

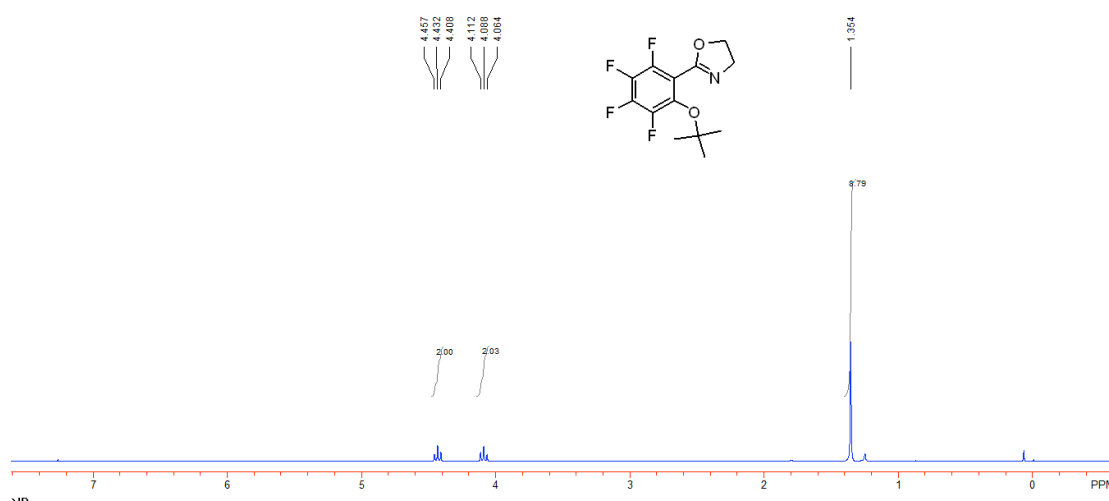
**Palladium-Catalyzed Coupling of Polyfluorinated Arenes with Heteroarenes via
C-F/C-H Activation**

Daohong Yu, Long Lu* and Qilong Shen*

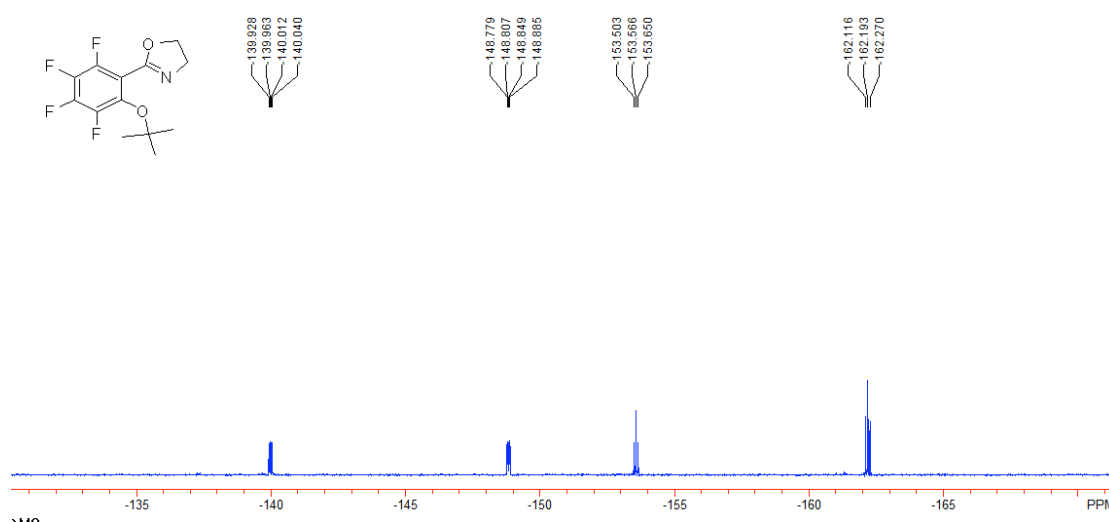
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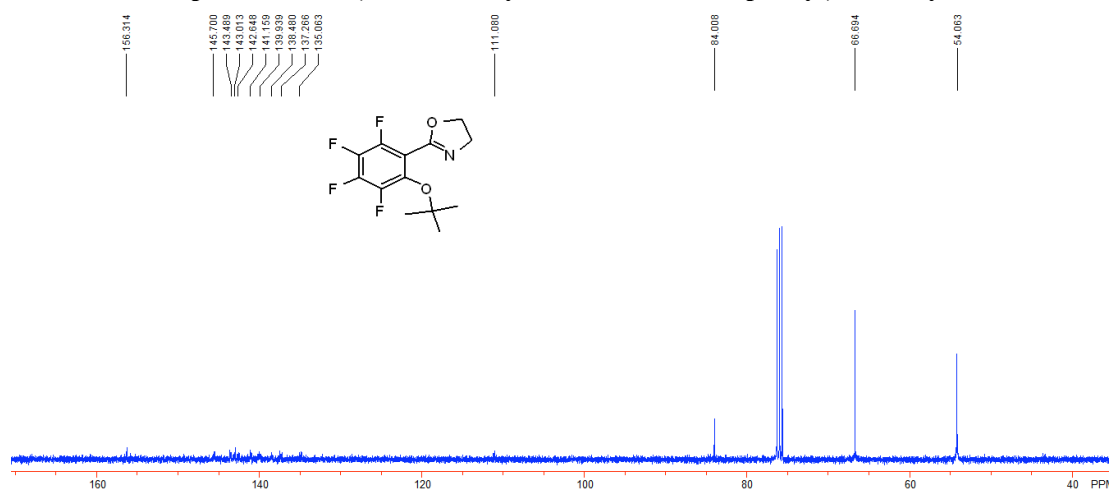
¹H NMR Spectrum of 2-(2-*tert*-Butoxy-3,4,5,6-tetrafluorophenyl)-4,5-dihydrooxazole



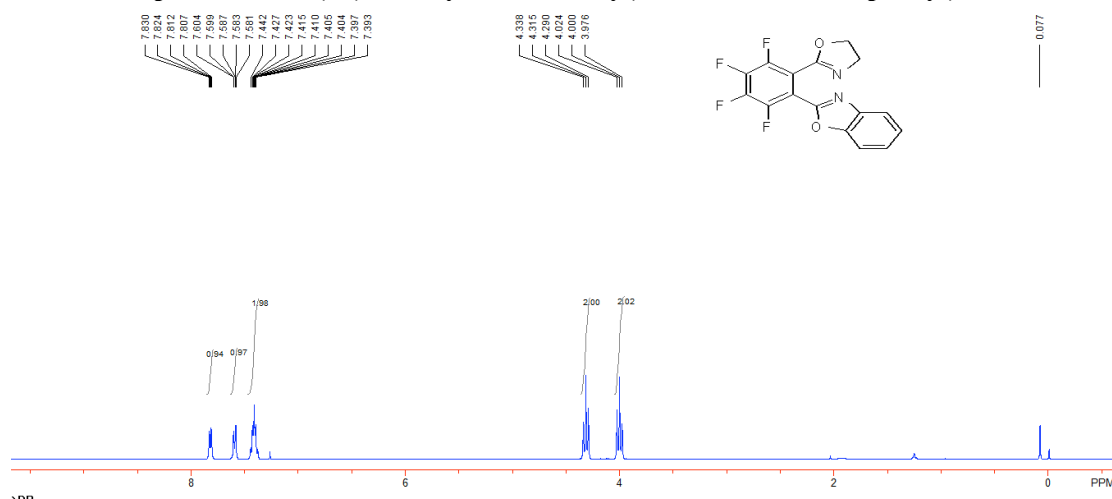
¹⁹F NMR Spectrum of 2-(2-*tert*-Butoxy-3,4,5,6-tetrafluorophenyl)-4,5-dihydrooxazole



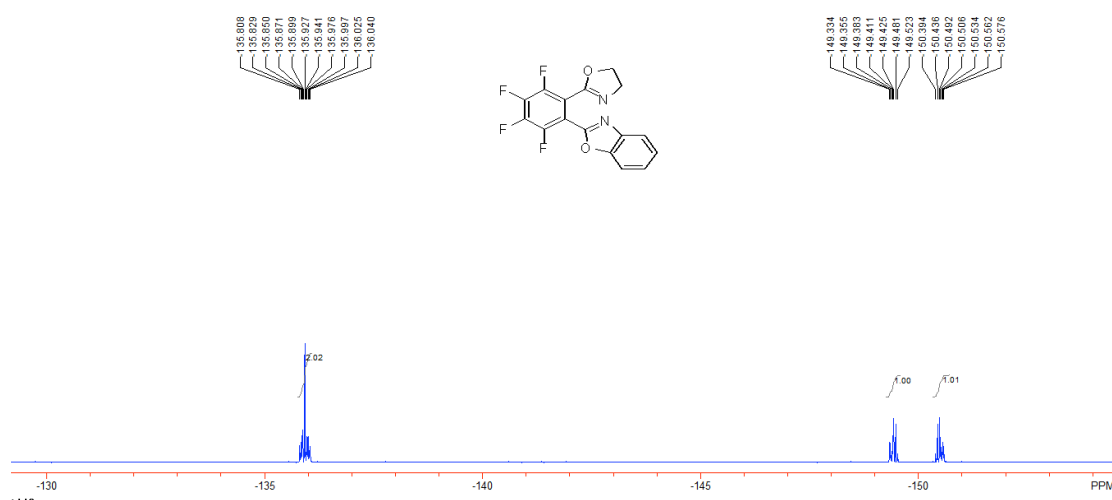
¹³C NMR Spectrum of 2-(2-*tert*-Butoxy-3,4,5,6-tetrafluorophenyl)-4,5-dihydrooxazole



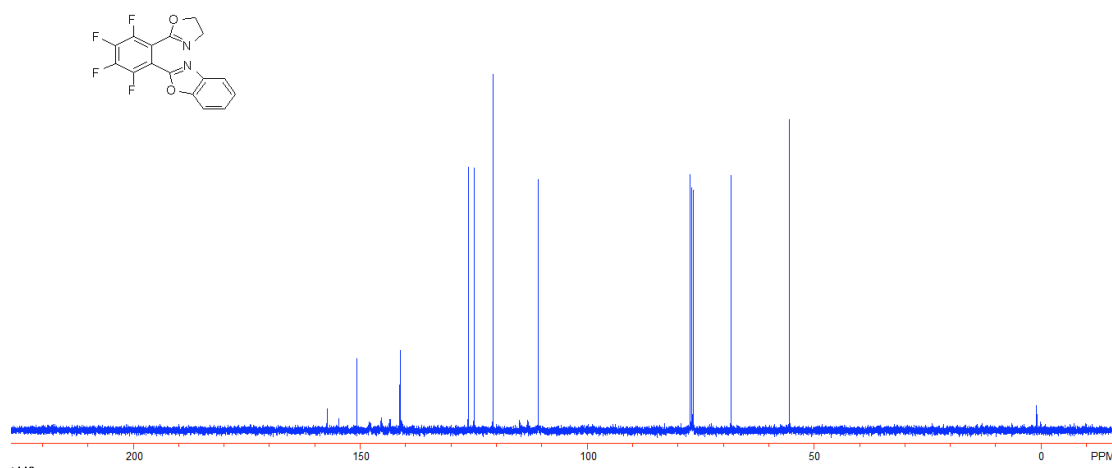
¹H NMR Spectrum of 2-(2-(4,5-Dihydrooxazol-2-yl)-3,4,5,6-tetrafluorophenyl)benzoxazole



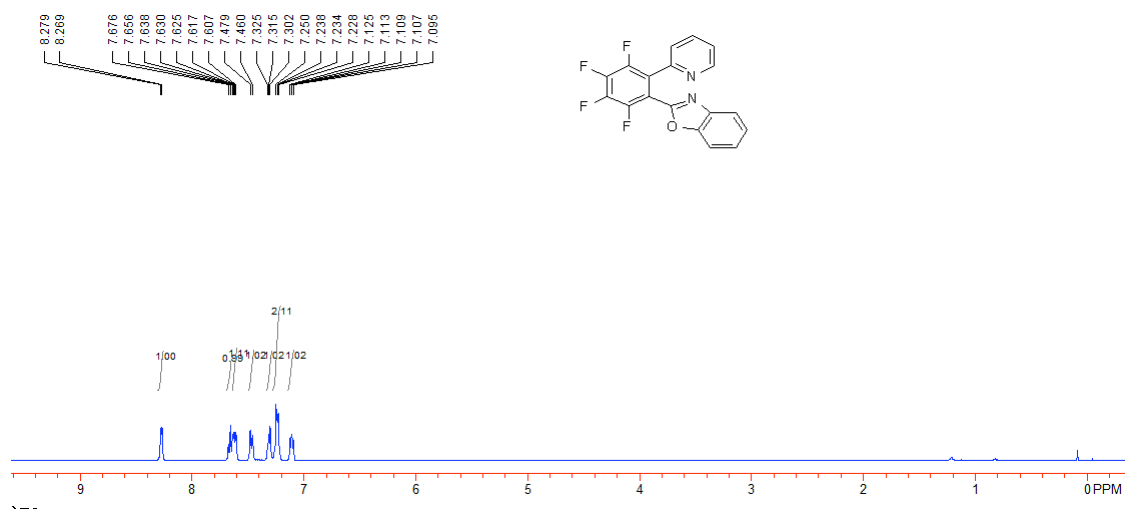
¹⁹F NMR Spectrum of 2-(2-(4,5-Dihydrooxazol-2-yl)-3,4,5,6-tetrafluorophenyl)benzoxazole



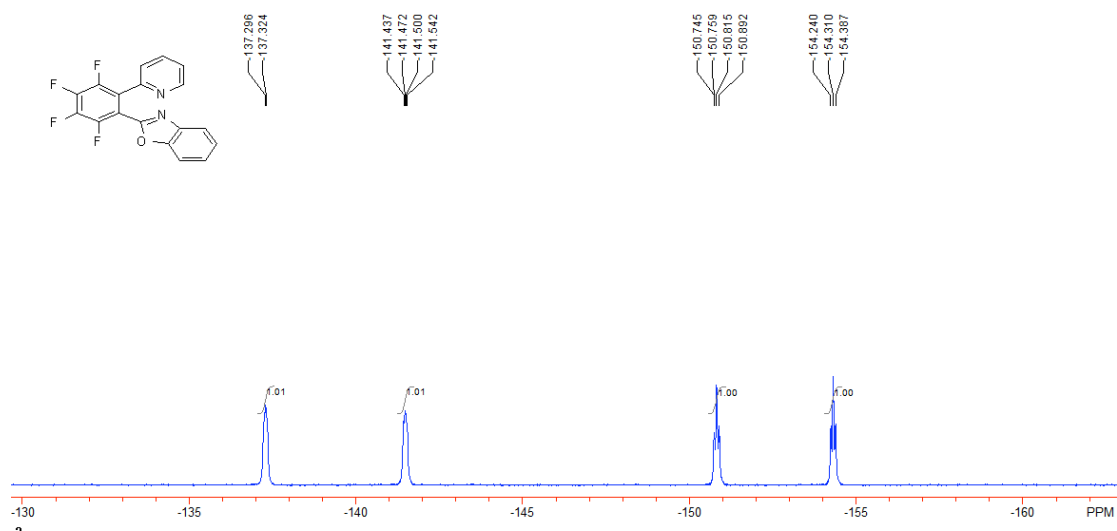
¹³C NMR Spectrum of 2-(2-(4,5-Dihydrooxazol-2-yl)-3,4,5,6-tetrafluorophenyl)benzoxazole



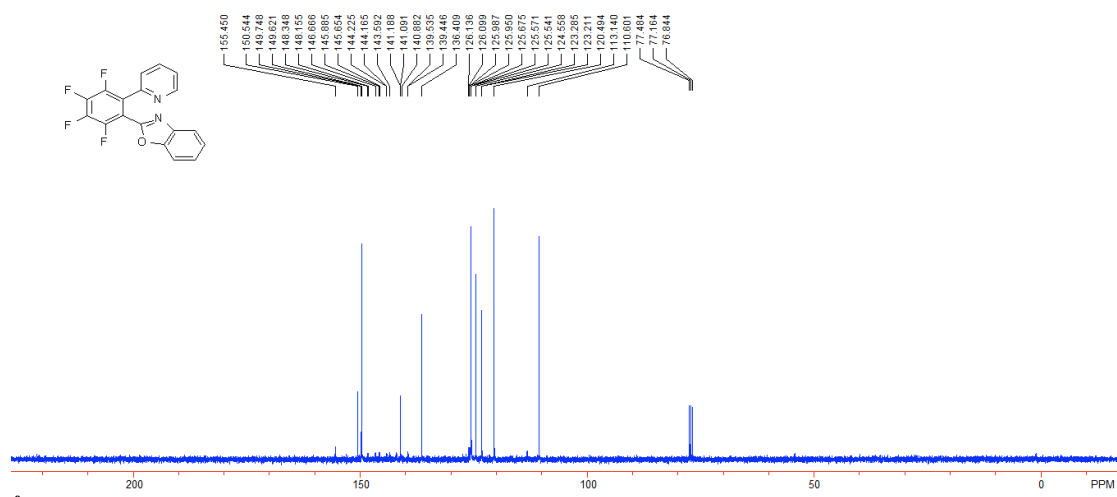
¹H NMR Spectrum of 3a (Table 1)



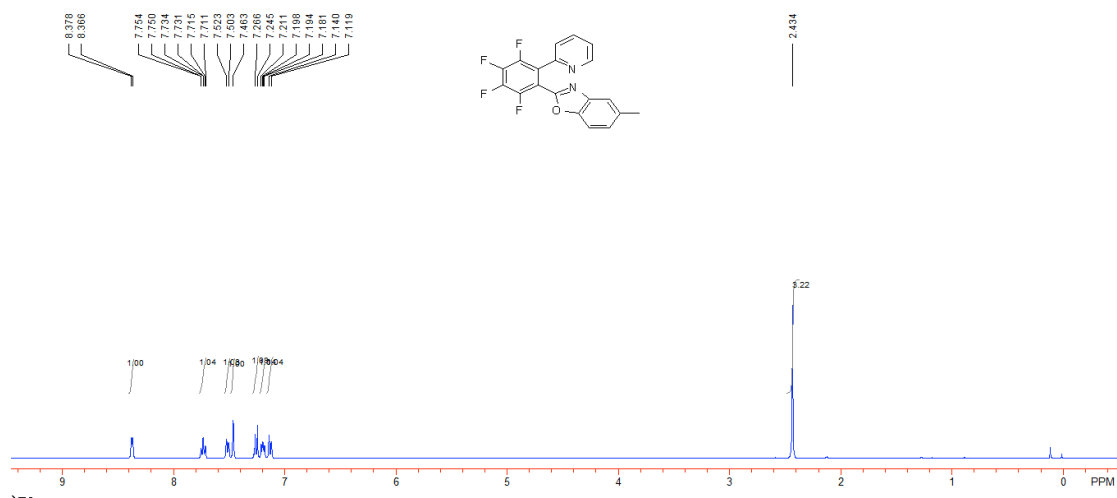
¹⁹F NMR Spectrum of 3a (Table 1)



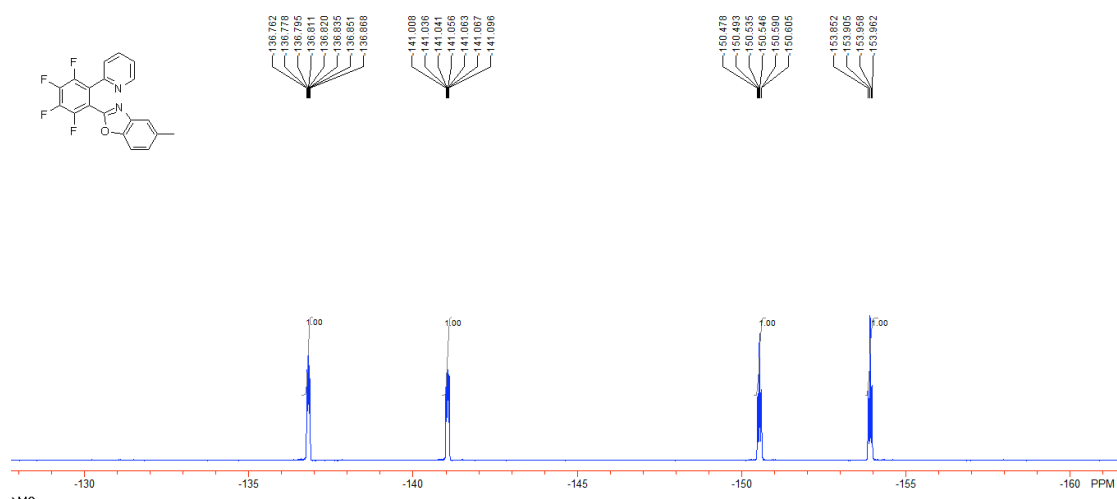
¹³C NMR Spectrum of 3a (Table 1)



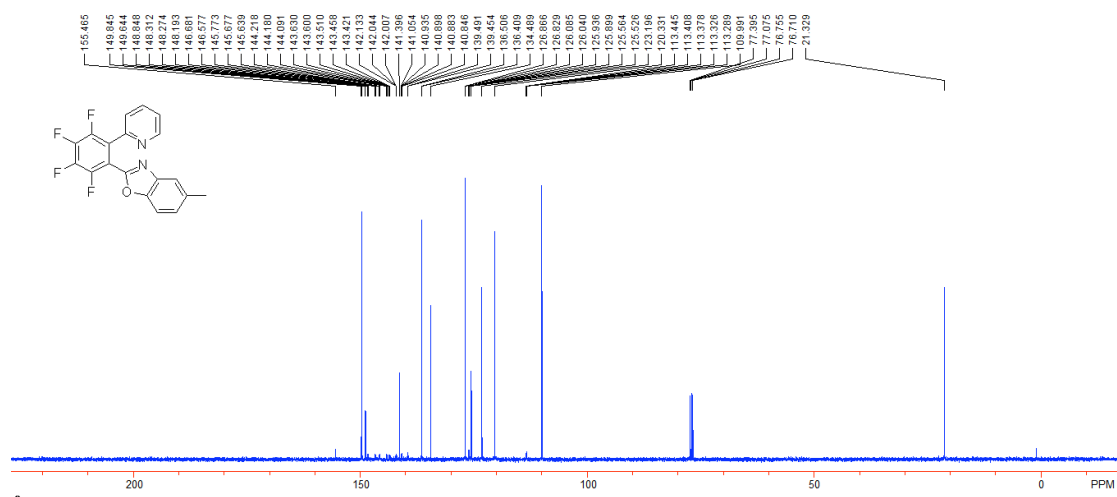
¹H NMR Spectrum of 3b (Table 1)



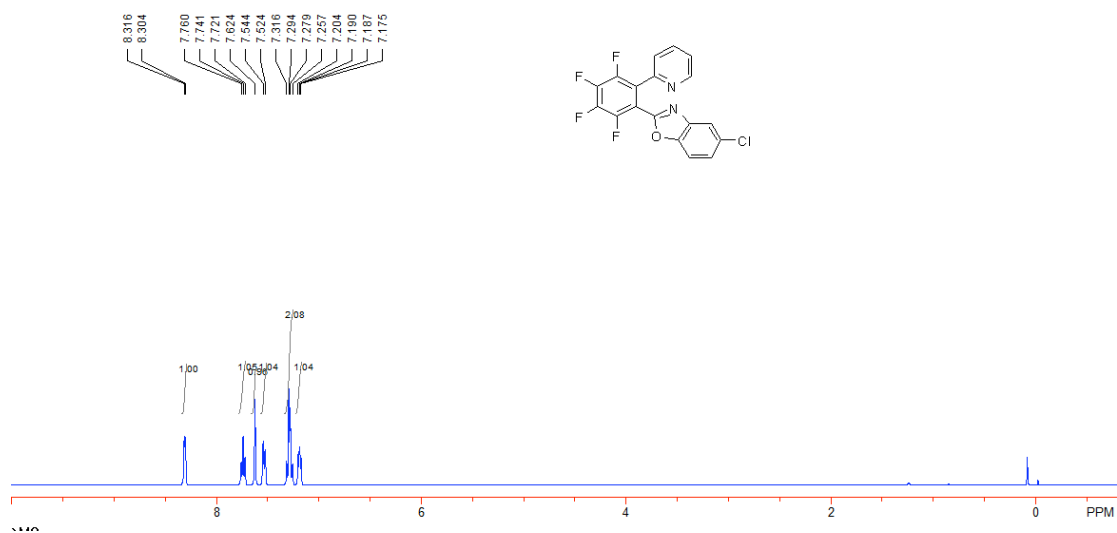
¹⁹F NMR Spectrum of 3b (Table 1)



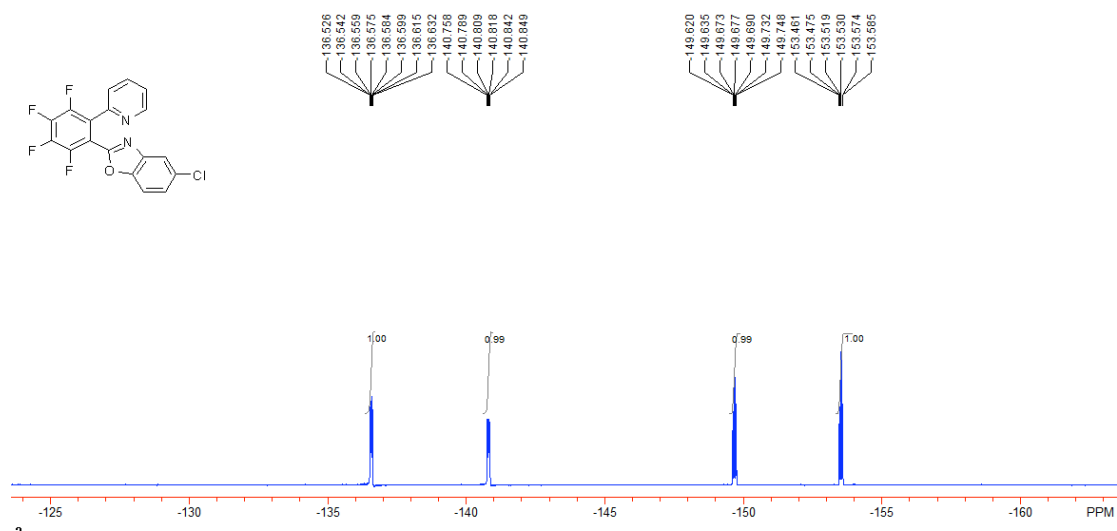
¹³C NMR Spectrum of 3b (Table 1)



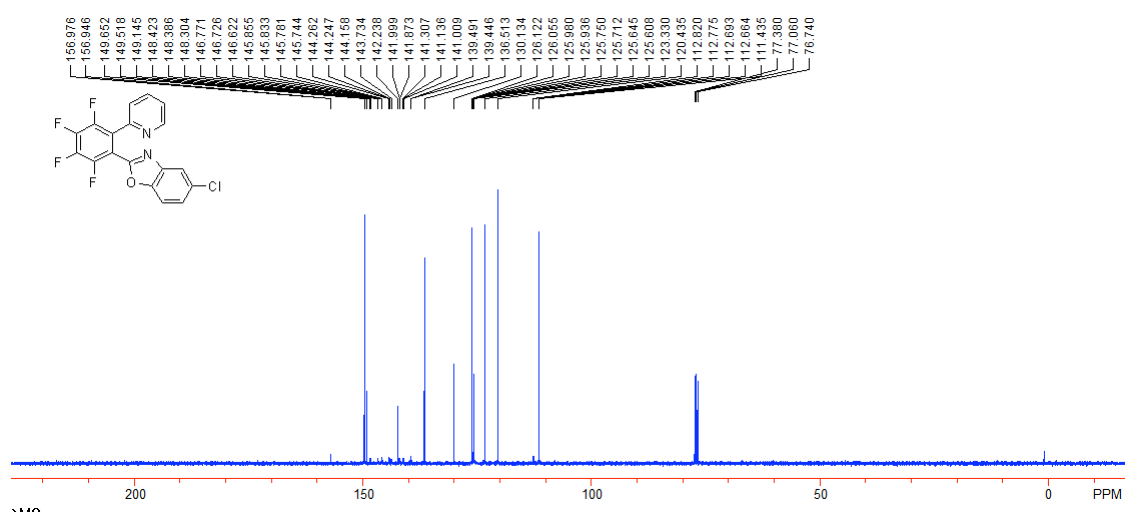
¹H NMR Spectrum of 3c (Table 1)



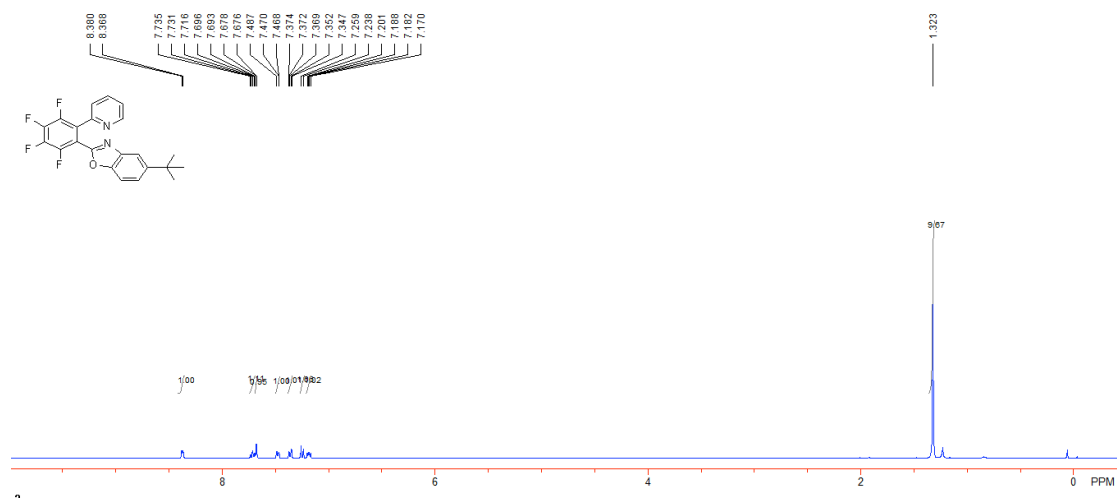
¹⁹F NMR Spectrum of 3c (Table 1)



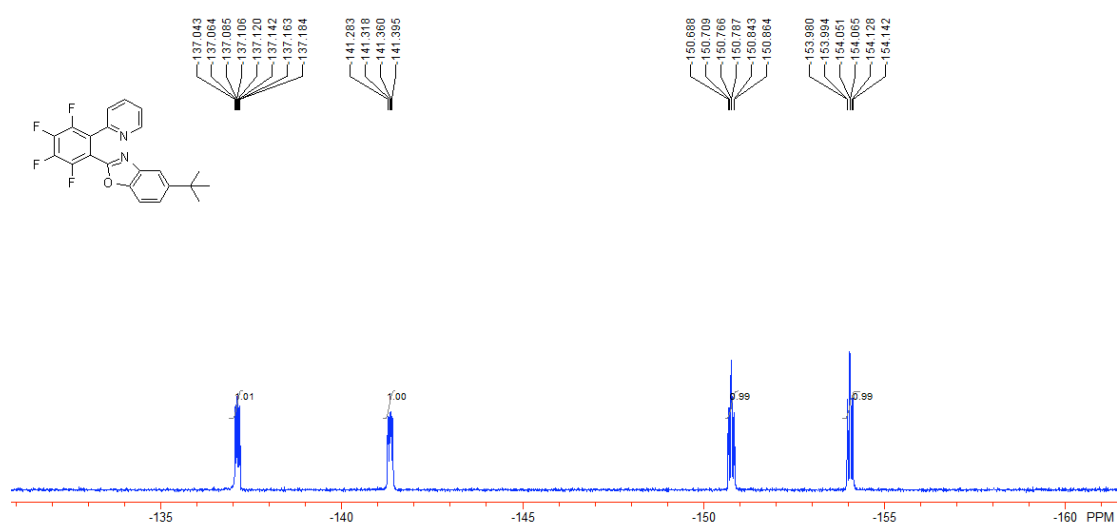
¹³C NMR Spectrum of 3c (Table 1)



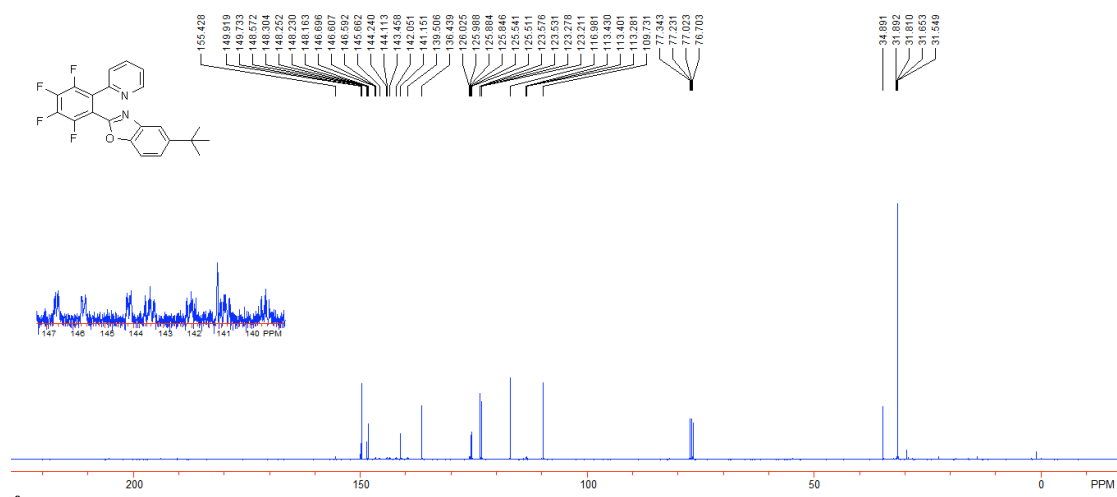
¹H NMR Spectrum of 3d (Table 1)



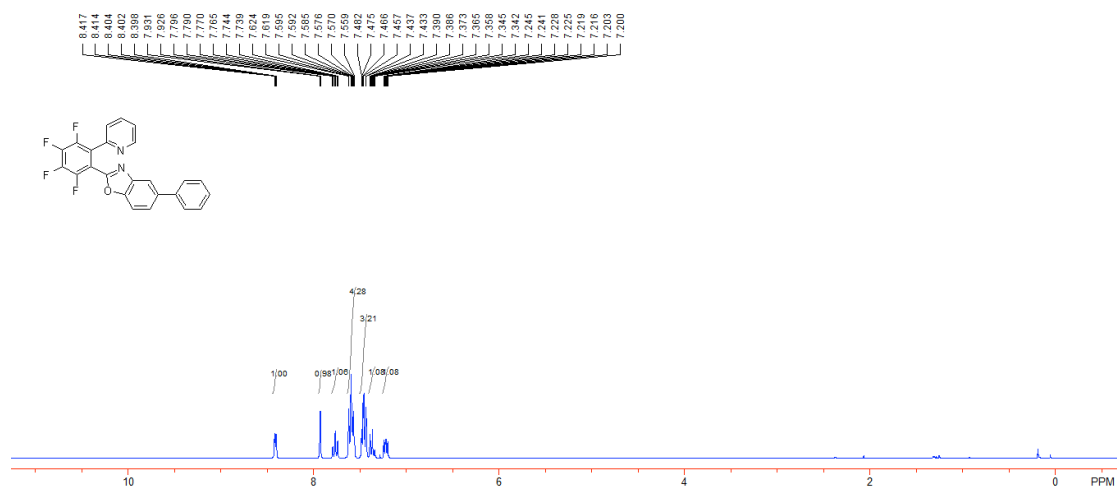
¹⁹F NMR Spectrum of 3d (Table 1)



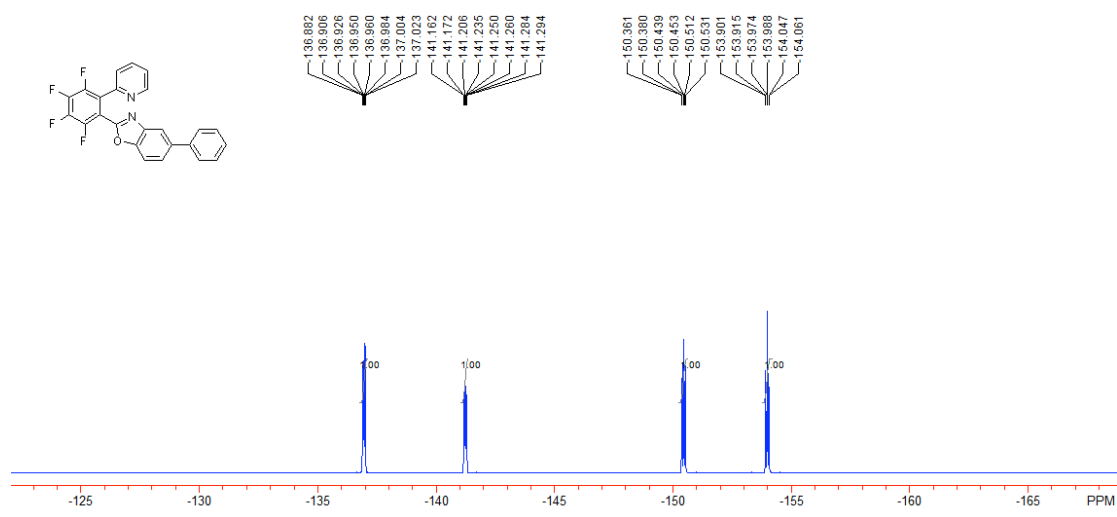
¹³C NMR Spectrum of 3d (Table 1)



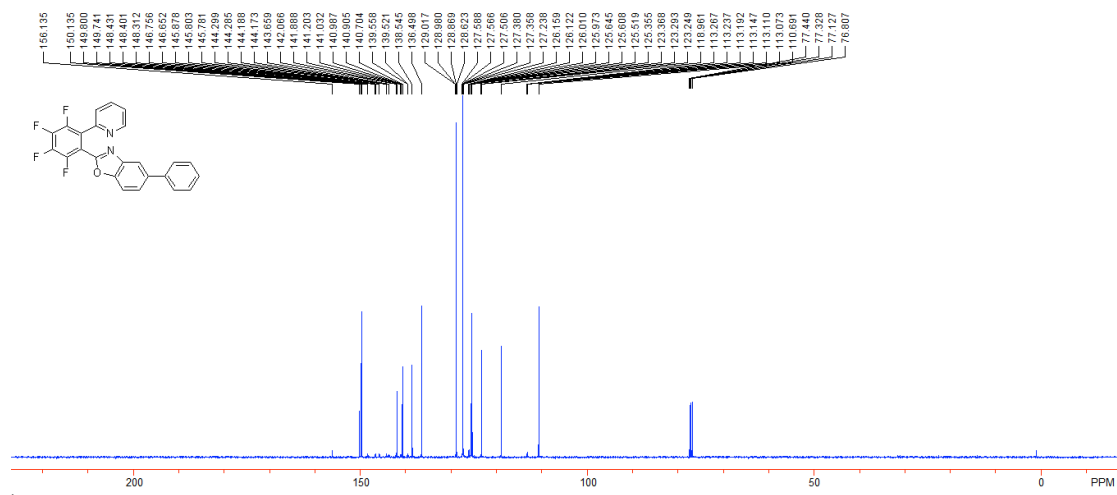
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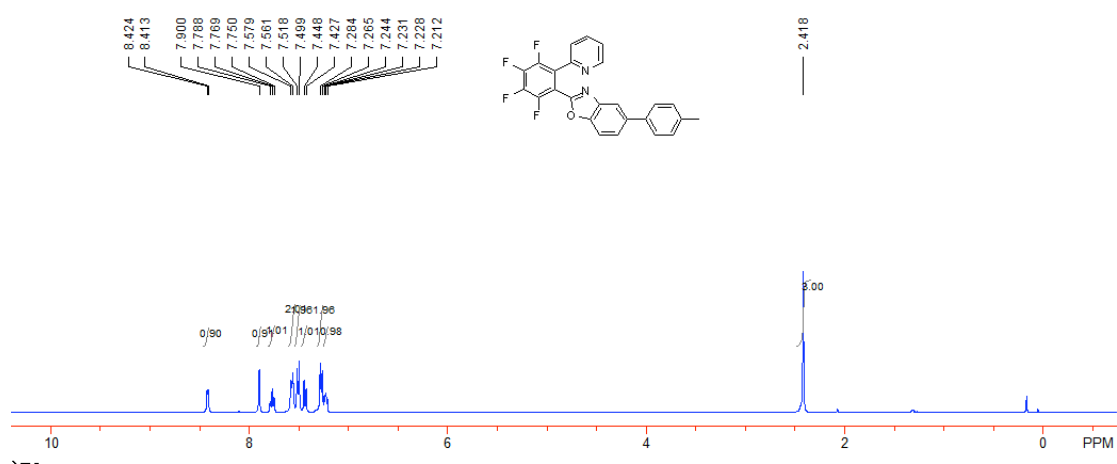
¹⁹F NMR Spectrum of 3e (Table 1)



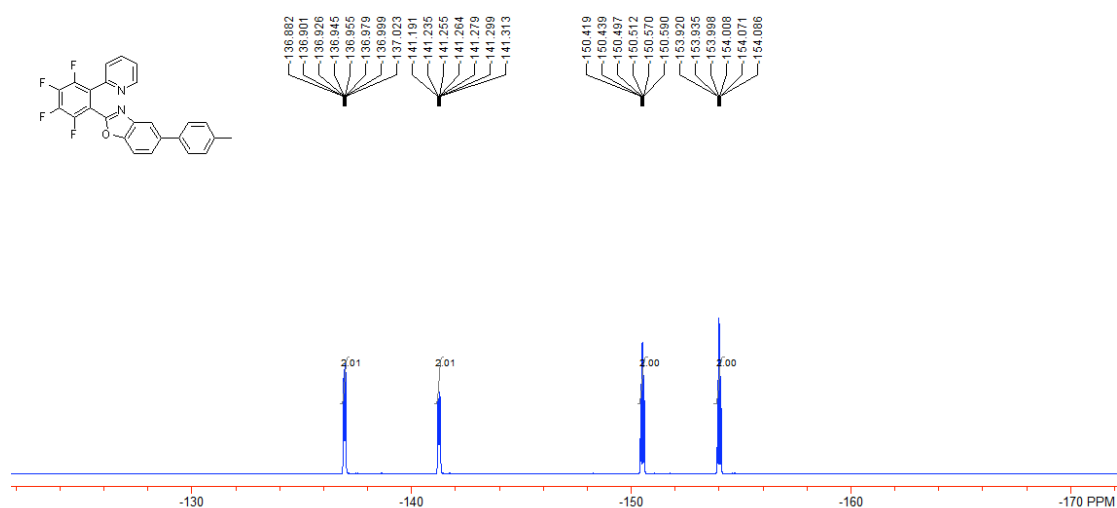
¹³C NMR Spectrum of 3e (Table 1)



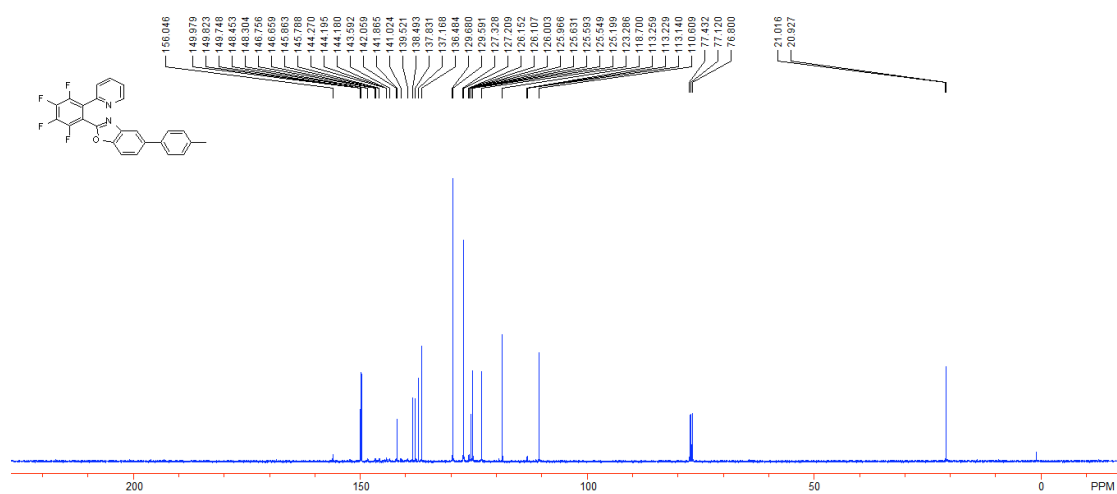
¹H NMR Spectrum of 3f (Table 1)



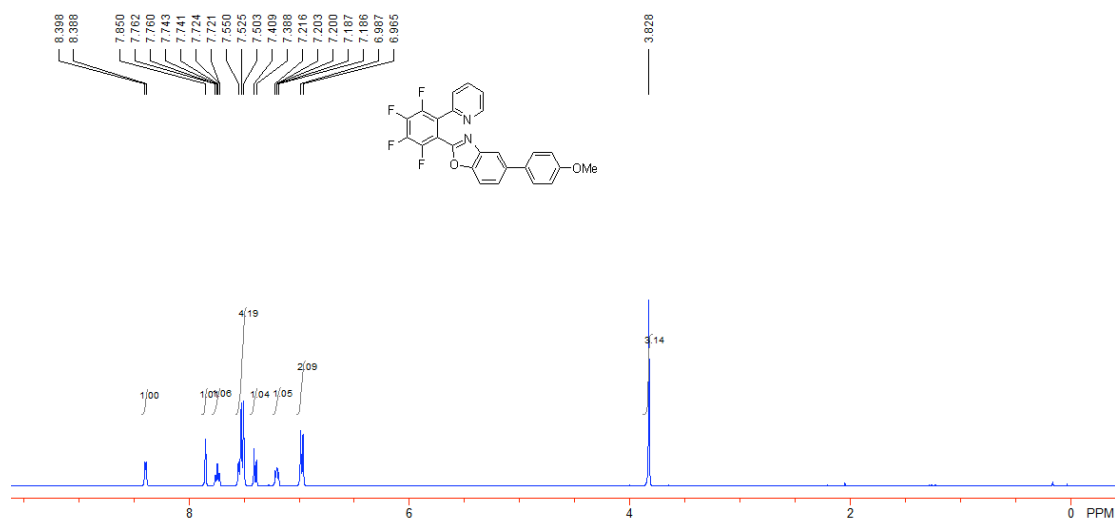
¹⁹F NMR Spectrum of 3f (Table 1)



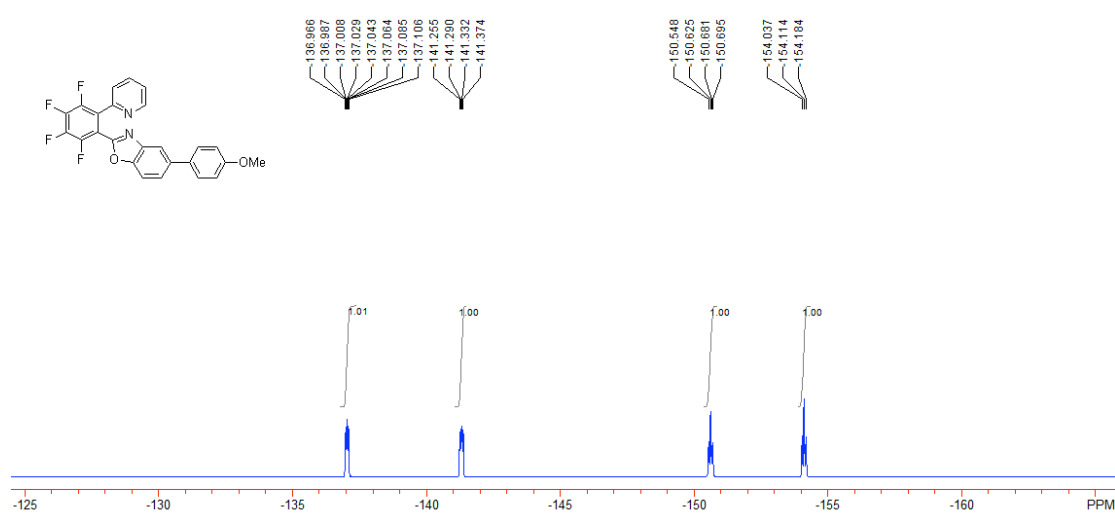
¹³C NMR Spectrum of 3f (Table 1)



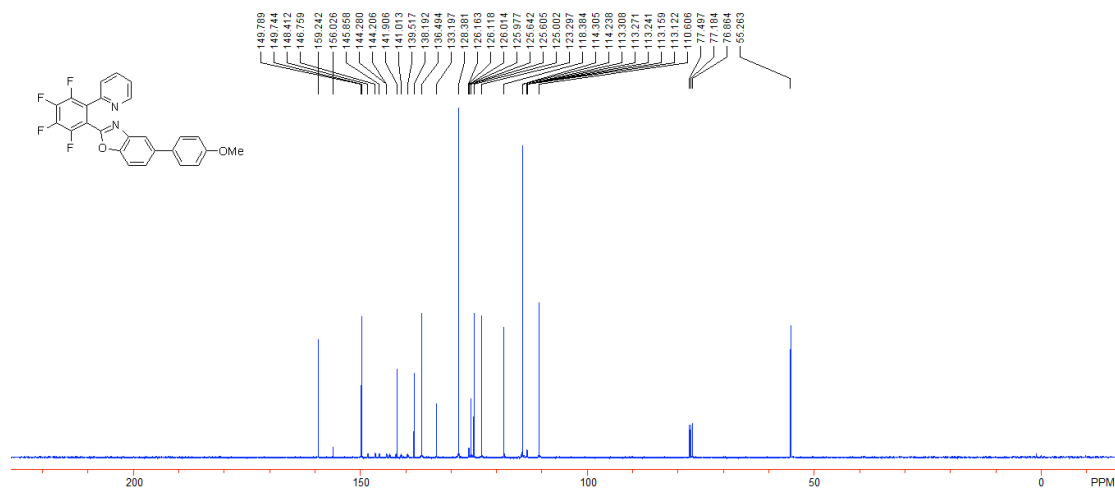
¹H NMR Spectrum of 3g (Table 1)



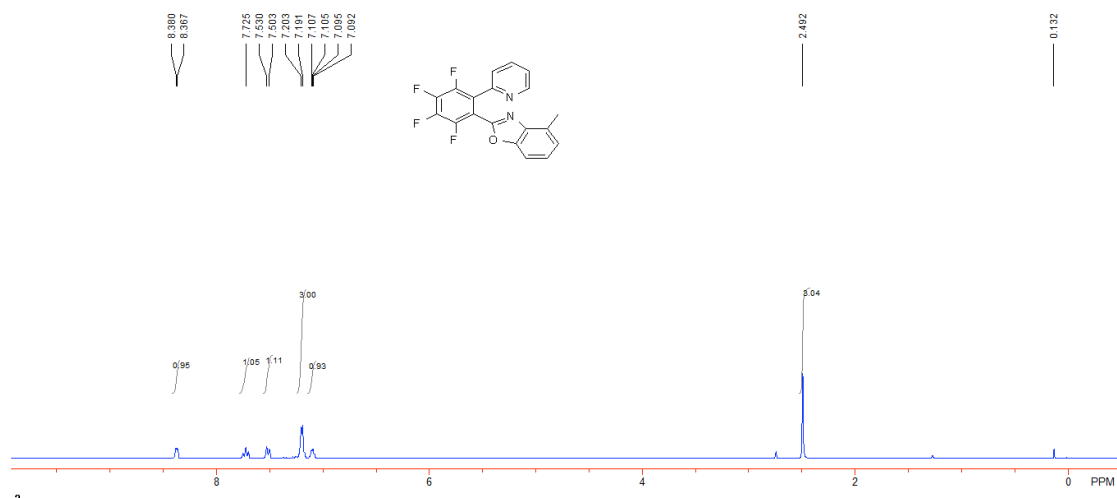
¹⁹F NMR Spectrum of 3g (Table 1)



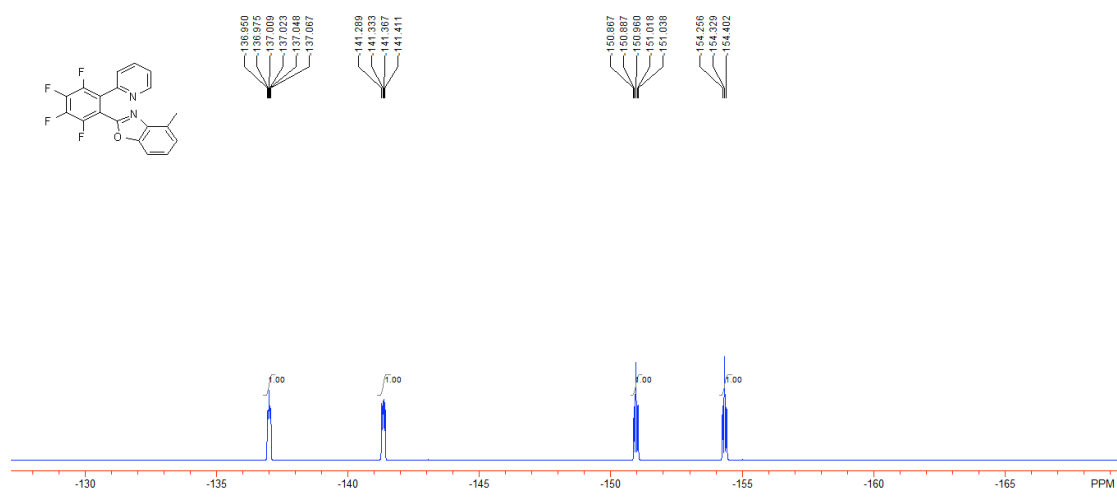
¹³C NMR Spectrum of 3g (Table 1)



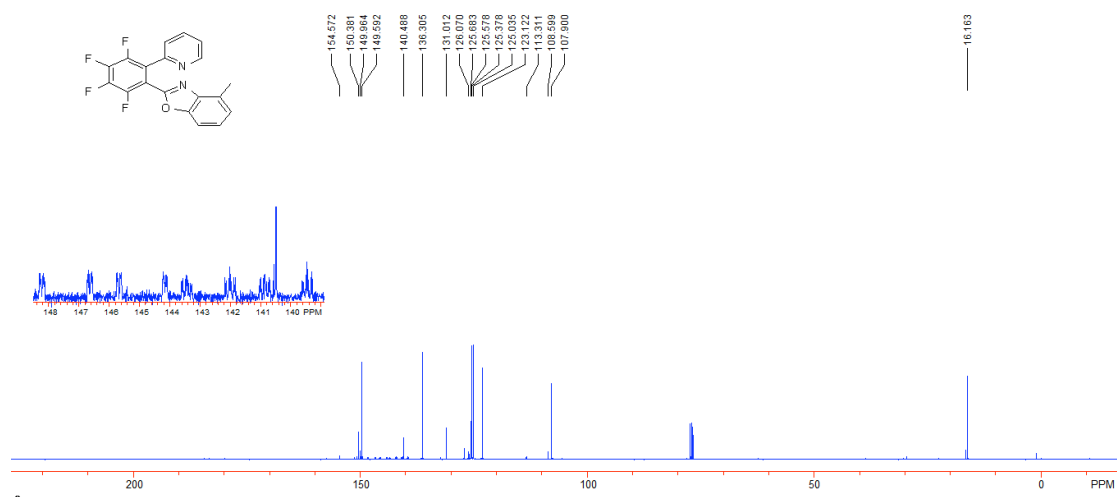
¹H NMR Spectrum of 3h (Table 1)



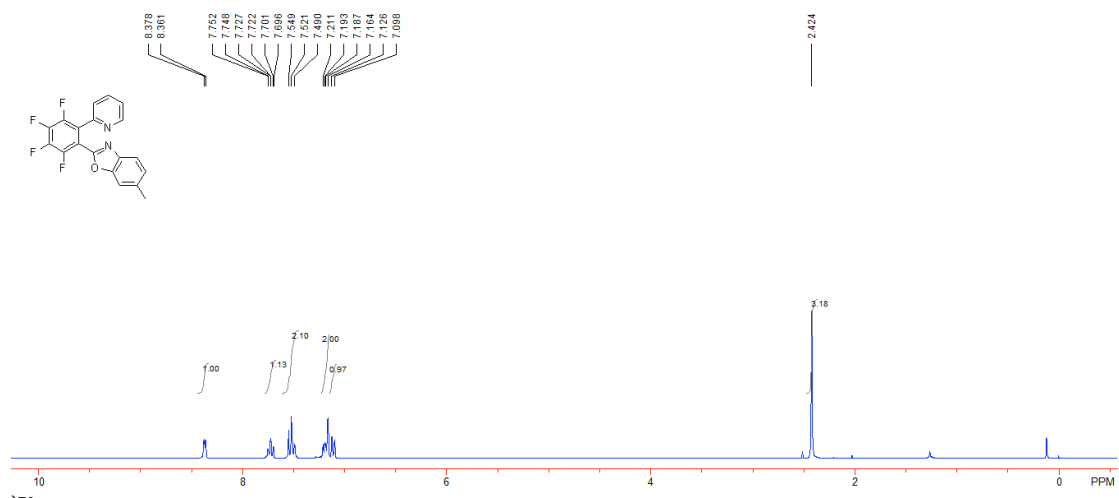
¹⁹F NMR Spectrum of 3h (Table 1)



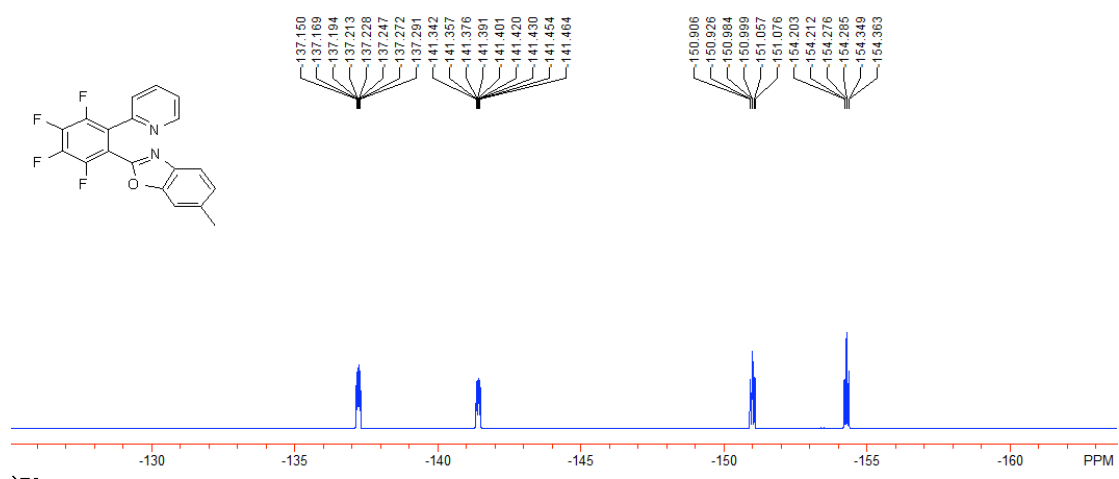
¹³C NMR Spectrum of 3h (Table 1)



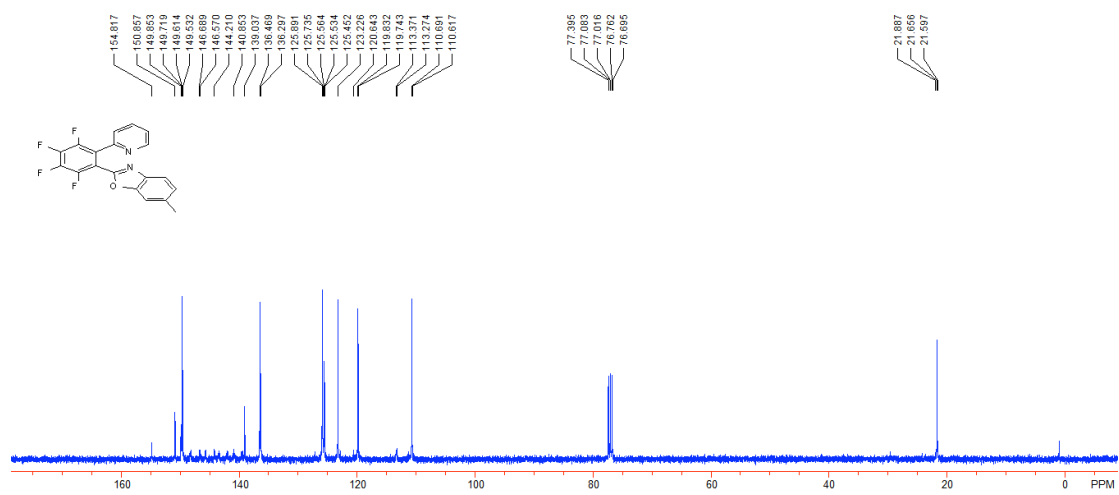
¹H NMR Spectrum of 3i (Table 1)



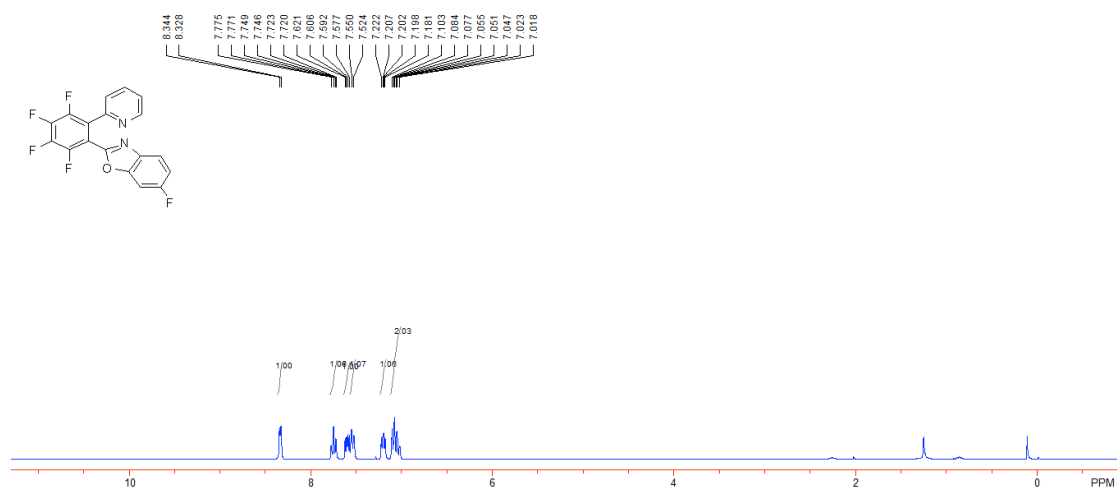
¹⁹F NMR Spectrum of 3i (Table 1)



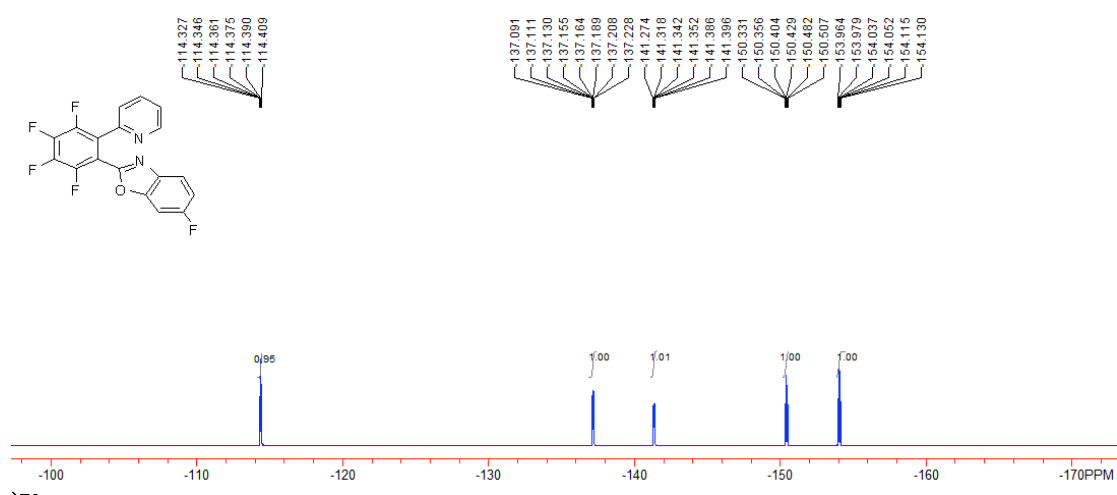
¹³C NMR Spectrum of 3i (Table 1)



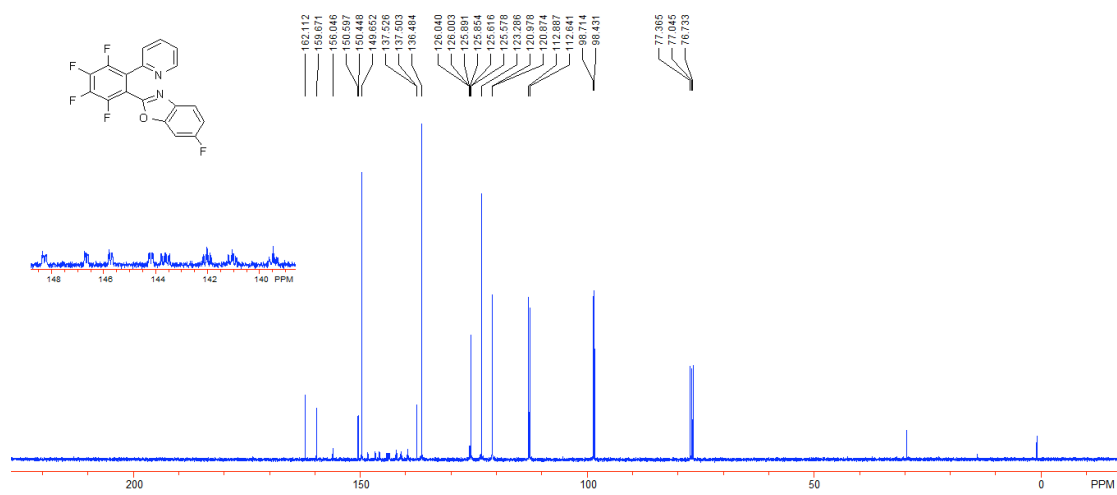
¹H NMR Spectrum of 3j (Table 1)



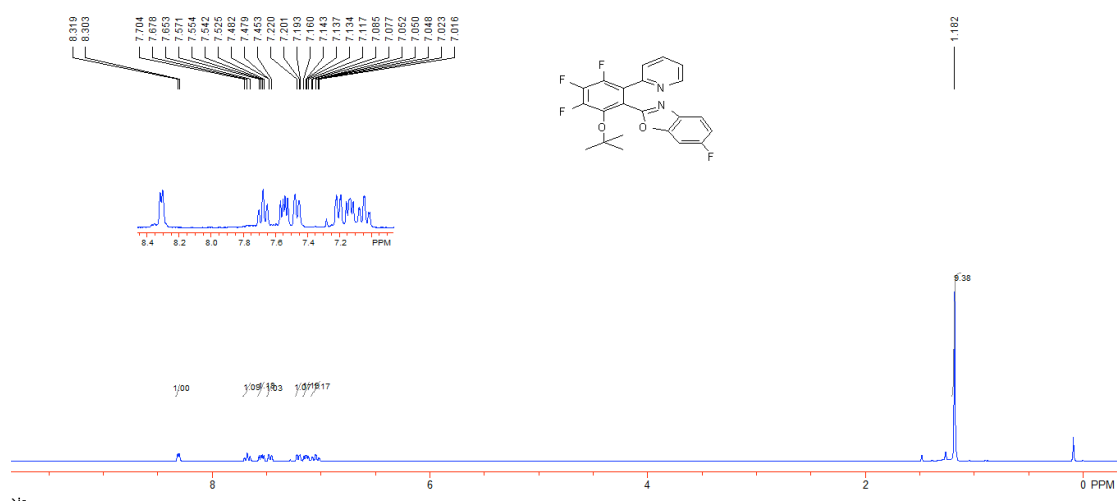
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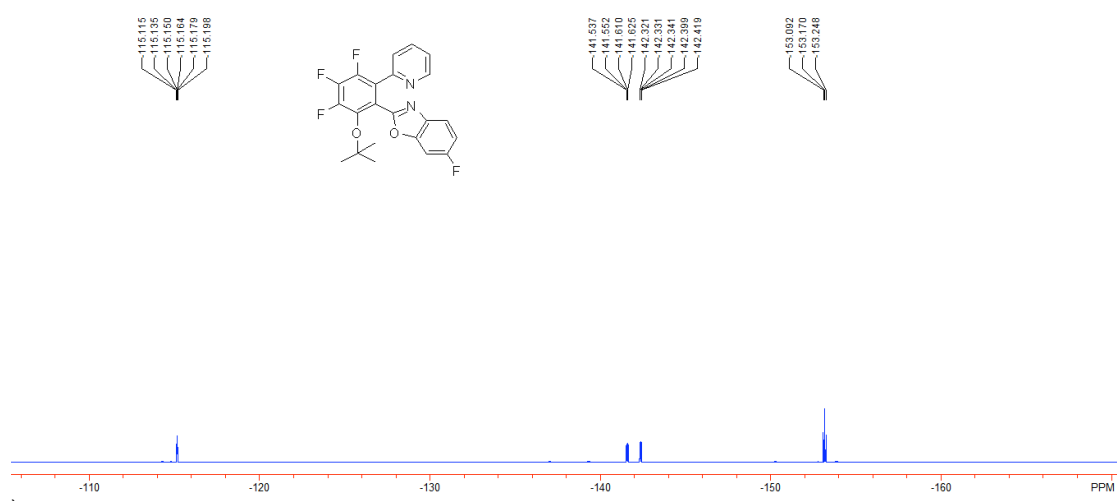
¹³C NMR Spectrum of 3j (Table 1)



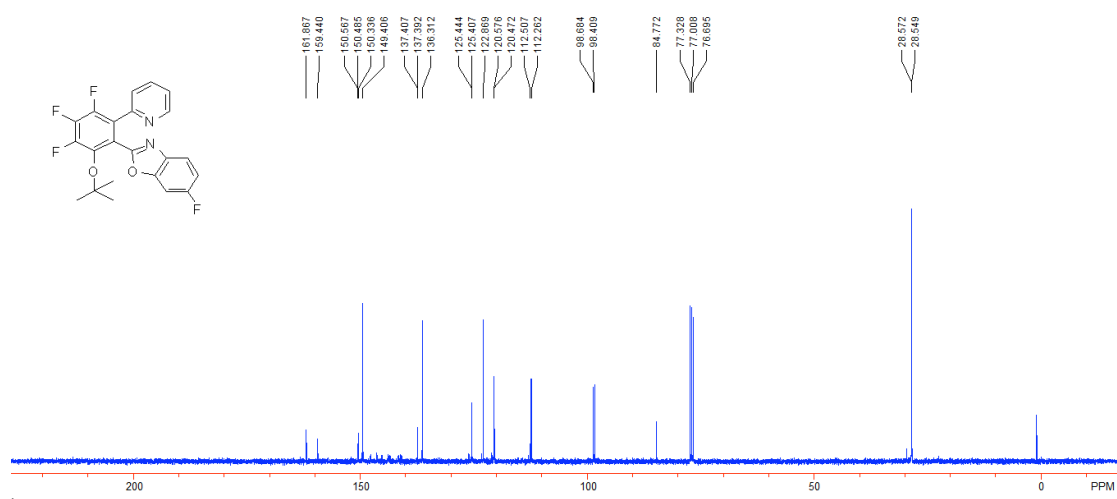
¹H NMR Spectrum of 3j' (Table 1)



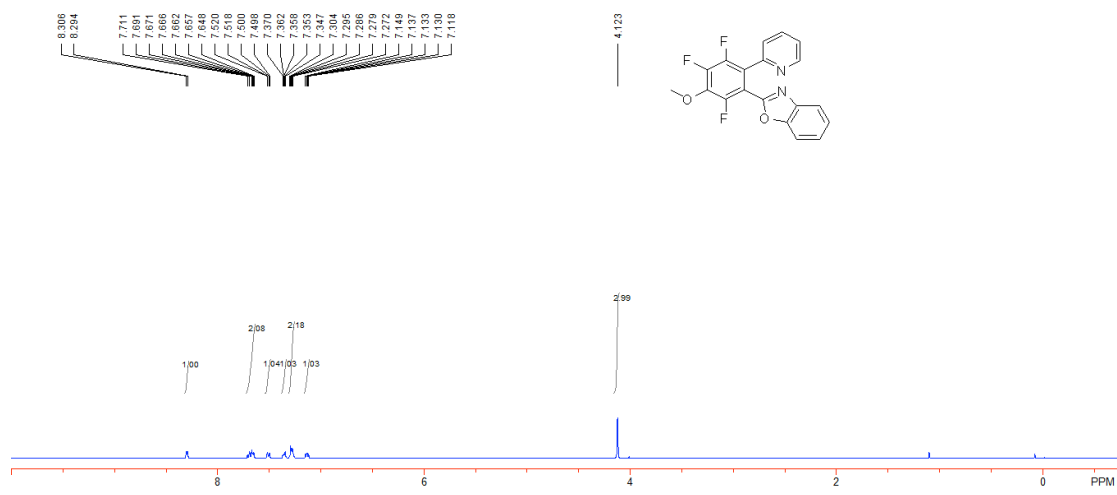
¹⁹F NMR Spectrum of 3j' (Table 1)



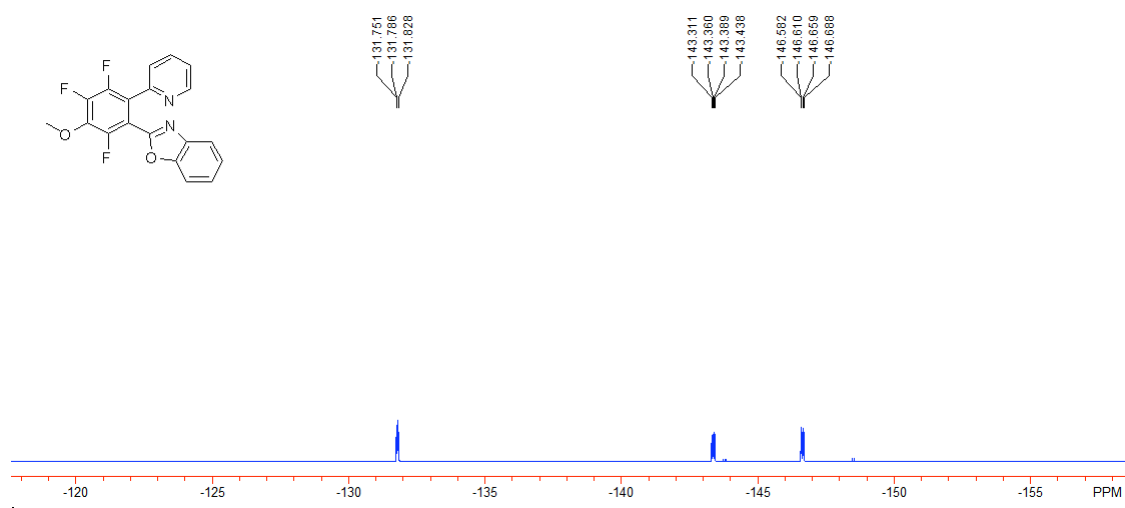
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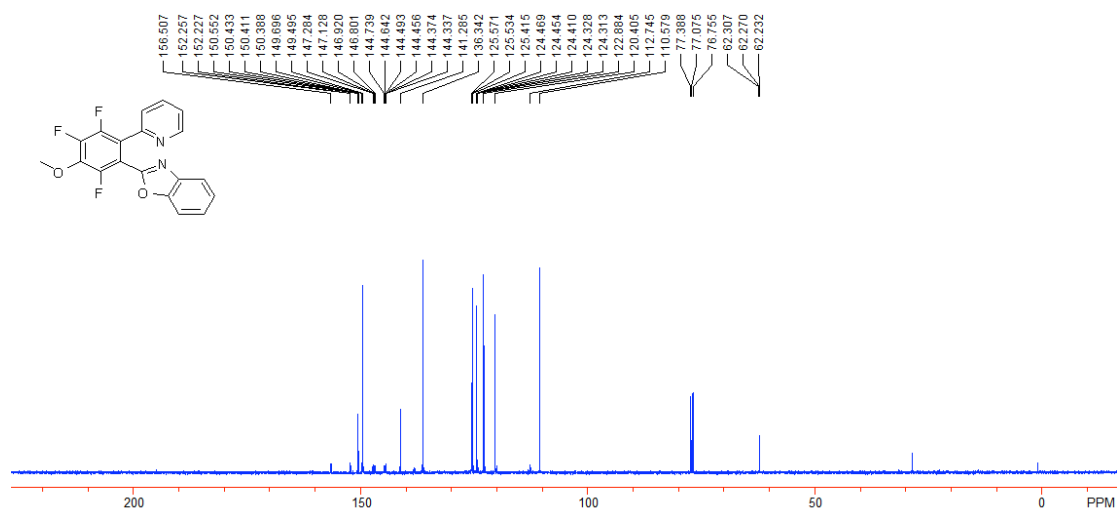
¹H NMR Spectrum of 3k (Table 1)



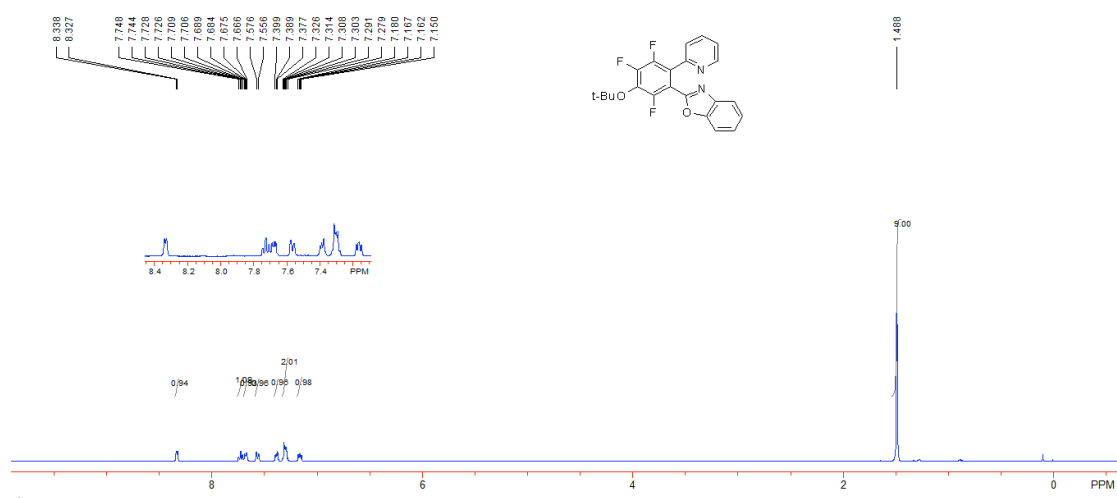
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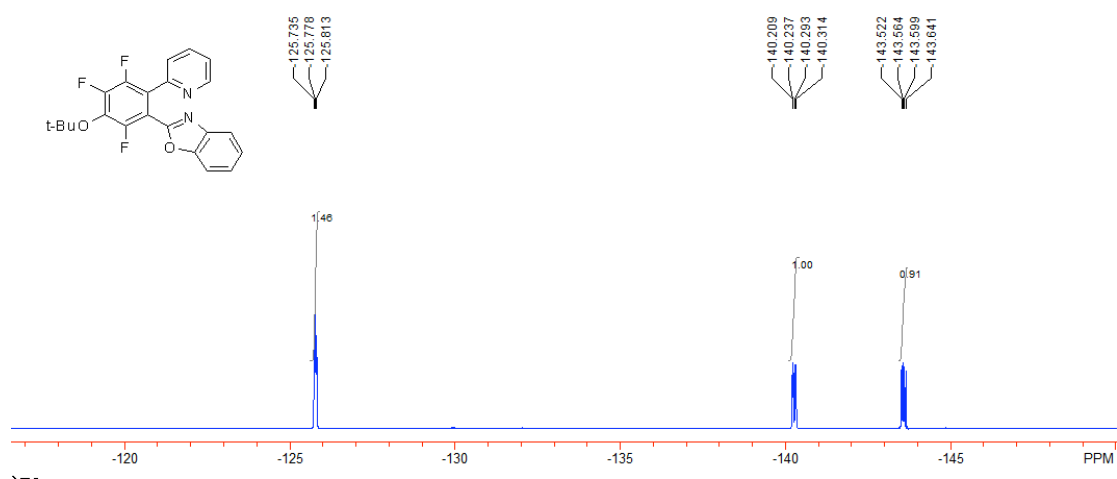
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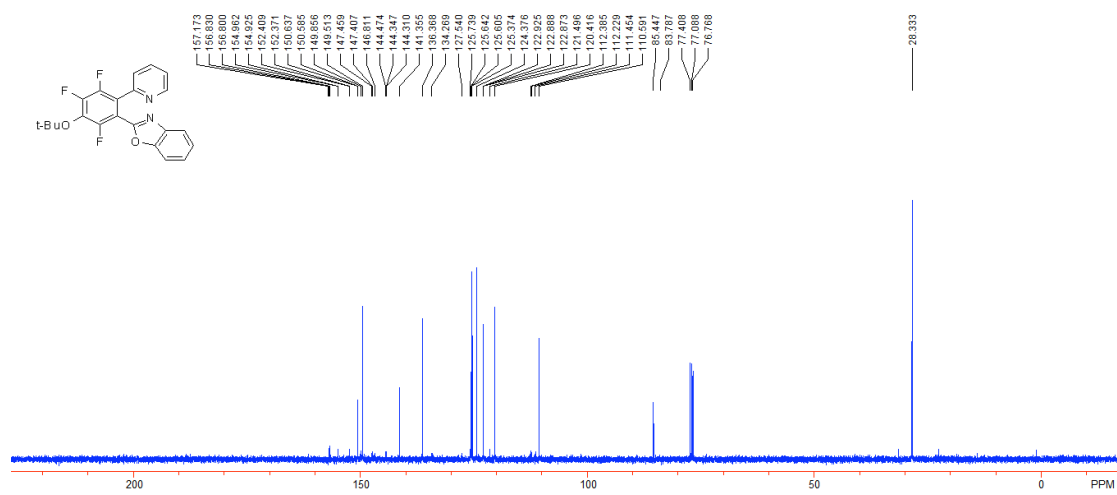
¹H NMR Spectrum of 3l (Table 1)



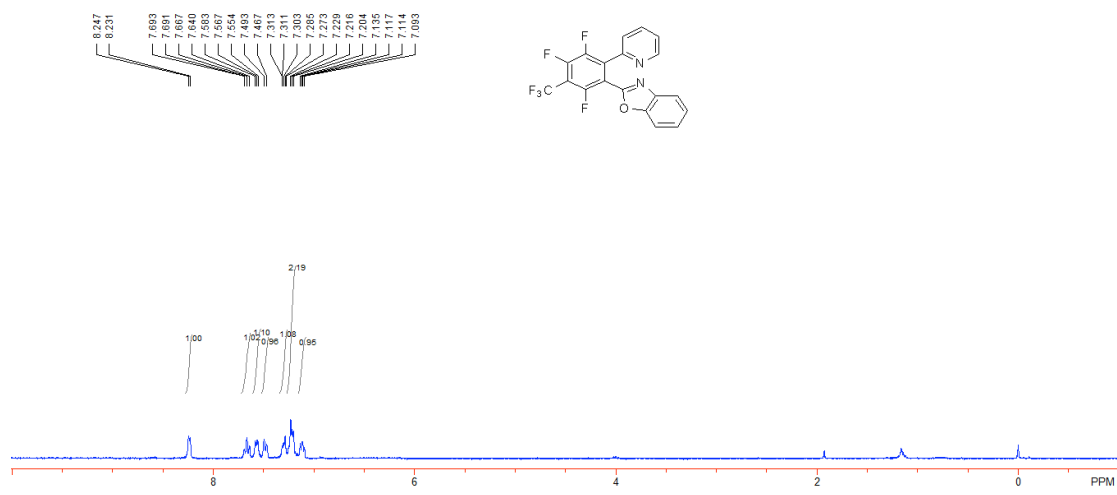
¹⁹F NMR Spectrum of 3l (Table 1)



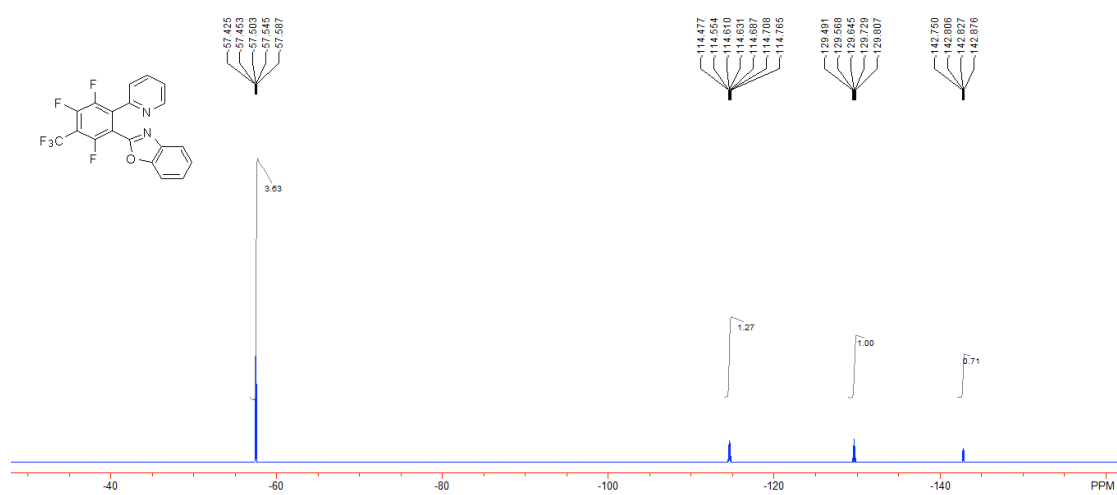
¹³C NMR Spectrum of 3l (Table 1)



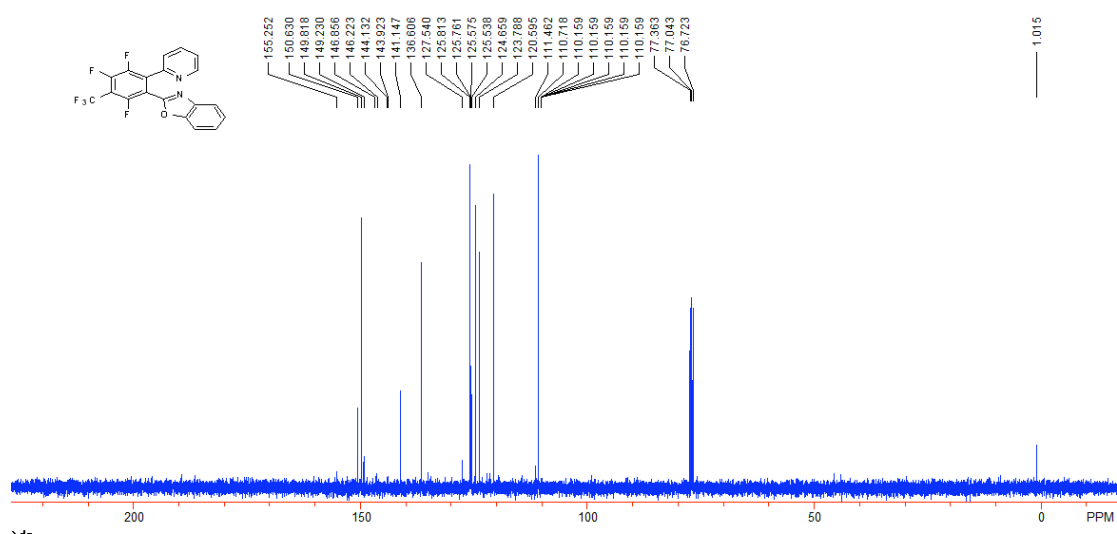
¹H NMR Spectrum of 3m (Table 1)



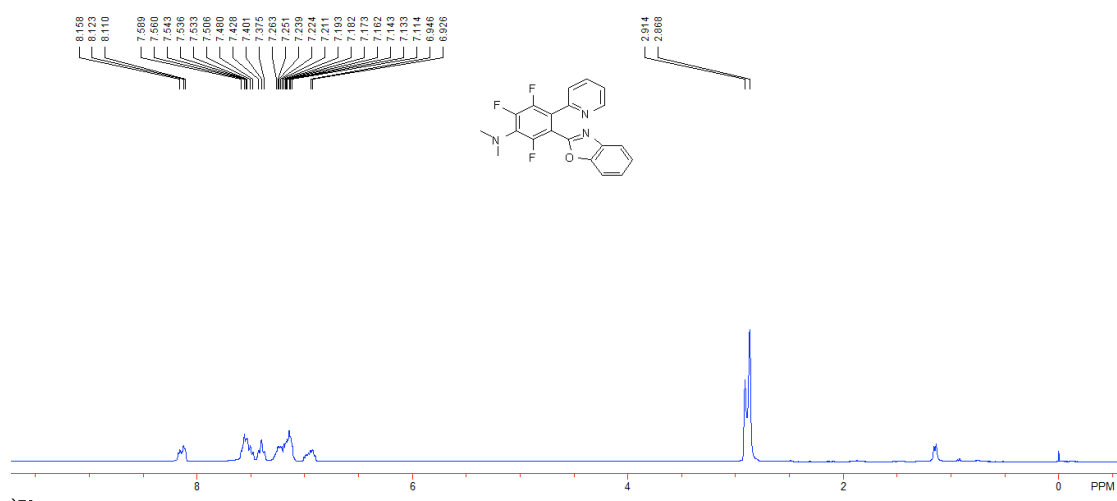
¹⁹F NMR Spectrum of 3m (Table 1)



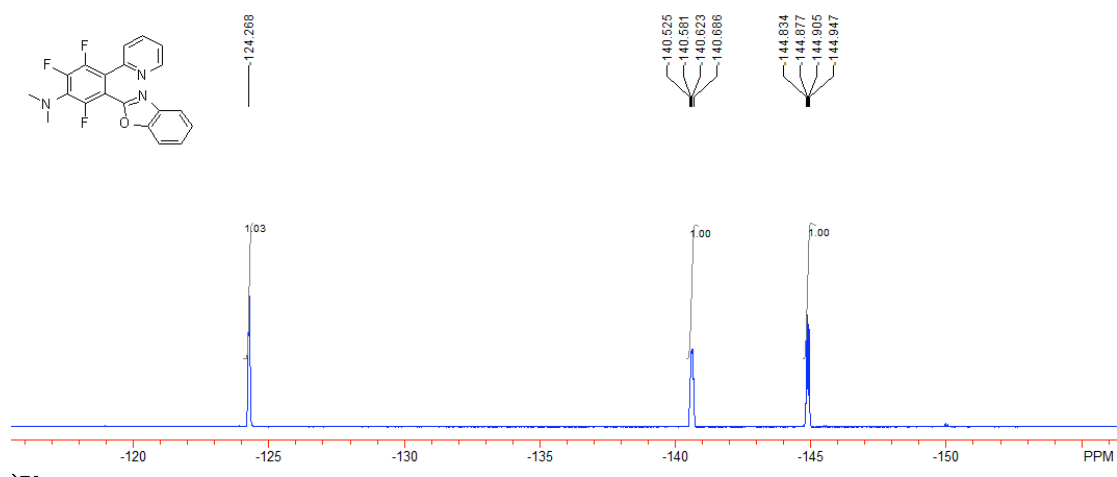
¹³C NMR Spectrum of 3m (Table 1)



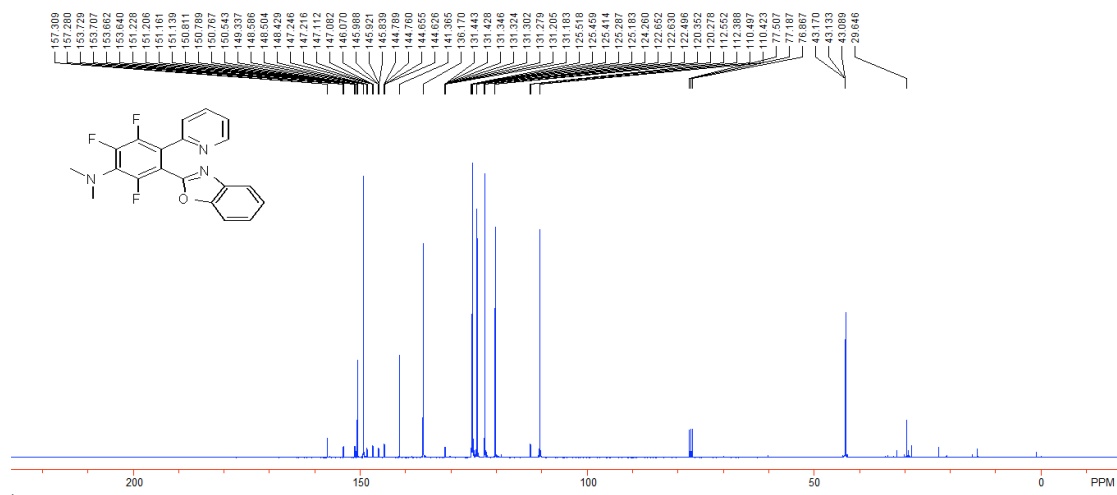
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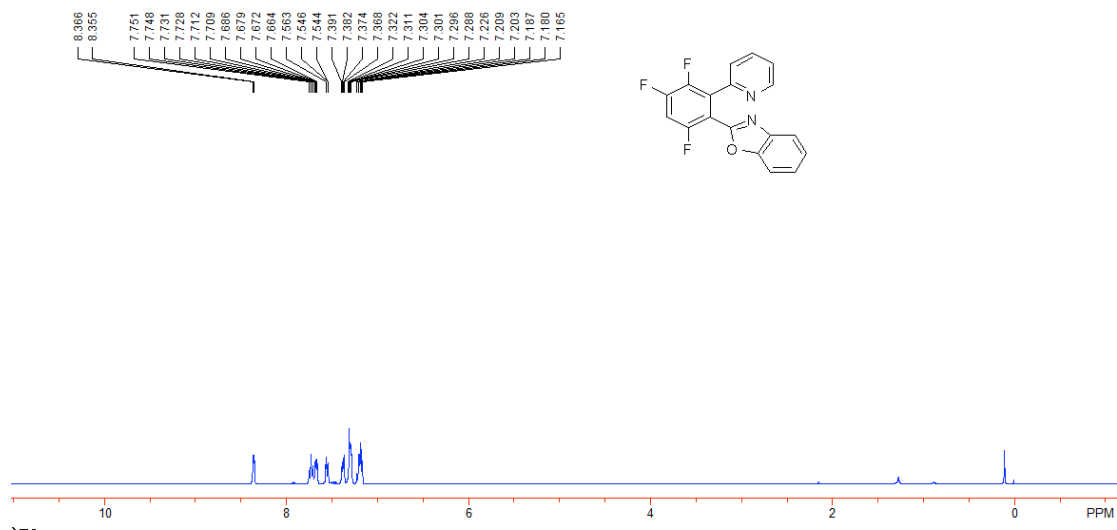
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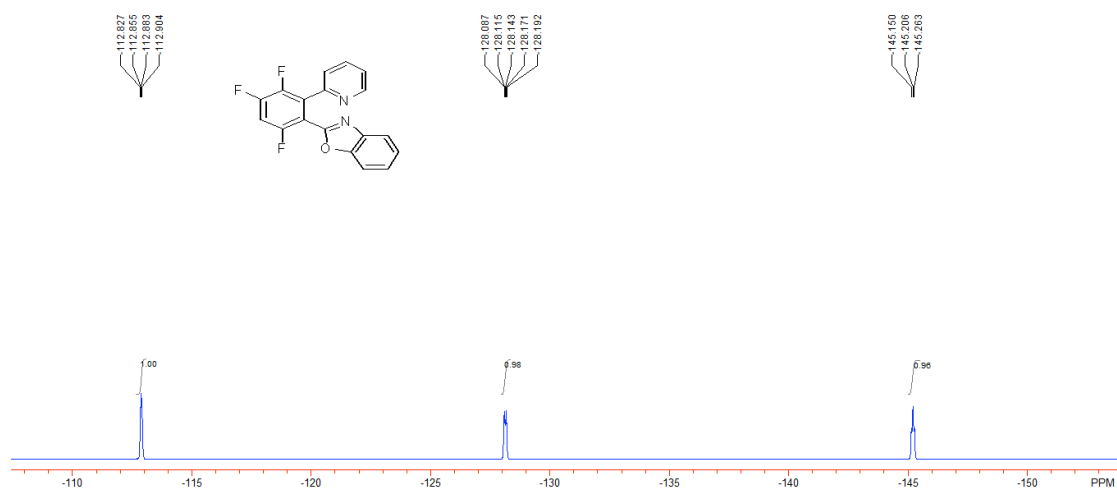
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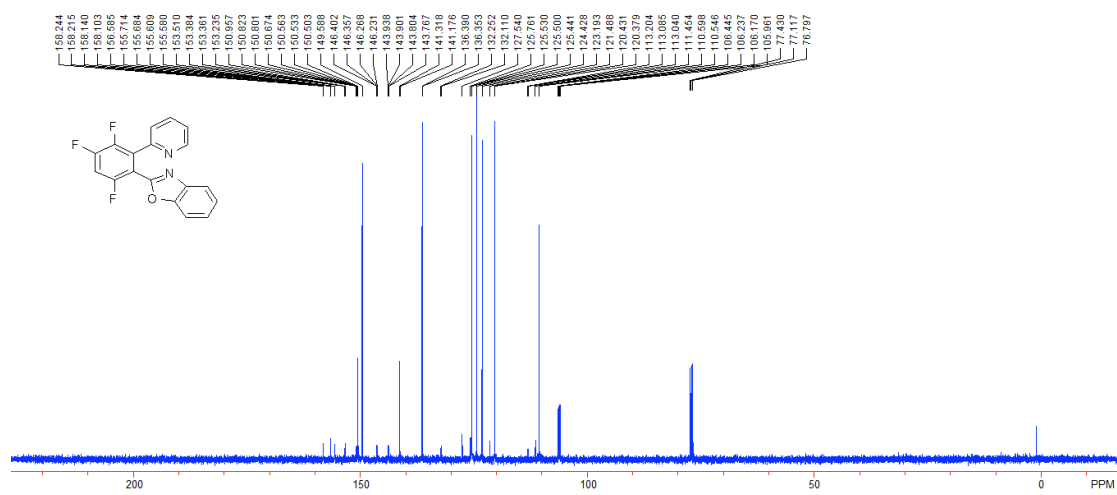
¹H NMR Spectrum of 3o (Table 1)



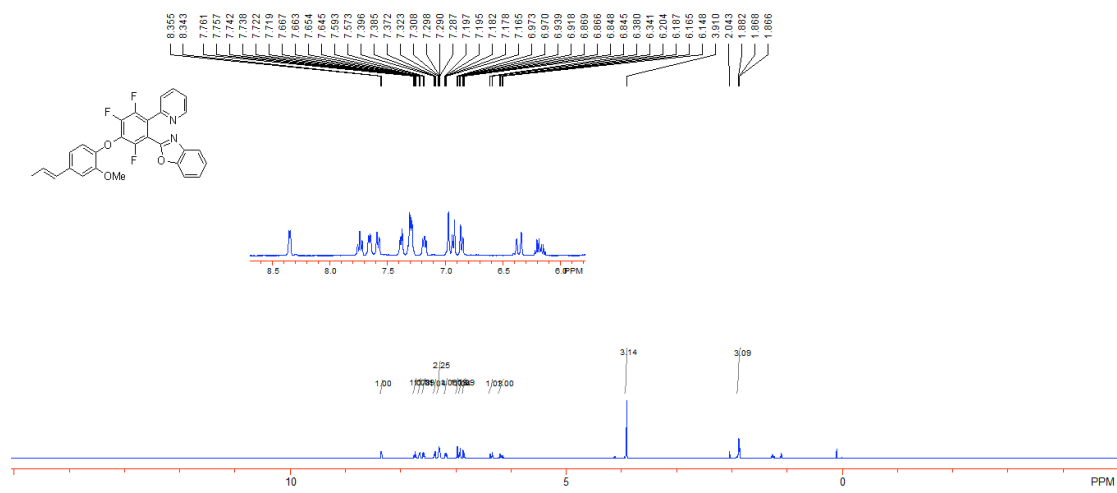
¹⁹F NMR Spectrum of 3o (Table 1)



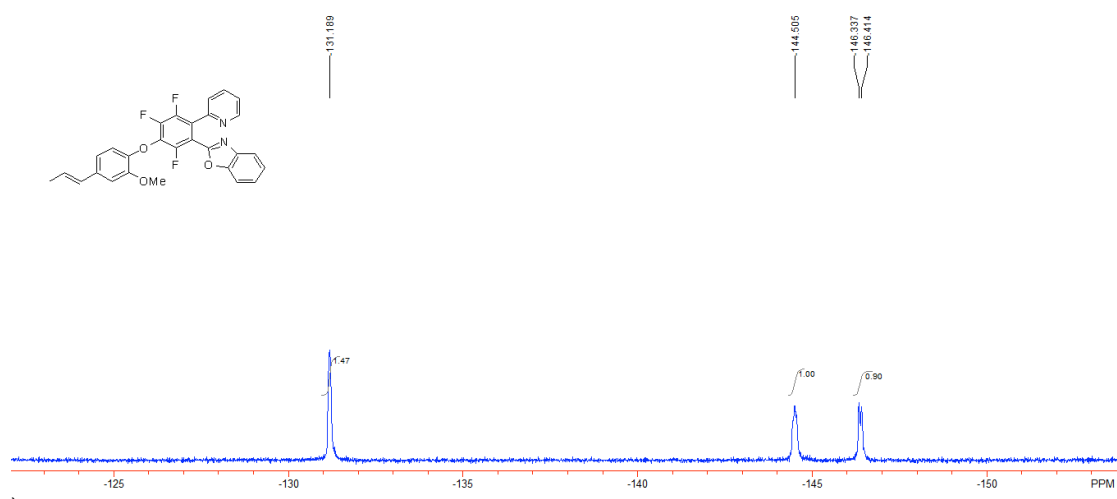
¹³C NMR Spectrum of 3o (Table 1)



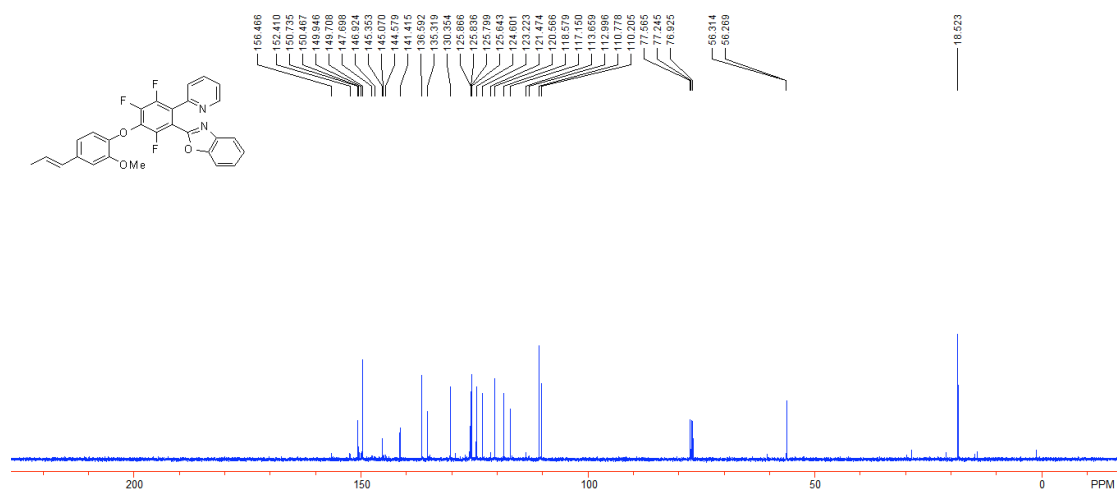
¹H NMR Spectrum of 3p (Table 1)



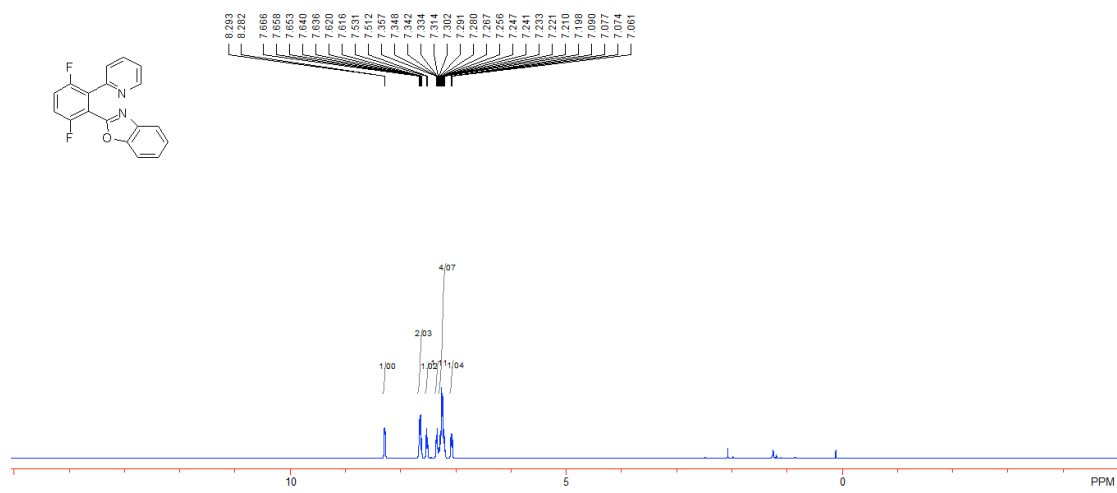
¹⁹F NMR Spectrum of 3p (Table 1)



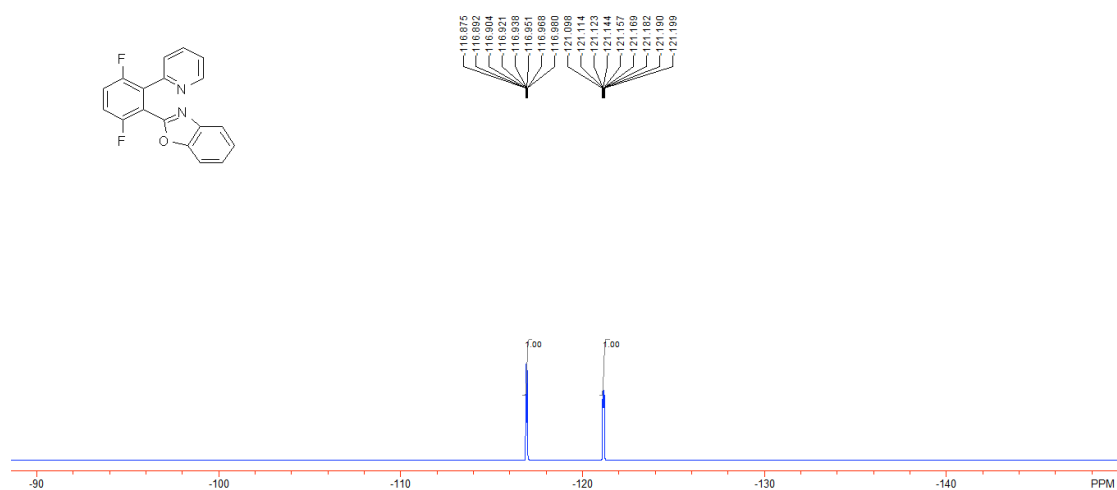
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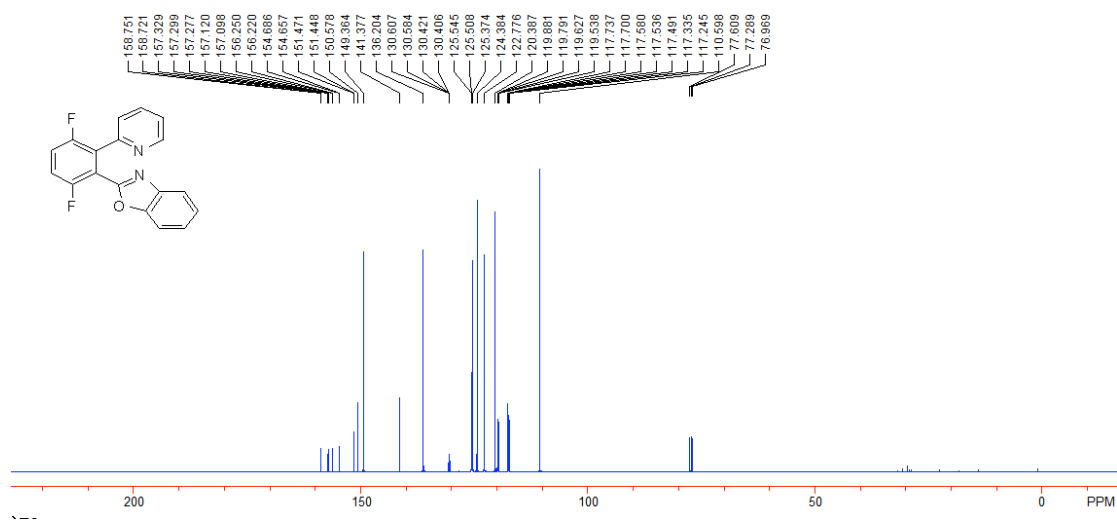
¹H NMR Spectrum of 3q (Table 1)



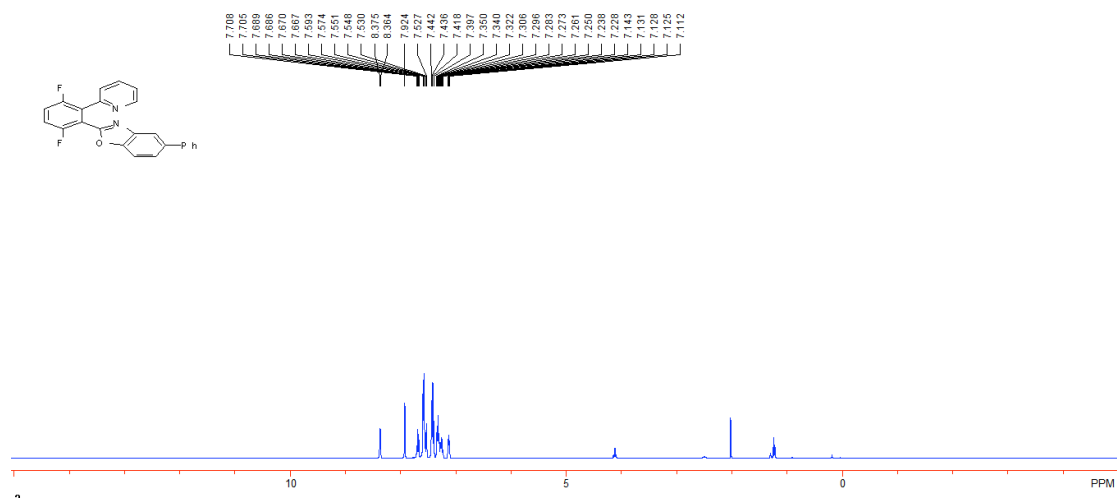
¹⁹F NMR Spectrum of 3q (Table 1)



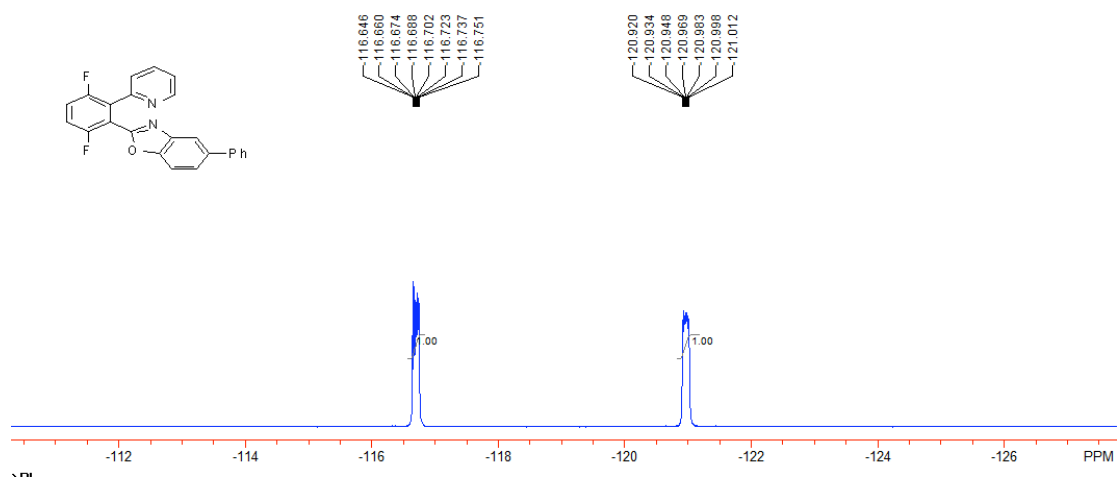
¹³C NMR Spectrum of 3q (Table 1)



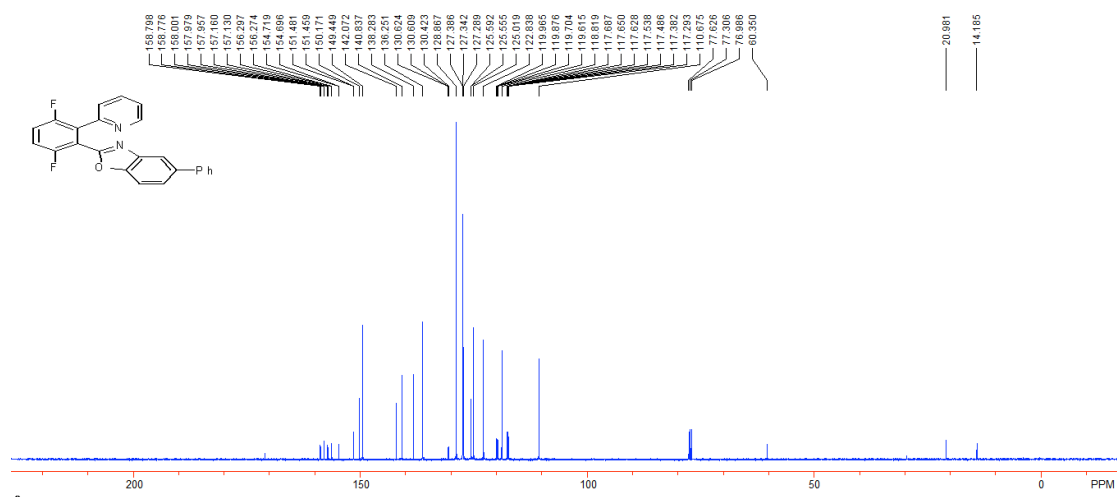
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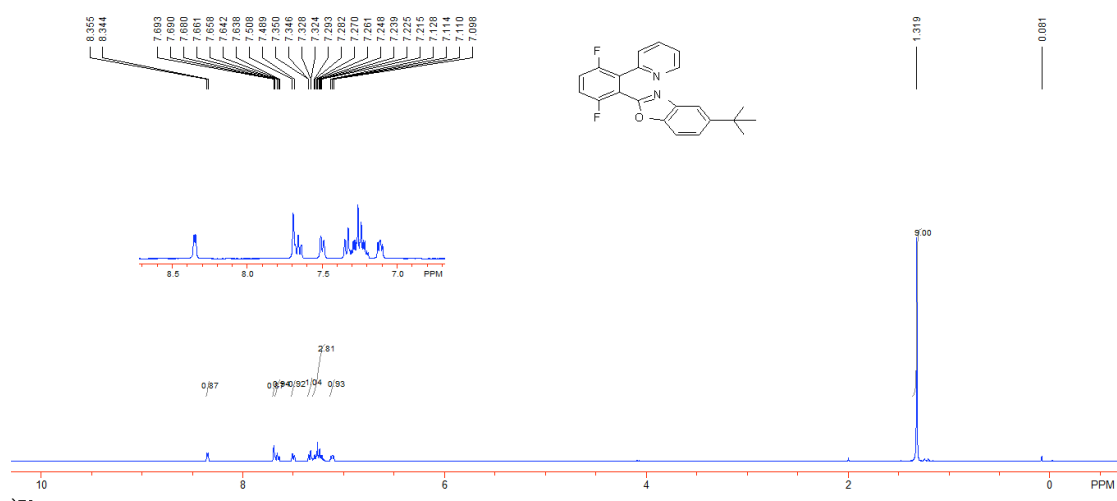
¹⁹F NMR Spectrum of 3r (Table 1)



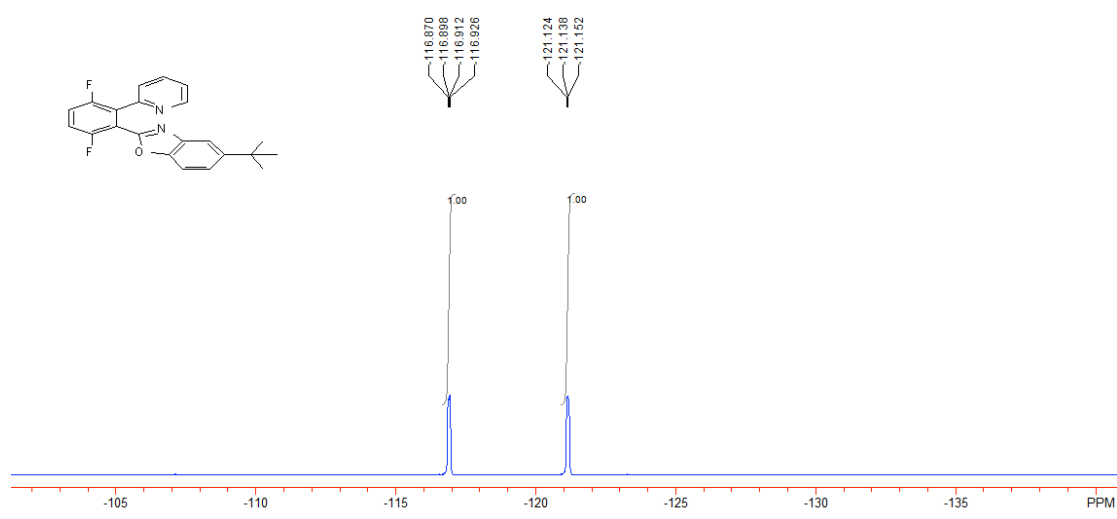
¹³C NMR Spectrum of 3r (Table 1)



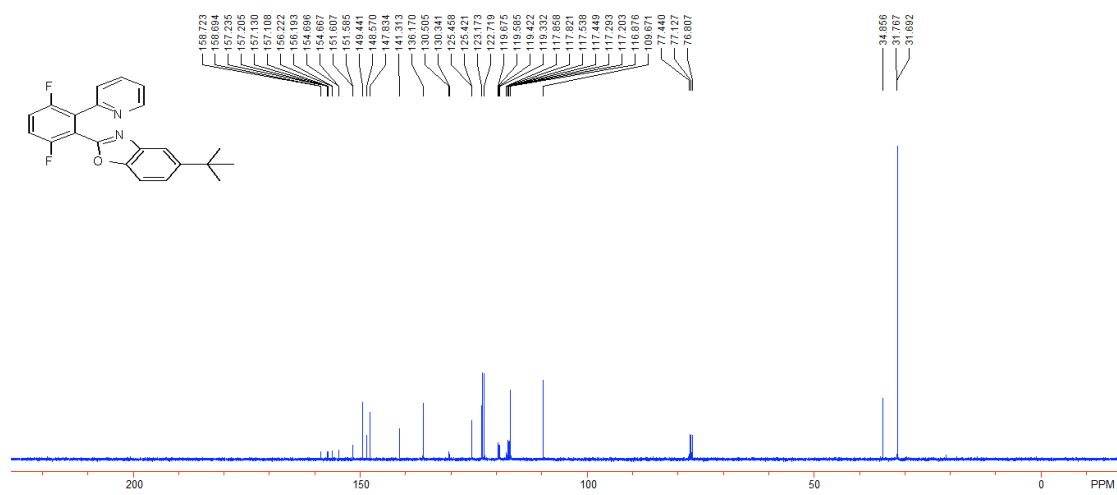
¹H NMR Spectrum of 3s (Table 1)



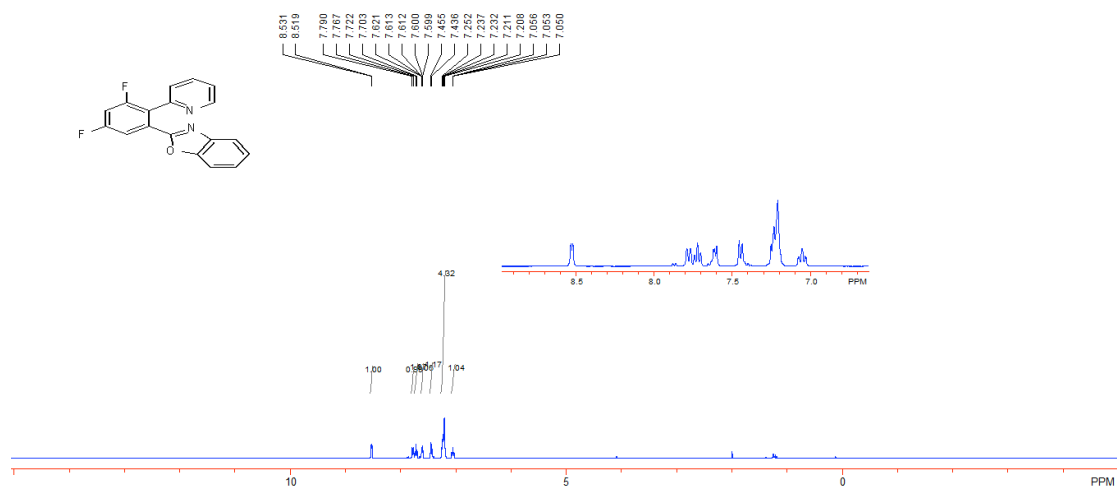
¹⁹F NMR Spectrum of 3s (Table 1)



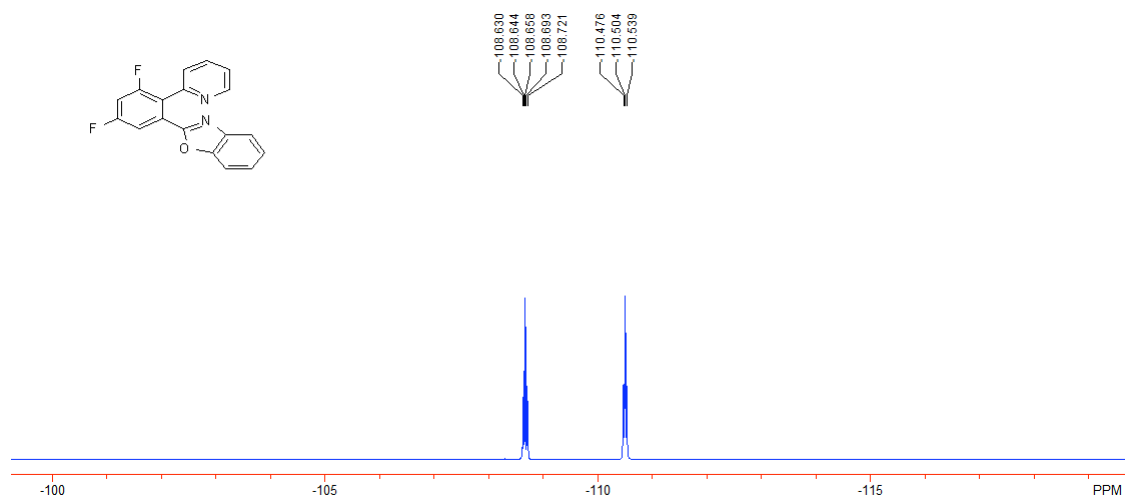
¹³C NMR Spectrum of 3s (Table 1)



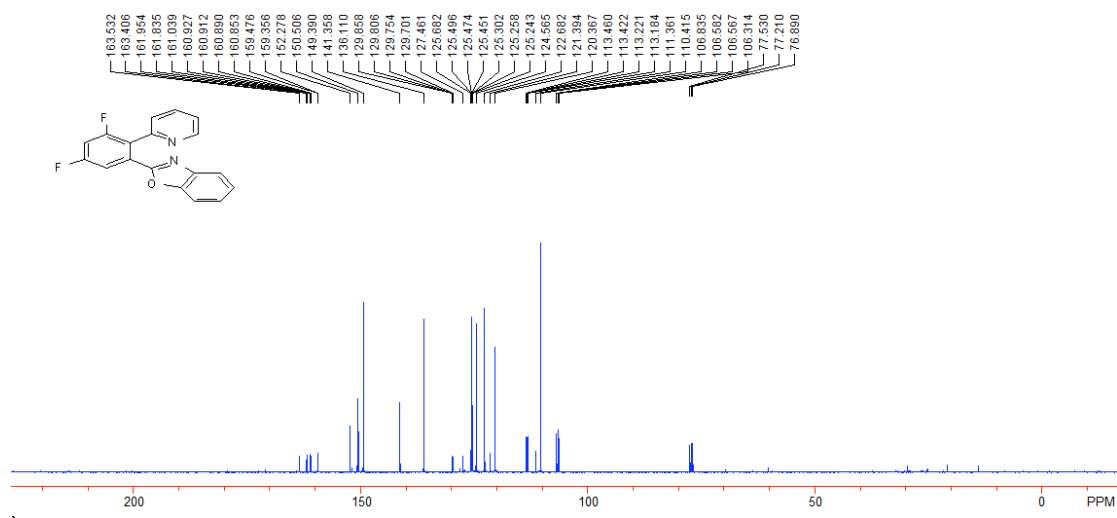
¹H NMR Spectrum of 3t (Table 1)



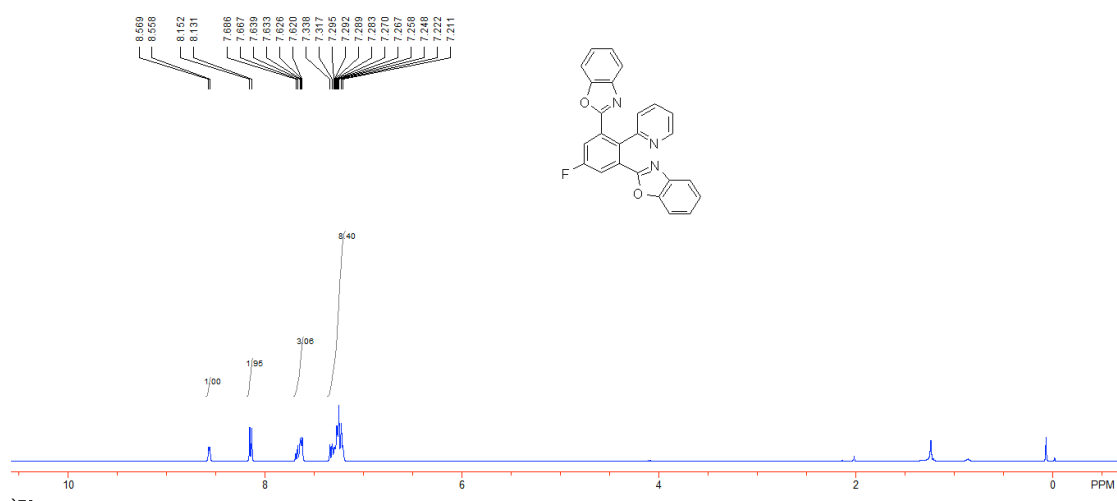
¹⁹F NMR Spectrum of 3t (Table 1)



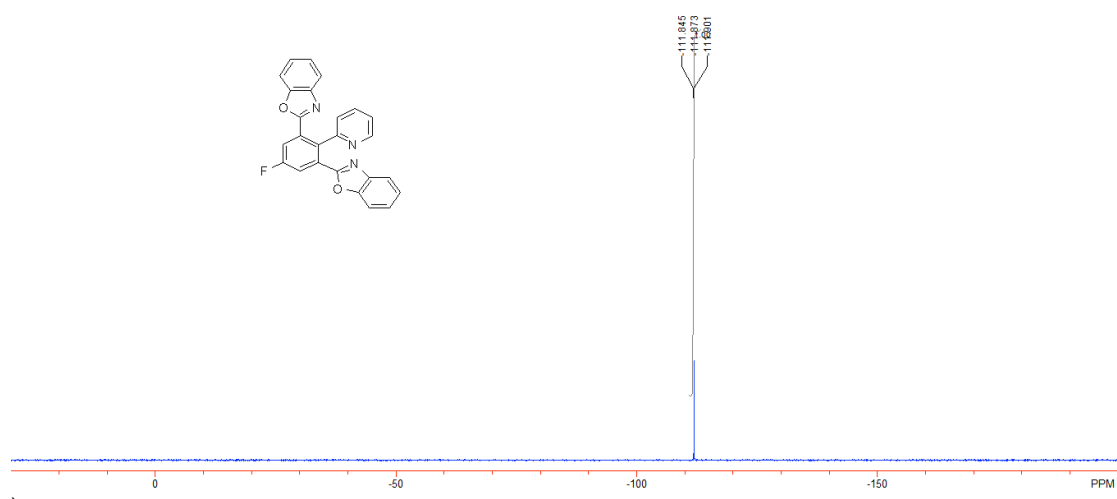
¹³C NMR Spectrum of 3t (Table 1)



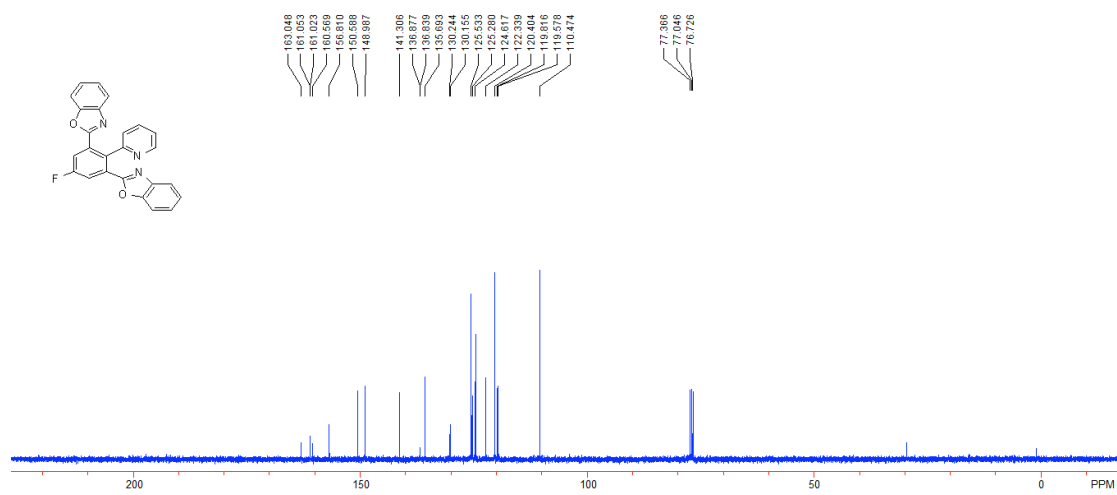
¹H NMR Spectrum of 3t' (Table 1)



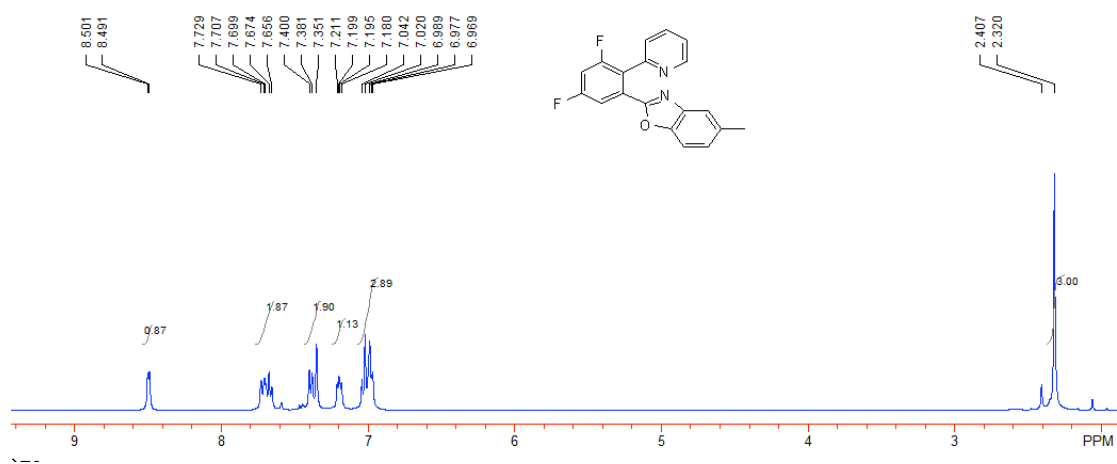
¹⁹F NMR Spectrum of 3t' (Table 1)



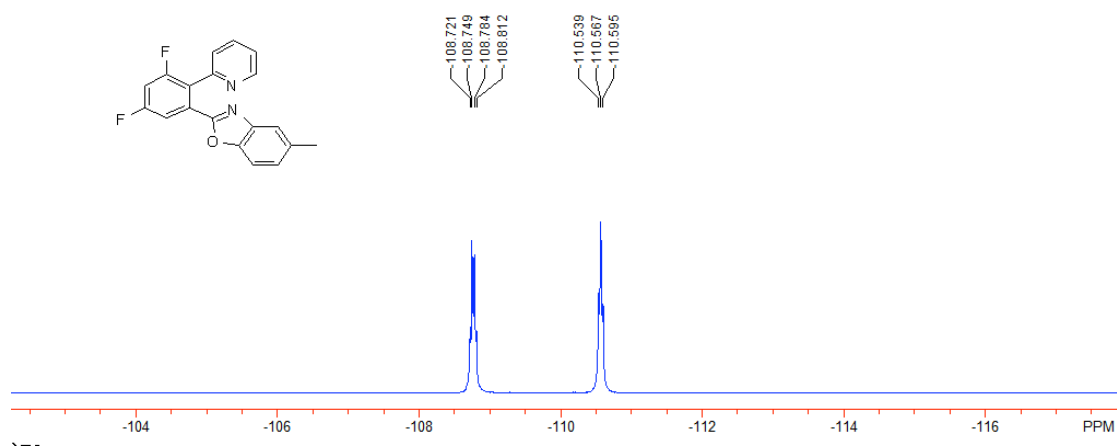
¹³C NMR Spectrum of 3t' (Table 1)



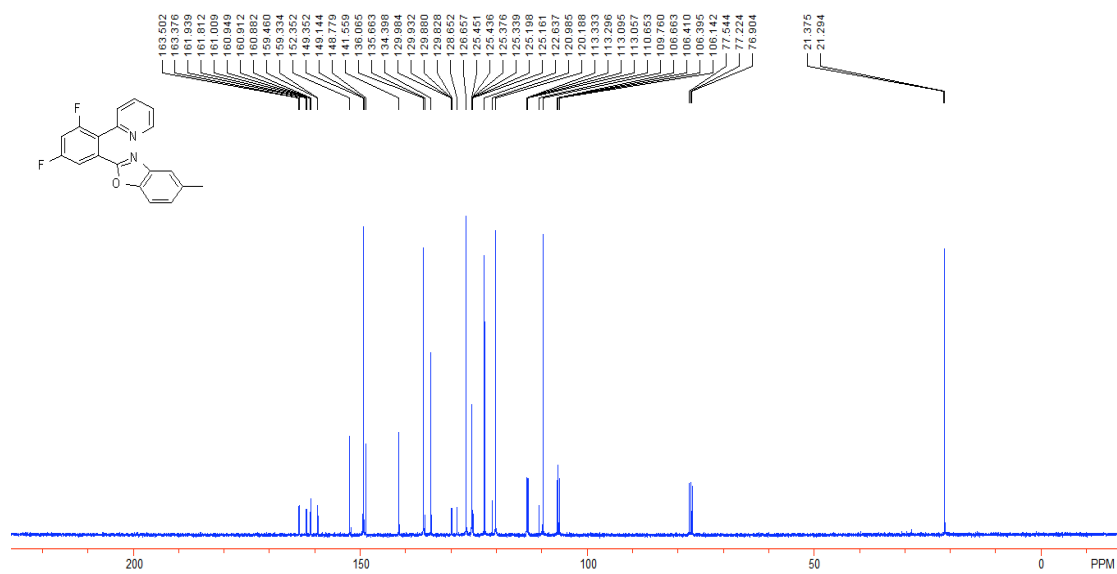
¹H NMR Spectrum of 3u (Table 1)



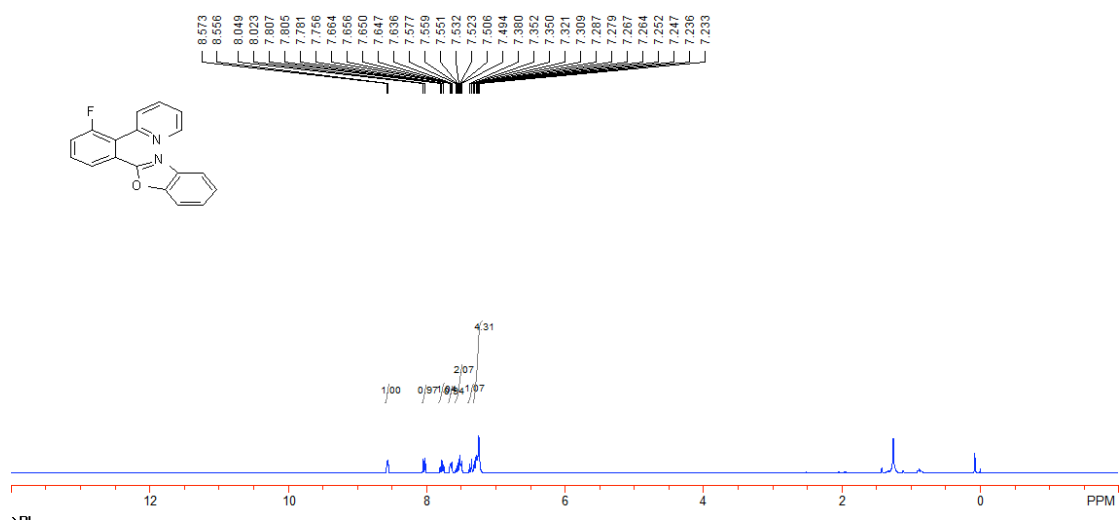
¹⁹F NMR Spectrum of 3u (Table 1)



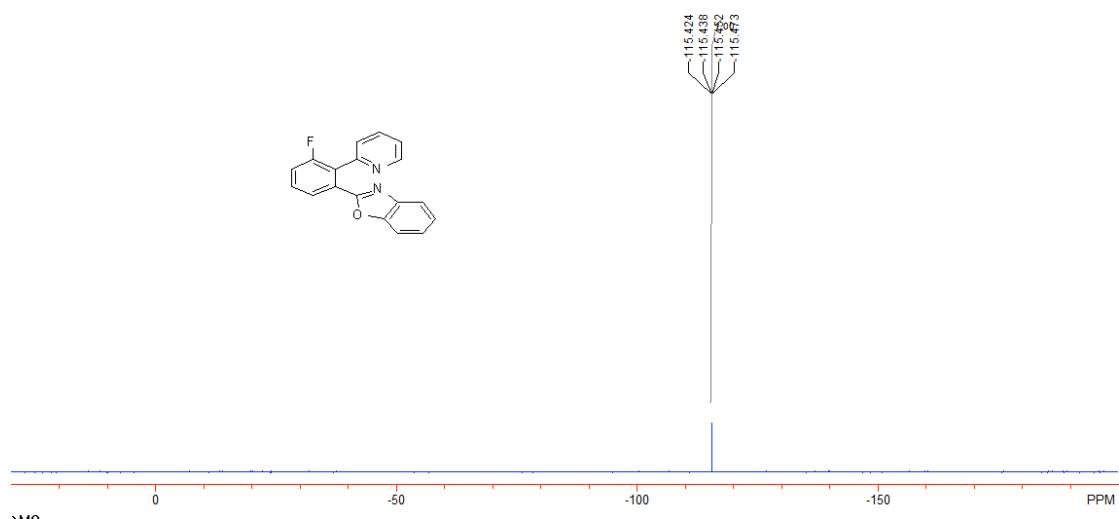
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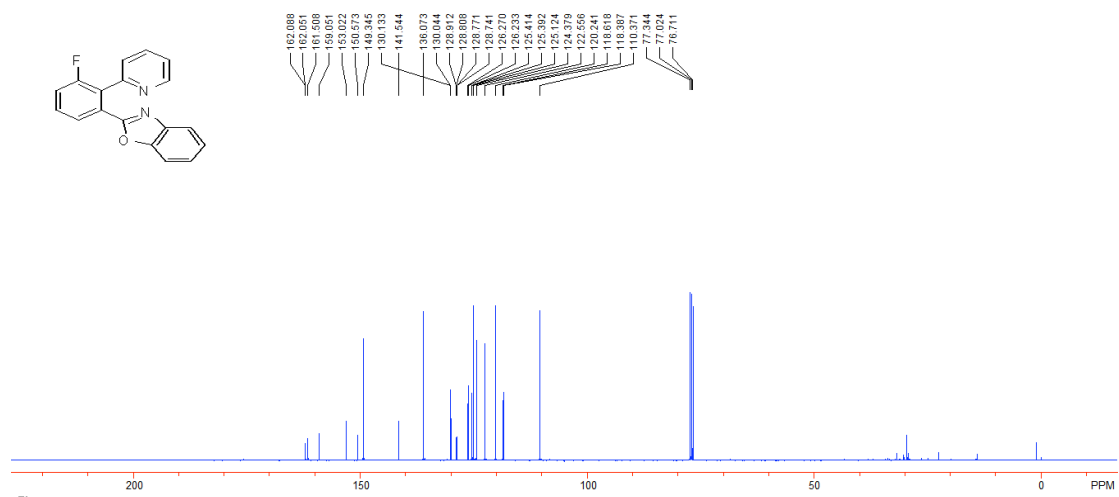
¹H NMR Spectrum of 3v (Table 1)



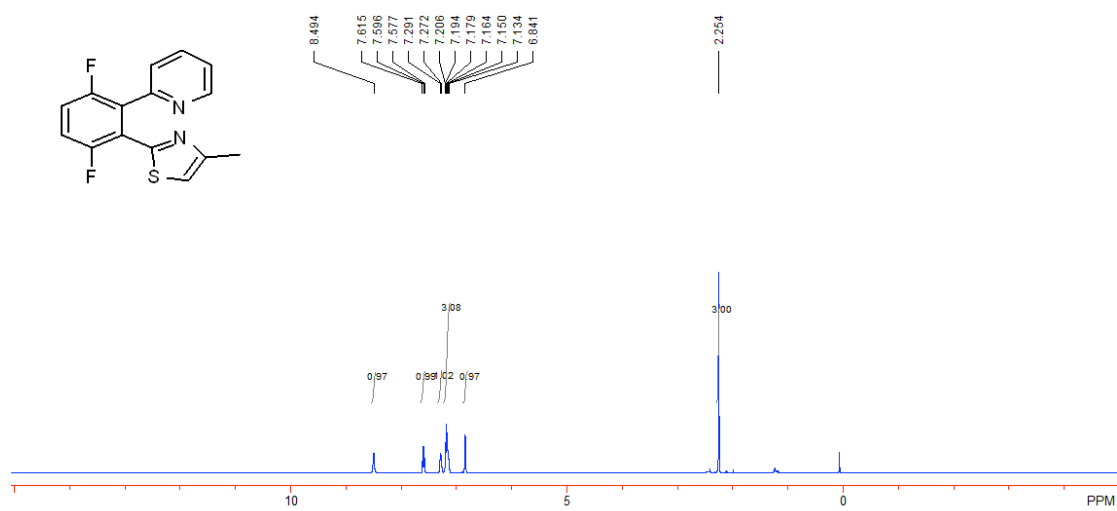
¹⁹F NMR Spectrum of 3v (Table 1)



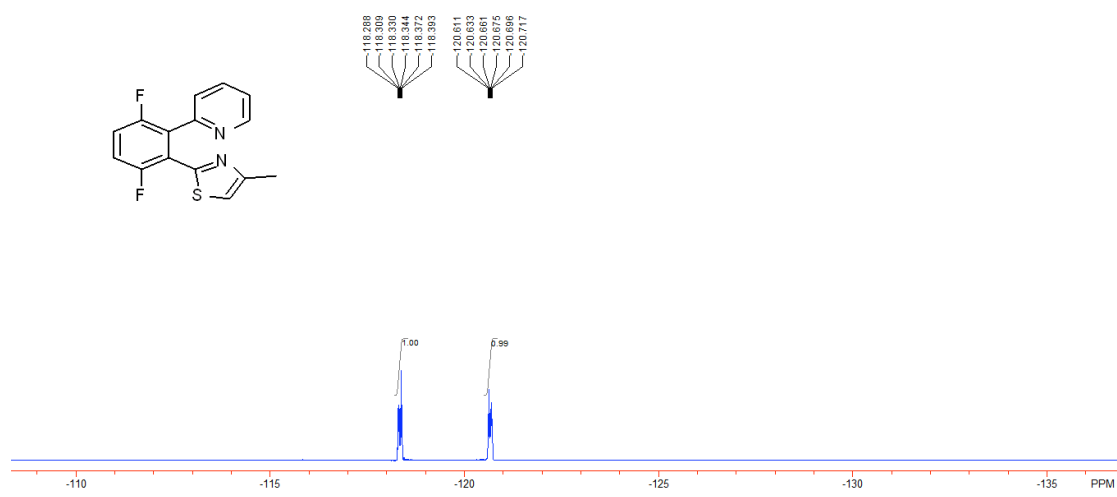
¹³C NMR Spectrum of 3v (Table 1)



¹H NMR Spectrum of 4a (Table 2)



¹⁹F NMR Spectrum of 4a (Table 2)



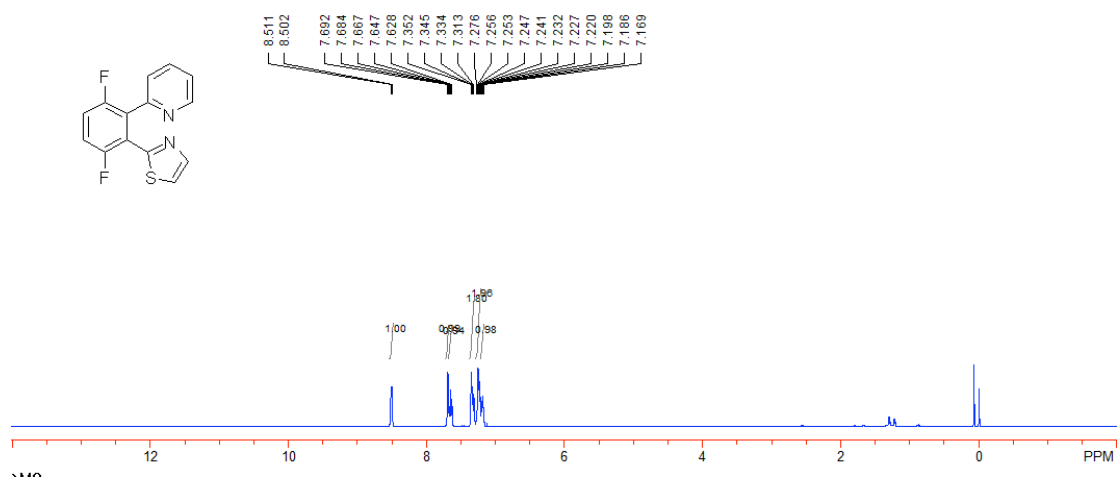
¹³C NMR Spectrum of 4a (Table 2)

¹³C NMR Spectrum of 4a (Table 2). The chemical structure of 4a is shown. The spectrum displays a complex set of peaks in the aromatic region (117-157 ppm) and a methyl singlet (18.777 ppm).

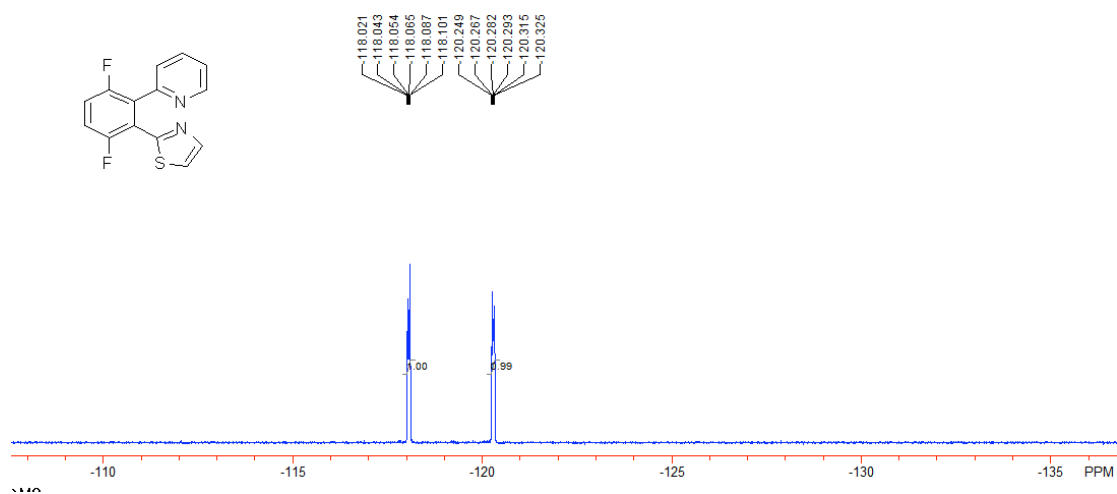
Chemical Shift (ppm)
157.728
157.720
157.460
157.400
157.199
157.170
154.966
154.937
154.762
154.763
152.555
152.383
149.183
149.116
148.441
136.911
135.636
135.769
130.075
129.874
129.875
125.810
123.123
123.083
122.967
122.488
122.489
122.356
117.972
117.927
117.883
117.826
117.806
117.784
117.719
117.674
117.650
117.645
117.086
117.034
116.989
116.945
116.908
116.823
116.791
116.744
116.699
116.655
115.836
77.462
77.152
76.832
18.815
18.777

28

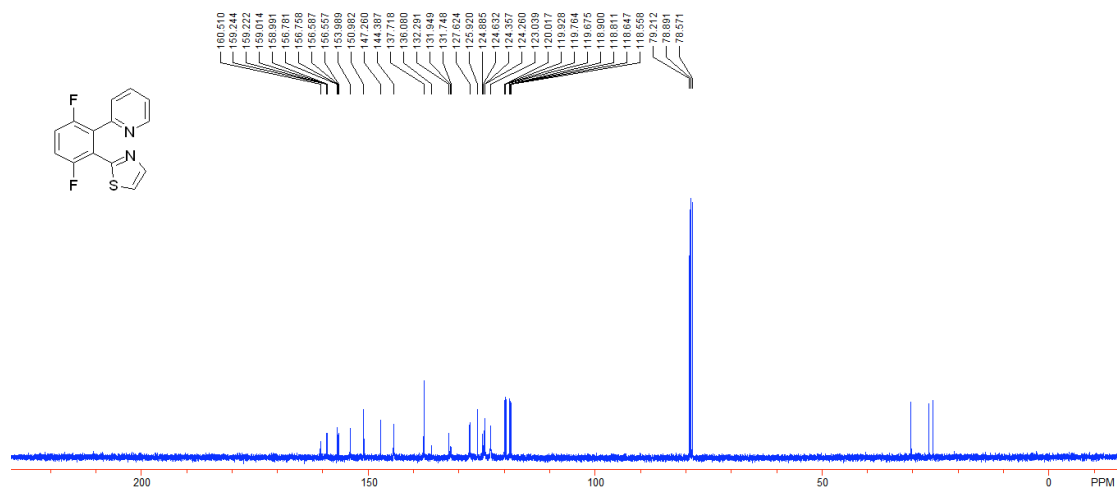
¹H NMR Spectrum of 4b (Table 2)



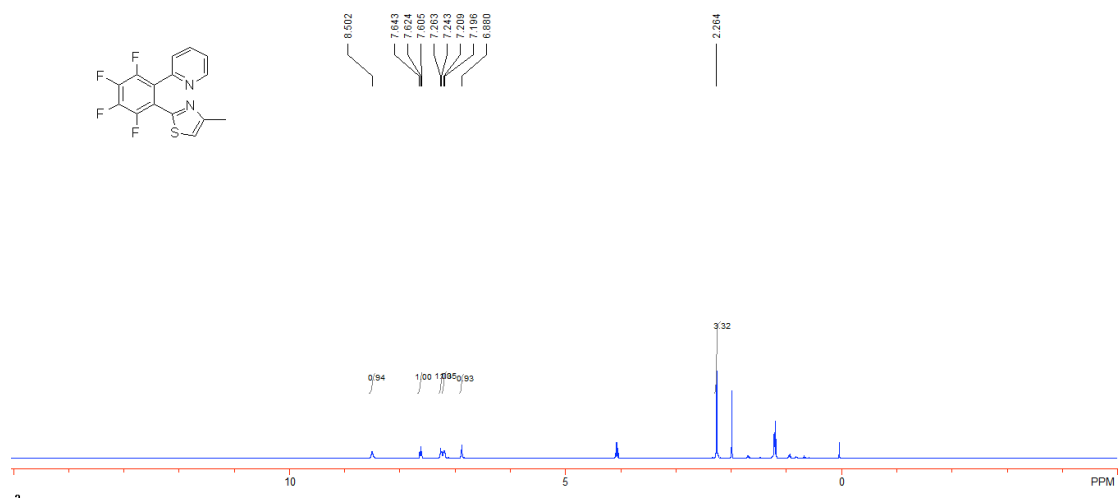
¹⁹F NMR Spectrum of 4b (Table 2)



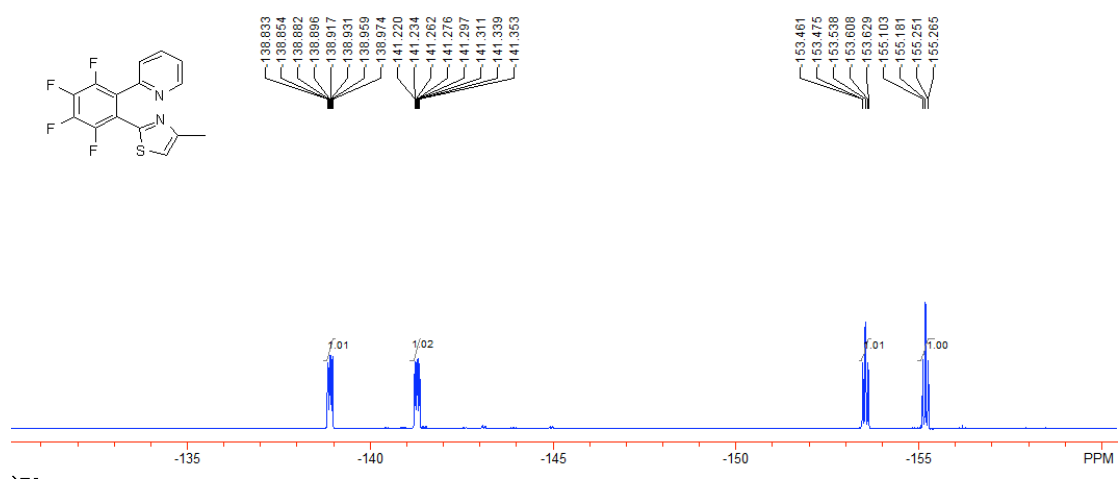
¹³C NMR Spectrum of 4b (Table 2)



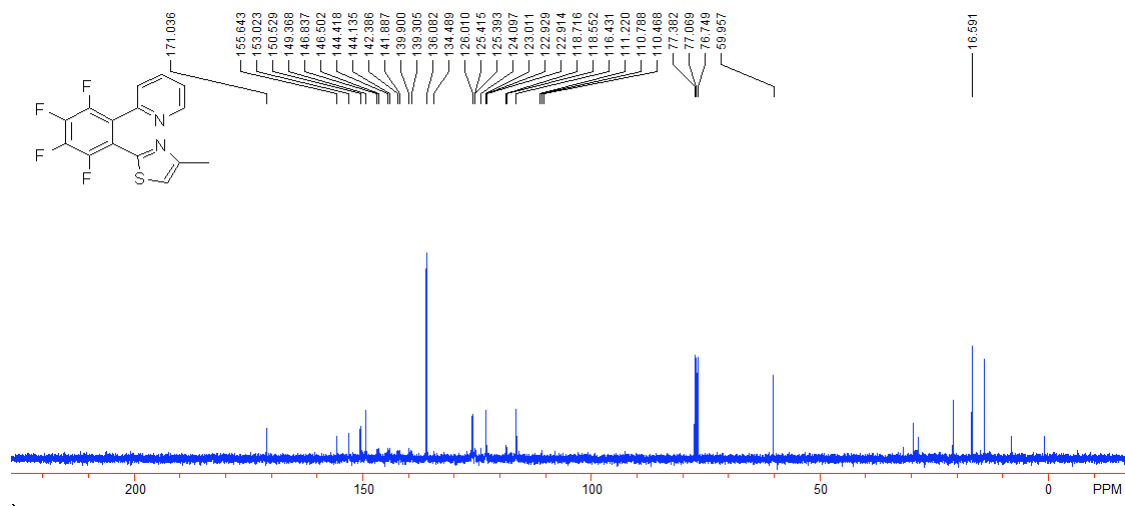
¹H NMR Spectrum of 4c (Table 2)



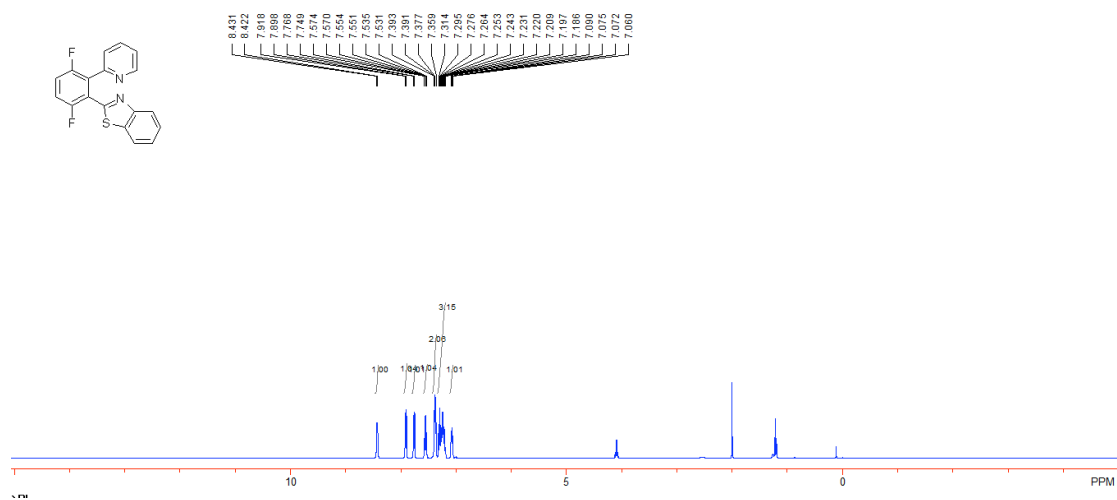
¹⁹F NMR Spectrum of 4c (Table 2)



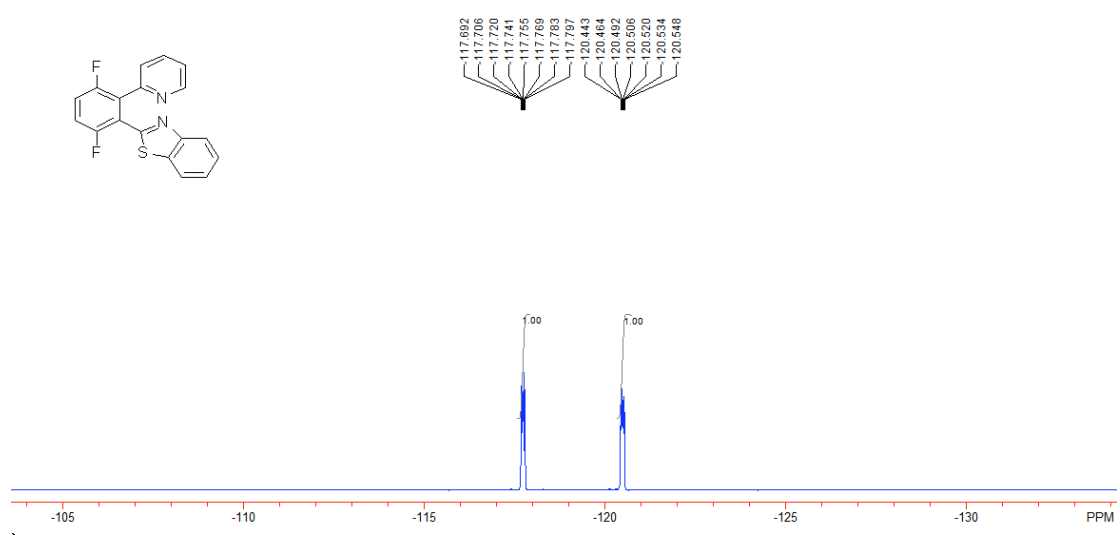
¹³C NMR Spectrum of 4c (Table 2)



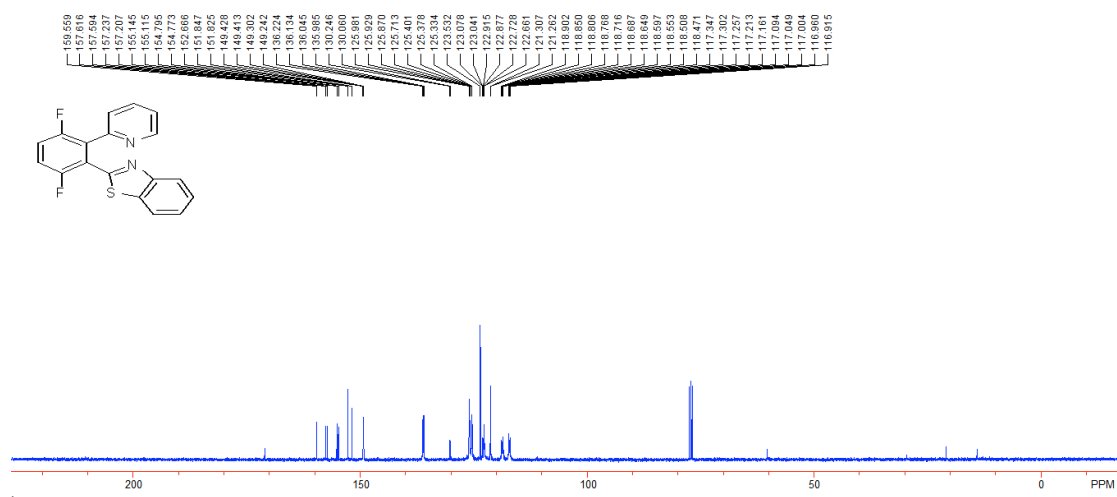
¹H NMR Spectrum of 4d (Table 2)



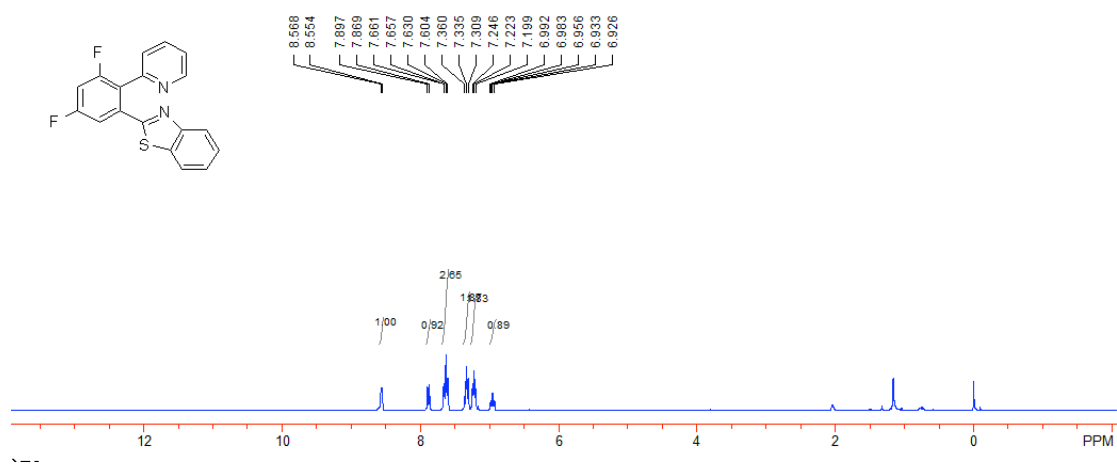
¹⁹F NMR Spectrum of 4d (Table 2)



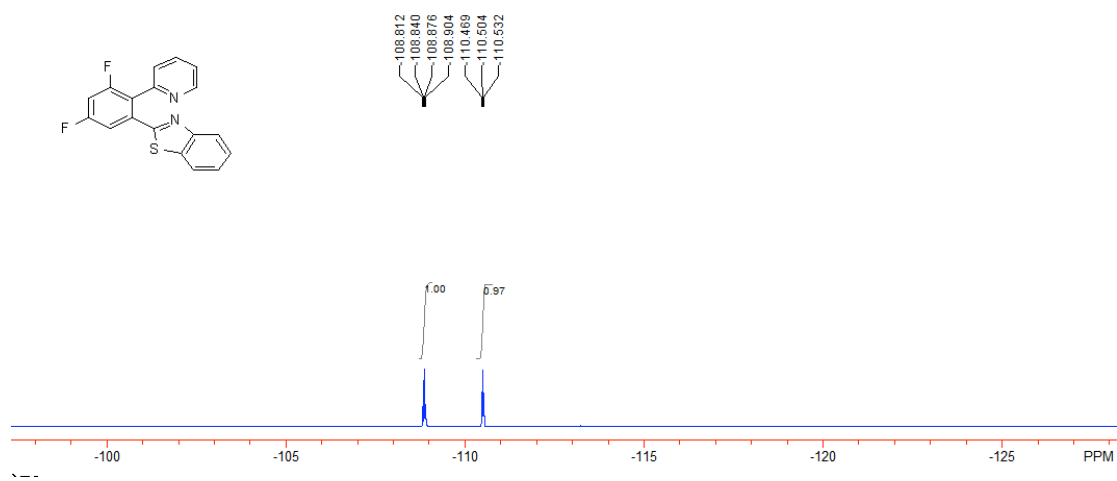
¹³C NMR Spectrum of 4d (Table 2)



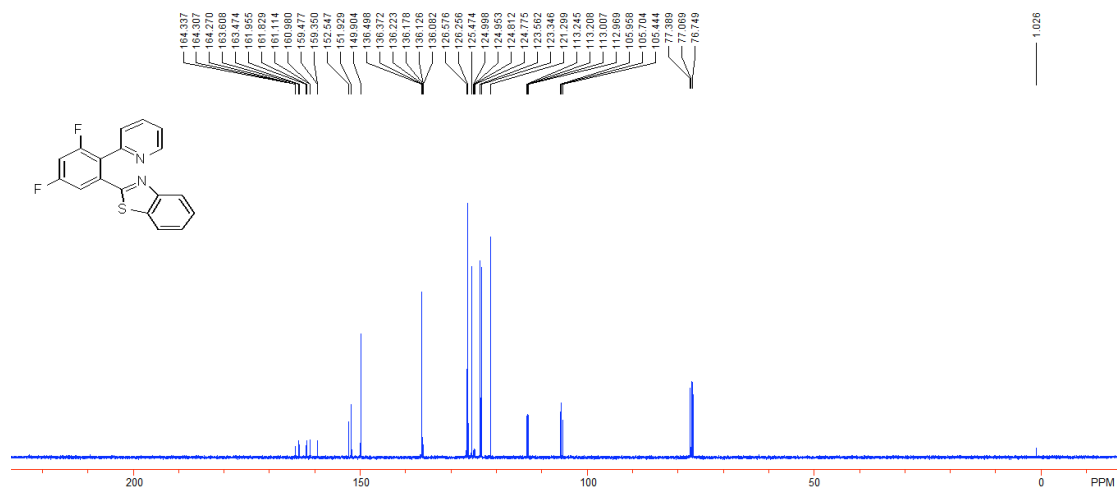
¹H NMR Spectrum of 4e (Table 2)



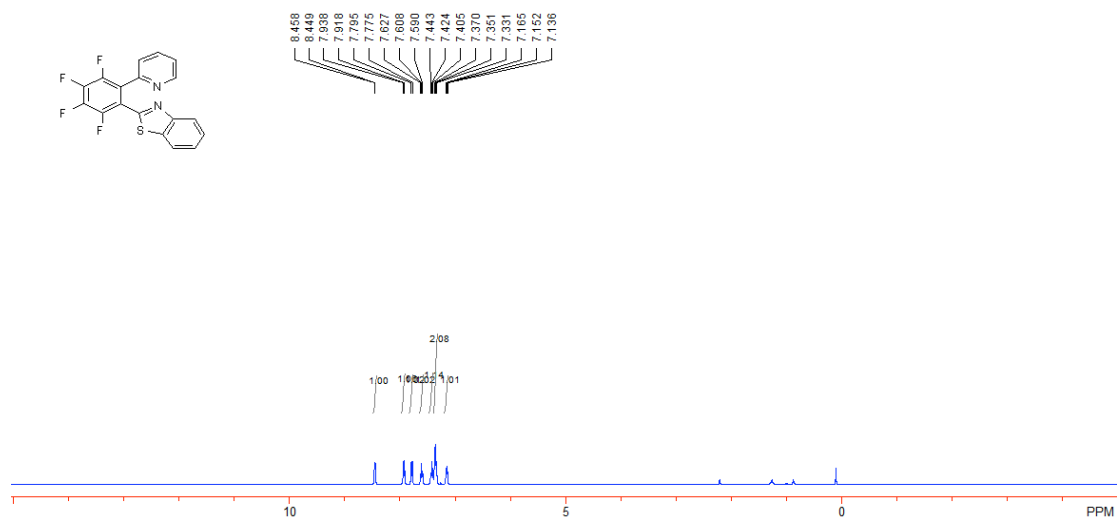
¹⁹F NMR Spectrum of 4e (Table 2)



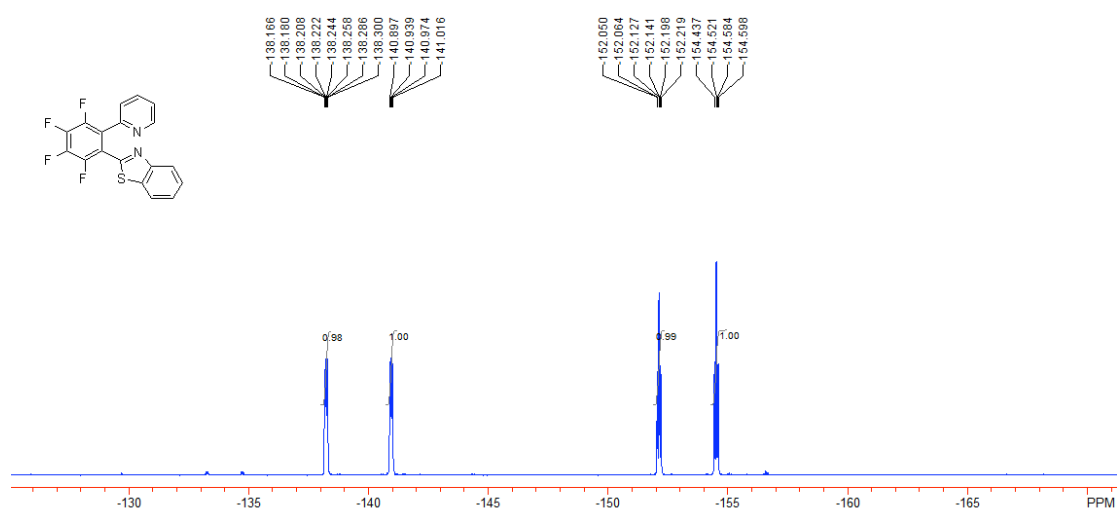
¹³C NMR Spectrum of 4e (Table 2)



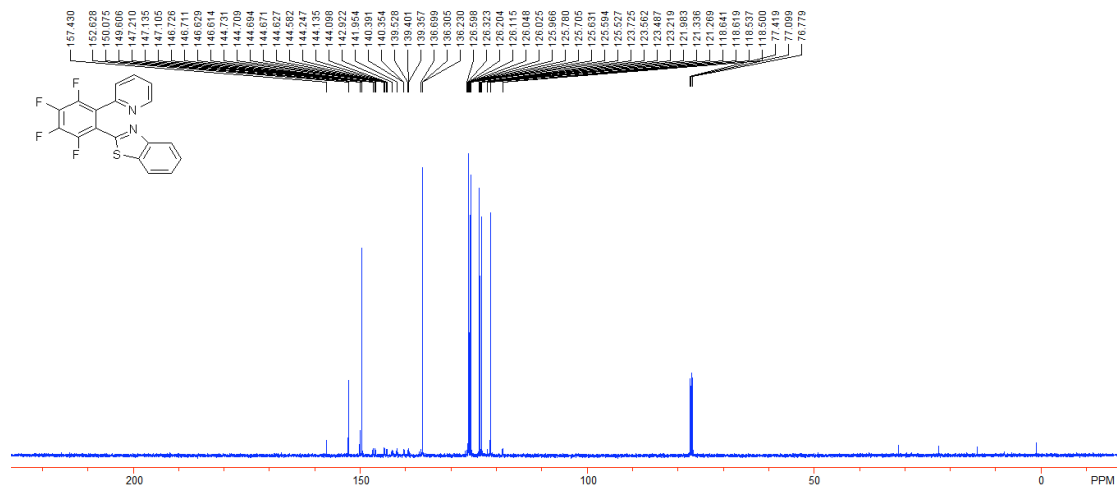
¹H NMR Spectrum of 4f (Table 2)



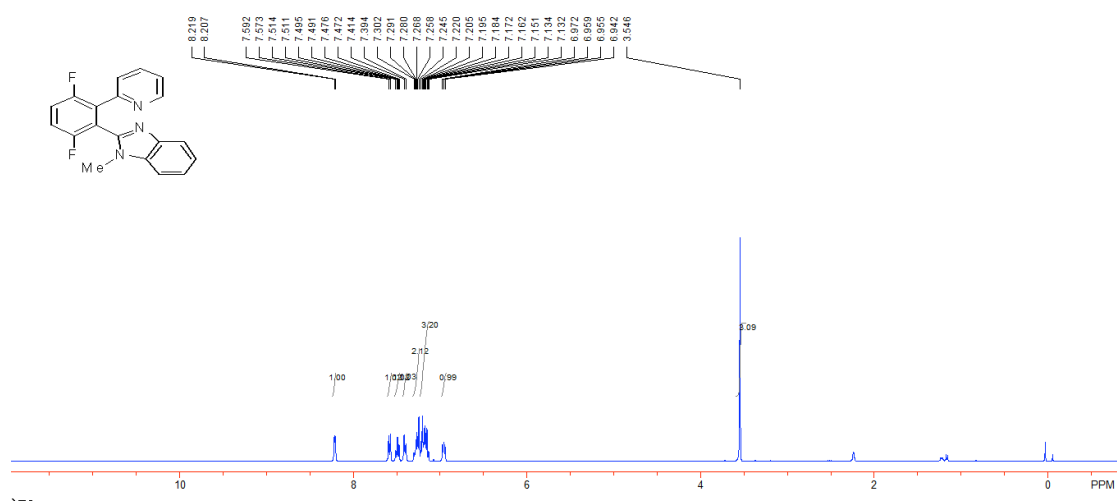
¹⁹F NMR Spectrum of 4f (Table 2)



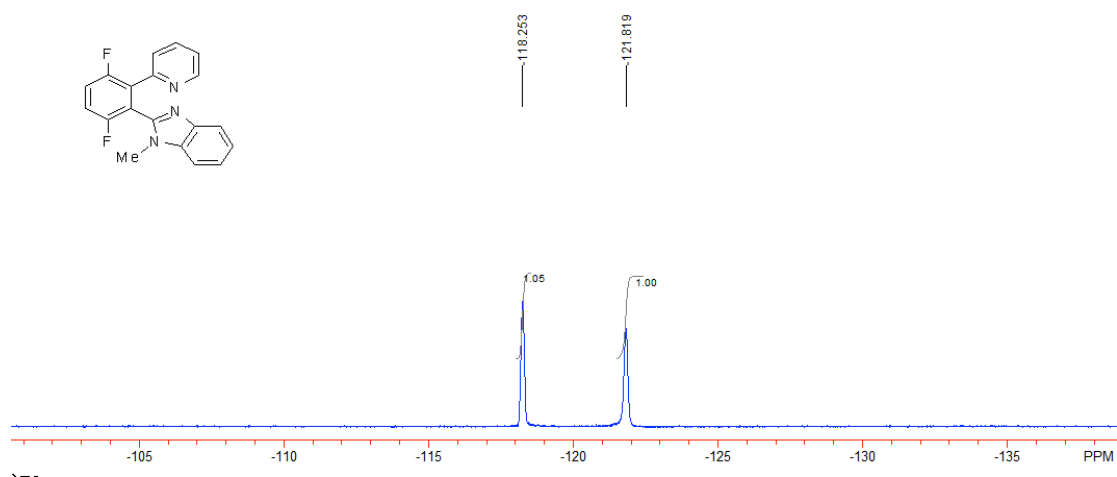
¹³C NMR Spectrum of 4f (Table 2)



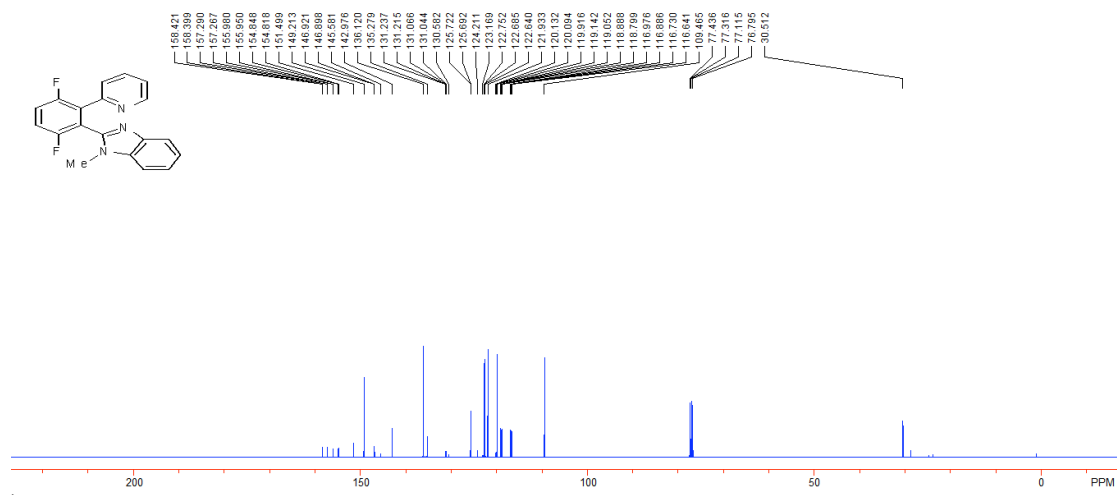
¹H NMR Spectrum of 4g (Table 2)



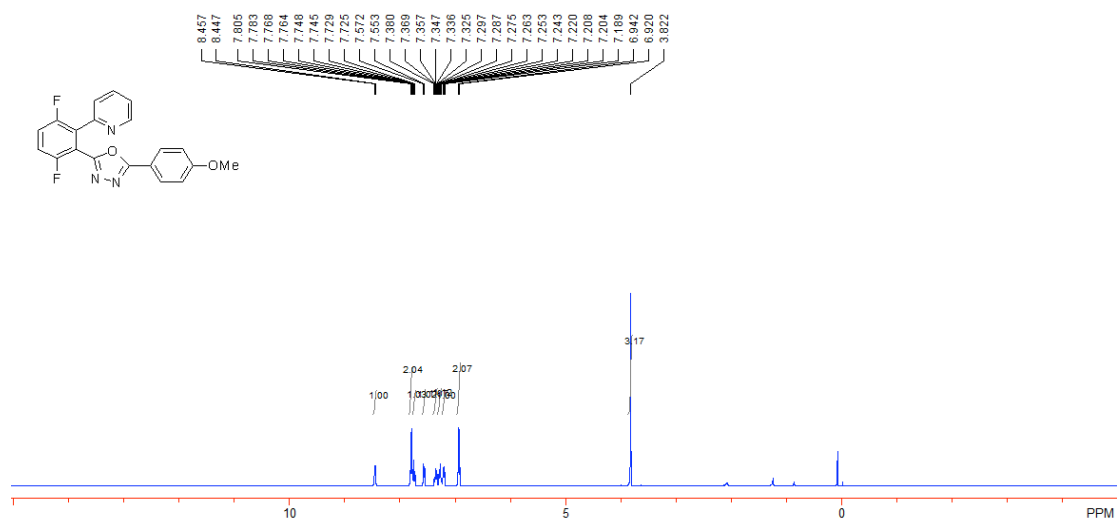
¹⁹F NMR Spectrum of 4g (Table 2)



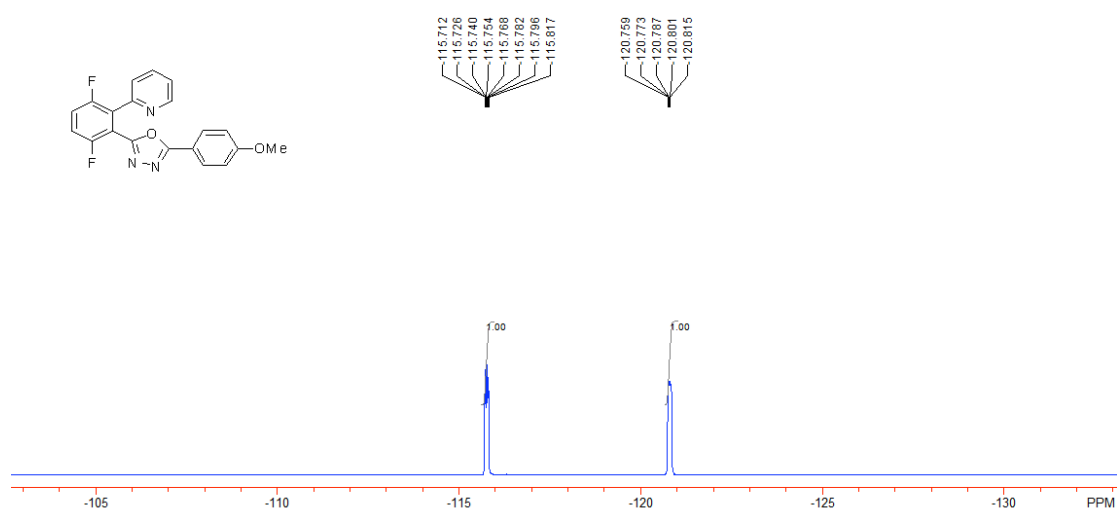
¹³C NMR Spectrum of 4g (Table 2)



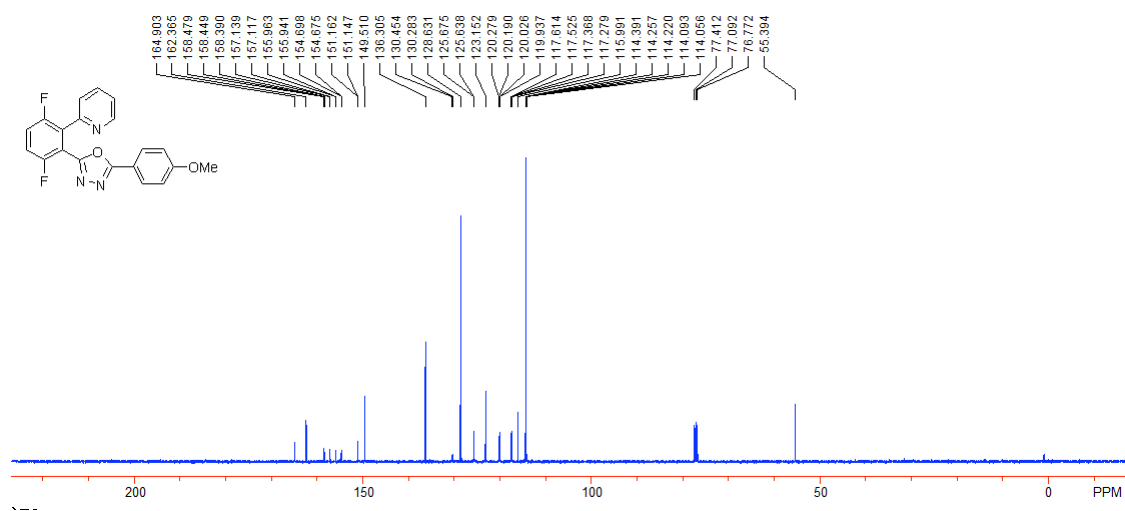
¹H NMR Spectrum of 4h (Table 2)



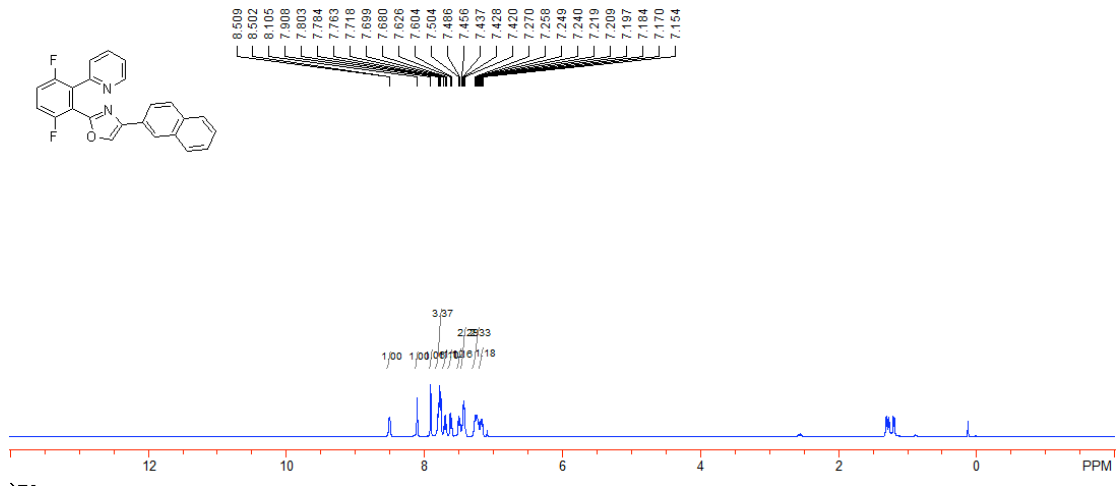
¹⁹F NMR Spectrum of 4h (Table 2)



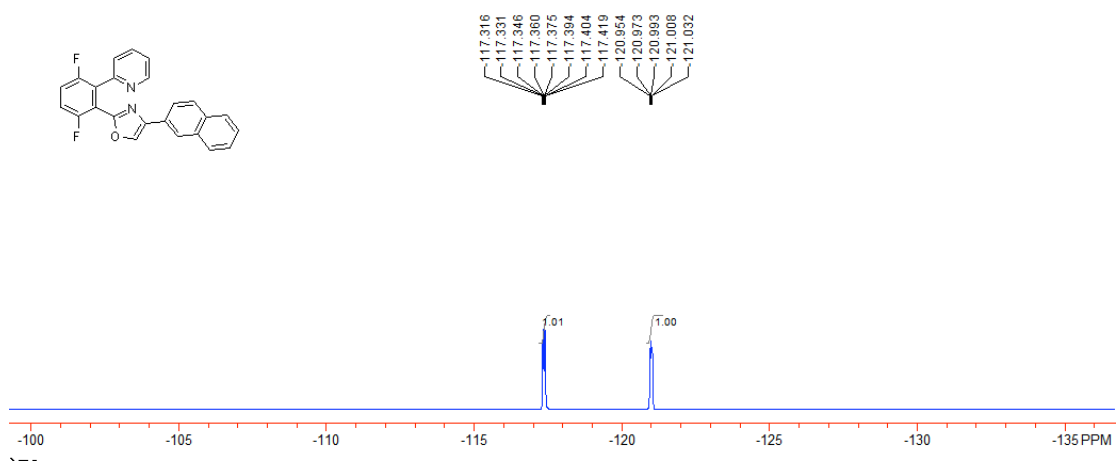
¹³C NMR Spectrum of 4h (Table 2)



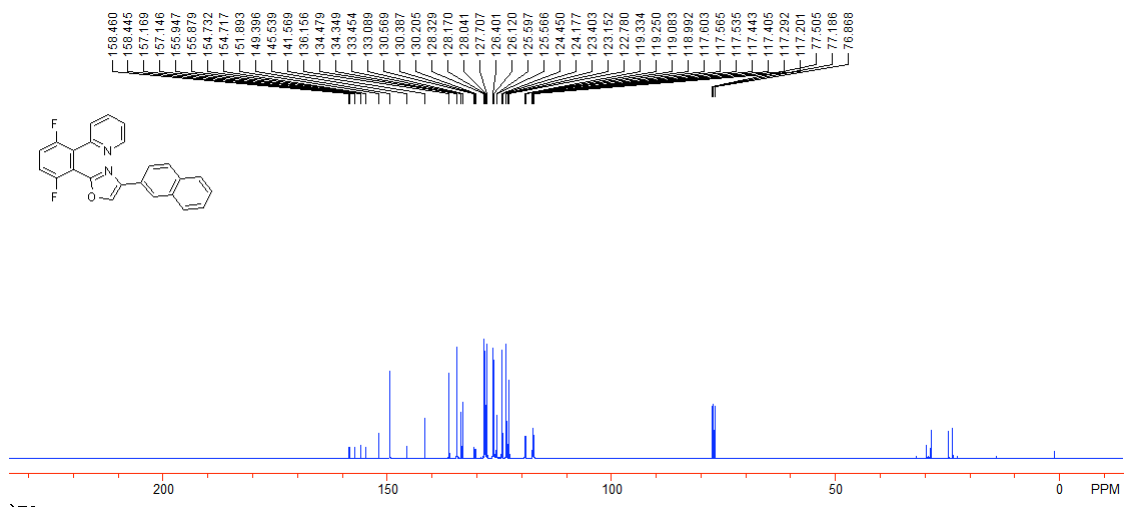
¹H NMR Spectrum of 4i (Table 2)



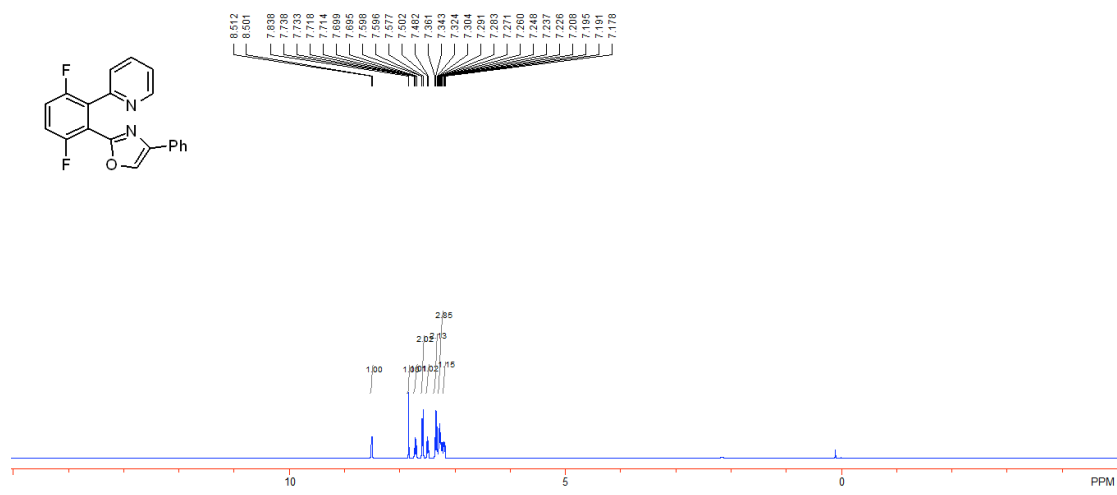
¹⁹F NMR Spectrum of 4i (Table 2)



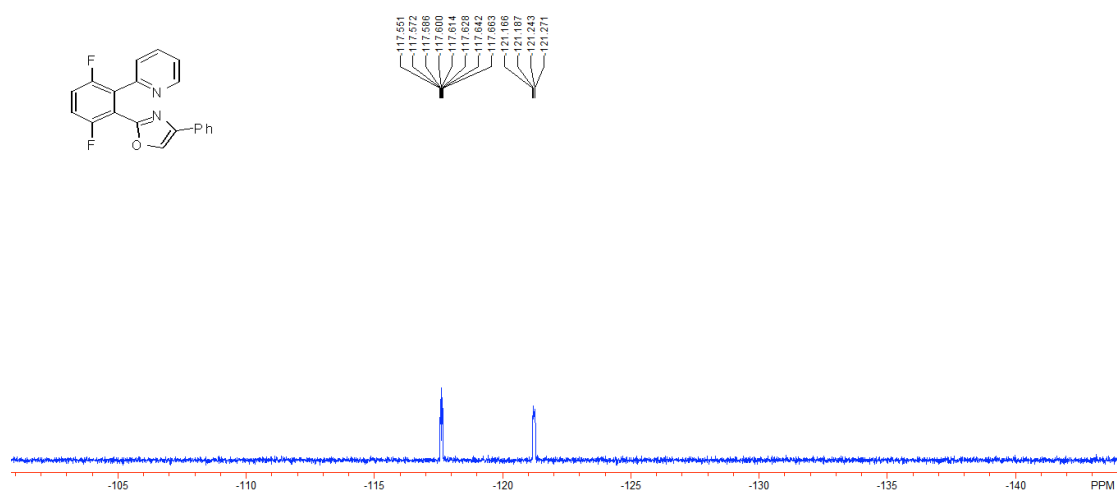
¹³C NMR Spectrum of 4i (Table 2)



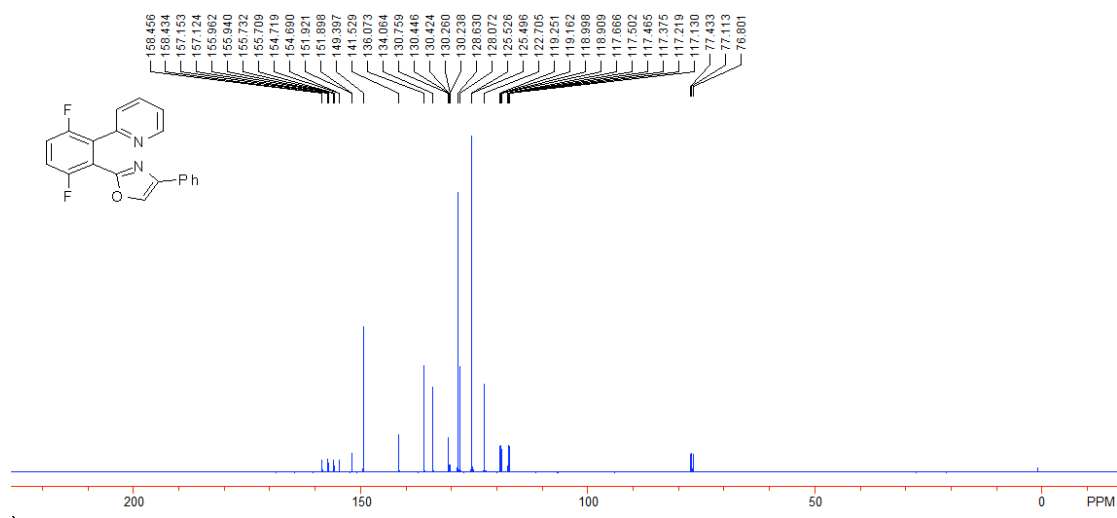
¹H NMR Spectrum of 4j (Table 2)



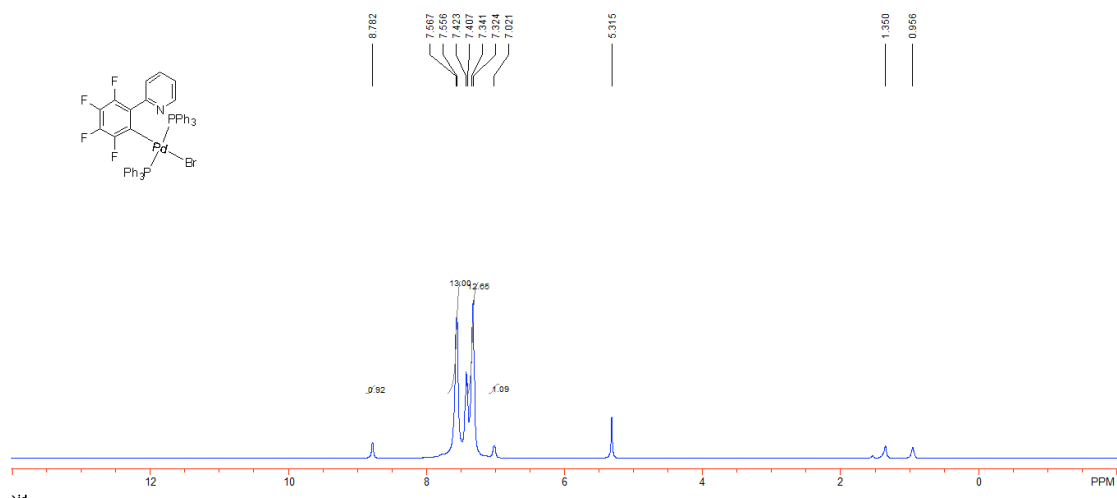
¹⁹F NMR Spectrum of 4j (Table 2)



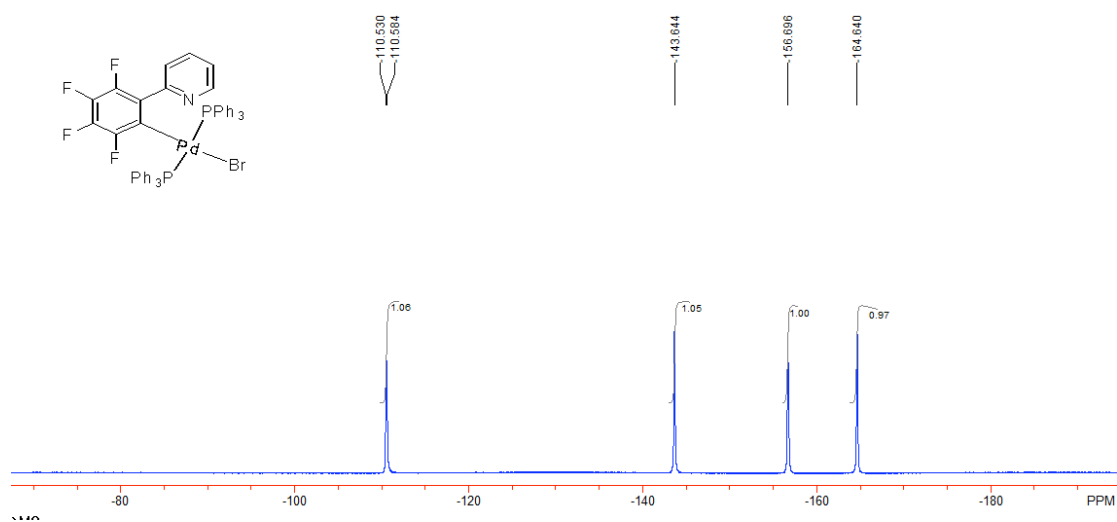
¹³C NMR Spectrum of 4j (Table 2)



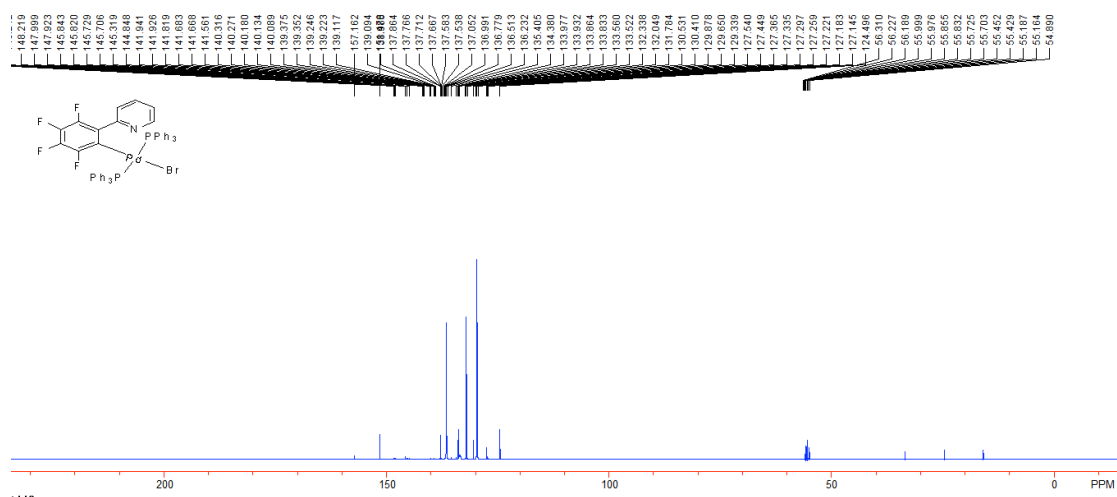
^1H NMR Spectrum of $[\text{Pd}(\text{PPh}_3)_2(\text{Br})(\text{Ar})]$ (Ar = 2-pyridyl-3,4,5,6-tetrafluorophenyl)



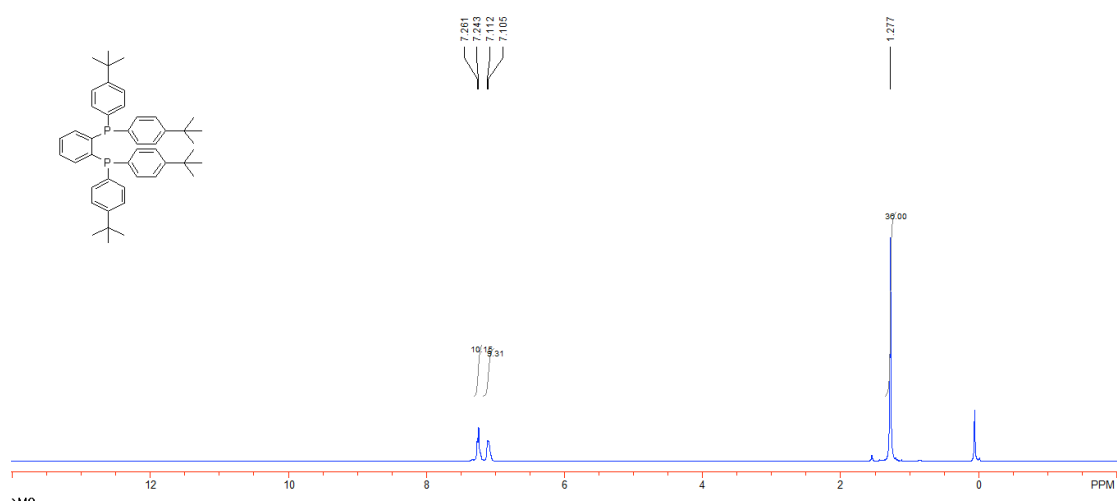
^{19}F NMR Spectrum of $[\text{Pd}(\text{PPh}_3)_2(\text{Br})(\text{Ar})]$ (Ar = 2-pyridyl-3,4,5,6-tetrafluorophenyl)



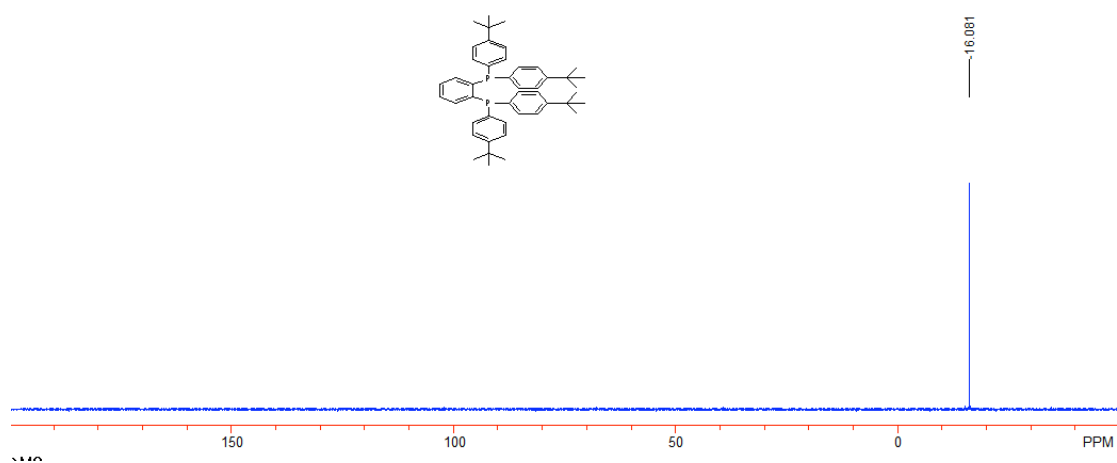
^{13}C NMR Spectrum of $[\text{Pd}(\text{PPh}_3)_2(\text{Br})(\text{Ar})]$ (Ar = 2-pyridyl-3,4,5,6-tetrafluorophenyl)



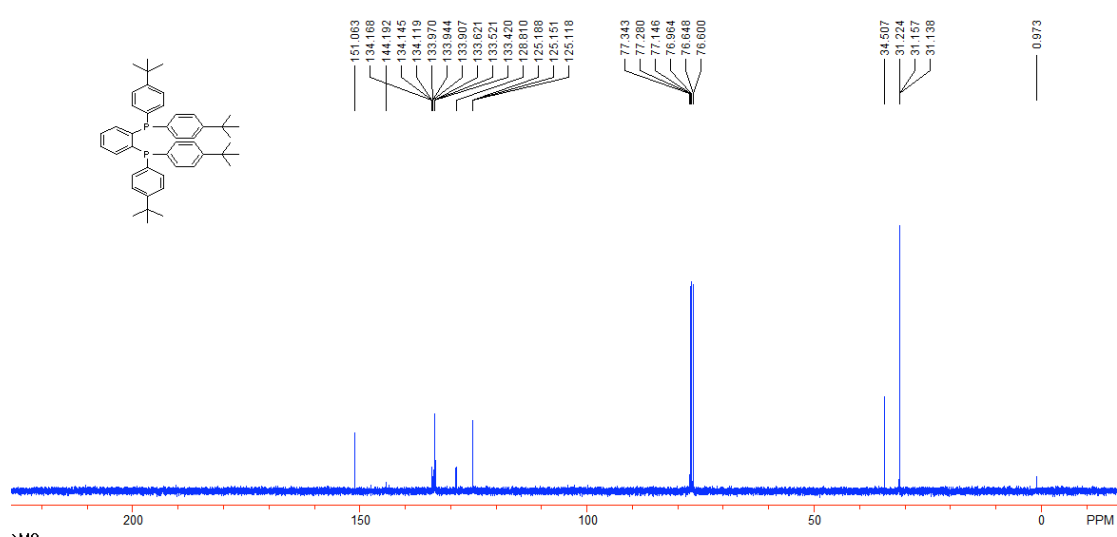
¹H NMR Spectrum of ^tBu-DPPBz



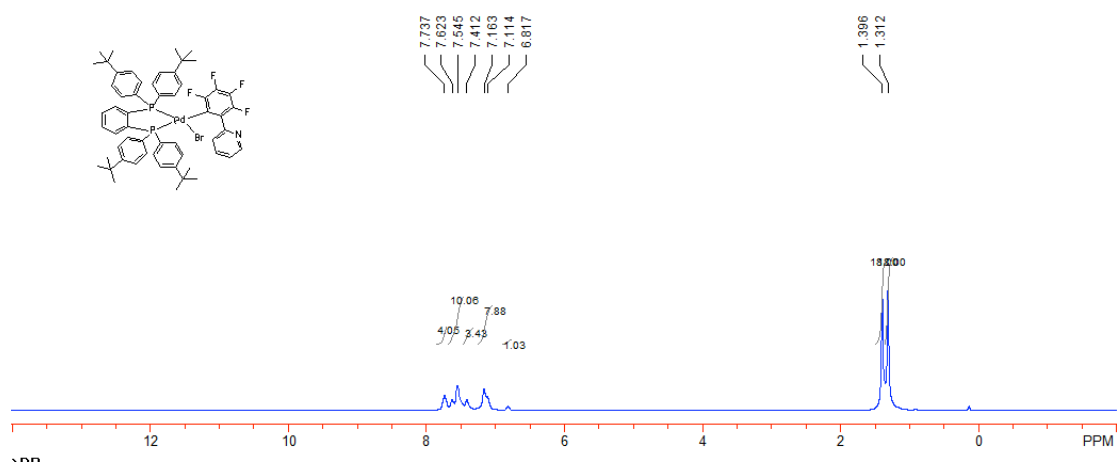
³¹P NMR Spectrum of ^tBu-DPPBz



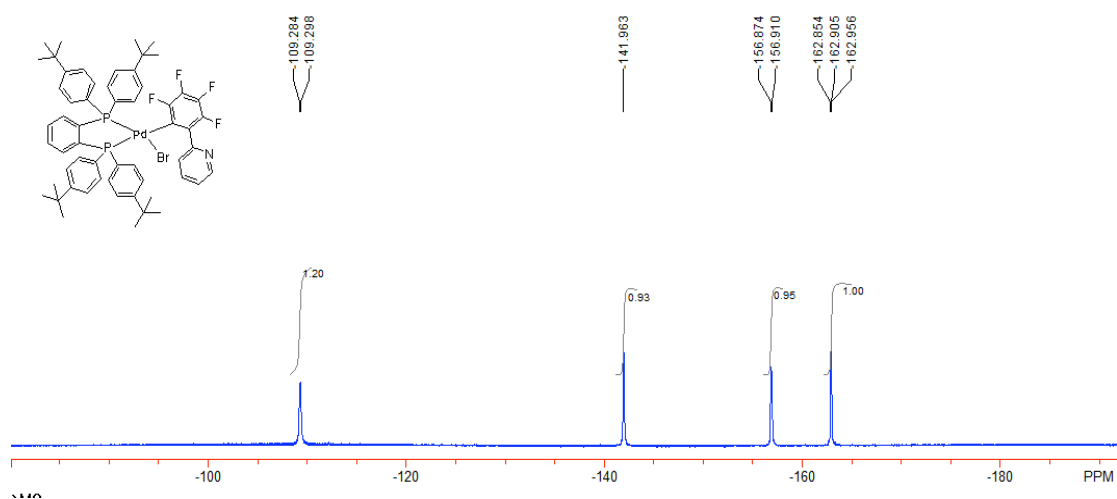
¹³C NMR Spectrum of ^tBu-DPPBz



^1H NMR Spectrum of $[\text{Pd}(\text{Bu-DPPBz})(\text{Br})(\text{Ar})]$ (Ar = 2-pyridyl-3,4,5,6-tetrafluorophenyl)



^{19}F NMR Spectrum of $[\text{Pd}(\text{Bu-DPPBz})(\text{Br})(\text{Ar})]$ (Ar = 2-pyridyl-3,4,5,6-tetrafluorophenyl)



^{31}P NMR Spectrum of $[\text{Pd}(\text{Bu-DPPBz})(\text{Br})(\text{Ar})]$ (Ar = 2-pyridyl-3,4,5,6-tetrafluorophenyl)

