Uncovering A Solvent-free Eco-friendly Cyanosilylation of Aldehydes Through A Well-defined Gold(I)-NHC Heterogeneous Catalyst

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Electronic Supplementary Information

Experimental Section:

Unless otherwise mentioned, all reactions were carried out under open atmosphere. All the chemicals were purchased from Spectrochem Chemicals and Sigma Aldrich Chemicals were used without any further purification. ^{1}H NMR and $^{13}C\{^{1}H\}$ NMR spectra were recorded on Bruker 400 MHz and Bruker 500 MHz NMR spectrometer. ^{1}H NMR peaks are labeled as singlet (s), doublet (d), triplet (t), quartet (q), doublet of doublet (dd), doublet of triplets (dt), triplets of triplets (tt), multiplet (m).

^{1}H-NMR and ^{13}C-NMR data for all the catalysis products:

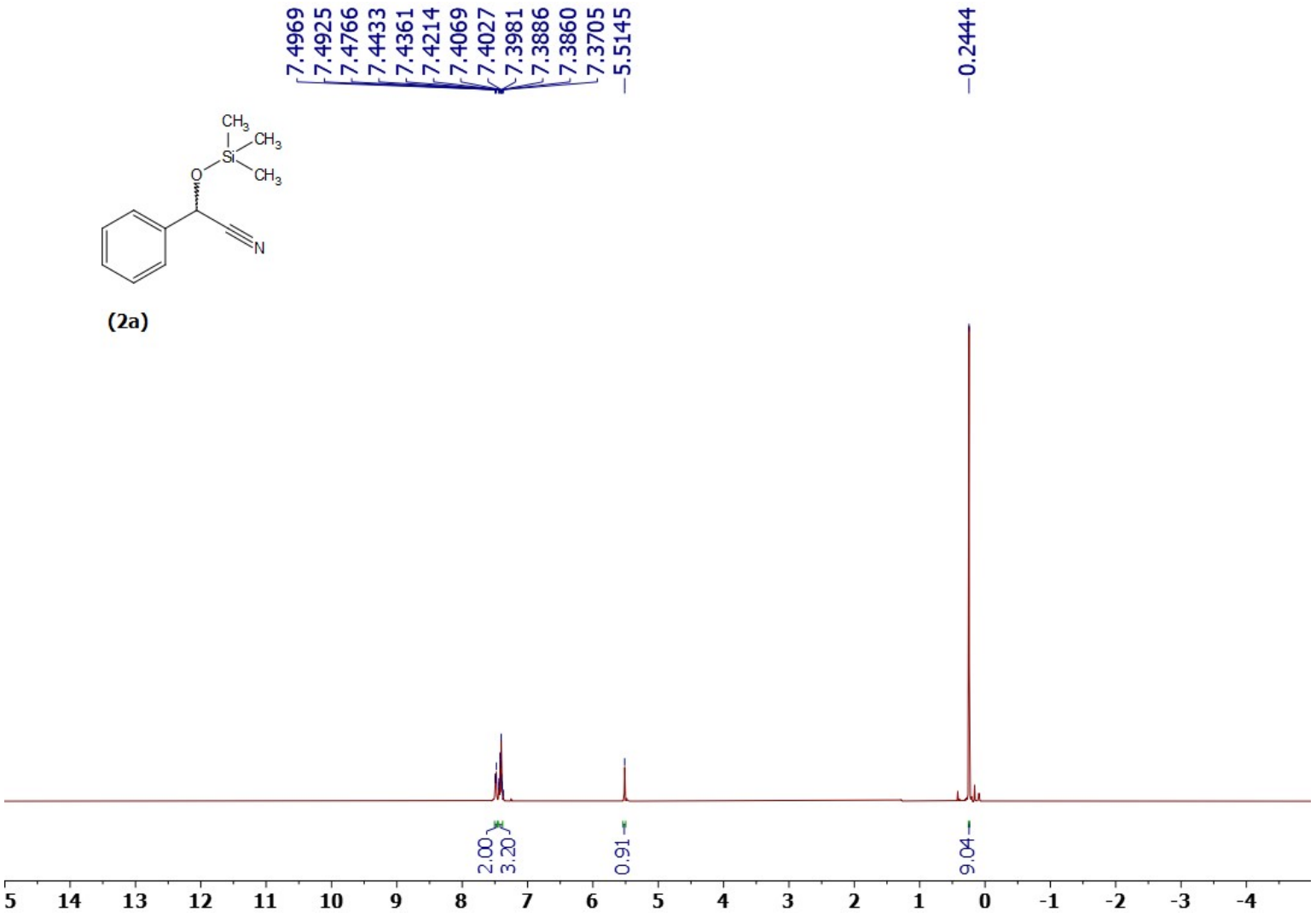

Figure S1. ^{1}H NMR spectrum of **2a** in $CDCl_3$.

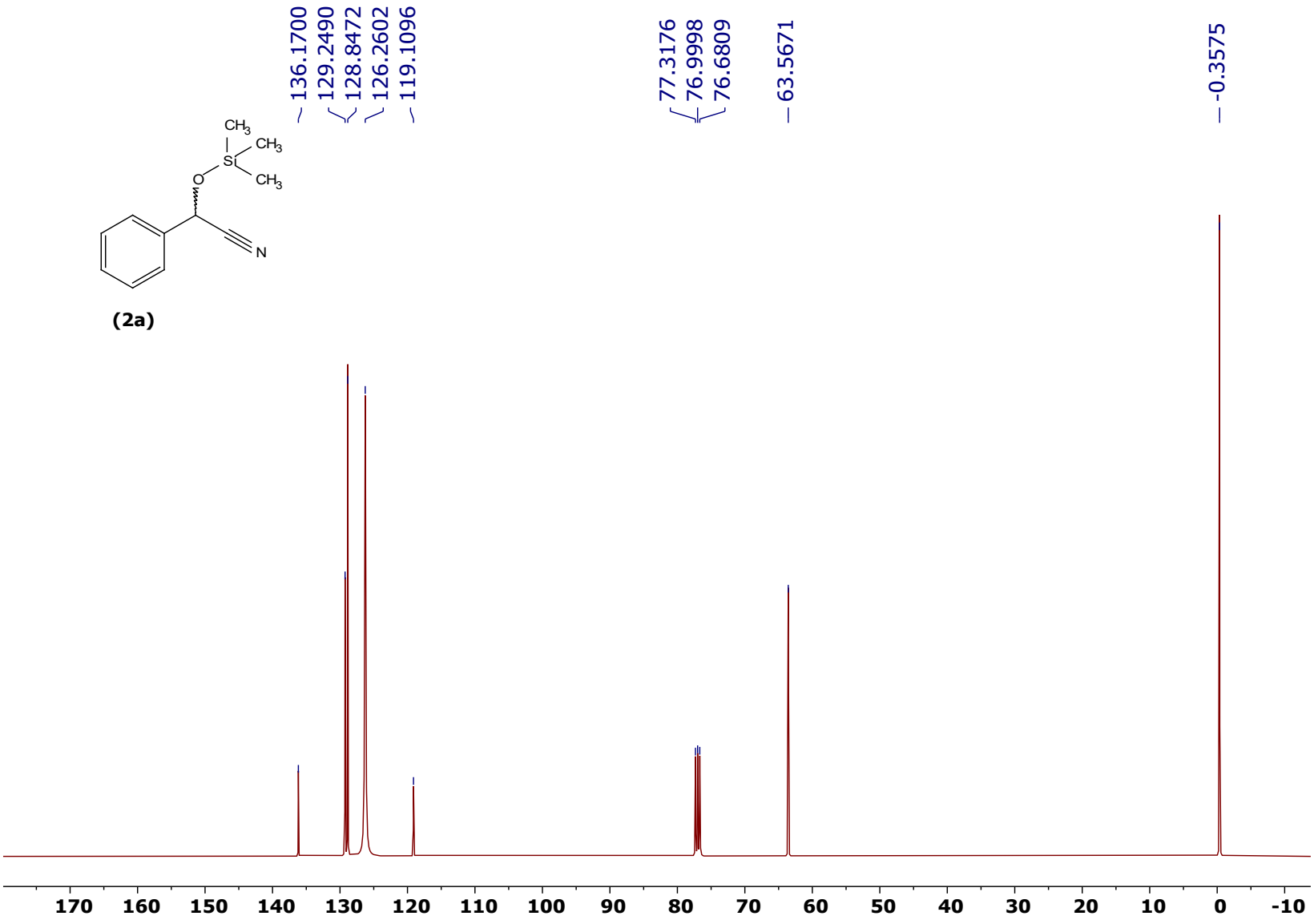

Figure S2. $^{13}C\{^{1}H\}$ NMR spectrum of **2a** in $CDCl_3$.

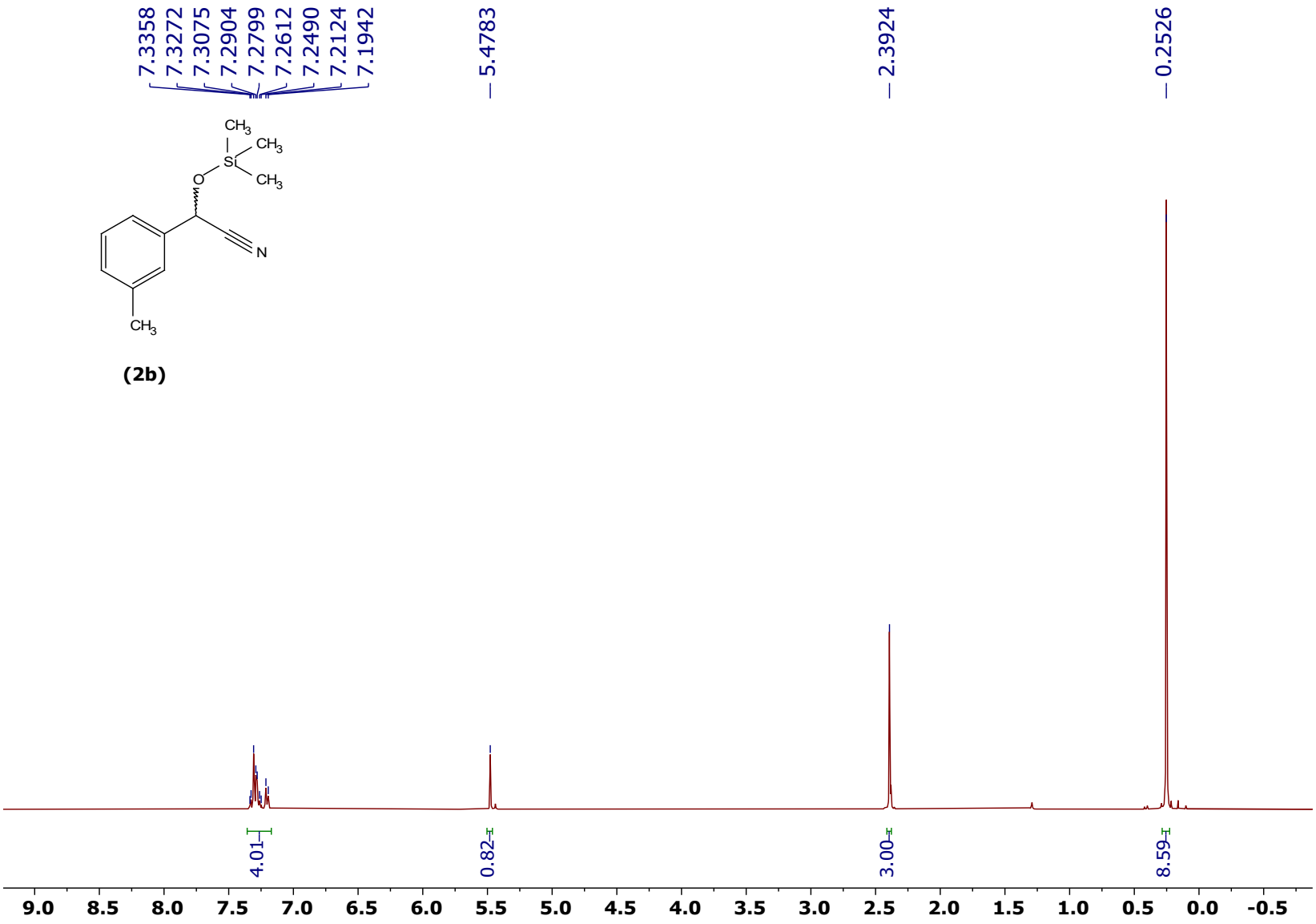

Figure S3. ^{1}H NMR spectrum of **2b** in $CDCl_3$.

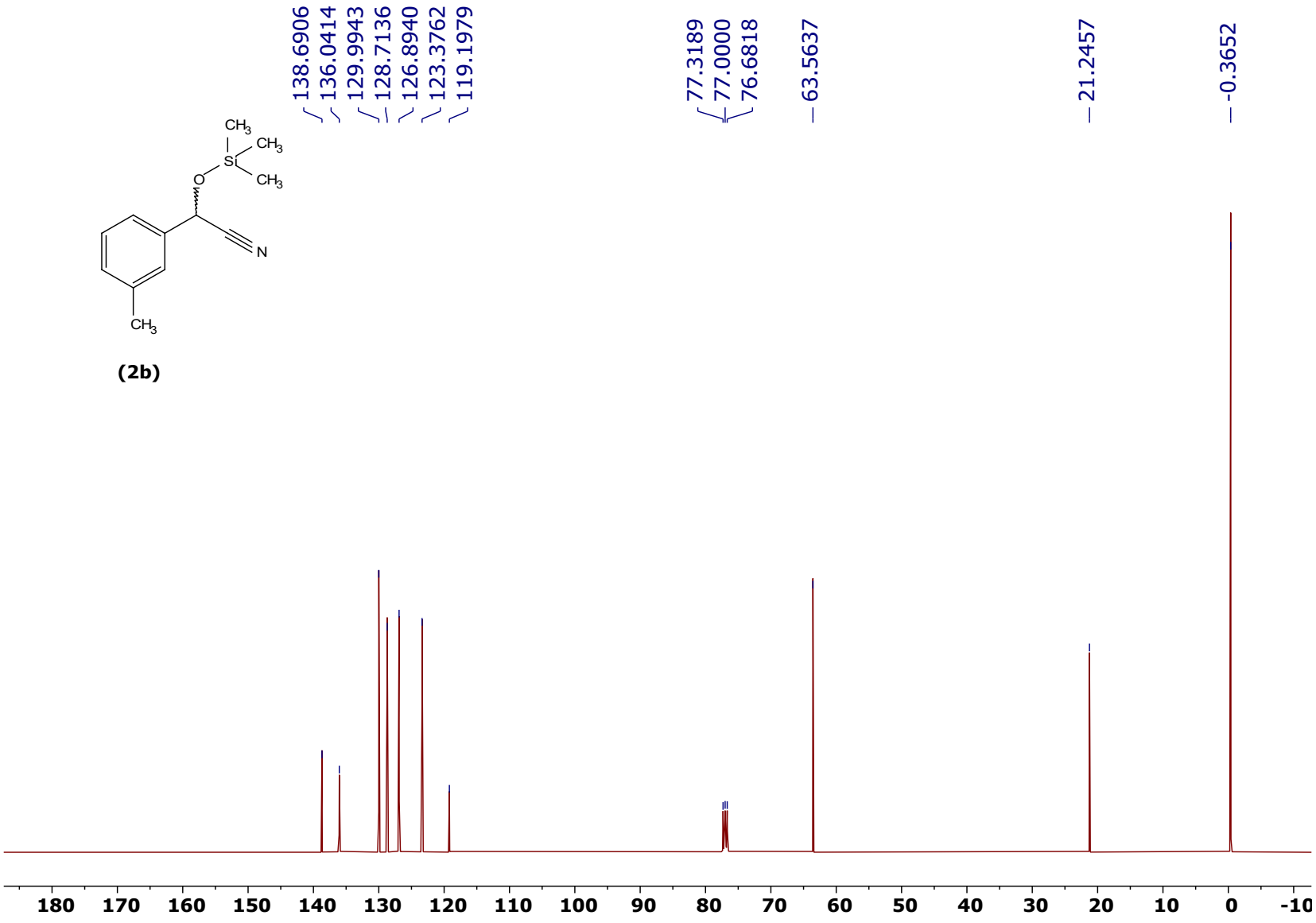

Figure S4. $^{13}C\{^{1}H\}$ NMR spectrum of **2b** in $CDCl_3$.

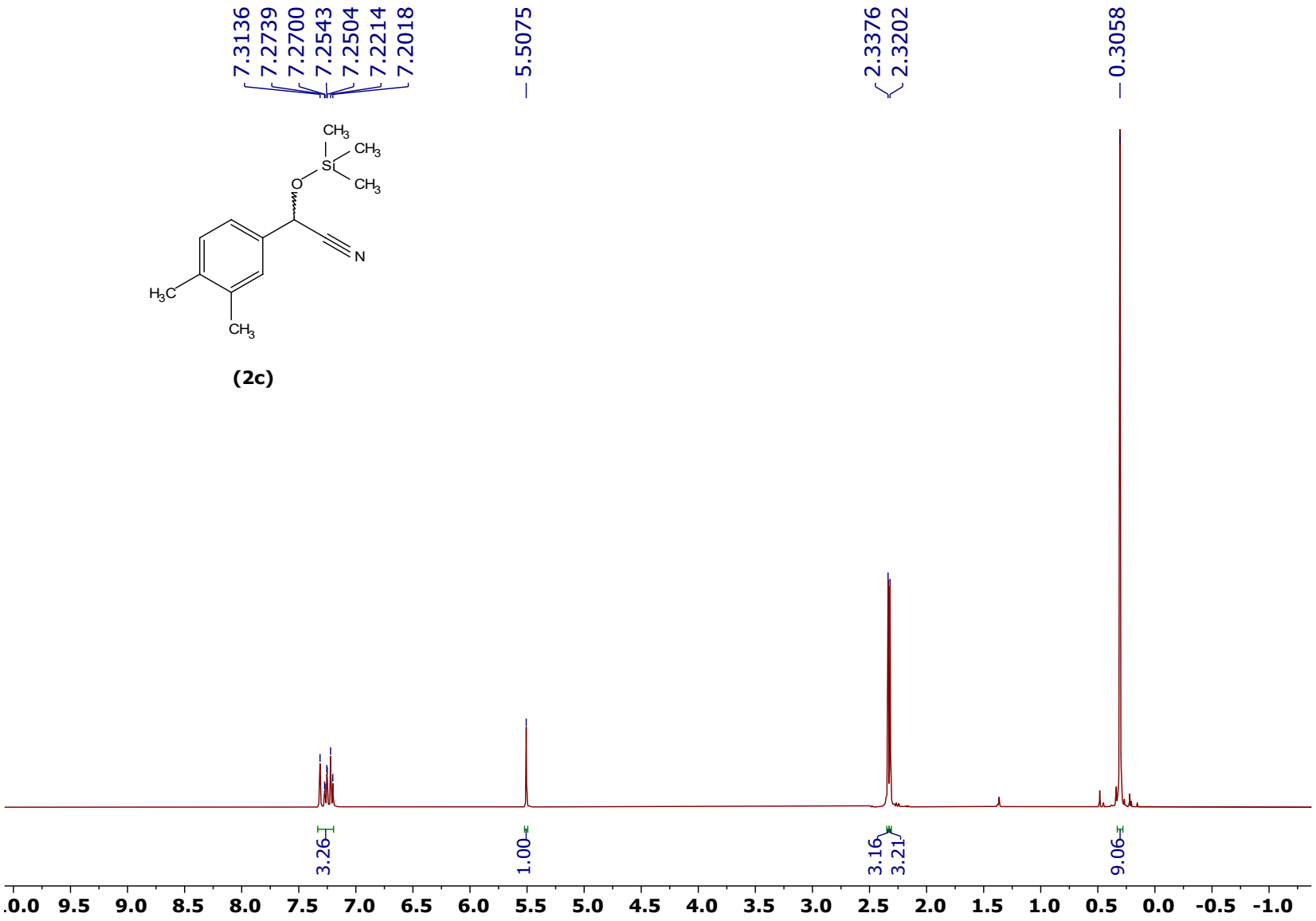

Figure S5. ^{1}H NMR spectrum of **2c** in $CDCl_3$.

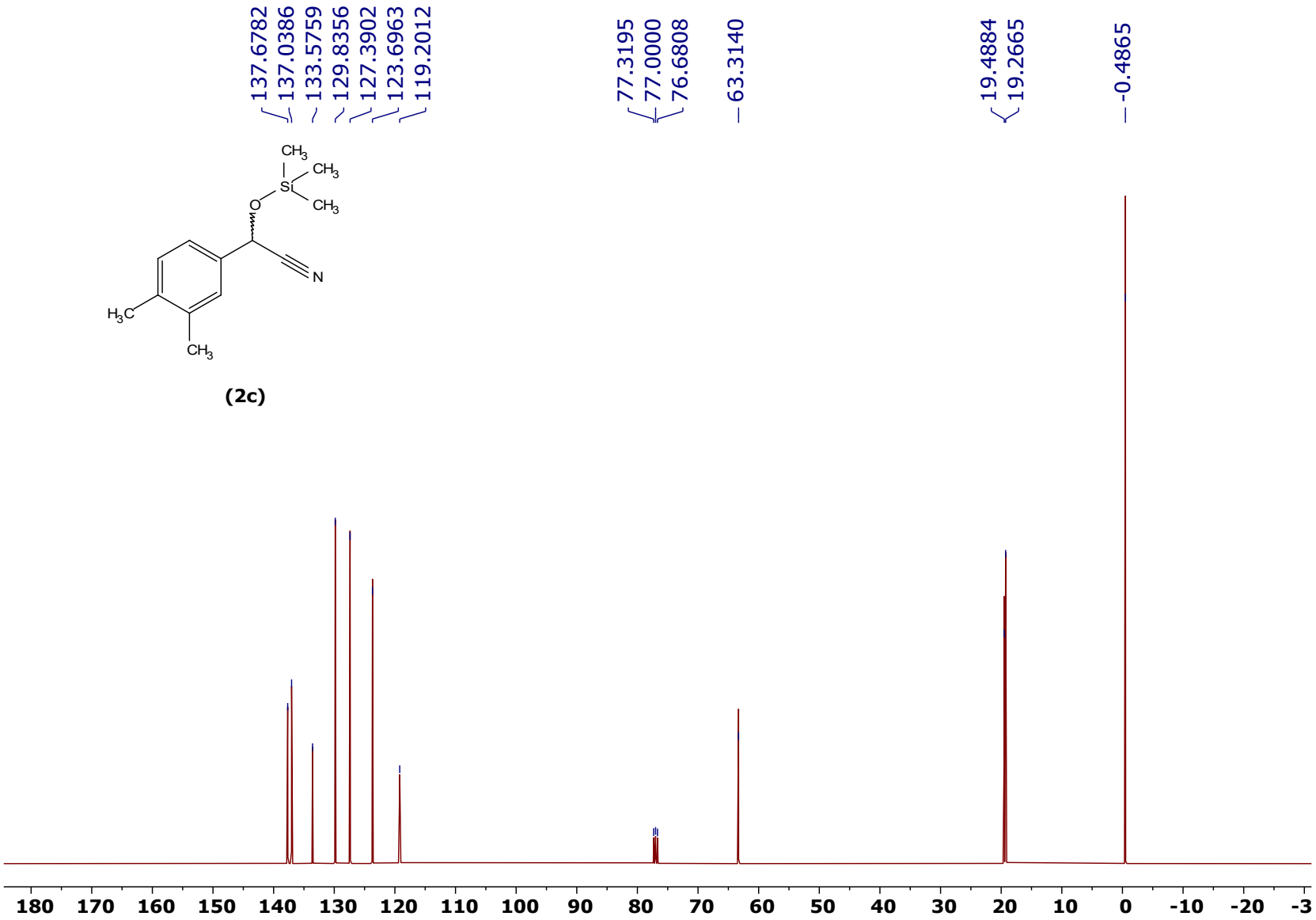

Figure S6. $^{13}C\{^{1}H\}$ NMR spectrum of **2c** in $CDCl_3$.

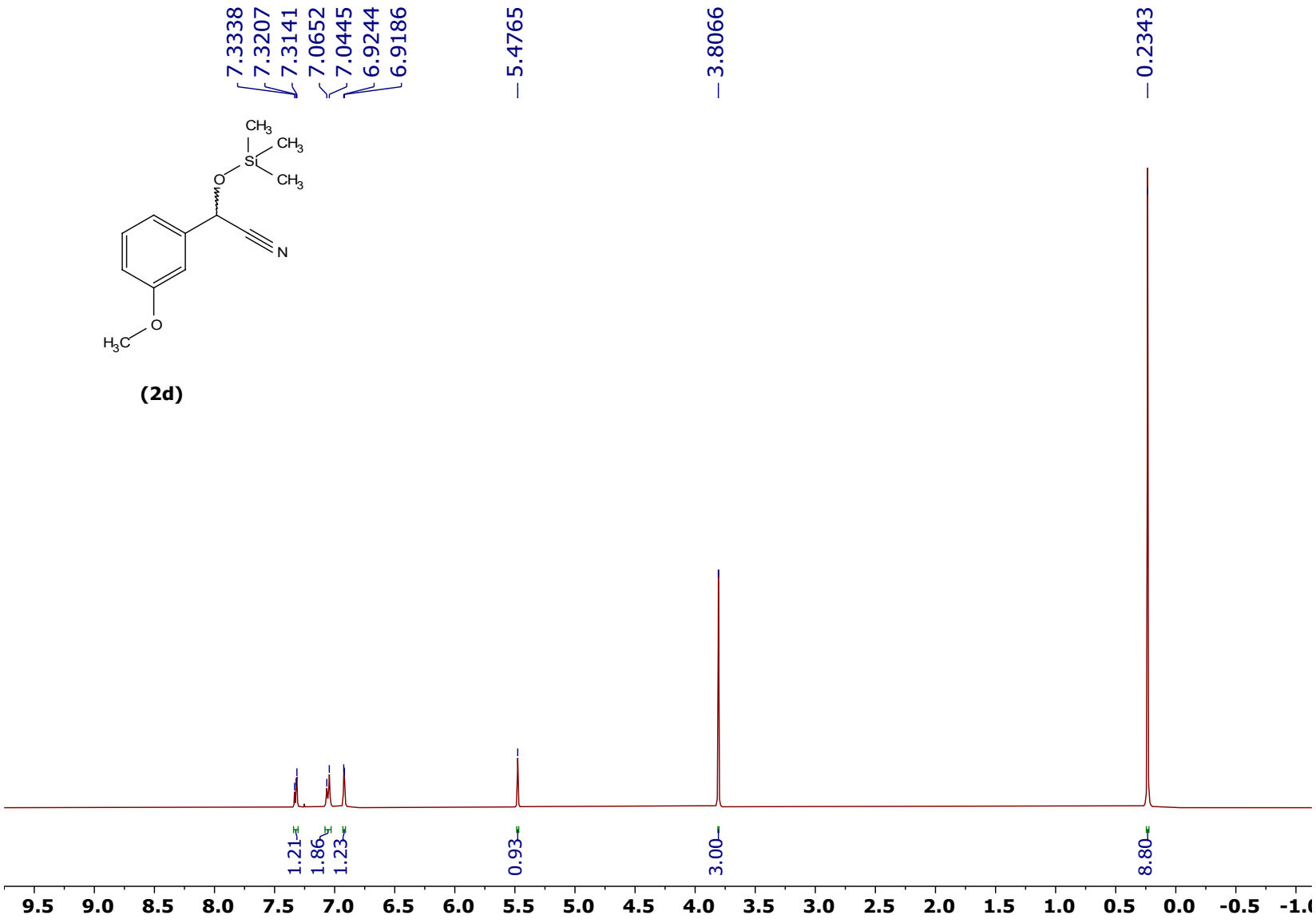

Figure S7. ^{1}H NMR spectrum of **2d** in $CDCl_3$.

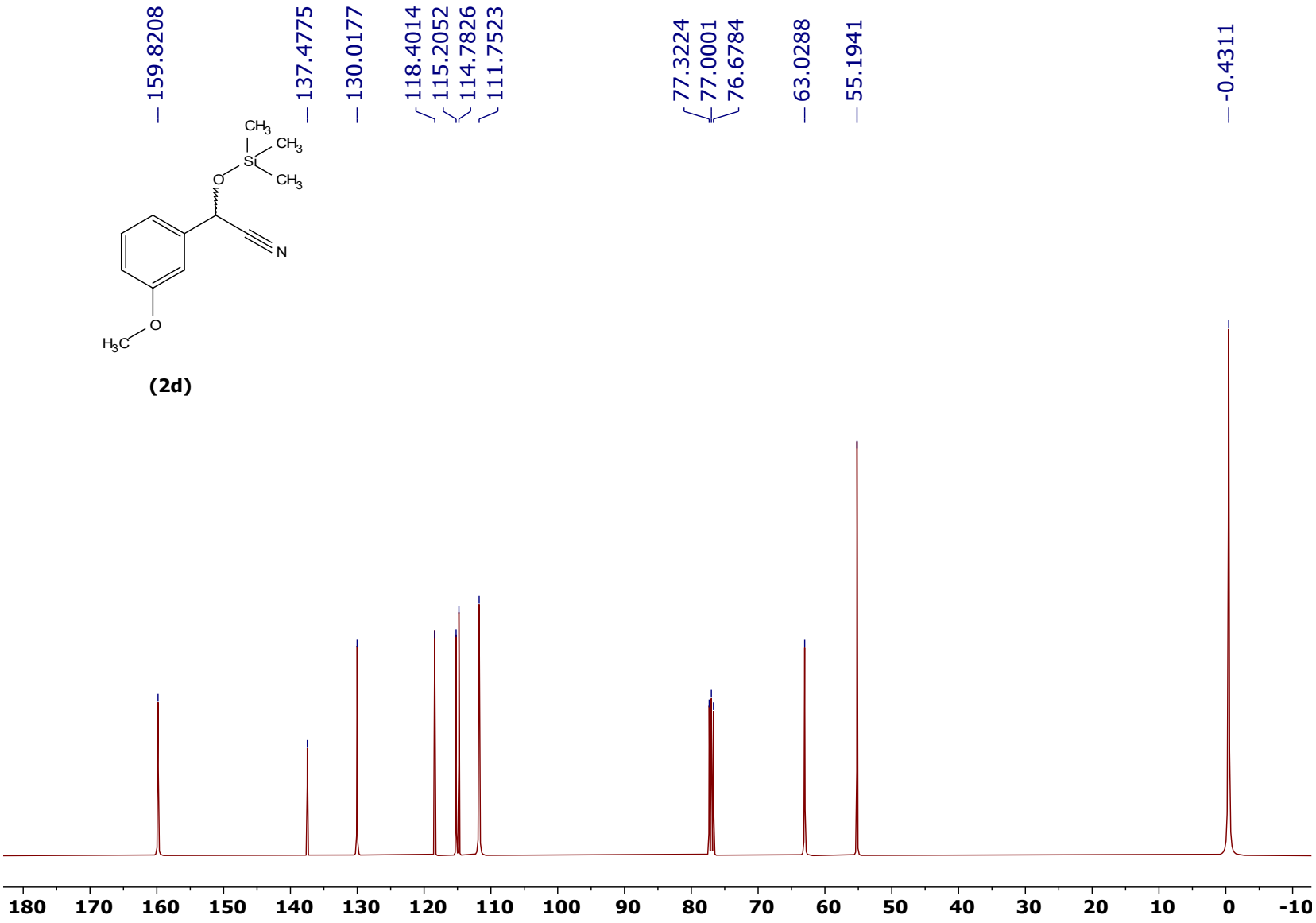

Figure S8. $^{13}C\{^{1}H\}$ NMR spectrum of **2d** in $CDCl_3$.

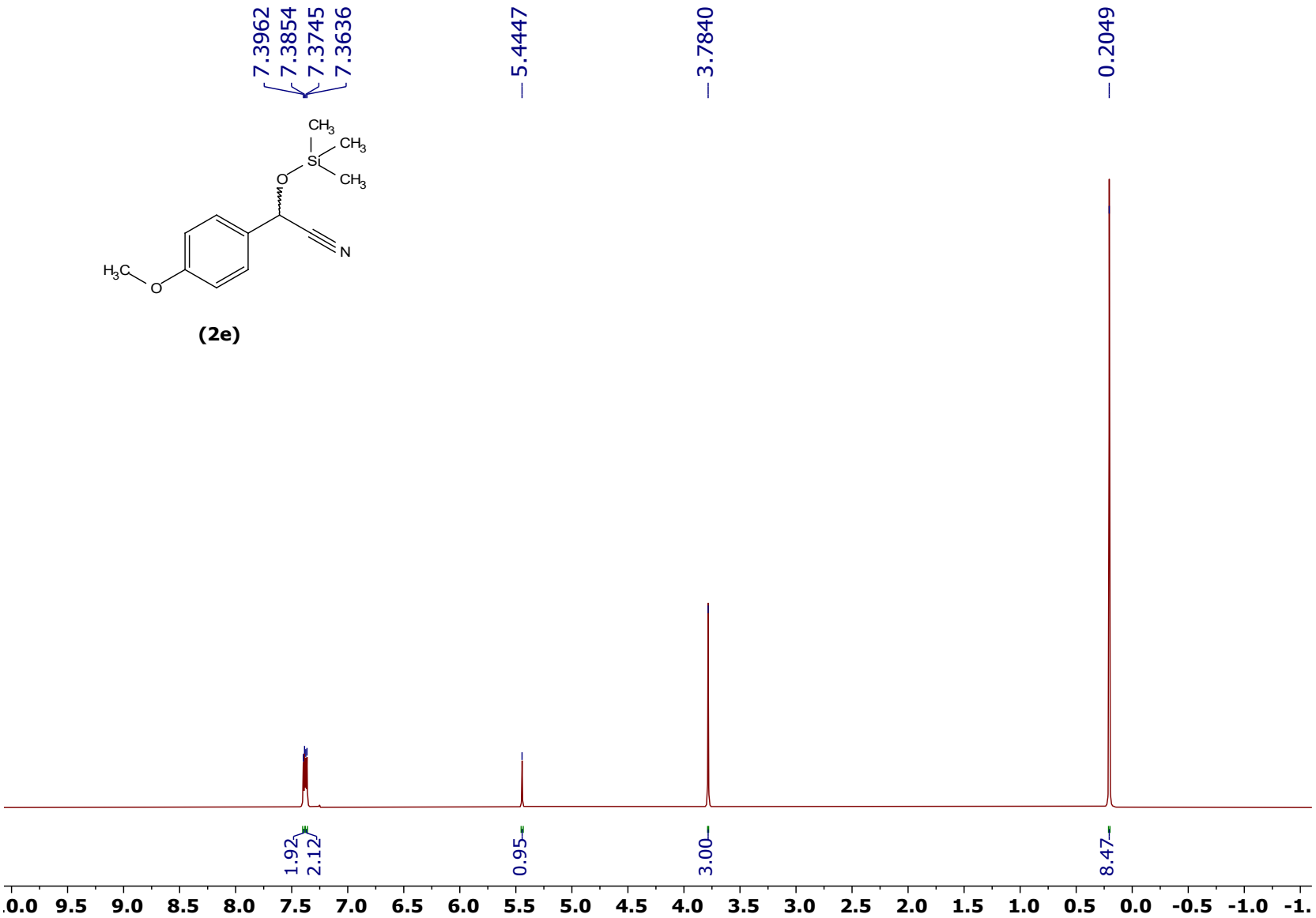

Figure S9. ^{1}H NMR spectrum of **2e** in $CDCl_3$.

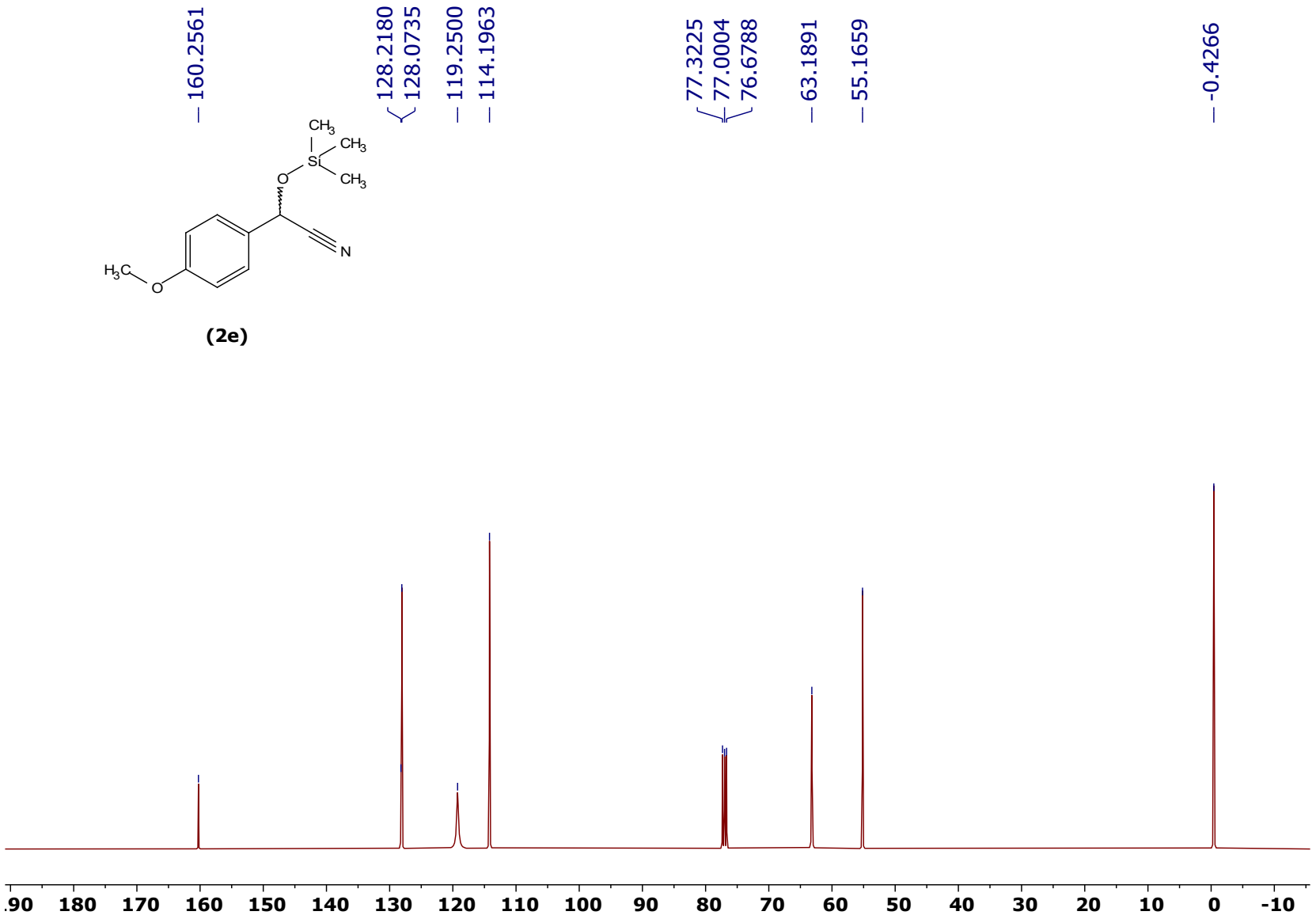

Figure S10. $^{13}C\{^{1}H\}$ NMR spectrum of **2e** in $CDCl_3$.

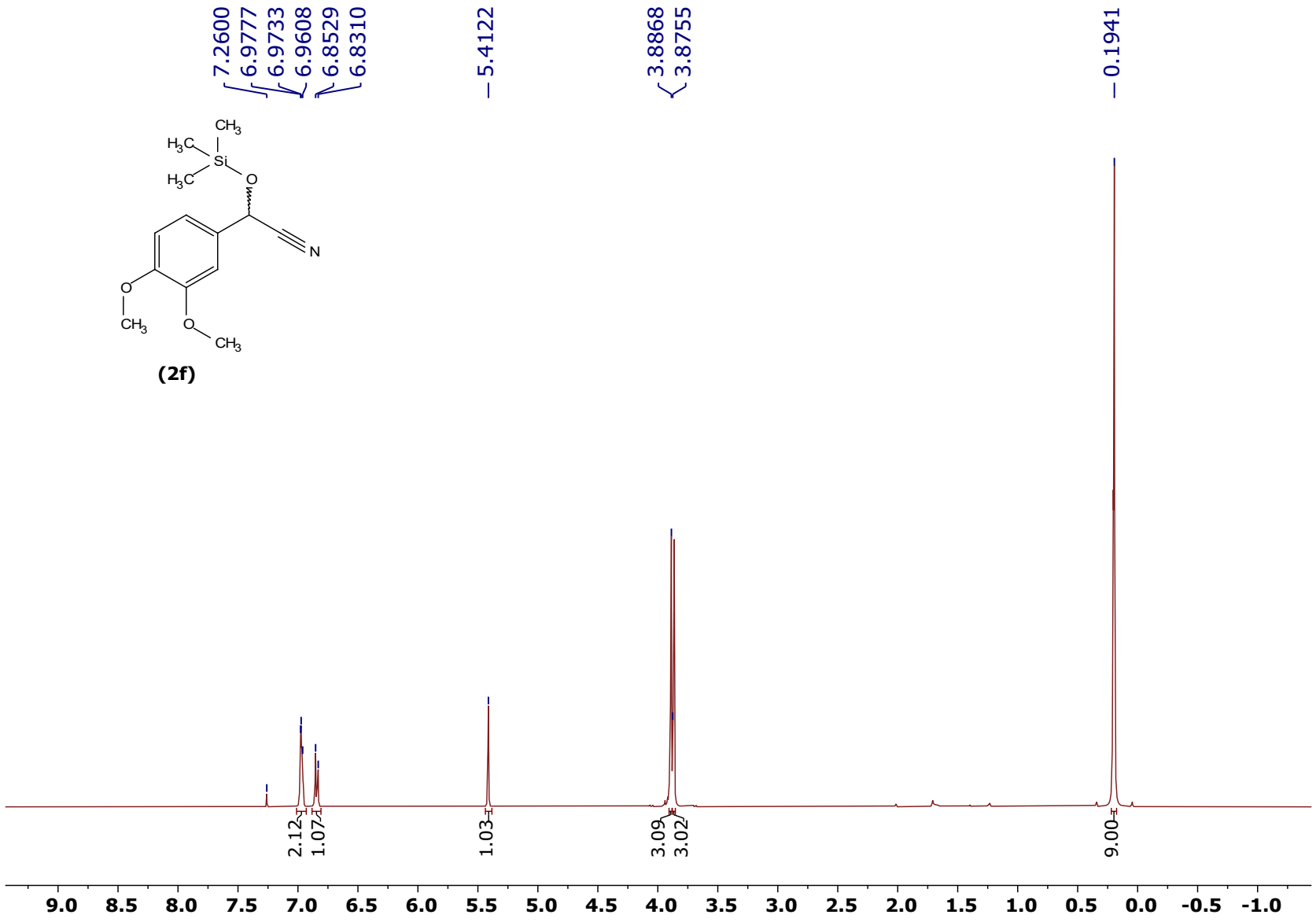

Figure S11. ^{1}H NMR spectrum of **2f** in $CDCl_3$.

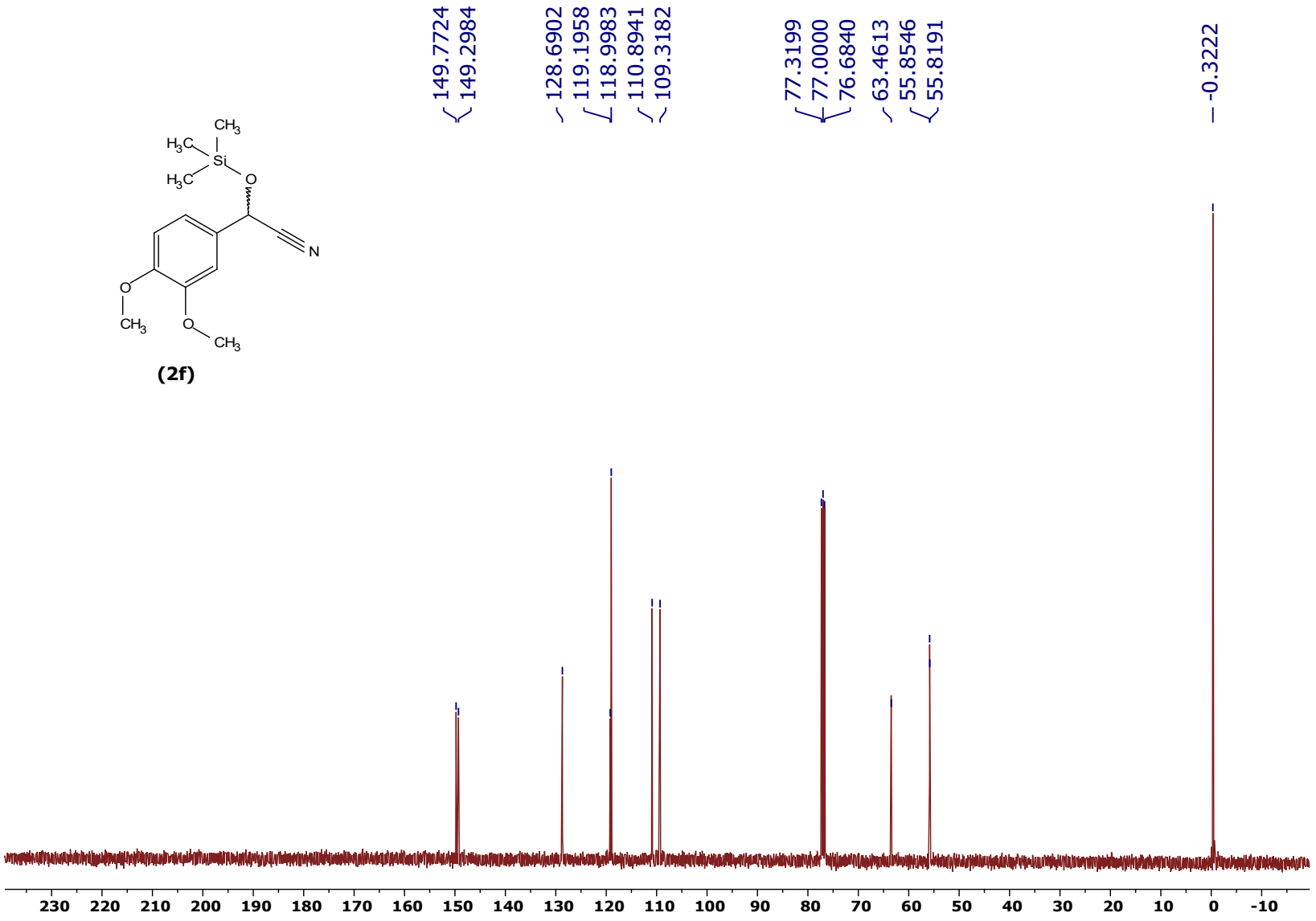

Figure S12. $^{13}C\{^{1}H\}$ NMR spectrum of **2f** in $CDCl_3$.

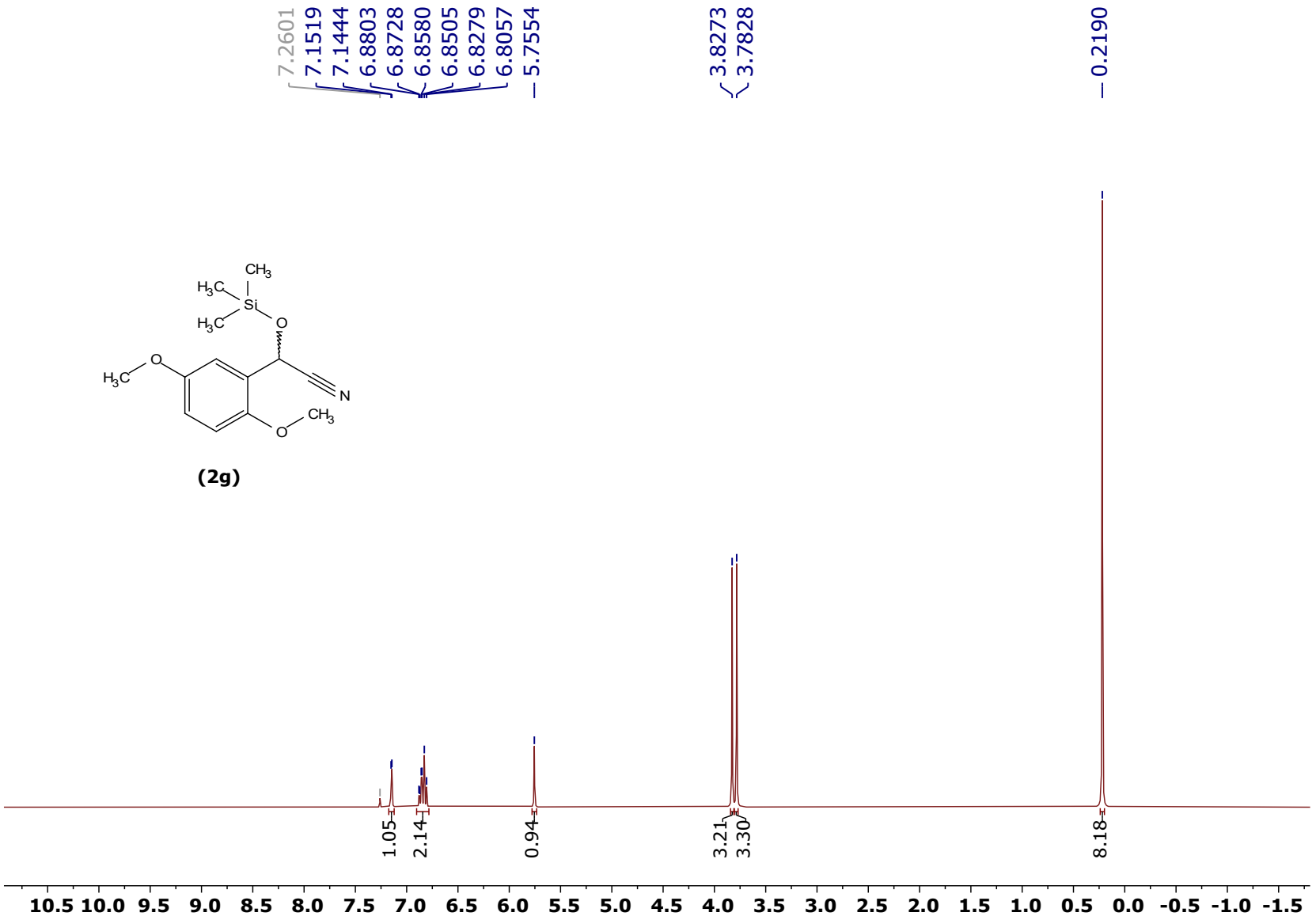

Figure S13. ^{1}H NMR spectrum of **2g** in $CDCl_3$.

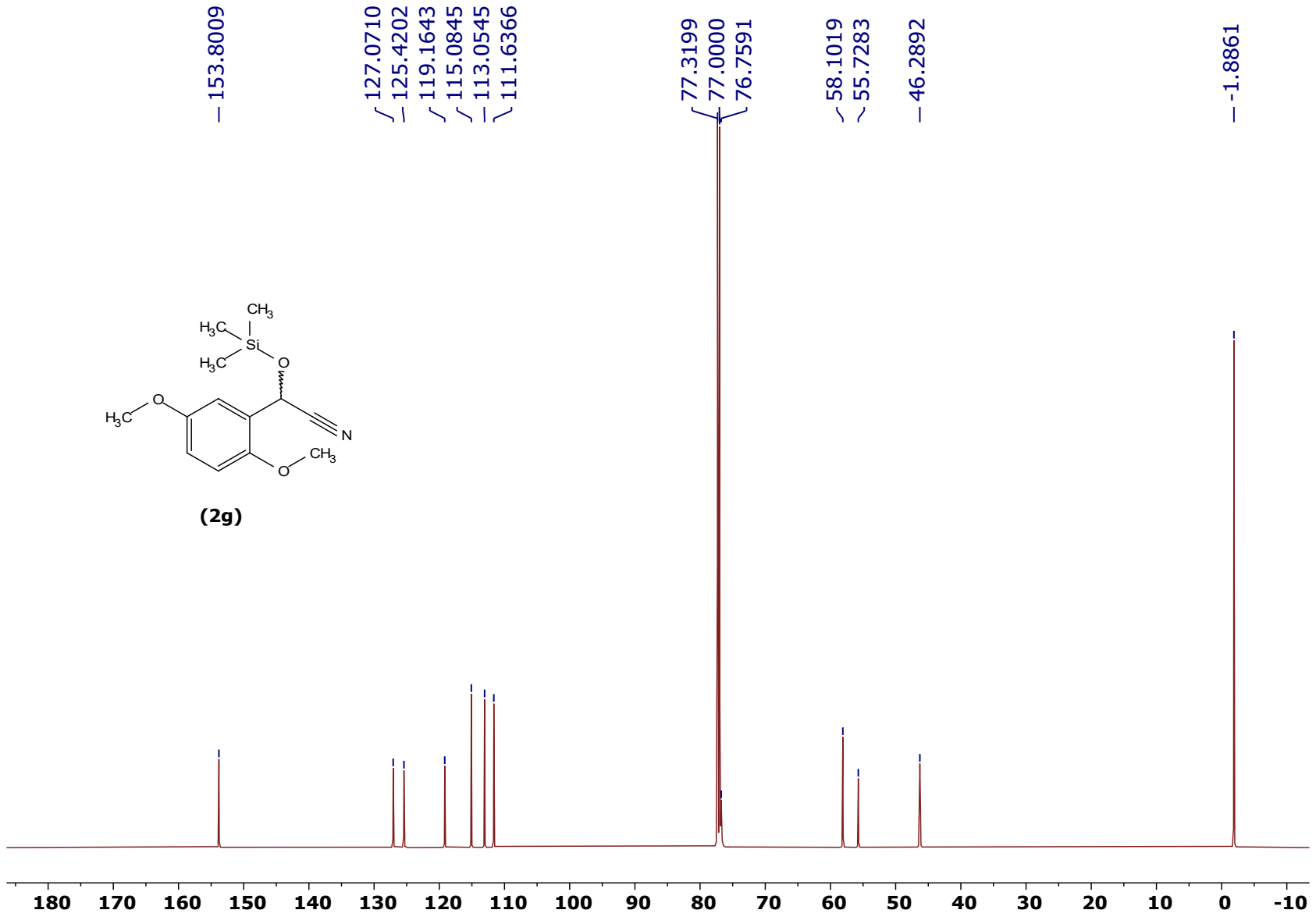

Figure S14. $^{13}C\{^{1}H\}$ NMR spectrum of **2g** in $CDCl_3$.

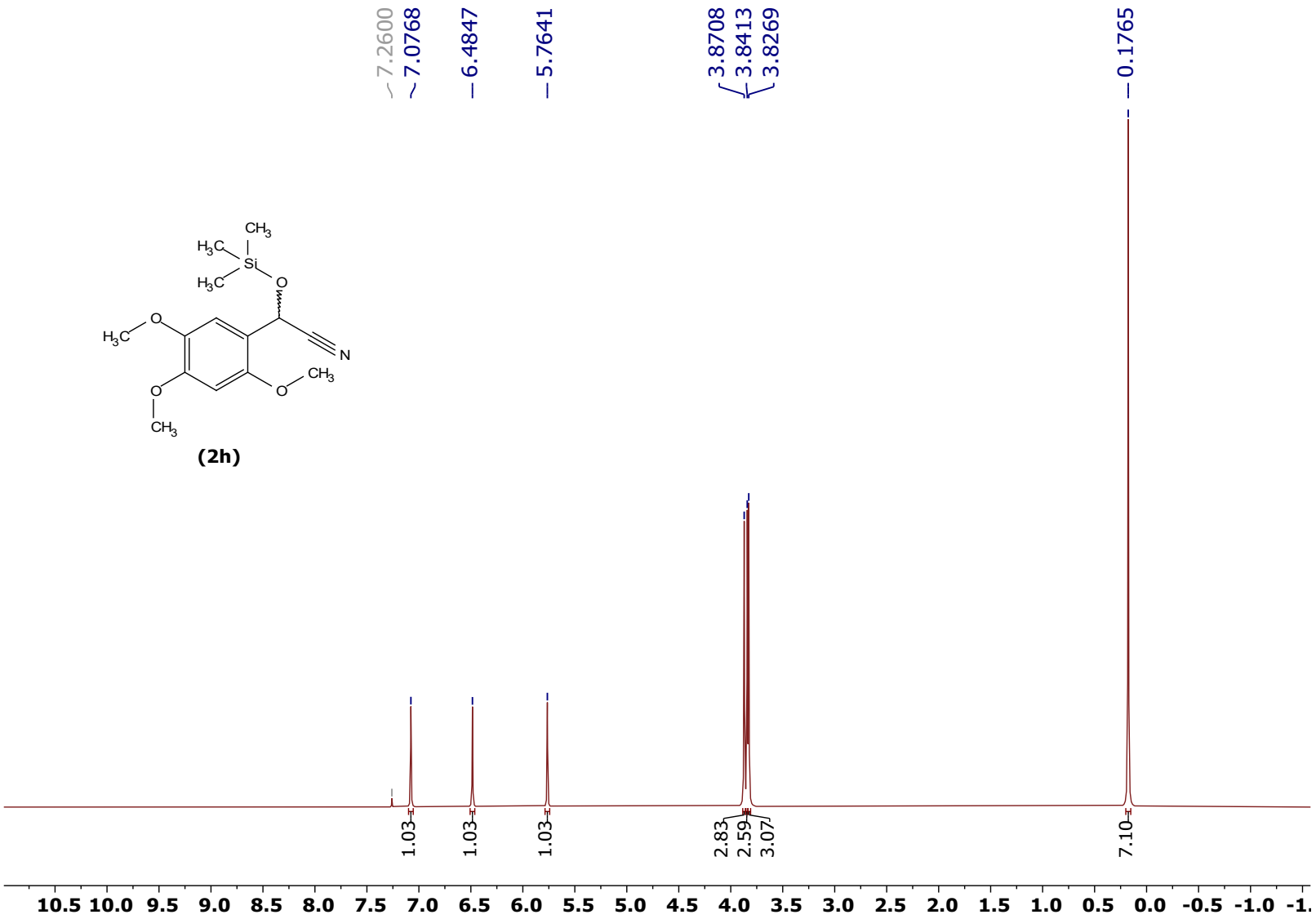

Figure S15. ^{1}H NMR spectrum of **2h** in $CDCl_3$.

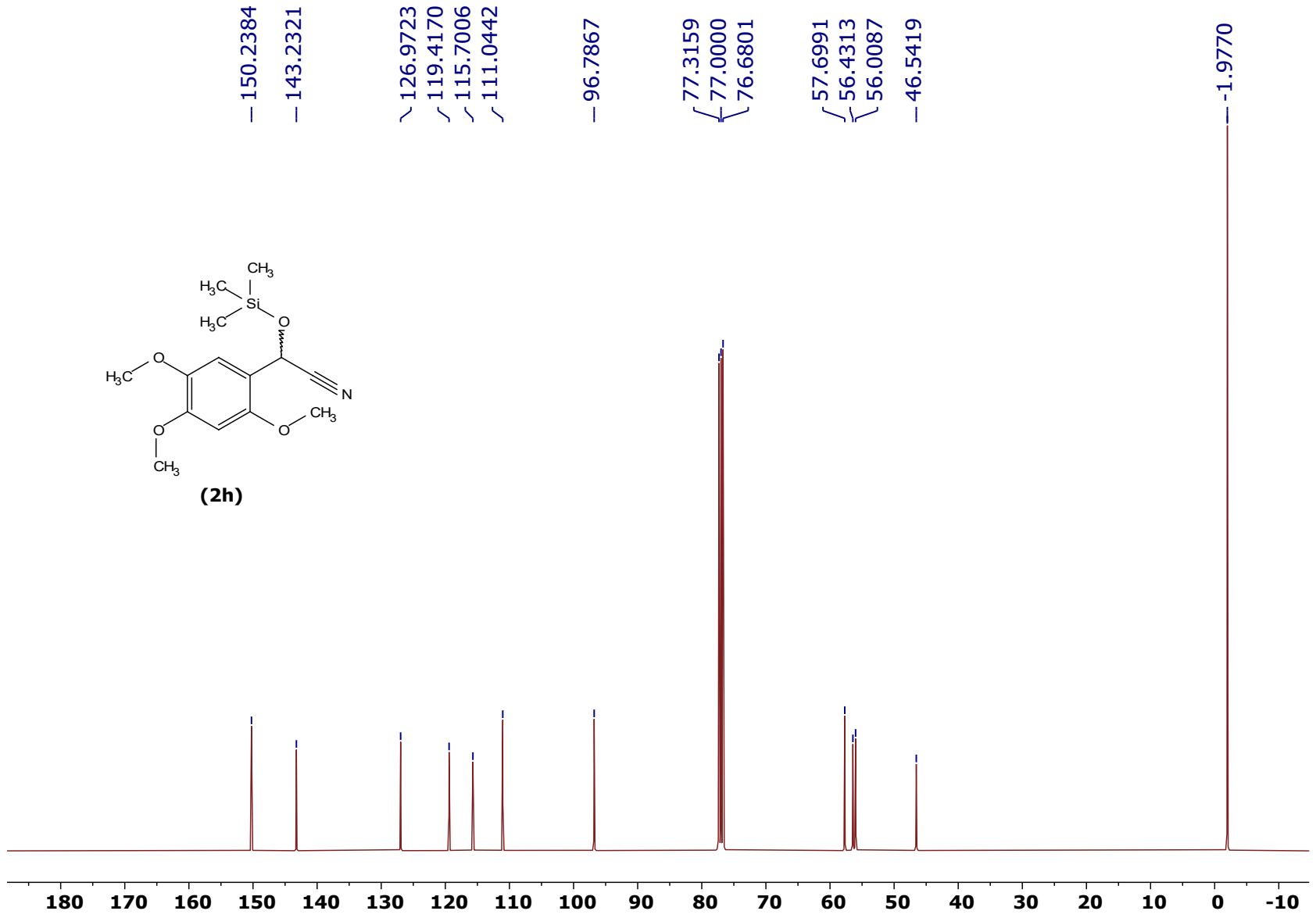

Figure S16. $^{13}C\{^{1}H\}$ NMR spectrum of **2h** in $CDCl_3$.

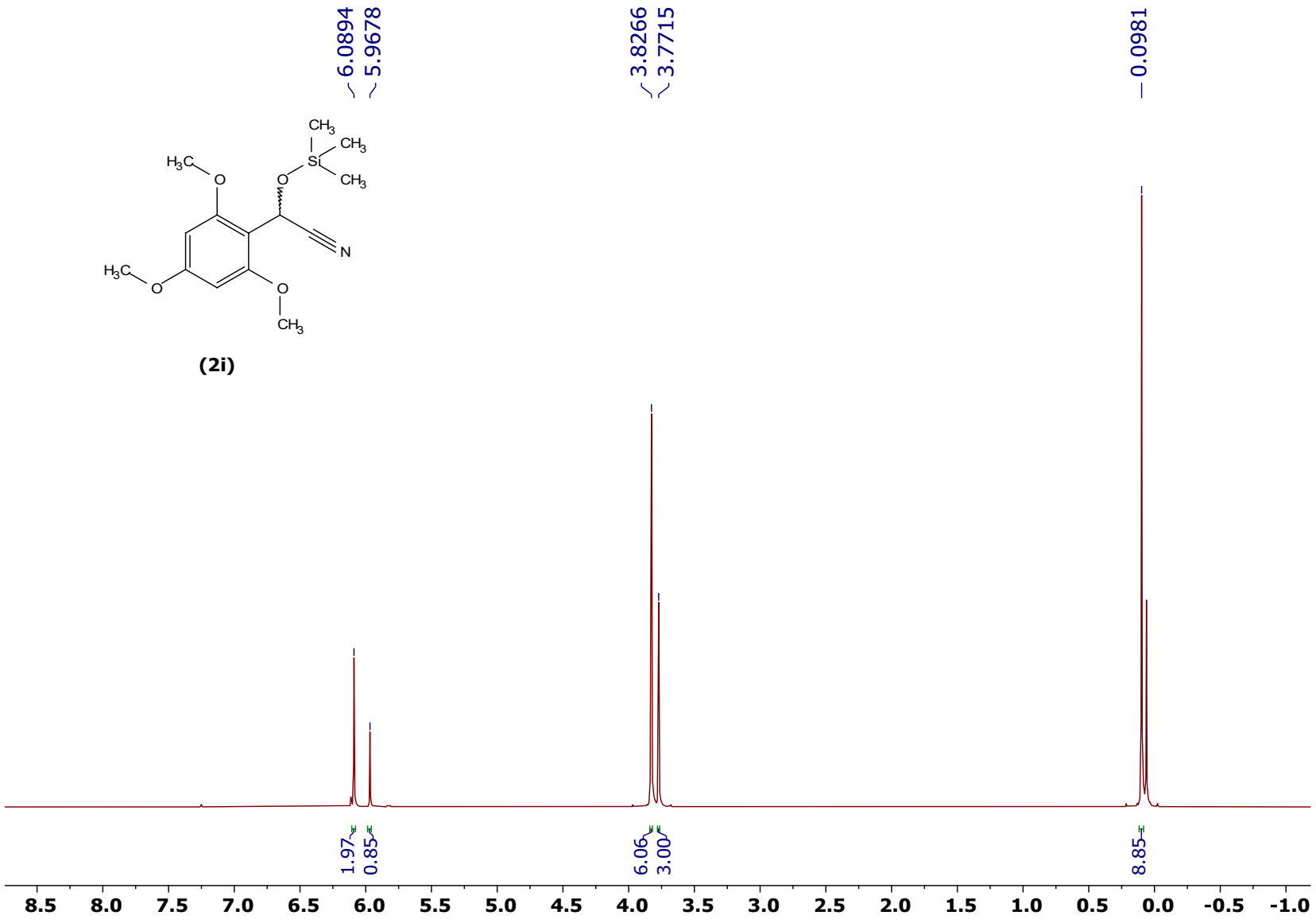

Figure S17. ^{1}H NMR spectrum of **2i** in $CDCl_3$.

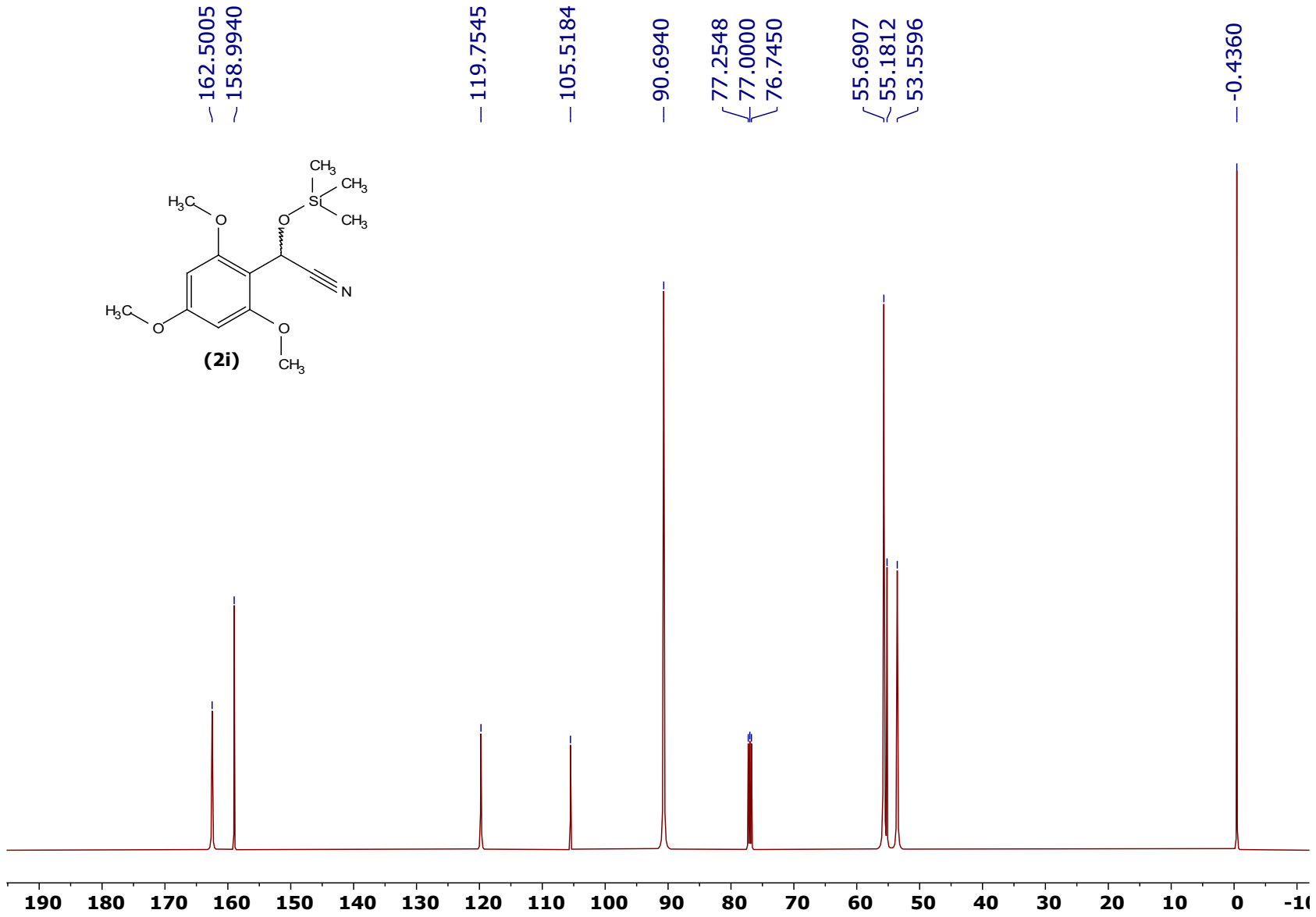

Figure S18. $^{13}C\{^{1}H\}$ NMR spectrum of **2i** in $CDCl_3$.

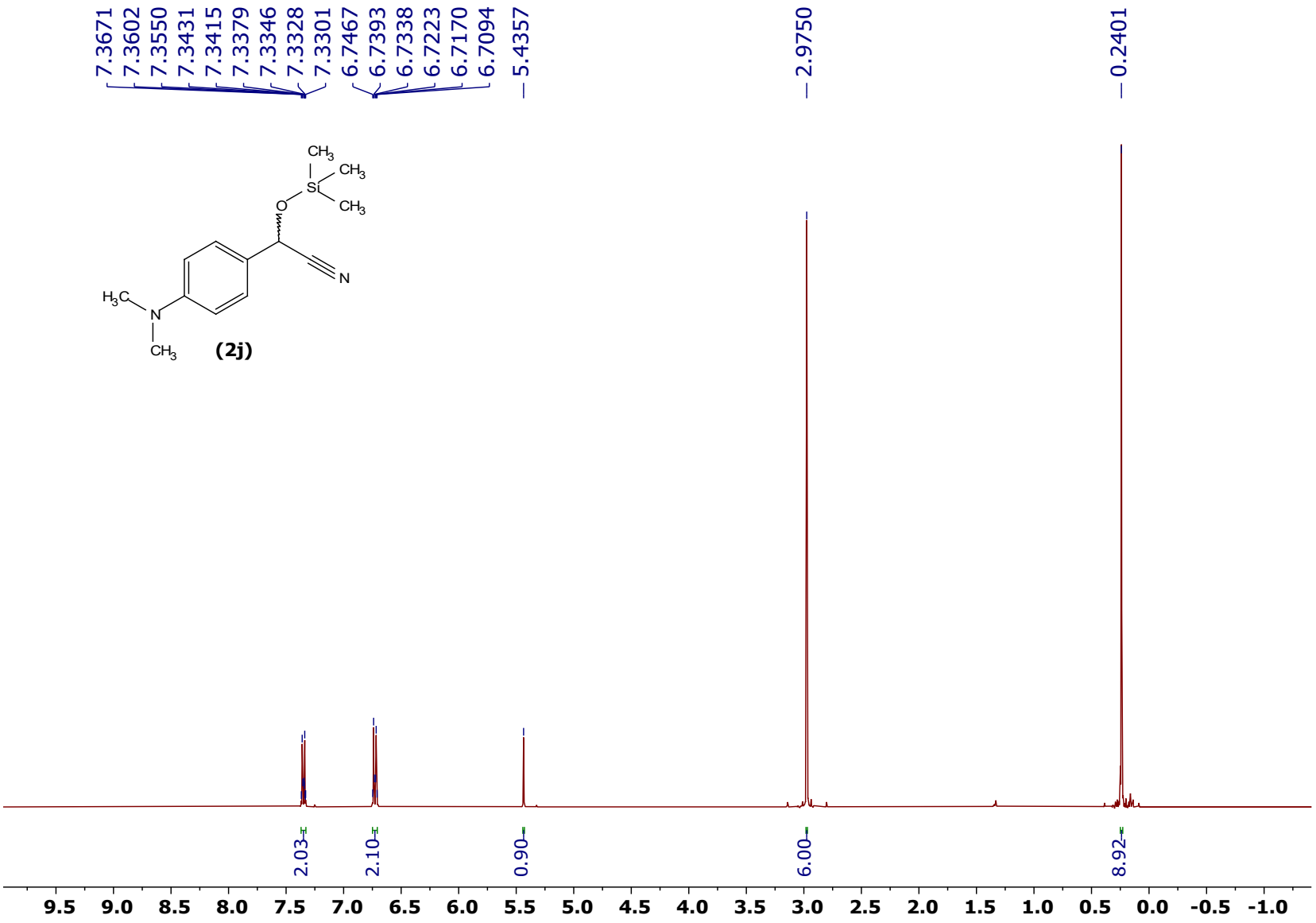

Figure S19. ^{1}H NMR spectrum of **2j** in $CDCl_3$.

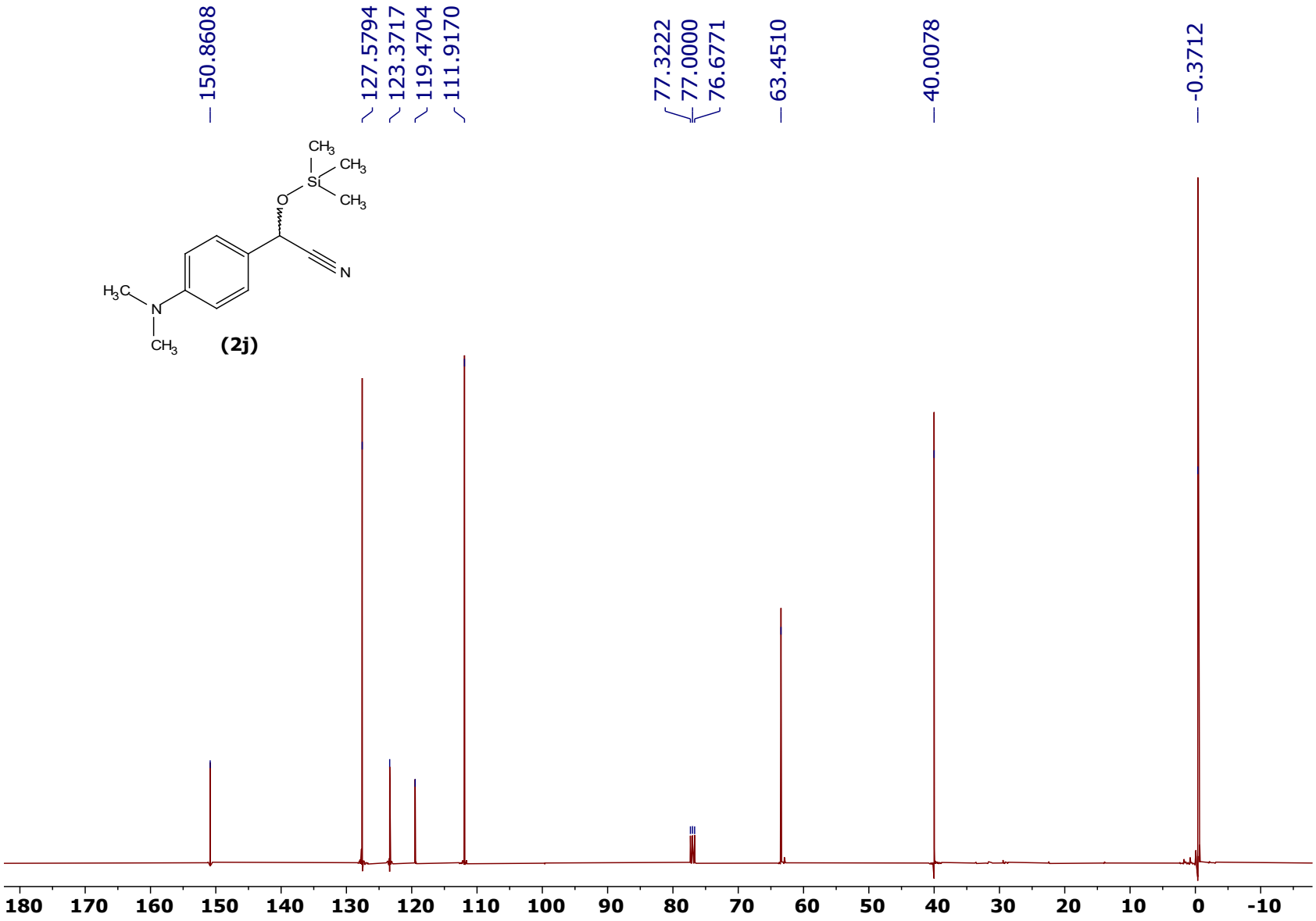

Figure S20. $^{13}C\{^{1}H\}$ NMR spectrum of **2j** in $CDCl_3$.

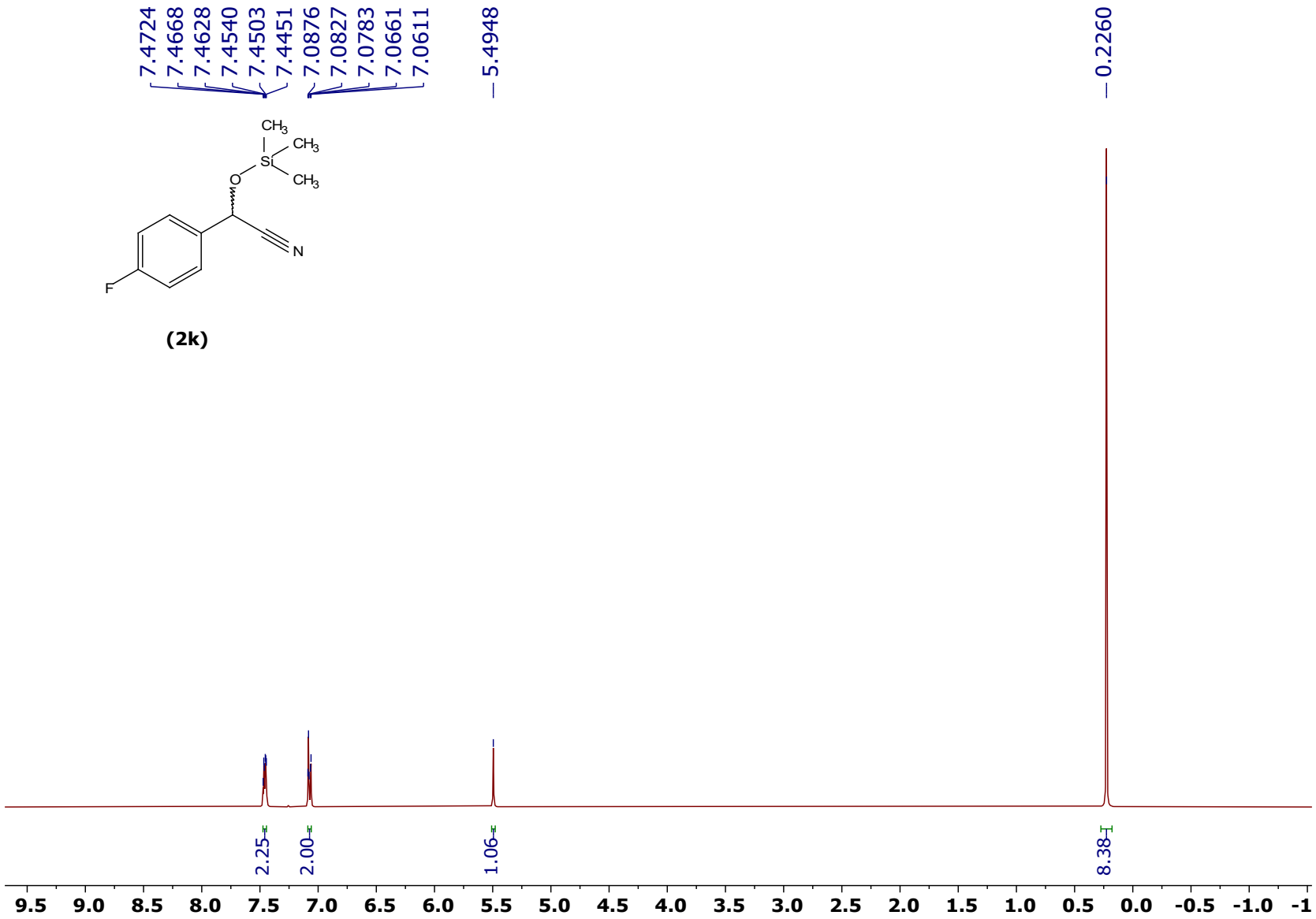

Figure S21. ^{1}H NMR spectrum of **2k** in $CDCl_3$.

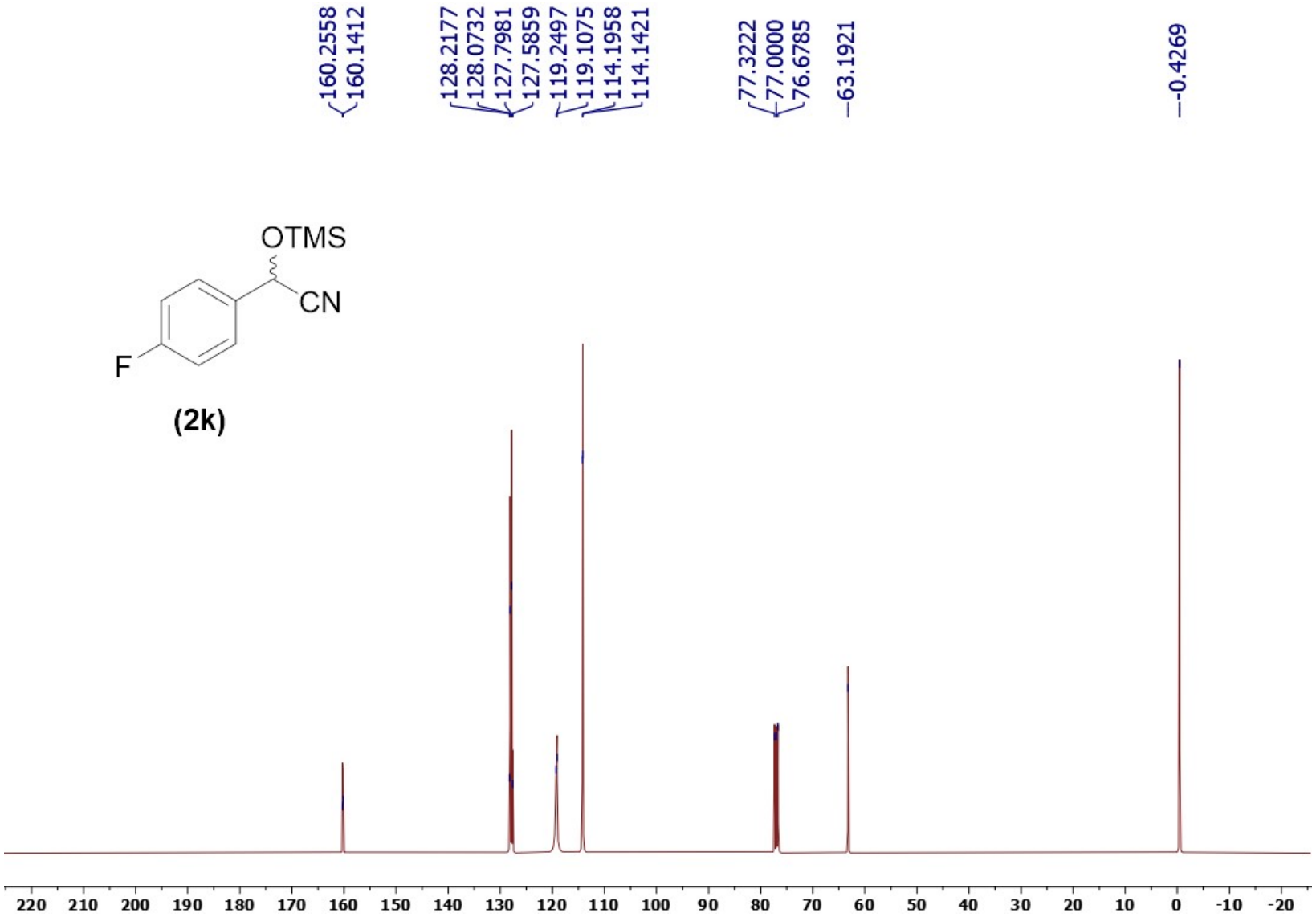

Figure S22. $^{13}C\{^{1}H\}$ NMR spectrum of **2k** in $CDCl_3$.

(2k)

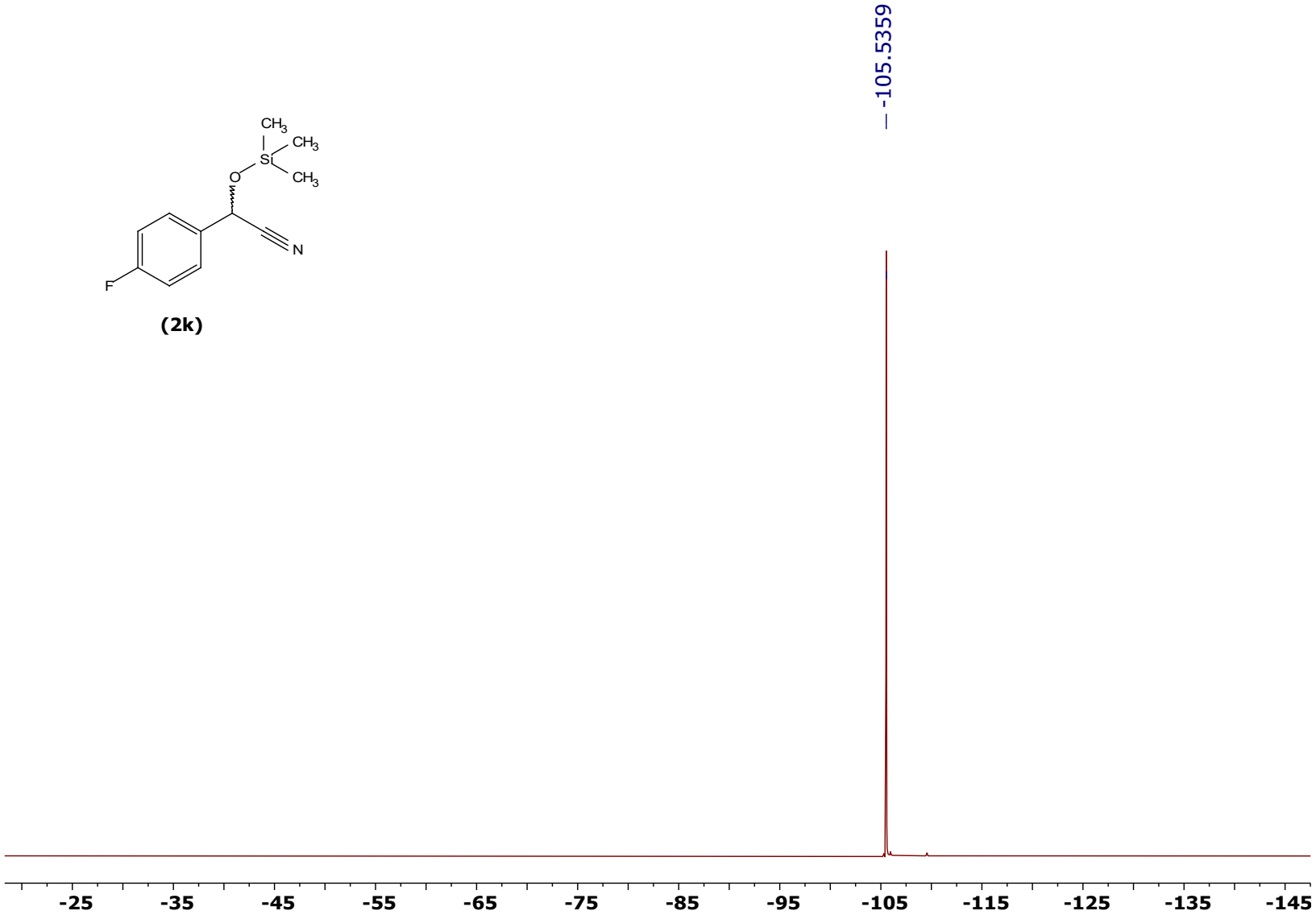

Figure S23. ^{19}F NMR spectrum of **2k** in $CDCl_3$.

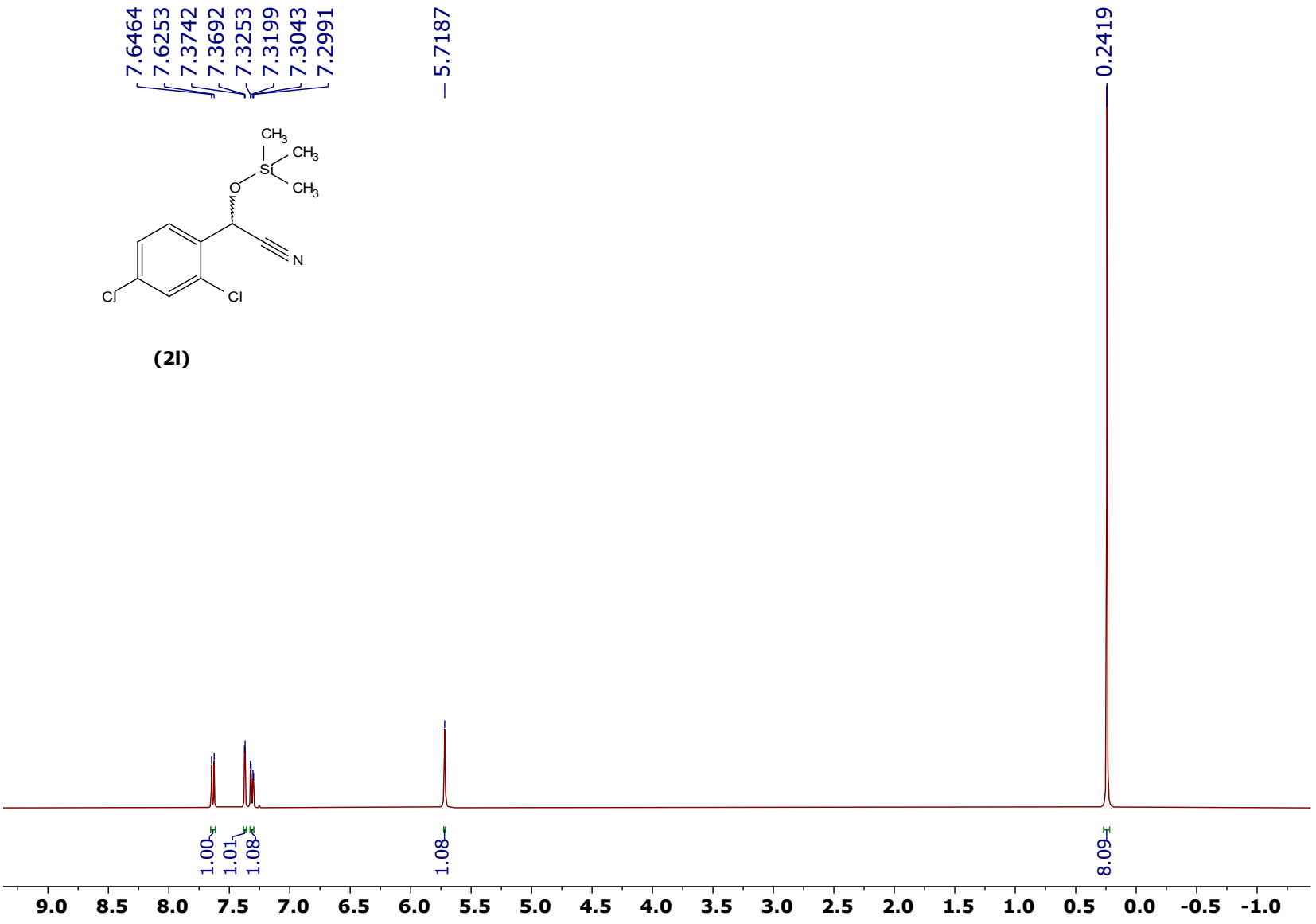

Figure S24. ^{1}H NMR spectrum of **2l** in $CDCl_3$.

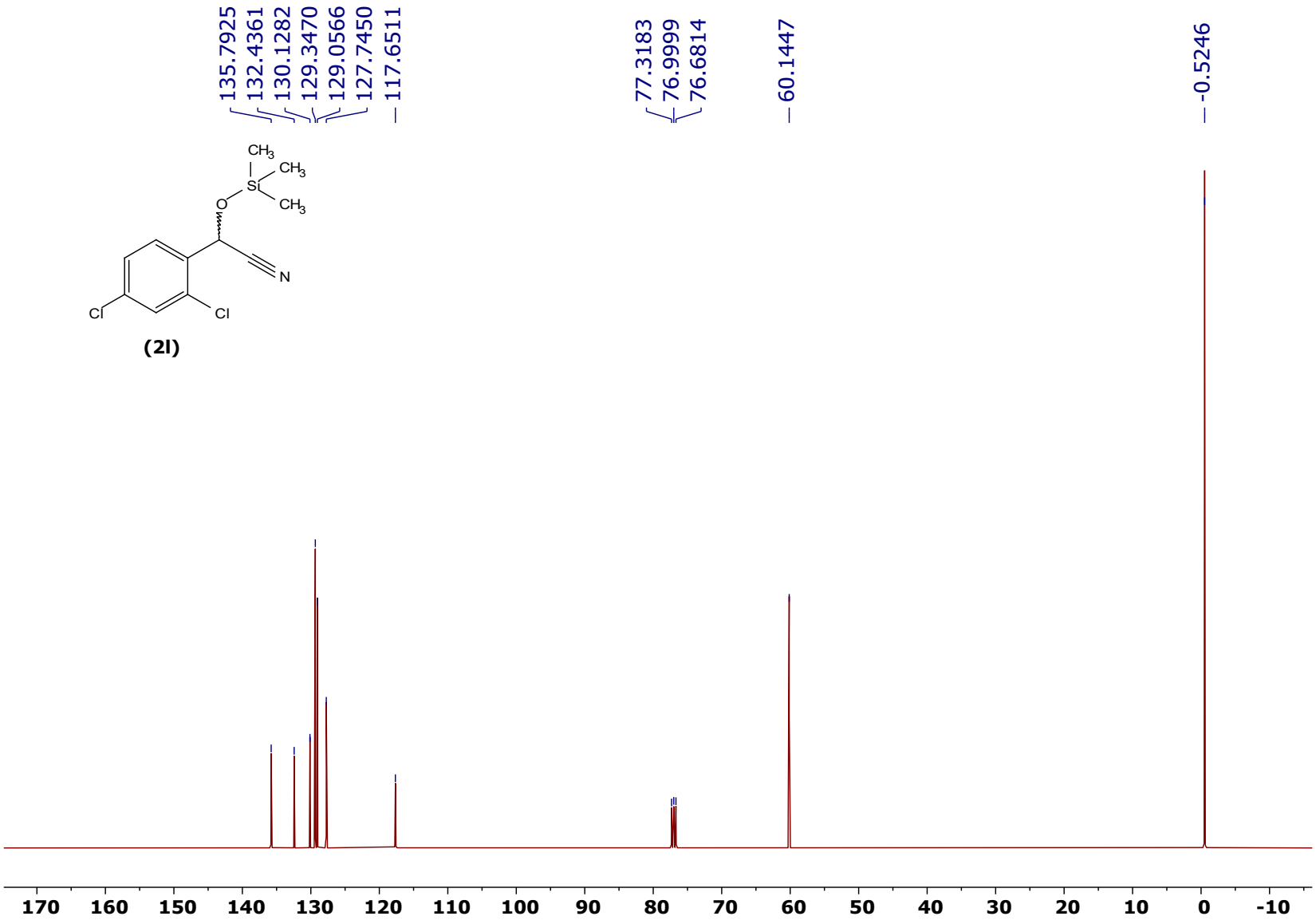

Figure S25. $^{13}C\{^{1}H\}$ NMR spectrum of **2l** in $CDCl_3$.

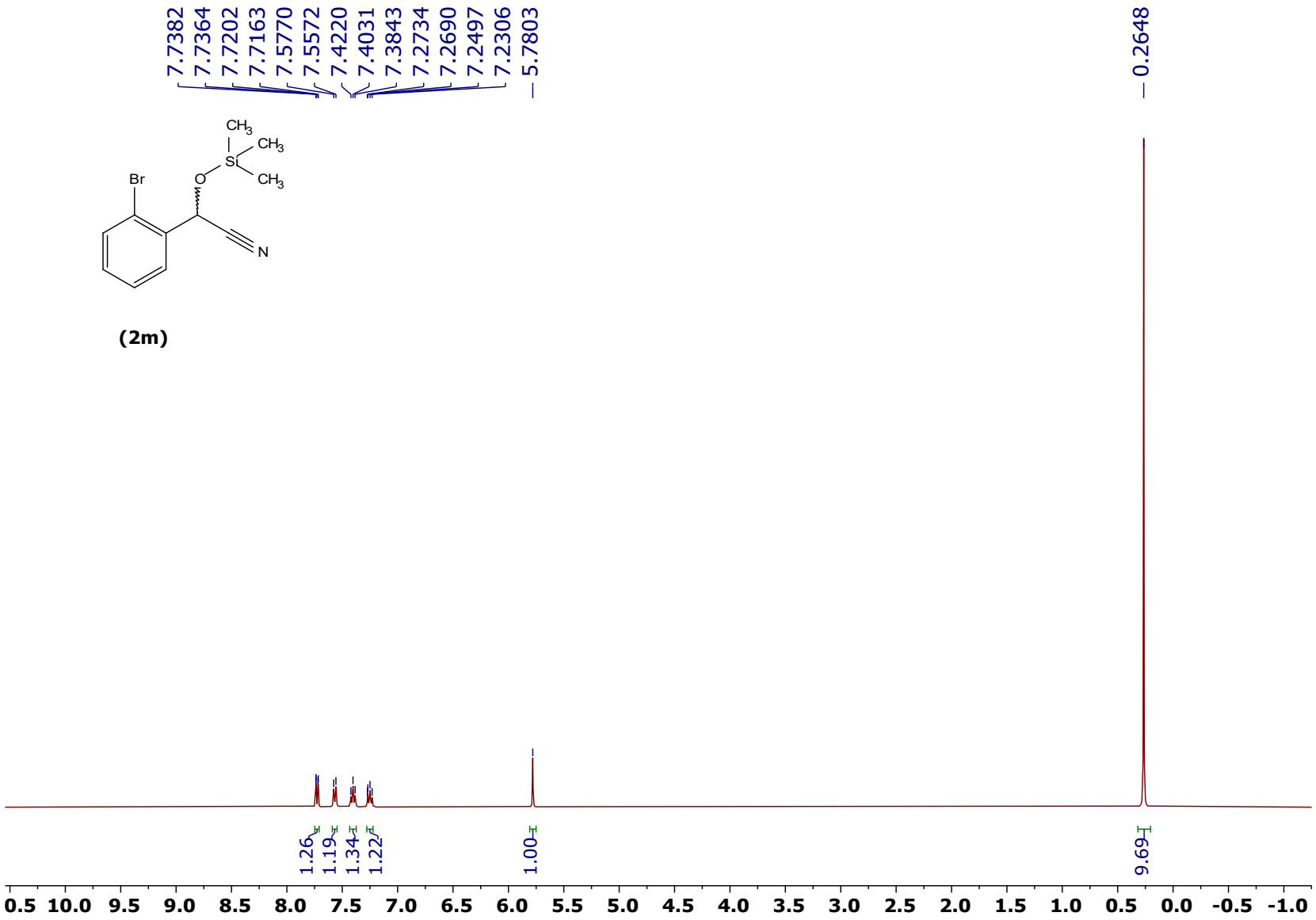

Figure S26. ^{1}H NMR spectrum of **2m** in $CDCl_3$.

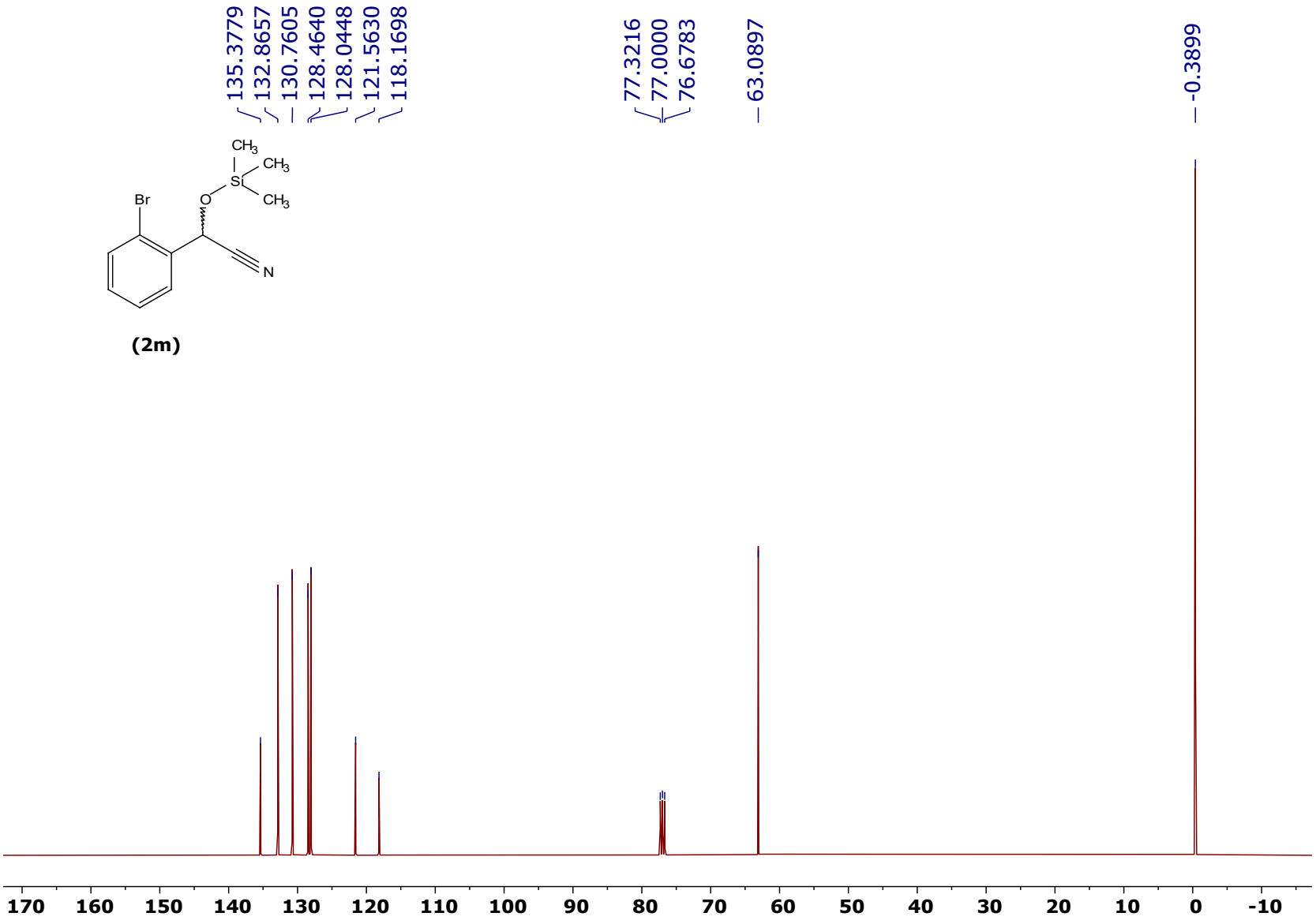

Figure S27. $^{13}C\{^{1}H\}$ NMR spectrum of **2m** in $CDCl_3$.

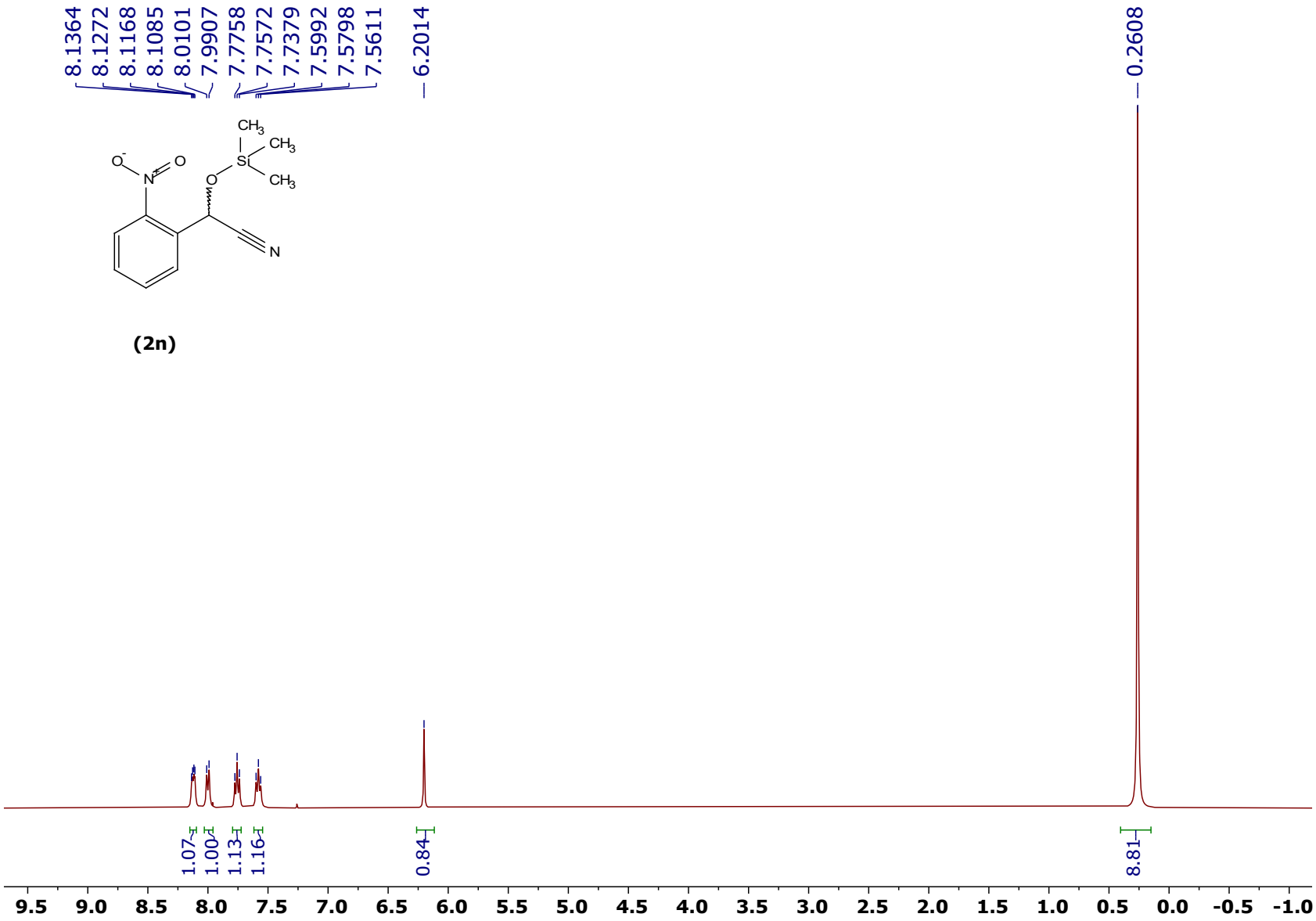

Figure S28. ^{1}H NMR spectrum of **2n** in $CDCl_3$.

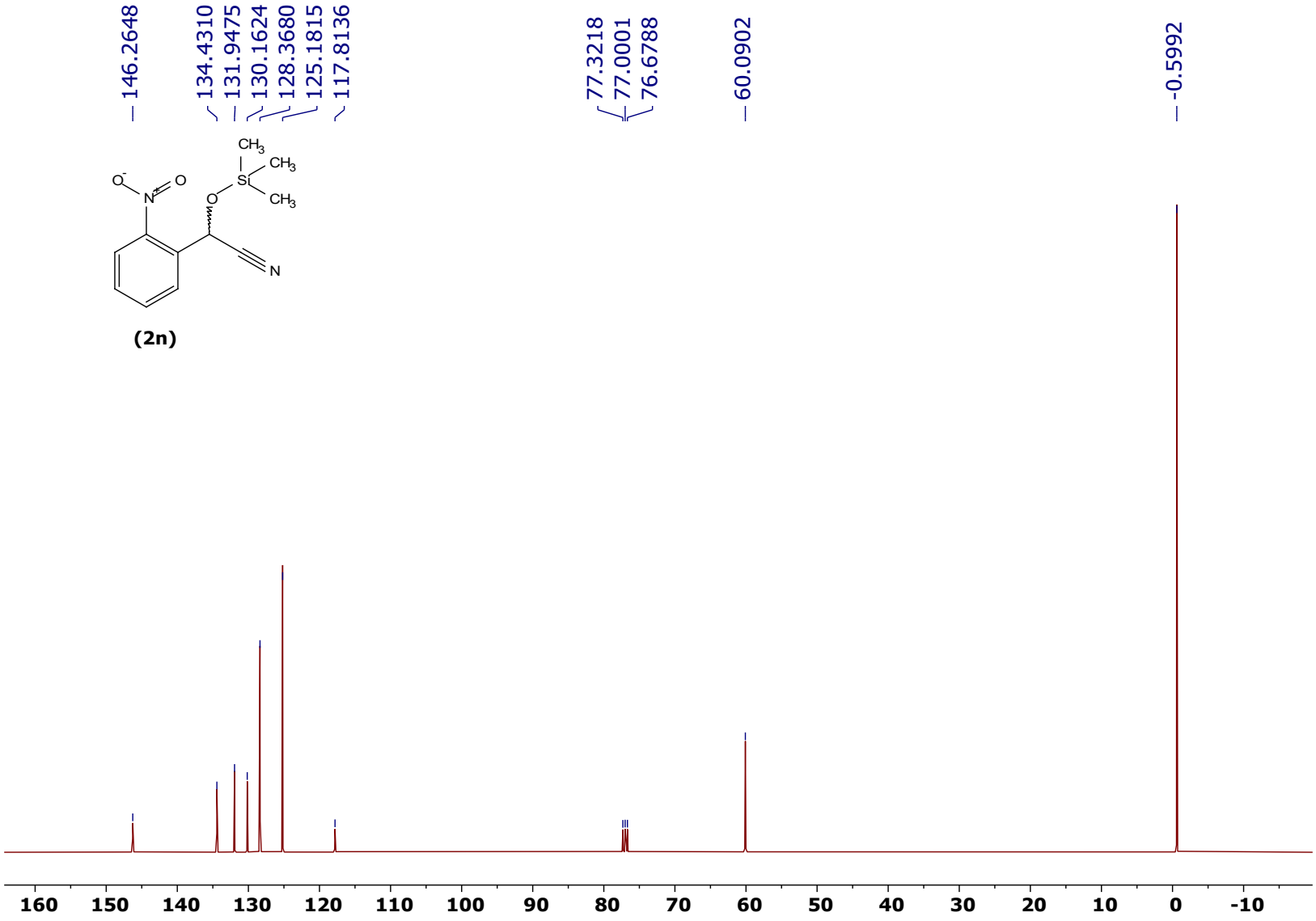

Figure S29. $^{13}C\{^{1}H\}$ NMR spectrum of **2n** in $CDCl_3$.

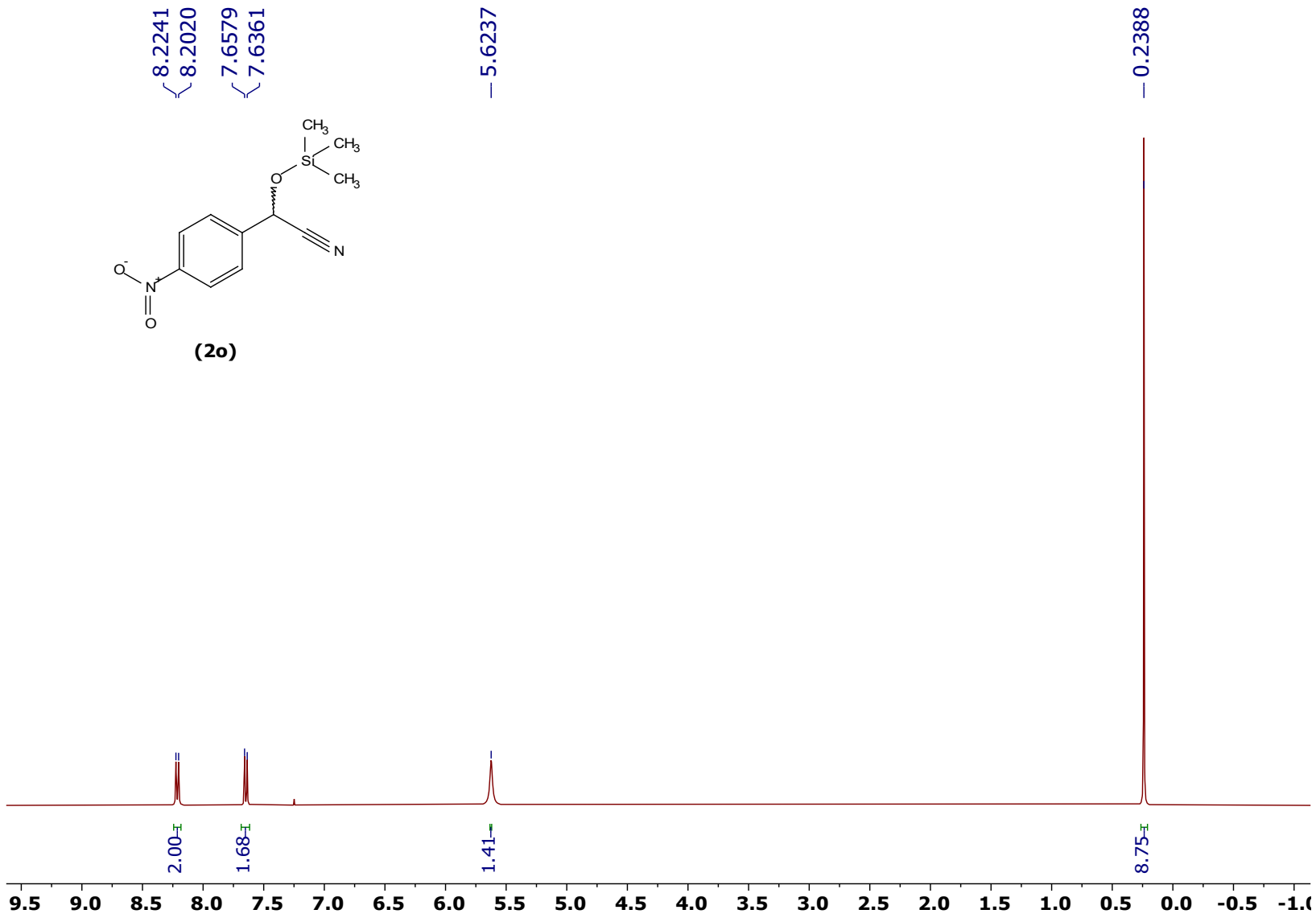

Figure S30. ^{1}H NMR spectrum of **2o** in $CDCl_3$.

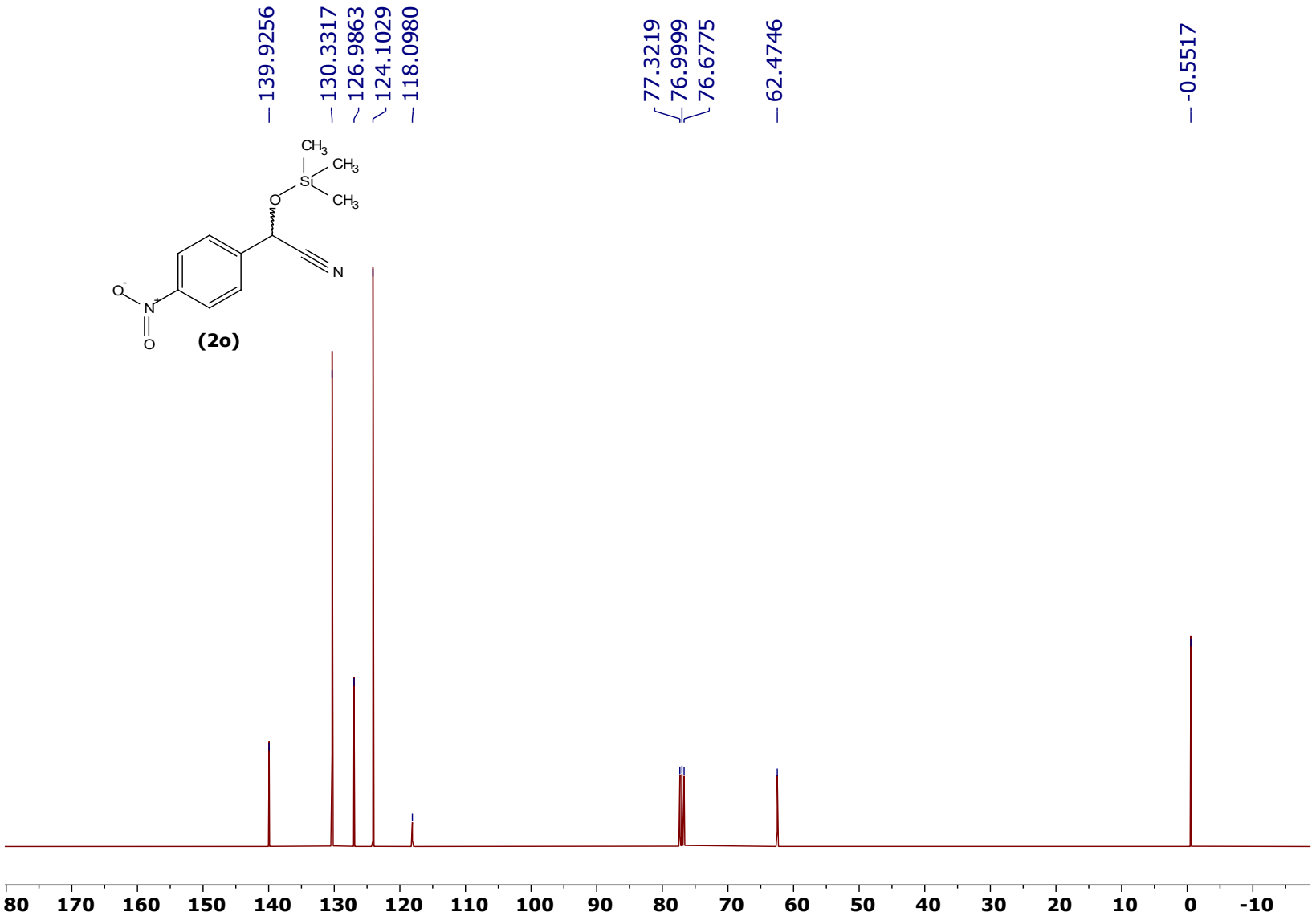

Figure S31. $^{13}C\{^{1}H\}$ NMR spectrum of **2o** in $CDCl_3$.

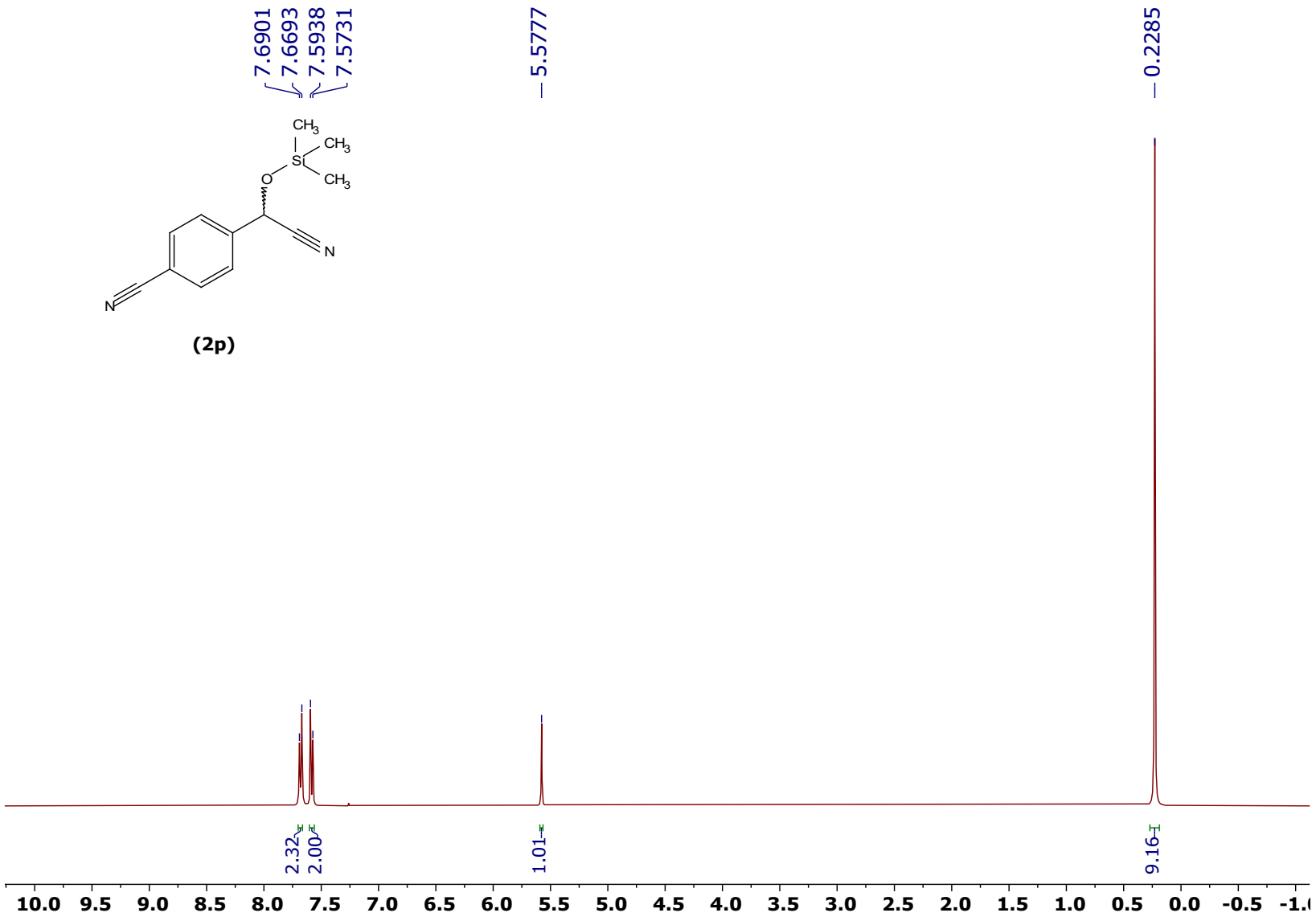

Figure S32. ^{1}H NMR spectrum of **2p** in $CDCl_3$.

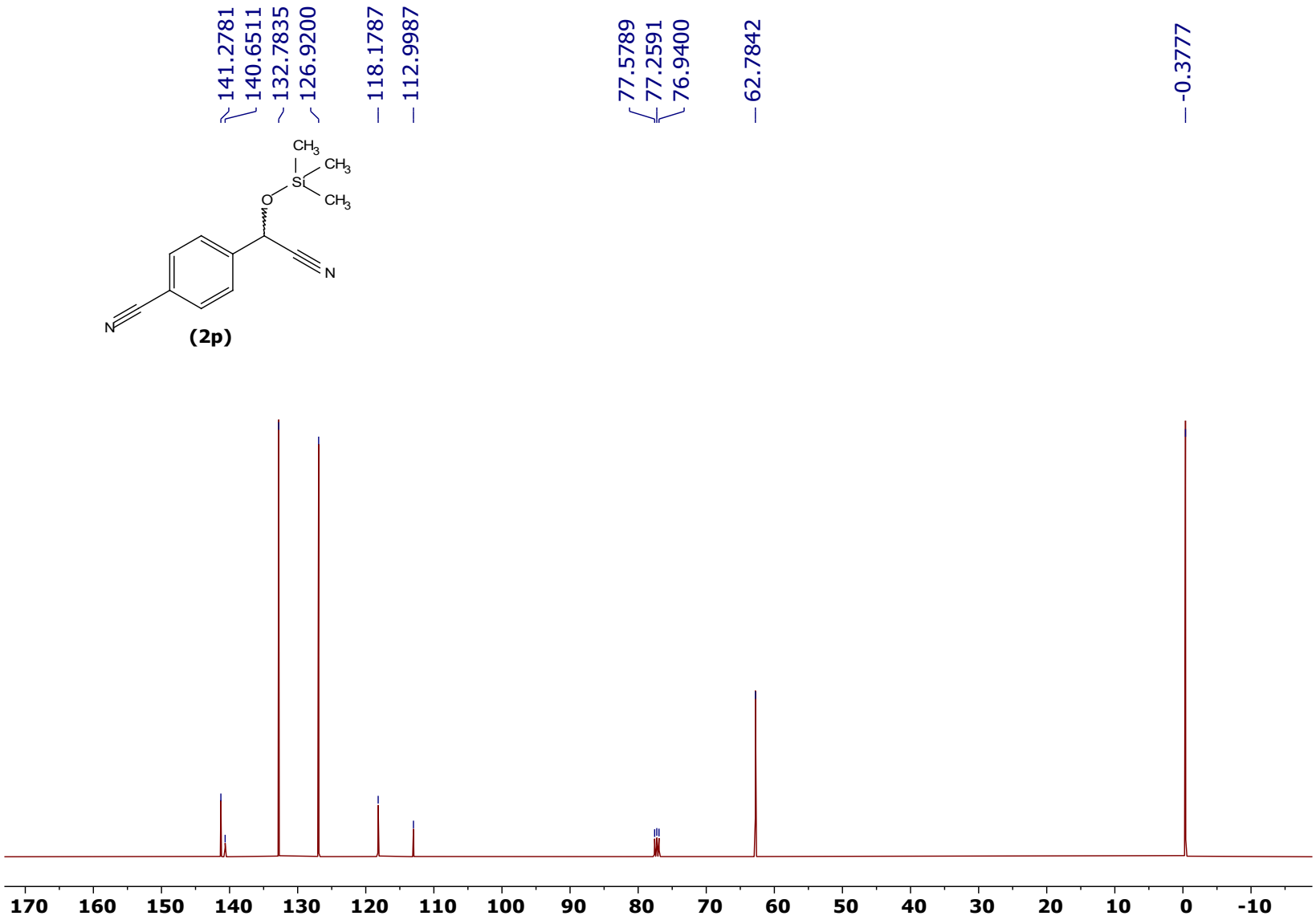

Figure S33. $^{13}C\{^{1}H\}$ NMR spectrum of **2p** in $CDCl_3$.

Figure S34. ^{1}H NMR spectrum of **2q** in $CDCl_3$.

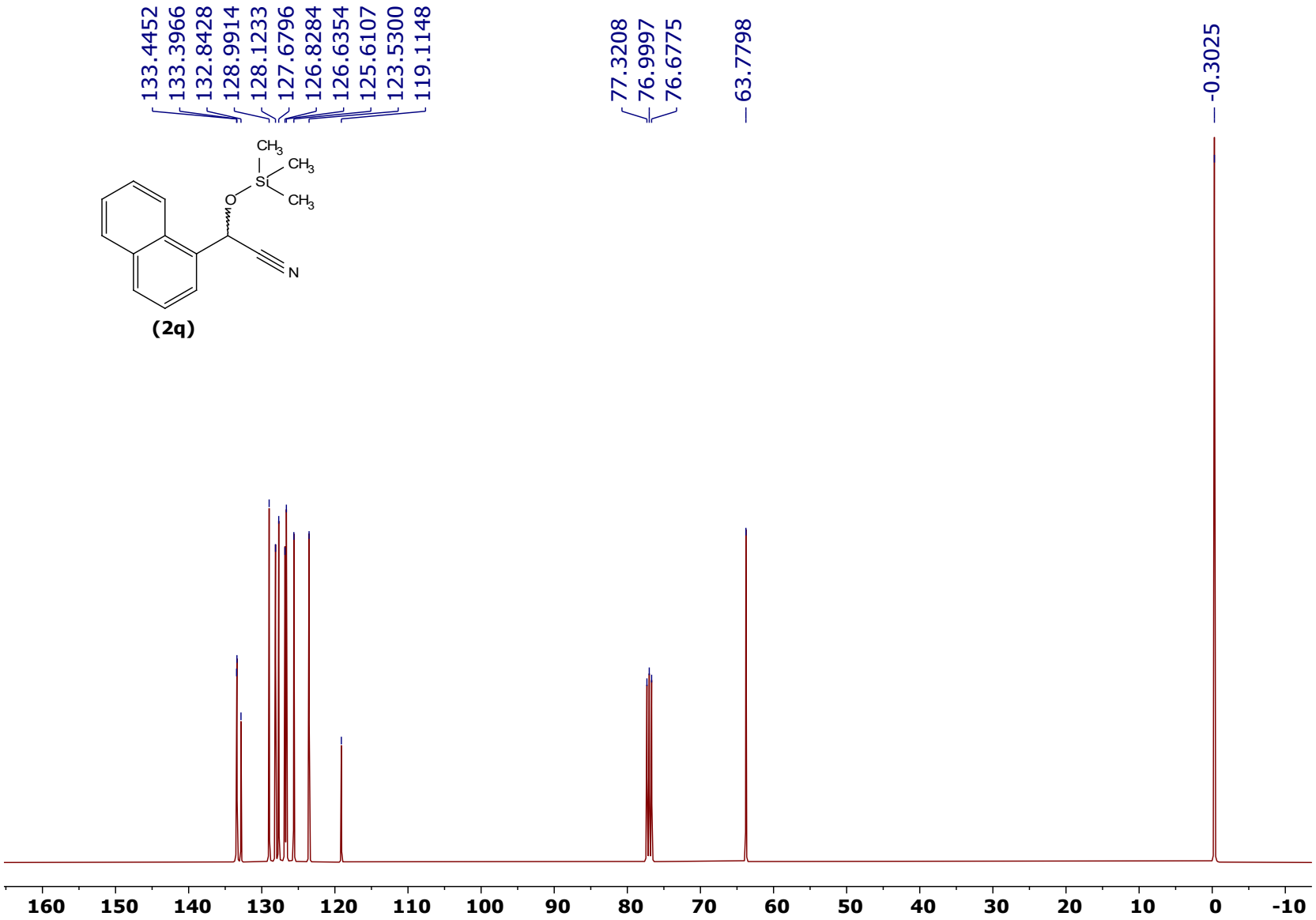

Figure S35. $^{13}C\{^{1}H\}$ NMR spectrum of **2q** in $CDCl_3$.

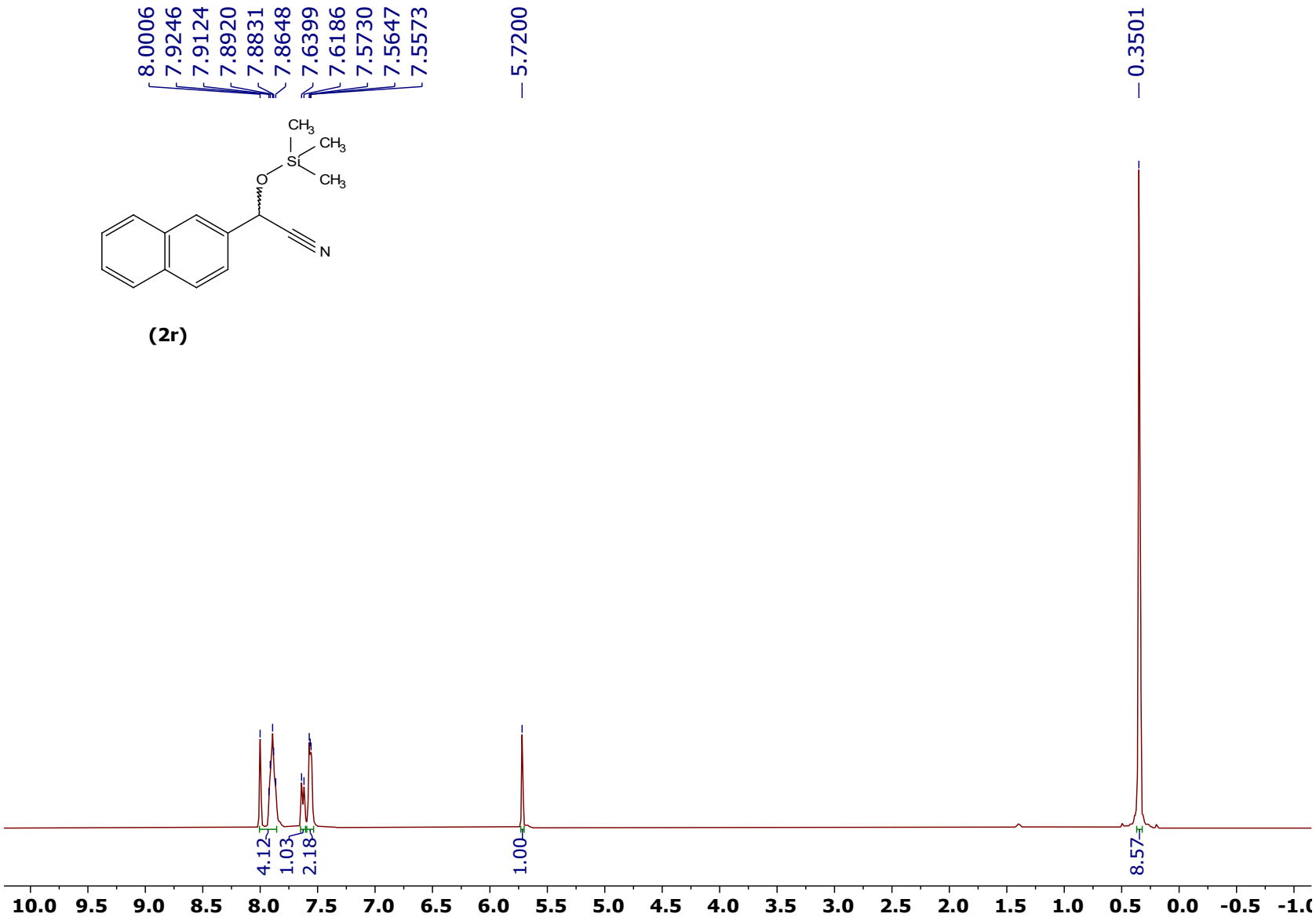

Figure S36. ^{1}H NMR spectrum of **2r** in $CDCl_3$.

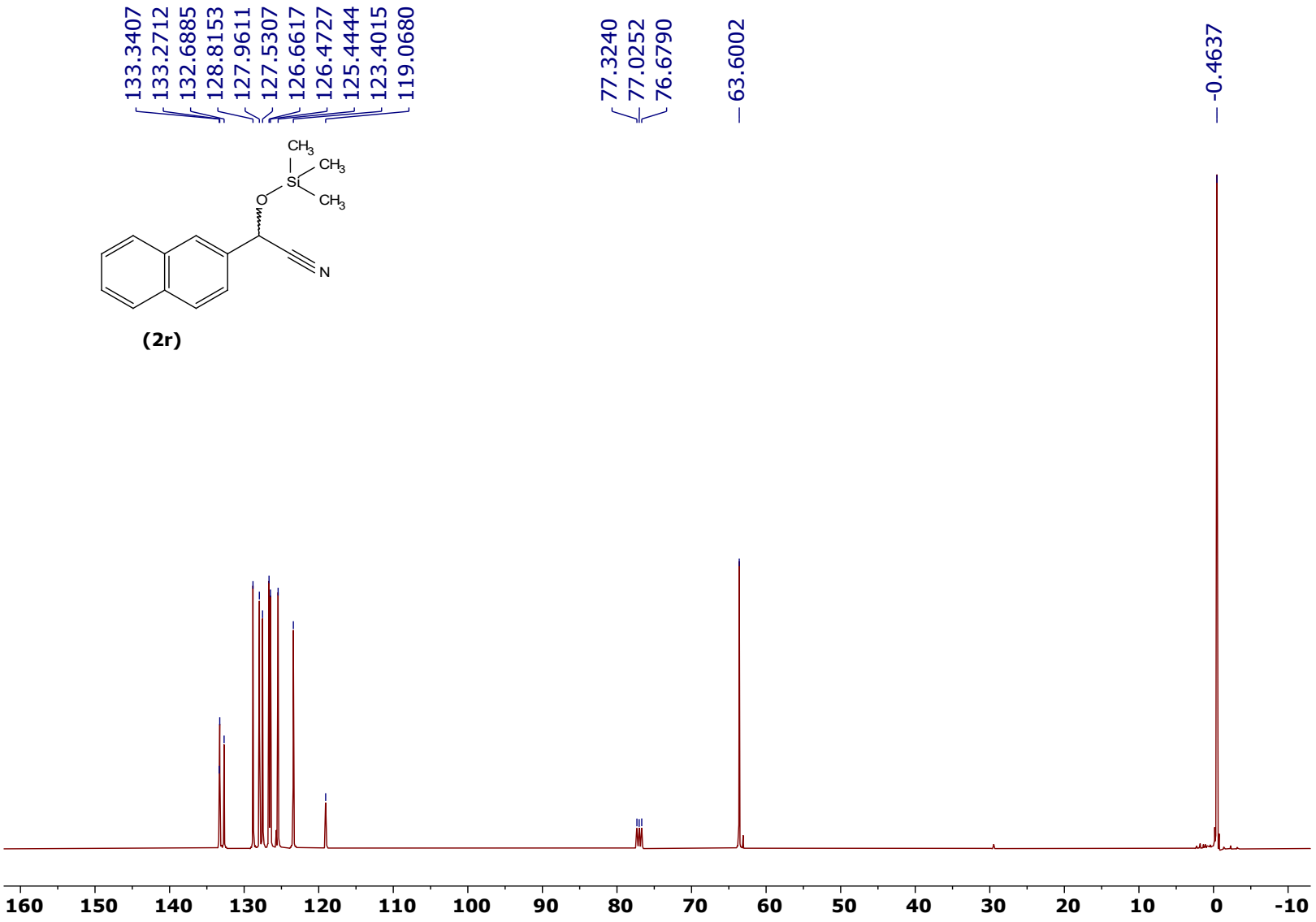

Figure S37. $^{13}C\{^{1}H\}$ NMR spectrum of **2r** in $CDCl_3$.

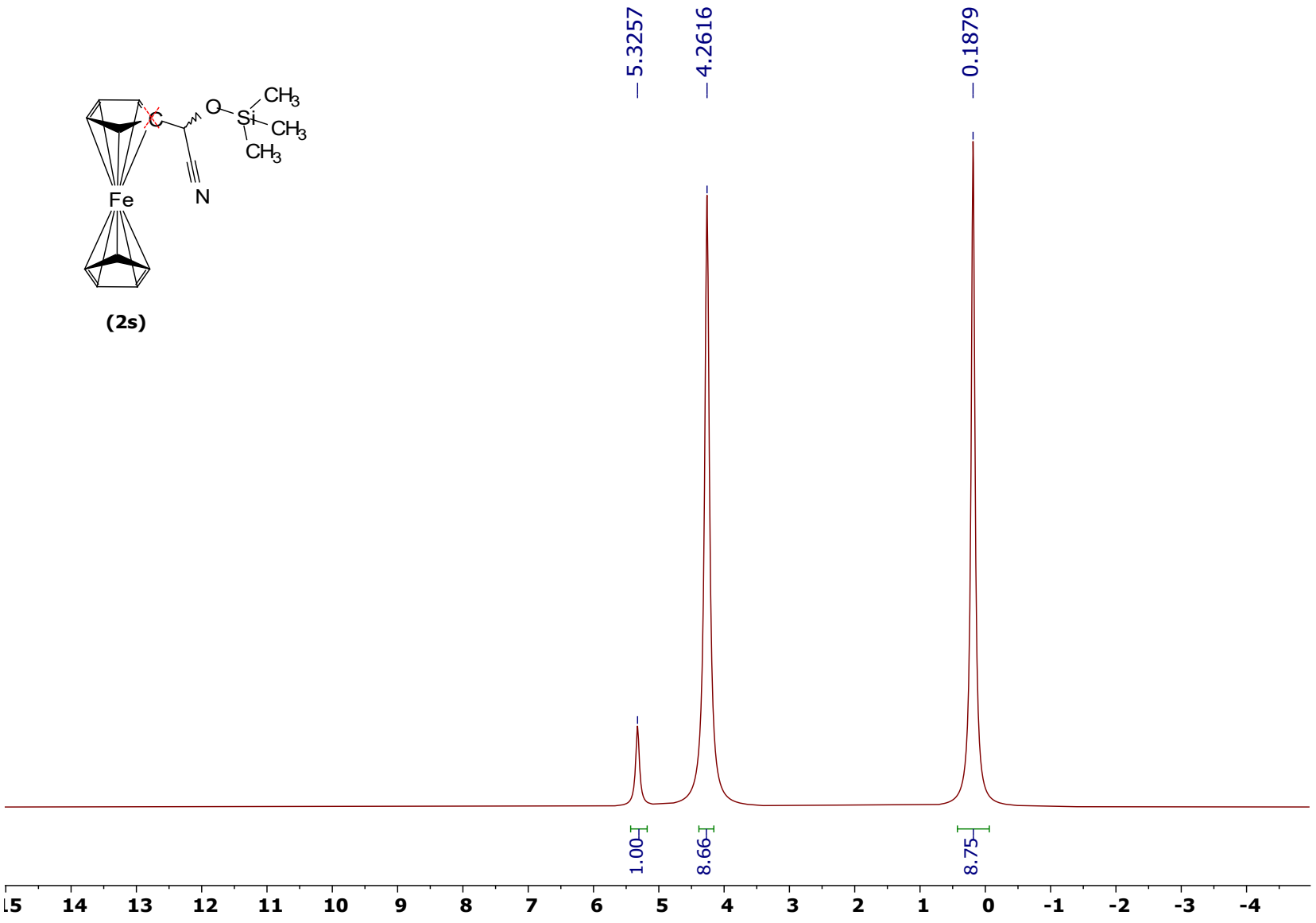

Figure S38. ^{1}H NMR spectrum of **2s** in $CDCl_3$.

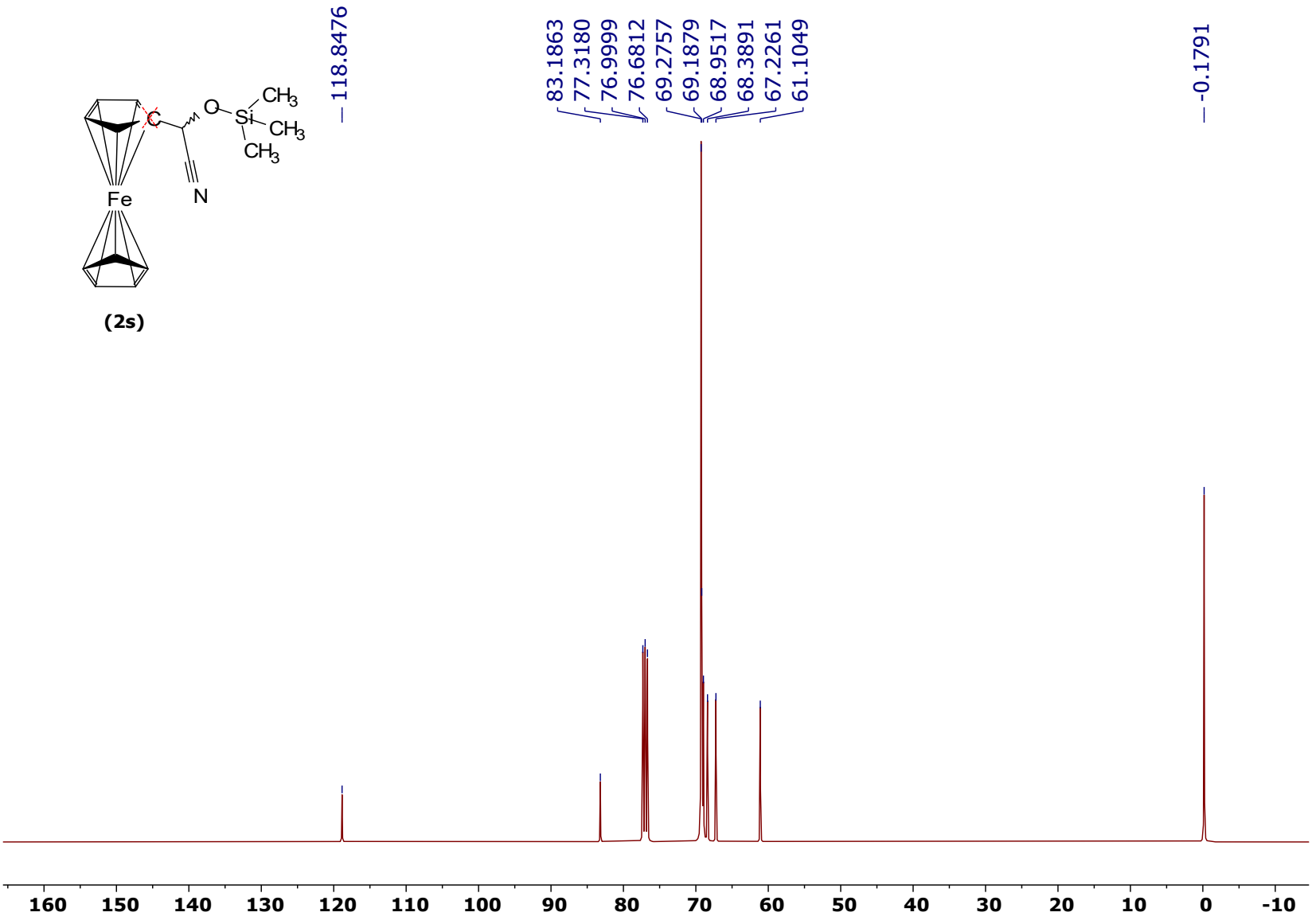

Figure S39. $^{13}C\{^{1}H\}$ NMR spectrum of **2s** in $CDCl_3$.

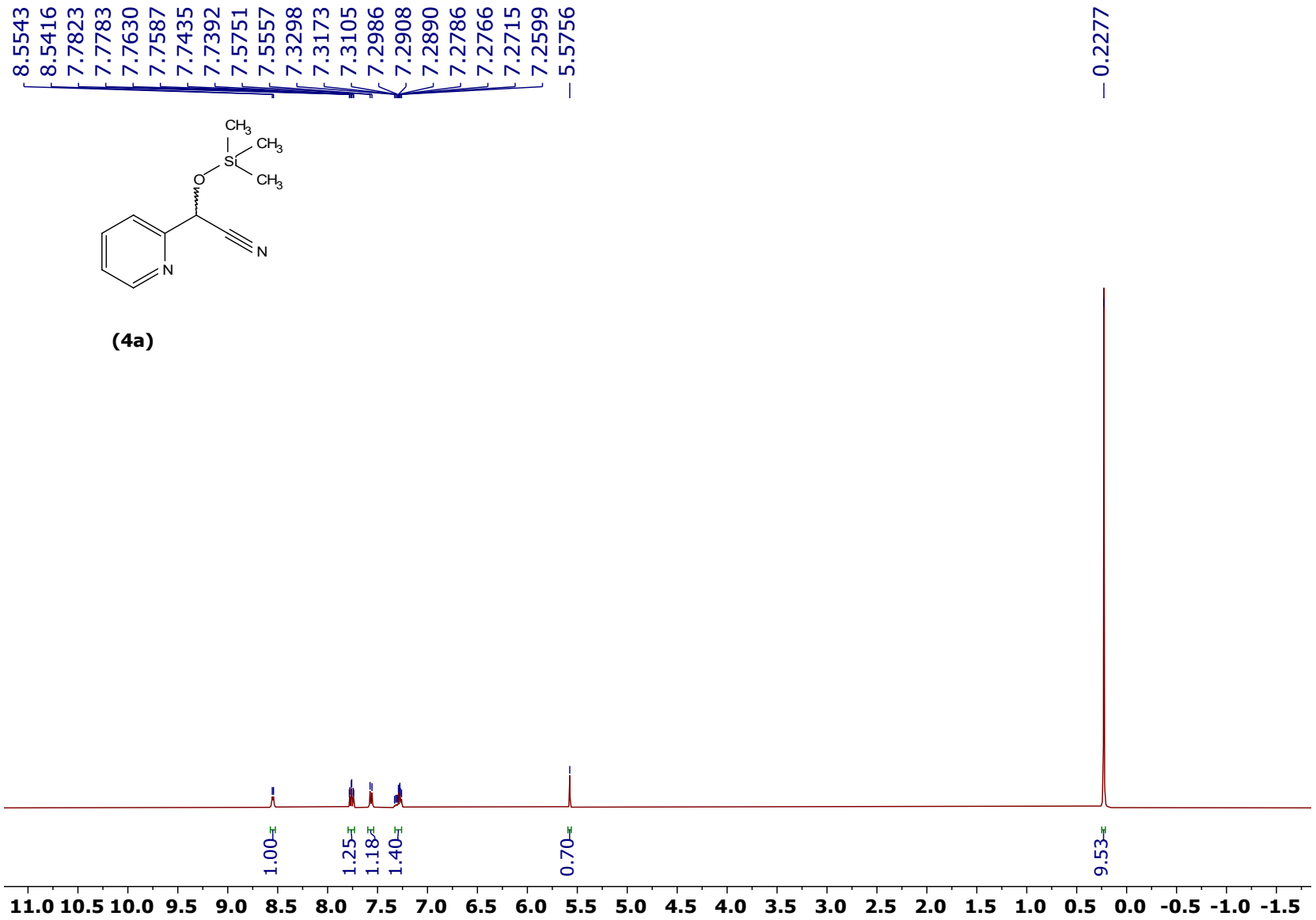

Figure S40. ^{1}H NMR spectrum of **4a** in $CDCl_3$.

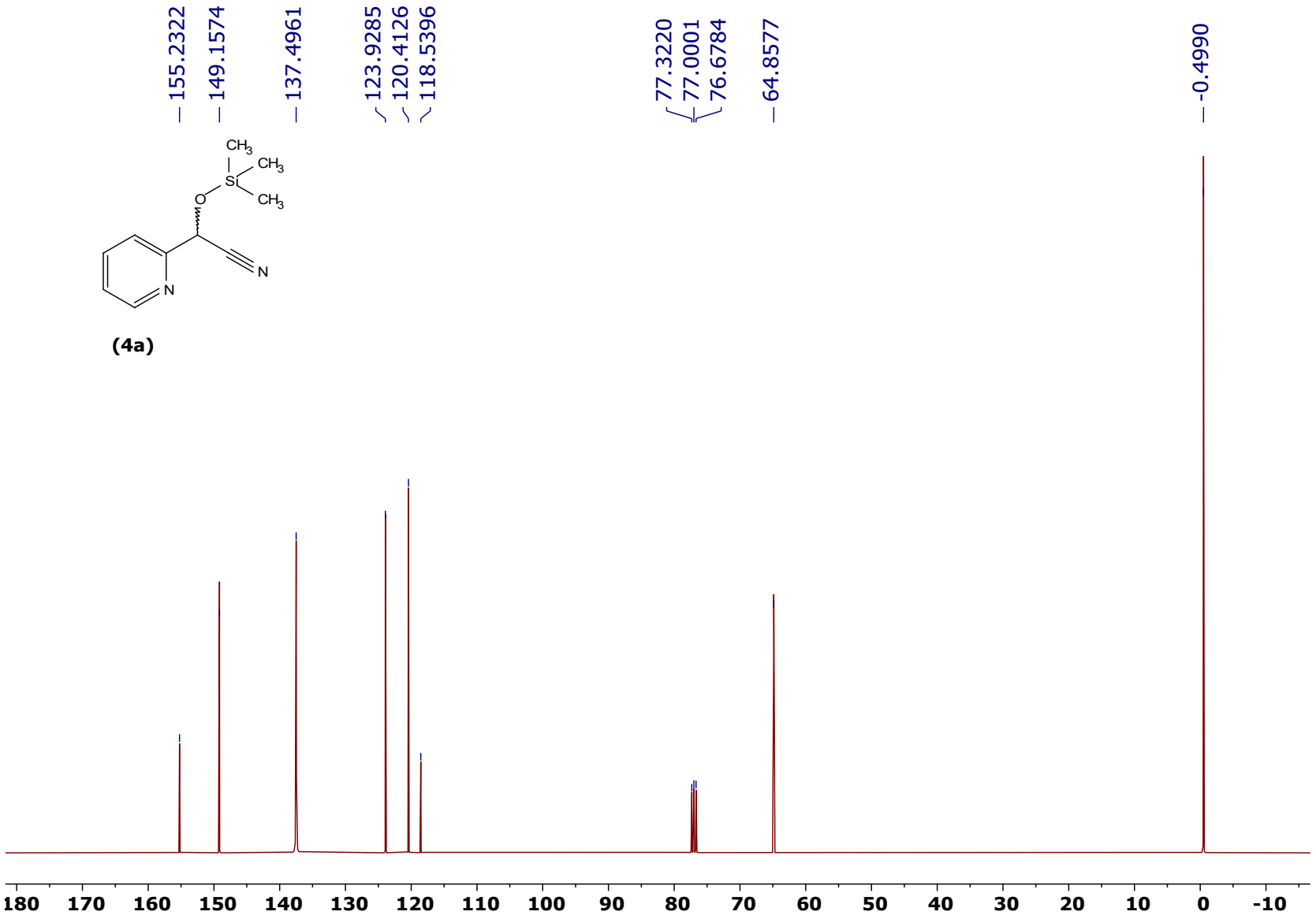

Figure S41. $^{13}C\{^{1}H\}$ NMR spectrum of **4a** in $CDCl_3$.

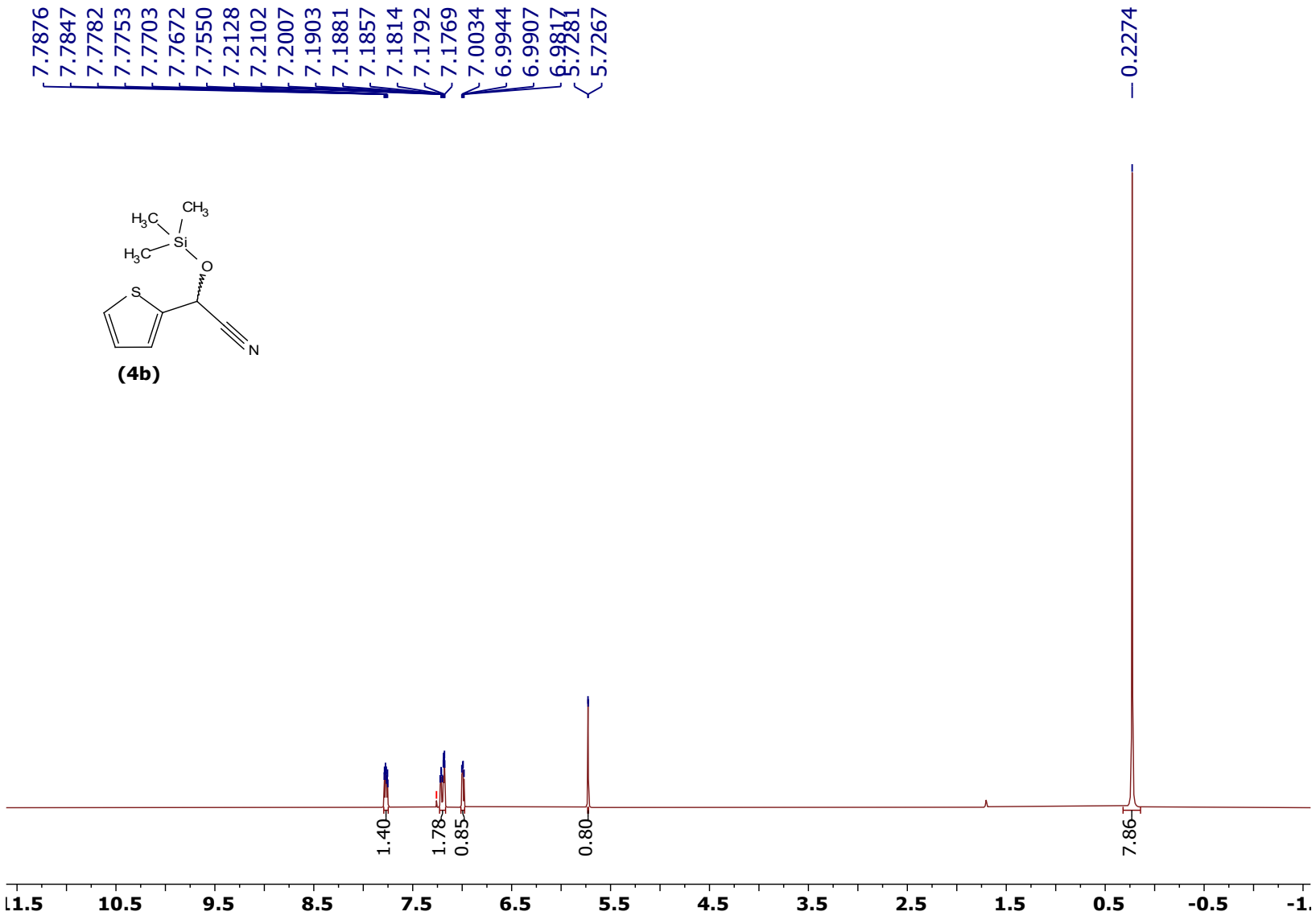

Figure S42. ^{1}H NMR spectrum of **4b** in $CDCl_3$.

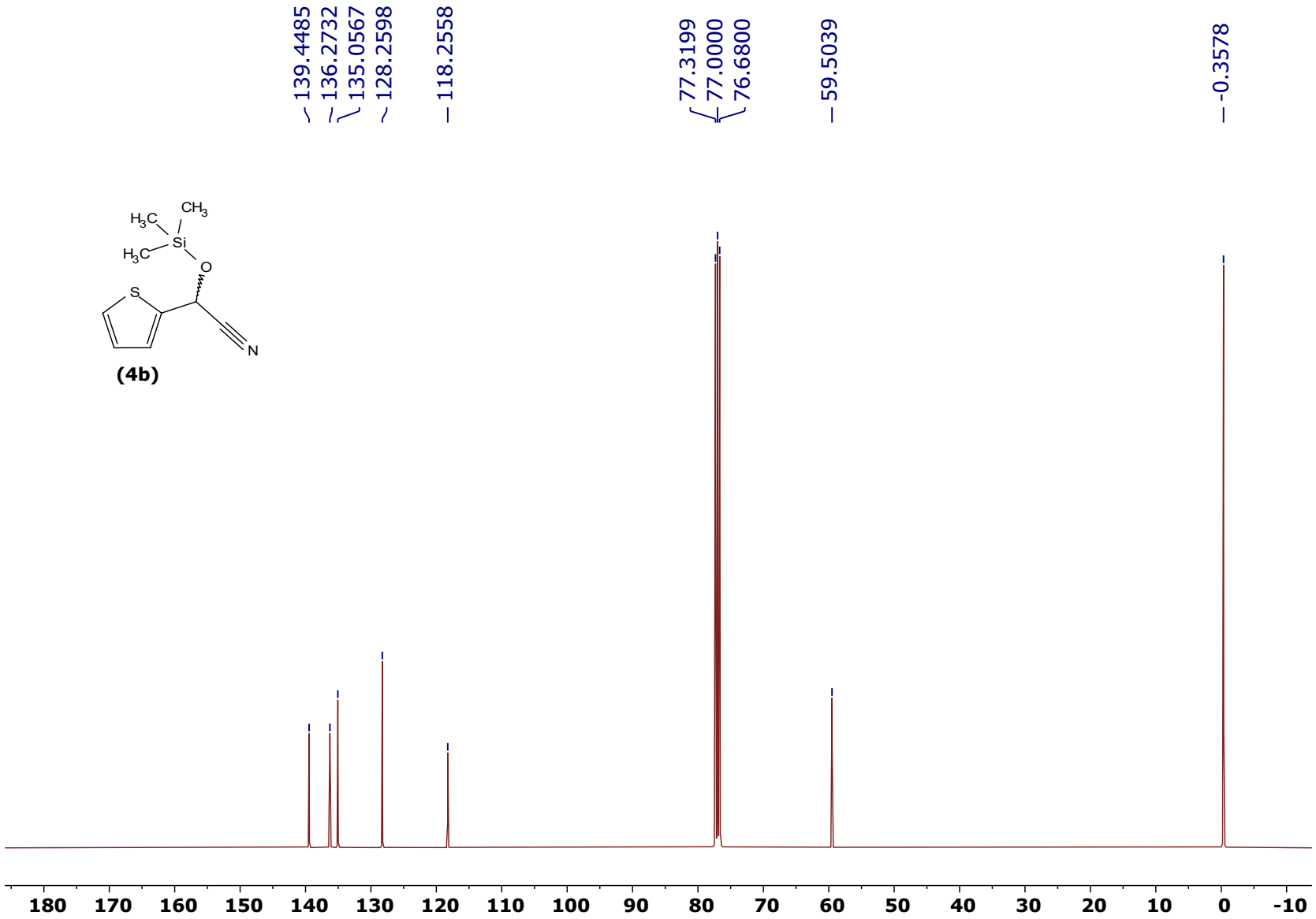

Figure S43. $^{13}C\{^{1}H\}$ NMR spectrum of **4b** in $CDCl_3$.

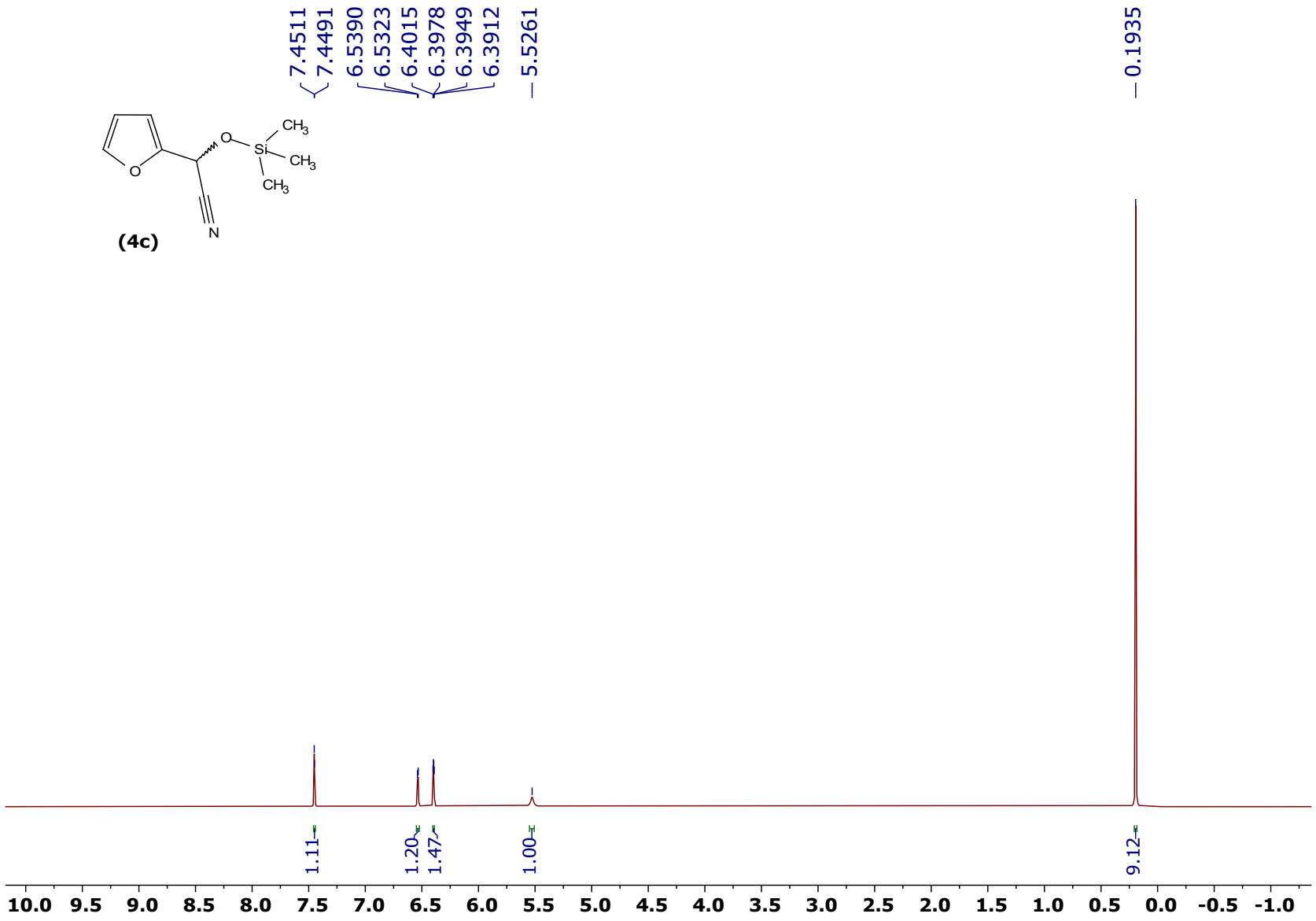

Figure S44. ^{1}H NMR spectrum of **4c** in $CDCl_3$.

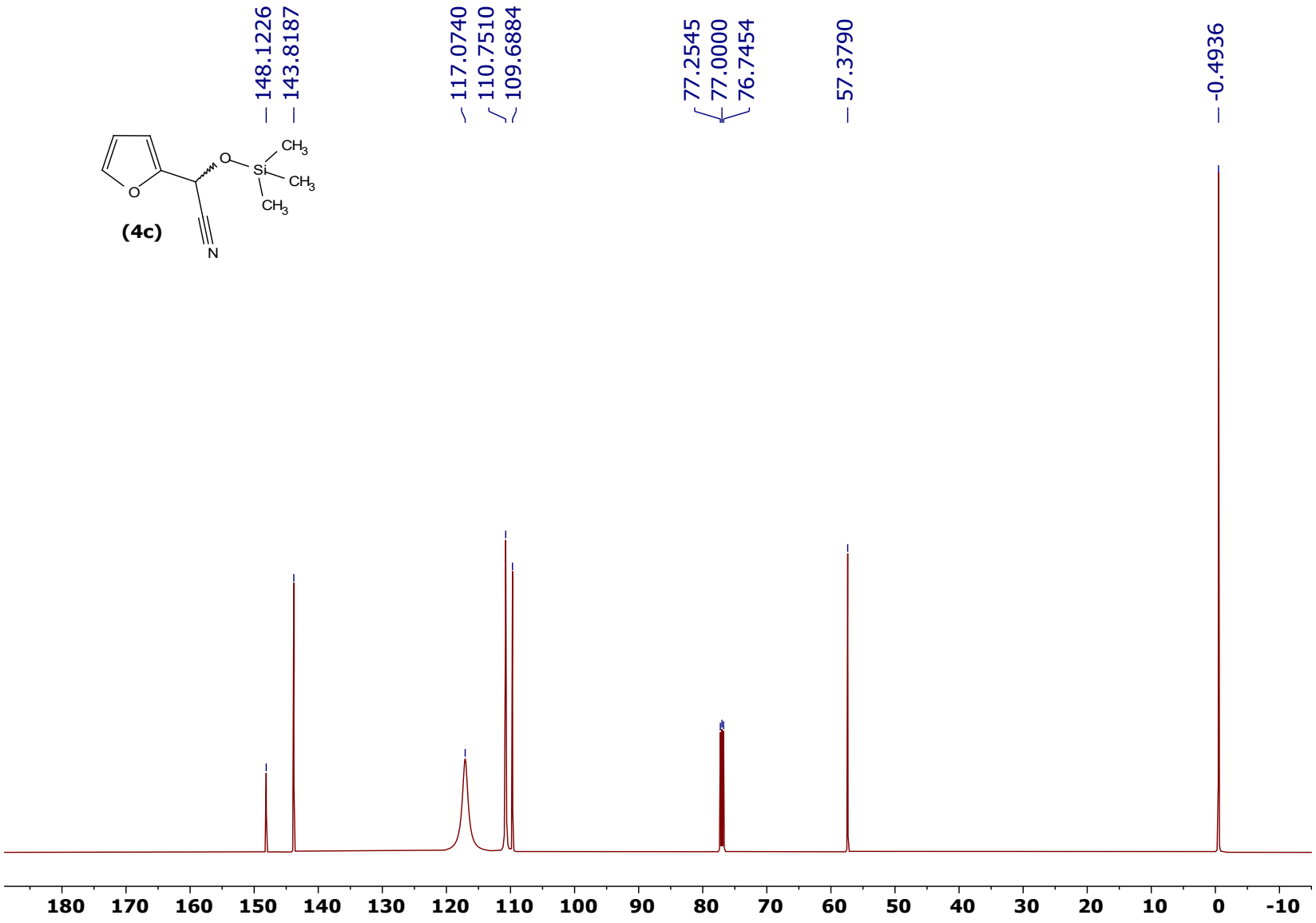

Figure S45. $^{13}C\{^{1}H\}$ NMR spectrum of **4c** in $CDCl_3$.

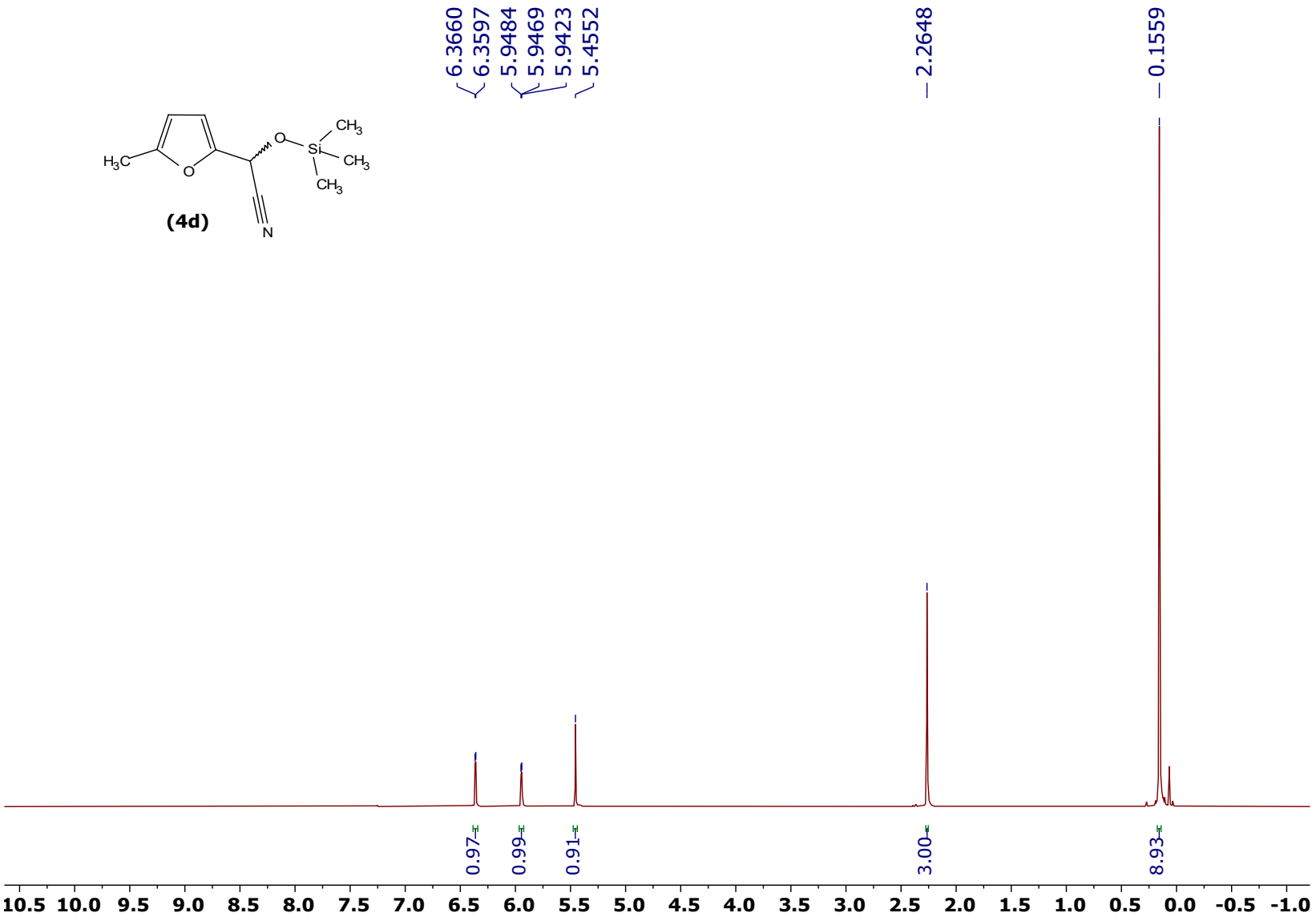

Figure S46. ^{1}H NMR spectrum of **4d** in $CDCl_3$.

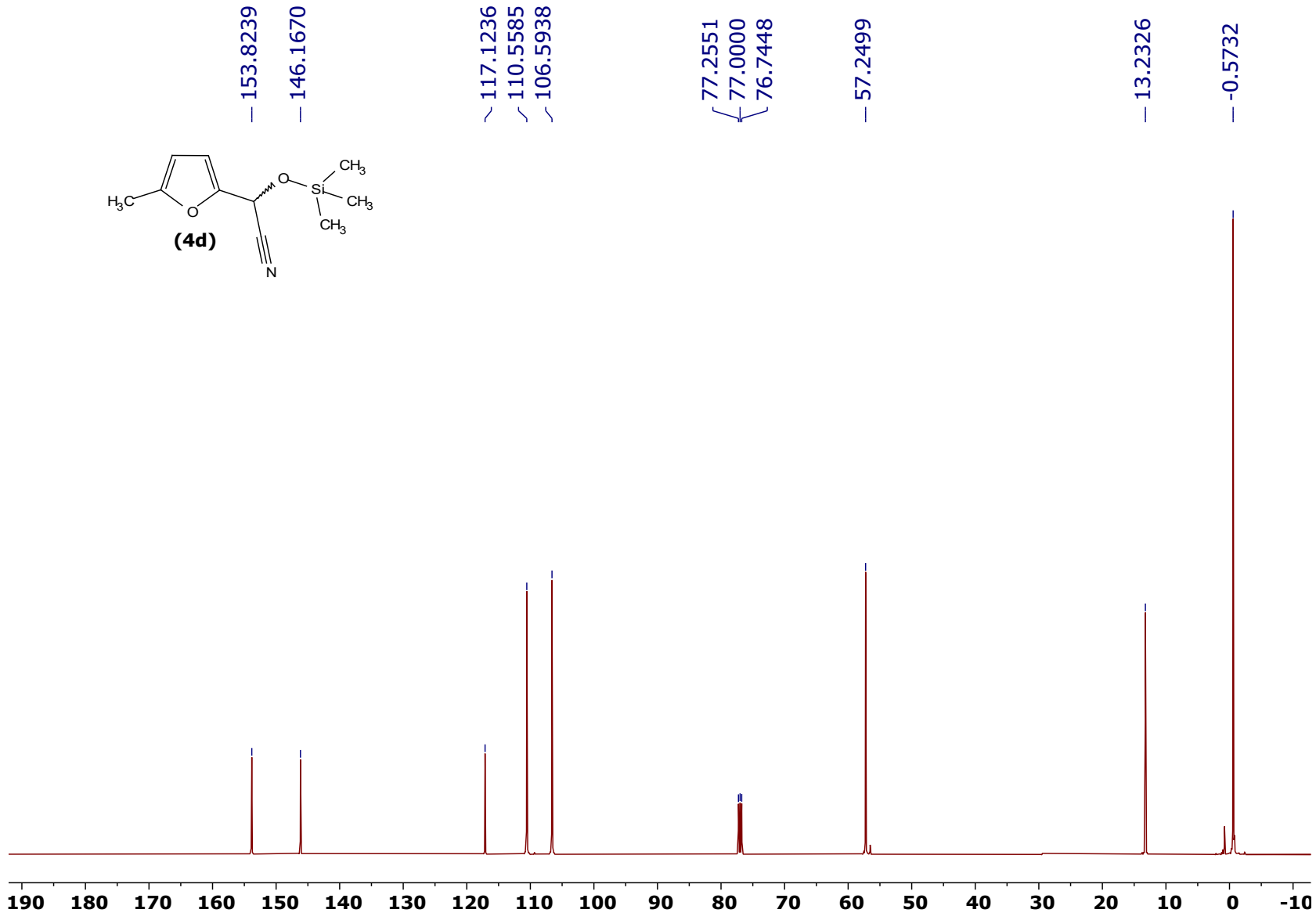

Figure S47. $^{13}C\{^{1}H\}$ NMR spectrum of **4d** in $CDCl_3$.

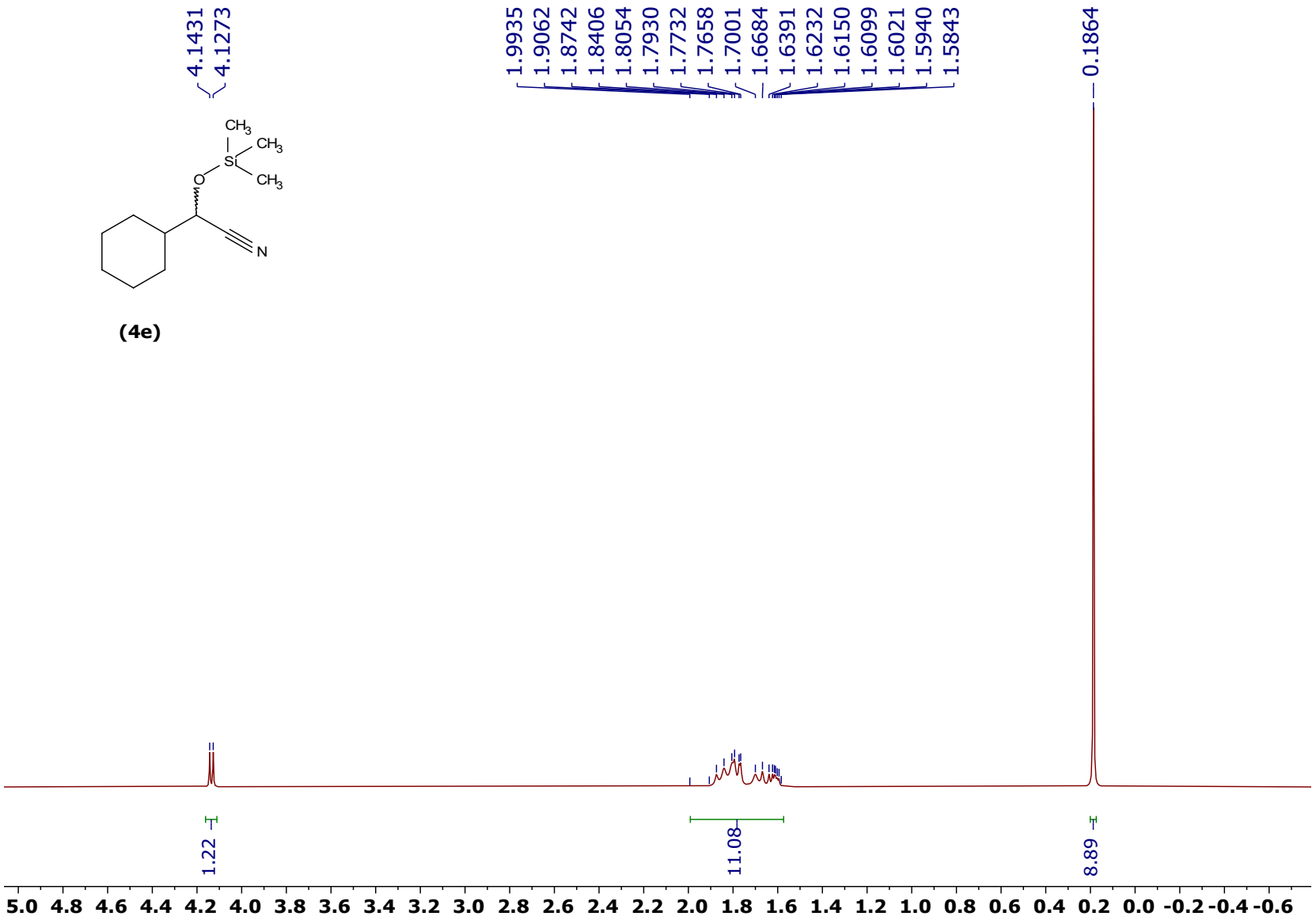

Figure S48. ^{1}H NMR spectrum of **4e** in $CDCl_3$.

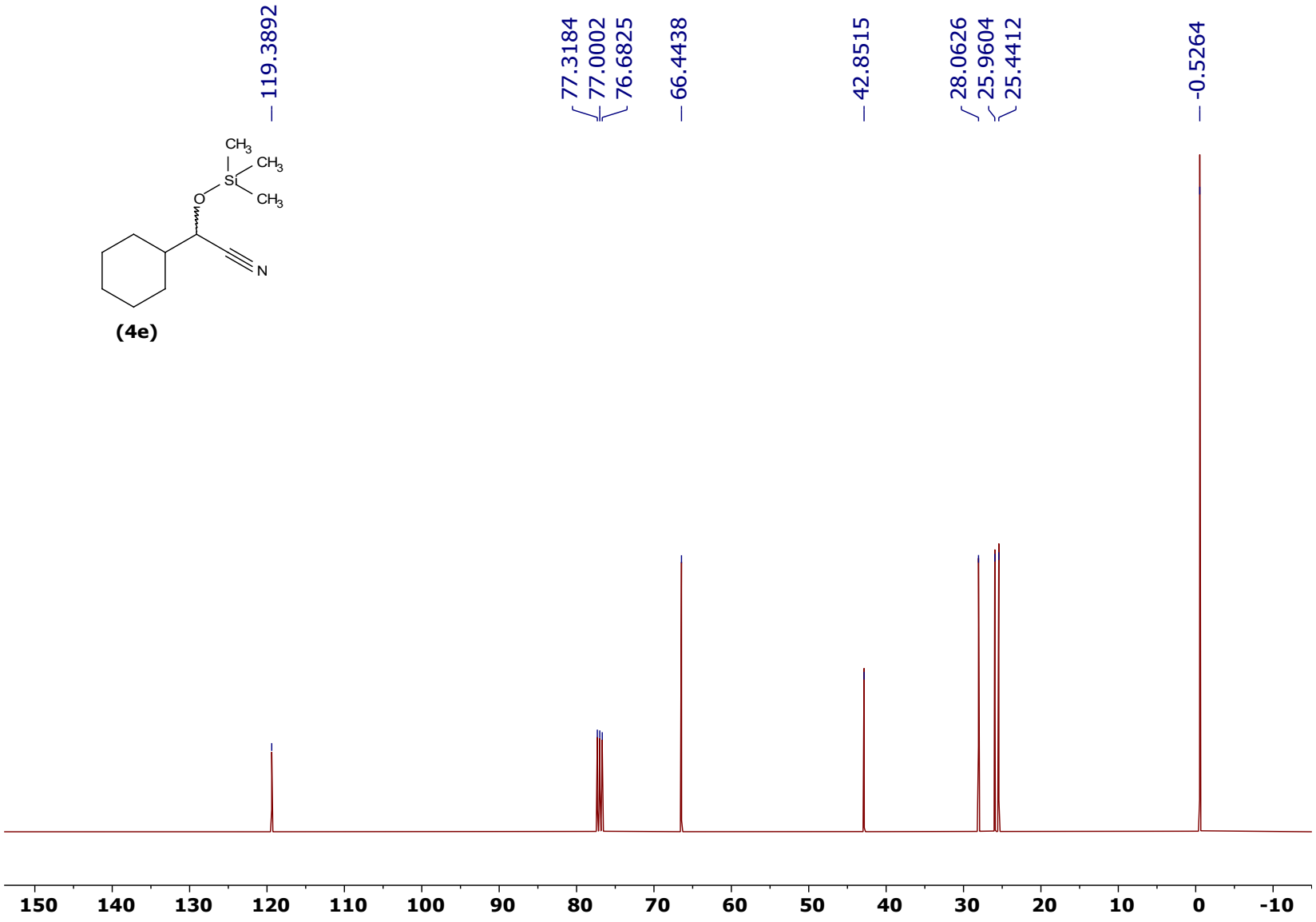

Figure S49. $^{13}C\{^{1}H\}$ NMR spectrum of **4e** in $CDCl_3$..