



## Supporting Information

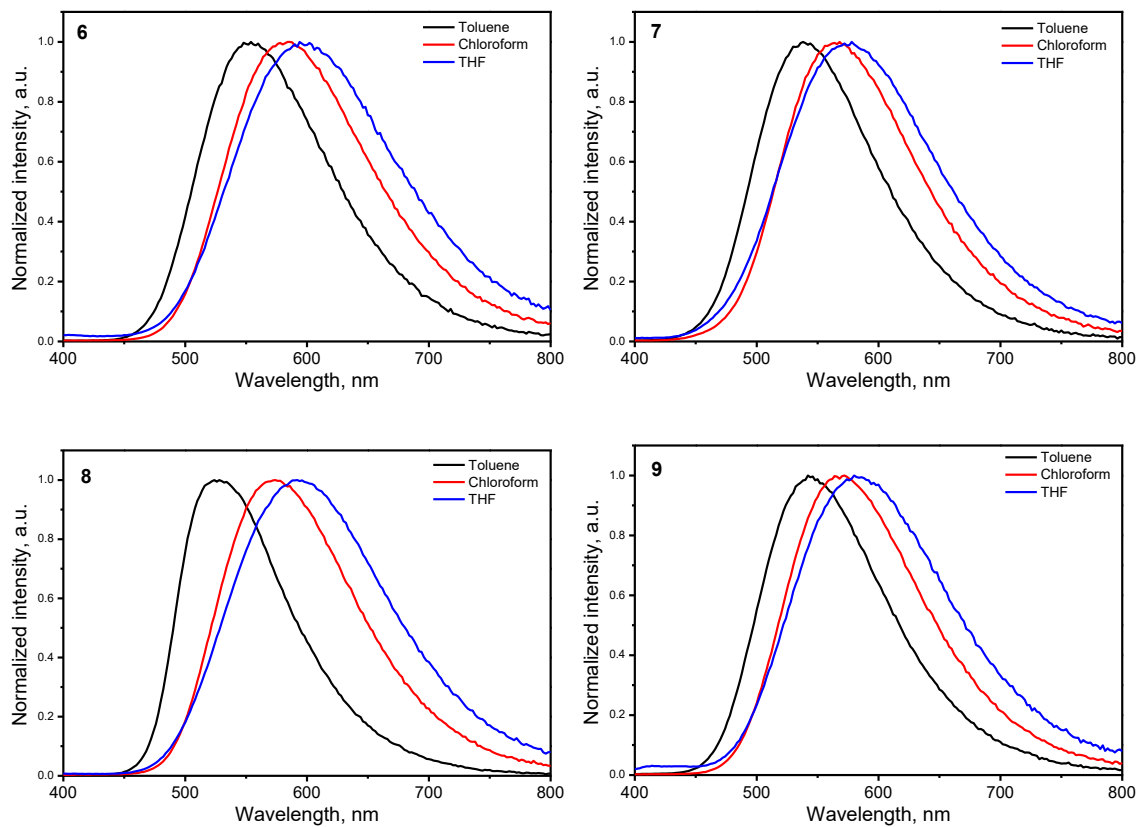
for

### **Aromatic systems with two and three pyridine-2,6-dicarbazolyl-3,5-dicarbonitrile fragments as electron-transporting organic semiconductors exhibiting long-lived emissions**

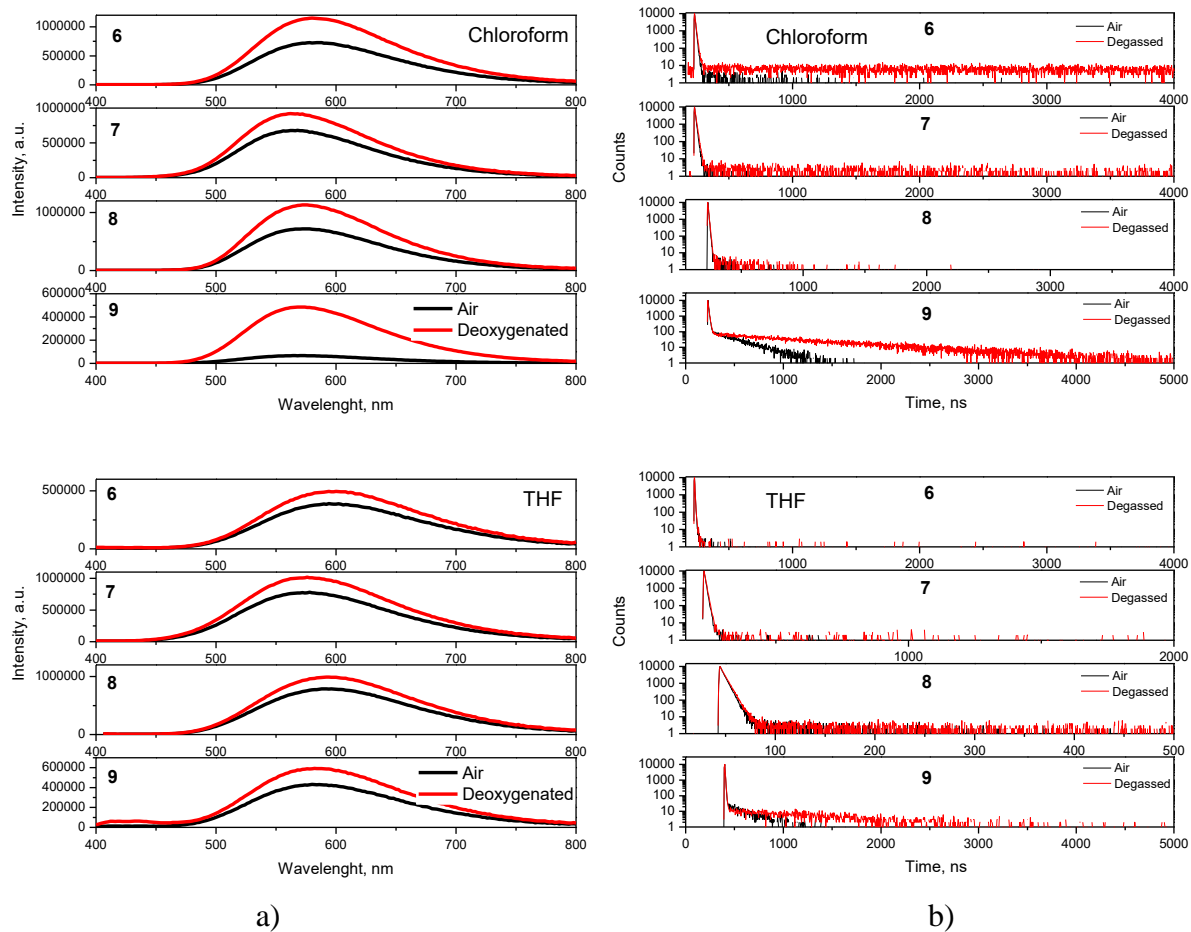
Karolis Leitonas, Brigita Vigante, Dmytro Volyniuk, Audrius Buciskas, Pavels Dimitrijevs, Sindija Lapcinska, Pavel Arsenyan and Juozas Vidas Grazulevicius

*Beilstein J. Org. Chem.* **2023**, *19*, 1867–1880. doi:10.3762/bjoc.19.139

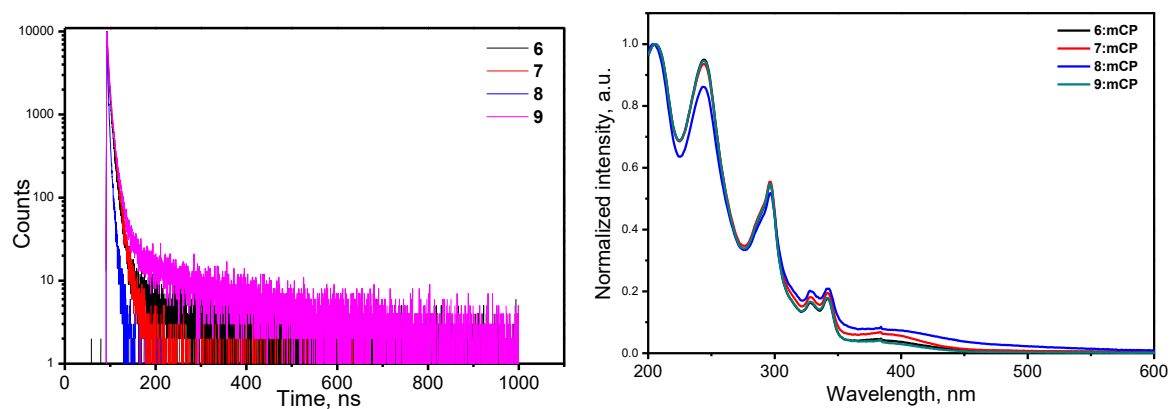
**Additional steady-state, time-resolved photoluminescence spectra, photoluminescence decay curves, charge transport characteristics, IR, and NMR spectra**



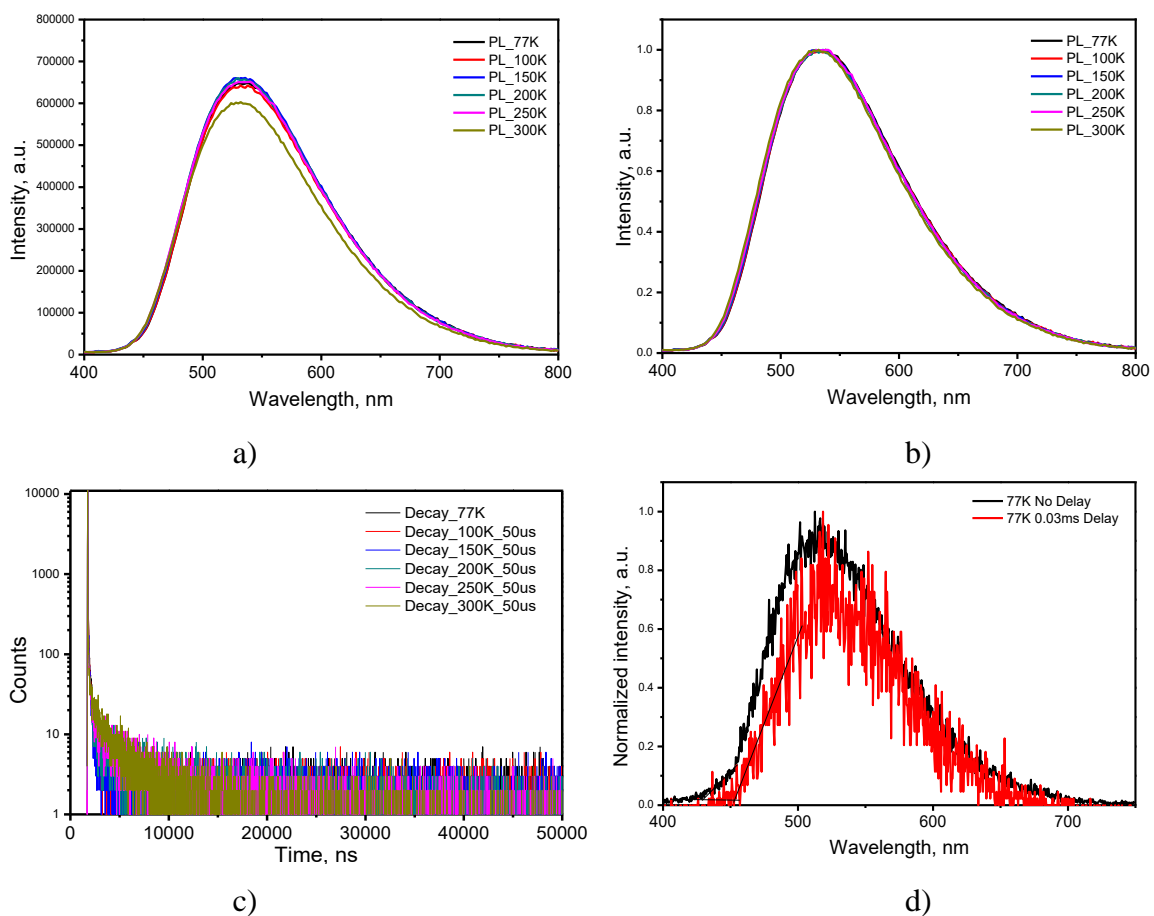
**Figure S1:** PL spectra of the dilute toluene, THF and chloroform solutions ( $10^{-5}$  M) of compounds **6–9**.



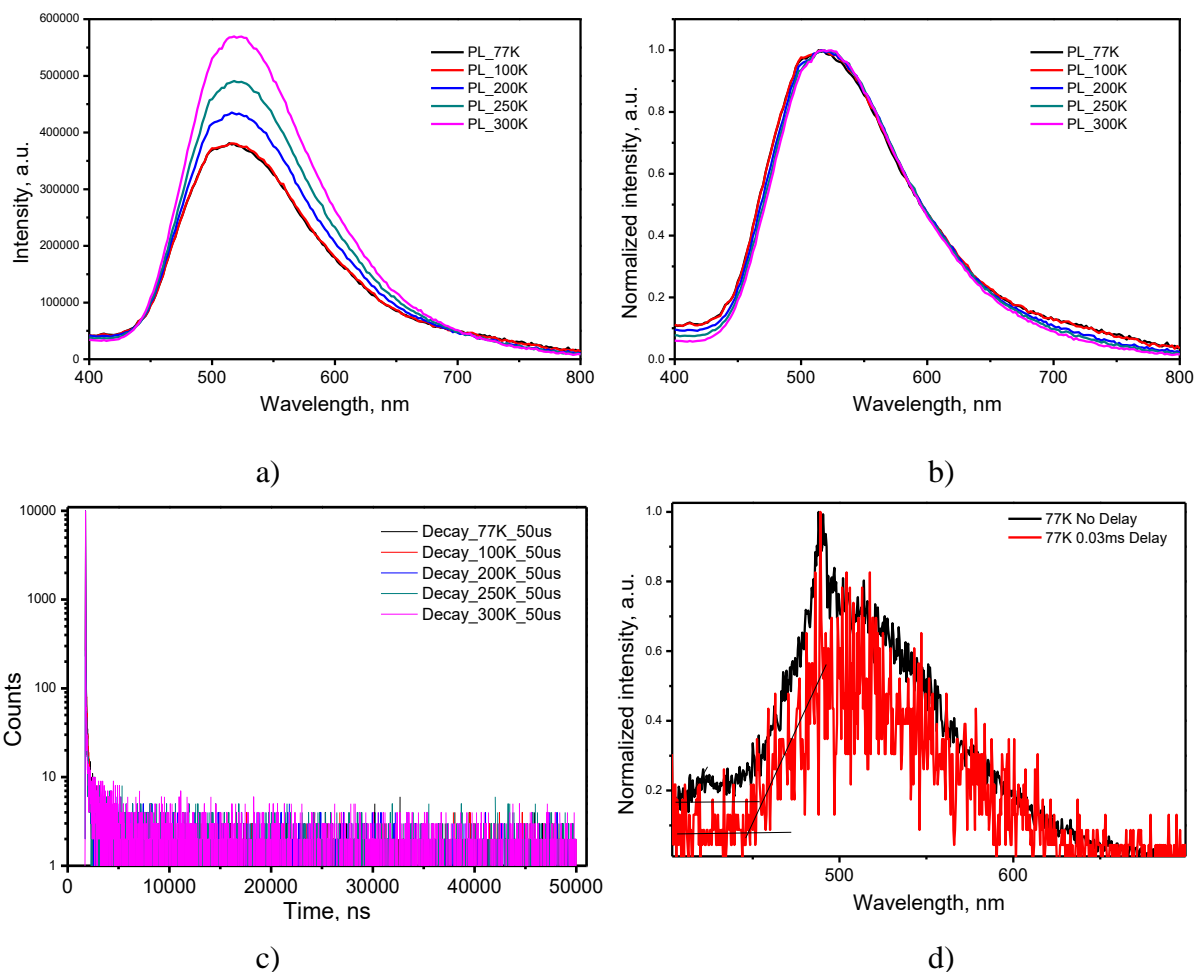
**Figure S2:** PL intensities (a) and PL decays (b) of non-deoxygenated (as prepared) and deoxygenated chloroform and THF solutions of compounds **6–9**.



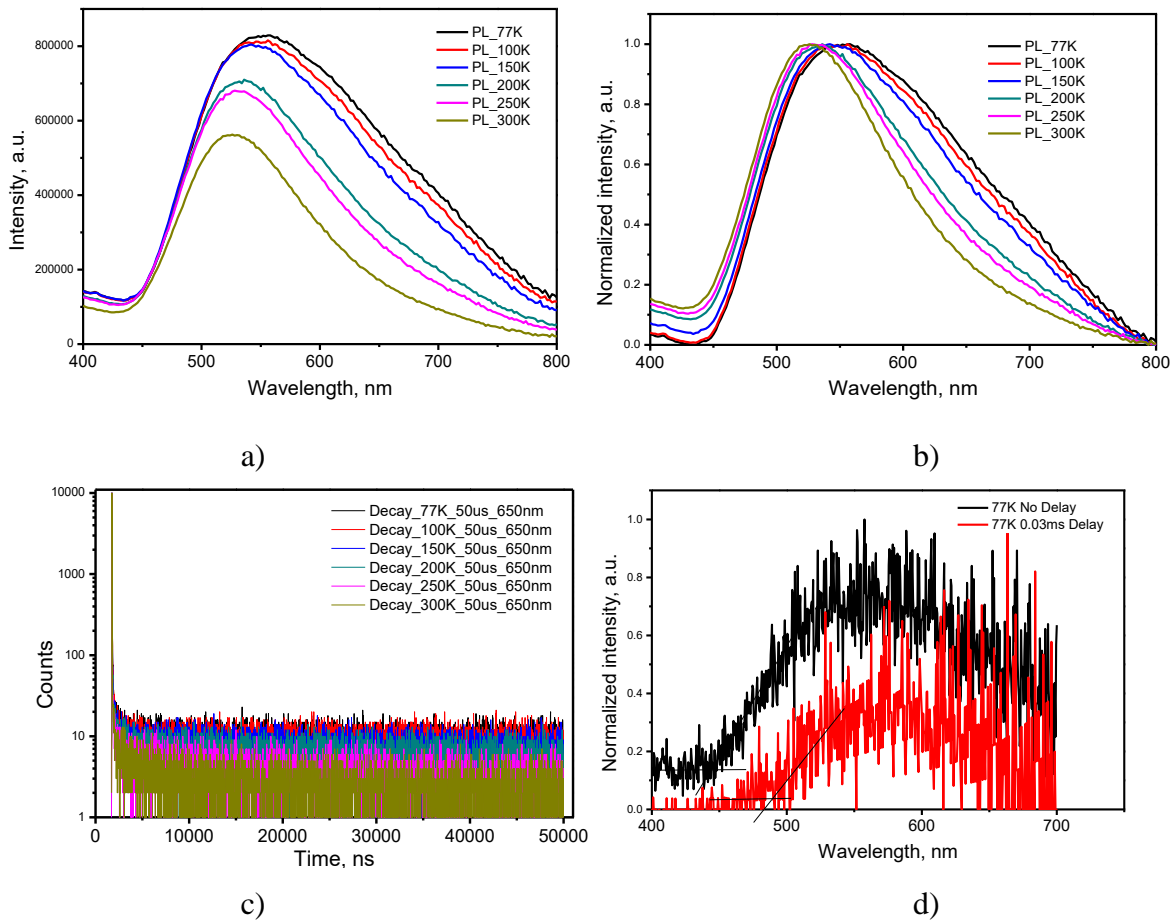
**Figure S3:** PL decay transients of neat films of compounds **6–9** and absorption spectra of mCP host-based films of compounds **6–9** (10 wt %).



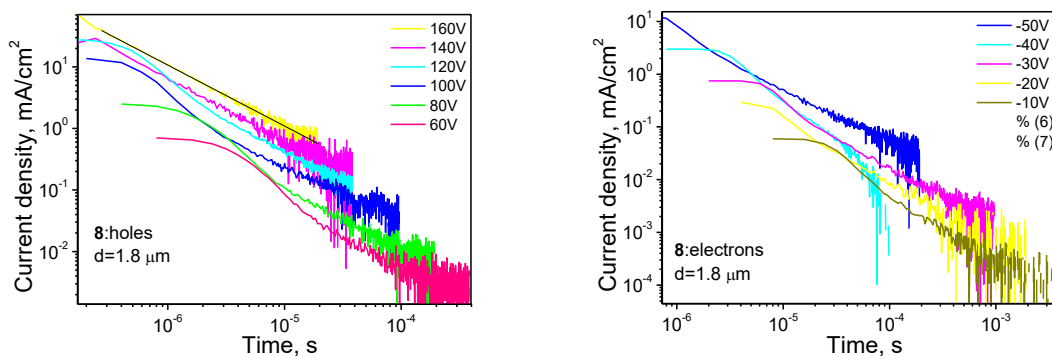
**Figure S4:** Non-normalized (a) and normalized (b) PL spectra and PL decay transients (c) of the film of compound **6** (10 wt %) dispersed in mCP recorded at different temperatures. PL and phosphorescence spectra of the same sample recorded 77K (d). Phosphorescence was separated from fluorescence using a delay of 0.03 ms after excitation. Excitation wavelengths were 350 and 374 nm, respectively, for recording PL spectra and PL decay transients.



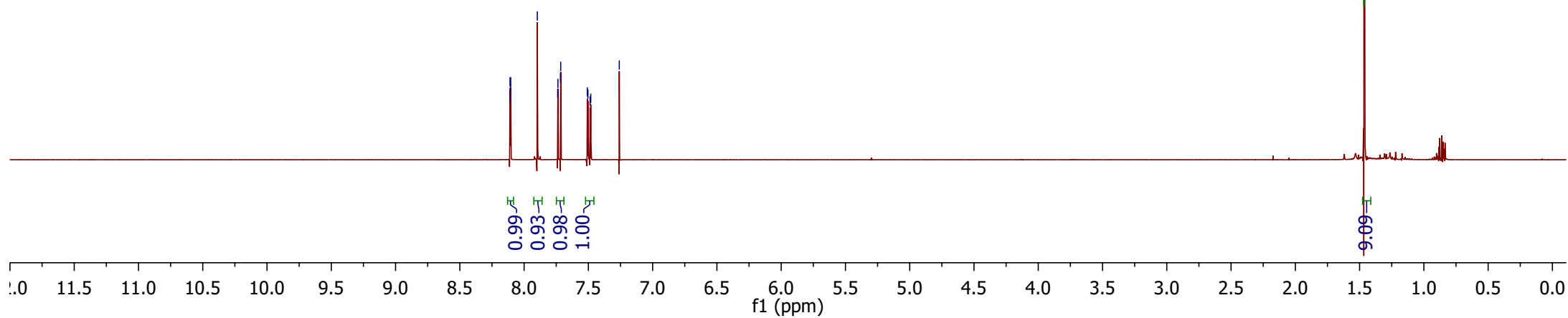
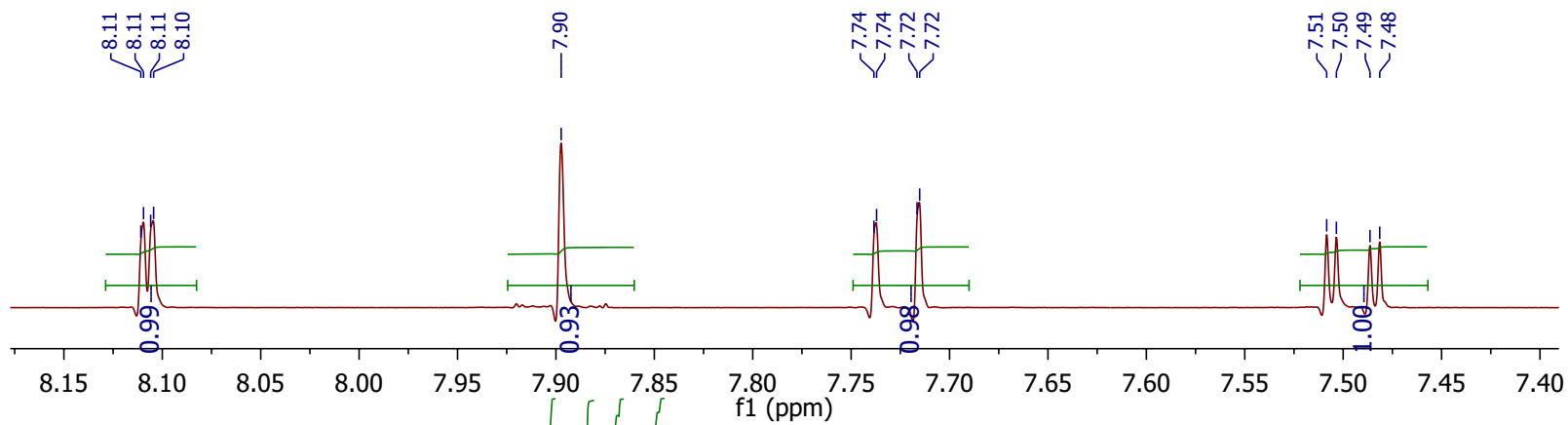
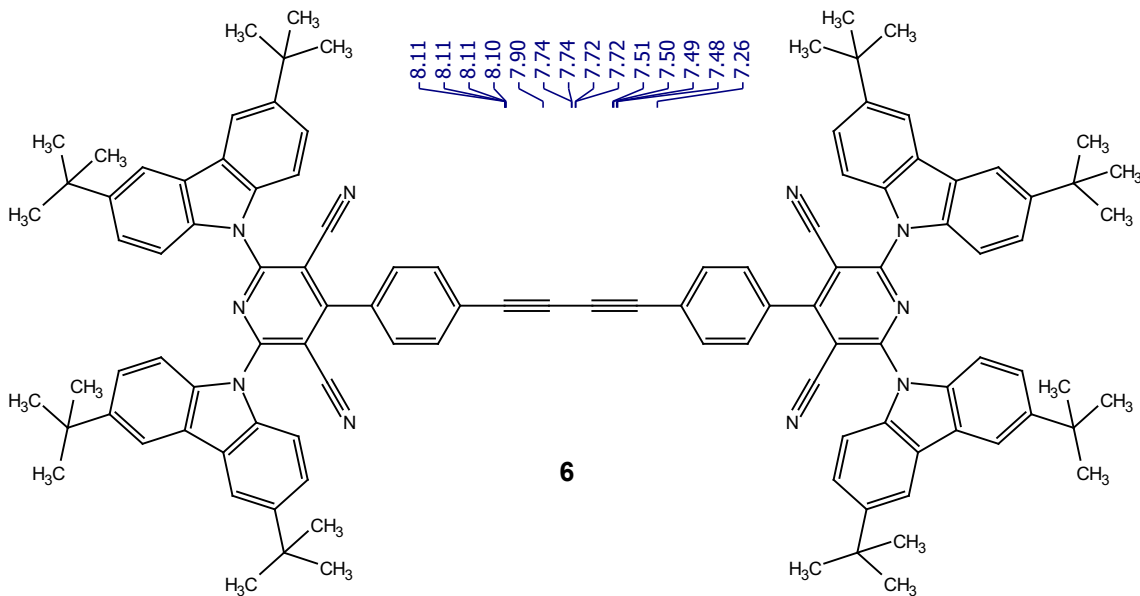
**Figure S5:** Non-normalized (a) and normalized (b) PL spectra and PL decay transients (c) of the film of compound **7** (10 wt %) dispersed in mCP recorded at different temperatures. PL and phosphorescence spectra of the same sample recorded 77K (d). Phosphorescence was separated from fluorescence using a delay of 0.03 ms after excitation. Excitation wavelengths were 350 and 374 nm, respectively, for recording PL spectra and PL decay transients.

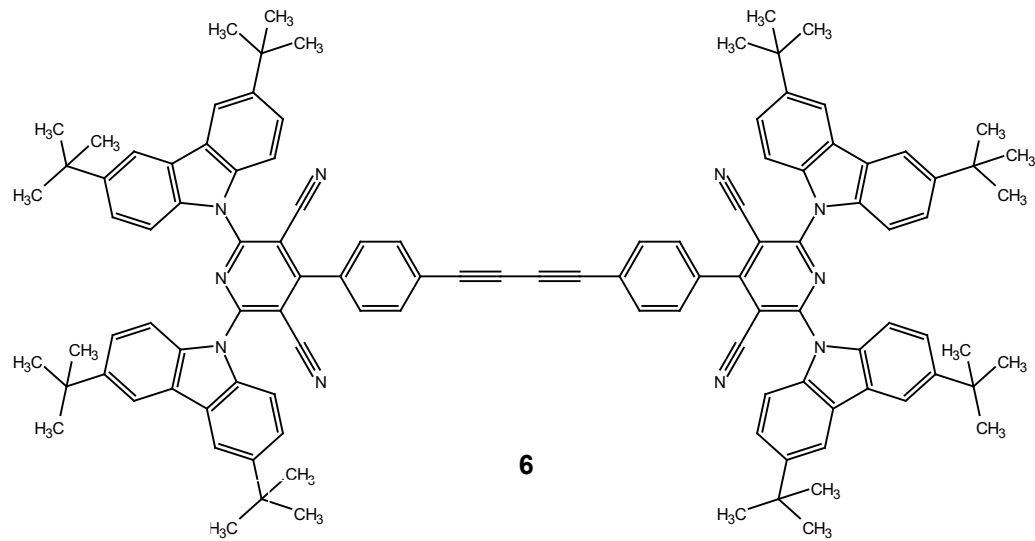


**Figure S6:** Non-normalized (a) and normalized (b) PL spectra and PL decay transients (c) of the film of compound **8** (10 wt %) dispersed in mCP recorded at different temperatures. PL and phosphorescence spectra of the same sample recorded 77K (d). Phosphorescence was separated from fluorescence using a delay of 0.03 ms after excitation. Excitation wavelengths were 350 and 374 nm, respectively, for recording PL spectra and PL decay transients.

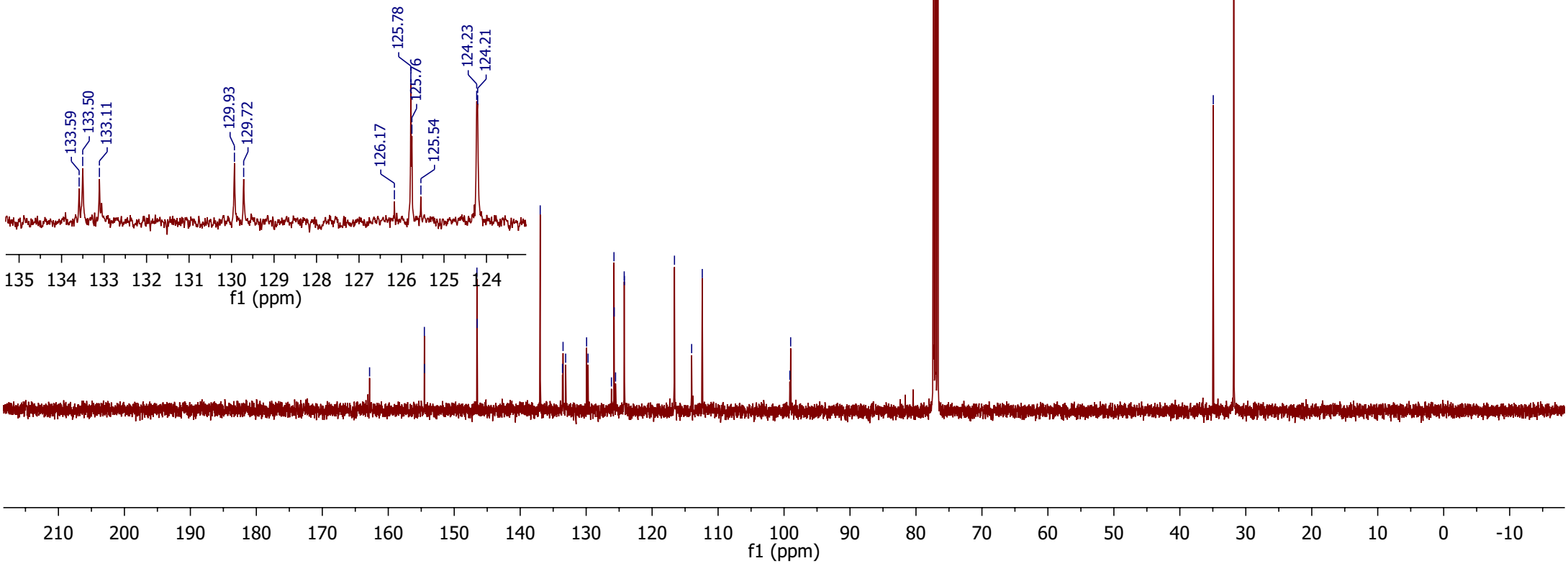


**Figure S7:** Examples of current transients for holes and electrons in films of compound **8** without detectable transit times.



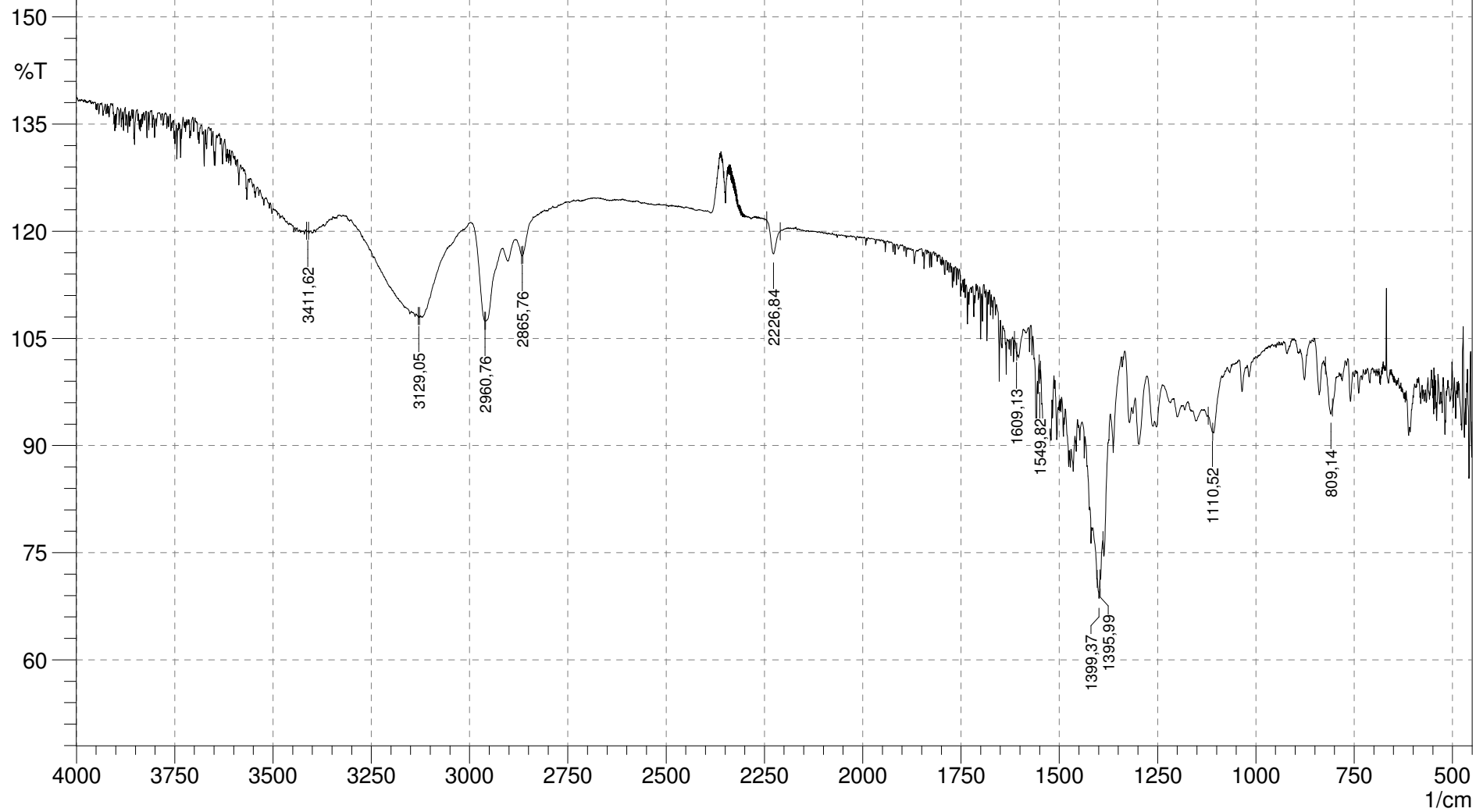


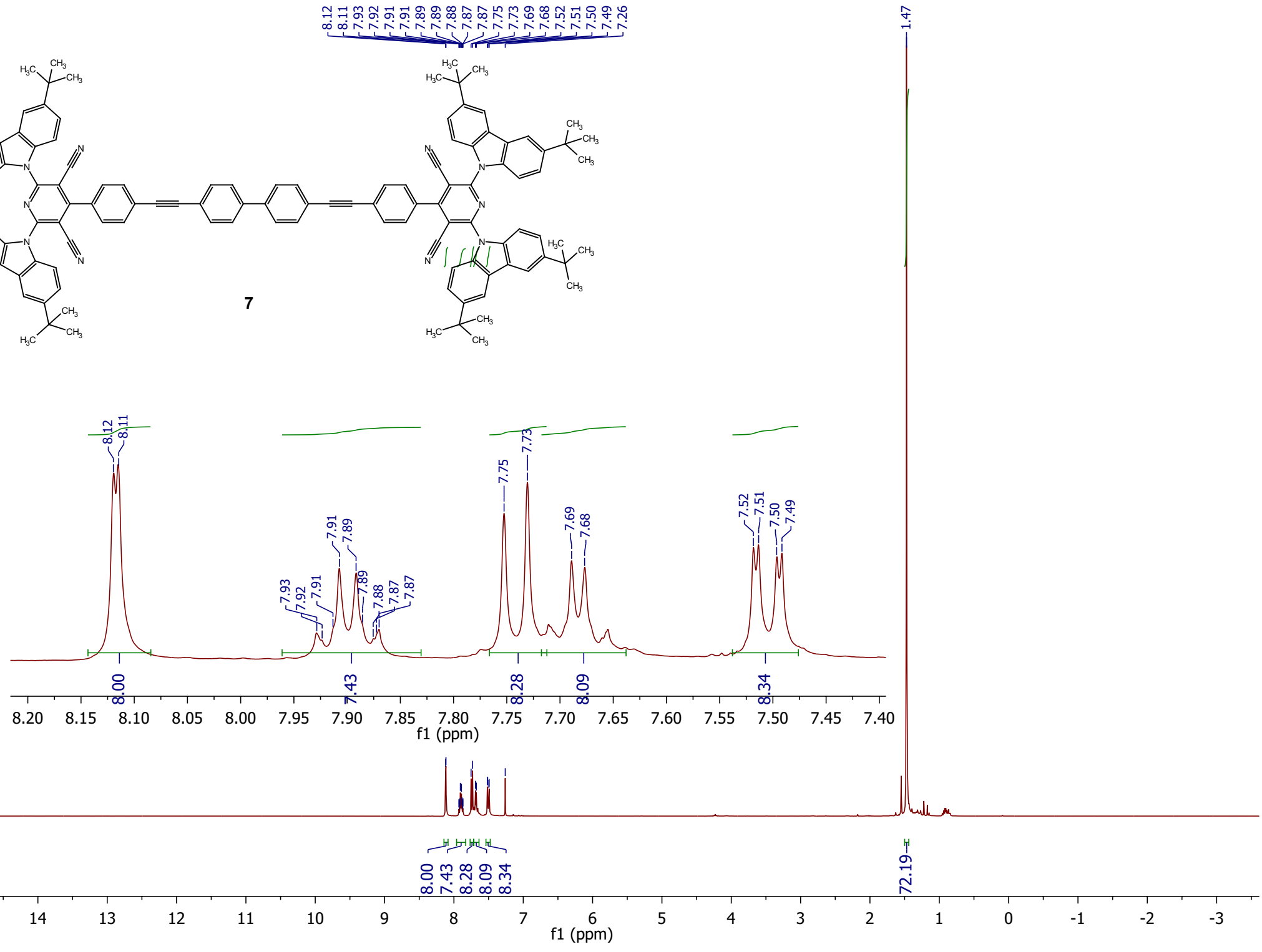
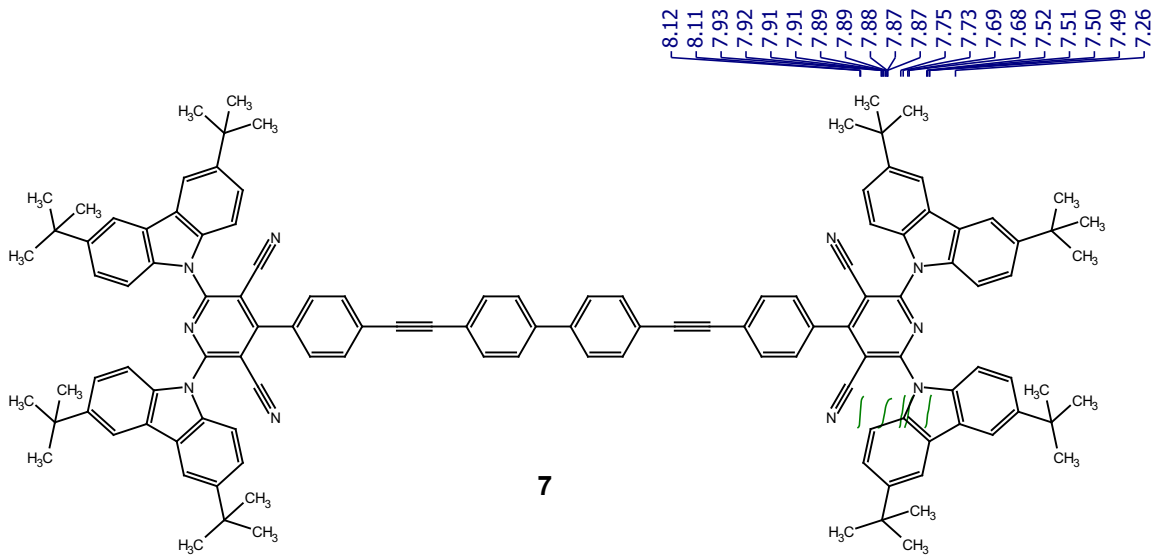
- 162.83
- 154.53
- 154.50
- 146.56
- 146.52
- 136.96
- 133.59
- 133.50
- 133.11
- 129.93
- 129.72
- 126.17
- 125.78
- 125.76
- 125.54
- 124.23
- 124.21
- 116.61
- 114.01
- 112.40
- 99.12
- 99.00

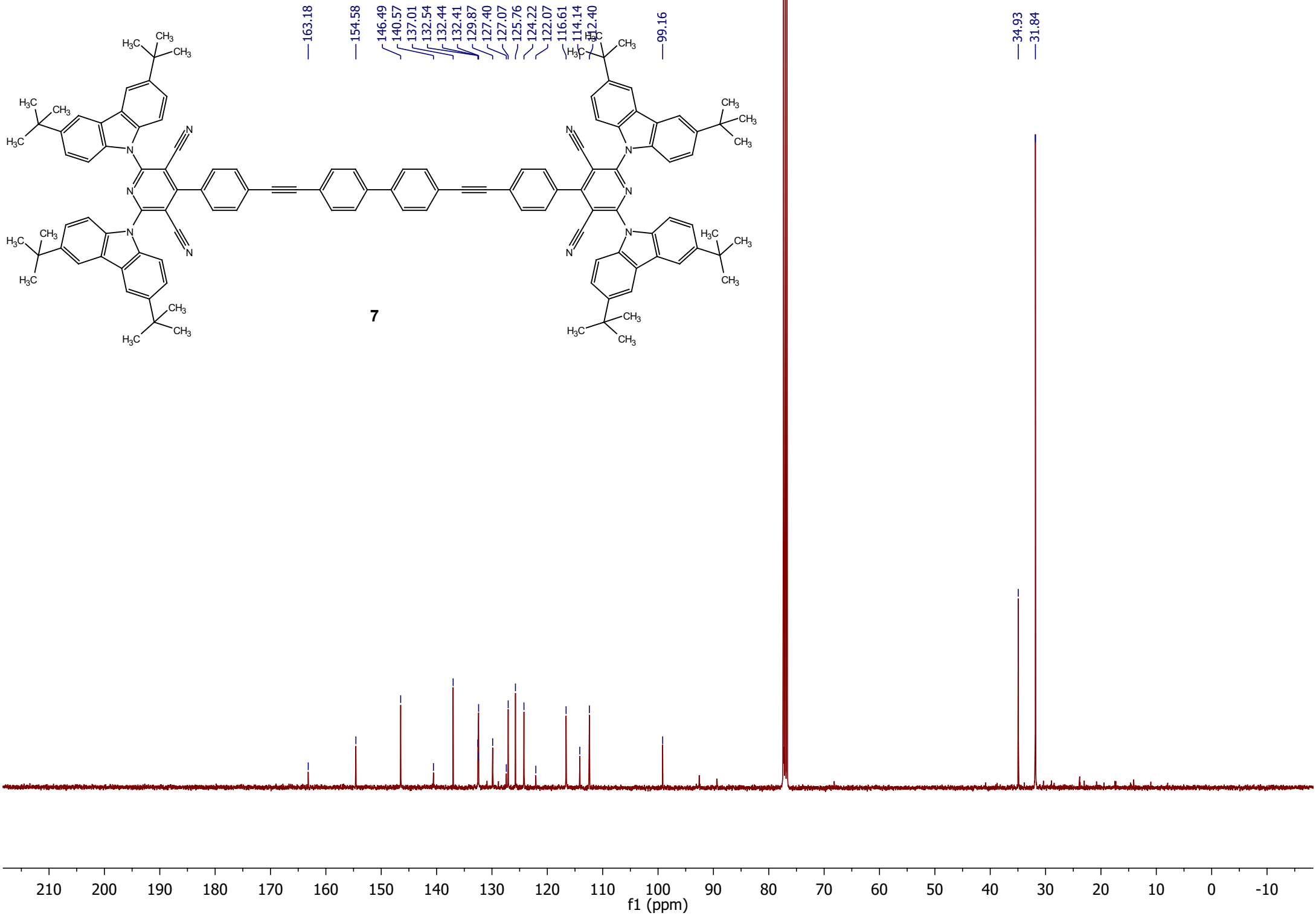


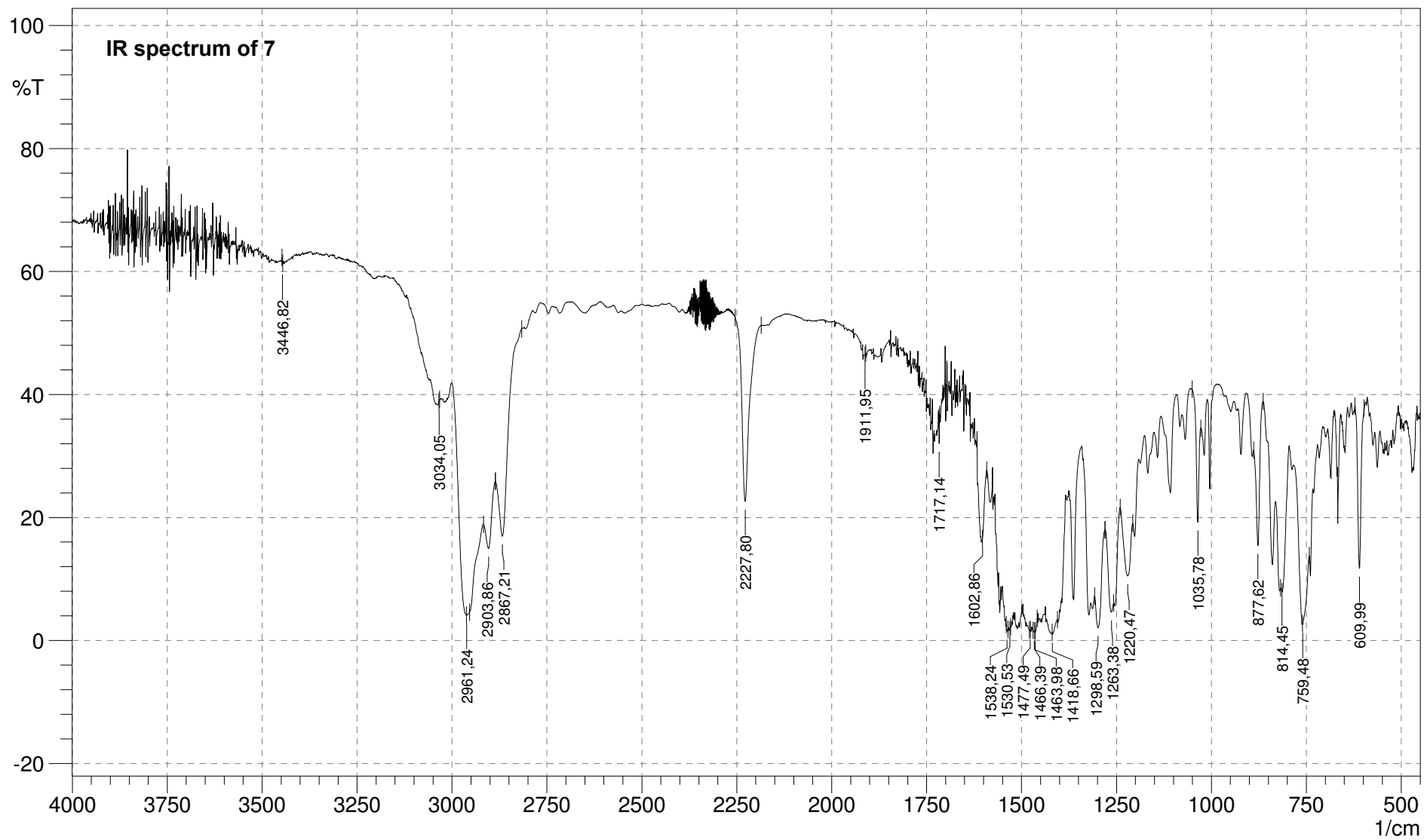


IR spectrum of 6

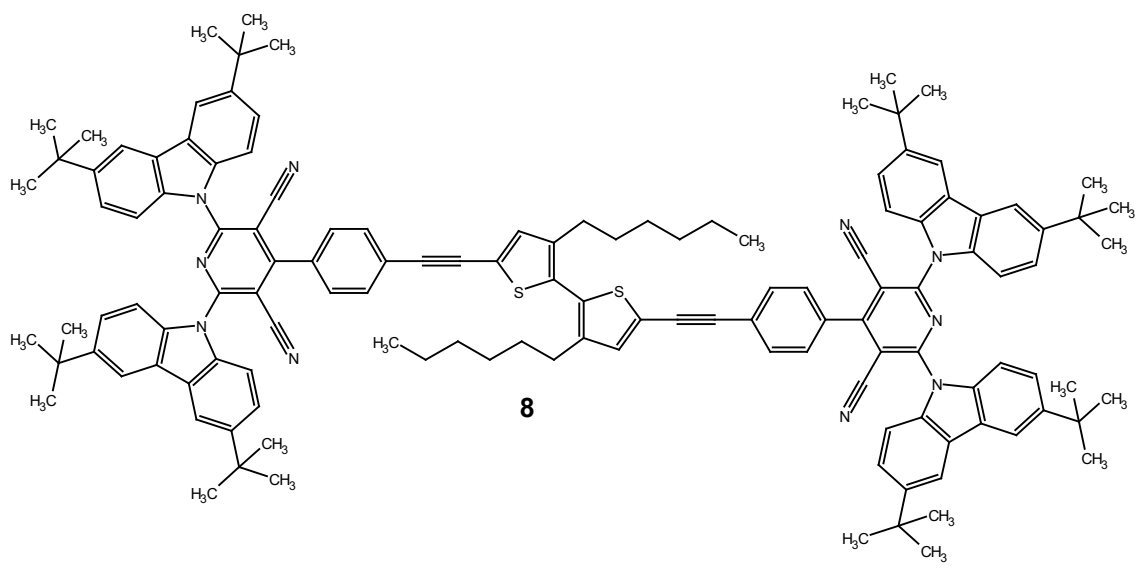




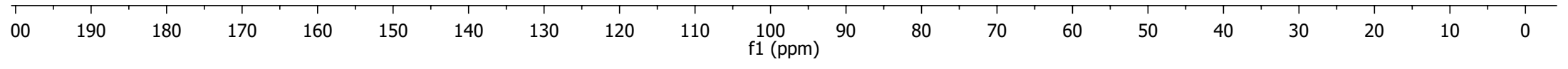




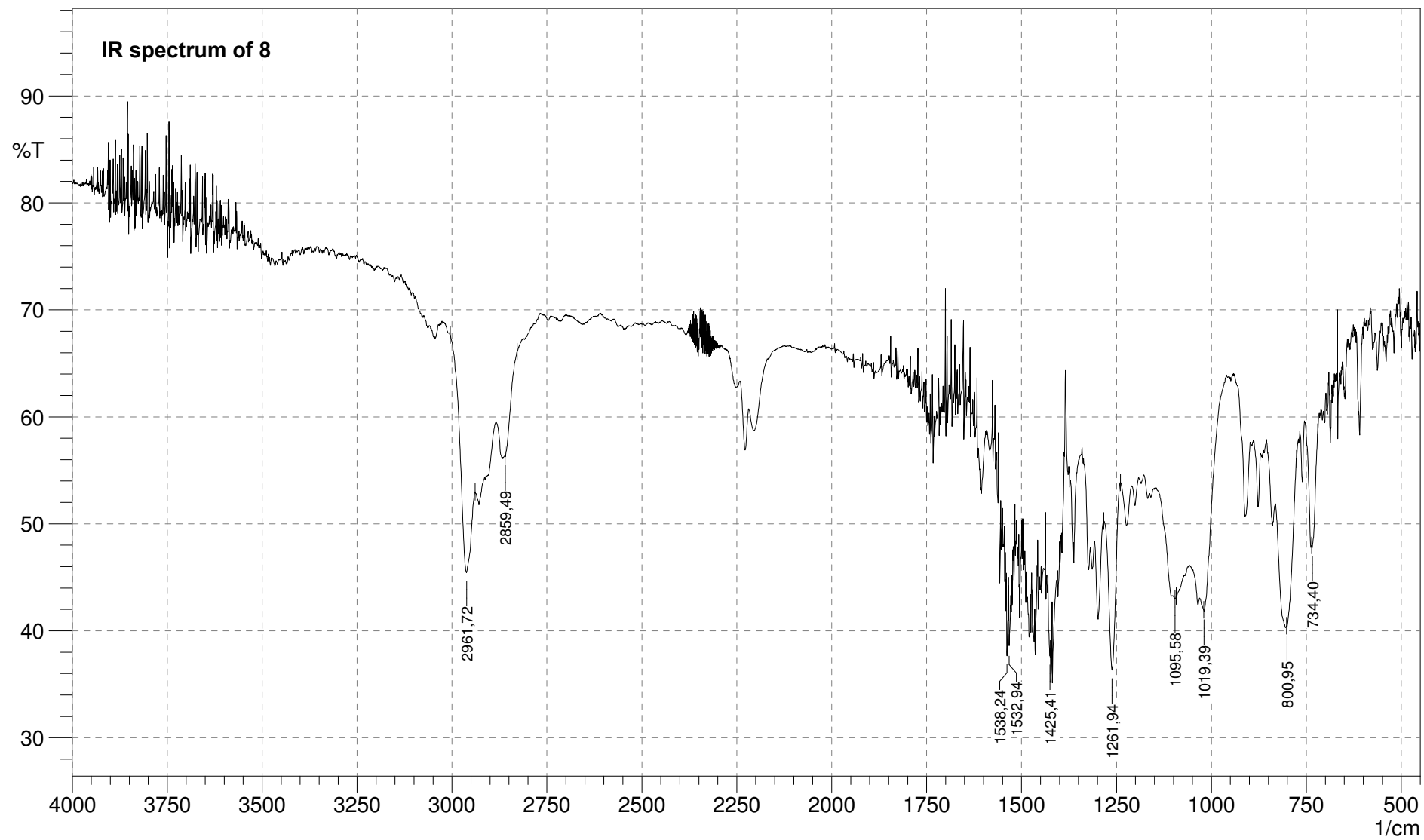


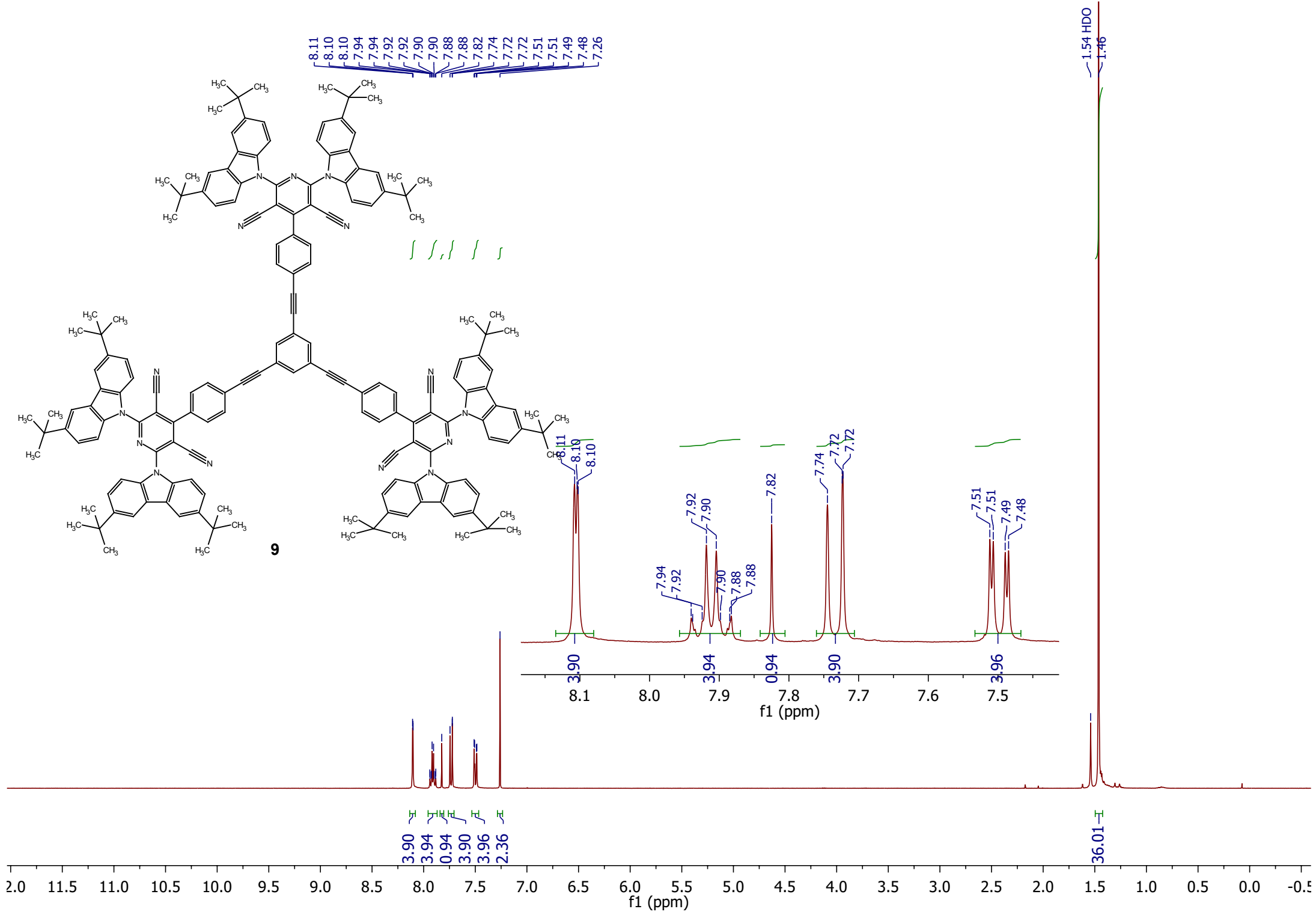


- 163.10
- 154.57
- 146.47
- 143.22
- 137.00
- 134.50
- 132.46
- 132.24
- 130.63
- 129.89
- 127.06
- 125.74
- 124.21
- 122.56
- 116.60
- 114.11
- 112.38
- 99.13
- 92.84
- 86.01
- 34.93
- 31.83
- 31.65
- 30.63
- 29.07
- 28.89
- 22.60
- 14.12

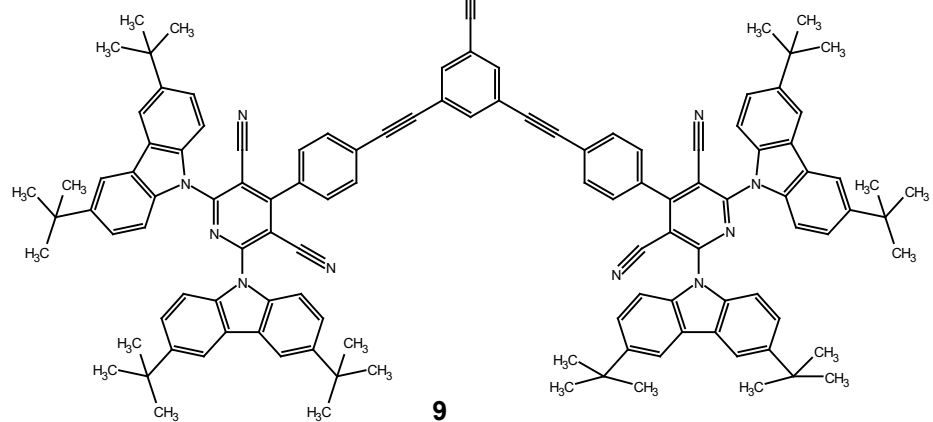
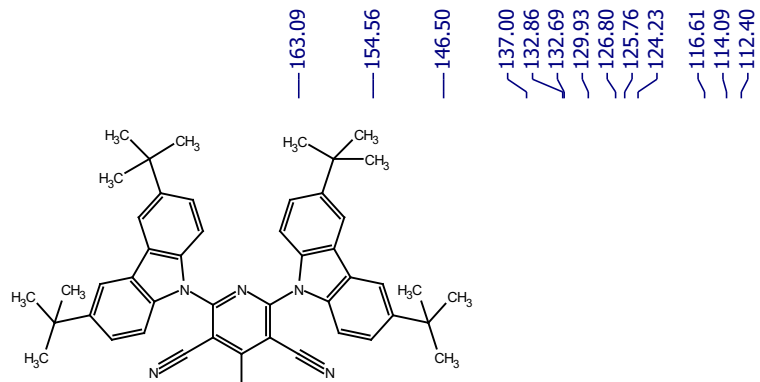


IR spectrum of 8









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