Supplementary information

Convenient One-Step Construction of Fused- or Zwitterionic Indanes from Tetraynes

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1. Crystallographic data of **2k** and **3e**

Table 1 Crystal data and structure refinement of **2k** and **3e**

Crystal data	**2k**	**3e**
Empirical formula	$C_{90}H_{78}N_2O_8$	$C_{29}H_{24}O_6Cl_2S$
Formula weight	1315.54	571.44
Temperature/K	273.15	273.15
Crystal system	monoclinic	monoclinic
Space group	$P2_1/n$	$P2_1/c$
a (Å)	22.9592(9)	20.9343(11)
b (Å)	9.5176(4)	15.0713(8)
c (Å)	33.7688(13)	9.1726(5)
α (deg)	90	90
β (deg)	100.575(2)	93.192(2)
γ (deg)	90	90
Volume/Å^3	7253.7(5)	2889.5(3)
Z	4	4
ρ_{calc} (mg/m^3)	1.205	1.314
μ(mm^{-1})	0.602	3.031
F(000)	2784.0	1184.0
θ range (°)	4.312 - 136.83	11.306 - 136.988
Reflections collected	95633	42479
Independent reflections	13154	5279
R_{int}	0.0781	0.0537
Data/restraints/parameters	13154/0/910	5279/0/350
Goodness of fit on F^2	1.013	1.043
R_1, wR_2 [$I>2\sigma(I)$]	0.0656, 0.1279	0.0567, 0.1717
R_1, wR_2 (all data)	0.1322, 0.1518	0.0663, 0.1786
$\Delta\rho_{max}$, $\Delta\rho_{min}$ (e.Å^{-3})	0.21 and -0.16	0.50 and -0.45

2. ^{1}H NMR and ^{13}C NMR of **2a**-**2o** and **3a**-**3o**

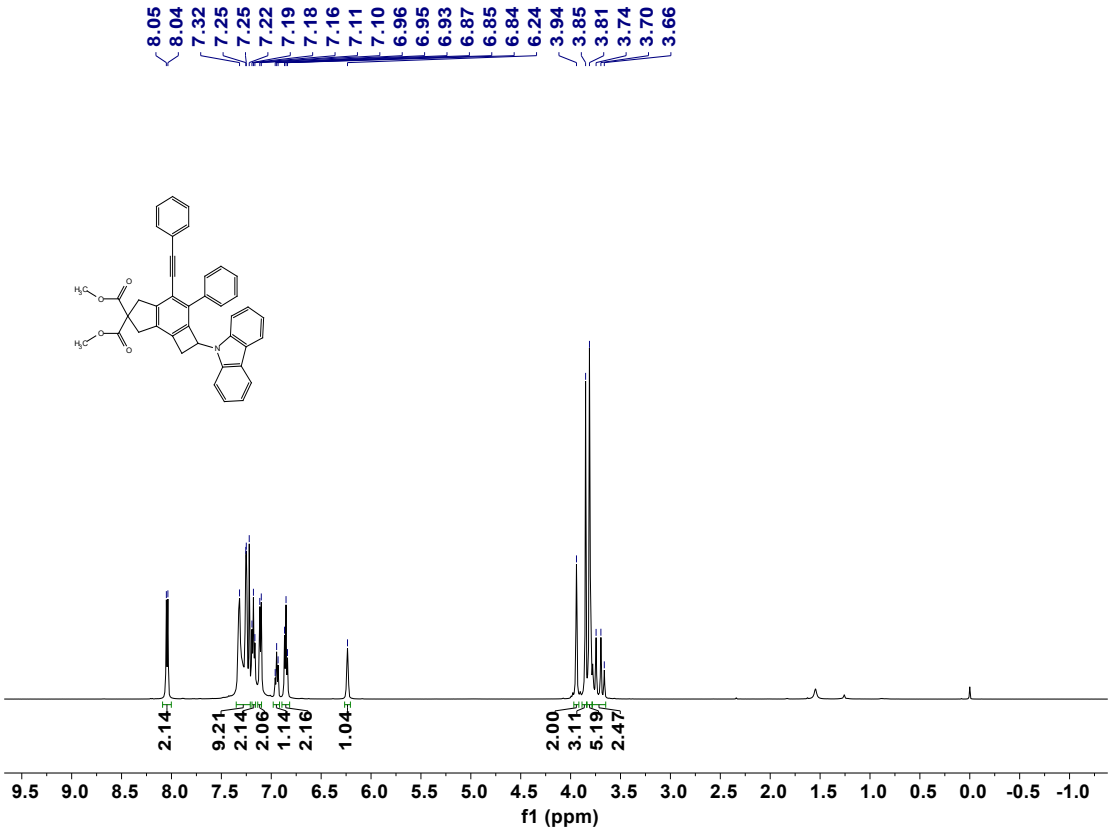

Figure 1 ^{1}H NMR spectrum of **2a** (500 MHz, $CDCl_3$).

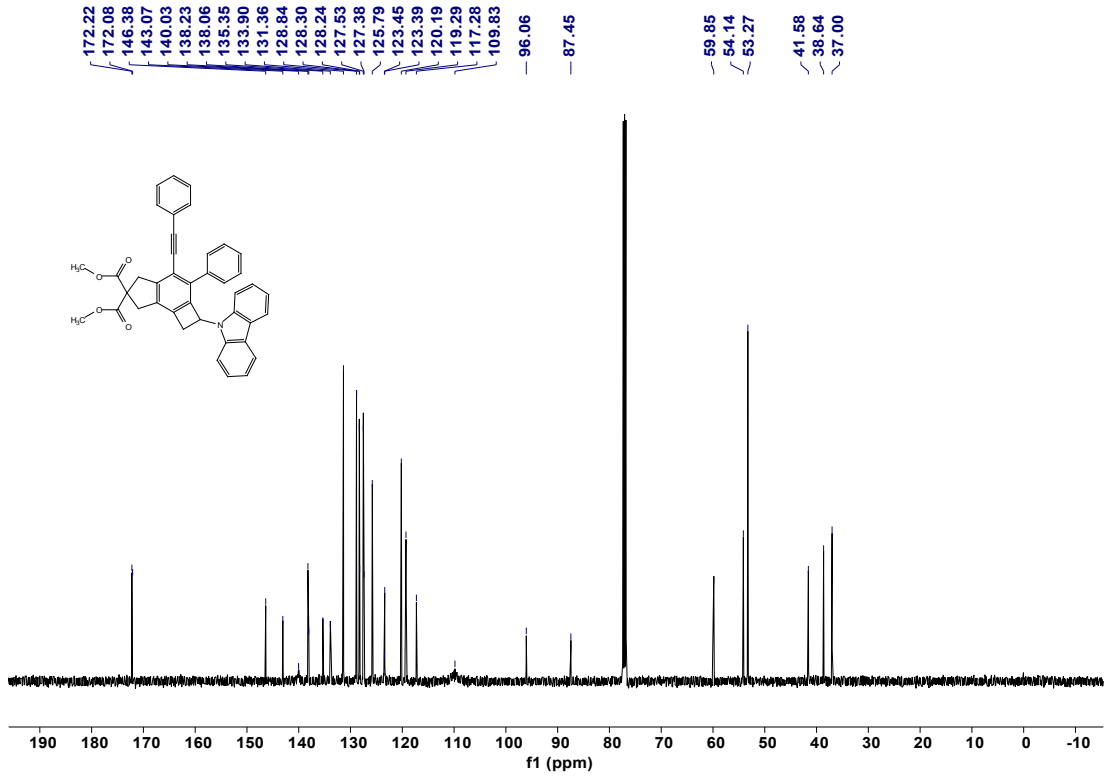

Figure 2 ^{13}C NMR spectrum of **2a** (125 MHz, $CDCl_3$).

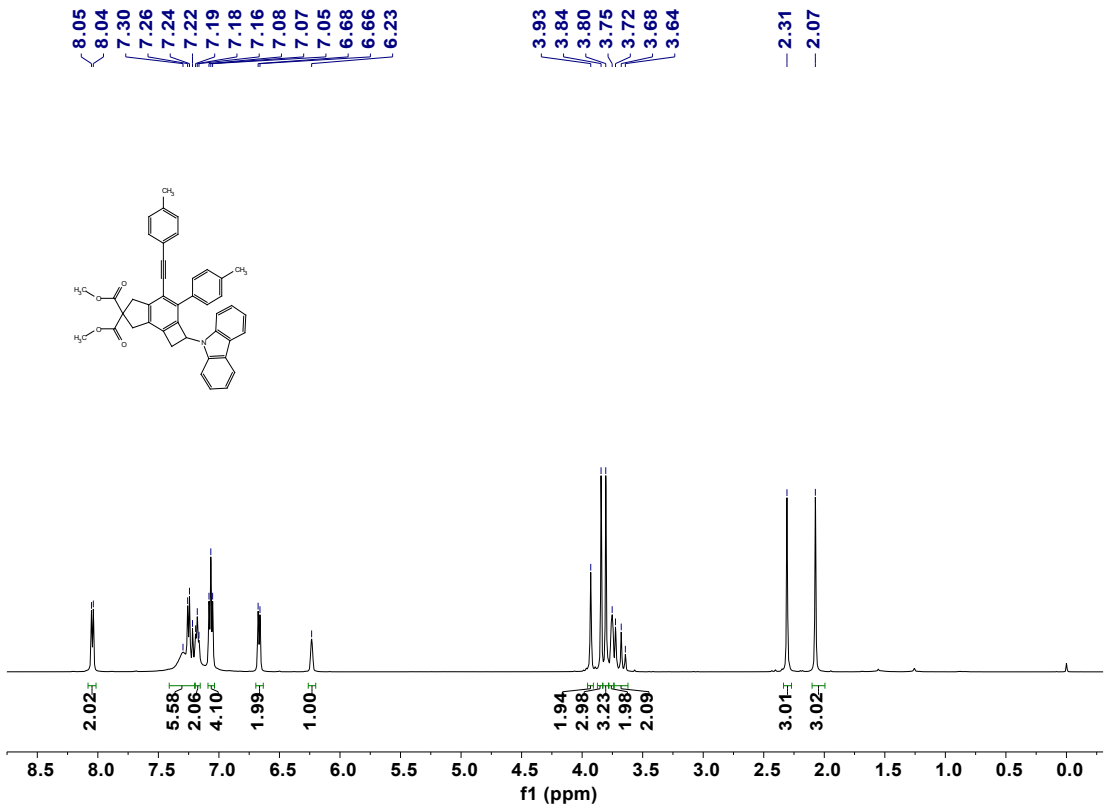

Figure 3 ^{1}H NMR spectrum of **2b** (500 MHz, $CDCl_3$).

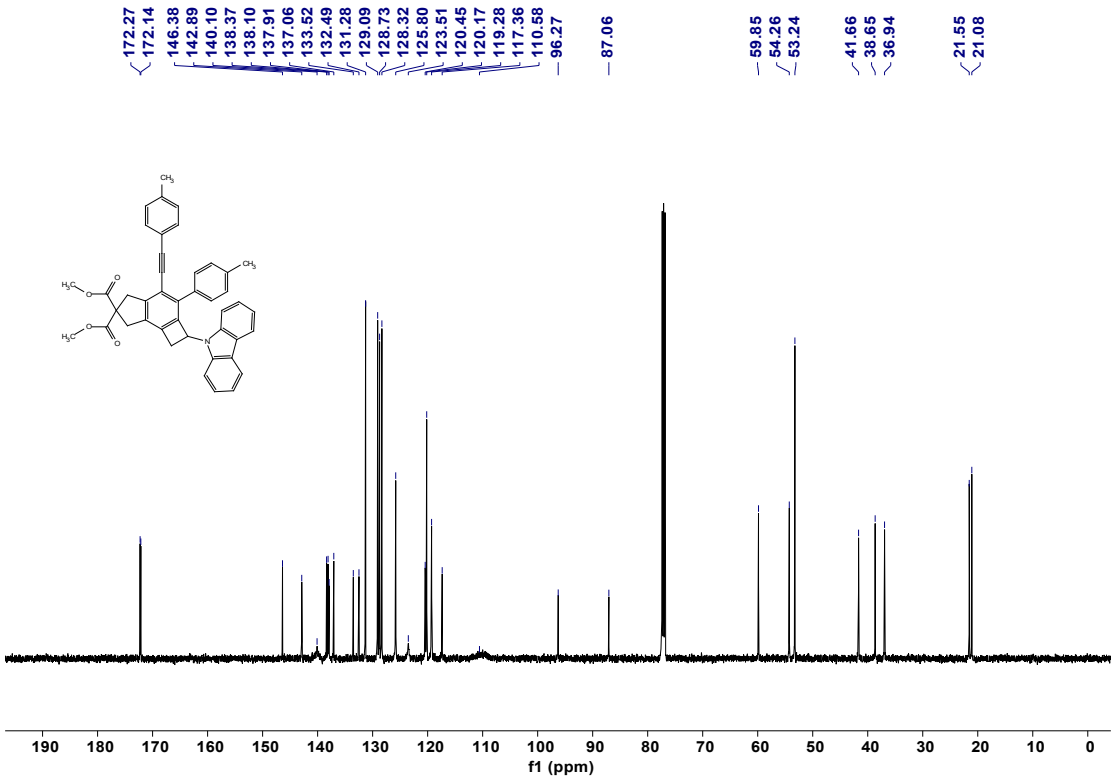

Figure 4 ^{13}C NMR spectrum of **2b** (125 MHz, $CDCl_3$).

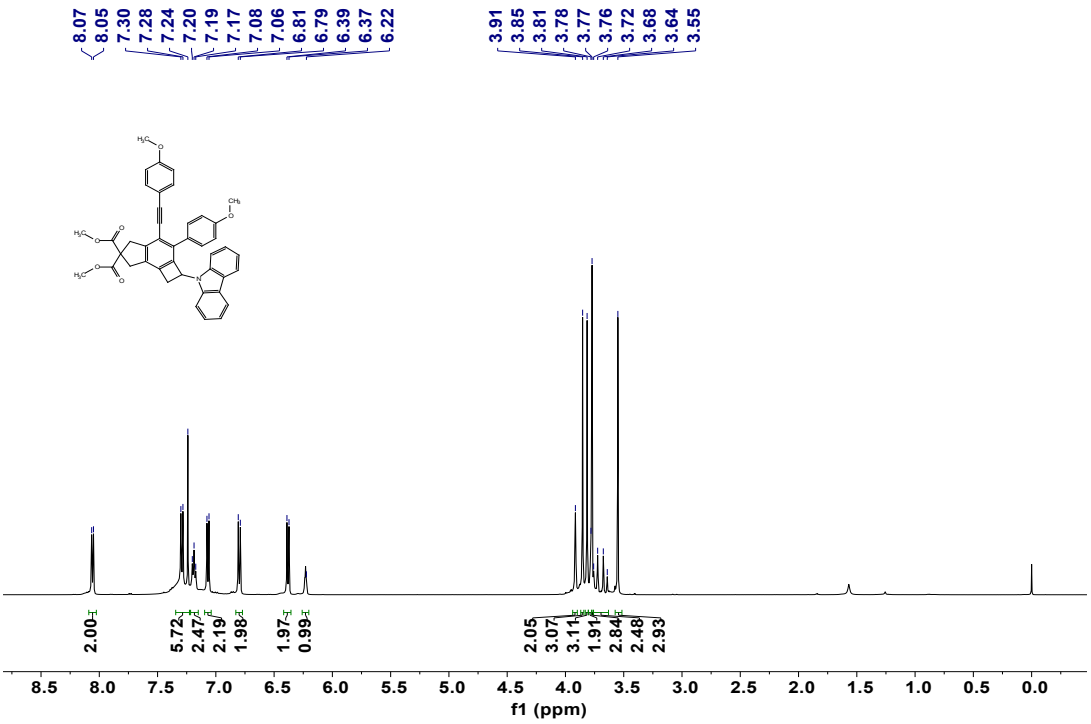

Figure 5 ^{1}H NMR spectrum of **2c** (500 MHz, $CDCl_3$).

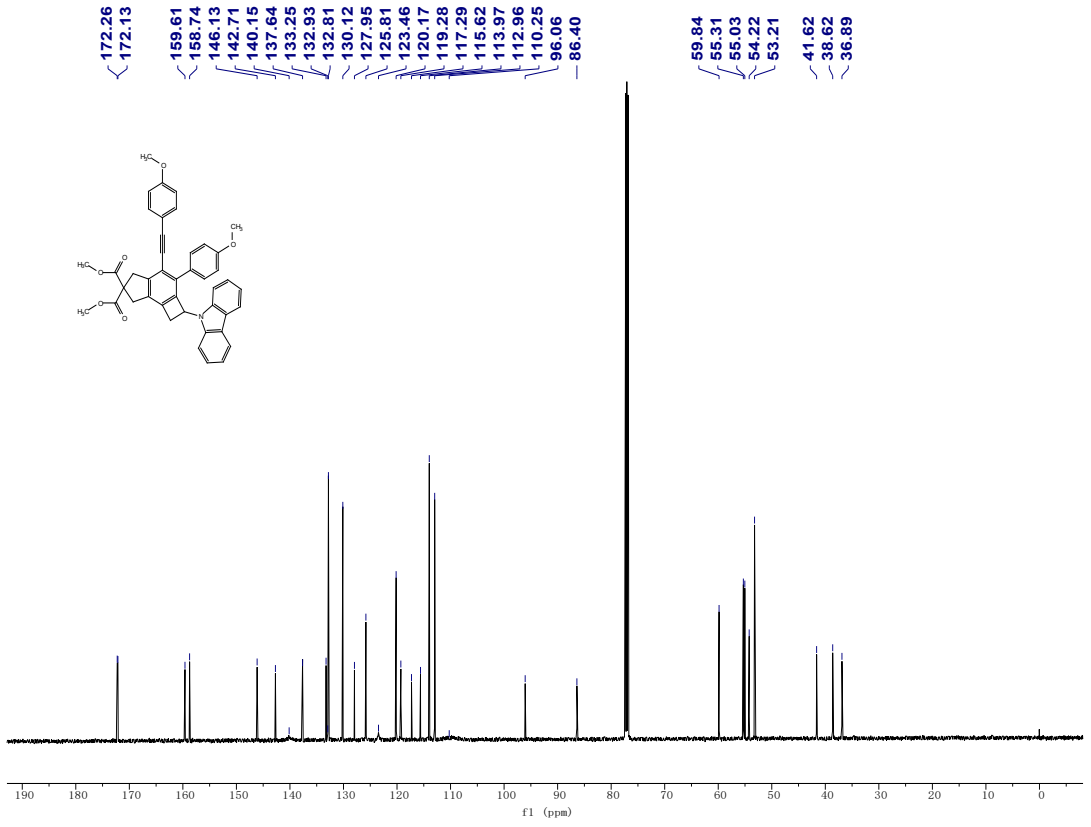

Figure 6 ^{13}C NMR spectrum of **2c** (125 MHz, $CDCl_3$).

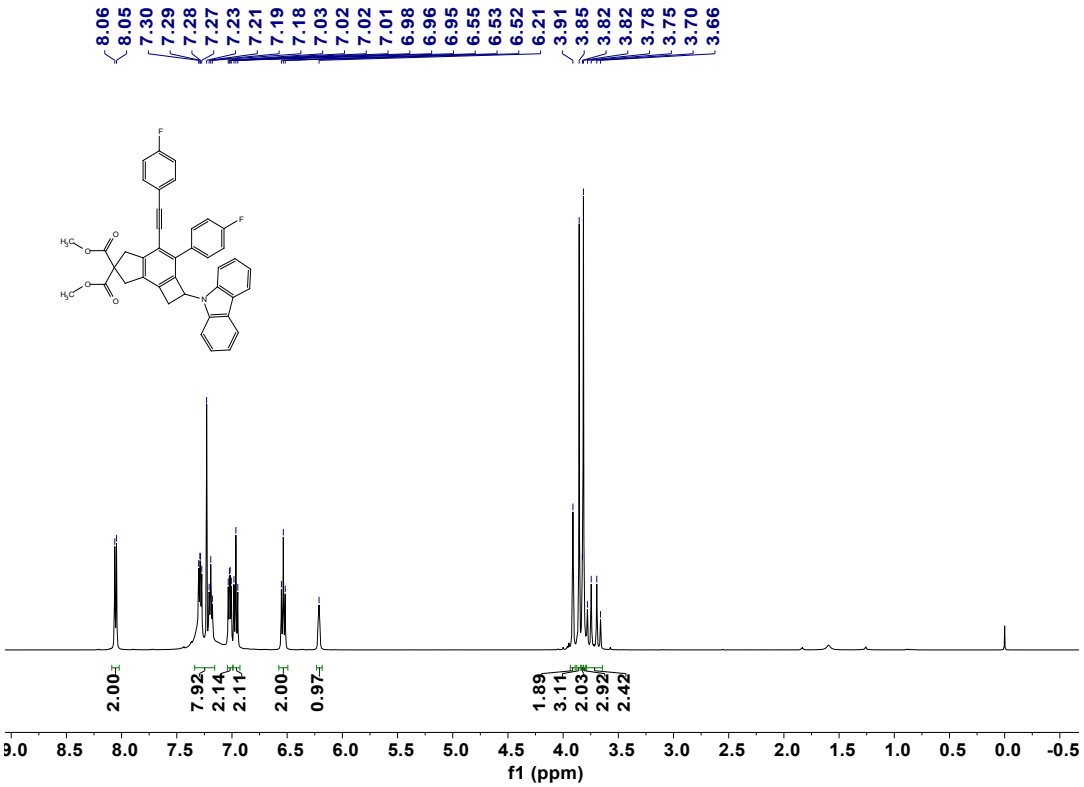

Figure 7 ^{1}H NMR spectrum of **2d** (500 MHz, $CDCl_3$).

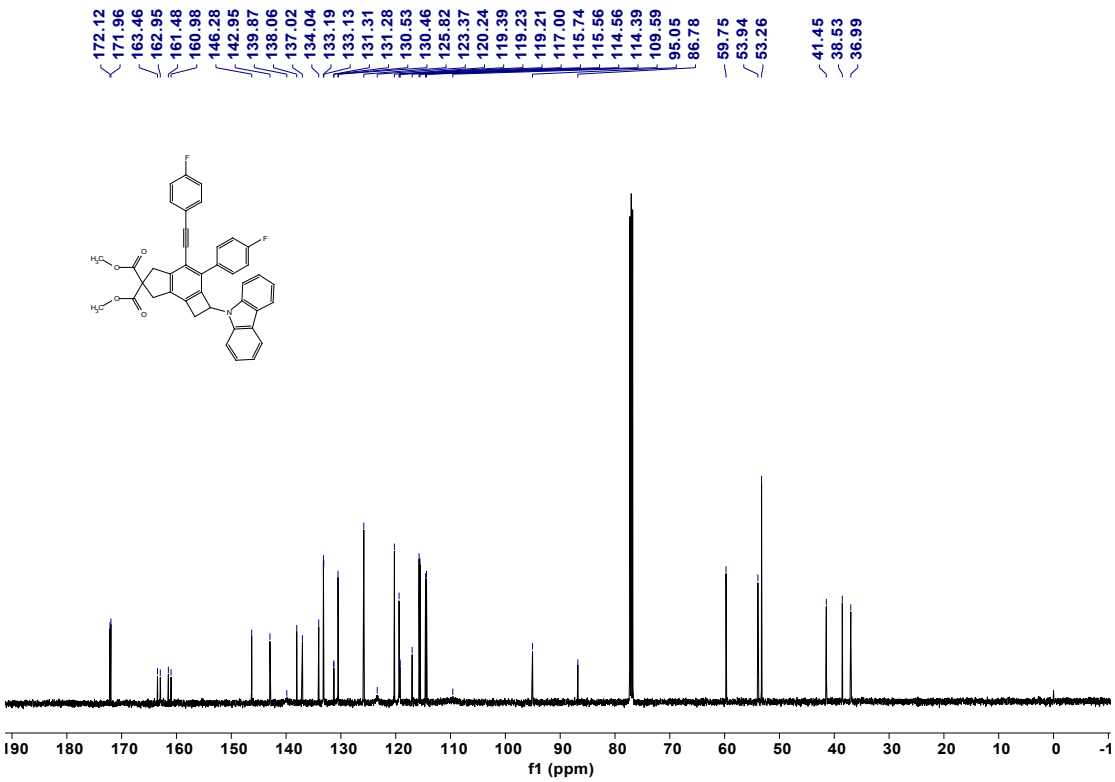

Figure 8 ^{13}C NMR spectrum of **2d** (125 MHz, $CDCl_3$).

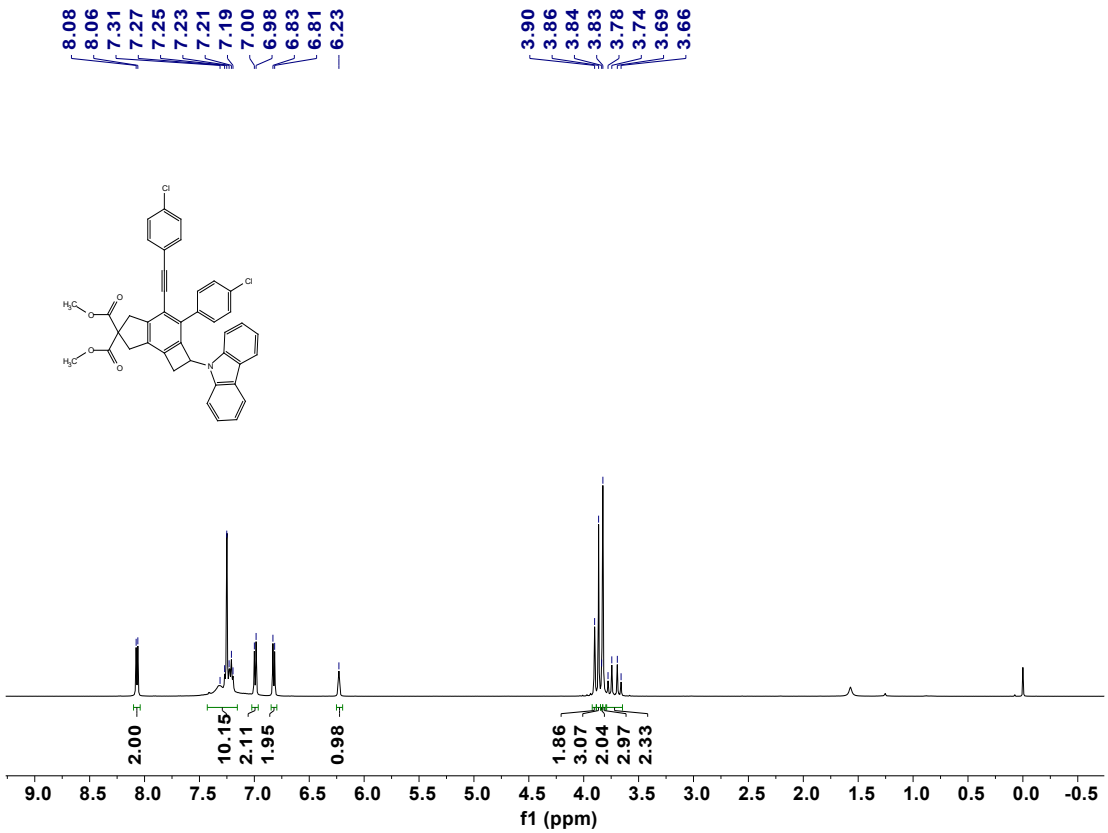

Figure 9 ^{1}H NMR spectrum of **2e** (500 MHz, $CDCl_3$).

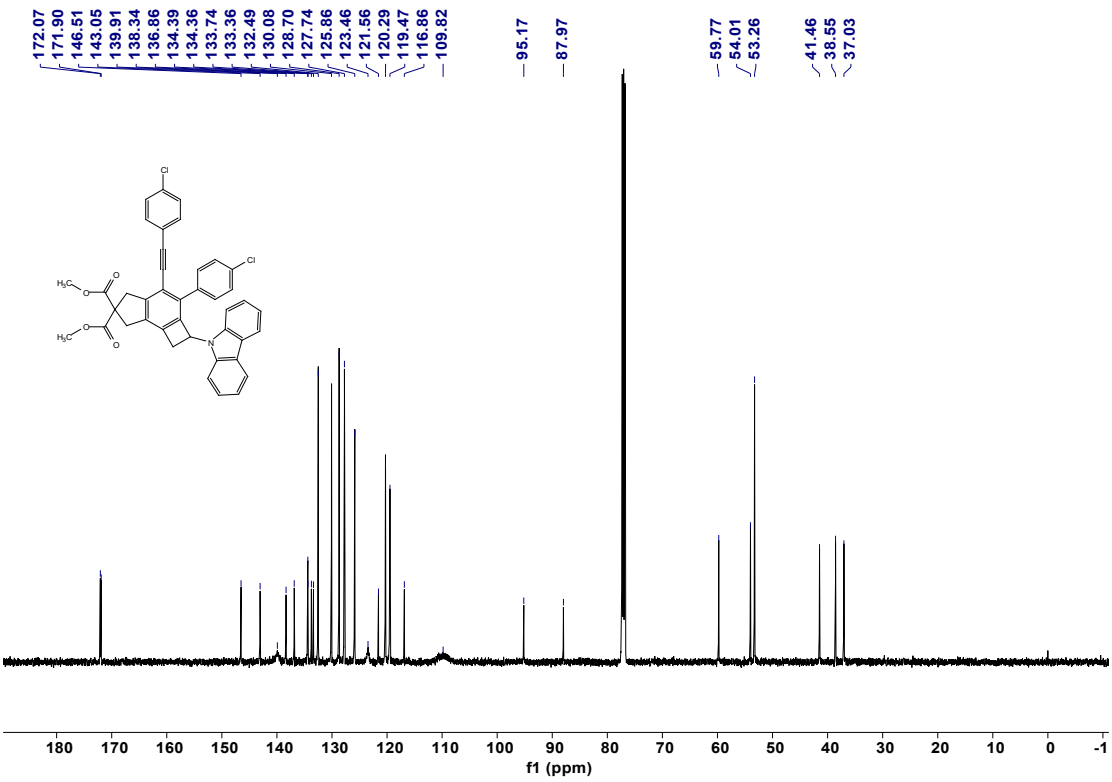

Figure 10 ^{13}C NMR spectrum of **2e** (125 MHz, $CDCl_3$).

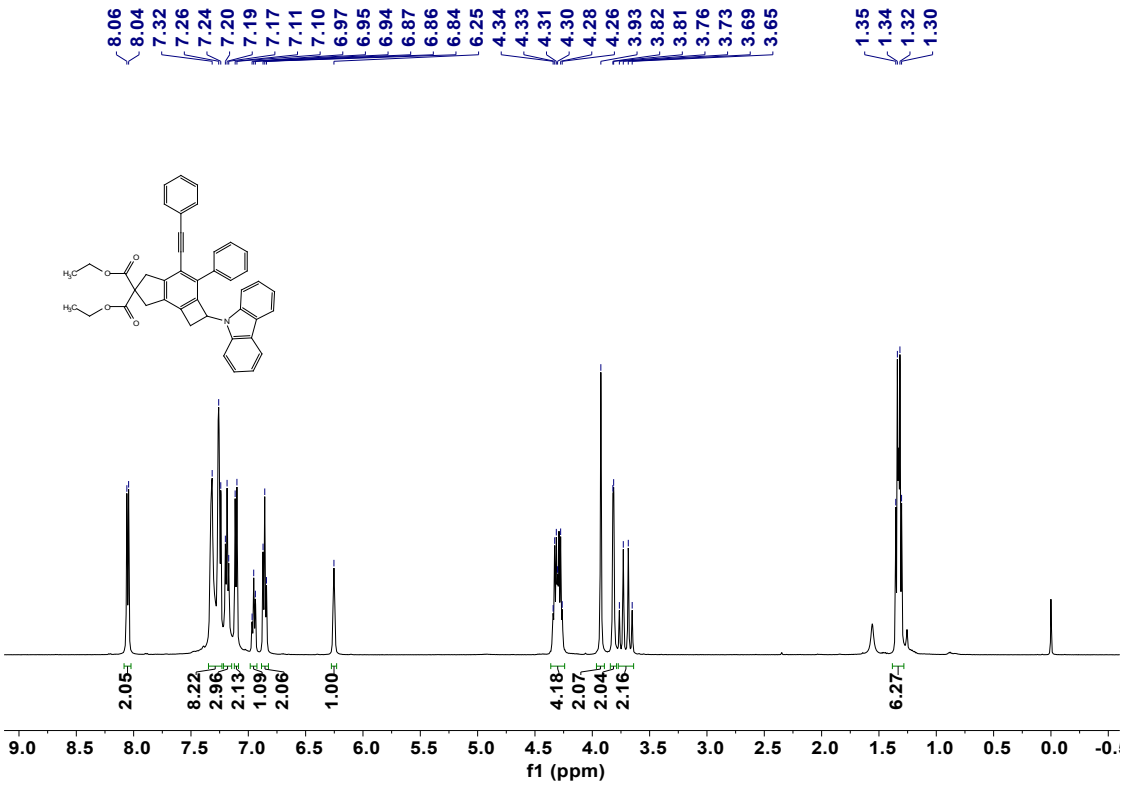

Figure 11 ^{1}H NMR spectrum of **2f** (500 MHz, $CDCl_3$).

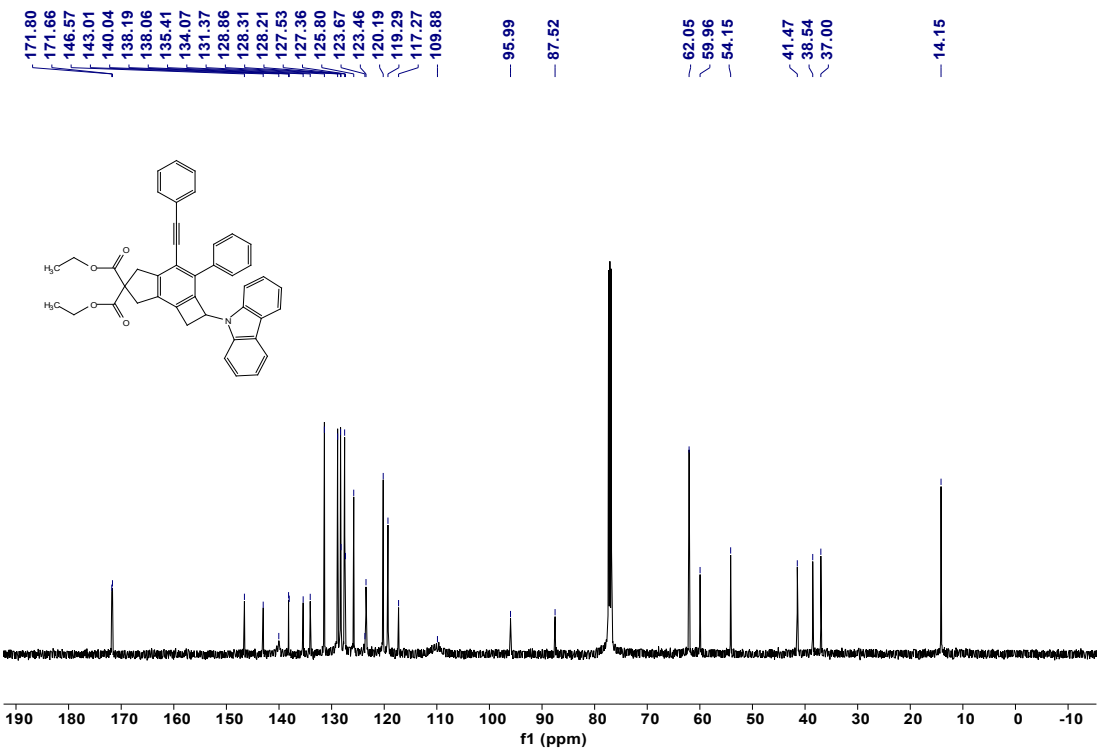

Figure 12 ^{13}C NMR spectrum of **2f** (125 MHz, $CDCl_3$).

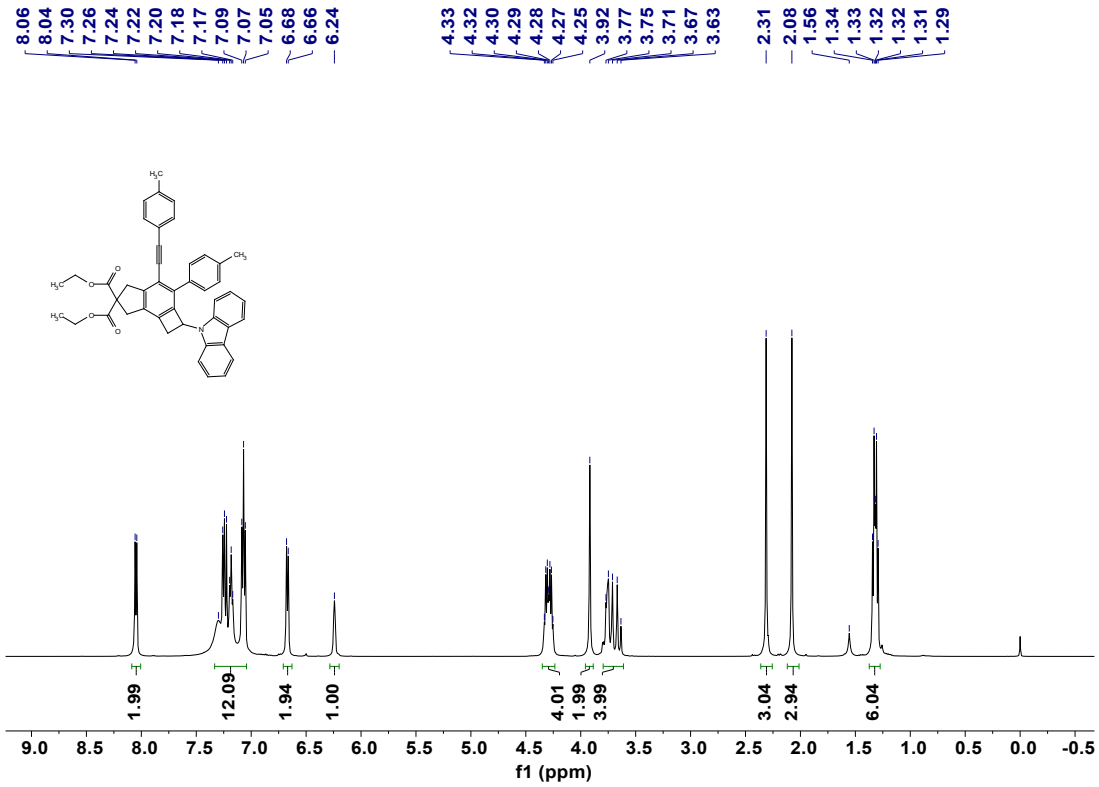

Figure 13 ^{1}H NMR spectrum of **2g** (500 MHz, $CDCl_3$).

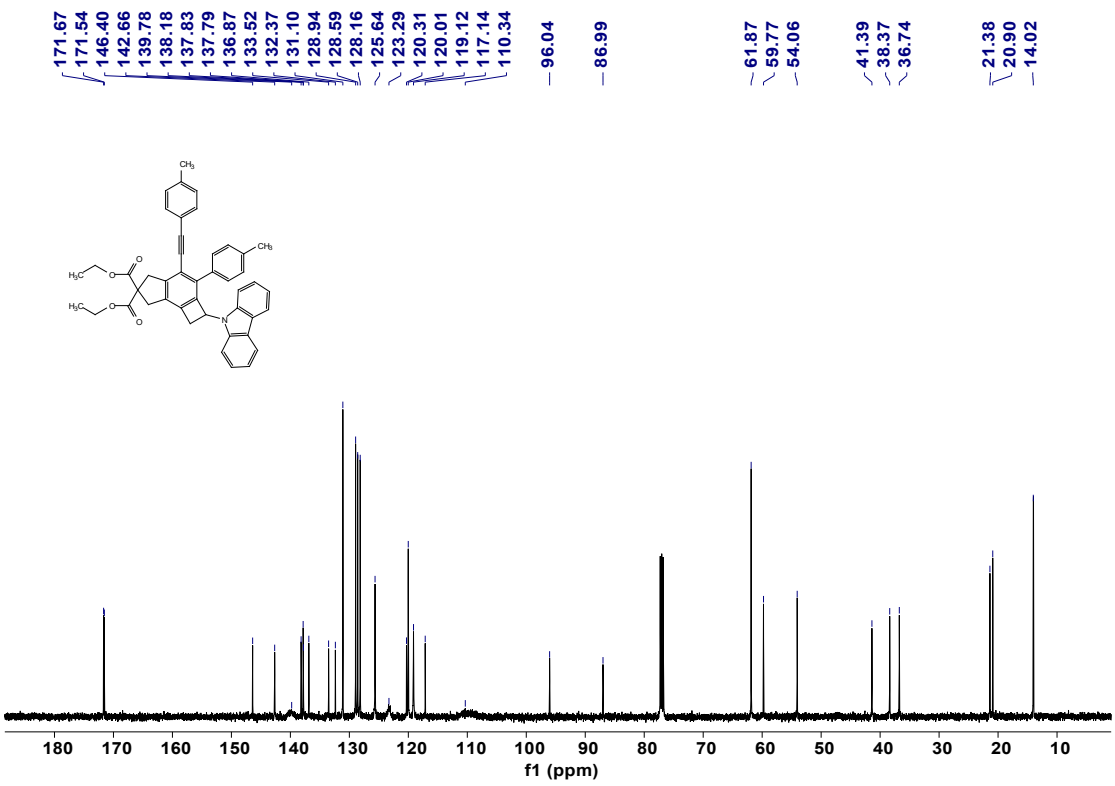

Figure 14 ^{13}C NMR spectrum of **2g** (125 MHz, $CDCl_3$).

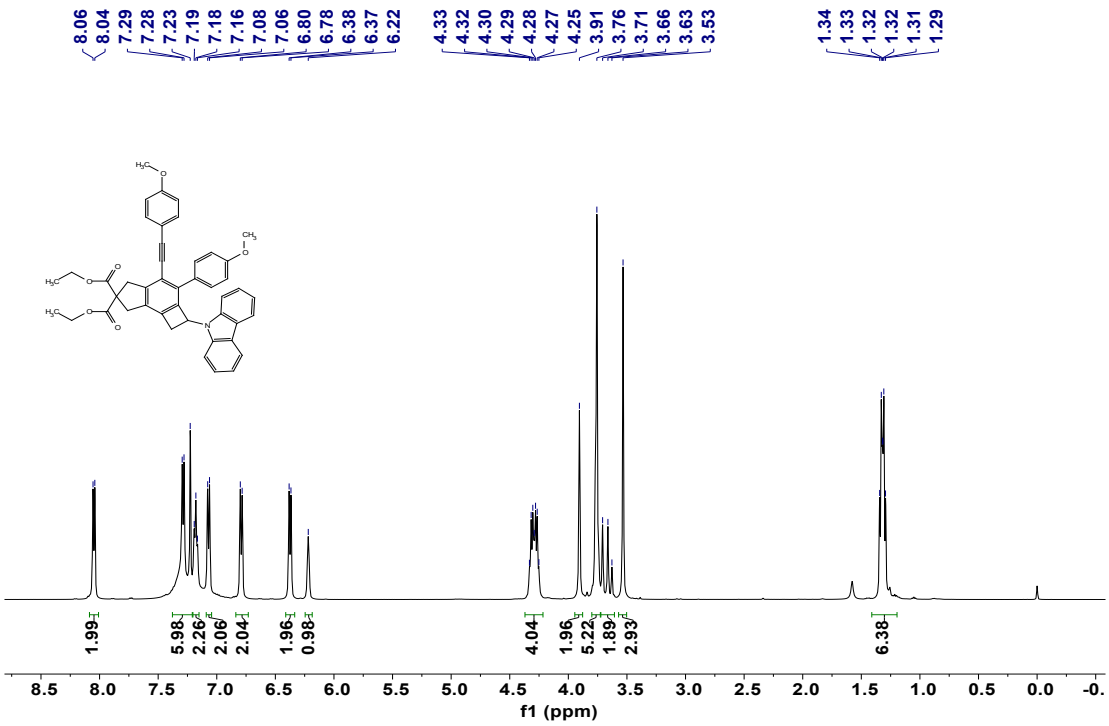

Figure 15 ^{1}H NMR spectrum of **2h** (500 MHz, $CDCl_3$).

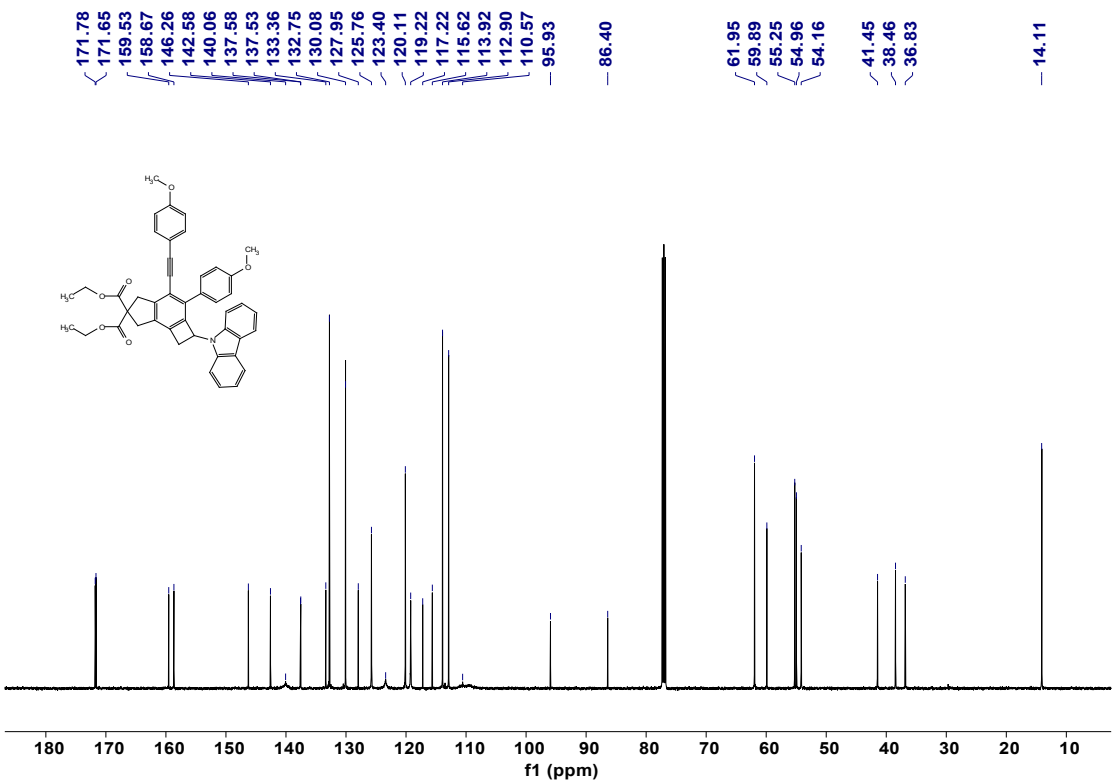

Figure 16 ^{13}C NMR spectrum of **2h** (125 MHz, $CDCl_3$).

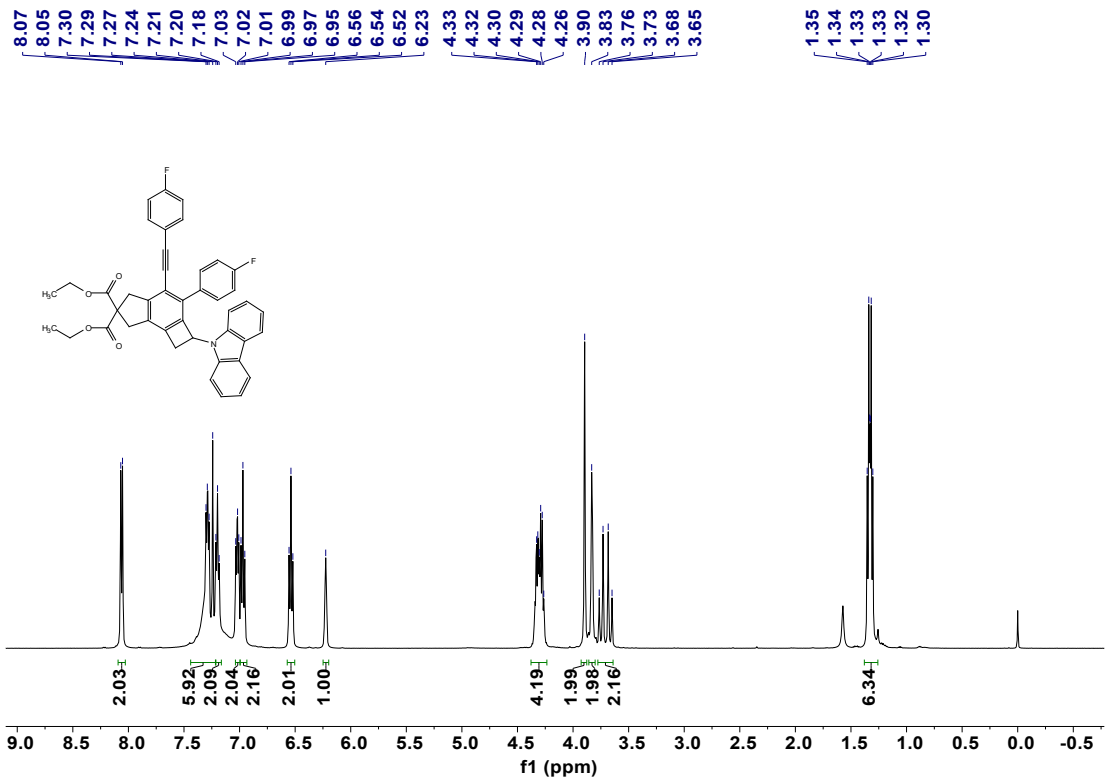

Figure 17 ^{1}H NMR spectrum of **2i** (500 MHz, $CDCl_3$).

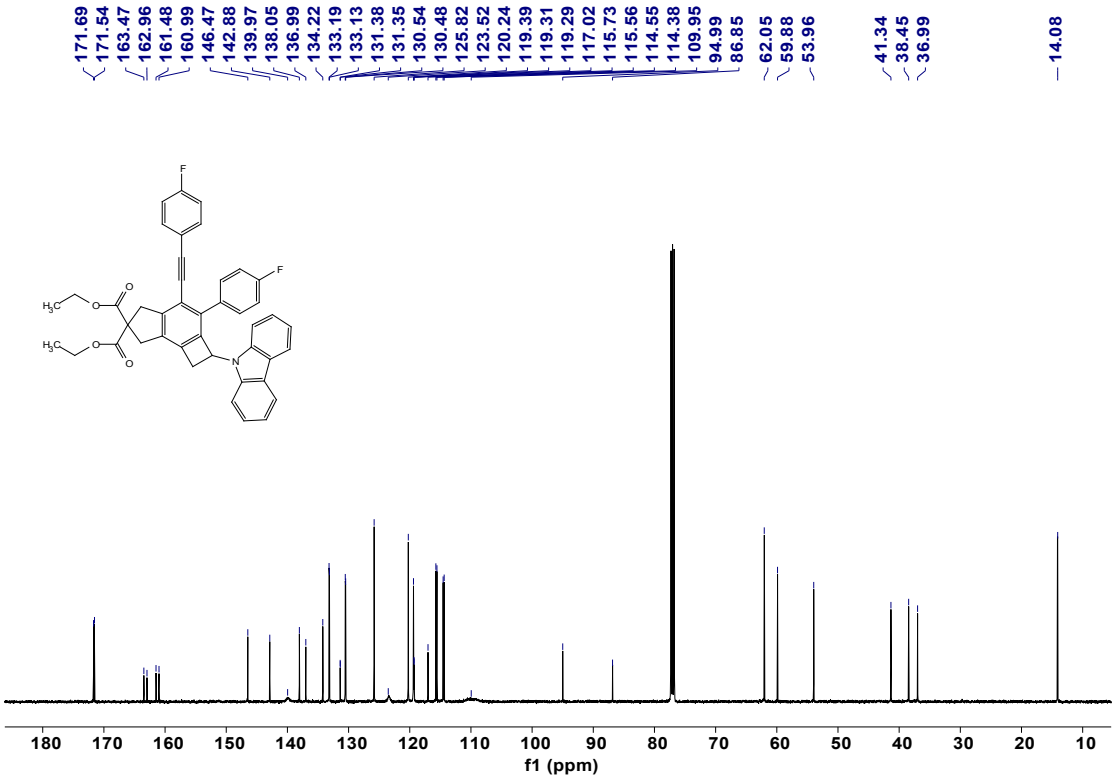

Figure 18 ^{13}C NMR spectrum of **2i** (125 MHz, $CDCl_3$).

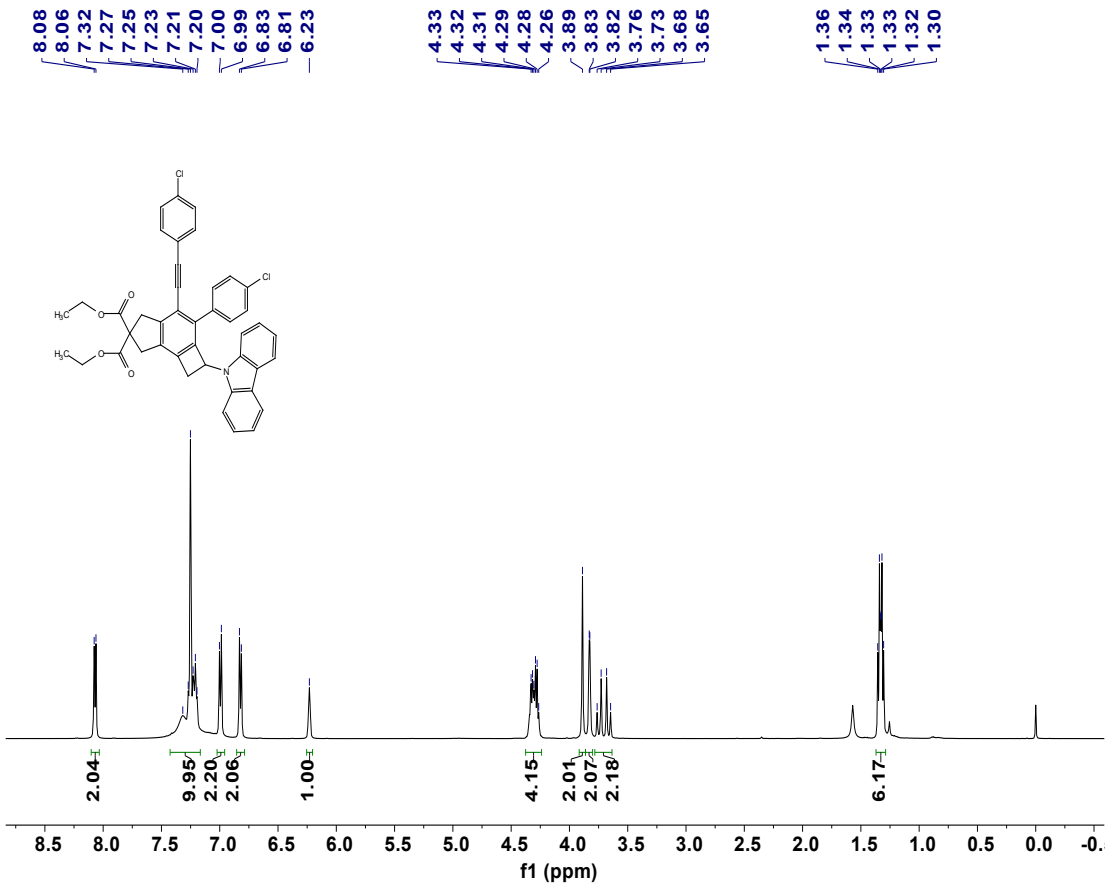

Figure 19 ^{1}H NMR spectrum of **2j** (500 MHz, $CDCl_3$).

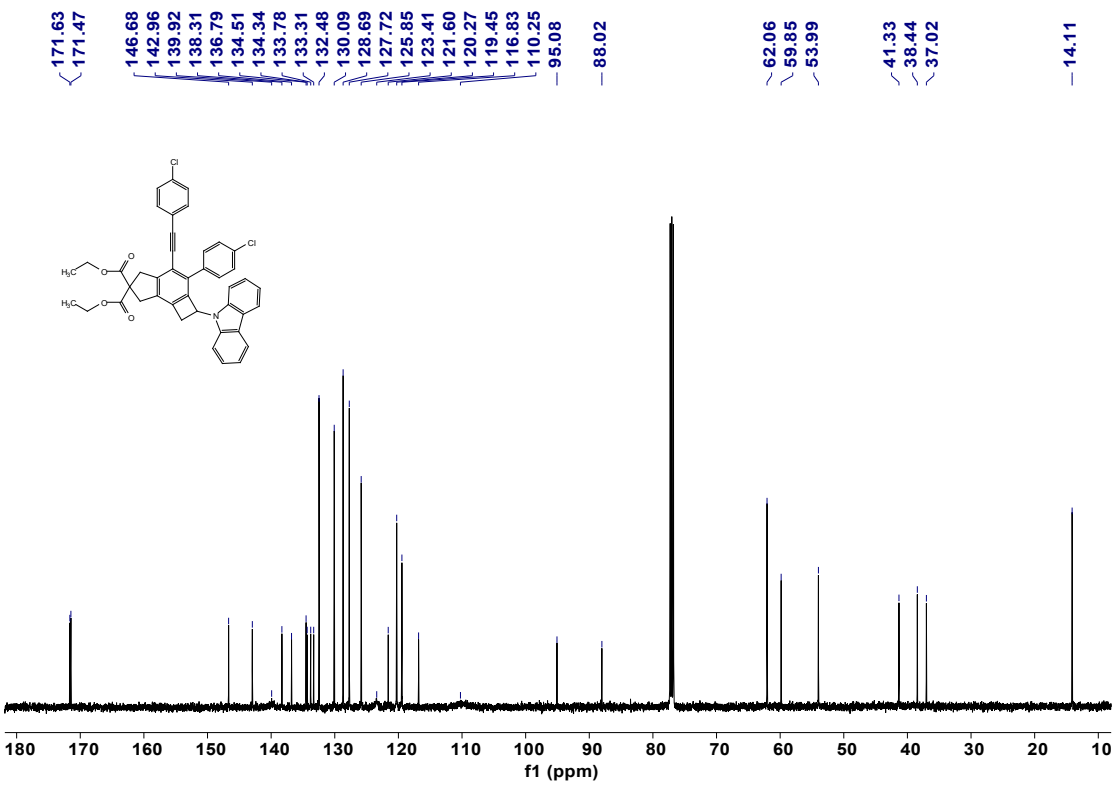

Figure 20 ^{13}C NMR spectrum of **2j** (125MHz, $CDCl_3$).

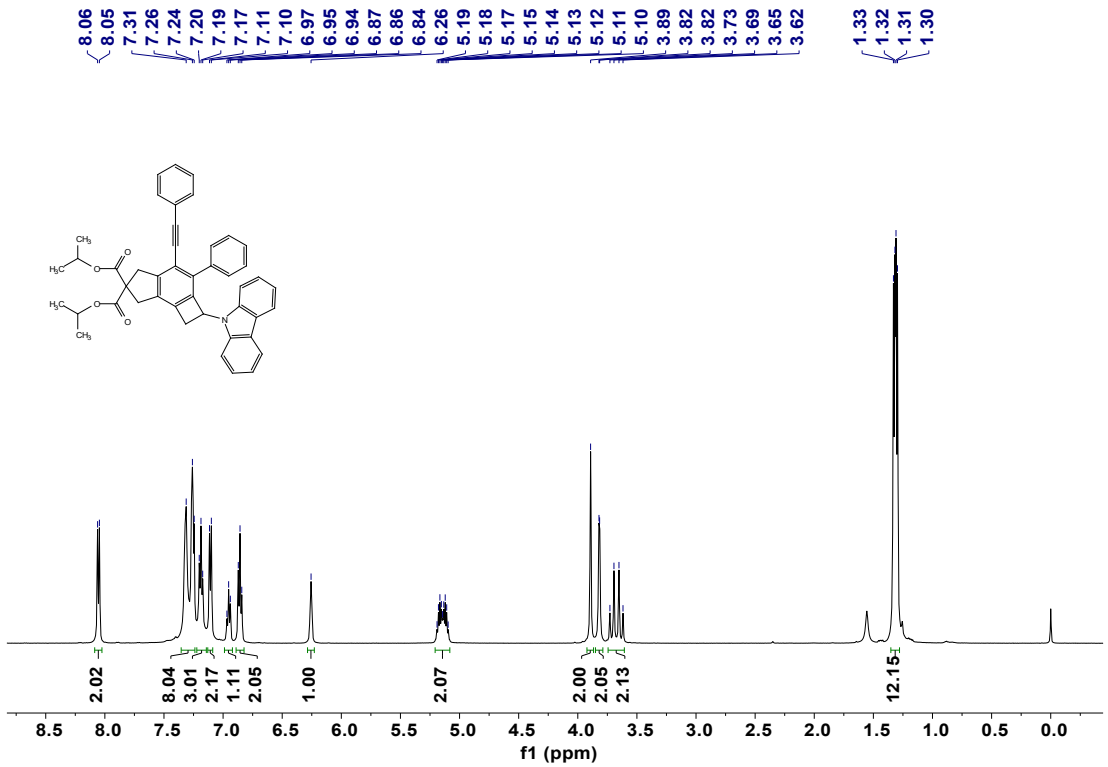

Figure 21 ^{1}H NMR spectrum of **2k** (500 MHz, $CDCl_3$).

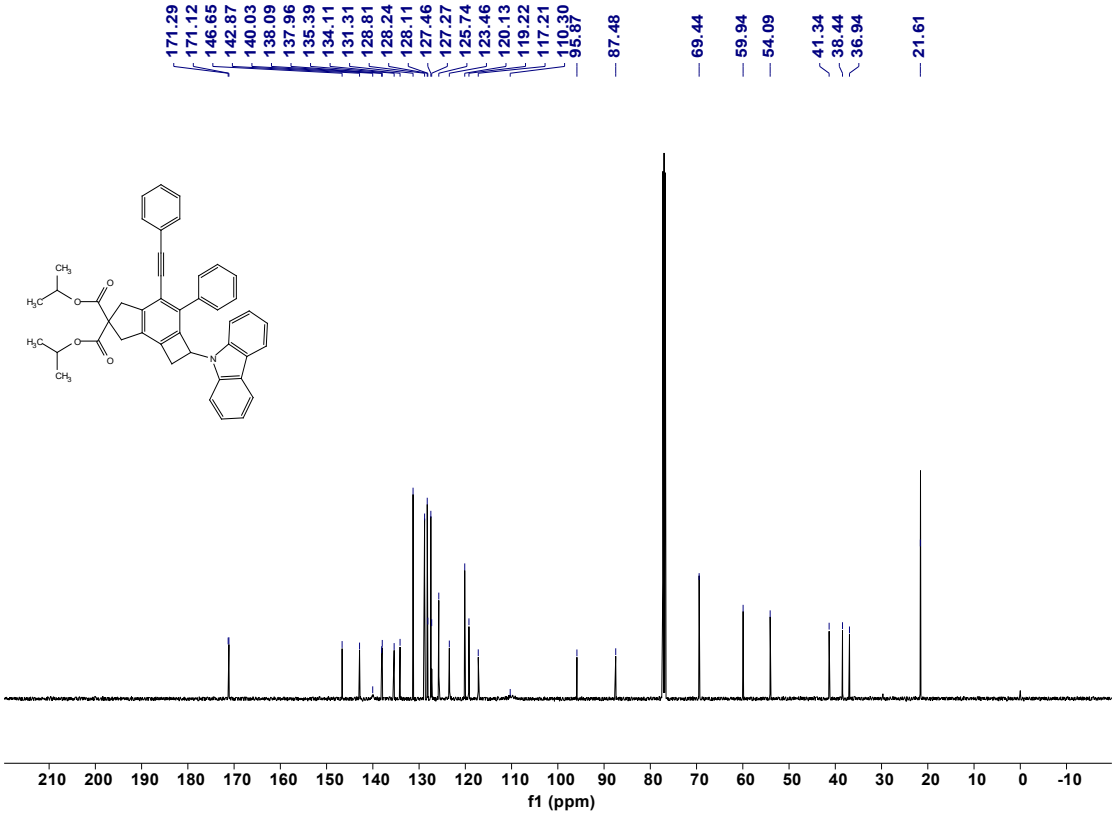

Figure 22 ^{13}C NMR spectrum of **2k** (125 MHz, $CDCl_3$).

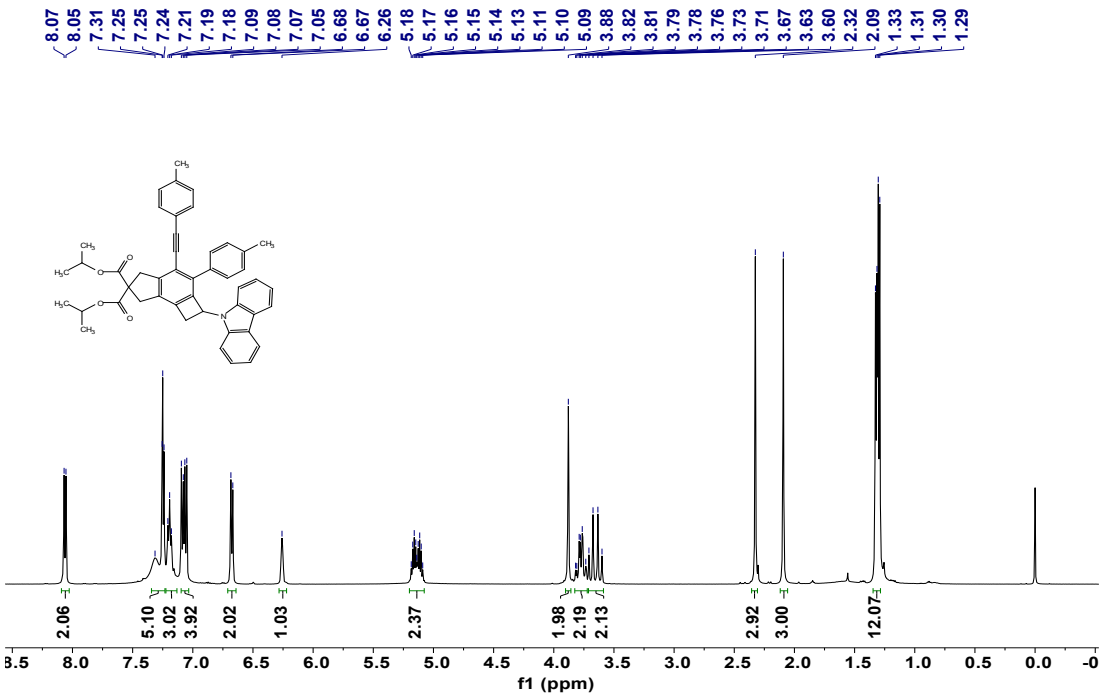

Figure 23 ^{1}H NMR spectrum of **2l** (500 MHz, $CDCl_3$).

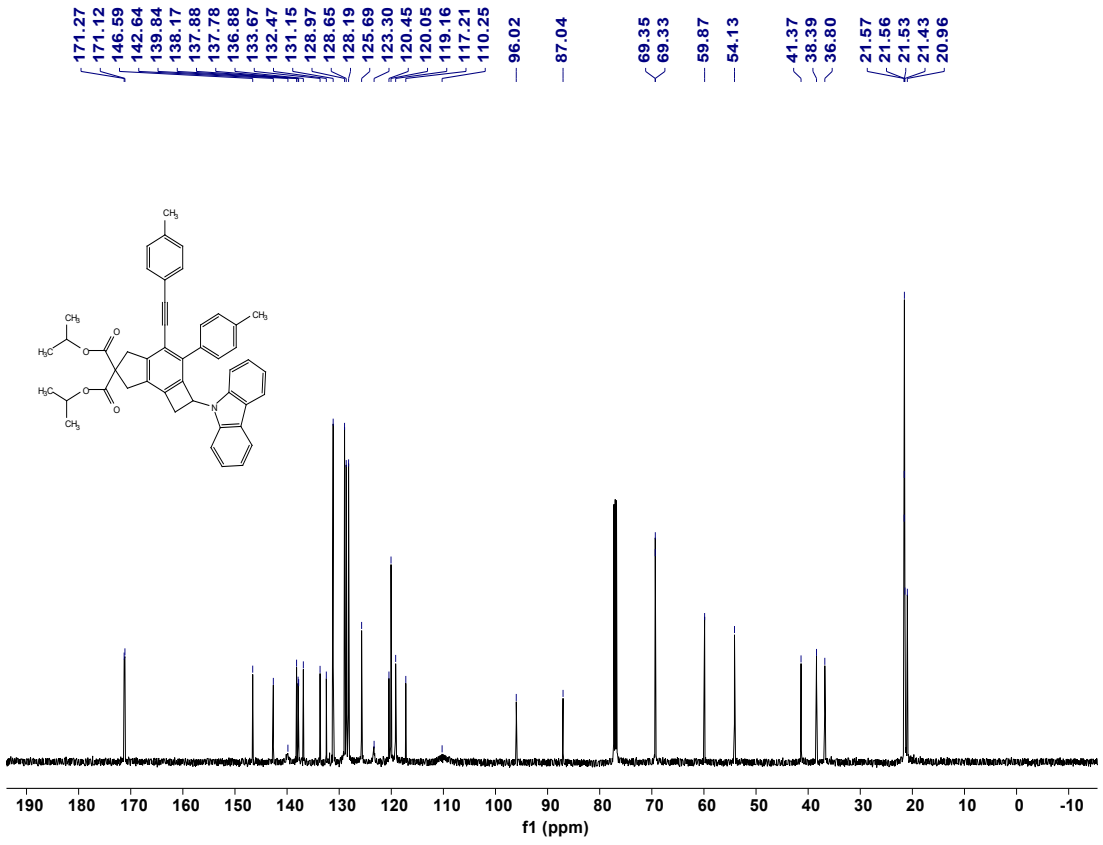

Figure 24 ^{13}C NMR spectrum of **2l** (125 MHz, $CDCl_3$).

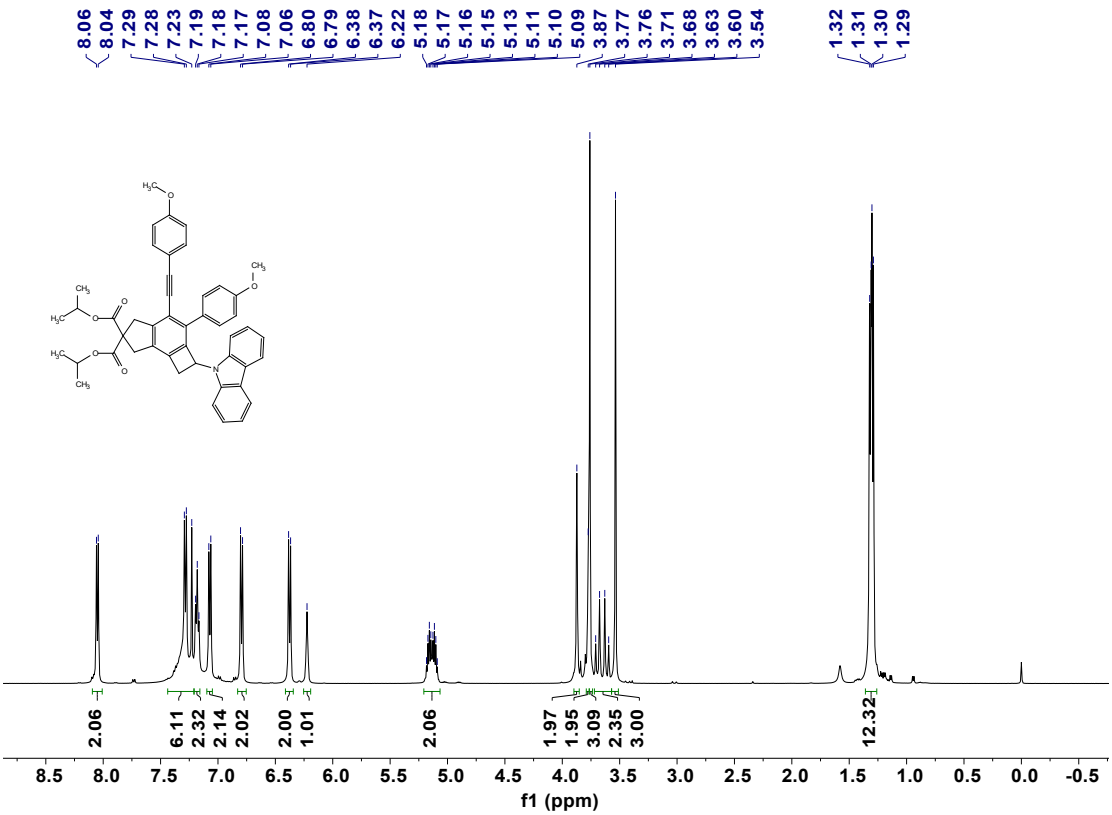

Figure 25 ^{1}H NMR spectrum of **2m** (500 MHz, $CDCl_3$).

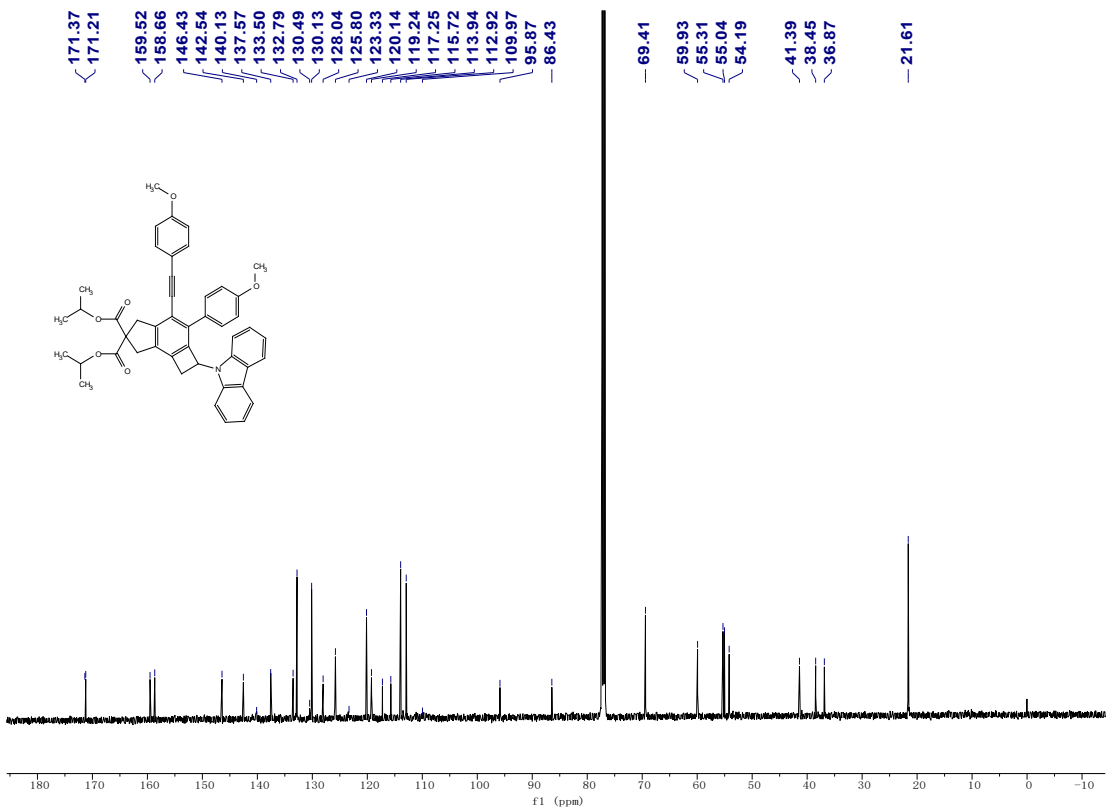

Figure 26 ^{13}C NMR spectrum of **2m** (125 MHz, $CDCl_3$).

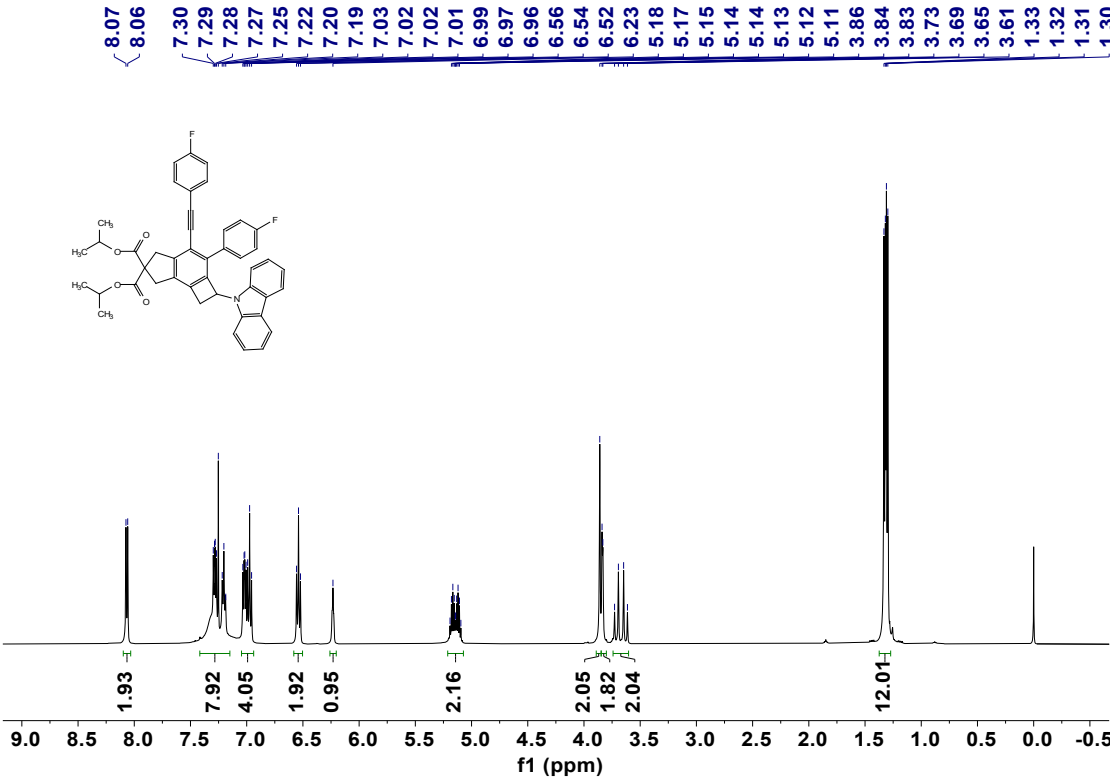

Figure 27 ^{1}H NMR spectrum of **2n** (500 MHz, $CDCl_3$).

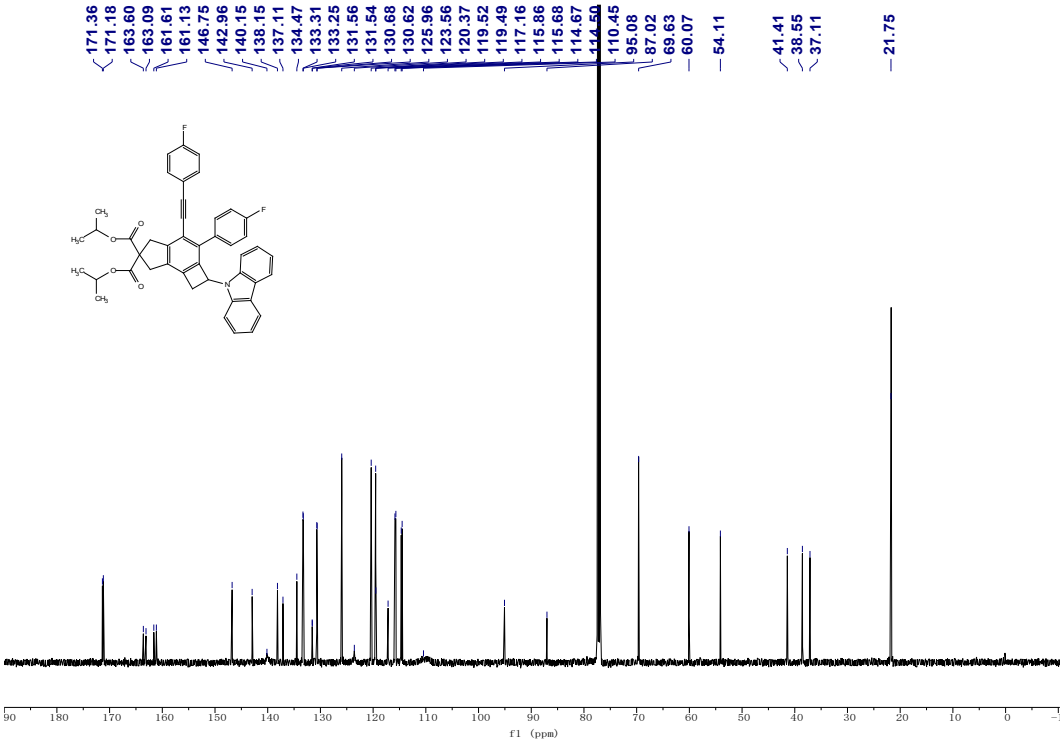

Figure 28 ^{13}C NMR spectrum of **2n** (125 MHz, $CDCl_3$).

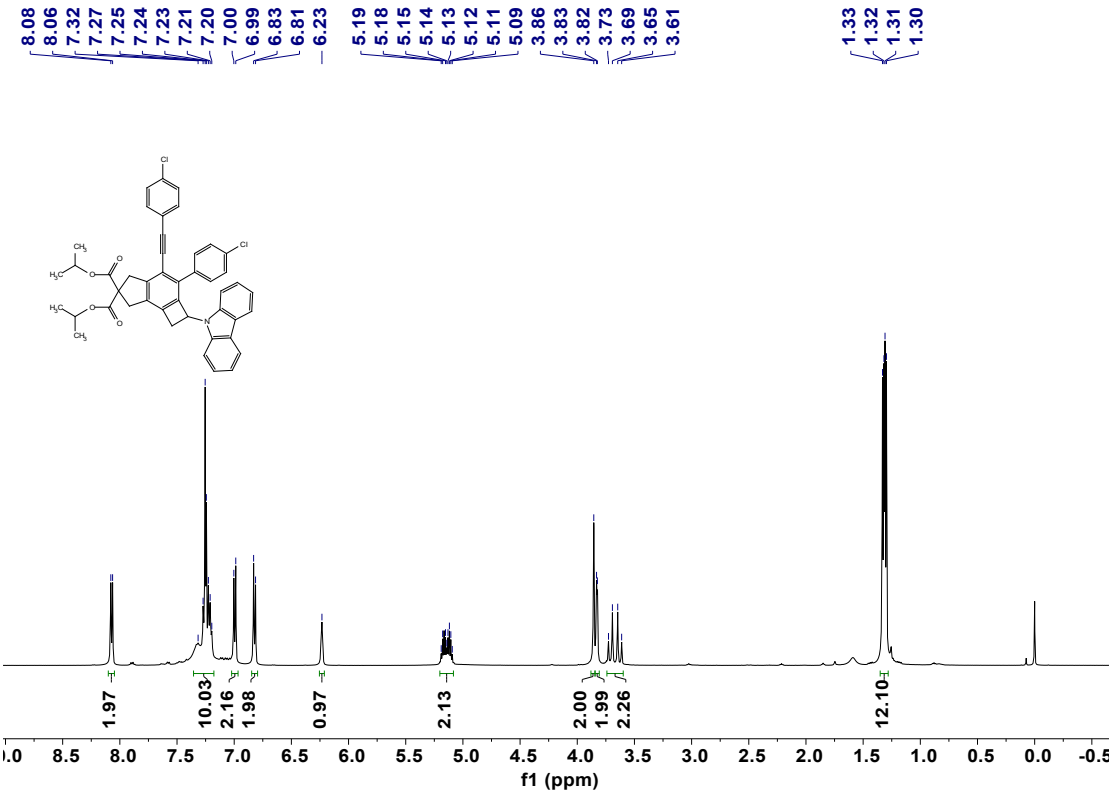

Figure 29 ^{1}H NMR spectrum of **2o** (500 MHz, $CDCl_3$).

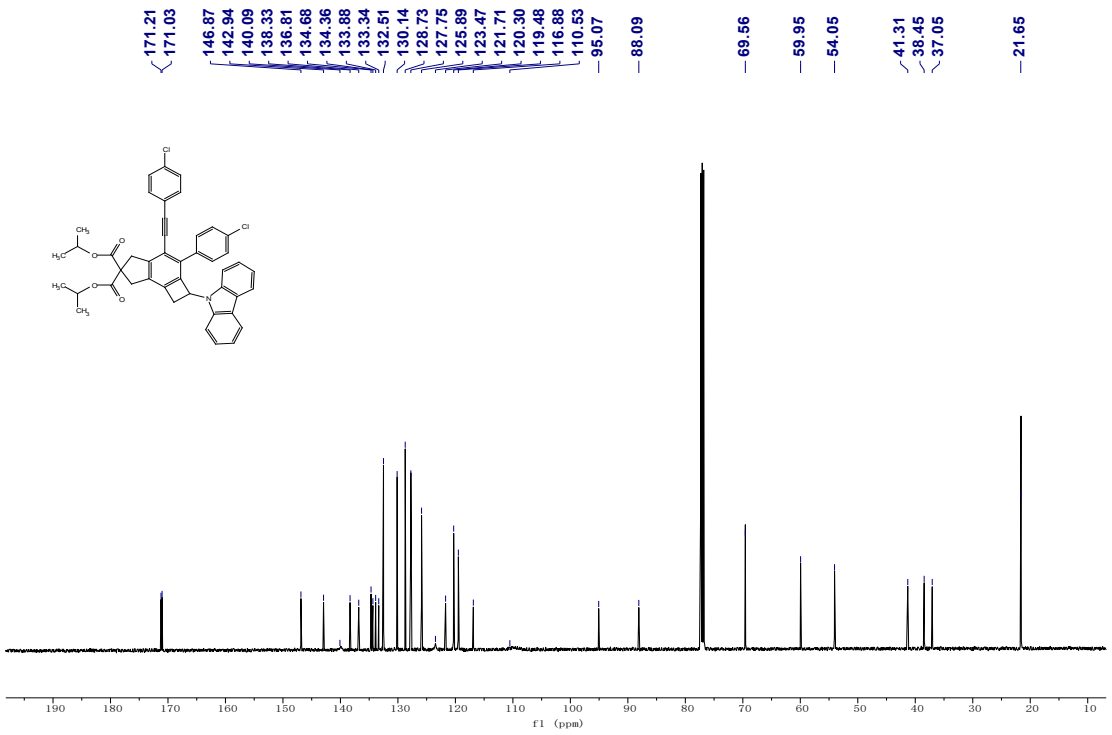

Figure 30 ^{13}C NMR spectrum of **2o** (125 MHz, $CDCl_3$).

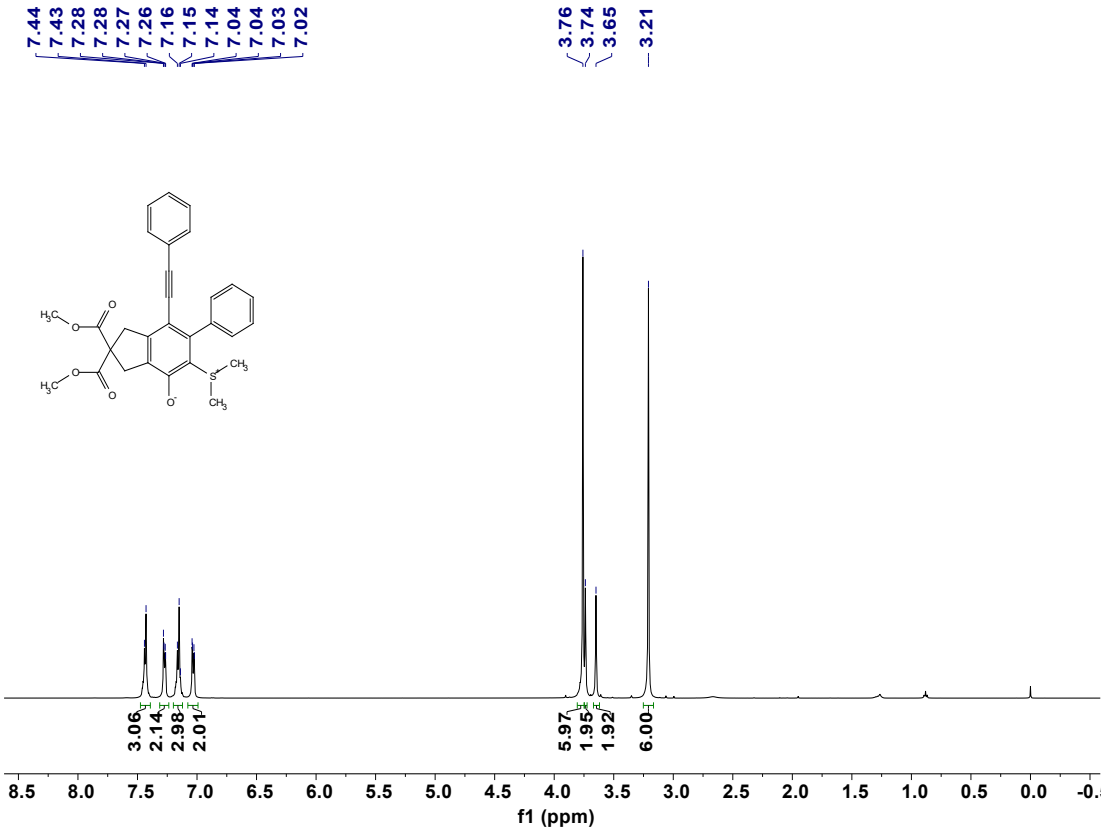

Figure 31 ^{1}H NMR spectrum of **3a** (500 MHz, $CDCl_3$).

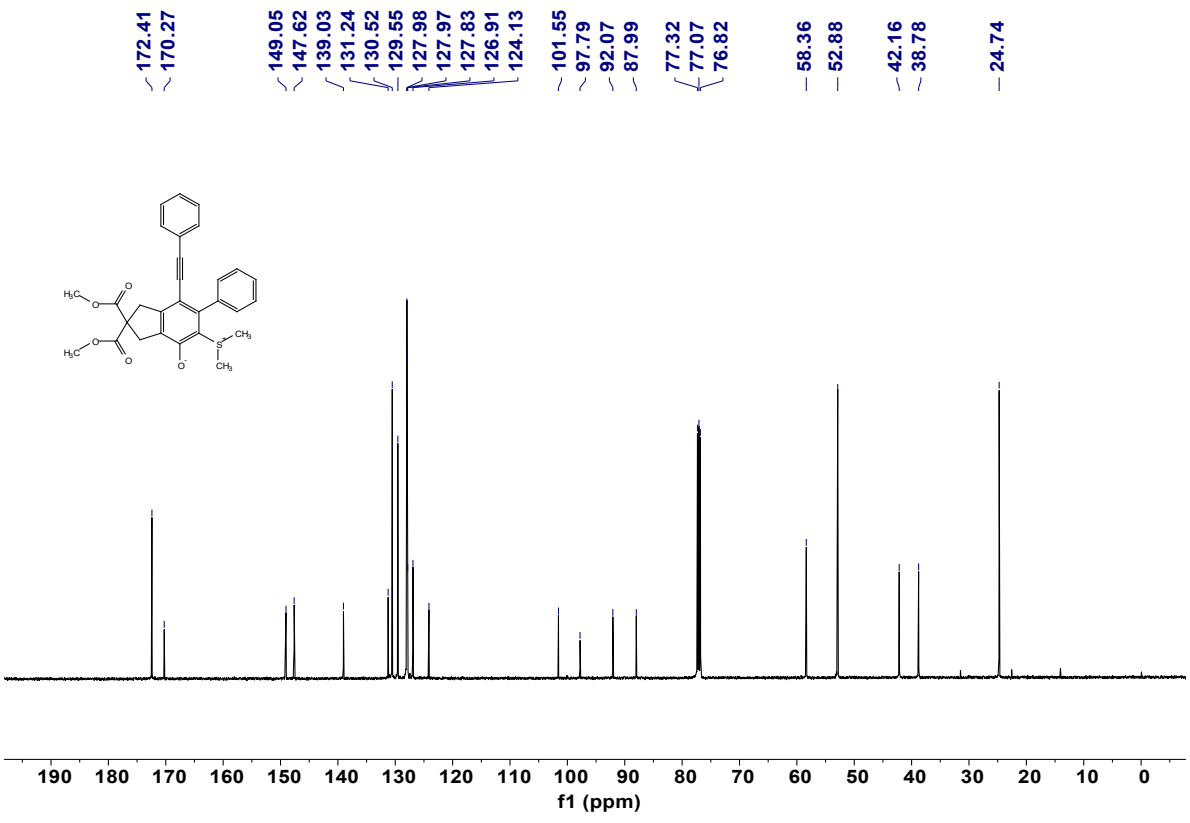

Figure 32 ^{13}C NMR spectrum of **3a** (125 MHz, $CDCl_3$).

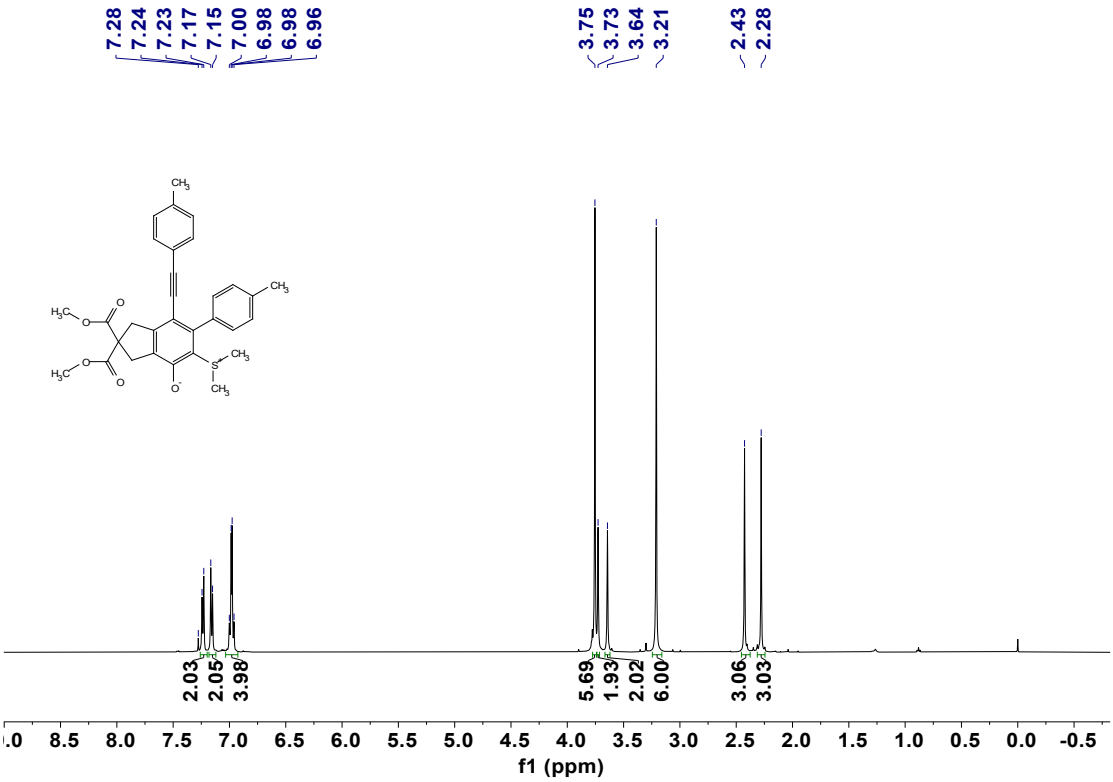

Figure 33 ^{1}H NMR spectrum of **3b** (500 MHz, $CDCl_3$).

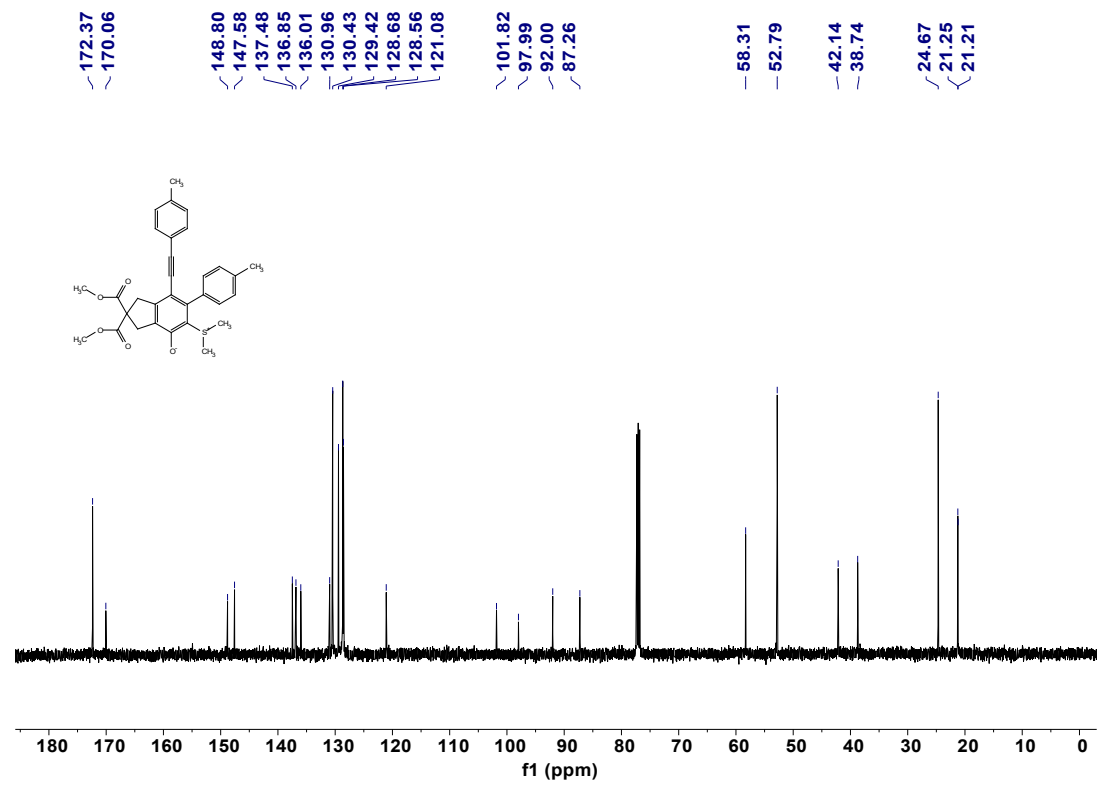

Figure 34 ^{13}C NMR spectrum of **3b** (125 MHz, $CDCl_3$).

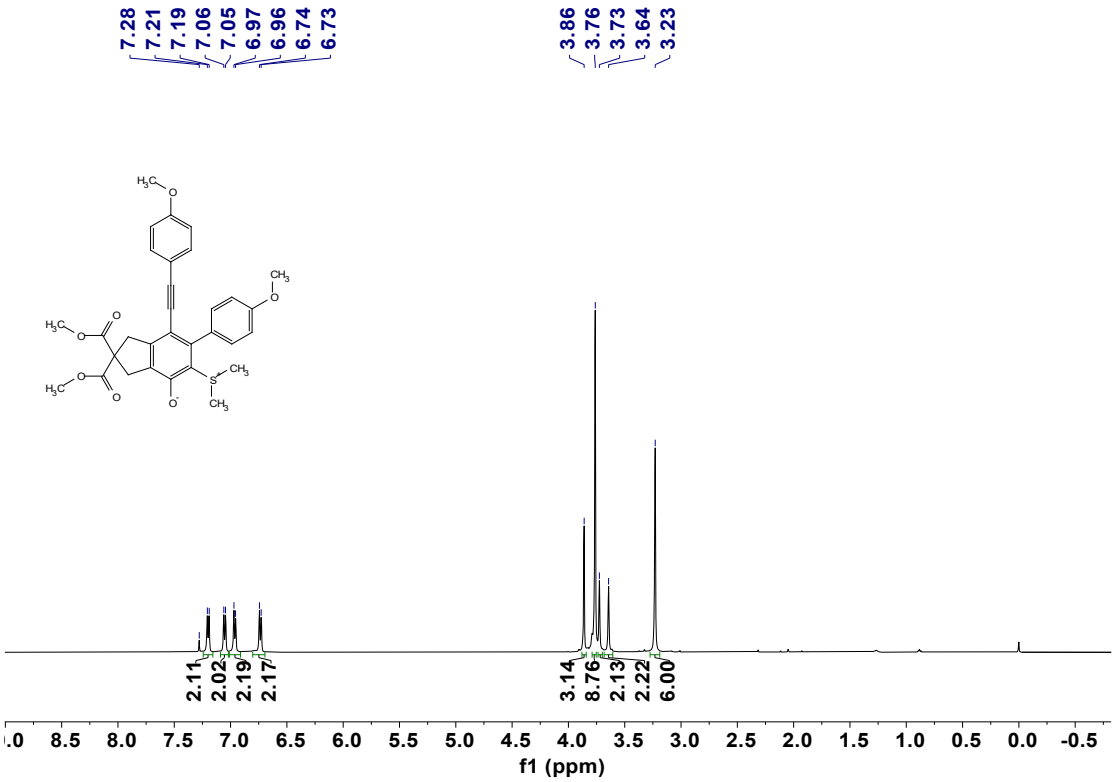

Figure 35 ^{1}H NMR spectrum of **3c** (500 MHz, $CDCl_3$).

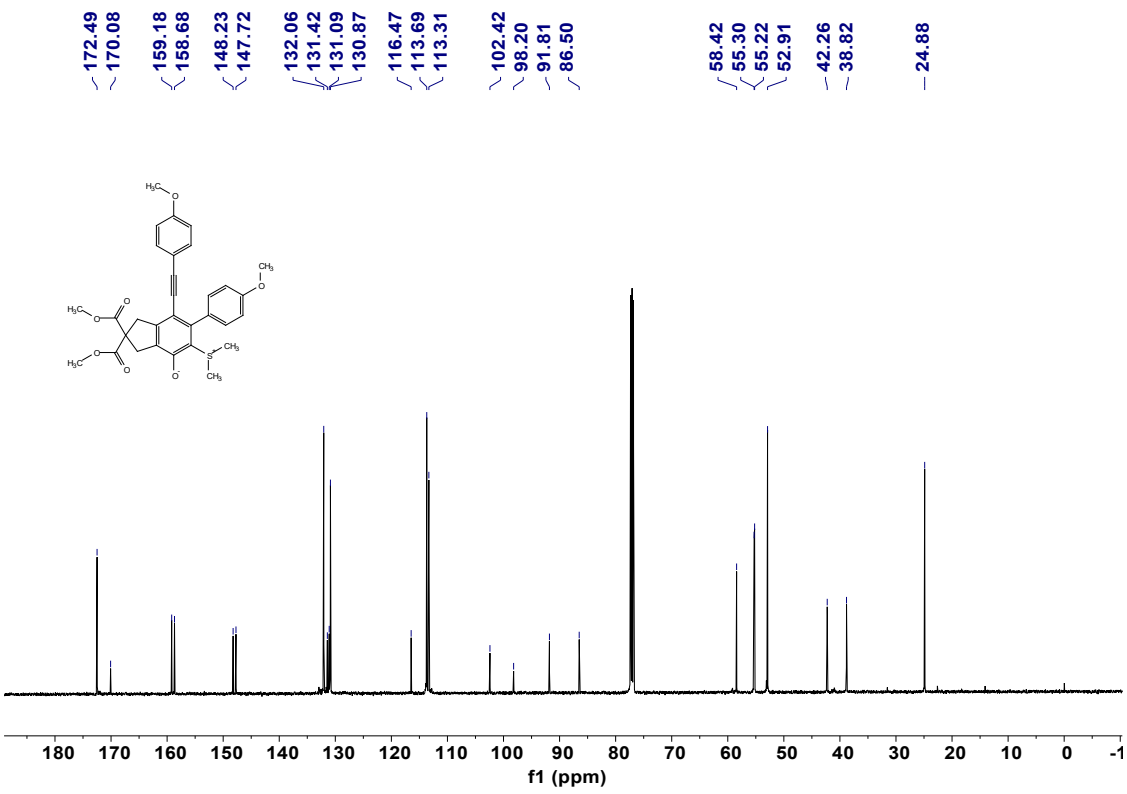

Figure 36 ^{13}C NMR spectrum of **3c** (125 MHz, $CDCl_3$).

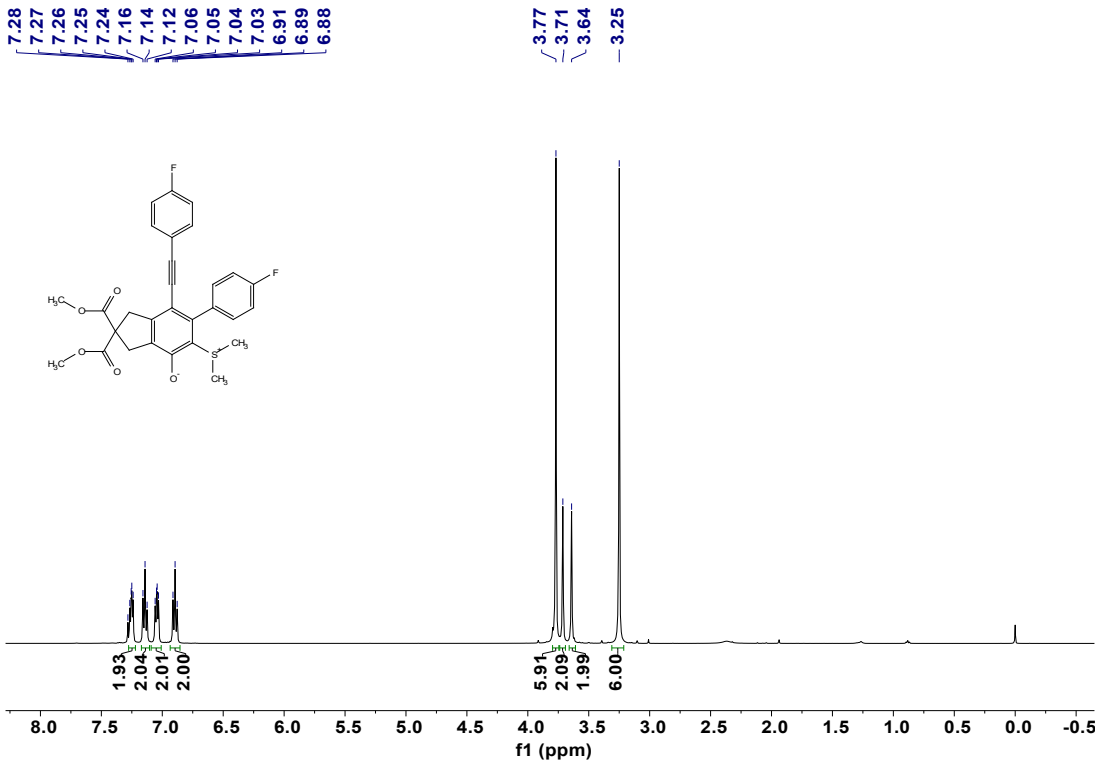

Figure 37 ^{1}H NMR spectrum of **3d** (500 MHz, $CDCl_3$).

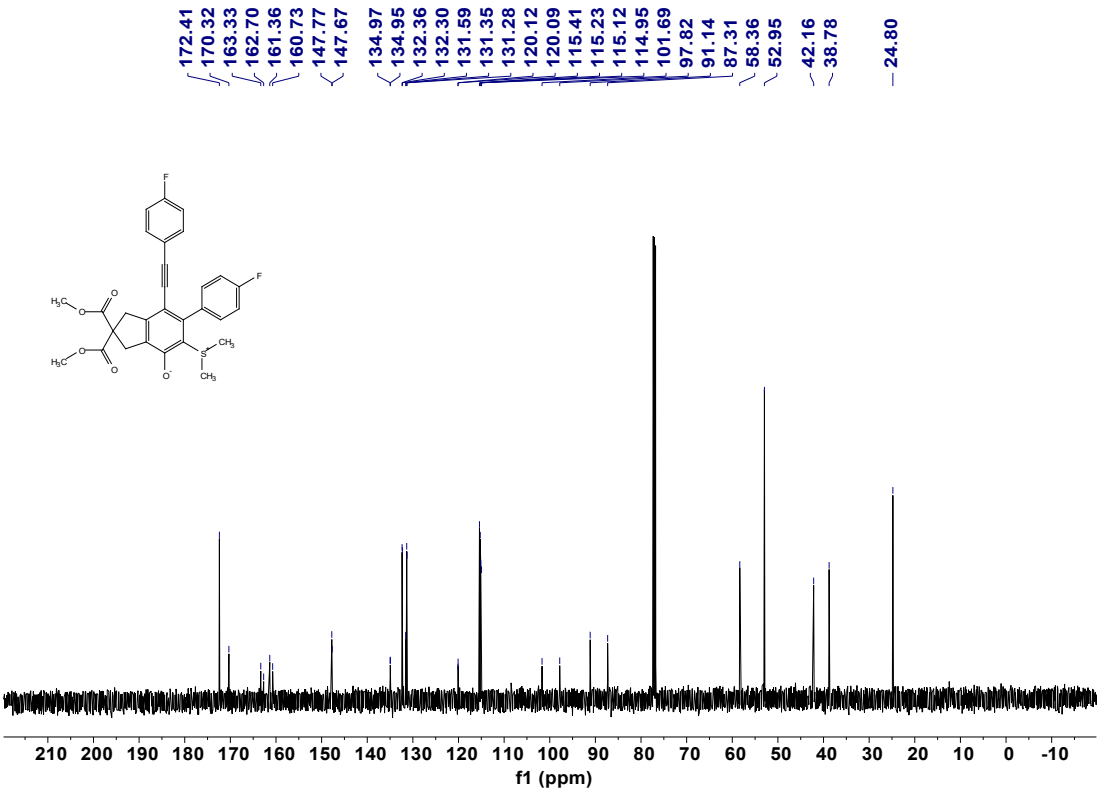

Figure 38 ^{13}C NMR spectrum of **3d** (125 MHz, $CDCl_3$).

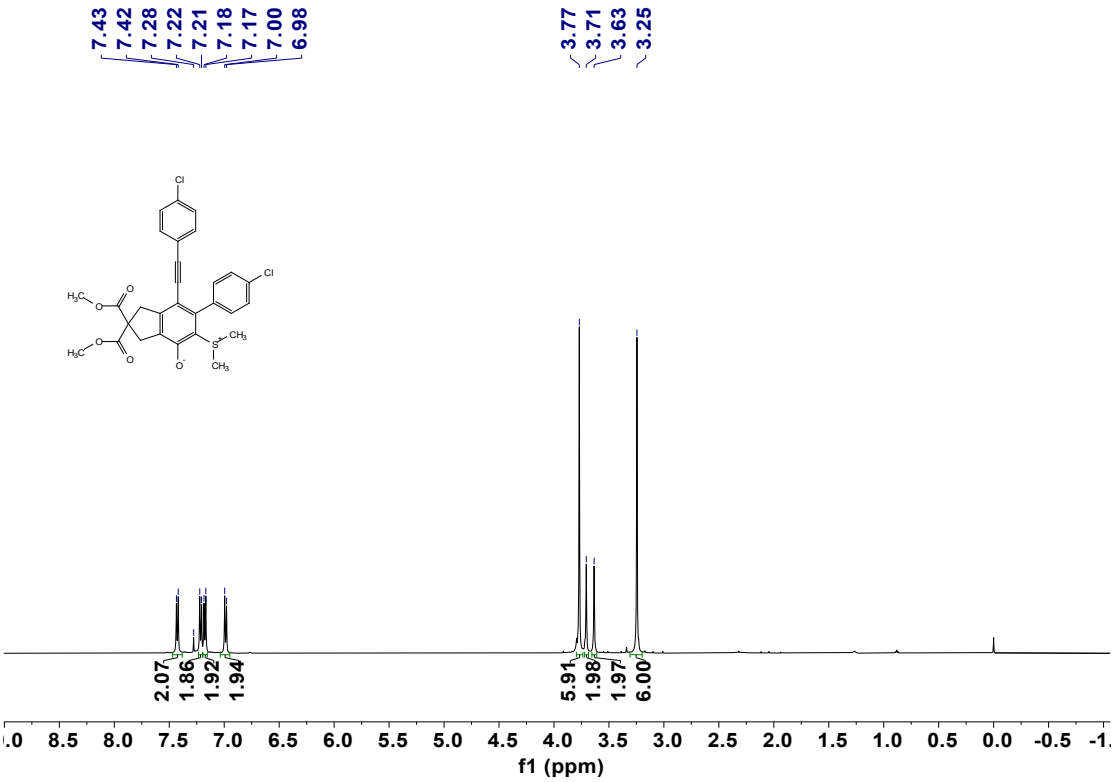

Figure 39 ^{1}H NMR spectrum of **3e** (500 MHz, $CDCl_3$).

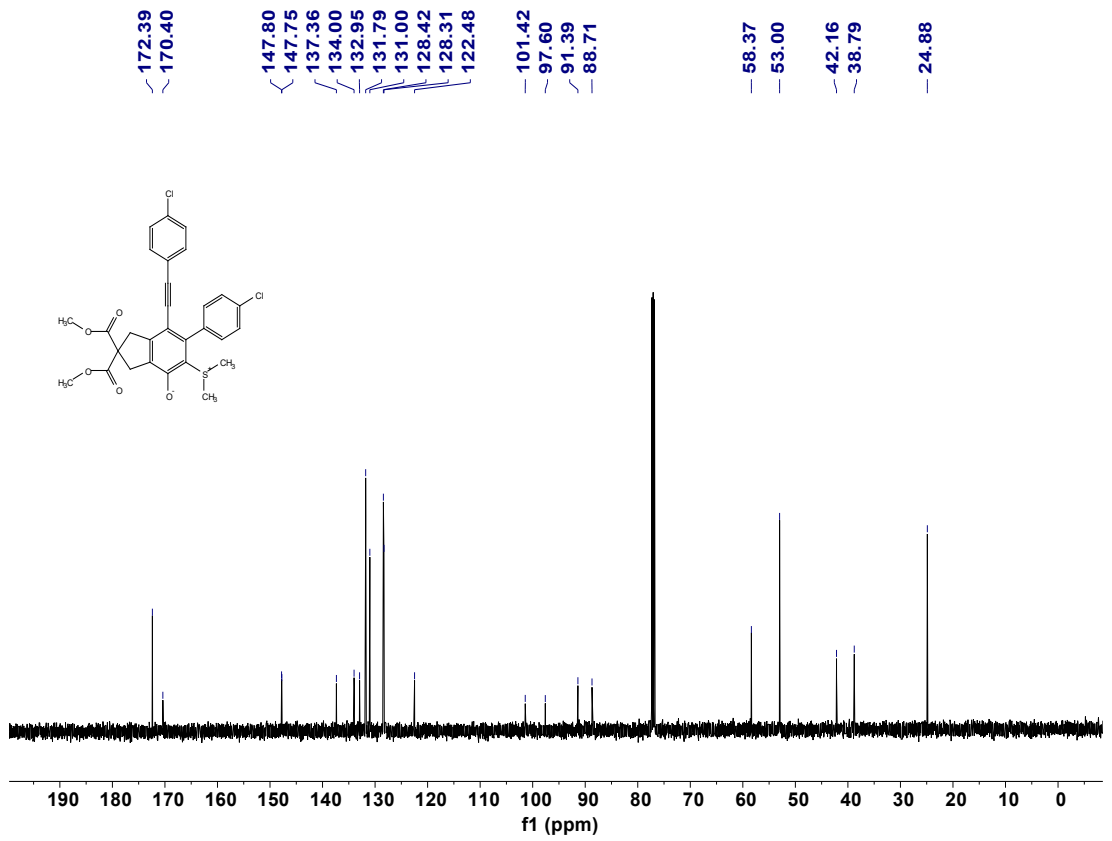

Figure 40 ^{13}C NMR spectrum of **3e** (125 MHz, $CDCl_3$).

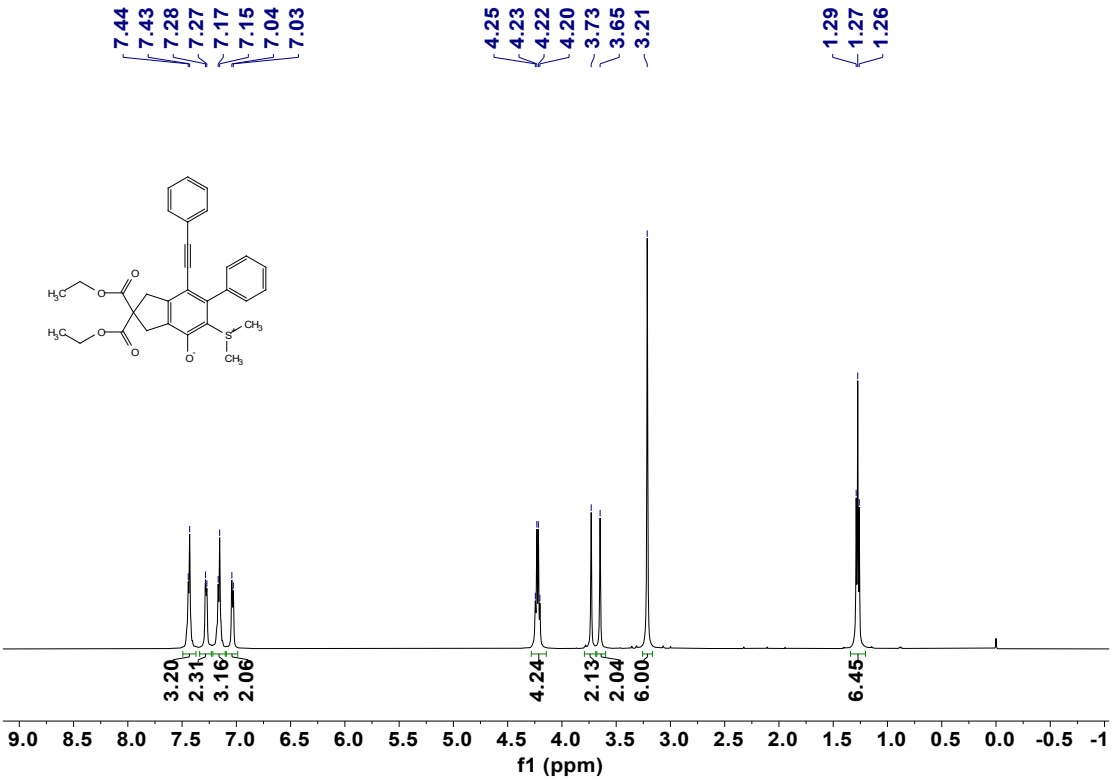

Figure **41** ^{1}H NMR spectrum of **3f** (500 MHz, $CDCl_3$).

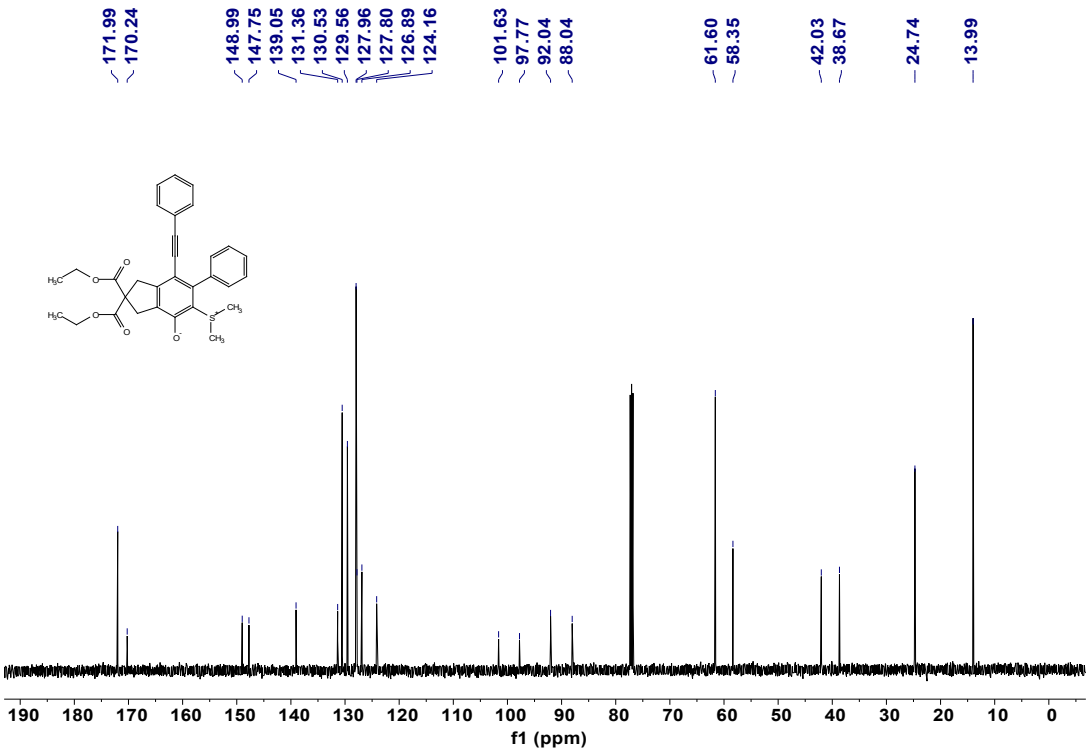

Figure 42 ^{13}C NMR spectrum of **3f** (125 MHz, $CDCl_3$).

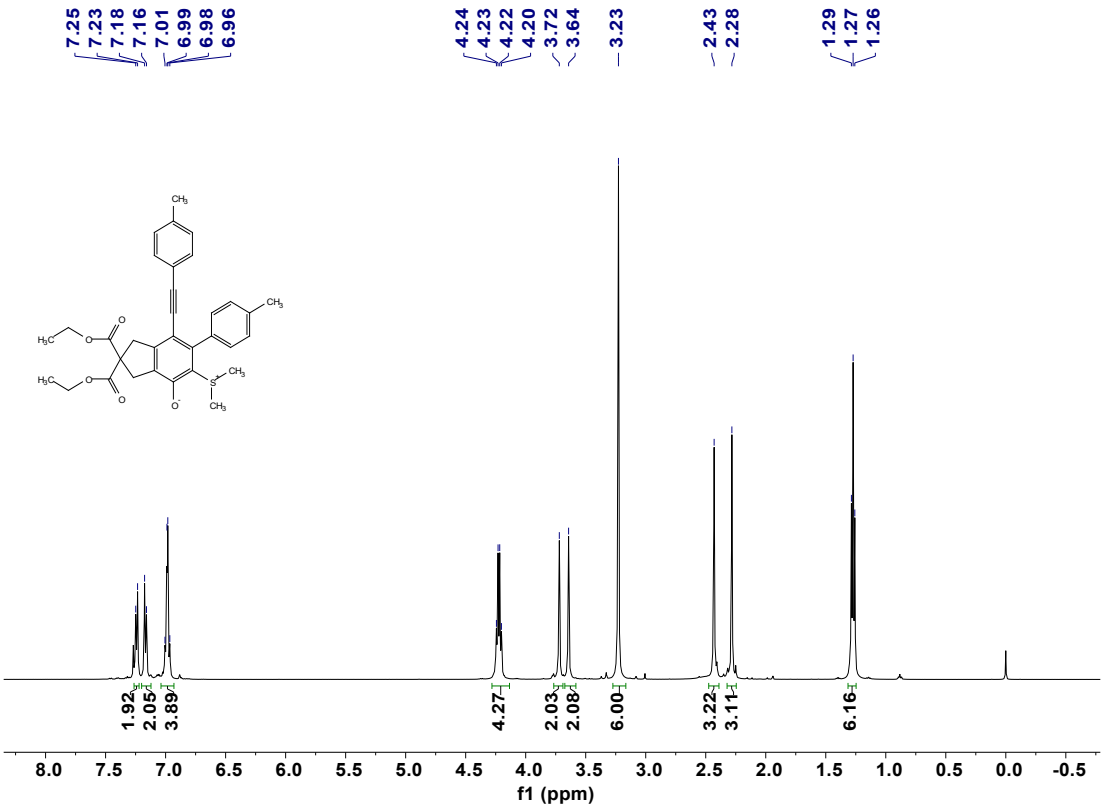

Figure 43 ^{1}H NMR spectrum of **3g** (500 MHz, $CDCl_3$).

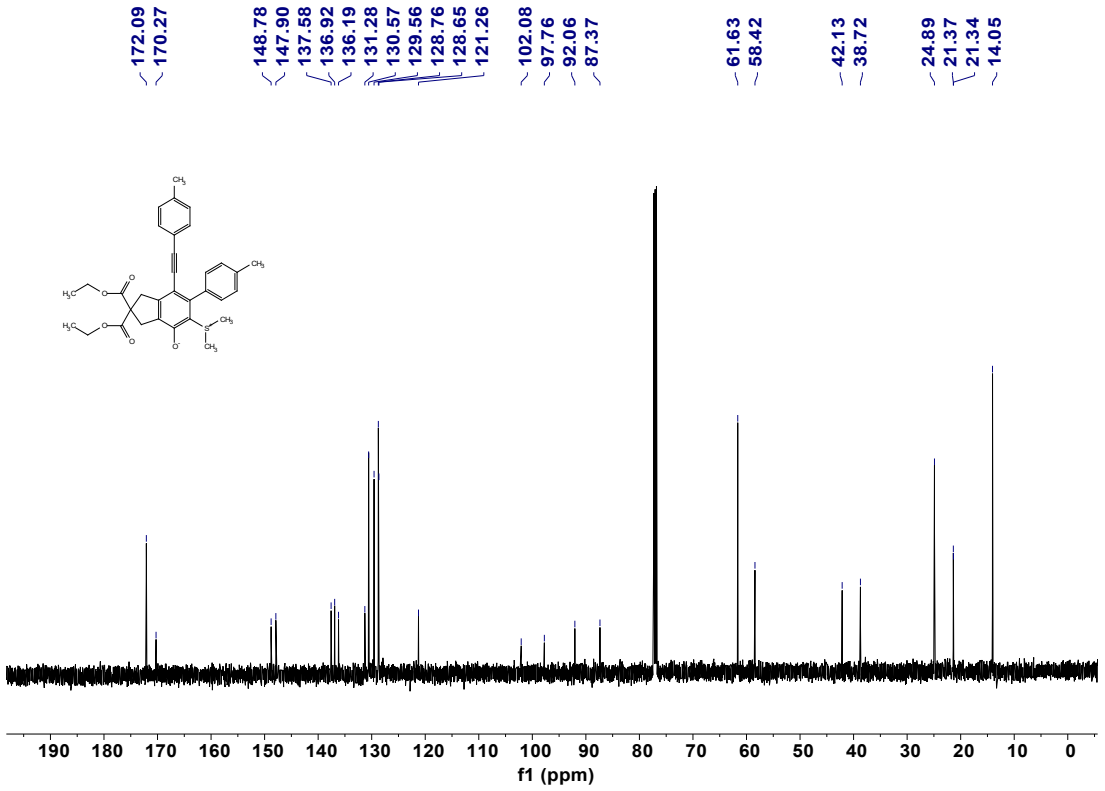

Figure 44 ^{13}C NMR spectrum of **3g** (125 MHz, $CDCl_3$).

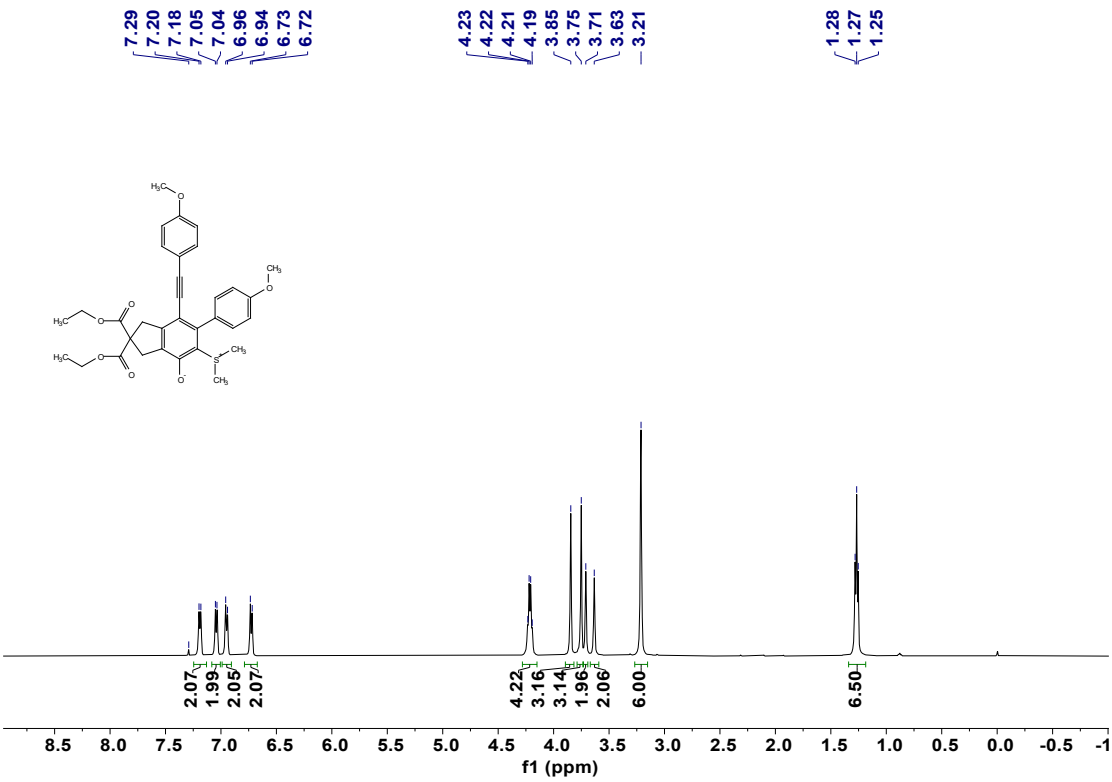

Figure 45 ^{1}H NMR spectrum of **3h** (500 MHz, $CDCl_3$).

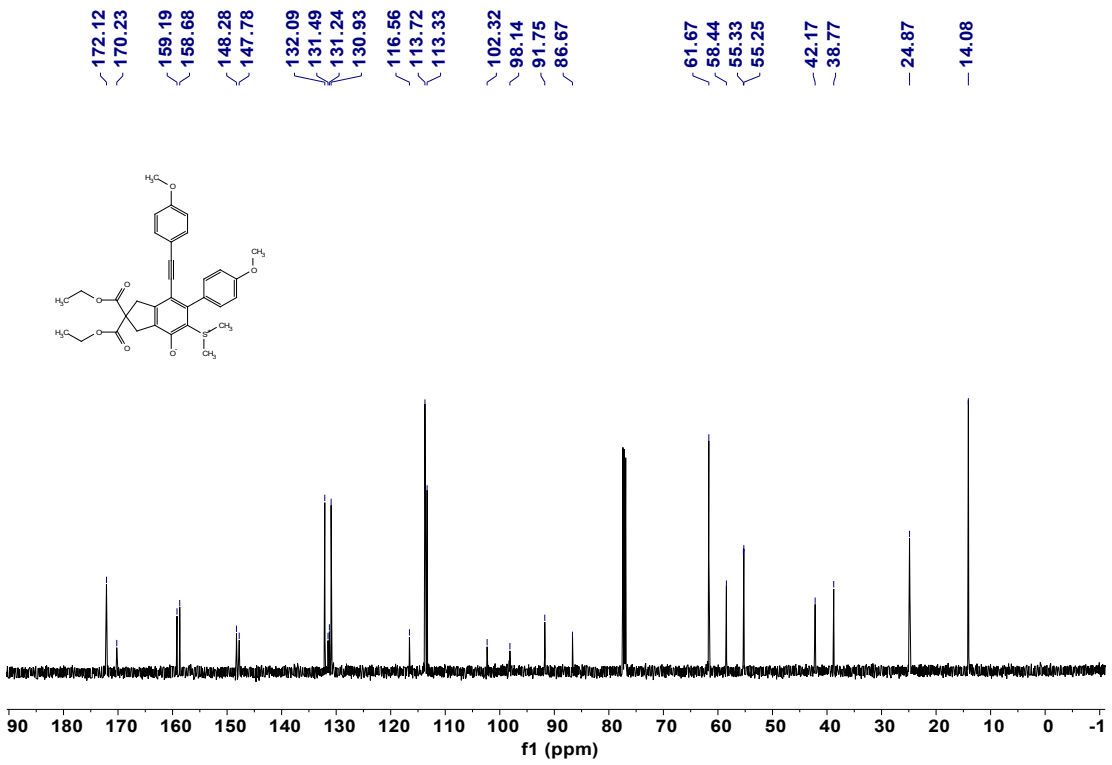

Figure 46 ^{13}C NMR spectrum of **3h** (125 MHz, $CDCl_3$).

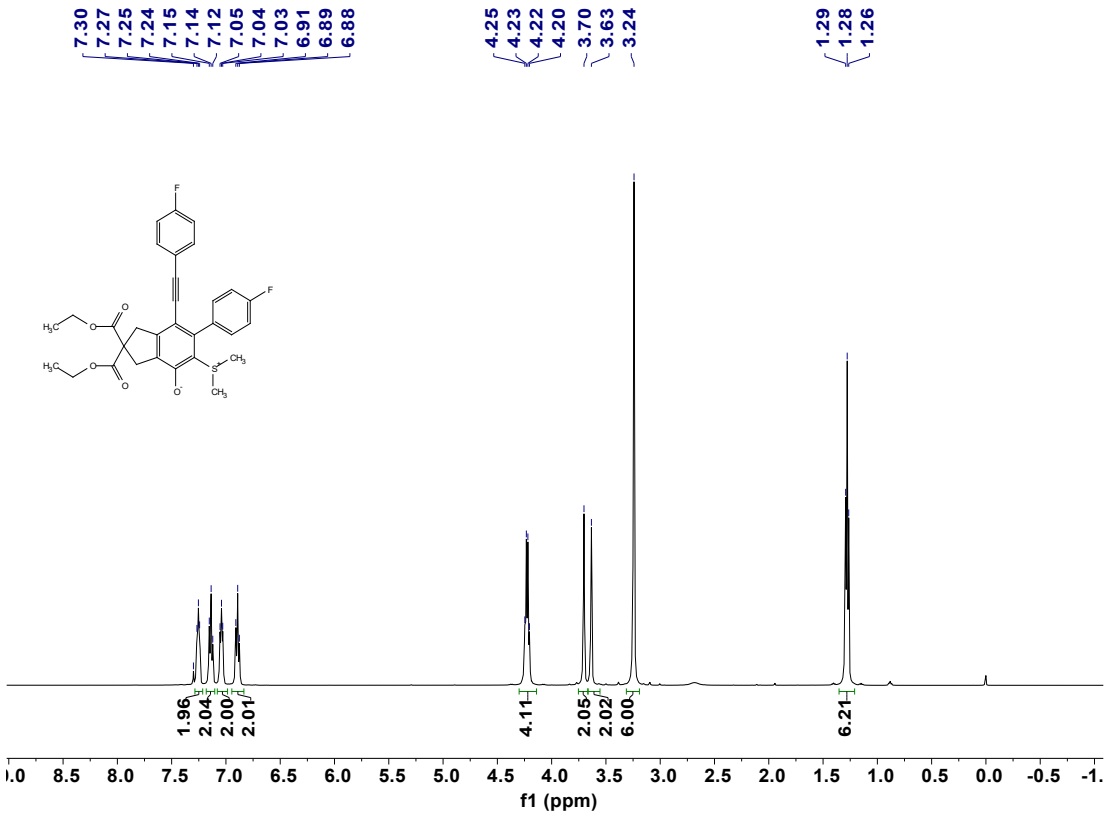

Figure 47 ^{1}H NMR spectrum of **3i** (500 MHz, $CDCl_3$).

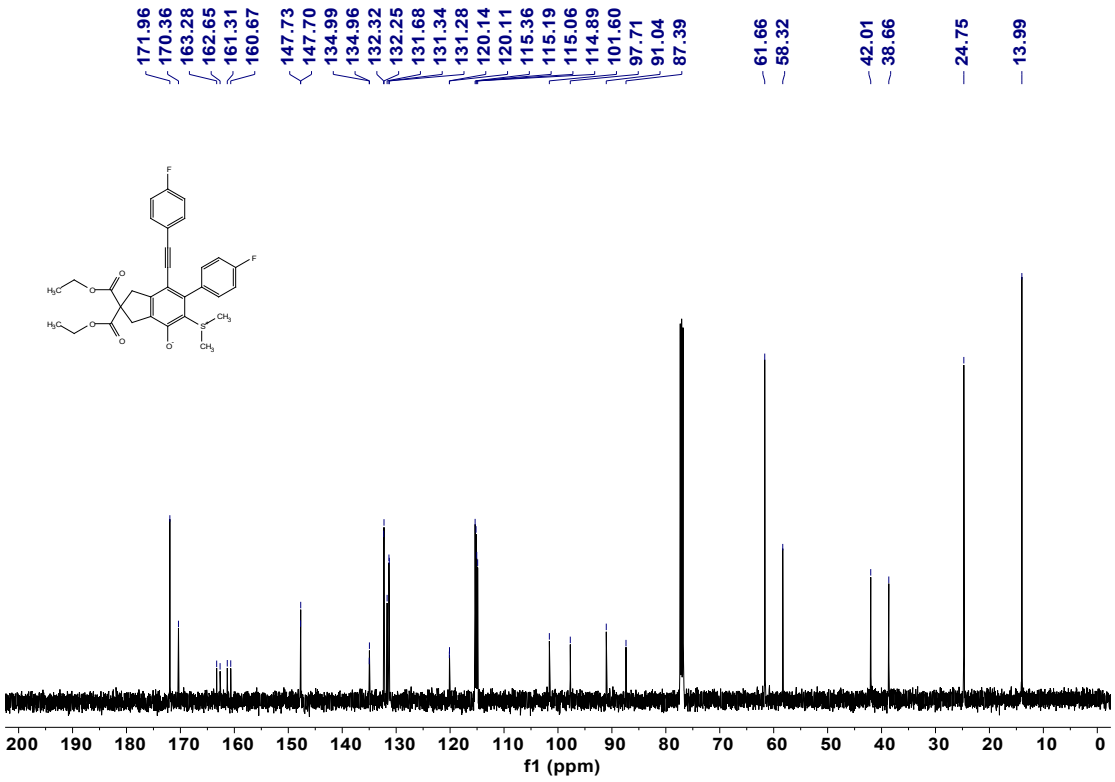

Figure 48 ^{13}C NMR spectrum of **3i** (125 MHz, $CDCl_3$).

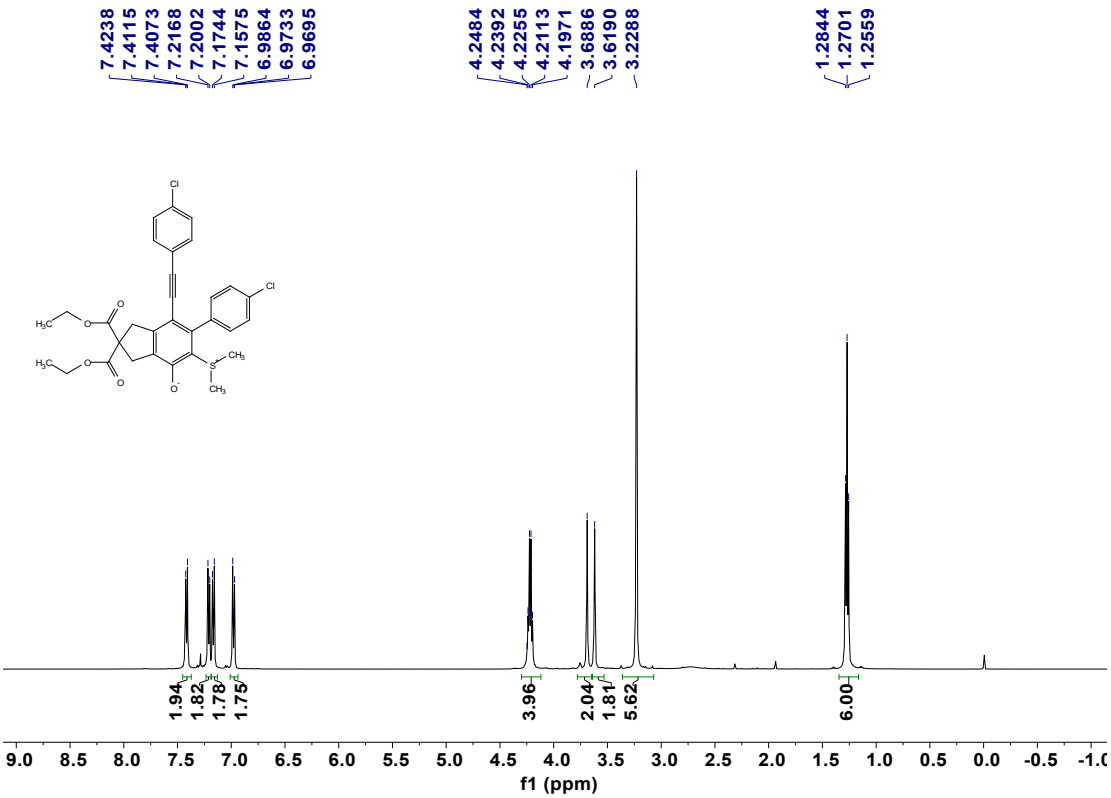

Figure 49 ^{1}H NMR spectrum of **3j** (500 MHz, $CDCl_3$).

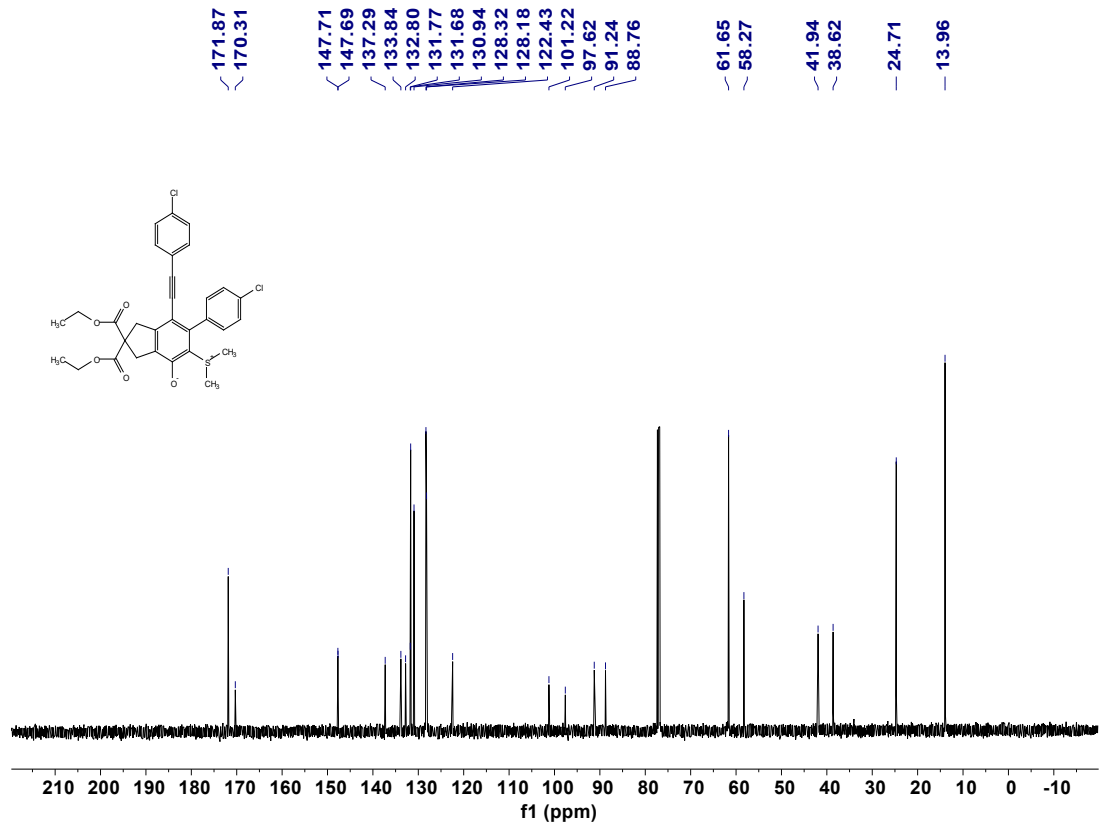

Figure 50 ^{13}C NMR spectrum of **3j** (125 MHz, $CDCl_3$).

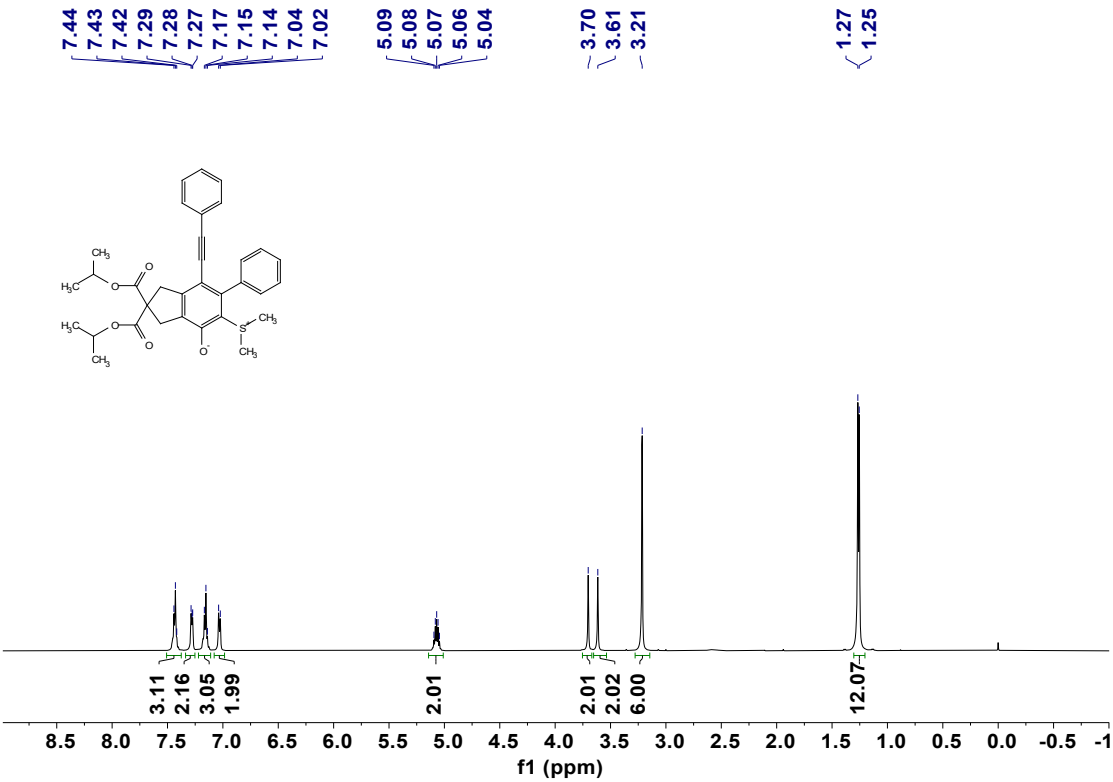

Figure 51 ^{1}H NMR spectrum of **3k** (500 MHz, $CDCl_3$).

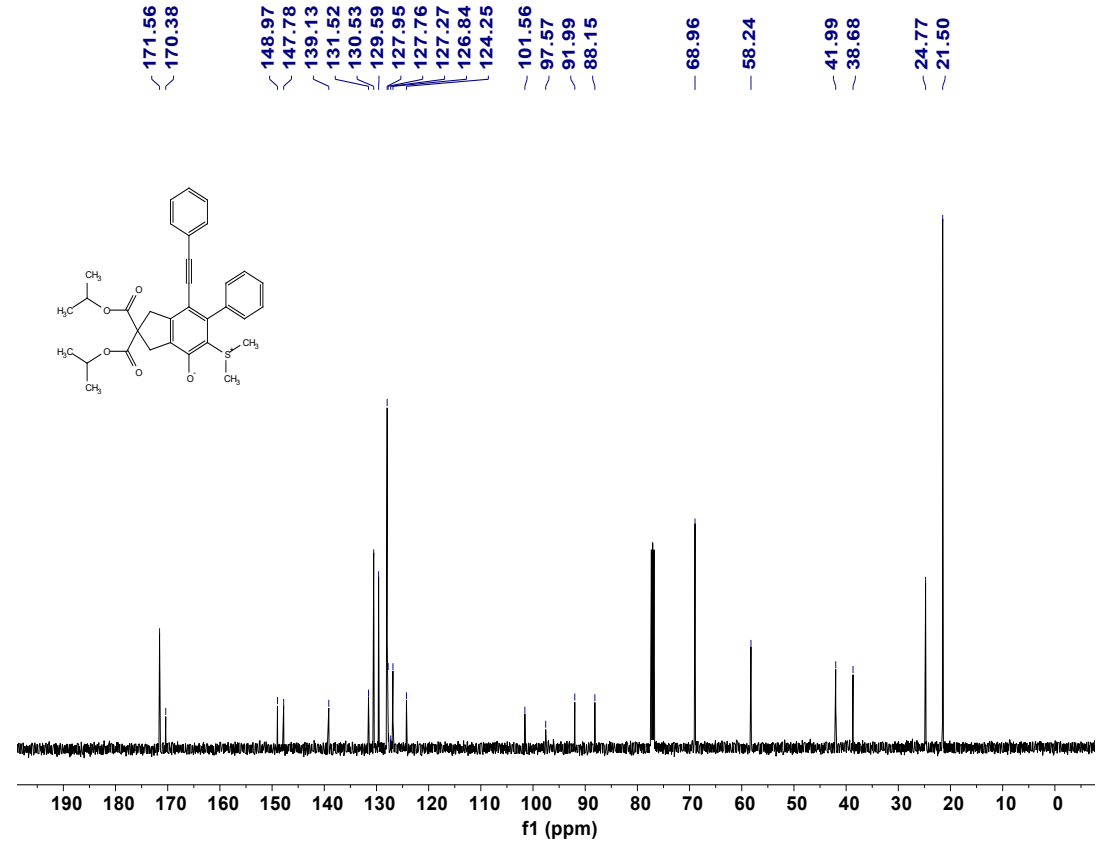

Figure 52 ^{13}C NMR spectrum of **3k** (125 MHz, $CDCl_3$).

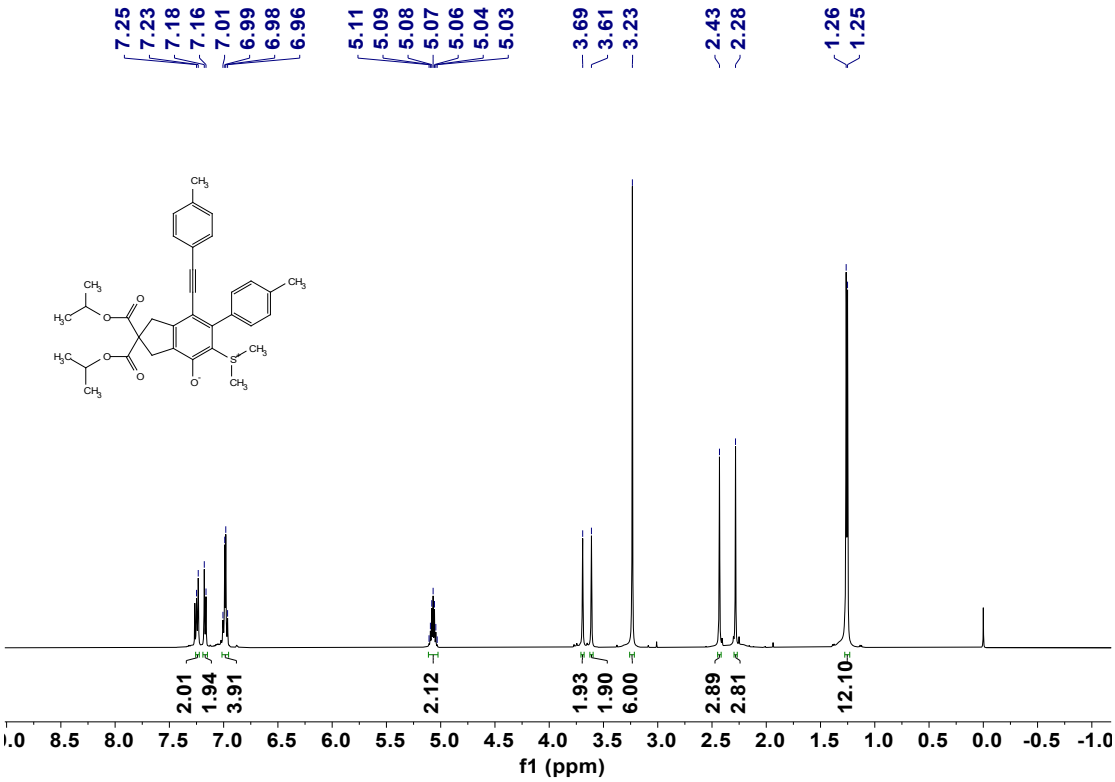

Figure 53 ^{1}H NMR spectrum of **3l** (500 MHz, $CDCl_3$).

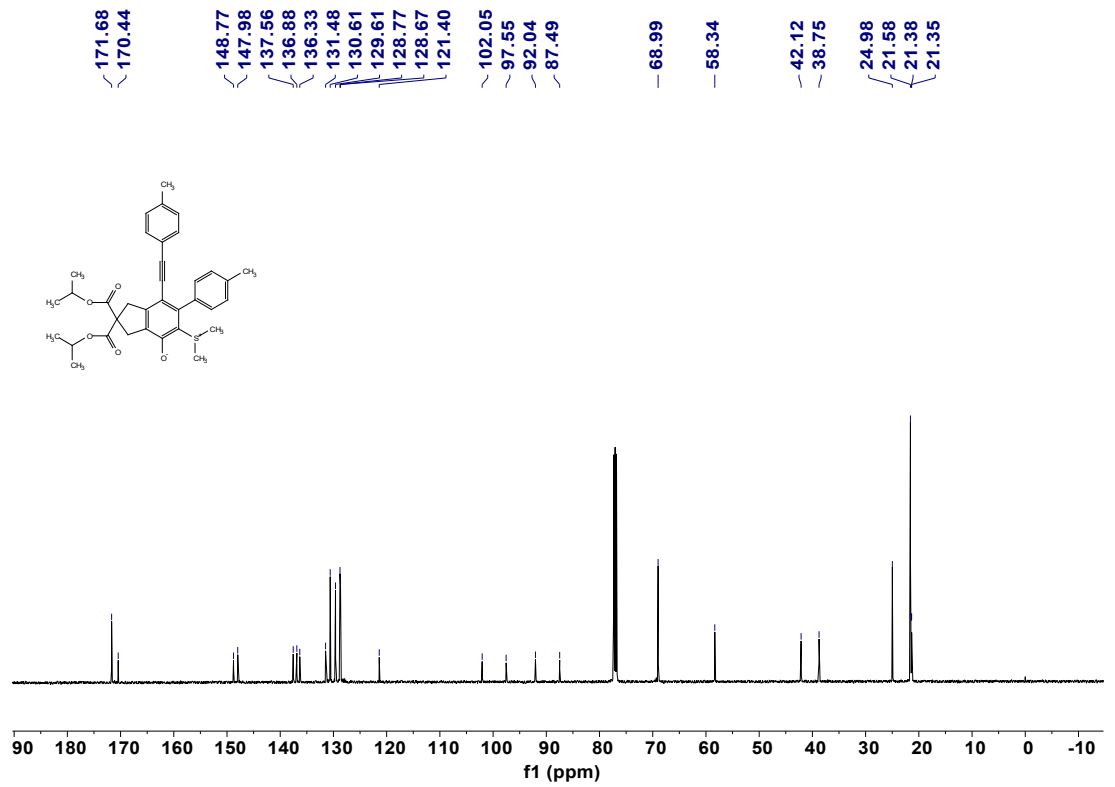

Figure 54 ^{13}C NMR spectrum of **3l** (125 MHz, $CDCl_3$).

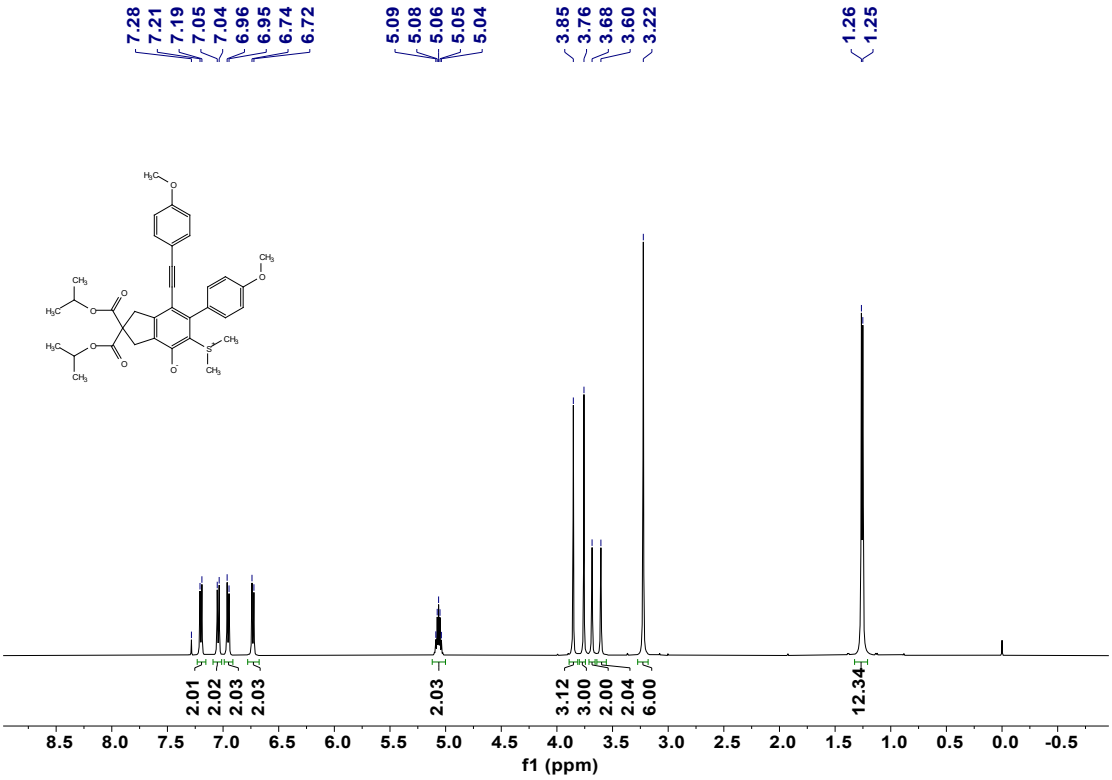

Figure 55 ^{1}H NMR spectrum of **3m** (500 MHz, $CDCl_3$).

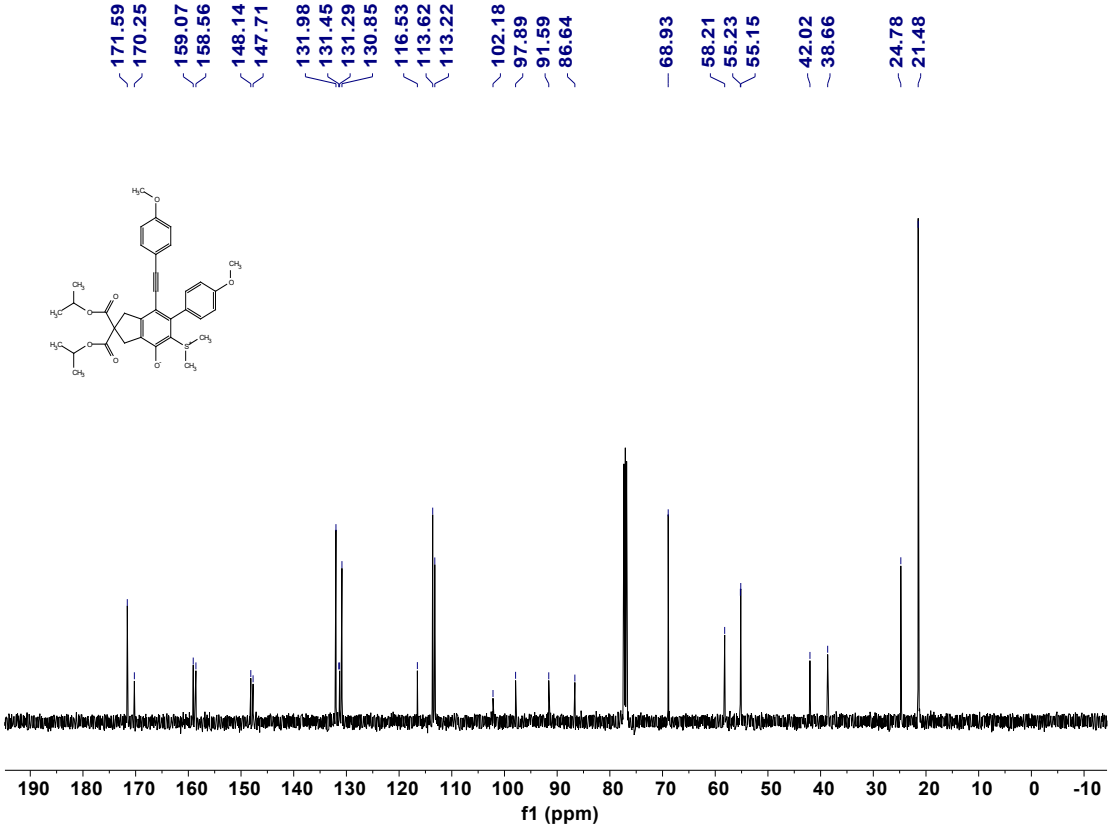

Figure 56 ^{13}C NMR spectrum of **3m** (125 MHz, $CDCl_3$).

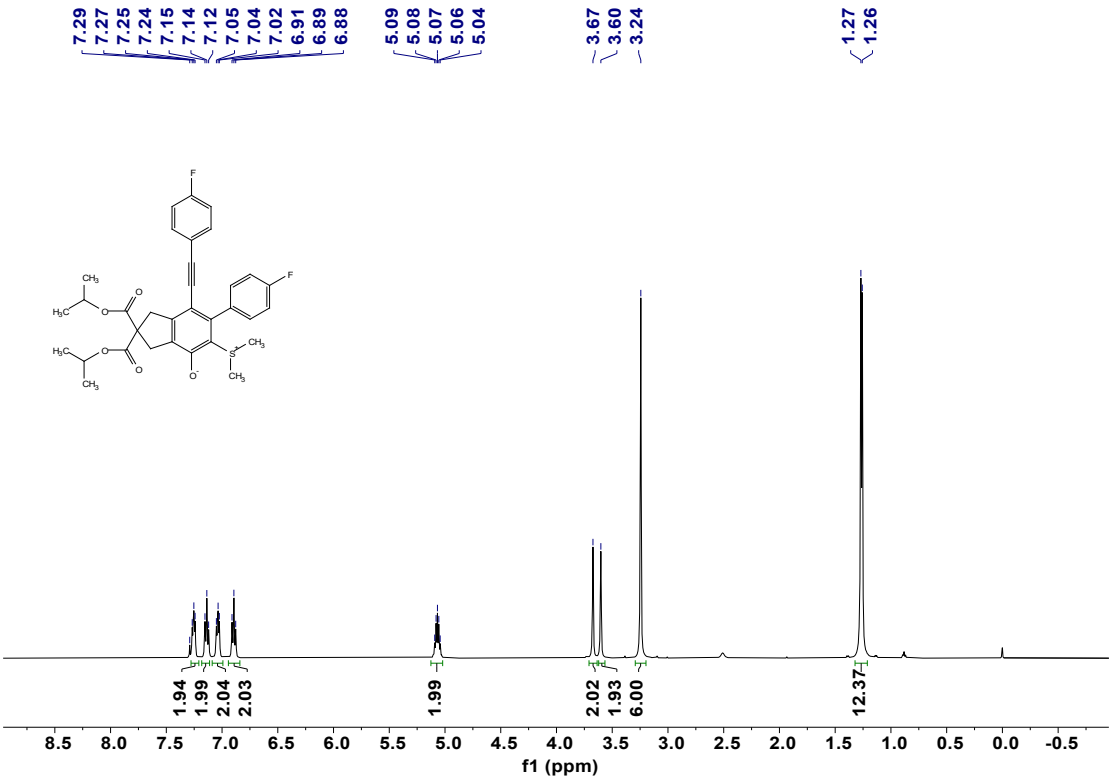

Figure 57 ^{1}H NMR spectrum of **3n** (500 MHz, $CDCl_3$).

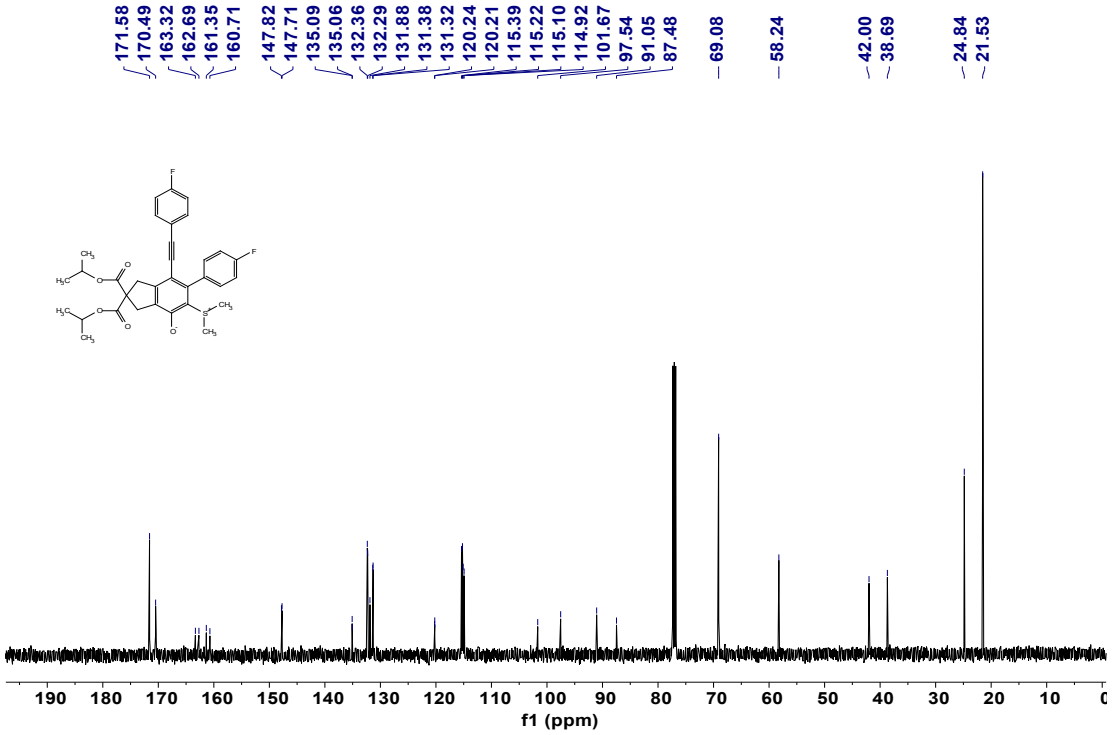

Figure 58 ^{13}C NMR spectrum of **3n** (125MHz, $CDCl_3$).

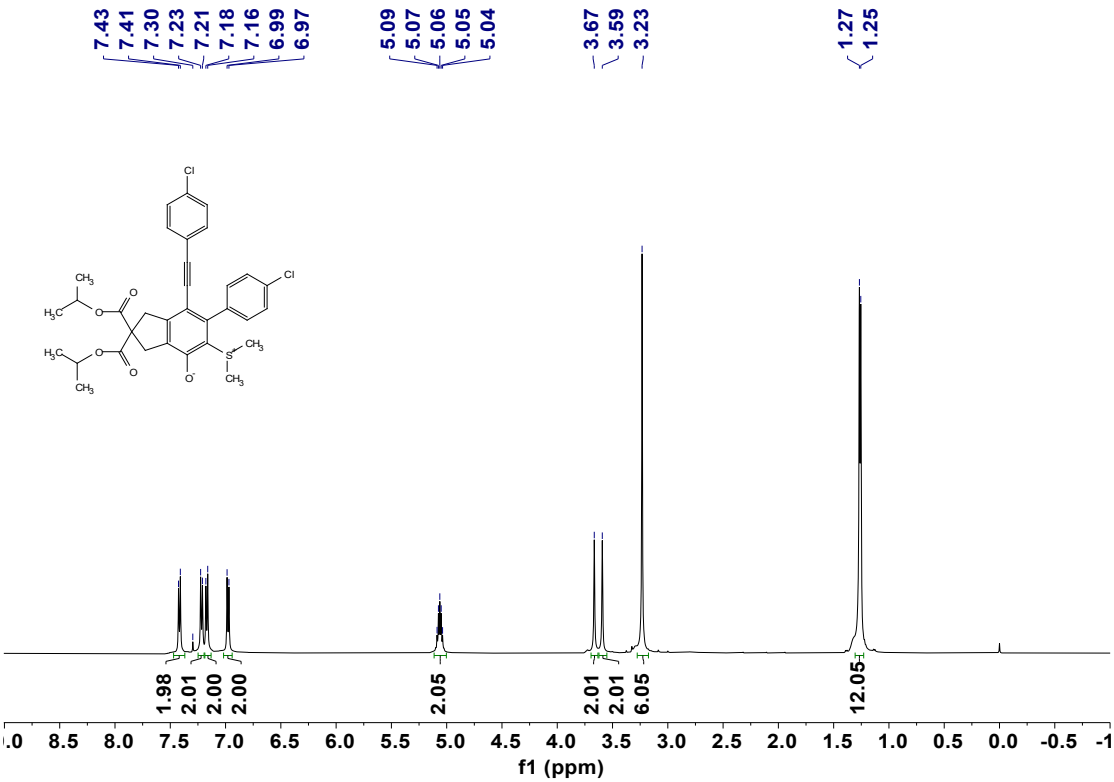

Figure 59 ^{1}H NMR spectrum of **3o** (500 MHz, $CDCl_3$).

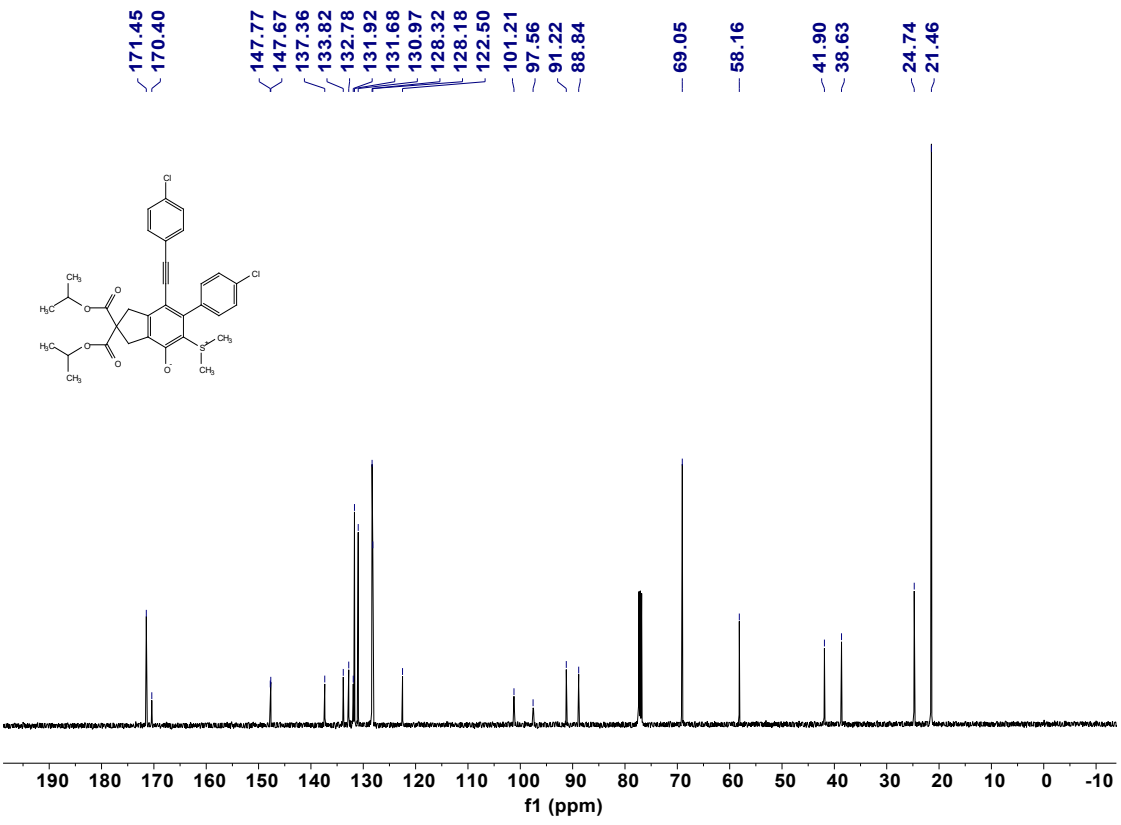

Figure 60 ^{13}C NMR spectrum of **3o** (125 MHz, $CDCl_3$).