Table S4. A set of updated *RNnn* symmetries as reported in Table 14 of Levitt 200234. The symmetries allow the isotropic chemical shift terms {l,m,l,m} = {0,0,1,±1} with suppression of all other homonuclear DD terms, and CSA terms. The homonuclear J-coupling {0, 0, 0, 0} is symmetry allowed. All inequivalent solutions in the range 2 ≤ N ≤ 20, 1 ≤ n ≤ 10, and 0 ≤ n ≤ N/2 are shown. Those symmetries not found in the literature34 with n >5, are shown in ***bold italics****.*

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| R613 | R814 | R1015 | R1216 | R1417 | R1618 | R1819 | R20110 | R623 | R1025 |
| R1427 | R1829 | R834 | R1035 | R1437 | R1638 | R20310 | R643 | R1045 | R1447 |
| R1849 | R653 | R854 | R1246 | R1447 | R1658 | R1859 | ***R1065*** | ***R1467*** | ***R673*** |
| ***R874*** | ***R1075*** | ***R1276*** | ***R1678*** | ***R1879*** | ***R20710*** | ***R683*** | ***R1085*** | ***R1487*** | ***R1889*** |
| ***R894*** | ***R1095*** | ***R1497*** | ***R1698*** | ***R20910*** | ***R6103*** | ***R14107*** | ***R18109*** |  |  |