

SUPPORTING INFORMATION

Borostannylation of Alkynes and Enynes. Scope and Limitations of the Reaction and Utility of the Adducts

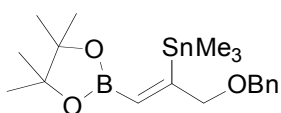
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Table of Contents

General procedure for the Pd-catalyzed, borostannylation of alkynes and enynes with [B-Sn]-reagent, followed by pinacolate formation	S2
Borostannylation of propargyl alcohol benzyl ether 2a : synthesis of 4a	S2
Borostannylation of phenylacetylene 2b : synthesis of the compound 4b	S2
Borostannylation of 4-phenyl-1-butyne 2c : synthesis of the compound 4c	S2
Borostannylation of Trimethyl(propargyl)silane 2d : synthesis of the compound 4d	S3
Borostannylation of triphenyl(2-propynyl)stannane 2e : synthesis of the compound 4e	S3
Borostannylation of Diphenylacetylene 2f : synthesis of the compound 4f	S3
Borostannylation of 1-Phenyl-1-propyne 2g : synthesis of the compounds 4g1 and 4g2	S3
Borostannylation of 1-Phenyl-1-butyne 2h : synthesis of the compounds 4h1 and 4h2	S4
Improved Regioselectivity (94 : 6) for the borostannylation of 1-Phenyl-1-butyne 2h in the presence of PdCl ₂ (CH ₃ CN) ₂ , P(<i>t</i> -Bu) ₃ .	S4
Borostannylation of acetylene: synthesis of the compound 5	S5
Borostannylation of 2-Methyl-1-buten-3-yne 6a : synthesis of the compound 7a	S5
Borostannylation of Enyne 6b : synthesis of the compound 7b	S5
Borostannylation of 1-Ethynylcyclohexene 6c : synthesis of the compound 7c	S5
Borostannylation of Enyne 6d : synthesis of the compound 7d	S6
Borostannylation of Enyne 6e : synthesis of the compound 7e	S6
Selective Stille Coupling followed by Suzuki Coupling: synthesis of the compounds 8 and 9	S6
Diels-Alder reaction of 7a : synthesis of the compound 10	S7
Synthesis of enyne 6b	S7
Synthesis of enyne 6e	S7
¹ H and ¹³ C NMR Spectra of key compounds	S9

General procedure for the Pd-catalyzed, borostannylation of alkynes and enynes with [B-Sn]-reagent 1, followed by pinacolate formation:

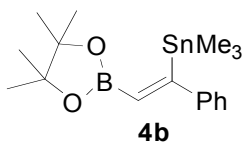
To a solution of 1,3-dimethyl-2-(trimethylstannyl)-2-bora-1,3-diazocyclopentane (156 mg, 0.6 mmol) in benzene (4 mL) was added PdCl₂(PPh₃)₂ (3.5 mg, 0.005 mmol) and the mixture was stirred at room temperature for 15 min followed by addition of a solution of alkyne or enyne (0.5 mmol) in benzene (1 mL). After stirring the reaction mixture at room temperature for 6 h, a solution of pinacol (84 mg, 0.72 mmol) in benzene (0.5 mL) followed by *p*-toluenesulfonic acid (*p*-TSA, 136 mg, 0.72 mmol) were added. After 2 h, the reaction was quenched by the addition of Et₃N (0.12 mL, 0.86 mmol) and the solvent was evaporated under reduced pressure to afford the crude product, which was purified by silica gel chromatography using 2-5% EtOAc/hexane as the mobile phase to yield the desired product.



4a

Borostannylation of propargyl alcohol benzyl ether: synthesis of 4a: Compound **4a** was synthesized from propargyl alcohol benzyl ether **2a** in 83 % isolated yield using the general procedure described above. ¹H NMR (400 MHz, CDCl₃) δ 7.35-7.25 (m, 5

H), 6.42 (d, *J* = 2.0 Hz, *J*_{Sn-H} = 71.6 Hz, 1 H), 4.47 (s, 2 H), 4.21 (d, *J* = 1.6 Hz, *J*_{Sn-H} = 13.6 Hz, 2 H), 1.24 (s, 12 H), 0.17 (s, 9 H, *J*_{Sn-H} = 26.8 Hz); ¹³C NMR (100 MHz, CDCl₃) δ 171.89, 138.74, 128.48, 127.78, 127.59, 83.57, 79.58, 77.43, 72.33, 25.02, -7.42; IR (neat, cm⁻¹): 2977.0, 2924.1, 2858.1, 2339.8, 1683.9, 1540.0, 1495.6, 1351.8, 1096.1, 967.5; MS (ESI): *m/z*: 461.11 [M+Na]⁺.

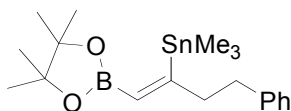


4b

Borostannylation of phenylacetylene: synthesis of the compound 4b:

Compound **4b** was synthesized from phenylacetylene in 82 % isolated yield using the general procedure described above. ¹H NMR (400 MHz, CDCl₃) δ 7.27 (d, *J* = 6.8 Hz, 2 H), 7.17 (t, *J* = 6.0 Hz, 1 H), 7.02 (d, *J* = 6.8 Hz, 2 H), 6.26 (s, *J*_{Sn-H} = 72.0 Hz, 1 H), 1.28 (s, 12 H), 0.16 (s, *J*_{Sn-H} = 26.8 Hz, 9 H); ¹³C NMR (100 MHz, CDCl₃) δ 176.23, 149.36, 128.10,

126.35, 83.69, 25.08, -5.62; IR (neat, cm⁻¹): 2977.7, 2924.9, 2539.4, 1683.8, 1558.2, 1487.1, 1338.7, 1143.0, 968.9, 846.4; MS (ESI): *m/z*: 417.08 [M+Na]⁺.

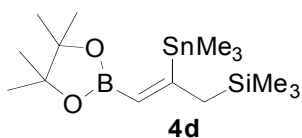


4c

Borostannylation of 4-phenyl-1-butyne: synthesis of the compound 4c:

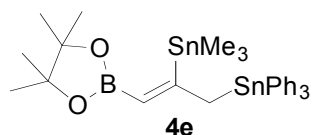
Compound **4c** was synthesized from 4-phenyl-1-butyne in 81 % isolated yield using the general procedure described above. ¹H NMR (400 MHz, CDCl₃) δ 7.26 (d, *J* = 7.6 Hz, 2H), 7.17-7.148 (m, 3H), 6.15 (s, *J*_{Sn-H} =

82.8 Hz, 1H), 2.63 (s, 4H), 1.24 (s, 12H), 0.18 (s, *J*_{Sn-H} = 26.4 Hz, 9H); ¹³C NMR (100 MHz, CDCl₃) δ 177.19, 142.22, 128.67, 128.53, 126.02, 83.47, 47.04, 36.37, 25.04, -5.84; IR (neat, cm⁻¹): 2977.3, 2923.6, 2856.2, 2359.4, 1652.2, 1495.4, 1455.8, 1535.2, 1234.7, 1146.2; MS (ESI): *m/z*: 445.12 [M+Na]⁺.



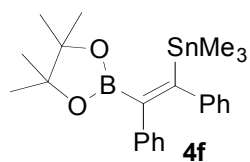
Borostannylation of trimethyl(propargyl)silane: synthesis of the compound 4d: Compound **4d** was synthesized from trimethyl(propargyl)silane in 80 % isolated yield using the general procedure described above. $^1\text{H NMR}$ (500 MHz, CDCl_3) δ 5.87 (s,

$J_{\text{Sn-H}} = 79$ Hz, 1 H), 2.05 (s, $J_{\text{Sn-H}} = 49.5$ Hz, 2 H), 1.23 (12 H), 0.14 (s, 9H, $J_{\text{Sn-H}} = 27$ Hz), -0.24 (s, 9 H); $^{13}\text{C NMR}$ (100 MHz, CDCl_3) δ 176.36, 83.16, 53.62, -1.23, -6.82; IR (neat, cm^{-1}): 2924.4, 2859.0, 2359.4, 1652.2, 1558.1, 1349.9, 1133.9, 1026.1, 824.5; MS (ESI): m/z : 427.03 $[\text{M}+\text{Na}]^+$.



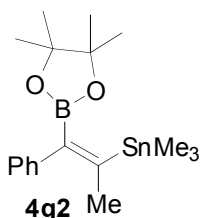
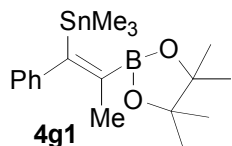
Borostannylation of triphenyl(2-propynyl)stannane: synthesis of the compound 4e: Compound **4e** was synthesized from triphenyl(2-propynyl)stannane in 80 % isolated yield using the general procedure described above.

$^1\text{H NMR}$ (400 MHz, CDCl_3) δ 7.60-7.40 (m, 6 H), 7.362-7.326 (m, 9 H), 6.07 (s, $J_{\text{Sn-H}} = 84$, 20 Hz, 1 H), 2.99 (d, $J = 0.8$ Hz, $J_{\text{Sn-H}} = 44$, 36 Hz, 2 H), 1.19 (12 H), -0.11 (s, $J_{\text{Sn-H}} = 27$ Hz, 9 H); $^{13}\text{C NMR}$ (100 MHz, CDCl_3) δ 138.60, 137.50, 129.18, 128.43, 83.13, 24.90, -0.6; IR (neat, cm^{-1}): 3063.8, 2924.3, 2359.7, 1733.6, 1558.3, 1348.3, 1143.8; MS (ESI): m/z : 701.08 $[\text{M}+\text{Na}]^+$.



Borostannylation of piperonylacetylene: synthesis of the compound 4f: Compound **4f** was synthesized from dipenylacetylene in 84 % isolated yield using the general procedure described above. $^1\text{H NMR}$ (400 MHz, CDCl_3) δ 6.95-6.87 (m, 8 H), 6.62 (d, $J = 7.6$ Hz, 2 H), 1.28 (s, 12 H), 0.08 (s, 9H, $J_{\text{Sn-H}} = 26$ Hz, 9 H); $^{13}\text{C NMR}$ (100 MHz, CDCl_3) δ 170.38, 146.82, 142.56, 129.72, 127.54, 127.14, 127.01, 126.93, 125.29, 124.57, 84.22, 77.44, 25.04, -4.86. IR (neat, cm^{-1}): 2923.8, 1732.9, 1652.0, 1557.9, 1493.9, 1455.9, 1049.4; MS (ESI): m/z : 493.13 $[\text{M}+\text{Na}]^+$.

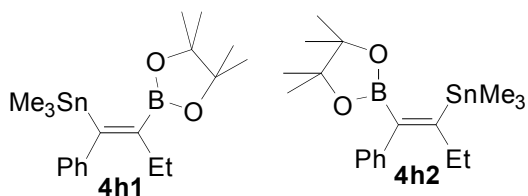
Borostannylation of 1-phenyl-1-propyne: synthesis of the compounds 4g1 and 4g2: Borostannylation of 1-phenyl-1-propyne using the general procedure described above yielded the two region isomers **4g1** and **4g2** in 88:12 ratio respectively in 90 % combined isolated yield.



4g1: $^1\text{H NMR}$ (500 MHz, CDCl_3) δ 7.26 (t, $J = 7.2$ Hz, 2 H), 7.06 (t, $J = 7.2$ Hz, 1 H), 6.78 (d, $J = 7.2$ Hz, 1 H), 1.64 (t, $J = 5.5$ Hz, 3 H), 1.28 (s, 12 H), -0.02 (t, $J = 26.0$ Hz, 9 H); $^{13}\text{C NMR}$ (125 MHz, CDCl_3) δ 167.79, 147.50, 128.18, 127.84, 125.93, 124.81, 83.91, 25.12, 18.92, -5.32; IR (neat, cm^{-1}): 2977.9, 2923.7, 2856.6, 1683.7, 1575.3, 1488.3, 1352.1, 1308.0, 1114.2, 760.9; MS (ESI): m/z : 431.11 $[\text{M}+\text{Na}]^+$.

4g2: ^1H NMR (500 MHz, CDCl_3) δ 7.27 (t, $J = 7.6$ Hz, 2 H), 7.16 (t, $J = 7.6$ Hz, 1 H), 7.02 (d, $J = 7.6$ Hz, 1 H), 1.89 (t, $J = 28.5$ Hz, 3 H), 1.21 (s, 12 H), 0.19 (t, $J = 27.0$ Hz, 9 H).

Borostannylation of 1-phenyl-1-butyne: synthesis of the compounds 4h1 and 4h2: Borostannylation of 1-phenyl-1-butyne using the general procedure described above yielded the two region isomers **4h1** and **4h2** in 85:15 ratio respectively in 89 % combined isolated yield. Regioselectivity was improved to 94:6 when the reaction was run at 60°C for 12 h. in the presence of $\text{PdCl}_2(\text{CH}_3\text{CN})_2$, $\text{P}(t\text{-Bu})_3$.

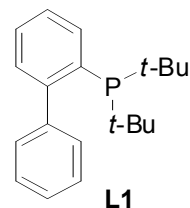


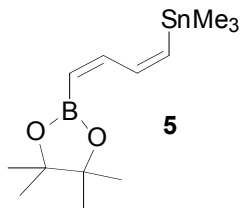
4h1: ^1H NMR (500 MHz, CDCl_3) δ 7.25 (t, $J = 7.5$ Hz, 2 H), 7.06 (t, $J = 7.5$ Hz, 1 H), 6.78 (d, $J = 7.5$ Hz, 2 H), 2.03 (q, $J = 10.0$ Hz, 2 H), 1.28 (s, 12 H), 0.85 (t, $J = 10.0$ Hz, 3 H), -0.03 (t, $J = 26.0$ Hz, 9 H); ^{13}C NMR (125 MHz, CDCl_3) δ 166.37, 147.38, 128.04, 125.95, 125.88, 125.81, 124.67, 83.77, 26.32, 25.08, 15.70, -5.06; IR (neat, cm^{-1}): 2976.9, 2926.0, 2867.9, 1683.8, 1488.5, 1351.7, 1128.9, 968.4, 867.8; MS (ESI): m/z : 443.14 $[\text{M}+\text{Na}]^+$.

4h2: ^1H NMR (500 MHz, CDCl_3) δ 7.26 (t, $J = 7.5$ Hz, 2 H), 7.17 (t, $J = 7.5$ Hz, 1 H), 6.99 (d, $J = 7.5$ Hz, 2 H), 2.30-2.10 (m, 2 H), 1.20 (s, 12 H), 0.80 (t, $J = 8.2$ Hz, 3 H), 0.19 (t, $J = 26.0$ Hz, 9 H)

Effect of ligands in improving the regioselectivity of the borostannylation of the internal unsymmetrical acetylene 2h [Table]

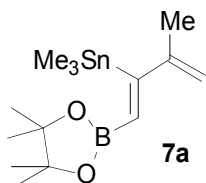
entry	reaction conditions	ratio of 4h1 : 4h2 (% yield)
1	a) $\text{PdCl}_2(\text{PPh}_3)_2$, C_6H_6 , rt, 2h. b) PTSA, Pinacol, rt. 12h.	86 : 13 (89)
2	a) $\text{PdCl}_2(\text{CH}_3\text{CN})_2$, C_6H_6 , 80 °C, 12h. b) PTSA, Pinacol, rt. 12h.	No reaction, recovered starting material
3	a) $\text{PdCl}_2(\text{CH}_3\text{CN})_2$, $\text{P}(o\text{-tolyl})_3$, C_6H_6 , rt, 6h. b) PTSA, Pinacol, rt. 12h., 82%	87 : 13 (82)
4	a) $\text{Pd}_2(\text{dba})_3$, CHCl_3 , $\text{P}(o\text{-tolyl})_3$, C_6H_6 , rt, 24h. b) PTSA, Pinacol, rt. 12h.	87 : 13 (82)
5	a) $\text{PdCl}_2(\text{CH}_3\text{CN})_2$, $\text{P}(t\text{-Bu})_3$, C_6H_6 , 60 °C, 12h. b) PTSA, Pinacol, rt. 12h.	94 : 6 (75)
6	$\text{PdCl}_2(\text{CH}_3\text{CN})_2$, L1 , C_6H_6 , rt to 60 °C, 6h.	No reaction, recovered starting material
7	$\text{Pd}_2(\text{dba})_3$, CHCl_3 , L1 , C_6H_6 , rt to 60 °C, 24h.	No reaction, recovered starting material





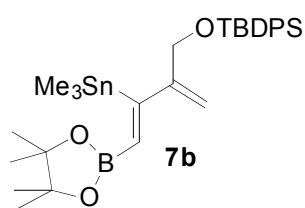
Borostannylation of acetylene: synthesis of the compound 5: Solution of mixture of 1,3-dimethyl-2-(trimethylstannyl)-2-bora-1,3-diazocyclopentane (156 mg, 0.6 mmol) and PdCl₂(PPh₃)₂ (3.5 mg, 0.005 mmol) in benzene (4 mL) was stirred at room temperature for 6 h under acetylene atmosphere (balloon pressure). After stirring the reaction mixture at room temperature for 6 h, a solution of pinacol (84 mg, 0.72 mmol) in benzene (0.5 mL) followed by *p*-toluenesulfonic acid (*p*-TSA, 136 mg, 0.72 mmol) were added. After 2 h, the reaction was

quenched by the addition of Et₃N (0.12 mL, 0.86 mmol) and the solvent was evaporated under reduced pressure to afford the crude product, which was purified by silica gel chromatography using 2% EtOAc/hexane as the mobile phase to yield the desired product **5** in 86 % isolated yield. ¹H NMR (400 MHz, CDCl₃) δ 7.69 (t, *J* = 12 Hz, *J*_{Sn-H} = 75 Hz, 1 H), 6.79 (t, *J* = 13.5 Hz, 1 H), 6.38 (d, *J* = 12.5 Hz, *J*_{Sn-H} = 24.5 Hz, 1 H), 5.47 (d, *J* = 13.5 Hz, 1 H), 1.26 (s, 12 H), 0.18 (s, *J*_{Sn-H} = 28 Hz, 9 H); ¹³C NMR (400 MHz, CDCl₃) δ 151.93, 146.48, 141.08, 83.40, 25.08, -0.8; IR (neat, cm⁻¹): 2977.9, 2939.6, 1733.4, 1606.3, 1418.2, 1143.1; MS (ESI): *m/z*: 367.079 [M+Na]⁺.



Borostannylation of 2-methyl-1-buten-3-yne: synthesis of the compound 7a: Compound **7a** was synthesized from 2-Methyl-1-buten-3-yne **6a** in 84 % isolated yield using the general procedure described above. ¹H NMR (500 MHz, CDCl₃) δ 6.12 (t, *J* = 87.6 Hz, 1 H), 4.74 (s, 1 H), 4.57 (s, 1 H), 1.78 (s, 3 H), 1.24 (s, 12 H), 0.18 (t, *J* = 20.0 Hz, 9H);

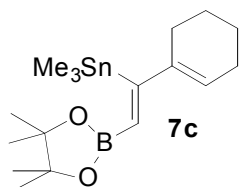
¹³C NMR (125 MHz, CDCl₃) δ 178.17, 152.96, 110.50, 83.57, 25.07, 22.49, -0.46; IR (neat, cm⁻¹): 2926.1, 2339.9, 1733.6, 1576.0, 1456.3, 1338.0, 1727.8, 1144.2, 960.5.



Borostannylation of alkyne 6b: synthesis of the compound 7b:

Compound **7b** was synthesized from alkyne **6b** in 82 % isolated yield using the general procedure described above. ¹H NMR (400 MHz, CDCl₃) δ 7.66 (d, *J* = 7.6 Hz, 4 H), 7.48-7.30 (m, 6 H), 6.05 (t, *J* = 92.0 Hz, 1 H), 5.24 (s, 1 H), 4.70 (s, 1 H), 4.14 (s, 2 H), 1.22 (s, 12 H), 1.04 (s, 9 H), 0.13 (t, *J* = 26.4 Hz, 9 H);

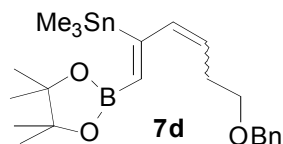
¹³C NMR (100 MHz, CDCl₃) δ 174.53, 154.97, 135.73, 133.85, 129.80, 127.86, 107.73, 83.59, 65.25, 27.04, 25.01, 19.53, -5.04; IR (neat, cm⁻¹): 2928.8, 2856.3, 2359.5, 1575.8, 1472.0, 1337.6, 1111.2, 969.1, 885.9; MS (ESI): *m/z*: 635.19 [M+Na]⁺.



Borostannylation of 1-Ethynylcyclohexene: synthesis of the compound 7c:

Compound **7c** was synthesized from 1-ethynylcyclohexene **6c** in 85 % isolated yield using the general procedure described above. ¹H NMR (400 MHz, CDCl₃) δ 6.07 (t, *J* = 92.0 Hz, 1 H), 5.46-5.35 (bs, 1 H), 2.16-1.98 (m, 4 H), 1.68-1.49 (m, 4 H), 1.24 (s, 12 H), 0.16 (t, *J* = 28 Hz, 9 H);

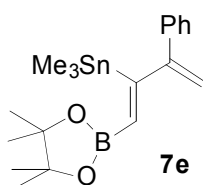
¹³C NMR (125 MHz, CDCl₃) δ 178.68, 145.46, 124.18, 83.43, 27.98, 25.73, 25.06, 23.11, 22.54; IR (neat, cm⁻¹): 2976.8, 2926.3, 1733.2, 1652.1, 1558.1, 1335.9, 1143.5, 969.5, 768.7; MS (ESI): *m/z*: 421.13 [M+Na]⁺.



Borostannylation of alkyne **6d**: synthesis of the compound **7d**:

Compound **7d** was synthesized from alkyne **6d** in 81 % isolated yield using the general procedure described above. $^1\text{H NMR}$ (500 MHz, CDCl_3) δ 7.31-7.23 (m, 10 H), 6.34 (dd, $J = 15.5, 1.0$ Hz, 1 H), 6.22 (dd, $J = 11.5, 2.0$ Hz, 1 H), 6.17 (d, $J = 1.0$ Hz, 1 H),

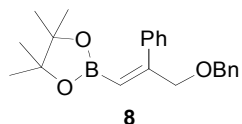
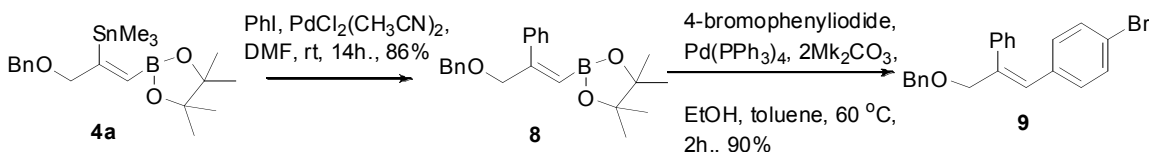
6.07 (d, $J = 2.0$ Hz, 1 H), 5.82-5.72 (m, 1 H), 5.34-5.27 (m, 1 H), 4.50 (s, 2 H), 4.47 (s, 2 H), 3.50 (t, $J = 6.5$ Hz, 2 H), 3.44 (t, $J = 7.0$ Hz, 2 H), 2.42-2.36 (m, 4 H), 1.29-1.19 (m, 24 H), 0.28-0.12 (m, 18 H); IR (neat, cm^{-1}): 2976.8, 2924.3, 2855.9, 2359.5, 1575.8, 1455.8, 1343.5, 1143.1, 1103.8, 968.6, 850.7; MS (ESI): m/z : 501.15 $[\text{M}+\text{Na}]^+$.



Borostannylation of alkyne **6e**: synthesis of the compound **7e**:

Compound **7e** was synthesized from alkyne **6e** in 10 % isolated yield using the general procedure described above. $^1\text{H NMR}$ (500 MHz, CDCl_3) δ 7.22-7.05 (m, 5 H), 6.27 (s, 1 H), 5.17 (d, $J = 1.5$ Hz, 1 H), 4.92 (d, $J = 1.5$ Hz, 1 H), 1.51 (s, 12 H), 0.25 (t, $J = 24.3$ Hz, 9 H).

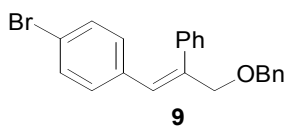
Selective Stille Coupling followed by Suzuki Coupling:



Selective Stille coupling: Synthesis of the compound **8**:

The substrate **4a** (20 mg, 0.05 mmol) in DMF (0.8 mL) was added $\text{PdCl}_2(\text{CH}_3\text{CN})$ (0.6 mg, 0.0025 mmol) followed by the solution of iodobenzene (12 mg, 0.06 mmol) in DMF (0.2 mL), and the reaction mixture was stirred at the rt for

12 h. The reaction mixture was diluted with diethyl ether and washed successively with water, brine and dried over Na_2SO_4 . The organic layer was evaporated under reduced pressure to afford the crude product which was purified by column chromatography on silica gel using 3% EtOAc/hexane as the eluent to yield **8** (15 mg, 0.04 mmol) in 86% yield as a viscous oil. $^1\text{H NMR}$ (500 MHz, CDCl_3) δ 7.31-7.24 (m, 5H), 5.81 (t, $J = 1.5$ Hz, 1H), 4.54 (s, 2H), 4.29 (d, $J = 1.5$ Hz, 2H), 1.12 (s, 9H).



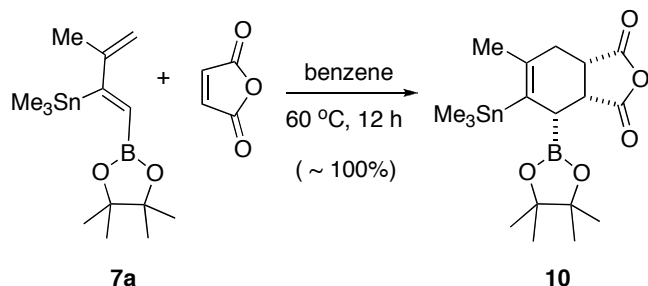
Suzuki Coupling for the Synthesis of **9**:

To the substrate **8** (8 mg, 0.025 mmol) in toluene (0.5 mL) under an atmosphere of nitrogen was added the 1-bromo-4-iodobenzene (14 mg, 0.05 mmol) in 0.32 mL toluene followed by 0.3 mL of 2 M potassium carbonate

solution and 0.3 mL EtOH. To this mixture was added *tetrakis*-(triphenylphosphine)palladium (1.5 mg), and the reaction was heated at 60 °C for 2 h. The reaction mixture was diluted with diethyl ether and the solution was washed successively with water, brine and dried over Na_2SO_4 . The organic layer was evaporated under reduced pressure to afford the crude product which was purified by column chromatography on silica gel using 5 % EtOAc/hexane as the mobile phase to yield the compound **9** (8 mg, 0.022 mmol) in 90% yield as a viscous oil. $^1\text{H NMR}$ (400 MHz,

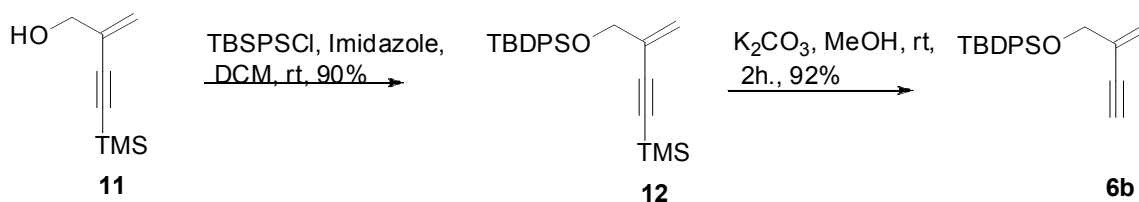
CDCl₃) δ 7.32-7.16 (m, 12H), 6.83 (d, J = 8.0 Hz, 2H), 6.63 (s, 1H), 4.59 (s, 2H), 4.29 (d, J = 1.2 Hz, 2H).

Diels-Alder reaction of **7a**



Diene **7a** (18 mg, 0.05 mmol) and maleic anhydride (10 mg, 0.05 mmol) in benzene (1.5 mL) were refluxed for 12 h. Evaporation of the solvent under reduced pressure yielded the desired product **10** in quantitative yield. ¹H NMR (500 MHz, CDCl₃) δ 3.17-3.12 (m, 1 H), 3.05 (dd, J = 8.0, 11.0 Hz, 1 H), 2.71 (dd, J = 8.0, 30.0 Hz, 1 H), 2.53-2.42 (m, 2 H), 1.84 (dt, J = 25.0, 5.5 Hz, 3 H), 1.12 (s, 6 H), 1.09 (s, 6 H), 0.19 (t, J = 26 Hz, 9 H). The configuration was assigned as shown based on the ample literature precedents on reactions of similar compounds.

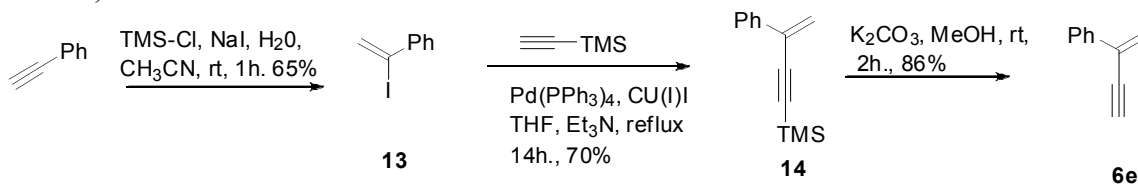
Synthesis of enyne **6b**: Enyne **6b** was synthesized from the known compound **11**, which was obtained from the propargyl alcohol using the literature known procedure (*J. Org. Chem.* **2005**, *70*, 2364-2367).

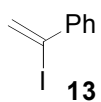


Compound **12**: ¹H NMR (500 MHz, CDCl₃) δ 7.54 (dd, J = 7.8, 2.0 Hz, 4 H), 7.30-7.23 (m, 6 H), 5.64 (d, J = 2.0 Hz, 1 H), 5.43 (d, J = 2.0 Hz, 1 H), 4.05 (t, J = 2.0 Hz, 2 H), 0.94 (s, 9 H), 0.03 (s, 9 H); IR (neat, cm⁻¹): 2929.5, 2857.5, 2149.8, 1652.2, 1558.0, 1456.1, 1249.9, 1111.9, 824.5.

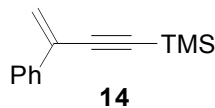
6b: ¹H NMR (500 MHz, CDCl₃) δ 7.65 (d, J = 8.4 Hz, 4 H), 7.44-7.35 (m, 6 H), 5.82 (d, J = 2.0 Hz, 1 H), 5.60 (d, J = 2.0 Hz, 1 H), 4.18 (t, J = 2.0 Hz, 3 H), 2.85 (s, 1 H), 1.07 (s, 9 H); ¹³C NMR (100 MHz, CDCl₃) δ 135.70, 133.43, 130.0, 129.80, 127.97, 121.39, 81.94, 65.54, 26.99, 19.53; IR (neat, cm⁻¹): 2928.3, 2857.4, 2539.4, 1652.2, 1539.9, 1456.1, 1111.2, 823.7; MS (ESI): m/z : 343.14 [M+Na]⁺.

Synthesis of enyne **6e**: Enyne **6e** was synthesized from the phenyl acetylene using the procedure described for the synthesis of enyne **6b** from the propargyl alcohol. (*J. Org. Chem.* **2005**, *70*, 2364-2367).

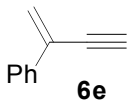




^1H NMR (500 MHz, CDCl_3) δ 7.45 (dd, $J = 8.0, 2.0$ Hz, 2 H), 7.27-7.19 (m, 3 H), 6.40 (d, $J = 2.0$ Hz, 1 H), 6.02 (d, $J = 2.0$ Hz, 1 H); ^{13}C NMR (100 MHz, CDCl_3) δ 141.28, 129.14, 128.52, 128.37, 127.59, 107.88.



^1H NMR (400 MHz, CDCl_3) δ 7.63 (dd, $J = 7.8, 1.5$ Hz, 2 H), 7.36-7.29 (m, 3 H), 5.92 (s, 1 H), 5.70 (s, 1 H), 0.24 (s, 9 H); ^{13}C NMR (100 MHz, CDCl_3) δ 137.16, 130.87, 128.59, 128.55, 126.28, 121.68, 104.33, 96.14, 0.18; IR (neat, cm^{-1}): 2958.0, 2898.2, 2162.0, 2066.7, 1733.1, 1645.7, 1598.3, 1491.2, 1447.9, 1249.5, 1036.0, 842.0.



^1H NMR (400 MHz, CDCl_3) δ 7.65 (d, $J = 7.6$ Hz, 2 H), 7.37-7.28 (m, 3 H), 5.97 (s, 1 H), 5.75 (s, 1 H), 3.10 (s, 1 H); ^{13}C NMR (100 MHz, CDCl_3) δ 136.85, 129.96, 128.66, 128.62, 126.20, 122.45, 82.98, 78.86; IR (neat, cm^{-1}): 2925.1, 2857.0, 2162.0, 1733.0, 1652.2, 1493.8, 1448.2, 1397.7, 1049.6.

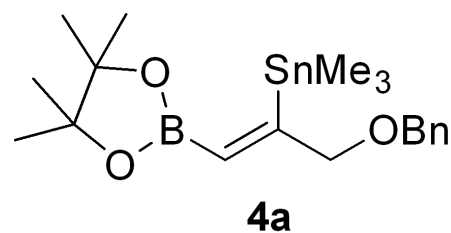
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400MHz - 0083

Current Data Parameters
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EXPNO 3
PROCNO 1

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SOLVENT CDCl3
NS 16
DS 2
SWH 8278.146 Hz
FIDRES 0.126314 Hz
AQ 3.9584243 sec
RG 114
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DE 6.00 use
TE 300.2 K
D1 1.00000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

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PL1 0.00 dB
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F2 - Processing parameters
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GB 0
PC 1.00

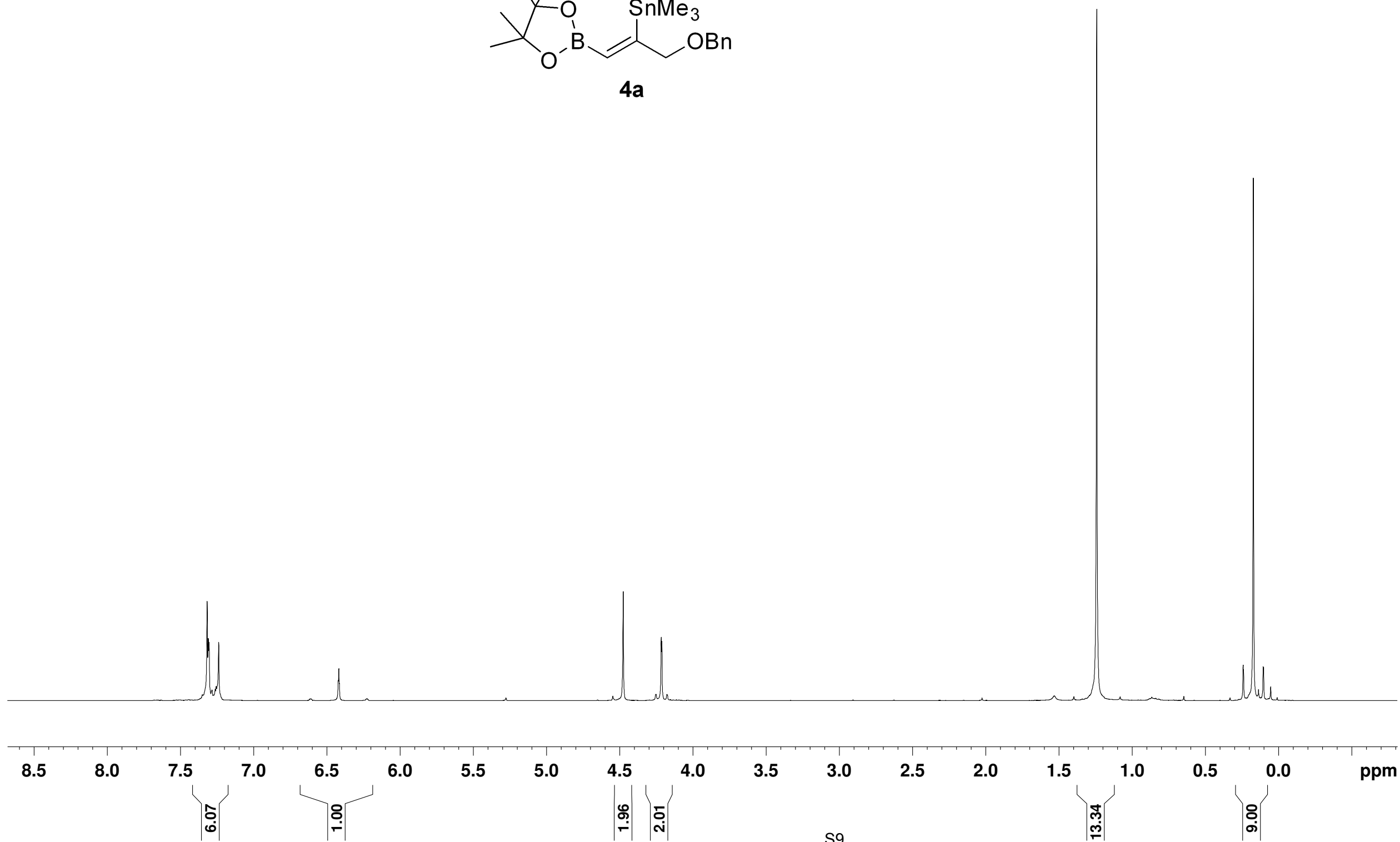


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6.419

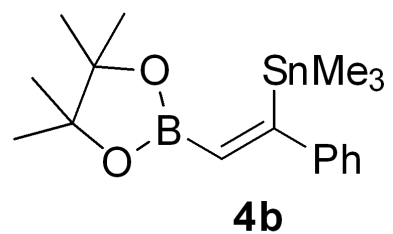
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4.212
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1.292
1.241

0.241
0.239
0.172
0.136
0.104
0.102
0.053



7.280
7.276
7.262
7.240
7.174
7.171
7.156
7.037
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7.017
6.262



1.283
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0.090
0.055

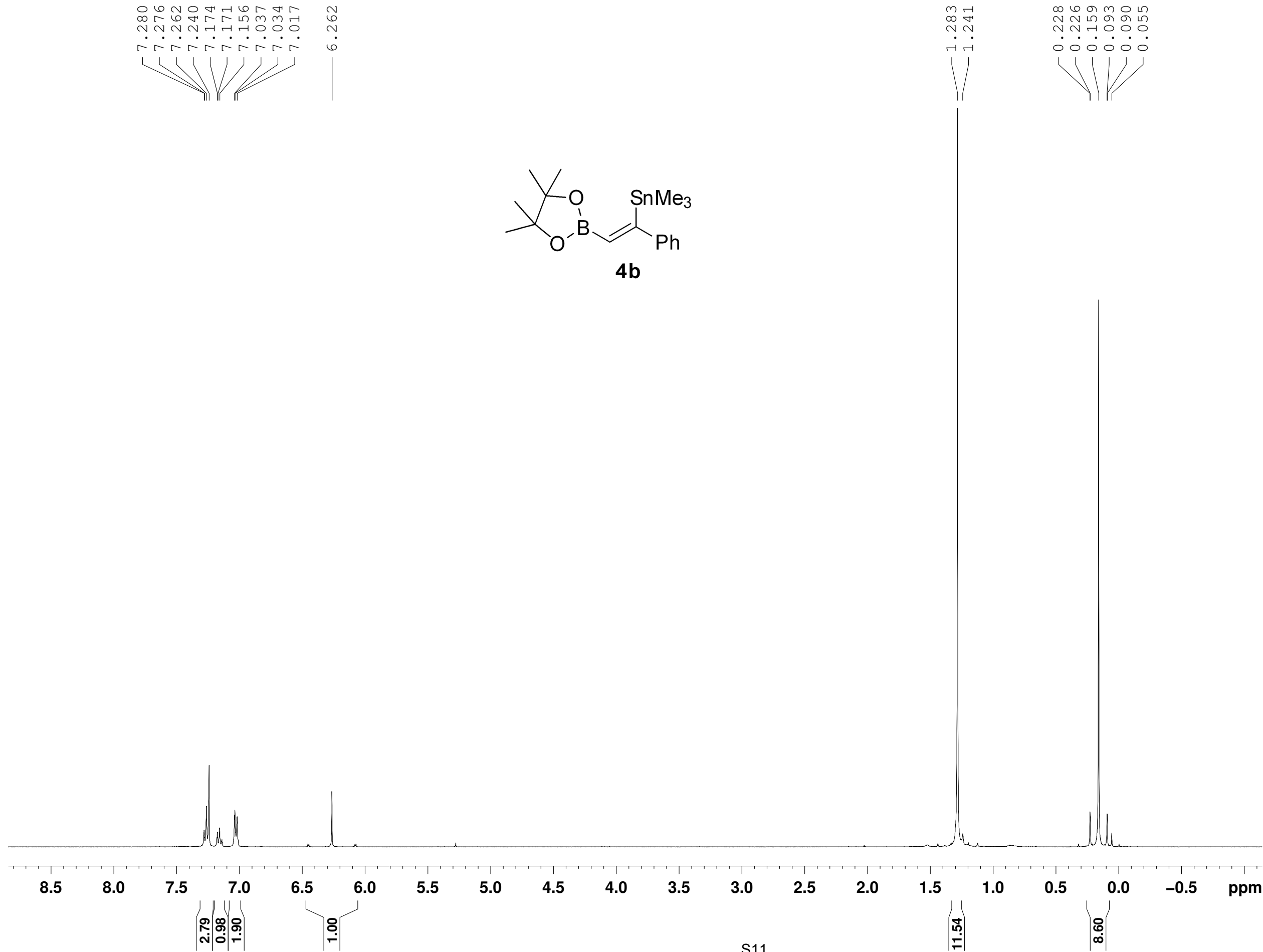
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400MHz - 0083

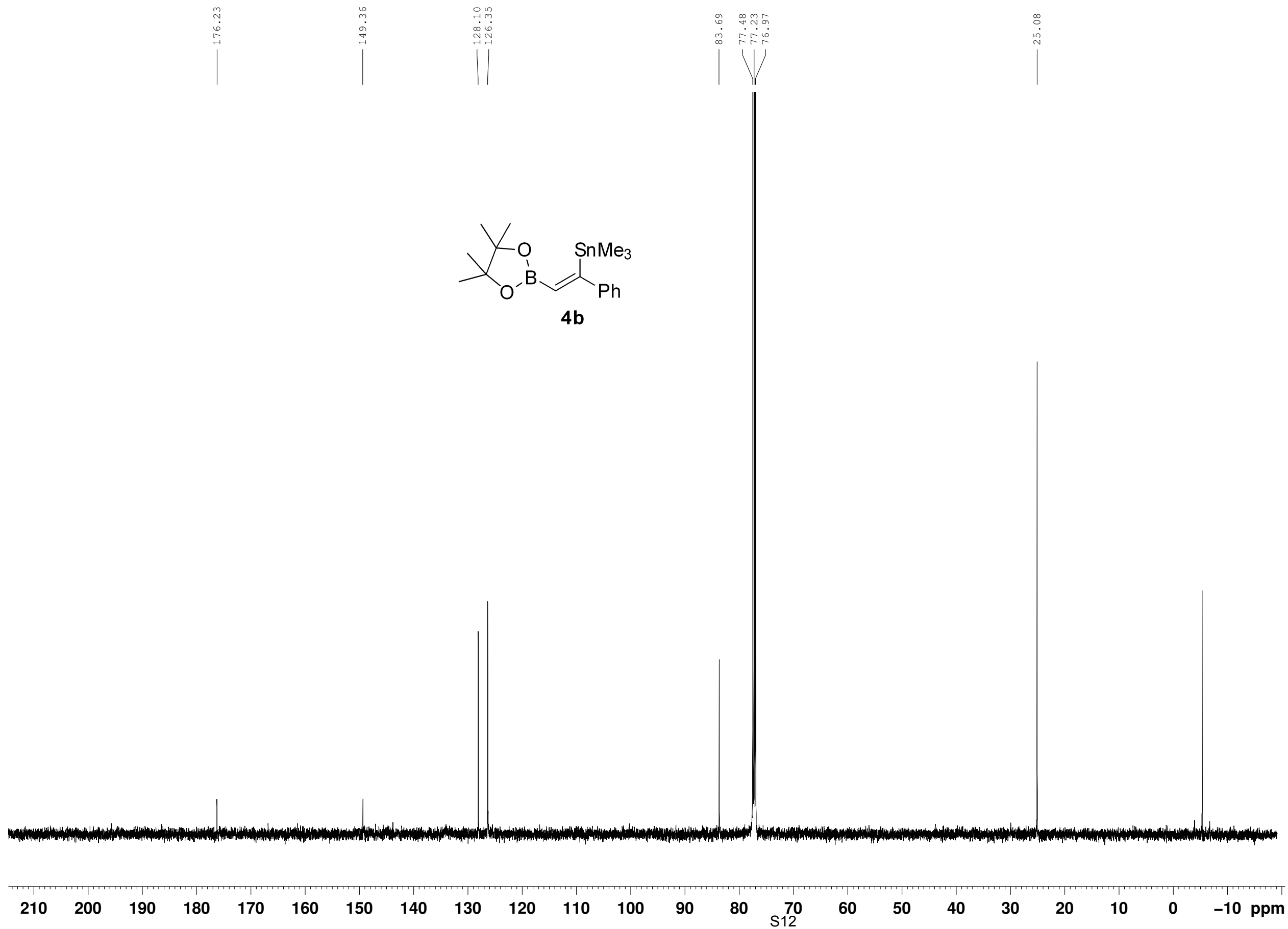
Current Data Parameters
NAME Rs-3-154
EXPNO 4
PROCNO 1

F2 - Acquisition Parameters
Date_ 20090203
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PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8278.146 Hz
FIDRES 0.126314 Hz
AQ 3.9584243 sec
RG 912.3
DW 60.400 use
DE 6.00 use
TE 300.2 K
D1 1.00000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

==== CHANNEL f1 =====
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P1 13.00 use
PL1 0.00 dB
SFO1 400.1324710 MHz

F2 - Processing parameters
SI 32768
SF 400.1300176 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00





Current Data Parameters
 NAME Rs-3-154
 EXPNO 4
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20090204
 Time 7.32
 INSTRUM spect
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 PULPROG zgpg30
 TD 65536
 SOLVENT CDC13
 NS 1097
 DS 4
 SWH 30030.029 Hz
 FIDRES 0.458222 Hz
 AQ 1.0912244 sec
 RG 6502
 DW 16.650 usec
 DE 12.00 usec
 TE 300.2 K
 D1 2.0000000 sec
 d11 0.03000000 sec
 DELTA 1.89999998 sec
 MCREST 0.00000000 sec
 MCWRK 0.01500000 sec

==== CHANNEL f1 =====
 NUC1 13C
 P1 12.00 usec
 PL1 3.00 dB
 SFO1 125.7427020 MHz

==== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 100.00 usec
 PL2 -1.00 dB
 PL12 15.59 dB
 PL13 22.50 dB
 SFO2 500.0220001 MHz

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

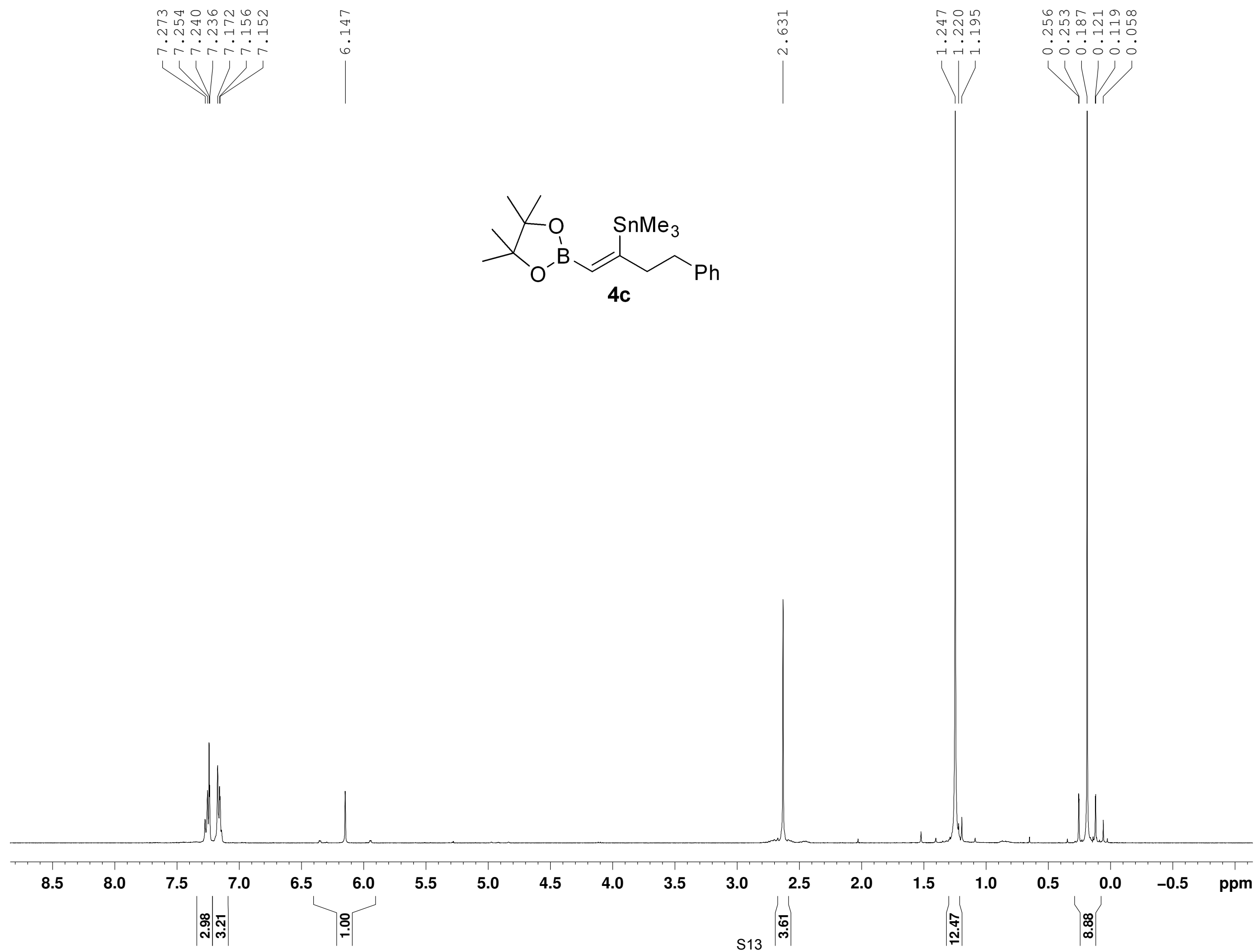
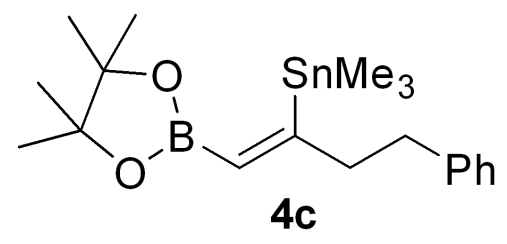
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Current Data Parameters
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EXPNO 1
PROCNO 1

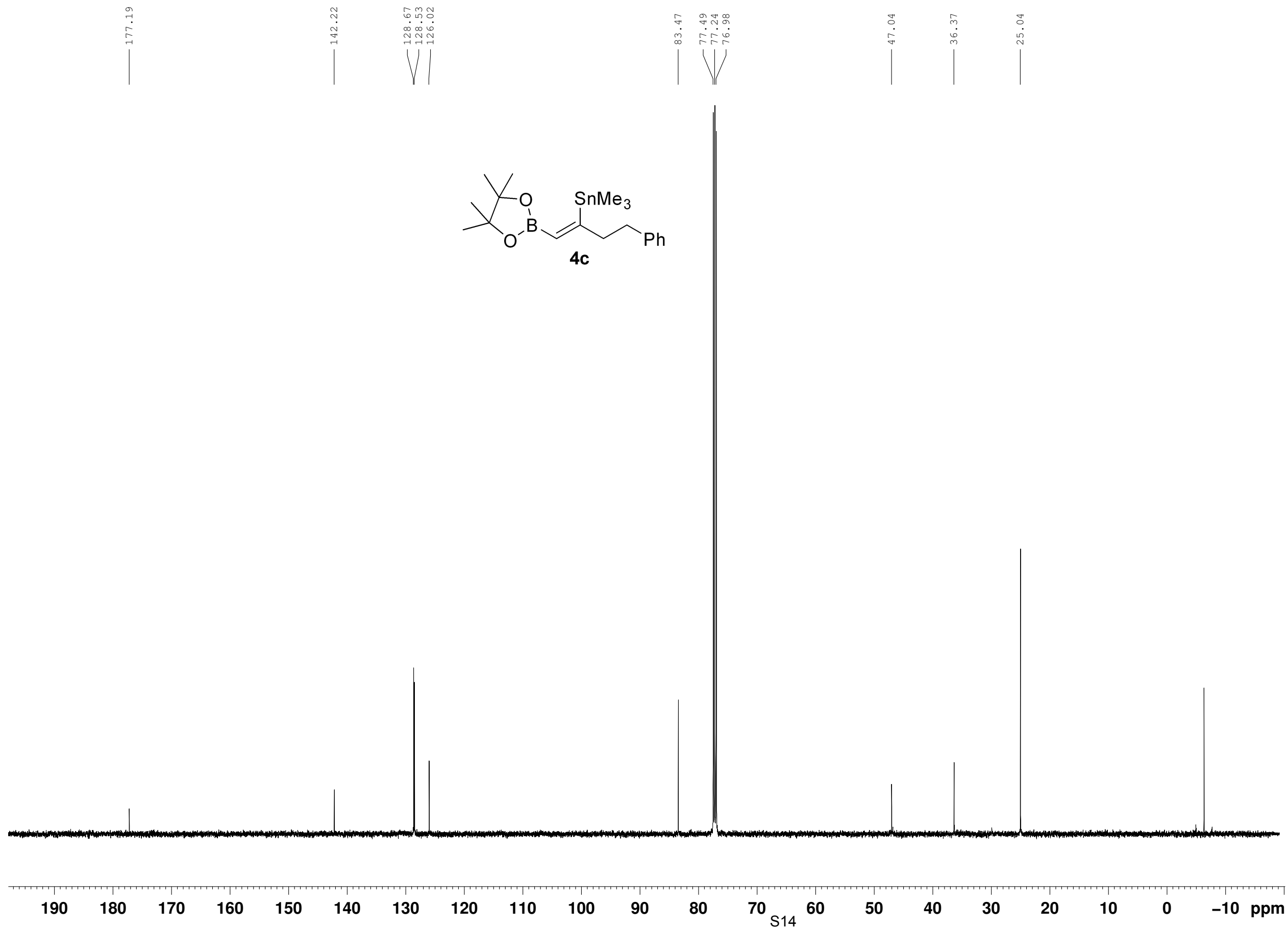
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PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8278.146 Hz
FIDRES 0.126314 Hz
AQ 3.9584243 sec
RG 645.1
DW 60.400 use
DE 6.00 use
TE 300.2 K
D1 1.00000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

==== CHANNEL f1 =====
NUC1 1H
P1 13.00 use
PL1 0.00 dB
SFO1 400.1324710 MHz

F2 - Processing parameters
SI 32768
SF 400.1300174 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



S13



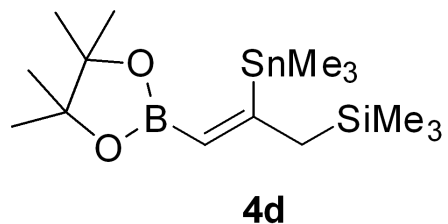
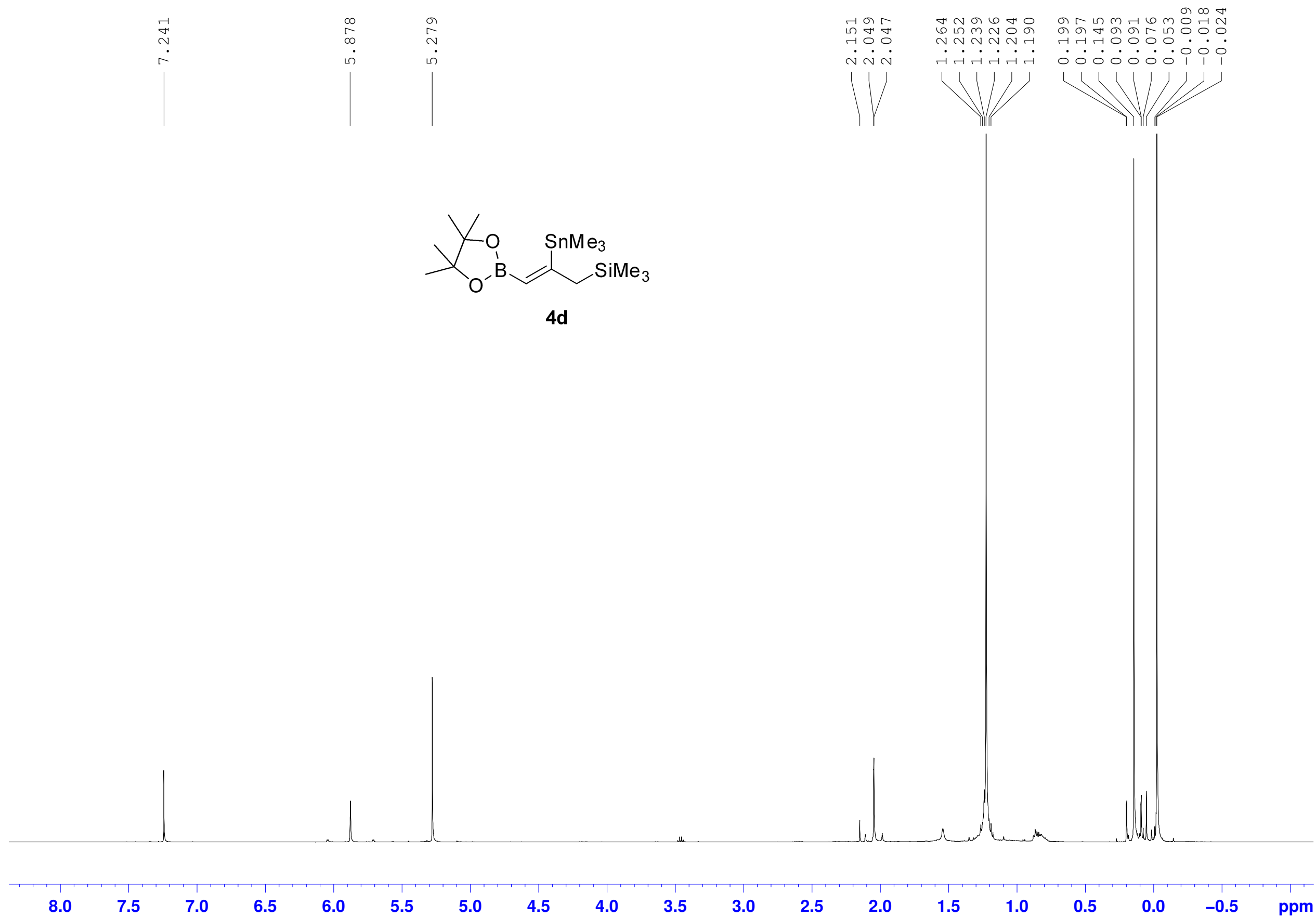
Current Data Parameters
 NAME Rs-3-155
 EXPNO 2
 PROCNO 1

F2 - Acquisition Parameters
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 Time 16.11
 INSTRUM spect
 PROBHD 5 mm Multinucl
 PULPROG zgpg30
 TD 65536
 SOLVENT CDC13
 NS 860
 DS 4
 SWH 30030.029 Hz
 FIDRES 0.458222 Hz
 AQ 1.0912244 sec
 RG 13004
 DW 16.650 usec
 DE 12.00 usec
 TE 300.2 K
 D1 2.0000000 sec
 d11 0.03000000 sec
 DELTA 1.89999998 sec
 MCREST 0.00000000 sec
 MCWRK 0.01500000 sec

==== CHANNEL f1 =====
 NUC1 13C
 P1 12.00 usec
 PL1 3.00 dB
 SFO1 125.7427020 MHz

==== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 100.00 usec
 PL2 -1.00 dB
 PL12 15.59 dB
 PL13 22.50 dB
 SFO2 500.0220001 MHz

F2 - Processing parameters
 SI 32768
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 WDW EM
 SSB 0
 LB 1.00 Hz
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 PC 1.40

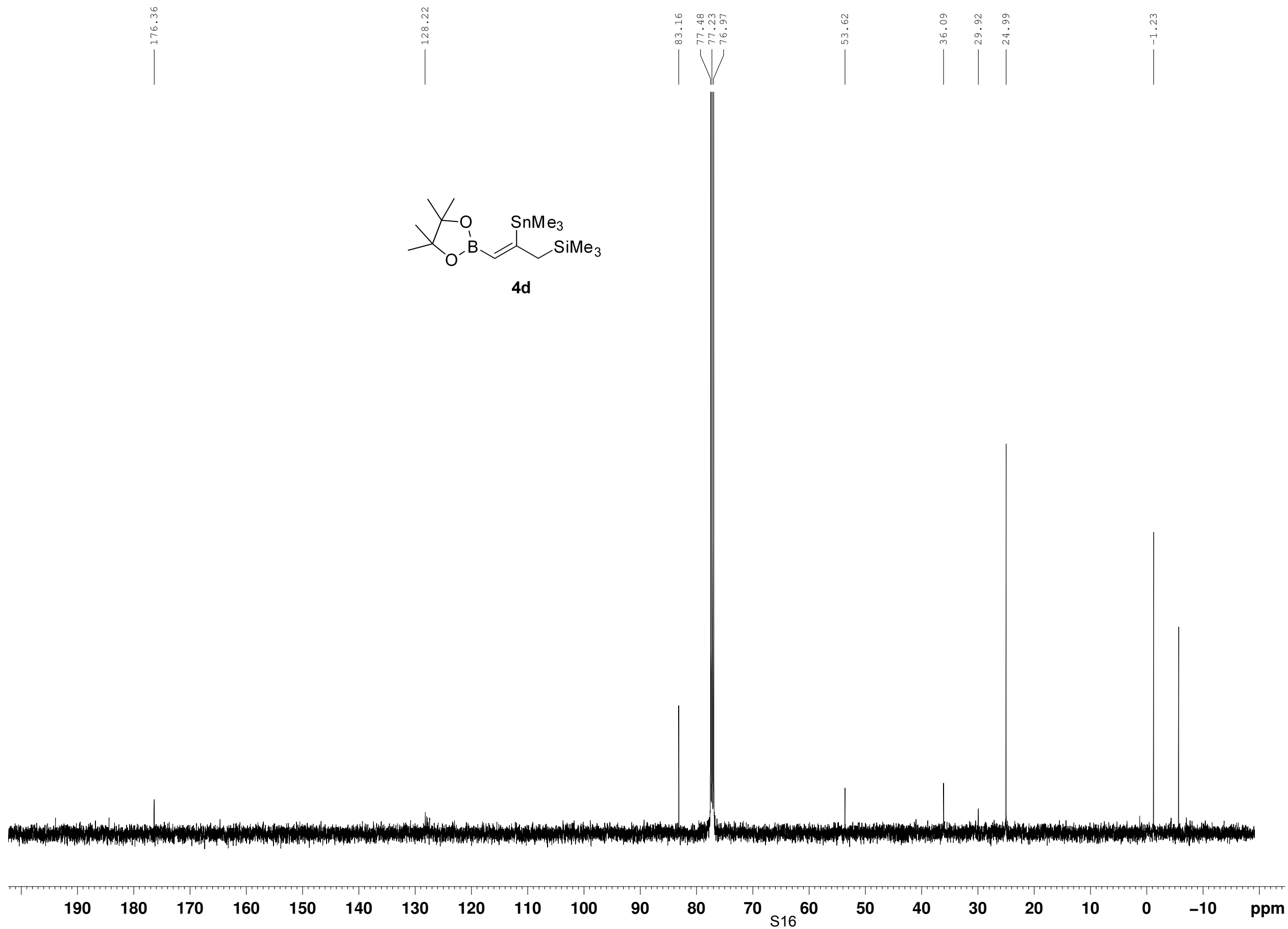
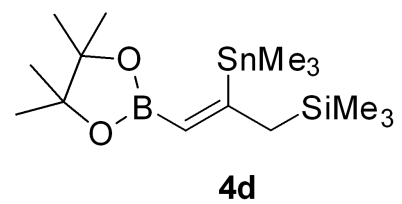


Current Data Parameters
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 EXPNO 2
 PROCNO 1

F2 - Acquisition Parameters
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 Time 11.09
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 PULPROG zg30
 TD 65536
 SOLVENT CDC13
 NS 16
 DS 2
 SWH 10330.578 Hz
 FIDRES 0.157632 Hz
 AQ 3.1719923 sec
 RG 256
 DW 48.400 usec
 DE 6.00 usec
 TE 300.2 K
 D1 1.00000000 sec
 MCREST 0.00000000 sec
 MCWRK 0.01500000 sec

==== CHANNEL f1 =====
 NUC1 1H
 P1 14.80 usec
 PL1 -1.00 dB
 SFO1 500.0230878 MHz

F2 - Processing parameters
 SI 32768
 SF 500.0200213 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00



Current Data Parameters
 NAME Rs-3-245C
 EXPNO 3
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20090418
 Time 11.16
 INSTRUM spect
 PROBHD 5 mm Multinucl
 PULPROG zgpg30
 TD 65536
 SOLVENT CDC13
 NS 614
 DS 4
 SWH 30030.029 Hz
 FIDRES 0.458222 Hz
 AQ 1.0912244 sec
 RG 3649.1
 DW 16.650 usec
 DE 12.00 usec
 TE 300.2 K
 D1 2.0000000 sec
 d11 0.03000000 sec
 DELTA 1.89999998 sec
 MCREST 0.00000000 sec
 MCWRK 0.01500000 sec

==== CHANNEL f1 =====
 NUC1 13C
 P1 12.00 usec
 PL1 3.00 dB
 SFO1 125.7427020 MHz

==== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 100.00 usec
 PL2 -1.00 dB
 PL12 15.59 dB
 PL13 22.50 dB
 SFO2 500.0220001 MHz

F2 - Processing parameters
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 SF 125.7301014 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40

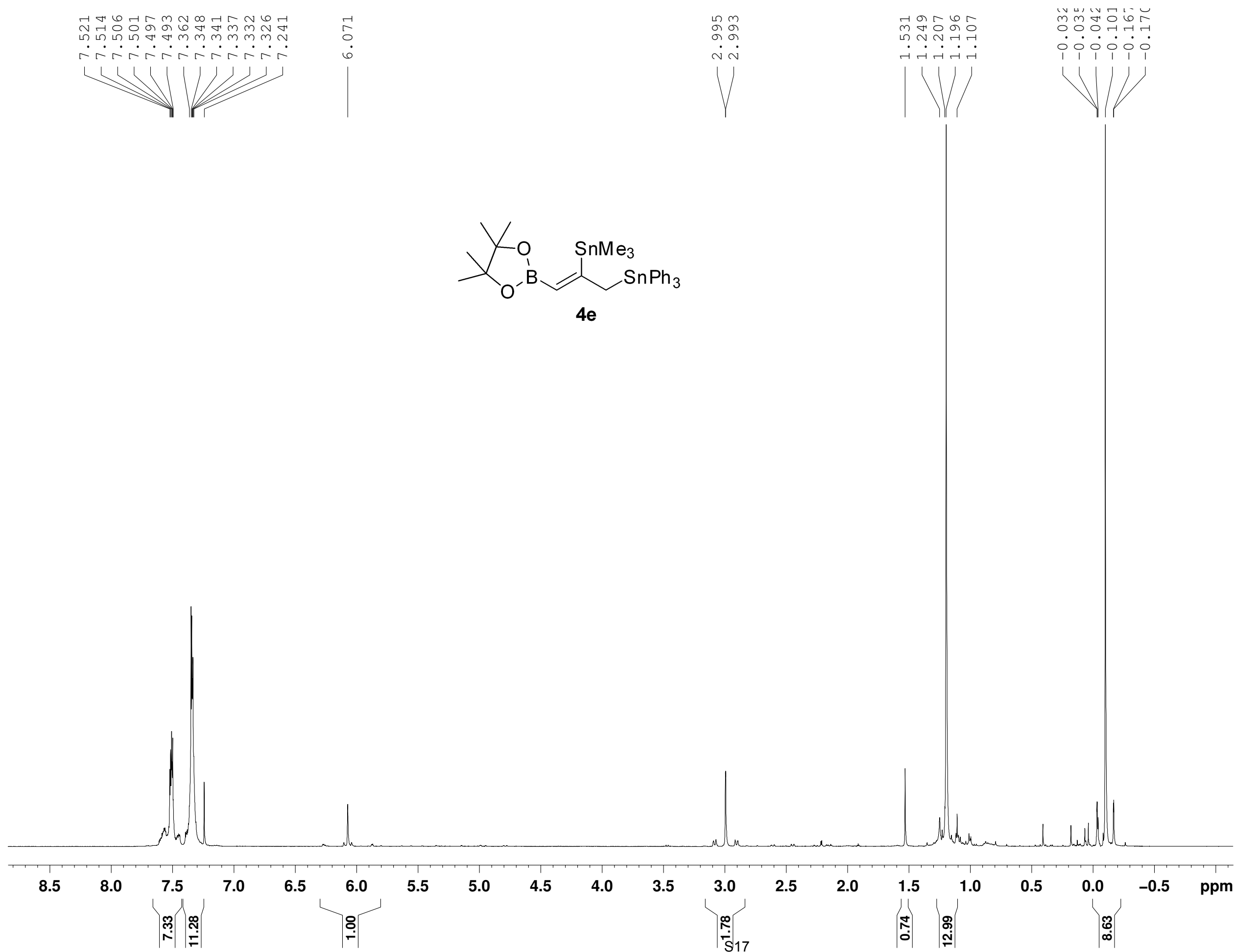
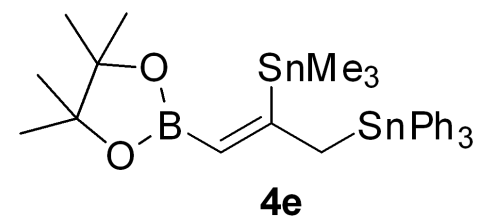
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Current Data Parameters
NAME Rs-3-250
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
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INSTRUM spect
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PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8278.146 Hz
FIDRES 0.126314 Hz
AQ 3.9584243 sec
RG 128
DW 60.400 use
DE 6.00 use
TE 299.2 K
D1 1.00000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

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NUC1 1H
P1 13.00 use
PL1 0.00 dB
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F2 - Processing parameters
SI 32768
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GB 0
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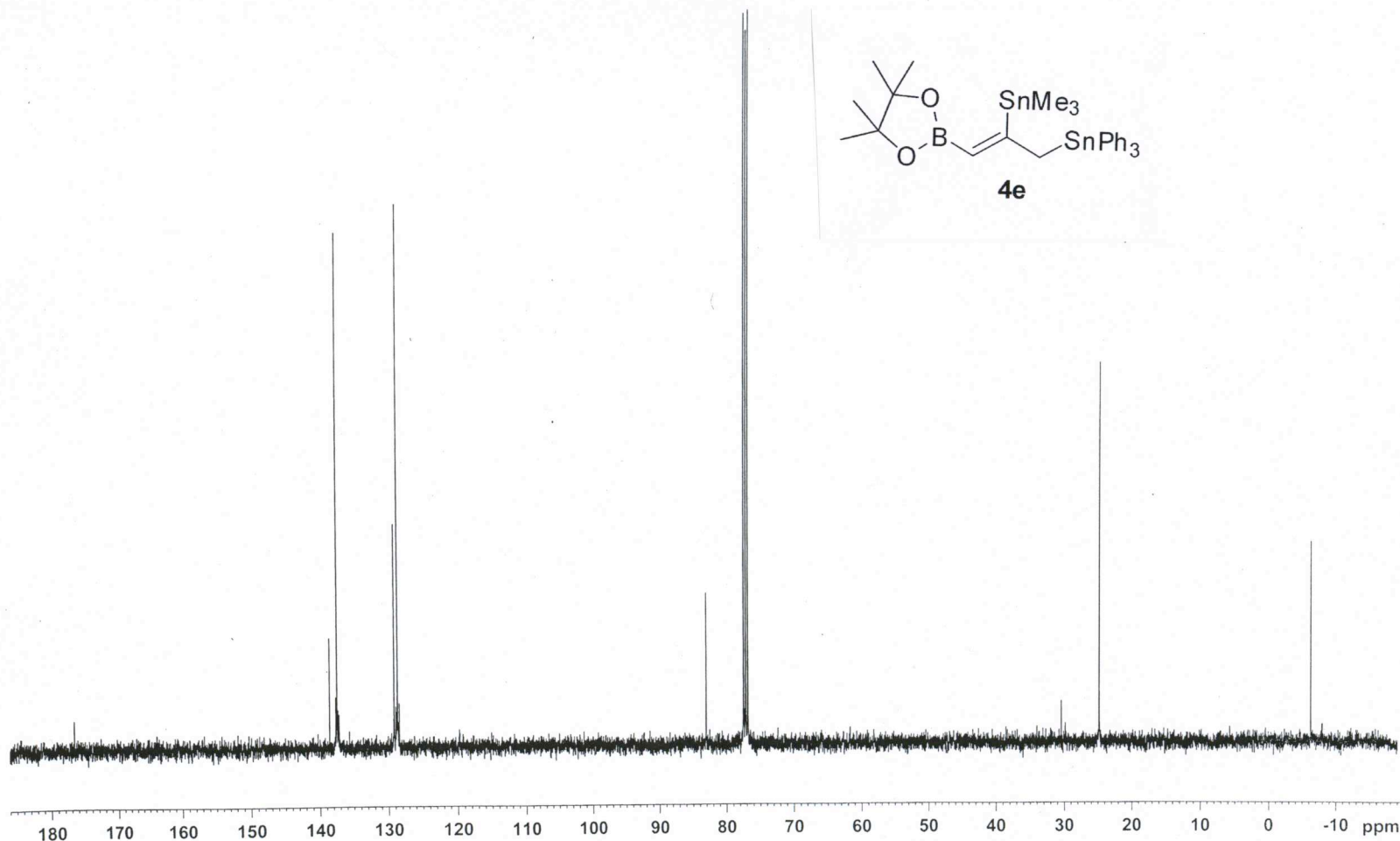


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128.68
128.43

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77.33
76.92

30.51
24.90



Current Data Parameters
NAME Rs-3-250
EXPNO 2
PROCNO 1

F2 - Acquisition Parameters
Date_ 20090420
Time 11.10
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 211
DS 4
SWH 23980.814 Hz
FIDRES 0.365918 Hz
AQ 1.3664756 sec
RG 7298.2
DW 20.850 usec
DE 6.00 usec
TE 299.2 K
D1 2.00000000 sec
d11 0.03000000 sec
DELTA 1.89999998 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

===== CHANNEL f1 =====
NUC1 * 13C
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PL1 0.00 dB
SFO1 100.6228298 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 -6.00 dB
PL12 14.56 dB
PL13 16.50 dB
SFO2 400.1316005 MHz

F2 - Processing parameters
SI 32768
SF 100.6127483 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.00

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3.439

2.029
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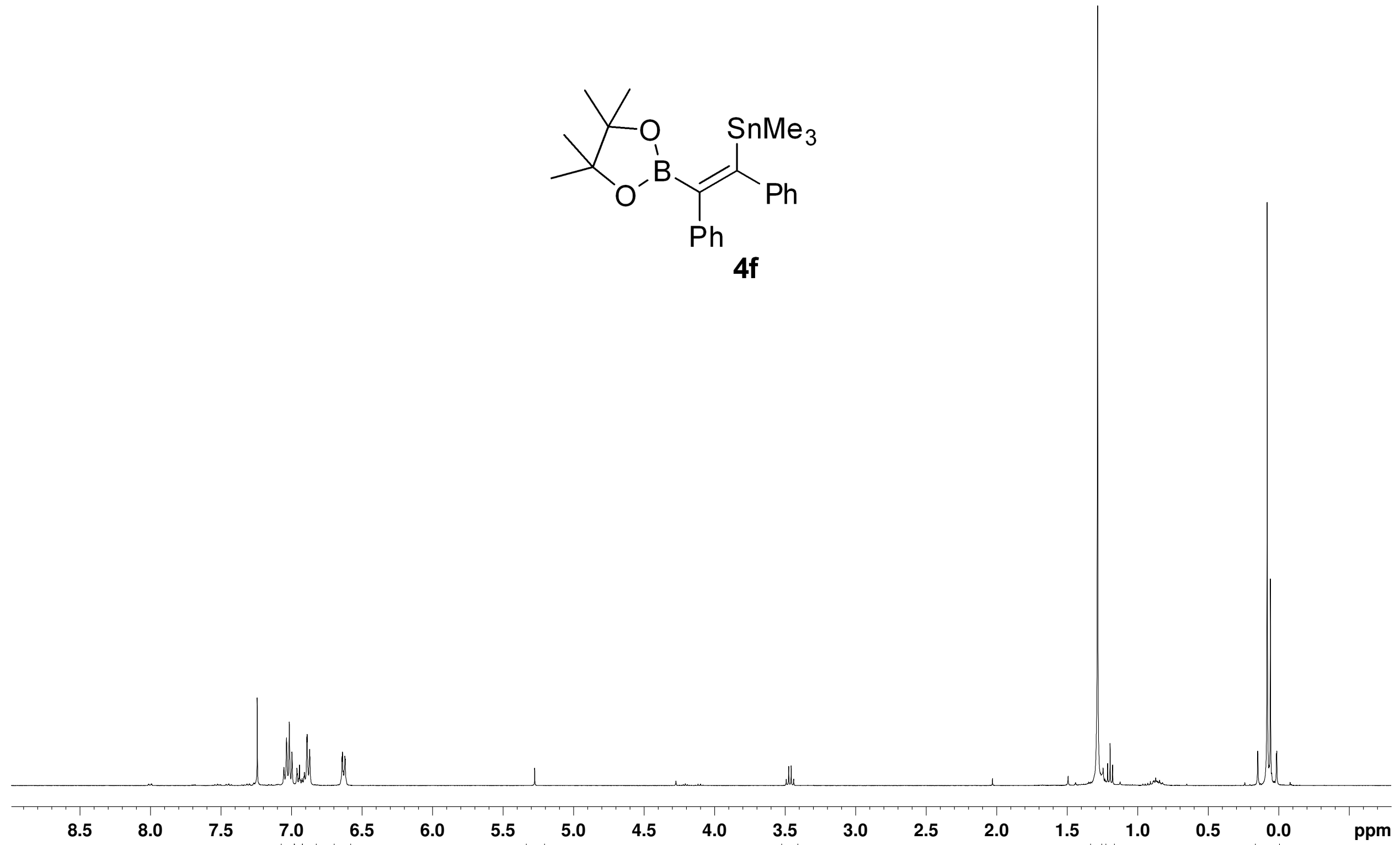
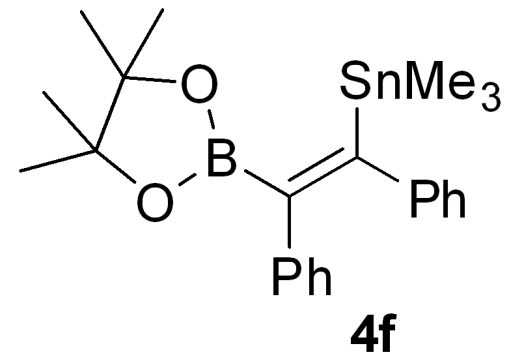
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Current Data Parameters
NAME Rs-3-158
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
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Time 21.18
INSTRUM spect
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PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8278.146 Hz
FIDRES 0.126314 Hz
AQ 3.9584243 sec
RG 724.1
DW 60.400 use
DE 6.00 use
TE 300.2 K
D1 1.00000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

==== CHANNEL f1 =====
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P1 13.00 use
PL1 0.00 dB
SFO1 400.1324710 MHz

F2 - Processing parameters
SI 32768
SF 400.1300171 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



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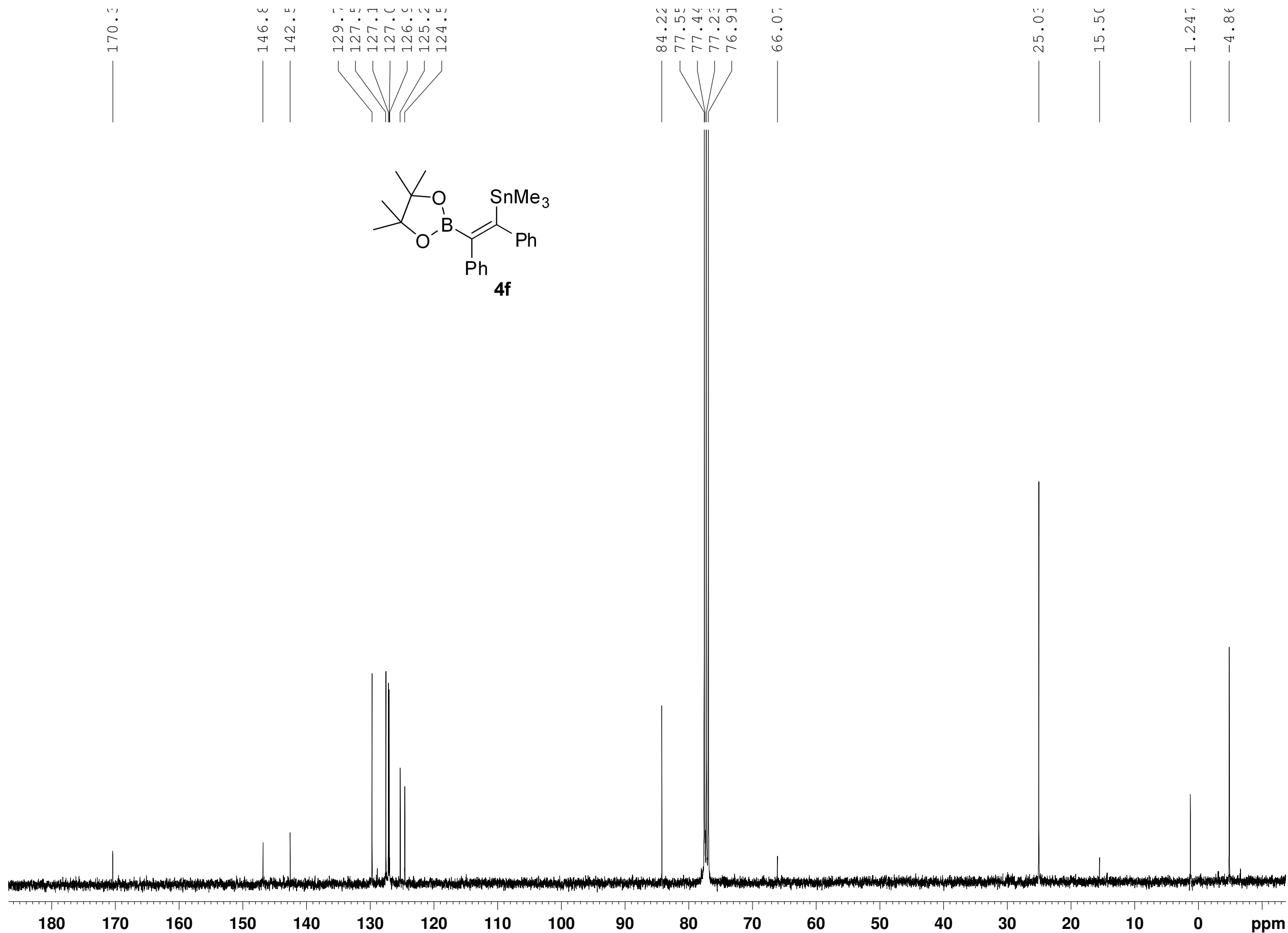
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EXPNO 2
PROCNO 1

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PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 1412
DS 4
SWH 23980.814 Hz
FIDRES 0.365918 Hz
AQ 1.3664756 sec
RG 18390.4
DW 20.850 use
DE 6.00 use
TE 300.2 K
D1 2.00000000 sec
d11 0.03000000 sec
DELTA 1.89999998 sec
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SFO1 100.6228298 MHz

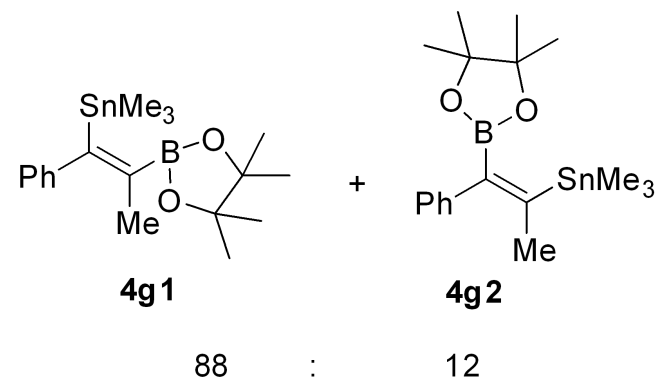
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PL12 14.56 dB
PL13 16.50 dB
SFO2 400.1316005 MHz

F2 - Processing parameters
SI 32768
SF 100.6127469 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40



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7.239
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7.067
7.052
6.787
6.784
6.770

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1.971
1.889
1.654
1.644
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1.513
1.296
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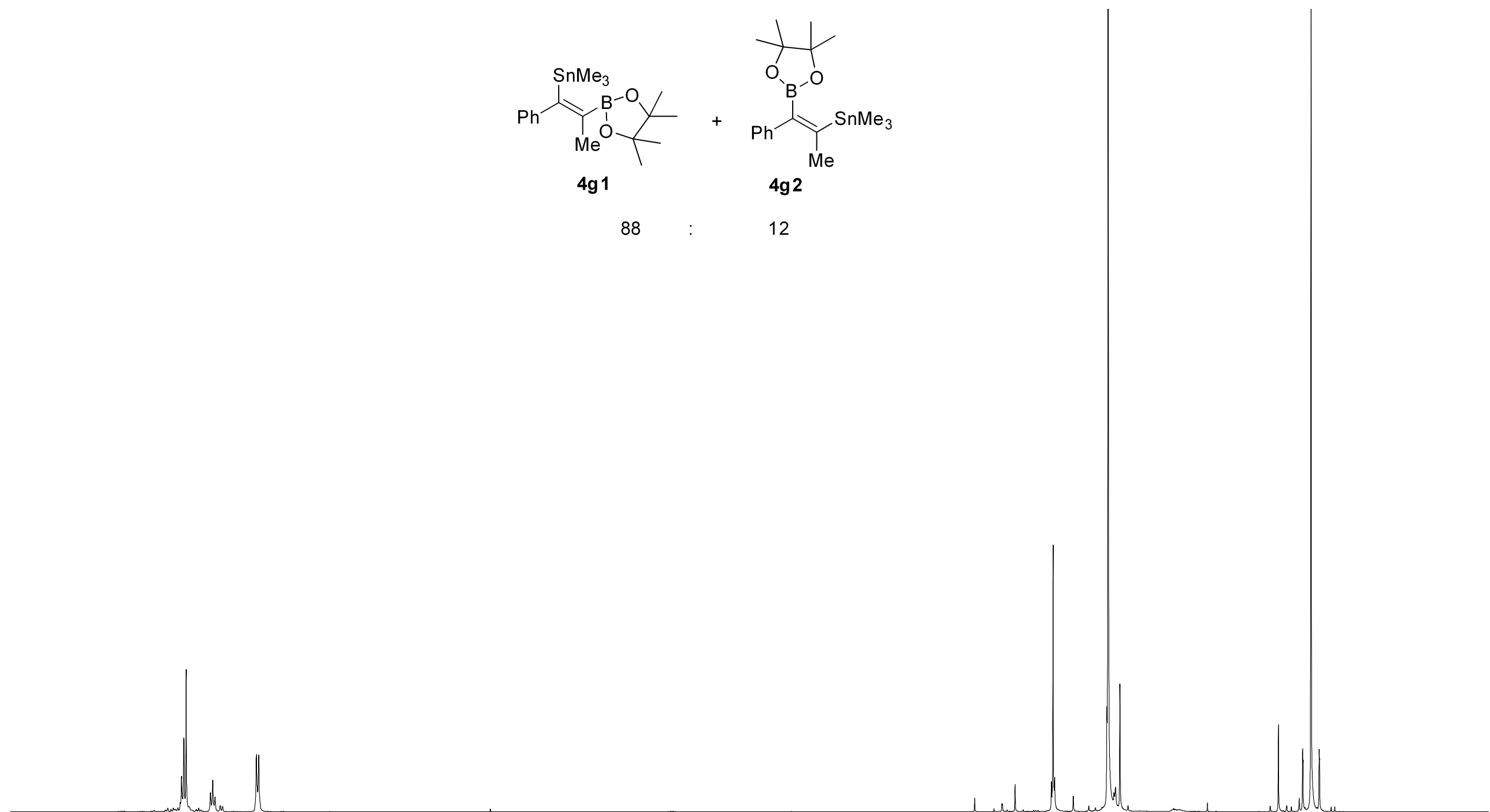


Current Data Parameters
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EXPNO 1
PROCNO 1

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TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 10330.578 Hz
FIDRES 0.157632 Hz
AQ 3.1719923 sec
RG 287.4
DW 48.400 usec
DE 6.00 usec
TE 300.2 K
D1 1.00000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

==== CHANNEL f1 =====
NUC1 1H
P1 14.80 usec
PL1 -1.00 dB
SFO1 500.0230878 MHz

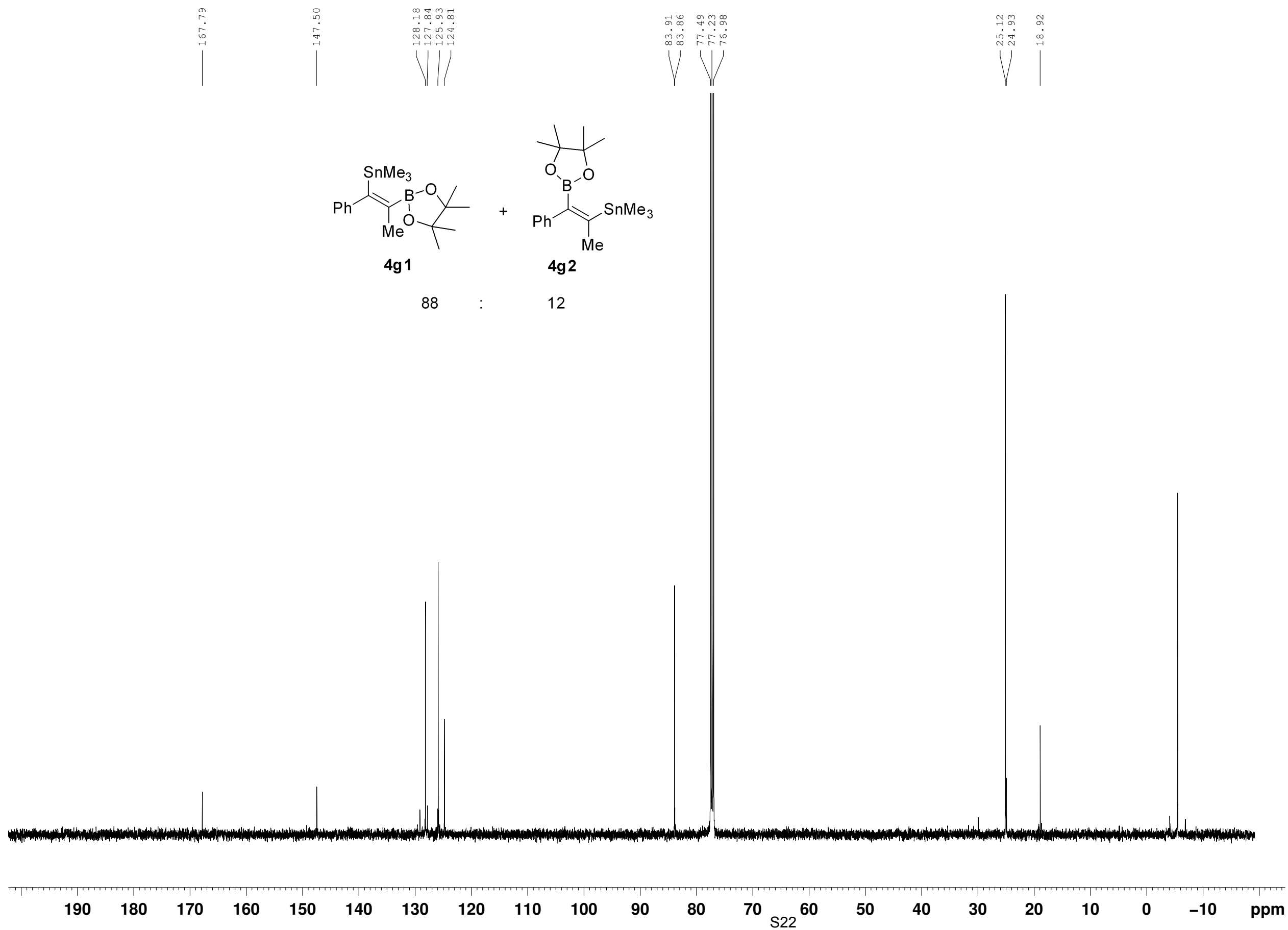
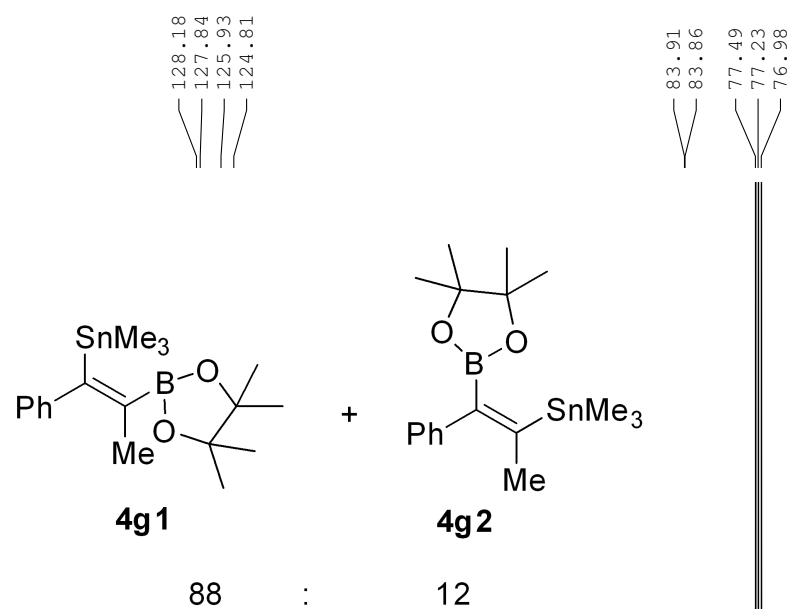
F2 - Processing parameters
SI 32768
SF 500.0200222 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



3.00
0.11
1.00
0.18
1.99

0.08
0.15
0.27
3.12
13.19
1.20

0.83
9.27



Current Data Parameters
 NAME Rs-3-162
 EXPNO 3
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20090205
 Time 14.18
 INSTRUM spect
 PROBHD 5 mm Multinucl
 PULPROG zgpg30
 TD 65536
 SOLVENT CDC13
 NS 1284
 DS 4
 SWH 30030.029 Hz
 FIDRES 0.458222 Hz
 AQ 1.0912244 sec
 RG 6502
 DW 16.650 usec
 DE 12.00 usec
 TE 300.2 K
 D1 2.0000000 sec
 d11 0.03000000 sec
 DELTA 1.89999998 sec
 MCREST 0.00000000 sec
 MCWRK 0.01500000 sec

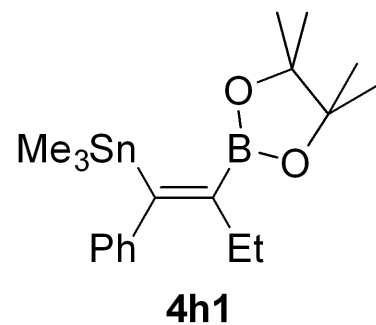
==== CHANNEL f1 =====
 NUC1 13C
 P1 12.00 usec
 PL1 3.00 dB
 SFO1 125.7427020 MHz

==== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 100.00 usec
 PL2 -1.00 dB
 PL12 15.59 dB
 PL13 22.50 dB
 SFO2 500.0220001 MHz

F2 - Processing parameters
 SI 32768
 SF 125.7301014 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.00

7.252
7.249
7.240
7.237
7.221
7.077
7.075
7.072
7.060
7.047
7.045
7.043
6.788
6.785
6.781
6.778
6.771
6.769

2.051
2.036
2.031
2.026
2.022
2.007
1.511
1.324
1.284
1.256
1.242
1.228
0.868
0.853
0.838
0.017
0.014
0.002
-0.038
-0.090
-0.092



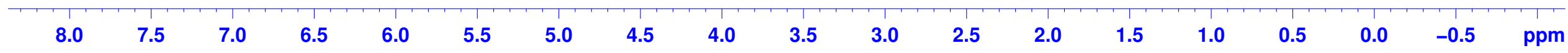
```

Current Data Parameters
NAME          Rs-3-198A
EXPNO         1
PROCNO       1

F2 - Acquisition Parameters
Date_        20090302
Time         14.37
INSTRUM      spect
PROBHD       5 mm Multinucl
PULPROG      zg30
TD           65536
SOLVENT      CDC13
NS           16
DS           2
SWH          10330.578 Hz
FIDRES       0.157632 Hz
AQ           3.1719923 sec
RG           228.1
DW           48.400 usec
DE           6.00 usec
TE           300.2 K
D1           1.00000000 sec
MCREST       0.00000000 sec
MCWRK        0.01500000 sec

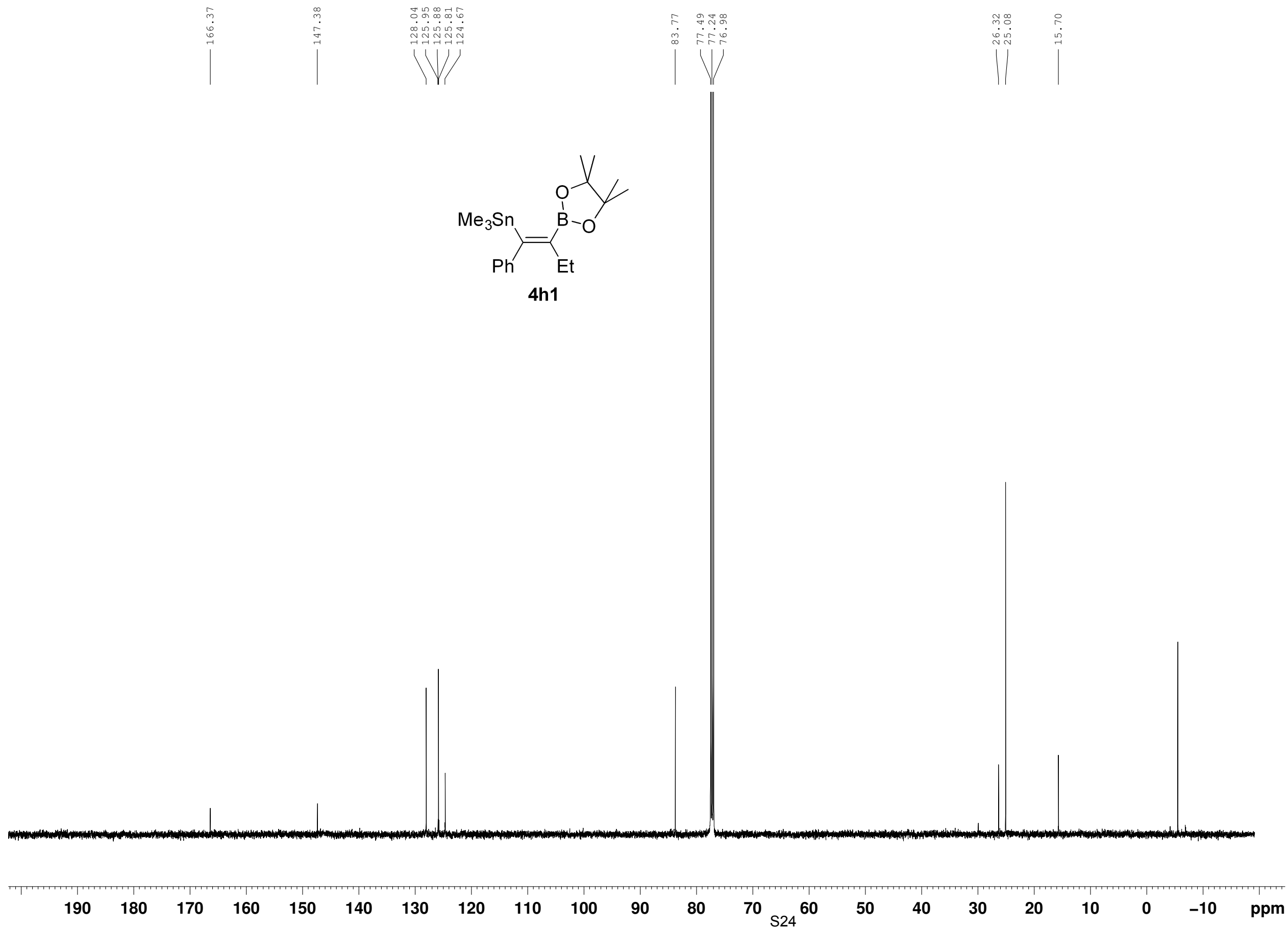
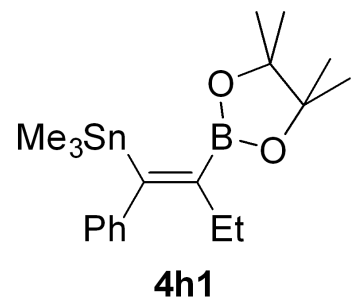
===== CHANNEL f1 =====
NUC1         1H
P1           14.80 usec
PL1          -1.00 dB
SFO1         500.0230878 MHz

F2 - Processing parameters
SI           32768
SF           500.0200216 MHz
WDW          EM
SSB          0
LB           0.30 Hz
GB           0
PC           1.00
  
```



2.47
1.00
1.98

2.16
12.67
3.85
9.17



Current Data Parameters
 NAME Rs-3-198A
 EXPNO 2
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20090302
 Time 15.39
 INSTRUM spect
 PROBHD 5 mm Multinucl
 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl3
 NS 870
 DS 4
 SWH 30030.029 Hz
 FIDRES 0.458222 Hz
 AQ 1.0912244 sec
 RG 2580.3
 DW 16.650 usec
 DE 12.00 usec
 TE 300.2 K
 D1 2.0000000 sec
 d11 0.03000000 sec
 DELTA 1.89999998 sec
 MCREST 0.00000000 sec
 MCWRK 0.01500000 sec

==== CHANNEL f1 =====
 NUC1 13C
 P1 12.00 usec
 PL1 3.00 dB
 SFO1 125.7427020 MHz

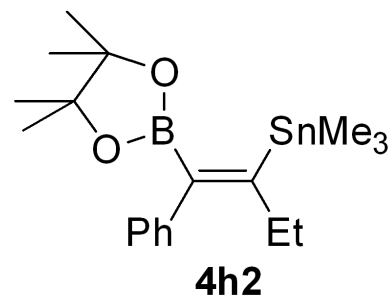
==== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 100.00 usec
 PL2 -1.00 dB
 PL12 15.59 dB
 PL13 22.50 dB
 SFO2 500.0220001 MHz

F2 - Processing parameters
 SI 32768
 SF 125.7301005 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.00

7.311
7.307
7.301
7.279
7.264
7.249
7.240
7.183
7.174
7.159
7.001
6.998
6.985

5.278

2.379
2.364
2.205
2.190
2.025
1.504
1.295
1.283
1.254
1.253
1.248
1.240
1.226
1.200
1.093
1.078
1.063
0.813
0.798
0.783
0.248
0.246
0.194
0.142
0.140
0.052
-0.040



Current Data Parameters
 NAME Rs-3-198B
 EXPNO 1
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20090302
 Time 14.47
 INSTRUM spect
 PROBHD 5 mm Multinucl
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 16
 DS 2
 SWH 10330.578 Hz
 FIDRES 0.157632 Hz
 AQ 3.1719923 sec
 RG 724.1
 DW 48.400 usec
 DE 6.00 usec
 TE 300.2 K
 D1 1.00000000 sec
 MCREST 0.00000000 sec
 MCWRK 0.01500000 sec

==== CHANNEL f1 =====
 NUC1 1H
 P1 14.80 usec
 PL1 -1.00 dB
 SFO1 500.0230878 MHz

F2 - Processing parameters
 SI 32768
 SF 500.0200216 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0 -0.5 ppm

0.94
1.09
0.79
1.00

0.51
1.12

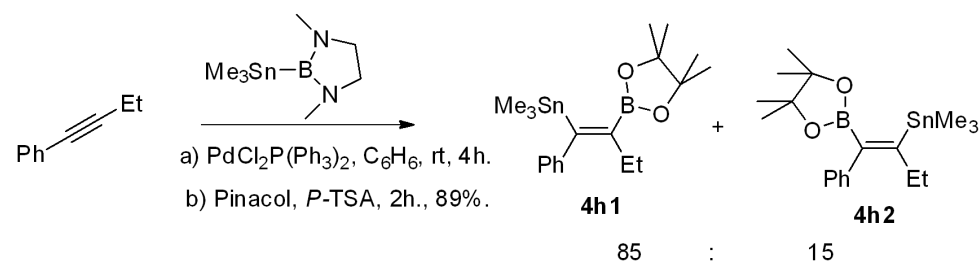
3.38
6.46
0.96

1.74

4.69

7.282
7.267
7.253
7.240
7.222
7.187
7.176
7.161
7.078
7.075
7.073
7.061
7.048
7.046
7.004
7.002
6.988
6.789
6.786
6.782
6.772

2.383
2.368
2.224
2.209
2.194
2.179
2.053
2.038
2.032
2.023
2.008
1.508
1.410
1.325
1.297
1.285
1.257
1.254
1.243
1.228
1.202
1.157
1.097
1.082
1.067
0.869
0.855
0.840
0.816
0.801
0.786
0.251
0.249
0.197
0.146
0.143
0.090
0.056
0.018

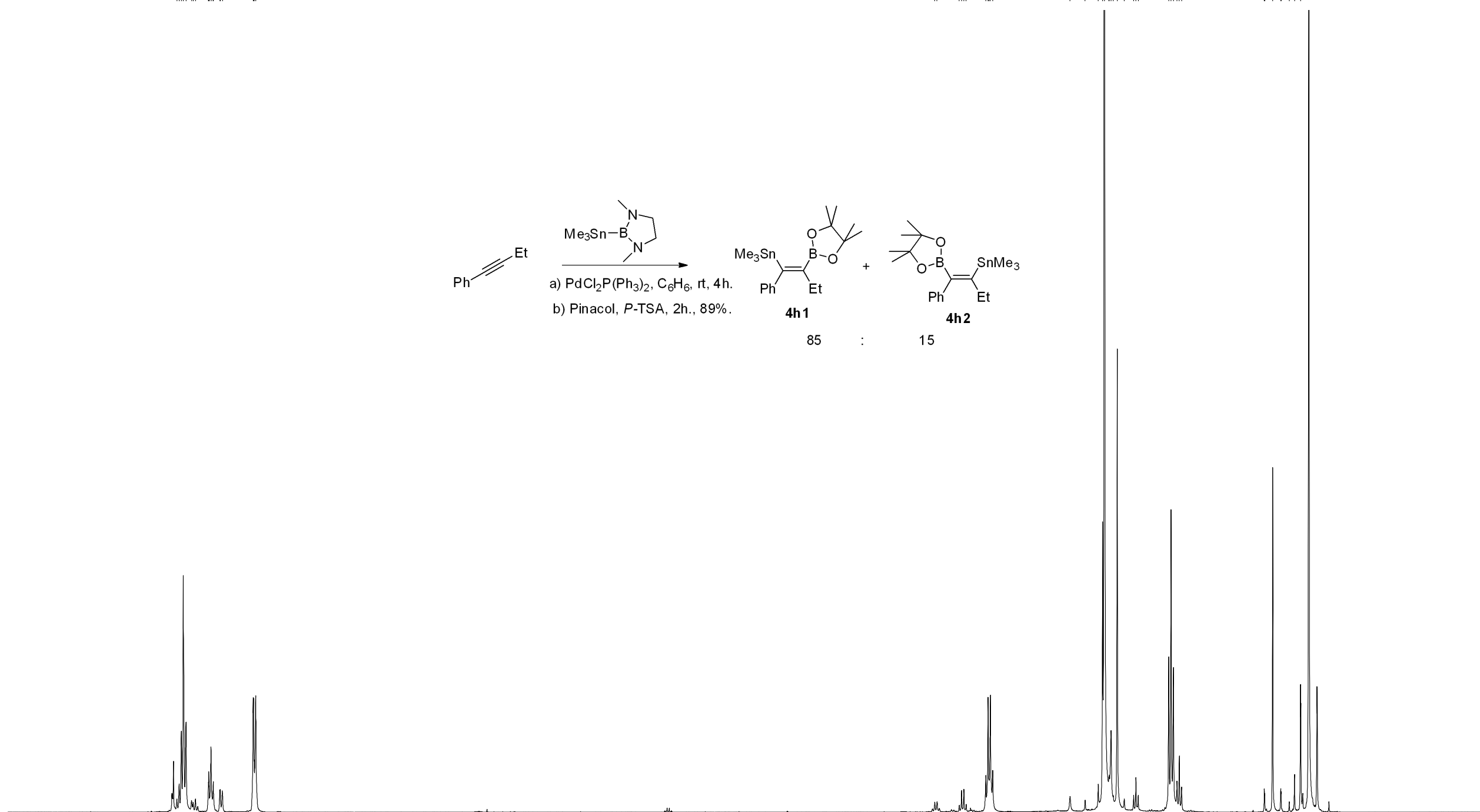


Current Data Parameters
NAME Rs-3-198P
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 20090302
Time 11.09
INSTRUM spect
PROBHD 5 mm Multinucl
PULPROG zg30
TD 65536
SOLVENT CDC13
NS 16
DS 2
SWH 10330.578 Hz
FIDRES 0.157632 Hz
AQ 3.1719923 sec
RG 203.2
DW 48.400 usec
DE 6.00 usec
TE 300.2 K
D1 1.00000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

==== CHANNEL f1 =====
NUC1 1H
P1 14.80 usec
PL1 -1.00 dB
SFO1 500.0230878 MHz

F2 - Processing parameters
SI 32768
SF 500.0200213 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0 -0.5 ppm

0.31
2.95
0.26
1.00
0.32
1.98

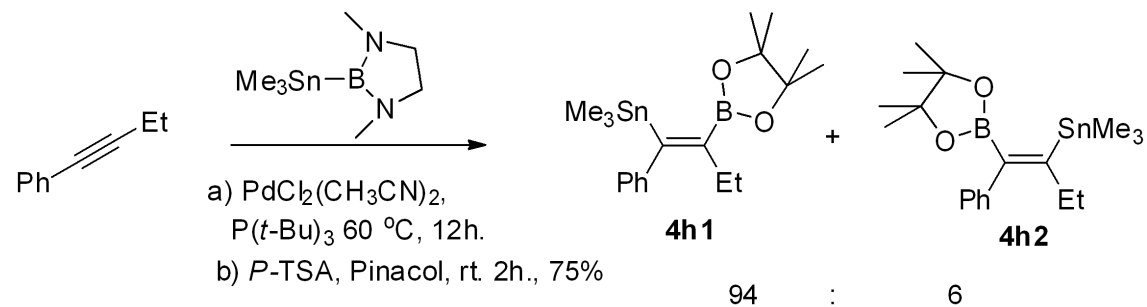
0.17
0.35
2.17

13.81
1.11
2.33
0.34
3.42
0.66

1.57
0.19
9.30

7.281
7.266
7.253
7.240
7.222
7.187
7.176
7.161
7.075
7.060
7.045
7.004
6.987
6.788
6.786
6.772

3.336
2.620
2.595
2.383
2.368
2.209
2.194
2.151
2.053
2.038
2.023
2.008
1.417
1.410
1.384
1.359
1.323
1.315
1.297
1.285
1.254
1.243
1.225
1.202
1.178
1.157
1.097
1.082
1.067
0.981
0.967
0.902
0.869
0.854
0.839
0.816
0.801
0.786
0.769
0.640
0.634
0.251
0.197

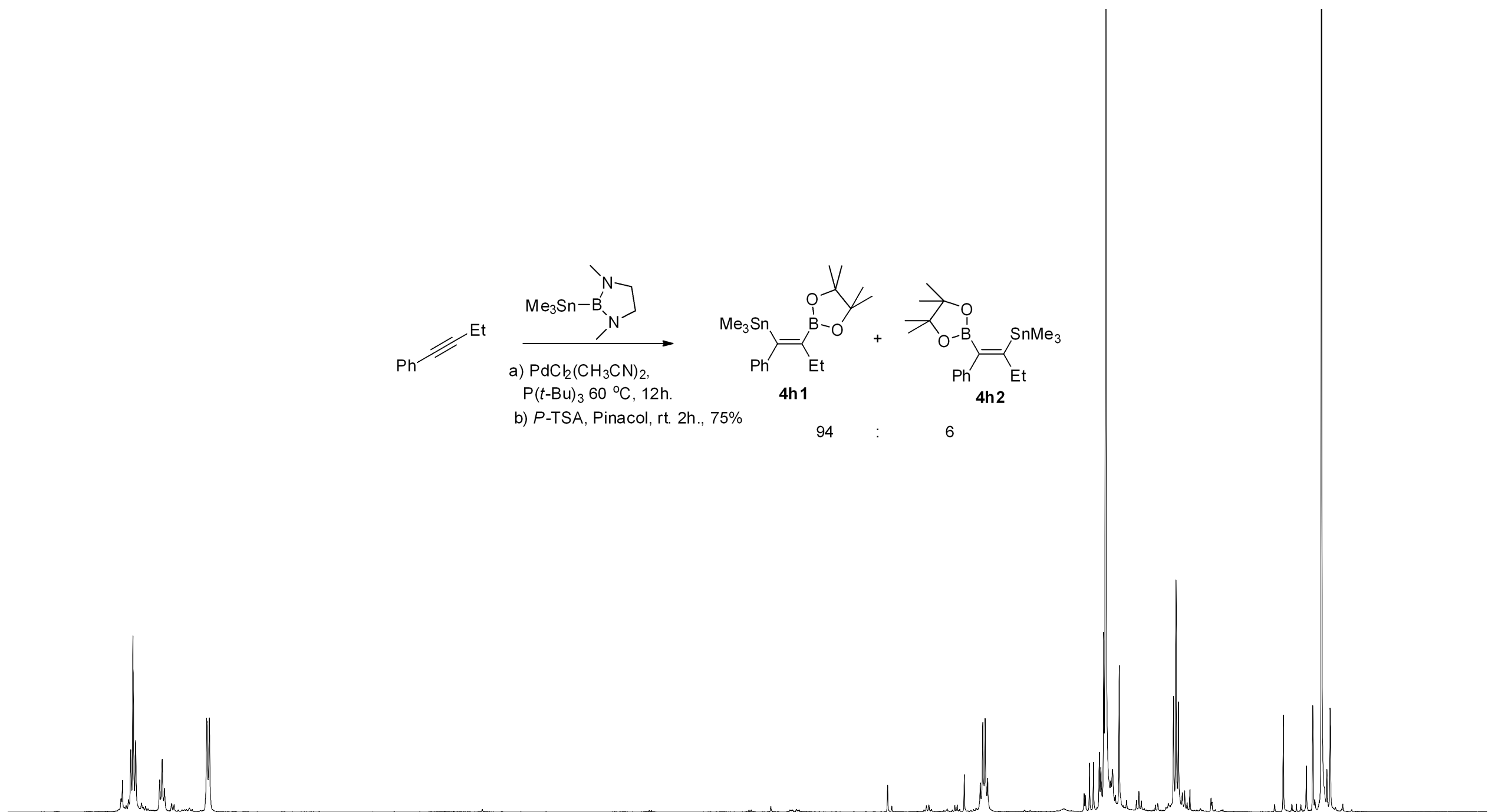


Current Data Parameters
NAME Rs-3-201C
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 20090304
Time 12.29
INSTRUM spect
PROBHD 5 mm Multinucl
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 10330.578 Hz
FIDRES 0.157632 Hz
AQ 3.1719923 sec
RG 203.2
DW 48.400 usec
DE 6.00 usec
TE 300.2 K
D1 1.00000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

==== CHANNEL f1 =====
NUC1 1H
P1 14.80 usec
PL1 -1.00 dB
SFO1 500.0230878 MHz

F2 - Processing parameters
SI 32768
SF 500.0200213 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



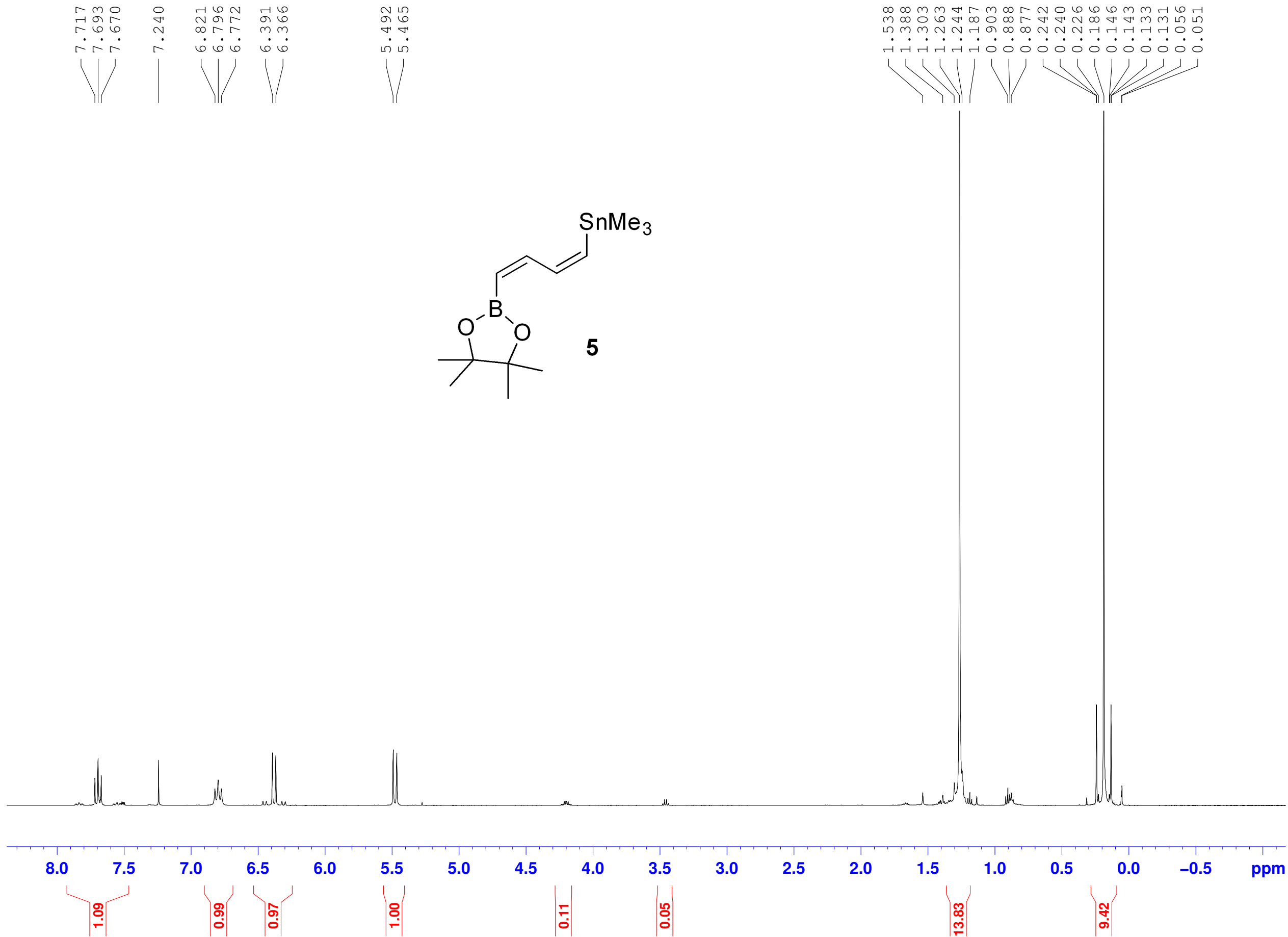
7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0 -0.5 ppm

0.37
2.66
1.00
0.14
1.85

0.12
0.10
2.04

0.21
0.56
14.17
1.02
0.29
3.17
0.37

0.58
0.28
8.94

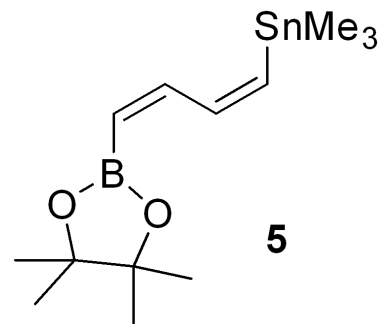


Current Data Parameters
 NAME Rs-3-227
 EXPNO 1
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20090321
 Time 11.16
 INSTRUM spect
 PROBHD 5 mm Multinucl
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 16
 DS 2
 SWH 10330.578 Hz
 FIDRES 0.157632 Hz
 AQ 3.1719923 sec
 RG 181
 DW 48.400 usec
 DE 6.00 usec
 TE 300.2 K
 D1 1.00000000 sec
 MCREST 0.00000000 sec
 MCWRK 0.01500000 sec

==== CHANNEL f1 =====
 NUC1 1H
 P1 14.80 usec
 PL1 -1.00 dB
 SFO1 500.0230878 MHz

F2 - Processing parameters
 SI 32768
 SF 500.0200210 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00



151.93
146.48
141.08

83.40
77.49
77.23
76.98

25.08

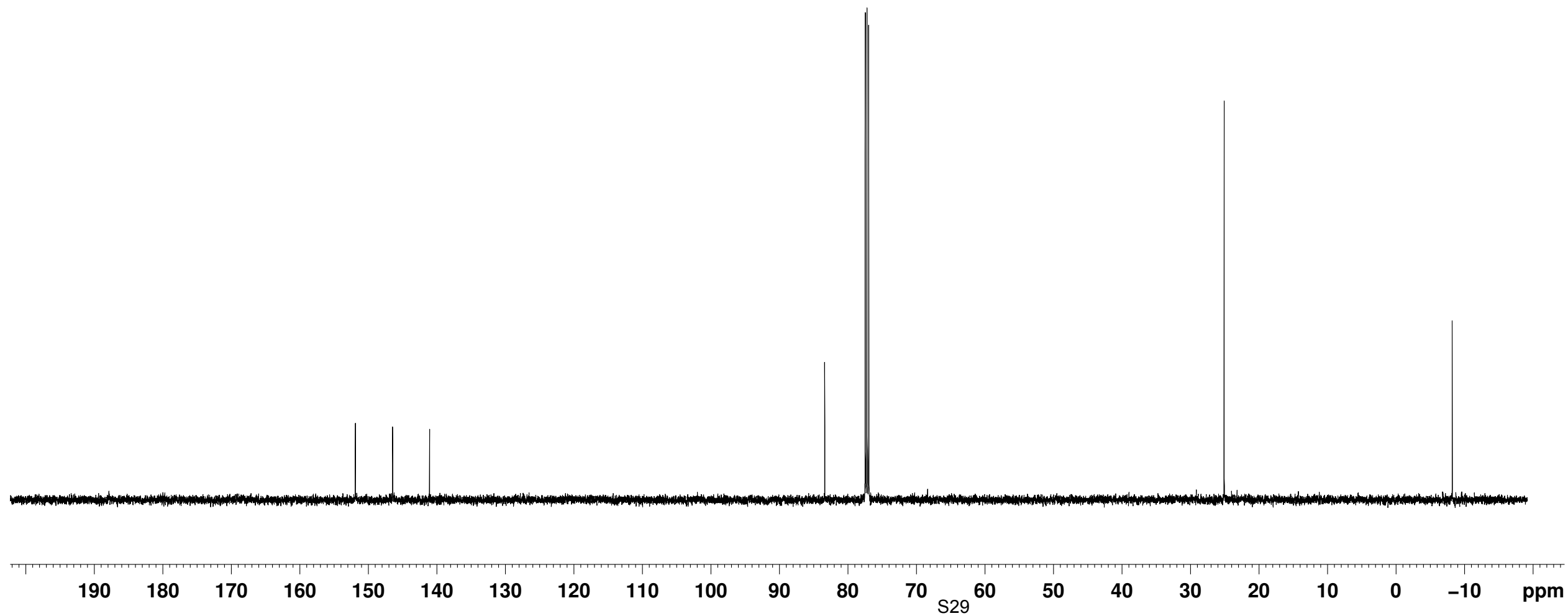
Current Data Parameters
NAME Rs-3-227
EXPNO 2
PROCNO 1

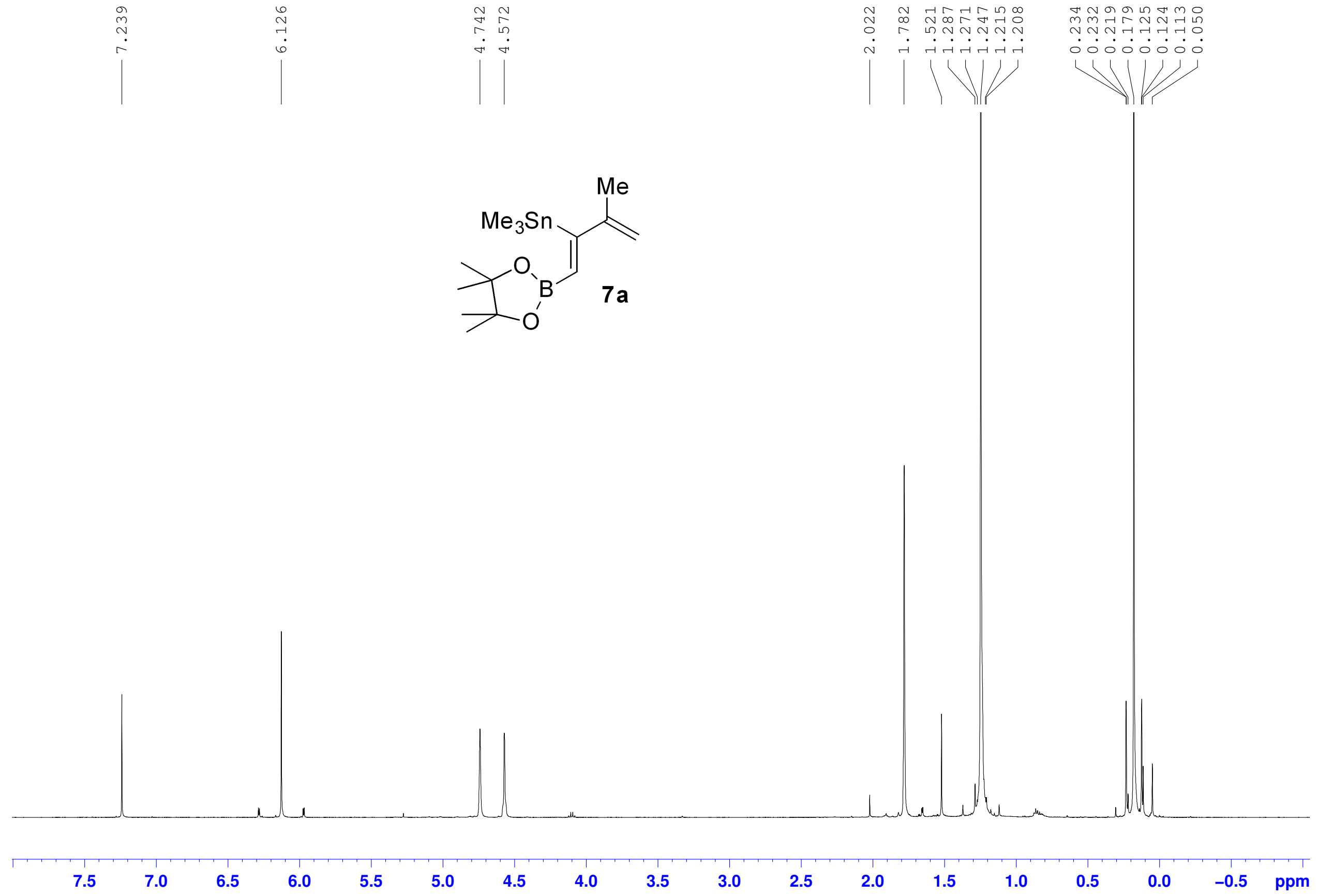
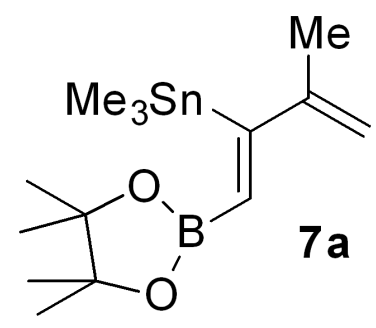
F2 - Acquisition Parameters
Date_ 20090321
Time 11.22
INSTRUM spect
PROBHD 5 mm Multinucl
PULPROG zgpg30
TD 65536
SOLVENT CDC13
NS 148
DS 4
SWH 30030.029 Hz
FIDRES 0.458222 Hz
AQ 1.0912244 sec
RG 4597.6
DW 16.650 usec
DE 12.00 usec
TE 300.2 K
D1 2.0000000 sec
d11 0.03000000 sec
DELTA 1.89999998 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

==== CHANNEL f1 =====
NUC1 13C
P1 12.00 usec
PL1 3.00 dB
SFO1 125.7427020 MHz

==== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 -1.00 dB
PL12 15.59 dB
PL13 22.50 dB
SFO2 500.0220001 MHz

F2 - Processing parameters
SI 32768
SF 125.7301014 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.00





7.239

6.126

4.742

4.572

2.022

1.782

1.521

1.287

1.271

1.247

1.215

1.208

0.234

0.232

0.219

0.179

0.125

0.124

0.113

0.050

```

Current Data Parameters
NAME          Rs-3-218P
EXPNO         1
PROCNO        1

F2 - Acquisition Parameters
Date_         20090318
Time          8.27
INSTRUM       spect
PROBHD        5 mm Multinucl
PULPROG       zg30
TD            65536
SOLVENT       CDC13
NS            16
DS            2
SWH           10330.578 Hz
FIDRES        0.157632 Hz
AQ            3.1719923 sec
RG            228.1
DW            48.400 usec
DE            6.00 usec
TE            300.2 K
D1            1.00000000 sec
MCREST        0.00000000 sec
MCWRK         0.01500000 sec

===== CHANNEL f1 =====
NUC1          1H
P1            14.80 usec
PL1           -1.00 dB
SFO1          500.0230878 MHz

F2 - Processing parameters
SI            32768
SF            500.0200219 MHz
WDW           EM
SSB           0
LB            0.30 Hz
GB            0
PC            1.00
  
```

0.86

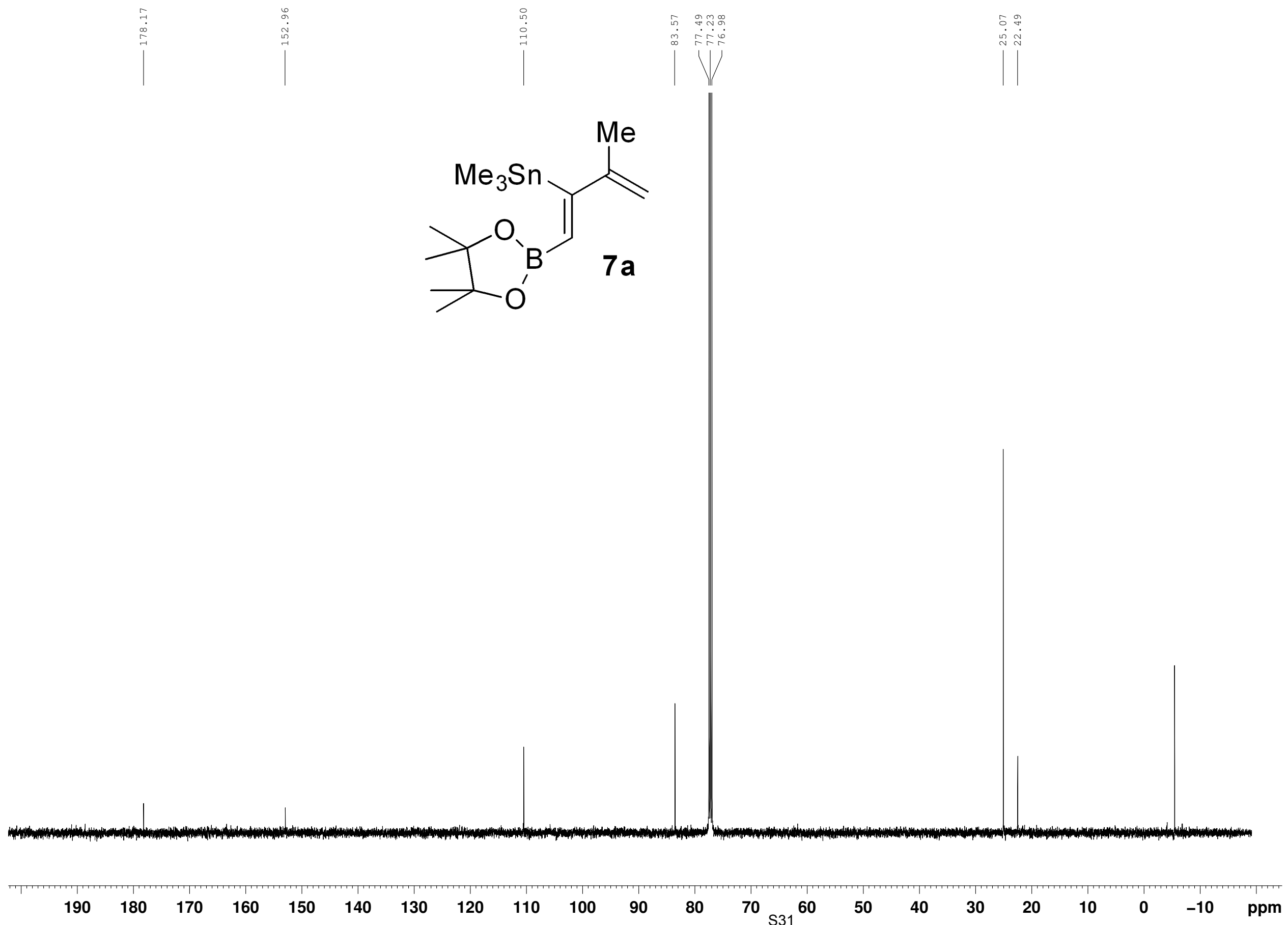
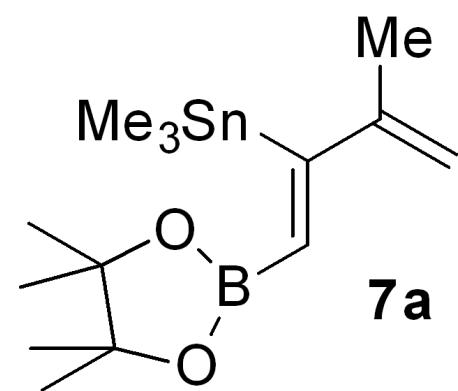
1.00

0.99

3.03

13.56

9.30



Current Data Parameters
 NAME Rs-3-218P
 EXPNO 2
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20090318
 Time 8.34
 INSTRUM spect
 PROBHD 5 mm Multinucl
 PULPROG zgpg30
 TD 65536
 SOLVENT CDC13
 NS 571
 DS 4
 SWH 30030.029 Hz
 FIDRES 0.458222 Hz
 AQ 1.0912244 sec
 RG 2580.3
 DW 16.650 usec
 DE 12.00 usec
 TE 300.2 K
 D1 2.0000000 sec
 d11 0.03000000 sec
 DELTA 1.89999998 sec
 MCREST 0.00000000 sec
 MCWRK 0.01500000 sec

==== CHANNEL f1 =====
 NUC1 13C
 P1 12.00 usec
 PL1 3.00 dB
 SFO1 125.7427020 MHz

==== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 100.00 usec
 PL2 -1.00 dB
 PL12 15.59 dB
 PL13 22.50 dB
 SFO2 500.0220001 MHz

F2 - Processing parameters
 SI 32768
 SF 125.7301005 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.00

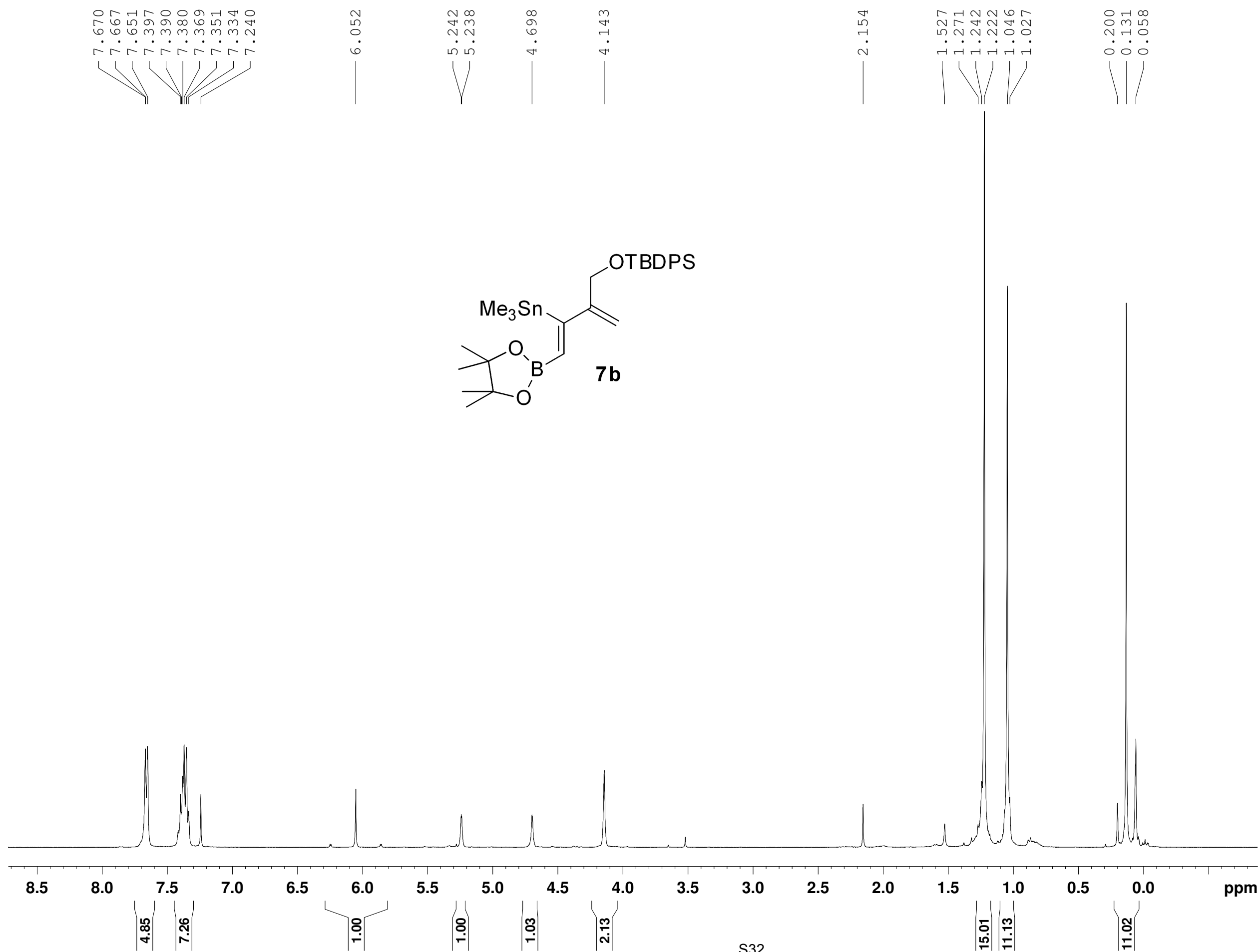
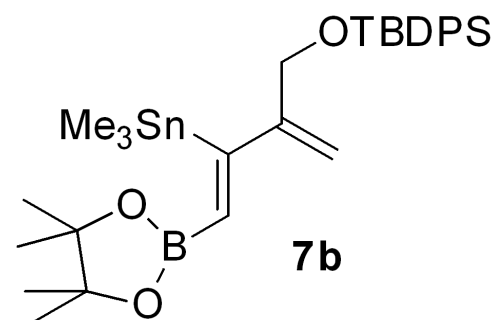
The Ohio State University
Department of Chemistry
NMR Facility
400MHz - 0083

Current Data Parameters
NAME Rs-3-248P
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 20090417
Time 13.38
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8278.146 Hz
FIDRES 0.126314 Hz
AQ 3.9584243 sec
RG 143.7
DW 60.400 use
DE 6.00 use
TE 299.2 K
D1 1.00000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

==== CHANNEL f1 =====
NUC1 1H
P1 13.00 use
PL1 0.00 dB
SFO1 400.1324710 MHz

F2 - Processing parameters
SI 32768
SF 400.1300174 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



The Ohio State University
 Department of Chemistry
 NMR Facility
 400MHz - 0083

Current Data Parameters
 NAME Rs-3-248P
 EXPNO 2
 PROCNO 1

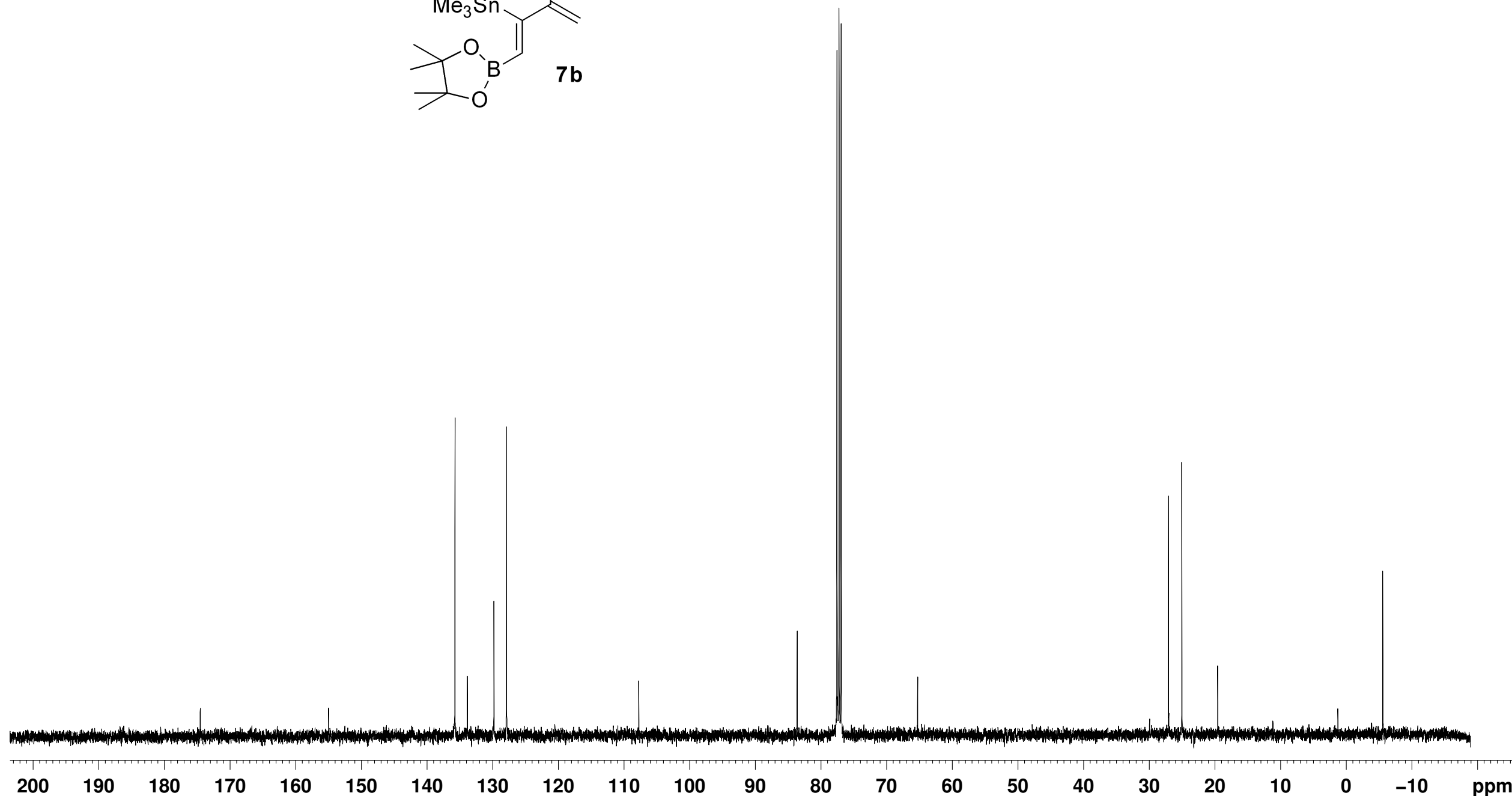
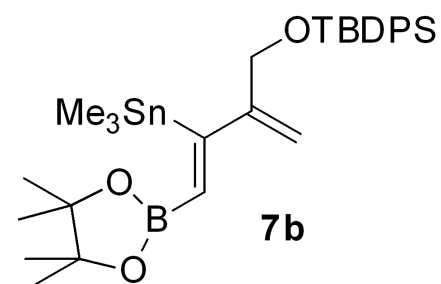
F2 - Acquisition Parameters
 Date_ 20090417
 Time 13.49
 INSTRUM spect
 PROBHD 5 mm QNP 1H/13
 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl3
 NS 428
 DS 4
 SWH 23980.814 Hz
 FIDRES 0.365918 Hz
 AQ 1.3664756 sec
 RG 14596.5
 DW 20.850 use
 DE 6.00 use
 TE 300.2 K
 D1 2.00000000 sec
 d11 0.03000000 sec
 DELTA 1.89999998 sec
 MCREST 0.00000000 sec
 MCWRK 0.01500000 sec

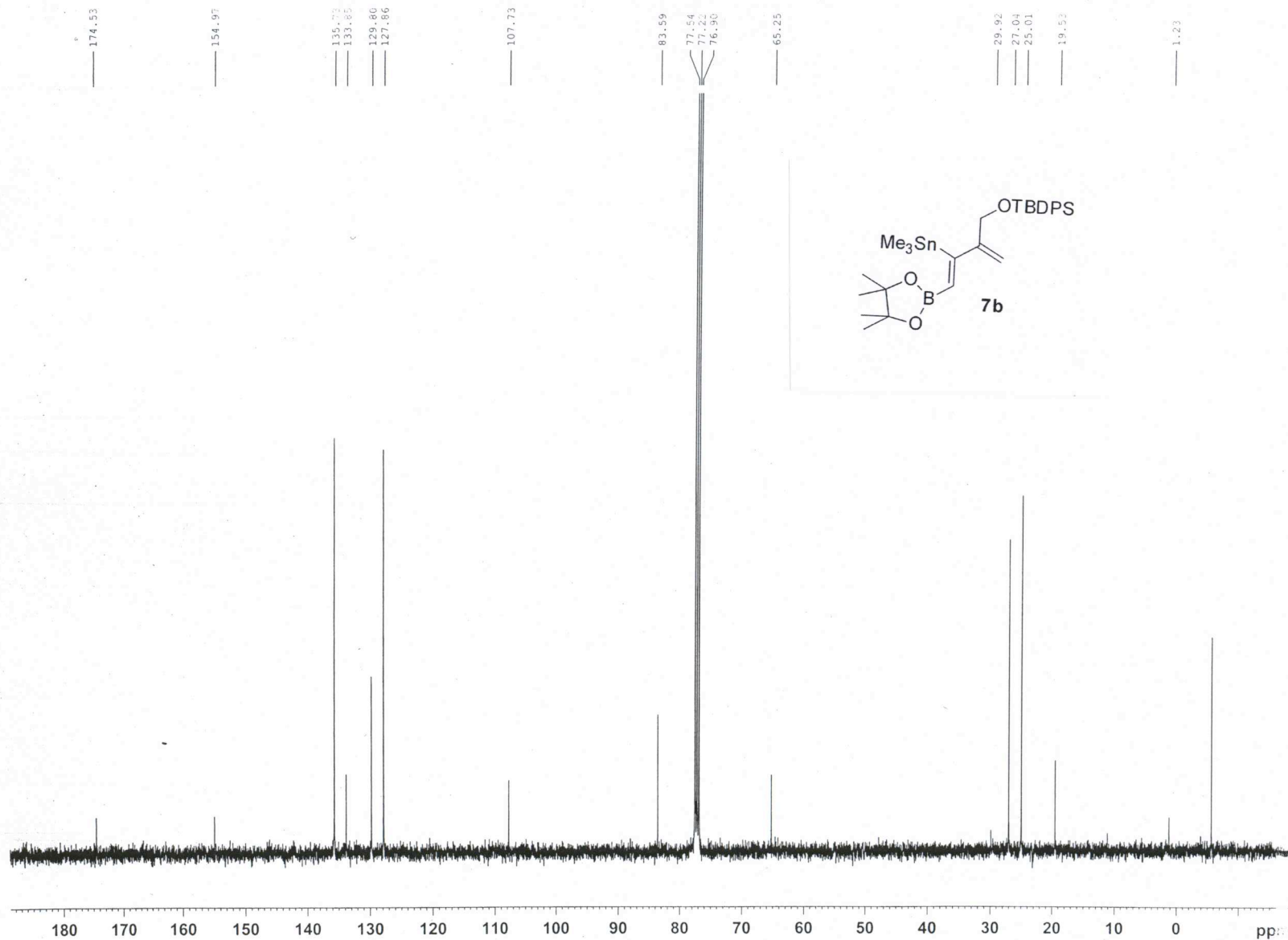
==== CHANNEL f1 =====
 NUC1 13C
 P1 10.50 use
 PL1 0.00 dB
 SFO1 100.6228298 MHz

==== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 80.00 use
 PL2 -6.00 dB
 PL12 14.56 dB
 PL13 16.50 dB
 SFO2 400.1316005 MHz

F2 - Processing parameters
 SI 32768
 SF 100.6127476 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40

174.5
 154.5
 135.7
 133.8
 129.8
 127.8
 107.7
 83.59
 77.53
 77.22
 76.90
 65.25
 29.91
 27.04
 25.00
 19.53
 1.234





Current Data Parameters
NAME Rs-3-248P
EXPNO 2
PROCNO 1

F2 - Acquisition Parameters
Date_ 20090417
Time_ 13.49
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zgpg30
TD 65536
SOLVENT CDC13
NS 428
DS 4
SWH 23980.814 Hz
FIDRES 0.365918 Hz
AQ 1.3664756 sec
RG 14596.5
DW 20.850 usec
DE 6.00 usec
TE 300.2 K
D1 2.00000000 sec
d11 0.03000000 sec
DELTA 1.89999998 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

===== CHANNEL f1 =====
NUC1 13C
P1 10.50 usec
PL1 0.00 dB
SFO1 100.6228298 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 -6.00 dB
PL12 14.56 dB
PL13 16.50 dB
SFO2 400.1316005 MHz

F2 - Processing parameters
SI 32768
SF 100.6127483 MHz
WDW EM
SSB 0
GB 0
LB 1.00 Hz
CB 0
SC 1.40

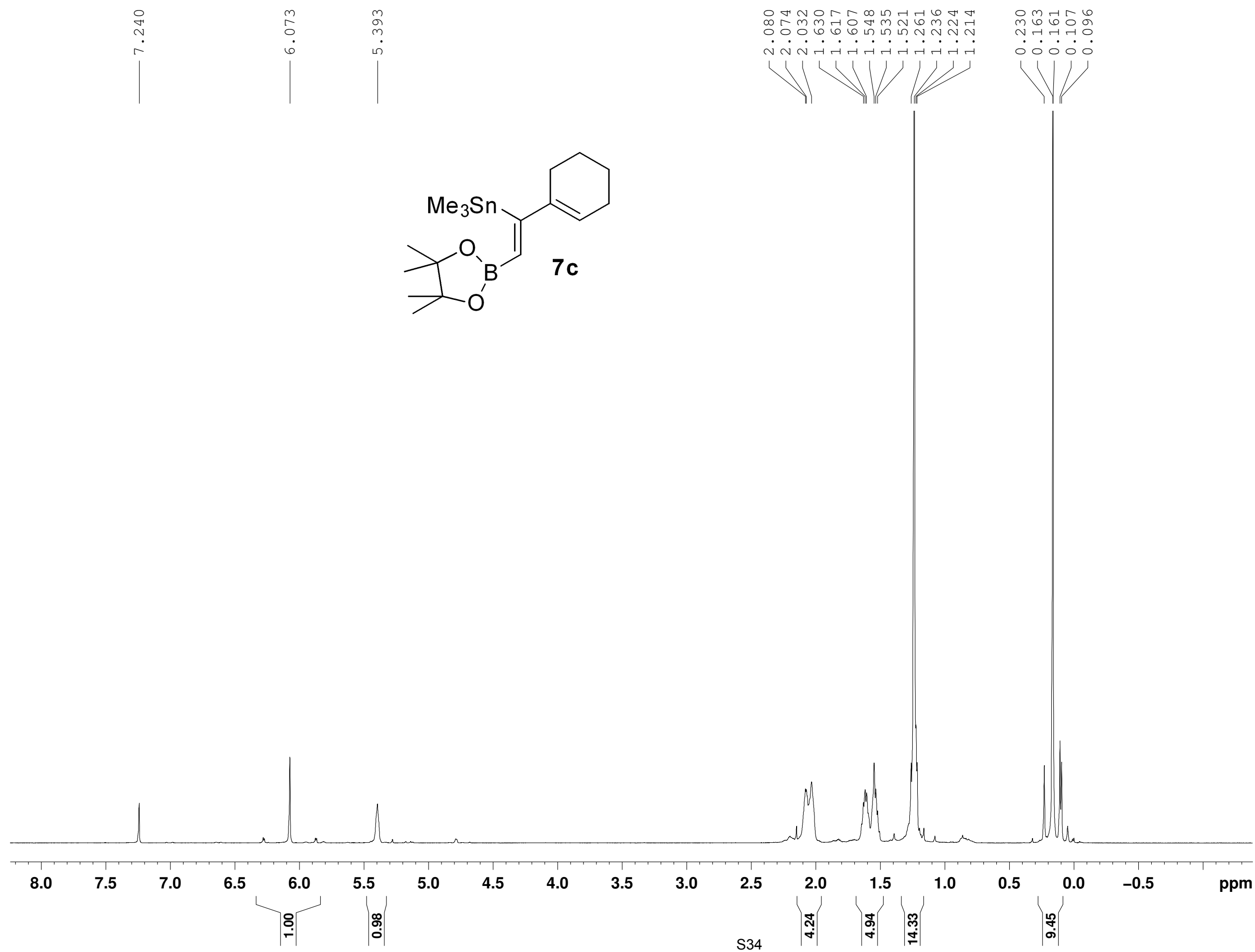
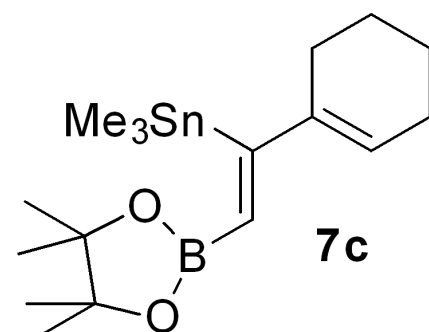
The Ohio State University
Department of Chemistry
NMR Facility
400MHz - 0083

Current Data Parameters
NAME Rs-3-261P
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 20090429
Time 14.37
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8278.146 Hz
FIDRES 0.126314 Hz
AQ 3.9584243 sec
RG 80.6
DW 60.400 use
DE 6.00 use
TE 299.2 K
D1 1.00000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

==== CHANNEL f1 =====
NUC1 1H
P1 13.00 use
PL1 0.00 dB
SFO1 400.1324710 MHz

F2 - Processing parameters
SI 32768
SF 400.1300174 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00





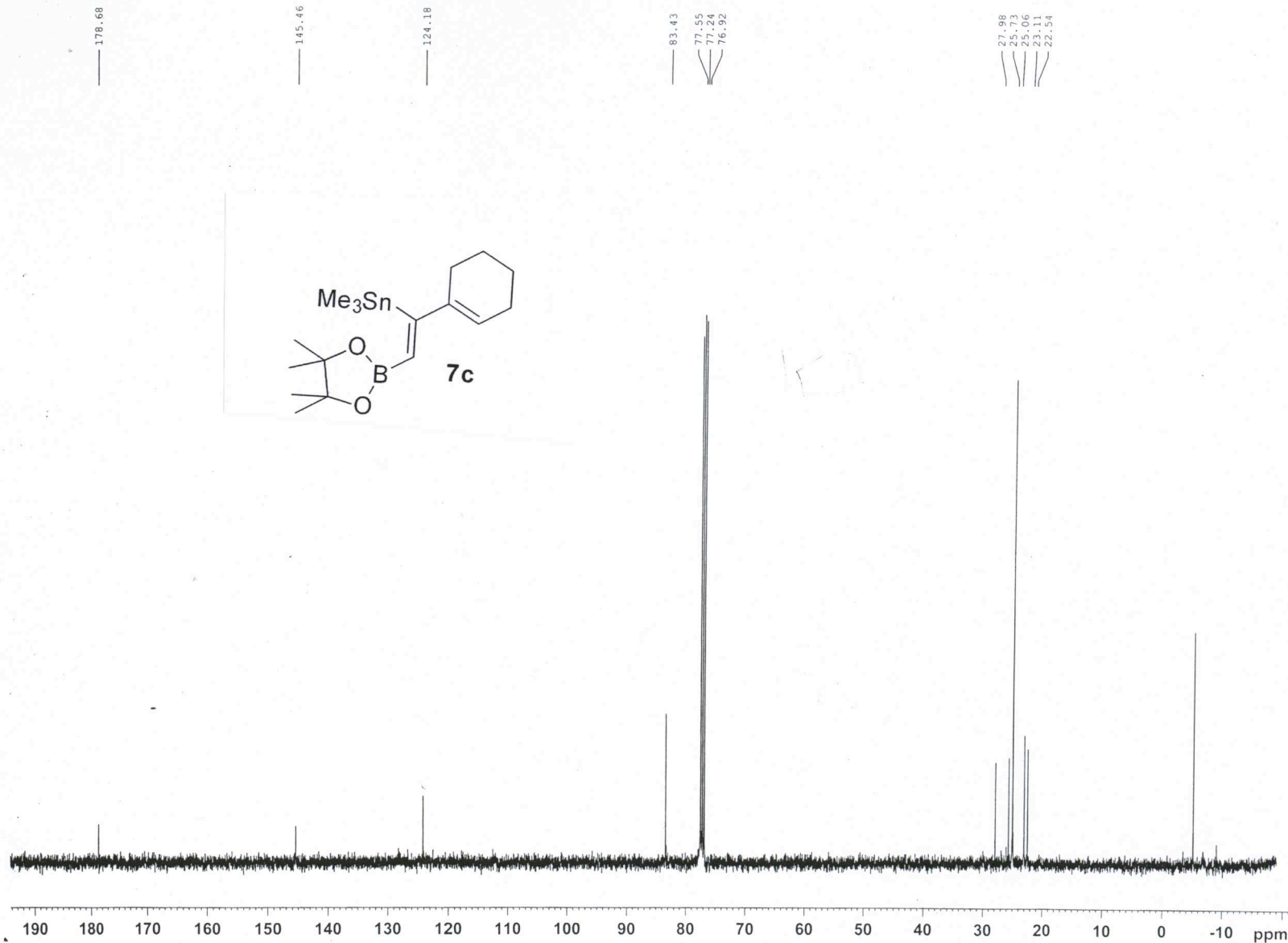
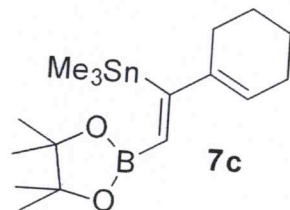
Current Data Parameters
NAME Rs-3-261P
EXPNO 2
PROCNO 1

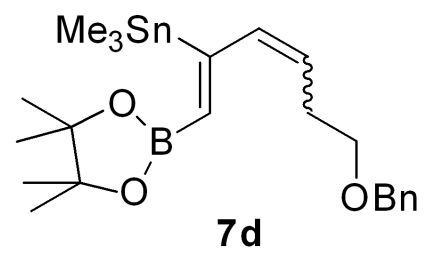
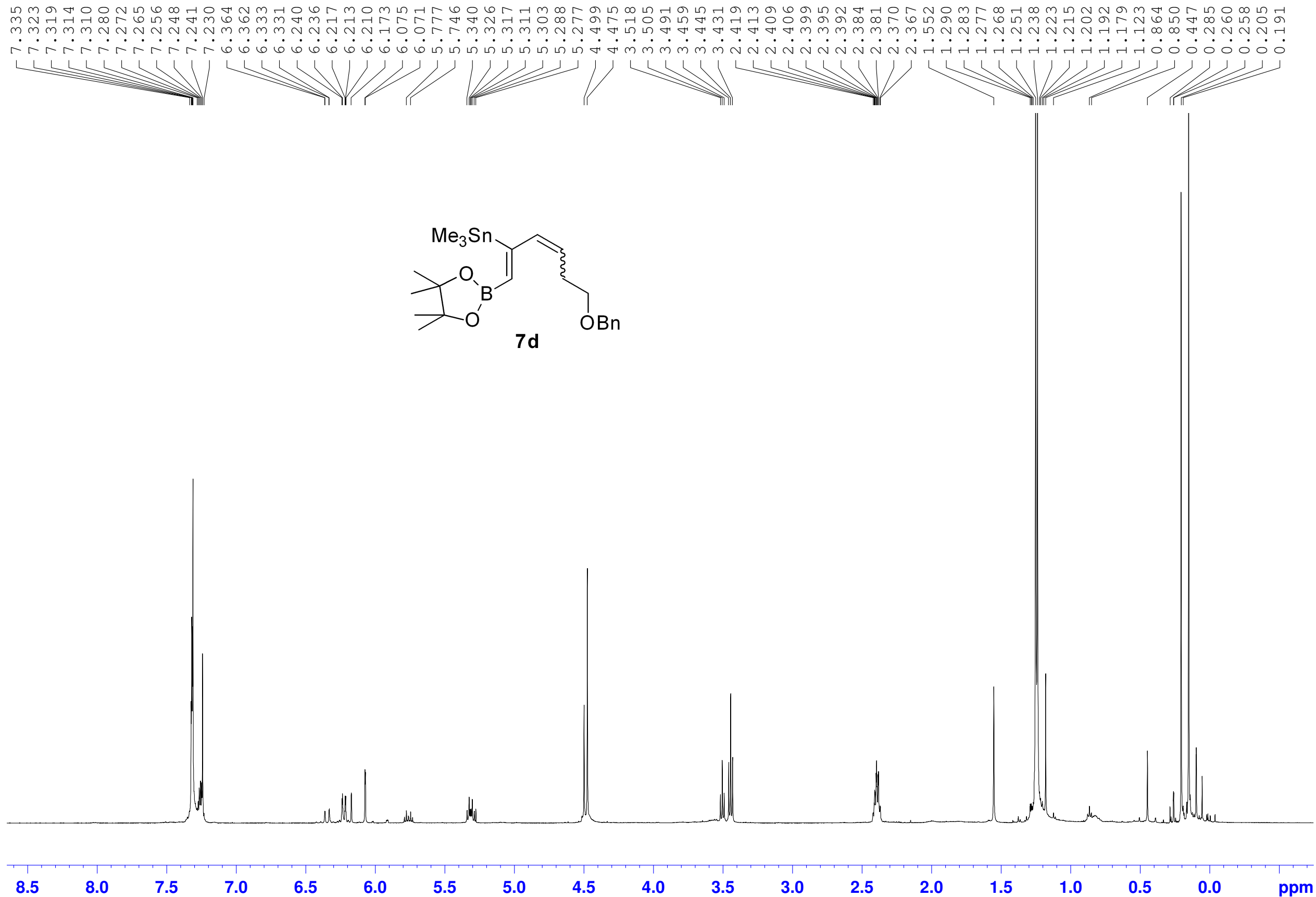
F2 - Acquisition Parameters
Date_ 20090429
Time 14.40
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 210
DS 4
SWH 23980.814 Hz
FIDRES 0.365918 Hz
AQ 1.3664756 sec
RG 5160.6
DW 20.850 usec
DE 6.00 usec
TE 300.2 K
D1 2.00000000 sec
d11 0.03000000 sec
DELTA 1.89999998 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

===== CHANNEL f1 =====
NUC1 13C
P1 10.50 usec
PL1 0.00 dB
SF01 100.6228298 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 -6.00 dB
PL12 14.56 dB
PL13 16.50 dB
SFO2 400.1316005 MHz

F2 - Processing parameters
SI 32768
SF 100.6127469 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.00



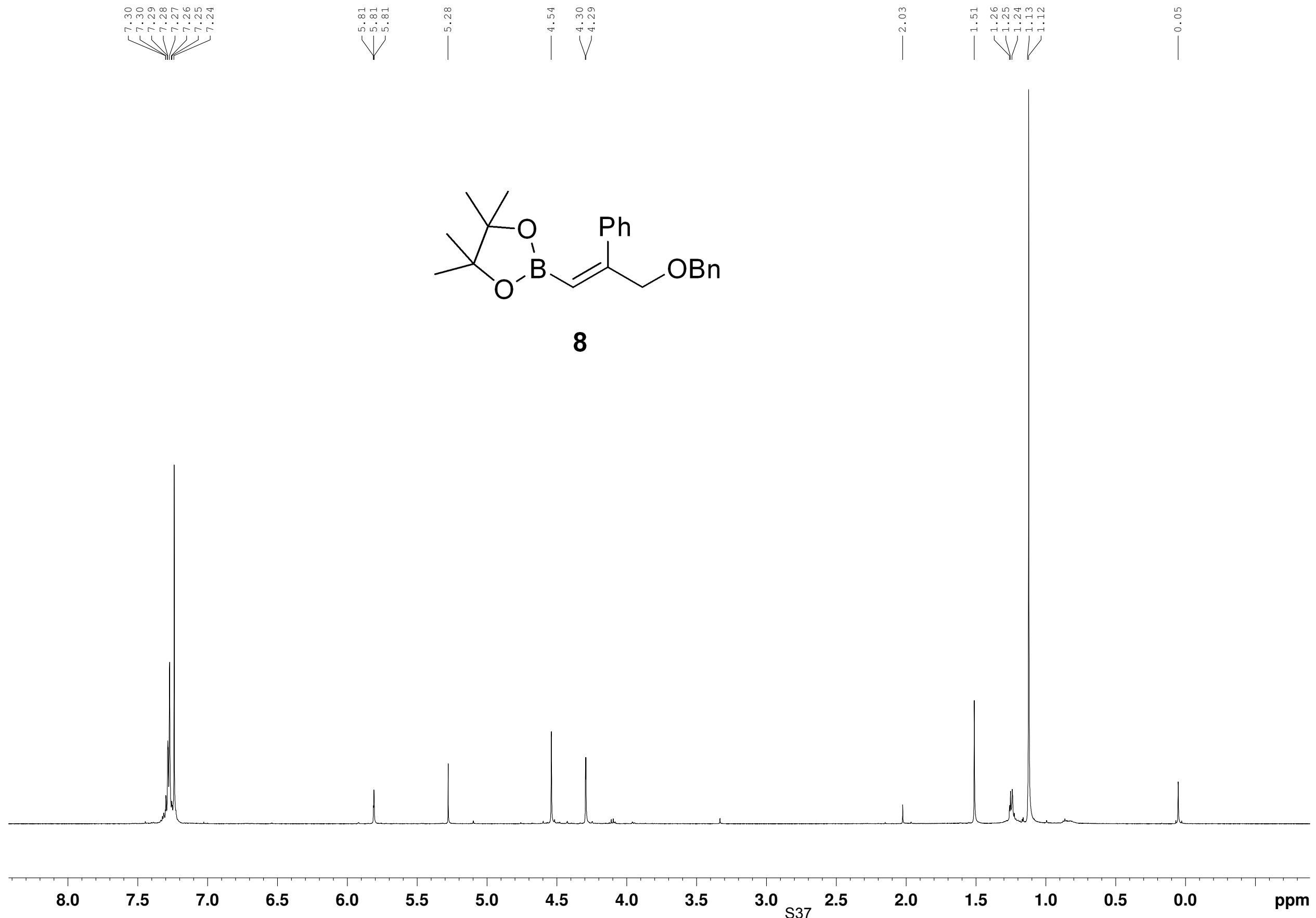


Current Data Parameters
 NAME Rs-3-249
 EXPNO 3
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20100401
 Time 11.21
 INSTRUM spect
 PROBHD 5 mm Multinucl
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 16
 DS 2
 SWH 10330.578 Hz
 FIDRES 0.157632 Hz
 AQ 3.1719923 sec
 RG 256
 DW 48.400 usec
 DE 6.00 usec
 TE 300.2 K
 D1 1.00000000 sec
 MCREST 0.00000000 sec
 MCWRK 0.01500000 sec

==== CHANNEL f1 =====
 NUC1 1H
 P1 14.80 usec
 PL1 -1.00 dB
 SFO1 500.0230878 MHz

F2 - Processing parameters
 SI 32768
 SF 500.0200213 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00



Current Data Parameters
 NAME Rs-3-180
 EXPNO 1
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20090213
 Time 13.53
 INSTRUM spect
 PROBHD 5 mm Multinucl
 PULPROG zg30
 TD 65536
 SOLVENT CDC13
 NS 16
 DS 2
 SWH 10330.578 Hz
 FIDRES 0.157632 Hz
 AQ 3.1719923 sec
 RG 574.7
 DW 48.400 usec
 DE 6.00 usec
 TE 300.2 K
 D1 1.0000000 sec
 MCREST 0.0000000 sec
 MCWRK 0.0150000 sec

==== CHANNEL f1 =====
 NUC1 1H
 P1 14.80 usec
 PL1 -1.00 dB
 SFO1 500.0230878 MHz

F2 - Processing parameters
 SI 32768
 SF 500.0200213 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

7.308
7.304
7.298
7.295
7.292
7.288
7.284
7.279
7.275
7.266
7.263
7.257
7.240
7.217
7.212
7.200
7.196
7.189
7.184
7.179
7.176
7.174
7.170
7.165
6.849
6.832
6.829
6.636
5.279

4.590
4.297
4.294
4.112
4.095

3.487
3.469
3.452
3.434

2.151
2.025

1.517
1.289
1.258
1.240
1.222
1.207
1.190
1.172
0.866

0.069
0.060
0.051
0.043

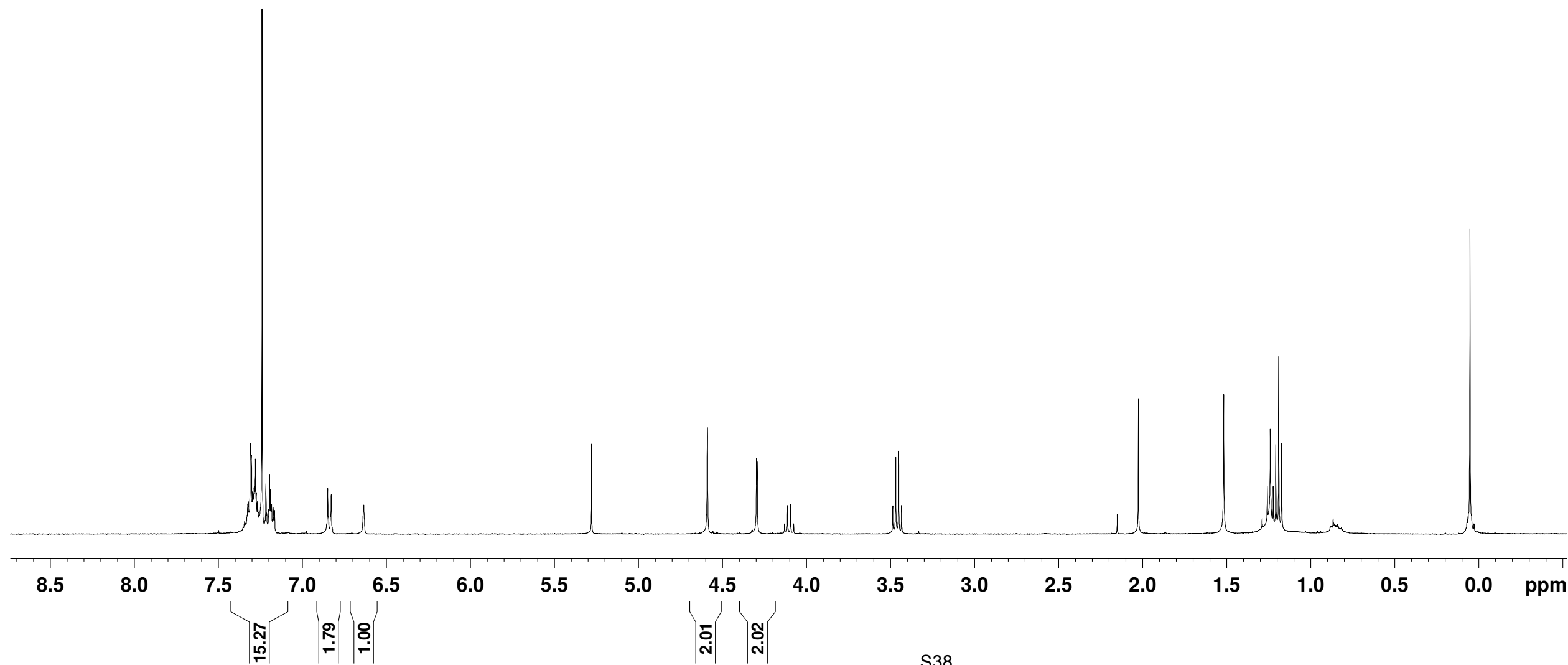
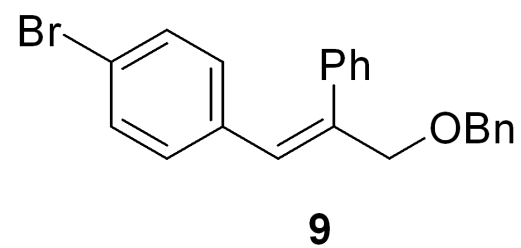
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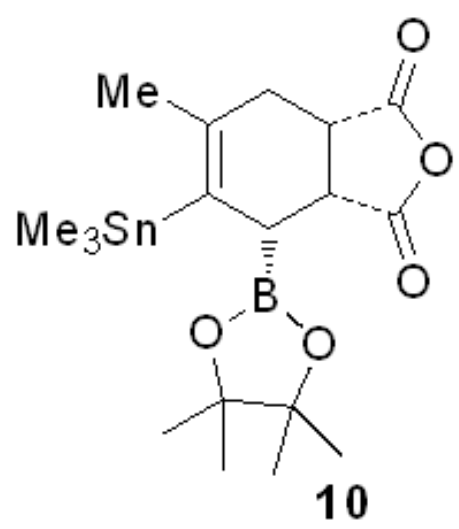
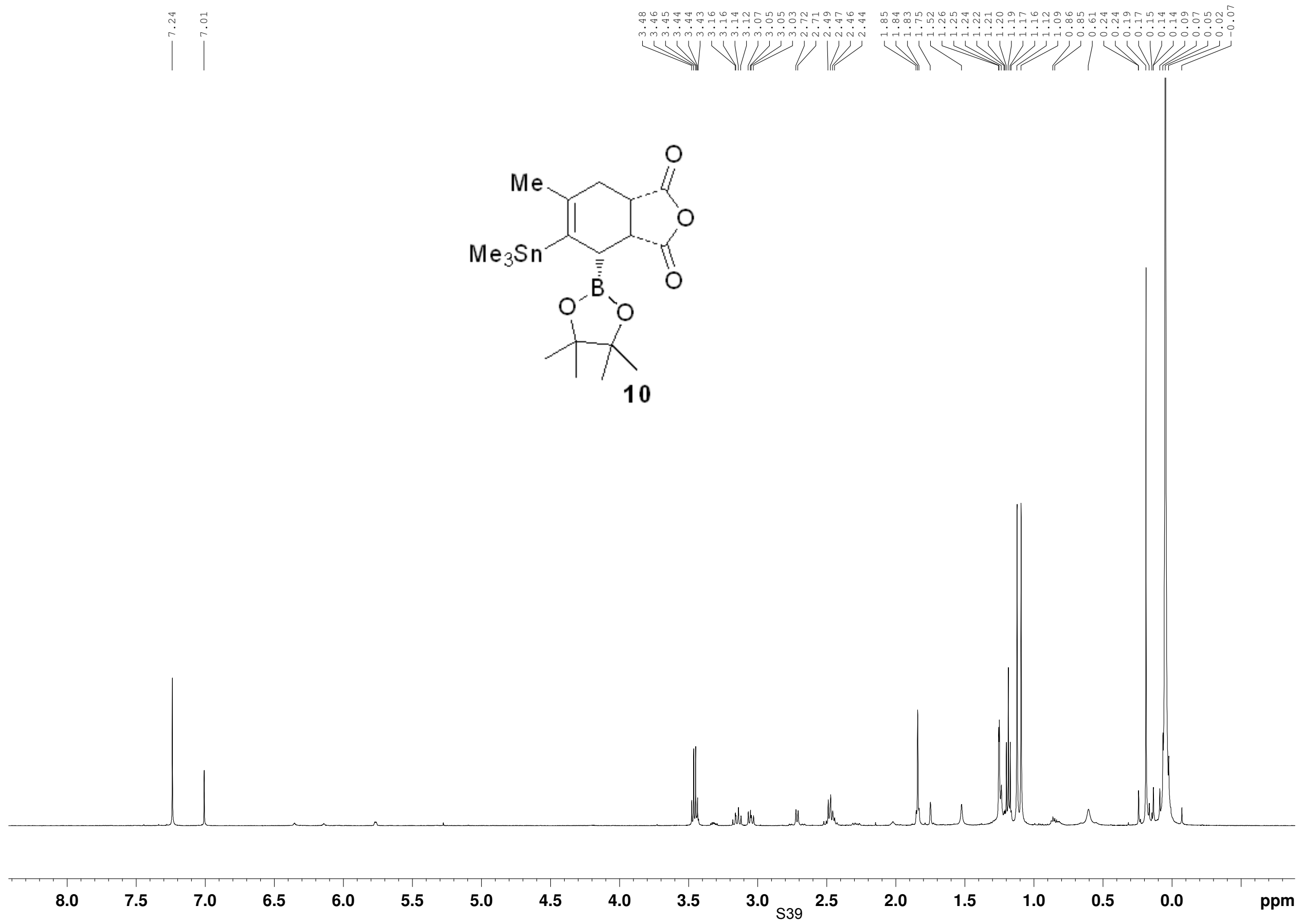
Current Data Parameters
NAME Rs-3-181-LP
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 20090214
Time 11.25
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8278.146 Hz
FIDRES 0.126314 Hz
AQ 3.9584243 sec
RG 322.5
DW 60.400 use
DE 6.00 use
TE 300.2 K
D1 1.00000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

==== CHANNEL f1 =====
NUC1 1H
P1 13.00 use
PL1 0.00 dB
SFO1 400.1324710 MHz

F2 - Processing parameters
SI 32768
SF 400.1300174 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



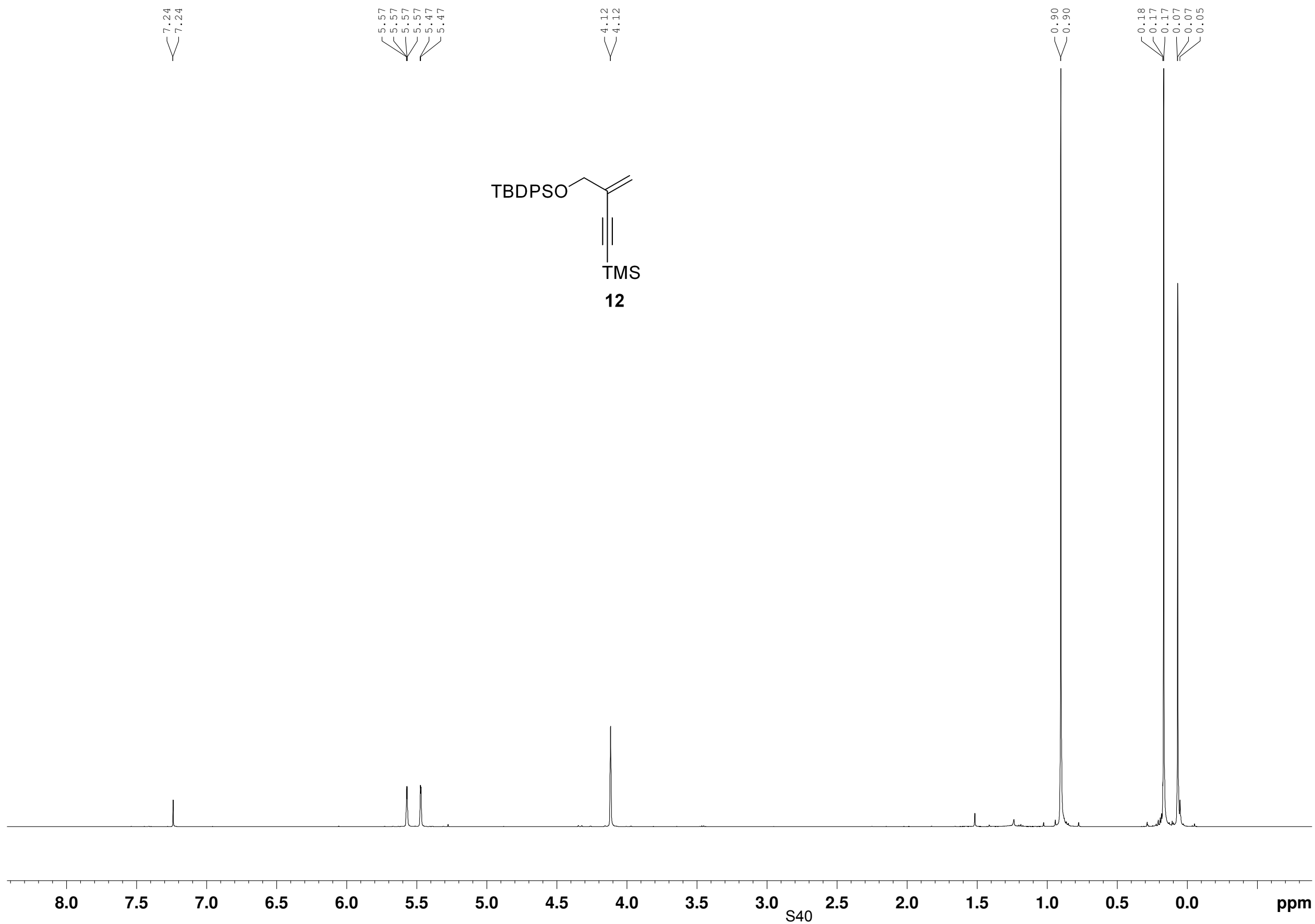


Current Data Parameters
 NAME Rs-3-222
 EXPNO 1
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20090319
 Time 13.45
 INSTRUM spect
 PROBHD 5 mm Multinucl
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 16
 DS 2
 SWH 10330.578 Hz
 FIDRES 0.157632 Hz
 AQ 3.1719923 sec
 RG 256
 DW 48.400 usec
 DE 6.00 usec
 TE 300.2 K
 D1 1.0000000 sec
 MCREST 0.0000000 sec
 MCWRK 0.0150000 sec

==== CHANNEL f1 =====
 NUC1 1H
 P1 14.80 usec
 PL1 -1.00 dB
 SFO1 500.0230878 MHz

F2 - Processing parameters
 SI 32768
 SF 500.0200219 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.40

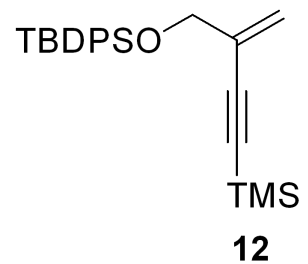


Current Data Parameters
 NAME Rs-3-240
 EXPNO 1
 PROCNO 1

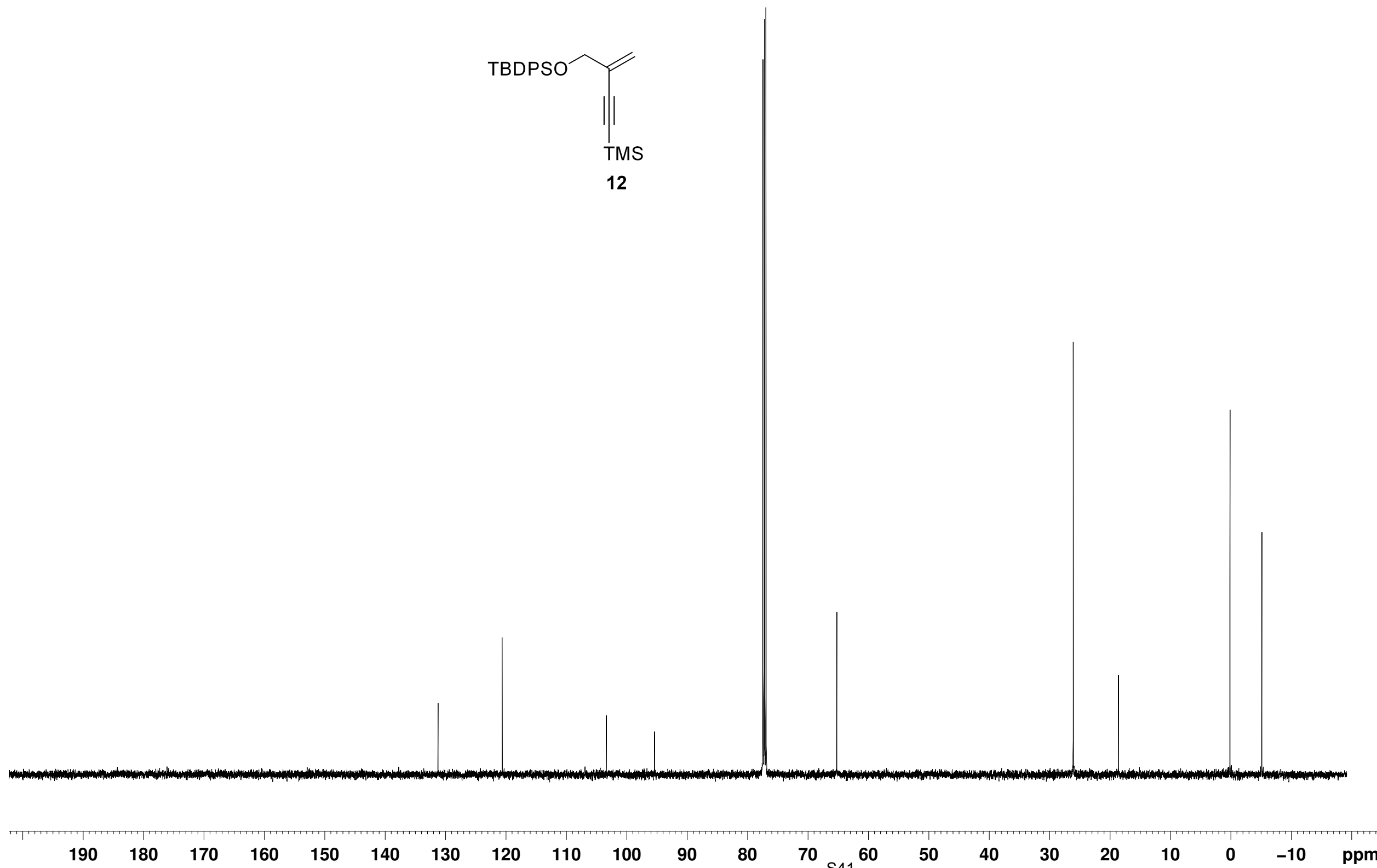
F2 - Acquisition Parameters
 Date_ 20090408
 Time 18.03
 INSTRUM spect
 PROBHD 5 mm Multinucl
 PULPROG zg30
 TD 65536
 SOLVENT CDC13
 NS 16
 DS 2
 SWH 10330.578 Hz
 FIDRES 0.157632 Hz
 AQ 3.1719923 sec
 RG 143.7
 DW 48.400 usec
 DE 6.00 usec
 TE 300.2 K
 D1 1.0000000 sec
 MCREST 0.0000000 sec
 MCWRK 0.0150000 sec

==== CHANNEL f1 =====
 NUC1 1H
 P1 14.80 usec
 PL1 -1.00 dB
 SFO1 500.0230878 MHz

F2 - Processing parameters
 SI 32768
 SF 500.0200213 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.40



131.27
 120.66
 103.40
 95.43
 77.48
 77.23
 76.97
 65.25
 26.10
 18.60
 0.14



Current Data Parameters
 NAME Rs-3-240
 EXPNO 2
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20090408
 Time 18.09
 INSTRUM spect
 PROBHD 5 mm Multinucl
 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl3
 NS 489
 DS 4
 SWH 30030.029 Hz
 FIDRES 0.458222 Hz
 AQ 1.0912244 sec
 RG 6502
 DW 16.650 usec
 DE 12.00 usec
 TE 300.2 K
 D1 2.0000000 sec
 d11 0.03000000 sec
 DELTA 1.89999998 sec
 MCREST 0.00000000 sec
 MCWRK 0.01500000 sec

===== CHANNEL f1 =====
 NUC1 13C
 P1 12.00 usec
 PL1 3.00 dB
 SFO1 125.7427020 MHz

===== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 100.00 usec
 PL2 -1.00 dB
 PL12 15.59 dB
 PL13 22.50 dB
 SFO2 500.0220001 MHz

F2 - Processing parameters
 SI 32768
 SF 125.7301005 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.00

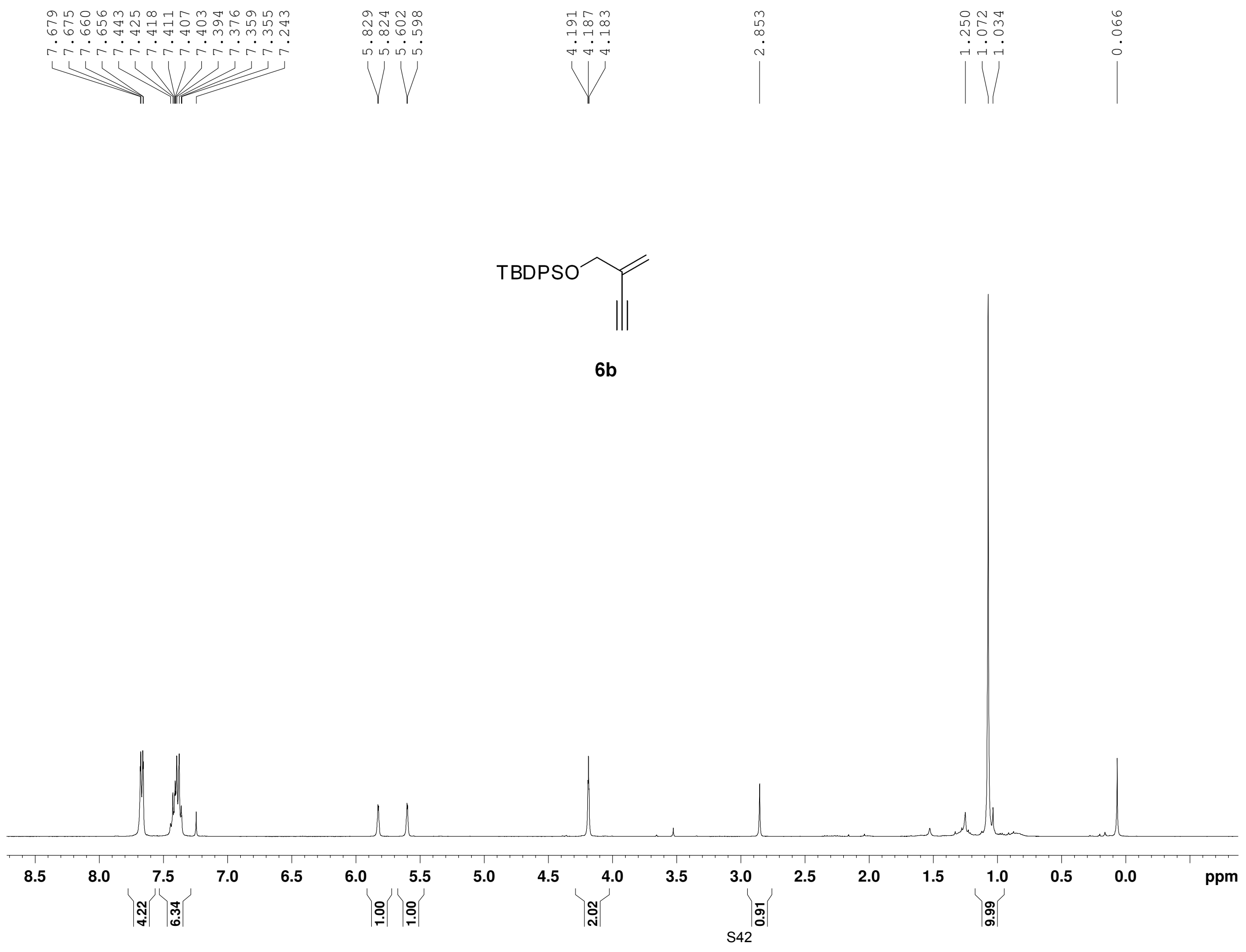
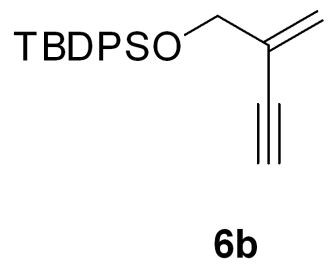
The Ohio State University
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400MHz - 0083

Current Data Parameters
NAME Rs-3-247
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 20090416
Time 10.26
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8278.146 Hz
FIDRES 0.126314 Hz
AQ 3.9584243 sec
RG 57
DW 60.400 use
DE 6.00 use
TE 298.2 K
D1 1.00000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

===== CHANNEL f1 =====
NUC1 1H
P1 13.00 use
PL1 0.00 dB
SFO1 400.1324710 MHz

F2 - Processing parameters
SI 32768
SF 400.1300164 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00





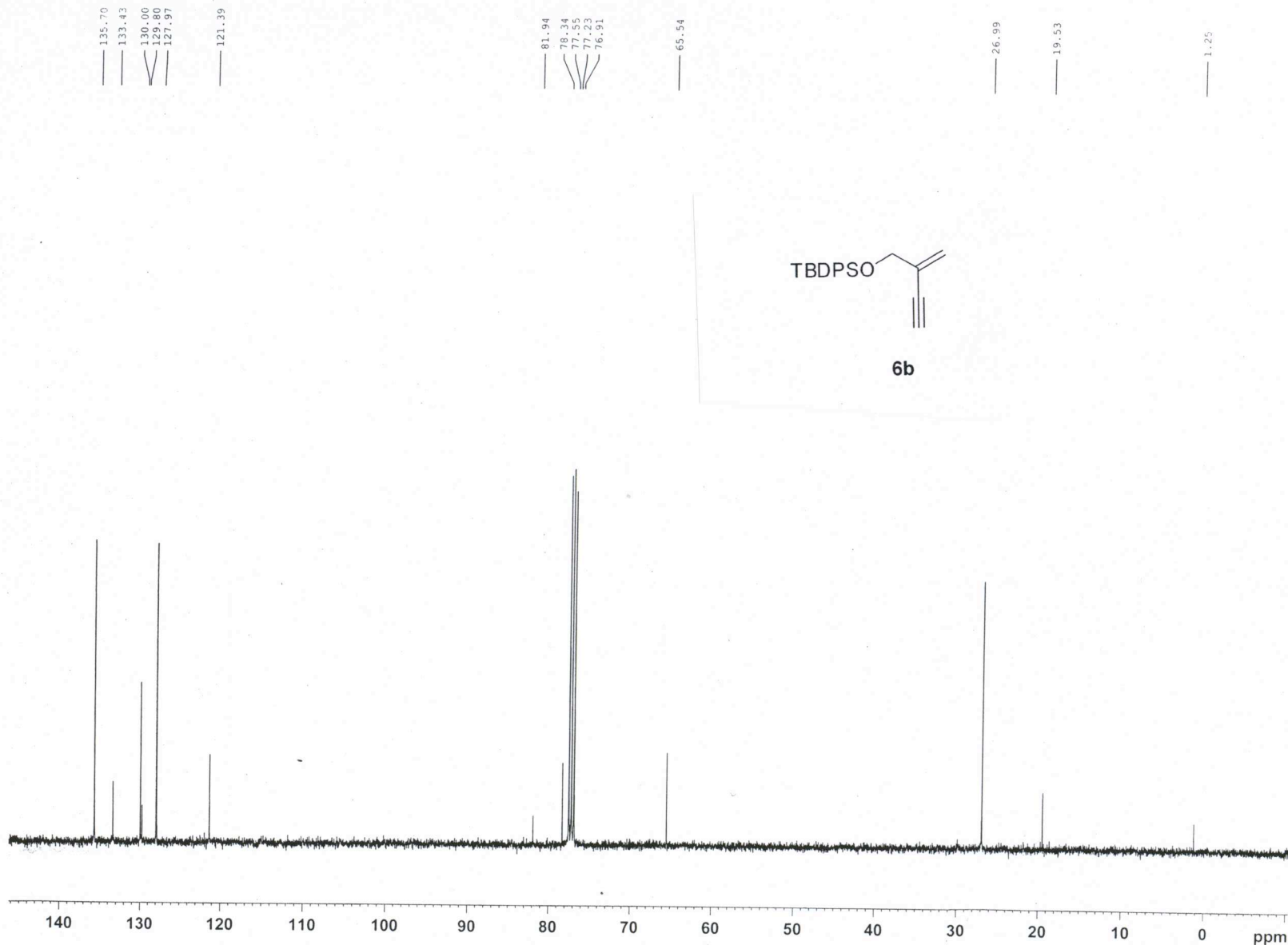
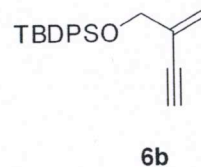
Current Data Parameters
NAME Rs-3-247
EXPNO 2
PROCNO 1

F2 - Acquisition Parameters
Date_ 20090416
Time 10.30
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 242
DS 4
SWH 23980.814 Hz
FIDRES 0.365918 Hz
AQ 1.3664756 sec
RG 1149.4
DW 20.850 usec
DE 6.00 usec
TE 298.2 K
D1 2.0000000 sec
d11 0.0300000 sec
DELTA 1.8999999 sec
MCREST 0.0000000 sec
MCWRK 0.0150000 sec

===== CHANNEL f1 =====
NUC1 13C
P1 10.50 usec
PL1 0.00 dB
SFO1 100.6228298 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 -6.00 dB
PL12 14.56 dB
PL13 16.50 dB
SFO2 400.1316005 MHz

F2 - Processing parameters
SI 32768
SF 100.6127483 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.00



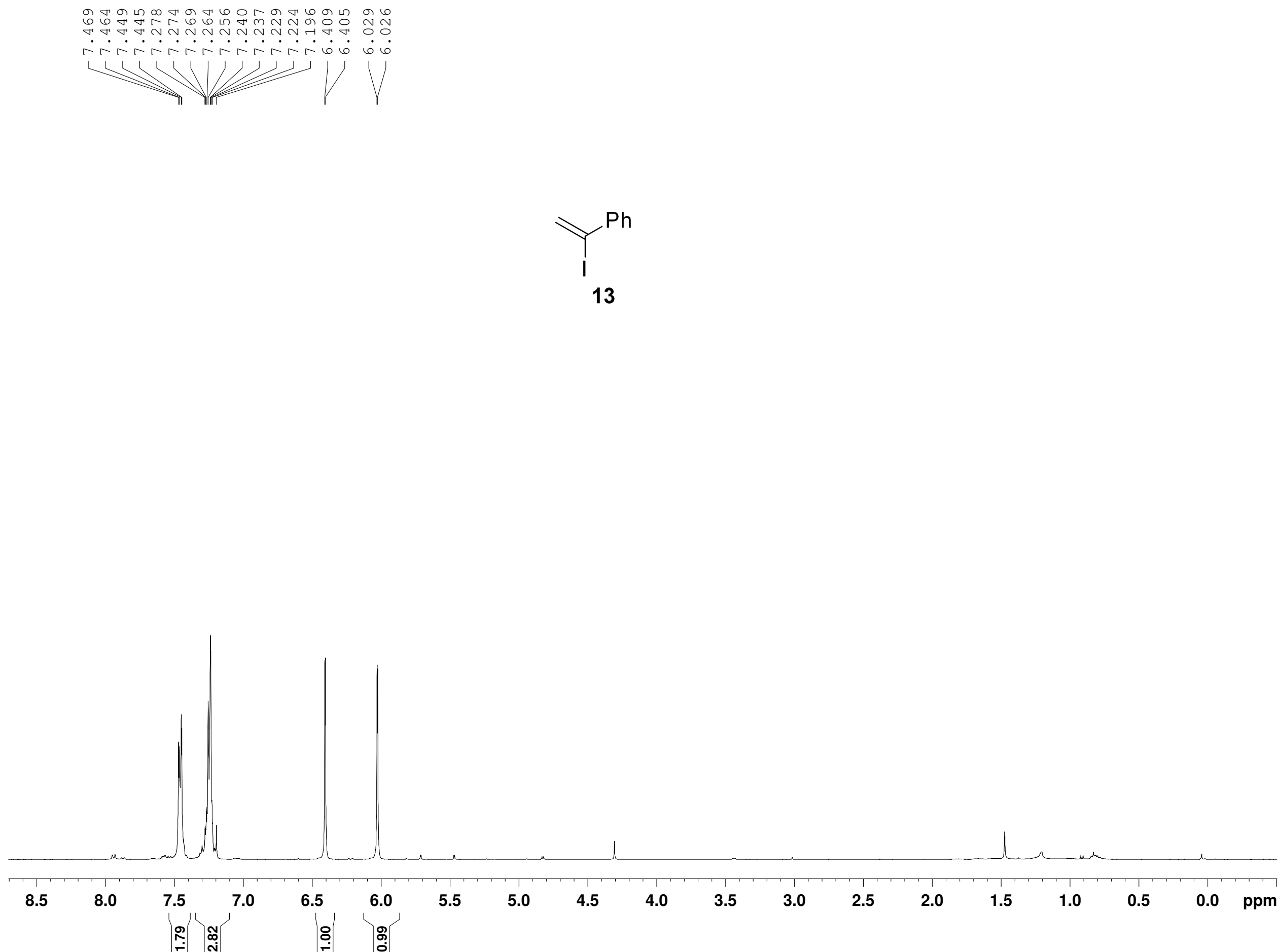
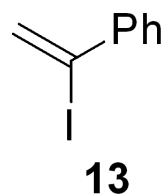
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400MHz - 0083

Current Data Parameters
NAME Rs-3-251
EXPNO 3
PROCNO 1

F2 - Acquisition Parameters
Date_ 20090421
Time 11.42
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8278.146 Hz
FIDRES 0.126314 Hz
AQ 3.9584243 sec
RG 203.2
DW 60.400 use
DE 6.00 use
TE 298.2 K
D1 1.00000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

==== CHANNEL f1 =====
NUC1 1H
P1 13.00 use
PL1 0.00 dB
SFO1 400.1324710 MHz

F2 - Processing parameters
SI 32768
SF 400.1300351 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



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400MHz - 0083

Current Data Parameters
NAME Rs-3-251
EXPNO 4
PROCNO 1

F2 - Acquisition Parameters
Date_ 20090421
Time 11.45
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 20
DS 4
SWH 23980.814 Hz
FIDRES 0.365918 Hz
AQ 1.3664756 sec
RG 2580.3
DW 20.850 use
DE 6.00 use
TE 298.2 K
D1 2.00000000 sec
d11 0.03000000 sec
DELTA 1.89999998 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

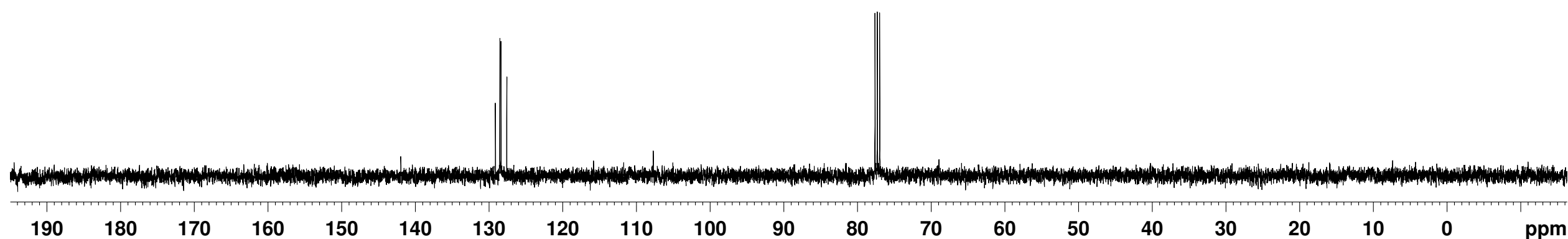
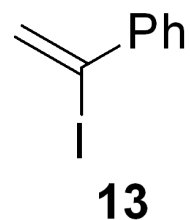
==== CHANNEL f1 =====
NUC1 13C
P1 10.50 use
PL1 0.00 dB
SFO1 100.6228298 MHz

==== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 use
PL2 -6.00 dB
PL12 14.56 dB
PL13 16.50 dB
SFO2 400.1316005 MHz

F2 - Processing parameters
SI 32768
SF 100.6127413 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

129.1
128.5
128.2
127.5

77.61
77.30
76.98



7.646
7.642
7.628
7.625
7.365
7.361
7.345
7.329
7.326
7.313
7.310
7.293
7.240

5.922
5.702

0.248
0.244
0.235
0.191
0.184
0.180
0.171
0.167

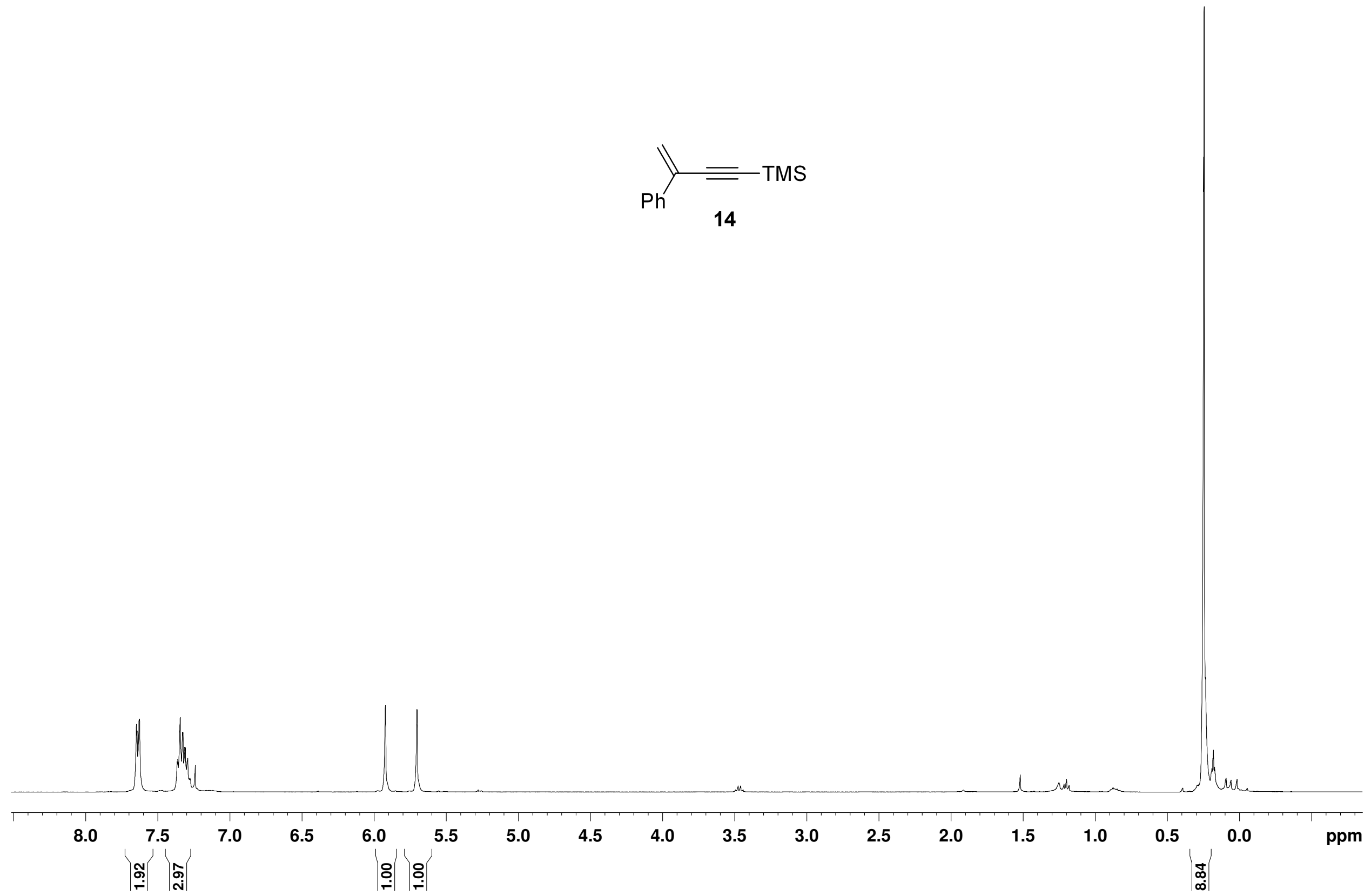
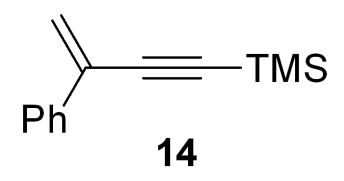
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NMR Facility
400MHz - 0083

Current Data Parameters
NAME Rs-3-253
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 20090422
Time 9.09
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8278.146 Hz
FIDRES 0.126314 Hz
AQ 3.9584243 sec
RG 114
DW 60.400 use
DE 6.00 use
TE 298.2 K
D1 1.00000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

==== CHANNEL f1 =====
NUC1 1H
P1 13.00 use
PL1 0.00 dB
SFO1 400.1324710 MHz

F2 - Processing parameters
SI 32768
SF 400.1300171 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



137.16

130.87

128.59

128.55

126.28

121.68

104.33

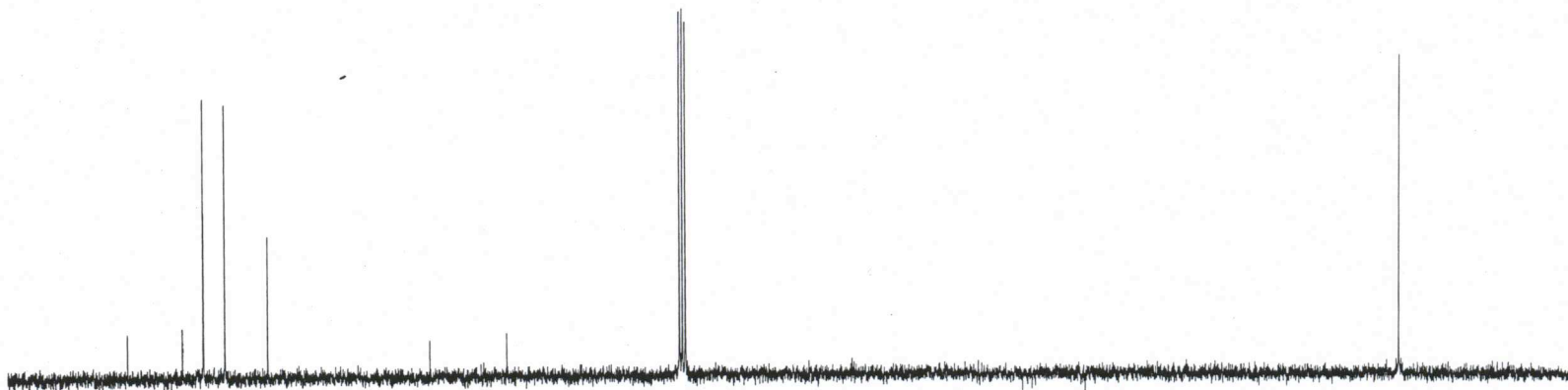
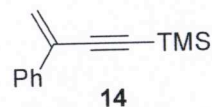
96.14

77.57

77.25

76.94

0.18



Current Data Parameters
NAME Rs-3-253
EXPNO 2
PROCNO 1

F2 - Acquisition Parameters
Date_ 20090422
Time 9.13
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 79
DS 4
SWH 23980.814 Hz
FIDRES 0.365918 Hz
AQ 1.3664756 sec
RG 4096
DW 20.850 usec
DE 6.00 usec
TE 298.2 K
D1 2.00000000 sec
d11 0.03000000 sec
DELTA 1.89999998 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

==== CHANNEL f1 =====
NUC1 13C
P1 10.50 usec
PL1 0.00 dB
SFO1 100.6228298 MHz

==== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 -6.00 dB
PL12. 14.56 dB
PL13 16.50 dB
SFO2 400.1316005 MHz

F2 - Processing parameters
SI 32768
SF 100.6127461 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.00

7.663
7.659
7.654
7.642
7.372
7.368
7.363
7.352
7.333
7.323
7.319
7.309
7.303
7.294
7.284
7.240

5.979
5.752

3.100

1.246

0.189
0.171
0.090
0.085
0.063
0.040

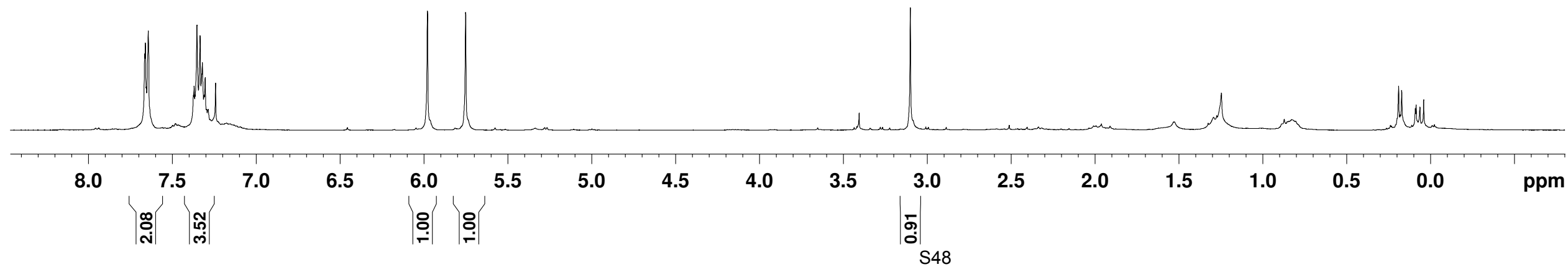
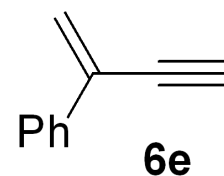
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NMR Facility
400MHz - 0083

Current Data Parameters
NAME Rs-3-254
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 20090422
Time 14.13
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8278.146 Hz
FIDRES 0.126314 Hz
AQ 3.9584243 sec
RG 181
DW 60.400 use
DE 6.00 use
TE 298.2 K
D1 1.00000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

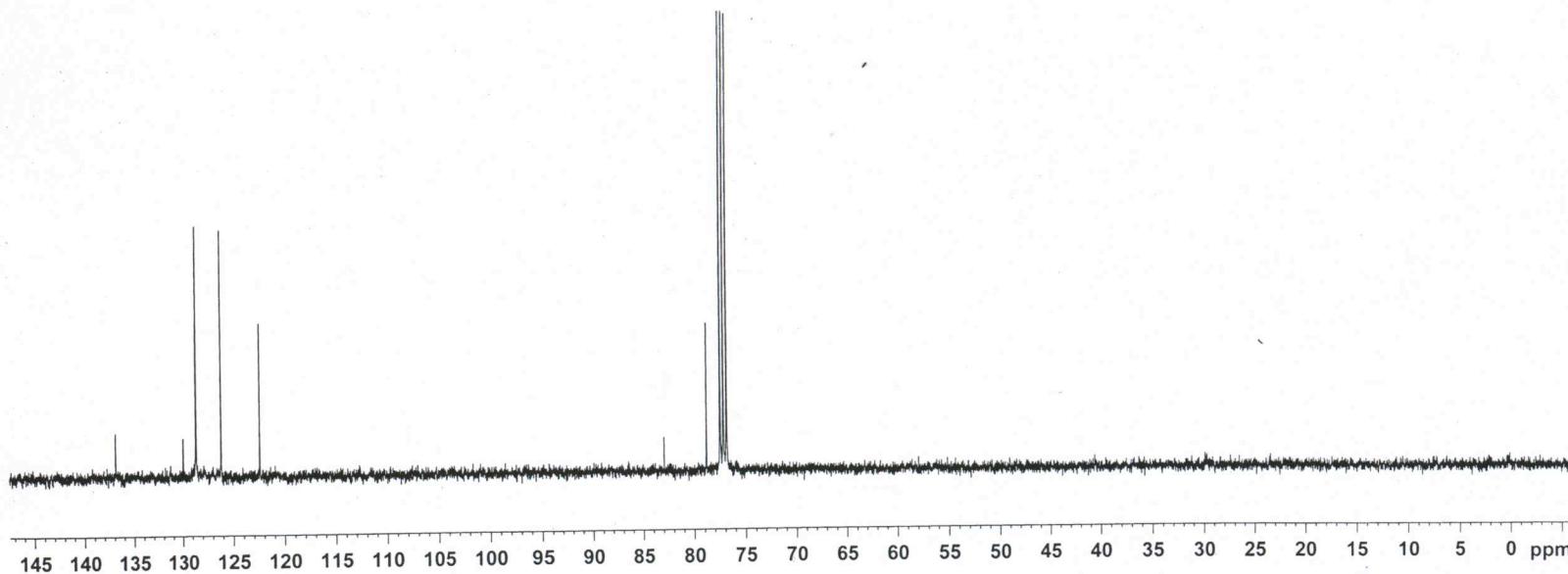
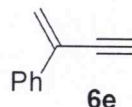
==== CHANNEL f1 =====
NUC1 1H
P1 13.00 use
PL1 0.00 dB
SFO1 400.1324710 MHz

F2 - Processing parameters
SI 32768
SF 400.1300174 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



136.854
 129.966
 128.665
 128.622
 126.199
 122.451

82.982
 78.860
 77.550
 77.232
 76.915



Current Data Parameters
 NAME Rs-3-254
 EXPNO 2
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20090422
 Time_ 14.17
 INSTRUM spect
 PROBHD 5 mm QNP 1H/13
 PULPROG zgpg30
 TD 65536
 SOLVENT CDC13
 NS 245
 DS 4
 SWH 23980.814 Hz
 FIDRES 0.365918 Hz
 AQ 1.3664756 sec
 RG 2896.3
 DW 20.850 use
 DE 6.00 use
 TE 298.2 K
 D1 2.00000000 sec
 d11 0.03000000 sec
 DELTA 1.89999998 sec
 MCREST 0.00000000 sec
 MCWRK 0.01500000 sec

===== CHANNEL f1 =====
 NUC1 13C
 P1 10.50 use
 PL1 0.00 dB
 SFO1 100.6228298 MHz

===== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 80.00 use
 PL2 -6.00 dB
 PL12 14.56 dB
 PL13 16.50 dB
 SFO2 400.1316005 MHz

F2 - Processing parameters
 SI 32768
 SF 100.6127483 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.00