Supporting Information

for

Rapid Access to Halohydrofurans via Brønsted Acid-Catalyzed Hydroxylation/Halocyclization of Cyclopropyl Methanols with Water and Electrophilic Halides

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Figure S1. ^{1}H and ^{13}C NMR Spectra of Cyclopropyl-1,3-diphenylprop-2-yn-1-ol (**1a**)

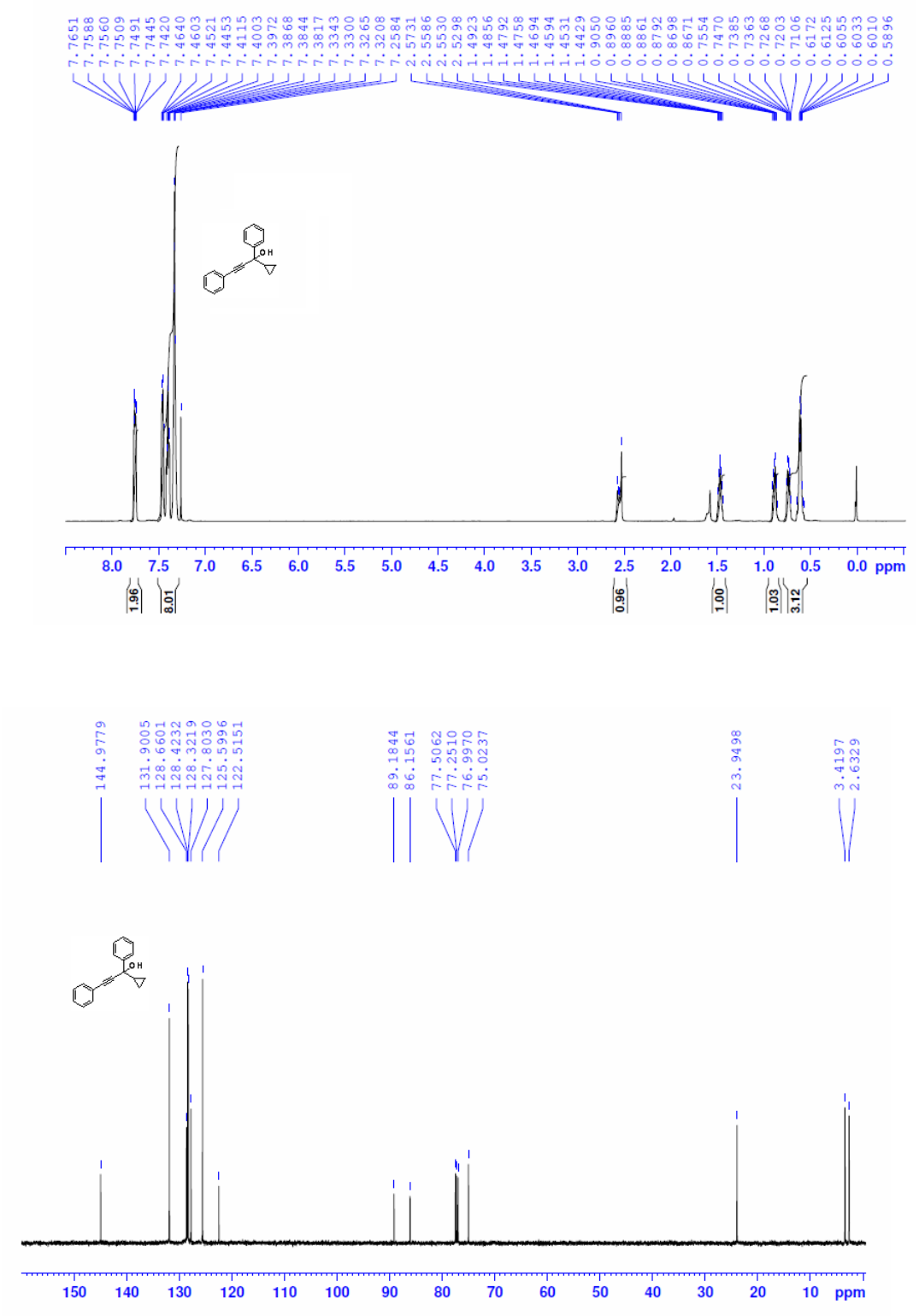


Figure S2. ^{1}H and ^{13}C NMR Spectra of Cyclopropylbis(4-fluorophenyl)methanol (**1b**)

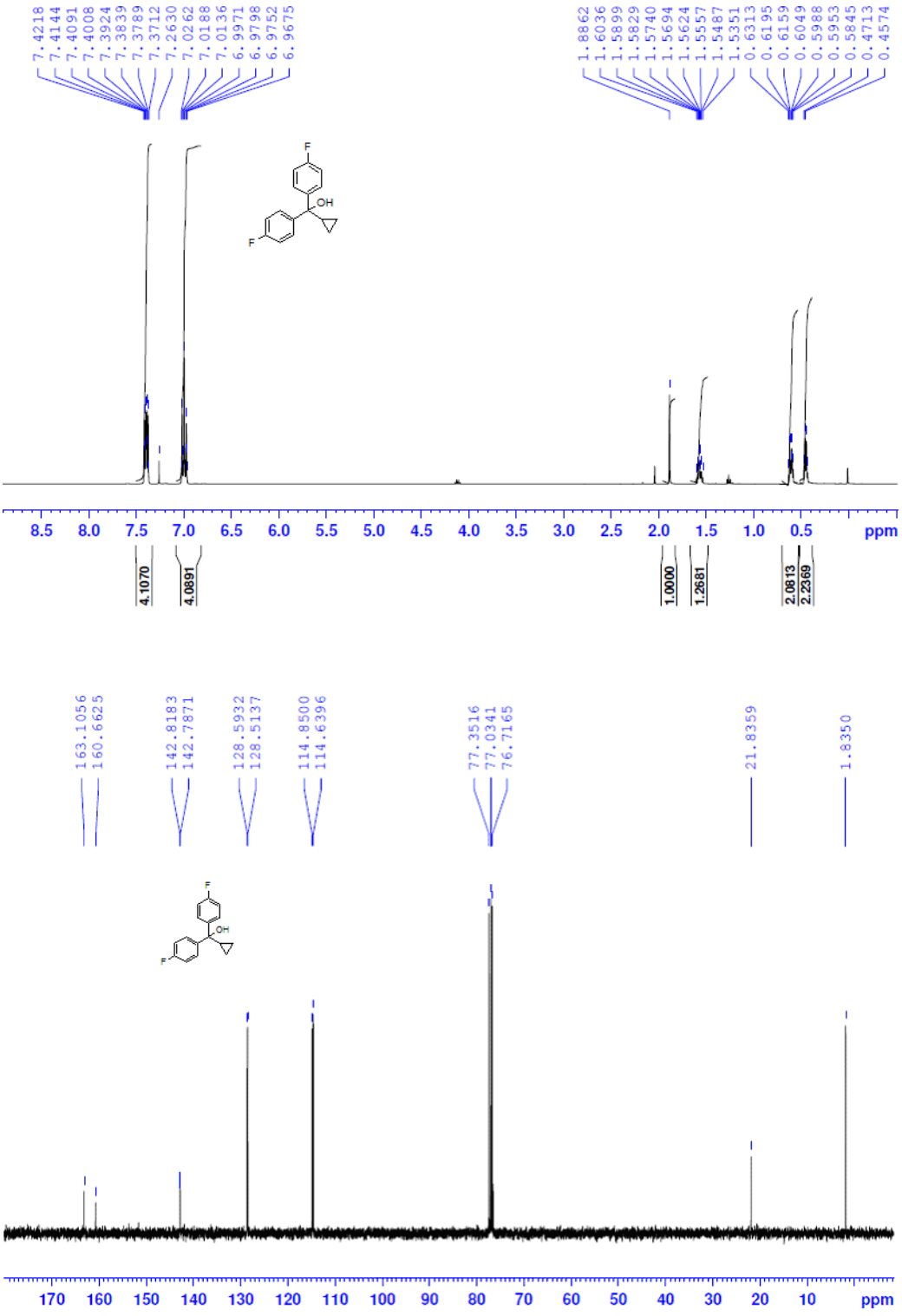


Figure S3. ^{1}H and ^{13}C NMR Spectra of Bis(4-chlorophenyl)(cyclopropyl)methanol (**1c**)

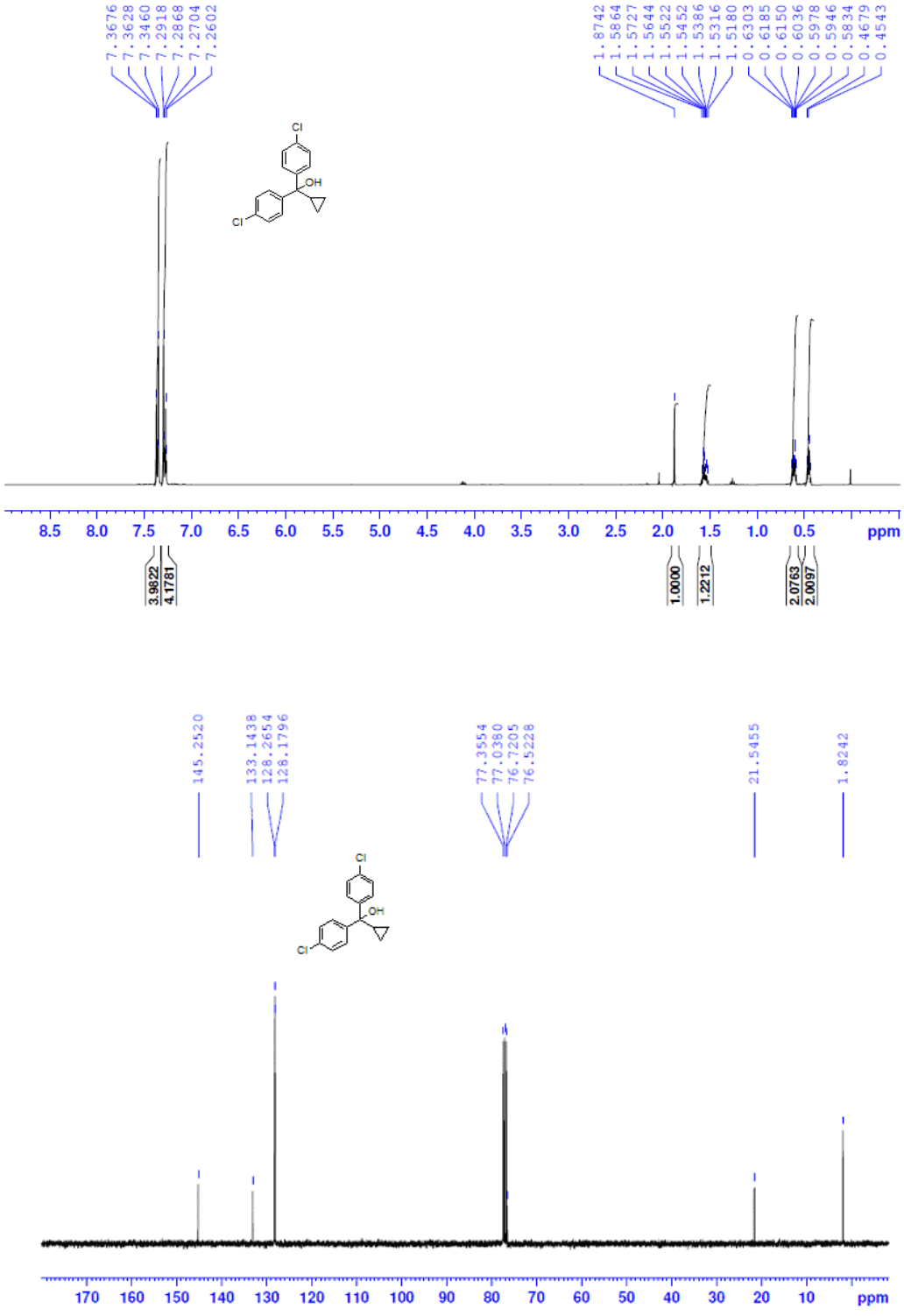


Figure S4. ^{1}H and ^{13}C NMR Spectra of Bis(4-bromophenyl)(cyclopropyl)methanol (**1d**)

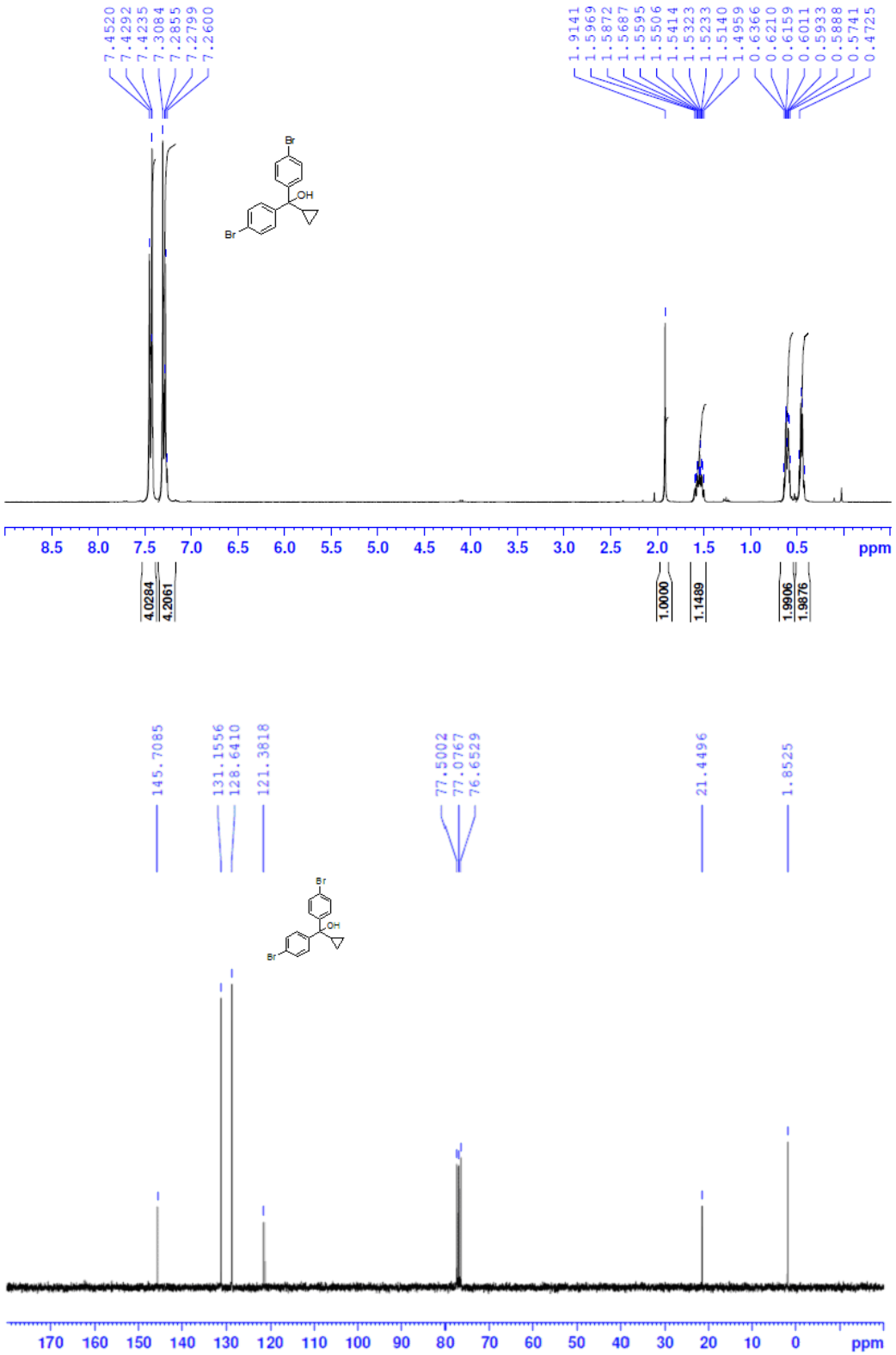


Figure S5. ^{1}H and ^{13}C NMR Spectra of Cyclopropyldi-*p*-tolylmethanol (**1f**)

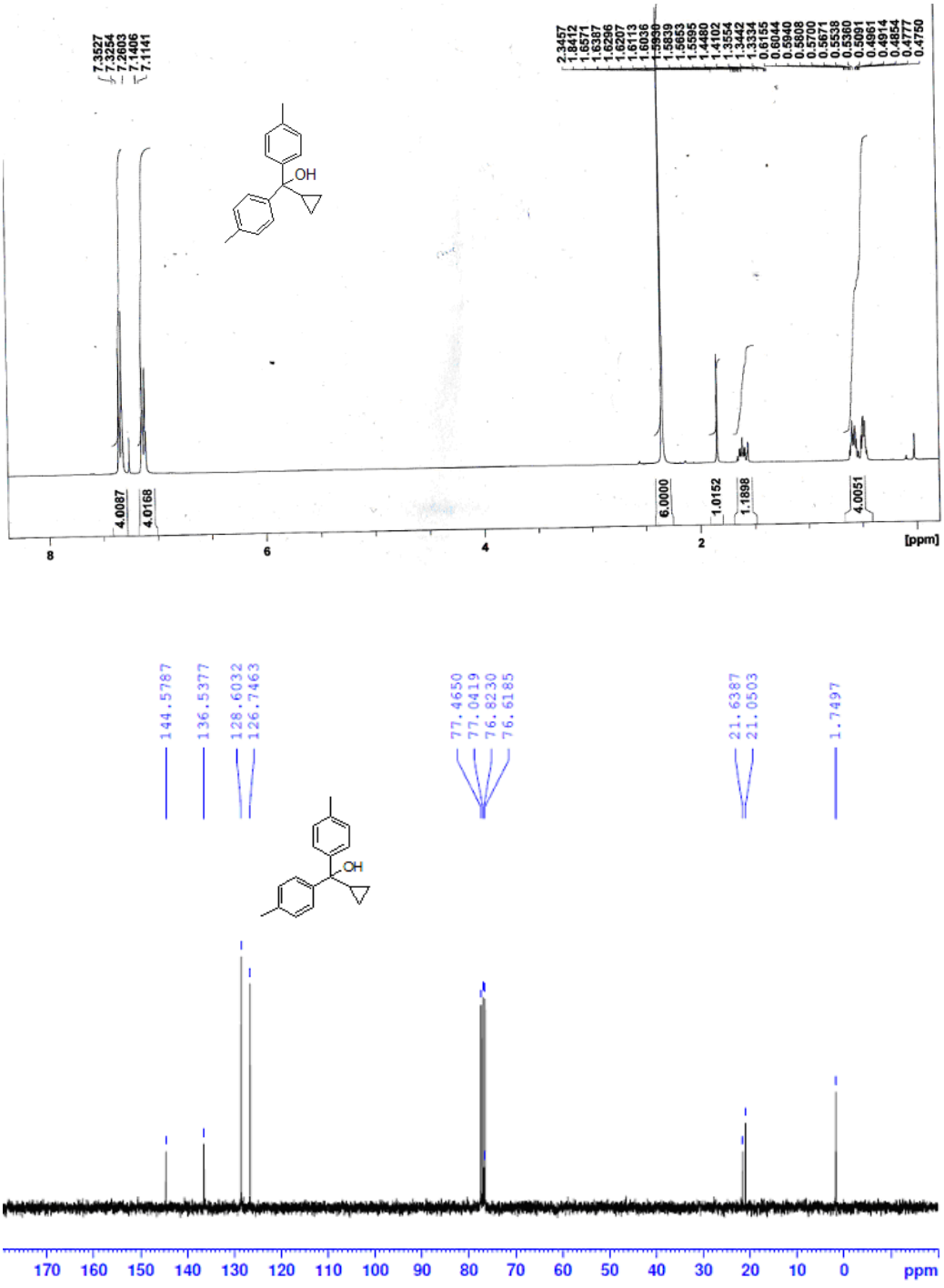


Figure S6. ^{1}H and ^{13}C NMR Spectra of Cyclopropylbis(4-methoxyphenyl)methanol (**1g**)

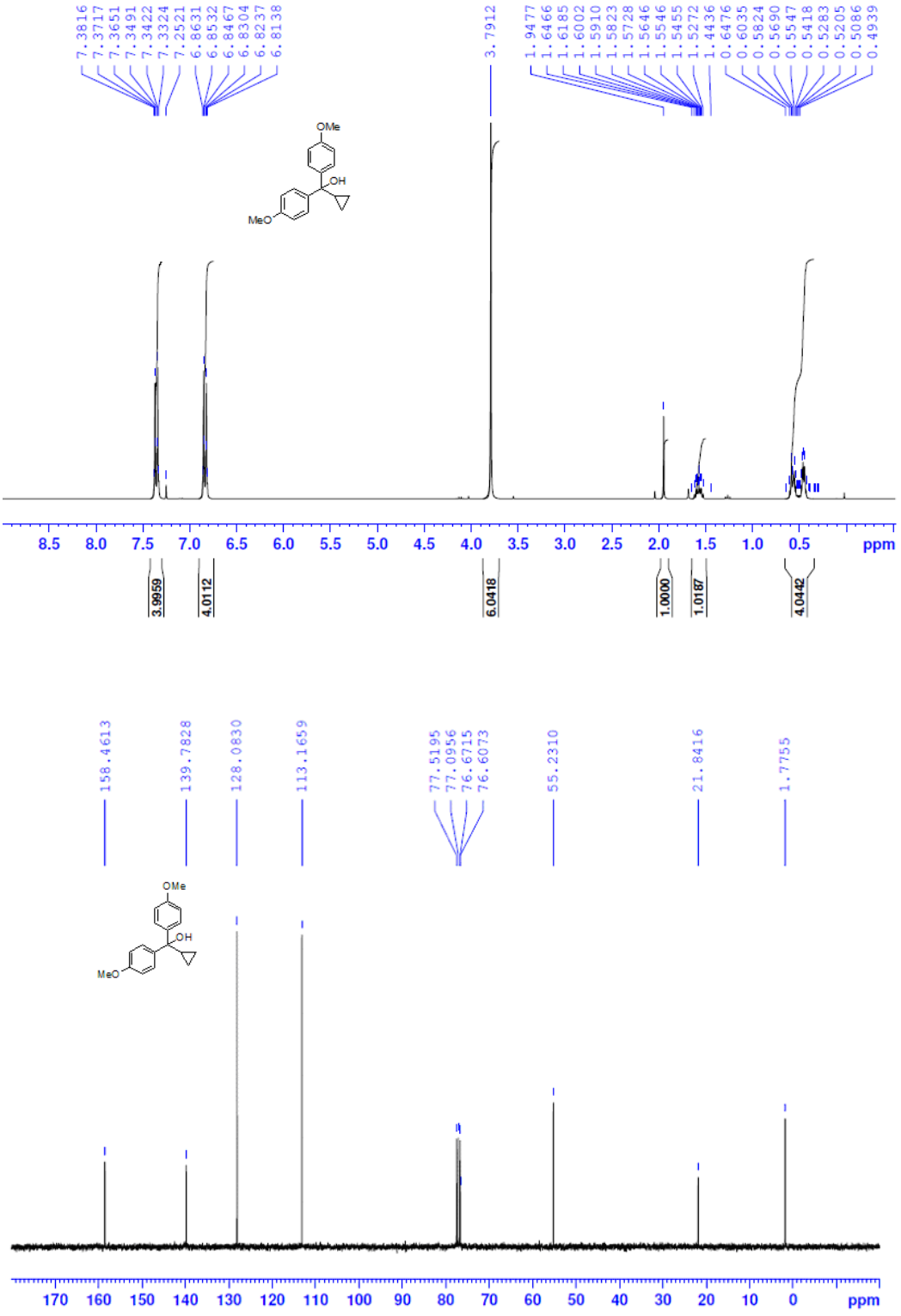


Figure S7. ^{1}H and ^{13}C NMR Spectra of (4-Chlorophenyl)(cyclopropyl)(*p*-tolyl)methanol (**1h**)

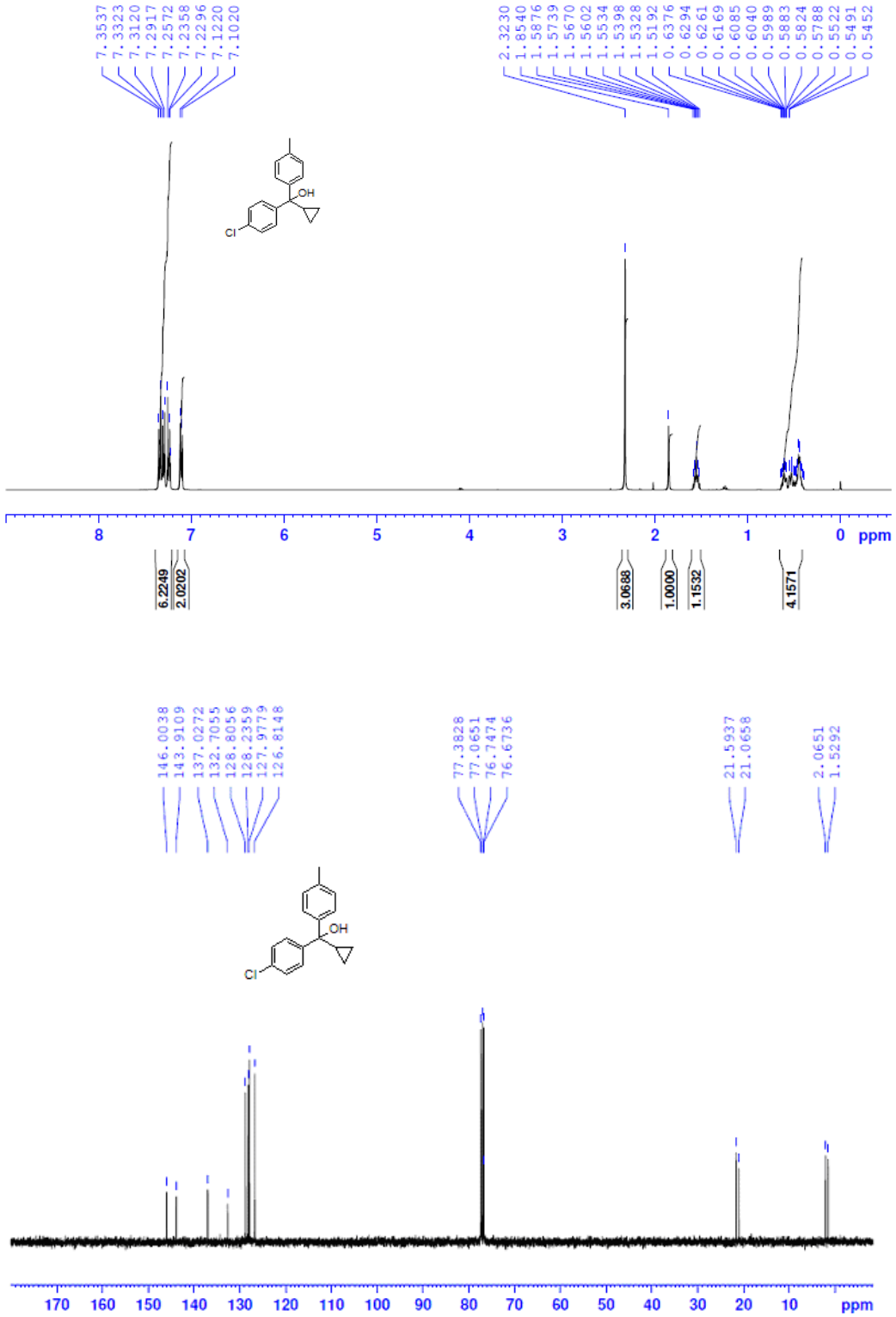


Figure S8. ^{1}H and ^{13}C NMR Spectra of (4-Chlorophenyl)(cyclopropyl)-(4-methoxyphenyl) methanol (**1i**)

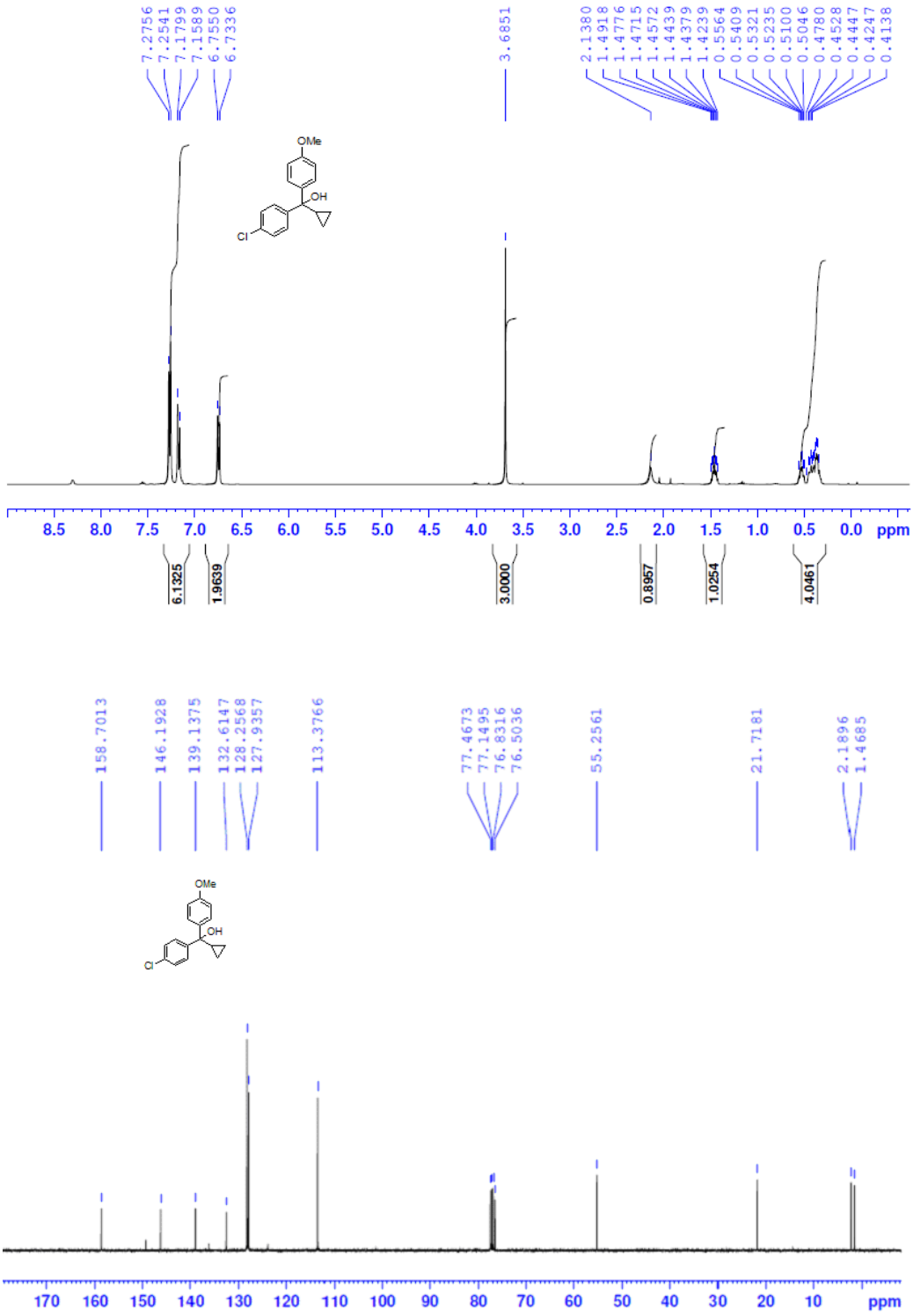


Figure S9. ^{1}H and ^{13}C NMR Spectra of Cyclopropyl(phenyl)(*p*-tolyl)methanol (**1j**)

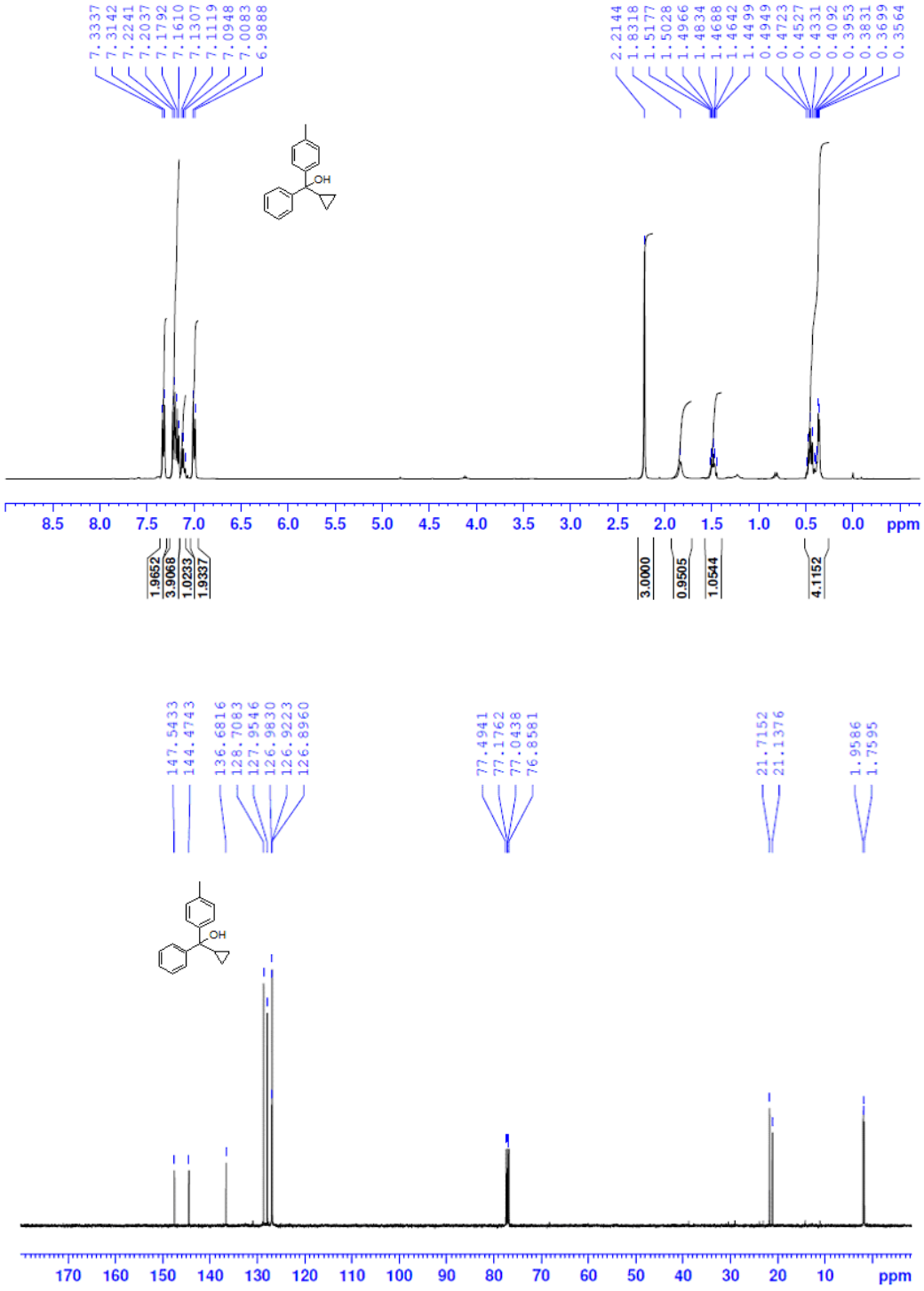


Figure S10. ^{1}H and ^{13}C NMR Spectra of Cyclopropyl(phenyl)(4-biphenyl)methanol (**1k**)

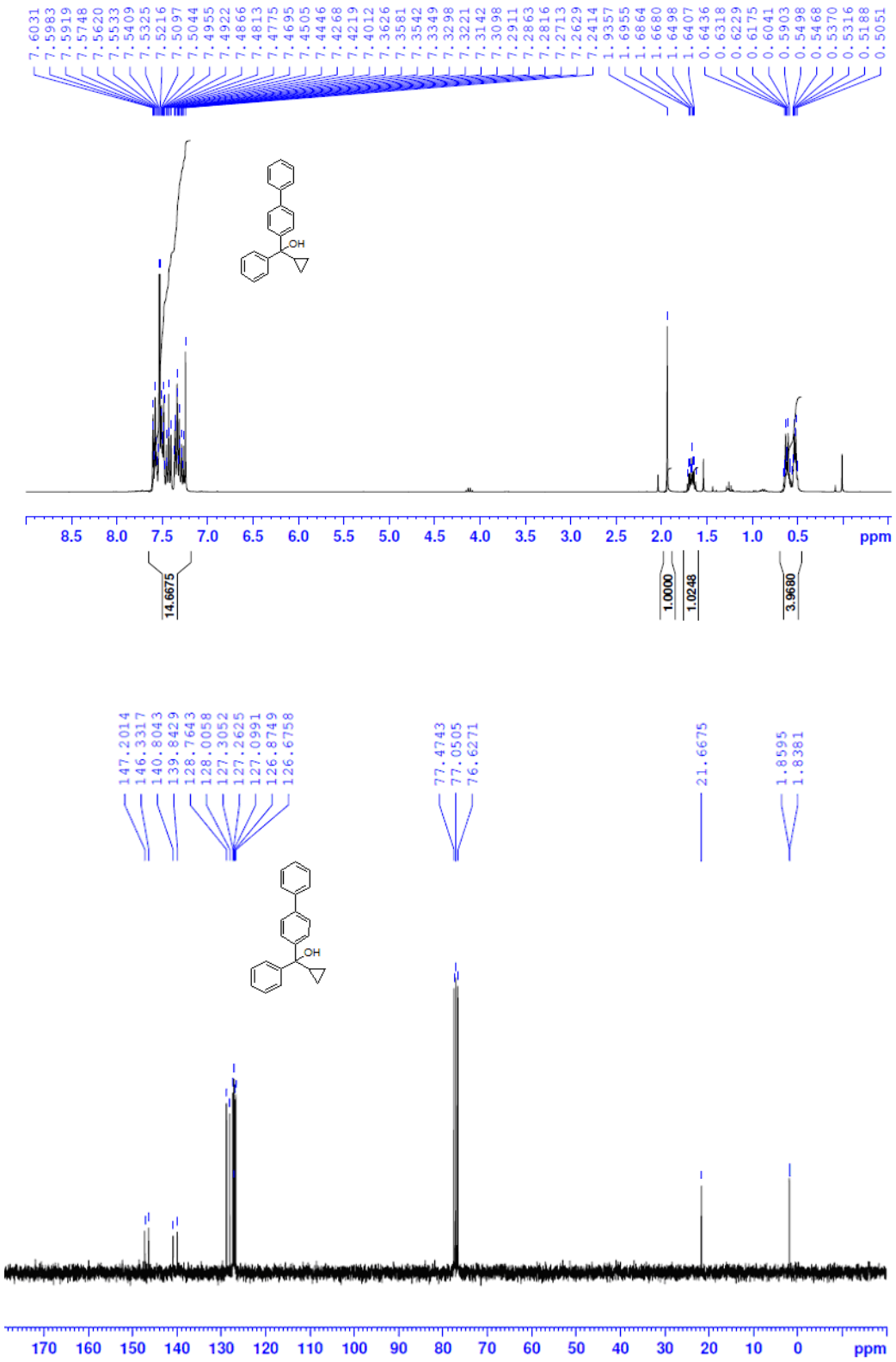


Figure S11. ^{1}H and ^{13}C NMR Spectra of Cyclopropyl(naphthalen-1-yl)(phenyl)methanol (**1l**)

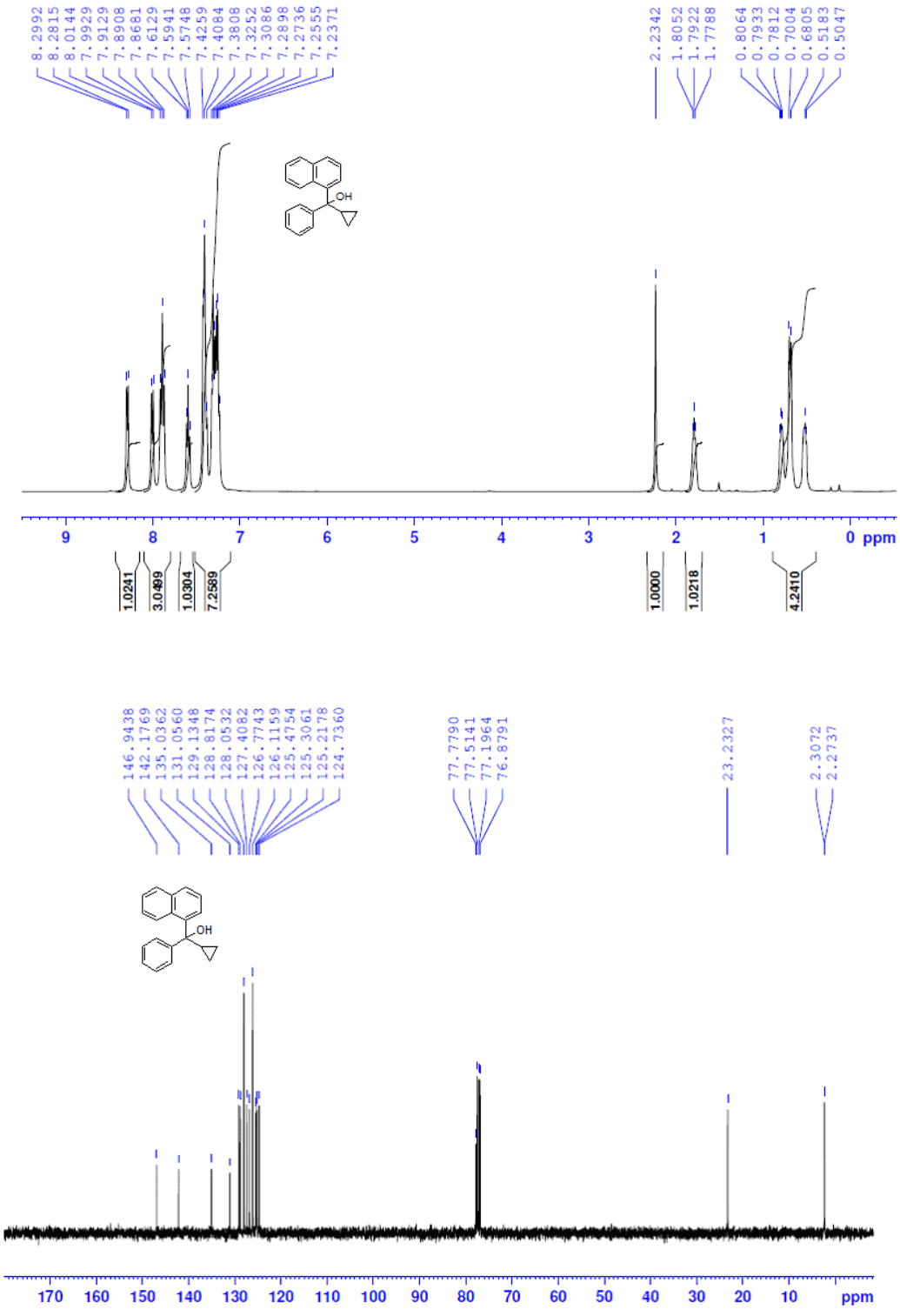


Figure S12. ^{1}H and ^{13}C NMR Spectra of 1-Cyclopropyl-1-phenylhexan-1-ol (**1m**)

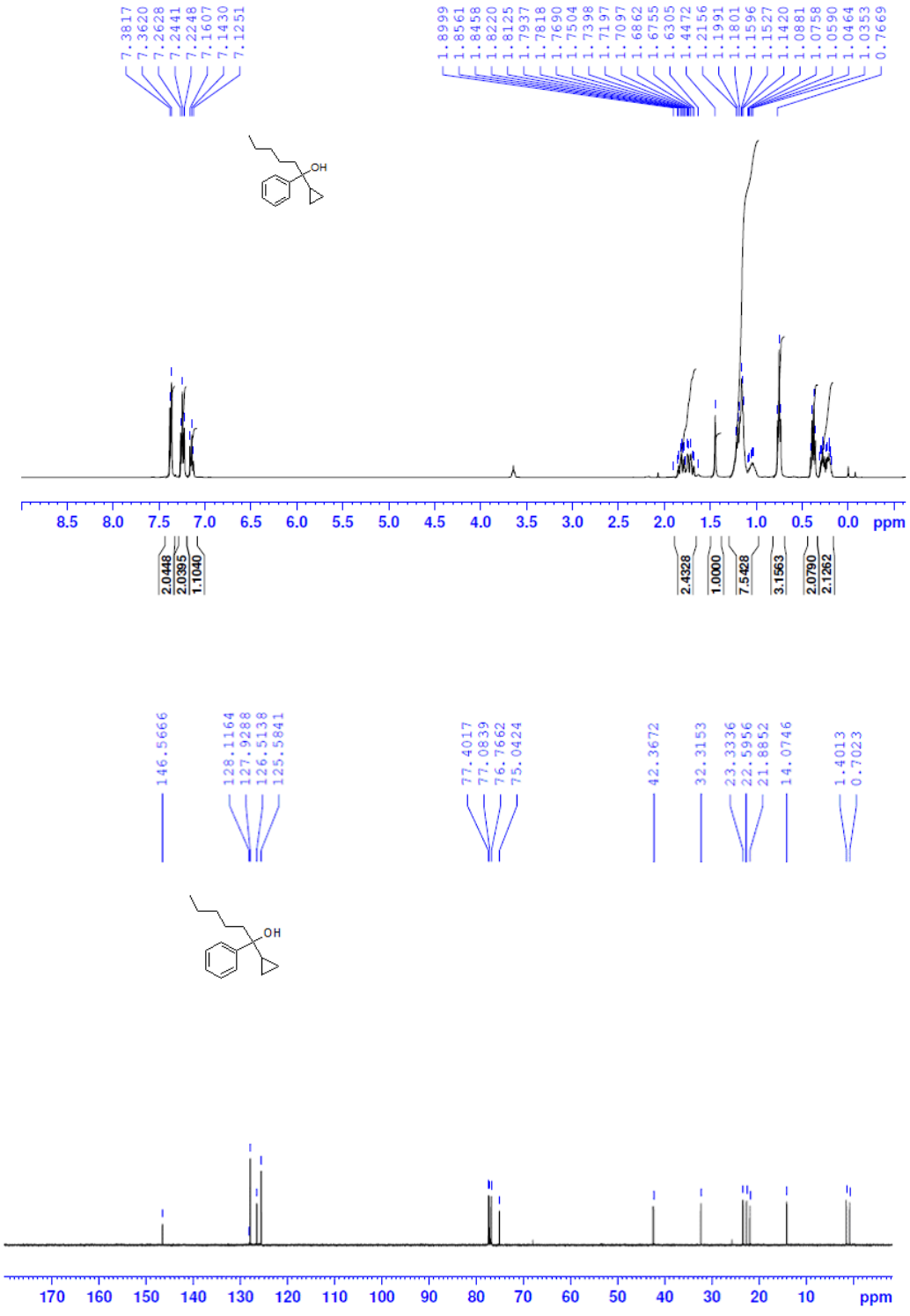


Figure S13. ^{1}H and ^{13}C NMR Spectra of 1-Cyclopropyl-2,2-dimethyl-1-phenylpropan-1-ol (**1n**)

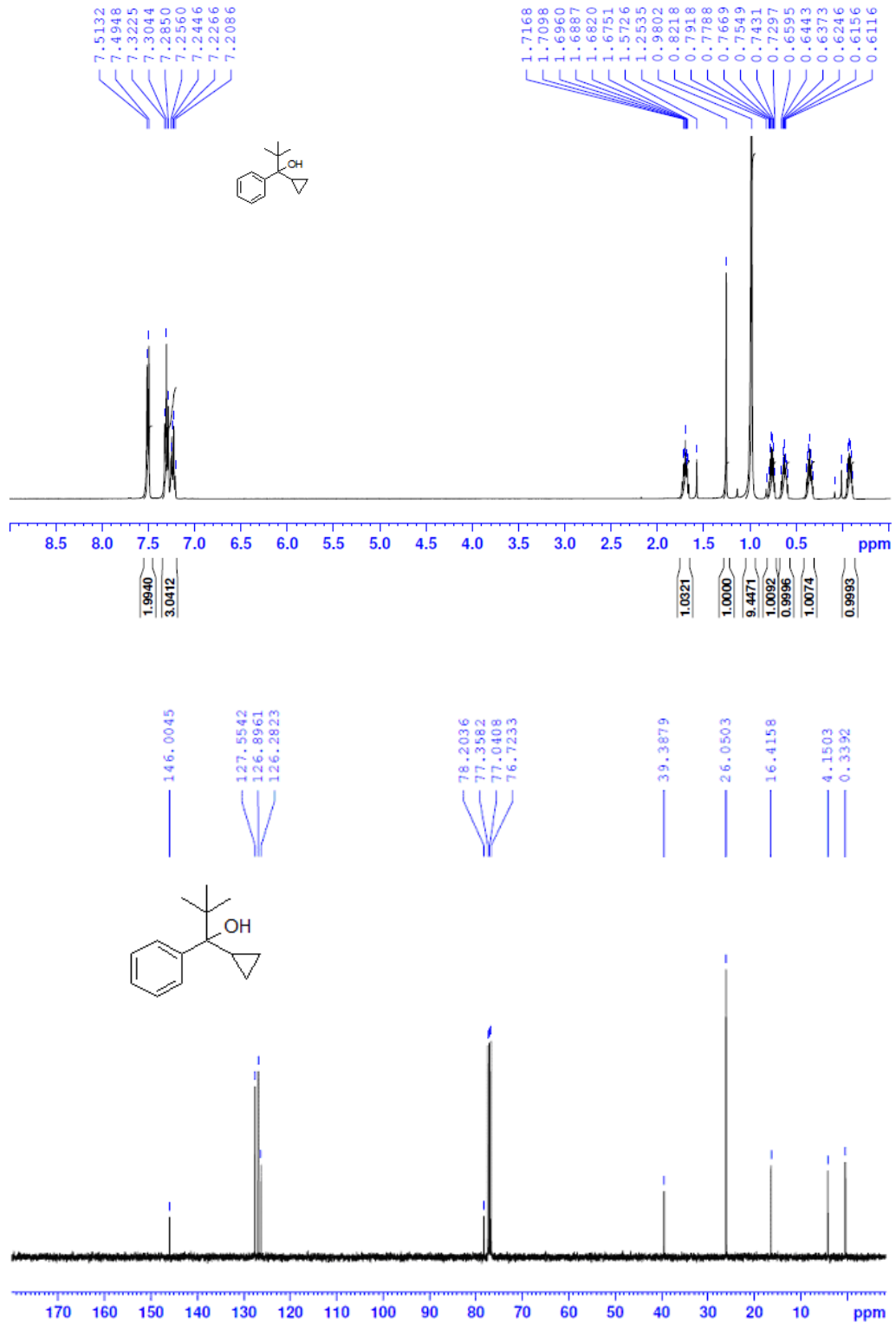


Figure S14. ^{1}H and ^{13}C NMR Spectra of 1-(4-Chlorophenyl)-1-cyclopropyl-3-(thiophen-2-yl)prop-2-yn-1-ol (**1o**)

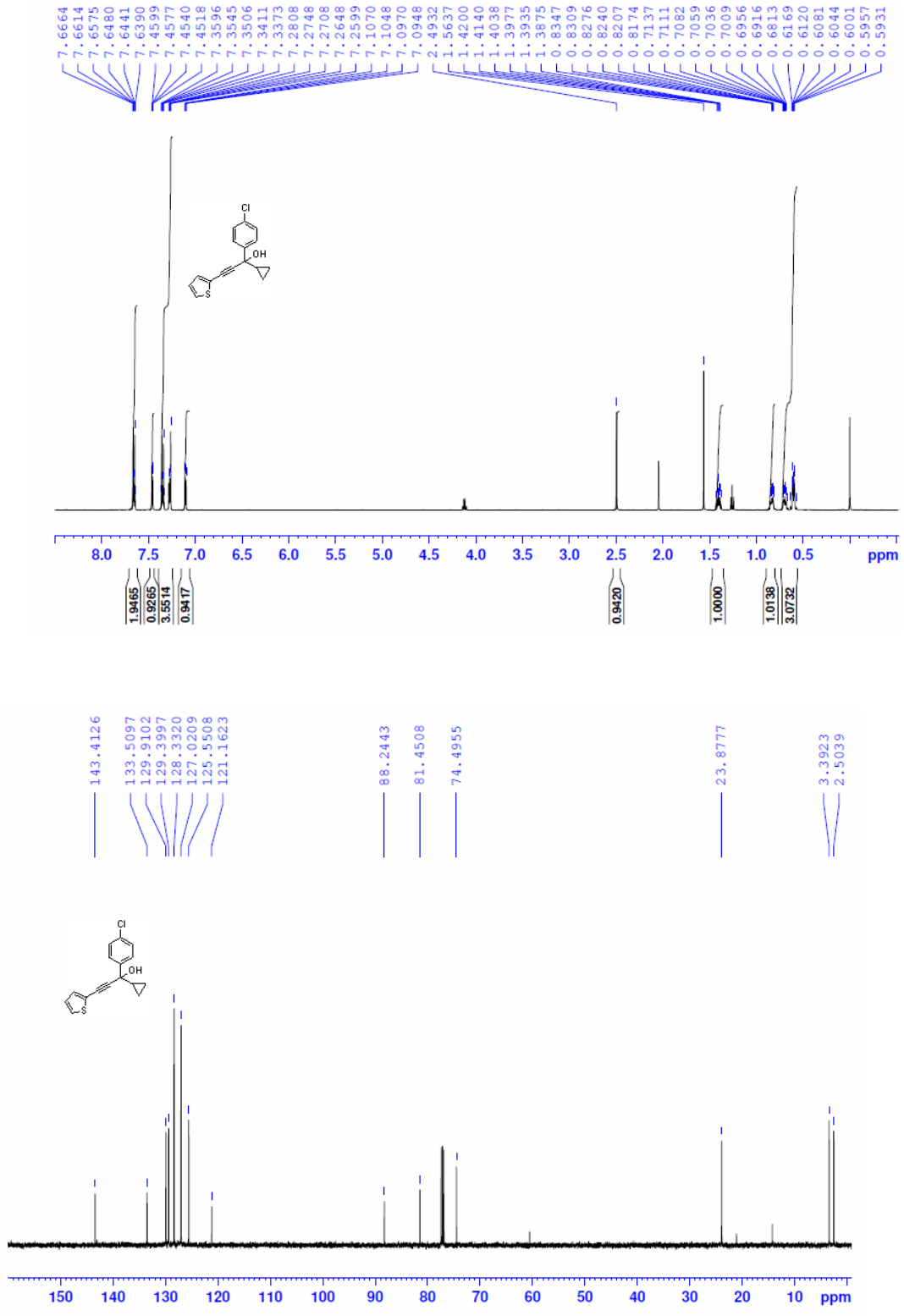


Figure S15. ^{1}H and ^{13}C NMR Spectra of 1-Cyclopropyl-1-(4-methoxyphenyl)-3-(pyridin-2-yl)prop-2-yn-1-ol (**1p**)

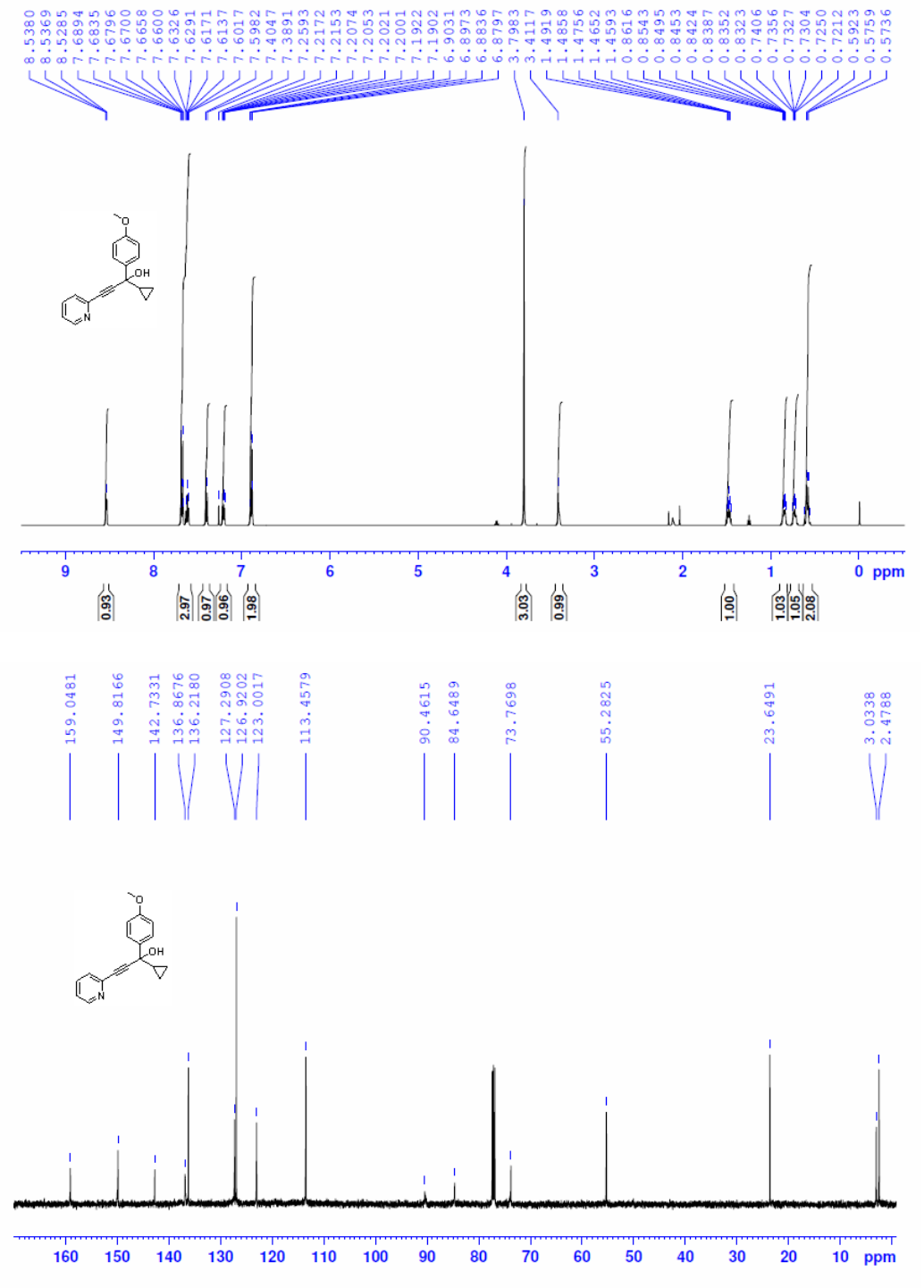


Figure S16. ^{1}H and ^{13}C NMR spectra of 3-Cyclopropyl-1,5-diphenylpenta-1,4-diyn-3-ol (**1q**)

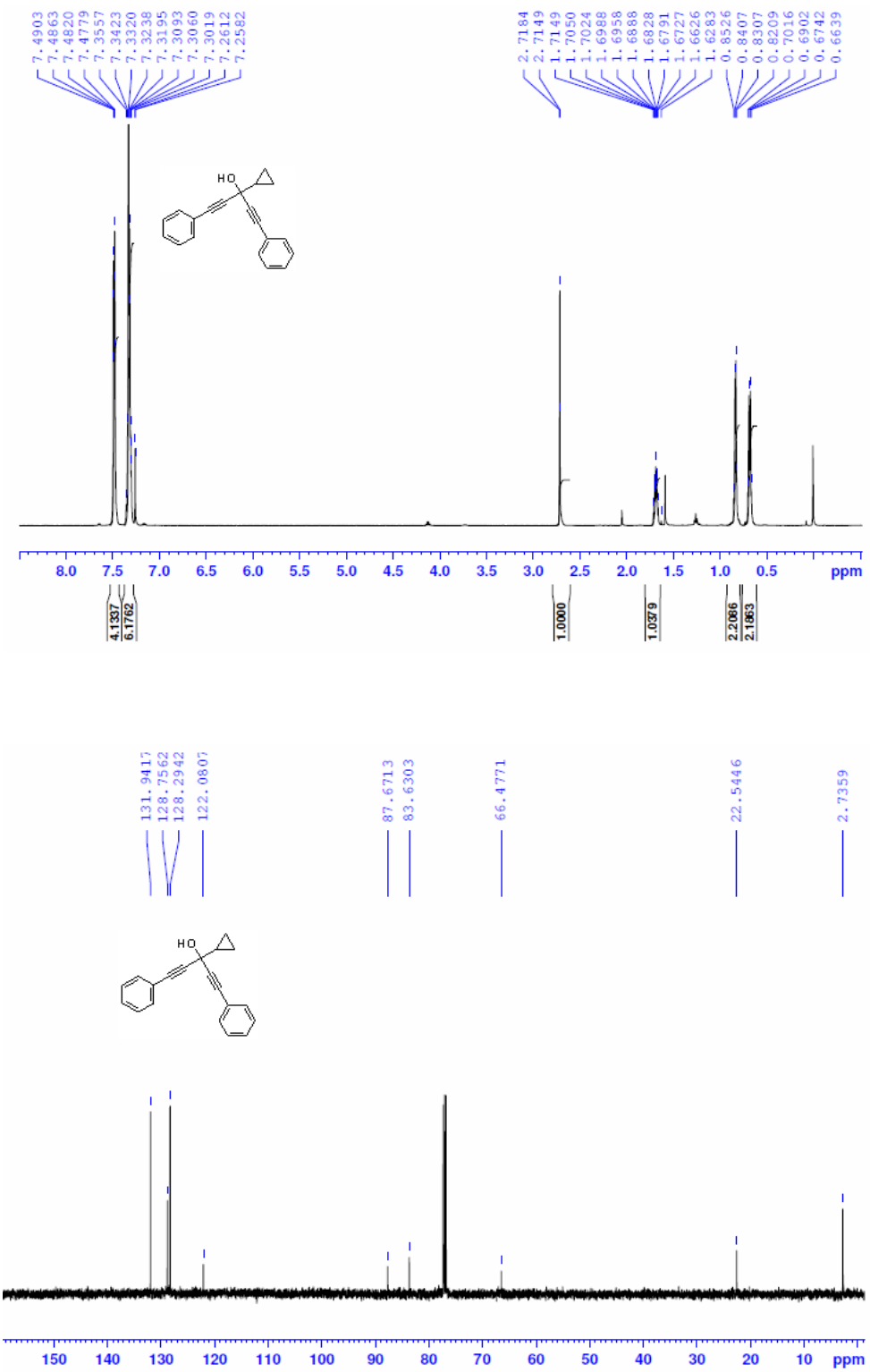


Figure S17. ^{1}H and ^{13}C NMR spectra of 1-Cyclopropyl-1-(1-methylcyclohexyl)-3-phenyl prop-2-yn-1-ol (**1r**)

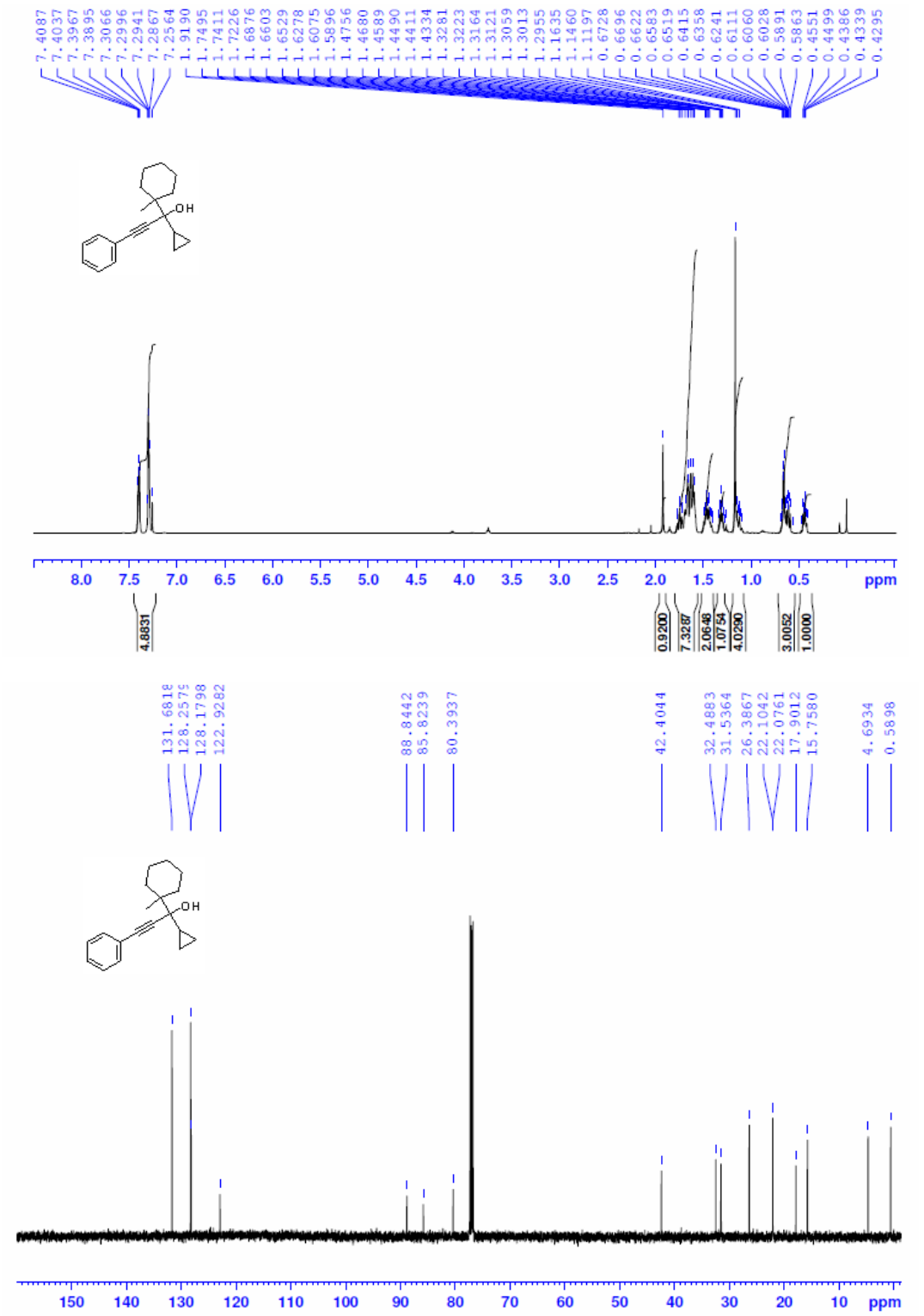


Figure S18. ^{1}H and ^{13}C NMR Spectra of 2-Cyclopropylbut-3-yn-2-ol (**1s**)

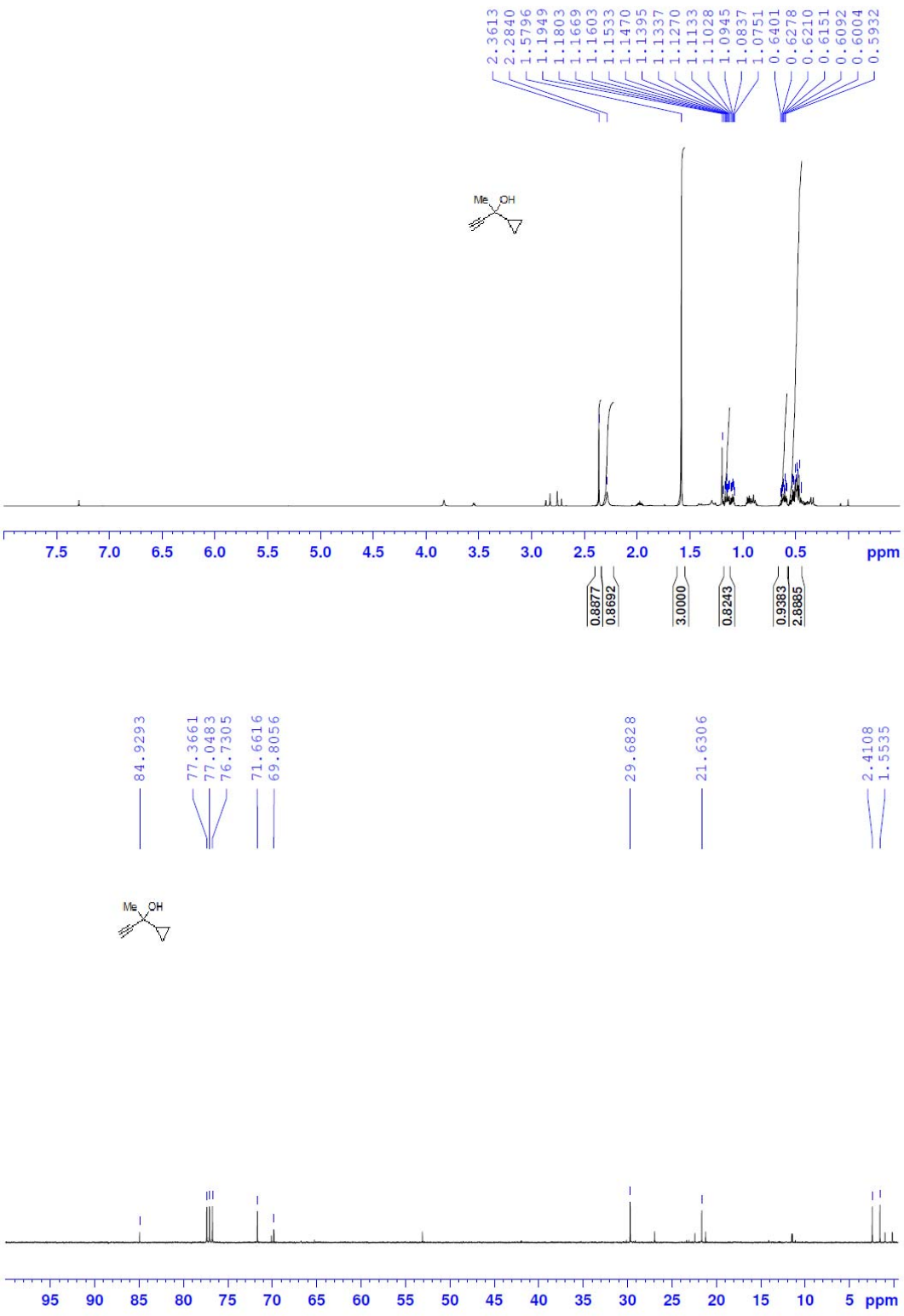


Figure S19. ^{1}H and ^{13}C NMR Spectra of Diphenyl(2-phenylcyclopropyl)methanol (**1t**)

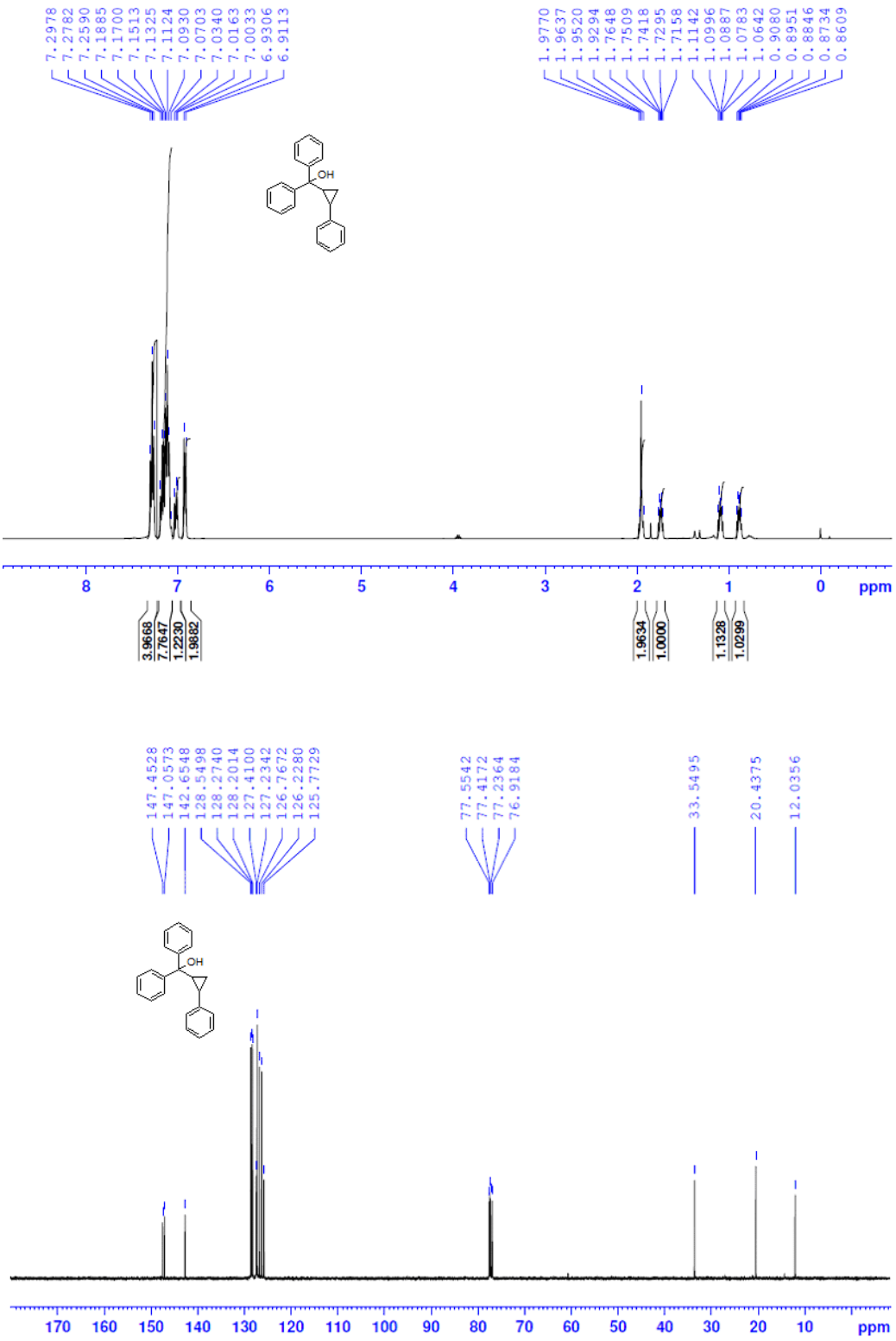
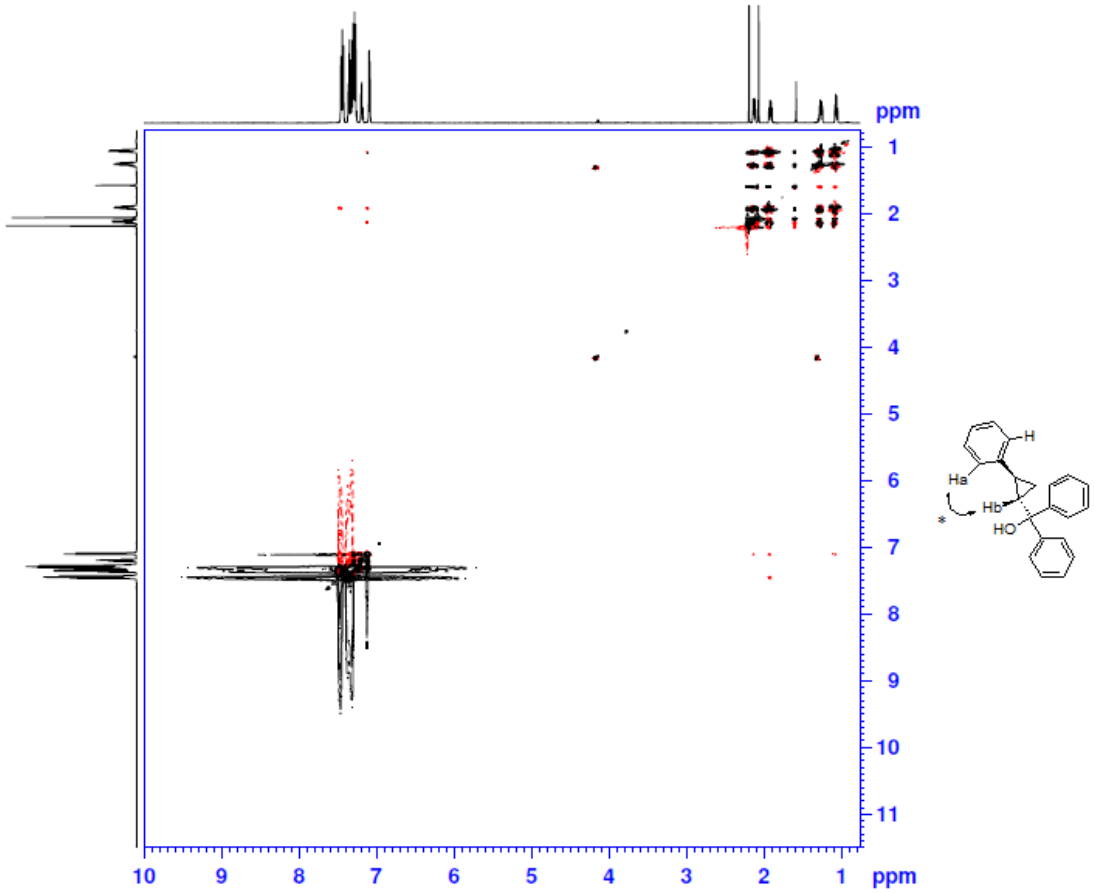


Figure S20. ^{1}H-^{1}H NOESY Spectrum of *Trans*-diphenyl(2-phenylcyclopropyl)methanol (**1t**)



*^{1}H-^{1}H NOESY correlation observed between H_a at 7.27 ppm and H_b at 1.74 ppm.

Figure S21. ^{1}H and ^{13}C NMR Spectra of (2-Pentylcyclopropyl)diphenylmethanol (**1u**)

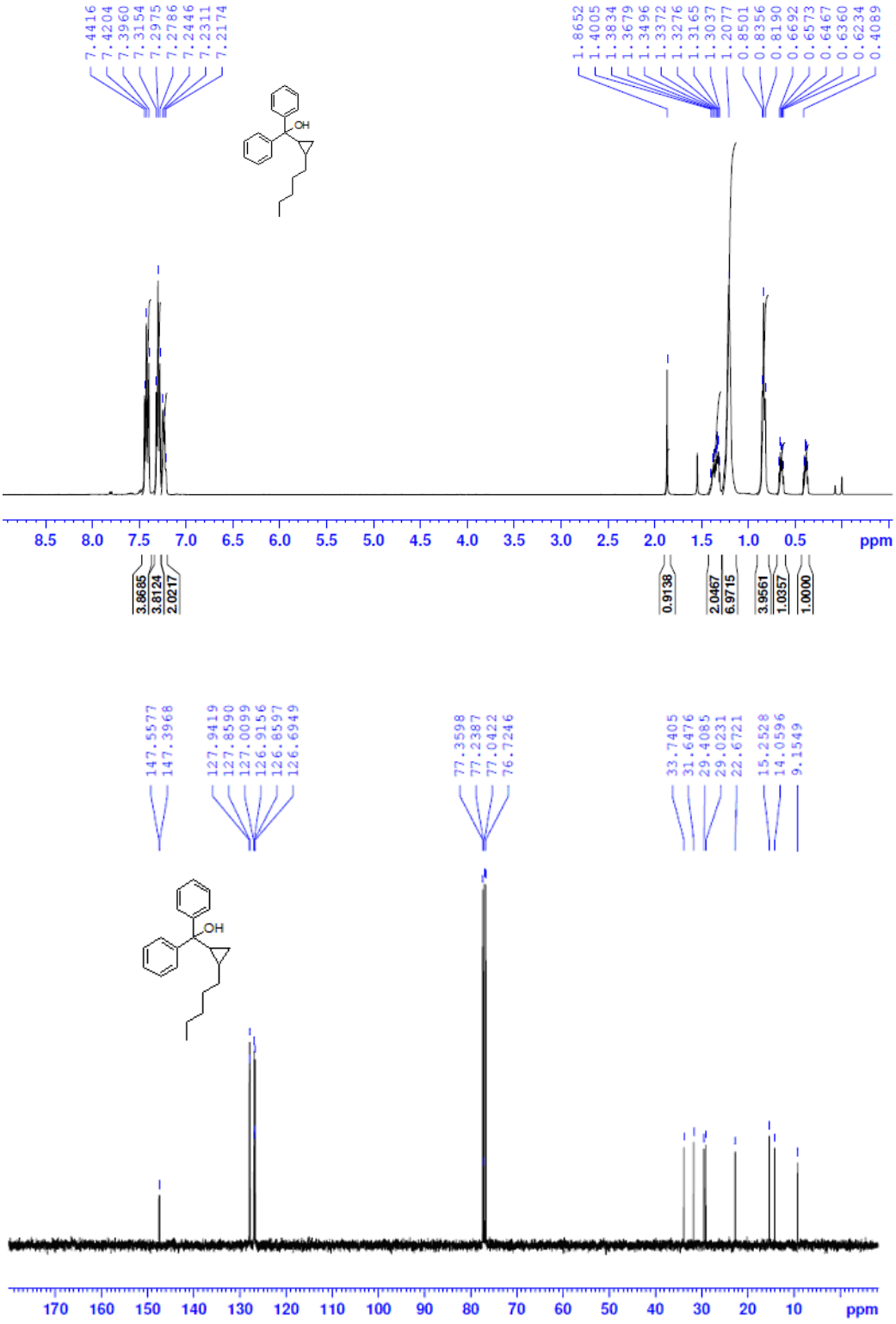
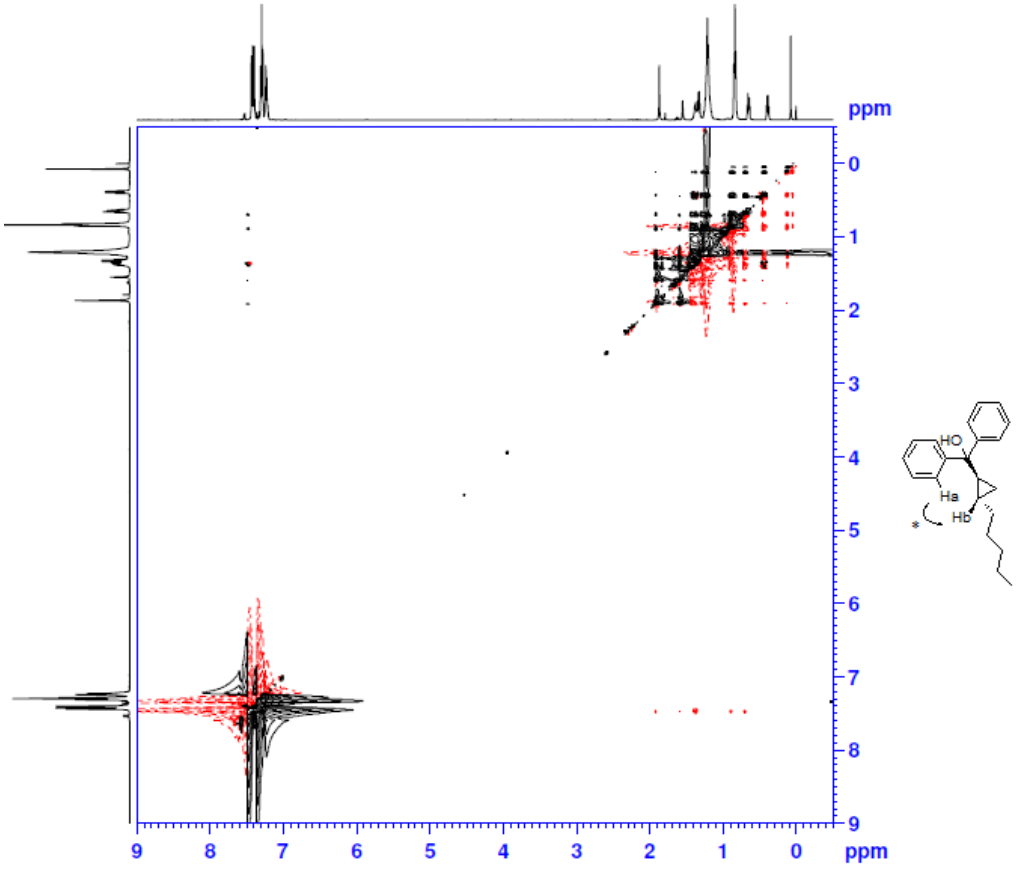


Figure S22. ^{1}H-^{1}H NOESY Spectrum of *Trans*-(2-pentylcyclopropyl)diphenylmethanol (**1u**)



*^{1}H-^{1}H NOESY correlation observed between H_a at 7.42 ppm and H_b at 1.32 ppm.

Figure S23. ^{1}H and ^{13}C NMR Spectra of 1,3-Diphenyl-1-(2-(thiophen-2-yl)cyclopropyl) prop-2-yn-1-ol (**1v**)

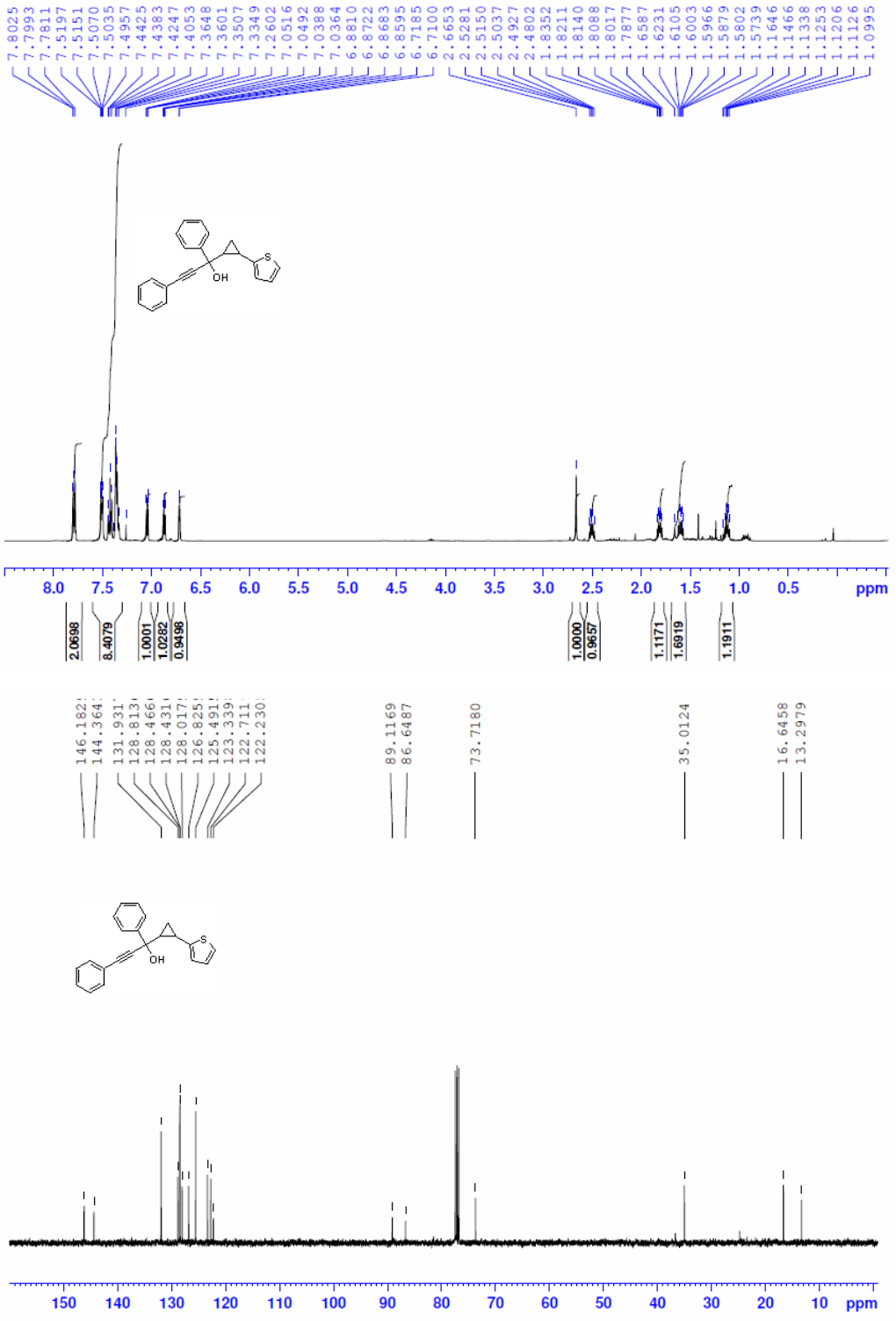
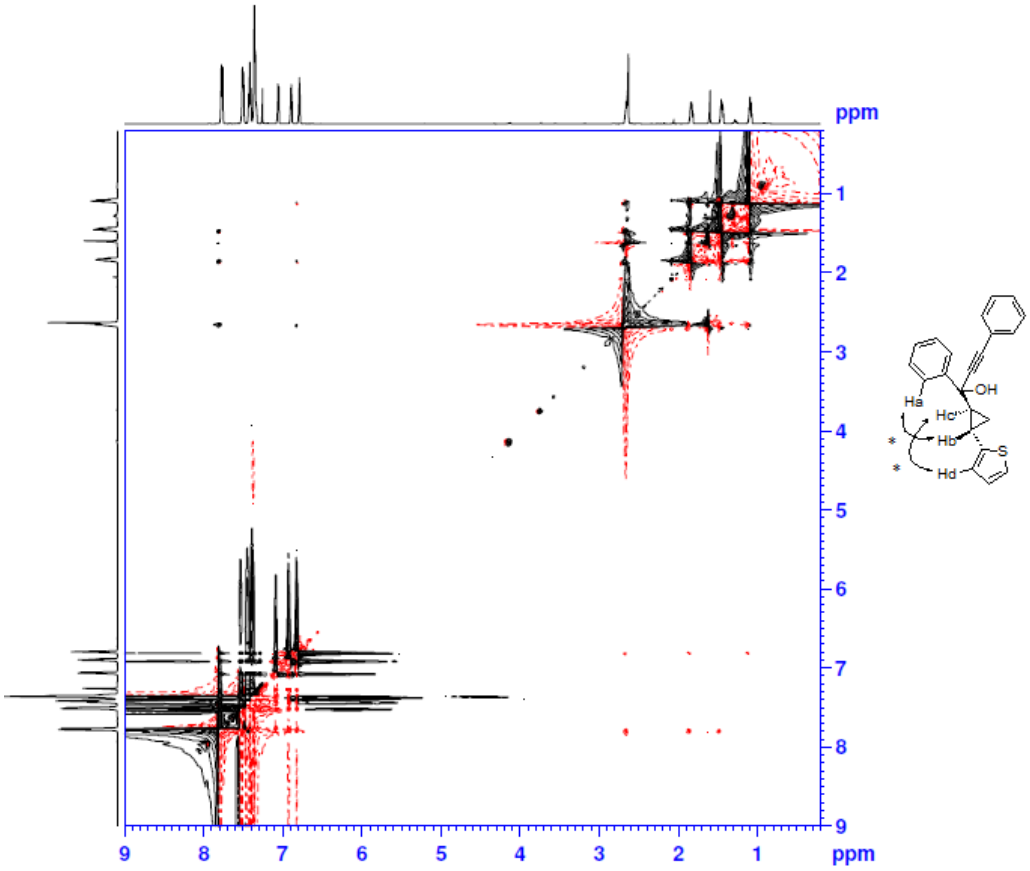


Figure S24. ^{1}H-^{1}H NOESY Spectrum of *Trans*-1,3-diphenyl-1-(2-(thiophen-2-yl)cyclo propyl)prop-2-yn-1-ol (**1v**)



*^{1}H-^{1}H NOESY correlation observed between H_a at 7.79 ppm and H_b at 2.50 ppm.

*^{1}H-^{1}H NOESY correlation observed between H_c at 1.81 ppm and H_d at 6.71 ppm.

Figure S25. ^{1}H and ^{13}C NMR Spectra of Cyclopropyl(phenyl)methanol (**1w**)

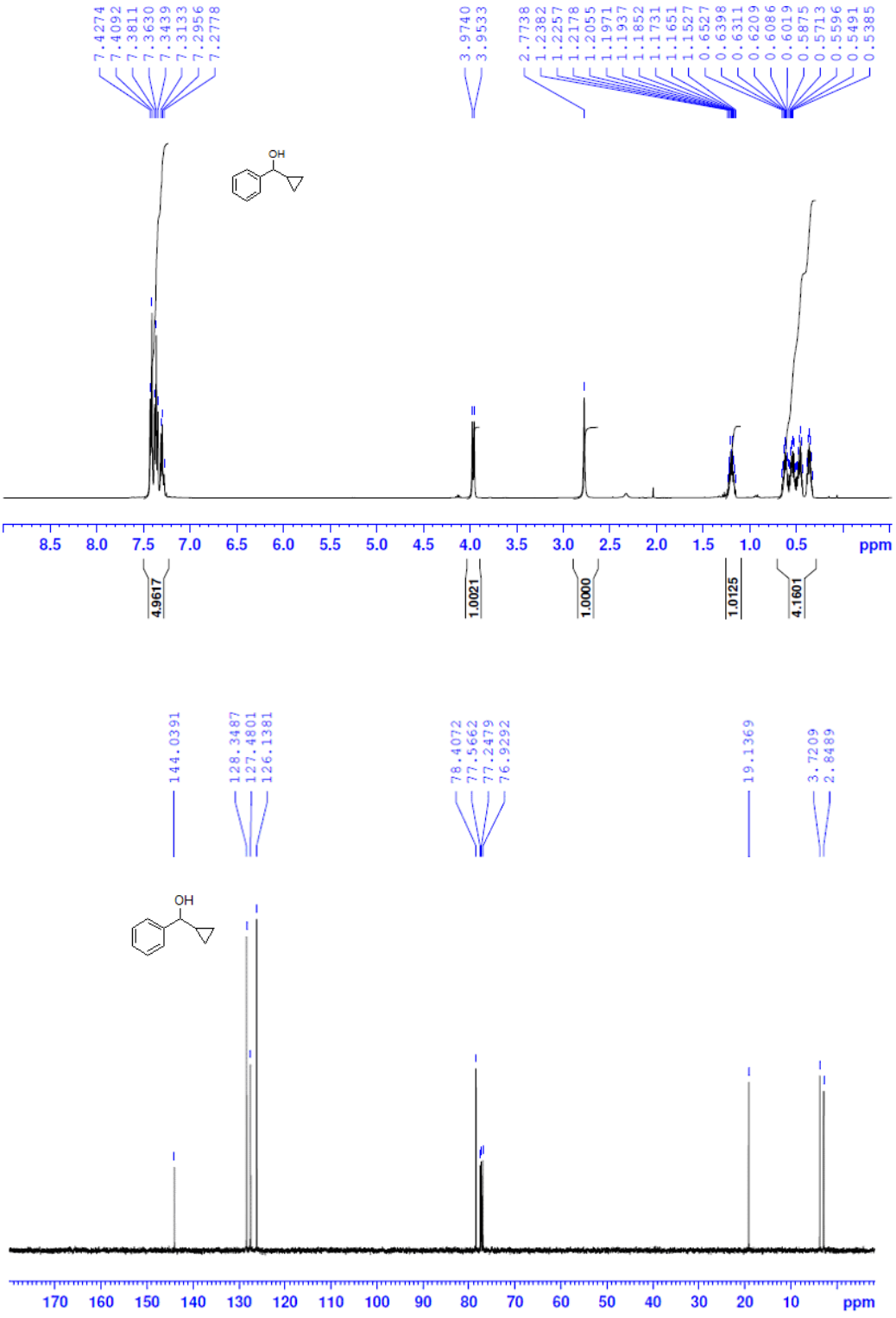
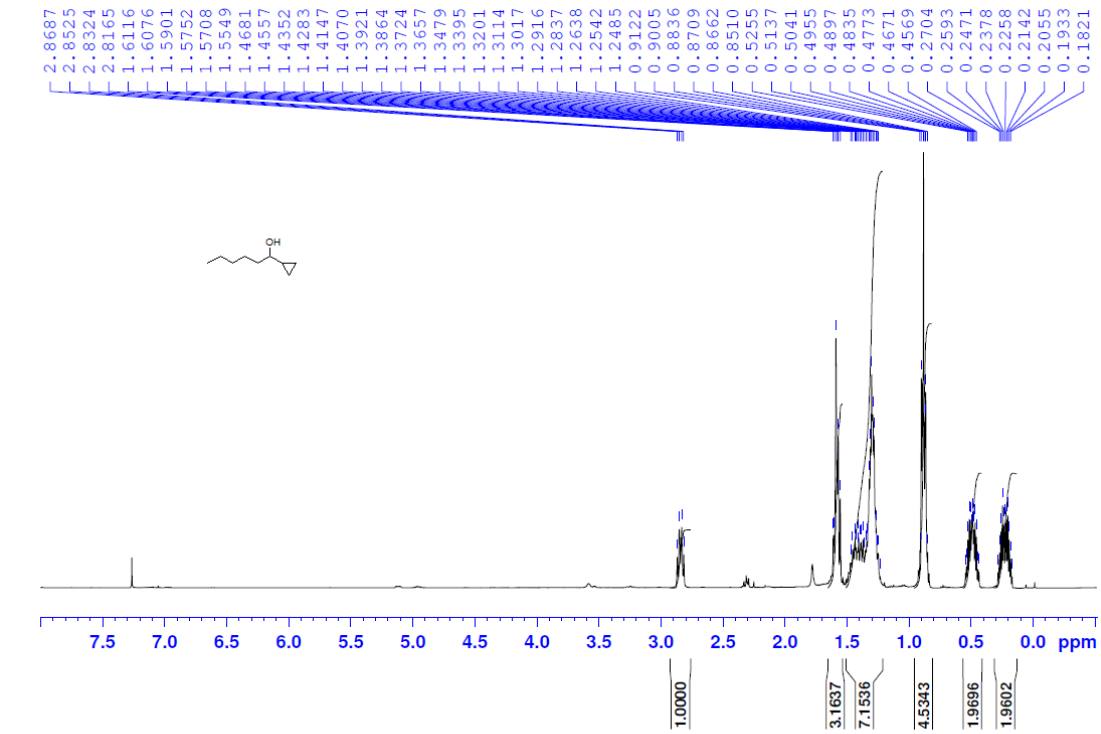


Figure S26. ^{1}H and ^{13}C NMR Spectra of 1-cyclopropylhexan-1-ol (**1x**)



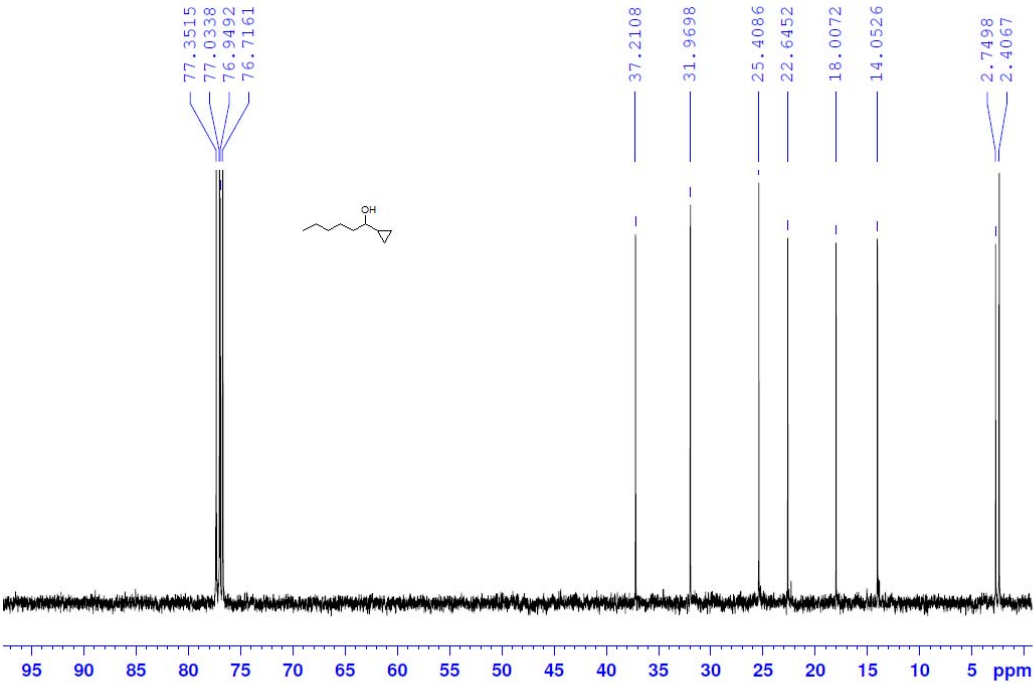


Figure S27. ^{1}H and ^{13}C NMR Spectra of *cis*-Tetrahydro-3-iodo-2-phenyl-2-(2-phenyl ethynyl)furan (**2a**)

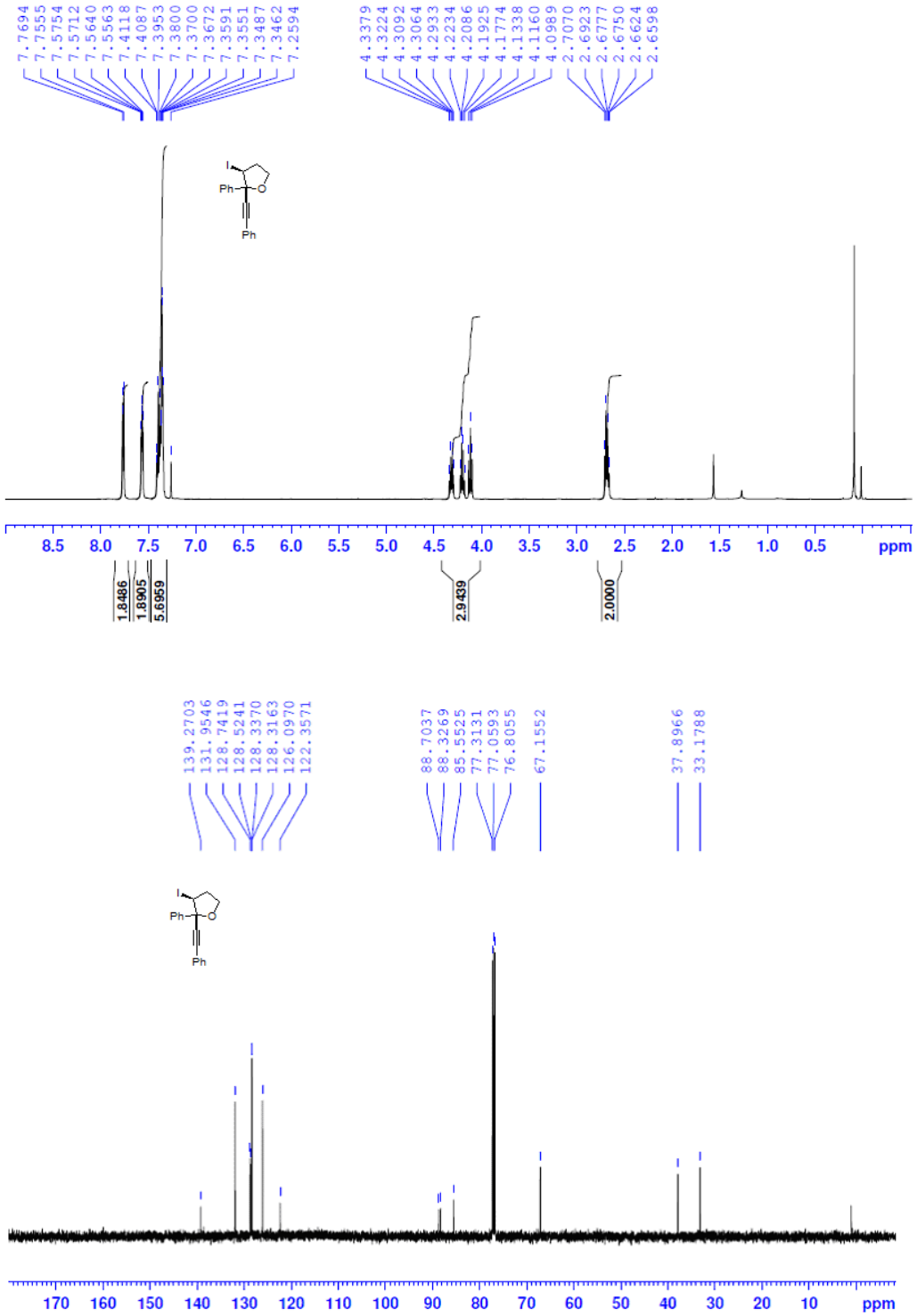
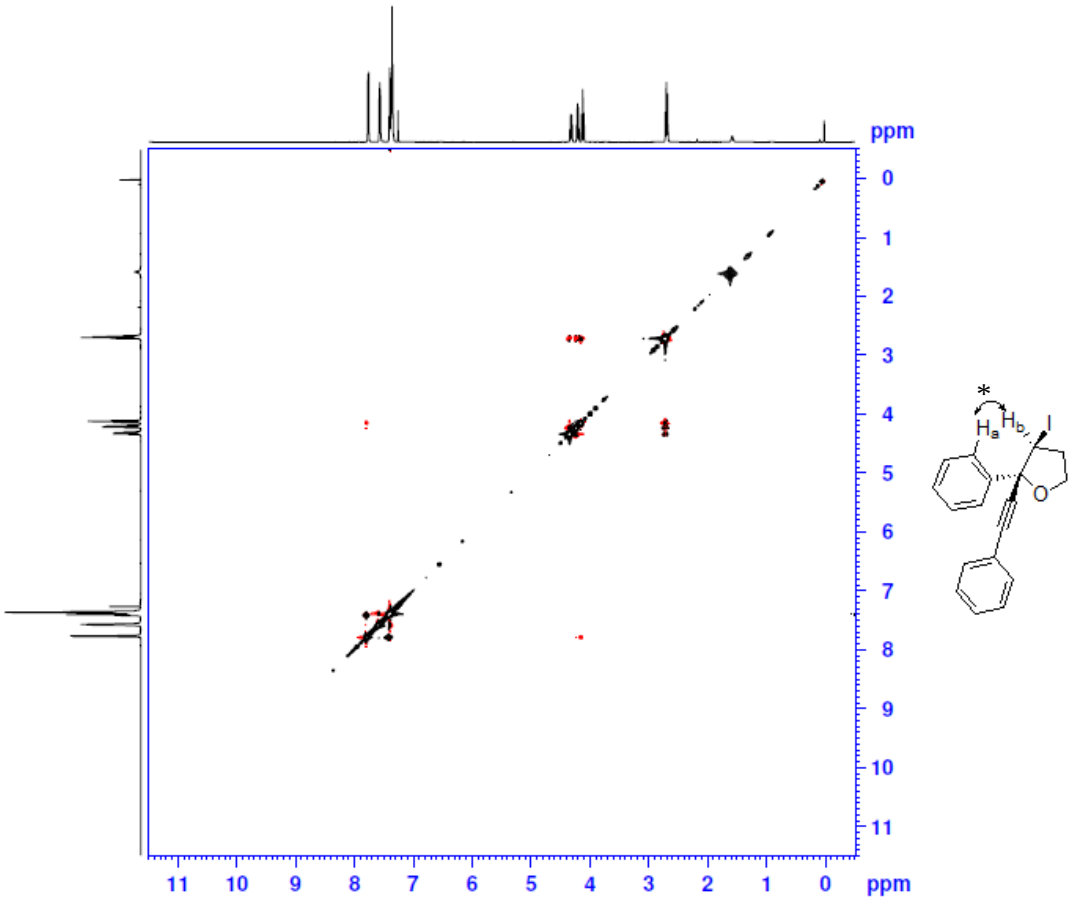


Figure S28. ^{1}H-^{1}H NOESY Spectrum of *cis*-Tetrahydro-3-iodo-2-phenyl-2-(2-phenyl ethynyl)furan (**2a**)



*^{1}H-^{1}H NOESY correlation observed between H_a at 7.76 ppm and H_b at 4.11 ppm.

Figure S29. ^{1}H and ^{13}C NMR Spectra of 2,2-Bis(4-fluorophenyl)-tetrahydro-3-iodofuran (**2b**)

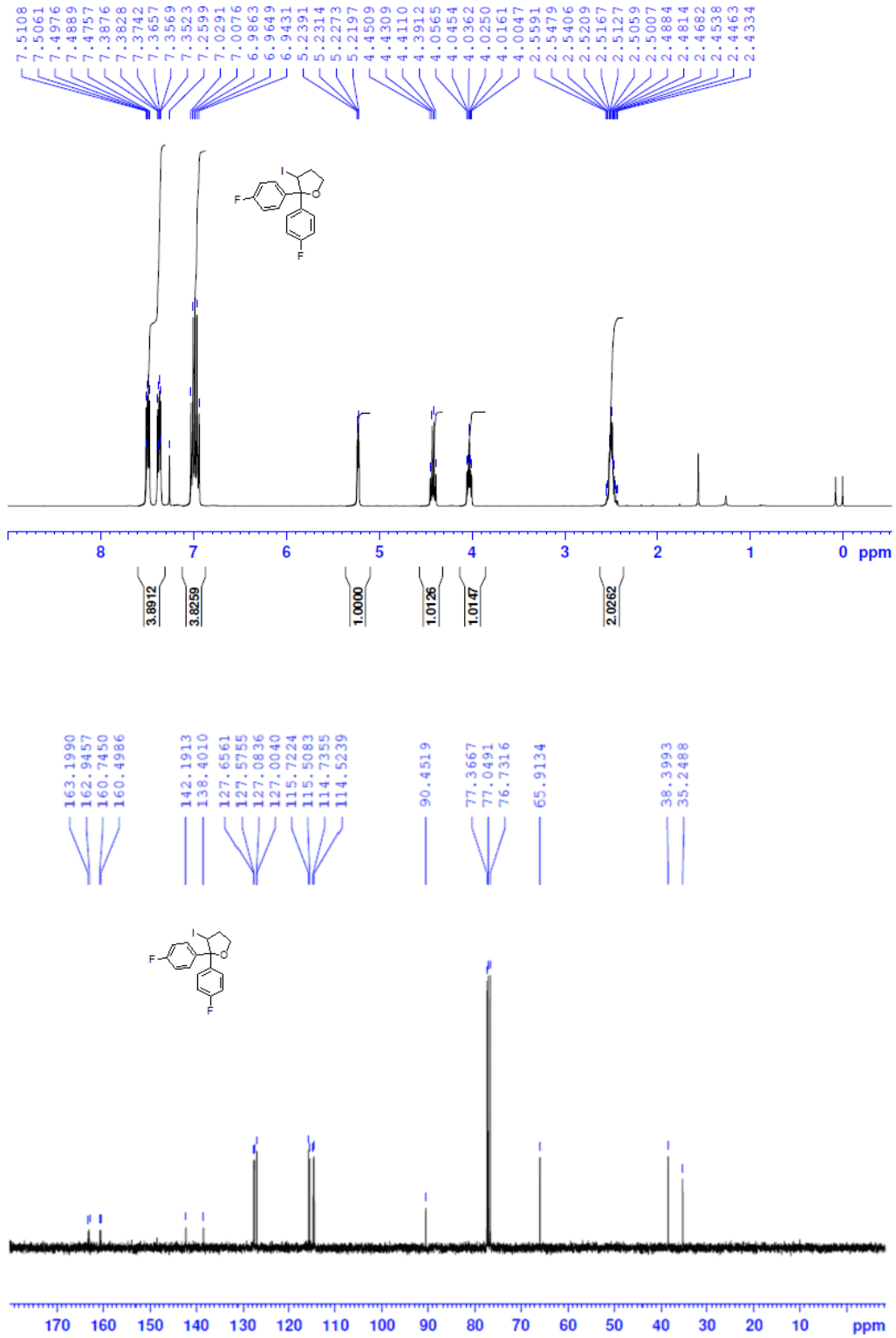


Figure S30. ^{1}H and ^{13}C NMR Spectra of 2,2-Bis(4-chlorophenyl)-tetrahydro-3-iodofuran (**2c**)

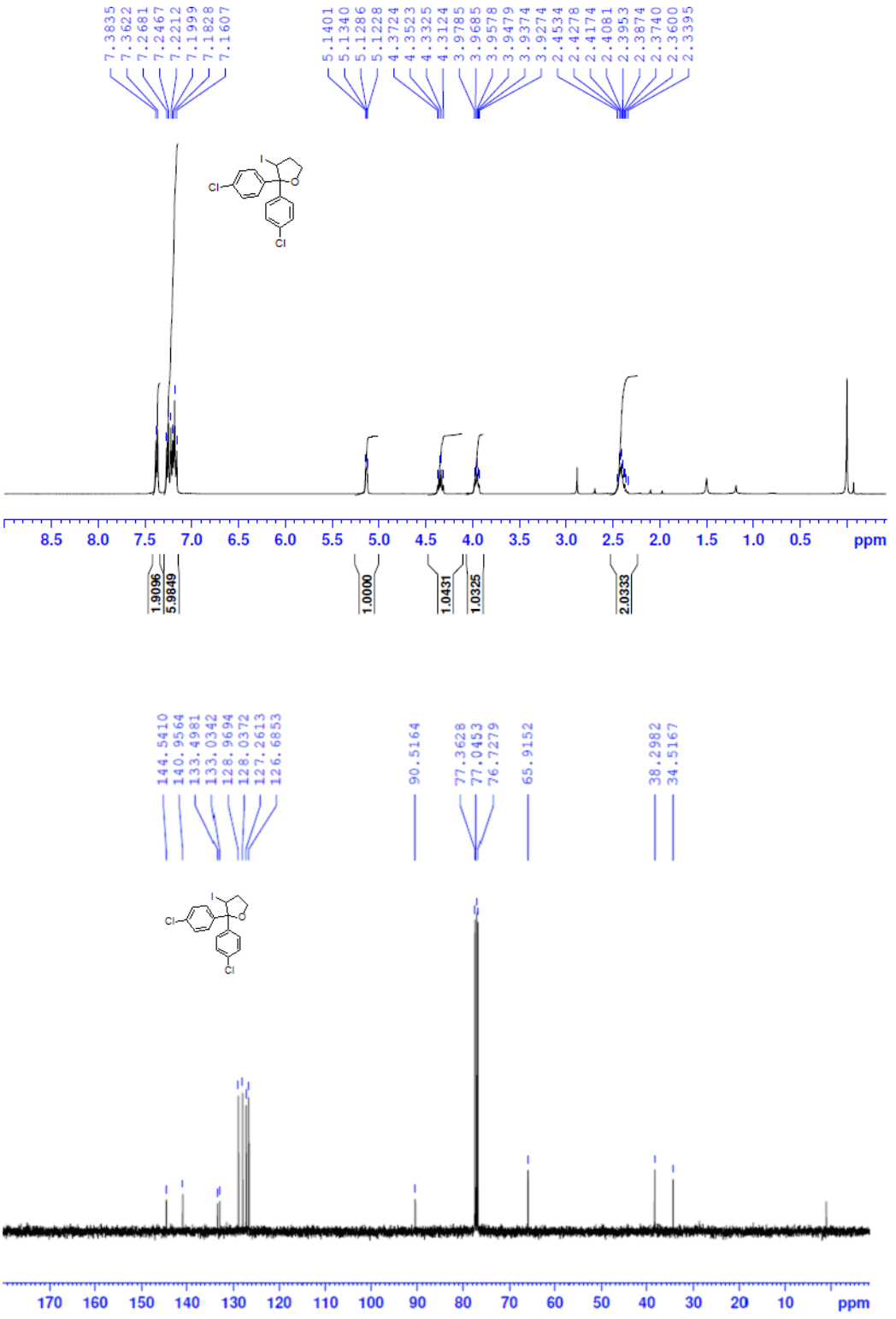


Figure S31. ^{1}H and ^{13}C NMR Spectra of 2,2-Bis(4-bromophenyl)-tetrahydro-3-iodofuran (**2d**)

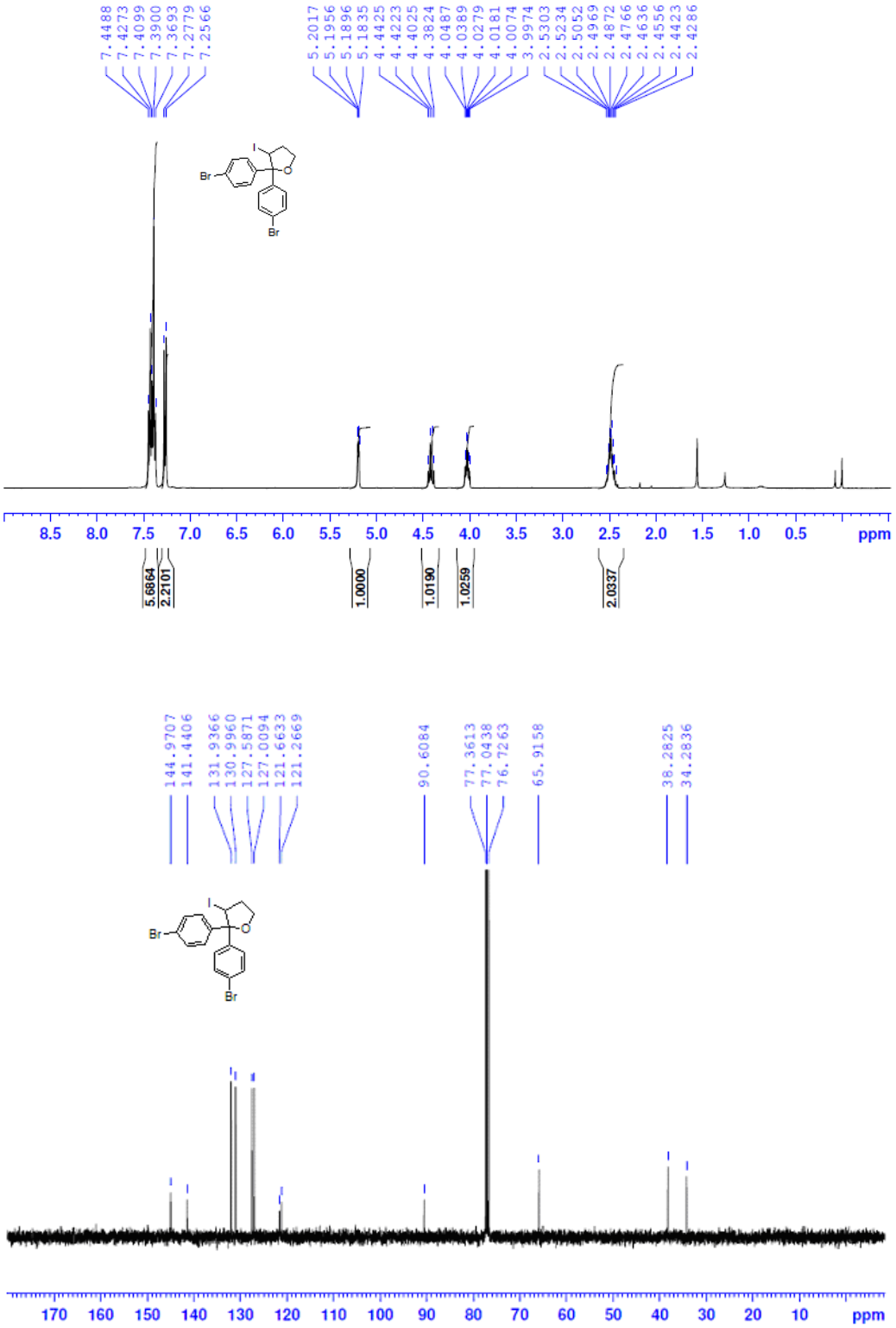


Figure S32. ^{1}H and ^{13}C NMR Spectra of Tetrahydro-3-iodo-2,2-diphenylfuran (**2e**)

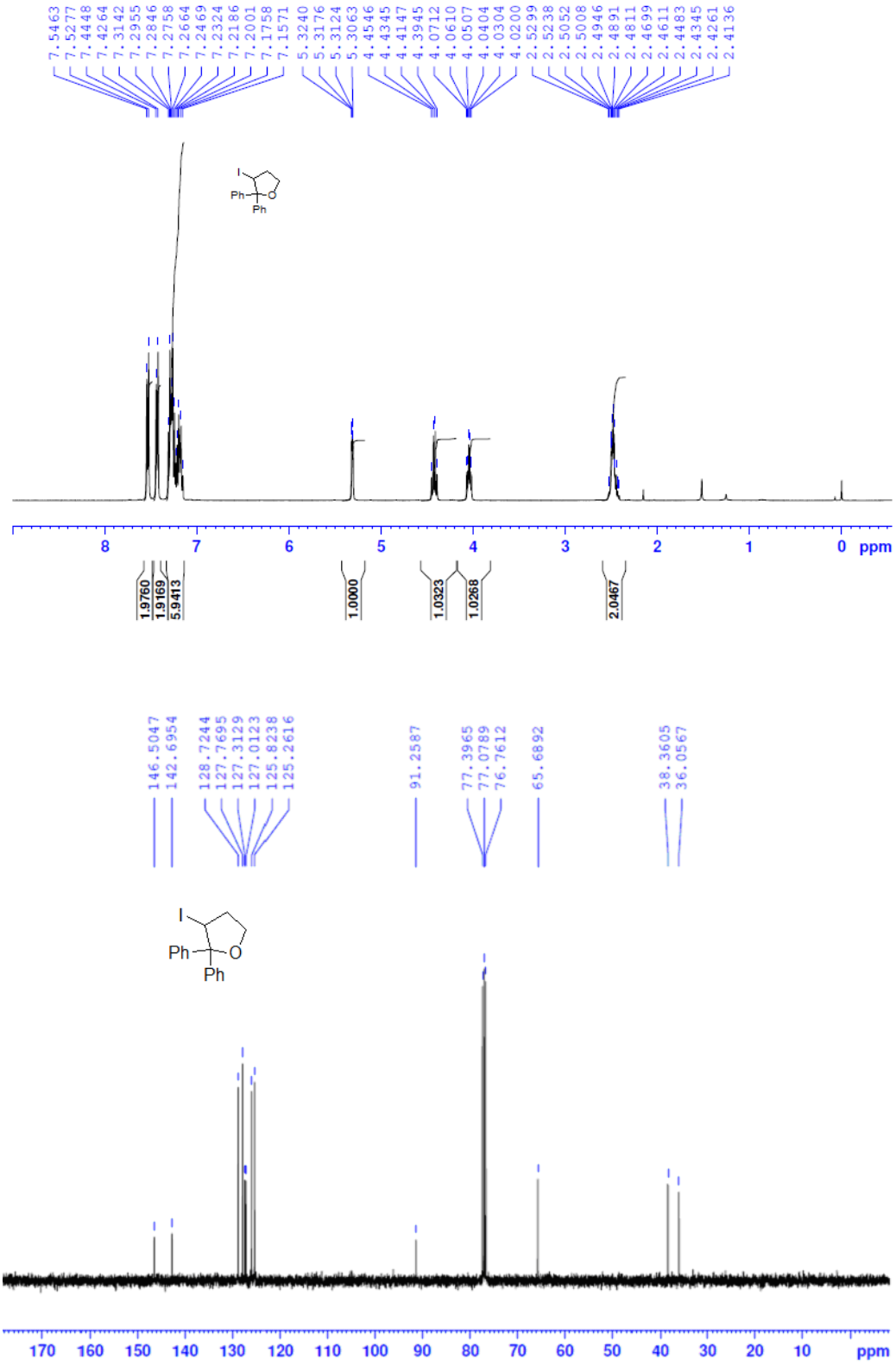


Figure S33. ^{1}H and ^{13}C NMR Spectra of Tetrahydro-3-iodo-2,2-dip-tolylfuran (**2f**)

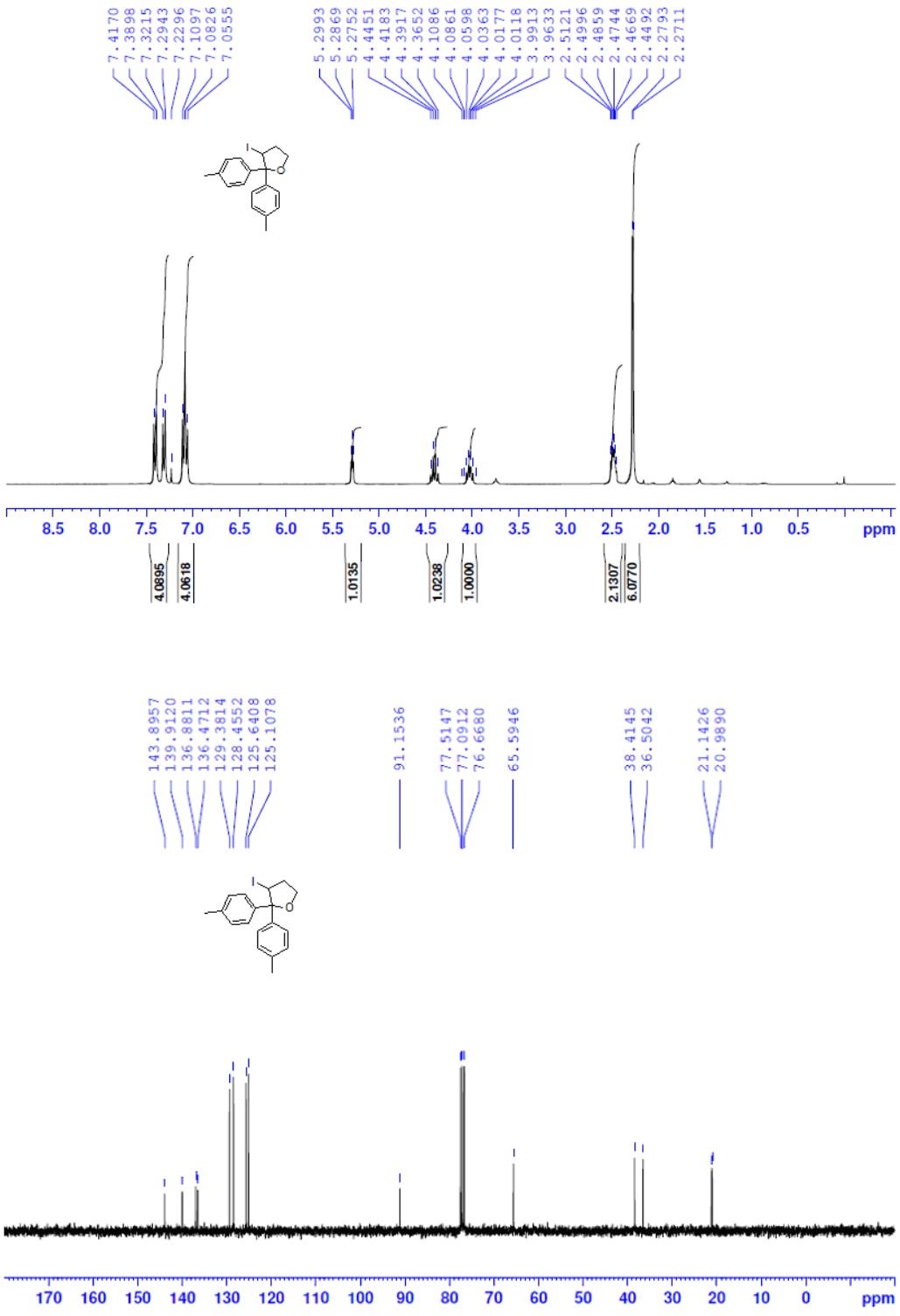


Figure S34. ^{1}H and ^{13}C NMR Spectra of Tetrahydro-3-iodo-2,2-bis(4-methoxyphenyl) furan (**2g**)

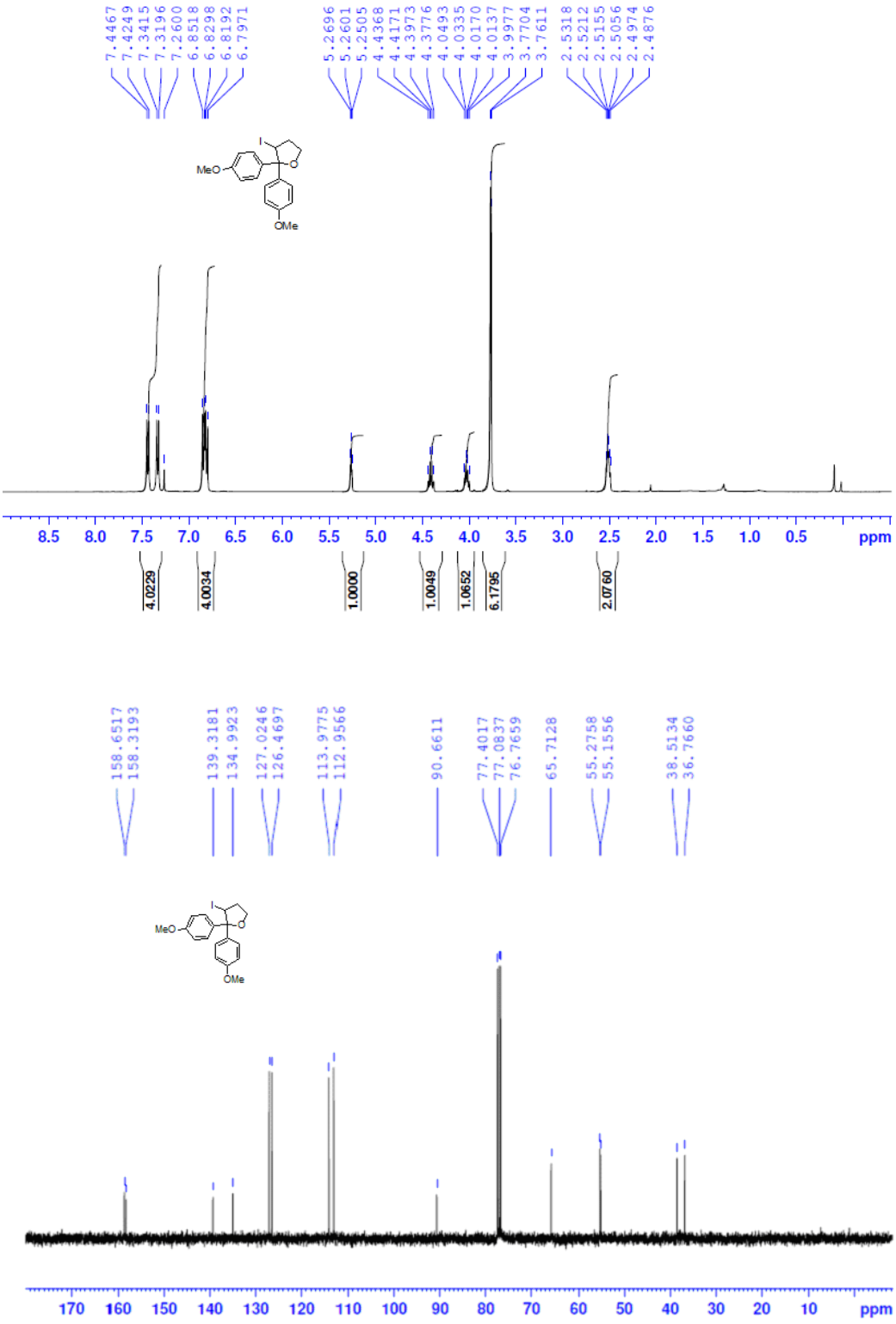


Figure S35. ^{1}H and ^{13}C NMR Spectra of 2-(4-Chlorophenyl)-tetrahydro-3-iodo-2-*p*-tolylfuran (**2h**)

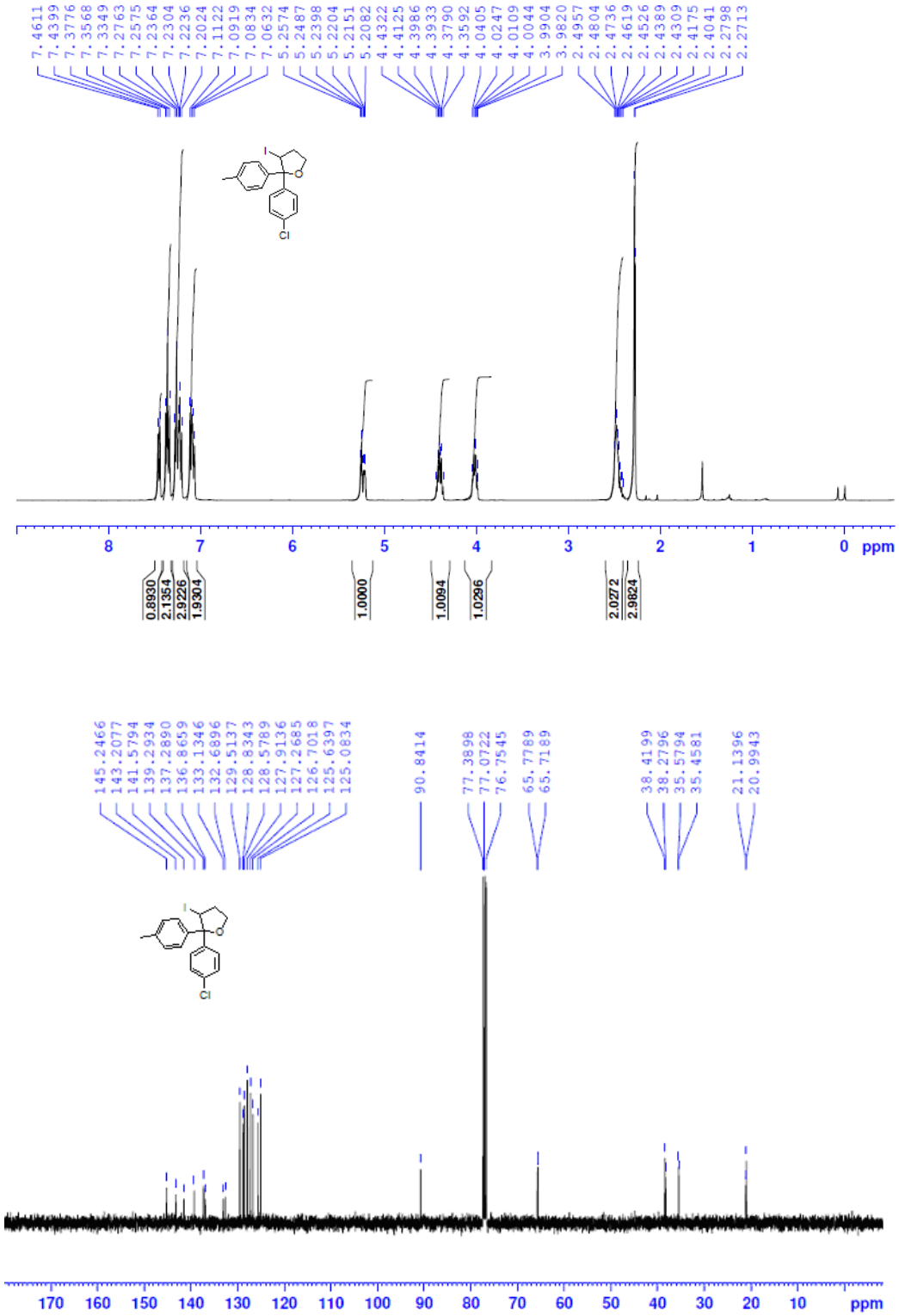


Figure S36. ^{1}H and ^{13}C NMR Spectra of 2-(4-Chlorophenyl)-tetrahydro-3-iodo-2-(4-methoxyphenyl)furan (**2i**)

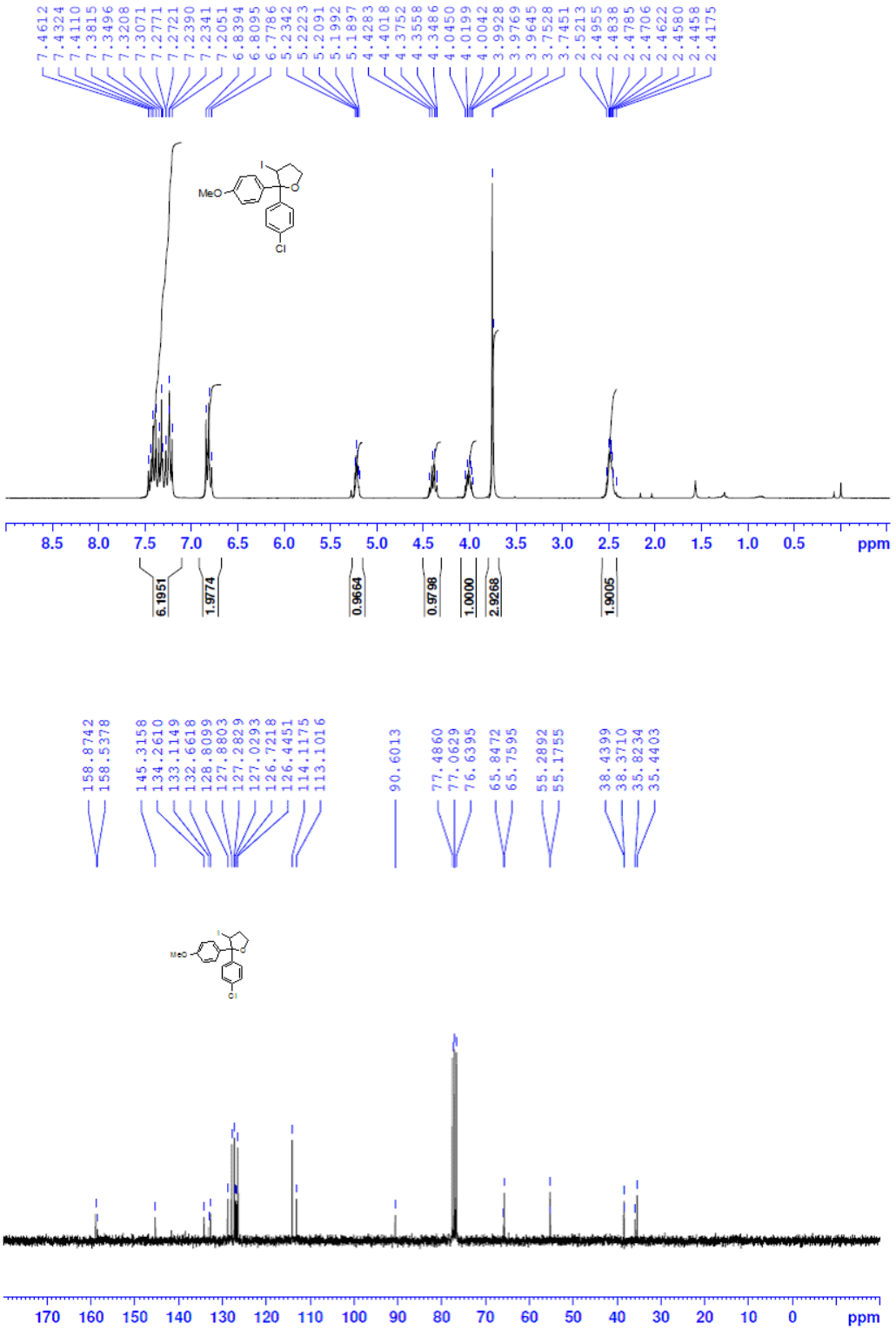


Figure S37. ^{1}H and ^{13}C NMR Spectra of Tetrahydro-3-iodo-2-phenyl-2-*p*-tolylfuran (**2j**)

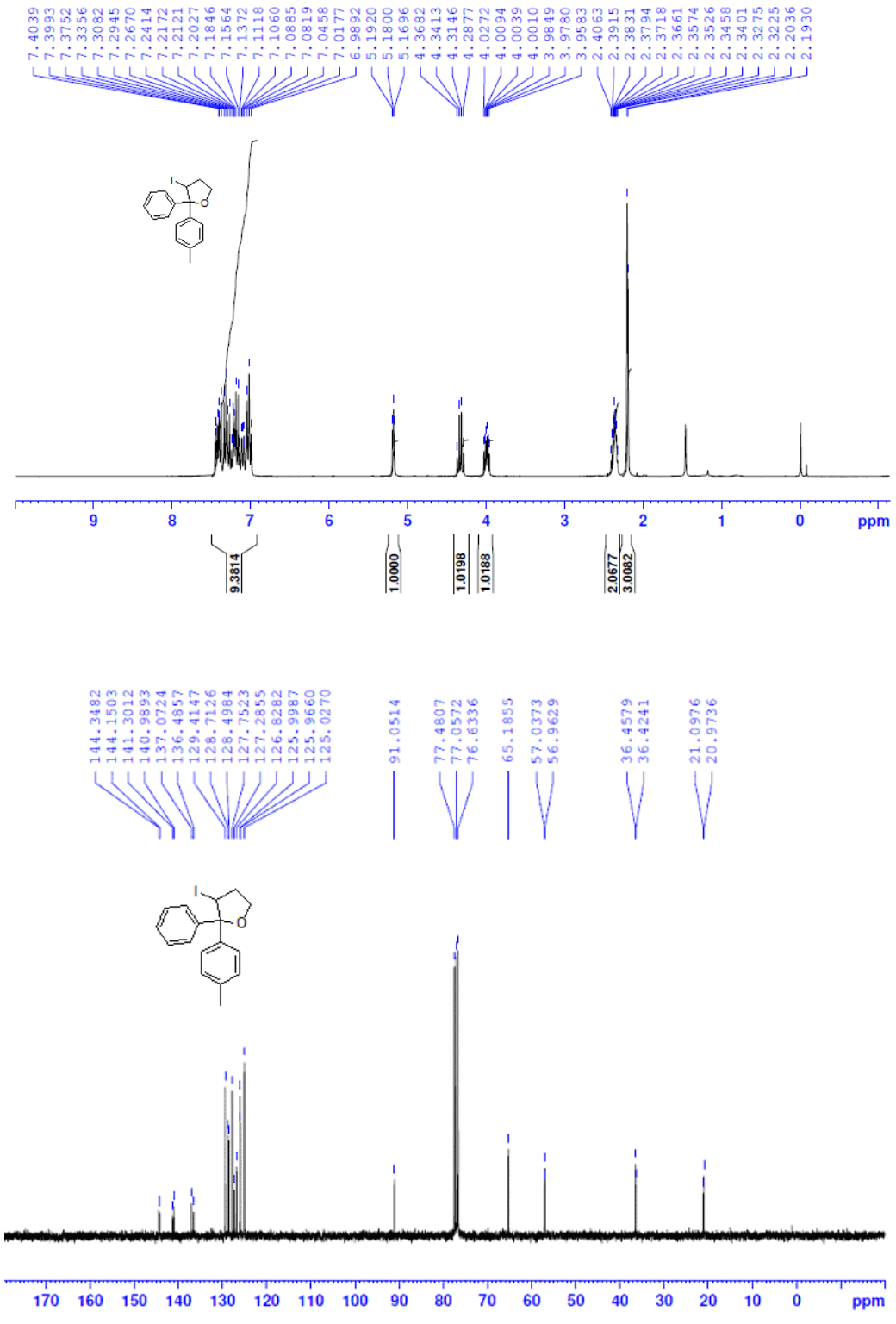


Figure S38. ^{1}H and ^{13}C NMR Spectra of 2-(4-Biphenyl)-tetrahydro-3-iodo-2-phenylfuran (**2k**)

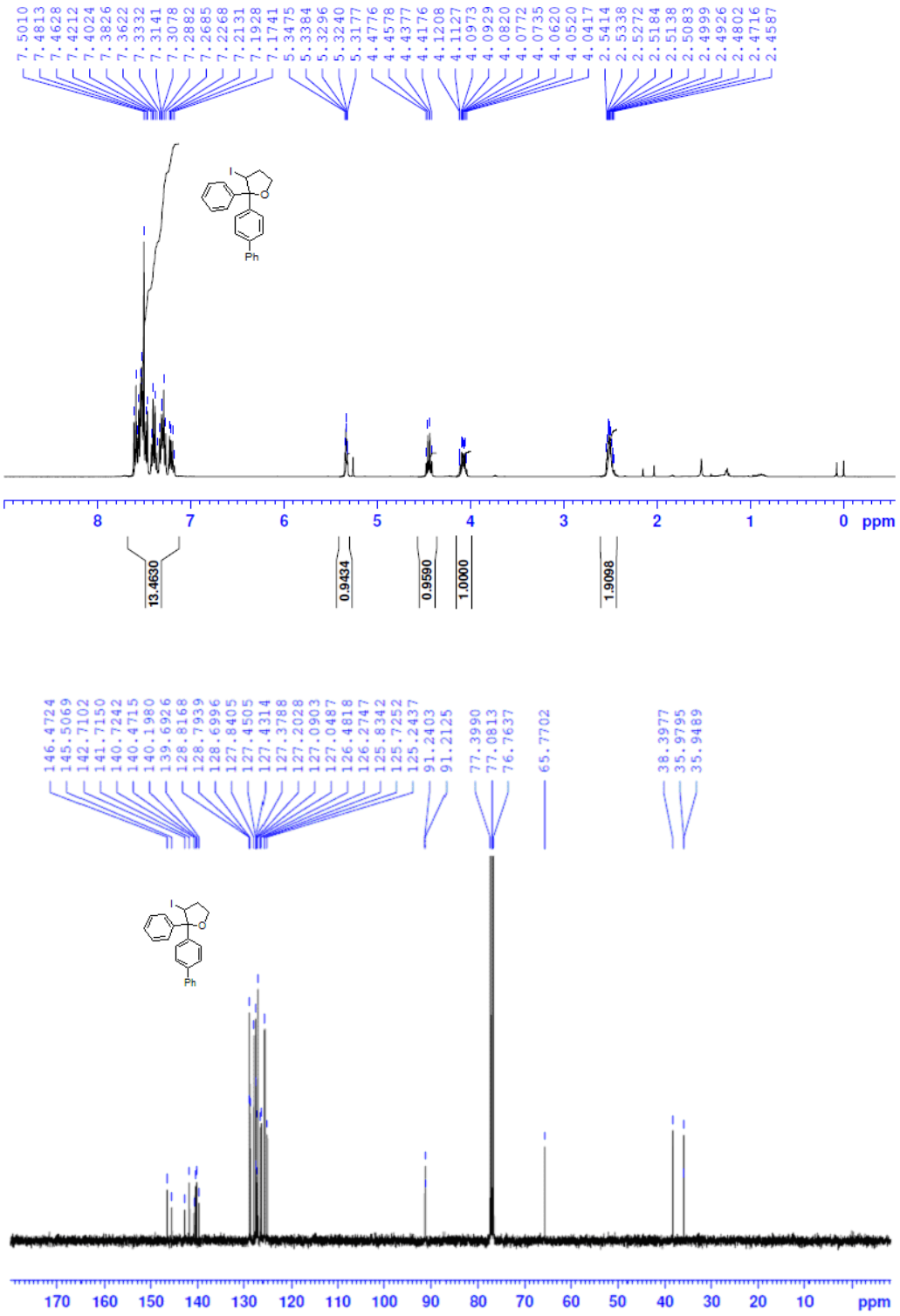


Figure S39. ^{1}H and ^{13}C NMR Spectra of Tetrahydro-3-iodo-2-(naphthalen-1-yl)-2-phenyl furan (**2l**)

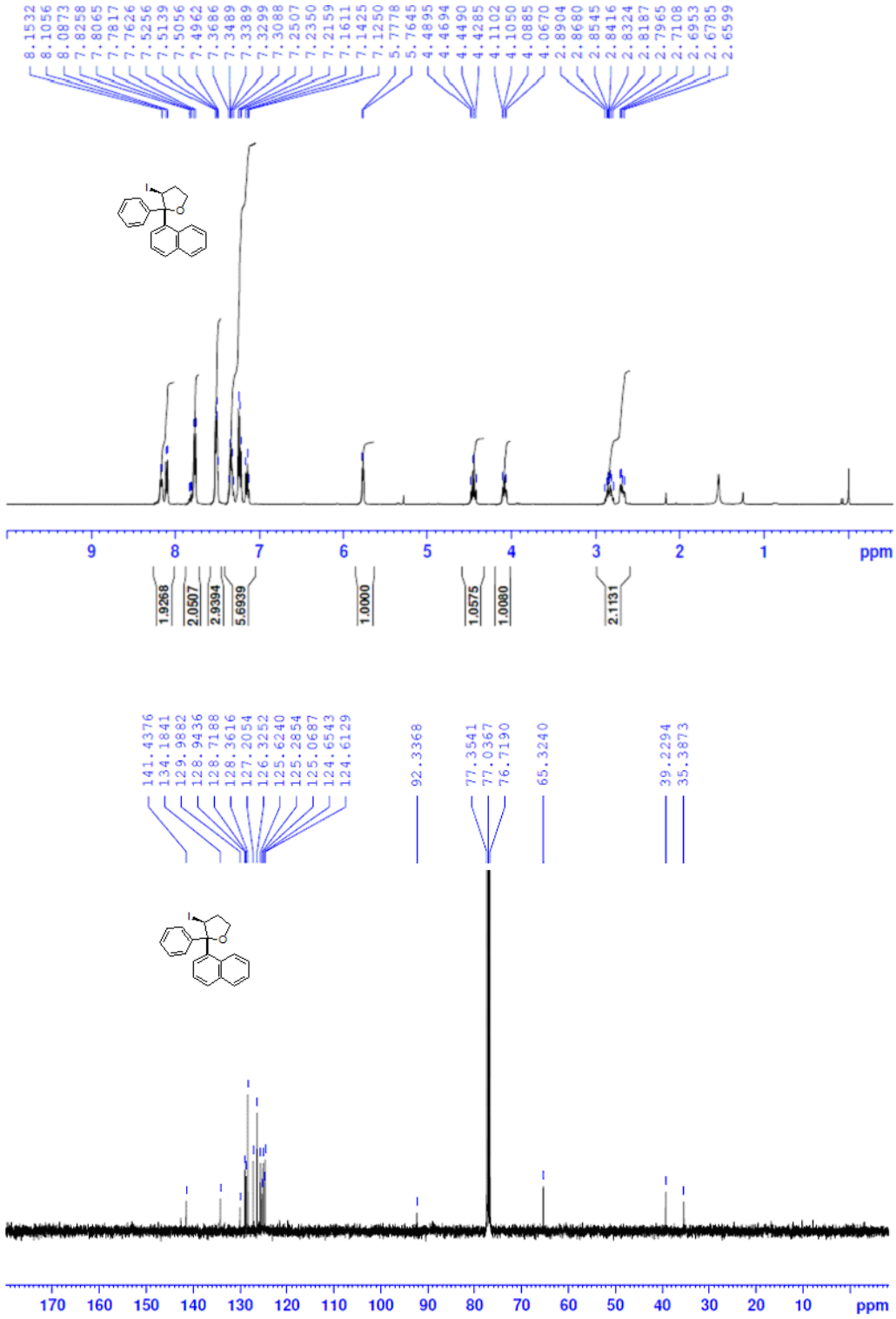


Figure S40. ^{1}H and ^{13}C NMR Spectra of *cis*-Tetrahydro-3-iodo-2-pentyl-2-phenylfuran (**2m**)

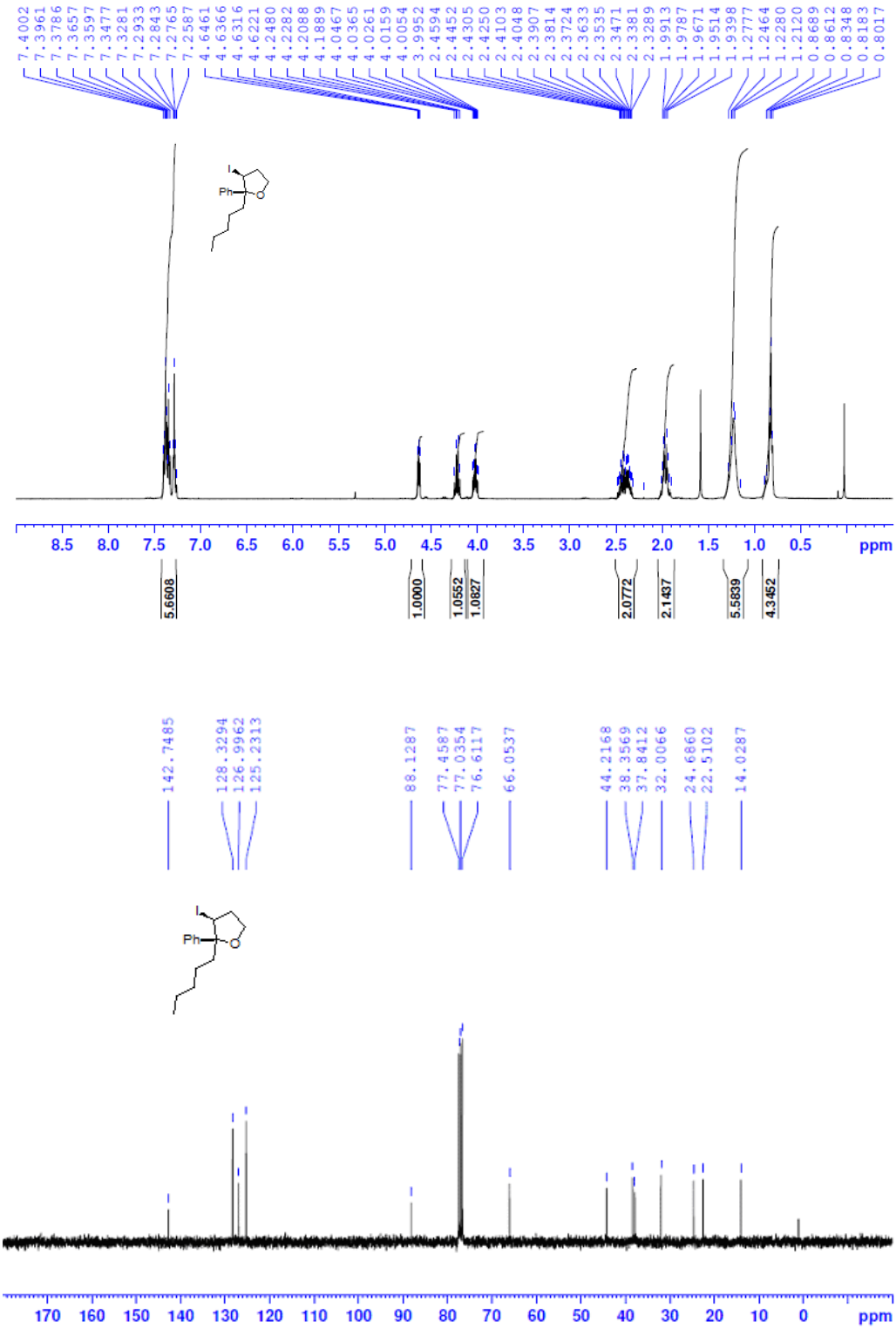
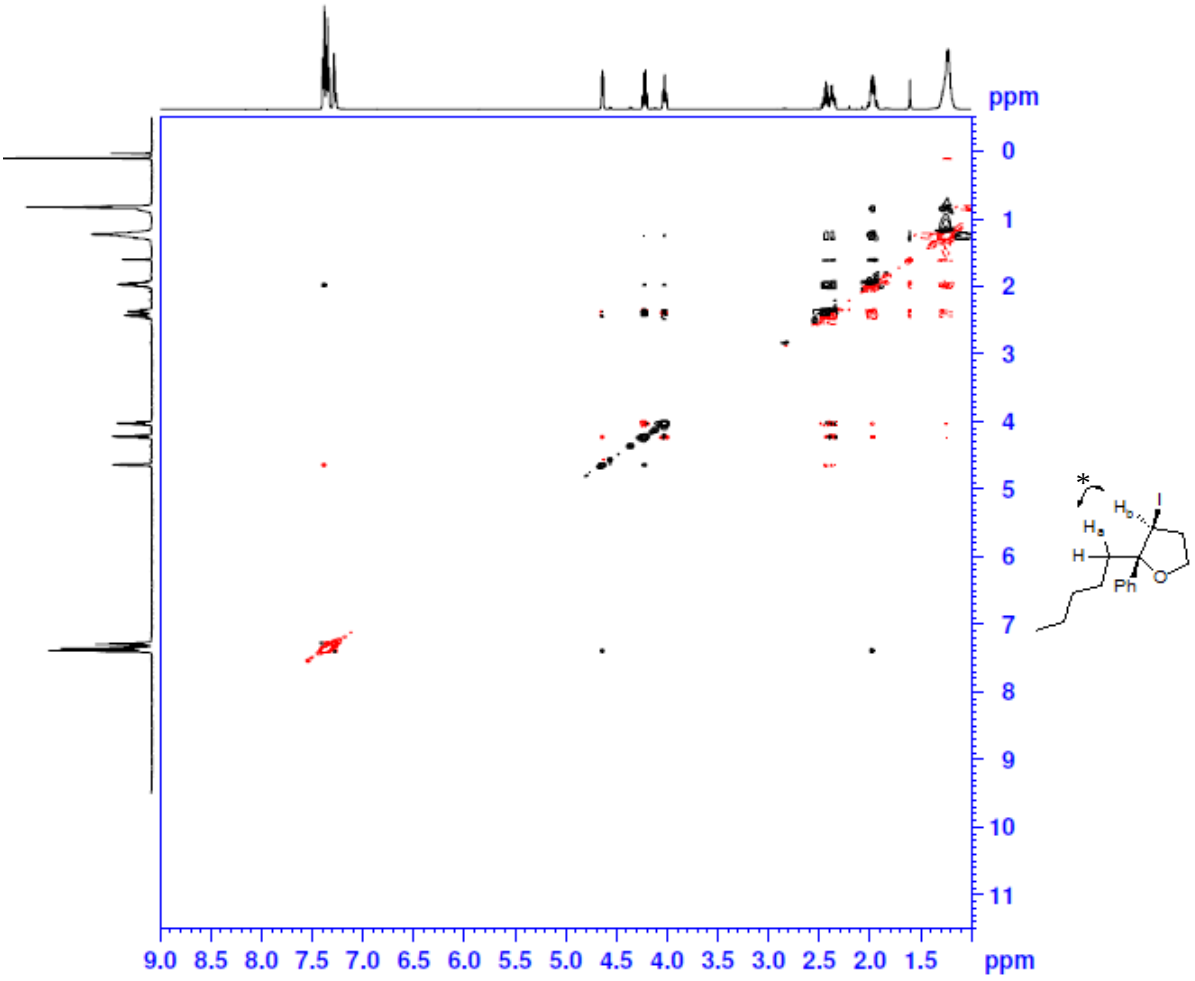


Figure S41. ^{1}H-^{1}H NOESY Spectrum of *cis*-Tetrahydro-3-iodo-2-pentyl-2-phenylfuran (**2m**)



*^{1}H-^{1}H NOESY correlation observed between H_a at 1.96 ppm and H_b at 4.02 ppm.

Figure S42. Expansion of NOESY Spectrum of *cis*-Tetrahydro-3-iodo-2-pentyl-2-phenyl furan (**2m**)

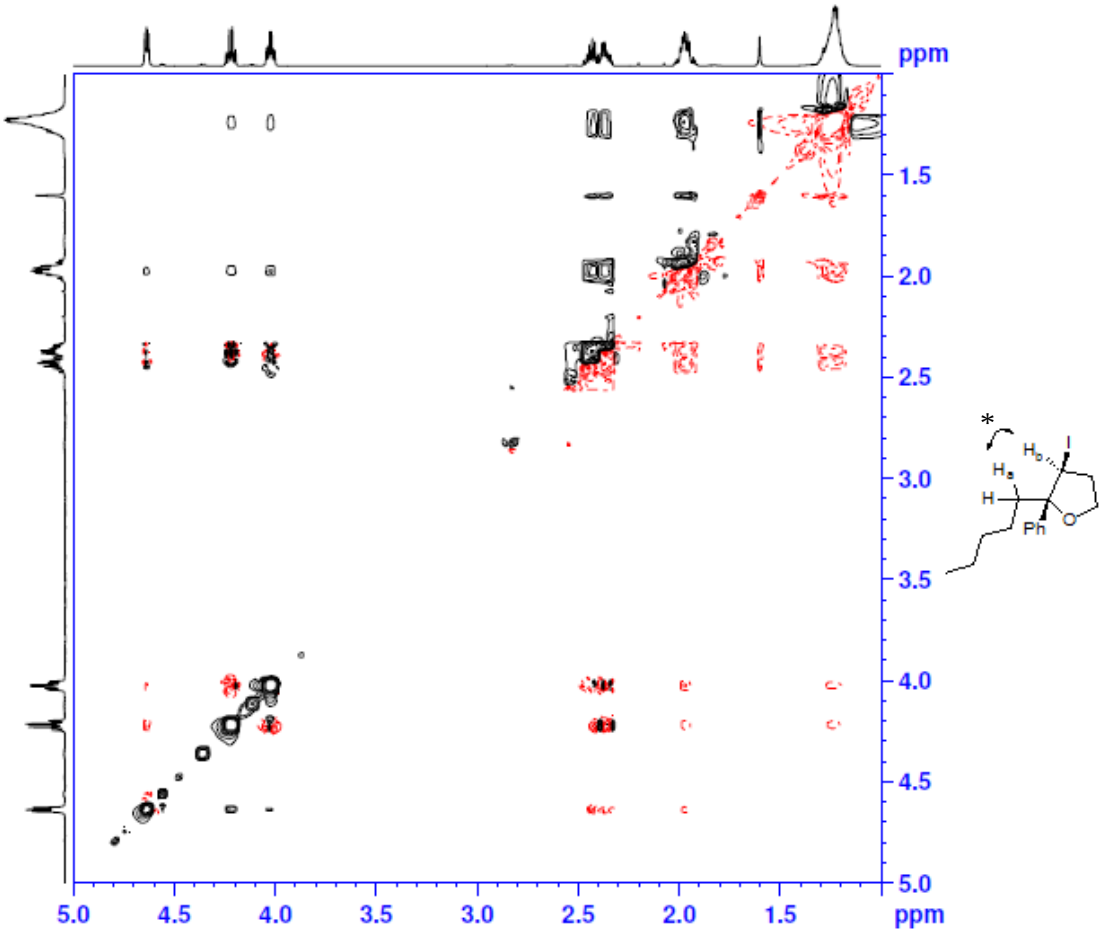


Figure S43. ^{1}H and ^{13}C NMR Spectra of 2-tert-Butyl-tetrahydro-3-iodo-2-phenylfuran (**2n**)

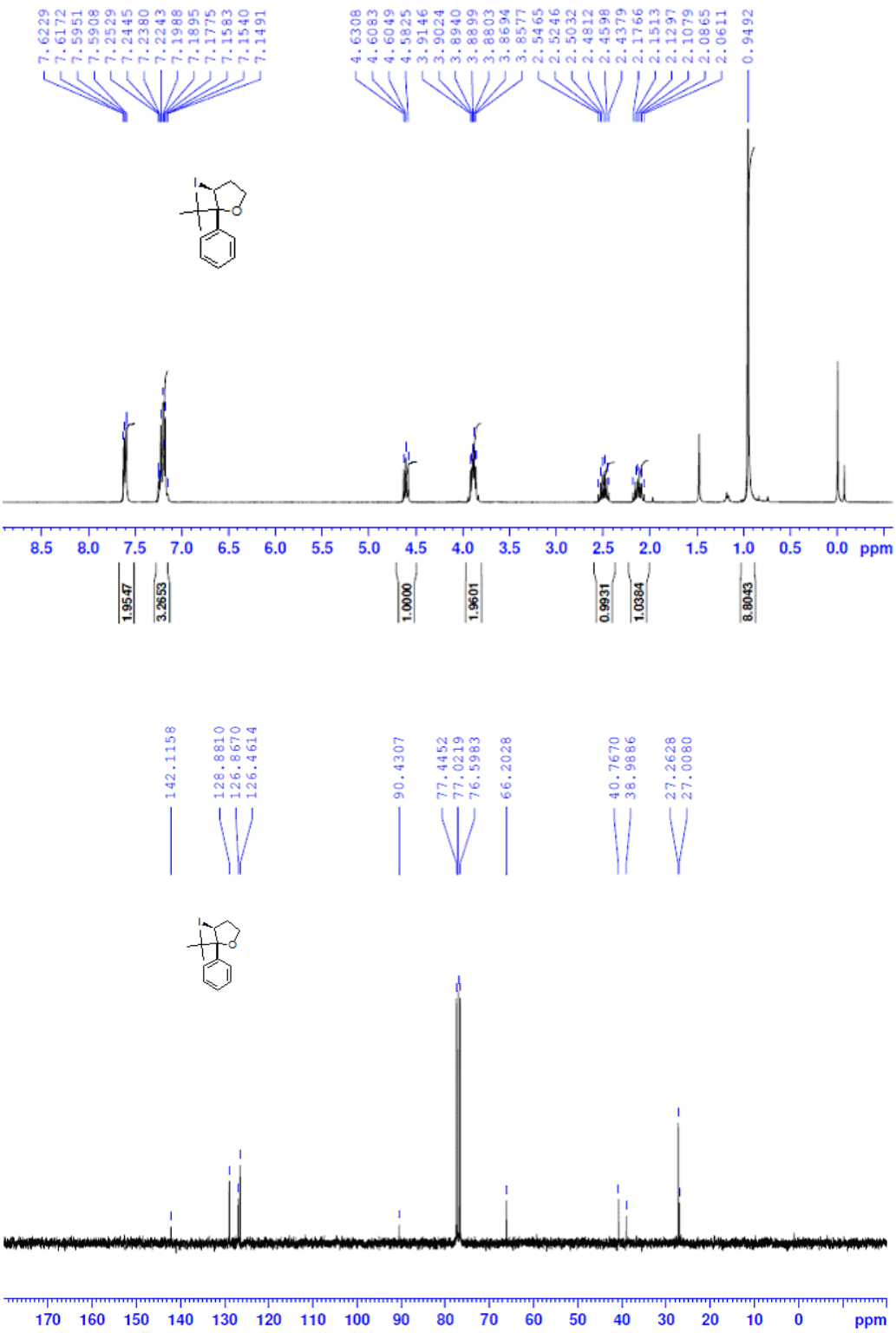


Figure S44. ^{1}H and ^{13}C NMR Spectra of *Cis*-2-(4-chlorophenyl)-tetrahydro-3-iodo-2-(2-(thiophen-2-yl)ethynyl)furan (**2o**)

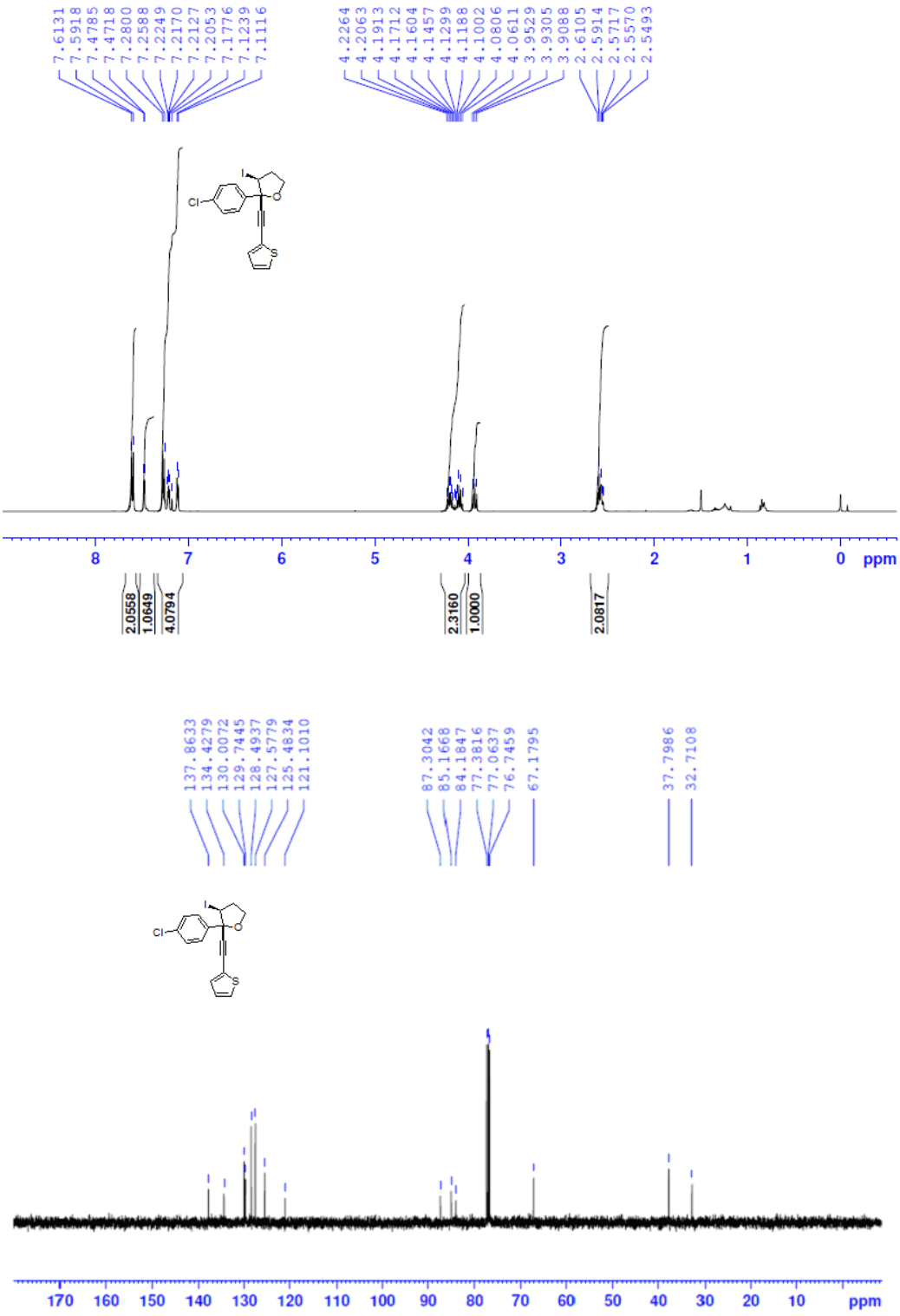


Figure S45. ^{1}H and ^{13}C NMR Spectra of *Cis*-2-(2-(tetrahydro-3-iodo-2-(4-methoxyphenyl) furan-2-yl)ethynyl)pyridine (**2p**)

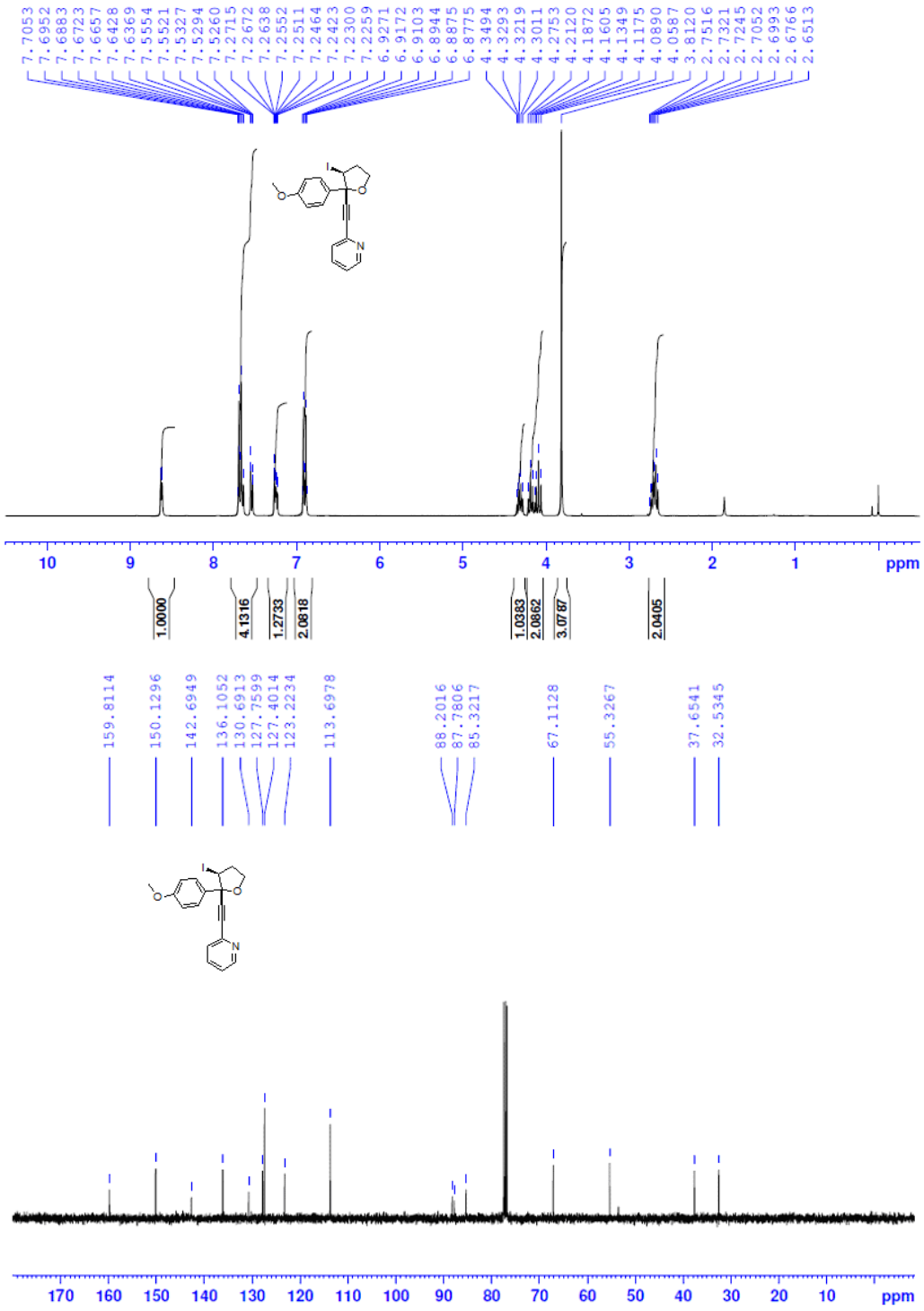


Figure S46. ^{1}H and ^{13}C NMR Spectra of Tetrahydro-3-iodo-2,2-bis(2-phenylethynyl)furan (**2q**)

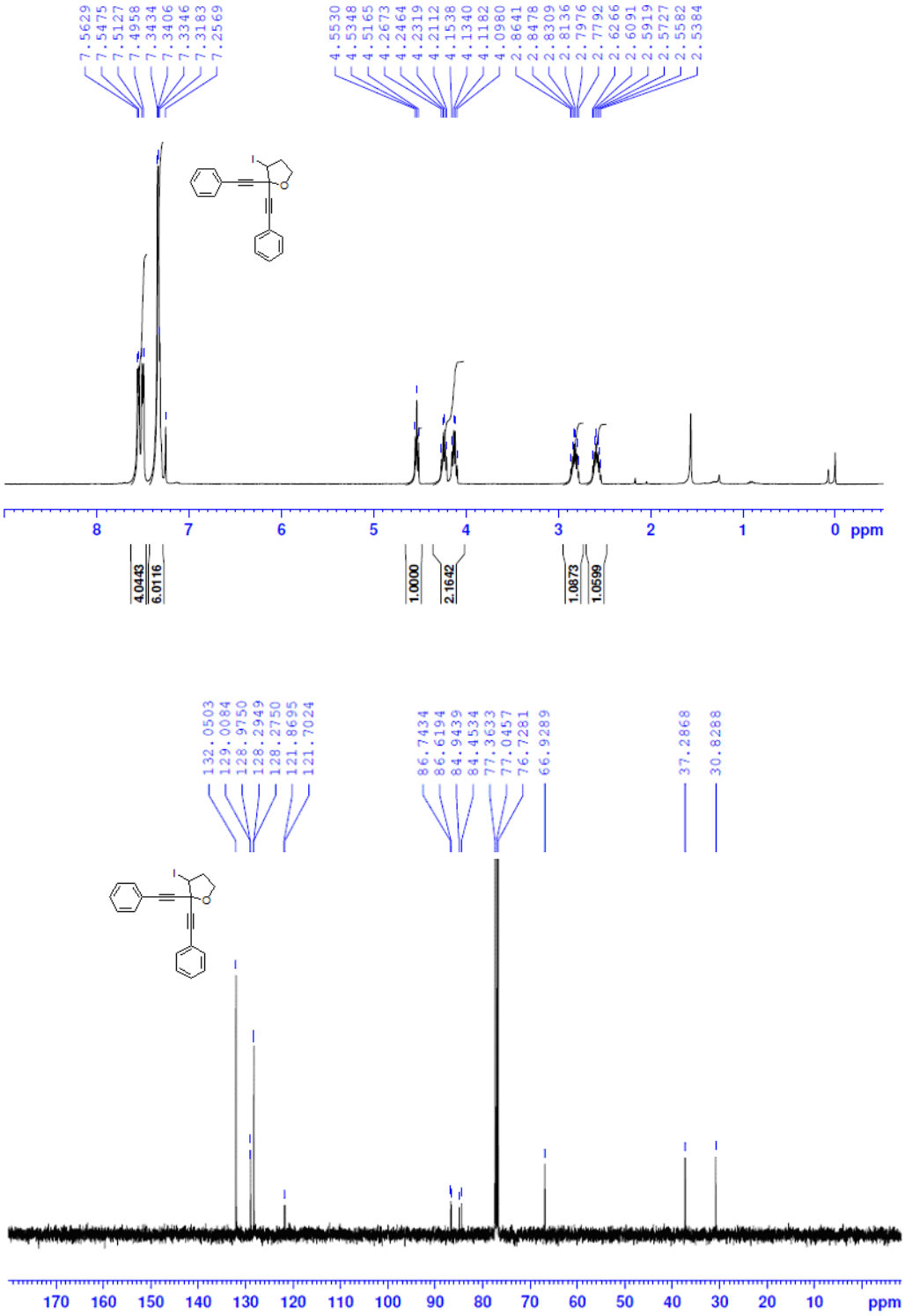


Figure S47. ^{1}H and ^{13}C NMR Spectra of Tetrahydro-3-iodo-2-(1-methylcyclohexyl)-2-(2-phenylethynyl)furan (**2r**)

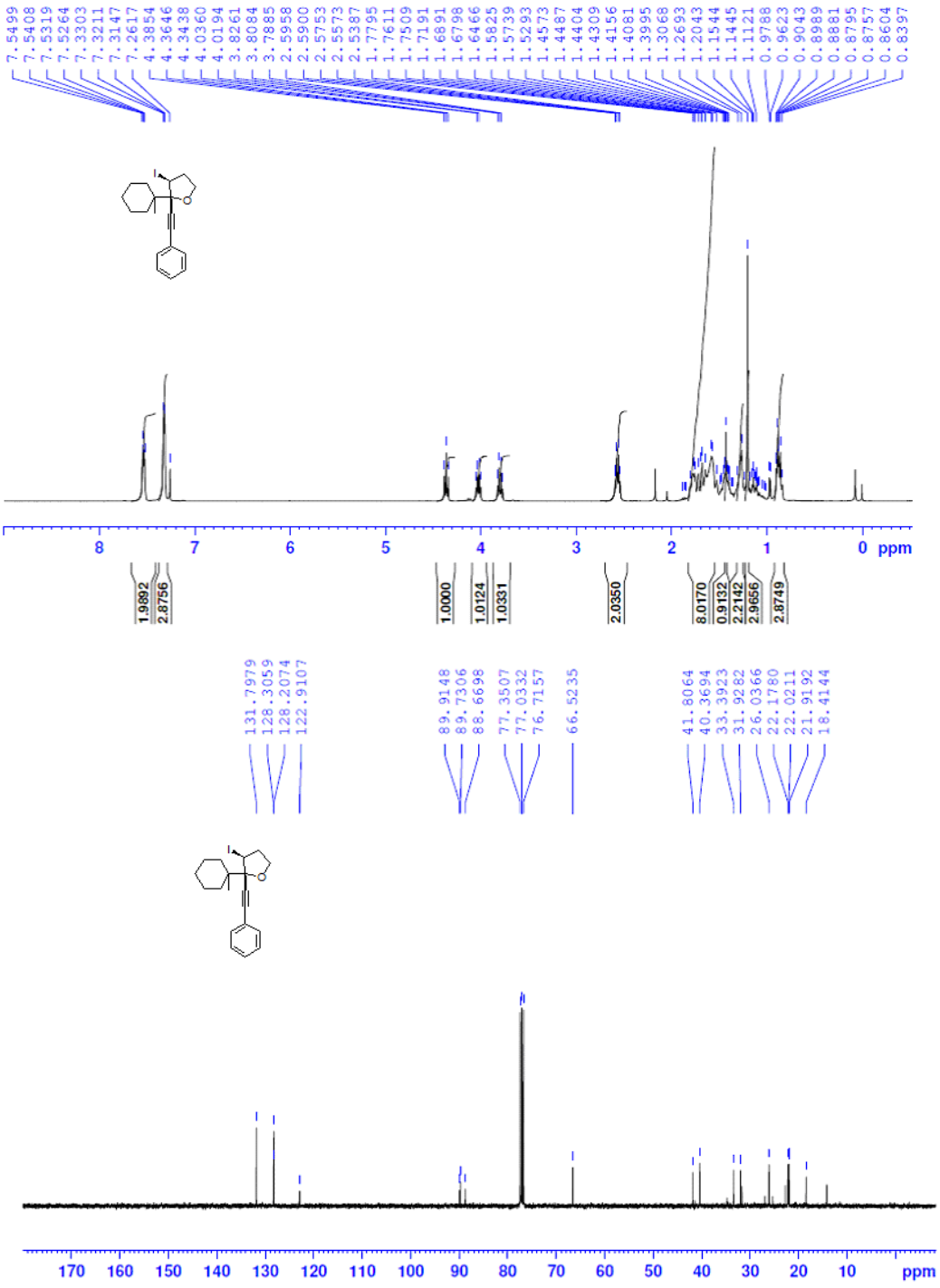


Figure S48. ^{1}H and ^{13}C NMR Spectra of Tetrahydro-3-iodo-2,2,5-triphenylfuran (**2t**)

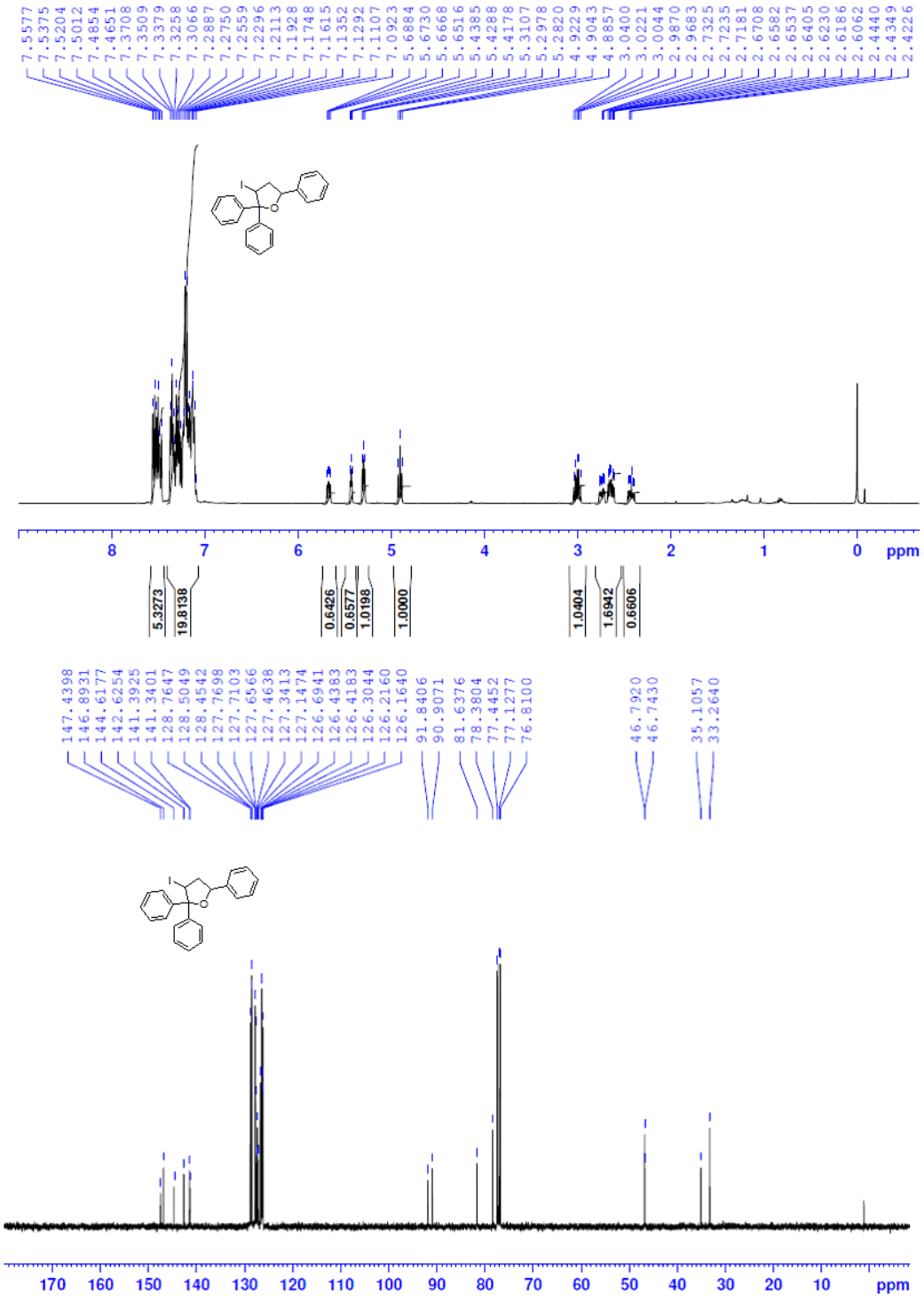


Figure S49. ^{1}H and ^{13}C NMR Spectra of Tetrahydro-3-iodo-5-pentyl-2,2-diphenylfuran (**2u**)

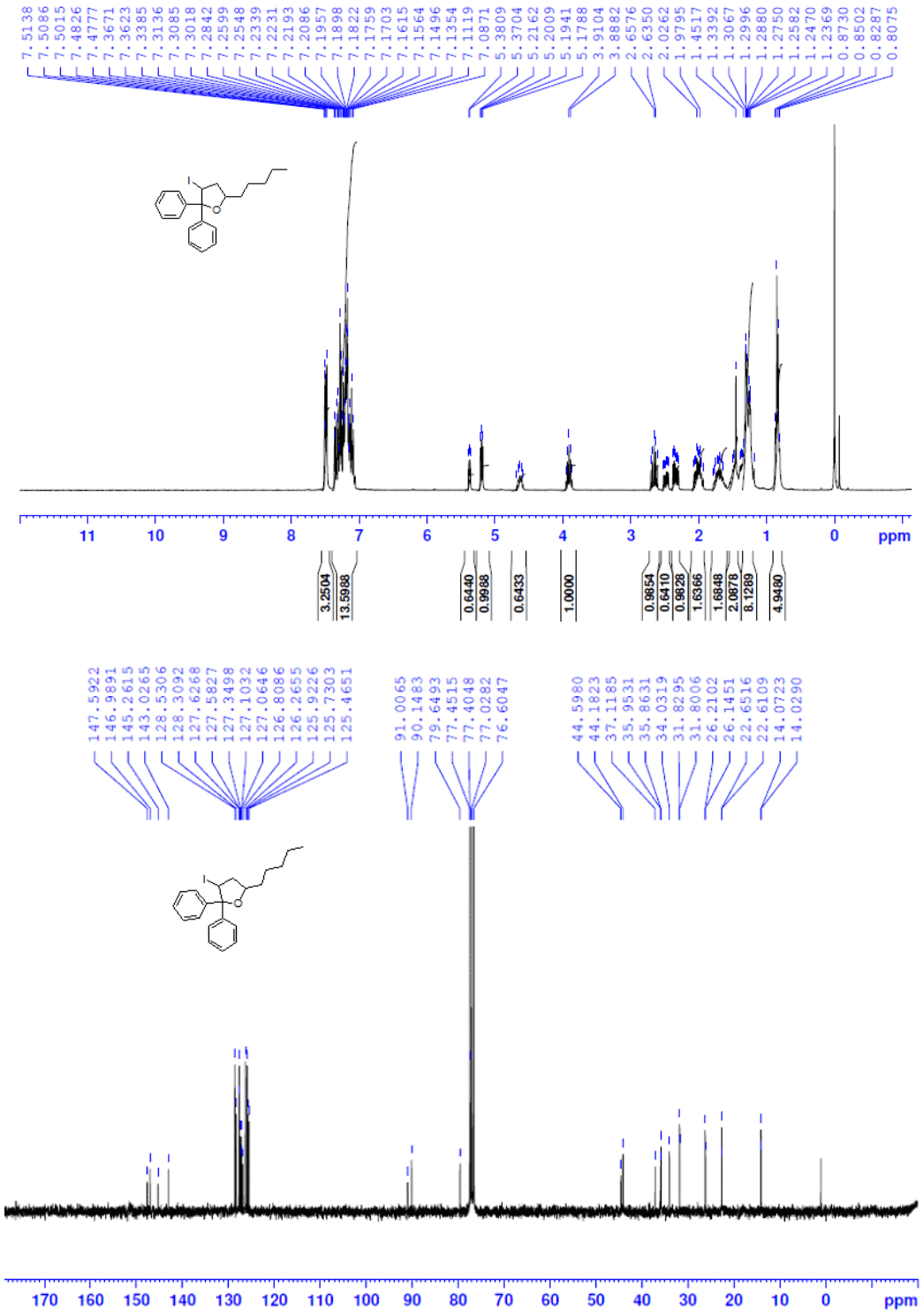
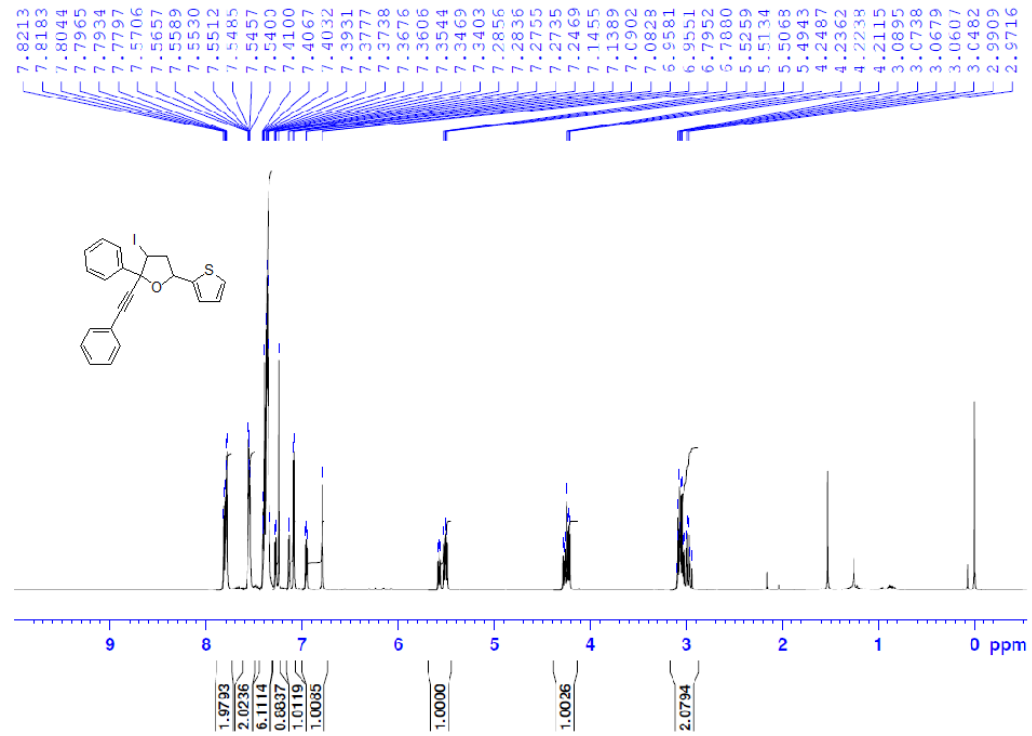


Figure S50. ^{1}H and ^{13}C NMR Spectra of Tetrahydro-3-iodo-2-phenyl-2-(2-phenylethynyl)-5-(thiophen-2-yl)furan (**2v**)



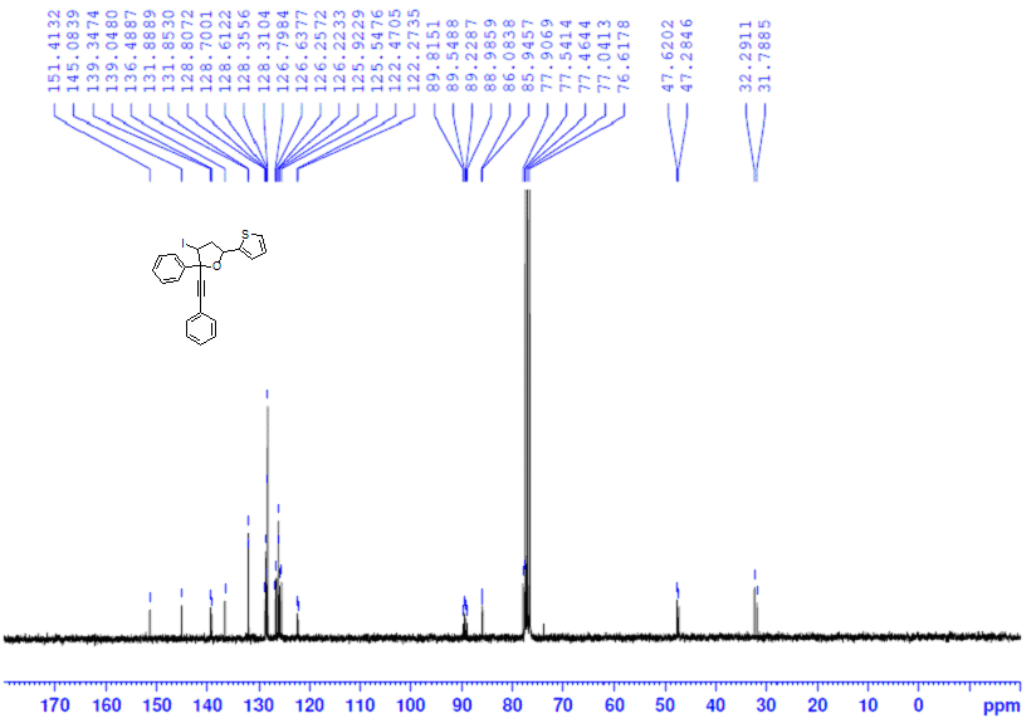
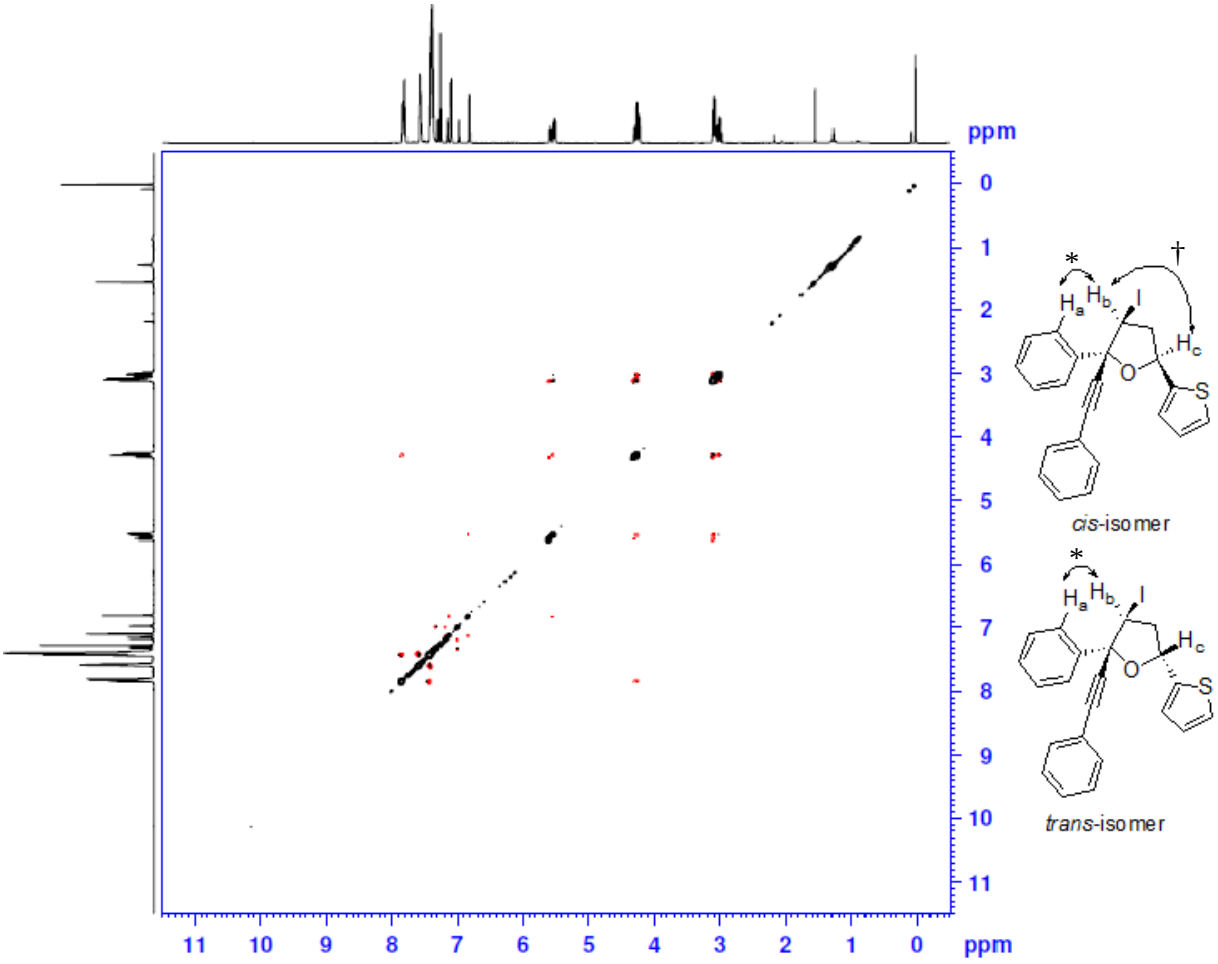


Figure S51. ^{1}H-^{1}H NOESY Spectrum of Tetrahydro-3-iodo-2-phenyl-2-(2-phenylethynyl)-5-(thiophen-2-yl)furan (**2v**)



*^{1}H-^{1}H NOESY correlation observed between H_a at 7.82 ppm and H_b at 4.24 ppm.

†^{1}H-^{1}H NOESY correlation observed between H_c at 5.52 ppm and H_b at 4.24 ppm.

Figure S52. ^{1}H and ^{13}C NMR Spectra of Tetrahydro-3-iodo-2-phenylfuran (**2w**)

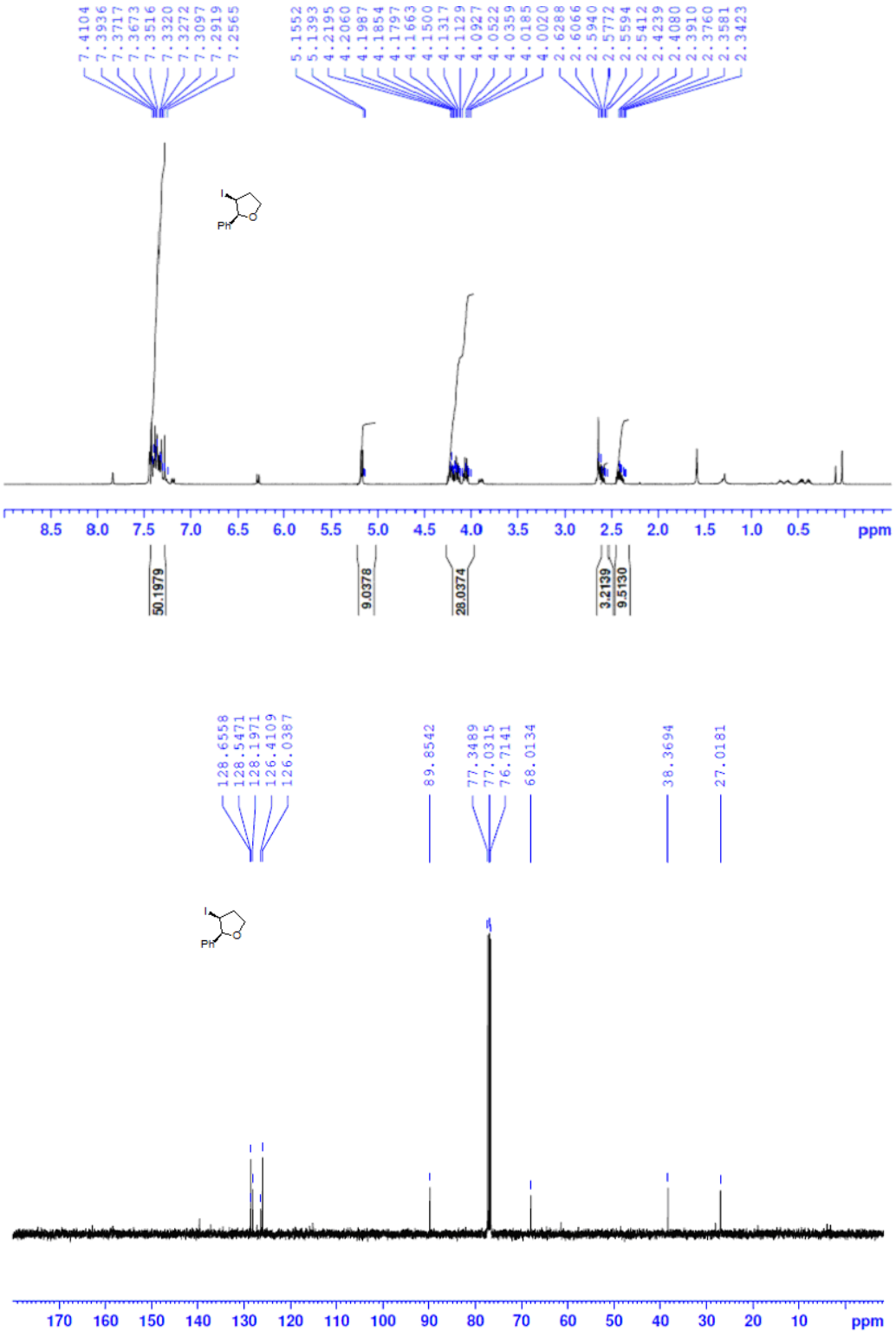


Figure S53. ^{1}H and ^{13}C NMR Spectra of *Cis*-3-bromo-tetrahydro-2-phenyl-2-(2-phenyl ethynyl)furan (**2y**)

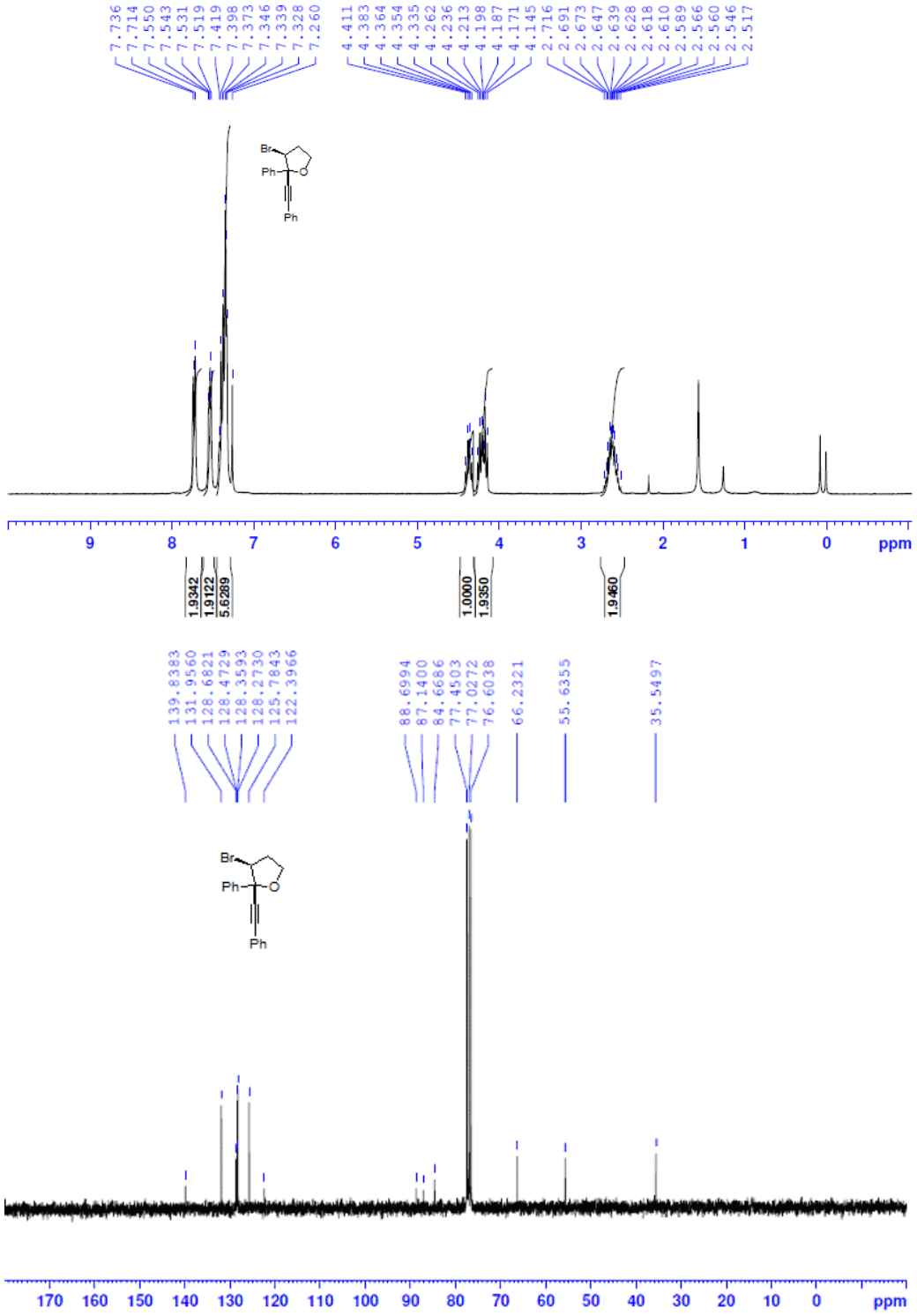


Figure S54. ^{1}H and ^{13}C NMR Spectra of *Cis*-3-chloro-tetrahydro-2-phenyl-2-(2-phenyl ethynyl)furan (**2z**)

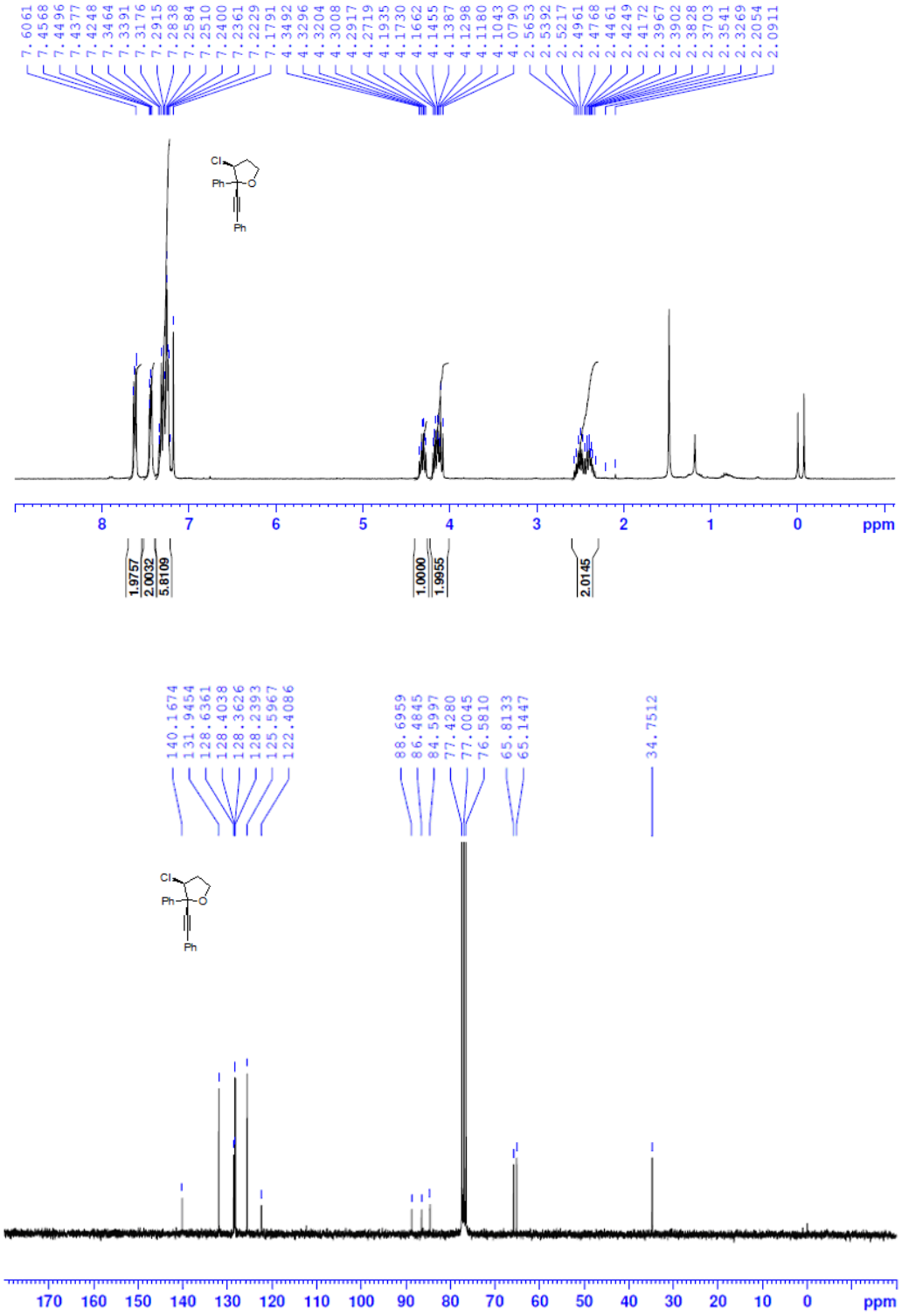


Figure S55. ^{1}H and ^{13}C NMR Spectra of *Cis*-3-fluoro-tetrahydro-2-phenyl-2-(2-phenyl ethynyl)furan (**2*α***)

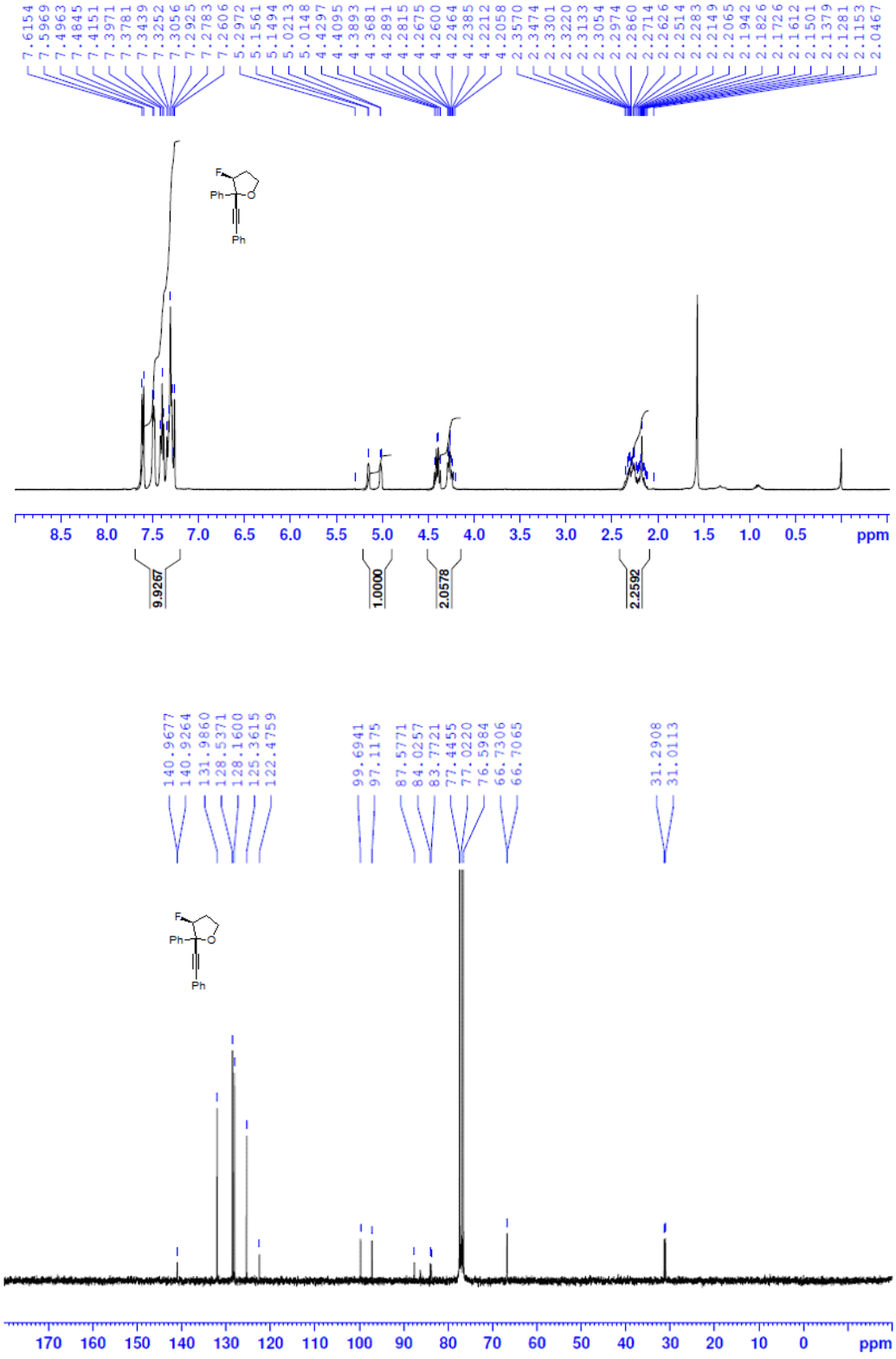


Figure S56. ^{1}H and ^{13}C NMR Spectra of *Cis*-3-bromo-tetrahydro-2-pentyl-2-phenylfuran (**2*β***)

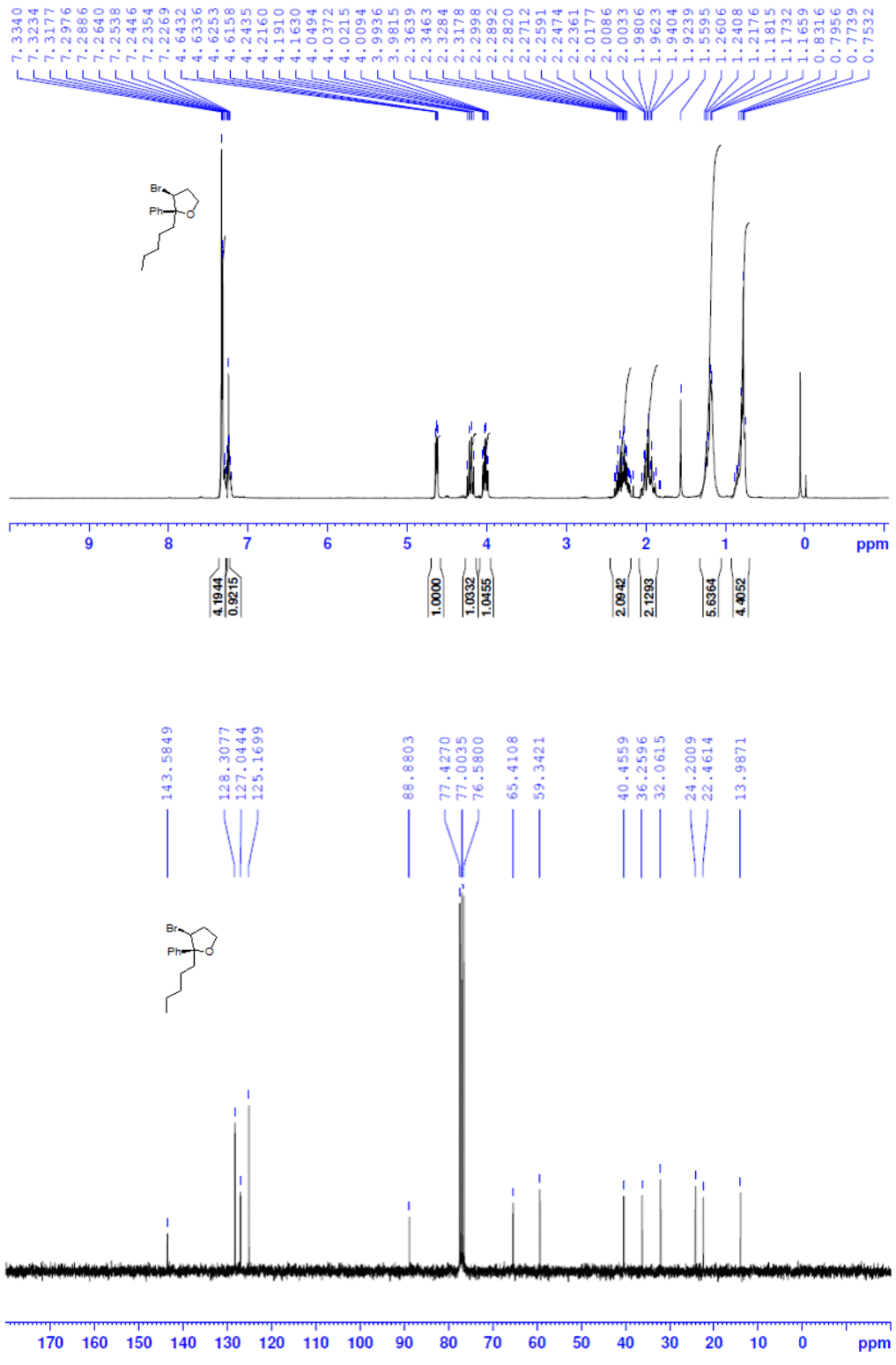


Figure S57. ^{1}H and ^{13}C NMR Spectra of *Cis*-3-chloro-tetrahydro-2-pentyl-2-phenylfuran (**2*γ***)

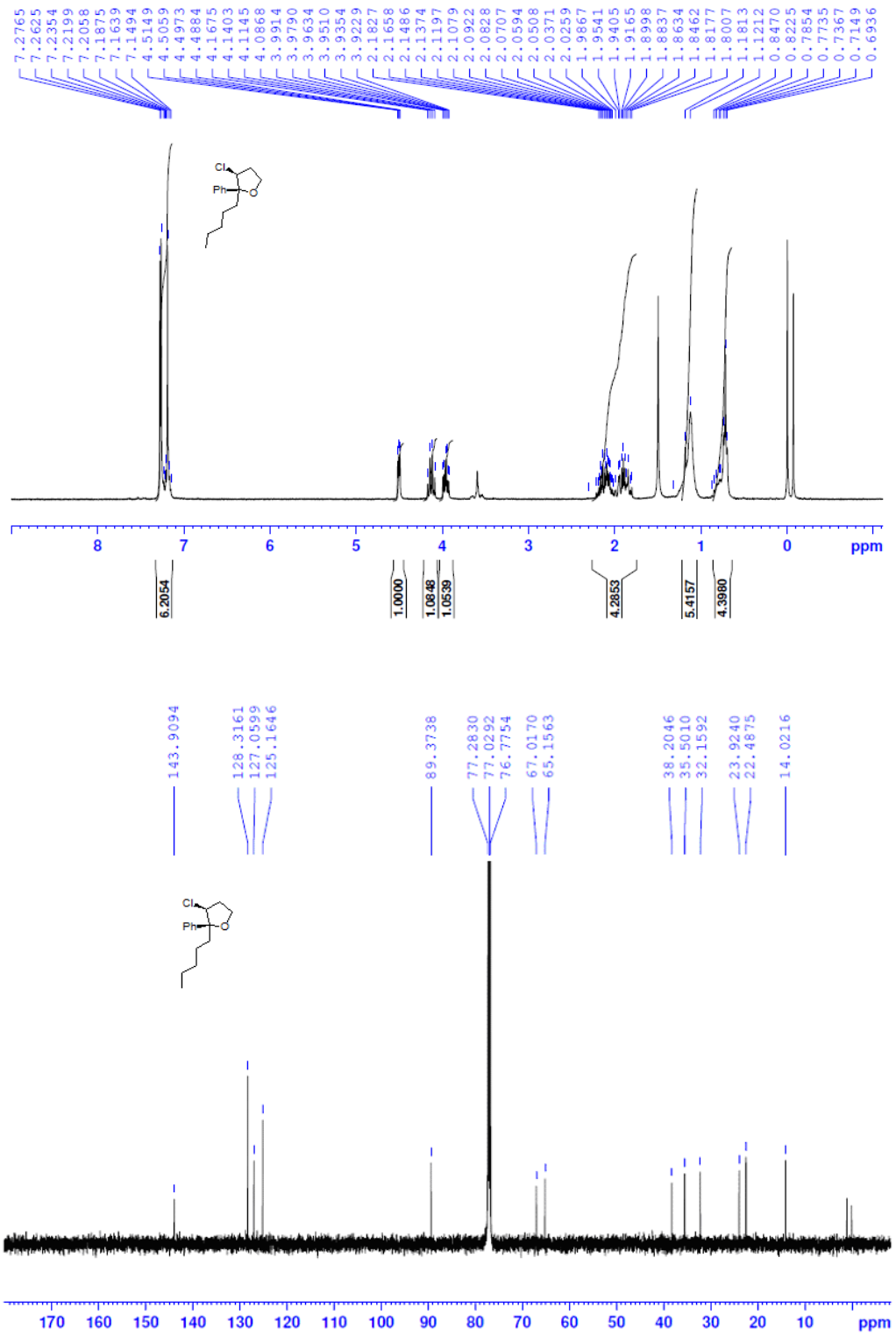


Figure S58. ^{1}H and ^{13}C NMR Spectra of *Cis*-3-fluoro-tetrahydro-2-pentyl-2-phenylfuran (**2*δ***)

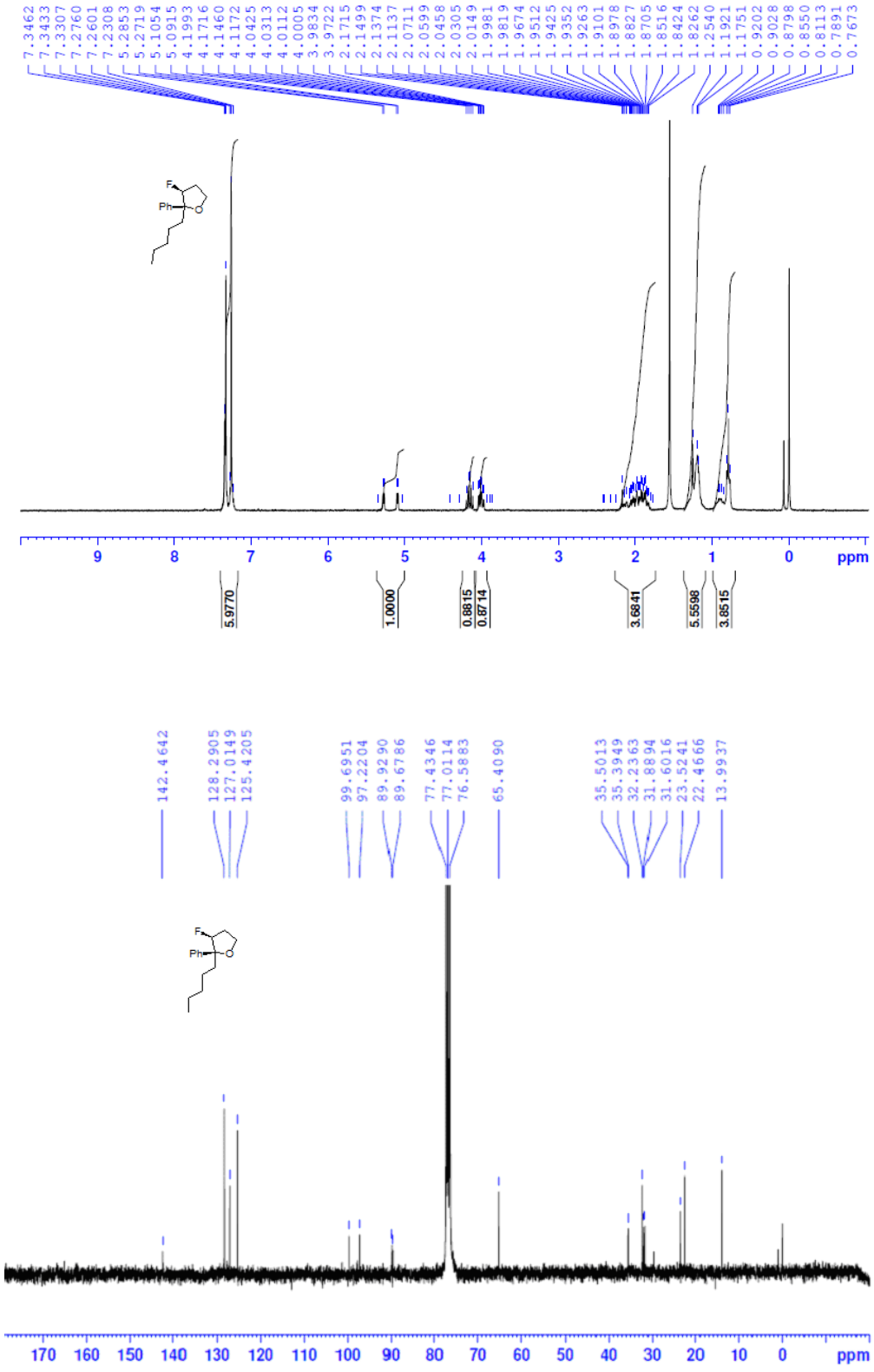


Figure S59. ^{1}H and ^{13}C NMR Spectra of (*Z*)-4,6-Diphenylhex-3-en-5-yn-1-ol (**3a**)

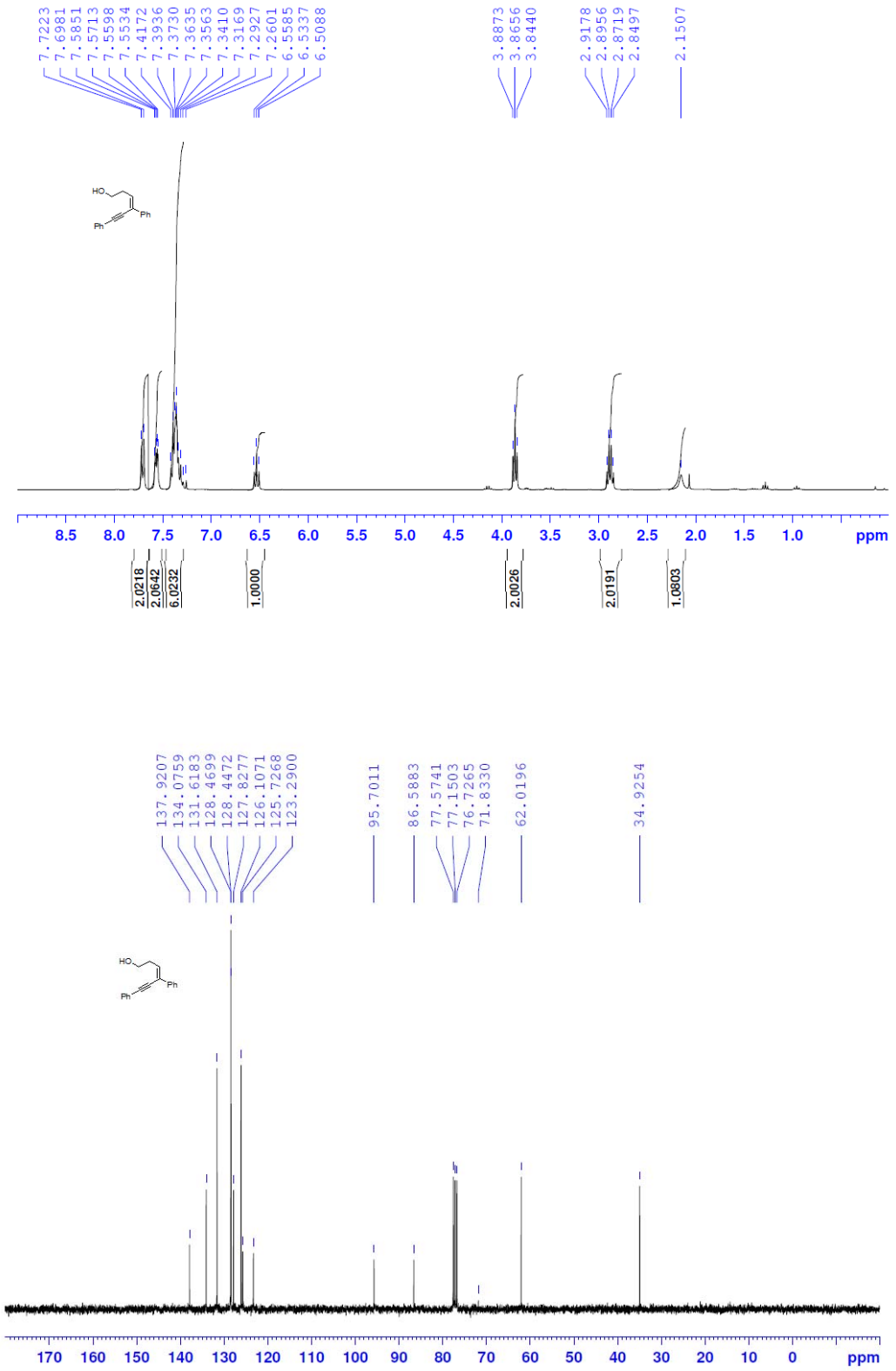
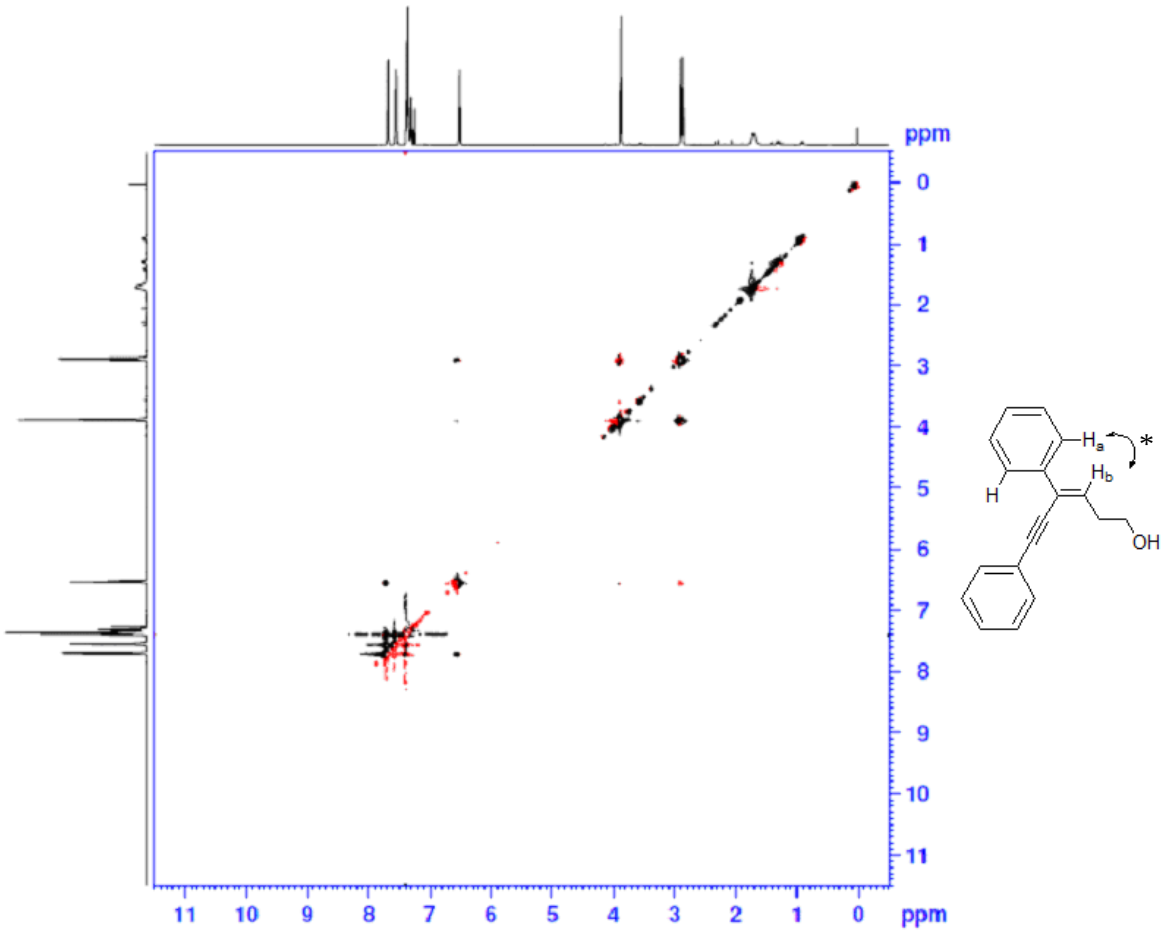


Figure S60. ^{1}H-^{1}H NOESY Spectrum of (*Z*)-4,6-Diphenylhex-3-en-5-yn-1-ol (**3a**)



*^{1}H-^{1}H NOESY correlation observed between H_a at 7.72 ppm and H_b at 6.53 ppm.

Figure S61. ^{1}H and ^{13}C NMR Spectra of 4-Phenyl-4-*p*-tolylbut-3-en-1-ol (**3b**)

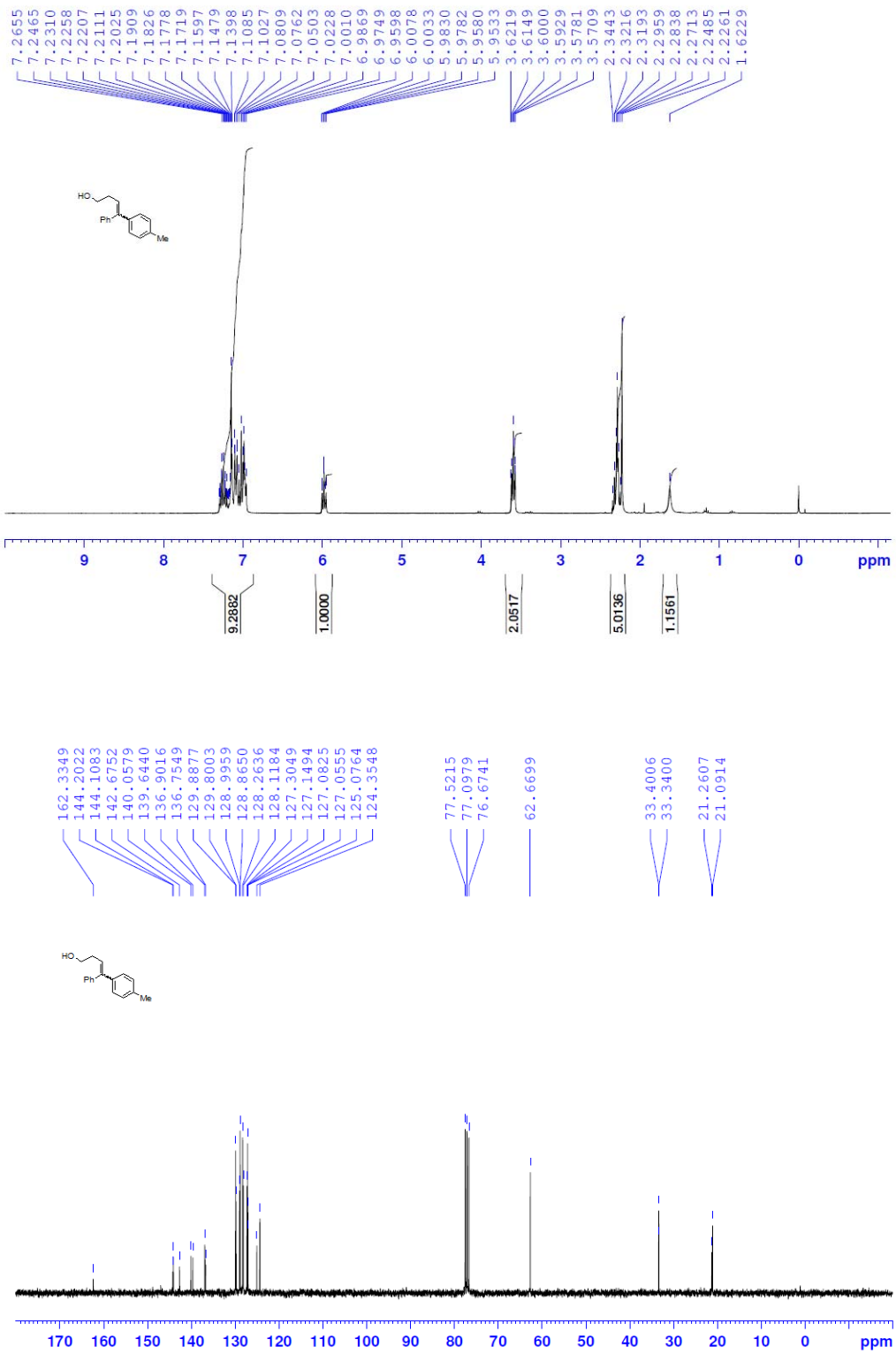


Figure S62. ^{1}H and ^{13}C NMR Spectra of (*Z*)-4,6-diphenyl-1-(thiophen-2-yl)hex-3-en-5-yn-1-ol (**3c**)

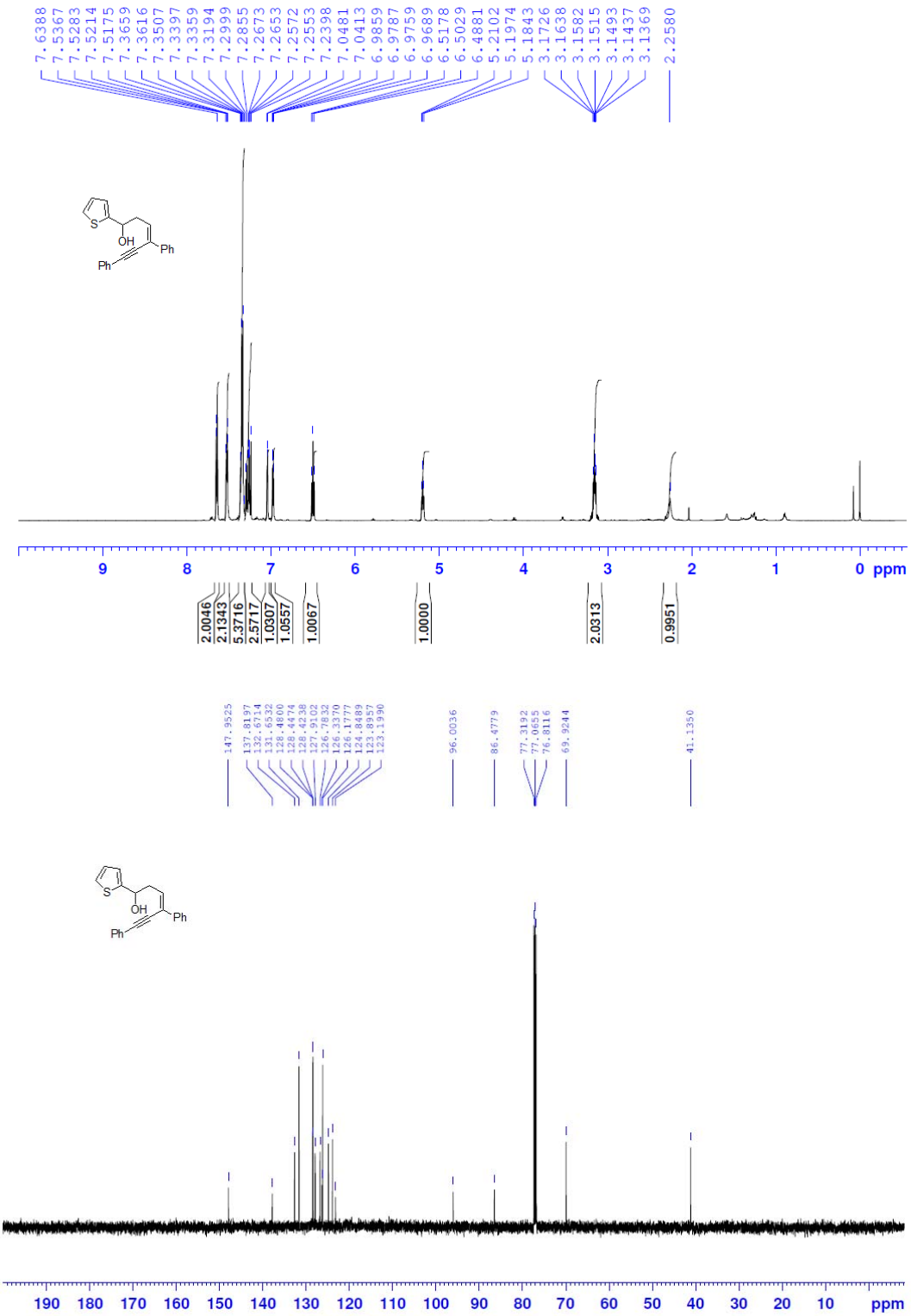
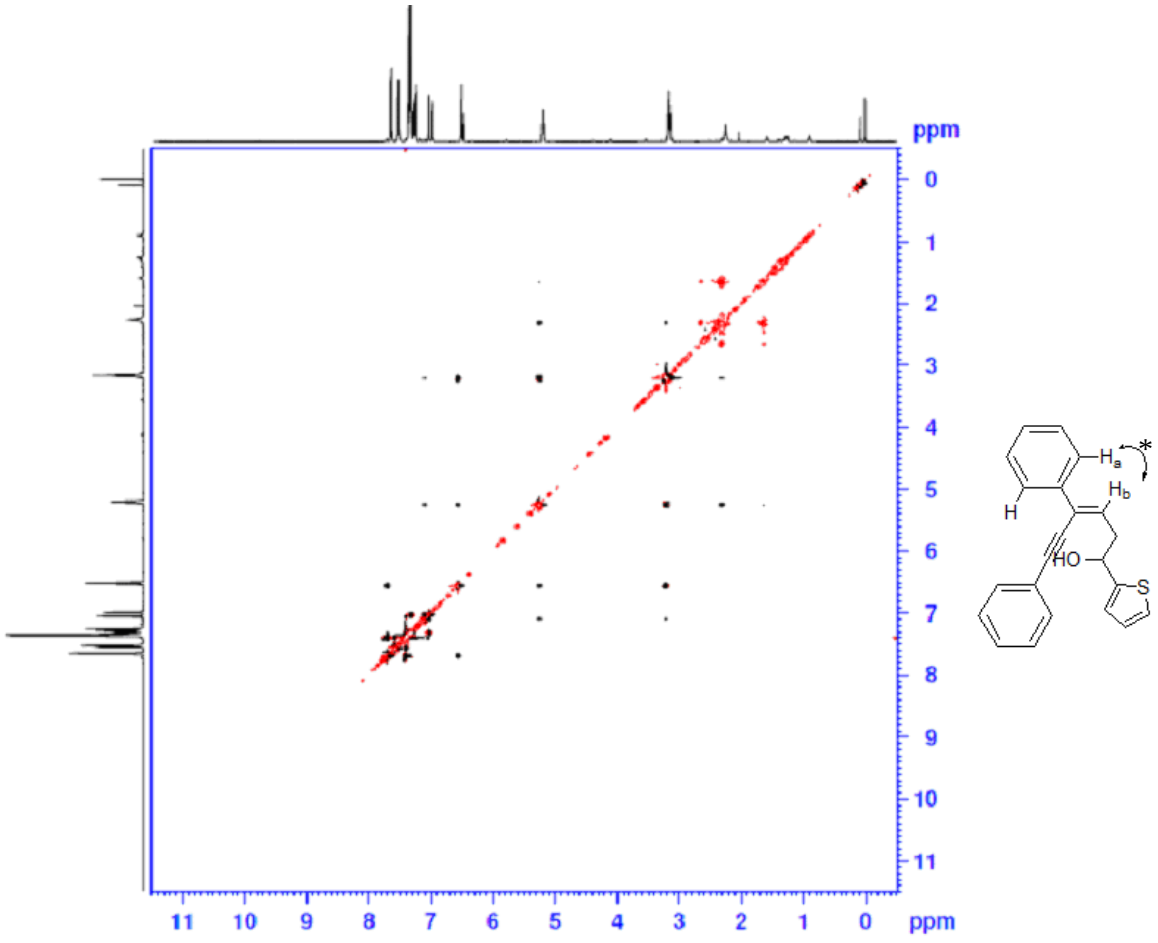


Figure S63. NOESY Spectrum of (*Z*)-4,6-diphenyl-1-(thiophen-2-yl)hex-3-en-5-yn-1-ol (**3c**)



*^{1}H-^{1}H NOESY correlation observed between H_a at 7.63 ppm and H_b at 6.50 ppm.

Figure S64. ORTEP Drawing of *Cis*-tetrahydro-3-iodo-2-phenyl-2-(2-phenylethynyl)furan (**2a)** with Thermal Ellipsoids at 50% Probability Levels[S1]

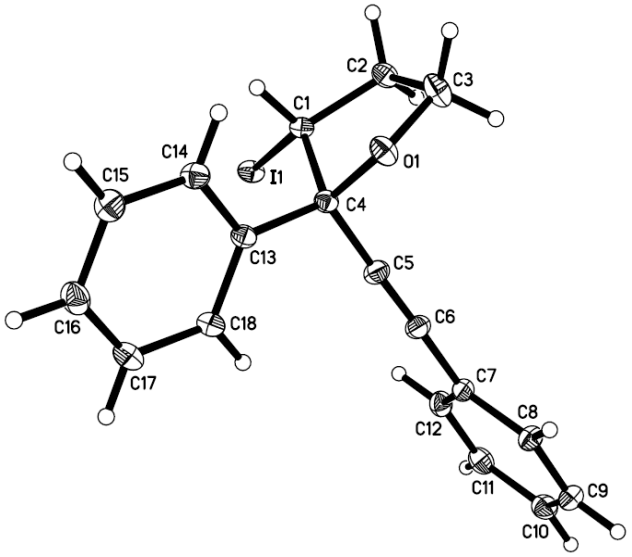
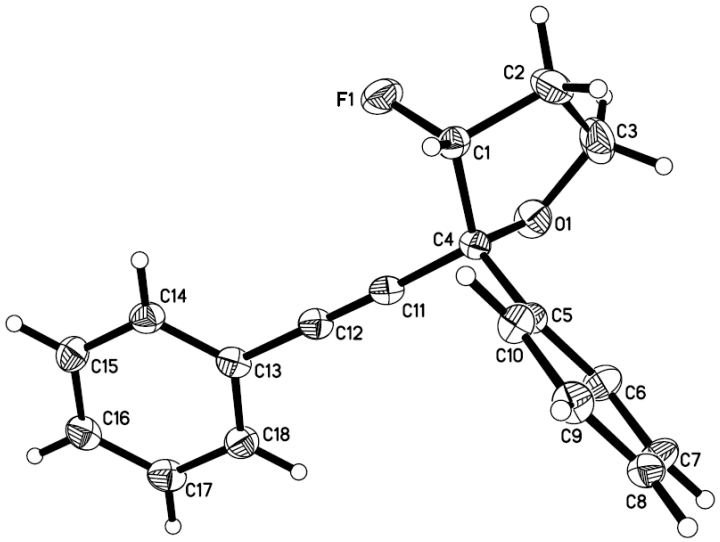


Figure S65. ORTEP Drawing of *Cis*-3-fluoro-tetrahydro-2-phenyl-2-(2-phenylethynyl) furan (**2*α***) with Thermal Ellipsoids at 50% Probability Levels[S1]



References

S1. CCDC 720922 and 791026 contains the supplementary crystallographic data for this paper. These data can be obtained free of charge from The Cambridge Crystallographic Data Centre via www.ccdc.cam.ac.uk/data_request/cif.