

Supporting Information

Synthesis and Spectroscopic Characterization of Thienopyrazine-Based Fluorophores for Application in Luminescent Solar Concentrators (LSCs)

Xheila Yzeiri¹, Massimo Calamante^{1,2*}, Alessio Dessì², Daniele Franchi², Andrea Pucci³, Francesco Ventura³, Gianna Reginato^{2,*}, Lorenzo Zani², Alessandro Mordini^{1, 2}

¹ Department of Chemistry "Ugo Schiff", University of Florence, Via della Lastruccia 13, 50019 Sesto Fiorentino, Italy

² CNR-Institute of Chemistry of Organometallic Compounds (CNR-ICCOM), Via Madonna del Piano 10, 50019 Sesto Fiorentino, Italy

³ Department of Chemistry and Industrial Chemistry University of Pisa Via A. G. Moruzzi 13, 56124 Pisa, Italy

* Correspondence: gianna.reginato@iccom.cnr.it (G.R.); massimo.calamante@iccom.cnr.it (M.C.)

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1. Normalized emission spectra of compounds **1a**, **1b**, **1c** in different solvents (0.01 mM)

Figure S1 - Normalized emission spectra of compound **1a** in different solvents

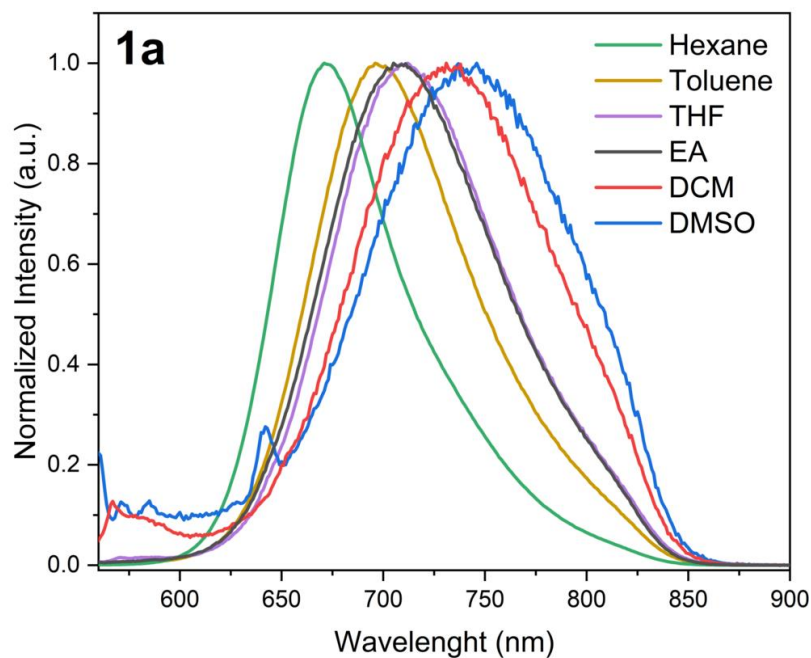


Figure S2 - Normalized emission spectra of compound **1b** in different solvents

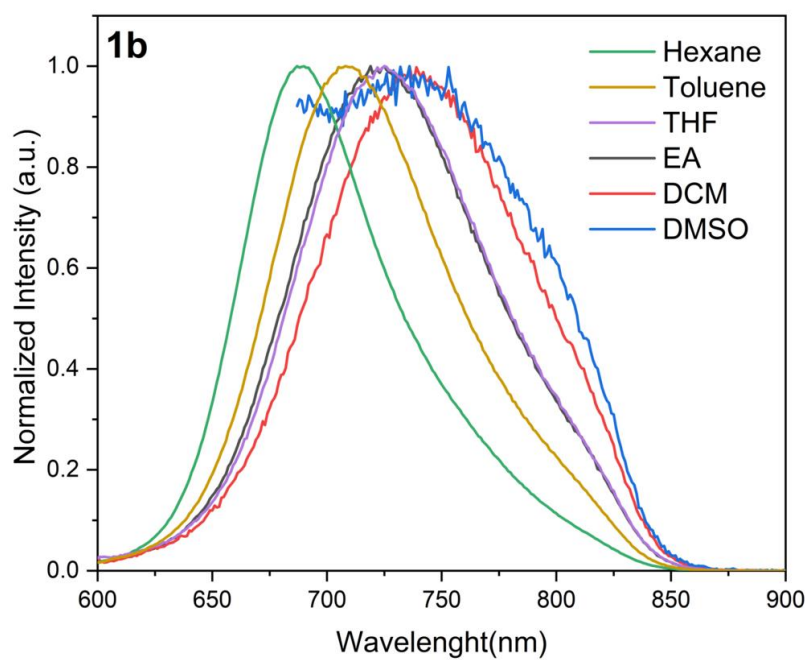
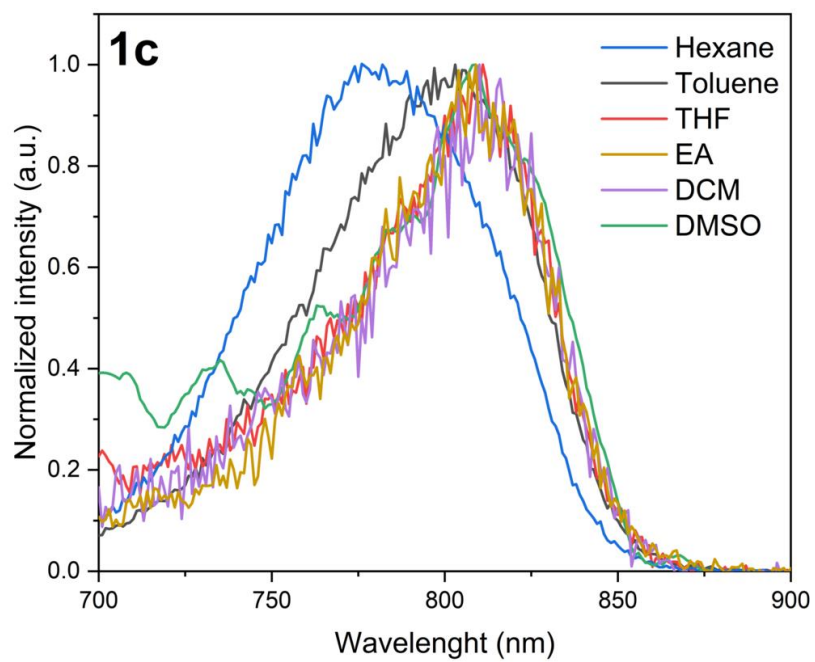


Figure S3 - Normalized emission spectra of compound **1c** in different solvents



2. Absorption spectra of compounds 1a,b,c in different solvents

Figure S4 - Absorption spectra of compound **1a** in different solvents

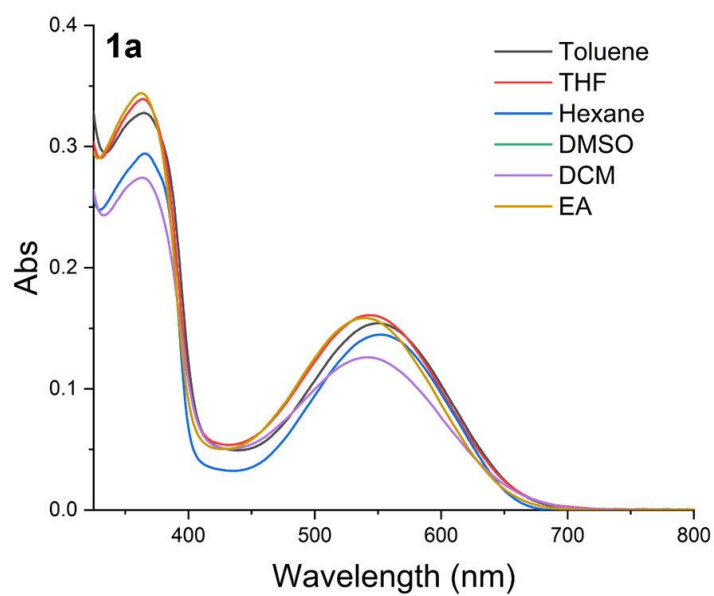


Figure S5 - Absorption spectra of compounds **1b** in different solvents

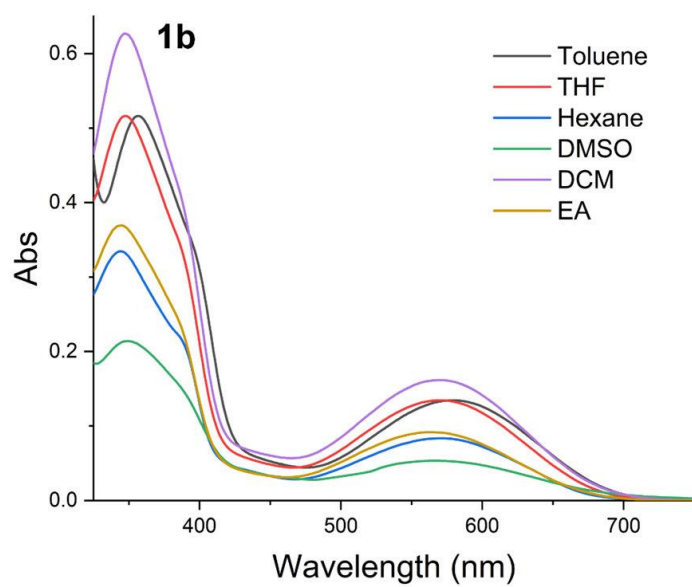
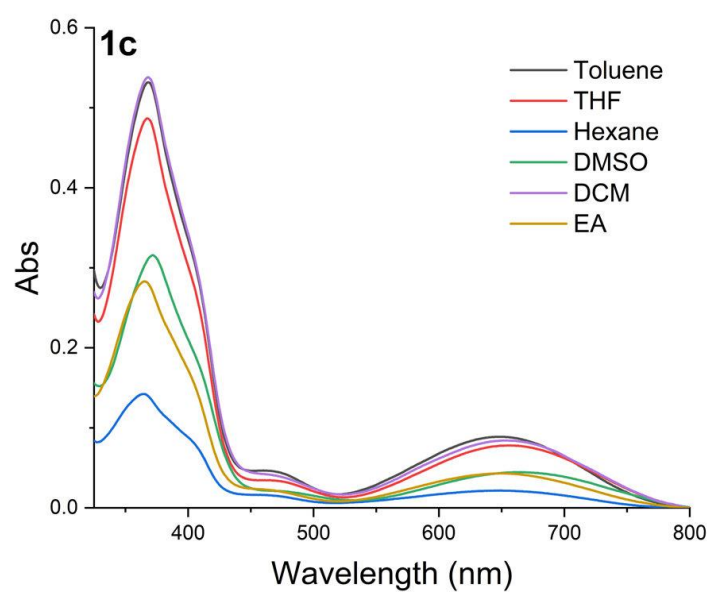


Figure S6 - Absorption spectra of compounds **1c** in different solvents



3. Fluorescence emission spectra of **1a**,**b**,**c** in toluene at different concentrations

Figure S7 - Fluorescence emission spectra of **1a** in toluene at different concentrations (excitation at 365 nm)

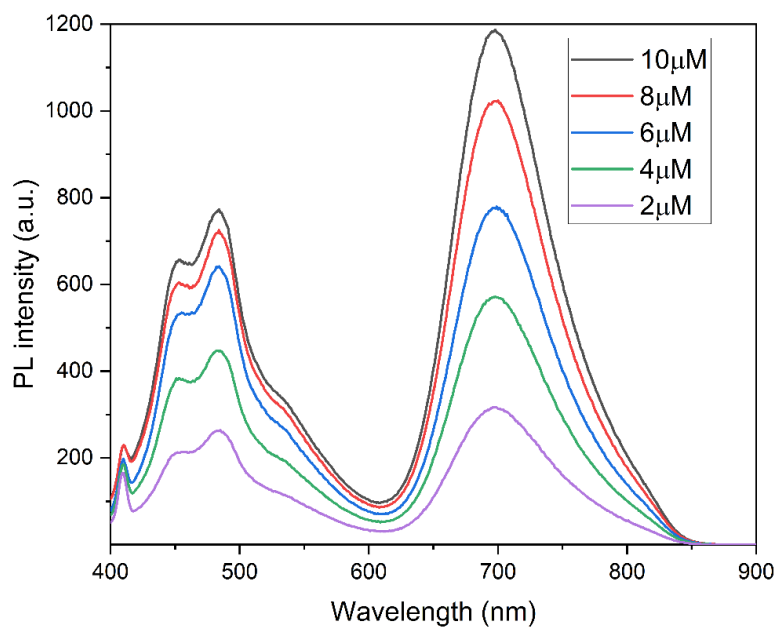


Figure S8 - Fluorescence emission spectra of **1b** in toluene at different concentrations (excitation at 347 nm)

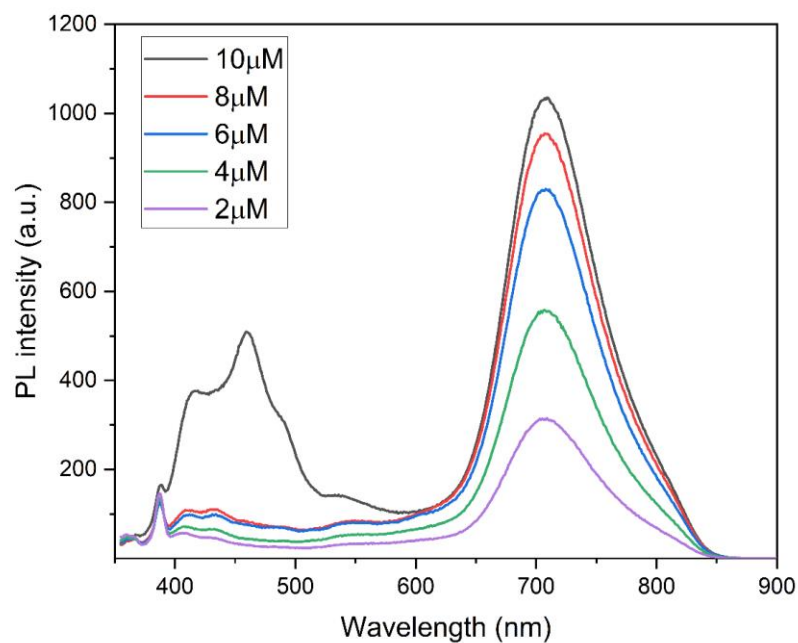
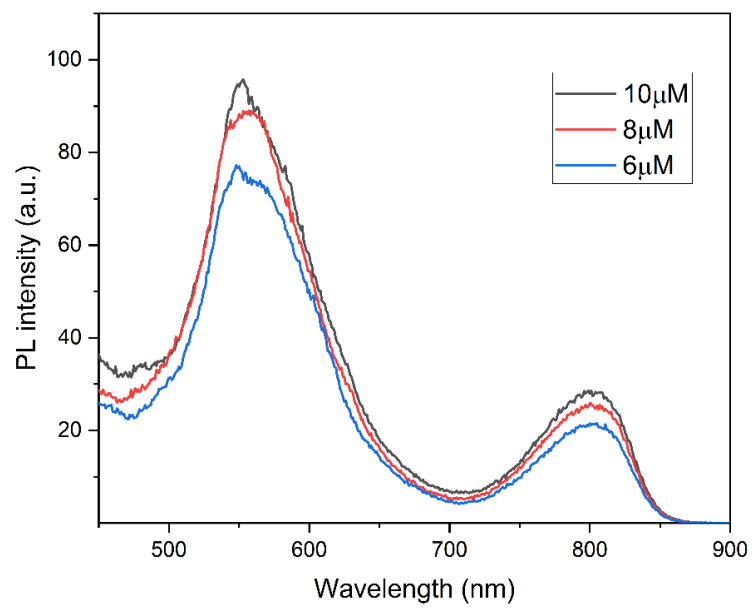
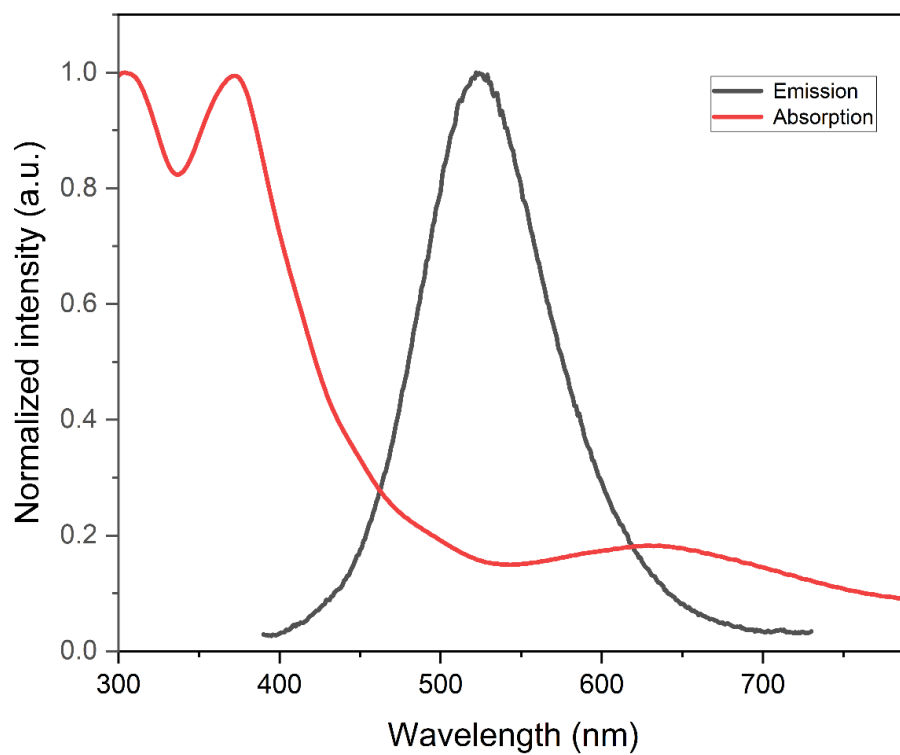


Figure S9 - Fluorescence emission spectra of **1c** in toluene at different concentrations (excitation at 368 nm)



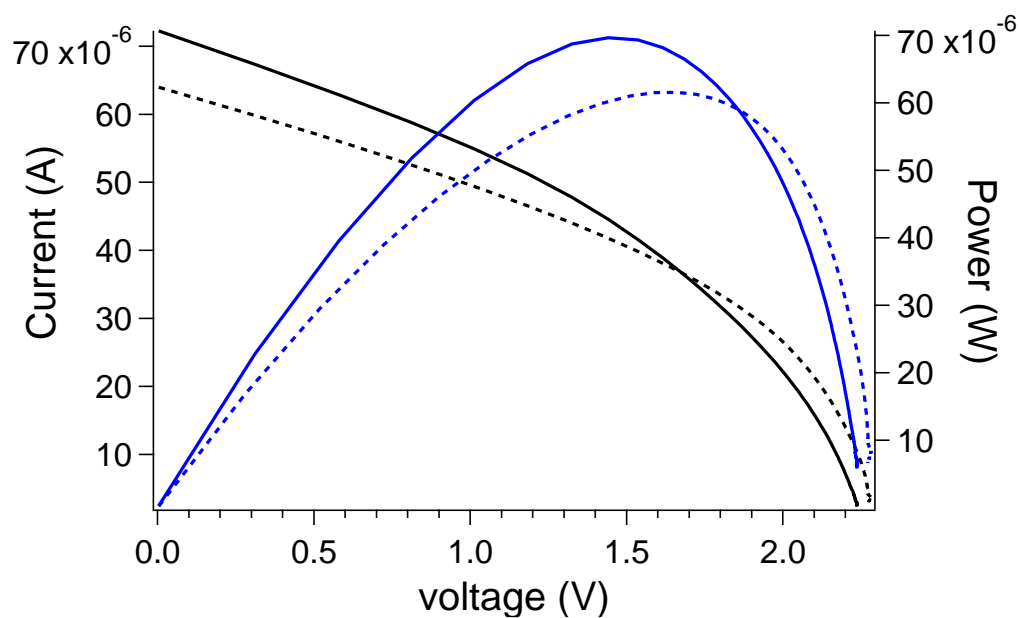
4. Absorption and fluorescence emission spectra of **1c** in PMMA

Figure S10 - Absorption (red line) and fluorescence emission (black line) spectra of **1c** in PMMA (concentration 1.2 weight %) following excitation at 372 nm



5. P(V) and I(V) curves of photovoltaic cell in the presence and absence of the LSC

Figure S11 - P(V) (blue lines) and I(V) (black lines) curves of the photovoltaic cell in the presence (solid line) and absence (dash line) of the best performing LSC (compound **1c**, 1.2% wt dispersion in PMMA).

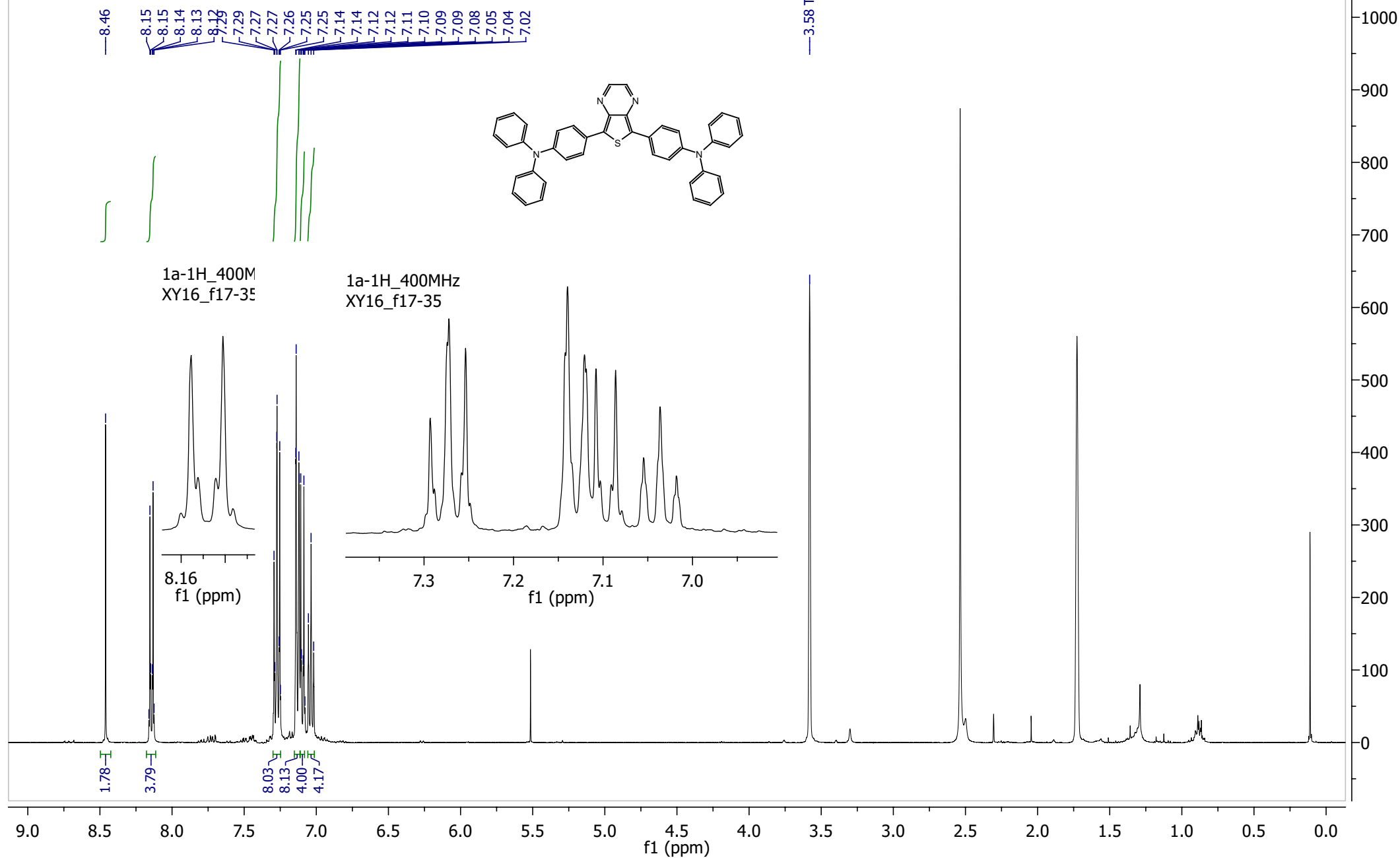


6. Copies of ^1H and ^{13}C NMR spectra of compounds **1a,b,c**

1a-1H_400MHz
XY16_f17-35

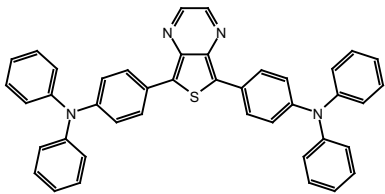
^1H NMR (400 MHz, THF) δ 8.46 (s, 2H), 8.18 – 8.11 (m, 4H), 7.30 – 7.25 (m, 8H), 7.15 – 7.11 (m, 8H), 7.11 – 7.08 (m, 4H), 7.06 – 7.01 (m, 4H).

3.58 Tetrahydrofuran-d8



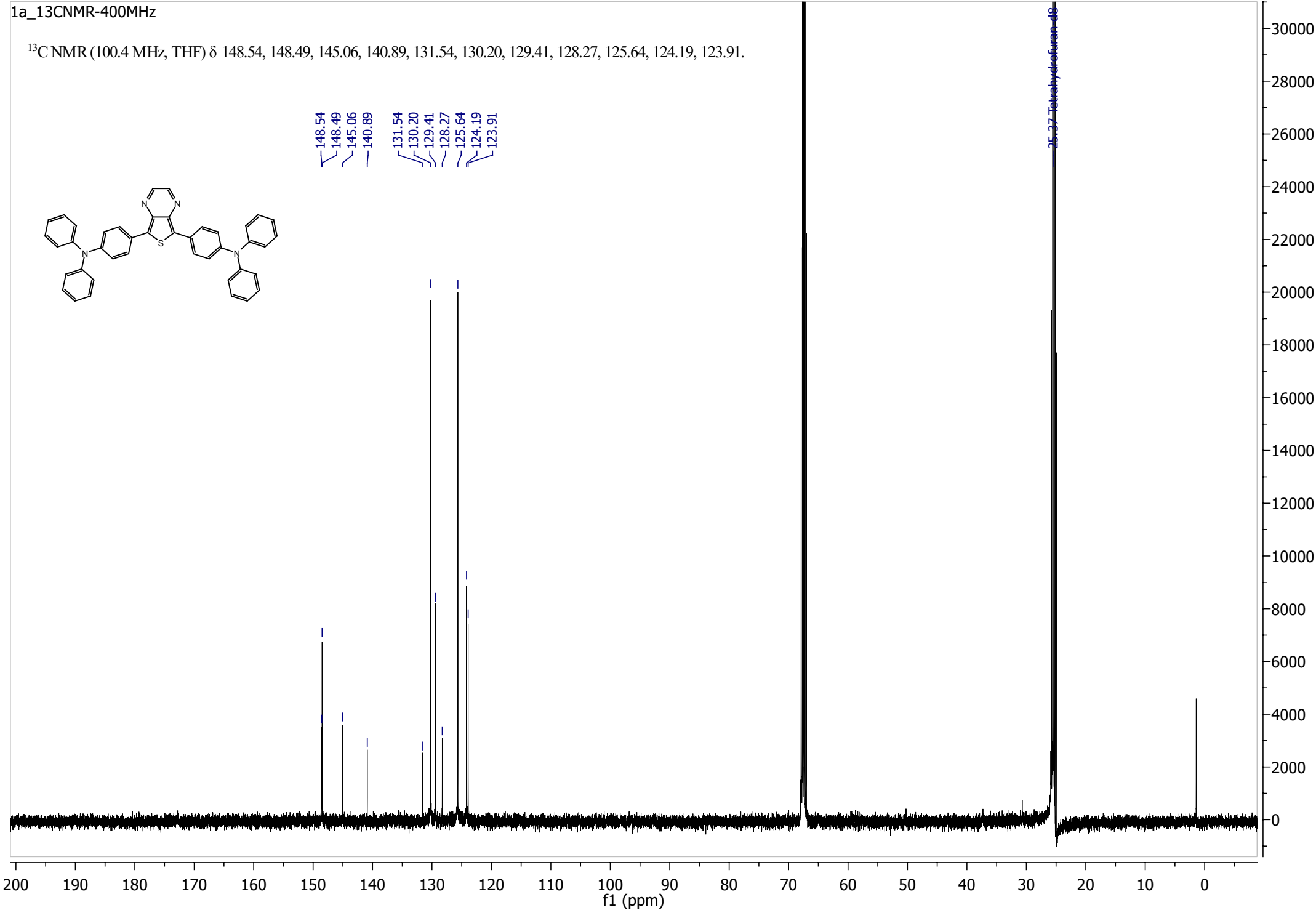
1a_13CNMR-400MHz

^{13}C NMR (100.4 MHz, THF) δ 148.54, 148.49, 145.06, 140.89, 131.54, 130.20, 129.41, 128.27, 125.64, 124.19, 123.91.



148.54
148.49
145.06
140.89
131.54
130.20
129.41
128.27
125.64
124.19
123.91

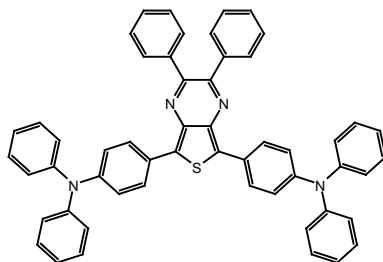
25.37 Tetrahydrofuran-d8



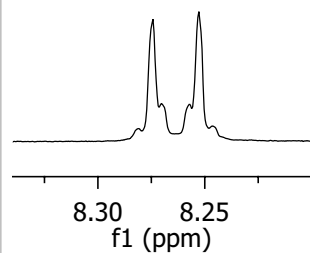
1b_ricristal_THF_400MHz

^1H NMR (400 MHz, THF) δ 8.30 – 8.22 (m, 4H), 7.56 – 7.48 (m, 4H), 7.32 – 7.24 (m, 14H), 7.16 – 7.12 (m, 8H), 7.12 – 7.08 (m, 4H), 7.06 – 7.01 (m, 4H).

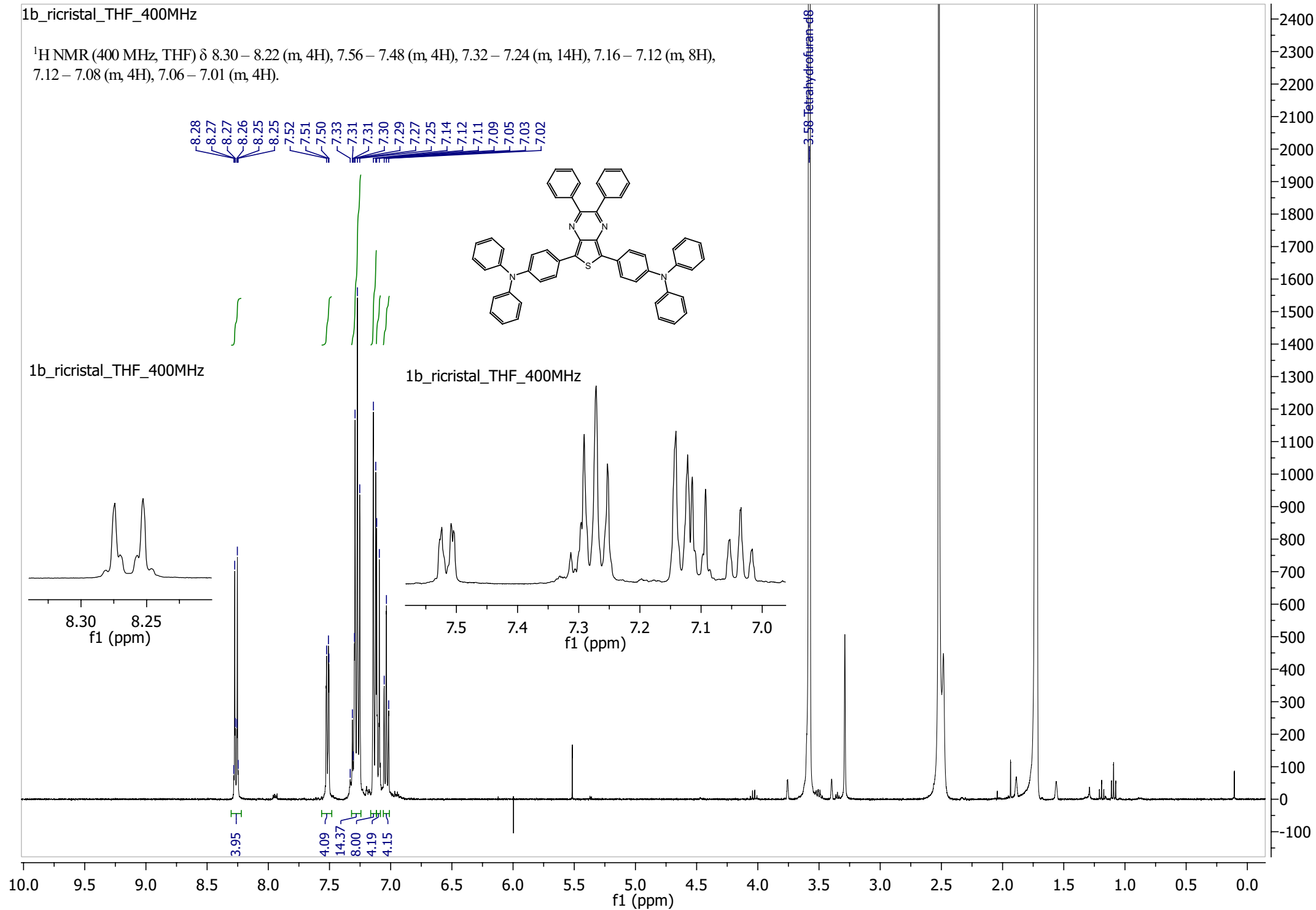
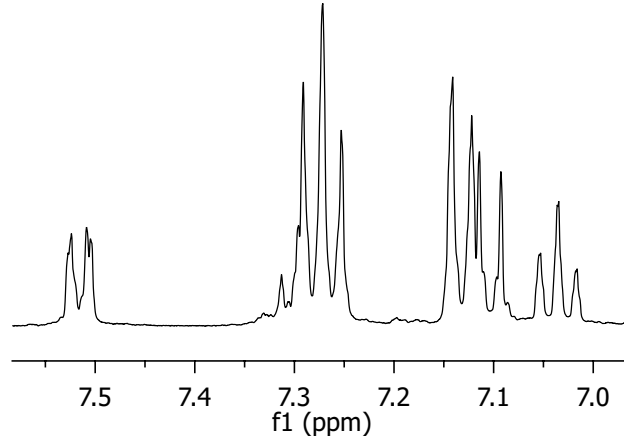
8.28
8.27
8.27
8.26
8.25
8.25
7.52
7.51
7.50
7.33
7.31
7.31
7.30
7.29
7.27
7.25
7.14
7.12
7.11
7.09
7.05
7.03
7.02



1b_ricristal_THF_400MHz

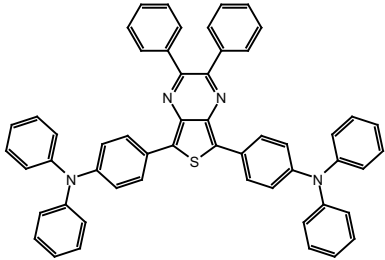


1b_ricristal_THF_400MHz

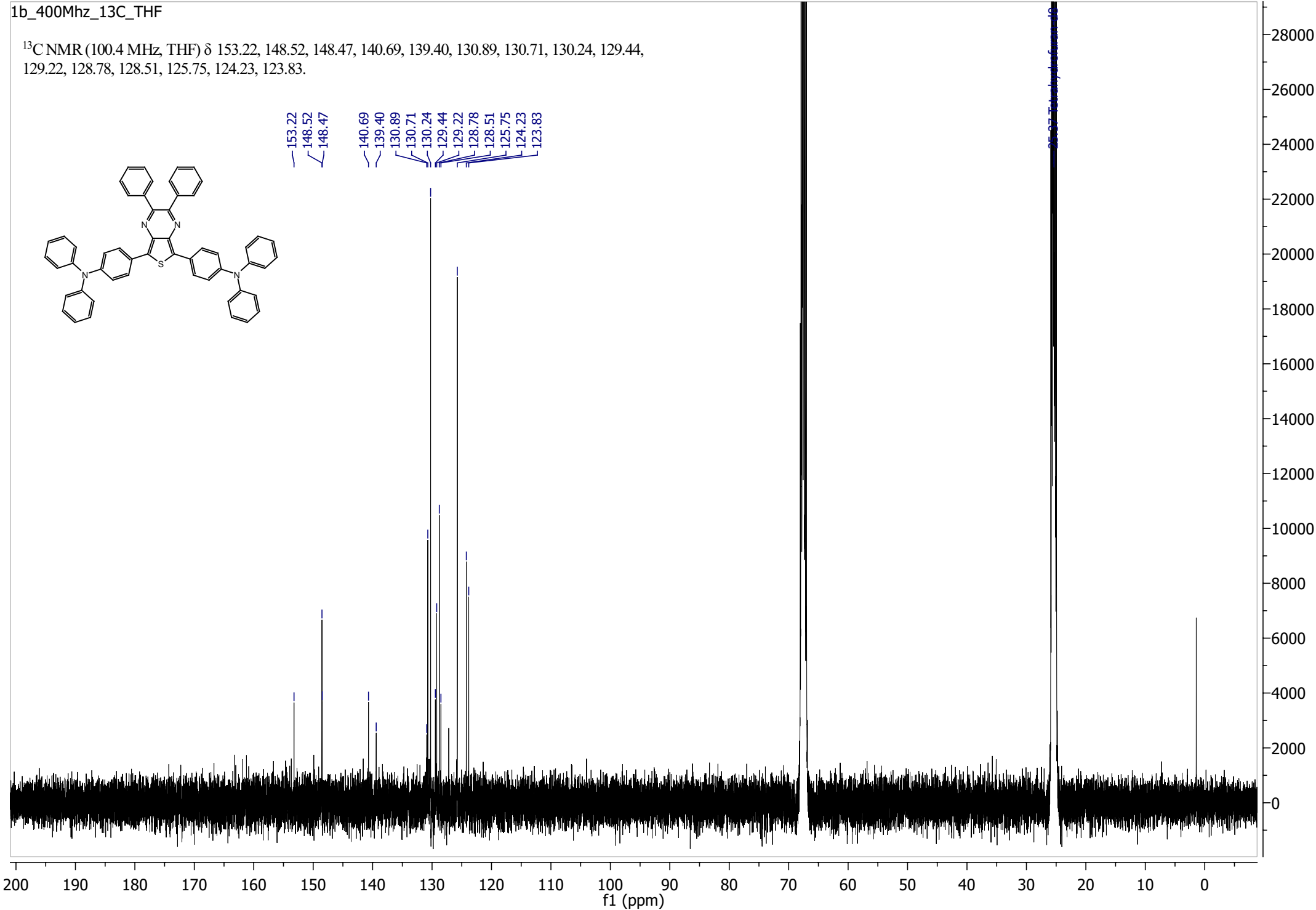


1b_400Mhz_13C_THF

¹³C NMR (100.4 MHz, THF) δ 153.22, 148.52, 148.47, 140.69, 139.40, 130.89, 130.71, 130.24, 129.44, 129.22, 128.78, 128.51, 125.75, 124.23, 123.83.

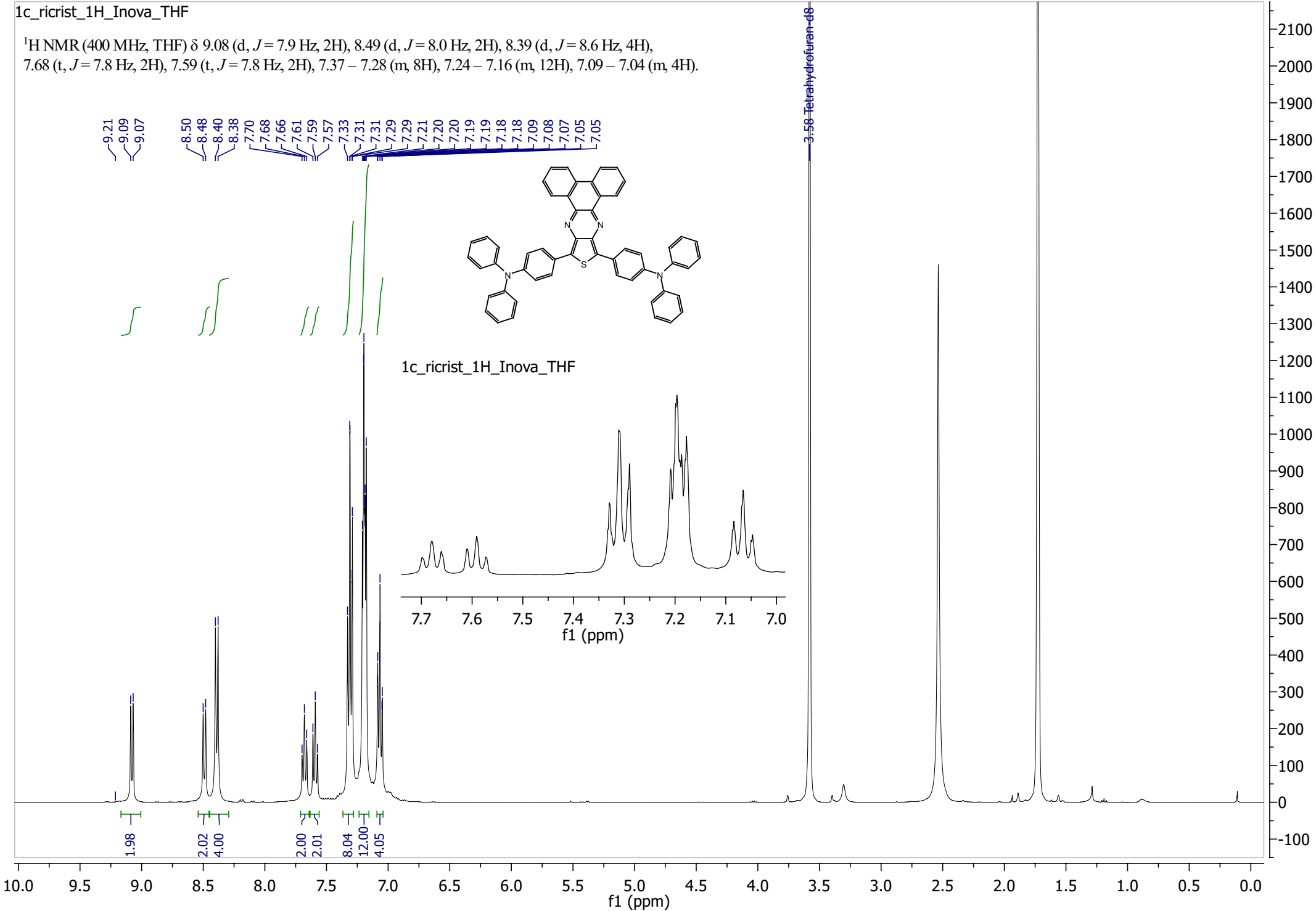


153.22
148.52
148.47
140.69
139.40
130.89
130.71
130.24
129.44
129.22
128.78
128.51
125.75
124.23
123.83



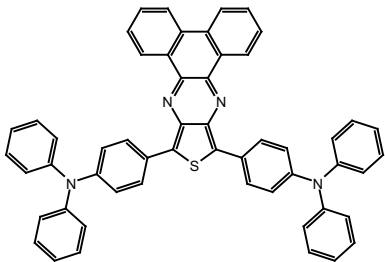
1c_ricrist_1H_Inova_THF

¹H NMR (400 MHz, THF) δ 9.08 (d, *J* = 7.9 Hz, 2H), 8.49 (d, *J* = 8.0 Hz, 2H), 8.39 (d, *J* = 8.6 Hz, 4H), 7.68 (t, *J* = 7.8 Hz, 2H), 7.59 (t, *J* = 7.8 Hz, 2H), 7.37 – 7.28 (m, 8H), 7.24 – 7.16 (m, 12H), 7.09 – 7.04 (m, 4H).



1c_13CNMR-400MHz

¹³C NMR (100 MHz, THF) δ 149.90, 148.60, 148.46, 143.04, 140.44, 133.55, 131.84, 131.48, 130.53, 130.28, 129.31, 128.93, 127.22, 127.10, 125.79, 124.24, 124.07.



149.90
148.60
148.46
143.04
140.44
133.55
131.84
131.48
130.53
130.28
129.31
128.93
127.22
127.10
125.79
124.24
124.07

