

#### Terms & Conditions

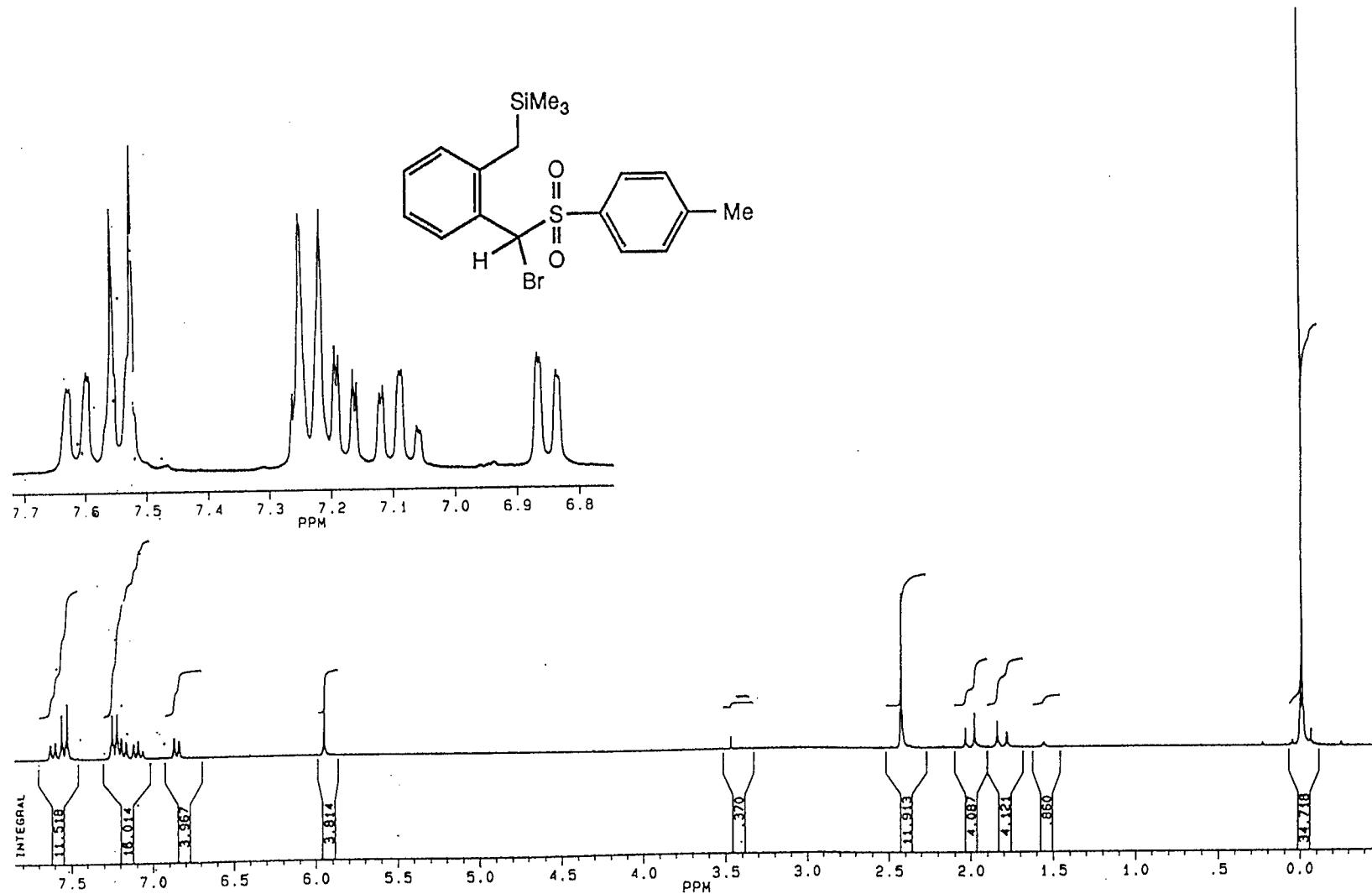
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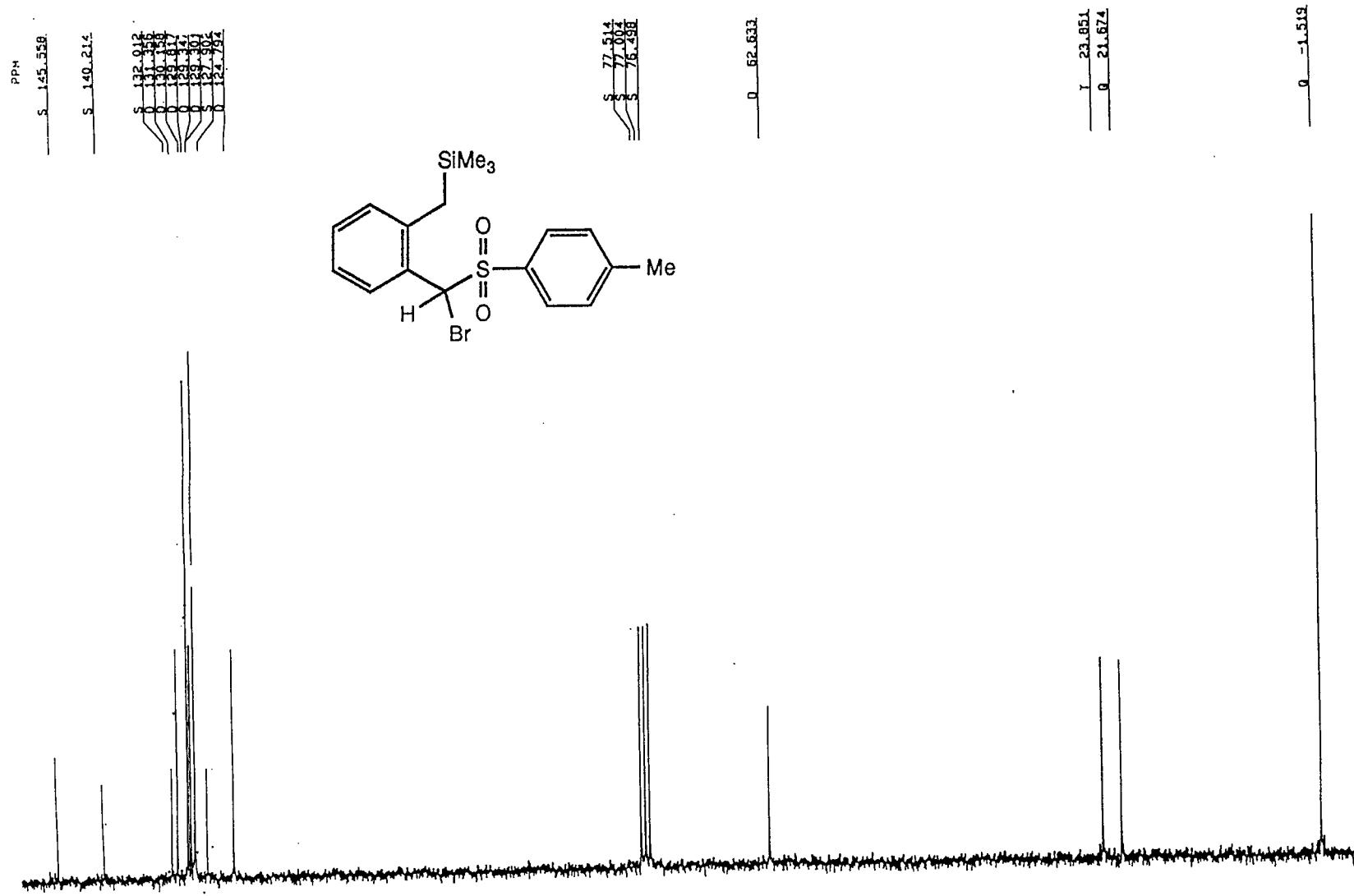
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250 MHz  $^1\text{H}$  NMR of *[o*-[Bromo(*p*-tolylsulfonyl)methyl]benzyl]trimethylsilane (10).



63 MHz <sup>13</sup>C NMR of [o-(Bromo(p-tolylsulfonyl)methyl)benzyl]trimethylsilane (10).

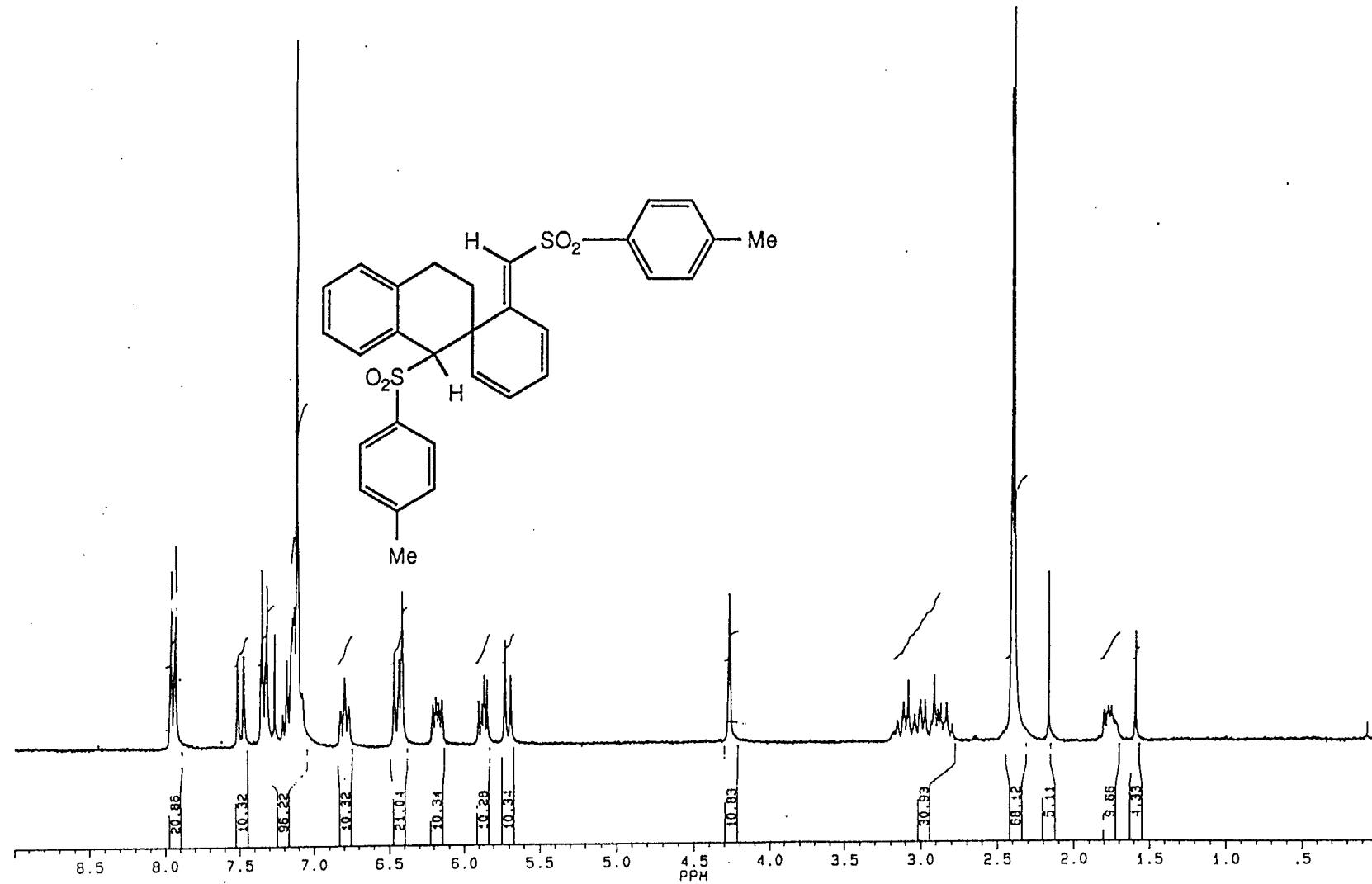
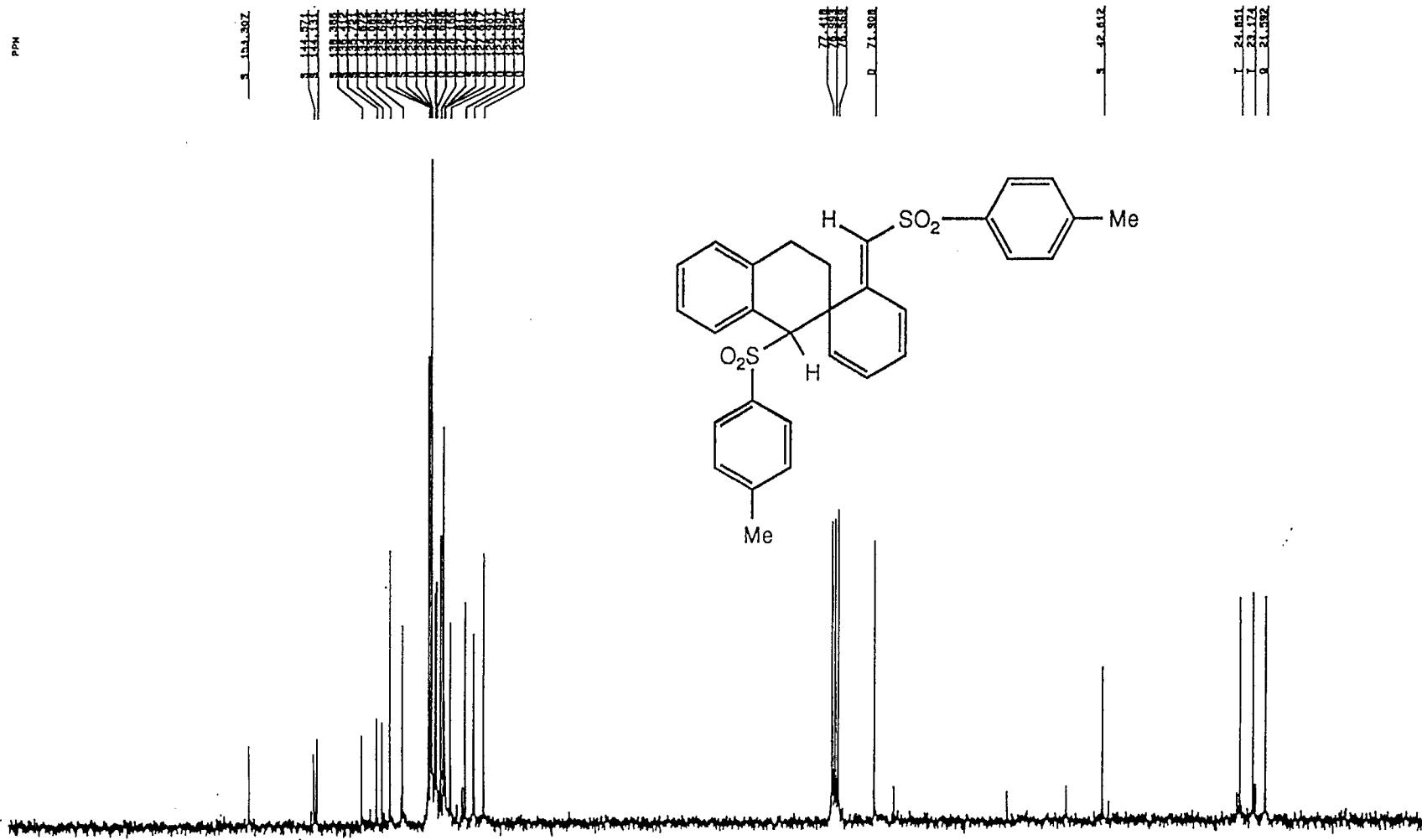


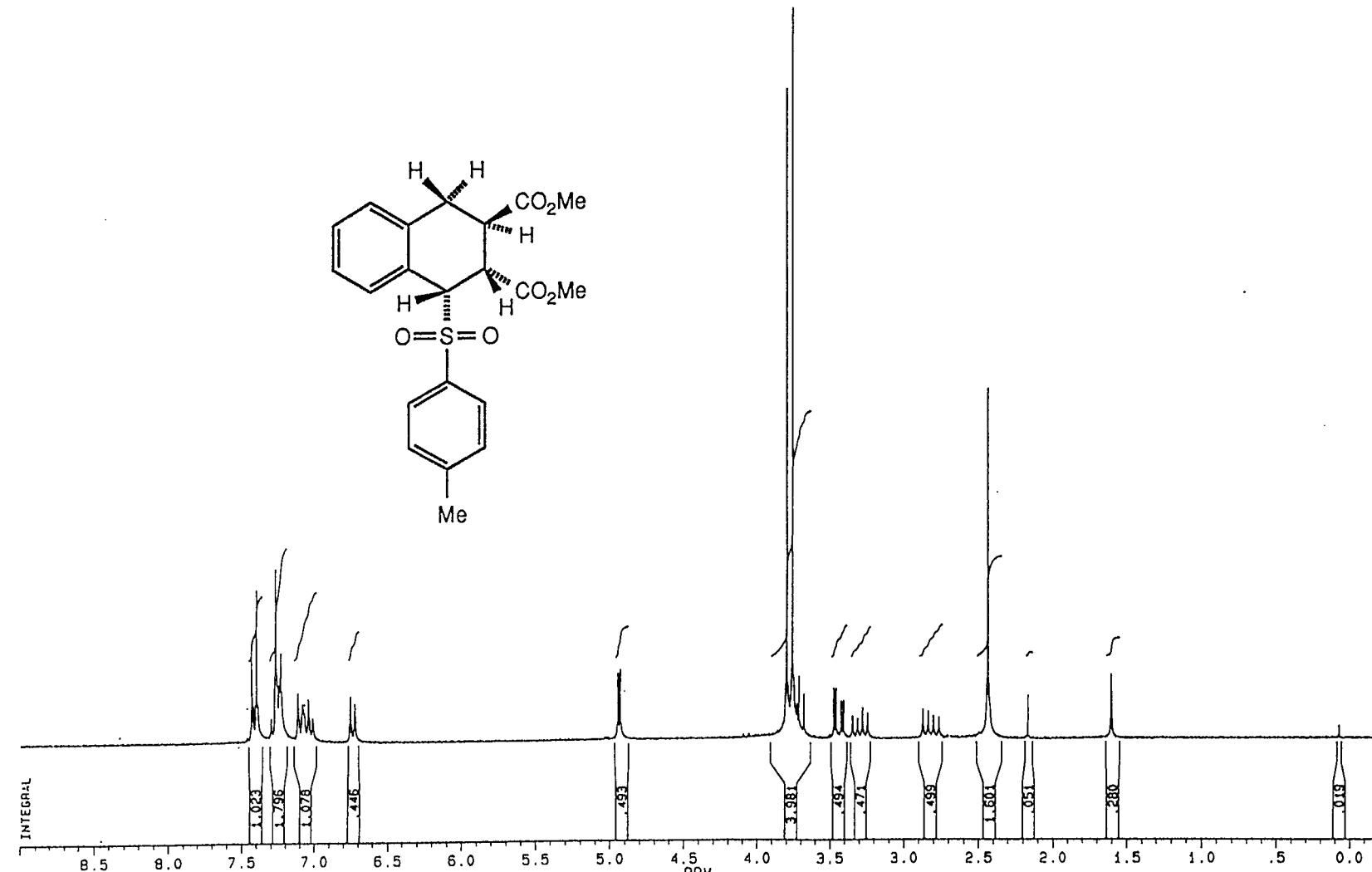
Figure 109. 250 MHz  $^1\text{H}$  NMR of 3',4'-Dihydro-1'-(*p*-tolylsulfonyl)-6-[(*p*-tolylsulfonyl)methylene]spiro[2,4-cyclohexadiene-1,2'( $^1\text{H}$ )-naphthalene] (**12**).

4

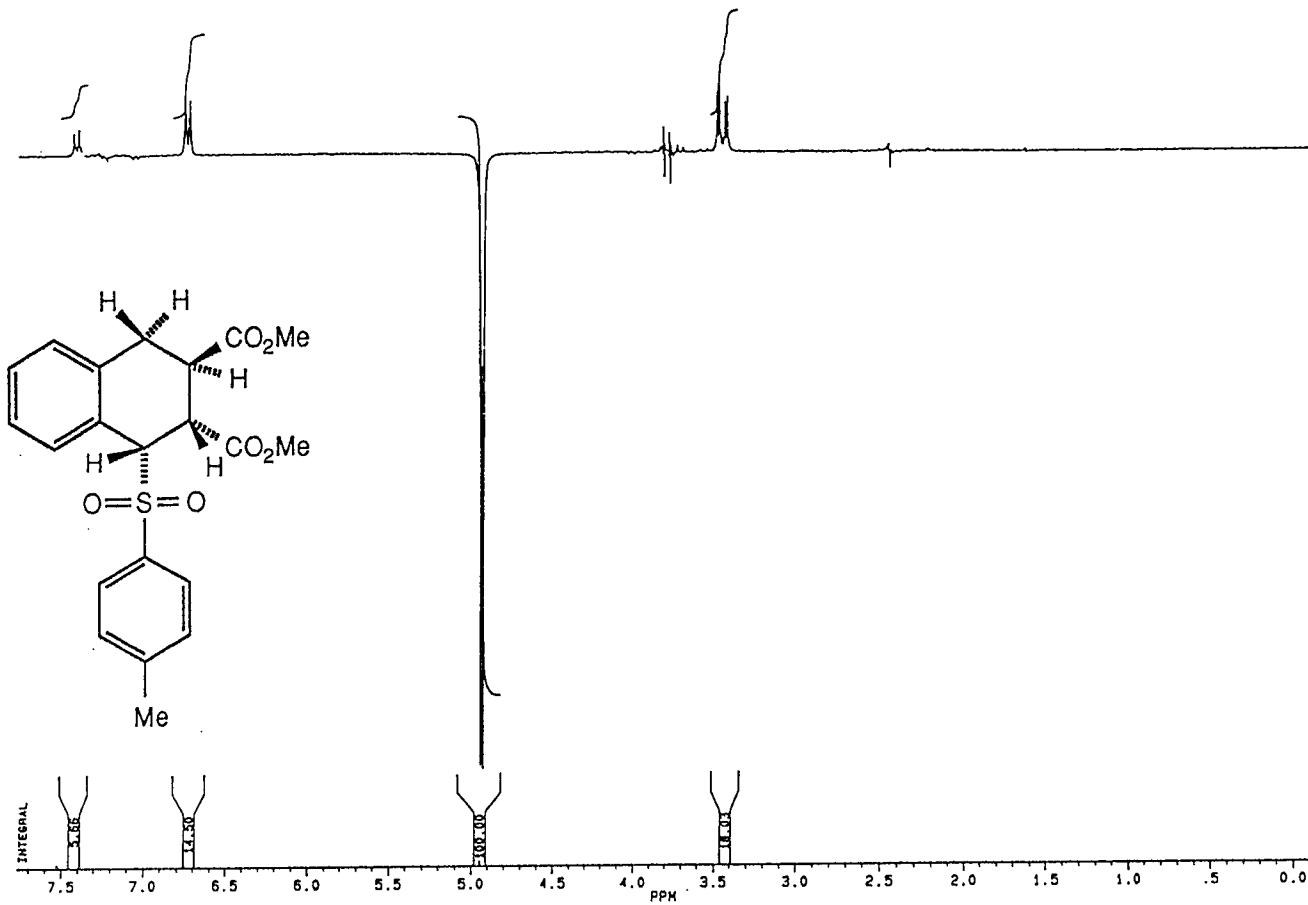


53 MHz  $^{13}\text{C}$  NMR of 3',4'-Dihydro-1'-(*p*-tolylsulfonyl)-6-[(*p*-tolylsulfonyl)methylene]spiro[2,4-cyclohexadiene-1,2'(1'H)-naphthalene] (12). 280

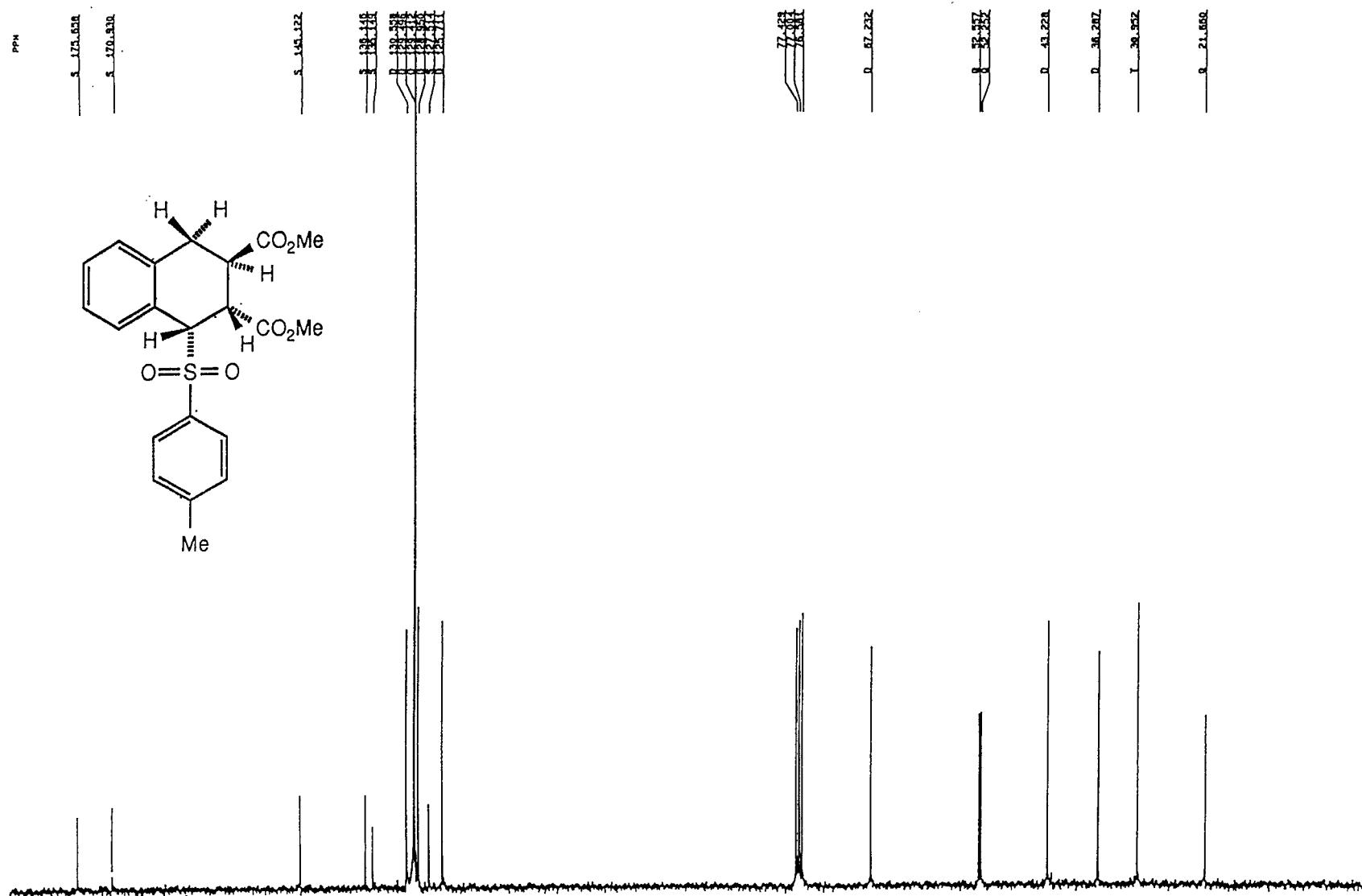
4



250 MHz  $^1\text{H}$  NMR of Dimethyl 1,2,3,4-Tetrahydro-1-(*p*-tolylsulfonyl)-2,3-naphthalenedicarboxylate (*1a*). 5



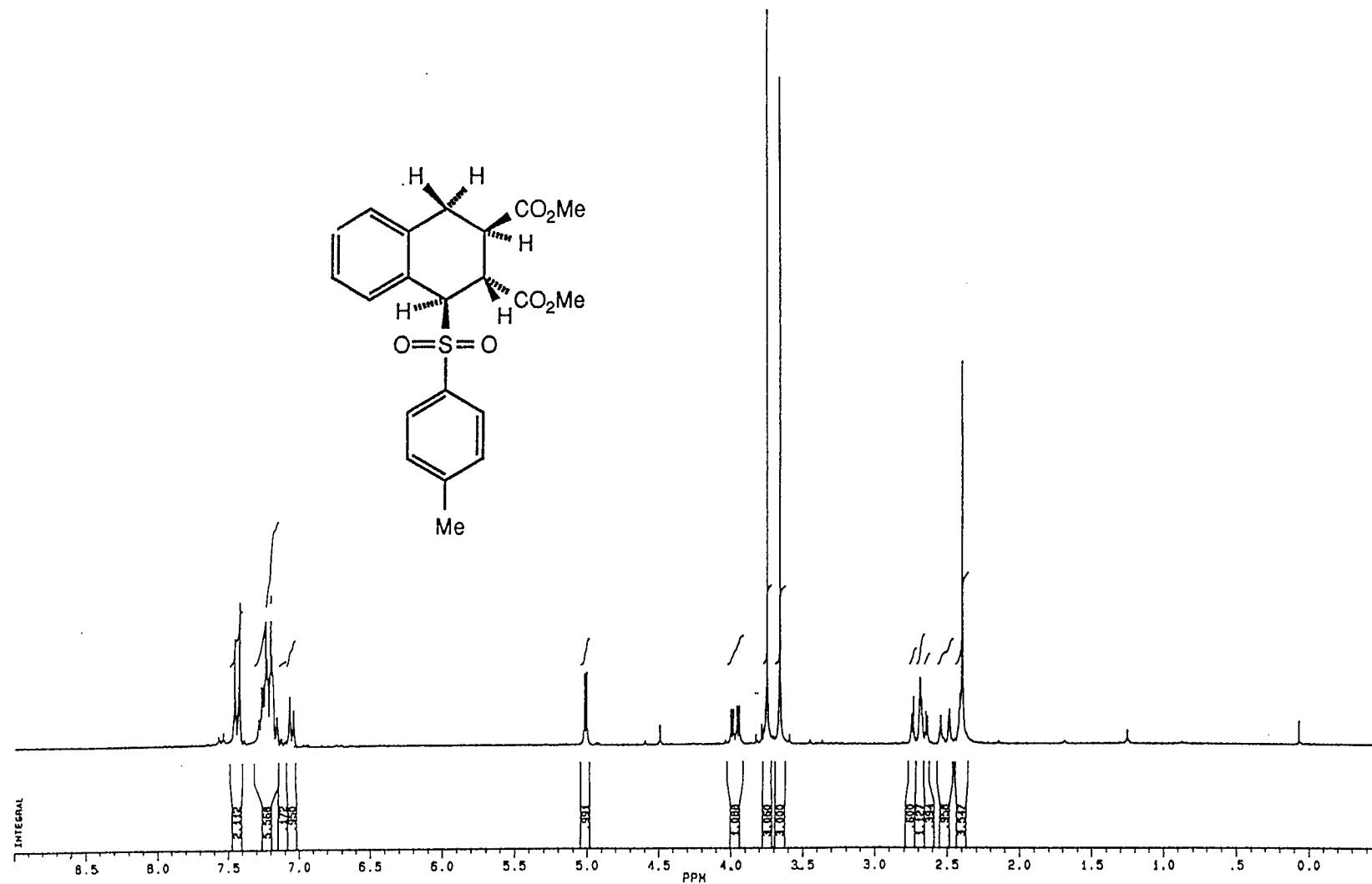
250 MHz  $^1\text{H}$  NMR (NOE Irradiation at  $\delta$  4.94) of Dimethyl 1,2,3,4-Tetrahydro-1-(*p*-tolylsulfonyl)-2,3-naphthalenedicarboxylate (**17a**). ~



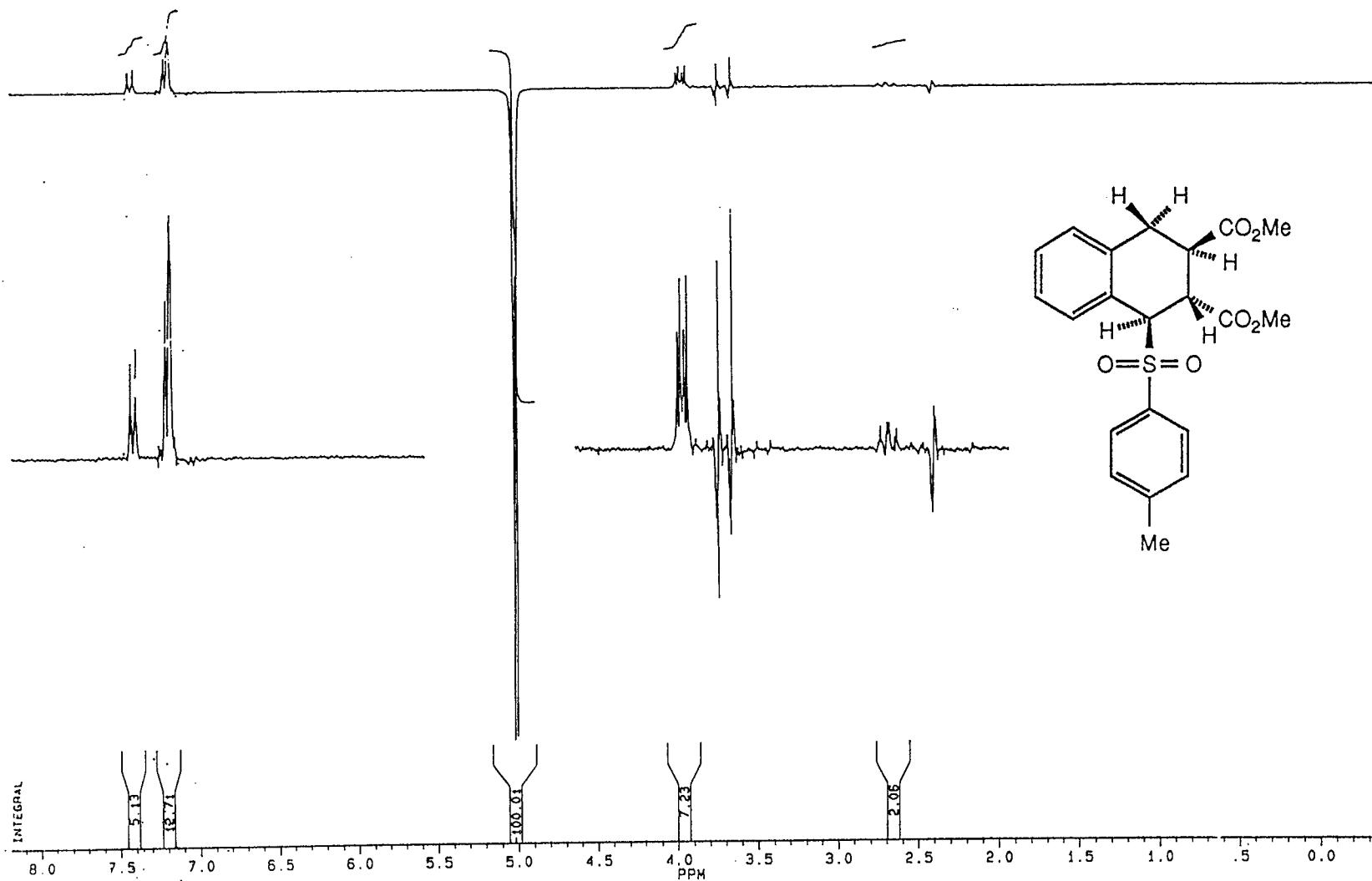
75 MHz  $^{13}\text{C}$  NMR of Dimethyl 1,2,3,4-Tetrahydro-1-(*p*-tolylsulfonyl)-2,3-naphthalenedicarboxylate (7a).

283

7

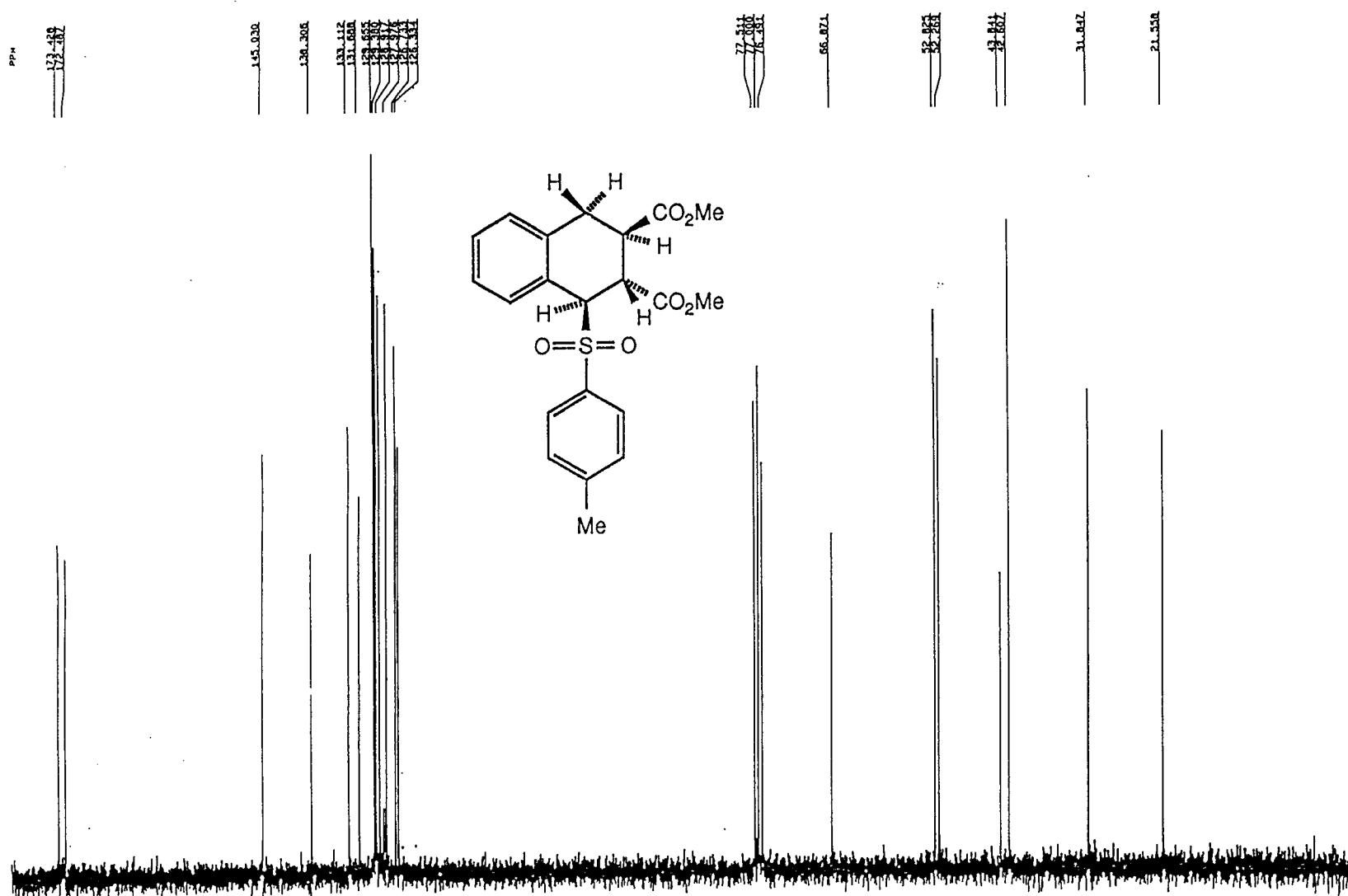


250 MHz  $^1\text{H}$  NMR of Dimethyl 1,2,3,4-Tetrahydro-1-(*p*-tolylsulfonyl)-2,3-naphthalenedicarboxylate (28).



250 MHz  $^1\text{H}$  NMR (NOE Irradiation at  $\delta$  5.0) of Dimethyl 1,2,3,4-Tetrahydro-1-(*p*-tolylsulfonyl)-2,3-naphthalenedicarboxylate (

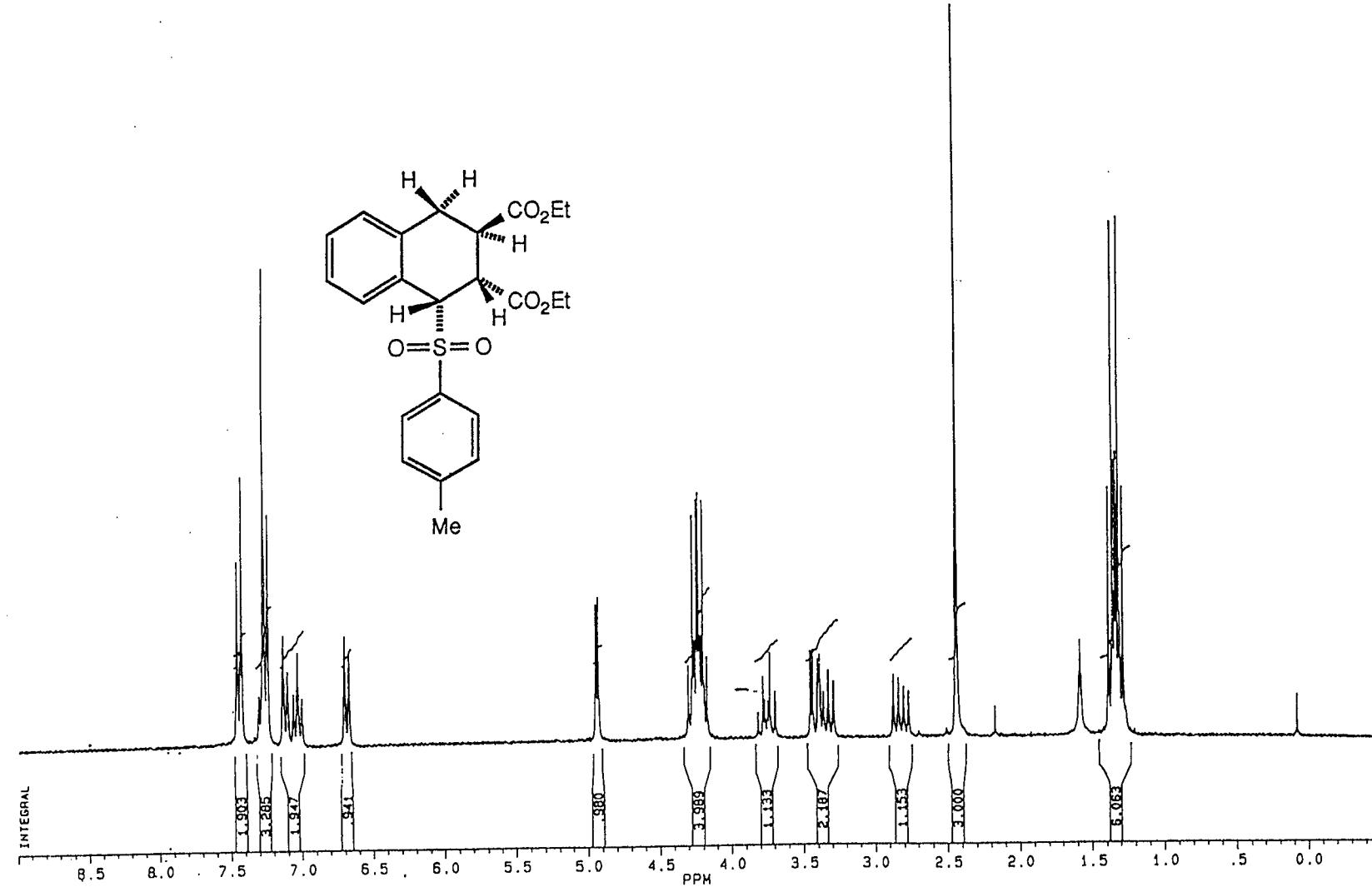
10



286

11

11

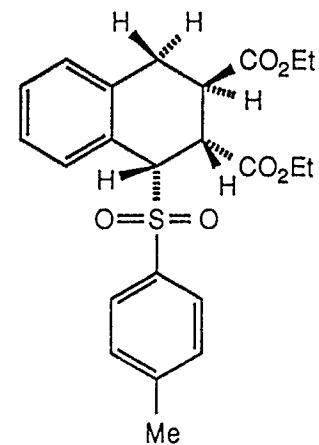
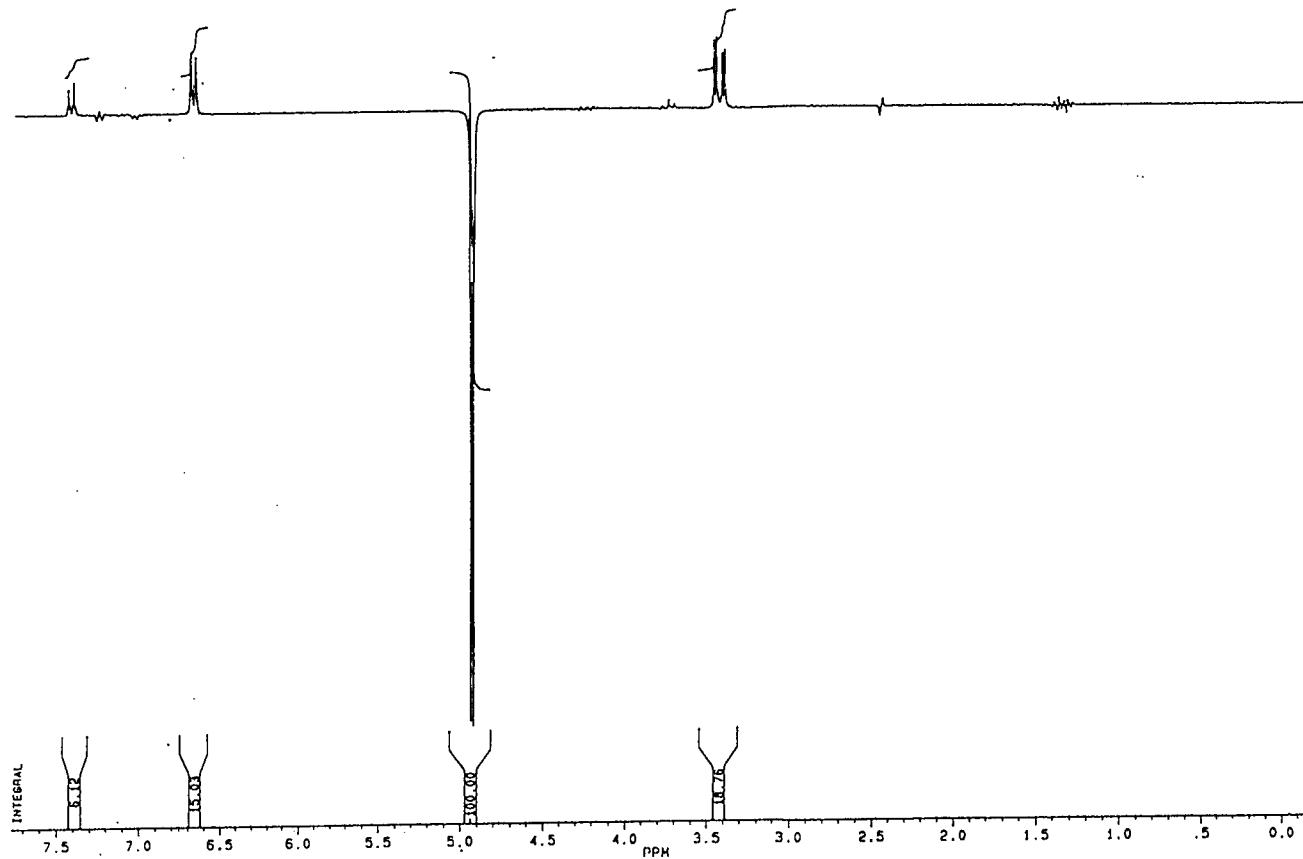


250 MHz  $^1\text{H}$  NMR of Diethyl 1,2,3,4-Tetrahydro-1-(*p*-tolylsulfonyl)-2,3-naphthalenedicarboxylate (18).

287

11

12

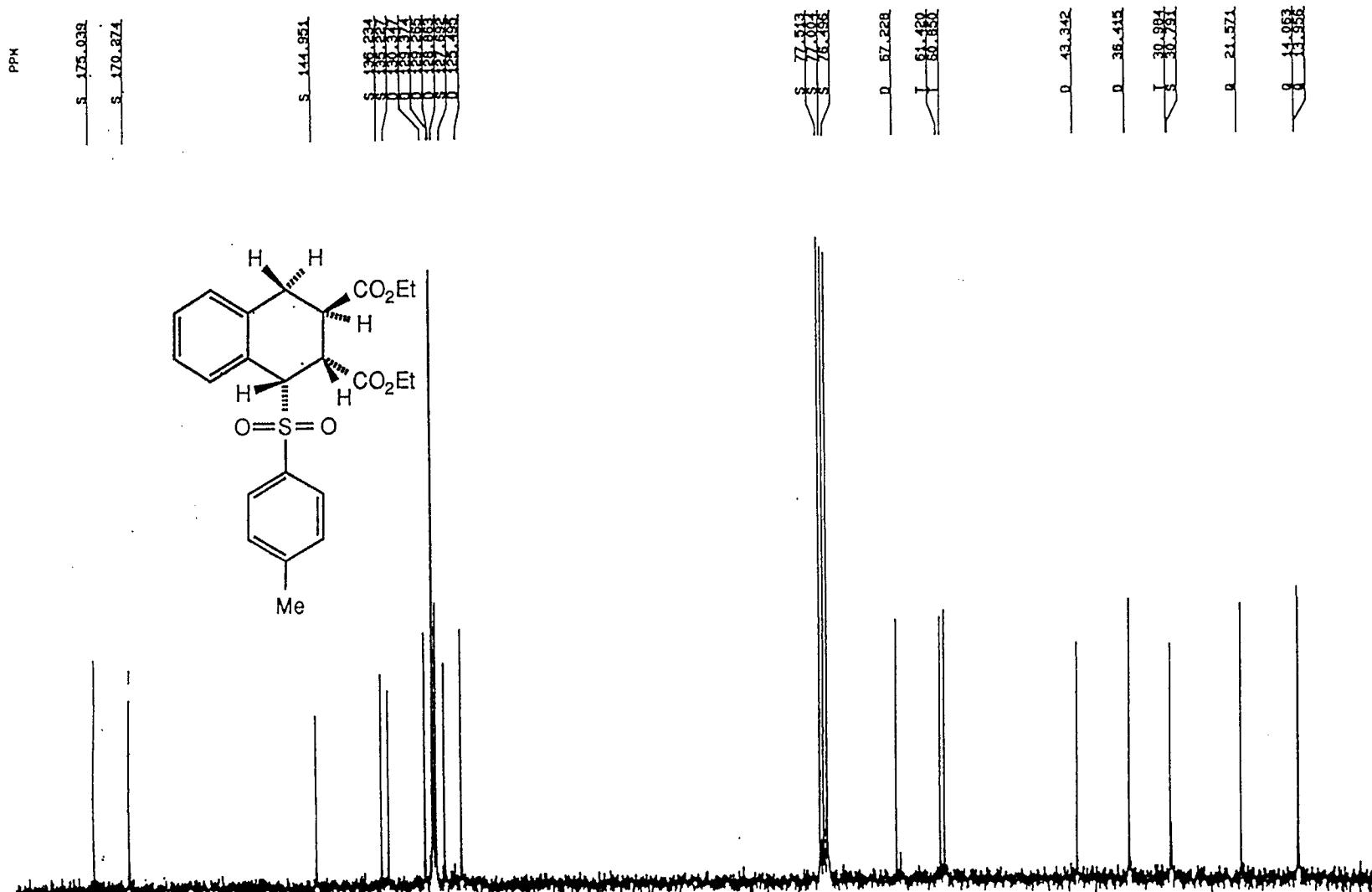


250 MHz  $^1\text{H}$  NMR (NOE Irradiation at  $\delta$  4.92) of Diethyl 1,2,3,4-Tetrahydro-1-(*p*-tolylsulfonyl)-2,3-naphthalenedicarboxylate (10a)

288

12

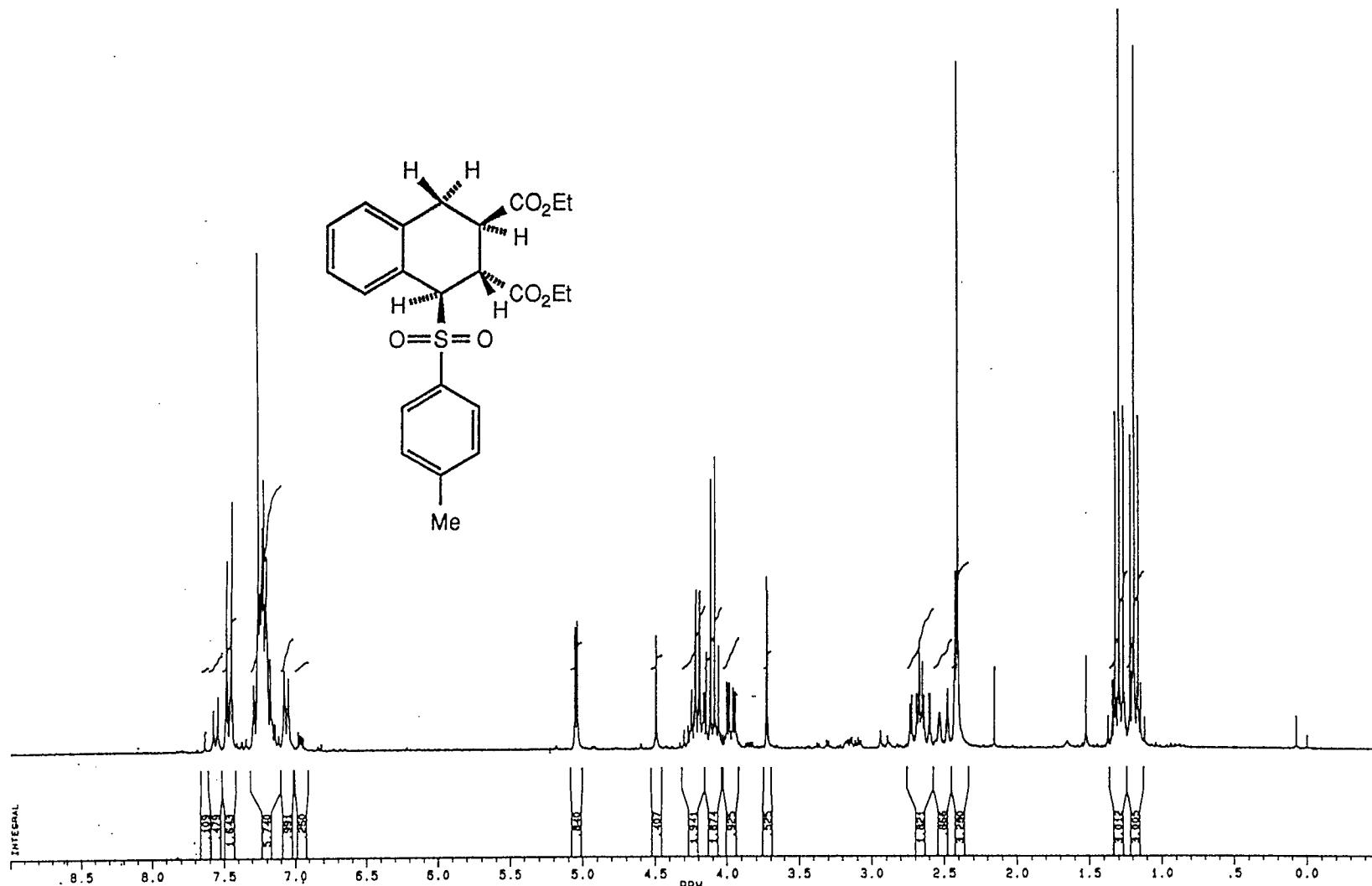
13



63 MHz  $^{13}\text{C}$  NMR of Diethyl 1,2,3,4-Tetrahydro-1-(*p*-tolylsulfonyl)-2,3-naphthalenedicarboxylate (**18a**).

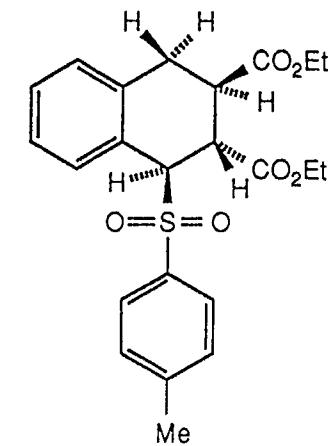
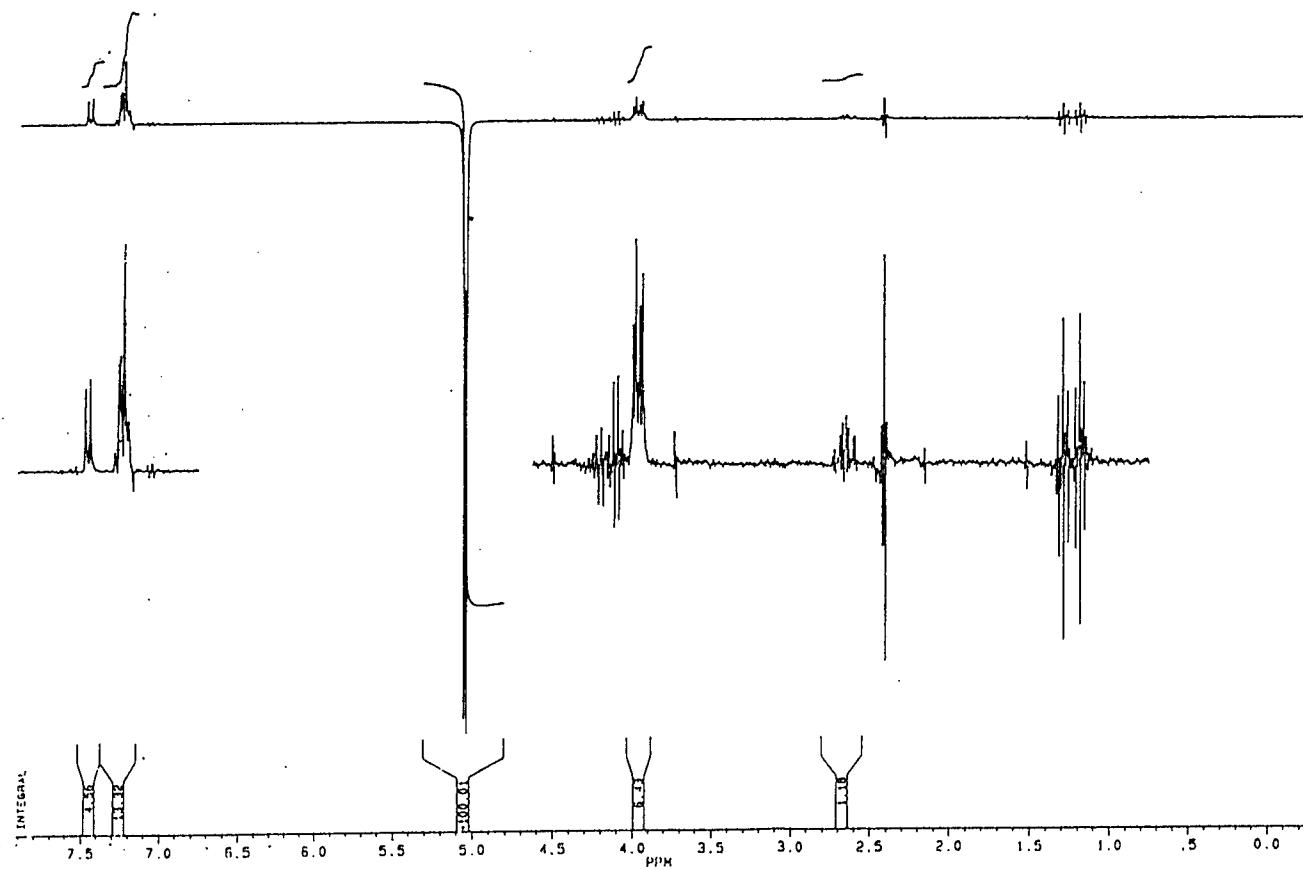
289

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三



250 MHz  $^1\text{H}$  NMR of Diethyl 1,2,3,4-Tetrahydro-1-(*p*-tolylsulfonyl)-2,3-naphthalenedicarboxylate (18e).

15



250 MHz  $^1\text{H}$  NMR (NOE Irradiation at  $\delta$  5.04) of Diethyl 1,2,3,4-Tetrahydro-1-(*p*-tolylsulfonyl)-2,3-naphthalenedicarboxylate (15).

291

15

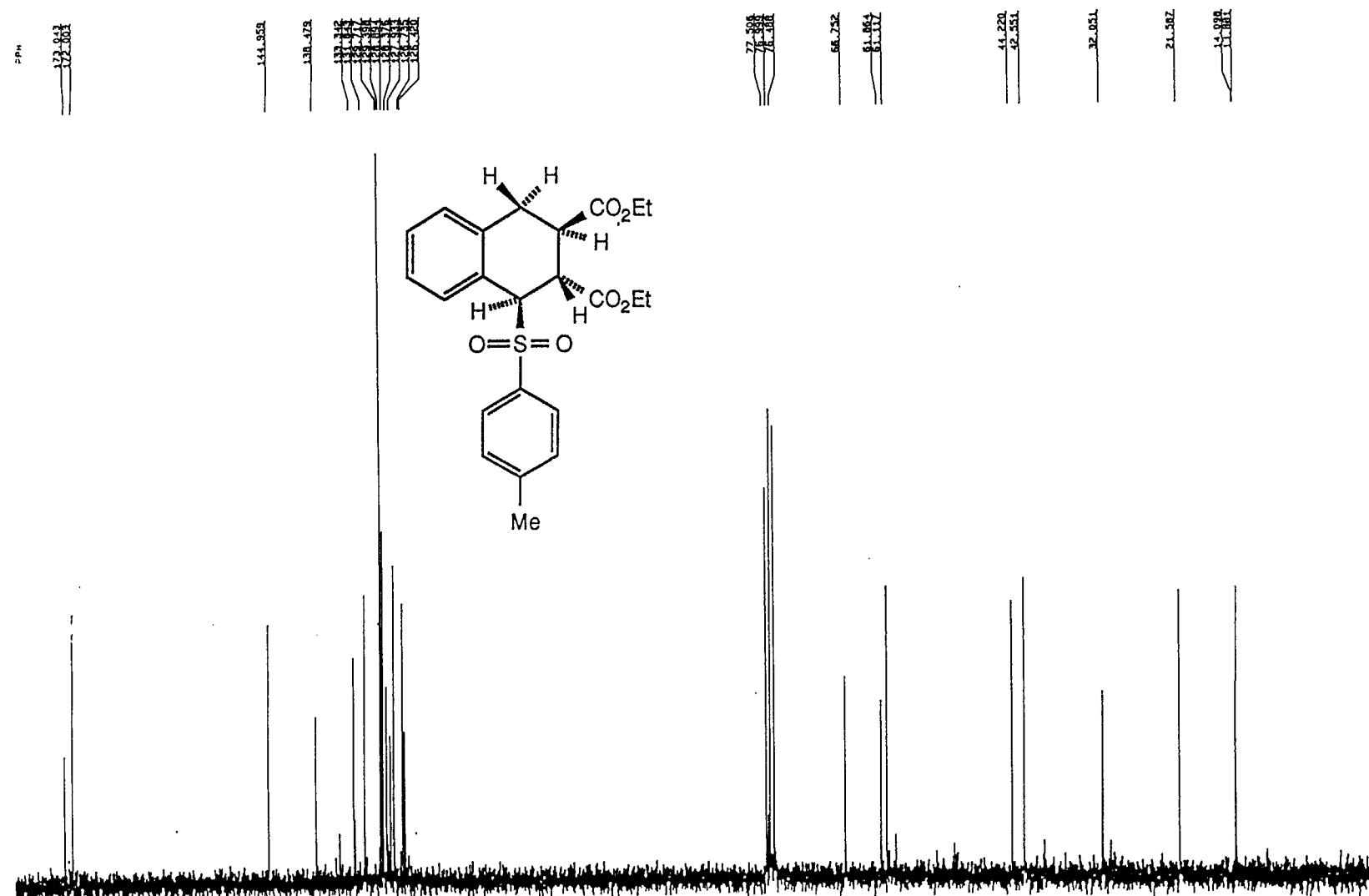
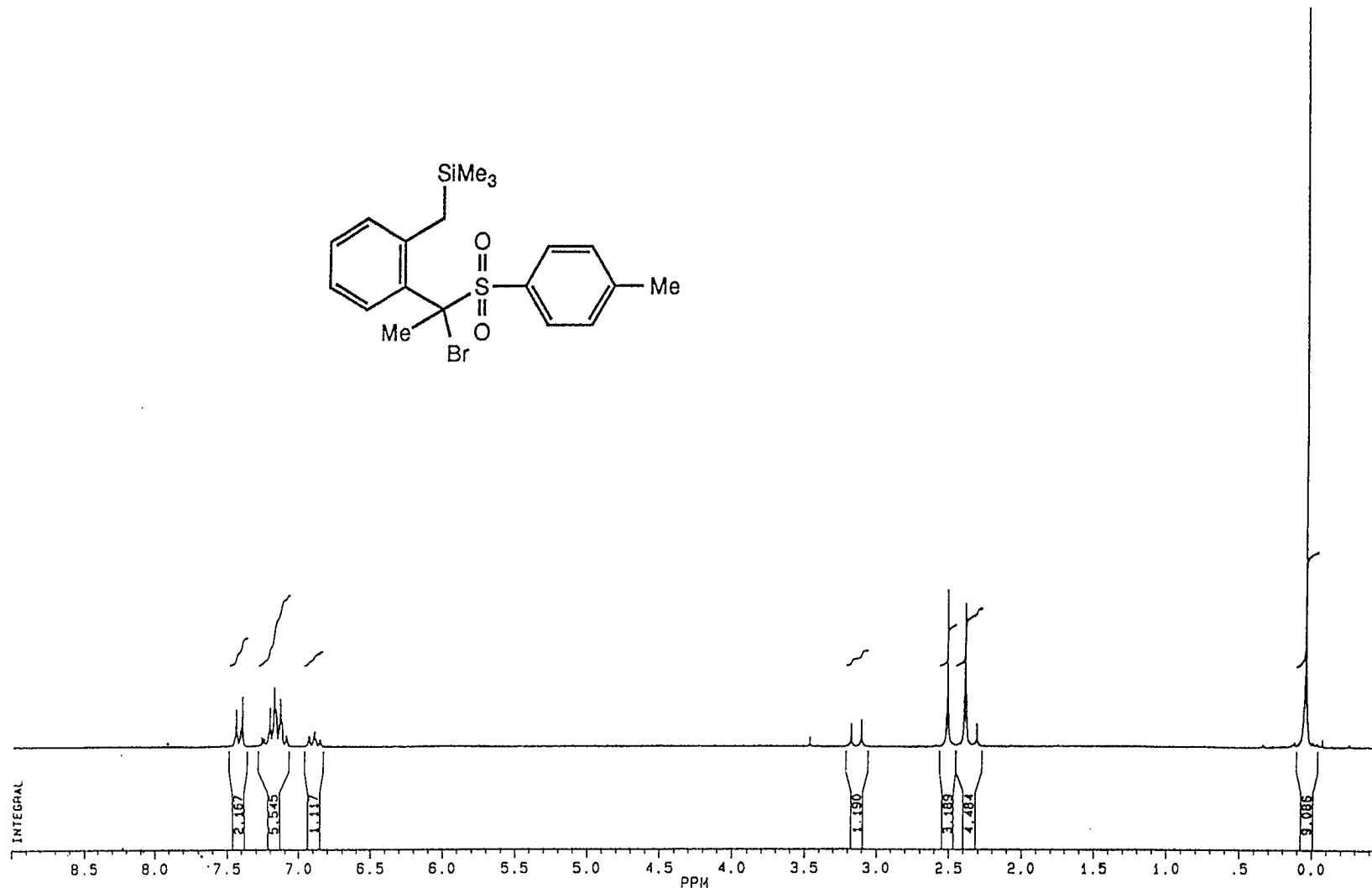
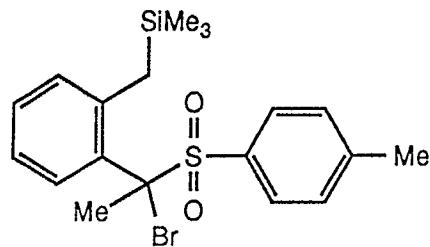
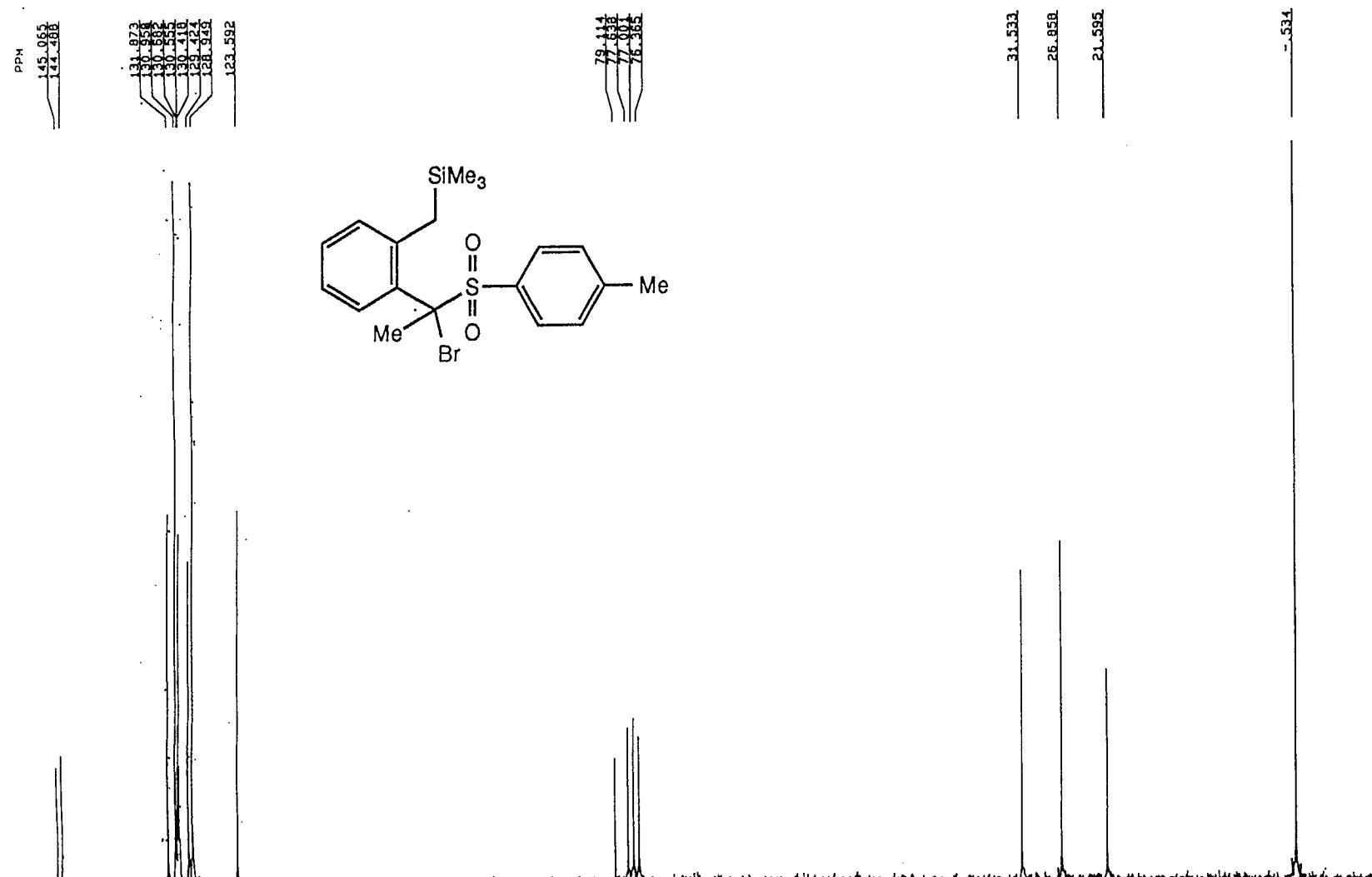


Figure 122. 63 MHz  $^{13}\text{C}$  NMR of Diethyl 1,2,3,4-Tetrahydro-1-(*p*-tolylsulfonyl)-2,3-naphthalenedicarboxylate (186).



200 MHz  $^1\text{H}$  NMR of  $[o\text{-}[1\text{-Bromo-1-(}p\text{-tolylsulfonyl})\text{ethyl}]benzyl]\text{trimethylsilane}$  (19g).

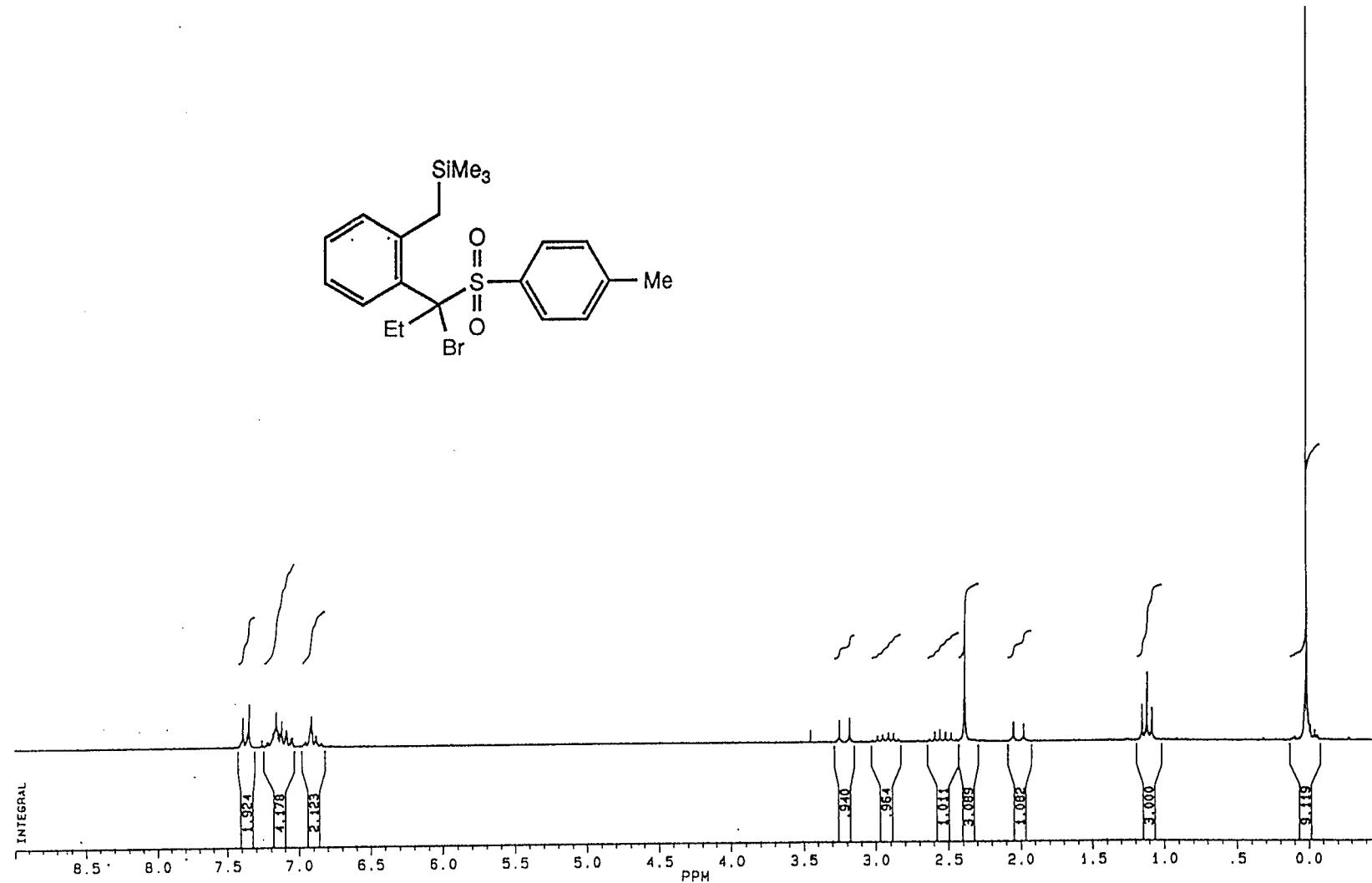
18



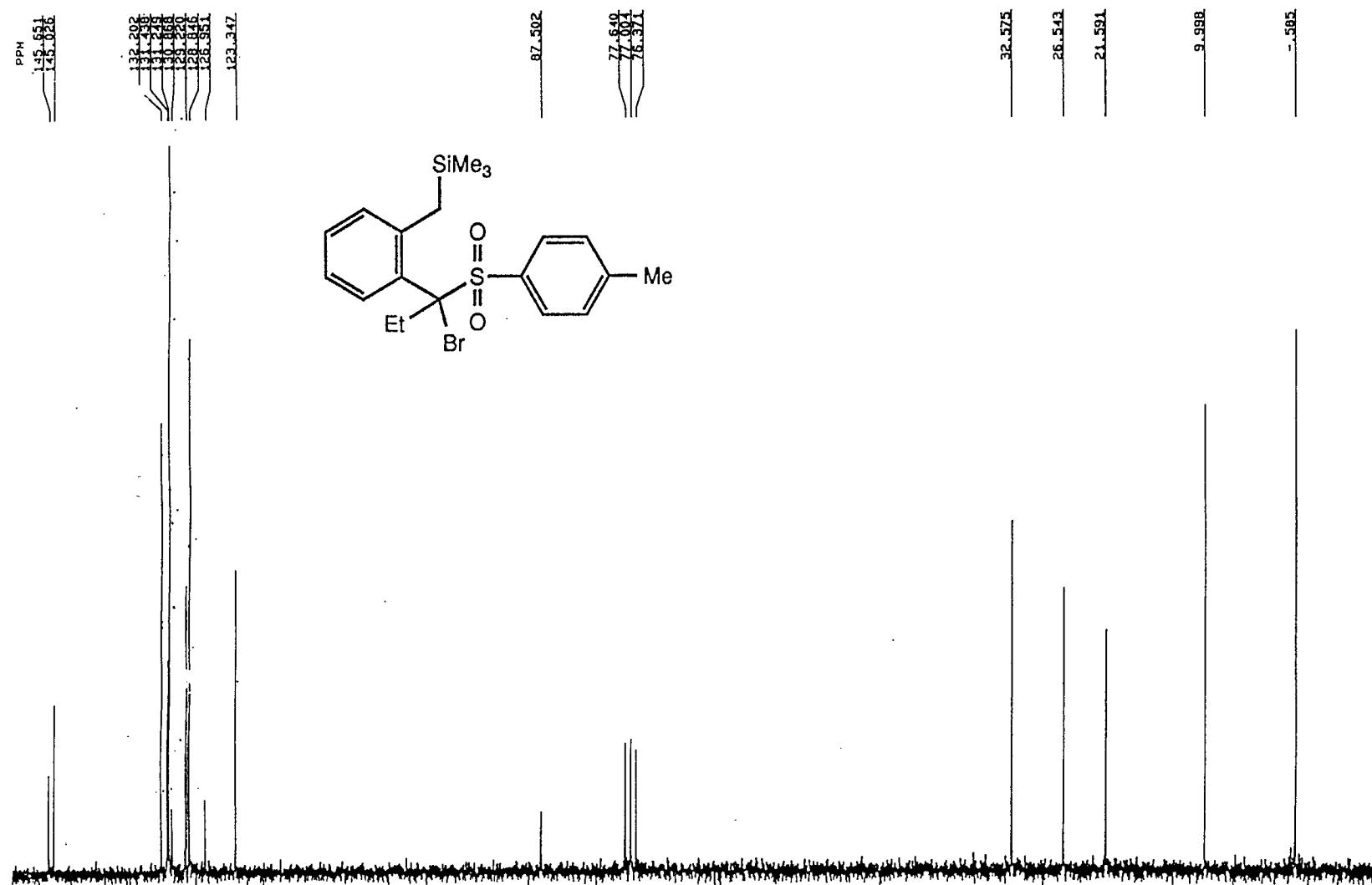
50 MHz  $^{13}\text{C}$  NMR of  $[o\text{-}[1\text{-Bromo-1-(}p\text{-tolylsulfonyl)}\text{ethyl}]benzyl]trimethylsilane$  (19a).

296

19



200 MHz  $^1\text{H}$  NMR of [*o*-(1-Bromo-1-(*p*-tolylsulfonyl)propyl]benzyl]trimethylsilane (19).

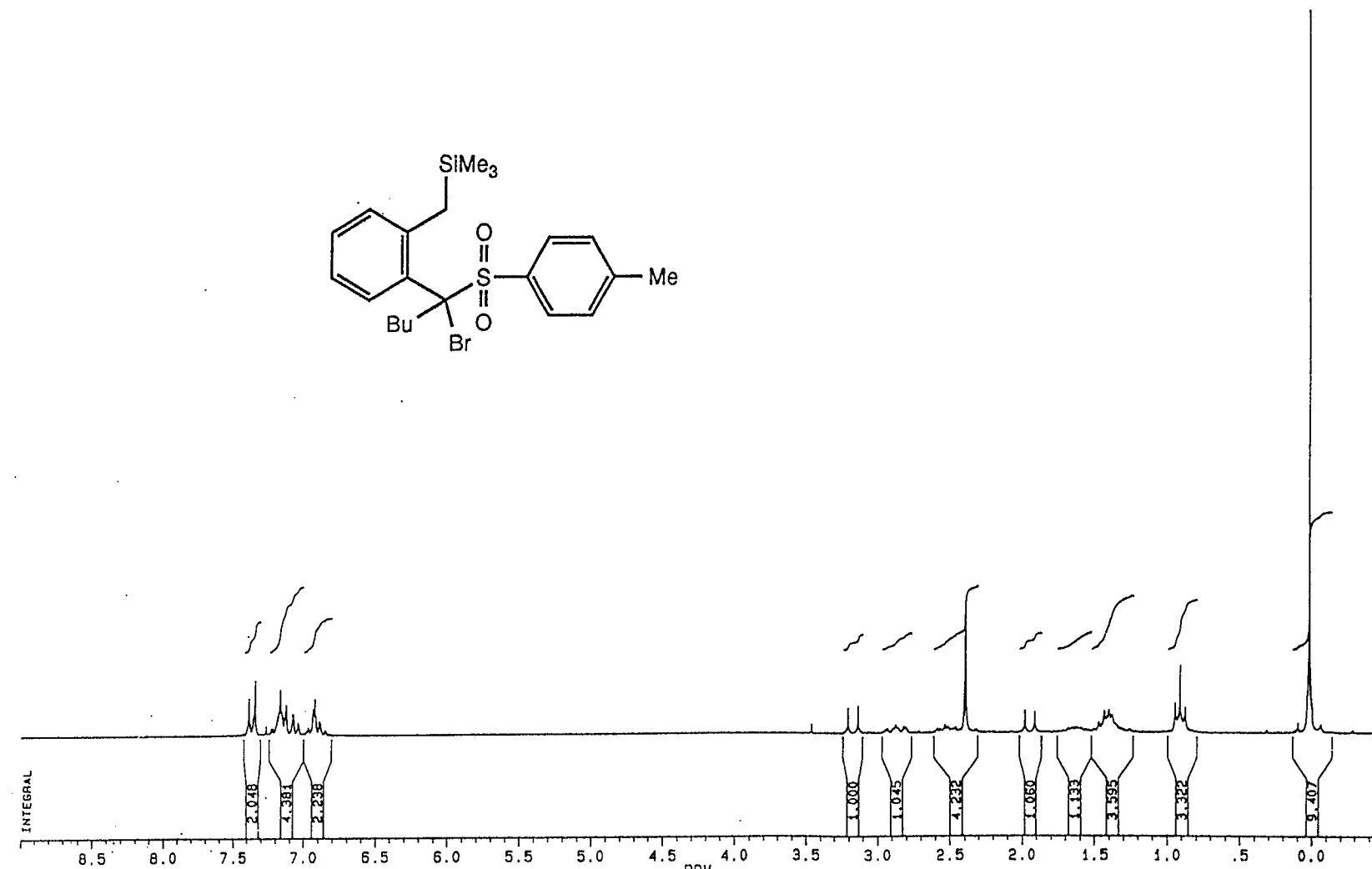


50 MHz  $^{13}\text{C}$  NMR of  $[o\text{-}[1\text{-Bromo-1-(}p\text{-tolylsulfonyl)}\text{propyl}]benzyl]trimethylsilane$  (19c).

298

20

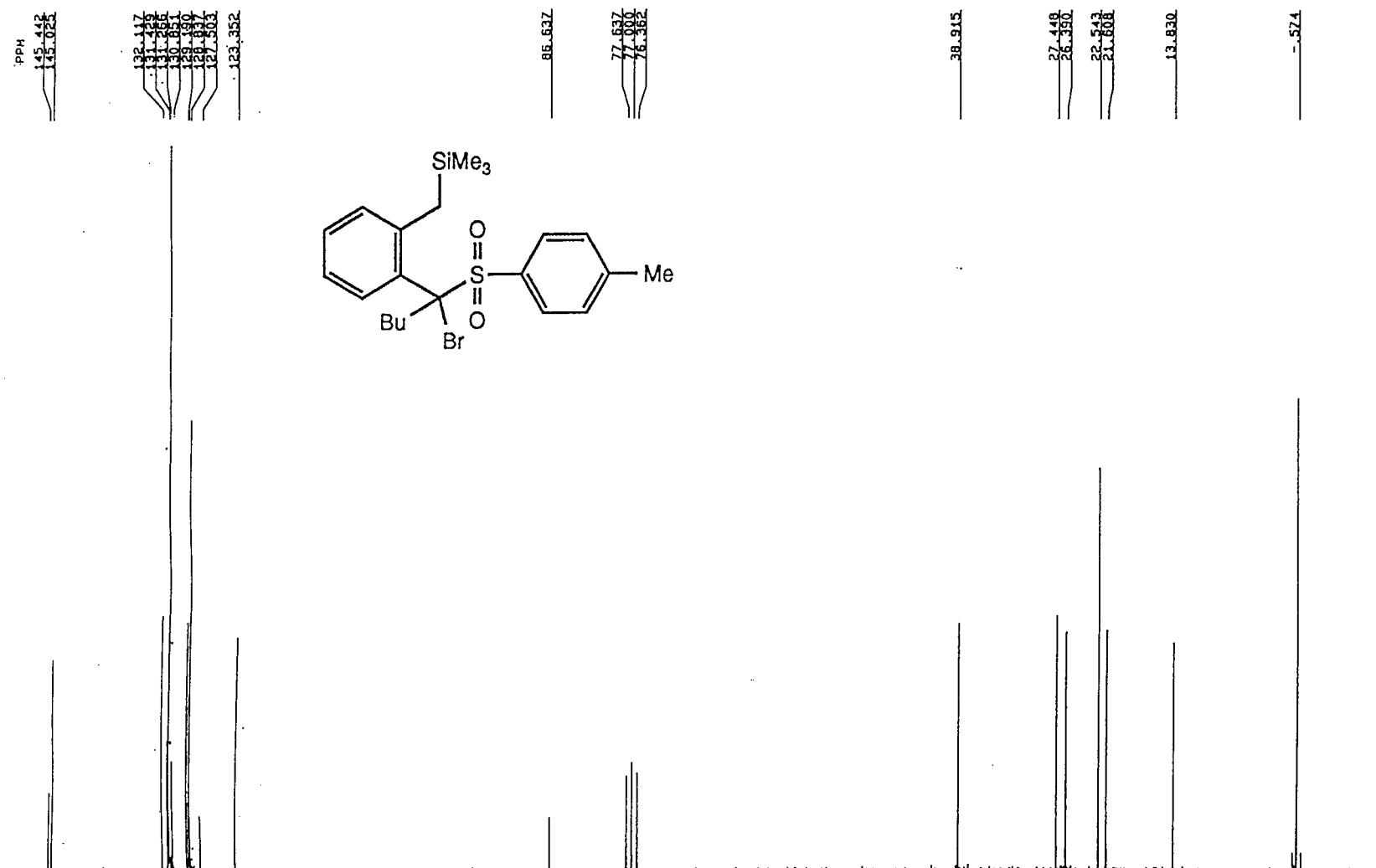
21



200 MHz  $^1\text{H}$  NMR of  $[o\text{-}[1\text{-Bromo-1-(}p\text{-tolylsulfonyl})\text{pentyl}]benzyltrimethylsilane (19c)$ .

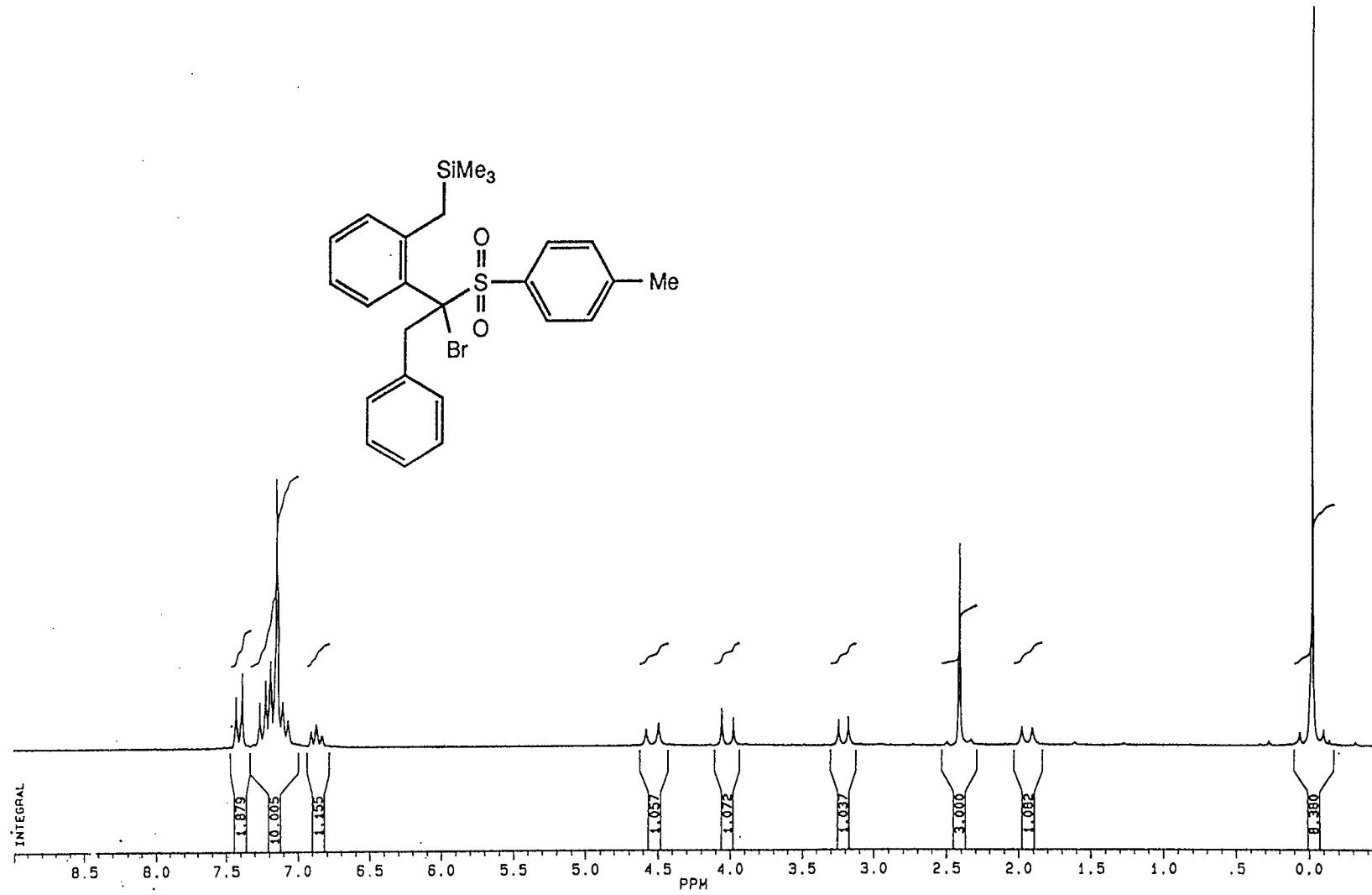
299

21



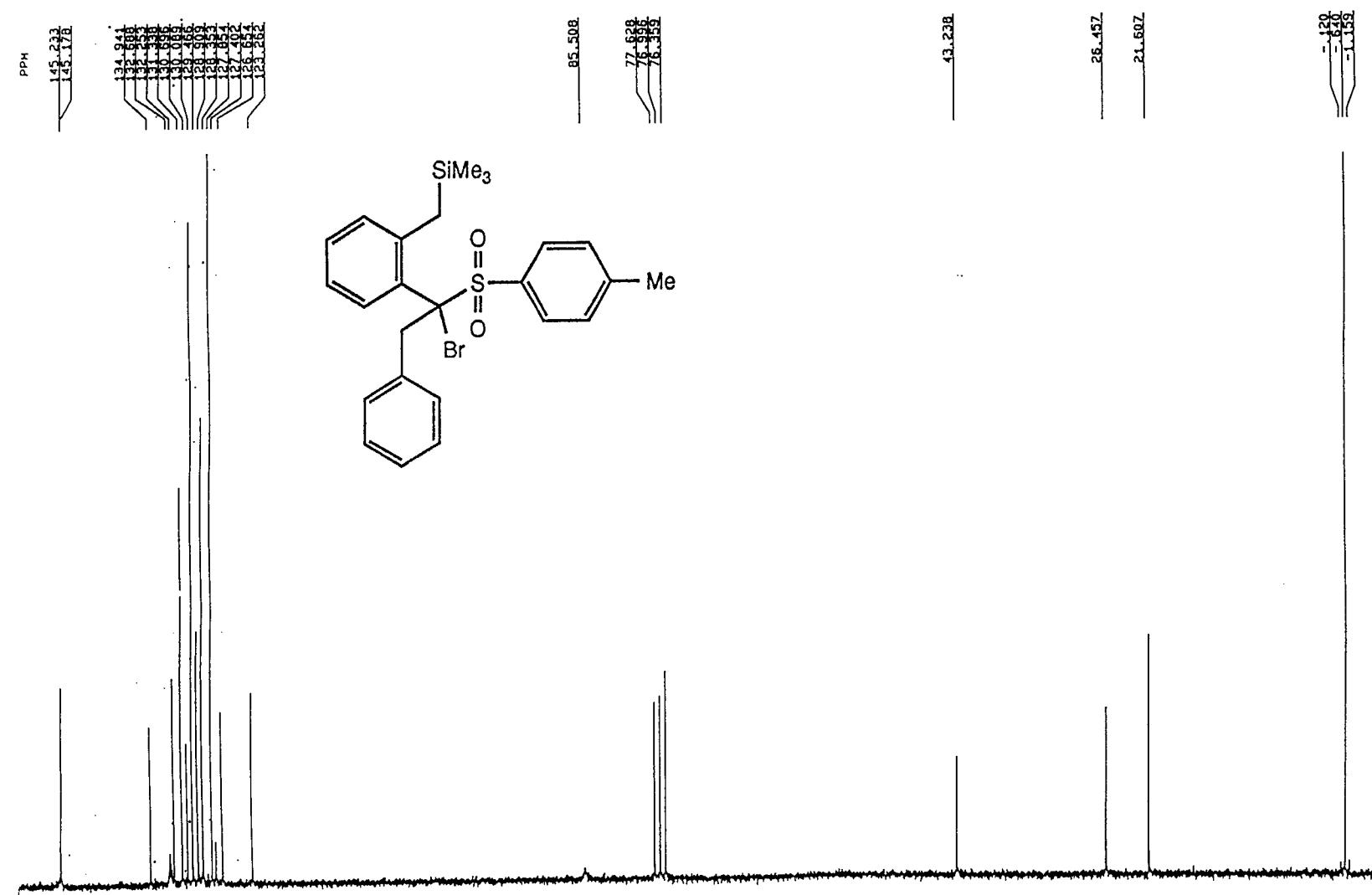
50 MHz  $^{13}\text{C}$  NMR of  $[o\text{-}(1\text{-Bromo-1-(}p\text{-tolylsulfonyl)pentyl}]benzyltrimethylsilane$  (19c).

300



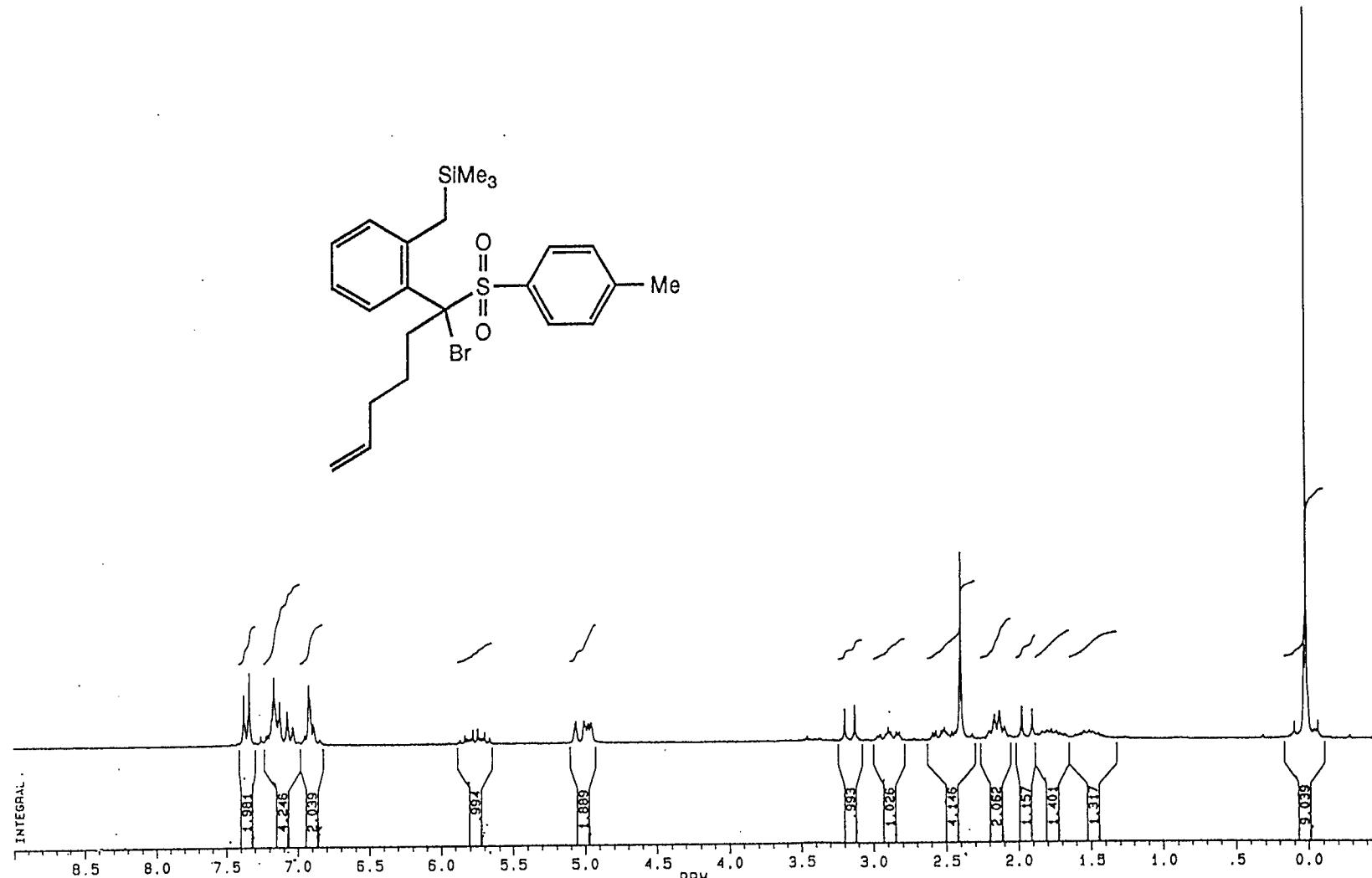
200 MHz  $^1\text{H}$  NMR of [ $\alpha$ -Bromo- $\alpha$ -(*p*-tolylsulfonyl)phenethyl]benzyl]trimethylsilane (**19d**). *~*

24



50 MHz  $^{13}\text{C}$  NMR of [ $\alpha$ -Bromo- $\alpha$ -(*p*-tolylsulfonyl)phenethyl]benzyltrimethylsilane (**19d**).

302

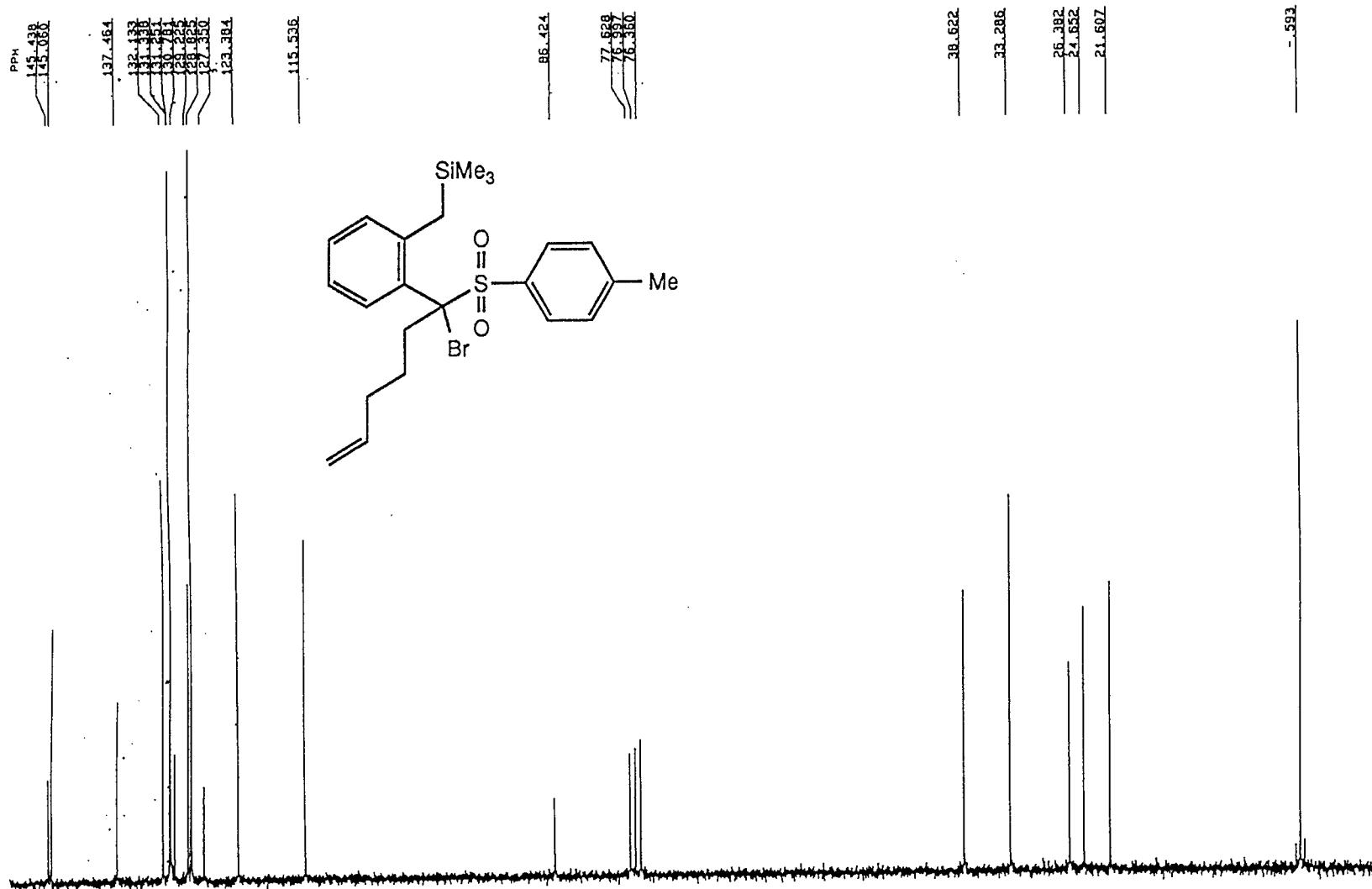


200 MHz  $^1\text{H}$  NMR of [*o*-[1-Bromo-1-(*p*-tolylsulfonyl)-5-hexenyl]benzyl]trimethylsilane (25).

303

25

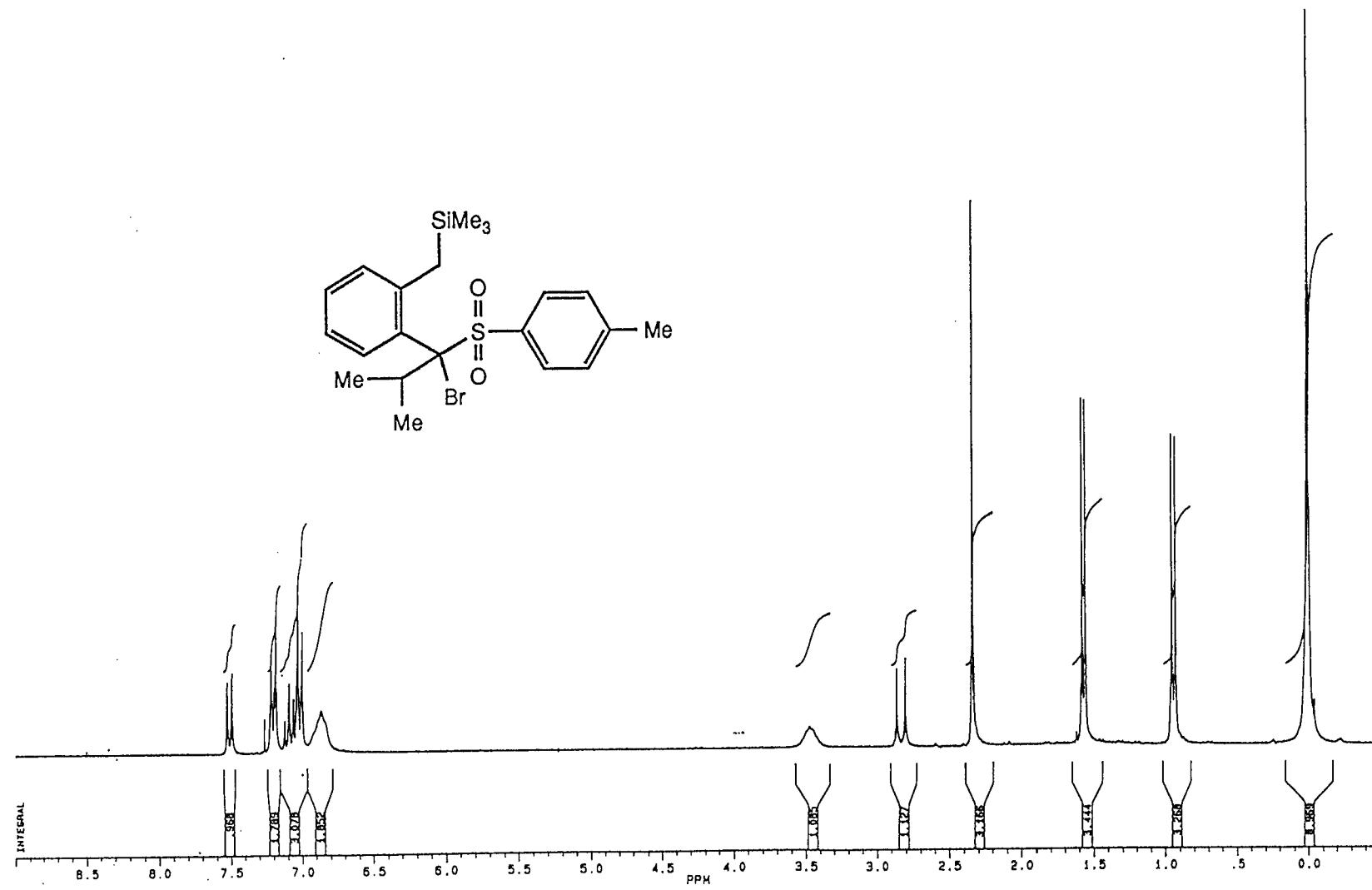
26



50 MHz  $^{13}\text{C}$  NMR of [*o*-[1-Bromo-1-(*p*-tolylsulfonyl)-5-hexenyl]benzyl]trimethylsilane ().

304

26



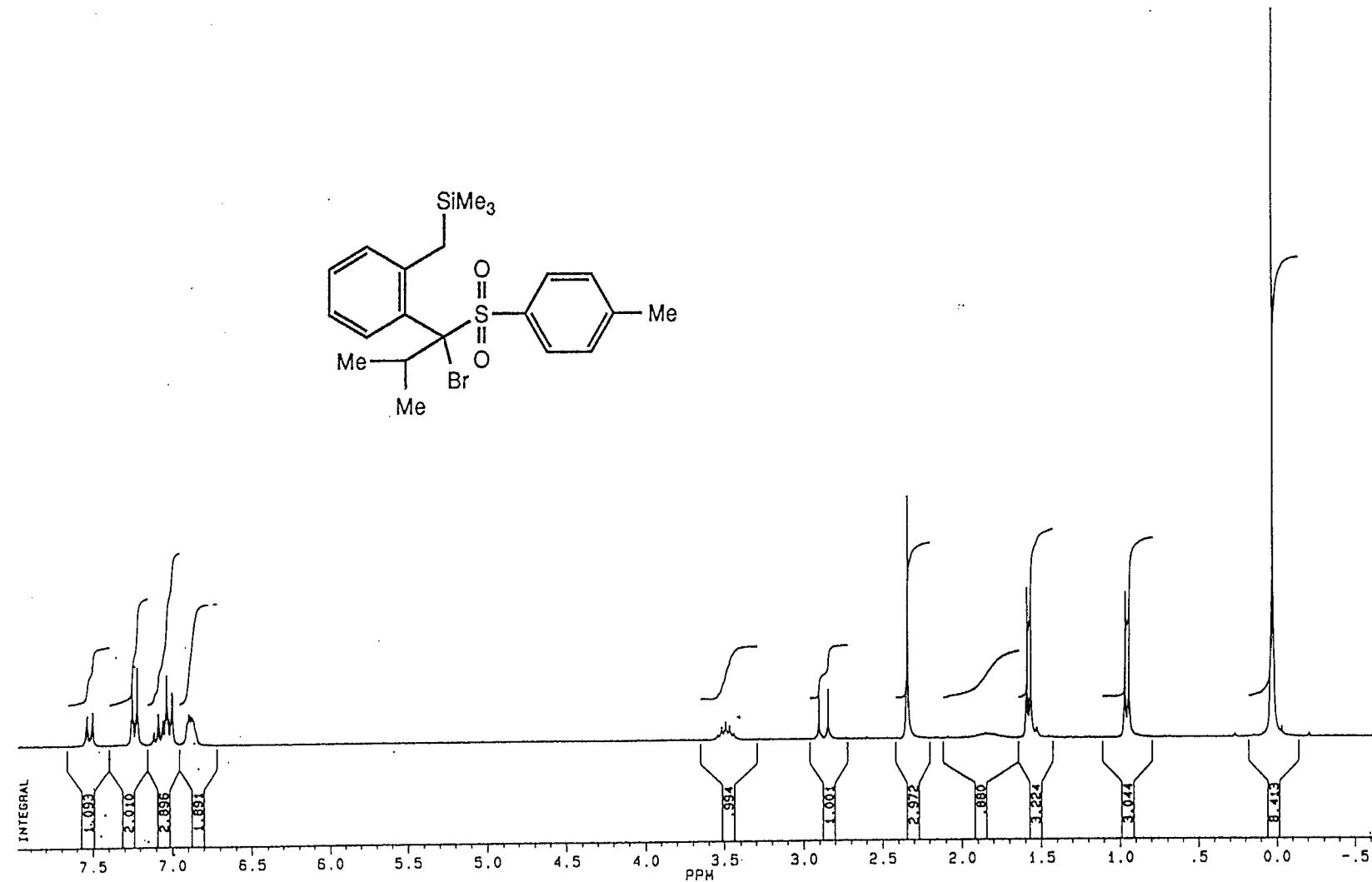
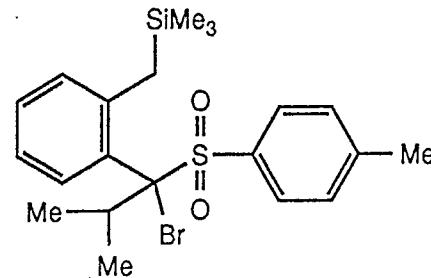
250 MHz  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 303 K) of  $[o\text{-}(1\text{-Bromo-2-methyl-1-(}p\text{-tolylsulfonyl)}\text{propyl)]benzyl}\text{trimethylsilane}$

(198)

305

27

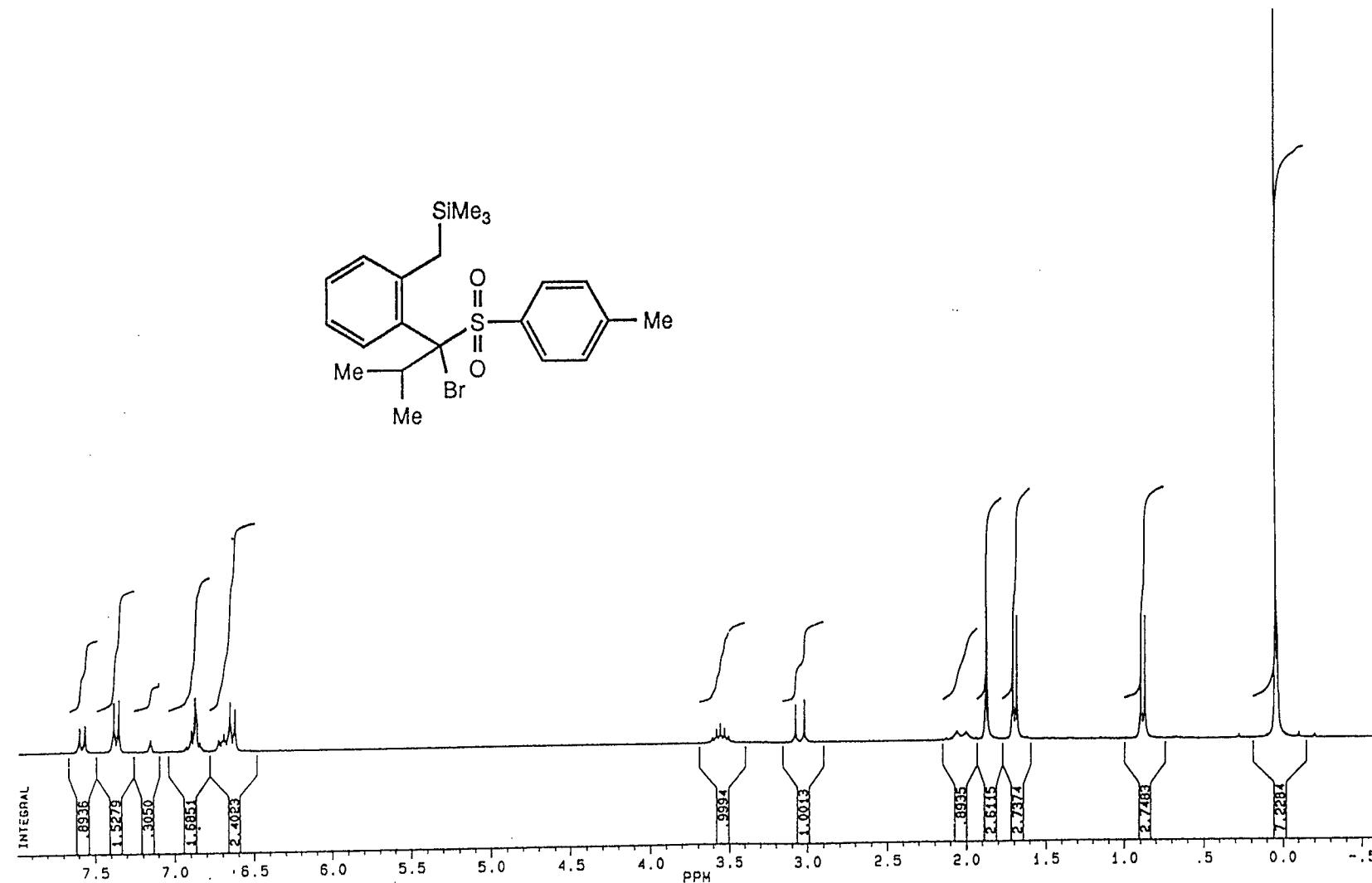
28



250 MHz  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 330 K) of [o-[1-Bromo-2-methyl-1-(p-tolylsulfonyl)propyl]benzyl]trimethylsilane

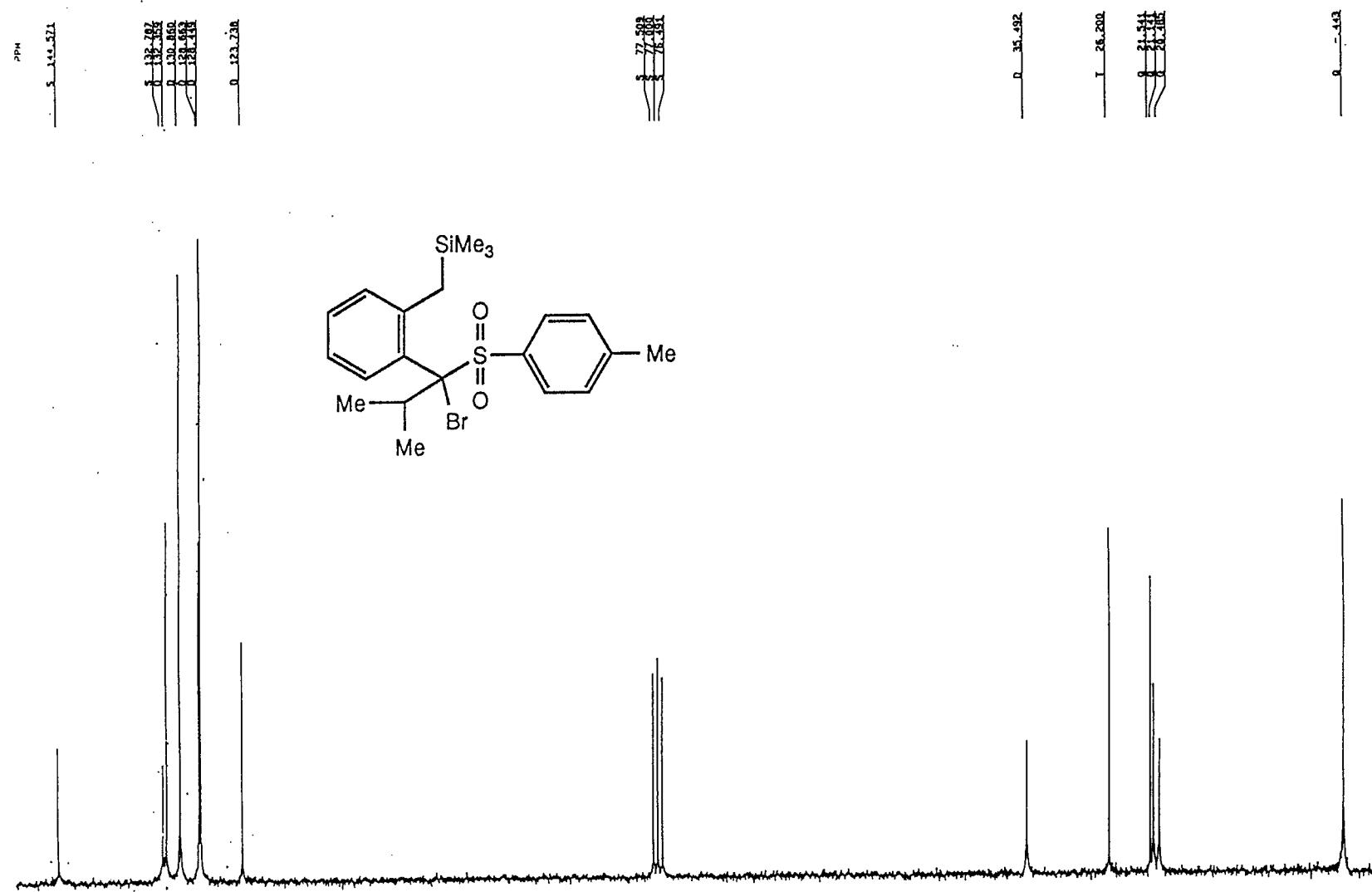
(18)

26



250 MHz  $^1\text{H}$  NMR ( $\text{C}_6\text{D}_6$ , 350 K) of [*o*-(1-Bromo-2-methyl-1-(*p*-tolylsulfonyl)propyl]benzyl]trimethylsilane

(106)



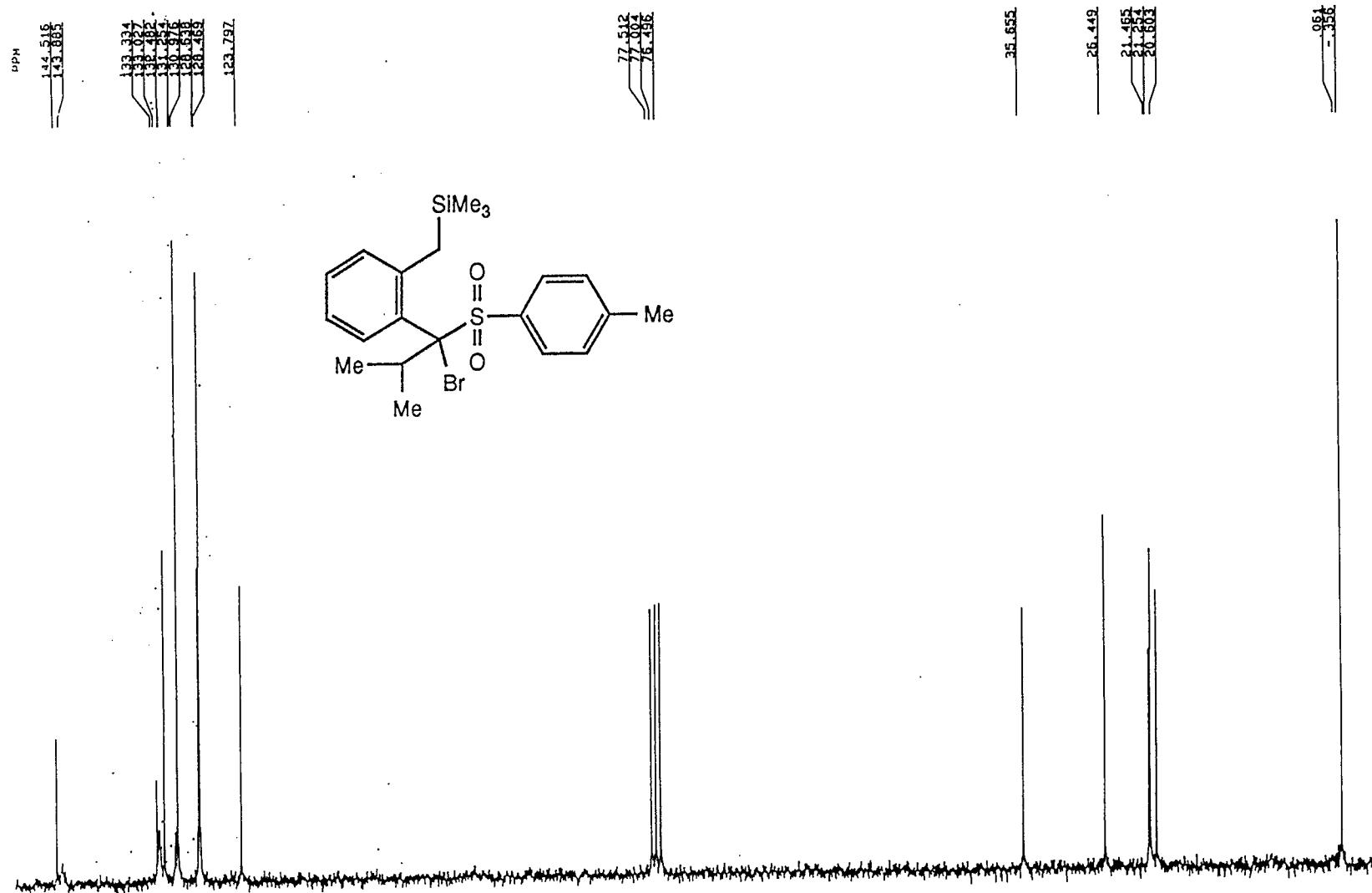
63 MHz  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 303 K) of [*o*-[1-Bromo-2-methyl-1-(*p*-tolylsulfonyl)propyl]benzyl]trimethylsilane

(138)

308

30

31

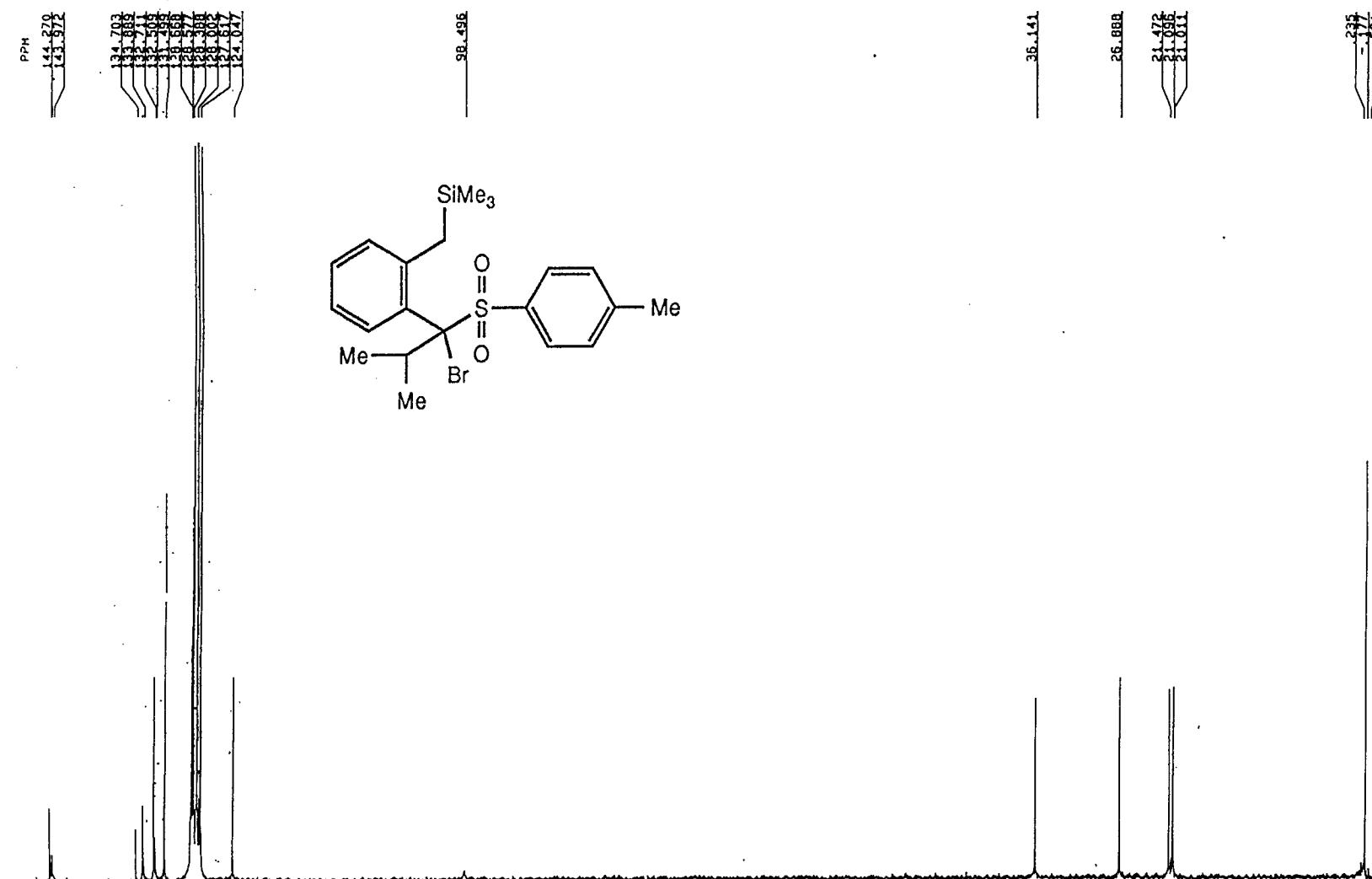


63 MHz <sup>13</sup>C NMR ( $\text{CDCl}_3$ , 330 K) of *[o*-[1-Bromo-2-methyl-1-(*p*-tolylsulfonyl)propyl]benzyl]trimethylsilane

(198)

603

31

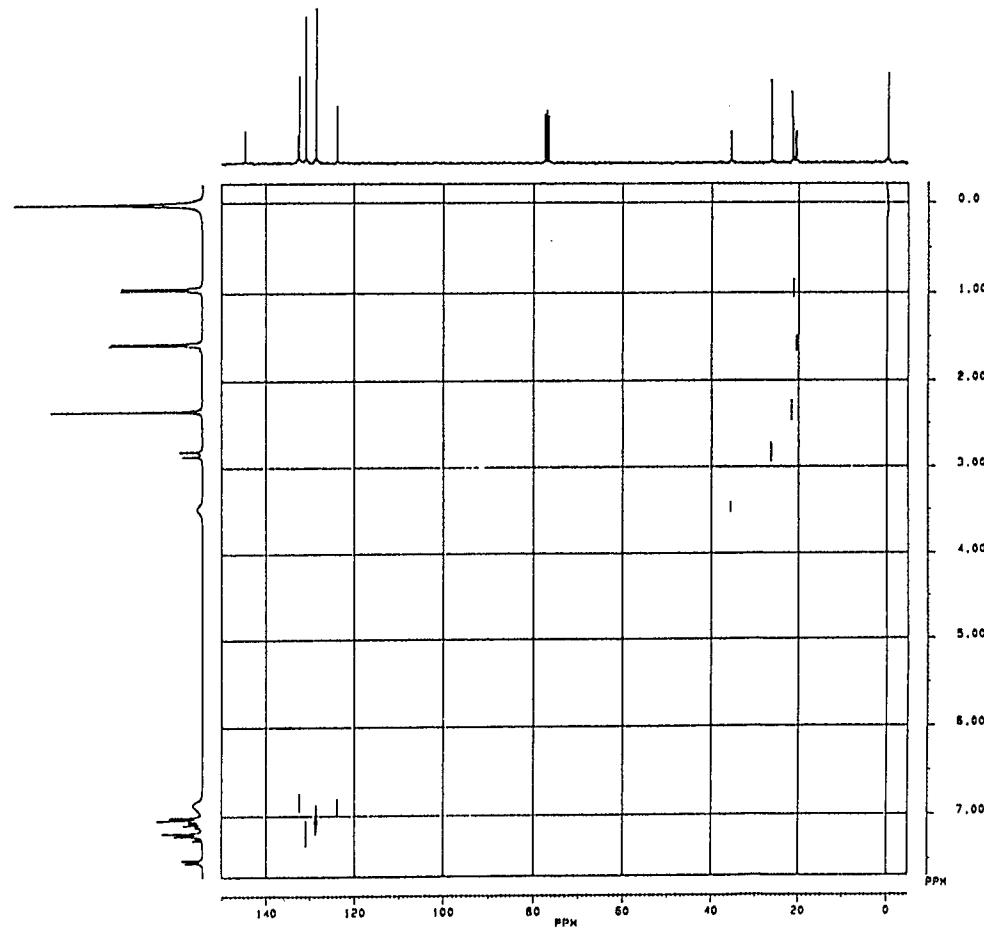
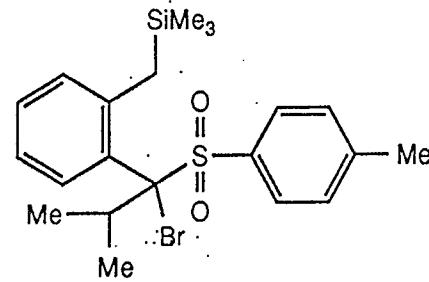


63 MHz  $^{13}\text{C}$  NMR ( $\text{C}_6\text{D}_6$ , 350 K) of  $[\text{o}-[\text{1-Bromo-2-methyl-1-(p-tolylsulfonyl)propyl}]\text{benzyl}]$ trimethylsilane

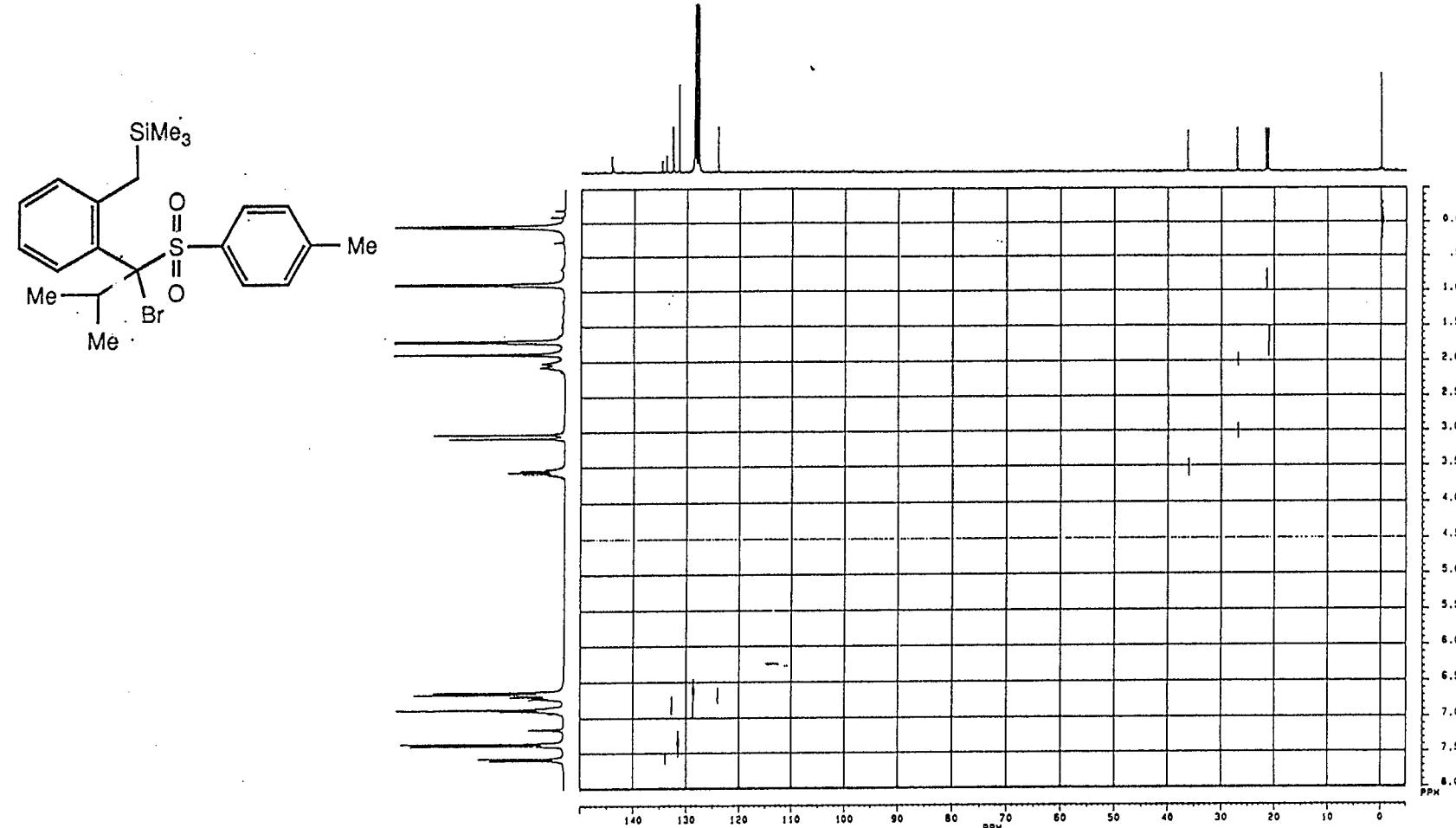
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310

32

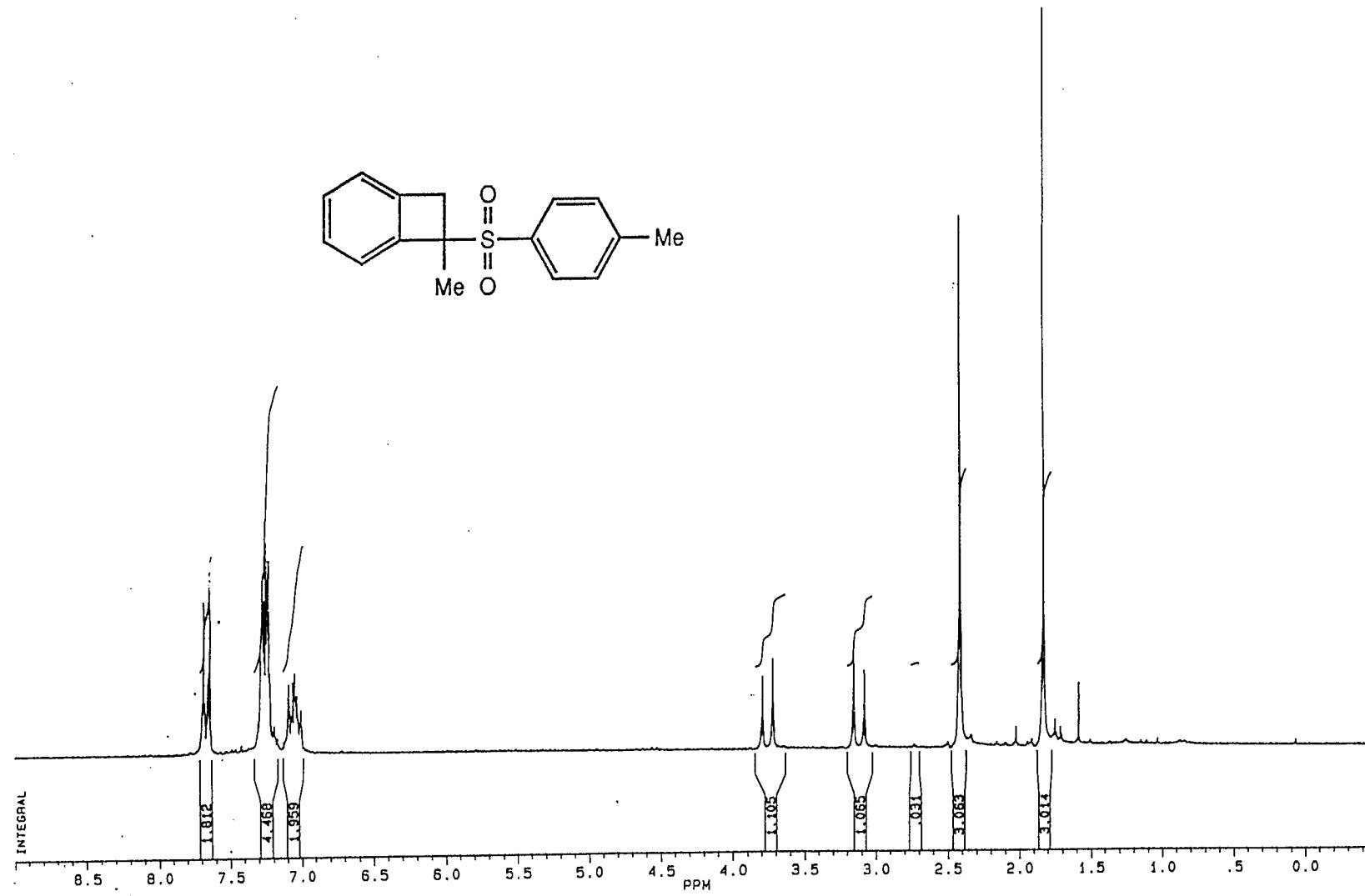


250 MHz  $^1\text{H}$ - $^{13}\text{C}$  NMR Correlation ( $\text{CDCl}_3$ , 303 K) of [*o*-[1-Bromo-2-methyl-1-(*p*-tolylsulfonyl)propyl]benzyl]-trimethylsilane (33).

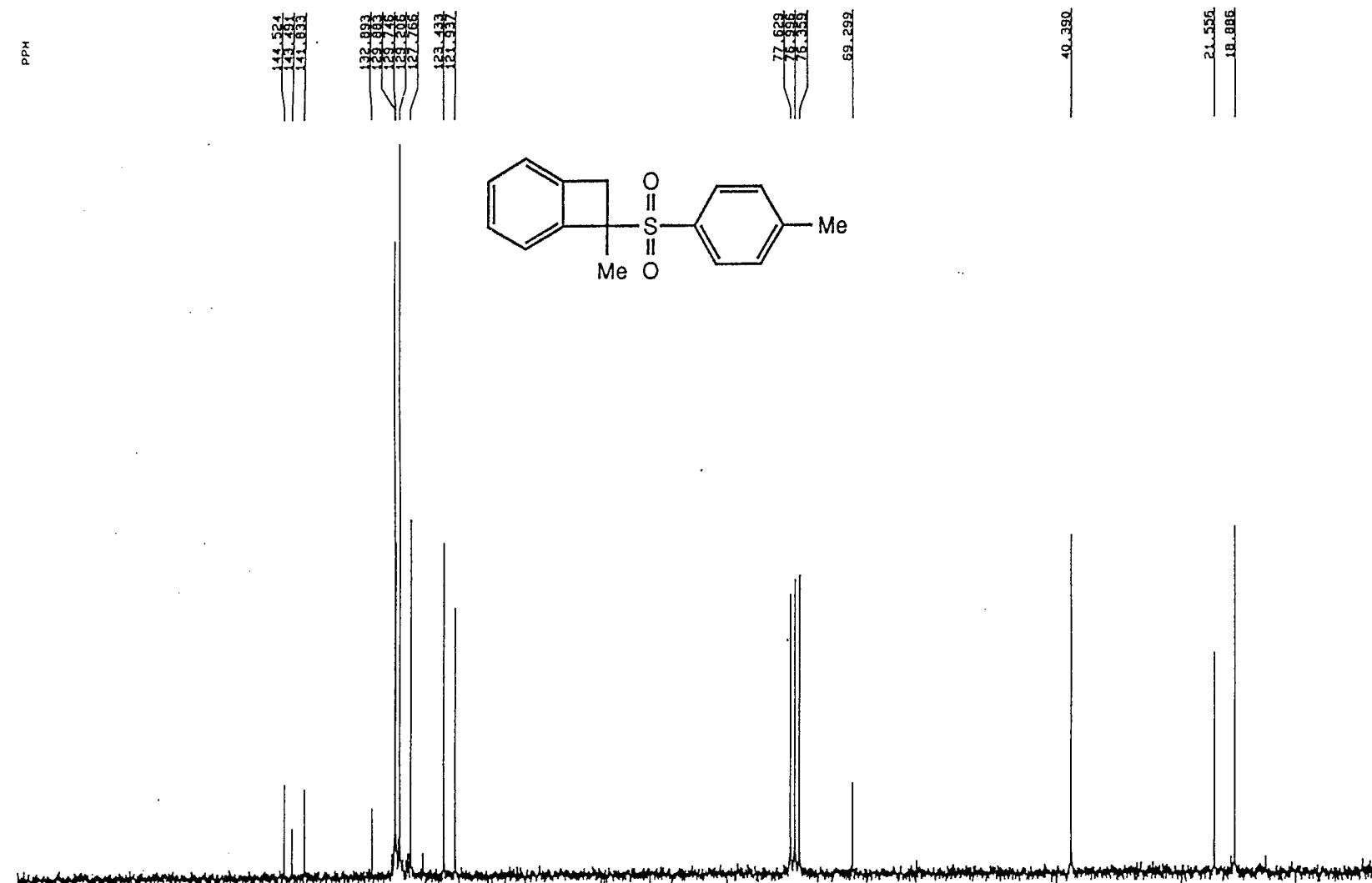


250 MHz  $^1\text{H}$ - $^{13}\text{C}$  NMR Correlation ( $\text{C}_6\text{D}_6$ , 350 K) of [*o*-[1-Bromo-2-methyl-1-(*p*-tolylsulfonyl)propyl]benzyl]-trimethylsilane (196).

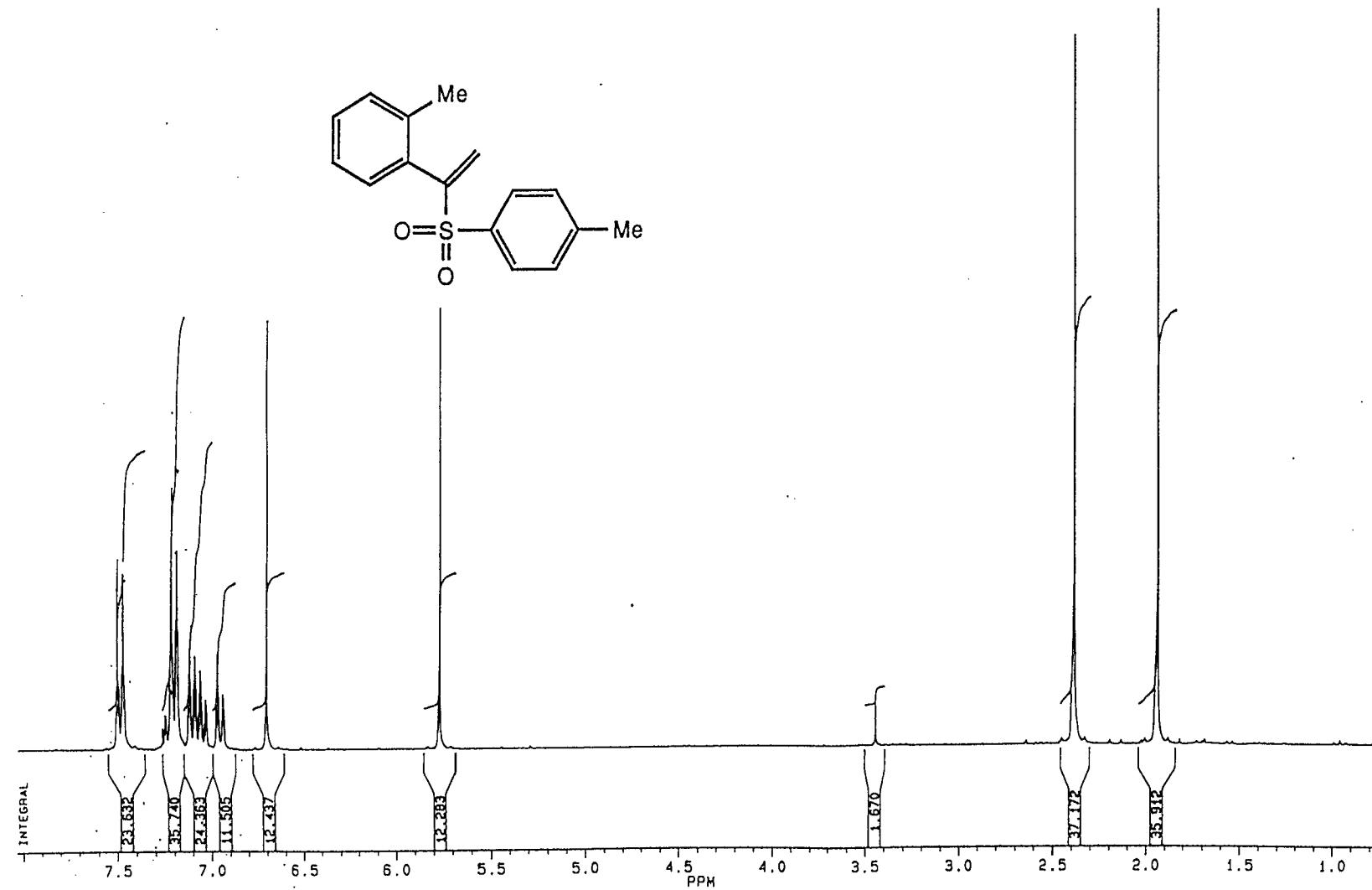
312



200 MHz  $^1\text{H}$  NMR of 7-Methyl-7-(*p*-tolylsulfonyl)bicyclo[4.2.0]octa-1,3,5-triene (2la). 35



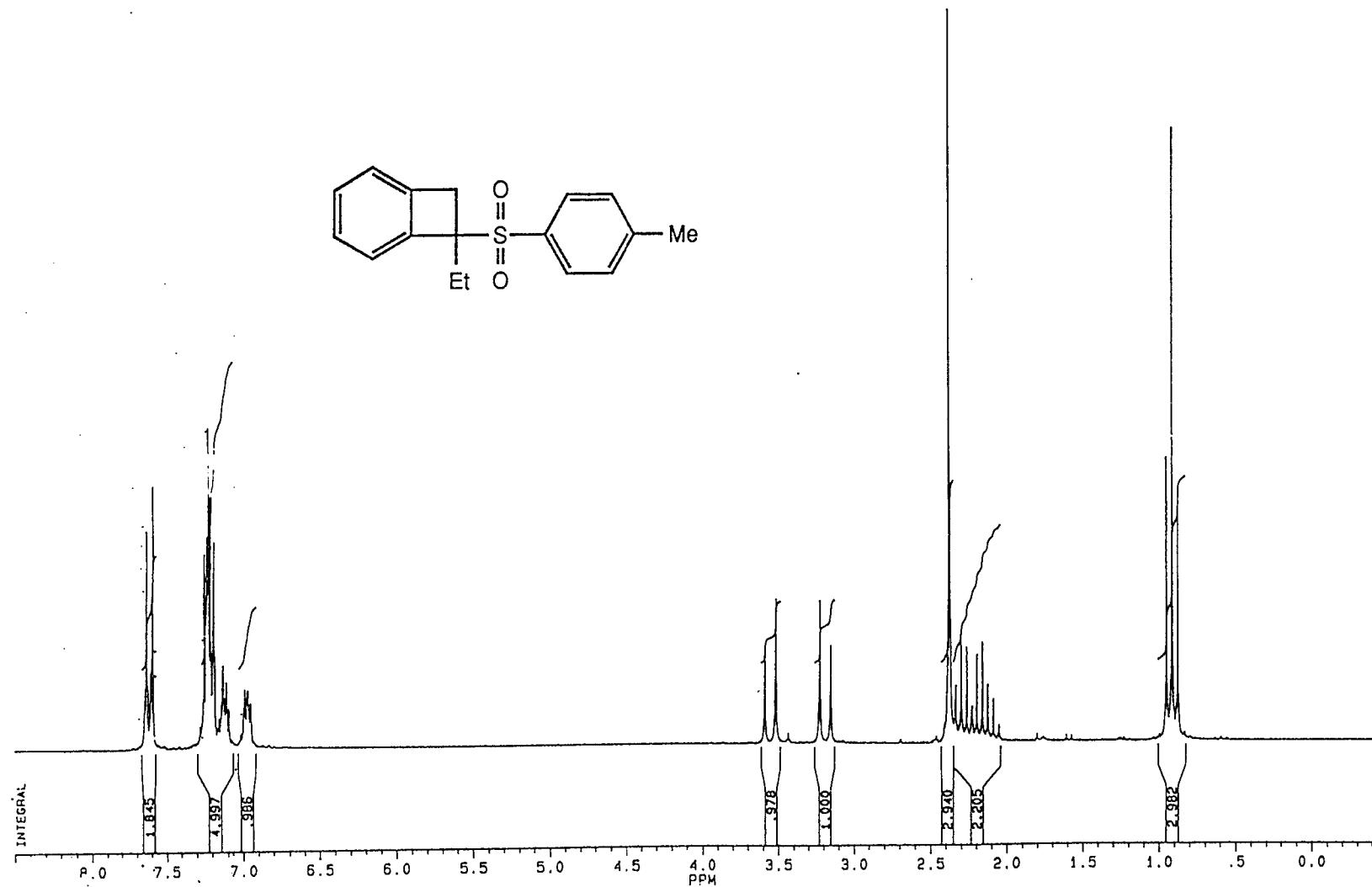
50 MHz  $^{13}\text{C}$  NMR of 7-Methyl-7-(*p*-tolylsulfonyl)bicyclo[4.2.0]octa-1,3,5-triene (**2a**).  $\sim$



250 MHz  $^1\text{H}$  NMR of *p*-Tolyl 1-*o*-Tolylvinyl Sulfone (**(23d)**).



63 MHz  $^{13}\text{C}$  NMR of *p*-Tolyl 1-*o*-Tolylvinyl Sulfone (**23a**).

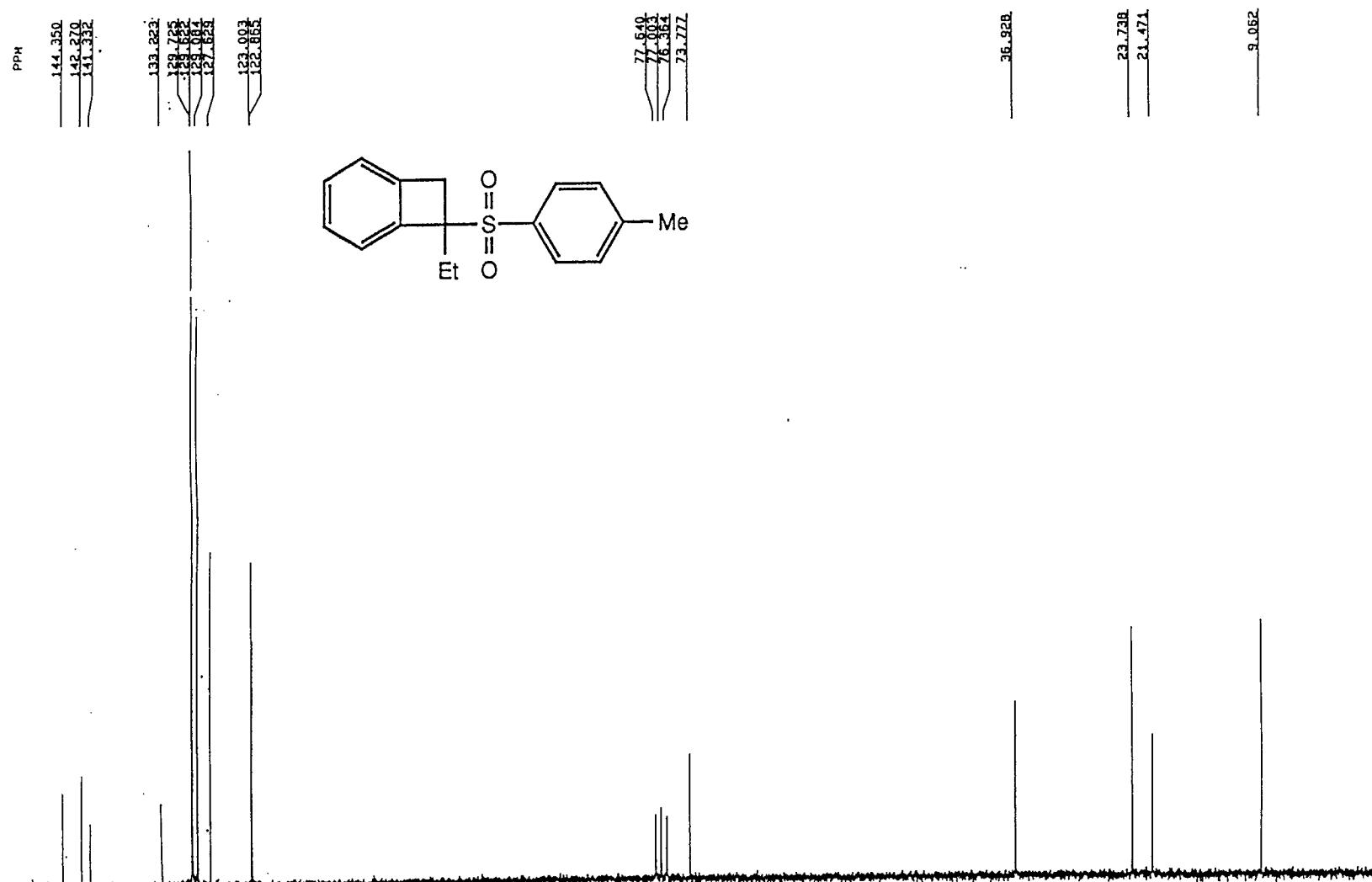


200 MHz  $^1\text{H}$  NMR of 7-Ethyl-7-(*p*-tolylsulfonyl)bicyclo[4.2.0]octa-1,3,5-triene (21f). 21f

40

40

320



50 MHz  $^{13}\text{C}$  NMR of 7-Ethyl-7-(*p*-tolylsulfonyl)bicyclo[4.2.0]octa-1,3,5-triene (21)

