

Electronic Supplementary Information

"Assignment of carotene S* state features to the vibrationally hot ground electronic state"

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The following unscaled 282 harmonic frequencies (in units of cm^{-1}) were obtained from DFT calculations employing the B3LYP functional and a 6-311G(d,p) basis set using the Q-CHEM 3.0 package:

50, 66, 66, 79, 84, 92, 93, 111, 115,
119, 135, 136, 140, 141, 142, 154, 174, 175,
178, 196, 202, 215, 222, 229, 230, 233, 243,
248, 251, 259, 261, 271, 273, 276, 292, 294,
298, 319, 321, 344, 354, 360, 365, 374, 375,
378, 380, 383, 401, 412, 413, 432, 433, 444,
460, 483, 485, 492, 497, 507, 535, 537, 540,
546, 551, 554, 583, 583, 613, 620, 654, 677,
683, 685, 744, 747, 804, 804, 835, 846, 869,
875, 876, 879, 880, 887, 893, 896, 898, 900,
915, 925, 926, 937, 946, 946, 949, 949, 953,
954, 958, 1000, 1004, 1010, 1011, 1015, 1019, 1022,
1024, 1025, 1042, 1042, 1051, 1051, 1053, 1053, 1069,
1071, 1086, 1087, 1088, 1088, 1089, 1089, 1098, 1098,
1156, 1156, 1172, 1172, 1182, 1188, 1202, 1207, 1210,
1221, 1222, 1227, 1239, 1239, 1247, 1253, 1254, 1254,
1258, 1266, 1304, 1305, 1329, 1329, 1332, 1333, 1345,
1355, 1358, 1358, 1363, 1363, 1371, 1371, 1389, 1389,
1396, 1396, 1405, 1405, 1420, 1426, 1430, 1430, 1437,
1447, 1449, 1449, 1453, 1453, 1456, 1456, 1457, 1457,
1513, 1513, 1519, 1520, 1520, 1527, 1527, 1528, 1528,
1530, 1530, 1531, 1531, 1532, 1532, 1533, 1533, 1534,
1535, 1535, 1537, 1537, 1546, 1546, 1550, 1550, 1571,
1573, 1612, 1615, 1630, 1640, 1649, 1661, 1666, 1670,
1672, 2962, 2962, 2992, 2992, 2992, 2992, 2998, 2998,
3007, 3007, 3011, 3011, 3012, 3013, 3013, 3013, 3016,
3016, 3033, 3033, 3038, 3038, 3052, 3052, 3055, 3055,
3057, 3057, 3075, 3075, 3081, 3081, 3089, 3089, 3092,
3092, 3109, 3110, 3112, 3112, 3118, 3119, 3119, 3119,
3122, 3122, 3123, 3123, 3136, 3136, 3139, 3149, 3154,
3154, 3168, 3168