

Supporting Information

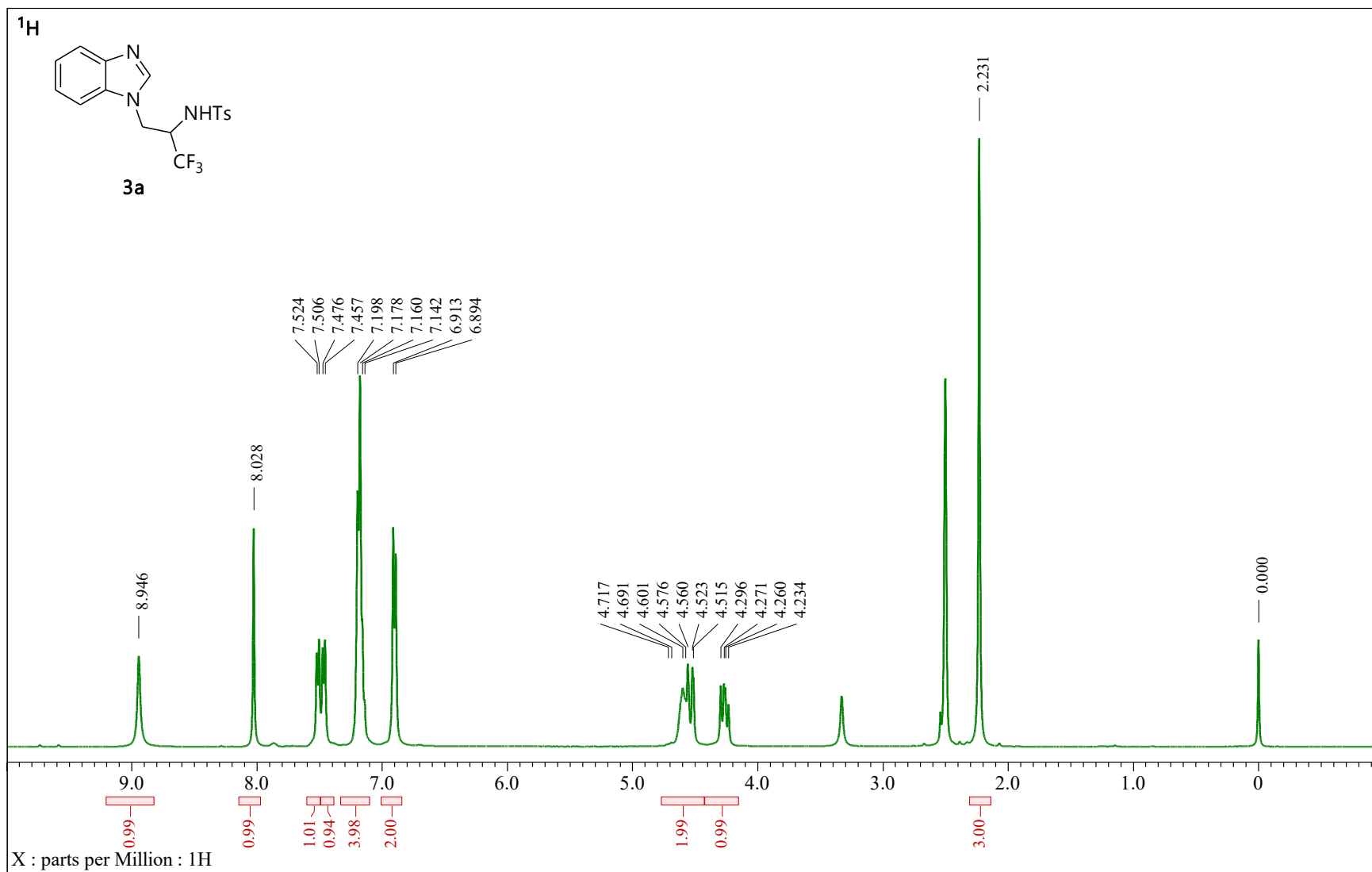
Iodine-Promoted Synthesis of CF₃-substituted Dihydroimidazobenzimidazole and CF₃-Dihydroimidazoindole via C-N Bond Formation

Daiki Komatsu, Kasumi Yamada, Takeshi Hanamoto*^a

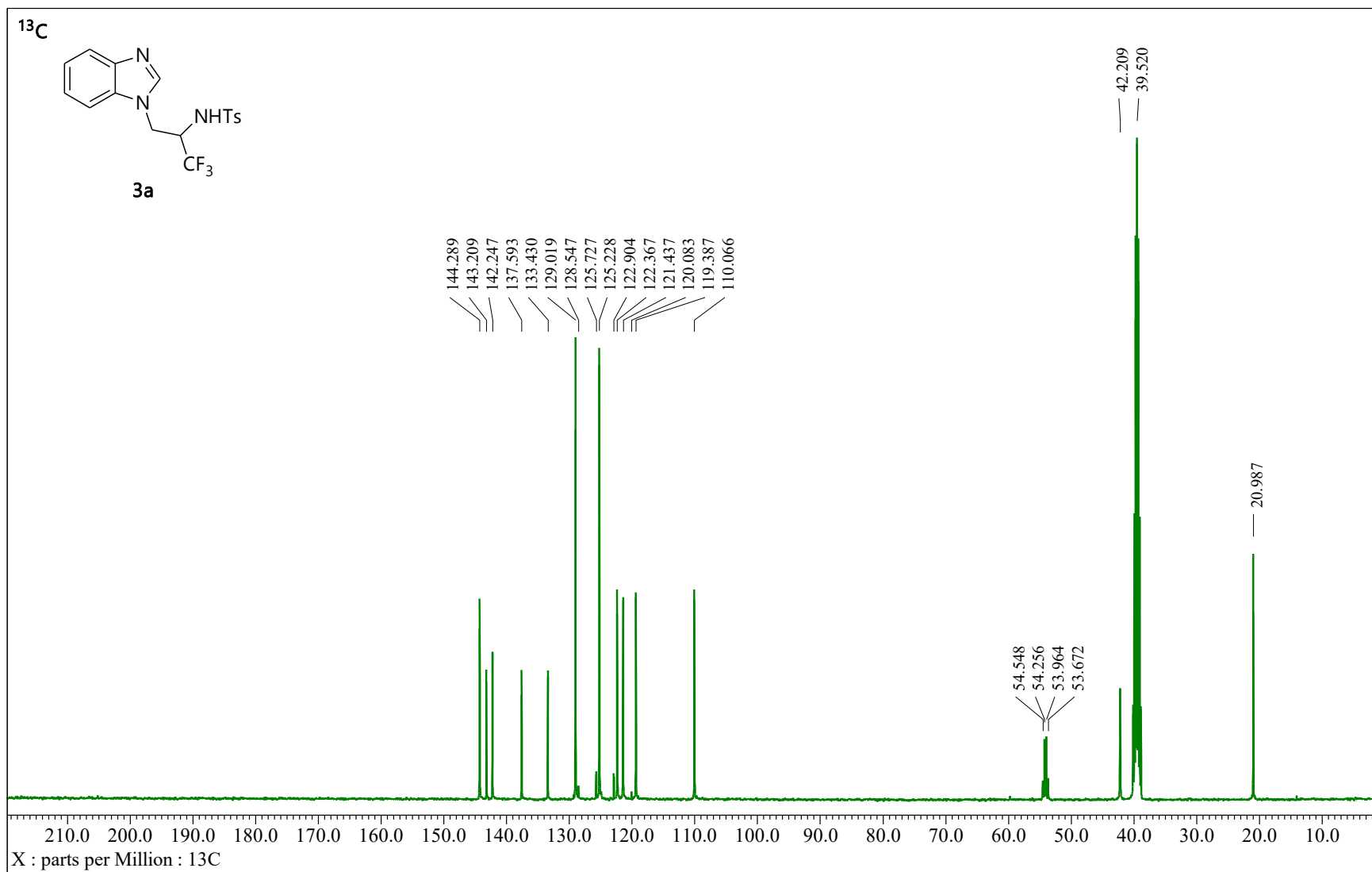
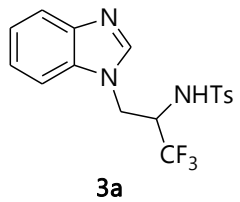
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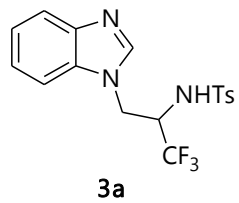
¹H, ¹³C, and ¹⁹F-NMR spectra for compound 3a – 3h, 4a – 4h, 6a – 6l, 7a – 7l, 8a: S2 – S124



¹³C



¹⁹F

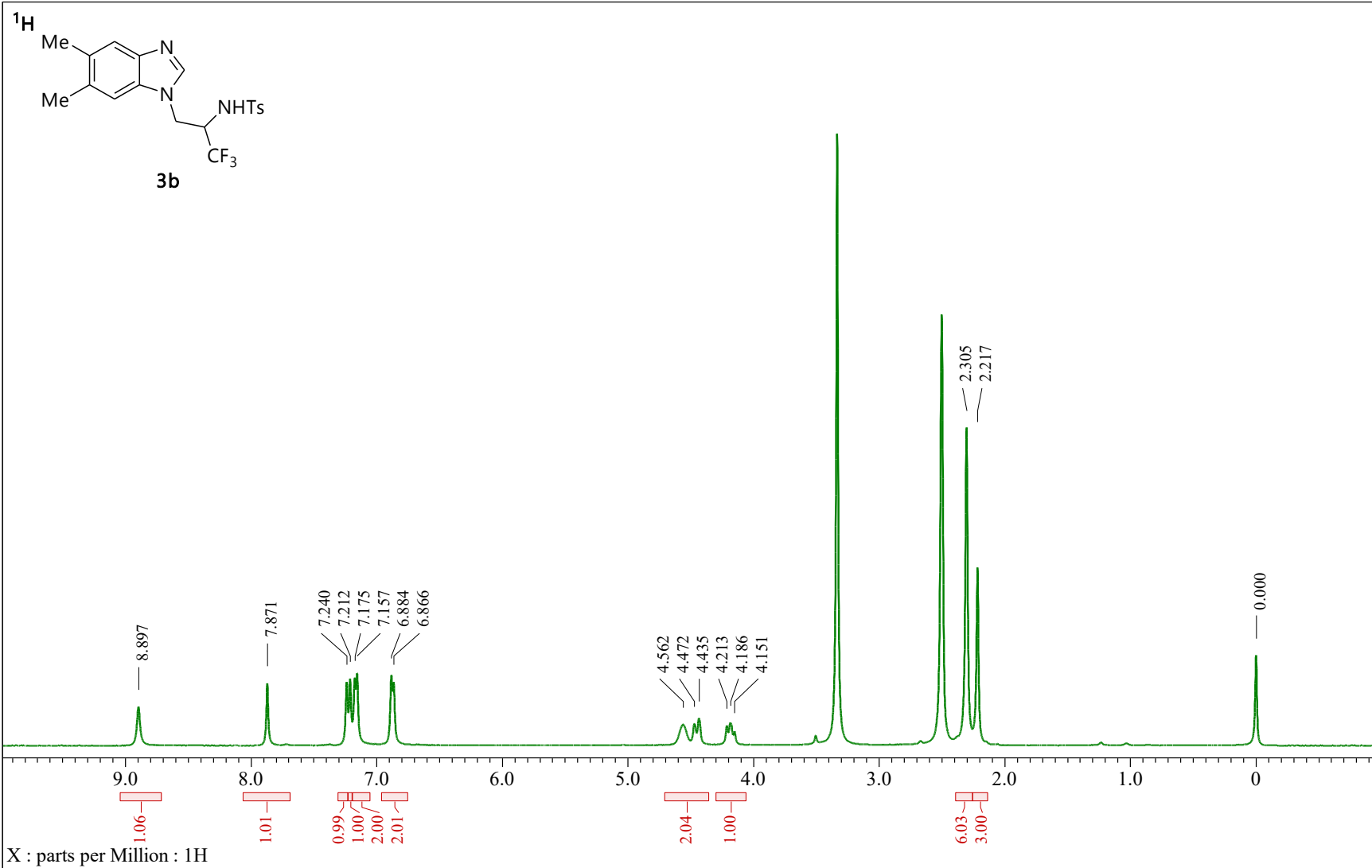


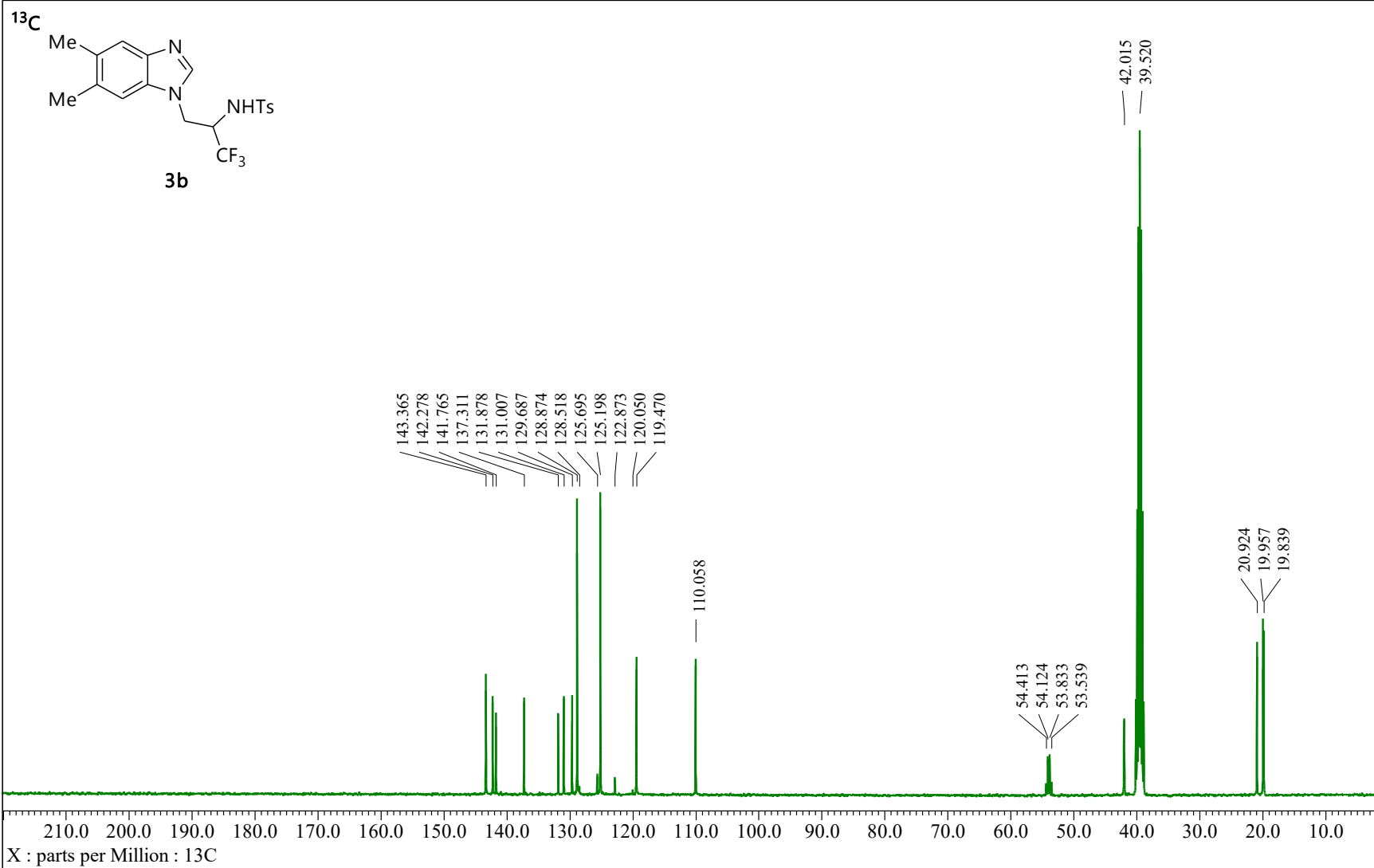
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-73.627

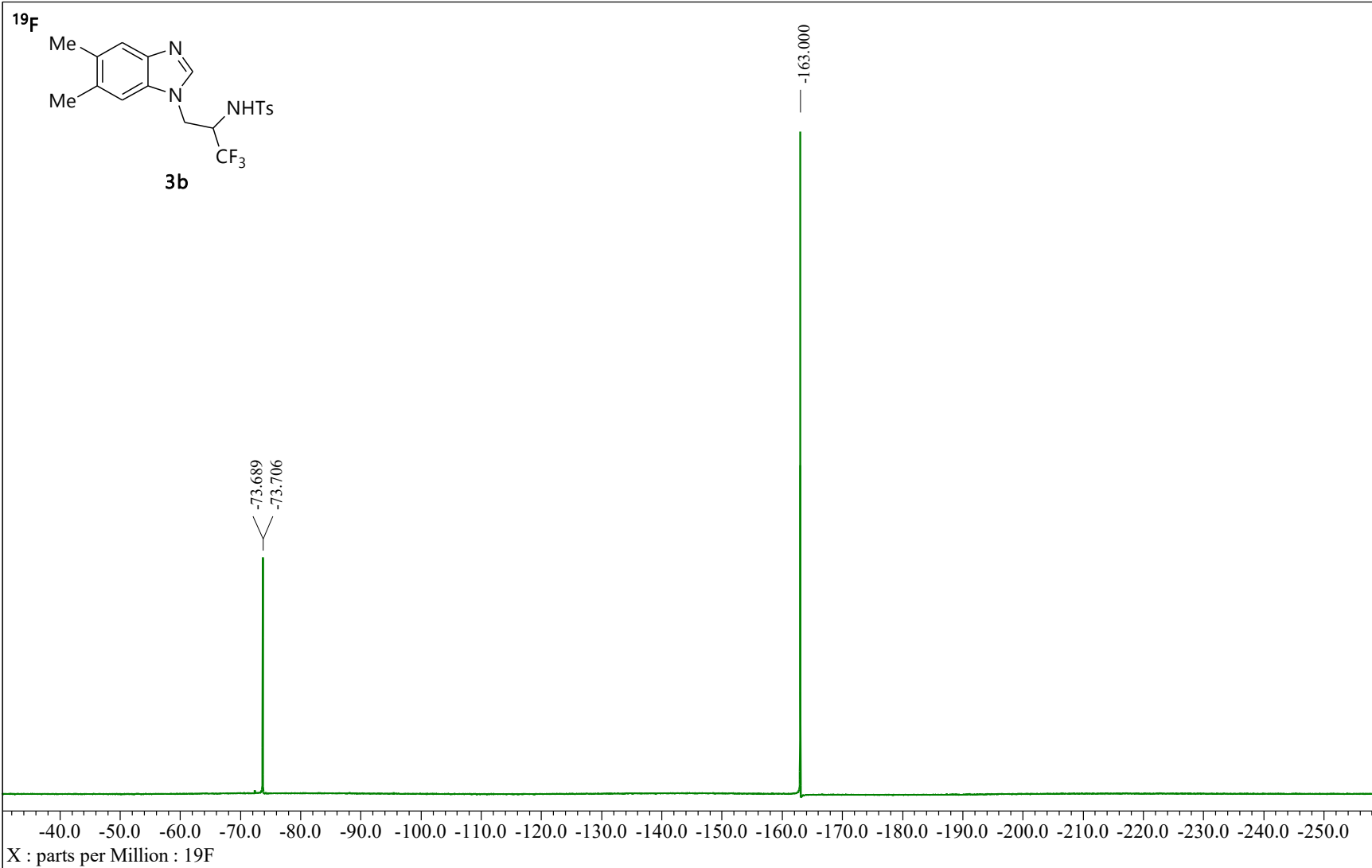
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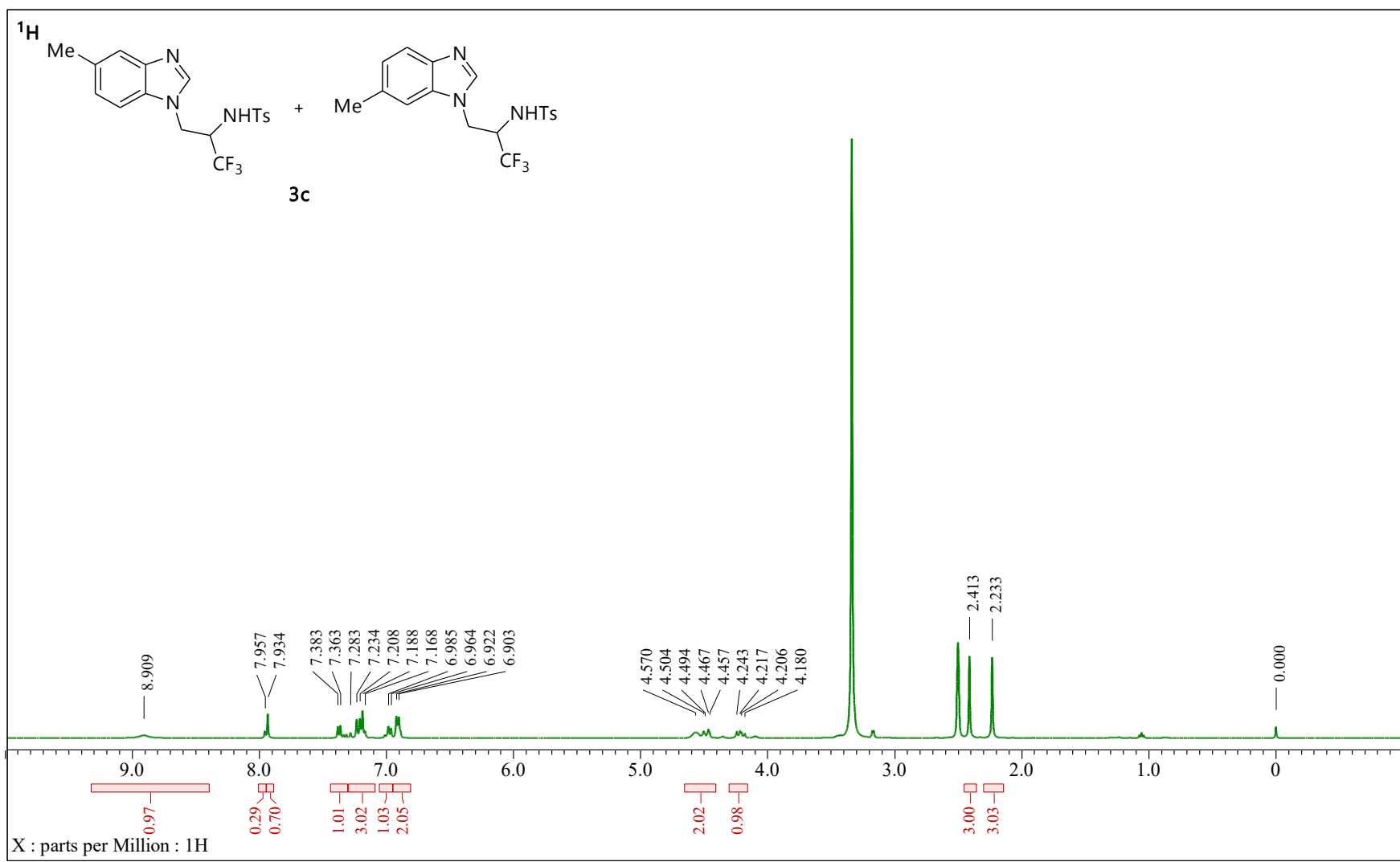
-40.0 -50.0 -60.0 -70.0 -80.0 -90.0 -100.0 -110.0 -120.0 -130.0 -140.0 -150.0 -160.0 -170.0 -180.0 -190.0 -200.0 -210.0 -220.0 -230.0 -240.0 -250.0

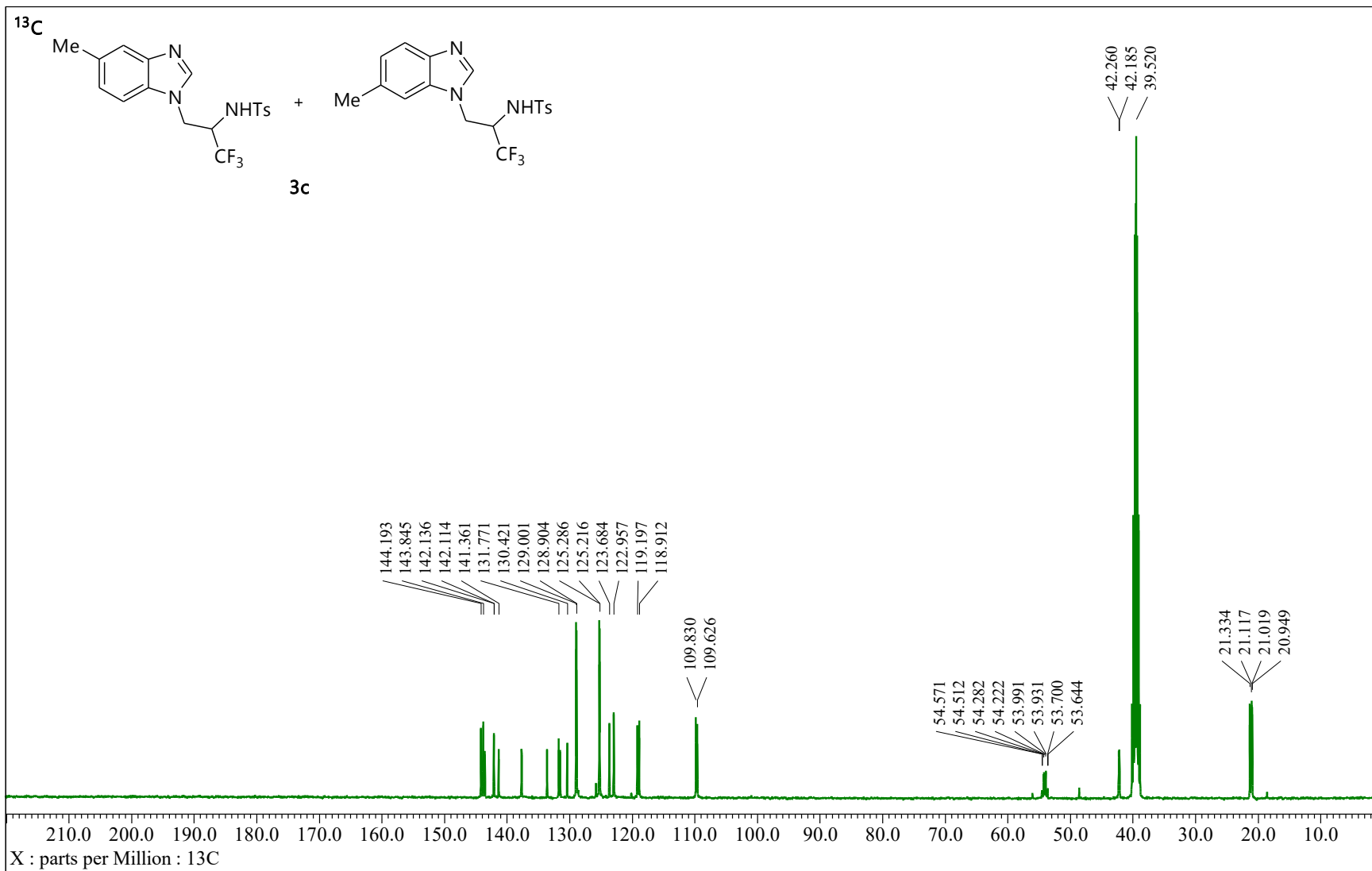
X : parts per Million : ¹⁹F

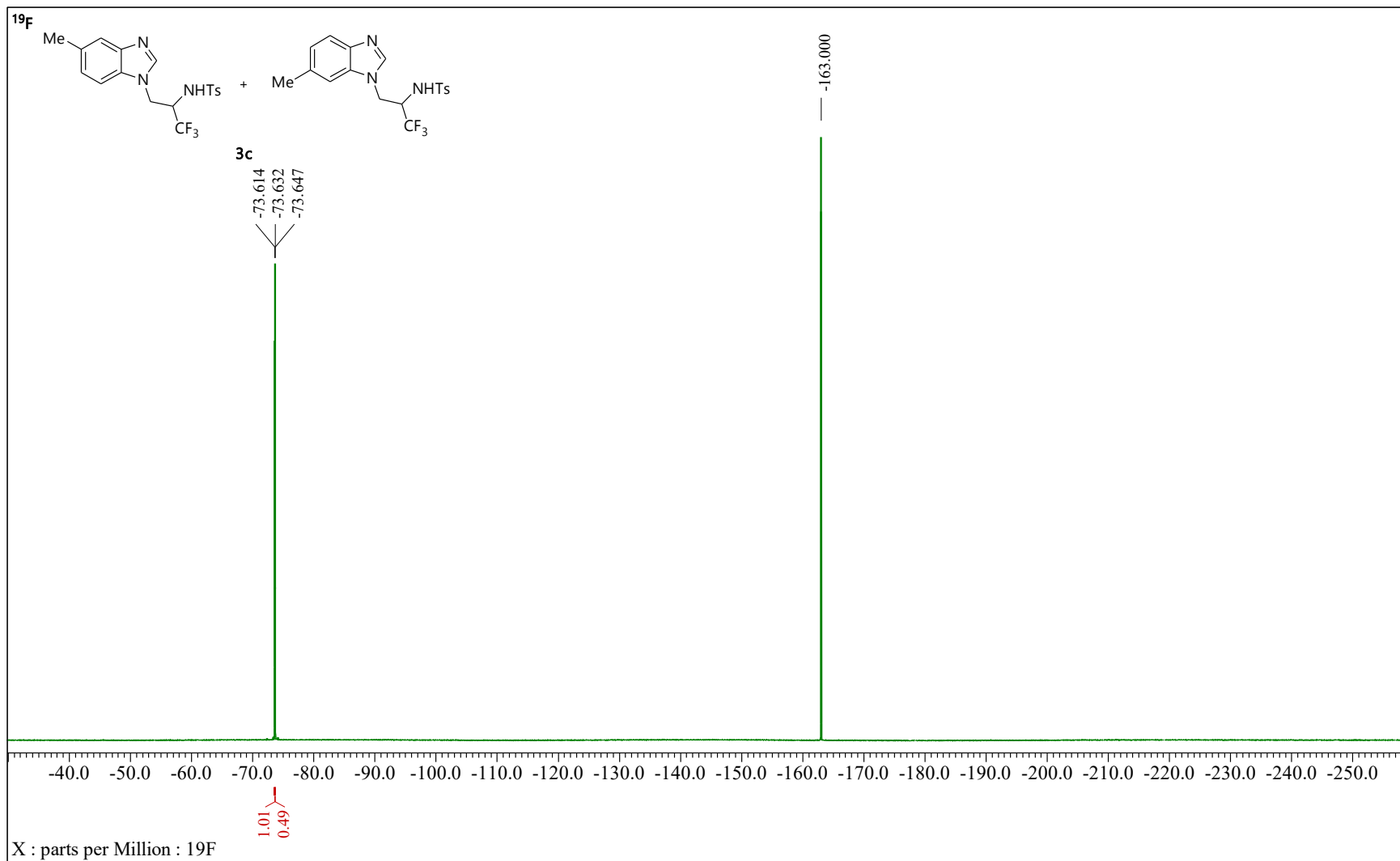


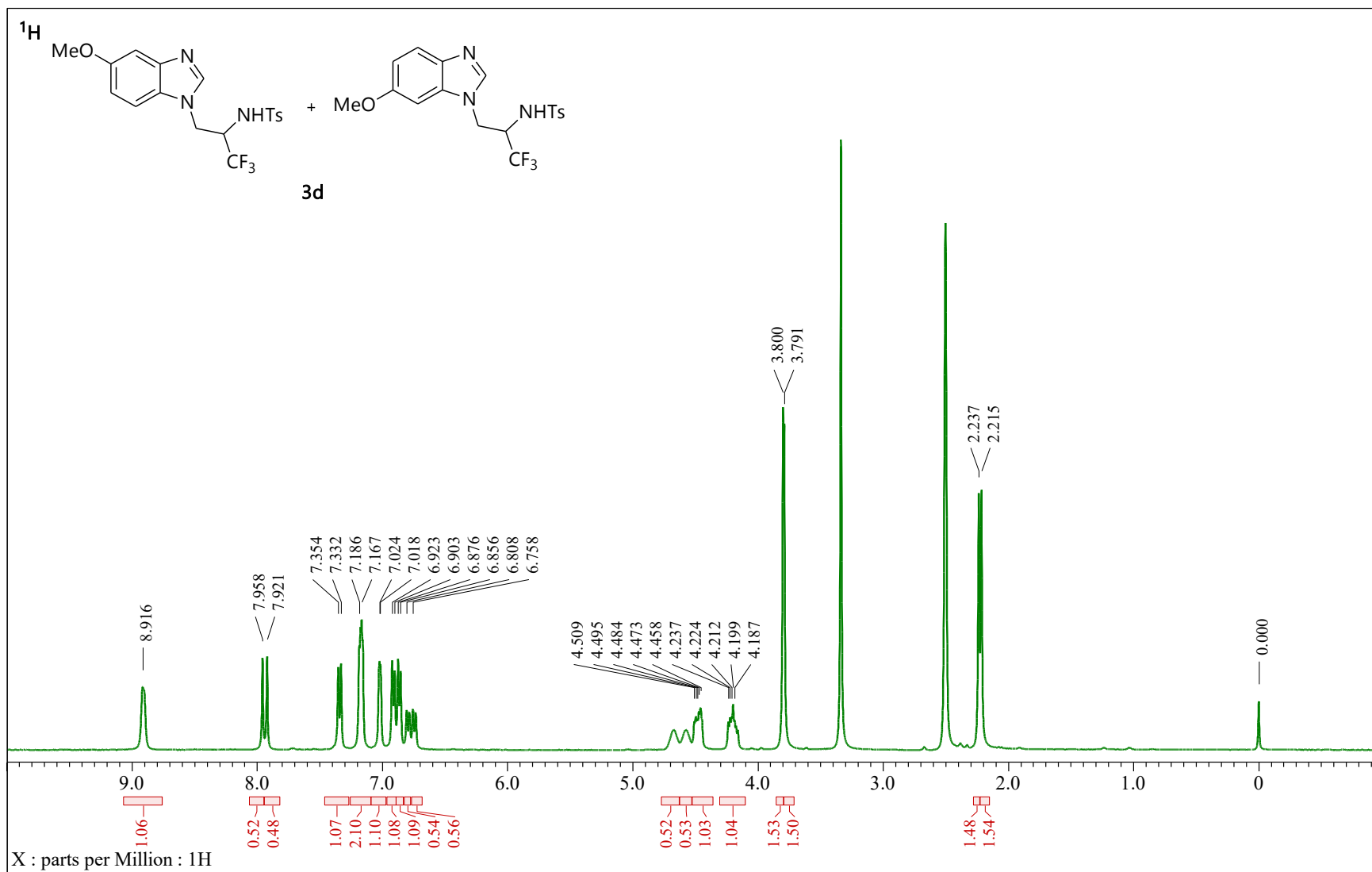


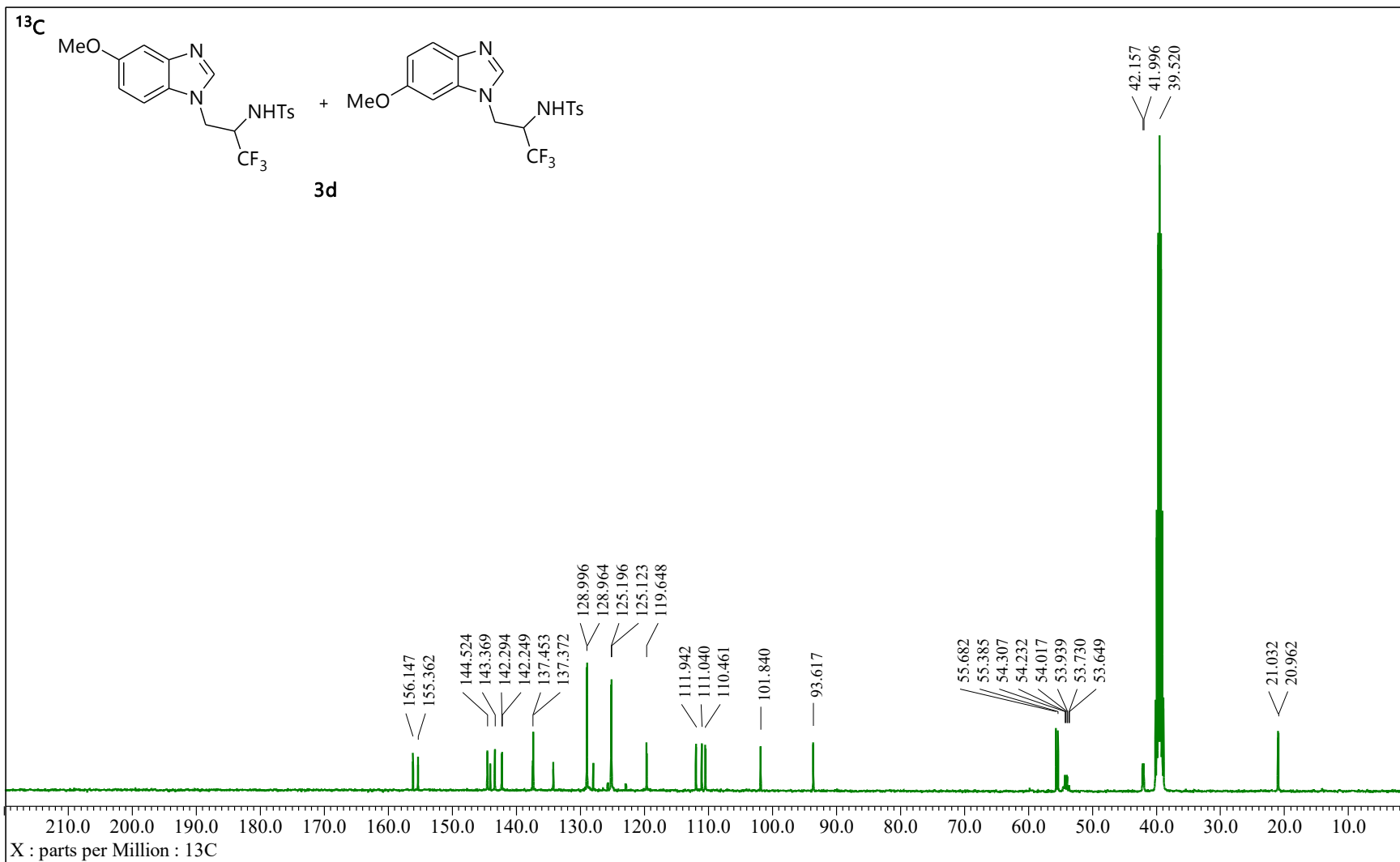


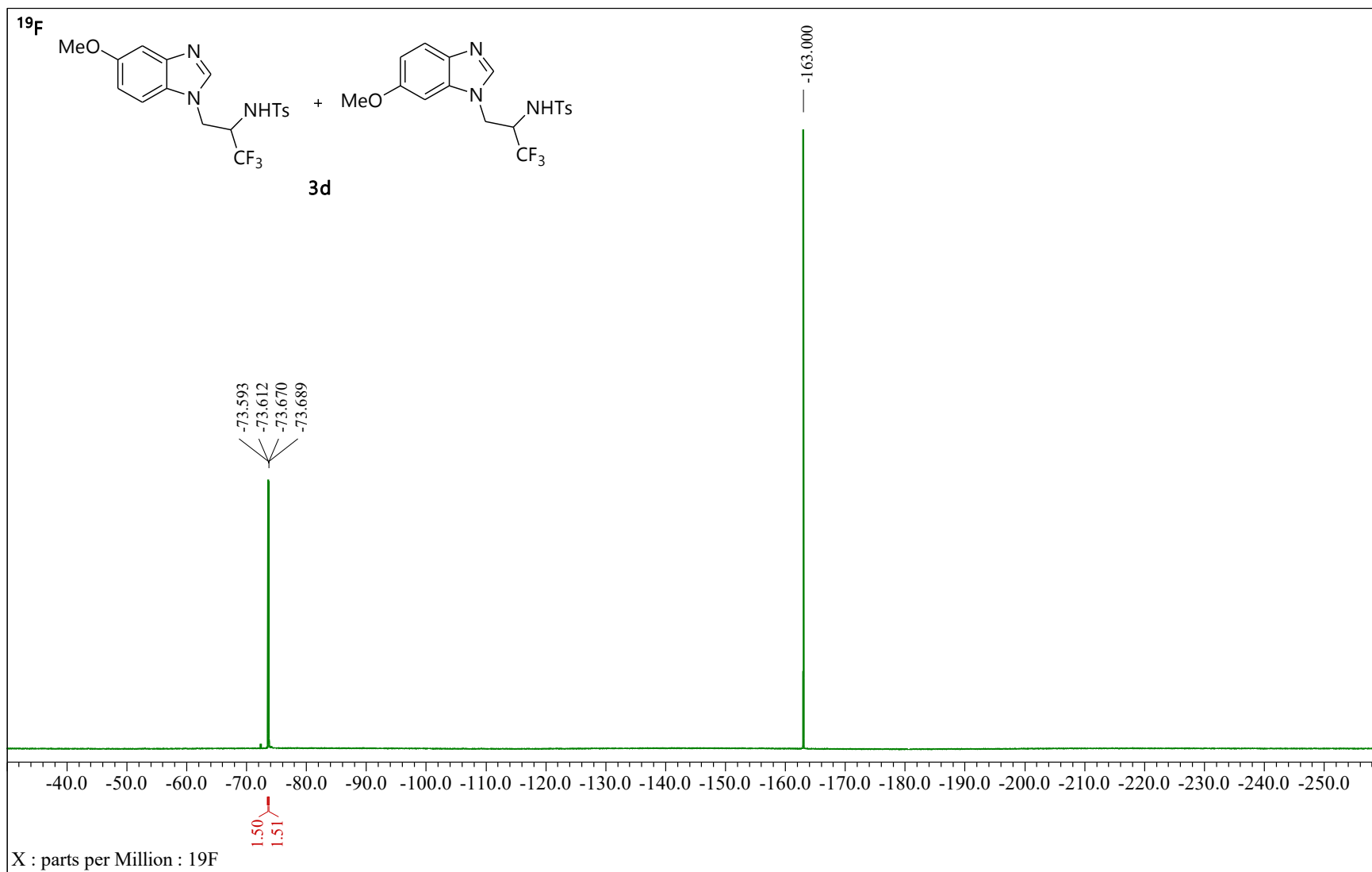


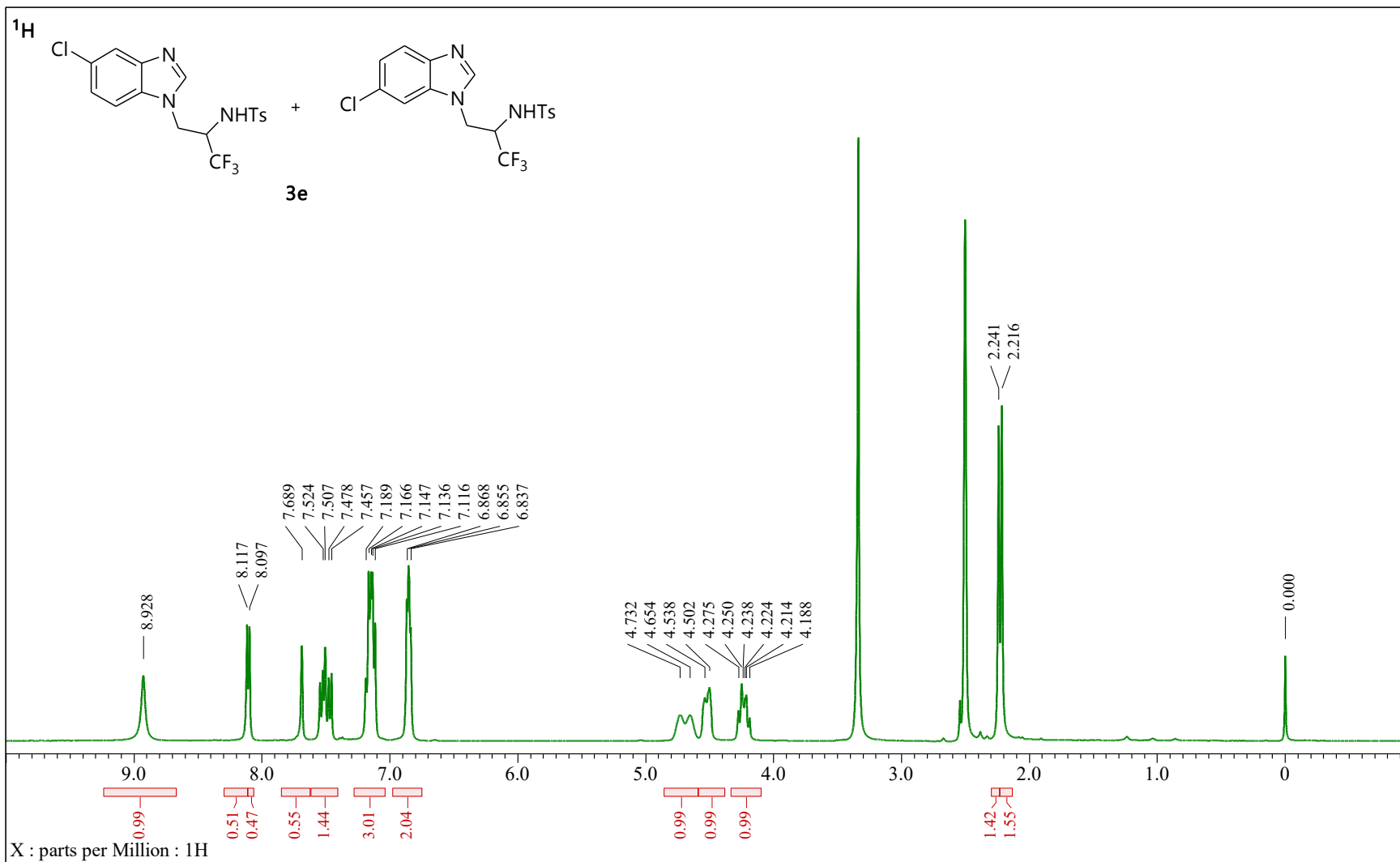


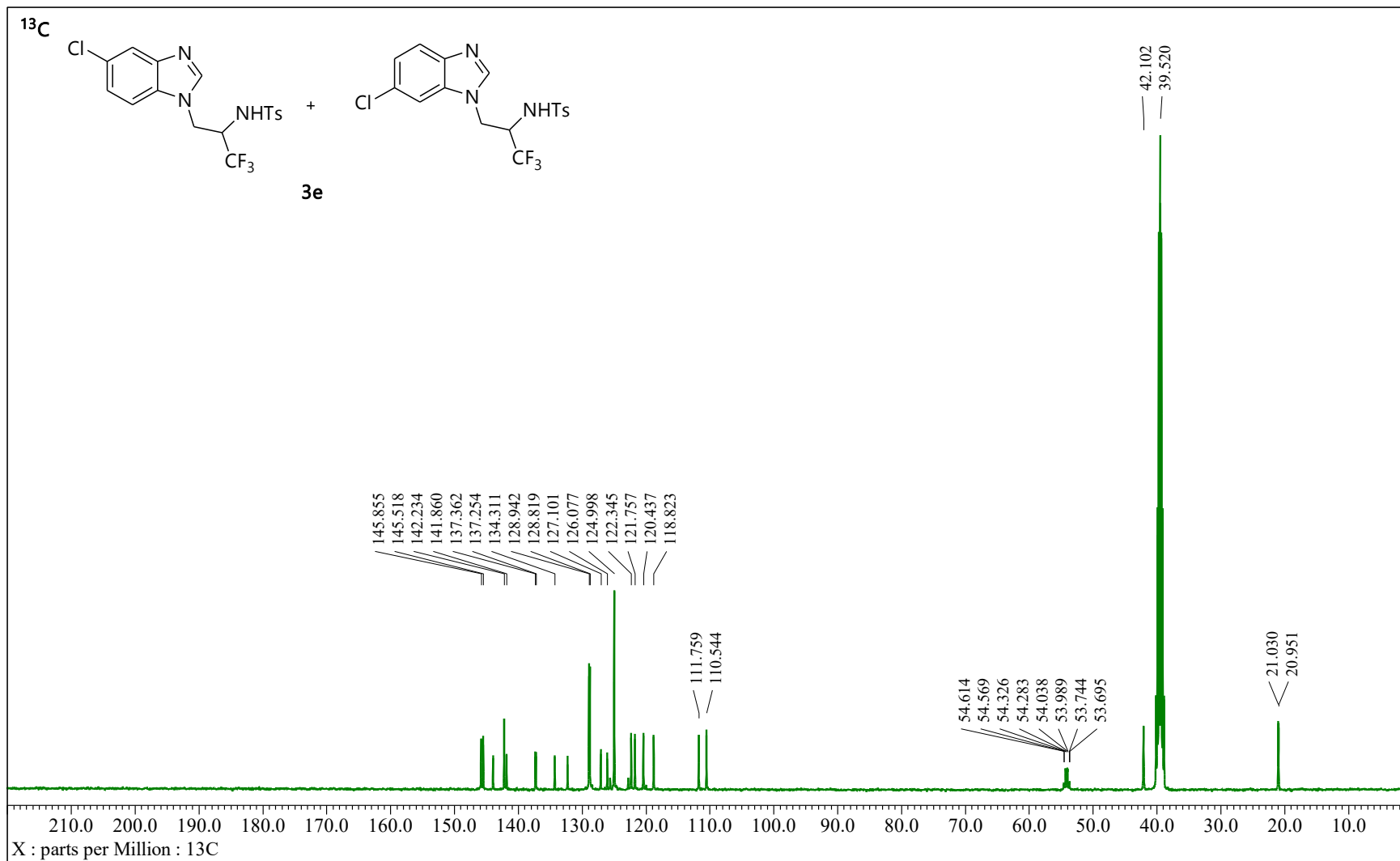


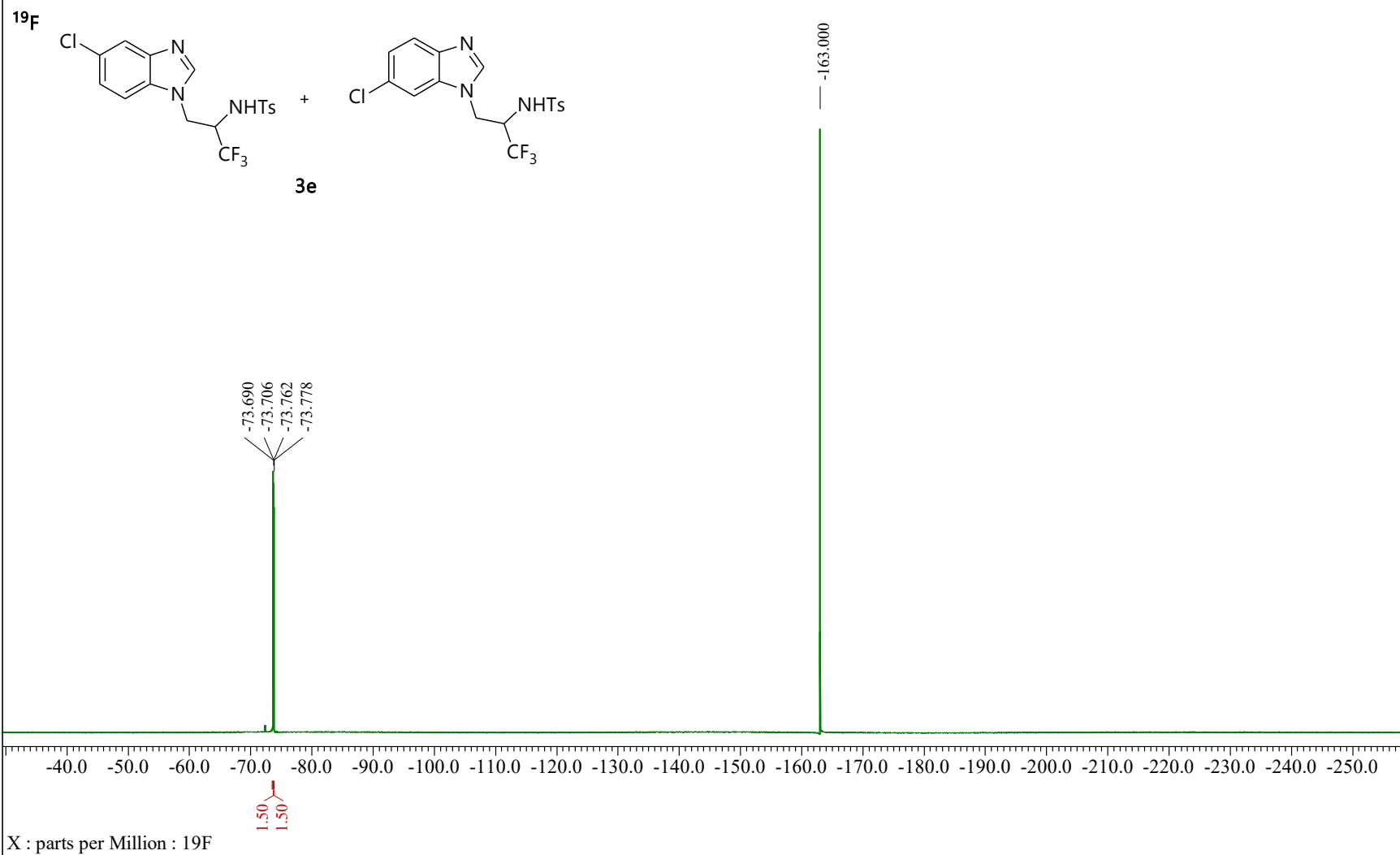


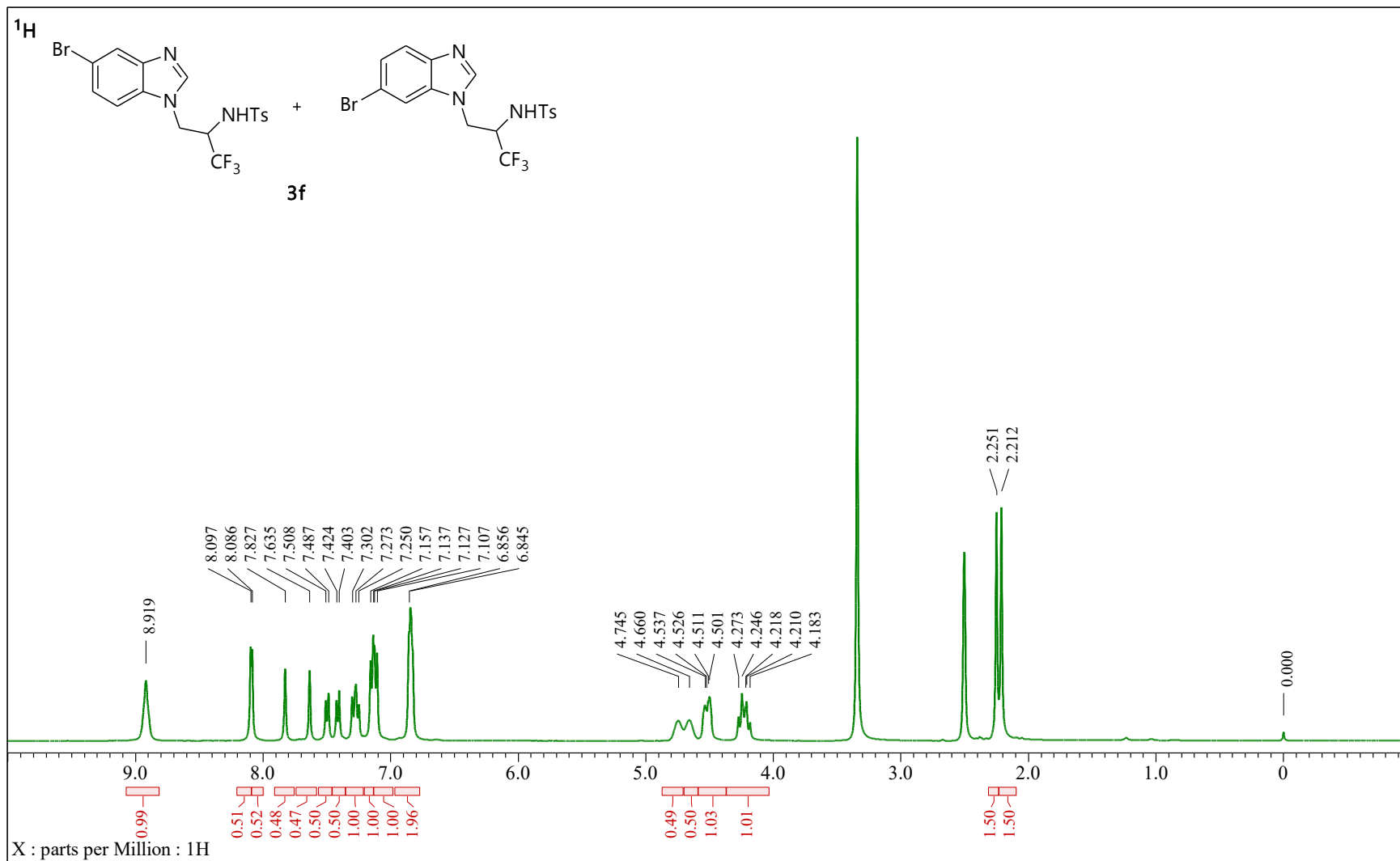


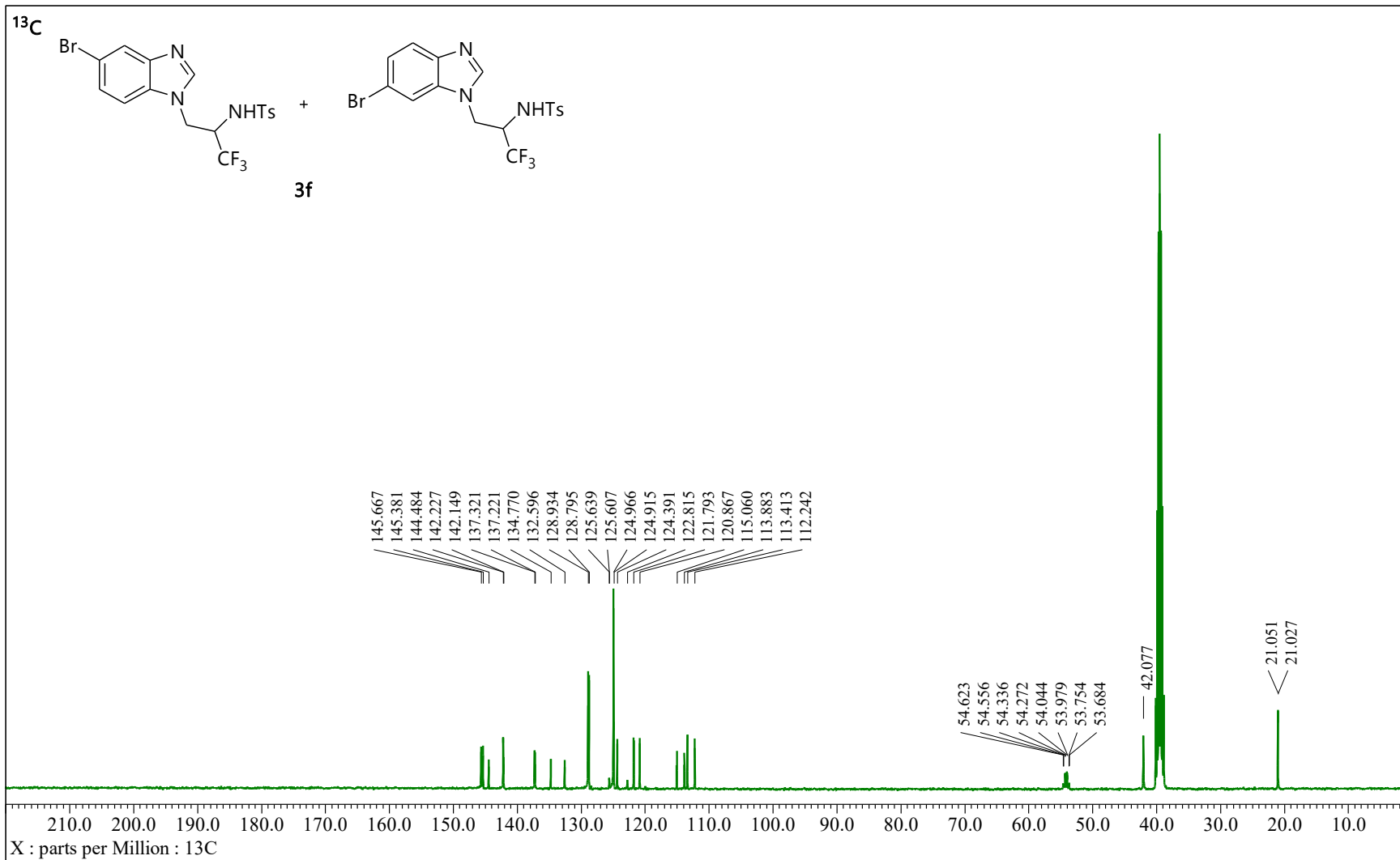


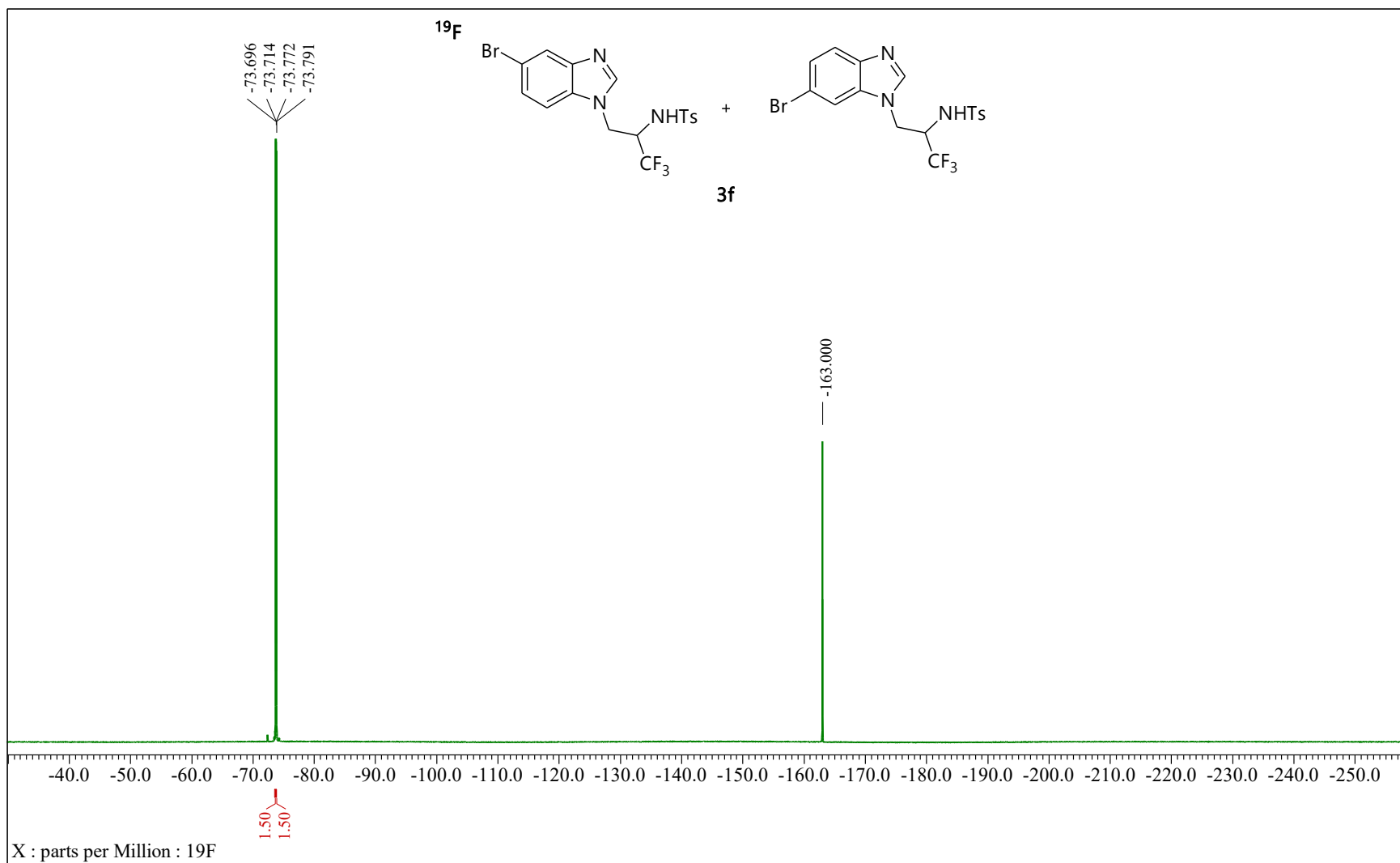


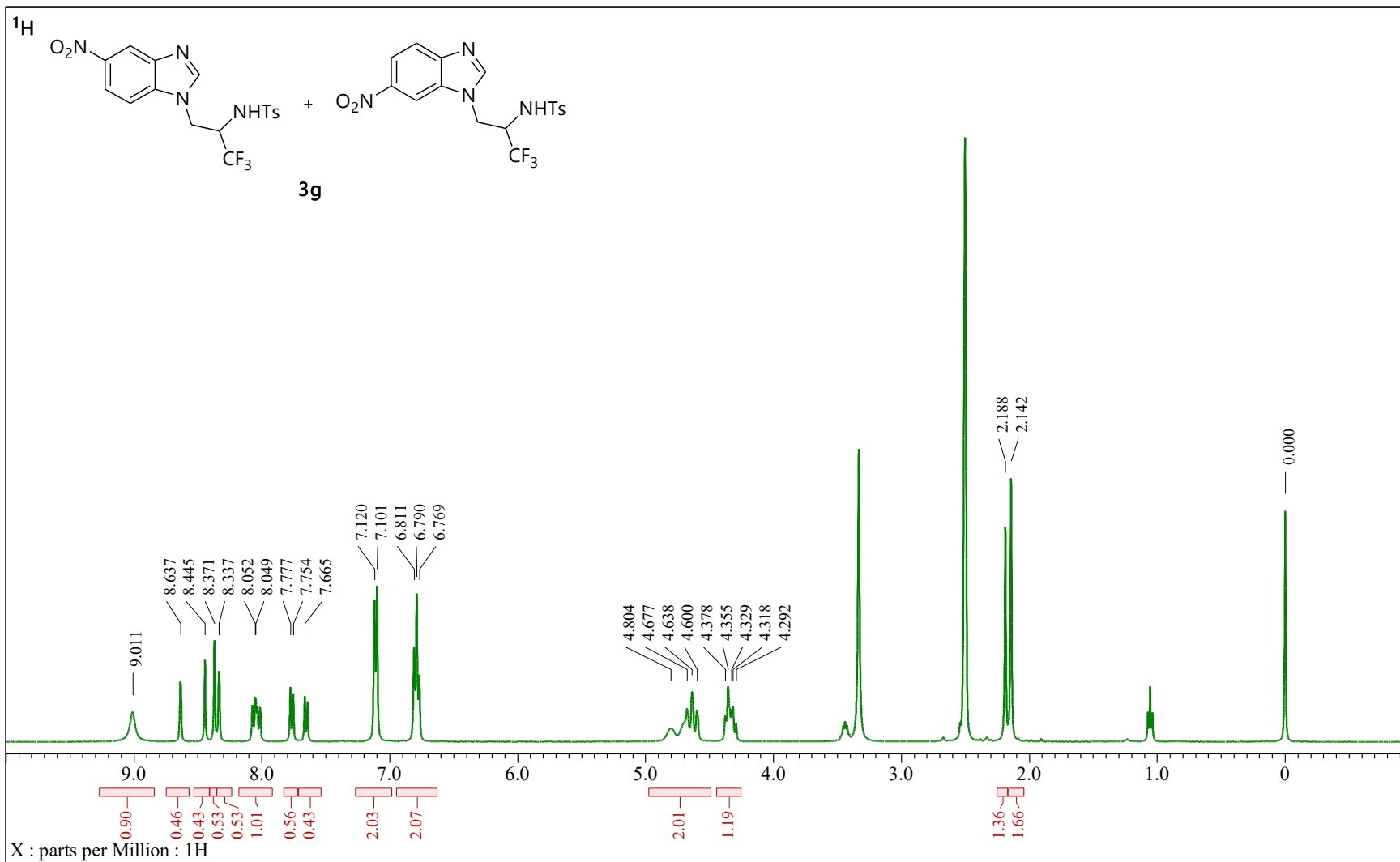


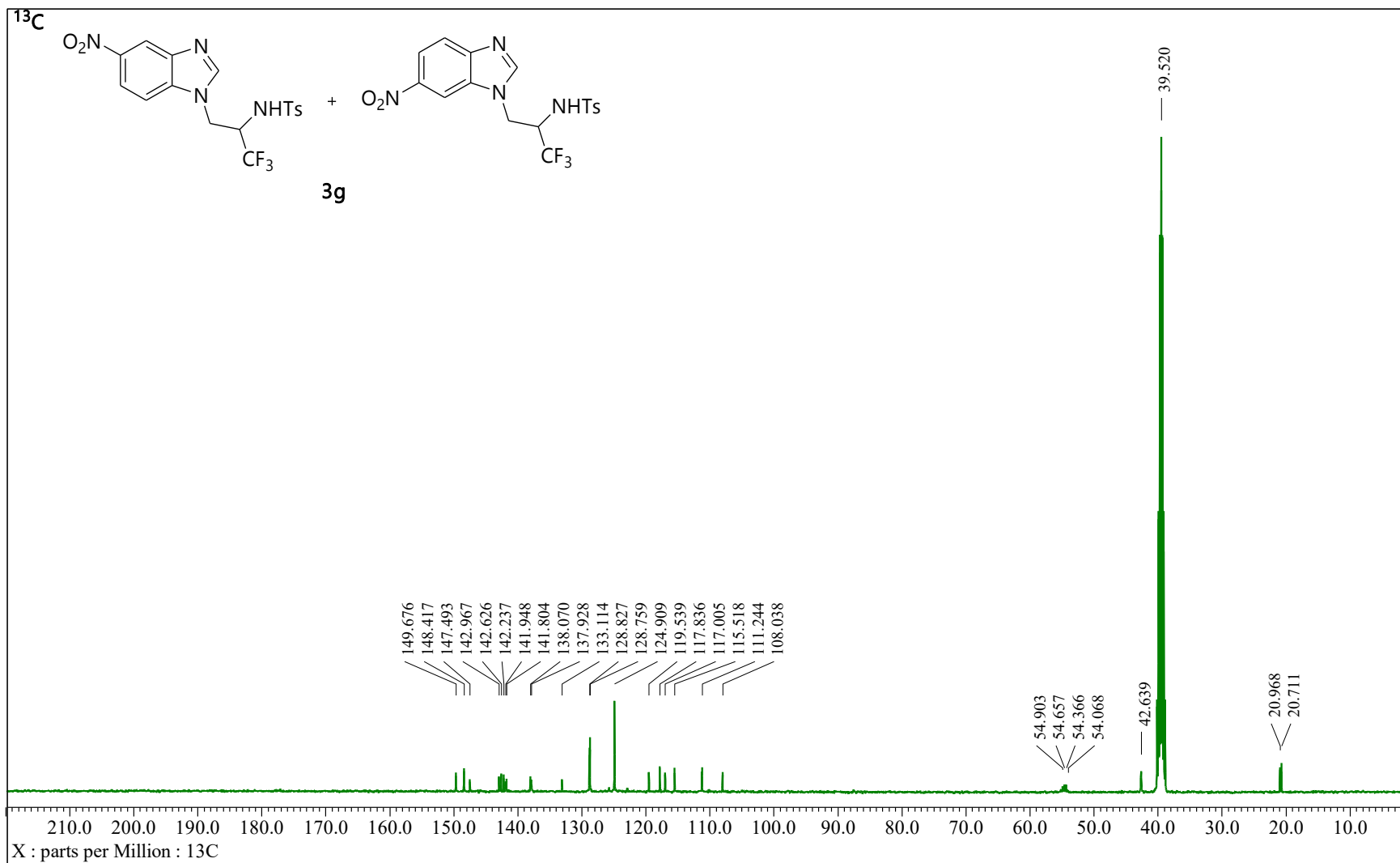


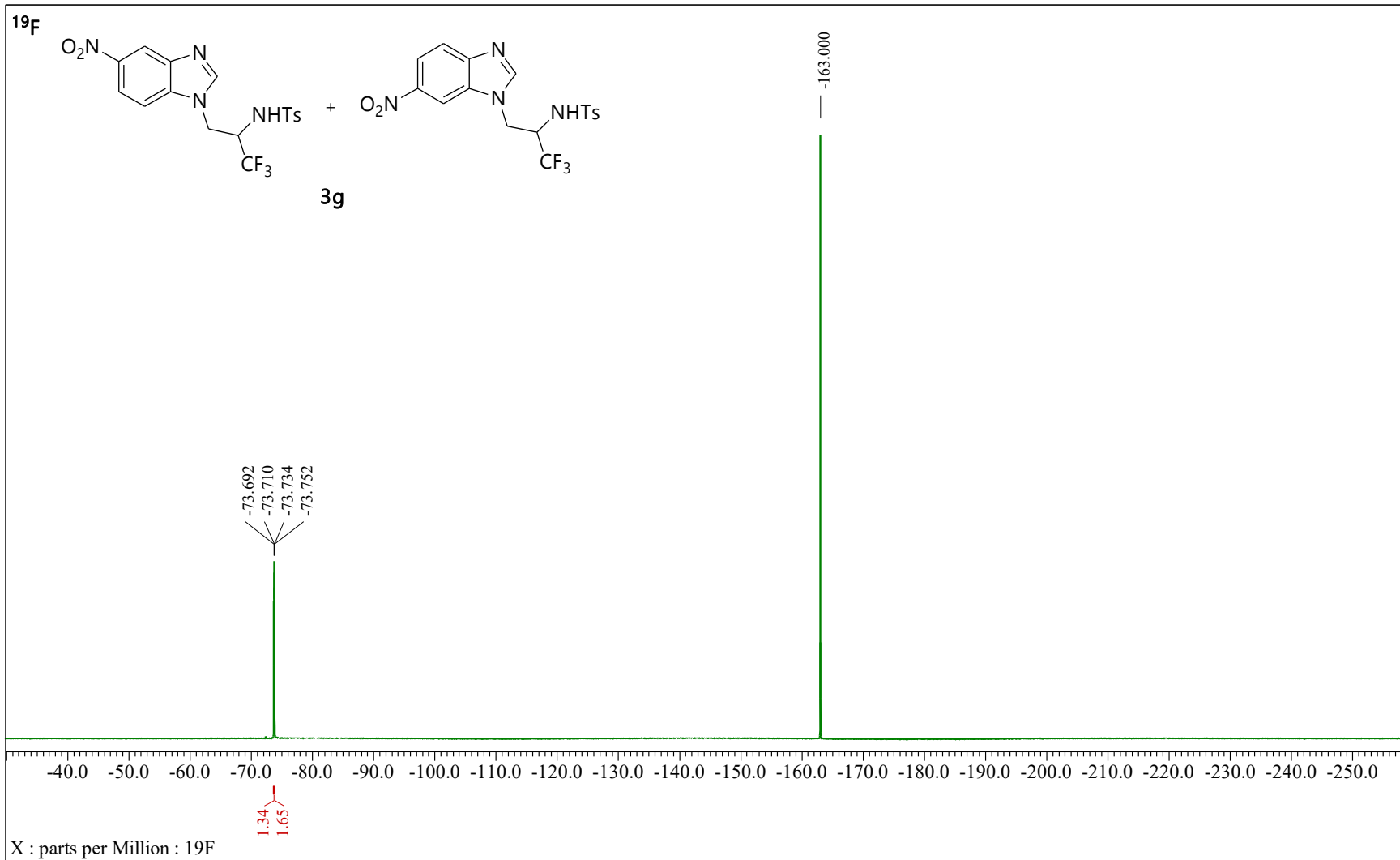


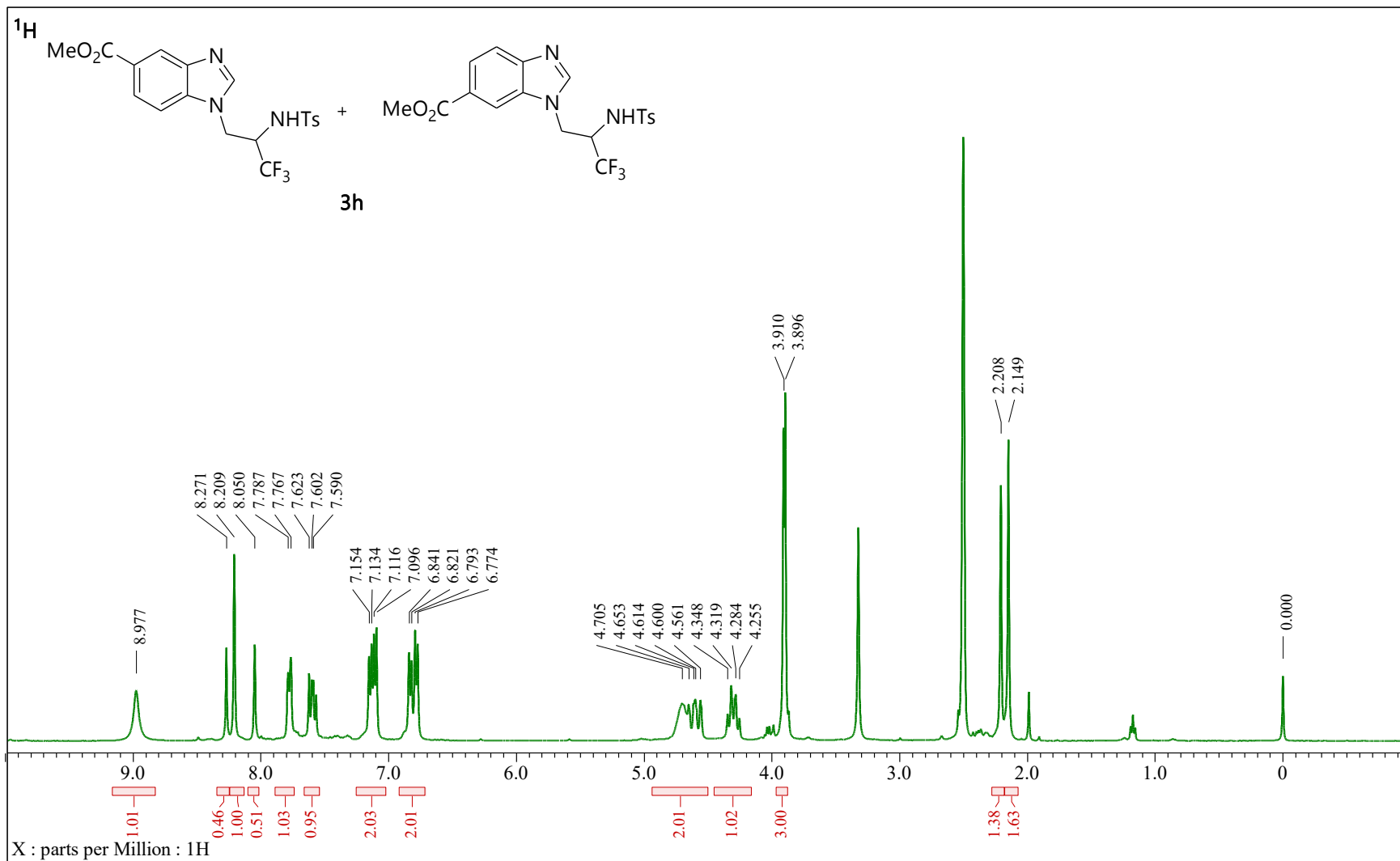


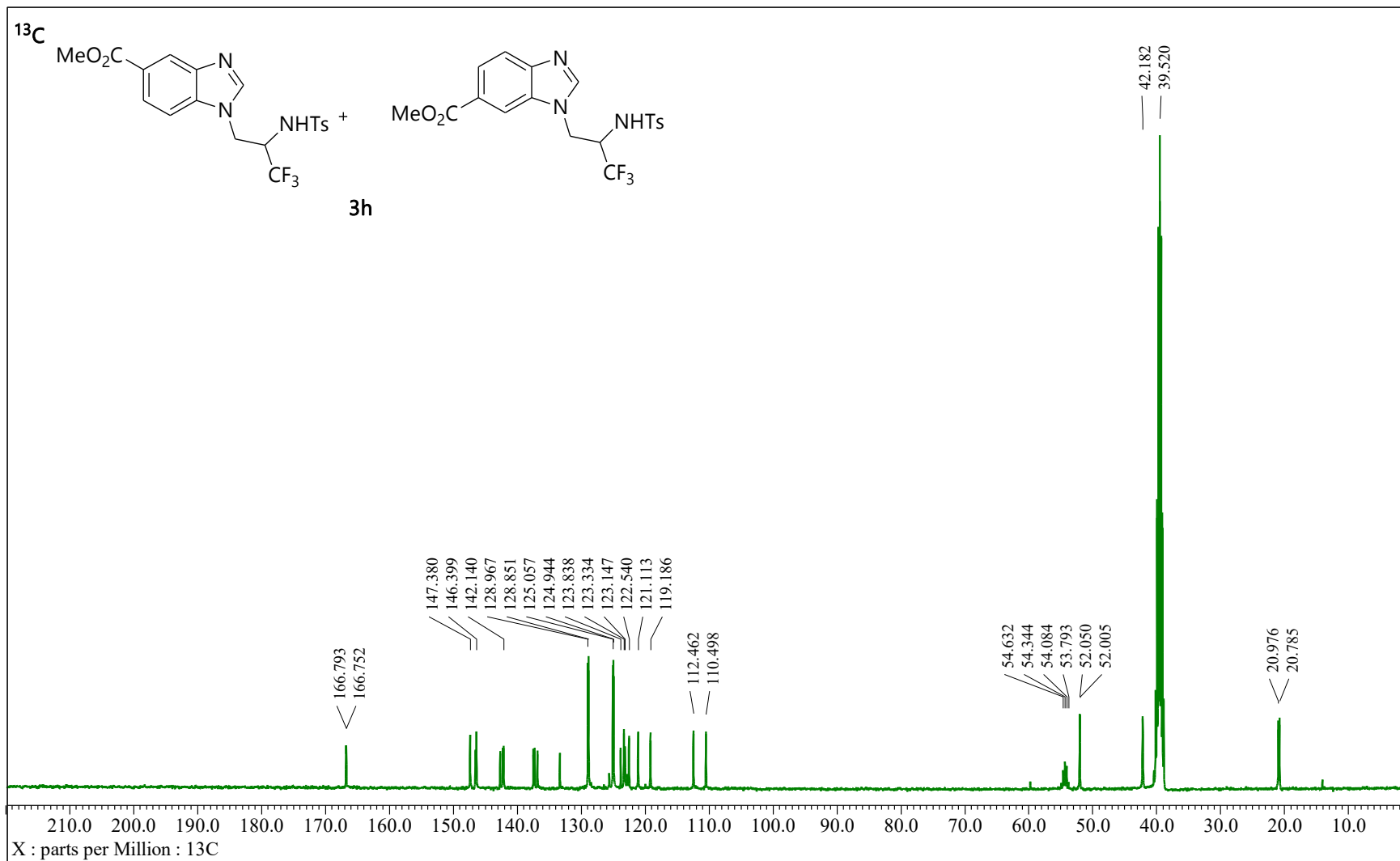


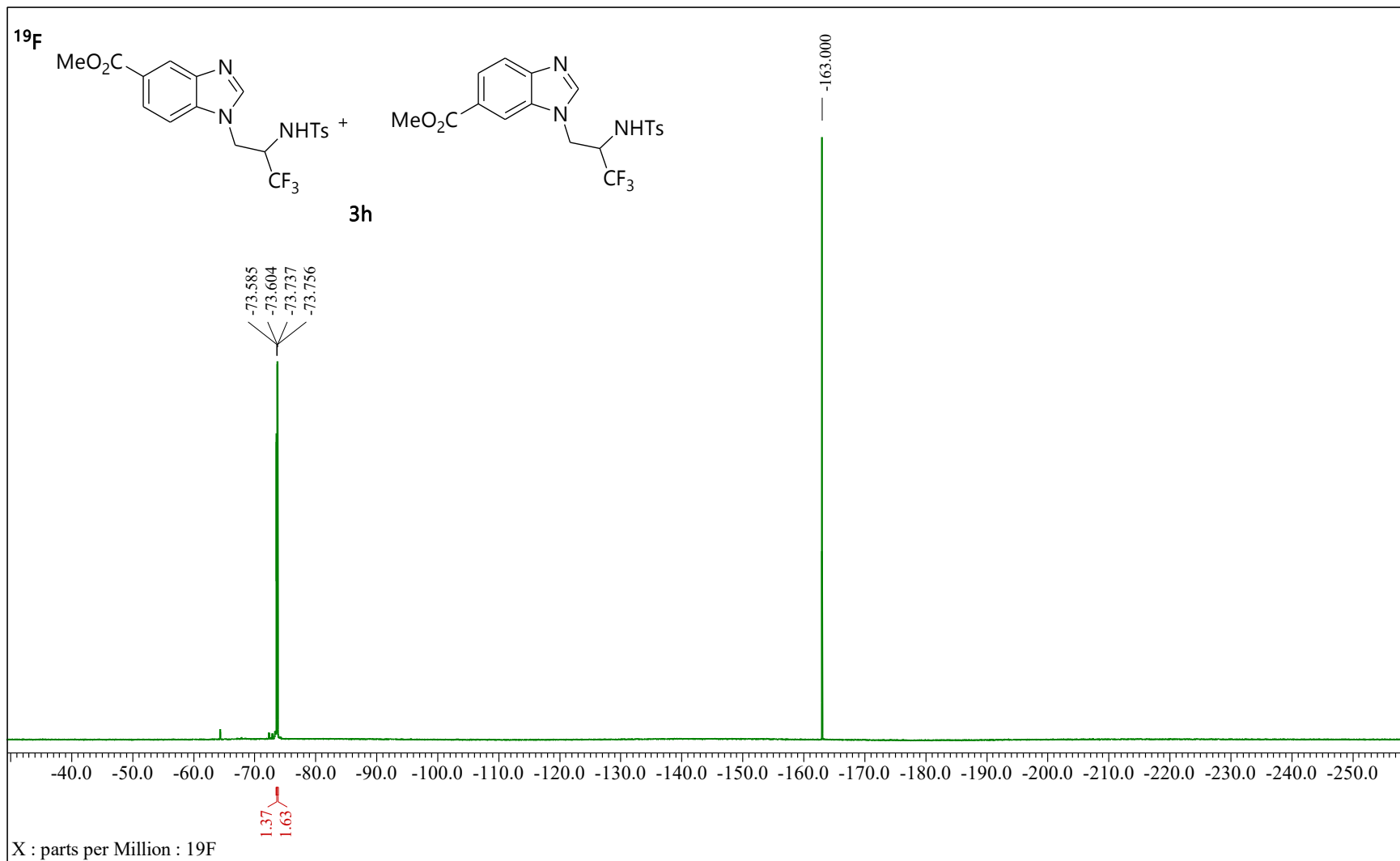




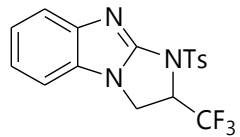




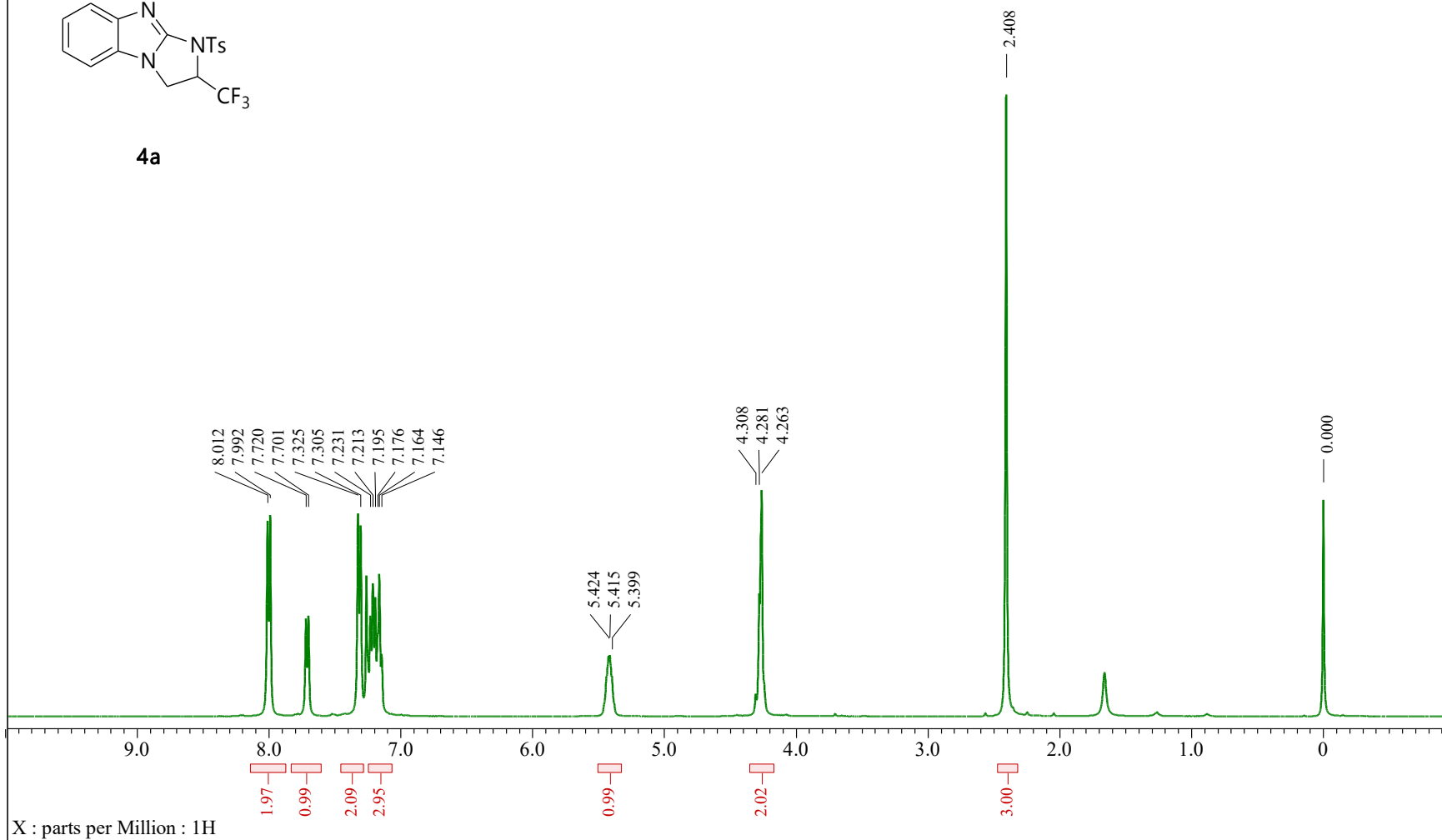




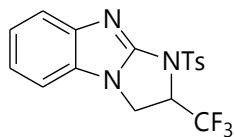
¹H



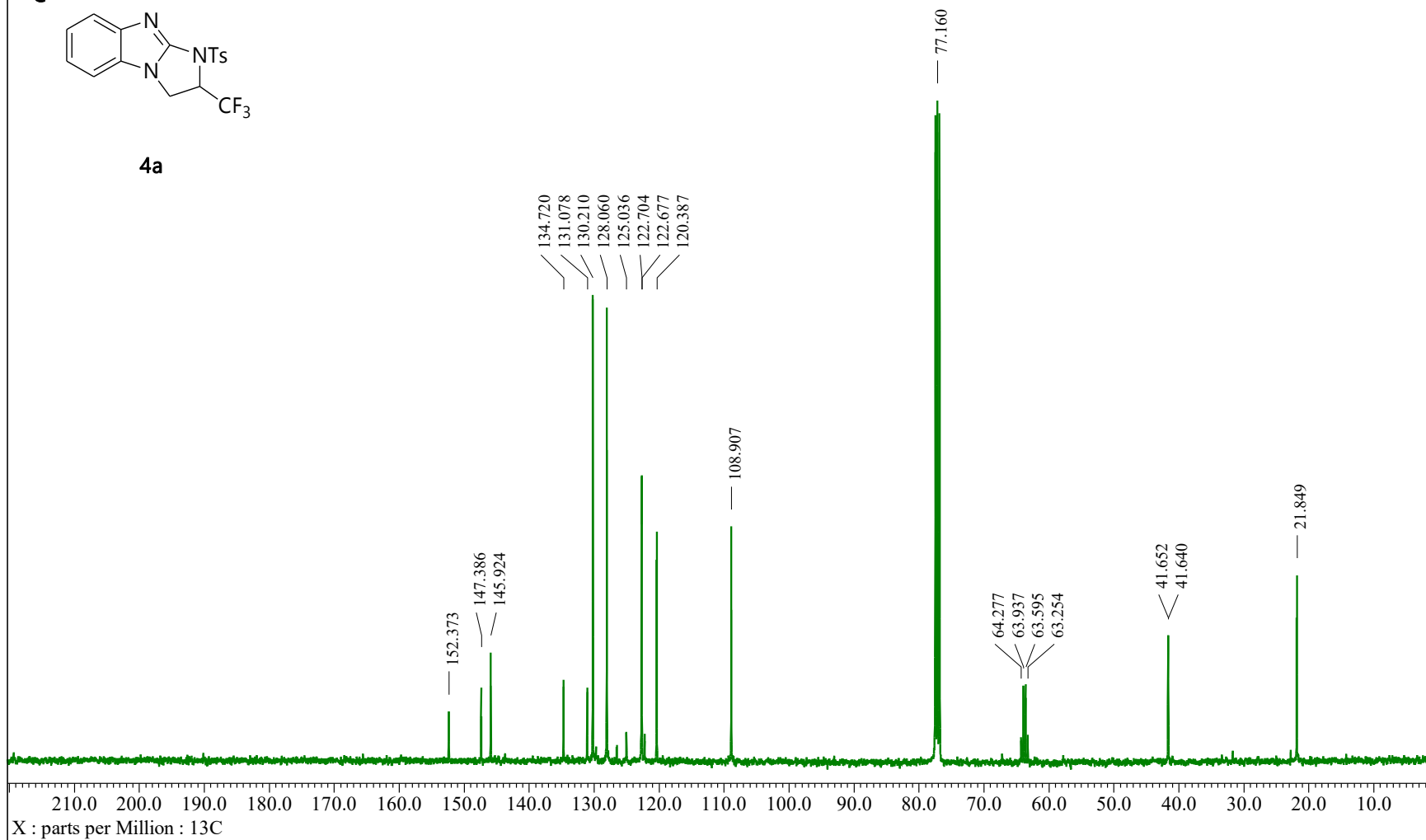
4a

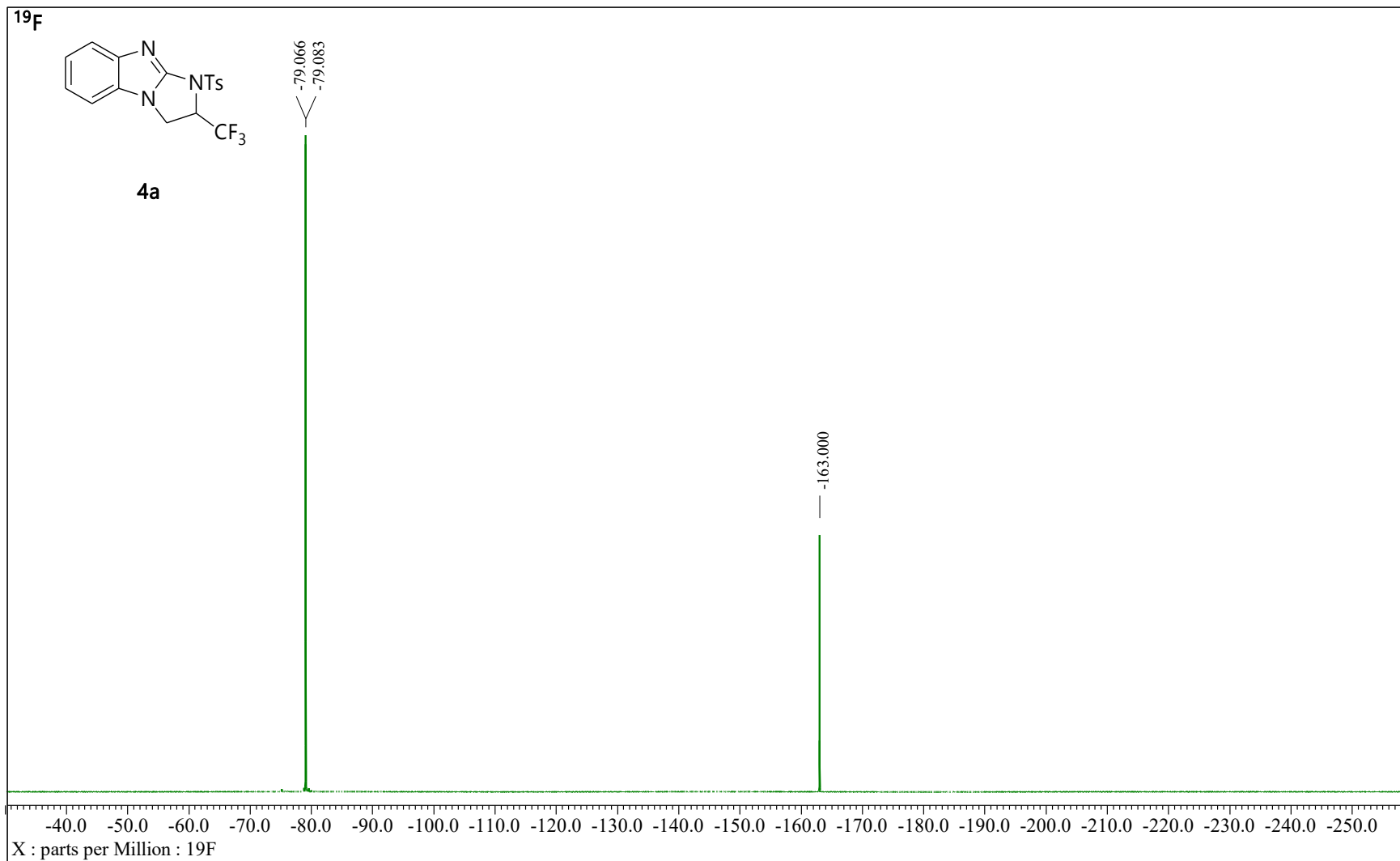


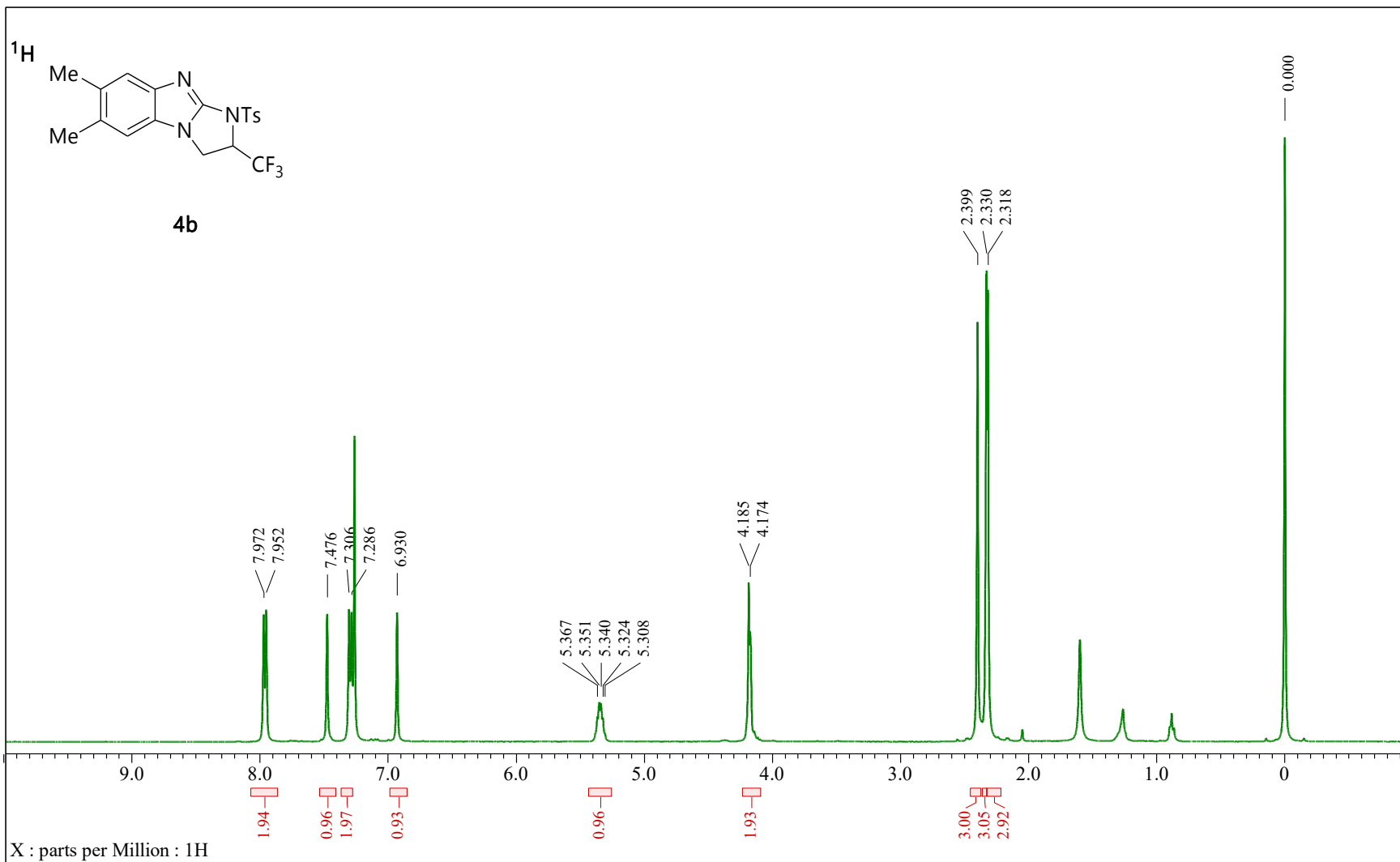
¹³C

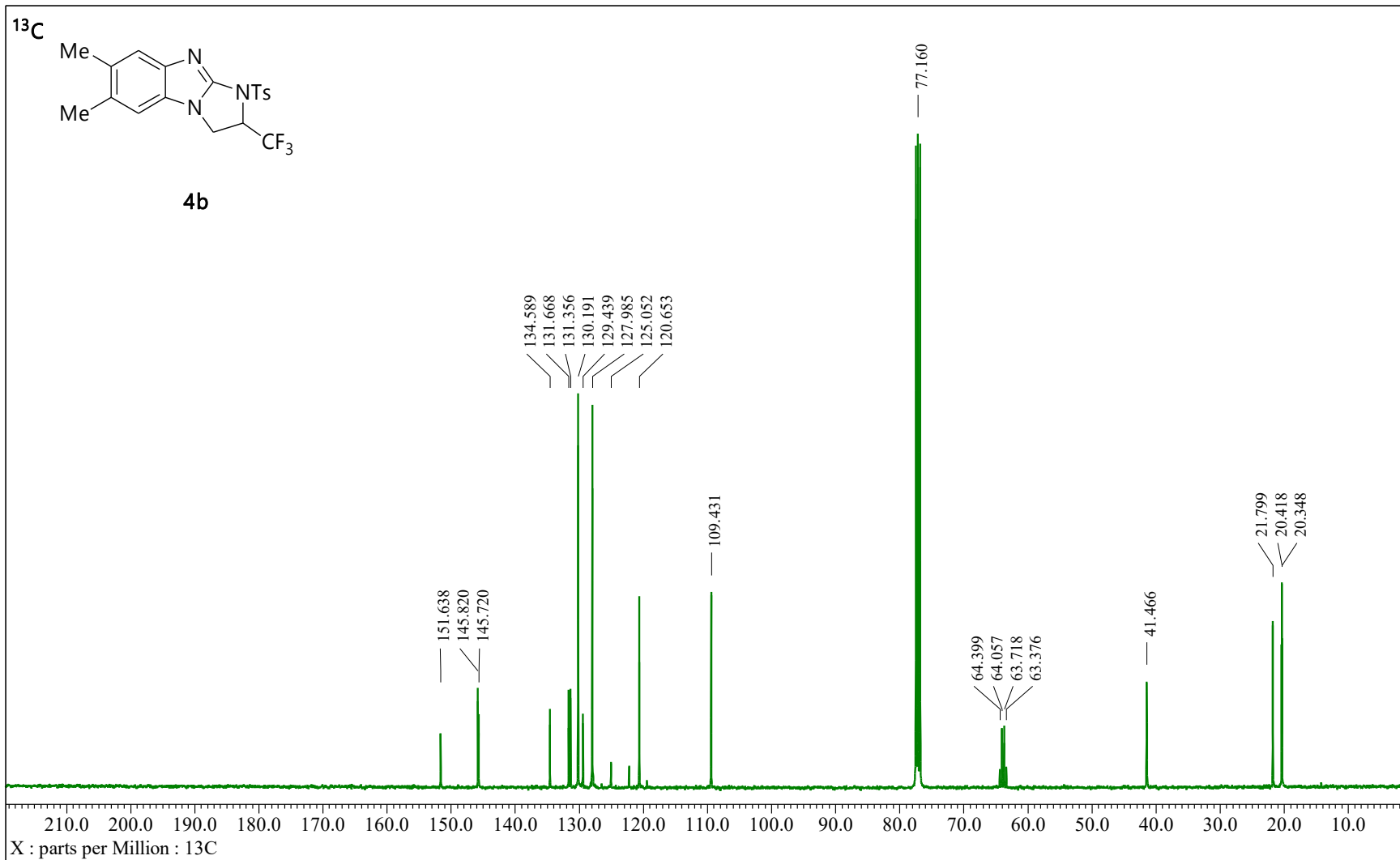


4a

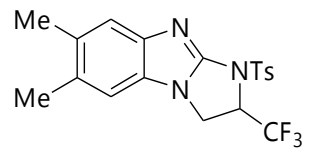




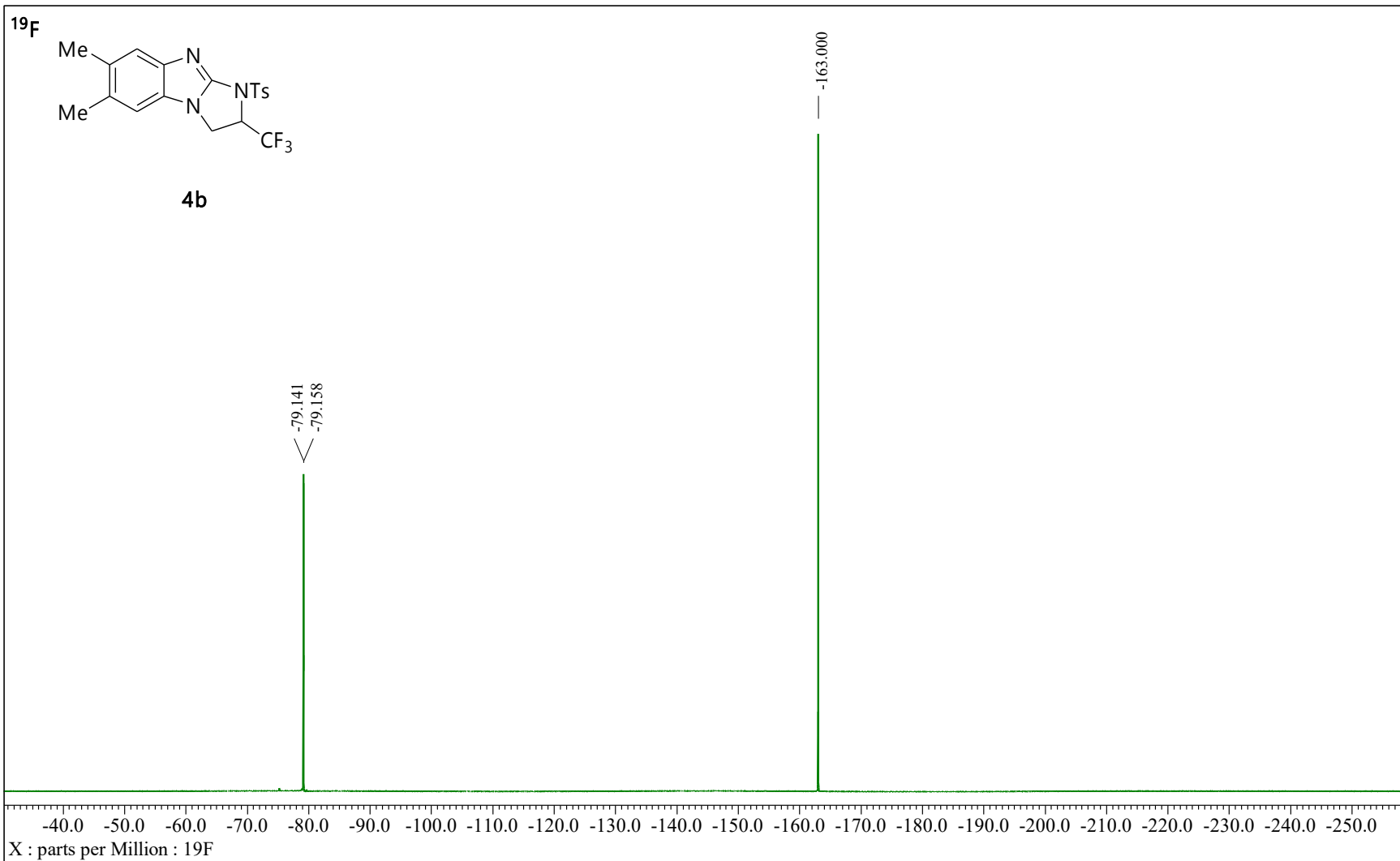


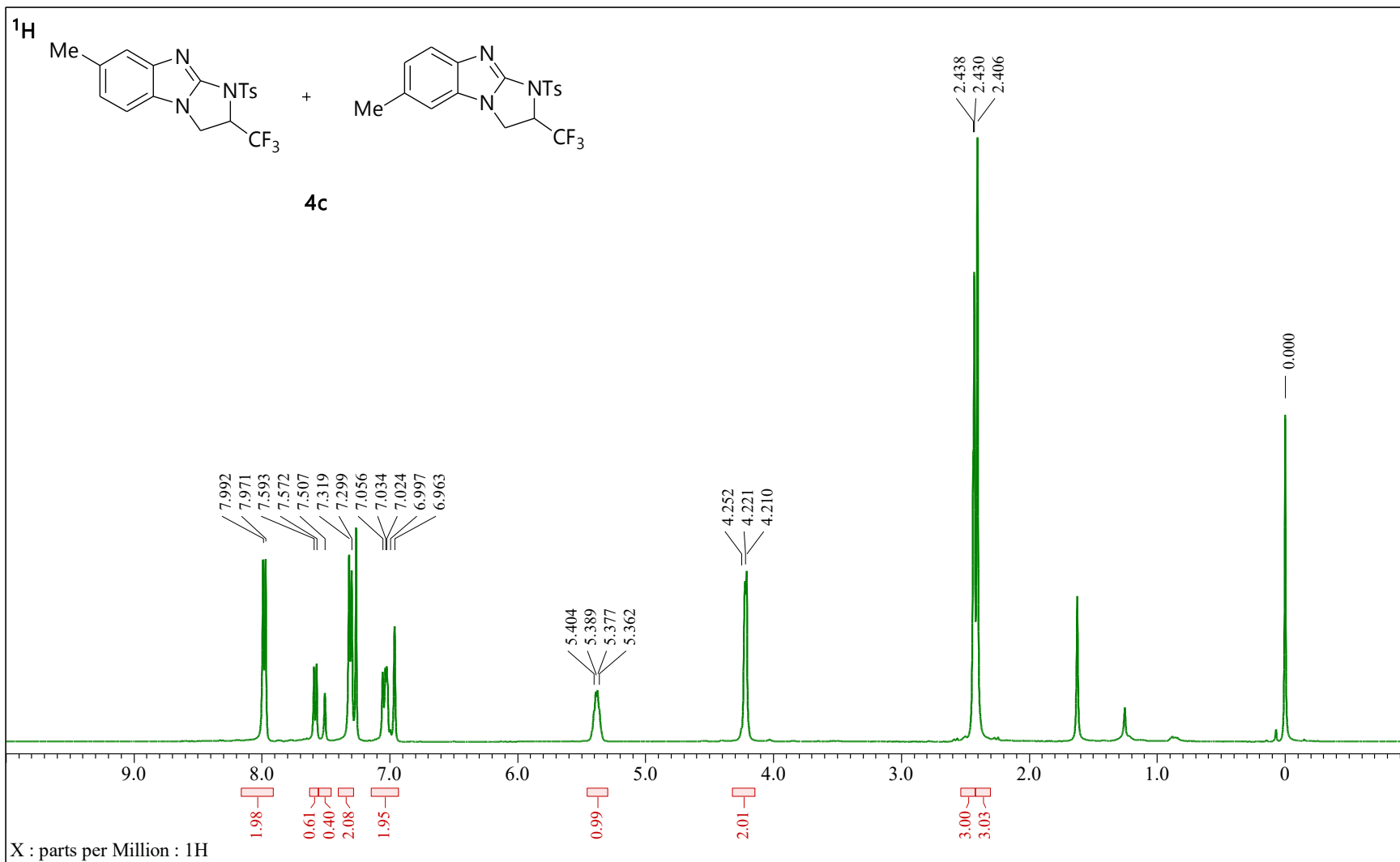


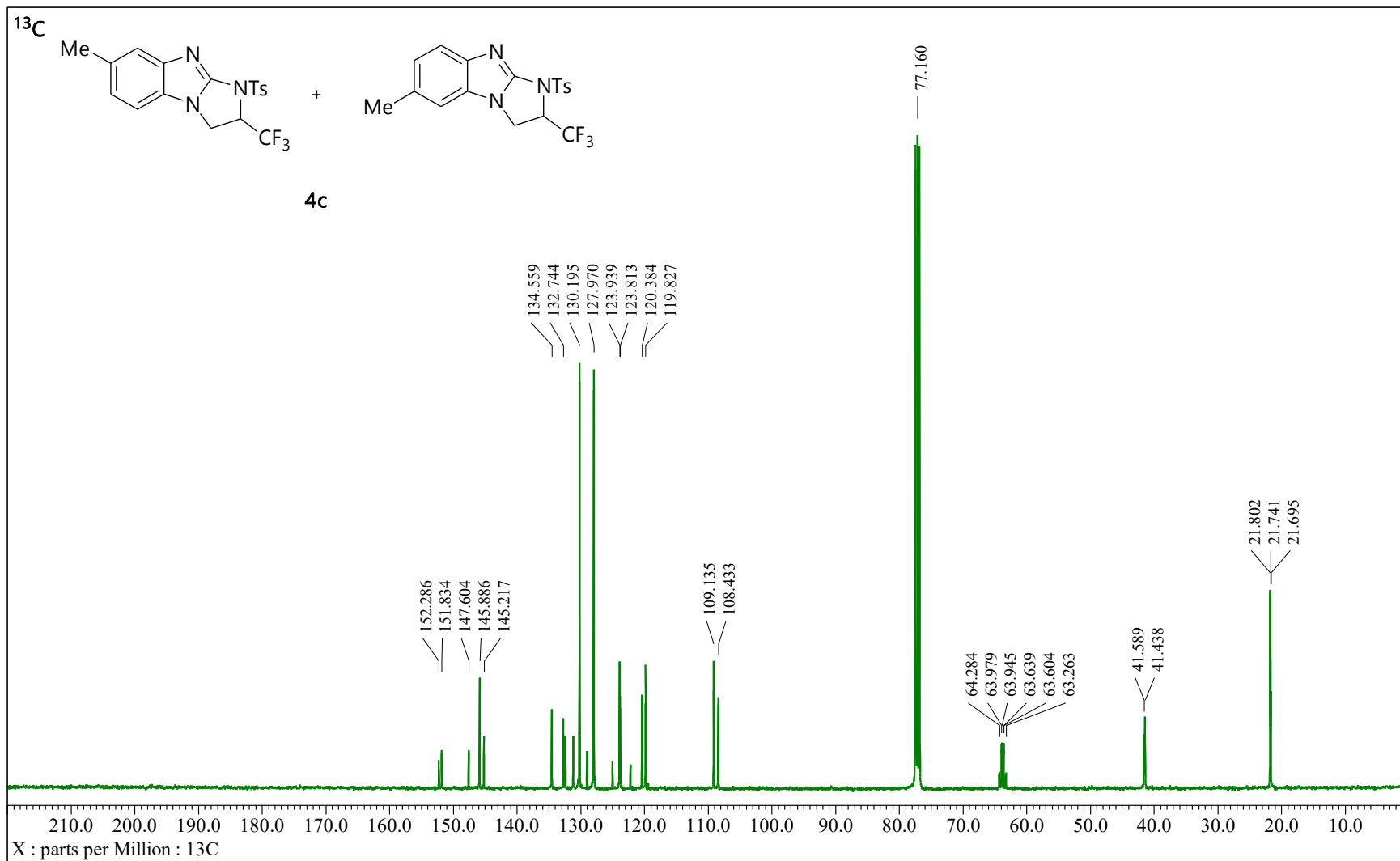
¹⁹F

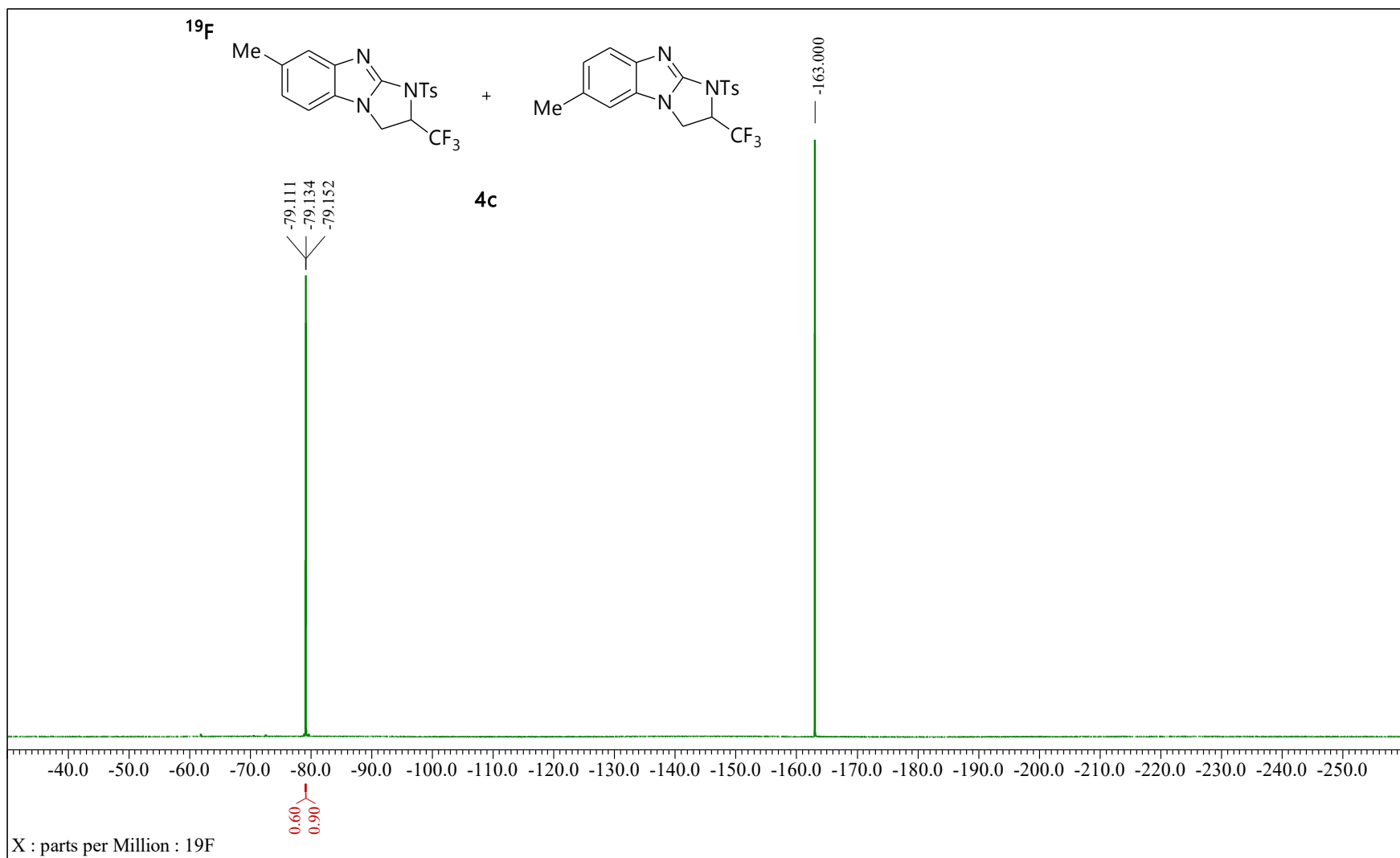


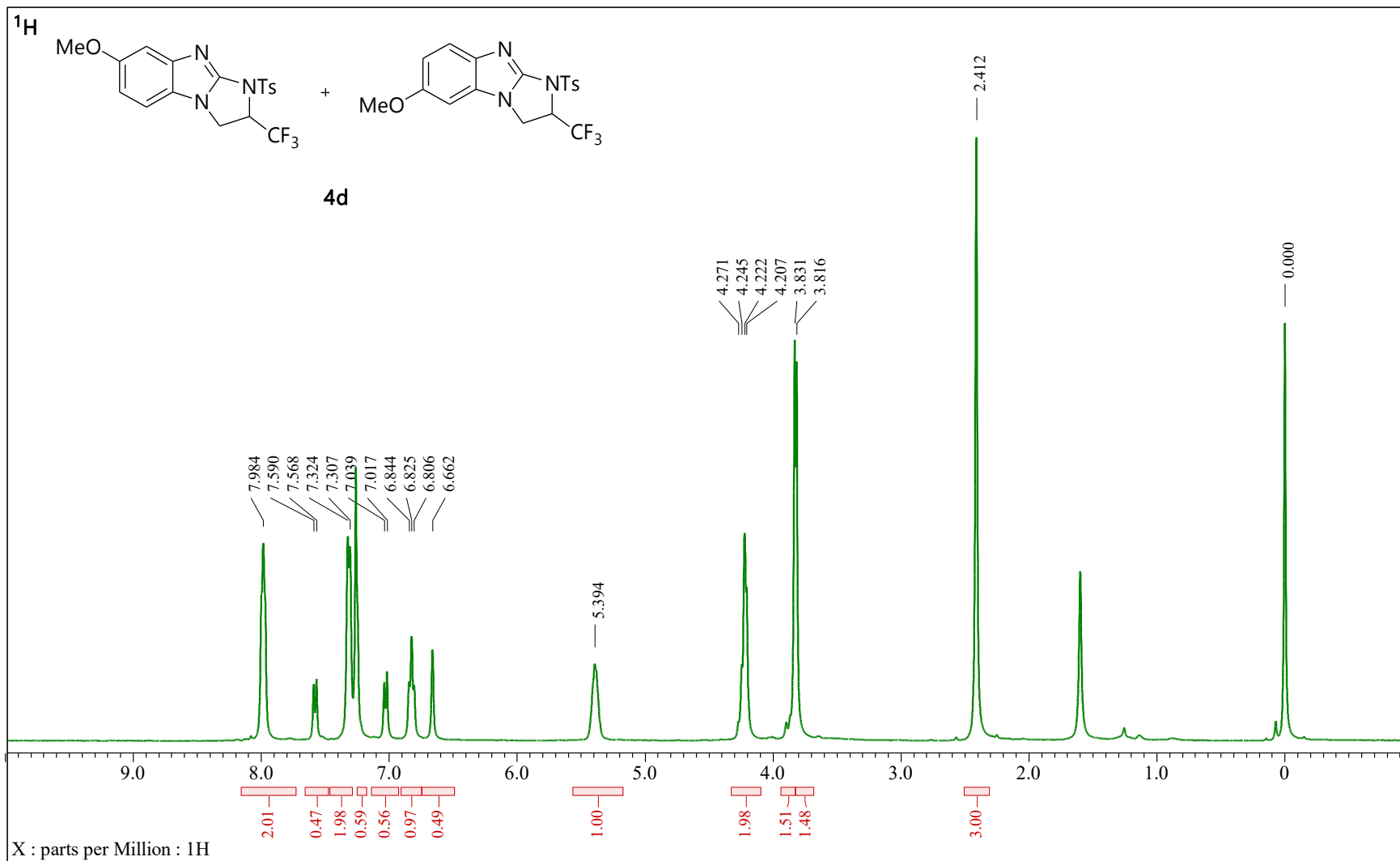
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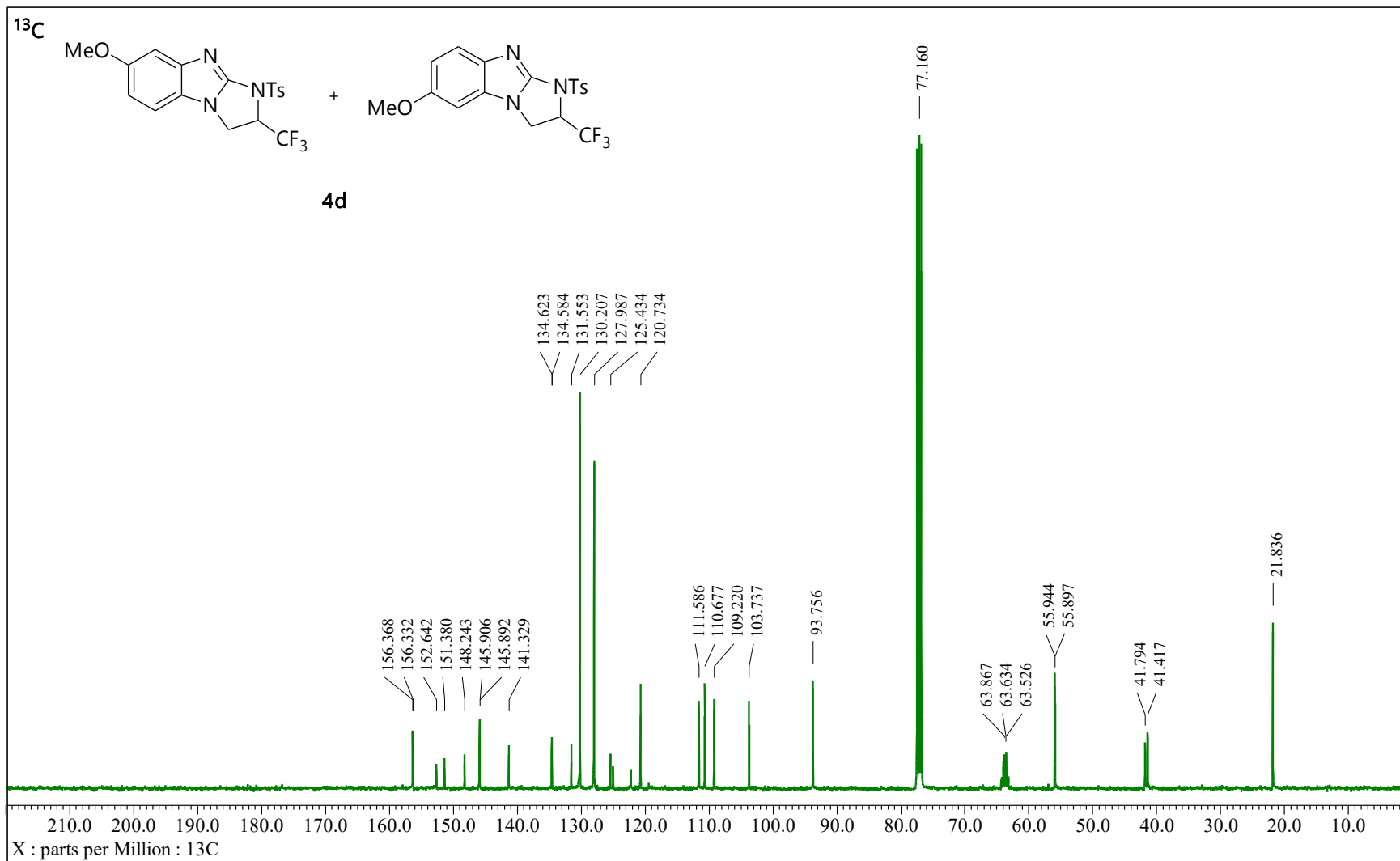


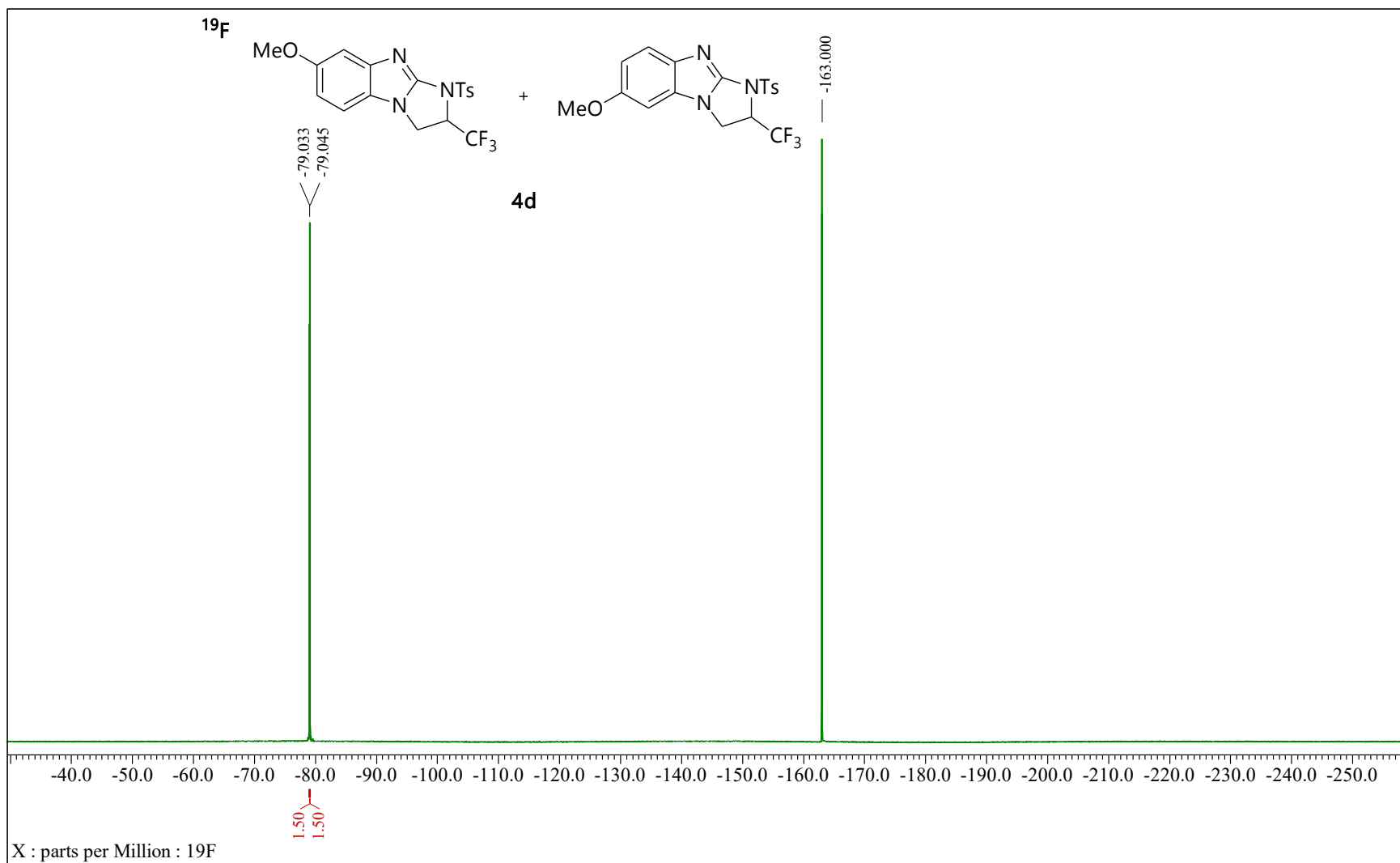


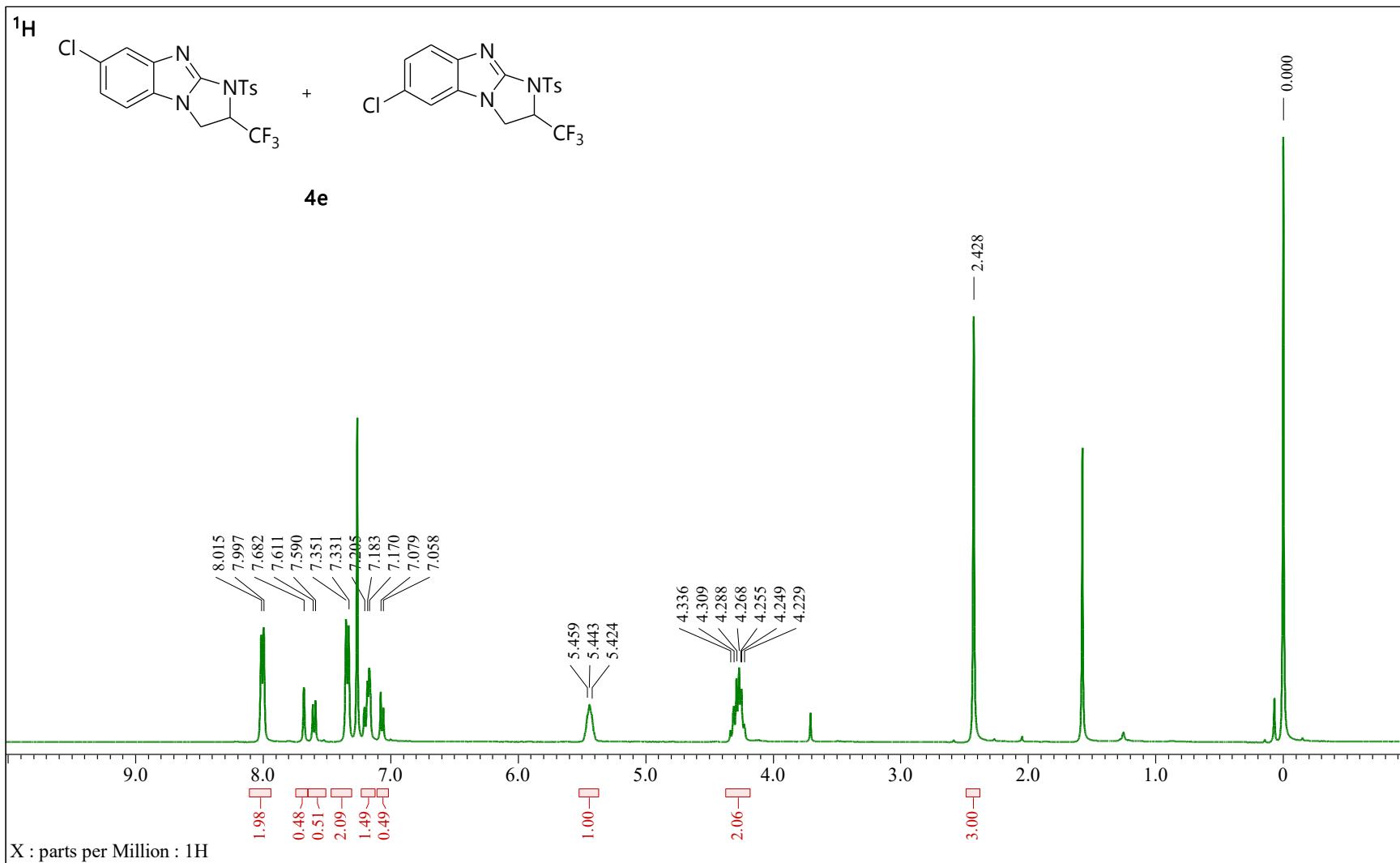


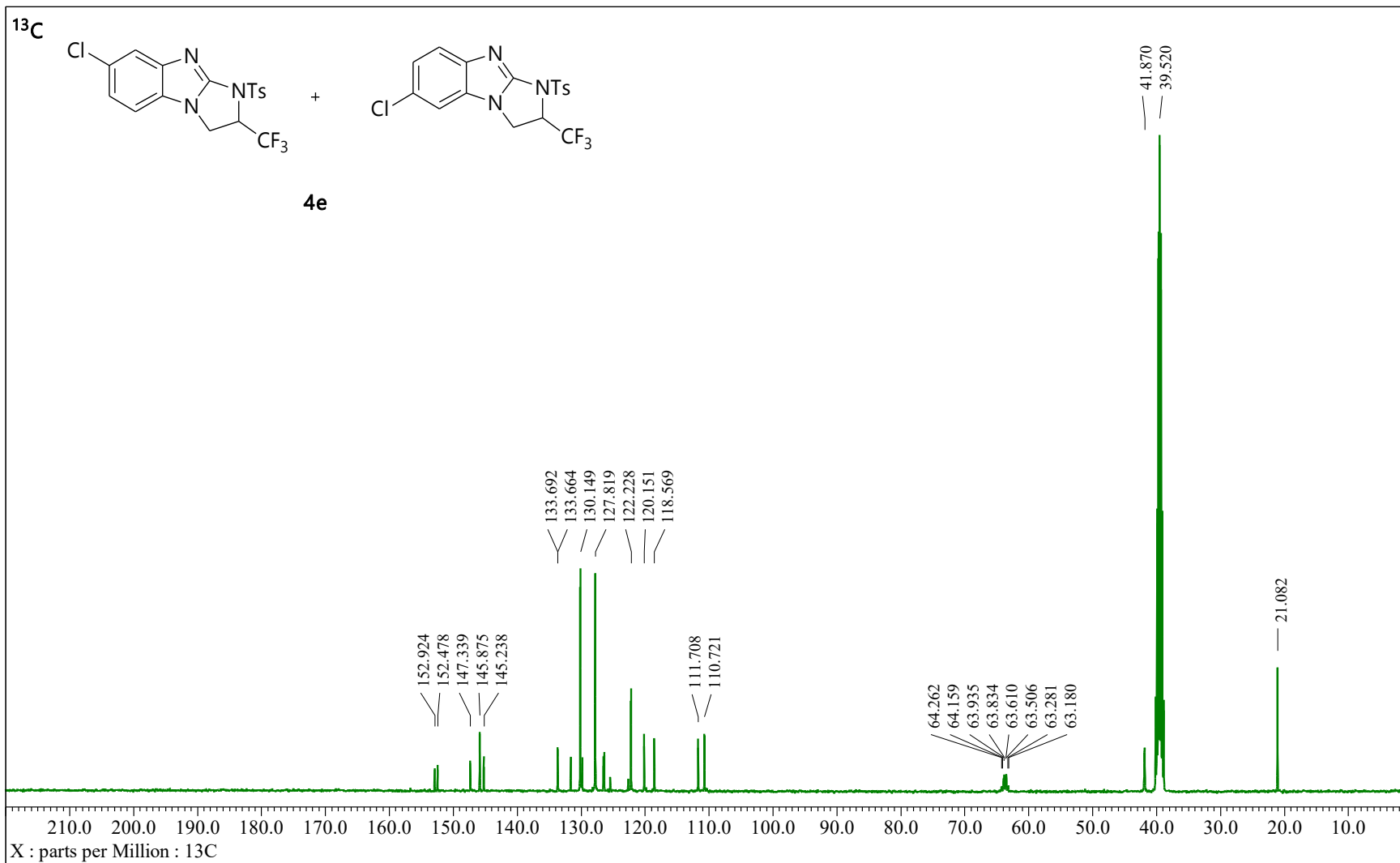


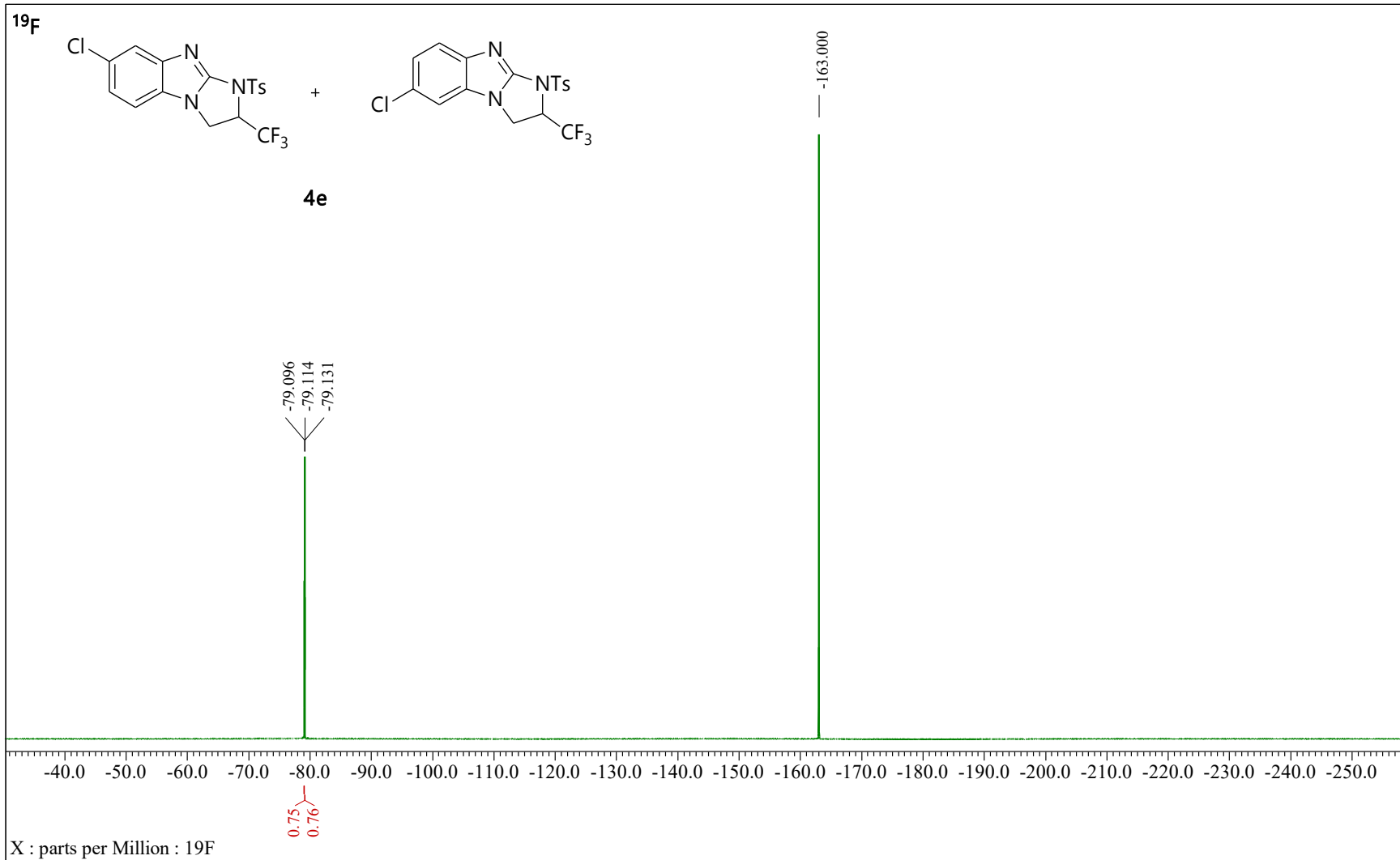


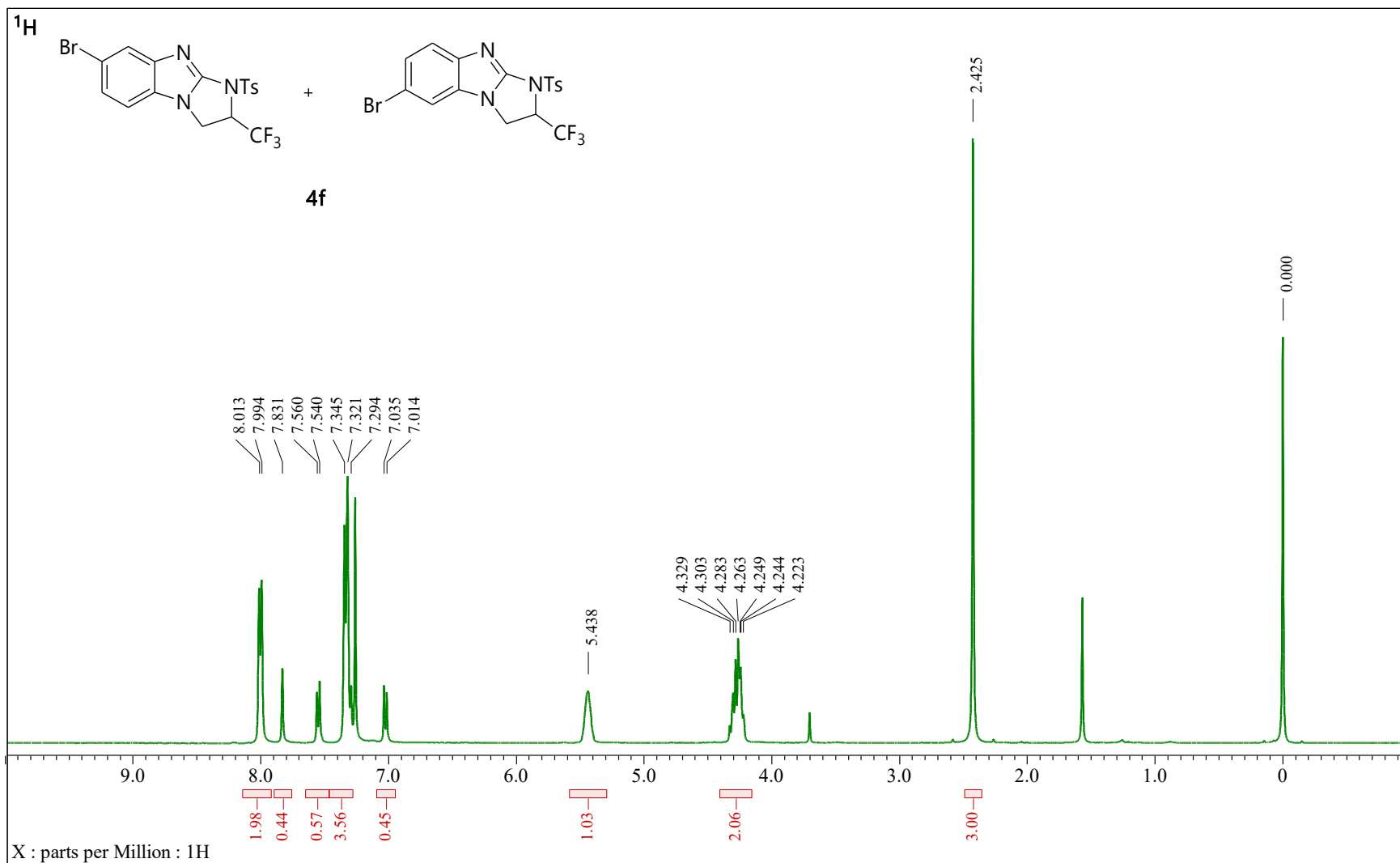


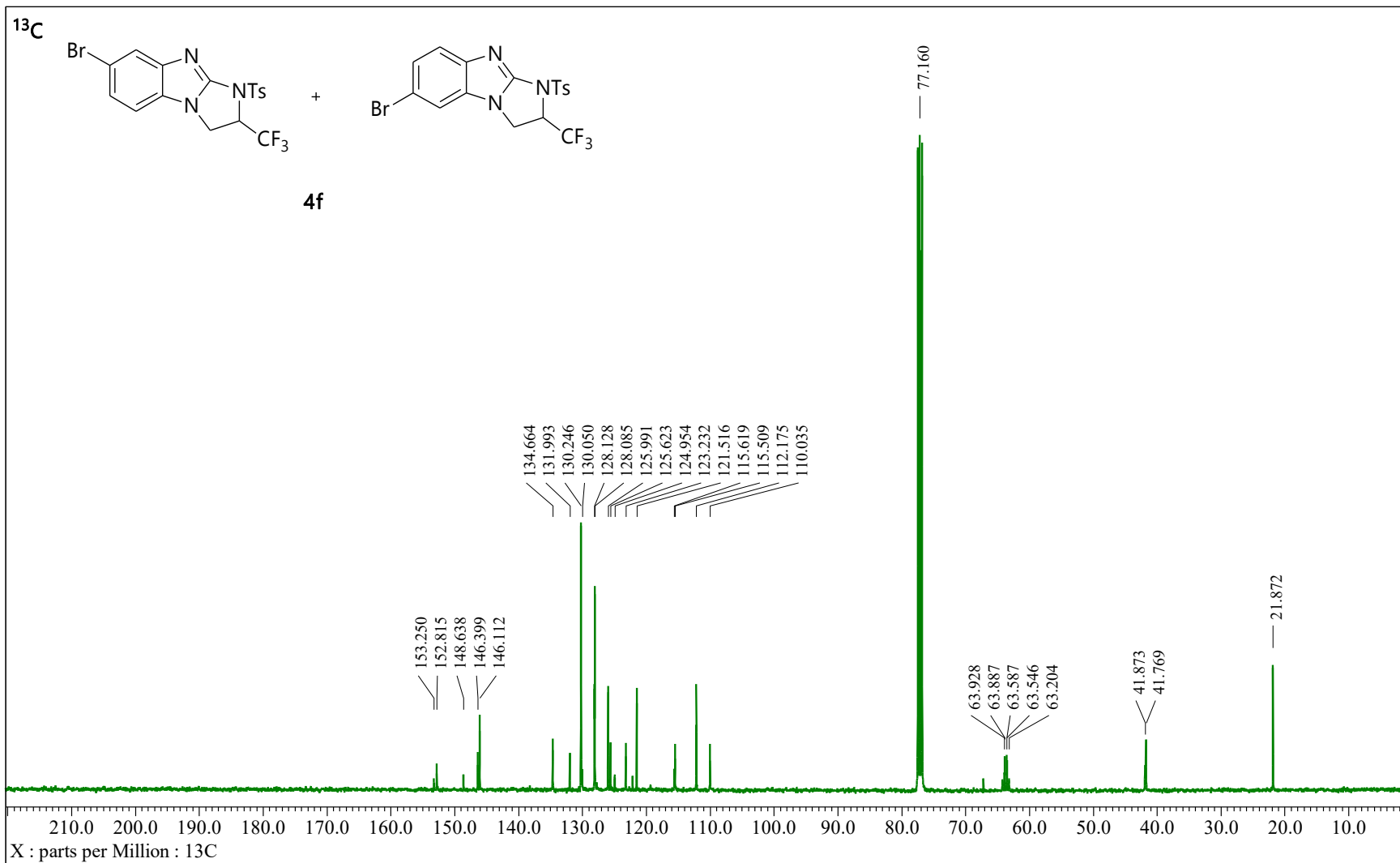


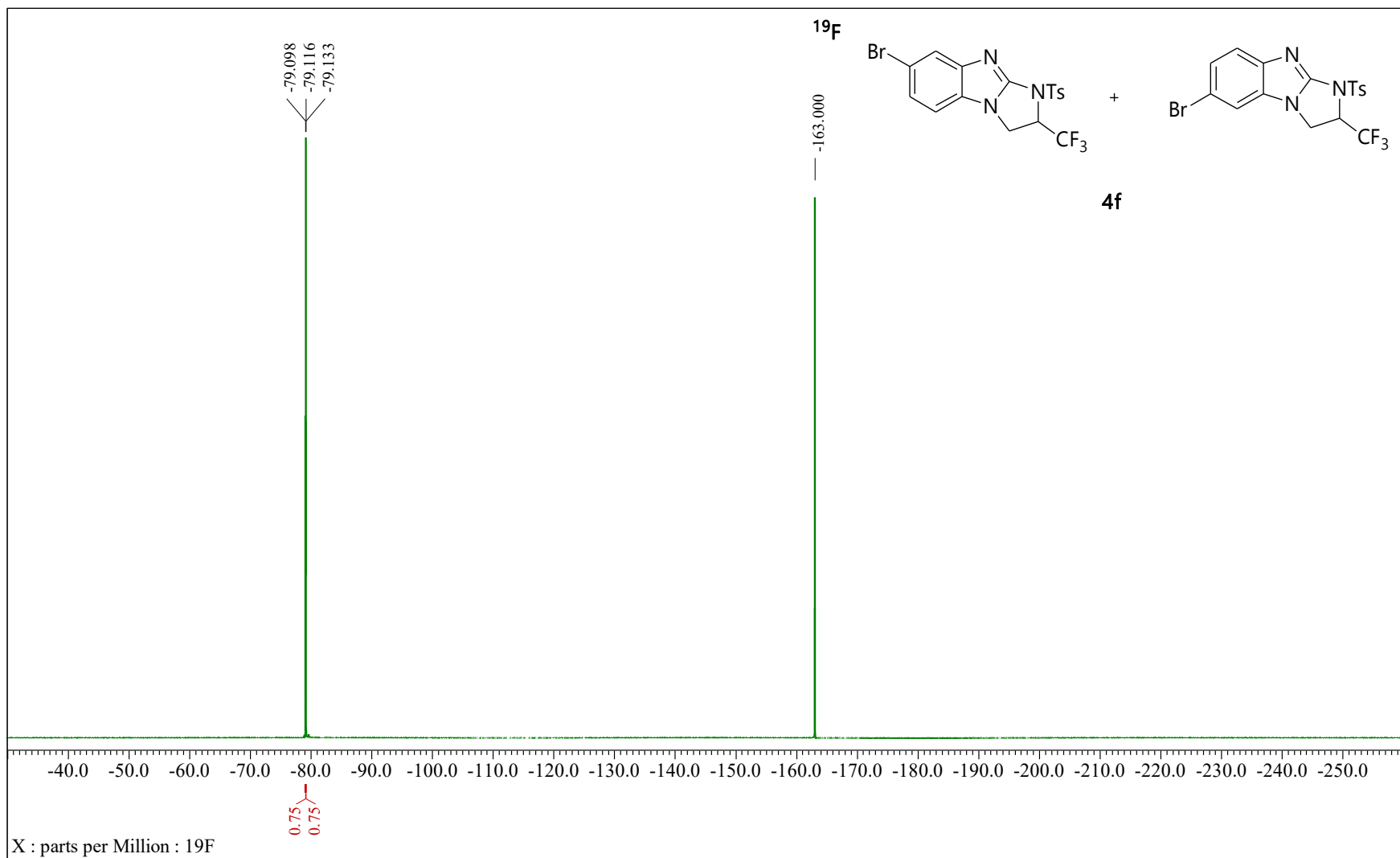


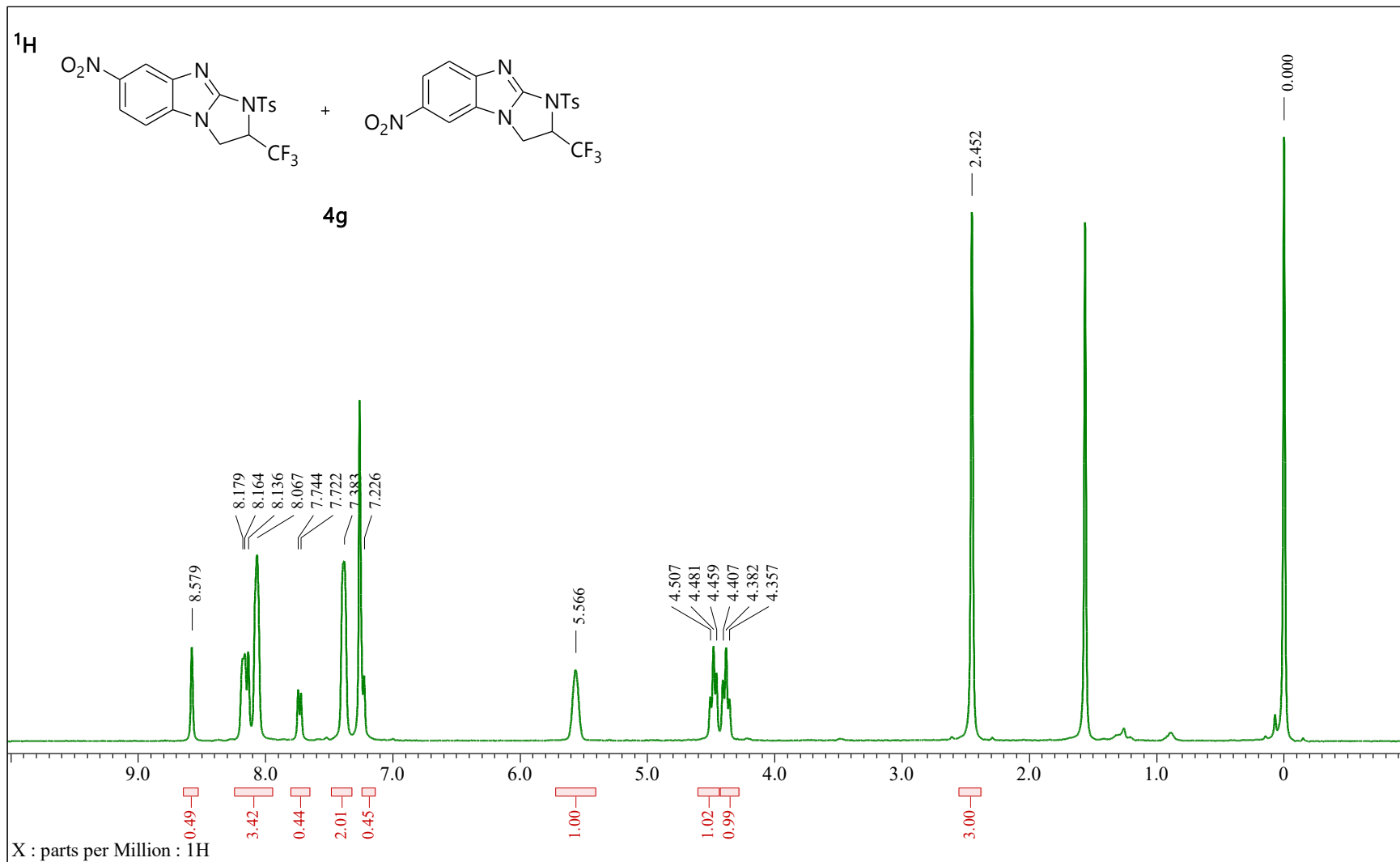


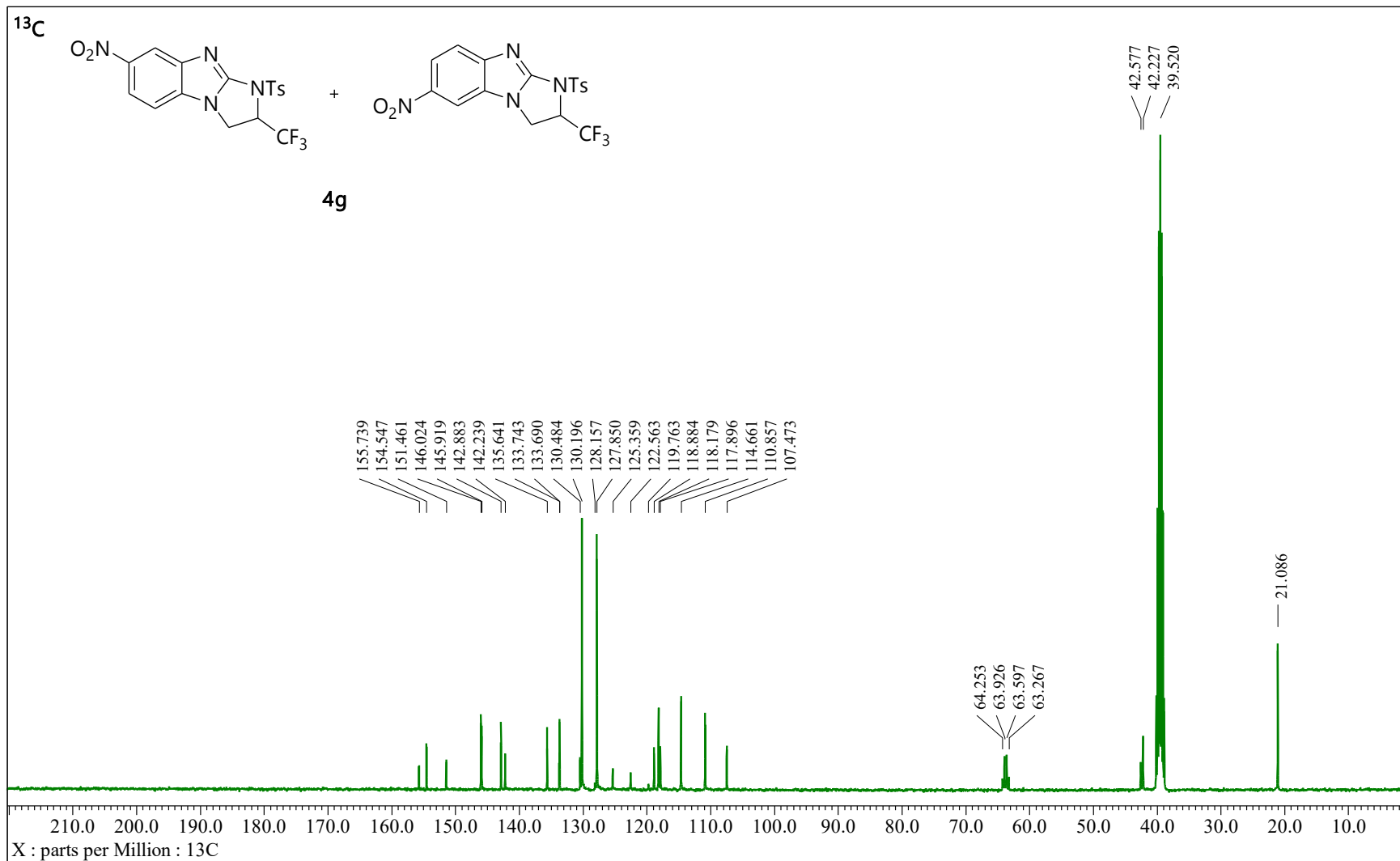


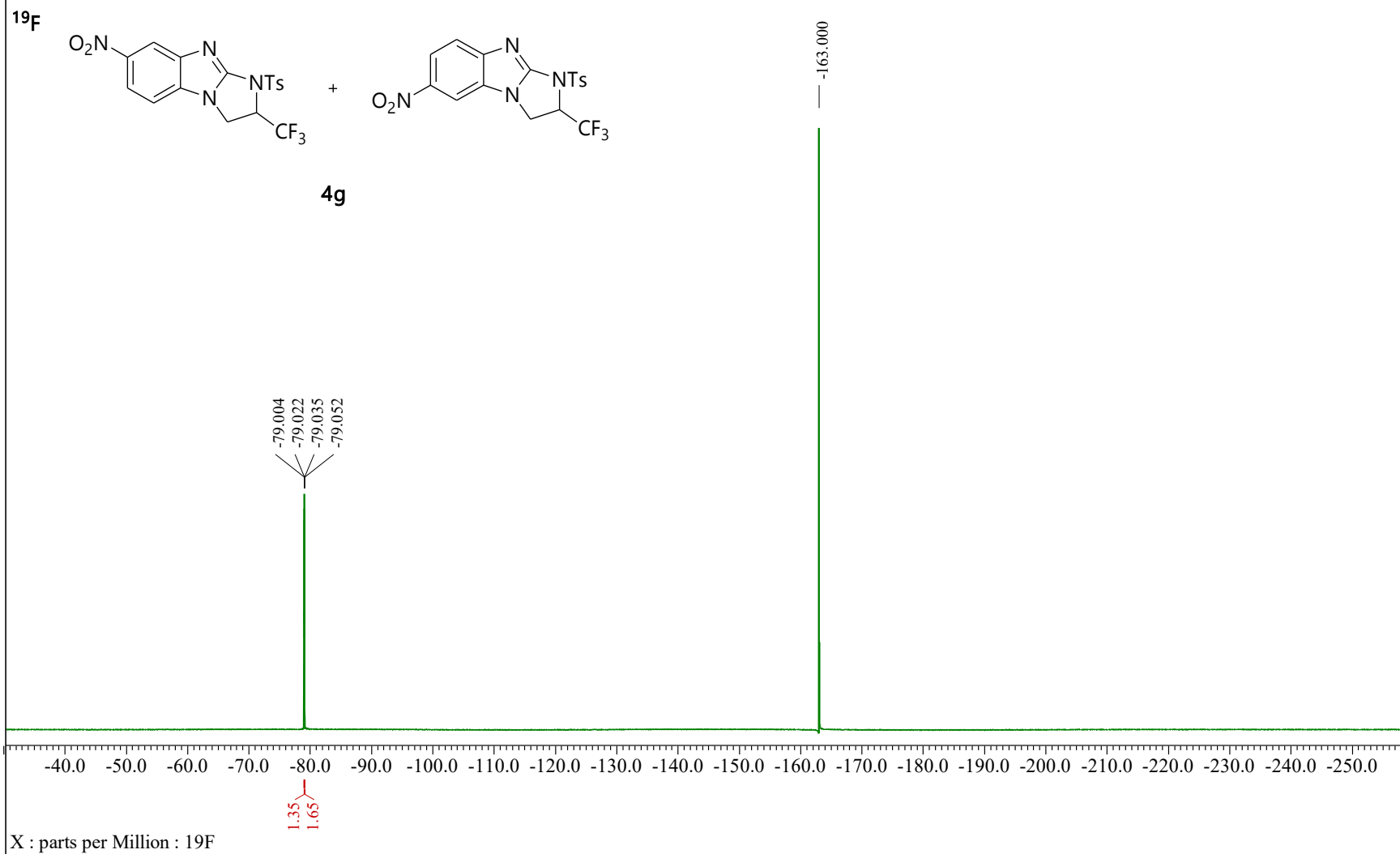


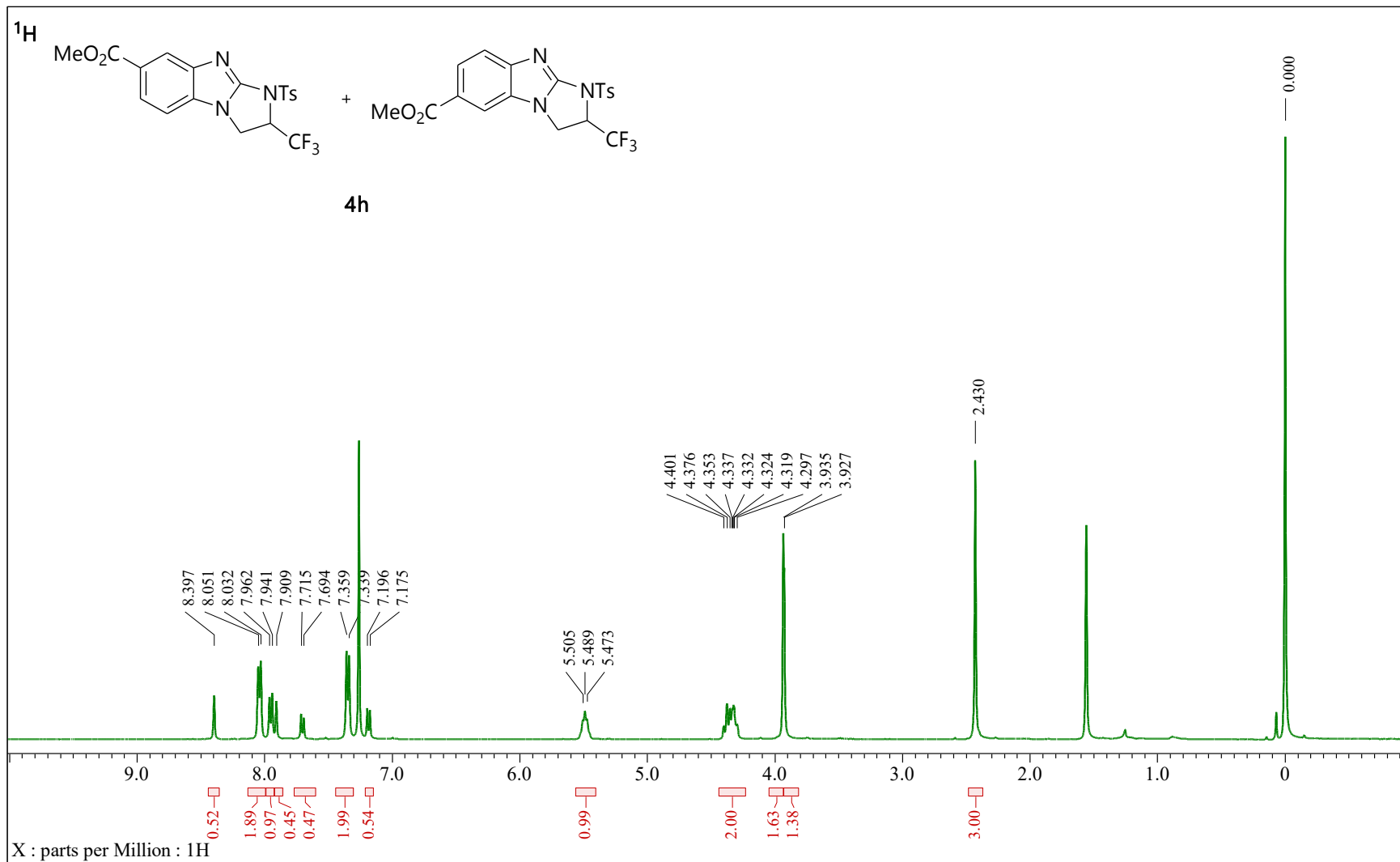


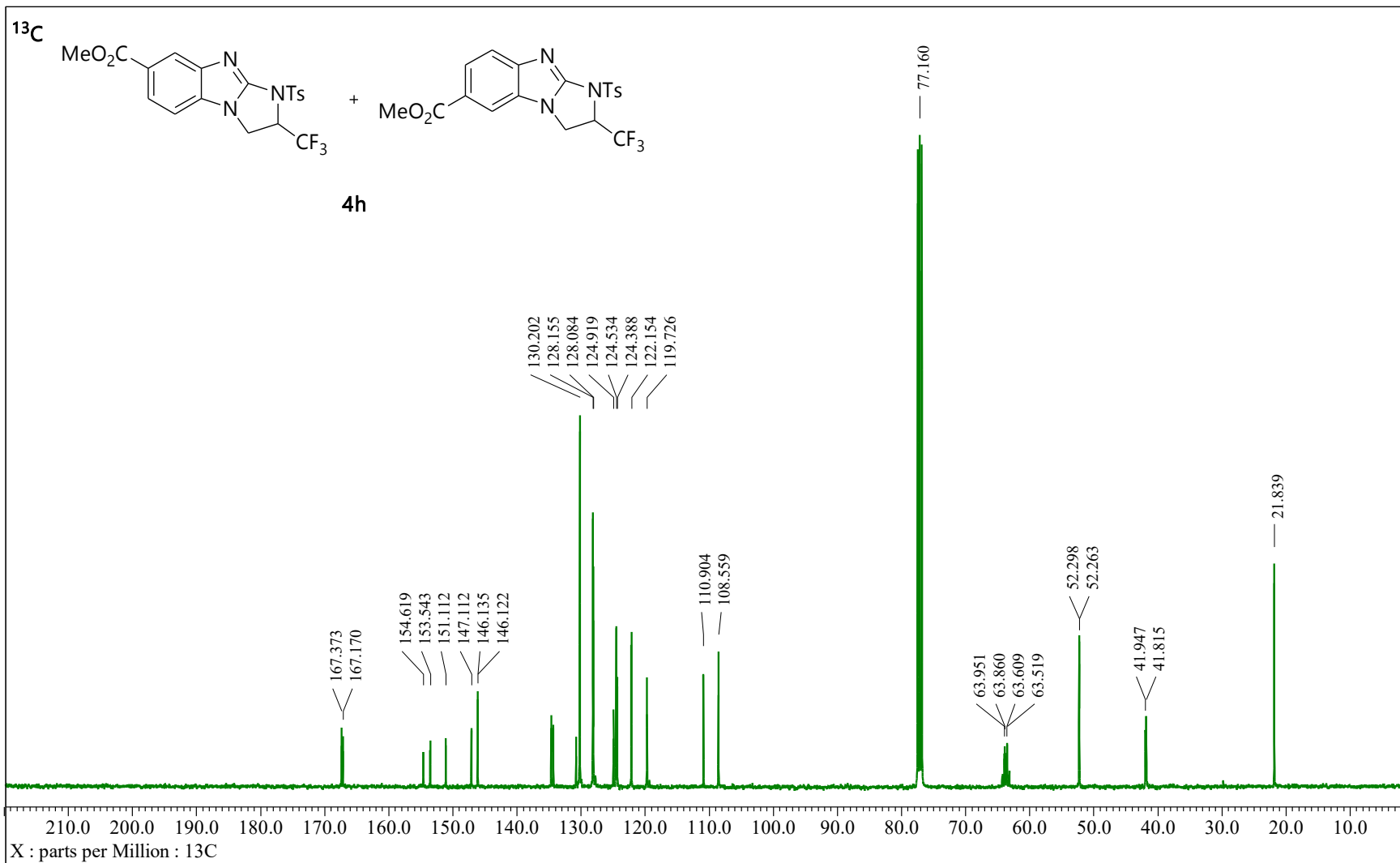


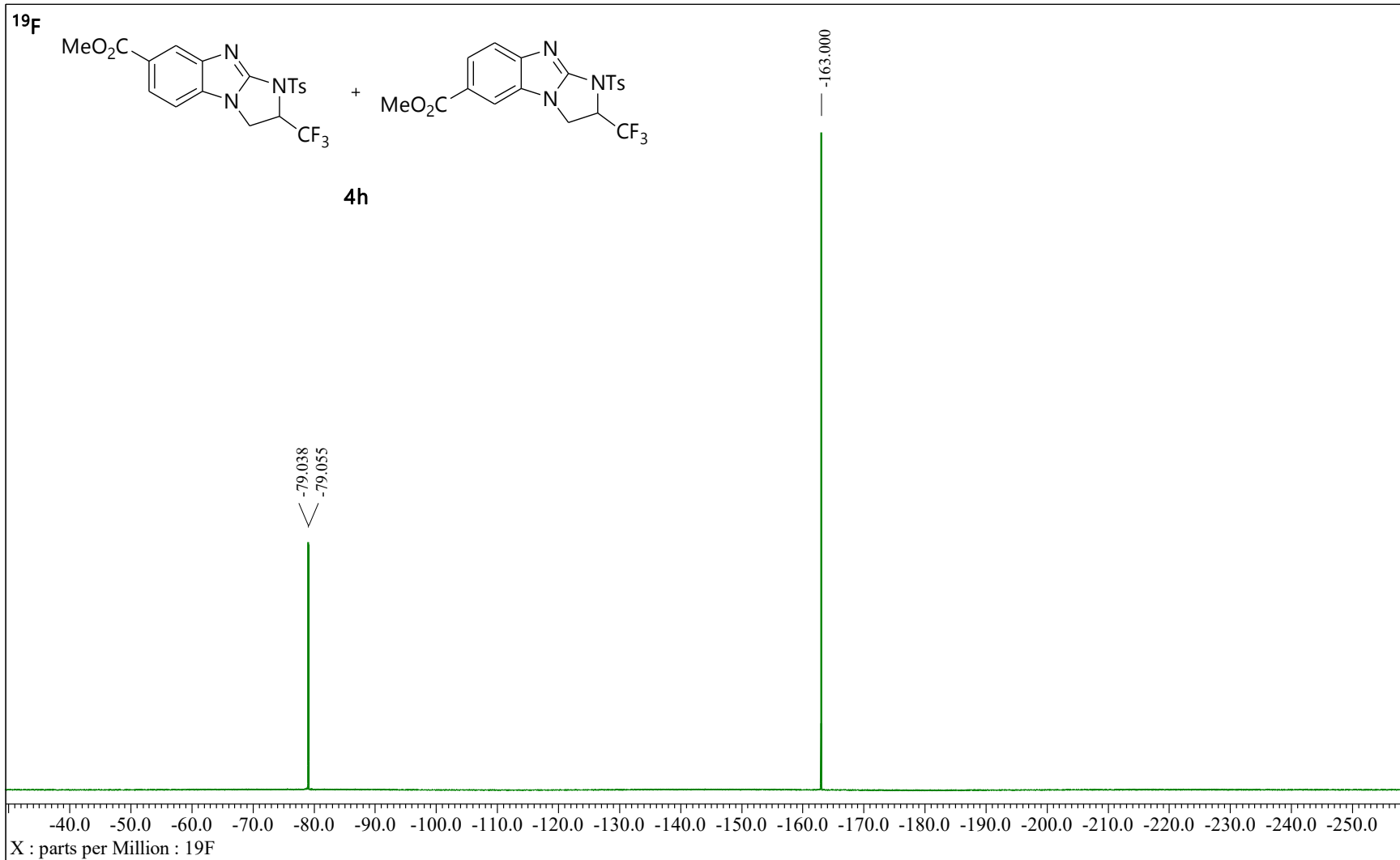


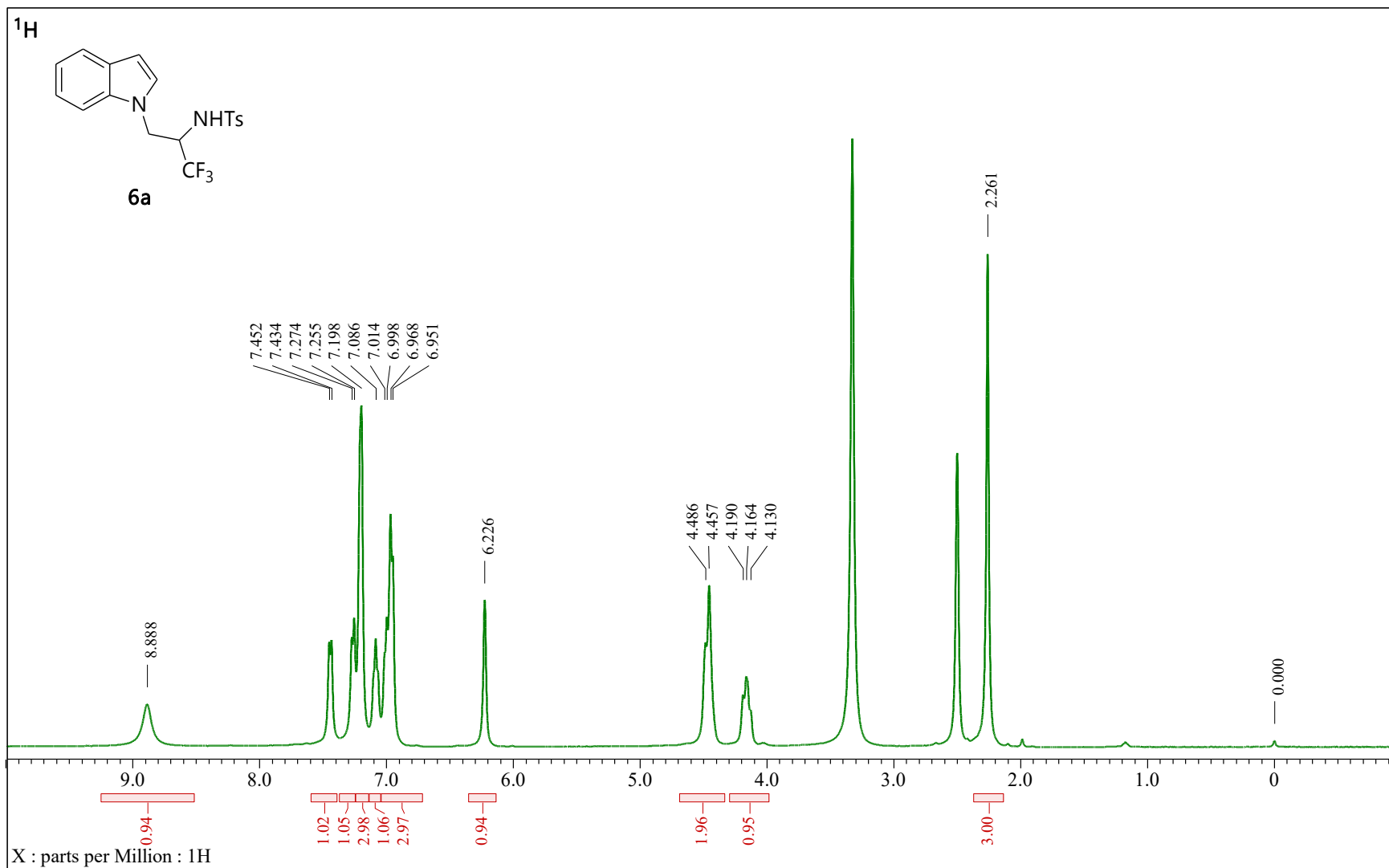


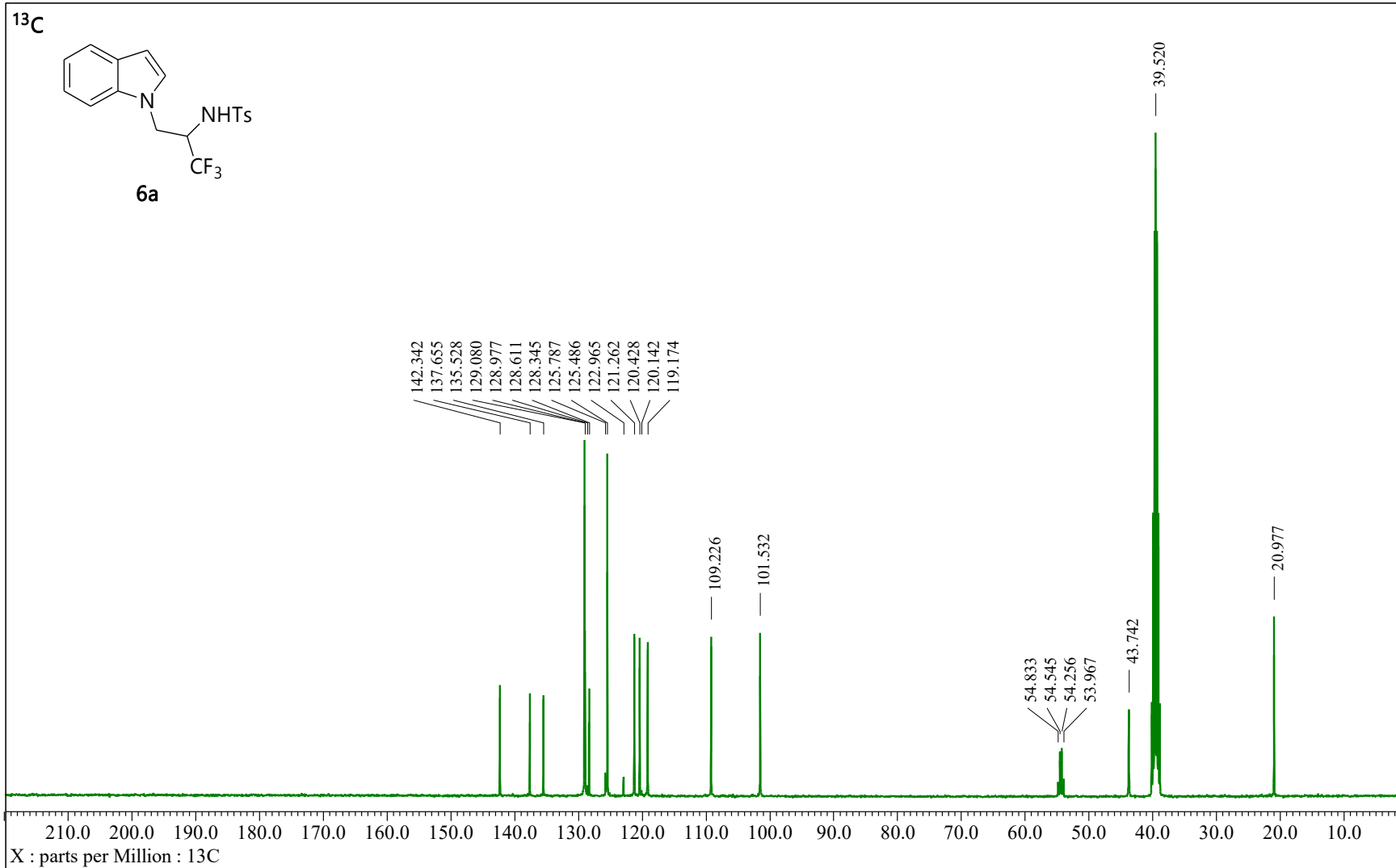


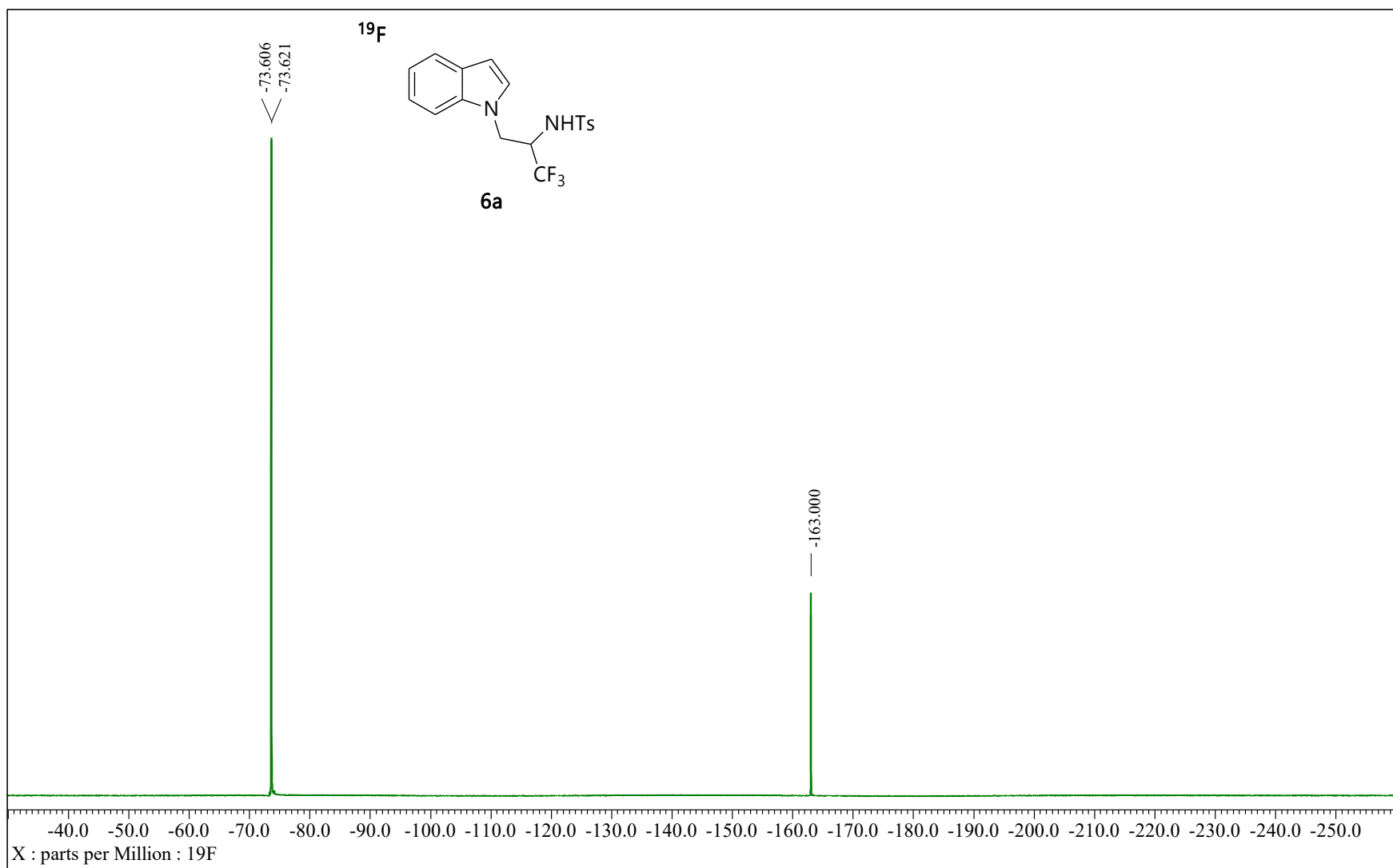


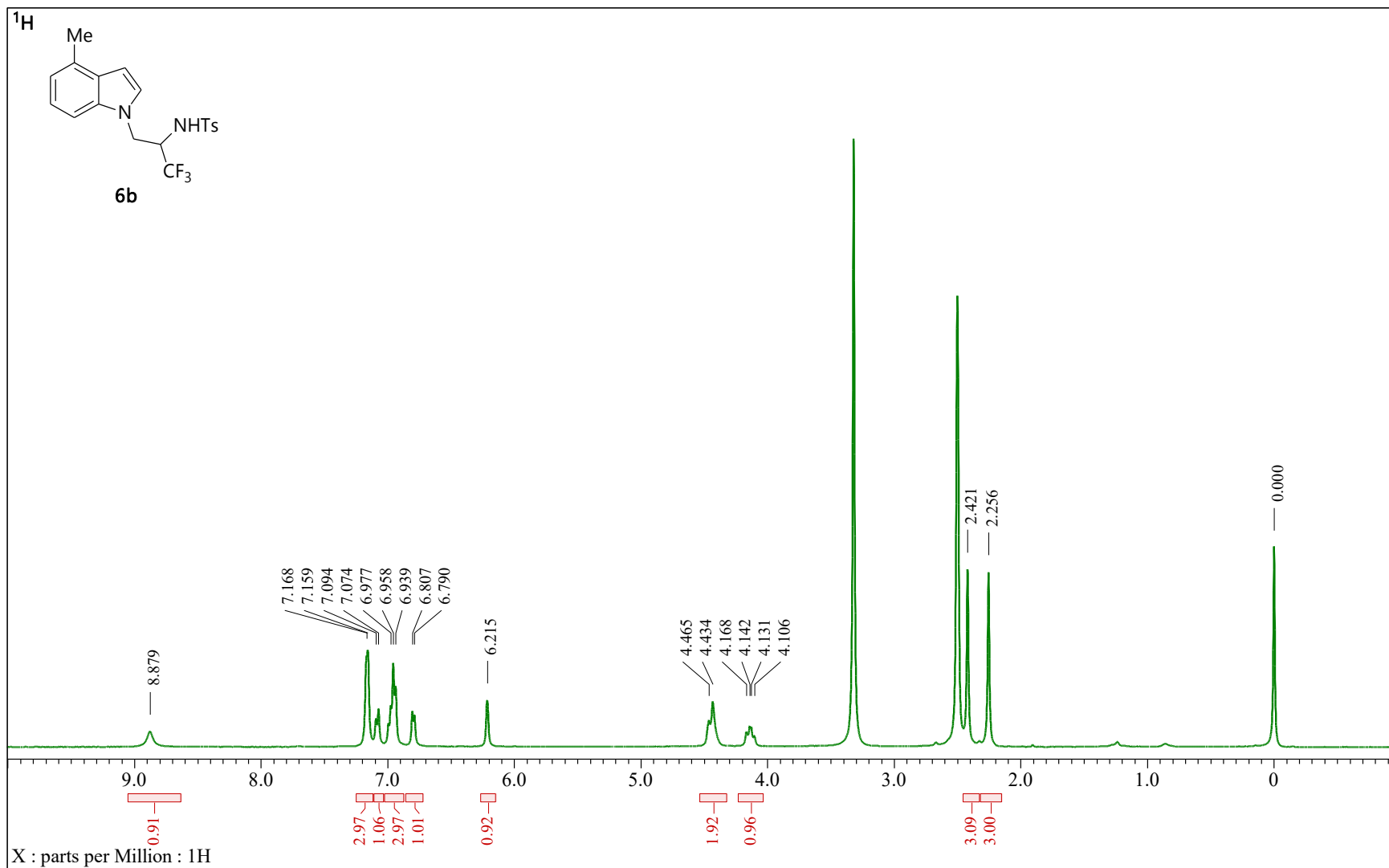


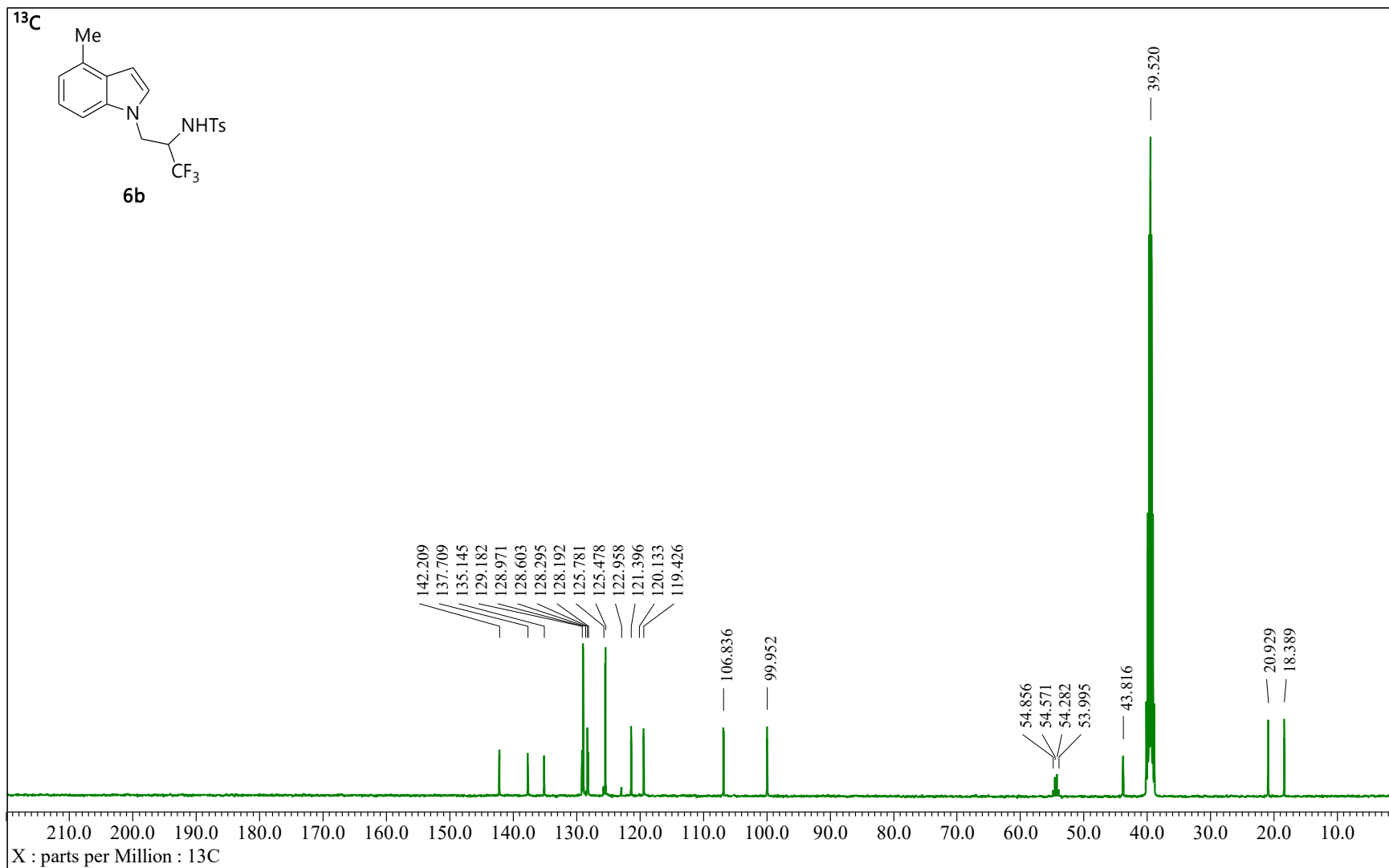


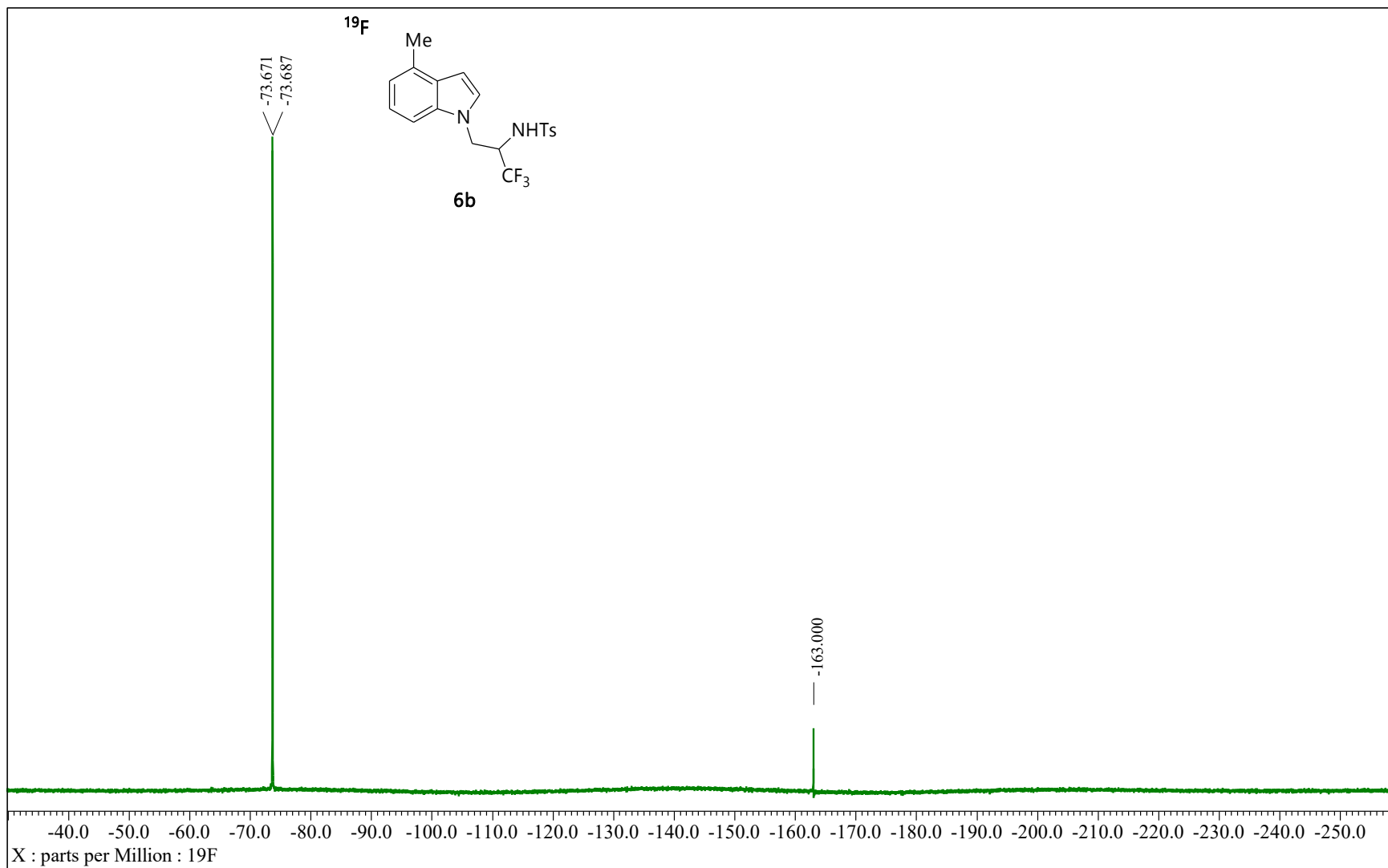


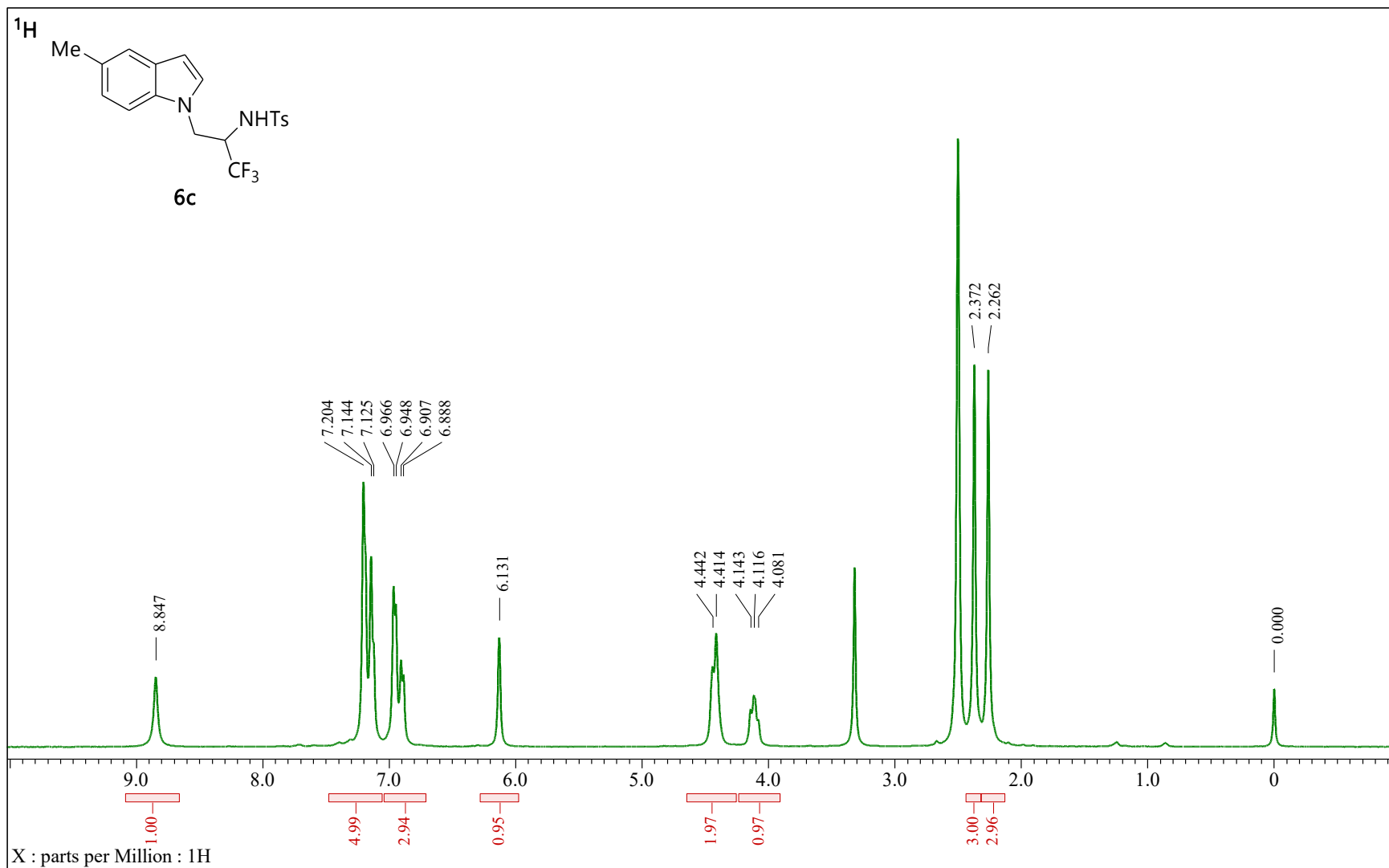


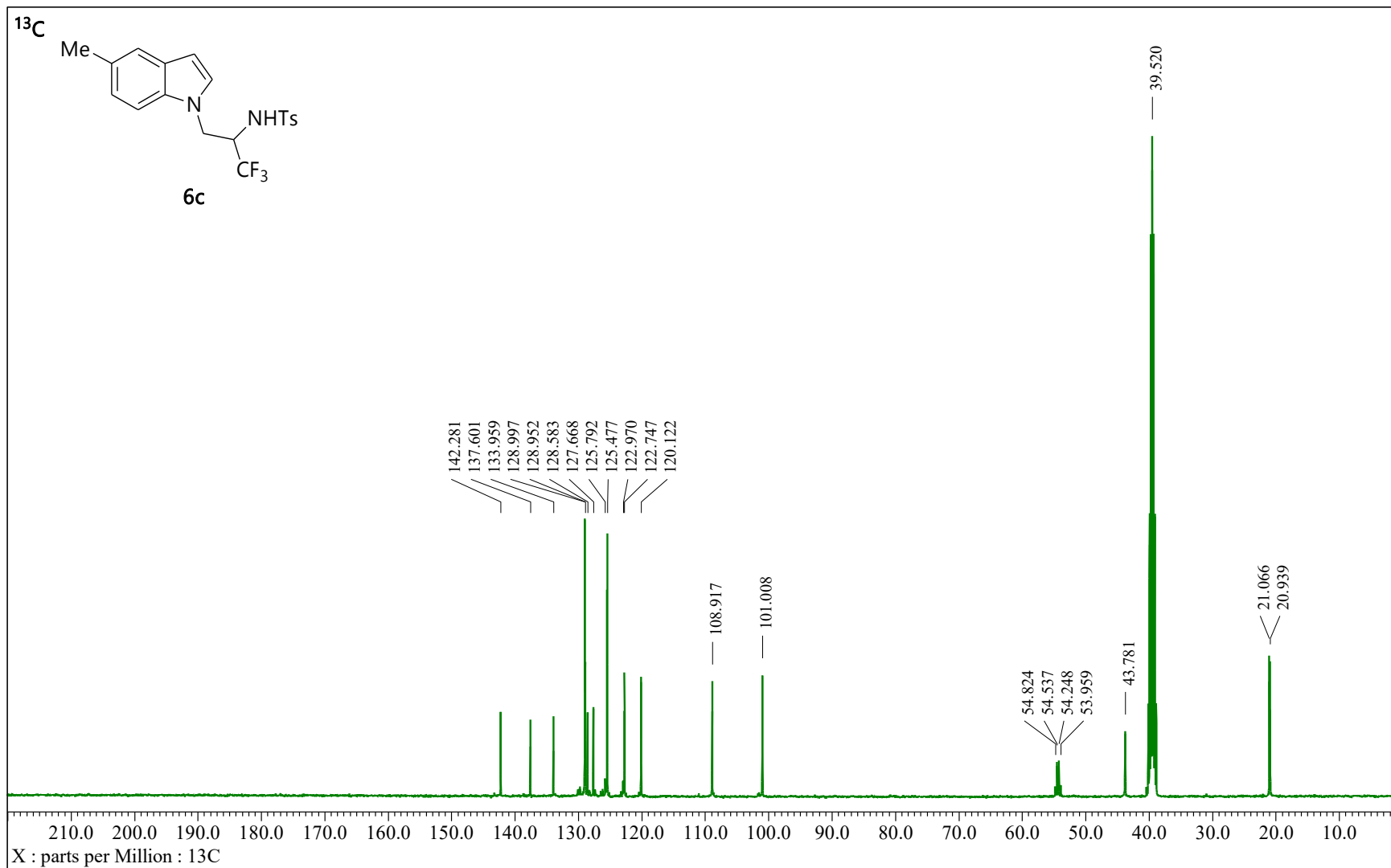


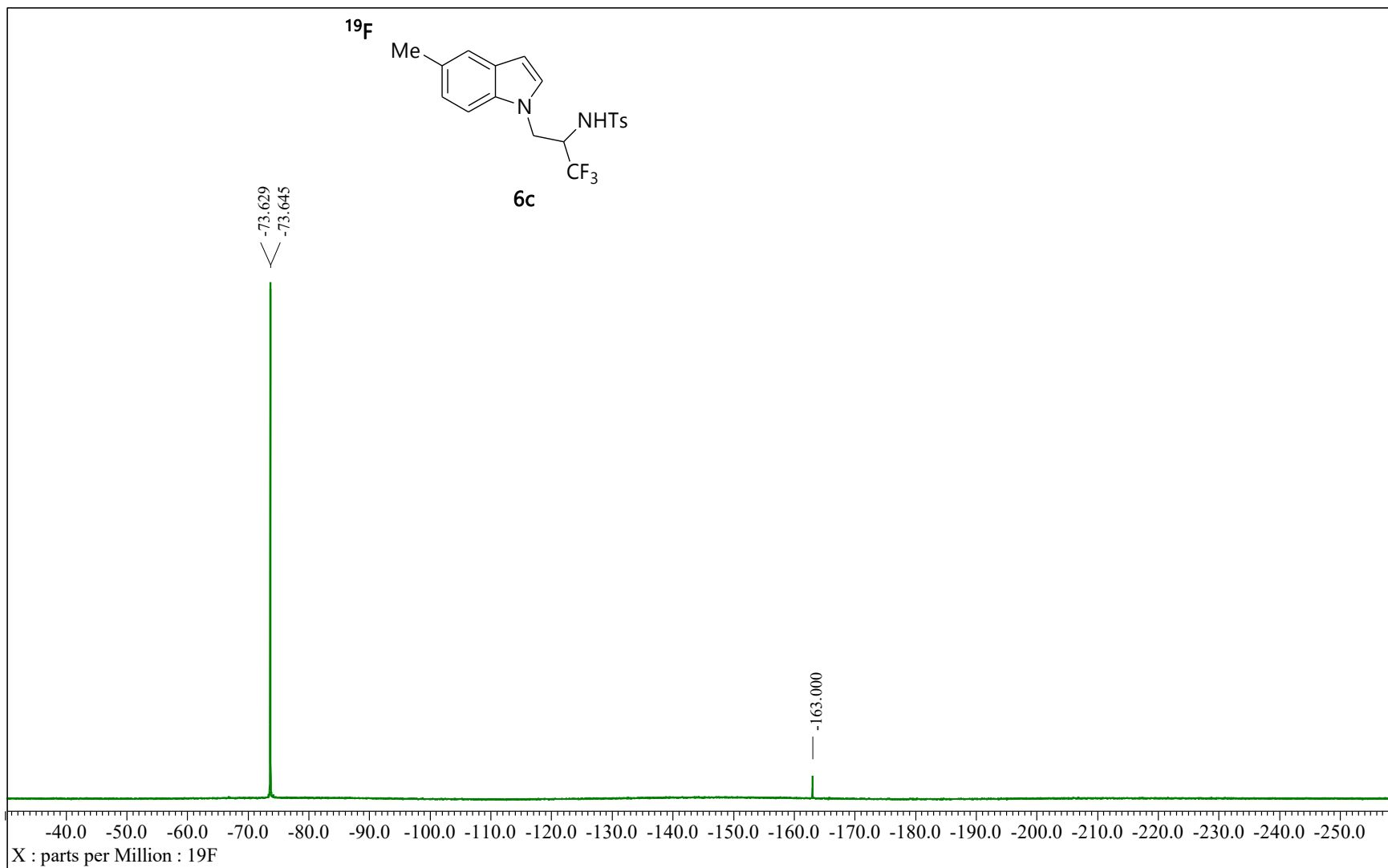


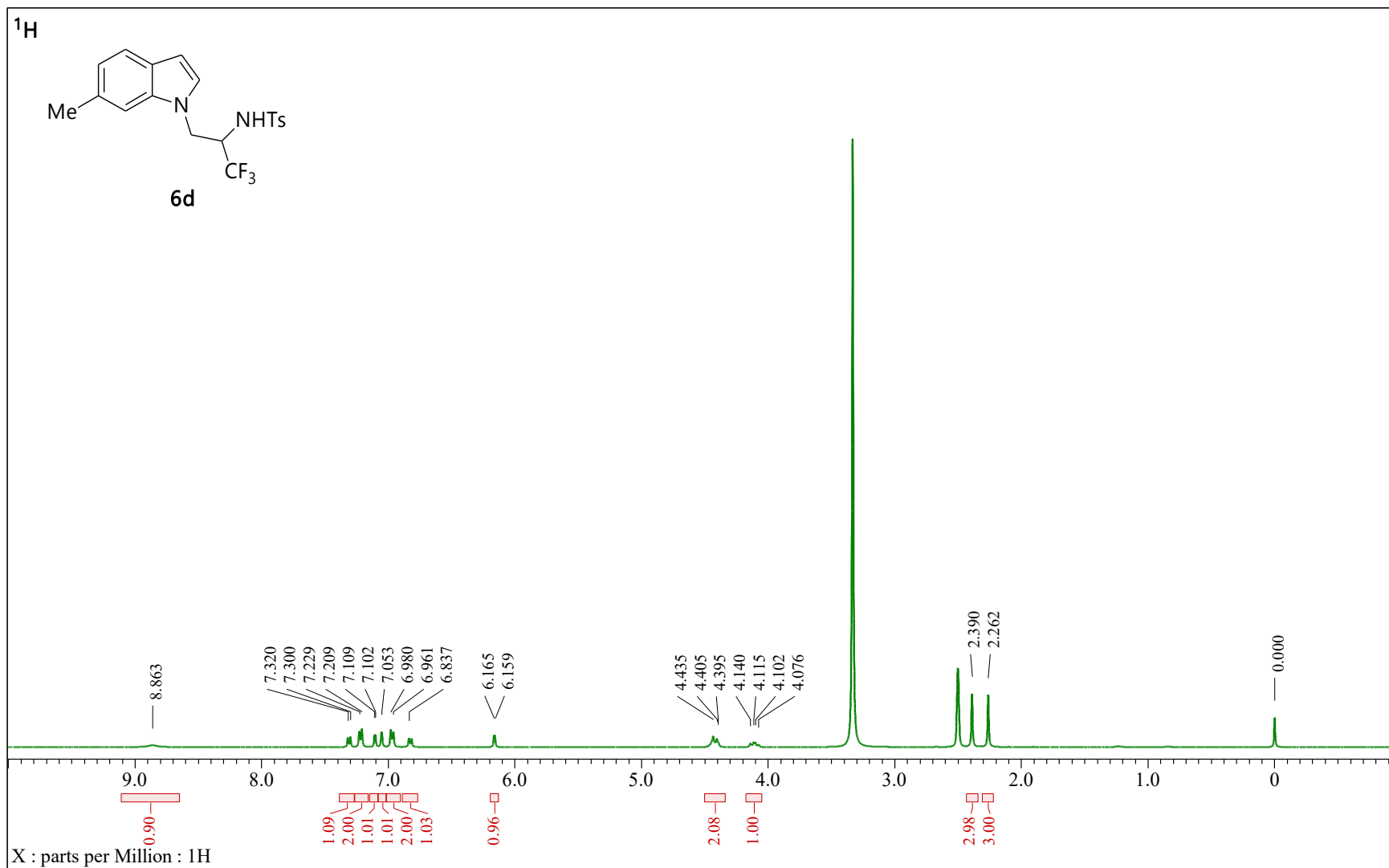




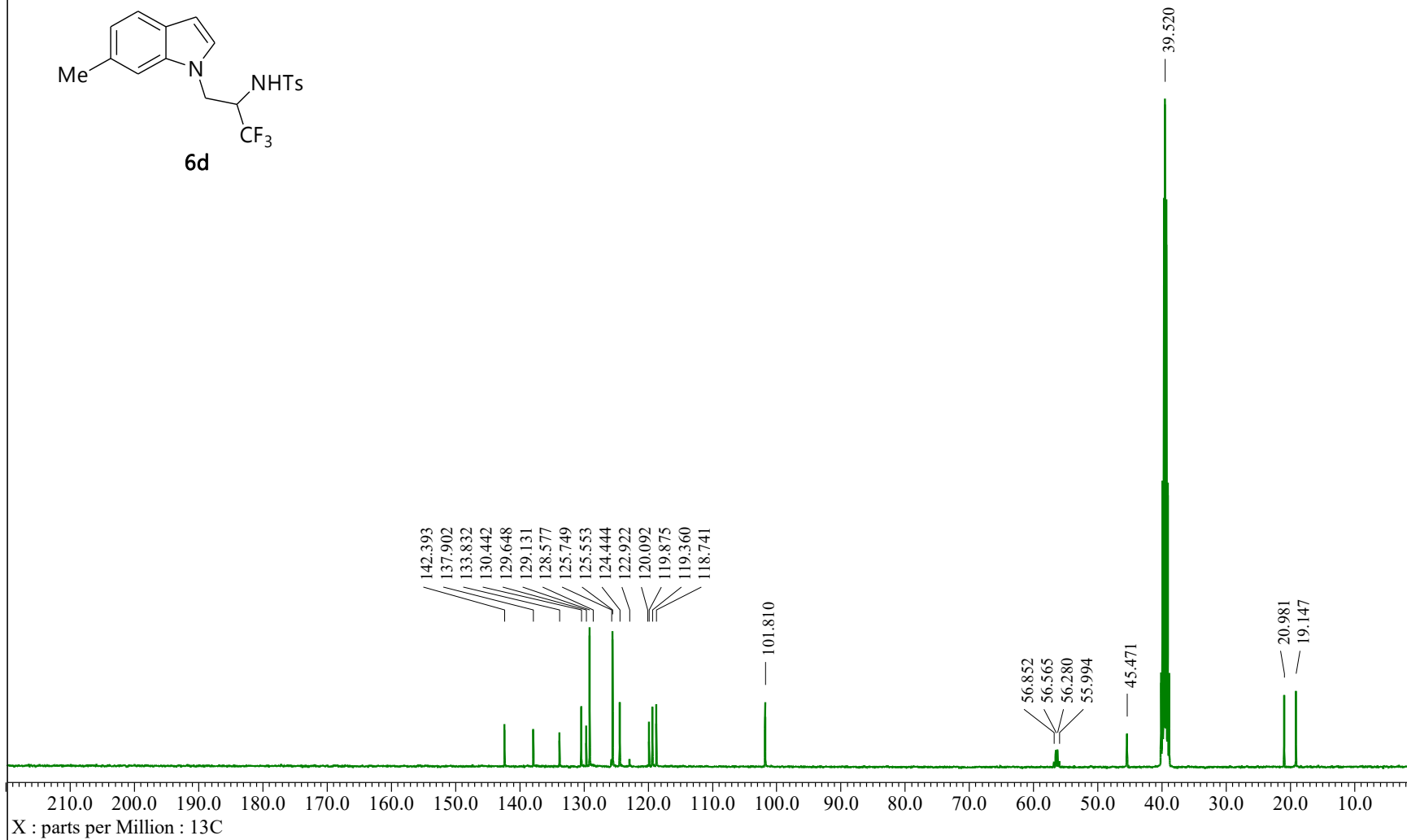
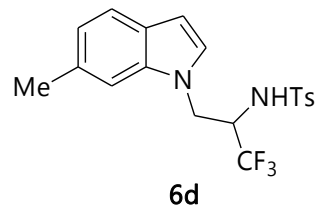


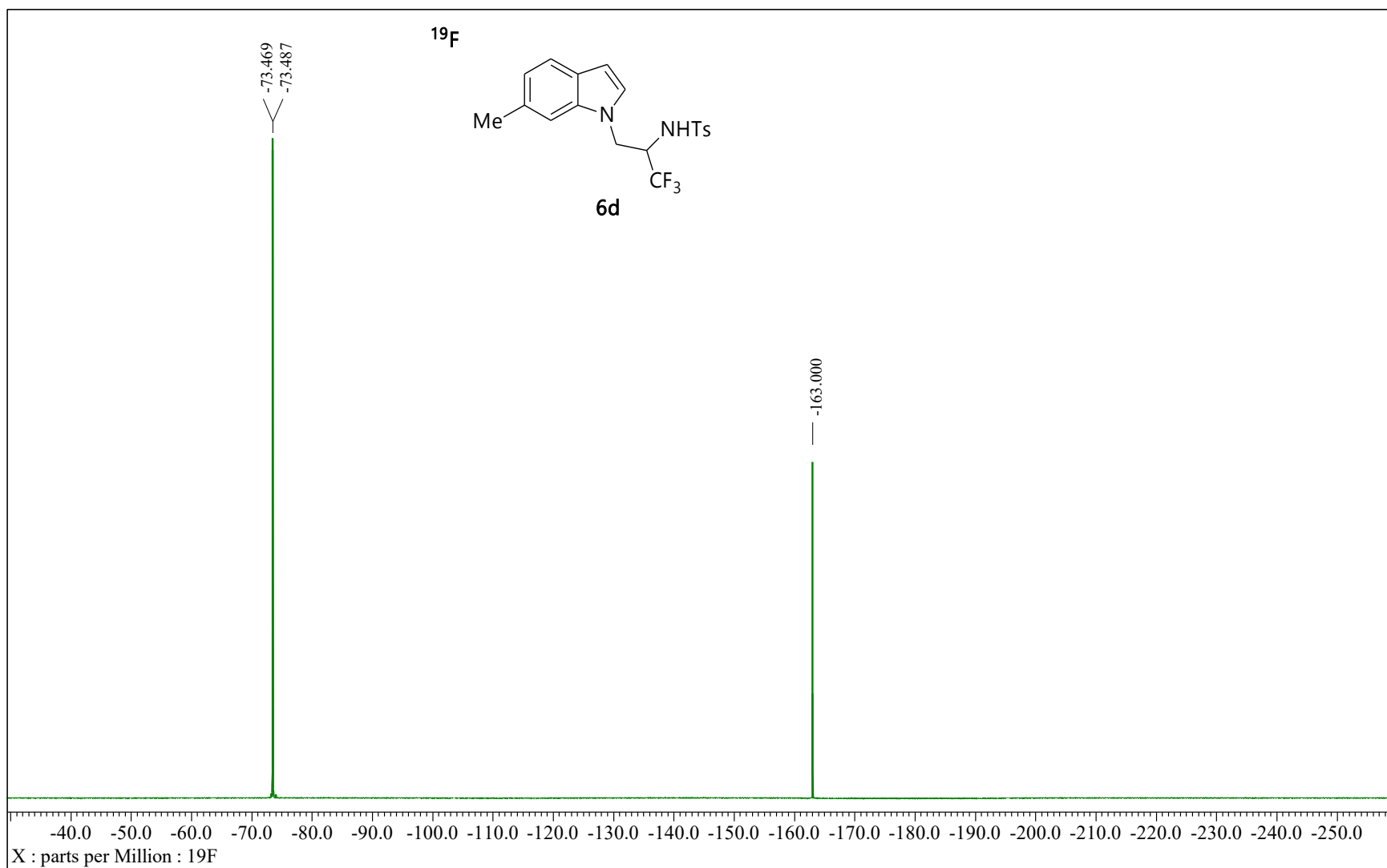


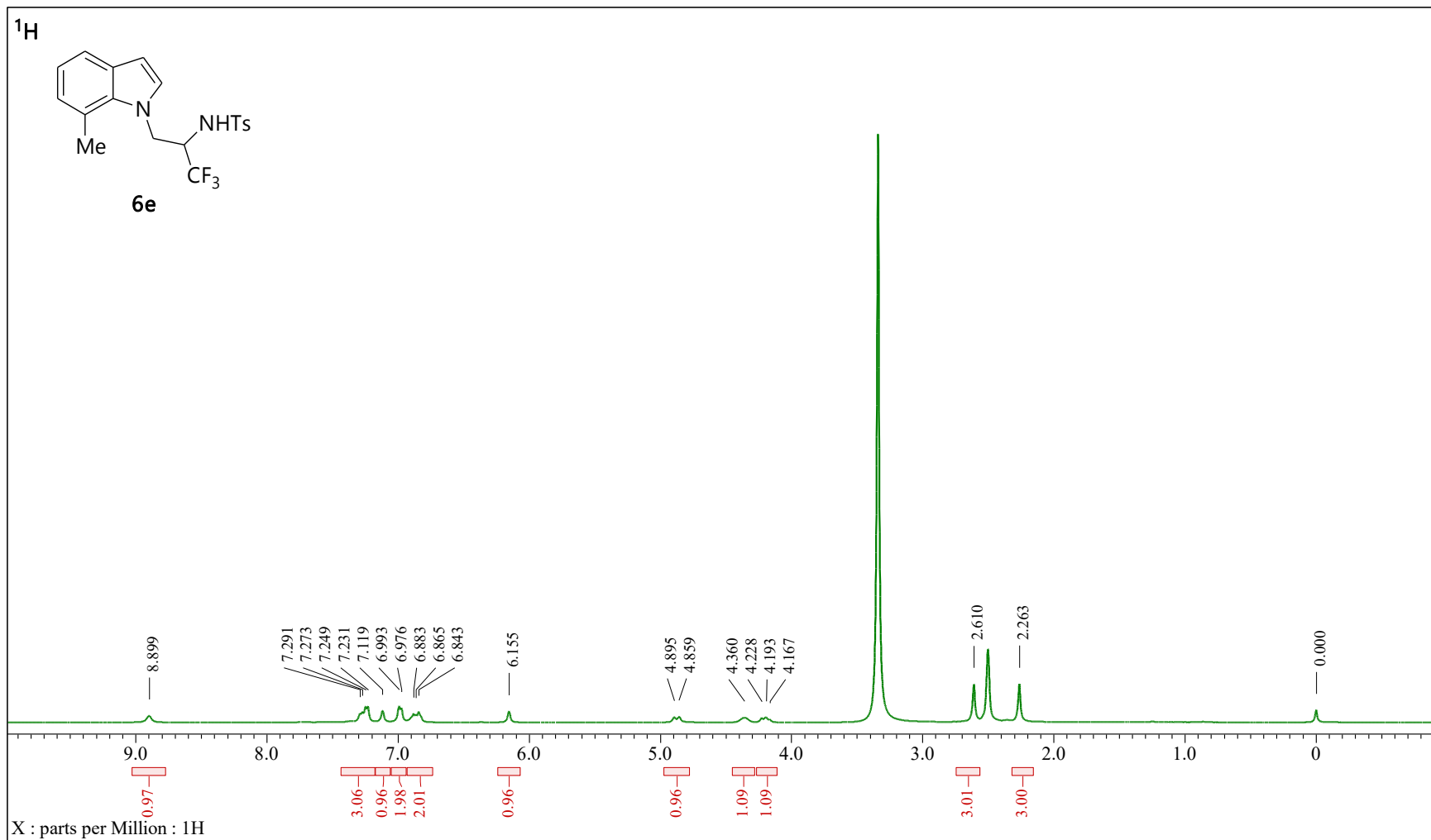




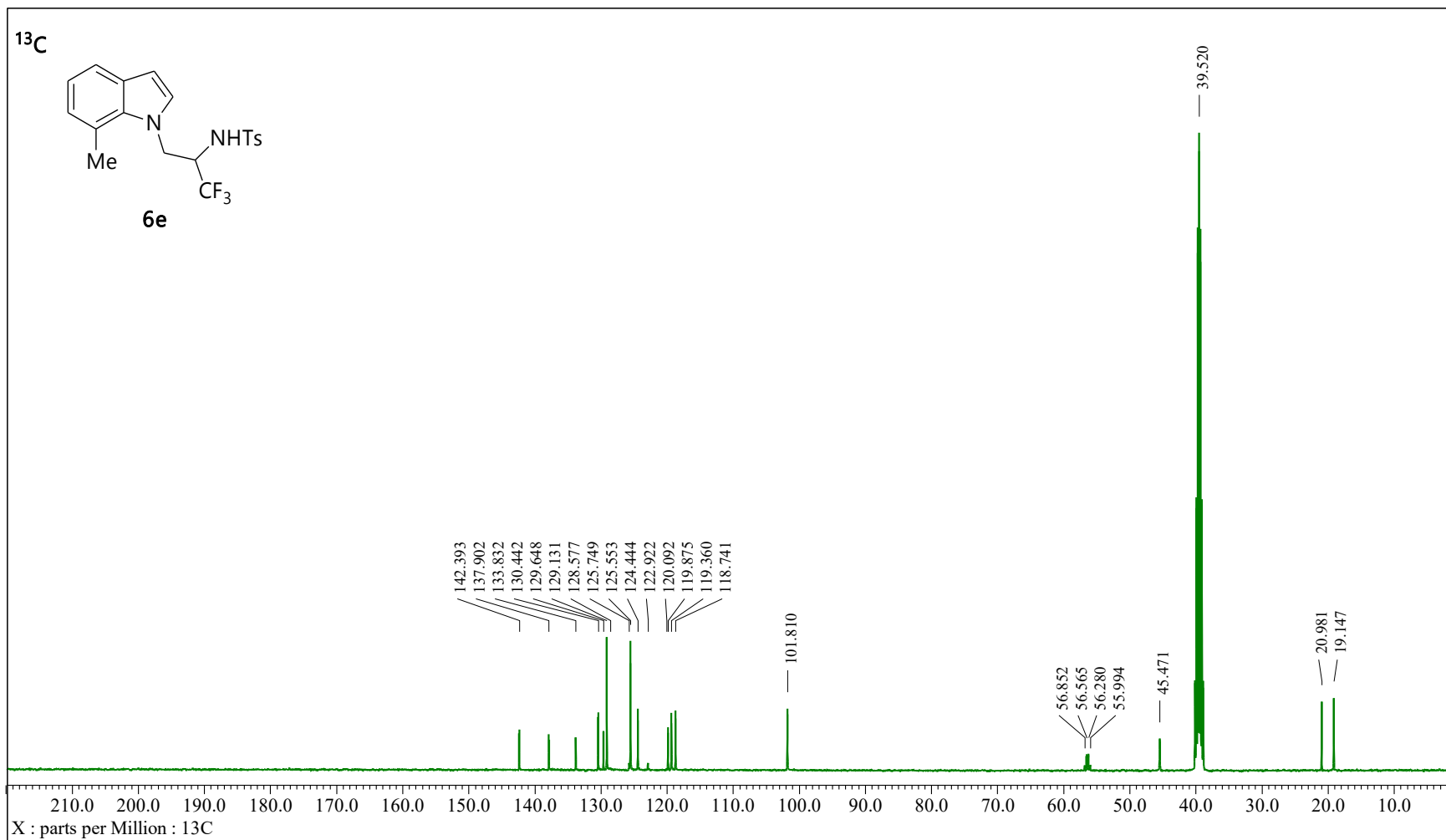
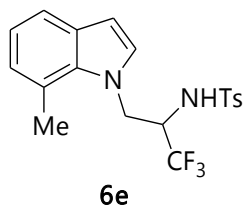
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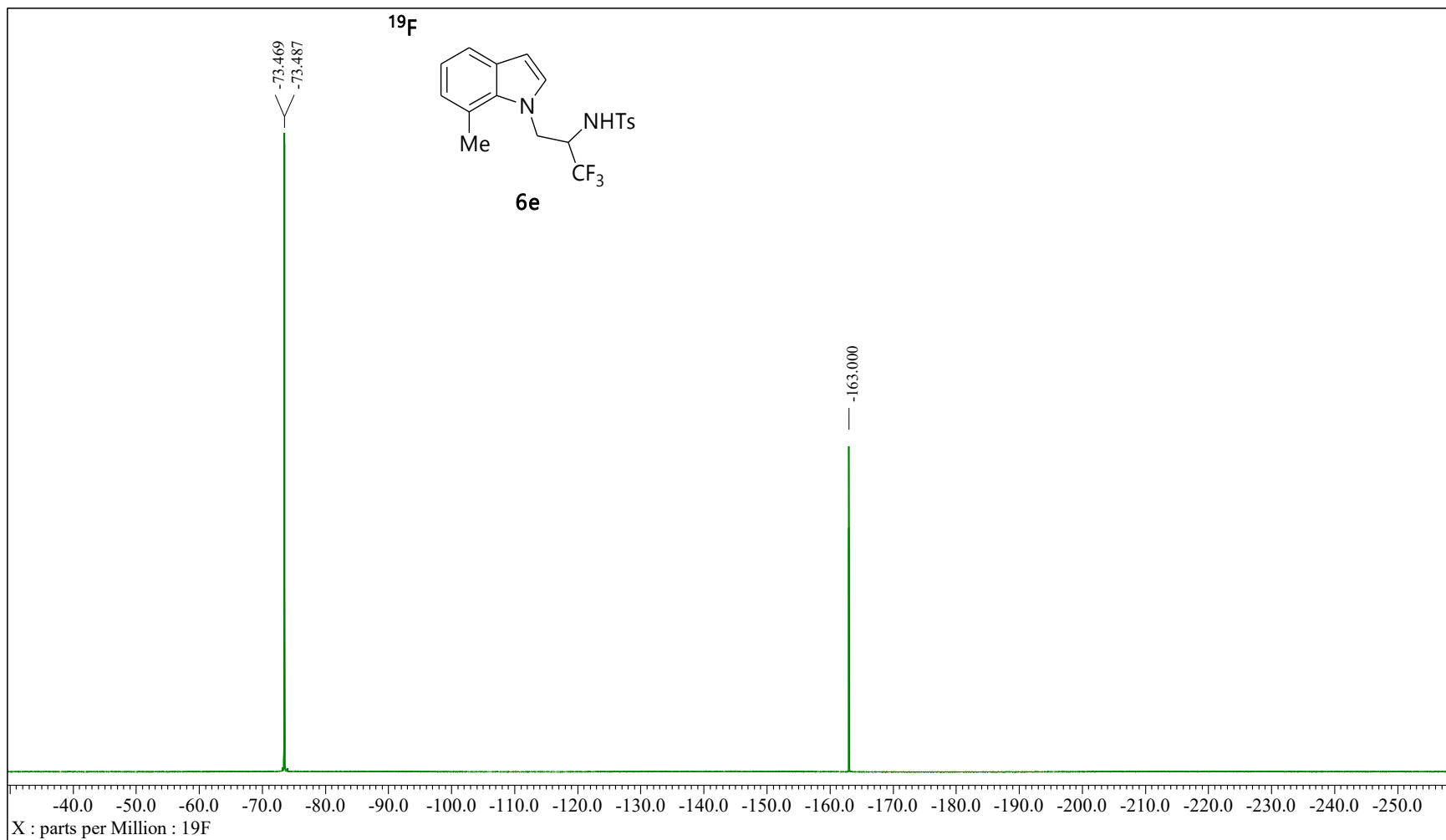


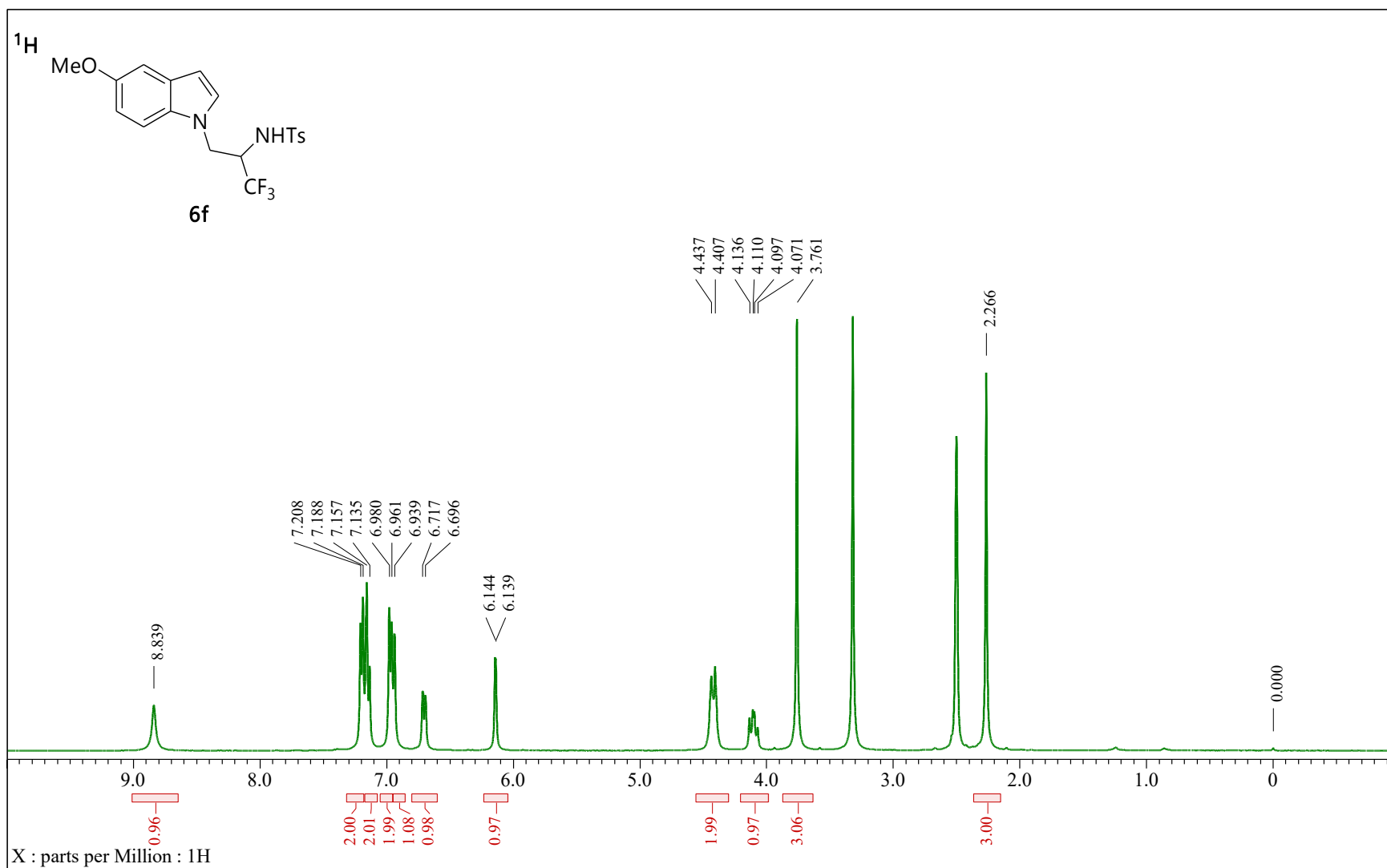


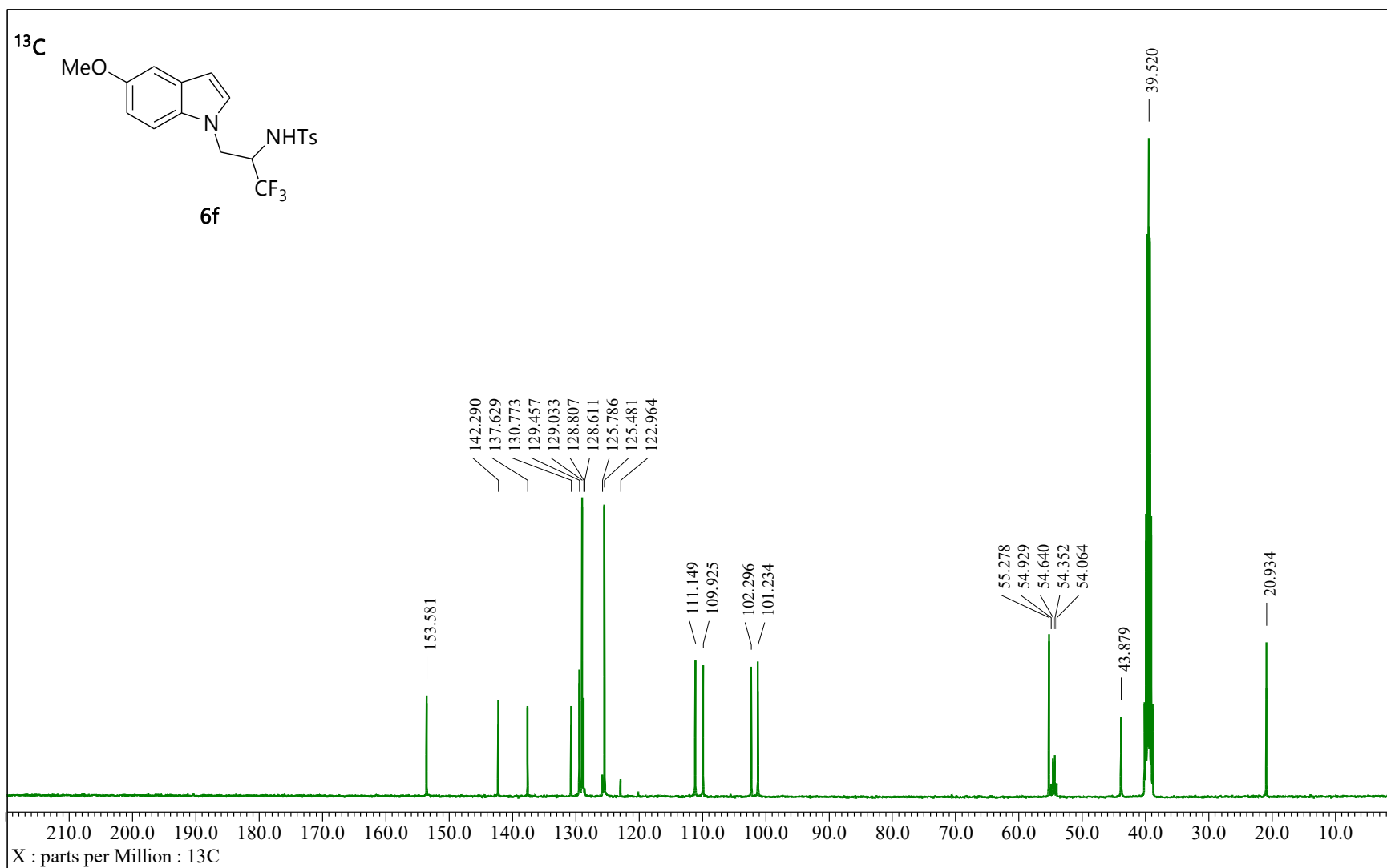


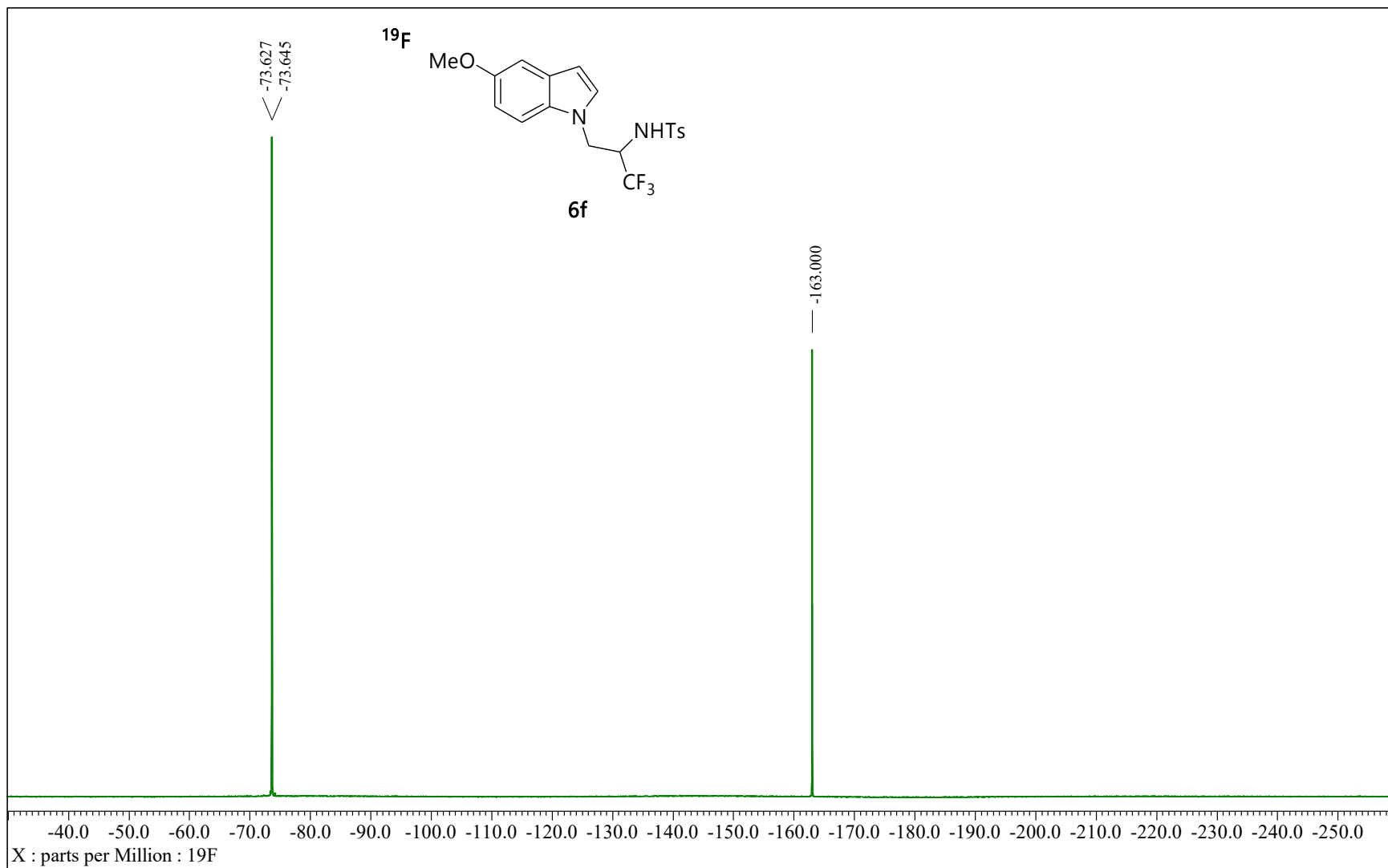
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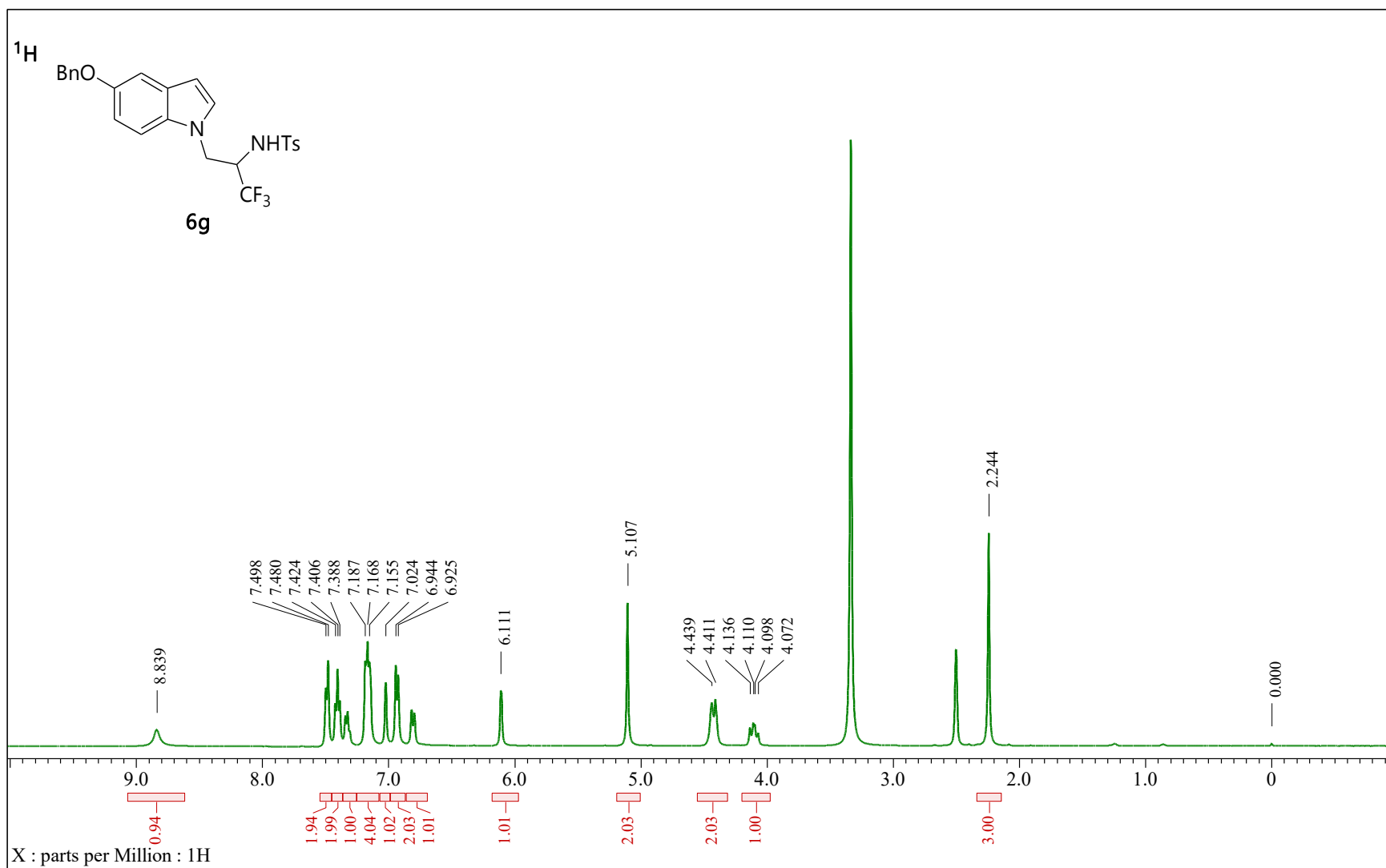




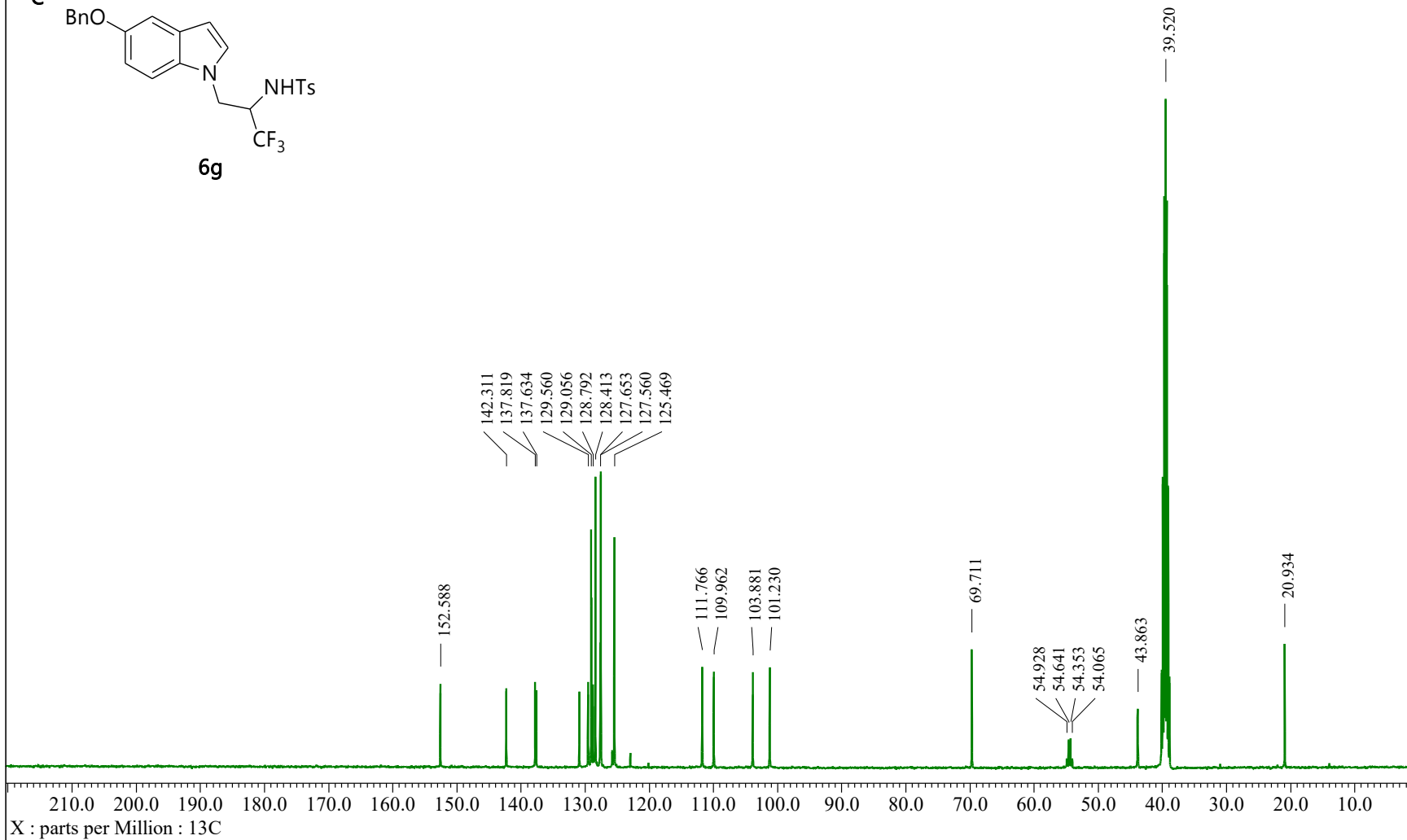
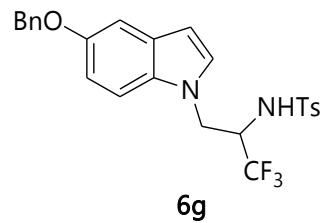


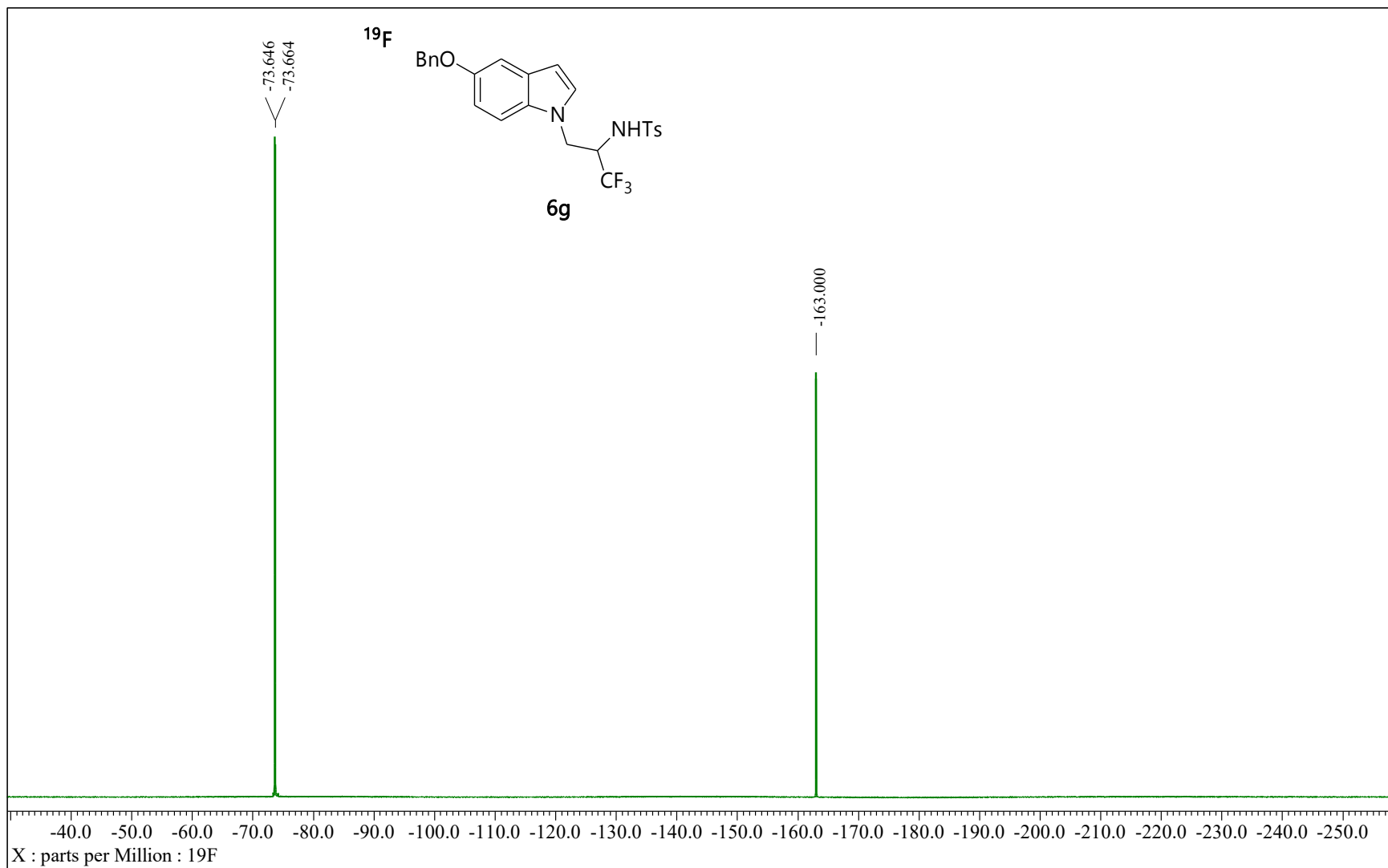


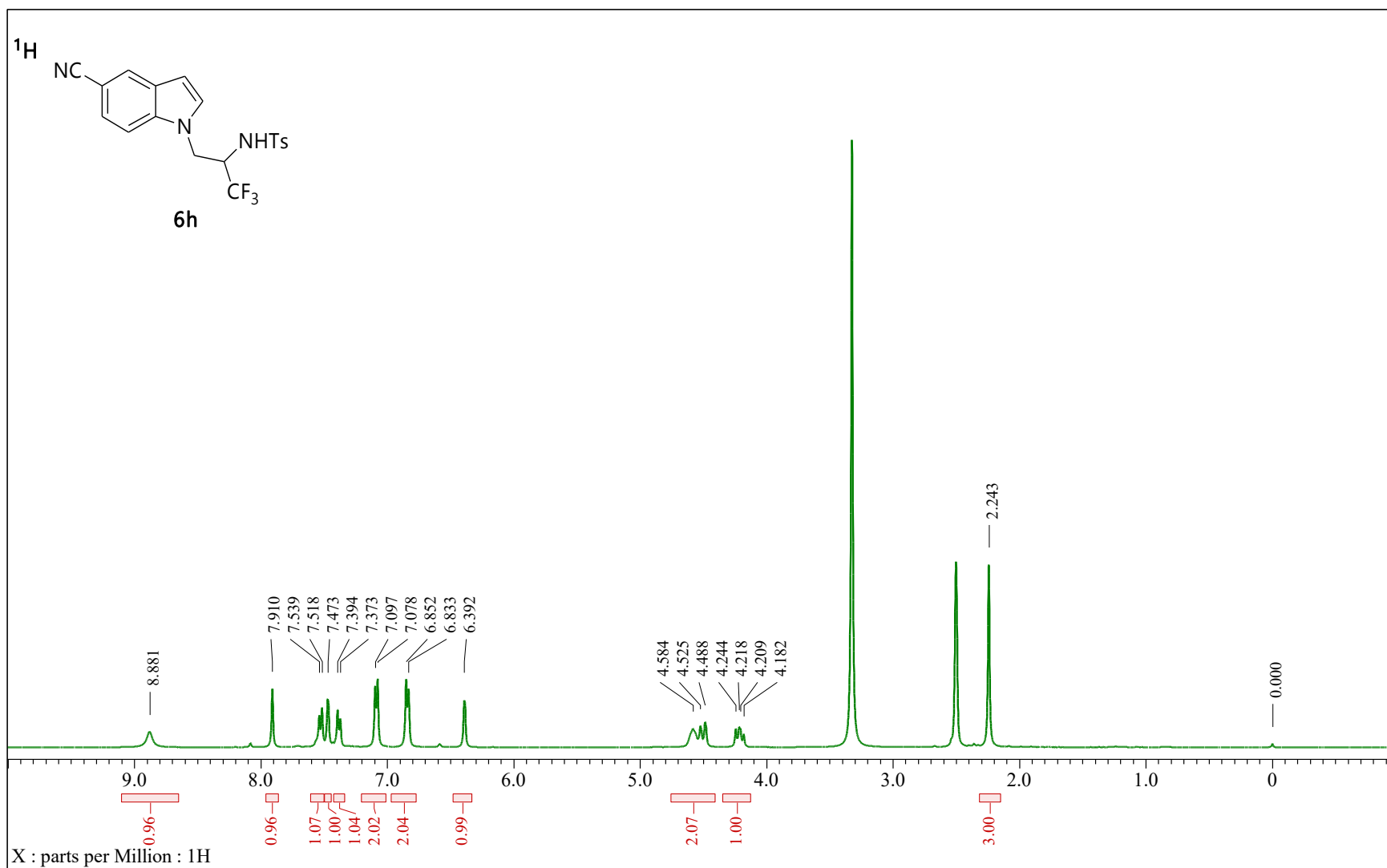


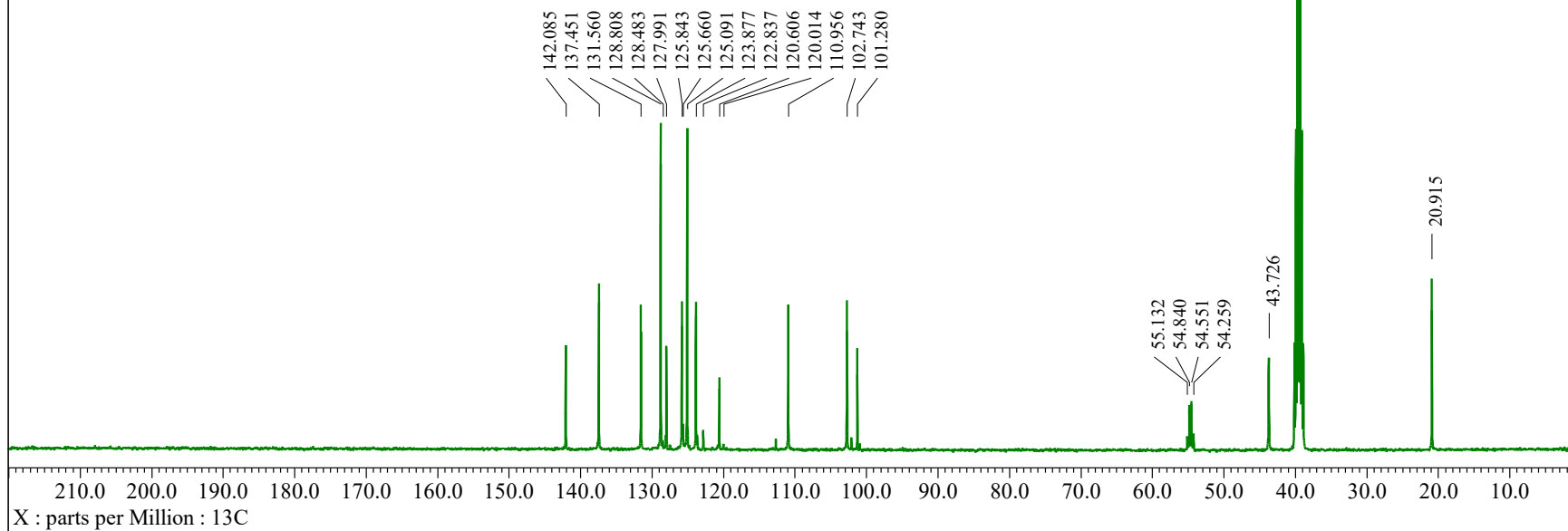
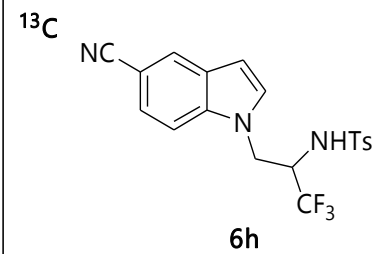


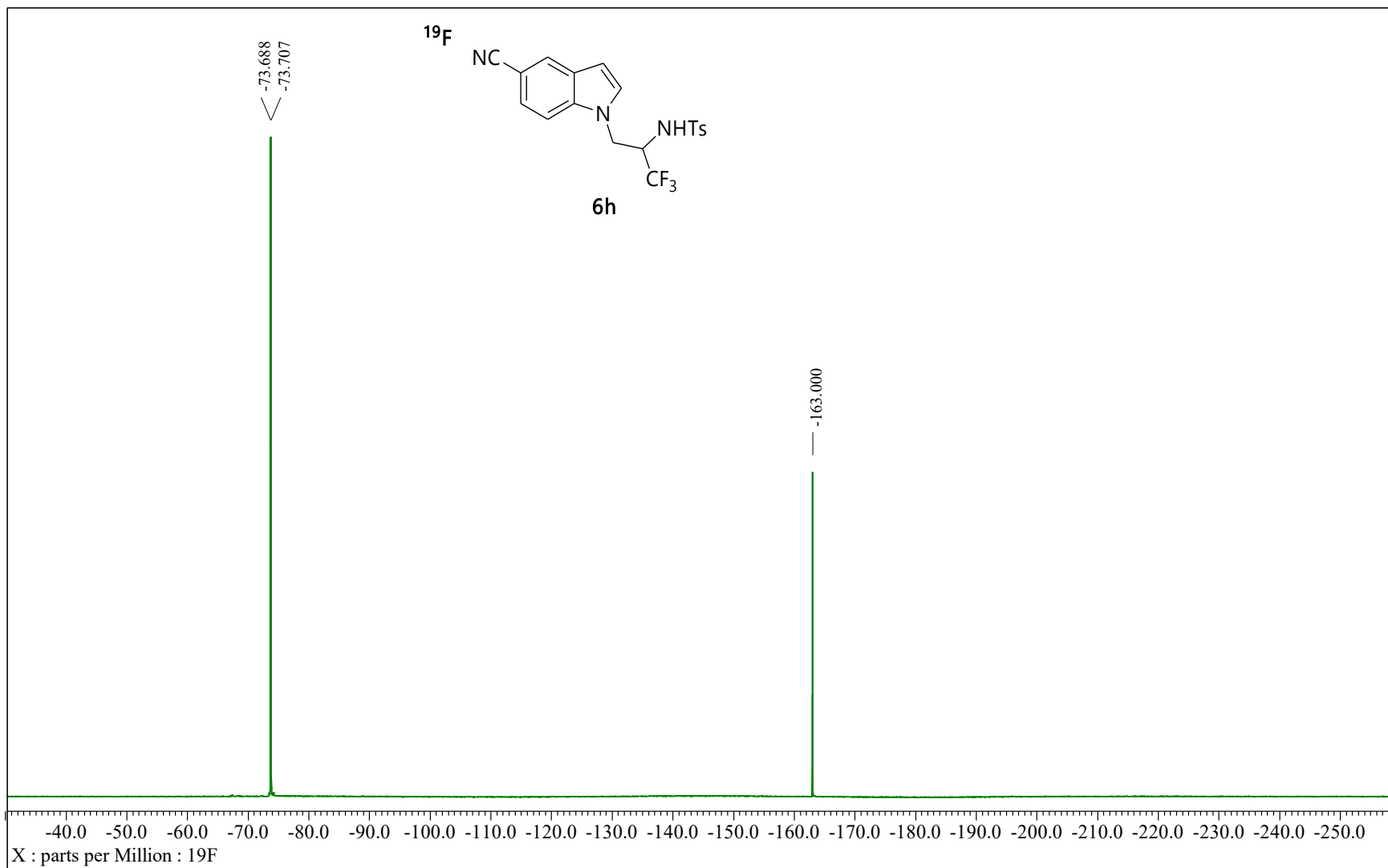
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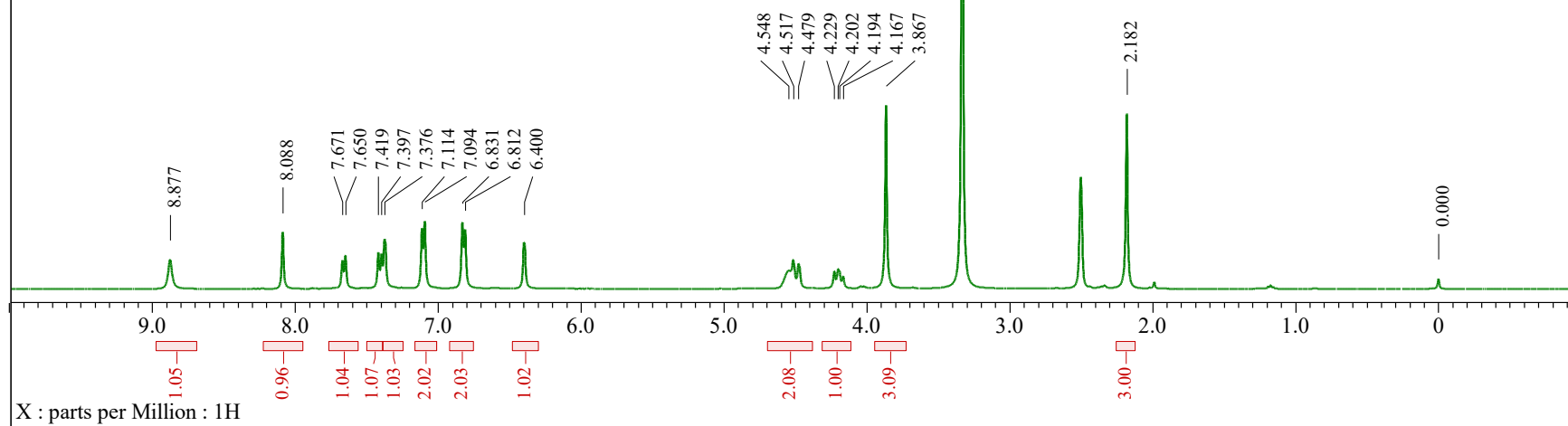
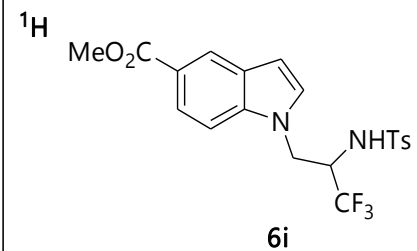


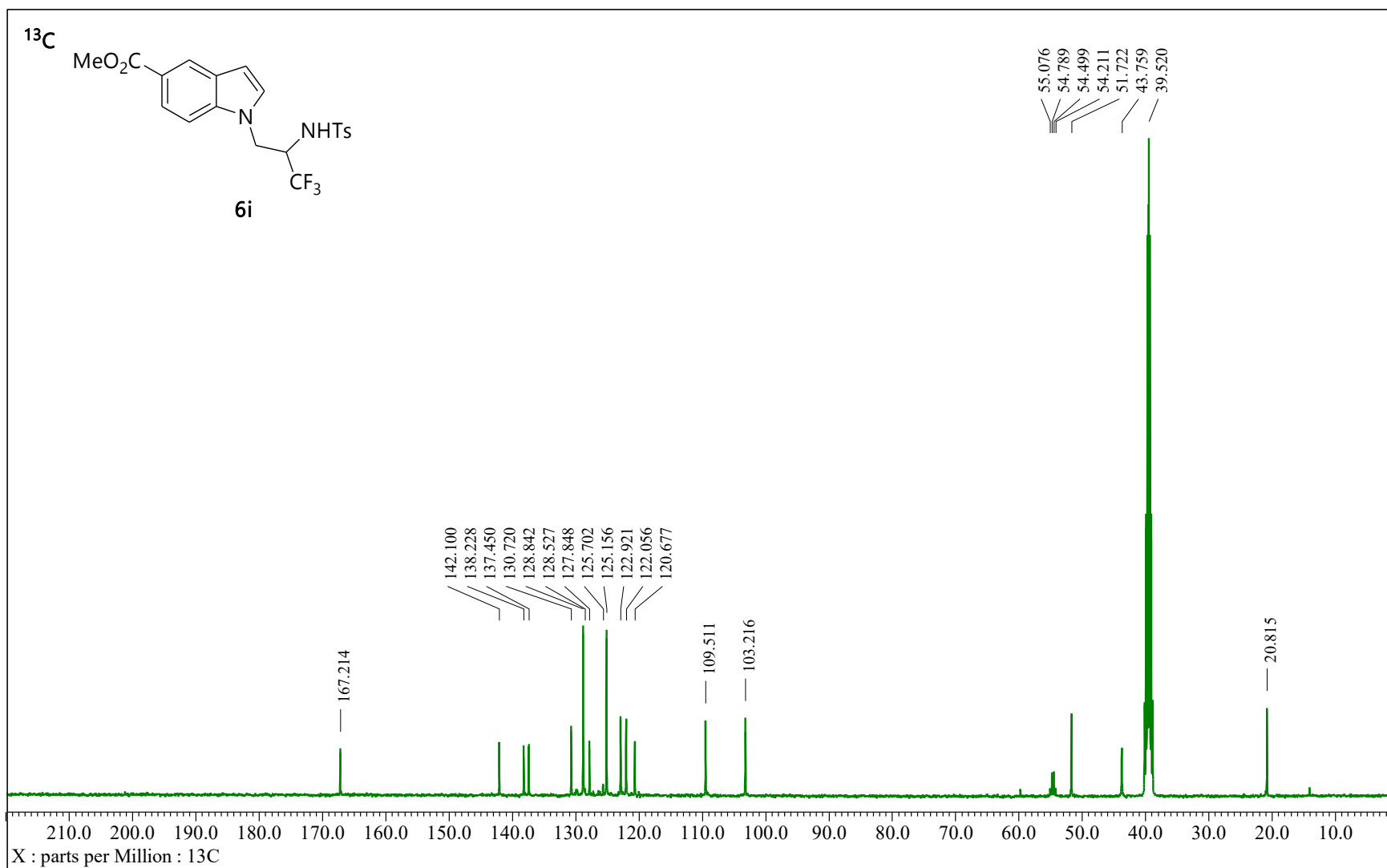


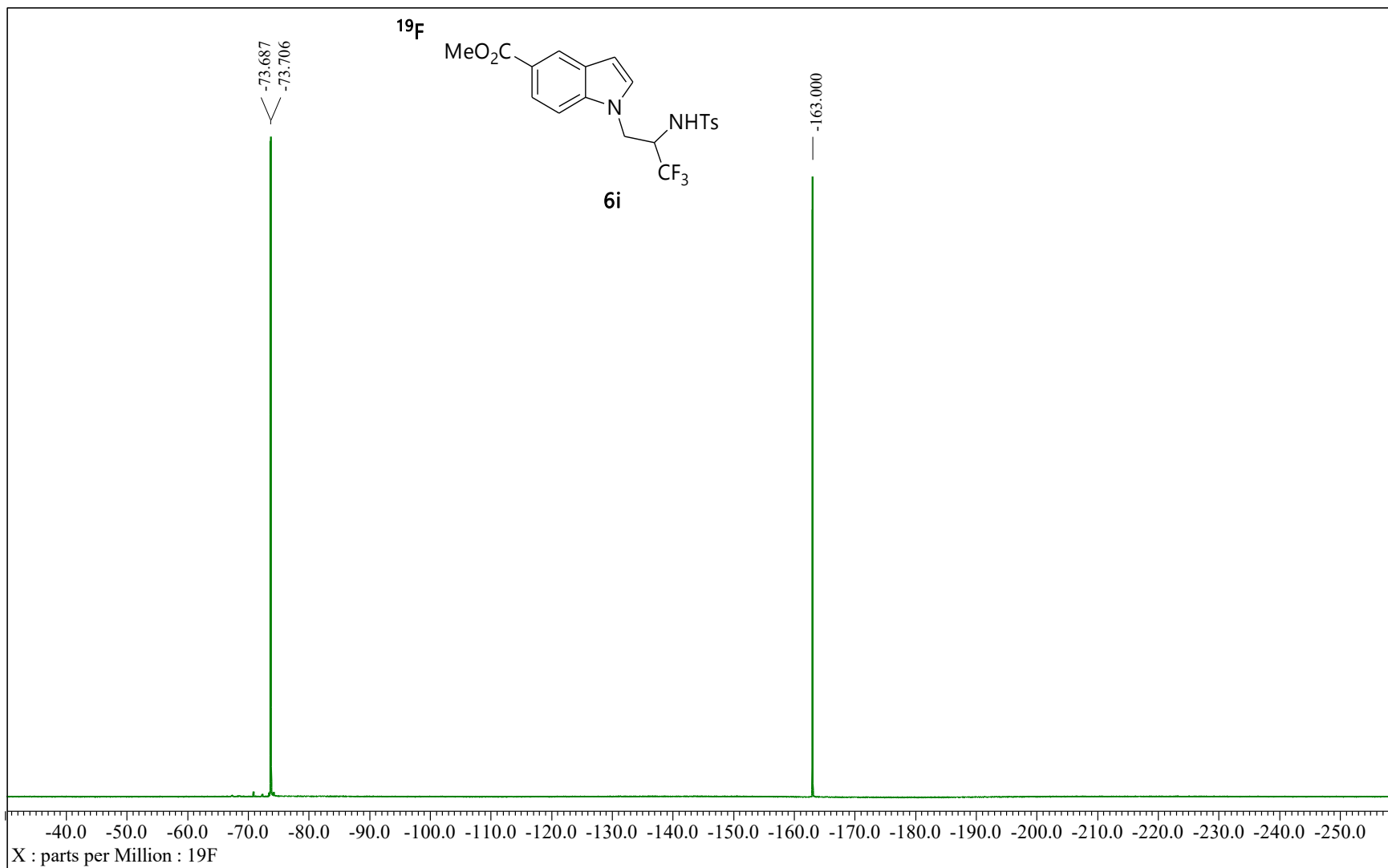


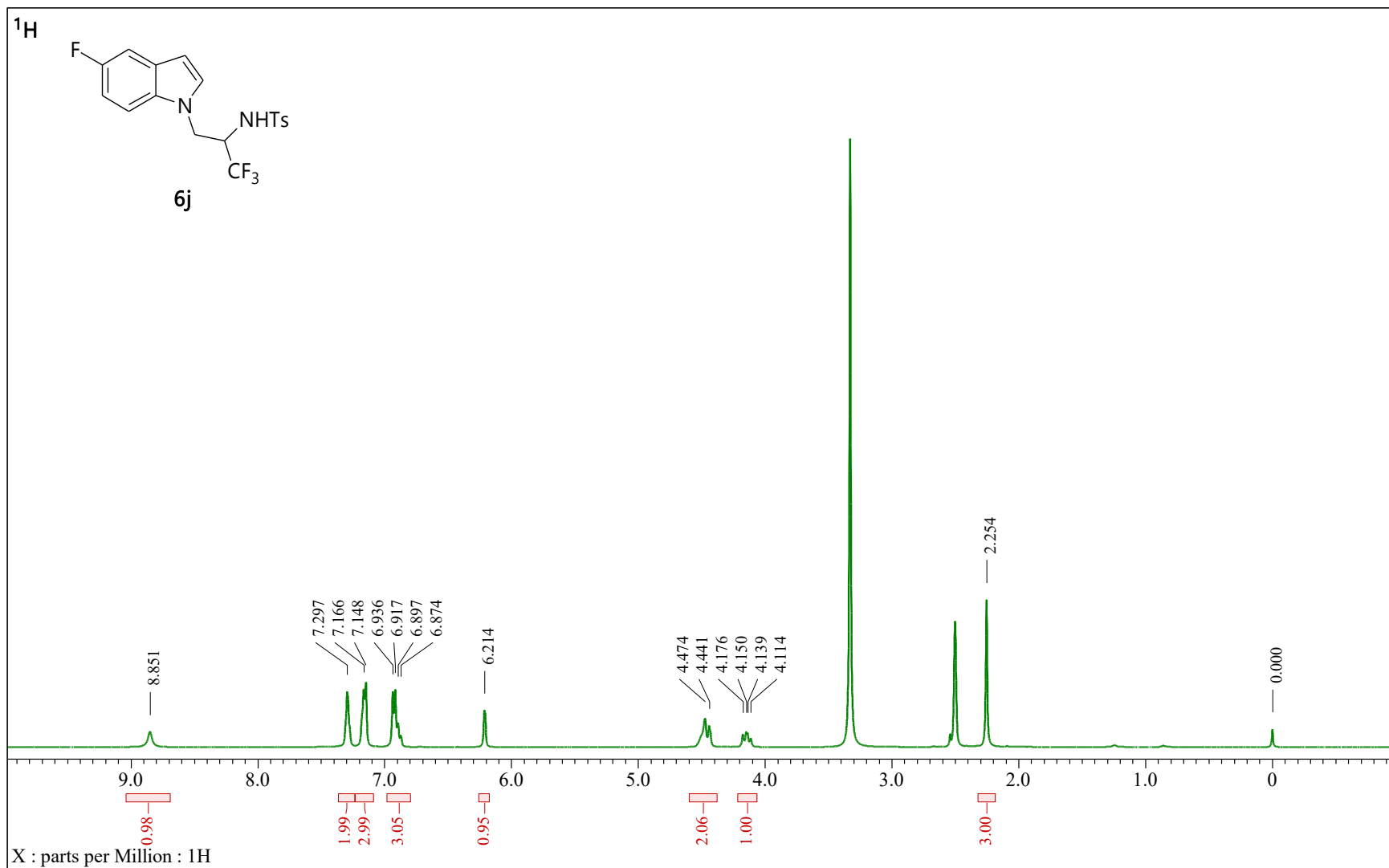


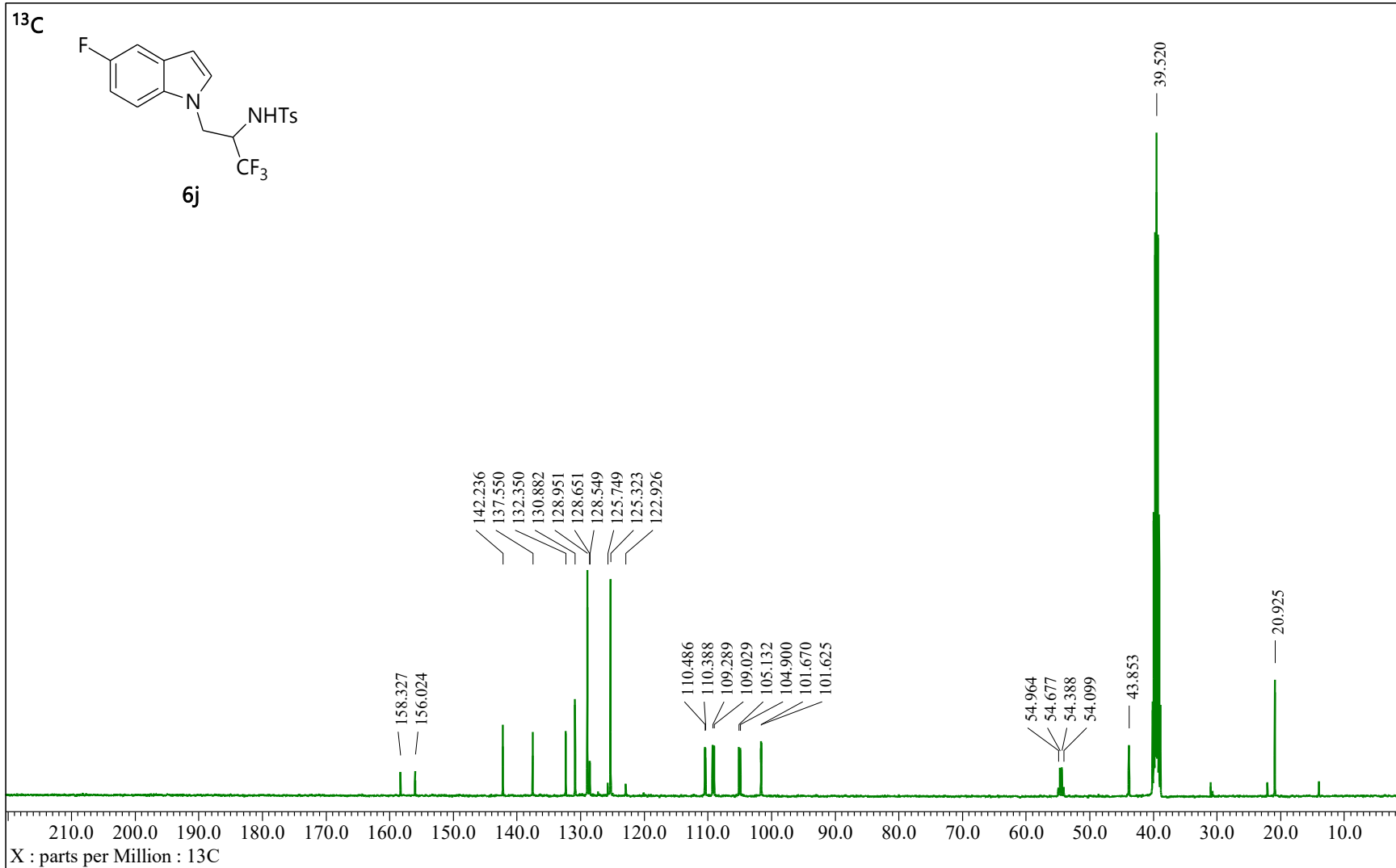


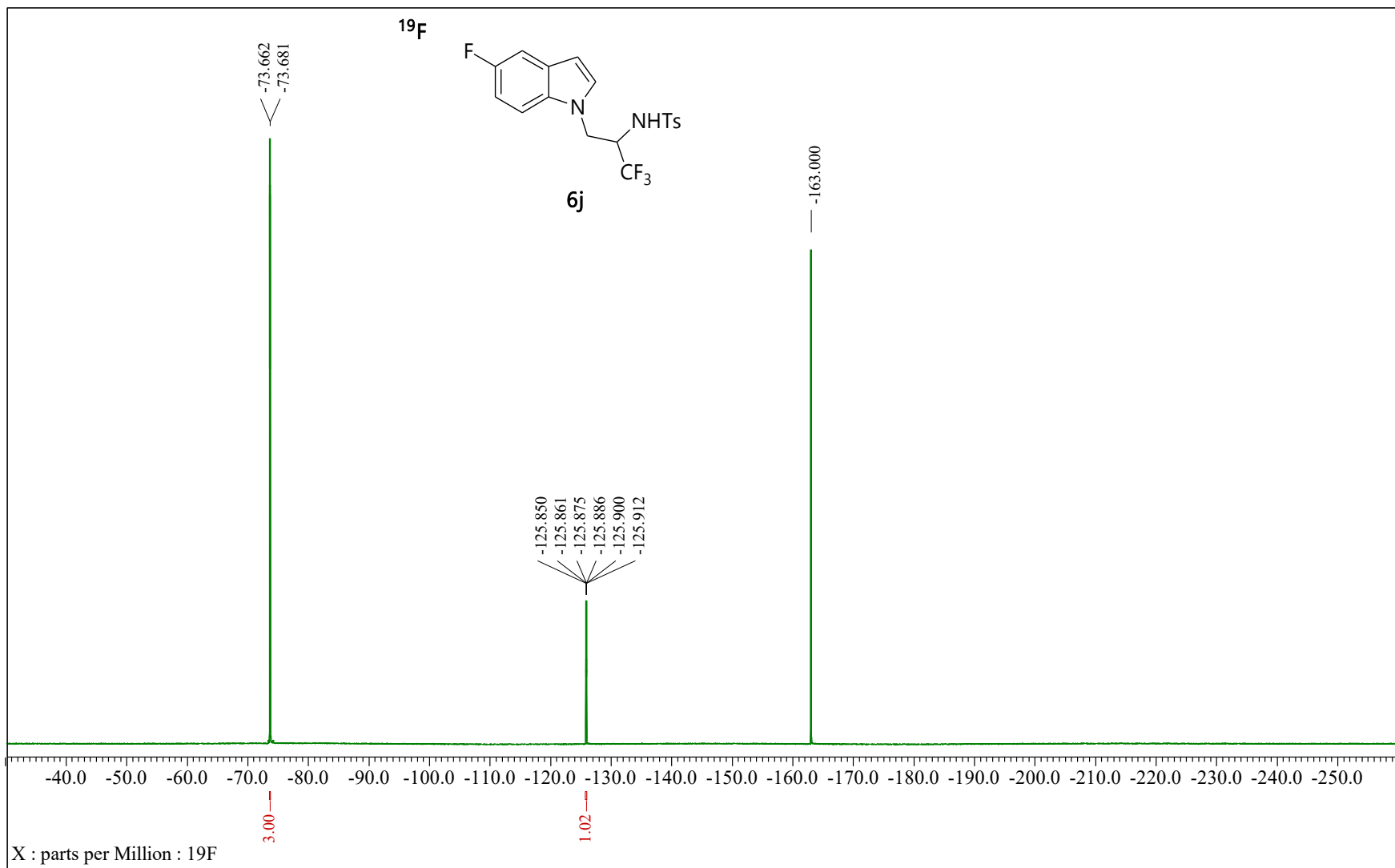


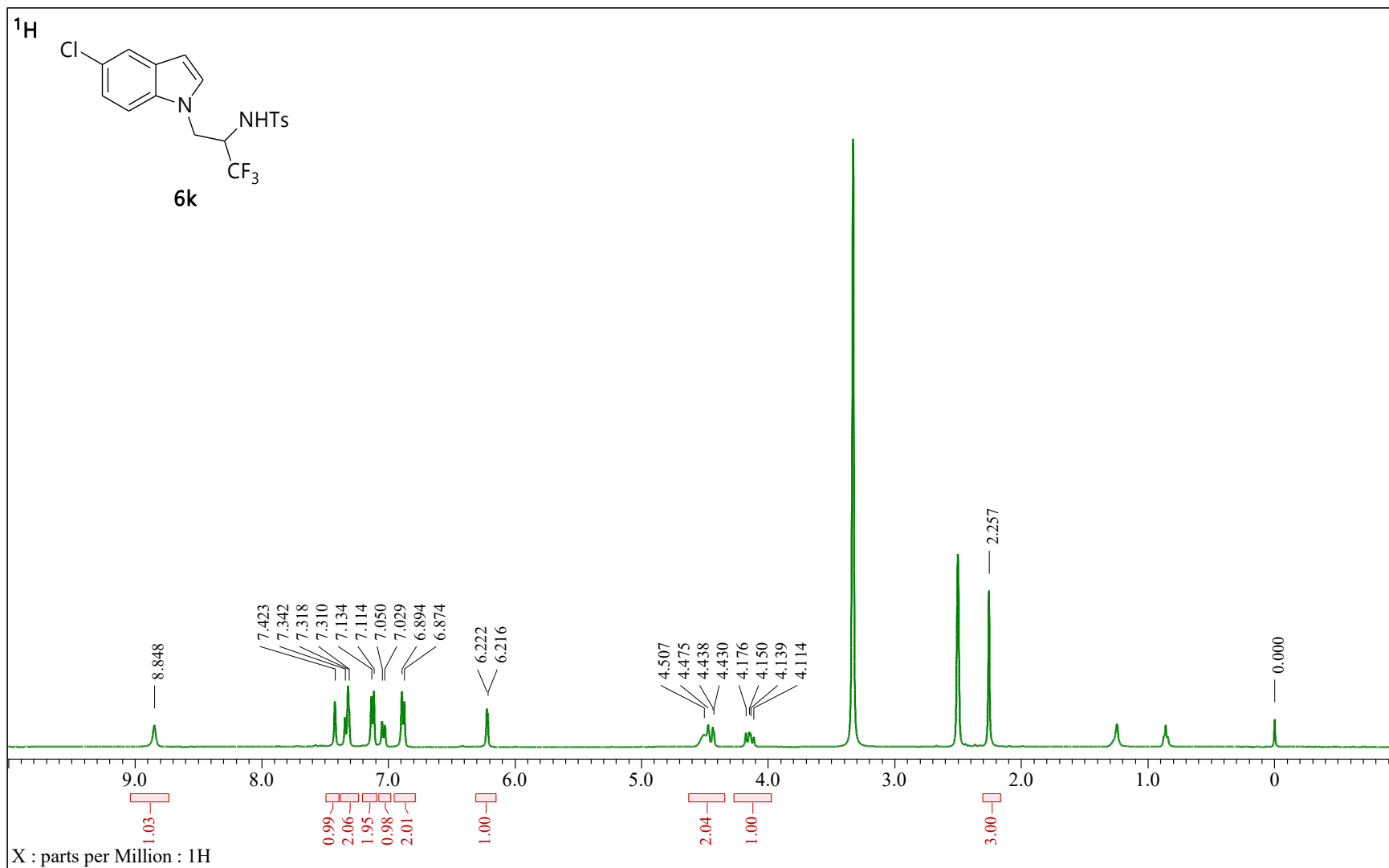


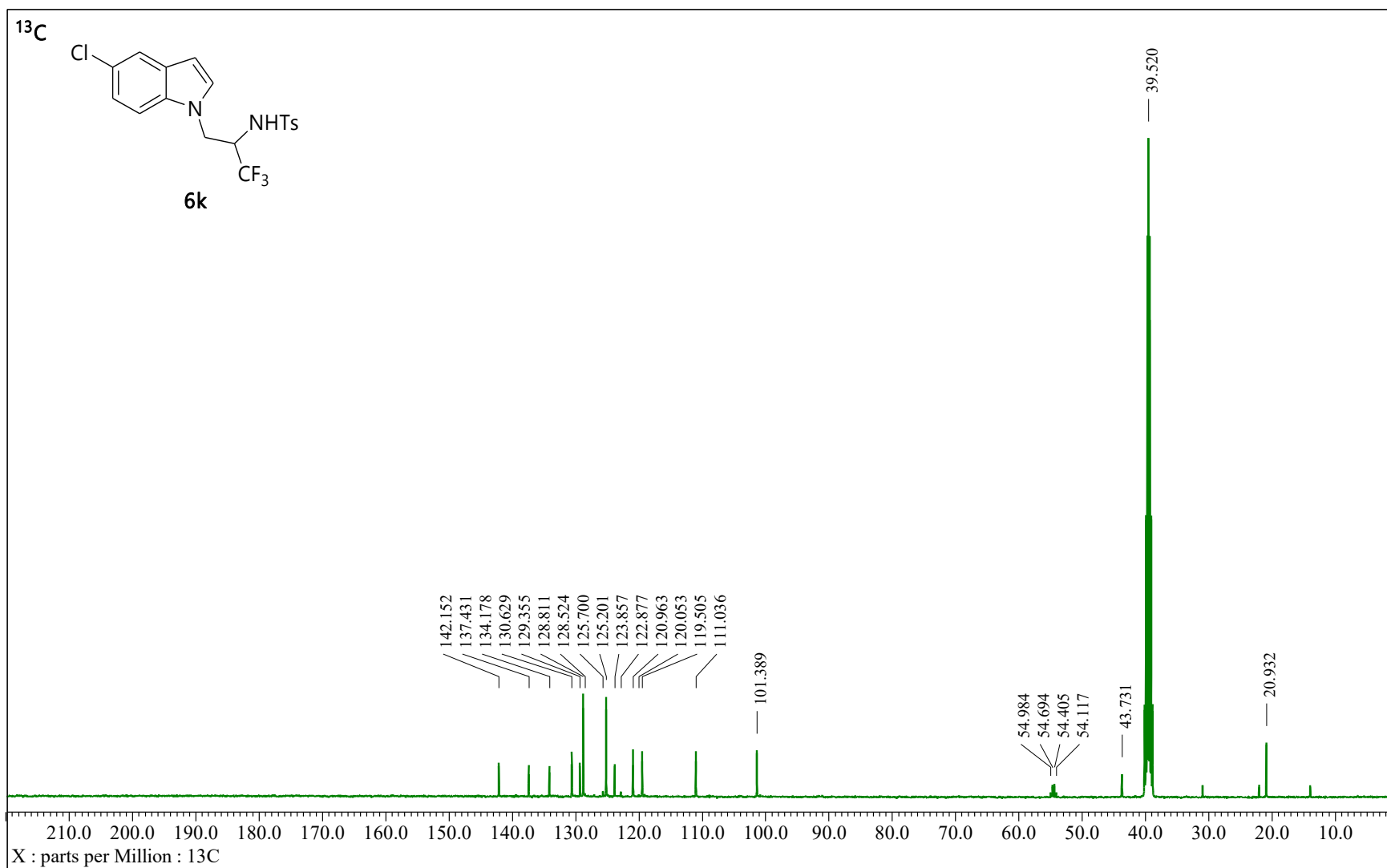


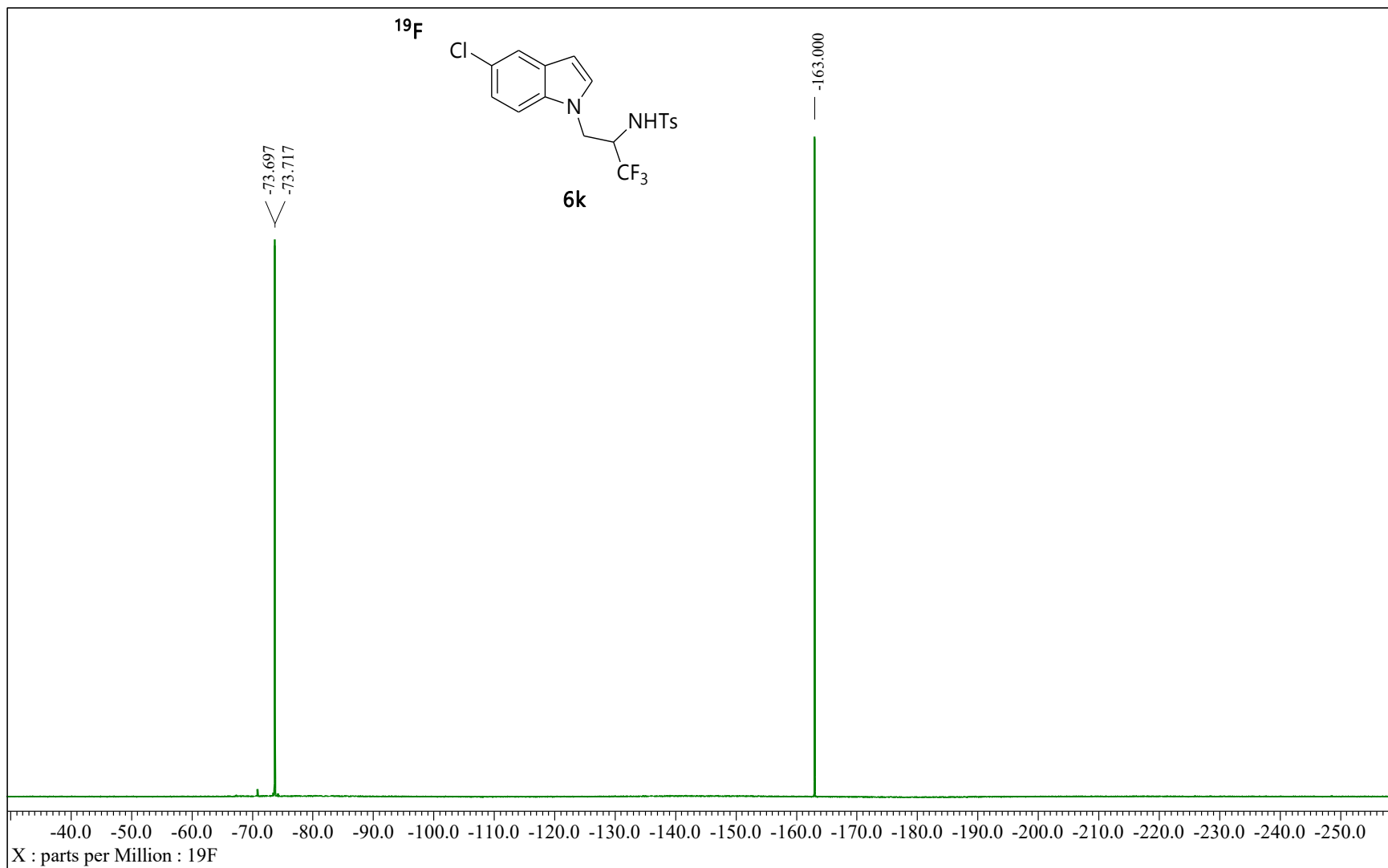


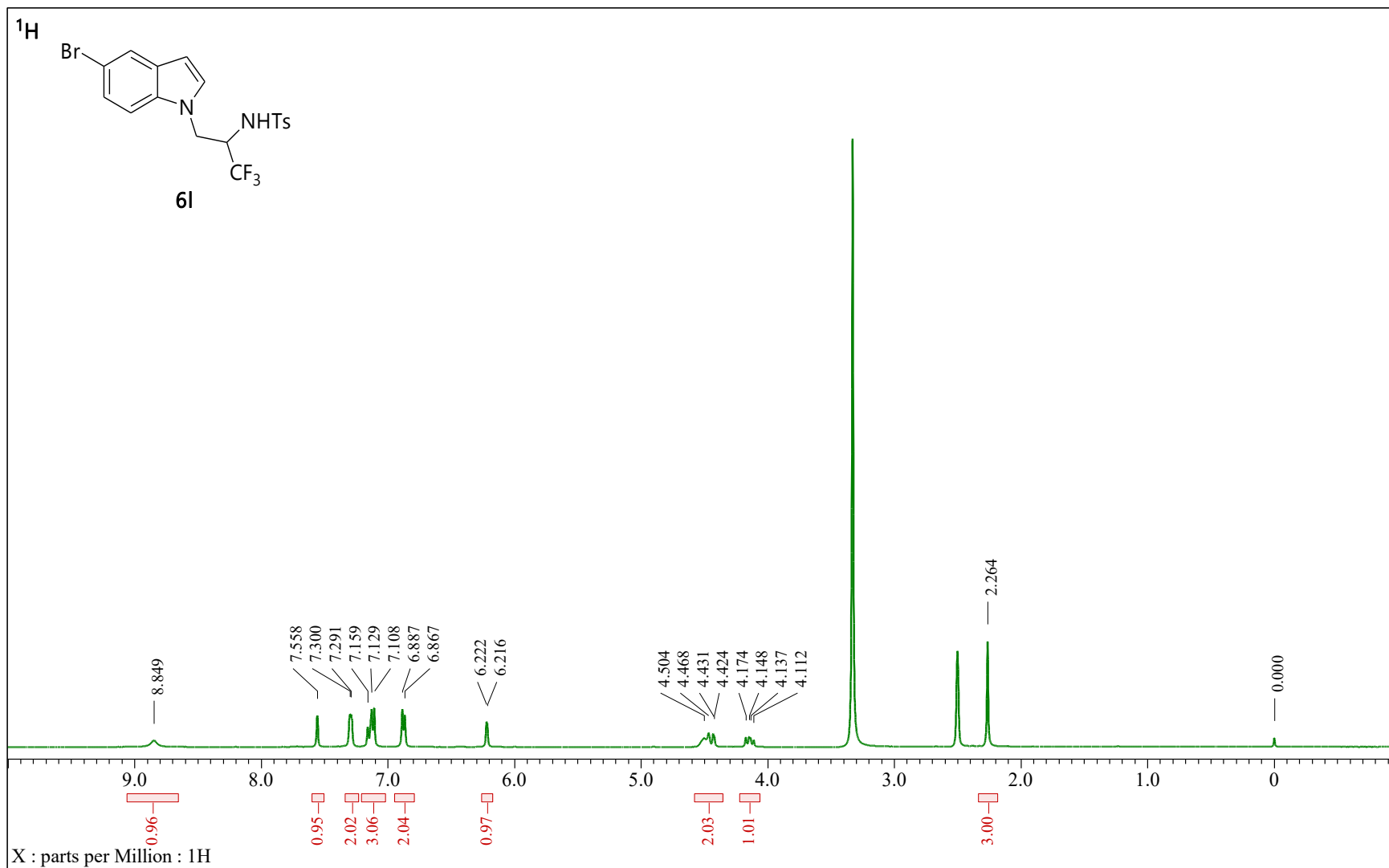


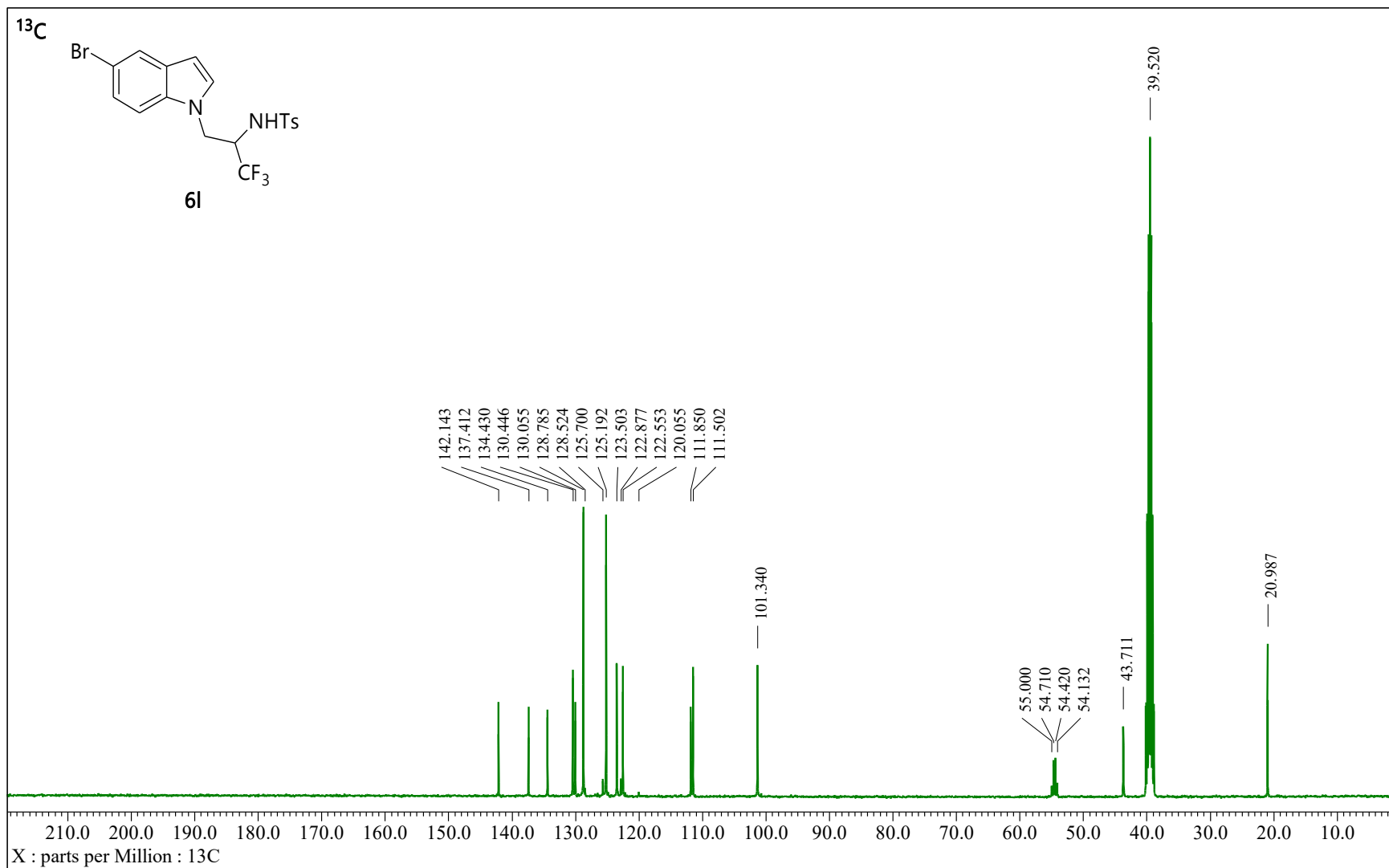




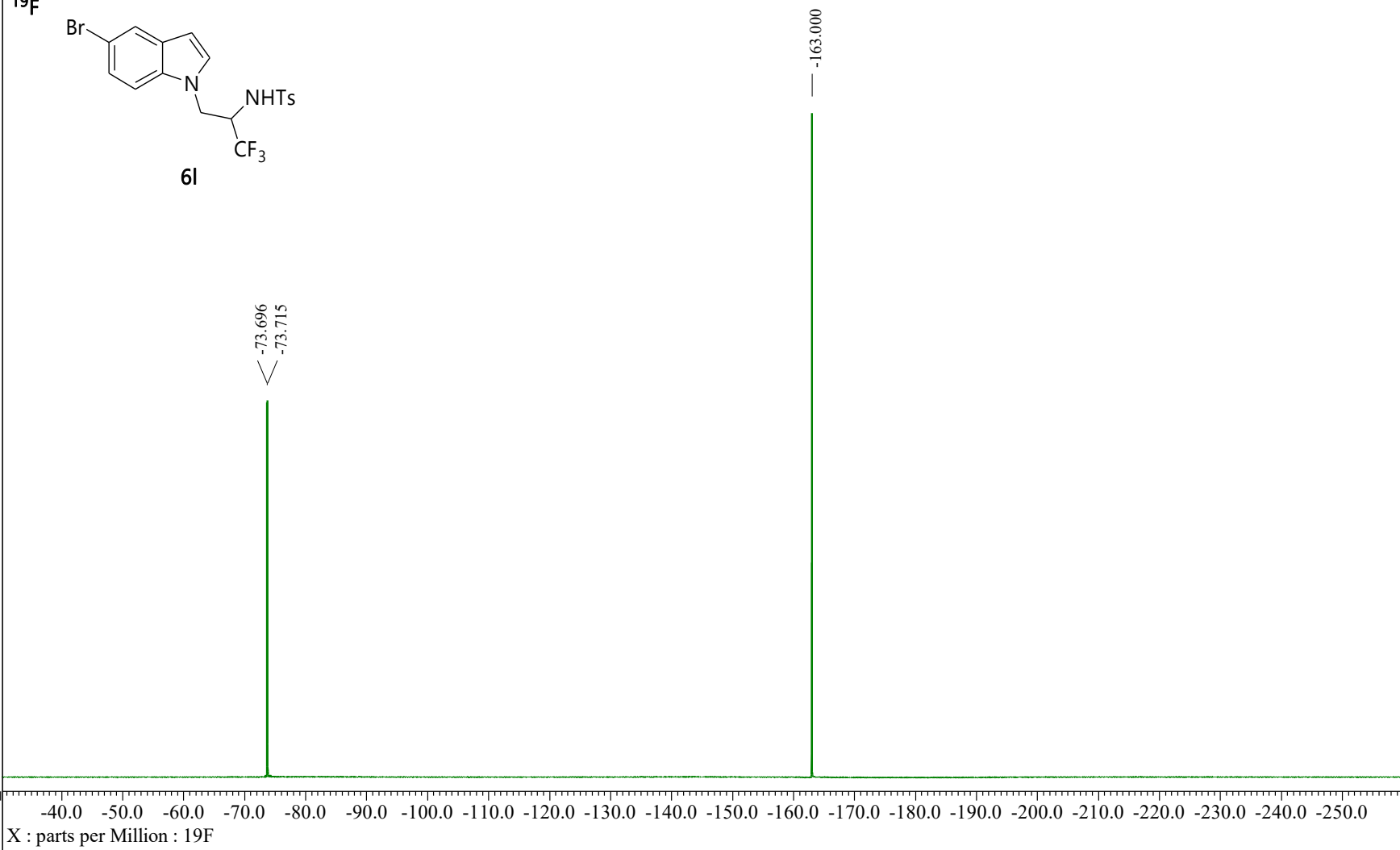
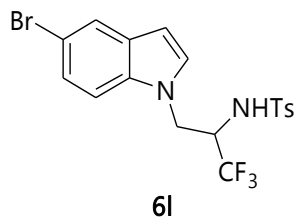




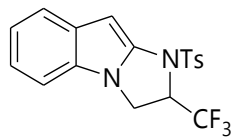




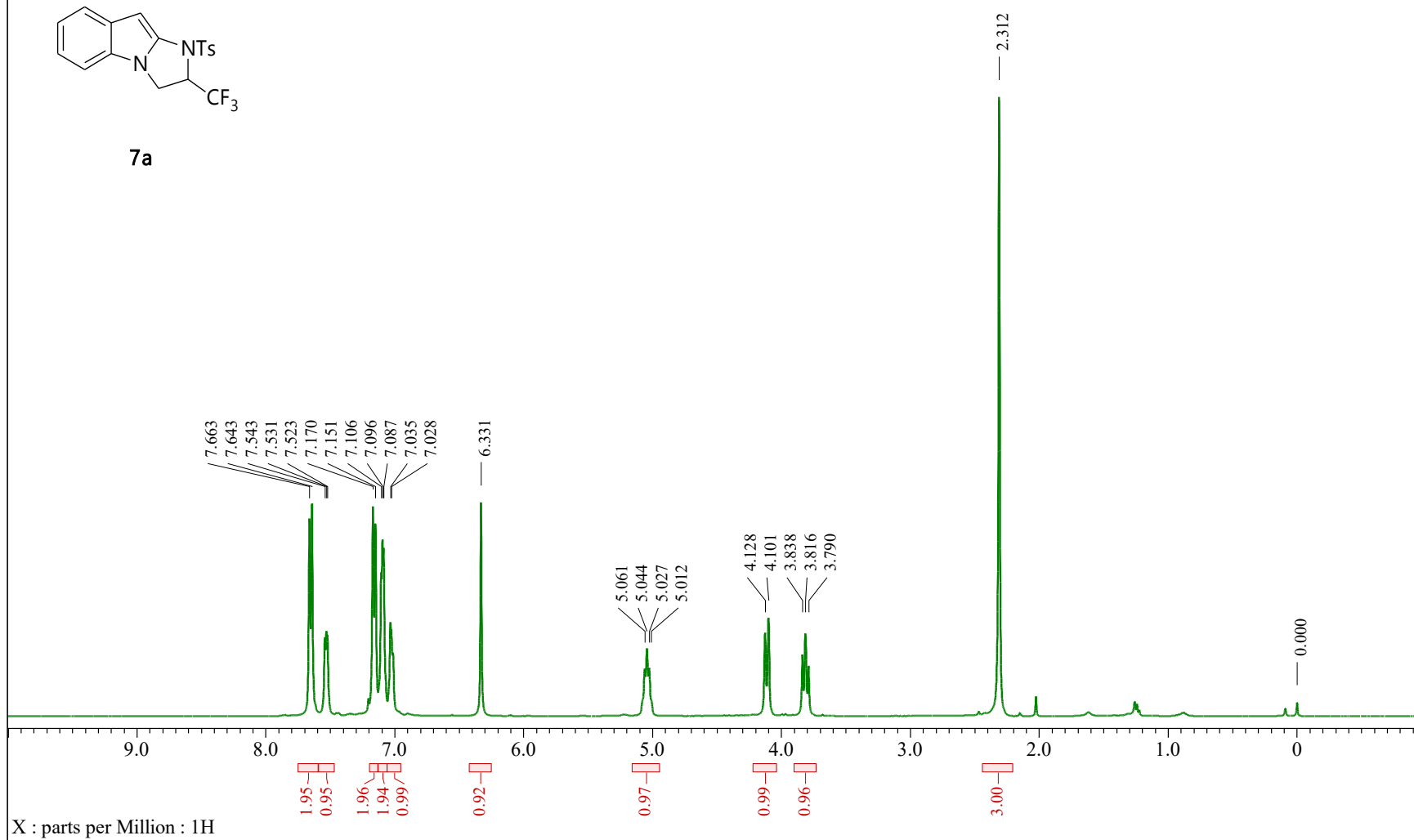
¹⁹F



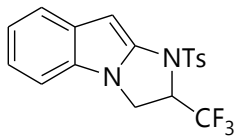
¹H



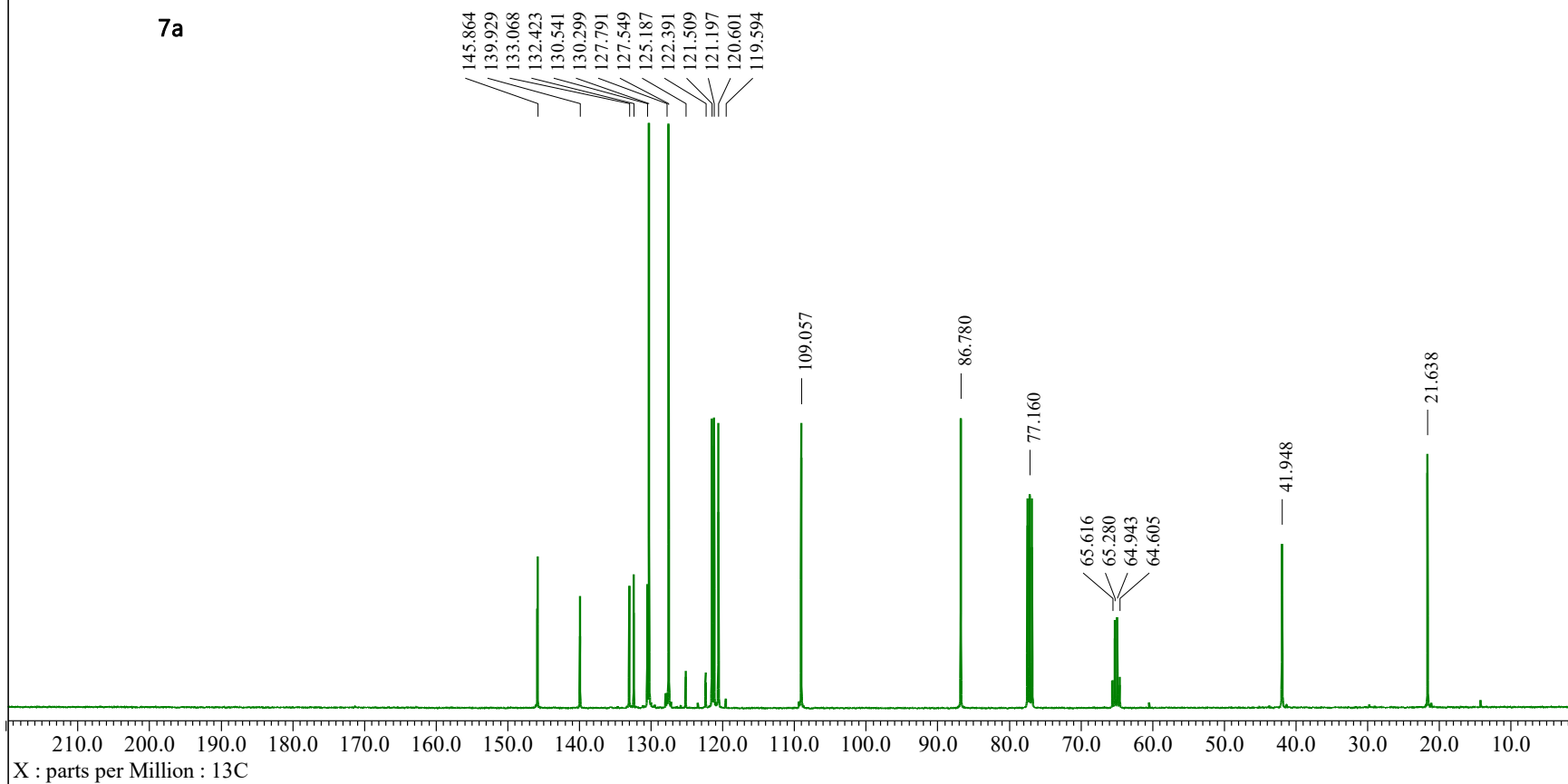
7a



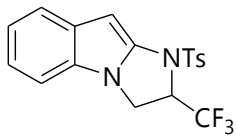
¹³C



7a



¹⁹F

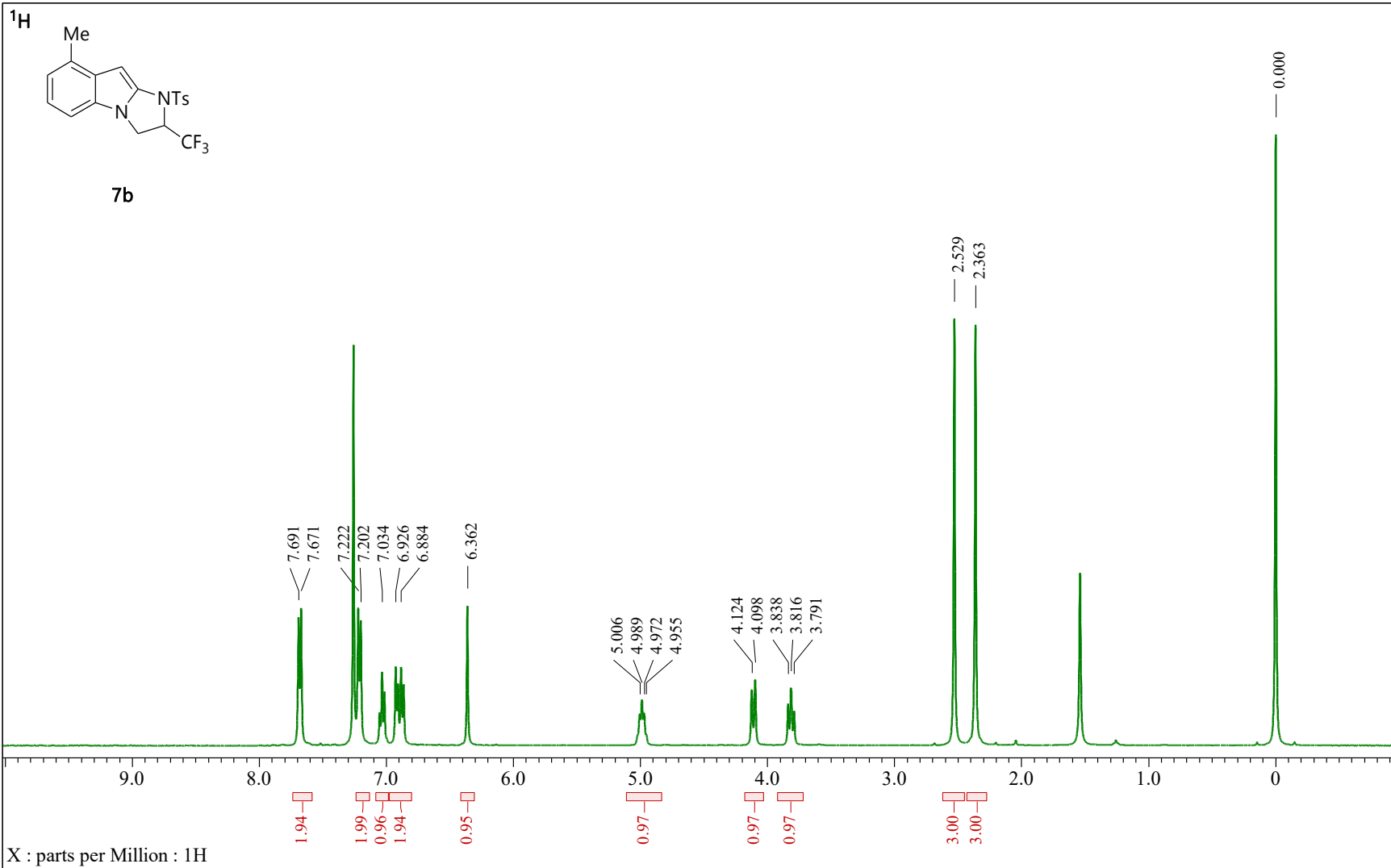


7a

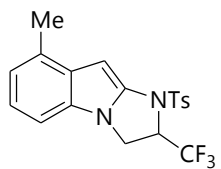
-78.632
-78.650

-163.000

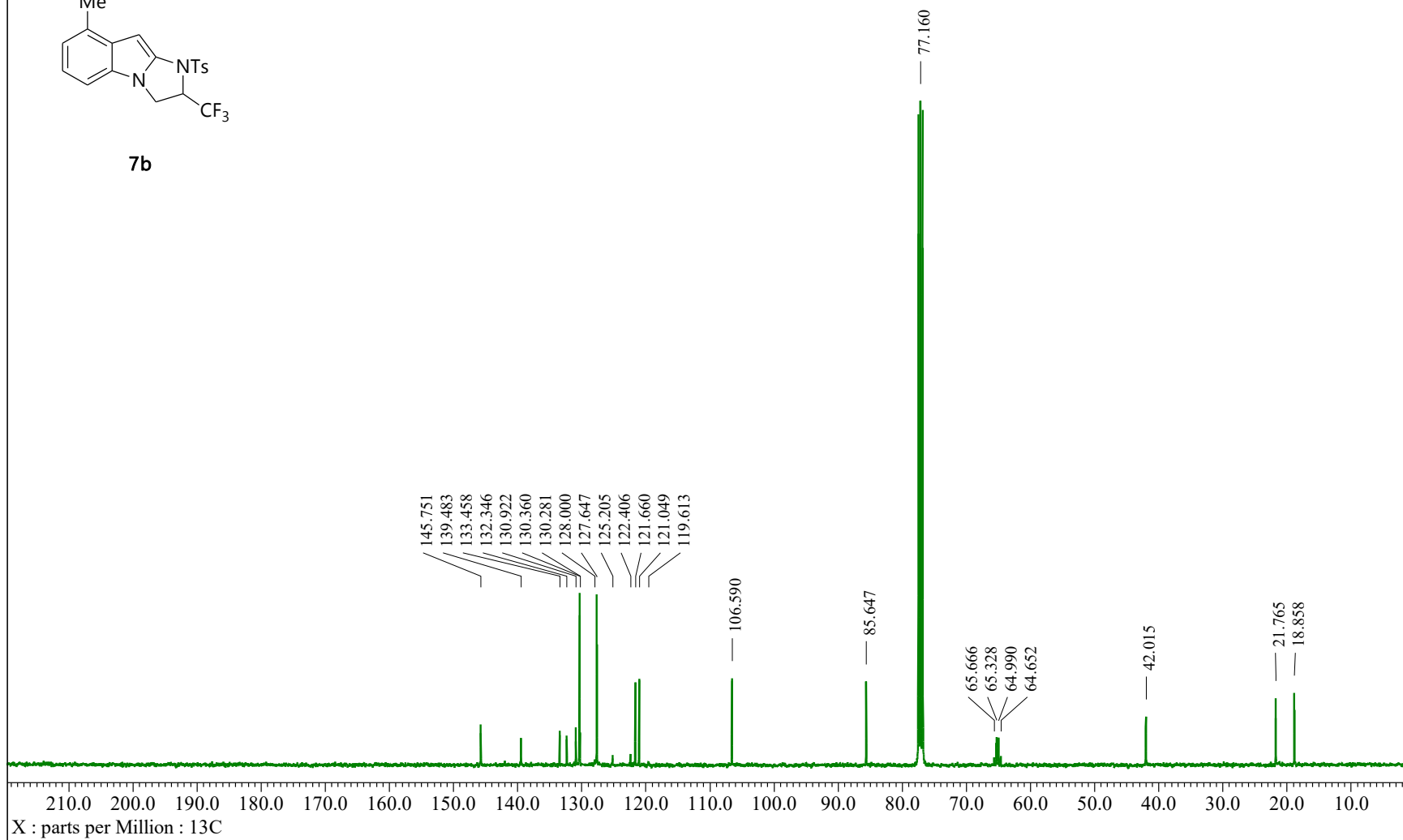
X : parts per Million : ¹⁹F



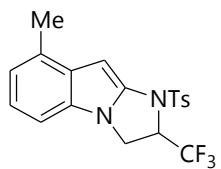
¹³C



7b



¹⁹F

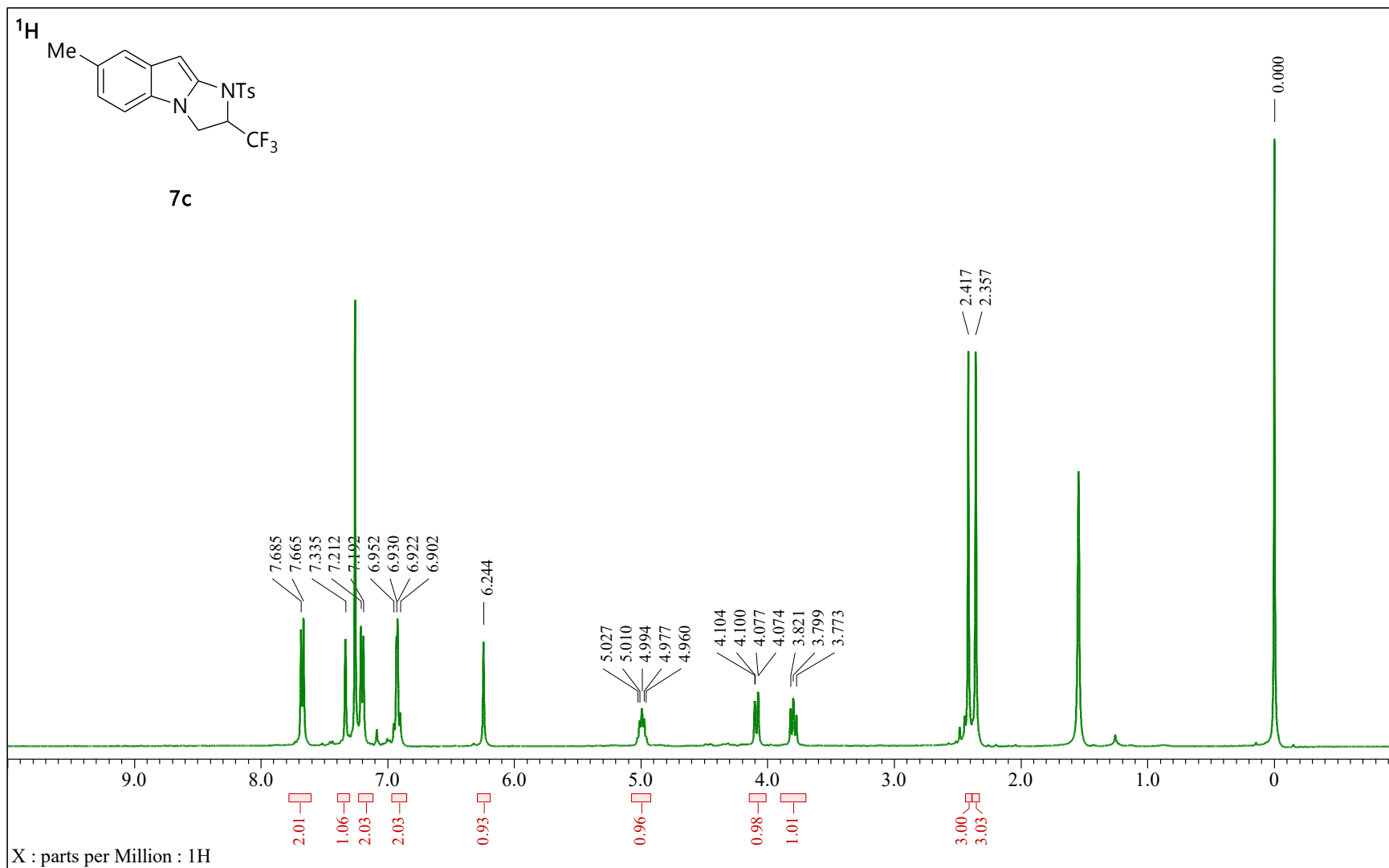


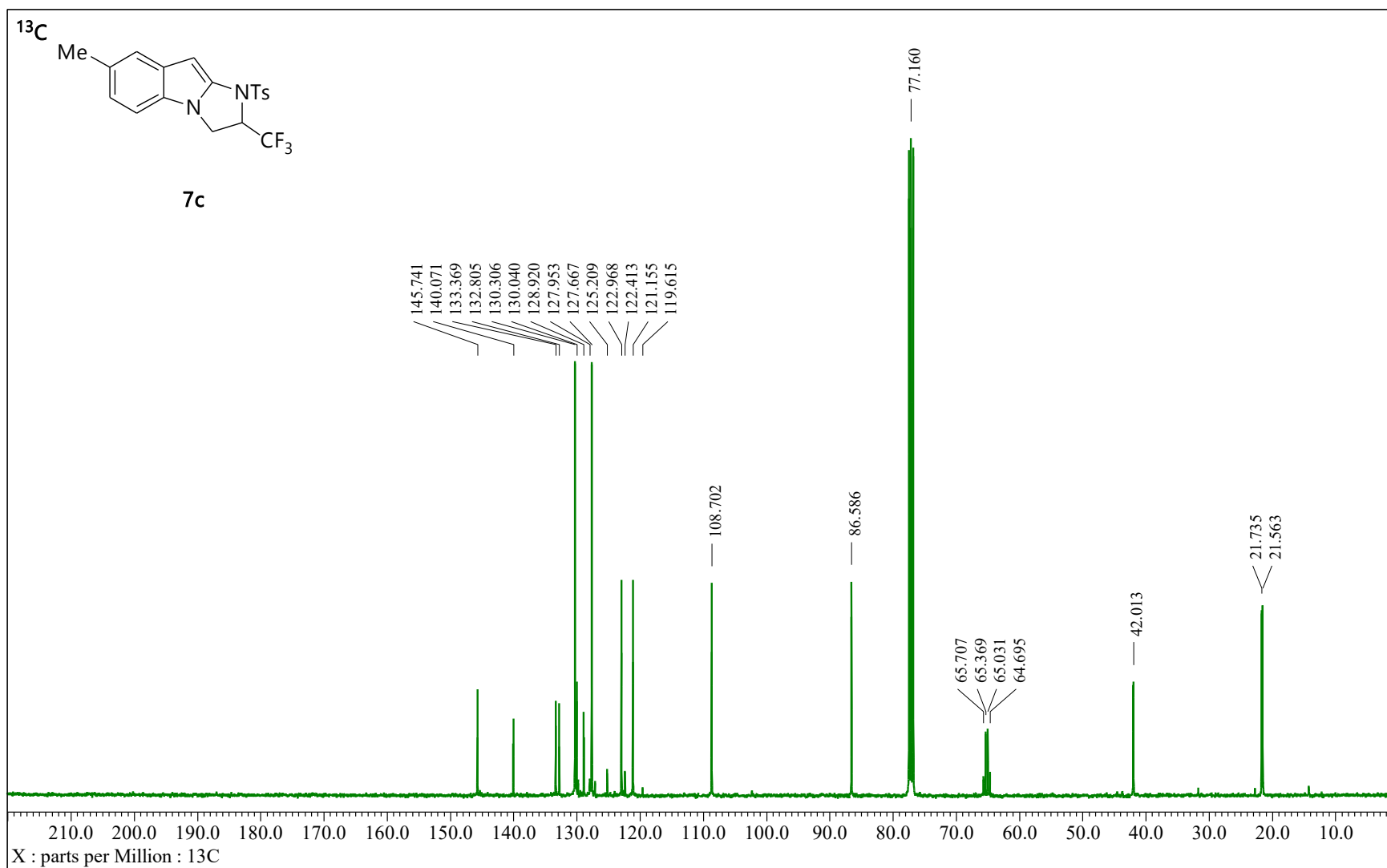
7b

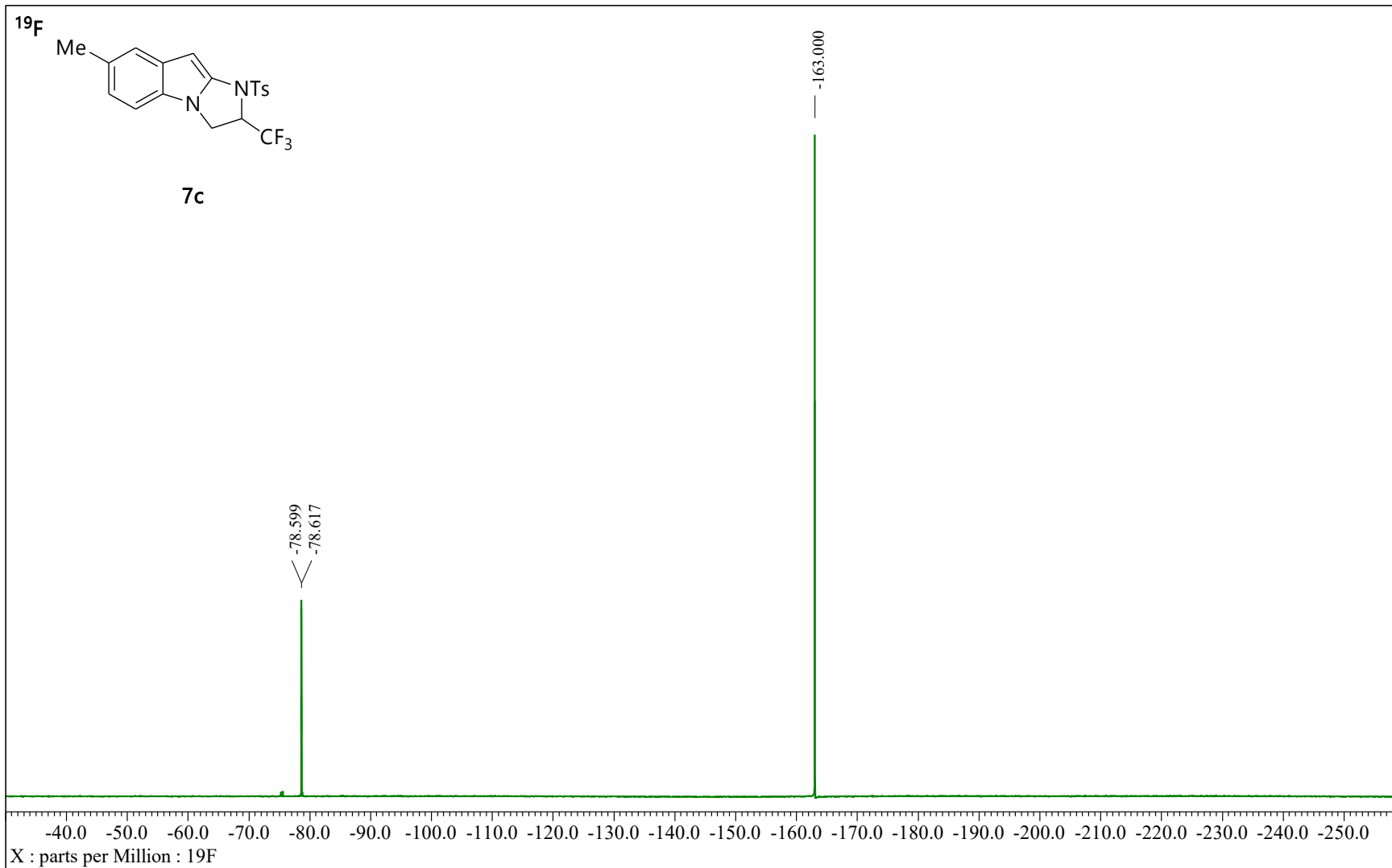
-78.641
-78.659

-163.000

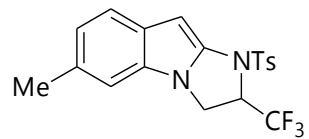
-40.0 -50.0 -60.0 -70.0 -80.0 -90.0 -100.0 -110.0 -120.0 -130.0 -140.0 -150.0 -160.0 -170.0 -180.0 -190.0 -200.0 -210.0 -220.0 -230.0 -240.0 -250.0
X : parts per Million : ¹⁹F



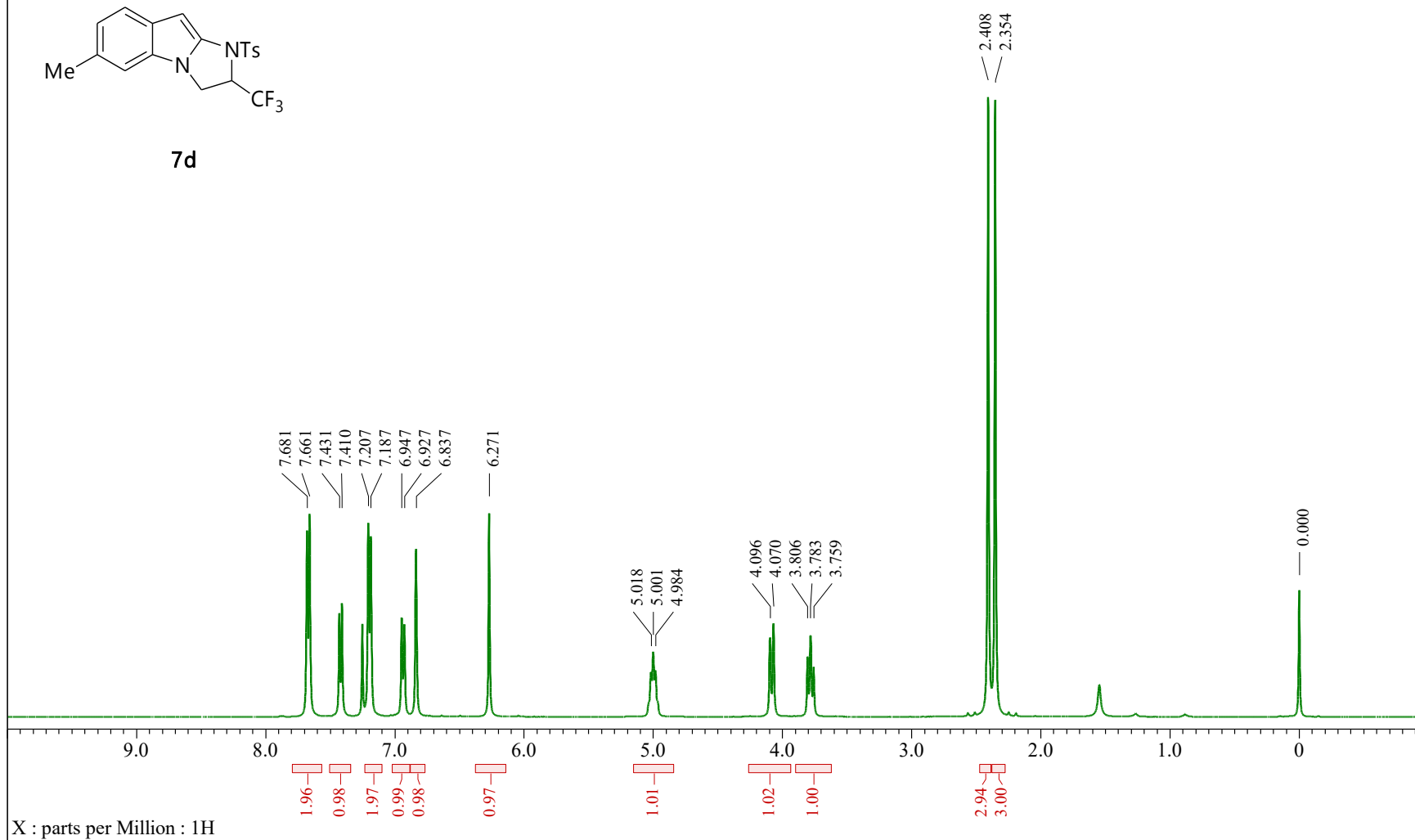




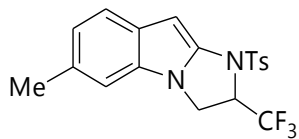
¹H



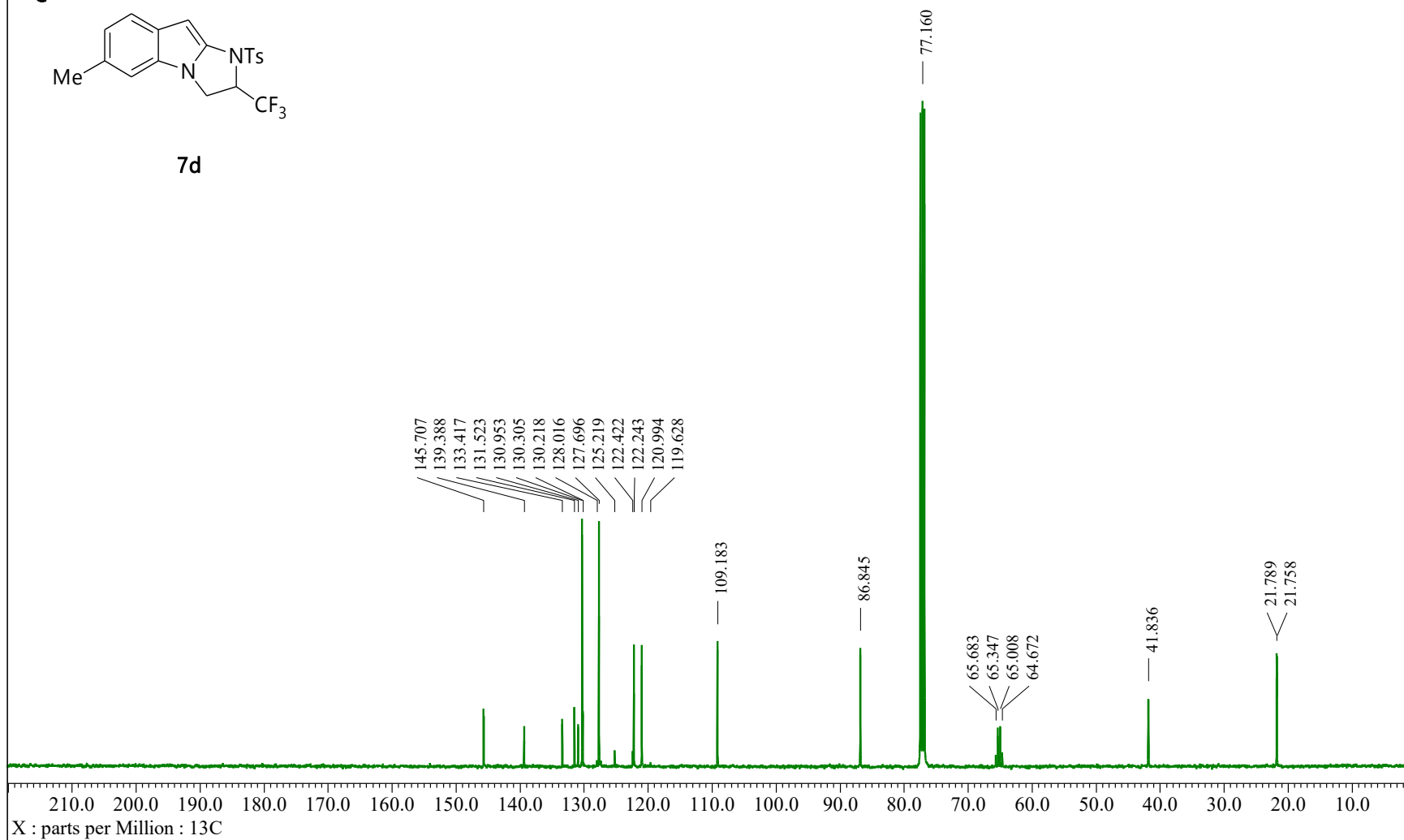
7d

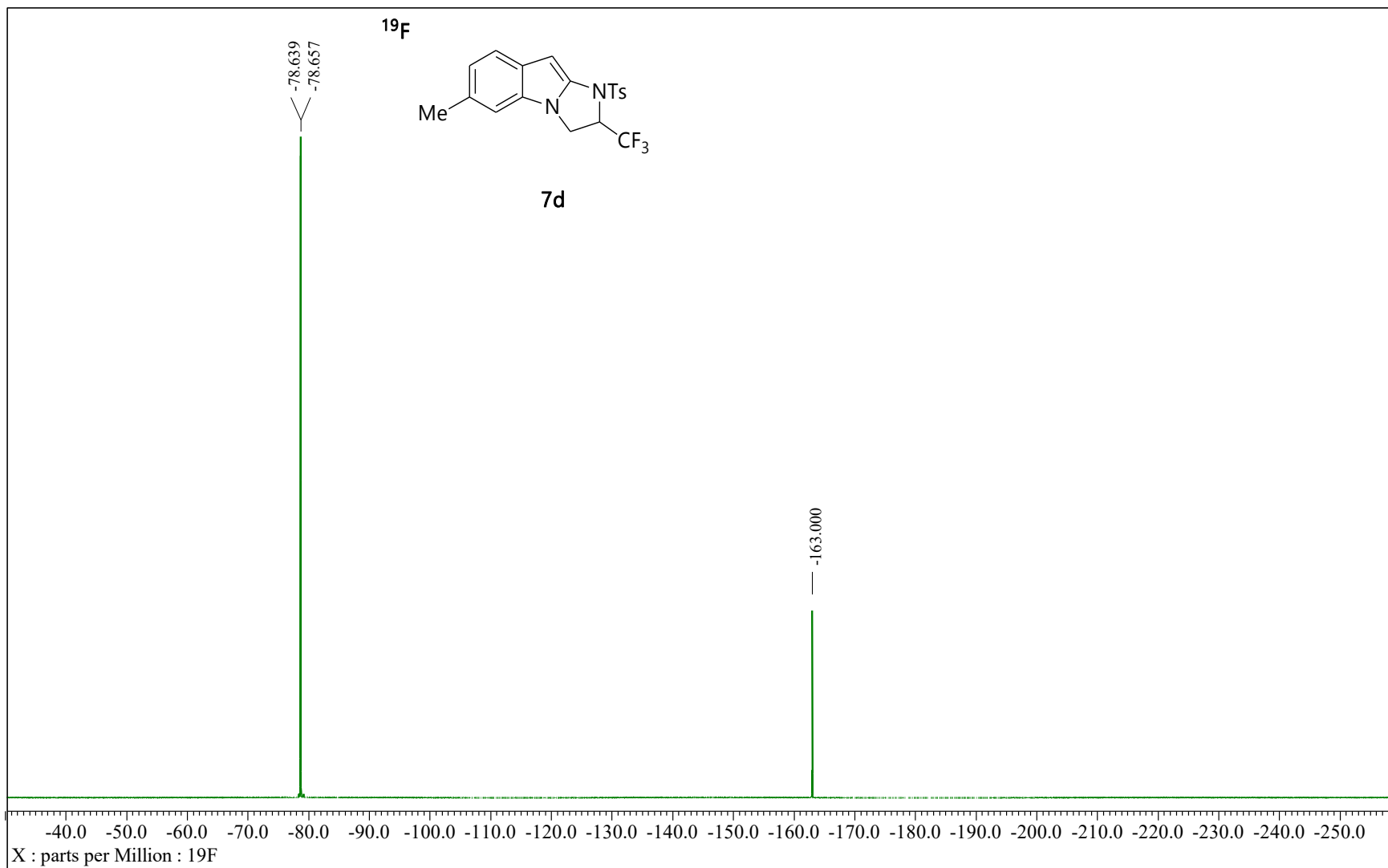


¹³C

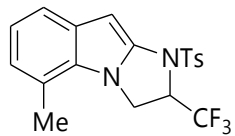


7d

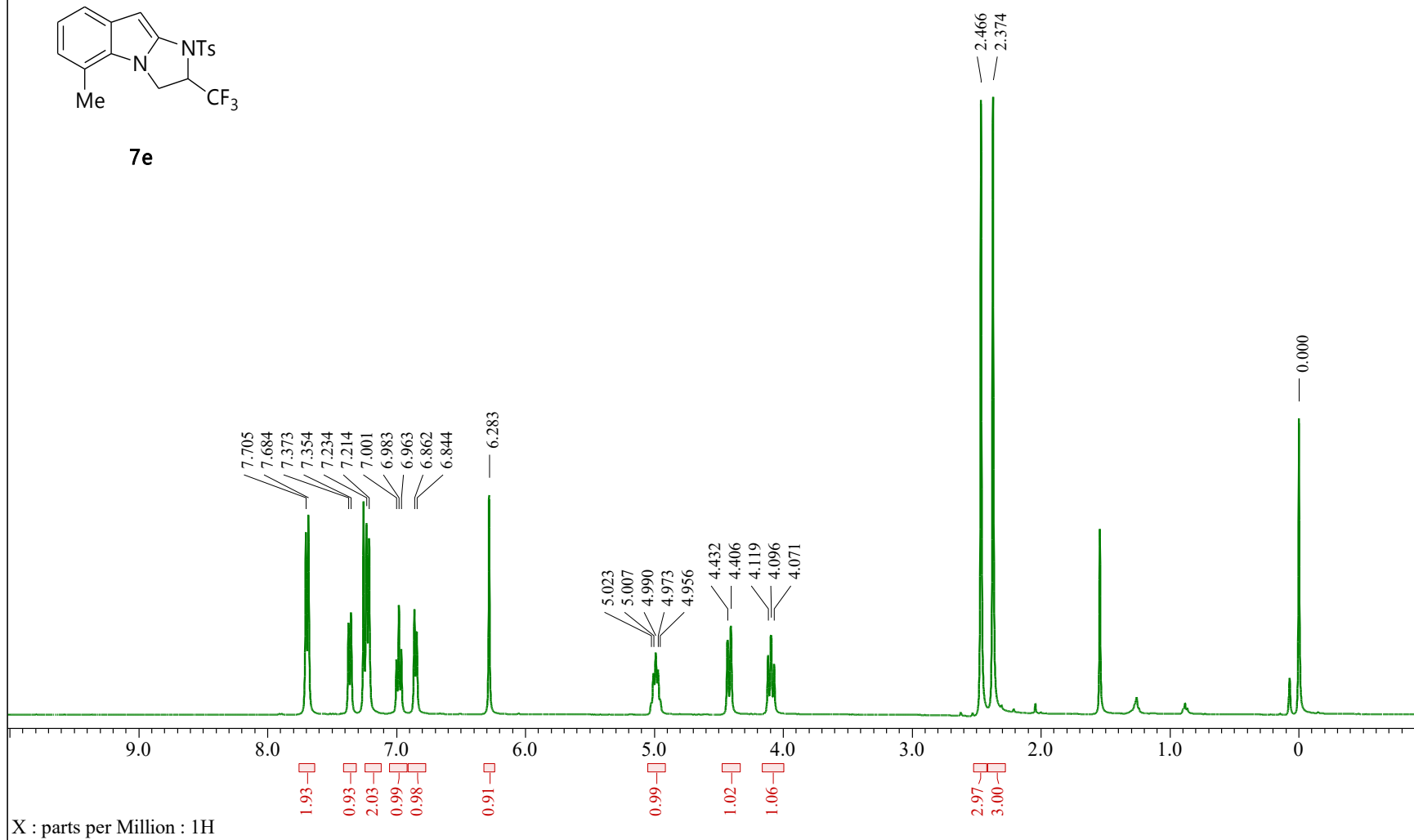


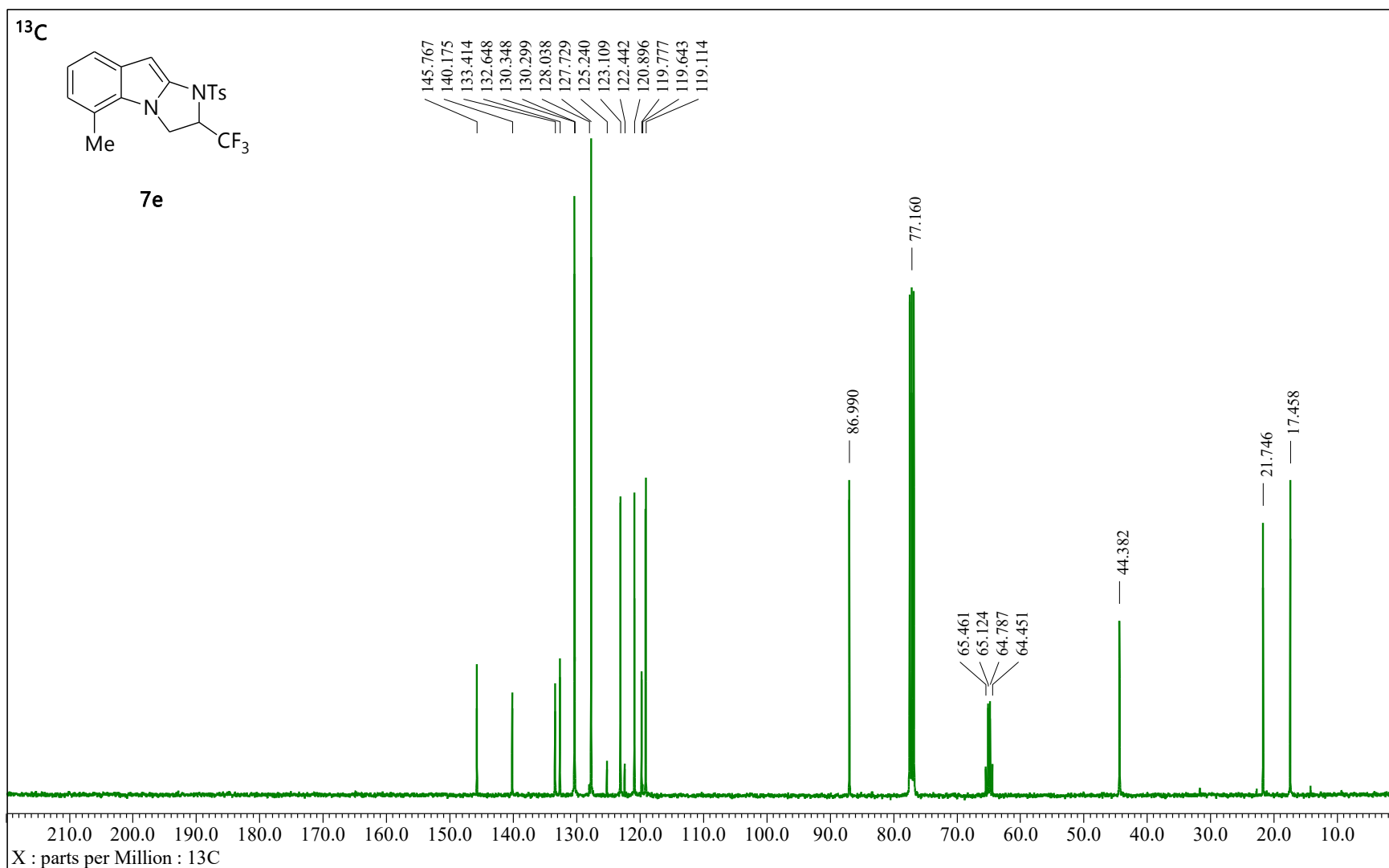


¹H

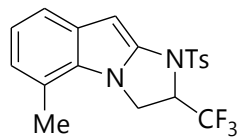


7e





¹⁹F

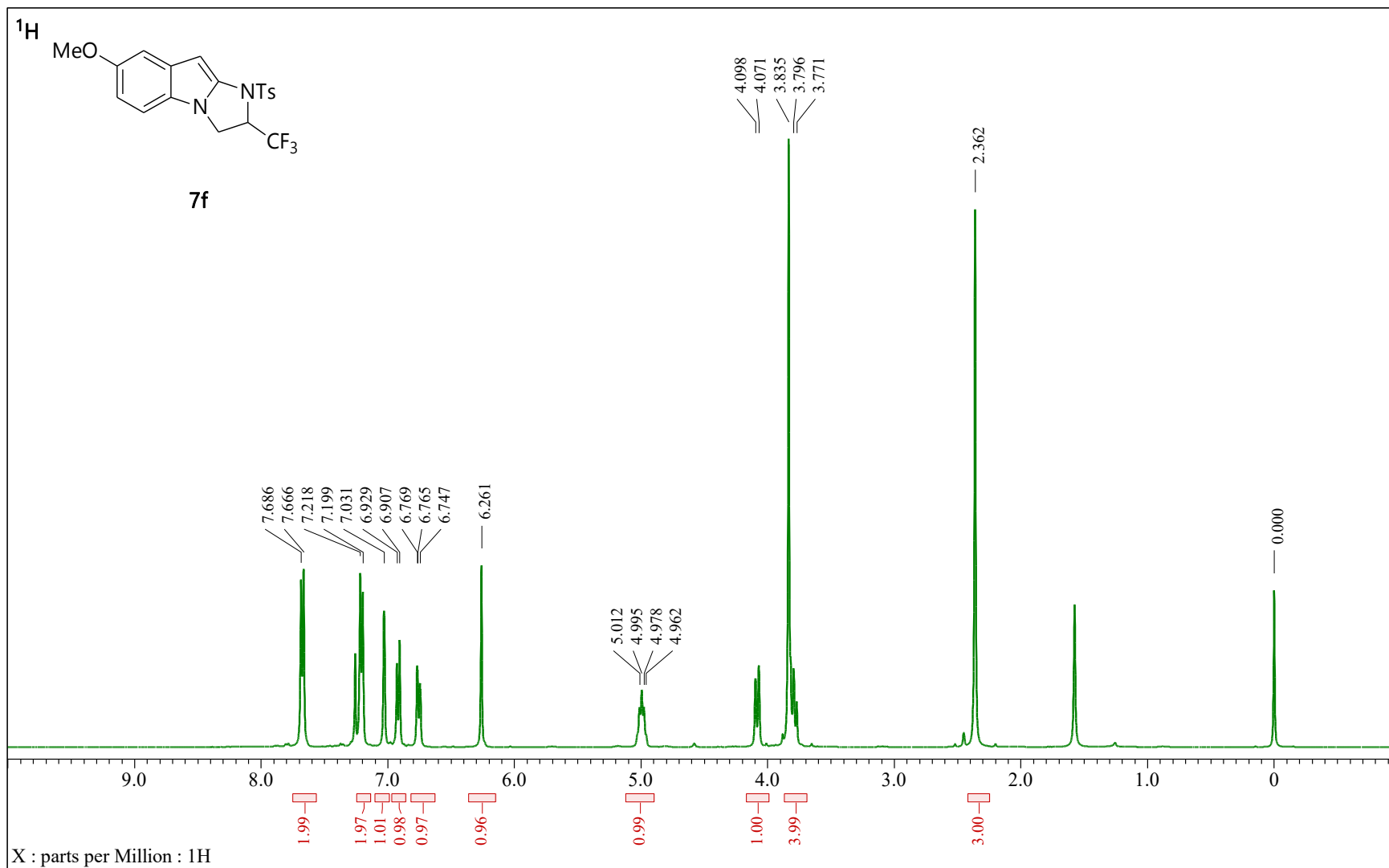


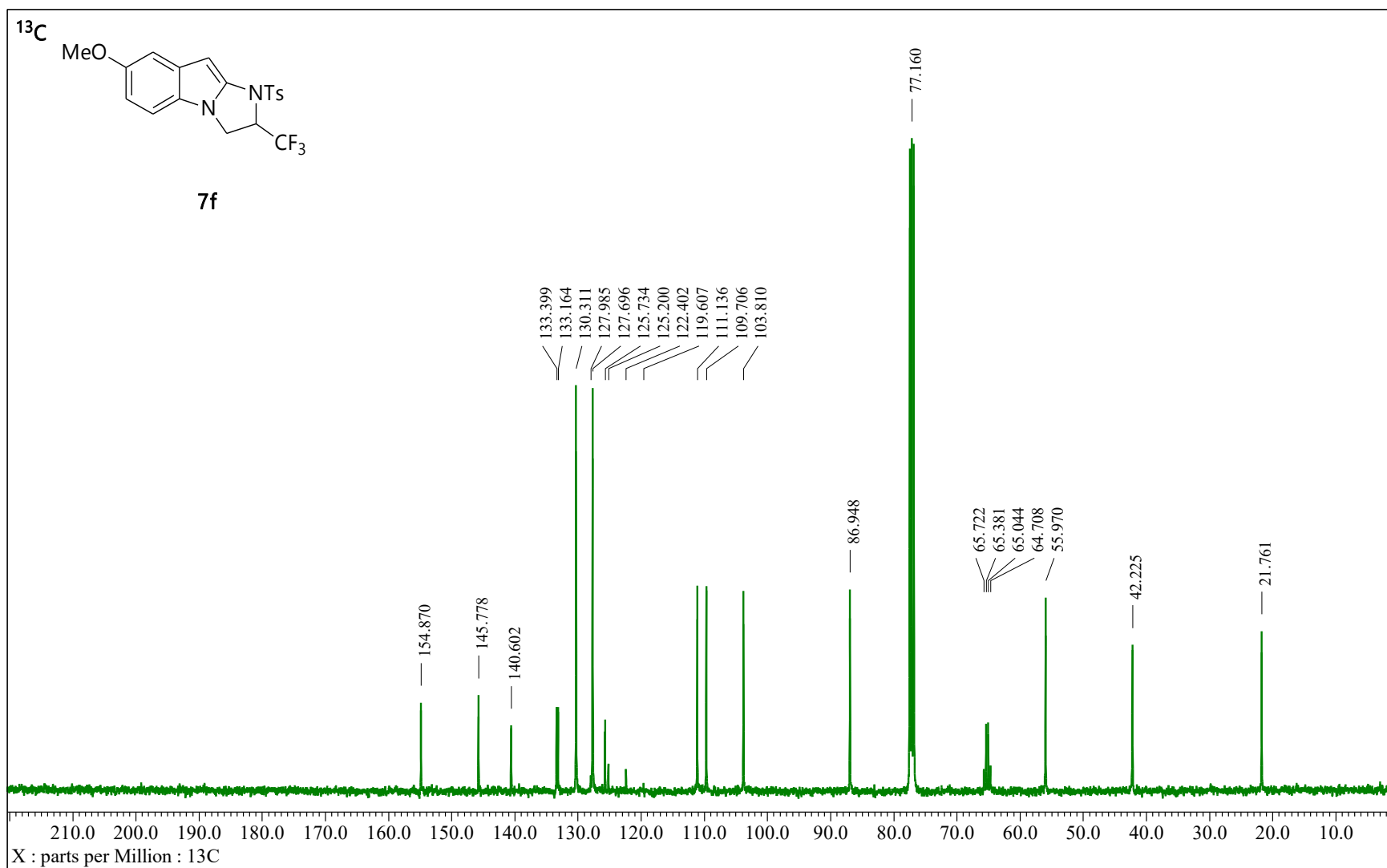
7e

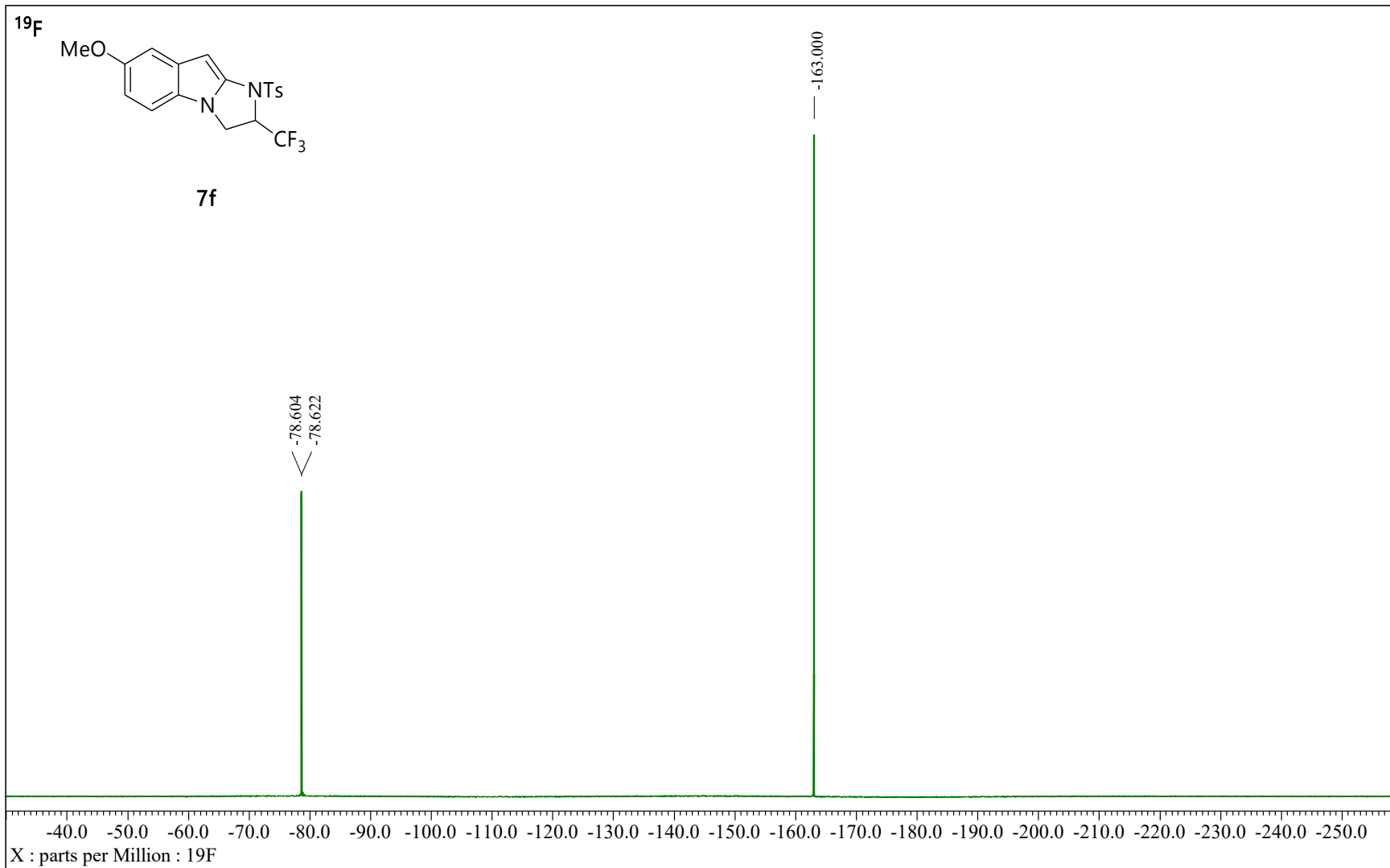
-78.536
-78.554

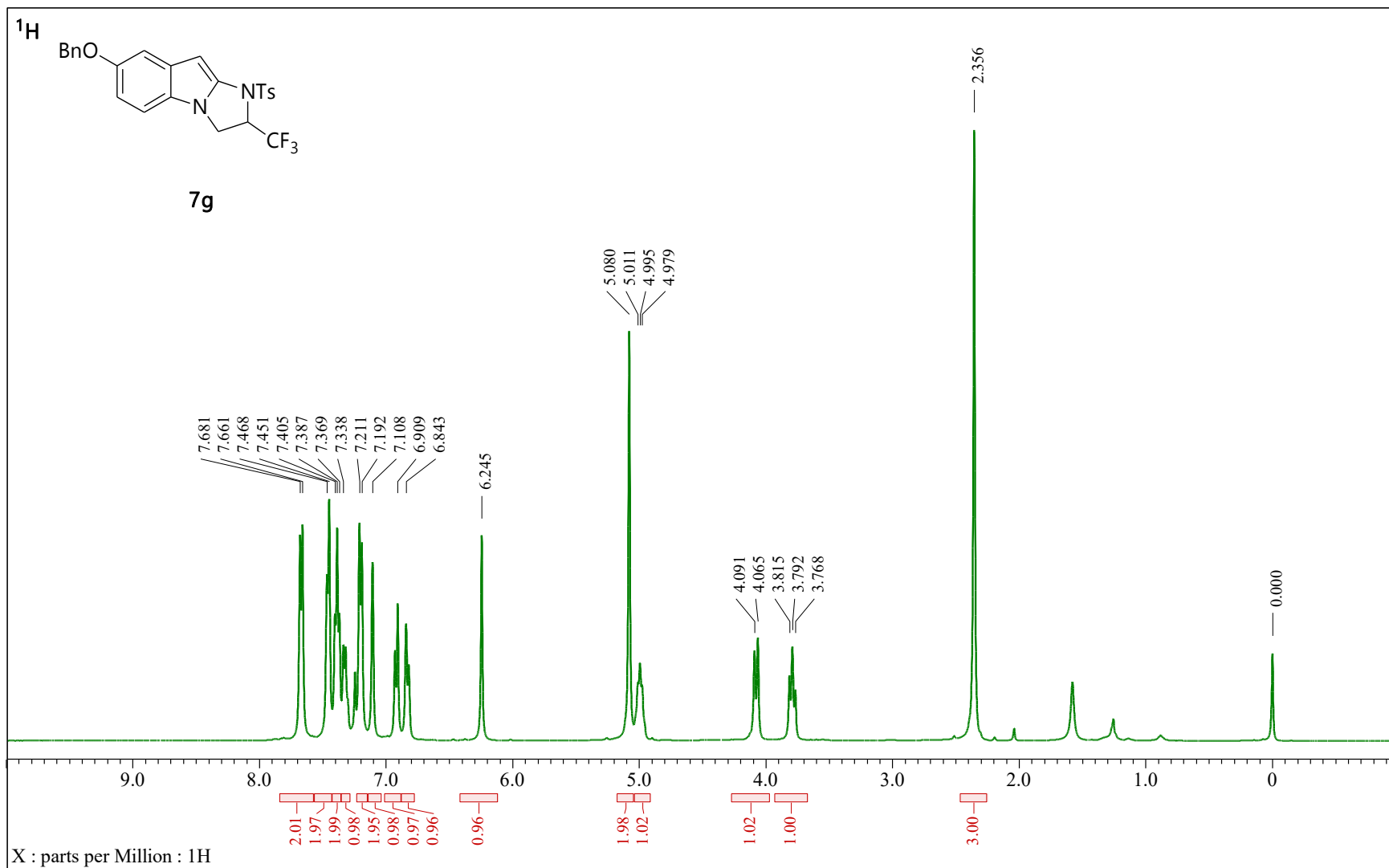
-163.000

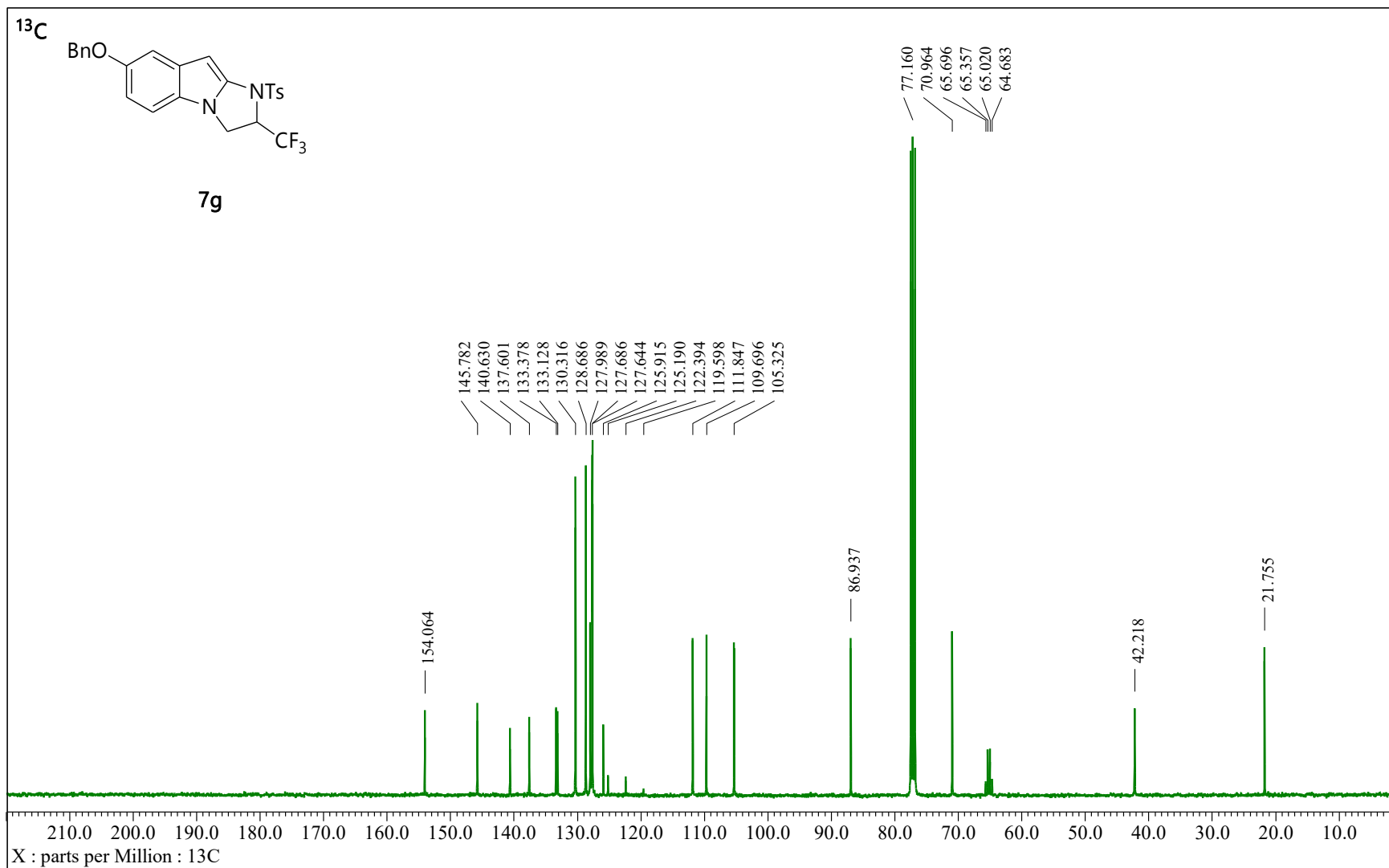
X : parts per Million : ¹⁹F

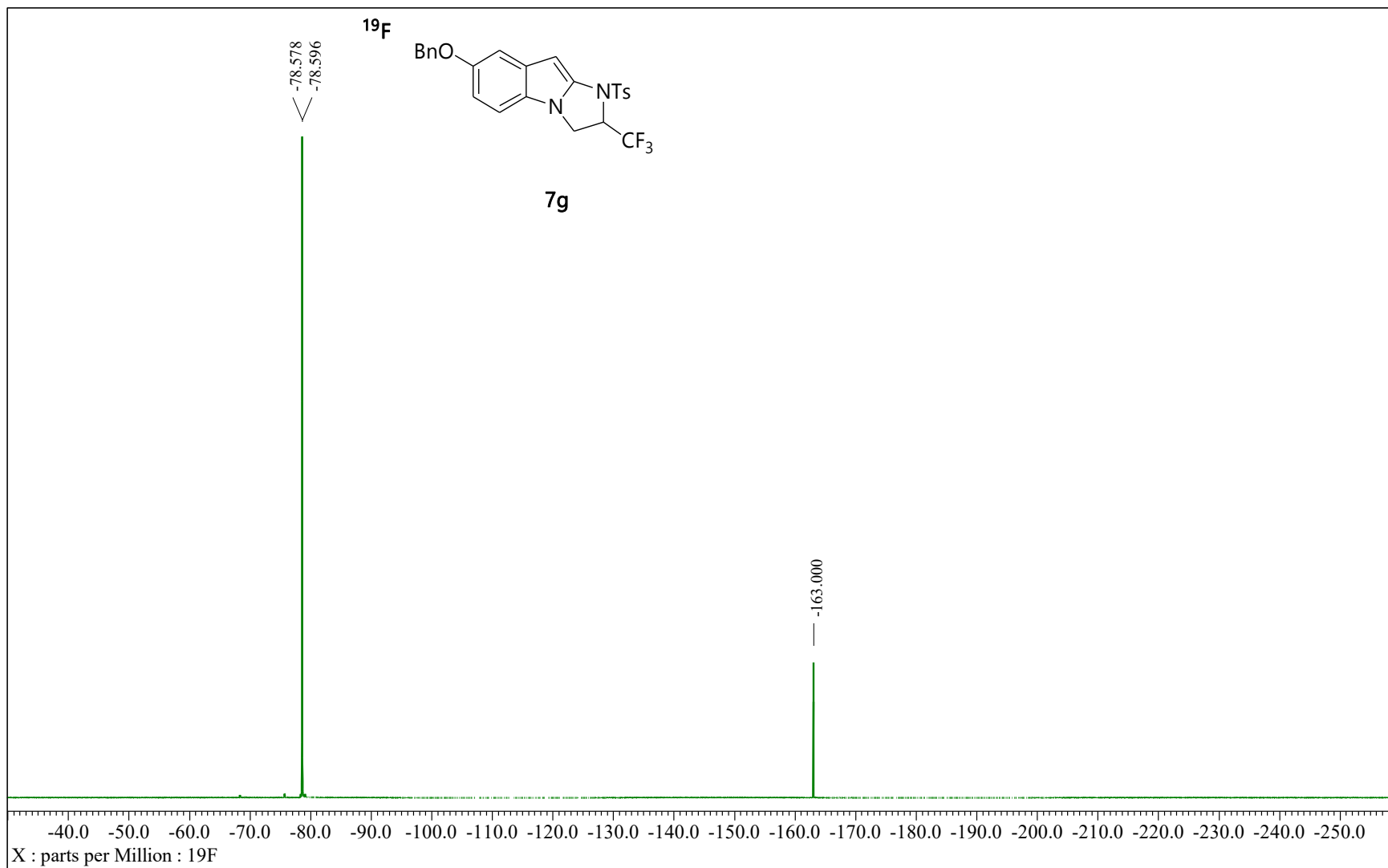


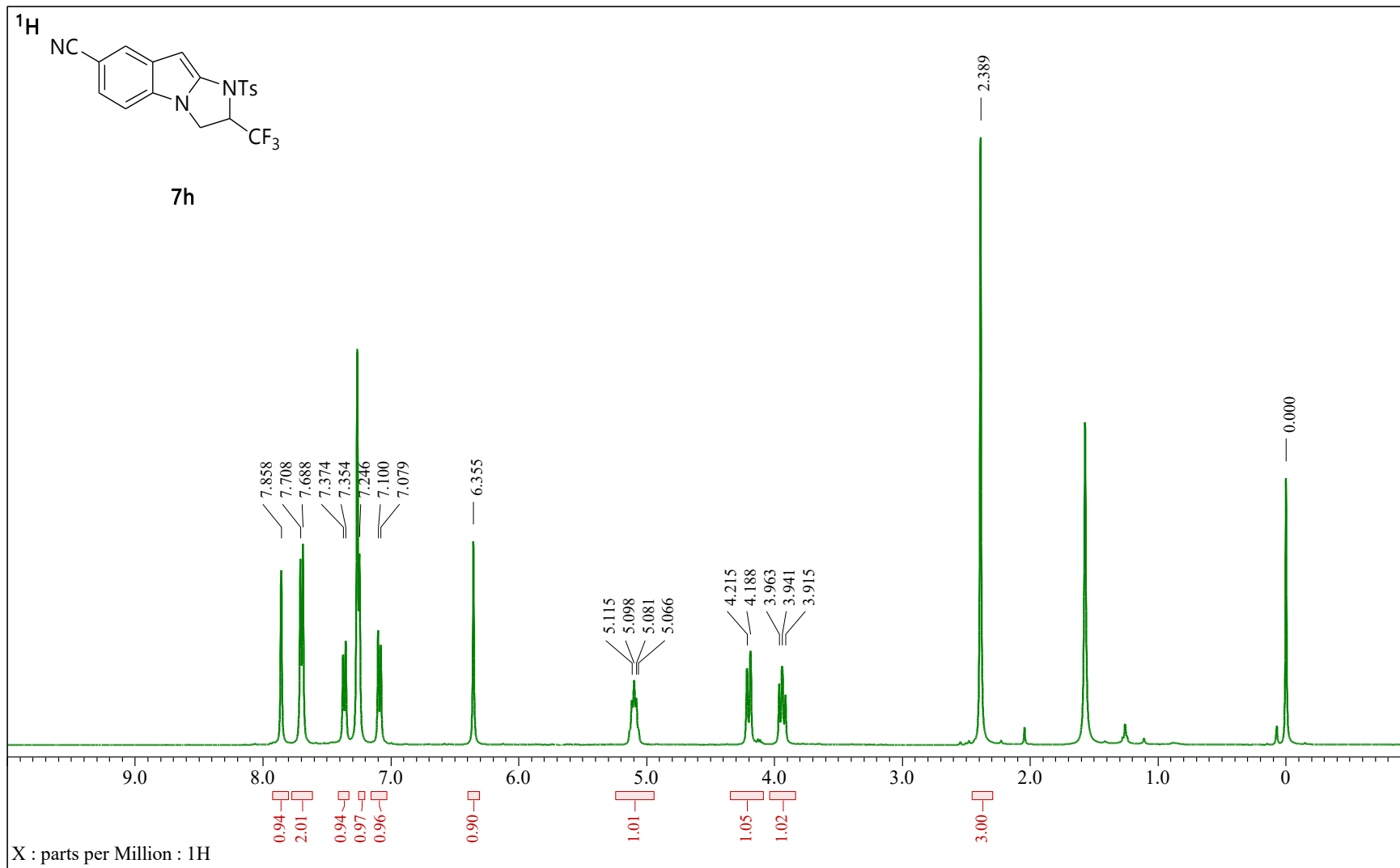


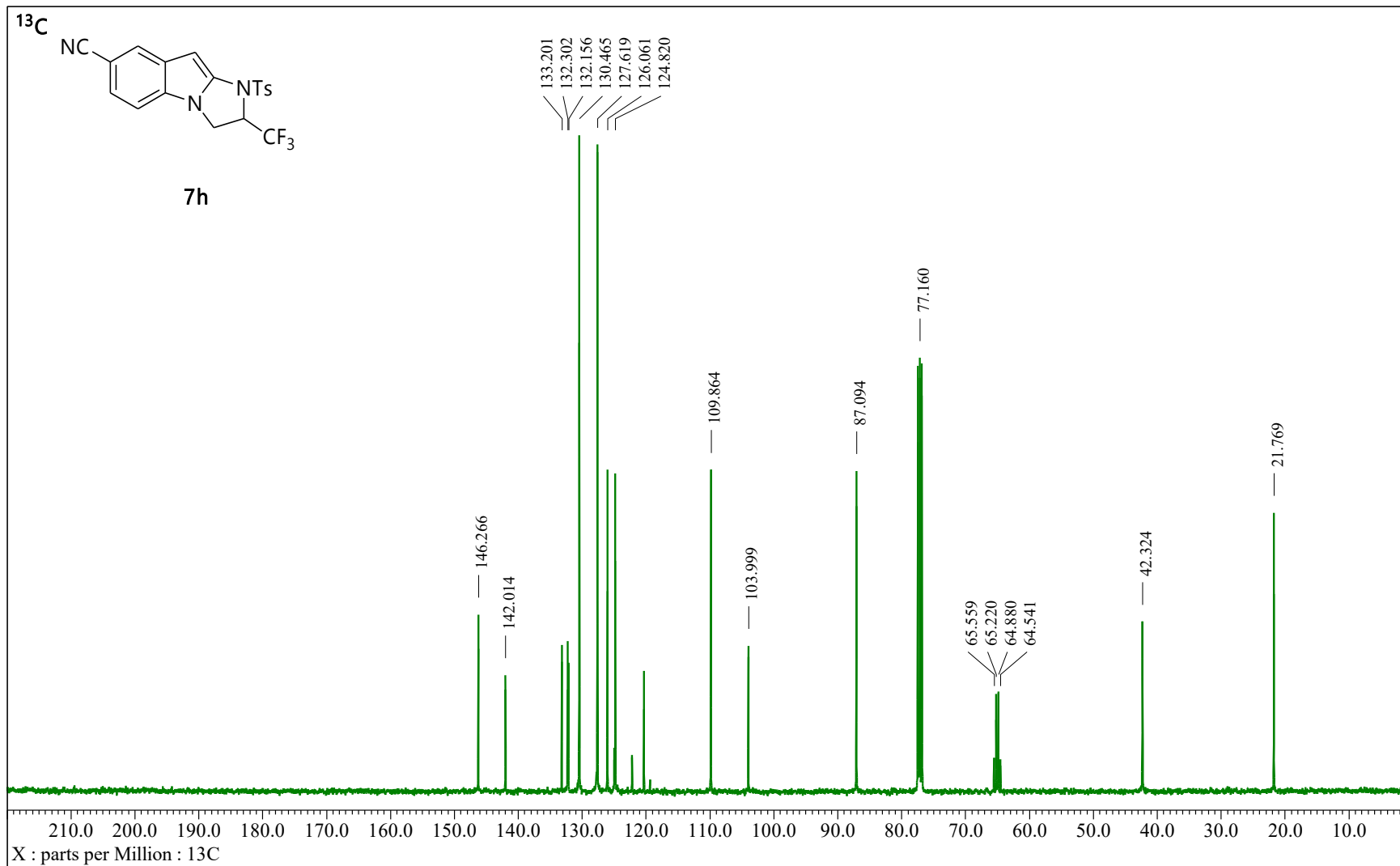


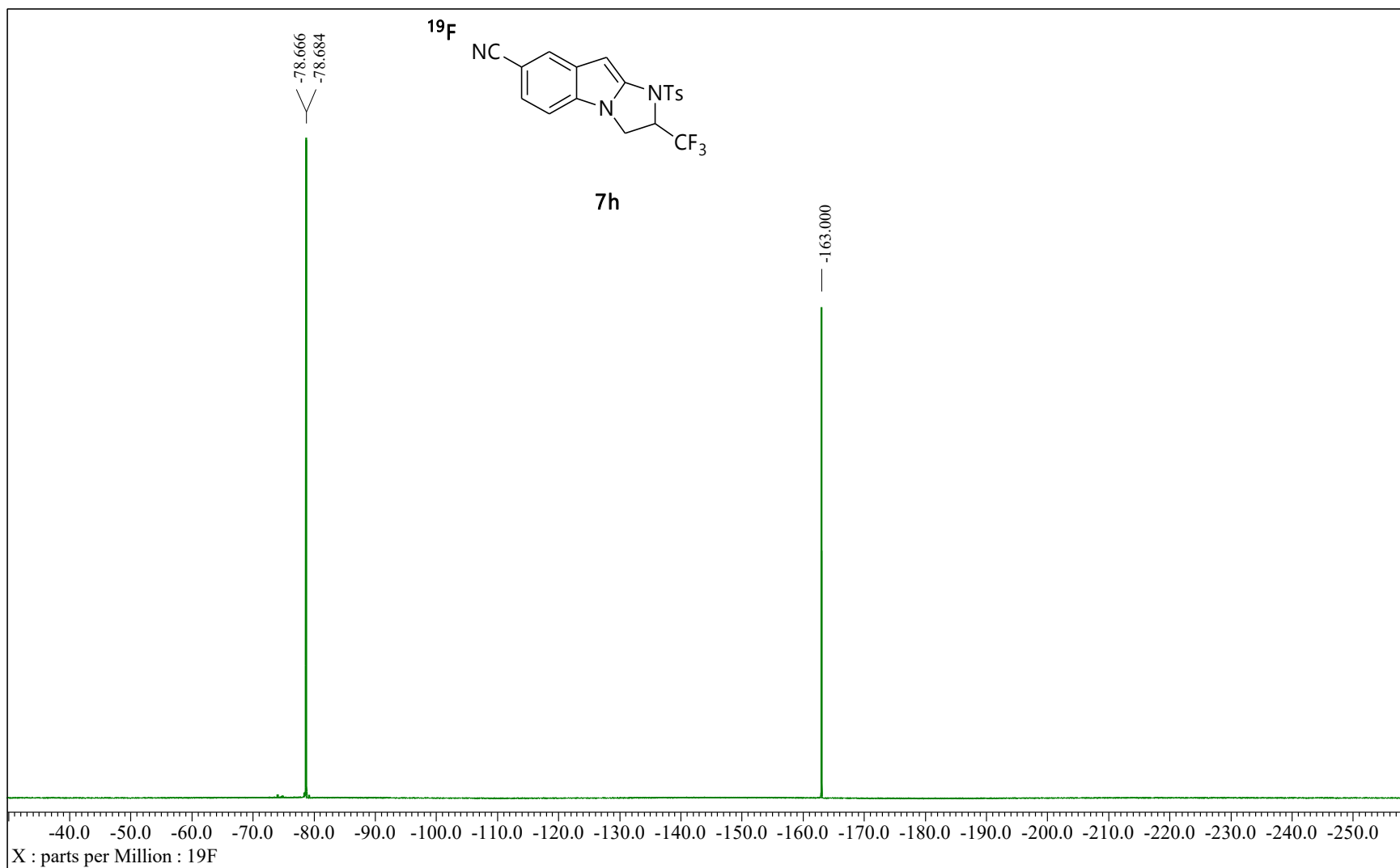


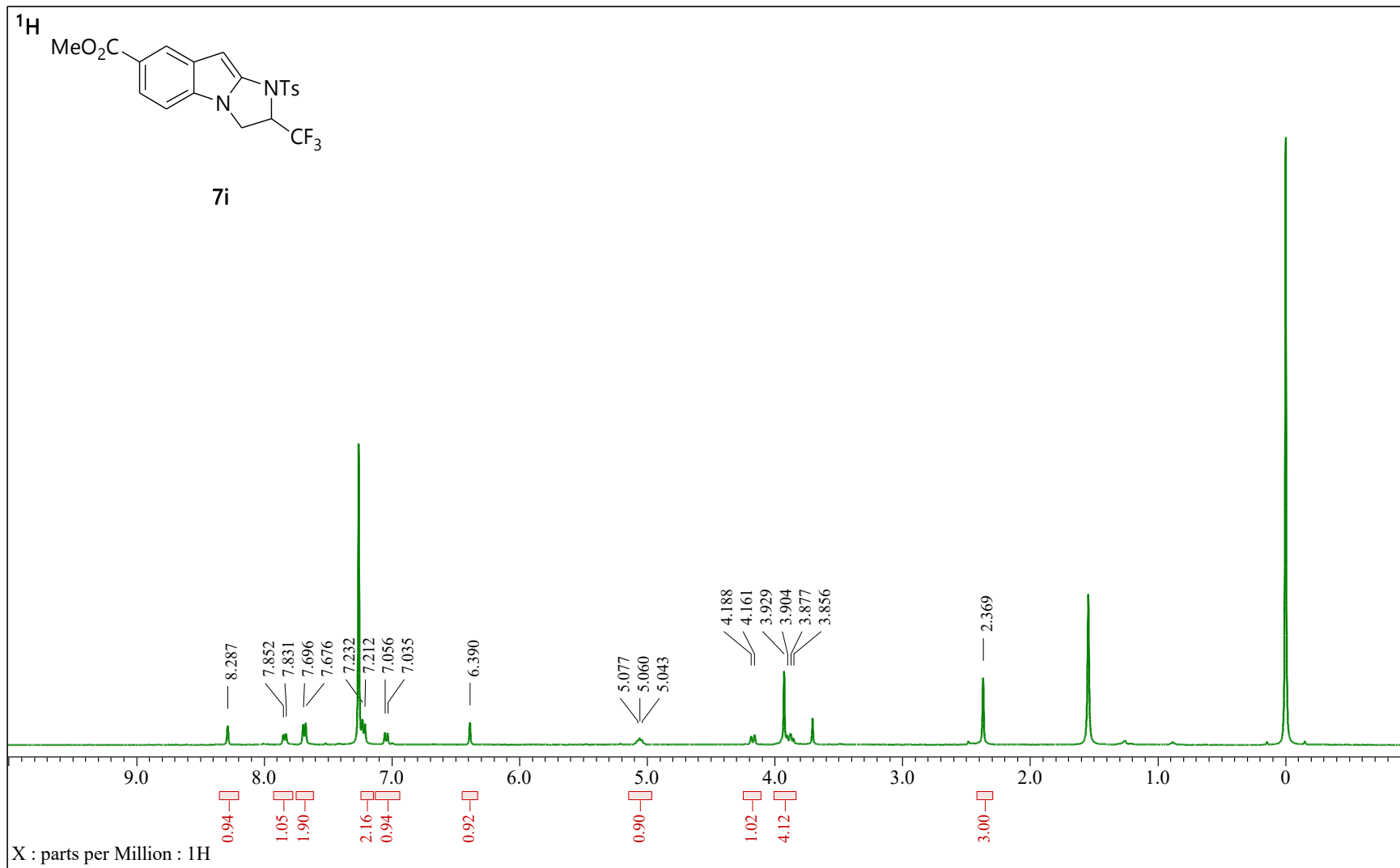


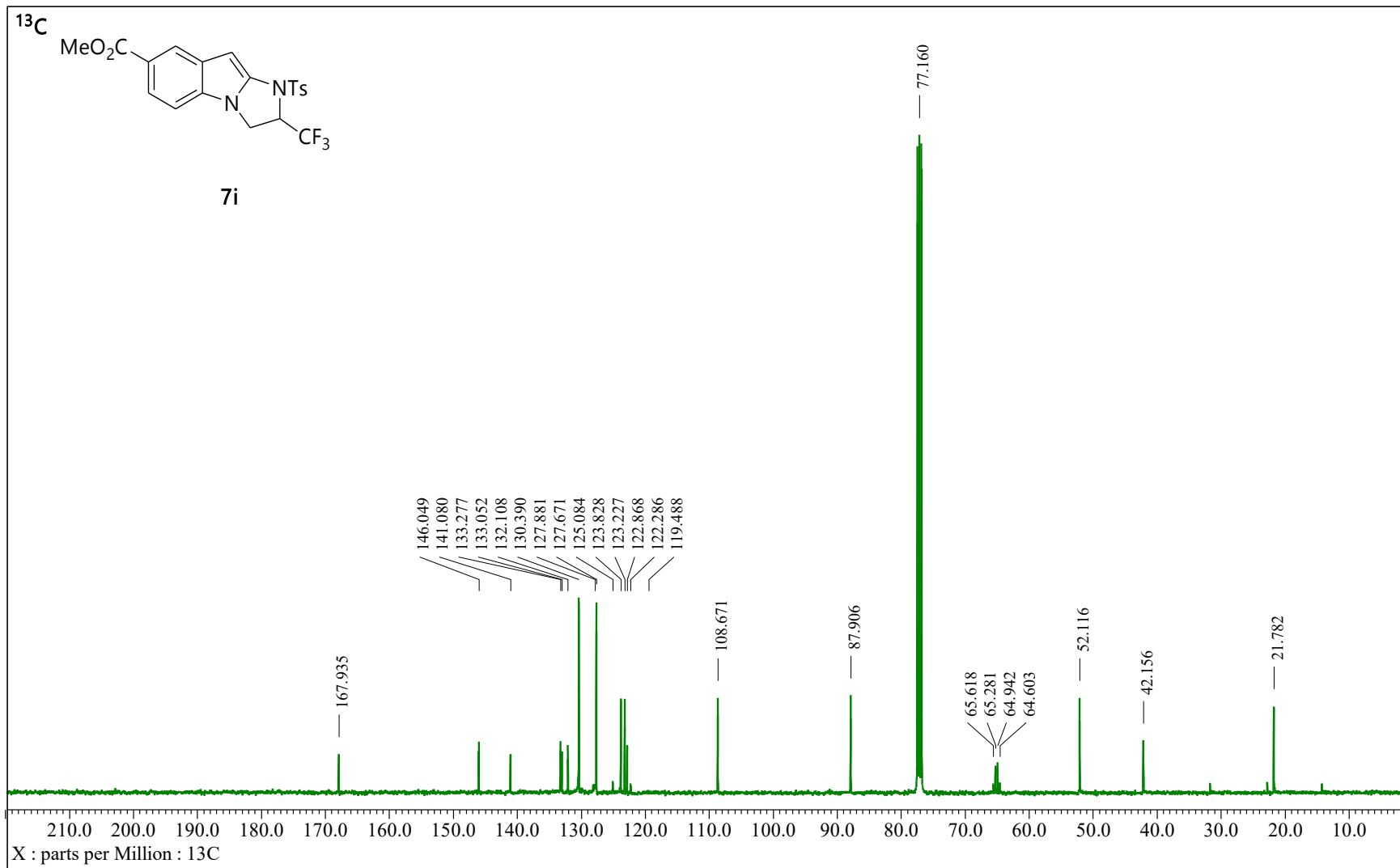


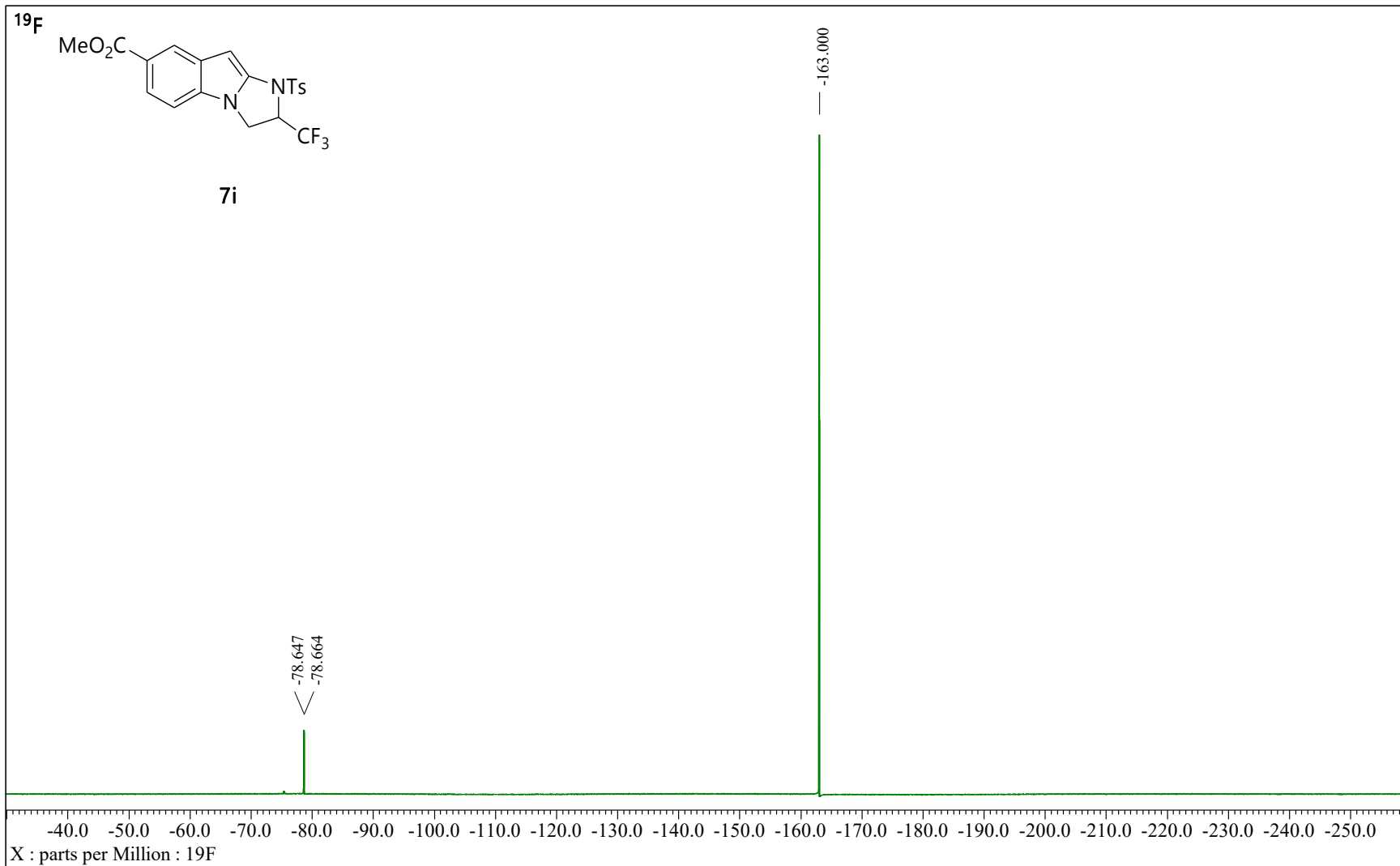


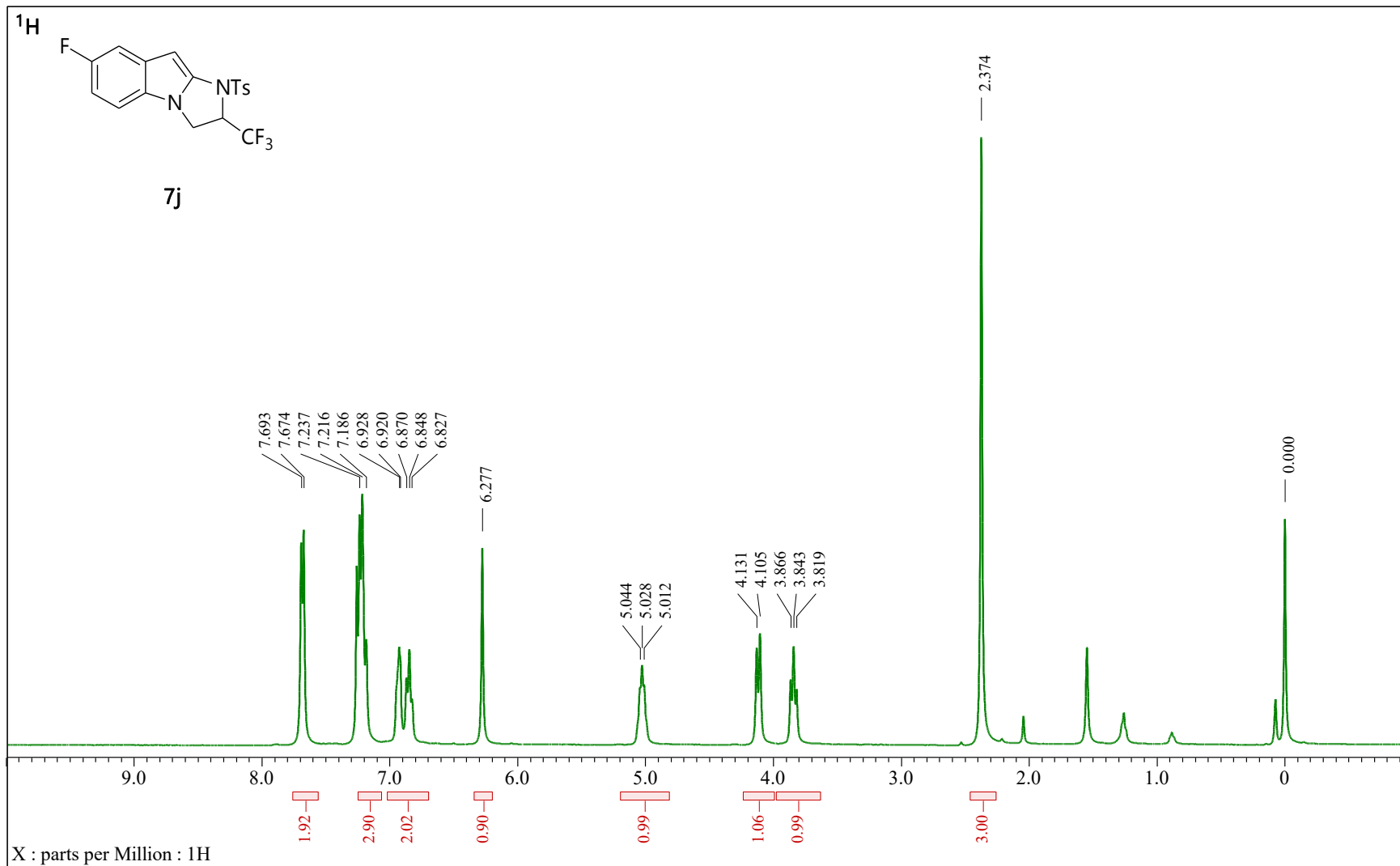


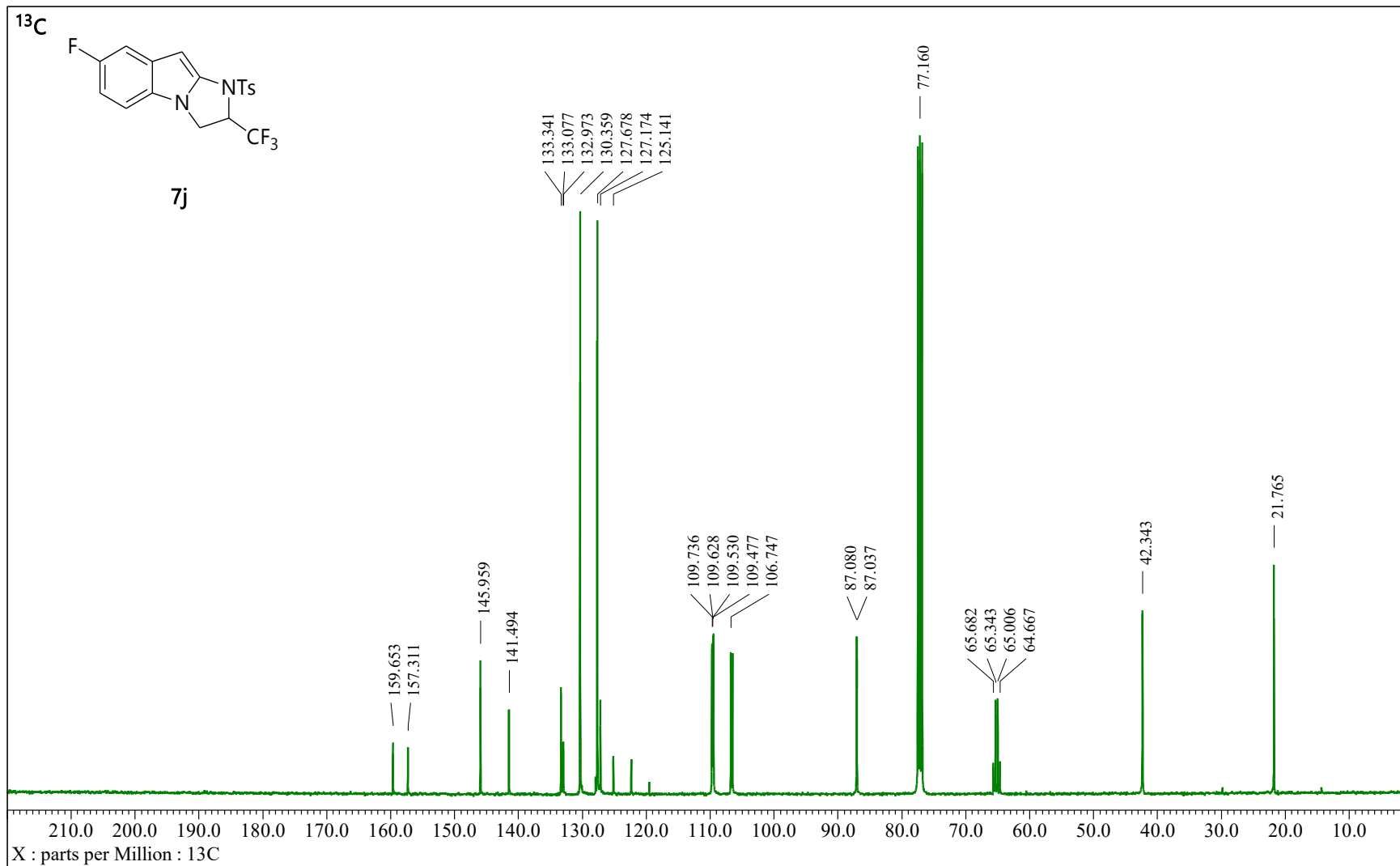


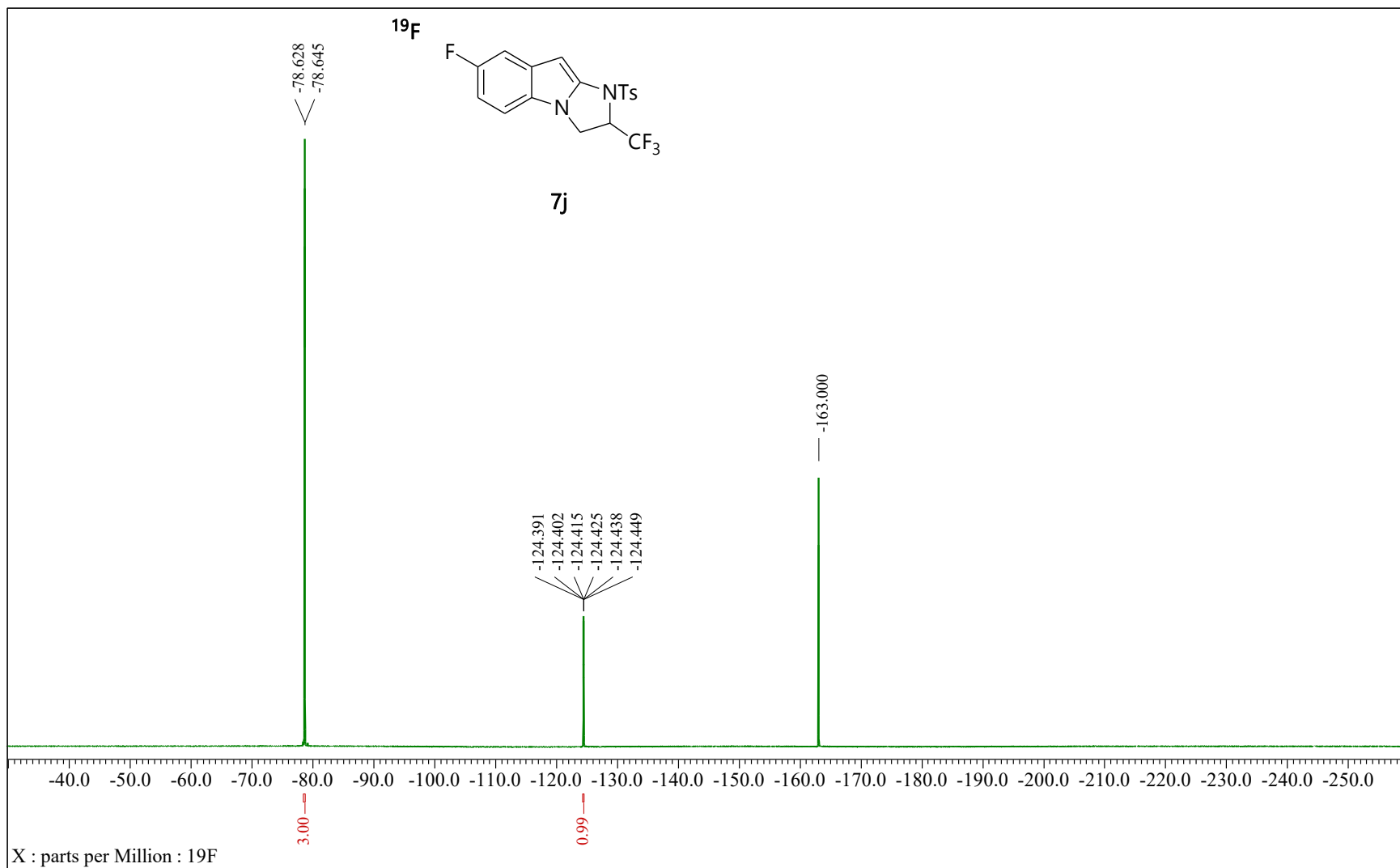


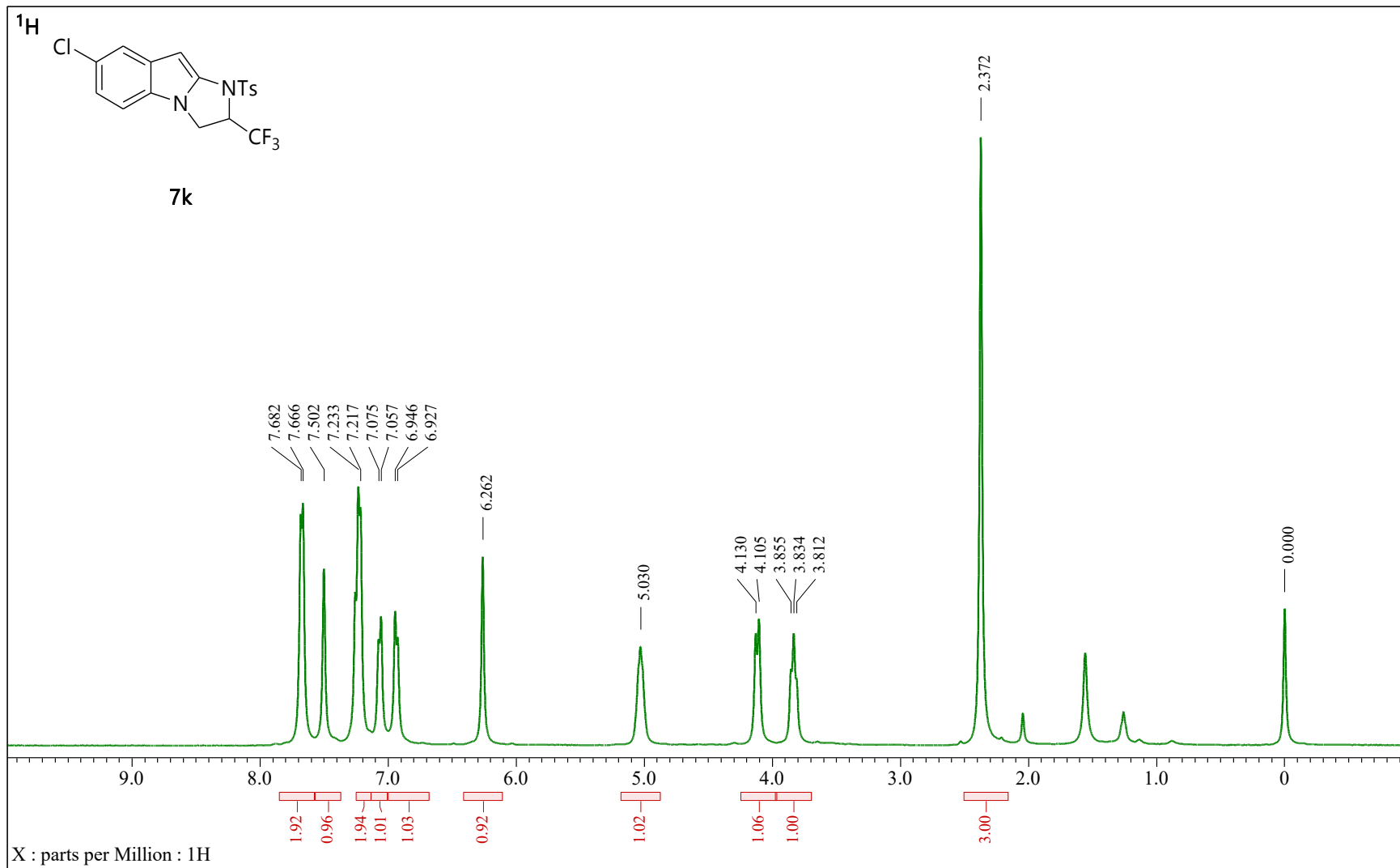


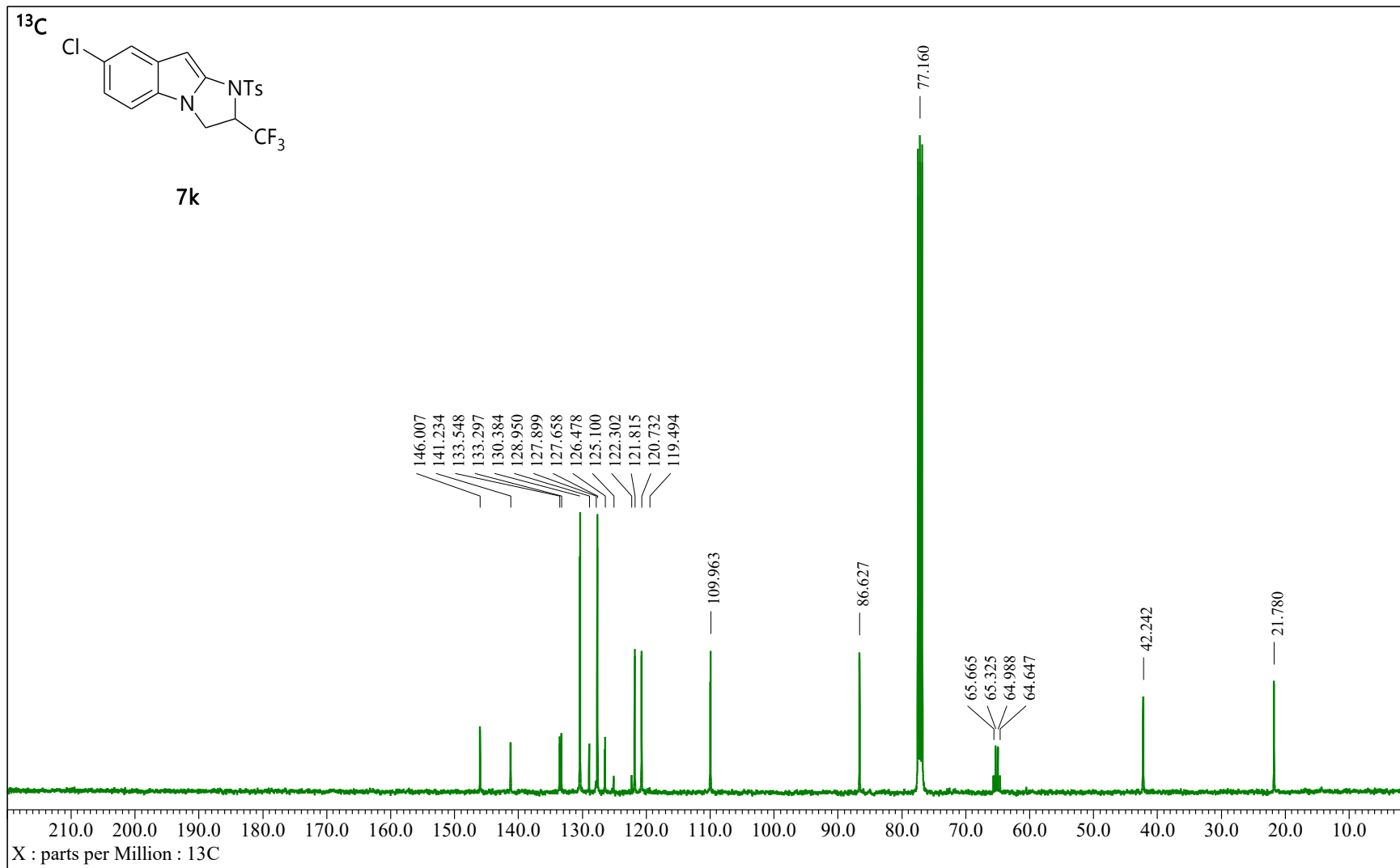


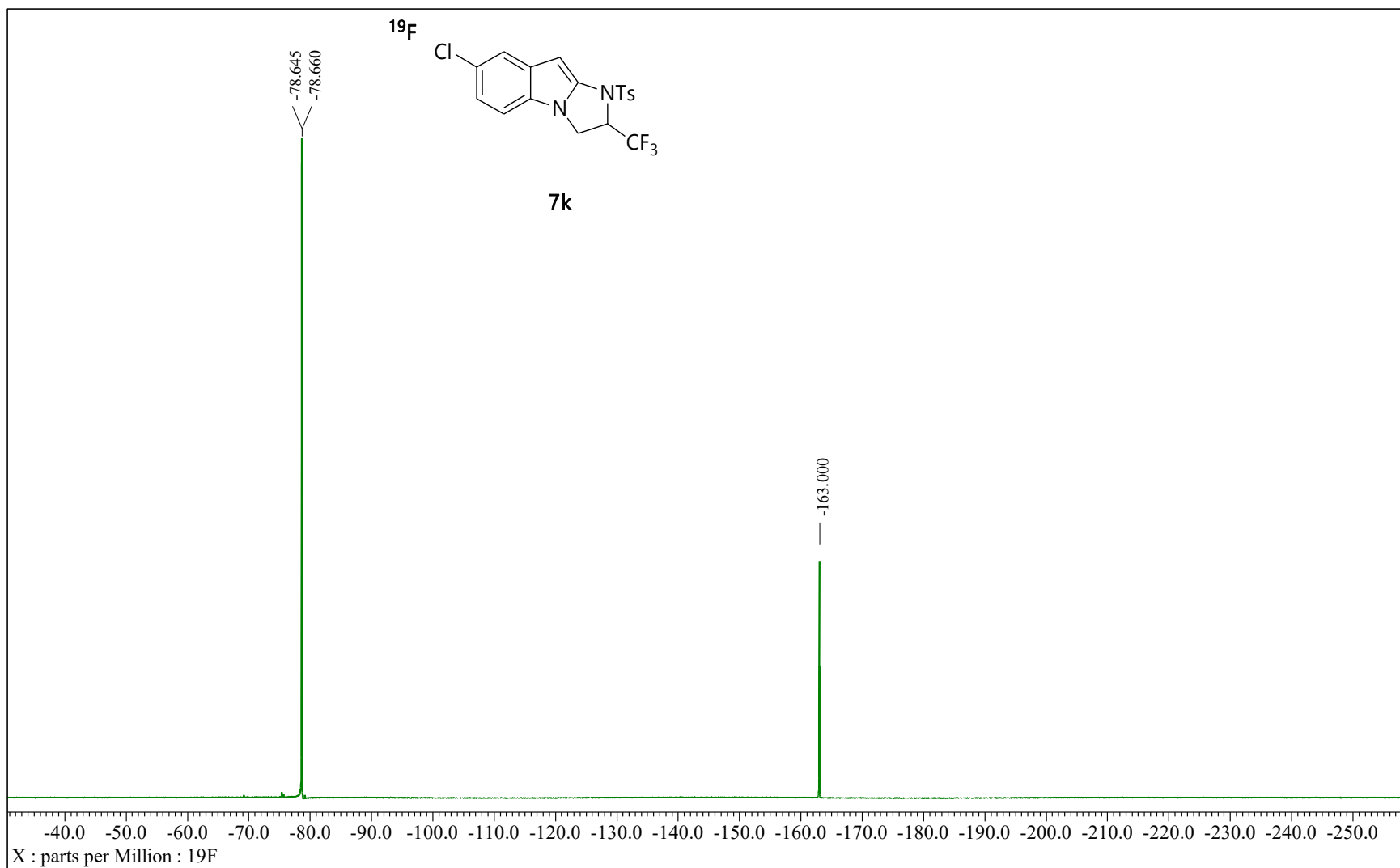


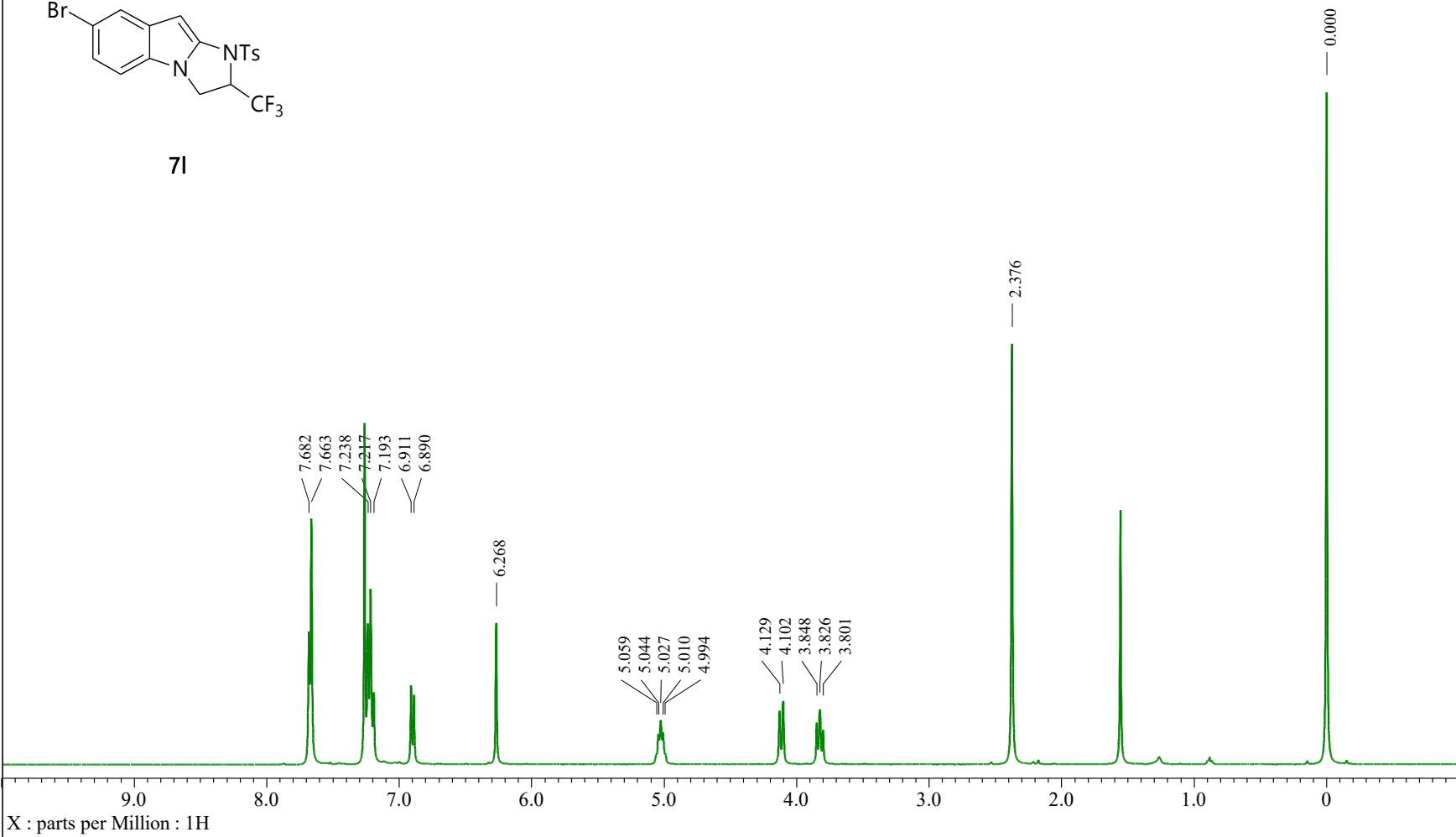
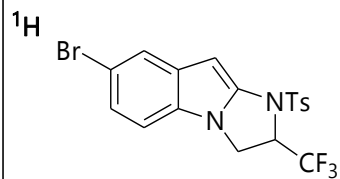


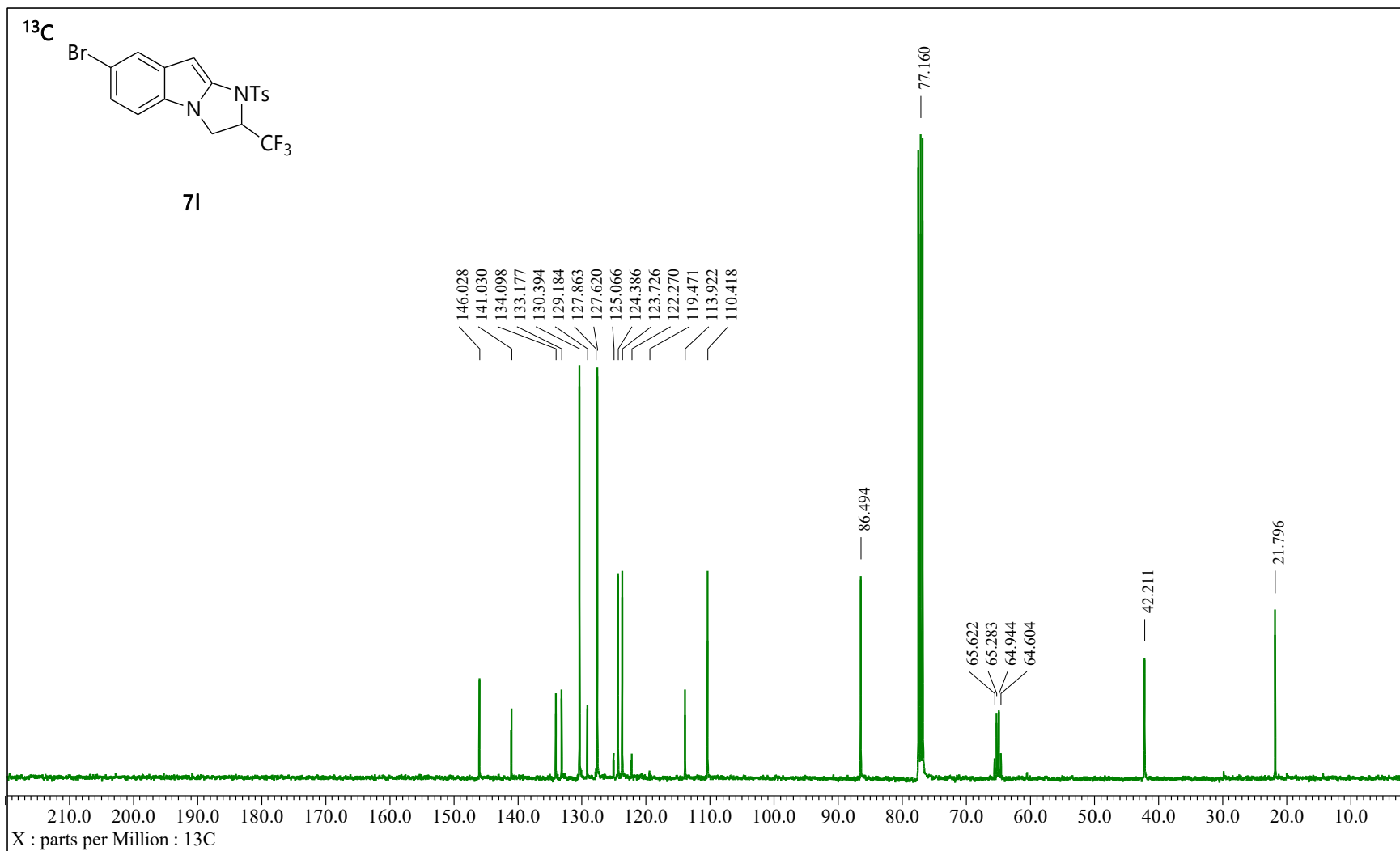


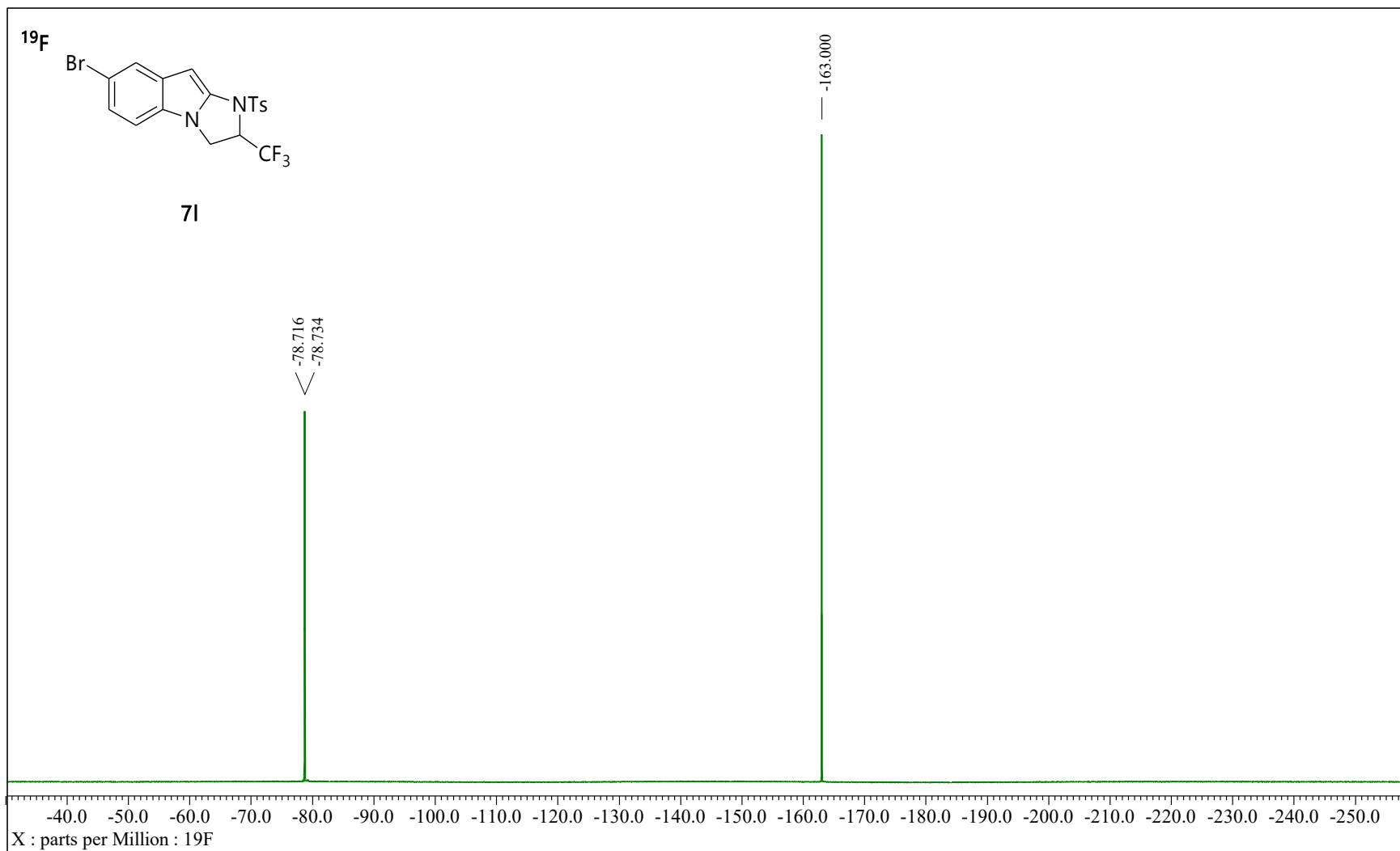




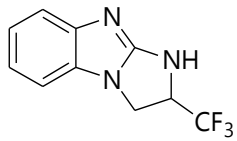




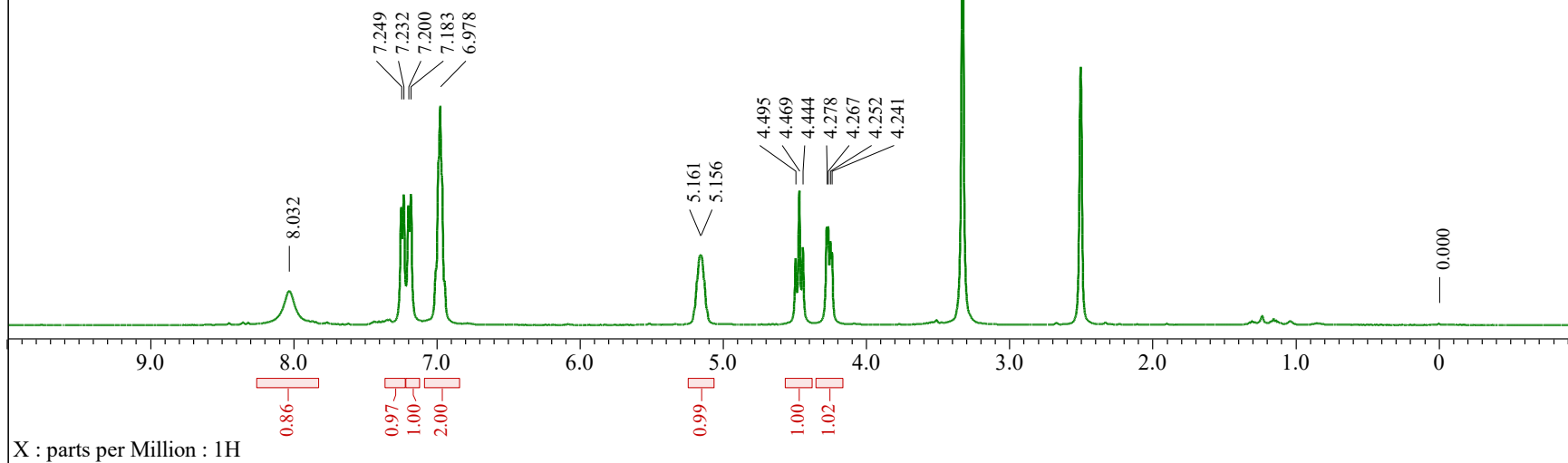




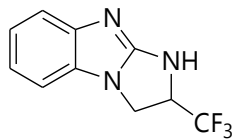
¹H



8a



¹³C



8a

