Supporting Information *for*

Efficient C(sp$^3_{\text{alkyl}}$)−SCF$_3$ bond Formations *via* Copper-Mediated Trifluoromethylthiolation of Alkyl Halides

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350002, China.

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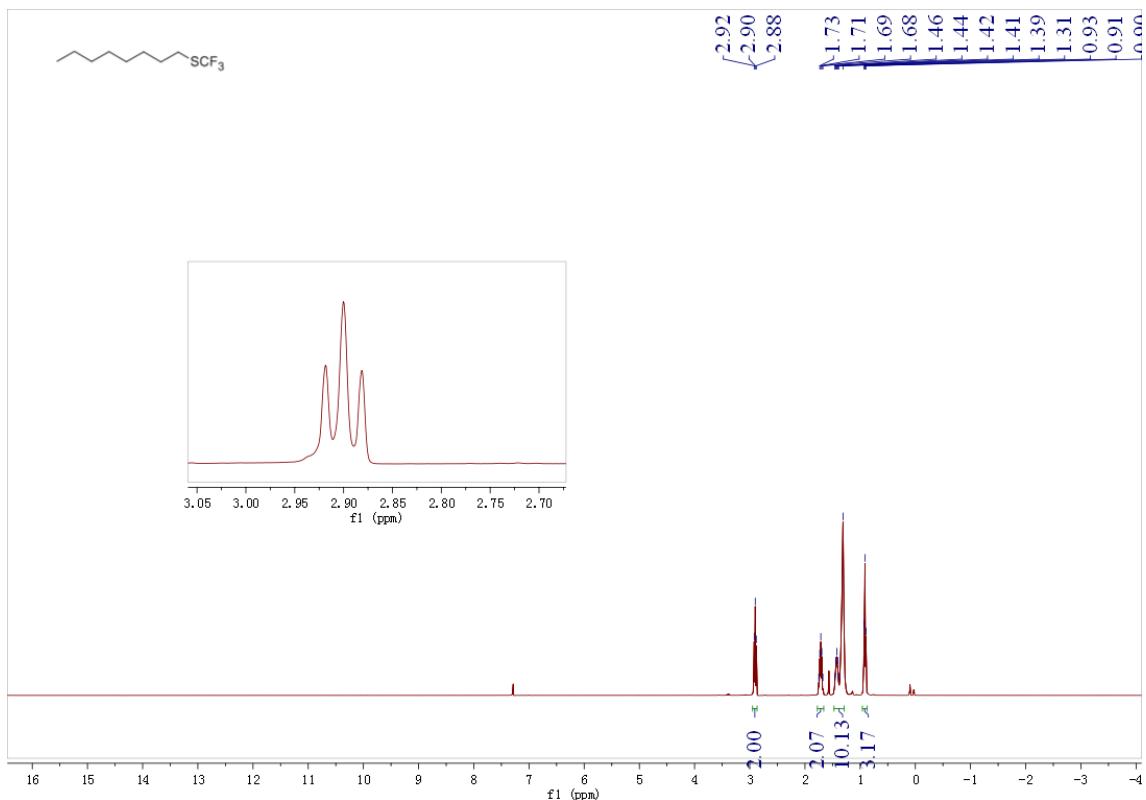
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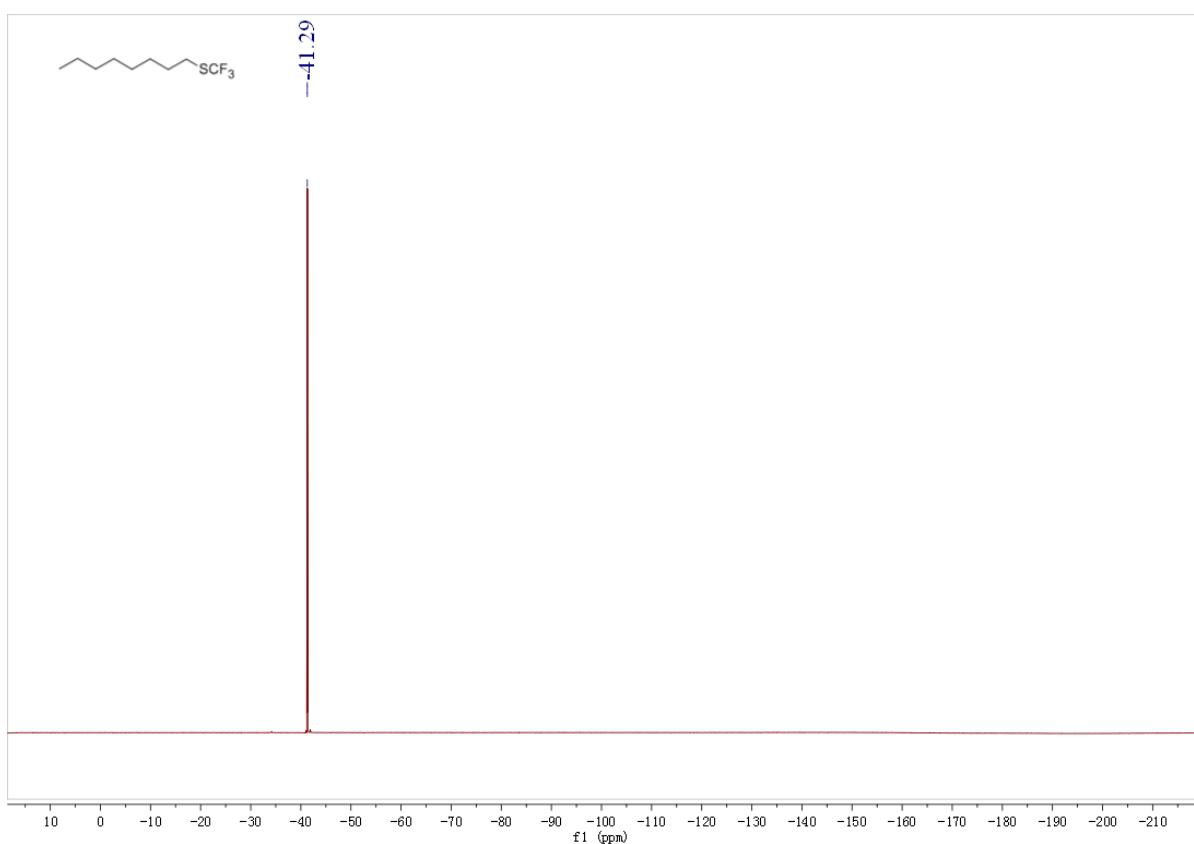
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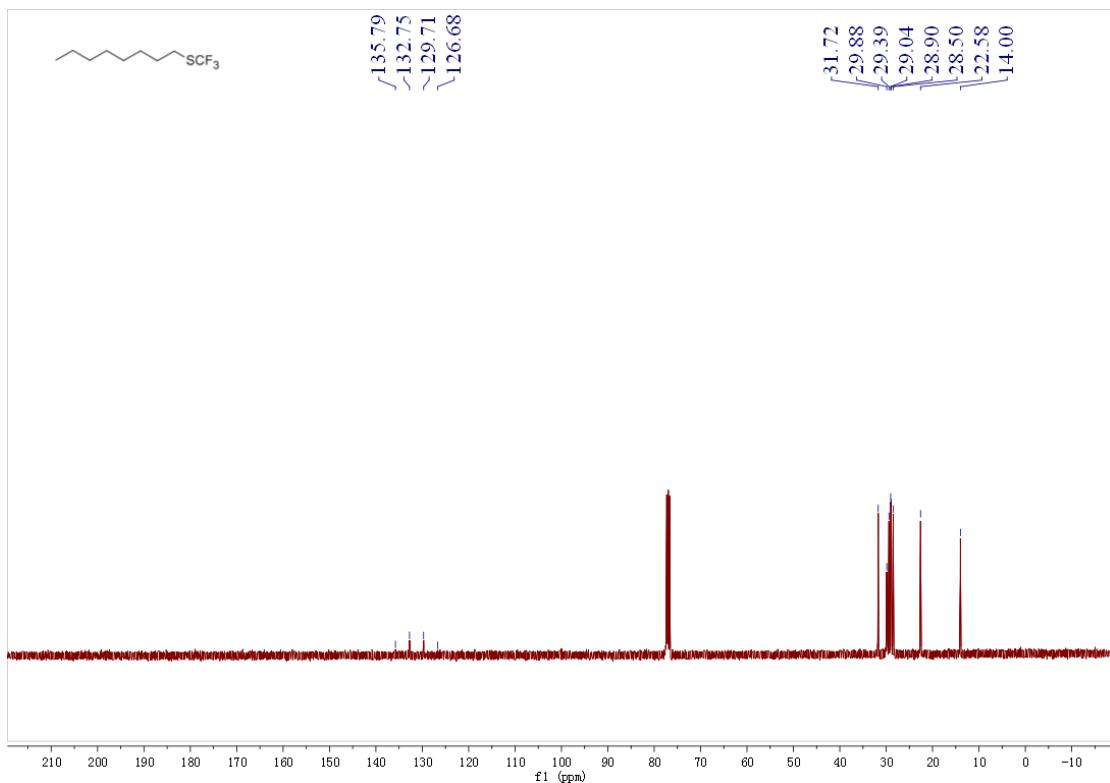
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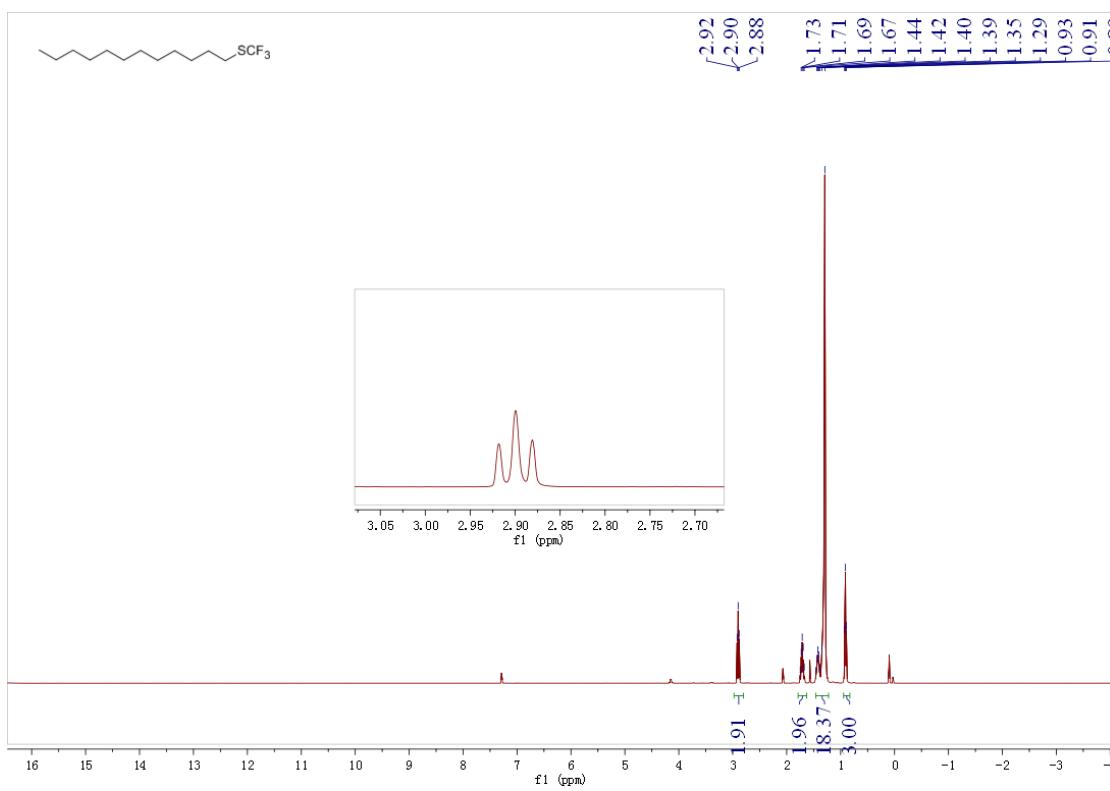
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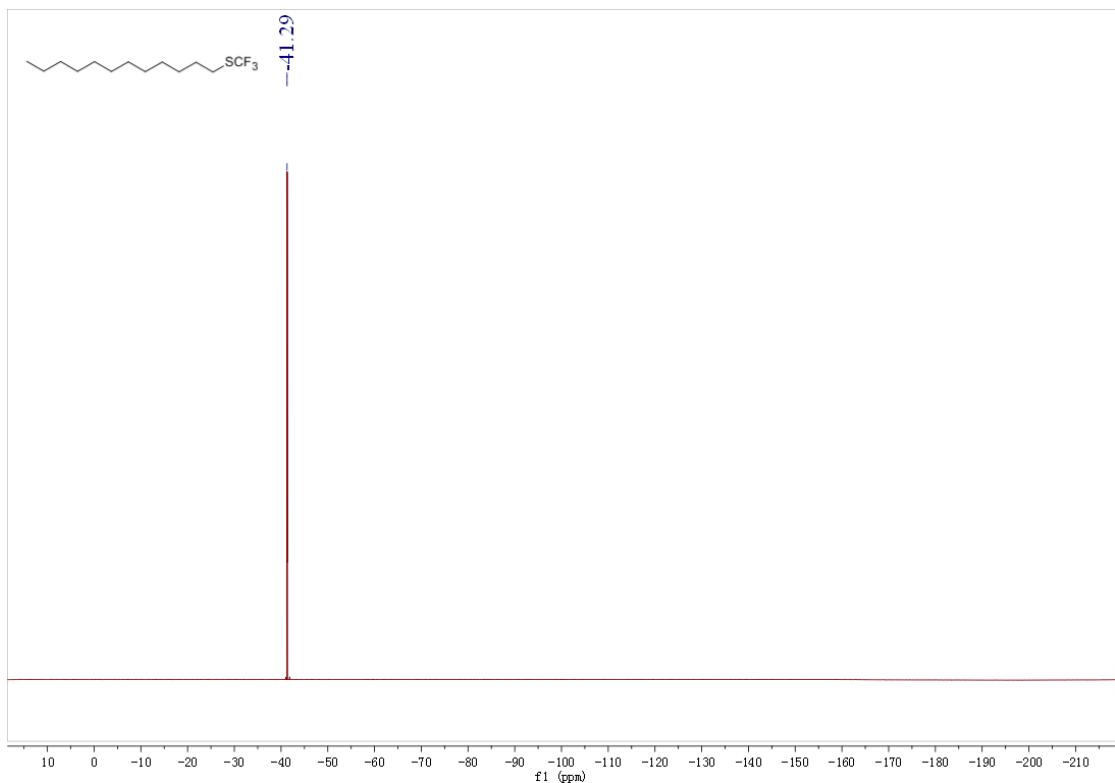
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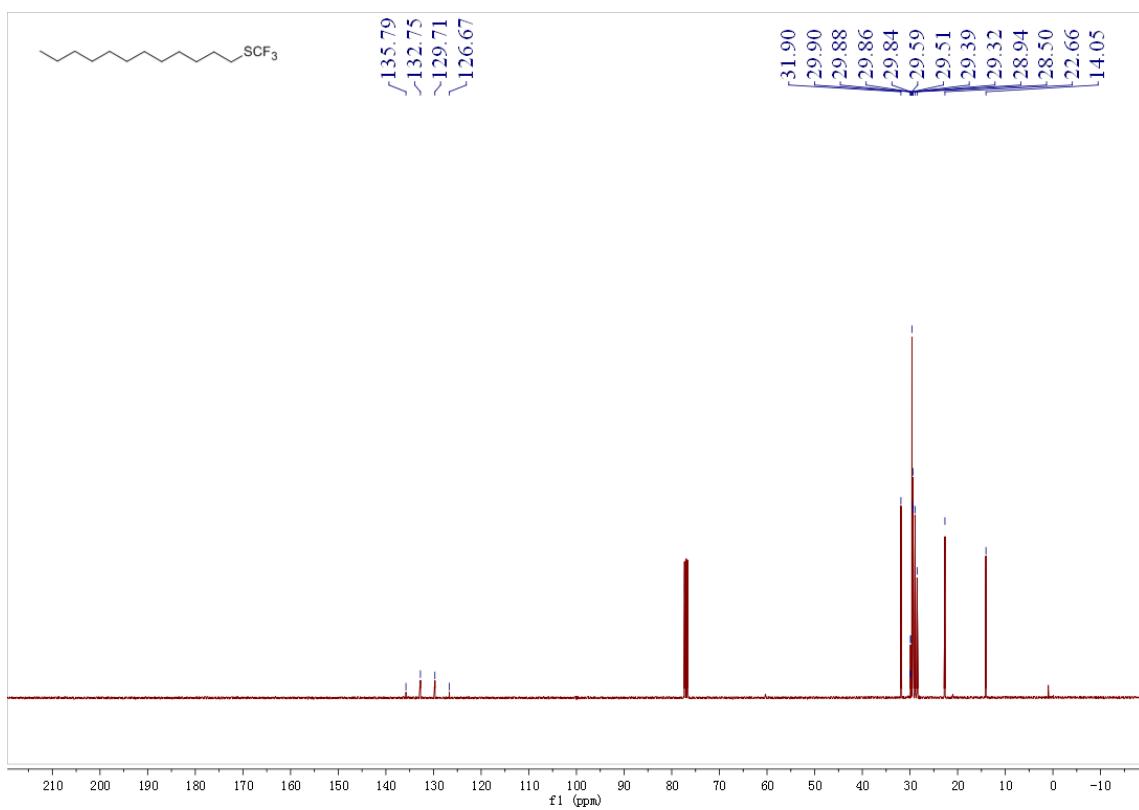
^{1}H NMR spectrum of 3c in CDCl$_3$

^{19}F NMR spectrum of 3c in CDCl$_3$

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^{13}C NMR spectrum of 3c in CDCl$_3$

138.93, 135.77, 132.73, 129.69, 128.72, 128.53, 126.92, 126.65

36.01, 31.24, 31.22, 31.20, 31.18

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2.95, 2.93, 2.92, 2.82, 2.80, 2.78, 2.12, 2.10, 2.09, 2.07, 2.05

5.03

2.00, 2.04, 2.06

^{19}F NMR spectrum of 3d in CDCl$_3$

−41.02
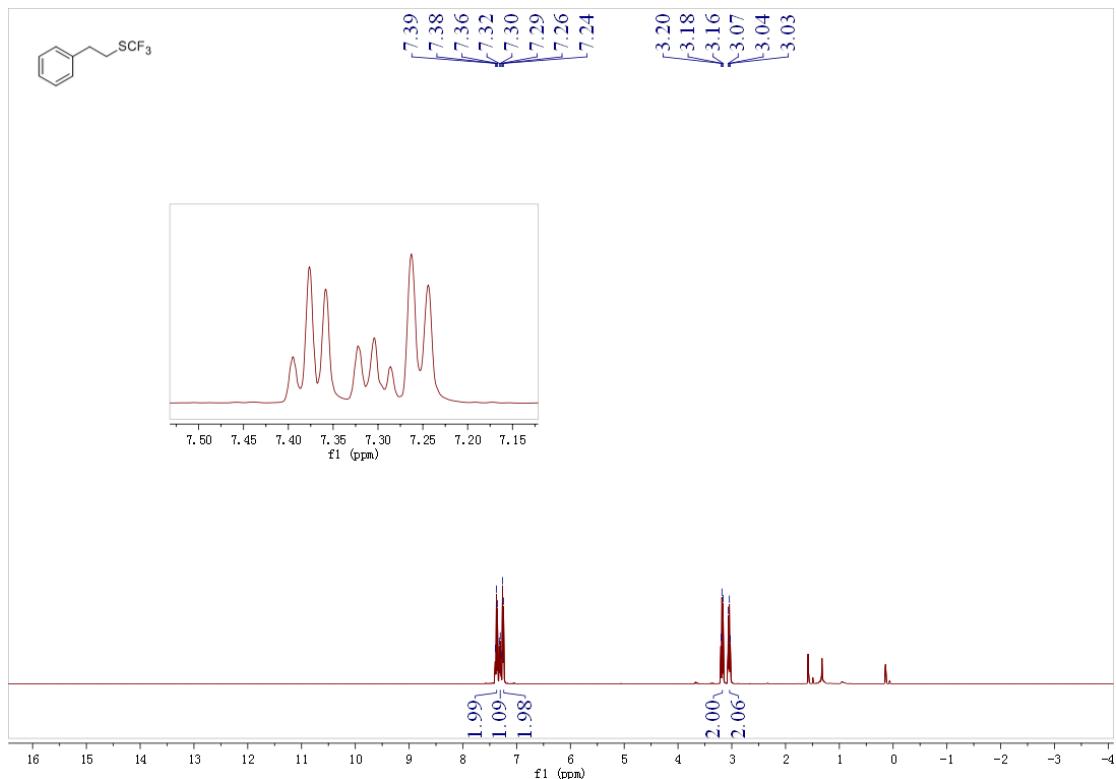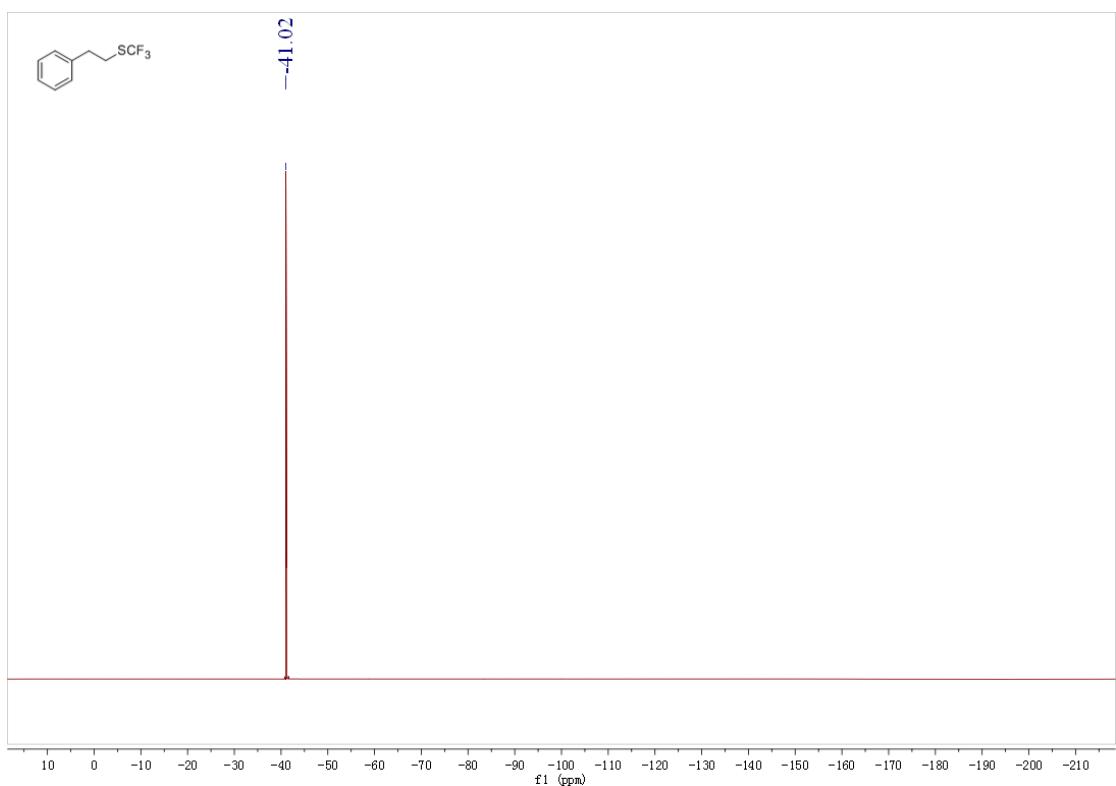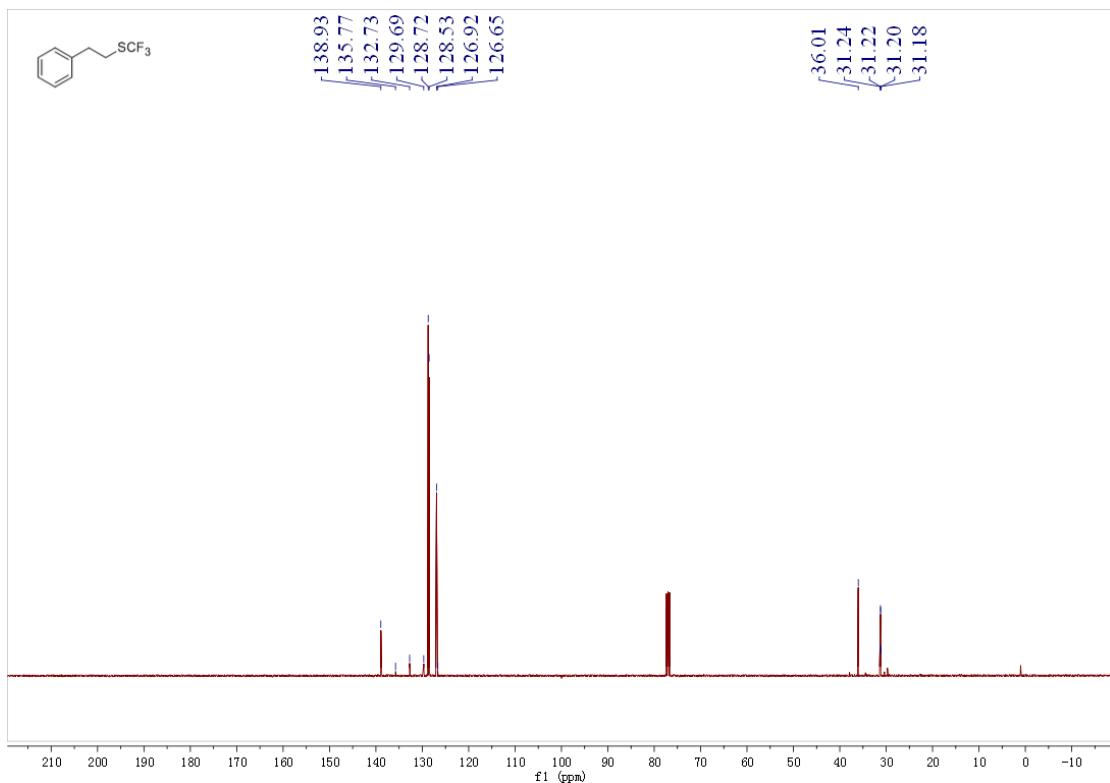
^{13}C NMR spectrum of 3d in CDCl$_3$

140.48
135.75
132.71
129.67
128.58
128.45
126.63
126.28

34.36
30.98
29.24
29.22
29.20
29.18

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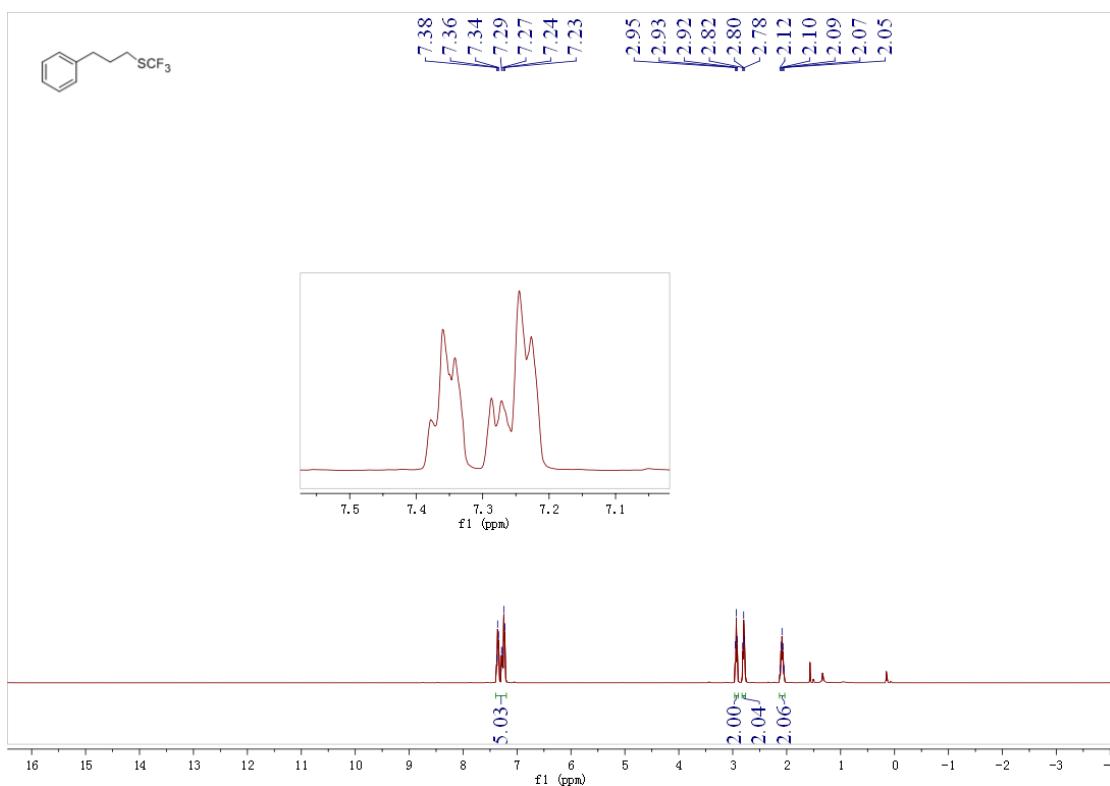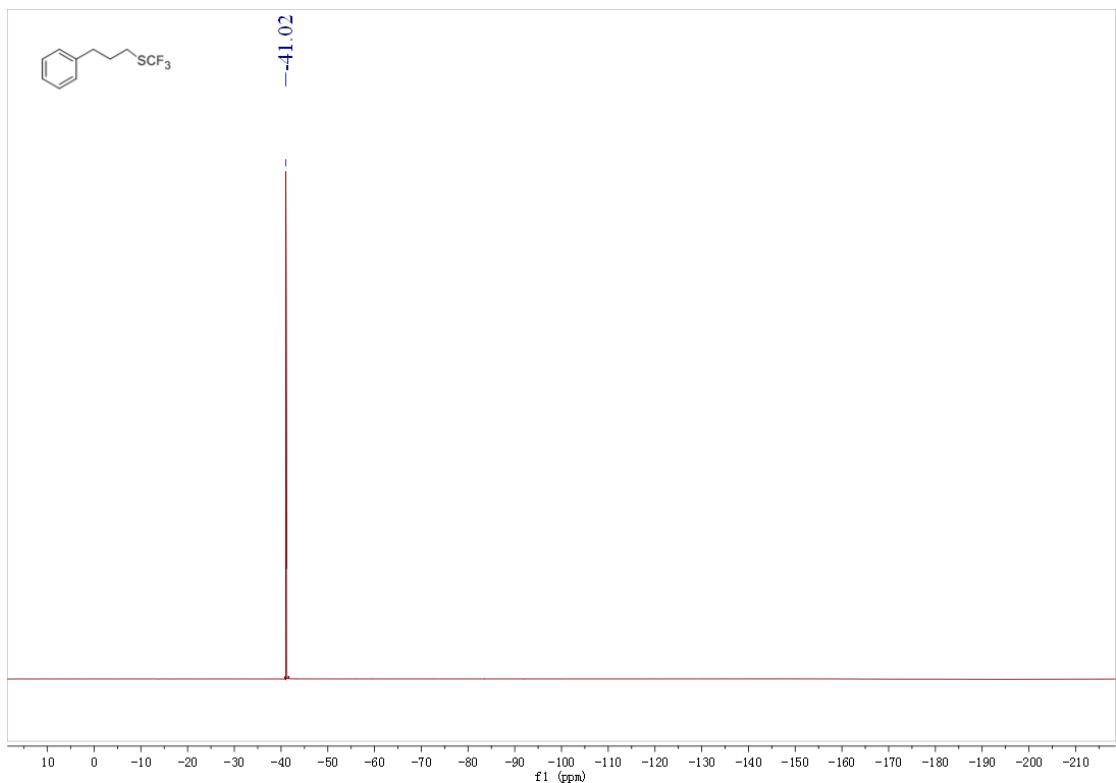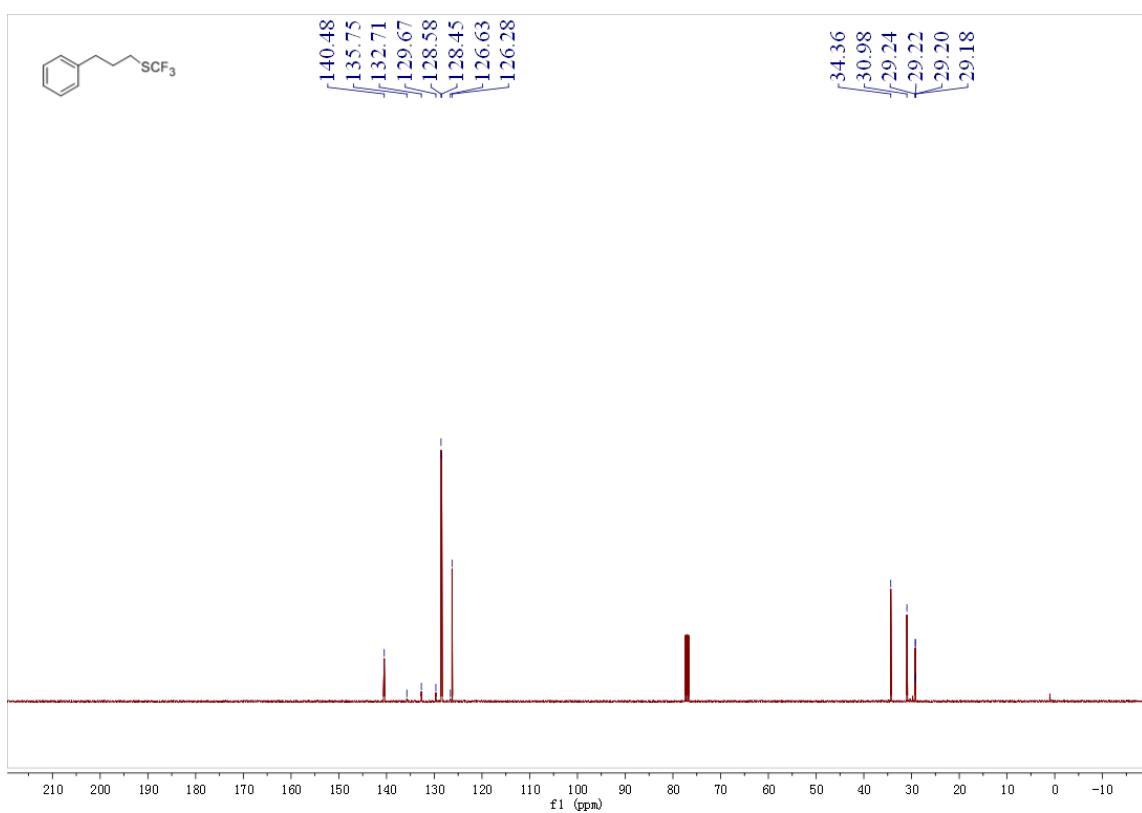
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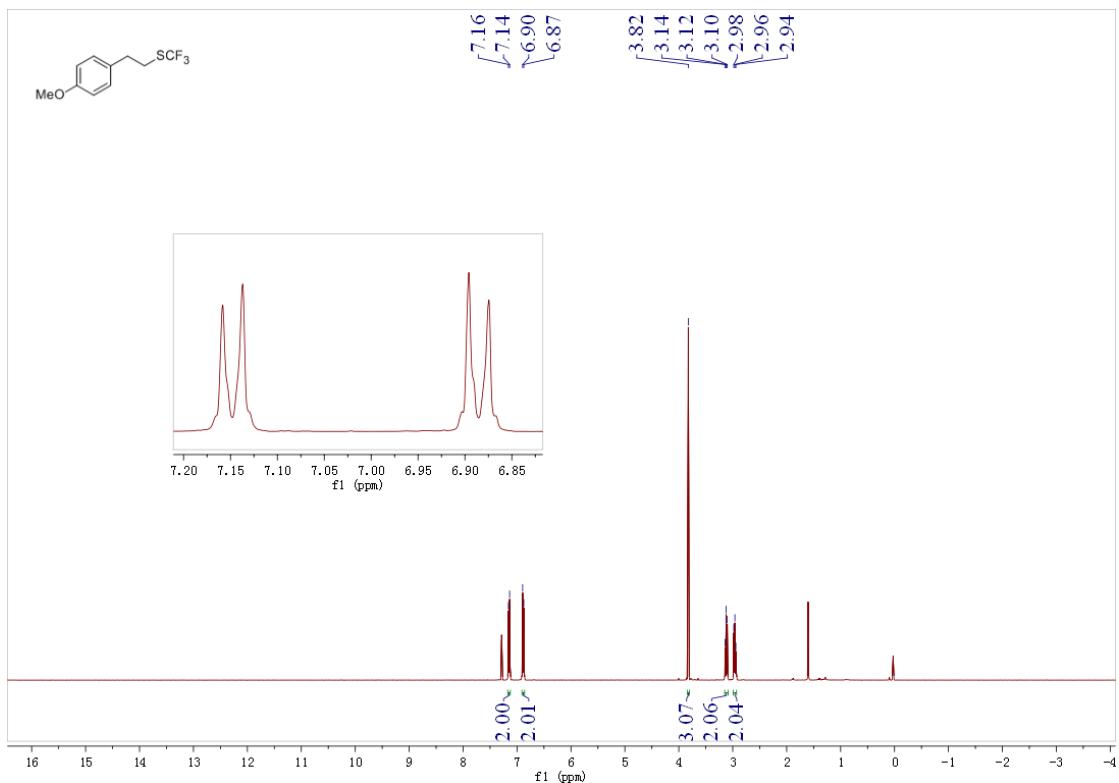
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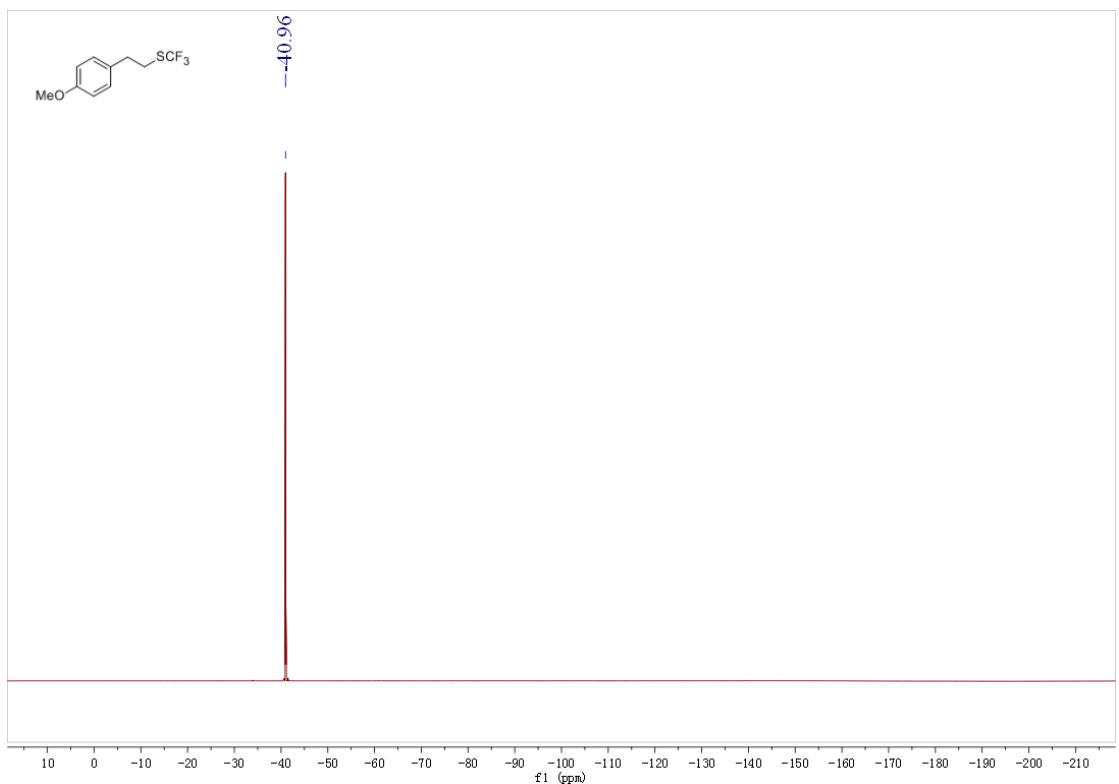
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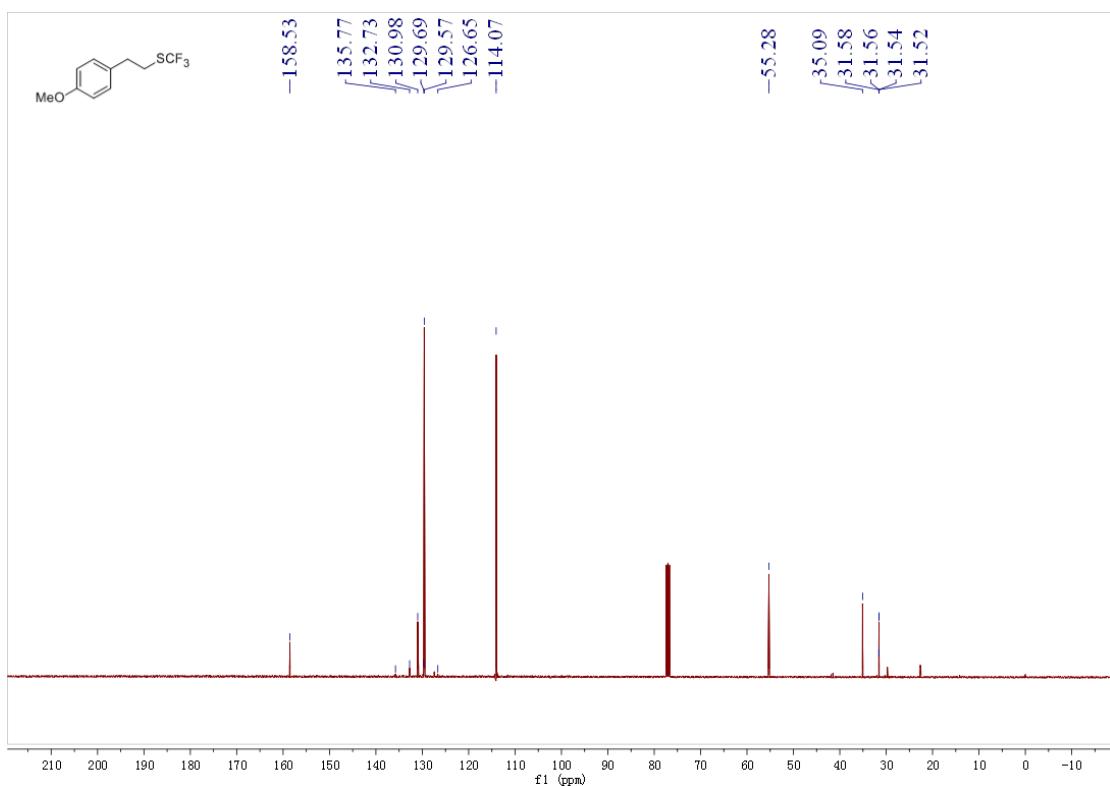
^{1}H NMR spectrum of 3f in CDCl$_3$

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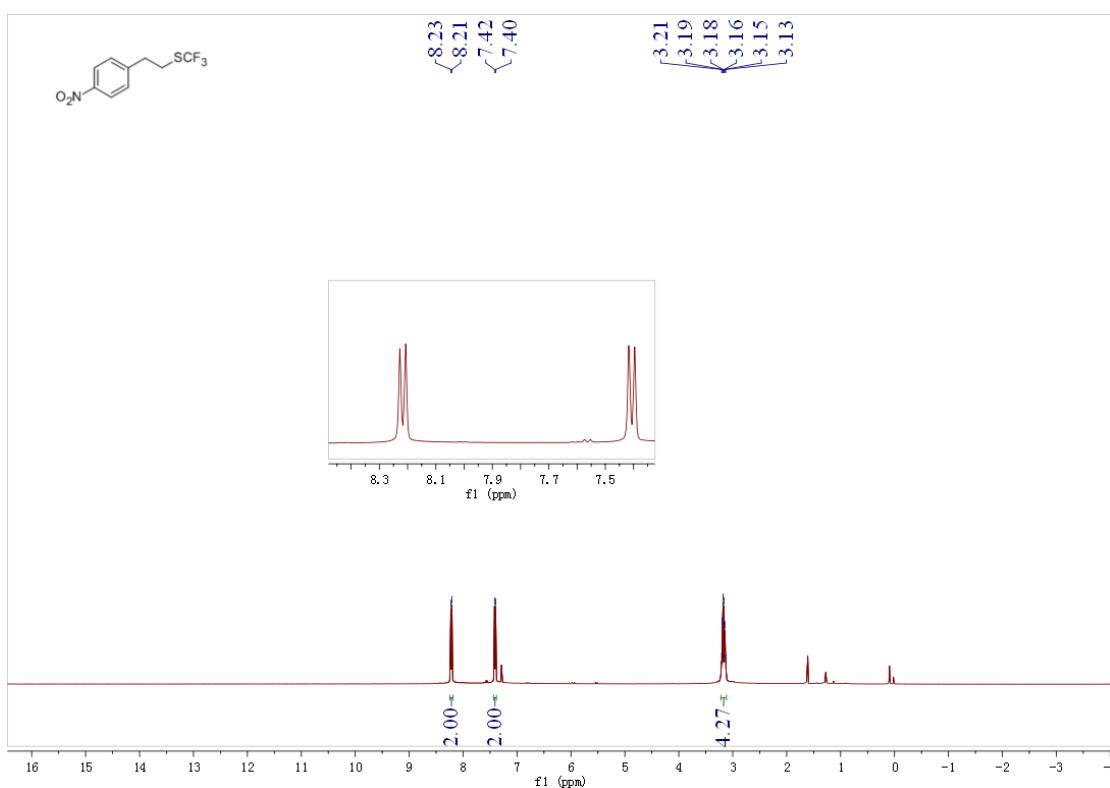
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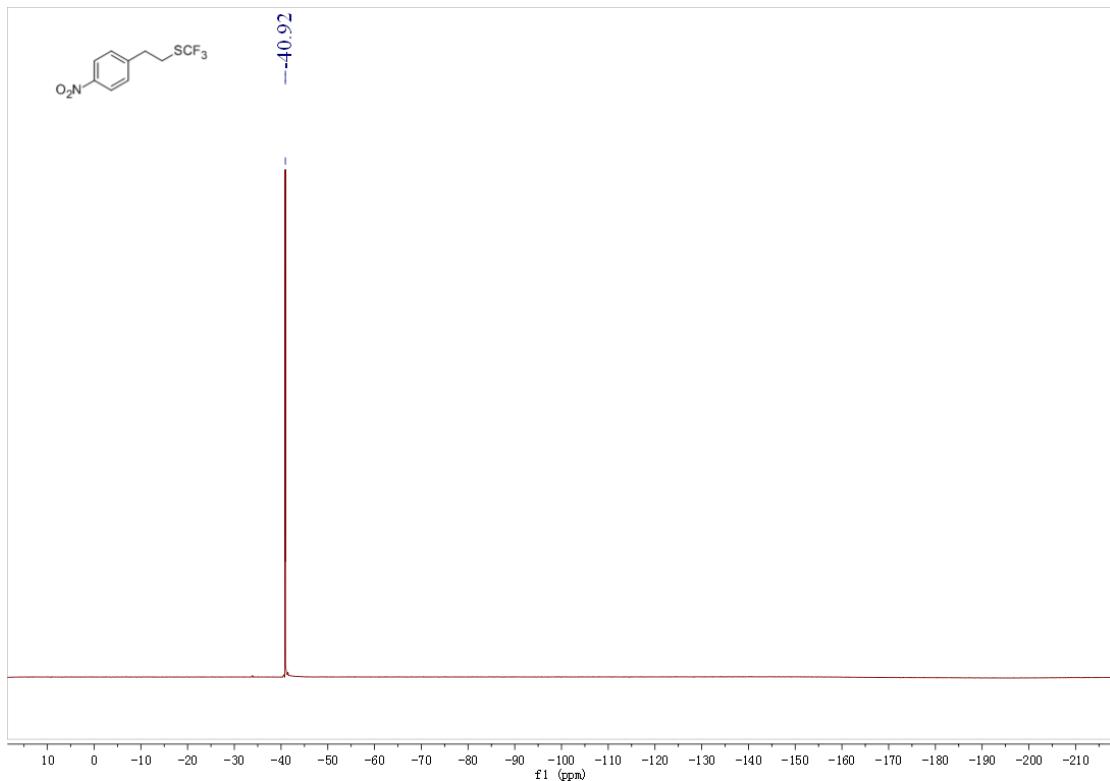
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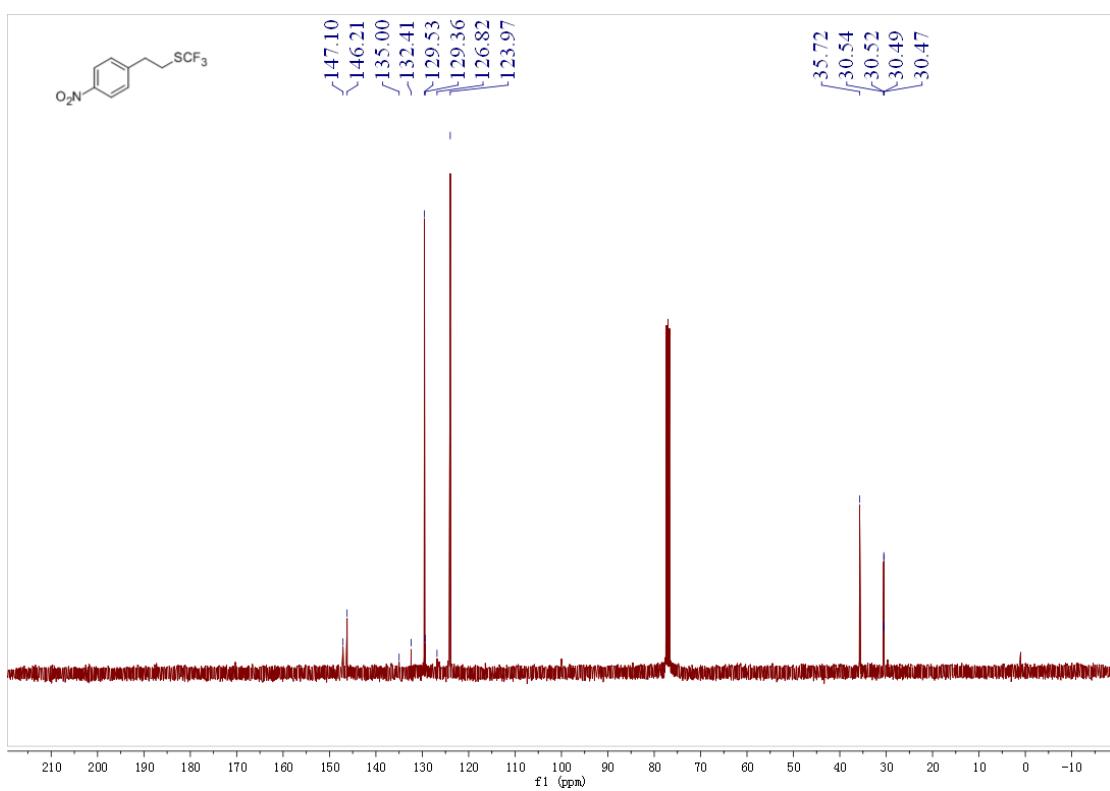
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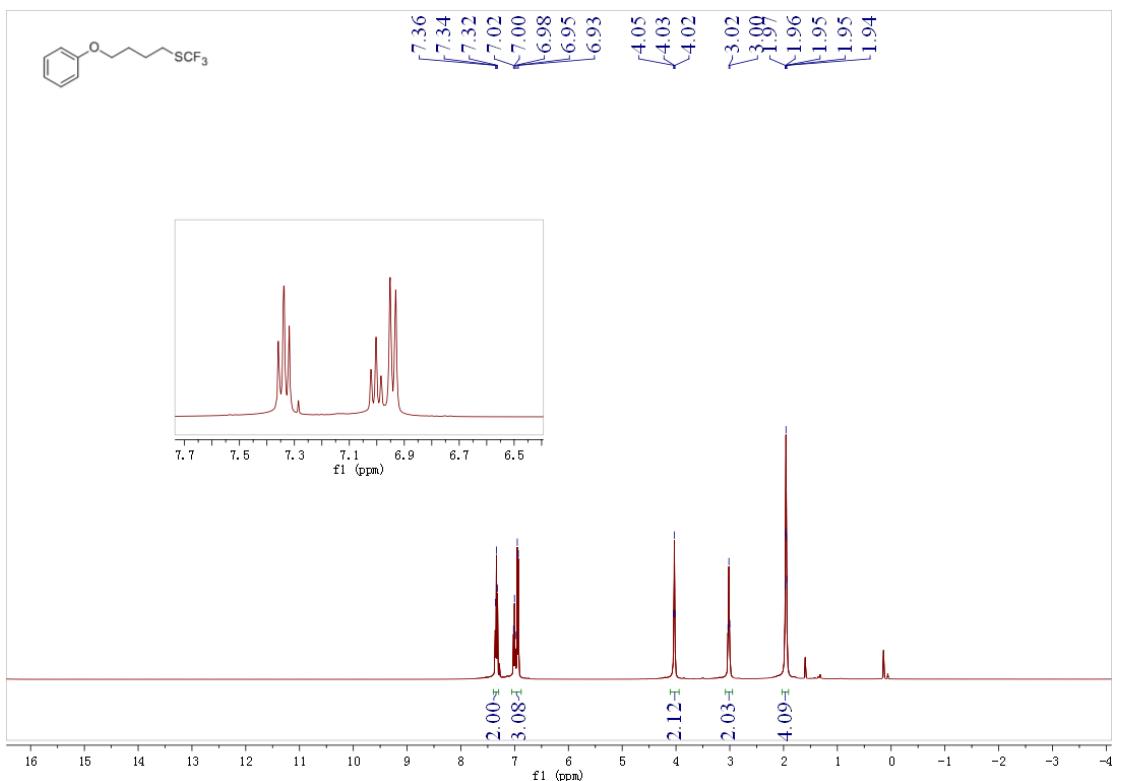
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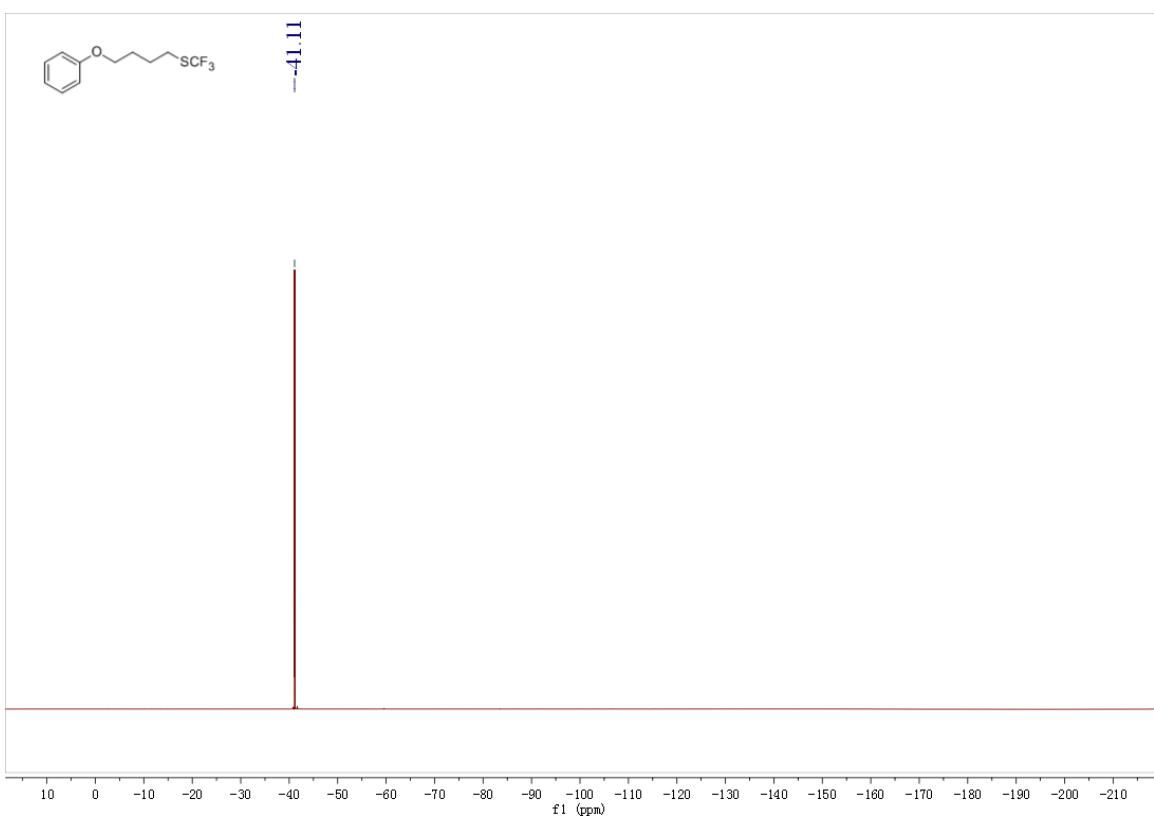
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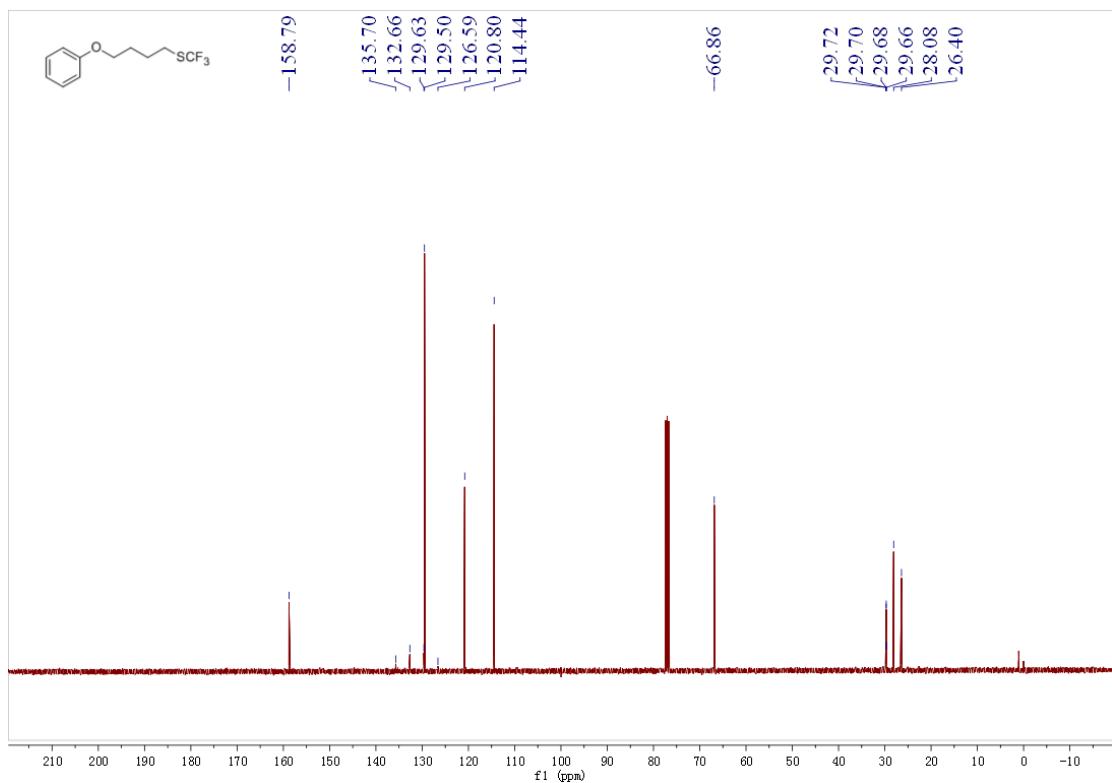
^{1}H NMR spectrum of 3h in CDCl$_3$

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^{19}F NMR spectrum of **3h** in CDCl$_3$

−41.21

^{13}C NMR spectrum of **3h** in CDCl$_3$

138.16
135.75
132.70
129.66
128.44
127.71
127.65
126.62

73.09
67.77

29.78
26.94
26.92
26.90
26.88

13
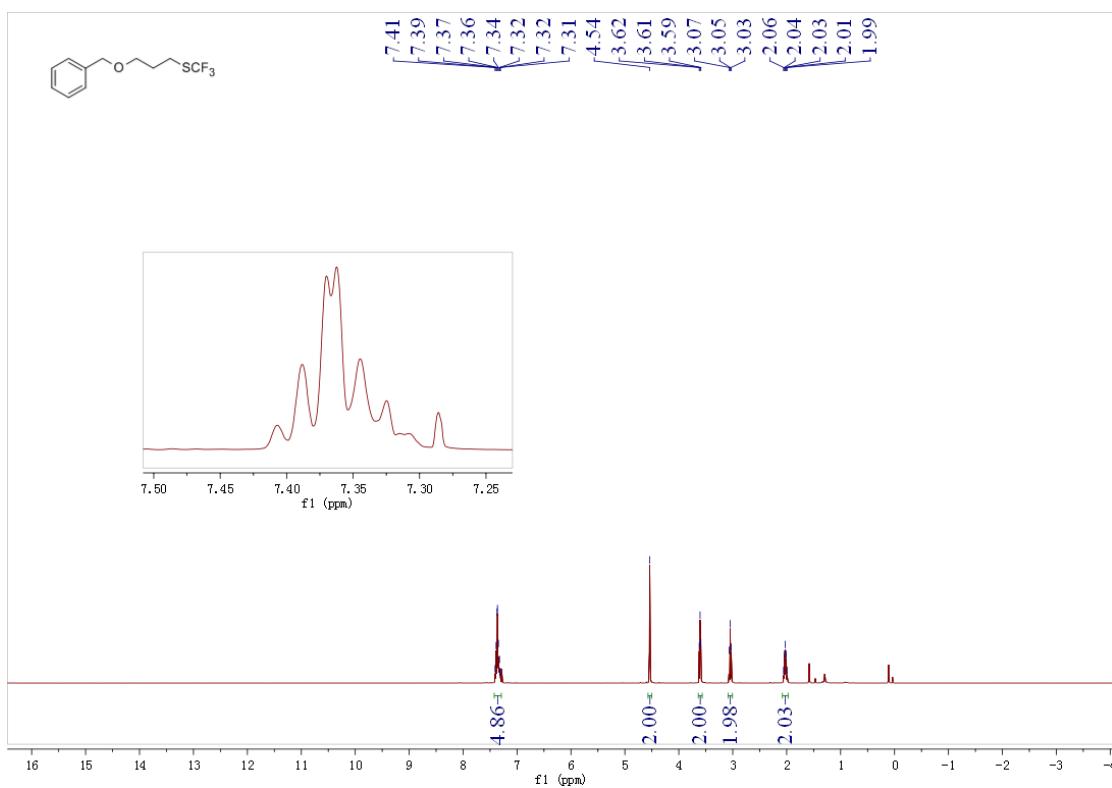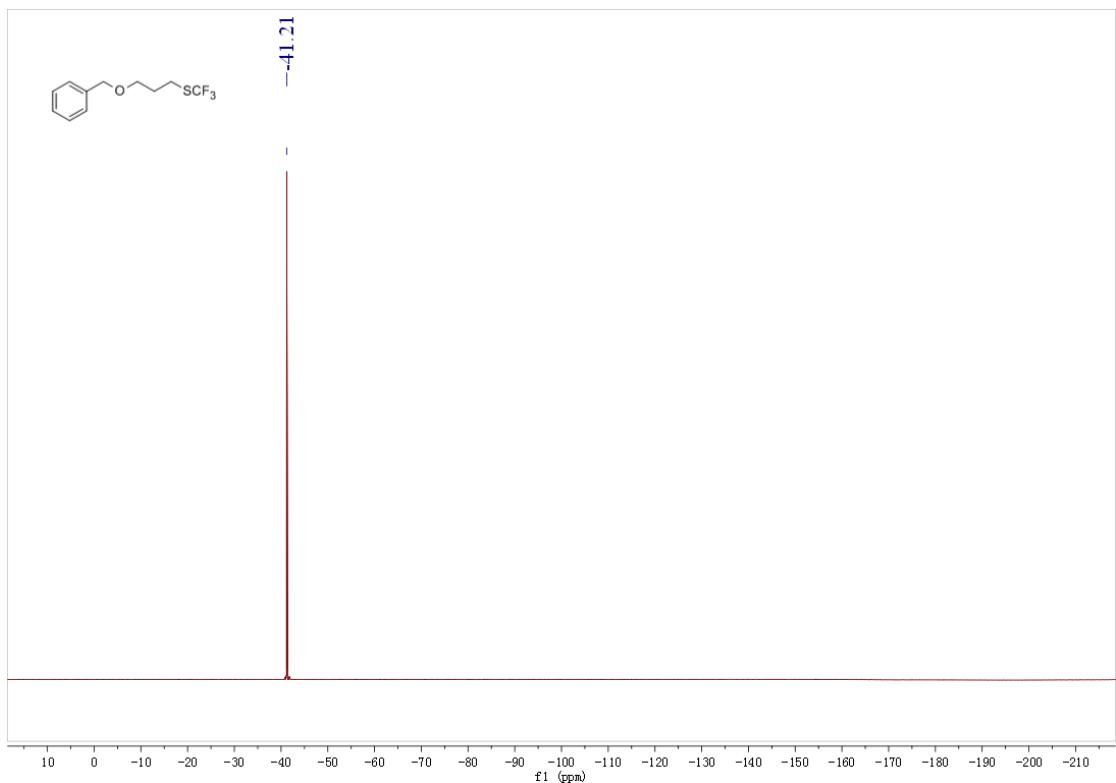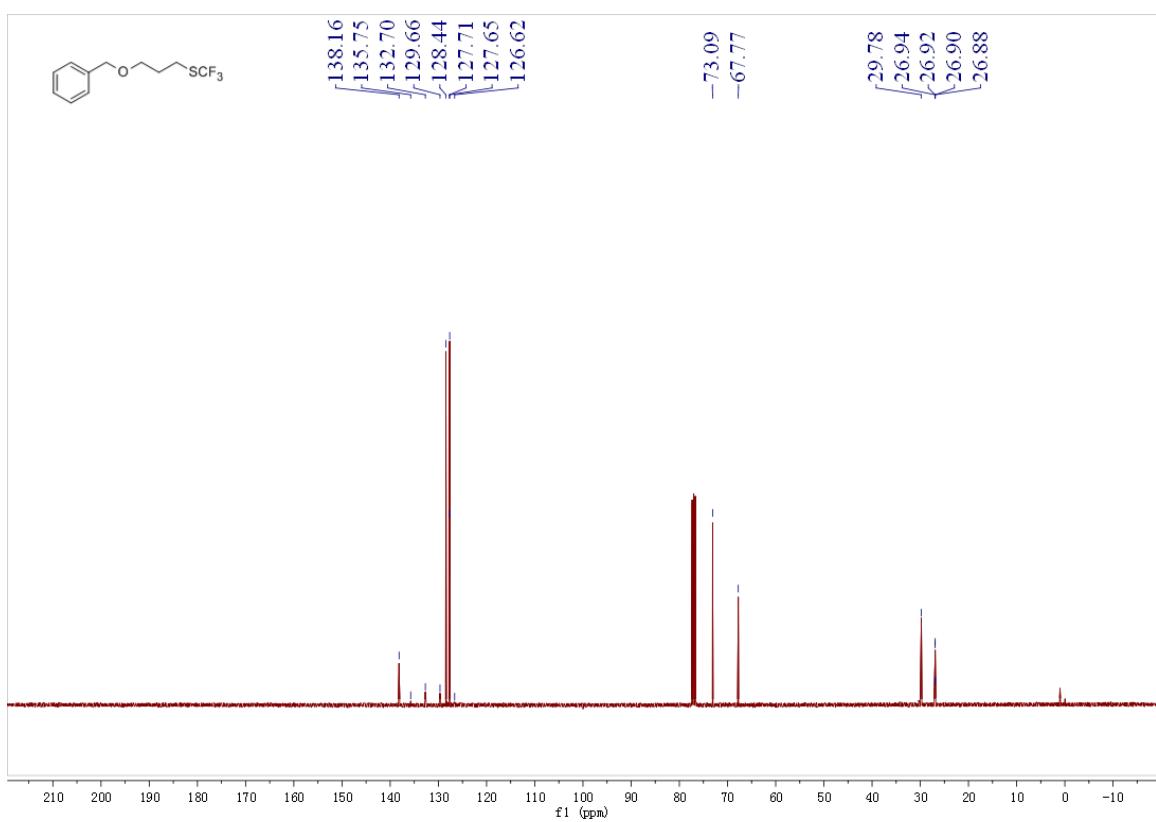
^{1}H NMR spectrum of 3i in CDCl$_3$

^{19}F NMR spectrum of 3i in CDCl$_3$

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^{13}C NMR spectrum of 3i in CDCl$_3$

136.81, 135.59, 132.54, 131.46, 130.75, 129.86, 129.50, 126.46, 32.99, 28.71, 28.47, 28.45, 28.43, 28.41, 21.05

^{1}H NMR spectrum of 3j in CDCl$_3$

4.67, 4.67, 4.66, 4.00, 3.99, 3.97, 3.96, 3.91, 3.90, 3.88, 3.86, 3.85, 3.72, 3.70, 3.69, 3.68, 3.66, 3.57, 3.56, 3.55, 3.53, 3.52, 3.15, 3.13, 3.11, 1.85, 1.85, 1.83, 1.82, 1.76, 1.74, 1.73, 1.72, 1.71, 1.63, 1.62, 1.61, 1.61, 1.59, 1.57, 1.57, 1.55, 1.54

1.00, 2.35, 2.49, 2.03, 2.34, 4.24
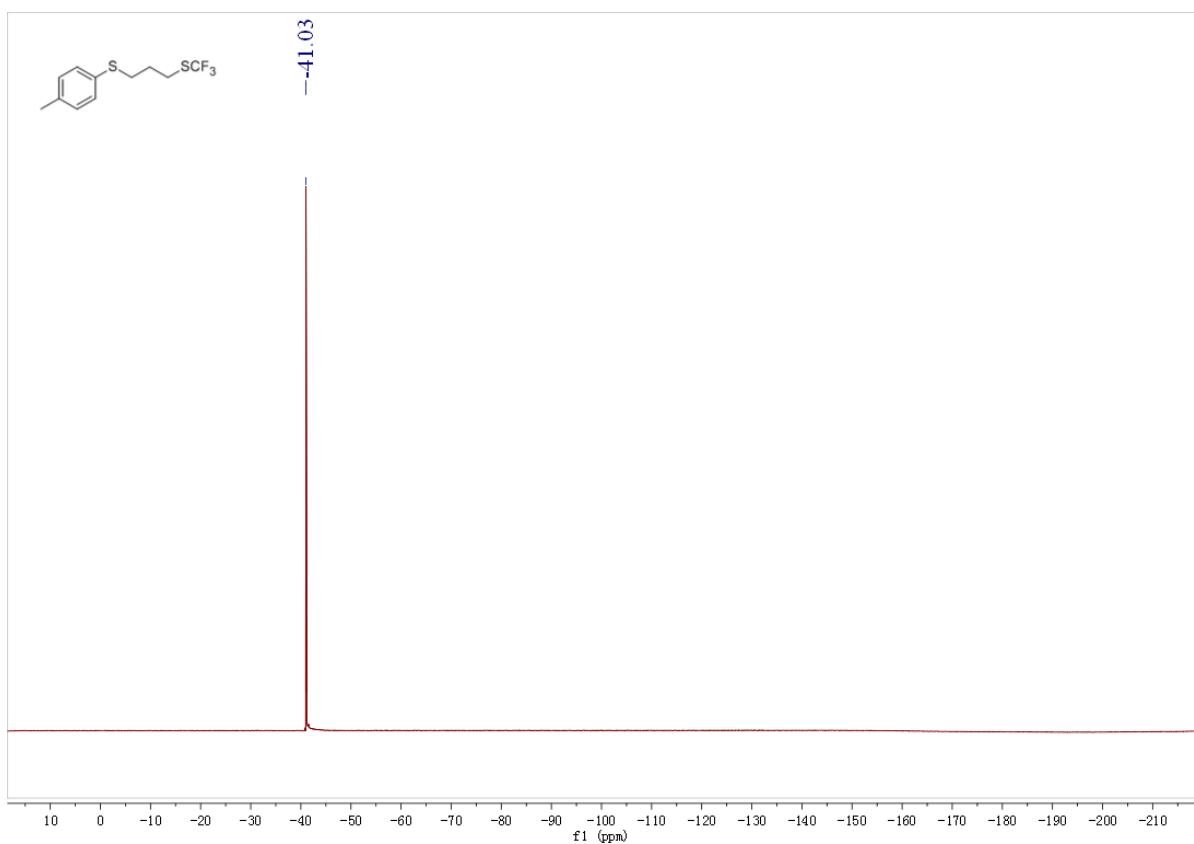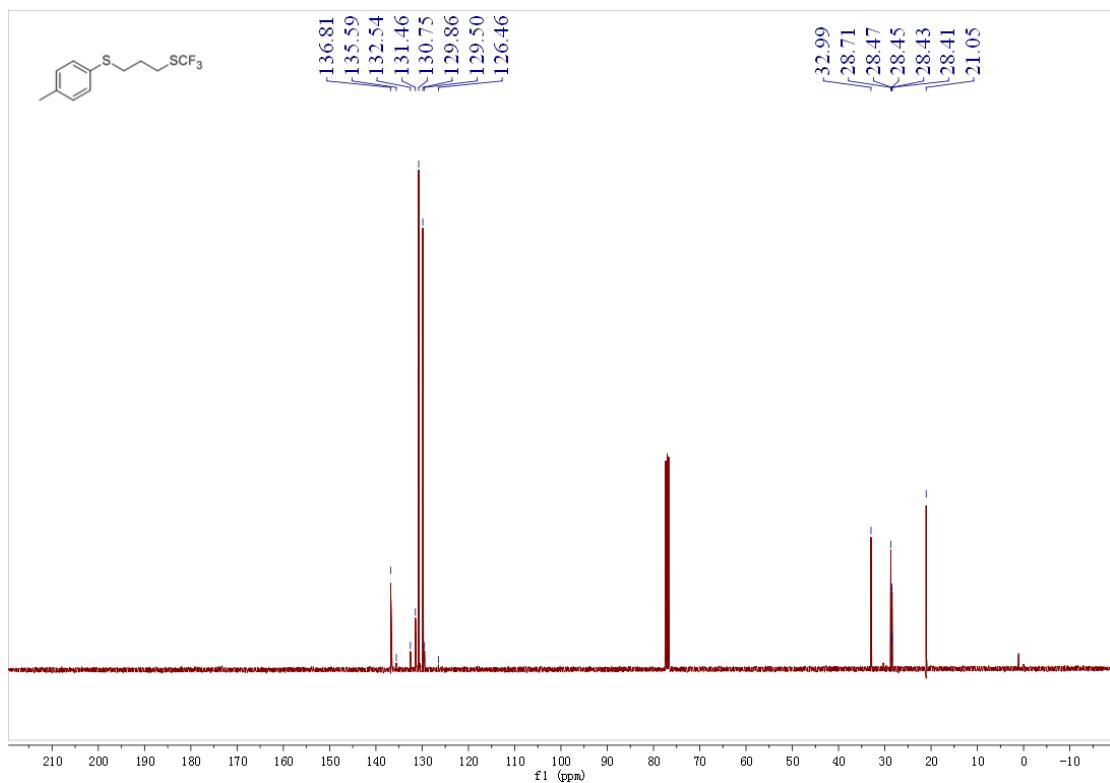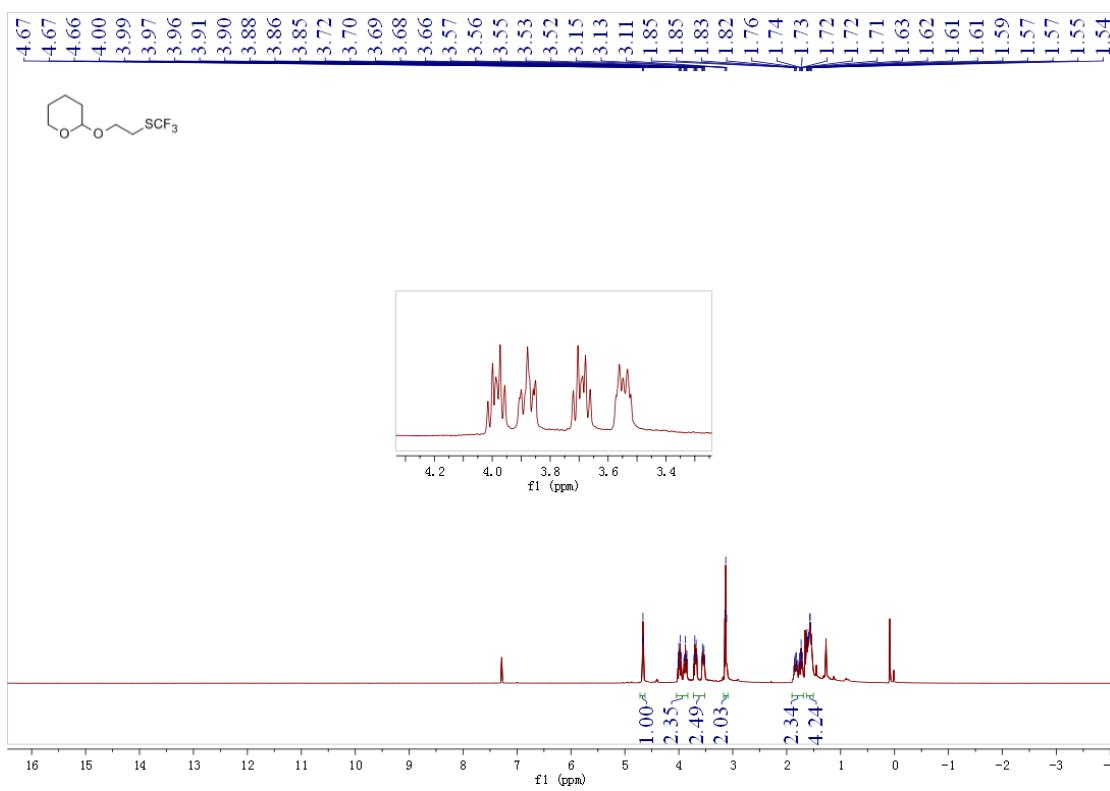
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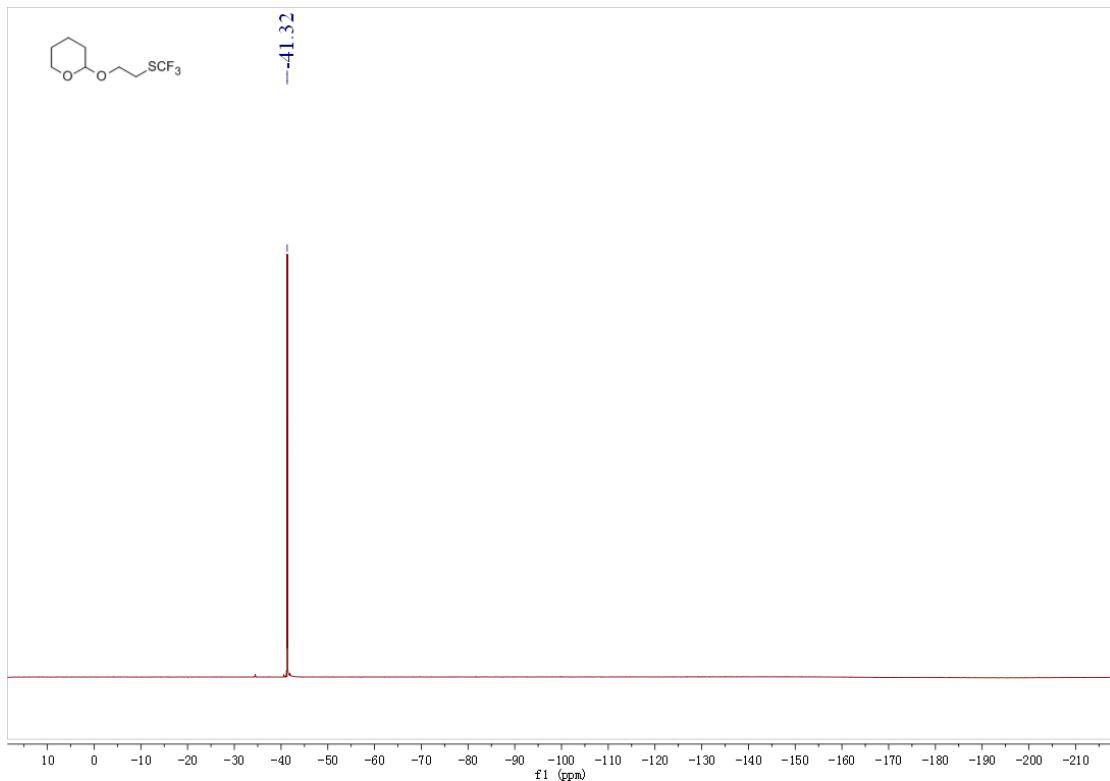
^{13}C NMR spectrum of 3j in CDCl$_3$

¹H NMR spectrum of 3k in CDCl₃

^{1}**H NMR** spectrum of **3k** in CDCl$_3$
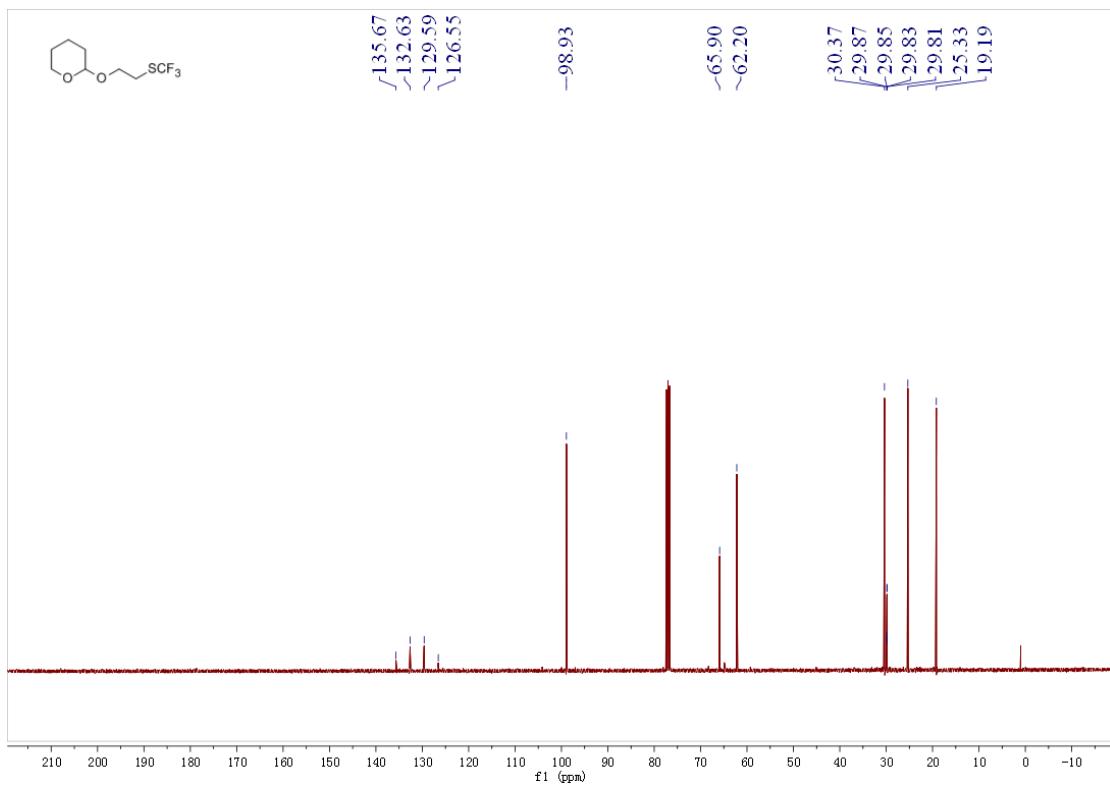
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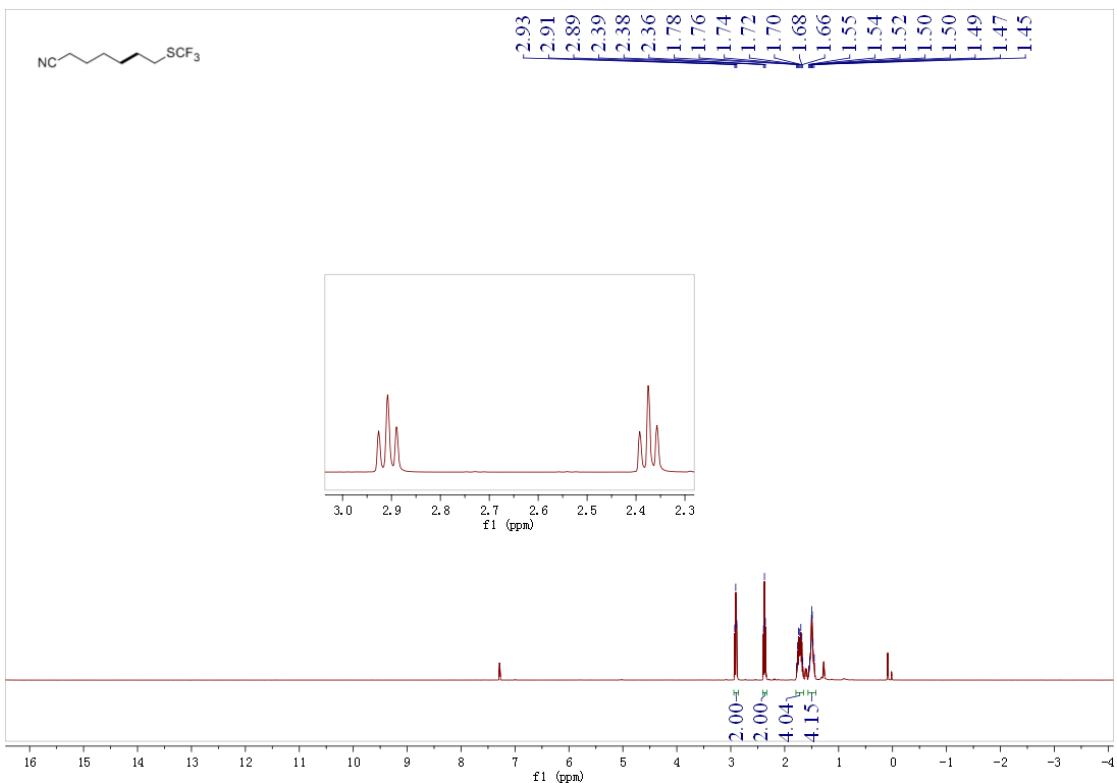
^{19}**F NMR** spectrum of **3k** in CDCl$_3$

^{13}C NMR spectrum of 3k in CDCl$_3$

135.67
132.63
129.59
126.55
119.47

29.68
29.66
29.64
29.62
29.12
28.01
27.59
25.15
17.05

^{1}H NMR spectrum of 3l in CDCl$_3$

4.17
4.16
4.14
2.88
2.31
1.73
1.70
1.68
1.66
1.64
1.50
1.48
1.46
1.44
1.43
1.29
1.27

2.00
2.02
2.05
4.39
2.13
3.15
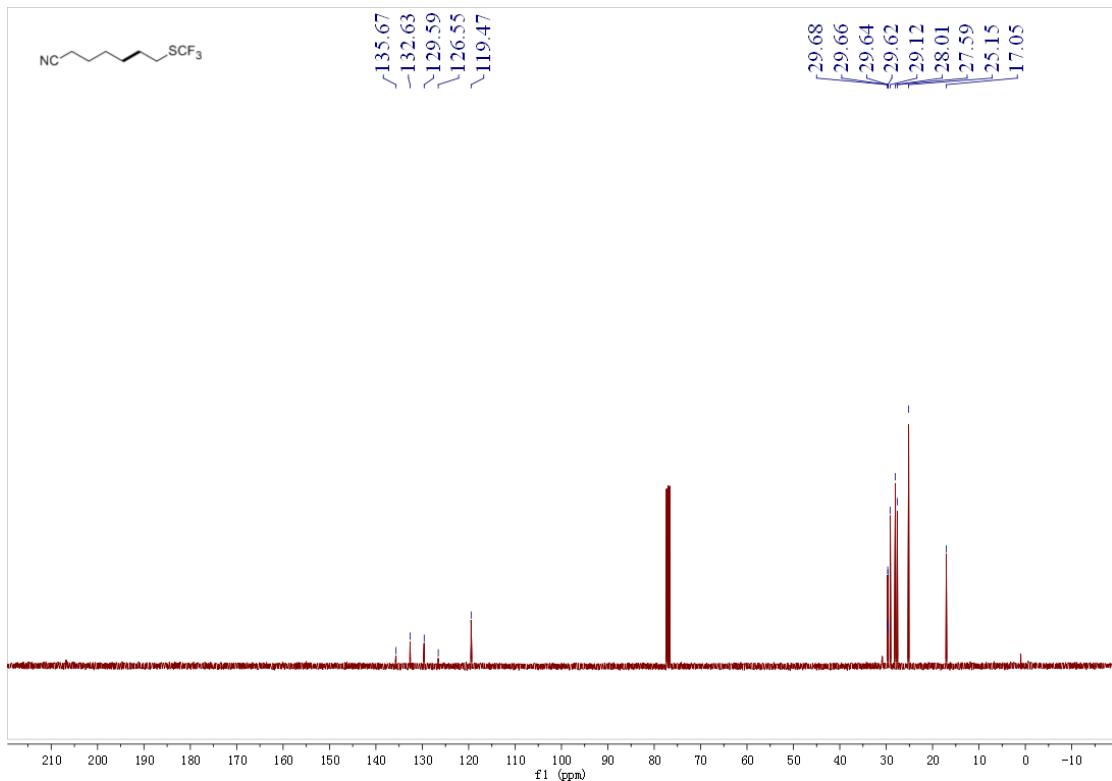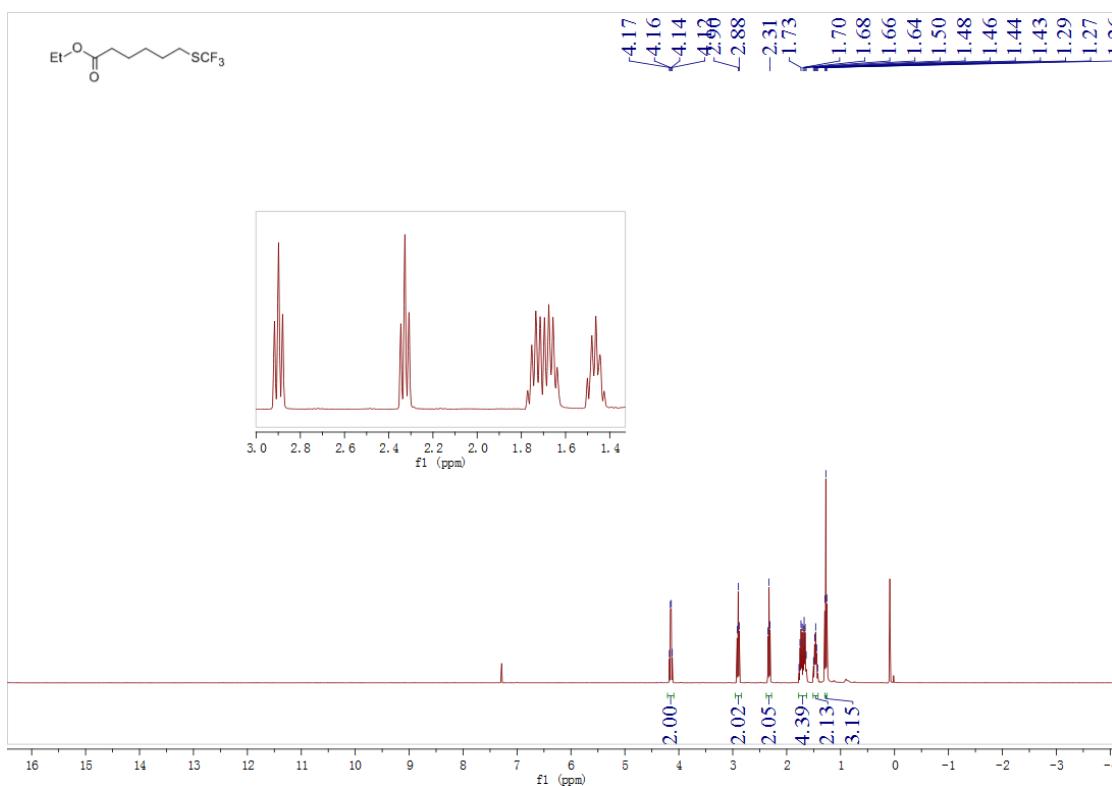
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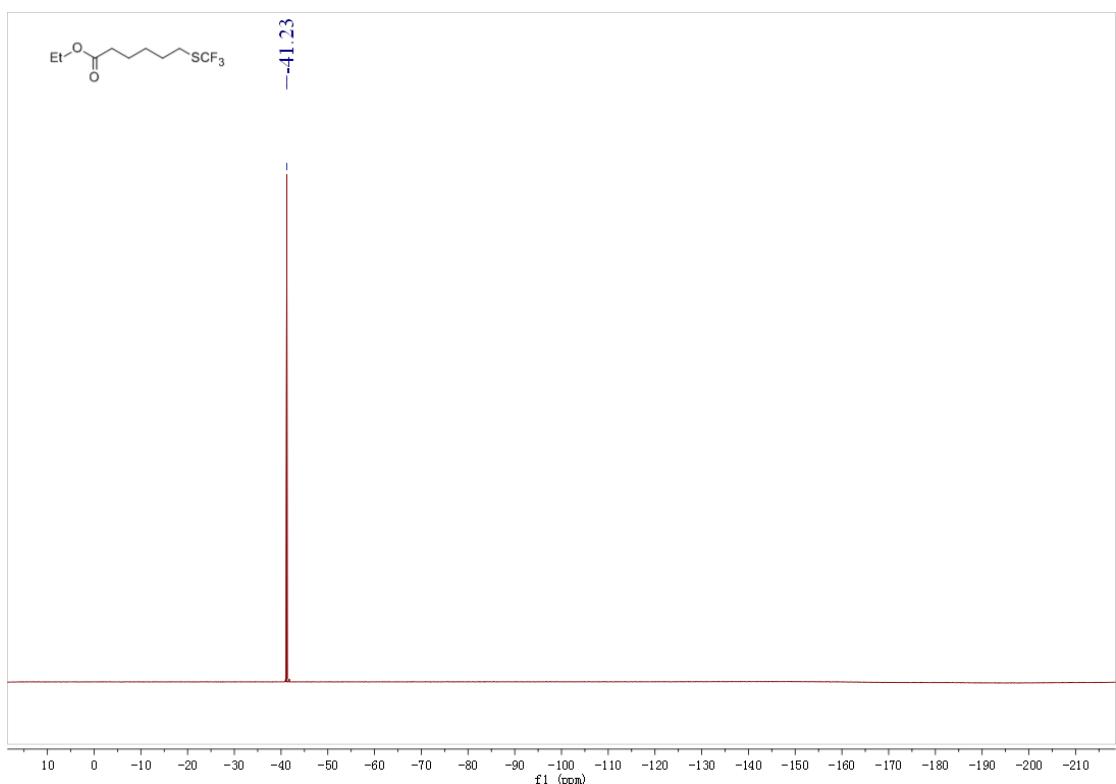

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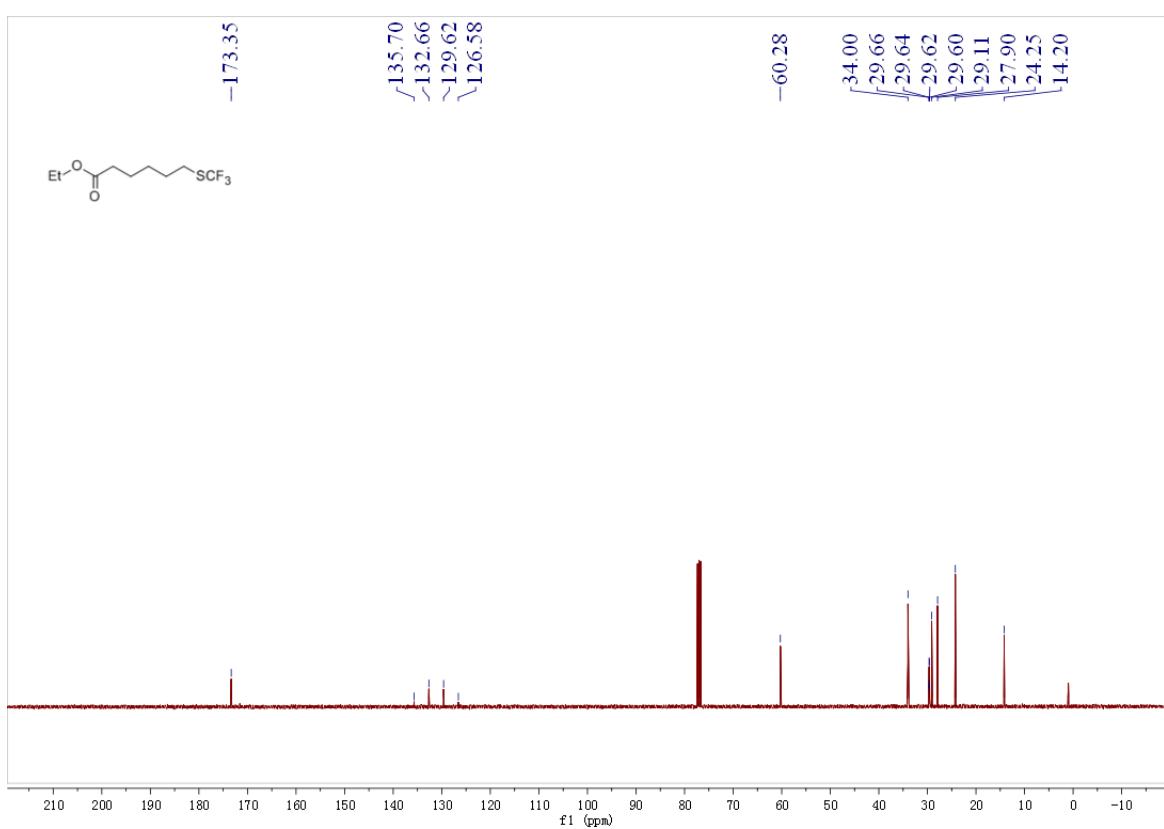
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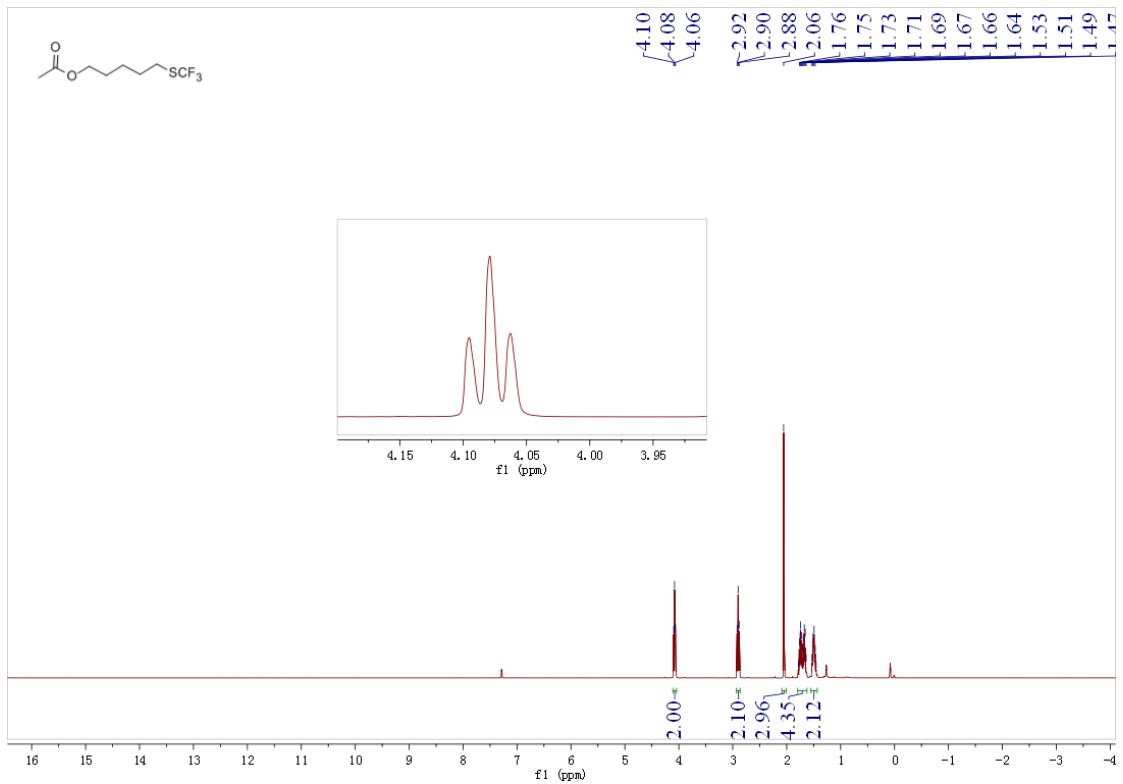
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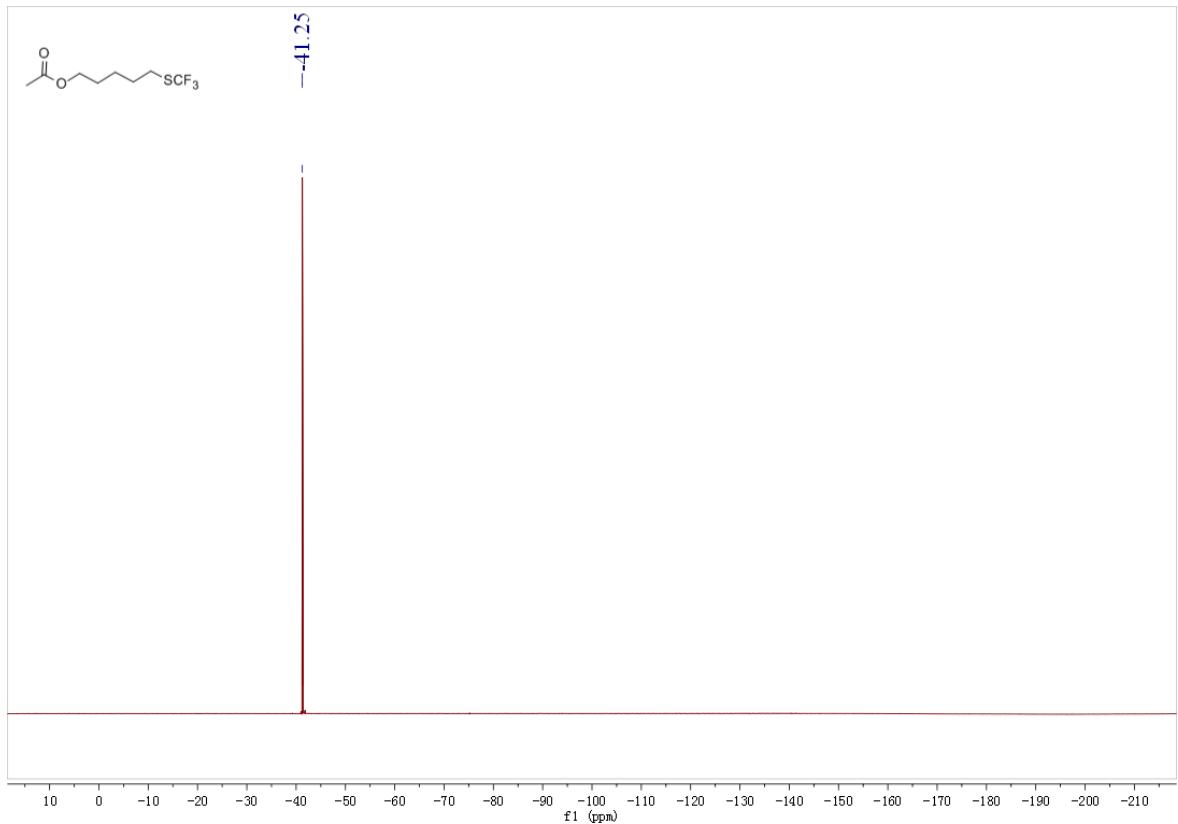
^{13}C NMR spectrum of 3m in CDCl$_3$

^{1}H NMR spectrum of 3n in CDCl$_3$

¹⁹F NMR spectrum of 3n in CDCl₃
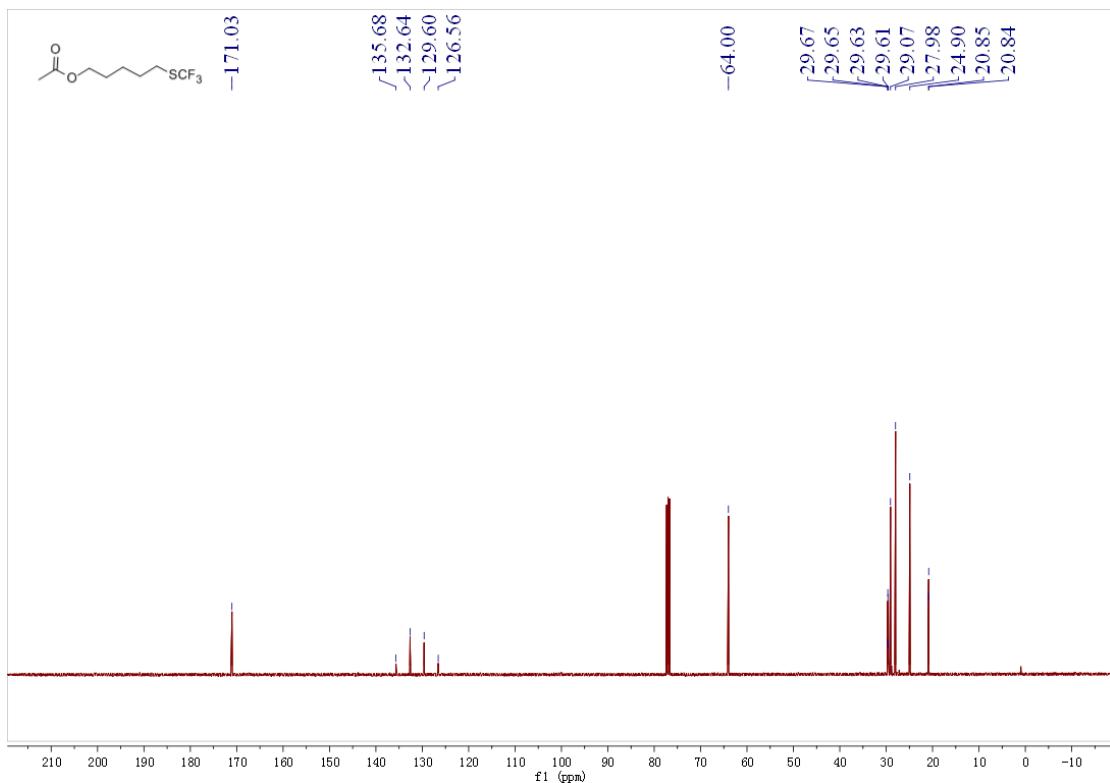
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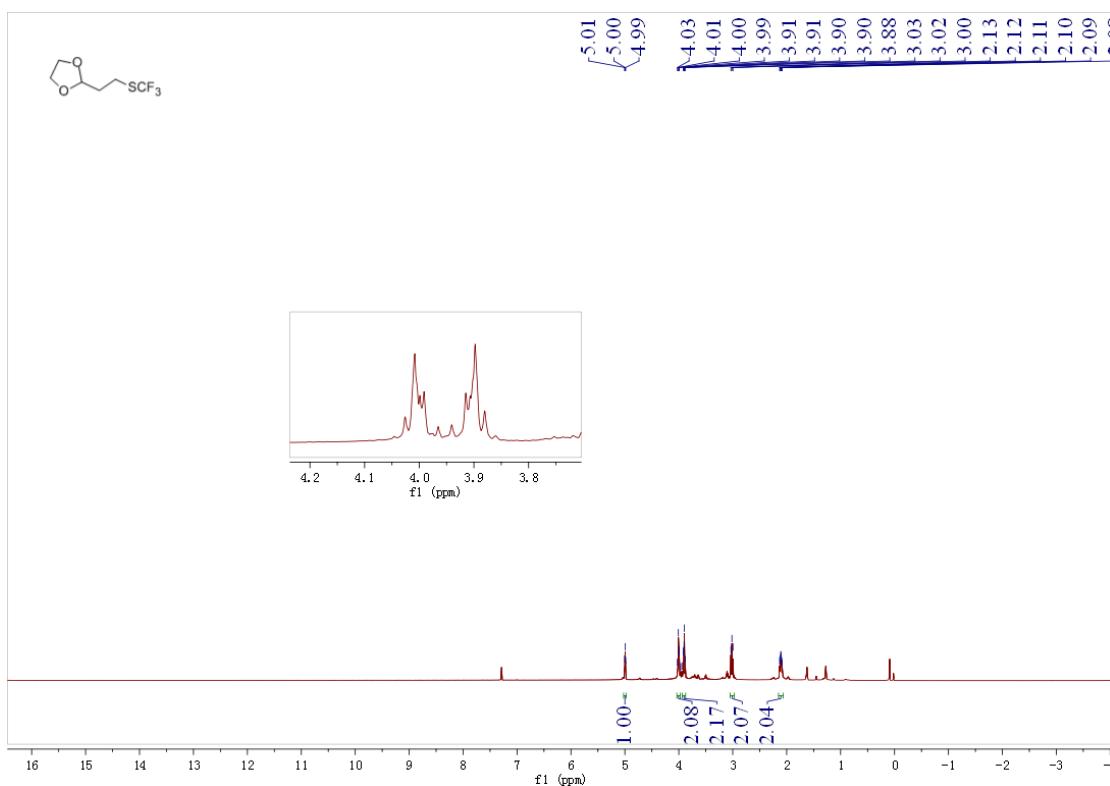
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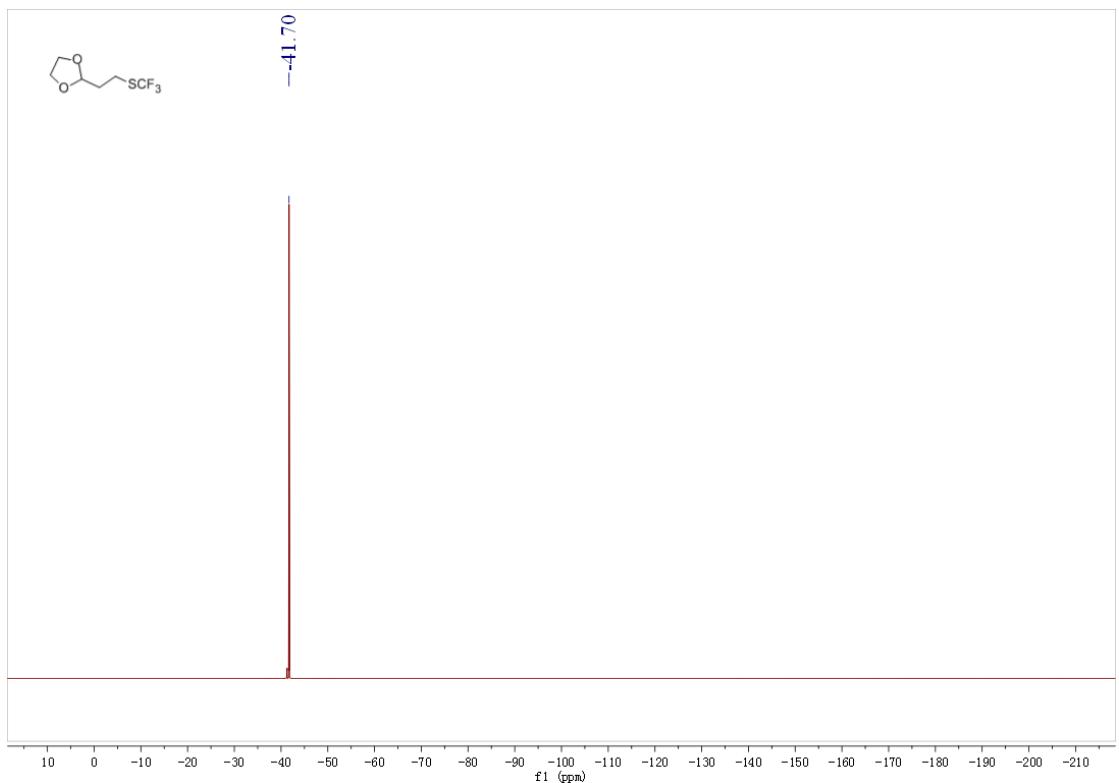
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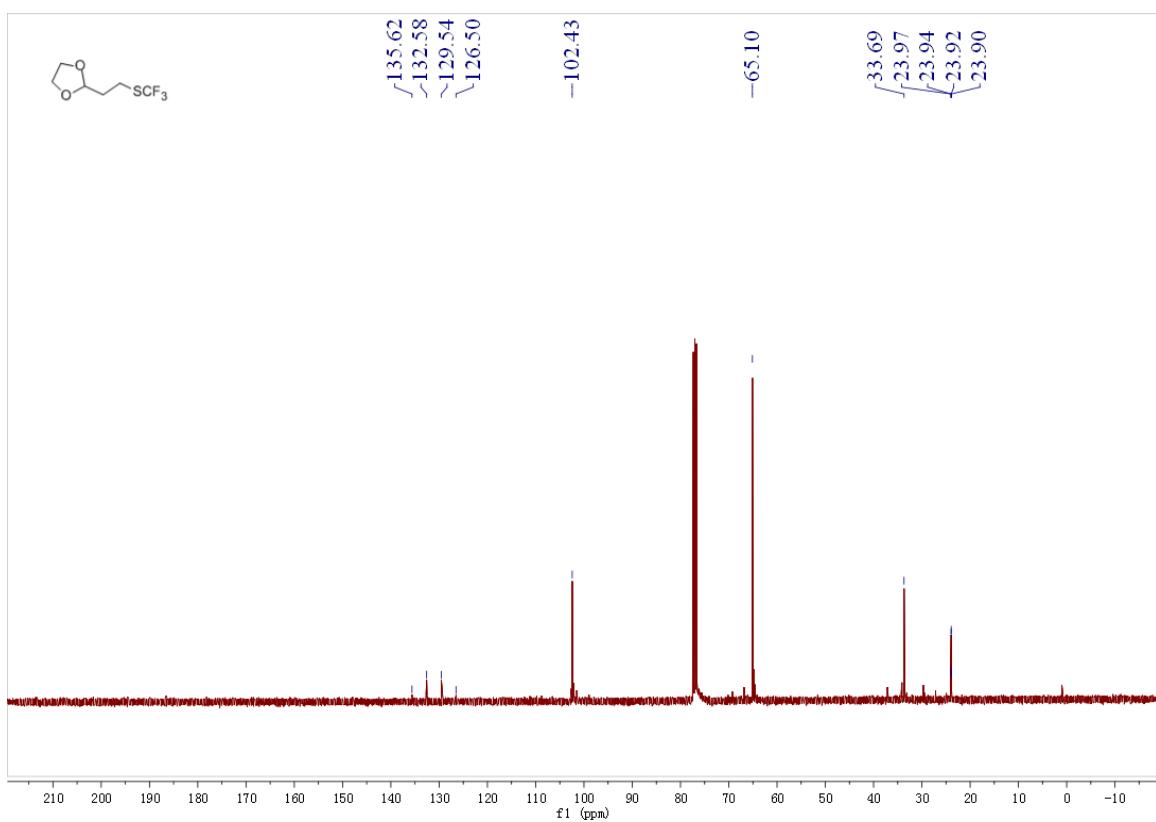
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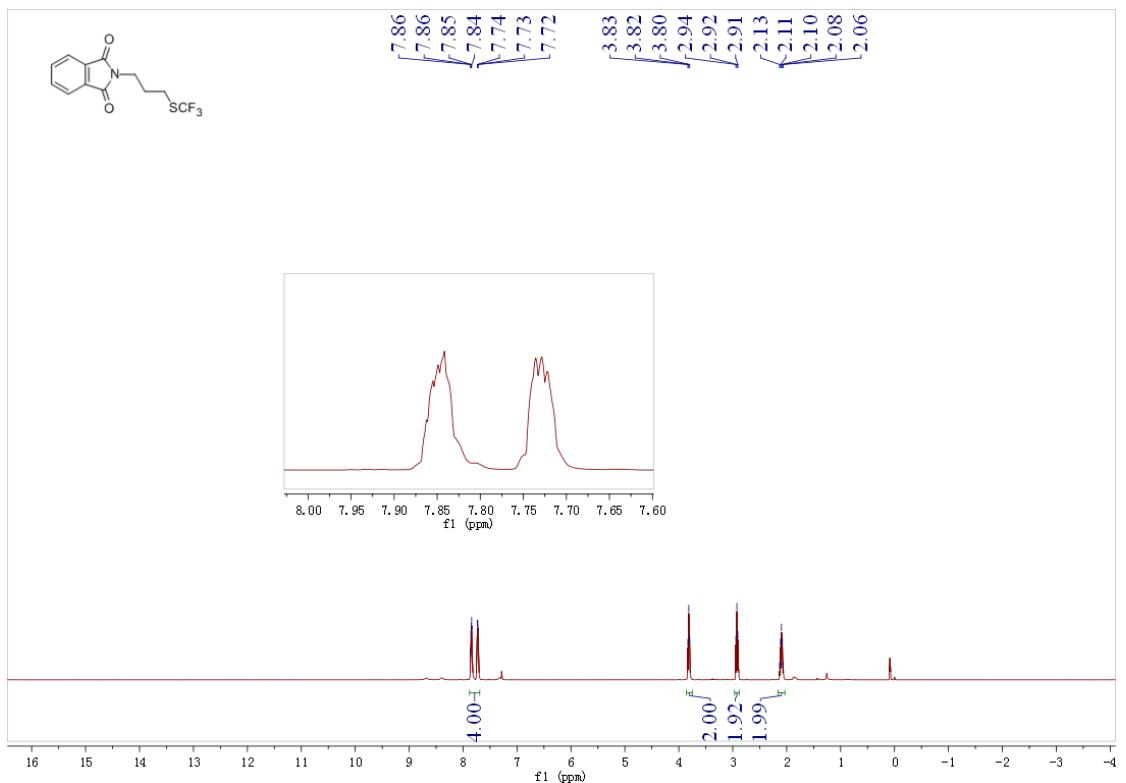

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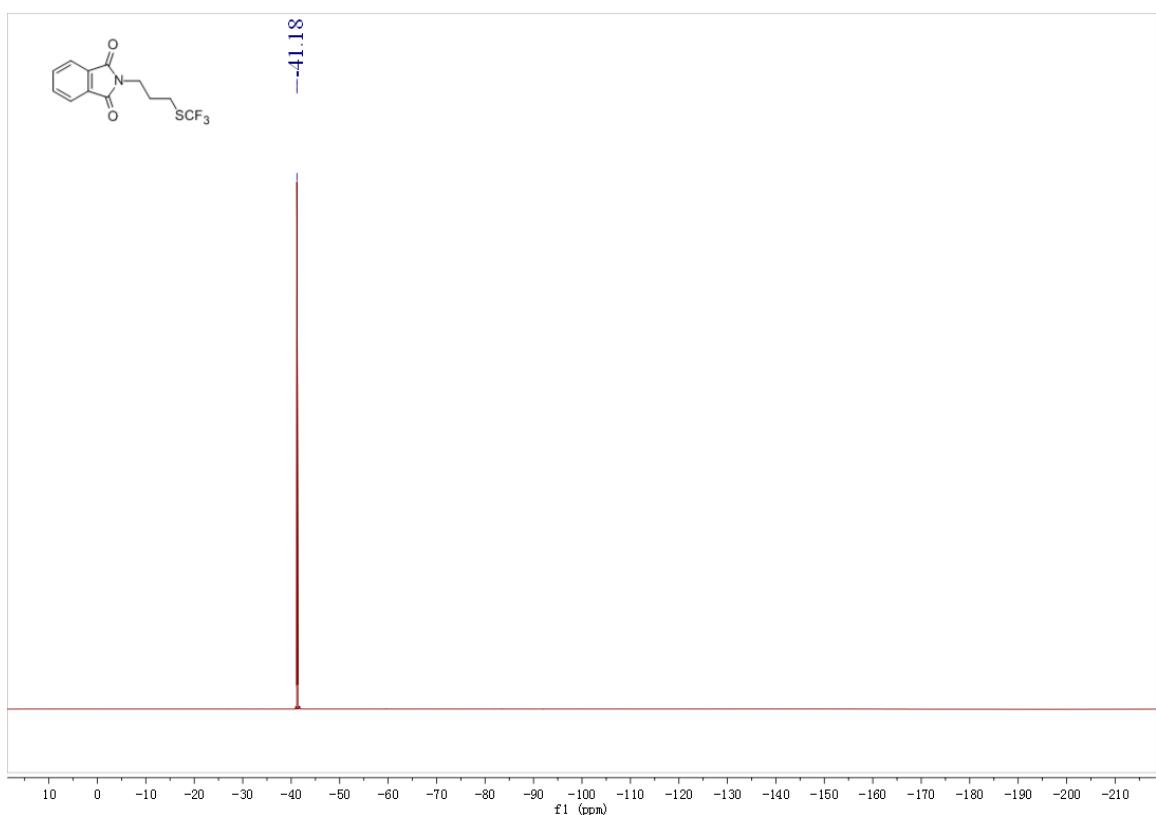
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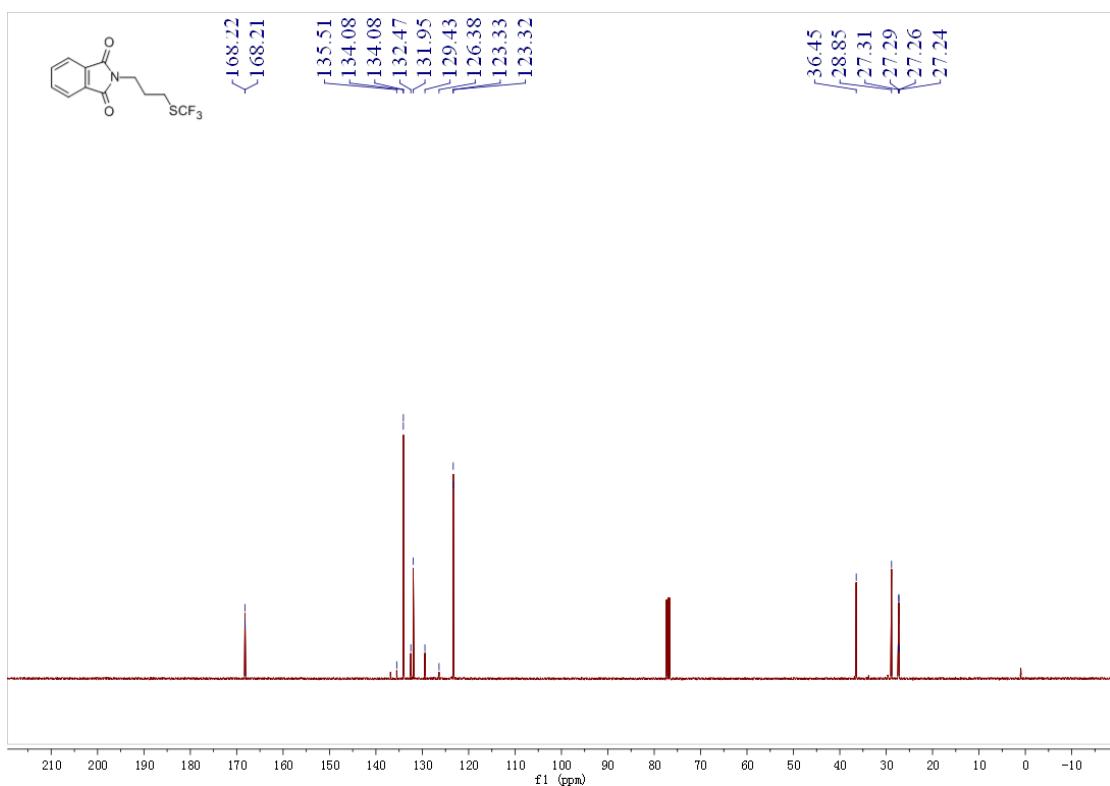
^{1}H NMR spectrum of 3p in CDCl$_3$

^{19}F NMR spectrum of **3p** in CDCl$_3$

−38.88

10 0 −10 −20 −30 −40 −50 −60 −70 −80 −90 −100 −110 −120 −130 −140 −150 −160 −170 −180 −190 −200 −210
f1 (ppm)

^{13}C NMR spectrum of **3p** in CDCl$_3$

140.86
135.74
132.69
129.65
128.55
128.40
126.60
126.19

40.67
40.65
40.64
40.62
38.47
32.81
22.50

210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 −10
f1 (ppm)
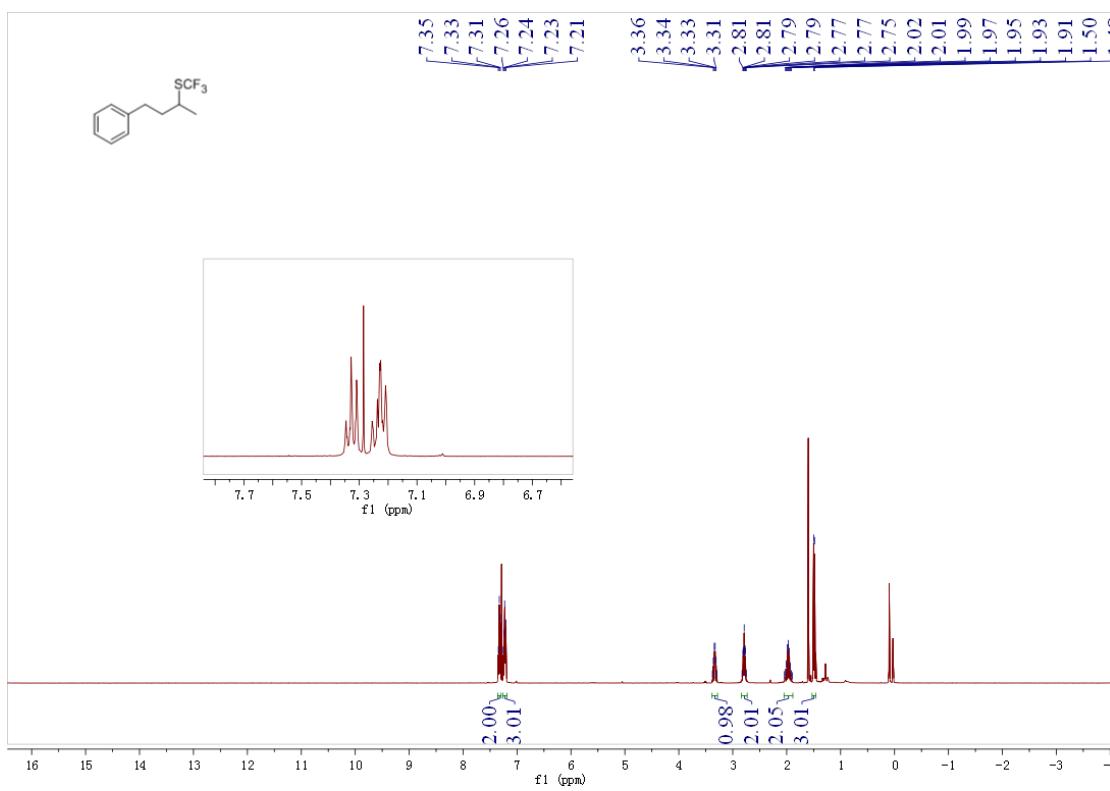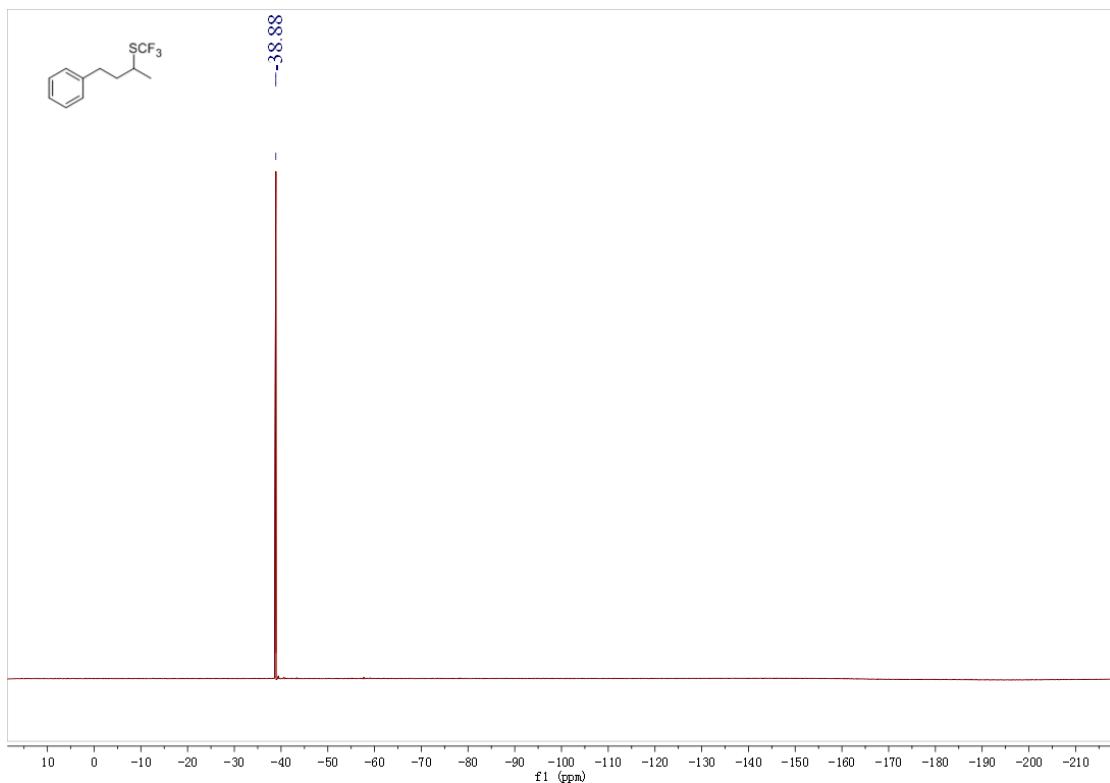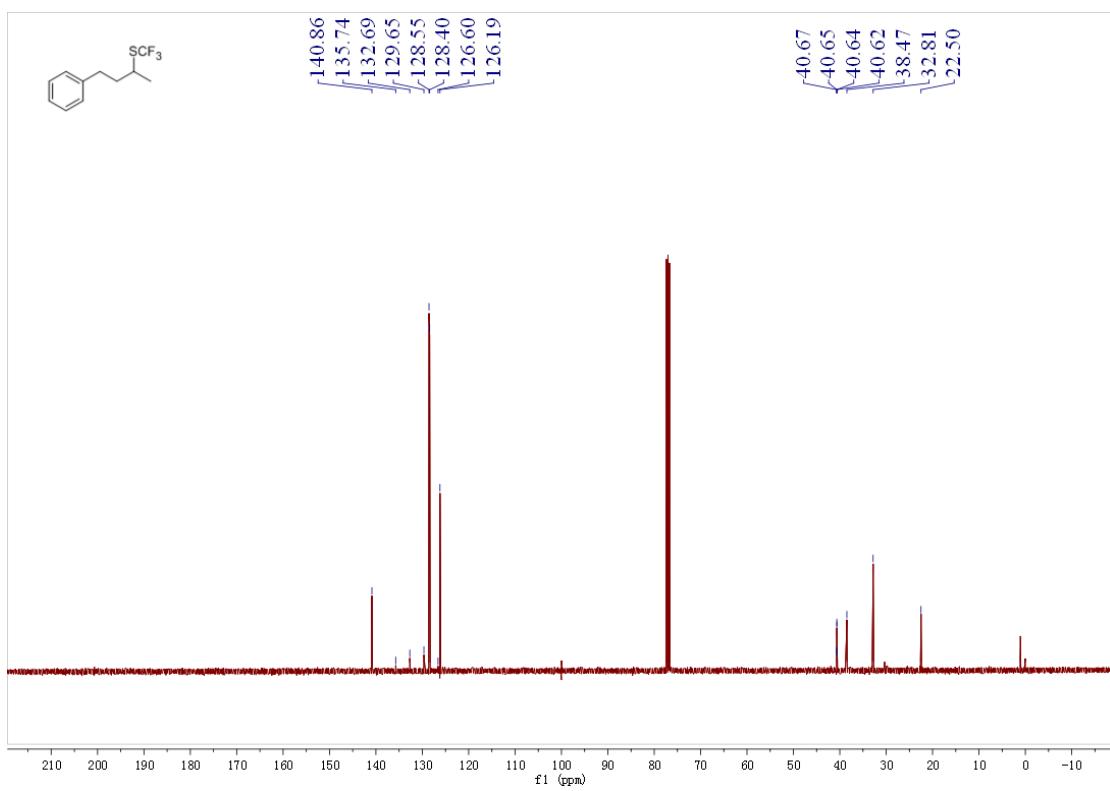
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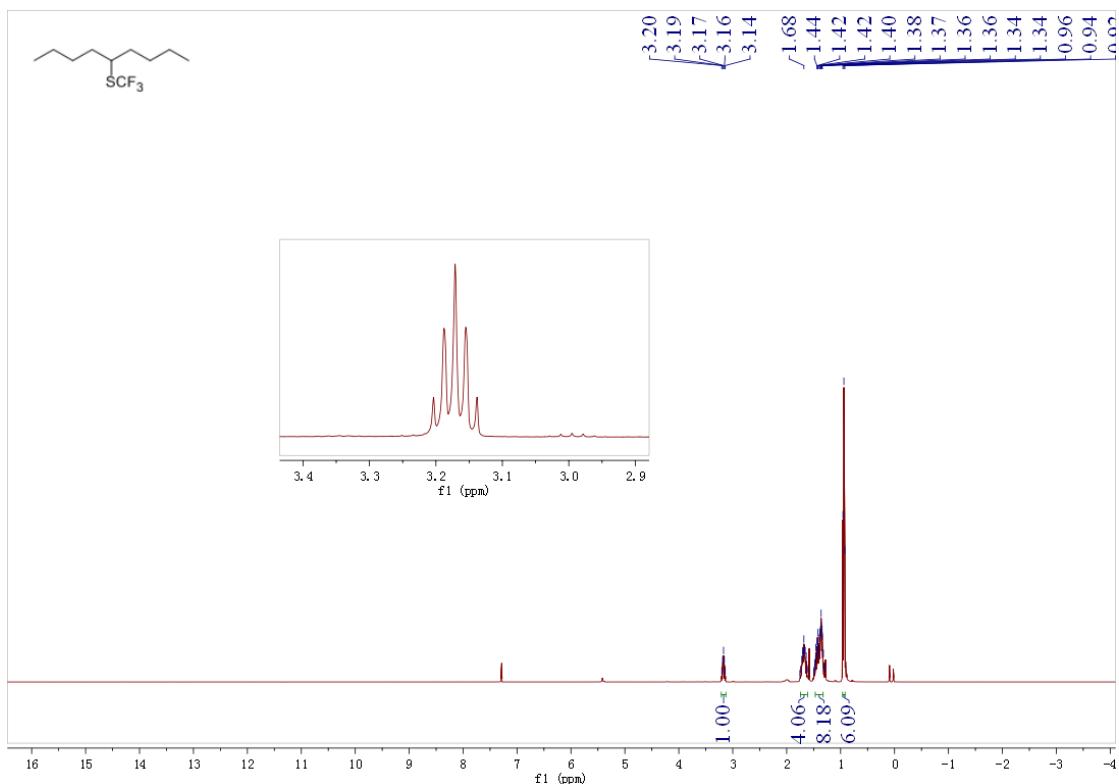
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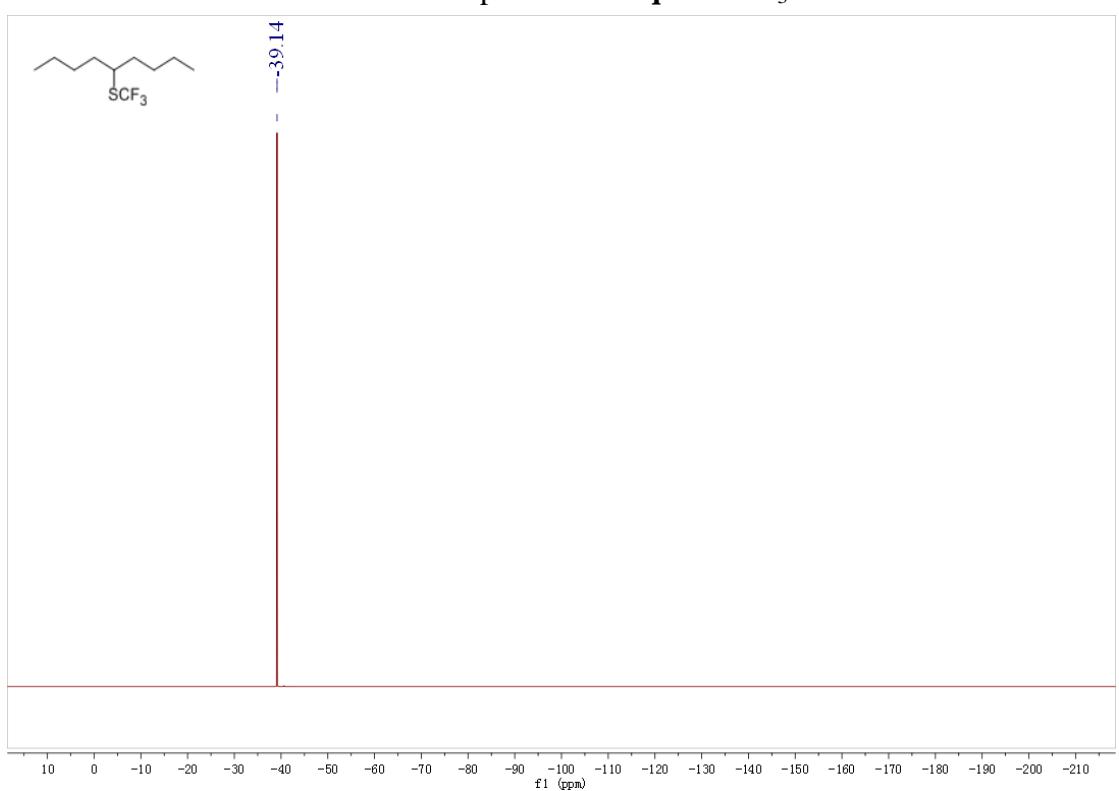
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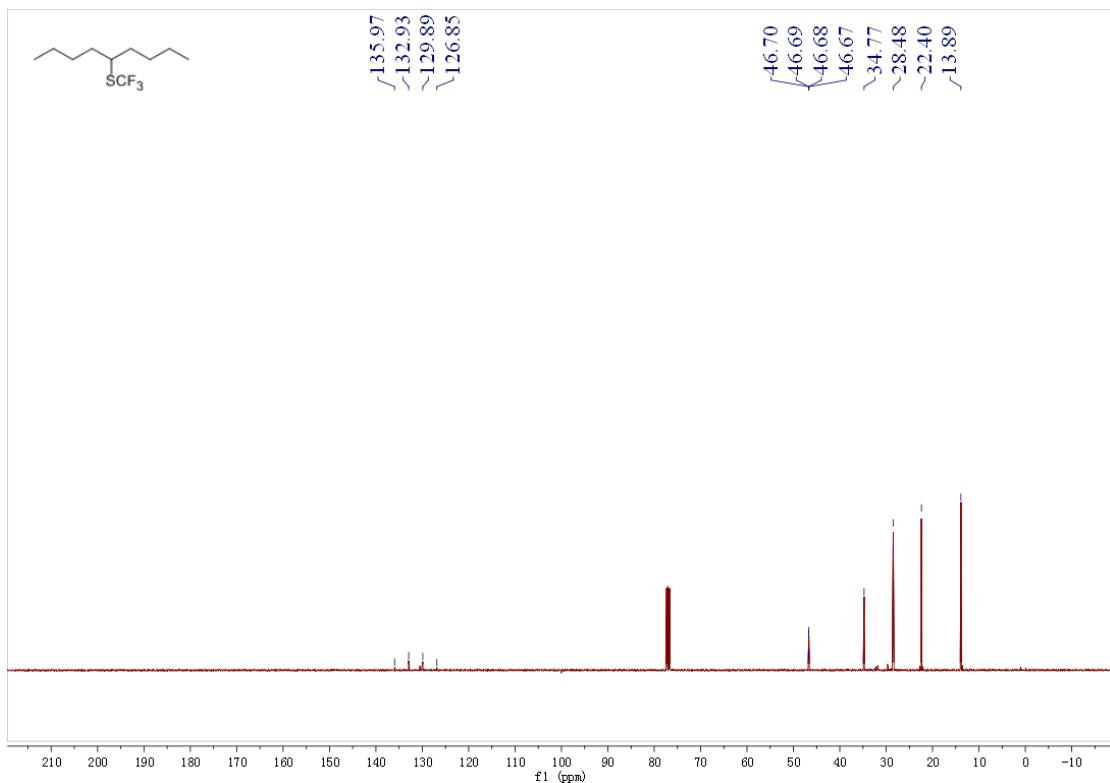
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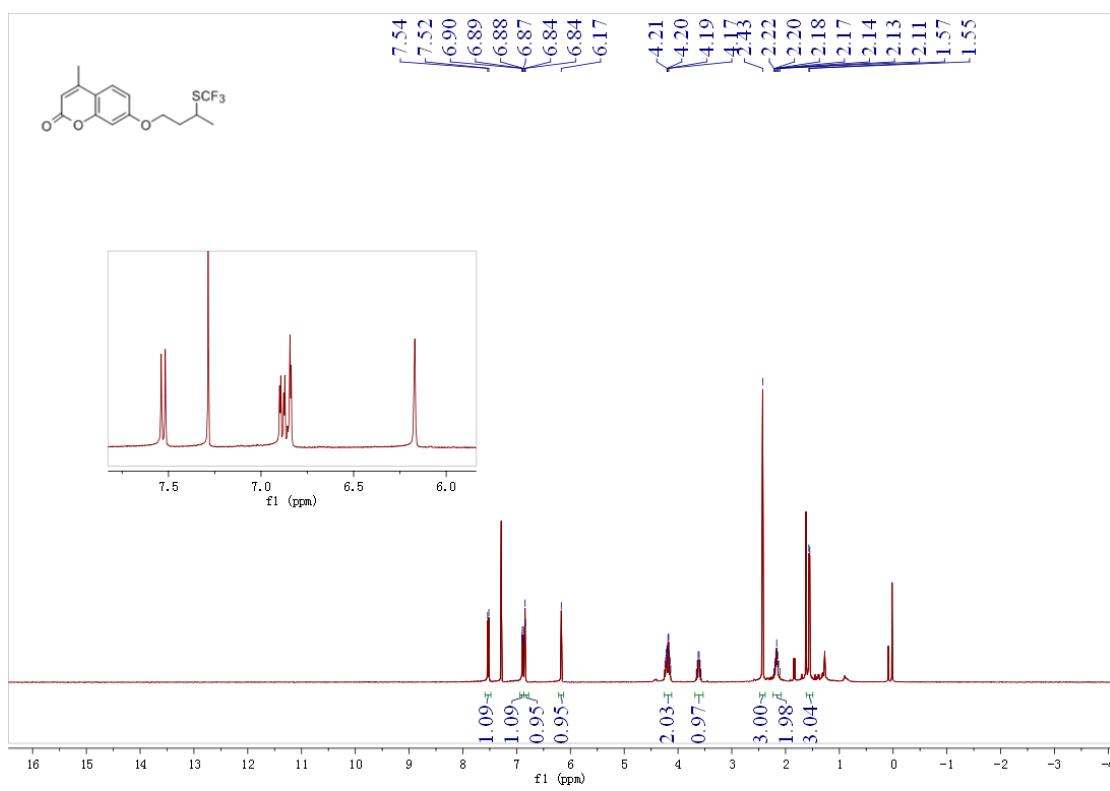
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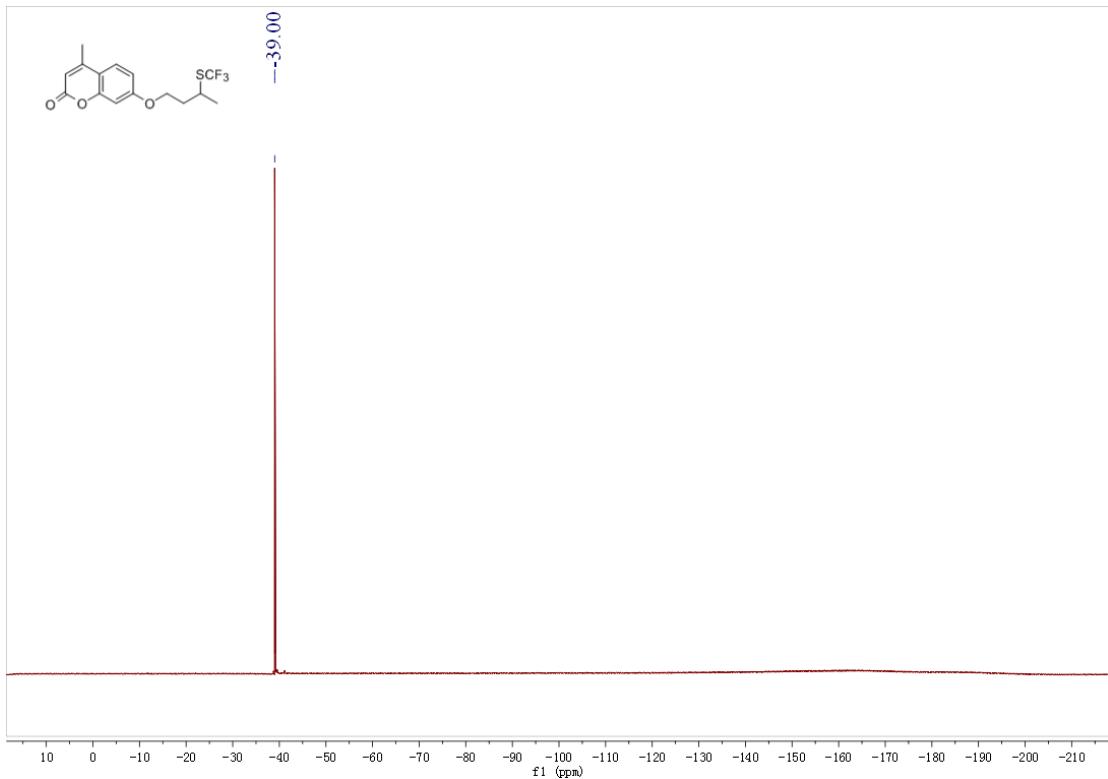
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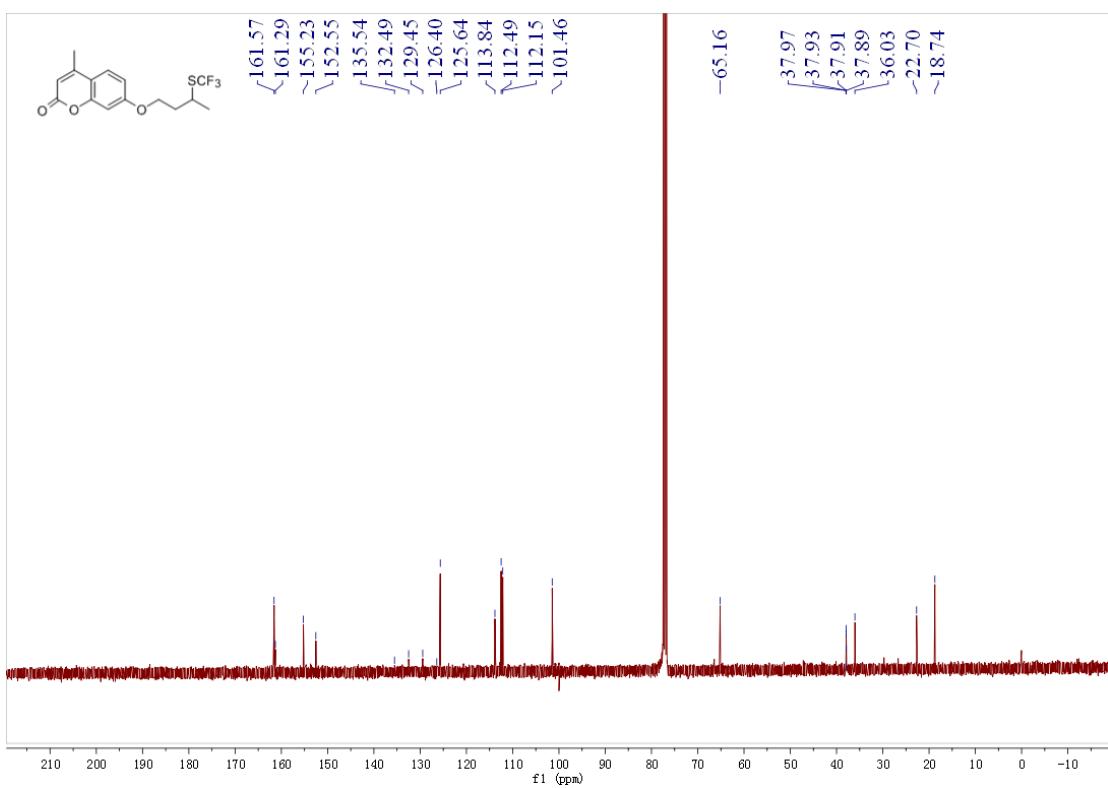
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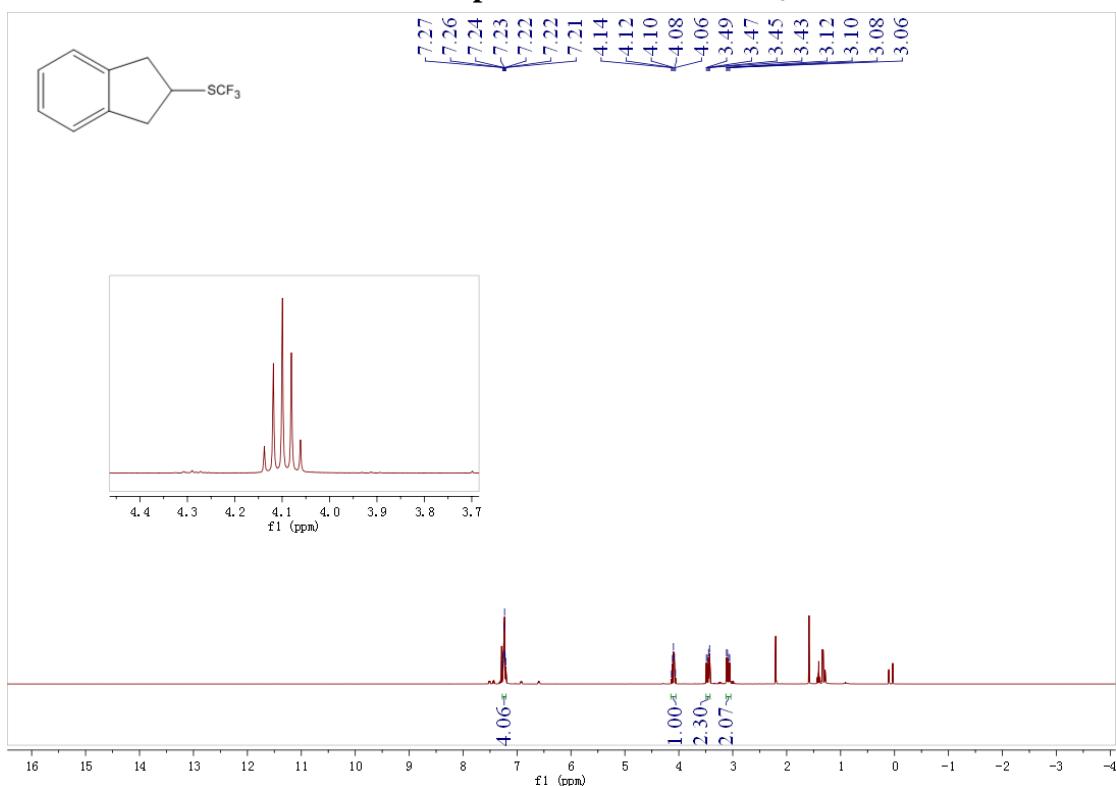
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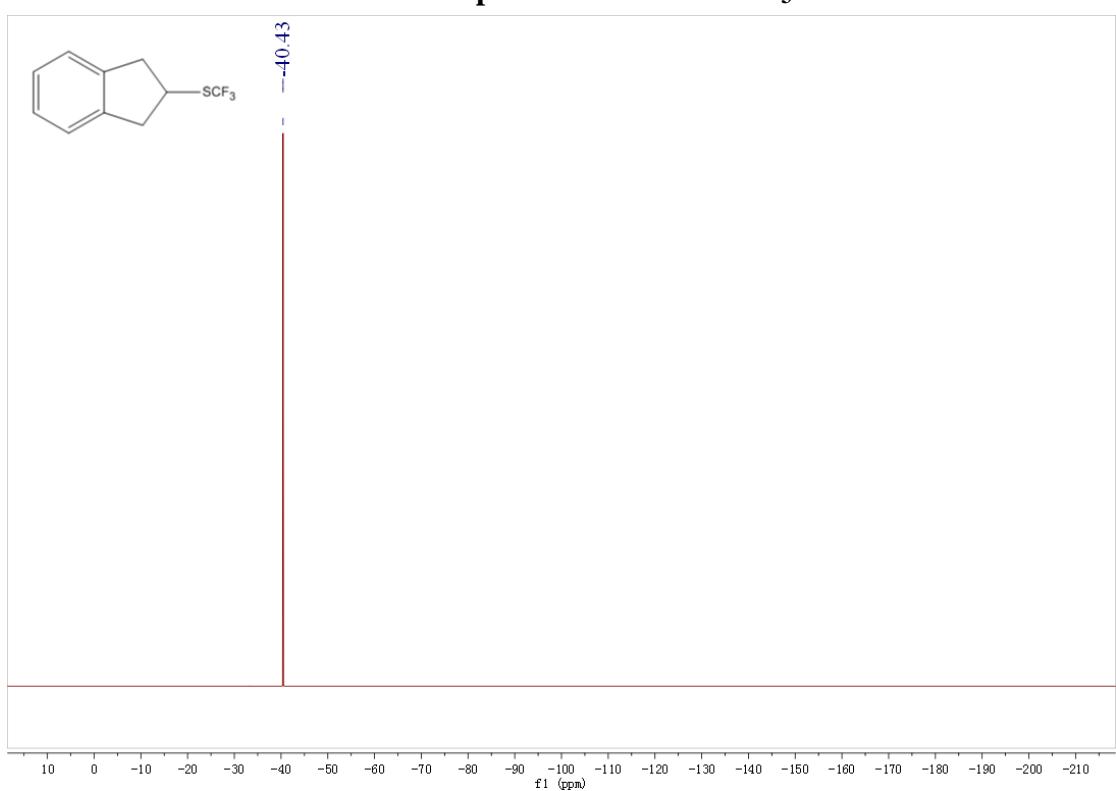
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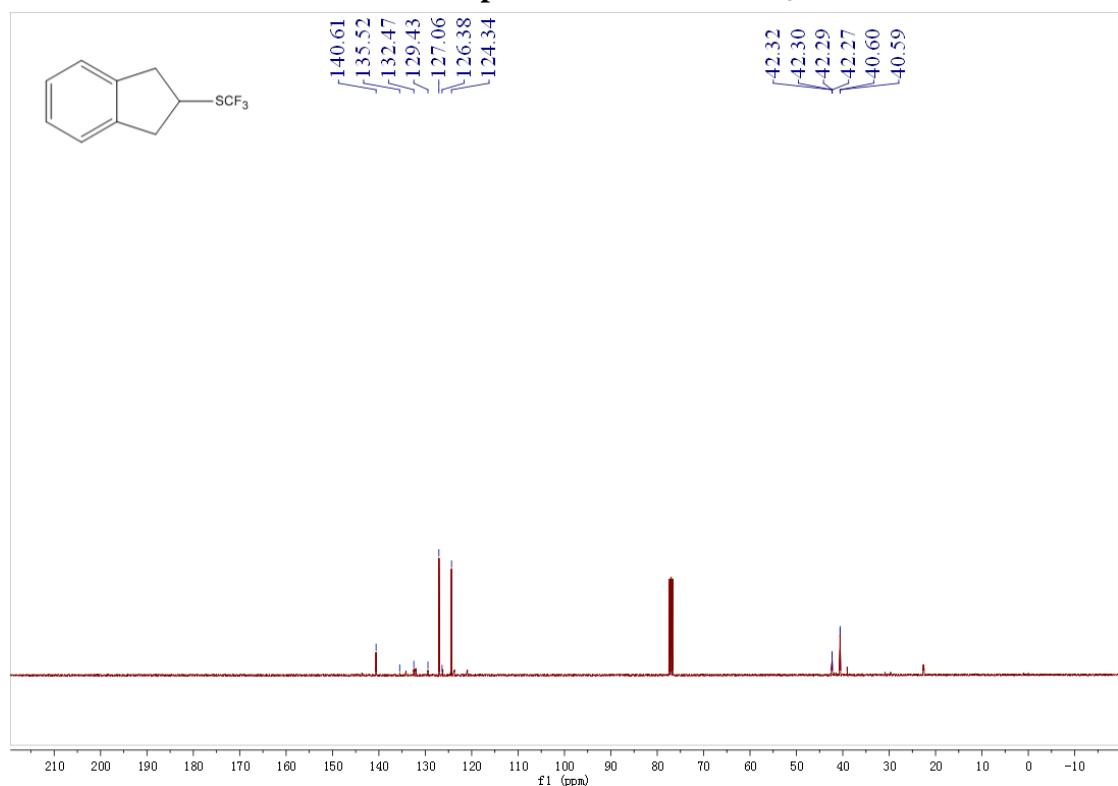
^{1}H NMR spectrum of 3u in CDCl$_3$

¹⁹F NMR spectrum of **3u** in CDCl₃

−39.63

SCF₃

10   0   −10   −20   −30   −40   −50   −60   −70   −80   −90   −100   −110   −120   −130   −140   −150   −160   −170   −180   −190   −200   −210
f1 (ppm)

¹³C NMR spectrum of **3u** in CDCl₃

135.79
132.75
129.70
126.66

45.90
45.89
35.47
27.99
25.35

SCF₃

210   200   190   180   170   160   150   140   130   120   110   100   90   80   70   60   50   40   30   20   10   0   −10
f1 (ppm)
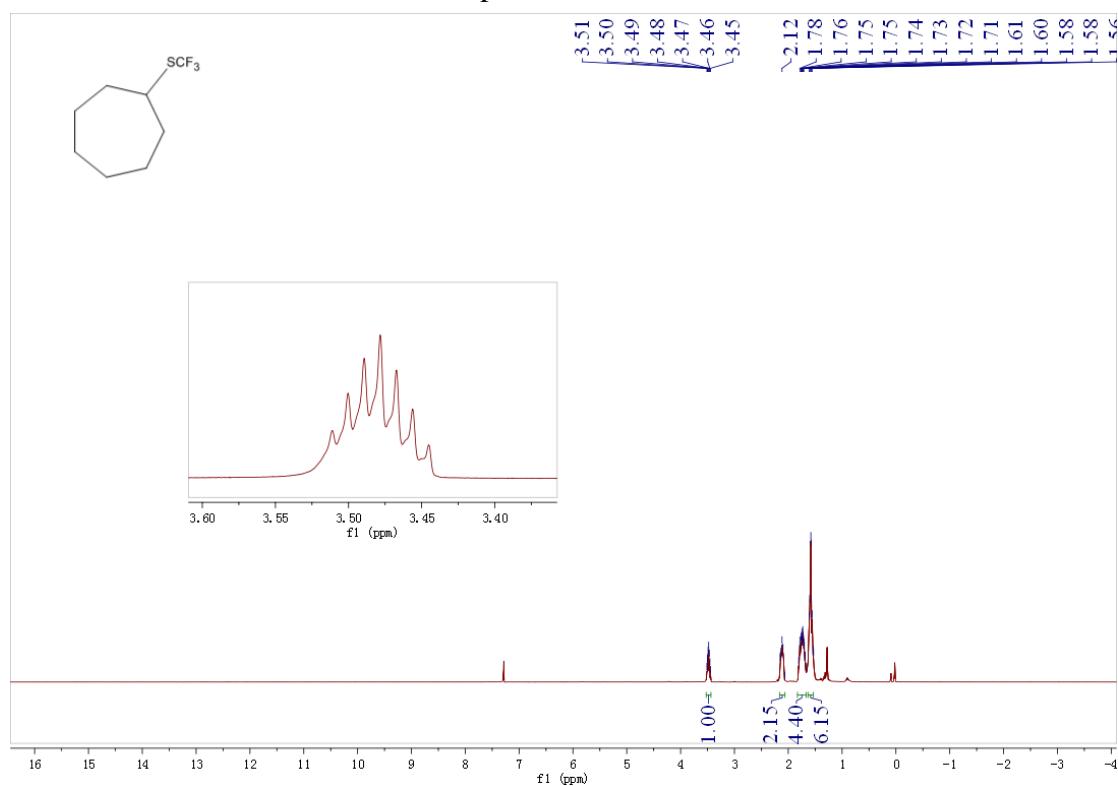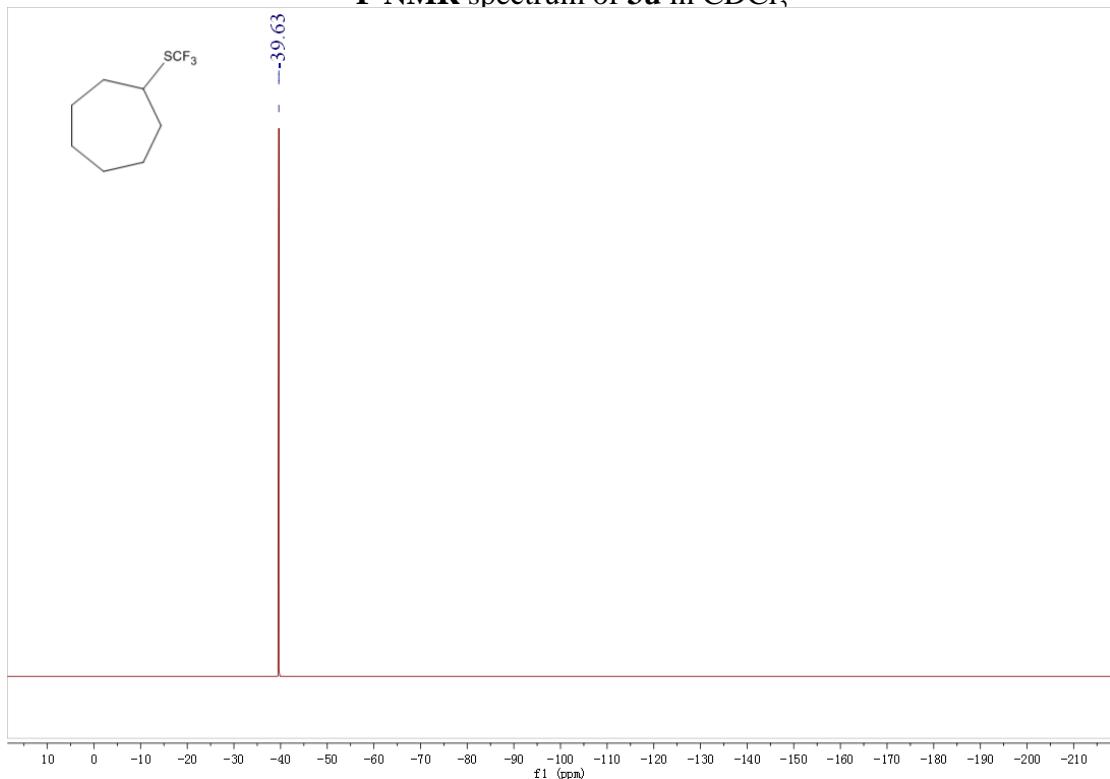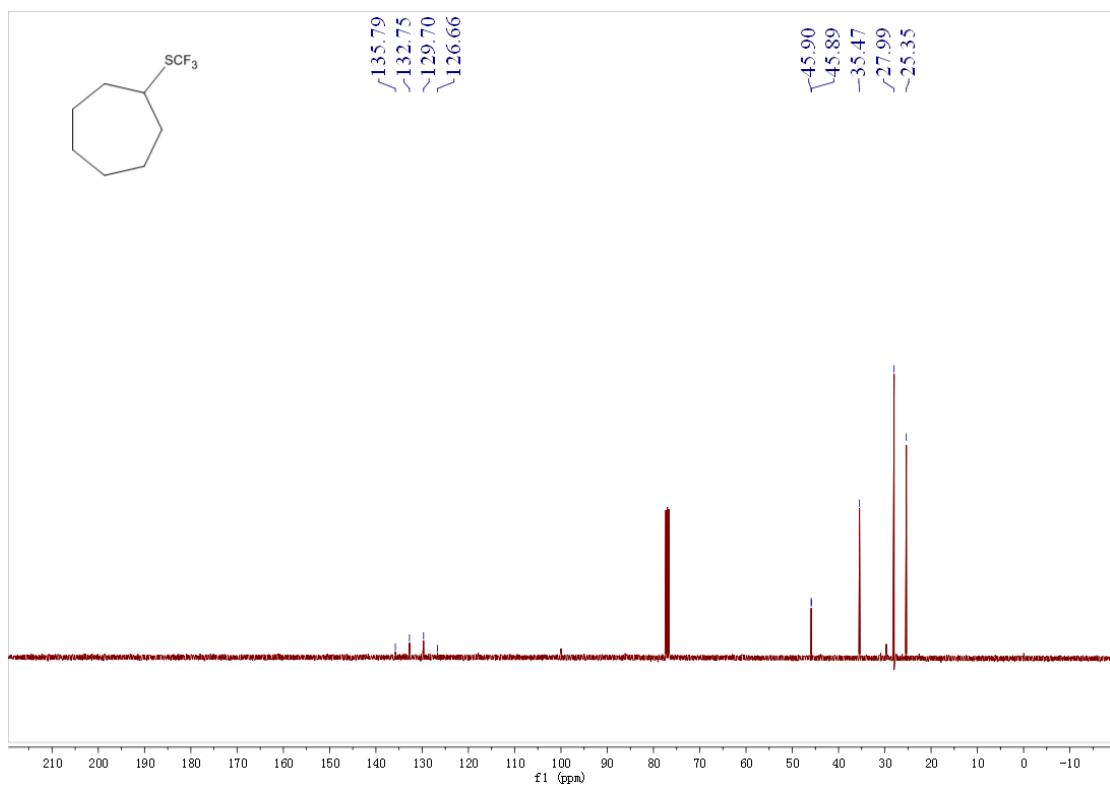
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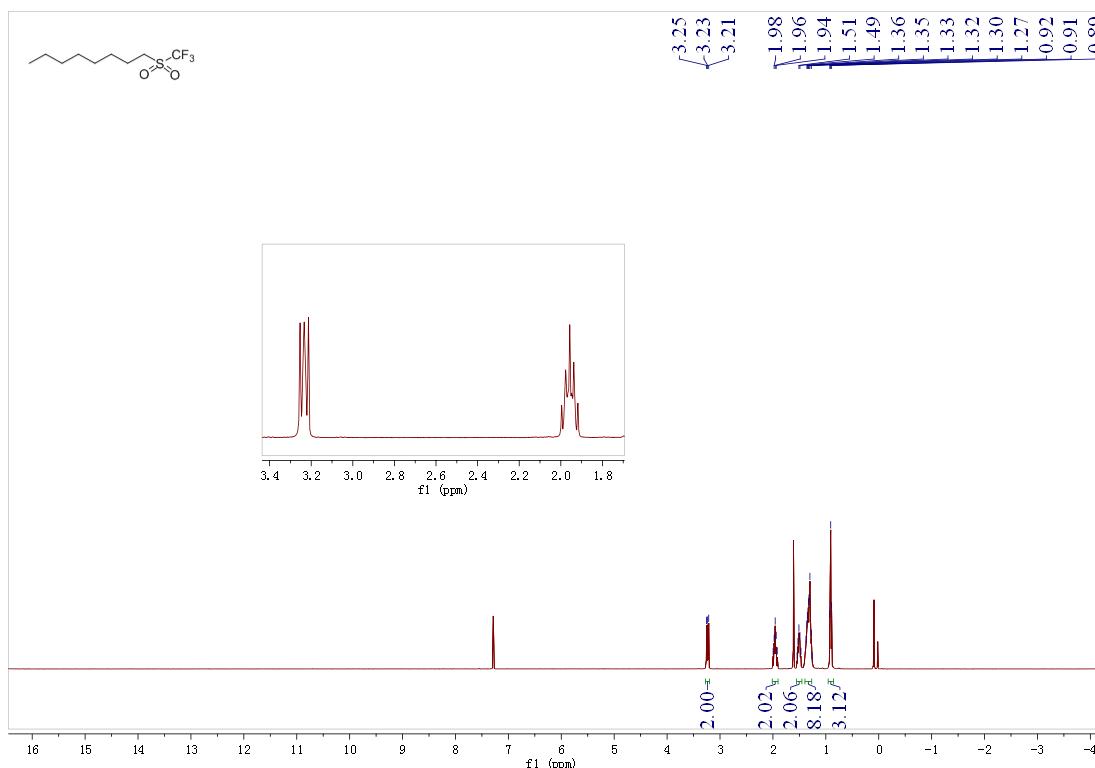
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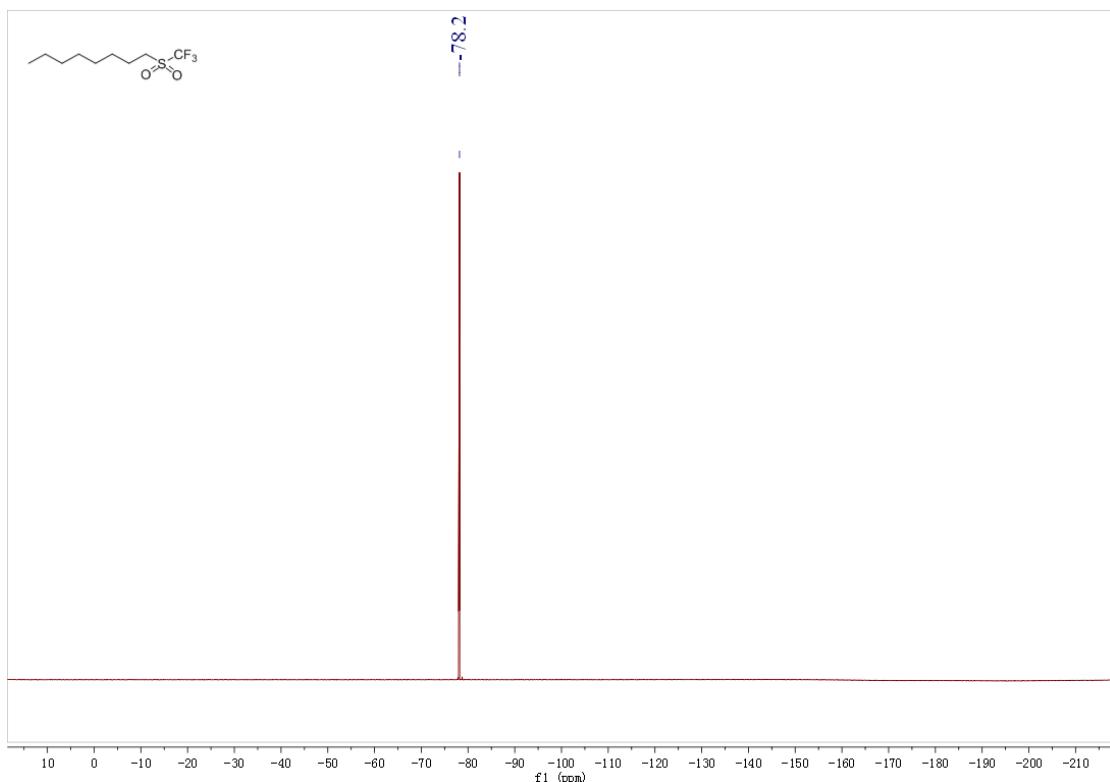
^{13}C NMR spectrum of 4a in CDCl$_3$

^{1}H NMR spectrum of 4d in CDCl$_3$

¹⁹F NMR spectrum of 4d in CDCl₃
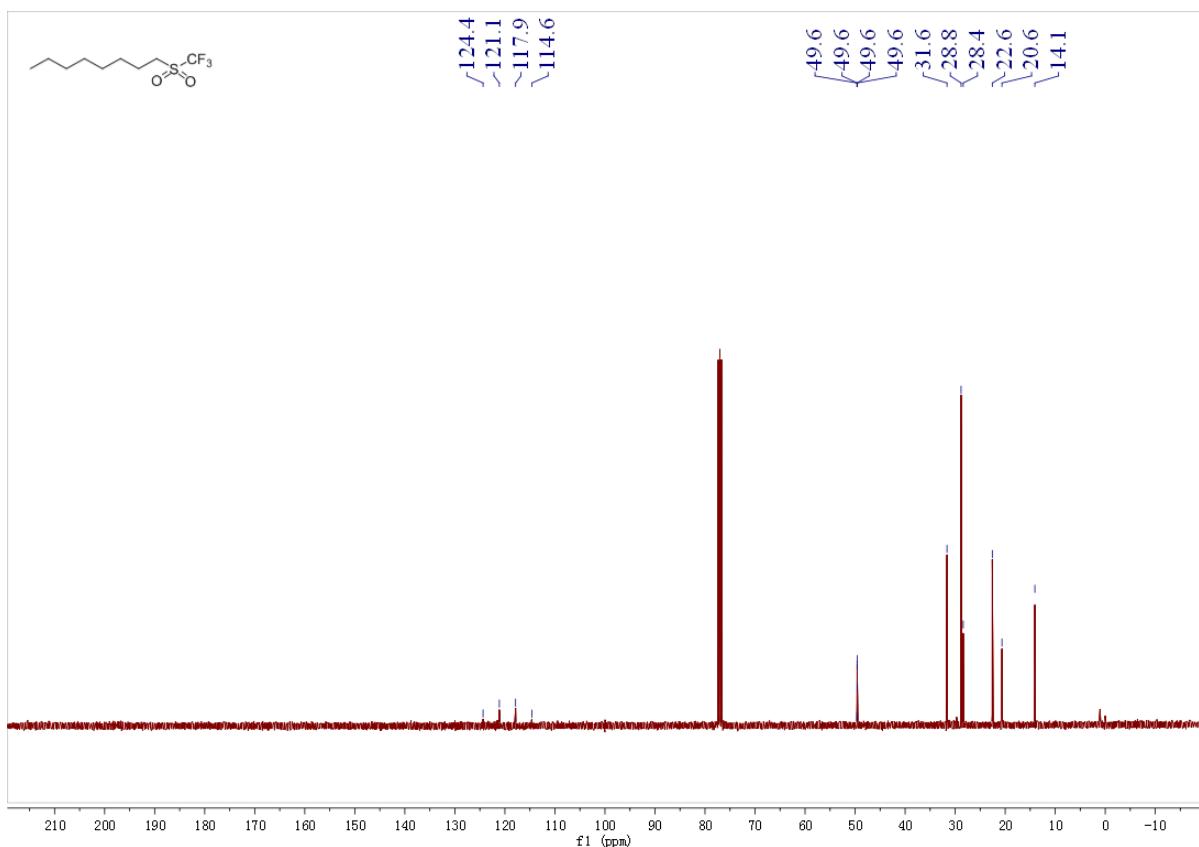
**¹⁹F** **NMR** spectrum of **4d** in CDCl₃
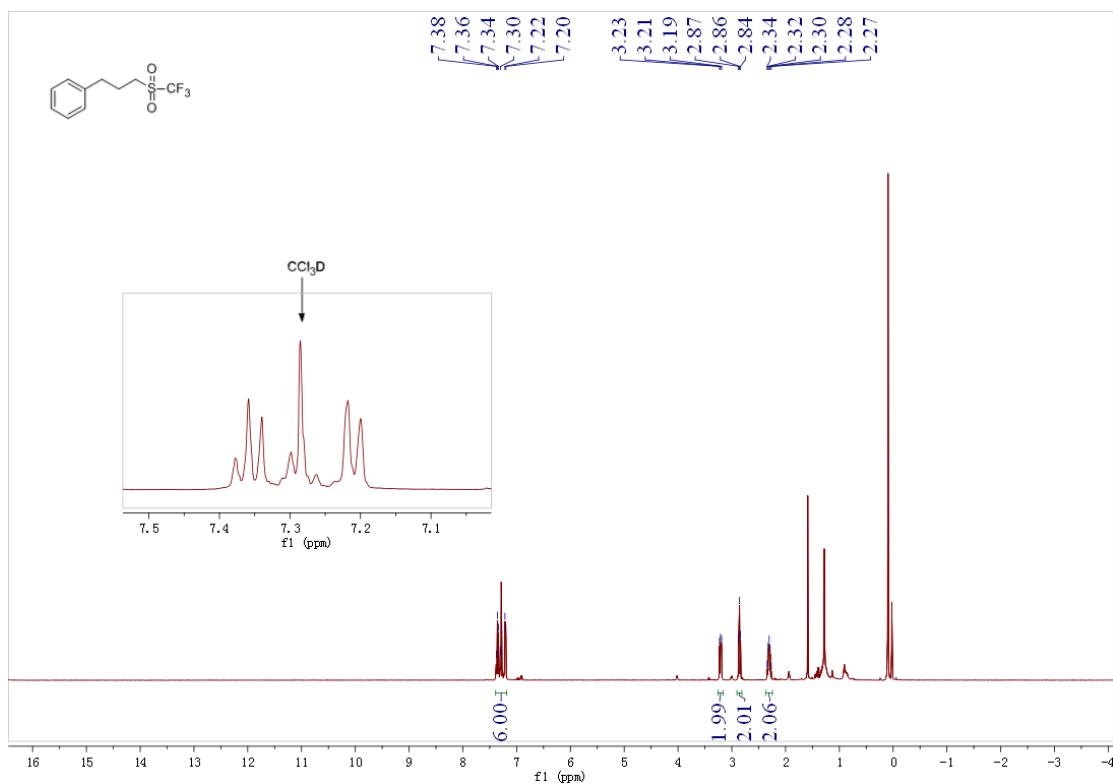
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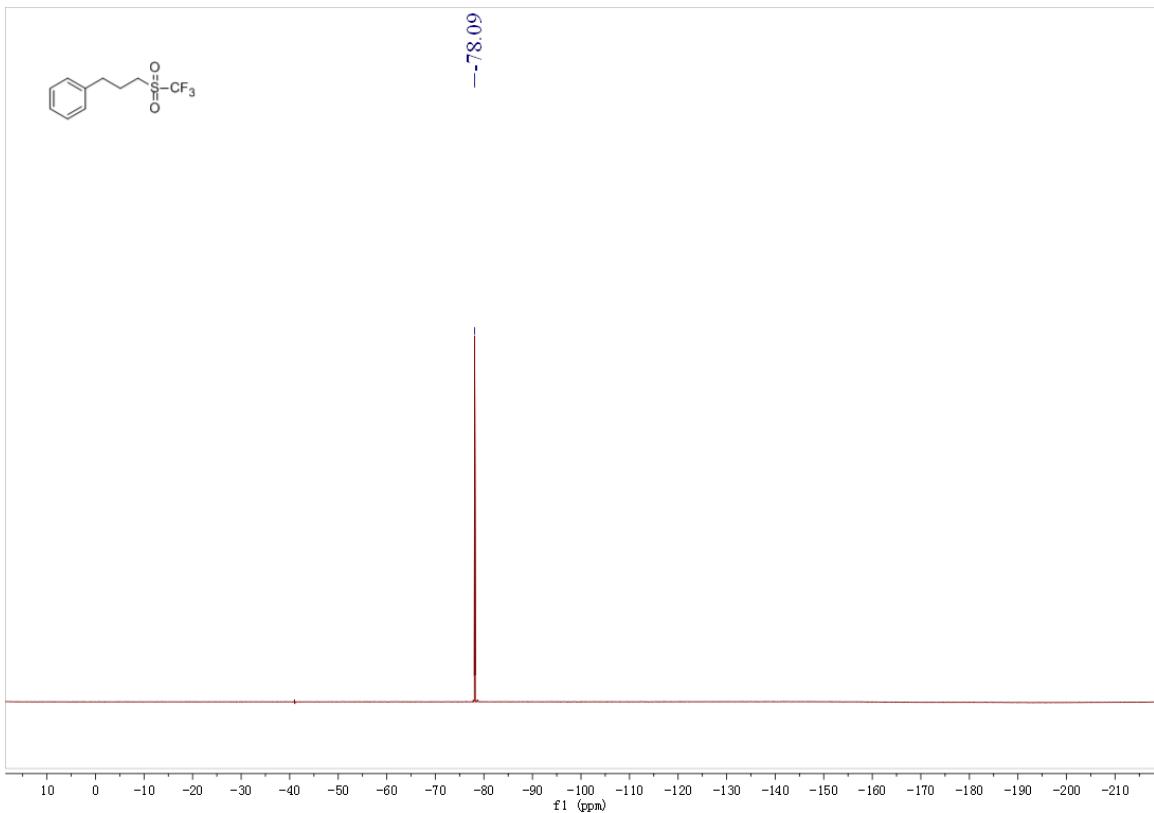
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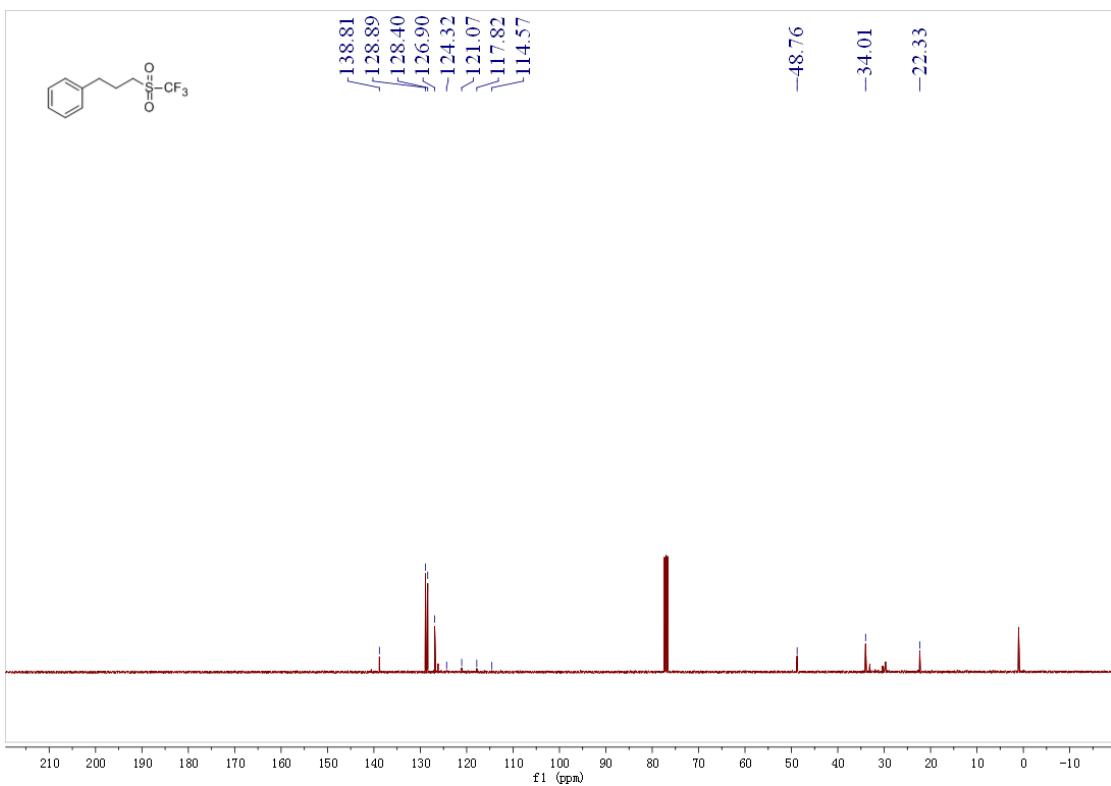
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^{19}F NMR spectrum of 4f in CDCl$_3$
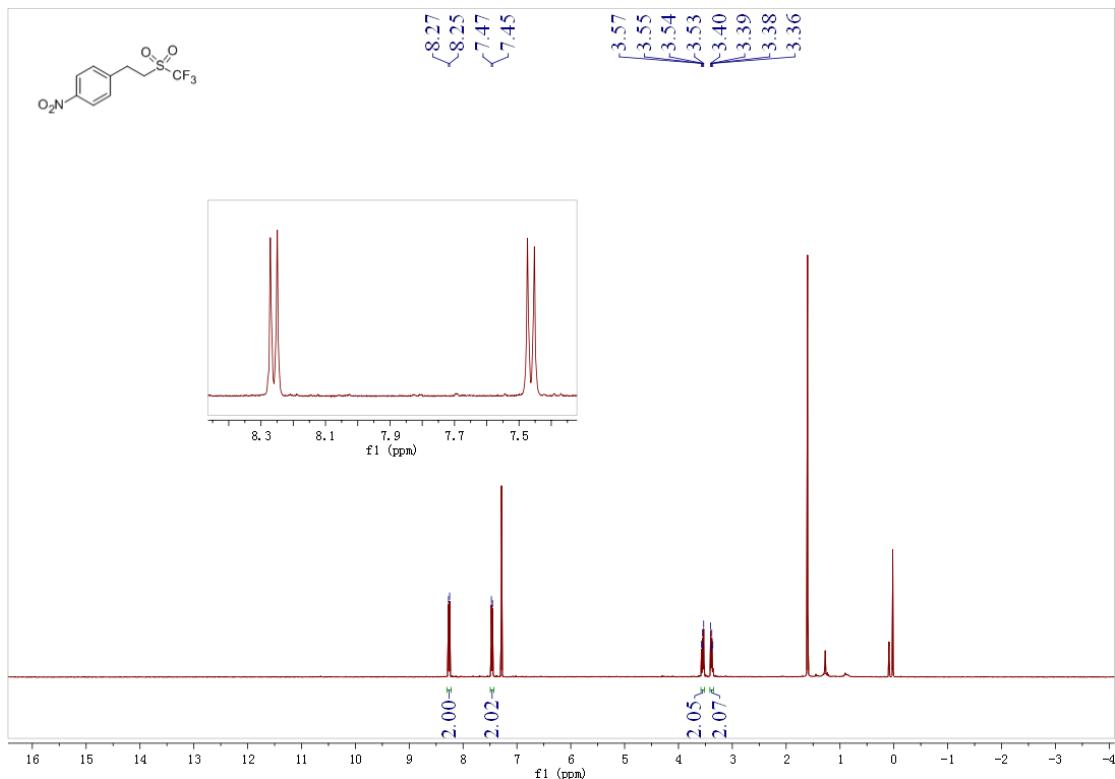
## ¹³C NMR spectrum of 4f in CDCl₃
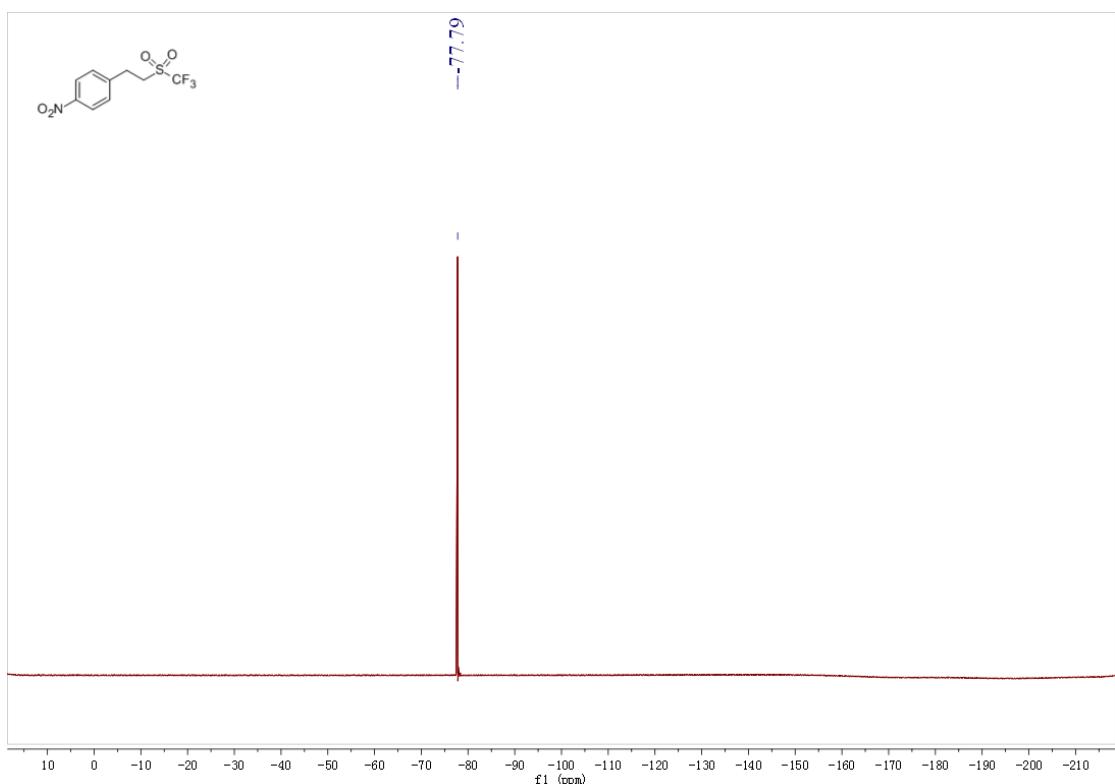
^{13}C NMR spectrum of **4f** in CDCl$_3$
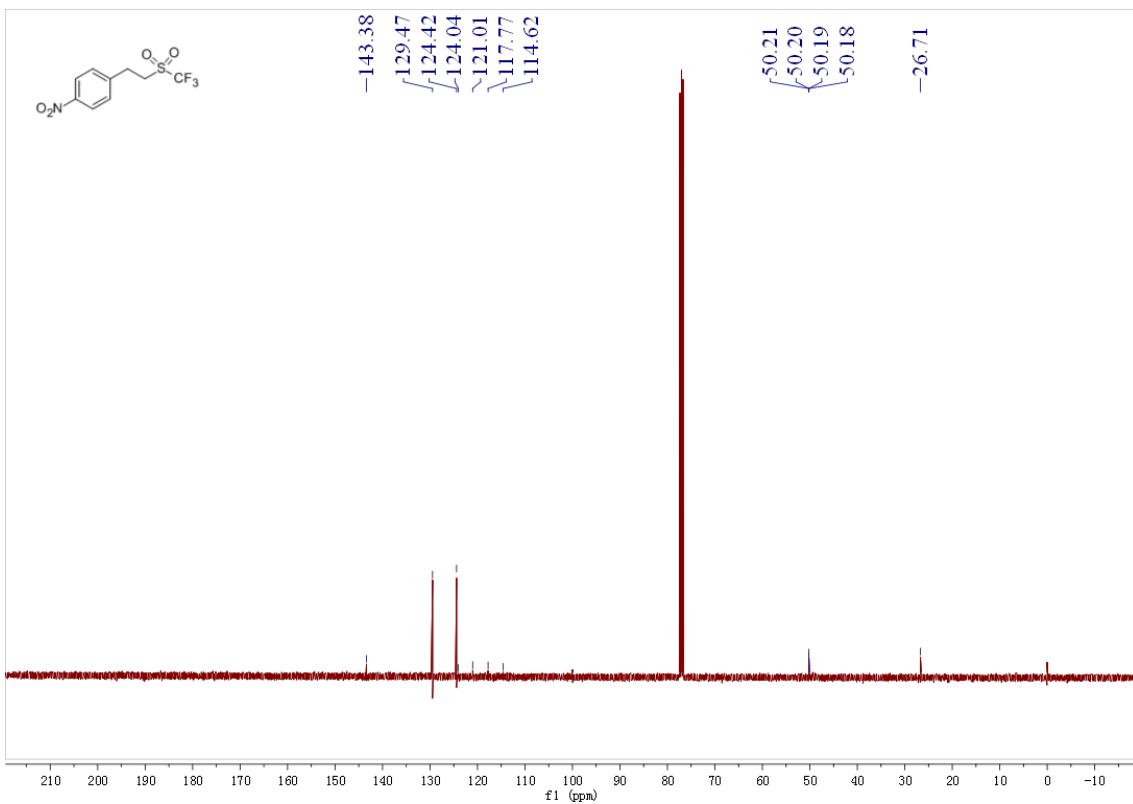
^{1}H NMR spectrum of 4l in CDCl$_3$
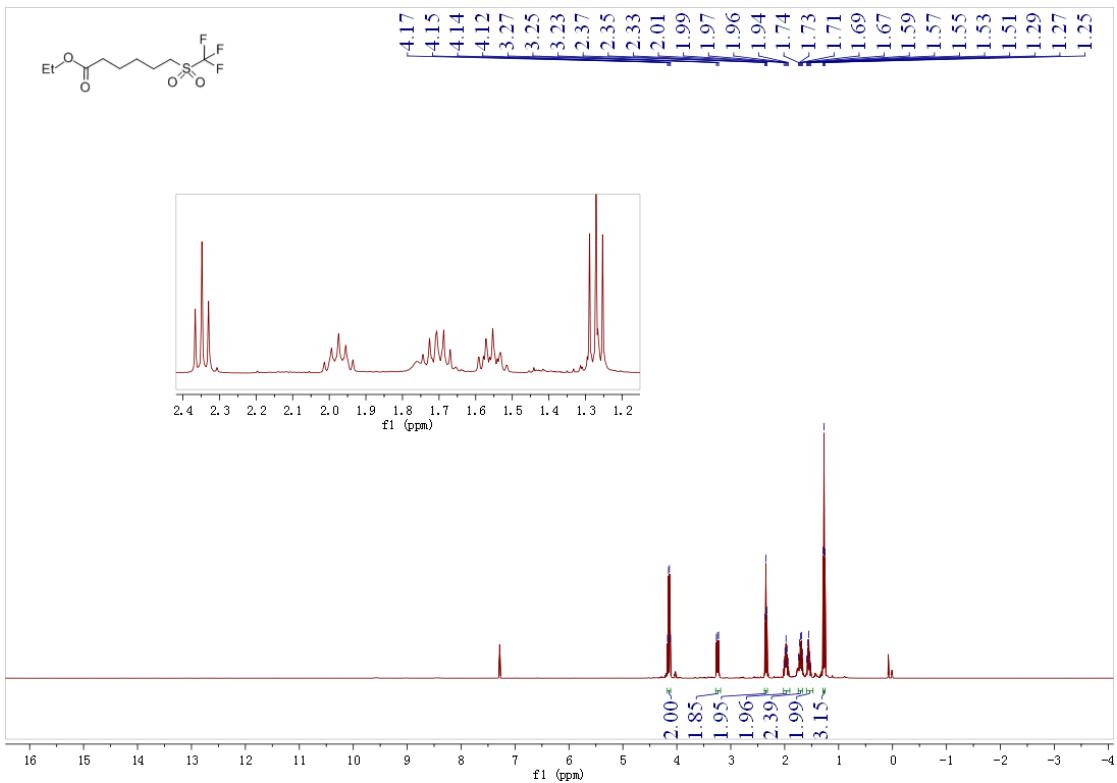
^{19}F NMR spectrum of 4l in CDCl$_3$

^{13}C NMR spectrum of 4l in CDCl$_3$