

Supplementary Material

Lithium and Aluminium Complexes Supported by Chelating Phosphaguanidines

Natalie E. Mansfield, Martyn P. Coles* and Peter B. Hitchcock

The Department of Chemistry, University of Sussex, Falmer, Brighton BN1 9QJ, UK. Fax: 01273 677196; Tel: 01273 877339; email: m.p.coles@sussex.ac.uk

Page

2	Fig. 1a	^1H NMR spectrum of $\text{Li}(\text{Ph}_2\text{PC}\{\text{N}^i\text{Pr}\}_2(\text{THF})_n$ (2a) at 293 K
3	Fig. 1b	^{31}P NMR spectrum of $\text{Li}(\text{Ph}_2\text{PC}\{\text{N}^i\text{Pr}\}_2(\text{THF})_n$ (2a) at 223 K
4	Fig. 2a	^1H NMR spectrum of $\text{Li}(\text{Ph}_2\text{PC}\{\text{N}^i\text{Pr}\}_2(\text{TMEDA})$ (3a) at 368 K
5	Fig. 2b	^{31}P NMR spectra of $\text{Li}(\text{Ph}_2\text{PC}\{\text{N}^i\text{Pr}\}_2(\text{TMEDA})$ (3a) at 368 K and 183 K
6	Fig. 2c	^7Li NMR spectra of $\text{Li}(\text{Ph}_2\text{PC}\{\text{N}^i\text{Pr}\}_2(\text{TMEDA})$ (3a) at 368 K and 183 K
7	Fig 3a	^1H NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}\{\text{N}^i\text{Pr}\}_2)\text{Me}_2$ (4a)
8	Fig 3b	^{13}C NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}\{\text{N}^i\text{Pr}\}_2)\text{Me}_2$ (4a)
9	Fig 3c	^{31}P NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}\{\text{N}^i\text{Pr}\}_2)\text{Me}_2$ (4a)
10	Fig 4a	^1H NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}\{\text{NCy}\}_2)\text{Me}_2$ (4b)
11	Fig 4b	^{13}C NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}\{\text{NCy}\}_2)\text{Me}_2$ (4b)
12	Fig 4c	^{31}P NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}\{\text{NCy}\}_2)\text{Me}_2$ (4b)
13	Fig 5a	^1H NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}\{\text{N}^i\text{Pr}\}_2)\text{Et}_2$ (5a)
14	Fig 5b	^{13}C NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}\{\text{N}^i\text{Pr}\}_2)\text{Et}_2$ (5a)
15	Fig 5c	^{31}P NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}\{\text{N}^i\text{Pr}\}_2)\text{Et}_2$ (5a)
16	Fig 6a	^1H NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}\{\text{NCy}\}_2)\text{Et}_2$ (5b)
17	Fig 6b	^{13}C NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}\{\text{NCy}\}_2)\text{Et}_2$ (5b)
18	Fig 6c	^{31}P NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}\{\text{NCy}\}_2)\text{Et}_2$ (5b)
19	Fig 7a	^1H NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}\{\text{N}^i\text{Pr}\}_2)^i\text{Bu}_2$ (6a)
20	Fig 7b	^{13}C NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}\{\text{N}^i\text{Pr}\}_2)^i\text{Bu}_2$ (6a)
21	Fig 7c	^{31}P NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}\{\text{N}^i\text{Pr}\}_2)^i\text{Bu}_2$ (6a)
22	Fig 8a	^1H NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}\{\text{NCy}\}_2)^i\text{Bu}_2$ (6b)
23	Fig 8b	^{13}C NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}\{\text{NCy}\}_2)^i\text{Bu}_2$ (6b)
24	Fig 8c	^{31}P NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}\{\text{NCy}\}_2)^i\text{Bu}_2$ (6b)
25	Fig 9a	^1H NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}\{\text{N}^i\text{Pr}\}_2)\text{Ph}_2$ (7a)
26	Fig 9b	^{13}C NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}\{\text{N}^i\text{Pr}\}_2)\text{Ph}_2$ (7a)
27	Fig 9c	^{31}P NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}\{\text{N}^i\text{Pr}\}_2)\text{Ph}_2$ (7a)

Figure 1a ^1H NMR spectrum of $\text{Li}(\text{Ph}_2\text{PC}\{\text{N}^i\text{Pr}\}_2(\text{THF})_n$ (**2a**) at 293 K

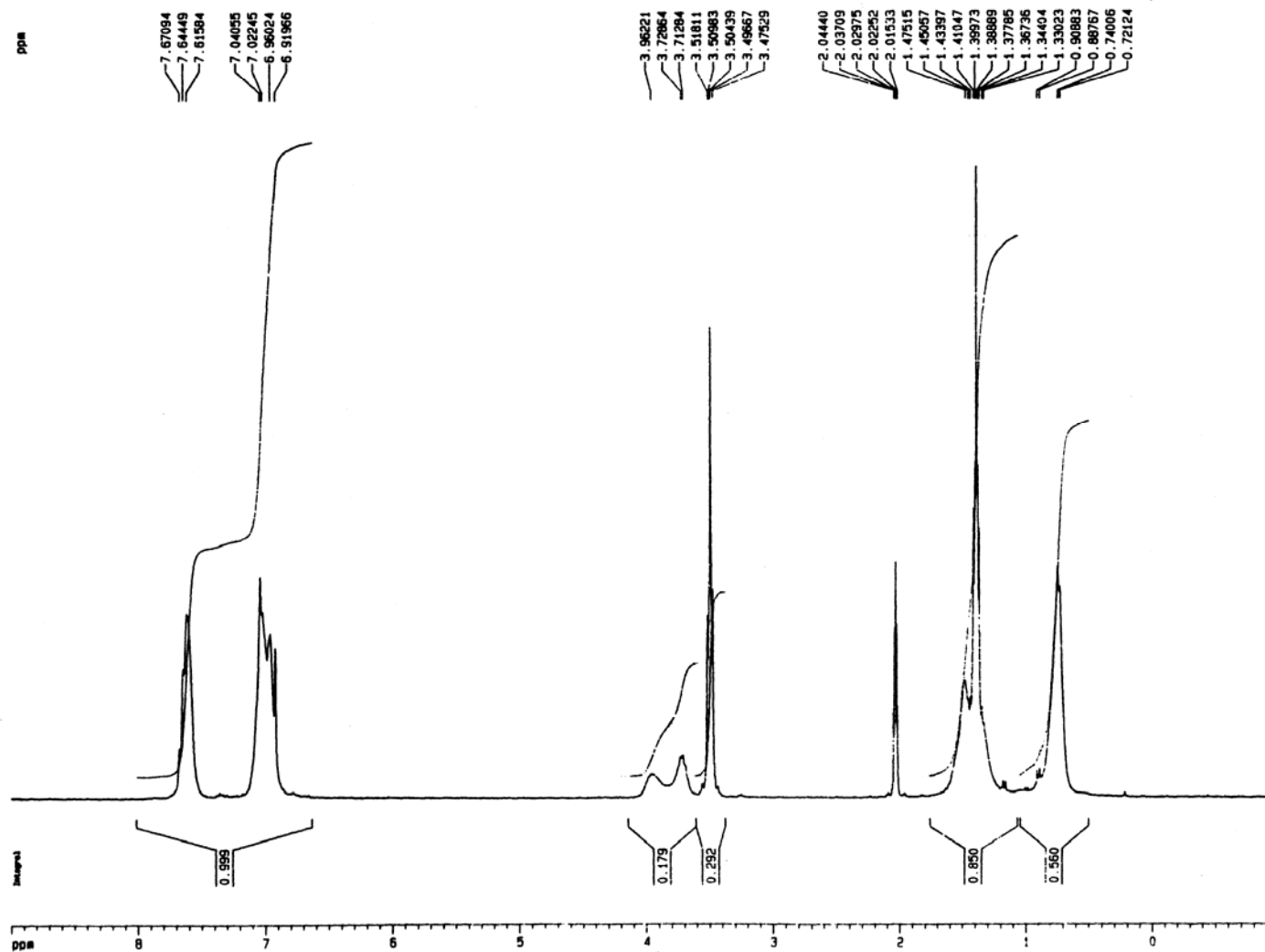


Figure 1b ^{31}P NMR spectrum of $\text{Li}(\text{Ph}_2\text{PC}\{\text{N}^i\text{Pr}\}_2)(\text{THF})_n$ (**2a**) at 223 K

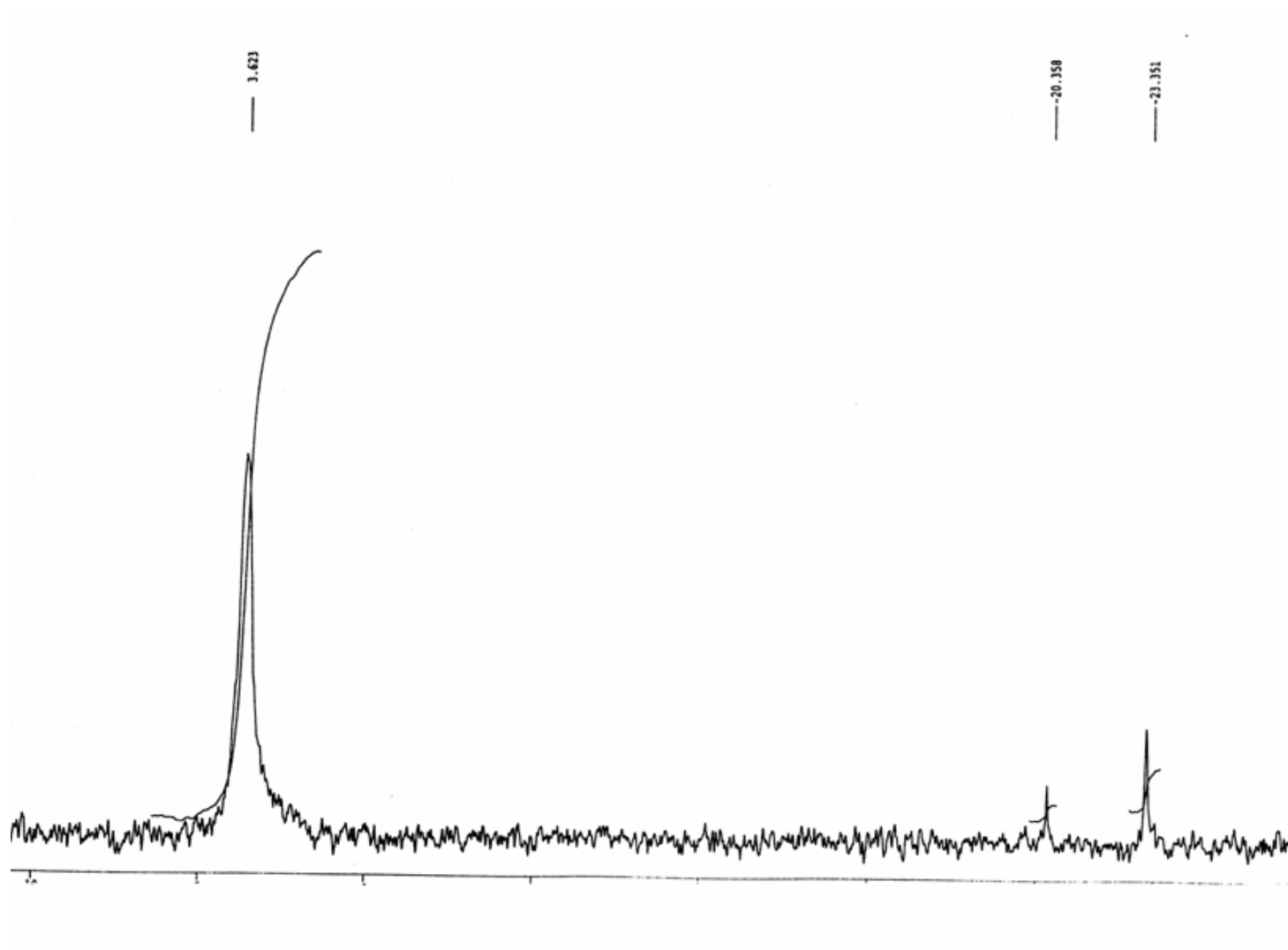


Figure 2a ^1H NMR spectrum of $\text{Li}(\text{Ph}_2\text{PC}\{\text{N}^i\text{Pr}\}_2)(\text{TMEDA})$ (**3a**) at 368 K

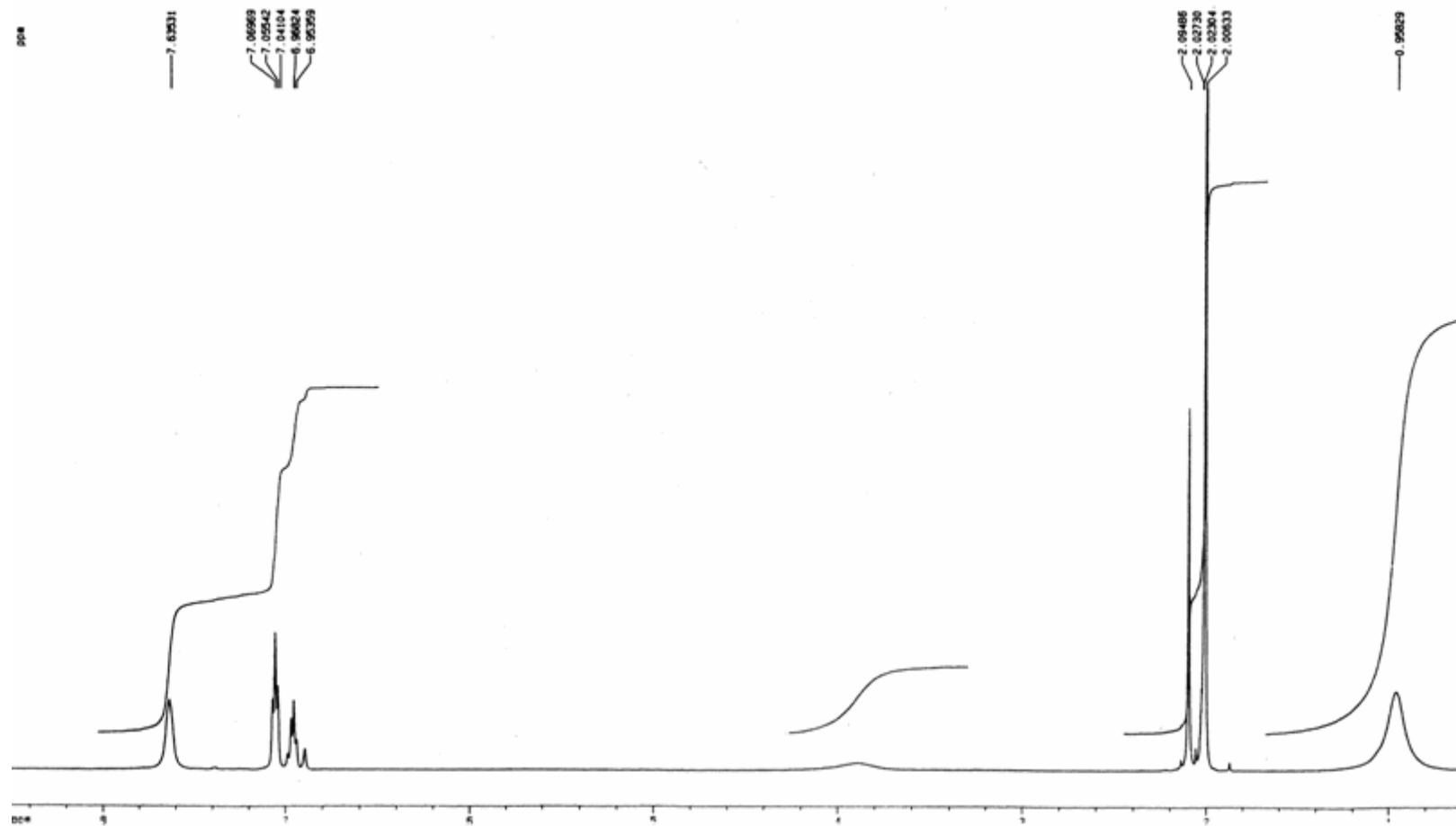


Figure 2b ^{31}P NMR spectrum of $\text{Li}(\text{Ph}_2\text{PC}\{\text{N}^i\text{Pr}\}_2(\text{TMEDA}))$ (**3a**) at 368 K and 183 K.

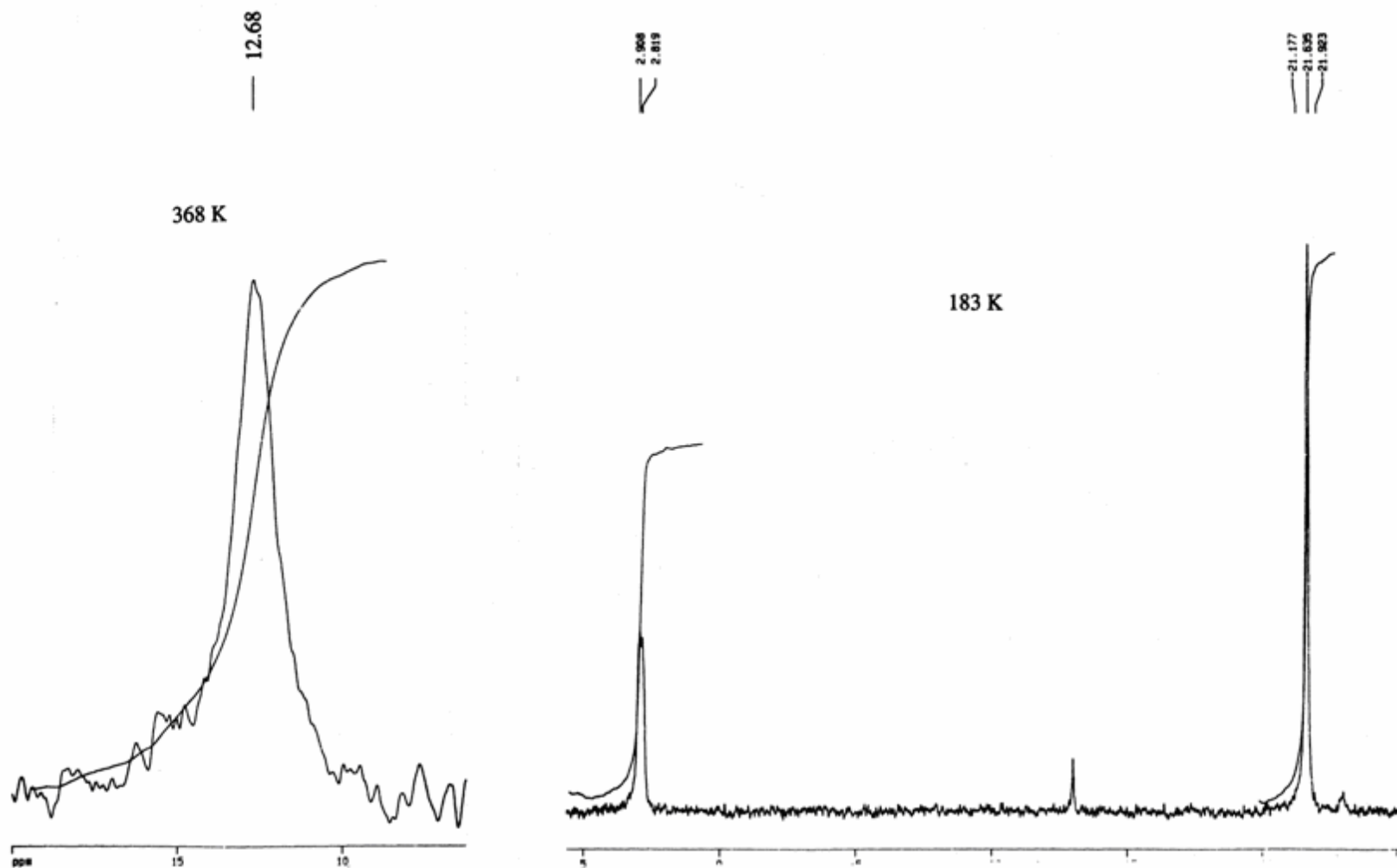


Figure 2c ^7Li NMR spectrum of $\text{Li}(\text{Ph}_2\text{PC}\{\text{N}^i\text{Pr}\}_2(\text{TMEDA}))$ (**3a**) at 368 K and 183 K.

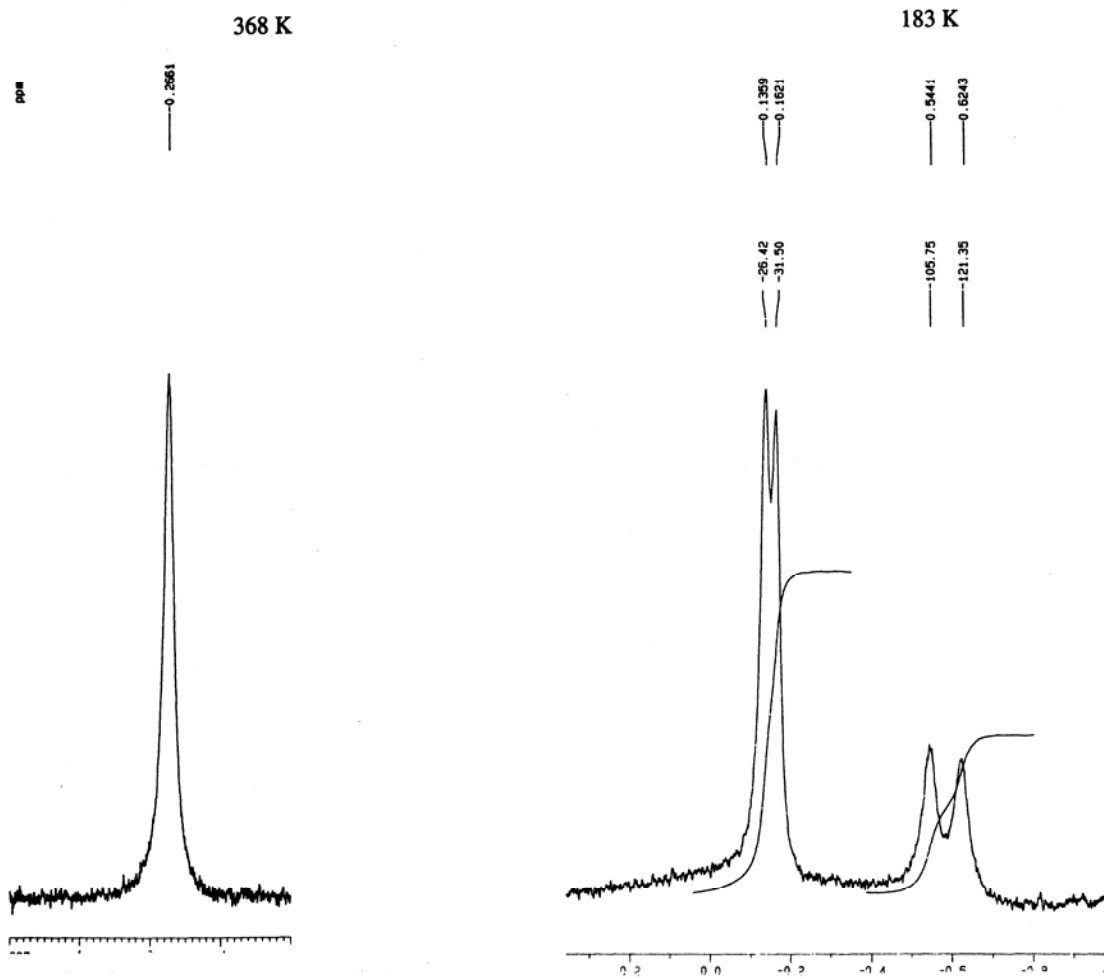


Figure 3a ^1H NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}\{\text{N}^i\text{Pr}\}_2)\text{Me}_2$ (**4a**)

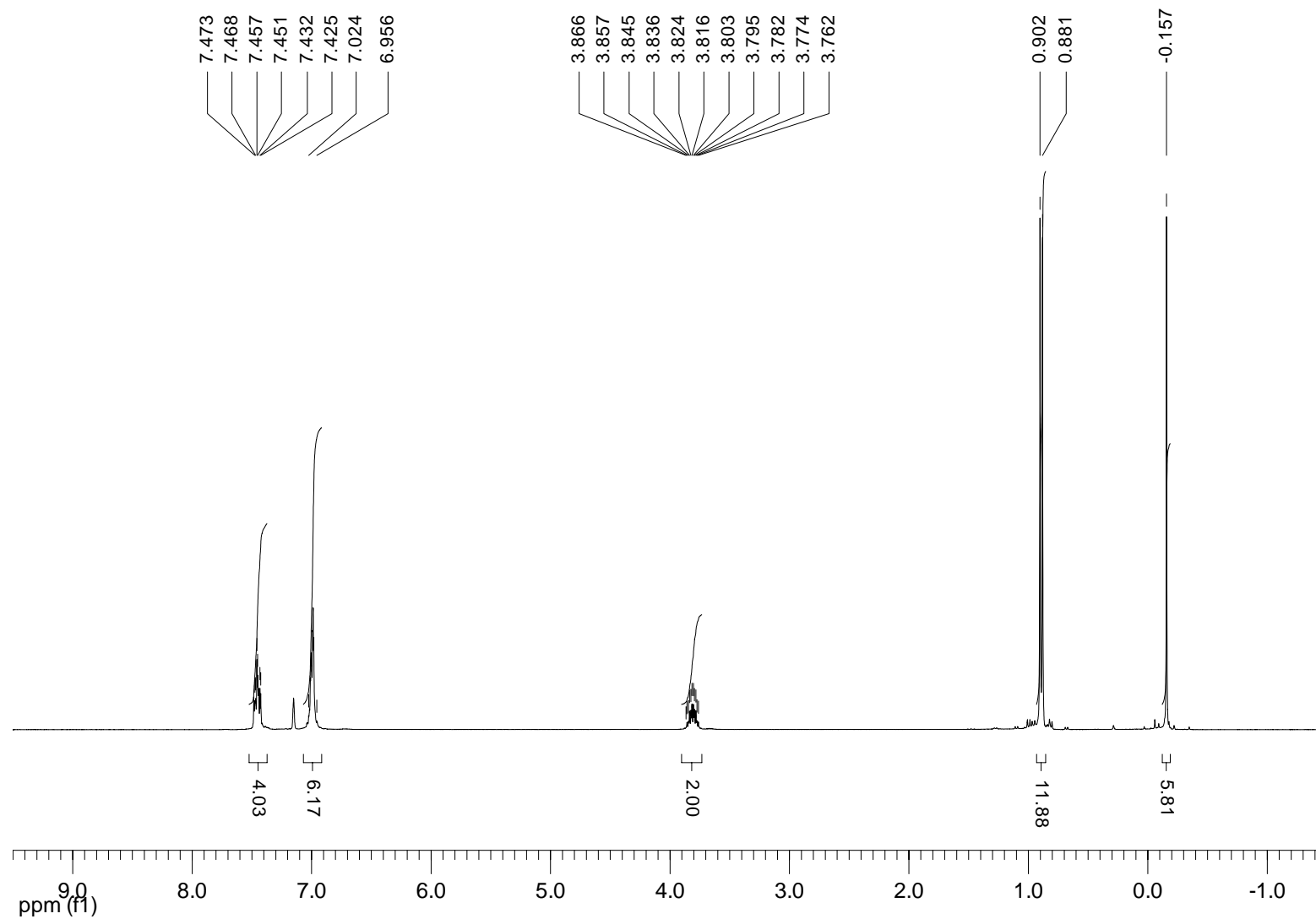


Figure 3b ^{13}C NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}\{\text{N}^i\text{Pr}\}_2)\text{Me}_2$ (**4a**)

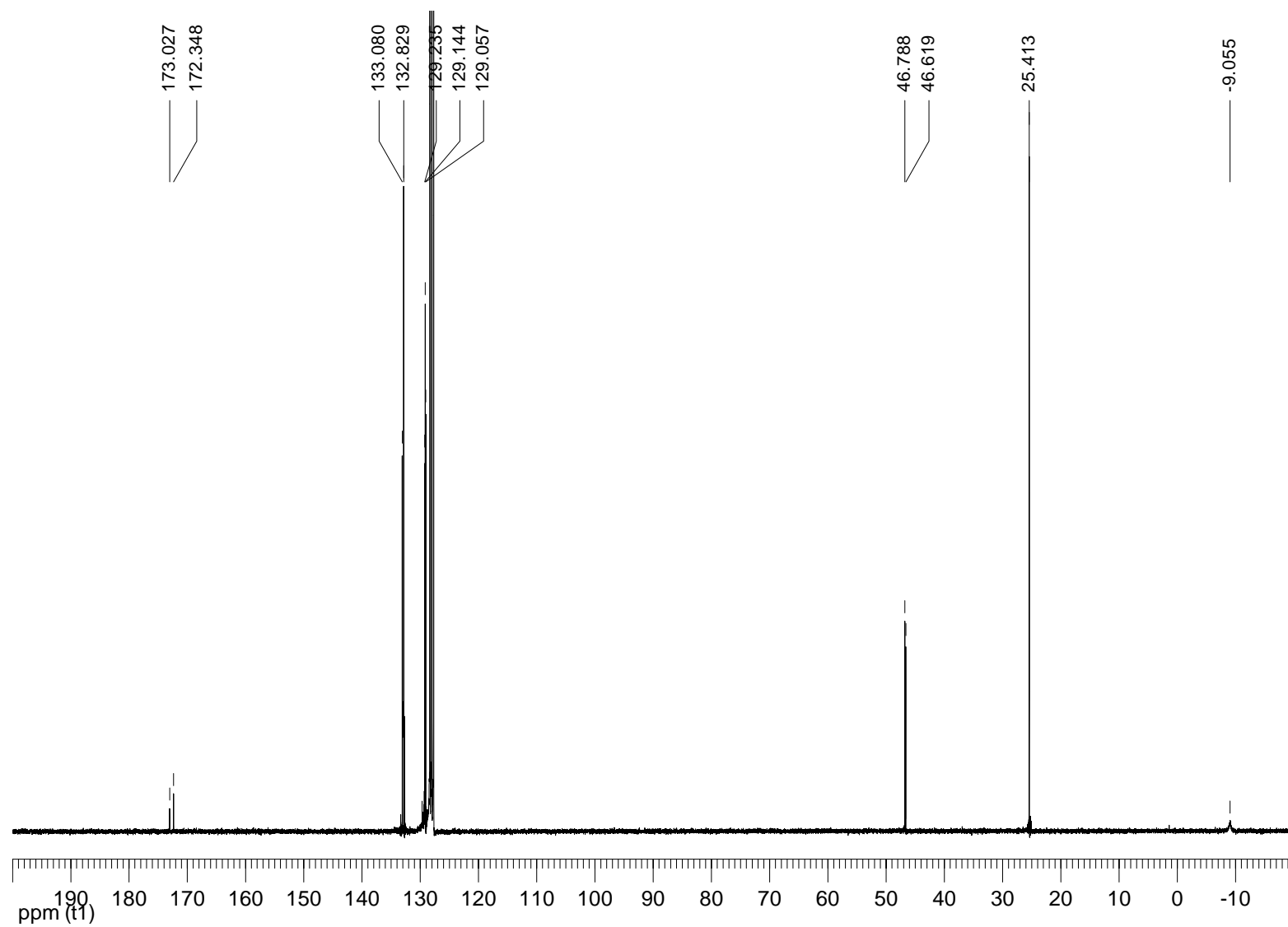


Figure 3c ^{31}P NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}\{\text{N}^i\text{Pr}\}_2)\text{Me}_2$ (**4a**)

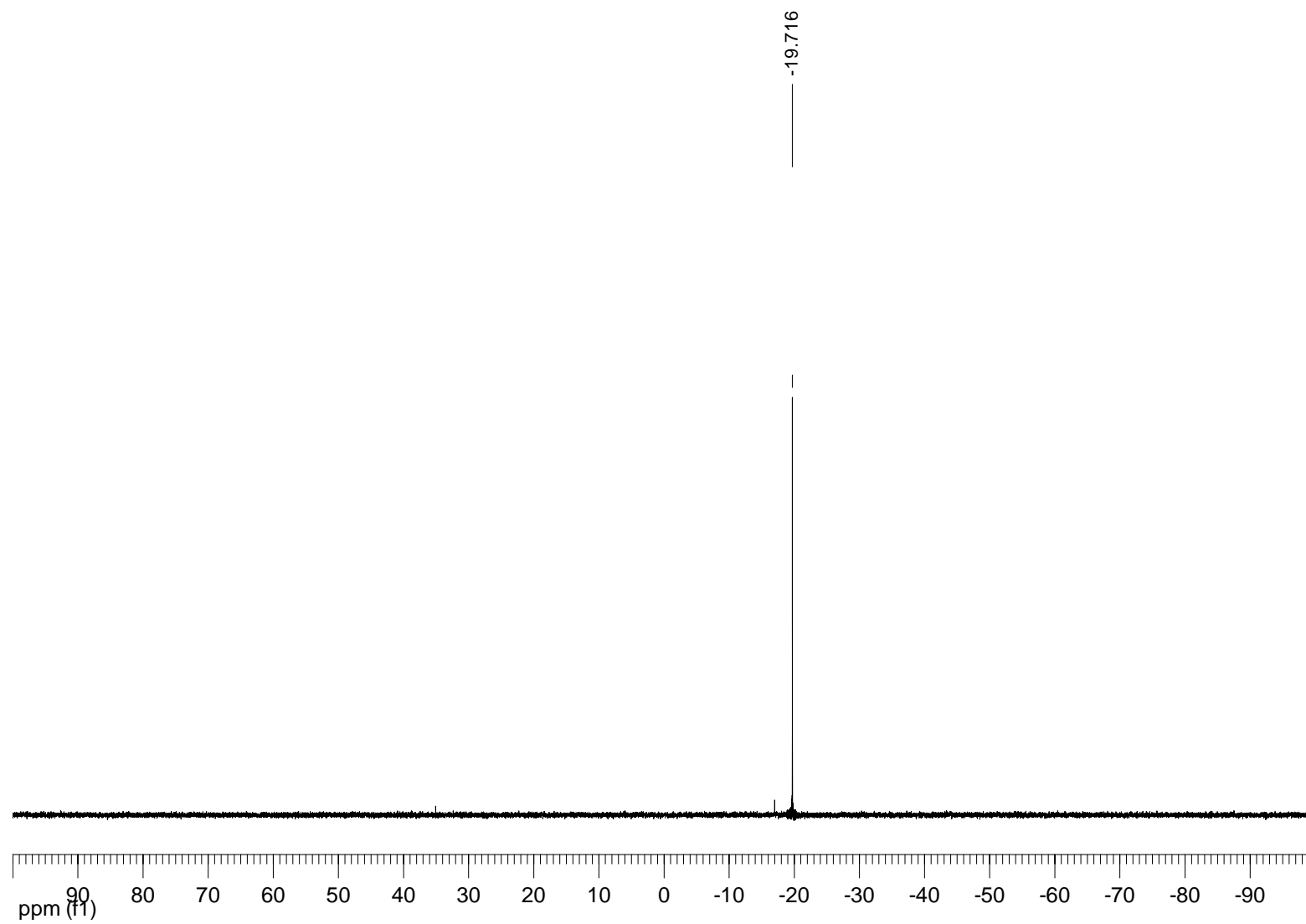


Figure 4a ^1H NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}\{\text{NCy}\}_2)\text{Me}_2$ (**4b**) (residual AlMe_3 at δ -0.310)

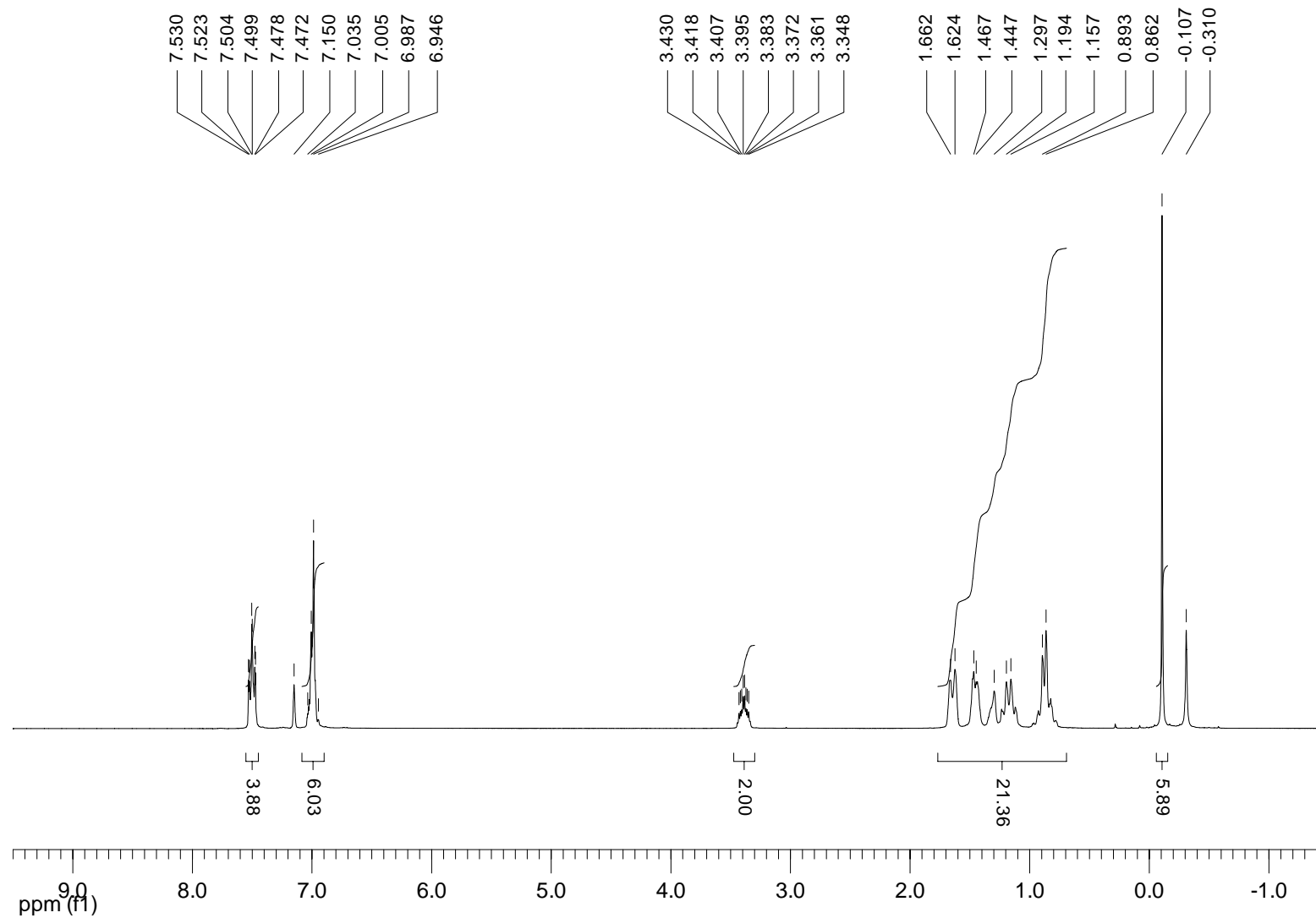


Figure 4b ^{13}C NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}\{\text{NCy}\}_2)\text{Me}_2$ (**4b**) (residual AlMe_3 at δ -6.847)

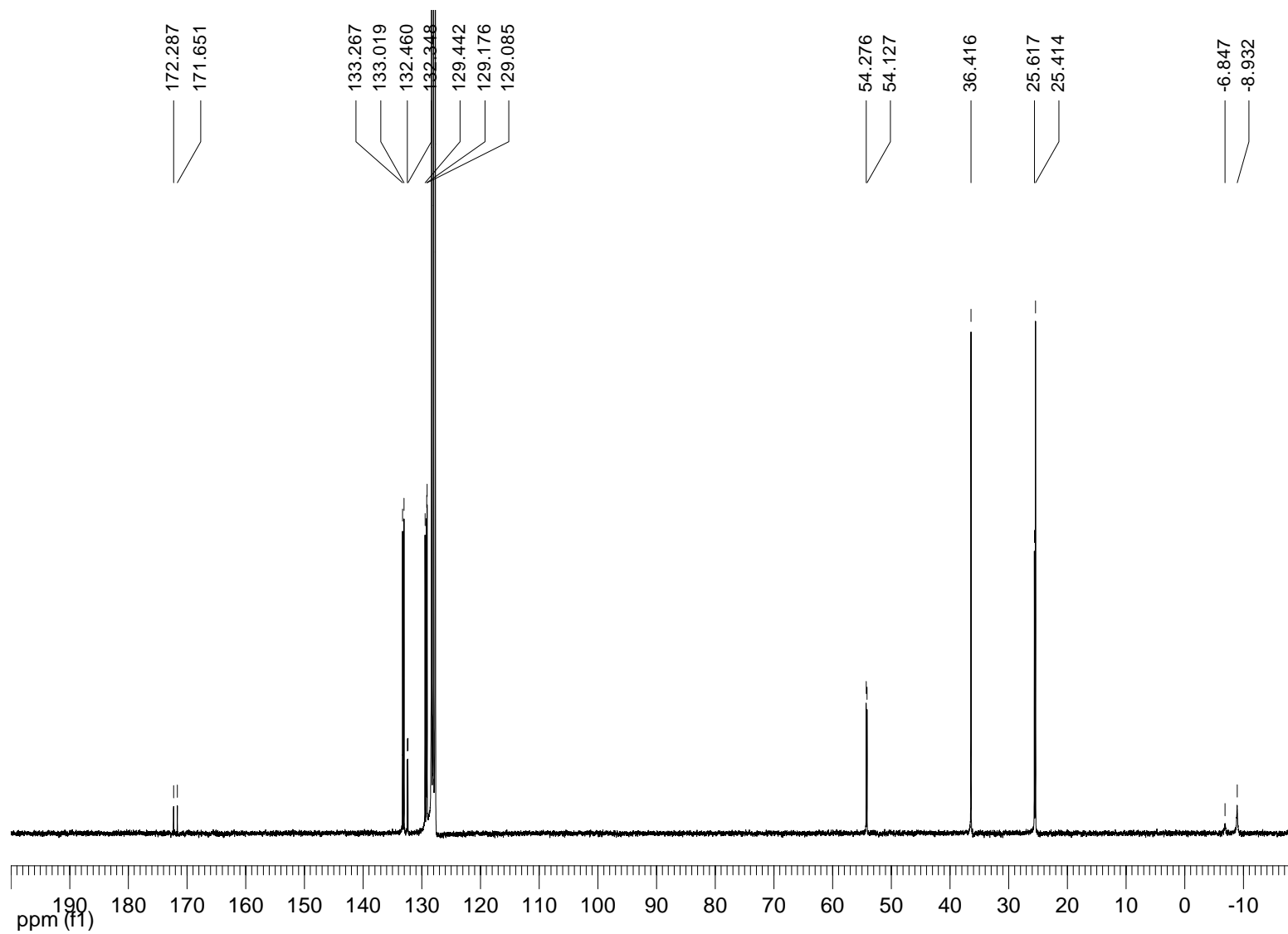


Figure 4c ^{31}P NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}\{\text{NCy}\}_2)\text{Me}_2$ (**4b**)

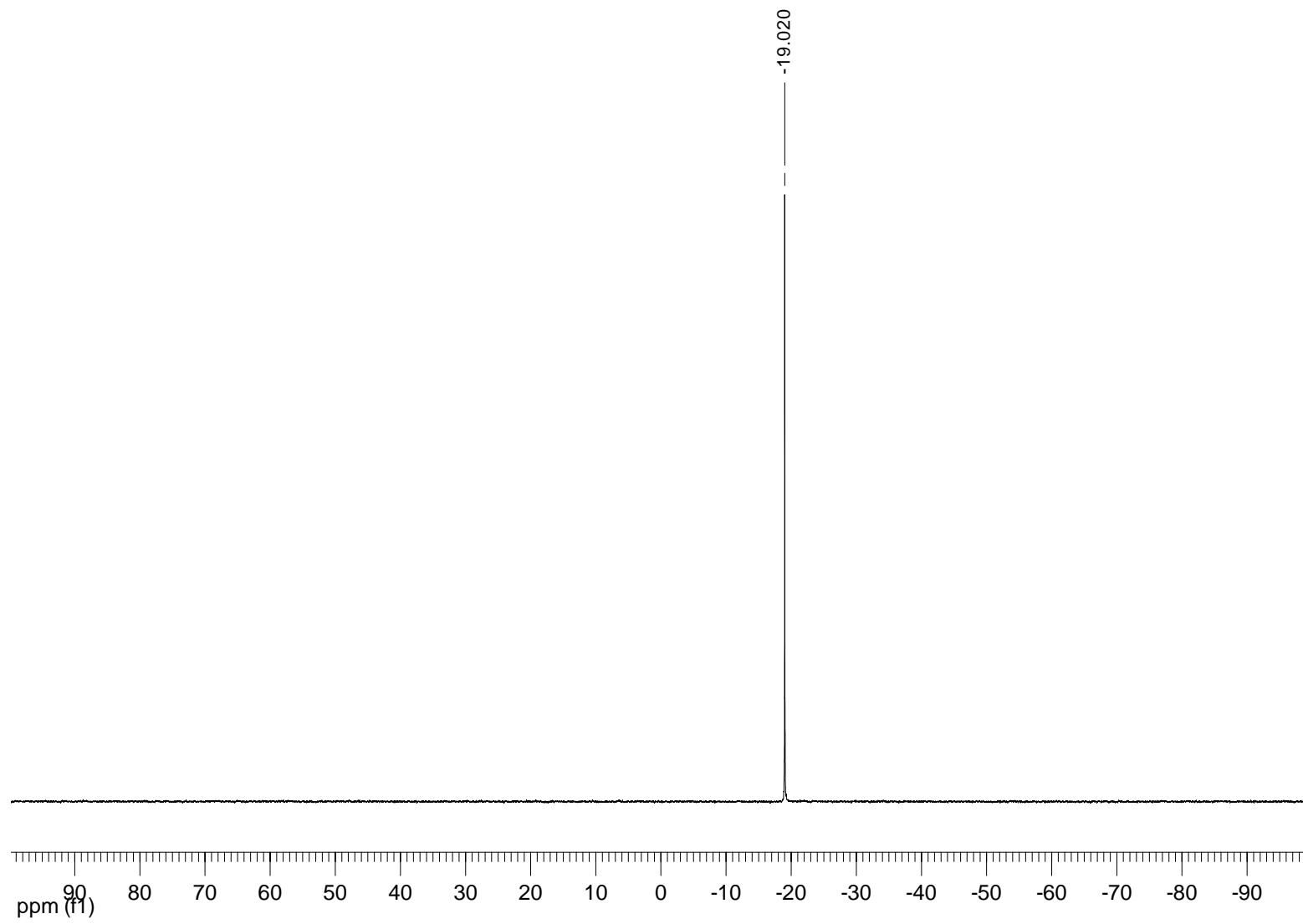


Figure 5a ^1H NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}\{\text{N}^i\text{Pr}\}_2)\text{Et}_2$ (**5a**)

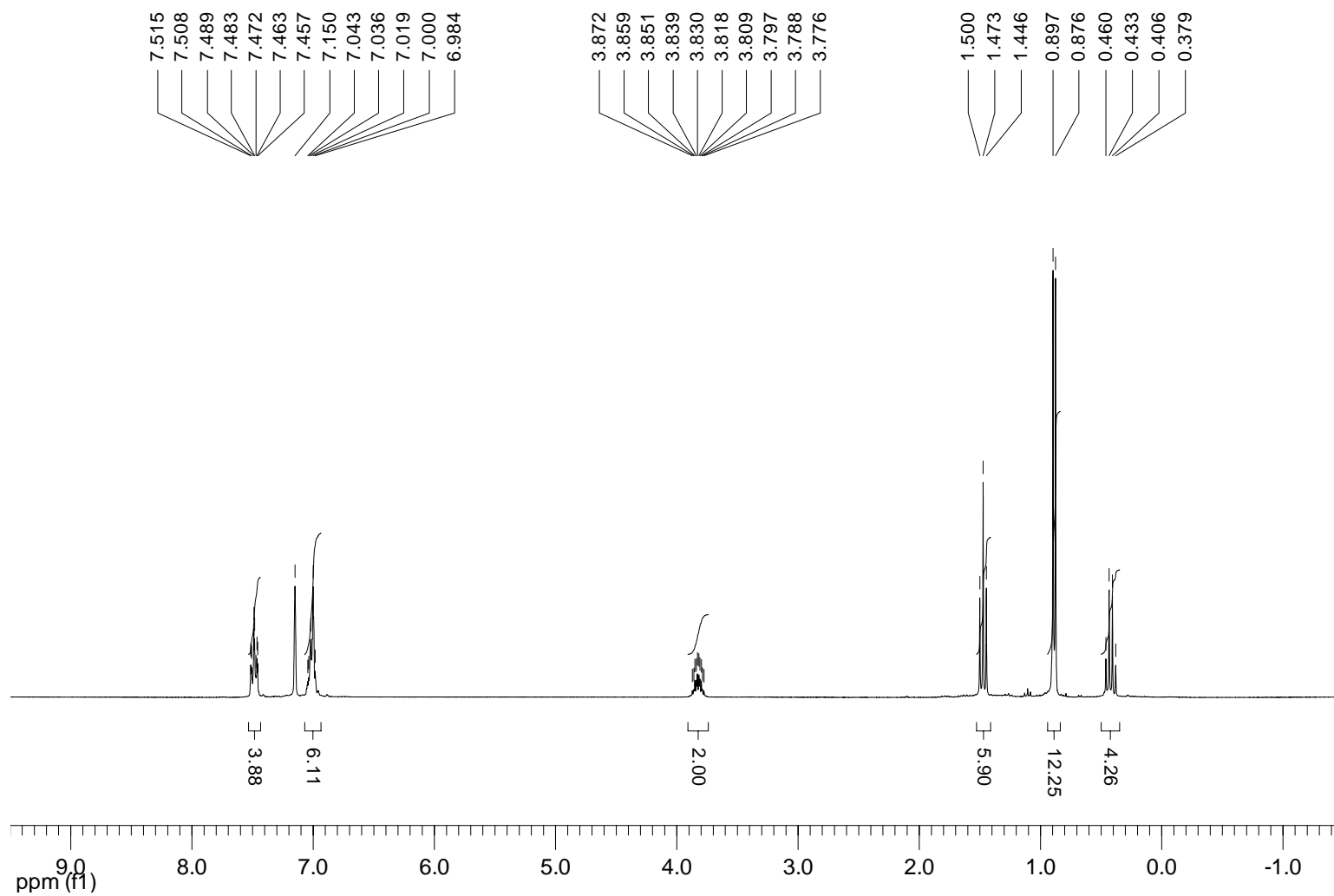


Figure 5b ^{13}C NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}\{\text{N}^i\text{Pr}\}_2)\text{Et}_2$ (**5a**)

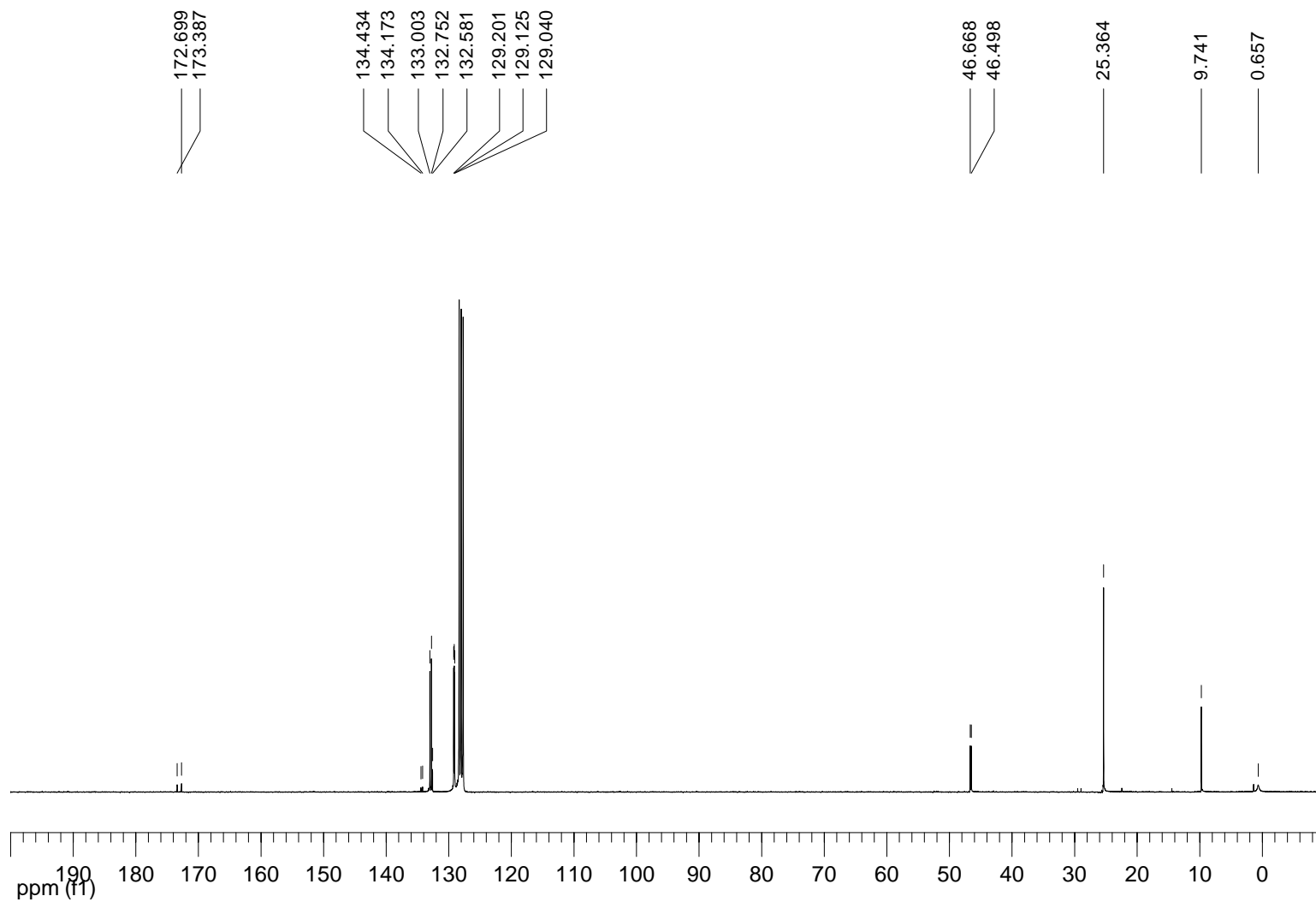


Figure 5c ^{31}P NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}\{\text{N}^i\text{Pr}\}_2)\text{Et}_2$ (**5a**)

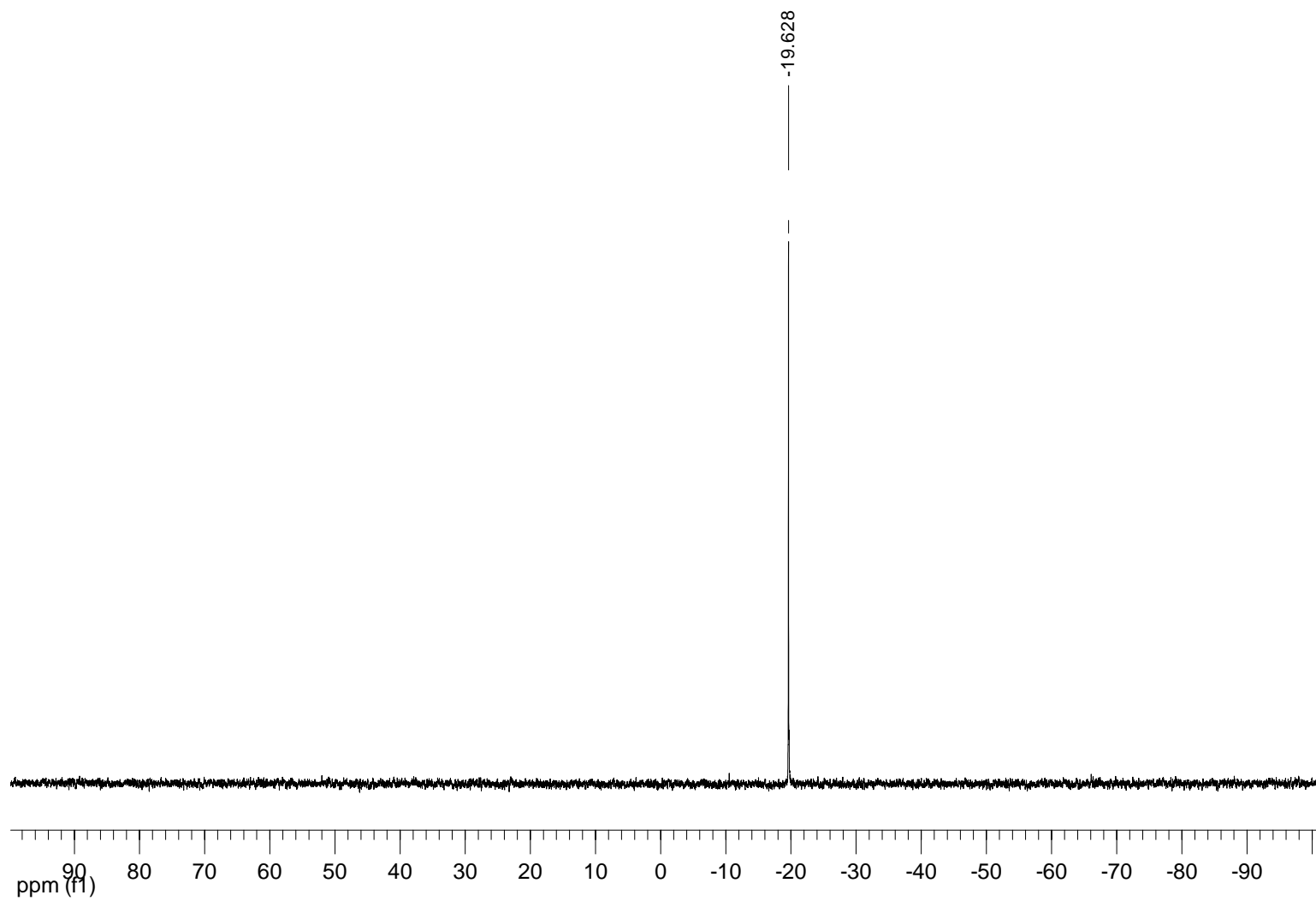


Figure 6a ^1H NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}(\text{NCy})_2)\text{Et}_2$ (**5b**)

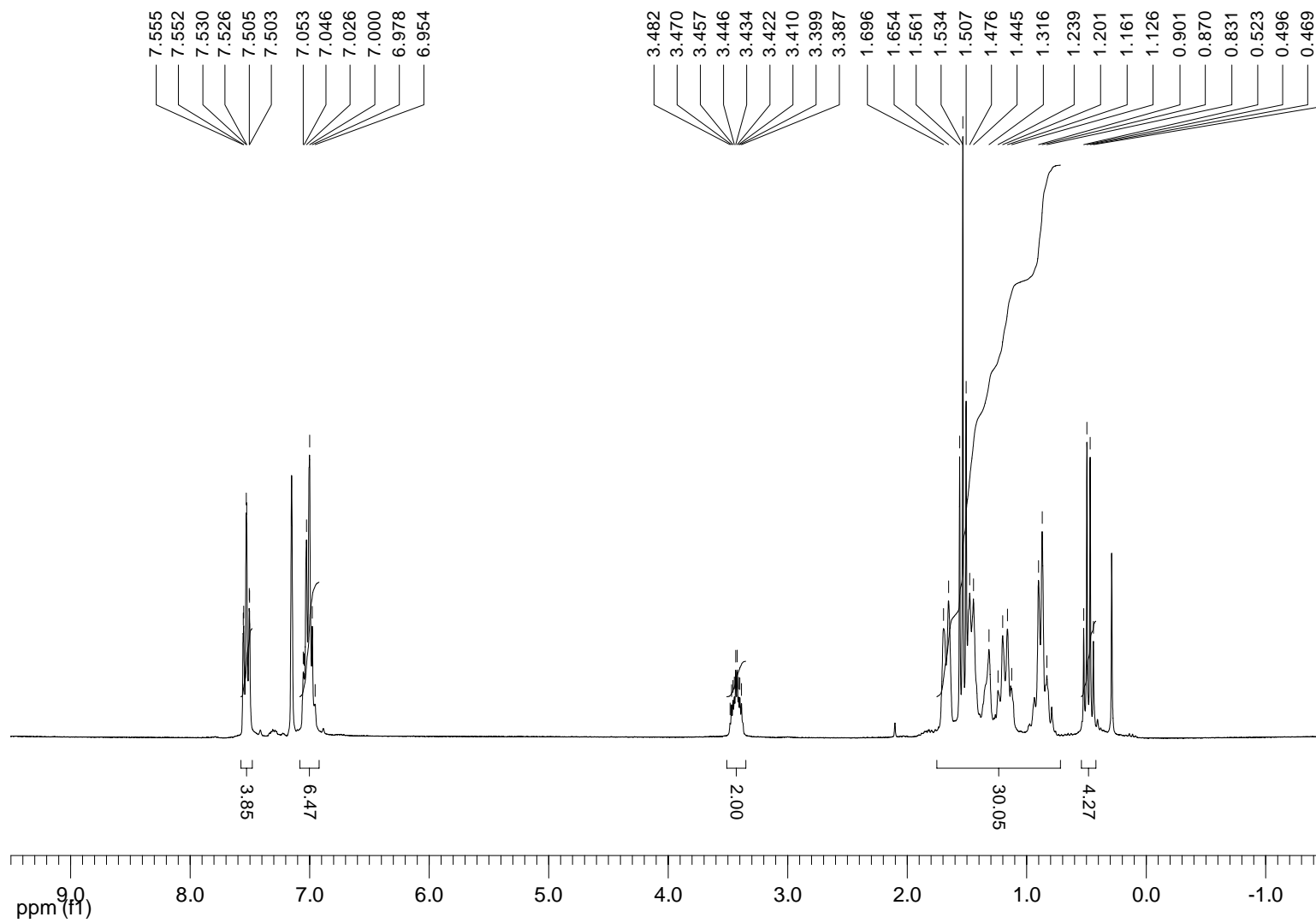


Figure 6b ^{13}C NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}\{\text{NCy}\}_2)\text{Et}_2$ (**5b**)

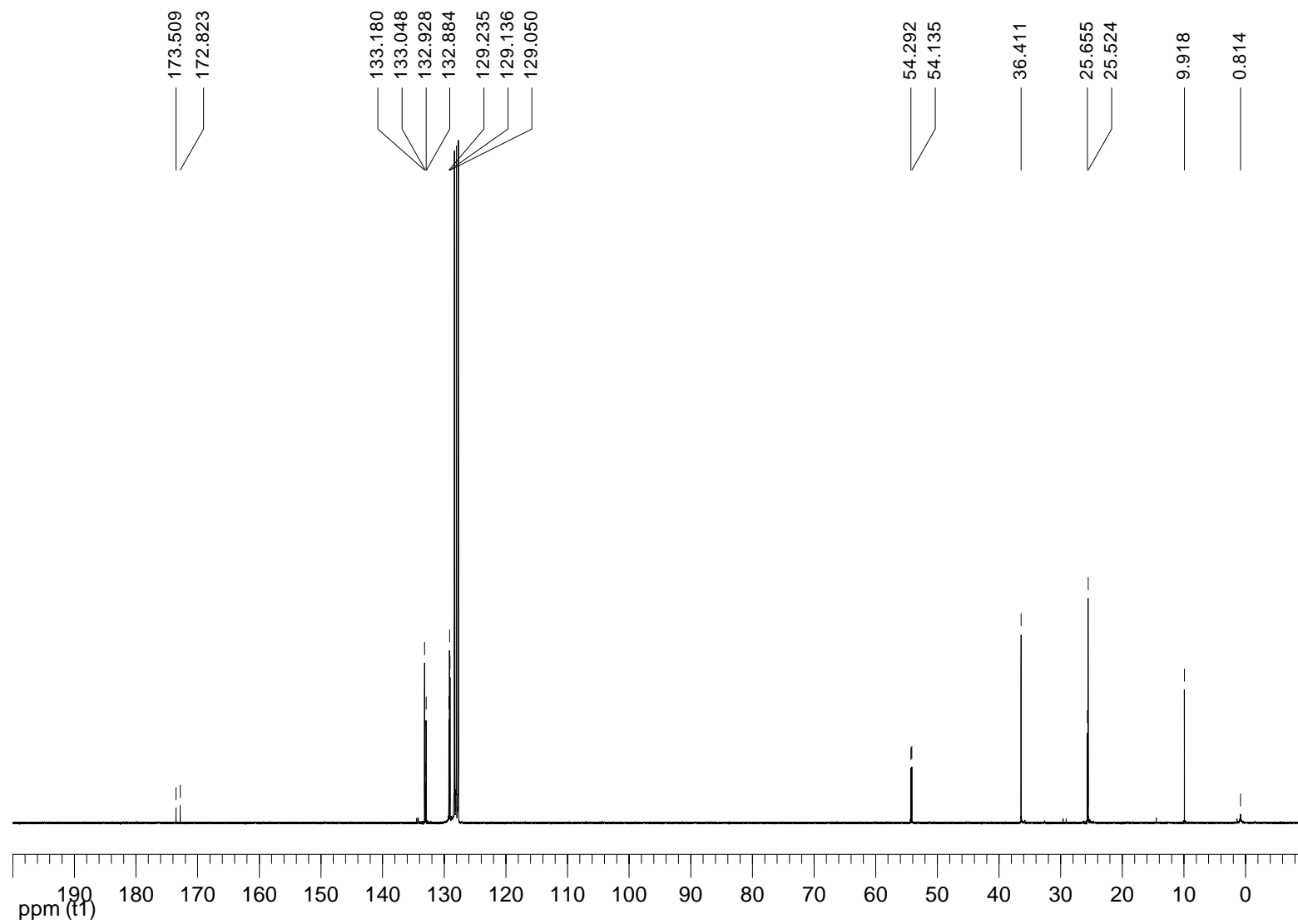


Figure 6c ^{31}P NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}\{\text{NCy}\}_2)\text{Et}_2$ (**5b**)

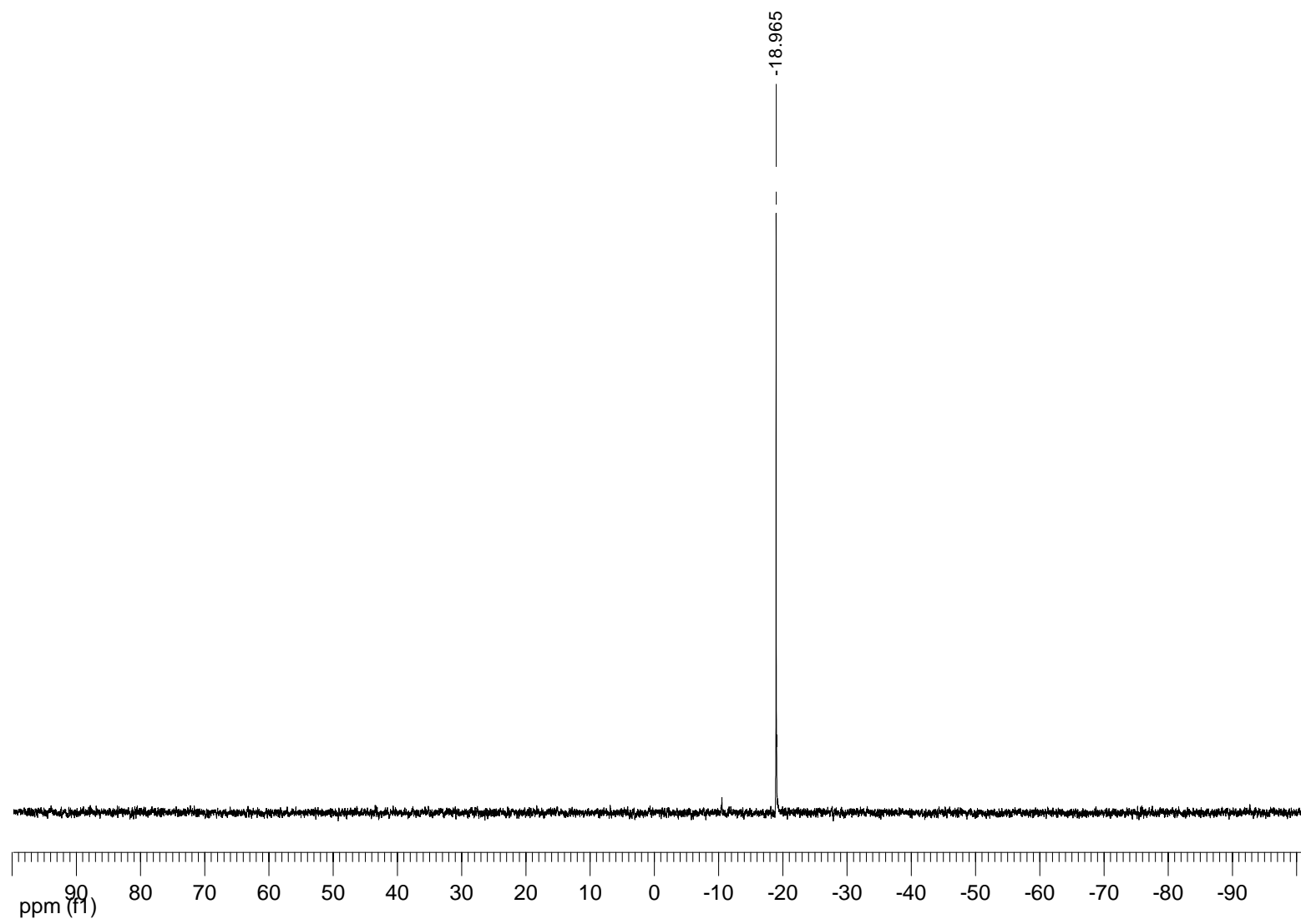


Figure 7a ^1H NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}\{\text{N}^i\text{Pr}\}_2)^i\text{Bu}_2$ (**6a**)

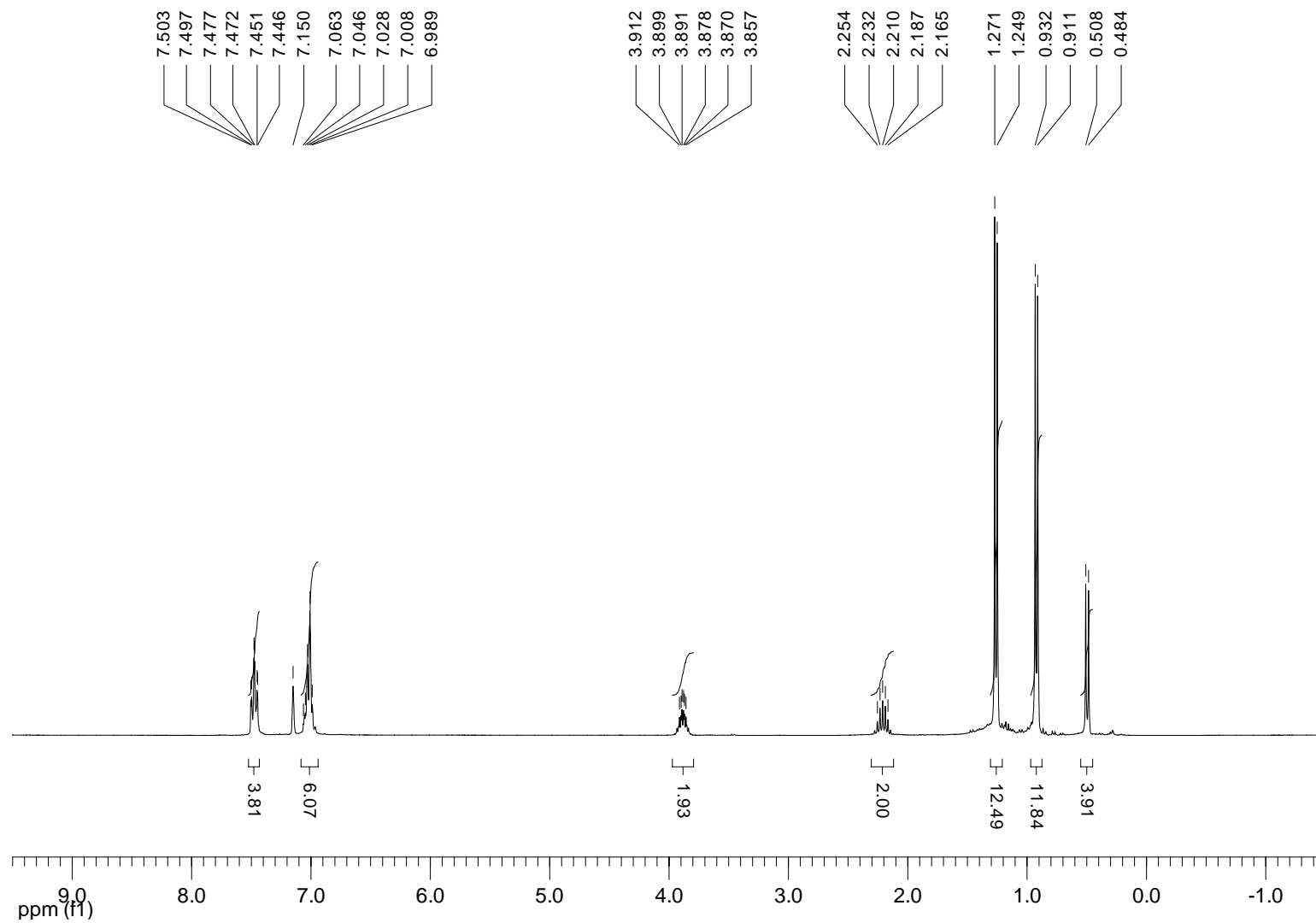


Figure 7b ^{13}C NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}\{\text{N}^i\text{Pr}\}_2)^i\text{Bu}_2$ (**6a**)

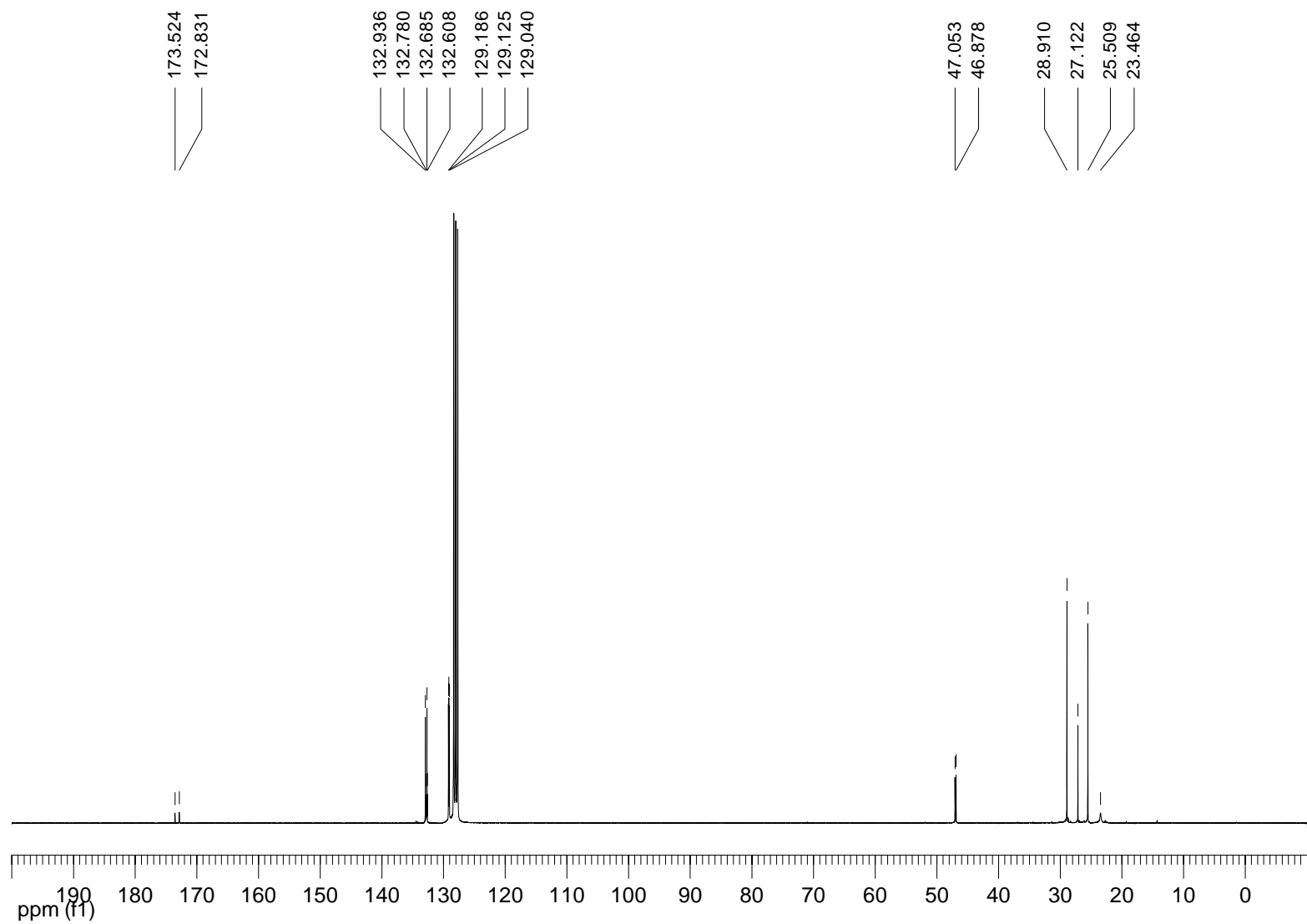


Figure 7c ^{31}P NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}(\text{N}^i\text{Pr})_2)^i\text{Bu}_2$ (**6a**)

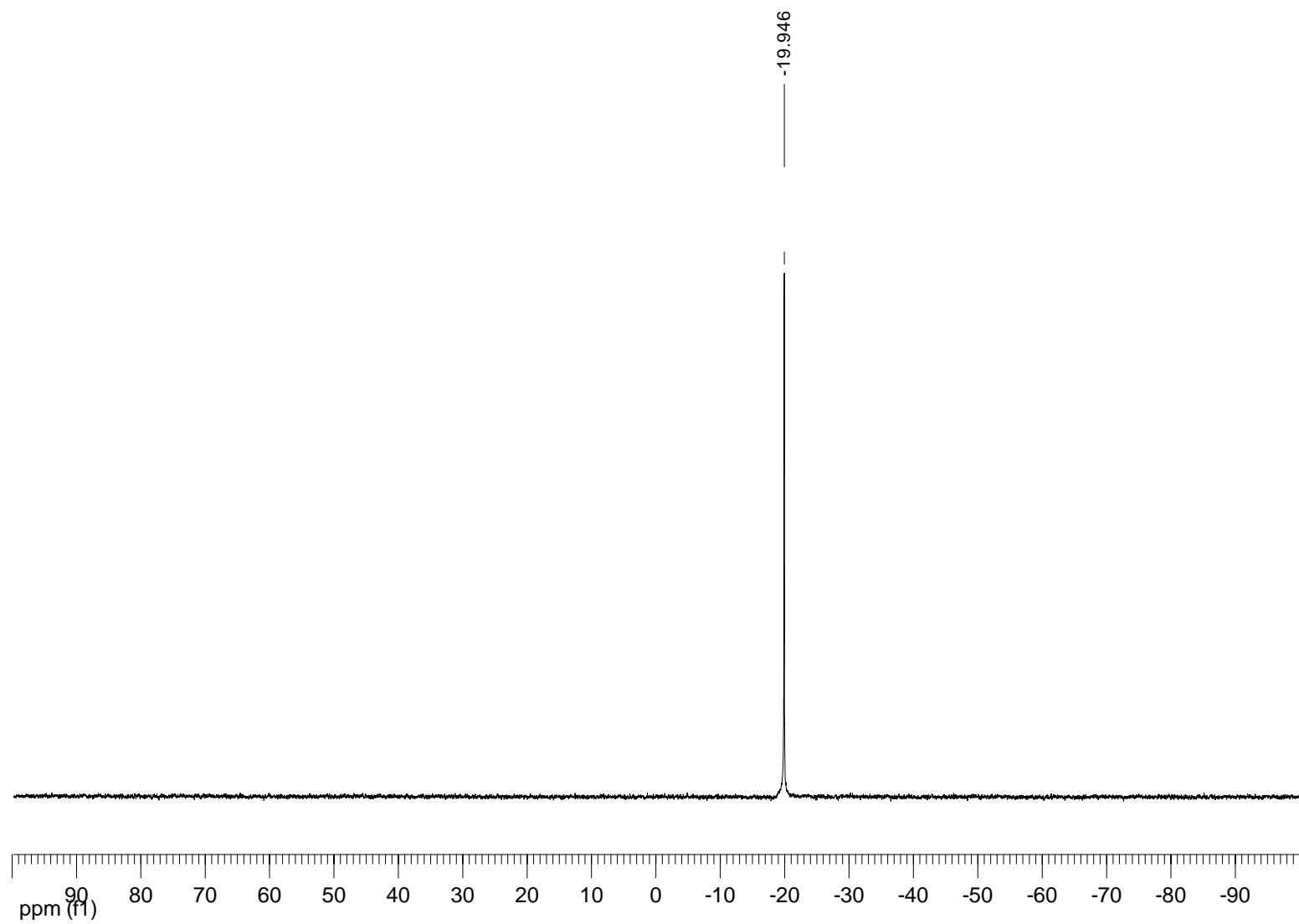


Figure 8a ^1H NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}(\text{NCy})_2)_2\text{Bu}_2$ (**6b**)

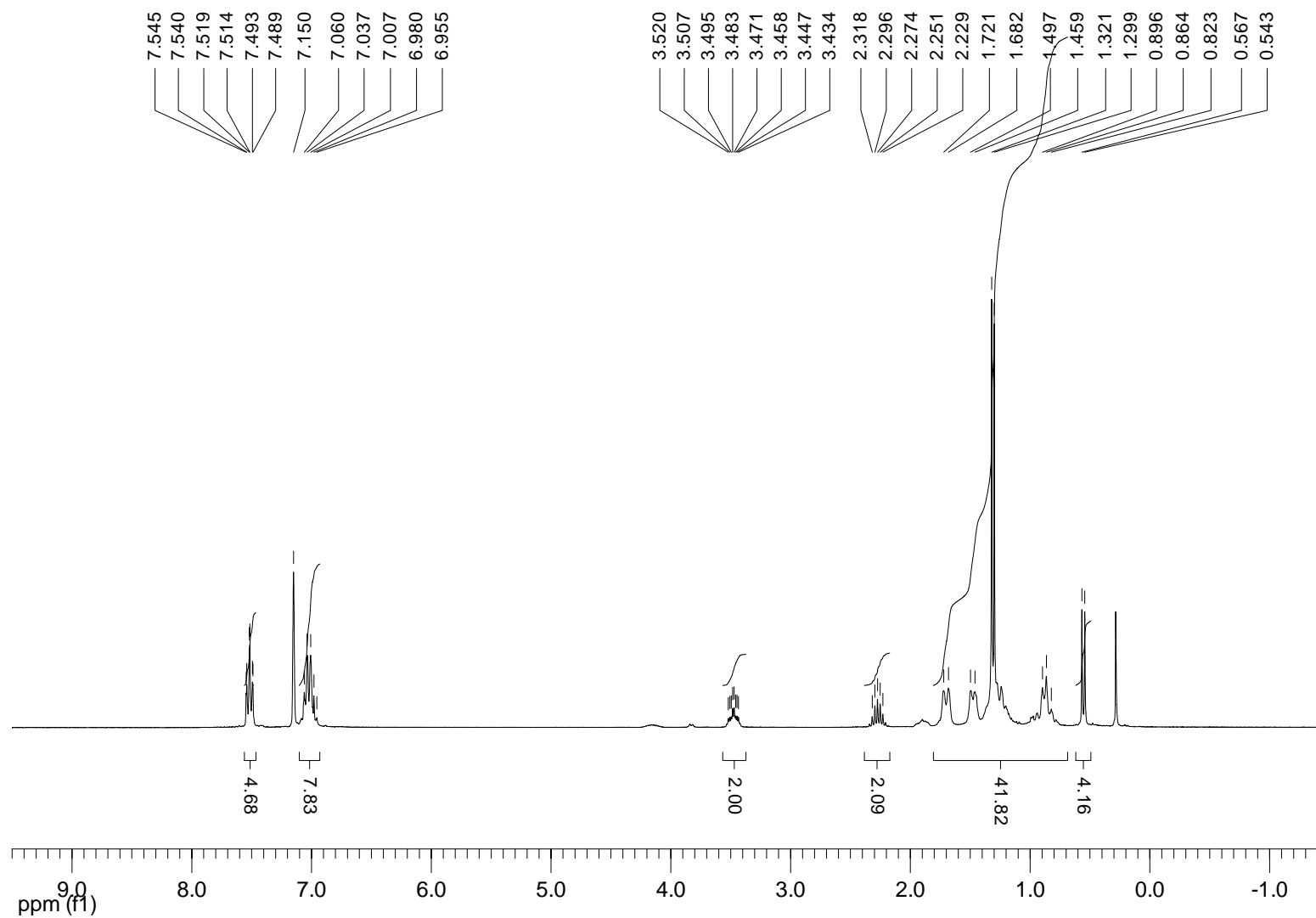


Figure 8b ^{13}C NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}\{\text{NCy}\}_2)^i\text{Bu}_2$ (**6b**)

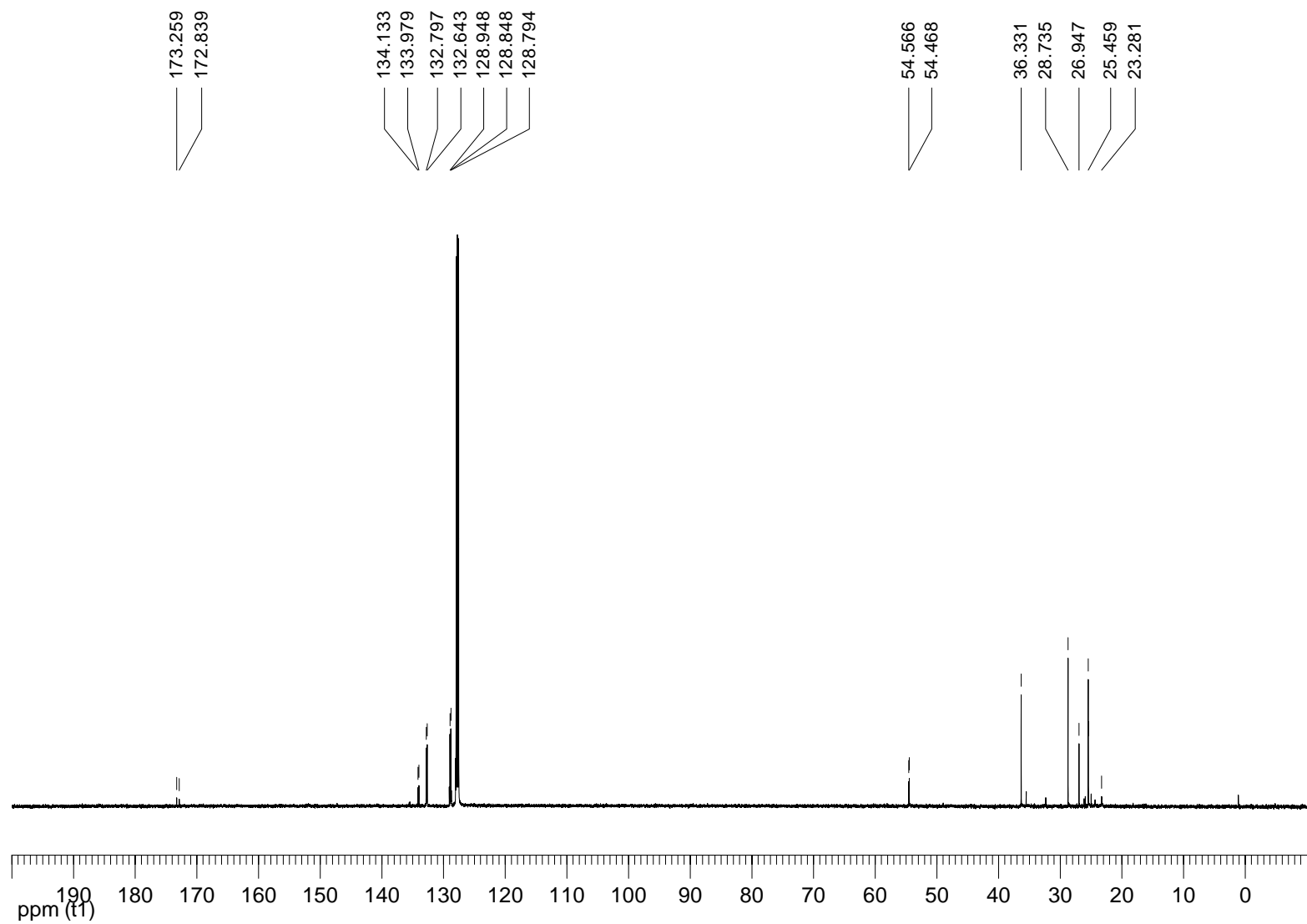


Figure 8c ^{31}P NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}(\text{NCy})_2)^i\text{Bu}_2$ (**6b**)

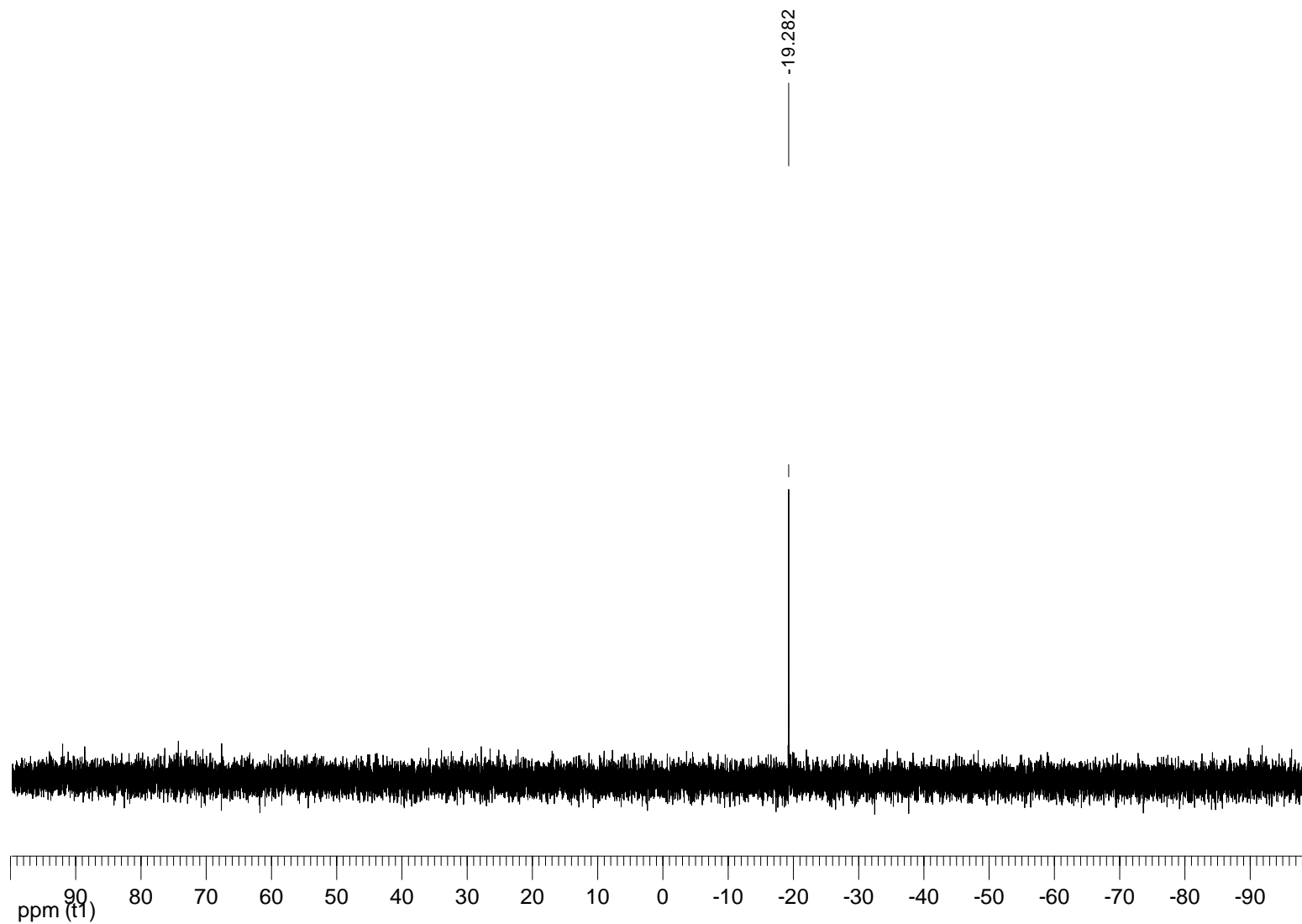


Figure 9a ^1H NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}(\text{N}^i\text{Pr})_2)\text{Ph}_2$ (**7a**)

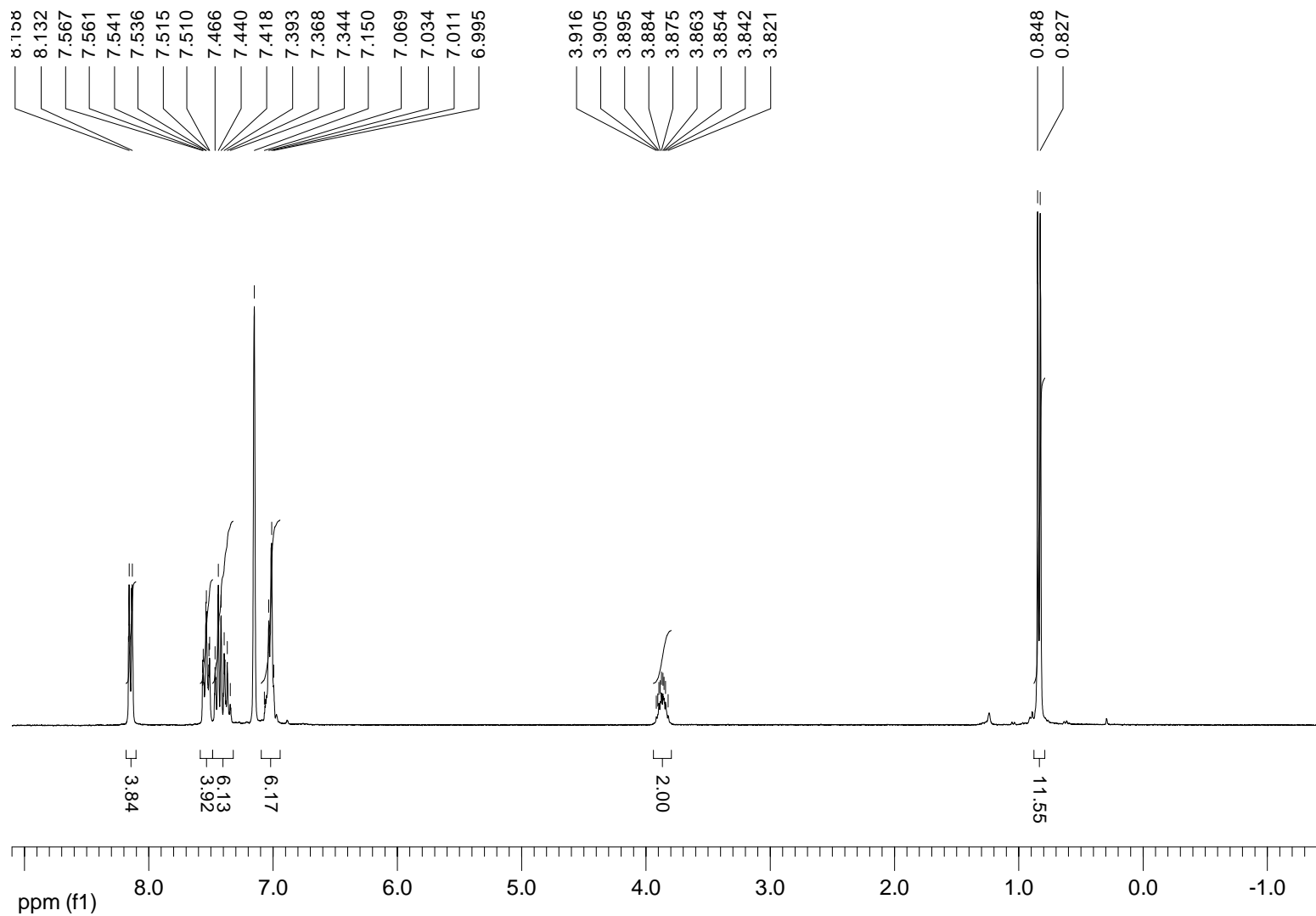


Figure 9b ^{13}C NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}\{\text{N}^i\text{Pr}\}_2)\text{Ph}_2$ (**7a**)

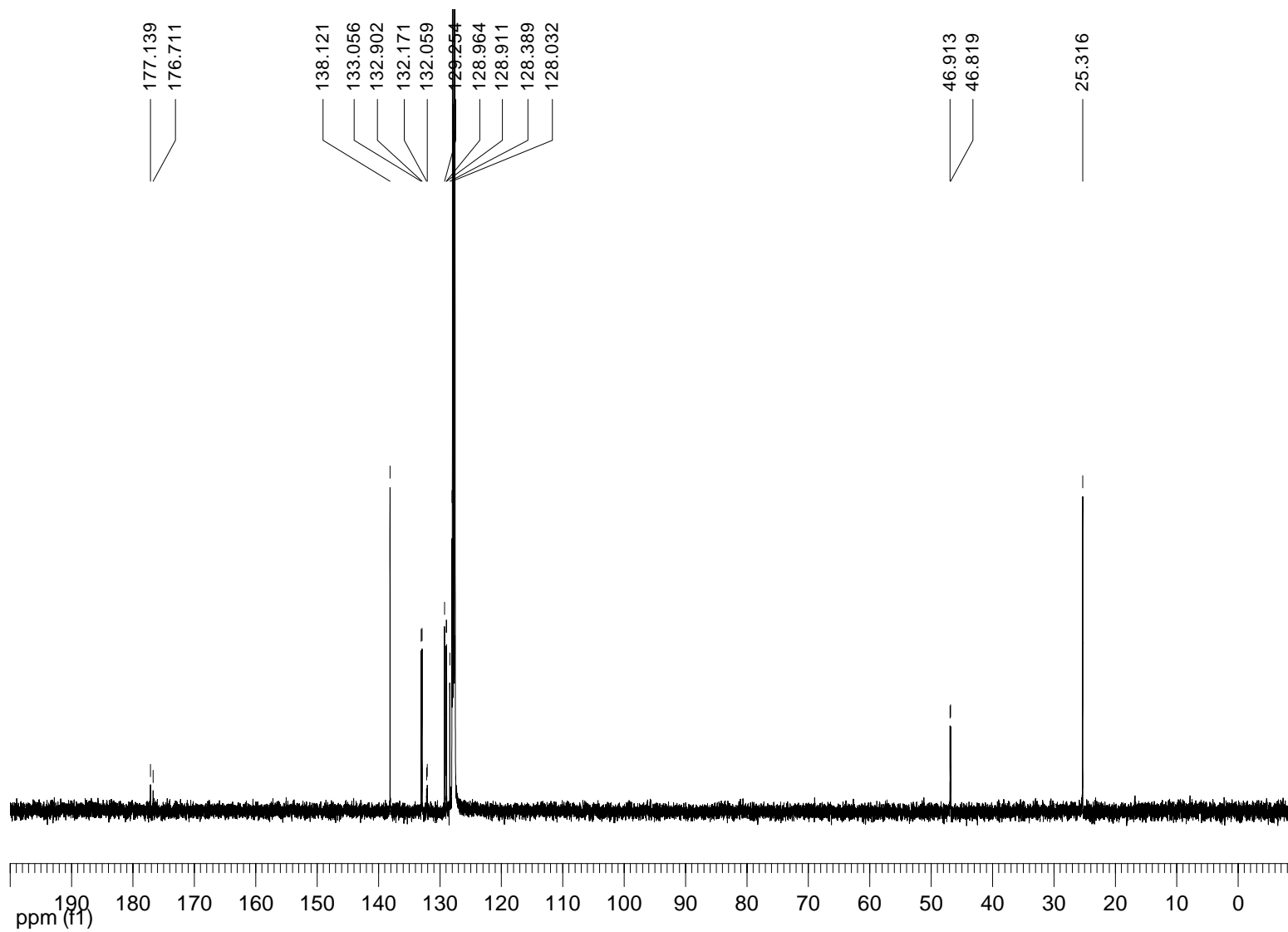


Figure 9c ^{31}P NMR spectrum of $\text{Al}(\text{Ph}_2\text{PC}\{\text{N}^i\text{Pr}\}_2)\text{Ph}_2$ (**7a**)

