105.80 |
| 9 | B | 4 | C | C6-N1-C2 | 5.63 | 122.55 | 120.30 |
| 34 | a | 1371 | G | N3-C4-N9 | -5.63 | 122.62 | 126.00 |
| 8 | A | 781 | A | C5-C6-N6 | 5.63 | 128.20 | 123.70 |
| 8 | A | 1238 | G | C8-N9-C4 | 5.63 | 108.65 | 106.40 |
| 8 | A | 2721 | A | N1-C6-N6 | 5.63 | 121.98 | 118.60 |
| 8 | A | 308 | G | N3-C4-C5 | 5.63 | 131.41 | 128.60 |
| 8 | A | 1095 | A | N1-C2-N3 | 5.63 | 132.12 | 129.30 |
| 8 | A | 1702 | G | C2-N3-C4 | -5.63 | 109.09 | 111.90 |
| 8 | A | 1857 | G | N3-C4-C5 | 5.63 | 131.41 | 128.60 |
| 8 | A | 2719 | G | C2-N3-C4 | -5.63 | 109.09 | 111.90 |
| 34 | a | 379 | C | N3-C4-N4 | -5.63 | 114.06 | 118.00 |
| 8 | A | 376 | G | N3-C4-C5 | 5.63 | 131.41 | 128.60 |
| 8 | A | 2151 | U | N1-C1'-C2' | -5.63 | 105.81 | 112.00 |
| 34 | a | 495 | A | C5-C6-N6 | -5.63 | 119.20 | 123.70 |
| 8 | A | 52 | A | C6-C5-N7 | -5.62 | 128.36 | 132.30 |
| 8 | A | 2623 | G | C8-N9-C4 | 5.62 | 108.65 | 106.40 |
| 9 | B | 68 | C | C6-N1-C2 | 5.62 | 122.55 | 120.30 |
| 55 | v | 29 | G | C2-N3-C4 | -5.62 | 109.09 | 111.90 |
| 8 | A | 424 | G | C2-N3-C4 | -5.62 | 109.09 | 111.90 |
| 8 | A | 882 | G | N3-C4-C5 | 5.62 | 131.41 | 128.60 |
| 8 | A | 1369 | G | N3-C4-N9 | -5.62 | 122.63 | 126.00 |
| 34 | a | 859 | G | C8-N9-C4 | 5.62 | 108.65 | 106.40 |
| 8 | A | 1038 | G | C2-N3-C4 | -5.62 | 109.09 | 111.90 |
| 34 | a | 861 | G | N3-C4-C5 | 5.62 | 131.41 | 128.60 |
| 8 | A | 460 | A | C8-N9-C4 | 5.62 | 108.05 | 105.80 |
| 8 | A | 524 | G | C2-N3-C4 | -5.62 | 109.09 | 111.90 |
| 8 | A | 2490 | G | C4-C5-N7 | 5.62 | 113.05 | 110.80 |
| 8 | A | 351 | C | O4'-C1'-N1 | -5.62 | 103.71 | 108.20 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 8 | A | 2470 | G | C2-N3-C4 | -5.62 | 109.09 | 111.90 |
| 34 | a | 944 | G | N3-C4-C5 | 5.62 | 131.41 | 128.60 |
| 34 | a | 1262 | C | C2-N1-C1' | 5.62 | 124.98 | 118.80 |
| 8 | A | 400 | G | C4-C5-N7 | 5.62 | 113.05 | 110.80 |
| 8 | A | 536 | G | C2-N3-C4 | -5.62 | 109.09 | 111.90 |
| 8 | A | 1007 | C | N3-C4-C5 | 5.62 | 124.15 | 121.90 |
| 8 | A | 263 | G | O4'-C1'-N9 | -5.61 | 103.71 | 108.20 |
| 8 | A | 488 | G | C8-N9-C4 | 5.61 | 108.65 | 106.40 |
| 8 | A | 2273 | A | C8-N9-C4 | 5.61 | 108.05 | 105.80 |
| 34 | a | 858 | G | C6-C5-N7 | 5.61 | 133.77 | 130.40 |
| 55 | v | 23 | C | C6-N1-C2 | -5.61 | 118.06 | 120.30 |
| 8 | A | 908 | C | C6-N1-C2 | 5.61 | 122.55 | 120.30 |
| 8 | A | 2886 | A | N1-C6-N6 | 5.61 | 121.97 | 118.60 |
| 8 | A | 406 | G | N3-C4-C5 | 5.61 | 131.41 | 128.60 |
| 8 | A | 495 | G | C8-N9-C4 | 5.61 | 108.64 | 106.40 |
| 8 | A | 1543 | G | C8-N9-C4 | 5.61 | 108.64 | 106.40 |
| 8 | A | 2742 | G | N3-C4-N9 | -5.61 | 122.63 | 126.00 |
| 34 | a | 27 | G | C2-N3-C4 | -5.61 | 109.09 | 111.90 |
| 34 | a | 417 | G | C2-N3-C4 | -5.61 | 109.09 | 111.90 |
| 8 | A | 254 | G | N3-C4-C5 | 5.61 | 131.40 | 128.60 |
| 8 | A | 1451 | C | N3-C4-N4 | -5.61 | 114.07 | 118.00 |
| 8 | A | 1972 | G | C5'-C4'-C3' | 5.61 | 124.97 | 116.00 |
| 8 | A | 2793 | C | C6-N1-C2 | 5.61 | 122.54 | 120.30 |
| 8 | A | 1745 | A | C4-C5-N7 | 5.61 | 113.50 | 110.70 |
| 34 | a | 162 | A | O4'-C1'-N9 | 5.61 | 112.69 | 108.20 |
| 34 | a | 1105 | A | C8-N9-C4 | 5.61 | 108.04 | 105.80 |
| 8 | A | 346 | A | N9-C4-C5 | -5.61 | 103.56 | 105.80 |
| 8 | A | 581 | C | C6-N1-C1' | -5.61 | 114.07 | 120.80 |
| 8 | A | 1182 | G | N3-C4-N9 | -5.61 | 122.64 | 126.00 |
| 34 | a | 639 | G | C2-N3-C4 | -5.61 | 109.10 | 111.90 |
| 8 | A | 109 | C | N3-C4-N4 | -5.60 | 114.08 | 118.00 |
| 8 | A | 940 | G | C2-N3-C4 | -5.60 | 109.10 | 111.90 |
| 8 | A | 1968 | G | C4-C5-N7 | 5.60 | 113.04 | 110.80 |
| 8 | A | 1974 | C | C6-N1-C2 | 5.60 | 122.54 | 120.30 |
| 34 | a | 482 | A | C5-C6-N6 | -5.60 | 119.22 | 123.70 |
| 8 | A | 1152 | C | N3-C4-C5 | 5.60 | 124.14 | 121.90 |
| 8 | A | 1367 | A | N1-C6-N6 | 5.60 | 121.96 | 118.60 |
| 8 | A | 2389 | G | C6-C5-N7 | 5.60 | 133.76 | 130.40 |
| 8 | A | 2397 | G | N1-C2-N2 | -5.60 | 111.16 | 116.20 |
| 34 | a | 775 | G | C2-N3-C4 | -5.60 | 109.10 | 111.90 |
| 34 | a | 915 | A | C8-N9-C4 | 5.60 | 108.04 | 105.80 |
| 8 | A | 704 | G | C6-C5-N7 | 5.60 | 133.76 | 130.40 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 1030 | C | C6-N1-C2 | 5.60 | 122.54 | 120.30 |
| 8 | A | 1689 | A | C5-C6-N6 | -5.60 | 119.22 | 123.70 |
| 34 | a | 623 | C | C6-N1-C2 | 5.60 | 122.54 | 120.30 |
| 34 | a | 1475 | G | C2-N3-C4 | -5.60 | 109.10 | 111.90 |
| 8 | A | 761 | A | C8-N9-C4 | 5.60 | 108.04 | 105.80 |
| 8 | A | 1193 | G | C2-N3-C4 | -5.60 | 109.10 | 111.90 |
| 34 | a | 784 | A | C4-C5-N7 | 5.60 | 113.50 | 110.70 |
| 8 | A | 1544 | A | N1-C6-N6 | 5.60 | 121.96 | 118.60 |
| 8 | A | 1934 | C | N3-C4-N4 | -5.60 | 114.08 | 118.00 |
| 8 | A | 1230 | A | C8-N9-C4 | 5.59 | 108.04 | 105.80 |
| 8 | A | 1451 | C | C5-C4-N4 | 5.59 | 124.12 | 120.20 |
| 8 | A | 2320 | U | C6-N1-C2 | 5.59 | 124.36 | 121.00 |
| 8 | A | 2854 | G | C8-N9-C4 | 5.59 | 108.64 | 106.40 |
| 9 | B | 72 | G | N3-C4-C5 | 5.59 | 131.40 | 128.60 |
| 34 | a | 151 | A | C5-N7-C8 | -5.59 | 101.10 | 103.90 |
| 34 | a | 461 | A | N3-C4-C5 | 5.59 | 130.72 | 126.80 |
| 8 | A | 23 | G | N3-C4-C5 | 5.59 | 131.40 | 128.60 |
| 8 | A | 193 | U | C6-N1-C2 | 5.59 | 124.36 | 121.00 |
| 8 | A | 1429 | G | C8-N9-C4 | 5.59 | 108.64 | 106.40 |
| 8 | A | 2024 | G | N1-C2-N2 | -5.59 | 111.17 | 116.20 |
| 34 | a | 1375 | A | N9-C4-C5 | -5.59 | 103.56 | 105.80 |
| 55 | v | 46 | A | N9-C4-C5 | -5.59 | 103.56 | 105.80 |
| 8 | A | 211 | C | C2-N1-C1' | 5.59 | 124.95 | 118.80 |
| 8 | A | 522 | A | C4-C5-N7 | 5.59 | 113.50 | 110.70 |
| 34 | a | 674 | G | N7-C8-N9 | 5.59 | 115.89 | 113.10 |
| 37 | d | 12 | ARG | NE-CZ-NH2 | -5.59 | 117.50 | 120.30 |
| 8 | A | 1345 | C | N3-C4-C5 | 5.59 | 124.14 | 121.90 |
| 8 | A | 2217 | G | C5-N7-C8 | -5.59 | 101.51 | 104.30 |
| 34 | a | 535 | A | C8-N9-C4 | 5.59 | 108.03 | 105.80 |
| 8 | A | 1532 | A | O4'-C1'-N9 | -5.58 | 103.73 | 108.20 |
| 8 | A | 2191 | A | C2-N3-C4 | -5.58 | 107.81 | 110.60 |
| 34 | a | 898 | G | C8-N9-C4 | 5.58 | 108.63 | 106.40 |
| 8 | A | 726 | G | N1-C2-N3 | 5.58 | 127.25 | 123.90 |
| 8 | A | 2670 | A | C8-N9-C4 | 5.58 | 108.03 | 105.80 |
| 8 | A | 2839 | G | C5-C6-N1 | -5.58 | 108.71 | 111.50 |
| 8 | A | 2340 | A | N9-C4-C5 | -5.58 | 103.57 | 105.80 |
| 10 | C | 216 | ARG | CG-CD-NE | 5.58 | 123.52 | 111.80 |
| 8 | A | 463 | G | N3-C4-N9 | -5.58 | 122.65 | 126.00 |
| 8 | A | 1421 | G | C8-N9-C4 | 5.58 | 108.63 | 106.40 |
| 8 | A | 2271 | G | O4'-C1'-N9 | -5.58 | 103.74 | 108.20 |
| 8 | A | 1538 | G | C2-N3-C4 | -5.57 | 109.11 | 111.90 |
| 8 | A | 1696 | G | N3-C4-C5 | 5.57 | 131.39 | 128.60 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 9 | B | 93 | C | C2-N1-C1' | 5.57 | 124.93 | 118.80 |
| 34 | a | 597 | G | N3-C4-N9 | -5.57 | 122.66 | 126.00 |
| 34 | a | 851 | G | C8-N9-C4 | 5.57 | 108.63 | 106.40 |
| 8 | A | 882 | G | N3-C4-N9 | -5.57 | 122.66 | 126.00 |
| 8 | A | 2744 | G | N3-C4-N9 | -5.57 | 122.66 | 126.00 |
| 8 | A | 230 | G | N3-C4-C5 | 5.57 | 131.38 | 128.60 |
| 8 | A | 561 | G | N3-C4-C5 | 5.57 | 131.38 | 128.60 |
| 8 | A | 628 | G | N3-C4-C5 | 5.57 | 131.38 | 128.60 |
| 8 | A | 727 | A | O4'-C1'-N9 | -5.57 | 103.74 | 108.20 |
| 8 | A | 904 | G | N3-C4-C5 | 5.57 | 131.38 | 128.60 |
| 8 | A | 922 | C | C6-N1-C2 | 5.57 | 122.53 | 120.30 |
| 8 | A | 1708 | C | N3-C4-C5 | 5.57 | 124.13 | 121.90 |
| 8 | A | 2150 | C | O4'-C1'-N1 | 5.57 | 112.66 | 108.20 |
| 34 | a | 36 | C | C6-N1-C2 | 5.57 | 122.53 | 120.30 |
| 8 | A | 855 | G | N3-C4-C5 | 5.57 | 131.38 | 128.60 |
| 34 | a | 799 | G | N3-C4-C5 | 5.57 | 131.38 | 128.60 |
| 8 | A | 465 | G | N3-C4-N9 | -5.57 | 122.66 | 126.00 |
| 8 | A | 799 | G | N3-C4-N9 | -5.57 | 122.66 | 126.00 |
| 8 | A | 1503 | A | N3-C4-C5 | 5.57 | 130.70 | 126.80 |
| 8 | A | 1811 | G | N3-C4-C5 | 5.57 | 131.38 | 128.60 |
| 8 | A | 2901 | C | N3-C2-O2 | -5.57 | 118.00 | 121.90 |
| 8 | A | 721 | A | C4-C5-N7 | 5.57 | 113.48 | 110.70 |
| 34 | a | 712 | A | N9-C4-C5 | -5.57 | 103.57 | 105.80 |
| 34 | a | 201 | G | C6-C5-N7 | 5.56 | 133.74 | 130.40 |
| 34 | a | 337 | G | C8-N9-C4 | 5.56 | 108.62 | 106.40 |
| 8 | A | 899 | A | C5-C6-N6 | -5.56 | 119.25 | 123.70 |
| 8 | A | 1137 | G | N3-C4-C5 | 5.56 | 131.38 | 128.60 |
| 8 | A | 1767 | G | C4-N9-C1' | -5.56 | 119.27 | 126.50 |
| 8 | A | 2378 | A | C5-N7-C8 | -5.56 | 101.12 | 103.90 |
| 8 | A | 2481 | G | C8-N9-C4 | 5.56 | 108.62 | 106.40 |
| 8 | A | 2890 | G | C4-C5-N7 | 5.56 | 113.03 | 110.80 |
| 34 | a | 1353 | G | N3-C4-N9 | -5.56 | 122.66 | 126.00 |
| 8 | A | 1596 | A | C8-N9-C4 | 5.56 | 108.03 | 105.80 |
| 34 | a | 15 | G | C2-N3-C4 | -5.56 | 109.12 | 111.90 |
| 9 | B | 101 | A | C8-N9-C4 | 5.56 | 108.02 | 105.80 |
| 8 | A | 424 | G | N3-C4-N9 | -5.56 | 122.67 | 126.00 |
| 8 | A | 609 | A | C5-C6-N6 | -5.56 | 119.25 | 123.70 |
| 8 | A | 819 | A | C4-C5-N7 | 5.56 | 113.48 | 110.70 |
| 8 | A | 1221 | C | N3-C4-C5 | 5.56 | 124.12 | 121.90 |
| 8 | A | 2472 | G | C4-N9-C1' | -5.56 | 119.28 | 126.50 |
| 34 | a | 43 | C | C6-N1-C2 | 5.56 | 122.52 | 120.30 |
| 34 | a | 847 | G | N3-C4-N9 | -5.56 | 122.67 | 126.00 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-----------|-------|-------------|----------|
| 42 | i | 86 | LEU | CB-CG-CD2 | -5.56 | 101.55 | 111.00 |
| 8 | A | 470 | A | N1-C6-N6 | 5.56 | 121.93 | 118.60 |
| 8 | A | 1333 | G | N9-C4-C5 | -5.56 | 103.18 | 105.40 |
| 8 | A | 1347 | A | C4-C5-C6 | -5.56 | 114.22 | 117.00 |
| 34 | a | 1011 | C | C5-C4-N4 | 5.56 | 124.09 | 120.20 |
| 8 | A | 329 | G | C8-N9-C4 | 5.55 | 108.62 | 106.40 |
| 8 | A | 1202 | G | N3-C4-N9 | -5.55 | 122.67 | 126.00 |
| 8 | A | 1529 | G | N9-C4-C5 | -5.55 | 103.18 | 105.40 |
| 8 | A | 1715 | G | N3-C4-N9 | -5.55 | 122.67 | 126.00 |
| 34 | a | 402 | G | N3-C4-N9 | -5.55 | 122.67 | 126.00 |
| 34 | a | 623 | C | N1-C2-O2 | 5.55 | 122.23 | 118.90 |
| 8 | A | 381 | G | C4-N9-C1' | -5.55 | 119.28 | 126.50 |
| 8 | A | 997 | G | C8-N9-C4 | 5.55 | 108.62 | 106.40 |
| 8 | A | 1215 | G | N1-C2-N2 | -5.55 | 111.21 | 116.20 |
| 8 | A | 1407 | G | C2-N3-C4 | -5.55 | 109.13 | 111.90 |
| 34 | a | 456 | A | N7-C8-N9 | 5.55 | 116.57 | 113.80 |
| 8 | A | 1685 | C | N3-C4-N4 | -5.55 | 114.12 | 118.00 |
| 8 | A | 1824 | G | N3-C4-C5 | 5.55 | 131.37 | 128.60 |
| 8 | A | 2502 | G | C4-N9-C1' | -5.55 | 119.29 | 126.50 |
| 32 | Y | 19 | LEU | CA-CB-CG | 5.55 | 128.06 | 115.30 |
| 34 | a | 685 | G | N3-C4-N9 | -5.55 | 122.67 | 126.00 |
| 34 | a | 1329 | A | C4-C5-N7 | 5.55 | 113.47 | 110.70 |
| 8 | A | 522 | A | N9-C4-C5 | -5.54 | 103.58 | 105.80 |
| 8 | A | 1384 | A | C5-C6-N6 | -5.54 | 119.27 | 123.70 |
| 34 | a | 1255 | G | C8-N9-C4 | 5.54 | 108.62 | 106.40 |
| 8 | A | 1643 | G | C5-C6-O6 | 5.54 | 131.93 | 128.60 |
| 34 | a | 1133 | G | C2-N3-C4 | -5.54 | 109.13 | 111.90 |
| 8 | A | 346 | A | C5-C6-N6 | -5.54 | 119.27 | 123.70 |
| 8 | A | 361 | G | C8-N9-C1' | -5.54 | 119.80 | 127.00 |
| 8 | A | 402 | A | N9-C4-C5 | -5.54 | 103.58 | 105.80 |
| 8 | A | 799 | G | N3-C4-C5 | 5.54 | 131.37 | 128.60 |
| 8 | A | 81 | G | C8-N9-C4 | 5.54 | 108.61 | 106.40 |
| 8 | A | 124 | G | C2-N3-C4 | -5.54 | 109.13 | 111.90 |
| 8 | A | 881 | G | C2-N3-C4 | -5.54 | 109.13 | 111.90 |
| 8 | A | 1846 | G | N3-C4-N9 | -5.54 | 122.68 | 126.00 |
| 8 | A | 2524 | G | C2-N3-C4 | -5.54 | 109.13 | 111.90 |
| 8 | A | 2852 | G | C2-N3-C4 | -5.54 | 109.13 | 111.90 |
| 9 | B | 106 | G | N3-C4-C5 | 5.54 | 131.37 | 128.60 |
| 8 | A | 73 | A | N1-C6-N6 | -5.54 | 115.28 | 118.60 |
| 8 | A | 254 | G | C2-N3-C4 | -5.54 | 109.13 | 111.90 |
| 8 | A | 707 | G | C8-N9-C4 | 5.54 | 108.61 | 106.40 |
| 8 | A | 1587 | G | C2-N3-C4 | -5.54 | 109.13 | 111.90 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 2899 | A | C5-C6-N6 | -5.54 | 119.27 | 123.70 |
| 34 | a | 682 | G | C8-N9-C4 | 5.54 | 108.61 | 106.40 |
| 34 | a | 1293 | C | N3-C4-N4 | -5.54 | 114.12 | 118.00 |
| 26 | S | 82 | MET | N-CA-CB | 5.54 | 120.56 | 110.60 |
| 34 | a | 569 | C | N3-C4-C5 | 5.54 | 124.11 | 121.90 |
| 8 | A | 522 | A | C5-N7-C8 | -5.53 | 101.13 | 103.90 |
| 8 | A | 2444 | G | C5-C6-O6 | 5.53 | 131.92 | 128.60 |
| 9 | B | 70 | C | N3-C4-C5 | 5.53 | 124.11 | 121.90 |
| 34 | a | 225 | C | N3-C4-C5 | 5.53 | 124.11 | 121.90 |
| 34 | a | 856 | C | C6-N1-C2 | 5.53 | 122.51 | 120.30 |
| 34 | a | 990 | C | N3-C4-C5 | 5.53 | 124.11 | 121.90 |
| 8 | A | 134 | G | C8-N9-C4 | 5.53 | 108.61 | 106.40 |
| 8 | A | 733 | G | N3-C4-C5 | 5.53 | 131.37 | 128.60 |
| 8 | A | 1168 | G | C4-C5-N7 | 5.53 | 113.01 | 110.80 |
| 8 | A | 2014 | A | O4'-C1'-N9 | -5.53 | 103.78 | 108.20 |
| 8 | A | 2484 | G | N9-C1'-C2' | -5.53 | 105.92 | 112.00 |
| 34 | a | 197 | A | C4-C5-C6 | -5.53 | 114.24 | 117.00 |
| 55 | v | 63 | G | C2-N3-C4 | -5.53 | 109.14 | 111.90 |
| 8 | A | 500 | G | C2-N3-C4 | -5.52 | 109.14 | 111.90 |
| 8 | A | 1009 | A | N9-C4-C5 | -5.52 | 103.59 | 105.80 |
| 8 | A | 1055 | G | C6-C5-N7 | 5.52 | 133.71 | 130.40 |
| 8 | A | 1358 | G | C5-N7-C8 | -5.52 | 101.54 | 104.30 |
| 8 | A | 361 | G | O4'-C1'-N9 | -5.52 | 103.78 | 108.20 |
| 8 | A | 1473 | G | C8-N9-C4 | 5.52 | 108.61 | 106.40 |
| 8 | A | 681 | G | N3-C4-C5 | 5.52 | 131.36 | 128.60 |
| 34 | a | 1011 | C | C6-N1-C1' | 5.52 | 127.42 | 120.80 |
| 8 | A | 904 | G | C2-N3-C4 | -5.52 | 109.14 | 111.90 |
| 8 | A | 1349 | C | C6-N1-C2 | 5.52 | 122.51 | 120.30 |
| 8 | A | 1593 | A | N9-C4-C5 | -5.52 | 103.59 | 105.80 |
| 8 | A | 2110 | G | C8-N9-C4 | -5.52 | 104.19 | 106.40 |
| 34 | a | 38 | G | N3-C4-N9 | -5.52 | 122.69 | 126.00 |
| 34 | a | 265 | G | C8-N9-C4 | 5.52 | 108.61 | 106.40 |
| 8 | A | 1573 | G | N3-C4-C5 | 5.51 | 131.36 | 128.60 |
| 8 | A | 2186 | G | N7-C8-N9 | 5.51 | 115.86 | 113.10 |
| 34 | a | 474 | G | C4-N9-C1' | -5.51 | 119.33 | 126.50 |
| 34 | a | 627 | G | N3-C4-N9 | -5.51 | 122.69 | 126.00 |
| 34 | a | 1454 | G | N3-C4-N9 | -5.51 | 122.69 | 126.00 |
| 8 | A | 787 | C | C6-N1-C2 | 5.51 | 122.50 | 120.30 |
| 8 | A | 2812 | G | N3-C4-N9 | -5.51 | 122.69 | 126.00 |
| 34 | a | 1302 | C | C6-N1-C2 | 5.51 | 122.50 | 120.30 |
| 8 | A | 1749 | A | C4-C5-N7 | 5.51 | 113.46 | 110.70 |
| 8 | A | 2127 | G | N3-C4-C5 | 5.51 | 131.36 | 128.60 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34 | a | 302 | G | N3-C4-C5 | 5.51 | 131.35 | 128.60 |
| 34 | a | 588 | G | N9-C4-C5 | -5.51 | 103.20 | 105.40 |
| 34 | a | 1334 | G | N3-C4-C5 | 5.51 | 131.36 | 128.60 |
| 8 | A | 160 | A | C5'-C4'-O4' | 5.51 | 115.71 | 109.10 |
| 8 | A | 471 | A | C8-N9-C1' | -5.51 | 117.78 | 127.70 |
| 8 | A | 775 | G | C2-N3-C4 | -5.51 | 109.14 | 111.90 |
| 8 | A | 1077 | A | C5-C6-N6 | -5.51 | 119.29 | 123.70 |
| 8 | A | 2379 | G | C2-N3-C4 | -5.51 | 109.14 | 111.90 |
| 9 | B | 96 | G | N3-C4-N9 | -5.51 | 122.69 | 126.00 |
| 8 | A | 2767 | C | C5-C6-N1 | -5.51 | 118.25 | 121.00 |
| 8 | A | 1191 | G | C8-N9-C4 | 5.51 | 108.60 | 106.40 |
| 8 | A | 2557 | G | C2-N3-C4 | -5.51 | 109.15 | 111.90 |
| 9 | B | 117 | G | C2-N3-C4 | -5.51 | 109.15 | 111.90 |
| 34 | a | 776 | G | C8-N9-C4 | 5.51 | 108.60 | 106.40 |
| 34 | a | 1044 | A | N9-C4-C5 | -5.51 | 103.60 | 105.80 |
| 34 | a | 1175 | G | N3-C4-C5 | 5.51 | 131.35 | 128.60 |
| 34 | a | 1296 | C | C6-N1-C2 | 5.51 | 122.50 | 120.30 |
| 8 | A | 2575 | C | C2-N3-C4 | -5.50 | 117.15 | 119.90 |
| 8 | A | 2875 | C | N1-C2-O2 | 5.50 | 122.20 | 118.90 |
| 8 | A | 936 | A | C5-N7-C8 | -5.50 | 101.15 | 103.90 |
| 8 | A | 1220 | G | C8-N9-C1' | 5.50 | 134.16 | 127.00 |
| 8 | A | 1845 | G | C2-N3-C4 | -5.50 | 109.15 | 111.90 |
| 8 | A | 2730 | C | N3-C4-C5 | 5.50 | 124.10 | 121.90 |
| 34 | a | 1155 | A | C2-N3-C4 | -5.50 | 107.85 | 110.60 |
| 34 | a | 278 | G | C4-N9-C1' | -5.50 | 119.35 | 126.50 |
| 34 | a | 424 | G | N3-C4-C5 | 5.50 | 131.35 | 128.60 |
| 34 | a | 1252 | A | C8-N9-C4 | 5.50 | 108.00 | 105.80 |
| 34 | a | 1323 | G | N9-C4-C5 | -5.50 | 103.20 | 105.40 |
| 8 | A | 1888 | G | N3-C4-N9 | -5.50 | 122.70 | 126.00 |
| 8 | A | 939 | G | N3-C4-N9 | -5.50 | 122.70 | 126.00 |
| 34 | a | 635 | A | N9-C4-C5 | -5.50 | 103.60 | 105.80 |
| 8 | A | 177 | G | O4'-C1'-N9 | 5.50 | 112.60 | 108.20 |
| 8 | A | 2802 | G | N3-C4-C5 | 5.50 | 131.35 | 128.60 |
| 34 | a | 613 | C | C2-N1-C1' | 5.50 | 124.85 | 118.80 |
| 8 | A | 899 | A | N9-C1'-C2' | -5.50 | 105.95 | 112.00 |
| 8 | A | 1039 | A | N1-C6-N6 | 5.50 | 121.90 | 118.60 |
| 8 | A | 2416 | C | C6-N1-C2 | 5.50 | 122.50 | 120.30 |
| 8 | A | 733 | G | N3-C4-N9 | -5.49 | 122.70 | 126.00 |
| 8 | A | 815 | C | C6-N1-C1' | -5.49 | 114.21 | 120.80 |
| 8 | A | 1226 | A | C4-C5-C6 | -5.49 | 114.25 | 117.00 |
| 8 | A | 1514 | G | C5-C6-O6 | -5.49 | 125.30 | 128.60 |
| 8 | A | 2284 | A | C8-N9-C4 | 5.49 | 108.00 | 105.80 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 493 | G | N3-C4-N9 | -5.49 | 122.70 | 126.00 |
| 8 | A | 708 | G | N3-C4-N9 | -5.49 | 122.70 | 126.00 |
| 34 | a | 1347 | G | C4-N9-C1' | -5.49 | 119.36 | 126.50 |
| 8 | A | 695 | G | C8-N9-C4 | 5.49 | 108.60 | 106.40 |
| 8 | A | 857 | G | O4'-C1'-N9 | -5.49 | 103.81 | 108.20 |
| 8 | A | 1619 | G | C2-N3-C4 | -5.49 | 109.15 | 111.90 |
| 8 | A | 1945 | G | N9-C4-C5 | -5.49 | 103.20 | 105.40 |
| 8 | A | 2253 | G | N3-C4-N9 | -5.49 | 122.71 | 126.00 |
| 34 | a | 77 | A | N3-C4-C5 | 5.49 | 130.64 | 126.80 |
| 34 | a | 456 | A | C6-N1-C2 | -5.49 | 115.31 | 118.60 |
| 8 | A | 1291 | C | C6-N1-C2 | 5.49 | 122.50 | 120.30 |
| 8 | A | 2293 | G | N3-C4-C5 | 5.49 | 131.34 | 128.60 |
| 8 | A | 2338 | C | N3-C4-N4 | -5.49 | 114.16 | 118.00 |
| 34 | a | 1335 | U | O4'-C1'-N1 | -5.49 | 103.81 | 108.20 |
| 8 | A | 56 | A | C4-C5-N7 | 5.49 | 113.44 | 110.70 |
| 8 | A | 489 | G | C8-N9-C4 | 5.49 | 108.59 | 106.40 |
| 8 | A | 1910 | G | C8-N9-C4 | 5.49 | 108.59 | 106.40 |
| 8 | A | 875 | G | N3-C4-N9 | -5.49 | 122.71 | 126.00 |
| 8 | A | 1445 | G | C2-N3-C4 | -5.49 | 109.16 | 111.90 |
| 34 | a | 203 | G | N3-C4-N9 | -5.49 | 122.71 | 126.00 |
| 8 | A | 1151 | A | N9-C4-C5 | -5.48 | 103.61 | 105.80 |
| 34 | a | 1454 | G | C8-N9-C4 | 5.48 | 108.59 | 106.40 |
| 34 | a | 158 | G | C4-C5-N7 | 5.48 | 112.99 | 110.80 |
| 34 | a | 177 | G | C5-N7-C8 | -5.48 | 101.56 | 104.30 |
| 34 | a | 177 | G | N7-C8-N9 | 5.48 | 115.84 | 113.10 |
| 34 | a | 300 | A | N1-C6-N6 | 5.48 | 121.89 | 118.60 |
| 34 | a | 385 | C | N3-C4-N4 | -5.48 | 114.16 | 118.00 |
| 34 | a | 624 | C | N3-C2-O2 | -5.48 | 118.06 | 121.90 |
| 8 | A | 895 | U | O4'-C1'-N1 | 5.48 | 112.58 | 108.20 |
| 8 | A | 930 | G | C4-N9-C1' | -5.48 | 119.38 | 126.50 |
| 8 | A | 1567 | G | C2-N3-C4 | -5.48 | 109.16 | 111.90 |
| 8 | A | 793 | A | N9-C4-C5 | -5.48 | 103.61 | 105.80 |
| 8 | A | 1723 | G | N3-C4-N9 | -5.48 | 122.71 | 126.00 |
| 8 | A | 1965 | C | C6-N1-C2 | 5.48 | 122.49 | 120.30 |
| 8 | A | 2618 | G | N3-C4-N9 | -5.48 | 122.71 | 126.00 |
| 34 | a | 1288 | A | N9-C4-C5 | -5.48 | 103.61 | 105.80 |
| 8 | A | 1180 | U | C6-N1-C2 | 5.48 | 124.29 | 121.00 |
| 8 | A | 1587 | G | N3-C4-N9 | -5.48 | 122.71 | 126.00 |
| 8 | A | 2574 | G | N1-C6-O6 | -5.48 | 116.61 | 119.90 |
| 34 | a | 1058 | G | N3-C4-C5 | 5.48 | 131.34 | 128.60 |
| 8 | A | 2525 | G | N7-C8-N9 | -5.48 | 110.36 | 113.10 |
| 8 | A | 376 | G | C2-N3-C4 | -5.47 | 109.16 | 111.90 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 9 | B | 50 | A | C4-C5-N7 | 5.47 | 113.44 | 110.70 |
| 34 | a | 188 | C | N1-C1'-C2' | -5.47 | 105.98 | 112.00 |
| 34 | a | 897 | C | C6-N1-C2 | 5.47 | 122.49 | 120.30 |
| 8 | A | 16 | C | N3-C4-N4 | -5.47 | 114.17 | 118.00 |
| 8 | A | 718 | A | C8-N9-C4 | 5.47 | 107.99 | 105.80 |
| 56 | w | 68 | C | N3-C4-N4 | -5.47 | 114.17 | 118.00 |
| 8 | A | 828 | U | O4'-C1'-N1 | -5.47 | 103.82 | 108.20 |
| 8 | A | 1861 | G | C2-N3-C4 | -5.47 | 109.17 | 111.90 |
| 8 | A | 2169 | A | O4'-C1'-N9 | 5.47 | 112.58 | 108.20 |
| 8 | A | 2857 | G | C8-N9-C1' | 5.47 | 134.11 | 127.00 |
| 9 | B | 21 | G | C4-C5-N7 | 5.47 | 112.99 | 110.80 |
| 9 | B | 77 | U | C6-N1-C2 | 5.47 | 124.28 | 121.00 |
| 34 | a | 539 | A | N9-C4-C5 | -5.47 | 103.61 | 105.80 |
| 34 | a | 1337 | G | N3-C4-C5 | 5.47 | 131.34 | 128.60 |
| 8 | A | 2505 | G | N3-C2-N2 | 5.47 | 123.73 | 119.90 |
| 8 | A | 841 | G | N3-C4-C5 | 5.47 | 131.33 | 128.60 |
| 8 | A | 989 | G | C2-N3-C4 | -5.47 | 109.17 | 111.90 |
| 8 | A | 1226 | A | C5-C6-N1 | 5.47 | 120.43 | 117.70 |
| 8 | A | 2051 | A | C5-C6-N6 | -5.47 | 119.33 | 123.70 |
| 34 | a | 681 | A | C4-C5-N7 | 5.47 | 113.43 | 110.70 |
| 34 | a | 1209 | C | N3-C4-C5 | 5.47 | 124.09 | 121.90 |
| 8 | A | 1017 | G | C8-N9-C4 | 5.46 | 108.58 | 106.40 |
| 8 | A | 1222 | U | C6-N1-C2 | 5.46 | 124.28 | 121.00 |
| 8 | A | 1416 | G | N3-C4-N9 | -5.46 | 122.72 | 126.00 |
| 8 | A | 2121 | G | N3-C4-N9 | 5.46 | 129.28 | 126.00 |
| 8 | A | 217 | A | C4-C5-C6 | -5.46 | 114.27 | 117.00 |
| 34 | a | 765 | G | C2-N3-C4 | -5.46 | 109.17 | 111.90 |
| 8 | A | 189 | G | N9-C4-C5 | -5.46 | 103.22 | 105.40 |
| 8 | A | 586 | A | N9-C4-C5 | -5.46 | 103.62 | 105.80 |
| 8 | A | 759 | G | N3-C4-C5 | 5.46 | 131.33 | 128.60 |
| 8 | A | 1261 | C | N3-C4-C5 | 5.46 | 124.08 | 121.90 |
| 8 | A | 1600 | C | N3-C4-N4 | -5.46 | 114.18 | 118.00 |
| 8 | A | 2579 | C | N1-C2-O2 | 5.46 | 122.18 | 118.90 |
| 34 | a | 141 | G | C2-N3-C4 | -5.46 | 109.17 | 111.90 |
| 34 | a | 587 | G | N3-C4-C5 | 5.46 | 131.33 | 128.60 |
| 8 | A | 2190 | G | C5-C6-N1 | -5.46 | 108.77 | 111.50 |
| 34 | a | 484 | G | N3-C4-C5 | 5.46 | 131.33 | 128.60 |
| 8 | A | 400 | G | N9-C4-C5 | -5.46 | 103.22 | 105.40 |
| 8 | A | 869 | G | N3-C4-C5 | 5.46 | 131.33 | 128.60 |
| 8 | A | 1368 | G | C8-N9-C4 | 5.46 | 108.58 | 106.40 |
| 8 | A | 2217 | G | C4-C5-N7 | 5.46 | 112.98 | 110.80 |
| 8 | A | 2767 | C | N3-C4-N4 | -5.46 | 114.18 | 118.00 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 34 | a | 547 | A | C8-N9-C4 | 5.46 | 107.98 | 105.80 |
| 34 | a | 744 | C | N3-C4-N4 | -5.46 | 114.18 | 118.00 |
| 8 | A | 220 | G | N7-C8-N9 | 5.46 | 115.83 | 113.10 |
| 8 | A | 471 | A | C6-C5-N7 | -5.46 | 128.48 | 132.30 |
| 8 | A | 640 | C | C2-N1-C1' | 5.46 | 124.80 | 118.80 |
| 8 | A | 1540 | G | N3-C4-N9 | -5.46 | 122.73 | 126.00 |
| 8 | A | 2373 | G | N3-C4-N9 | -5.46 | 122.73 | 126.00 |
| 34 | a | 525 | C | C6-N1-C2 | 5.46 | 122.48 | 120.30 |
| 34 | a | 627 | G | C4-N9-C1' | -5.46 | 119.41 | 126.50 |
| 34 | a | 675 | A | N7-C8-N9 | 5.46 | 116.53 | 113.80 |
| 34 | a | 688 | G | C2-N3-C4 | -5.46 | 109.17 | 111.90 |
| 34 | a | 453 | G | N1-C2-N2 | -5.46 | 111.29 | 116.20 |
| 8 | A | 7 | G | C2-N3-C4 | -5.45 | 109.17 | 111.90 |
| 8 | A | 951 | C | N3-C4-N4 | -5.45 | 114.18 | 118.00 |
| 8 | A | 1862 | G | C2-N3-C4 | -5.45 | 109.17 | 111.90 |
| 8 | A | 1865 | U | O4'-C1'-N1 | 5.45 | 112.56 | 108.20 |
| 34 | a | 1109 | C | C6-N1-C2 | 5.45 | 122.48 | 120.30 |
| 56 | w | 5 | G | N3-C4-C5 | 5.45 | 131.33 | 128.60 |
| 8 | A | 45 | G | C8-N9-C4 | 5.45 | 108.58 | 106.40 |
| 8 | A | 514 | A | C8-N9-C4 | 5.45 | 107.98 | 105.80 |
| 8 | A | 60 | G | N3-C4-N9 | -5.45 | 122.73 | 126.00 |
| 8 | A | 2413 | G | C5-C6-O6 | 5.45 | 131.87 | 128.60 |
| 34 | a | 309 | A | C8-N9-C4 | 5.45 | 107.98 | 105.80 |
| 34 | a | 1289 | A | C8-N9-C4 | 5.45 | 107.98 | 105.80 |
| 8 | A | 212 | G | N3-C4-N9 | -5.45 | 122.73 | 126.00 |
| 8 | A | 1540 | G | C5-N7-C8 | -5.45 | 101.58 | 104.30 |
| 8 | A | 1908 | C | N3-C4-C5 | 5.45 | 124.08 | 121.90 |
| 34 | a | 1288 | A | C4-C5-N7 | 5.45 | 113.42 | 110.70 |
| 34 | a | 1310 | G | C2-N3-C4 | -5.45 | 109.18 | 111.90 |
| 8 | A | 73 | A | C4-C5-C6 | -5.45 | 114.28 | 117.00 |
| 8 | A | 1346 | G | C2-N3-C4 | -5.45 | 109.18 | 111.90 |
| 8 | A | 1713 | A | N3-C4-C5 | 5.45 | 130.61 | 126.80 |
| 8 | A | 2862 | G | C2-N3-C4 | -5.45 | 109.18 | 111.90 |
| 34 | a | 168 | G | N1-C6-O6 | -5.45 | 116.63 | 119.90 |
| 34 | a | 601 | G | N3-C4-C5 | 5.45 | 131.32 | 128.60 |
| 8 | A | 261 | G | C2-N3-C4 | -5.44 | 109.18 | 111.90 |
| 8 | A | 301 | G | O4'-C1'-N9 | 5.44 | 112.56 | 108.20 |
| 8 | A | 1398 | C | C6-N1-C2 | 5.44 | 122.48 | 120.30 |
| 8 | A | 1768 | C | C6-N1-C2 | 5.44 | 122.48 | 120.30 |
| 8 | A | 2600 | A | C8-N9-C4 | 5.44 | 107.98 | 105.80 |
| 8 | A | 487 | C | N3-C2-O2 | -5.44 | 118.09 | 121.90 |
| 8 | A | 793 | A | C8-N9-C4 | 5.44 | 107.98 | 105.80 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 1728 | C | C2-N1-C1' | -5.44 | 112.81 | 118.80 |
| 8 | A | 2164 | C | C5-C4-N4 | -5.44 | 116.39 | 120.20 |
| 9 | B | 69 | G | N3-C4-C5 | 5.44 | 131.32 | 128.60 |
| 34 | a | 1210 | C | N3-C4-C5 | 5.44 | 124.08 | 121.90 |
| 34 | a | 1255 | G | N3-C4-N9 | -5.44 | 122.73 | 126.00 |
| 8 | A | 1755 | A | C5-C6-N6 | 5.44 | 128.05 | 123.70 |
| 8 | A | 2732 | G | O4'-C1'-N9 | -5.44 | 103.85 | 108.20 |
| 34 | a | 849 | G | N3-C4-N9 | -5.44 | 122.73 | 126.00 |
| 34 | a | 1034 | G | N3-C4-N9 | -5.44 | 122.73 | 126.00 |
| 56 | w | 27 | G | N3-C4-C5 | 5.44 | 131.32 | 128.60 |
| 8 | A | 1863 | G | N3-C4-N9 | -5.44 | 122.74 | 126.00 |
| 8 | A | 1448 | G | C2-N3-C4 | -5.44 | 109.18 | 111.90 |
| 8 | A | 2603 | G | C2-N3-C4 | -5.44 | 109.18 | 111.90 |
| 34 | a | 407 | U | C6-N1-C2 | 5.44 | 124.26 | 121.00 |
| 34 | a | 1011 | C | P-O3'-C3' | -5.44 | 113.18 | 119.70 |
| 8 | A | 214 | G | C2-N3-C4 | -5.44 | 109.18 | 111.90 |
| 8 | A | 891 | G | C2-N3-C4 | -5.44 | 109.18 | 111.90 |
| 8 | A | 1171 | G | N7-C8-N9 | 5.44 | 115.82 | 113.10 |
| 8 | A | 1556 | C | N3-C4-N4 | -5.43 | 114.20 | 118.00 |
| 34 | a | 1226 | C | N3-C4-C5 | 5.43 | 124.07 | 121.90 |
| 8 | A | 1126 | A | C5-C6-N6 | -5.43 | 119.35 | 123.70 |
| 8 | A | 2869 | G | N3-C4-C5 | 5.43 | 131.32 | 128.60 |
| 34 | a | 786 | G | C2-N3-C4 | -5.43 | 109.18 | 111.90 |
| 34 | a | 1476 | A | N9-C4-C5 | -5.43 | 103.63 | 105.80 |
| 8 | A | 1124 | G | N3-C4-N9 | -5.43 | 122.74 | 126.00 |
| 8 | A | 1518 | C | N3-C4-C5 | 5.43 | 124.07 | 121.90 |
| 34 | a | 107 | G | C8-N9-C4 | 5.43 | 108.57 | 106.40 |
| 34 | a | 698 | G | N3-C4-C5 | 5.43 | 131.31 | 128.60 |
| 34 | a | 778 | G | N3-C2-N2 | -5.43 | 116.10 | 119.90 |
| 34 | a | 1467 | C | C6-N1-C2 | 5.43 | 122.47 | 120.30 |
| 8 | A | 56 | A | C8-N9-C4 | 5.43 | 107.97 | 105.80 |
| 8 | A | 186 | G | N3-C4-C5 | 5.43 | 131.31 | 128.60 |
| 8 | A | 1492 | G | C4-C5-C6 | -5.43 | 115.54 | 118.80 |
| 8 | A | 2576 | G | N3-C4-C5 | 5.43 | 131.31 | 128.60 |
| 34 | a | 1431 | A | C8-N9-C4 | 5.43 | 107.97 | 105.80 |
| 8 | A | 103 | A | C4-C5-N7 | 5.43 | 113.41 | 110.70 |
| 8 | A | 1519 | G | N3-C4-N9 | -5.43 | 122.74 | 126.00 |
| 8 | A | 1577 | C | N1-C2-O2 | 5.43 | 122.16 | 118.90 |
| 34 | a | 1362 | A | C5-C6-N1 | 5.43 | 120.41 | 117.70 |
| 34 | a | 1482 | G | N3-C4-C5 | 5.43 | 131.31 | 128.60 |
| 8 | A | 597 | G | C2-N3-C4 | -5.42 | 109.19 | 111.90 |
| 8 | A | 2170 | A | C4-N9-C1' | -5.42 | 116.54 | 126.30 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 2894 | G | C2-N3-C4 | -5.42 | 109.19 | 111.90 |
| 34 | a | 600 | A | C8-N9-C4 | 5.42 | 107.97 | 105.80 |
| 8 | A | 203 | A | C5-N7-C8 | -5.42 | 101.19 | 103.90 |
| 8 | A | 1553 | A | C4-C5-N7 | 5.42 | 113.41 | 110.70 |
| 8 | A | 211 | C | C6-N1-C1' | -5.42 | 114.29 | 120.80 |
| 8 | A | 1429 | G | N3-C4-C5 | 5.42 | 131.31 | 128.60 |
| 8 | A | 1521 | G | N3-C4-N9 | -5.42 | 122.75 | 126.00 |
| 8 | A | 2865 | U | C6-N1-C2 | 5.42 | 124.25 | 121.00 |
| 34 | a | 1050 | G | C6-C5-N7 | 5.42 | 133.65 | 130.40 |
| 8 | A | 551 | G | C8-N9-C4 | 5.42 | 108.57 | 106.40 |
| 8 | A | 2435 | A | C4-C5-N7 | 5.42 | 113.41 | 110.70 |
| 34 | a | 432 | A | C4-C5-N7 | 5.42 | 113.41 | 110.70 |
| 34 | a | 1179 | A | C8-N9-C4 | 5.42 | 107.97 | 105.80 |
| 34 | a | 1272 | G | C2-N3-C4 | -5.42 | 109.19 | 111.90 |
| 34 | a | 1416 | G | N3-C4-C5 | 5.42 | 131.31 | 128.60 |
| 8 | A | 916 | G | C5-N7-C8 | -5.42 | 101.59 | 104.30 |
| 34 | a | 587 | G | C8-N9-C4 | 5.42 | 108.57 | 106.40 |
| 34 | a | 1039 | G | N3-C4-N9 | -5.42 | 122.75 | 126.00 |
| 34 | a | 1454 | G | C2-N3-C4 | -5.42 | 109.19 | 111.90 |
| 8 | A | 2190 | G | C6-N1-C2 | 5.42 | 128.35 | 125.10 |
| 34 | a | 39 | G | C2-N3-C4 | -5.42 | 109.19 | 111.90 |
| 34 | a | 497 | G | N3-C4-N9 | -5.42 | 122.75 | 126.00 |
| 34 | a | 1044 | A | C5-N7-C8 | -5.42 | 101.19 | 103.90 |
| 34 | a | 1161 | C | C6-N1-C2 | 5.42 | 122.47 | 120.30 |
| 34 | a | 1289 | A | C5-N7-C8 | -5.42 | 101.19 | 103.90 |
| 8 | A | 739 | A | O4'-C1'-N9 | -5.42 | 103.87 | 108.20 |
| 8 | A | 836 | G | N3-C4-C5 | 5.42 | 131.31 | 128.60 |
| 8 | A | 2315 | G | C2-N3-C4 | -5.42 | 109.19 | 111.90 |
| 8 | A | 2414 | G | C5-C6-O6 | 5.41 | 131.85 | 128.60 |
| 8 | A | 2663 | G | C4-N9-C1' | -5.41 | 119.46 | 126.50 |
| 9 | B | 108 | A | C4-C5-N7 | 5.41 | 113.41 | 110.70 |
| 34 | a | 258 | G | C2-N3-C4 | -5.41 | 109.19 | 111.90 |
| 8 | A | 66 | C | N3-C4-N4 | -5.41 | 114.21 | 118.00 |
| 8 | A | 460 | A | N9-C4-C5 | -5.41 | 103.64 | 105.80 |
| 8 | A | 1804 | C | N3-C4-C5 | 5.41 | 124.06 | 121.90 |
| 8 | A | 2644 | G | C2-N3-C4 | -5.41 | 109.19 | 111.90 |
| 34 | a | 138 | G | N3-C4-C5 | 5.41 | 131.31 | 128.60 |
| 34 | a | 497 | G | C2-N3-C4 | -5.41 | 109.19 | 111.90 |
| 34 | a | 923 | A | C5-N7-C8 | -5.41 | 101.19 | 103.90 |
| 8 | A | 43 | G | C8-N9-C4 | 5.41 | 108.56 | 106.40 |
| 8 | A | 327 | G | C2-N3-C4 | -5.41 | 109.19 | 111.90 |
| 8 | A | 559 | G | C8-N9-C4 | 5.41 | 108.56 | 106.40 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 757 | G | N3-C4-N9 | -5.41 | 122.75 | 126.00 |
| 8 | A | 1354 | A | N1-C6-N6 | 5.41 | 121.85 | 118.60 |
| 8 | A | 2844 | G | O4'-C1'-N9 | -5.41 | 103.87 | 108.20 |
| 34 | a | 1047 | G | C8-N9-C4 | 5.41 | 108.56 | 106.40 |
| 8 | A | 15 | G | N1-C2-N2 | -5.41 | 111.33 | 116.20 |
| 8 | A | 1450 | G | C5-C6-N1 | -5.41 | 108.80 | 111.50 |
| 34 | a | 1186 | G | C8-N9-C4 | 5.41 | 108.56 | 106.40 |
| 34 | a | 1489 | G | C2-N3-C4 | -5.41 | 109.19 | 111.90 |
| 8 | A | 1277 | G | C4-N9-C1' | -5.41 | 119.47 | 126.50 |
| 34 | a | 488 | C | C2-N1-C1' | 5.41 | 124.75 | 118.80 |
| 8 | A | 230 | G | N3-C4-N9 | -5.41 | 122.76 | 126.00 |
| 8 | A | 1075 | C | N3-C4-N4 | -5.41 | 114.22 | 118.00 |
| 8 | A | 1161 | C | C6-N1-C2 | 5.41 | 122.46 | 120.30 |
| 8 | A | 1459 | G | C2-N3-C4 | -5.41 | 109.20 | 111.90 |
| 9 | B | 100 | G | C8-N9-C4 | 5.41 | 108.56 | 106.40 |
| 34 | a | 851 | G | C8-N9-C1' | -5.41 | 119.97 | 127.00 |
| 8 | A | 925 | A | C4-C5-N7 | 5.40 | 113.40 | 110.70 |
| 8 | A | 2315 | G | N3-C4-C5 | 5.40 | 131.30 | 128.60 |
| 8 | A | 2819 | G | C2-N3-C4 | -5.40 | 109.20 | 111.90 |
| 8 | A | 617 | G | N3-C4-C5 | 5.40 | 131.30 | 128.60 |
| 34 | a | 413 | G | N3-C2-N2 | -5.40 | 116.12 | 119.90 |
| 8 | A | 231 | A | C2-N3-C4 | -5.40 | 107.90 | 110.60 |
| 8 | A | 383 | C | C6-N1-C2 | 5.40 | 122.46 | 120.30 |
| 34 | a | 81 | A | C5-N7-C8 | -5.40 | 101.20 | 103.90 |
| 34 | a | 413 | G | N3-C4-N9 | -5.40 | 122.76 | 126.00 |
| 34 | a | 1075 | U | C2-N1-C1' | 5.40 | 124.18 | 117.70 |
| 34 | a | 1154 | G | C8-N9-C4 | 5.40 | 108.56 | 106.40 |
| 8 | A | 1278 | C | N3-C4-C5 | 5.40 | 124.06 | 121.90 |
| 34 | a | 675 | A | C5-C6-N6 | -5.40 | 119.38 | 123.70 |
| 8 | A | 656 | G | C2-N3-C4 | -5.40 | 109.20 | 111.90 |
| 8 | A | 1160 | G | N3-C4-N9 | -5.40 | 122.76 | 126.00 |
| 8 | A | 2097 | A | C5-N7-C8 | -5.40 | 101.20 | 103.90 |
| 8 | A | 2801 | G | N3-C4-C5 | 5.40 | 131.30 | 128.60 |
| 9 | B | 84 | G | C2-N3-C4 | -5.40 | 109.20 | 111.90 |
| 34 | a | 903 | G | N3-C4-N9 | -5.40 | 122.76 | 126.00 |
| 34 | a | 1092 | A | N3-C4-N9 | -5.40 | 123.08 | 127.40 |
| 34 | a | 1215 | G | N3-C4-C5 | 5.40 | 131.30 | 128.60 |
| 8 | A | 2 | G | N3-C4-C5 | 5.40 | 131.30 | 128.60 |
| 8 | A | 1041 | G | N3-C4-N9 | -5.39 | 122.76 | 126.00 |
| 8 | A | 1336 | A | N9-C4-C5 | -5.39 | 103.64 | 105.80 |
| 34 | a | 1081 | A | N3-C4-N9 | 5.39 | 131.72 | 127.40 |
| 8 | A | 24 | G | C8-N9-C4 | 5.39 | 108.56 | 106.40 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 68 | G | N3-C4-C5 | 5.39 | 131.30 | 128.60 |
| 8 | A | 1189 | A | C2-N3-C4 | -5.39 | 107.90 | 110.60 |
| 8 | A | 122 | G | O5'-P-OP2 | -5.39 | 100.85 | 105.70 |
| 8 | A | 1518 | C | C6-N1-C2 | 5.39 | 122.46 | 120.30 |
| 8 | A | 1577 | C | N3-C4-N4 | -5.39 | 114.23 | 118.00 |
| 8 | A | 2813 | A | C4-C5-C6 | -5.39 | 114.31 | 117.00 |
| 34 | a | 86 | G | C4-C5-N7 | 5.39 | 112.96 | 110.80 |
| 34 | a | 280 | C | C6-N1-C2 | 5.39 | 122.46 | 120.30 |
| 34 | a | 742 | G | N1-C2-N2 | 5.39 | 121.05 | 116.20 |
| 34 | a | 39 | G | N3-C4-N9 | -5.39 | 122.77 | 126.00 |
| 34 | a | 1294 | G | C4-C5-N7 | 5.39 | 112.95 | 110.80 |
| 34 | a | 831 | A | N3-C4-C5 | 5.39 | 130.57 | 126.80 |
| 8 | A | 851 | C | C6-N1-C2 | 5.38 | 122.45 | 120.30 |
| 8 | A | 1459 | G | C5-C6-O6 | 5.38 | 131.83 | 128.60 |
| 34 | a | 299 | G | N3-C4-C5 | 5.38 | 131.29 | 128.60 |
| 8 | A | 1107 | G | C2-N3-C4 | -5.38 | 109.21 | 111.90 |
| 34 | a | 1142 | G | N3-C4-N9 | -5.38 | 122.77 | 126.00 |
| 8 | A | 30 | G | C5-C6-O6 | 5.38 | 131.83 | 128.60 |
| 8 | A | 1212 | G | N3-C4-N9 | -5.38 | 122.77 | 126.00 |
| 8 | A | 2610 | C | O4'-C1'-N1 | 5.38 | 112.50 | 108.20 |
| 34 | a | 141 | G | N9-C1'-C2' | -5.38 | 106.08 | 112.00 |
| 34 | a | 548 | G | C8-N9-C4 | 5.38 | 108.55 | 106.40 |
| 8 | A | 560 | C | N3-C4-C5 | 5.38 | 124.05 | 121.90 |
| 8 | A | 1202 | G | C4-N9-C1' | -5.38 | 119.51 | 126.50 |
| 8 | A | 1099 | G | C5-C6-O6 | 5.38 | 131.83 | 128.60 |
| 8 | A | 2193 | G | N3-C4-C5 | 5.38 | 131.29 | 128.60 |
| 8 | A | 2315 | G | C8-N9-C1' | 5.38 | 133.99 | 127.00 |
| 34 | a | 288 | A | C8-N9-C4 | 5.38 | 107.95 | 105.80 |
| 34 | a | 350 | G | N3-C4-C5 | 5.38 | 131.29 | 128.60 |
| 34 | a | 1175 | G | N3-C4-N9 | -5.38 | 122.77 | 126.00 |
| 8 | A | 666 | A | C8-N9-C4 | 5.38 | 107.95 | 105.80 |
| 8 | A | 1561 | C | N3-C4-C5 | 5.38 | 124.05 | 121.90 |
| 8 | A | 1947 | C | C6-N1-C2 | 5.38 | 122.45 | 120.30 |
| 34 | a | 1204 | A | C8-N9-C4 | 5.38 | 107.95 | 105.80 |
| 8 | A | 180 | G | C8-N9-C4 | 5.38 | 108.55 | 106.40 |
| 8 | A | 1100 | C | N3-C4-N4 | -5.38 | 114.24 | 118.00 |
| 8 | A | 1276 | A | N9-C4-C5 | -5.38 | 103.65 | 105.80 |
| 8 | A | 1042 | G | N3-C4-C5 | 5.37 | 131.29 | 128.60 |
| 8 | A | 2405 | G | C4-N9-C1' | -5.37 | 119.51 | 126.50 |
| 34 | a | 887 | G | N3-C4-N9 | -5.37 | 122.78 | 126.00 |
| 34 | a | 1144 | G | N3-C4-C5 | 5.37 | 131.29 | 128.60 |
| 8 | A | 621 | A | O5'-P-OP2 | -5.37 | 100.87 | 105.70 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 1028 | A | N9-C1'-C2' | -5.37 | 106.09 | 112.00 |
| 8 | A | 1112 | G | N3-C2-N2 | -5.37 | 116.14 | 119.90 |
| 8 | A | 1177 | G | N3-C2-N2 | -5.37 | 116.14 | 119.90 |
| 8 | A | 1450 | G | O4'-C1'-N9 | -5.37 | 103.90 | 108.20 |
| 34 | a | 876 | C | C6-N1-C1' | -5.37 | 114.35 | 120.80 |
| 8 | A | 1110 | G | C2-N3-C4 | -5.37 | 109.22 | 111.90 |
| 8 | A | 1389 | G | C2-N3-C4 | -5.37 | 109.22 | 111.90 |
| 9 | B | 65 | U | C6-N1-C2 | 5.37 | 124.22 | 121.00 |
| 26 | S | 42 | LYS | N-CA-CB | -5.37 | 100.94 | 110.60 |
| 8 | A | 394 | C | N3-C4-N4 | -5.37 | 114.24 | 118.00 |
| 8 | A | 1095 | A | C2-N3-C4 | -5.37 | 107.92 | 110.60 |
| 15 | H | 58 | LEU | CB-CG-CD2 | 5.37 | 120.13 | 111.00 |
| 34 | a | 640 | A | C4-C5-C6 | -5.37 | 114.32 | 117.00 |
| 8 | A | 1423 | G | C8-N9-C4 | 5.37 | 108.55 | 106.40 |
| 8 | A | 1631 | G | C8-N9-C1' | 5.37 | 133.97 | 127.00 |
| 8 | A | 2490 | G | N3-C4-C5 | 5.37 | 131.28 | 128.60 |
| 8 | A | 2640 | G | C8-N9-C4 | 5.37 | 108.55 | 106.40 |
| 8 | A | 2655 | G | N3-C4-N9 | -5.37 | 122.78 | 126.00 |
| 34 | a | 270 | A | C5-N7-C8 | -5.37 | 101.22 | 103.90 |
| 8 | A | 290 | U | N3-C2-O2 | 5.36 | 125.95 | 122.20 |
| 8 | A | 1049 | C | N3-C4-C5 | 5.36 | 124.05 | 121.90 |
| 8 | A | 1241 | A | N1-C6-N6 | 5.36 | 121.82 | 118.60 |
| 8 | A | 1475 | G | C8-N9-C4 | 5.36 | 108.55 | 106.40 |
| 34 | a | 445 | G | C8-N9-C1' | 5.36 | 133.97 | 127.00 |
| 34 | a | 898 | G | N3-C4-N9 | -5.36 | 122.78 | 126.00 |
| 34 | a | 1044 | A | C4-C5-N7 | 5.36 | 113.38 | 110.70 |
| 8 | A | 1735 | A | C5-C6-N6 | -5.36 | 119.41 | 123.70 |
| 8 | A | 670 | A | C5-C6-N6 | -5.36 | 119.41 | 123.70 |
| 8 | A | 1054 | A | N1-C6-N6 | 5.36 | 121.82 | 118.60 |
| 8 | A | 2383 | G | C2-N3-C4 | -5.36 | 109.22 | 111.90 |
| 34 | a | 492 | C | C6-N1-C1' | 5.36 | 127.23 | 120.80 |
| 8 | A | 220 | G | N1-C2-N3 | 5.36 | 127.11 | 123.90 |
| 8 | A | 556 | A | N1-C6-N6 | 5.36 | 121.81 | 118.60 |
| 8 | A | 1107 | G | N3-C4-N9 | -5.36 | 122.78 | 126.00 |
| 14 | G | 94 | ARG | NE-CZ-NH2 | -5.36 | 117.62 | 120.30 |
| 8 | A | 410 | G | C2-N3-C4 | -5.36 | 109.22 | 111.90 |
| 8 | A | 1128 | G | N3-C4-N9 | -5.36 | 122.79 | 126.00 |
| 8 | A | 2485 | G | O4'-C1'-N9 | -5.36 | 103.92 | 108.20 |
| 8 | A | 260 | G | C8-N9-C4 | 5.35 | 108.54 | 106.40 |
| 8 | A | 2128 | G | N3-C4-N9 | -5.35 | 122.79 | 126.00 |
| 8 | A | 36 | G | N3-C4-C5 | 5.35 | 131.28 | 128.60 |
| 8 | A | 1820 | U | C6-N1-C2 | 5.35 | 124.21 | 121.00 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-----------|-------|-------------|----------|
| 8 | A | 2281 | A | C4-C5-N7 | 5.35 | 113.38 | 110.70 |
| 34 | a | 339 | C | C5-C4-N4 | 5.35 | 123.95 | 120.20 |
| 34 | a | 1097 | C | C6-N1-C1' | -5.35 | 114.38 | 120.80 |
| 8 | A | 1522 | A | C5-C6-N6 | -5.35 | 119.42 | 123.70 |
| 8 | A | 2505 | G | N1-C2-N2 | -5.35 | 111.38 | 116.20 |
| 8 | A | 152 | A | C4-C5-N7 | 5.35 | 113.38 | 110.70 |
| 34 | a | 599 | C | N3-C4-C5 | 5.35 | 124.04 | 121.90 |
| 8 | A | 797 | G | N3-C4-C5 | 5.35 | 131.27 | 128.60 |
| 8 | A | 1561 | C | C6-N1-C2 | 5.35 | 122.44 | 120.30 |
| 8 | A | 1590 | A | C4-C5-N7 | 5.35 | 113.37 | 110.70 |
| 8 | A | 2494 | G | C8-N9-C4 | 5.35 | 108.54 | 106.40 |
| 8 | A | 2551 | C | C5-C4-N4 | 5.35 | 123.94 | 120.20 |
| 20 | M | 133 | LYS | CD-CE-NZ | 5.35 | 124.00 | 111.70 |
| 34 | a | 246 | A | N3-C4-C5 | 5.35 | 130.54 | 126.80 |
| 34 | a | 896 | C | C6-N1-C2 | 5.35 | 122.44 | 120.30 |
| 34 | a | 1150 | A | N7-C8-N9 | 5.35 | 116.47 | 113.80 |
| 34 | a | 1222 | G | N3-C2-N2 | -5.35 | 116.16 | 119.90 |
| 34 | a | 1333 | A | N1-C6-N6 | 5.35 | 121.81 | 118.60 |
| 34 | a | 1379 | G | N3-C4-N9 | -5.35 | 122.79 | 126.00 |
| 34 | a | 1525 | G | C2-N3-C4 | -5.35 | 109.23 | 111.90 |
| 8 | A | 1280 | G | C8-N9-C4 | 5.35 | 108.54 | 106.40 |
| 9 | B | 64 | G | N9-C4-C5 | -5.35 | 103.26 | 105.40 |
| 8 | A | 326 | G | C4-N9-C1' | -5.34 | 119.55 | 126.50 |
| 8 | A | 734 | A | N1-C6-N6 | -5.34 | 115.39 | 118.60 |
| 8 | A | 2418 | A | N9-C4-C5 | -5.34 | 103.66 | 105.80 |
| 8 | A | 2502 | G | N3-C4-N9 | -5.34 | 122.79 | 126.00 |
| 8 | A | 2868 | A | C5-C6-N6 | -5.34 | 119.42 | 123.70 |
| 9 | B | 33 | G | C2-N3-C4 | -5.34 | 109.23 | 111.90 |
| 34 | a | 1276 | G | C2-N3-C4 | -5.34 | 109.23 | 111.90 |
| 8 | A | 307 | G | N3-C4-N9 | -5.34 | 122.80 | 126.00 |
| 8 | A | 1426 | G | N3-C4-N9 | -5.34 | 122.80 | 126.00 |
| 8 | A | 2545 | G | N1-C2-N3 | 5.34 | 127.11 | 123.90 |
| 34 | a | 1367 | C | N3-C4-C5 | 5.34 | 124.04 | 121.90 |
| 8 | A | 273 | G | C4-C5-N7 | 5.34 | 112.94 | 110.80 |
| 8 | A | 1022 | G | N1-C2-N2 | 5.34 | 121.00 | 116.20 |
| 8 | A | 2150 | C | C6-N1-C2 | 5.34 | 122.44 | 120.30 |
| 8 | A | 2525 | G | C6-C5-N7 | 5.34 | 133.60 | 130.40 |
| 9 | B | 32 | U | C6-N1-C2 | 5.34 | 124.20 | 121.00 |
| 34 | a | 1157 | A | C4-C5-C6 | -5.34 | 114.33 | 117.00 |
| 34 | a | 1499 | A | N1-C6-N6 | 5.34 | 121.80 | 118.60 |
| 55 | v | 64 | G | N3-C4-N9 | -5.34 | 122.80 | 126.00 |
| 8 | A | 1928 | A | C5-C6-N6 | -5.34 | 119.43 | 123.70 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34 | a | 1294 | G | C2-N3-C4 | -5.34 | 109.23 | 111.90 |
| 8 | A | 407 | G | C2-N3-C4 | -5.34 | 109.23 | 111.90 |
| 8 | A | 718 | A | C4-C5-N7 | 5.34 | 113.37 | 110.70 |
| 8 | A | 2353 | G | C2-N3-C4 | -5.34 | 109.23 | 111.90 |
| 8 | A | 2373 | G | C2-N3-C4 | -5.34 | 109.23 | 111.90 |
| 34 | a | 554 | A | N1-C6-N6 | -5.34 | 115.40 | 118.60 |
| 34 | a | 1392 | G | N3-C4-C5 | 5.34 | 131.27 | 128.60 |
| 8 | A | 1140 | C | N3-C4-C5 | 5.33 | 124.03 | 121.90 |
| 34 | a | 324 | G | N3-C4-C5 | 5.33 | 131.27 | 128.60 |
| 34 | a | 1230 | C | N3-C2-O2 | -5.33 | 118.17 | 121.90 |
| 34 | a | 1417 | G | C8-N9-C4 | 5.33 | 108.53 | 106.40 |
| 56 | w | 20 | U | C2'-C3'-O3' | 5.33 | 122.24 | 113.70 |
| 8 | A | 679 | C | N3-C4-C5 | 5.33 | 124.03 | 121.90 |
| 8 | A | 765 | C | C6-N1-C2 | 5.33 | 122.43 | 120.30 |
| 8 | A | 2094 | A | C8-N9-C4 | 5.33 | 107.93 | 105.80 |
| 8 | A | 2237 | G | N3-C4-N9 | -5.33 | 122.80 | 126.00 |
| 34 | a | 351 | G | O4'-C1'-N9 | -5.33 | 103.93 | 108.20 |
| 34 | a | 530 | G | N3-C4-C5 | 5.33 | 131.27 | 128.60 |
| 34 | a | 1226 | C | N3-C4-N4 | -5.33 | 114.27 | 118.00 |
| 34 | a | 1365 | G | N3-C4-C5 | 5.33 | 131.27 | 128.60 |
| 34 | a | 1366 | C | C6-N1-C2 | 5.33 | 122.43 | 120.30 |
| 8 | A | 374 | A | C5-C6-N6 | -5.33 | 119.44 | 123.70 |
| 8 | A | 727 | A | C8-N9-C1' | -5.33 | 118.10 | 127.70 |
| 8 | A | 2526 | G | N3-C4-N9 | -5.33 | 122.80 | 126.00 |
| 34 | a | 567 | G | N3-C4-C5 | 5.33 | 131.26 | 128.60 |
| 8 | A | 2863 | C | C6-N1-C1' | -5.33 | 114.40 | 120.80 |
| 34 | a | 102 | G | C4-N9-C1' | -5.33 | 119.57 | 126.50 |
| 34 | a | 1099 | G | N3-C4-N9 | -5.33 | 122.80 | 126.00 |
| 34 | a | 1158 | C | O4'-C1'-N1 | 5.33 | 112.46 | 108.20 |
| 8 | A | 364 | C | C6-N1-C2 | 5.33 | 122.43 | 120.30 |
| 8 | A | 1685 | C | N3-C4-C5 | 5.33 | 124.03 | 121.90 |
| 9 | B | 105 | G | C2-N3-C4 | -5.33 | 109.24 | 111.90 |
| 34 | a | 52 | C | C6-N1-C2 | 5.33 | 122.43 | 120.30 |
| 34 | a | 696 | A | C4-C5-N7 | 5.33 | 113.36 | 110.70 |
| 34 | a | 1405 | G | C6-C5-N7 | 5.33 | 133.60 | 130.40 |
| 45 | l | 73 | LEU | CA-CB-CG | -5.33 | 103.04 | 115.30 |
| 8 | A | 146 | A | C5-N7-C8 | -5.33 | 101.24 | 103.90 |
| 8 | A | 2349 | G | C8-N9-C4 | 5.33 | 108.53 | 106.40 |
| 34 | a | 853 | C | C6-N1-C2 | 5.33 | 122.43 | 120.30 |
| 34 | a | 859 | G | C4-N9-C1' | -5.33 | 119.57 | 126.50 |
| 8 | A | 904 | G | C5-N7-C8 | -5.33 | 101.64 | 104.30 |
| 8 | A | 1449 | G | C2-N3-C4 | -5.33 | 109.24 | 111.90 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 1454 | C | C6-N1-C2 | 5.33 | 122.43 | 120.30 |
| 8 | A | 2303 | G | N3-C4-C5 | 5.33 | 131.26 | 128.60 |
| 20 | M | 97 | GLN | CA-CB-CG | -5.33 | 101.68 | 113.40 |
| 34 | a | 1088 | G | N1-C2-N3 | 5.33 | 127.10 | 123.90 |
| 8 | A | 7 | G | N3-C4-C5 | 5.32 | 131.26 | 128.60 |
| 8 | A | 1358 | G | O4'-C1'-N9 | -5.32 | 103.94 | 108.20 |
| 34 | a | 53 | A | C4-C5-C6 | -5.32 | 114.34 | 117.00 |
| 51 | r | 67 | LEU | CA-CB-CG | -5.32 | 103.06 | 115.30 |
| 8 | A | 1202 | G | C4-C5-C6 | -5.32 | 115.61 | 118.80 |
| 8 | A | 1423 | G | C4-N9-C1' | -5.32 | 119.58 | 126.50 |
| 8 | A | 1522 | A | C4-C5-C6 | -5.32 | 114.34 | 117.00 |
| 34 | a | 101 | A | C4-N9-C1' | -5.32 | 116.72 | 126.30 |
| 8 | A | 429 | A | C5-N7-C8 | -5.32 | 101.24 | 103.90 |
| 34 | a | 175 | C | C5-C6-N1 | -5.32 | 118.34 | 121.00 |
| 34 | a | 386 | C | N3-C4-N4 | -5.32 | 114.28 | 118.00 |
| 8 | A | 359 | G | C2-N3-C4 | -5.32 | 109.24 | 111.90 |
| 8 | A | 1607 | C | C6-N1-C2 | 5.32 | 122.43 | 120.30 |
| 8 | A | 2186 | G | C5-N7-C8 | -5.32 | 101.64 | 104.30 |
| 34 | a | 633 | G | C2-N3-C4 | -5.32 | 109.24 | 111.90 |
| 34 | a | 733 | G | N3-C4-C5 | 5.32 | 131.26 | 128.60 |
| 8 | A | 651 | G | N3-C4-C5 | 5.32 | 131.26 | 128.60 |
| 8 | A | 1124 | G | C2-N3-C4 | -5.32 | 109.24 | 111.90 |
| 8 | A | 1138 | G | N1-C6-O6 | -5.32 | 116.71 | 119.90 |
| 9 | B | 105 | G | N3-C4-N9 | -5.32 | 122.81 | 126.00 |
| 34 | a | 257 | G | N3-C4-N9 | -5.32 | 122.81 | 126.00 |
| 34 | a | 811 | C | C6-N1-C1' | -5.32 | 114.42 | 120.80 |
| 34 | a | 592 | G | C4-N9-C1' | -5.31 | 119.59 | 126.50 |
| 34 | a | 1034 | G | N3-C4-C5 | 5.31 | 131.26 | 128.60 |
| 8 | A | 1280 | G | N3-C4-C5 | 5.31 | 131.26 | 128.60 |
| 8 | A | 1281 | G | C2-N3-C4 | -5.31 | 109.24 | 111.90 |
| 9 | B | 88 | C | C6-N1-C1' | -5.31 | 114.42 | 120.80 |
| 34 | a | 1082 | A | O4'-C1'-N9 | 5.31 | 112.45 | 108.20 |
| 55 | v | 6 | G | C2-N3-C4 | -5.31 | 109.24 | 111.90 |
| 8 | A | 1074 | G | C8-N9-C1' | 5.31 | 133.91 | 127.00 |
| 57 | x | 30 | LEU | CA-CB-CG | 5.31 | 127.52 | 115.30 |
| 8 | A | 463 | G | C2-N3-C4 | -5.31 | 109.25 | 111.90 |
| 8 | A | 1738 | G | C2-N3-C4 | -5.31 | 109.25 | 111.90 |
| 8 | A | 2647 | U | C6-N1-C2 | 5.31 | 124.19 | 121.00 |
| 8 | A | 2848 | G | C4-N9-C1' | -5.31 | 119.60 | 126.50 |
| 8 | A | 1156 | A | N9-C4-C5 | -5.31 | 103.68 | 105.80 |
| 34 | a | 306 | A | N9-C1'-C2' | -5.31 | 106.16 | 112.00 |
| 34 | a | 635 | A | C5-N7-C8 | -5.31 | 101.25 | 103.90 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 34 | a | 768 | A | N3-C4-C5 | 5.31 | 130.51 | 126.80 |
| 34 | a | 833 | G | C4-N9-C1' | -5.31 | 119.60 | 126.50 |
| 8 | A | 1743 | G | N3-C4-N9 | -5.31 | 122.82 | 126.00 |
| 8 | A | 2235 | G | C4-C5-C6 | -5.31 | 115.62 | 118.80 |
| 34 | a | 98 | A | N3-C4-C5 | 5.31 | 130.51 | 126.80 |
| 8 | A | 297 | G | C2-N3-C4 | -5.30 | 109.25 | 111.90 |
| 8 | A | 330 | A | O4'-C1'-N9 | 5.30 | 112.44 | 108.20 |
| 8 | A | 2843 | G | C8-N9-C4 | 5.30 | 108.52 | 106.40 |
| 34 | a | 26 | A | C8-N9-C4 | 5.30 | 107.92 | 105.80 |
| 8 | A | 136 | G | N3-C4-N9 | -5.30 | 122.82 | 126.00 |
| 34 | a | 377 | G | N3-C4-C5 | 5.30 | 131.25 | 128.60 |
| 34 | a | 1180 | A | C5-C6-N6 | -5.30 | 119.46 | 123.70 |
| 34 | a | 1435 | G | C5-C6-O6 | 5.30 | 131.78 | 128.60 |
| 8 | A | 705 | A | N9-C4-C5 | -5.30 | 103.68 | 105.80 |
| 8 | A | 1171 | G | N9-C4-C5 | 5.30 | 107.52 | 105.40 |
| 8 | A | 1244 | A | C8-N9-C4 | 5.30 | 107.92 | 105.80 |
| 8 | A | 2524 | G | C4-N9-C1' | -5.30 | 119.61 | 126.50 |
| 9 | B | 60 | C | N1-C2-O2 | -5.30 | 115.72 | 118.90 |
| 34 | a | 548 | G | N3-C4-C5 | 5.30 | 131.25 | 128.60 |
| 8 | A | 1436 | G | N3-C4-C5 | 5.30 | 131.25 | 128.60 |
| 8 | A | 2461 | A | C2-N3-C4 | -5.30 | 107.95 | 110.60 |
| 8 | A | 2723 | C | C6-N1-C2 | 5.30 | 122.42 | 120.30 |
| 34 | a | 111 | G | O4'-C1'-N9 | -5.30 | 103.96 | 108.20 |
| 34 | a | 1074 | G | N3-C4-C5 | 5.30 | 131.25 | 128.60 |
| 8 | A | 253 | C | N3-C4-N4 | -5.29 | 114.29 | 118.00 |
| 8 | A | 311 | A | C8-N9-C4 | 5.29 | 107.92 | 105.80 |
| 9 | B | 93 | C | N1-C2-O2 | 5.29 | 122.08 | 118.90 |
| 34 | a | 391 | G | N3-C4-N9 | -5.29 | 122.82 | 126.00 |
| 34 | a | 1282 | C | O4'-C1'-N1 | -5.29 | 103.97 | 108.20 |
| 34 | a | 1346 | A | C8-N9-C1' | -5.29 | 118.17 | 127.70 |
| 8 | A | 35 | G | N3-C4-N9 | -5.29 | 122.83 | 126.00 |
| 34 | a | 1238 | A | N1-C6-N6 | 5.29 | 121.77 | 118.60 |
| 8 | A | 2415 | G | N3-C2-N2 | -5.29 | 116.20 | 119.90 |
| 8 | A | 2633 | G | N1-C6-O6 | -5.29 | 116.73 | 119.90 |
| 34 | a | 849 | G | C8-N9-C4 | 5.29 | 108.52 | 106.40 |
| 34 | a | 1181 | G | C2-N3-C4 | -5.29 | 109.25 | 111.90 |
| 55 | v | 66 | C | C6-N1-C2 | 5.29 | 122.42 | 120.30 |
| 8 | A | 1471 | G | N1-C2-N2 | -5.29 | 111.44 | 116.20 |
| 34 | a | 858 | G | N1-C2-N2 | 5.29 | 120.96 | 116.20 |
| 34 | a | 946 | A | C4-C5-N7 | 5.29 | 113.34 | 110.70 |
| 8 | A | 659 | G | N3-C2-N2 | 5.29 | 123.60 | 119.90 |
| 8 | A | 17 | G | N3-C4-C5 | 5.29 | 131.24 | 128.60 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 814 | C | C4-C5-C6 | -5.29 | 114.76 | 117.40 |
| 8 | A | 964 | C | C6-N1-C2 | 5.29 | 122.41 | 120.30 |
| 8 | A | 1052 | C | N3-C4-N4 | -5.29 | 114.30 | 118.00 |
| 8 | A | 1449 | G | N3-C2-N2 | -5.29 | 116.20 | 119.90 |
| 8 | A | 2116 | G | N3-C4-C5 | 5.29 | 131.24 | 128.60 |
| 8 | A | 2248 | C | N1-C2-O2 | 5.29 | 122.07 | 118.90 |
| 34 | a | 474 | G | C2-N3-C4 | -5.29 | 109.26 | 111.90 |
| 34 | a | 642 | A | C8-N9-C4 | 5.29 | 107.92 | 105.80 |
| 34 | a | 1347 | G | C6-C5-N7 | 5.29 | 133.57 | 130.40 |
| 8 | A | 245 | G | C2-N3-C4 | -5.28 | 109.26 | 111.90 |
| 8 | A | 647 | G | N3-C4-C5 | 5.28 | 131.24 | 128.60 |
| 8 | A | 661 | A | N9-C4-C5 | -5.28 | 103.69 | 105.80 |
| 8 | A | 2201 | G | C5-C6-O6 | 5.28 | 131.77 | 128.60 |
| 8 | A | 2201 | G | N3-C4-N9 | -5.28 | 122.83 | 126.00 |
| 9 | B | 10 | G | C8-N9-C4 | 5.28 | 108.51 | 106.40 |
| 34 | a | 370 | C | O4'-C1'-N1 | -5.28 | 103.97 | 108.20 |
| 8 | A | 186 | G | C8-N9-C4 | 5.28 | 108.51 | 106.40 |
| 34 | a | 714 | G | O4'-C1'-N9 | -5.28 | 103.97 | 108.20 |
| 8 | A | 326 | G | C2-N3-C4 | -5.28 | 109.26 | 111.90 |
| 8 | A | 1313 | U | C6-N1-C1' | -5.28 | 113.81 | 121.20 |
| 8 | A | 1593 | A | N3-C4-C5 | 5.28 | 130.50 | 126.80 |
| 8 | A | 1961 | C | N3-C4-C5 | 5.28 | 124.01 | 121.90 |
| 8 | A | 659 | G | C2-N3-C4 | -5.28 | 109.26 | 111.90 |
| 8 | A | 344 | A | N3-C4-C5 | 5.28 | 130.49 | 126.80 |
| 8 | A | 1034 | G | N3-C4-N9 | -5.28 | 122.83 | 126.00 |
| 8 | A | 1072 | C | C5-C6-N1 | -5.28 | 118.36 | 121.00 |
| 8 | A | 1197 | G | C4-N9-C1' | -5.28 | 119.64 | 126.50 |
| 8 | A | 1514 | G | N1-C6-O6 | 5.28 | 123.07 | 119.90 |
| 8 | A | 2416 | C | C6-N1-C1' | -5.28 | 114.47 | 120.80 |
| 8 | A | 2505 | G | N3-C4-N9 | 5.28 | 129.17 | 126.00 |
| 8 | A | 2669 | G | C2-N3-C4 | -5.28 | 109.26 | 111.90 |
| 34 | a | 1218 | C | C6-N1-C2 | 5.28 | 122.41 | 120.30 |
| 8 | A | 1128 | G | N3-C4-C5 | 5.28 | 131.24 | 128.60 |
| 8 | A | 1689 | A | N1-C6-N6 | 5.28 | 121.77 | 118.60 |
| 8 | A | 1849 | G | C2-N3-C4 | -5.28 | 109.26 | 111.90 |
| 34 | a | 1246 | A | C8-N9-C4 | 5.28 | 107.91 | 105.80 |
| 34 | a | 1293 | C | C4-C5-C6 | -5.28 | 114.76 | 117.40 |
| 8 | A | 207 | A | C5-N7-C8 | -5.27 | 101.26 | 103.90 |
| 8 | A | 1470 | A | C5-C6-N6 | -5.27 | 119.48 | 123.70 |
| 8 | A | 2476 | A | N9-C4-C5 | -5.27 | 103.69 | 105.80 |
| 8 | A | 263 | G | C8-N9-C1' | -5.27 | 120.14 | 127.00 |
| 8 | A | 1337 | G | C4-N9-C1' | -5.27 | 119.64 | 126.50 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 2269 | G | C2-N3-C4 | -5.27 | 109.26 | 111.90 |
| 34 | a | 546 | A | C8-N9-C4 | 5.27 | 107.91 | 105.80 |
| 8 | A | 1389 | G | N9-C4-C5 | -5.27 | 103.29 | 105.40 |
| 8 | A | 2338 | C | C5-C6-N1 | -5.27 | 118.36 | 121.00 |
| 8 | A | 2461 | A | O4'-C1'-N9 | -5.27 | 103.98 | 108.20 |
| 8 | A | 720 | U | C6-N1-C2 | 5.27 | 124.16 | 121.00 |
| 8 | A | 940 | G | N3-C4-N9 | -5.27 | 122.84 | 126.00 |
| 8 | A | 1277 | G | C6-C5-N7 | 5.27 | 133.56 | 130.40 |
| 8 | A | 2014 | A | N1-C6-N6 | 5.27 | 121.76 | 118.60 |
| 8 | A | 2717 | C | N3-C4-C5 | 5.27 | 124.01 | 121.90 |
| 34 | a | 1426 | G | N3-C4-C5 | 5.27 | 131.24 | 128.60 |
| 34 | a | 1452 | C | C2-N1-C1' | -5.27 | 113.00 | 118.80 |
| 8 | A | 865 | C | N3-C4-C5 | 5.27 | 124.01 | 121.90 |
| 8 | A | 882 | G | N3-C2-N2 | -5.27 | 116.21 | 119.90 |
| 8 | A | 2258 | C | O4'-C1'-N1 | -5.27 | 103.99 | 108.20 |
| 8 | A | 2271 | G | C2-N3-C4 | -5.27 | 109.27 | 111.90 |
| 8 | A | 2369 | A | N3-C4-C5 | 5.27 | 130.49 | 126.80 |
| 8 | A | 2882 | A | N9-C4-C5 | -5.27 | 103.69 | 105.80 |
| 34 | a | 686 | U | C5-C4-O4 | -5.27 | 122.74 | 125.90 |
| 3 | 2 | 37 | LYS | CD-CE-NZ | 5.27 | 123.81 | 111.70 |
| 26 | S | 16 | LYS | CD-CE-NZ | 5.27 | 123.81 | 111.70 |
| 8 | A | 55 | G | C2-N3-C4 | -5.26 | 109.27 | 111.90 |
| 8 | A | 85 | G | C8-N9-C4 | 5.26 | 108.50 | 106.40 |
| 8 | A | 152 | A | C5-N7-C8 | -5.26 | 101.27 | 103.90 |
| 8 | A | 739 | A | C5-C6-N6 | -5.26 | 119.49 | 123.70 |
| 8 | A | 926 | G | C2-N3-C4 | -5.26 | 109.27 | 111.90 |
| 8 | A | 929 | U | C6-N1-C2 | 5.26 | 124.16 | 121.00 |
| 8 | A | 1178 | C | C6-N1-C2 | 5.26 | 122.41 | 120.30 |
| 34 | a | 522 | C | C6-N1-C2 | 5.26 | 122.41 | 120.30 |
| 34 | a | 588 | G | C8-N9-C4 | 5.26 | 108.51 | 106.40 |
| 34 | a | 1075 | U | C6-N1-C1' | -5.26 | 113.83 | 121.20 |
| 34 | a | 1177 | G | C2-N3-C4 | -5.26 | 109.27 | 111.90 |
| 34 | a | 1489 | G | N3-C4-C5 | 5.26 | 131.23 | 128.60 |
| 55 | v | 74 | C | C6-N1-C2 | 5.26 | 122.41 | 120.30 |
| 34 | a | 155 | A | N3-C4-C5 | 5.26 | 130.48 | 126.80 |
| 34 | a | 348 | G | N9-C4-C5 | -5.26 | 103.30 | 105.40 |
| 57 | x | 611 | LEU | CA-CB-CG | -5.26 | 103.19 | 115.30 |
| 8 | A | 1296 | G | N3-C4-C5 | 5.26 | 131.23 | 128.60 |
| 8 | A | 2508 | G | C4-N9-C1' | -5.26 | 119.66 | 126.50 |
| 34 | a | 247 | G | N3-C4-N9 | -5.26 | 122.84 | 126.00 |
| 55 | v | 70 | G | C5-N7-C8 | -5.26 | 101.67 | 104.30 |
| 8 | A | 48 | G | N3-C4-N9 | -5.26 | 122.84 | 126.00 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 656 | G | N3-C4-C5 | 5.26 | 131.23 | 128.60 |
| 8 | A | 2886 | A | C8-N9-C4 | 5.26 | 107.90 | 105.80 |
| 34 | a | 1117 | A | C4-C5-N7 | 5.26 | 113.33 | 110.70 |
| 8 | A | 2686 | G | N3-C4-N9 | -5.26 | 122.84 | 126.00 |
| 8 | A | 2133 | G | N3-C4-C5 | 5.26 | 131.23 | 128.60 |
| 8 | A | 2520 | C | N3-C4-C5 | 5.26 | 124.00 | 121.90 |
| 8 | A | 2831 | G | N3-C4-C5 | 5.26 | 131.23 | 128.60 |
| 34 | a | 542 | G | C4-C5-N7 | 5.26 | 112.90 | 110.80 |
| 8 | A | 187 | G | C2-N3-C4 | -5.25 | 109.27 | 111.90 |
| 8 | A | 921 | C | N3-C4-C5 | 5.25 | 124.00 | 121.90 |
| 8 | A | 1689 | A | N9-C4-C5 | -5.25 | 103.70 | 105.80 |
| 8 | A | 2435 | A | N9-C4-C5 | -5.25 | 103.70 | 105.80 |
| 34 | a | 912 | C | C2-N1-C1' | 5.25 | 124.58 | 118.80 |
| 34 | a | 1534 | A | O4'-C1'-N9 | 5.25 | 112.40 | 108.20 |
| 55 | v | 46 | A | C4-C5-N7 | 5.25 | 113.33 | 110.70 |
| 8 | A | 32 | C | N3-C4-C5 | 5.25 | 124.00 | 121.90 |
| 8 | A | 1401 | G | C5-C6-O6 | 5.25 | 131.75 | 128.60 |
| 8 | A | 2677 | G | C2-N3-C4 | -5.25 | 109.27 | 111.90 |
| 8 | A | 401 | A | C4-C5-N7 | 5.25 | 113.33 | 110.70 |
| 8 | A | 1910 | G | N9-C1'-C2' | -5.25 | 106.22 | 112.00 |
| 34 | a | 659 | U | C6-N1-C2 | 5.25 | 124.15 | 121.00 |
| 8 | A | 1573 | G | N3-C4-N9 | -5.25 | 122.85 | 126.00 |
| 8 | A | 2824 | C | N3-C4-C5 | 5.25 | 124.00 | 121.90 |
| 34 | a | 392 | C | O4'-C1'-N1 | -5.25 | 104.00 | 108.20 |
| 34 | a | 648 | A | C4-C5-N7 | 5.25 | 113.32 | 110.70 |
| 34 | a | 1457 | G | C8-N9-C4 | 5.25 | 108.50 | 106.40 |
| 8 | A | 701 | G | C8-N9-C4 | 5.25 | 108.50 | 106.40 |
| 8 | A | 926 | G | N3-C4-N9 | -5.25 | 122.85 | 126.00 |
| 8 | A | 1925 | C | C6-N1-C2 | 5.25 | 122.40 | 120.30 |
| 34 | a | 669 | G | C8-N9-C4 | 5.25 | 108.50 | 106.40 |
| 34 | a | 1139 | G | C6-C5-N7 | -5.25 | 127.25 | 130.40 |
| 34 | a | 1400 | C | C6-N1-C2 | 5.25 | 122.40 | 120.30 |
| 55 | v | 76 | A | C5-C6-N6 | -5.25 | 119.50 | 123.70 |
| 8 | A | 299 | A | N9-C4-C5 | -5.25 | 103.70 | 105.80 |
| 8 | A | 2886 | A | C5-C6-N6 | -5.25 | 119.50 | 123.70 |
| 34 | a | 102 | G | N3-C4-N9 | -5.25 | 122.85 | 126.00 |
| 8 | A | 680 | C | C6-N1-C1' | -5.24 | 114.51 | 120.80 |
| 8 | A | 1369 | G | N1-C2-N3 | 5.24 | 127.05 | 123.90 |
| 8 | A | 1524 | G | N1-C2-N2 | -5.24 | 111.48 | 116.20 |
| 9 | B | 53 | A | N9-C4-C5 | -5.24 | 103.70 | 105.80 |
| 34 | a | 198 | G | N3-C4-C5 | 5.24 | 131.22 | 128.60 |
| 8 | A | 2900 | A | C5-N7-C8 | -5.24 | 101.28 | 103.90 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 34 | a | 1143 | G | C4-N9-C1' | -5.24 | 119.69 | 126.50 |
| 34 | a | 1227 | A | C4-C5-N7 | -5.24 | 108.08 | 110.70 |
| 8 | A | 210 | C | N1-C2-O2 | 5.24 | 122.05 | 118.90 |
| 8 | A | 1093 | G | O4'-C1'-N9 | -5.24 | 104.01 | 108.20 |
| 8 | A | 1892 | C | C6-N1-C2 | 5.24 | 122.40 | 120.30 |
| 8 | A | 1945 | G | C8-N9-C4 | 5.24 | 108.50 | 106.40 |
| 8 | A | 2004 | G | N3-C4-C5 | 5.24 | 131.22 | 128.60 |
| 8 | A | 2509 | G | N3-C4-N9 | -5.24 | 122.86 | 126.00 |
| 34 | a | 222 | C | N1-C2-O2 | -5.24 | 115.76 | 118.90 |
| 34 | a | 749 | A | C8-N9-C4 | 5.24 | 107.90 | 105.80 |
| 34 | a | 1061 | G | C4-C5-N7 | 5.24 | 112.90 | 110.80 |
| 8 | A | 66 | C | C5-C6-N1 | -5.24 | 118.38 | 121.00 |
| 8 | A | 1157 | G | N1-C2-N2 | -5.24 | 111.49 | 116.20 |
| 8 | A | 1241 | A | N9-C4-C5 | -5.24 | 103.70 | 105.80 |
| 8 | A | 1580 | A | N9-C4-C5 | -5.24 | 103.70 | 105.80 |
| 34 | a | 425 | G | C2-N3-C4 | -5.24 | 109.28 | 111.90 |
| 34 | a | 460 | A | N3-C4-N9 | -5.24 | 123.21 | 127.40 |
| 34 | a | 639 | G | C4-C5-N7 | 5.24 | 112.89 | 110.80 |
| 8 | A | 549 | G | C4-C5-N7 | 5.24 | 112.89 | 110.80 |
| 8 | A | 1110 | G | N3-C4-C5 | 5.24 | 131.22 | 128.60 |
| 8 | A | 2222 | C | N3-C4-N4 | -5.24 | 114.33 | 118.00 |
| 8 | A | 315 | G | C4-N9-C1' | -5.24 | 119.69 | 126.50 |
| 8 | A | 982 | C | C6-N1-C2 | 5.24 | 122.39 | 120.30 |
| 8 | A | 2271 | G | N3-C4-C5 | 5.24 | 131.22 | 128.60 |
| 8 | A | 2453 | A | C5-C6-N1 | 5.24 | 120.32 | 117.70 |
| 24 | Q | 59 | LEU | CA-CB-CG | -5.24 | 103.26 | 115.30 |
| 34 | a | 722 | G | N3-C2-N2 | -5.24 | 116.23 | 119.90 |
| 34 | a | 1058 | G | C8-N9-C4 | 5.24 | 108.50 | 106.40 |
| 8 | A | 183 | C | N3-C4-N4 | -5.23 | 114.34 | 118.00 |
| 8 | A | 1733 | G | N3-C4-C5 | 5.23 | 131.22 | 128.60 |
| 8 | A | 2218 | G | C4-C5-N7 | 5.23 | 112.89 | 110.80 |
| 34 | a | 408 | A | C4-C5-C6 | -5.23 | 114.38 | 117.00 |
| 8 | A | 350 | G | C4-C5-N7 | 5.23 | 112.89 | 110.80 |
| 8 | A | 1669 | A | N9-C4-C5 | -5.23 | 103.71 | 105.80 |
| 8 | A | 2591 | C | C2-N1-C1' | 5.23 | 124.56 | 118.80 |
| 34 | a | 64 | G | C4-C5-N7 | 5.23 | 112.89 | 110.80 |
| 34 | a | 873 | A | N9-C4-C5 | -5.23 | 103.71 | 105.80 |
| 34 | a | 937 | A | C8-N9-C4 | 5.23 | 107.89 | 105.80 |
| 8 | A | 89 | A | C8-N9-C4 | 5.23 | 107.89 | 105.80 |
| 8 | A | 2002 | G | C8-N9-C4 | 5.23 | 108.49 | 106.40 |
| 9 | B | 46 | A | C8-N9-C4 | 5.23 | 107.89 | 105.80 |
| 9 | B | 54 | G | C6-N1-C2 | 5.23 | 128.24 | 125.10 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 34 | a | 58 | C | C6-N1-C2 | 5.23 | 122.39 | 120.30 |
| 34 | a | 81 | A | N1-C6-N6 | 5.23 | 121.74 | 118.60 |
| 34 | a | 282 | A | C5-C6-N6 | -5.23 | 119.52 | 123.70 |
| 34 | a | 354 | G | C8-N9-C4 | 5.23 | 108.49 | 106.40 |
| 34 | a | 1196 | A | N9-C4-C5 | -5.23 | 103.71 | 105.80 |
| 8 | A | 870 | U | C6-N1-C2 | 5.23 | 124.14 | 121.00 |
| 9 | B | 12 | C | N3-C2-O2 | -5.23 | 118.24 | 121.90 |
| 34 | a | 761 | G | N3-C4-C5 | 5.23 | 131.21 | 128.60 |
| 8 | A | 37 | C | C5-C6-N1 | -5.23 | 118.39 | 121.00 |
| 8 | A | 270 | A | C6-C5-N7 | 5.23 | 135.96 | 132.30 |
| 8 | A | 1092 | C | C2-N3-C4 | -5.23 | 117.29 | 119.90 |
| 8 | A | 1240 | U | C2-N1-C1' | -5.23 | 111.43 | 117.70 |
| 8 | A | 1684 | G | C4-C5-C6 | -5.23 | 115.66 | 118.80 |
| 8 | A | 2611 | C | N1-C2-O2 | 5.23 | 122.04 | 118.90 |
| 8 | A | 2665 | A | O4'-C1'-N9 | -5.23 | 104.02 | 108.20 |
| 8 | A | 217 | A | N7-C8-N9 | -5.23 | 111.19 | 113.80 |
| 8 | A | 1060 | U | N3-C4-O4 | 5.23 | 123.06 | 119.40 |
| 8 | A | 2049 | G | C2-N3-C4 | -5.23 | 109.29 | 111.90 |
| 34 | a | 1021 | A | N9-C4-C5 | -5.23 | 103.71 | 105.80 |
| 34 | a | 1281 | C | N3-C4-C5 | 5.23 | 123.99 | 121.90 |
| 8 | A | 118 | A | C5-C6-N6 | -5.22 | 119.52 | 123.70 |
| 8 | A | 402 | A | C6-C5-N7 | -5.22 | 128.64 | 132.30 |
| 8 | A | 888 | C | C5-C4-N4 | 5.22 | 123.86 | 120.20 |
| 8 | A | 1771 | C | N1-C2-O2 | 5.22 | 122.03 | 118.90 |
| 8 | A | 2407 | A | C8-N9-C4 | 5.22 | 107.89 | 105.80 |
| 8 | A | 227 | A | C5-C6-N6 | 5.22 | 127.88 | 123.70 |
| 8 | A | 661 | A | C4-C5-N7 | 5.22 | 113.31 | 110.70 |
| 8 | A | 2523 | G | C8-N9-C4 | 5.22 | 108.49 | 106.40 |
| 8 | A | 38 | A | C8-N9-C4 | 5.22 | 107.89 | 105.80 |
| 8 | A | 977 | G | C8-N9-C4 | 5.22 | 108.49 | 106.40 |
| 8 | A | 1143 | A | C5-C6-N6 | -5.22 | 119.52 | 123.70 |
| 8 | A | 1227 | G | C8-N9-C4 | 5.22 | 108.49 | 106.40 |
| 8 | A | 2012 | G | N9-C4-C5 | -5.22 | 103.31 | 105.40 |
| 34 | a | 241 | G | C4-N9-C1' | -5.22 | 119.72 | 126.50 |
| 55 | v | 21 | A | C8-N9-C4 | 5.22 | 107.89 | 105.80 |
| 8 | A | 138 | U | C6-N1-C2 | 5.22 | 124.13 | 121.00 |
| 8 | A | 544 | C | N1-C2-O2 | 5.22 | 122.03 | 118.90 |
| 8 | A | 1474 | U | C6-N1-C2 | 5.22 | 124.13 | 121.00 |
| 34 | a | 435 | A | C8-N9-C4 | 5.22 | 107.89 | 105.80 |
| 38 | e | 114 | LEU | CA-CB-CG | -5.22 | 103.30 | 115.30 |
| 8 | A | 974 | G | N1-C2-N3 | 5.22 | 127.03 | 123.90 |
| 8 | A | 1707 | G | C2-N3-C4 | -5.22 | 109.29 | 111.90 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 56 | w | 28 | G | N3-C4-C5 | 5.22 | 131.21 | 128.60 |
| 34 | a | 226 | G | C8-N9-C4 | 5.21 | 108.49 | 106.40 |
| 8 | A | 1593 | A | C8-N9-C4 | 5.21 | 107.89 | 105.80 |
| 8 | A | 2430 | A | C6-C5-N7 | -5.21 | 128.65 | 132.30 |
| 34 | a | 246 | A | C8-N9-C4 | 5.21 | 107.89 | 105.80 |
| 8 | A | 270 | A | C4-N9-C1' | -5.21 | 116.92 | 126.30 |
| 8 | A | 1119 | U | O4'-C1'-N1 | -5.21 | 104.03 | 108.20 |
| 34 | a | 1511 | G | N3-C4-C5 | 5.21 | 131.21 | 128.60 |
| 8 | A | 76 | C | N3-C4-C5 | 5.21 | 123.98 | 121.90 |
| 8 | A | 2844 | G | N3-C2-N2 | -5.21 | 116.25 | 119.90 |
| 34 | a | 542 | G | C4-N9-C1' | -5.21 | 119.73 | 126.50 |
| 57 | x | 641 | LEU | CA-CB-CG | 5.21 | 127.28 | 115.30 |
| 8 | A | 1424 | G | C8-N9-C4 | 5.21 | 108.48 | 106.40 |
| 8 | A | 1501 | G | N3-C4-N9 | -5.21 | 122.88 | 126.00 |
| 8 | A | 2082 | A | C5-C6-N1 | 5.21 | 120.30 | 117.70 |
| 8 | A | 2384 | U | C6-N1-C2 | 5.21 | 124.12 | 121.00 |
| 8 | A | 2566 | A | N3-C4-C5 | 5.21 | 130.44 | 126.80 |
| 34 | a | 236 | A | C5-N7-C8 | -5.21 | 101.30 | 103.90 |
| 8 | A | 60 | G | C2-N3-C4 | -5.21 | 109.30 | 111.90 |
| 8 | A | 912 | C | N3-C4-C5 | 5.21 | 123.98 | 121.90 |
| 34 | a | 196 | A | N1-C6-N6 | -5.21 | 115.48 | 118.60 |
| 8 | A | 2339 | C | N3-C4-N4 | -5.21 | 114.36 | 118.00 |
| 8 | A | 2631 | G | C8-N9-C4 | 5.21 | 108.48 | 106.40 |
| 8 | A | 2894 | G | N3-C2-N2 | -5.21 | 116.26 | 119.90 |
| 17 | J | 56 | VAL | CG1-CB-CG2 | 5.21 | 119.23 | 110.90 |
| 34 | a | 799 | G | N9-C4-C5 | -5.21 | 103.32 | 105.40 |
| 8 | A | 844 | A | C5-N7-C8 | -5.20 | 101.30 | 103.90 |
| 8 | A | 2579 | C | C6-N1-C1' | -5.20 | 114.56 | 120.80 |
| 34 | a | 661 | G | O4'-C1'-N9 | -5.20 | 104.04 | 108.20 |
| 43 | j | 71 | LEU | CA-CB-CG | -5.20 | 103.33 | 115.30 |
| 8 | A | 203 | A | C2-N3-C4 | -5.20 | 108.00 | 110.60 |
| 8 | A | 1850 | G | C2-N3-C4 | -5.20 | 109.30 | 111.90 |
| 34 | a | 175 | C | N3-C4-C5 | 5.20 | 123.98 | 121.90 |
| 34 | a | 423 | G | C6-C5-N7 | -5.20 | 127.28 | 130.40 |
| 34 | a | 581 | G | C2-N3-C4 | -5.20 | 109.30 | 111.90 |
| 34 | a | 1539 | C | O4'-C1'-N1 | 5.20 | 112.36 | 108.20 |
| 8 | A | 136 | G | C8-N9-C4 | 5.20 | 108.48 | 106.40 |
| 8 | A | 818 | G | O4'-C1'-N9 | -5.20 | 104.04 | 108.20 |
| 8 | A | 1220 | G | C4-C5-C6 | -5.20 | 115.68 | 118.80 |
| 8 | A | 2349 | G | C2-N3-C4 | -5.20 | 109.30 | 111.90 |
| 8 | A | 2655 | G | C4-N9-C1' | -5.20 | 119.74 | 126.50 |
| 8 | A | 1335 | C | C6-N1-C2 | 5.20 | 122.38 | 120.30 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 8 | A | 2051 | A | C4-C5-N7 | 5.20 | 113.30 | 110.70 |
| 34 | a | 564 | C | O4'-C1'-N1 | 5.20 | 112.36 | 108.20 |
| 34 | a | 332 | G | C8-N9-C4 | 5.20 | 108.48 | 106.40 |
| 34 | a | 596 | A | N9-C4-C5 | -5.20 | 103.72 | 105.80 |
| 34 | a | 946 | A | N9-C4-C5 | -5.20 | 103.72 | 105.80 |
| 8 | A | 289 | G | C5-N7-C8 | -5.20 | 101.70 | 104.30 |
| 8 | A | 1774 | C | N3-C4-N4 | -5.20 | 114.36 | 118.00 |
| 34 | a | 1156 | G | C8-N9-C4 | 5.20 | 108.48 | 106.40 |
| 34 | a | 1182 | G | C2-N3-C4 | -5.20 | 109.30 | 111.90 |
| 8 | A | 2569 | G | C8-N9-C4 | 5.19 | 108.48 | 106.40 |
| 8 | A | 2854 | G | C4-C5-N7 | 5.19 | 112.88 | 110.80 |
| 34 | a | 567 | G | C2-N3-C4 | -5.19 | 109.30 | 111.90 |
| 56 | w | 60 | U | C5'-C4'-O4' | 5.19 | 115.33 | 109.10 |
| 8 | A | 2125 | G | O4'-C1'-N9 | 5.19 | 112.35 | 108.20 |
| 8 | A | 2432 | A | C8-N9-C4 | 5.19 | 107.88 | 105.80 |
| 34 | a | 251 | G | C2-N3-C4 | -5.19 | 109.30 | 111.90 |
| 34 | a | 385 | C | C6-N1-C2 | 5.19 | 122.38 | 120.30 |
| 34 | a | 1320 | C | C6-N1-C2 | 5.19 | 122.38 | 120.30 |
| 8 | A | 126 | A | C4-C5-N7 | 5.19 | 113.30 | 110.70 |
| 8 | A | 492 | A | N1-C6-N6 | 5.19 | 121.71 | 118.60 |
| 8 | A | 1168 | G | C2-N3-C4 | -5.19 | 109.31 | 111.90 |
| 8 | A | 1449 | G | C8-N9-C1' | 5.19 | 133.75 | 127.00 |
| 8 | A | 2051 | A | N9-C4-C5 | -5.19 | 103.72 | 105.80 |
| 8 | A | 2771 | C | C6-N1-C2 | 5.19 | 122.38 | 120.30 |
| 8 | A | 2836 | U | C6-N1-C2 | 5.19 | 124.11 | 121.00 |
| 34 | a | 334 | C | C2-N1-C1' | 5.19 | 124.51 | 118.80 |
| 34 | a | 1137 | C | C6-N1-C2 | 5.19 | 122.38 | 120.30 |
| 8 | A | 125 | A | N1-C6-N6 | 5.19 | 121.71 | 118.60 |
| 8 | A | 1055 | G | N3-C2-N2 | -5.19 | 116.27 | 119.90 |
| 8 | A | 2352 | A | N1-C6-N6 | 5.19 | 121.71 | 118.60 |
| 34 | a | 755 | G | C2-N3-C4 | -5.19 | 109.31 | 111.90 |
| 8 | A | 213 | A | C8-N9-C4 | 5.19 | 107.88 | 105.80 |
| 8 | A | 836 | G | O4'-C1'-N9 | -5.19 | 104.05 | 108.20 |
| 8 | A | 2763 | G | C4-N9-C1' | -5.19 | 119.76 | 126.50 |
| 8 | A | 35 | G | C2-N3-C4 | -5.19 | 109.31 | 111.90 |
| 8 | A | 2338 | C | C2-N3-C4 | -5.19 | 117.31 | 119.90 |
| 8 | A | 2413 | G | C2-N3-C4 | -5.19 | 109.31 | 111.90 |
| 9 | B | 21 | G | C5-N7-C8 | -5.19 | 101.71 | 104.30 |
| 56 | w | 74 | C | N3-C2-O2 | -5.19 | 118.27 | 121.90 |
| 8 | A | 704 | G | C2-N3-C4 | -5.18 | 109.31 | 111.90 |
| 8 | A | 1120 | G | C8-N9-C4 | 5.18 | 108.47 | 106.40 |
| 8 | A | 1163 | G | C2-N3-C4 | -5.18 | 109.31 | 111.90 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 34 | a | 1164 | G | C2-N3-C4 | -5.18 | 109.31 | 111.90 |
| 8 | A | 1025 | G | C5-C6-N1 | -5.18 | 108.91 | 111.50 |
| 8 | A | 1774 | C | C5-C6-N1 | -5.18 | 118.41 | 121.00 |
| 8 | A | 2318 | G | N3-C4-C5 | 5.18 | 131.19 | 128.60 |
| 34 | a | 105 | G | N3-C4-C5 | 5.18 | 131.19 | 128.60 |
| 34 | a | 378 | G | C2-N3-C4 | -5.18 | 109.31 | 111.90 |
| 34 | a | 1019 | A | C4-C5-N7 | 5.18 | 113.29 | 110.70 |
| 8 | A | 79 | C | N3-C4-C5 | 5.18 | 123.97 | 121.90 |
| 8 | A | 456 | C | N3-C4-N4 | -5.18 | 114.37 | 118.00 |
| 8 | A | 781 | A | N1-C2-N3 | 5.18 | 131.89 | 129.30 |
| 8 | A | 1461 | C | N1-C2-O2 | -5.18 | 115.79 | 118.90 |
| 8 | A | 1885 | A | N1-C6-N6 | 5.18 | 121.71 | 118.60 |
| 8 | A | 1906 | G | N3-C4-N9 | -5.18 | 122.89 | 126.00 |
| 8 | A | 2502 | G | C8-N9-C4 | 5.18 | 108.47 | 106.40 |
| 34 | a | 1405 | G | C4-C5-C6 | -5.18 | 115.69 | 118.80 |
| 8 | A | 864 | G | C2-N3-C4 | -5.18 | 109.31 | 111.90 |
| 8 | A | 1043 | C | N3-C2-O2 | 5.18 | 125.53 | 121.90 |
| 8 | A | 1119 | U | C6-N1-C2 | 5.18 | 124.11 | 121.00 |
| 8 | A | 1739 | A | N1-C6-N6 | 5.18 | 121.71 | 118.60 |
| 8 | A | 2110 | G | C6-C5-N7 | -5.18 | 127.29 | 130.40 |
| 34 | a | 526 | C | N1-C2-O2 | 5.18 | 122.01 | 118.90 |
| 8 | A | 886 | A | O4'-C1'-N9 | 5.18 | 112.34 | 108.20 |
| 34 | a | 603 | U | C2-N1-C1' | 5.18 | 123.91 | 117.70 |
| 8 | A | 350 | G | N1-C6-O6 | 5.18 | 123.01 | 119.90 |
| 8 | A | 421 | C | N3-C4-N4 | -5.18 | 114.38 | 118.00 |
| 8 | A | 2190 | G | N1-C6-O6 | 5.18 | 123.01 | 119.90 |
| 8 | A | 2810 | A | C5-C6-N6 | -5.18 | 119.56 | 123.70 |
| 9 | B | 31 | C | C5-C6-N1 | -5.18 | 118.41 | 121.00 |
| 9 | B | 33 | G | C8-N9-C4 | 5.18 | 108.47 | 106.40 |
| 34 | a | 447 | G | N3-C4-C5 | 5.18 | 131.19 | 128.60 |
| 34 | a | 489 | C | N3-C4-N4 | -5.18 | 114.38 | 118.00 |
| 34 | a | 1064 | G | N3-C4-C5 | 5.18 | 131.19 | 128.60 |
| 8 | A | 1927 | A | C5-C6-N6 | -5.17 | 119.56 | 123.70 |
| 8 | A | 2021 | C | C6-N1-C1' | -5.17 | 114.59 | 120.80 |
| 8 | A | 2810 | A | N9-C4-C5 | -5.17 | 103.73 | 105.80 |
| 9 | B | 24 | G | C2-N3-C4 | -5.17 | 109.31 | 111.90 |
| 34 | a | 554 | A | C8-N9-C4 | 5.17 | 107.87 | 105.80 |
| 8 | A | 350 | G | C8-N9-C4 | 5.17 | 108.47 | 106.40 |
| 8 | A | 712 | G | C2-N3-C4 | -5.17 | 109.31 | 111.90 |
| 8 | A | 1858 | A | C5-C6-N6 | -5.17 | 119.56 | 123.70 |
| 8 | A | 1862 | G | N3-C2-N2 | 5.17 | 123.52 | 119.90 |
| 34 | a | 1020 | G | C2-N3-C4 | -5.17 | 109.31 | 111.90 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34 | a | 669 | G | N3-C4-C5 | 5.17 | 131.19 | 128.60 |
| 56 | w | 47 | U | C5'-C4'-C3' | 5.17 | 124.27 | 116.00 |
| 8 | A | 317 | G | C2-N3-C4 | -5.17 | 109.32 | 111.90 |
| 8 | A | 2279 | G | C8-N9-C4 | 5.17 | 108.47 | 106.40 |
| 8 | A | 2557 | G | C6-C5-N7 | 5.17 | 133.50 | 130.40 |
| 34 | a | 600 | A | C4-C5-N7 | 5.17 | 113.28 | 110.70 |
| 34 | a | 1080 | A | C5-N7-C8 | -5.17 | 101.31 | 103.90 |
| 34 | a | 77 | A | N9-C4-C5 | -5.17 | 103.73 | 105.80 |
| 34 | a | 987 | G | C8-N9-C1' | 5.17 | 133.72 | 127.00 |
| 8 | A | 489 | G | N3-C4-C5 | 5.17 | 131.18 | 128.60 |
| 8 | A | 1025 | G | O4'-C1'-N9 | -5.17 | 104.07 | 108.20 |
| 8 | A | 1908 | C | N3-C4-N4 | -5.17 | 114.38 | 118.00 |
| 8 | A | 2484 | G | N3-C4-N9 | -5.17 | 122.90 | 126.00 |
| 8 | A | 2655 | G | C2-N3-C4 | -5.17 | 109.32 | 111.90 |
| 8 | A | 207 | A | C4-C5-N7 | 5.16 | 113.28 | 110.70 |
| 8 | A | 922 | C | N3-C4-C5 | 5.16 | 123.97 | 121.90 |
| 8 | A | 1706 | C | N1-C2-O2 | 5.16 | 122.00 | 118.90 |
| 8 | A | 1992 | G | N1-C2-N2 | -5.16 | 111.55 | 116.20 |
| 34 | a | 178 | C | C2-N3-C4 | -5.16 | 117.32 | 119.90 |
| 34 | a | 349 | A | C8-N9-C4 | 5.16 | 107.87 | 105.80 |
| 34 | a | 696 | A | C8-N9-C4 | 5.16 | 107.86 | 105.80 |
| 34 | a | 953 | G | N9-C1'-C2' | -5.16 | 106.32 | 112.00 |
| 34 | a | 1258 | G | N3-C4-N9 | -5.16 | 122.90 | 126.00 |
| 8 | A | 533 | G | C2-N3-C4 | -5.16 | 109.32 | 111.90 |
| 8 | A | 1311 | G | C2-N3-C4 | -5.16 | 109.32 | 111.90 |
| 8 | A | 2490 | G | C2-N3-C4 | -5.16 | 109.32 | 111.90 |
| 34 | a | 773 | G | C8-N9-C4 | 5.16 | 108.47 | 106.40 |
| 34 | a | 1198 | G | N1-C6-O6 | -5.16 | 116.80 | 119.90 |
| 8 | A | 220 | G | C5-C6-N1 | -5.16 | 108.92 | 111.50 |
| 8 | A | 1549 | A | C5-N7-C8 | -5.16 | 101.32 | 103.90 |
| 34 | a | 695 | A | N1-C6-N6 | 5.16 | 121.70 | 118.60 |
| 34 | a | 912 | C | C6-N1-C1' | -5.16 | 114.61 | 120.80 |
| 8 | A | 1336 | A | C4-C5-C6 | -5.16 | 114.42 | 117.00 |
| 8 | A | 344 | A | N9-C4-C5 | -5.16 | 103.74 | 105.80 |
| 8 | A | 2507 | C | N3-C4-C5 | 5.16 | 123.96 | 121.90 |
| 8 | A | 2523 | G | N3-C4-C5 | 5.16 | 131.18 | 128.60 |
| 34 | a | 15 | G | C8-N9-C1' | -5.16 | 120.30 | 127.00 |
| 34 | a | 670 | G | N3-C4-N9 | -5.16 | 122.91 | 126.00 |
| 8 | A | 1733 | G | C8-N9-C4 | 5.16 | 108.46 | 106.40 |
| 8 | A | 2223 | G | N3-C2-N2 | -5.16 | 116.29 | 119.90 |
| 8 | A | 2295 | C | C6-N1-C1' | -5.16 | 114.61 | 120.80 |
| 34 | a | 1497 | G | C4-C5-C6 | -5.16 | 115.71 | 118.80 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 57 | x | 277 | MET | CA-CB-CG | 5.16 | 122.06 | 113.30 |
| 8 | A | 2830 | C | C2-N1-C1' | 5.15 | 124.47 | 118.80 |
| 8 | A | 1125 | G | N3-C4-N9 | -5.15 | 122.91 | 126.00 |
| 8 | A | 1553 | A | N9-C4-C5 | -5.15 | 103.74 | 105.80 |
| 8 | A | 2352 | A | C8-N9-C4 | 5.15 | 107.86 | 105.80 |
| 9 | B | 94 | A | N9-C4-C5 | -5.15 | 103.74 | 105.80 |
| 34 | a | 97 | G | C4-N9-C1' | -5.15 | 119.80 | 126.50 |
| 34 | a | 376 | G | C2-N3-C4 | -5.15 | 109.32 | 111.90 |
| 34 | a | 654 | G | C6-C5-N7 | -5.15 | 127.31 | 130.40 |
| 34 | a | 1130 | A | C4-N9-C1' | 5.15 | 135.57 | 126.30 |
| 34 | a | 1385 | G | N3-C4-C5 | 5.15 | 131.18 | 128.60 |
| 34 | a | 1483 | A | C5-C6-N6 | -5.15 | 119.58 | 123.70 |
| 35 | b | 94 | ARG | CG-CD-NE | 5.15 | 122.62 | 111.80 |
| 55 | v | 42 | G | N3-C4-N9 | -5.15 | 122.91 | 126.00 |
| 8 | A | 204 | A | C5-C6-N6 | -5.15 | 119.58 | 123.70 |
| 8 | A | 1378 | A | C6-C5-N7 | -5.15 | 128.69 | 132.30 |
| 8 | A | 2491 | U | N1-C1'-C2' | -5.15 | 106.33 | 112.00 |
| 34 | a | 603 | U | C6-N1-C1' | -5.15 | 113.99 | 121.20 |
| 55 | v | 53 | G | C2-N3-C4 | -5.15 | 109.33 | 111.90 |
| 8 | A | 466 | A | N9-C4-C5 | 5.15 | 107.86 | 105.80 |
| 8 | A | 1663 | G | C8-N9-C4 | 5.15 | 108.46 | 106.40 |
| 9 | B | 52 | A | C4-C5-N7 | 5.15 | 113.28 | 110.70 |
| 34 | a | 1362 | A | C4-C5-C6 | -5.15 | 114.43 | 117.00 |
| 8 | A | 1704 | C | C6-N1-C1' | -5.15 | 114.62 | 120.80 |
| 34 | a | 1241 | G | N3-C4-N9 | -5.15 | 122.91 | 126.00 |
| 8 | A | 1029 | A | N7-C8-N9 | 5.15 | 116.37 | 113.80 |
| 8 | A | 1986 | C | N3-C4-C5 | 5.15 | 123.96 | 121.90 |
| 19 | L | 6 | LEU | CA-CB-CG | -5.15 | 103.46 | 115.30 |
| 8 | A | 143 | C | N3-C4-N4 | -5.14 | 114.40 | 118.00 |
| 8 | A | 672 | C | N1-C2-O2 | 5.14 | 121.99 | 118.90 |
| 8 | A | 1530 | G | C4-N9-C1' | -5.14 | 119.81 | 126.50 |
| 34 | a | 1088 | G | C6-C5-N7 | 5.14 | 133.49 | 130.40 |
| 8 | A | 1104 | C | C5-C6-N1 | 5.14 | 123.57 | 121.00 |
| 8 | A | 2168 | G | C2-N3-C4 | -5.14 | 109.33 | 111.90 |
| 9 | B | 69 | G | N3-C4-N9 | -5.14 | 122.92 | 126.00 |
| 8 | A | 263 | G | C2-N3-C4 | -5.14 | 109.33 | 111.90 |
| 34 | a | 377 | G | N3-C4-N9 | -5.14 | 122.92 | 126.00 |
| 8 | A | 107 | G | C2-N3-C4 | -5.14 | 109.33 | 111.90 |
| 8 | A | 581 | C | N1-C2-O2 | 5.14 | 121.98 | 118.90 |
| 8 | A | 2570 | G | C2-N3-C4 | -5.14 | 109.33 | 111.90 |
| 34 | a | 888 | G | C4-N9-C1' | -5.14 | 119.82 | 126.50 |
| 34 | a | 1525 | G | N3-C4-C5 | 5.14 | 131.17 | 128.60 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 1055 | G | N1-C2-N2 | 5.14 | 120.82 | 116.20 |
| 8 | A | 2727 | A | C8-N9-C4 | 5.14 | 107.86 | 105.80 |
| 34 | a | 182 | A | C5-C6-N6 | -5.14 | 119.59 | 123.70 |
| 8 | A | 371 | A | C8-N9-C4 | 5.14 | 107.86 | 105.80 |
| 8 | A | 375 | G | N3-C2-N2 | 5.14 | 123.50 | 119.90 |
| 8 | A | 1540 | G | C4-C5-N7 | 5.14 | 112.85 | 110.80 |
| 8 | A | 2027 | G | N3-C4-C5 | 5.14 | 131.17 | 128.60 |
| 8 | A | 2623 | G | N9-C4-C5 | -5.14 | 103.34 | 105.40 |
| 8 | A | 2824 | C | C6-N1-C2 | 5.14 | 122.36 | 120.30 |
| 8 | A | 735 | A | N9-C4-C5 | -5.13 | 103.75 | 105.80 |
| 8 | A | 1017 | G | C2-N3-C4 | -5.13 | 109.33 | 111.90 |
| 8 | A | 1226 | A | N1-C6-N6 | -5.13 | 115.52 | 118.60 |
| 8 | A | 1333 | G | C2-N3-C4 | -5.13 | 109.33 | 111.90 |
| 34 | a | 208 | U | N1-C1'-C2' | -5.13 | 106.35 | 112.00 |
| 34 | a | 810 | C | C6-N1-C2 | 5.13 | 122.35 | 120.30 |
| 8 | A | 1090 | A | O4'-C1'-N9 | -5.13 | 104.09 | 108.20 |
| 8 | A | 2308 | G | C8-N9-C4 | 5.13 | 108.45 | 106.40 |
| 8 | A | 2648 | G | C2-N3-C4 | -5.13 | 109.33 | 111.90 |
| 9 | B | 50 | A | N9-C4-C5 | -5.13 | 103.75 | 105.80 |
| 8 | A | 1477 | A | C5-N7-C8 | -5.13 | 101.33 | 103.90 |
| 34 | a | 275 | G | C8-N9-C4 | 5.13 | 108.45 | 106.40 |
| 34 | a | 457 | G | C2-N3-C4 | -5.13 | 109.33 | 111.90 |
| 34 | a | 542 | G | C4-C5-C6 | -5.13 | 115.72 | 118.80 |
| 34 | a | 1198 | G | C5-C6-O6 | 5.13 | 131.68 | 128.60 |
| 8 | A | 2777 | G | C8-N9-C4 | 5.13 | 108.45 | 106.40 |
| 8 | A | 1166 | G | N3-C2-N2 | 5.13 | 123.49 | 119.90 |
| 8 | A | 1833 | C | C6-N1-C2 | 5.13 | 122.35 | 120.30 |
| 8 | A | 2464 | G | C4-N9-C1' | -5.13 | 119.83 | 126.50 |
| 8 | A | 2731 | G | N3-C4-C5 | 5.13 | 131.16 | 128.60 |
| 34 | a | 410 | G | C8-N9-C1' | 5.13 | 133.67 | 127.00 |
| 34 | a | 1180 | A | C4-C5-N7 | 5.13 | 113.26 | 110.70 |
| 8 | A | 346 | A | C4-C5-N7 | 5.13 | 113.26 | 110.70 |
| 8 | A | 1088 | A | C4-C5-C6 | 5.13 | 119.56 | 117.00 |
| 8 | A | 1811 | G | C2-N3-C4 | -5.13 | 109.34 | 111.90 |
| 8 | A | 2038 | G | C4-C5-N7 | 5.13 | 112.85 | 110.80 |
| 8 | A | 2841 | C | C6-N1-C2 | 5.13 | 122.35 | 120.30 |
| 9 | B | 9 | G | C6-C5-N7 | -5.13 | 127.32 | 130.40 |
| 34 | a | 846 | G | C8-N9-C1' | -5.13 | 120.33 | 127.00 |
| 34 | a | 1043 | G | C2-N3-C4 | -5.13 | 109.34 | 111.90 |
| 34 | a | 1080 | A | N7-C8-N9 | 5.13 | 116.36 | 113.80 |
| 34 | a | 1215 | G | N3-C4-N9 | -5.13 | 122.92 | 126.00 |
| 8 | A | 927 | A | C5-C6-N6 | -5.12 | 119.60 | 123.70 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 8 | A | 2674 | G | C2-N3-C4 | -5.12 | 109.34 | 111.90 |
| 34 | a | 1271 | A | C8-N9-C4 | 5.12 | 107.85 | 105.80 |
| 8 | A | 130 | C | N1-C2-O2 | 5.12 | 121.97 | 118.90 |
| 8 | A | 560 | C | N3-C4-N4 | -5.12 | 114.41 | 118.00 |
| 8 | A | 586 | A | C8-N9-C4 | 5.12 | 107.85 | 105.80 |
| 8 | A | 2052 | A | N9-C4-C5 | -5.12 | 103.75 | 105.80 |
| 8 | A | 2190 | G | C5-N7-C8 | -5.12 | 101.74 | 104.30 |
| 8 | A | 2634 | A | N9-C4-C5 | -5.12 | 103.75 | 105.80 |
| 8 | A | 1600 | C | N3-C4-C5 | 5.12 | 123.95 | 121.90 |
| 8 | A | 1805 | A | C4-C5-C6 | -5.12 | 114.44 | 117.00 |
| 8 | A | 2868 | A | N9-C4-C5 | -5.12 | 103.75 | 105.80 |
| 8 | A | 630 | G | C6-C5-N7 | 5.12 | 133.47 | 130.40 |
| 8 | A | 1074 | G | C4-N9-C1' | -5.12 | 119.84 | 126.50 |
| 50 | q | 11 | VAL | CG1-CB-CG2 | -5.12 | 102.71 | 110.90 |
| 8 | A | 512 | G | N3-C4-N9 | -5.12 | 122.93 | 126.00 |
| 8 | A | 748 | G | C8-N9-C1' | 5.12 | 133.65 | 127.00 |
| 8 | A | 949 | G | C8-N9-C4 | 5.12 | 108.45 | 106.40 |
| 8 | A | 976 | G | N3-C4-C5 | 5.12 | 131.16 | 128.60 |
| 34 | a | 489 | C | C6-N1-C2 | 5.12 | 122.35 | 120.30 |
| 34 | a | 1392 | G | N3-C4-N9 | -5.12 | 122.93 | 126.00 |
| 8 | A | 771 | G | C2-N3-C4 | -5.12 | 109.34 | 111.90 |
| 8 | A | 890 | C | C5-C4-N4 | 5.12 | 123.78 | 120.20 |
| 8 | A | 2020 | A | N9-C4-C5 | -5.12 | 103.75 | 105.80 |
| 8 | A | 2282 | G | C5-C6-N1 | 5.12 | 114.06 | 111.50 |
| 34 | a | 739 | C | N3-C4-N4 | -5.12 | 114.42 | 118.00 |
| 56 | w | 16 | U | C1'-C2'-O2' | 5.12 | 125.94 | 110.60 |
| 8 | A | 81 | G | N3-C4-N9 | -5.11 | 122.93 | 126.00 |
| 8 | A | 401 | A | N1-C6-N6 | 5.11 | 121.67 | 118.60 |
| 8 | A | 2443 | C | N3-C4-N4 | -5.11 | 114.42 | 118.00 |
| 34 | a | 988 | G | C4-N9-C1' | -5.11 | 119.85 | 126.50 |
| 8 | A | 394 | C | C6-N1-C2 | 5.11 | 122.34 | 120.30 |
| 8 | A | 1011 | G | N3-C4-N9 | -5.11 | 122.93 | 126.00 |
| 8 | A | 85 | G | N3-C4-N9 | -5.11 | 122.93 | 126.00 |
| 8 | A | 164 | C | N3-C4-C5 | 5.11 | 123.94 | 121.90 |
| 8 | A | 408 | G | N3-C4-C5 | 5.11 | 131.16 | 128.60 |
| 8 | A | 2097 | A | N3-C4-C5 | 5.11 | 130.38 | 126.80 |
| 8 | A | 2201 | G | C2-N3-C4 | -5.11 | 109.34 | 111.90 |
| 8 | A | 2830 | C | N1-C2-O2 | 5.11 | 121.97 | 118.90 |
| 34 | a | 423 | G | C4-N9-C1' | 5.11 | 133.14 | 126.50 |
| 34 | a | 454 | G | N3-C4-C5 | 5.11 | 131.16 | 128.60 |
| 34 | a | 861 | G | N3-C4-N9 | -5.11 | 122.93 | 126.00 |
| 8 | A | 110 | G | N3-C4-C5 | 5.11 | 131.16 | 128.60 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 9 | B | 52 | A | C8-N9-C4 | 5.11 | 107.84 | 105.80 |
| 34 | a | 1160 | G | C2-N3-C4 | -5.11 | 109.35 | 111.90 |
| 55 | v | 43 | A | N1-C6-N6 | 5.11 | 121.67 | 118.60 |
| 55 | v | 70 | G | C2-N3-C4 | -5.11 | 109.35 | 111.90 |
| 8 | A | 1429 | G | C2-N3-C4 | -5.11 | 109.35 | 111.90 |
| 8 | A | 1688 | U | N1-C2-O2 | -5.11 | 119.22 | 122.80 |
| 8 | A | 2864 | G | C2-N3-C4 | -5.11 | 109.35 | 111.90 |
| 34 | a | 1430 | A | C4-C5-C6 | -5.11 | 114.45 | 117.00 |
| 8 | A | 433 | C | N3-C4-C5 | 5.11 | 123.94 | 121.90 |
| 8 | A | 457 | A | N1-C6-N6 | 5.11 | 121.66 | 118.60 |
| 8 | A | 1320 | C | C2-N3-C4 | -5.11 | 117.35 | 119.90 |
| 8 | A | 2391 | G | C8-N9-C1' | 5.11 | 133.64 | 127.00 |
| 8 | A | 2772 | C | C6-N1-C1' | -5.11 | 114.67 | 120.80 |
| 8 | A | 812 | C | C5-C6-N1 | -5.10 | 118.45 | 121.00 |
| 8 | A | 1671 | U | C5'-C4'-C3' | -5.10 | 107.83 | 116.00 |
| 8 | A | 2354 | C | N3-C4-N4 | -5.10 | 114.43 | 118.00 |
| 34 | a | 147 | G | N3-C4-C5 | 5.10 | 131.15 | 128.60 |
| 34 | a | 155 | A | C4-C5-C6 | -5.10 | 114.45 | 117.00 |
| 34 | a | 1401 | G | C5'-C4'-C3' | -5.10 | 107.83 | 116.00 |
| 8 | A | 500 | G | N3-C4-N9 | -5.10 | 122.94 | 126.00 |
| 8 | A | 950 | G | C8-N9-C4 | 5.10 | 108.44 | 106.40 |
| 8 | A | 998 | C | N1-C2-O2 | 5.10 | 121.96 | 118.90 |
| 8 | A | 1472 | C | C6-N1-C2 | 5.10 | 122.34 | 120.30 |
| 34 | a | 422 | C | C6-N1-C2 | 5.10 | 122.34 | 120.30 |
| 34 | a | 1108 | G | C2-N3-C4 | -5.10 | 109.35 | 111.90 |
| 8 | A | 130 | C | N3-C2-O2 | -5.10 | 118.33 | 121.90 |
| 8 | A | 2632 | A | C4-C5-C6 | -5.10 | 114.45 | 117.00 |
| 34 | a | 681 | A | C5-C6-N6 | -5.10 | 119.62 | 123.70 |
| 34 | a | 1304 | G | N3-C4-N9 | -5.10 | 122.94 | 126.00 |
| 34 | a | 1331 | G | N1-C2-N2 | 5.10 | 120.79 | 116.20 |
| 8 | A | 401 | A | C5-C6-N6 | -5.10 | 119.62 | 123.70 |
| 8 | A | 802 | A | N1-C6-N6 | -5.10 | 115.54 | 118.60 |
| 8 | A | 1557 | C | N3-C4-C5 | 5.10 | 123.94 | 121.90 |
| 8 | A | 2110 | G | N7-C8-N9 | 5.10 | 115.65 | 113.10 |
| 34 | a | 137 | U | C6-N1-C2 | 5.10 | 124.06 | 121.00 |
| 34 | a | 785 | G | C4-C5-N7 | 5.10 | 112.84 | 110.80 |
| 34 | a | 1431 | A | C2-N3-C4 | -5.10 | 108.05 | 110.60 |
| 8 | A | 975 | A | N9-C1'-C2' | -5.10 | 106.39 | 112.00 |
| 8 | A | 2303 | G | N3-C4-N9 | -5.10 | 122.94 | 126.00 |
| 8 | A | 2898 | U | C6-N1-C2 | 5.10 | 124.06 | 121.00 |
| 34 | a | 442 | G | C5-N7-C8 | -5.10 | 101.75 | 104.30 |
| 8 | A | 924 | G | C2-N3-C4 | -5.09 | 109.35 | 111.90 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 1423 | G | C6-C5-N7 | 5.09 | 133.46 | 130.40 |
| 8 | A | 1571 | A | O4'-C1'-N9 | 5.09 | 112.28 | 108.20 |
| 8 | A | 2097 | A | C8-N9-C4 | 5.09 | 107.84 | 105.80 |
| 8 | A | 2241 | A | C5-C6-N1 | 5.09 | 120.25 | 117.70 |
| 8 | A | 2435 | A | C8-N9-C4 | 5.09 | 107.84 | 105.80 |
| 8 | A | 19 | A | N9-C4-C5 | -5.09 | 103.76 | 105.80 |
| 8 | A | 392 | U | C6-N1-C2 | 5.09 | 124.06 | 121.00 |
| 8 | A | 1230 | A | C4-C5-N7 | 5.09 | 113.25 | 110.70 |
| 8 | A | 2632 | A | N9-C4-C5 | -5.09 | 103.76 | 105.80 |
| 34 | a | 265 | G | O4'-C1'-N9 | -5.09 | 104.12 | 108.20 |
| 8 | A | 310 | A | C4-C5-C6 | -5.09 | 114.45 | 117.00 |
| 8 | A | 450 | G | C8-N9-C4 | 5.09 | 108.44 | 106.40 |
| 8 | A | 2280 | G | C2-N3-C4 | -5.09 | 109.35 | 111.90 |
| 8 | A | 612 | G | N3-C4-N9 | -5.09 | 122.95 | 126.00 |
| 8 | A | 659 | G | C8-N9-C1' | -5.09 | 120.38 | 127.00 |
| 8 | A | 1548 | A | C4-C5-C6 | -5.09 | 114.45 | 117.00 |
| 8 | A | 1639 | C | N1-C2-O2 | 5.09 | 121.95 | 118.90 |
| 56 | w | 35 | A | C8-N9-C4 | 5.09 | 107.84 | 105.80 |
| 8 | A | 199 | A | N1-C6-N6 | -5.09 | 115.55 | 118.60 |
| 8 | A | 914 | G | C8-N9-C4 | 5.09 | 108.44 | 106.40 |
| 8 | A | 1684 | G | C8-N9-C1' | 5.09 | 133.61 | 127.00 |
| 8 | A | 1903 | G | N3-C4-C5 | 5.09 | 131.14 | 128.60 |
| 8 | A | 2013 | A | N9-C4-C5 | -5.09 | 103.77 | 105.80 |
| 8 | A | 1650 | A | N9-C4-C5 | -5.09 | 103.77 | 105.80 |
| 8 | A | 1737 | G | C2-N3-C4 | -5.09 | 109.36 | 111.90 |
| 8 | A | 2303 | G | C2-N3-C4 | -5.09 | 109.36 | 111.90 |
| 19 | L | 53 | GLY | N-CA-C | 5.09 | 125.82 | 113.10 |
| 8 | A | 1606 | C | C5-C6-N1 | -5.08 | 118.46 | 121.00 |
| 8 | A | 2461 | A | N3-C4-C5 | 5.08 | 130.36 | 126.80 |
| 34 | a | 1276 | G | C5-N7-C8 | -5.08 | 101.76 | 104.30 |
| 8 | A | 583 | G | N3-C4-C5 | 5.08 | 131.14 | 128.60 |
| 8 | A | 1142 | A | N3-C4-C5 | 5.08 | 130.36 | 126.80 |
| 8 | A | 2227 | A | C8-N9-C4 | 5.08 | 107.83 | 105.80 |
| 8 | A | 2363 | G | C4-N9-C1' | -5.08 | 119.89 | 126.50 |
| 9 | B | 7 | G | N3-C4-C5 | 5.08 | 131.14 | 128.60 |
| 34 | a | 53 | A | N9-C4-C5 | -5.08 | 103.77 | 105.80 |
| 34 | a | 412 | A | N1-C6-N6 | 5.08 | 121.65 | 118.60 |
| 34 | a | 998 | C | C6-N1-C2 | 5.08 | 122.33 | 120.30 |
| 34 | a | 1166 | G | N3-C4-C5 | 5.08 | 131.14 | 128.60 |
| 57 | x | 634 | LEU | CA-CB-CG | -5.08 | 103.61 | 115.30 |
| 8 | A | 831 | G | N3-C4-N9 | -5.08 | 122.95 | 126.00 |
| 8 | A | 1068 | G | N3-C2-N2 | -5.08 | 116.34 | 119.90 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 1114 | C | C6-N1-C2 | 5.08 | 122.33 | 120.30 |
| 34 | a | 1081 | A | N9-C1'-C2' | 5.08 | 120.61 | 114.00 |
| 34 | a | 1141 | C | C5-C4-N4 | 5.08 | 123.76 | 120.20 |
| 34 | a | 1468 | A | C5-C6-N6 | -5.08 | 119.63 | 123.70 |
| 8 | A | 975 | A | O4'-C1'-N9 | -5.08 | 104.14 | 108.20 |
| 8 | A | 1616 | A | N9-C4-C5 | -5.08 | 103.77 | 105.80 |
| 34 | a | 1309 | G | C2-N3-C4 | -5.08 | 109.36 | 111.90 |
| 34 | a | 1462 | C | N3-C4-C5 | 5.08 | 123.93 | 121.90 |
| 8 | A | 1092 | C | N1-C1'-C2' | -5.08 | 106.41 | 112.00 |
| 8 | A | 1418 | G | C8-N9-C4 | 5.08 | 108.43 | 106.40 |
| 8 | A | 1445 | G | N3-C4-C5 | 5.08 | 131.14 | 128.60 |
| 8 | A | 2499 | C | N3-C4-C5 | 5.08 | 123.93 | 121.90 |
| 8 | A | 2630 | G | N3-C4-C5 | 5.08 | 131.14 | 128.60 |
| 34 | a | 457 | G | N3-C4-N9 | -5.08 | 122.95 | 126.00 |
| 34 | a | 1282 | C | C6-N1-C2 | 5.08 | 122.33 | 120.30 |
| 34 | a | 1422 | G | N3-C4-C5 | 5.08 | 131.14 | 128.60 |
| 8 | A | 301 | G | C8-N9-C4 | 5.08 | 108.43 | 106.40 |
| 8 | A | 1762 | A | C4-C5-C6 | -5.08 | 114.46 | 117.00 |
| 34 | a | 410 | G | C8-N9-C4 | 5.08 | 108.43 | 106.40 |
| 34 | a | 598 | U | O4'-C1'-N1 | -5.08 | 104.14 | 108.20 |
| 34 | a | 952 | U | C6-N1-C2 | 5.08 | 124.05 | 121.00 |
| 34 | a | 1200 | C | N3-C4-C5 | 5.08 | 123.93 | 121.90 |
| 8 | A | 325 | G | N3-C4-C5 | 5.07 | 131.14 | 128.60 |
| 8 | A | 379 | G | C2-N3-C4 | -5.07 | 109.36 | 111.90 |
| 8 | A | 974 | G | C5-N7-C8 | -5.07 | 101.76 | 104.30 |
| 8 | A | 2135 | A | O5'-P-OP2 | -5.07 | 101.13 | 105.70 |
| 34 | a | 1174 | G | C8-N9-C4 | 5.07 | 108.43 | 106.40 |
| 34 | a | 1337 | G | O4'-C1'-N9 | -5.07 | 104.14 | 108.20 |
| 56 | w | 24 | G | N3-C4-N9 | -5.07 | 122.96 | 126.00 |
| 8 | A | 309 | A | C8-N9-C4 | 5.07 | 107.83 | 105.80 |
| 8 | A | 1452 | G | N3-C2-N2 | -5.07 | 116.35 | 119.90 |
| 8 | A | 2040 | G | C4-N9-C1' | -5.07 | 119.91 | 126.50 |
| 34 | a | 953 | G | C5-C6-O6 | -5.07 | 125.56 | 128.60 |
| 8 | A | 1168 | G | N9-C4-C5 | -5.07 | 103.37 | 105.40 |
| 8 | A | 1323 | C | N3-C4-N4 | -5.07 | 114.45 | 118.00 |
| 34 | a | 670 | G | C2-N3-C4 | -5.07 | 109.36 | 111.90 |
| 8 | A | 1936 | A | O4'-C1'-N9 | 5.07 | 112.25 | 108.20 |
| 8 | A | 2815 | C | N3-C4-C5 | 5.07 | 123.93 | 121.90 |
| 34 | a | 825 | A | C8-N9-C4 | 5.07 | 107.83 | 105.80 |
| 8 | A | 1178 | C | C5-C6-N1 | -5.07 | 118.47 | 121.00 |
| 8 | A | 1370 | C | C6-N1-C2 | 5.07 | 122.33 | 120.30 |
| 34 | a | 682 | G | N9-C1'-C2' | -5.07 | 106.42 | 112.00 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 808 | G | N9-C4-C5 | -5.07 | 103.37 | 105.40 |
| 8 | A | 1588 | G | C4-N9-C1' | -5.07 | 119.91 | 126.50 |
| 8 | A | 1994 | C | C5-C4-N4 | 5.07 | 123.75 | 120.20 |
| 8 | A | 2201 | G | N3-C4-C5 | 5.07 | 131.13 | 128.60 |
| 34 | a | 601 | G | C2-N3-C4 | -5.07 | 109.37 | 111.90 |
| 34 | a | 785 | G | C2-N3-C4 | -5.07 | 109.37 | 111.90 |
| 34 | a | 920 | U | N3-C2-O2 | -5.07 | 118.66 | 122.20 |
| 55 | v | 12 | G | C6-C5-N7 | 5.07 | 133.44 | 130.40 |
| 8 | A | 269 | C | C6-N1-C2 | 5.06 | 122.33 | 120.30 |
| 8 | A | 457 | A | N3-C4-C5 | 5.06 | 130.34 | 126.80 |
| 8 | A | 2484 | G | C2-N3-C4 | -5.06 | 109.37 | 111.90 |
| 8 | A | 2875 | C | C6-N1-C1' | -5.06 | 114.72 | 120.80 |
| 34 | a | 203 | G | C8-N9-C4 | 5.06 | 108.43 | 106.40 |
| 34 | a | 274 | A | C4-C5-N7 | 5.06 | 113.23 | 110.70 |
| 8 | A | 2022 | U | C2-N1-C1' | 5.06 | 123.78 | 117.70 |
| 8 | A | 2212 | A | C8-N9-C4 | 5.06 | 107.83 | 105.80 |
| 34 | a | 648 | A | N3-C4-C5 | 5.06 | 130.34 | 126.80 |
| 34 | a | 923 | A | C4-C5-N7 | 5.06 | 113.23 | 110.70 |
| 34 | a | 1376 | U | O4'-C1'-N1 | -5.06 | 104.15 | 108.20 |
| 8 | A | 1016 | G | C4-N9-C1' | -5.06 | 119.92 | 126.50 |
| 34 | a | 1466 | C | N3-C4-N4 | -5.06 | 114.46 | 118.00 |
| 8 | A | 522 | A | C2-N3-C4 | -5.06 | 108.07 | 110.60 |
| 8 | A | 1074 | G | N3-C2-N2 | -5.06 | 116.36 | 119.90 |
| 8 | A | 1797 | G | N3-C4-N9 | -5.06 | 122.96 | 126.00 |
| 8 | A | 1897 | G | C8-N9-C4 | 5.06 | 108.42 | 106.40 |
| 8 | A | 2281 | A | C5-C6-N1 | 5.06 | 120.23 | 117.70 |
| 8 | A | 2331 | G | N3-C4-C5 | 5.06 | 131.13 | 128.60 |
| 8 | A | 2509 | G | C8-N9-C4 | 5.06 | 108.42 | 106.40 |
| 8 | A | 2657 | A | C4-C5-N7 | 5.06 | 113.23 | 110.70 |
| 34 | a | 411 | A | N3-C4-C5 | 5.06 | 130.34 | 126.80 |
| 34 | a | 1031 | C | C2-N1-C1' | 5.06 | 124.37 | 118.80 |
| 34 | a | 1101 | A | O4'-C1'-N9 | 5.06 | 112.25 | 108.20 |
| 8 | A | 266 | G | C2-N3-C4 | -5.06 | 109.37 | 111.90 |
| 8 | A | 2624 | G | N3-C2-N2 | -5.06 | 116.36 | 119.90 |
| 8 | A | 2867 | G | N3-C4-C5 | 5.06 | 131.13 | 128.60 |
| 8 | A | 1153 | C | C5-C6-N1 | 5.06 | 123.53 | 121.00 |
| 8 | A | 1541 | C | N3-C4-C5 | 5.06 | 123.92 | 121.90 |
| 8 | A | 2087 | G | N3-C4-C5 | 5.06 | 131.13 | 128.60 |
| 8 | A | 342 | A | C8-N9-C4 | 5.05 | 107.82 | 105.80 |
| 8 | A | 867 | C | C5-C4-N4 | 5.05 | 123.74 | 120.20 |
| 8 | A | 1127 | A | N1-C6-N6 | 5.05 | 121.63 | 118.60 |
| 8 | A | 1361 | G | N1-C2-N3 | 5.05 | 126.93 | 123.90 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 8 | A | 2002 | G | C2-N3-C4 | -5.05 | 109.37 | 111.90 |
| 9 | B | 119 | A | C4-C5-N7 | 5.05 | 113.23 | 110.70 |
| 49 | p | 5 | ARG | CB-CA-C | 5.05 | 120.51 | 110.40 |
| 55 | v | 43 | A | C4-C5-N7 | 5.05 | 113.23 | 110.70 |
| 8 | A | 458 | G | O4'-C1'-N9 | 5.05 | 112.24 | 108.20 |
| 8 | A | 2148 | G | O4'-C1'-N9 | 5.05 | 112.24 | 108.20 |
| 8 | A | 1762 | A | C8-N9-C4 | 5.05 | 107.82 | 105.80 |
| 9 | B | 23 | G | C4-C5-N7 | 5.05 | 112.82 | 110.80 |
| 34 | a | 190 | A | C4-C5-N7 | 5.05 | 113.23 | 110.70 |
| 34 | a | 1129 | C | N3-C2-O2 | 5.05 | 125.44 | 121.90 |
| 34 | a | 1177 | G | N3-C4-C5 | 5.05 | 131.13 | 128.60 |
| 34 | a | 1215 | G | C2-N3-C4 | -5.05 | 109.37 | 111.90 |
| 8 | A | 1088 | A | N3-C4-N9 | 5.05 | 131.44 | 127.40 |
| 8 | A | 1116 | G | C2-N3-C4 | -5.05 | 109.38 | 111.90 |
| 8 | A | 1501 | G | C8-N9-C4 | 5.05 | 108.42 | 106.40 |
| 8 | A | 2170 | A | C4-C5-C6 | -5.05 | 114.47 | 117.00 |
| 8 | A | 2319 | G | N3-C4-C5 | 5.05 | 131.12 | 128.60 |
| 34 | a | 618 | C | C6-N1-C2 | 5.05 | 122.32 | 120.30 |
| 34 | a | 1197 | A | C4-C5-N7 | 5.05 | 113.22 | 110.70 |
| 34 | a | 113 | G | N3-C4-N9 | -5.05 | 122.97 | 126.00 |
| 34 | a | 149 | A | N1-C6-N6 | -5.05 | 115.57 | 118.60 |
| 34 | a | 738 | C | C5'-C4'-C3' | -5.05 | 107.92 | 116.00 |
| 34 | a | 1253 | G | C5-C6-O6 | 5.05 | 131.63 | 128.60 |
| 8 | A | 136 | G | C2-N3-C4 | -5.05 | 109.38 | 111.90 |
| 8 | A | 316 | C | N3-C2-O2 | 5.05 | 125.43 | 121.90 |
| 8 | A | 471 | A | N9-C4-C5 | -5.05 | 103.78 | 105.80 |
| 8 | A | 1548 | A | C4-C5-N7 | 5.05 | 113.22 | 110.70 |
| 8 | A | 2023 | C | C6-N1-C2 | 5.05 | 122.32 | 120.30 |
| 34 | a | 507 | C | C6-N1-C2 | 5.05 | 122.32 | 120.30 |
| 34 | a | 1269 | A | O4'-C1'-N9 | 5.05 | 112.24 | 108.20 |
| 56 | w | 45 | U | C2'-C3'-O3' | 5.05 | 121.77 | 113.70 |
| 34 | a | 799 | G | C2-N3-C4 | -5.04 | 109.38 | 111.90 |
| 34 | a | 1089 | G | C8-N9-C4 | 5.04 | 108.42 | 106.40 |
| 34 | a | 1117 | A | N9-C4-C5 | -5.04 | 103.78 | 105.80 |
| 8 | A | 834 | G | C2-N3-C4 | -5.04 | 109.38 | 111.90 |
| 8 | A | 1940 | U | O4'-C1'-N1 | 5.04 | 112.23 | 108.20 |
| 8 | A | 1975 | G | C2-N3-C4 | -5.04 | 109.38 | 111.90 |
| 8 | A | 2050 | C | C5-C4-N4 | 5.04 | 123.73 | 120.20 |
| 8 | A | 2282 | G | O4'-C1'-N9 | 5.04 | 112.23 | 108.20 |
| 9 | B | 91 | C | C6-N1-C2 | 5.04 | 122.32 | 120.30 |
| 34 | a | 1216 | A | N9-C4-C5 | -5.04 | 103.78 | 105.80 |
| 8 | A | 141 | G | O4'-C1'-N9 | 5.04 | 112.23 | 108.20 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 8 | A | 676 | A | C5-C6-N6 | -5.04 | 119.67 | 123.70 |
| 8 | A | 2411 | A | C4-C5-N7 | 5.04 | 113.22 | 110.70 |
| 8 | A | 2895 | G | N1-C2-N3 | 5.04 | 126.92 | 123.90 |
| 34 | a | 281 | G | C8-N9-C4 | 5.04 | 108.42 | 106.40 |
| 34 | a | 462 | G | C8-N9-C4 | -5.04 | 104.38 | 106.40 |
| 34 | a | 637 | C | C4-C5-C6 | -5.04 | 114.88 | 117.40 |
| 8 | A | 315 | G | C8-N9-C4 | 5.04 | 108.42 | 106.40 |
| 8 | A | 2803 | G | N7-C8-N9 | -5.04 | 110.58 | 113.10 |
| 34 | a | 135 | C | C5-C4-N4 | -5.04 | 116.67 | 120.20 |
| 34 | a | 712 | A | C8-N9-C4 | 5.04 | 107.82 | 105.80 |
| 34 | a | 1452 | C | C6-N1-C2 | 5.04 | 122.32 | 120.30 |
| 8 | A | 881 | G | C4-C5-N7 | 5.04 | 112.82 | 110.80 |
| 8 | A | 1189 | A | O4'-C1'-N9 | -5.04 | 104.17 | 108.20 |
| 8 | A | 2803 | G | C4-C5-C6 | -5.04 | 115.78 | 118.80 |
| 8 | A | 2814 | A | C4-C5-C6 | -5.04 | 114.48 | 117.00 |
| 34 | a | 1089 | G | C4-N9-C1' | -5.04 | 119.95 | 126.50 |
| 34 | a | 1373 | G | N3-C4-C5 | 5.04 | 131.12 | 128.60 |
| 8 | A | 1337 | G | C2-N3-C4 | -5.04 | 109.38 | 111.90 |
| 8 | A | 2375 | G | N3-C4-C5 | 5.04 | 131.12 | 128.60 |
| 34 | a | 164 | G | N3-C4-N9 | -5.04 | 122.98 | 126.00 |
| 34 | a | 541 | G | C4-N9-C1' | -5.04 | 119.95 | 126.50 |
| 8 | A | 1044 | C | O4'-C1'-N1 | -5.04 | 104.17 | 108.20 |
| 8 | A | 1207 | C | N3-C4-N4 | -5.04 | 114.48 | 118.00 |
| 8 | A | 1278 | C | N3-C4-N4 | -5.04 | 114.48 | 118.00 |
| 8 | A | 1847 | G | O4'-C1'-N9 | -5.04 | 104.17 | 108.20 |
| 34 | a | 375 | U | C6-N1-C2 | 5.04 | 124.02 | 121.00 |
| 34 | a | 414 | A | N9-C4-C5 | -5.04 | 103.79 | 105.80 |
| 8 | A | 2813 | A | C4-N9-C1' | -5.03 | 117.24 | 126.30 |
| 8 | A | 2553 | G | N3-C4-N9 | -5.03 | 122.98 | 126.00 |
| 8 | A | 849 | A | C4-C5-N7 | 5.03 | 113.22 | 110.70 |
| 8 | A | 856 | G | N9-C4-C5 | -5.03 | 103.39 | 105.40 |
| 8 | A | 1151 | A | C8-N9-C4 | 5.03 | 107.81 | 105.80 |
| 34 | a | 1003 | G | N3-C4-N9 | -5.03 | 122.98 | 126.00 |
| 56 | w | 52 | G | N3-C4-C5 | 5.03 | 131.11 | 128.60 |
| 8 | A | 175 | G | C4-C5-N7 | 5.03 | 112.81 | 110.80 |
| 8 | A | 184 | C | N1-C1'-C2' | -5.03 | 106.47 | 112.00 |
| 8 | A | 1371 | G | N1-C6-O6 | 5.03 | 122.92 | 119.90 |
| 8 | A | 2009 | A | C4-C5-C6 | -5.03 | 114.49 | 117.00 |
| 34 | a | 408 | A | N9-C4-C5 | -5.03 | 103.79 | 105.80 |
| 8 | A | 748 | G | N3-C4-N9 | -5.03 | 122.98 | 126.00 |
| 8 | A | 2140 | G | N3-C4-C5 | 5.03 | 131.11 | 128.60 |
| 8 | A | 2294 | G | C2-N3-C4 | -5.03 | 109.39 | 111.90 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-----------|-------|-------------|----------|
| 40 | g | 3 | ARG | CG-CD-NE | 5.03 | 122.35 | 111.80 |
| 55 | v | 9 | G | C2-N3-C4 | -5.03 | 109.39 | 111.90 |
| 8 | A | 483 | A | N1-C6-N6 | 5.02 | 121.61 | 118.60 |
| 8 | A | 1372 | U | N1-C2-O2 | -5.02 | 119.28 | 122.80 |
| 9 | B | 19 | C | N3-C4-C5 | 5.02 | 123.91 | 121.90 |
| 34 | a | 489 | C | N3-C4-C5 | 5.02 | 123.91 | 121.90 |
| 34 | a | 423 | G | C8-N9-C1' | -5.02 | 120.47 | 127.00 |
| 34 | a | 530 | G | N3-C4-N9 | -5.02 | 122.99 | 126.00 |
| 34 | a | 558 | G | N3-C4-C5 | 5.02 | 131.11 | 128.60 |
| 8 | A | 1631 | G | N7-C8-N9 | -5.02 | 110.59 | 113.10 |
| 8 | A | 640 | C | C6-N1-C1' | -5.02 | 114.78 | 120.80 |
| 8 | A | 1552 | A | C8-N9-C4 | 5.02 | 107.81 | 105.80 |
| 8 | A | 1652 | A | C8-N9-C4 | 5.02 | 107.81 | 105.80 |
| 8 | A | 2848 | G | C6-C5-N7 | 5.02 | 133.41 | 130.40 |
| 34 | a | 695 | A | C5-C6-N6 | -5.02 | 119.69 | 123.70 |
| 8 | A | 1544 | A | C4-C5-N7 | 5.02 | 113.21 | 110.70 |
| 8 | A | 2279 | G | N3-C4-N9 | -5.02 | 122.99 | 126.00 |
| 34 | a | 613 | C | C6-N1-C1' | -5.02 | 114.78 | 120.80 |
| 34 | a | 102 | G | C8-N9-C4 | 5.02 | 108.41 | 106.40 |
| 8 | A | 673 | C | C2-N3-C4 | -5.01 | 117.39 | 119.90 |
| 8 | A | 974 | G | N7-C8-N9 | 5.01 | 115.61 | 113.10 |
| 8 | A | 1755 | A | N9-C4-C5 | 5.01 | 107.81 | 105.80 |
| 8 | A | 2116 | G | N9-C4-C5 | -5.01 | 103.39 | 105.40 |
| 22 | O | 102 | ARG | NE-CZ-NH2 | 5.01 | 122.81 | 120.30 |
| 34 | a | 1012 | A | C2-N3-C4 | -5.01 | 108.09 | 110.60 |
| 8 | A | 1471 | G | C4-N9-C1' | 5.01 | 133.02 | 126.50 |
| 9 | B | 11 | C | C2-N1-C1' | 5.01 | 124.31 | 118.80 |
| 8 | A | 1279 | G | N3-C4-C5 | 5.01 | 131.11 | 128.60 |
| 8 | A | 2137 | U | C6-N1-C2 | 5.01 | 124.01 | 121.00 |
| 8 | A | 2412 | A | N1-C6-N6 | 5.01 | 121.61 | 118.60 |
| 34 | a | 671 | G | C2-N3-C4 | -5.01 | 109.39 | 111.90 |
| 8 | A | 301 | G | C4-N9-C1' | -5.01 | 119.99 | 126.50 |
| 8 | A | 1012 | U | N3-C4-O4 | 5.01 | 122.91 | 119.40 |
| 8 | A | 1208 | C | C6-N1-C2 | 5.01 | 122.30 | 120.30 |
| 34 | a | 482 | A | N1-C6-N6 | 5.01 | 121.61 | 118.60 |
| 8 | A | 570 | G | C4-C5-C6 | 5.01 | 121.81 | 118.80 |
| 8 | A | 1831 | G | C8-N9-C4 | 5.01 | 108.40 | 106.40 |
| 34 | a | 648 | A | N9-C4-C5 | -5.01 | 103.80 | 105.80 |
| 34 | a | 1366 | C | N3-C4-C5 | 5.01 | 123.90 | 121.90 |
| 8 | A | 770 | G | N3-C4-N9 | -5.01 | 123.00 | 126.00 |
| 8 | A | 2013 | A | C4-C5-N7 | 5.01 | 113.20 | 110.70 |
| 8 | A | 2224 | G | N3-C4-C5 | 5.01 | 131.10 | 128.60 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 9 | B | 44 | G | N3-C4-N9 | -5.01 | 123.00 | 126.00 |
| 8 | A | 1666 | G | C4-N9-C1' | -5.00 | 119.99 | 126.50 |
| 34 | a | 470 | C | N1-C1'-C2' | -5.00 | 106.49 | 112.00 |
| 8 | A | 1194 | A | N9-C4-C5 | -5.00 | 103.80 | 105.80 |
| 8 | A | 1515 | A | N1-C6-N6 | 5.00 | 121.60 | 118.60 |
| 8 | A | 1987 | A | N9-C4-C5 | -5.00 | 103.80 | 105.80 |
| 34 | a | 1460 | C | C6-N1-C2 | 5.00 | 122.30 | 120.30 |
| 55 | v | 5 | G | C4-N9-C1' | -5.00 | 119.99 | 126.50 |
| 8 | A | 1177 | G | N3-C4-N9 | -5.00 | 123.00 | 126.00 |
| 8 | A | 1989 | G | C2-N3-C4 | -5.00 | 109.40 | 111.90 |
| 8 | A | 2093 | G | C2-N3-C4 | -5.00 | 109.40 | 111.90 |
| 34 | a | 831 | A | N9-C4-C5 | -5.00 | 103.80 | 105.80 |
| 34 | a | 1292 | G | N3-C4-C5 | 5.00 | 131.10 | 128.60 |

There are no chirality outliers.

All (10) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group |
|-----|-------|-----|------|---------|
| 4 | 3 | 30 | HIS | Peptide |
| 25 | R | 51 | VAL | Peptide |
| 28 | U | 97 | SER | Peptide |
| 32 | Y | 19 | LEU | Peptide |
| 35 | b | 87 | ASP | Peptide |
| 37 | d | 34 | GLU | Peptide |
| 37 | d | 71 | PHE | Peptide |
| 37 | d | 79 | ALA | Peptide |
| 54 | u | 12 | ASP | Peptide |
| 57 | x | 646 | SER | Peptide |

5.2 Too-close contacts [i](#)

Due to software issues we are unable to calculate clashes - this section is therefore empty.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|-----|-------|---------------|-----------|----------|----------|-------------|-----|
| 1 | 0 | 54/57 (95%) | 53 (98%) | 1 (2%) | 0 | 100 | 100 |
| 2 | 1 | 48/55 (87%) | 46 (96%) | 2 (4%) | 0 | 100 | 100 |
| 3 | 2 | 44/46 (96%) | 41 (93%) | 3 (7%) | 0 | 100 | 100 |
| 4 | 3 | 62/65 (95%) | 56 (90%) | 5 (8%) | 1 (2%) | 8 | 38 |
| 5 | 4 | 36/38 (95%) | 31 (86%) | 5 (14%) | 0 | 100 | 100 |
| 6 | 5 | 129/165 (78%) | 107 (83%) | 22 (17%) | 0 | 100 | 100 |
| 7 | 6 | 64/70 (91%) | 57 (89%) | 5 (8%) | 2 (3%) | 3 | 22 |
| 10 | C | 269/273 (98%) | 245 (91%) | 24 (9%) | 0 | 100 | 100 |
| 11 | D | 207/209 (99%) | 190 (92%) | 17 (8%) | 0 | 100 | 100 |
| 12 | E | 199/201 (99%) | 191 (96%) | 8 (4%) | 0 | 100 | 100 |
| 13 | F | 175/179 (98%) | 157 (90%) | 18 (10%) | 0 | 100 | 100 |
| 14 | G | 174/177 (98%) | 163 (94%) | 11 (6%) | 0 | 100 | 100 |
| 15 | H | 147/149 (99%) | 126 (86%) | 21 (14%) | 0 | 100 | 100 |
| 16 | I | 139/142 (98%) | 124 (89%) | 14 (10%) | 1 (1%) | 19 | 57 |
| 17 | J | 140/142 (99%) | 134 (96%) | 6 (4%) | 0 | 100 | 100 |
| 18 | K | 120/123 (98%) | 109 (91%) | 11 (9%) | 0 | 100 | 100 |
| 19 | L | 141/144 (98%) | 124 (88%) | 17 (12%) | 0 | 100 | 100 |
| 20 | M | 134/136 (98%) | 122 (91%) | 12 (9%) | 0 | 100 | 100 |
| 21 | N | 118/127 (93%) | 109 (92%) | 9 (8%) | 0 | 100 | 100 |
| 22 | O | 114/117 (97%) | 107 (94%) | 7 (6%) | 0 | 100 | 100 |
| 23 | P | 112/115 (97%) | 101 (90%) | 11 (10%) | 0 | 100 | 100 |
| 24 | Q | 115/118 (98%) | 113 (98%) | 2 (2%) | 0 | 100 | 100 |
| 25 | R | 101/103 (98%) | 91 (90%) | 9 (9%) | 1 (1%) | 13 | 49 |
| 26 | S | 108/110 (98%) | 99 (92%) | 9 (8%) | 0 | 100 | 100 |
| 27 | T | 91/100 (91%) | 81 (89%) | 9 (10%) | 1 (1%) | 12 | 47 |
| 28 | U | 100/104 (96%) | 89 (89%) | 10 (10%) | 1 (1%) | 13 | 49 |
| 29 | V | 92/94 (98%) | 92 (100%) | 0 | 0 | 100 | 100 |
| 30 | W | 73/85 (86%) | 68 (93%) | 5 (7%) | 0 | 100 | 100 |
| 31 | X | 75/78 (96%) | 70 (93%) | 5 (7%) | 0 | 100 | 100 |
| 32 | Y | 61/63 (97%) | 57 (93%) | 3 (5%) | 1 (2%) | 8 | 38 |

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| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|-----|-------|-----------------|------------|-----------|----------|-------------|-----|
| 33 | Z | 56/59 (95%) | 55 (98%) | 1 (2%) | 0 | 100 | 100 |
| 35 | b | 216/240 (90%) | 180 (83%) | 35 (16%) | 1 (0%) | 25 | 65 |
| 36 | c | 204/233 (88%) | 193 (95%) | 11 (5%) | 0 | 100 | 100 |
| 37 | d | 203/206 (98%) | 172 (85%) | 30 (15%) | 1 (0%) | 25 | 65 |
| 38 | e | 155/167 (93%) | 140 (90%) | 15 (10%) | 0 | 100 | 100 |
| 39 | f | 98/135 (73%) | 89 (91%) | 9 (9%) | 0 | 100 | 100 |
| 40 | g | 149/179 (83%) | 134 (90%) | 15 (10%) | 0 | 100 | 100 |
| 41 | h | 127/130 (98%) | 118 (93%) | 9 (7%) | 0 | 100 | 100 |
| 42 | i | 125/130 (96%) | 106 (85%) | 19 (15%) | 0 | 100 | 100 |
| 43 | j | 96/103 (93%) | 78 (81%) | 18 (19%) | 0 | 100 | 100 |
| 44 | k | 114/129 (88%) | 103 (90%) | 11 (10%) | 0 | 100 | 100 |
| 45 | l | 121/124 (98%) | 104 (86%) | 16 (13%) | 1 (1%) | 16 | 55 |
| 46 | m | 112/118 (95%) | 100 (89%) | 12 (11%) | 0 | 100 | 100 |
| 47 | n | 99/102 (97%) | 90 (91%) | 9 (9%) | 0 | 100 | 100 |
| 48 | o | 86/89 (97%) | 82 (95%) | 4 (5%) | 0 | 100 | 100 |
| 49 | p | 80/82 (98%) | 68 (85%) | 12 (15%) | 0 | 100 | 100 |
| 50 | q | 78/84 (93%) | 65 (83%) | 13 (17%) | 0 | 100 | 100 |
| 51 | r | 63/75 (84%) | 54 (86%) | 9 (14%) | 0 | 100 | 100 |
| 52 | s | 80/92 (87%) | 72 (90%) | 8 (10%) | 0 | 100 | 100 |
| 53 | t | 83/87 (95%) | 82 (99%) | 1 (1%) | 0 | 100 | 100 |
| 54 | u | 63/71 (89%) | 51 (81%) | 12 (19%) | 0 | 100 | 100 |
| 57 | x | 666/704 (95%) | 588 (88%) | 71 (11%) | 7 (1%) | 12 | 47 |
| All | All | 6516/6924 (94%) | 5877 (90%) | 621 (10%) | 18 (0%) | 38 | 73 |

All (18) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 7 | 6 | 64 | PHE |
| 57 | x | 387 | LEU |
| 57 | x | 545 | PRO |
| 57 | x | 546 | GLY |
| 4 | 3 | 31 | ILE |
| 57 | x | 647 | GLU |
| 28 | U | 98 | ASN |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 57 | x | 507 | GLN |
| 57 | x | 508 | SER |
| 32 | Y | 19 | LEU |
| 35 | b | 20 | ARG |
| 57 | x | 79 | GLU |
| 25 | R | 52 | PRO |
| 27 | T | 88 | LYS |
| 45 | l | 41 | PRO |
| 7 | 6 | 51 | VAL |
| 16 | I | 22 | PRO |
| 37 | d | 144 | ILE |

5.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|-----|-------|----------------|------------|----------|-------------|-----|
| 1 | 0 | 47/48 (98%) | 47 (100%) | 0 | 100 | 100 |
| 2 | 1 | 45/49 (92%) | 45 (100%) | 0 | 100 | 100 |
| 3 | 2 | 38/38 (100%) | 37 (97%) | 1 (3%) | 41 | 59 |
| 4 | 3 | 51/52 (98%) | 51 (100%) | 0 | 100 | 100 |
| 5 | 4 | 34/34 (100%) | 34 (100%) | 0 | 100 | 100 |
| 7 | 6 | 59/62 (95%) | 58 (98%) | 1 (2%) | 56 | 72 |
| 10 | C | 216/218 (99%) | 213 (99%) | 3 (1%) | 62 | 75 |
| 11 | D | 164/164 (100%) | 164 (100%) | 0 | 100 | 100 |
| 12 | E | 165/165 (100%) | 165 (100%) | 0 | 100 | 100 |
| 13 | F | 148/150 (99%) | 148 (100%) | 0 | 100 | 100 |
| 14 | G | 137/138 (99%) | 135 (98%) | 2 (2%) | 60 | 75 |
| 15 | H | 114/114 (100%) | 113 (99%) | 1 (1%) | 75 | 83 |
| 17 | J | 116/116 (100%) | 116 (100%) | 0 | 100 | 100 |
| 18 | K | 103/104 (99%) | 99 (96%) | 4 (4%) | 27 | 48 |
| 19 | L | 102/103 (99%) | 101 (99%) | 1 (1%) | 73 | 82 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|-----|-------|----------------|------------|----------|-------------|-----|
| 20 | M | 109/109 (100%) | 108 (99%) | 1 (1%) | 75 | 83 |
| 21 | N | 100/103 (97%) | 100 (100%) | 0 | 100 | 100 |
| 22 | O | 86/87 (99%) | 86 (100%) | 0 | 100 | 100 |
| 23 | P | 99/100 (99%) | 99 (100%) | 0 | 100 | 100 |
| 24 | Q | 89/90 (99%) | 89 (100%) | 0 | 100 | 100 |
| 25 | R | 84/84 (100%) | 84 (100%) | 0 | 100 | 100 |
| 26 | S | 93/93 (100%) | 92 (99%) | 1 (1%) | 70 | 80 |
| 27 | T | 80/84 (95%) | 79 (99%) | 1 (1%) | 65 | 77 |
| 28 | U | 83/85 (98%) | 83 (100%) | 0 | 100 | 100 |
| 29 | V | 78/78 (100%) | 77 (99%) | 1 (1%) | 65 | 77 |
| 30 | W | 57/63 (90%) | 56 (98%) | 1 (2%) | 54 | 71 |
| 31 | X | 67/68 (98%) | 67 (100%) | 0 | 100 | 100 |
| 32 | Y | 55/55 (100%) | 55 (100%) | 0 | 100 | 100 |
| 33 | Z | 48/49 (98%) | 48 (100%) | 0 | 100 | 100 |
| 35 | b | 180/198 (91%) | 177 (98%) | 3 (2%) | 56 | 72 |
| 36 | c | 170/190 (90%) | 169 (99%) | 1 (1%) | 84 | 88 |
| 37 | d | 172/173 (99%) | 170 (99%) | 2 (1%) | 67 | 79 |
| 38 | e | 114/126 (90%) | 112 (98%) | 2 (2%) | 54 | 71 |
| 39 | f | 87/116 (75%) | 87 (100%) | 0 | 100 | 100 |
| 40 | g | 124/147 (84%) | 122 (98%) | 2 (2%) | 58 | 74 |
| 41 | h | 104/105 (99%) | 104 (100%) | 0 | 100 | 100 |
| 42 | i | 105/107 (98%) | 105 (100%) | 0 | 100 | 100 |
| 43 | j | 86/90 (96%) | 86 (100%) | 0 | 100 | 100 |
| 44 | k | 89/99 (90%) | 88 (99%) | 1 (1%) | 70 | 80 |
| 45 | l | 103/104 (99%) | 101 (98%) | 2 (2%) | 52 | 69 |
| 46 | m | 92/96 (96%) | 92 (100%) | 0 | 100 | 100 |
| 47 | n | 79/84 (94%) | 78 (99%) | 1 (1%) | 65 | 77 |
| 48 | o | 76/77 (99%) | 75 (99%) | 1 (1%) | 65 | 77 |
| 49 | p | 65/65 (100%) | 65 (100%) | 0 | 100 | 100 |
| 50 | q | 74/78 (95%) | 74 (100%) | 0 | 100 | 100 |
| 51 | r | 56/65 (86%) | 56 (100%) | 0 | 100 | 100 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|-----|-------|-----------------|------------|----------|-------------|-----|
| 52 | s | 72/79 (91%) | 71 (99%) | 1 (1%) | 62 | 75 |
| 53 | t | 65/66 (98%) | 65 (100%) | 0 | 100 | 100 |
| 54 | u | 46/61 (75%) | 46 (100%) | 0 | 100 | 100 |
| 57 | x | 551/578 (95%) | 545 (99%) | 6 (1%) | 70 | 80 |
| 58 | y | 1/1 (100%) | 1 (100%) | 0 | 100 | 100 |
| All | All | 5178/5408 (96%) | 5138 (99%) | 40 (1%) | 77 | 85 |

All (40) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 3 | 2 | 41 | ARG |
| 7 | 6 | 20 | ASN |
| 10 | C | 43 | ASN |
| 10 | C | 85 | ASN |
| 10 | C | 259 | ASN |
| 14 | G | 2 | ARG |
| 14 | G | 138 | GLN |
| 15 | H | 58 | LEU |
| 18 | K | 37 | ASP |
| 18 | K | 88 | ASN |
| 18 | K | 90 | ASN |
| 18 | K | 93 | GLN |
| 19 | L | 58 | TYR |
| 20 | M | 6 | ARG |
| 26 | S | 46 | LEU |
| 27 | T | 26 | LYS |
| 29 | V | 34 | LYS |
| 30 | W | 10 | ARG |
| 35 | b | 108 | GLN |
| 35 | b | 176 | ASN |
| 35 | b | 183 | PHE |
| 36 | c | 106 | ARG |
| 37 | d | 46 | ARG |
| 37 | d | 71 | PHE |
| 38 | e | 81 | GLN |
| 38 | e | 92 | ARG |
| 40 | g | 10 | LYS |
| 40 | g | 147 | ASN |
| 44 | k | 118 | ASN |
| 45 | l | 4 | ASN |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 45 | l | 46 | SER |
| 47 | n | 49 | GLN |
| 48 | o | 16 | ARG |
| 52 | s | 80 | ARG |
| 57 | x | 23 | THR |
| 57 | x | 84 | ASN |
| 57 | x | 258 | ASN |
| 57 | x | 481 | ASN |
| 57 | x | 529 | ASN |
| 57 | x | 578 | HIS |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2 | l | 44 | GLN |
| 38 | e | 81 | GLN |
| 44 | k | 21 | HIS |

5.3.3 RNA [i](#)

| Mol | Chain | Analysed | Backbone Outliers | Pucker Outliers |
|-----|-------|-----------------|-------------------|-----------------|
| 34 | a | 1536/1542 (99%) | 447 (29%) | 0 |
| 55 | v | 76/77 (98%) | 20 (26%) | 0 |
| 56 | w | 74/76 (97%) | 23 (31%) | 0 |
| 59 | z | 9/33 (27%) | 3 (33%) | 0 |
| 8 | A | 2898/2903 (99%) | 593 (20%) | 39 (1%) |
| 9 | B | 119/120 (99%) | 21 (17%) | 3 (2%) |
| All | All | 4712/4751 (99%) | 1107 (23%) | 42 (0%) |

All (1107) RNA backbone outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 8 | A | 10 | A |
| 8 | A | 34 | U |
| 8 | A | 35 | G |
| 8 | A | 46 | G |
| 8 | A | 62 | U |
| 8 | A | 63 | A |
| 8 | A | 64 | A |
| 8 | A | 71 | A |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 8 | A | 74 | A |
| 8 | A | 75 | G |
| 8 | A | 91 | A |
| 8 | A | 101 | A |
| 8 | A | 102 | U |
| 8 | A | 103 | A |
| 8 | A | 118 | A |
| 8 | A | 119 | A |
| 8 | A | 120 | U |
| 8 | A | 131 | A |
| 8 | A | 139 | U |
| 8 | A | 141 | G |
| 8 | A | 142 | A |
| 8 | A | 157 | C |
| 8 | A | 158 | U |
| 8 | A | 159 | G |
| 8 | A | 160 | A |
| 8 | A | 162 | U |
| 8 | A | 163 | C |
| 8 | A | 167 | A |
| 8 | A | 169 | G |
| 8 | A | 181 | A |
| 8 | A | 196 | A |
| 8 | A | 199 | A |
| 8 | A | 215 | G |
| 8 | A | 216 | A |
| 8 | A | 221 | A |
| 8 | A | 222 | A |
| 8 | A | 224 | U |
| 8 | A | 225 | C |
| 8 | A | 228 | C |
| 8 | A | 229 | C |
| 8 | A | 233 | A |
| 8 | A | 242 | G |
| 8 | A | 243 | U |
| 8 | A | 248 | G |
| 8 | A | 250 | G |
| 8 | A | 255 | A |
| 8 | A | 266 | G |
| 8 | A | 271 | G |
| 8 | A | 272 | A |
| 8 | A | 273 | G |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 8 | A | 274 | C |
| 8 | A | 275 | C |
| 8 | A | 276 | U |
| 8 | A | 277 | G |
| 8 | A | 278 | A |
| 8 | A | 287 | G |
| 8 | A | 288 | U |
| 8 | A | 291 | G |
| 8 | A | 294 | A |
| 8 | A | 311 | A |
| 8 | A | 330 | A |
| 8 | A | 331 | C |
| 8 | A | 345 | A |
| 8 | A | 346 | A |
| 8 | A | 355 | U |
| 8 | A | 356 | G |
| 8 | A | 362 | A |
| 8 | A | 369 | U |
| 8 | A | 371 | A |
| 8 | A | 372 | G |
| 8 | A | 373 | U |
| 8 | A | 377 | G |
| 8 | A | 383 | C |
| 8 | A | 386 | G |
| 8 | A | 395 | U |
| 8 | A | 396 | G |
| 8 | A | 401 | A |
| 8 | A | 403 | U |
| 8 | A | 404 | A |
| 8 | A | 405 | U |
| 8 | A | 406 | G |
| 8 | A | 411 | G |
| 8 | A | 424 | G |
| 8 | A | 434 | U |
| 8 | A | 435 | C |
| 8 | A | 452 | G |
| 8 | A | 455 | C |
| 8 | A | 457 | A |
| 8 | A | 458 | G |
| 8 | A | 459 | U |
| 8 | A | 475 | C |
| 8 | A | 480 | A |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 8 | A | 481 | G |
| 8 | A | 489 | G |
| 8 | A | 491 | G |
| 8 | A | 496 | G |
| 8 | A | 501 | A |
| 8 | A | 505 | A |
| 8 | A | 509 | C |
| 8 | A | 513 | A |
| 8 | A | 529 | A |
| 8 | A | 532 | A |
| 8 | A | 548 | G |
| 8 | A | 549 | G |
| 8 | A | 556 | A |
| 8 | A | 563 | A |
| 8 | A | 568 | U |
| 8 | A | 571 | U |
| 8 | A | 573 | U |
| 8 | A | 575 | A |
| 8 | A | 603 | A |
| 8 | A | 613 | A |
| 8 | A | 614 | A |
| 8 | A | 615 | U |
| 8 | A | 622 | G |
| 8 | A | 627 | A |
| 8 | A | 637 | A |
| 8 | A | 645 | C |
| 8 | A | 646 | U |
| 8 | A | 647 | G |
| 8 | A | 653 | U |
| 8 | A | 654 | A |
| 8 | A | 655 | A |
| 8 | A | 669 | G |
| 8 | A | 670 | A |
| 8 | A | 677 | A |
| 8 | A | 682 | G |
| 8 | A | 685 | A |
| 8 | A | 686 | U |
| 8 | A | 730 | A |
| 8 | A | 740 | C |
| 8 | A | 747 | 5MC |
| 8 | A | 762 | U |
| 8 | A | 764 | A |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 8 | A | 765 | C |
| 8 | A | 774 | G |
| 8 | A | 775 | G |
| 8 | A | 776 | G |
| 8 | A | 782 | A |
| 8 | A | 784 | G |
| 8 | A | 785 | G |
| 8 | A | 791 | C |
| 8 | A | 792 | A |
| 8 | A | 805 | G |
| 8 | A | 812 | C |
| 8 | A | 819 | A |
| 8 | A | 827 | U |
| 8 | A | 828 | U |
| 8 | A | 831 | G |
| 8 | A | 845 | A |
| 8 | A | 846 | U |
| 8 | A | 847 | U |
| 8 | A | 856 | G |
| 8 | A | 859 | G |
| 8 | A | 866 | A |
| 8 | A | 869 | G |
| 8 | A | 874 | G |
| 8 | A | 875 | G |
| 8 | A | 876 | C |
| 8 | A | 877 | A |
| 8 | A | 882 | G |
| 8 | A | 883 | G |
| 8 | A | 884 | U |
| 8 | A | 885 | C |
| 8 | A | 886 | A |
| 8 | A | 887 | A |
| 8 | A | 888 | C |
| 8 | A | 890 | C |
| 8 | A | 891 | G |
| 8 | A | 892 | A |
| 8 | A | 893 | C |
| 8 | A | 894 | U |
| 8 | A | 895 | U |
| 8 | A | 896 | A |
| 8 | A | 899 | A |
| 8 | A | 903 | C |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 8 | A | 907 | G |
| 8 | A | 910 | A |
| 8 | A | 914 | G |
| 8 | A | 927 | A |
| 8 | A | 931 | U |
| 8 | A | 938 | G |
| 8 | A | 941 | A |
| 8 | A | 945 | A |
| 8 | A | 946 | C |
| 8 | A | 959 | A |
| 8 | A | 961 | C |
| 8 | A | 973 | A |
| 8 | A | 974 | G |
| 8 | A | 983 | A |
| 8 | A | 984 | A |
| 8 | A | 990 | A |
| 8 | A | 995 | C |
| 8 | A | 996 | A |
| 8 | A | 999 | U |
| 8 | A | 1005 | C |
| 8 | A | 1012 | U |
| 8 | A | 1013 | C |
| 8 | A | 1025 | G |
| 8 | A | 1026 | G |
| 8 | A | 1033 | U |
| 8 | A | 1040 | A |
| 8 | A | 1044 | C |
| 8 | A | 1045 | C |
| 8 | A | 1046 | A |
| 8 | A | 1047 | G |
| 8 | A | 1048 | A |
| 8 | A | 1057 | A |
| 8 | A | 1058 | U |
| 8 | A | 1059 | G |
| 8 | A | 1060 | U |
| 8 | A | 1061 | U |
| 8 | A | 1062 | G |
| 8 | A | 1063 | G |
| 8 | A | 1064 | C |
| 8 | A | 1065 | U |
| 8 | A | 1066 | U |
| 8 | A | 1067 | A |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 8 | A | 1068 | G |
| 8 | A | 1069 | A |
| 8 | A | 1070 | A |
| 8 | A | 1072 | C |
| 8 | A | 1073 | A |
| 8 | A | 1074 | G |
| 8 | A | 1075 | C |
| 8 | A | 1076 | C |
| 8 | A | 1079 | C |
| 8 | A | 1080 | A |
| 8 | A | 1081 | U |
| 8 | A | 1082 | U |
| 8 | A | 1083 | U |
| 8 | A | 1084 | A |
| 8 | A | 1085 | A |
| 8 | A | 1086 | A |
| 8 | A | 1087 | G |
| 8 | A | 1088 | A |
| 8 | A | 1089 | A |
| 8 | A | 1091 | G |
| 8 | A | 1092 | C |
| 8 | A | 1093 | G |
| 8 | A | 1094 | U |
| 8 | A | 1095 | A |
| 8 | A | 1097 | U |
| 8 | A | 1099 | G |
| 8 | A | 1100 | C |
| 8 | A | 1101 | U |
| 8 | A | 1102 | C |
| 8 | A | 1103 | A |
| 8 | A | 1105 | U |
| 8 | A | 1106 | G |
| 8 | A | 1107 | G |
| 8 | A | 1111 | A |
| 8 | A | 1112 | G |
| 8 | A | 1115 | G |
| 8 | A | 1117 | C |
| 8 | A | 1120 | G |
| 8 | A | 1130 | U |
| 8 | A | 1132 | U |
| 8 | A | 1133 | A |
| 8 | A | 1135 | C |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 8 | A | 1139 | G |
| 8 | A | 1172 | C |
| 8 | A | 1174 | U |
| 8 | A | 1175 | A |
| 8 | A | 1176 | U |
| 8 | A | 1177 | G |
| 8 | A | 1178 | C |
| 8 | A | 1179 | G |
| 8 | A | 1180 | U |
| 8 | A | 1204 | A |
| 8 | A | 1227 | G |
| 8 | A | 1247 | A |
| 8 | A | 1253 | A |
| 8 | A | 1255 | U |
| 8 | A | 1256 | G |
| 8 | A | 1271 | G |
| 8 | A | 1272 | A |
| 8 | A | 1294 | U |
| 8 | A | 1300 | G |
| 8 | A | 1301 | A |
| 8 | A | 1332 | G |
| 8 | A | 1341 | G |
| 8 | A | 1345 | C |
| 8 | A | 1359 | A |
| 8 | A | 1365 | A |
| 8 | A | 1368 | G |
| 8 | A | 1378 | A |
| 8 | A | 1379 | U |
| 8 | A | 1380 | G |
| 8 | A | 1383 | A |
| 8 | A | 1395 | A |
| 8 | A | 1408 | G |
| 8 | A | 1415 | U |
| 8 | A | 1416 | G |
| 8 | A | 1419 | A |
| 8 | A | 1420 | A |
| 8 | A | 1427 | A |
| 8 | A | 1428 | C |
| 8 | A | 1433 | A |
| 8 | A | 1452 | G |
| 8 | A | 1454 | C |
| 8 | A | 1455 | G |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 8 | A | 1458 | U |
| 8 | A | 1460 | U |
| 8 | A | 1461 | C |
| 8 | A | 1482 | G |
| 8 | A | 1490 | A |
| 8 | A | 1491 | G |
| 8 | A | 1493 | C |
| 8 | A | 1497 | U |
| 8 | A | 1498 | C |
| 8 | A | 1515 | A |
| 8 | A | 1523 | U |
| 8 | A | 1529 | G |
| 8 | A | 1534 | U |
| 8 | A | 1535 | A |
| 8 | A | 1536 | C |
| 8 | A | 1558 | C |
| 8 | A | 1566 | A |
| 8 | A | 1569 | A |
| 8 | A | 1578 | U |
| 8 | A | 1583 | A |
| 8 | A | 1584 | U |
| 8 | A | 1585 | C |
| 8 | A | 1603 | A |
| 8 | A | 1608 | A |
| 8 | A | 1610 | A |
| 8 | A | 1634 | A |
| 8 | A | 1647 | U |
| 8 | A | 1648 | U |
| 8 | A | 1649 | G |
| 8 | A | 1654 | A |
| 8 | A | 1674 | G |
| 8 | A | 1675 | C |
| 8 | A | 1698 | A |
| 8 | A | 1715 | G |
| 8 | A | 1729 | U |
| 8 | A | 1730 | C |
| 8 | A | 1731 | G |
| 8 | A | 1732 | C |
| 8 | A | 1738 | G |
| 8 | A | 1744 | A |
| 8 | A | 1757 | A |
| 8 | A | 1764 | C |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 8 | A | 1773 | A |
| 8 | A | 1784 | A |
| 8 | A | 1786 | A |
| 8 | A | 1787 | A |
| 8 | A | 1789 | A |
| 8 | A | 1790 | C |
| 8 | A | 1800 | C |
| 8 | A | 1801 | A |
| 8 | A | 1807 | G |
| 8 | A | 1808 | A |
| 8 | A | 1809 | A |
| 8 | A | 1811 | G |
| 8 | A | 1816 | C |
| 8 | A | 1827 | U |
| 8 | A | 1829 | A |
| 8 | A | 1835 | 2MG |
| 8 | A | 1848 | A |
| 8 | A | 1857 | G |
| 8 | A | 1869 | G |
| 8 | A | 1884 | G |
| 8 | A | 1896 | G |
| 8 | A | 1900 | A |
| 8 | A | 1901 | A |
| 8 | A | 1906 | G |
| 8 | A | 1912 | A |
| 8 | A | 1913 | A |
| 8 | A | 1914 | C |
| 8 | A | 1927 | A |
| 8 | A | 1929 | G |
| 8 | A | 1930 | G |
| 8 | A | 1931 | U |
| 8 | A | 1937 | A |
| 8 | A | 1938 | A |
| 8 | A | 1939 | 5MU |
| 8 | A | 1955 | U |
| 8 | A | 1960 | A |
| 8 | A | 1967 | C |
| 8 | A | 1970 | A |
| 8 | A | 1971 | U |
| 8 | A | 1972 | G |
| 8 | A | 1982 | U |
| 8 | A | 1991 | U |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 8 | A | 1997 | C |
| 8 | A | 2020 | A |
| 8 | A | 2022 | U |
| 8 | A | 2023 | C |
| 8 | A | 2031 | A |
| 8 | A | 2032 | G |
| 8 | A | 2033 | A |
| 8 | A | 2036 | C |
| 8 | A | 2043 | C |
| 8 | A | 2049 | G |
| 8 | A | 2055 | C |
| 8 | A | 2056 | G |
| 8 | A | 2060 | A |
| 8 | A | 2061 | G |
| 8 | A | 2062 | A |
| 8 | A | 2069 | G7M |
| 8 | A | 2072 | C |
| 8 | A | 2100 | G |
| 8 | A | 2104 | C |
| 8 | A | 2105 | U |
| 8 | A | 2107 | G |
| 8 | A | 2108 | A |
| 8 | A | 2109 | U |
| 8 | A | 2110 | G |
| 8 | A | 2111 | U |
| 8 | A | 2112 | G |
| 8 | A | 2113 | U |
| 8 | A | 2114 | A |
| 8 | A | 2115 | G |
| 8 | A | 2116 | G |
| 8 | A | 2118 | U |
| 8 | A | 2120 | G |
| 8 | A | 2121 | G |
| 8 | A | 2123 | G |
| 8 | A | 2125 | G |
| 8 | A | 2126 | A |
| 8 | A | 2129 | C |
| 8 | A | 2131 | U |
| 8 | A | 2132 | U |
| 8 | A | 2133 | G |
| 8 | A | 2134 | A |
| 8 | A | 2136 | G |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 8 | A | 2140 | G |
| 8 | A | 2141 | G |
| 8 | A | 2143 | C |
| 8 | A | 2144 | G |
| 8 | A | 2145 | C |
| 8 | A | 2146 | C |
| 8 | A | 2147 | A |
| 8 | A | 2149 | U |
| 8 | A | 2151 | U |
| 8 | A | 2153 | C |
| 8 | A | 2155 | U |
| 8 | A | 2156 | G |
| 8 | A | 2157 | G |
| 8 | A | 2158 | A |
| 8 | A | 2159 | G |
| 8 | A | 2164 | C |
| 8 | A | 2165 | C |
| 8 | A | 2170 | A |
| 8 | A | 2171 | A |
| 8 | A | 2172 | U |
| 8 | A | 2173 | A |
| 8 | A | 2174 | C |
| 8 | A | 2176 | A |
| 8 | A | 2177 | C |
| 8 | A | 2179 | C |
| 8 | A | 2181 | U |
| 8 | A | 2185 | U |
| 8 | A | 2186 | G |
| 8 | A | 2187 | U |
| 8 | A | 2188 | U |
| 8 | A | 2189 | U |
| 8 | A | 2193 | G |
| 8 | A | 2198 | A |
| 8 | A | 2203 | U |
| 8 | A | 2204 | G |
| 8 | A | 2208 | C |
| 8 | A | 2210 | U |
| 8 | A | 2211 | A |
| 8 | A | 2225 | A |
| 8 | A | 2238 | G |
| 8 | A | 2239 | G |
| 8 | A | 2266 | A |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 8 | A | 2273 | A |
| 8 | A | 2278 | A |
| 8 | A | 2279 | G |
| 8 | A | 2283 | C |
| 8 | A | 2287 | A |
| 8 | A | 2288 | A |
| 8 | A | 2289 | G |
| 8 | A | 2297 | A |
| 8 | A | 2305 | U |
| 8 | A | 2309 | A |
| 8 | A | 2310 | C |
| 8 | A | 2312 | U |
| 8 | A | 2319 | G |
| 8 | A | 2320 | U |
| 8 | A | 2322 | A |
| 8 | A | 2325 | G |
| 8 | A | 2333 | A |
| 8 | A | 2334 | U |
| 8 | A | 2336 | A |
| 8 | A | 2344 | U |
| 8 | A | 2345 | G |
| 8 | A | 2346 | A |
| 8 | A | 2347 | C |
| 8 | A | 2350 | C |
| 8 | A | 2357 | G |
| 8 | A | 2361 | G |
| 8 | A | 2371 | G |
| 8 | A | 2381 | A |
| 8 | A | 2382 | G |
| 8 | A | 2383 | G |
| 8 | A | 2385 | C |
| 8 | A | 2402 | U |
| 8 | A | 2406 | A |
| 8 | A | 2407 | A |
| 8 | A | 2408 | U |
| 8 | A | 2410 | G |
| 8 | A | 2423 | U |
| 8 | A | 2425 | A |
| 8 | A | 2426 | A |
| 8 | A | 2428 | G |
| 8 | A | 2429 | G |
| 8 | A | 2430 | A |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 8 | A | 2432 | A |
| 8 | A | 2435 | A |
| 8 | A | 2441 | U |
| 8 | A | 2445 | 2MG |
| 8 | A | 2447 | G |
| 8 | A | 2448 | A |
| 8 | A | 2475 | C |
| 8 | A | 2476 | A |
| 8 | A | 2478 | A |
| 8 | A | 2487 | G |
| 8 | A | 2494 | G |
| 8 | A | 2502 | G |
| 8 | A | 2504 | PSU |
| 8 | A | 2505 | G |
| 8 | A | 2518 | A |
| 8 | A | 2520 | C |
| 8 | A | 2529 | G |
| 8 | A | 2535 | G |
| 8 | A | 2547 | A |
| 8 | A | 2554 | U |
| 8 | A | 2556 | C |
| 8 | A | 2566 | A |
| 8 | A | 2567 | G |
| 8 | A | 2573 | C |
| 8 | A | 2576 | G |
| 8 | A | 2584 | U |
| 8 | A | 2585 | U |
| 8 | A | 2602 | A |
| 8 | A | 2609 | U |
| 8 | A | 2613 | U |
| 8 | A | 2615 | U |
| 8 | A | 2619 | C |
| 8 | A | 2621 | G |
| 8 | A | 2629 | U |
| 8 | A | 2630 | G |
| 8 | A | 2638 | G |
| 8 | A | 2646 | C |
| 8 | A | 2654 | A |
| 8 | A | 2656 | U |
| 8 | A | 2663 | G |
| 8 | A | 2689 | U |
| 8 | A | 2690 | U |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 8 | A | 2702 | G |
| 8 | A | 2714 | G |
| 8 | A | 2718 | G |
| 8 | A | 2725 | A |
| 8 | A | 2726 | A |
| 8 | A | 2729 | G |
| 8 | A | 2732 | G |
| 8 | A | 2733 | A |
| 8 | A | 2739 | U |
| 8 | A | 2744 | G |
| 8 | A | 2747 | G |
| 8 | A | 2748 | A |
| 8 | A | 2749 | A |
| 8 | A | 2750 | A |
| 8 | A | 2751 | G |
| 8 | A | 2752 | C |
| 8 | A | 2754 | U |
| 8 | A | 2755 | C |
| 8 | A | 2765 | A |
| 8 | A | 2778 | A |
| 8 | A | 2779 | U |
| 8 | A | 2791 | G |
| 8 | A | 2793 | C |
| 8 | A | 2798 | U |
| 8 | A | 2799 | A |
| 8 | A | 2800 | A |
| 8 | A | 2808 | G |
| 8 | A | 2818 | U |
| 8 | A | 2820 | A |
| 8 | A | 2821 | A |
| 8 | A | 2849 | U |
| 8 | A | 2867 | G |
| 8 | A | 2872 | A |
| 8 | A | 2873 | A |
| 8 | A | 2880 | C |
| 8 | A | 2884 | U |
| 8 | A | 2886 | A |
| 8 | A | 2891 | U |
| 8 | A | 2902 | C |
| 9 | B | 9 | G |
| 9 | B | 18 | G |
| 9 | B | 25 | U |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 9 | B | 35 | C |
| 9 | B | 36 | C |
| 9 | B | 37 | C |
| 9 | B | 41 | G |
| 9 | B | 42 | C |
| 9 | B | 44 | G |
| 9 | B | 45 | A |
| 9 | B | 51 | G |
| 9 | B | 52 | A |
| 9 | B | 53 | A |
| 9 | B | 56 | G |
| 9 | B | 67 | G |
| 9 | B | 73 | A |
| 9 | B | 88 | C |
| 9 | B | 89 | U |
| 9 | B | 108 | A |
| 9 | B | 109 | A |
| 9 | B | 120 | U |
| 34 | a | 2 | A |
| 34 | a | 5 | U |
| 34 | a | 6 | G |
| 34 | a | 7 | A |
| 34 | a | 9 | G |
| 34 | a | 16 | A |
| 34 | a | 22 | G |
| 34 | a | 31 | G |
| 34 | a | 32 | A |
| 34 | a | 37 | U |
| 34 | a | 39 | G |
| 34 | a | 46 | G |
| 34 | a | 47 | C |
| 34 | a | 48 | C |
| 34 | a | 50 | A |
| 34 | a | 51 | A |
| 34 | a | 64 | G |
| 34 | a | 69 | G |
| 34 | a | 71 | A |
| 34 | a | 73 | C |
| 34 | a | 74 | A |
| 34 | a | 77 | A |
| 34 | a | 78 | A |
| 34 | a | 79 | G |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 34 | a | 80 | A |
| 34 | a | 81 | A |
| 34 | a | 83 | C |
| 34 | a | 84 | U |
| 34 | a | 85 | U |
| 34 | a | 86 | G |
| 34 | a | 88 | U |
| 34 | a | 89 | U |
| 34 | a | 90 | C |
| 34 | a | 92 | U |
| 34 | a | 94 | G |
| 34 | a | 97 | G |
| 34 | a | 114 | U |
| 34 | a | 121 | U |
| 34 | a | 131 | A |
| 34 | a | 133 | U |
| 34 | a | 140 | U |
| 34 | a | 141 | G |
| 34 | a | 144 | G |
| 34 | a | 145 | G |
| 34 | a | 146 | G |
| 34 | a | 148 | G |
| 34 | a | 155 | A |
| 34 | a | 156 | C |
| 34 | a | 157 | U |
| 34 | a | 158 | G |
| 34 | a | 159 | G |
| 34 | a | 160 | A |
| 34 | a | 161 | A |
| 34 | a | 162 | A |
| 34 | a | 163 | C |
| 34 | a | 164 | G |
| 34 | a | 165 | G |
| 34 | a | 167 | A |
| 34 | a | 169 | C |
| 34 | a | 170 | U |
| 34 | a | 171 | A |
| 34 | a | 173 | U |
| 34 | a | 174 | A |
| 34 | a | 179 | A |
| 34 | a | 180 | U |
| 34 | a | 182 | A |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 34 | a | 183 | C |
| 34 | a | 186 | C |
| 34 | a | 188 | C |
| 34 | a | 189 | A |
| 34 | a | 197 | A |
| 34 | a | 198 | G |
| 34 | a | 201 | G |
| 34 | a | 202 | G |
| 34 | a | 204 | G |
| 34 | a | 205 | A |
| 34 | a | 206 | C |
| 34 | a | 207 | C |
| 34 | a | 208 | U |
| 34 | a | 209 | U |
| 34 | a | 210 | C |
| 34 | a | 211 | G |
| 34 | a | 212 | G |
| 34 | a | 213 | G |
| 34 | a | 214 | C |
| 34 | a | 216 | U |
| 34 | a | 219 | U |
| 34 | a | 221 | C |
| 34 | a | 224 | U |
| 34 | a | 226 | G |
| 34 | a | 240 | G |
| 34 | a | 245 | U |
| 34 | a | 246 | A |
| 34 | a | 247 | G |
| 34 | a | 251 | G |
| 34 | a | 253 | A |
| 34 | a | 262 | A |
| 34 | a | 266 | G |
| 34 | a | 267 | C |
| 34 | a | 271 | C |
| 34 | a | 279 | A |
| 34 | a | 281 | G |
| 34 | a | 289 | G |
| 34 | a | 298 | A |
| 34 | a | 299 | G |
| 34 | a | 301 | G |
| 34 | a | 316 | C |
| 34 | a | 317 | U |

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Continued from previous page...

| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 34 | a | 321 | A |
| 34 | a | 322 | C |
| 34 | a | 328 | C |
| 34 | a | 330 | C |
| 34 | a | 342 | C |
| 34 | a | 344 | A |
| 34 | a | 345 | C |
| 34 | a | 346 | G |
| 34 | a | 347 | G |
| 34 | a | 351 | G |
| 34 | a | 352 | C |
| 34 | a | 354 | G |
| 34 | a | 363 | A |
| 34 | a | 367 | U |
| 34 | a | 372 | C |
| 34 | a | 373 | A |
| 34 | a | 374 | A |
| 34 | a | 375 | U |
| 34 | a | 376 | G |
| 34 | a | 384 | G |
| 34 | a | 388 | G |
| 34 | a | 392 | C |
| 34 | a | 397 | A |
| 34 | a | 405 | U |
| 34 | a | 406 | G |
| 34 | a | 411 | A |
| 34 | a | 414 | A |
| 34 | a | 415 | A |
| 34 | a | 421 | U |
| 34 | a | 422 | C |
| 34 | a | 423 | G |
| 34 | a | 428 | G |
| 34 | a | 429 | U |
| 34 | a | 430 | A |
| 34 | a | 435 | A |
| 34 | a | 436 | C |
| 34 | a | 439 | U |
| 34 | a | 442 | G |
| 34 | a | 443 | C |
| 34 | a | 447 | G |
| 34 | a | 448 | A |
| 34 | a | 454 | G |

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Continued from previous page...

| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 34 | a | 457 | G |
| 34 | a | 458 | U |
| 34 | a | 460 | A |
| 34 | a | 462 | G |
| 34 | a | 463 | U |
| 34 | a | 464 | U |
| 34 | a | 467 | U |
| 34 | a | 468 | A |
| 34 | a | 469 | C |
| 34 | a | 470 | C |
| 34 | a | 471 | U |
| 34 | a | 472 | U |
| 34 | a | 473 | U |
| 34 | a | 476 | U |
| 34 | a | 477 | C |
| 34 | a | 479 | U |
| 34 | a | 482 | A |
| 34 | a | 484 | G |
| 34 | a | 492 | C |
| 34 | a | 495 | A |
| 34 | a | 496 | A |
| 34 | a | 497 | G |
| 34 | a | 505 | G |
| 34 | a | 509 | A |
| 34 | a | 510 | A |
| 34 | a | 511 | C |
| 34 | a | 512 | U |
| 34 | a | 515 | G |
| 34 | a | 516 | PSU |
| 34 | a | 518 | C |
| 34 | a | 524 | G |
| 34 | a | 530 | G |
| 34 | a | 532 | A |
| 34 | a | 547 | A |
| 34 | a | 560 | A |
| 34 | a | 562 | U |
| 34 | a | 564 | C |
| 34 | a | 570 | G |
| 34 | a | 572 | A |
| 34 | a | 573 | A |
| 34 | a | 574 | A |
| 34 | a | 575 | G |

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Continued from previous page...

| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 34 | a | 576 | C |
| 34 | a | 577 | G |
| 34 | a | 583 | A |
| 34 | a | 596 | A |
| 34 | a | 607 | A |
| 34 | a | 614 | C |
| 34 | a | 618 | C |
| 34 | a | 620 | C |
| 34 | a | 623 | C |
| 34 | a | 624 | C |
| 34 | a | 633 | G |
| 34 | a | 635 | A |
| 34 | a | 636 | U |
| 34 | a | 639 | G |
| 34 | a | 641 | U |
| 34 | a | 650 | G |
| 34 | a | 661 | G |
| 34 | a | 662 | U |
| 34 | a | 665 | A |
| 34 | a | 676 | A |
| 34 | a | 686 | U |
| 34 | a | 687 | A |
| 34 | a | 690 | G |
| 34 | a | 693 | G |
| 34 | a | 695 | A |
| 34 | a | 700 | G |
| 34 | a | 702 | A |
| 34 | a | 703 | G |
| 34 | a | 710 | G |
| 34 | a | 721 | G |
| 34 | a | 723 | U |
| 34 | a | 724 | G |
| 34 | a | 731 | G |
| 34 | a | 733 | G |
| 34 | a | 734 | G |
| 34 | a | 736 | C |
| 34 | a | 739 | C |
| 34 | a | 753 | A |
| 34 | a | 755 | G |
| 34 | a | 777 | A |
| 34 | a | 781 | A |
| 34 | a | 782 | A |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 34 | a | 793 | U |
| 34 | a | 794 | A |
| 34 | a | 799 | G |
| 34 | a | 812 | G |
| 34 | a | 815 | A |
| 34 | a | 817 | C |
| 34 | a | 818 | G |
| 34 | a | 819 | A |
| 34 | a | 820 | U |
| 34 | a | 821 | G |
| 34 | a | 833 | G |
| 34 | a | 836 | G |
| 34 | a | 837 | U |
| 34 | a | 840 | C |
| 34 | a | 842 | U |
| 34 | a | 843 | U |
| 34 | a | 845 | A |
| 34 | a | 849 | G |
| 34 | a | 864 | A |
| 34 | a | 865 | A |
| 34 | a | 872 | A |
| 34 | a | 876 | C |
| 34 | a | 885 | G |
| 34 | a | 890 | G |
| 34 | a | 891 | U |
| 34 | a | 902 | G |
| 34 | a | 914 | A |
| 34 | a | 920 | U |
| 34 | a | 921 | U |
| 34 | a | 926 | G |
| 34 | a | 927 | G |
| 34 | a | 934 | C |
| 34 | a | 935 | A |
| 34 | a | 945 | G |
| 34 | a | 946 | A |
| 34 | a | 958 | A |
| 34 | a | 960 | U |
| 34 | a | 961 | U |
| 34 | a | 964 | A |
| 34 | a | 965 | U |
| 34 | a | 966 | 2MG |
| 34 | a | 967 | 5MC |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 34 | a | 969 | A |
| 34 | a | 975 | A |
| 34 | a | 976 | G |
| 34 | a | 977 | A |
| 34 | a | 979 | C |
| 34 | a | 980 | C |
| 34 | a | 982 | U |
| 34 | a | 984 | C |
| 34 | a | 989 | U |
| 34 | a | 992 | U |
| 34 | a | 993 | G |
| 34 | a | 994 | A |
| 34 | a | 995 | C |
| 34 | a | 996 | A |
| 34 | a | 997 | U |
| 34 | a | 1000 | A |
| 34 | a | 1002 | G |
| 34 | a | 1004 | A |
| 34 | a | 1009 | U |
| 34 | a | 1010 | U |
| 34 | a | 1011 | C |
| 34 | a | 1012 | A |
| 34 | a | 1022 | A |
| 34 | a | 1023 | U |
| 34 | a | 1026 | G |
| 34 | a | 1027 | C |
| 34 | a | 1028 | C |
| 34 | a | 1029 | U |
| 34 | a | 1030 | U |
| 34 | a | 1031 | C |
| 34 | a | 1032 | G |
| 34 | a | 1033 | G |
| 34 | a | 1034 | G |
| 34 | a | 1037 | C |
| 34 | a | 1041 | G |
| 34 | a | 1045 | C |
| 34 | a | 1049 | U |
| 34 | a | 1050 | G |
| 34 | a | 1064 | G |
| 34 | a | 1065 | U |
| 34 | a | 1075 | U |
| 34 | a | 1080 | A |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 34 | a | 1081 | A |
| 34 | a | 1082 | A |
| 34 | a | 1083 | U |
| 34 | a | 1084 | G |
| 34 | a | 1085 | U |
| 34 | a | 1086 | U |
| 34 | a | 1094 | G |
| 34 | a | 1100 | C |
| 34 | a | 1101 | A |
| 34 | a | 1102 | A |
| 34 | a | 1105 | A |
| 34 | a | 1108 | G |
| 34 | a | 1120 | C |
| 34 | a | 1124 | G |
| 34 | a | 1126 | U |
| 34 | a | 1127 | G |
| 34 | a | 1130 | A |
| 34 | a | 1131 | G |
| 34 | a | 1133 | G |
| 34 | a | 1134 | G |
| 34 | a | 1136 | C |
| 34 | a | 1137 | C |
| 34 | a | 1138 | G |
| 34 | a | 1140 | C |
| 34 | a | 1142 | G |
| 34 | a | 1143 | G |
| 34 | a | 1145 | A |
| 34 | a | 1146 | A |
| 34 | a | 1154 | G |
| 34 | a | 1159 | U |
| 34 | a | 1160 | G |
| 34 | a | 1167 | A |
| 34 | a | 1168 | U |
| 34 | a | 1169 | A |
| 34 | a | 1173 | U |
| 34 | a | 1176 | A |
| 34 | a | 1183 | U |
| 34 | a | 1184 | G |
| 34 | a | 1193 | G |
| 34 | a | 1196 | A |
| 34 | a | 1197 | A |
| 34 | a | 1200 | C |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 34 | a | 1201 | A |
| 34 | a | 1202 | U |
| 34 | a | 1210 | C |
| 34 | a | 1212 | U |
| 34 | a | 1213 | A |
| 34 | a | 1214 | C |
| 34 | a | 1227 | A |
| 34 | a | 1228 | C |
| 34 | a | 1236 | A |
| 34 | a | 1239 | A |
| 34 | a | 1242 | G |
| 34 | a | 1249 | C |
| 34 | a | 1250 | A |
| 34 | a | 1257 | A |
| 34 | a | 1260 | G |
| 34 | a | 1261 | A |
| 34 | a | 1262 | C |
| 34 | a | 1263 | C |
| 34 | a | 1264 | U |
| 34 | a | 1267 | C |
| 34 | a | 1269 | A |
| 34 | a | 1270 | G |
| 34 | a | 1274 | A |
| 34 | a | 1275 | A |
| 34 | a | 1280 | A |
| 34 | a | 1285 | A |
| 34 | a | 1287 | A |
| 34 | a | 1300 | G |
| 34 | a | 1301 | U |
| 34 | a | 1302 | C |
| 34 | a | 1303 | C |
| 34 | a | 1312 | G |
| 34 | a | 1317 | C |
| 34 | a | 1318 | A |
| 34 | a | 1319 | A |
| 34 | a | 1320 | C |
| 34 | a | 1322 | C |
| 34 | a | 1330 | U |
| 34 | a | 1331 | G |
| 34 | a | 1332 | A |
| 34 | a | 1333 | A |
| 34 | a | 1335 | U |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 34 | a | 1336 | C |
| 34 | a | 1338 | G |
| 34 | a | 1346 | A |
| 34 | a | 1347 | G |
| 34 | a | 1348 | U |
| 34 | a | 1349 | A |
| 34 | a | 1353 | G |
| 34 | a | 1360 | A |
| 34 | a | 1366 | C |
| 34 | a | 1370 | G |
| 34 | a | 1378 | C |
| 34 | a | 1381 | U |
| 34 | a | 1394 | A |
| 34 | a | 1395 | C |
| 34 | a | 1397 | C |
| 34 | a | 1398 | A |
| 34 | a | 1400 | C |
| 34 | a | 1408 | A |
| 34 | a | 1410 | A |
| 34 | a | 1419 | G |
| 34 | a | 1422 | G |
| 34 | a | 1441 | A |
| 34 | a | 1444 | U |
| 34 | a | 1446 | A |
| 34 | a | 1447 | A |
| 34 | a | 1450 | U |
| 34 | a | 1452 | C |
| 34 | a | 1453 | G |
| 34 | a | 1454 | G |
| 34 | a | 1456 | A |
| 34 | a | 1472 | U |
| 34 | a | 1492 | A |
| 34 | a | 1497 | G |
| 34 | a | 1499 | A |
| 34 | a | 1503 | A |
| 34 | a | 1506 | U |
| 34 | a | 1517 | G |
| 34 | a | 1520 | C |
| 34 | a | 1529 | G |
| 34 | a | 1530 | G |
| 34 | a | 1534 | A |
| 34 | a | 1536 | C |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 34 | a | 1538 | C |
| 34 | a | 1539 | C |
| 34 | a | 1540 | U |
| 55 | v | 9 | G |
| 55 | v | 17(A) | U |
| 55 | v | 19 | G |
| 55 | v | 20 | H2U |
| 55 | v | 21 | A |
| 55 | v | 22 | G |
| 55 | v | 23 | C |
| 55 | v | 33 | U |
| 55 | v | 36 | U |
| 55 | v | 38 | A |
| 55 | v | 40 | C |
| 55 | v | 41 | C |
| 55 | v | 47 | U |
| 55 | v | 48 | C |
| 55 | v | 54 | 5MU |
| 55 | v | 60 | U |
| 55 | v | 68 | C |
| 55 | v | 73 | A |
| 55 | v | 74 | C |
| 55 | v | 75 | C |
| 56 | w | 9 | A |
| 56 | w | 10 | G |
| 56 | w | 13 | C |
| 56 | w | 16 | U |
| 56 | w | 17 | C |
| 56 | w | 19 | G |
| 56 | w | 20 | U |
| 56 | w | 21 | A |
| 56 | w | 22 | G |
| 56 | w | 28 | G |
| 56 | w | 45 | U |
| 56 | w | 46 | G7M |
| 56 | w | 47 | U |
| 56 | w | 48 | C |
| 56 | w | 49 | C |
| 56 | w | 57 | G |
| 56 | w | 58 | A |
| 56 | w | 59 | U |
| 56 | w | 60 | U |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 56 | w | 61 | C |
| 56 | w | 69 | G |
| 56 | w | 73 | A |
| 56 | w | 76 | A |
| 59 | z | 2 | U |
| 59 | z | 4 | U |
| 59 | z | 9 | U |

All (42) RNA pucker outliers are listed below:

| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 8 | A | 102 | U |
| 8 | A | 141 | G |
| 8 | A | 160 | A |
| 8 | A | 162 | U |
| 8 | A | 242 | G |
| 8 | A | 310 | A |
| 8 | A | 555 | G |
| 8 | A | 733 | G |
| 8 | A | 746 | PSU |
| 8 | A | 784 | G |
| 8 | A | 882 | G |
| 8 | A | 885 | C |
| 8 | A | 1078 | U |
| 8 | A | 1085 | A |
| 8 | A | 1090 | A |
| 8 | A | 1091 | G |
| 8 | A | 1173 | U |
| 8 | A | 1178 | C |
| 8 | A | 1182 | G |
| 8 | A | 1200 | C |
| 8 | A | 1300 | G |
| 8 | A | 1358 | G |
| 8 | A | 1454 | C |
| 8 | A | 1490 | A |
| 8 | A | 1730 | C |
| 8 | A | 1789 | A |
| 8 | A | 1847 | G |
| 8 | A | 2192 | U |
| 8 | A | 2287 | A |
| 8 | A | 2308 | G |
| 8 | A | 2324 | U |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 8 | A | 2345 | G |
| 8 | A | 2346 | A |
| 8 | A | 2381 | A |
| 8 | A | 2405 | G |
| 8 | A | 2406 | A |
| 8 | A | 2728 | U |
| 8 | A | 2750 | A |
| 8 | A | 2820 | A |
| 9 | B | 44 | G |
| 9 | B | 52 | A |
| 9 | B | 66 | A |

5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

46 non-standard protein/DNA/RNA residues are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

| Mol | Type | Chain | Res | Link | Bond lengths | | | Bond angles | | |
|-----|------|-------|------|------|--------------|------|----------|-------------|------|----------|
| | | | | | Counts | RMSZ | # Z > 2 | Counts | RMSZ | # Z > 2 |
| 8 | PSU | A | 2457 | 8 | 18,21,22 | 3.52 | 8 (44%) | 22,30,33 | 2.16 | 4 (18%) |
| 34 | 5MC | a | 967 | 34 | 18,22,23 | 3.28 | 7 (38%) | 26,32,35 | 1.29 | 4 (15%) |
| 56 | PSU | w | 55 | 56 | 18,21,22 | 1.43 | 3 (16%) | 22,30,33 | 1.91 | 5 (22%) |
| 34 | G7M | a | 527 | 34 | 20,26,27 | 2.07 | 4 (20%) | 17,39,42 | 1.44 | 3 (17%) |
| 56 | MIA | w | 37 | 56 | 24,31,32 | 2.44 | 4 (16%) | 26,44,47 | 2.74 | 10 (38%) |
| 34 | MA6 | a | 1518 | 34 | 18,26,27 | 1.53 | 3 (16%) | 19,38,41 | 3.38 | 3 (15%) |
| 34 | 4OC | a | 1402 | 34 | 20,23,24 | 3.16 | 8 (40%) | 26,32,35 | 1.13 | 3 (11%) |
| 8 | PSU | A | 955 | 8 | 18,21,22 | 3.55 | 7 (38%) | 22,30,33 | 1.98 | 4 (18%) |
| 8 | 2MA | A | 2503 | 8 | 17,25,26 | 2.33 | 5 (29%) | 17,37,40 | 1.51 | 4 (23%) |
| 8 | PSU | A | 2580 | 8 | 18,21,22 | 3.28 | 7 (38%) | 22,30,33 | 2.54 | 6 (27%) |
| 8 | OMU | A | 2552 | 8 | 19,22,23 | 2.66 | 5 (26%) | 26,31,34 | 2.07 | 6 (23%) |
| 8 | 6MZ | A | 1618 | 8 | 18,25,26 | 1.72 | 6 (33%) | 16,36,39 | 2.94 | 4 (25%) |
| 8 | 2MG | A | 1835 | 8 | 18,26,27 | 2.08 | 7 (38%) | 16,38,41 | 2.13 | 4 (25%) |
| 8 | 2MG | A | 2445 | 8 | 18,26,27 | 1.89 | 5 (27%) | 16,38,41 | 1.36 | 2 (12%) |

| Mol | Type | Chain | Res | Link | Bond lengths | | | Bond angles | | |
|-----|------|-------|------|------|--------------|------|----------|-------------|------|----------|
| | | | | | Counts | RMSZ | # Z > 2 | Counts | RMSZ | # Z > 2 |
| 8 | PSU | A | 746 | 8 | 18,21,22 | 3.74 | 6 (33%) | 22,30,33 | 1.68 | 5 (22%) |
| 8 | 5MC | A | 747 | 8 | 18,22,23 | 3.41 | 7 (38%) | 26,32,35 | 1.39 | 2 (7%) |
| 55 | PSU | v | 55 | 55 | 18,21,22 | 3.82 | 6 (33%) | 22,30,33 | 1.89 | 5 (22%) |
| 56 | 4SU | w | 8 | 56 | 18,21,22 | 1.89 | 5 (27%) | 26,30,33 | 2.11 | 6 (23%) |
| 34 | 2MG | a | 1207 | 34 | 18,26,27 | 2.13 | 7 (38%) | 16,38,41 | 1.50 | 4 (25%) |
| 8 | PSU | A | 2605 | 8 | 18,21,22 | 3.48 | 7 (38%) | 22,30,33 | 2.27 | 6 (27%) |
| 8 | 3TD | A | 1915 | 8 | 18,22,23 | 7.27 | 11 (61%) | 22,32,35 | 1.73 | 2 (9%) |
| 34 | UR3 | a | 1498 | 34 | 19,22,23 | 2.46 | 6 (31%) | 26,32,35 | 1.12 | 2 (7%) |
| 56 | PSU | w | 32 | 56 | 18,21,22 | 3.91 | 6 (33%) | 22,30,33 | 1.85 | 6 (27%) |
| 34 | 2MG | a | 1516 | 34 | 18,26,27 | 2.32 | 7 (38%) | 16,38,41 | 1.40 | 3 (18%) |
| 34 | PSU | a | 516 | 34 | 18,21,22 | 3.65 | 7 (38%) | 22,30,33 | 1.90 | 5 (22%) |
| 55 | 5MU | v | 54 | 55 | 19,22,23 | 4.60 | 7 (36%) | 28,32,35 | 3.73 | 10 (35%) |
| 56 | PSU | w | 39 | 56 | 18,21,22 | 3.75 | 6 (33%) | 22,30,33 | 2.22 | 5 (22%) |
| 8 | PSU | A | 2604 | 8 | 18,21,22 | 3.51 | 8 (44%) | 22,30,33 | 2.41 | 6 (27%) |
| 8 | PSU | A | 2504 | 8 | 18,21,22 | 3.85 | 7 (38%) | 22,30,33 | 1.84 | 4 (18%) |
| 56 | 5MU | w | 54 | 56 | 19,22,23 | 1.38 | 6 (31%) | 28,32,35 | 2.21 | 9 (32%) |
| 8 | PSU | A | 1911 | 8 | 18,21,22 | 3.58 | 7 (38%) | 22,30,33 | 1.96 | 5 (22%) |
| 8 | G7M | A | 2069 | 8 | 20,26,27 | 1.78 | 6 (30%) | 17,39,42 | 1.85 | 4 (23%) |
| 8 | 5MC | A | 1962 | 8 | 18,22,23 | 2.96 | 7 (38%) | 26,32,35 | 1.34 | 2 (7%) |
| 8 | PSU | A | 1917 | 8 | 18,21,22 | 3.68 | 6 (33%) | 22,30,33 | 1.92 | 5 (22%) |
| 34 | MA6 | a | 1519 | 34 | 18,26,27 | 1.53 | 3 (16%) | 19,38,41 | 3.54 | 5 (26%) |
| 8 | 6MZ | A | 2030 | 8 | 18,25,26 | 1.80 | 6 (33%) | 16,36,39 | 2.37 | 5 (31%) |
| 8 | 1MG | A | 745 | 8 | 18,26,27 | 2.35 | 6 (33%) | 19,39,42 | 1.58 | 5 (26%) |
| 55 | H2U | v | 20 | 55 | 18,21,22 | 3.58 | 3 (16%) | 21,30,33 | 2.03 | 5 (23%) |
| 8 | 5MU | A | 1939 | 8 | 19,22,23 | 4.63 | 7 (36%) | 28,32,35 | 3.83 | 9 (32%) |
| 34 | 5MC | a | 1407 | 34 | 18,22,23 | 3.16 | 7 (38%) | 26,32,35 | 1.09 | 2 (7%) |
| 55 | 4SU | v | 8 | 55 | 18,21,22 | 3.41 | 8 (44%) | 26,30,33 | 2.15 | 4 (15%) |
| 8 | OMC | A | 2498 | 8 | 19,22,23 | 3.08 | 8 (42%) | 26,31,34 | 0.84 | 0 |
| 56 | G7M | w | 46 | 56 | 20,26,27 | 4.39 | 14 (70%) | 17,39,42 | 2.21 | 3 (17%) |
| 8 | OMG | A | 2251 | 8,56 | 18,26,27 | 2.49 | 8 (44%) | 19,38,41 | 1.52 | 5 (26%) |
| 34 | 2MG | a | 966 | 34 | 18,26,27 | 0.99 | 1 (5%) | 16,38,41 | 1.40 | 3 (18%) |
| 58 | FME | y | 101 | 58 | 8,9,10 | 1.03 | 1 (12%) | 7,9,11 | 1.05 | 1 (14%) |

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the

Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

| Mol | Type | Chain | Res | Link | Chirals | Torsions | Rings |
|-----|------|-------|------|------|---------|------------|---------|
| 8 | PSU | A | 2457 | 8 | - | 0/7/25/26 | 0/2/2/2 |
| 34 | 5MC | a | 967 | 34 | - | 2/7/25/26 | 0/2/2/2 |
| 56 | PSU | w | 55 | 56 | - | 1/7/25/26 | 0/2/2/2 |
| 34 | G7M | a | 527 | 34 | - | 2/3/25/26 | 0/3/3/3 |
| 56 | MIA | w | 37 | 56 | - | 3/11/33/34 | 0/3/3/3 |
| 34 | MA6 | a | 1518 | 34 | - | 0/7/29/30 | 0/3/3/3 |
| 34 | 4OC | a | 1402 | 34 | - | 0/9/29/30 | 0/2/2/2 |
| 8 | PSU | A | 955 | 8 | - | 0/7/25/26 | 0/2/2/2 |
| 8 | 2MA | A | 2503 | 8 | - | 2/3/25/26 | 0/3/3/3 |
| 8 | PSU | A | 2580 | 8 | - | 0/7/25/26 | 0/2/2/2 |
| 8 | OMU | A | 2552 | 8 | - | 2/9/27/28 | 0/2/2/2 |
| 8 | 6MZ | A | 1618 | 8 | - | 2/5/27/28 | 0/3/3/3 |
| 8 | 2MG | A | 1835 | 8 | - | 2/5/27/28 | 0/3/3/3 |
| 8 | 2MG | A | 2445 | 8 | - | 2/5/27/28 | 0/3/3/3 |
| 8 | PSU | A | 746 | 8 | - | 1/7/25/26 | 0/2/2/2 |
| 8 | 5MC | A | 747 | 8 | - | 2/7/25/26 | 0/2/2/2 |
| 55 | PSU | v | 55 | 55 | - | 2/7/25/26 | 0/2/2/2 |
| 56 | 4SU | w | 8 | 56 | - | 0/7/25/26 | 0/2/2/2 |
| 34 | 2MG | a | 1207 | 34 | - | 0/5/27/28 | 0/3/3/3 |
| 8 | PSU | A | 2605 | 8 | - | 0/7/25/26 | 0/2/2/2 |
| 8 | 3TD | A | 1915 | 8 | - | 2/7/25/26 | 0/2/2/2 |
| 34 | UR3 | a | 1498 | 34 | - | 2/7/25/26 | 0/2/2/2 |
| 56 | PSU | w | 32 | 56 | - | 2/7/25/26 | 0/2/2/2 |
| 34 | 2MG | a | 1516 | 34 | - | 0/5/27/28 | 0/3/3/3 |
| 34 | PSU | a | 516 | 34 | - | 0/7/25/26 | 0/2/2/2 |
| 55 | 5MU | v | 54 | 55 | - | 3/7/25/26 | 0/2/2/2 |
| 56 | PSU | w | 39 | 56 | - | 3/7/25/26 | 0/2/2/2 |
| 8 | PSU | A | 2604 | 8 | - | 1/7/25/26 | 0/2/2/2 |
| 8 | PSU | A | 2504 | 8 | - | 0/7/25/26 | 0/2/2/2 |
| 56 | 5MU | w | 54 | 56 | - | 0/7/25/26 | 0/2/2/2 |
| 8 | PSU | A | 1911 | 8 | - | 0/7/25/26 | 0/2/2/2 |
| 8 | G7M | A | 2069 | 8 | - | 1/3/25/26 | 0/3/3/3 |
| 8 | 5MC | A | 1962 | 8 | - | 0/7/25/26 | 0/2/2/2 |
| 8 | PSU | A | 1917 | 8 | - | 0/7/25/26 | 0/2/2/2 |
| 34 | MA6 | a | 1519 | 34 | - | 4/7/29/30 | 0/3/3/3 |
| 8 | 6MZ | A | 2030 | 8 | - | 3/5/27/28 | 0/3/3/3 |
| 8 | 1MG | A | 745 | 8 | - | 0/3/25/26 | 0/3/3/3 |

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| Mol | Type | Chain | Res | Link | Chirals | Torsions | Rings |
|-----|------|-------|------|------|---------|-----------|---------|
| 55 | H2U | v | 20 | 55 | - | 1/7/38/39 | 0/2/2/2 |
| 8 | 5MU | A | 1939 | 8 | - | 2/7/25/26 | 0/2/2/2 |
| 34 | 5MC | a | 1407 | 34 | - | 0/7/25/26 | 0/2/2/2 |
| 55 | 4SU | v | 8 | 55 | - | 0/7/25/26 | 0/2/2/2 |
| 8 | OMC | A | 2498 | 8 | - | 2/9/27/28 | 0/2/2/2 |
| 56 | G7M | w | 46 | 56 | - | 1/3/25/26 | 0/3/3/3 |
| 8 | OMG | A | 2251 | 8,56 | - | 0/5/27/28 | 0/3/3/3 |
| 34 | 2MG | a | 966 | 34 | - | 3/5/27/28 | 0/3/3/3 |
| 58 | FME | y | 101 | 58 | - | 4/7/9/11 | - |

All (286) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|--------|-------------|----------|
| 8 | A | 1915 | 3TD | O4'-C1' | 17.31 | 1.67 | 1.43 |
| 8 | A | 1915 | 3TD | C2'-C1' | -15.67 | 1.33 | 1.53 |
| 8 | A | 1915 | 3TD | C6-C5 | 13.05 | 1.50 | 1.35 |
| 55 | v | 20 | H2U | C2-N1 | 12.16 | 1.53 | 1.35 |
| 8 | A | 1939 | 5MU | C2-N1 | 10.72 | 1.55 | 1.38 |
| 55 | v | 54 | 5MU | C2-N1 | 10.49 | 1.55 | 1.38 |
| 56 | w | 46 | G7M | C2'-C3' | -10.12 | 1.25 | 1.53 |
| 55 | v | 54 | 5MU | C4-C5 | 9.93 | 1.61 | 1.44 |
| 8 | A | 746 | PSU | C6-C5 | 9.86 | 1.46 | 1.35 |
| 55 | v | 54 | 5MU | C6-N1 | 9.70 | 1.54 | 1.38 |
| 56 | w | 32 | PSU | C6-C5 | 9.63 | 1.46 | 1.35 |
| 8 | A | 1915 | 3TD | C2-N1 | 9.58 | 1.49 | 1.37 |
| 8 | A | 2504 | PSU | C2-N1 | 9.58 | 1.49 | 1.36 |
| 8 | A | 1939 | 5MU | C6-N1 | 9.55 | 1.54 | 1.38 |
| 8 | A | 1939 | 5MU | C4-C5 | 9.43 | 1.60 | 1.44 |
| 56 | w | 32 | PSU | C2-N1 | 9.35 | 1.49 | 1.36 |
| 55 | v | 55 | PSU | C2-N1 | 9.33 | 1.49 | 1.36 |
| 8 | A | 747 | 5MC | C6-C5 | 9.32 | 1.49 | 1.34 |
| 56 | w | 39 | PSU | C2-N1 | 9.18 | 1.49 | 1.36 |
| 8 | A | 955 | PSU | C2-N1 | 9.14 | 1.49 | 1.36 |
| 8 | A | 2604 | PSU | C2-N1 | 9.14 | 1.49 | 1.36 |
| 8 | A | 2457 | PSU | C2-N1 | 8.92 | 1.48 | 1.36 |
| 56 | w | 39 | PSU | C6-C5 | 8.91 | 1.45 | 1.35 |
| 8 | A | 2504 | PSU | C6-C5 | 8.86 | 1.45 | 1.35 |
| 34 | a | 516 | PSU | C6-C5 | 8.85 | 1.45 | 1.35 |
| 8 | A | 1917 | PSU | C2-N1 | 8.77 | 1.48 | 1.36 |
| 8 | A | 1911 | PSU | C2-N1 | 8.75 | 1.48 | 1.36 |
| 8 | A | 1917 | PSU | C6-C5 | 8.68 | 1.45 | 1.35 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 55 | v | 55 | PSU | C6-C5 | 8.63 | 1.45 | 1.35 |
| 8 | A | 746 | PSU | C2-N1 | 8.47 | 1.48 | 1.36 |
| 8 | A | 2605 | PSU | C2-N1 | 8.45 | 1.48 | 1.36 |
| 34 | a | 516 | PSU | C2-N1 | 8.35 | 1.48 | 1.36 |
| 34 | a | 1407 | 5MC | C6-C5 | 8.31 | 1.48 | 1.34 |
| 8 | A | 1911 | PSU | C6-C5 | 8.31 | 1.45 | 1.35 |
| 8 | A | 1939 | 5MU | C4-N3 | -8.18 | 1.23 | 1.38 |
| 34 | a | 967 | 5MC | C6-C5 | 8.14 | 1.48 | 1.34 |
| 55 | v | 8 | 4SU | C4-N3 | 7.99 | 1.46 | 1.37 |
| 8 | A | 955 | PSU | C6-C5 | 7.93 | 1.44 | 1.35 |
| 8 | A | 2605 | PSU | C6-C5 | 7.90 | 1.44 | 1.35 |
| 34 | a | 1402 | 4OC | C4-N3 | 7.71 | 1.46 | 1.32 |
| 55 | v | 54 | 5MU | C4-N3 | -7.65 | 1.24 | 1.38 |
| 8 | A | 2580 | PSU | C2-N1 | 7.64 | 1.47 | 1.36 |
| 8 | A | 2604 | PSU | C6-C5 | 7.59 | 1.44 | 1.35 |
| 8 | A | 2457 | PSU | C6-C5 | 7.55 | 1.44 | 1.35 |
| 8 | A | 2580 | PSU | C6-C5 | 7.32 | 1.43 | 1.35 |
| 8 | A | 1962 | 5MC | C6-C5 | 7.29 | 1.46 | 1.34 |
| 56 | w | 37 | MIA | C13-C14 | 7.27 | 1.53 | 1.32 |
| 56 | w | 46 | G7M | O4'-C1' | 7.17 | 1.51 | 1.41 |
| 55 | v | 55 | PSU | C2-N3 | 6.91 | 1.49 | 1.37 |
| 8 | A | 2503 | 2MA | C2-N3 | 6.86 | 1.45 | 1.31 |
| 56 | w | 32 | PSU | C2-N3 | 6.79 | 1.49 | 1.37 |
| 8 | A | 1917 | PSU | C2-N3 | 6.78 | 1.49 | 1.37 |
| 55 | v | 20 | H2U | C2-N3 | 6.75 | 1.50 | 1.38 |
| 8 | A | 2504 | PSU | C2-N3 | 6.70 | 1.49 | 1.37 |
| 34 | a | 516 | PSU | C2-N3 | 6.61 | 1.48 | 1.37 |
| 8 | A | 2605 | PSU | C2-N3 | 6.60 | 1.48 | 1.37 |
| 56 | w | 37 | MIA | C2-S10 | 6.55 | 1.81 | 1.75 |
| 8 | A | 1911 | PSU | C2-N3 | 6.47 | 1.48 | 1.37 |
| 34 | a | 1402 | 4OC | C2-N3 | 6.41 | 1.49 | 1.36 |
| 56 | w | 39 | PSU | C2-N3 | 6.41 | 1.48 | 1.37 |
| 8 | A | 2552 | OMU | C2-N1 | 6.35 | 1.48 | 1.38 |
| 8 | A | 746 | PSU | C2-N3 | 6.33 | 1.48 | 1.37 |
| 34 | a | 967 | 5MC | C4-N3 | 6.29 | 1.44 | 1.34 |
| 8 | A | 1915 | 3TD | O4'-C4' | -6.29 | 1.30 | 1.45 |
| 8 | A | 2498 | OMC | C6-C5 | 6.25 | 1.49 | 1.35 |
| 8 | A | 2580 | PSU | C2-N3 | 6.18 | 1.48 | 1.37 |
| 56 | w | 46 | G7M | C3'-C4' | 6.13 | 1.68 | 1.53 |
| 34 | a | 1498 | UR3 | C2-N1 | 6.12 | 1.47 | 1.38 |
| 8 | A | 2498 | OMC | C2-N3 | 6.11 | 1.48 | 1.36 |
| 8 | A | 955 | PSU | C2-N3 | 6.08 | 1.47 | 1.37 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 8 | A | 2457 | PSU | C2-N3 | 6.07 | 1.47 | 1.37 |
| 55 | v | 8 | 4SU | C2-N3 | 6.01 | 1.48 | 1.38 |
| 8 | A | 2604 | PSU | C2-N3 | 5.95 | 1.47 | 1.37 |
| 56 | w | 46 | G7M | C2-N3 | 5.82 | 1.47 | 1.33 |
| 8 | A | 2552 | OMU | C2-N3 | 5.77 | 1.48 | 1.38 |
| 56 | w | 46 | G7M | O4'-C4' | -5.76 | 1.32 | 1.45 |
| 8 | A | 747 | 5MC | C4-N3 | 5.74 | 1.43 | 1.34 |
| 8 | A | 1962 | 5MC | C4-N3 | 5.74 | 1.43 | 1.34 |
| 8 | A | 1915 | 3TD | C6-N1 | 5.72 | 1.45 | 1.36 |
| 34 | a | 967 | 5MC | C2-N3 | 5.65 | 1.47 | 1.36 |
| 8 | A | 747 | 5MC | C2-N3 | 5.54 | 1.47 | 1.36 |
| 55 | v | 20 | H2U | C4-N3 | 5.53 | 1.47 | 1.37 |
| 34 | a | 1402 | 4OC | C6-C5 | 5.49 | 1.47 | 1.35 |
| 34 | a | 1498 | UR3 | C6-C5 | 5.40 | 1.47 | 1.35 |
| 8 | A | 2498 | OMC | C4-N4 | 5.37 | 1.46 | 1.33 |
| 8 | A | 2498 | OMC | C4-N3 | 5.36 | 1.45 | 1.34 |
| 8 | A | 2552 | OMU | C6-C5 | 5.36 | 1.47 | 1.35 |
| 8 | A | 745 | 1MG | C2-N2 | 5.35 | 1.43 | 1.34 |
| 34 | a | 1407 | 5MC | C4-N3 | 5.34 | 1.43 | 1.34 |
| 8 | A | 1939 | 5MU | C6-C5 | 5.33 | 1.43 | 1.34 |
| 34 | a | 527 | G7M | C4-N3 | 5.28 | 1.50 | 1.37 |
| 55 | v | 8 | 4SU | C6-C5 | 5.26 | 1.47 | 1.35 |
| 8 | A | 1962 | 5MC | C2-N3 | 5.13 | 1.46 | 1.36 |
| 55 | v | 8 | 4SU | C4-S4 | -5.09 | 1.58 | 1.68 |
| 8 | A | 2251 | OMG | C2-N3 | 5.04 | 1.45 | 1.33 |
| 8 | A | 2504 | PSU | C6-N1 | 5.02 | 1.44 | 1.36 |
| 34 | a | 1407 | 5MC | C2-N3 | 5.01 | 1.46 | 1.36 |
| 34 | a | 1402 | 4OC | C4-N4 | 4.99 | 1.46 | 1.35 |
| 56 | w | 46 | G7M | C2'-C1' | 4.98 | 1.61 | 1.53 |
| 55 | v | 8 | 4SU | C2-N1 | 4.98 | 1.46 | 1.38 |
| 8 | A | 1915 | 3TD | C2-N3 | 4.97 | 1.49 | 1.38 |
| 55 | v | 55 | PSU | C6-N1 | 4.96 | 1.44 | 1.36 |
| 56 | w | 32 | PSU | C6-N1 | 4.91 | 1.44 | 1.36 |
| 34 | a | 1516 | 2MG | C2-N2 | 4.88 | 1.44 | 1.33 |
| 56 | w | 46 | G7M | C4-N3 | 4.83 | 1.49 | 1.37 |
| 8 | A | 2251 | OMG | C4-N3 | 4.80 | 1.49 | 1.37 |
| 55 | v | 54 | 5MU | C6-C5 | 4.74 | 1.42 | 1.34 |
| 56 | w | 37 | MIA | C6-N6 | 4.71 | 1.43 | 1.34 |
| 8 | A | 1915 | 3TD | O3'-C3' | -4.69 | 1.31 | 1.43 |
| 34 | a | 1516 | 2MG | C4-N3 | 4.67 | 1.48 | 1.37 |
| 8 | A | 1835 | 2MG | C4-N3 | 4.66 | 1.48 | 1.37 |
| 56 | w | 39 | PSU | C6-N1 | 4.65 | 1.43 | 1.36 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|-------|-------|-------------|----------|
| 56 | w | 8 | 4SU | C4-S4 | -4.49 | 1.59 | 1.68 |
| 8 | A | 746 | PSU | C6-N1 | 4.49 | 1.43 | 1.36 |
| 8 | A | 2251 | OMG | C2-N2 | 4.40 | 1.44 | 1.34 |
| 8 | A | 1917 | PSU | C6-N1 | 4.36 | 1.43 | 1.36 |
| 34 | a | 1407 | 5MC | C6-N1 | 4.33 | 1.45 | 1.38 |
| 34 | a | 516 | PSU | C6-N1 | 4.26 | 1.43 | 1.36 |
| 8 | A | 955 | PSU | C6-N1 | 4.25 | 1.43 | 1.36 |
| 8 | A | 745 | 1MG | C2-N3 | 4.24 | 1.42 | 1.34 |
| 8 | A | 2457 | PSU | C6-N1 | 4.21 | 1.43 | 1.36 |
| 34 | a | 527 | G7M | C2-N3 | 4.21 | 1.43 | 1.33 |
| 8 | A | 2445 | 2MG | C4-N3 | 4.20 | 1.47 | 1.37 |
| 8 | A | 2498 | OMC | C2-N1 | 4.16 | 1.49 | 1.40 |
| 8 | A | 2503 | 2MA | C4-N3 | 4.16 | 1.47 | 1.37 |
| 8 | A | 1911 | PSU | C6-N1 | 4.15 | 1.43 | 1.36 |
| 56 | w | 46 | G7M | C2-N2 | 4.12 | 1.44 | 1.34 |
| 8 | A | 745 | 1MG | C4-N3 | 4.12 | 1.47 | 1.37 |
| 8 | A | 747 | 5MC | C4-N4 | 4.07 | 1.44 | 1.34 |
| 34 | a | 1498 | UR3 | C2-N3 | 4.06 | 1.46 | 1.39 |
| 8 | A | 1618 | 6MZ | C6-N6 | 3.99 | 1.41 | 1.35 |
| 56 | w | 8 | 4SU | C4-N3 | -3.98 | 1.33 | 1.37 |
| 55 | v | 8 | 4SU | C5-C4 | 3.97 | 1.47 | 1.42 |
| 8 | A | 747 | 5MC | C2-N1 | 3.94 | 1.48 | 1.40 |
| 8 | A | 747 | 5MC | C6-N1 | 3.94 | 1.44 | 1.38 |
| 34 | a | 1519 | MA6 | C5-C4 | -3.94 | 1.30 | 1.40 |
| 34 | a | 967 | 5MC | C2-N1 | 3.91 | 1.48 | 1.40 |
| 34 | a | 1518 | MA6 | C5-C4 | -3.89 | 1.30 | 1.40 |
| 8 | A | 2030 | 6MZ | C6-N6 | 3.86 | 1.41 | 1.35 |
| 8 | A | 2605 | PSU | C6-N1 | 3.83 | 1.42 | 1.36 |
| 34 | a | 967 | 5MC | C6-N1 | 3.79 | 1.44 | 1.38 |
| 34 | a | 1407 | 5MC | C4-N4 | 3.78 | 1.43 | 1.34 |
| 34 | a | 527 | G7M | C2-N2 | 3.78 | 1.43 | 1.34 |
| 34 | a | 967 | 5MC | C4-N4 | 3.78 | 1.43 | 1.34 |
| 34 | a | 1207 | 2MG | C2-N2 | 3.76 | 1.41 | 1.33 |
| 8 | A | 1835 | 2MG | C2-N2 | 3.74 | 1.41 | 1.33 |
| 8 | A | 2604 | PSU | C6-N1 | 3.73 | 1.42 | 1.36 |
| 8 | A | 745 | 1MG | C5-C4 | -3.73 | 1.33 | 1.43 |
| 34 | a | 1207 | 2MG | C2-N1 | 3.71 | 1.42 | 1.36 |
| 34 | a | 1207 | 2MG | C4-N3 | 3.69 | 1.46 | 1.37 |
| 34 | a | 1402 | 4OC | C5-C4 | 3.67 | 1.48 | 1.40 |
| 56 | w | 55 | PSU | C6-C5 | 3.61 | 1.39 | 1.35 |
| 56 | w | 46 | G7M | C6-N1 | 3.55 | 1.43 | 1.37 |
| 34 | a | 1402 | 4OC | C2-N1 | 3.52 | 1.47 | 1.40 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 56 | w | 46 | G7M | O3'-C3' | 3.50 | 1.51 | 1.43 |
| 8 | A | 2552 | OMU | C4-N3 | 3.50 | 1.44 | 1.38 |
| 34 | a | 1516 | 2MG | C2-N1 | 3.48 | 1.42 | 1.36 |
| 8 | A | 2069 | G7M | C6-N1 | 3.47 | 1.43 | 1.37 |
| 34 | a | 1407 | 5MC | C2-N1 | 3.44 | 1.47 | 1.40 |
| 8 | A | 2251 | OMG | C5-C4 | -3.43 | 1.34 | 1.43 |
| 34 | a | 1516 | 2MG | C6-N1 | 3.39 | 1.42 | 1.37 |
| 8 | A | 2445 | 2MG | C2-N2 | 3.38 | 1.40 | 1.33 |
| 8 | A | 2069 | G7M | C4-N3 | 3.36 | 1.45 | 1.37 |
| 56 | w | 37 | MIA | C5-C4 | -3.34 | 1.32 | 1.40 |
| 8 | A | 1618 | 6MZ | C5-C4 | -3.32 | 1.32 | 1.40 |
| 8 | A | 2069 | G7M | C2-N2 | 3.31 | 1.42 | 1.34 |
| 8 | A | 1962 | 5MC | C2-N1 | 3.29 | 1.47 | 1.40 |
| 55 | v | 55 | PSU | C4-N3 | 3.28 | 1.44 | 1.38 |
| 56 | w | 32 | PSU | C4-N3 | 3.28 | 1.44 | 1.38 |
| 8 | A | 1962 | 5MC | C6-N1 | 3.25 | 1.43 | 1.38 |
| 34 | a | 1518 | MA6 | C2-N3 | 3.22 | 1.37 | 1.32 |
| 34 | a | 1516 | 2MG | C5-C4 | -3.20 | 1.34 | 1.43 |
| 8 | A | 2503 | 2MA | C5-C4 | -3.15 | 1.35 | 1.43 |
| 56 | w | 46 | G7M | O2'-C2' | 3.11 | 1.50 | 1.43 |
| 8 | A | 2580 | PSU | C6-N1 | 3.11 | 1.41 | 1.36 |
| 8 | A | 1962 | 5MC | C4-N4 | 3.07 | 1.42 | 1.34 |
| 56 | w | 8 | 4SU | C5-C4 | -3.06 | 1.38 | 1.42 |
| 8 | A | 2445 | 2MG | C5-C4 | -3.05 | 1.35 | 1.43 |
| 8 | A | 2030 | 6MZ | C5-C4 | -3.05 | 1.32 | 1.40 |
| 56 | w | 46 | G7M | C5-C6 | 3.01 | 1.53 | 1.45 |
| 34 | a | 1207 | 2MG | C6-N1 | 3.01 | 1.42 | 1.37 |
| 8 | A | 1835 | 2MG | C5-C4 | -2.98 | 1.35 | 1.43 |
| 34 | a | 516 | PSU | O4'-C1' | -2.96 | 1.39 | 1.43 |
| 8 | A | 2580 | PSU | C1'-C5 | -2.95 | 1.43 | 1.50 |
| 8 | A | 2030 | 6MZ | C9-N6 | -2.93 | 1.40 | 1.45 |
| 8 | A | 1939 | 5MU | O4-C4 | -2.92 | 1.18 | 1.23 |
| 8 | A | 1962 | 5MC | O2-C2 | -2.92 | 1.18 | 1.23 |
| 8 | A | 2504 | PSU | C4-N3 | 2.90 | 1.44 | 1.38 |
| 34 | a | 1207 | 2MG | C5-C6 | 2.90 | 1.53 | 1.47 |
| 8 | A | 2069 | G7M | C5-C4 | -2.88 | 1.33 | 1.39 |
| 56 | w | 54 | 5MU | C4-N3 | -2.86 | 1.33 | 1.38 |
| 8 | A | 2498 | OMC | C6-N1 | 2.83 | 1.44 | 1.38 |
| 56 | w | 55 | PSU | C4-N3 | -2.83 | 1.33 | 1.38 |
| 8 | A | 1915 | 3TD | C4-N3 | 2.82 | 1.46 | 1.40 |
| 55 | v | 8 | 4SU | C6-N1 | 2.80 | 1.44 | 1.38 |
| 8 | A | 747 | 5MC | O2-C2 | -2.80 | 1.18 | 1.23 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 8 | A | 2251 | OMG | C6-N1 | 2.79 | 1.42 | 1.37 |
| 8 | A | 745 | 1MG | CM1-N1 | -2.78 | 1.41 | 1.47 |
| 34 | a | 1207 | 2MG | C5-C4 | -2.77 | 1.36 | 1.43 |
| 8 | A | 1917 | PSU | C4-N3 | 2.74 | 1.43 | 1.38 |
| 56 | w | 46 | G7M | C2-N1 | 2.74 | 1.44 | 1.37 |
| 55 | v | 55 | PSU | O4-C4 | -2.72 | 1.18 | 1.23 |
| 8 | A | 1835 | 2MG | O6-C6 | -2.71 | 1.17 | 1.23 |
| 34 | a | 527 | G7M | C6-N1 | 2.71 | 1.41 | 1.37 |
| 8 | A | 2580 | PSU | O4'-C1' | -2.70 | 1.40 | 1.43 |
| 8 | A | 2030 | 6MZ | C6-N1 | -2.70 | 1.30 | 1.34 |
| 34 | a | 1407 | 5MC | O2-C2 | -2.69 | 1.18 | 1.23 |
| 8 | A | 2498 | OMC | C5-C4 | 2.68 | 1.49 | 1.42 |
| 8 | A | 1835 | 2MG | C5-C6 | 2.67 | 1.52 | 1.47 |
| 55 | v | 54 | 5MU | O4-C4 | -2.67 | 1.18 | 1.23 |
| 8 | A | 2604 | PSU | O4'-C1' | -2.67 | 1.40 | 1.43 |
| 8 | A | 2605 | PSU | C4-N3 | 2.66 | 1.43 | 1.38 |
| 34 | a | 1519 | MA6 | C2-N3 | 2.65 | 1.36 | 1.32 |
| 8 | A | 746 | PSU | C4-N3 | 2.65 | 1.43 | 1.38 |
| 34 | a | 967 | 5MC | O2-C2 | -2.65 | 1.18 | 1.23 |
| 8 | A | 2251 | OMG | O6-C6 | -2.61 | 1.18 | 1.23 |
| 8 | A | 1835 | 2MG | C6-N1 | 2.60 | 1.41 | 1.37 |
| 8 | A | 2445 | 2MG | O6-C6 | -2.59 | 1.18 | 1.23 |
| 34 | a | 1402 | 4OC | O2-C2 | -2.58 | 1.18 | 1.23 |
| 56 | w | 46 | G7M | O6-C6 | -2.57 | 1.18 | 1.23 |
| 34 | a | 516 | PSU | C4-N3 | 2.57 | 1.43 | 1.38 |
| 8 | A | 1911 | PSU | C4-N3 | 2.57 | 1.43 | 1.38 |
| 34 | a | 1498 | UR3 | C6-N1 | 2.57 | 1.44 | 1.38 |
| 56 | w | 39 | PSU | O4-C4 | -2.53 | 1.18 | 1.23 |
| 8 | A | 2457 | PSU | C1'-C5 | -2.52 | 1.44 | 1.50 |
| 8 | A | 1835 | 2MG | C2-N1 | 2.52 | 1.40 | 1.36 |
| 34 | a | 1519 | MA6 | C10-N6 | -2.52 | 1.39 | 1.45 |
| 56 | w | 39 | PSU | C4-N3 | 2.50 | 1.43 | 1.38 |
| 8 | A | 1915 | 3TD | C3'-C4' | 2.49 | 1.59 | 1.53 |
| 8 | A | 2503 | 2MA | C6-N1 | 2.49 | 1.43 | 1.38 |
| 8 | A | 1939 | 5MU | O2-C2 | -2.48 | 1.18 | 1.23 |
| 34 | a | 1498 | UR3 | O4-C4 | -2.48 | 1.18 | 1.23 |
| 8 | A | 2580 | PSU | O4-C4 | -2.47 | 1.18 | 1.23 |
| 55 | v | 8 | 4SU | O2-C2 | -2.46 | 1.18 | 1.23 |
| 8 | A | 2498 | OMC | O2-C2 | -2.46 | 1.19 | 1.23 |
| 8 | A | 2457 | PSU | C4-N3 | 2.44 | 1.43 | 1.38 |
| 34 | a | 1516 | 2MG | O6-C6 | -2.44 | 1.18 | 1.23 |
| 8 | A | 2604 | PSU | C4-N3 | 2.43 | 1.43 | 1.38 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 34 | a | 1498 | UR3 | O2-C2 | -2.42 | 1.18 | 1.22 |
| 8 | A | 2069 | G7M | C2-N3 | 2.42 | 1.39 | 1.33 |
| 8 | A | 745 | 1MG | O6-C6 | -2.41 | 1.17 | 1.22 |
| 55 | v | 54 | 5MU | O2-C2 | -2.41 | 1.18 | 1.23 |
| 8 | A | 2445 | 2MG | CM2-N2 | -2.37 | 1.41 | 1.45 |
| 8 | A | 2605 | PSU | O4-C4 | -2.36 | 1.19 | 1.23 |
| 34 | a | 1516 | 2MG | C5-C6 | 2.36 | 1.52 | 1.47 |
| 8 | A | 2503 | 2MA | C2-N1 | 2.35 | 1.43 | 1.36 |
| 8 | A | 955 | PSU | C4-N3 | 2.35 | 1.43 | 1.38 |
| 8 | A | 2457 | PSU | O4-C4 | -2.34 | 1.19 | 1.23 |
| 8 | A | 955 | PSU | O4-C4 | -2.32 | 1.19 | 1.23 |
| 8 | A | 746 | PSU | O4-C4 | -2.31 | 1.19 | 1.23 |
| 34 | a | 1207 | 2MG | O6-C6 | -2.30 | 1.18 | 1.23 |
| 8 | A | 2605 | PSU | O4'-C1' | -2.29 | 1.40 | 1.43 |
| 8 | A | 1917 | PSU | O4-C4 | -2.29 | 1.19 | 1.23 |
| 34 | a | 1402 | 4OC | C6-N1 | 2.28 | 1.43 | 1.38 |
| 56 | w | 8 | 4SU | C2-N3 | -2.28 | 1.33 | 1.38 |
| 34 | a | 966 | 2MG | C6-N1 | -2.28 | 1.34 | 1.37 |
| 8 | A | 2030 | 6MZ | C5-N7 | -2.27 | 1.31 | 1.39 |
| 8 | A | 2457 | PSU | O4'-C1' | -2.27 | 1.40 | 1.43 |
| 8 | A | 1618 | 6MZ | C4-N3 | -2.27 | 1.32 | 1.35 |
| 56 | w | 54 | 5MU | C6-N1 | -2.25 | 1.34 | 1.38 |
| 8 | A | 1911 | PSU | O4-C4 | -2.24 | 1.19 | 1.23 |
| 8 | A | 2604 | PSU | C1'-C5 | -2.23 | 1.45 | 1.50 |
| 8 | A | 955 | PSU | C1'-C5 | -2.23 | 1.45 | 1.50 |
| 34 | a | 516 | PSU | O4-C4 | -2.22 | 1.19 | 1.23 |
| 8 | A | 1618 | 6MZ | C9-N6 | -2.22 | 1.41 | 1.45 |
| 8 | A | 1911 | PSU | O4'-C1' | -2.21 | 1.40 | 1.43 |
| 8 | A | 2604 | PSU | O4-C4 | -2.21 | 1.19 | 1.23 |
| 8 | A | 2552 | OMU | O4-C4 | -2.20 | 1.20 | 1.24 |
| 56 | w | 32 | PSU | O4-C4 | -2.20 | 1.19 | 1.23 |
| 8 | A | 2504 | PSU | O4-C4 | -2.20 | 1.19 | 1.23 |
| 56 | w | 54 | 5MU | C2-N1 | 2.20 | 1.42 | 1.38 |
| 56 | w | 54 | 5MU | C2-N3 | -2.16 | 1.34 | 1.38 |
| 8 | A | 2069 | G7M | C2-N1 | 2.15 | 1.43 | 1.37 |
| 56 | w | 54 | 5MU | C4-C5 | 2.14 | 1.48 | 1.44 |
| 56 | w | 8 | 4SU | C2-N1 | 2.13 | 1.41 | 1.38 |
| 8 | A | 1618 | 6MZ | C6-N1 | -2.12 | 1.31 | 1.34 |
| 8 | A | 2030 | 6MZ | C2-N3 | 2.12 | 1.35 | 1.32 |
| 58 | y | 101 | FME | CA-N | -2.11 | 1.43 | 1.46 |
| 34 | a | 1518 | MA6 | C10-N6 | -2.10 | 1.40 | 1.45 |
| 56 | w | 54 | 5MU | C6-C5 | 2.10 | 1.38 | 1.34 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 56 | w | 55 | PSU | C2-N3 | -2.10 | 1.33 | 1.37 |
| 8 | A | 1618 | 6MZ | C5-N7 | -2.08 | 1.32 | 1.39 |
| 8 | A | 2251 | OMG | C2-N1 | 2.05 | 1.42 | 1.37 |
| 8 | A | 2251 | OMG | C5-C6 | 2.05 | 1.51 | 1.47 |
| 8 | A | 1915 | 3TD | O5'-C5' | -2.03 | 1.39 | 1.44 |
| 8 | A | 2504 | PSU | O4'-C1' | -2.01 | 1.41 | 1.43 |

All (205) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|--------|-------------|----------|
| 8 | A | 1939 | 5MU | C5-C4-N3 | 13.01 | 126.41 | 115.31 |
| 34 | a | 1519 | MA6 | N1-C6-N6 | -12.93 | 103.44 | 117.06 |
| 34 | a | 1518 | MA6 | N1-C6-N6 | -12.58 | 103.82 | 117.06 |
| 55 | v | 54 | 5MU | C5-C4-N3 | 12.04 | 125.59 | 115.31 |
| 8 | A | 1939 | 5MU | C5-C6-N1 | -10.62 | 112.41 | 123.34 |
| 8 | A | 1618 | 6MZ | C9-N6-C6 | -8.57 | 115.49 | 122.87 |
| 55 | v | 54 | 5MU | C5-C6-N1 | -8.38 | 114.72 | 123.34 |
| 56 | w | 37 | MIA | C12-C13-C14 | -7.85 | 111.86 | 127.14 |
| 55 | v | 8 | 4SU | C4-N3-C2 | -7.25 | 120.30 | 127.34 |
| 55 | v | 54 | 5MU | C5M-C5-C4 | 7.23 | 126.72 | 118.77 |
| 8 | A | 2580 | PSU | C6-C5-C4 | 7.12 | 123.17 | 118.20 |
| 55 | v | 20 | H2U | C4-N3-C2 | -6.84 | 120.11 | 125.79 |
| 8 | A | 2030 | 6MZ | C9-N6-C6 | -6.57 | 117.22 | 122.87 |
| 8 | A | 2604 | PSU | C6-C5-C4 | 6.52 | 122.76 | 118.20 |
| 8 | A | 2457 | PSU | C6-C5-C4 | 6.21 | 122.54 | 118.20 |
| 8 | A | 2552 | OMU | C4-N3-C2 | -6.12 | 118.50 | 126.58 |
| 34 | a | 1518 | MA6 | N3-C2-N1 | -5.97 | 119.34 | 128.68 |
| 56 | w | 55 | PSU | N1-C2-N3 | 5.93 | 121.85 | 115.13 |
| 8 | A | 1618 | 6MZ | N3-C2-N1 | -5.90 | 119.46 | 128.68 |
| 56 | w | 46 | G7M | C2'-C3'-C4' | 5.85 | 114.01 | 102.64 |
| 8 | A | 1939 | 5MU | O4-C4-C5 | -5.84 | 118.13 | 124.90 |
| 55 | v | 54 | 5MU | C5M-C5-C6 | -5.76 | 115.16 | 122.85 |
| 34 | a | 1519 | MA6 | N3-C2-N1 | -5.75 | 119.69 | 128.68 |
| 8 | A | 1939 | 5MU | C4-N3-C2 | -5.73 | 119.93 | 127.35 |
| 56 | w | 8 | 4SU | C4-N3-C2 | -5.63 | 121.87 | 127.34 |
| 55 | v | 8 | 4SU | C5-C4-N3 | 5.55 | 119.84 | 114.69 |
| 8 | A | 2605 | PSU | N1-C2-N3 | 5.52 | 121.38 | 115.13 |
| 8 | A | 1835 | 2MG | CM2-N2-C2 | -5.44 | 111.83 | 123.86 |
| 8 | A | 2604 | PSU | C4-N3-C2 | -5.36 | 118.62 | 126.34 |
| 56 | w | 37 | MIA | C12-N6-C6 | -5.26 | 114.76 | 122.55 |
| 56 | w | 54 | 5MU | N3-C2-N1 | 5.26 | 121.87 | 114.89 |
| 8 | A | 2030 | 6MZ | N3-C2-N1 | -5.20 | 120.55 | 128.68 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 56 | w | 39 | PSU | C6-C5-C4 | 5.15 | 121.80 | 118.20 |
| 8 | A | 1915 | 3TD | N1-C2-N3 | 5.14 | 120.19 | 116.14 |
| 8 | A | 2604 | PSU | N1-C2-N3 | 5.13 | 120.94 | 115.13 |
| 8 | A | 2605 | PSU | C4-N3-C2 | -5.09 | 119.00 | 126.34 |
| 8 | A | 2580 | PSU | N1-C2-N3 | 5.07 | 120.87 | 115.13 |
| 56 | w | 39 | PSU | N1-C2-N3 | 4.98 | 120.77 | 115.13 |
| 56 | w | 46 | G7M | O3'-C3'-C4' | 4.94 | 125.33 | 111.05 |
| 56 | w | 39 | PSU | C4-N3-C2 | -4.89 | 119.29 | 126.34 |
| 56 | w | 8 | 4SU | C5-C4-N3 | 4.85 | 119.19 | 114.69 |
| 55 | v | 55 | PSU | C4-N3-C2 | -4.82 | 119.39 | 126.34 |
| 55 | v | 54 | 5MU | O4-C4-C5 | -4.80 | 119.34 | 124.90 |
| 8 | A | 955 | PSU | C6-C5-C4 | 4.77 | 121.53 | 118.20 |
| 8 | A | 955 | PSU | C4-N3-C2 | -4.68 | 119.59 | 126.34 |
| 8 | A | 1911 | PSU | C4-N3-C2 | -4.64 | 119.66 | 126.34 |
| 8 | A | 1939 | 5MU | N3-C2-N1 | 4.64 | 121.04 | 114.89 |
| 56 | w | 32 | PSU | C4-N3-C2 | -4.62 | 119.68 | 126.34 |
| 56 | w | 54 | 5MU | C4-N3-C2 | -4.57 | 121.43 | 127.35 |
| 8 | A | 2504 | PSU | C4-N3-C2 | -4.53 | 119.82 | 126.34 |
| 8 | A | 2605 | PSU | C6-N1-C2 | -4.52 | 118.06 | 122.68 |
| 8 | A | 2069 | G7M | N2-C2-N1 | 4.52 | 126.33 | 116.71 |
| 56 | w | 37 | MIA | C16-C14-C13 | -4.49 | 109.67 | 122.65 |
| 34 | a | 967 | 5MC | C5-C6-N1 | -4.49 | 118.72 | 123.34 |
| 8 | A | 2580 | PSU | C6-N1-C2 | -4.46 | 118.12 | 122.68 |
| 56 | w | 54 | 5MU | C5M-C5-C4 | 4.45 | 123.67 | 118.77 |
| 8 | A | 1835 | 2MG | C5-C6-N1 | 4.44 | 121.79 | 113.95 |
| 56 | w | 8 | 4SU | N3-C2-N1 | 4.44 | 120.78 | 114.89 |
| 8 | A | 2457 | PSU | C4-N3-C2 | -4.42 | 119.97 | 126.34 |
| 8 | A | 1917 | PSU | C4-N3-C2 | -4.41 | 119.99 | 126.34 |
| 56 | w | 37 | MIA | C15-C14-C13 | -4.40 | 109.94 | 122.65 |
| 8 | A | 1911 | PSU | N1-C2-N3 | 4.37 | 120.08 | 115.13 |
| 8 | A | 747 | 5MC | C5-C6-N1 | -4.37 | 118.84 | 123.34 |
| 55 | v | 54 | 5MU | C4-N3-C2 | -4.27 | 121.83 | 127.35 |
| 55 | v | 8 | 4SU | C5-C4-S4 | -4.27 | 118.97 | 124.47 |
| 8 | A | 1917 | PSU | N1-C2-N3 | 4.21 | 119.90 | 115.13 |
| 8 | A | 2580 | PSU | C4-N3-C2 | -4.21 | 120.27 | 126.34 |
| 8 | A | 1915 | 3TD | C4-N3-C2 | -4.19 | 120.06 | 124.61 |
| 8 | A | 1962 | 5MC | C5-C6-N1 | -4.14 | 119.08 | 123.34 |
| 8 | A | 2457 | PSU | N1-C2-N3 | 4.12 | 119.80 | 115.13 |
| 56 | w | 32 | PSU | N1-C2-N3 | 4.12 | 119.79 | 115.13 |
| 56 | w | 37 | MIA | N3-C2-N1 | -4.11 | 119.42 | 126.98 |
| 8 | A | 1911 | PSU | C6-C5-C4 | 4.08 | 121.05 | 118.20 |
| 8 | A | 955 | PSU | N1-C2-N3 | 4.08 | 119.75 | 115.13 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 34 | a | 516 | PSU | N1-C2-N3 | 4.06 | 119.73 | 115.13 |
| 34 | a | 516 | PSU | C4-N3-C2 | -4.04 | 120.52 | 126.34 |
| 8 | A | 2504 | PSU | C6-C5-C4 | 4.01 | 121.00 | 118.20 |
| 8 | A | 2552 | OMU | C5-C4-N3 | 4.00 | 120.83 | 114.84 |
| 8 | A | 1618 | 6MZ | C1'-N9-C4 | -4.00 | 119.62 | 126.64 |
| 34 | a | 1407 | 5MC | C5-C6-N1 | -3.94 | 119.28 | 123.34 |
| 8 | A | 2069 | G7M | N2-C2-N3 | -3.87 | 112.21 | 119.74 |
| 55 | v | 55 | PSU | N1-C2-N3 | 3.84 | 119.48 | 115.13 |
| 8 | A | 2605 | PSU | C6-C5-C4 | 3.82 | 120.87 | 118.20 |
| 34 | a | 1498 | UR3 | C4-N3-C2 | -3.81 | 120.97 | 124.56 |
| 8 | A | 1917 | PSU | C6-C5-C4 | 3.79 | 120.85 | 118.20 |
| 8 | A | 746 | PSU | N1-C2-N3 | 3.77 | 119.40 | 115.13 |
| 56 | w | 55 | PSU | C4-N3-C2 | -3.76 | 120.92 | 126.34 |
| 8 | A | 2504 | PSU | N1-C2-N3 | 3.74 | 119.37 | 115.13 |
| 8 | A | 2552 | OMU | N3-C2-N1 | 3.73 | 119.84 | 114.89 |
| 34 | a | 516 | PSU | C6-C5-C4 | 3.68 | 120.77 | 118.20 |
| 8 | A | 745 | 1MG | CM1-N1-C2 | -3.68 | 116.90 | 120.72 |
| 34 | a | 1207 | 2MG | CM2-N2-C2 | -3.64 | 115.81 | 123.86 |
| 8 | A | 2445 | 2MG | CM2-N2-C2 | -3.64 | 115.81 | 123.86 |
| 34 | a | 1516 | 2MG | C5-C6-N1 | 3.63 | 120.37 | 113.95 |
| 55 | v | 54 | 5MU | N3-C2-N1 | 3.61 | 119.69 | 114.89 |
| 55 | v | 55 | PSU | C6-C5-C4 | 3.59 | 120.71 | 118.20 |
| 56 | w | 37 | MIA | C11-S10-C2 | 3.59 | 104.95 | 102.27 |
| 56 | w | 54 | 5MU | C5-C4-N3 | 3.57 | 118.36 | 115.31 |
| 56 | w | 39 | PSU | C6-N1-C2 | -3.56 | 119.04 | 122.68 |
| 8 | A | 746 | PSU | C4-N3-C2 | -3.55 | 121.22 | 126.34 |
| 56 | w | 54 | 5MU | C5M-C5-C6 | -3.55 | 118.10 | 122.85 |
| 56 | w | 46 | G7M | C2-N1-C6 | -3.53 | 118.60 | 125.10 |
| 8 | A | 1917 | PSU | C6-N1-C2 | -3.49 | 119.11 | 122.68 |
| 8 | A | 2503 | 2MA | C5-C6-N1 | 3.49 | 120.04 | 114.02 |
| 34 | a | 516 | PSU | C6-N1-C2 | -3.49 | 119.12 | 122.68 |
| 8 | A | 746 | PSU | C6-N1-C2 | -3.46 | 119.14 | 122.68 |
| 8 | A | 2251 | OMG | C5-C6-N1 | 3.43 | 120.01 | 113.95 |
| 8 | A | 745 | 1MG | C5-C6-N1 | 3.43 | 119.06 | 113.90 |
| 8 | A | 2552 | OMU | O4-C4-C5 | -3.35 | 119.28 | 125.16 |
| 34 | a | 1519 | MA6 | C10-N6-C9 | 3.34 | 126.90 | 116.12 |
| 8 | A | 746 | PSU | C6-C5-C4 | 3.28 | 120.49 | 118.20 |
| 8 | A | 1911 | PSU | C6-N1-C2 | -3.27 | 119.34 | 122.68 |
| 34 | a | 1519 | MA6 | C1'-N9-C4 | -3.19 | 121.03 | 126.64 |
| 56 | w | 8 | 4SU | C5-C4-S4 | -3.19 | 120.36 | 124.47 |
| 34 | a | 1518 | MA6 | C10-N6-C9 | 3.14 | 126.24 | 116.12 |
| 34 | a | 527 | G7M | CN7-N7-C8 | -3.12 | 110.41 | 125.43 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 55 | v | 20 | H2U | N3-C2-N1 | 3.12 | 119.95 | 116.65 |
| 8 | A | 2580 | PSU | O2-C2-N1 | -3.11 | 119.37 | 122.79 |
| 8 | A | 1962 | 5MC | C1'-N1-C6 | -3.11 | 115.95 | 121.12 |
| 8 | A | 2069 | G7M | CN7-N7-C8 | -3.11 | 110.48 | 125.43 |
| 34 | a | 516 | PSU | O2-C2-N1 | -3.08 | 119.40 | 122.79 |
| 55 | v | 54 | 5MU | C1'-N1-C2 | 3.08 | 123.14 | 117.57 |
| 56 | w | 37 | MIA | S10-C2-N1 | 3.04 | 126.52 | 116.01 |
| 8 | A | 2069 | G7M | C2-N1-C6 | -3.03 | 119.51 | 125.10 |
| 56 | w | 55 | PSU | O2-C2-N1 | -3.02 | 119.47 | 122.79 |
| 56 | w | 32 | PSU | C6-C5-C4 | 2.98 | 120.28 | 118.20 |
| 8 | A | 1939 | 5MU | C5M-C5-C6 | -2.97 | 118.88 | 122.85 |
| 8 | A | 955 | PSU | C6-N1-C2 | -2.95 | 119.66 | 122.68 |
| 8 | A | 1835 | 2MG | O6-C6-N1 | -2.94 | 117.18 | 120.65 |
| 34 | a | 527 | G7M | C2-N1-C6 | -2.92 | 119.71 | 125.10 |
| 55 | v | 8 | 4SU | N3-C2-N1 | 2.90 | 118.75 | 114.89 |
| 8 | A | 2552 | OMU | CM2-O2'-C2' | -2.90 | 106.92 | 114.52 |
| 55 | v | 20 | H2U | C5-C4-N3 | 2.89 | 119.89 | 116.65 |
| 55 | v | 20 | H2U | O2-C2-N1 | -2.87 | 119.50 | 123.11 |
| 8 | A | 2457 | PSU | C6-N1-C2 | -2.86 | 119.76 | 122.68 |
| 8 | A | 2604 | PSU | C6-N1-C2 | -2.79 | 119.83 | 122.68 |
| 56 | w | 54 | 5MU | O4-C4-C5 | -2.78 | 121.68 | 124.90 |
| 8 | A | 1618 | 6MZ | C2-N1-C6 | 2.74 | 118.94 | 116.59 |
| 8 | A | 2503 | 2MA | C8-N7-C5 | 2.73 | 108.19 | 102.99 |
| 55 | v | 20 | H2U | C5-C6-N1 | 2.73 | 120.59 | 111.61 |
| 8 | A | 2504 | PSU | C6-N1-C2 | -2.72 | 119.90 | 122.68 |
| 56 | w | 32 | PSU | C6-N1-C2 | -2.72 | 119.91 | 122.68 |
| 8 | A | 2580 | PSU | O4'-C1'-C2' | 2.72 | 108.97 | 105.14 |
| 56 | w | 8 | 4SU | C6-N1-C2 | -2.70 | 117.54 | 120.99 |
| 8 | A | 2503 | 2MA | CM2-C2-N1 | 2.68 | 122.19 | 116.23 |
| 8 | A | 2605 | PSU | O2-C2-N1 | -2.67 | 119.85 | 122.79 |
| 8 | A | 745 | 1MG | O6-C6-C5 | -2.67 | 119.47 | 124.19 |
| 8 | A | 1911 | PSU | O2-C2-N1 | -2.64 | 119.88 | 122.79 |
| 56 | w | 54 | 5MU | C6-N1-C2 | -2.64 | 118.63 | 121.30 |
| 55 | v | 54 | 5MU | O4-C4-N3 | -2.63 | 115.07 | 120.12 |
| 56 | w | 54 | 5MU | C3'-C2'-C1' | 2.62 | 106.41 | 101.43 |
| 55 | v | 55 | PSU | C6-N1-C2 | -2.62 | 120.01 | 122.68 |
| 8 | A | 747 | 5MC | CM5-C5-C6 | -2.61 | 119.36 | 122.85 |
| 55 | v | 54 | 5MU | C1'-N1-C6 | -2.61 | 116.79 | 121.12 |
| 34 | a | 1402 | 4OC | C5-C4-N4 | -2.60 | 117.32 | 122.61 |
| 34 | a | 1207 | 2MG | C5-C6-N1 | 2.60 | 118.54 | 113.95 |
| 34 | a | 966 | 2MG | C3'-C2'-C1' | 2.59 | 104.88 | 100.98 |
| 34 | a | 1519 | MA6 | C9-N6-C6 | -2.57 | 111.73 | 119.51 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 8 | A | 2251 | OMG | O6-C6-C5 | -2.55 | 119.39 | 124.37 |
| 8 | A | 1835 | 2MG | C8-N7-C5 | 2.55 | 107.84 | 102.99 |
| 34 | a | 966 | 2MG | C8-N7-C5 | 2.54 | 107.82 | 102.99 |
| 8 | A | 1917 | PSU | O2-C2-N1 | -2.52 | 120.01 | 122.79 |
| 56 | w | 39 | PSU | O2-C2-N1 | -2.52 | 120.02 | 122.79 |
| 34 | a | 1516 | 2MG | O6-C6-C5 | -2.51 | 119.48 | 124.37 |
| 8 | A | 1939 | 5MU | O2-C2-N1 | -2.49 | 119.47 | 122.79 |
| 56 | w | 37 | MIA | C1'-N9-C4 | -2.45 | 122.34 | 126.64 |
| 34 | a | 966 | 2MG | C5-C6-N1 | 2.44 | 118.27 | 113.95 |
| 8 | A | 1939 | 5MU | O4-C4-N3 | -2.44 | 115.44 | 120.12 |
| 8 | A | 1939 | 5MU | C5M-C5-C4 | 2.44 | 121.45 | 118.77 |
| 56 | w | 37 | MIA | C2-N3-C4 | 2.42 | 118.66 | 115.32 |
| 8 | A | 2251 | OMG | C8-N7-C5 | 2.41 | 107.58 | 102.99 |
| 34 | a | 1407 | 5MC | CM5-C5-C6 | -2.39 | 119.65 | 122.85 |
| 56 | w | 32 | PSU | O4'-C1'-C2' | 2.38 | 108.50 | 105.14 |
| 34 | a | 967 | 5MC | C5-C4-N4 | -2.37 | 117.93 | 121.48 |
| 56 | w | 55 | PSU | C6-C5-C4 | -2.37 | 116.54 | 118.20 |
| 34 | a | 527 | G7M | N2-C2-N3 | 2.37 | 124.34 | 119.74 |
| 8 | A | 2605 | PSU | O4'-C1'-C2' | 2.36 | 108.48 | 105.14 |
| 8 | A | 2552 | OMU | C2'-C1'-N1 | -2.36 | 109.64 | 114.22 |
| 56 | w | 32 | PSU | O2-C2-N1 | -2.35 | 120.20 | 122.79 |
| 55 | v | 55 | PSU | O2-C2-N1 | -2.32 | 120.24 | 122.79 |
| 56 | w | 55 | PSU | C3'-C2'-C1' | 2.30 | 104.32 | 101.64 |
| 8 | A | 746 | PSU | O2-C2-N1 | -2.29 | 120.27 | 122.79 |
| 34 | a | 1516 | 2MG | C8-N7-C5 | 2.28 | 107.33 | 102.99 |
| 34 | a | 1498 | UR3 | C3U-N3-C4 | 2.26 | 121.12 | 117.89 |
| 8 | A | 745 | 1MG | C2-N1-C6 | 2.25 | 122.77 | 120.95 |
| 34 | a | 967 | 5MC | C1'-N1-C6 | -2.24 | 117.39 | 121.12 |
| 8 | A | 2251 | OMG | N1-C2-N3 | -2.23 | 119.16 | 123.32 |
| 56 | w | 8 | 4SU | O4'-C1'-N1 | 2.22 | 113.43 | 108.36 |
| 58 | y | 101 | FME | C-CA-N | 2.21 | 113.73 | 109.73 |
| 56 | w | 37 | MIA | C16-C14-C15 | -2.20 | 109.74 | 114.60 |
| 8 | A | 2604 | PSU | C5-C6-N1 | -2.20 | 118.81 | 122.11 |
| 34 | a | 1402 | 4OC | CM2-O2'-C2' | -2.16 | 108.85 | 114.52 |
| 8 | A | 2251 | OMG | C2-N1-C6 | -2.16 | 121.12 | 125.10 |
| 34 | a | 1207 | 2MG | O3'-C3'-C2' | 2.15 | 118.79 | 111.82 |
| 8 | A | 2445 | 2MG | C5-C6-N1 | 2.14 | 117.73 | 113.95 |
| 8 | A | 2030 | 6MZ | O3'-C3'-C4' | -2.13 | 104.90 | 111.05 |
| 8 | A | 2030 | 6MZ | C1'-N9-C4 | -2.13 | 122.91 | 126.64 |
| 34 | a | 1402 | 4OC | C1'-N1-C6 | -2.11 | 116.24 | 120.84 |
| 34 | a | 967 | 5MC | CM5-C5-C6 | -2.08 | 120.07 | 122.85 |
| 8 | A | 2503 | 2MA | O3'-C3'-C4' | -2.05 | 105.12 | 111.05 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-----------|-------|-------------|----------|
| 8 | A | 2604 | PSU | O2-C2-N3 | -2.04 | 117.96 | 121.82 |
| 8 | A | 2030 | 6MZ | C2-N1-C6 | 2.04 | 118.34 | 116.59 |
| 56 | w | 54 | 5MU | O2-C2-N1 | -2.04 | 120.08 | 122.79 |
| 34 | a | 1207 | 2MG | C8-N7-C5 | 2.03 | 106.87 | 102.99 |
| 8 | A | 745 | 1MG | CM1-N1-C6 | 2.03 | 120.32 | 117.55 |

There are no chirality outliers.

All (57) torsion outliers are listed below:

| Mol | Chain | Res | Type | Atoms |
|-----|-------|------|------|-----------------|
| 34 | a | 967 | 5MC | O4'-C4'-C5'-O5' |
| 34 | a | 967 | 5MC | C3'-C4'-C5'-O5' |
| 34 | a | 1498 | UR3 | O4'-C1'-N1-C6 |
| 34 | a | 1498 | UR3 | O4'-C1'-N1-C2 |
| 34 | a | 1519 | MA6 | C5-C6-N6-C9 |
| 34 | a | 1519 | MA6 | C5-C6-N6-C10 |
| 55 | v | 54 | 5MU | C3'-C4'-C5'-O5' |
| 55 | v | 54 | 5MU | O4'-C4'-C5'-O5' |
| 55 | v | 55 | PSU | O4'-C1'-C5-C4 |
| 55 | v | 55 | PSU | O4'-C1'-C5-C6 |
| 8 | A | 1618 | 6MZ | N1-C6-N6-C9 |
| 8 | A | 1915 | 3TD | O4'-C1'-C5-C4 |
| 8 | A | 1915 | 3TD | O4'-C1'-C5-C6 |
| 8 | A | 1939 | 5MU | O4'-C4'-C5'-O5' |
| 8 | A | 2030 | 6MZ | C3'-C4'-C5'-O5' |
| 8 | A | 2445 | 2MG | C3'-C4'-C5'-O5' |
| 8 | A | 2498 | OMC | C1'-C2'-O2'-CM2 |
| 8 | A | 2503 | 2MA | O4'-C4'-C5'-O5' |
| 56 | w | 32 | PSU | O4'-C1'-C5-C4 |
| 56 | w | 32 | PSU | O4'-C1'-C5-C6 |
| 56 | w | 37 | MIA | C5-C6-N6-C12 |
| 56 | w | 37 | MIA | C12-C13-C14-C16 |
| 56 | w | 39 | PSU | C2'-C1'-C5-C4 |
| 56 | w | 39 | PSU | O4'-C1'-C5-C4 |
| 56 | w | 39 | PSU | O4'-C1'-C5-C6 |
| 58 | y | 101 | FME | O1-CN-N-CA |
| 58 | y | 101 | FME | CB-CA-N-CN |
| 34 | a | 966 | 2MG | O4'-C4'-C5'-O5' |
| 34 | a | 966 | 2MG | C3'-C4'-C5'-O5' |
| 8 | A | 1835 | 2MG | C3'-C4'-C5'-O5' |
| 8 | A | 1939 | 5MU | C3'-C4'-C5'-O5' |
| 8 | A | 2030 | 6MZ | O4'-C4'-C5'-O5' |

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| Mol | Chain | Res | Type | Atoms |
|-----|-------|------|------|-----------------|
| 34 | a | 1519 | MA6 | N1-C6-N6-C10 |
| 8 | A | 1835 | 2MG | O4'-C4'-C5'-O5' |
| 58 | y | 101 | FME | N-CA-CB-CG |
| 56 | w | 37 | MIA | N1-C6-N6-C12 |
| 8 | A | 2445 | 2MG | O4'-C4'-C5'-O5' |
| 8 | A | 2552 | OMU | O4'-C1'-N1-C6 |
| 58 | y | 101 | FME | CB-CG-SD-CE |
| 8 | A | 2552 | OMU | O4'-C1'-N1-C2 |
| 8 | A | 2030 | 6MZ | N1-C6-N6-C9 |
| 34 | a | 527 | G7M | C3'-C4'-C5'-O5' |
| 34 | a | 966 | 2MG | C4'-C5'-O5'-P |
| 55 | v | 20 | H2U | C4'-C5'-O5'-P |
| 56 | w | 46 | G7M | C4'-C5'-O5'-P |
| 34 | a | 527 | G7M | O4'-C4'-C5'-O5' |
| 34 | a | 1519 | MA6 | C4'-C5'-O5'-P |
| 8 | A | 747 | 5MC | C4'-C5'-O5'-P |
| 8 | A | 2069 | G7M | O4'-C4'-C5'-O5' |
| 8 | A | 2503 | 2MA | C3'-C4'-C5'-O5' |
| 8 | A | 2604 | PSU | O4'-C4'-C5'-O5' |
| 8 | A | 1618 | 6MZ | C5-C6-N6-C9 |
| 55 | v | 54 | 5MU | C2'-C1'-N1-C2 |
| 8 | A | 746 | PSU | O4'-C1'-C5-C6 |
| 56 | w | 55 | PSU | O4'-C1'-C5-C6 |
| 8 | A | 747 | 5MC | C2'-C1'-N1-C2 |
| 8 | A | 2498 | OMC | O4'-C4'-C5'-O5' |

There are no ring outliers.

No monomer is involved in short contacts.

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 3 ligands modelled in this entry, 1 is monoatomic - leaving 2 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond

length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

| Mol | Type | Chain | Res | Link | Bond lengths | | | Bond angles | | |
|-----|------|-------|------|------|--------------|------|----------|-------------|------|----------|
| | | | | | Counts | RMSZ | # Z > 2 | Counts | RMSZ | # Z > 2 |
| 62 | GDP | x | 801 | - | 24,30,30 | 5.24 | 12 (50%) | 30,47,47 | 1.86 | 11 (36%) |
| 61 | AM2 | a | 2001 | - | 40,40,40 | 0.24 | 0 | 53,60,60 | 0.60 | 2 (3%) |

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

| Mol | Type | Chain | Res | Link | Chirals | Torsions | Rings |
|-----|------|-------|------|------|---------|------------|---------|
| 62 | GDP | x | 801 | - | - | 7/12/32/32 | 0/3/3/3 |
| 61 | AM2 | a | 2001 | - | - | 4/12/84/84 | 0/4/4/4 |

All (12) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|---------|--------|-------------|----------|
| 62 | x | 801 | GDP | C2'-C1' | -17.38 | 1.27 | 1.53 |
| 62 | x | 801 | GDP | O4'-C1' | 10.27 | 1.55 | 1.41 |
| 62 | x | 801 | GDP | C3'-C4' | -10.01 | 1.27 | 1.53 |
| 62 | x | 801 | GDP | C2-N2 | 4.96 | 1.46 | 1.34 |
| 62 | x | 801 | GDP | O4'-C4' | 4.81 | 1.55 | 1.45 |
| 62 | x | 801 | GDP | C2'-C3' | 4.65 | 1.66 | 1.53 |
| 62 | x | 801 | GDP | C4-N3 | 4.14 | 1.47 | 1.37 |
| 62 | x | 801 | GDP | C2-N3 | 4.06 | 1.43 | 1.33 |
| 62 | x | 801 | GDP | C2-N1 | 3.48 | 1.46 | 1.37 |
| 62 | x | 801 | GDP | C5-C4 | -3.03 | 1.35 | 1.43 |
| 62 | x | 801 | GDP | C6-N1 | 3.01 | 1.42 | 1.37 |
| 62 | x | 801 | GDP | C5-C6 | 2.22 | 1.51 | 1.47 |

All (13) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-------------|-------|-------------|----------|
| 62 | x | 801 | GDP | N2-C2-N1 | 4.60 | 126.50 | 116.71 |
| 62 | x | 801 | GDP | C3'-C2'-C1' | 3.21 | 105.81 | 100.98 |
| 62 | x | 801 | GDP | N2-C2-N3 | -3.20 | 113.50 | 119.74 |
| 62 | x | 801 | GDP | C2'-C3'-C4' | 2.63 | 107.75 | 102.64 |
| 62 | x | 801 | GDP | PA-O3A-PB | -2.62 | 123.84 | 132.83 |
| 62 | x | 801 | GDP | C5-C6-N1 | 2.54 | 118.43 | 113.95 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 61 | a | 2001 | AM2 | CA1-OA4-CA5 | 2.47 | 117.04 | 113.06 |
| 62 | x | 801 | GDP | O6-C6-C5 | -2.30 | 119.89 | 124.37 |
| 62 | x | 801 | GDP | C2-N1-C6 | -2.22 | 121.01 | 125.10 |
| 62 | x | 801 | GDP | O3B-PB-O1B | 2.08 | 118.84 | 110.68 |
| 62 | x | 801 | GDP | C8-N7-C5 | 2.08 | 106.96 | 102.99 |
| 62 | x | 801 | GDP | O3B-PB-O3A | 2.07 | 111.57 | 104.64 |
| 61 | a | 2001 | AM2 | OA4-CA1-CA2 | 2.07 | 114.86 | 110.25 |

There are no chirality outliers.

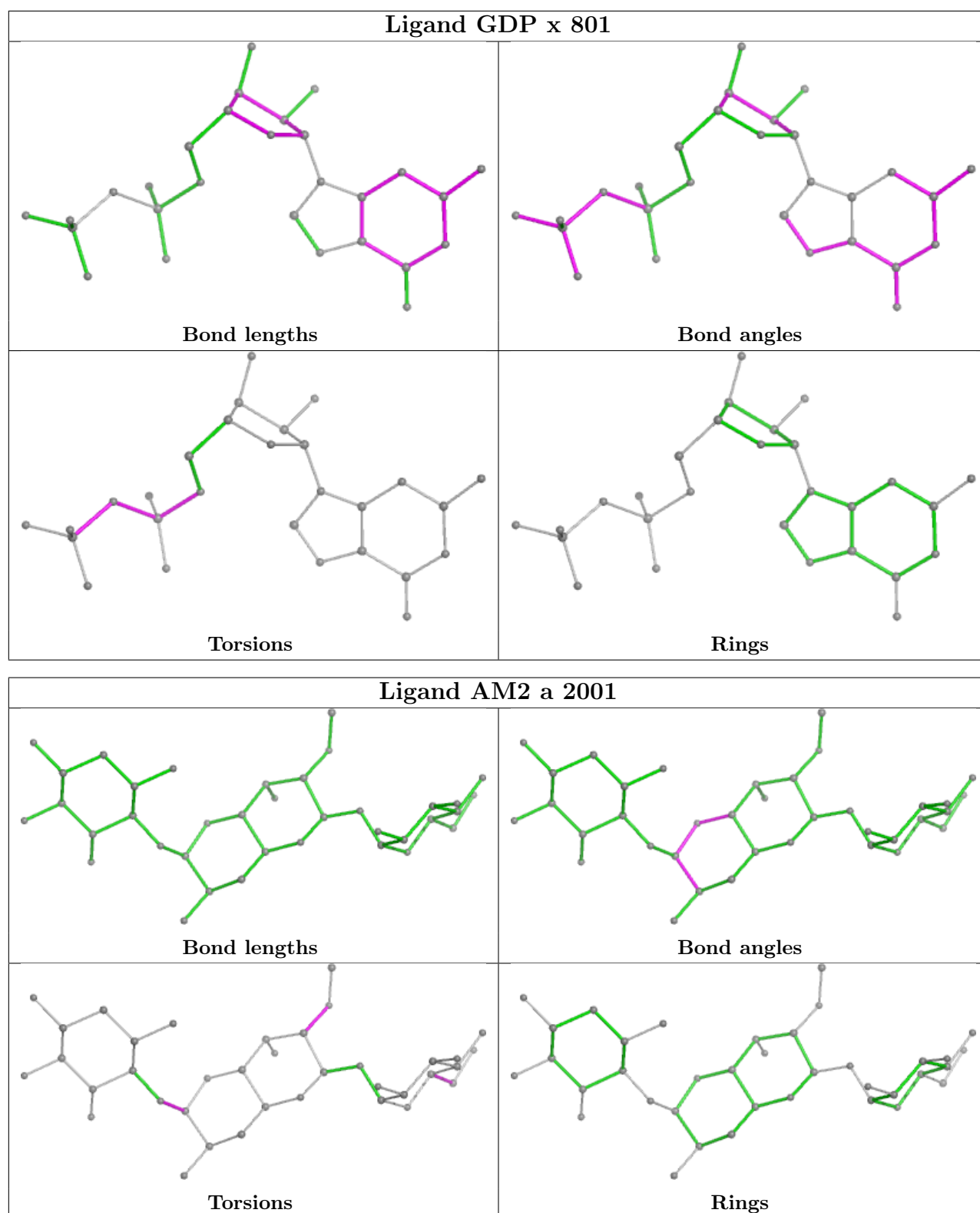
All (11) torsion outliers are listed below:

| Mol | Chain | Res | Type | Atoms |
|-----|-------|------|------|-----------------|
| 61 | a | 2001 | AM2 | CA8-CA7-NA7-CA9 |
| 62 | x | 801 | GDP | C5'-O5'-PA-O3A |
| 61 | a | 2001 | AM2 | OB1-CB5-CB6-OB6 |
| 62 | x | 801 | GDP | PA-O3A-PB-O3B |
| 61 | a | 2001 | AM2 | OA4-CA1-OA1-CC1 |
| 62 | x | 801 | GDP | C5'-O5'-PA-O1A |
| 62 | x | 801 | GDP | C5'-O5'-PA-O2A |
| 61 | a | 2001 | AM2 | CA6-CA7-NA7-CA9 |
| 62 | x | 801 | GDP | PA-O3A-PB-O2B |
| 62 | x | 801 | GDP | PB-O3A-PA-O1A |
| 62 | x | 801 | GDP | PB-O3A-PA-O2A |

There are no ring outliers.

No monomer is involved in short contacts.

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.



5.7 Other polymers [\(i\)](#)

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

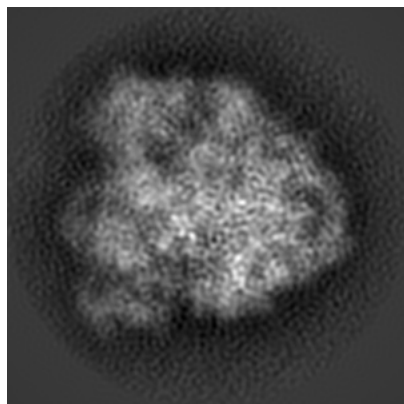
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-13465. These allow visual inspection of the internal detail of the map and identification of artifacts.

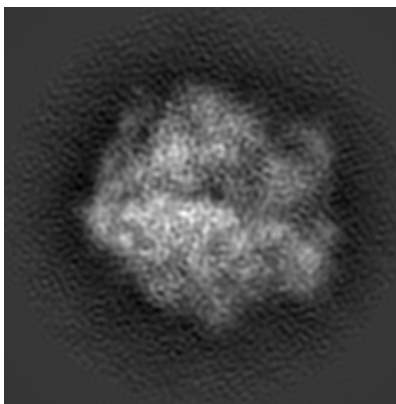
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

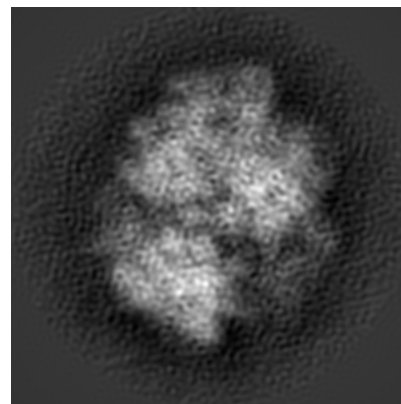
6.1.1 Primary map



X

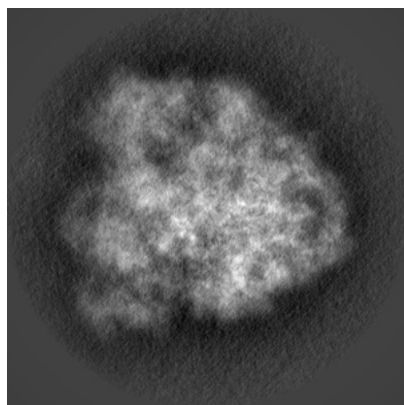


Y

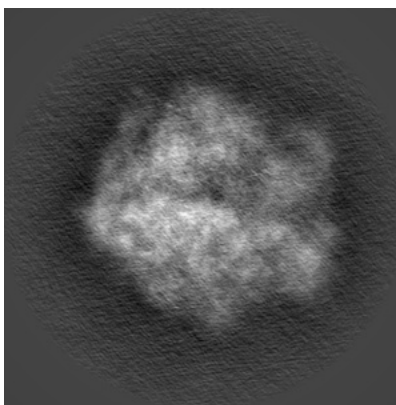


Z

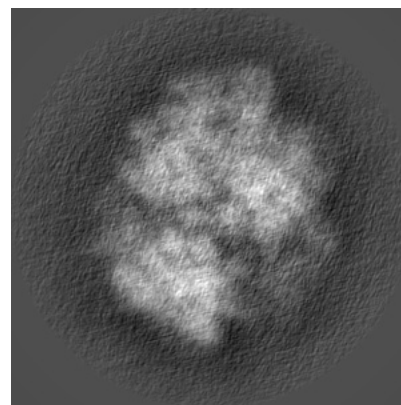
6.1.2 Raw map



X



Y

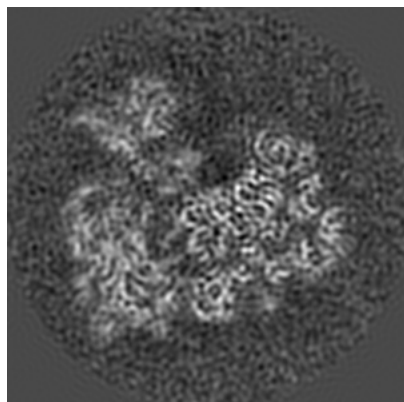


Z

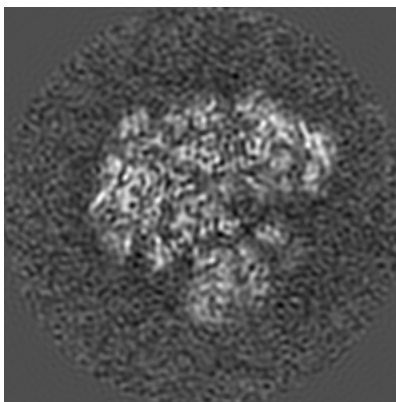
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

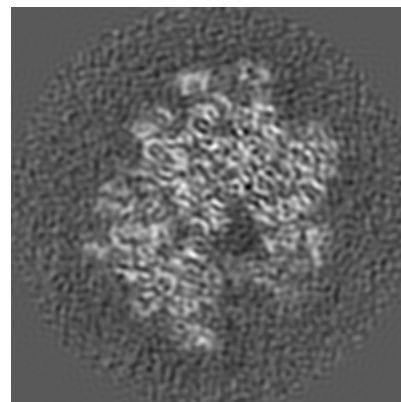
6.2.1 Primary map



X Index: 144

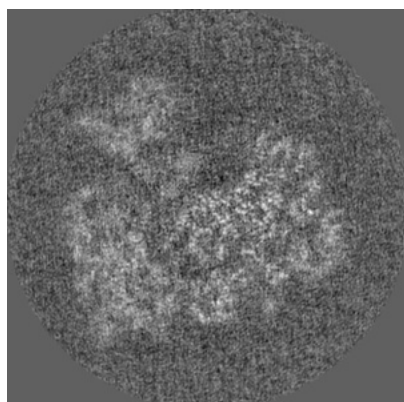


Y Index: 144

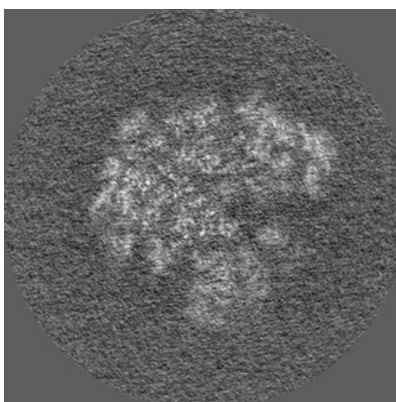


Z Index: 144

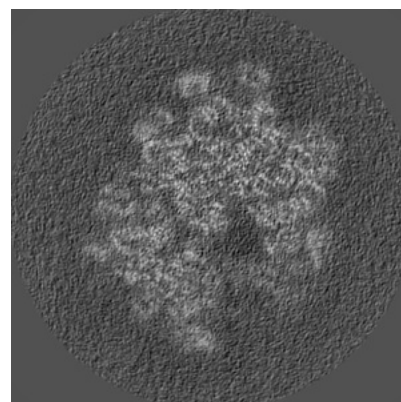
6.2.2 Raw map



X Index: 144



Y Index: 144

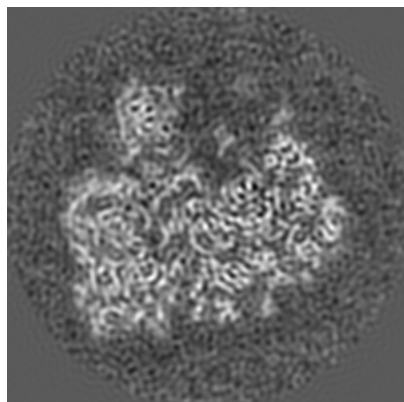


Z Index: 144

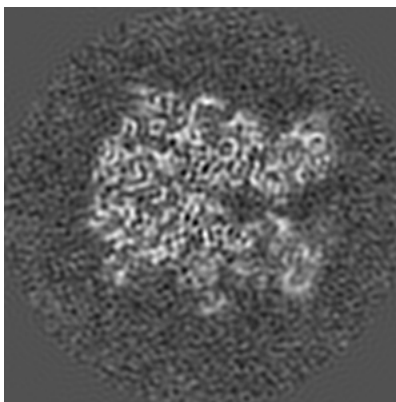
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

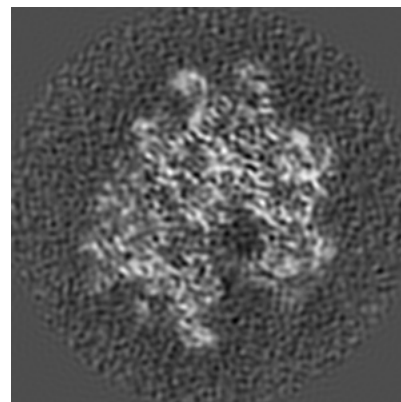
6.3.1 Primary map



X Index: 138

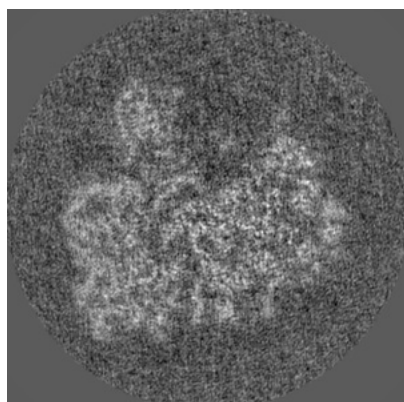


Y Index: 159

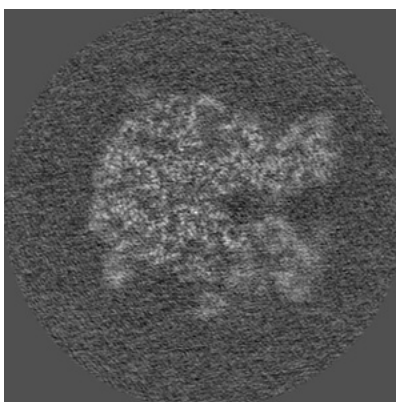


Z Index: 147

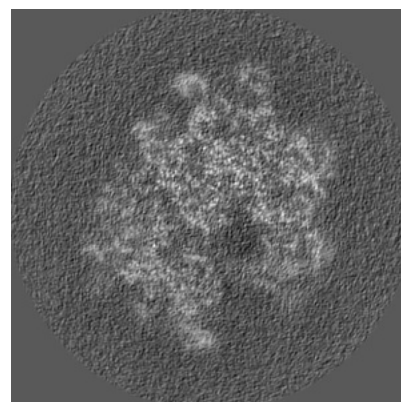
6.3.2 Raw map



X Index: 139



Y Index: 157

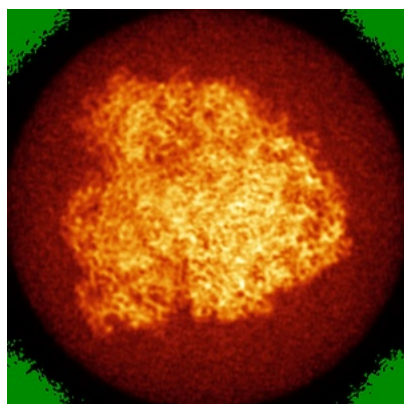


Z Index: 146

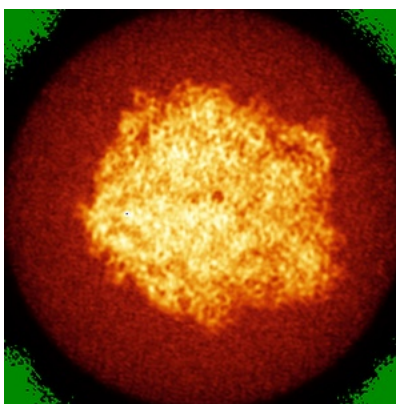
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) [i](#)

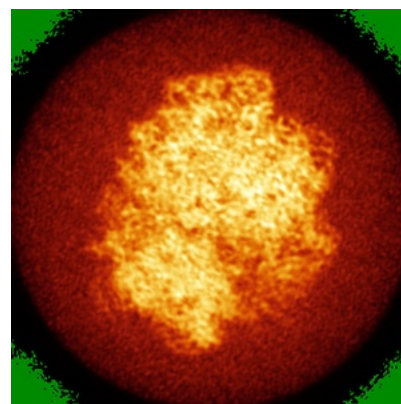
6.4.1 Primary map



X

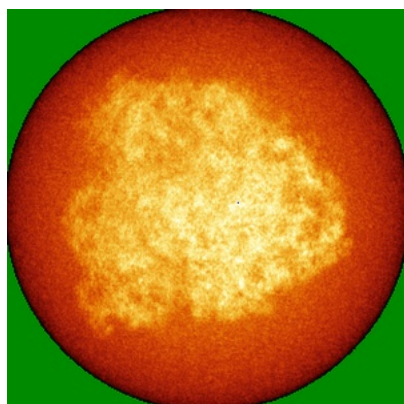


Y

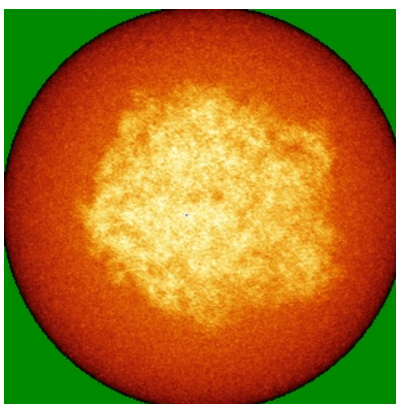


Z

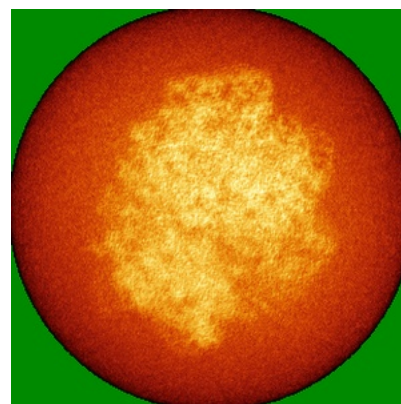
6.4.2 Raw map



X



Y

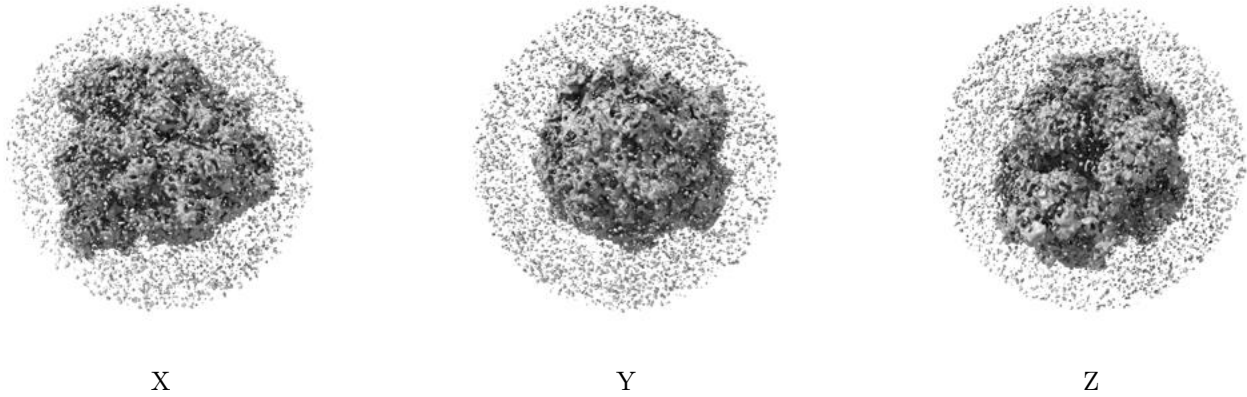


Z

The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

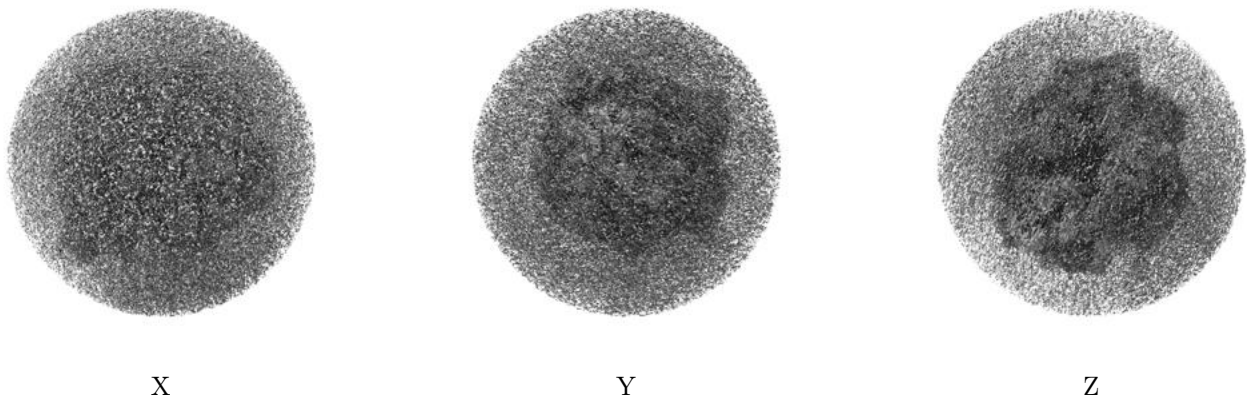
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 1.5. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

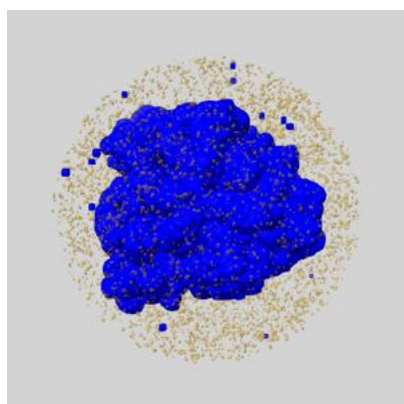
6.6 Mask visualisation [i](#)

This section shows the 3D surface view of the primary map at 50% transparency overlaid with the specified mask at 0% transparency

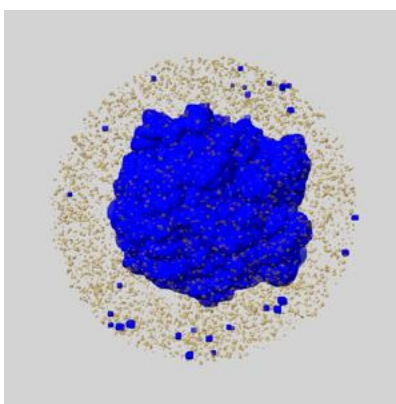
A mask typically either:

- Encompasses the whole structure
- Separates out a domain, a functional unit, a monomer or an area of interest from a larger structure

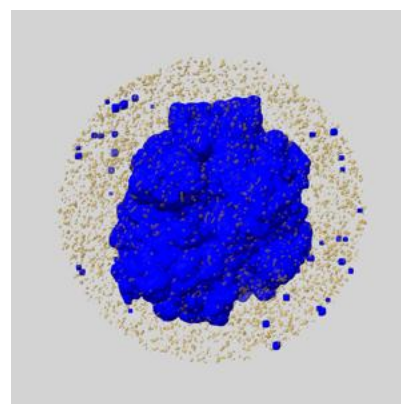
6.6.1 emd_13465_msk_1.map [i](#)



X



Y

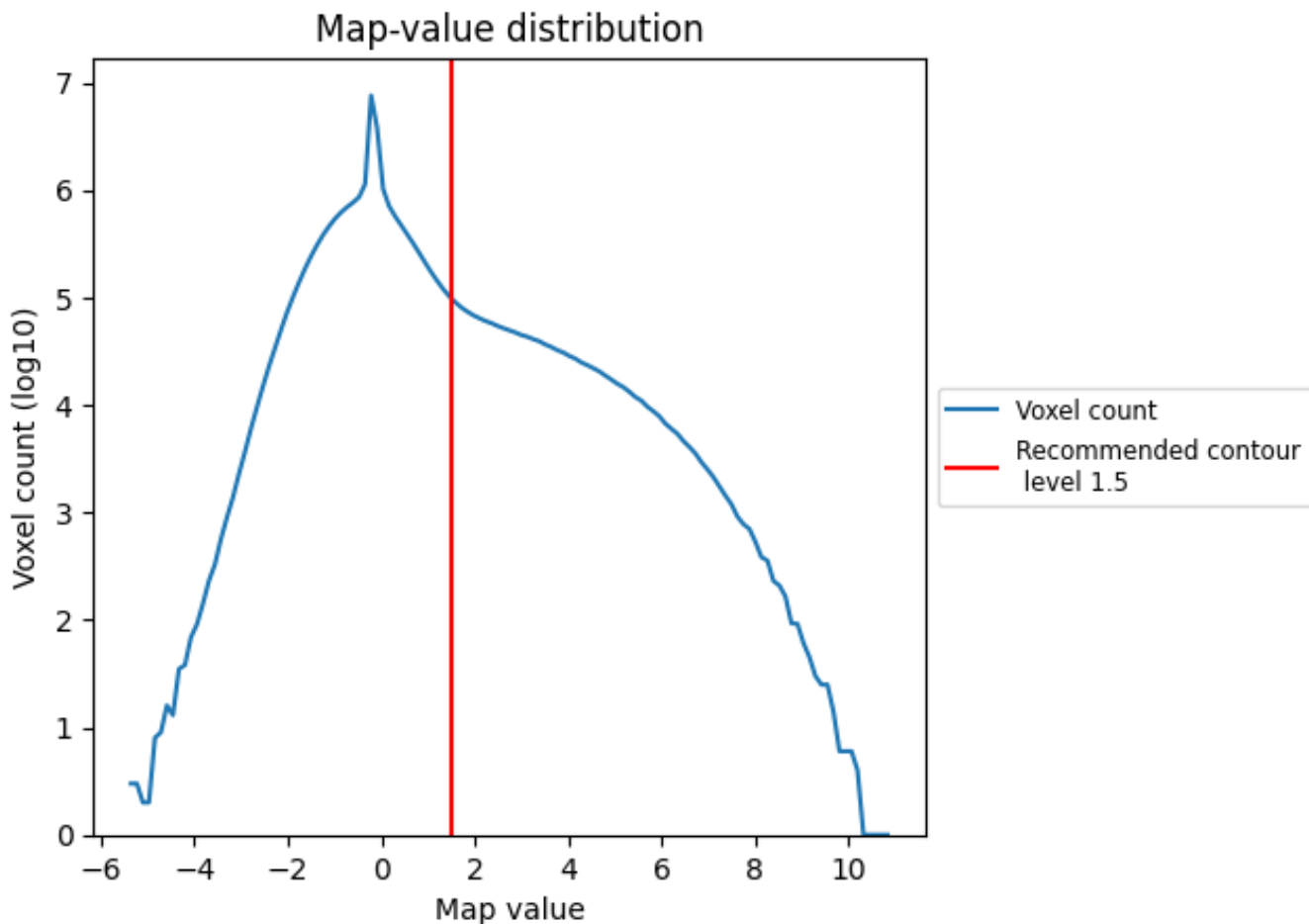


Z

7 Map analysis [i](#)

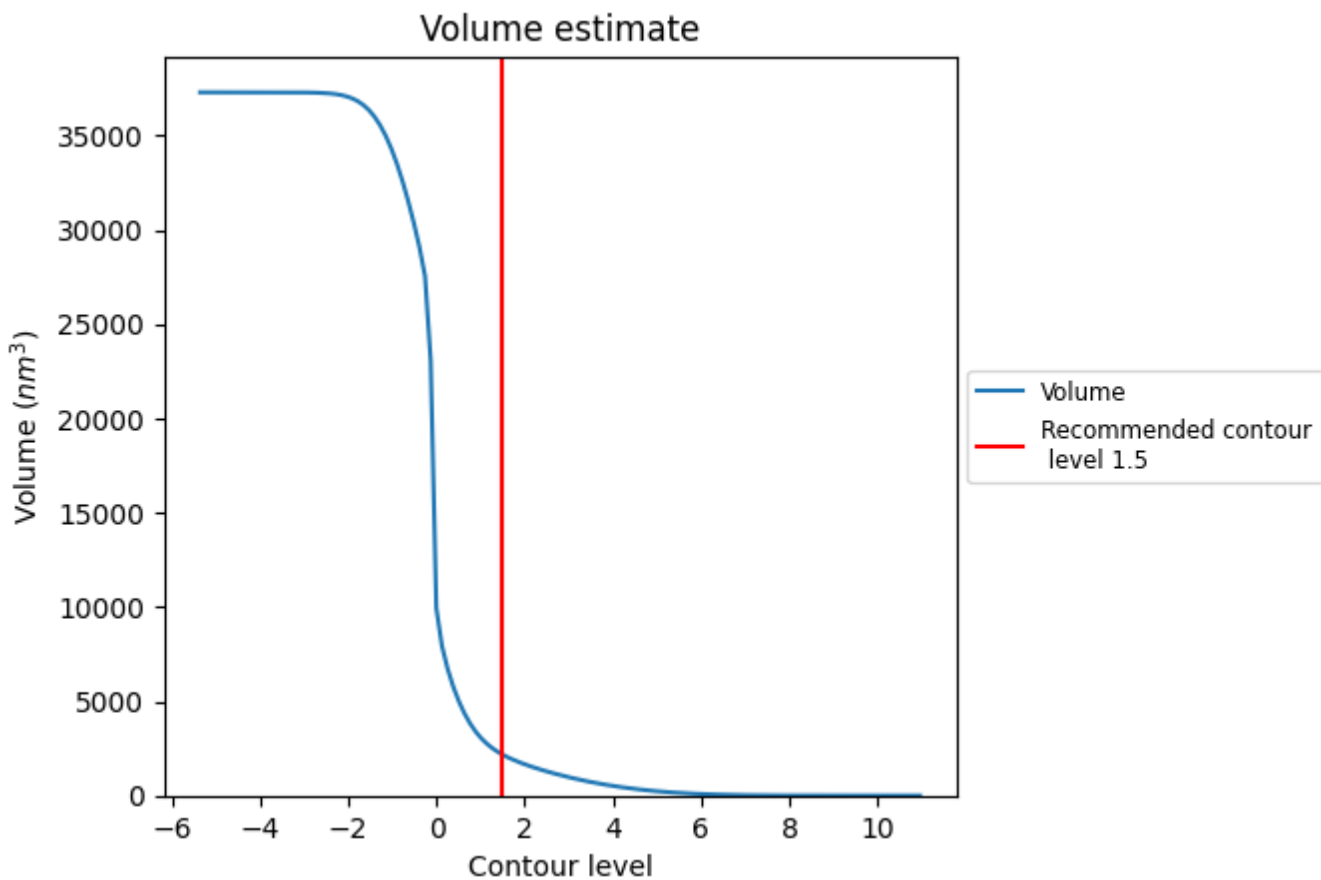
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

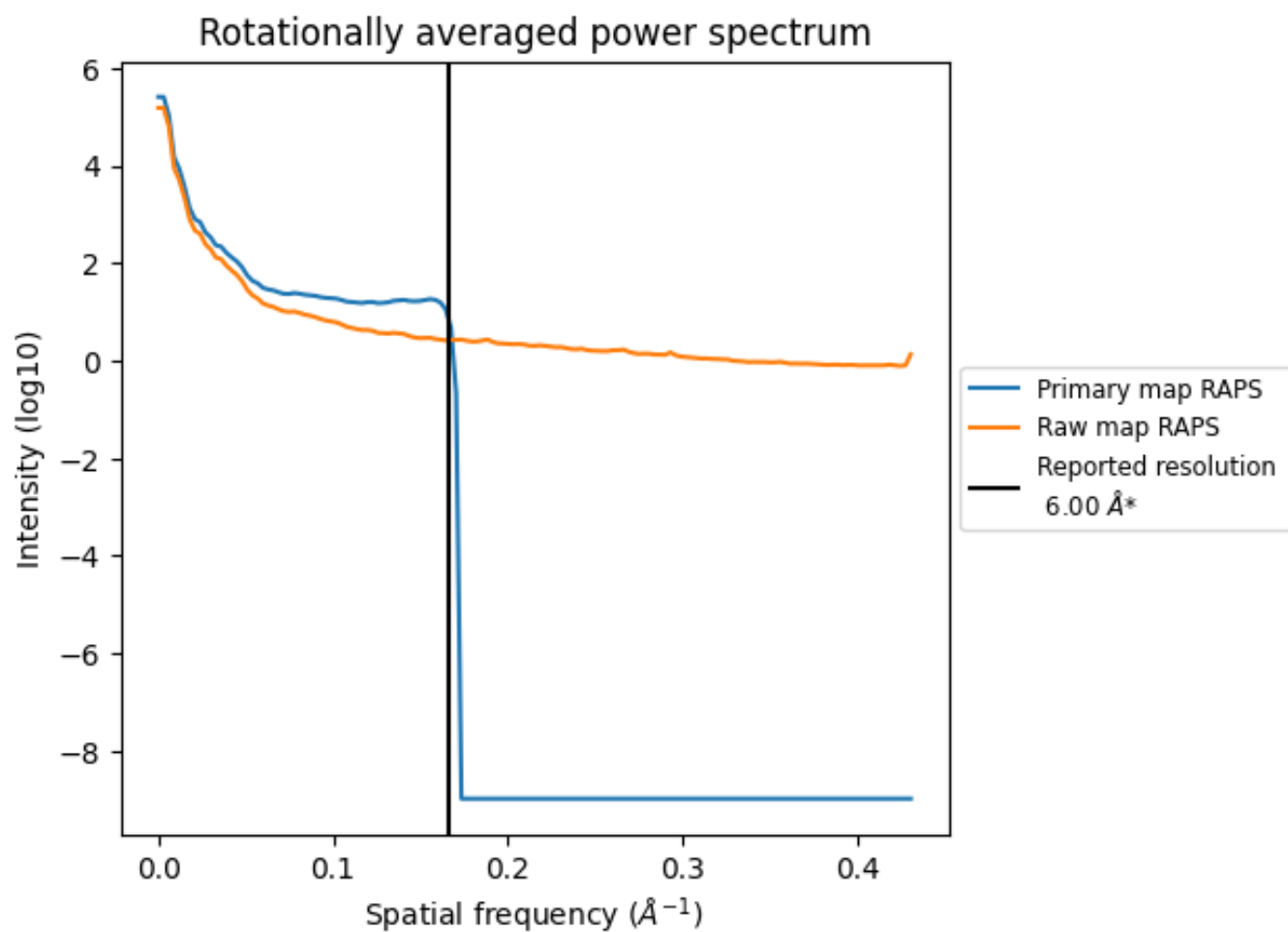
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 2172 nm^3 ; this corresponds to an approximate mass of 1962 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum [i](#)

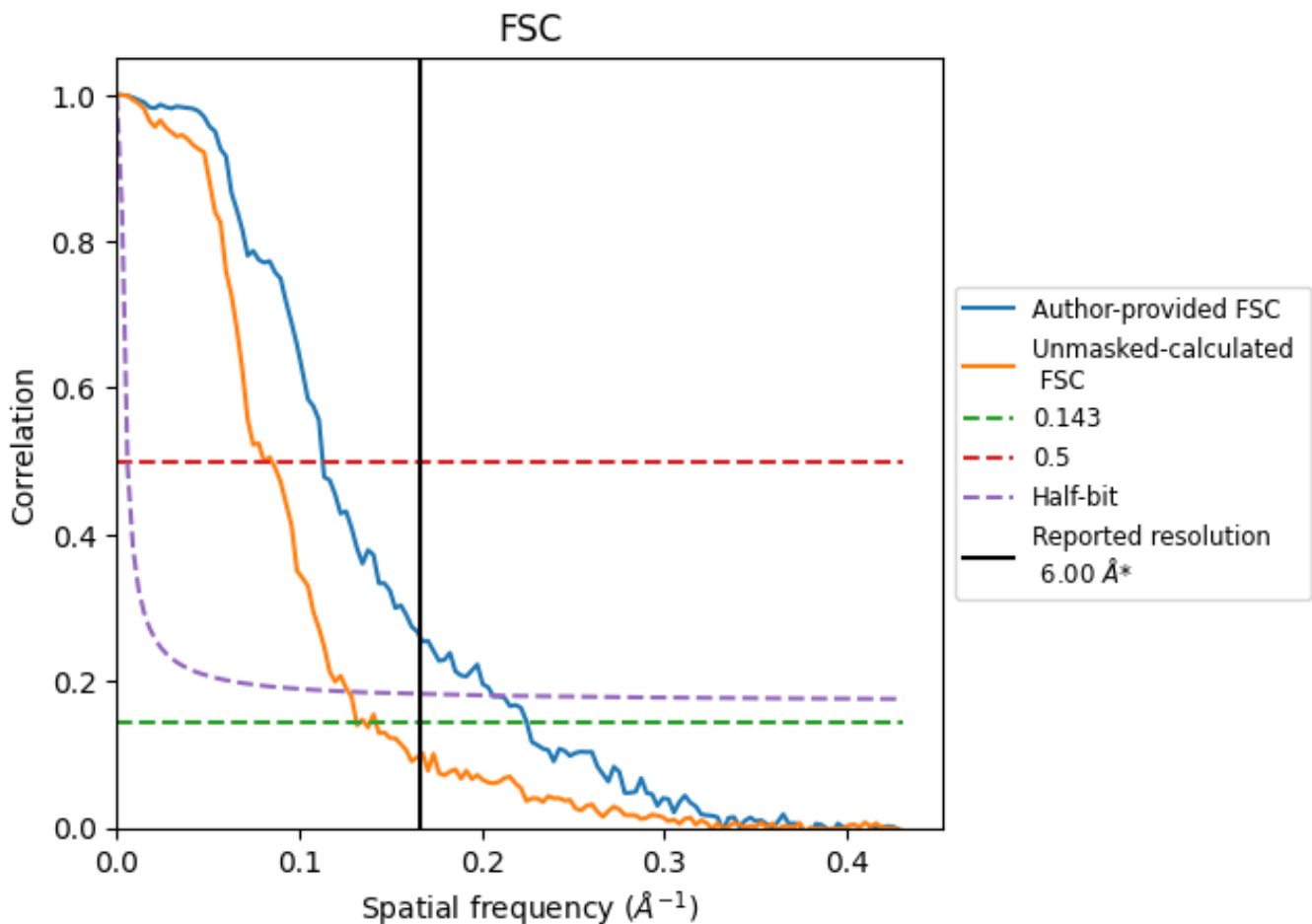


*Reported resolution corresponds to spatial frequency of 0.167 Å⁻¹

8 Fourier-Shell correlation [i](#)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.167\AA^{-1}

8.2 Resolution estimates [i](#)

| Resolution estimate (Å) | Estimation criterion (FSC cut-off) | | |
|---------------------------|------------------------------------|-------|----------|
| | 0.143 | 0.5 | Half-bit |
| Reported by author | 6.00 | - | - |
| Author-provided FSC curve | 4.45 | 8.86 | 4.85 |
| Unmasked-calculated* | 7.61 | 12.39 | 7.87 |

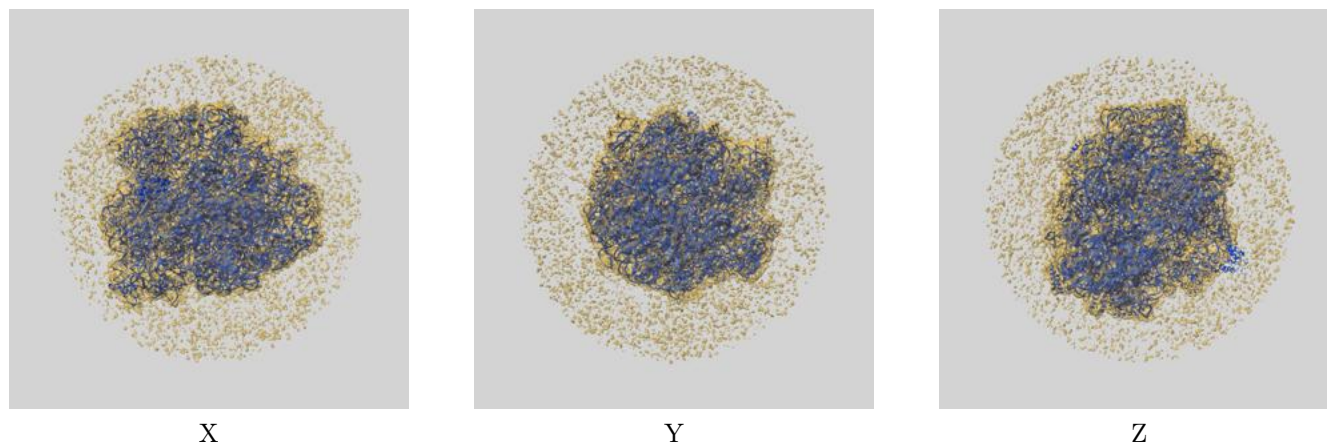
*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from author-provided FSC intersecting FSC 0.143 CUT-OFF 4.45 differs from the reported value 6.0 by more than 10 %

The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 7.61 differs from the reported value 6.0 by more than 10 %

9 Map-model fit [i](#)

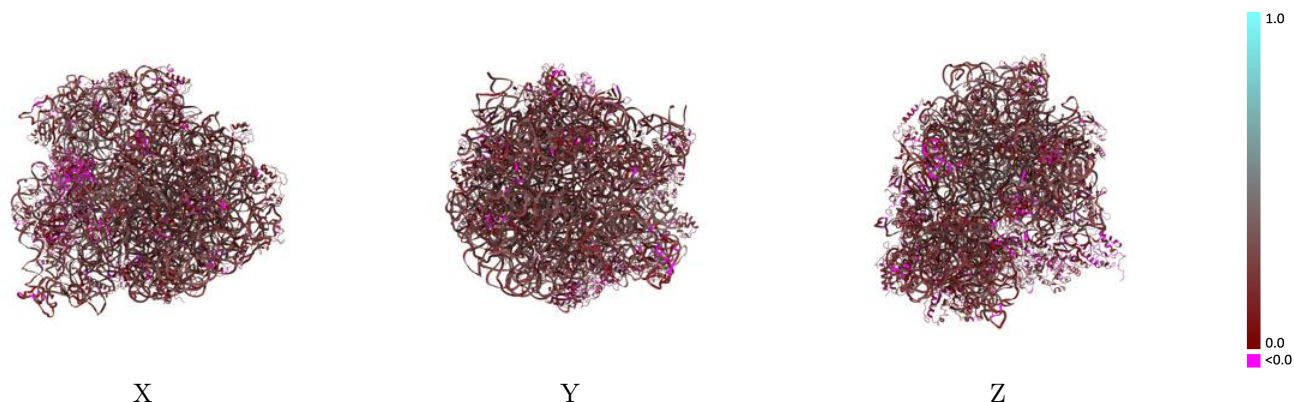
This section contains information regarding the fit between EMDB map EMD-13465 and PDB model 7PJZ. Per-residue inclusion information can be found in section 3 on page 16.

9.1 Map-model overlay [i](#)



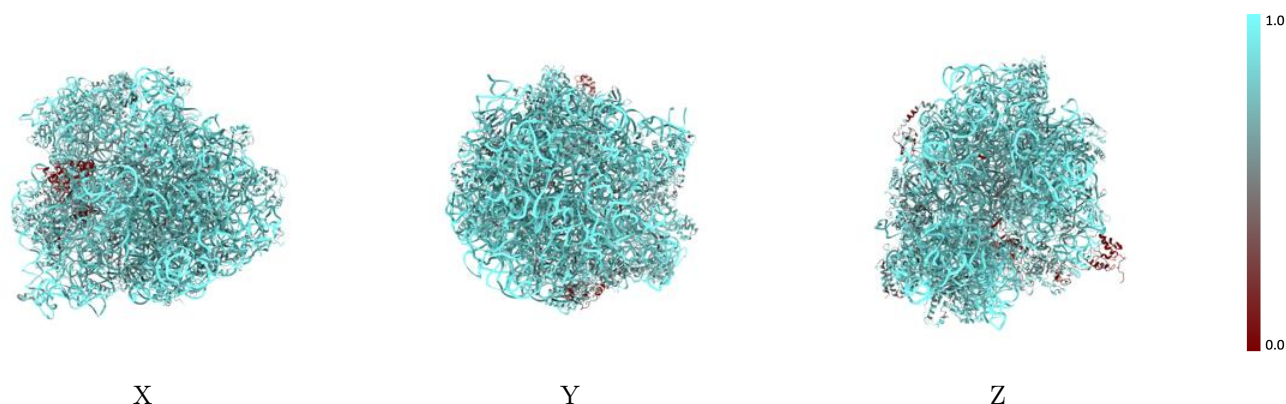
The images above show the 3D surface view of the map at the recommended contour level 1.5 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model [i](#)



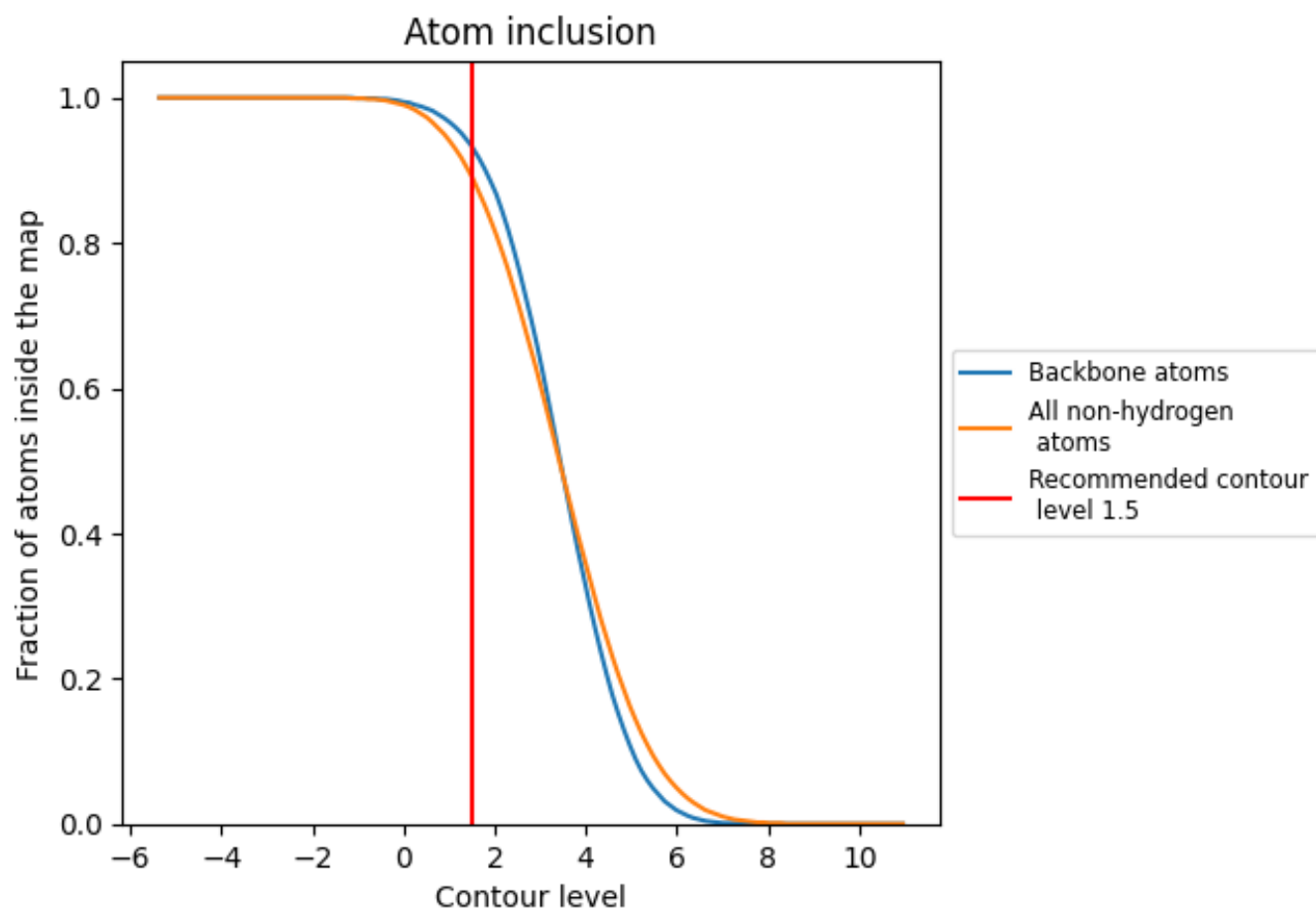
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

9.3 Atom inclusion mapped to coordinate model [i](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (1.5).







































































9.4 Atom inclusion [i](#)



At the recommended contour level, 93% of all backbone atoms, 89% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary



















































The table lists the average atom inclusion at the recommended contour level (1.5) and Q-score for the entire model and for each chain.

| Chain | Atom inclusion | Q-score |
|-------|--|--|
| All |  0.8910 |  0.2290 |
| 0 |  0.8200 |  0.2180 |
| 1 |  0.8030 |  0.1790 |
| 2 |  0.8170 |  0.2260 |
| 3 |  0.7900 |  0.1990 |
| 4 |  0.7910 |  0.1960 |
| 5 |  0.2040 |  0.0550 |
| 6 |  0.7750 |  0.1830 |
| A |  0.9630 |  0.2580 |
| B |  0.9830 |  0.2580 |
| C |  0.7770 |  0.2080 |
| D |  0.7790 |  0.1960 |
| E |  0.8000 |  0.2120 |
| F |  0.8140 |  0.1870 |
| G |  0.8280 |  0.2000 |
| H |  0.4640 |  0.1680 |
| I |  0.5470 |  0.0990 |
| J |  0.7740 |  0.1970 |
| K |  0.7310 |  0.2030 |
| L |  0.7960 |  0.2050 |
| M |  0.7970 |  0.2110 |
| N |  0.8210 |  0.1900 |
| O |  0.8780 |  0.1880 |
| P |  0.7810 |  0.1970 |
| Q |  0.8120 |  0.1760 |
| R |  0.8190 |  0.1980 |
| S |  0.7420 |  0.1830 |
| T |  0.8350 |  0.2030 |
| U |  0.8540 |  0.1950 |
| V |  0.8390 |  0.1850 |
| W |  0.8530 |  0.1850 |
| X |  0.8090 |  0.2120 |
| Y |  0.8290 |  0.1740 |
| Z |  0.8420 |  0.2060 |
| a |  0.9620 |  0.2400 |



Continued on next page...

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| Chain | Atom inclusion | Q-score |
|-------|--|--|
| b |  0.5880 |  0.1850 |
| c |  0.7970 |  0.1980 |
| d |  0.8110 |  0.1770 |
| e |  0.7740 |  0.1860 |
| f |  0.7760 |  0.1750 |
| g |  0.6770 |  0.1790 |
| h |  0.7950 |  0.1910 |
| i |  0.8110 |  0.1880 |
| j |  0.7780 |  0.1740 |
| k |  0.7740 |  0.1880 |
| l |  0.7760 |  0.2030 |
| m |  0.7630 |  0.1710 |
| n |  0.8400 |  0.1760 |
| o |  0.7830 |  0.1800 |
| p |  0.8180 |  0.1890 |
| q |  0.7960 |  0.1760 |
| r |  0.7900 |  0.1640 |
| s |  0.8080 |  0.1830 |
| t |  0.8050 |  0.1780 |
| u |  0.7460 |  0.1970 |
| v |  0.9020 |  0.2410 |
| w |  0.7110 |  0.2060 |
| x |  0.6490 |  0.1570 |
| y |  0.9050 |  0.3130 |
| z |  0.8650 |  0.2590 |