

Supporting Information for:

**Efficient Quasi-Solid-State Dye-Sensitized Solar Cells Based
on Organic Sensitizers Containing Fluorinated Quinoxaline
Moiety**

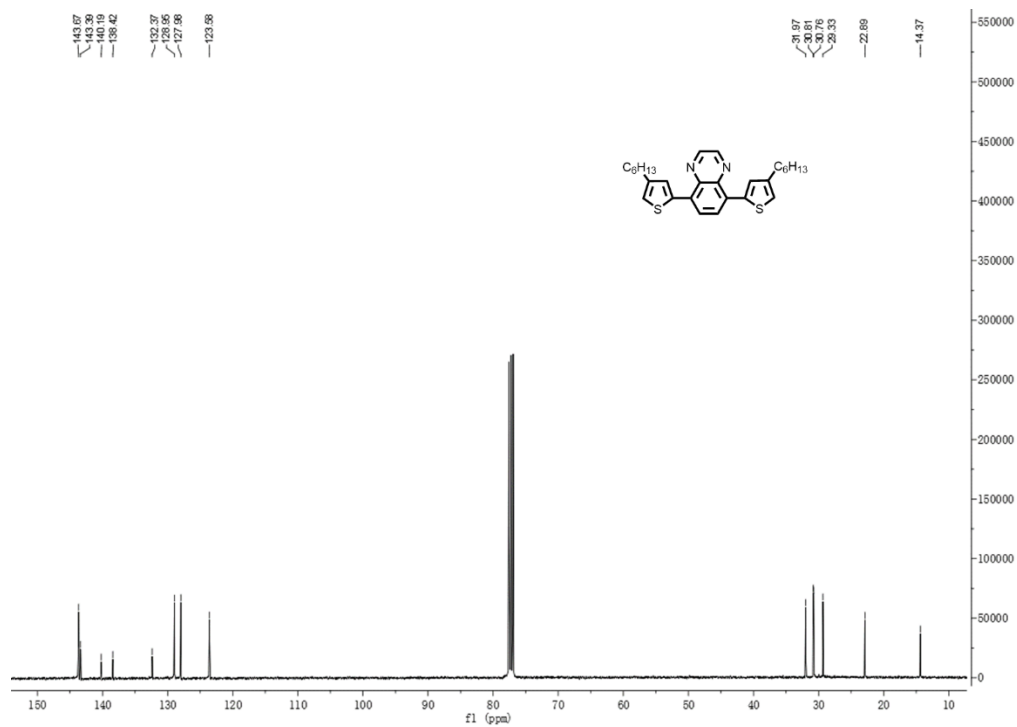
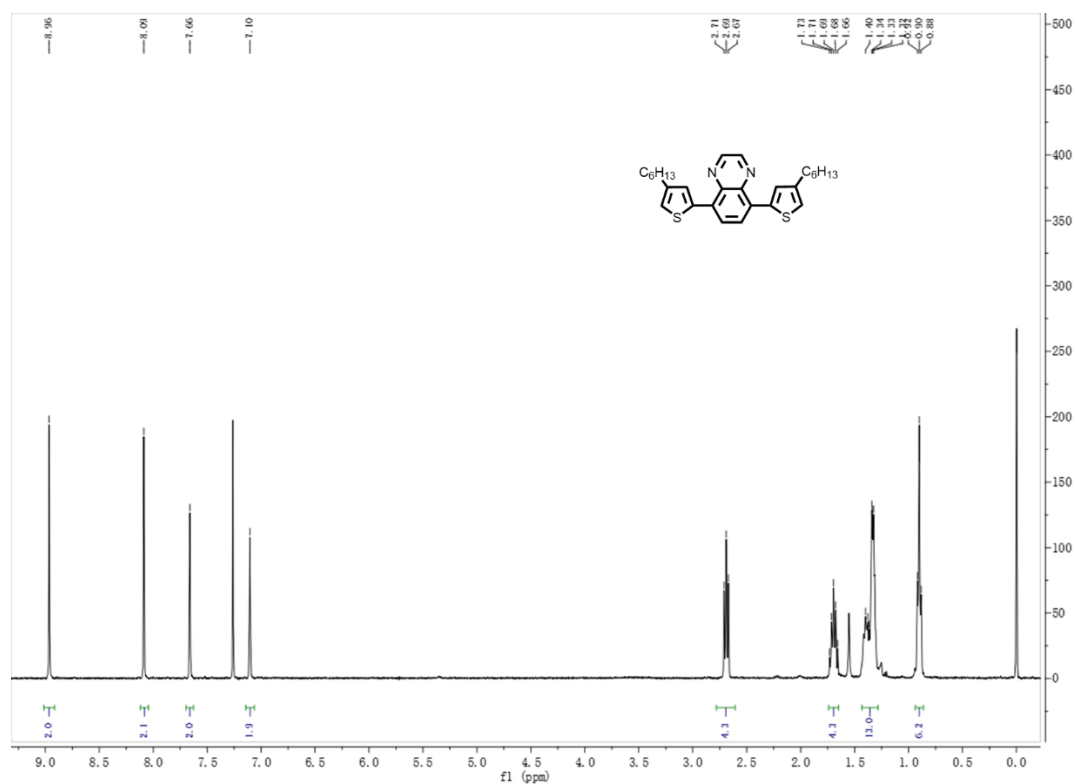
Xiaowei Jia,[†] Weiyi Zhang,[†] Xuefeng Lu, Zhong-Sheng Wang, and Gang Zhou,*

Department of Chemistry & Laboratory of Advanced Materials, Fudan University,
2205 Songhu Road, Shanghai 200438, P. R. China

[†]These authors contributed equally to this work.

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Figures S1-S40. ¹H, ¹⁹F, and ¹³C NMR spectra of the prepared compounds.S2-S21



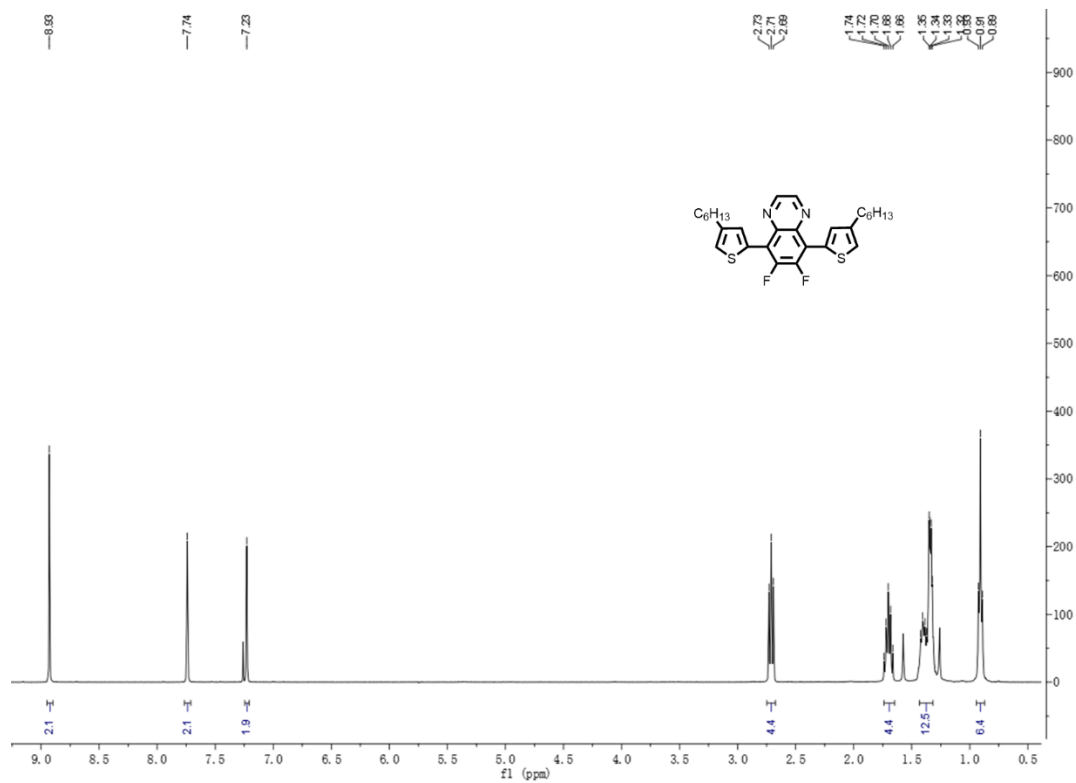


Figure S3. ¹H NMR spectrum of compound **4b** (CDCl₃).

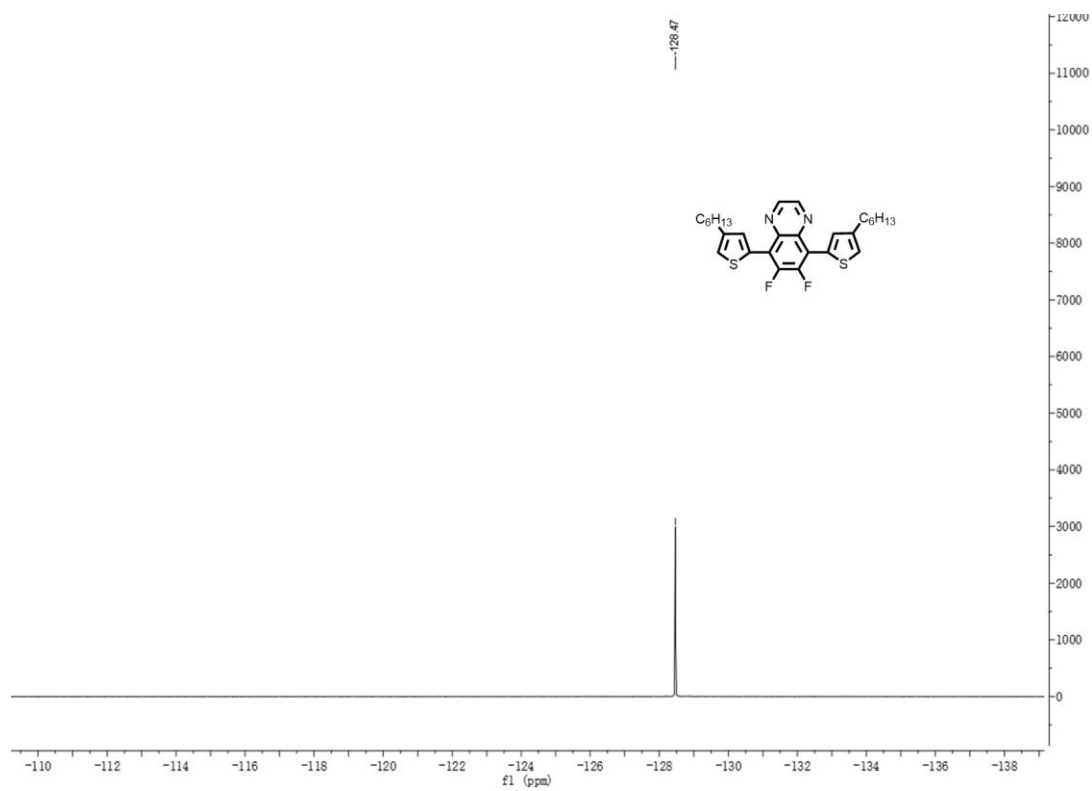


Figure S4. ¹⁹F NMR spectrum of compound **4b** (CDCl₃).

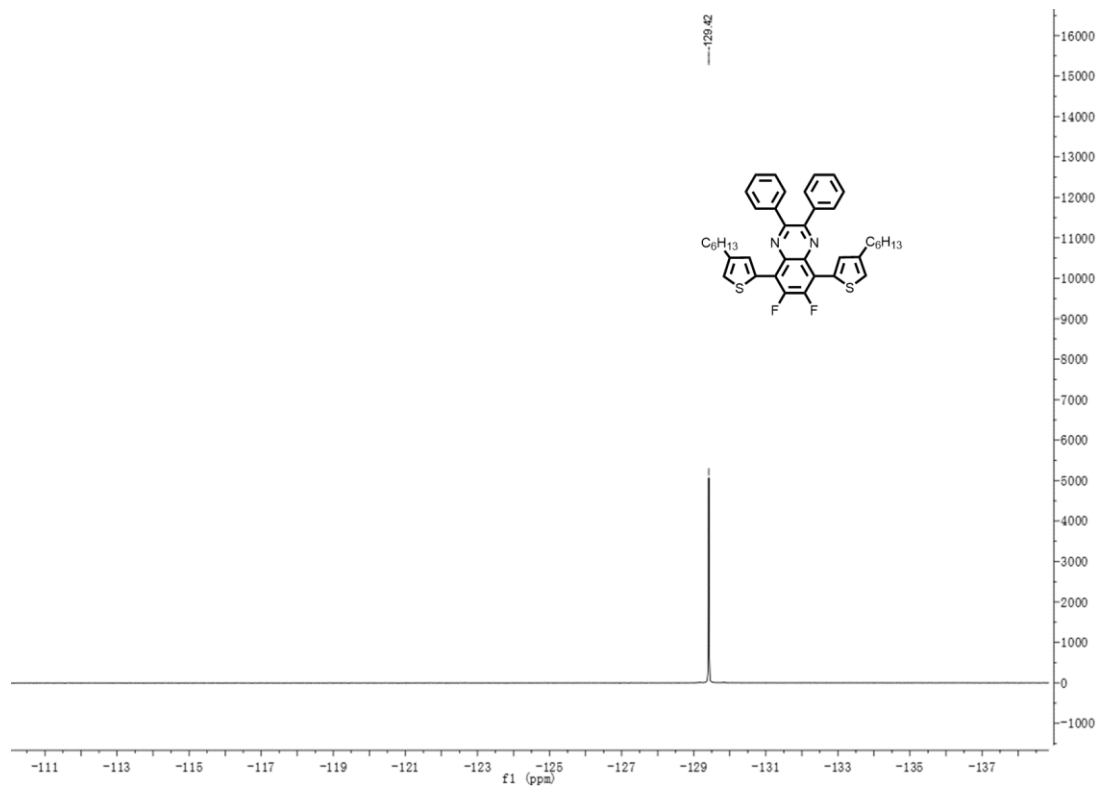


Figure S7. ^{19}F NMR spectrum of compound **4c** ($CDCl_3$).

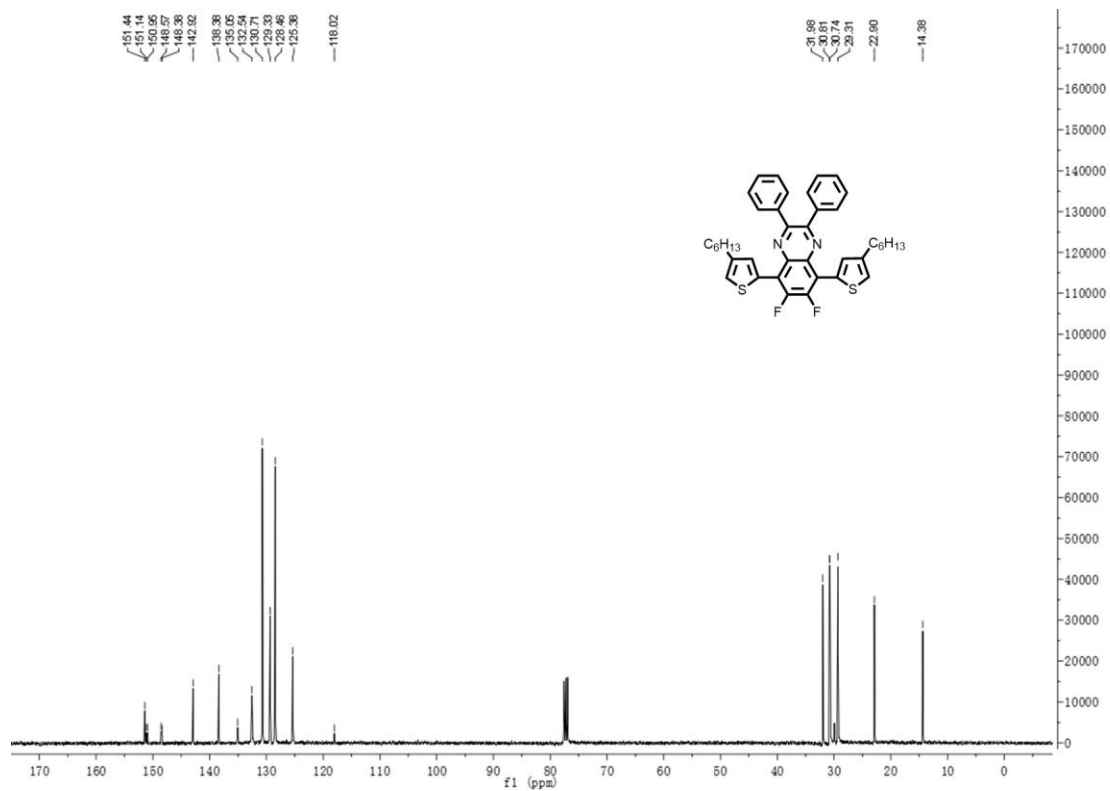


Figure S8. ^{13}C NMR spectrum of compound **4c** ($CDCl_3$).

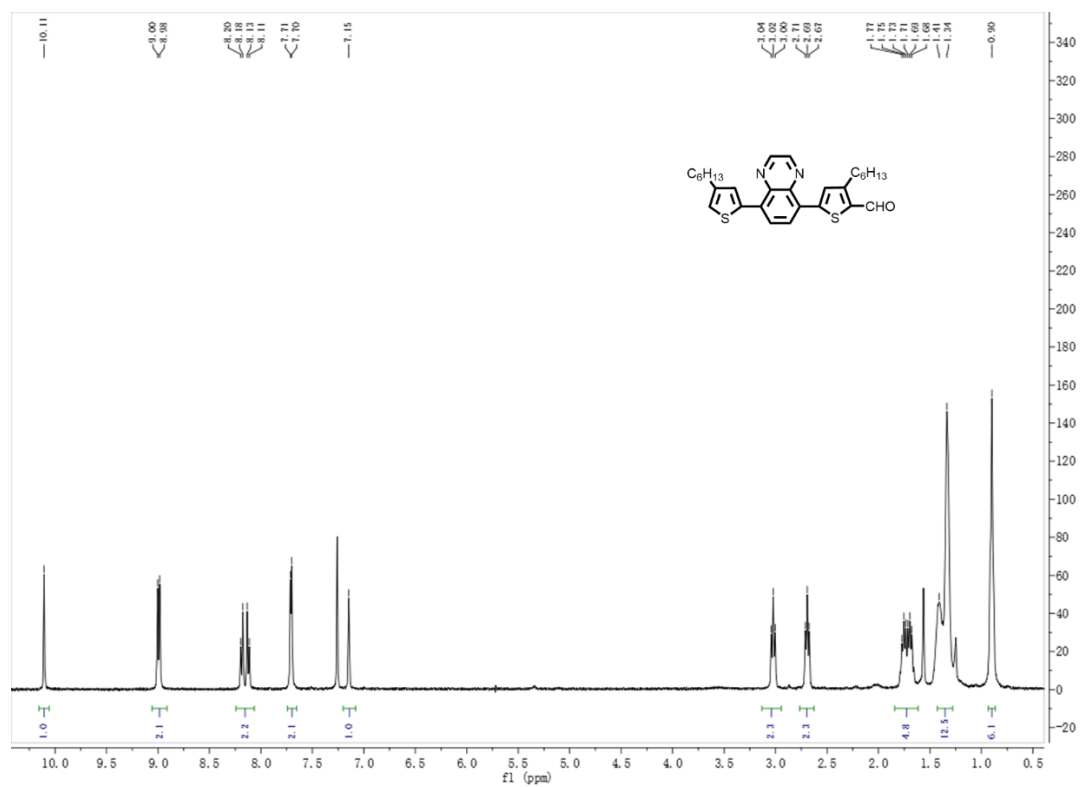


Figure S9. ^1H NMR spectrum of compound **6a** (CDCl_3).

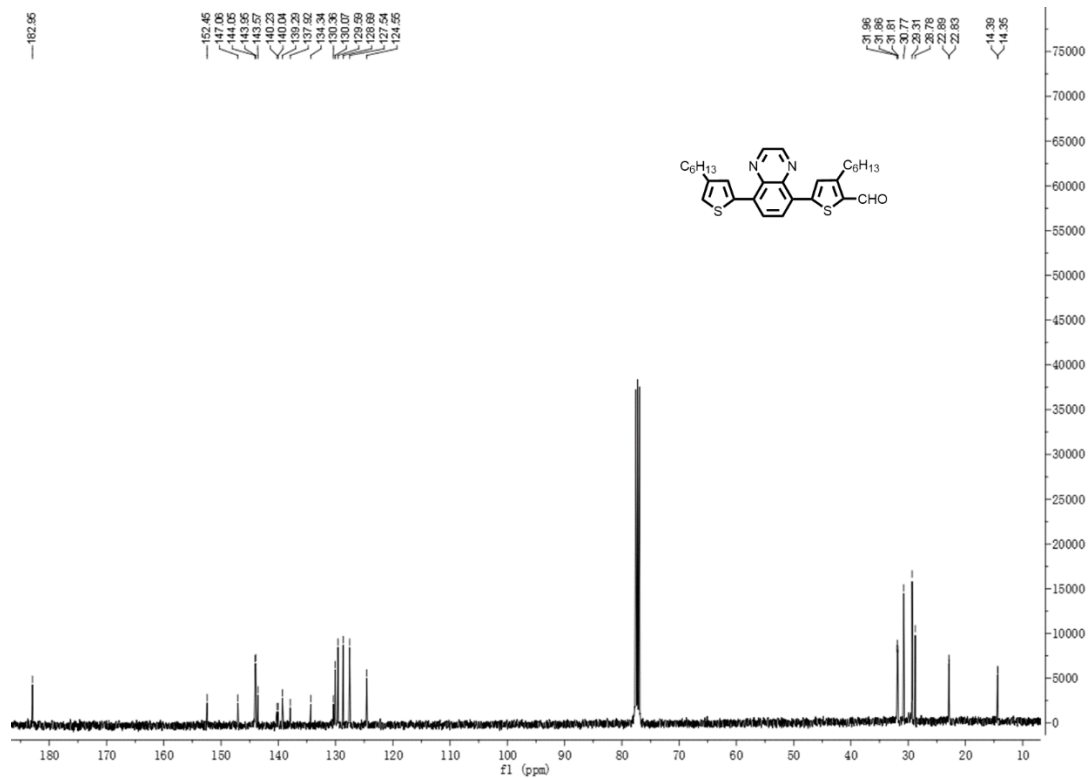
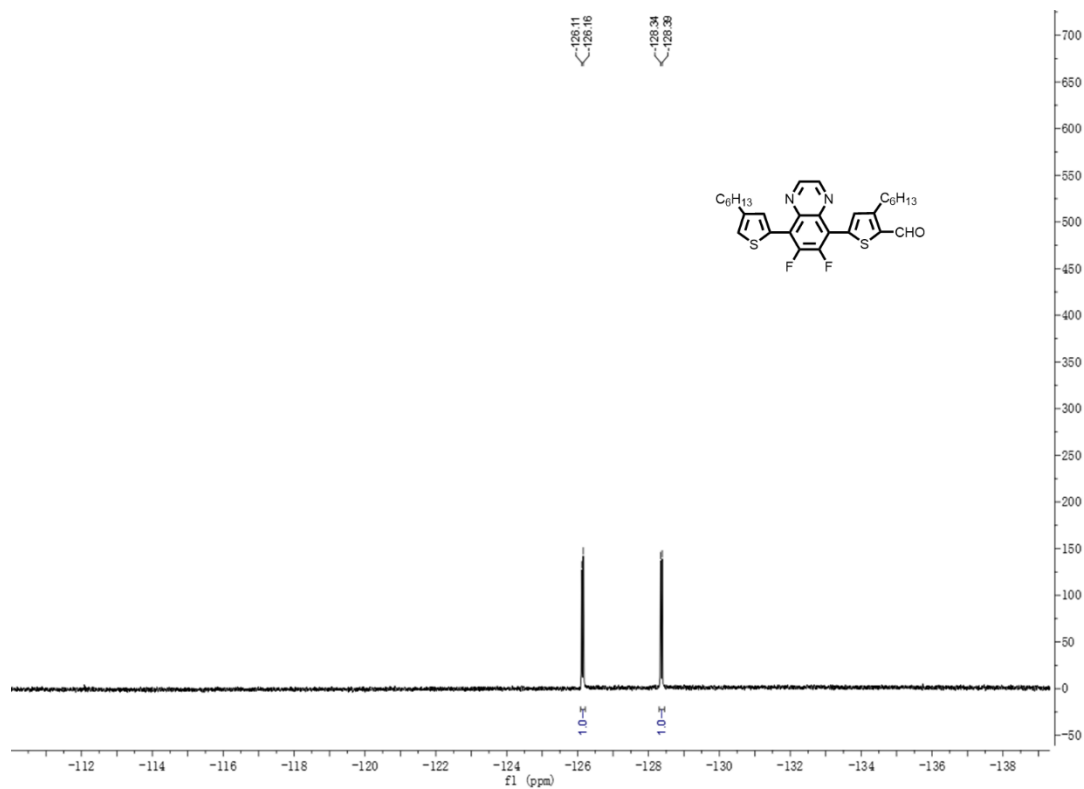
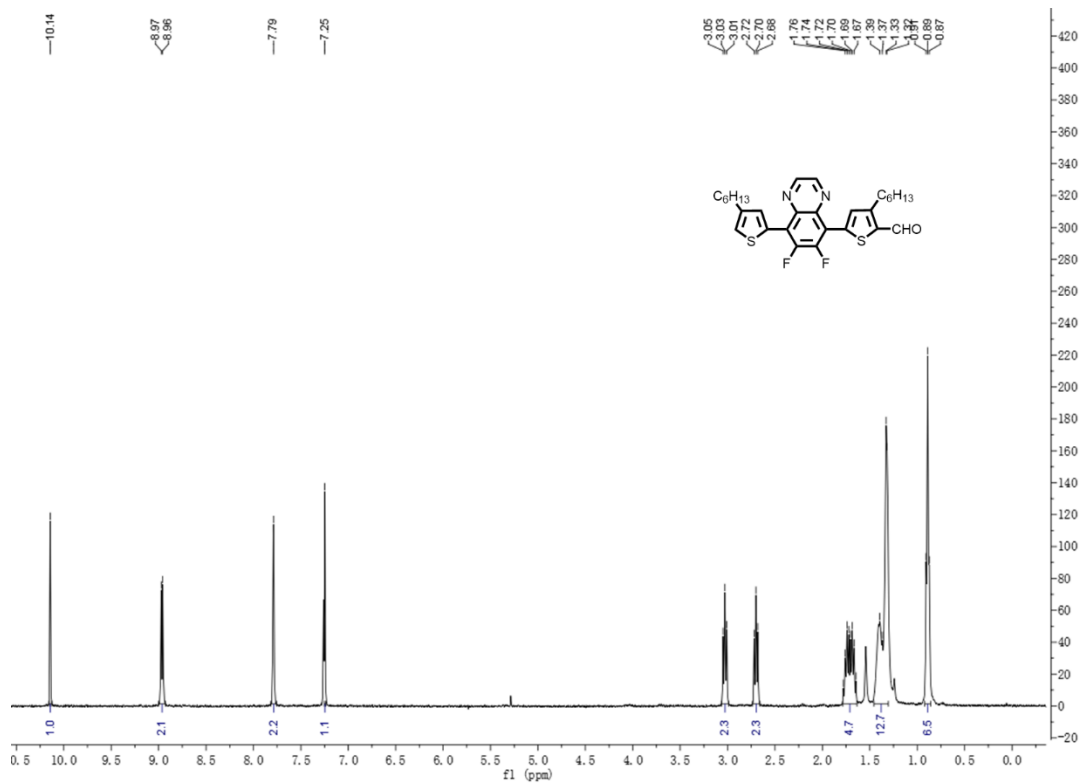


Figure S10. ^{13}C NMR spectrum of compound **6a** (CDCl_3).



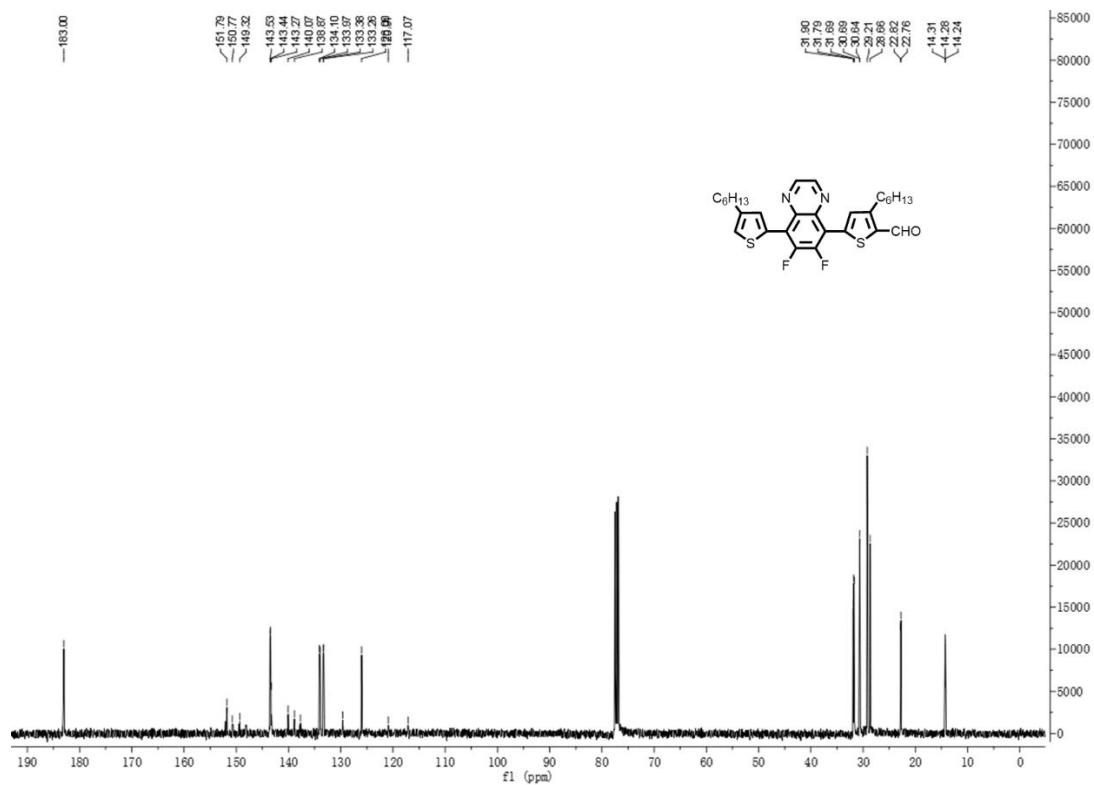


Figure S13. ^{13}C NMR spectrum of compound **6b** (CDCl_3).

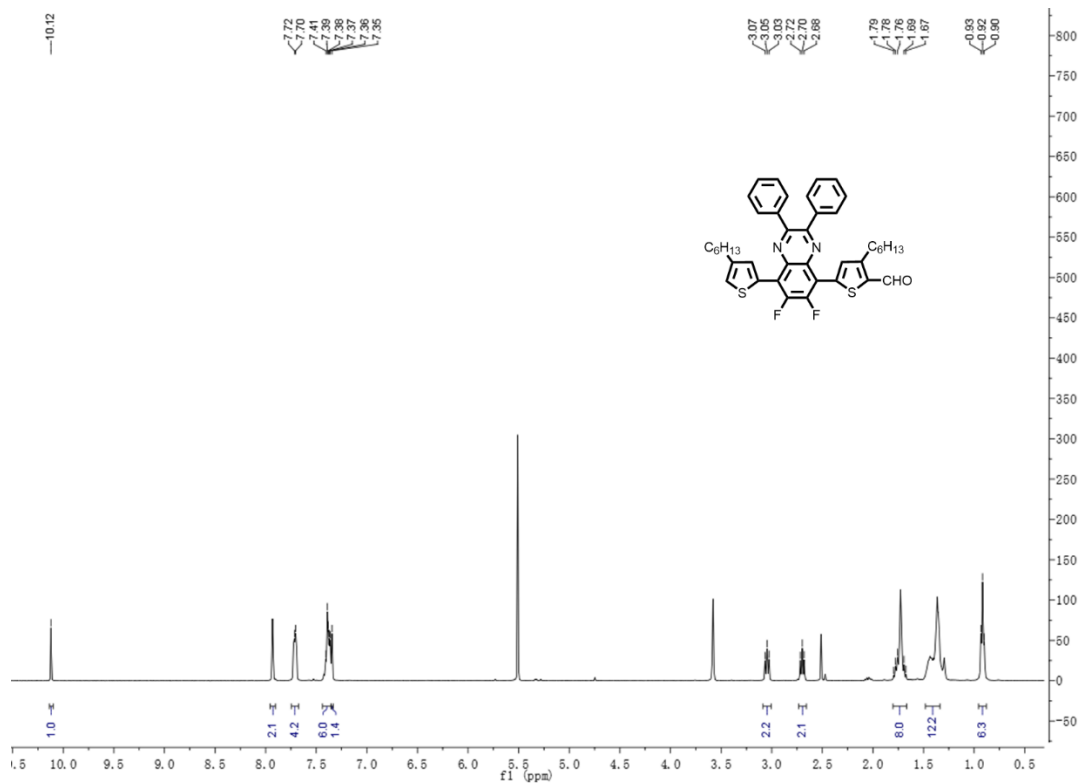


Figure S14. ^1H NMR spectrum of compound **6c** ($\text{THF-}d_8$).

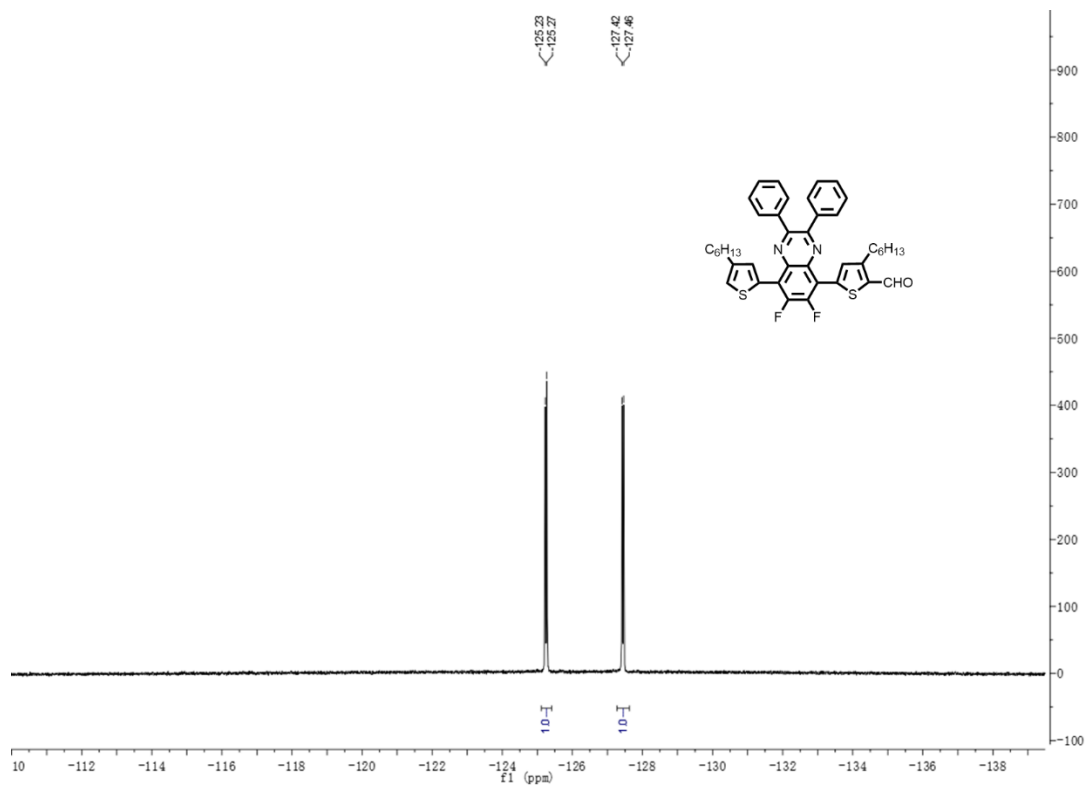


Figure S15. ¹⁹F NMR spectrum of compound **6c** (THF-*d*₈).

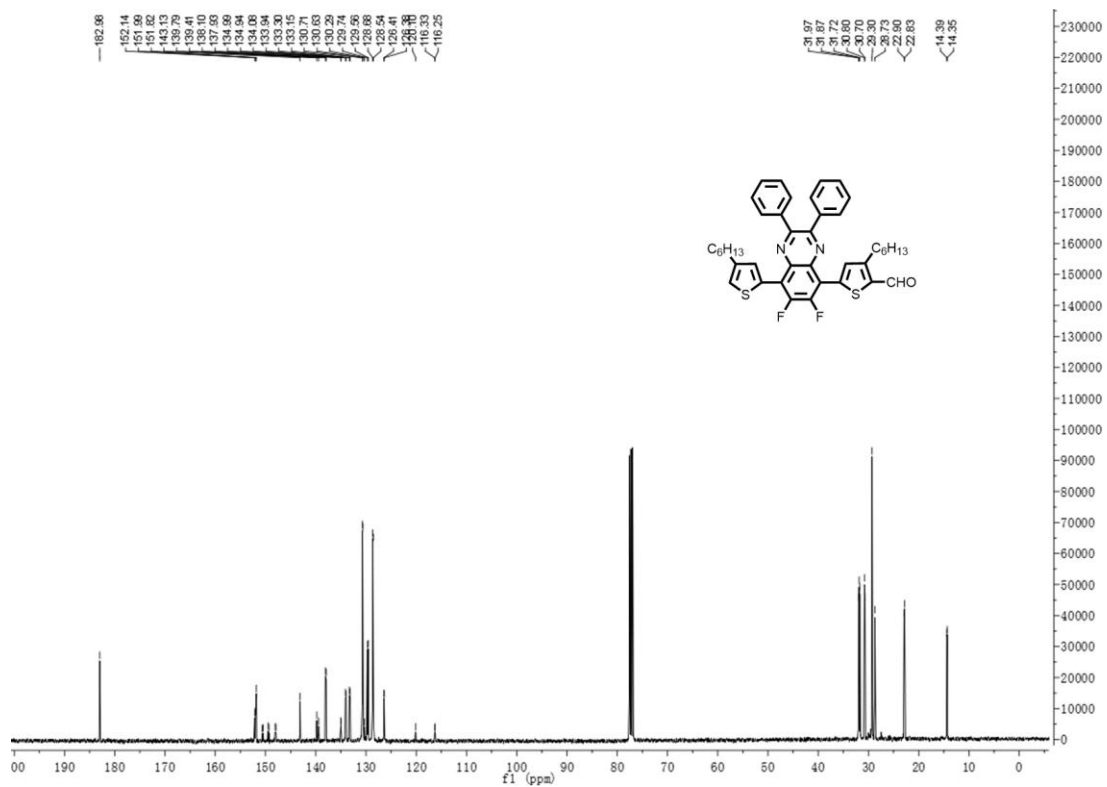


Figure S16. ¹³C NMR spectrum of compound **6c** (CDCl₃).

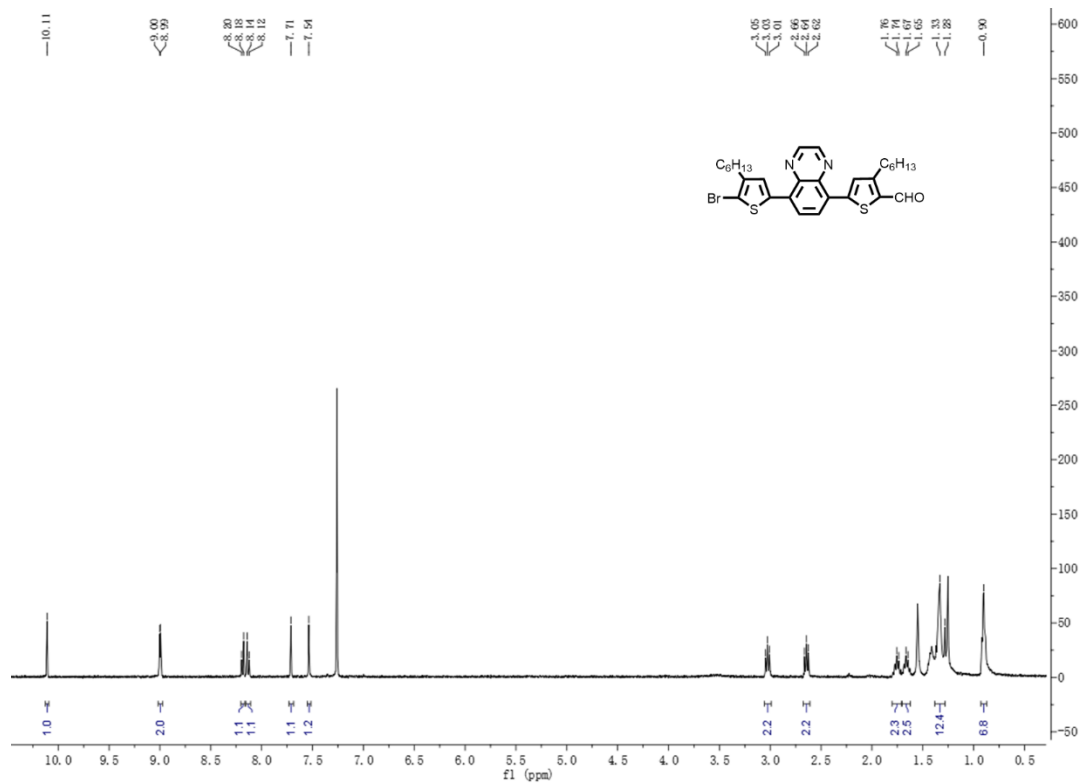


Figure S17. ¹H NMR spectrum of compound **7a** (CDCl₃).

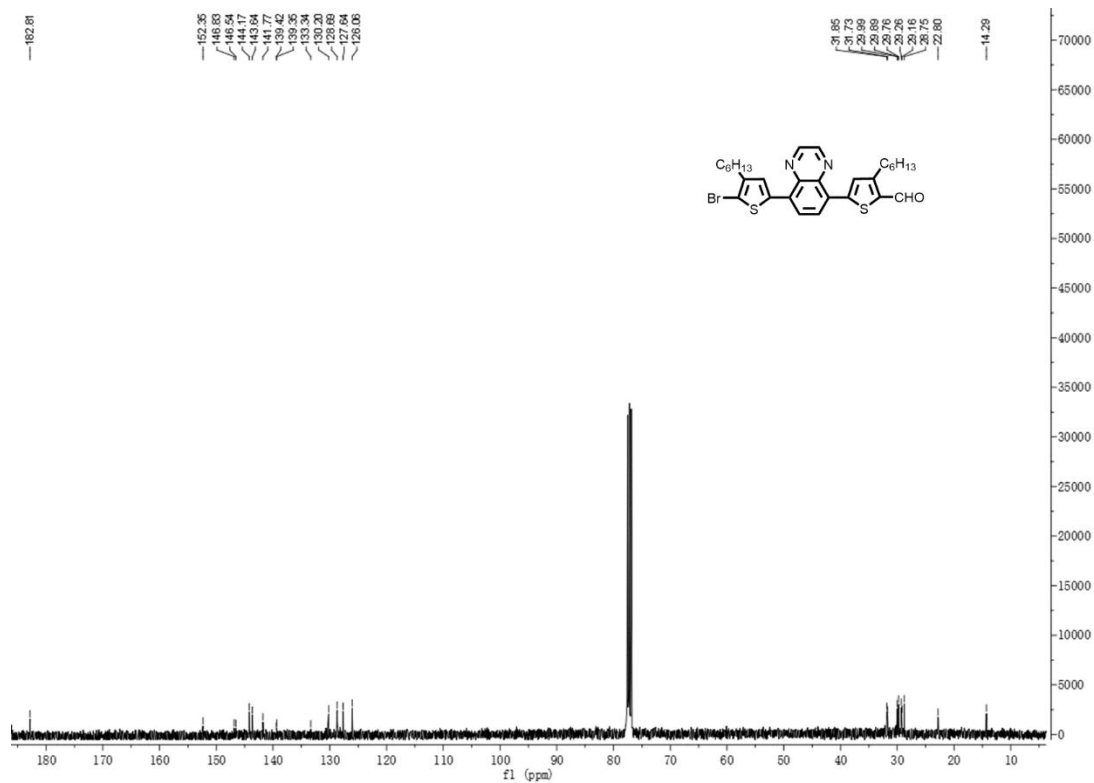
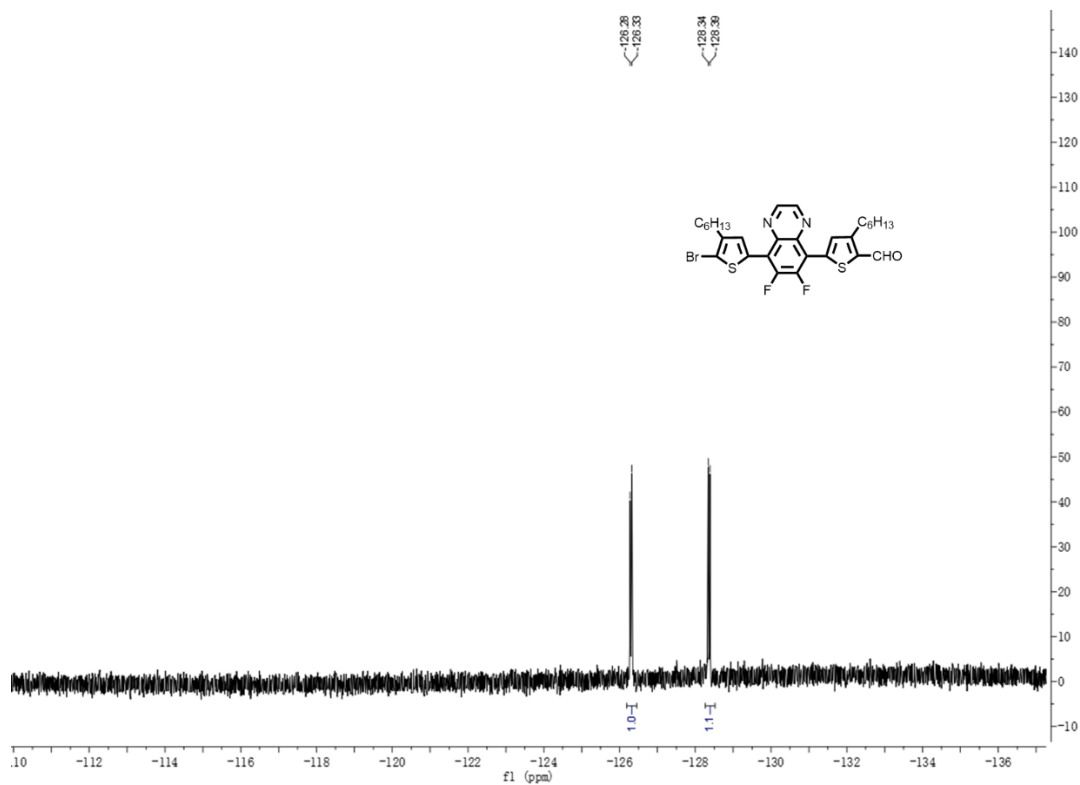
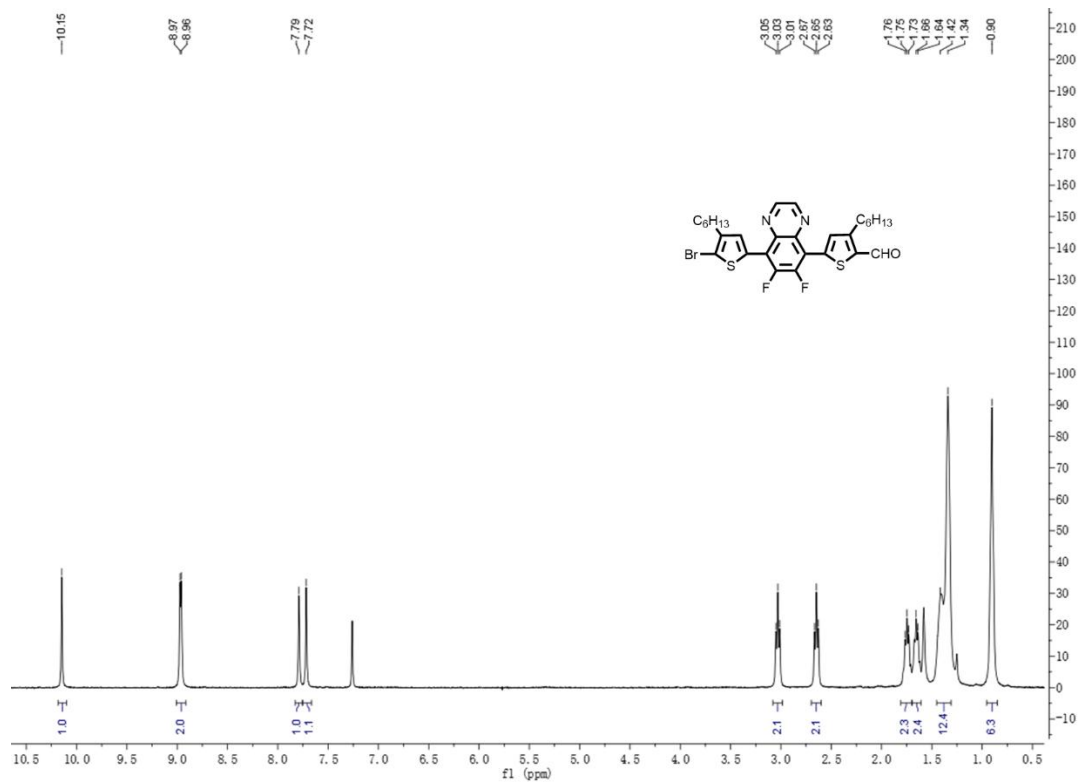


Figure S18. ¹³C NMR spectrum of compound **7a** (CDCl₃).



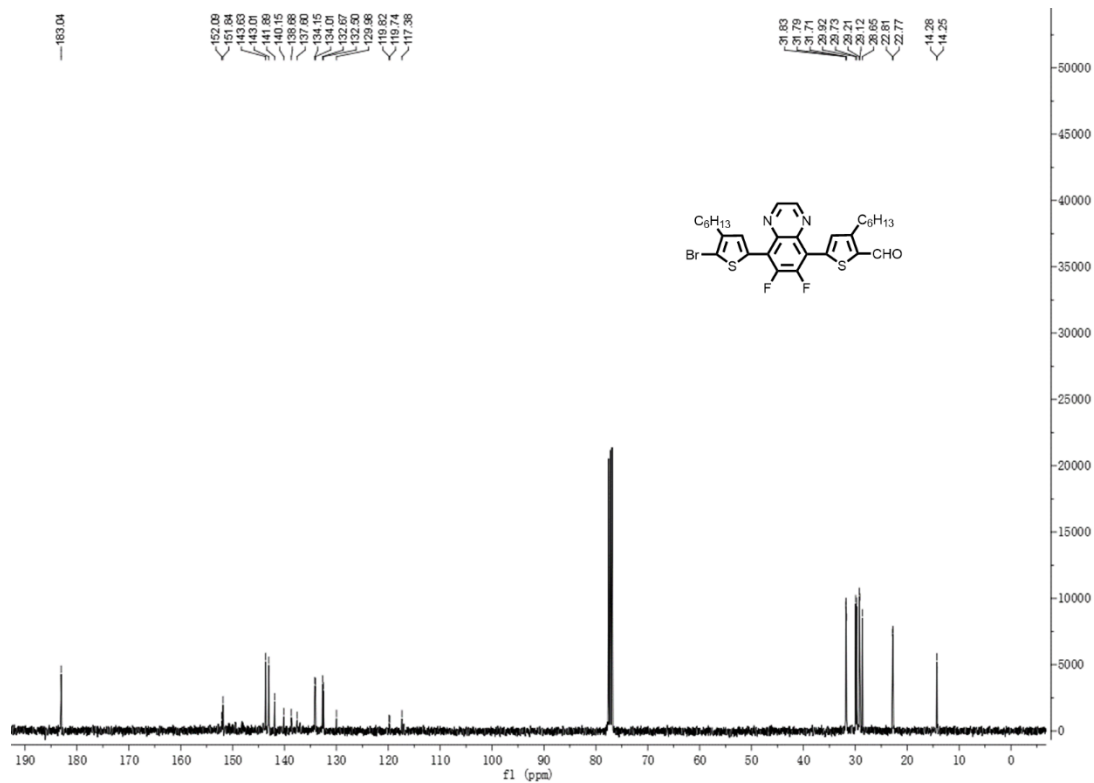


Figure S21. ^{13}C NMR spectrum of compound **7b** (CDCl_3).

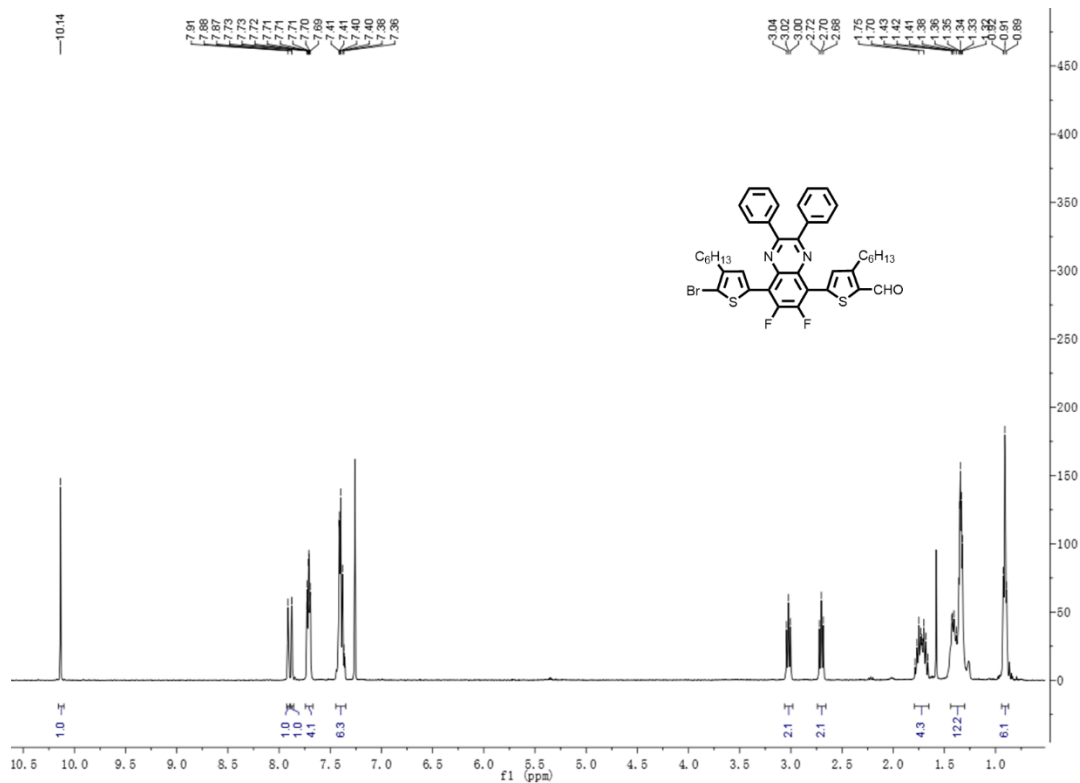


Figure S22. ^1H NMR spectrum of compound **7c** (CDCl_3).

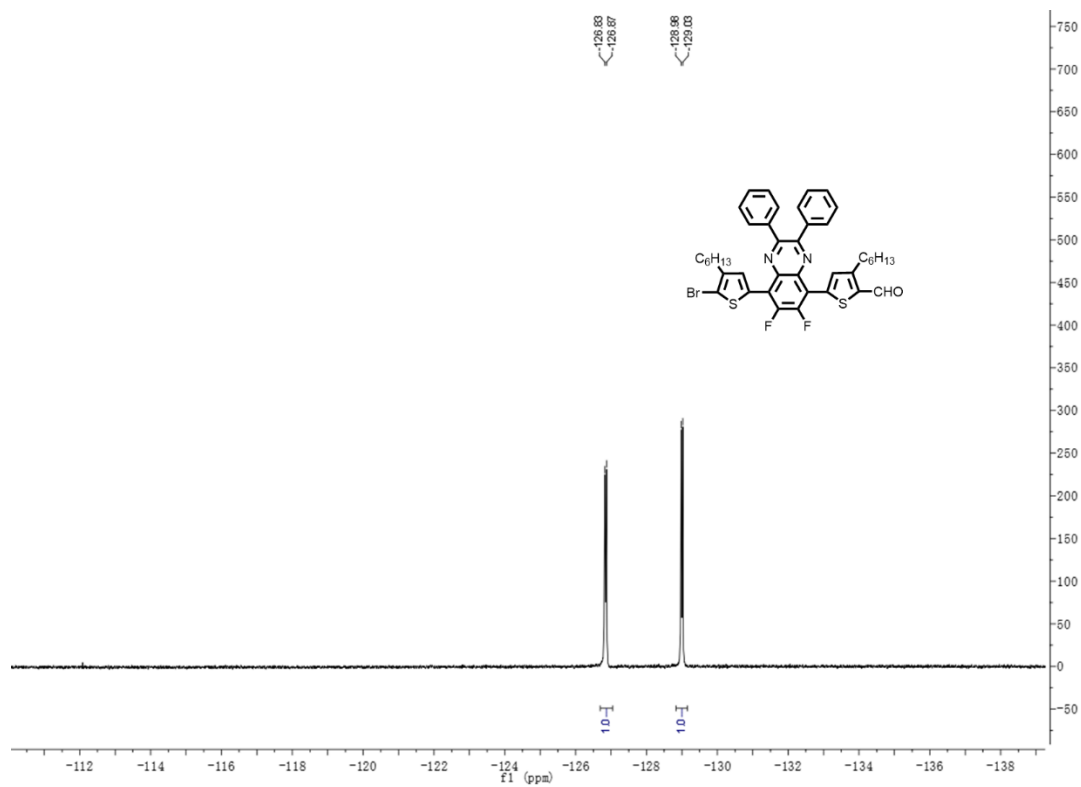


Figure S23. ¹⁹F NMR spectrum of compound 7c (CDCl₃).

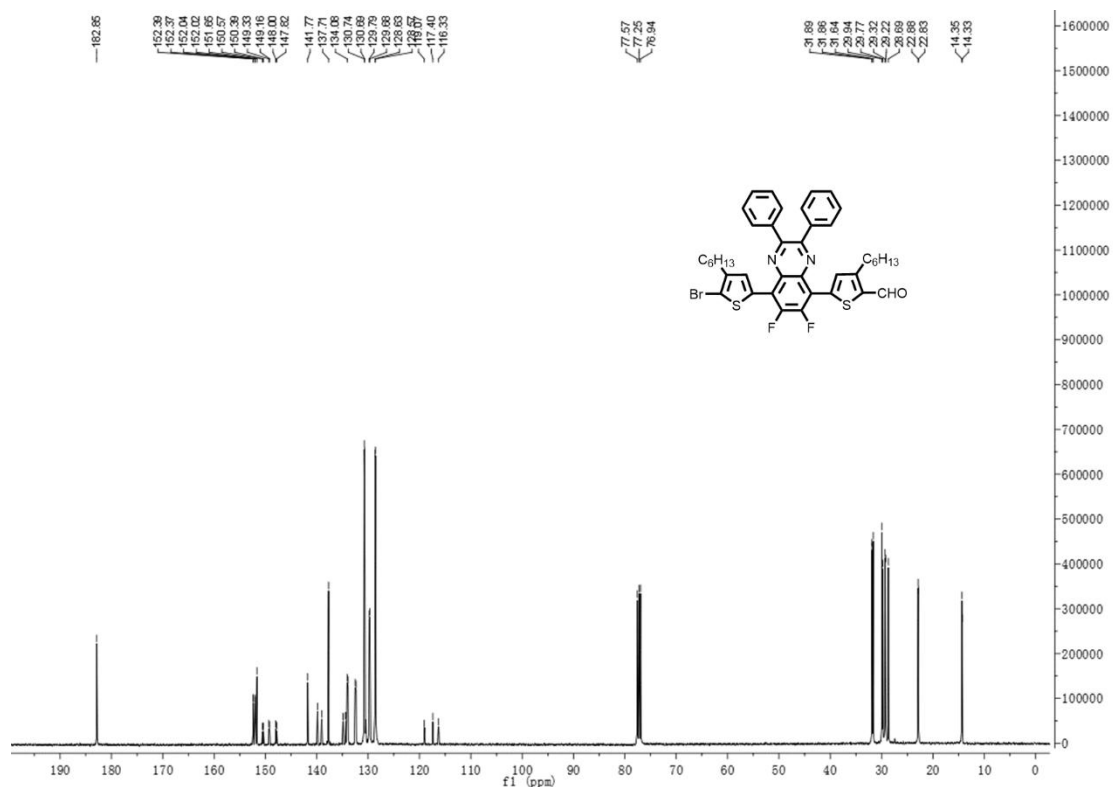


Figure S24. ¹³C NMR spectrum of compound 7c (CDCl₃).

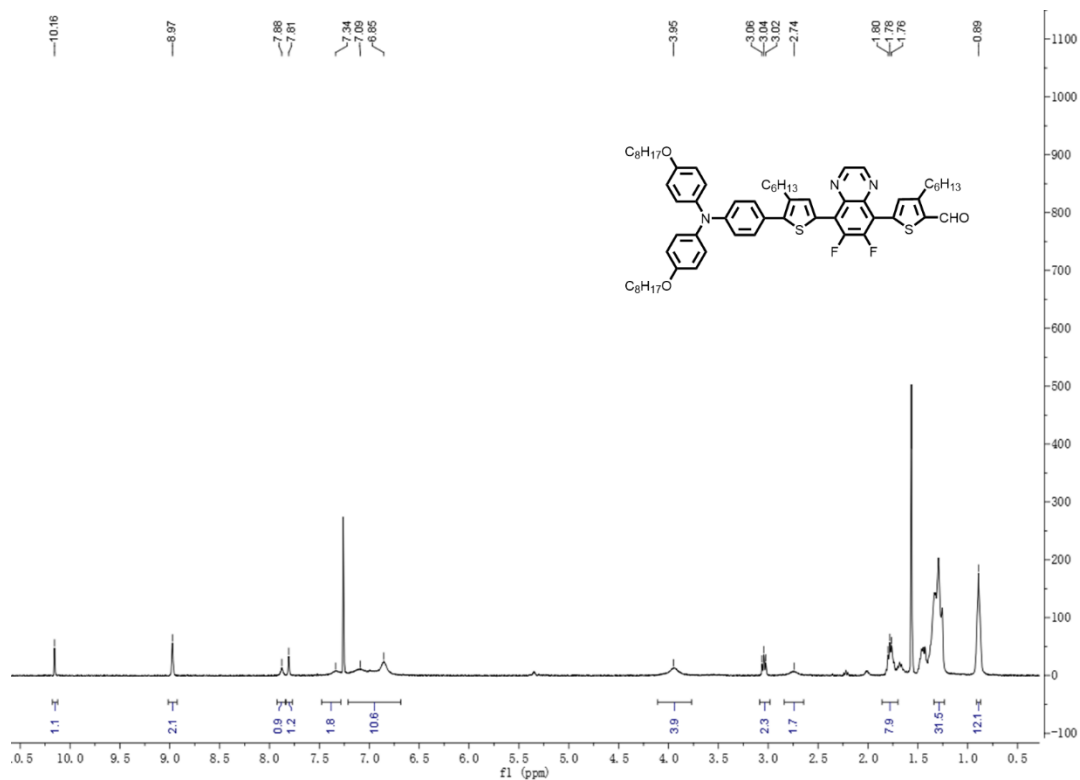


Figure S27. ¹H NMR spectrum of compound **8b** (CDCl₃).

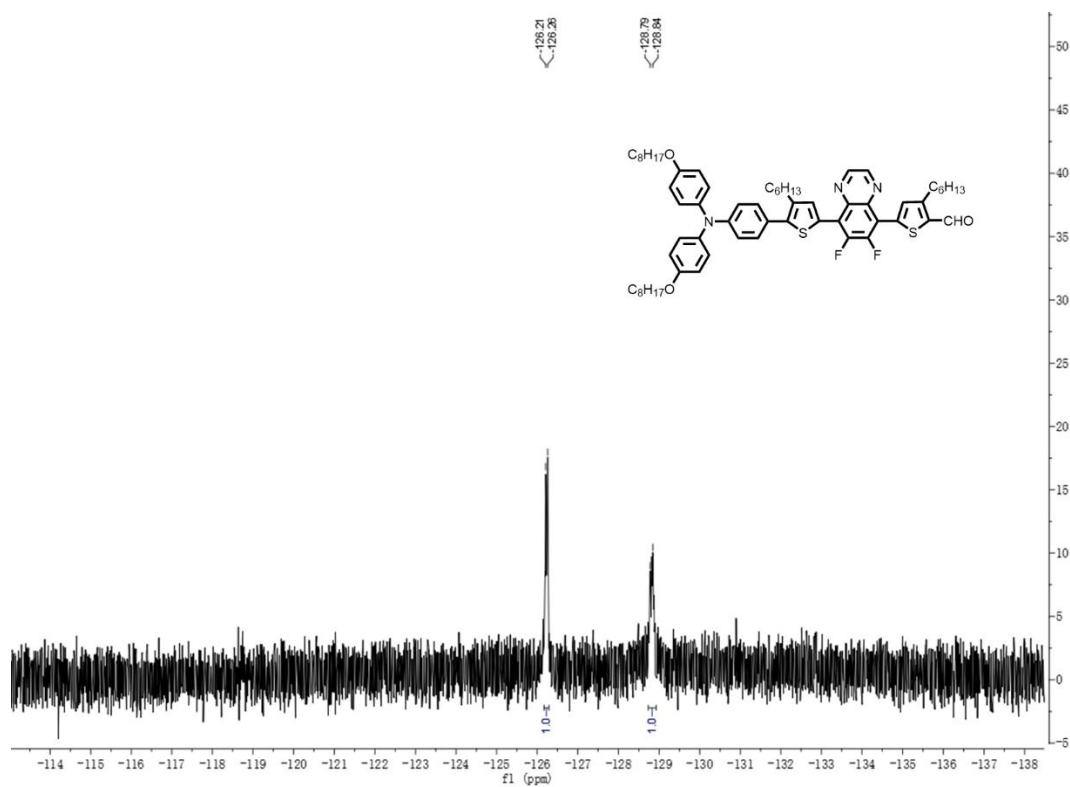


Figure S28. ¹⁹F NMR spectrum of compound **8b** (CDCl₃).

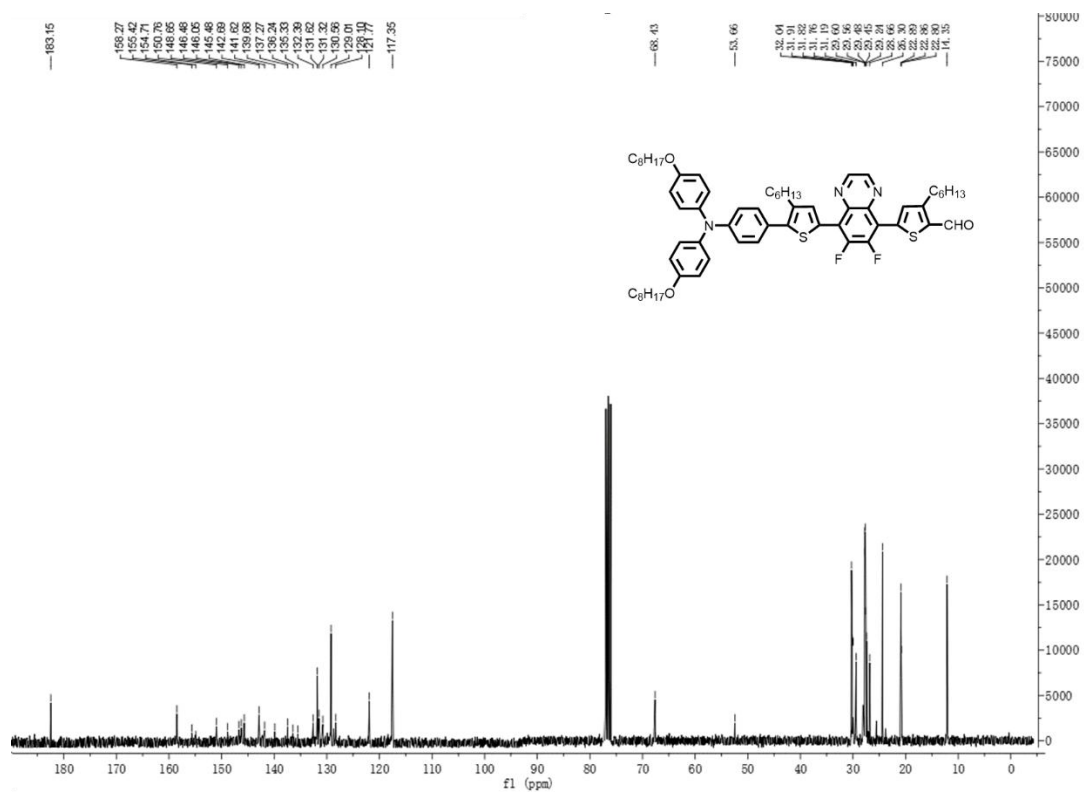


Figure S29. ¹³C NMR spectrum of compound **8b** (CDCl₃).

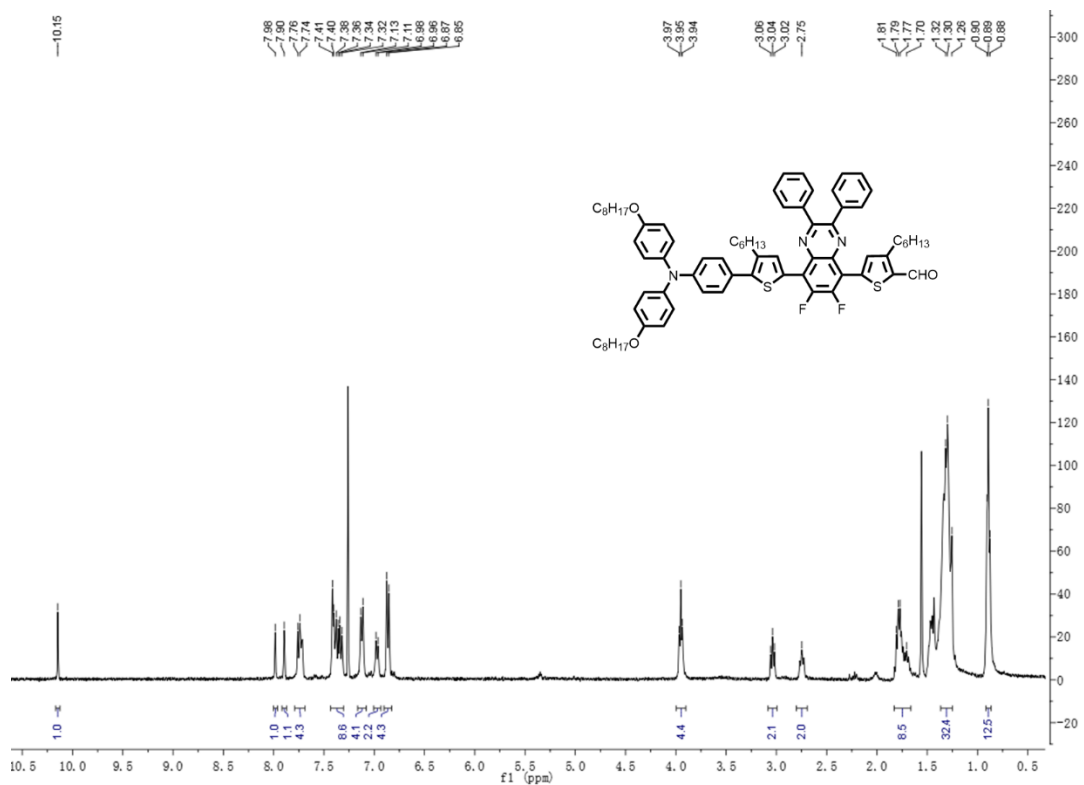


Figure S30. ¹H NMR spectrum of compound **8c** (CDCl₃).

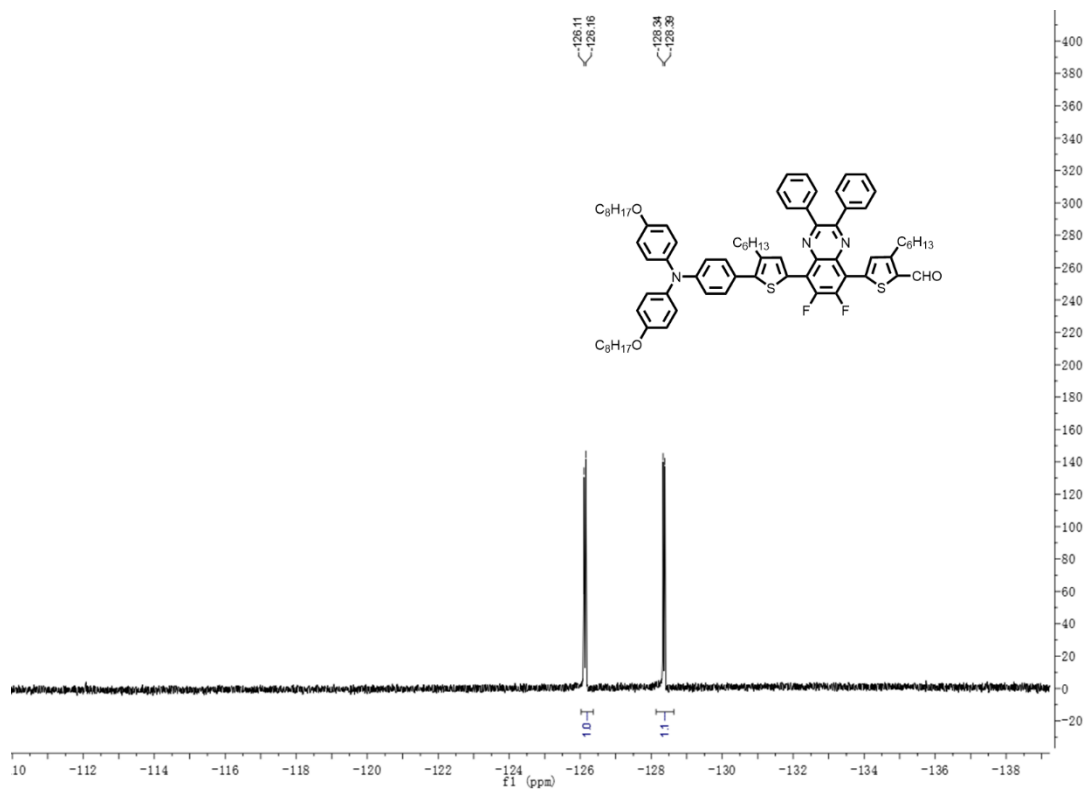


Figure S31. ¹⁹F NMR spectrum of compound **8c** (CDCl₃).

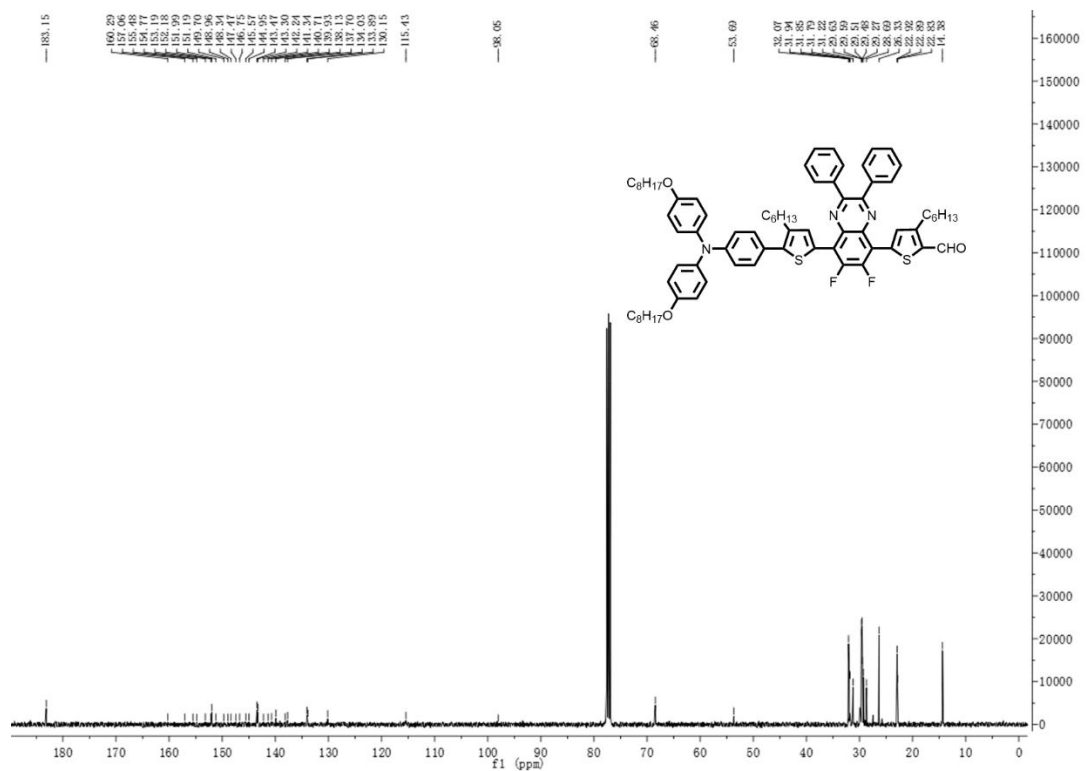
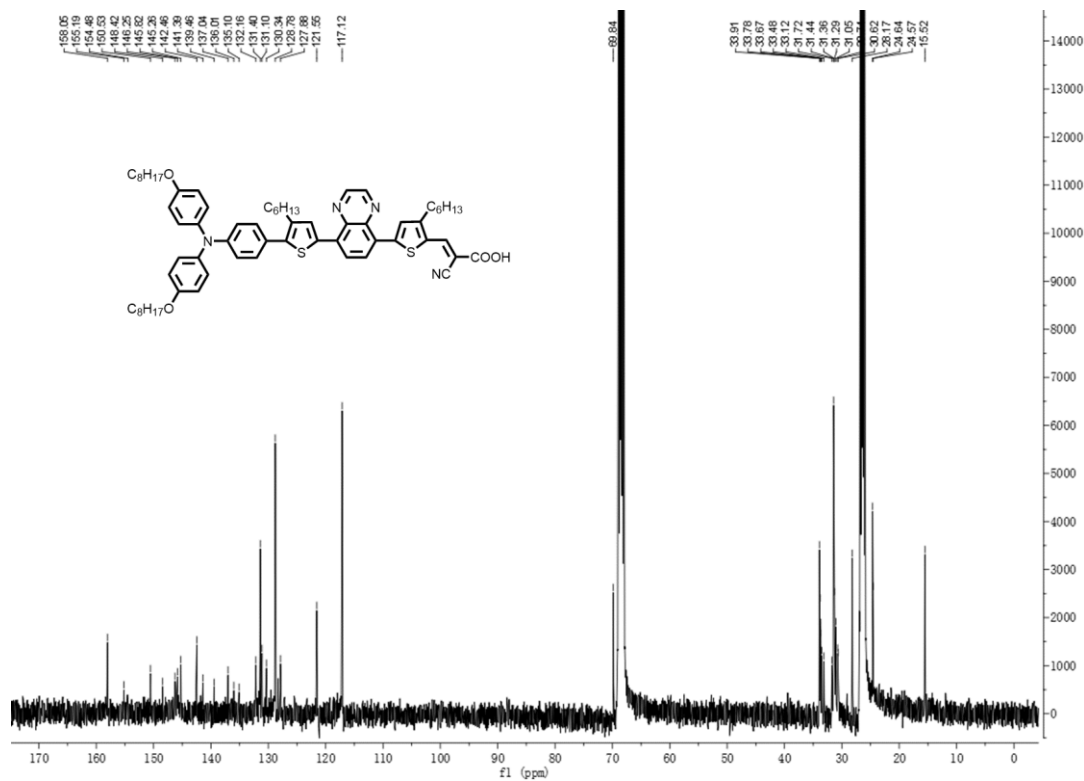
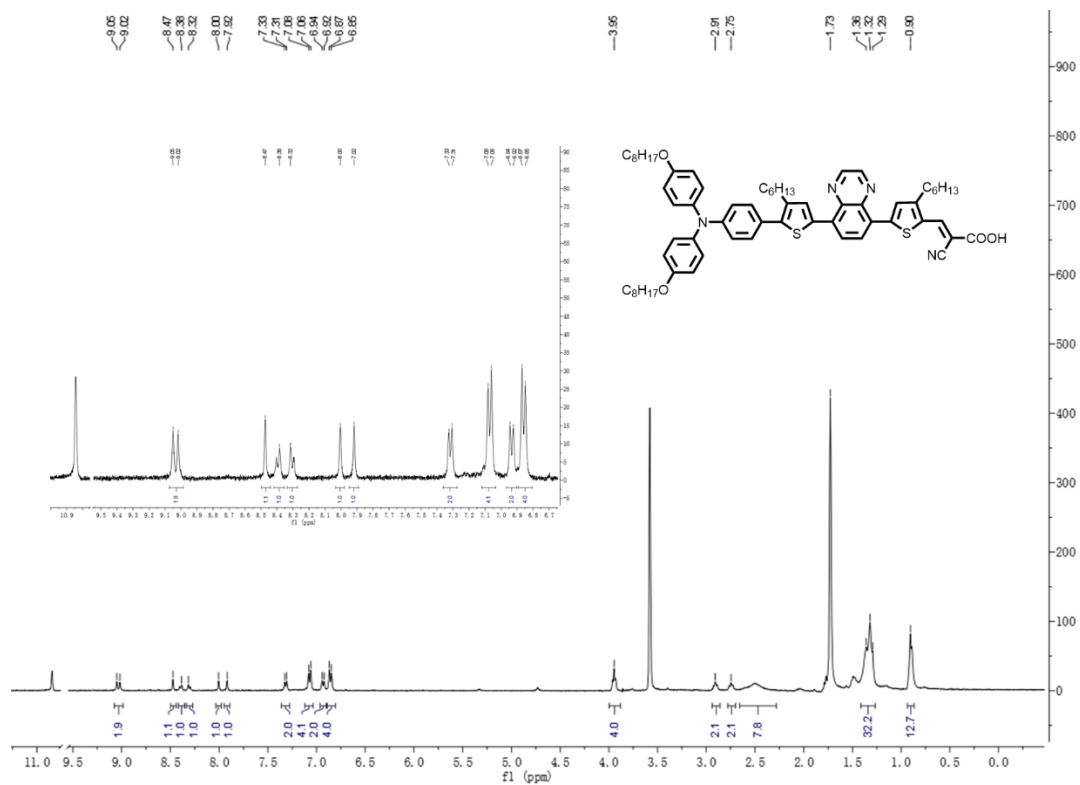
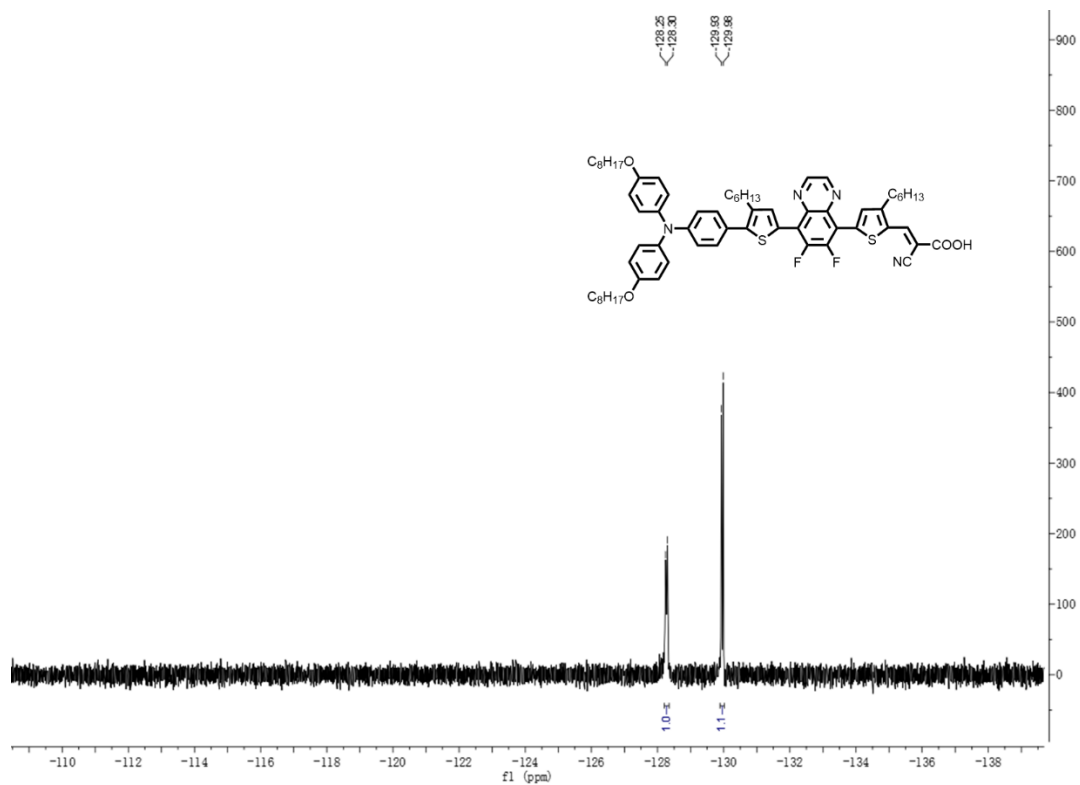
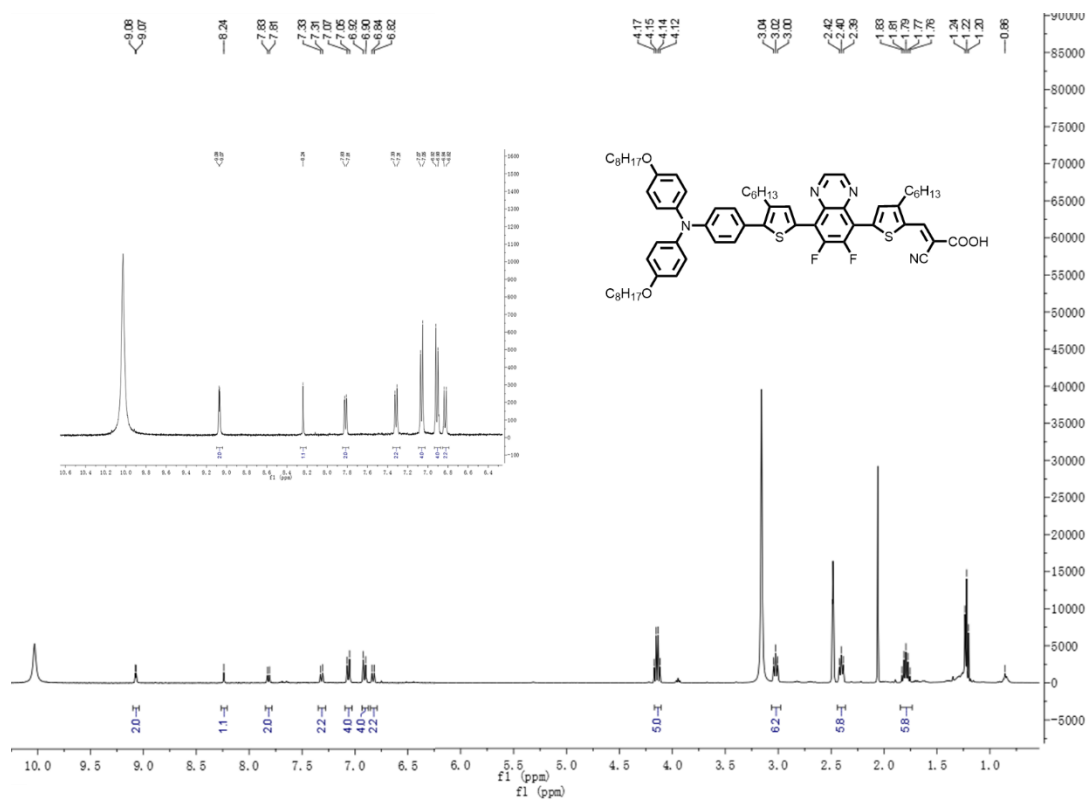


Figure S32. ¹³C NMR spectrum of compound **8c** (CDCl₃).





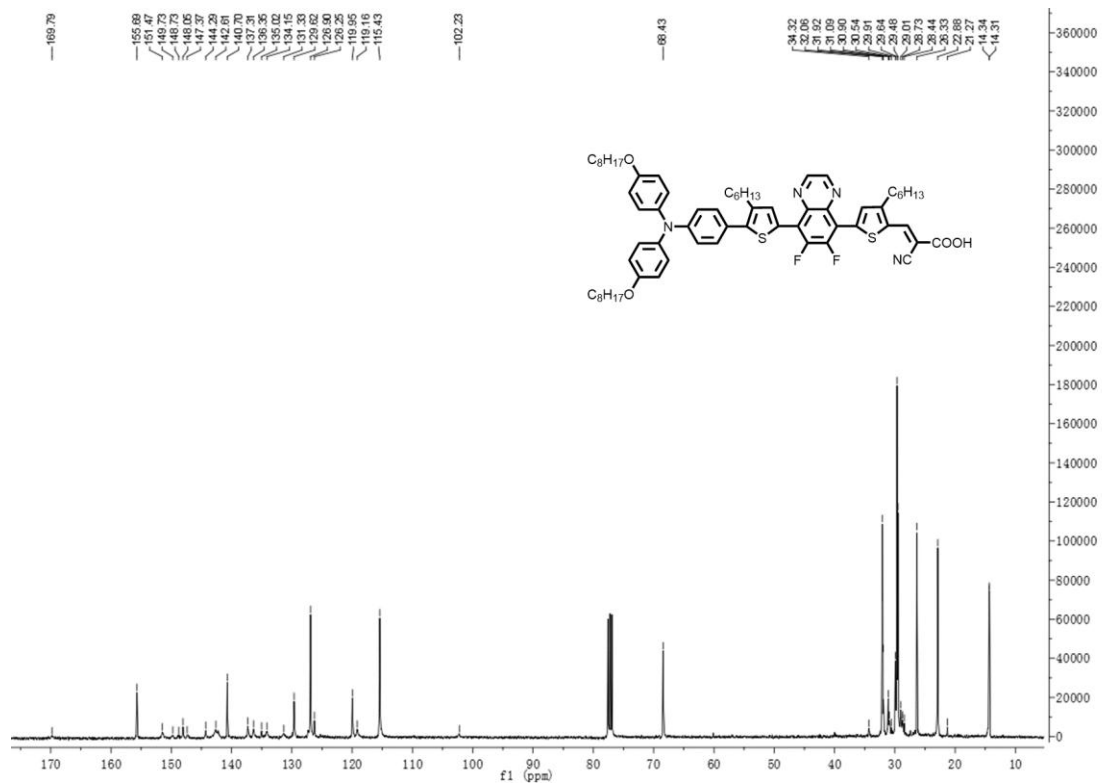


Figure S37. ^{13}C NMR spectrum of compound FNE55 (CDCl_3).

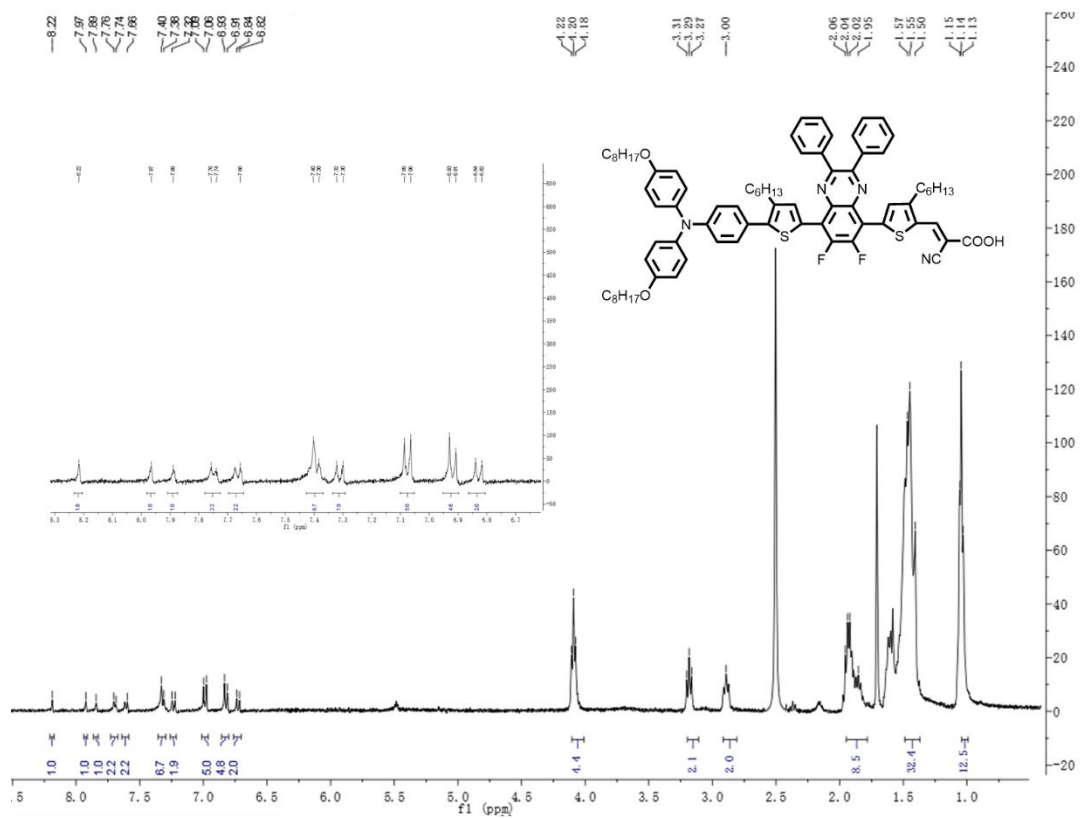


Figure S38. ^1H NMR spectrum of compound FNE56 ($\text{DMSO-}d_6$).

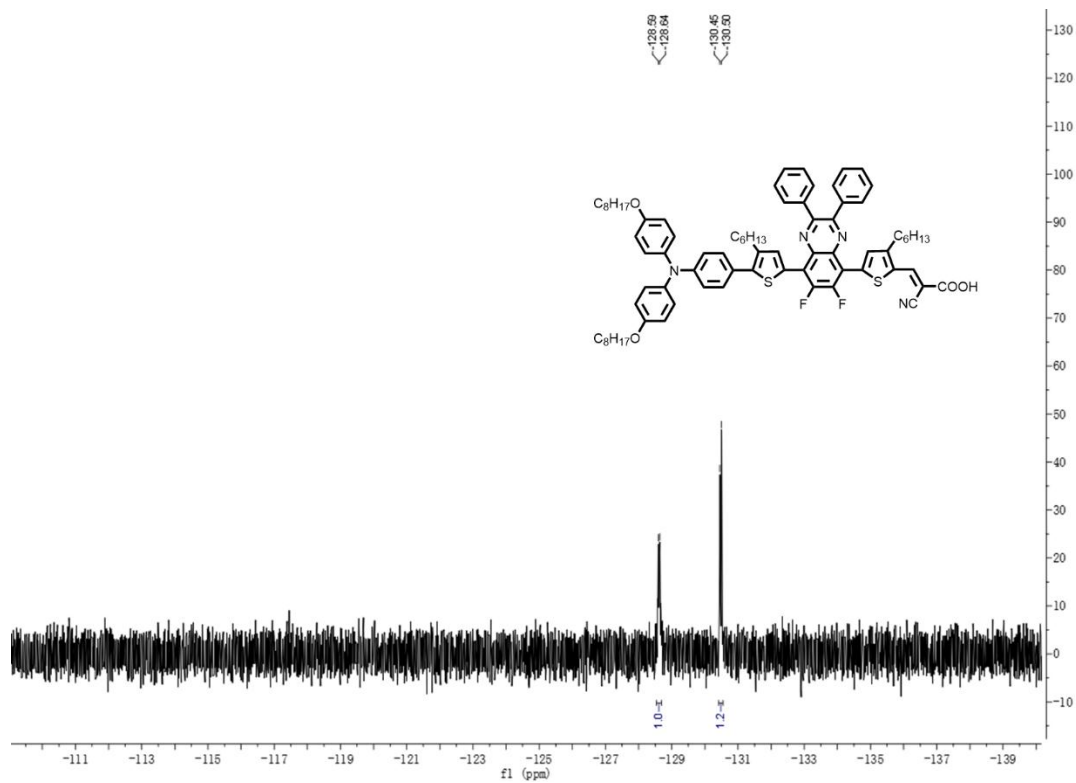


Figure S39. ^{19}F NMR spectrum of compound FNE56 (DMSO- d_6).

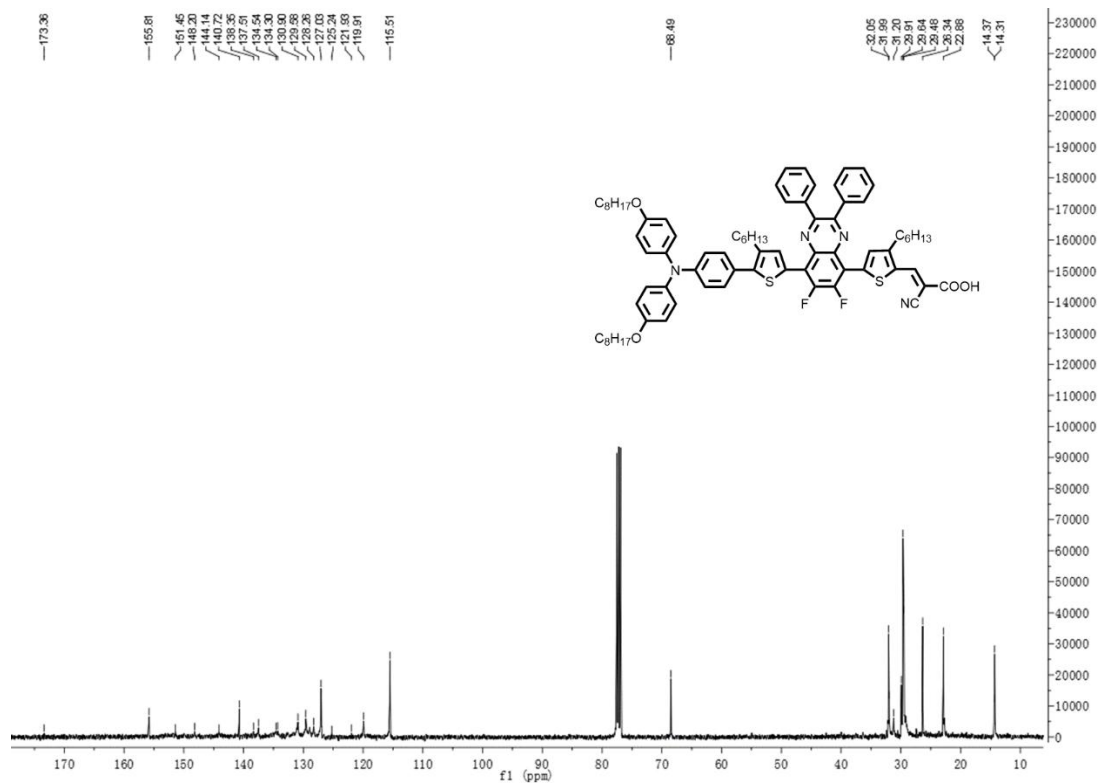


Figure S40. ^{13}C NMR spectrum of compound FNE56 (CDCl $_3$).