

**Supplementary Material**

**for**

**Brønsted Acid Catalyzed Allylic Amination of 1-**

**(2-Aminoaryl)prop-2-en-1-ols to 1,2-**

**Dihydroquinolines**

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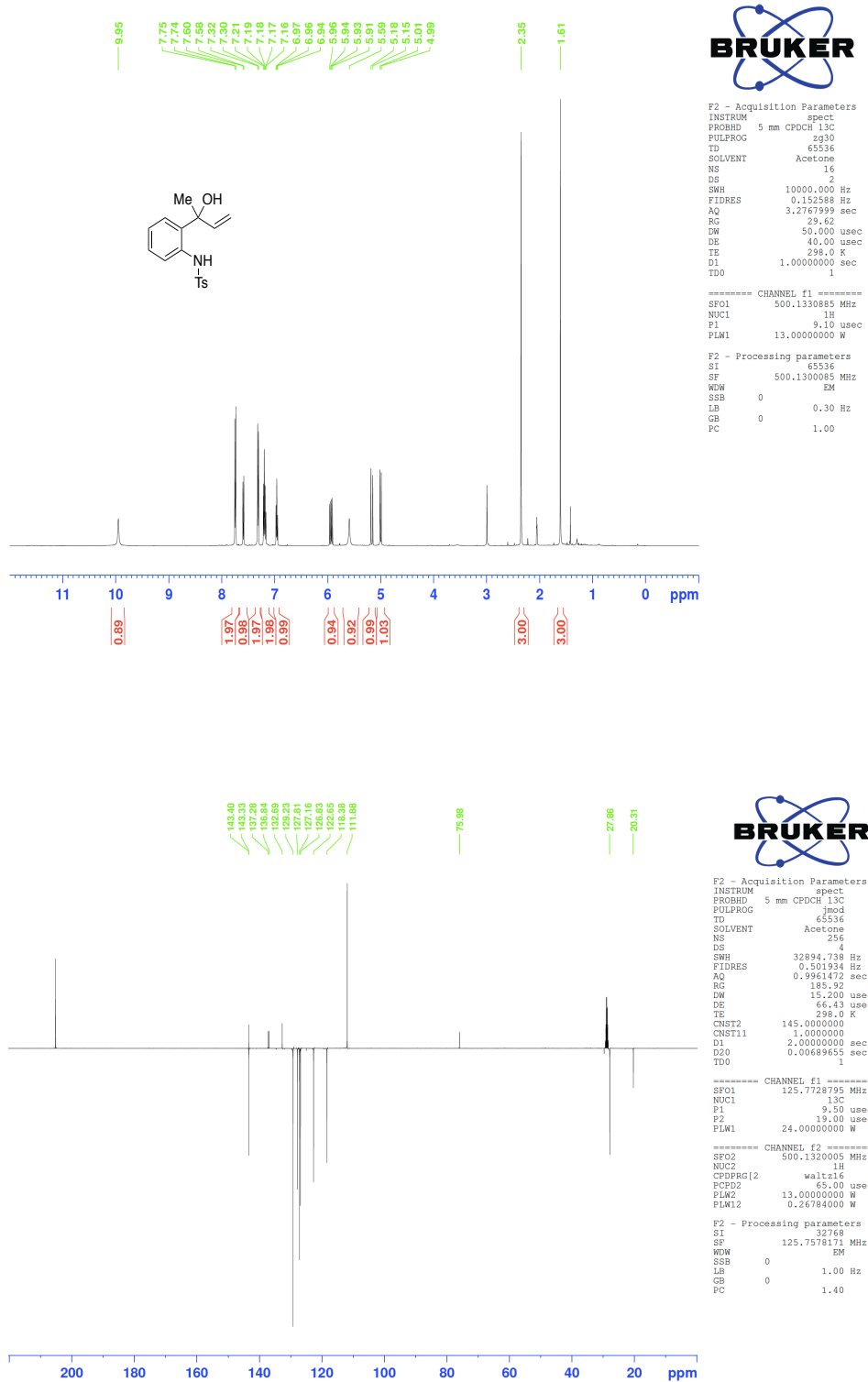
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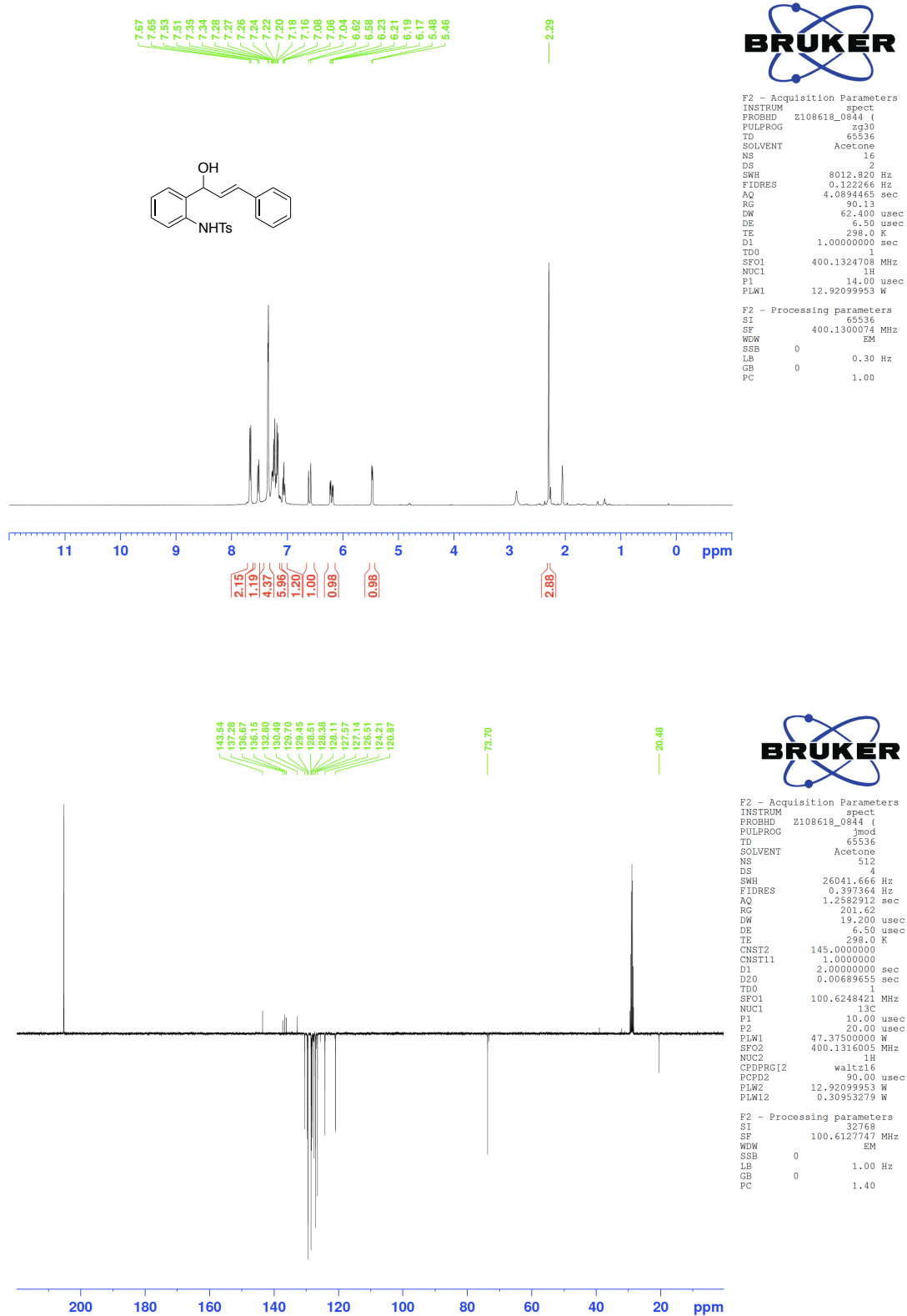
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# 1. <sup>1</sup>H and <sup>13</sup>C NMR Spectra

Figure S1. <sup>1</sup>H and <sup>13</sup>C NMR Spectra of *N*-(2-(2-hydroxybut-3-en-2-yl)phenyl)-4-methylbenzenesulfonamide (**1a**)

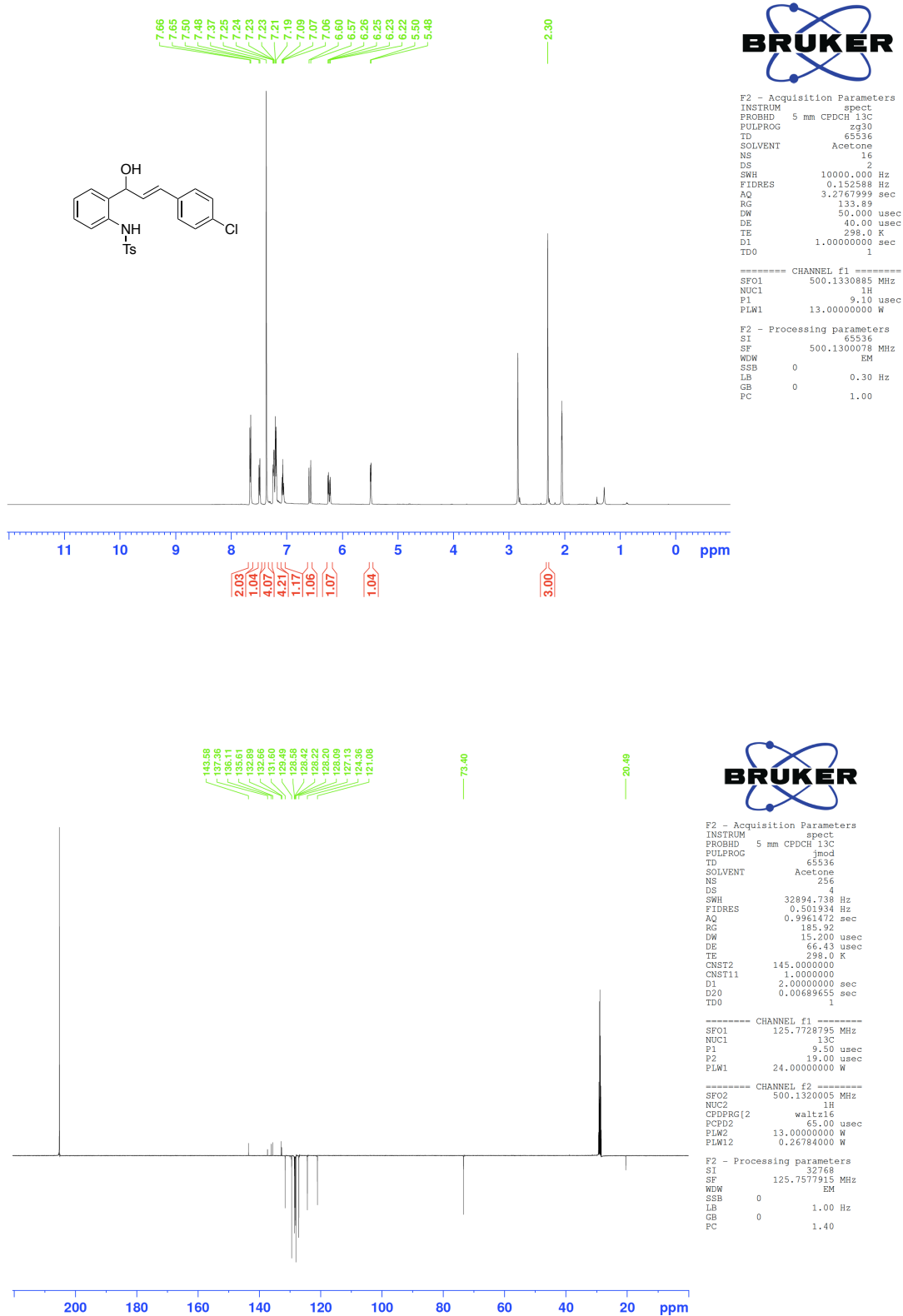


**Figure S2.**  $^1\text{H}$  and  $^{13}\text{C}$  NMR Spectra of (*E*)-*N*-(2-(1-hydroxy-3-phenylallyl)phenyl)-4-methylbenzenesulfonamide (**1b**)

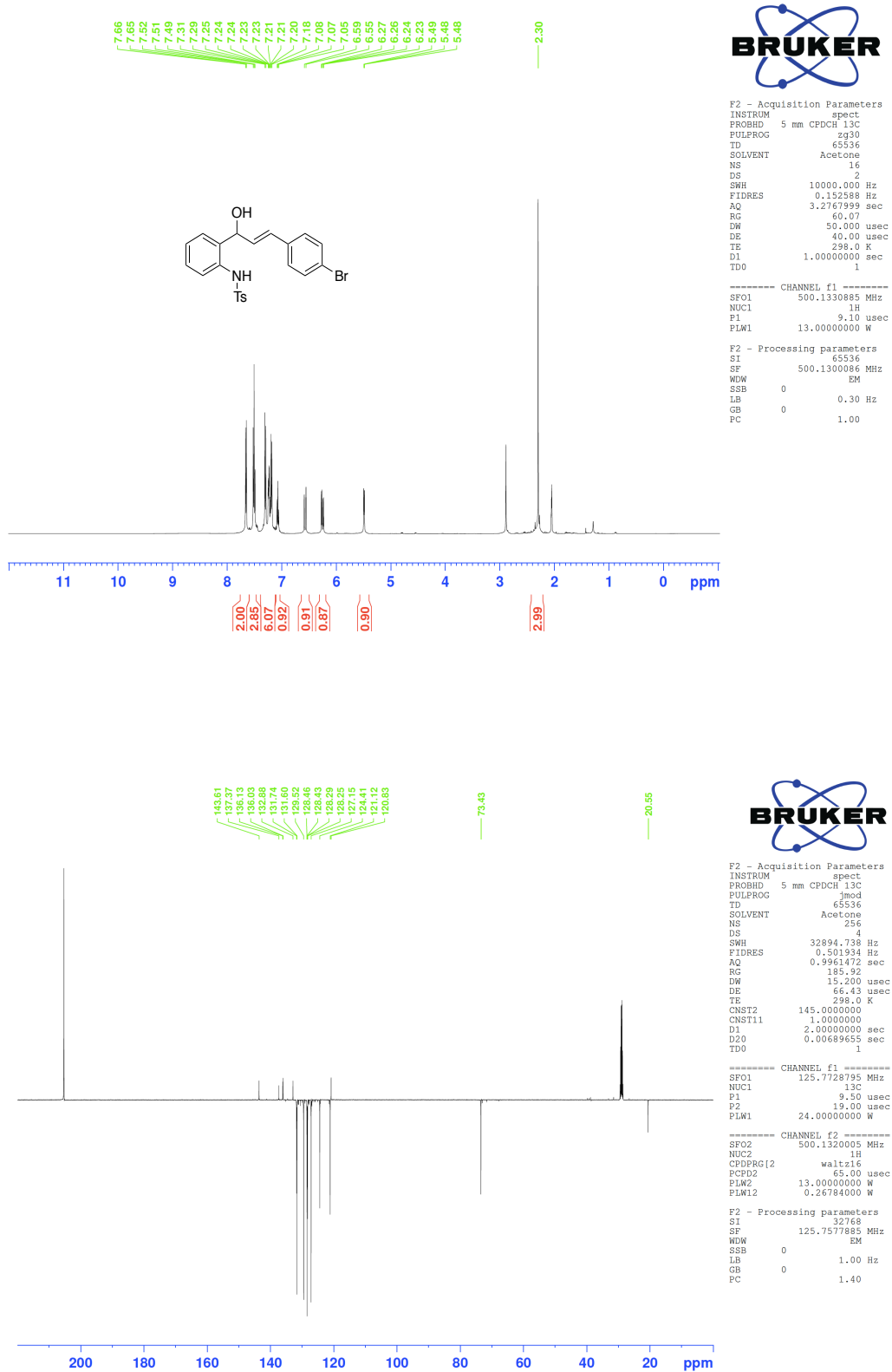




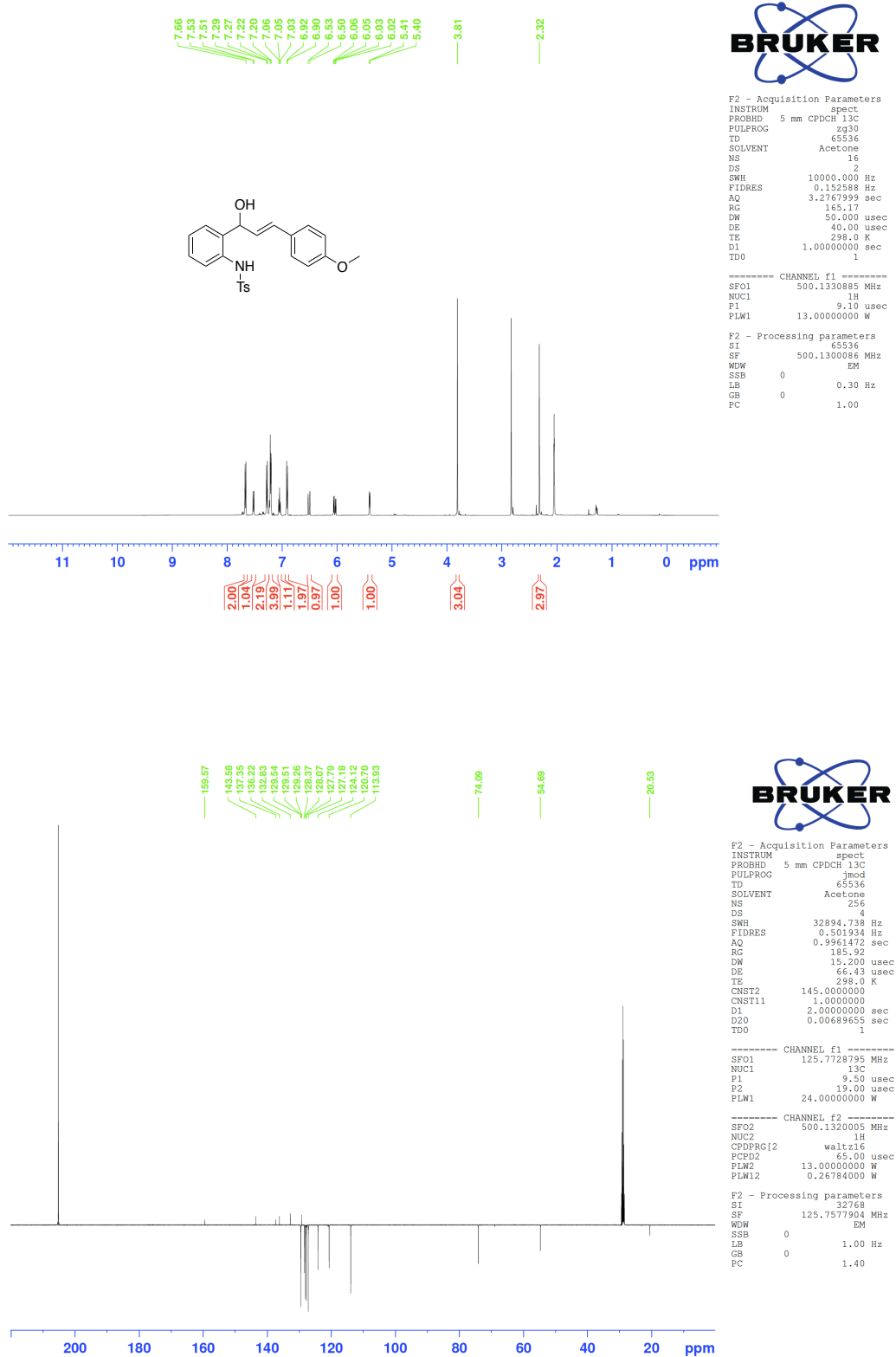
**Figure S3.**  $^1\text{H}$  and  $^{13}\text{C}$  NMR Spectra of (*E*)-*N*-(2-(3-(4-chlorophenyl)-1-hydroxyallyl)phenyl)-4-methylbenzenesulfonamide (**1c**)



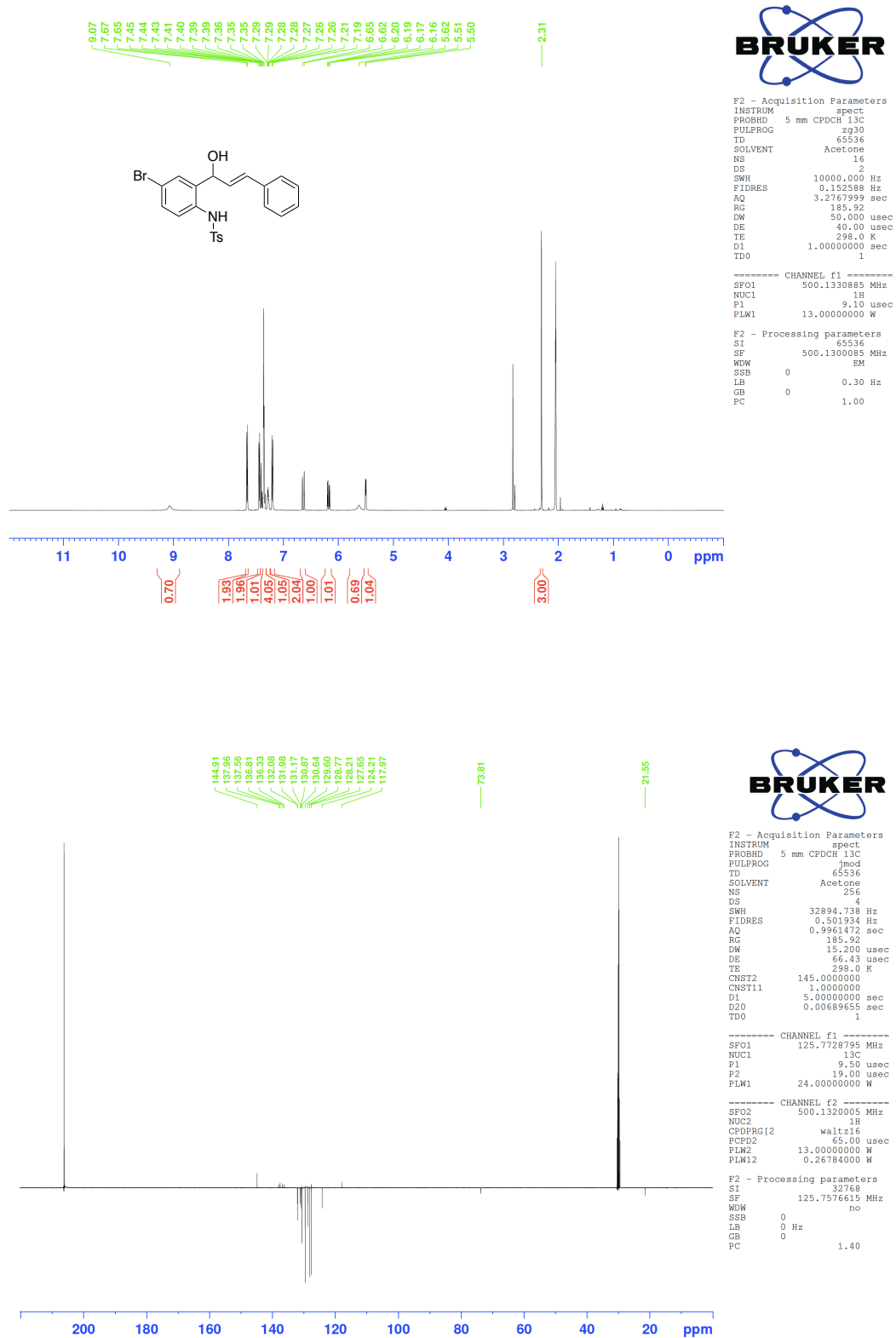
**Figure S4.**  $^1\text{H}$  and  $^{13}\text{C}$  NMR Spectra of (*E*)-*N*-(2-(3-(4-bromophenyl)-1-hydroxyallyl)phenyl)-4-methylbenzenesulfonamide (**1d**)



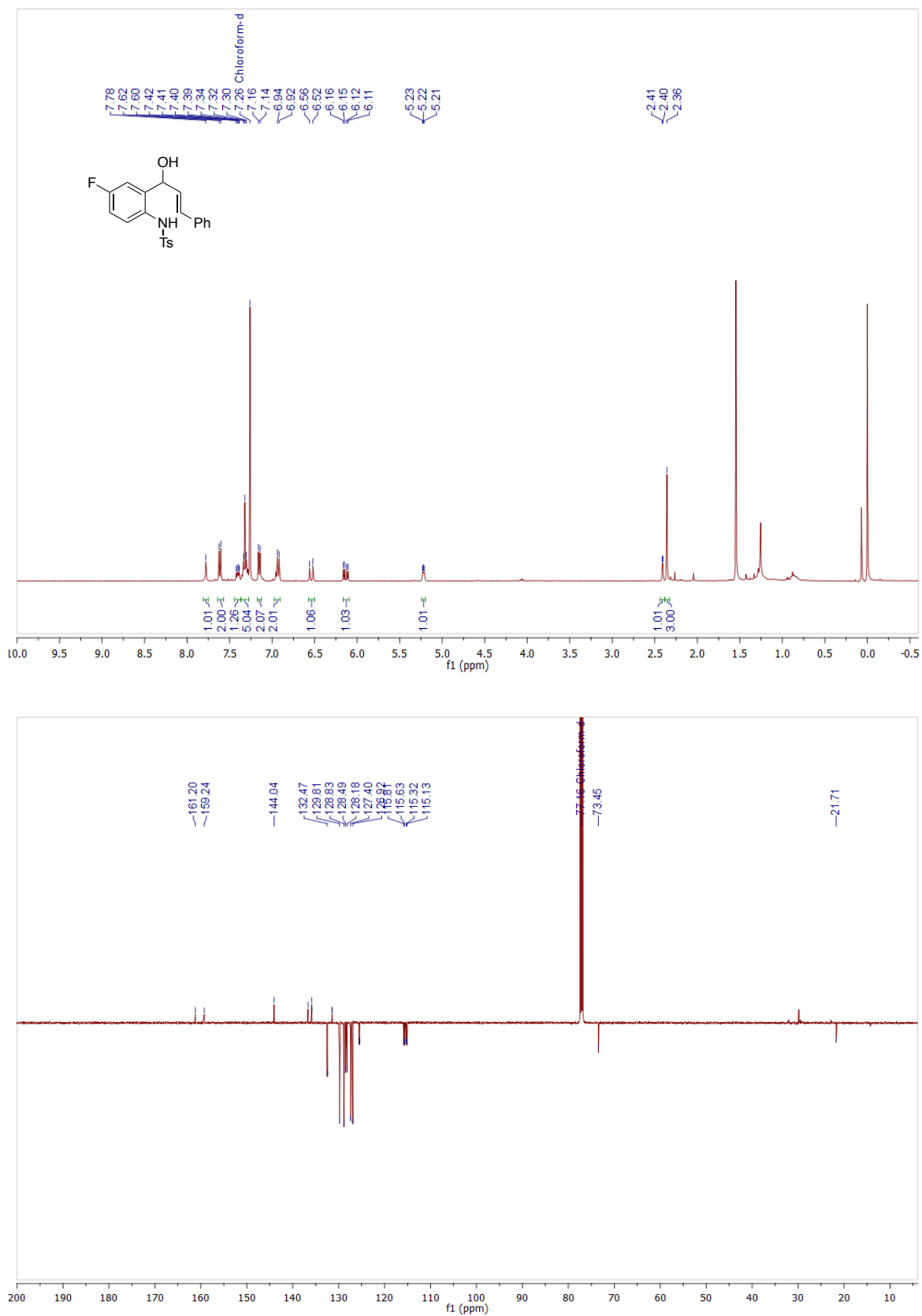
**Figure S5.**  $^1\text{H}$  and  $^{13}\text{C}$  NMR Spectra of (*E*)-*N*-(2-(1-hydroxy-3-(4-methoxyphenyl)allyl)phenyl)-4-methylbenzenesulfonamide (**1e**)

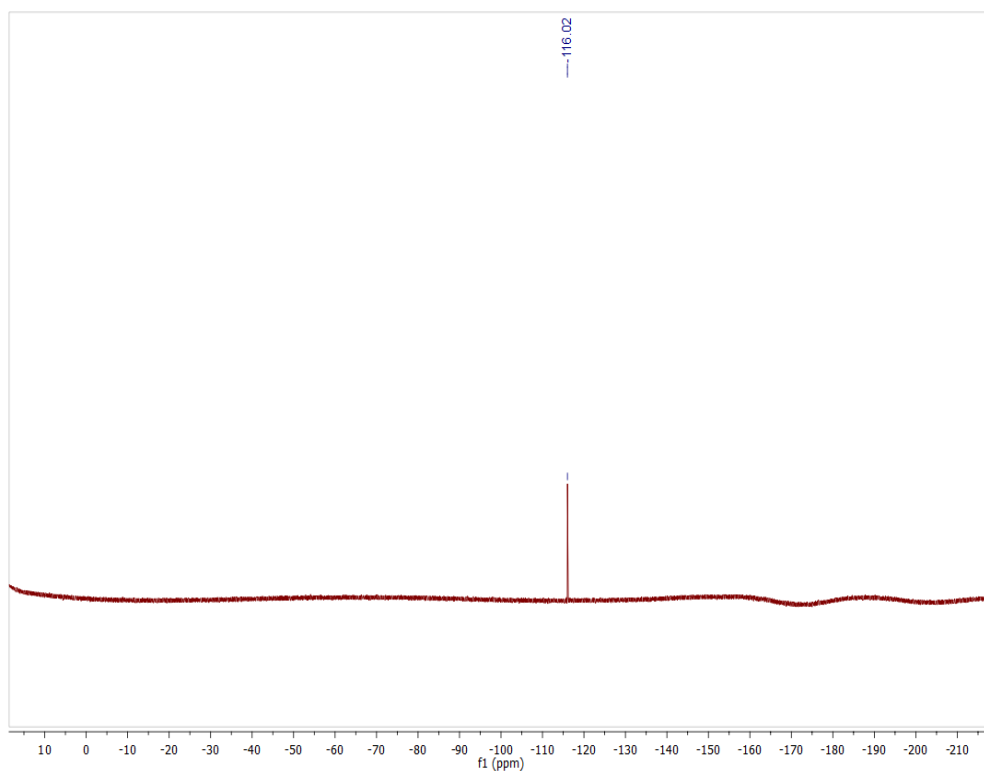


**Figure S6.**  $^1\text{H}$  and  $^{13}\text{C}$  NMR Spectra of (*E*)-*N*-(4-Bromo-2-(1-hydroxy-3-phenylallyl)phenyl)-4-methylbenzenesulfonamide (**1f**)

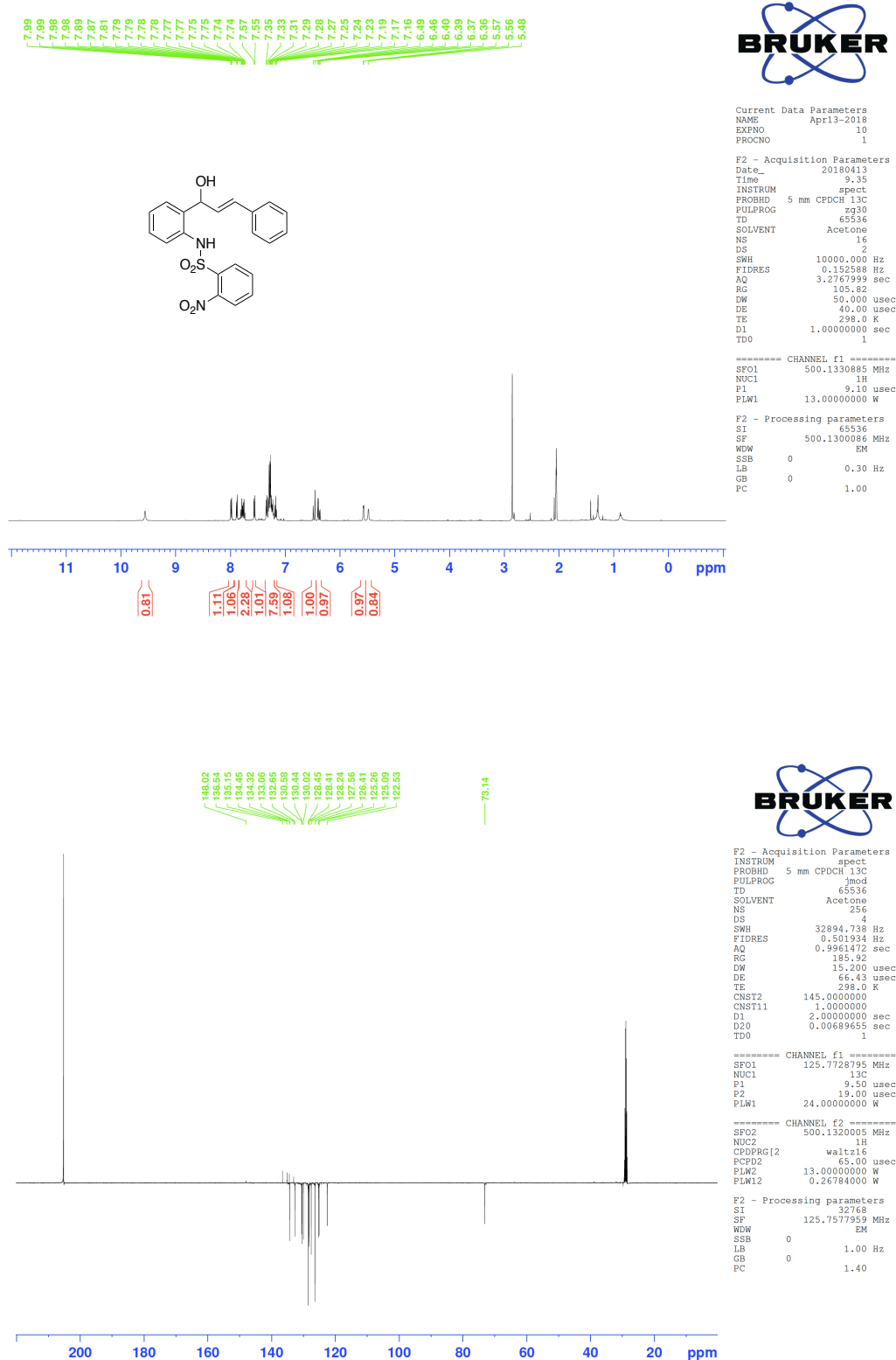


**Figure S7.**  $^1\text{H}$ ,  $^{13}\text{C}$  and  $^{19}\text{F}$  NMR Spectra of (*E*)-*N*-(4-Fluoro-2-(1-hydroxy-3-phenylallyl)phenyl)-4-methylbenzenesulfonamide (**1g**)

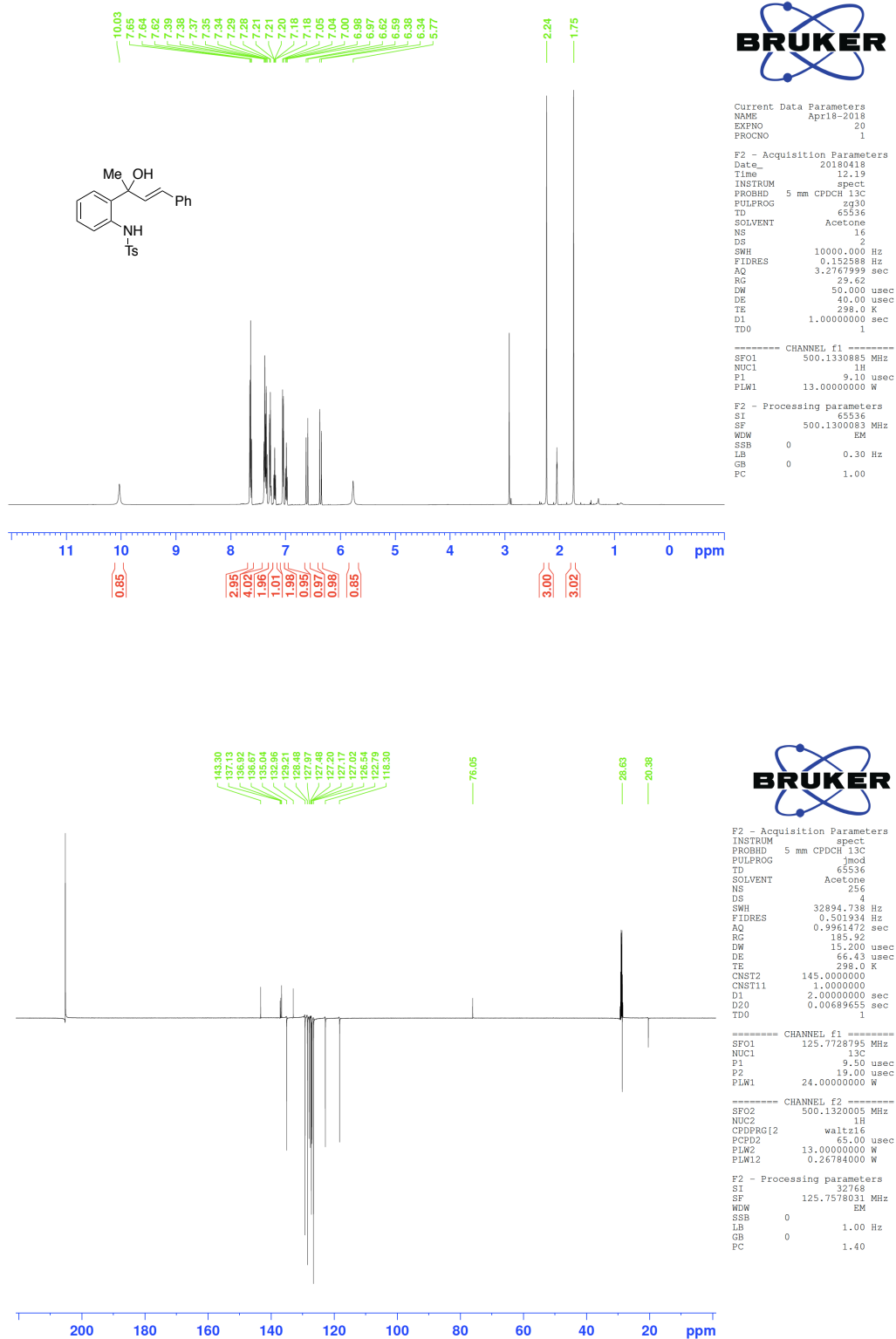




**Figure S8.**  $^1\text{H}$  and  $^{13}\text{C}$  NMR Spectra of (*E*)-*N*-(2-(1-Hydroxy-3-phenylallyl)phenyl)-2-nitrobenzenesulfonamide (**1h**)

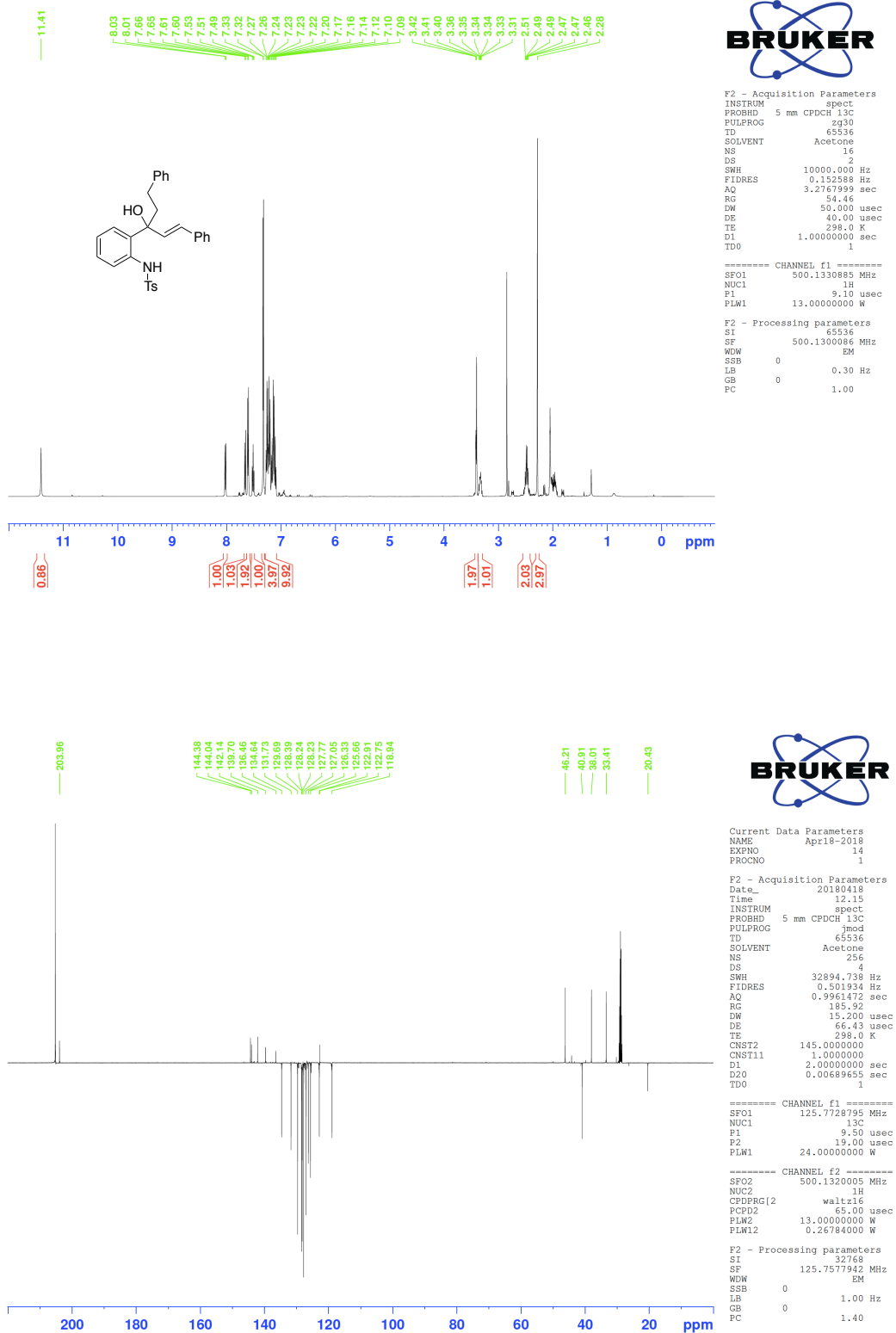


**Figure S9.**  $^1\text{H}$  and  $^{13}\text{C}$  NMR Spectra of (*E*)-*N*-(2-(2-hydroxy-4-phenylbut-3-en-2-yl)phenyl)-4-methylbenzenesulfonamide (**1i**)

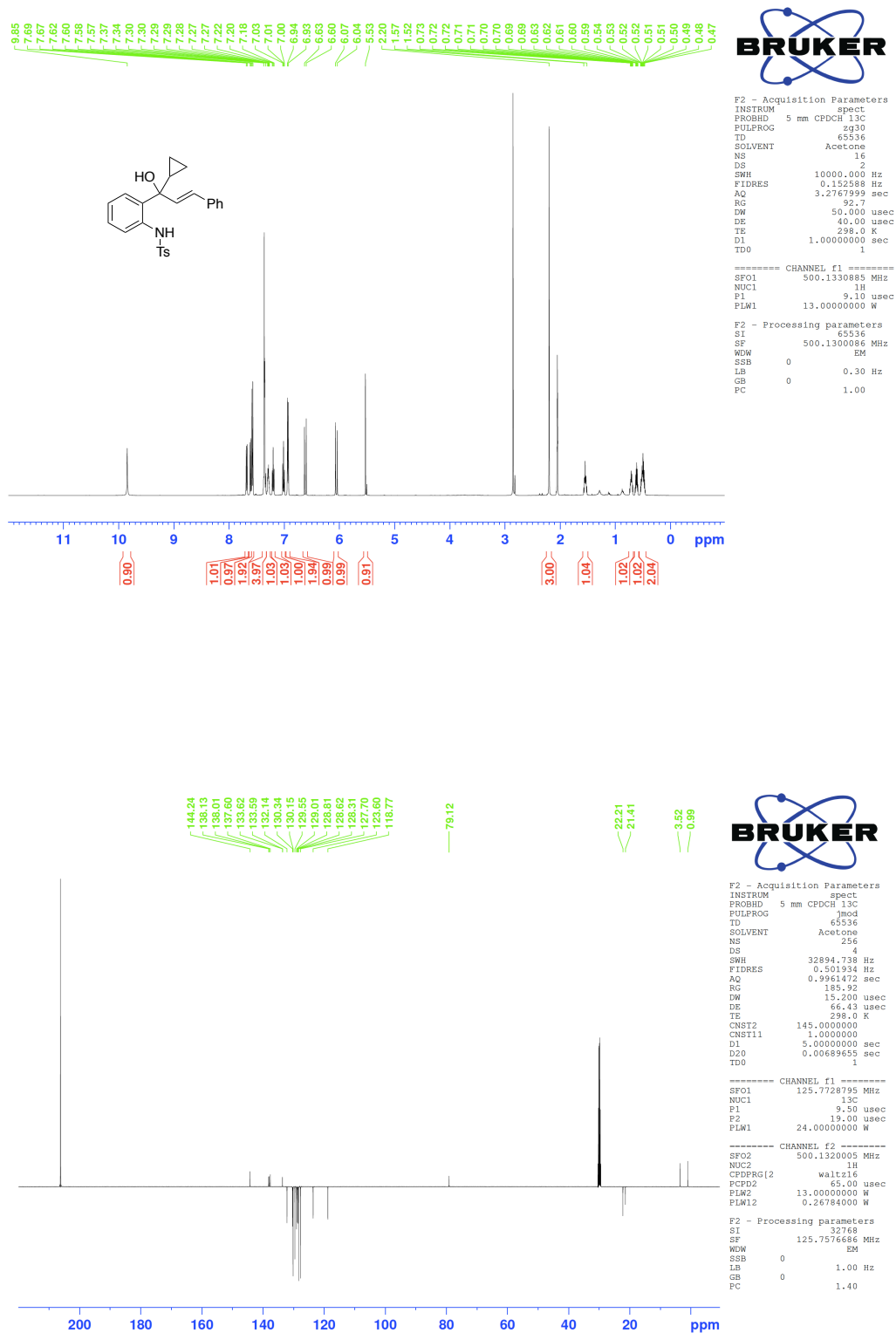




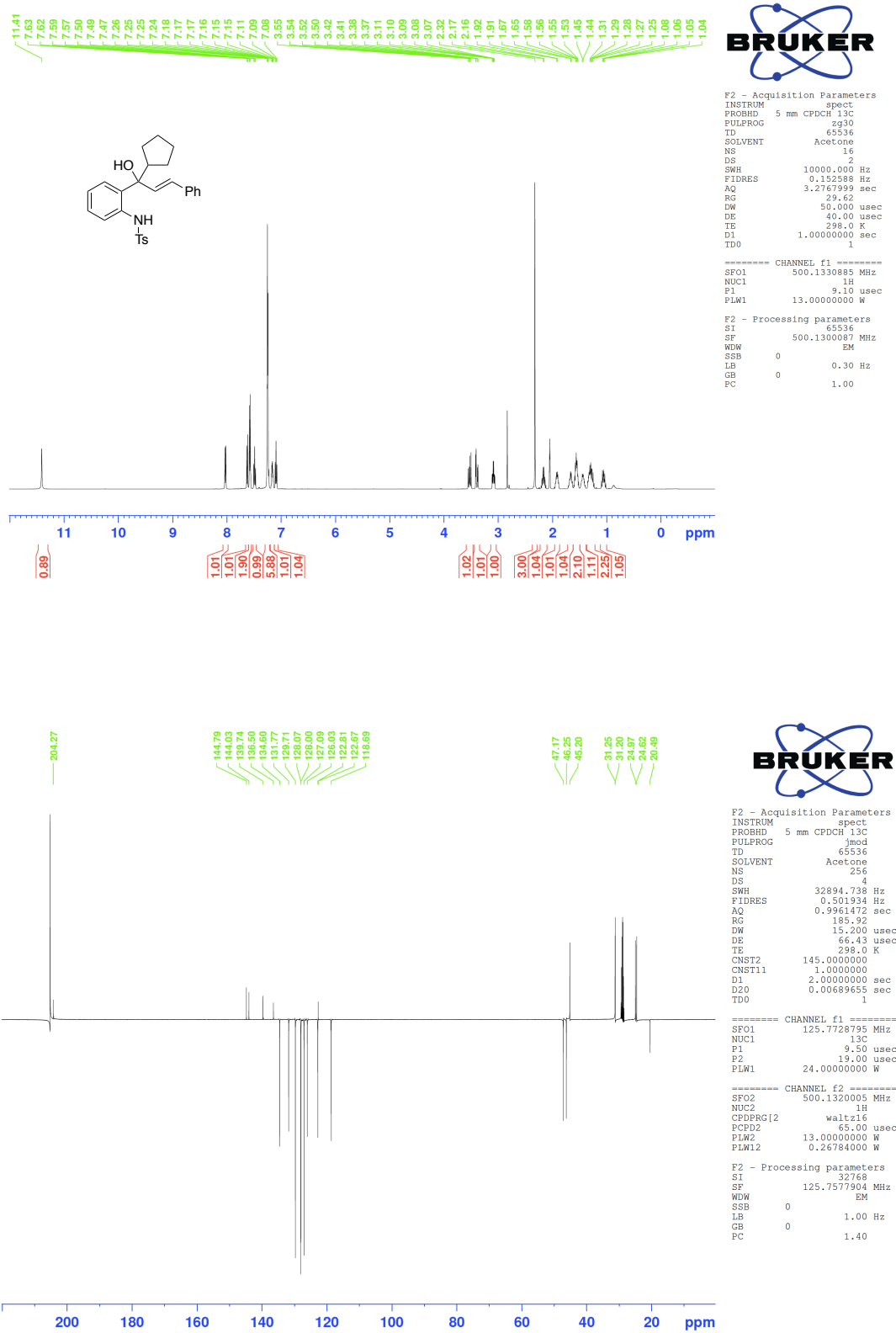
**Figure S10.**  $^1\text{H}$  and  $^{13}\text{C}$  NMR Spectra of (*E*)-*N*-(2-(3-Hydroxy-1,5-diphenylpent-1-en-3-yl)phenyl)-4-methylbenzenesulfonamide (**1j**)



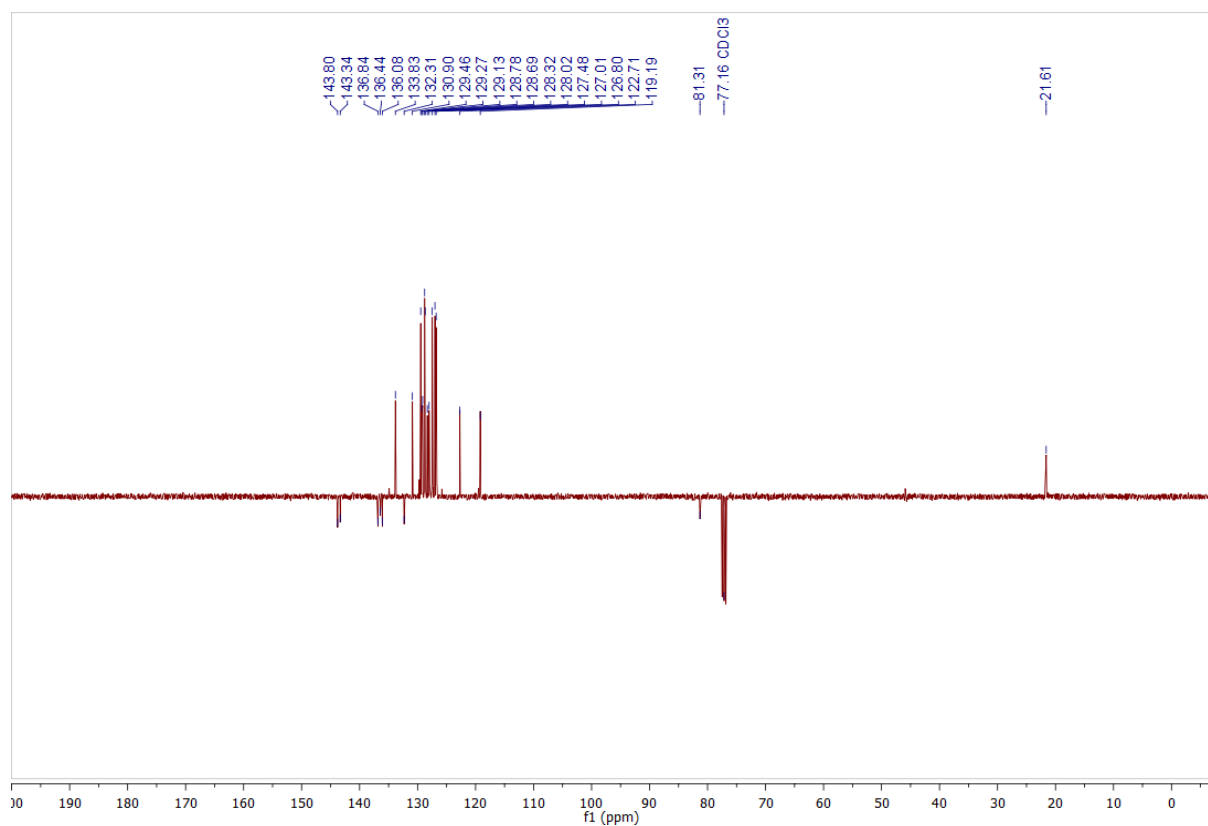
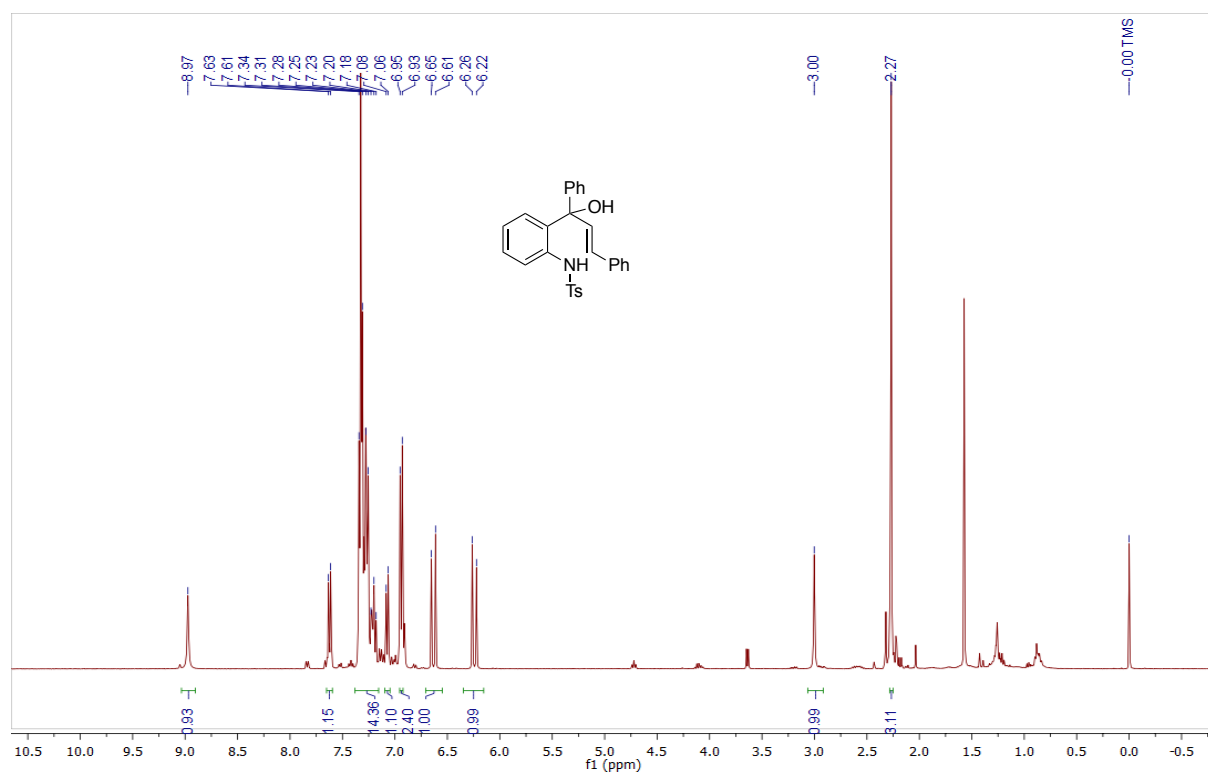
**Figure S11.**  $^1\text{H}$  and  $^{13}\text{C}$  NMR Spectra of (*E*)-*N*-(2-(1-Cyclopropyl-1-hydroxy-3-phenylallyl)phenyl)-4-methylbenzenesulfonamide (**1k**)



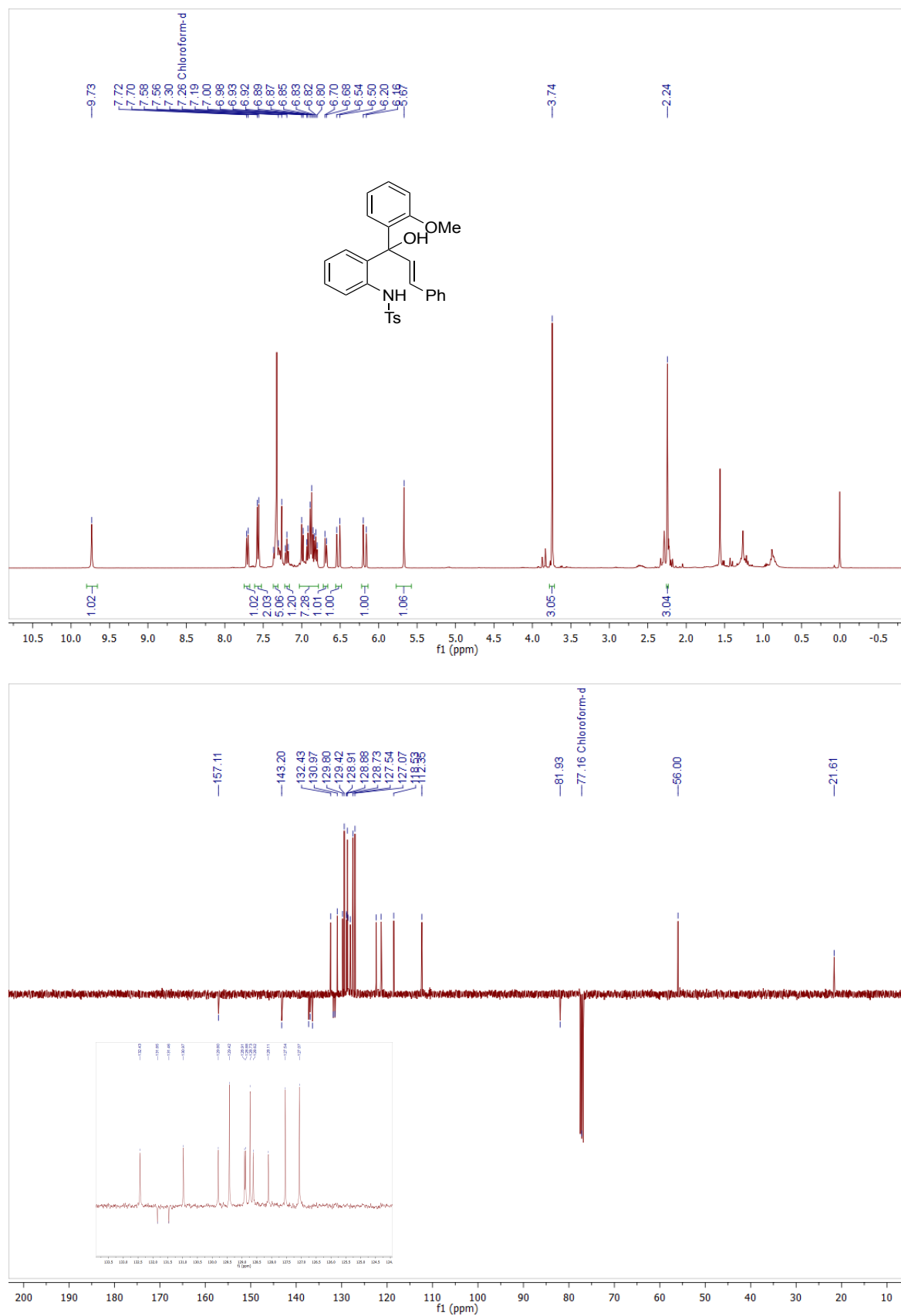
**Figure S12.**  $^1\text{H}$  and  $^{13}\text{C}$  NMR Spectra of (*E*)-*N*-(2-(1-cyclopentyl-1-hydroxy-3-phenylallyl)phenyl)-4-methylbenzenesulfonamide (**11**)



**Figure S13.**  $^1\text{H}$  and  $^{13}\text{C}$  NMR Spectra of (*E*)-*N*-(2-(1-Hydroxy-1,3-diphenylallyl)phenyl)-4-methylbenzenesulfonamide (**1m**)



**Figure S14.**  $^1\text{H}$  and  $^{13}\text{C}$  NMR Spectra of (*E*)-*N*-(2-(1-Hydroxy-1-(2-methoxyphenyl)-3-phenylallyl)phenyl)-4-methylbenzenesulfonamide (**1n**)



**Figure S15.**  $^1\text{H}$  and  $^{13}\text{C}$  NMR Spectra of (*E*)-*N*-(2-(1-Hydroxy-3-phenyl-1-(thiophen-2-yl)allyl)phenyl)-4-methylbenzenesulfonamide (**10**)

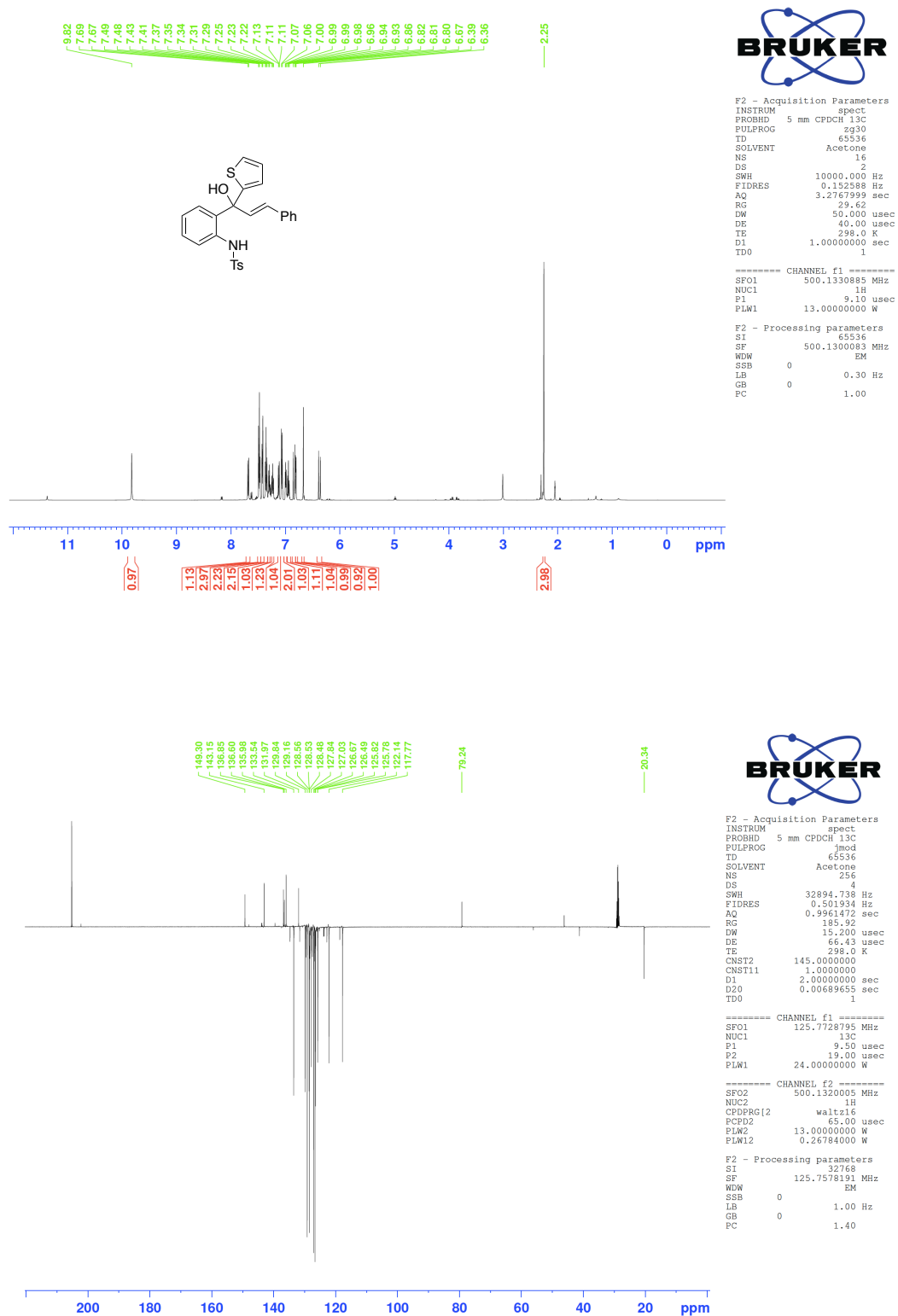


Figure S16. <sup>1</sup>H and <sup>13</sup>C NMR Spectra of 2-Phenyl-1-tosyl-1,2-dihydroquinoline (**2b**)

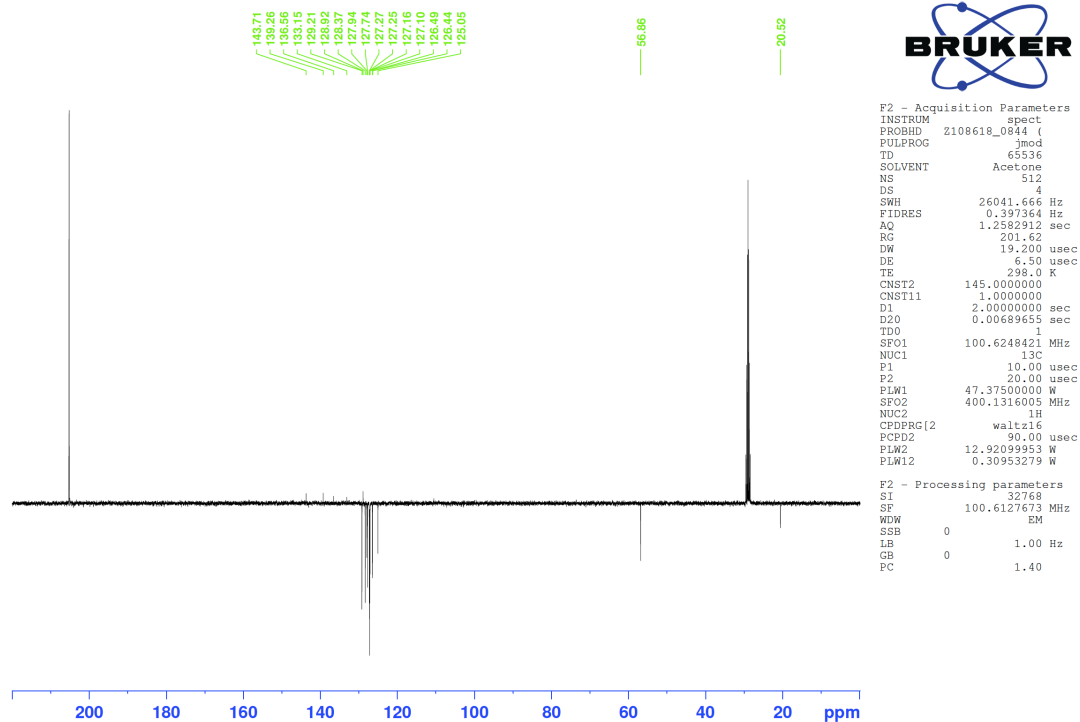
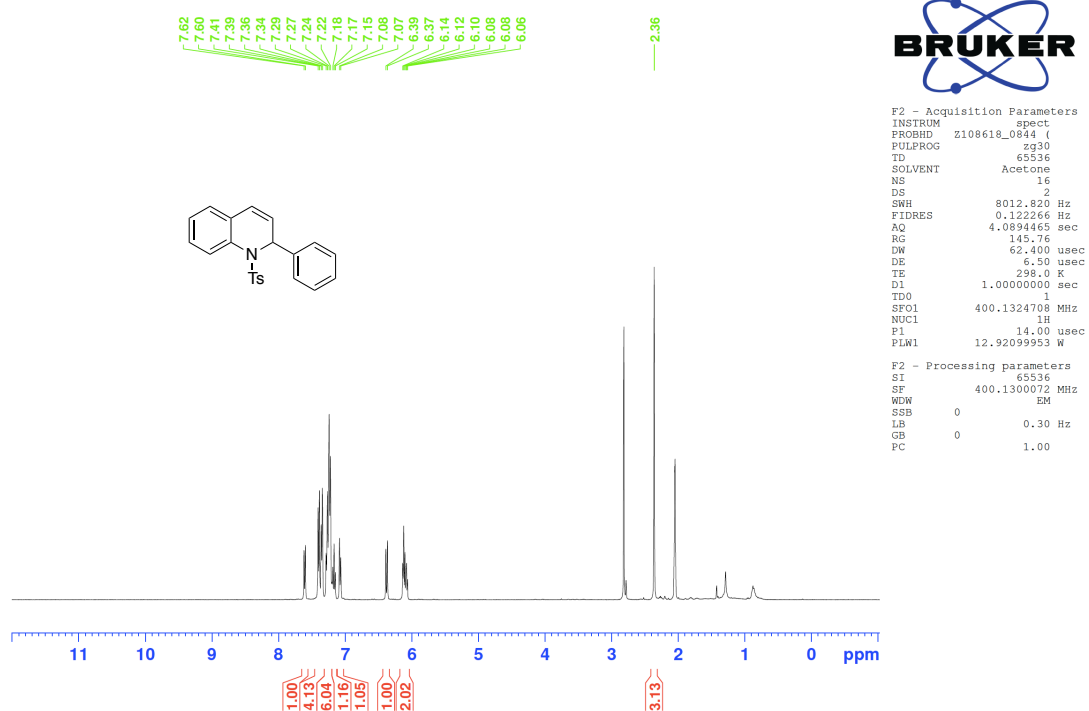


Figure S17. <sup>1</sup>H and <sup>13</sup>C NMR Spectra of 2-(4-Chlorophenyl)-1-tosyl-1,2-dihydroquinoline

(2c)

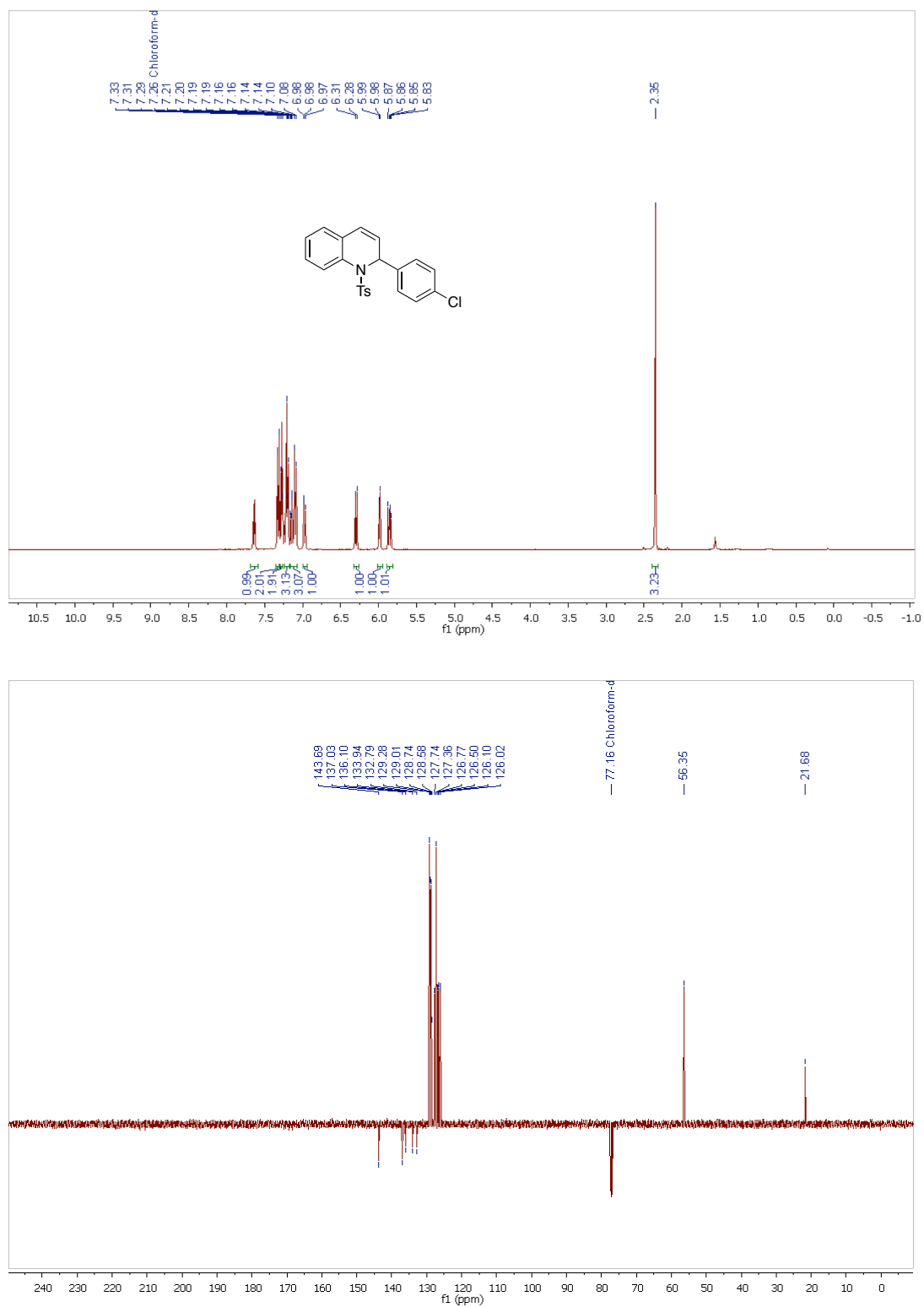




Figure S18. <sup>1</sup>H and <sup>13</sup>C NMR Spectra of 2-(4-Bromophenyl)-1-tosyl-1,2-dihydroquinoline

(2d)

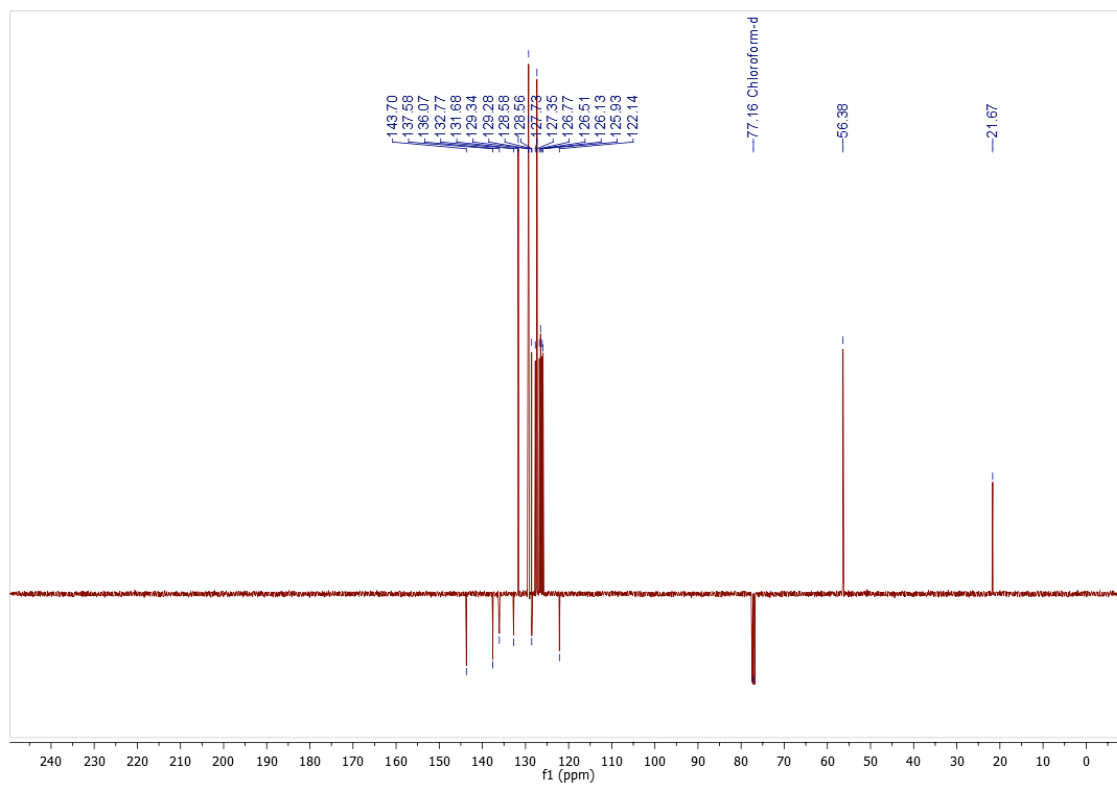
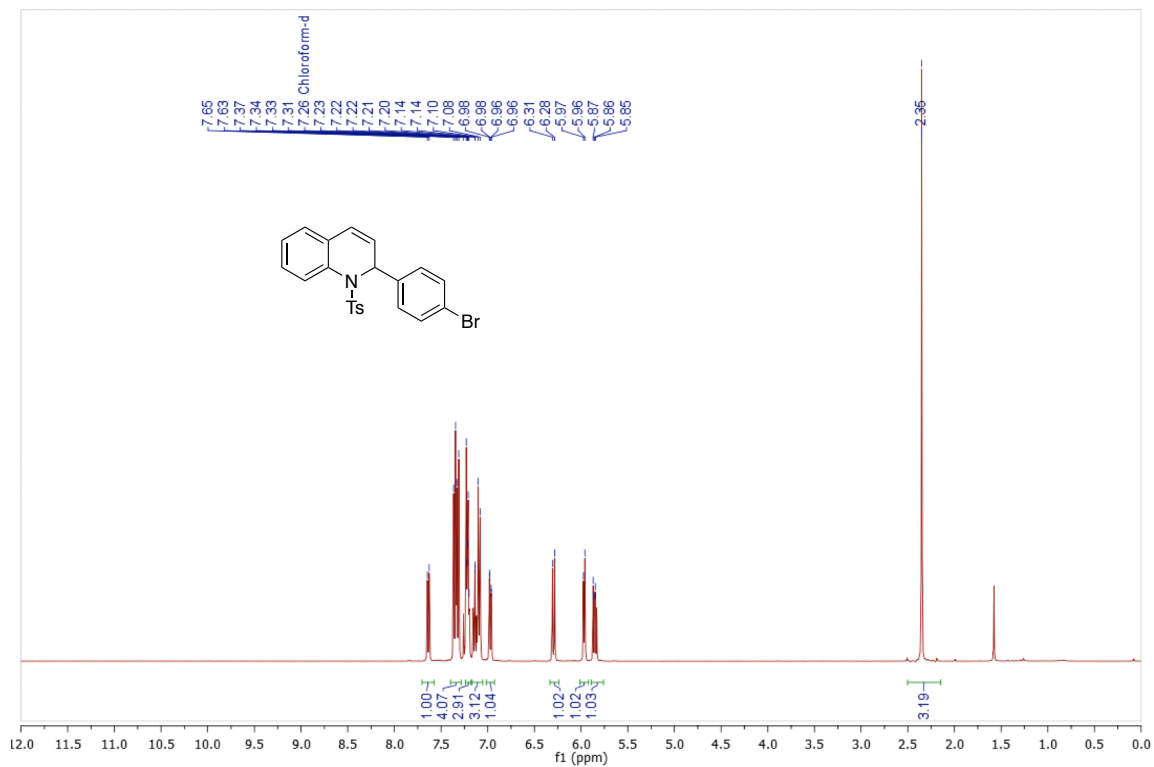


Figure S19. <sup>1</sup>H and <sup>13</sup>C NMR Spectra of 2-(4-Methoxyphenyl)-1-tosyl-1,2-dihydroquinoline

(2e)

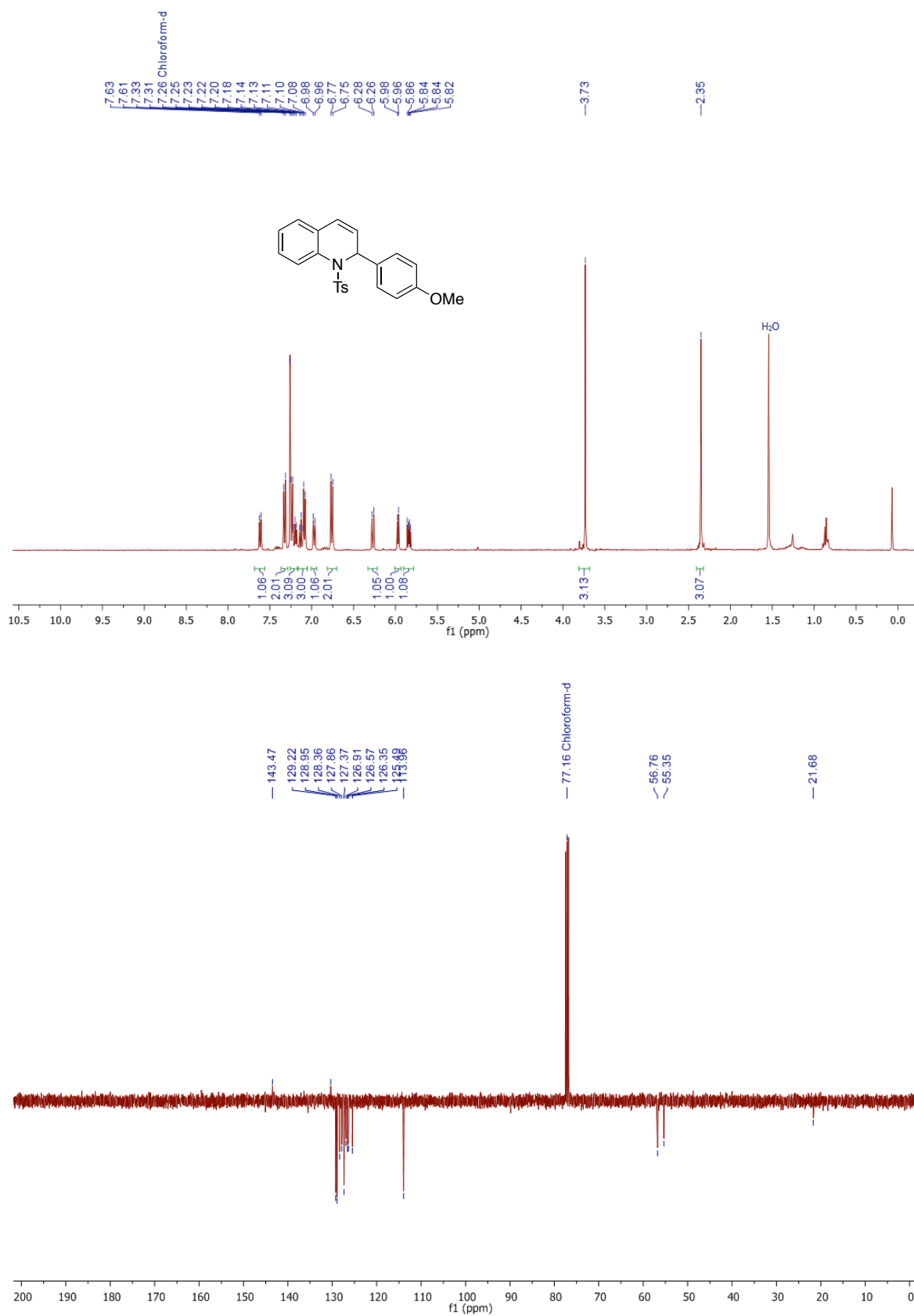
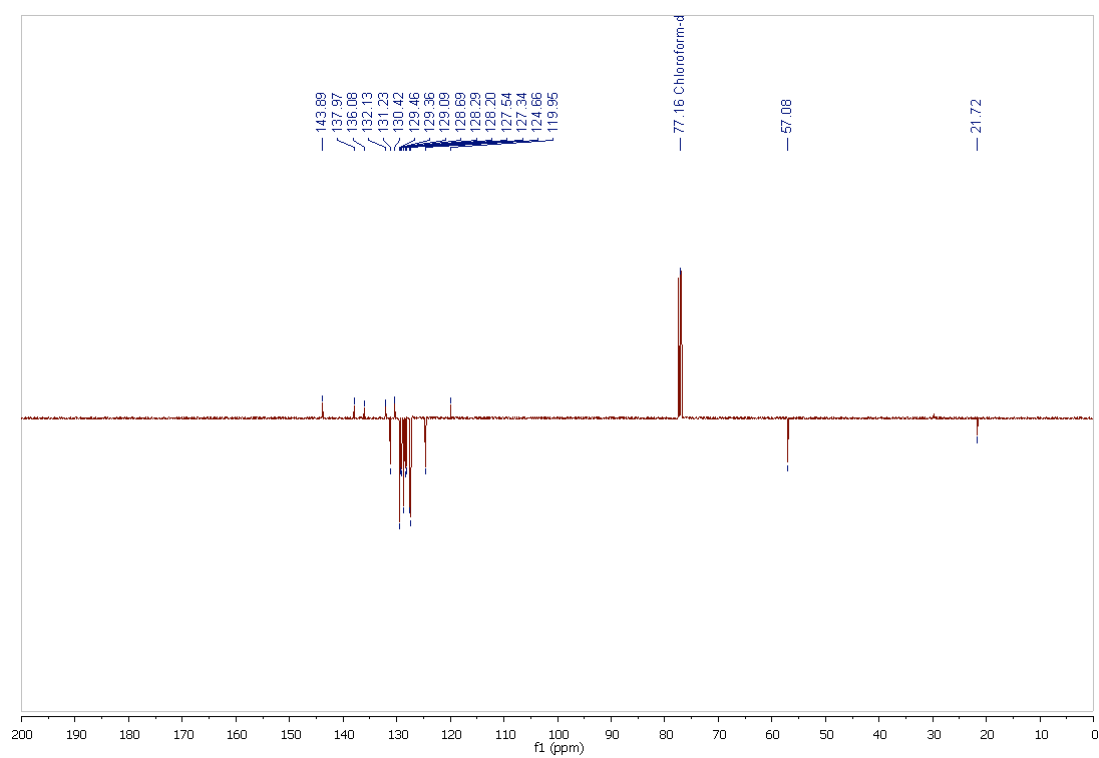
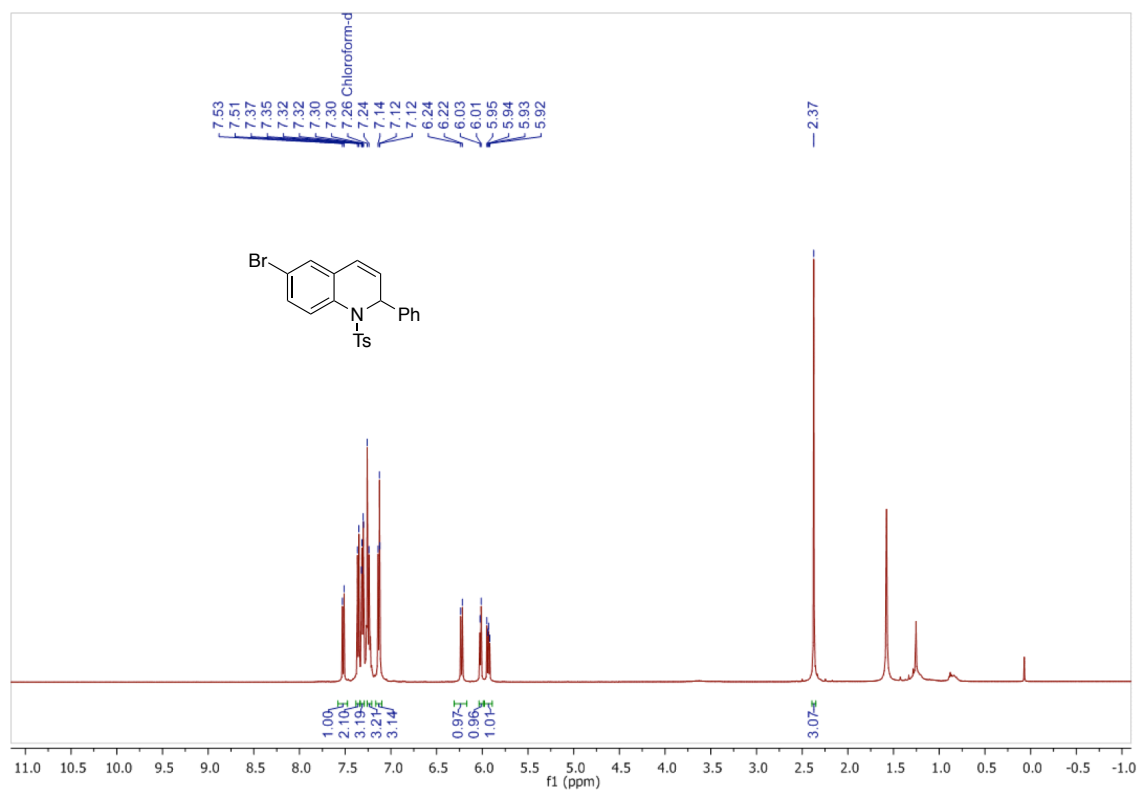


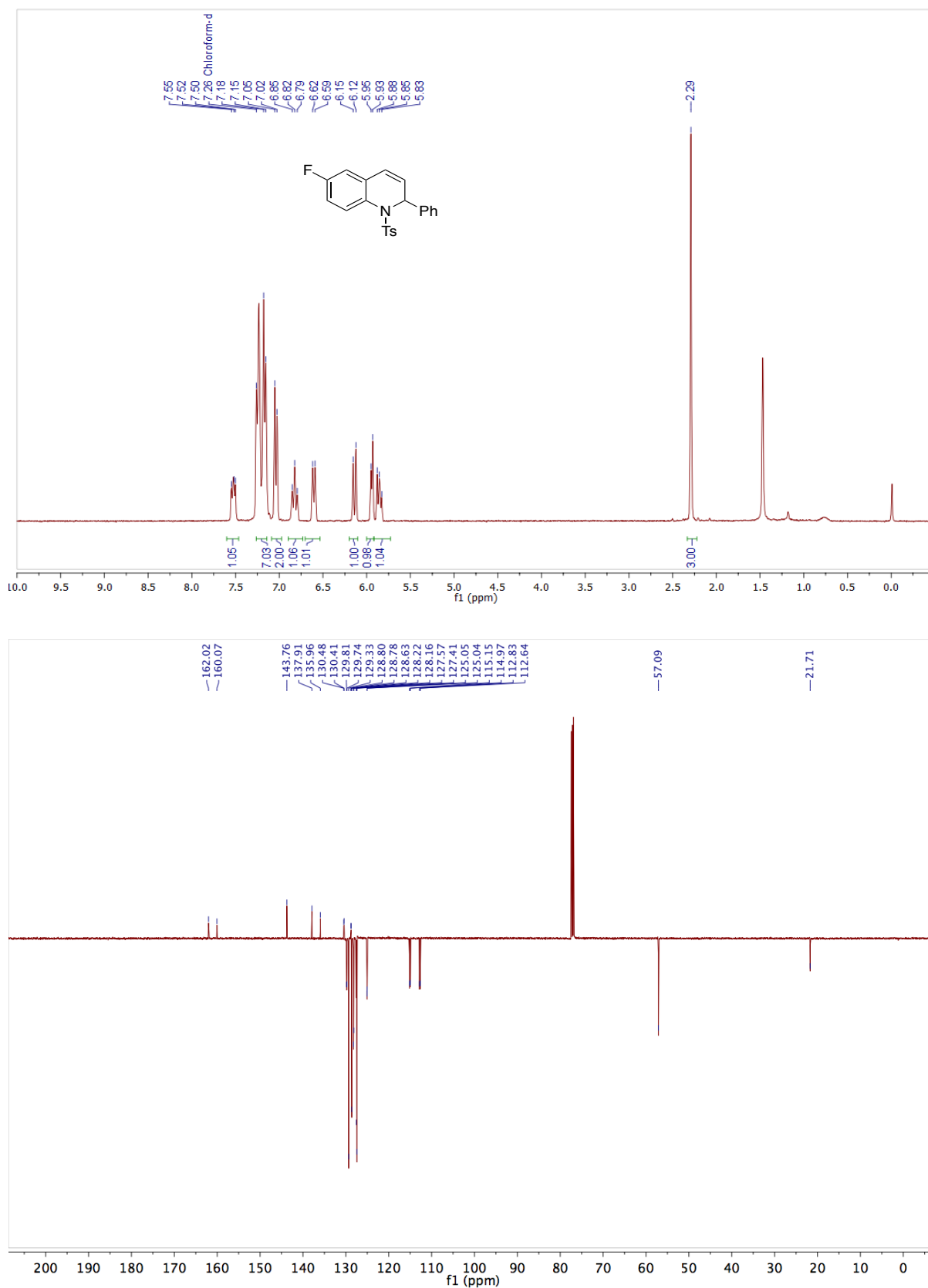
Figure S20. <sup>1</sup>H and <sup>13</sup>C NMR Spectra of 6-Bromo-2-phenyl-1-tosyl-1,2-dihydroquinoline

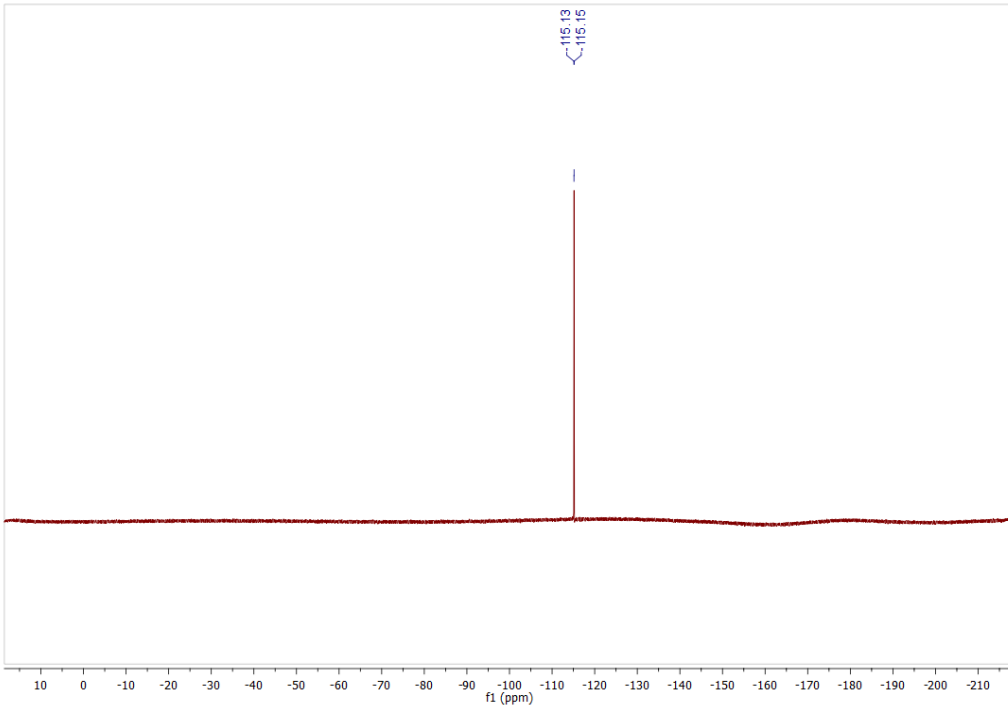
(2f)



**Figure S21.**  $^1\text{H}$ ,  $^{13}\text{C}$  and  $^{19}\text{F}$  NMR Spectra of 6-Fluoro-2-phenyl-1-tosyl-1,2-dihydroquinoline

(2g)





**Figure S22.**  $^1\text{H}$  and  $^{13}\text{C}$  NMR Spectra of 1-((2-Nitrophenyl)sulfonyl)-2-phenyl-1,2-dihydroquinoline (**2h**)

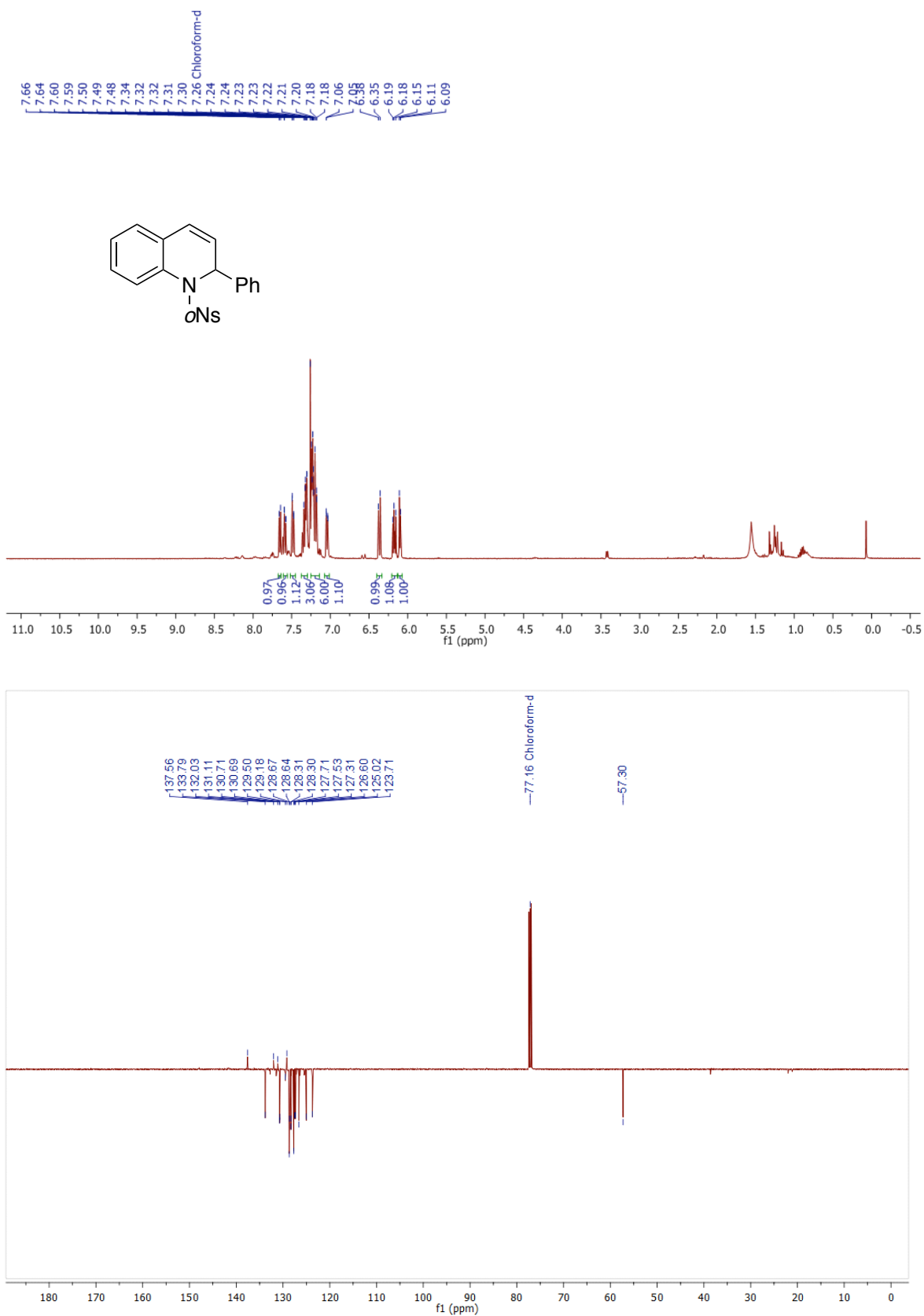


Figure S23.  $^1\text{H}$  and  $^{13}\text{C}$  NMR Spectra of 4-Methyl-2-phenyl-1-tosyl-1,2-dihydroquinoline

(2i)

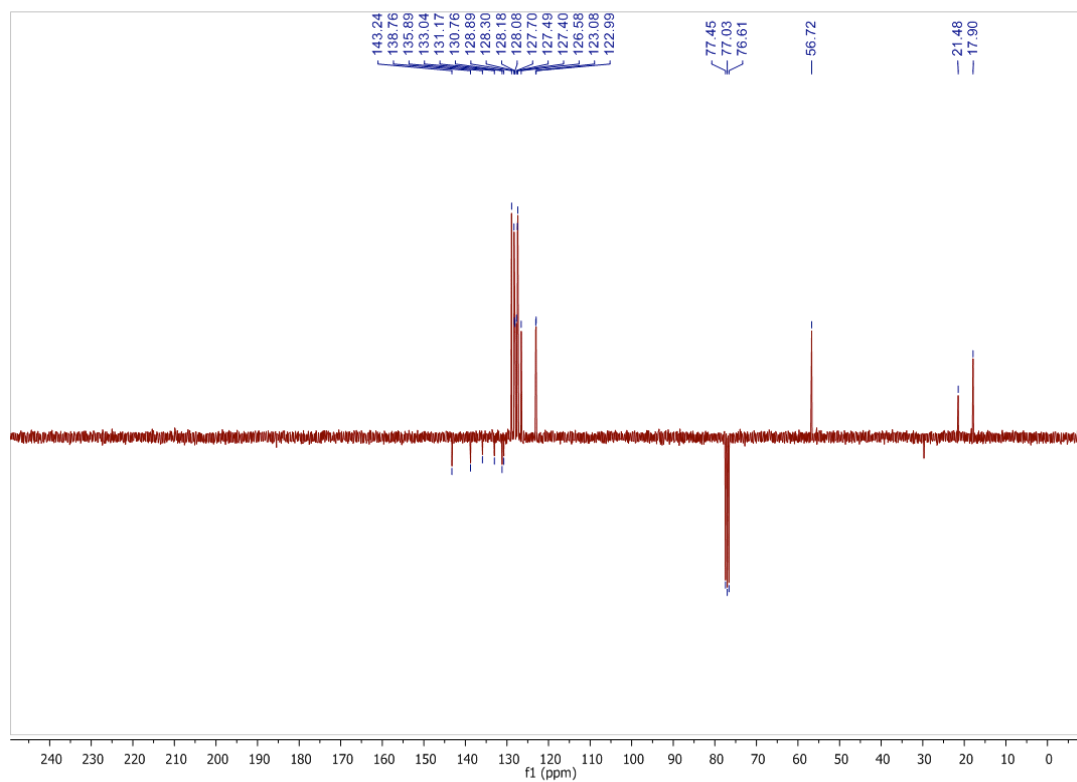
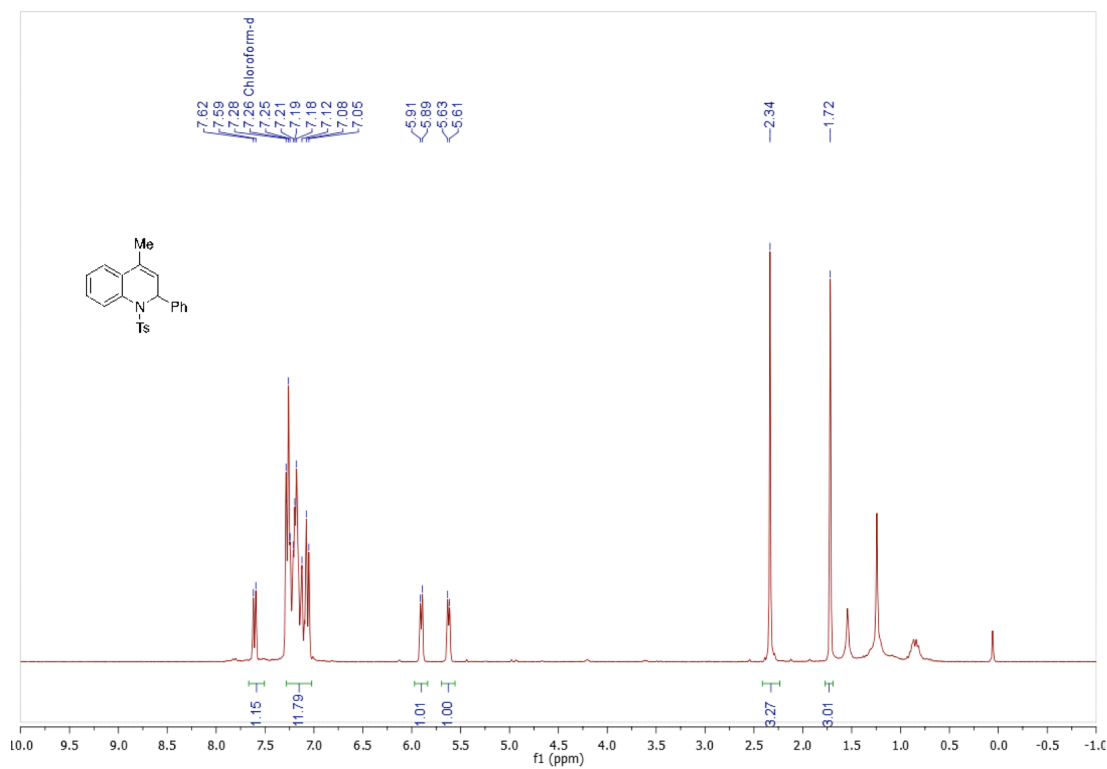
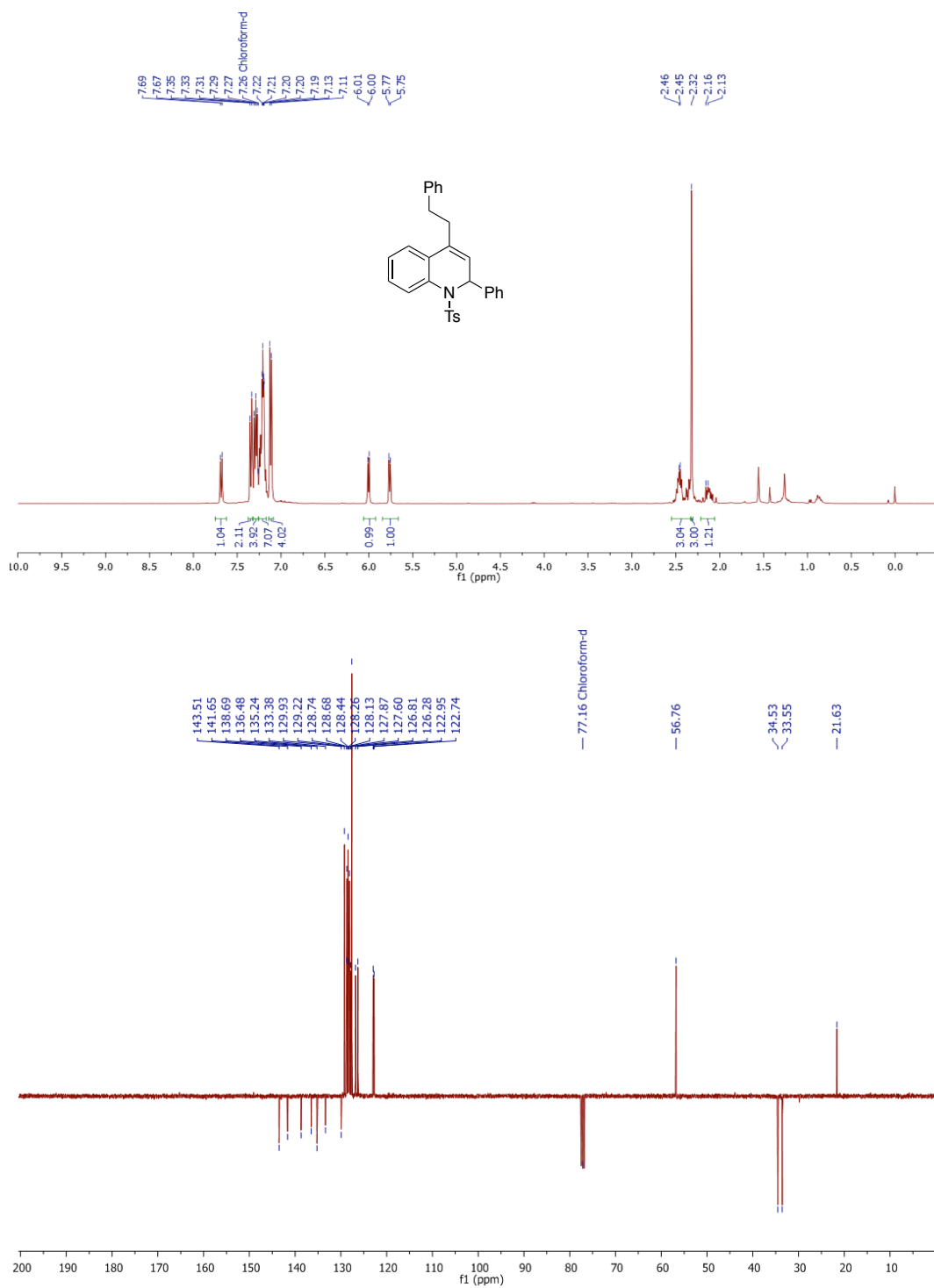


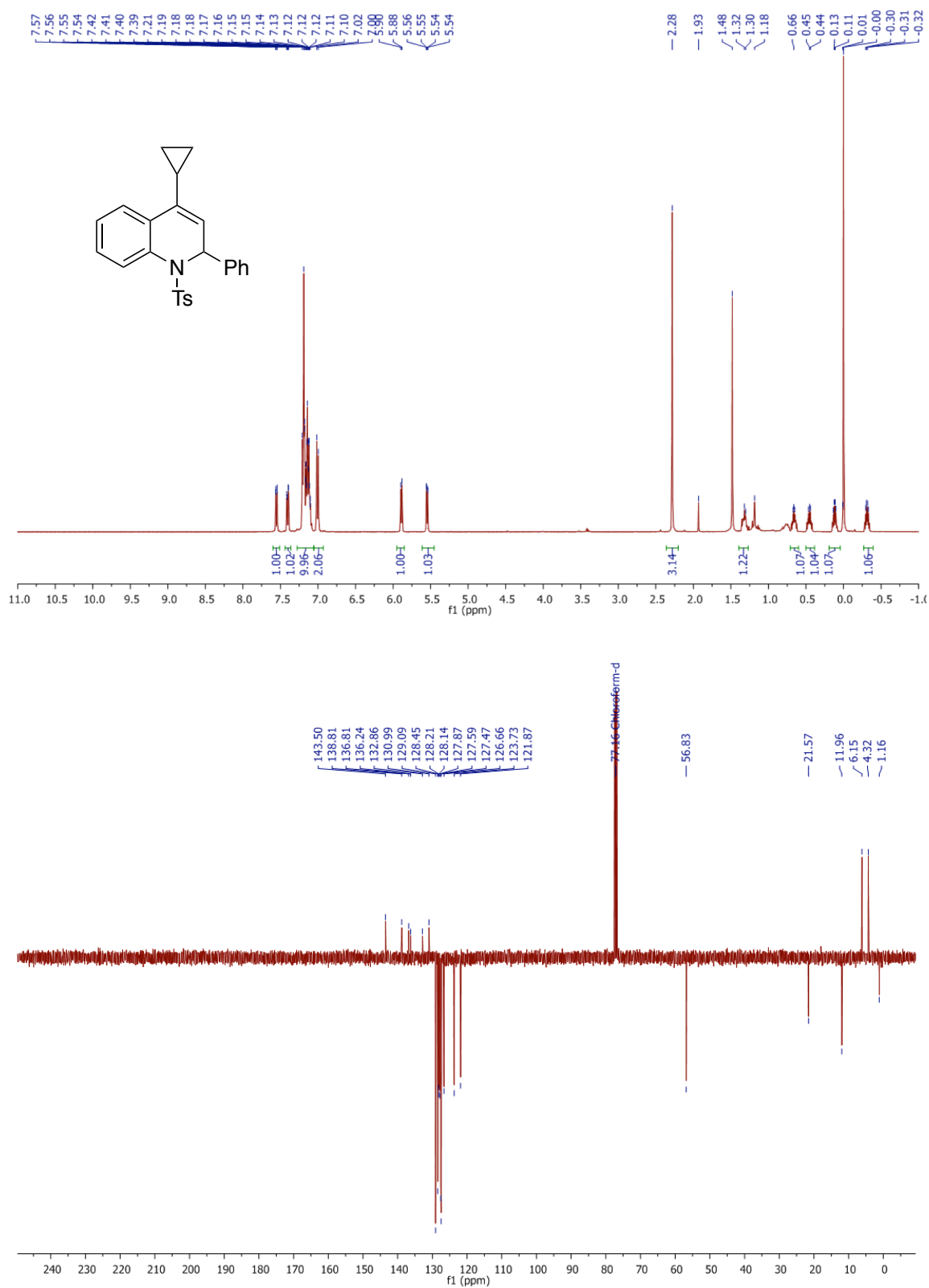
Figure S24.  $^1\text{H}$  and  $^{13}\text{C}$  NMR Spectra of 4-Phenethyl-2-phenyl-1-tosyl-1,2-dihydroquinoline

(2j)





**Figure S25.**  $^1\text{H}$  and  $^{13}\text{C}$  NMR Spectra of 4-Cyclopropyl-2-phenyl-1-tosyl-1,2-dihydroquinoline (**2k**)



**Figure S26.**  $^1\text{H}$  and  $^{13}\text{C}$  NMR Spectra of 4-Cyclopentyl-2-phenyl-1-tosyl-1,2-dihydroquinoline (**2I**)

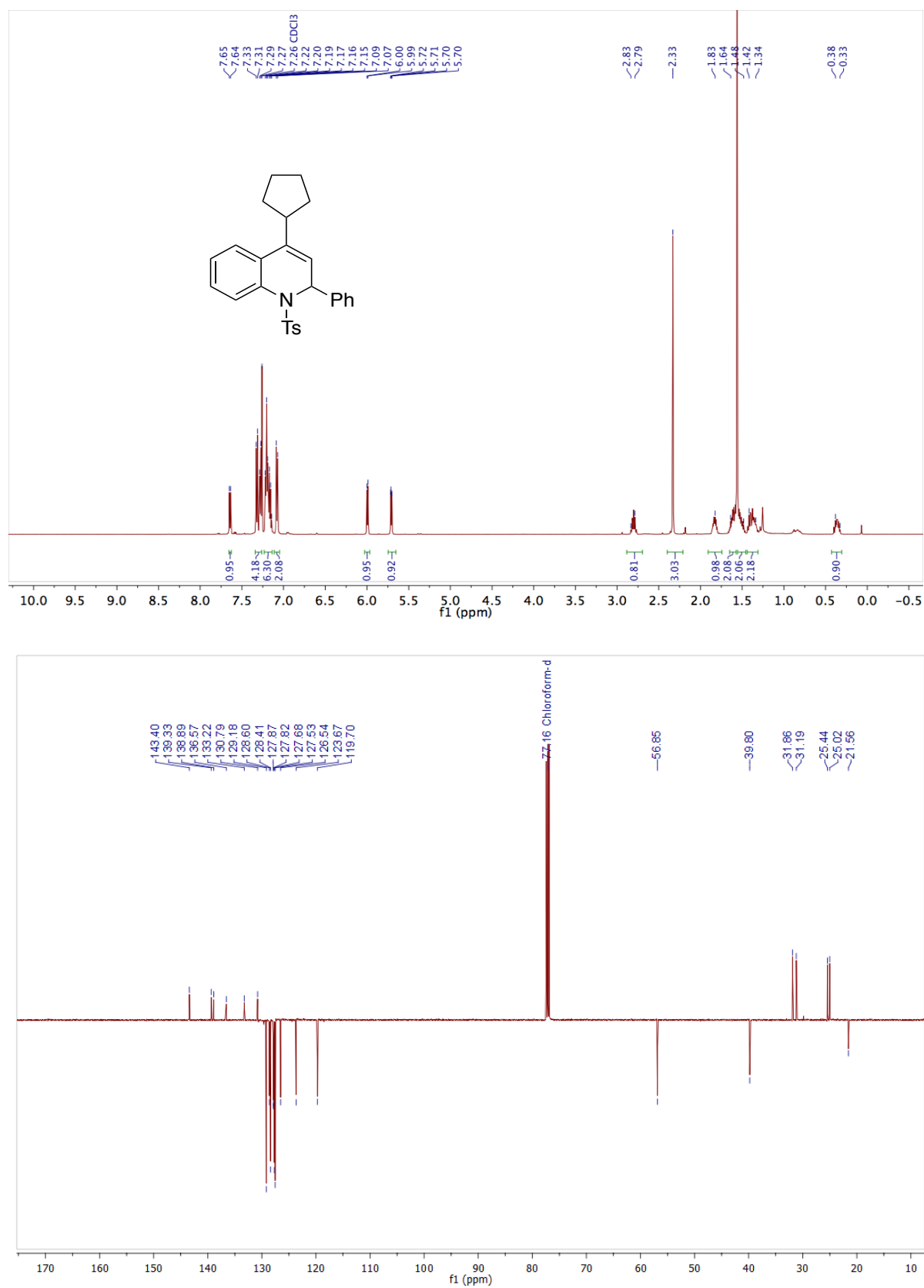
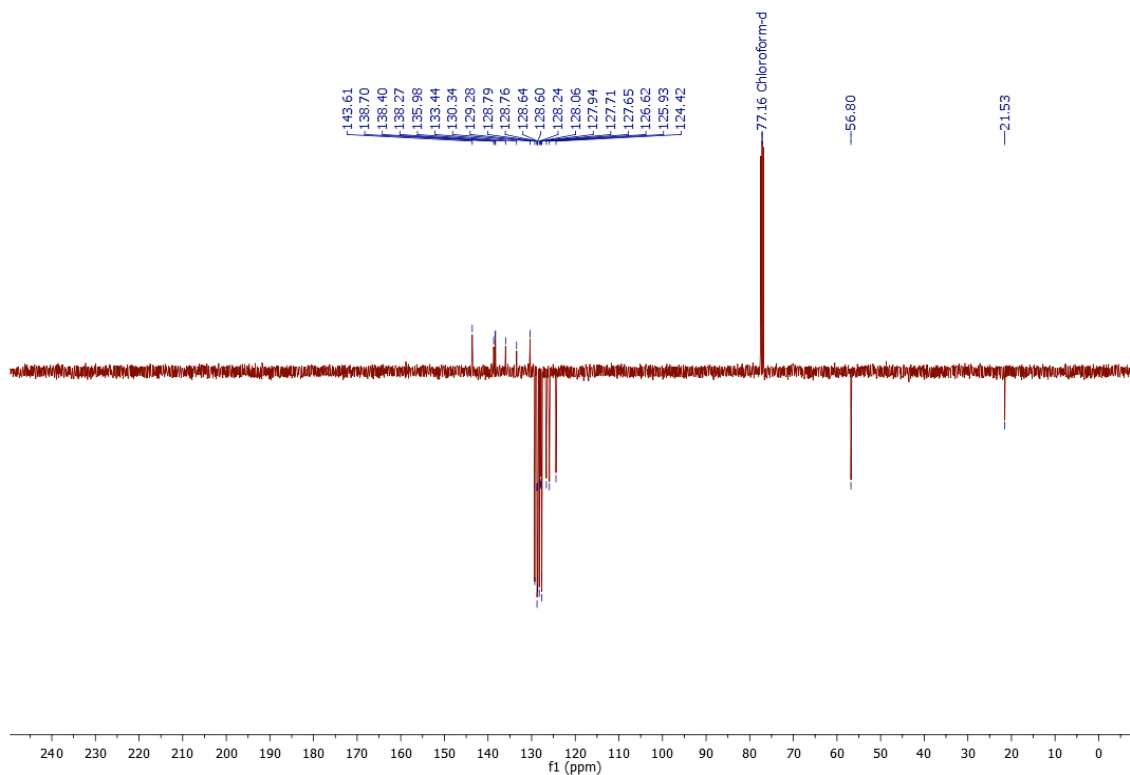
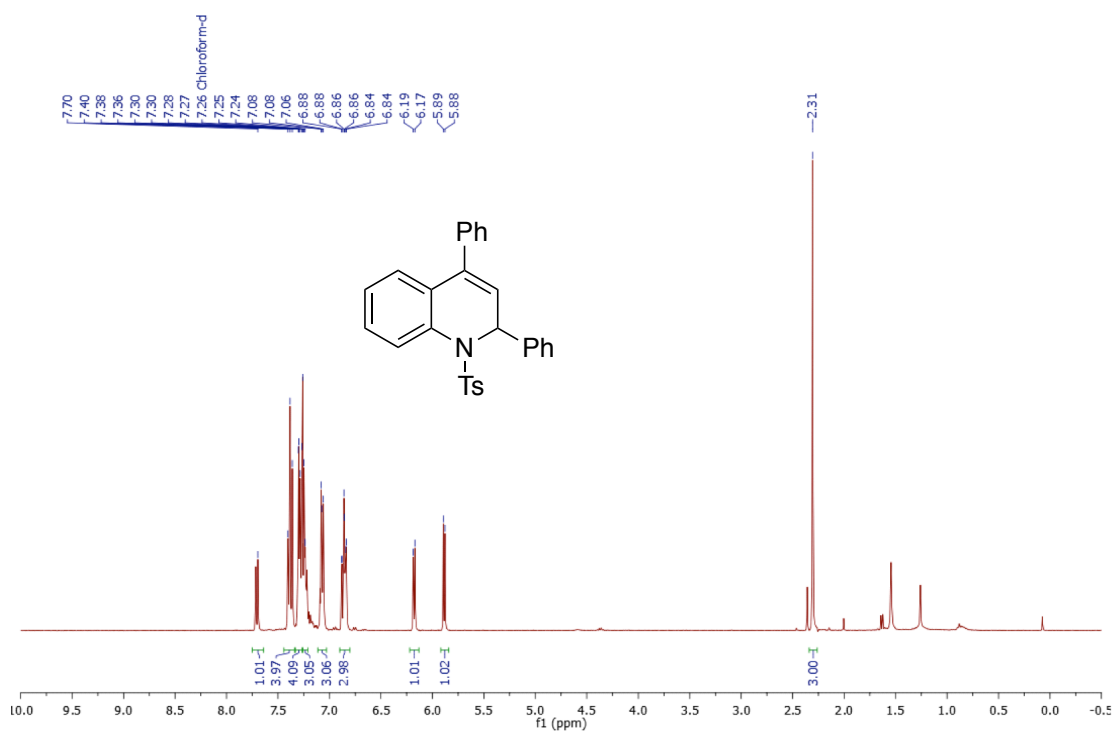
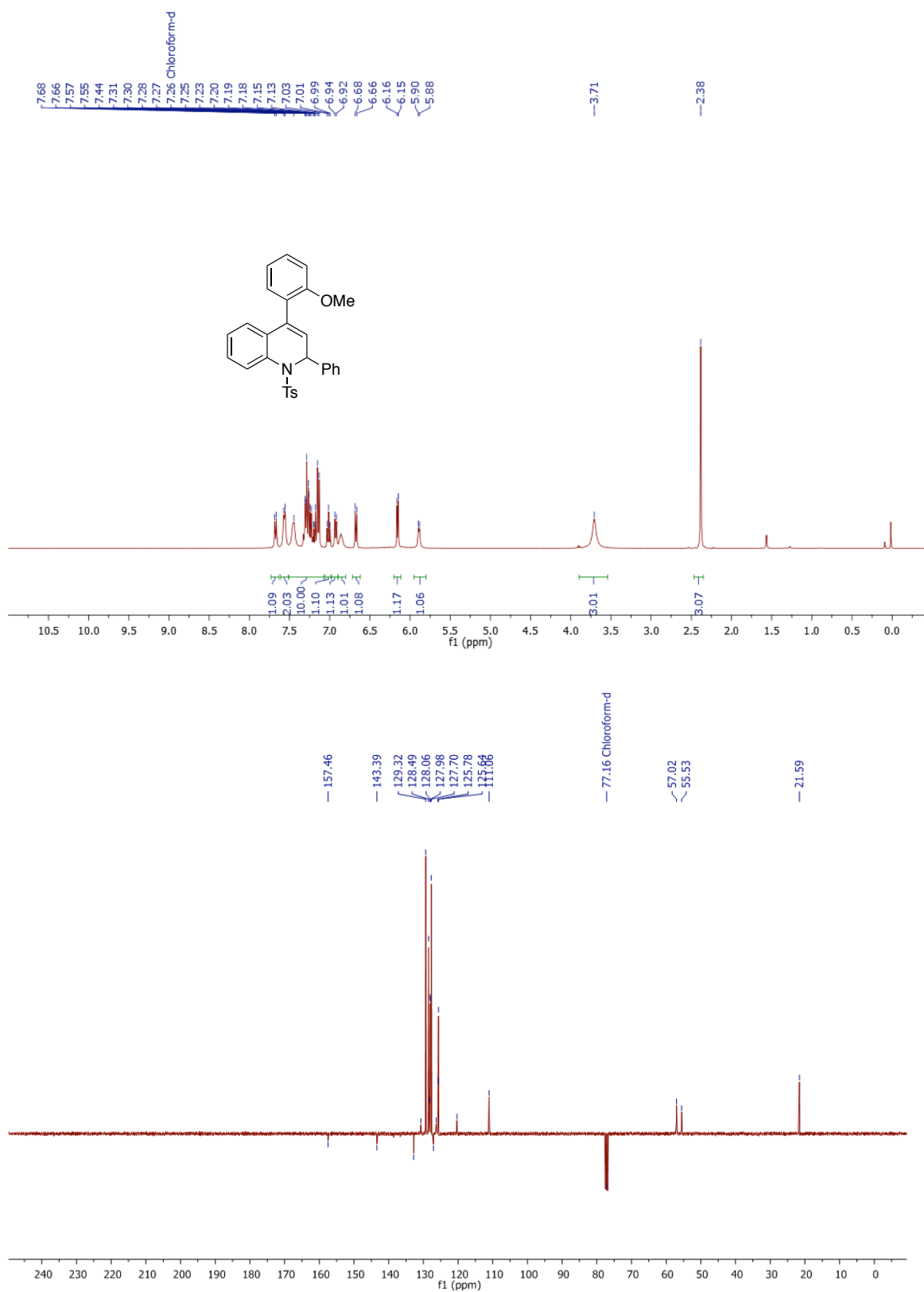


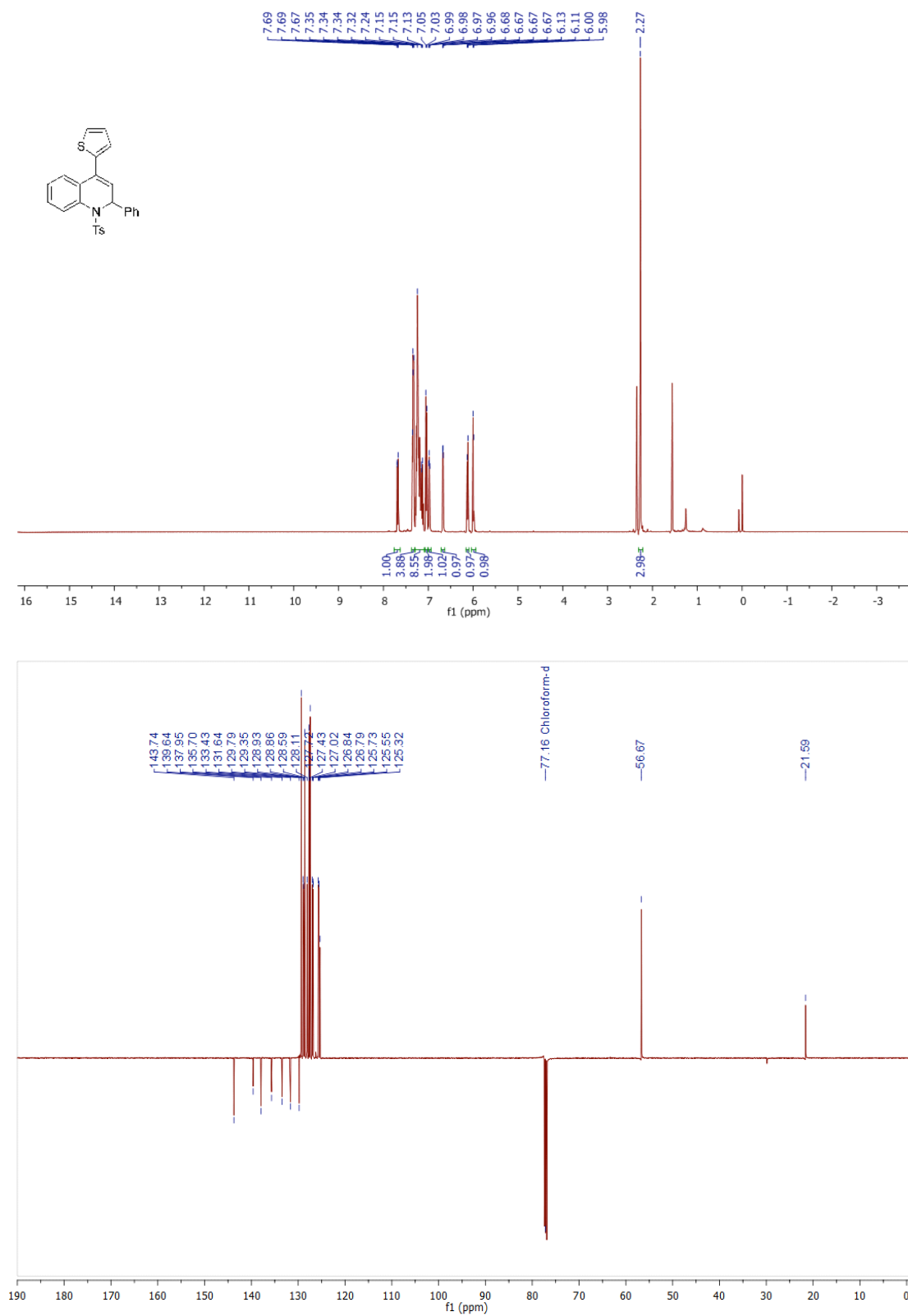
Figure S27.  $^1\text{H}$  and  $^{13}\text{C}$  NMR Spectra of 2,4-Diphenyl-1-tosyl-1,2-dihydroquinoline (**2m**)



**Figure S28.**  $^1\text{H}$  and  $^{13}\text{C}$  NMR Spectra of 4-(2-Methoxyphenyl)-2-phenyl-1-tosyl-1,2-dihydroquinoline (**2n**)



**Figure S29.**  $^1\text{H}$  and  $^{13}\text{C}$  NMR Spectra of 2-Phenyl-4-(thiophen-2-yl)-1-tosyl-1,2-dihydroquinoline (**2o**)



**Figure S30.**  $^1\text{H}$  and  $^{13}\text{C}$  NMR Spectra of 2-(4-Chlorophenyl)-3-tosyl-1a,2,3,7b-tetrahydrooxireno[2,3-*c*]quinoline (**3**)

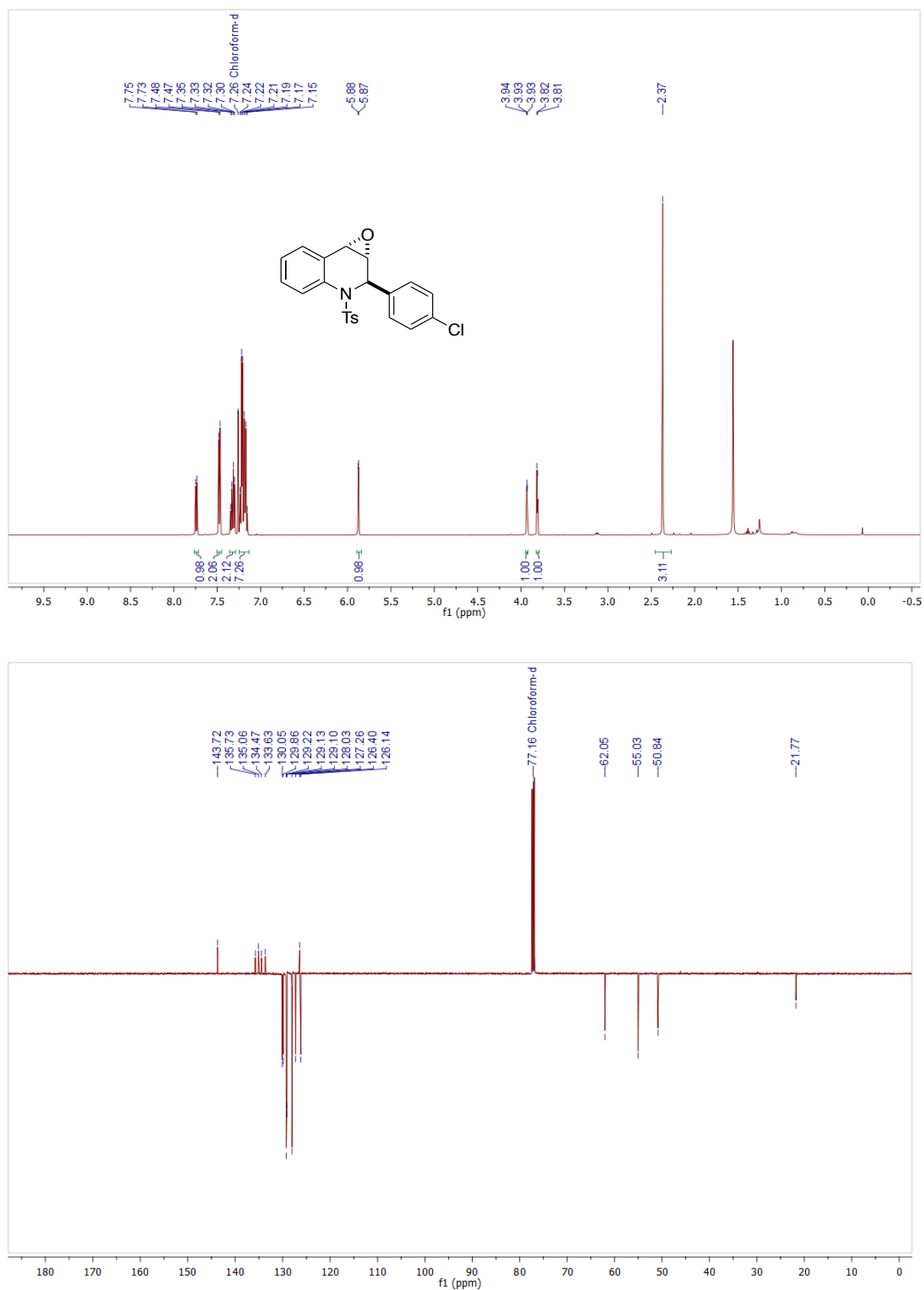
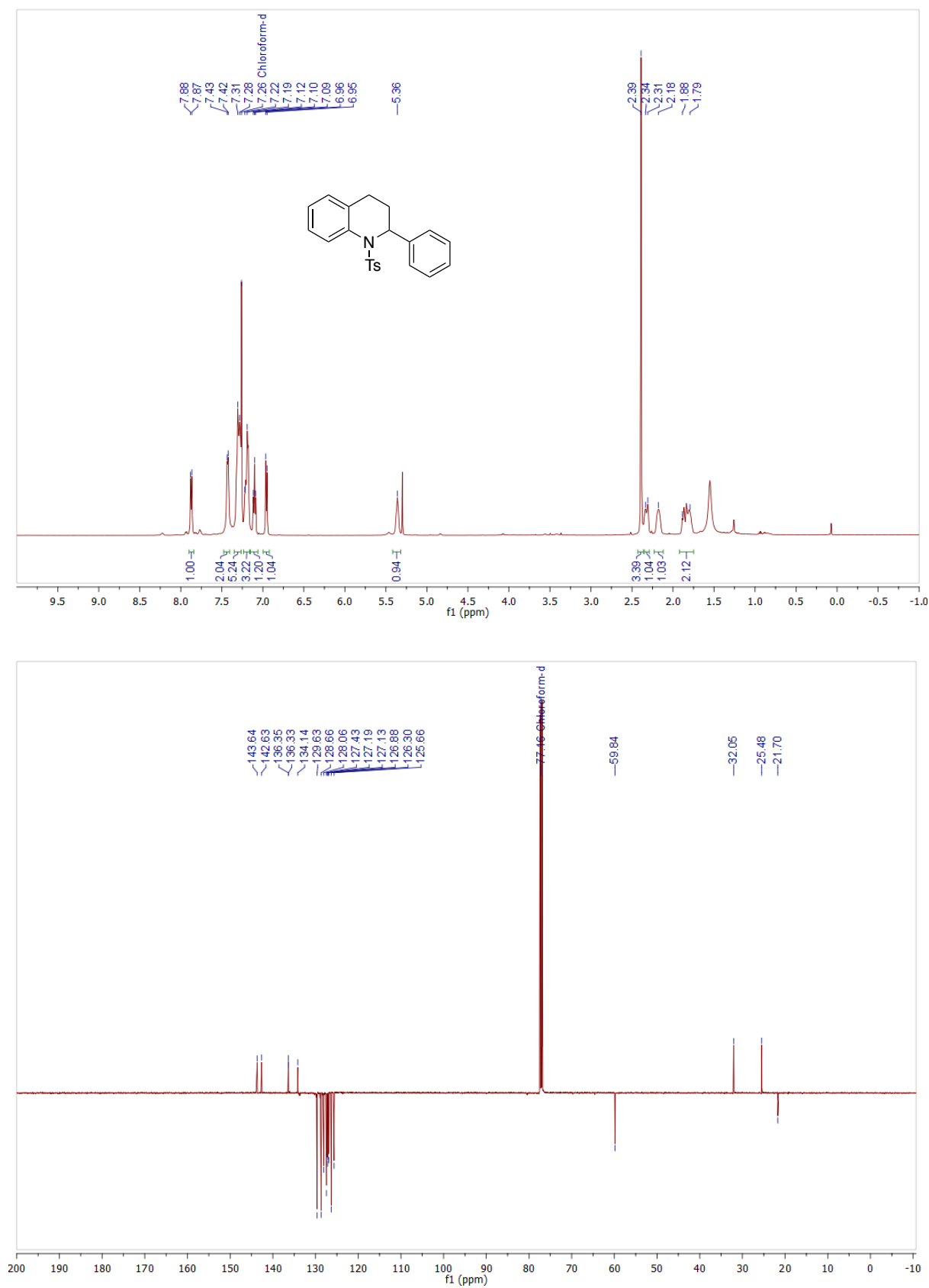


Figure S31.  $^1\text{H}$  and  $^{13}\text{C}$  NMR Spectra of 2-Phenyl-1-tosyl-1,2,3,4-tetrahydroquinoline (4)



## 2. ORTEP Drawings

Figure S32. ORTEP drawing of **2j** with thermal ellipsoids at 50% probability levels<sup>[S1]</sup>

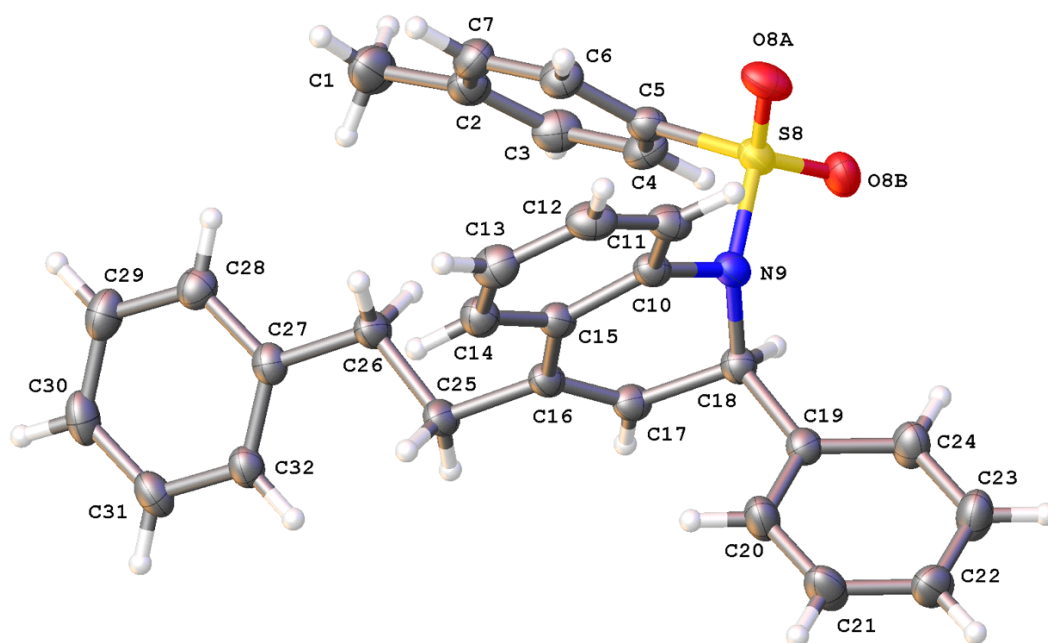


Figure S33. ORTEP drawing of **2m** with thermal ellipsoids at 50% probability levels<sup>[S2]</sup>

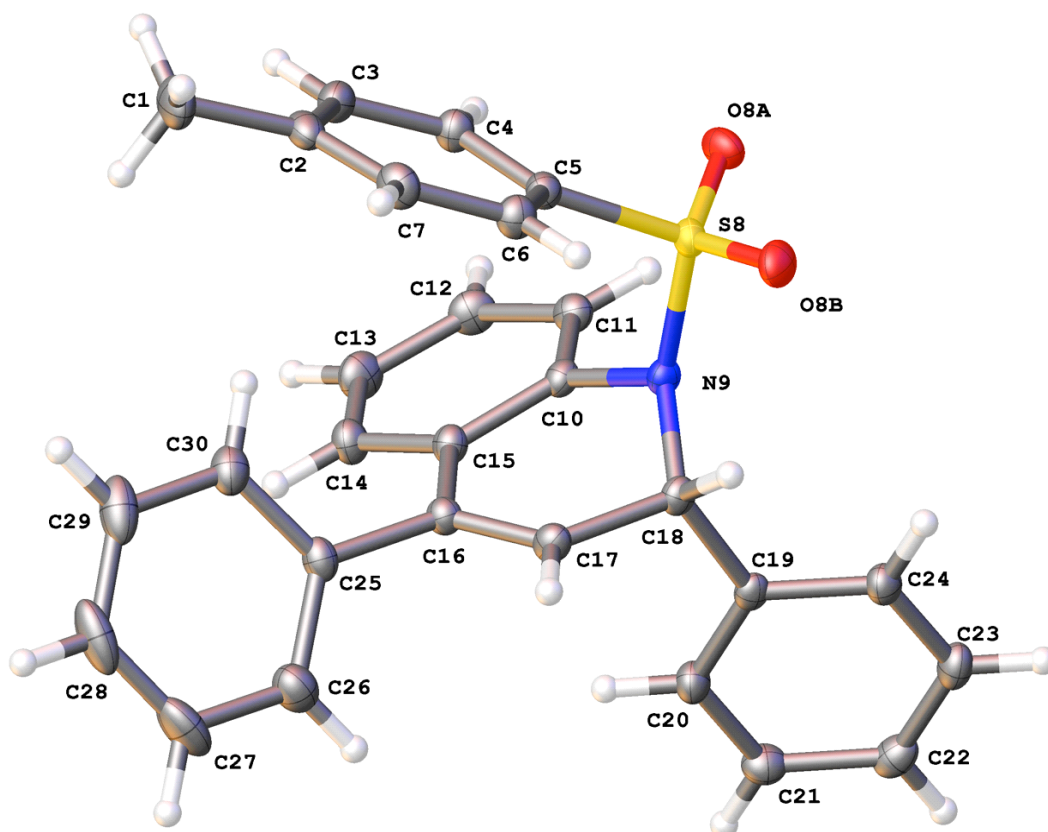
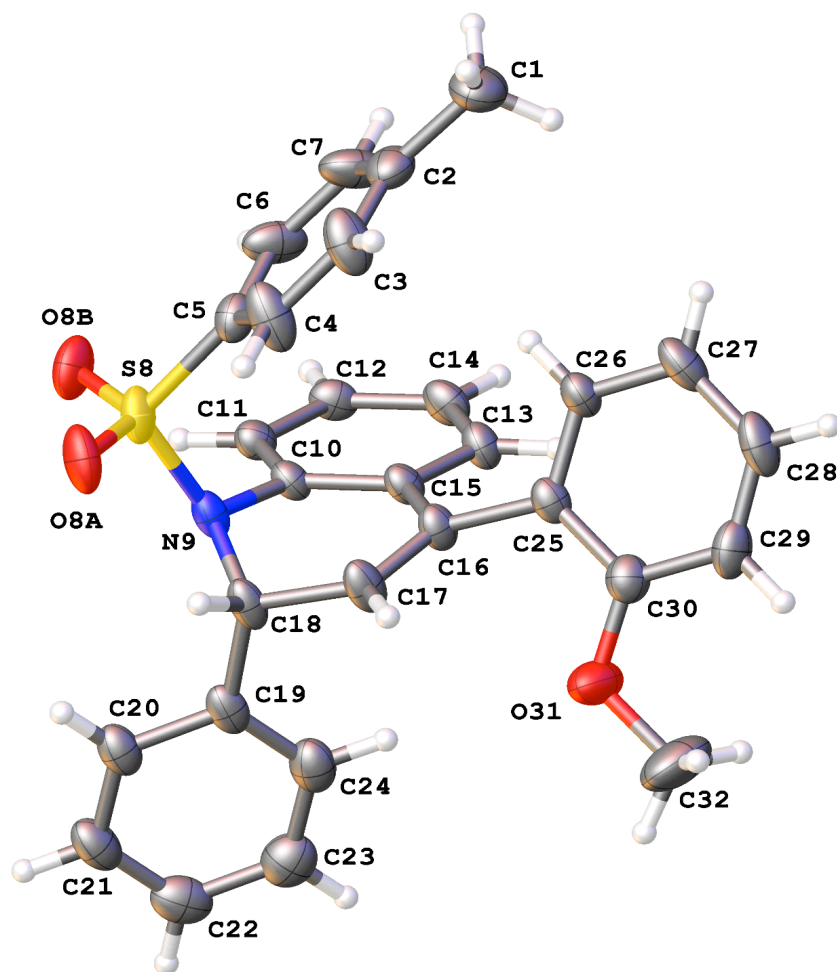


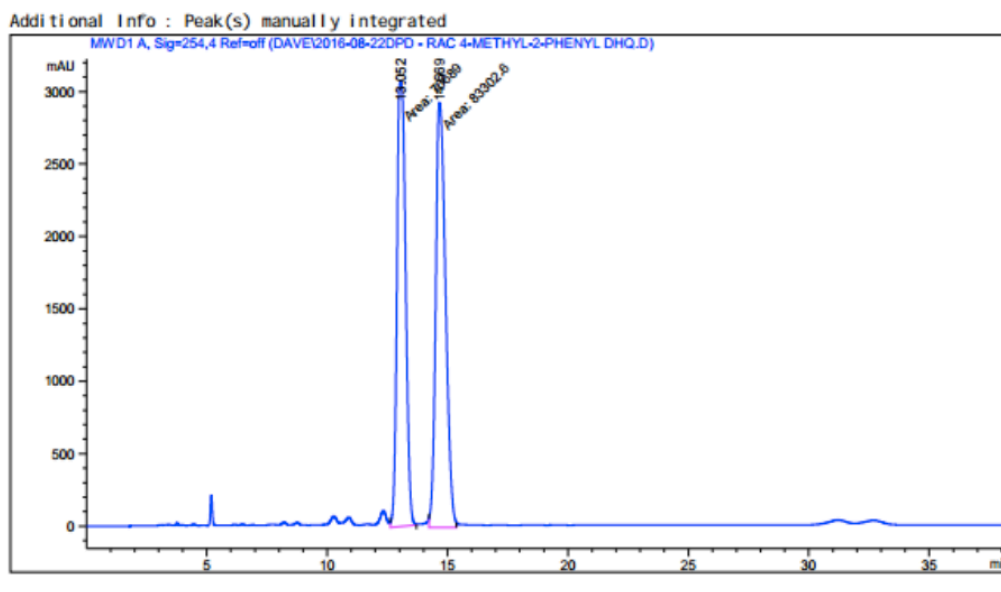


Figure S34. ORTEP drawing of **2n** with thermal ellipsoids at 50% probability levels<sup>[S3]</sup>

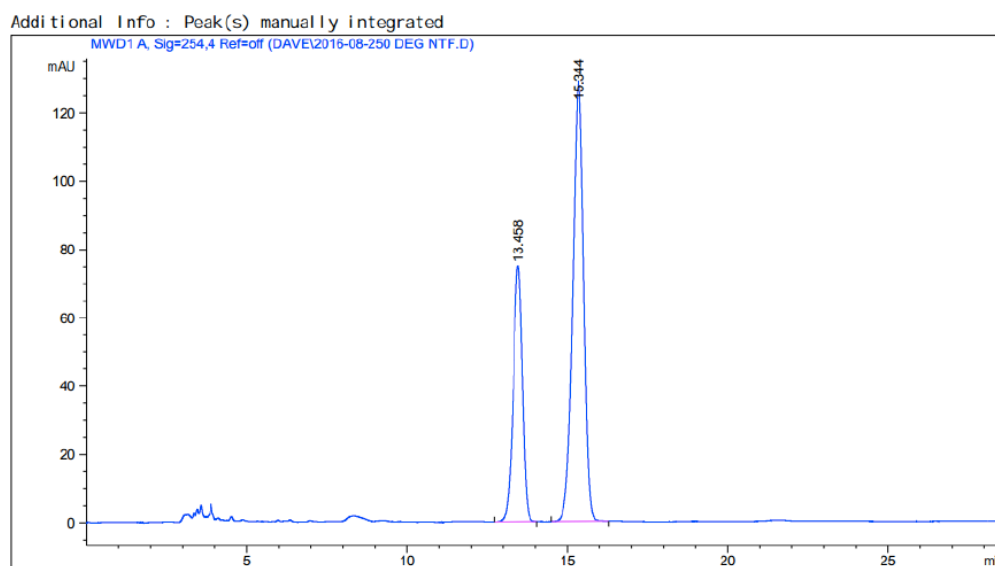


### 3. HPLC data of 2-Phenyl-1-tosyl-1,2-dihydroquinoline (2b)

Enantiomeric excess is 35% determined by HPLC (Daicel Chiralpak IC column, *n*hexane/2-propanol 85/15, flow rate = 1.0 mL/min, 254 nm): major isomer:  $t_R = 15.3$  min; minor isomer:  $t_R = 13.4$  min



Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	13.052	MM	0.4154	7.66890e4	3076.63989	47.9331
2	14.669	MM	0.4729	8.33026e4	2935.74194	52.0669



Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	13.458	BB	0.3084	1490.64990	74.98819	32.6687
2	15.344	BB	0.3659	3072.28540	129.00035	67.3313

#### 4. References

[S1] CCDC 1839656 (**2j**) contains the supplementary crystallographic data for this paper.

These data can be obtained free of charge from the Cambridge Crystallographic Data Centre via [www.ccdc.cam.ac.uk/data\\_request/cif](http://www.ccdc.cam.ac.uk/data_request/cif).

[S2] CDCC 1839655 (**2m**) contains the supplementary crystallographic data for this paper.

These data can be obtained free of charge from the Cambridge Crystallographic Data Centre via [www.ccdc.cam.ac.uk/data\\_request/cif](http://www.ccdc.cam.ac.uk/data_request/cif).

[S3] CDCC 1839654 (**2n**) contains the supplementary crystallographic data for this paper.

These data can be obtained free of charge from the Cambridge Crystallographic Data Centre via [www.ccdc.cam.ac.uk/data\\_request/cif](http://www.ccdc.cam.ac.uk/data_request/cif).