

# Supplementary Materials:

## Palladium-Catalyzed Allylation/Benzylation of *H*-Phosphinate Esters With Alcohols

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**General Chemistry:**

$^1\text{H}$  NMR spectra were recorded on a 400-MHz Bruker Avance spectrometer (Bruker Daltonics Inc., Billerica, Massachusetts, USA). Chemical shifts for  $^1\text{H}$  NMR spectra (in parts per million) relative to internal tetramethylsilane ( $\text{Me}_4\text{Si}$ ,  $\delta = 0.00$  ppm, s = singlet, d = doublet, m = multiplet, dd = doublet of doublets, dm = doublet of multiplets, quint. = quintuplet, t = triplet, ddd = doublet of doublet of doublets, dt = doublet of triplets, ddt = doublet of doublet of triplets, ) with deuterated chloroform.  $^{13}\text{C}$  NMR spectra were recorded at 75.5 or 101 MHz. Chemical shifts for  $^{13}\text{C}$  NMR spectra are reported (in parts per million) relative to  $\text{CDCl}_3$  ( $\delta = 77.0$  ppm).  $^{31}\text{P}$  NMR spectra were recorded at 121.5 or 162 MHz, and chemical shifts reported (in parts per million) relative to external 85% phosphoric acid ( $\delta = 0.0$  ppm). Flash chromatography experiments were carried out on Silica Gel premium Rf grade (60 Å, 40–75  $\mu\text{m}$ , Sorbent Technologies, Norcross, Georgia, USA). Ethyl acetate/hexane mixtures or dichloromethane/acetone were used as the eluent for chromatographic purifications. Whatman TLC plates (60 Å, thermo Fisher Scientific, Waltham, Massachusetts, USA) were visualized by UV or immersion in permanganate potassium (3 g  $\text{KMnO}_4$ , 20 g  $\text{K}_2\text{CO}_3$ , 5 mL 5% aq. NaOH and 300 mL of water) followed by heating. High resolution mass spectra (HRMS) were obtained either by direct probe (EI/CI) and analyzed by magnetic sector, or by electrospray using a TOF analyzer.

**Reagent and solvents:**

All starting materials were purchased from commercial sources and used as received. The solvents were distilled under  $\text{N}_2$  and dried according to standard procedures (THF from Na/ benzophenone ketyl; DMF from  $\text{MgSO}_4$ ;  $\text{CH}_3\text{CN}$ , toluene and dichloromethane from  $\text{CaH}_2$ ).

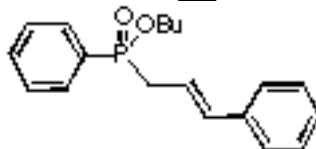
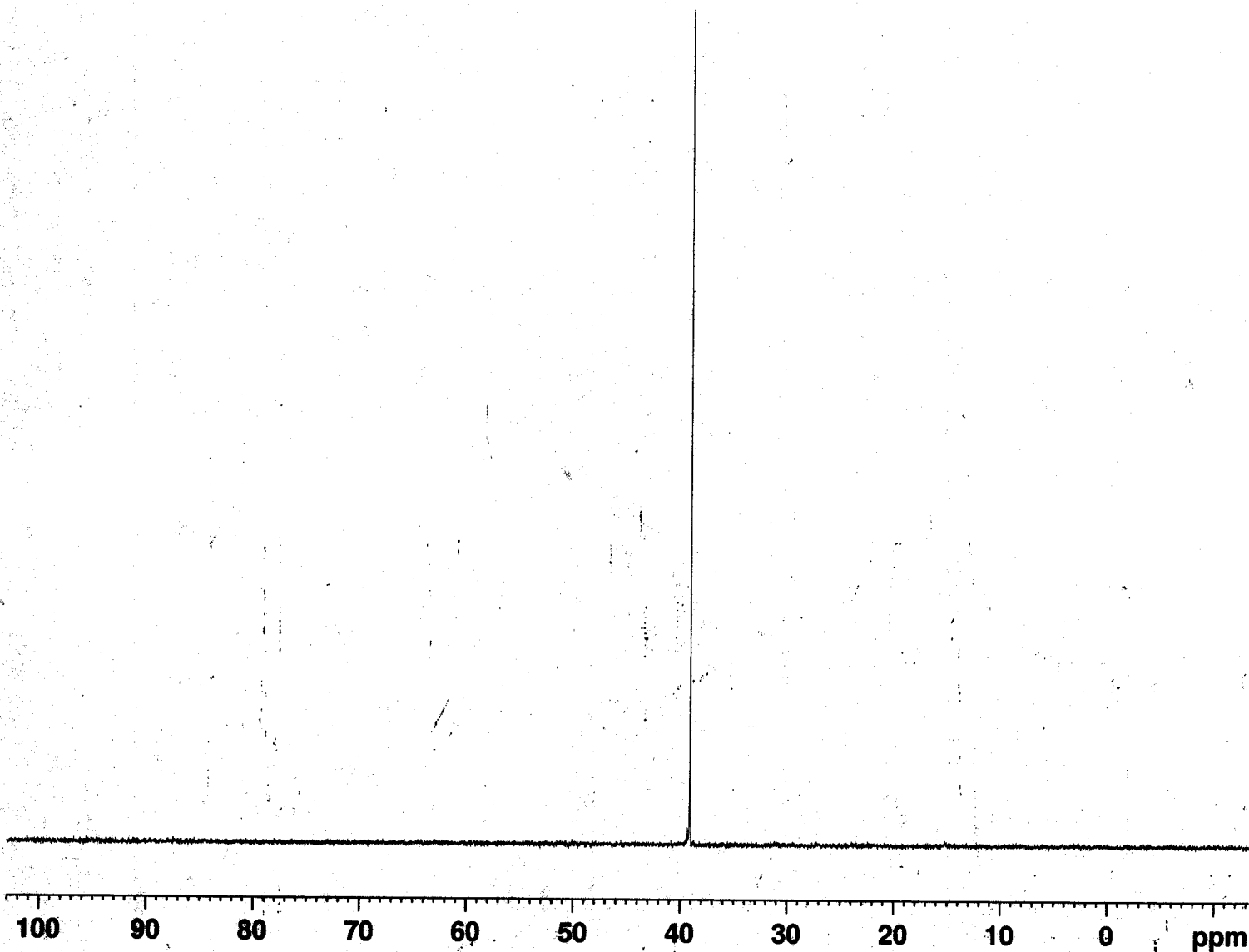


Table 2, entry 1  
 $^{31}\text{P}/^1\text{H}$  NMR decoupled



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 PROCNO 1

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 PULPROG zgpg30  
 TD 65536  
 SOLVENT DMSO  
 NS 16  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 295.0 K  
 D1 2.00000000 sec  
 D11 0.03000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SFO1 161.9674942 MHz  
 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.00000000 W

===== CHANNEL f2 =====  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG[2] waltz16  
 PCPD2 90.00 usec  
 PLW2 10.00000000 W  
 PLW12 0.31604999 W  
 PLW13 0.25600001 W

F2 - Processing parameters  
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 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

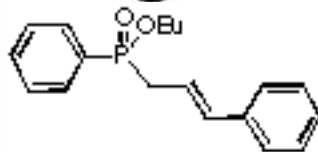
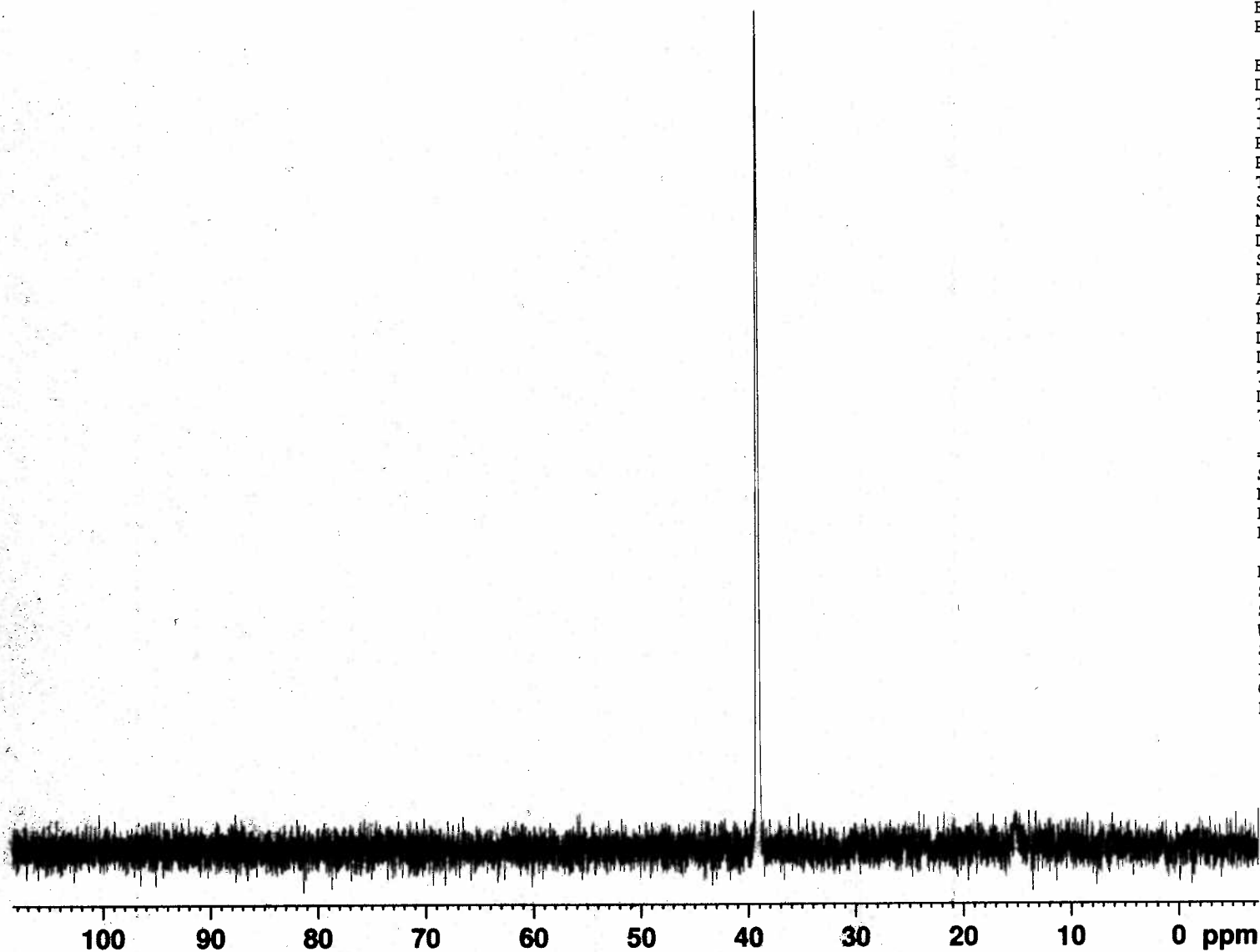


Table 2, entry 1  
<sup>31</sup>P/<sup>1</sup>H NMR coupled



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 PROCNO 1

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 INSTRUM spect  
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 PULPROG zg30  
 TD 65536  
 SOLVENT DMSO  
 NS 32  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 294.1 K  
 D1 2.00000000 sec  
 TD0 1

===== CHANNEL f1 =====  
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 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.00000000 W

F2 - Processing parameters  
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 GB 0  
 PC 1.40

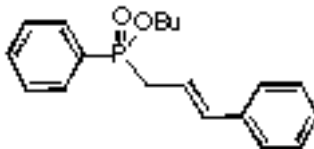
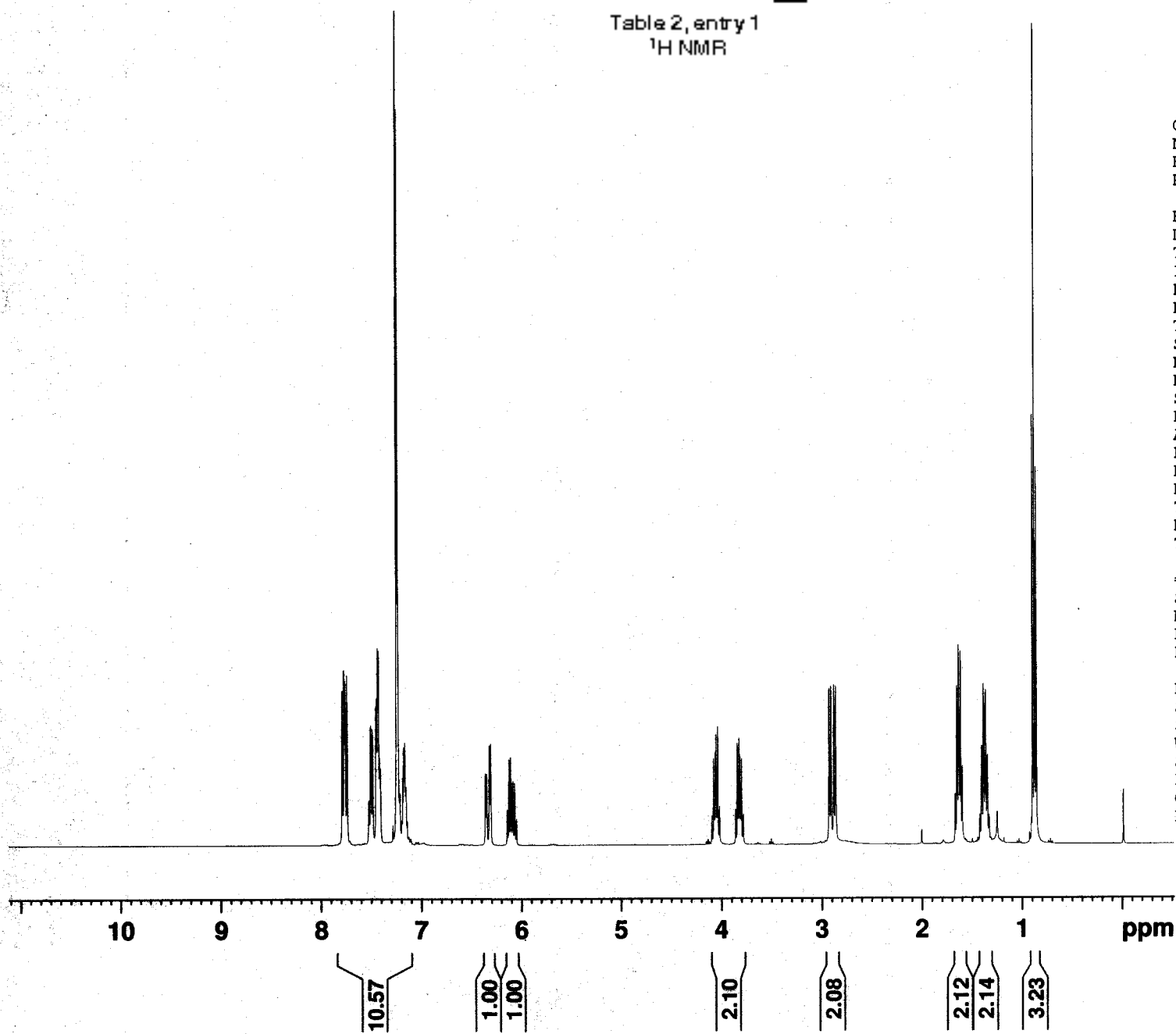


Table 2, entry 1  
<sup>1</sup>H NMR



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 PROCNO 1

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 PULPROG zg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 16  
 DS 2  
 SWH 8012.820 Hz  
 FIDRES 0.122266 Hz  
 AQ 4.0894465 sec  
 RG 16.39  
 DW 62.400 usec  
 DE 6.50 usec  
 TE 294.1 K  
 D1 1.00000000 sec  
 TD0 1

===== CHANNEL f1 =====  
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 NUC1 1H  
 P1 10.00 usec  
 PLW1 25.00300026 W

F2 - Processing parameters  
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 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00

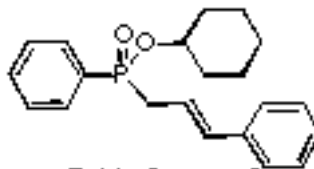


Table 2, entry 2  
<sup>31</sup>P /<sup>1</sup>H NMR decoupled

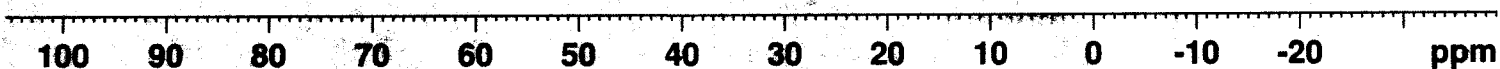
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 PROCNO 1

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 PULPROG zgpg30  
 TD 65536  
 SOLVENT Acetone  
 NS 16  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 294.4 K  
 D1 2.0000000 sec  
 D11 0.03000000 sec  
 TD0 1

==== CHANNEL f1 =====  
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 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.0000000 W

==== CHANNEL f2 =====  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG[2] waltz16  
 PCPD2 90.00 usec  
 PLW2 10.0000000 W  
 PLW12 0.31604999 W  
 PLW13 0.25600001 W

F2 - Processing parameters  
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 SF 161.9755930 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40



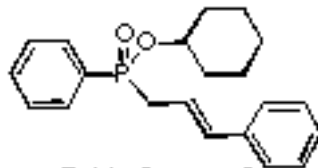
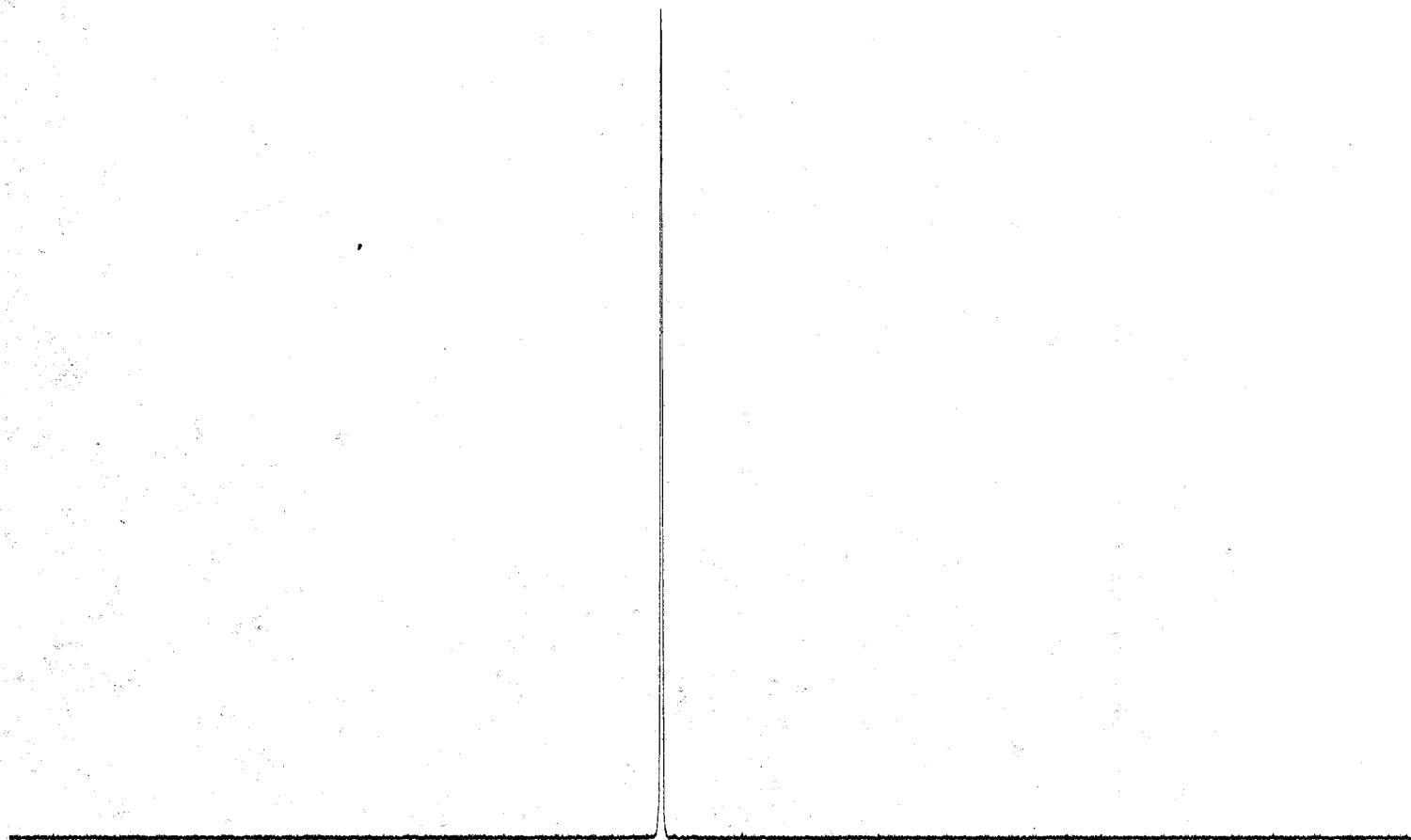


Table 2, entry 2  
<sup>31</sup>P/<sup>1</sup>H NMR coupled



100 90 80 70 60 50 40 30 20 10 0 -10 -20 -30 ppm

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 EXPNO 4  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150716  
 Time 9.04  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zg30  
 TD 65536  
 SOLVENT Acetone  
 NS 19  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 294.0 K  
 D1 2.00000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SFO1 161.9674942 MHz  
 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.00000000 W

F2 - Processing parameters  
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 LB 1.00 Hz  
 GB 0  
 PC 1.40

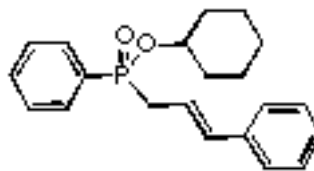


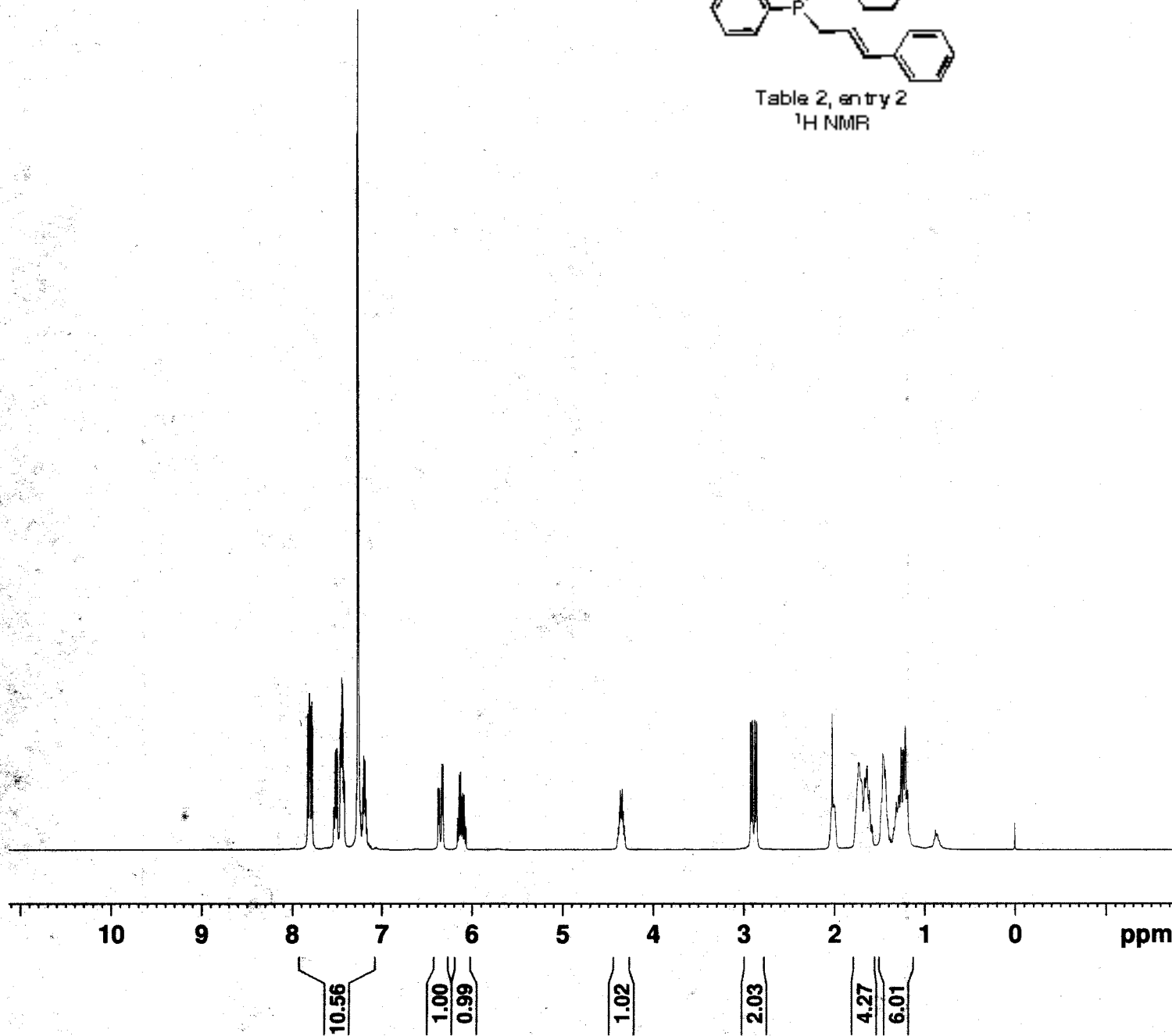
Table 2, entry 2  
<sup>1</sup>H NMR

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 EXPNO 5  
 PROCNO 1

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 Time 9.09  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDC13  
 NS 16  
 DS 2  
 SWH 8012.820 Hz  
 FIDRES 0.122266 Hz  
 AQ 4.0894465 sec  
 RG 16.39  
 DW 62.400 usec  
 DE 6.50 usec  
 TE 293.9 K  
 D1 1.00000000 sec  
 TD0 1

===== CHANNEL f1 =====  
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 NUC1 1H  
 P1 10.00 usec  
 PLW1 25.00300026 W

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 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00





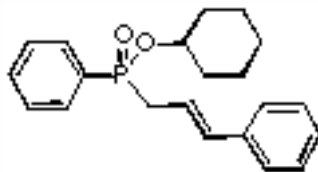


Table 2, entry 2  
<sup>13</sup>C NMR



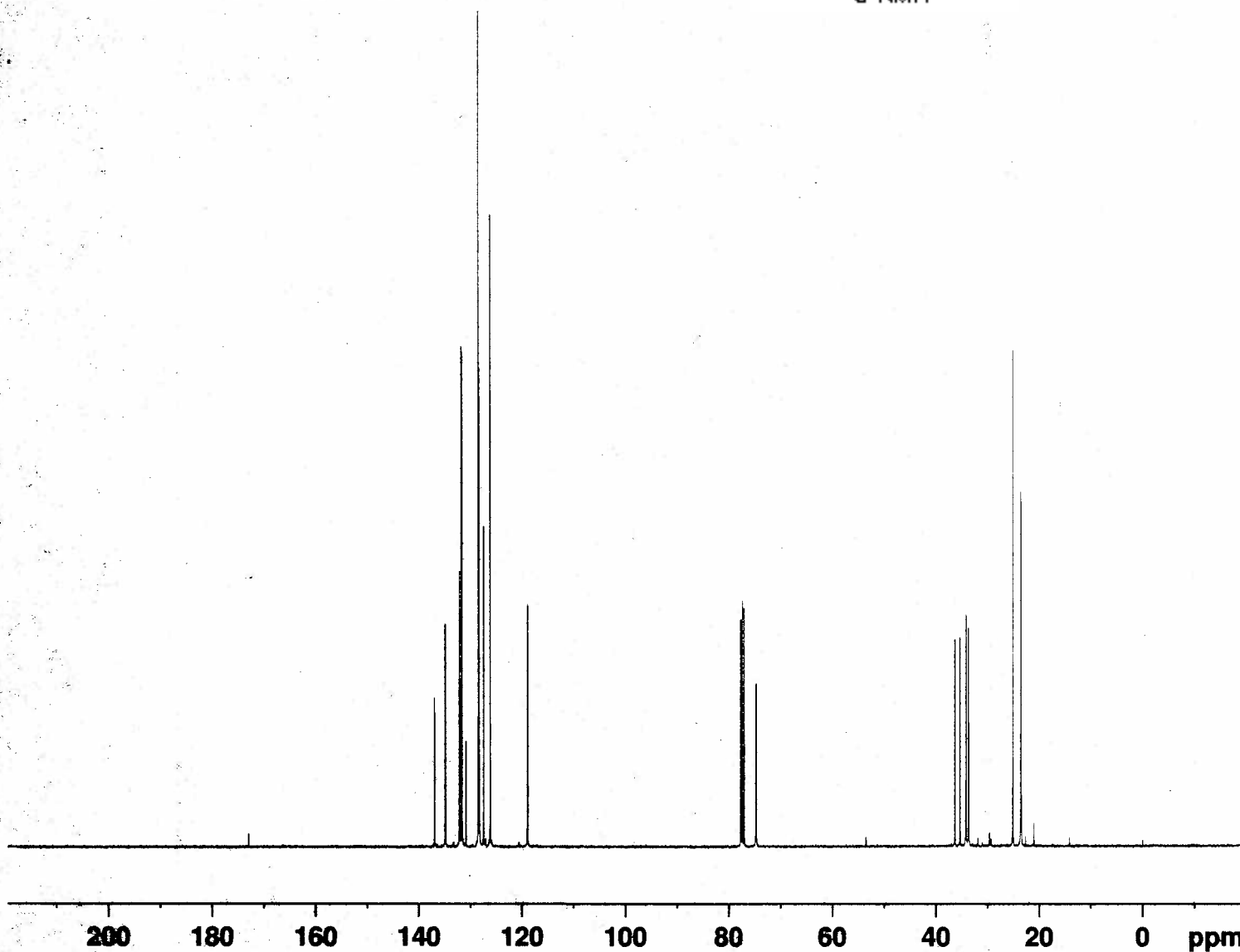
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 PROCNO 1

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 TD 65536  
 SOLVENT CDC13  
 NS 676  
 DS 4  
 SWH 24038.461 Hz  
 FIDRES 0.366798 Hz  
 AQ 1.3631488 sec  
 RG 203.57  
 DW 20.800 usec  
 DE 6.50 usec  
 TE 296.2 K  
 D1 2.0000000 sec  
 D11 0.0300000 sec  
 TD0 1

==== CHANNEL f1 =====  
 SFO1 100.6228293 MHz  
 NUC1 13C  
 P1 10.00 usec  
 PLW1 45.0000000 W

==== CHANNEL f2 =====  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG[2] waltz16  
 PCPD2 90.00 usec  
 PLW2 10.0000000 W  
 PLW12 0.31604999 W  
 PLW13 0.25600001 W

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 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40



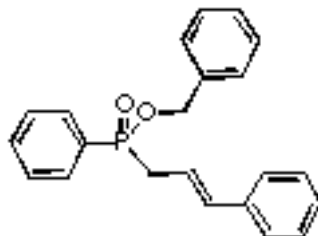


Table 2, entry 3  
 $^{31}\text{P}/^1\text{H}$  NMR decoupled

Current Data Parameters  
 NAME AFL046  
 EXPNO 3  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150720  
 Time 14.17  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDC13  
 NS 16  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 295.7 K  
 D1 2.0000000 sec  
 D11 0.0300000 sec  
 TD0 1

==== CHANNEL f1 =====  
 SFO1 161.9674942 MHz  
 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.0000000 W

==== CHANNEL f2 =====  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG[2] waltz16  
 PCPD2 90.00 usec  
 PLW2 10.0000000 W  
 PLW12 0.31604999 W  
 PLW13 0.25600001 W

F2 - Processing parameters  
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 LB 1.00 Hz  
 GB 0  
 PC 1.40



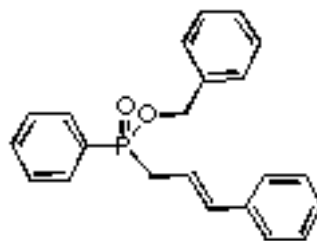
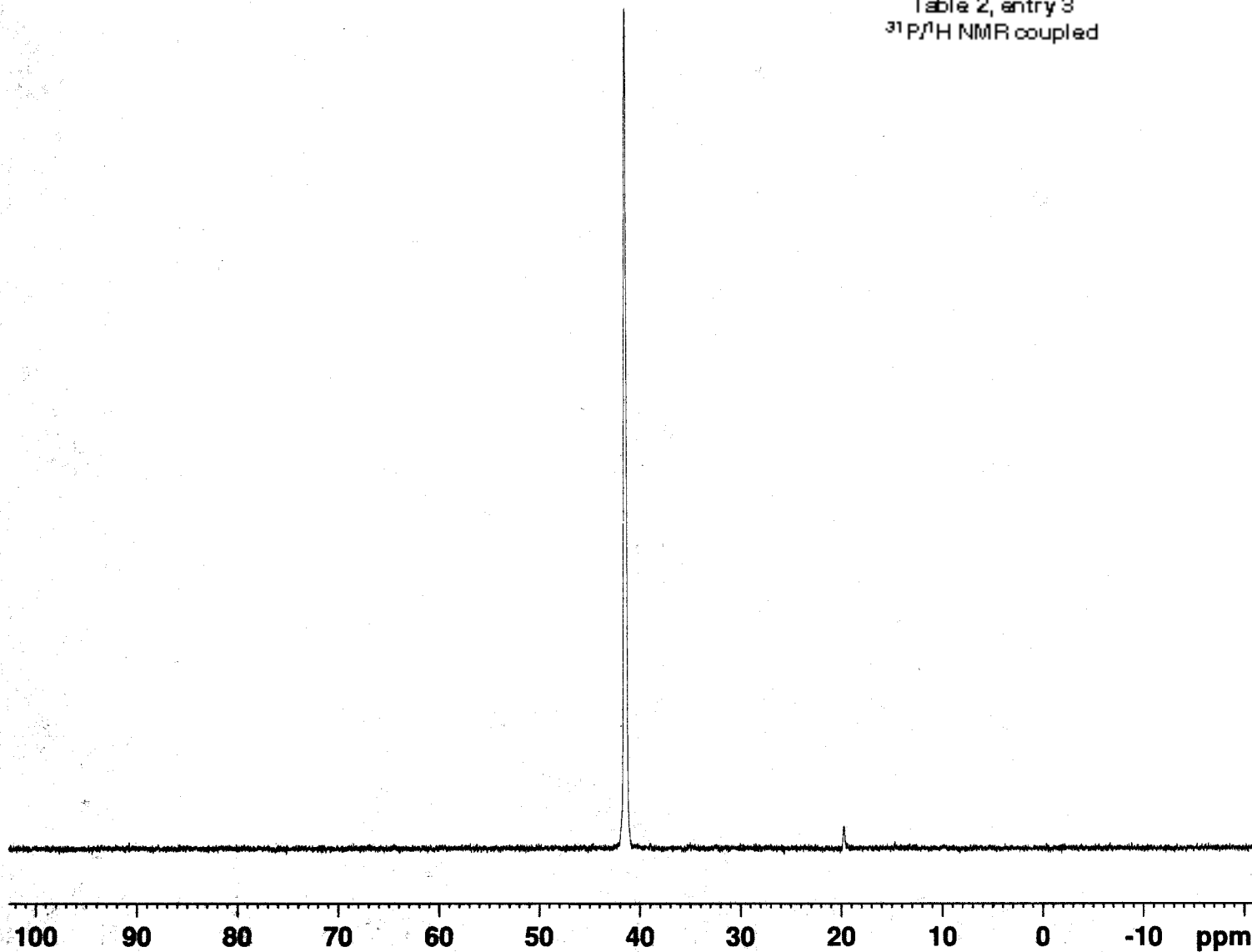


Table 2, entry 3  
 $^{31}\text{P}/^1\text{H}$  NMR coupled



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 EXPNO 4  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150720  
 Time 14.19  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDC13  
 NS 16  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 295.2 K  
 D1 2.00000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SFO1 161.9674942 MHz  
 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.00000000 W

F2 - Processing parameters  
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 LB 1.00 Hz  
 GB 0  
 PC 1.40

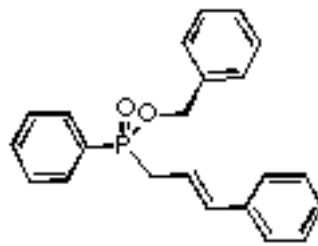


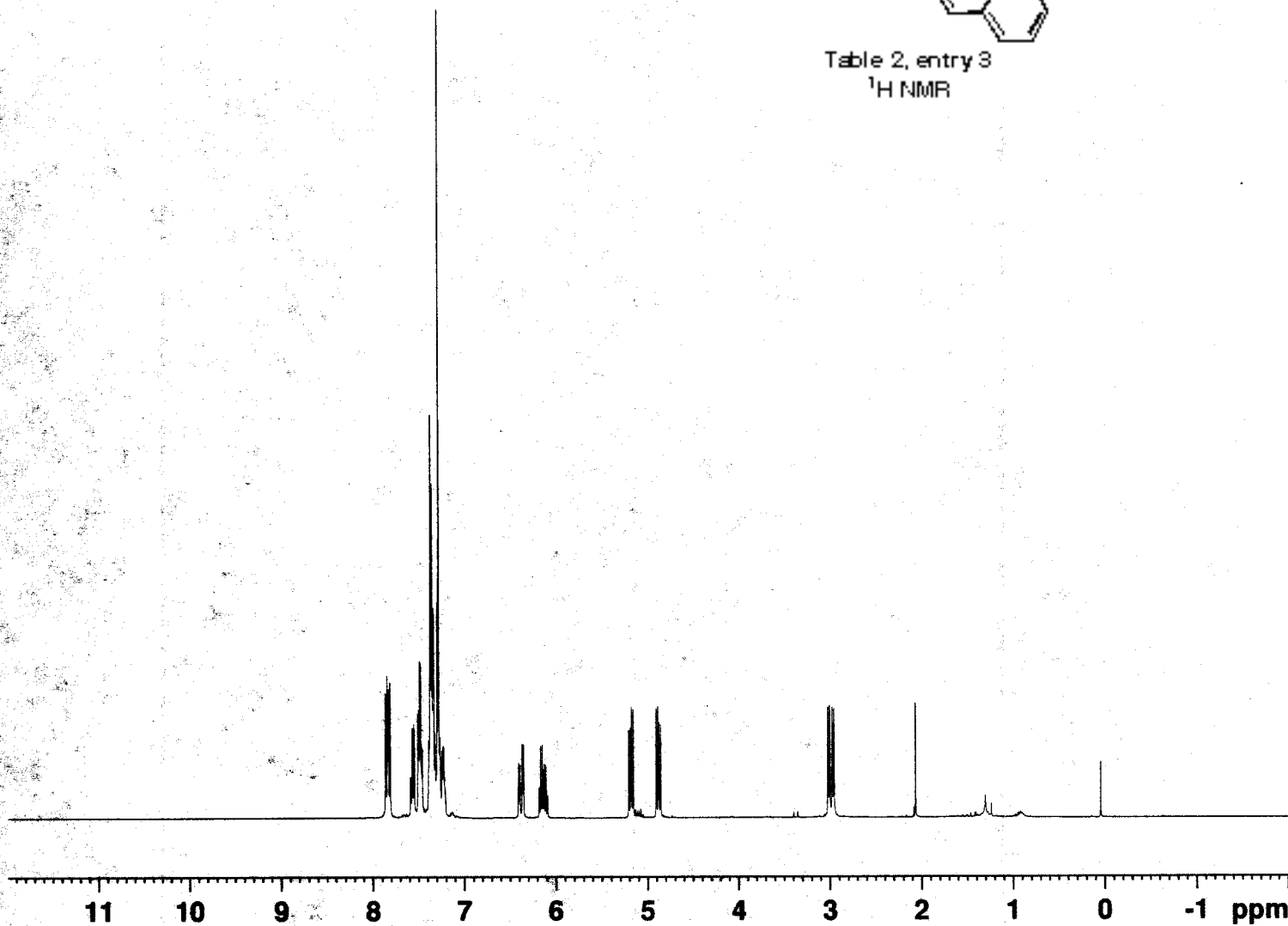
Table 2, entry 3  
<sup>1</sup>H NMR

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 EXPNO 5  
 PROCNO 1

F2 - Acquisition Parameters  
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 Time 14.25  
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 PULPROG zg30  
 TD 65536  
 SOLVENT CDC13  
 NS 13  
 DS 2  
 SWH 8012.820 Hz  
 FIDRES 0.122266 Hz  
 AQ 4.0894465 sec  
 RG 32.38  
 DW 62.400 usec  
 DE 6.50 usec  
 TE 295.2 K  
 D1 1.0000000 sec  
 TD0 1

==== CHANNEL f1 =====  
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 NUC1 1H  
 P1 10.00 usec  
 PLW1 25.00300026 W

F2 - Processing parameters  
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 SF 400.1300000 MHz  
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16.23  
 1.00  
 0.99  
 2.20  
 2.03

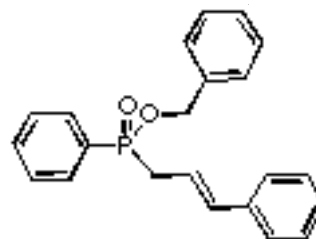
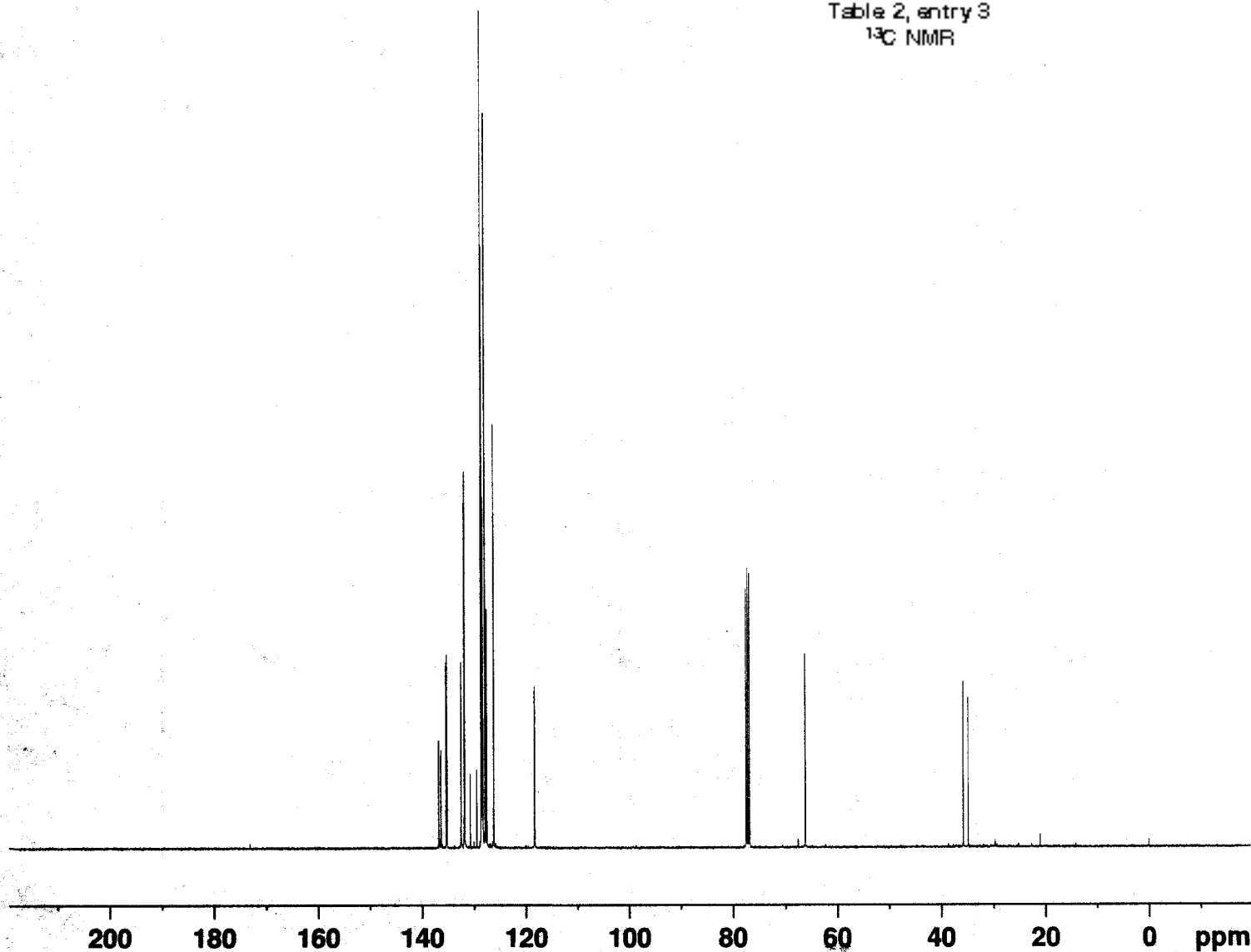


Table 2, entry 3  
<sup>13</sup>C NMR



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 PROCNO 1

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 INSTRUM spect  
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 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 1024  
 DS 4  
 SWH 24038.461 Hz  
 FIDRES 0.366798 Hz  
 AQ 1.3631488 sec  
 RG 203.57  
 DW 20.800 usec  
 DE 6.50 usec  
 TE 295.9 K  
 D1 2.0000000 sec  
 D11 0.0300000 sec  
 TD0 1

==== CHANNEL f1 =====  
 SFO1 100.6228293 MHz  
 NUC1 13C  
 P1 10.00 usec  
 PLW1 45.0000000 W

==== CHANNEL f2 =====  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG[2] waltz16  
 PCPD2 90.00 usec  
 PLW2 10.0000000 W  
 PLW12 0.31604999 W  
 PLW13 0.25600001 W

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 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

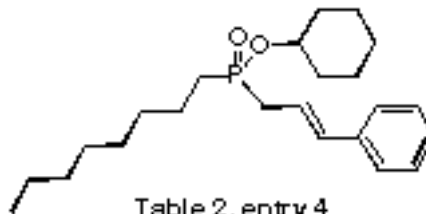


Table 2, entry 4  
<sup>31</sup>P/<sup>1</sup>H NMR decoupled

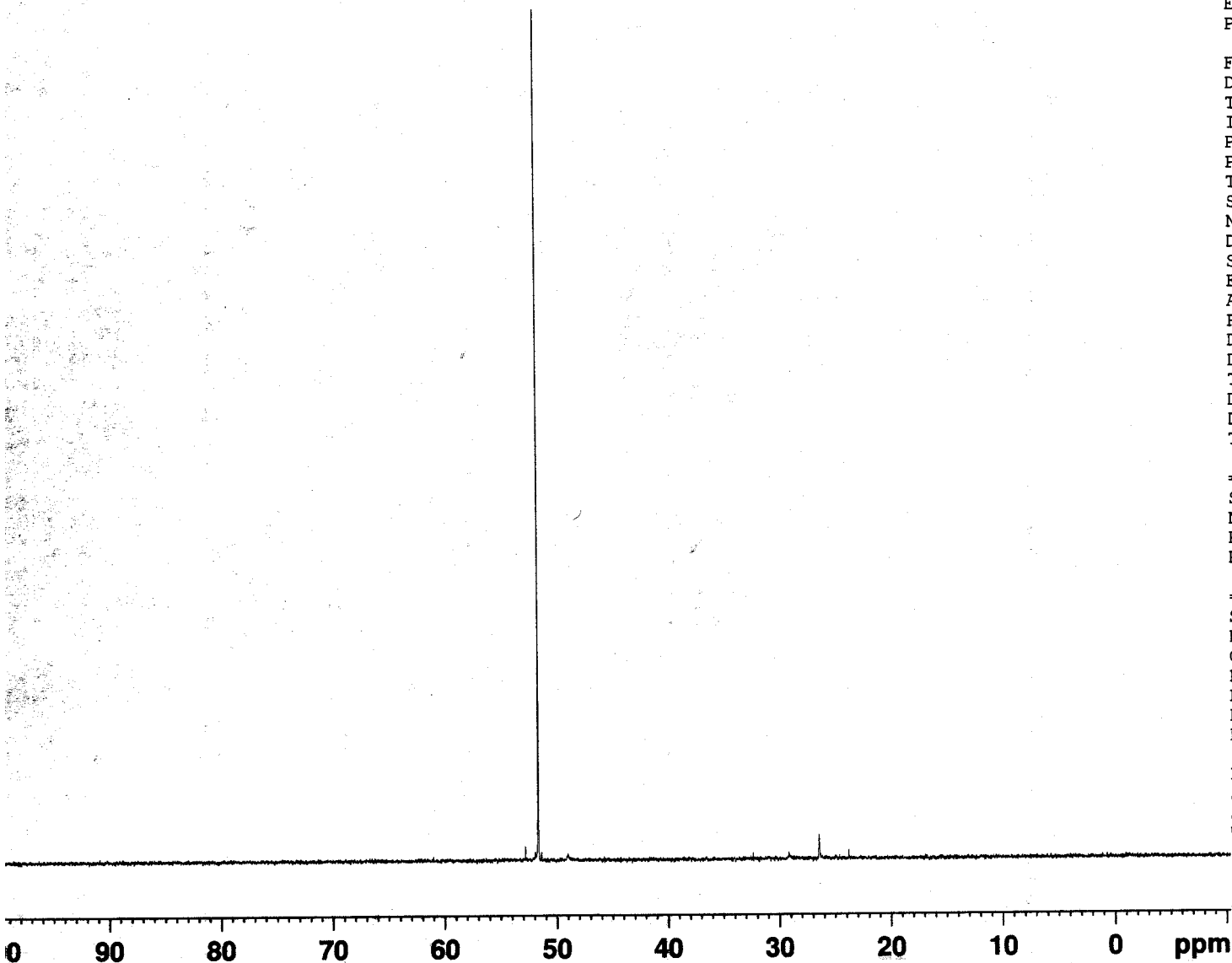
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 EXPNO 1  
 PROCNO 1

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 PULPROG zgpg30  
 TD 65536  
 SOLVENT DMSO  
 NS 16  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 294.5 K  
 D1 2.00000000 sec  
 D11 0.03000000 sec  
 TD0 1

==== CHANNEL f1 =====  
 SFO1 161.9674942 MHz  
 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.00000000 W

==== CHANNEL f2 =====  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG[2] waltz16  
 PCPD2 90.00 usec  
 PLW2 10.00000000 W  
 PLW12 0.31604999 W  
 PLW13 0.25600001 W

F2 - Processing parameters  
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 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40



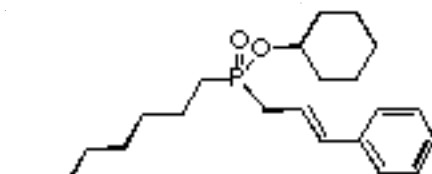
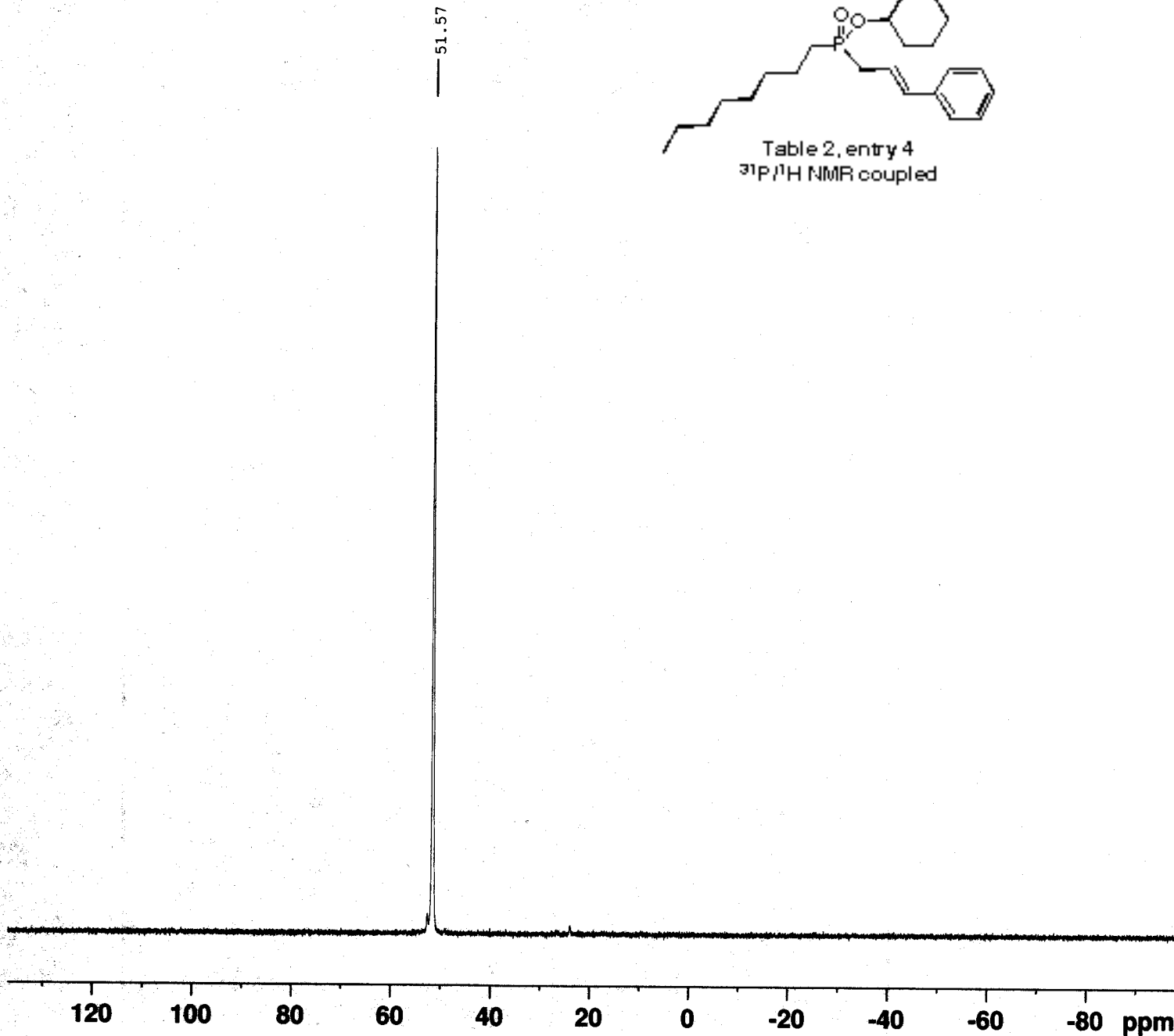


Table 2, entry 4  
 $^{31}\text{P}/^1\text{H}$  NMR coupled

51.57



Current Data Parameters  
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 EXPNO 1  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150617  
 Time 11.32  
 INSTRUM spect  
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 PULPROG zg30  
 TD 65536  
 SOLVENT Acetone  
 NS 21  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 294.2 K  
 D1 2.00000000 sec  
 TDO 1

===== CHANNEL f1 =====  
 SFO1 161.9674942 MHz  
 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.00000000 W

F2 - Processing parameters  
 SI 32768  
 SF 161.9755930 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

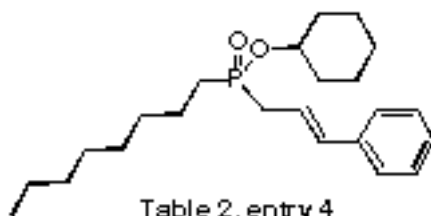
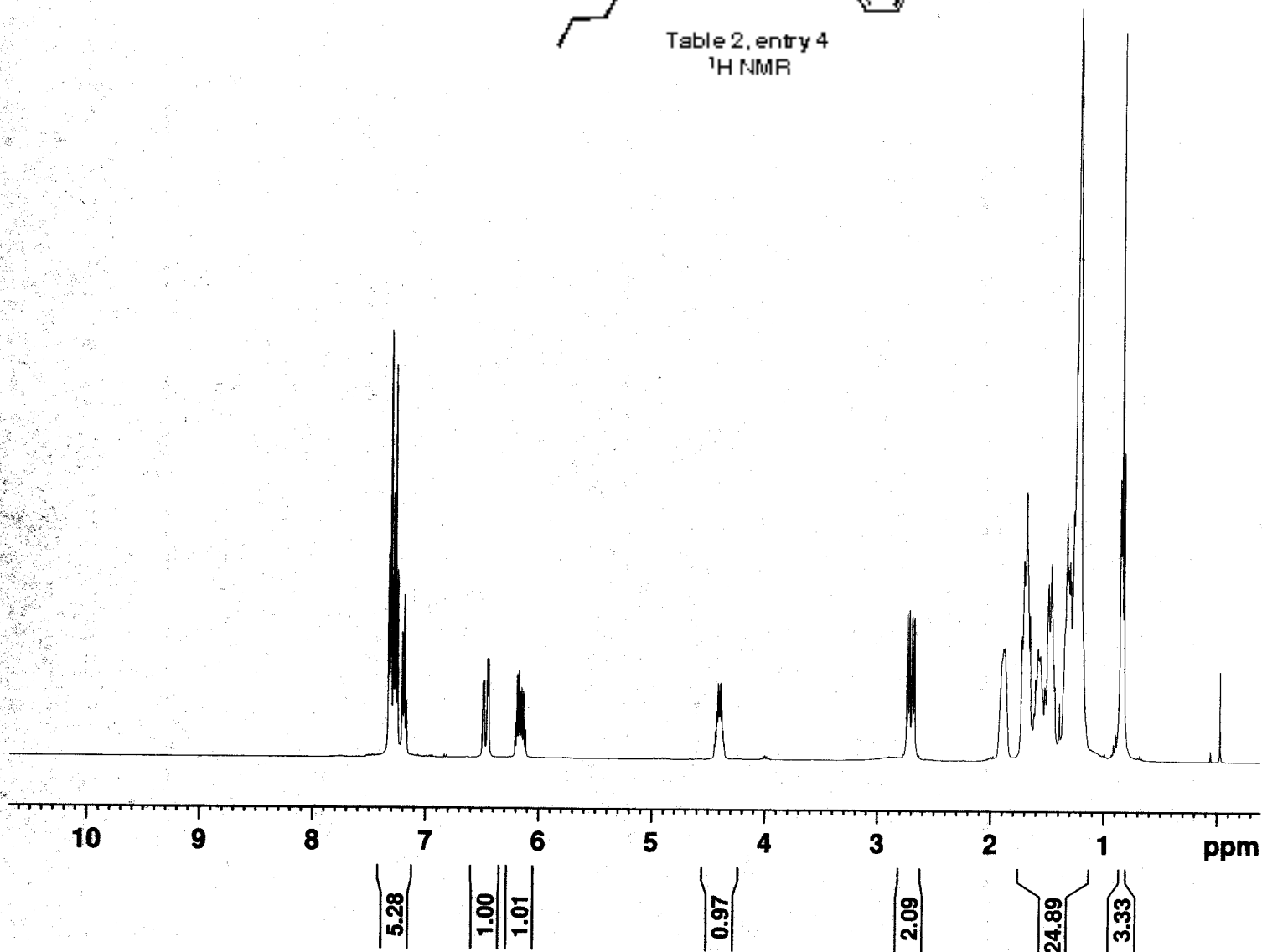


Table 2, entry 4  
<sup>1</sup>H NMR



Current Data Parameters  
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 EXPNO 2  
 PROCNO 1

F2 - Acquisition Parameters  
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 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDC13  
 NS 16  
 DS 2  
 SWH 8012.820 Hz  
 FIDRES 0.122266 Hz  
 AQ 4.0894465 sec  
 RG 11.05  
 DW 62.400 usec  
 DE 6.50 usec  
 TE 294.1 K  
 D1 1.00000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SF01 400.1324710 MHz  
 NUC1 1H  
 P1 10.00 usec  
 PLW1 25.00300026 W

F2 - Processing parameters  
 SI 65536  
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 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00



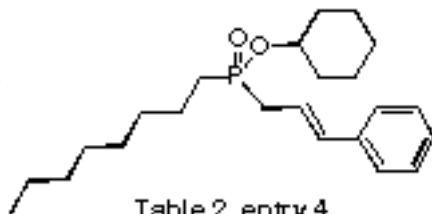
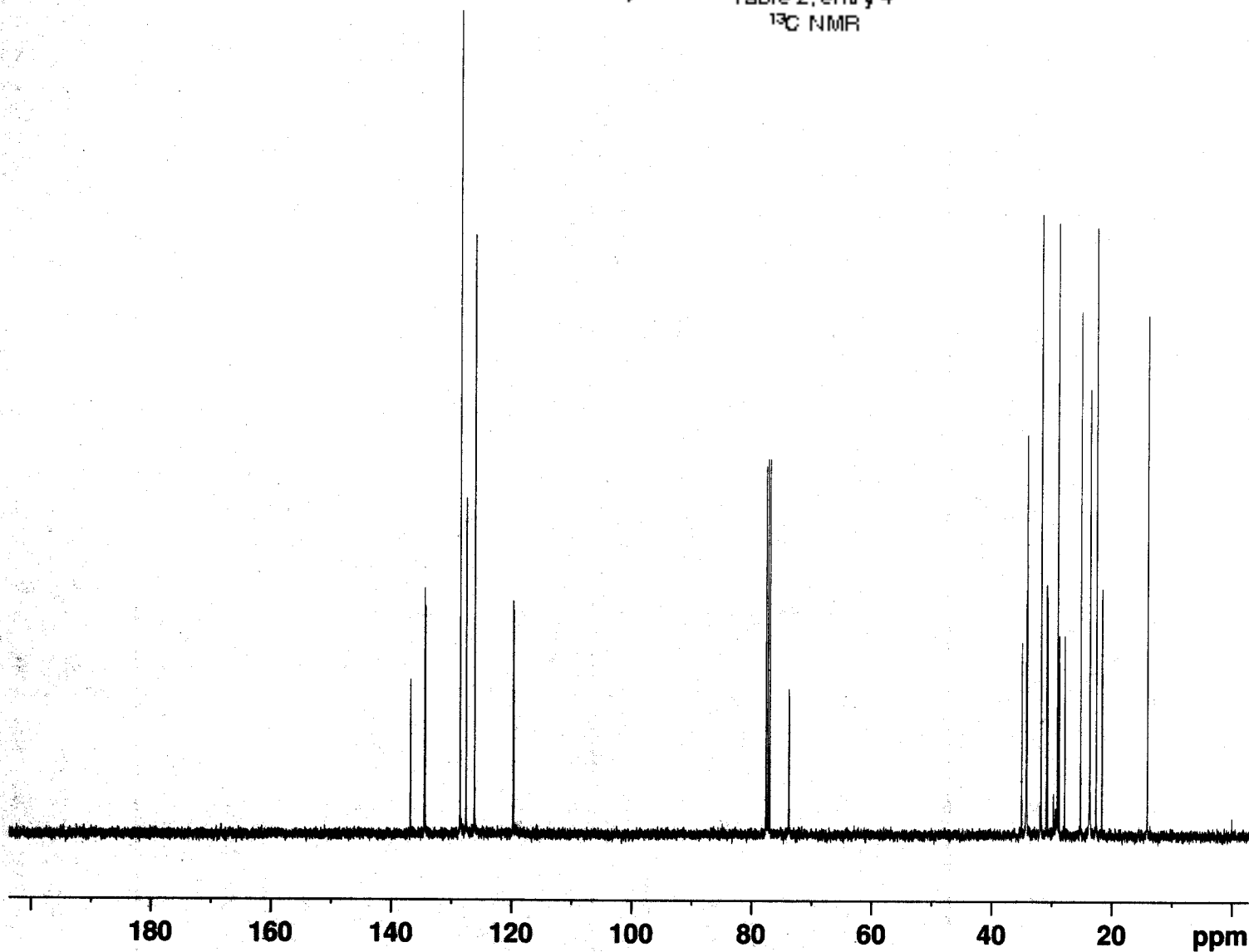


Table 2, entry 4  
<sup>13</sup>C NMR



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 EXPNO 3  
 PROCNO 1

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 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDC13  
 NS 56  
 DS 4  
 SWH 24038.461 Hz  
 FIDRES 0.366798 Hz  
 AQ 1.3631488 sec  
 RG 203.57  
 DW 20.800 usec  
 DE 6.50 usec  
 TE 294.8 K  
 D1 2.00000000 sec  
 D11 0.03000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SFO1 100.6228293 MHz  
 NUC1 13C  
 P1 10.00 usec  
 PLW1 45.00000000 W

===== CHANNEL f2 =====  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG[2] waltz16  
 PCPD2 90.00 usec  
 PLW2 10.00000000 W  
 PLW12 0.31604999 W  
 PLW13 0.25600001 W

F2 - Processing parameters  
 SI 32768  
 SF 100.6127685 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

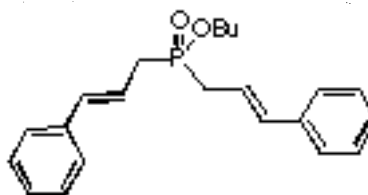
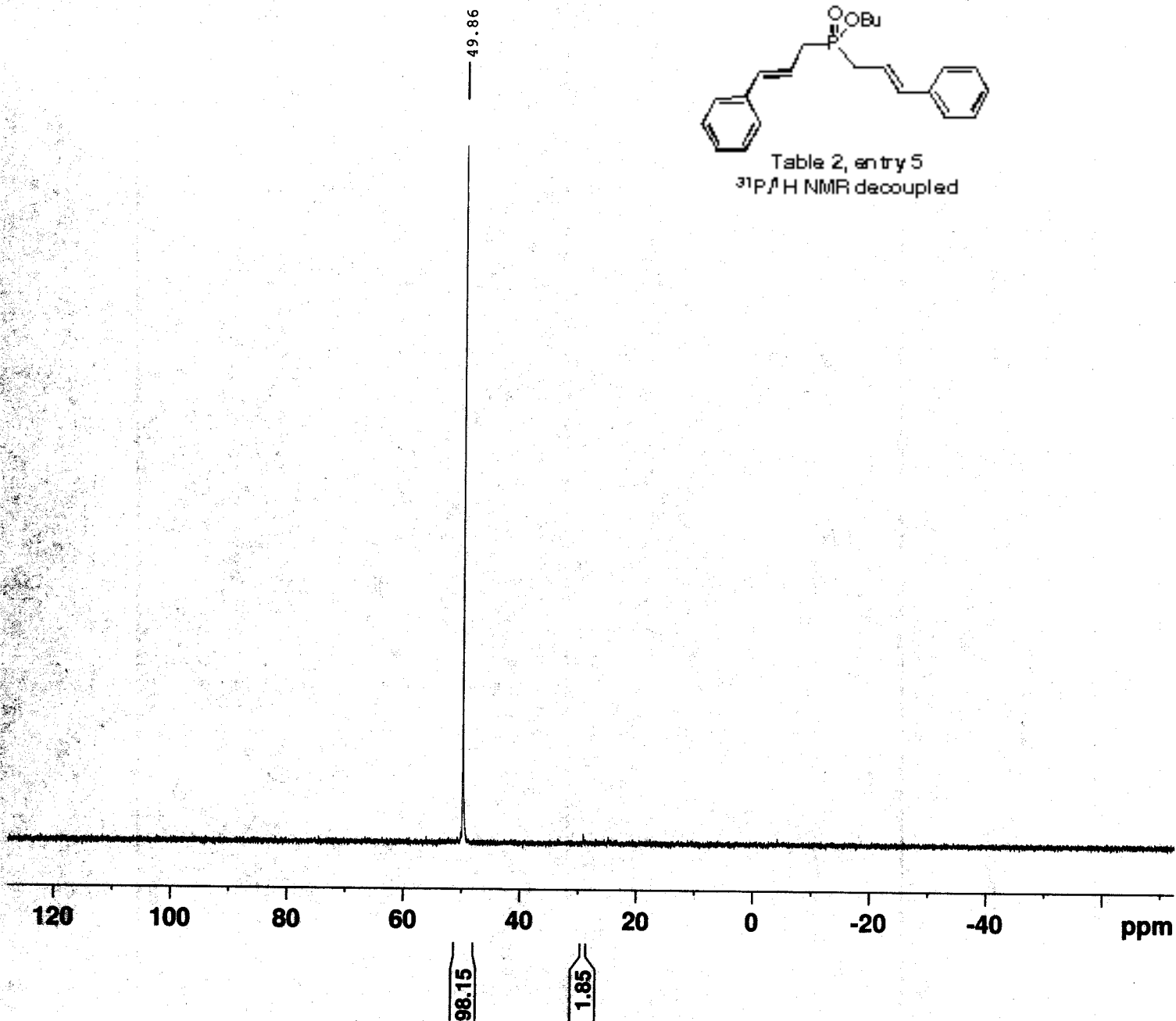


Table 2, entry 5  
<sup>31</sup>P, <sup>1</sup>H NMR decoupled



Current Data Parameters  
 NAME AFL003  
 EXPNO 1  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150604  
 Time 14.15  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDC13  
 NS 16  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 294.7 K  
 D1 2.0000000 sec  
 D11 0.03000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SFO1 161.9674942 MHz  
 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.00000000 W

===== CHANNEL f2 =====  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG[2] waltz16  
 PCPD2 90.00 usec  
 PLW2 10.00000000 W  
 PLW12 0.31604999 W  
 PLW13 0.25600001 W

F2 - Processing parameters  
 SI 32768  
 SF 161.9755930 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

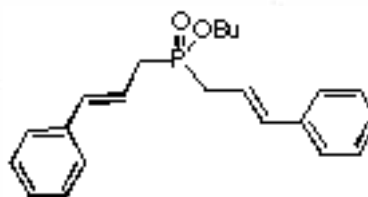
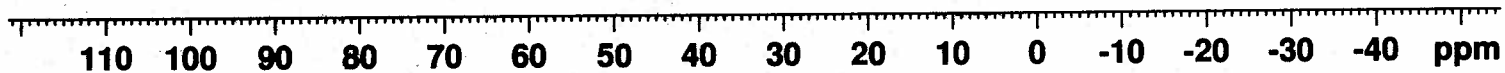


Table 2, entry 5  
 $^{31}\text{P}/^1\text{H}$  NMR coupled

49.72



Current Data Parameters  
 NAME AFL003  
 EXPNO 2  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150604  
 Time 14.17  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 32  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 294.2 K  
 D1 2.00000000 sec  
 TD0 1

==== CHANNEL f1 =====  
 SFO1 161.9674942 MHz  
 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.00000000 W

F2 - Processing parameters  
 SI 32768  
 SF 161.9755930 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

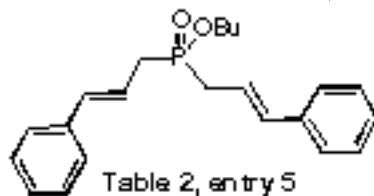
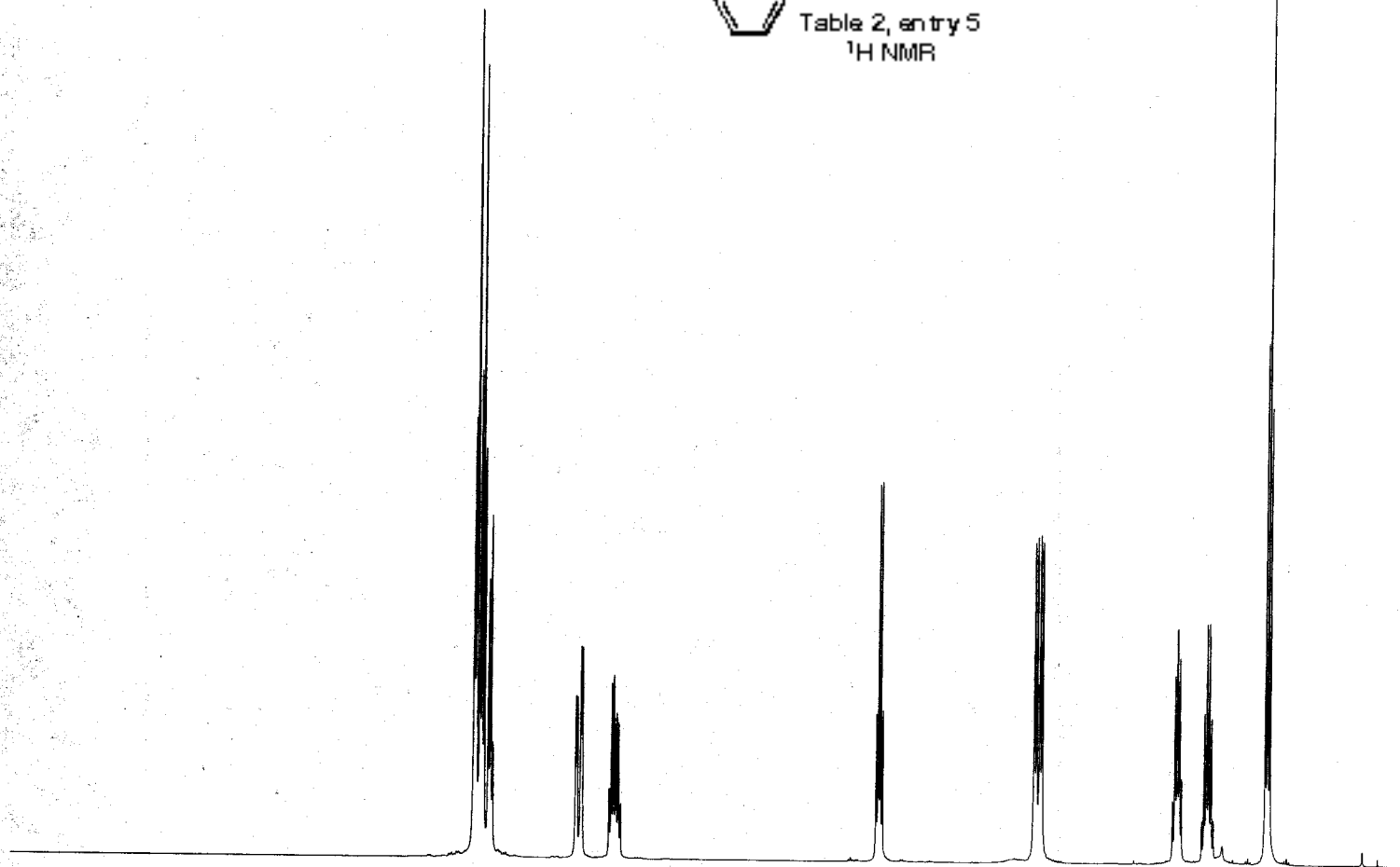


Table 2, entry 5  
<sup>1</sup>H NMR

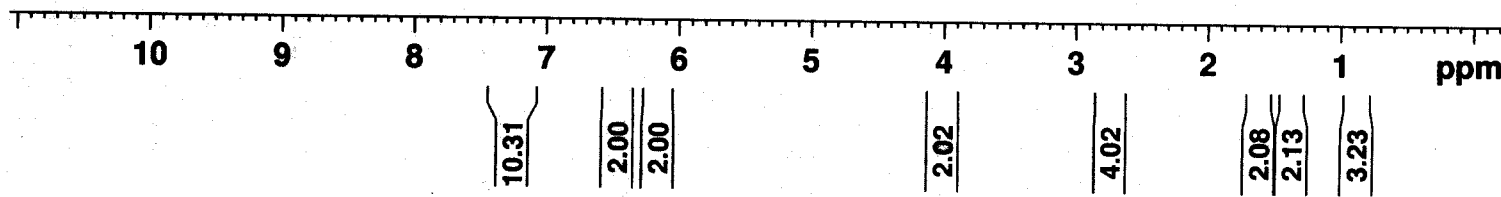


Current Data Parameters  
 NAME AFL003rab  
 EXPNO 4  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150819  
 Time 10.24  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 13  
 DS 2  
 SWH 8012.820 Hz  
 FIDRES 0.122266 Hz  
 AQ 4.0894465 sec  
 RG 10.22  
 DW 62.400 usec  
 DE 6.50 usec  
 TE 294.9 K  
 D1 1.0000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SF01 400.1324710 MHz  
 NUC1 1H  
 P1 10.00 usec  
 PLW1 25.00300026 W

F2 - Processing parameters  
 SI 65536  
 SF 400.130000 MHz  
 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00



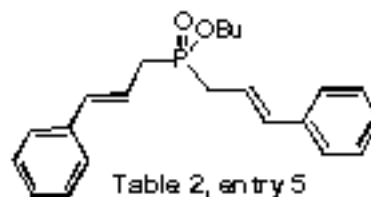
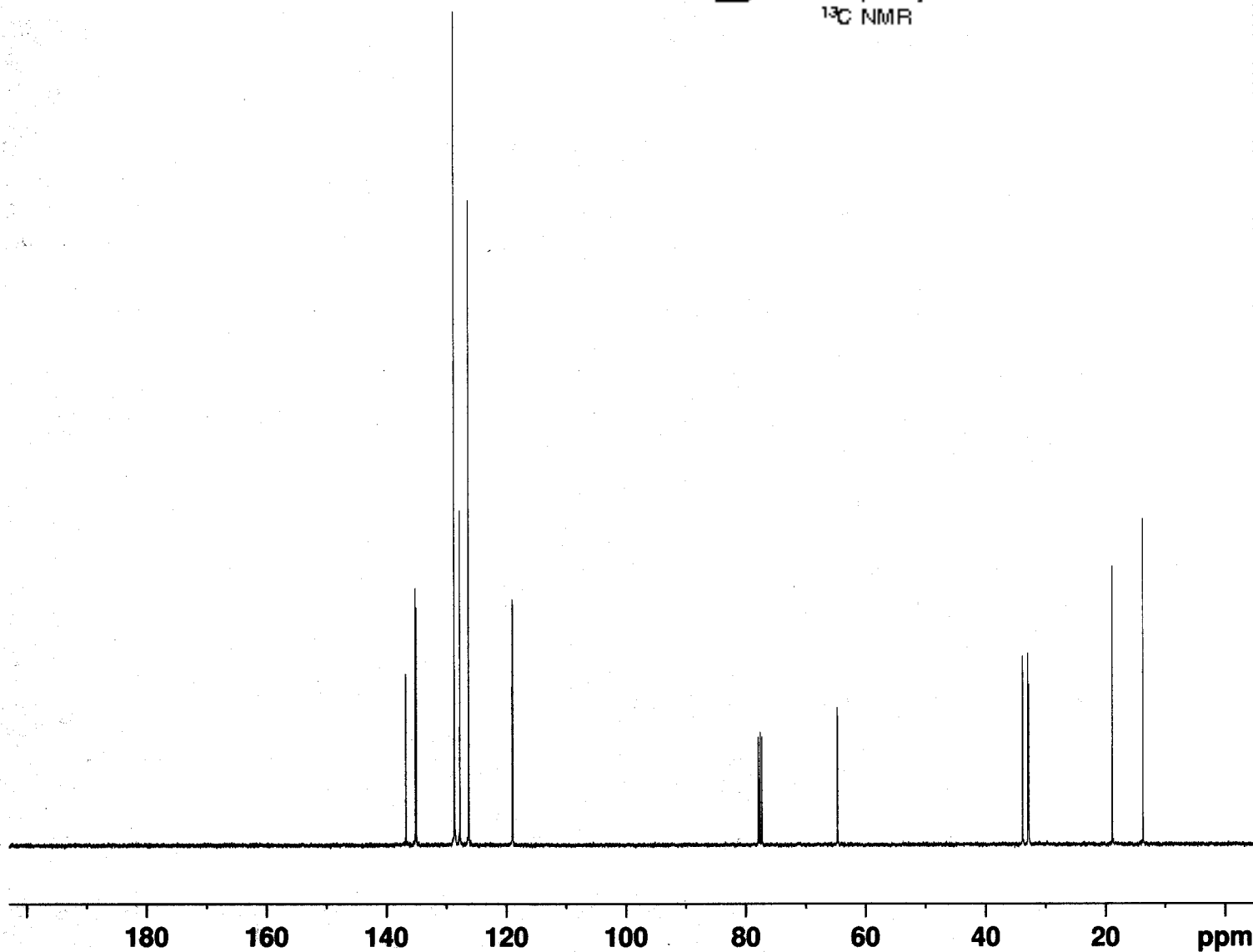


Table 2, entry 5  
<sup>13</sup>C NMR



Current Data Parameters  
 NAME AFL003rab  
 EXPNO 5  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150819  
 Time 10.33  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 41  
 DS 4  
 SWH 24038.461 Hz  
 FIDRES 0.366798 Hz  
 AQ 1.3631488 sec  
 RG 203.57  
 DW 20.800 usec  
 DE 6.50 usec  
 TE 295.6 K  
 D1 2.00000000 sec  
 D11 0.03000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SFO1 100.6228293 MHz  
 NUC1 13C  
 P1 10.00 usec  
 PLW1 45.00000000 W

===== CHANNEL f2 =====  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG[2] waltz16  
 PCPD2 90.00 usec  
 PLW2 10.00000000 W  
 PLW12 0.31604999 W  
 PLW13 0.25600001 W

F2 - Processing parameters  
 SI 32768  
 SF 100.6127685 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

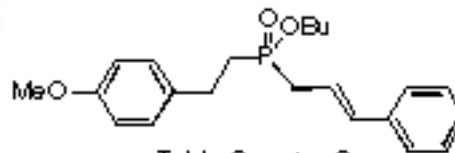


Table 2, entry 6  
 $^{31}\text{P}/^1\text{H}$  NMR decoupled



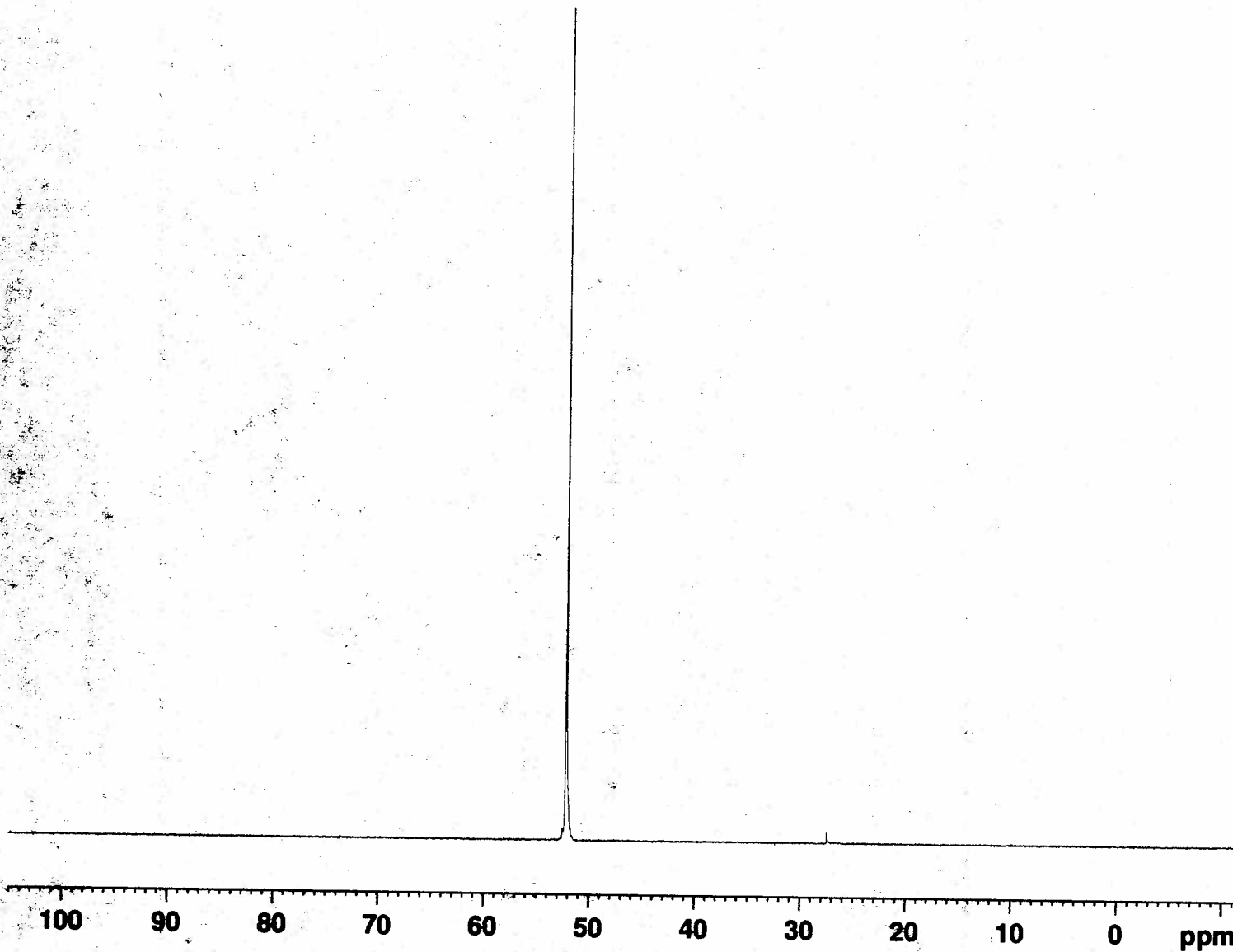
Current Data Parameters  
 NAME AFL047  
 EXPNO 3  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150721  
 Time 11.31  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDC13  
 NS 16  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 295.0 K  
 D1 2.00000000 sec  
 D11 0.03000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SFO1 161.9674942 MHz  
 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.00000000 W

===== CHANNEL f2 =====  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG[2] waltz16  
 PCPD2 90.00 usec  
 PLW2 10.00000000 W  
 PLW12 0.31604999 W  
 PLW13 0.25600001 W

F2 - Processing parameters  
 SI 32768  
 SF 161.9755930 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40



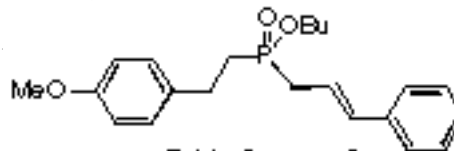
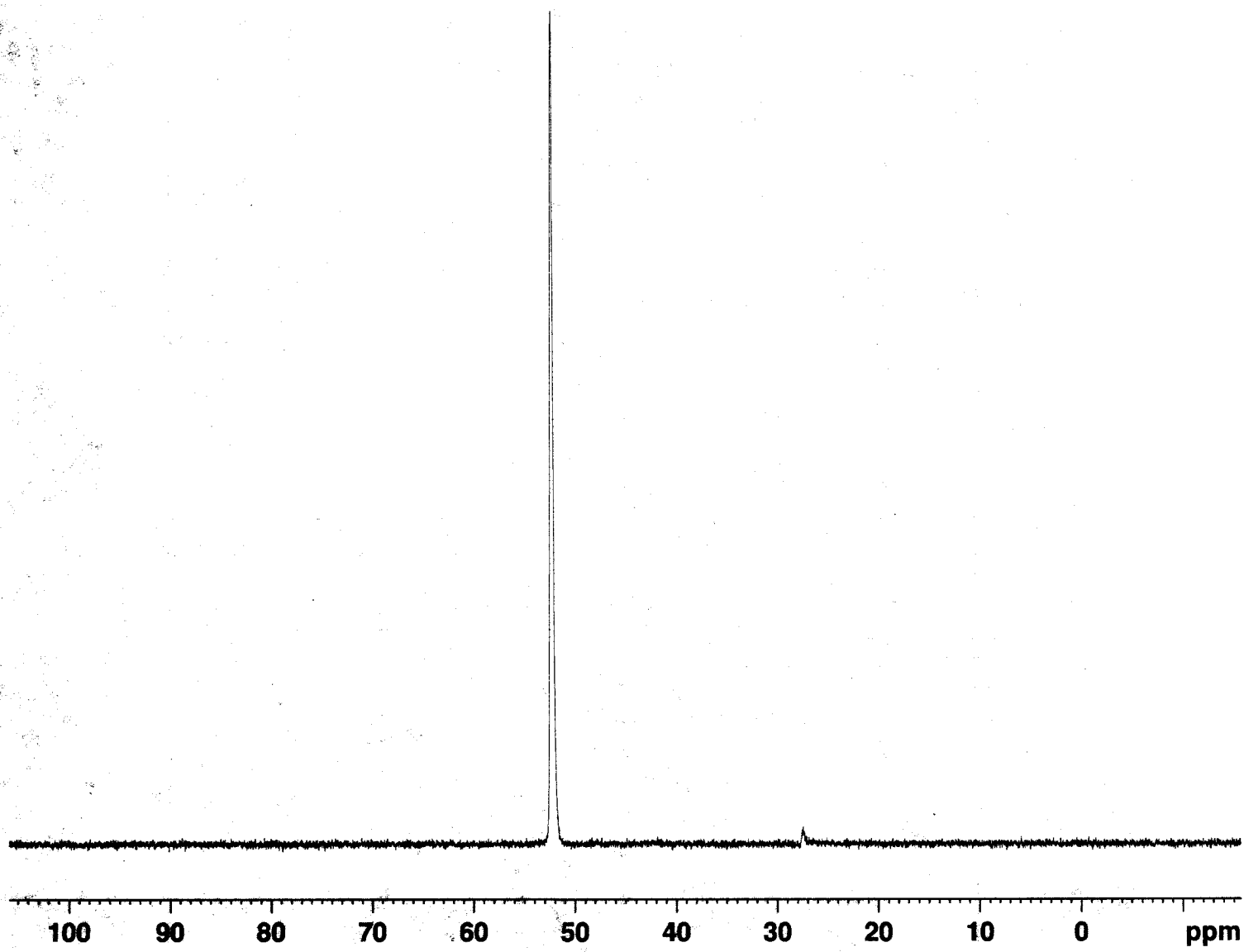


Table 2, entry 6  
 $^{31}\text{P}/^1\text{H}$  NMR coupled



Current Data Parameters  
 NAME AFL047  
 EXPNO 4  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150721  
 Time 11.33  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDC13  
 NS 30  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 294.6 K  
 D1 2.00000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SFO1 161.9674942 MHz  
 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.00000000 W

F2 - Processing parameters  
 SI 32768  
 SF 161.9755930 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

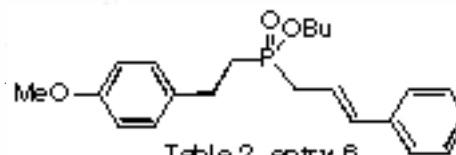


Table 2, entry 6  
<sup>1</sup>H NMR

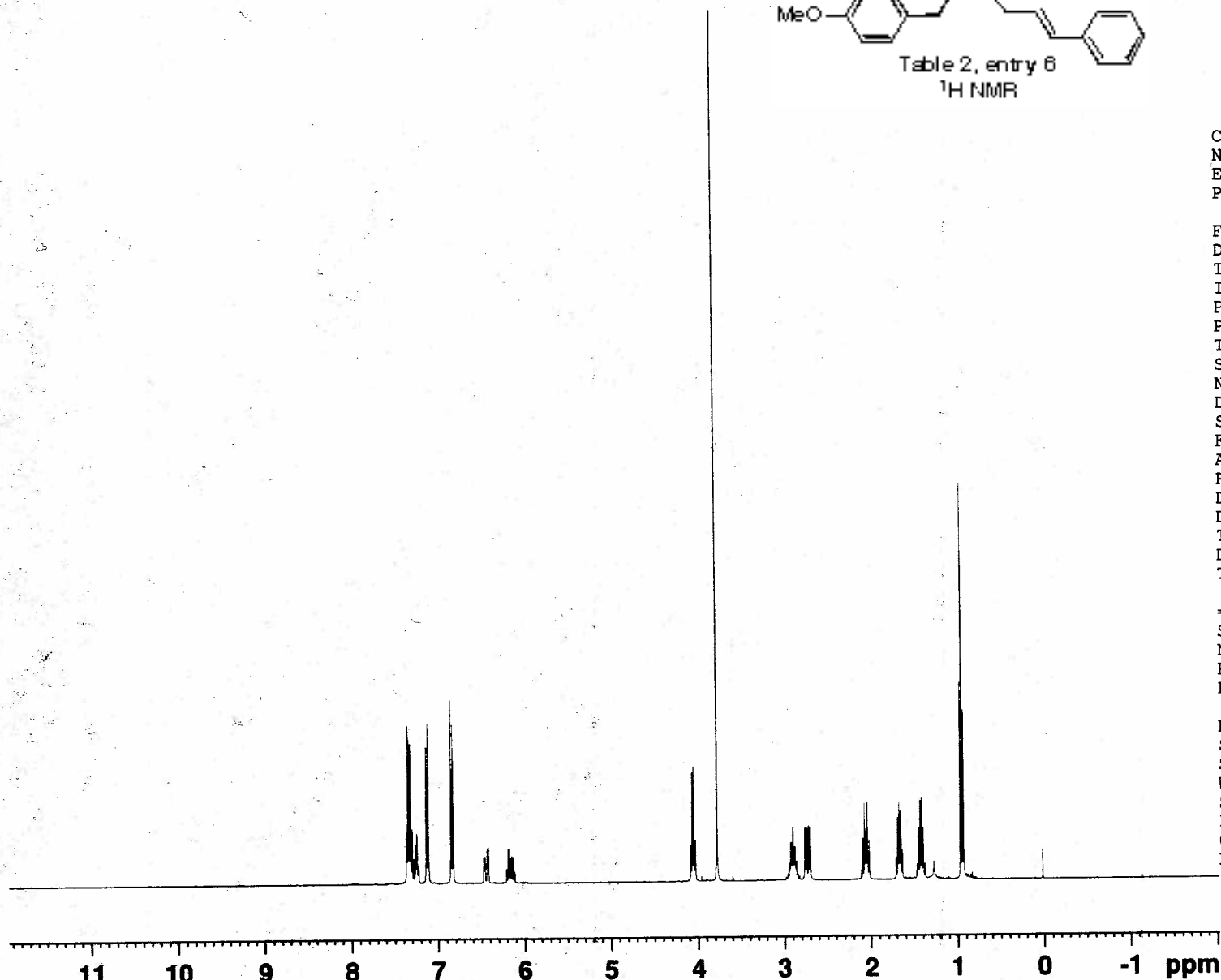


Current Data Parameters  
 NAME AFL047  
 EXPNO 5  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150721  
 Time 11.40  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 16  
 DS 2  
 SWH 8012.820 Hz  
 FIDRES 0.122266 Hz  
 AQ 4.0894465 sec  
 RG 32.38  
 DW 62.400 usec  
 DE 6.50 usec  
 TE 294.6 K  
 D1 1.0000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SFO1 400.1324710 MHz  
 NUC1 1H  
 P1 10.00 usec  
 PLW1 25.00300026 W

F2 - Processing parameters  
 SI 65536  
 SF 400.1300000 MHz  
 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00



9.59  
 1.00  
 1.01  
 2.04  
 3.15  
 2.13  
 2.05  
 2.12  
 4.43  
 3.17



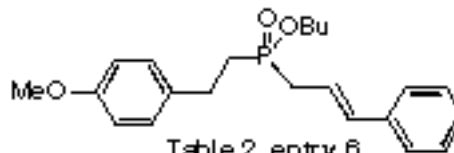


Table 2, entry 6  
<sup>13</sup>C NMR

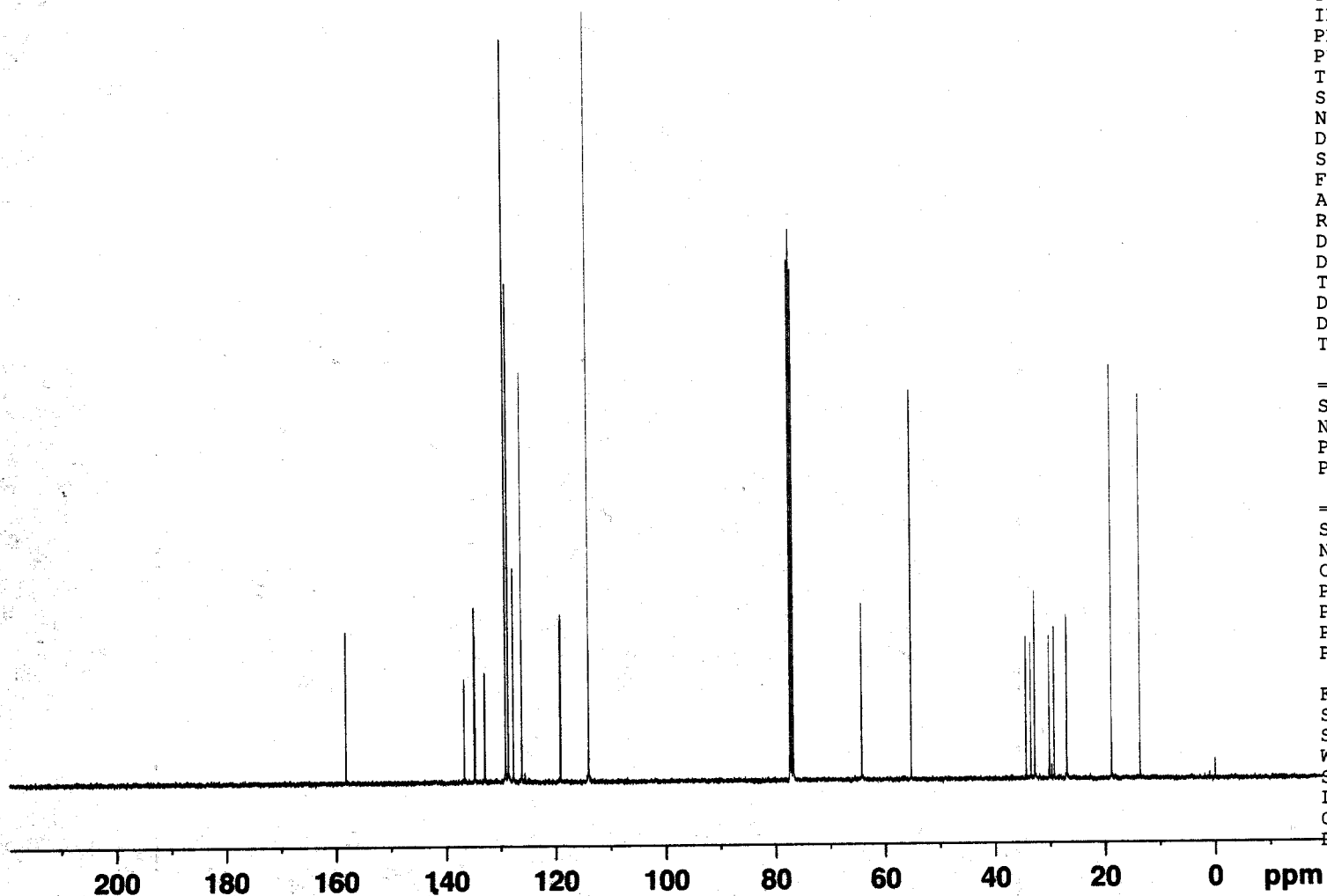
Current Data Parameters  
 NAME AFL047  
 EXPNO 6  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150826  
 Time 10.34  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 682  
 DS 4  
 SWH 24038.461 Hz  
 FIDRES 0.366798 Hz  
 AQ 1.3631488 sec  
 RG 203.57  
 DW 20.800 usec  
 DE 6.50 usec  
 TE 295.0 K  
 D1 2.00000000 sec  
 D11 0.03000000 sec  
 TD0 1

==== CHANNEL f1 =====  
 SFO1 100.6228293 MHz  
 NUC1 13C  
 P1 10.00 usec  
 PLW1 45.00000000 W

==== CHANNEL f2 =====  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG[2] waltz16  
 PCPD2 90.00 usec  
 PLW2 10.00000000 W  
 PLW12 0.31604999 W  
 PLW13 0.25600001 W

F2 - Processing parameters  
 SI 32768  
 SF 100.6127685 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40



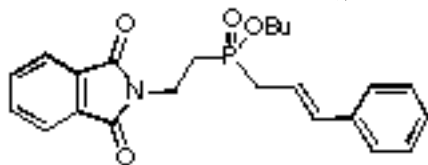


Table 2, entry 7  
 $^{31}\text{P}/^1\text{H}$  NMR decoupled



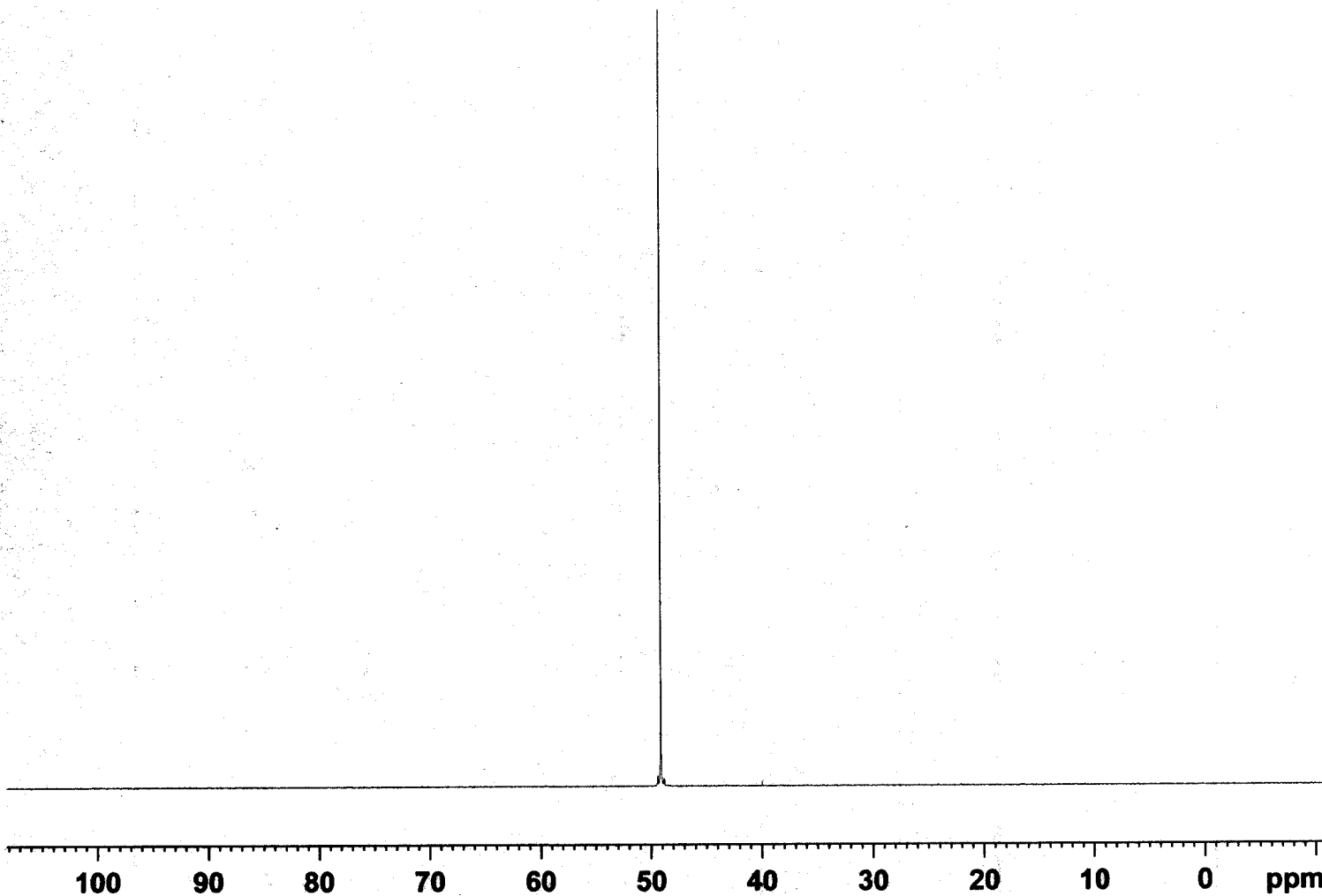
Current Data Parameters  
 NAME OB 1977 pure  
 EXPNO 1  
 PROCNO 1

F2 - Acquisition Parameters  
 Date 20150409  
 Time 17.05  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 16  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 294.4 K  
 D1 2.00000000 sec  
 D11 0.03000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SFO1 161.9674942 MHz  
 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.00000000 W

===== CHANNEL f2 =====  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG[2] waltz16  
 PCPD2 90.00 usec  
 PLW2 10.00000000 W  
 PLW12 0.31604999 W  
 PLW13 0.25600001 W

F2 - Processing parameters  
 SI 32768  
 SF 161.9755930 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40



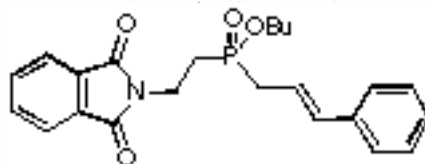


Table 2, entry 7  
 $^{31}\text{P}/^1\text{H}$  NMR coupled

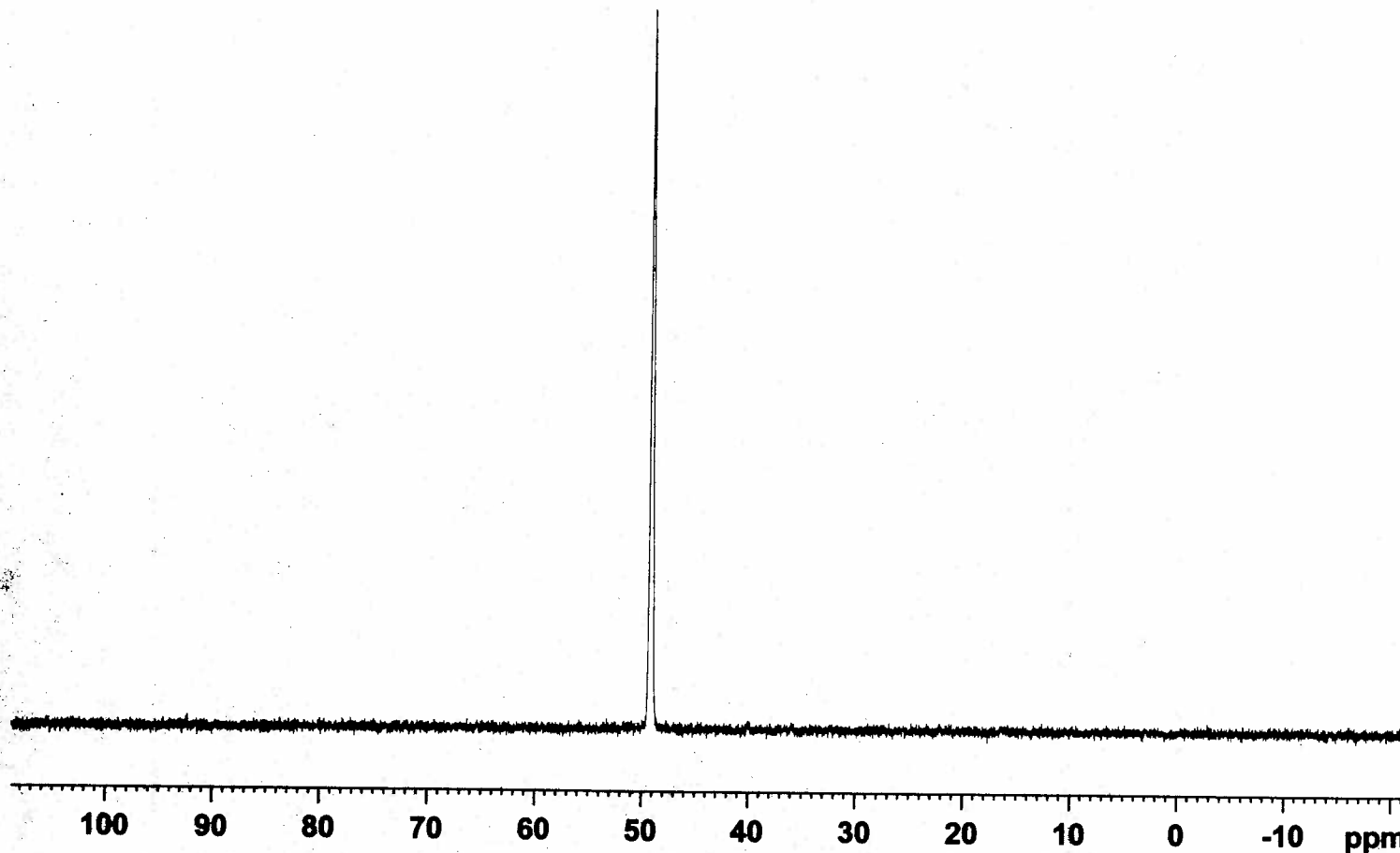


Current Data Parameters  
 NAME OB 1977 pure  
 EXPNO 2  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150409  
 Time\_ 17.07  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 32  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 294.1 K  
 D1 2.00000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SFO1 161.9674942 MHz  
 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.00000000 W

F2 - Processing parameters  
 SI 32768  
 SF 161.9755930 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40



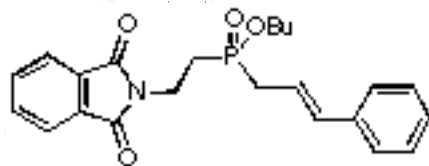


Table 2, entry 7  
<sup>1</sup>H NMR

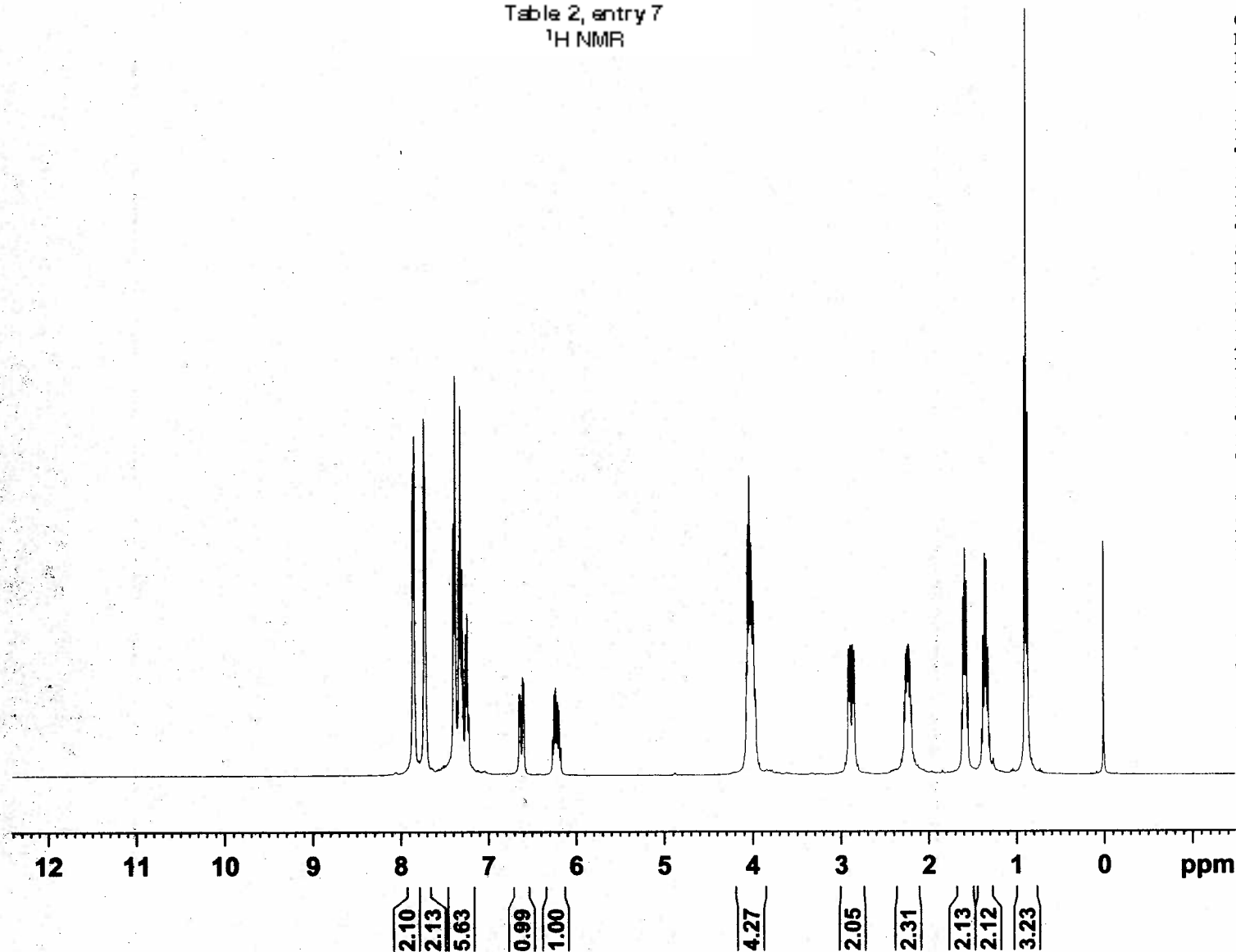


Current Data Parameters  
 NAME OB 1977 pure  
 EXPNO 3  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150409  
 Time\_ 17.08  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDC13  
 NS 9  
 DS 2  
 SWH 8012.820 Hz  
 FIDRES 0.122266 Hz  
 AQ 4.0894465 sec  
 RG 51.43  
 DW 62.400 usec  
 DE 6.50 usec  
 TE 294.2 K  
 D1 1.00000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SF01 400.1324710 MHz  
 NUC1 1H  
 P1 10.00 usec  
 PLW1 25.00300026 W

F2 - Processing parameters  
 SI 65536  
 SF 400.1300000 MHz  
 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00



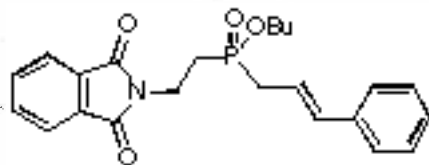


Table 2, entry 7  
<sup>13</sup>C NMR



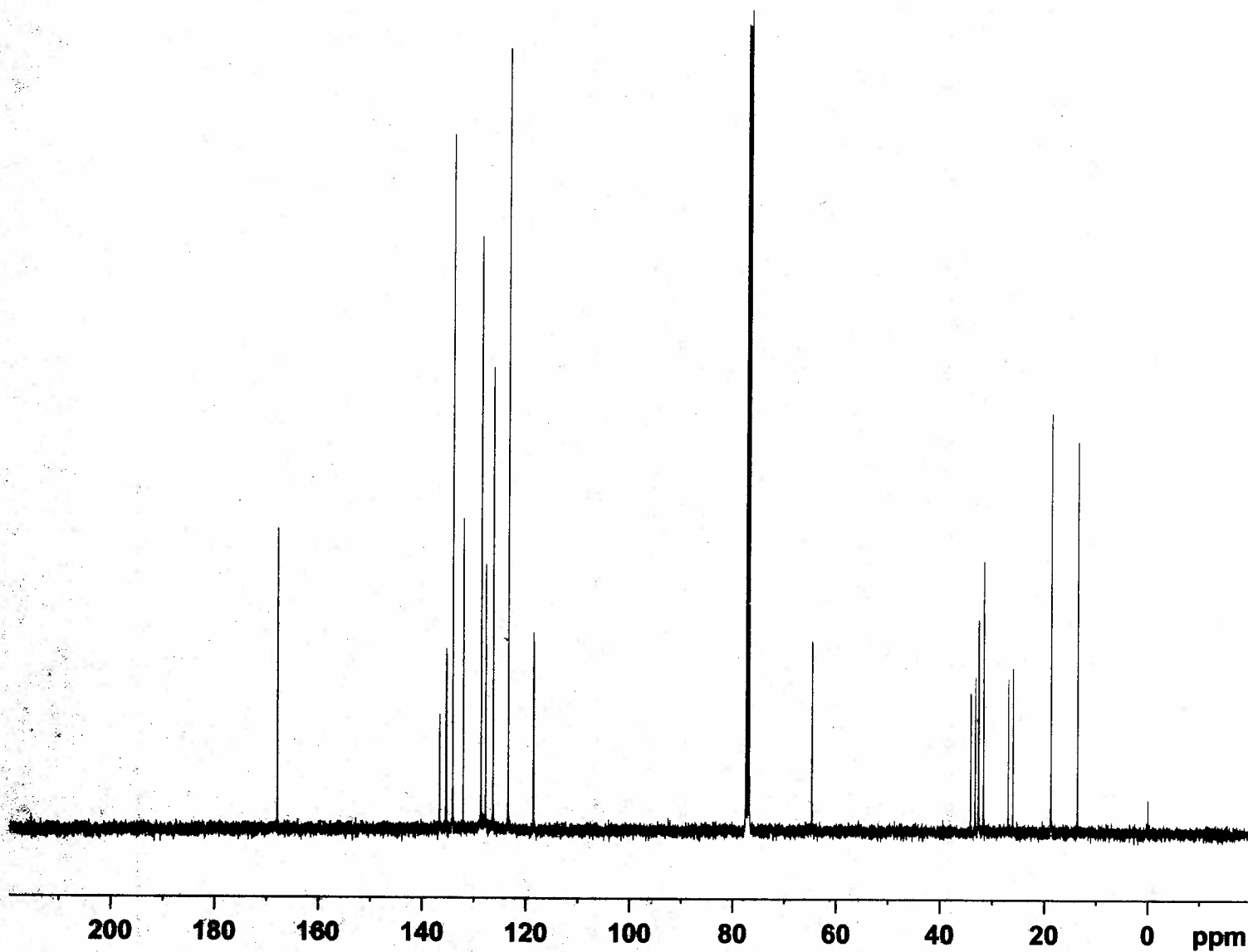
Current Data Parameters  
 NAME OB 1977 pure  
 EXPNO 4  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150409  
 Time\_ 17.30  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 332  
 DS 4  
 SWH 24038.461 Hz  
 FIDRES 0.366798 Hz  
 AQ 1.3631488 sec  
 RG 203.57  
 DW 20.800 usec  
 DE 6.50 usec  
 TE 294.9 K  
 D1 2.0000000 sec  
 D11 0.03000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SFO1 100.6228293 MHz  
 NUC1 13C  
 P1 10.00 usec  
 PLW1 45.00000000 W

===== CHANNEL f2 =====  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG[2] waltz16  
 PCPD2 90.00 usec  
 PLW2 10.00000000 W  
 PLW12 0.31604999 W  
 PLW13 0.25600001 W

F2 - Processing parameters  
 SI 32768  
 SF 100.6127685 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40



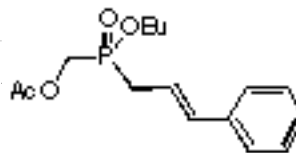
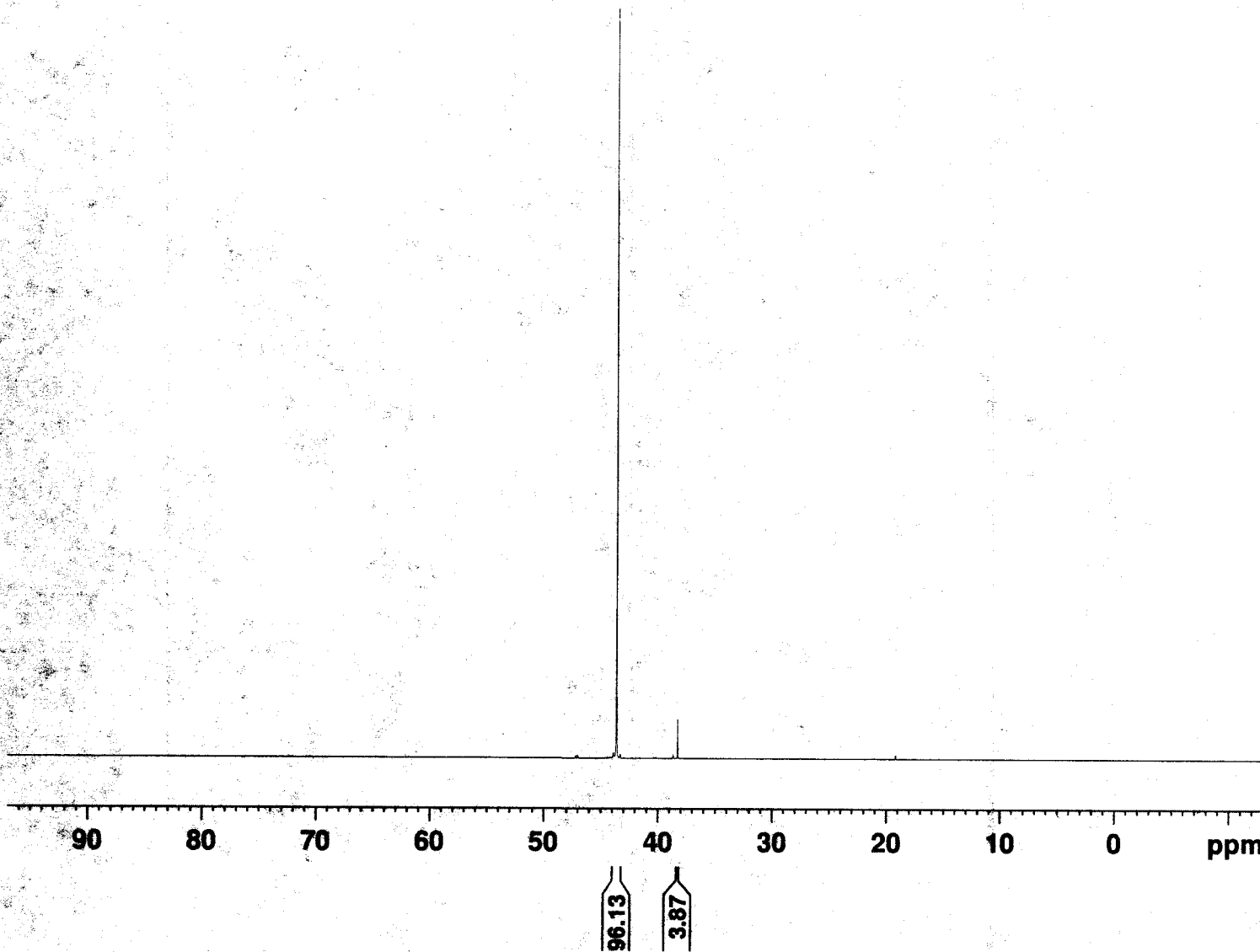


Table 2, entry 8  
<sup>31</sup>P/<sup>1</sup>H NMR decoupled



Current Data Parameters  
 NAME AFL043  
 EXPNO 3  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150720  
 Time 14.00  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDC13  
 NS 16  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 295.6 K  
 D1 2.00000000 sec  
 D11 0.03000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SFO1 161.9674942 MHz  
 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.00000000 W

===== CHANNEL f2 =====  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG[2] waltz16  
 PCPD2 90.00 usec  
 PLW2 10.00000000 W  
 PLW12 0.31604999 W  
 PLW13 0.25600001 W

F2 - Processing parameters  
 SI 32768  
 SF 161.9755930 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

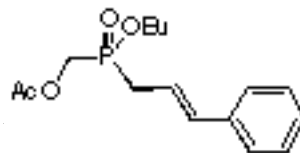


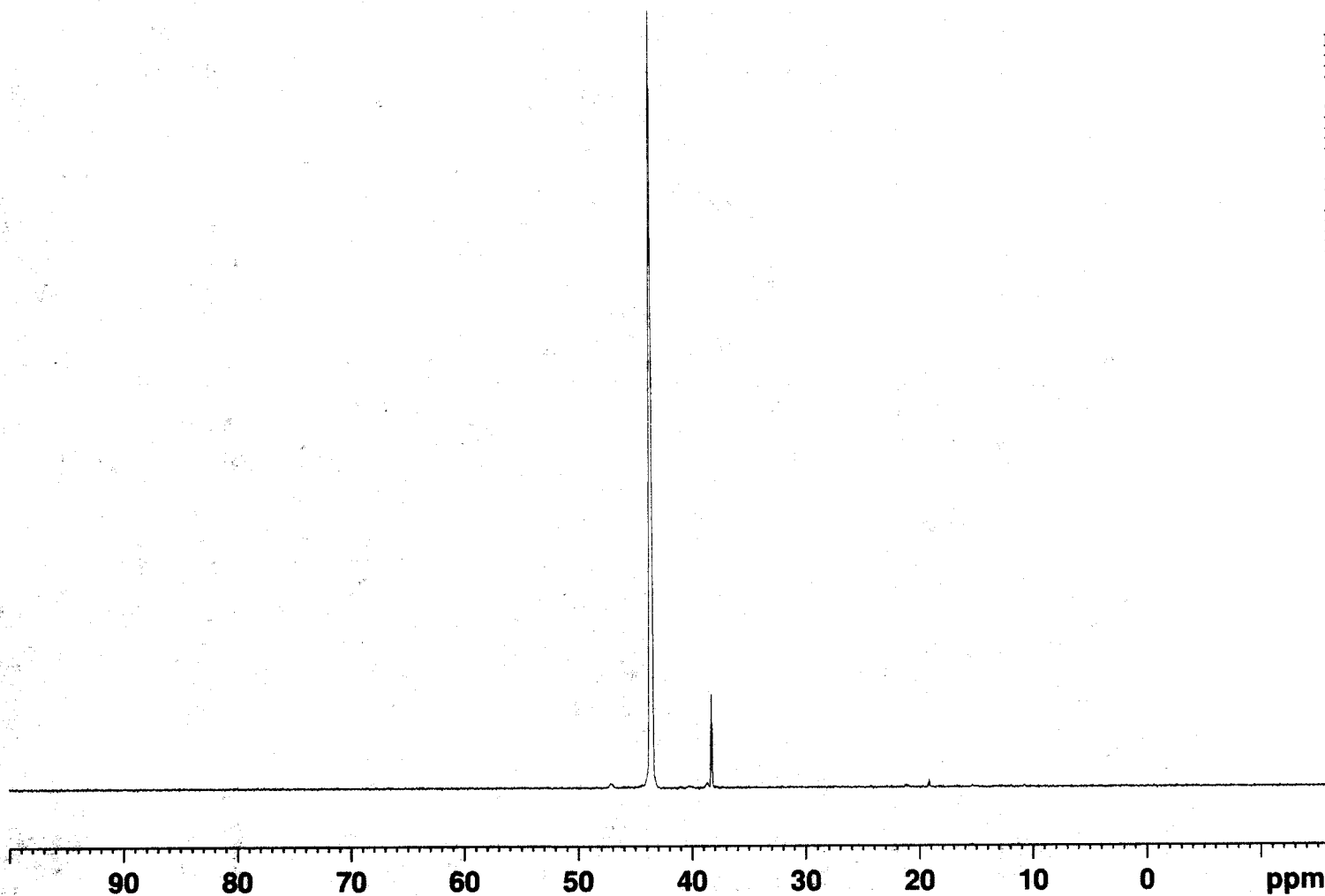
Table 2, entry 8  
 $^{31}\text{P}/^1\text{H}$  NMR coupled

Current Data Parameters  
 NAME AFL043  
 EXPNO 4  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150720  
 Time 14.04  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDC13  
 NS 32  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 295.2 K  
 D1 2.00000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SFO1 161.9674942 MHz  
 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.00000000 W

F2 - Processing parameters  
 SI 32768  
 SF 161.9755930 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40



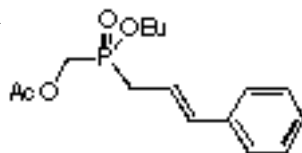
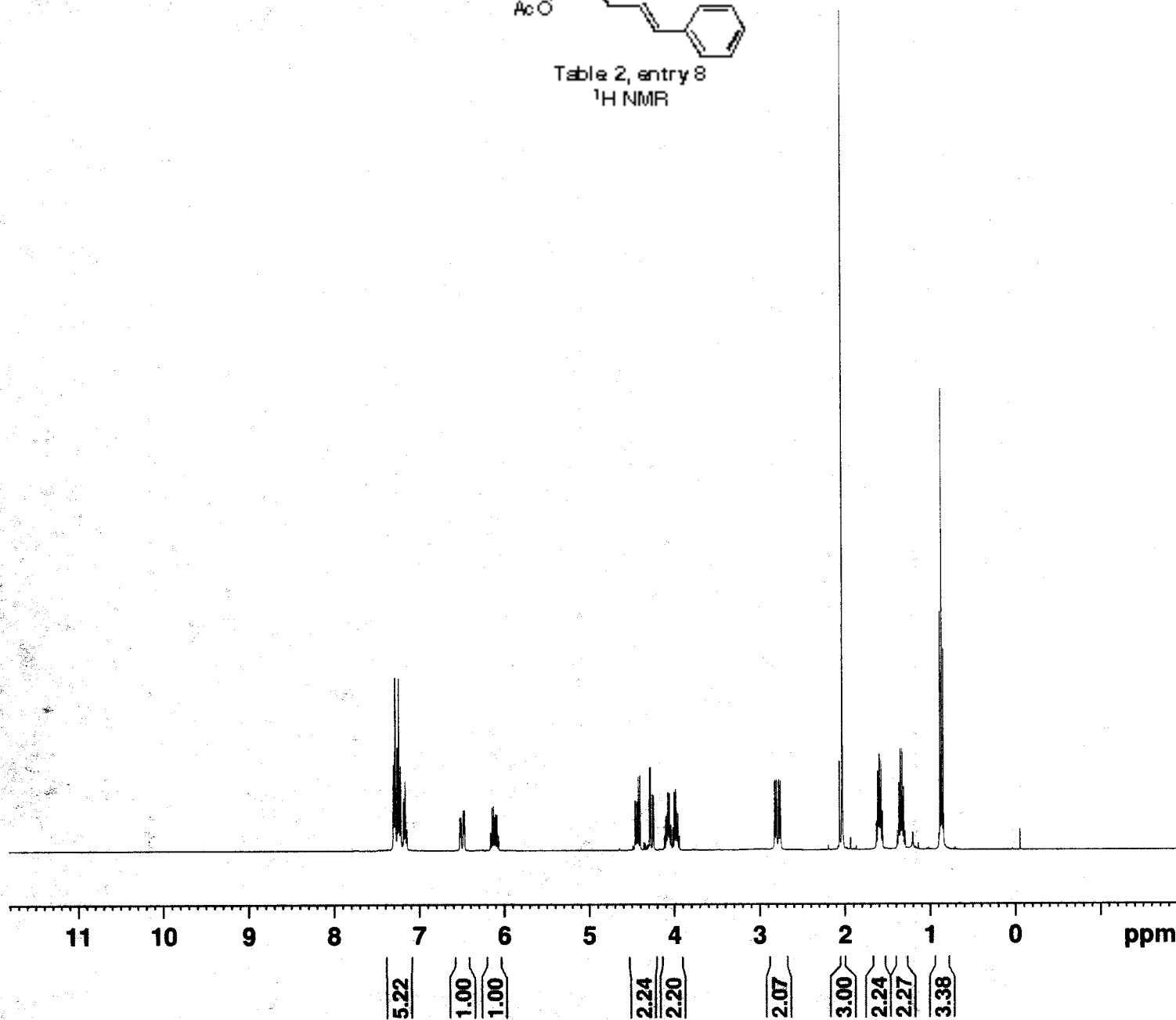


Table 2, entry 8  
<sup>1</sup>H NMR



Current Data Parameters  
 NAME AFL043  
 EXPNO 5  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150720  
 Time 14.11  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 12  
 DS 2  
 SWH 8012.820 Hz  
 FIDRES 0.122266 Hz  
 AQ 4.0894465 sec  
 RG 13.94  
 DW 62.400 usec  
 DE 6.50 usec  
 TE 295.2 K  
 D1 1.00000000 sec  
 TDO 1

==== CHANNEL f1 =====  
 SFO1 400.1324710 MHz  
 NUC1 1H  
 P1 10.00 usec  
 PLW1 25.00300026 W

F2 - Processing parameters  
 SI 65536  
 SF 400.1300000 MHz  
 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00



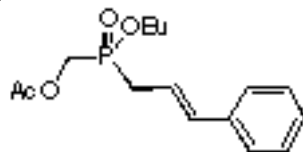
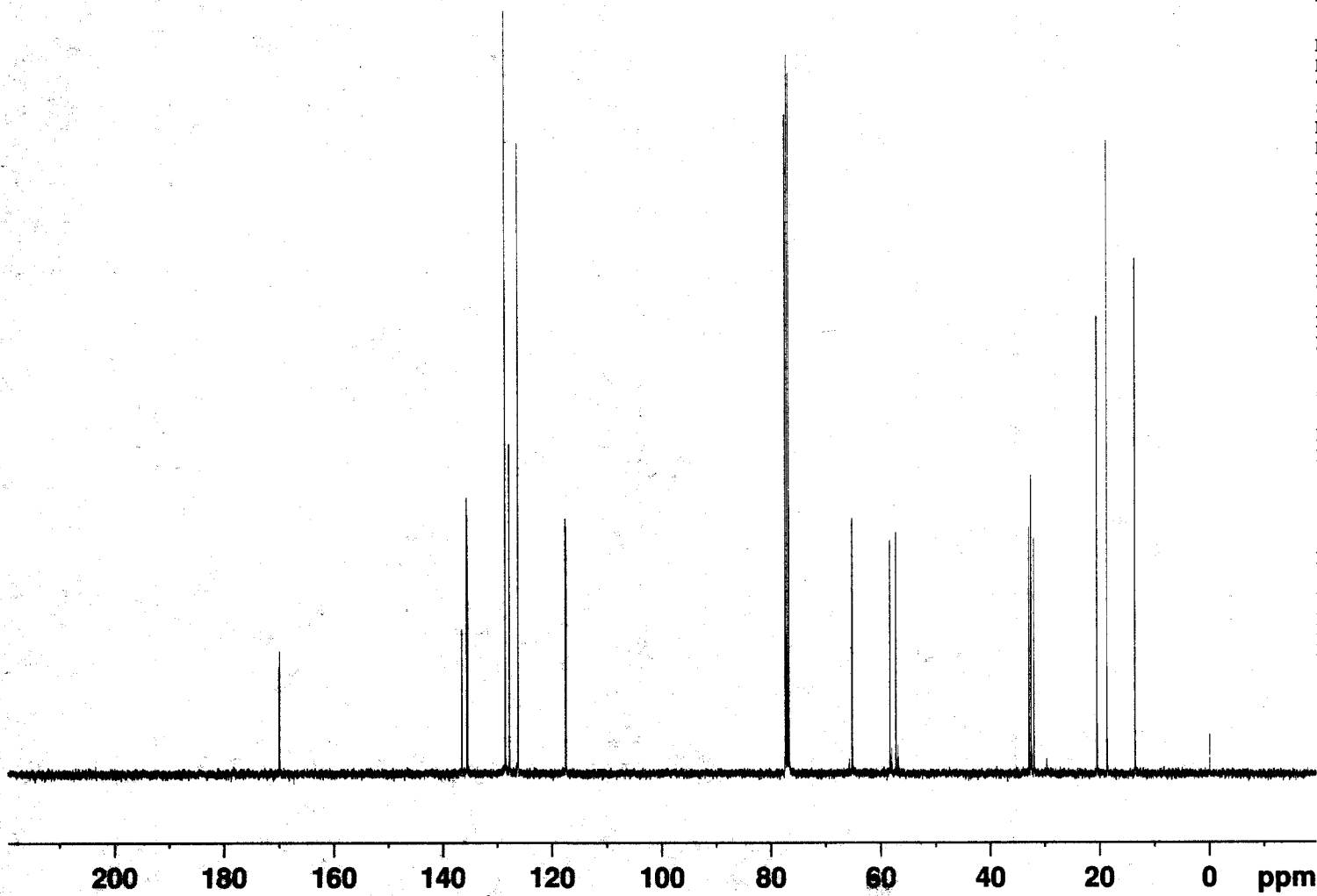


Table 2, entry 8  
<sup>13</sup>C NMR



Current Data Parameters  
 NAME AFL043  
 EXPNO 6  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150827  
 Time 9.40  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDC13  
 NS 402  
 DS 4  
 SWH 24038.461 Hz  
 FIDRES 0.366798 Hz  
 AQ 1.3631488 sec  
 RG 203.57  
 DW 20.800 usec  
 DE 6.50 usec  
 TE 295.4 K  
 D1 2.00000000 sec  
 D11 0.03000000 sec  
 TD0 1

==== CHANNEL f1 =====  
 SFO1 100.6228293 MHz  
 NUC1 13C  
 P1 10.00 usec  
 PLW1 45.00000000 W

==== CHANNEL f2 =====  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG[2] waltz16  
 PCPD2 90.00 usec  
 PLW2 10.00000000 W  
 PLW12 0.31604999 W  
 PLW13 0.25600001 W

F2 - Processing parameters  
 SI 32768  
 SF 100.6127685 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

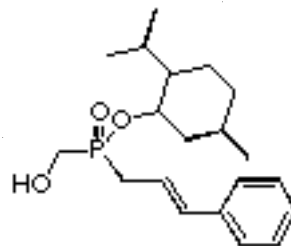
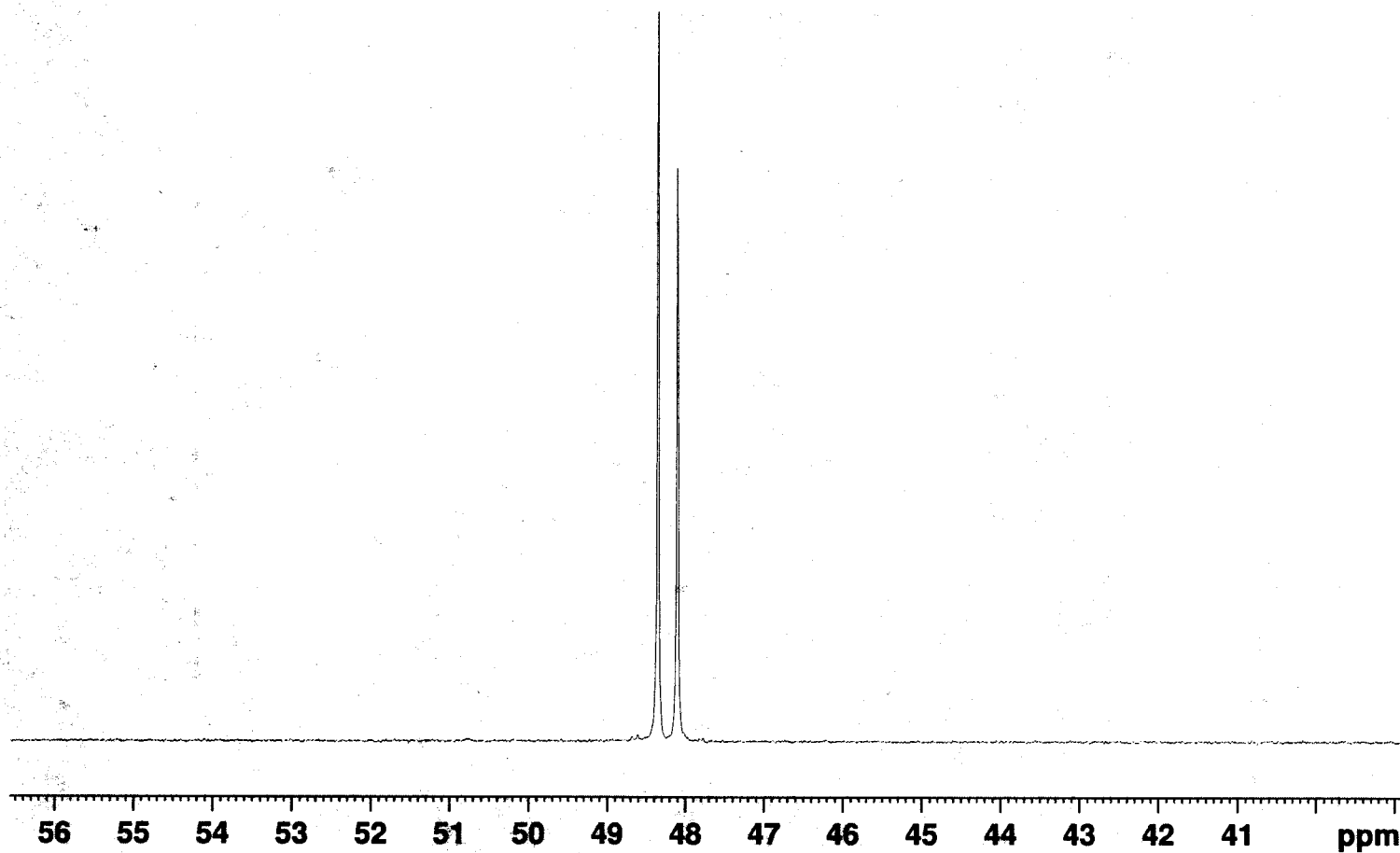


Table 2, entry 9  
<sup>31</sup>P/<sup>1</sup>H NMR decoupled



55.97  
 44.03

Current Data Parameters  
 NAME OB 2071 1st crystallization  
 EXPNO 1  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150825  
 Time 10.09  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 16  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 294.9 K  
 D1 2.00000000 sec  
 D11 0.03000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SFO1 161.9674942 MHz  
 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.00000000 W

===== CHANNEL f2 =====  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG[2] waltz16  
 PCPD2 90.00 usec  
 PLW2 10.00000000 W  
 PLW12 0.31604999 W  
 PLW13 0.25600001 W

F2 - Processing parameters  
 SI 32768  
 SF 161.9755930 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

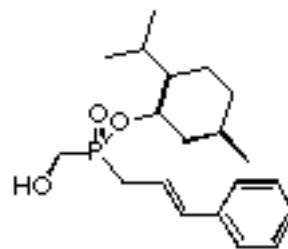
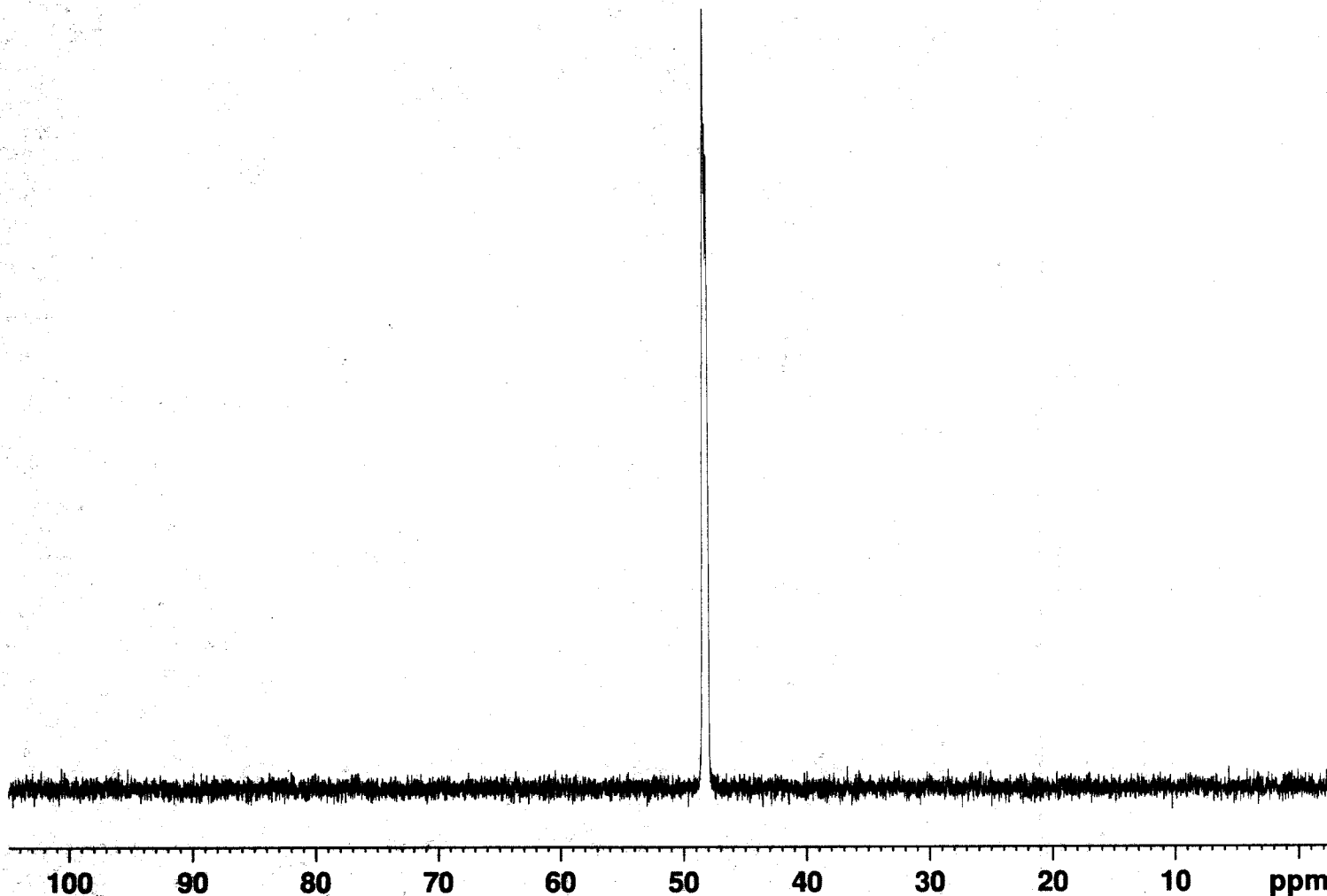


Table 2, entry 9  
<sup>31</sup>P/<sup>1</sup>H NMR coupled



Current Data Parameters  
 NAME OB 2071 1st crystallization  
 EXPNO 2  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150825  
 Time 10.10  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDC13  
 NS 27  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 294.5 K  
 D1 2.00000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SFO1 161.9674942 MHz  
 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.00000000 W

F2 - Processing parameters  
 SI 32768  
 SF 161.9755930 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

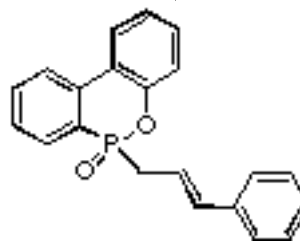
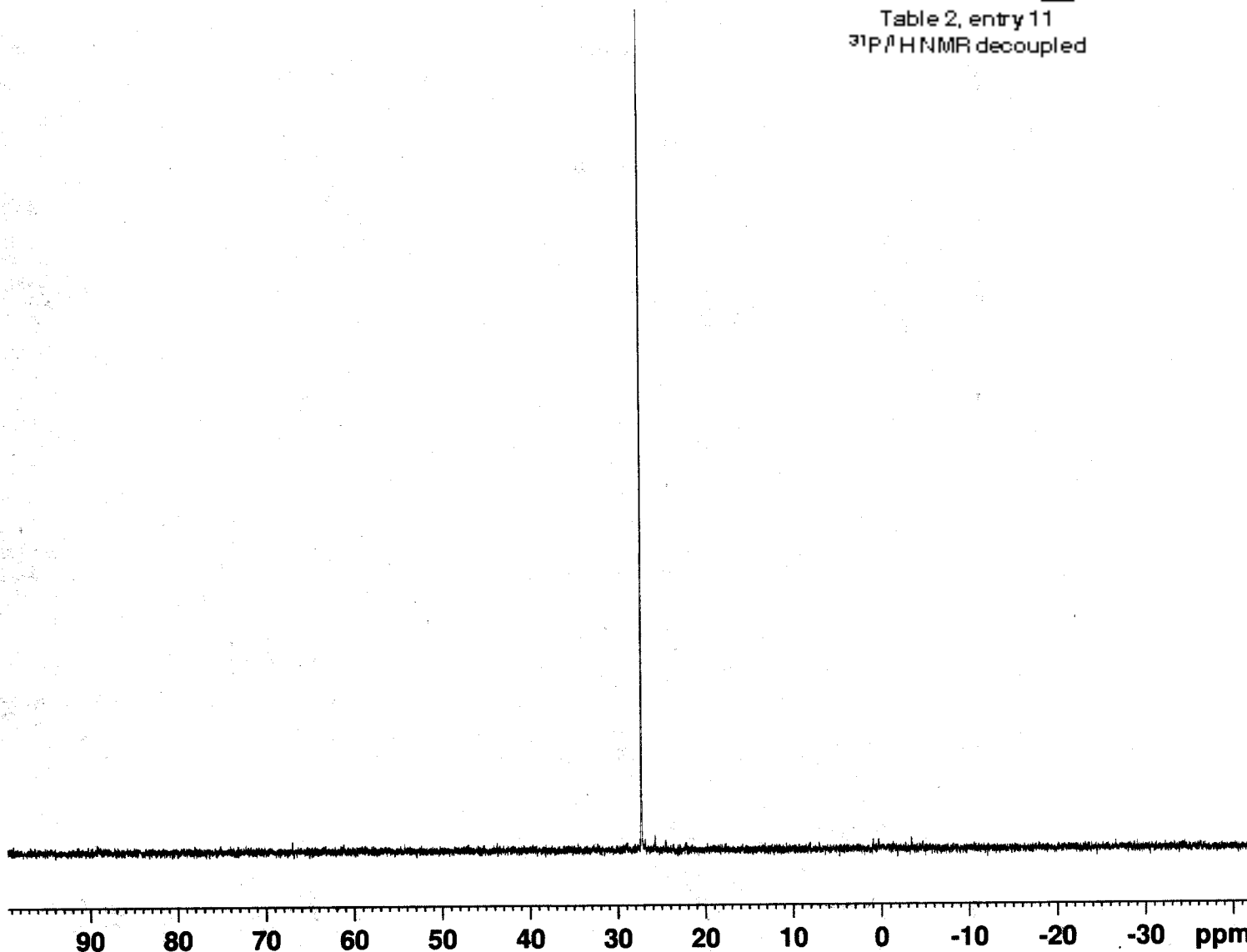


Table 2, entry 11  
<sup>31</sup>P/<sup>1</sup>H NMR decoupled



Current Data Parameters  
 NAME AFL005  
 EXPNO 1  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150605  
 Time 16.35  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 16  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 294.7 K  
 D1 2.0000000 sec  
 D11 0.0300000 sec  
 TD0 1

==== CHANNEL f1 =====  
 SFO1 161.9674942 MHz  
 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.0000000 W

==== CHANNEL f2 =====  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG[2] waltz16  
 PCPD2 90.00 usec  
 PLW2 10.0000000 W  
 PLW12 0.31604999 W  
 PLW13 0.25600001 W

F2 - Processing parameters  
 SI 32768  
 SF 161.9755930 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

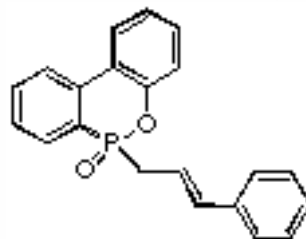
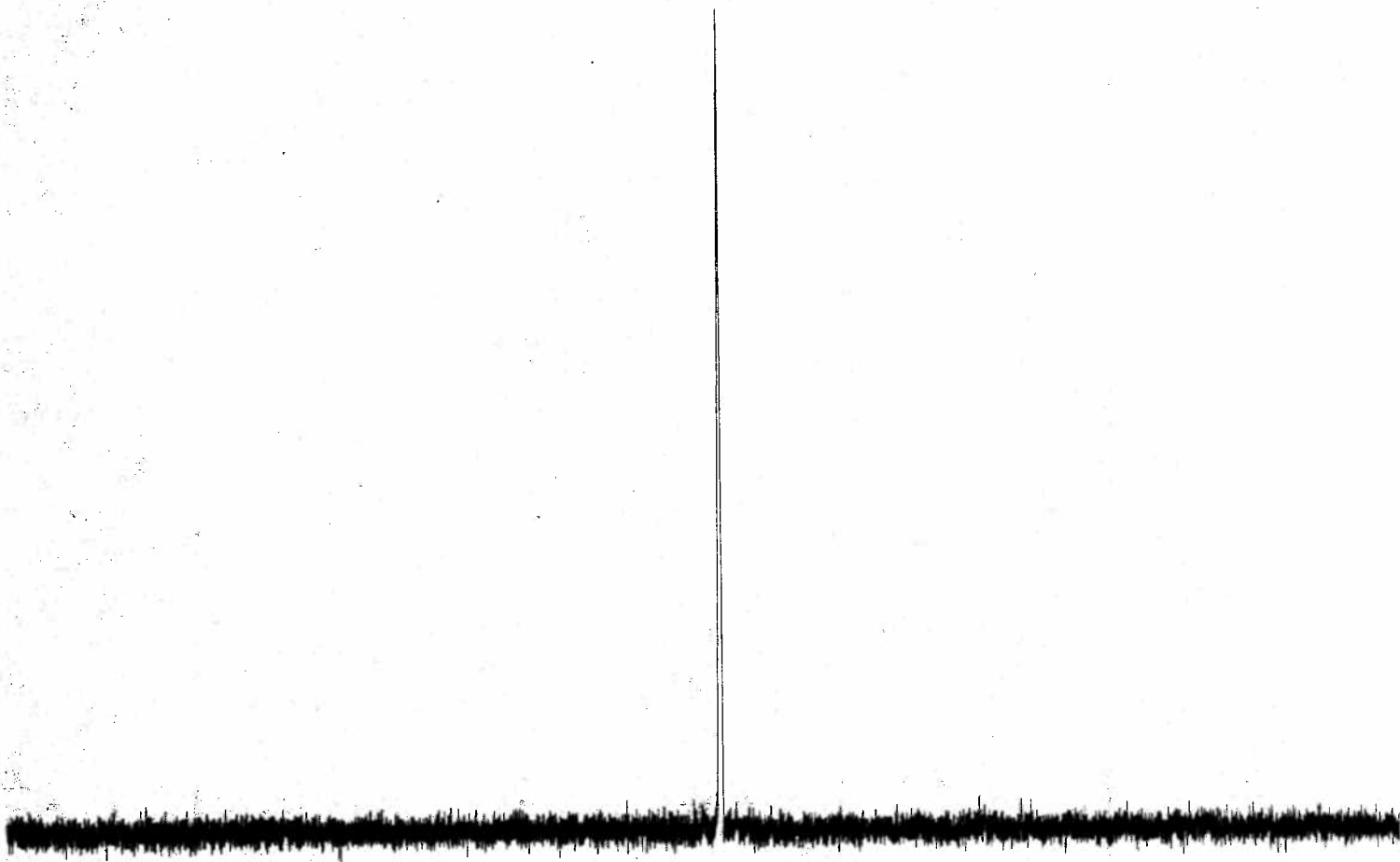


Table 2, entry 11  
 $^{31}\text{P}/^1\text{H}$  NMR coupled



Current Data Parameters  
 NAME AFL005  
 EXPNO 2  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150605  
 Time 16.37  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDC13  
 NS 24  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 294.4 K  
 D1 2.00000000 sec  
 TD0 1

----- CHANNEL f1 -----  
 SFO1 161.9674942 MHz  
 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.00000000 W

F2 - Processing parameters  
 SI 32768  
 SF 161.9755930 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

90 80 70 60 50 40 30 20 10 0 -10 -20 -30 ppm

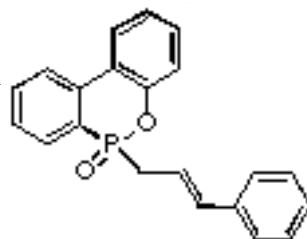
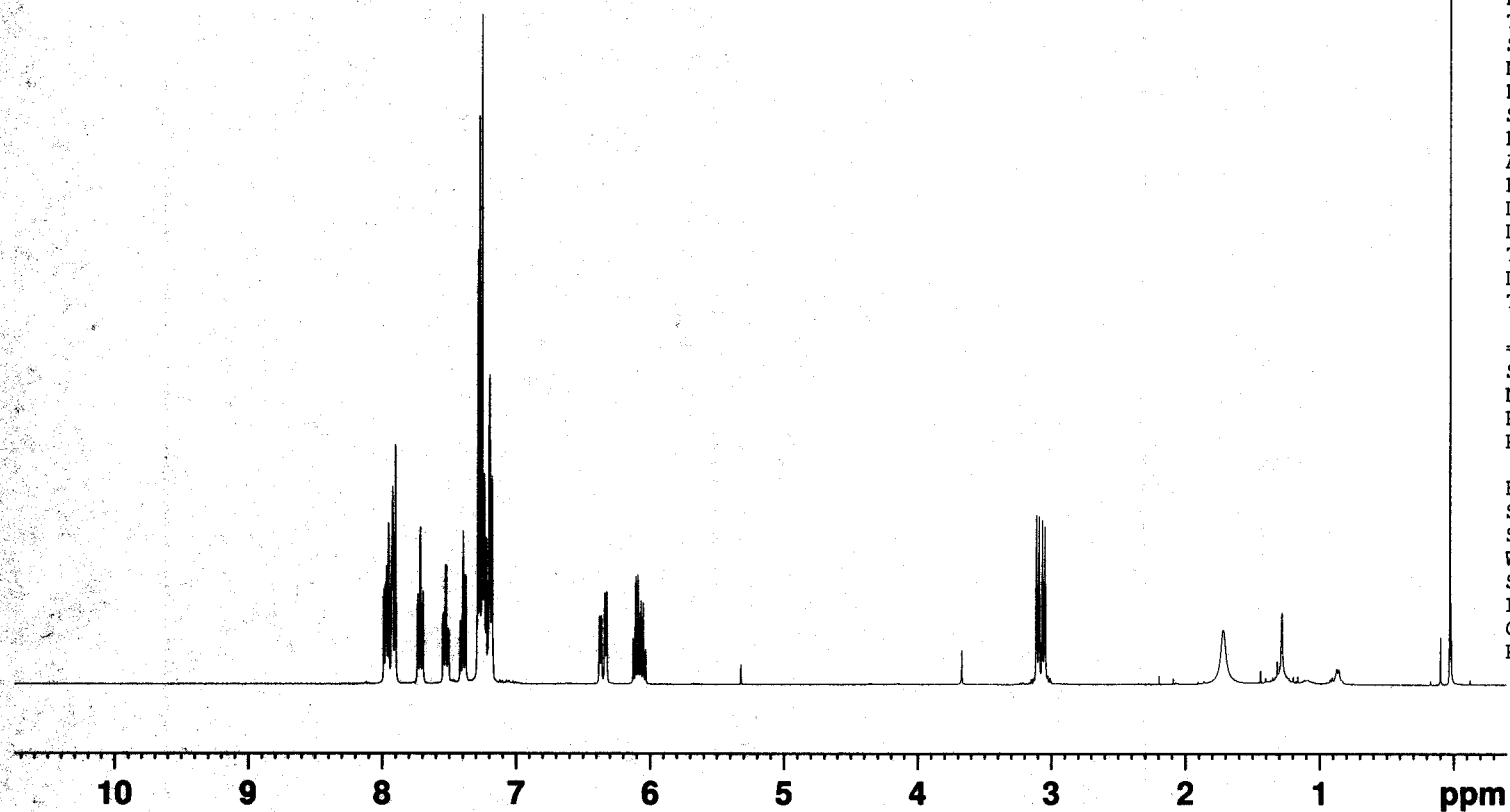


Table 2, entry 11  
<sup>1</sup>H NMR



Current Data Parameters  
 NAME AFL005  
 EXPNO 6  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150814  
 Time 13.49  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 16  
 DS 2  
 SWH 8012.820 Hz  
 FIDRES 0.122266 Hz  
 AQ 4.0894465 sec  
 RG 144.26  
 DW 62.400 usec  
 DE 6.50 usec  
 TE 295.0 K  
 D1 1.00000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SFO1 400.1324710 MHz  
 NUC1 1H  
 P1 10.00 usec  
 PLW1 25.00300026 W

F2 - Processing parameters  
 SI 65536  
 SF 400.1300000 MHz  
 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00

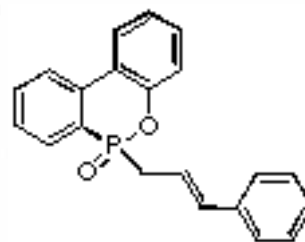
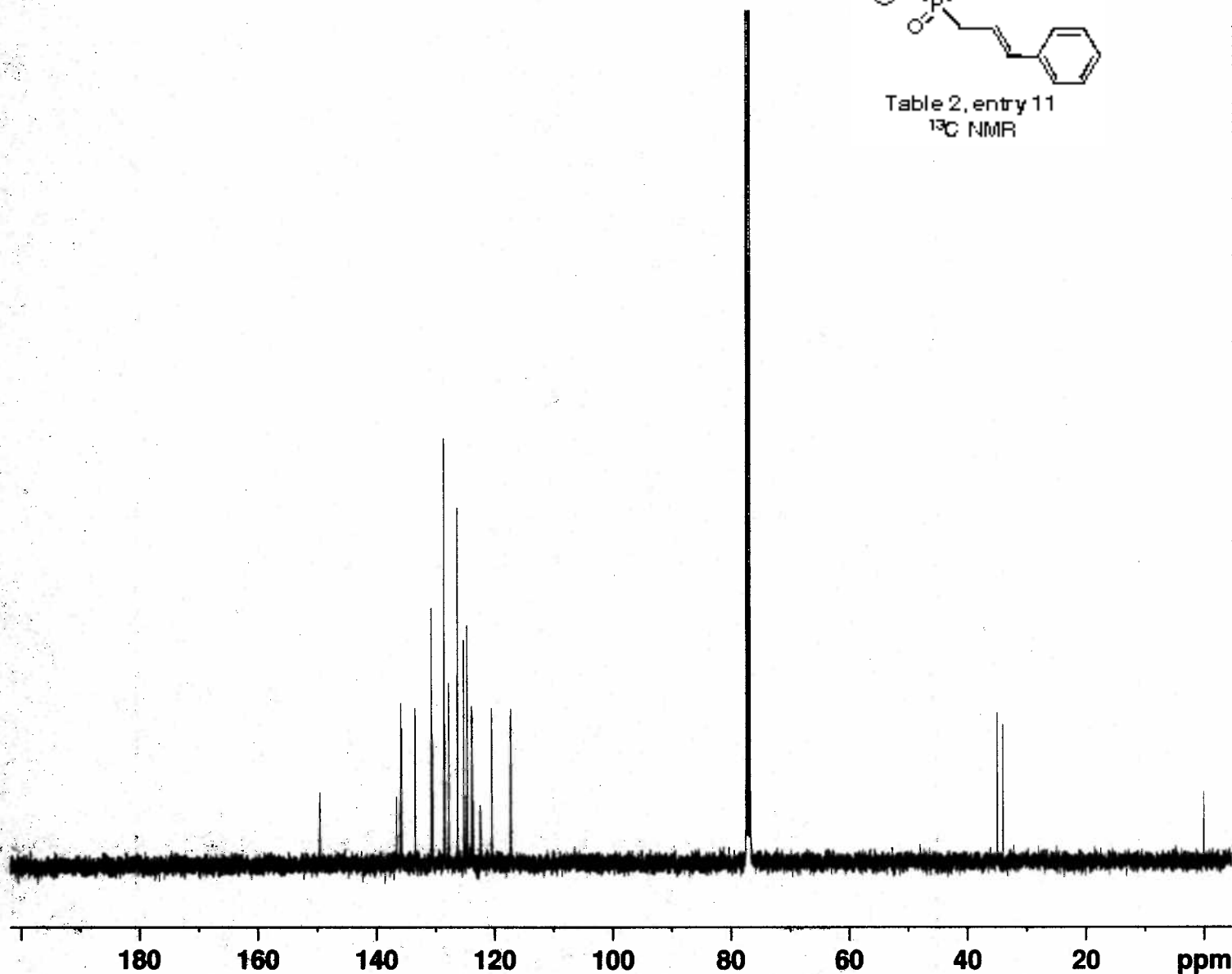


Table 2, entry 11  
<sup>13</sup>C NMR



Current Data Parameters  
 NAME AFL005  
 EXPNO 7  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150814  
 Time 14.26  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDC13  
 NS 553  
 DS 4  
 SWH 24038.461 Hz  
 FIDRES 0.366798 Hz  
 AQ 1.3631488 sec  
 RG 203.57  
 DW 20.800 usec  
 DE 6.50 usec  
 TE 295.9 K  
 D1 2.00000000 sec  
 D11 0.03000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SFO1 100.6228293 MHz  
 NUC1 13C  
 P1 10.00 usec  
 PLW1 45.00000000 W

===== CHANNEL f2 =====  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG[2] waltz16  
 PCPD2 90.00 usec  
 PLW2 10.00000000 W  
 PLW12 0.31604999 W  
 PLW13 0.25600001 W

F2 - Processing parameters  
 SI 32768  
 SF 100.6127685 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

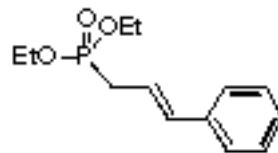
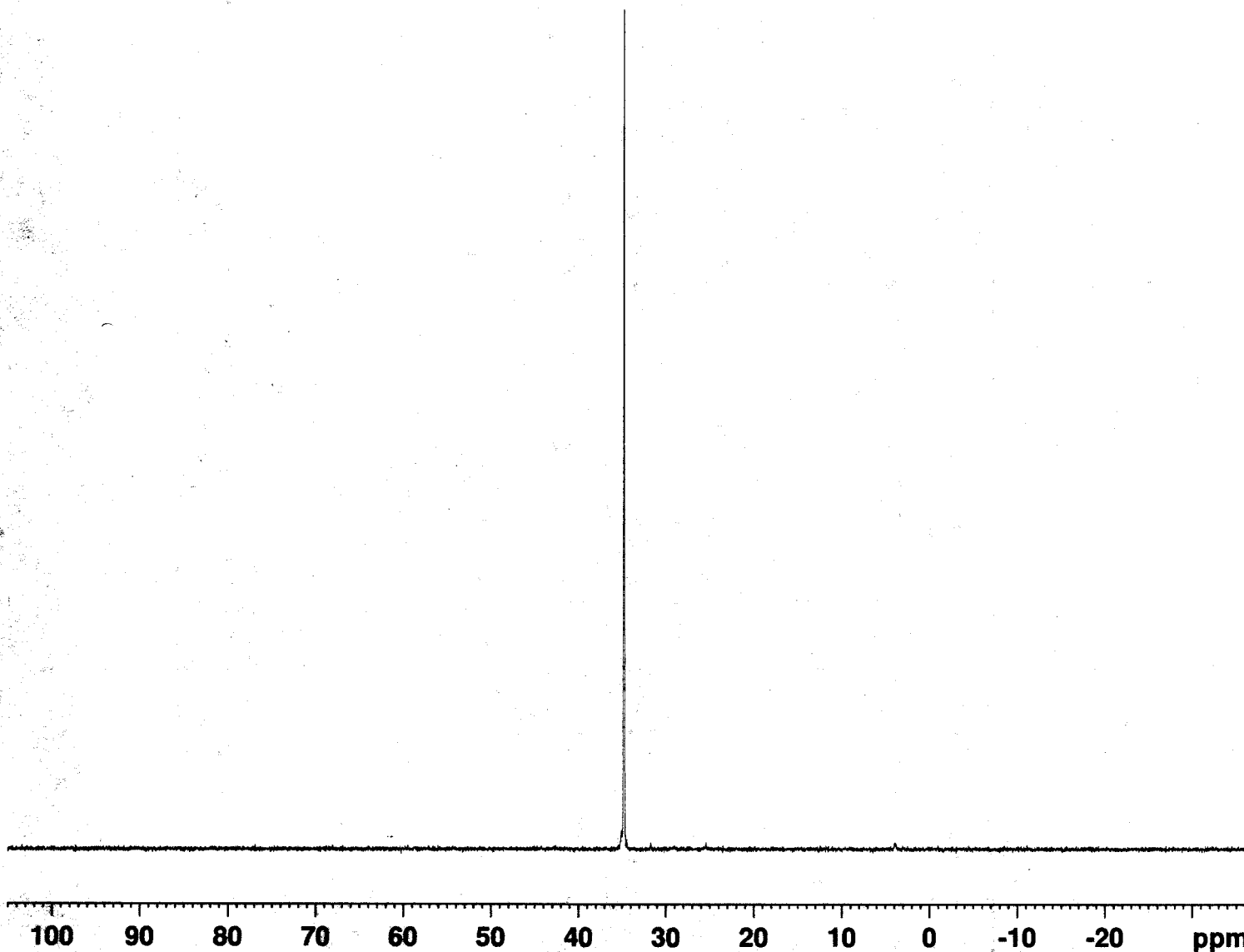


Table 2, entry 12  
<sup>31</sup>P/<sup>1</sup>H NMR decoupled



Current Data Parameters  
 NAME AFL004  
 EXPNO 1  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150608  
 Time 14.10  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 16  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 294.7 K  
 D1 2.00000000 sec  
 D11 0.03000000 sec  
 TD0 1

==== CHANNEL f1 =====  
 SFO1 161.9674942 MHz  
 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.00000000 W

==== CHANNEL f2 =====  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG[2] waltz16  
 PCPD2 90.00 usec  
 PLW2 10.00000000 W  
 PLW12 0.31604999 W  
 PLW13 0.25600001 W

F2 - Processing parameters  
 SI 32768  
 SF 161.9755930 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40



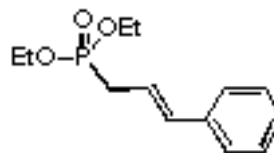


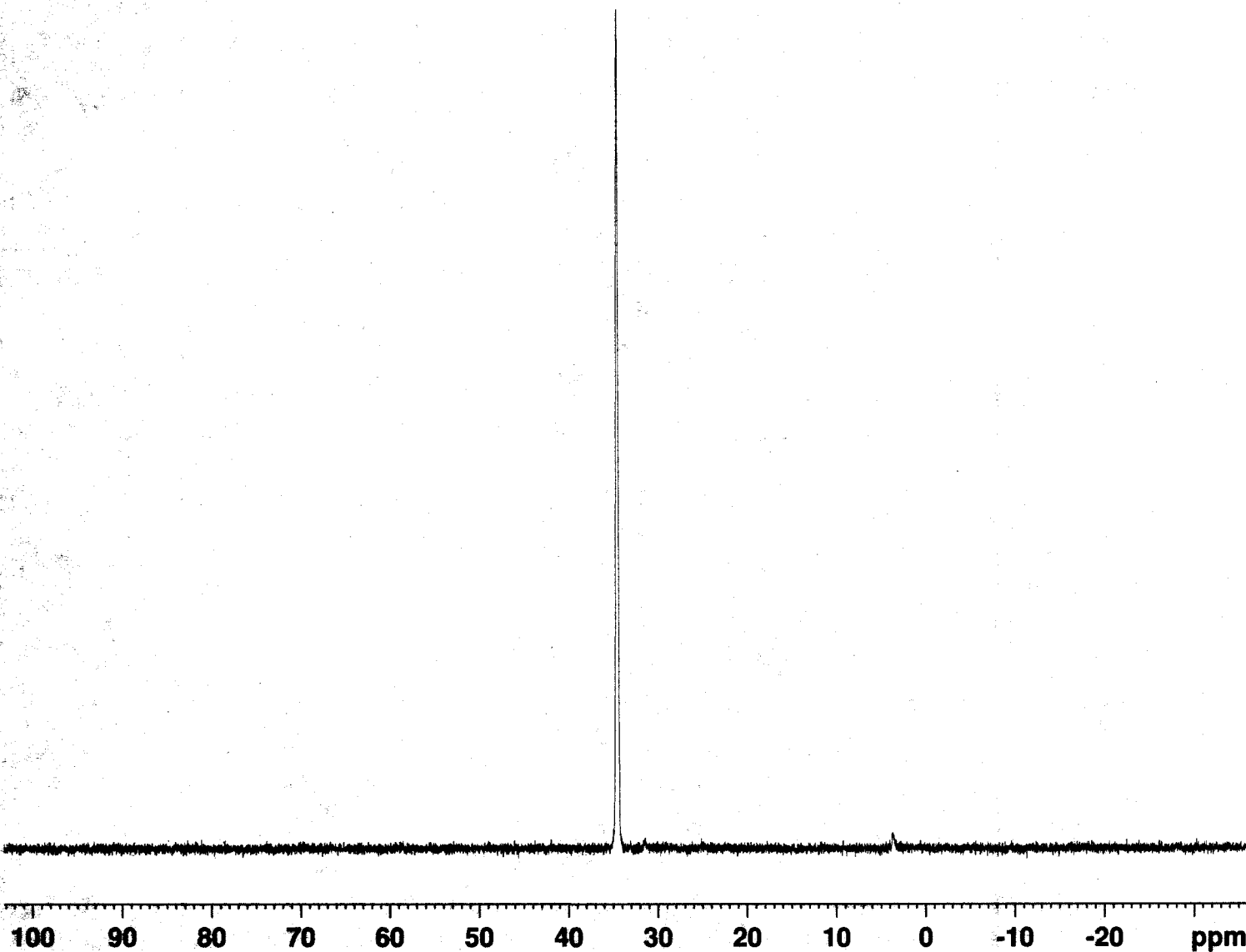
Table 2, entry 12  
<sup>31</sup>P/<sup>1</sup>H NMR coupled

Current Data Parameters  
NAME AFL004  
EXPNO 2  
PROCNO 1

F2 - Acquisition Parameters  
Date\_ 20150608  
Time 14.12  
INSTRUM spect  
PROBHD 5 mm PABBO BB/  
PULPROG zg30  
TD 65536  
SOLVENT CDC13  
NS 32  
DS 4  
SWH 64102.563 Hz  
FIDRES 0.978127 Hz  
AQ 0.5111808 sec  
RG 203.57  
DW 7.800 usec  
DE 6.50 usec  
TE 294.2 K  
D1 2.00000000 sec  
TD0 1

==== CHANNEL f1 =====  
SFO1 161.9674942 MHz  
NUC1 31P  
P1 14.25 usec  
PLW1 15.00000000 W

F2 - Processing parameters  
SI 32768  
SF 161.9755930 MHz  
WDW EM  
SSB 0  
LB 1.00 Hz  
GB 0  
PC 1.40



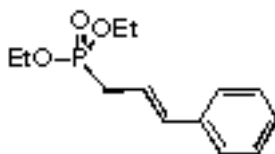


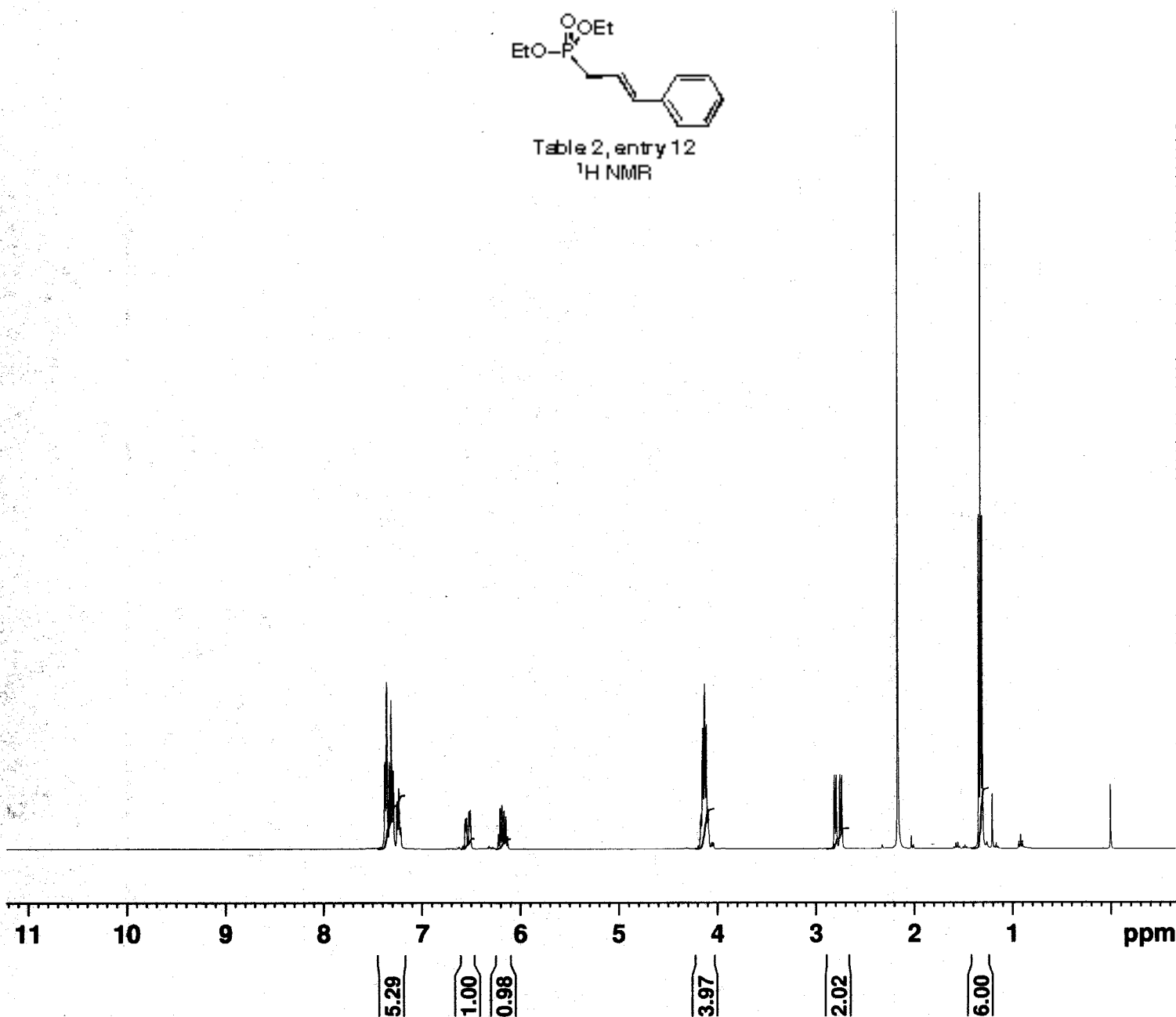
Table 2, entry 12  
<sup>1</sup>H NMR

Current Data Parameters  
 NAME AFL004aftercolumn  
 EXPNO 1  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150611  
 Time 11.21  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 16  
 DS 2  
 SWH 8012.820 Hz  
 FIDRES 0.122266 Hz  
 AQ 4.0894465 sec  
 RG 32.38  
 DW 62.400 usec  
 DE 6.50 usec  
 TE 293.6 K  
 D1 1.00000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SFO1 400.1324710 MHz  
 NUC1 1H  
 P1 10.00 usec  
 PLW1 25.00300026 W

F2 - Processing parameters  
 SI 65536  
 SF 400.1300000 MHz  
 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00



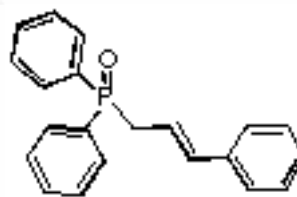
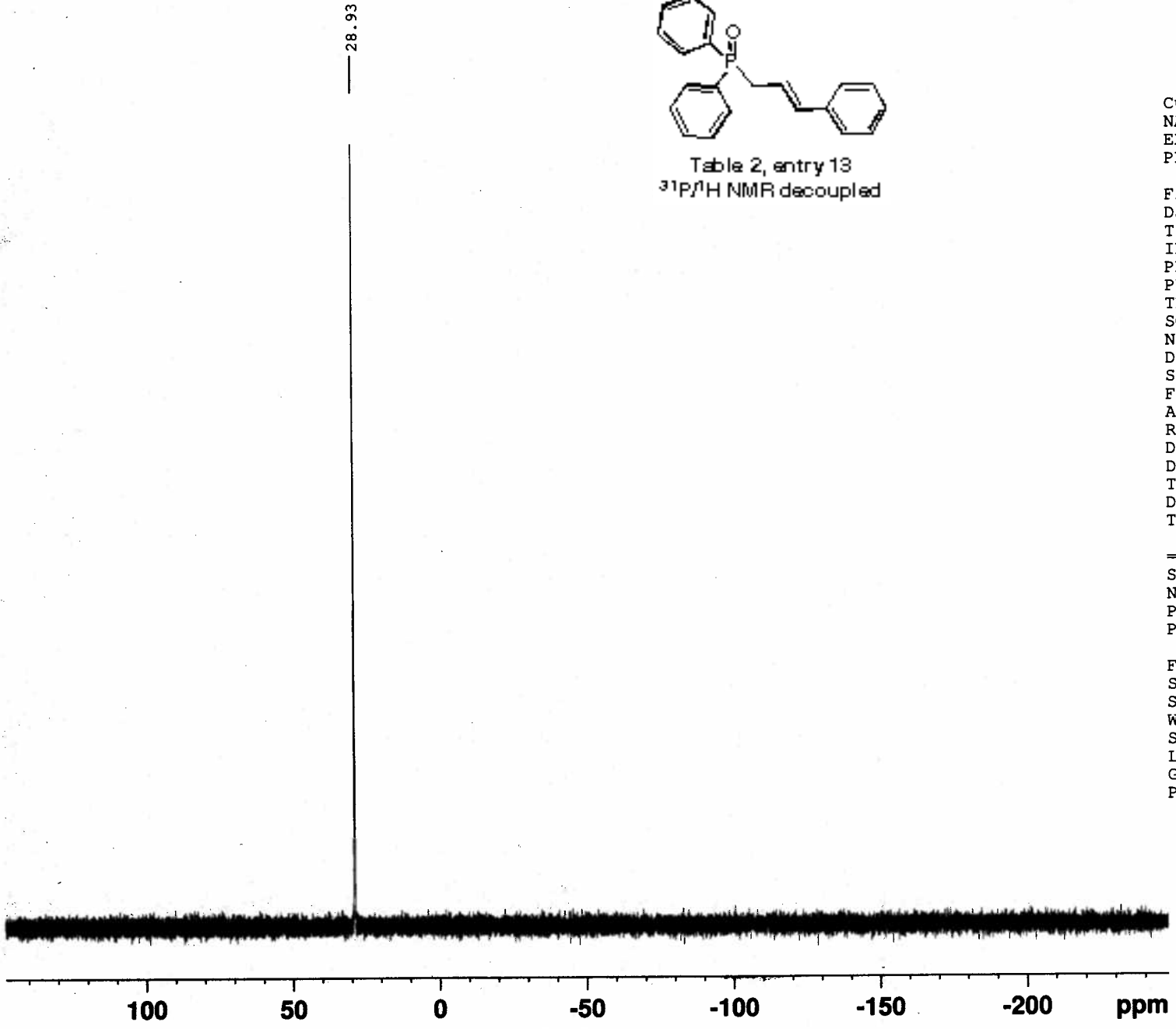


Table 2, entry 13  
<sup>31</sup>P/<sup>1</sup>H NMR decoupled

28.93



Current Data Parameters  
 NAME AFL010  
 EXPNO 1  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150615  
 Time 15.32  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zg30  
 TD 65536  
 SOLVENT Acetone  
 NS 32  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 294.3 K  
 D1 2.00000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SFO1 161.9674942 MHz  
 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.00000000 W

F2 - Processing parameters  
 SI 32768  
 SF 161.9755930 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

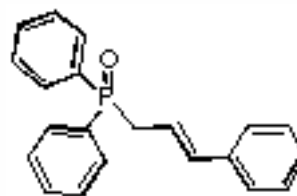
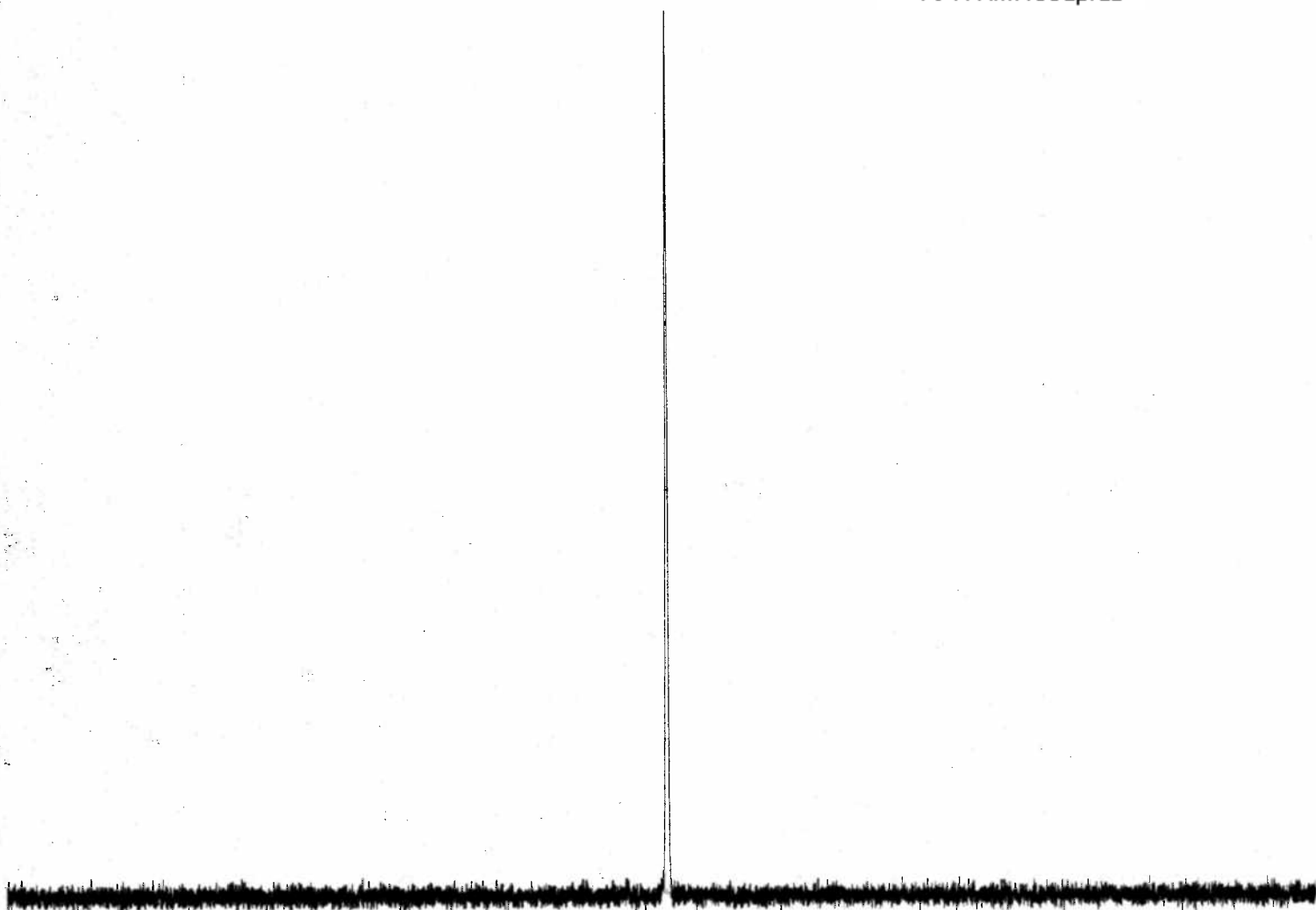


Table 2, entry 13  
<sup>31</sup>P/<sup>1</sup>H NMR coupled



90 80 70 60 50 40 30 20 10 0 -10 -20 ppm

Current Data Parameters  
NAME AFL010  
EXPNO 1  
PROCNO 1

F2 - Acquisition Parameters  
Date\_ 20150615  
Time 15.32  
INSTRUM spect  
PROBHD 5 mm PABBO BB/  
PULPROG zg30  
TD 65536  
SOLVENT Acetone  
NS 32  
DS 4  
SWH 64102.563 Hz  
FIDRES 0.978127 Hz  
AQ 0.5111808 sec  
RG 203.57  
DW 7.800 usec  
DE 6.50 usec  
TE 294.3 K  
D1 2.00000000 sec  
TD0 1

==== CHANNEL f1 =====  
SFO1 161.9674942 MHz  
NUC1 31P  
P1 14.25 usec  
PLW1 15.00000000 W

F2 - Processing parameters  
SI 32768  
SF 161.9755930 MHz  
WDW EM  
SSB 0  
LB 1.00 Hz  
GB 0  
PC 1.40

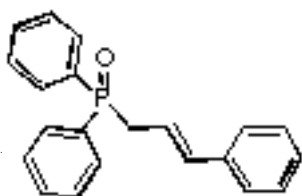
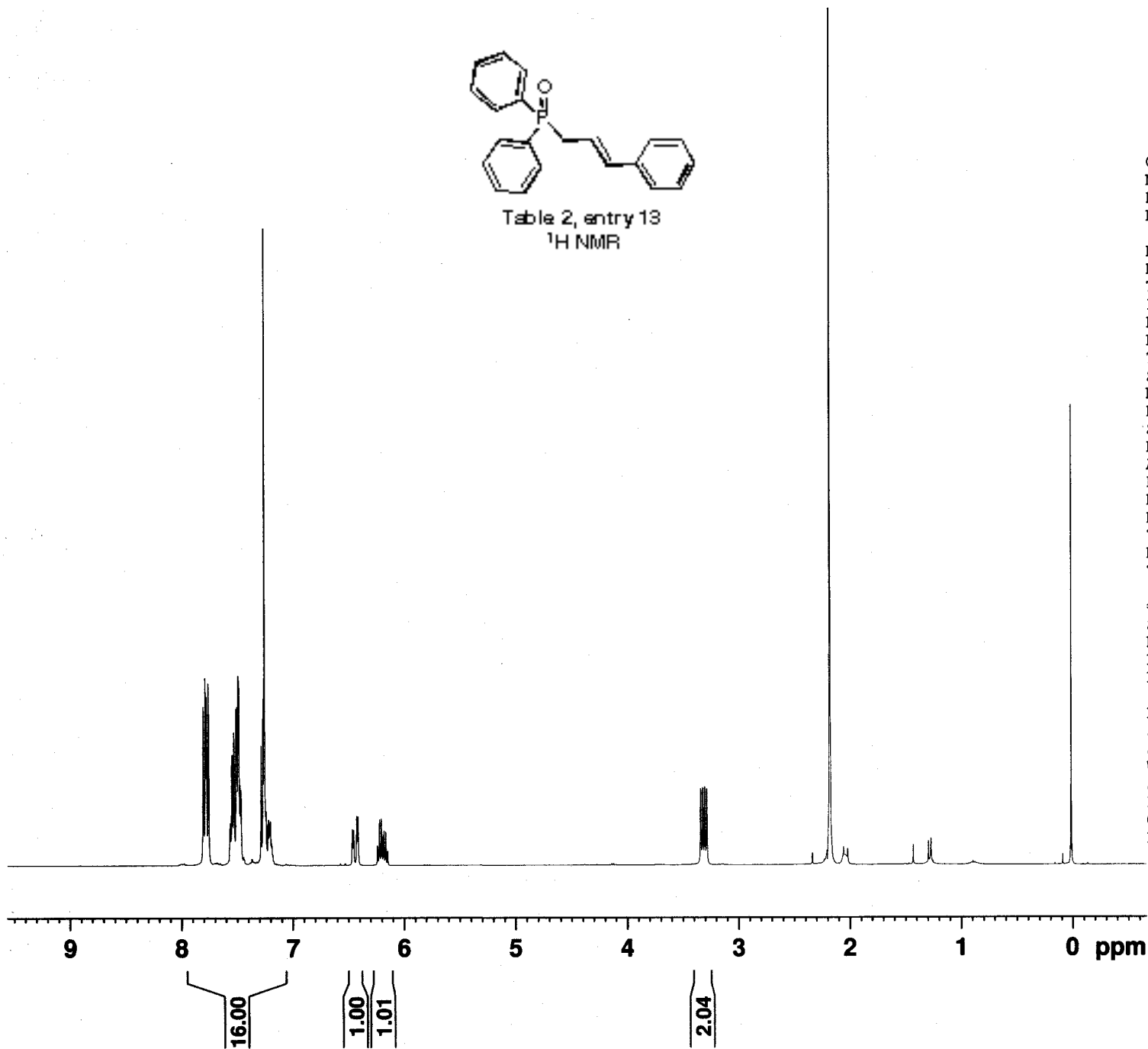


Table 2, entry 13  
<sup>1</sup>H NMR



Current Data Parameters  
 NAME AFL010  
 EXPNO 2  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150615  
 Time 15.56  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDC13  
 NS 15  
 DS 2  
 SWH 8012.820 Hz  
 FIDRES 0.122266 Hz  
 AQ 4.0894465 sec  
 RG 81.67  
 DW 62.400 usec  
 DE 6.50 usec  
 TE 294.4 K  
 D1 1.00000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SFO1 400.1324710 MHz  
 NUC1 1H  
 P1 10.00 usec  
 PLW1 25.00300026 W

F2 - Processing parameters  
 SI 65536  
 SF 400.1300000 MHz  
 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00

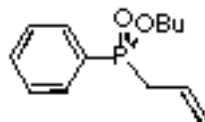


Table 3, entry 1  
<sup>31</sup>P/<sup>1</sup>H NMR decoupled

Current Data Parameters  
 NAME AFL013  
 EXPNO 10  
 PROCNO 1

F2 - Acquisition Parameters

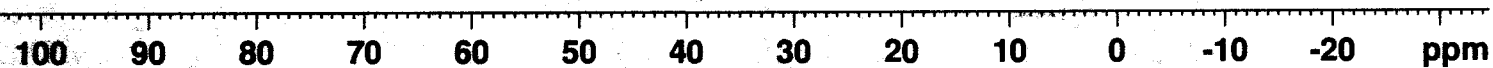
Date\_ 20150825  
 Time 10.53  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT Acetone  
 NS 6  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 294.8 K  
 D1 2.00000000 sec  
 D11 0.03000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SFO1 161.9674942 MHz  
 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.00000000 W

===== CHANNEL f2 =====  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG[2] waltz16  
 PCPD2 90.00 usec  
 PLW2 10.00000000 W  
 PLW12 0.31604999 W  
 PLW13 0.25600001 W

F2 - Processing parameters

SI 32768  
 SF 161.9755930 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40



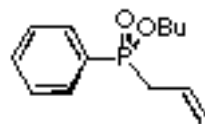


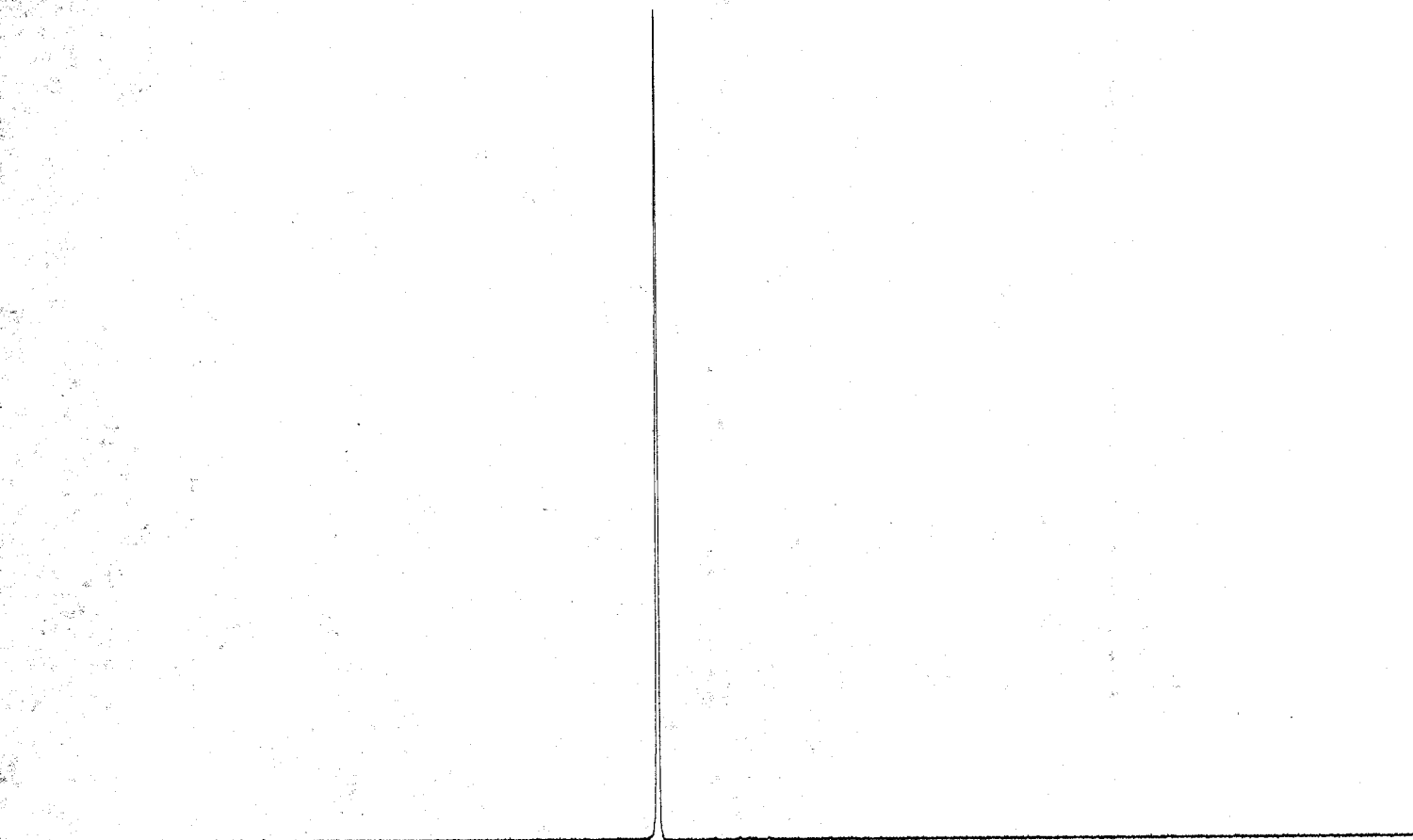
Table 3, entry 1  
<sup>31</sup>P/<sup>1</sup>H NMR coupled

Current Data Parameters  
NAME AFL013  
EXPNO 3  
PROCNO 1

F2 - Acquisition Parameters  
Date\_ 20150616  
Time 9.58  
INSTRUM spect  
PROBHD 5 mm PABBO BB/  
PULPROG zg30  
TD 65536  
SOLVENT CDCl3  
NS 32  
DS 4  
SWH 64102.563 Hz  
FIDRES 0.978127 Hz  
AQ 0.5111808 sec  
RG 203.57  
DW 7.800 usec  
DE 6.50 usec  
TE 294.1 K  
D1 2.00000000 sec  
TD0 1

==== CHANNEL f1 =====  
SFO1 161.9674942 MHz  
NUC1 31P  
P1 14.25 usec  
PLW1 15.00000000 W

F2 - Processing parameters  
SI 32768  
SF 161.9755930 MHz  
WDW EM  
SSB 0  
LB 1.00 Hz  
GB 0  
PC 1.40



100 90 80 70 60 50 40 30 20 10 0 -10 -20 -30 ppm

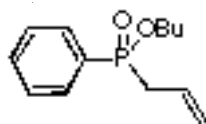


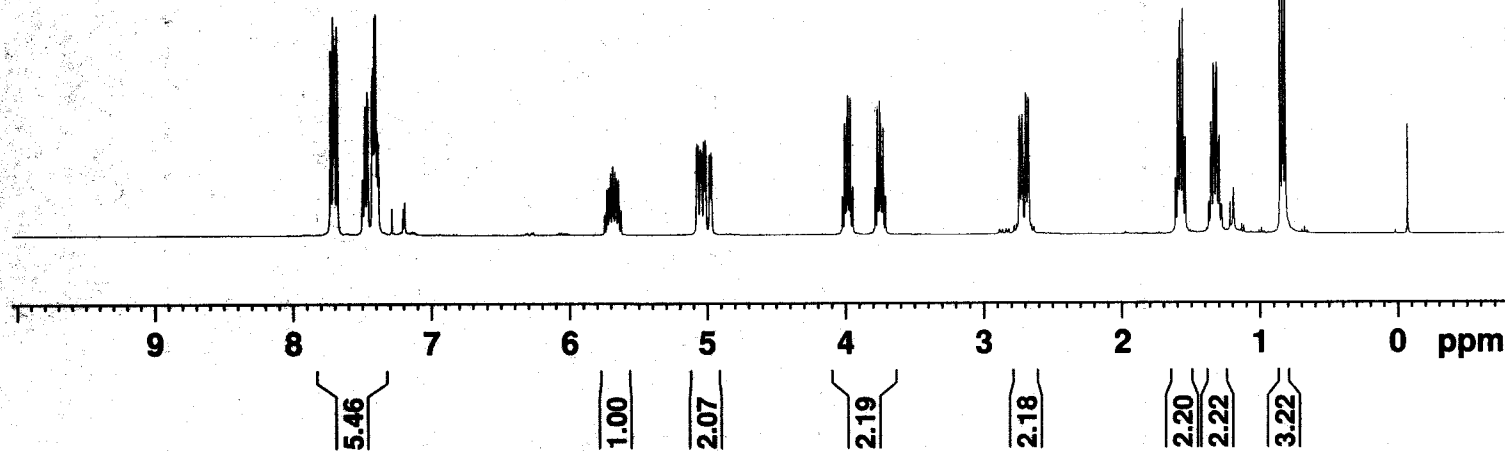
Table 3, entry 1  
<sup>1</sup>H NMR

Current Data Parameters  
 NAME AFL013  
 EXPNO 1  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150616  
 Time 9.45  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 16  
 DS 2  
 SWH 8012.820 Hz  
 FIDRES 0.122266 Hz  
 AQ 4.0894465 sec  
 RG 17.56  
 DW 62.400 usec  
 DE 6.50 usec  
 TE 293.8 K  
 D1 1.00000000 sec  
 TD0 1

==== CHANNEL f1 =====  
 SFO1 400.1324710 MHz  
 NUC1 1H  
 P1 10.00 usec  
 PLW1 25.00300026 W

F2 - Processing parameters  
 SI 65536  
 SF 400.1300000 MHz  
 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00





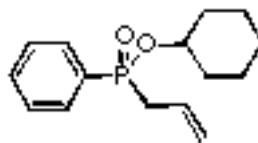
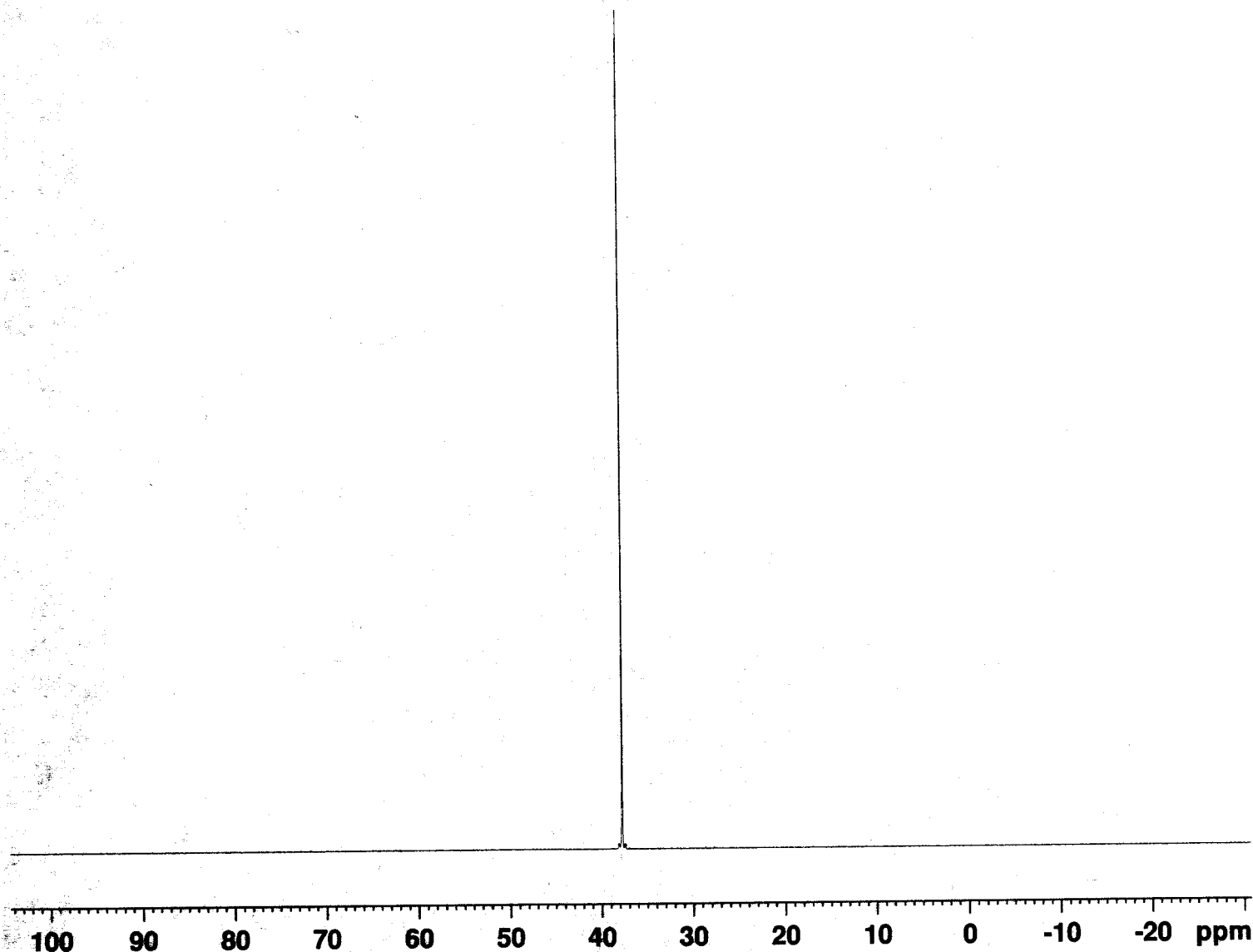


Table 3, entry 2  
<sup>31</sup>P/<sup>1</sup>H NMR decoupled



Current Data Parameters  
 NAME AFL065  
 EXPNO 3  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150730  
 Time 11.17  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT Acetone  
 NS 16  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 294.9 K  
 D1 2.0000000 sec  
 D11 0.03000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SFO1 161.9674942 MHz  
 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.00000000 W

===== CHANNEL f2 =====  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG[2] waltz16  
 PCPD2 90.00 usec  
 PLW2 10.00000000 W  
 PLW12 0.31604999 W  
 PLW13 0.25600001 W

F2 - Processing parameters  
 SI 32768  
 SF 161.9755930 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

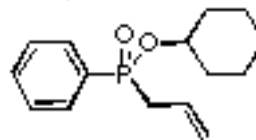


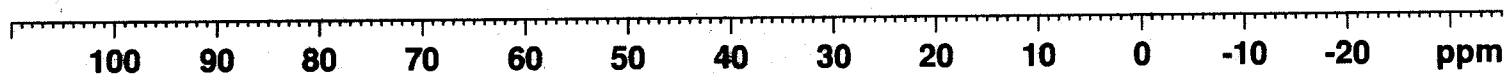
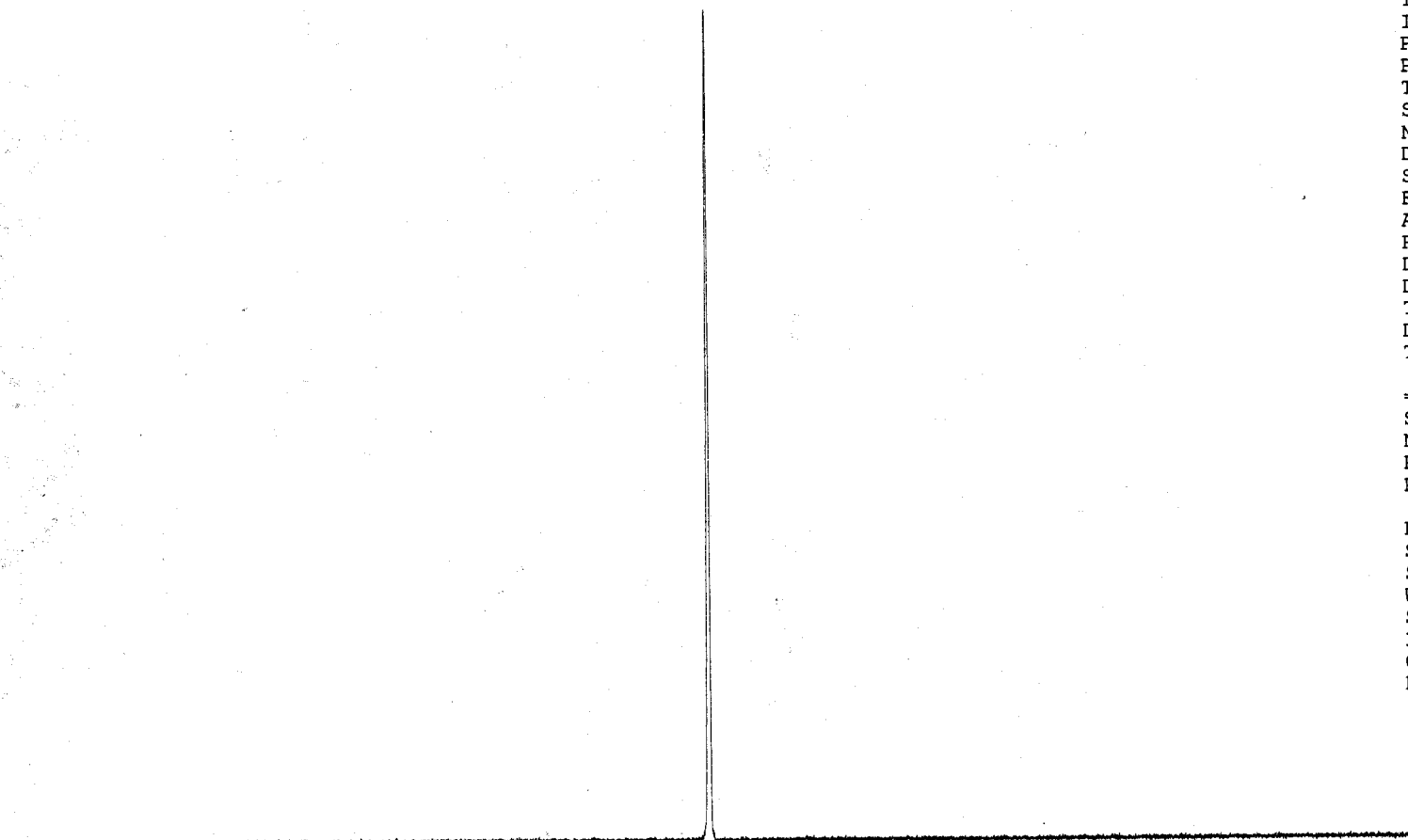
Table 3, entry 2  
<sup>31</sup>P/<sup>1</sup>H NMR coupled

Current Data Parameters  
 NAME AFL065  
 EXPNO 4  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150730  
 Time 11.19  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zg30  
 TD 65536  
 SOLVENT Acetone  
 NS 21  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 294.5 K  
 D1 2.00000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SF01 161.9674942 MHz  
 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.00000000 W

F2 - Processing parameters  
 SI 32768  
 SF 161.9755930 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40



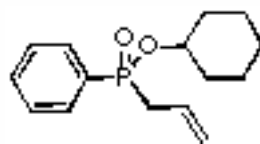


Table 3, entry 2  
<sup>1</sup>H NMR

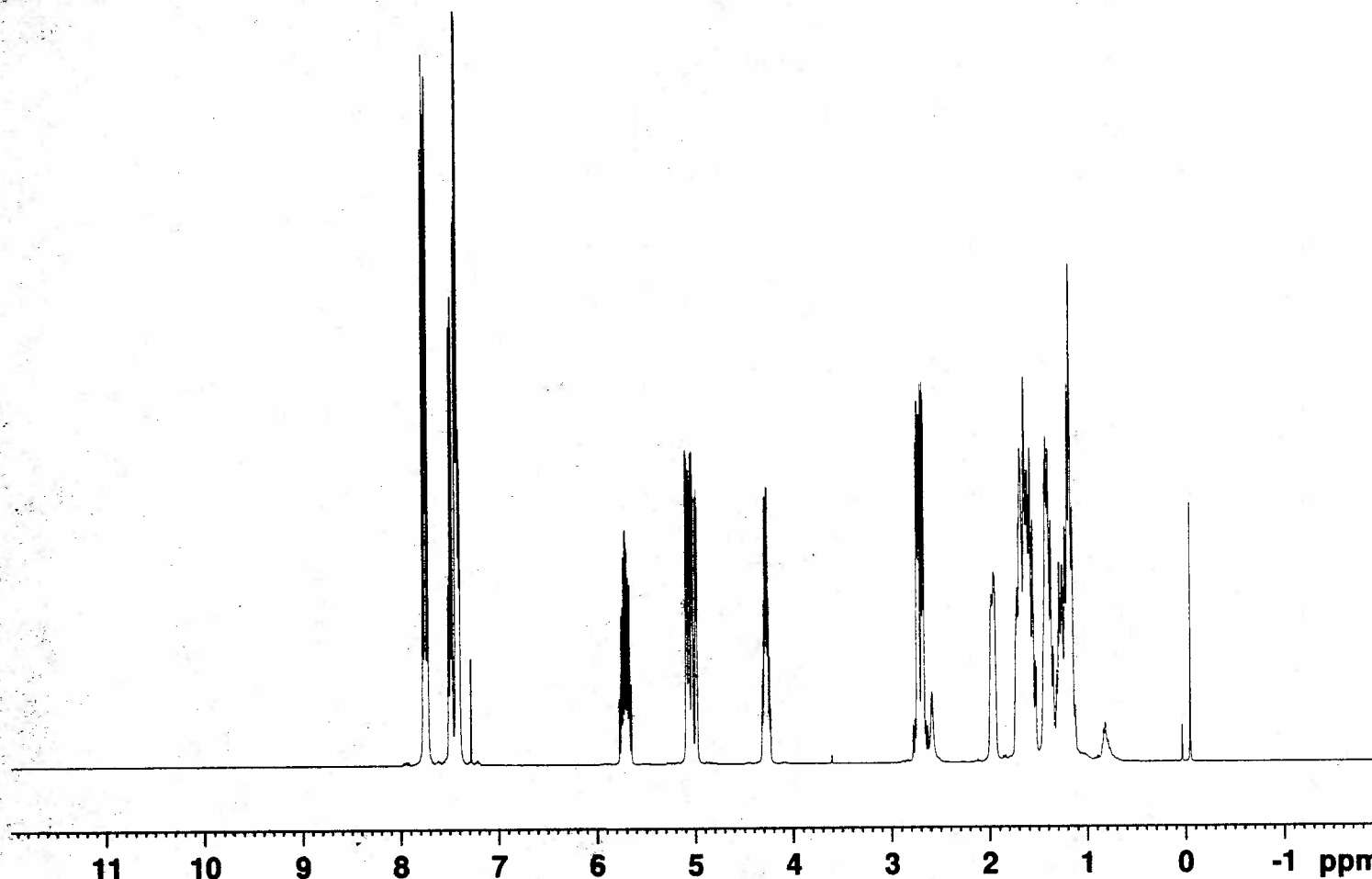


Current Data Parameters  
 NAME AFL065  
 EXPNO 5  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150730  
 Time 11.25  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 11  
 DS 2  
 SWH 8012.820 Hz  
 FIDRES 0.122266 Hz  
 AQ 4.0894465 sec  
 RG 18.98  
 DW 62.400 usec  
 DE 6.50 usec  
 TE 294.5 K  
 D1 1.00000000 sec  
 TD0 1

==== CHANNEL f1 =====  
 SFO1 400.1324710 MHz  
 NUC1 1H  
 P1 10.00 usec  
 PLW1 25.00300026 W

F2 - Processing parameters  
 SI 65536  
 SF 400.1300000 MHz  
 WDW EM  
 SSB 0  
 LB 0.60 Hz  
 GB 0  
 PC 1.00



5.31  
 1.00  
 2.09  
 1.02  
 2.14  
 1.05  
 10.08

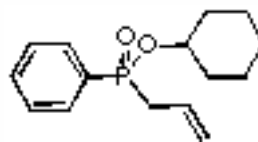
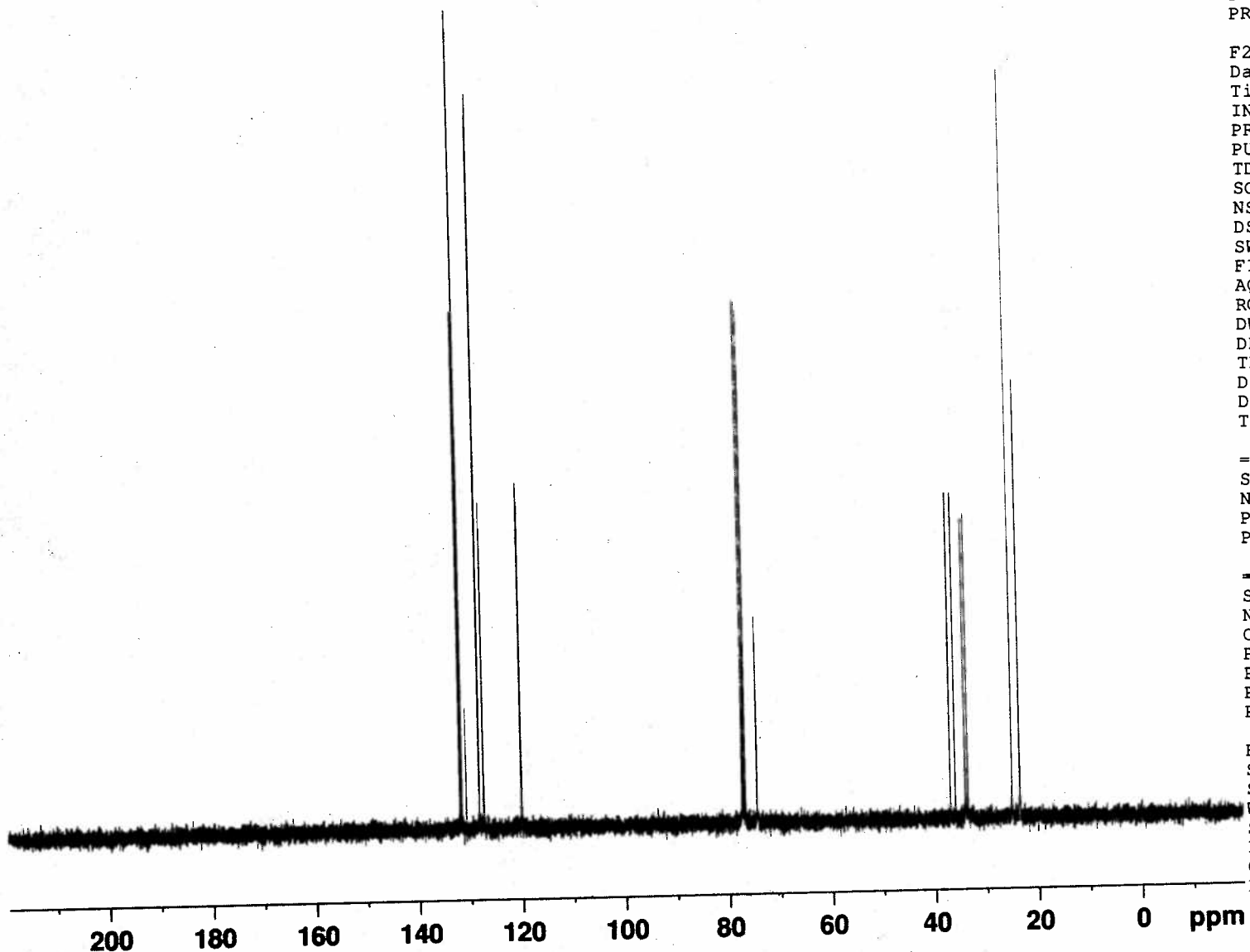


Table 3, entry 2  
<sup>13</sup>C NMR



Current Data Parameters  
 NAME AFL065  
 EXPNO 6  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150730  
 Time 11.31  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDC13  
 NS 36  
 DS 4  
 SWH 24038.461 Hz  
 FIDRES 0.366798 Hz  
 AQ 1.3631488 sec  
 RG 203.57  
 DW 20.800 usec  
 DE 6.50 usec  
 TE 295.2 K  
 D1 2.00000000 sec  
 D11 0.03000000 sec  
 TD0 1

==== CHANNEL f1 =====  
 SFO1 100.6228293 MHz  
 NUC1 13C  
 P1 10.00 usec  
 PLW1 45.00000000 W

==== CHANNEL f2 =====  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG[2] waltz16  
 PCPD2 90.00 usec  
 PLW2 10.00000000 W  
 PLW12 0.31604999 W  
 PLW13 0.25600001 W

F2 - Processing parameters  
 SI 32768  
 SF 100.6127685 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

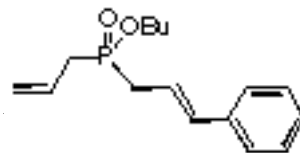
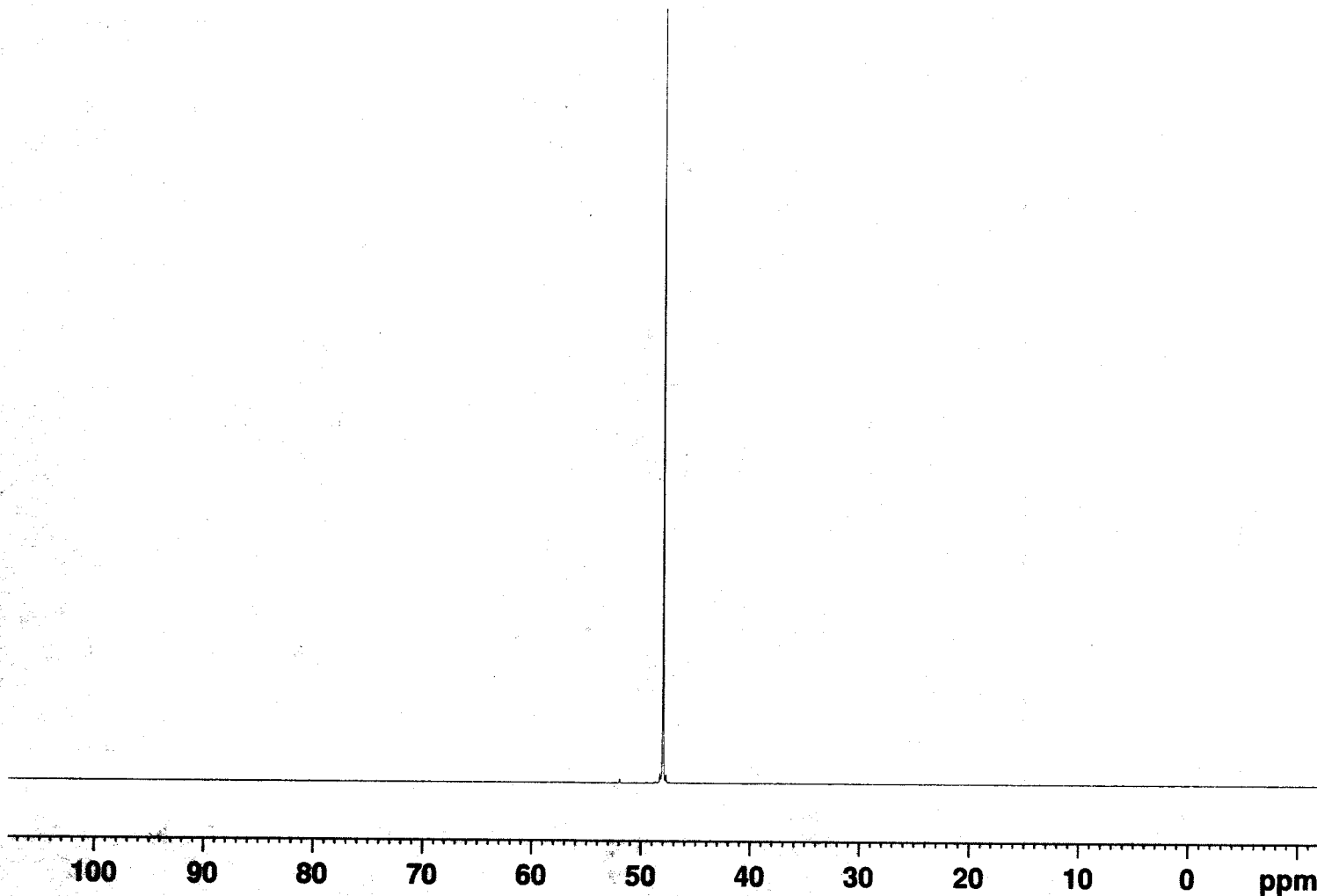


Table 3, entry 3  
 $^{31}\text{P}/^1\text{H}$  NMR decoupled



Current Data Parameters  
 NAME AFL072  
 EXPNO 3  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150804  
 Time 14.20  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT Acetone  
 NS 16  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 295.5 K  
 D1 2.0000000 sec  
 D11 0.03000000 sec  
 TD0 1

==== CHANNEL f1 =====  
 SFO1 161.9674942 MHz  
 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.00000000 W

==== CHANNEL f2 =====  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG[2] waltz16  
 PCPD2 90.00 usec  
 PLW2 10.00000000 W  
 PLW12 0.31604999 W  
 PLW13 0.25600001 W

F2 - Processing parameters  
 SI 32768  
 SF 161.9755930 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

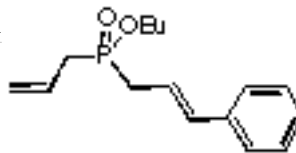
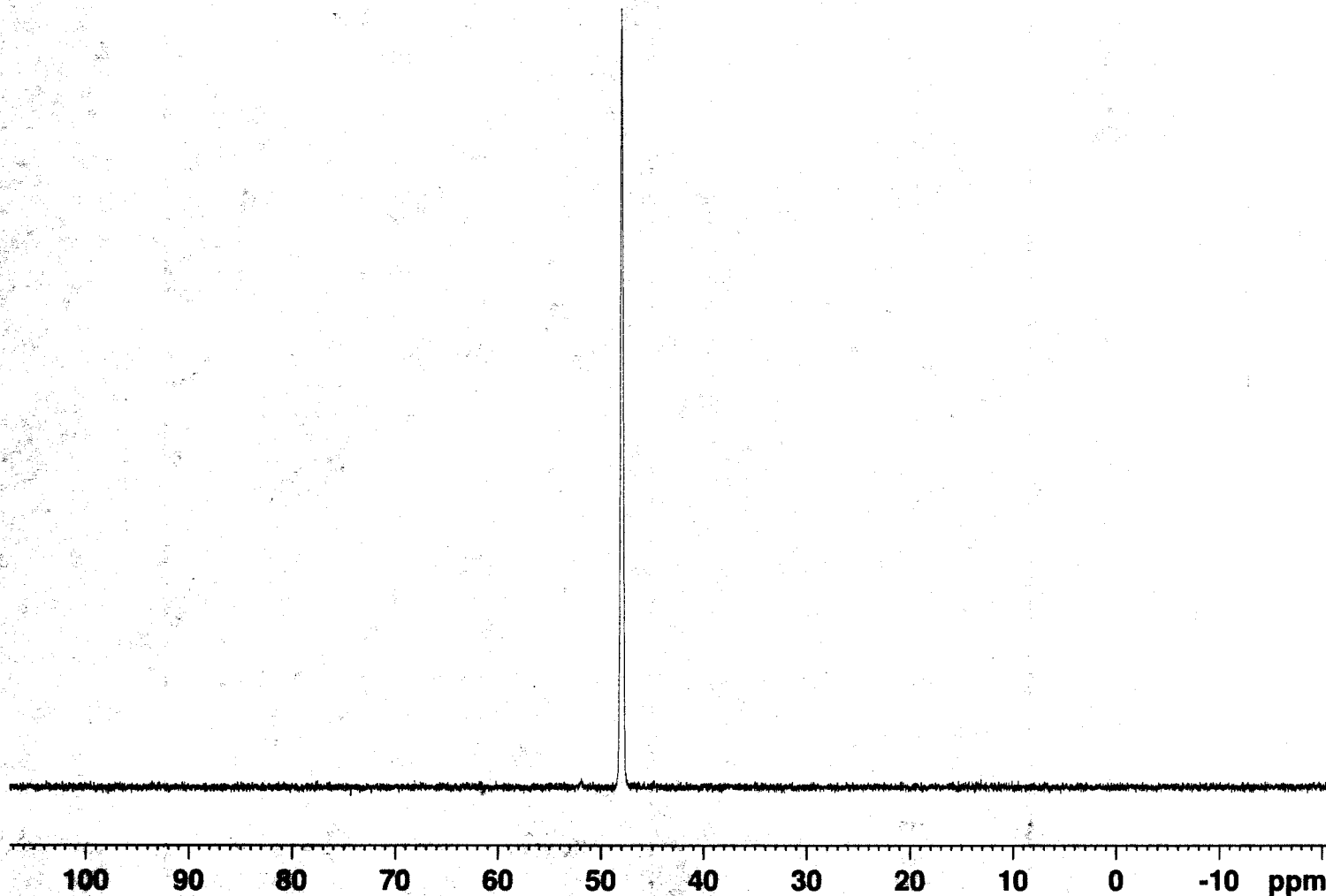


Table 3, entry 3  
31P/1H NMR coupled



Current Data Parameters  
NAME AFL072  
EXPNO 4  
PROCNO 1

F2 - Acquisition Parameters  
Date\_ 20150804  
Time 14.21  
INSTRUM spect  
PROBHD 5 mm PABBO BB/  
PULPROG zg30  
TD 65536  
SOLVENT Acetone  
NS 4  
DS 4  
SWH 64102.563 Hz  
FIDRES 0.978127 Hz  
AQ 0.5111808 sec  
RG 203.57  
DW 7.800 usec  
DE 6.50 usec  
TE 295.1 K  
D1 2.0000000 sec  
TD0 1

==== CHANNEL f1 =====  
SF01 161.9674942 MHz  
NUC1 31P  
P1 14.25 usec  
PLW1 15.0000000 W

F2 - Processing parameters  
SI 32768  
SF 161.9755930 MHz  
WDW EM  
SSB 0  
LB 1.00 Hz  
GB 0  
PC 1.40

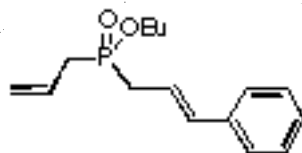


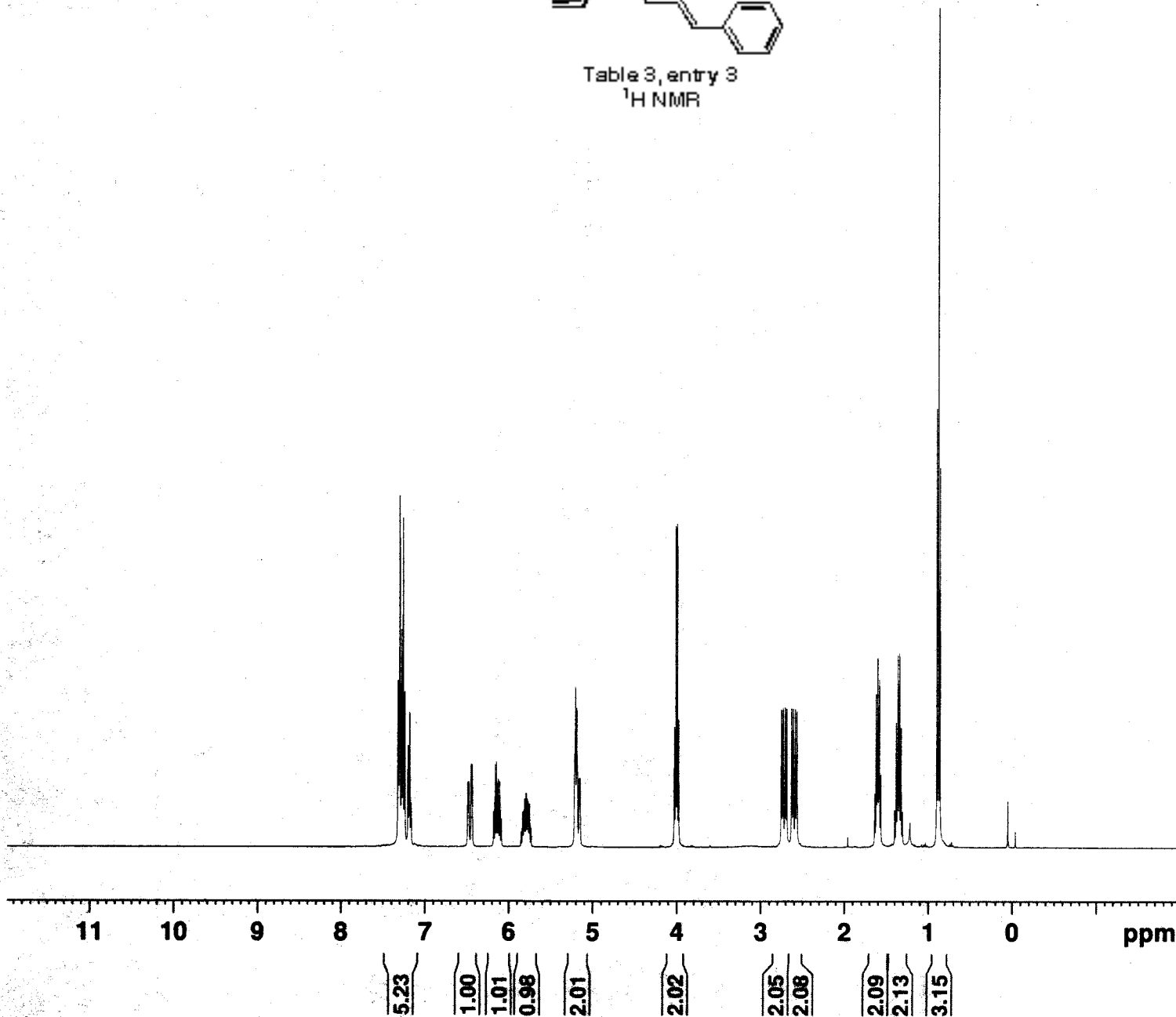
Table 3, entry 3  
<sup>1</sup>H NMR

Current Data Parameters  
 NAME AFL072  
 EXPNO 5  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150804  
 Time 14.27  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDC13  
 NS 11  
 DS 2  
 SWH 8012.820 Hz  
 FIDRES 0.122266 Hz  
 AQ 4.0894465 sec  
 RG 13.94  
 DW 62.400 usec  
 DE 6.50 usec  
 TE 295.1 K  
 D1 1.0000000 sec  
 TD0 1

==== CHANNEL f1 =====  
 SFO1 400.1324710 MHz  
 NUC1 1H  
 P1 10.00 usec  
 PLW1 25.00300026 W

F2 - Processing parameters  
 SI 65536  
 SF 400.1300000 MHz  
 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00



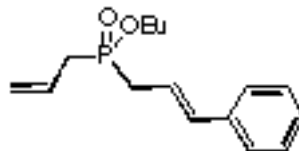
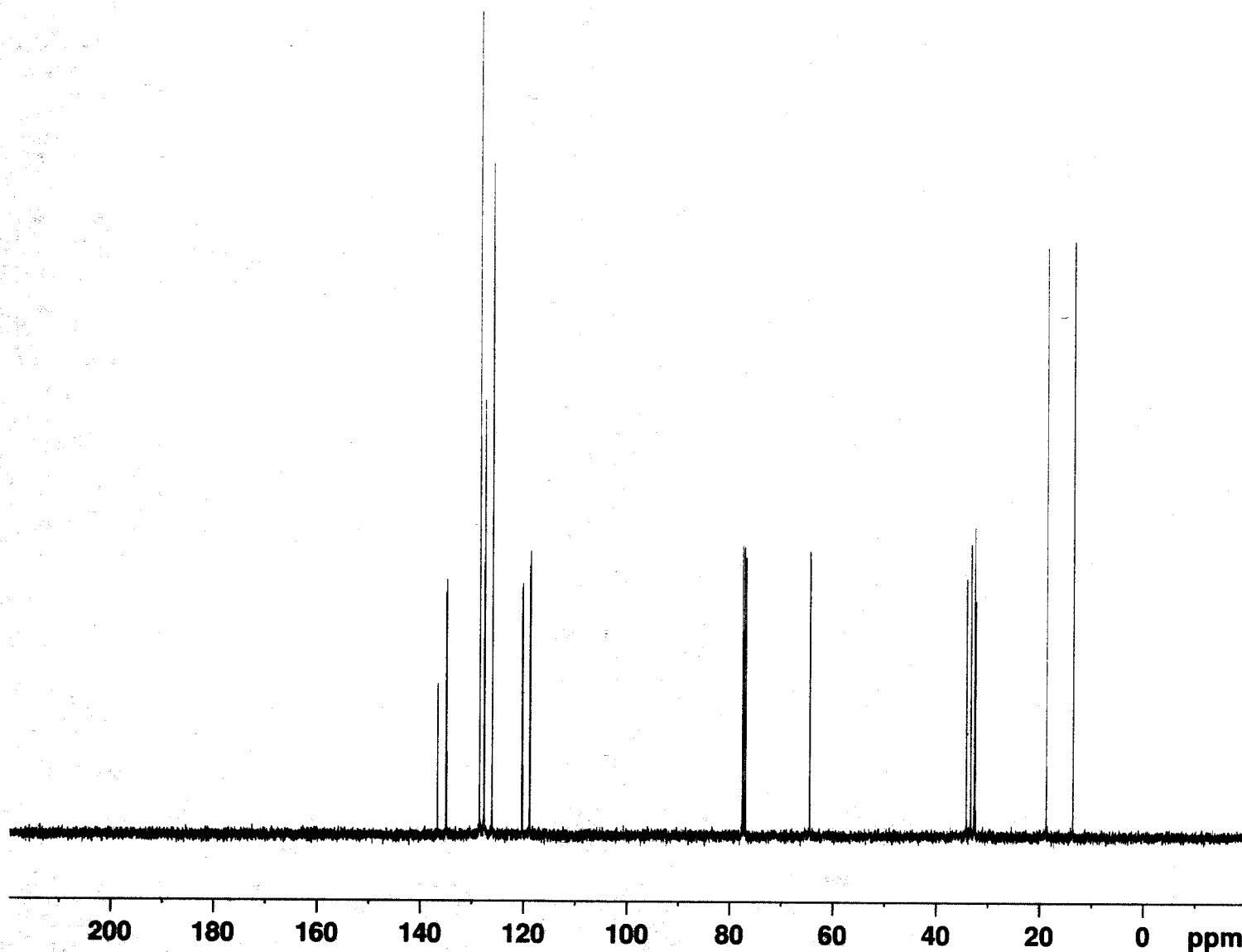


Table 3, entry 3  
<sup>13</sup>C NMR



Current Data Parameters  
 NAME AFL072  
 EXPNO 6  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150804  
 Time 14.33  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDC13  
 NS 29  
 DS 4  
 SWH 24038.461 Hz  
 FIDRES 0.366798 Hz  
 AQ 1.3631488 sec  
 RG 203.57  
 DW 20.800 usec  
 DE 6.50 usec  
 TE 295.8 K  
 D1 2.0000000 sec  
 D11 0.0300000 sec  
 TD0 1

==== CHANNEL f1 =====  
 SFO1 100.6228293 MHz  
 NUC1 13C  
 P1 10.00 usec  
 PLW1 45.0000000 W

==== CHANNEL f2 =====  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG[2] waltz16  
 PCPD2 90.00 usec  
 PLW2 10.0000000 W  
 PLW12 0.31604999 W  
 PLW13 0.25600001 W

F2 - Processing parameters  
 SI 32768  
 SF 100.6127685 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40



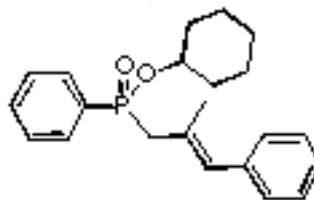


Table 3, entry 4  
<sup>31</sup>P/<sup>1</sup>H NMR decoupled

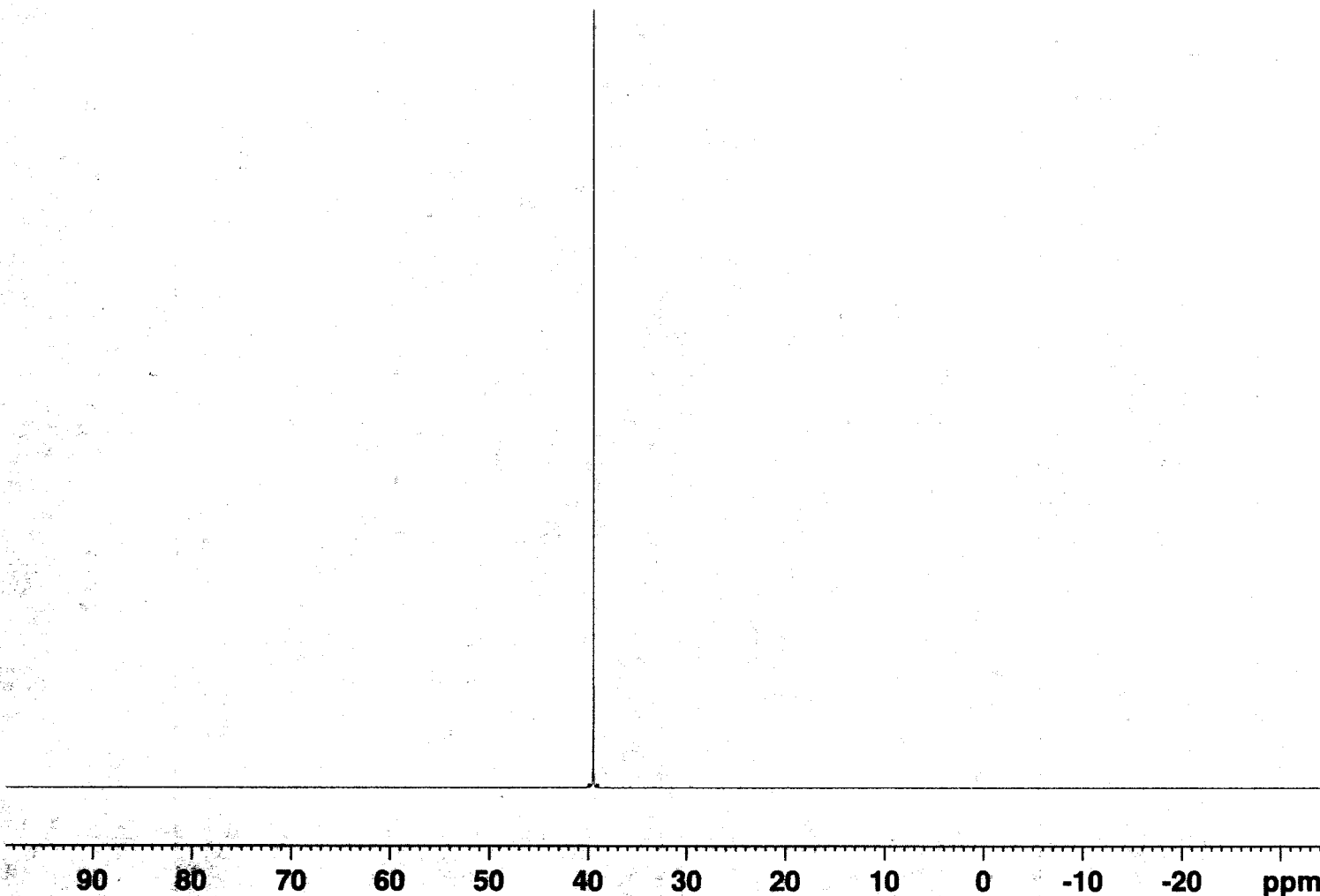
Current Data Parameters  
 NAME AFL066  
 EXPNO 3  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150730  
 Time 11.35  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDC13  
 NS 16  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 295.1 K  
 D1 2.0000000 sec  
 D11 0.03000000 sec  
 TD0 1

==== CHANNEL f1 =====  
 SFO1 161.9674942 MHz  
 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.00000000 W

==== CHANNEL f2 =====  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG[2] waltz16  
 PCPD2 90.00 usec  
 PLW2 10.00000000 W  
 PLW12 0.31604999 W  
 PLW13 0.25600001 W

F2 - Processing parameters  
 SI 32768  
 SF 161.9755930 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40



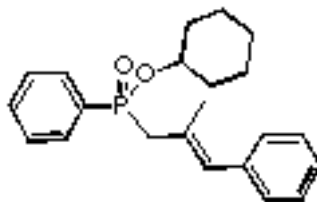
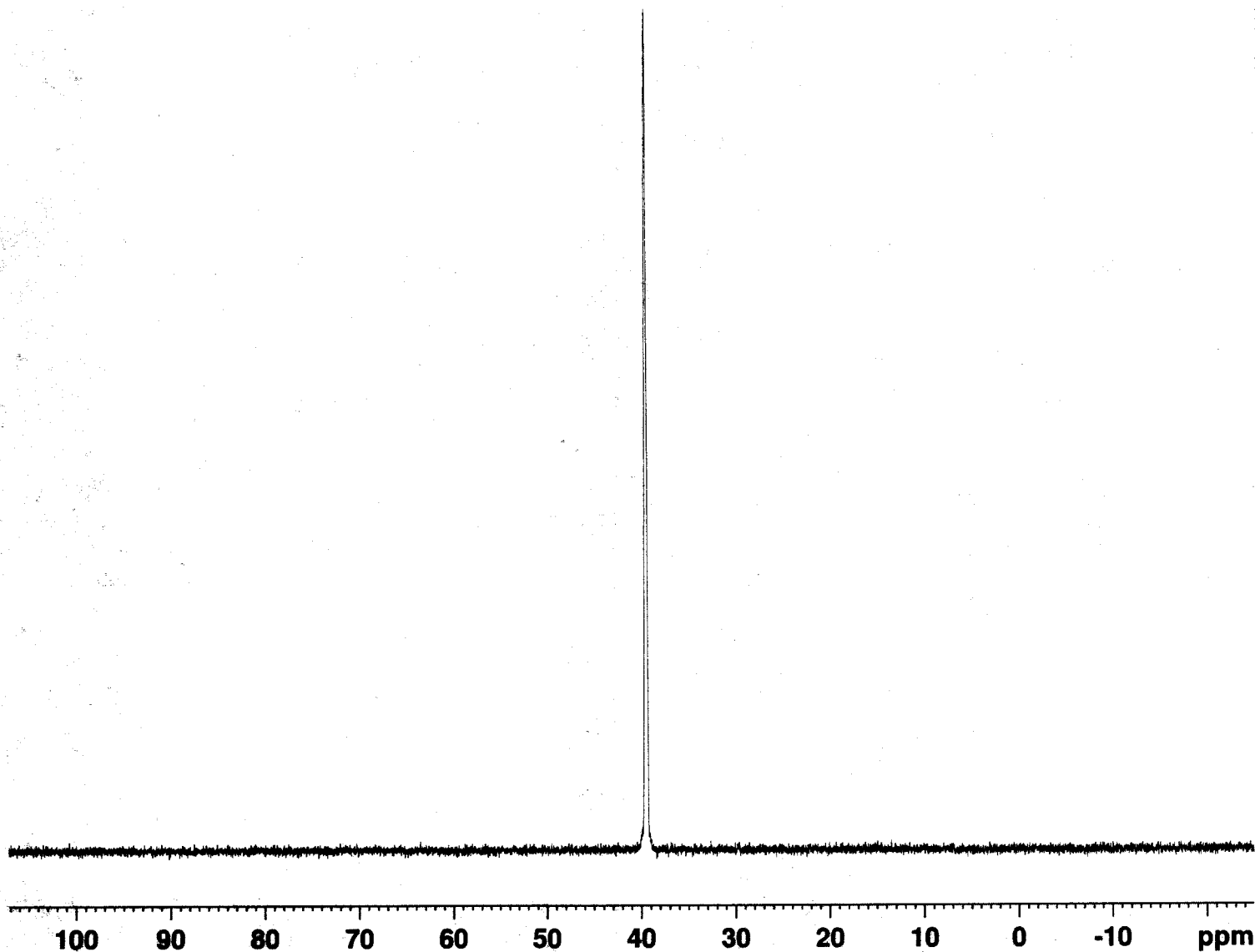


Table 3, entry 4  
 $^{31}\text{P}/^1\text{H}$  NMR coupled



Current Data Parameters  
 NAME AFL066  
 EXPNO 4  
 PROCNO 1

F2 - Acquisition Parameters

Date\_ 20150730  
 Time 11.37  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDC13  
 NS 18  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 294.7 K  
 D1 2.0000000 sec  
 TD0 1

----- CHANNEL f1 -----  
 SFO1 161.9674942 MHz  
 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.0000000 W

F2 - Processing parameters

SI 32768  
 SF 161.9755930 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

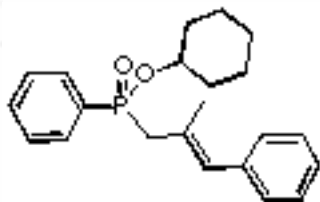


Table 3, entry 4  
<sup>1</sup>H NMR

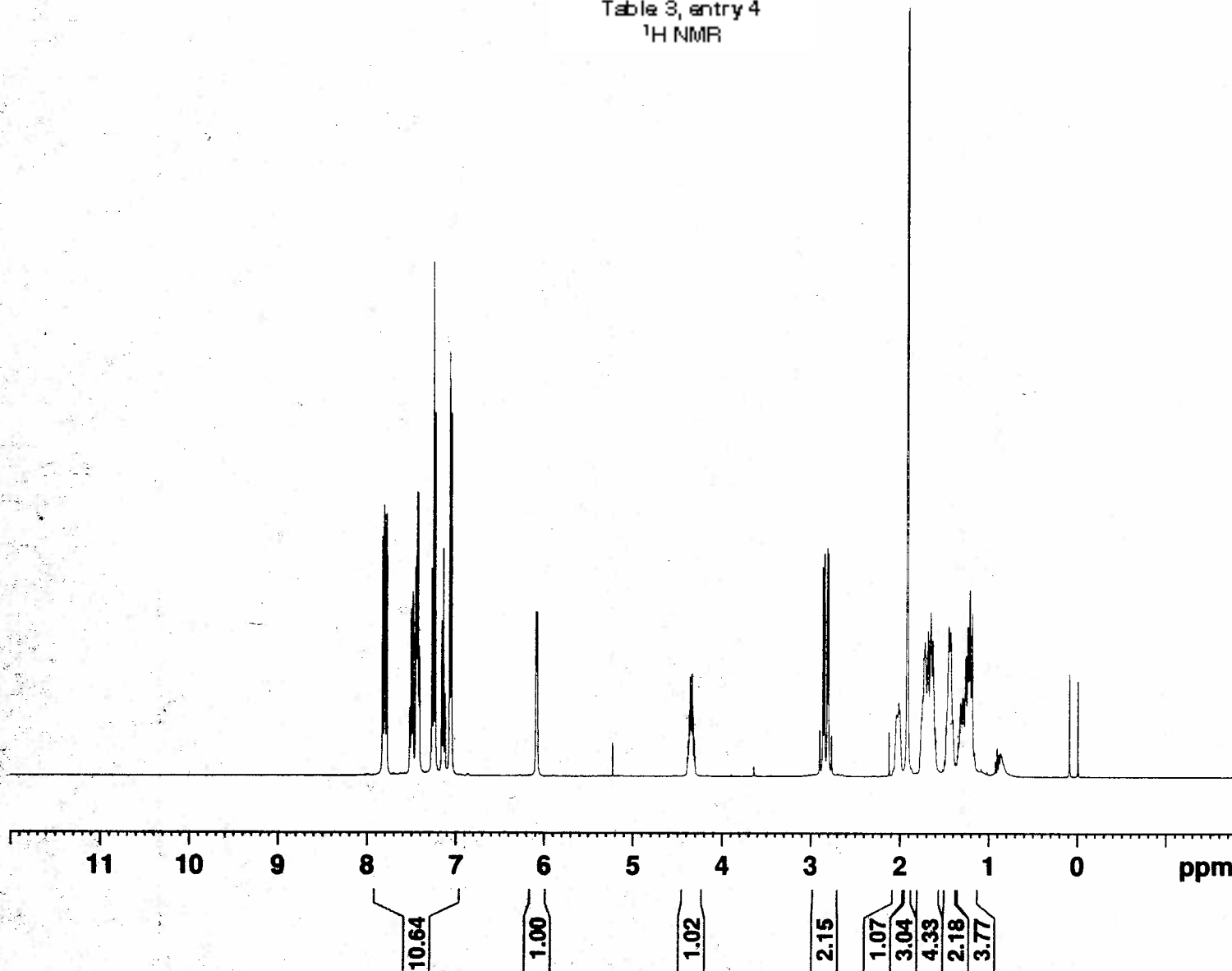


Current Data Parameters  
 NAME AFL066  
 EXPNO 10  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150827  
 Time 11.32  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDC13  
 NS 16  
 DS 2  
 SWH 8012.820 Hz  
 FIDRES 0.122266 Hz  
 AQ 4.0894465 sec  
 RG 13.94  
 DW 62.400 usec  
 DE 6.50 usec  
 TE 294.5 K  
 D1 1.00000000 sec  
 TD0 1

==== CHANNEL f1 =====  
 SFO1 400.1324710 MHz  
 NUC1 1H  
 P1 10.00 usec  
 PLW1 25.00300026 W

F2 - Processing parameters  
 SI 65536  
 SF 400.1300000 MHz  
 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00



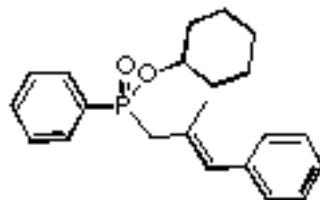
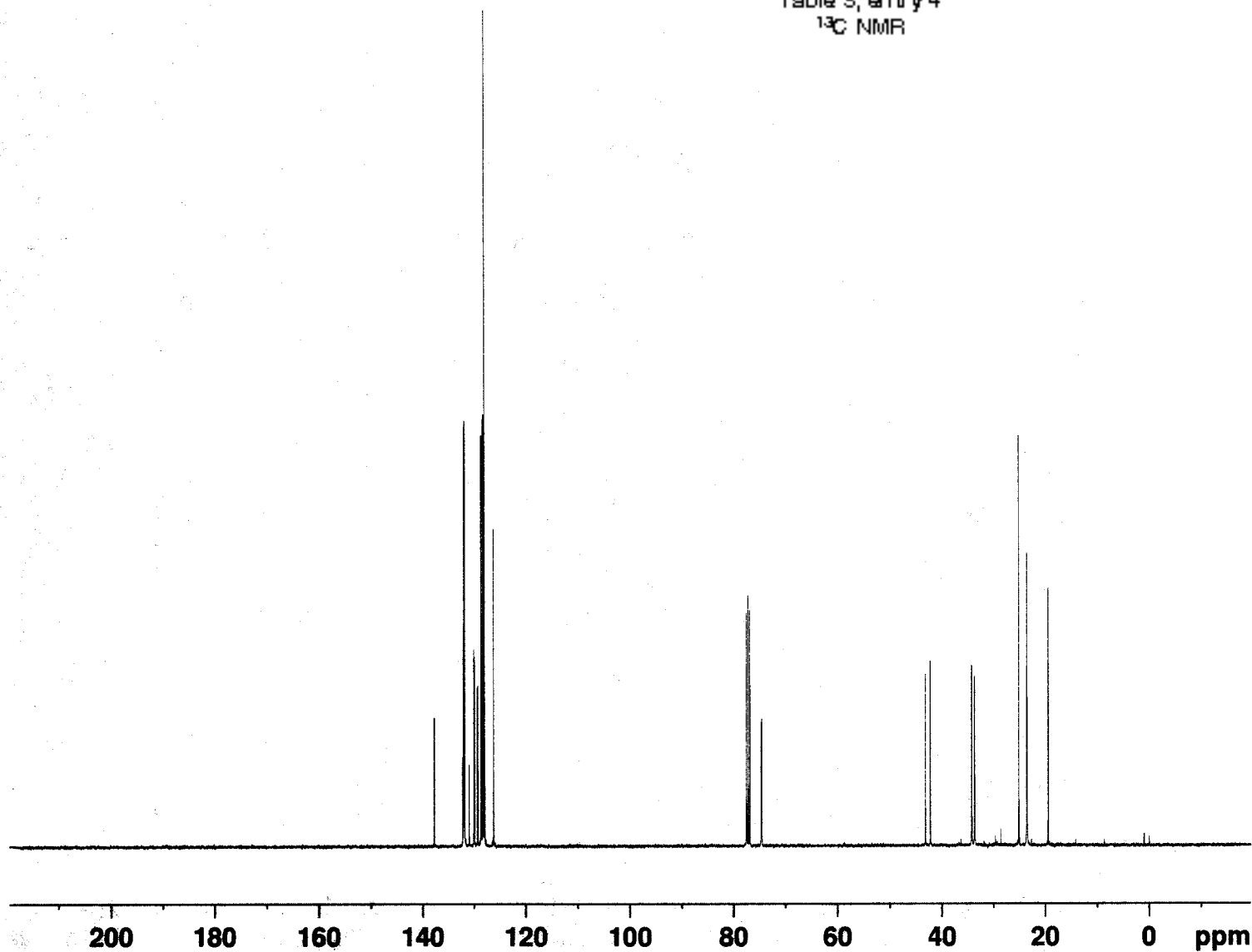


Table 3, entry 4  
<sup>13</sup>C NMR



Current Data Parameters  
 NAME AFL066  
 EXPNO 11  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150827  
 Time 11.55  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 293  
 DS 4  
 SWH 24038.461 Hz  
 FIDRES 0.366798 Hz  
 AQ 1.3631488 sec  
 RG 203.57  
 DW 20.800 usec  
 DE 6.50 usec  
 TE 295.2 K  
 D1 2.0000000 sec  
 D11 0.03000000 sec  
 TD0 1

==== CHANNEL f1 =====  
 SFO1 100.6228293 MHz  
 NUC1 13C  
 P1 10.00 usec  
 PLW1 45.00000000 W

==== CHANNEL f2 =====  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG[2] waltz16  
 PCPD2 90.00 usec  
 PLW2 10.00000000 W  
 PLW12 0.31604999 W  
 PLW13 0.25600001 W

F2 - Processing parameters  
 SI 32768  
 SF 100.6127685 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

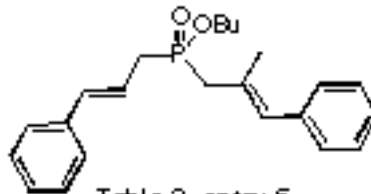


Table 3, entry 5  
<sup>31</sup>P/<sup>1</sup>H NMR decoupled

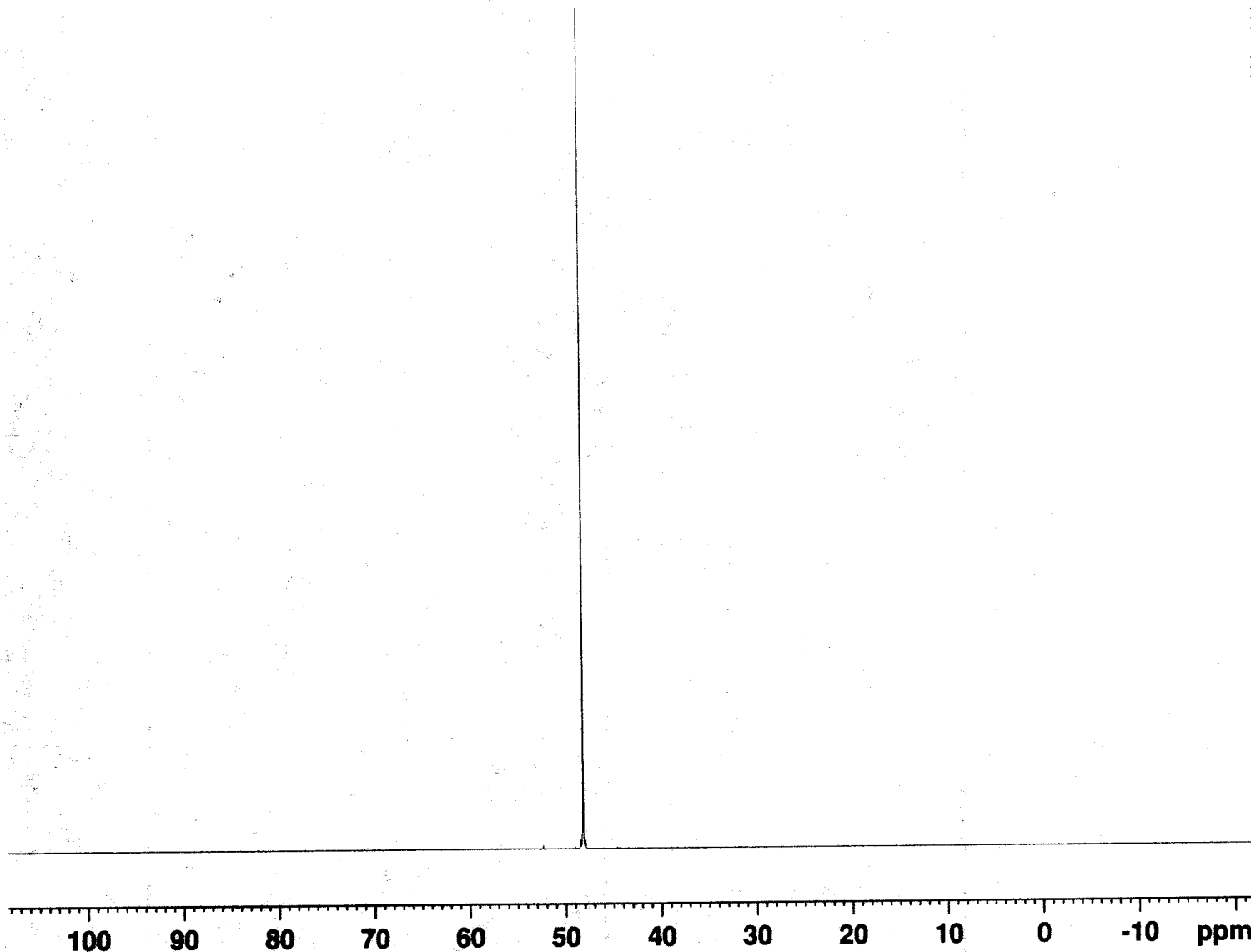
Current Data Parameters  
 NAME AFL092  
 EXPNO 3  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150813  
 Time 11.37  
 INSTRUM spect  
 PROBHD 5 mm PABBO BE/  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT Acetone  
 NS 9  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 295.8 K  
 D1 2.00000000 sec  
 D11 0.03000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SFO1 161.9674942 MHz  
 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.00000000 W

===== CHANNEL f2 =====  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG[2] waltz16  
 PCPD2 90.00 usec  
 PLW2 10.00000000 W  
 PLW12 0.31604999 W  
 PLW13 0.25600001 W

F2 - Processing parameters  
 SI 32768  
 SF 161.9755930 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40



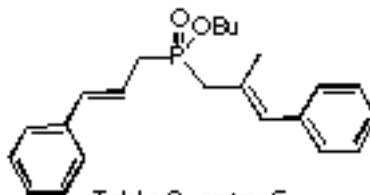
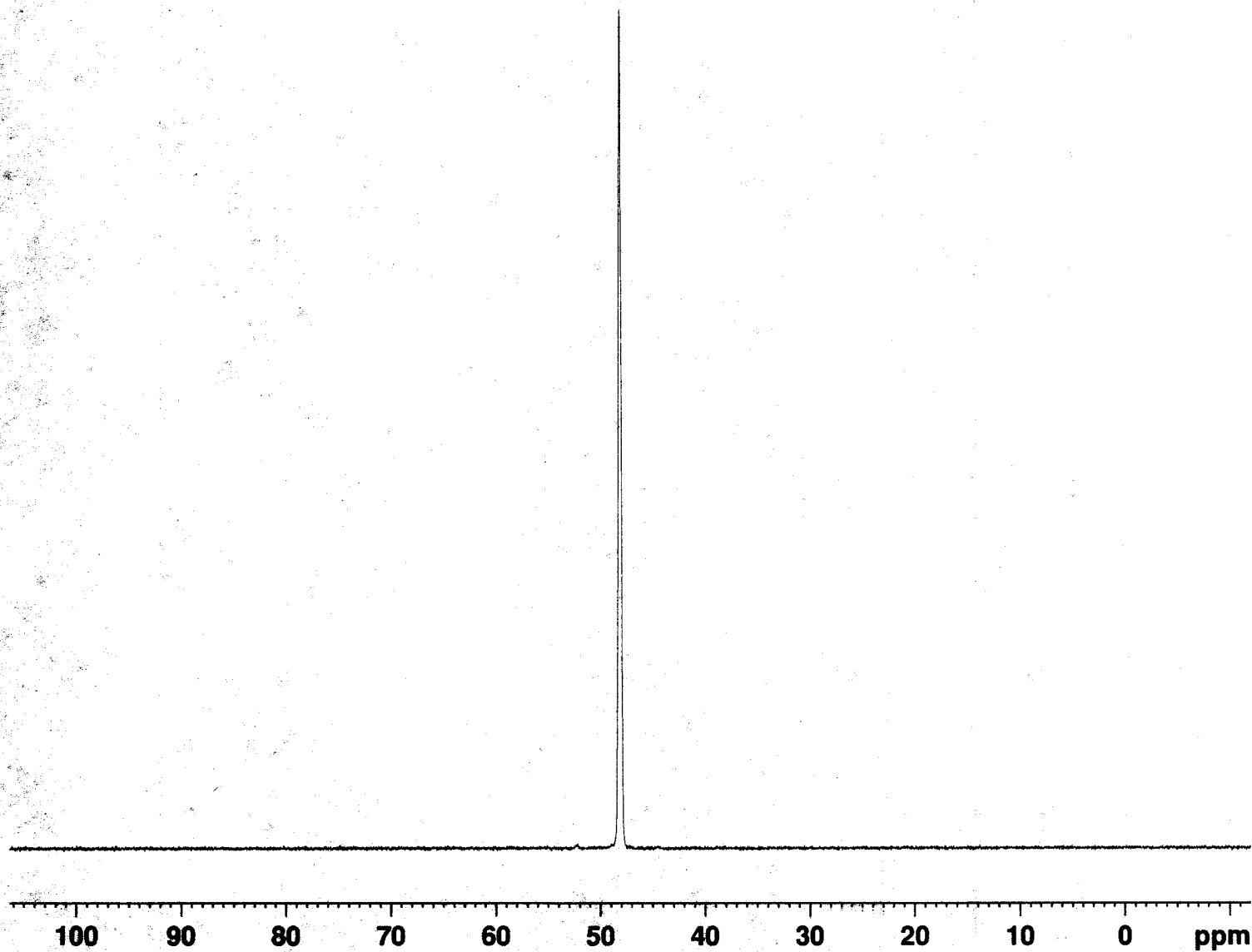


Table 3, entry 5  
 $^{31}\text{P}/^1\text{H}$  NMR coupled



Current Data Parameters  
 NAME AFL092  
 EXPNO 4  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150813  
 Time 11.39  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zg30  
 TD 65536  
 SOLVENT Acetone  
 NS 29  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 295.5 K  
 D1 2.00000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SFO1 161.9674942 MHz  
 NUC1  $^{31}\text{P}$   
 P1 14.25 usec  
 PLW1 15.00000000 W

F2 - Processing parameters  
 SI 32768  
 SF 161.9755930 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

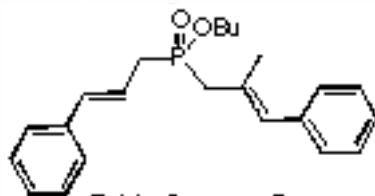


Table 3, entry 5  
<sup>1</sup>H NMR

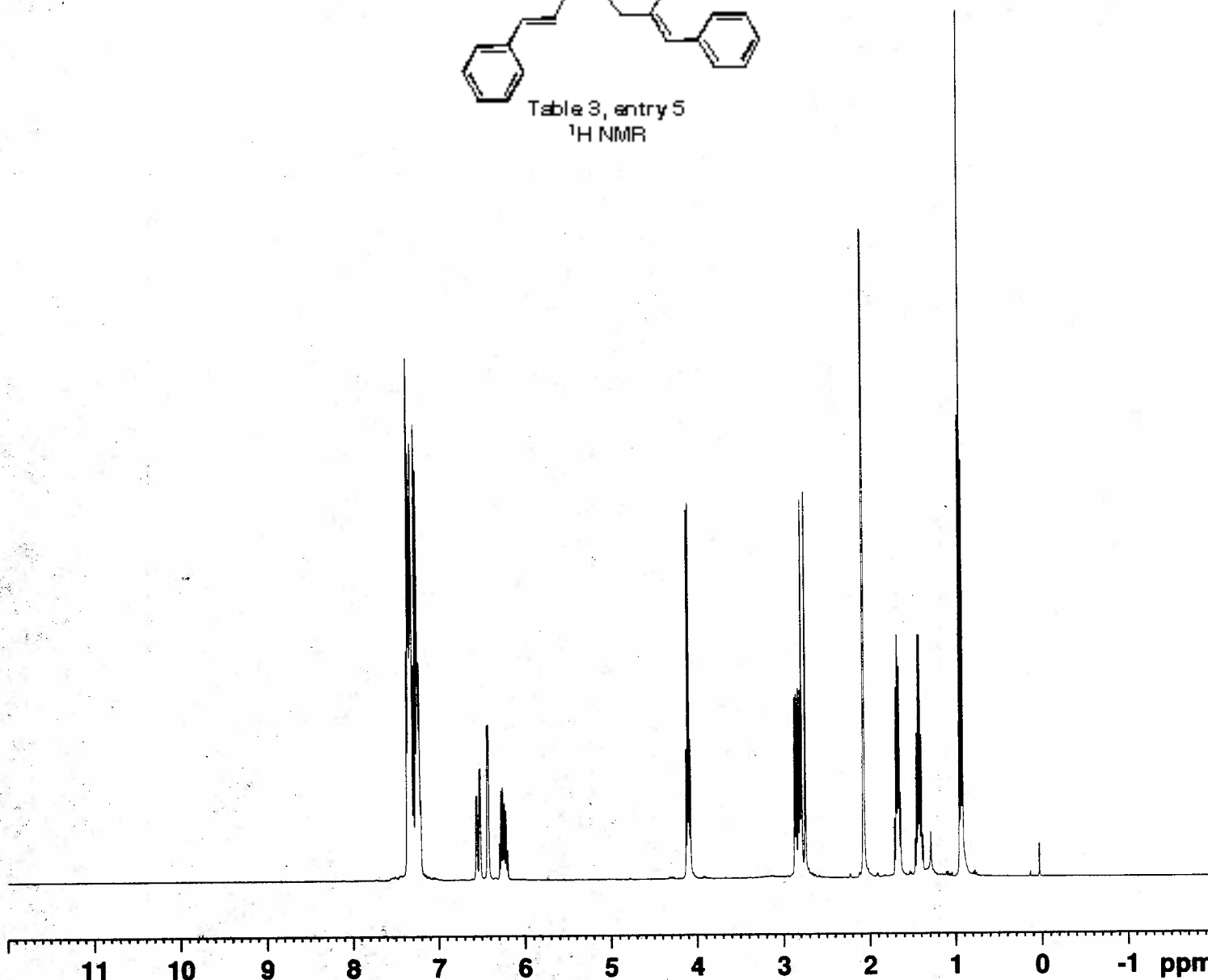


Current Data Parameters  
 NAME AFL092  
 EXPNO 5  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150813  
 Time 11.43  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 16  
 DS 2  
 SWH 8012.820 Hz  
 FIDRES 0.122266 Hz  
 AQ 4.0894465 sec  
 RG 13.94  
 DW 62.400 usec  
 DE 6.50 usec  
 TE 295.5 K  
 D1 1.0000000 sec  
 TD0 1

==== CHANNEL f1 =====  
 SFO1 400.1324710 MHz  
 NUC1 1H  
 P1 10.00 usec  
 PLW1 25.00300026 W

F2 - Processing parameters  
 SI 65536  
 SF 400.1300000 MHz  
 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00



10.27  
 1.00  
 1.00  
 1.01  
 2.03  
 4.08  
 3.02  
 2.08  
 2.11  
 3.23

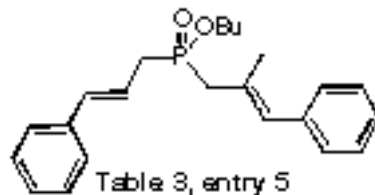
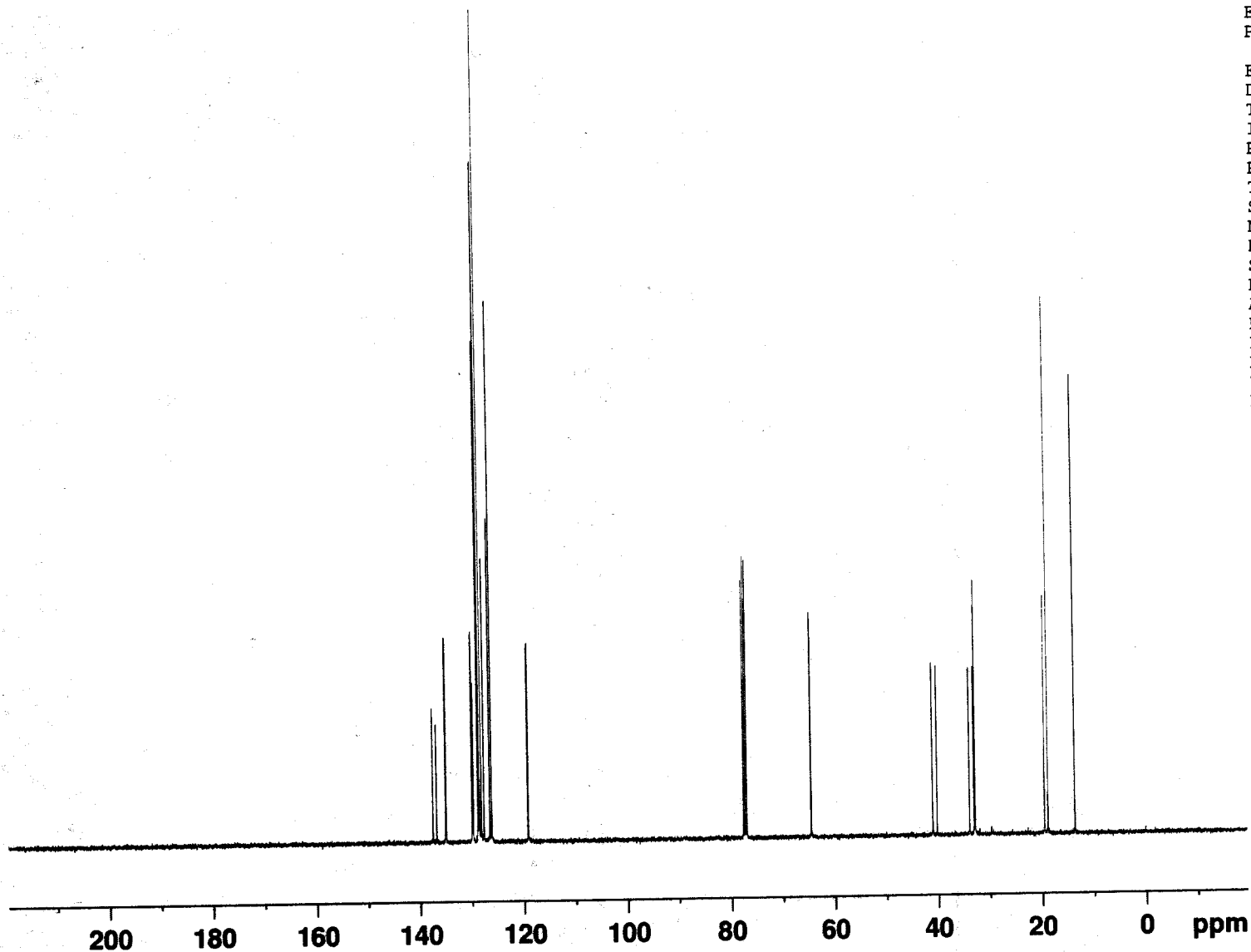


Table 3, entry 5  
<sup>13</sup>C NMR



Current Data Parameters  
 NAME AFL092  
 EXPNO 6  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150813  
 Time 11.57  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 156  
 DS 4  
 SWH 24038.461 Hz  
 FIDRES 0.366798 Hz  
 AQ 1.3631488 sec  
 RG 203.57  
 DW 20.800 usec  
 DE 6.50 usec  
 TE 296.2 K  
 D1 2.0000000 sec  
 D11 0.03000000 sec  
 TD0 1

==== CHANNEL f1 =====  
 SFO1 100.6228293 MHz  
 NUC1 13C  
 P1 10.00 usec  
 PLW1 45.0000000 W

==== CHANNEL f2 =====  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG[2] waltz16  
 PCPD2 90.00 usec  
 PLW2 10.0000000 W  
 PLW12 0.31604999 W  
 PLW13 0.25600001 W

F2 - Processing parameters  
 SI 32768  
 SF 100.6127685 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40



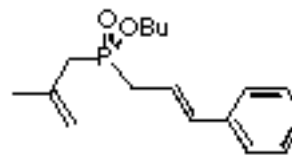


Table 3, entry 6  
 $^{31}\text{P}/^1\text{H}$  NMR decoupled

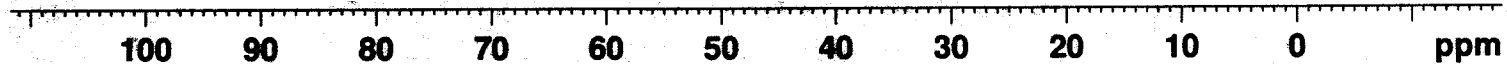
Current Data Parameters  
 NAME AFL083  
 EXPNO 3  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150811  
 Time 9.54  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT D2O  
 NS 16  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 295.2 K  
 D1 2.00000000 sec  
 D11 0.03000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SFO1 161.9674942 MHz  
 NUC1  $^{31}\text{P}$   
 P1 14.25 usec  
 PLW1 15.00000000 W

===== CHANNEL f2 =====  
 SFO2 400.1316005 MHz  
 NUC2  $^1\text{H}$   
 CPDPRG[2] waltz16  
 PCPD2 90.00 usec  
 PLW2 10.00000000 W  
 PLW12 0.31604999 W  
 PLW13 0.25600001 W

F2 - Processing parameters  
 SI 32768  
 SF 161.9755930 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40



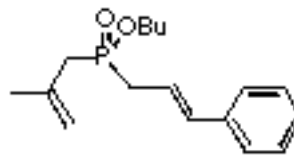
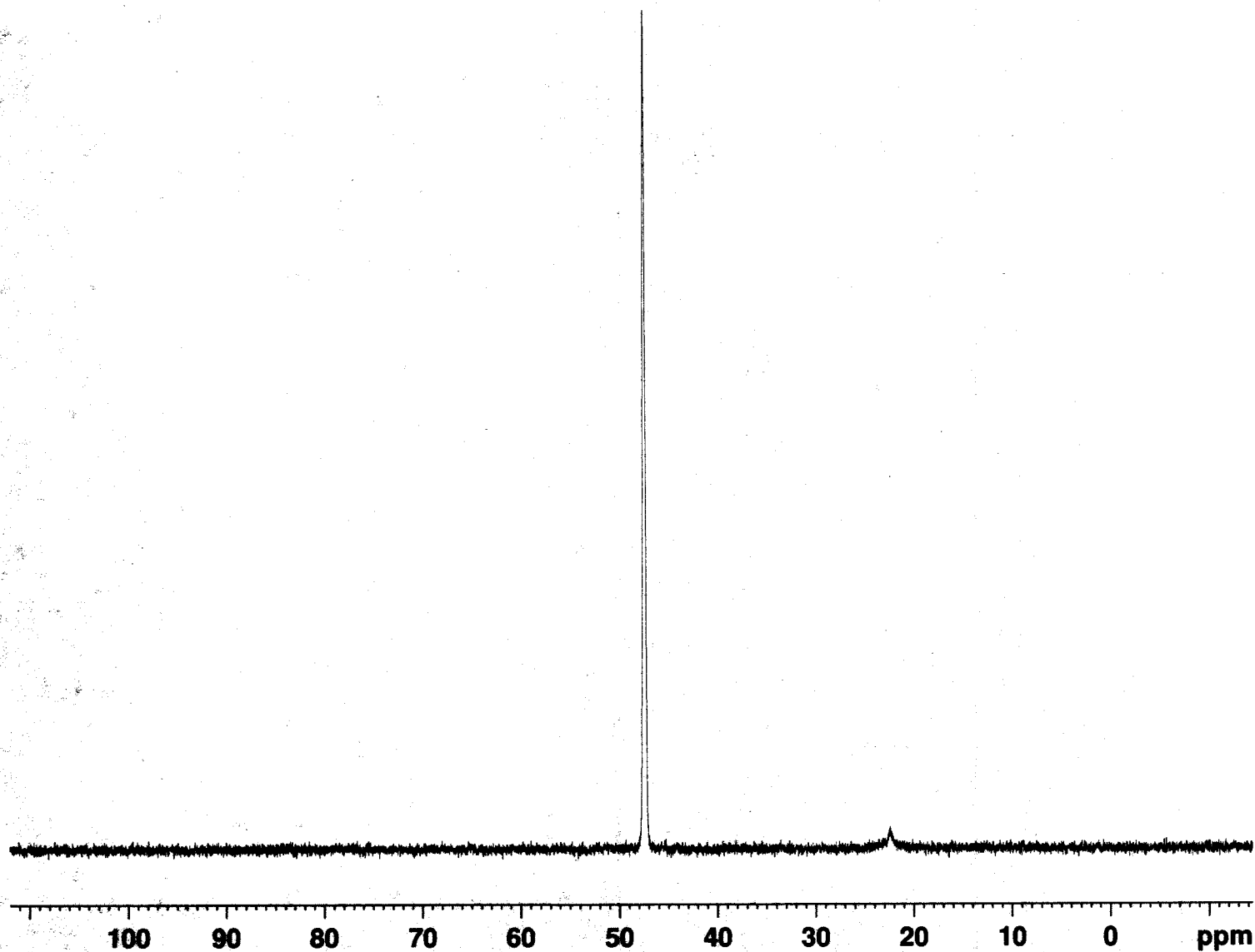


Table 3, entry 6  
<sup>31</sup>P/<sup>1</sup>H NMR coupled



Current Data Parameters  
 NAME AFL083  
 EXPNO 4  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150811  
 Time 9.56  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zg30  
 TD 65536  
 SOLVENT D2O  
 NS 18  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 294.8 K  
 D1 2.00000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SFO1 161.9674942 MHz  
 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.00000000 W

F2 - Processing parameters  
 SI 32768  
 SF 161.9755930 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

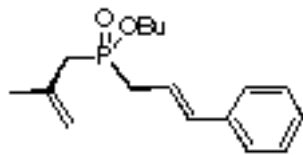
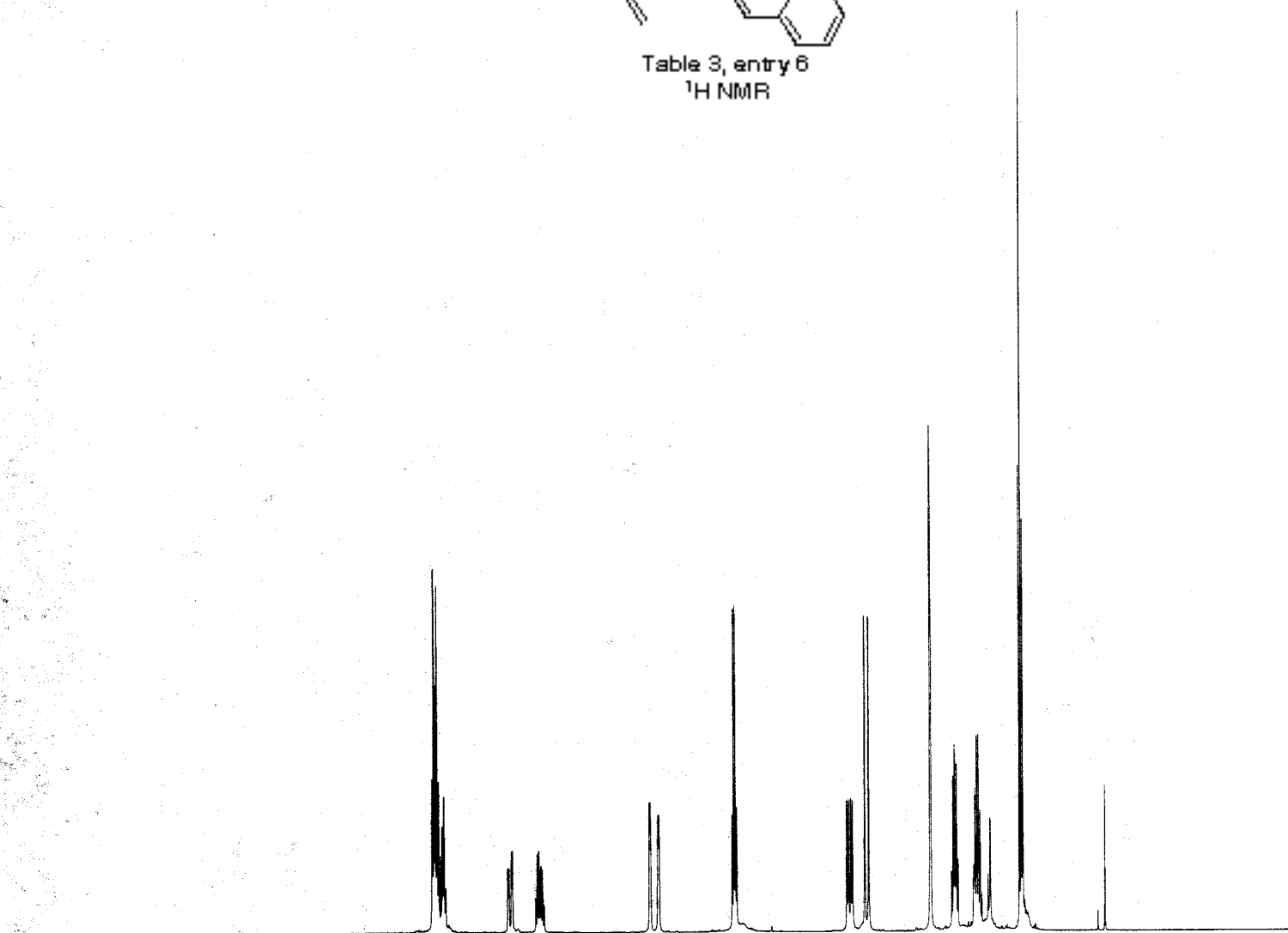


Table 3, entry 6  
<sup>1</sup>H NMR

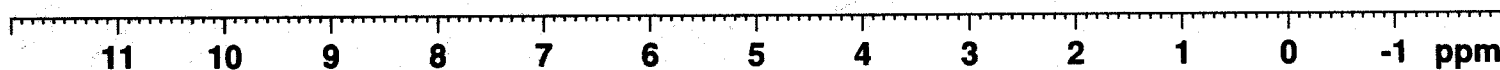


Current Data Parameters  
 NAME AFL083  
 EXPNO 5  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150811  
 Time 10.03  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 16  
 DS 2  
 SWH 8012.820 Hz  
 FIDRES 0.122266 Hz  
 AQ 4.0894465 sec  
 RG 32.38  
 DW 62.400 usec  
 DE 6.50 usec  
 TE 294.9 K  
 D1 1.00000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SFO1 400.1324710 MHz  
 NUC1 1H  
 P1 10.00 usec  
 PLW1 25.00300026 W

F2 - Processing parameters  
 SI 65536  
 SF 400.1300000 MHz  
 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00



5.24 0.99 1.00 1.90 2.06 1.91 2.00 2.82 1.99 2.14 3.15

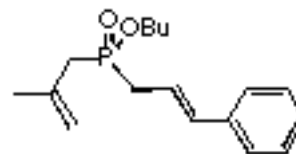
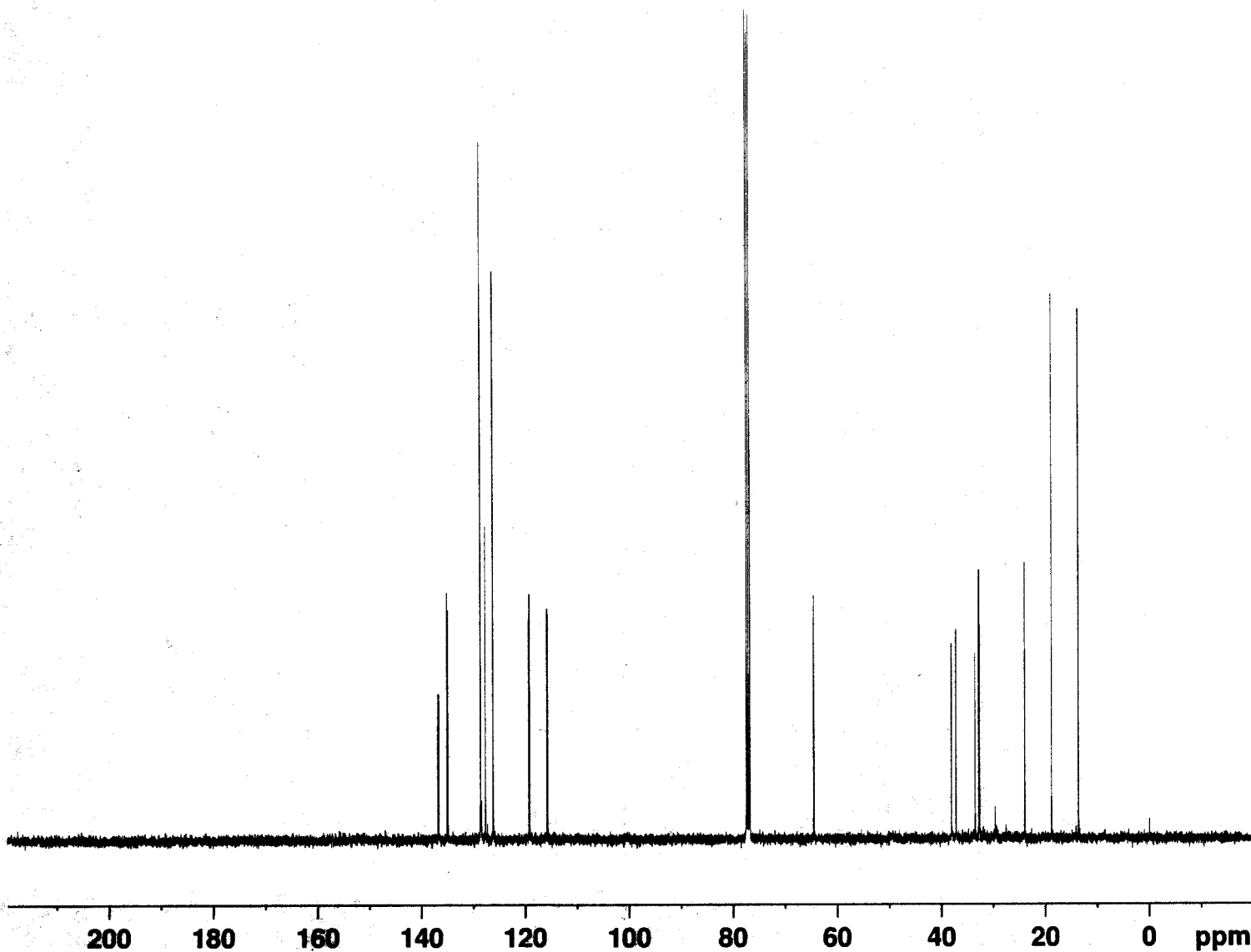


Table 3, entry 6  
<sup>13</sup>C NMR



Current Data Parameters  
 NAME AFL083  
 EXPNO 6  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150811  
 Time 10.27  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDC13  
 NS 210  
 DS 4  
 SWH 24038.461 Hz  
 FIDRES 0.366798 Hz  
 AQ 1.3631488 sec  
 RG 203.57  
 DW 20.800 usec  
 DE 6.50 usec  
 TE 295.9 K  
 D1 2.00000000 sec  
 D11 0.03000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SFO1 100.6228293 MHz  
 NUC1 13C  
 P1 10.00 usec  
 PLW1 45.00000000 W

===== CHANNEL f2 =====  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG[2] waltz16  
 PCPD2 90.00 usec  
 PLW2 10.00000000 W  
 PLW12 0.31604999 W  
 PLW13 0.25600001 W

F2 - Processing parameters  
 SI 32768  
 SF 100.6127685 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

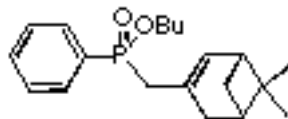


Table 3, entry 7  
 $^{31}\text{P}/^1\text{H}$  NMR decoupled

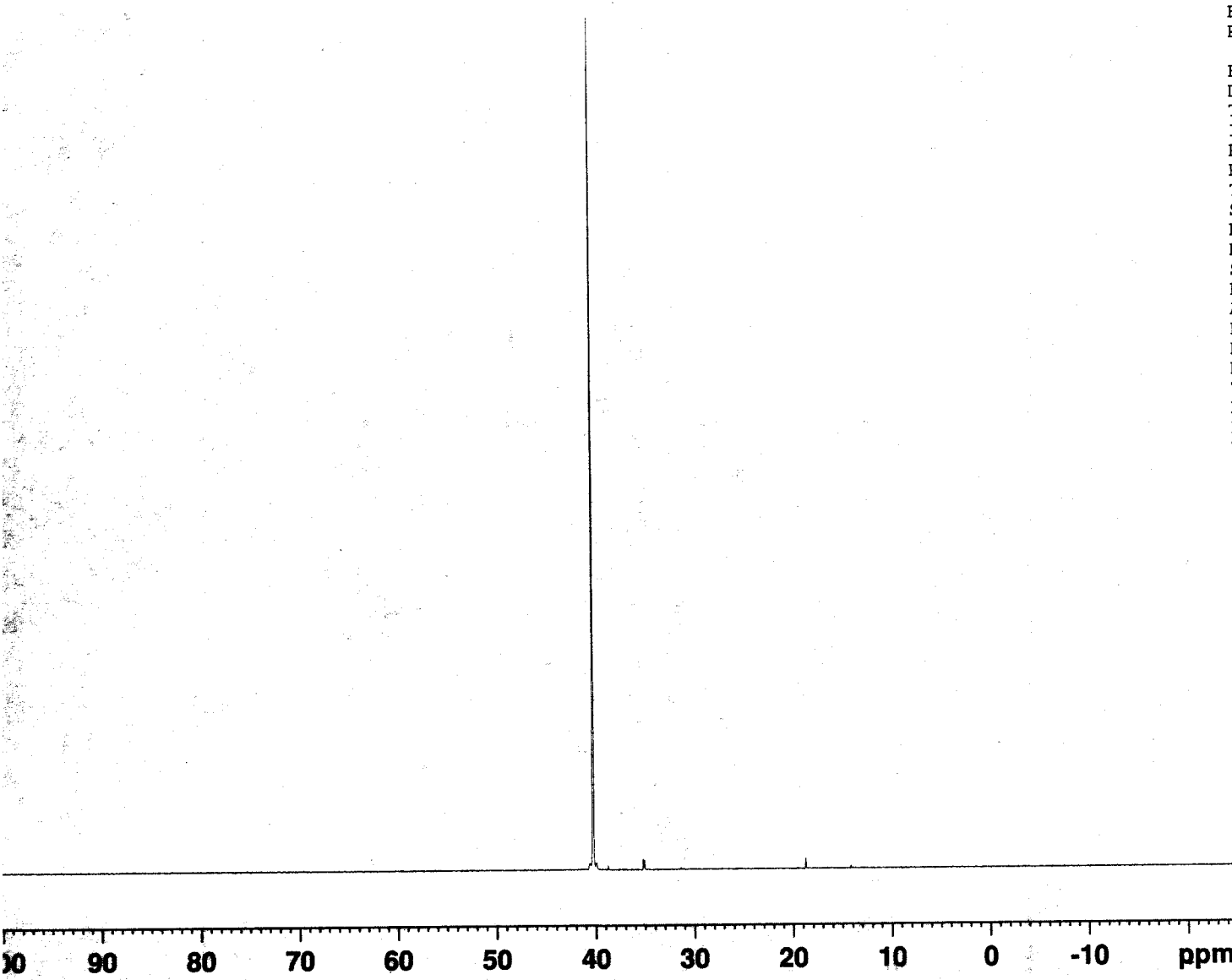
Current Data Parameters  
 NAME AFL071  
 EXPNO 3  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150804  
 Time 14.42  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 16  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 295.7 K  
 D1 2.00000000 sec  
 D11 0.03000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SFO1 161.9674942 MHz  
 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.00000000 W

===== CHANNEL f2 =====  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG[2] waltz16  
 PCPD2 90.00 usec  
 PLW2 10.00000000 W  
 PLW12 0.31604999 W  
 PLW13 0.25600001 W

F2 - Processing parameters  
 SI 32768  
 SF 161.9755930 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40



10 90 80 70 60 50 40 30 20 10 0 -10 ppm

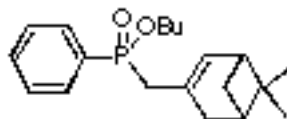


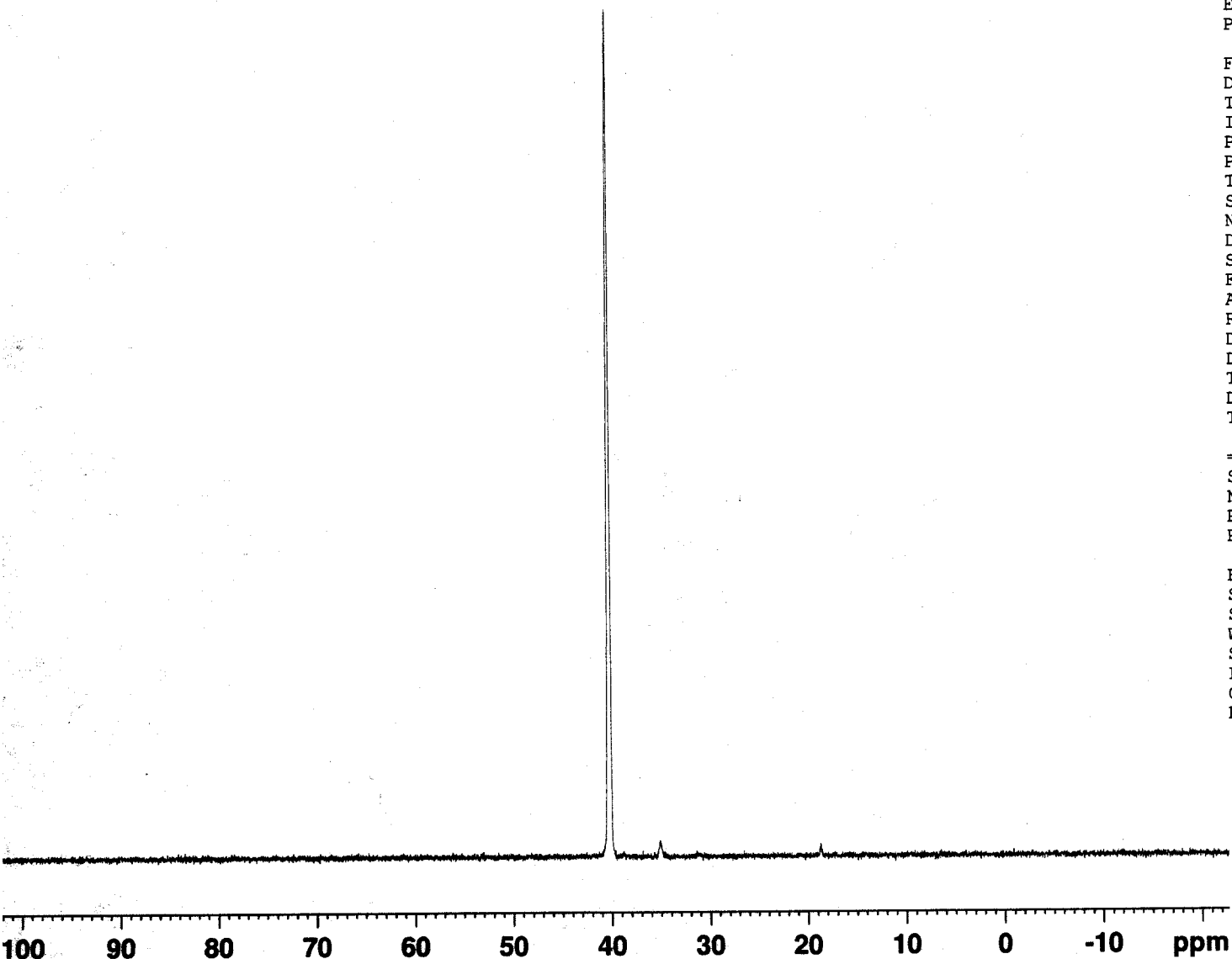
Table 3, entry 7  
 $^{31}\text{P}/^1\text{H}$  NMR coupled

Current Data Parameters  
 NAME AFL071  
 EXPNO 4  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150804  
 Time 14.44  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 12  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 295.3 K  
 D1 2.00000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SFO1 161.9674942 MHz  
 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.00000000 W

F2 - Processing parameters  
 SI 32768  
 SF 161.9755930 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40



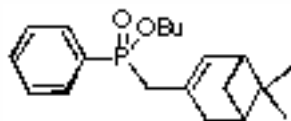


Table 3, entry 7  
<sup>1</sup>H NMR

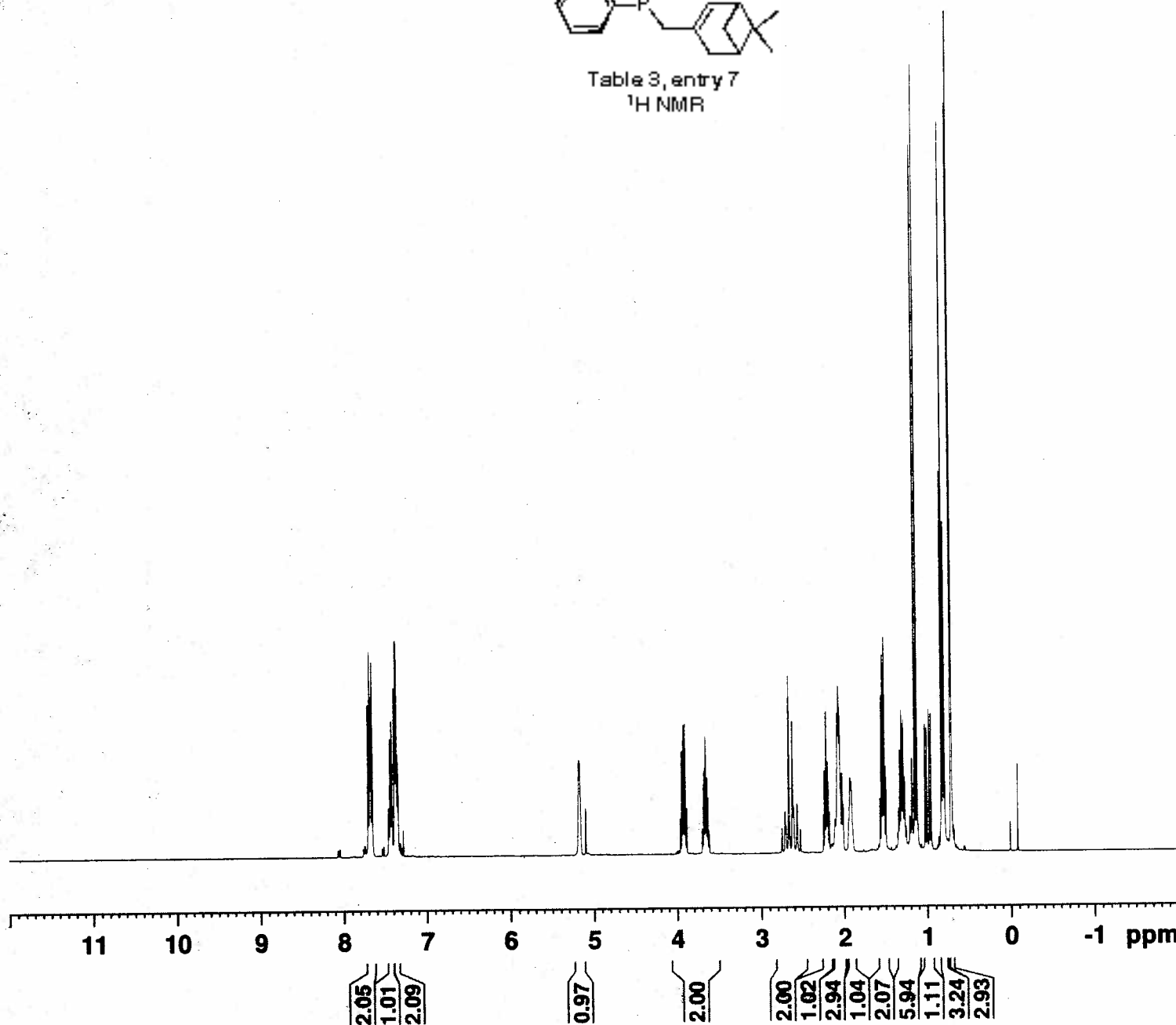


Current Data Parameters  
 NAME AFL071  
 EXPNO 10  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150826  
 Time 15.10  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 16  
 DS 2  
 SWH 8012.820 Hz  
 FIDRES 0.122266 Hz  
 AQ 4.0894465 sec  
 RG 12.96  
 DW 62.400 usec  
 DE 6.50 usec  
 TE 294.9 K  
 D1 1.0000000 sec  
 TD0 1

----- CHANNEL f1 -----  
 SFO1 400.1324710 MHz  
 NUC1 1H  
 P1 10.00 usec  
 PLW1 25.00300026 W

F2 - Processing parameters  
 SI 65536  
 SF 400.130000 MHz  
 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00



11 10 9 8 7 6 5 4 3 2 1 0 -1 ppm

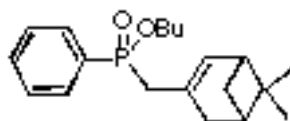
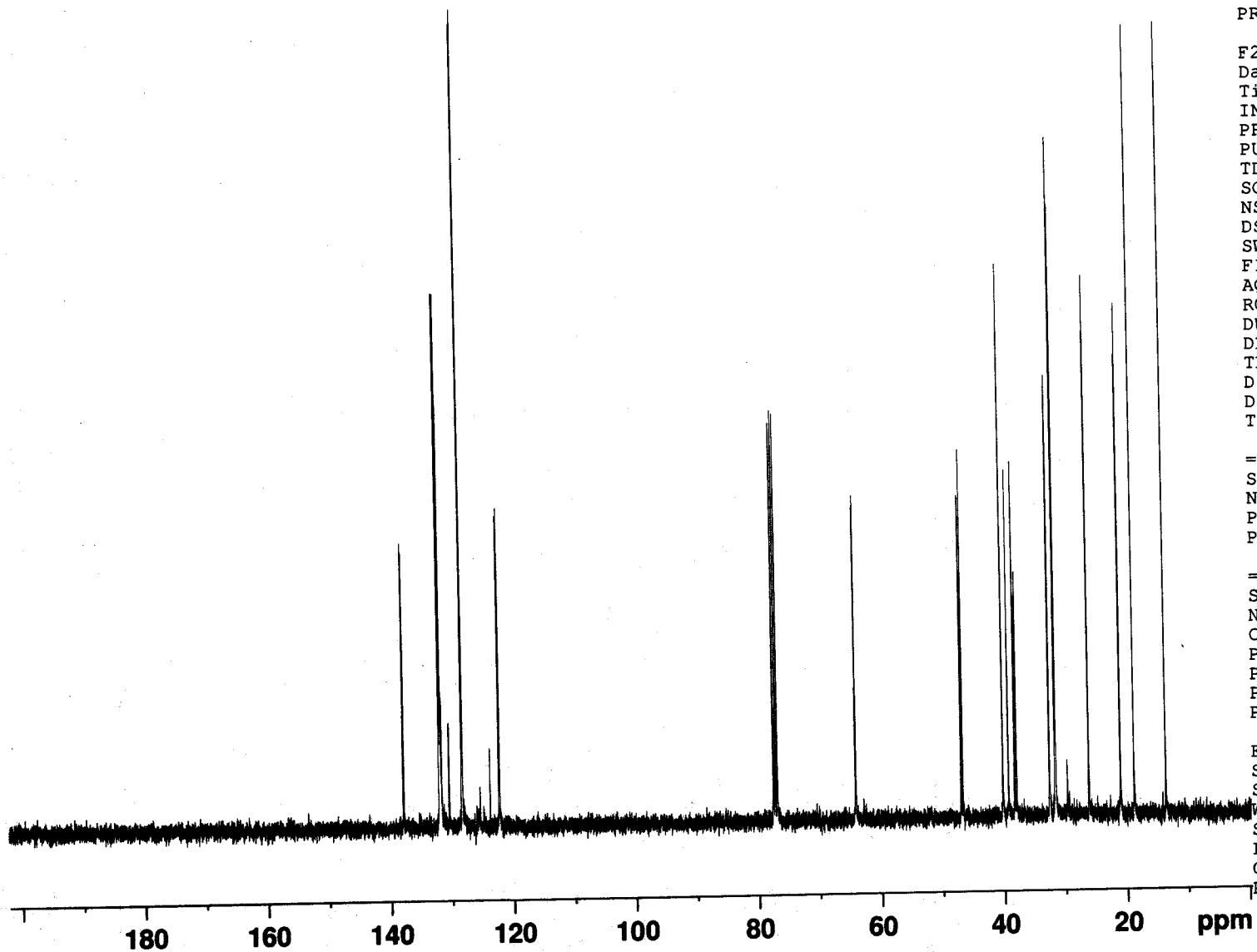


Table 3, entry 7  
<sup>13</sup>C NMR



Current Data Parameters  
 NAME AFL071  
 EXPNO 6  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150804  
 Time 15.07  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDC13  
 NS 147  
 DS 4  
 SWH 24038.461 Hz  
 FIDRES 0.366798 Hz  
 AQ 1.3631488 sec  
 RG 203.57  
 DW 20.800 usec  
 DE 6.50 usec  
 TE 296.1 K  
 D1 2.00000000 sec  
 D11 0.03000000 sec  
 TDO 1

===== CHANNEL f1 =====  
 SFO1 100.6228293 MHz  
 NUC1 13C  
 P1 10.00 usec  
 PLW1 45.00000000 W

===== CHANNEL f2 =====  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG[2] waltz16  
 PCPD2 90.00 usec  
 PLW2 10.00000000 W  
 PLW12 0.31604999 W  
 PLW13 0.25600001 W

F2 - Processing parameters  
 SI 32768  
 SF 100.6127685 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40



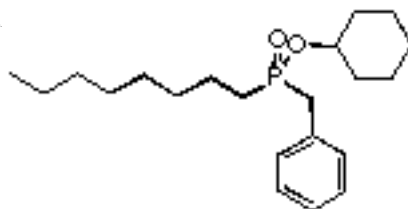
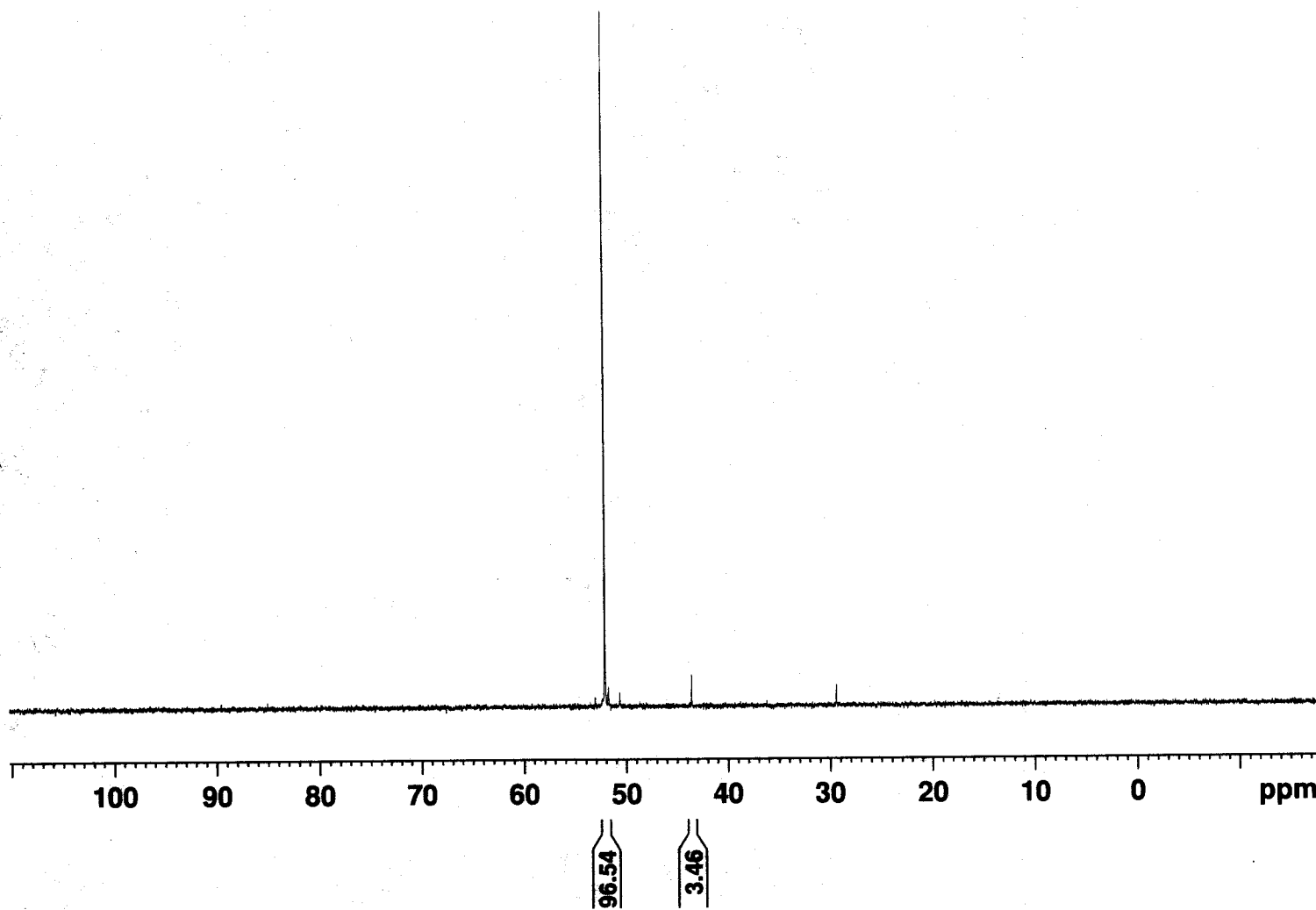


Table 3, entry 8  
<sup>31</sup>P/<sup>1</sup>H NMR decoupled



Current Data Parameters  
 NAME AFL012un  
 EXPNO 1  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150625  
 Time 14.34  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDC13  
 NS 16  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 294.2 K  
 D1 2.00000000 sec  
 D11 0.03000000 sec  
 TD0 1

==== CHANNEL f1 =====  
 SFO1 161.9674942 MHz  
 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.00000000 W

==== CHANNEL f2 =====  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG[2] waltz16  
 PCPD2 90.00 usec  
 PLW2 10.00000000 W  
 PLW12 0.31604999 W  
 PLW13 0.25600001 W

F2 - Processing parameters  
 SI 32768  
 SF 161.9755930 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

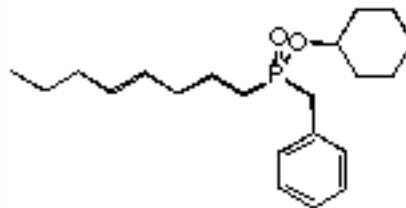
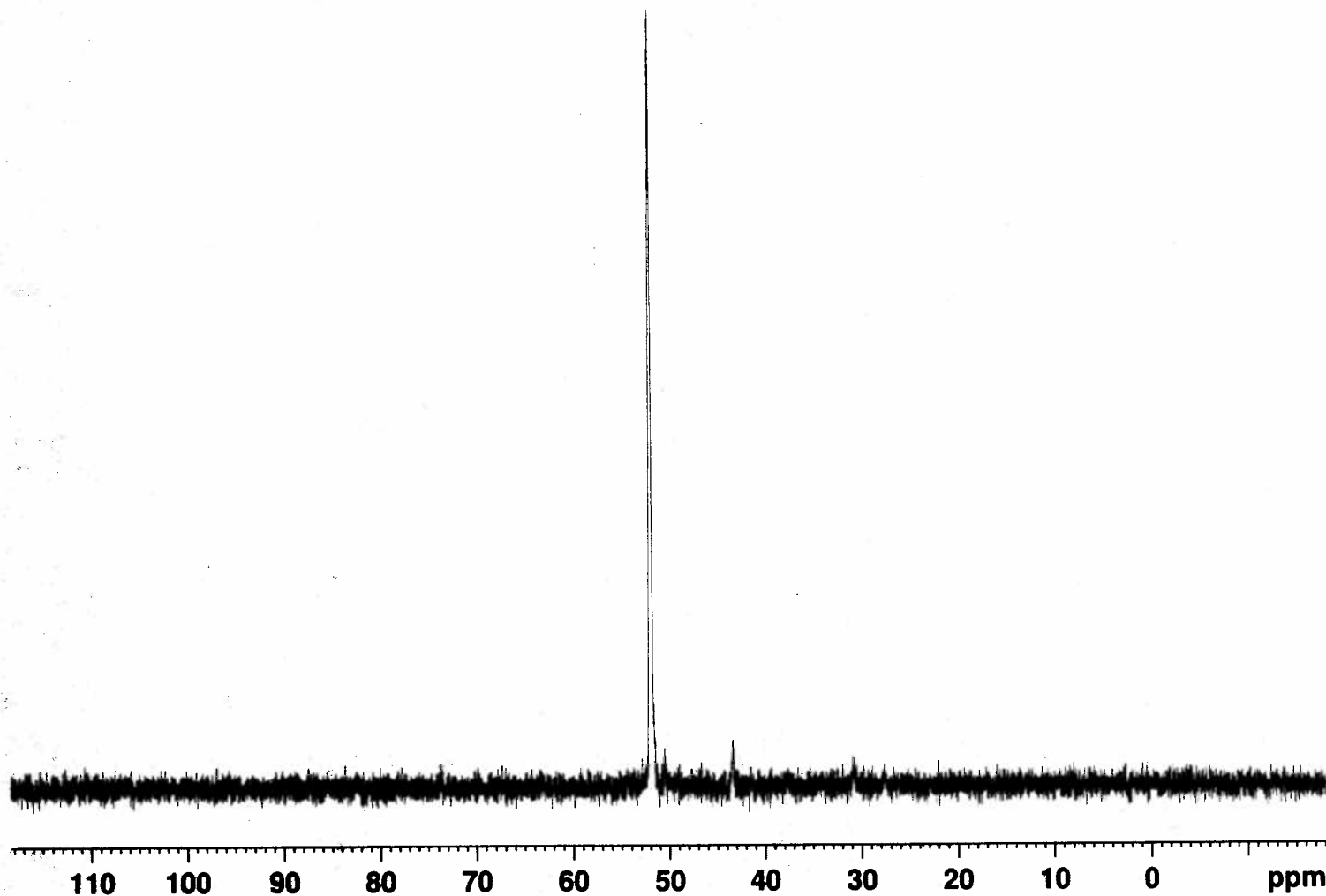


Table 3, entry 8  
<sup>31</sup>P/<sup>1</sup>H NMR coupled



Current Data Parameters  
 NAME AFL012un  
 EXPNO 2  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150625  
 Time 14.36  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDC13  
 NS 32  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 293.8 K  
 D1 2.00000000 sec  
 TD0 1

==== CHANNEL f1 =====  
 SFO1 161.9674942 MHz  
 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.00000000 W

F2 - Processing parameters  
 SI 32768  
 SF 161.9755930 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

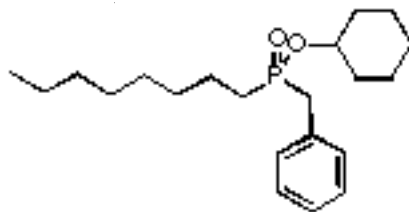


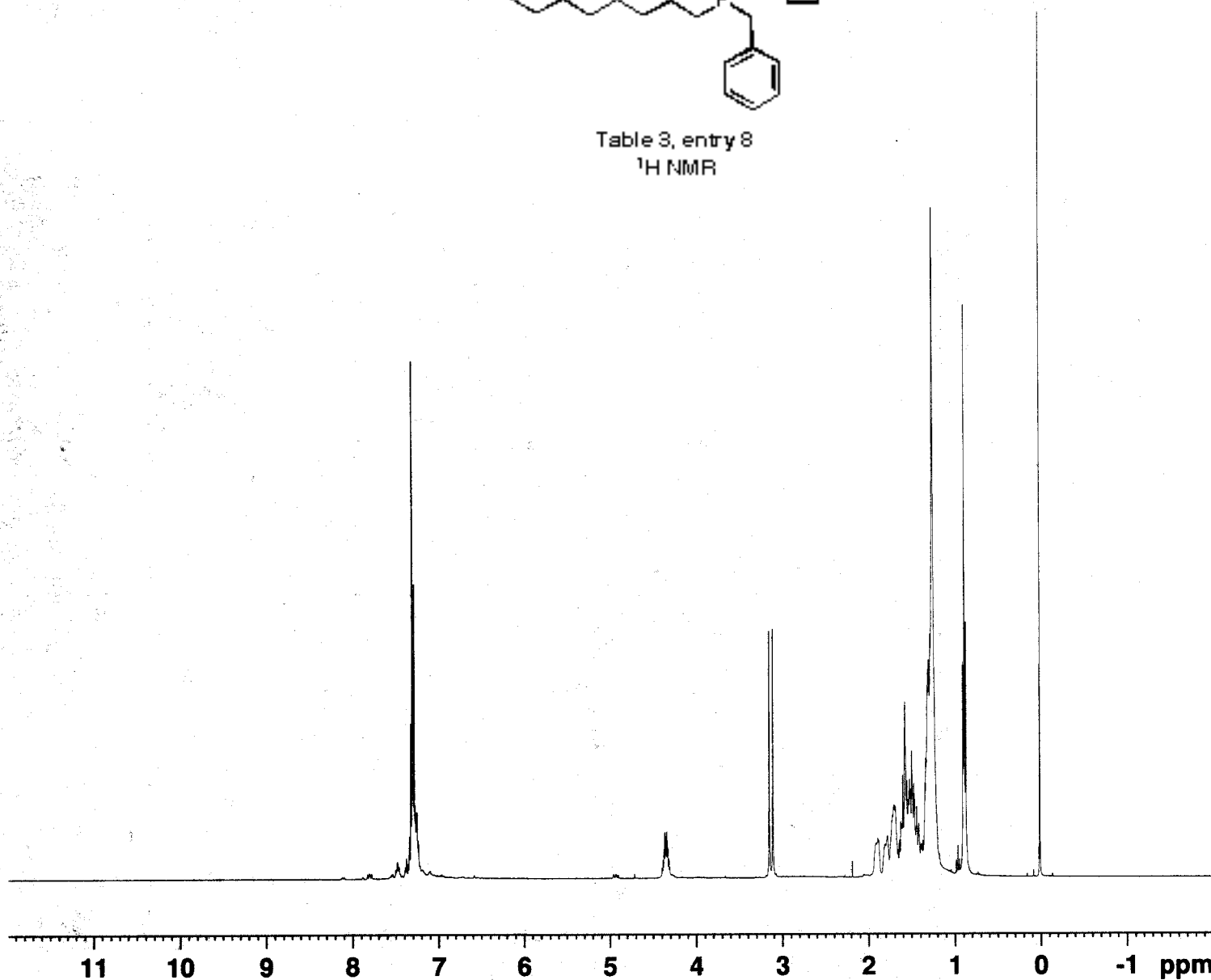
Table 3, entry 8  
<sup>1</sup>H NMR

Current Data Parameters  
 NAME AFL012un  
 EXPNO 3  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150625  
 Time 14.41  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDC13  
 NS 16  
 DS 2  
 SWH 8012.820 Hz  
 FIDRES 0.122266 Hz  
 AQ 4.0894465 sec  
 RG 81.67  
 DW 62.400 usec  
 DE 6.50 usec  
 TE 293.8 K  
 D1 1.00000000 sec  
 TD0 1

==== CHANNEL f1 =====  
 SFO1 400.1324710 MHz  
 NUC1 1H  
 P1 10.00 usec  
 PLW1 25.00300026 W

F2 - Processing parameters  
 SI 65536  
 SF 400.1300000 MHz  
 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00



11 10 9 8 7 6 5 4 3 2 1 0 -1 ppm

5.02 0.84 1.48 23.14 3.00

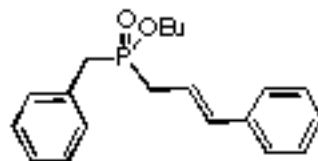
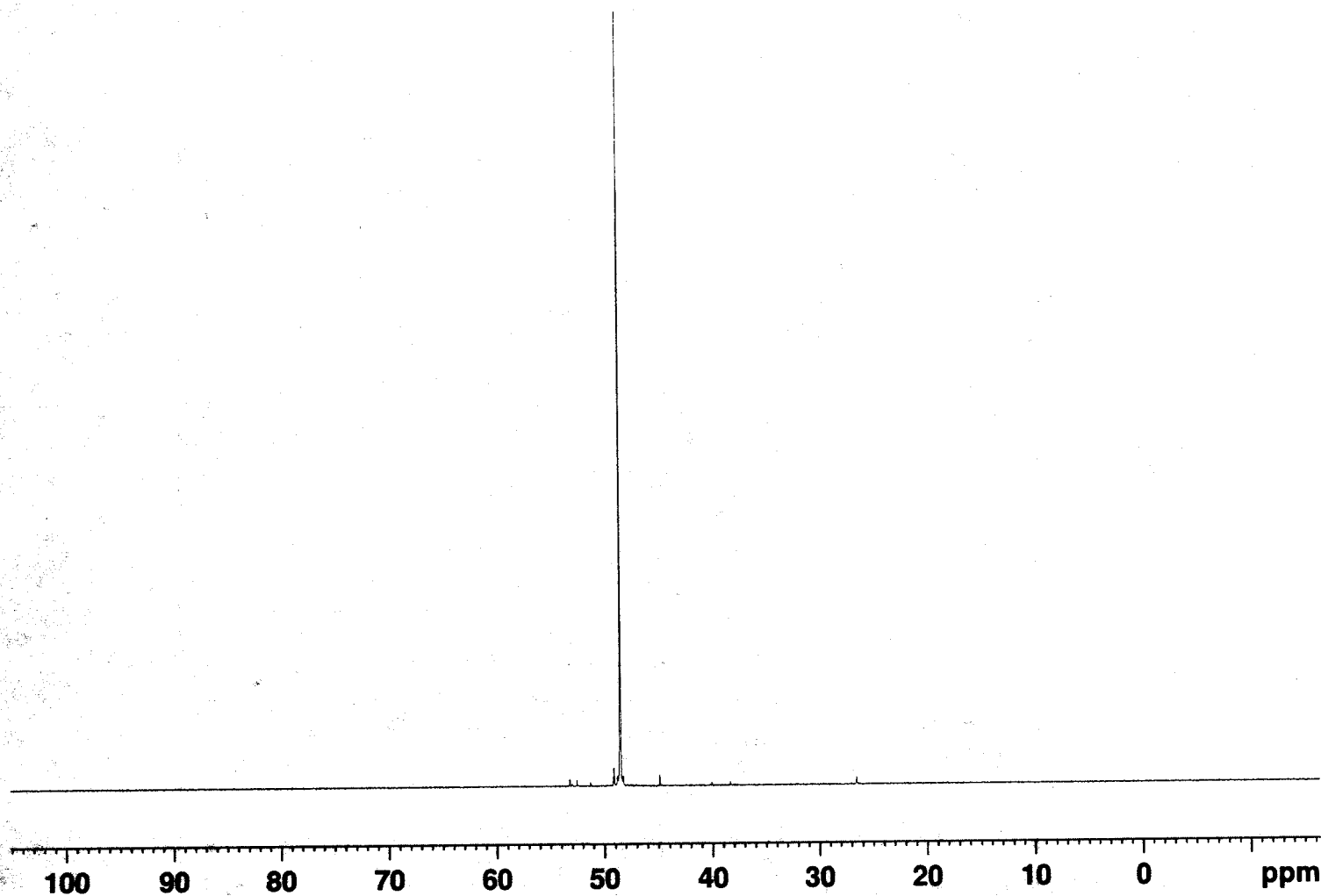


Table 3, entry 9  
 $^{31}\text{P}/^1\text{H}$  NMR decoupled



Current Data Parameters  
 NAME AFL063  
 EXPNO 3  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150729  
 Time 13.30  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDC13  
 NS 16  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 295.5 K  
 D1 2.0000000 sec  
 D11 0.03000000 sec  
 TD0 1

==== CHANNEL f1 =====  
 SFO1 161.9674942 MHz  
 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.00000000 W

==== CHANNEL f2 =====  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG[2] waltz16  
 PCPD2 90.00 usec  
 PLW2 10.00000000 W  
 PLW12 0.31604999 W  
 PLW13 0.25600001 W

F2 - Processing parameters  
 SI 32768  
 SF 161.9755930 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

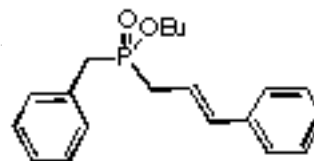
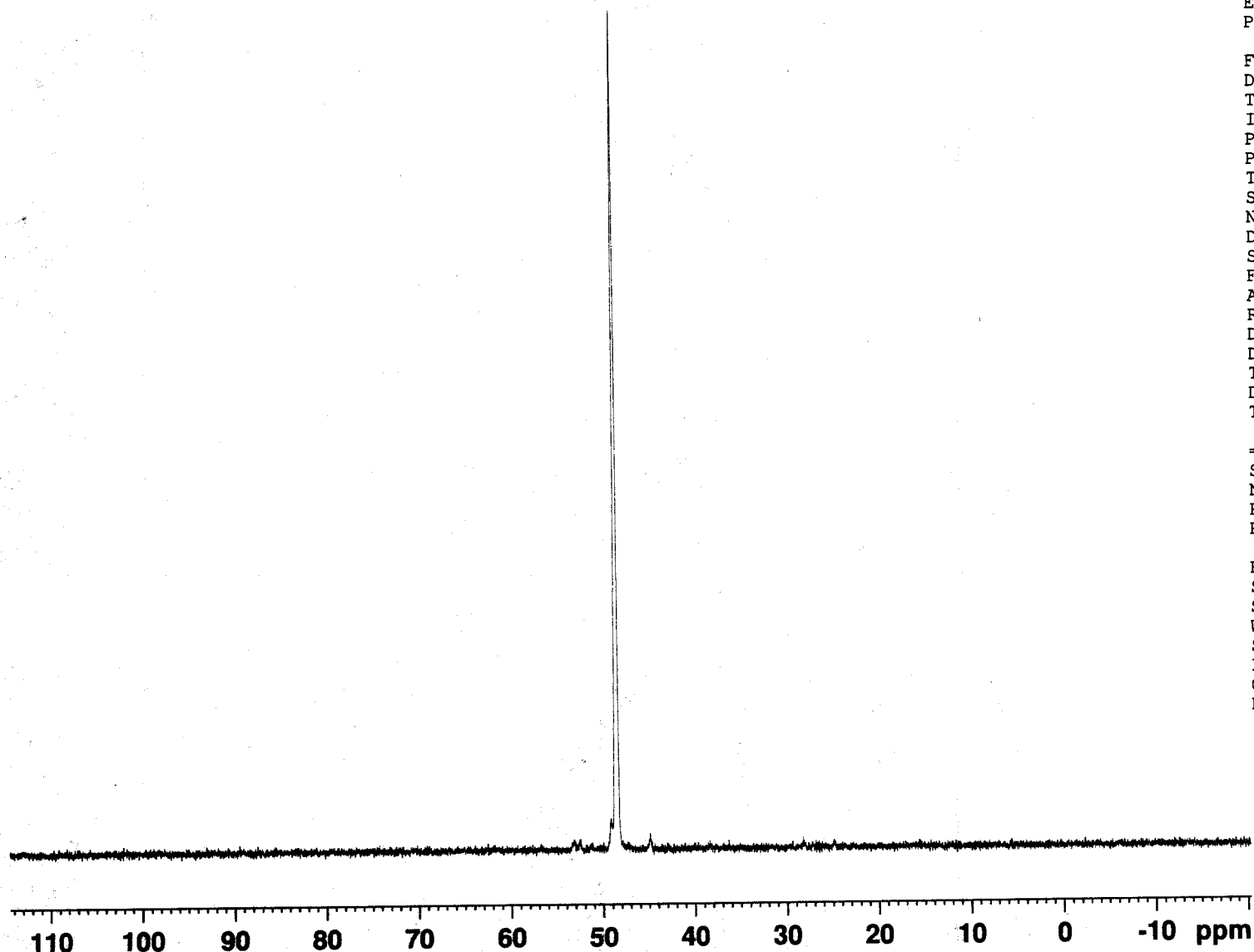


Table 3, entry 9  
 $^{31}\text{P}/^1\text{H}$  NMR coupled



Current Data Parameters  
 NAME AFL063  
 EXPNO 4  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150729  
 Time 13.34  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDC13  
 NS 20  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 295.1 K  
 D1 2.00000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SFO1 161.9674942 MHz  
 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.00000000 W

F2 - Processing parameters  
 SI 32768  
 SF 161.9755930 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

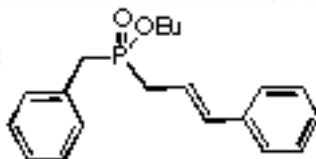


Table 3, entry 9  
<sup>1</sup>H NMR

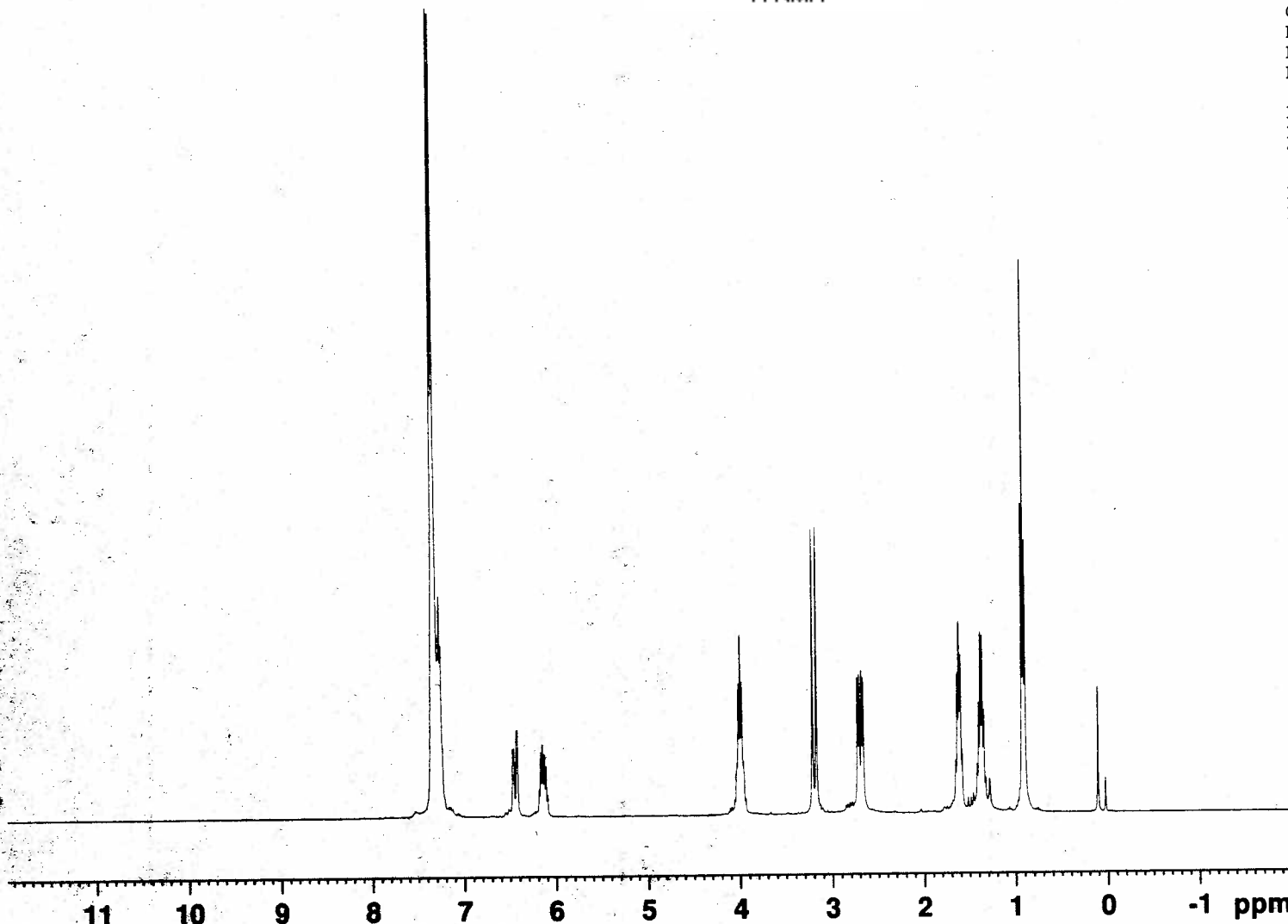


Current Data Parameters  
 NAME AFL063  
 EXPNO 5  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150729  
 Time 13.39  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDC13  
 NS 13  
 DS 2  
 SWH 8012.820 Hz  
 FIDRES 0.122266 Hz  
 AQ 4.0894465 sec  
 RG 32.38  
 DW 62.400 usec  
 DE 6.50 usec  
 TE 295.1 K  
 D1 1.00000000 sec  
 TD0 1

----- CHANNEL f1 -----  
 SFO1 400.1324710 MHz  
 NUC1 1H  
 P1 10.00 usec  
 PLW1 25.00300026 W

F2 - Processing parameters  
 SI 65536  
 SF 400.1300000 MHz  
 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00



10.44  
 1.00  
 0.99  
 1.95  
 1.95  
 2.13  
 2.13  
 2.25  
 3.23

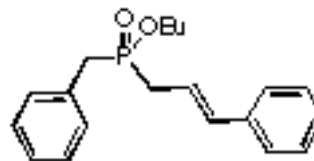
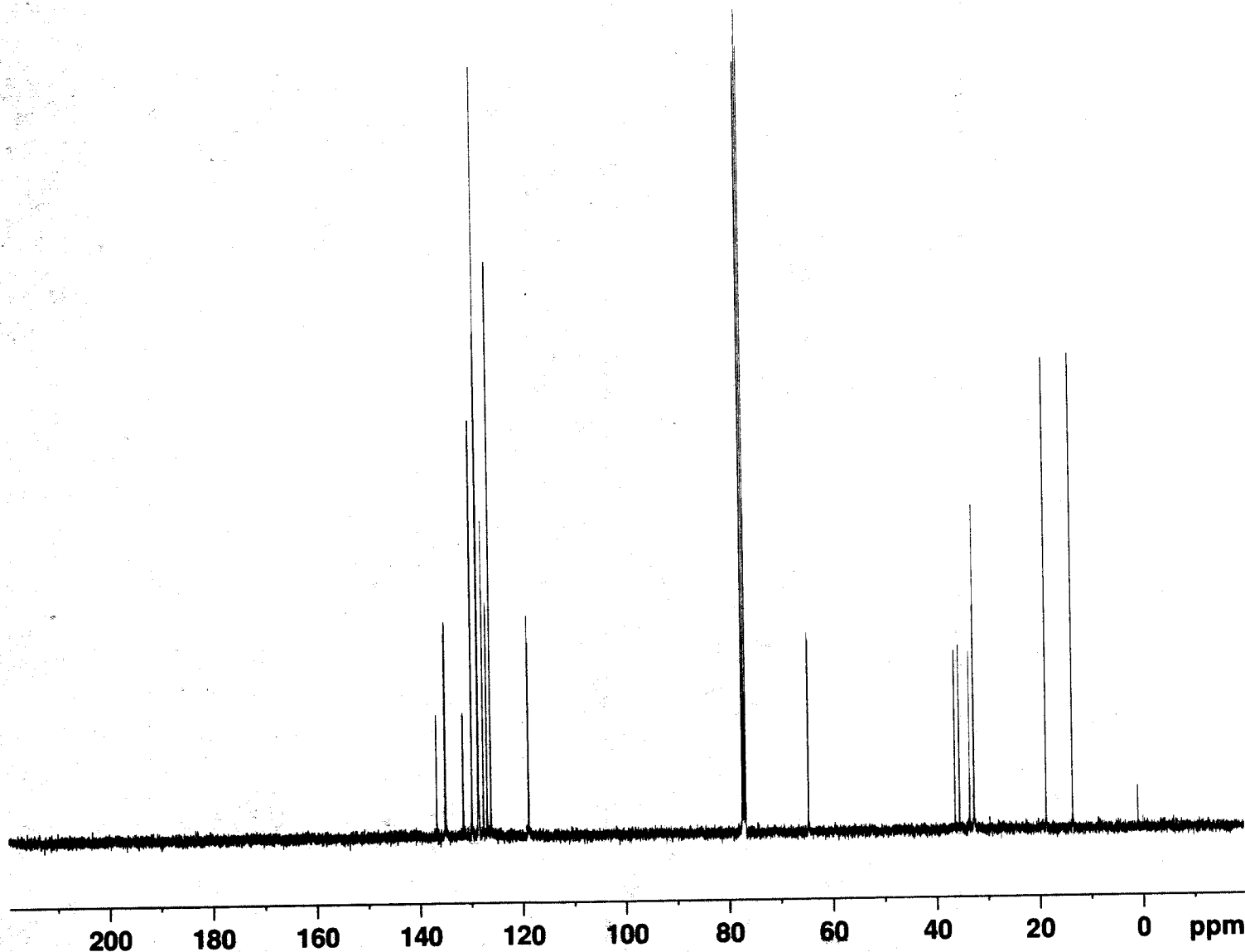


Table 3, entry 9

<sup>13</sup>C NMR



Current Data Parameters

NAME AFL063  
 EXPNO 6  
 PROCNO 1

F2 - Acquisition Parameters

Date\_ 20150729  
 Time 13.49  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDC13  
 NS 135  
 DS 4  
 SWH 24038.461 Hz  
 FIDRES 0.366798 Hz  
 AQ 1.3631488 sec  
 RG 203.57  
 DW 20.800 usec  
 DE 6.50 usec  
 TE 295.9 K  
 D1 2.00000000 sec  
 D11 0.03000000 sec  
 TD0 1

==== CHANNEL f1 =====

SFO1 100.6228293 MHz  
 NUC1 13C  
 P1 10.00 usec  
 PLW1 45.00000000 W

==== CHANNEL f2 =====

SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG[2] waltz16  
 PCPD2 90.00 usec  
 PLW2 10.00000000 W  
 PLW12 0.31604999 W  
 PLW13 0.25600001 W

F2 - Processing parameters

SI 32768  
 SF 100.6127685 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

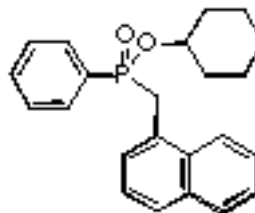


Table 3, entry 10  
 $^{31}\text{P}/^1\text{H}$  NMR decoupled

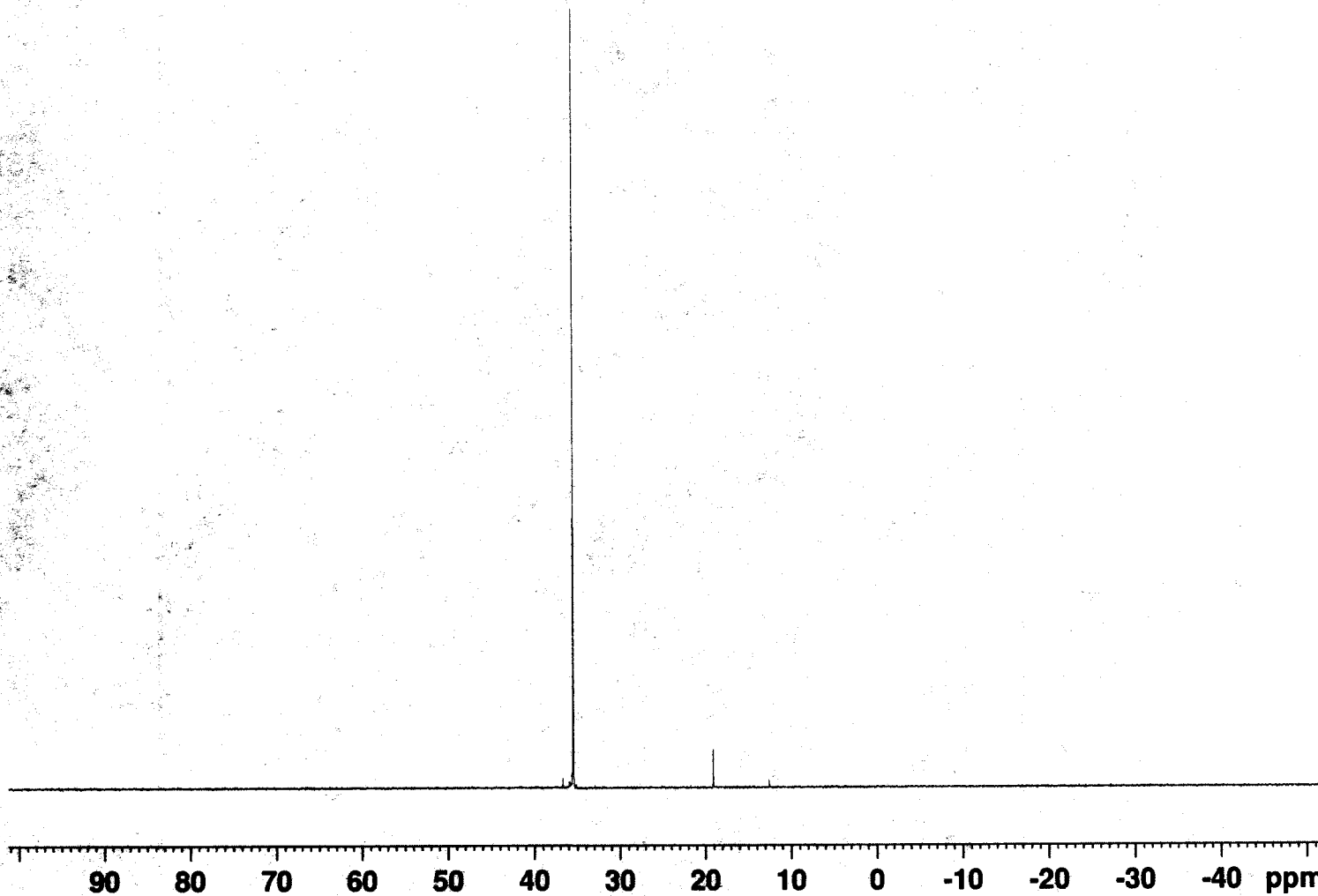
Current Data Parameters  
 NAME AFL069  
 EXPNO 14  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150806  
 Time 15.14  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT Acetone  
 NS 16  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 296.1 K  
 D1 2.00000000 sec  
 D11 0.03000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SFO1 161.9674942 MHz  
 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.00000000 W

===== CHANNEL f2 =====  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG[2] waltz16  
 PCPD2 90.00 usec  
 PLW2 10.00000000 W  
 PLW12 0.31604999 W  
 PLW13 0.25600001 W

F2 - Processing parameters  
 SI 32768  
 SF 161.9755930 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40





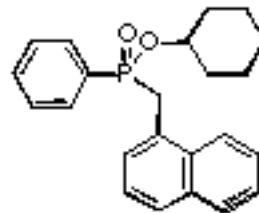
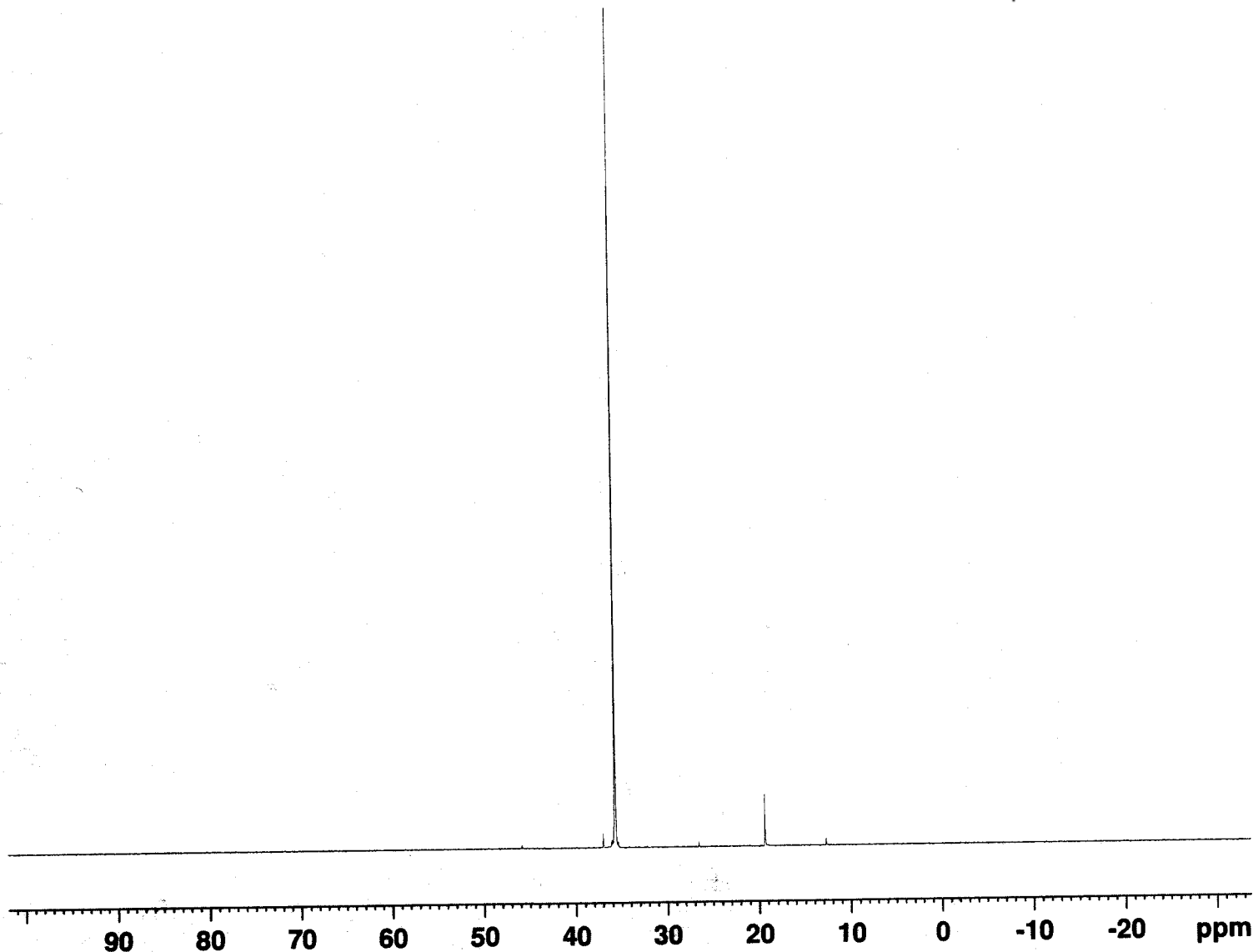


Table 3, entry 10  
<sup>31</sup>P/<sup>1</sup>H NMR coupled



Current Data Parameters  
 NAME AFL069  
 EXPNO 15  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150806  
 Time 16.06  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT Acetone  
 NS 16  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 296.2 K  
 D1 2.00000000 sec  
 D11 0.03000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SFO1 161.9674942 MHz  
 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.00000000 W

===== CHANNEL f2 =====  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG[2] waltz16  
 PCPD2 90.00 usec  
 PLW2 10.00000000 W  
 PLW12 0.31604999 W  
 PLW13 0.25600001 W

F2 - Processing parameters  
 SI 32768  
 SF 161.9755930 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

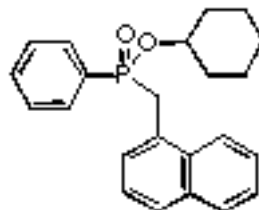


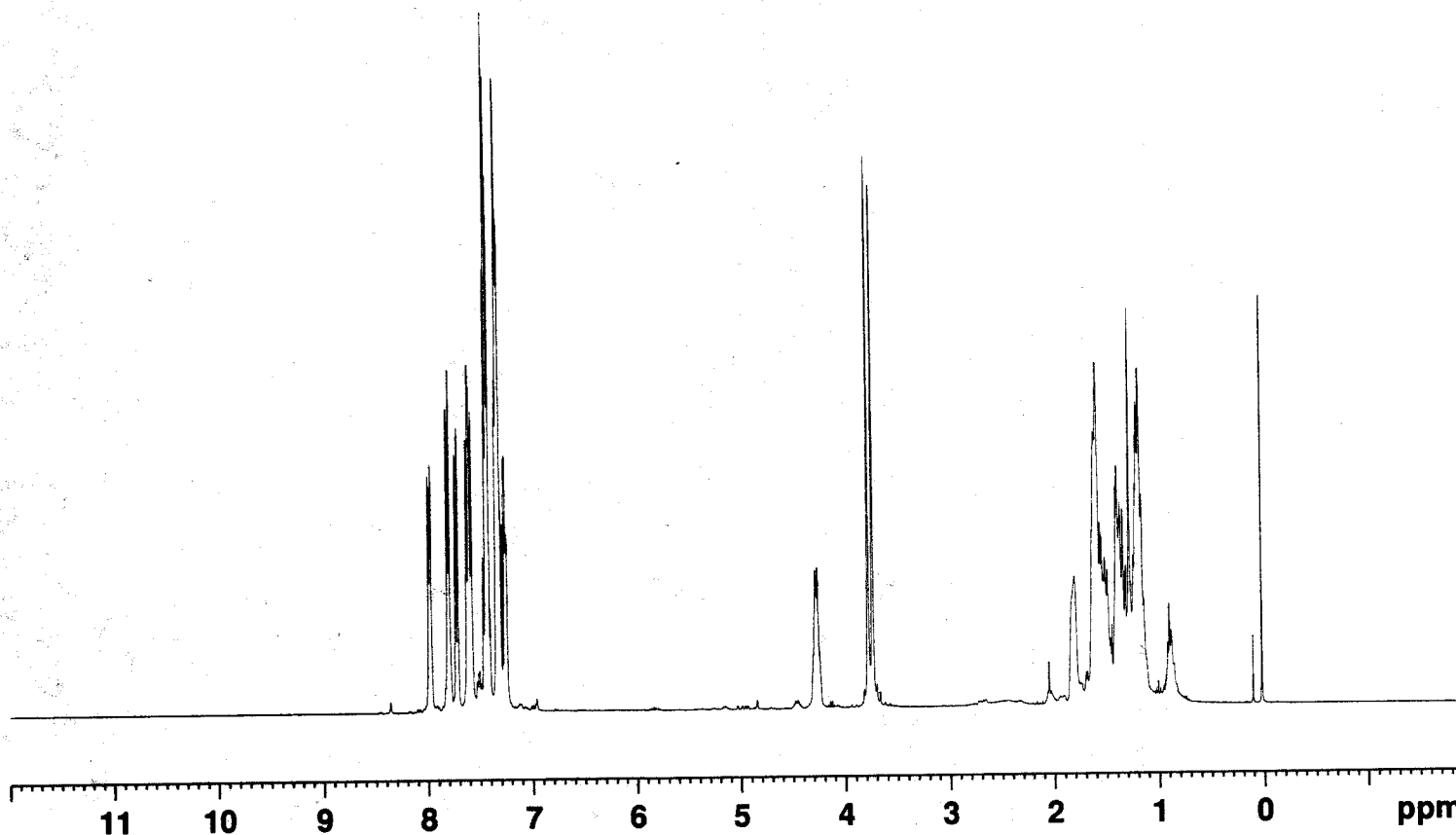
Table 3, entry 10  
<sup>1</sup>H NMR

Current Data Parameters  
 NAME AFL069  
 EXPNO 17  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150827  
 Time 16.00  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDC13  
 NS 16  
 DS 2  
 SWH 8012.820 Hz  
 FIDRES 0.122266 Hz  
 AQ 4.0894465 sec  
 RG 32.38  
 DW 62.400 usec  
 DE 6.50 usec  
 TE 295.0 K  
 D1 1.00000000 sec  
 TD0 1

==== CHANNEL f1 =====  
 SFO1 400.1324710 MHz  
 NUC1 1H  
 P1 10.00 usec  
 PLW1 25.00300026 W

F2 - Processing parameters  
 SI 65536  
 SF 400.1300000 MHz  
 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00



0.99  
 1.15  
 0.98  
 2.02  
 3.07  
 3.00  
 1.08

1.00  
 2.00

11.79

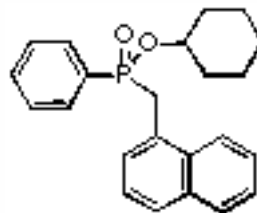


Table 3, entry 10  
<sup>13</sup>C NMR



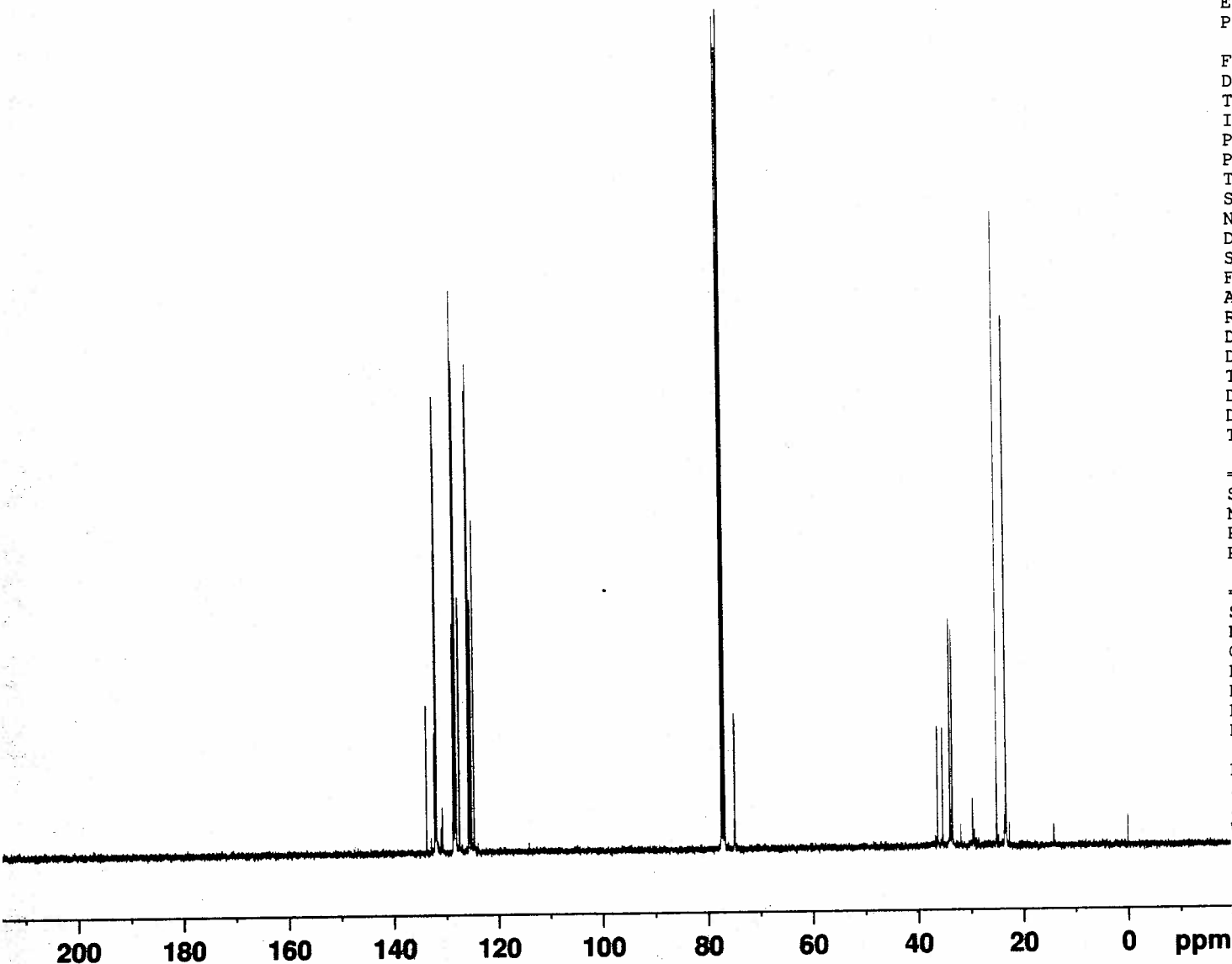
Current Data Parameters  
 NAME AFL069  
 EXPNO 16  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150827  
 Time 15.54  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 701  
 DS 4  
 SWH 24038.461 Hz  
 FIDRES 0.366798 Hz  
 AQ 1.3631488 sec  
 RG 203.57  
 DW 20.800 usec  
 DE 6.50 usec  
 TE 295.7 K  
 D1 2.0000000 sec  
 D11 0.0300000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SFO1 100.6228293 MHz  
 NUC1 13C  
 P1 10.00 usec  
 PLW1 45.0000000 W

===== CHANNEL f2 =====  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG[2] waltz16  
 PCPD2 90.00 usec  
 PLW2 10.0000000 W  
 PLW12 0.31604999 W  
 PLW13 0.25600001 W

F2 - Processing parameters  
 SI 32768  
 SF 100.6127685 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40



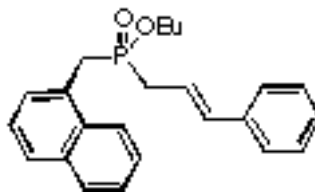
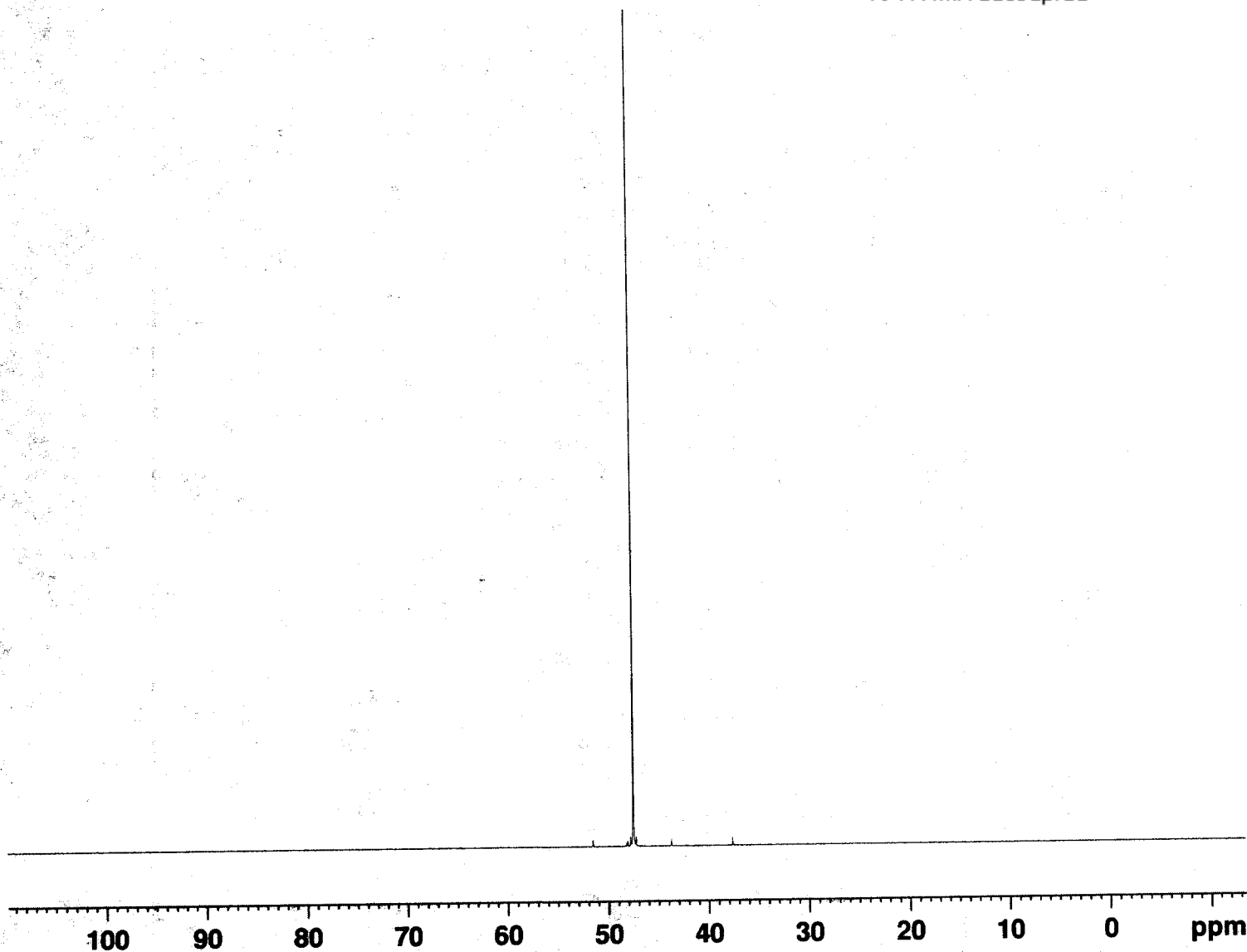


Table 3, entry 11  
 $^{31}\text{P}/^1\text{H}$  NMR decoupled



Current Data Parameters  
 NAME AFL089  
 EXPNO 3  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150812  
 Time 9.22  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT Acetone  
 NS 16  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 295.1 K  
 D1 2.00000000 sec  
 D11 0.03000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SFO1 161.9674942 MHz  
 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.00000000 W

===== CHANNEL f2 =====  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG[2] waltz16  
 PCPD2 90.00 usec  
 PLW2 10.00000000 W  
 PLW12 0.31604999 W  
 PLW13 0.25600001 W

F2 - Processing parameters  
 SI 32768  
 SF 161.9755930 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

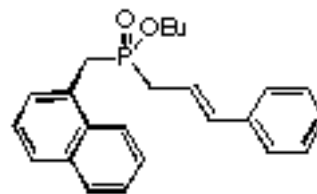
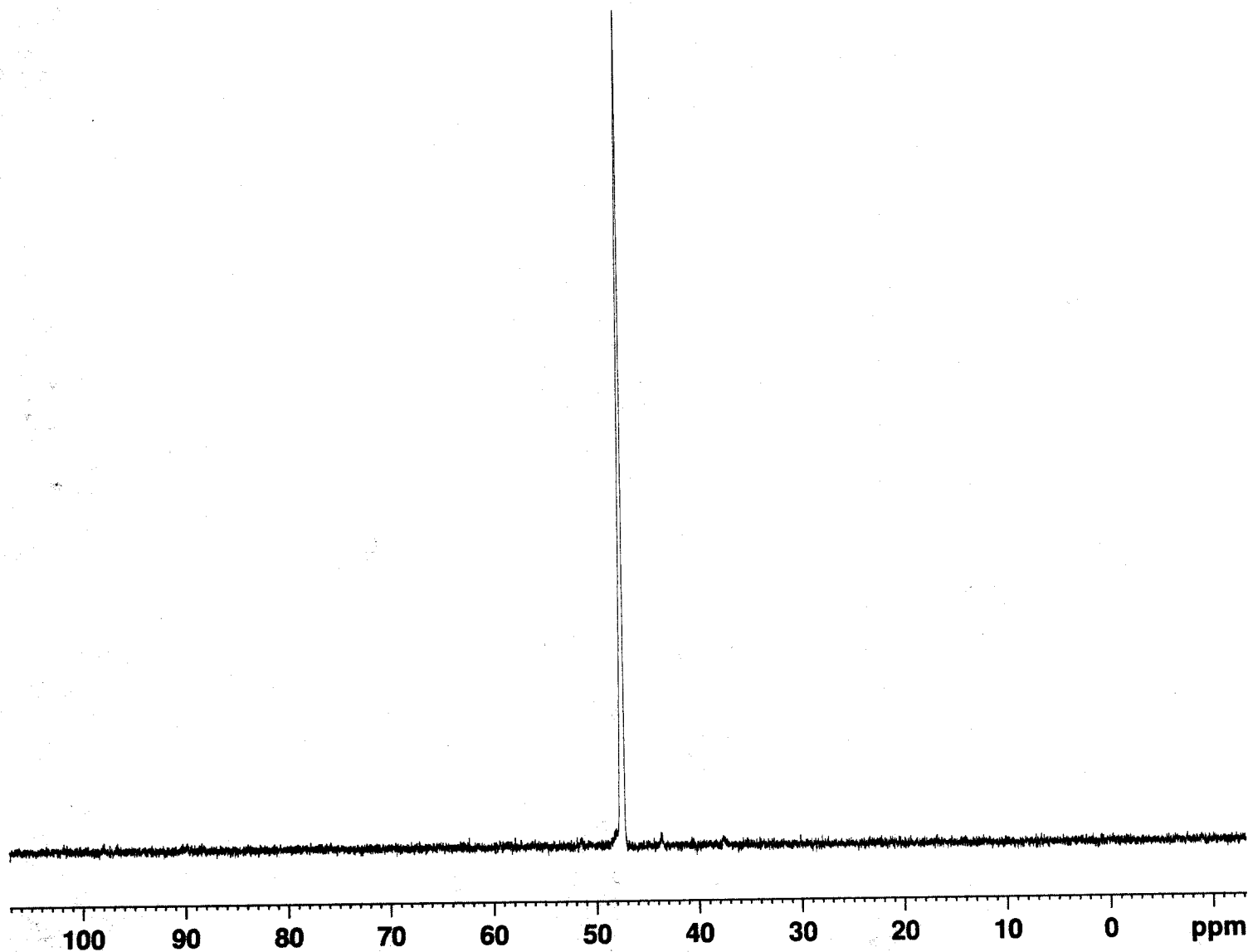


Table 3, entry 11  
 $^{31}\text{P}/^1\text{H}$  NMR coupled



Current Data Parameters  
 NAME AFL089  
 EXPNO 4  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150812  
 Time 9.23  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zg30  
 TD 65536  
 SOLVENT Acetone  
 NS 10  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 294.7 K  
 D1 2.00000000 sec  
 TD0 1

==== CHANNEL f1 =====  
 SFO1 161.9674942 MHz  
 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.00000000 W

F2 - Processing parameters  
 SI 32768  
 SF 161.9755930 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

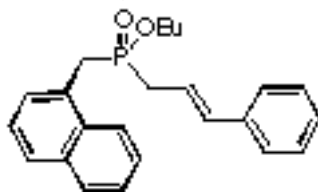


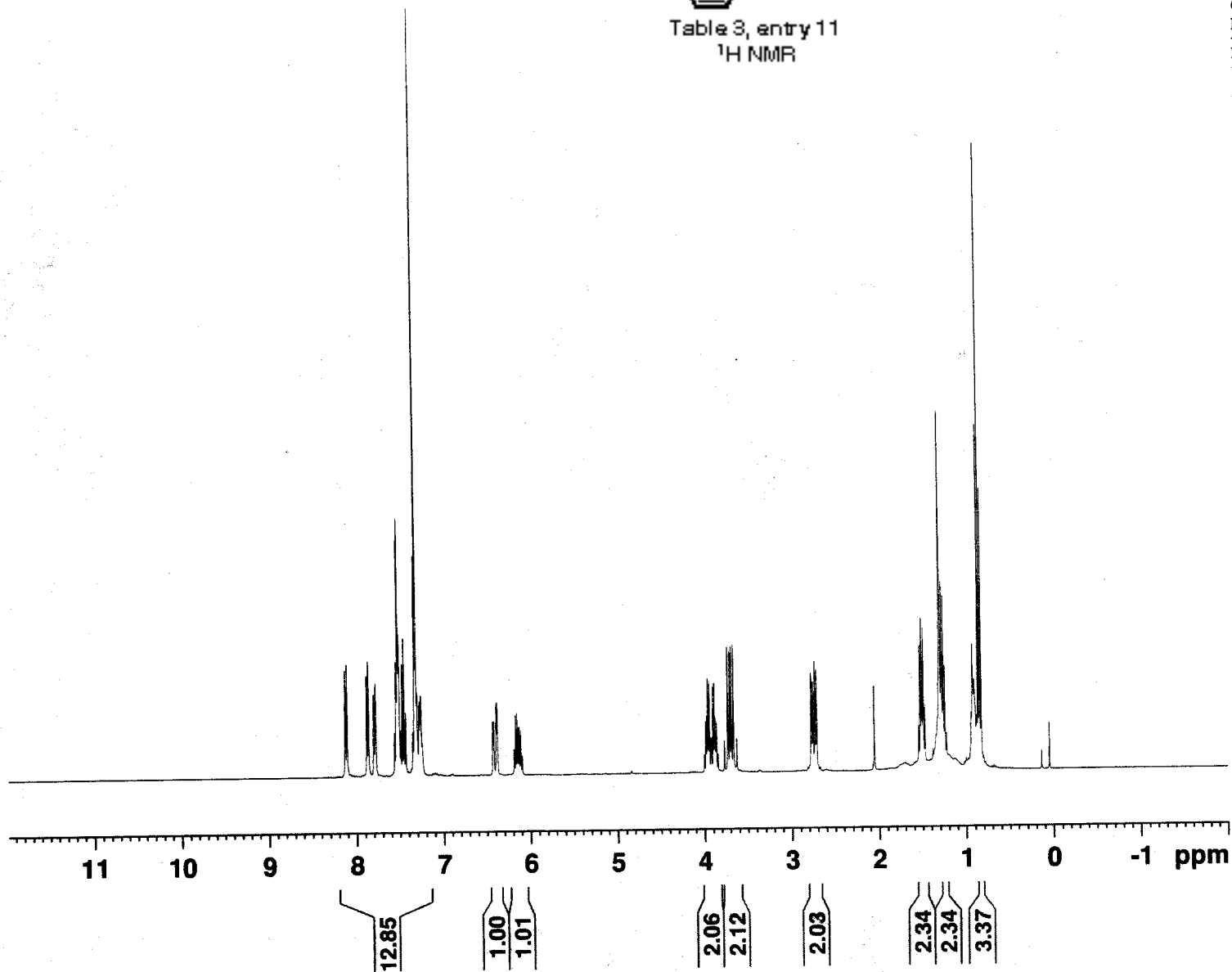
Table 3, entry 11  
<sup>1</sup>H NMR

Current Data Parameters  
 NAME AFL089  
 EXPNO 5  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150812  
 Time 9.30  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDC13  
 NS 16  
 DS 2  
 SWH 8012.820 Hz  
 FIDRES 0.122266 Hz  
 AQ 4.0894465 sec  
 RG 17.56  
 DW 62.400 usec  
 DE 6.50 usec  
 TE 294.6 K  
 D1 1.00000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SFO1 400.1324710 MHz  
 NUC1 1H  
 P1 10.00 usec  
 PLW1 25.00300026 W

F2 - Processing parameters  
 SI 65536  
 SF 400.1300000 MHz  
 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00



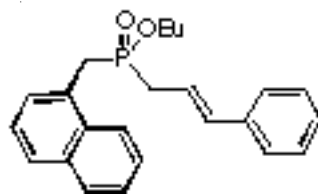


Table 3, entry 11  
<sup>13</sup>C NMR

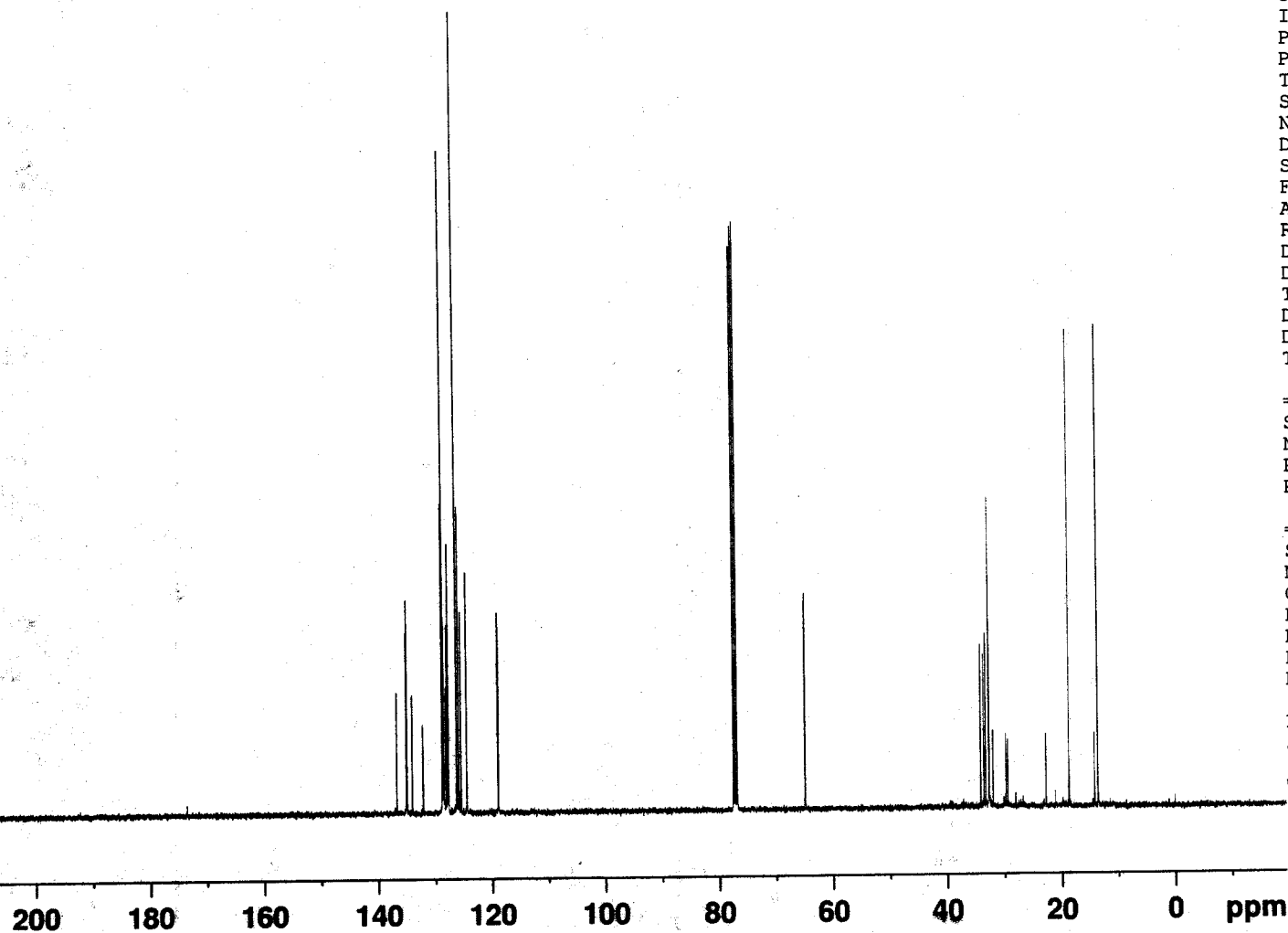
Current Data Parameters  
 NAME AFL089  
 EXPNO 6  
 PROCNO 1

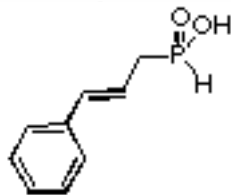
F2 - Acquisition Parameters  
 Date\_ 20150812  
 Time 9.55  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDC13  
 NS 297  
 DS 4  
 SWH 24038.461 Hz  
 FIDRES 0.366798 Hz  
 AQ 1.3631488 sec  
 RG 203.57  
 DW 20.800 usec  
 DE 6.50 usec  
 TE 295.6 K  
 D1 2.00000000 sec  
 D11 0.03000000 sec  
 TD0 1

==== CHANNEL f1 =====  
 SFO1 100.6228293 MHz  
 NUC1 13C  
 P1 10.00 usec  
 PLW1 45.00000000 W

==== CHANNEL f2 =====  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG[2] waltz16  
 PCPD2 90.00 usec  
 PLW2 10.00000000 W  
 PLW12 0.31604999 W  
 PLW13 0.25600001 W

F2 - Processing parameters  
 SI 32768  
 SF 100.6127685 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40





Scheme 3c  
<sup>31</sup>P/<sup>1</sup>H NMR decoupled



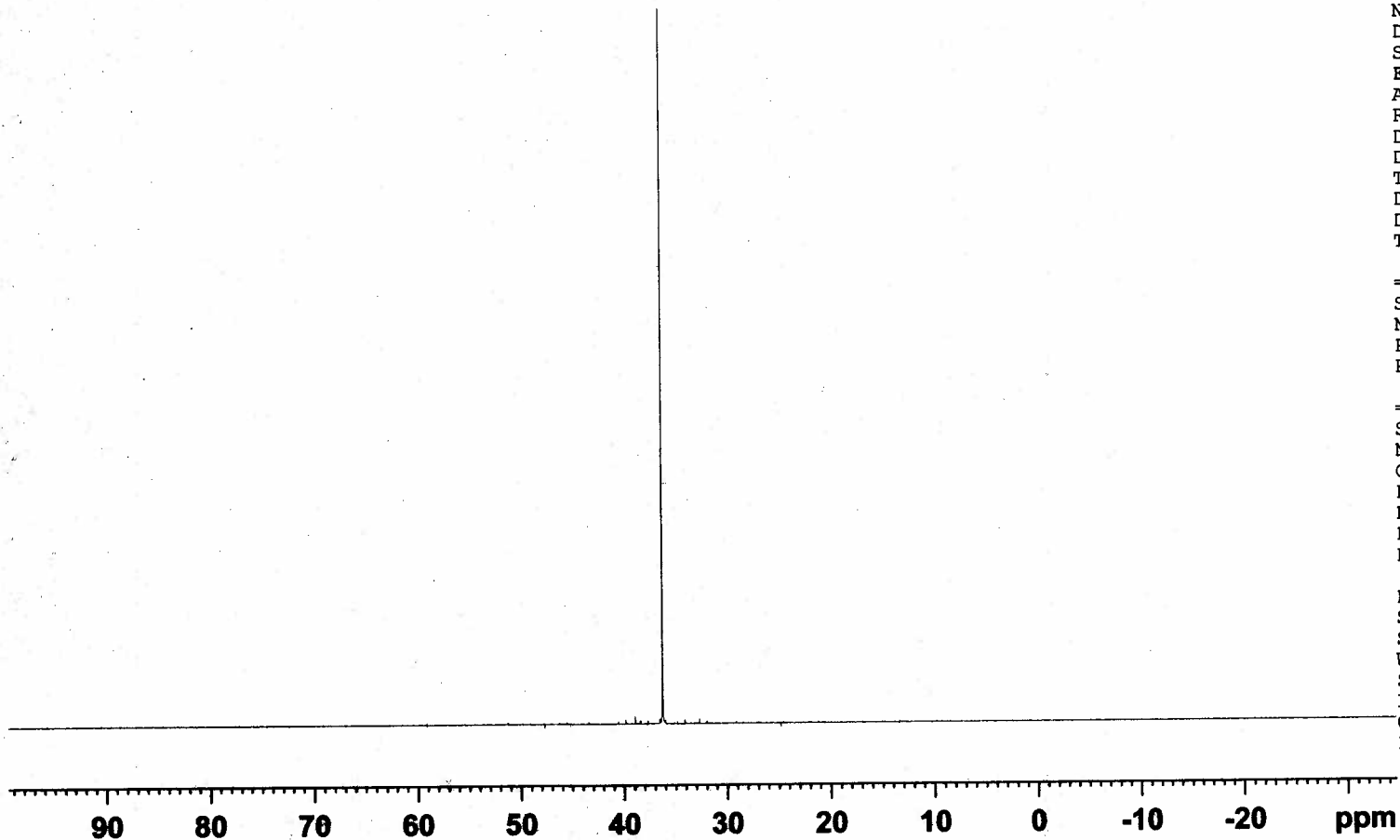
Current Data Parameters  
 NAME OB 1971 after column  
 EXPNO 1  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150325  
 Time\_ 17.06  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDC13  
 NS 16  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 294.4 K  
 D1 2.0000000 sec  
 D11 0.03000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SFO1 161.9674942 MHz  
 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.00000000 W

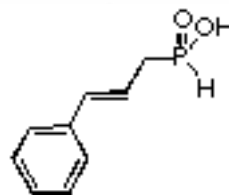
===== CHANNEL f2 =====  
 SFO2 400.1316005 MHz  
 NUC2 1H  
 CPDPRG[2] waltz16  
 PCPD2 90.00 usec  
 PLW2 10.00000000 W  
 PLW12 0.31604999 W  
 PLW13 0.25600001 W

F2 - Processing parameters  
 SI 32768  
 SF 161.9755930 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40





38.12  
38.08  
38.03  
37.96  
37.91  
37.87  
37.80  
37.75  
34.72  
34.66  
34.61  
34.56  
34.51  
34.44  
34.39



Scheme 3c  
31P/1H NMR coupled

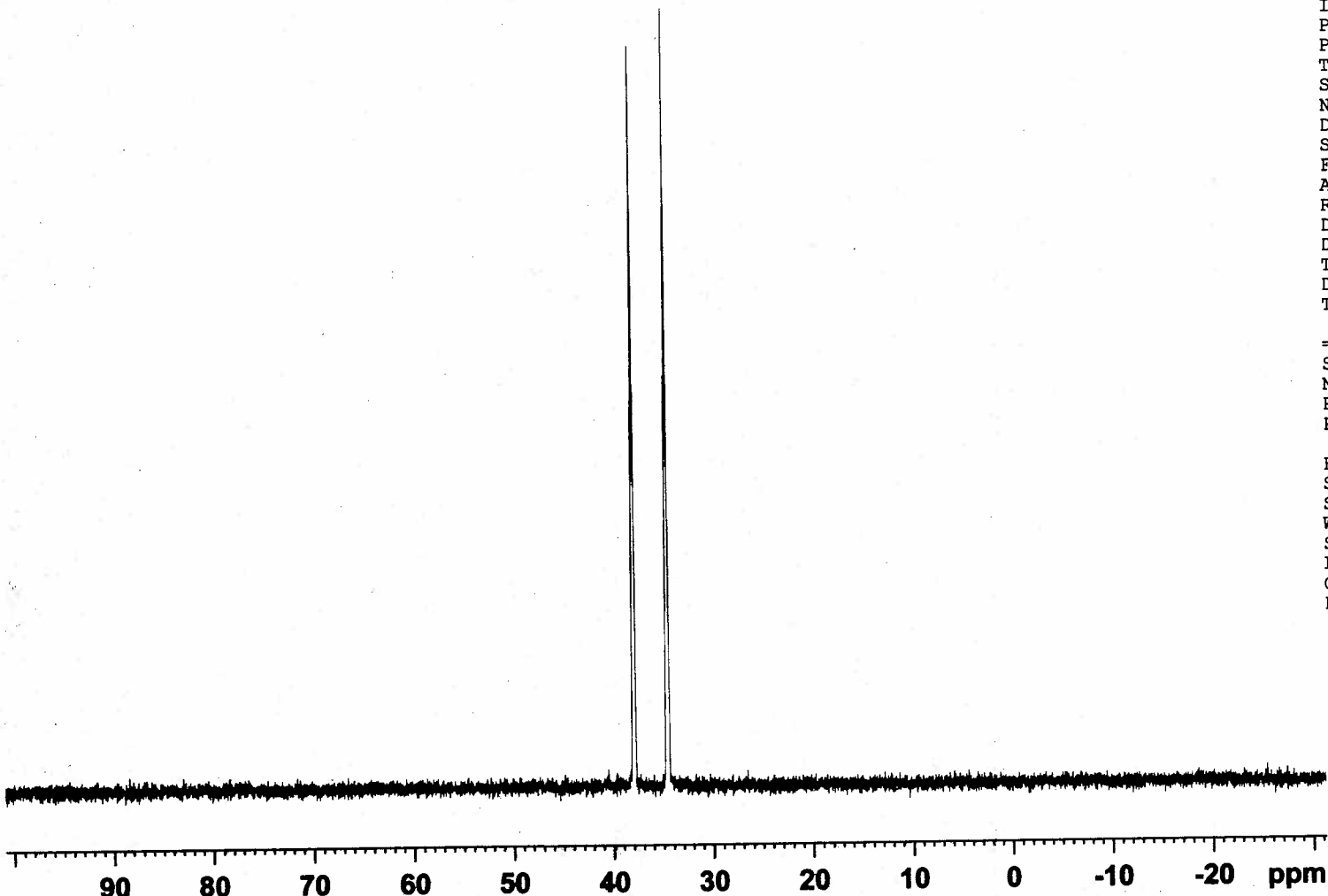


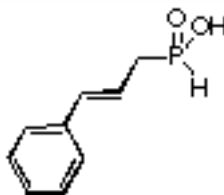
Current Data Parameters  
 NAME OB 1971 after column  
 EXPNO 2  
 PROCNO 1

F2 - Acquisition Parameters  
 Date 20150325  
 Time 17.08  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 32  
 DS 4  
 SWH 64102.563 Hz  
 FIDRES 0.978127 Hz  
 AQ 0.5111808 sec  
 RG 203.57  
 DW 7.800 usec  
 DE 6.50 usec  
 TE 293.8 K  
 D1 2.0000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SFO1 161.9674942 MHz  
 NUC1 31P  
 P1 14.25 usec  
 PLW1 15.0000000 W

F2 - Processing parameters  
 SI 32768  
 SF 161.9755930 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40





Scheme 3c  
<sup>1</sup>H NMR

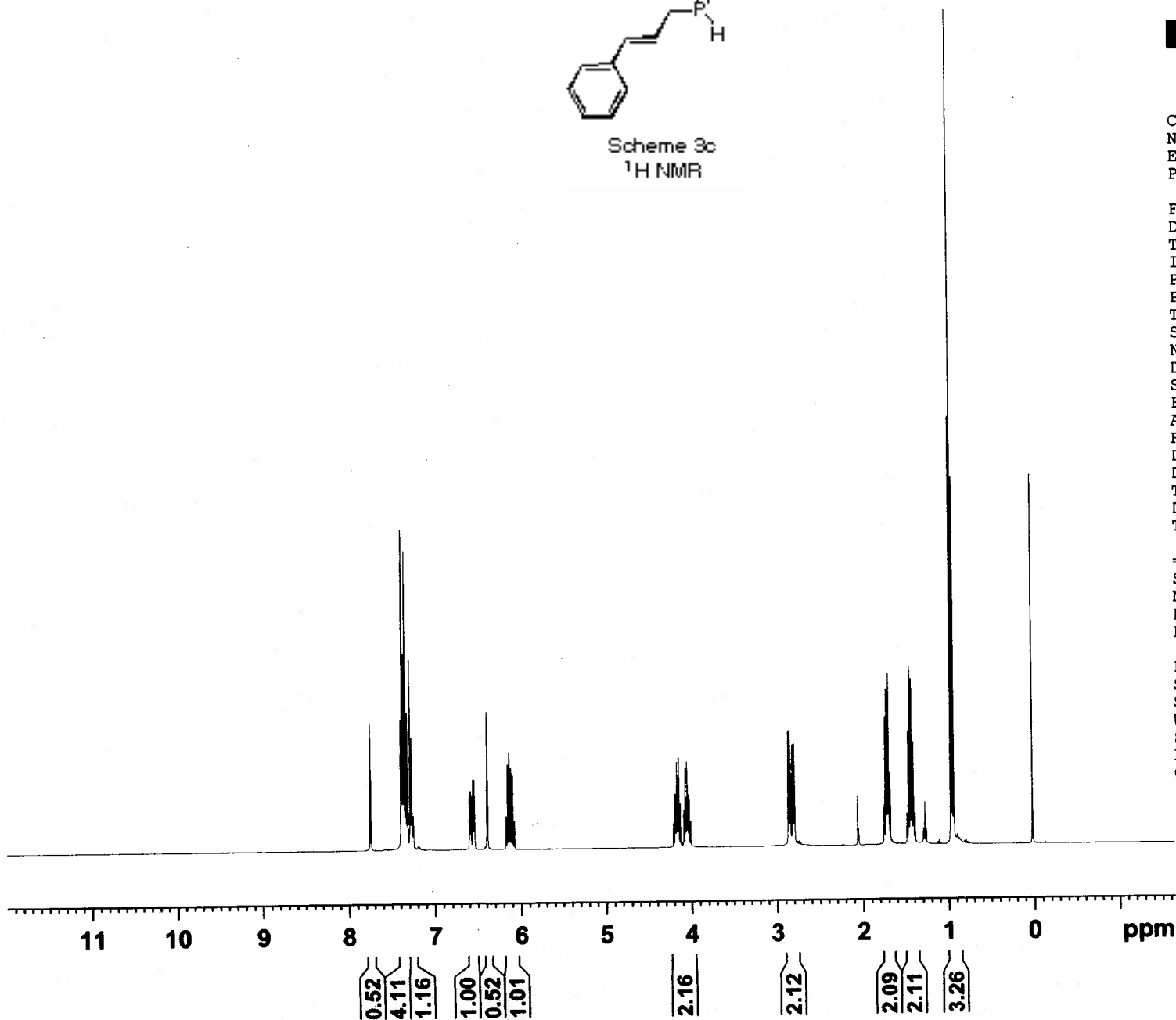


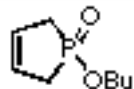
Current Data Parameters  
 NAME OB 1971 after column  
 EXPNO 3  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20150325  
 Time\_ 17.09  
 INSTRUM spect  
 PROBHD 5 mm PABBO BB/  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDC13  
 NS 9  
 DS 2  
 SWH 8012.820 Hz  
 FIDRES 0.122266 Hz  
 AQ 4.0894465 sec  
 RG 81.67  
 DW 62.400 usec  
 DE 6.50 usec  
 TE 293.7 K  
 D1 1.0000000 sec  
 TD0 1

===== CHANNEL f1 =====  
 SF01 400.1324710 MHz  
 NUC1 1H  
 P1 10.00 usec  
 PLW1 25.00300026 W

F2 - Processing parameters  
 SI 65536  
 SF 400.1300000 MHz  
 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 1.00





Scheme 3c  
<sup>31</sup>P/<sup>1</sup>H NMR decoupled



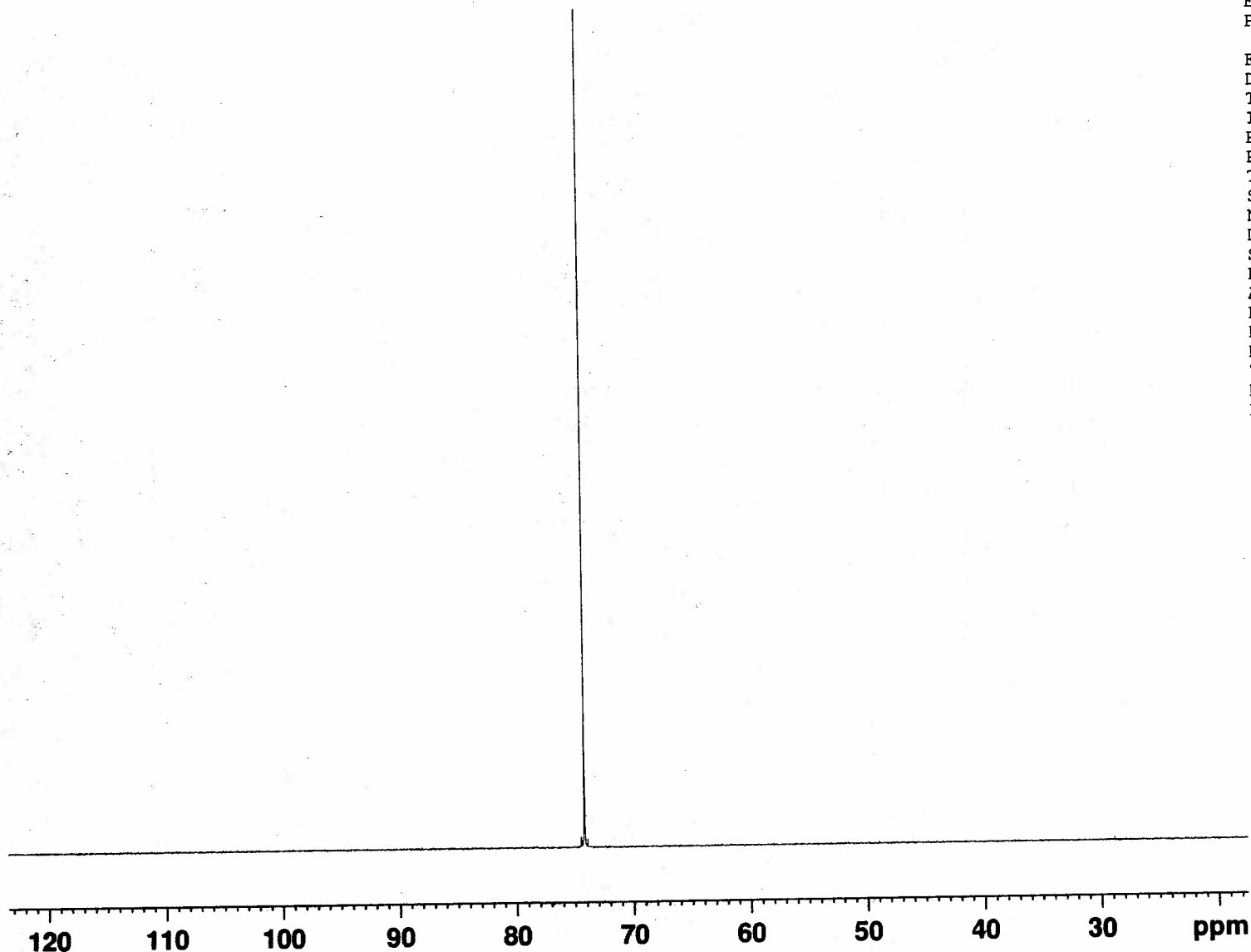
Current Data Parameters  
NAME AFL105  
EXPNO 3  
PROCNO 1

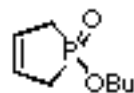
F2 - Acquisition Parameters  
Date\_ 20150827  
Time 13.59  
INSTRUM spect  
PROBHD 5 mm PABBO BB/  
PULPROG zgpg30  
TD 65536  
SOLVENT CDC13  
NS 8  
DS 4  
SWH 64102.563 Hz  
FIDRES 0.978127 Hz  
AQ 0.5111808 sec  
RG 203.57  
DW 7.800 usec  
DE 6.50 usec  
TE 294.7 K  
D1 2.00000000 sec  
D11 0.03000000 sec  
TD0 1

==== CHANNEL f1 =====  
SFO1 161.9674942 MHz  
NUC1 31P  
P1 14.25 usec  
PLW1 15.00000000 W

==== CHANNEL f2 =====  
SFO2 400.1316005 MHz  
NUC2 1H  
CPDPRG[2] waltz16  
PCPD2 90.00 usec  
PLW2 10.00000000 W  
PLW12 0.31604999 W  
PLW13 0.25600001 W

F2 - Processing parameters  
SI 32768  
SF 161.9755930 MHz  
WDW EM  
SSB 0  
LB 1.00 Hz  
GB 0  
PC 1.40





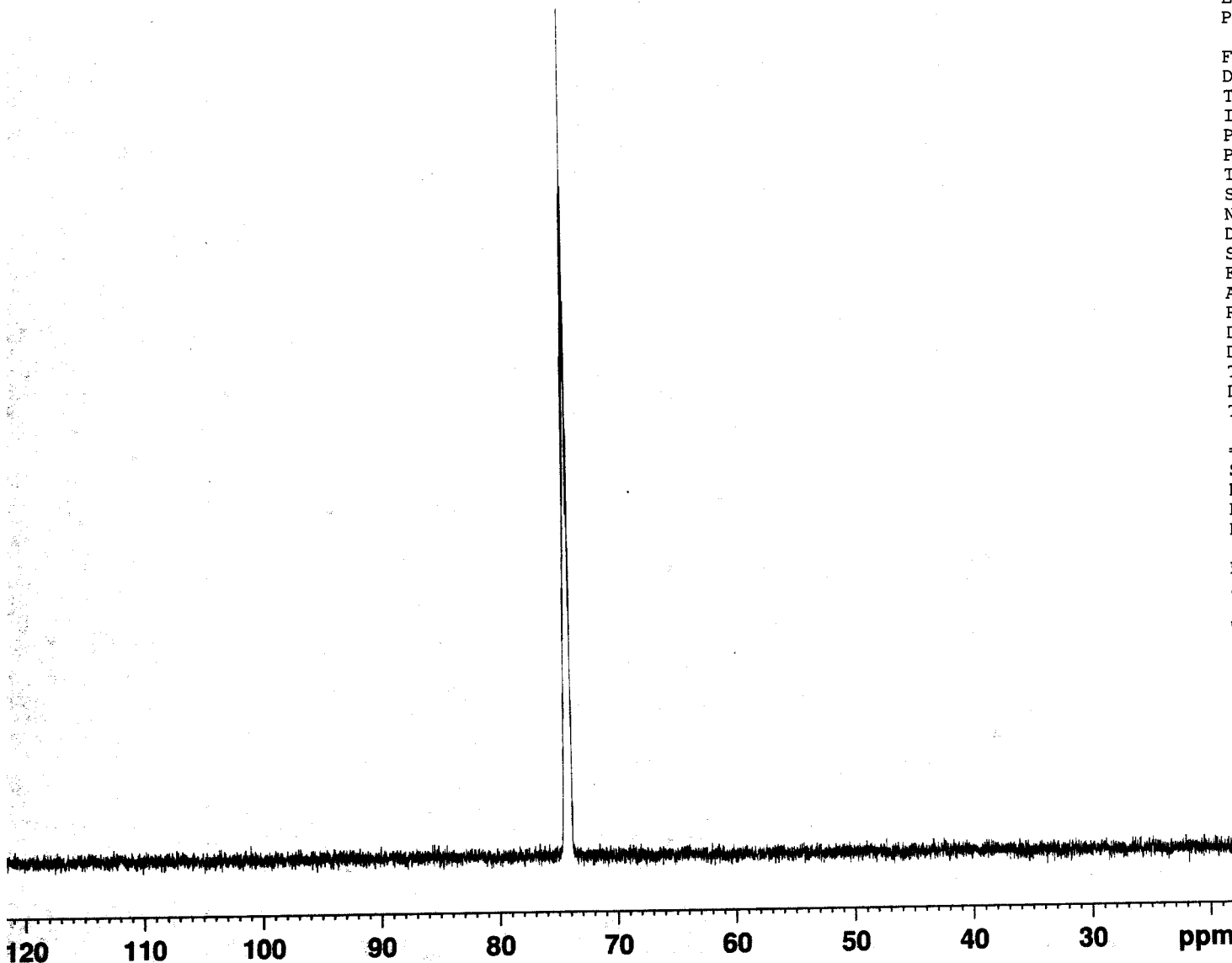
Scheme 3c  
<sup>31</sup>P/<sup>1</sup>H NMR coupled

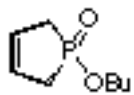
Current Data Parameters  
NAME AFL105  
EXPNO 4  
PROCNO 1

F2 - Acquisition Parameters  
Date\_ 20150827  
Time 14.00  
INSTRUM spect  
PROBHD 5 mm PABBO BB/  
PULPROG zg30  
TD 65536  
SOLVENT CDC13  
NS 13  
DS 4  
SWH 64102.563 Hz  
FIDRES 0.978127 Hz  
AQ 0.5111808 sec  
RG 203.57  
DW 7.800 usec  
DE 6.50 usec  
TE 294.4 K  
D1 2.00000000 sec  
TD0 1

==== CHANNEL f1 =====  
SFO1 161.9674942 MHz  
NUC1 31P  
P1 14.25 usec  
PLW1 15.00000000 W

F2 - Processing parameters  
SI 32768  
SF 161.9755930 MHz  
WDW EM  
SSB 0  
LB 1.00 Hz  
GB 0  
PC 1.40





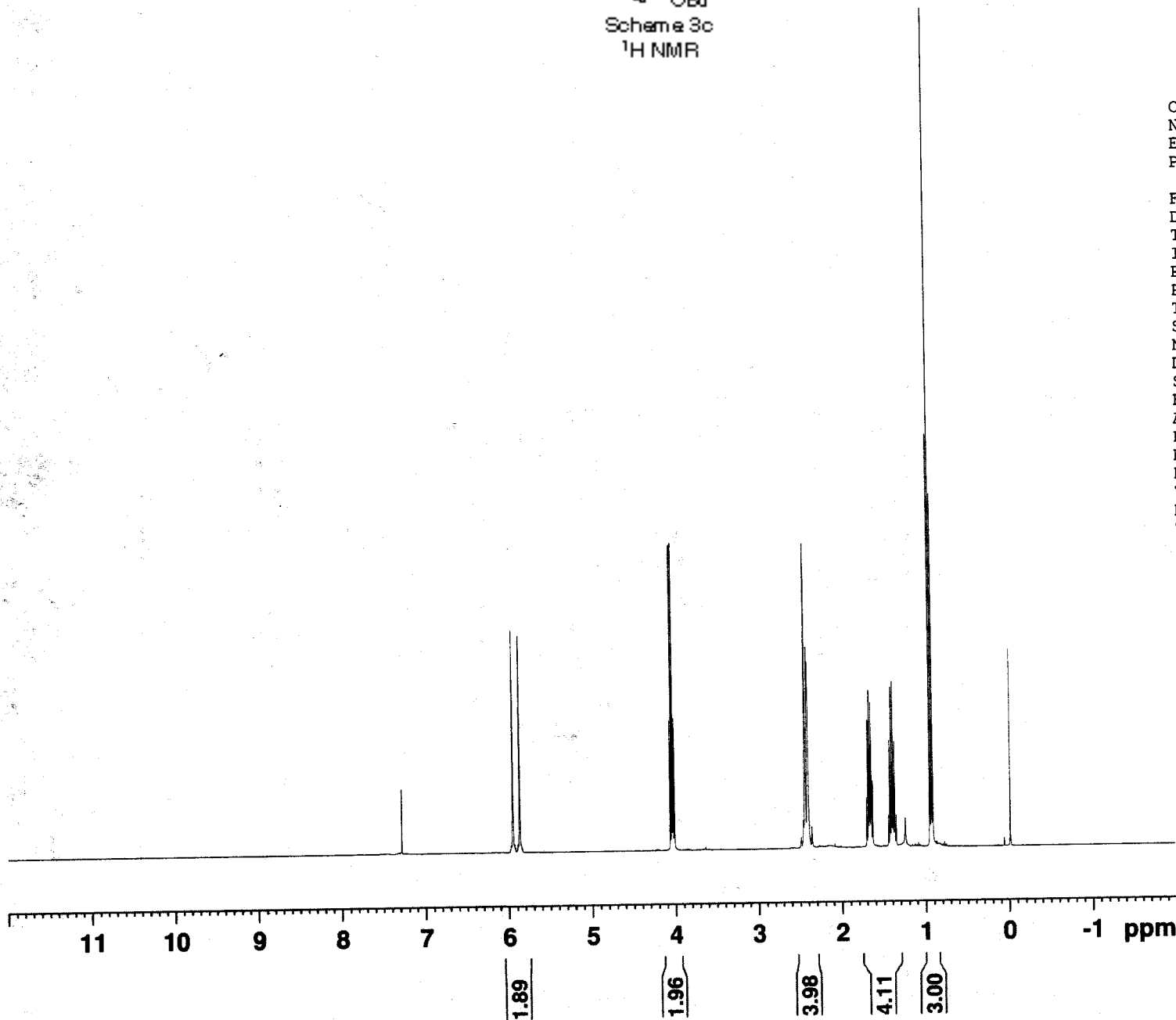
Scheme 3c  
<sup>1</sup>H NMR

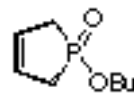
Current Data Parameters  
NAME AFL105  
EXPNO 5  
PROCNO 1

F2 - Acquisition Parameters  
Date\_ 20150827  
Time 14.05  
INSTRUM spect  
PROBHD 5 mm PABBO BB/  
PULPROG zg30  
TD 65536  
SOLVENT CDCl3  
NS 14  
DS 2  
SWH 8012.820 Hz  
FIDRES 0.122266 Hz  
AQ 4.0894465 sec  
RG 66.4  
DW 62.400 usec  
DE 6.50 usec  
TE 294.4 K  
D1 1.0000000 sec  
TD0 1

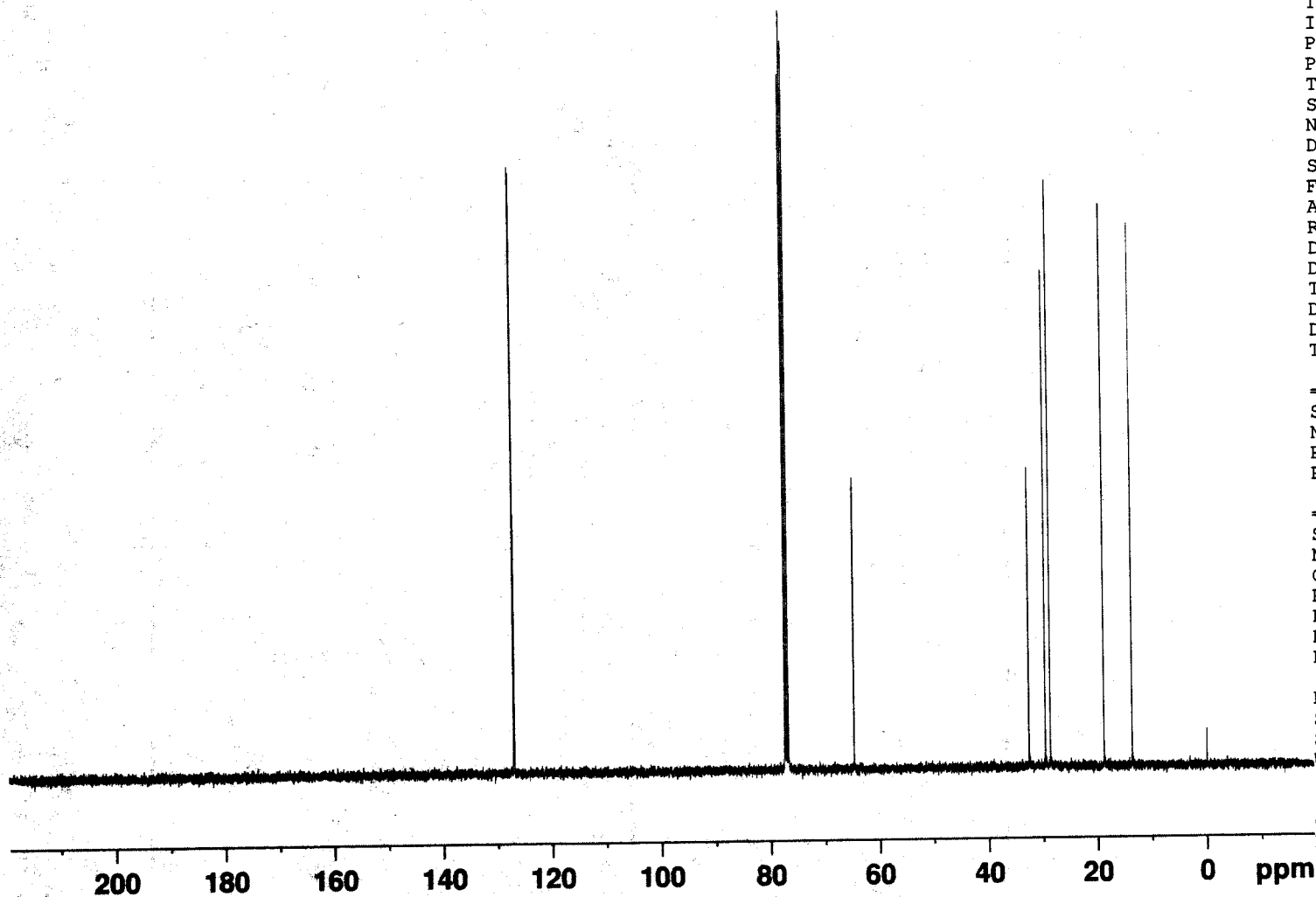
==== CHANNEL f1 =====  
SF01 400.1324710 MHz  
NUC1 1H  
P1 10.00 usec  
PLW1 25.00300026 W

F2 - Processing parameters  
SI 65536  
SF 400.1300000 MHz  
WDW EM  
SSB 0  
LB 0.30 Hz  
GB 0  
PC 1.00





Scheme 3c  
<sup>13</sup>C NMR



Current Data Parameters  
NAME AFL105  
EXPNO 6  
PROCNO 1

F2 - Acquisition Parameters

Date\_ 20150827  
Time 16.47  
INSTRUM spect  
PROBHD 5 mm PABBO BB/  
PULPROG zgpg30  
TD 65536  
SOLVENT CDCl3  
NS 316  
DS 4  
SWH 24038.461 Hz  
FIDRES 0.366798 Hz  
AQ 1.3631488 sec  
RG 203.57  
DW 20.800 usec  
DE 6.50 usec  
TE 295.7 K  
D1 2.00000000 sec  
D11 0.03000000 sec  
TD0 1

==== CHANNEL f1 =====

SFO1 100.6228293 MHz  
NUC1 13C  
P1 10.00 usec  
PLW1 45.00000000 W

==== CHANNEL f2 =====

SFO2 400.1316005 MHz  
NUC2 1H  
CPDPRG[2] waltz16  
PCPD2 90.00 usec  
PLW2 10.00000000 W  
PLW12 0.31604999 W  
PLW13 0.25600001 W

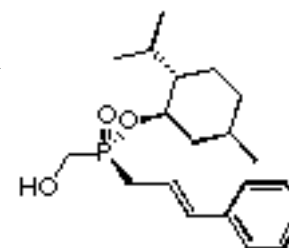
F2 - Processing parameters

SI 32768  
SF 100.6127685 MHz  
WDW EM  
SSB 0  
LB 1.00 Hz  
GB 0  
PC 1.40

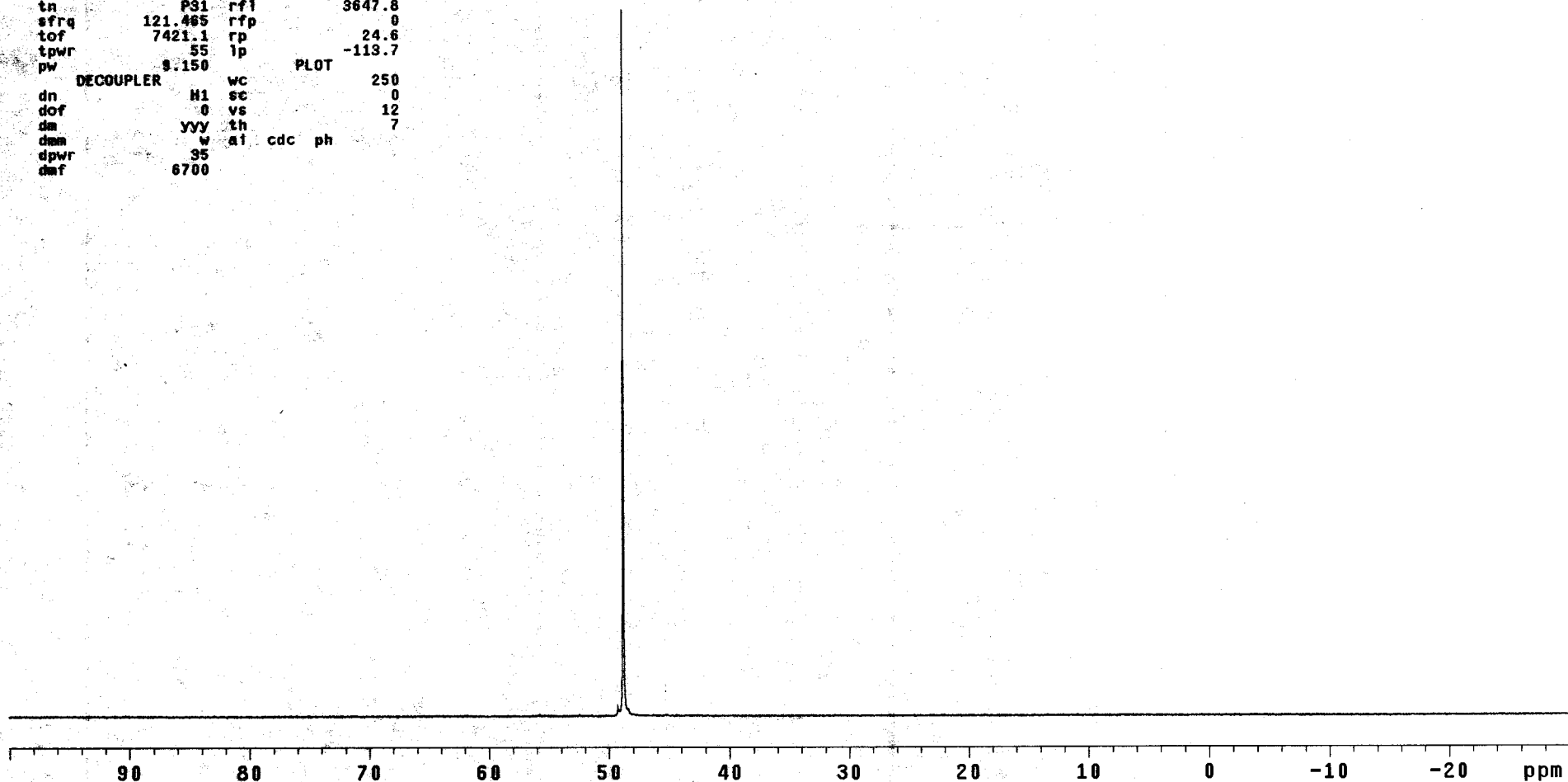
OB 909  
pad=18 run with findz0 before acquisition

exp1 Phosphorus

SAMPLE		SPECIAL	
date	Feb 1 2013	temp	not used
solvent	cdc13	gain	20
file	/home/TCUuser	spin	20
/vnmrsvs/data/aut	hst		0.008
2013_01.20/s_2013	pw90		18.300
0201_12/data/Cdc13	alfa		10.000
02.fid		FLAGS	
ACQUISITION		PROCESSING	
sw	15797.8	il	n
at	1.680	in	n
np	50552	dp	y
fb	8800	hs	ny
bs	64	lb	1.00
d1	1.000	fn	not used
nt	16		
ct	16	sp	-3647.3
TRANSMITTER		DISPLAY	
tn	P31	wp	15787.3
sfrq	121.465	rfl	3647.8
tof	7421.1	rfp	0
tpwr	55	rp	24.6
pw	8.150	lp	-113.7
DECOUPLER		PLOT	
dn	H1	wc	250
dof	0	sc	0
dm	YYY	vs	12
dmm	w	th	7
dpwr	35	ai	cdc ph
daf	6700		



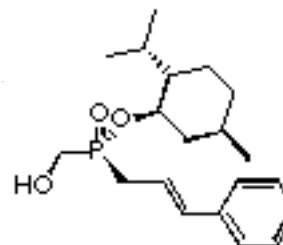
Scheme 4  
<sup>31</sup>P/<sup>1</sup>H NMR decoupled



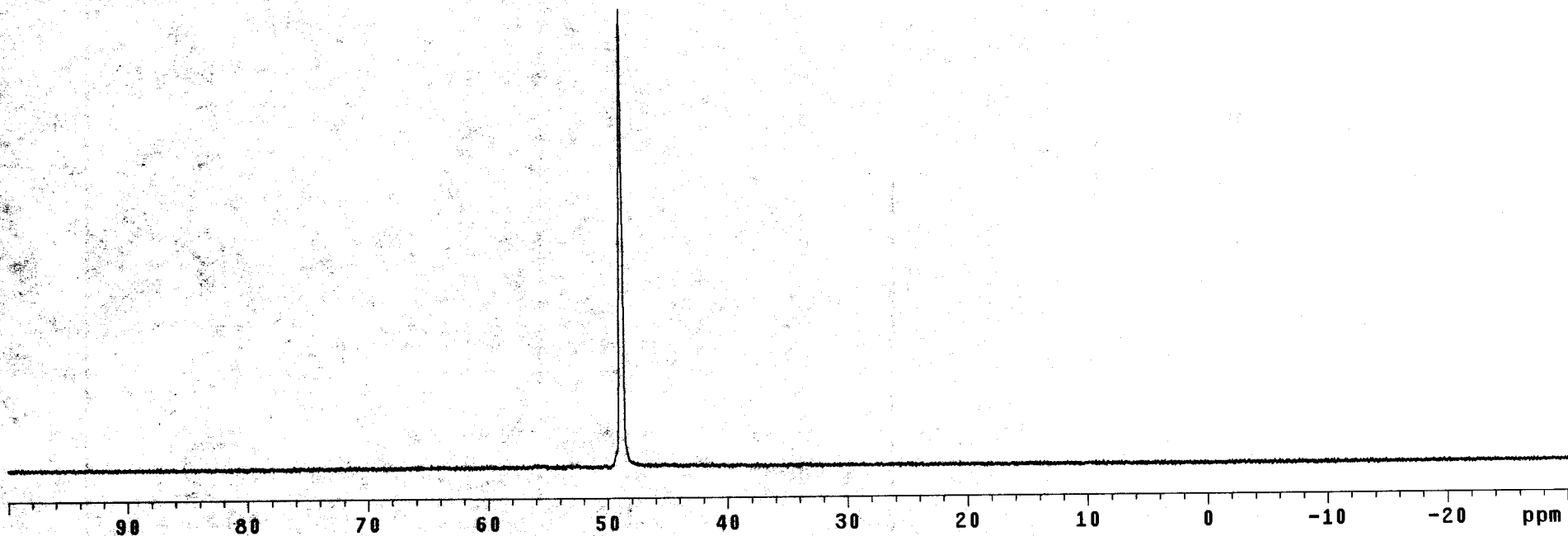
08 900

exp1 Phosphorus

SAMPLE		SPECIAL	
date	Feb 1 2013	temp	not used
solvent	cdcl3	gain	20
file	/homs/TCUuser~	spin	20
/vnmrSYS/data/auto~		hst	0.008
_2013_01_20/s_2013~		pw90	18.300
0201_12/data/cdc13~		alpha	10.000
04.fid		FLAGS	
ACQUISITION		PROCESSING	
sw	15797.8	in	n
at	1.600	dp	y
np	50552	hs	ny
fb	8800	lb	1.00
bc	64	fn	not used
d1	1.000	sp	
nt	16	wp	-3647.3
ct	16	rf1	15797.3
TRANSMITTER		DISPLAY	
tn	P91	wp	3647.8
sfrq	121.465	rfl	0
tof	7421.1	rfp	15.6
tpwr	55	lp	-113.7
pw	0.150	PLOT	
DECOUPLER		wc	250
dn	H1	sc	0
dof	0	vs	35
dm	ynn	th	3
dwm	w	af	cdc ph
dpwr	35		
dmf	6700		



Scheme 4  
<sup>31</sup>P/<sup>1</sup>H NMR coupled

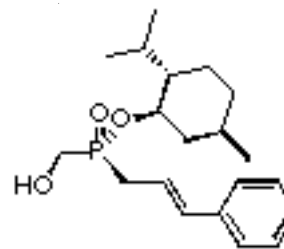




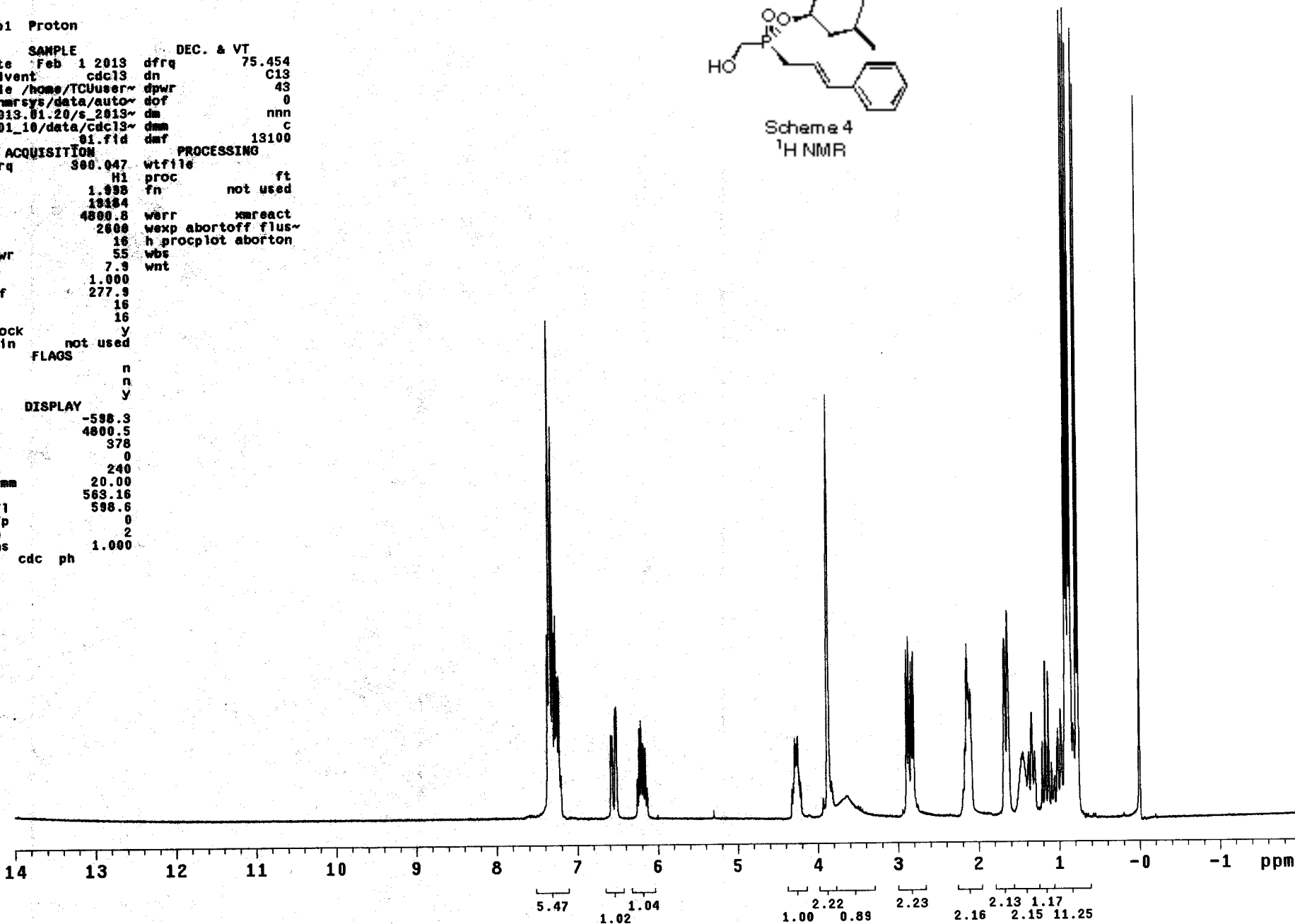
08 900  
pad=10 run with findz0 before acquisition

exp1 Proton

SAMPLE		DEC. & VT	
date	Feb 1 2013	dfrq	75.454
solvent	cdcl3	dn	C13
file	/home/TCUuser~	dpwr	43
/vnmrsw/data/auto~		dof	0
2013.01.20/s_2013~		dm	nnn
0201_10/data/cdc13~		dmm	c
01.fid		dmf	13100
ACQUISITION		PROCESSING	
sfrq	300.047	wtfile	
tn	H1	proc	ft
at	1.938	fn	not used
np	19184		
sw	4800.8	werr	xmreact
fb	2500	wexp	abortoff flus~
bs	16	h	procplot aborton
tpwr	55	wbs	
pw	7.9	wnt	
dl	1.000		
tof	277.3		
nt	16		
ct	16		
alock	y		
gain	not used		
FLAGS			
ll	n		
in	n		
dp	y		
DISPLAY			
sp	-588.3		
wp	4800.5		
vs	378		
sc	0		
wc	240		
hzmm	20.00		
ls	563.16		
rfl	588.6		
rfp	0		
th	2		
ins	1.000		
al	cdc	ph	



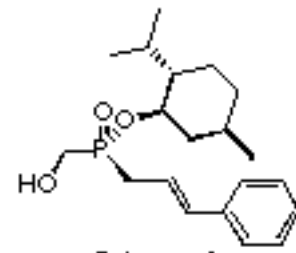
Scheme 4  
<sup>1</sup>H NMR



OB 900

exp1 Carbon

SAMPLE		SPECIAL	
date	Feb 1 2013	temp	not used
solvent	cdcl3	gain	20
file	/home/TCUuser~	spin	20
/vnmr	sys/data/auto~	hst	0.008
2013.01.20/s_2013~		pw90	18.500
0201_12/data/cdc13~		alfa	10.000
05.fid		FLAGS	
ACQUISITION		il	n
sw	18115.9	in	n
at	1.301	dp	y
np	47120	hs	nn
fb	10000	PROCESSING	
bs	64	lb	0.50
d1	2.000	fn	not used
nt	750	DISPLAY	
ct	750	sp	-1135.5
TRANSMITTER		wp	18115.4
tn	C13	rfl	1136.1
sfrq	75.454	rpf	0
tof	766.0	rp	9.2
tpwr	58	lp	-182.4
pw	9.250	PLOT	
DECOUPLER		wc	250
dn	H1	sc	0
dof	0	vs	332
dm	yyy	th	6
dmm	w	ai	cdc ph
dpwr	35		
dmf	6700		



Scheme 4  
13C NMR

