SUPPORTING INFORMATION

Computational NMR Study of Benzothienoquinoline Heterohelicenes

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Cartesian coordinates (Angstroms) of compounds 1-19, optimized at the M06-2X/cc-pVTZ//aug-cc-pVTZ level in the IEF-PCM media.

Compound: **1**. Solvent: Dimethylsulfoxide.

E^0: -1183.5830936 a.u.

C	-4.279243000	-1.453485000	0.153925000
C	-5.397397000	-0.643163000	0.530438000
C	-3.057303000	-0.840139000	-0.208935000
C	-2.921797000	0.597884000	-0.076460000
C	-4.100964000	1.355395000	0.094840000
C	-5.327778000	0.700710000	0.438694000
C	-1.702979000	1.335094000	-0.143111000
C	-1.811830000	2.708171000	-0.353784000
C	-3.056161000	3.353608000	-0.319834000
N	-4.156274000	2.708241000	-0.033227000
C	-0.305945000	0.956999000	0.053266000
C	0.558375000	2.044335000	-0.168698000
S	-0.286697000	3.524240000	-0.526556000
C	0.256446000	-0.227763000	0.552635000
C	1.620661000	-0.329153000	0.725172000
C	2.465770000	0.741210000	0.412408000
C	1.939993000	1.939732000	-0.022122000
C	-4.417132000	-2.851185000	0.047621000
C	-3.410257000	-3.620408000	-0.477747000
C	-2.242059000	-3.002323000	-0.948280000
C	-2.073921000	-1.645359000	-0.817965000
H	-6.318184000	-1.134098000	0.817666000
H	-6.184644000	1.331228000	0.631790000
H	-3.124413000	4.423917000	-0.477123000
H	-0.375143000	-1.058585000	0.825744000
H	2.040549000	-1.246159000	1.113917000
H	3.534390000	0.639814000	0.541101000
H	2.578094000	2.790053000	-0.218288000
H	-5.350330000	-3.303393000	0.358301000
H	-3.530395000	-4.691238000	-0.566676000
H	-1.475259000	-3.593135000	-1.430092000
H	-1.188721000	-1.182665000	-1.226360000

Compound: **2**. Solvent: Chloroform.

E^0: -1183.5913875 a.u.

C	-3.051157000	2.021476000	0.113427000
C	-4.270610000	1.281389000	0.053409000
C	-1.848613000	1.403431000	0.107712000
C	-1.739113000	-0.022932000	0.041868000
C	-2.927083000	-0.787352000	0.015941000
C	-4.215241000	-0.125419000	0.010832000
C	-0.501599000	-0.728778000	0.018987000
C	-0.569174000	-2.118079000	0.025647000
C	-1.801554000	-2.785896000	0.015663000
N	-2.938015000	-2.143289000	-0.000367000
C	0.885552000	-0.274294000	-0.008474000
C	1.779009000	-1.363517000	0.012629000
S	0.977288000	-2.907893000	0.038427000
C	1.442868000	1.011937000	-0.076076000
C	2.812560000	1.179152000	-0.094893000
C	3.673070000	0.079636000	-0.051617000
C	3.161159000	-1.199910000	-0.002872000
C	-5.522123000	1.928833000	0.047492000
C	-6.683153000	1.201204000	-0.000319000
C	-6.628313000	-0.202224000	-0.042080000
C	-5.419808000	-0.853129000	-0.035645000
H	-3.105447000	3.101184000	0.170482000
H	-0.960220000	2.004345000	0.177268000
H	-1.837123000	-3.869766000	0.014745000
H	0.824399000	1.890648000	-0.131282000
H	3.222659000	2.177784000	-0.148431000
H	4.743492000	0.230347000	-0.065131000
H	3.814315000	-2.061274000	0.017674000
H	-5.549292000	3.010616000	0.081538000
H	-7.640717000	1.703623000	-0.005290000
H	-7.546330000	-0.772755000	-0.079827000
H	-5.371942000	-1.931062000	-0.067575000

Compound: **3**. Solvent: Chloroform.

E^0: -1183.5790109 a.u.

C	-0.904060000	-1.315558000	0.771266000
C	0.256298000	-0.625568000	0.376230000
C	-2.139372000	-0.741945000	0.623439000
C	-2.283493000	0.552356000	0.074934000
C	-1.101398000	1.286241000	-0.210487000
C	0.155752000	0.655216000	-0.092619000
C	-3.536312000	1.235325000	-0.090328000
C	-3.457078000	2.611630000	-0.255031000
C	-2.227019000	3.257768000	-0.509174000
N	-1.097244000	2.616462000	-0.543269000
C	-4.917902000	0.796085000	-0.002171000
C	-5.777152000	1.886742000	0.109643000
S	-4.983616000	3.412520000	-0.103955000
C	-5.511279000	-0.510444000	-0.115528000
C	-6.896085000	-0.644528000	0.168936000
C	-7.689019000	0.507556000	0.441418000
C	-7.162421000	1.756106000	0.355403000
C	-7.502831000	-1.917334000	0.091265000
C	-6.795983000	-3.010879000	-0.329234000
C	-5.455172000	-2.858135000	-0.723006000
C	-4.831575000	-1.641755000	-0.619772000
H	-0.821021000	-2.301235000	1.208072000
H	1.224992000	-1.094726000	0.478688000
H	-3.013607000	-1.268960000	0.972154000
H	1.030388000	1.235422000	-0.352156000
H	-2.208087000	4.324685000	-0.704719000
H	-8.741033000	0.370885000	0.655544000
H	-7.776384000	2.636905000	0.481268000
H	-8.552340000	-2.003561000	0.342448000
H	-7.273335000	-3.978533000	-0.396722000
H	-4.913827000	-3.703252000	-1.125777000
H	-3.817095000	-1.537377000	-0.971268000

Compound: **4**. Solvent: Chloroform.

E^0: -1337.2701006 a.u.

C	0.570974000	-3.023477000	1.402984000
C	0.263196000	-1.732680000	1.029541000
C	1.243480000	-0.920017000	0.443896000
C	1.184510000	0.475923000	0.030498000
C	2.457940000	0.956730000	-0.254607000
S	3.696251000	-0.259540000	-0.225315000
C	2.542216000	-1.441770000	0.316793000
C	2.851624000	-2.753507000	0.668572000
C	1.854293000	-3.542120000	1.202447000
C	0.107694000	1.415503000	-0.005171000
C	0.491560000	2.778534000	0.038317000
N	1.758579000	3.213251000	-0.201945000
C	2.694999000	2.332067000	-0.416307000
C	-1.304163000	1.112536000	-0.016469000
C	-2.190221000	2.088733000	0.463347000
C	-1.735030000	3.418247000	0.698008000
C	-0.463570000	3.770845000	0.400487000
C	-1.873109000	-0.081876000	-0.602284000
C	-3.240029000	-0.376014000	-0.379744000
C	-4.060425000	0.560061000	0.317366000
C	-3.567272000	1.769552000	0.664769000
C	-1.157627000	-0.919911000	-1.485105000
C	-1.733912000	-2.037260000	-2.031395000
C	-3.059690000	-2.380472000	-1.720295000
C	-3.800005000	-1.552499000	-0.919501000
H	-0.189660000	-3.640986000	1.857610000
H	-0.729202000	-1.349039000	1.203853000
H	3.856033000	-3.132316000	0.547177000
H	2.074001000	-4.560098000	1.489945000
H	3.686883000	2.696335000	-0.655662000
H	-2.447706000	4.152889000	1.046959000
H	-0.117393000	4.791356000	0.473304000
H	-5.097818000	0.310347000	0.493865000
H	-4.205895000	2.522669000	1.105928000
H	-0.144935000	-0.666132000	-1.756257000
H	-1.164580000	-2.653430000	-2.712340000
H	-3.500660000	-3.272935000	-2.140171000
H	-4.839334000	-1.770496000	-0.713097000

Compound: **5**. Solvent: Chloroform.

E^0: -1337.221132 a.u.

C	-0.770579000	-2.087989000	0.075146000
C	-0.190431000	-3.333254000	0.032415000
C	1.203445000	-3.442645000	-0.008429000
C	1.989891000	-2.312765000	-0.004839000
C	1.422271000	-1.028380000	0.038759000
C	0.015712000	-0.924127000	0.078583000
C	2.223197000	0.193413000	0.045148000
C	1.555711000	1.451807000	0.084327000
C	0.118090000	1.500389000	0.123520000
C	-0.611716000	0.371619000	0.121753000
C	3.611199000	0.178625000	0.013873000
C	4.378267000	1.346684000	0.019052000
C	3.694432000	2.600923000	0.038539000
C	2.301906000	2.618294000	0.076493000
C	5.816154000	1.387385000	-0.006840000
C	6.401043000	2.638476000	-0.049165000
C	5.628789000	3.828247000	-0.036100000
N	4.335031000	3.818120000	0.014174000
C	6.822940000	0.336485000	0.000364000
C	8.123381000	0.877243000	-0.061287000
S	8.133344000	2.614577000	-0.107179000
C	6.710500000	-1.061293000	0.073546000
C	7.840425000	-1.852191000	0.066487000
C	9.116663000	-1.286768000	-0.010711000
C	9.266599000	0.082169000	-0.071331000
H	-1.847986000	-1.985765000	0.106410000
H	-0.805297000	-4.222628000	0.030002000
H	1.667816000	-4.418560000	-0.042948000
H	3.062648000	-2.433467000	-0.038084000
H	-0.357873000	2.471939000	0.154163000
H	-1.693100000	0.411959000	0.151546000
H	4.115058000	-0.767933000	-0.029465000
H	1.808196000	3.581187000	0.095293000
H	6.126252000	4.792053000	-0.063113000
H	5.752227000	-1.545507000	0.149734000
H	7.734727000	-2.926352000	0.124535000
H	9.989841000	-1.924076000	-0.016835000
H	10.247459000	0.534320000	-0.122077000

Compound: **6**. Solvent: Chloroform.

E^0: -1337.2266236 a.u.

C	0.187495000	-1.023345000	0.051946000
C	0.868261000	0.224728000	0.027155000
C	-1.167612000	-1.102869000	0.043613000
C	-1.982309000	0.062192000	0.010510000
C	-1.336091000	1.319926000	0.013151000
C	0.103336000	1.396383000	0.013843000
C	-3.409179000	0.049631000	-0.007885000
C	-4.047644000	1.282176000	0.021446000
C	-3.315835000	2.481407000	0.033614000
N	-2.012912000	2.499887000	0.020290000
C	-4.377677000	-1.040251000	-0.049241000
C	-5.697974000	-0.549196000	-0.019451000
S	-5.780581000	1.188088000	0.033898000
C	-4.210479000	-2.431200000	-0.131864000
C	-5.309444000	-3.265099000	-0.160370000
C	-6.606869000	-2.749035000	-0.111237000
C	-6.809613000	-1.386689000	-0.044952000
C	2.312704000	0.311225000	0.025241000
C	2.921790000	1.586513000	0.012575000
C	2.103002000	2.755683000	0.002269000
C	0.753418000	2.668004000	0.003205000
C	3.150380000	-0.824492000	0.034259000
C	4.516795000	-0.699063000	0.031807000
C	5.116037000	0.571022000	0.019964000
C	4.327748000	1.691356000	0.010277000
H	0.751456000	-1.942948000	0.083748000
H	-1.621658000	-2.076383000	0.082626000
H	-3.832070000	3.435115000	0.049453000
H	-3.232993000	-2.877398000	-0.188476000
H	-5.160931000	-4.333764000	-0.225168000
H	-7.455607000	-3.418271000	-0.132690000
H	-7.807685000	-0.971966000	-0.017409000
H	2.589589000	3.722931000	-0.006665000
H	0.138466000	3.554295000	-0.004309000
H	2.722911000	-1.815739000	0.042206000
H	5.136252000	-1.585436000	0.038564000
H	6.193641000	0.660312000	0.018056000
H	4.772966000	2.678242000	0.000680000

Compound: **7**. Solvent: Chloroform.

E^0: -1337.2154644 a.u.

C	-3.227554000	-4.111981000	0.497325000
C	-3.313334000	-2.758049000	0.839636000
C	-2.255103000	-1.903134000	0.616693000
C	-1.071656000	-2.382730000	0.034785000
C	-0.982264000	-3.763760000	-0.216910000
C	-2.057506000	-4.627270000	-0.018940000
C	0.194160000	-1.707475000	-0.231176000
C	1.190581000	-2.633290000	-0.520334000
S	0.617626000	-4.265795000	-0.683173000
C	0.592716000	-0.336428000	-0.156229000
C	1.981732000	-0.097977000	-0.058738000
N	2.933926000	-1.051248000	-0.265179000
C	2.546254000	-2.261514000	-0.556636000
C	-0.287343000	0.804682000	-0.211354000
C	0.189289000	2.073841000	0.153426000
C	1.577109000	2.234271000	0.433637000
C	2.443269000	1.205804000	0.270258000
C	-1.594415000	0.702027000	-0.782186000
C	-2.418944000	1.770964000	-0.859581000
C	-2.024116000	3.042172000	-0.348298000
C	-0.713578000	3.205170000	0.154215000
C	-2.910715000	4.137948000	-0.367562000
C	-2.522880000	5.362428000	0.108491000
C	-1.225431000	5.529047000	0.619852000
C	-0.342760000	4.478724000	0.637236000
H	-4.071955000	-4.765424000	0.667163000
H	-4.217911000	-2.377278000	1.292544000
H	-1.902699000	-0.239667000	-1.209340000
H	-1.962018000	-5.681235000	-0.239992000
H	3.311132000	-2.998688000	-0.773943000
H	1.963812000	3.205190000	0.702107000
H	3.509499000	1.339703000	0.388200000
H	-2.335947000	-0.868834000	0.913182000
H	-3.392720000	1.678539000	-1.323323000
H	-3.907232000	3.990934000	-0.764457000
H	-3.209681000	6.197428000	0.094501000
H	-0.919555000	6.491999000	1.005275000
H	0.642979000	4.638291000	1.047375000

Compound: **8**. Solvent: Dimethylsulfoxide.

E^0: -1337.224834 a.u.

C	1.278072000	-1.807962000	-0.021654000
C	2.622218000	-1.762613000	-0.031047000
C	0.494901000	-0.600038000	-0.015157000
C	1.151935000	0.664537000	-0.018745000
C	2.611156000	0.706265000	-0.029203000
C	3.329447000	-0.507610000	-0.035138000
C	-0.892246000	-0.668184000	-0.005302000
C	-1.693178000	0.474229000	0.001455000
C	-1.032126000	1.740968000	-0.002096000
C	0.362945000	1.802617000	-0.012015000
C	-3.131288000	0.484513000	0.011778000
C	-3.744295000	1.722886000	0.017276000
C	-2.996612000	2.928161000	0.013024000
N	-1.701046000	2.943887000	0.003786000
C	-4.112376000	-0.589317000	0.017870000
C	-5.426033000	-0.077794000	0.027703000
S	-5.476508000	1.659907000	0.029636000
C	-3.962603000	-1.985570000	0.015536000
C	-5.073770000	-2.802860000	0.022692000
C	-6.365126000	-2.266067000	0.032357000
C	-6.550260000	-0.899738000	0.034946000
C	4.734024000	-0.486070000	-0.045117000
C	5.421309000	0.704920000	-0.049264000
C	4.712706000	1.911453000	-0.043522000
C	3.335595000	1.909623000	-0.033699000
H	0.754985000	-2.755558000	-0.018697000
H	3.205313000	-2.674689000	-0.035807000
H	-1.335745000	-1.649019000	-0.003029000
H	0.795260000	2.792379000	-0.014133000
H	-3.513914000	3.881768000	0.017554000
H	-2.990505000	-2.447320000	0.008244000
H	-4.941431000	-3.875622000	0.020793000
H	-7.222590000	-2.924351000	0.037795000
H	-7.542720000	-0.470978000	0.042408000
H	5.267820000	-1.428018000	-0.049529000
H	6.502502000	0.710959000	-0.056932000
H	5.247343000	2.851322000	-0.046836000
H	2.815287000	2.856054000	-0.029510000

Compound: **9**. Solvent: Chloroform.

E^0: -1337.2167623 a.u.

C	-5.760445000	-1.891262000	0.198288000
C	-6.890294000	-1.116862000	0.611929000
C	-4.560767000	-1.239770000	-0.171916000
C	-4.459641000	0.197119000	-0.012121000
C	-5.652485000	0.922055000	0.195729000
C	-6.855517000	0.230014000	0.548484000
C	-3.260627000	0.966385000	-0.091620000
C	-3.410778000	2.339335000	-0.280681000
C	-4.669445000	2.952912000	-0.207700000
N	-5.745482000	2.275512000	0.092608000
C	-1.854715000	0.624065000	0.062812000
C	-1.029415000	1.718255000	-0.165980000
S	-1.907861000	3.184438000	-0.471733000
C	-1.257629000	-0.574359000	0.551195000
C	0.090731000	-0.664870000	0.688470000
C	0.950672000	0.420417000	0.352225000
C	0.387929000	1.647828000	-0.070566000
C	1.237559000	2.735561000	-0.363694000
C	2.595947000	2.605121000	-0.250957000
C	3.160608000	1.383738000	0.165034000
C	2.354200000	0.317472000	0.461612000
C	-5.864268000	-3.289347000	0.064512000
C	-4.847590000	-4.021479000	-0.493241000
C	-3.703413000	-3.364376000	-0.969460000
C	-3.567491000	-2.006859000	-0.813576000
H	-7.793632000	-1.636282000	0.904706000
H	-7.722630000	0.836474000	0.769995000
H	-4.768979000	4.023598000	-0.346063000
H	-1.881720000	-1.403670000	0.844771000
H	0.536048000	-1.573498000	1.072087000
H	0.808039000	3.675199000	-0.687888000
H	3.239830000	3.442033000	-0.482966000
H	4.234543000	1.292652000	0.251153000
H	2.781785000	-0.622411000	0.786628000
H	-6.780371000	-3.771819000	0.380666000
H	-4.942600000	-5.092905000	-0.603204000
H	-2.930580000	-3.925389000	-1.476661000
H	-2.701995000	-1.512531000	-1.227762000

Compound: **10**. Solvent: Chloroform.

E^0: -1337.2168803 a.u.

C	0.197156000	-1.297698000	0.778305000
C	1.383428000	-0.601157000	0.390507000
C	-1.023042000	-0.729503000	0.655158000
C	-1.179248000	0.599184000	0.142370000
C	-0.020876000	1.364483000	-0.107154000
C	1.282644000	0.737043000	-0.039380000
C	-2.441523000	1.248990000	-0.002114000
C	-2.407442000	2.637950000	-0.112259000
C	-1.199382000	3.318496000	-0.320583000
N	-0.052021000	2.695221000	-0.372491000
C	-3.810865000	0.762800000	0.055795000
C	-4.704879000	1.818687000	0.209201000
S	-3.962406000	3.380603000	0.067480000
C	-4.359599000	-0.554304000	-0.128255000
C	-5.742002000	-0.747009000	0.134089000
C	-6.573510000	0.364021000	0.454546000
C	-6.086886000	1.631823000	0.434152000
C	2.650882000	-1.211433000	0.465629000
C	3.781551000	-0.517573000	0.117752000
C	3.680664000	0.816747000	-0.309902000
C	2.456563000	1.434458000	-0.381156000
C	-6.306557000	-2.033183000	-0.013163000
C	-5.560851000	-3.080942000	-0.479829000
C	-4.221872000	-2.865801000	-0.851189000
C	-3.638870000	-1.636868000	-0.681238000
H	0.294564000	-2.293557000	1.191549000
H	-1.896969000	-1.261509000	0.996918000
H	-1.193815000	4.393987000	-0.459300000
H	-7.622380000	0.183864000	0.651260000
H	-6.731070000	2.484848000	0.595057000
H	2.715394000	-2.237993000	0.803494000
H	4.750944000	-0.993530000	0.174532000
H	4.574689000	1.360598000	-0.583098000
H	2.372567000	2.461292000	-0.704229000
H	-7.354904000	-2.165228000	0.222408000
H	-6.005855000	-4.058748000	-0.600706000
H	-3.649838000	-3.672129000	-1.289475000
H	-2.624443000	-1.483515000	-1.014910000

Compound: **11**. Solvent: Chloroform.

E^0: -1337.2193024 a.u.

C	-1.972712000	-1.547222000	-0.116816000
C	-3.166547000	-0.764599000	0.196096000
C	-0.763734000	-0.887205000	-0.413549000
C	-0.685096000	0.568227000	-0.320699000
C	-1.884933000	1.296346000	-0.330061000
C	-3.143924000	0.623670000	-0.016088000
C	0.517400000	1.324047000	-0.284788000
C	0.416667000	2.684447000	-0.579947000
C	-0.830361000	3.289338000	-0.751303000
N	-1.944032000	2.625726000	-0.560860000
C	1.887661000	0.981984000	0.091488000
C	2.755878000	2.075444000	-0.073177000
S	1.941509000	3.520822000	-0.604897000
C	2.403392000	-0.173054000	0.697233000
C	3.738346000	-0.241517000	1.035800000
C	4.597726000	0.833556000	0.787028000
C	4.110332000	2.003731000	0.243974000
C	-2.023199000	-2.945155000	-0.235150000
C	-0.941425000	-3.667647000	-0.685066000
C	0.221921000	-3.002593000	-1.074149000
C	0.299384000	-1.635054000	-0.944638000
C	-4.317985000	1.371398000	0.156005000
C	-5.484732000	0.765763000	0.562394000
C	-5.502491000	-0.607964000	0.814821000
C	-4.362614000	-1.357663000	0.630324000
H	-0.907658000	4.342545000	-0.995570000
H	1.755555000	-1.006948000	0.918852000
H	4.122347000	-1.136144000	1.505419000
H	5.644402000	0.758645000	1.047330000
H	4.755201000	2.857810000	0.090539000
H	-2.939597000	-3.470111000	-0.011861000
H	-1.011675000	-4.742618000	-0.777841000
H	1.052319000	-3.553452000	-1.493639000
H	1.183841000	-1.121157000	-1.289289000
H	-4.279641000	2.435538000	-0.020580000
H	-6.381329000	1.354498000	0.699630000
H	-6.411128000	-1.085994000	1.154325000
H	-4.398712000	-2.417497000	0.833268000

Compound: **12**. Solvent: Chloroform.

E^0: -1337.2164596 a.u.

C	2.598340000	-0.026921000	1.017577000
C	3.456884000	1.034175000	0.677678000
C	1.259344000	0.043731000	0.736748000
C	0.704189000	1.178365000	0.103120000
C	1.556738000	2.289516000	-0.133000000
C	2.939817000	2.173144000	0.124861000
C	-0.690127000	1.345298000	-0.201794000
C	-1.102337000	2.646844000	-0.452868000
C	-0.176546000	3.694351000	-0.650949000
N	1.106709000	3.516156000	-0.550048000
C	-1.820943000	0.436549000	-0.186660000
C	-3.015332000	1.125391000	-0.211855000
S	-2.821269000	2.827188000	-0.473218000
C	-1.871712000	-1.012442000	-0.274547000
C	-3.102749000	-1.672596000	-0.053237000
C	-4.322178000	-0.899309000	0.160809000
C	-4.291359000	0.499264000	-0.011205000
C	-5.476757000	1.247708000	0.079534000
C	-6.672792000	0.634642000	0.360805000
C	-6.707746000	-0.748424000	0.568526000
C	-5.557275000	-1.495802000	0.468242000
C	-3.136531000	-3.075013000	-0.145449000
C	-2.024595000	-3.800363000	-0.502463000
C	-0.838610000	-3.136498000	-0.824315000
C	-0.771064000	-1.768012000	-0.715793000
H	2.994553000	-0.900815000	1.516116000
H	4.515263000	0.960748000	0.886110000
H	0.610633000	-0.763046000	1.040386000
H	3.561963000	3.028683000	-0.099029000
H	-0.530322000	4.685380000	-0.914421000
H	-5.440442000	2.321121000	-0.056696000
H	-7.578997000	1.219229000	0.434633000
H	-7.643152000	-1.234417000	0.808883000
H	-5.616950000	-2.560242000	0.636659000
H	-4.061680000	-3.602582000	0.029497000
H	-2.083236000	-4.877474000	-0.574702000
H	0.020065000	-3.692428000	-1.174615000
H	0.132834000	-1.258370000	-1.010856000

Compound: **13**. Solvent: Chloroform.

E^0: -1490.8477048 a.u.

C	-4.978967000	-0.797143000	3.281405000
C	-5.741344000	-1.989949000	3.073653000
C	-3.653886000	-0.717674000	2.793990000
C	-3.122196000	-1.810787000	2.005779000
C	-3.824784000	-3.035519000	2.025984000
C	-5.168247000	-3.078324000	2.520467000
C	-1.882420000	-1.803560000	1.292415000
C	-1.319701000	-3.057792000	1.044713000
C	-2.054898000	-4.238194000	1.215314000
N	-3.299929000	-4.220600000	1.612784000
C	-1.022189000	-0.751860000	0.771536000
C	0.212041000	-1.246071000	0.407229000
S	0.307474000	-2.975147000	0.460742000
C	-1.331692000	0.621191000	0.414100000
C	-0.285972000	1.482623000	0.010465000
C	1.076712000	0.974382000	-0.111436000
C	1.308458000	-0.410668000	0.006551000
C	2.593764000	-0.932995000	-0.213241000
C	3.644155000	-0.102903000	-0.519131000
C	3.431378000	1.277167000	-0.603616000
C	2.174697000	1.800888000	-0.405348000
C	-0.606779000	2.802384000	-0.351577000
C	-1.907531000	3.248294000	-0.364407000
C	-2.945138000	2.370612000	-0.042789000
C	-2.657357000	1.081546000	0.337613000
C	-2.866196000	0.379563000	3.196680000
C	-3.390736000	1.388117000	3.966459000
C	-4.734211000	1.349587000	4.367468000
C	-5.508094000	0.266073000	4.038158000
H	-6.761408000	-2.021423000	3.434228000
H	-5.691863000	-4.020127000	2.433494000
H	-1.614395000	-5.199091000	0.974390000
H	2.758177000	-1.999031000	-0.120451000
H	4.631549000	-0.512269000	-0.679861000
H	4.258110000	1.937666000	-0.825561000
H	2.043467000	2.870131000	-0.473004000
H	0.174177000	3.479034000	-0.663565000
H	-2.125839000	4.265860000	-0.657394000
H	-3.974110000	2.697415000	-0.101757000
H	-3.465549000	0.401083000	0.555623000
H	-1.823798000	0.415433000	2.918951000
H	-2.760631000	2.213074000	4.269151000

H	-5.146096000	2.154934000	4.959865000
H	-6.532278000	0.195994000	4.381927000

Compound: **14**. Solvent: Chloroform.

E^0: -1490.8542921 a.u.

C	2.706317000	-0.011062000	0.867542000
C	3.465759000	1.150384000	0.525469000
C	1.376073000	-0.073559000	0.636794000
C	0.668186000	1.025630000	0.050347000
C	1.360946000	2.234982000	-0.166413000
C	2.796420000	2.283166000	0.020970000
C	-0.736244000	1.017375000	-0.204772000
C	-1.333014000	2.262180000	-0.393805000
C	-0.560726000	3.419248000	-0.566192000
N	0.744466000	3.395527000	-0.507931000
C	-1.734018000	-0.038410000	-0.193581000
C	-3.009585000	0.480623000	-0.150416000
S	-3.062196000	2.203665000	-0.346982000
C	-1.590096000	-1.474433000	-0.352540000
C	-2.710877000	-2.307331000	-0.127592000
C	-4.014085000	-1.719061000	0.164717000
C	-4.179754000	-0.323026000	0.060615000
C	-5.451084000	0.251250000	0.227003000
C	-6.540994000	-0.531719000	0.517420000
C	-6.379976000	-1.914355000	0.658449000
C	-5.143890000	-2.492102000	0.483703000
C	-2.558022000	-3.695160000	-0.291791000
C	-1.372164000	-4.243170000	-0.720004000
C	-0.299560000	-3.408265000	-1.042356000
C	-0.413890000	-2.050138000	-0.865251000
C	4.860586000	1.197845000	0.717388000
C	5.569311000	2.331516000	0.411883000
C	4.901546000	3.460839000	-0.090199000
C	3.541438000	3.439736000	-0.276633000
H	3.217597000	-0.843943000	1.333241000
H	0.821254000	-0.946731000	0.942568000
H	-1.038329000	4.372059000	-0.765939000
H	-5.565175000	1.324529000	0.142994000
H	-7.514379000	-0.080810000	0.650047000
H	-7.230719000	-2.534001000	0.905943000
H	-5.051927000	-3.560973000	0.602375000
H	-3.396413000	-4.352031000	-0.117141000
H	-1.287039000	-5.313423000	-0.847021000
H	0.612956000	-3.824011000	-1.446718000
H	0.401866000	-1.408348000	-1.160223000
H	5.362183000	0.322883000	1.111041000
H	6.640297000	2.359802000	0.559060000

H	5.463875000	4.353012000	-0.329945000
H	3.021202000	4.305615000	-0.657765000

Compound: **15**. Solvent: Chloroform.

E^0: -1490.846512 a.u.

C	-6.574430000	0.575564000	-1.625621000
C	-7.531633000	1.378634000	-0.941325000
C	-5.250608000	1.019577000	-1.765584000
C	-4.832034000	2.157161000	-0.981808000
C	-5.834552000	3.027478000	-0.487811000
C	-7.193991000	2.603859000	-0.476590000
C	-3.494704000	2.481710000	-0.590513000
C	-3.270607000	3.765278000	-0.103100000
C	-4.336028000	4.644685000	0.150306000
N	-5.577290000	4.260144000	0.033671000
C	-2.290395000	1.676177000	-0.486028000
C	-1.202627000	2.425702000	-0.058878000
S	-1.610958000	4.076805000	0.298776000
C	-2.127643000	0.269641000	-0.634875000
C	-0.913009000	-0.303671000	-0.430328000
C	0.228330000	0.470901000	-0.073496000
C	0.090050000	1.864839000	0.129898000
C	1.214939000	2.624890000	0.515030000
C	2.433866000	2.024538000	0.683130000
C	2.577393000	0.638283000	0.478067000
C	1.497835000	-0.119244000	0.110047000
C	-4.429963000	0.382361000	-2.773280000
C	-4.856529000	-0.845509000	-3.335028000
C	-6.135288000	-1.375594000	-2.988639000
C	-6.982531000	-0.658654000	-2.216717000
C	-4.049975000	-1.494459000	-4.293094000
C	-2.893044000	-0.917606000	-4.745944000
C	-2.521594000	0.351290000	-4.271909000
C	-3.269465000	0.981413000	-3.310762000
H	-8.549322000	1.017798000	-0.868386000
H	-7.920951000	3.275817000	-0.042510000
H	-4.149041000	5.647120000	0.518323000
H	-2.977001000	-0.345804000	-0.887051000
H	-0.795173000	-1.374406000	-0.534024000
H	1.109390000	3.691327000	0.670514000
H	3.291353000	2.615231000	0.974105000
H	3.544681000	0.174702000	0.614285000
H	1.601120000	-1.185621000	-0.045030000
H	-6.437281000	-2.323412000	-3.415288000
H	-7.989676000	-1.006764000	-2.026997000
H	-4.382242000	-2.446419000	-4.687465000
H	-2.287549000	-1.416865000	-5.489726000

H	-1.643408000	0.839455000	-4.671581000
H	-2.976002000	1.965856000	-2.979565000

Compound: **16**. Solvent: Chloroform.

E^0: -1490.8515905 a.u.

C	-4.173661000	-0.597974000	-0.115723000
C	-4.705319000	-1.875850000	-0.452717000
C	-2.817430000	-0.498305000	0.233907000
C	-1.957105000	-1.647785000	0.107031000
C	-2.560486000	-2.915409000	-0.046490000
C	-3.945039000	-2.993240000	-0.358732000
C	-0.527593000	-1.635249000	0.165635000
C	0.097876000	-2.858004000	0.390210000
C	-0.622883000	-4.064867000	0.372233000
N	-1.895759000	-4.098413000	0.092227000
C	0.458759000	-0.589762000	-0.053062000
C	1.752870000	-1.047779000	0.164482000
S	1.821634000	-2.741665000	0.536979000
C	0.292481000	0.721305000	-0.586936000
C	1.369225000	1.526663000	-0.779326000
C	2.690044000	1.098354000	-0.458632000
C	2.899239000	-0.220379000	0.009575000
C	4.211752000	-0.657850000	0.286668000
C	5.275588000	0.186948000	0.114919000
C	5.071584000	1.502092000	-0.345960000
C	3.806830000	1.944984000	-0.627808000
C	-2.357416000	0.703482000	0.858018000
C	-3.163060000	1.780233000	1.000128000
C	-4.501229000	1.766938000	0.507502000
C	-5.019261000	0.574532000	-0.046230000
C	-5.316775000	2.913487000	0.594254000
C	-6.607157000	2.892868000	0.134971000
C	-7.125137000	1.714415000	-0.426912000
C	-6.352440000	0.583730000	-0.510146000
H	-5.748661000	-1.974375000	-0.709635000
H	-4.362934000	-3.977076000	-0.520524000
H	-0.116154000	-5.009305000	0.536384000
H	-0.690126000	1.065357000	-0.869697000
H	1.237325000	2.516150000	-1.197208000
H	4.372749000	-1.666882000	0.645122000
H	6.277488000	-0.154930000	0.334407000
H	5.919279000	2.160103000	-0.478158000
H	3.644102000	2.953210000	-0.986824000
H	-1.361252000	0.725971000	1.272593000
H	-2.804104000	2.669350000	1.502560000
H	-4.900707000	3.813352000	1.029391000
H	-7.225436000	3.777480000	0.200727000

H	-8.140346000	1.697826000	-0.798985000
H	-6.777799000	-0.301718000	-0.957953000

Compound: **17**. Solvent: Chloroform.

E^0: -1490.8554127 a.u.

C	-4.251889000	-1.892260000	-0.122360000
C	-5.441718000	-1.131858000	0.253667000
C	-3.064497000	-1.209644000	-0.453608000
C	-3.002620000	0.244124000	-0.337188000
C	-4.210004000	0.956287000	-0.284586000
C	-5.445710000	0.260730000	0.068910000
C	-1.808631000	1.015913000	-0.341565000
C	-1.940881000	2.378505000	-0.616968000
C	-3.201289000	2.970022000	-0.723625000
N	-4.296585000	2.288932000	-0.492913000
C	-0.422786000	0.689690000	-0.035562000
C	0.417621000	1.778469000	-0.227301000
S	-0.426579000	3.223492000	-0.695315000
C	0.125554000	-0.487293000	0.551148000
C	1.453476000	-0.563208000	0.827219000
C	2.338276000	0.516933000	0.543396000
C	1.817444000	1.722923000	0.017510000
C	2.688331000	2.805911000	-0.227264000
C	4.027922000	2.691442000	0.032002000
C	4.551438000	1.491215000	0.550842000
C	3.723346000	0.429959000	0.801905000
C	-6.621001000	0.988901000	0.305069000
C	-7.762005000	0.359567000	0.746951000
C	-7.751855000	-1.019124000	0.971364000
C	-6.611229000	-1.749492000	0.724588000
C	-4.288114000	-3.288226000	-0.265174000
C	-3.214584000	-3.986861000	-0.769502000
C	-2.075911000	-3.298487000	-1.189834000
C	-2.012108000	-1.932423000	-1.038617000
H	-3.302531000	4.025233000	-0.949909000
H	-0.521804000	-1.312654000	0.803245000
H	1.861685000	-1.455647000	1.283227000
H	2.290801000	3.729253000	-0.629732000
H	4.688616000	3.524778000	-0.162619000
H	5.610894000	1.412505000	0.751906000
H	4.119103000	-0.493602000	1.204709000
H	-6.603631000	2.056823000	0.149005000
H	-8.659445000	0.933345000	0.933239000
H	-8.639540000	-1.516096000	1.338061000
H	-6.625376000	-2.813554000	0.907327000
H	-5.188179000	-3.829928000	-0.016861000
H	-3.273817000	-5.060845000	-0.879751000

H	-1.254726000	-3.829732000	-1.650662000
H	-1.148894000	-1.399871000	-1.408435000

Compound: **18**. Solvent: Chloroform.

E^0: -1644.4864016 a.u.

C	1.252474000	0.086774000	3.923982000
C	2.373070000	1.024067000	3.941658000
C	0.044620000	0.456742000	3.300537000
C	-0.064990000	1.746006000	2.625062000
C	0.878102000	2.736675000	2.941603000
C	2.153291000	2.352879000	3.543849000
C	-1.135128000	2.134081000	1.767575000
C	-1.360187000	3.510736000	1.657400000
C	-0.434512000	4.435170000	2.141909000
N	0.691878000	4.051443000	2.692121000
C	-2.108428000	1.397180000	0.973843000
C	-3.120331000	2.219048000	0.528772000
S	-2.843060000	3.900075000	0.851463000
C	-2.061875000	0.040083000	0.460827000
C	-3.190986000	-0.483979000	-0.209552000
C	-4.359129000	0.358273000	-0.446628000
C	-4.289083000	1.733974000	-0.148671000
C	1.316106000	-1.146590000	4.591014000
C	0.217634000	-1.971731000	4.680397000
C	-0.998583000	-1.569253000	4.127636000
C	-1.078067000	-0.373153000	3.453024000
C	-3.124052000	-1.795773000	-0.710158000
C	-1.978805000	-2.549051000	-0.601740000
C	-0.839070000	-1.998040000	-0.011919000
C	-0.884571000	-0.726251000	0.507219000
C	-5.364331000	2.581068000	-0.464252000
C	-6.504652000	2.079703000	-1.042058000
C	-6.597184000	0.709870000	-1.310714000
C	-5.546149000	-0.128999000	-1.020118000
C	3.648781000	0.664383000	4.404270000
C	4.659891000	1.594204000	4.497646000
C	4.424390000	2.922816000	4.136135000
C	3.186448000	3.293772000	3.663608000
H	-0.607609000	5.500129000	2.037077000
H	2.230635000	-1.444834000	5.081036000
H	0.291127000	-2.911742000	5.209703000
H	-1.879559000	-2.186337000	4.236765000
H	-2.029179000	-0.054586000	3.054041000
H	-3.973749000	-2.218954000	-1.223886000
H	-1.953038000	-3.552075000	-1.004537000
H	0.081610000	-2.563475000	0.029077000
H	0.008638000	-0.297429000	0.933512000

H	-5.297045000	3.636163000	-0.231228000
H	-7.330208000	2.737227000	-1.275426000
H	-7.499265000	0.306018000	-1.749071000
H	-5.649916000	-1.181399000	-1.236189000
H	3.853832000	-0.357848000	4.685238000
H	5.636072000	1.292773000	4.852156000
H	5.215927000	3.655324000	4.214947000
H	2.992503000	4.311436000	3.360438000

Compound: **19**. Solvent: Chloroform.

E^0: -1353.2543852 a.u.

C	8.369956000	8.288322000	2.919259000
H	7.743450000	9.042361000	3.371754000
C	9.655605000	8.110297000	3.356510000
H	10.069410000	8.725964000	4.141685000
C	10.433205000	7.103140000	2.767119000
H	11.465099000	6.966906000	3.070065000
N	9.970018000	6.267395000	1.865036000
C	8.687242000	6.410324000	1.459079000
C	8.155247000	5.398833000	0.598977000
H	8.826787000	4.621544000	0.262474000
C	6.838786000	5.384695000	0.307075000
H	6.389756000	4.585124000	-0.265674000
C	5.964565000	6.427200000	0.755939000
N	4.637688000	6.236292000	0.528882000
C	3.799869000	7.125263000	0.993449000
H	2.739817000	6.922404000	0.890631000
C	4.239138000	8.332335000	1.555038000
S	3.203043000	9.591037000	2.140221000
C	4.573760000	10.624166000	2.380399000
C	4.475273000	11.945966000	2.870522000
H	3.523927000	12.327522000	3.213698000
C	5.595871000	12.712492000	2.894149000
H	5.559333000	13.723079000	3.279582000
C	6.819729000	12.241499000	2.336752000
C	7.924017000	13.112238000	2.212379000
H	7.844230000	14.108592000	2.628190000
C	9.056968000	12.722382000	1.550459000
H	9.892632000	13.400890000	1.450260000
C	9.112697000	11.446685000	0.963246000
H	9.982195000	11.156595000	0.389417000
C	8.069008000	10.568238000	1.101012000
H	8.120003000	9.605517000	0.616646000
C	6.911593000	10.919370000	1.828949000
C	5.778746000	10.047549000	1.987626000
C	5.597859000	8.645118000	1.641445000
C	6.497152000	7.557054000	1.413062000
C	7.855125000	7.462234000	1.902976000

Details of ^{1}H and ^{13}C NMR calculations.

All calculations of ^{1}H and ^{13}C NMR isotropic magnetic shielding constants (the latter being converted into chemical shifts) of **1**-**19** were carried out at the DFT level in the liquid phase by applying the Gaussian 09.[21] In these calculations, we used the functional of Perdew, Burke, and Ernzerhof[24,25] with a predetermined amount of the exact exchange, the latter known as PBE0.[26] This functional was used here within the recently proposed pecS-2 basis set, which was specially developed for calculating shielding constants in large synthetic compounds and natural products.[27,28] This basis set makes it possible to achieve better correlation with experimental data (and, accordingly, higher accuracy) at an acceptable computational resource cost.

Calculated proton and carbon isotropic magnetic shielding constants of **1**-**19** were then converted into ^{1}H and ^{13}C NMR chemical shifts, as recommended by the International Union of Pure and Applied Chemistry (IUPAC): [29]

$$\delta_{calc} = \frac{\sigma_{TMS} - \sigma_{calc}}{1 - 10^{-6}\sigma_{TMS}}$$

To account for systematic errors of calculated chemical shifts, we have established correlations between their isotropic magnetic shielding constants (y) and experimental chemical shifts (x). Resulting linear regressions were further used to define the equations of the $y = ax + b$ type. The slope a and intercept b were then used for recalculating the unscaled shielding constants (σ_{calc}) into the scaled values of chemical shifts (δ_s) as $\delta_s = (\sigma_{calc} - b)/a$. The slope and intercept parameters of compounds **1**-**19** are provided in the Table S1:

Table S1. Linear regression parameters of correlation plots of **1**-**19**.

Cmpd	^{1}H NMR		^{13}C NMR	
	slope	intercept	slope	intercept
1	1.0369	31.28	1.0975	187.04
2	0.8653	29.60	-	-
3	1.0194	31.08	1.0900	186.83
4	1.0036	31.03	1.0819	186.41
5	1.1700	32.24	1.0883	186.16
6	1.1275	31.92	1.0906	186.56
7	1.0847	31.58	1.0912	186.60
8	-	-	-	-
9	1.0646	31.42	1.0826	185.52

10	1.0776	31.54	1.0892	186.44
11	1.1166	31.89	1.1053	188.40
12	1.0947	31.64	1.1023	188.03
13	1.0646	31.42	1.1041	188.27
14	1.0938	31.61	1.0925	186.81
15	1.0314	31.21	1.0691	183.80
16	1.0102	31.12	0.9883	173.37
17	1.1113	31.74	1.1039	188.18
18	1.1102	31.82	1.1182	190.23
19	0.9971	30.97	1.0781	185.19

Values of selected carbon bond lengths of 4, optimized by the various DFT functionals.

Table S2. Values of selected carbon bond lengths (Å) of [1]benzothieno[2,3-*c*]naphtho[1,2-*f*]quinoline (**4**), optimized by the various DFT functionals in combination with cc-pVTZ//aug-cc-pVTZ LDBS basis set scheme. The solvent effect was accounted for within the IEF-PCM.

Method	Inner bonds						Outer bonds			
	11-11_a	11_a-11_b	11_b-11_c	11_c-11_d	11_d-11_e	11_e-12	8-9	3-4	1-2	14-15
GGA										
OLYP	1.410	1.458	1.439	1.451	1.454	1.418	1.390	1.366	1.365	1.381
meta-GGA										
M06-L	1.401	1.446	1.427	1.439	1.441	1.409	1.381	1.357	1.357	1.372
TPSS	1.409	1.457	1.437	1.449	1.451	1.417	1.390	1.365	1.364	1.380
hybrid GGA										
B3LYP	1.404	1.458	1.433	1.448	1.450	1.413	1.384	1.357	1.356	1.373
B3PW91	1.402	1.453	1.430	1.443	1.446	1.411	1.382	1.356	1.356	1.372
BHandHLYP	1.394	1.454	1.425	1.442	1.443	1.406	1.373	1.345	1.344	1.362
mPW1PW91	1.400	1.452	1.428	1.442	1.444	1.409	1.380	1.354	1.353	1.370
PBE0	1.400	1.452	1.429	1.442	1.444	1.410	1.380	1.354	1.354	1.371
hybrid meta-GGA										
M06-2X	1.402	1.457	1.430	1.444	1.447	1.412	1.379	1.353	1.352	1.369
with dispersion model (range-separated hybrid)										
B97D	1.409	1.453	1.434	1.447	1.450	1.417	1.392	1.368	1.367	1.382
ωB97XD	1.399	1.457	1.428	1.444	1.447	1.411	1.379	1.351	1.350	1.368

Table S3. Calculated ^{1}H and ^{13}C NMR chemical shifts of benzothienoquinoline heterohelicenes 1-19.

Nuclei	1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19	
	^{1}H NMR	^{13}C NMR	^{1}H NMR	^{13}C NMR	^{1}H NMR	^{13}C NMR	^{1}H NMR	^{13}C NMR	^{1}H NMR	^{13}C NMR	^{1}H NMR	^{13}C NMR	^{1}H NMR	^{13}C NMR	^{1}H NMR	^{13}C NMR	^{1}H NMR	^{13}C NMR	^{1}H NMR	^{13}C NMR	^{1}H NMR	^{13}C NMR	^{1}H NMR	^{13}C NMR	^{1}H NMR	^{13}C NMR	^{1}H NMR	^{13}C NMR	^{1}H NMR	^{13}C NMR	^{1}H NMR	^{13}C NMR	^{1}H NMR	^{13}C NMR	^{1}H NMR	^{13}C NMR
1	9.31	128.1	8.63	139.5	9.03	125.9		129.02	9.05	122.9	8.88	123.0	8.01	128.6	8.67	141.2	9.13	128.7	7.98	127.7	9.00	129.3	8.85	125.7	7.88	130.4	7.92	127.7	8.12	129.0	8.17	128.6	8.87	129.6	7.80	130.8	8.23	136.7
2	7.64	124.3	8.30	139.1	7.56	125.0		126.21	7.79	126.7	7.74	126.3	7.65	126.6	8.34	139.4	7.54	124.3	7.69	127.2	7.50	124.6	7.51	124.6	7.00	124.7	7.63	127.2	8.04	126.2	7.78	126.4	7.44	124.7	6.98	125.4	6.89	118.7
2a							8.08	131.39																						131.4								
3	7.77	127.4	8.37	138.8	7.70	127.8		128.61	7.68	127.0	7.67	126.4	7.73	126.5	8.45	139.1	7.64	127.2	7.75	126.8	7.72	128.1	7.68	127.6	7.49	126.5	7.70	126.7	8.14	128.7	7.86	126.4	7.65	127.9	7.55	127.3	8.84	149.7
4	8.14	127.9	10.32	137.2	8.27	131.1		129.96	7.93	129.1	8.05	129.0	8.91	123.7	9.80	134.8	8.01	128.0	9.55	125.5	8.71	123.8	8.19	130.8	8.00	127.5	9.46	125.5	8.28	129.7	9.14	123.2	8.64	123.7	8.70	123.4		
4a		131.8		144.6		145.3	7.91	144.87		132.0		132.3		129.8		142.0		132.2		132.0		130.6		144.9		131.2		132.0		145.0		129.9		130.5		129.5		146.9
4b				155.3										129.3		141.5				142.3		130.7						142.4				129.2		130.7		131.0		
5	8.13	129.2							7.79	128.3	8.09	128.3	8.98	123.6	9.50	136.8	8.00	129.2			8.67	122.2			8.07	129.5					9.23	123.2	8.61	122.2	8.74	122.6	8.37	131.7
5a																156.1																					
6	8.08	128.2	9.97	156.2	9.20	144.8	6.99	144.19	7.94	127.6	9.57	123.7	8.28	129.2			8.04	129.1	9.27	142.6	7.73	127.7	9.10	144.2	8.15	128.8	9.23	142.5	9.39	144.0	8.48	129.2	7.65	127.7	7.78	128.0	8.50	133.1
6a		143.7		148.8		135.2	9.37	135.01		130.9		130.8		143.7				144.5		135.6				134.0		144.5		134.8		134.9		145.4						144.5
6b												141.9																									
7									8.74	130.4					9.96	159.8					7.73	127.2											7.65	127.2	7.76	127.3		
7a				157.2		143.6	8.11	142.20		142.6						147.9				143.7				143.9				144.5		142.1								
7b																								127.5				127.5		128.1								
8	9.22	143.8	8.67	135.6	7.93	121.3	8.28	122.62			9.23	143.4	9.12	144.2			9.18	143.9	7.96	121.0	9.34	125.6	8.28	125.3	9.25	143.0	8.28	125.5	8.42	124.6	9.44	145.7	9.28	125.6	9.43	126.1	9.43	144.3
8a		136.1										135.9		136.4		157.0		135.9				131.1				135.1						136.6		131.1		131.2		136.7
8b																						142.1												142.1		142.6		
9			8.22	139.2	8.03	130.5	8.11	127.28	9.07	145.8					8.81	136.0			8.05	130.6			7.63	127.3			7.64	127.3	7.63	126.4								
9a		143.3				131.9				135.0		143.8		143.5				143.3		131.5						144.7						144.5						144.9
9b																		128.6								127.7						128.5						
10	8.11	123.6	8.24	136.4	8.05	129.4	6.74	122.22			8.04	124.0	7.98	123.5	8.34	139.3	8.36	124.8	8.06	129.1	9.07	142.5	7.70	128.1	8.39	125.6	7.70	128.2	7.57	127.1	8.55	124.3	9.08	142.4	9.24	141.9	8.10	121.3
10a										143.6												136.8												136.3		135.9		
11	7.66	128.2	9.69	138.5	7.57	125.8	6.95	128.19	8.06	124.1	7.64	127.3	7.54	127.8	8.42	137.2	7.63	126.9	7.60	125.4			8.76	123.6	7.69	127.3	8.77	123.6	7.82	128.9	7.76	126.7					8.16	131.5
11a				147.7			7.94	134.08														143.6		130.6				130.8		131.7				143.1		144.9		131.1
11b				147.6			7.34	136.41																129.9				129.8						128.4		127.8		
11c				134.2			8.02	119.01																														
11d							7.48	125.20																														
11e								129.57																														
12	7.47	122.8	9.70	132.4	7.60	125.7		129.25	7.67	126.8	7.67	124.8	7.38	123.0	9.95	138.4	7.61	127.4	7.64	125.7	7.97	123.6	8.76	124.0	7.75	128.4	8.76	124.0	7.14	123.5	7.73	127.3	8.27	124.9	8.41	125.9	8.10	129.3
12a																147.6																						
12b																145.9																						
12c																135.2																						
13	9.04	126.4	8.75	141.1	9.10	126.3		125.93	7.78	125.0	8.99	126.7	8.80	127.3	9.89	134.4	7.97	129.1	8.97	126.3	7.57	128.2	7.64	126.3	8.84	123.7	7.64	126.2	7.00	125.1	8.12	129.1	7.59	126.8	7.74	127.4	7.50	125.5
13a		134.3		144.1		130.4						135.1		135.0		143.2		132.2		130.1						131.1				132.5		132.4						
13b		135.5				130.2						134.8		135.4						129.6						129.0				137.5								
13c		122.2				136.9						123.0		122.5						137.4										119.2								
13d		127.7				124.5								126.4						121.6										125.5								
13e																														130.1								
14								125.82	9.20	126.4	9.15	121.3	8.93	127.0	8.80	139.9	7.74	124.2	8.78	124.3	7.37	122.8	7.56	125.4	8.75	123.4	7.56	125.5	8.07	128.9	7.89	124.0	7.57	127.4	7.80	128.6	7.11	126.3
14a										135.1																												
14b										133.6																												
14c										123.6																												
15								128.24	10.25	116.8	9.06	123.0	7.83	125.0	8.55	141.3	8.74	124.1	7.91	126.1	8.82	126.8	8.90	126.9	7.48	125.8	8.82	127.2	6.94	125.9	8.83	124.2	7.91	129.0	8.84	123.9	7.51	128.1
15a						131.03				129.1		128.5		132.2		144.0		132.5		132.4		134.6		129.0				129.0				133.1		132.2		131.1		129.2
15b										130.1		129.5						136.6				136.1		129.7				129.4				137.1				129.2		129.8
15c																		122.2				122.1		137.2				138.1				121.7						134.9
15d																		128.2				127.8		124.2				121.6				126.3						121.6
15e																																						123.5
16																									6.96	125.4	8.66	124.2	7.45	125.8	9.13	127.2	7.65	124.2	8.75	123.5		
17																									7.41	128.5	7.82	126.0	8.10	128.2	7.99	124.9	8.55	124.1	7.51	125.8		
17a																										128.1		132.5		131.4		132.5		132.2				
17b																										129.9								136.9				
17c																										135.3								121.7				
17d																										121.8								127.8				
17e																										128.1												
18																																			7.03	125.5		
19																																			7.52	129.1		
19a																																				128.0		
19b																																				129.7		
19c																																				136.1		
19d																																				121.5		
19e																																				128.3		