

Supporting Information

Lewis Acid-Catalyzed Halonium Generation for Morpholine Synthesis and Claisen Rearrangement

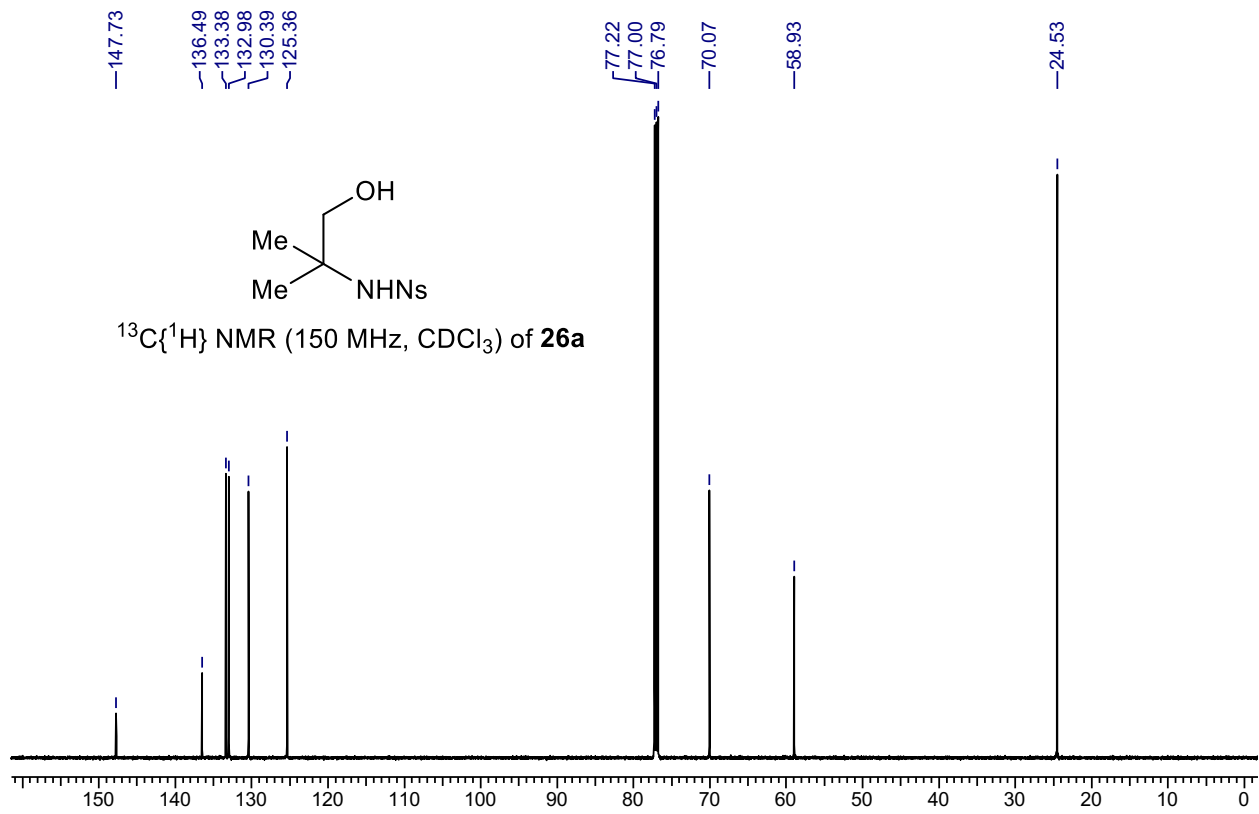
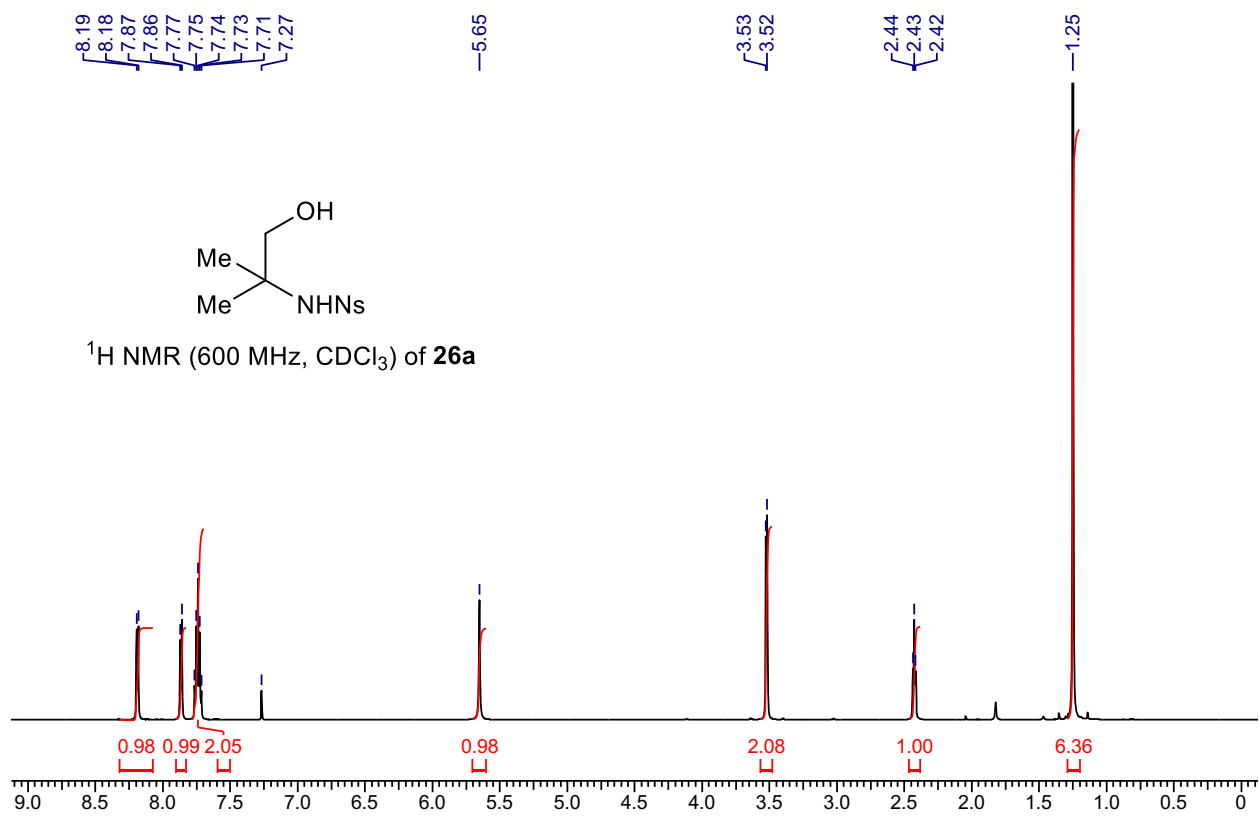
Jeewani P. Ariyaratna, Nur-E Alom, Leo P. Roberts, Navdeep Kaur, Fan Wu, and Wei
Li*

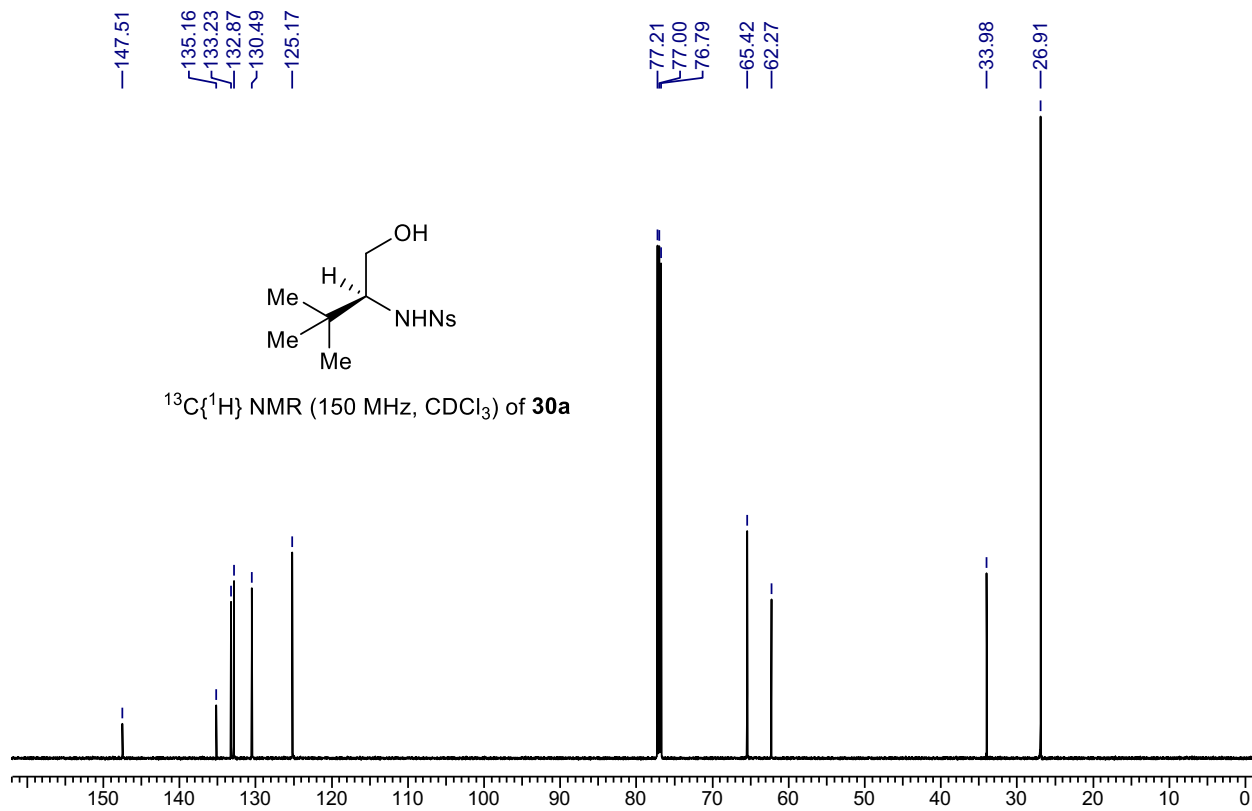
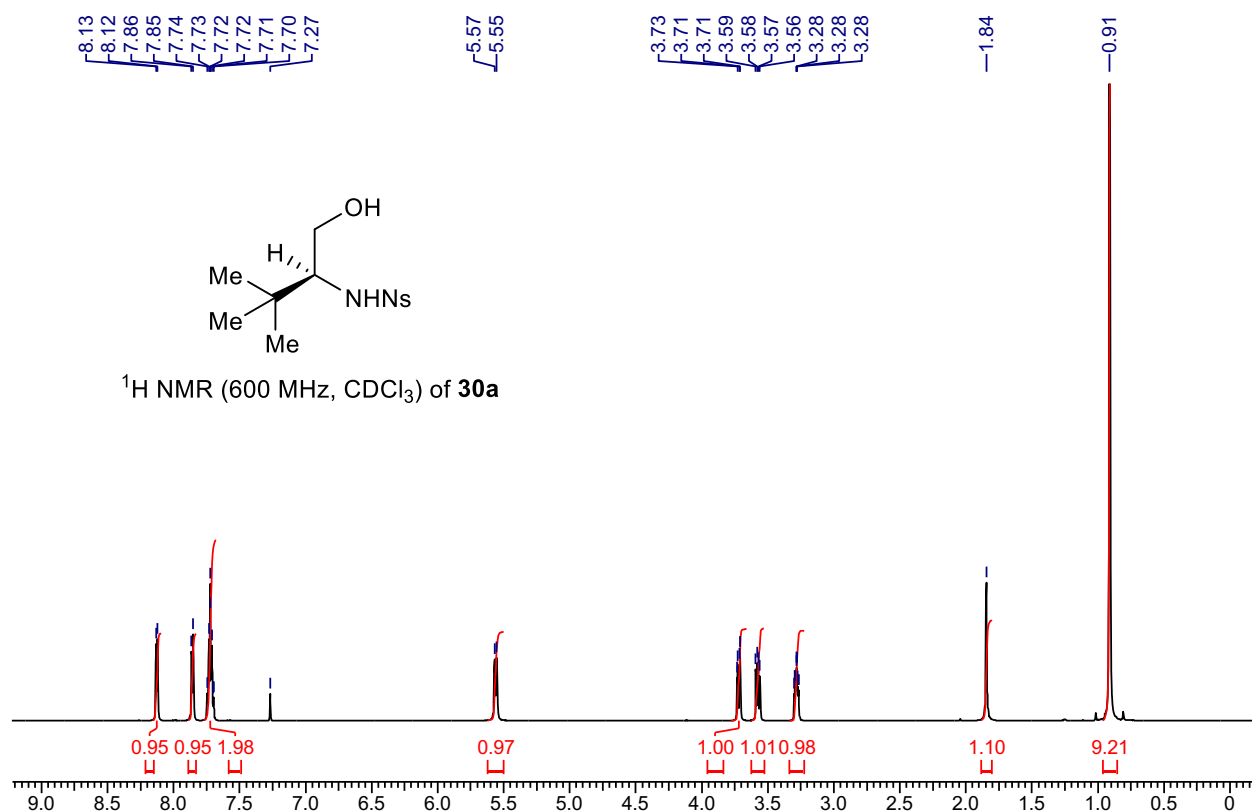
*Department of Chemistry and Biochemistry, School of Green Chemistry and
Engineering, The University of Toledo, 2801 West Bancroft Street, Toledo, Ohio
43606, United States*

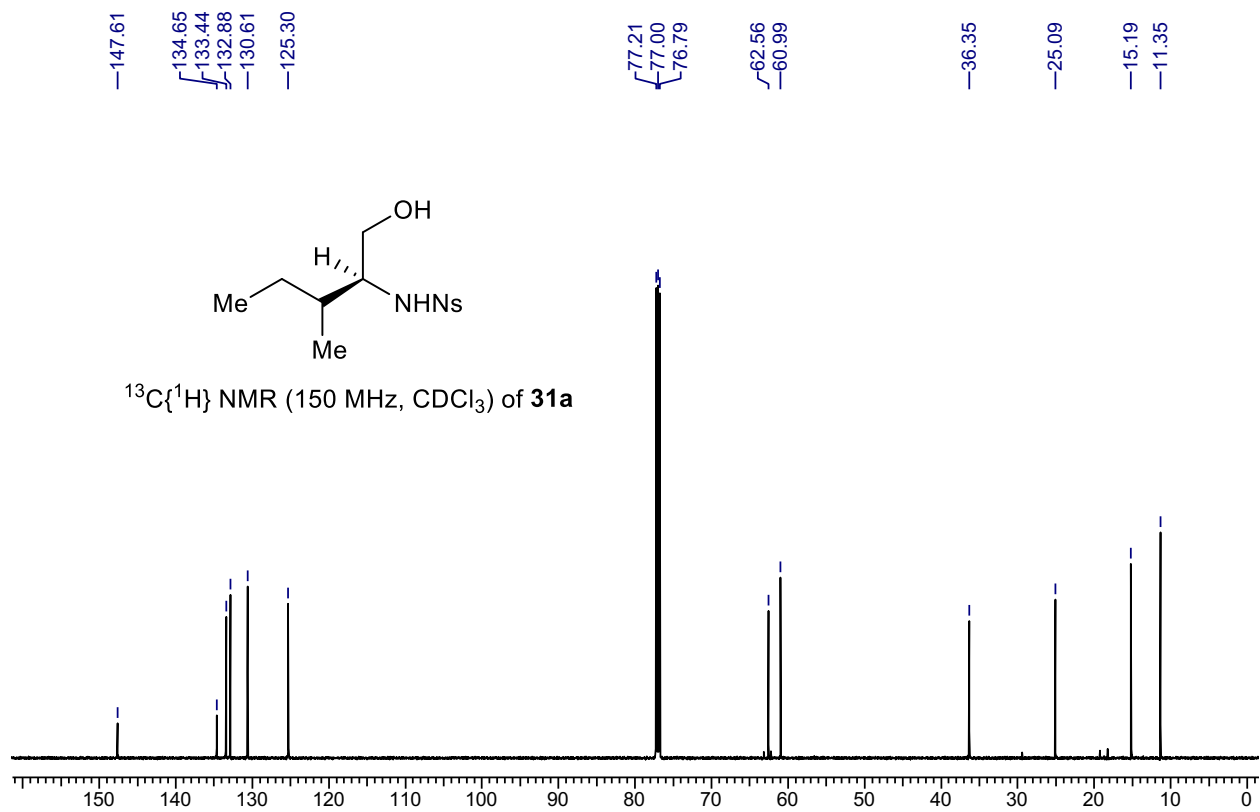
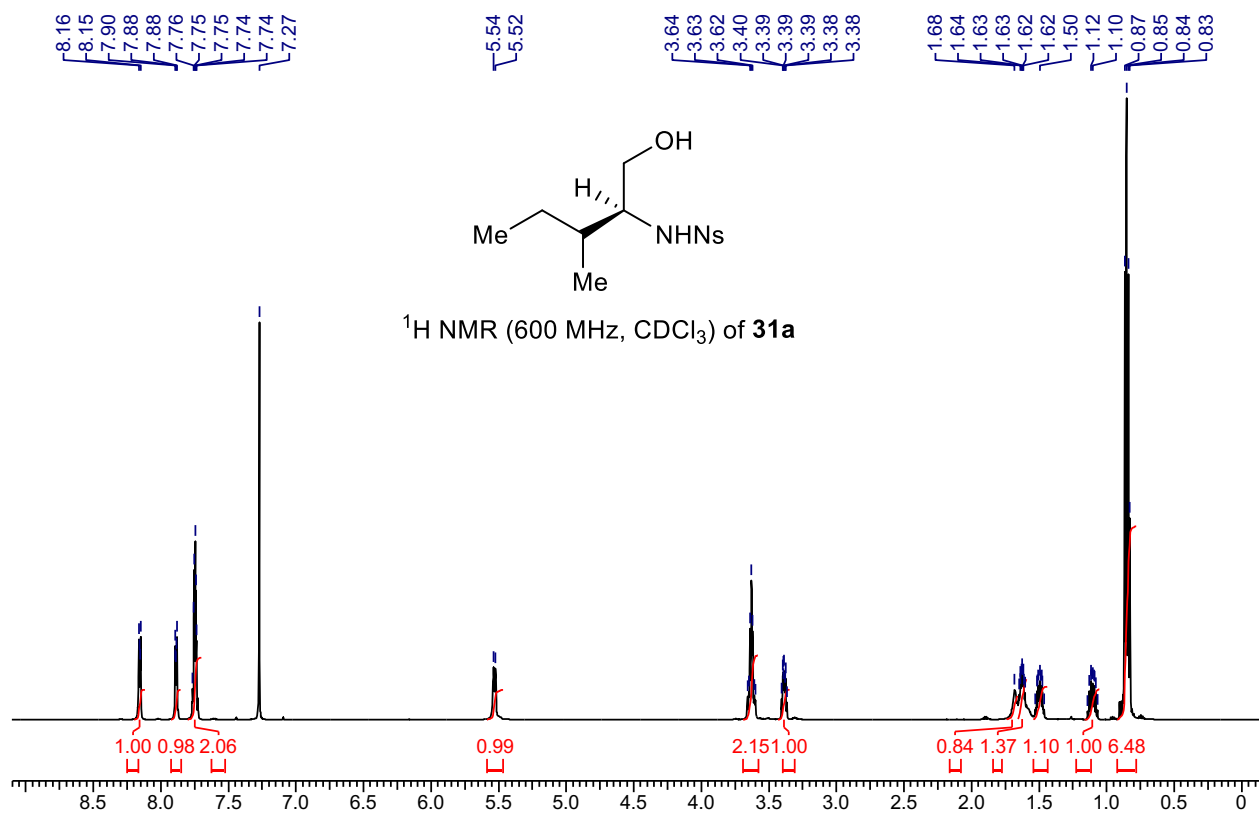
E-mail: Wei.Li@UToledo.edu

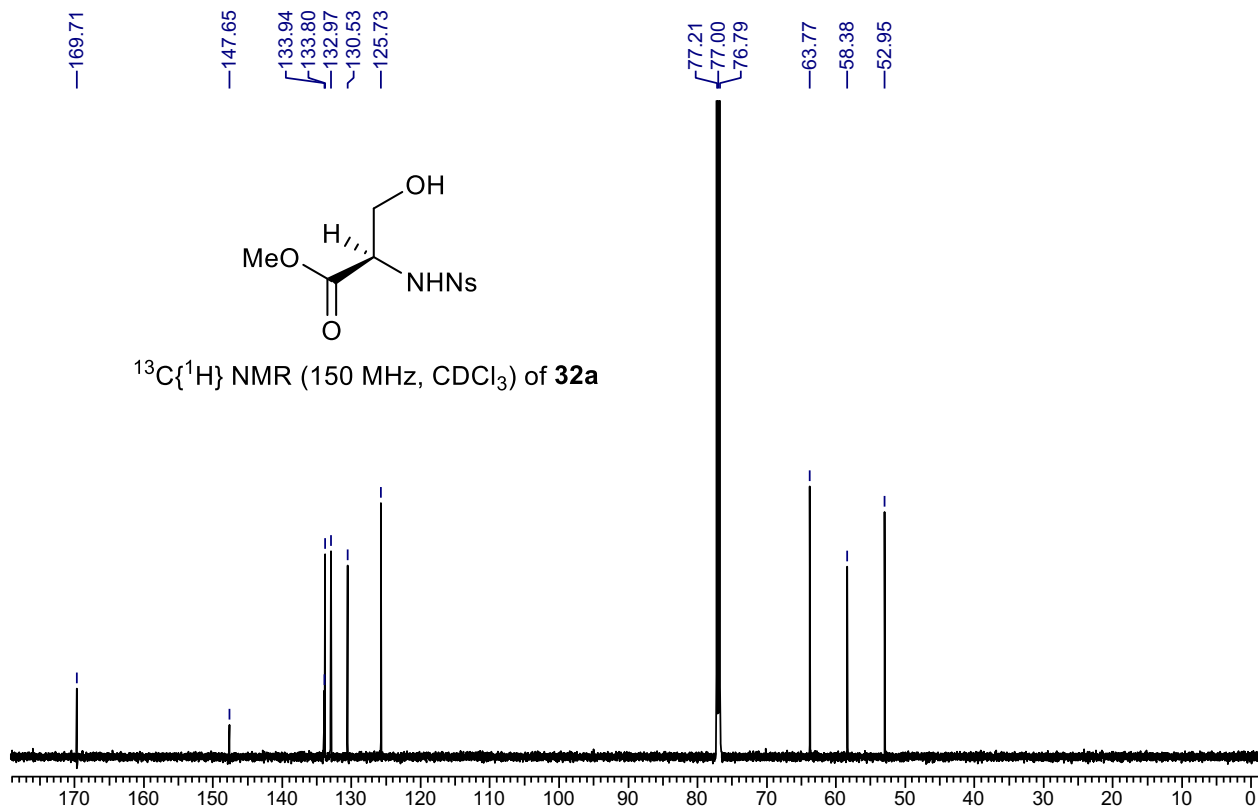
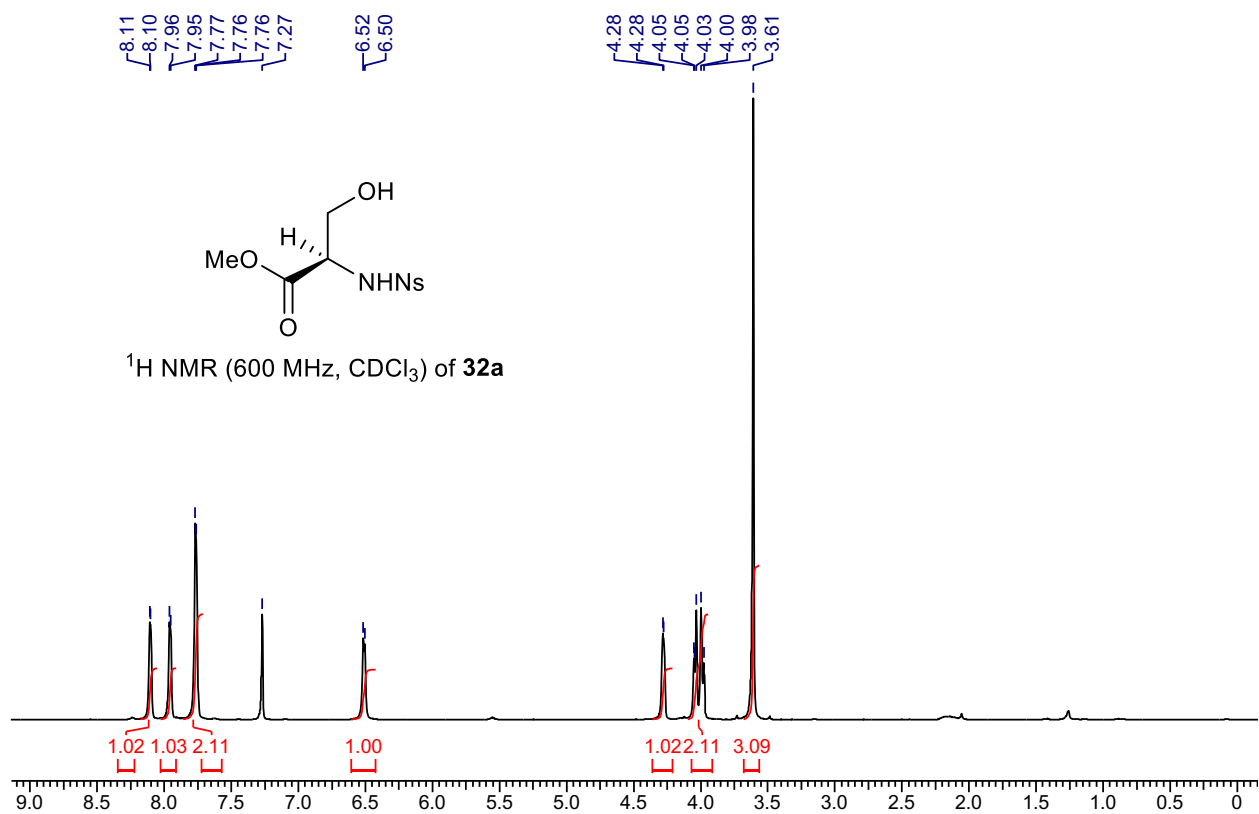
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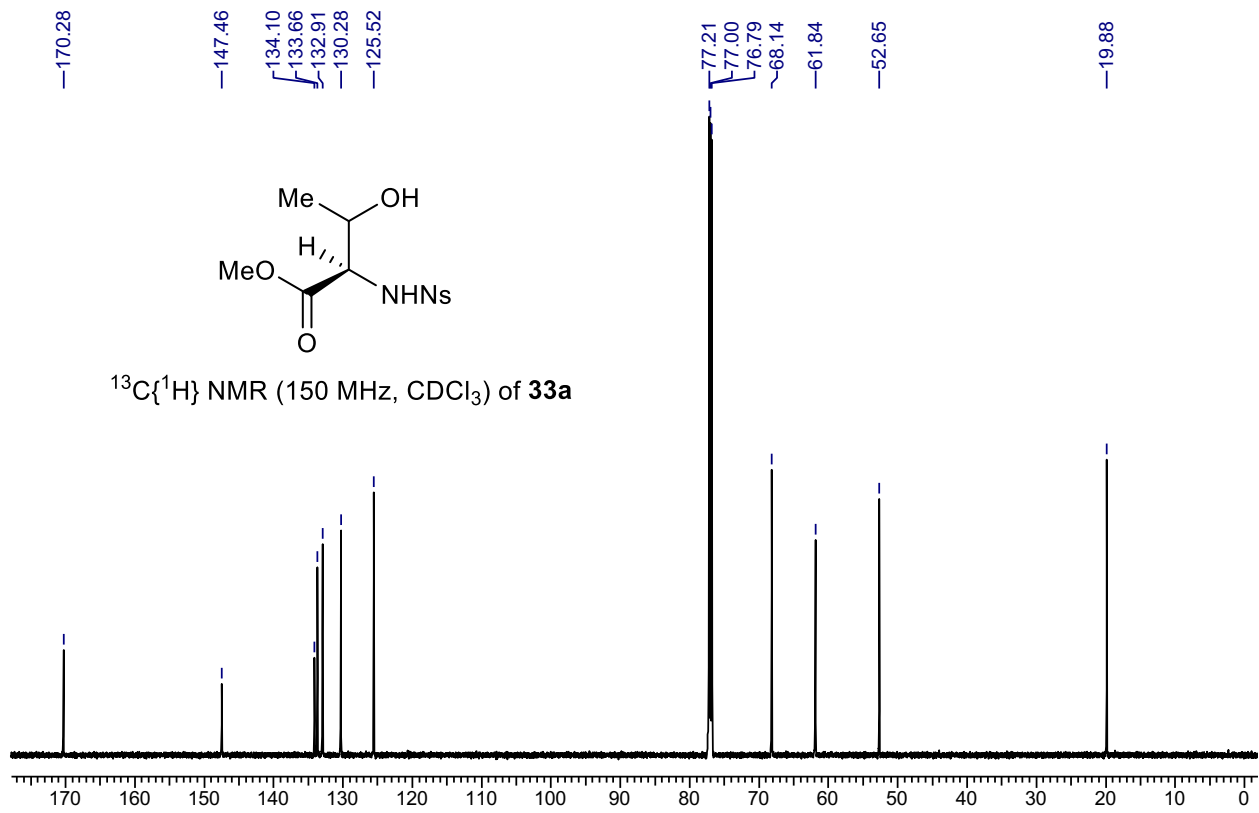
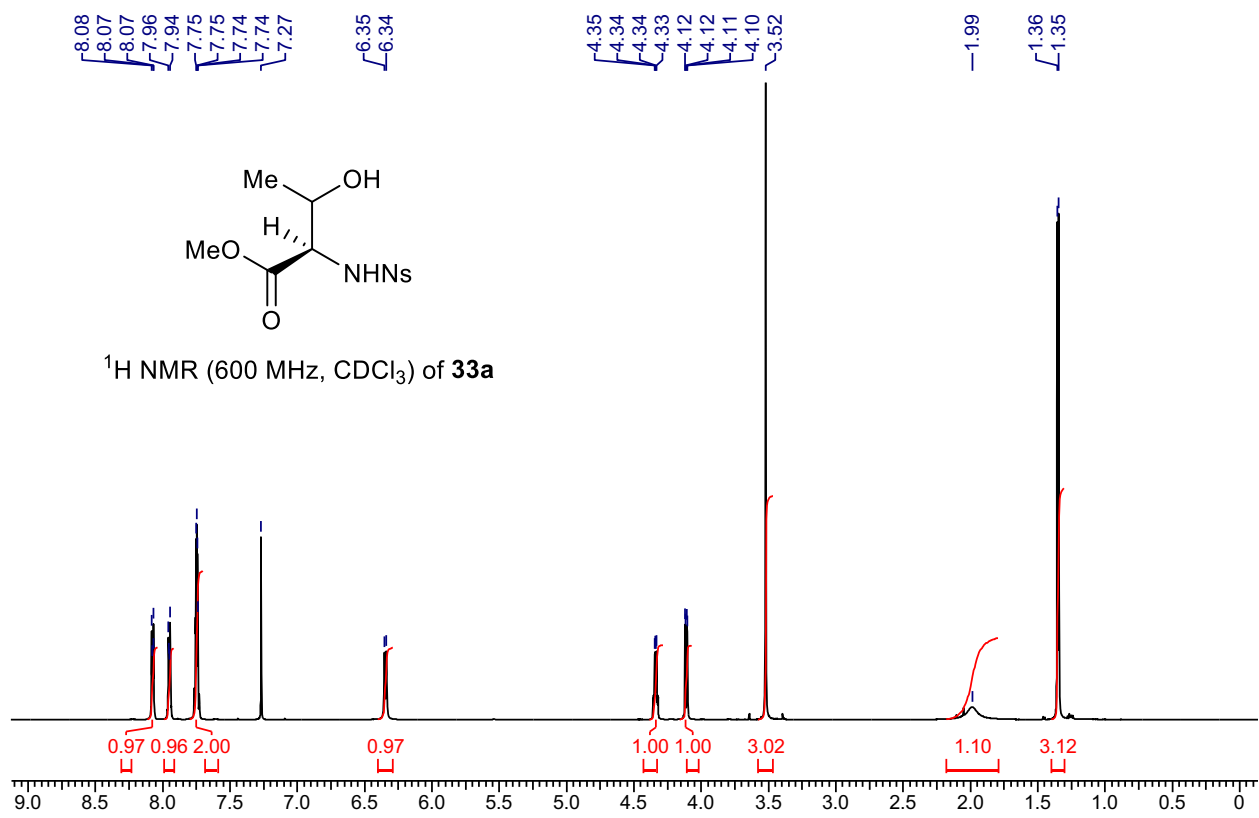
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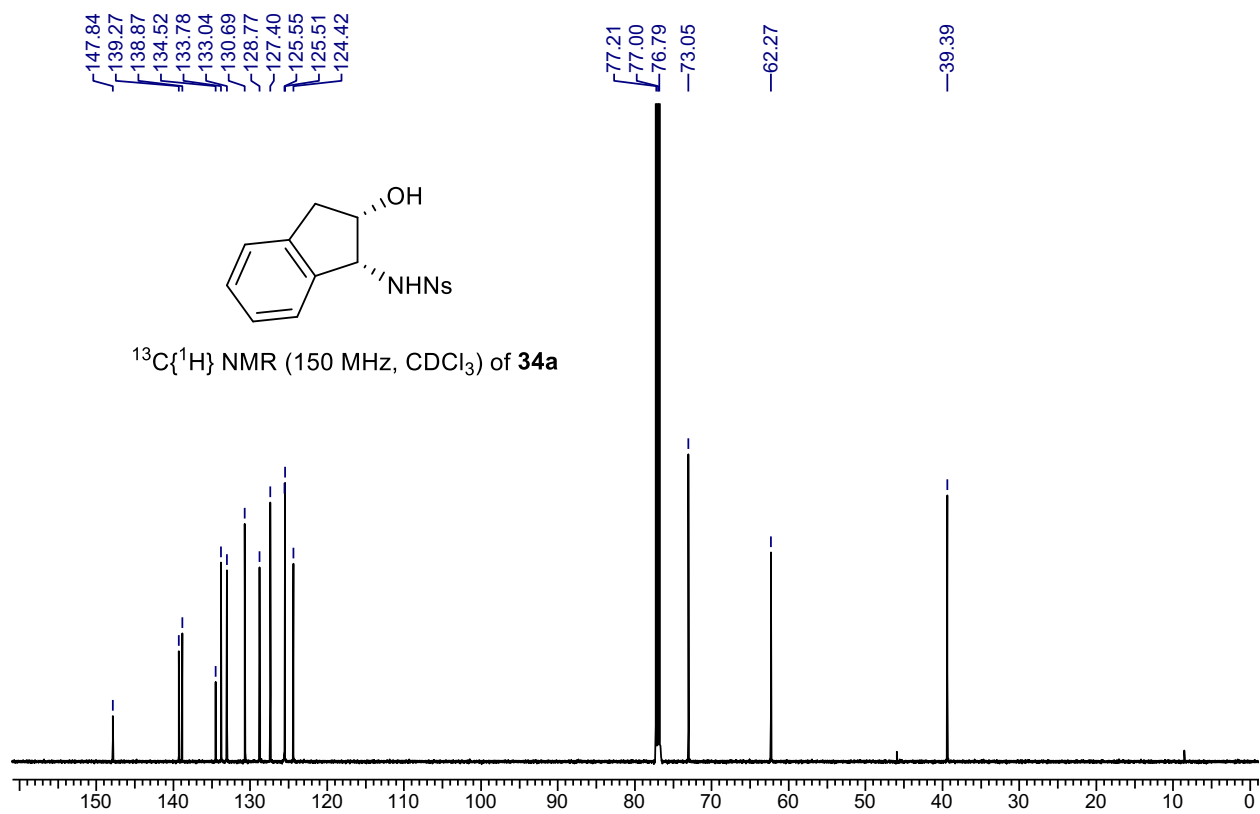
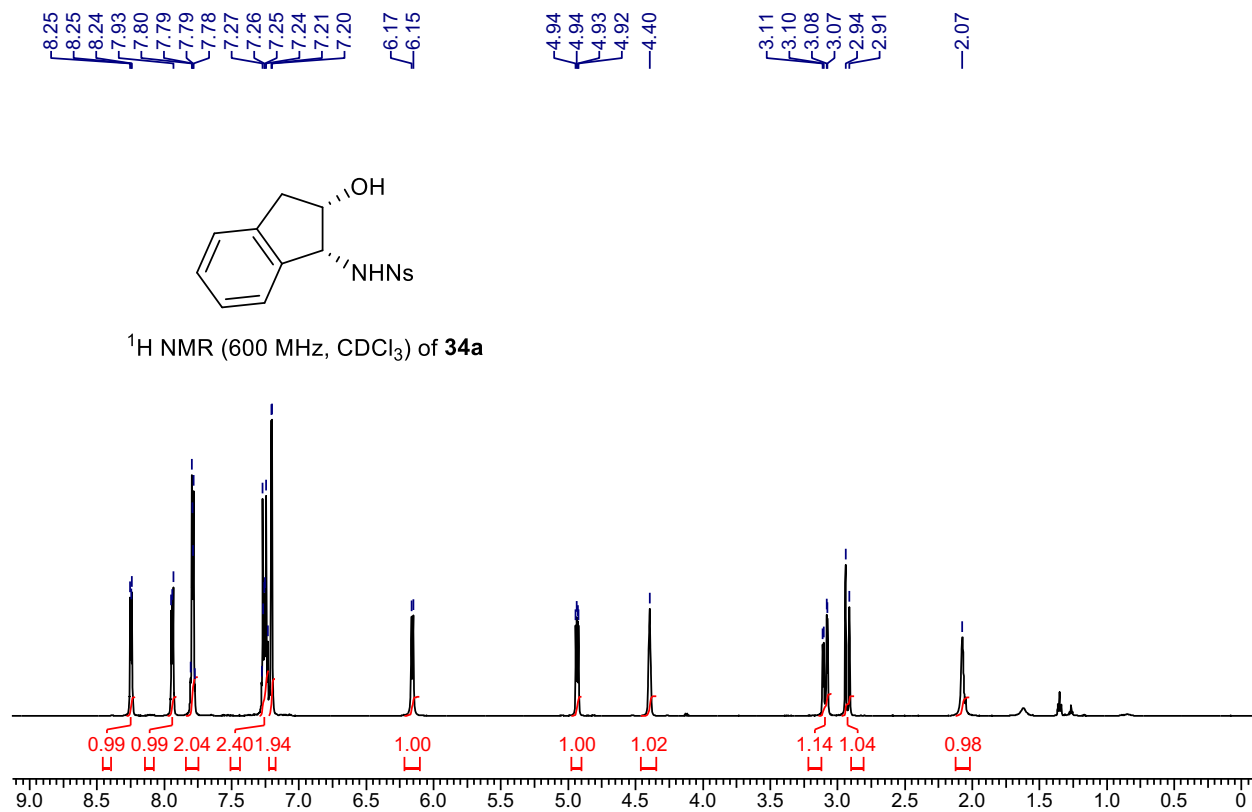




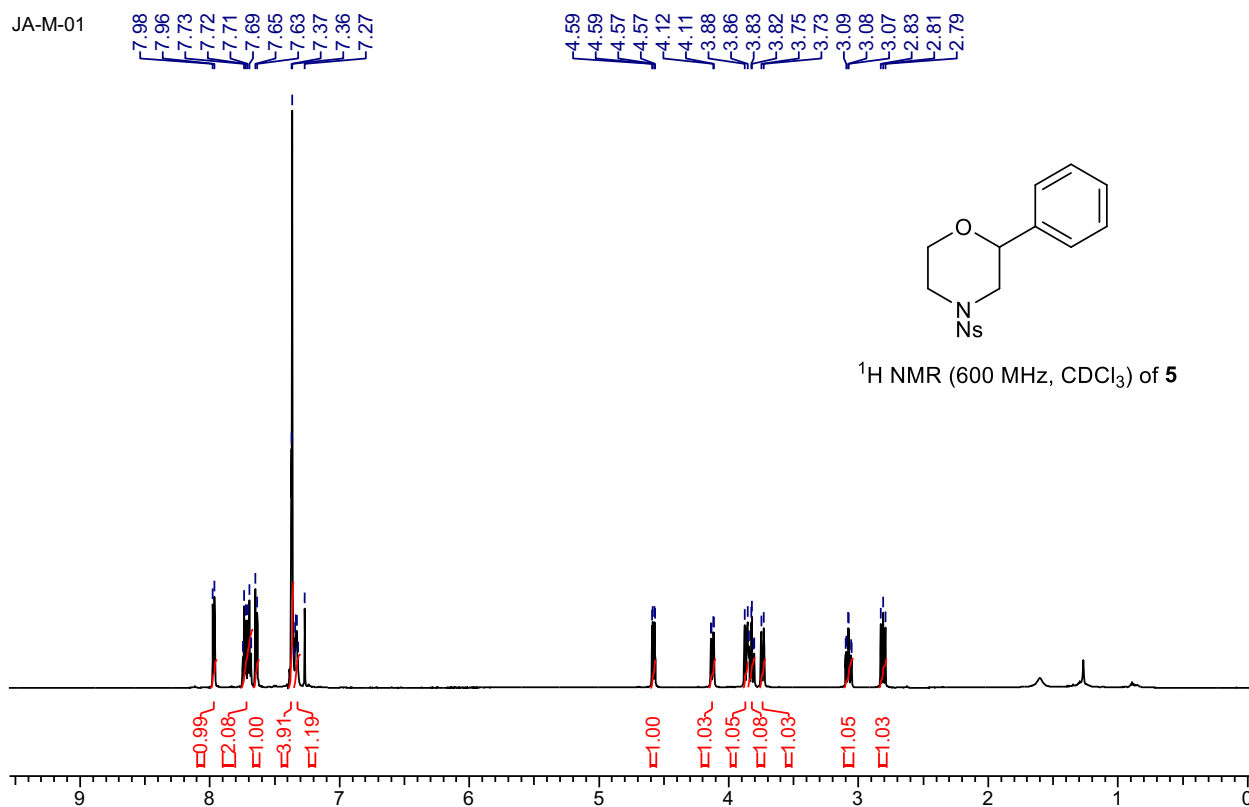




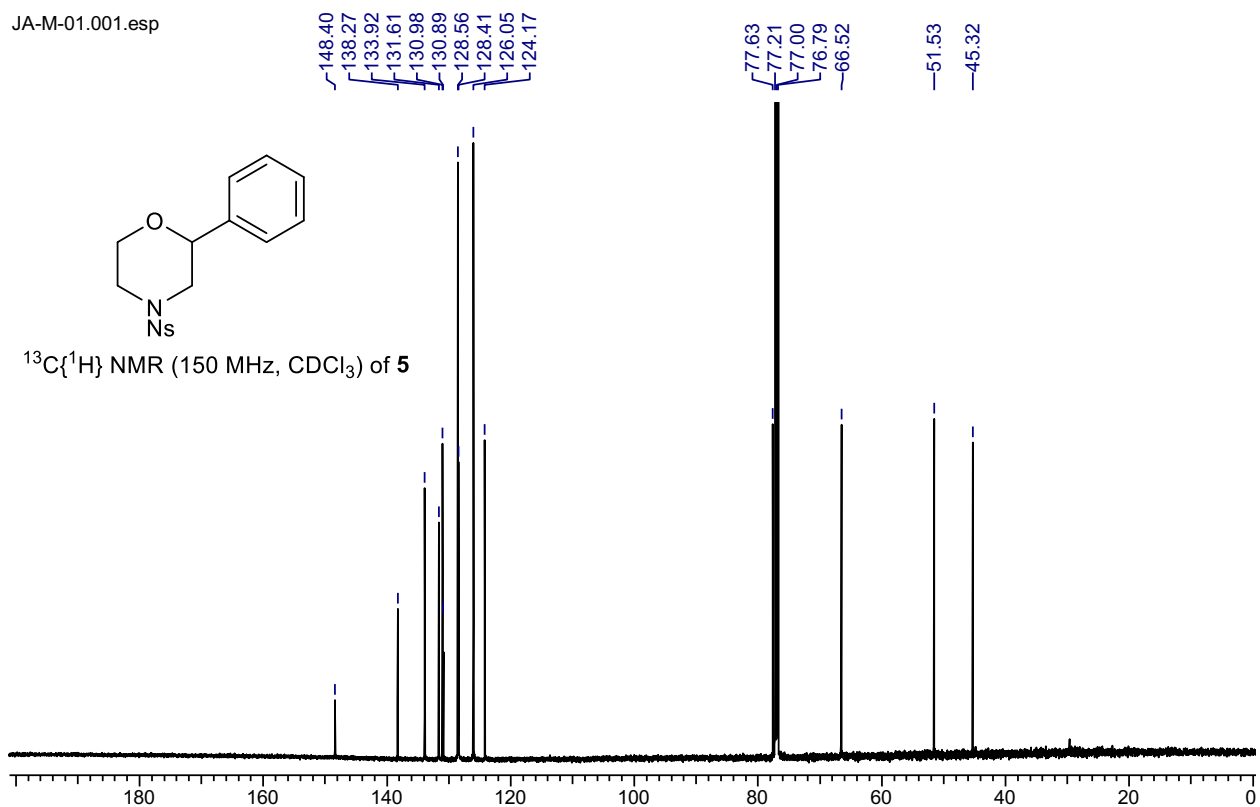




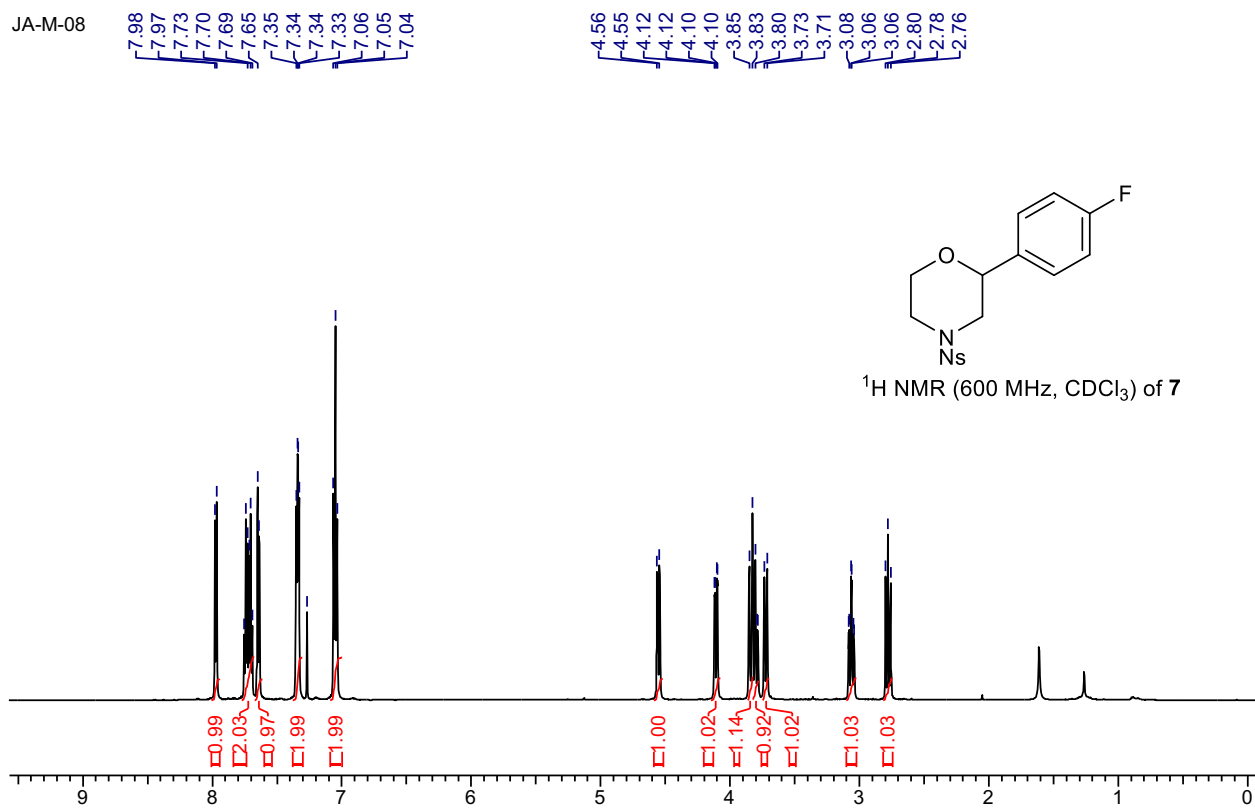
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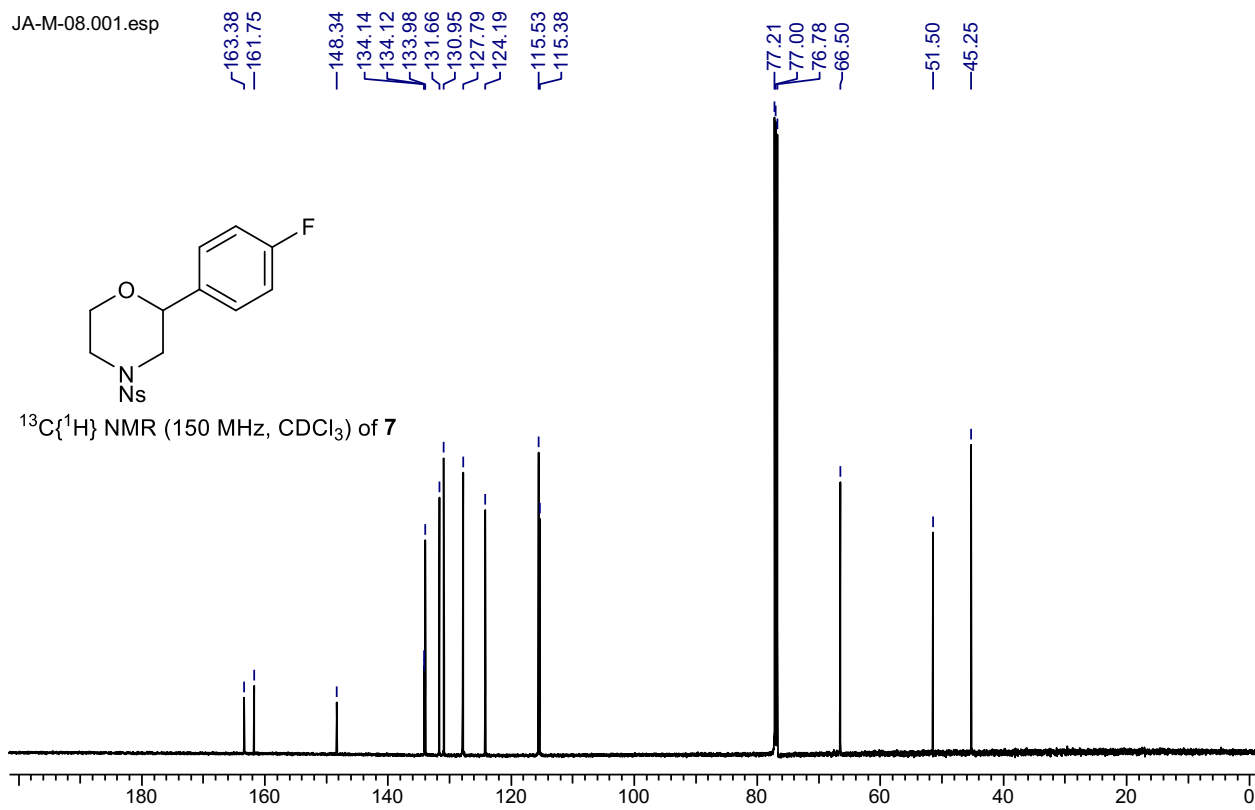
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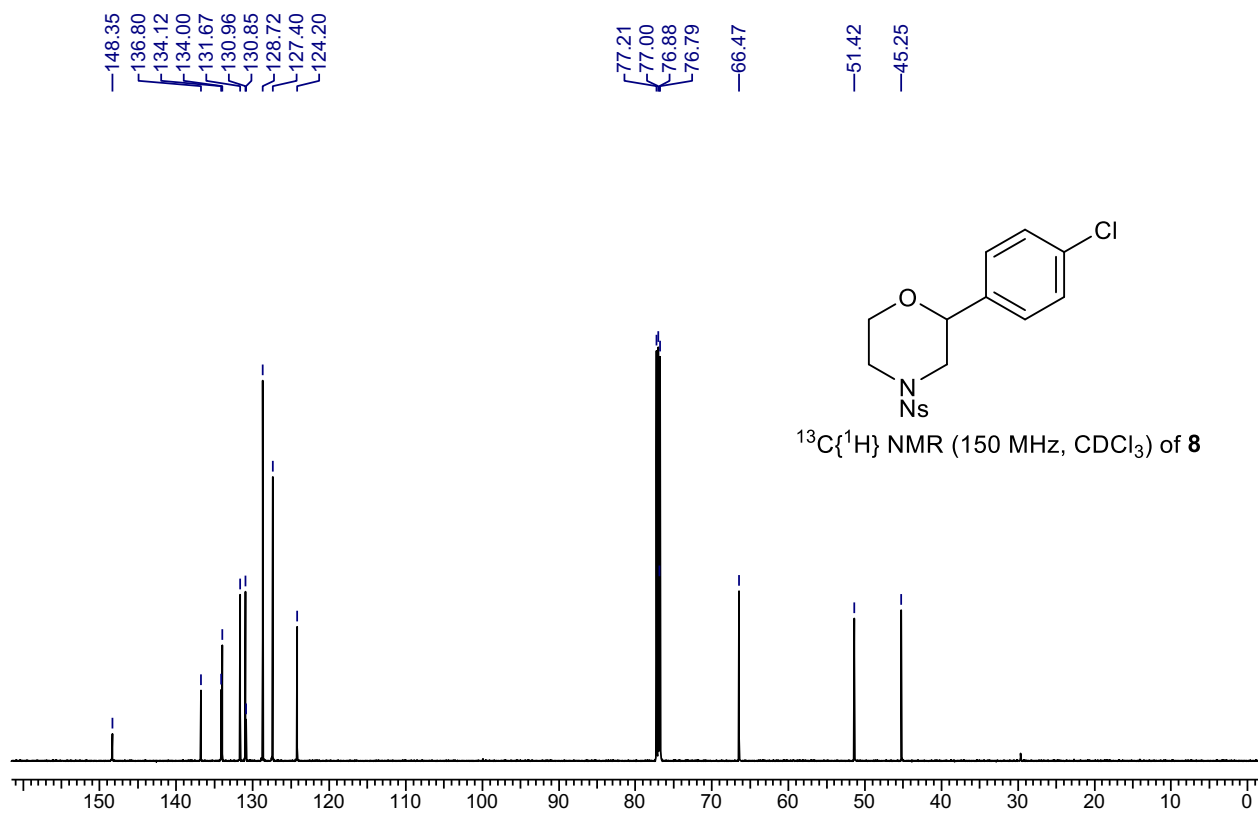
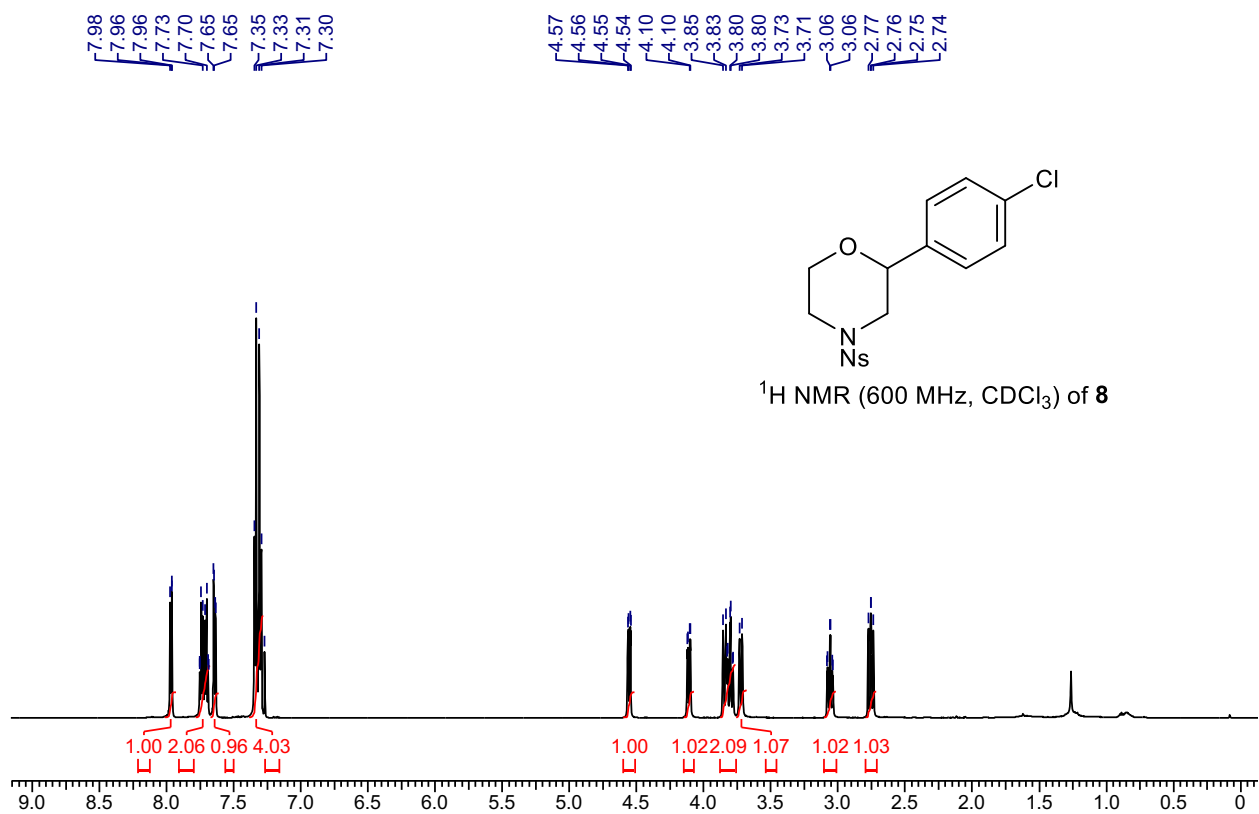


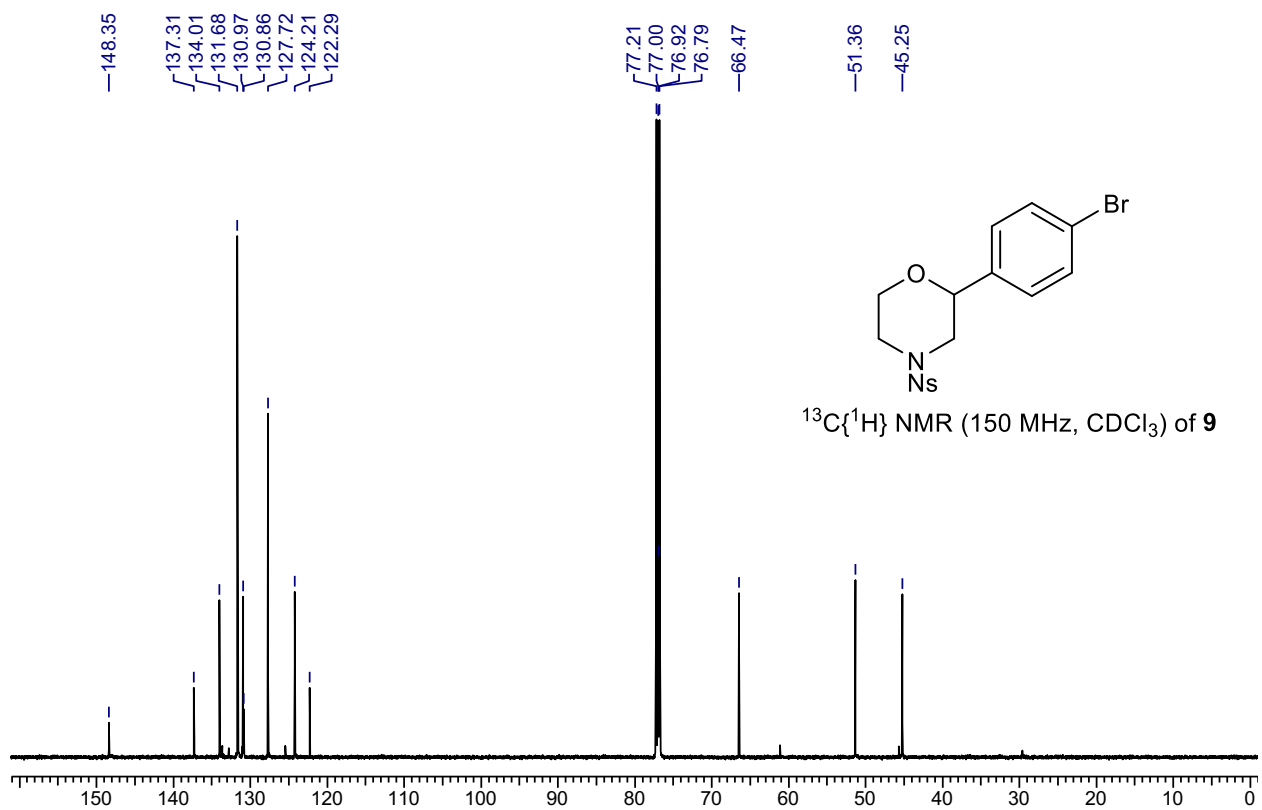
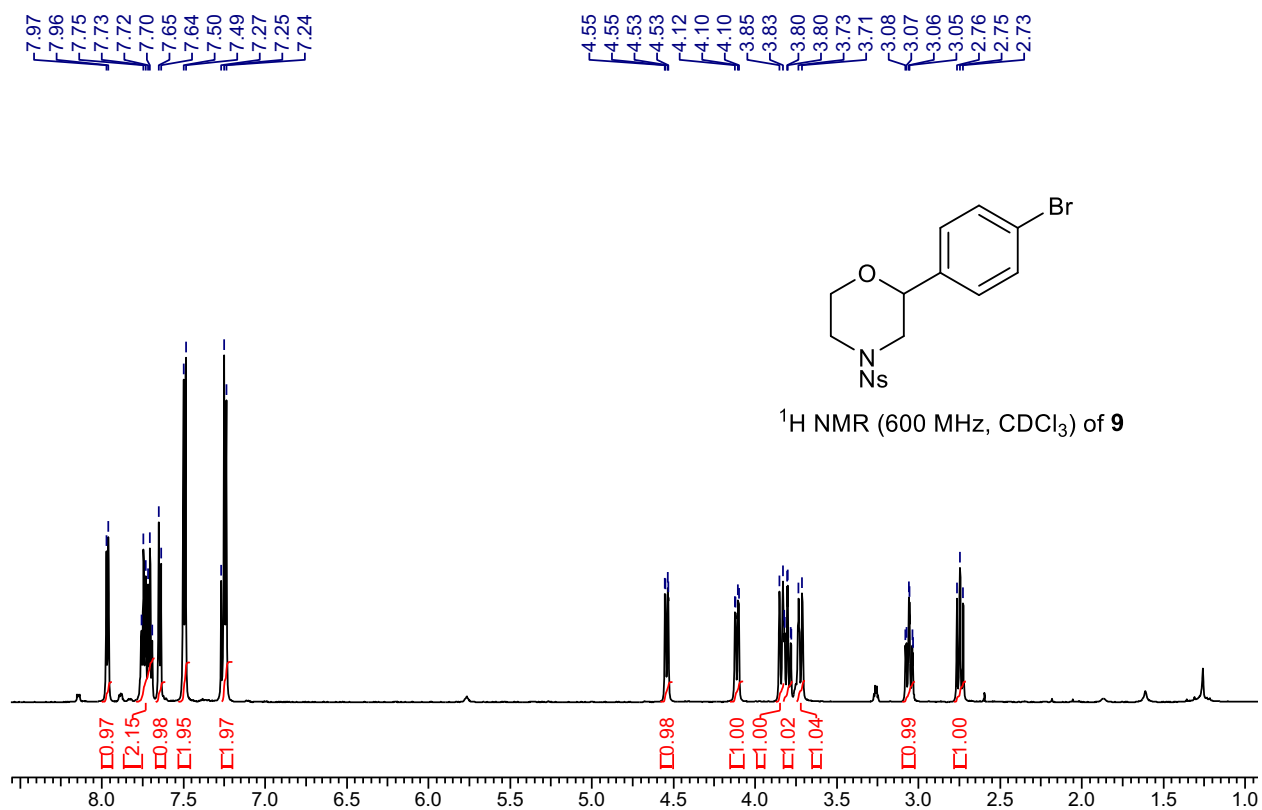
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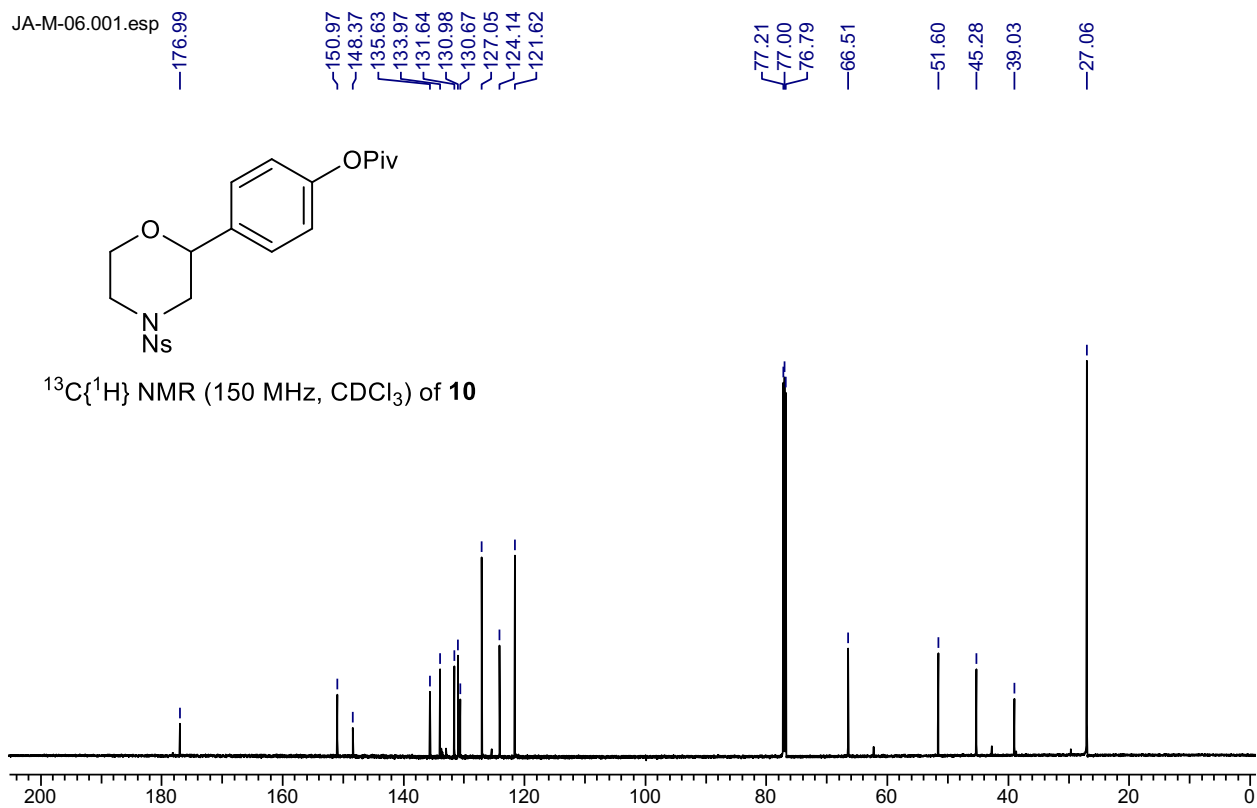
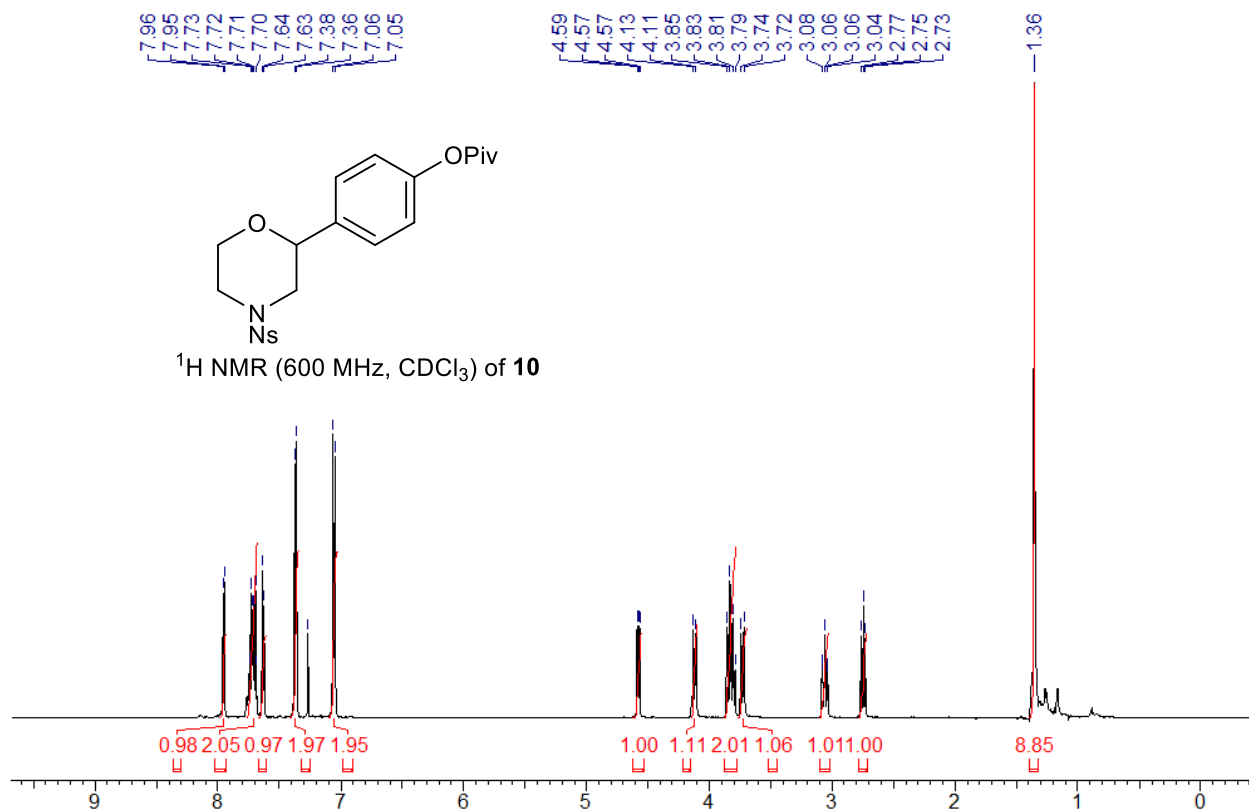


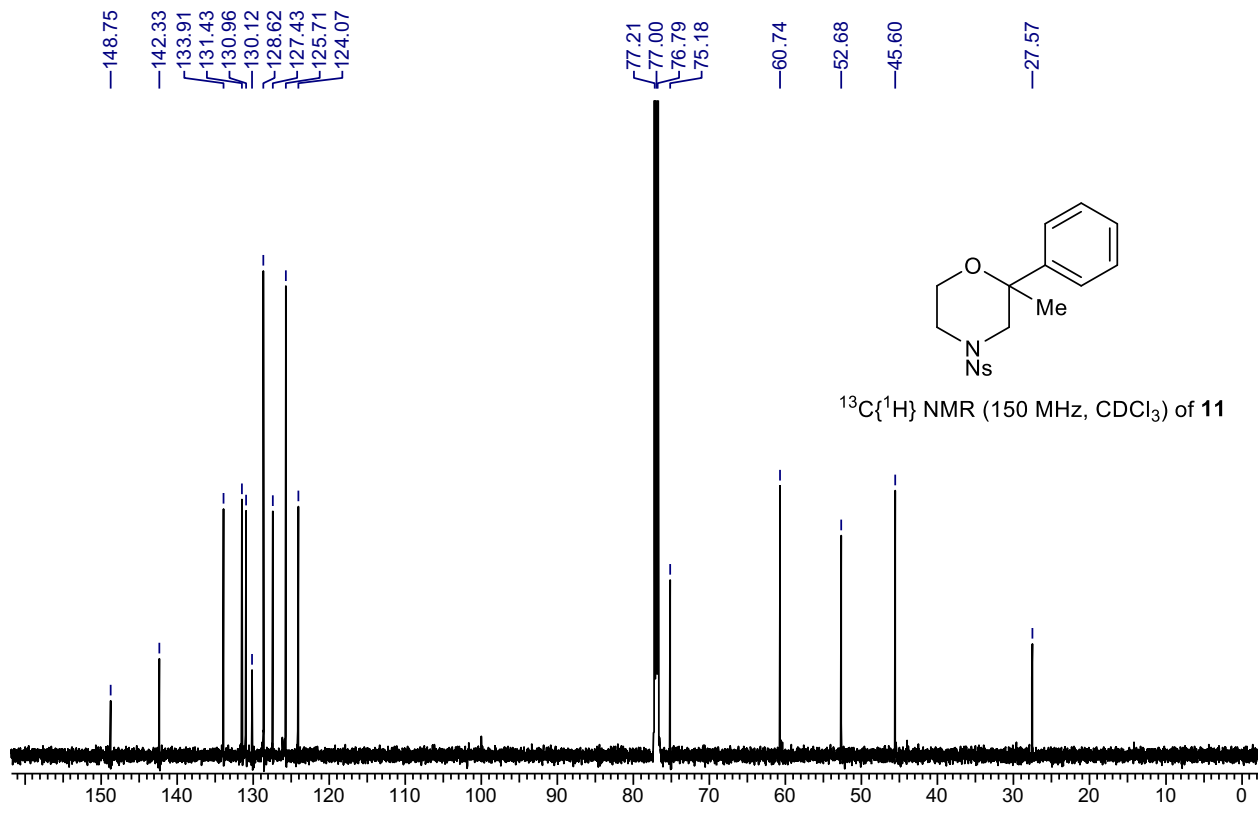
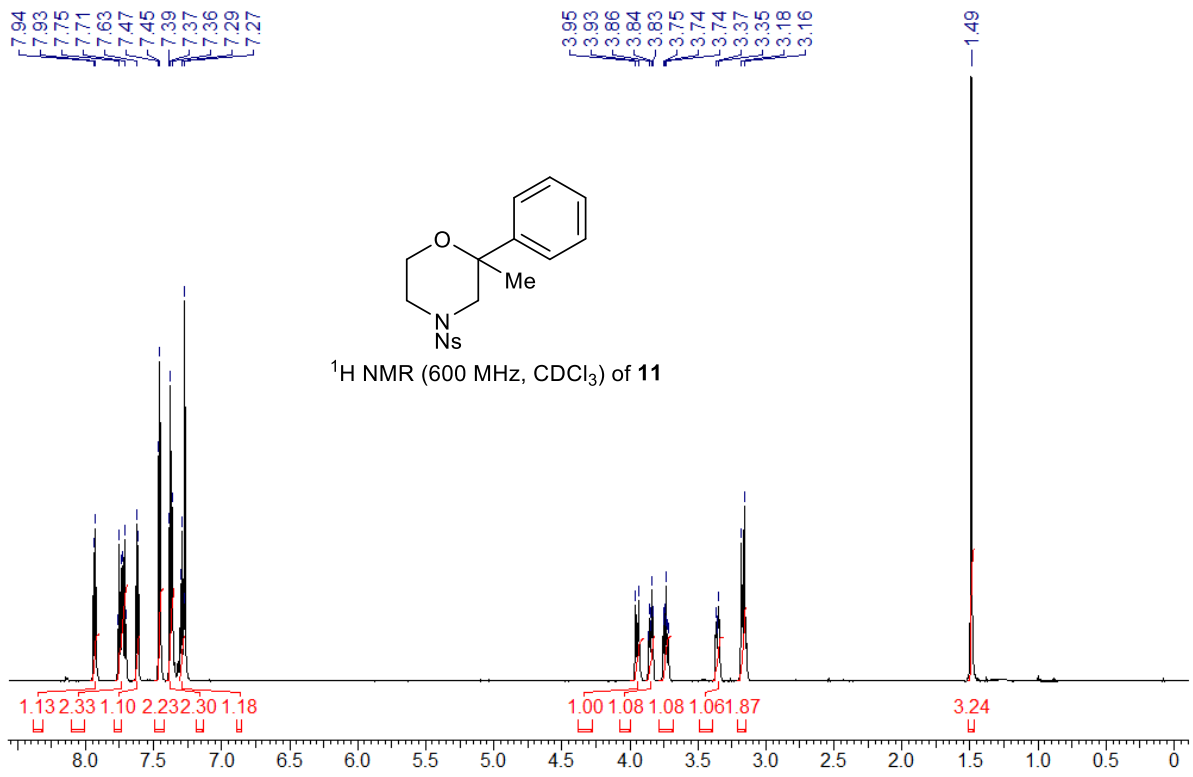
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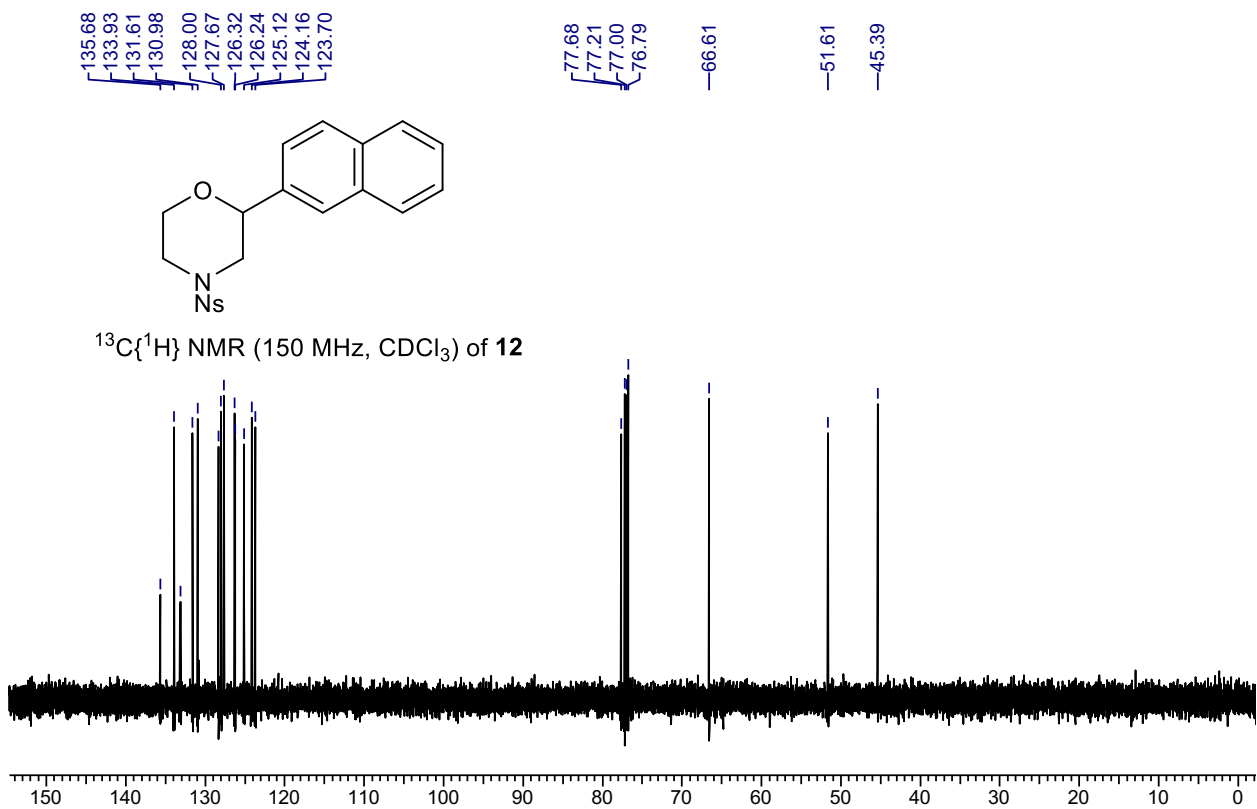
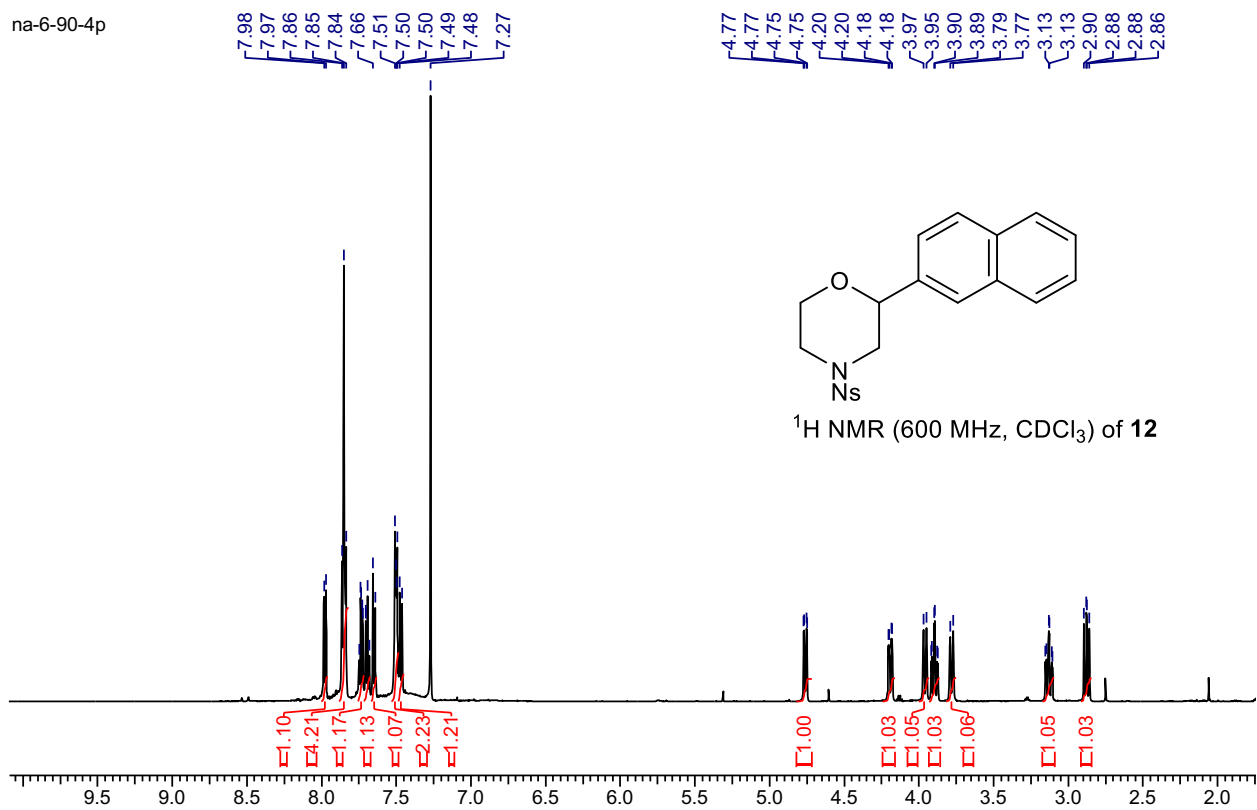


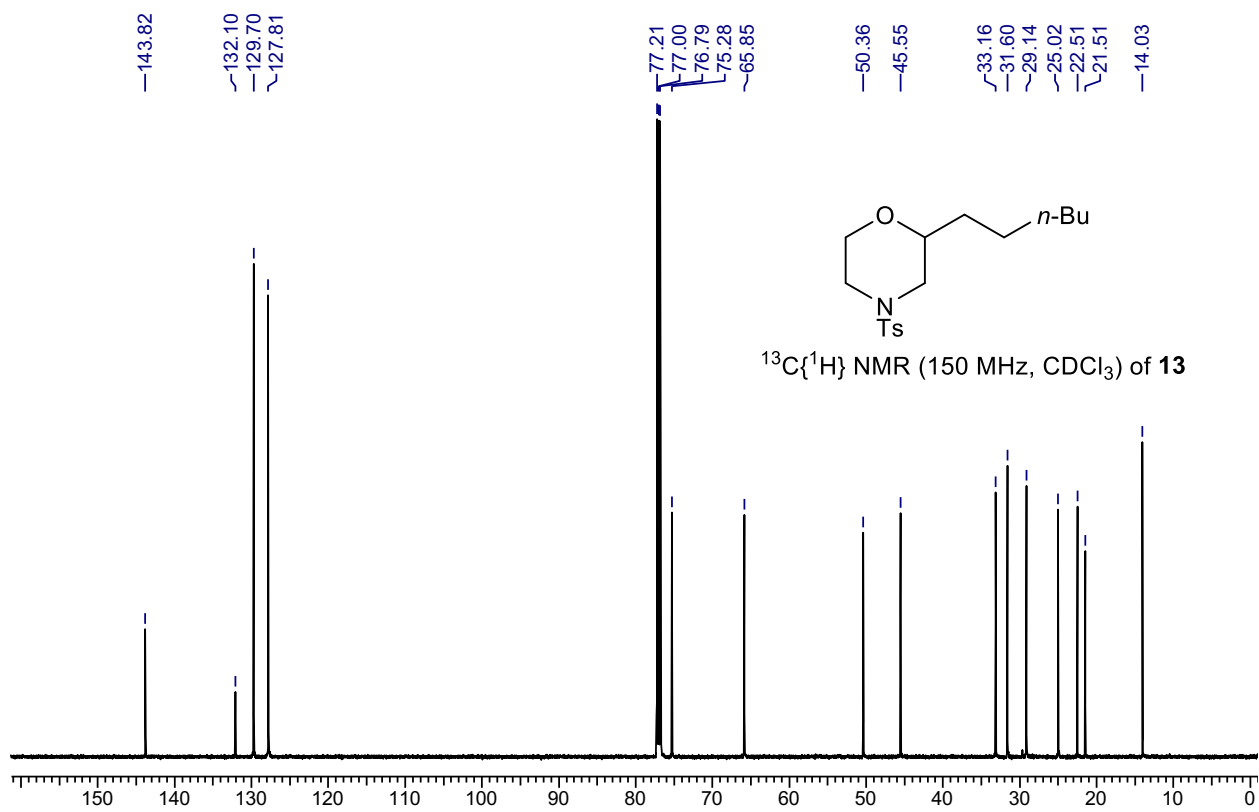
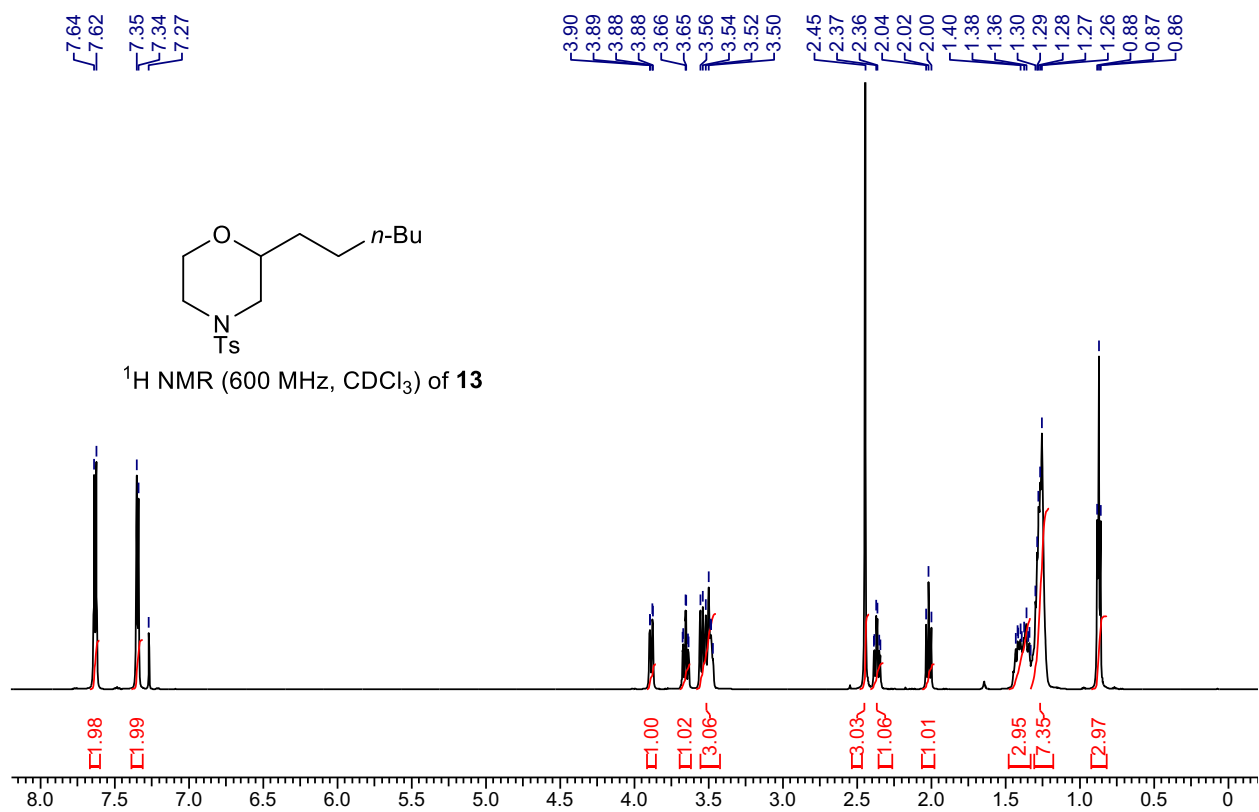


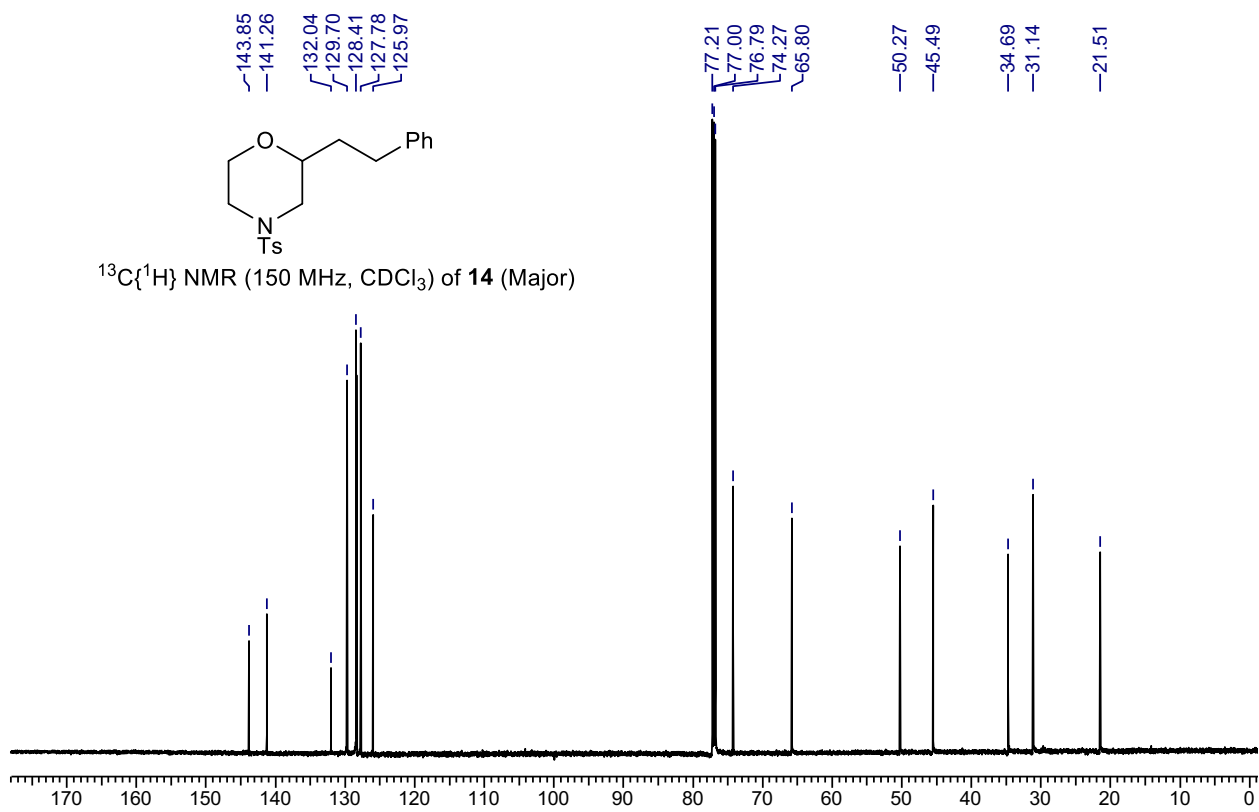
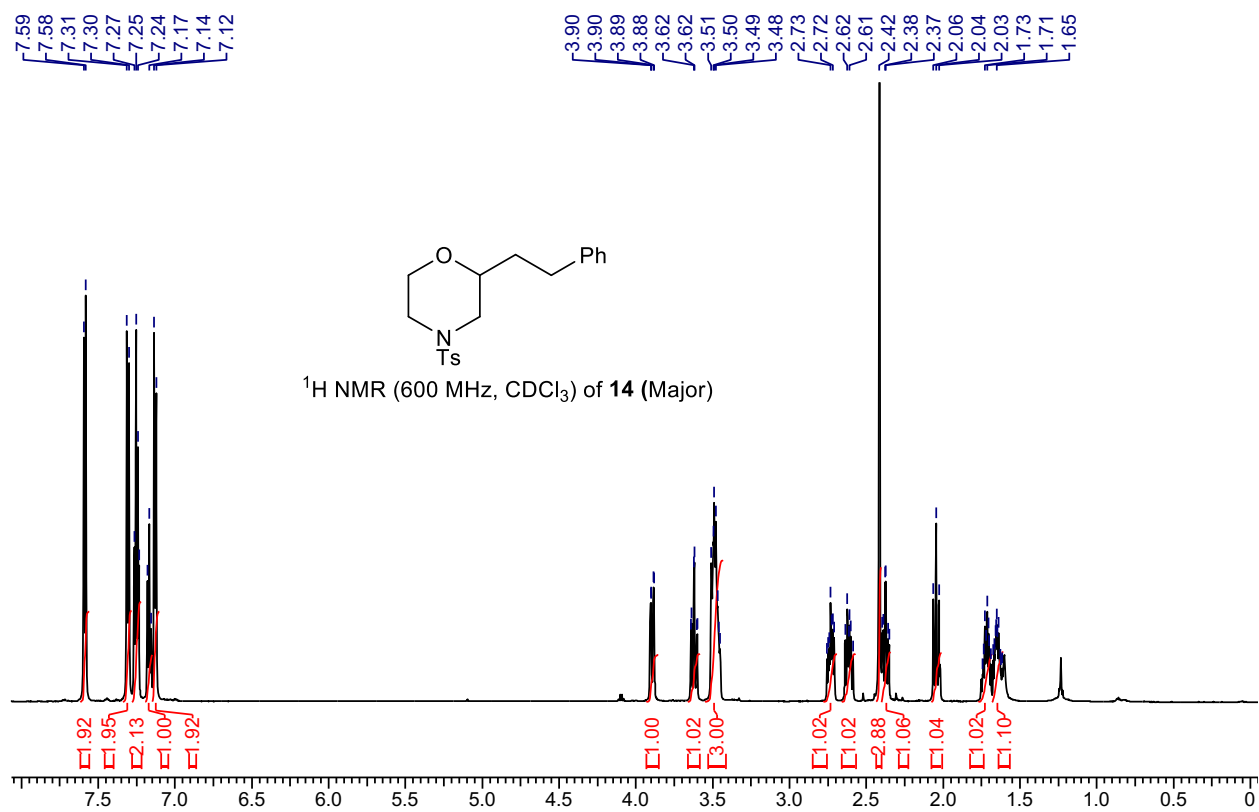


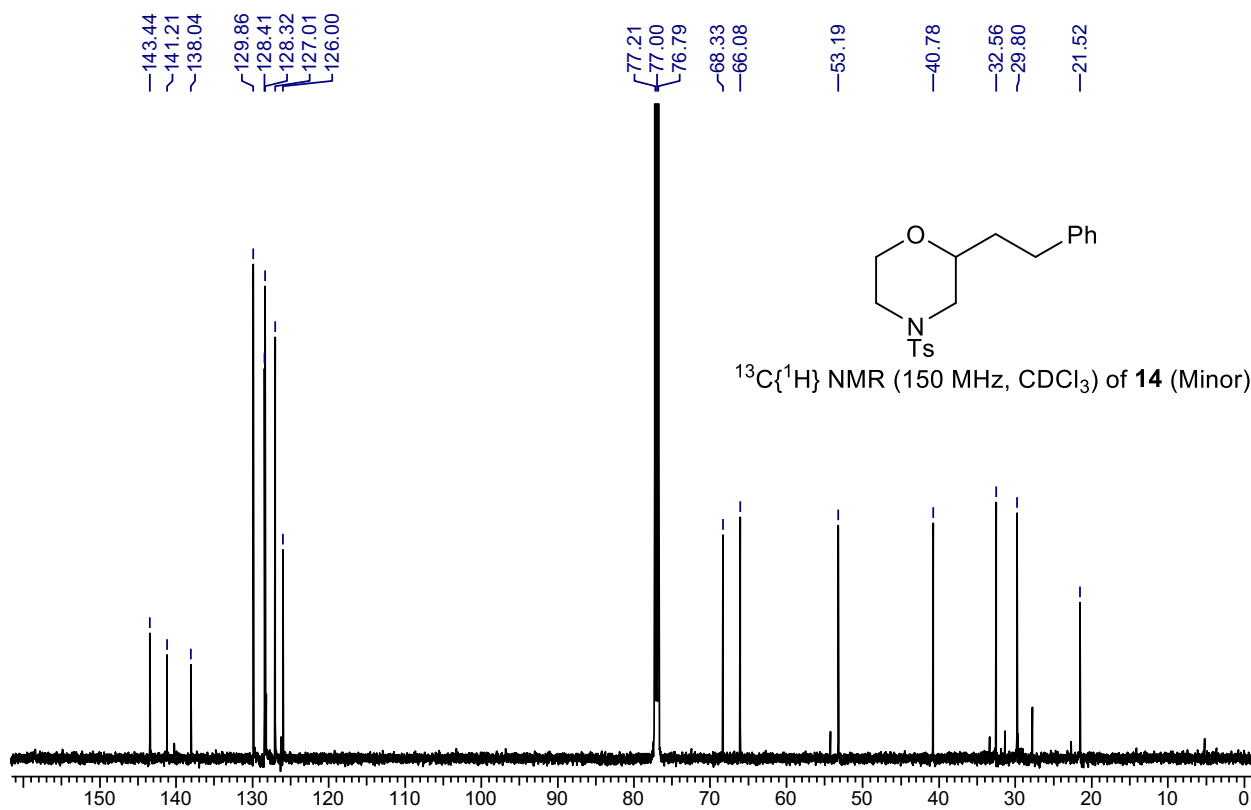
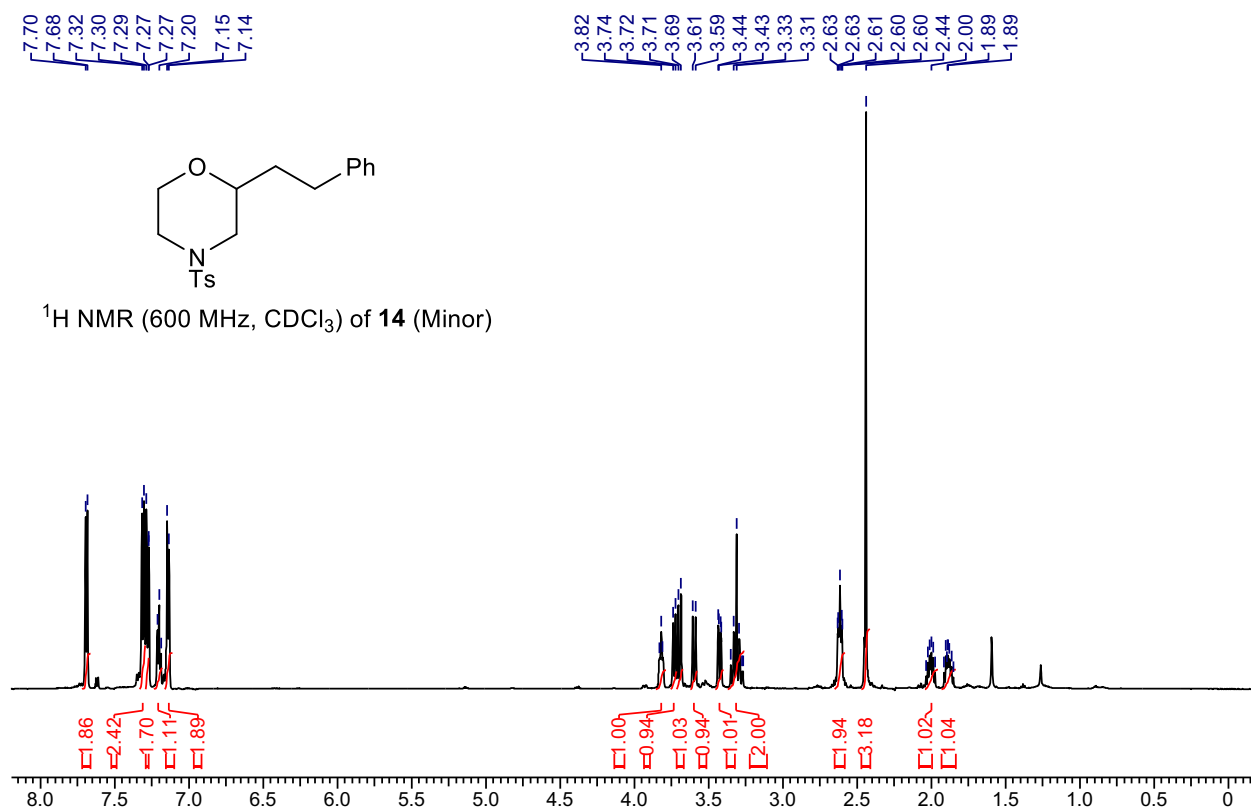


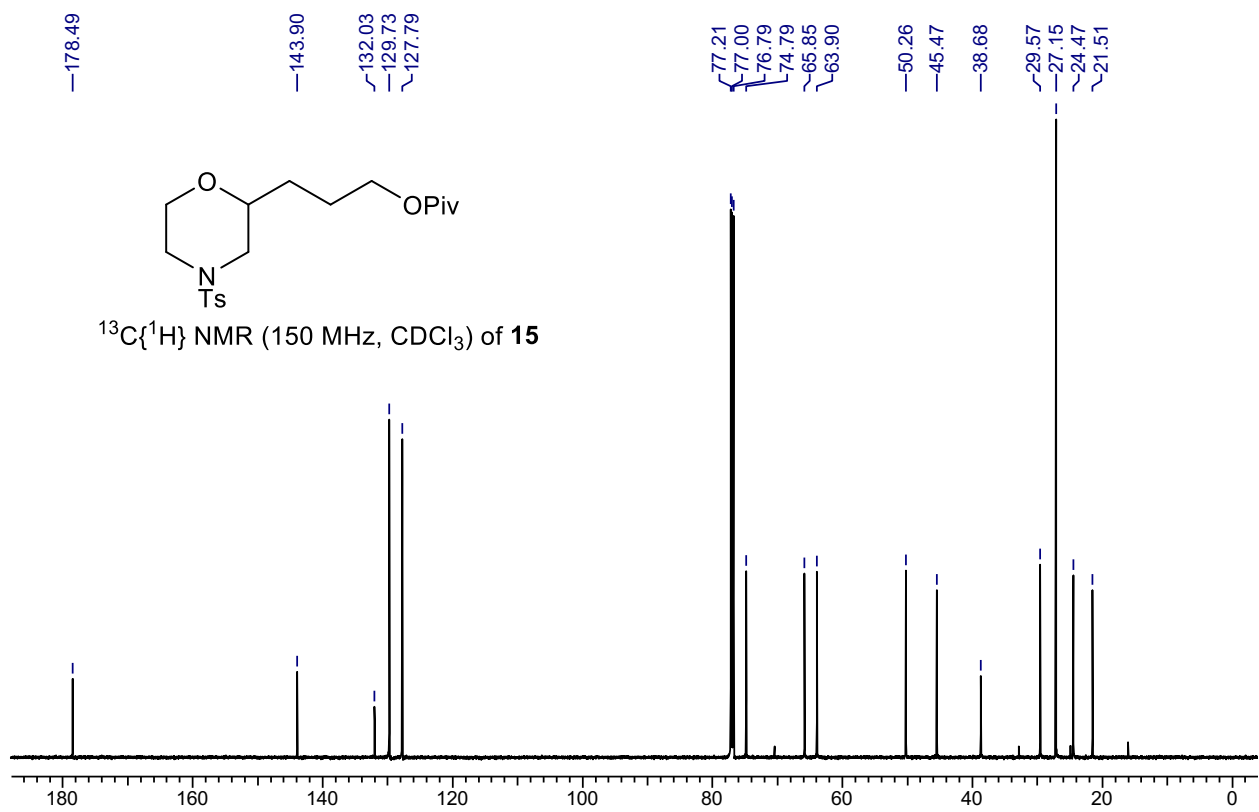
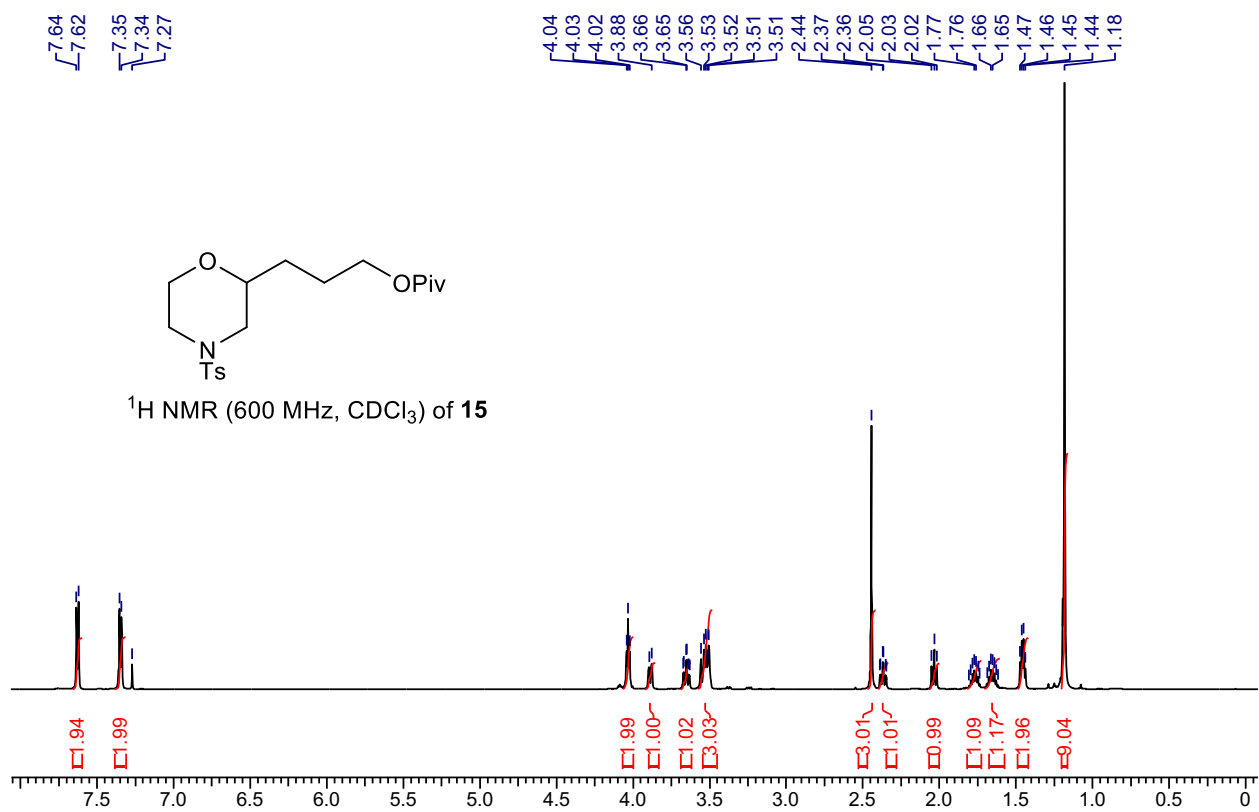
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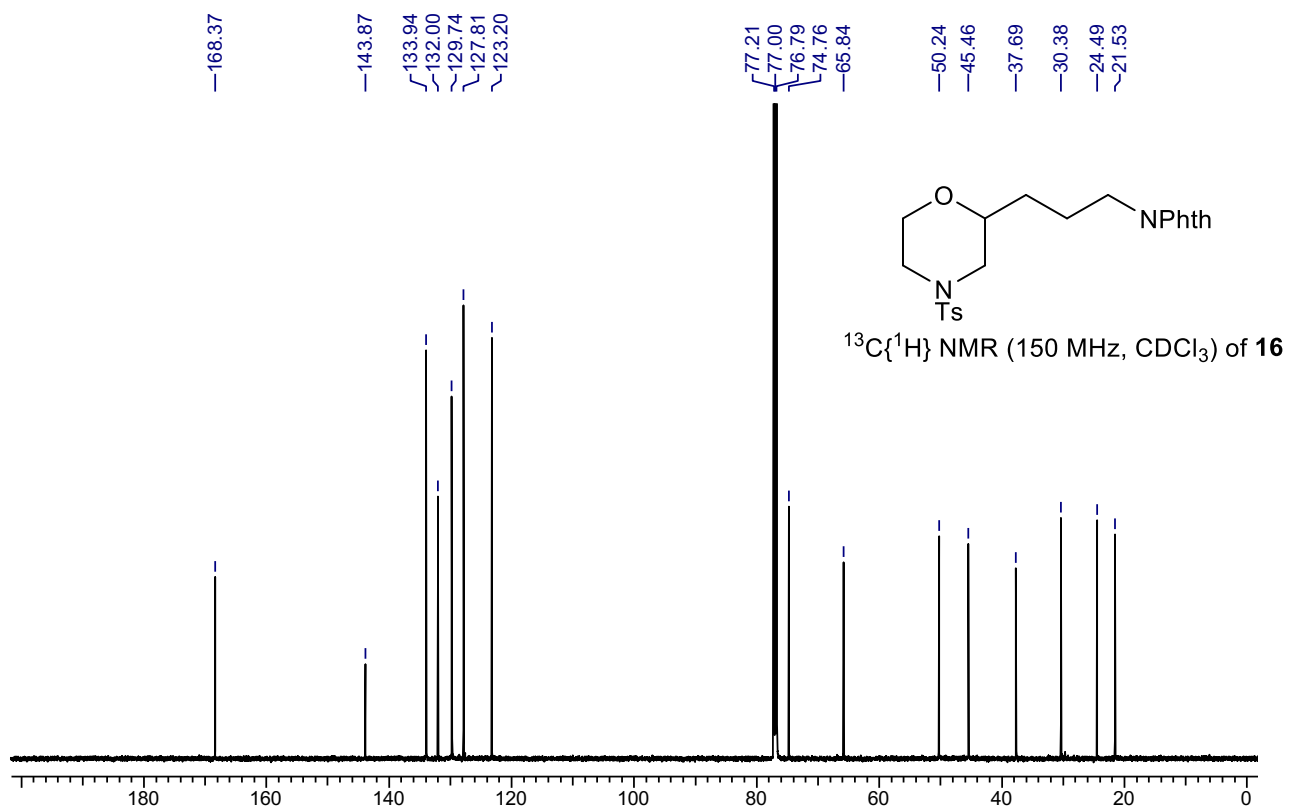
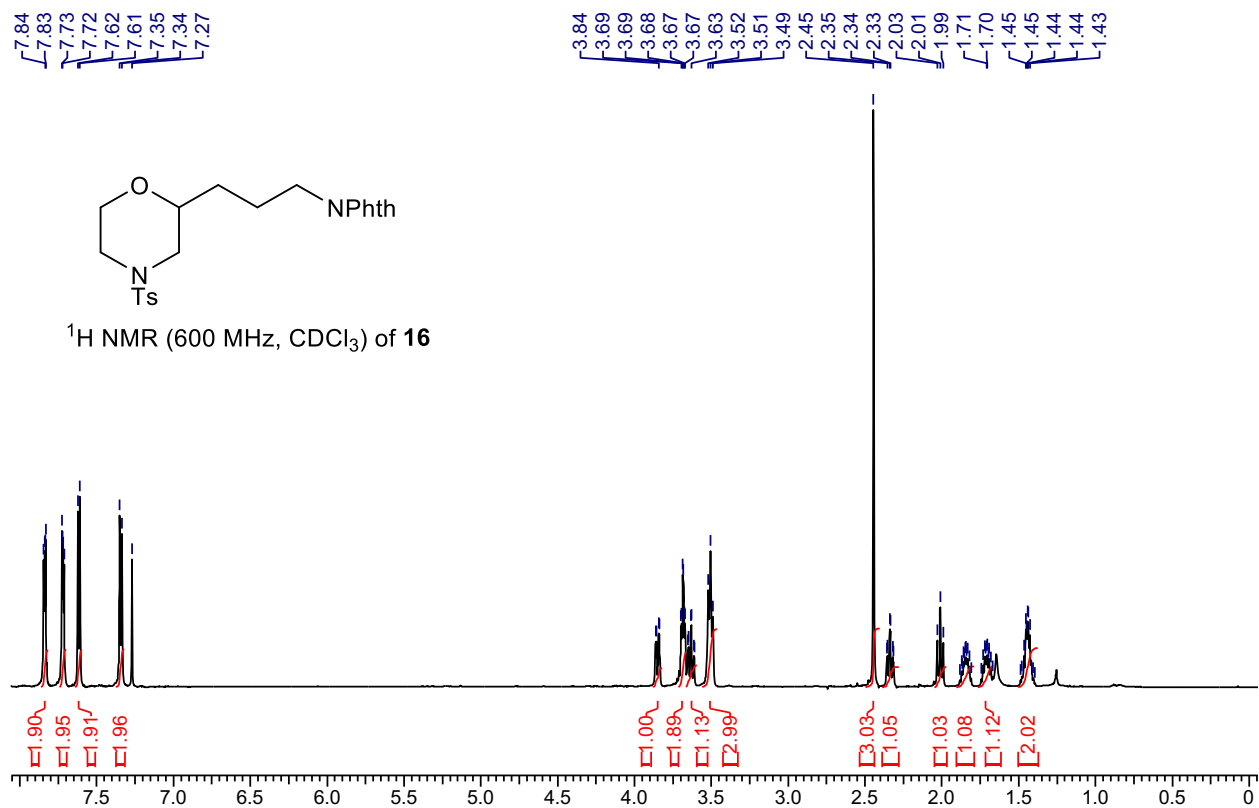


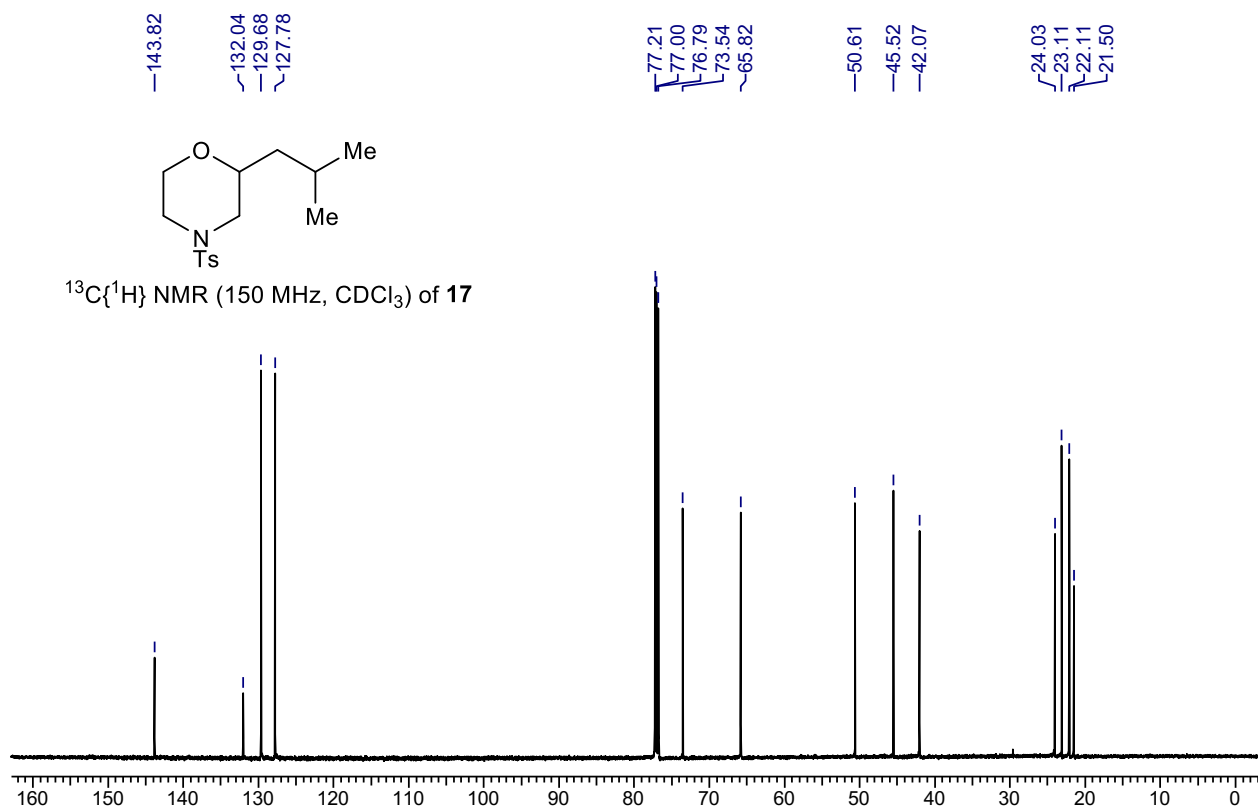
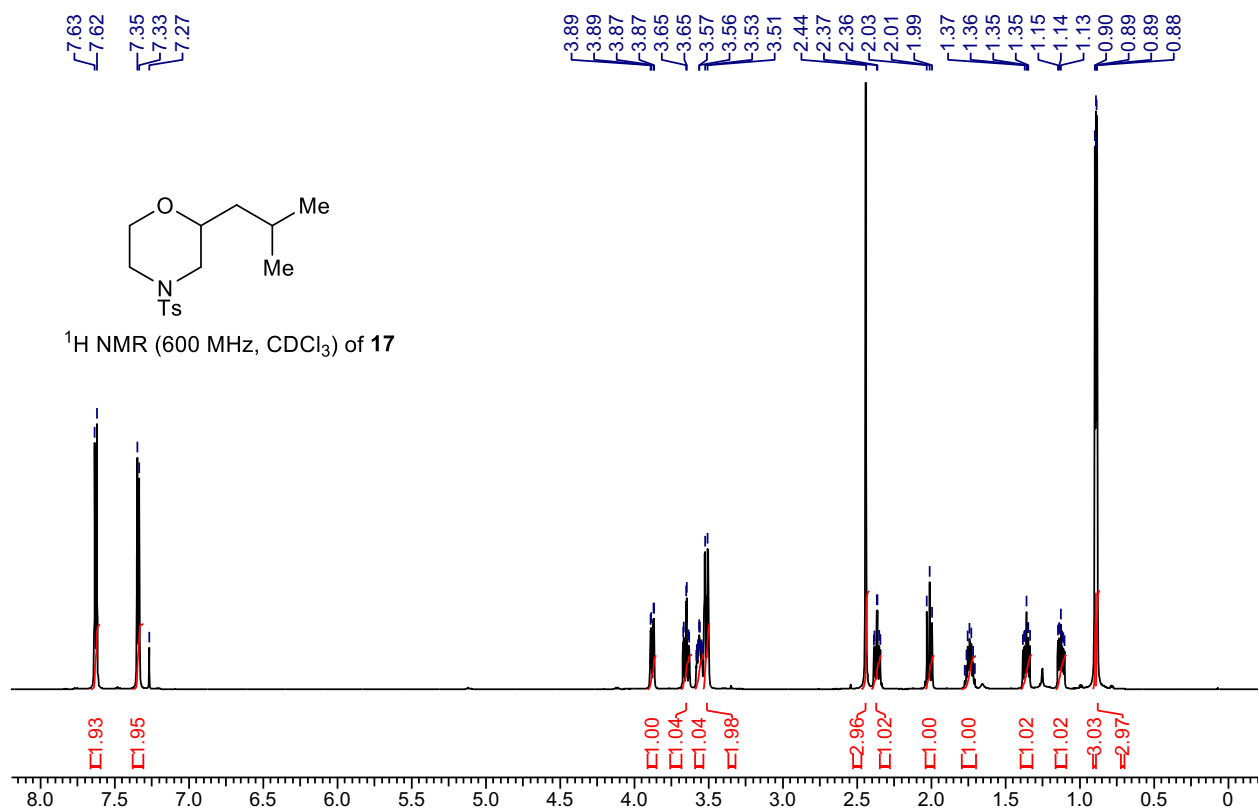


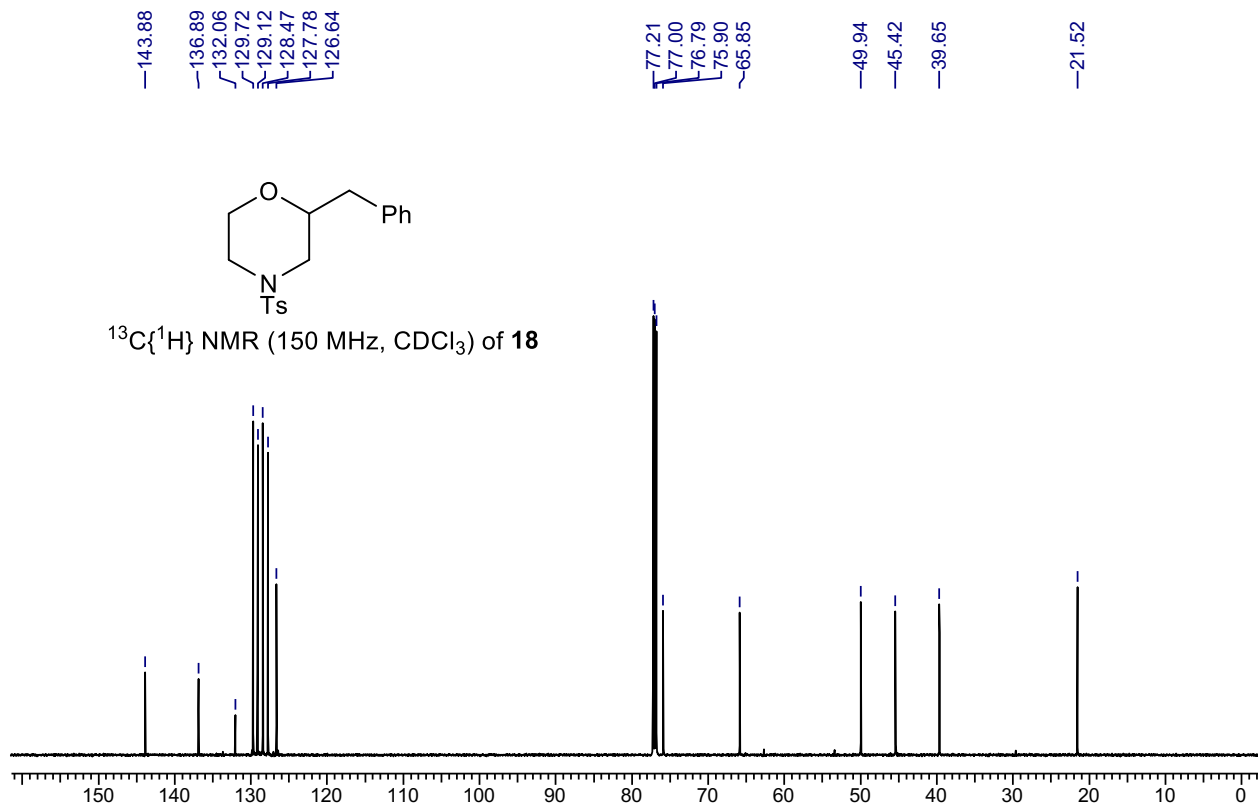
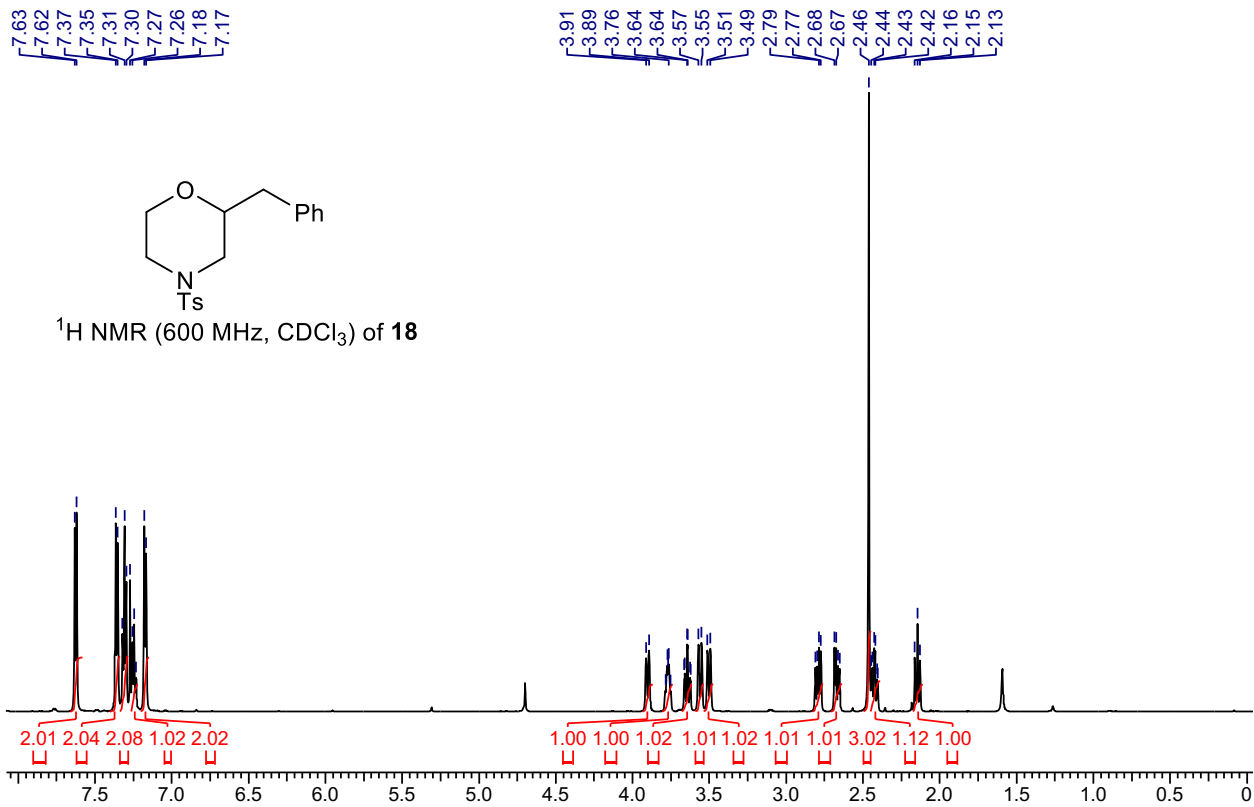


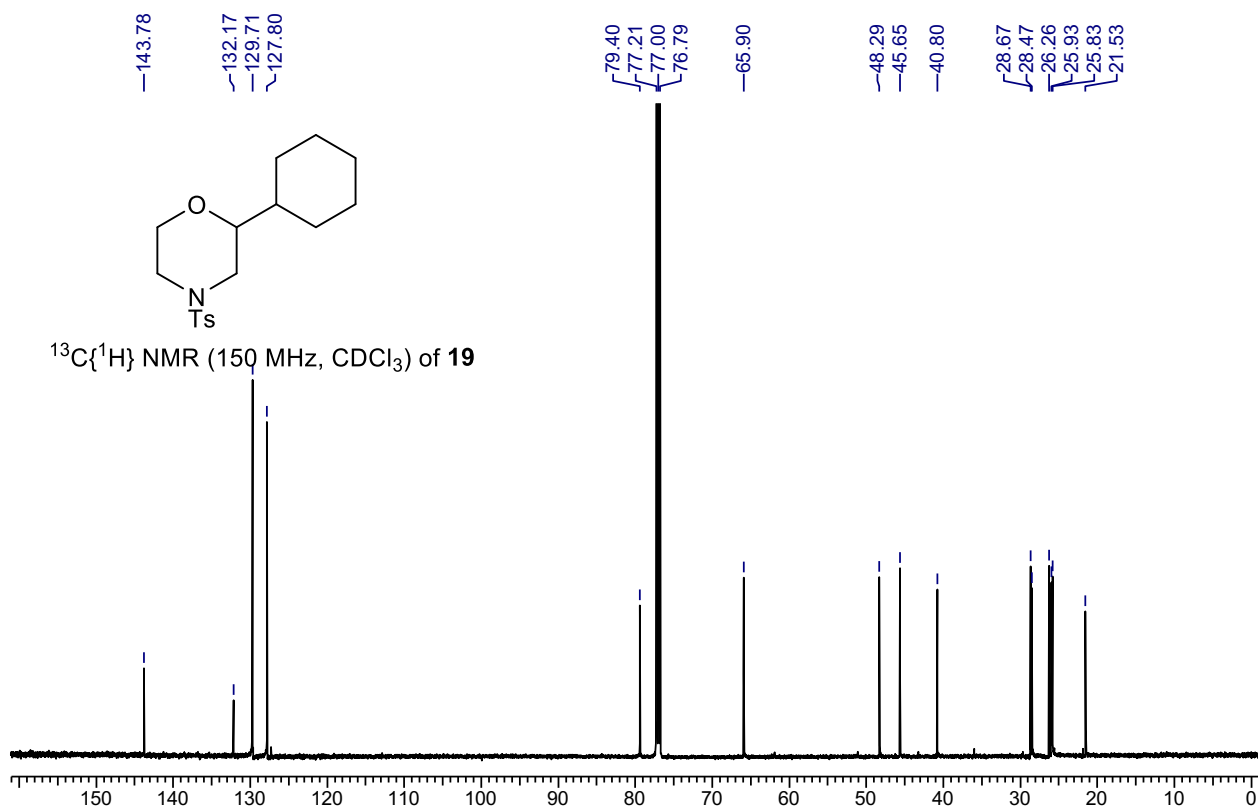
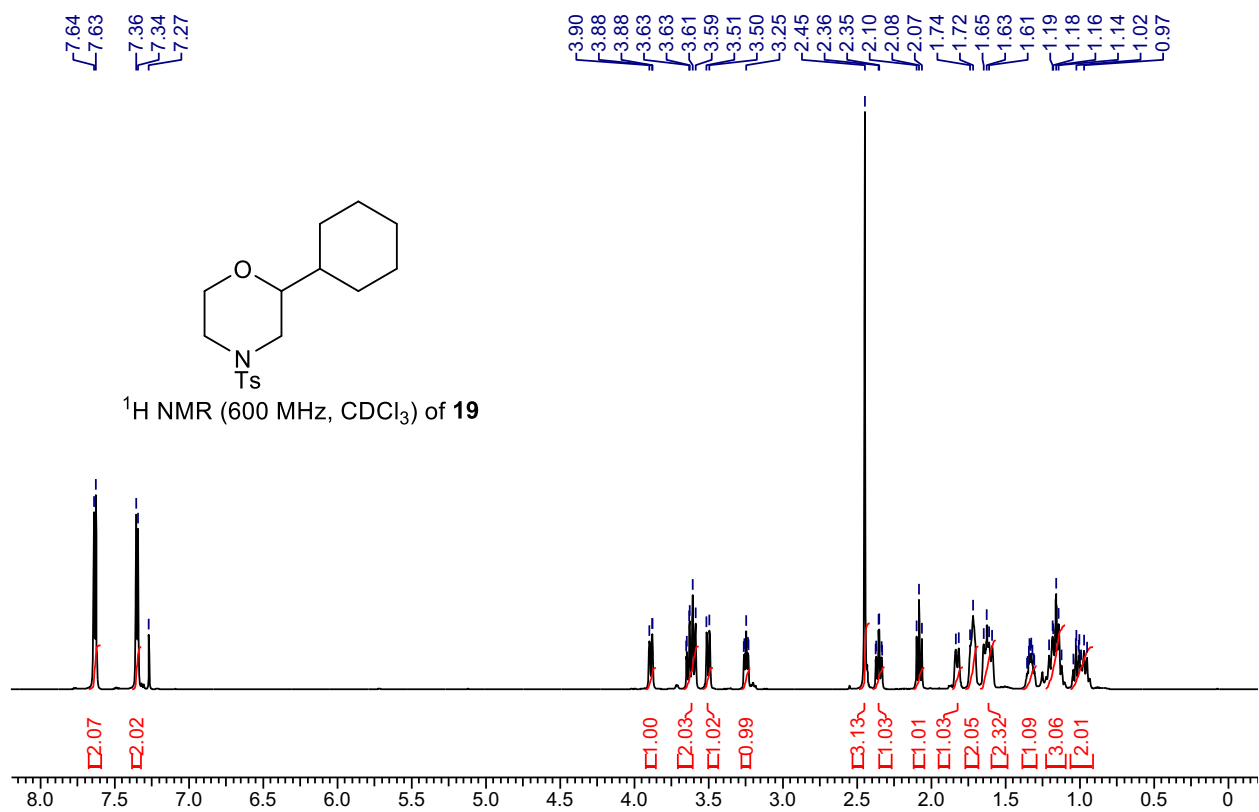


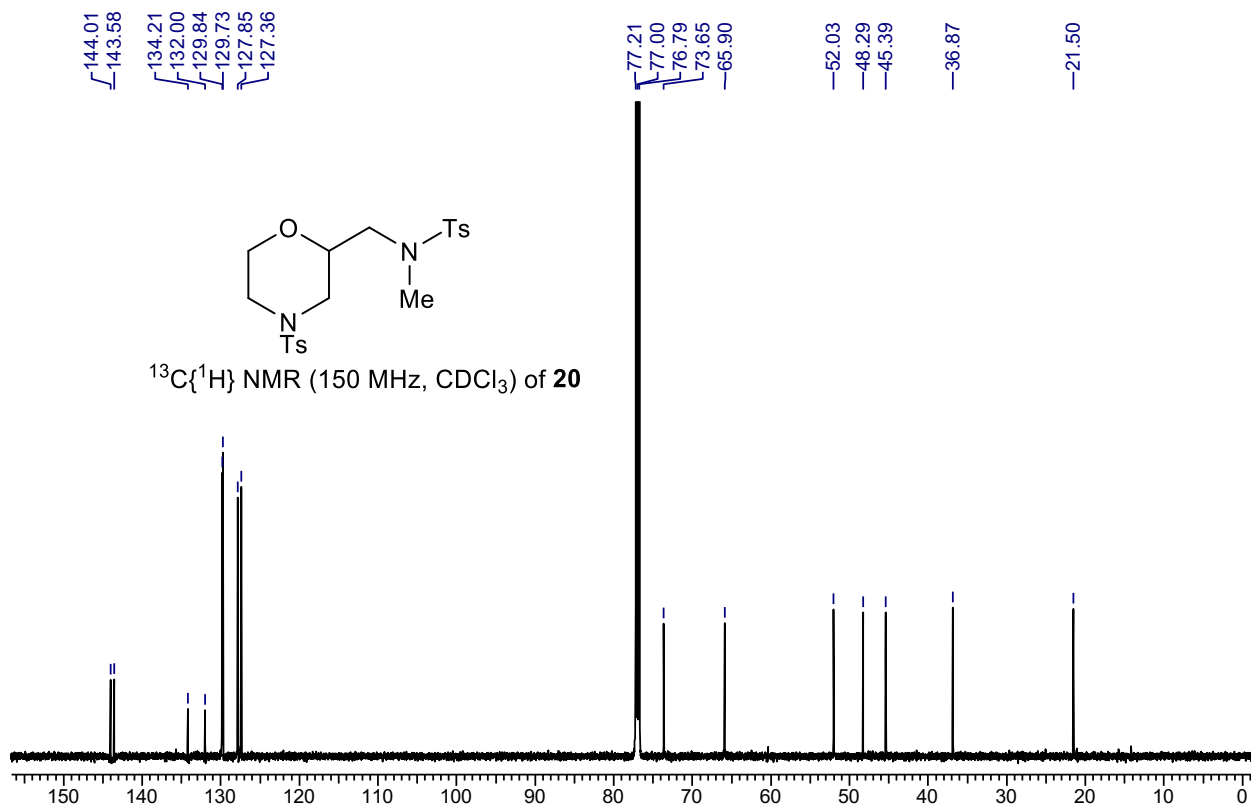
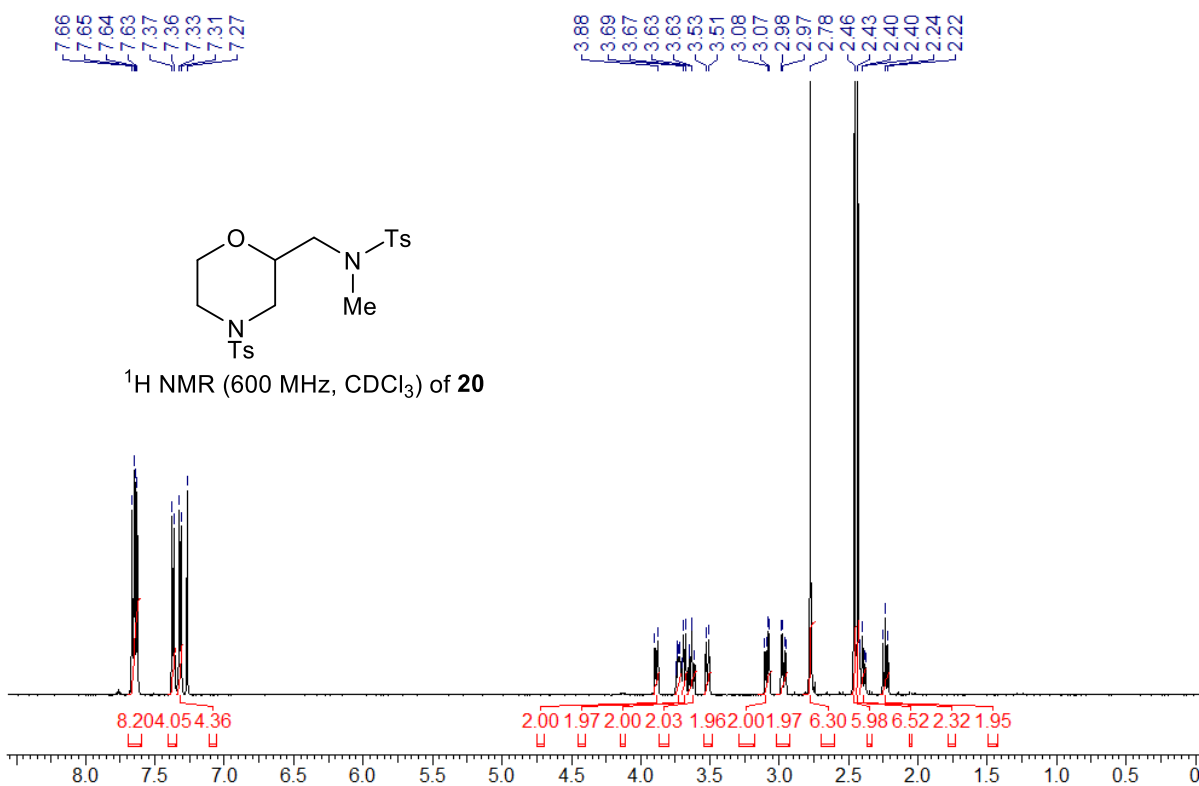


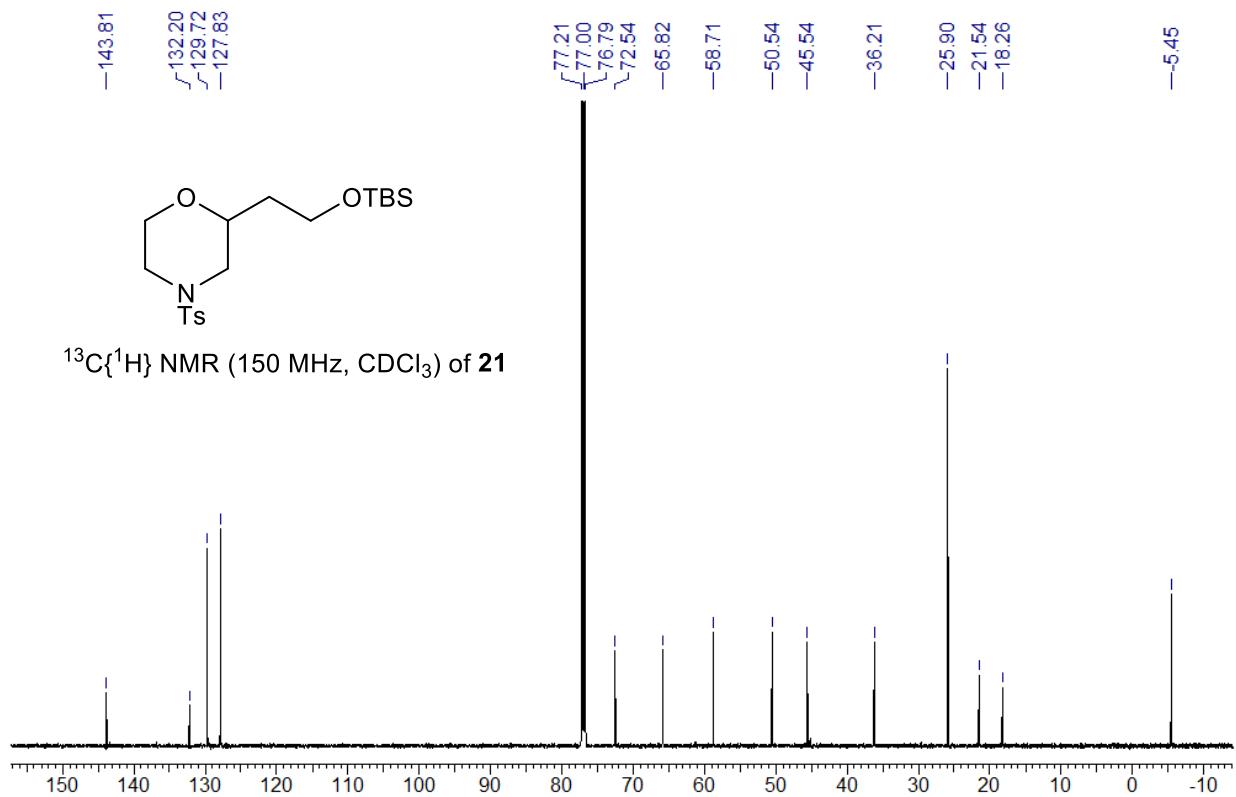
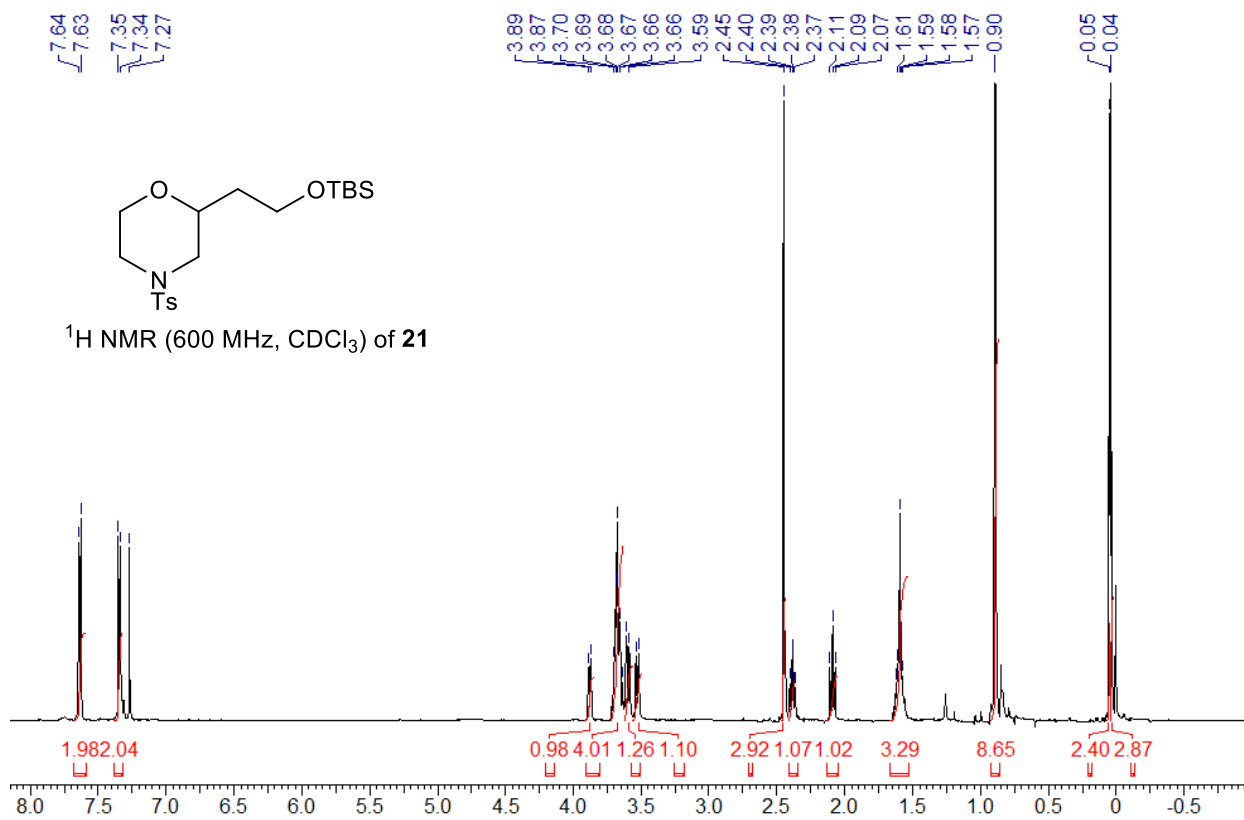


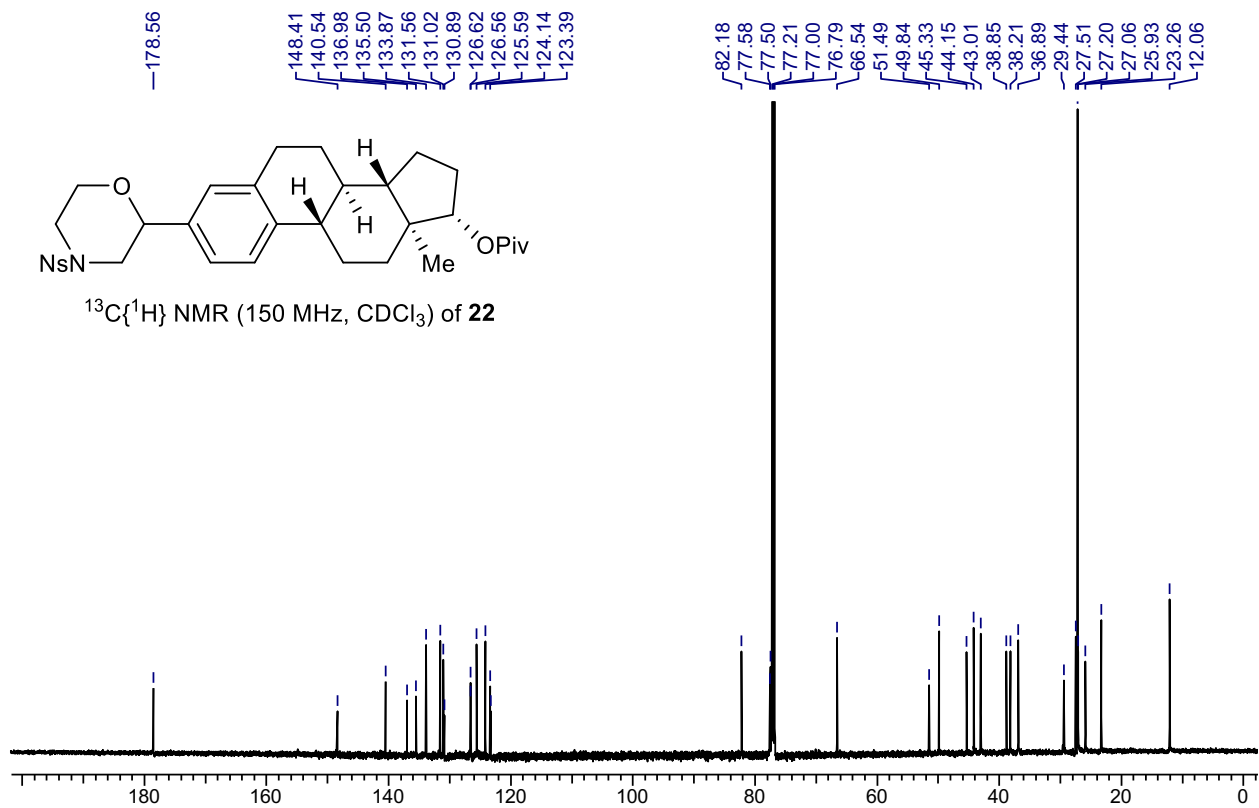
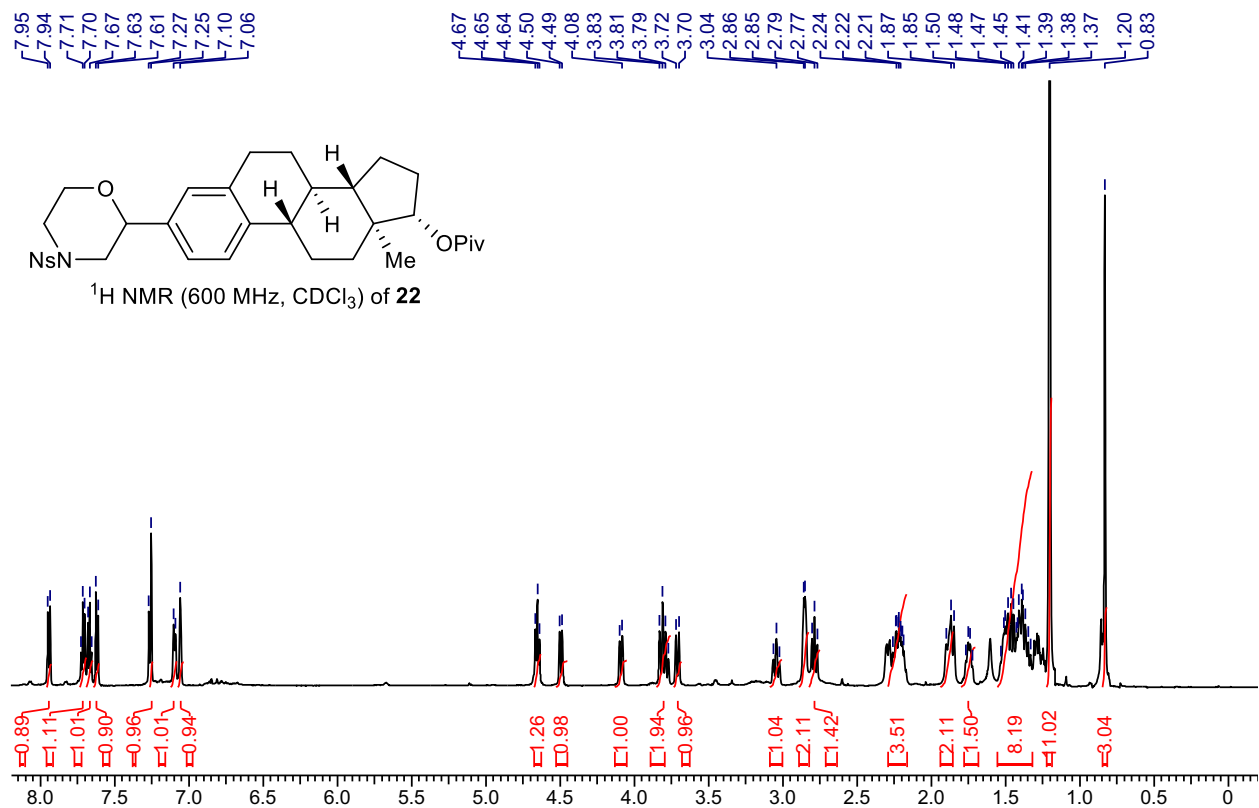


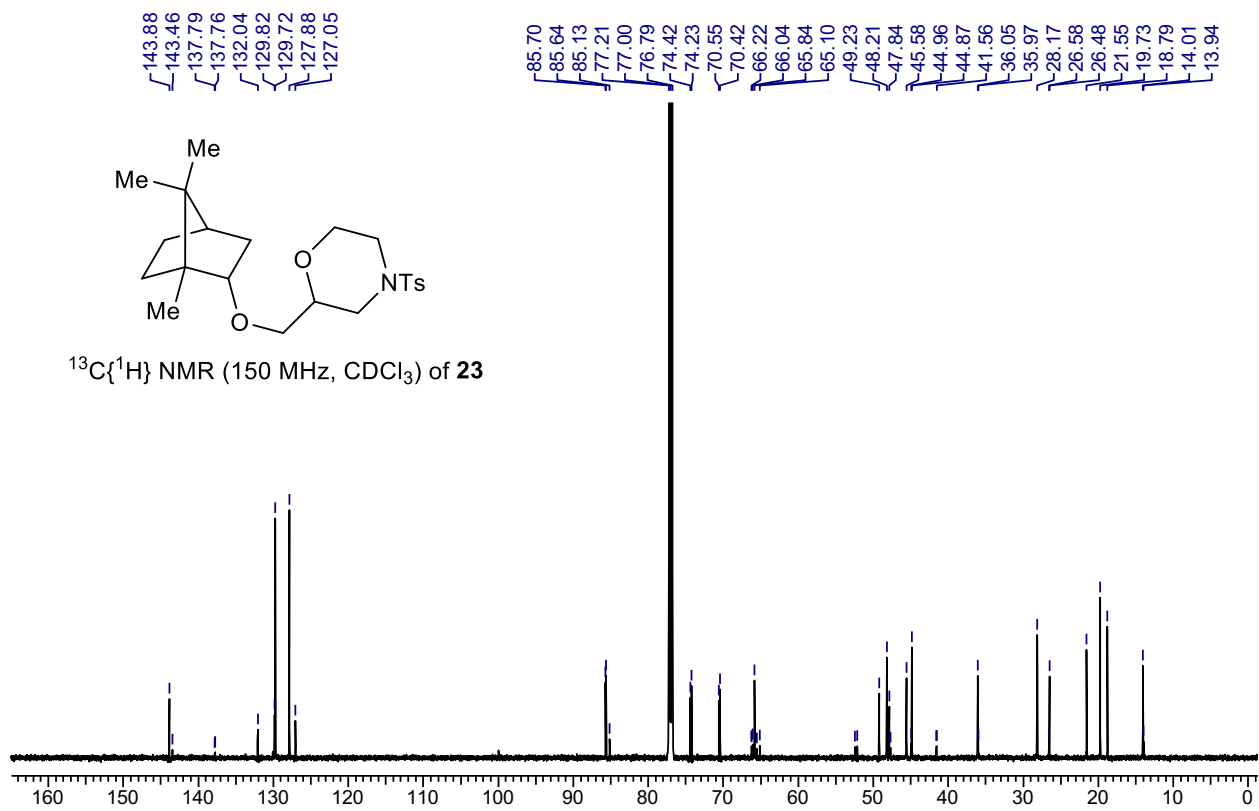
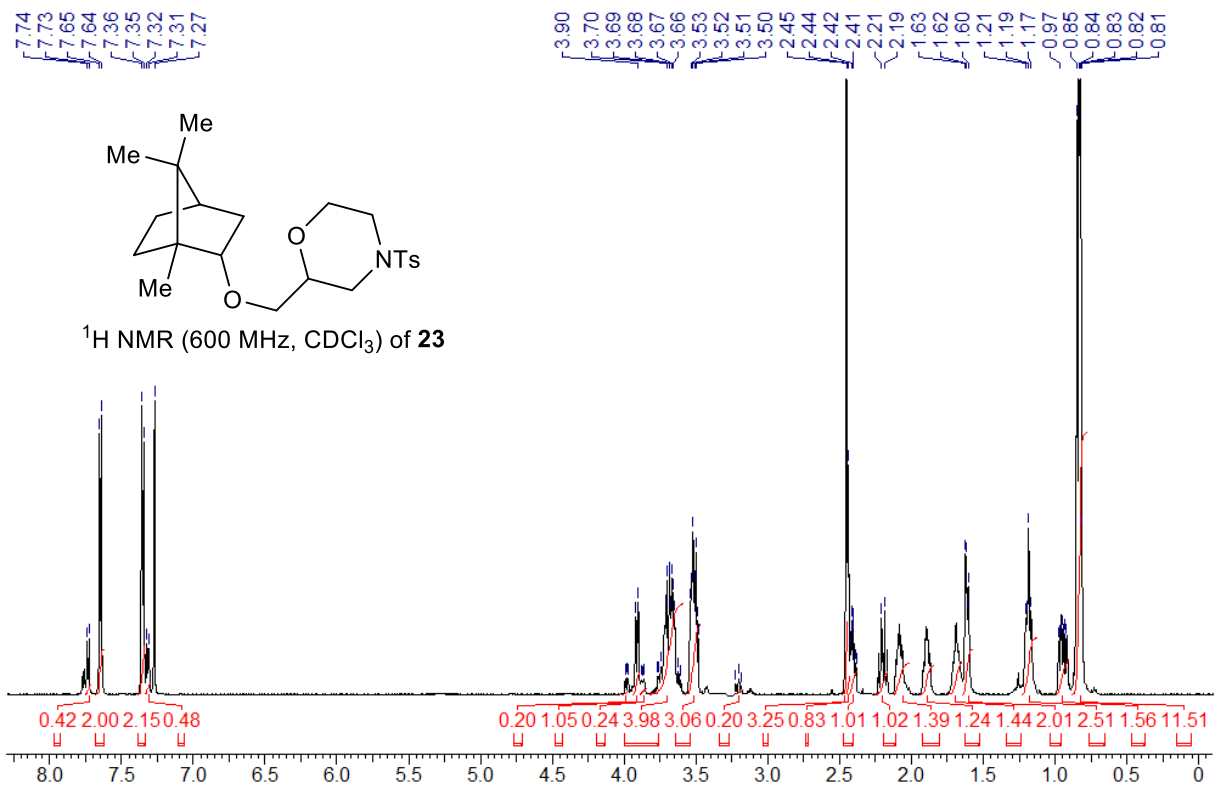


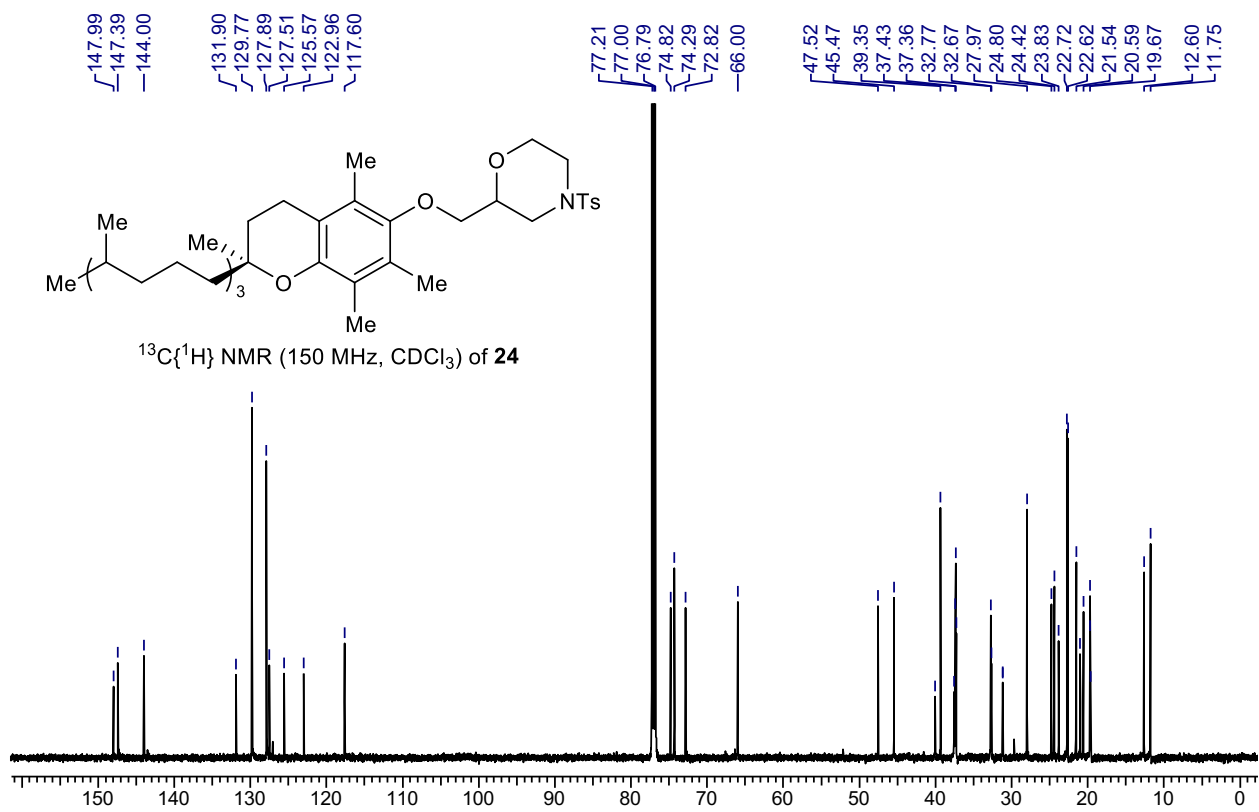
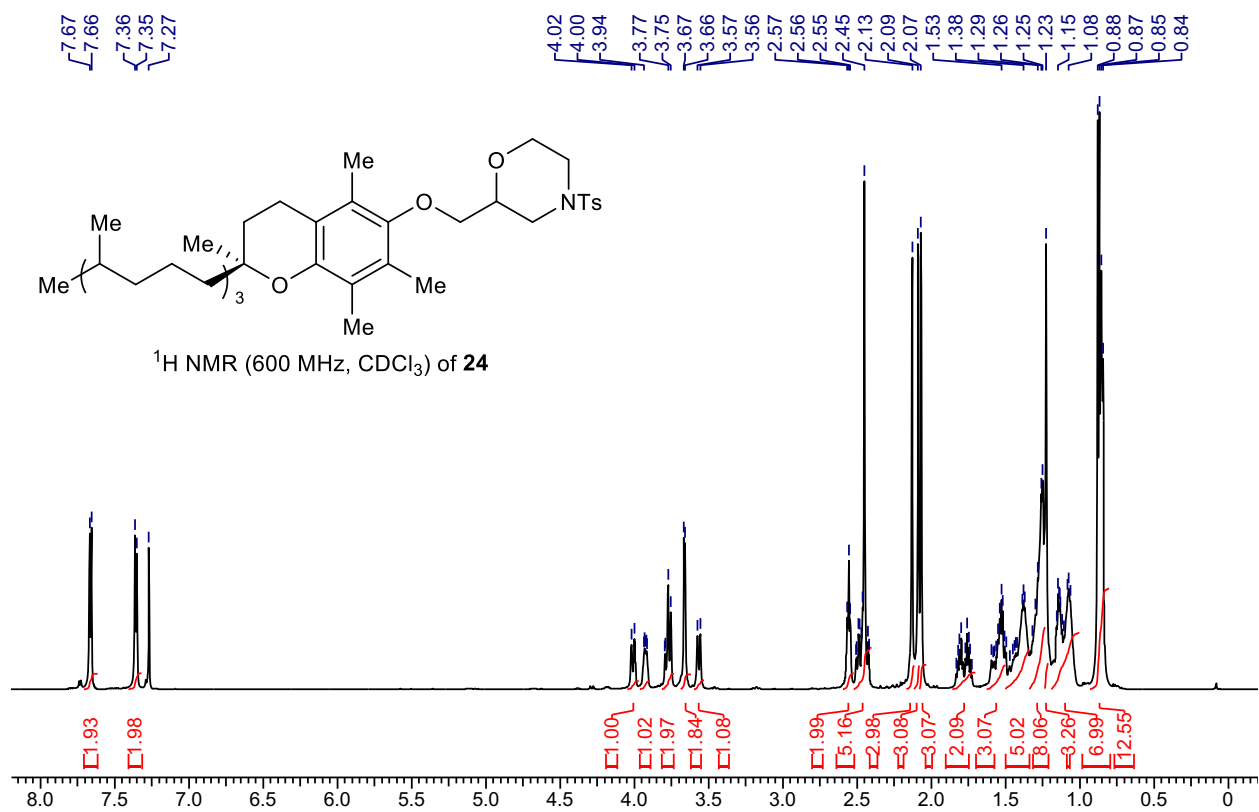


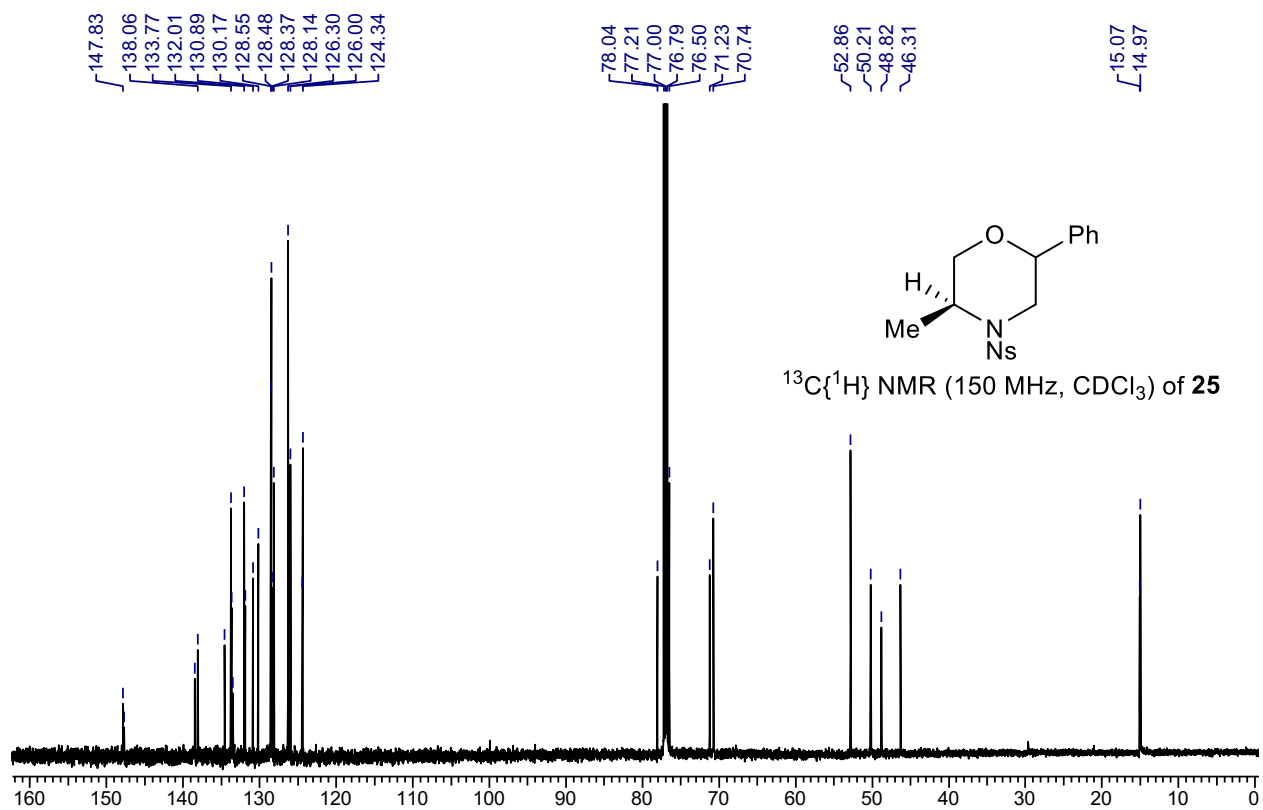
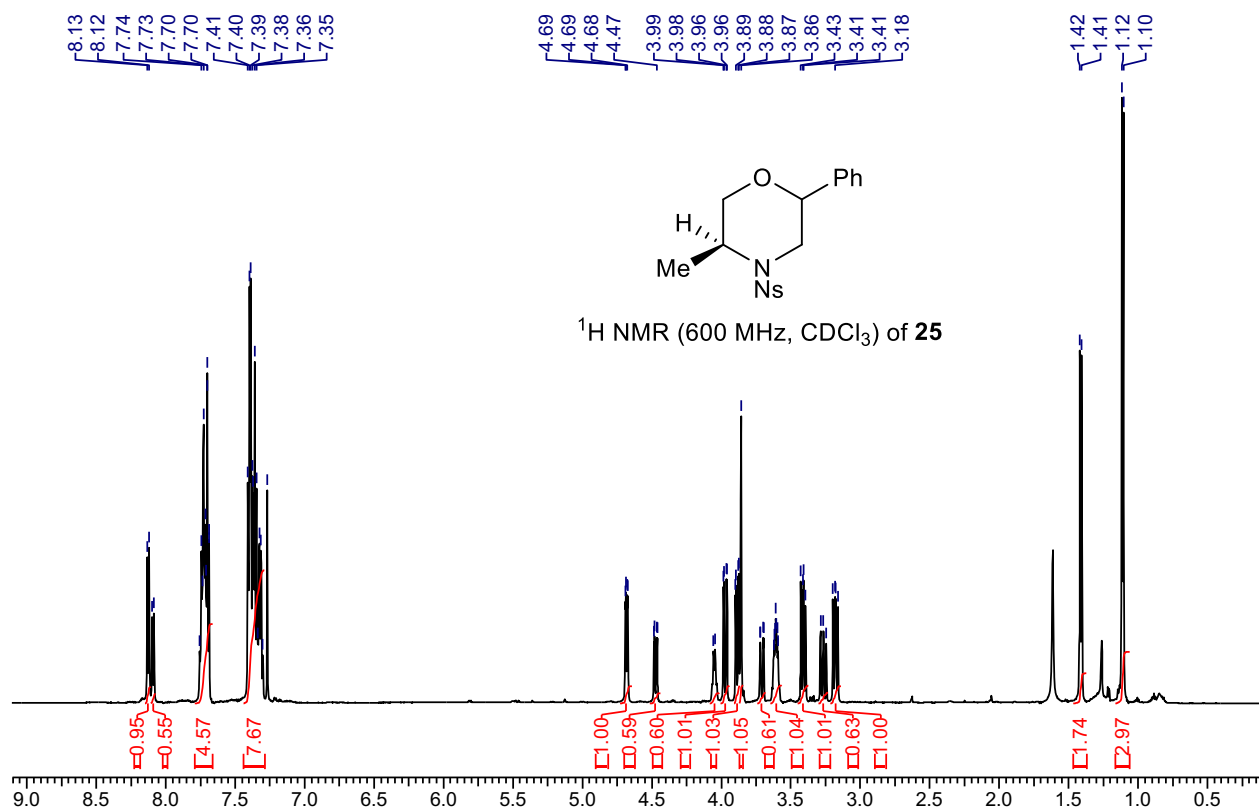


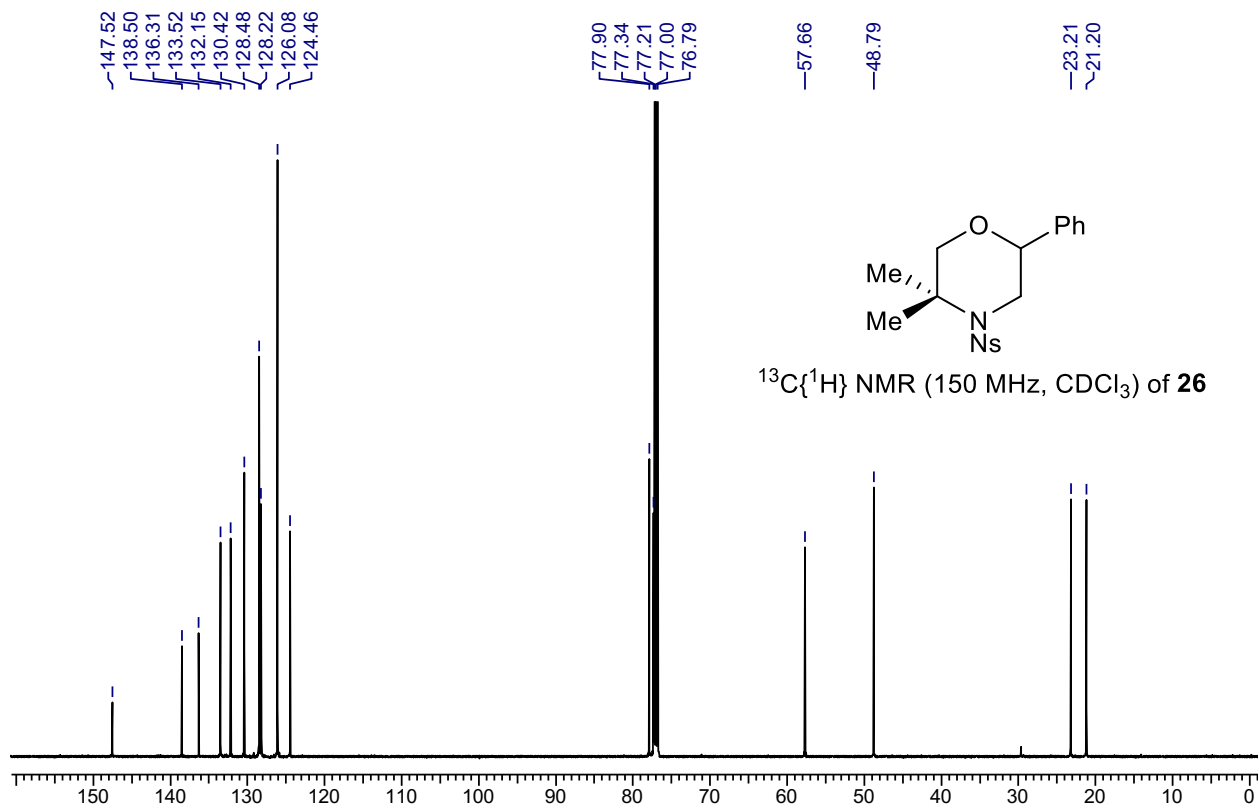
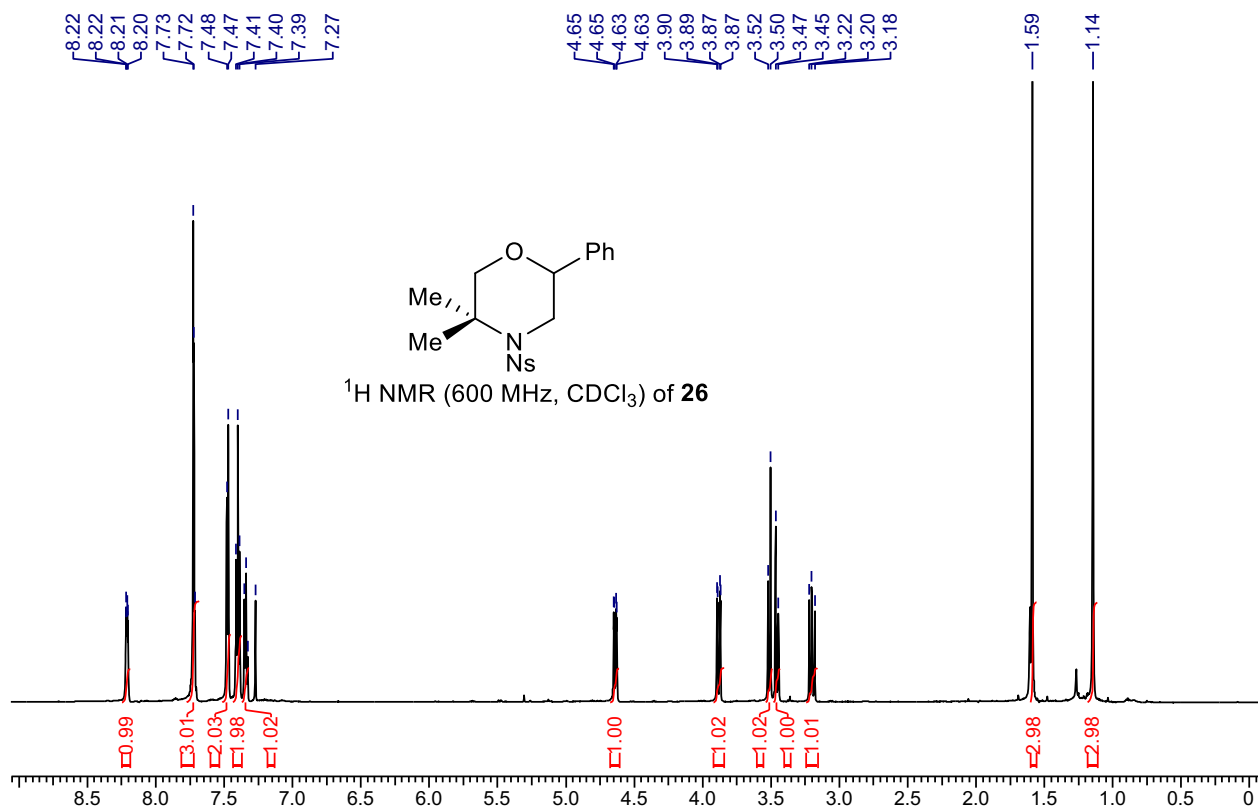




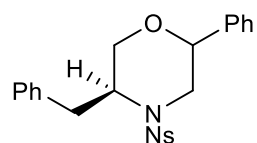




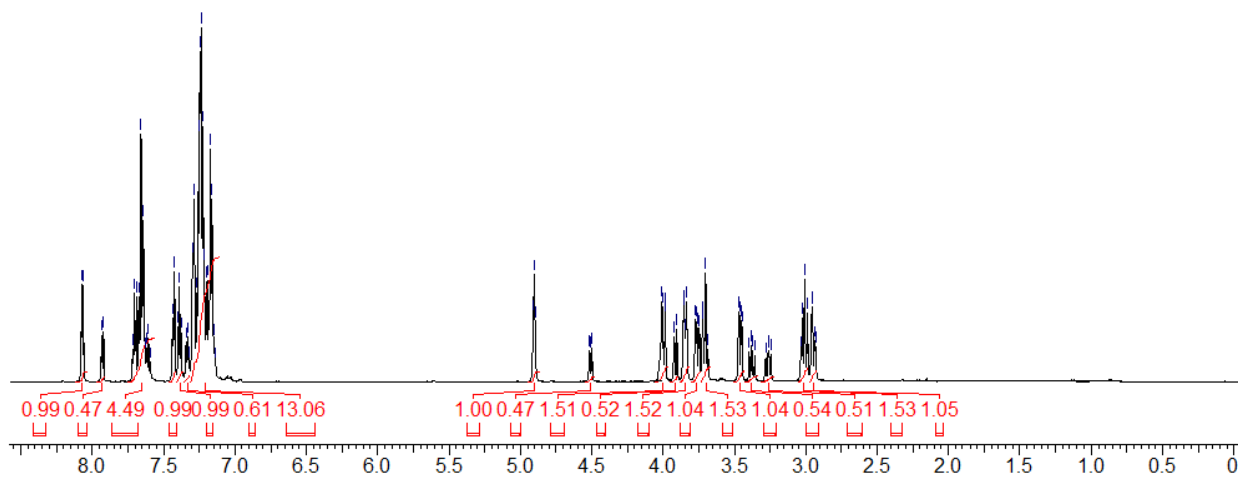




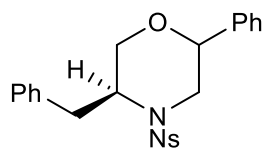
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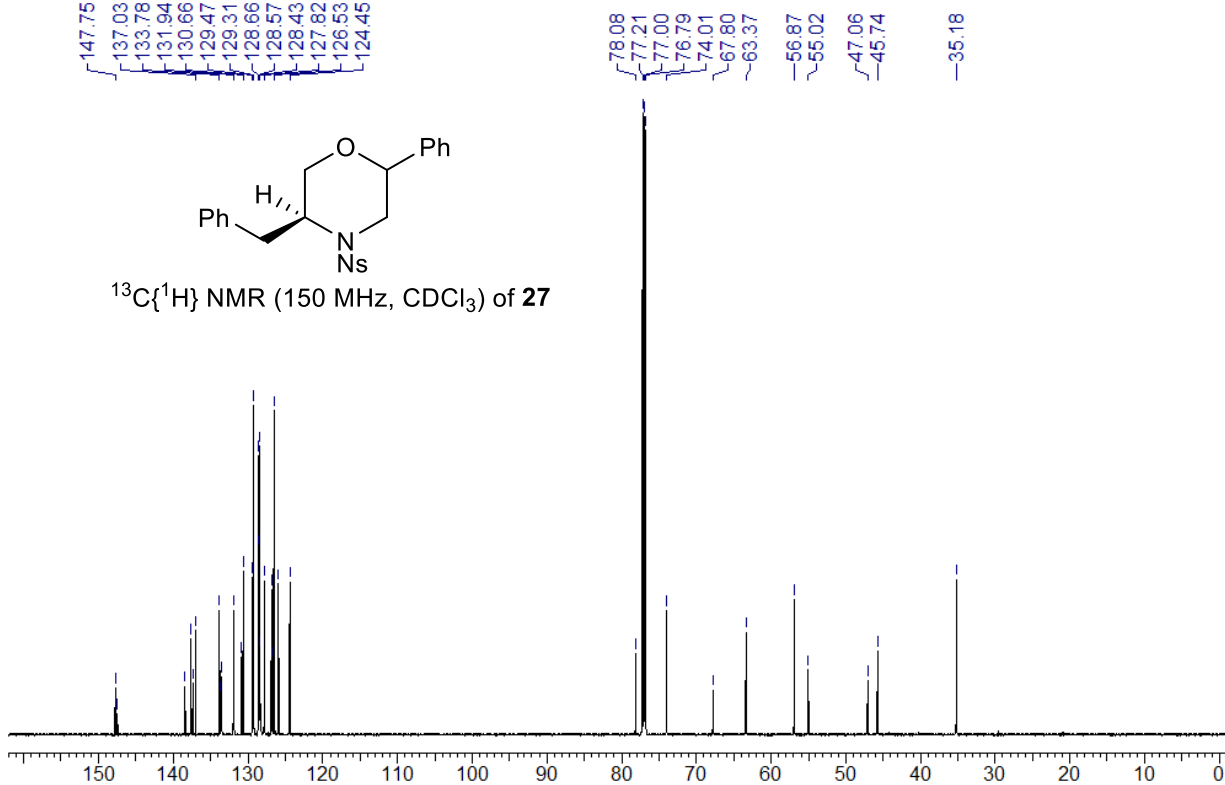
^1H NMR (600 MHz, CDCl_3) of **27**

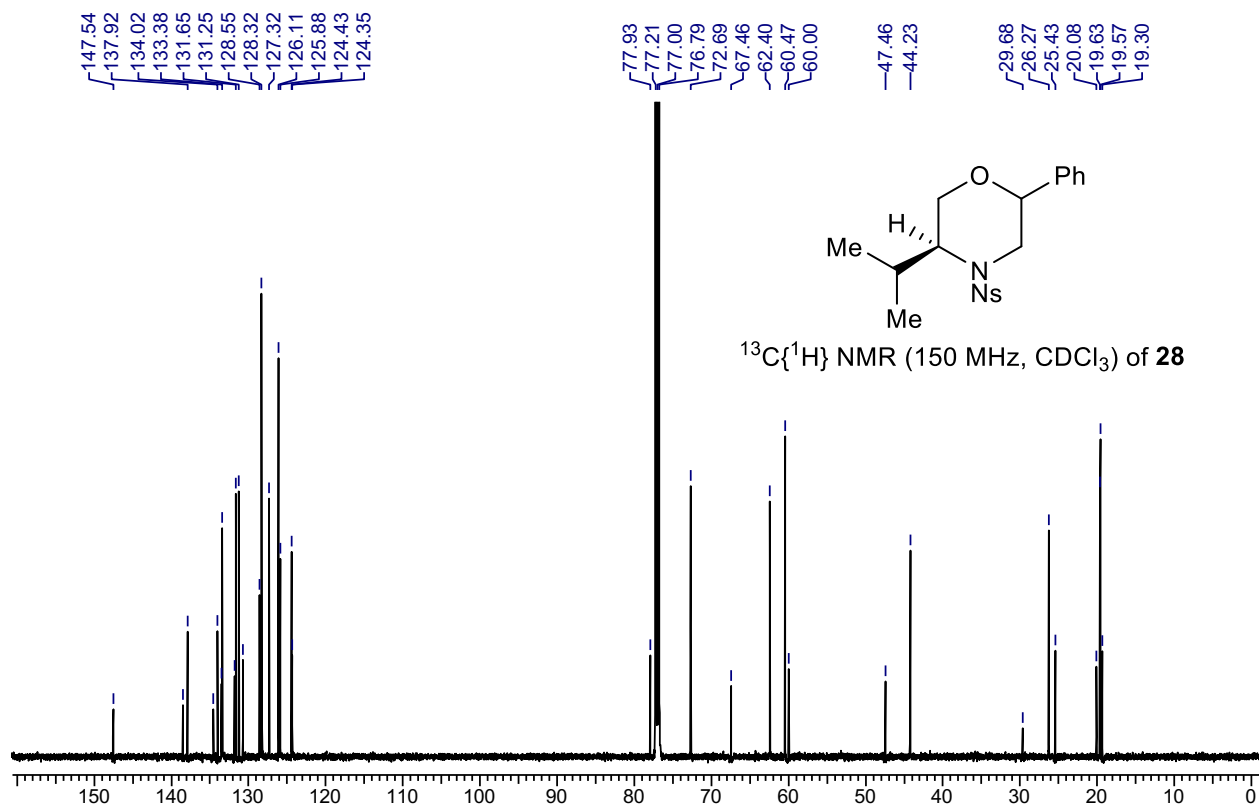
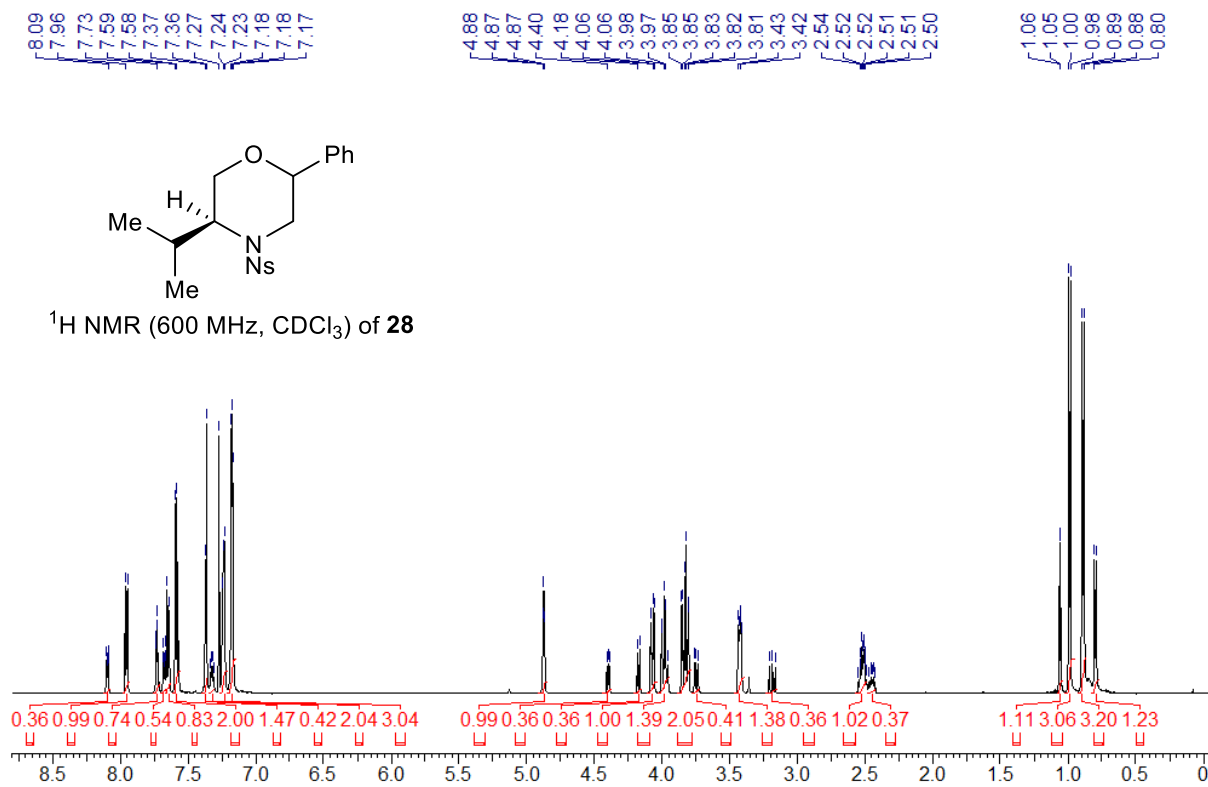


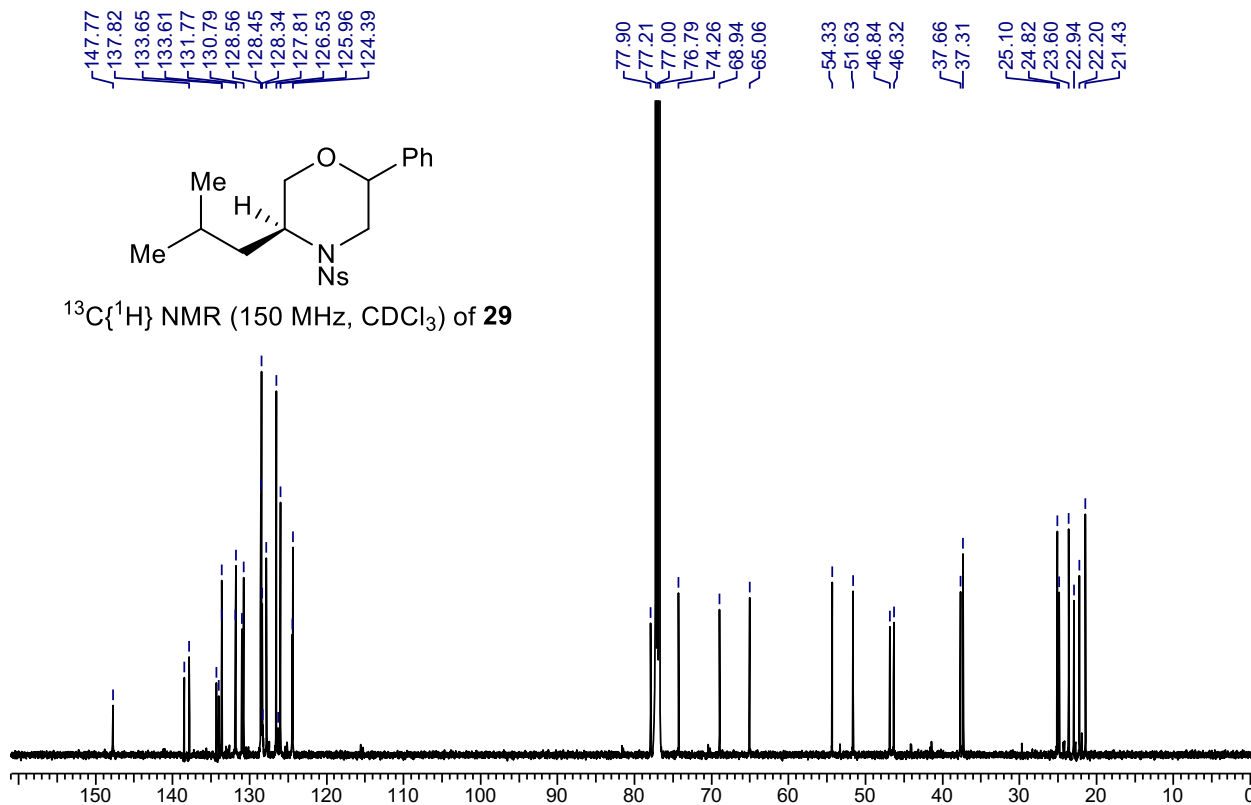
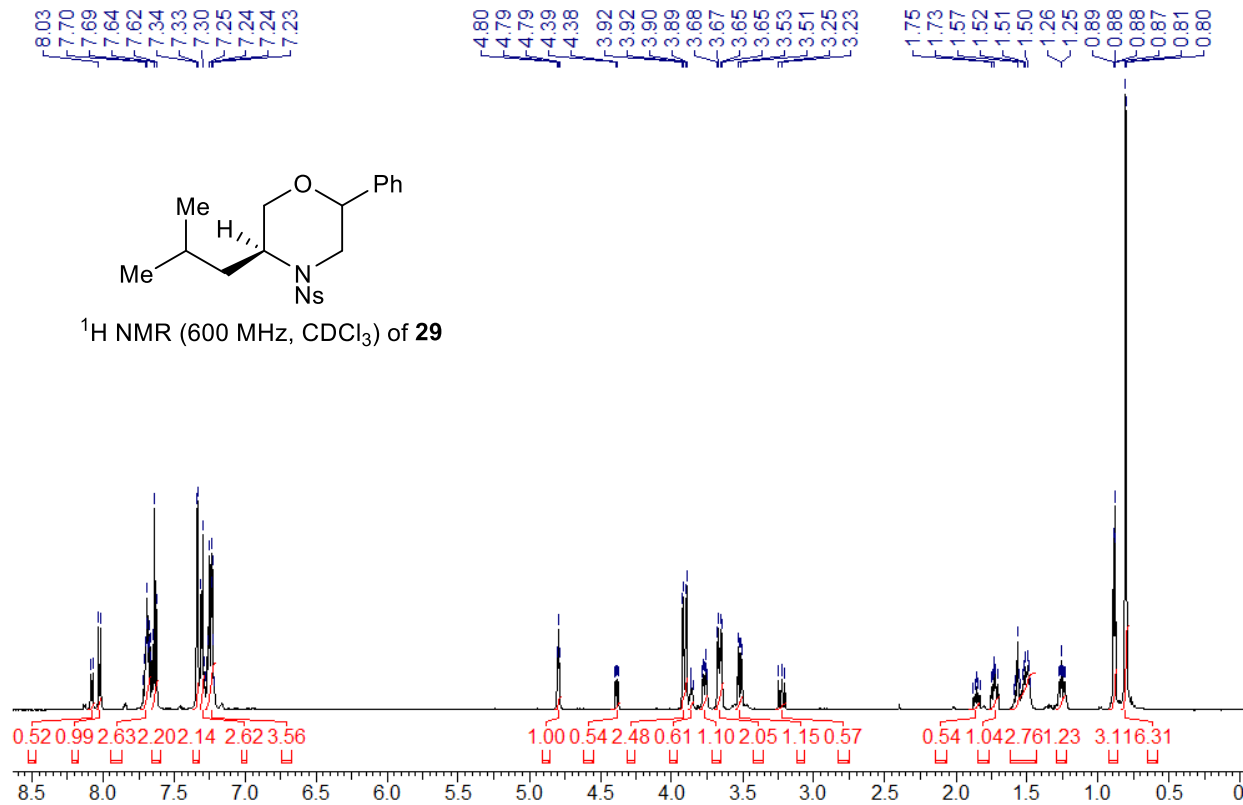
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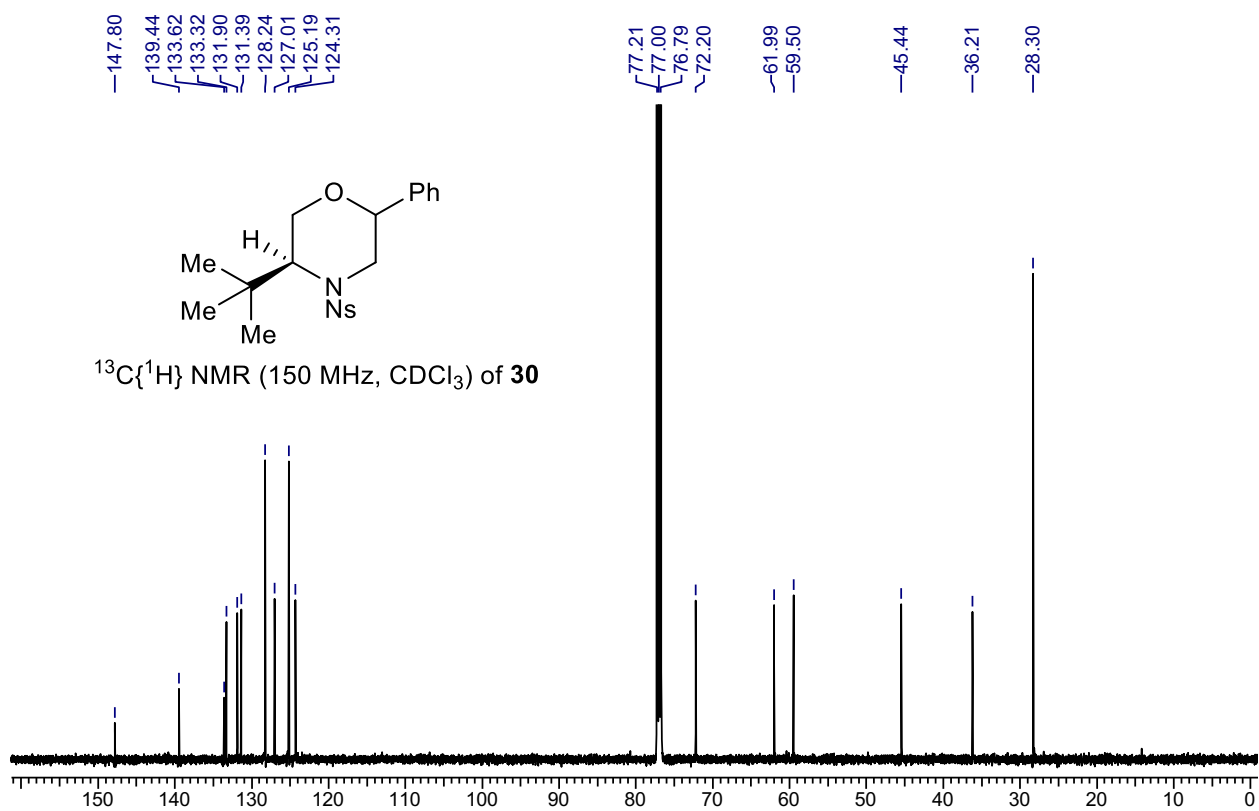
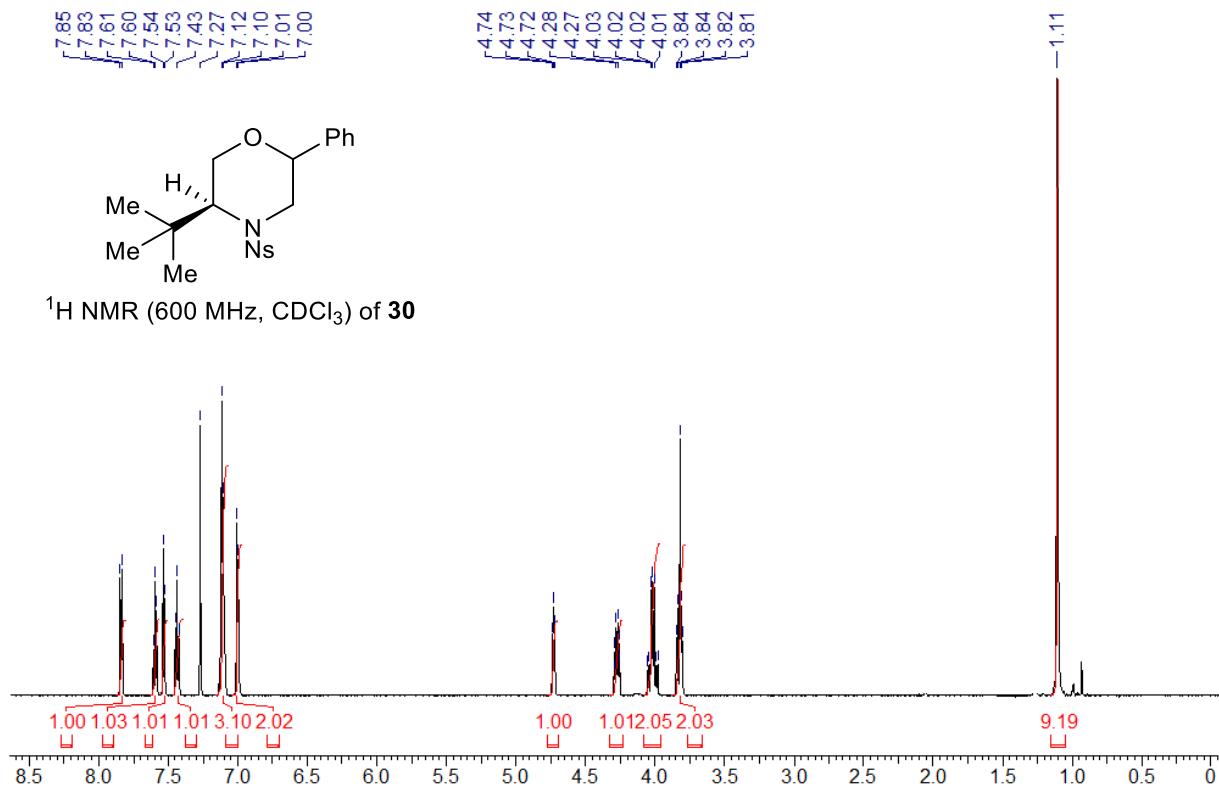


$^{13}\text{C}\{^1\text{H}\}$ NMR (150 MHz, CDCl_3) of **27**



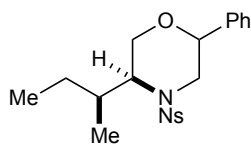




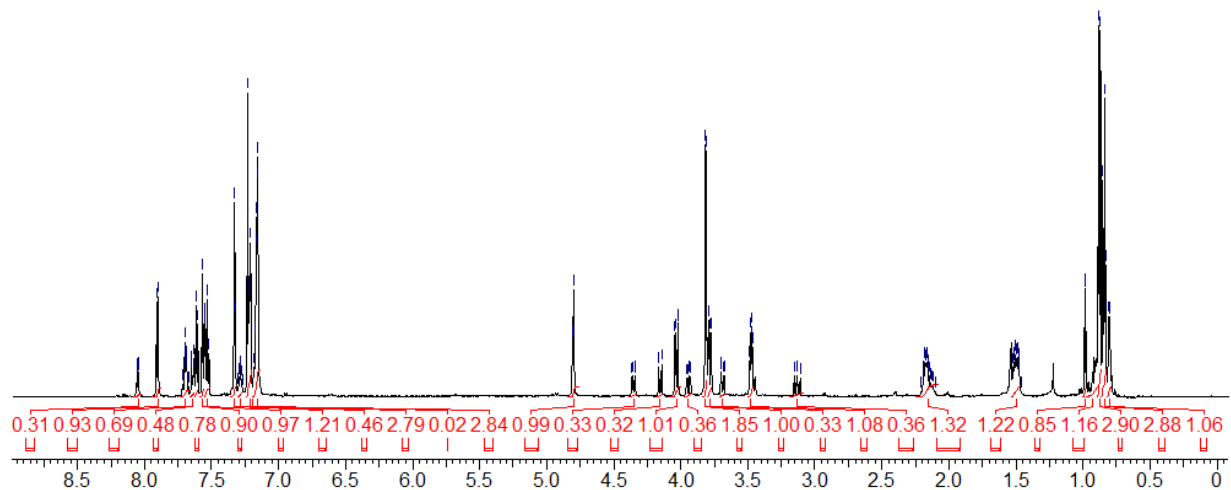


8.04
7.91
7.90
7.62
7.57
7.54
7.33
7.23
7.21
7.17
7.17
7.16

4.81
4.80
4.36
4.14
4.04
4.03
4.02
3.82
3.81
3.80
3.79
3.78
3.77
3.48
3.47
2.18
2.17
2.17
2.16
2.16
2.15
1.51
1.50
1.49
1.49
0.99
0.88
0.87
0.85
0.84
0.83

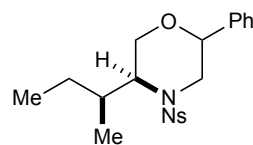


^1H NMR (600 MHz, CDCl_3) of **31**

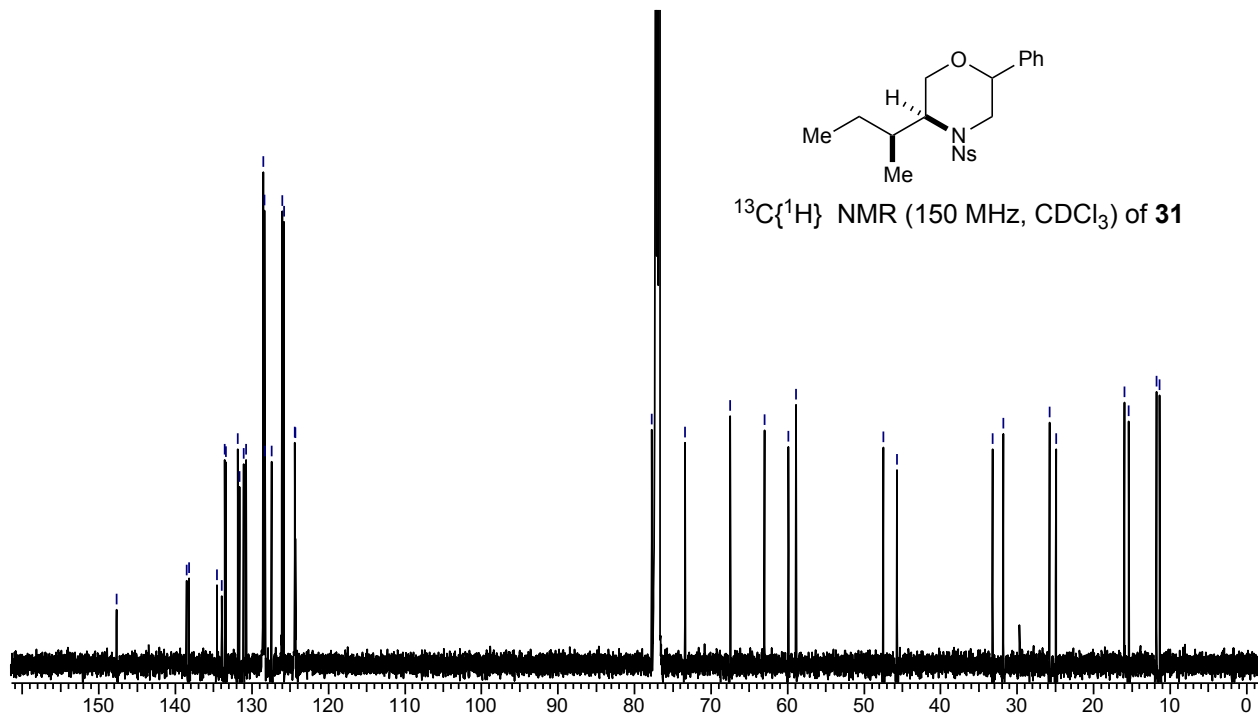


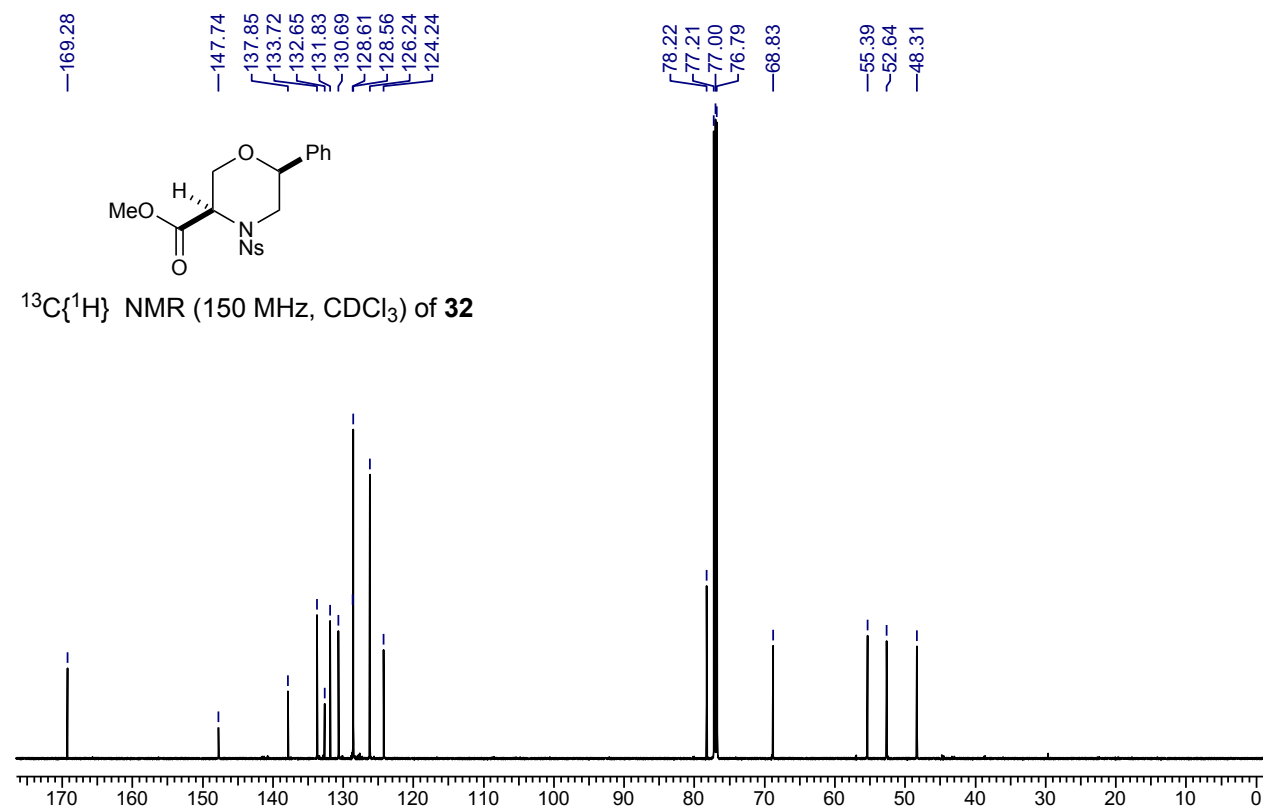
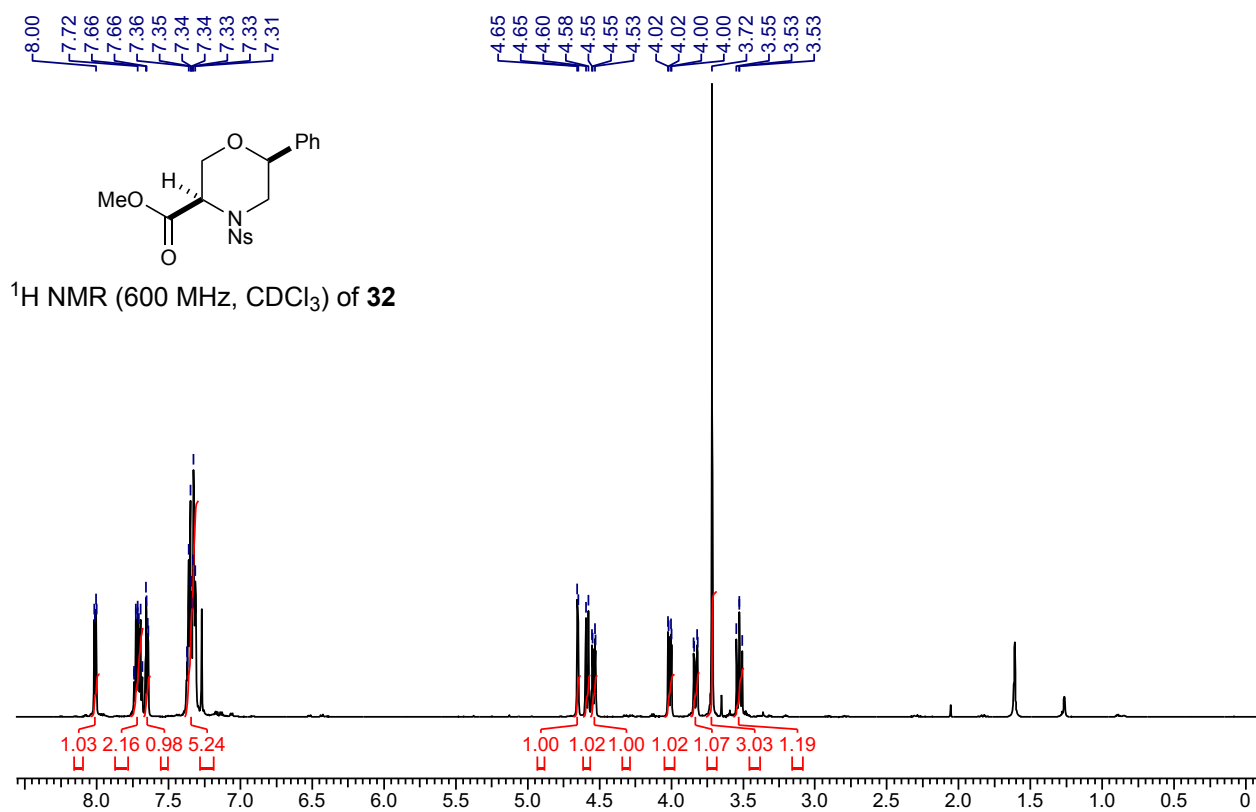
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133.54
133.41
131.83
130.75
128.56
128.35
127.46
126.06
125.84
124.39

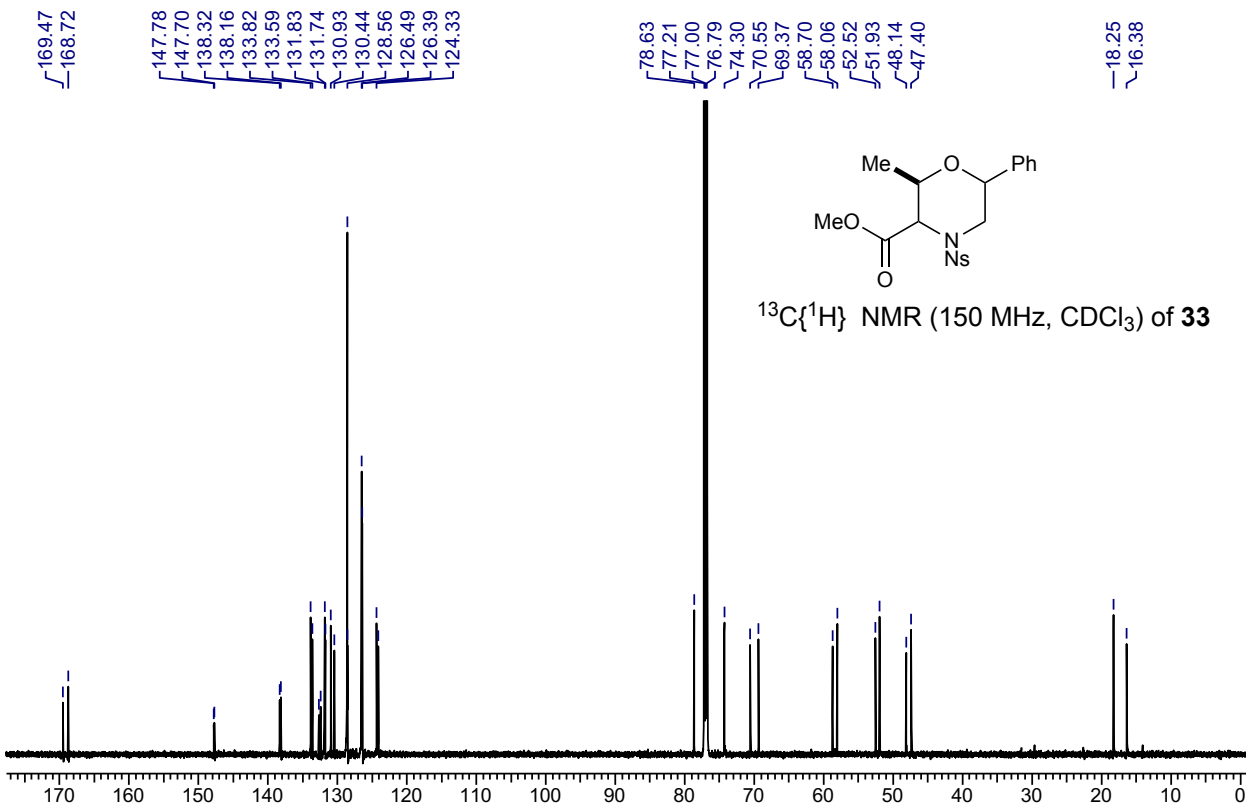
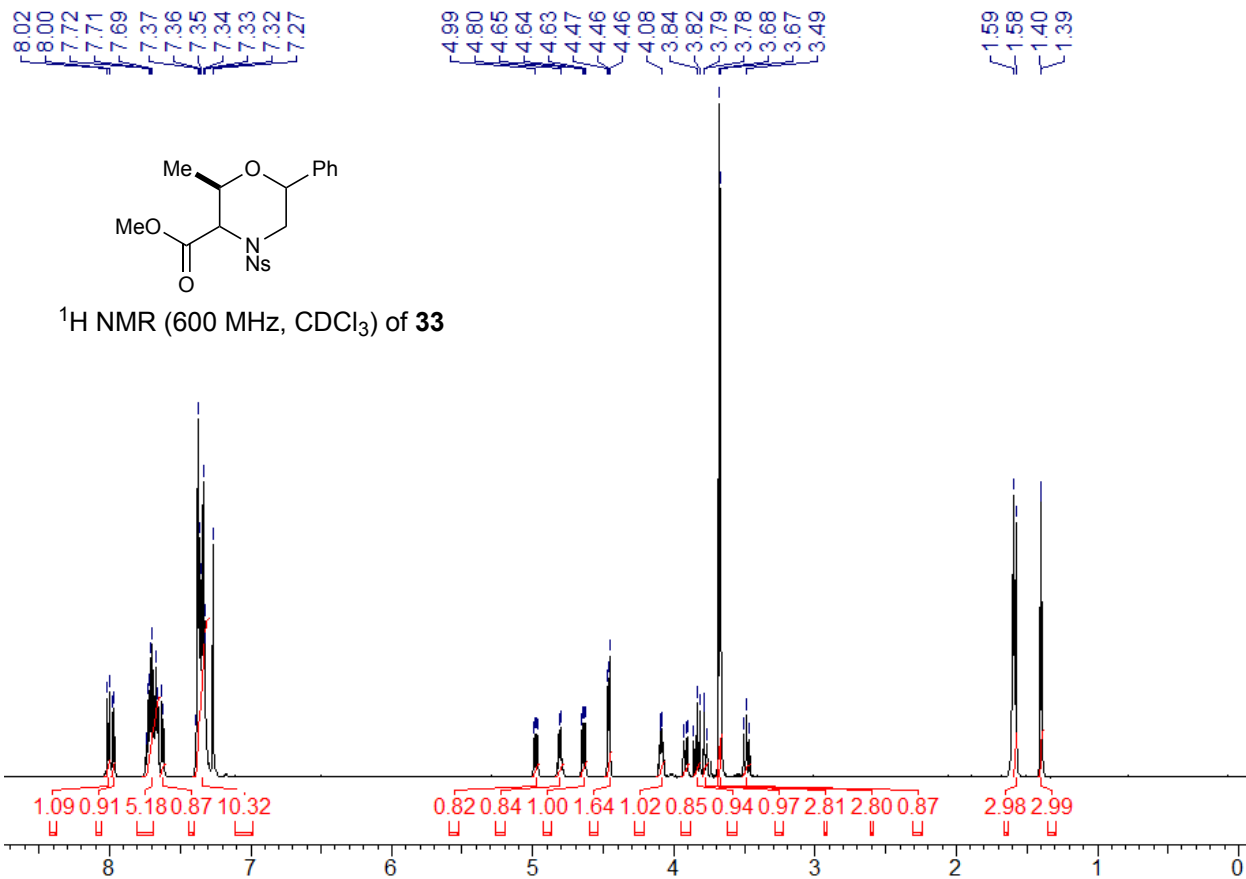
77.73
77.21
77.00
76.78
73.42
67.48
63.04
59.89
58.90
47.52
45.74
33.24
31.82
25.79
24.93
16.01
15.42
11.82
11.36

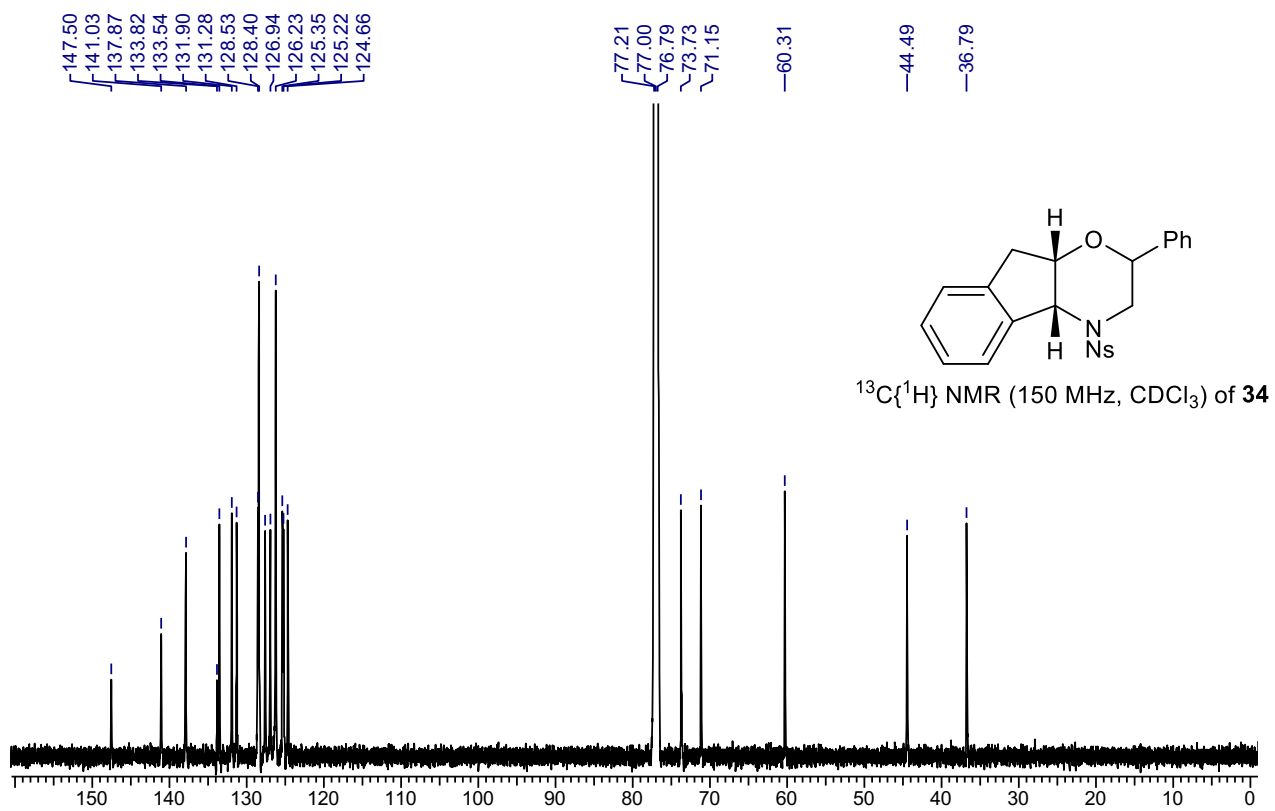
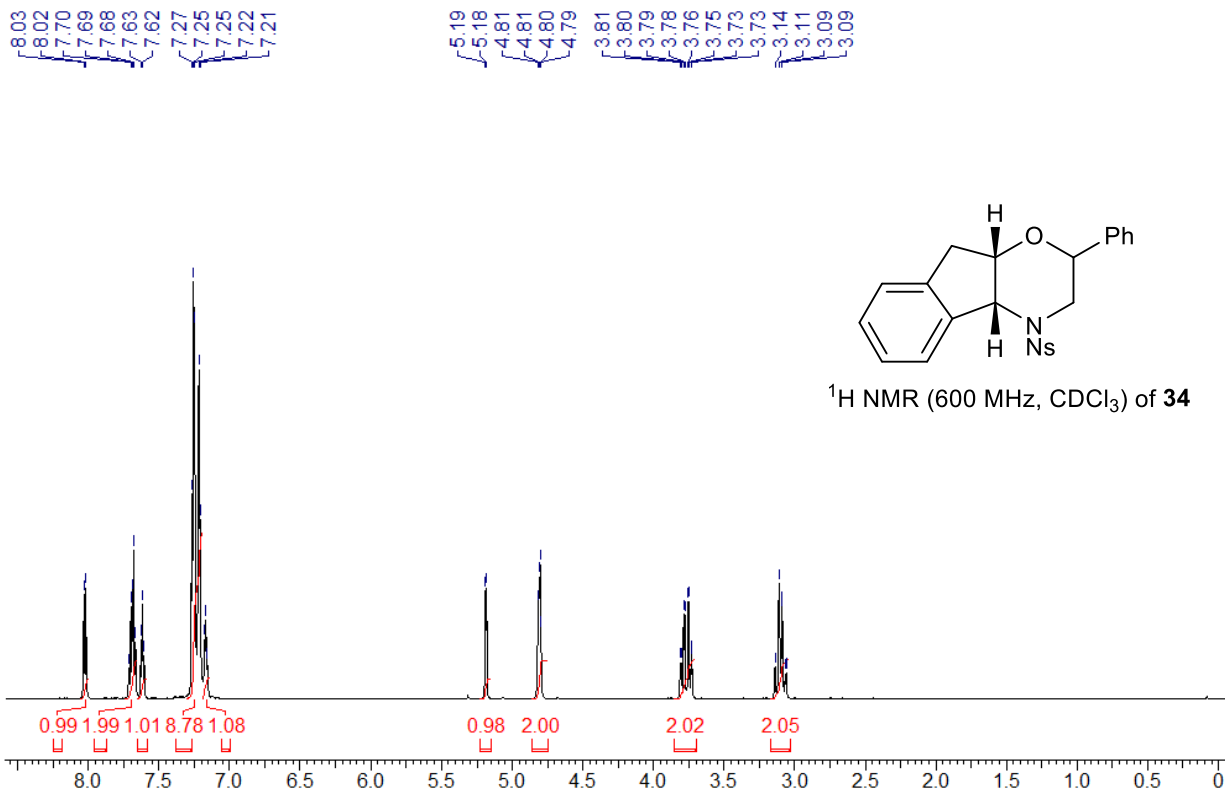


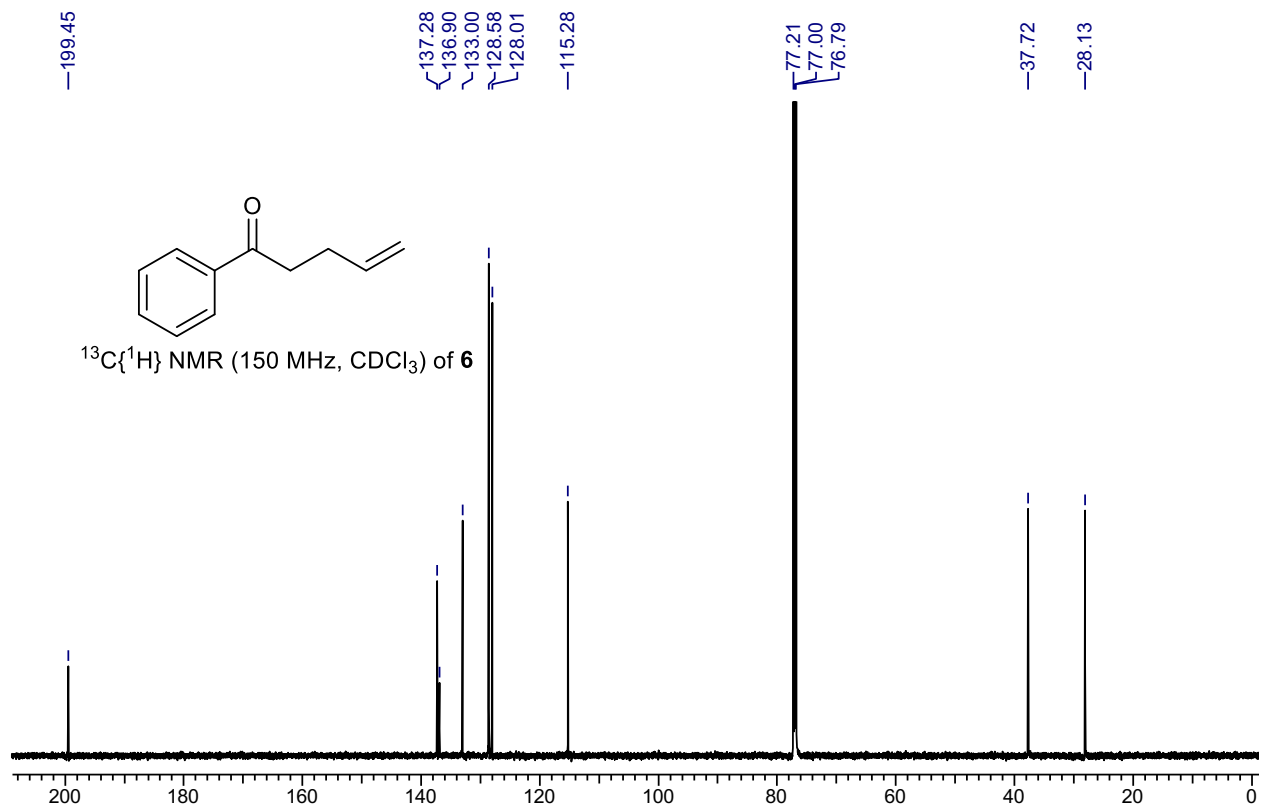
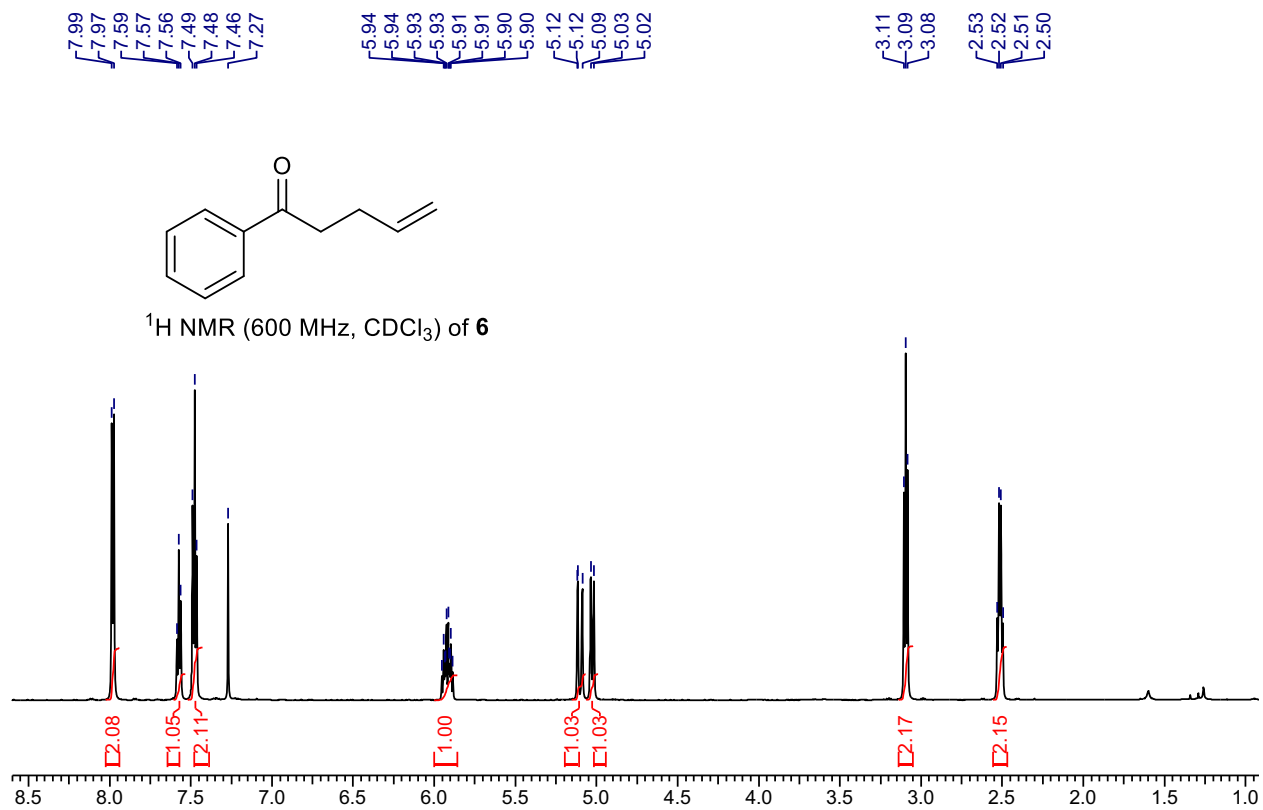
$^{13}\text{C}\{^1\text{H}\}$ NMR (150 MHz, CDCl_3) of **31**

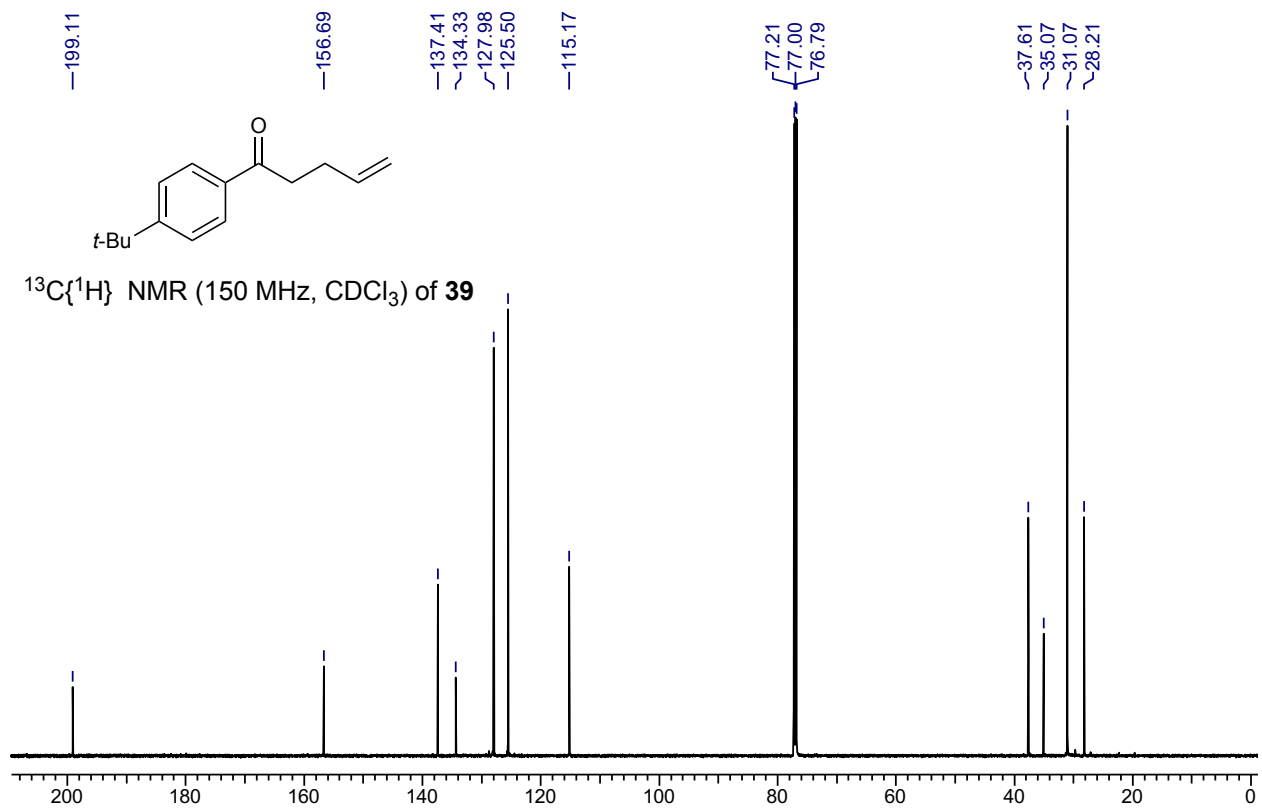
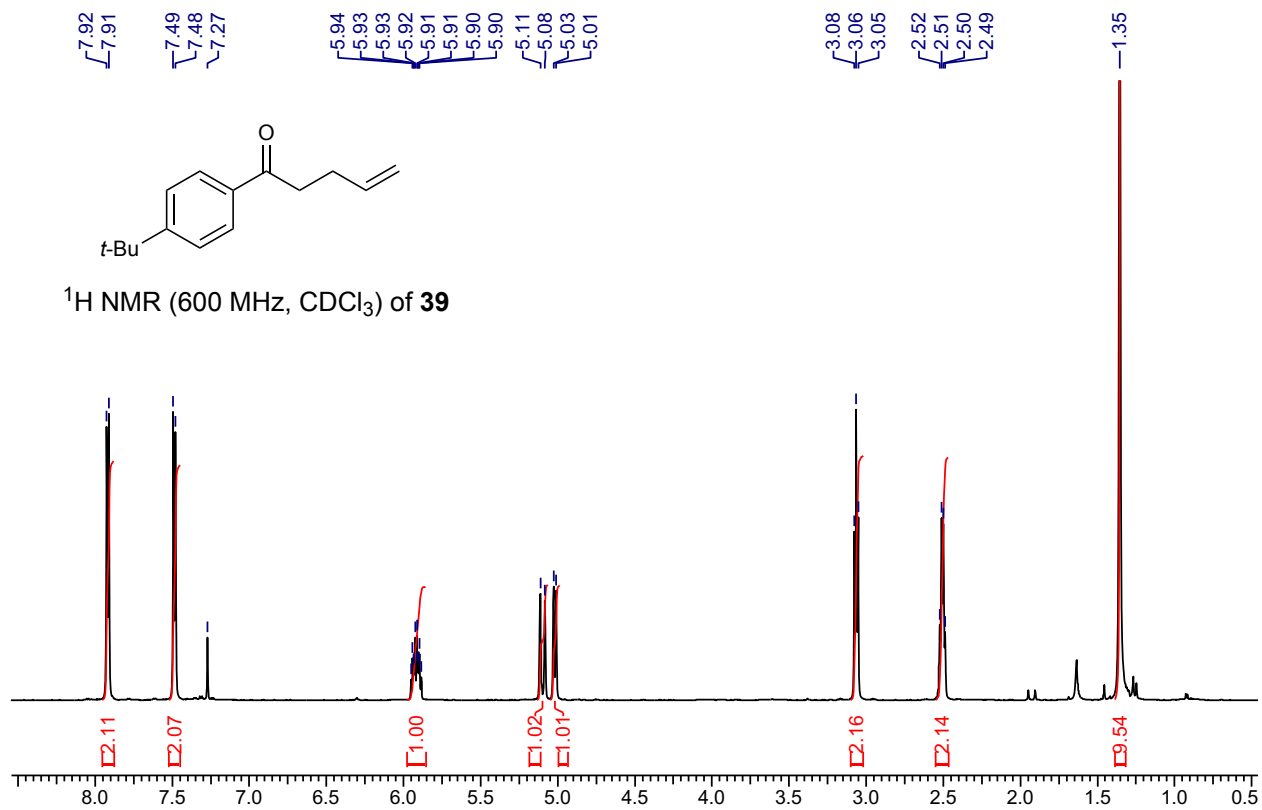


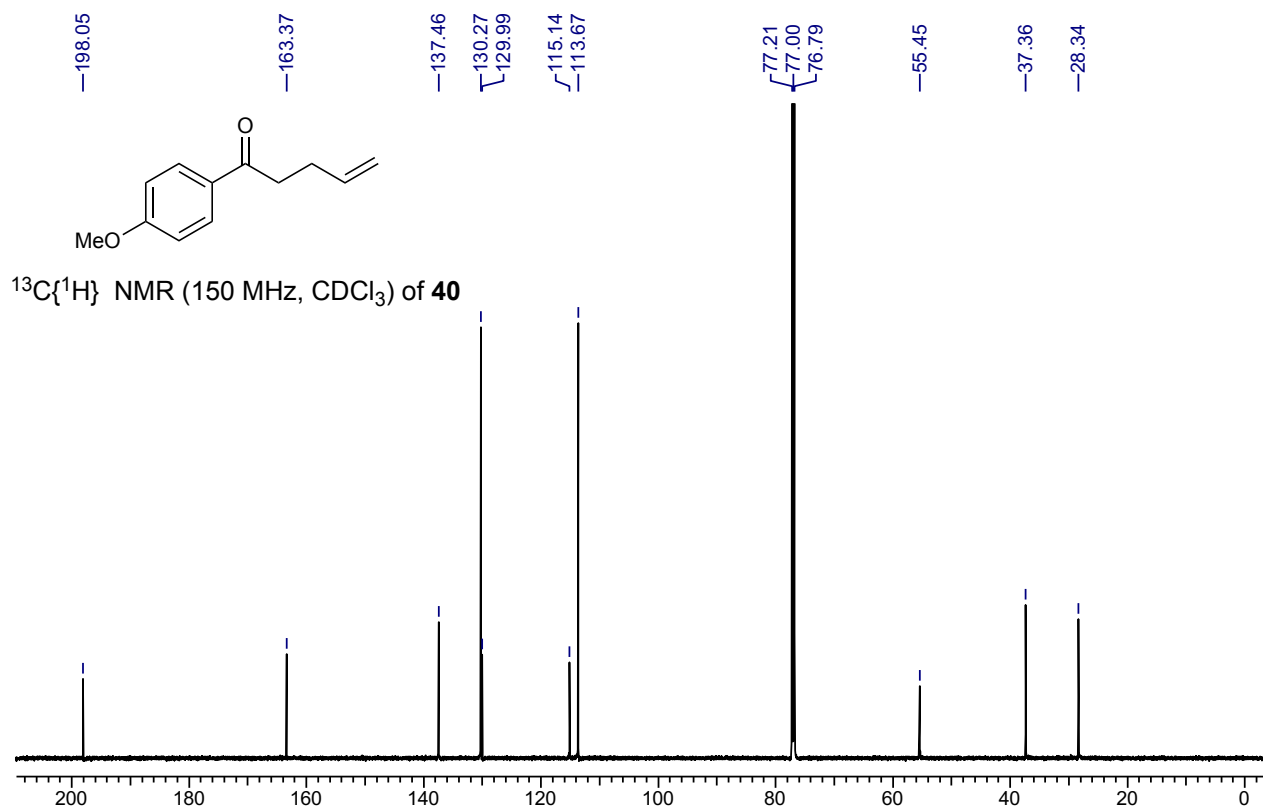
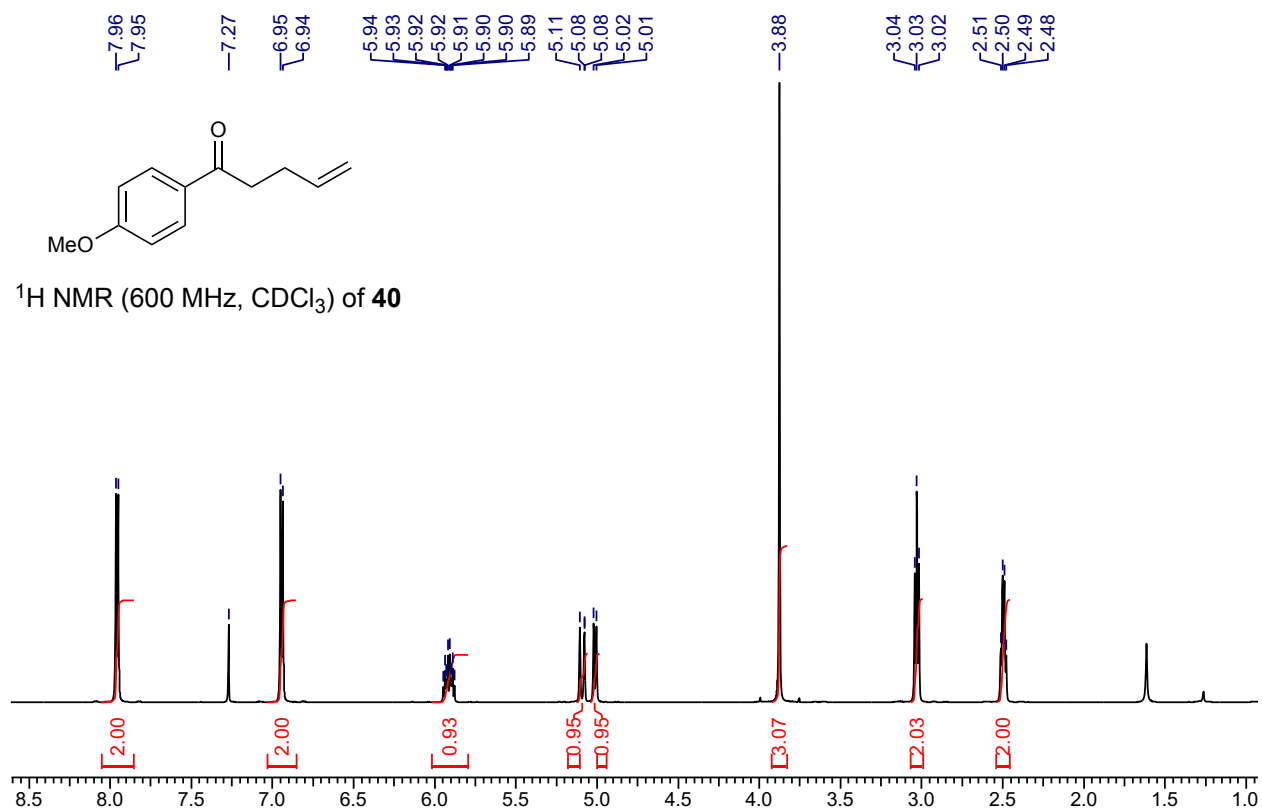


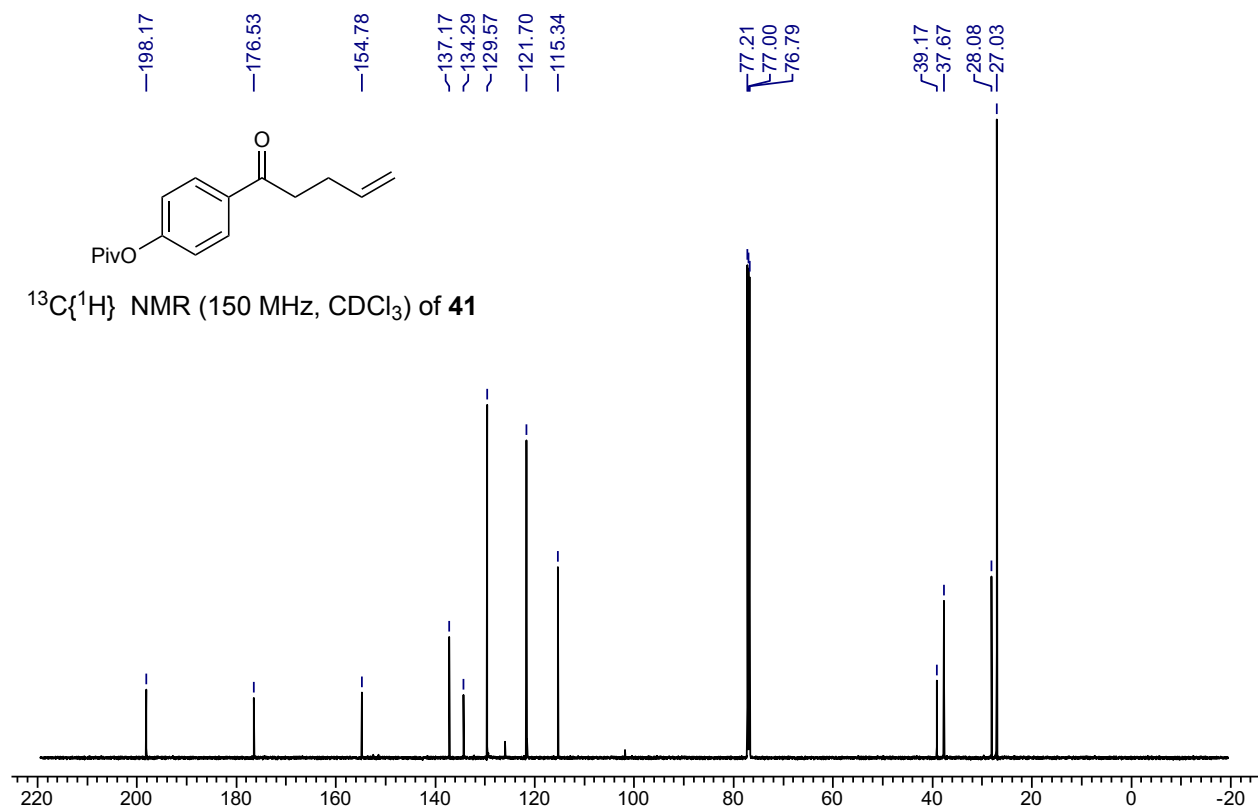
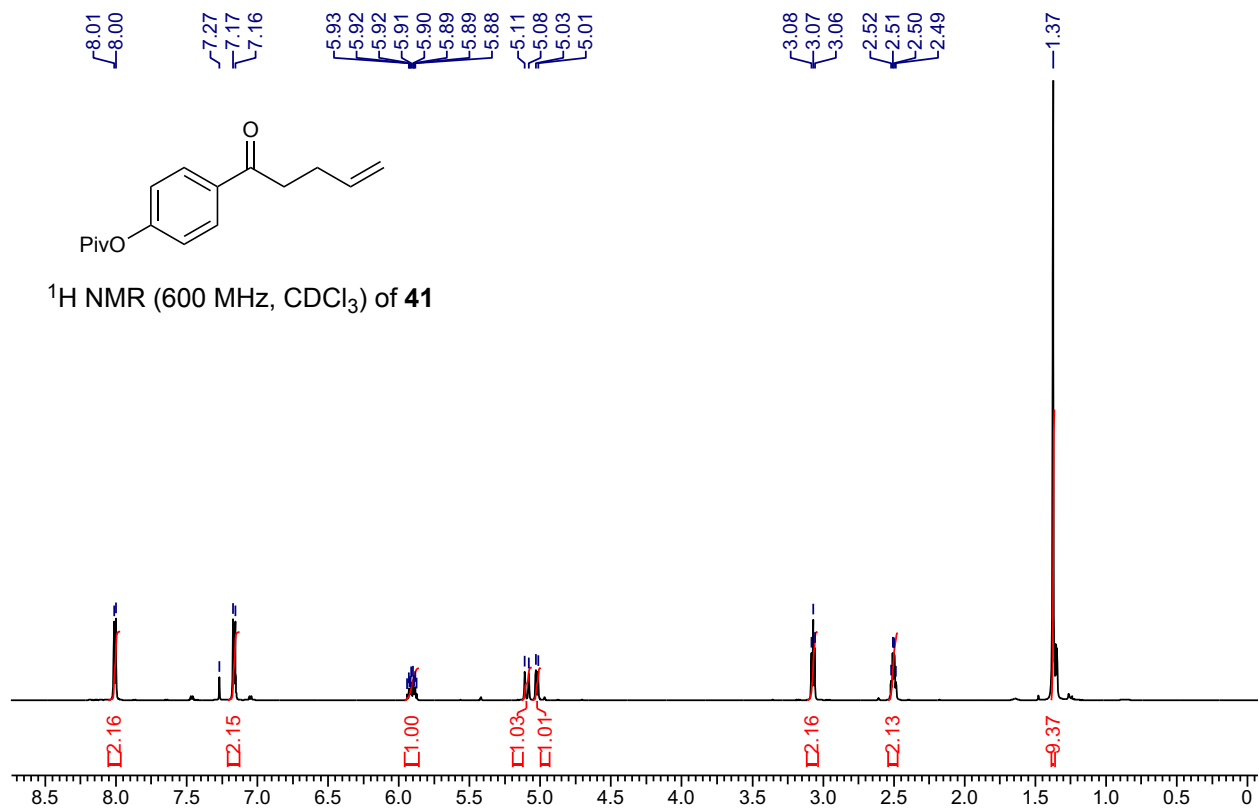


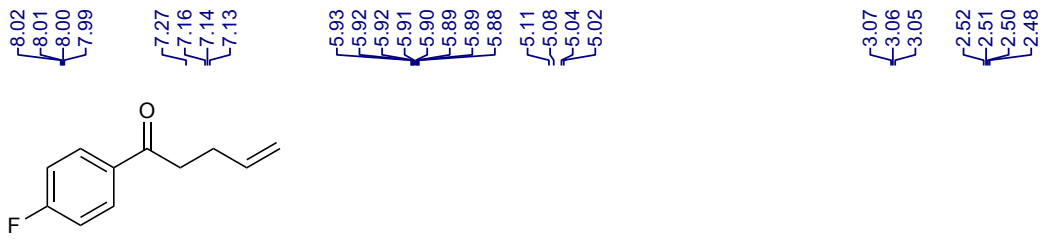




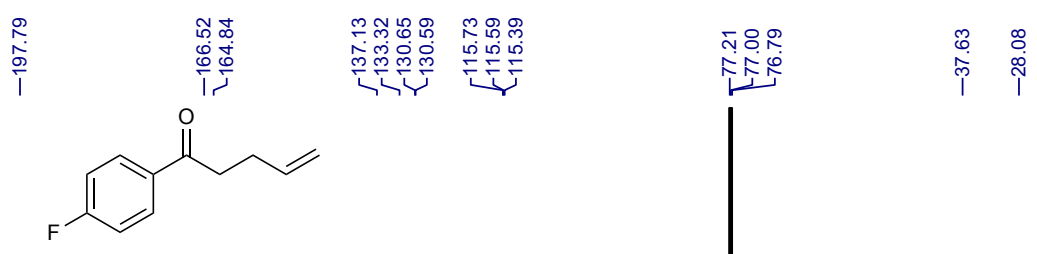
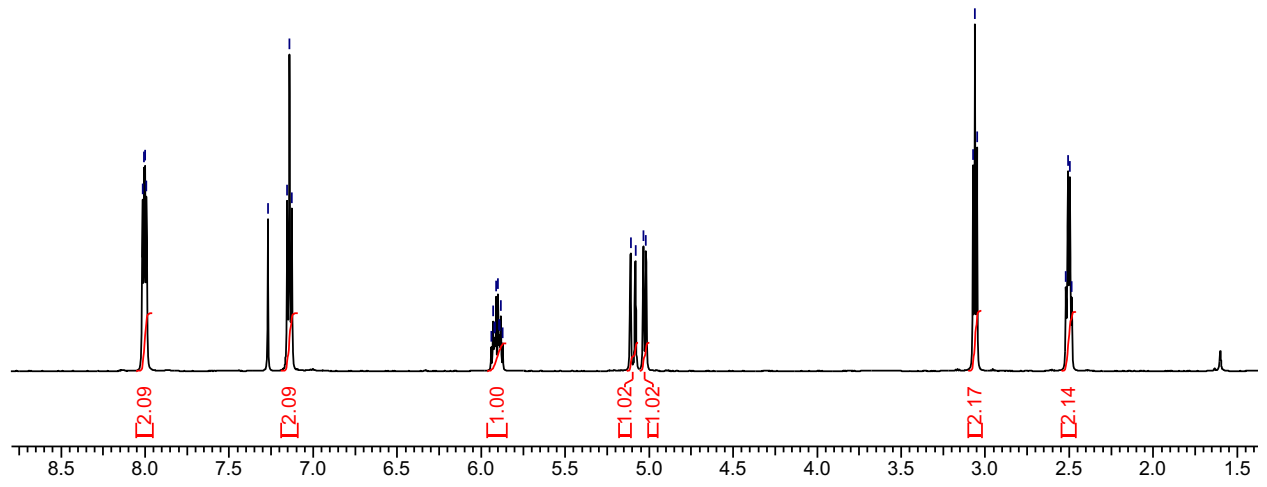








¹H NMR (600 MHz, CDCl₃) of 42



¹³C{¹H} NMR (150 MHz, CDCl₃) of 42

