Tungsten-Catalyzed Asymmetric Epoxidation of Allylic and Homoallylic alcohols with Hydrogen Peroxide

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Supporting Information

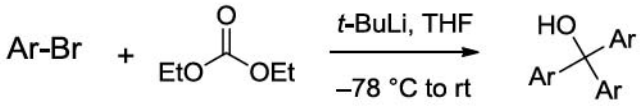
General Methods and Materials

Infrared (IR) spectra were measured on a Thermo Nicolet 670 mid-FTIR with film. High resolution mass spectra were acquired on a Agilent 6224 Tof-MS with 1290 UHPLC. ^{1}H- and ^{13}C- NMR spectra were recorded on Bruker DMX Model 500 spectrometer at ambient temperature in $CDCl_3$ at 500 and 126 MHz. The chemical shifts are given in ppm relative to tetramethylsilane [^{1}H: $\delta(SiMe_4)$ = 0.00 ppm] as an internal standard or relative to the resonance of the solvent [^{13}C: $\delta(CDCl_3)$ = 77.16 ppm].Multiplicities are indicated as s (singlet), d (doublet), t (triplet), q (quartet), m (multiplet) and br (broad). HPLC was performed on a Varian ProStar Series equipped with a variable wavelength detector using chiral stationary phases (Chiracel OD-H, OJ-H, OB-H and Chiralpak IA, IB, IC 0.46 cm x 25 cm) from Daicel. Optical rotations were taken on a Perkin-Elmer 141 polarimeter. Analytical thin-layer chromatography (TLC) was performed on Merck pre-coated TLC plates (silica gel 60 GF254, 0.25 mm). Flash chromatography was performed on silica gel E. Merck 9385 or silica gel 60 extra pure.

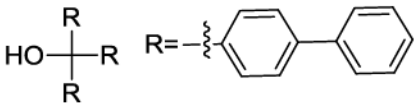
Ligands BHA-**1**, BHA-**2**, BHA-**4**,[1] the alcohols **1d**,[2] **1g**,[3] **1i**,[4] **1m**,[5] **3f**,[6] and $WO_2(acac)_2$[7] were prepared according to the known procedures. All other reagents and starting materials, unless otherwise noted, were purchased from commercial vendors and used without further purification.

General Procedure and Characterization

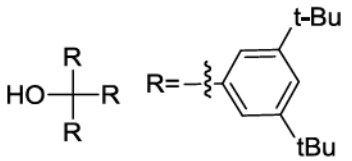
General Procedure for Synthesis of the Triarylmethanols



To a solution of aryl bomide (12 mmol) in tetrahydrofuran (50 mL) under Nitrogen at –78 ° C was added *t*BuLi (24 mmol, 14.1 mL, 1.7 M solution in pentane) slowly. The reaction was allowed to warm up to rt. Then diethyl carbonate (0.47 g, 0.49 mL, 4 mmol) was added to the mixture slowly. After 1 h the reaction was quenched by adding water and the aqueous layer was extracted with Et_2O. The combined organic layers were washed brine (100 mL), dried over $MgSO_4$, filtered and evaporated under reduced pressure. The crude product was purified through column chromatography on silica gel.

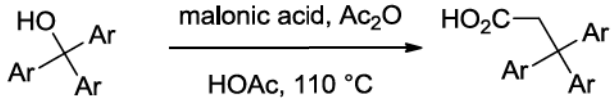


Yield (1.63 g, 81 %). ^{1}H NMR (500 MHz, $CDCl_3$): δ = 7.62-7.58 (m, 12 H), 7.46-7.43 (m, 12 H), 7.37-7.34 (m, 3 H), 2.87 (s, 1 H) ppm.



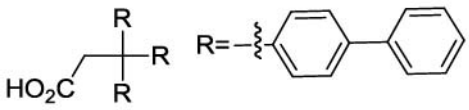
Yield (2.13 g, 87 %). IR (film): 3430, 3073, 2962, 2867, 1792, 1772, 1733, 1717, 1700, 1684, 1652, 1635, 1616, 1594, 1576, 1570, 1559, 1540, 1521, 1506, 1496, 1474, 1464, 1456, 1392, 1362, 1323, 1265, 1248, 1201, 1174, 1144, 1060, 1026, 991, 923, 897, 881, 861, 825, 735, 705, 667, 613, 576, 533 cm^{-1}; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 7.28-7.27 (m, 3 H), 7.04 (d, *J*= 2.0 Hz, 6 H), 2.77 (s, 1 H), 1.23 (s, 54 H) ppm; ^{13}C NMR (126 MHz, $CDCl_3$): δ = 149.8 (6 C), 146.8 (3 C), 122.8 (6 C), 120.5 (3 C), 83.6, 35.0 (6 C), 31.6 (18 C) ppm; HRMS (ESI): calcd. for $C_{43}H_{64}NaO$ $[M+Na]^+$: 619.4849 found: 619.4856.

General Procedure for Synthesis of the Triaryl Carboxylic Acids

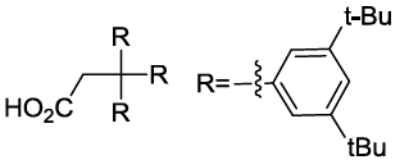


To a solution of and malonic acid (1.04 g, 30 mol) in Ac_2O (6 mL) and acetic acid (30 mL) was added a mixture of the triaryl methanol (3.0 mmol) and malonic acid (1.04 g, 30 mol) portion wise at 110 °C. Additional

malonic acid (1.04 g, 30 mol) was then added followed by acetic acid (15 mL). After 1. 5 h the mixture was cooled down to r.t. and then poured into saturated aqueous KOH solution. The precipitate was filtered and then purified through column chromatography.

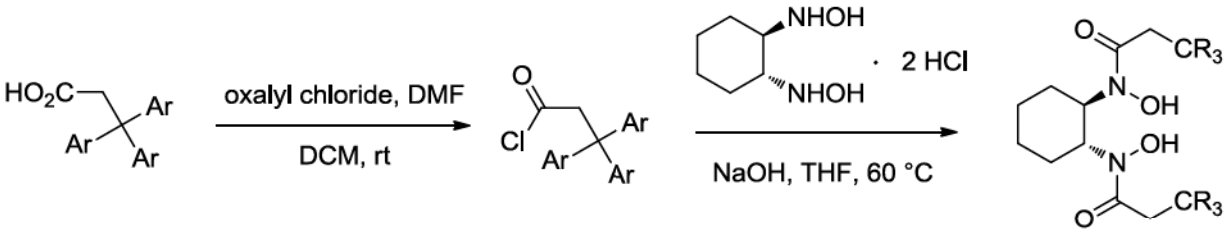


Yield (1.24 g, 78 %). IR (film): 3055, 3028, 1716, 1684, 1653, 1647, 1599, 1520, 1507, 1456, 1447, 1436, 1410, 1265, 1230, 1158, 1007, 997, 988, 823, 764, 742, 697, 668 cm^{-1}; ^1H NMR (500 MHz, $CDCl_3$): δ = 7.61-7.59 (m, 6 H), 7.53 (dd, *J* = 8.5, 2.0 Hz, 6 H), 7.44-7.41 (m, 6 H), 7.37-7.32 (m, 9 H), 3.86 (s, 2 H) ppm; ^{13}C NMR (126 MHz, $CDCl_3$): δ = 176.1, 145.4 (3 C), 140.6 (3 C), 139.2 (3 C), 129.6 (6 C), 128.9 (6 C), 127.4 (3 C), 127.1 (6 C), 126.7 (6 C), 54.9, 45.9 ppm; HRMS (ESI): calcd. for $C_{39}H_{30}NaO_2$ $[M+Na]^+$: 553.2138 found: 553.2137.



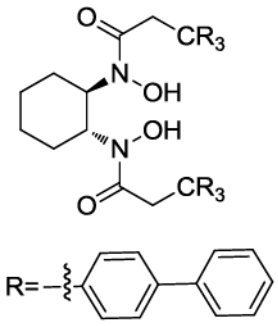
Yield (1.62 g, 84 %). IR (film): 2963, 2867, 1844, 1792, 1772, 1761, 1750, 1740, 1734, 1717, 1700, 1684, 1675, 1670, 1663, 1652, 1653, 1623, 1616, 1576, 1594, 1570, 1559, 1540, 1521, 1507, 1497, 1489, 1473, 1465, 1457, 1448, 1436, 1419, 1405, 1394, 1362, 1339, 1295, 1248, 1230, 1202, 898, 876, 740, 717, 668 cm^{-1}; ^1H NMR (500 MHz, $CDCl_3$): δ = 7.19-7.18 (m, 3 H), 6.94 (d, *J*= 1.5 Hz, 6 H), 3.72 (s, 2 H), 1.18 (s, 54 H) ppm; ^{13}C NMR (126 MHz, $CDCl_3$): δ = 176.2, 149.5 (6 C), 146.2 (3 C), 123.9 (6 C), 119.4 (3 C), 56.8, 46.6, 35.0 (6 C), 31.4 (18 C) ppm; HRMS (ESI): calcd. for $C_{45}H_{66}NaO_2$ $[M+Na]^+$: 661.4955 found: 661.4960.

General Procedure for Synthesis of BHA-3 and BHA-5



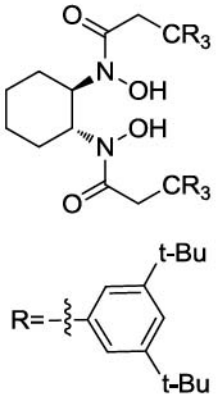
The triaryl carboxylic acid (2.5 mmol) was dissolved in DCM (25 mL), to which oxalyl chloride (0.45 mL, 5 mmol) and DMF (25 μL) were added sequentially at r.t.. The mixture was then stirred overnight at r.t., before the solvent was removed under reduced pressure giving the crude acid chloride, which was used without further purification.

To a stirred solution of the hydroxyl ammonium chloride[1] (1.25 mmol) in water (4 mL) was added an aqueous solution of 2 N NaOH (2.8 mL) at r. t.. After 30 s the mixture was added to a solution of the acid chloride in THF (25 mL). Then the reaction mixture was stirred at 60 °C for 30 min. After being cooled down to r.t., the reaction was quenched by adding 1 N HCl. The resulting biphasic mixture was stirred for 30 min. Then the aqueous phase was extracted with ether and the combined organic phases were washed with saturated aqueous $NaHCO_3$, brine, dried over Na_2SO_4, filtered and evaporated under reduced pressure. The crude product was purified through column chromatography.



BHA-**3**

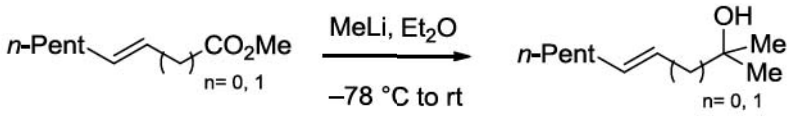
Yield (1.04 g, 71 %). IR (film): 3056, 3028, 2937, 2860, 1599, 1560, 1517, 1486, 1447, 1420, 1287, 1240, 1171, 1278, 1075, 1007, 836, 764, 742, 696, 655, 612, 577 cm^{-1}; ^1H NMR (500 MHz, $CDCl_3$): δ = 8.45 (brs, 2 H), 7.55 (d, *J* = 7.0 Hz, 12 H), 7.45 (d, *J* = 8.0 Hz, 12 H), 7.41-7.37 (m, 24 H), 7.32-7.25 (m, 6 H), 4.28 (d, *J* = 15.5 Hz, 2 H), 3.94 (d, *J* = 9.0 Hz, 2 H), 3.76 (d, *J* = 15.5 Hz, 2 H), 1.58-1.51 (m, 2 H), 1.49-1.40 (m, 2 H), 1.38-1.31 (m, 2 H), 1.07-0.98 (m, 2 H) ppm; ^{13}C NMR (126 MHz, $CDCl_3$): δ = 173.6 (2 C), 146.1 (6 C), 140.6 (6 C), 139.0 (6 C), 129.0 (12 C), 128.9 (12 C), 127.4 (6 C), 127.1 (12 C), 126.5 (12 C), 55.8 (2 C), 55.2 (2 C), 42.5 (2 C), 27.5 (2 C), 24.5 (2 C) ppm; HRMS (ESI): calcd. for $C_{84}H_{70}N_2NaO_4$ $[M+Na]^+$: 1193.5228 found: 1193.5228.



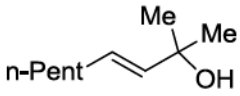
BHA-**5**

Yield (831 mg, 48 %). IR (film): 3197, 3075, 2963, 2866, 2361, 2338, 1772, 1734, 1717, 1700, 1684, 1670, 1646, 1635, 1617, 1576, 1570, 1559, 1540, 1521, 1506, 1497, 1475, 1457, 1436, 1394, 1362, 1248, 1202, 1173, 898, 875, 714, 668 cm^{-1}; ^1H NMR (500 MHz, $CDCl_3$): δ = 7.85 (brs, 2 H), 7.15-7.14 (m, 6 H), 7.03 (d, *J*= 2.0 Hz, 12 H), 4.13 (d, *J*= 15.5 Hz, 2 H), 3.86 (t, *J* = 6.0 Hz, 2 H), 3.72 (d, *J* = 15.5 Hz, 2 H), 1.58-1.56 (m, 2 H), 1.39-1.33 (m, 2 H), 1.90-1.85 (m, 2 H), 1.88 (s, 128 H), 1.04-1.00 (m, 2 H) ppm; ^{13}C NMR (126 MHz, $CDCl_3$): δ = 174.3 (2 C), 149.0 (12 C), 147.1 (6 C), 124.2 (12 C), 119.0 (6 C), 57.6 (2 C), 55.1 (2 C), 41.9 (2 C), 35.0 (12 C), 31.7 (36 C), 27.8 (2 C), 24.5 (2 C) ppm; HRMS (ESI): calcd. for $C_{96}H_{142}N_2NaO_4$ $[M+Na]^+$: 1410.0862 found: 1410.0864.

General Procedure for Synthesis of the Tertiary Alcohols 1o and 3h

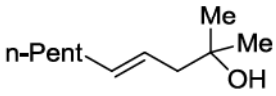


The ester (7.5 mmol) was dissolved in Et_2O (10 mL), to which MeLi (16.5 mmol, 10.3 mL, 1.6 M solution in Et_2O) was added drop wise at –78 °C. The resulting mixture was stirred for 45 min at –78 °C and 15 min at r. t.. After quenching with saturated aqueous NH_4Cl solution, the contents were extracted with ether. The combined organic layers were washed with brine, dried over $MgSO_4$, filtered and evaporated under reduced pressure. The crude product was purified through column chromatography (hexane:EtOAc= 15:1).



1o

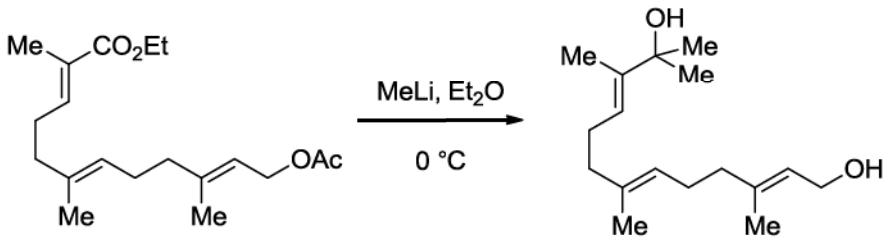
Yield (0.84 g, 72 %), IR (film): 3365, 2962, 2927, 2873, 2857, 1716, 1458, 1376, 1231, 1148, 971, 908, 927, 668 cm^{-1}; ^1H NMR (500 MHz, $CDCl_3$): δ = 5.62-5.57 (m, 2 H), 2.02-1.99 (m, 2 H), 1.58 (brs, 1 H), 1.38-1.27 (m, 6 H), 1.33 (s, 6 H), 0.89 (t, *J*= 7.0 Hz, 3 H) ppm; ^{13}C NMR (126 MHz, $CDCl_3$): δ = 137.9, 127.4, 70.7, 32.2, 31.5, 29.9 (2 C), 29.1, 22.6, 14.2 ppm; HRMS (ESI): calcd. for $C_{10}H_{20}NaO$ $[M+Na]^+$: 179.1406 found: 179.1404.



3h

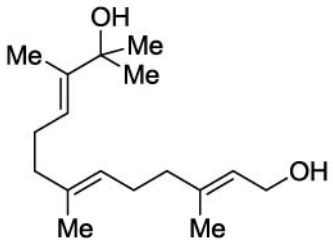
Yield (0.55 g, 43 %). IR (film): 3365, 2963, 2965, 2872, 2856, 1734, 1717, 1700, 1684, 1653, 1646, 1636, 1576, 1559, 1497, 1457, 1437, 1419, 1395, 1376, 1363, 1213, 1150, 1103, 972, 906, 668 cm^{-1}; ^1H NMR (500 MHz, $CDCl_3$): δ = 5.55-5.45 (m, 2 H), 2.15 (d, *J* = 7.0 Hz, 2 H), 2.03 (q, *J* = 7.0 Hz, 2 H), 1.50 (brs, 1 H), 1.40-1.29 (m, 6 H), 1.20 (s, 6 H), 0.89 (t, *J*= 7.0 Hz, 3 H) ppm; ^{13}C NMR (126 MHz, $CDCl_3$): δ = 135.5, 125.3, 70.6, 47.1, 32.8, 31.6, 29.3, 29.2 (2 C), 22.7, 14.2 ppm; HRMS (ESI): calcd. for $C_{11}H_{22}NaO$ $[M+Na]^+$: 193.1563 found: 193.1562.

Procedure for Synthesis of the Allylic Alcohol 1t



To a solution of the ester[6] (2.5 mmol) in Et_2O (25 mL) was added MeLi (11.25 mmol, 7.0 mL, 1.6 M solution in Et_2O) at 0 °C. Then the resulting mixture was stirred for 1 h at 0 °C, before the reaction was quenched with sat.

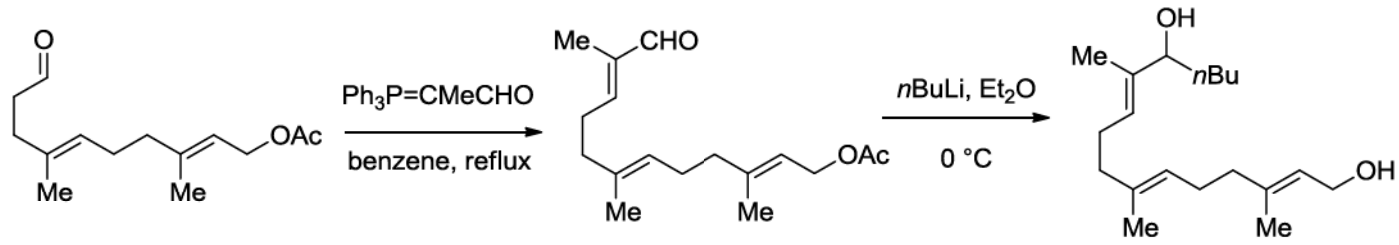
aq. NH_4Cl. The aqueous phase was extracted with ether. The combined organic layers were washed with brine, dried over $MgSO_4$, filtered and evaporated under reduced pressure. The crude product was purified through column chromatography (hexane:EtOAc= 3:1 to 2:1).



1t

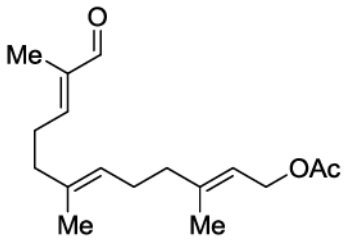
Yield (0.50 g, 75 %), IR (film): 3341, 2975, 2924, 1468, 1462, 1443, 1433, 1413, 1380, 1171, 1003, 986, 937, 854 cm^{-1}; ^1H NMR (500 MHz, $CDCl_3$): δ = 5.48-5.45 (m, 1 H), 5.43-5.40 (m, 1 H), 5.13-5.10 (m, 1 H), 2.13-2.01 (m, 8 H), 1.68 (s, 3 H), 1.66 (s, 3 H), 1.61 (s, 6 H), 1.31 (s, 3 H) ppm; ^{13}C NMR (126 MHz, $CDCl_3$): δ = 141.3, 139.5, 135.2, 124.2, 123.7, 121.9, 73.6, 59.5, 39.6, 39.5, 29.0 (2 C), 26.4, 26.3, 16.4, 16.1, 12.9 ppm; HRMS (ESI): calcd. for $C_{17}H_{30}NaO_2$ $[M+Na]^+$: 289.2138 found: 289.2143.

Procedure for Synthesis of the Allylic Alcohol 1u



7 **1u**

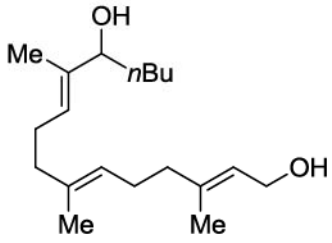
The suspension of the aldehyde[6] (5 mmol) and Ph_3P=CMeCHO (6.25 mmol) in benzene (20 mL) was refluxed for 24 h. Then the solvent was removed in vacuum and the crude product was purified through column chromatography giving the product as a colorless oil (hexane:Et_2O=5:1).



7

Yield (1.1 g, 79 %), ^1H NMR (500 MHz, $CDCl_3$): δ = 9.39 (s, 1 H), 6.48-6.45 (m, 1 H), 5.36-5.32 (m, 1 H), 5.16-5.13 (m, 1 H), 4.59 (d, *J*= 7.0 Hz, 2 H), 2.45 (dd, *J*= 14.5, 7.5 Hz, 2 H), 2.19-2.07 (m, 4 H), 2.08-2.03 (m, 2 H), 2.06 (s, 3 H), 1.75 (s, 3 H), 1.74 (s, 3 H), 1.71 (s, 3 H) ppm; ^{13}C NMR (126 MHz, $CDCl_3$): δ = 195.3, 171.2, 154.4, 142.0, 139.6, 134.0, 125.1, 118.7, 61.5, 39.5, 38.1, 27.5, 26.3, 21.2, 16.6, 16.1, 9.4 ppm.

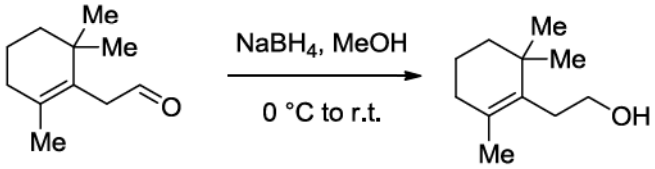
To a solution of the aldehyde **7** (4.5 mmol) in Et_2O (45 mL) was added *n*BuLi (15.75 mmol, 6.3 mL, 2.5 M solution in hexane) at 0 °C. Then the resulting mixture was stirred for 1 h at 0 °C, before the reaction was quenched with sat. aq. NH_4Cl. The aqueous phase was extracted with ether. The combined organic layers were washed with brine, dried over $MgSO_4$, filtered and evaporated under reduced pressure. The crude product was purified through column chromatography (hexane:EtOAc=3:1).



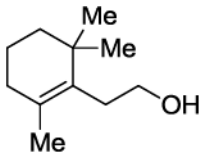
1u

Yield (0.95 g, 72 %), IR (film): 3334, 2955, 2929, 2870, 2859, 1464, 1457, 1448, 1437, 1419, 1380, 1004, 668 cm^{-1}; ^1H NMR (500 MHz, $CDCl_3$): δ = 5.42-5.41 (m, 1 H), 5.35-5.33 (m, 1 H), 5.12-5.10 (m, 1 H), 4.15 (d, *J*= 6.5 Hz, 2 H), 3.96 (t, *J*= 6.5 Hz, 1 H), 2.13-2.10 (m, 4 H), 2.06-2.00 (m, 4 H), 1.68 (s, 3 H), 1.60 (s, 3 H), 1.59 (s, 3 H), 1.54-1.49 (m, 2H), 1.32-1.28 (m, 4 H), 1.22-1.15 (m, 1H), 0.90 (t, *J*= 7.0 Hz, 3 H) ppm; ^{13}C NMR (126 MHz, $CDCl_3$): δ = 139.7, 137.5, 135.1, 126.3, 124.3, 123.7, 78.1, 59.6, 39.6, 39.4, 34.7, 28.2, 26.3, 26.1, 22.8, 16.4, 16.1, 14.2, 11.4 ppm; HRMS (ESI): calcd. for $C_{19}H_{34}NaO_2$ $[M+Na]^+$: 317.2451 found: 317.2458.

Procedure for Synthesis of the Cyclic Homoallylic Alcohol 3g



To a solution of the aldehyde (7.5 mmol) in MeOH (7.5 mL) was added $NaBH_4$ (22.5 mmol) portion wise at 0 °C. The resulting mixture was stirred for 30 min at 0 °C and 30 min at r.t.. After quenching with water, the contents were extracted with ether. The combined organic layers were washed with brine, dried over $MgSO_4$, filtered and evaporated under reduced pressure. The crude product was purified through column chromatography (hexane:EtOAc= 10:1).

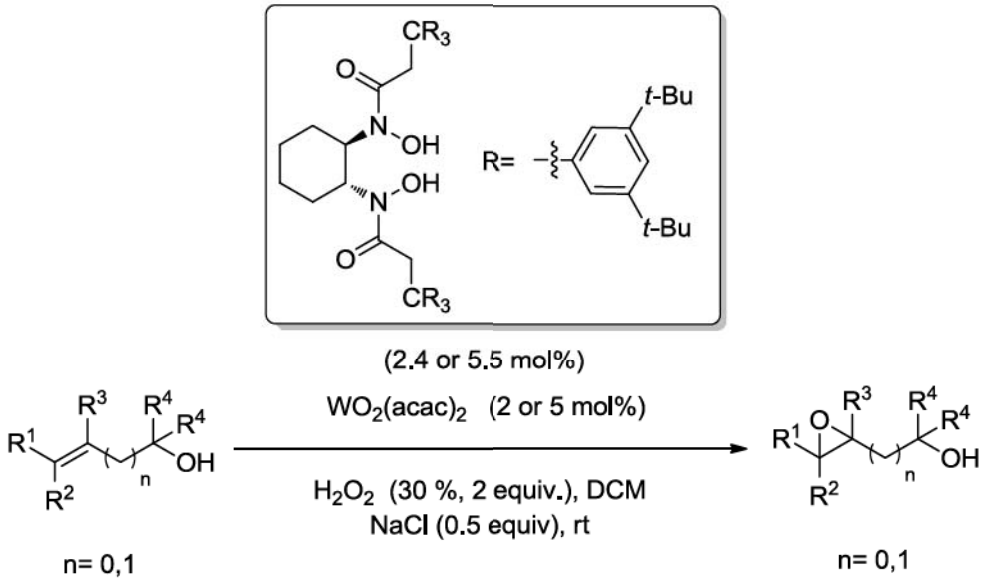


3g

Yield (1.07 g, 85 %), IR (film): 3393, 2966, 2926, 2905, 2864, 2829, 1473, 1456, 1374, 1359, 1038, 1018, 997, 614 cm^{-1}; ^1H NMR (500 MHz, $CDCl_3$): δ = 3.62 (t, *J*= 8.5 Hz, 2 H), 2.35 (t, *J*= 8.0 Hz, 2 H), 1.92 (dd, *J*= 12.5, 6.0 Hz, 2 H), 1.64 (s, 3 H), 1.58-1.55 (m, 2 H), 1.42 (dd, *J*= 6.0, 2.5 Hz, 2 H) ppm; ^{13}C NMR (126 MHz, $CDCl_3$): δ = 132.9, 129.8, 62.7, 39.9,

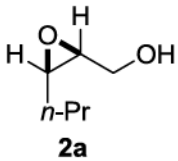
34.9, 32.9, 32.4, 28.7 (2 C), 20.3, 19.6 ppm; HRMS (ESI): calcd. for $C_{11}H_{20}O$ $[M+H]^+$: 169.1587 found: 169.1584.

General Procedure for the Epoxidation of Allylic and Homoallylic Alcohols



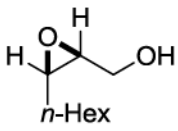
To a stirred solution of BHA-**5** (0.012 or 0.0275 mmol, 2.4 or 5.4 mmol%), $WO_2(acac)_2$ (0.01 or 0.025 mmol, 2 or 5 mmol%) and NaCl (14.6 mg, 0.25 mmol) in dichloromethane (5.0 mL) were added 30 % aqueous H_2O_2 (1.0 mmol, 102 µL) and the allylic or homoallylic alcohols (0.50 mmol). After stirring for the time given in Chart 1, Chart 2 and Chart 3 the solvent was removed in vacuum and the residue was purified by flash chromatography on silica gel (hexane:ether or hexane:EtOAc) affording the corresponding epoxides.

For the reaction on a scale of 10 mmol **1a** the reaction mixture was quenched by aq. sat. Na_2SO_3, before contents were extracted with dichloromethane. The combined organic layers were washed with brine, dried over $MgSO_4$, filtered and evaporated under reduced pressure. The crude product was purified through column chromatography (hexane:EtOAc= 10:1 to 2:1) yielding the BHA-**5** and the epoxide **2a**.



2a

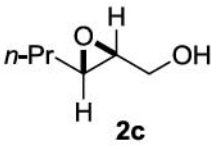
((2S,3R)-3-Propyloxiran-2-yl)methanol (**2a**) was isolated by flash chromatography on silica gel (hexane:ether= 1:1) as a colorless oil (53 mg, 92 %). $[\alpha]^{20}_D = -6.1$ (c = 1.2, $CHCl_3$), Lit. $[\alpha]^{26}_D = -5.4$ (c = 1.23, $CHCl_3$) for (*S*, *R*)-isomer;[8] ^{1}H NMR (500 MHz, $CDCl_3$): δ = 3.85 (dd, *J* = 17.5, 4.0 Hz, 1 H), 3.66 (dd, *J* = 12.0, 7.5 Hz, 1 H), 3.18-3.15 (m, 1 H), 3.05-3.04 (m, 1 H), 2.90 (brs, 1 H), 1.57-1.46 (m, 4 H), 0.98 (t, *J*= 7.0 Hz, 3 H) ppm; ^{13}C NMR (126 MHz, $CDCl_3$): δ = 61.1, 57.3, 56.9, 30.1, 20.1, 14.0 ppm.



2b

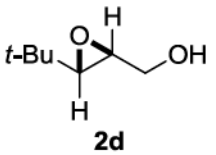
((2S,3R)-3-Hexyloxiran-2-yl)methanol (**2b**) was isolated by flash chromatography on silica gel (hexane:EtOAC= 3:1) as a colorless oil (74 mg, 94 %). ^{1}H NMR (500 MHz, $CDCl_3$): δ = 3.85-

3.82 (m, 1 H), 3.68 (d, J = 7.0 Hz, 1 H), 3.18-3.15 (m, 1 H), 3.05-3.02 (m, 1 H), 2.08 (brs, 1 H), 1.58-1.28 (m, 10 H), 0.89 (t, J= 7.0 Hz, 3 H) ppm; ^{13}C NMR (126 MHz, $CDCl_3$): δ = 61.1, 57.5, 57.0, 31.8, 29.2, 28.1, 26.7, 22.7, 14.2 ppm.



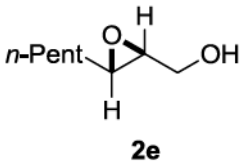
2c

((2S,3S)-3-Propyloxiran-2-yl)methanol (**2c**) was isolated by flash chromatography on silica gel (hexane:ether= 1:1) as a colorless oil (52 mg, 90 %). $[\alpha]^{20}_D$ = 46.1 (c = 1.0, $CHCl_3$), Lit. $[\alpha]^{20}_D$ = 44.6 (c = 1.0, $CHCl_3$) for (*S*, *S*)-isomer;[9] ^{1}H NMR (500 MHz, $CDCl_3$): δ = 3.92 (dd, J = 12.5, 2.0 Hz, 1 H), 3.63 (d, J = 12.0 Hz, 1 H), 2.98-2.92 (m, 2 H), 1.74 (brs, 1 H), 1.59-1.45 (m, 4 H), 0.97 (t, J= 7.5 Hz, 3 H) ppm; ^{13}C NMR (126 MHz, $CDCl_3$): δ = 61.8, 58.5, 55.9, 33.7, 19.4, 14.0 ppm.



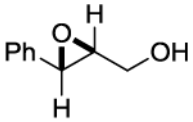
2d

((2S,3S)-3-(tert-Butyl)oxiran-2-yl)methanol (**2d**) was isolated by flash chromatography on silica gel (hexane:EtOAC= 3:1) as a colorless oil (57 mg, 88 %). ^{1}H NMR (500 MHz, $CDCl_3$): δ = 3.93-3.89 (m, 1 H), 3.62-3.58 (m, 1 H), 3.05-3.04 (m, 1 H), 2.76 (brs, 1 H), 2.23-2.22 (m, 4 H), 0.94 (s, 9 H) ppm; ^{13}C NMR (126 MHz, $CDCl_3$): δ = 63.8, 62.3, 55.6, 30.6, 25.9 (3 C) ppm.



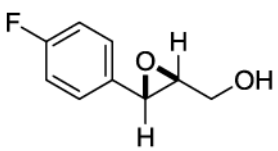
2e

((2S,3S)-3-Pentyloxiran-2-yl)methanol (**2e**) was isolated by flash chromatography on silica gel (hexane:EtOAc= 3:1) as a colorless oil (65 mg, 90 %). ^{1}H NMR (500 MHz, $CDCl_3$): δ = 3.93-3.91 (m, 1 H), 3.65-3.63 (m, 1 H), 2.98-2.91 (m, 2 H), 1.80-1.79 (m, 1 H), 1.56 (dd, J= 7.5, 6.0 Hz, 2 H), 1.48-1.43 (m, 4 H), 0.89 (t, J= 7.0 Hz, 3 H) ppm; ^{13}C NMR (126 MHz, $CDCl_3$): δ = 61.9, 58.6, 56.1, 31.7 (2 C), 25.8, 22.7, 14.1 ppm.



2f

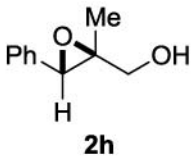
((2S,3S)-3-Phenyloxiran-2-yl)methanol (**2f**) was isolated by flash chromatography on silica gel (hexane:EtOAc= 4:1) as a colorless syrup (65 mg, 87 %). $[\alpha]^{20}_D$ = −46.1 (c = 1.2, $CHCl_3$), Lit. $[\alpha]^{20}_D$ = −46.4 (c = 1.32, $CHCl_3$) for (*S*, *S*)-isomer;[9] ^{1}H NMR (500 MHz, $CDCl_3$): δ = 7.37-7.27 (m, 5 H), 4.06-4.03 (m, 1 H), 3.93 (d, J = 2.0 Hz, 1 H), 3.82-3.78 (m, 1 H), 3.24-3.22 (m, 1 H), 2.27 (dd, J= 7.0, 6.0 Hz, 1 H) ppm; ^{13}C NMR (126 MHz, $CDCl_3$): δ = 136.8, 128.7 (2 C), 128.5, 125.9 (2 C), 62.6, 61.4, 55.7 ppm.



2g

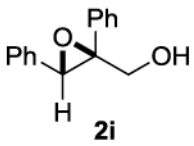
((2S,3S)-3-(4-Fluorophenyl)oxiran-2-yl)methanol (**2g**) was isolated by flash chromatography on silica gel (hexane:EtOAc= 6:1) as a colorless syrup (61 mg, 72 %). ^{1}H NMR (500 MHz, $CDCl_3$): δ = 7.26-7.23 (m, 2 H), 7.06-7.02 (m, 2 H), 4.06-4.02 (m,

1 H), 3.92 (d, J = 2.0 Hz, 1 H), 3.82-3.77 (m, 1H), 3.20-3.19 (m, 1 H), 2.24-2.18 (m, 1 H) ppm; ^{13}C NMR (126 MHz, $CDCl_3$): δ = 162.9 (d, J = 244.4 Hz), 132.5 (d, J = 2.5 Hz), 127.5 (d, J = 7.6 Hz, 2 C), 115.6 (d, J = 22.7 Hz, 2 C), 62.6, 61.3, 55.2 ppm.



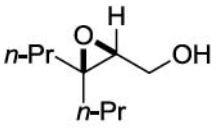
2h

((2S,3S)-2-Methyl-3-phenyloxiran-2-yl)methanol (**2h**) was isolated by flash chromatography on silica gel (hexane:EtOAc= 3:1) as a colorless syrup (71 mg, 87 %). $[\alpha]^{20}_D$ = −14.1 (c = 2.0, $CHCl_3$), Lit. $[\alpha]^{25}_D$ = −16.9 (c = 2.0, $CHCl_3$) for (*S*, *S*)-isomer;[9] ^{1}H NMR (500 MHz, $CDCl_3$): δ = 7.38-7.35 (m, 3 H), 7.31-7.26 (m, 2 H), 4.23 (s, 1 H), 3.86 (d, J= 12.5 Hz, 1 H), 3.76 (d, J= 12.5 Hz, 1 H), 1.10 (s, 3 H) ppm; ^{13}C NMR (126 MHz, $CDCl_3$): δ = 135.7, 128.1 (2 C), 127.7, 126.5 (2 C), 65.1, 63.8, 60.3, 13.6 ppm.



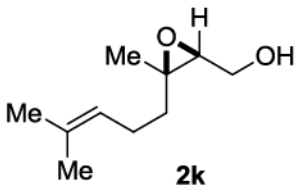
2i

((2S,3S)-2,3-Diphenyloxiran-2-yl)methanol (**2i**) was isolated by flash chromatography on silica gel (hexane:EtOAc= 3:1) as a colorless solid (89 mg, 79 %). $[\alpha]^{20}_D$ = −58.5 (c = 0.75, DCM), Lit. $[\alpha]_D$ = −65.2 (c = 1.0, DCM) for (*S*,*S*)-isomer;[10] ^{1}H NMR (500 MHz, $CDCl_3$): δ = 7.20-7.19 (m, 5 H), 7.11-7.10 (m, 3 H), 7.04-7.02 (m, 2 H), 5.52 (s, 1 H), 4.04-4.03 (m, 2 H), 2.28 (t, J= 6.5 Hz,1 H) ppm; ^{13}C NMR (126 MHz, $CDCl_3$): δ = 134.9, 134.5, 128.2 (2 C), 128.0, 127.9 (2 C), 127.8 (2 C), 127.7, 126.7 (2 C), 69.3, 65.1, 60.9 ppm.



2j

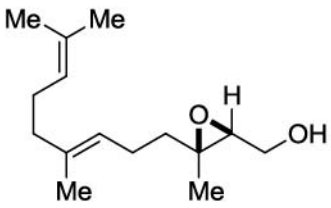
(S)-(3,3-Dipropyloxiran-2-yl)methanol (**2j**) was isolated by flash chromatography on silica gel (hexane:EtOAc= 3:1) as a colorless oil (67 mg, 86 %). IR (film): 3412, 2961, 2874, 1718, 1684, 1576, 1466, 1478, 1431, 1380, 1287, 1257, 1133, 1034, 977, 944, 901, 845, 810, 752, 705, 675, 648 cm^{-1}; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 3.88-3.84 (m, 1 H), 3.70-3.65 (m, 1 H), 2.97 (dd, J = 7.0, 4.0 Hz, 1 H), 2.00 (s, 1 H), 1.61-1.55 (m ,2 H), 1.50-1.38 (m, 6 H), 0.95-0.91(m, 6 H); ^{13}C NMR (126 MHz, $CDCl_3$): δ = 64.2, 63.1, 61.4, 37.3, 32.6, 18.8, 18.1, 14.5, 14.3 ppm; HRMS (ESI): calcd. for $C_9H_{18}NaO_2$ $[M+Na]^+$: 181.1199 found: 181.1208.



2k

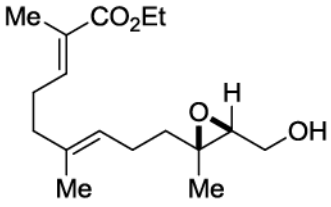
((2S,3R)-3-Methyl-3-(4-methylpent-3-en-1-yl)oxiran-2-yl)methanol (**2k**) was isolated by flash chromatography on silica gel (hexane:EtOAc= 3:1) as a colorless oil (82 mg, 96 %). $[\alpha]^{20}_D$ = −19.7 (c = 1.3, $CHCl_3$), Lit. $[\alpha]^{23}_D$ = −18.8 (c = 1.52, $CHCl_3$) for (*S*, *R*)-isomer;[8] ^{1}H NMR (500 MHz, $CDCl_3$): δ = 5.11-5.09 (m, 1 H), 3.82-3.80 (m, 1 H), 3.67 (dd, J = 12.0, 5.0 Hz, 1 H), 2.98-2.96 (m, 1 H), 2.15-2.06 (m, 2 H), 1.70 (s, 3 H), 1.68-1.65 (m, 2 H), 1.62

(s, 3 H), 1.52-1.45 (m, 1 H), 1.35 (s, 3 H) ppm; ^{13}C NMR (126 MHz, $CDCl_3$): δ = 132.7, 123.5, 64.3, 61.6, 61.4, 33.3, 25.8, 24.3, 22.3, 17.8 ppm.



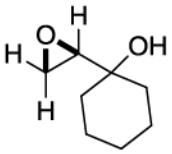
2l

((2S,3S)-3-((E)-4,8-Dimethylnona-3,7-dien-1-yl)-3-methyloxiran-2-yl)methanol (**2l**) was isolated by flash chromatography on silica gel (hexane:EtOAc= 4:1) as a colorless oil (105 mg, 88 %). $[\alpha]^{20}_D$ = −6.3 (c = 1.0, $CHCl_3$), Lit. $[\alpha]^{24}_D$ = −5.7 (c = 1.083, $CHCl_3$) for (*S*, *S*)-isomer;[8] ^{1}H NMR (500 MHz, $CDCl_3$): δ = 5.11-5.07 (m, 2 H), 3.83 (dd, *J* = 12.0, 4.5 Hz, 1 H), 3.69 (dd, *J* = 12.0, 6.5 Hz, 1 H), 2.98 (dd, *J* = 6.5, 4.5 Hz, 1 H), 2.11-2.04 (m, 4 H), 1.98 (t, *J* = 7.0 Hz, 2 H), 1.73-1.67 (m, 3 H), 1.68 (s, 3 H), 1.61 (s, 3 H), 1.60 (s, 3 H), 1.51-1.46 (m, 1 H), 1.31 (s, 3 H) ppm; ^{13}C NMR (126 MHz, $CDCl_3$): δ = 136.0, 131.6, 124.4, 123.4, 63.0, 61.6, 61.3, 39.8, 38.7, 26.8, 25.8, 23.8, 17.8, 16.9, 16.1 ppm.



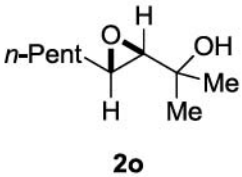
2m

(2E,6E)-Ethyl 9-((2S,3S)-3-(hydroxymethyl)-2-methyloxiran-2-yl)-2,6-dimethylnona -2,6-dienoate (**2m**) was isolated by flash chromatography on silica gel (hexane:EtOAc= 2:1) as a colorless oil (124 mg, 84 %). ^{1}H NMR (500 MHz, $CDCl_3$): δ = 6.74-6.71 (m, 1 H), 5.15-5.13 (m, 1 H), 4.18 (q, *J* = 7.0 Hz, 2 H), 3.86-3.80 (m, 1 H), 3.70-3.64 (m, 1 H), 2.97 (dd, *J* = 7.0, 4.5 Hz, 1 H), 2.28-2.25 (m, 2 H), 2.13-2.08 (m, 5 H), 1.83 (s, 3 H), 1.74-1.67 (m, 1 H), 1.62 (s, 3 H), 1.51-1.47 (m, 1 H), 1.30 (s, 3 H), 1.29 (t, *J* = 7.0 Hz, 3 H) ppm; ^{13}C NMR (126 MHz, $CDCl_3$): δ = 168.5, 142.0, 134.8, 128.0, 124.3, 63.0, 61.5, 61.1, 60.6, 38.5, 38.3, 27.2, 23.7, 16.9, 16.0, 14.4, 12.5 ppm.



2n

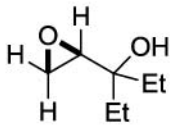
(R)-1-(Oxiran-2-yl)cyclohexanol (**2n**) was isolated by flash chromatography on silica gel (hexane:EtOAc= 3:1) as a colorless oil (61 mg, 86 %). ^{1}H NMR (500 MHz, $CDCl_3$): δ = 2.96 (dd, *J* = 3.5, 2.0 Hz, 1 H), 2.84 (dd, *J* = 5.0, 2.5 Hz, 1 H), 2.71 (dd, *J*= 1 5.0, 4.0 Hz, 1 H), 1.72-1.51 (m, 9 H), 1.56-1.51 (m, 1 H), 1.32-1.26 (m, 1 H) ppm; ^{13}C NMR (126 MHz, $CDCl_3$): δ = 68.2, 58.2, 43.7, 36.5, 33.7, 25.9, 21.5 (2 C) ppm.



2o

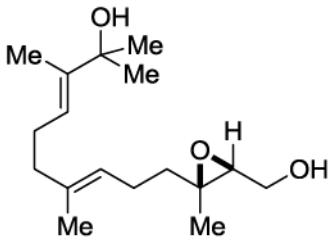
2-((2R,3S)-3-Pentyloxiran-2-yl)propan-2-ol (**2o**) was isolated by flash chromatography on silica gel (hexane:EtOAc= 4:1) as a colorless oil (70 mg, 81 %). IR (film): 3417, 2957, 2926, 2855, 1734, 1717, 1700, 1684, 1652, 1636, 1559, 1540, 1521, 1507, 1472, 1464, 1457, 1436, 1419, 1180, 908, 688 cm^{-1}; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 3.00-2.99 (m, 1

H), 2.70-2.69 (m, 1 H), 1.77 (s, 1 H), 1.60-1.25 (m, 8 H), 1.32 (s, 3 H), 1.23 (s, 3 H), 0.91 (t, J= 7.0 Hz) ppm; ^{13}C NMR (126 MHz, $CDCl_3$): δ = 67.9, 65.1, 55.9, 31.7 (2 C), 28.0, 25.9, 25.1, 22.7, 14.1 ppm; HRMS (ESI): calcd. for $C_{10}H_{21}O_2$ $[M+H]^+$: 173.1536 found: 173.1537.



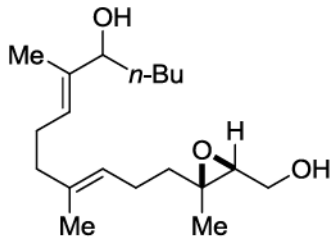
2p

(R)-3-(Oxiran-2-yl)pentan-3-ol (**2p**) was isolated by flash chromatography on silica gel (hexane:EtOAc= 8:1) as a colorless oil (51 mg, 78 %). ^{1}H NMR (500 MHz, $CDCl_3$): δ = 2.95 (dd, *J* = 4.0, 3.0 Hz, 1 H), 2.81 (dd, *J* = 5.5, 3.0 Hz, 1 H), 2.72 (dd, *J* = 5.0, 4.0 Hz, 2 H), 1.68-1.53 (m, 5 H), 0.98-0.93 (m, 6 H) ppm; ^{13}C NMR (126 MHz, $CDCl_3$): δ = 71.0, 56.5, 43.5, 32.0, 28.9, 7.8, 7.7 ppm.



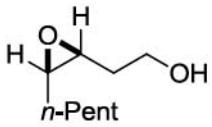
2u

(3E,7E)-10-((2S,3S)-3-(Hydroxymethyl)-2-methyloxiran-2-yl)-2,3,7-trimethyldeca-3,7-dien-2-ol (**2u**) was isolated by flash chromatography on silica gel (hexane:EtOAc= 2:1) as a colorless oil (120 mg, 85 %). IR (film): 3396, 2973, 2926, 1457, 1383, 1035, 957, 859, 668 cm^{-1}; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 5.48-5.45 (m, 1 H), 5.12-5.10 (m, 1 H), 3.82-3.81 (m, 1 H), 3.65-3.64 (m, 1 H), 2.97 (dd, *J* = 7.0, 4.5 Hz, 1 H), 2.11-2.04 (m, 6 H), 1.70-1.50 (m, 2 H), 1.63 (s, 3 H), 1.61 (s, 3 H), 1.31 (s, 3 H), 1.29 (s, 3 H) ppm; ^{13}C NMR (126 MHz, $CDCl_3$): δ = 141.4, 135.4, 123.8, 121.7, 73.7, 63.0, 61.5, 61.3, 39.4, 38.4, 29.0 (2 C), 26.2, 23.7, 16.8, 16.0, 13.0 ppm; HRMS (ESI): calcd. for $C_{17}H_{30}NaO_3$ $[M+Na]^+$: 305.2087 found: 305.2091.



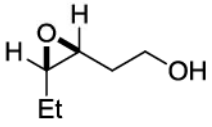
2v

(6E,10E)-13-((2S,3S)-3-(Hydroxymethyl)-2-methyloxiran-2-yl)-6,10-dimethyltrideca-6,10-dien-5-ol (**2v**) was isolated by flash chromatography on silica gel (hexane:EtOAc= 2:1) as a colorless oil (115 mg, 74 %). IR (film): 3393, 2955, 2955, 2925, 2855, 1464, 1457, 1437, 1419, 1383, 1034 cm^{-1}; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 5.35-5.30 (m, 1 H), 5.10-5.05 (m, 1 H), 3.97-3.96 (m, 1 H), 3.82 (dd, *J* = 4.0, 2.0 Hz, 1 H), 3.68 (dd, *J* = 7.0, 2.0 Hz, 1 H), 2.98 (dd, *J* = 4.0, 2.0 Hz, 1 H), 2.14-2.00 (m, 6 H), 1.68-1.50 (m, 2 H), 1.61 (s, 3 H), 1.59 (s, 3 II), 1.35-1.15 (6 II), 1.31 (s, 3 II), 0.90 (t, *J* = 7.0 Hz, 3 H) ppm; ^{13}C NMR (126 MHz, $CDCl_3$, mixture of two diastereomers): δ = 137.6, 137.5, 135.3 (2 peaks), 126.1 (2 peaks), 123.9, 78.1, 78.0, 62.9, 61.6, 61.3 (2 peaks), 39.4, 38.5 (2 peaks), 34.7 (2 peaks), 29.9, 28.2, 25.9 (2 peaks), 23.7 (2 peaks), 22.8, 16.8 (2 peaks), 16.1, 16.0, 14.2, 11.5 (2 peaks) ppm; HRMS (ESI): calcd. for $C_{19}H_{34}NaO_3$ $[M+Na]^+$: 333.2400 found: 333.2406.



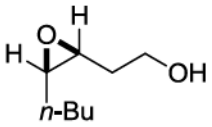
4a

2-((2S,3R)-3-Pentyloxiran-2-yl)ethanol (**4a**) was isolated by flash chromatography on silica gel (hexane:EtOAc= 3:1) as a colorless oil (70 mg, 89 %). ^{1}H NMR (500 MHz, $CDCl_3$): δ = 3.90-3.80 (m, 2 H), 3.10 (dd, *J* = 8.0, 4.0 Hz, 1 H), 2.96 (dd, *J*= 6.5, 2.0 Hz, 1 H), 1.90-1.87 (m, 2 H), 1.72-1.69 (m, 2 H), 1.55-1.33 (m, 7 H), 0.90 (t, *J*= 7.0 Hz, 3 H) ppm; ^{13}C NMR (126 MHz, $CDCl_3$): δ = 60.9, 56.9, 55.2, 31.8, 30.7, 28.0, 26.3, 22.7, 14.1 ppm.



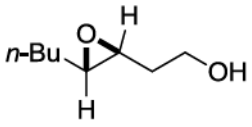
4b

2-((2S,3R)-3-Ethyloxiran-2-yl)ethanol (**4b**) was isolated by flash chromatography on silica gel (hexane:ether= 1:1) as a colorless oil (49 mg, 85 %). ^{1}H NMR (500 MHz, $CDCl_3$): δ = 3.88-3.83 (m, 2 H), 3.13-3.10 (m, 1 H), 2.94-2.91 (m, 1 H), 2.20 (brs, 1 H), 1.88-1.86 (m, 2 H), 1.72-1.69 (m, 1 H), 1.61-1.52 (m, 2 H), 1.05 (t, *J*= 7.0 Hz, 3 H) ppm; ^{13}C NMR (126 MHz, $CDCl_3$): δ = 60.7, 58.1, 55.3, 30.6, 21.3, 10.5 ppm.



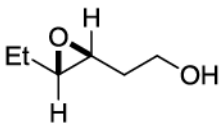
4c

2-((2S,3R)-3-Butyloxiran-2-yl)ethanol (**4c**) was isolated by flash chromatography on silica gel (hexane:EtOAc= 3:1) as a colorless oil (66 mg, 92 %). $[\alpha]^{20}_{D}$ = −19.5 (c = 0.75, $CHCl_3$), Lit. $[\alpha]^{25}_{D}$ = −19.7 (c = 0.74, $CHCl_3$) for (*S*, *R*)-isomer;[11] ^{1}H NMR (500 MHz, $CDCl_3$): δ = 3.87-3.85 (m, 2 H), 3.12-3.09 (m, 1 H), 2.98-2.95 (m, 1 H), 2.16 (brs), 1.88-1.87 (m, 2 H), 1.72-1.69 (m, 2 H), 1.55-1.36 (m, 6 H), 0.93 (t, *J*= 7.0 Hz, 3 H) ppm; ^{13}C NMR (126 MHz, $CDCl_3$): δ = 60.8, 56.9, 55.1, 30.7, 28.7, 27.7, 22.7, 14.1 ppm.



4d

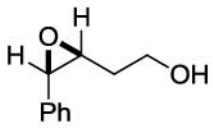
2-((2S,3S)-3-Butyloxiran-2-yl)ethanol (**4d**) was isolated by flash chromatography on silica gel (hexane:EtOAc= 3:1) as a colorless oil (65 mg, 91 %). ^{1}H NMR (500 MHz, $CDCl_3$): δ = 3.80-3.78 (m, 2 H), 2.88-2.86 (m, 1 H), 2.81-2.79 (m, 1 H), 2.00-1.90 (m, 1 H), 1.72-1.68 (m, 2 H), 1.54 (dd, *J* = 13.0, 5.5 Hz, 1 H), 1.45-1.36 (m, 4 H), 0.92 (t, *J* = 7.0 Hz, 3 H) ppm; ^{13}C NMR (126 MHz, $CDCl_3$): δ = 60.2, 58.4, 57.0, 34.3, 31.8, 28.2, 22.6, 14.1 ppm.



4e

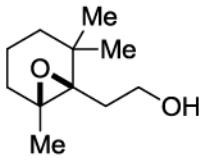
2-((2S,3S)-3-Ethyloxiran-2-yl)ethanol (**4e**) was isolated by flash chromatography on silica gel (hexane:ether= 1:1) as a colorless oil (46 mg, 80 %). $[\alpha]^{20}_{D}$ = −42.2 (c = 1.75, EtOH), Lit. $[\alpha]^{24}_{D}$ = 17.7 (c = 1.73, EtOH) for (*R*, *R*)-isomer;[12] ^{1}H NMR (500 MHz, $CDCl_3$): δ = 3.80-3.78 (m, 2 H), 2.89-2.87 (m, 1 H), 2.80-2.78 (m, 1 H), 2.15 (brs), 2.00-1.96 (m, 2 H), 1.72-

1.68 (m, 1 H), 1.61-1.57 (m, 2 H), 1.00 (t, *J*= 7.0 Hz, 3 H) ppm. ^{13}C NMR (126 MHz, $CDCl_3$): δ = 60.2, 59.5, 56.7, 34.3, 25.1, 9.9 ppm.



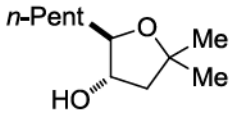
4f

2-((2S,3R)-3-Phenyloxiran-2-yl)ethanol (**4f**) was isolated by flash chromatography on silica gel (hexane:EtOAc= 3:1) as a colorless syrup (67 mg, 82 %). IR (film): 3390, 3062, 3030, 2924, 1957, 1891, 1817, 1766, 171, 1605, 1584, 1549, 1496, 1453, 1376, 1314, 1256, 1200, 1105, 1050, 912, 883, 786, 742, 700, 623, 549 cm^{-1}; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 7.37-7.26 (m, 5 H), 4.13 (d, *J*= 4.0 Hz, 1 H), 3.78-3.77 (m, 2 H), 3.42-3.39 (s, 1 H), 1.62-1.54 (m, 3 H) ppm; ^{13}C NMR (126 MHz, $CDCl_3$): δ = 135.4, 128.3 (2 C), 127.8, 126.6 (2 C), 60.6, 57.4, 57.1, 30.0 ppm; HRMS (ESI): calcd. for $C_{10}H_{12}NaO_2$ $[M+Na]^+$: 187.0730 found: 187.0727.



4g

2-((1R,6S)-2,2,6-Trimethyl-7-oxabicyclo[4.1.0]heptan-1-yl)ethanol (**4g**) was isolated by flash chromatography on silica gel (hexane:EtOAc= 4:1) as a colorless oil (66 mg, 72 %). IR (film): 3417, 2937, 1461, 1385, 1363, 1081, 1046, 891, 674, 584, 538 cm^{-1}; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 3.85-3.84 (m, 1 H), 3.70-3.68 (m, 1 H), 2.48 (brs, 1 H), 2.00-1.85 (m, 3 H), 1.77-1.75 (m, 1 H), 1.38-1.35 (m, 3 H), 1.34 (s, 3 H), 0.99-0.96 (m, 1 H), 1.02 (s, 3 H), 1.00 (s, 3 H) ppm. ^{13}C NMR (126 MHz, $CDCl_3$): δ = 70.0, 63.8, 61.7, 35.2, 34.6, 29.9, 29.1, 26.0, 24.6, 21.8, 17.0 ppm; HRMS (ESI): calcd. for $C_{11}H_{20}NaO_2$ $[M+Na]^+$: 207.1356 found: 207.1356.



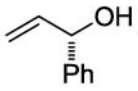
4h

(2R,3S)-5,5-Dimethyl-2-pentyltetrahydrofuran-3-ol (**4h**) was isolated by flash chromatography on silica gel (hexane:EtOAc= 8:1) as a colorless oil (70 mg, 75 %). IR (film): 3420, 2966, 2930, 2860, 1733, 1717, 1700, 1684, 1653, 1635, 1540, 1521, 1496, 1419, 1365, 1340, 1286, 1145, 1085, 1041, 944, 887, 865, 786, 767, 726, 668, 611 cm^{-1}; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 4.10-4.00 (m, 1 H), 3.78-3.76 (m, 1 H), 2.08 (dd, *J*= 13.0, 7.5 Hz, 1 H), 1.77 (dd, *J*= 13.0, 8.0 Hz, 2 H), 1.55-1.51 (m, 2 H), 1.41-1.30 (m, 7 H), 1.35 (s, 3 H), 1.26 (s, 3 H), 0.88 (t, *J*= 7.0 Hz, 3 H) ppm; ^{13}C NMR (126 MHz, $CDCl_3$): δ = 85.0, 79.9, 77.3, 47.7, 34.4, 32.1, 30.3, 28.9, 25.6, 22.7, 14.2 ppm; HRMS (ESI): calcd. for $C_{11}H_{22}NaO_2$ $[M+Na]^+$: 209.1512 found: 209.1512.

Procedure for the Kinetic Resolution of the Secondary Alcohol 5

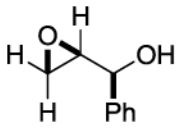
To a stirred solution of BHA-**5** (0.0275 mmol, 5.5 mmol%), $WO_2(acac)_2$ (0.025 mmol, 5 mmol%) and NaCl (14.6 mg, 0.25 mmol) in dichloromethane (5 mL) were added 30 % aqueous H_2O_2 (0.75 mmol, 77 µL) and α-

vinylbenzyl alcohol (0.50 mmol) at room temperature. After stirring for 24 h the solvent was removed in vacuum and the residue was purified by flash chromatography on silica gel (hexane:EtOAc= 4:1 to 2:1) affording the corresponding olefin **5** (29 mg, 43 %) and epoxide **6** (35 mg, 47 %).



5

(S)-1-Phenylprop-2-en-1-ol (**5**) $[\alpha]^{20}_{D} = -1.25$ (c = 0.75, $CHCl_3$), Lit. $[\alpha]^{25}_{D} = 1.3$ (c = 1.0, $CHCl_3$) for (*R*)-isomer;[13] ^{1}H NMR (500 MHz, $CDCl_3$): δ = 7.38-7.29 (m, 5 H), 6.09-6.03 (m, 1 H), 5.38-5.34 (m, 1 H), 5.22-5.19 (m, 2 H) ppm.

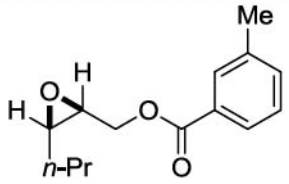
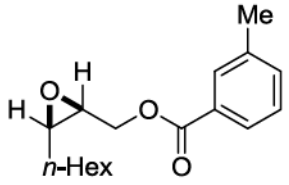
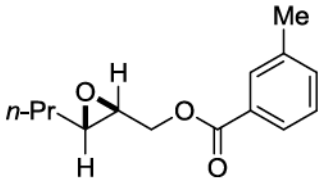
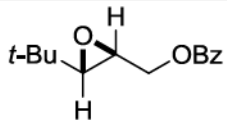
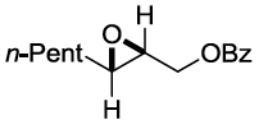
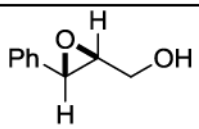
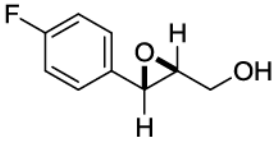
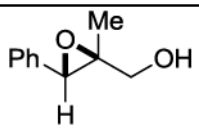


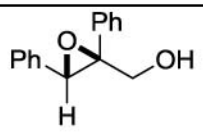
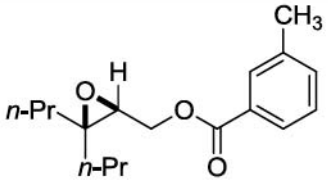
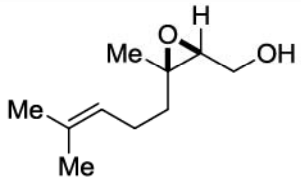
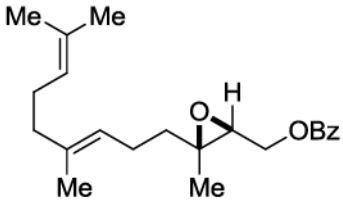
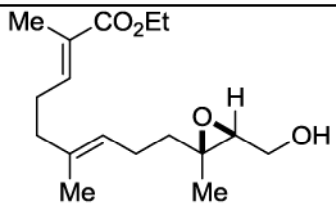
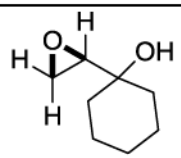
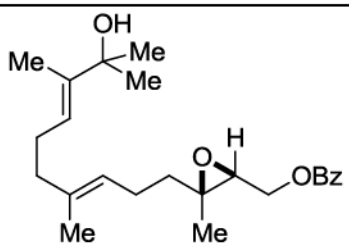
6

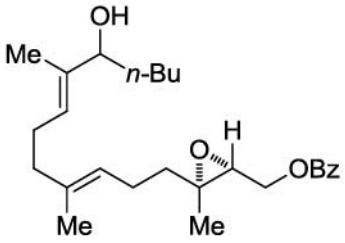
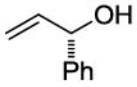
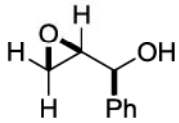
(S)-((R)-Oxiran-2-yl)(phenyl)methanol (**6**) $[\alpha]^{20}_{D} = 7.4$ (c = 0.70, $CHCl_3$), Lit. $[\alpha]^{25}_{D} = 7.6$ (c = 2.74, $CHCl_3$) for (*S*, *R*)-isomer;[14] ^{1}H NMR (500 MHz, $CDCl_3$): δ = 7.42-7.26 (m, 5 H), 4.99-4.97 (m, 1 H), 3.24-3.23 (m, 1 H), 2.98 (dd, *J* = 5.0, 2.5 Hz, 1 H), 2.78-2.76 (m, 1 H), 2.25 (s, 1 H) ppm; ^{13}C NMR (126 MHz, $CDCl_3$): δ = 139.5, 128.4, 128.8 (2 C), 128.4, 126.6, 126.4, 70.9, 55.2, 43.6 ppm.

HPLC and GC data

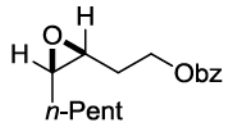
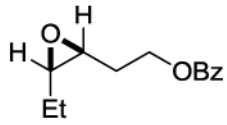
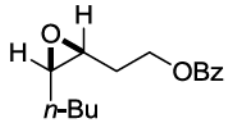
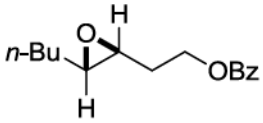
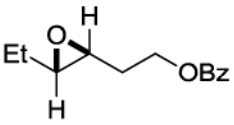
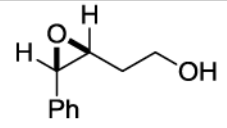
Chiral allylic alcohols

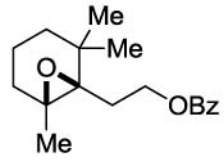
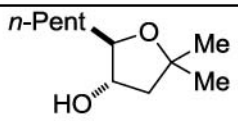
Product		Conditions
	**2a**	HPLC (Chiralcel OB-H): Condition: 98:2 Hexanes/2-Propanol, flow rate 1.0 mL/min; result: 12.8 min (minor), 17.6 min (major)
	**2b**	HPLC (Chiralcel OB-H): Condition: 98:2 Hexanes/2-Propanol, flow rate 1.0 mL/min; result: 8.3 min (minor), 11.7 min (major)
	**2c**	HPLC (Chiralcel OB-H): Condition: 98:2 Hexanes/2-Propanol, flow rate 0.5 mL/min; result: 32.8 min (minor), 35.9 min (major)
	**2d**	HPLC (Chiralcel OB-H): Condition: 98:2 Hexanes/2-Propanol, flow rate 1.0 mL/min; result: 8.1 min (major), 9.2 min (minor)
	**2e**	HPLC (Chiralcel OB-H): Condition: 98:2 Hexanes/2-Propanol, flow rate 1.0 mL/min; result: 12.8 min (major), 14.5 min (minor)
	**2f**	HPLC (Chiralcel OD-H): Condition: 95:5 Hexanes/2-Propanol, flow rate 1.0 mL/min; result: 24.1 min (major), 27.4 min (minor)
	**2g**	HPLC (Chiralcel OJ-H): Condition: 97.5:2.5 Hexanes/2-Propanol, flow rate 1.0 mL/min; result: 14.7 min (minor), 16.7 min (major)
	**2h**	HPLC (Chiralcel OD-H): Condition: 95:5 Hexanes/2-Propanol, flow rate 1.0 mL/min; result: 10.9 min (major), 14.3 min (minor)

	**2i**	HPLC (Chiralcel OD-H): Condition: 95:5 Hexanes/2-Propanol, flow rate 1.0 mL/min; result: 13.2 min (major), 15.4 min (minor)
	**2j**	HPLC (Chiralcel OJ-H): Condition: 99:1 Hexanes/2-Propanol, flow rate 1.0 mL/min; result: 10.3 min (major), 11.2 min (minor)
	**2k**	HPLC (Chiralpak IC): Condition: 97:3 Hexanes/2-Propanol, flow rate 1.0 mL/min; result: 36.9 min (minor), 39.2 min (major)
	**2l**	HPLC (Chiralcel OB-H): Condition: 99:1 Hexanes/2-Propanol, flow rate 1.0 mL/min; result: 10.9 min (major), 15.7 min (minor)
	**2m**	HPLC (Chiralpak IA): Condition: 95:5 Hexanes/2-Propanol, flow rate 1.0 mL/min; result: 15.7 min (major), 17.2 min (minor)
	**2n**	GC (Chiraldex B-DP): Condition: injection temperature 100 °C, column temp. = 50 to 65 °C at a rate of 1 °C/min, 65 °C for 30 min, 65 °C to 70 °C at a rate of 1 °C/min, 70 °C for 30 min, injection pressure = 120 kpa, detector temperature 250 °C; result: 65.1 min (minor), 66.1 min (major)
	**2u**	HPLC (Chiralpak IA): Condition: 95:5 Hexanes/2-Propanol, flow rate 1.0 mL/min; result: 16.3 min (major), 18.2 min (minor)

	**2v**	HPLC (Chiralpak IB): Condition: 97:3 Hexanes/2-Propanol, flow rate 1.0 mL/min; result: 11.3 min (major), 19.6 min (minor) and 12.3 min (major), 14.7 min (minor)
	**5**	HPLC (Chiralcel OD-H): Condition: 95:5 Hexanes/2-Propanol, flow rate 1.0 mL/min; result: 10.0 min (minor), 12.2 min (major)
	**6**	HPLC (Chiralcel OD-H): Condition: 98.5:1.5 Hexanes/2-Propanol, flow rate 1.0 mL/min; result: 44.0 min (major), 51.7 min (minor)

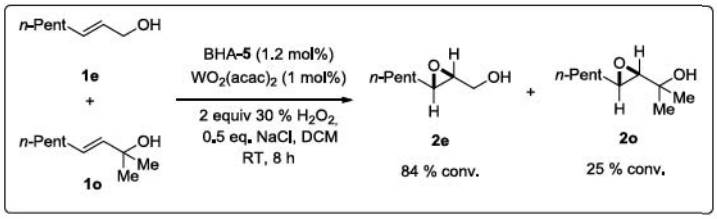
Chiral homoallylic alcohols

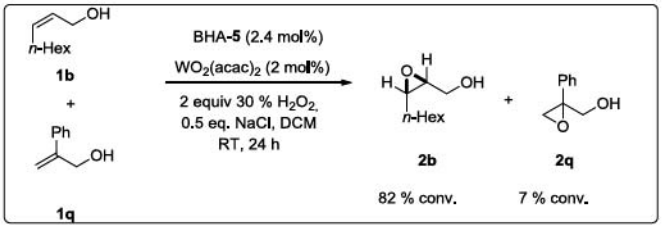
Product		Conditions
	**4a**	HPLC (Chiralcel OJ-H): Condition: 99:1 Hexanes/2-Propanol, flow rate 1.0 mL/min; result: 14.9 min (major), 18.8 min (minor)
	**4b**	HPLC (Chiralcel OB-H): Condition: 98:2 Hexanes/2-Propanol, flow rate 1.0 mL/min; result: 27.5 min (minor), 37.6 min (major)
	**4c**	HPLC (Chiralcel OJ-H): Condition: 99:1 Hexanes/2-Propanol, flow rate 1.0 mL/min; result: 17.1 min (major), 20.1 min (minor)
	**4d**	HPLC (Chiralcel OJ-H): Condition: 99:1 Hexanes/2-Propanol, flow rate 1.0 mL/min; result: 14.5 min (minor), 17.6 min (major)
	**4e**	HPLC (Chiralcel OB-H): Condition: 98:2 Hexanes/2-Propanol, flow rate 1.0 mL/min; result: 22.7 min (major), 25.4 min (minor)
	**4f**	HPLC (Chiralcel OB-H): Condition: 95:5 Hexanes/2-Propanol, flow rate 1.0 mL/min; result: 18.5 min (major), 21.9 min (minor)

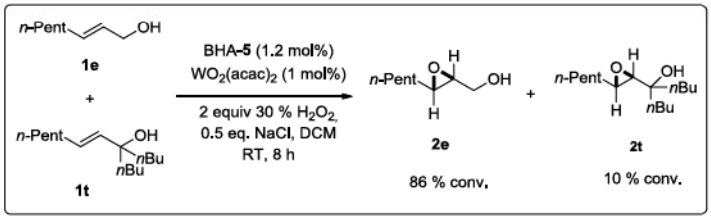
	**4g**	HPLC (Chiralcel OD-H): Condition: 99:1 Hexanes/2-Propanol, flow rate 1.0 mL/min; result: 7.0 min (minor), 8.6 min (major)
	**4h**	GC (Chiraldex B-DM): Condition: injection temperature 110 °C, column temp. = 80 °C, injection pressure = 120 kpa, detector temperature 250 °C; result: 72.2 min (major), 85.8 min (minor)

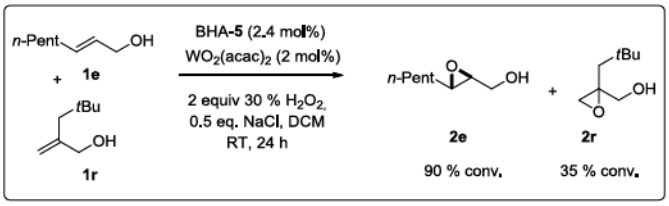
Detailed Reaction Conditions for the Investigation of the Chemoselectivity of Different Types of Allylic and Homoallylic Alcohols

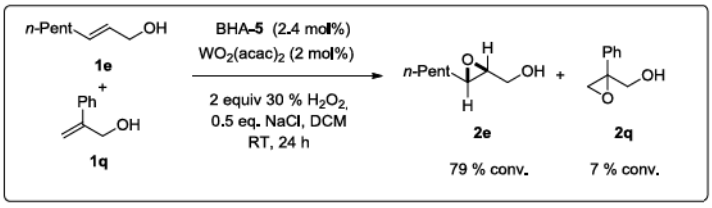
For allylic alcohols:

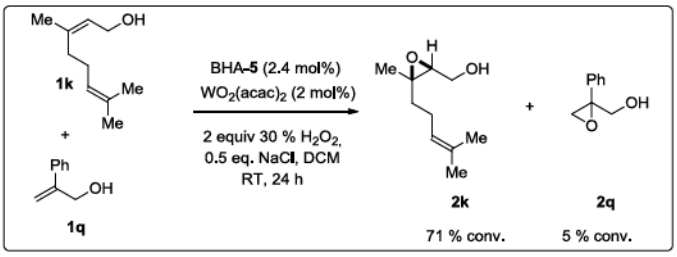


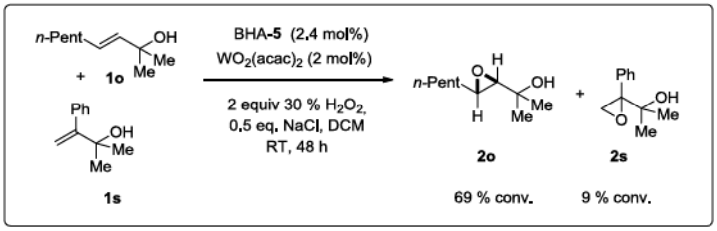




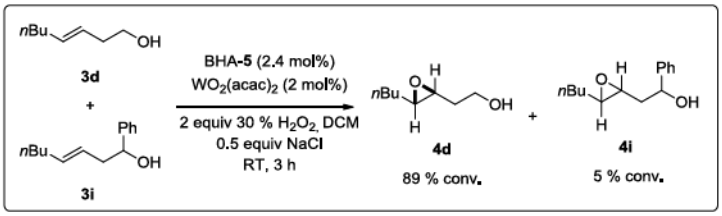


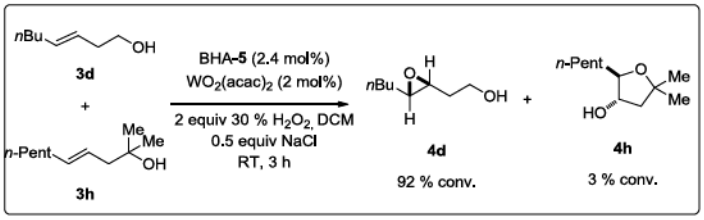


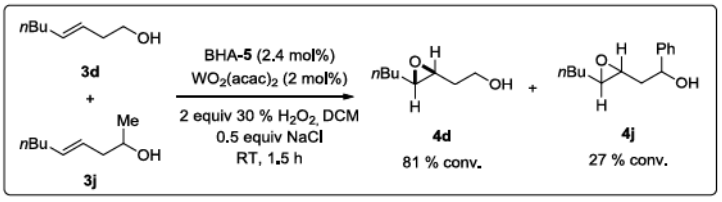


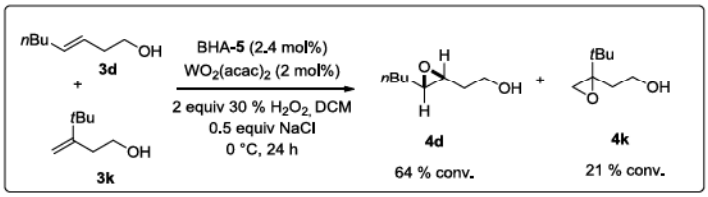


For homoallylic alcohols:









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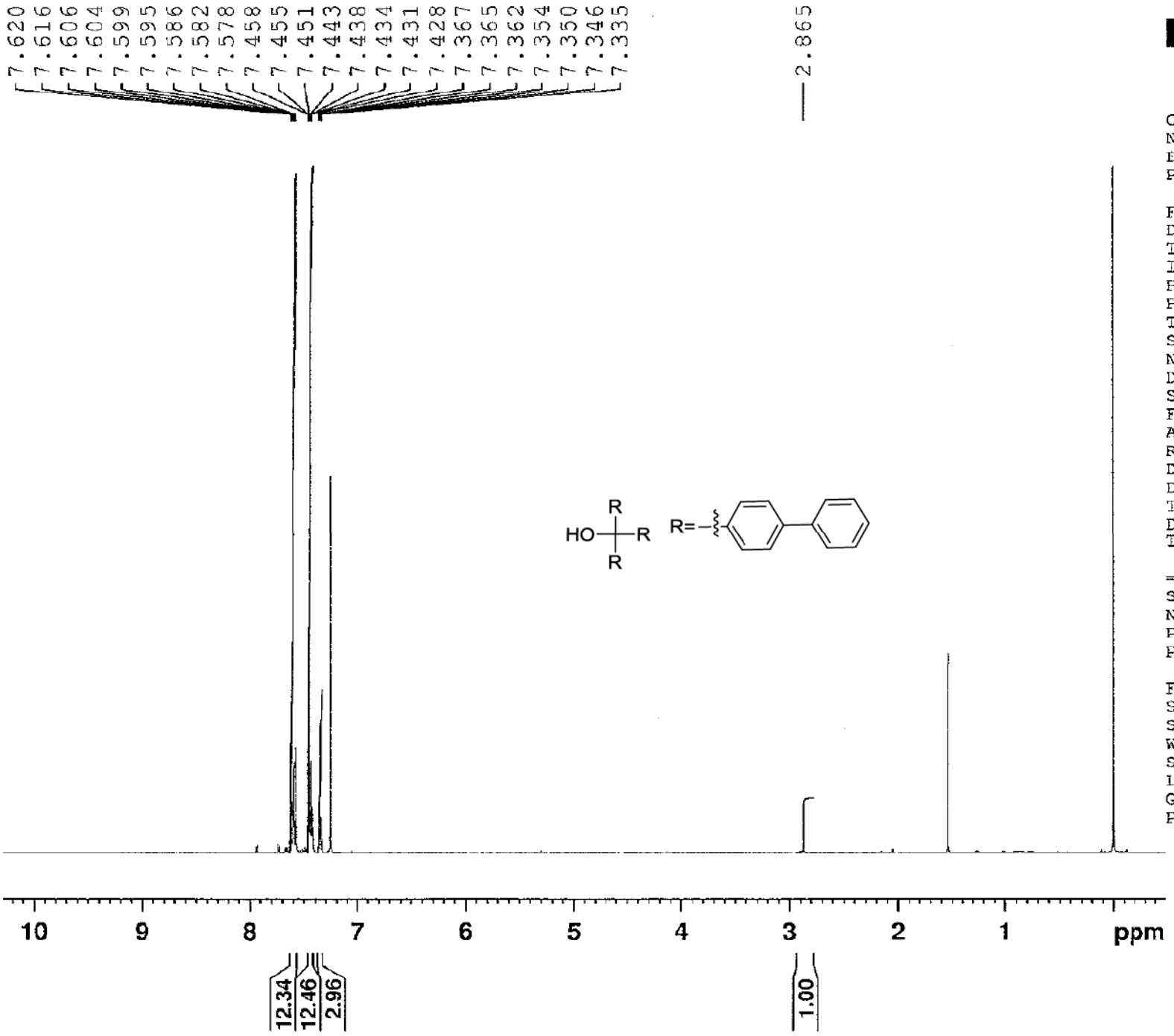

Current Data Parameters

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EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	20130503
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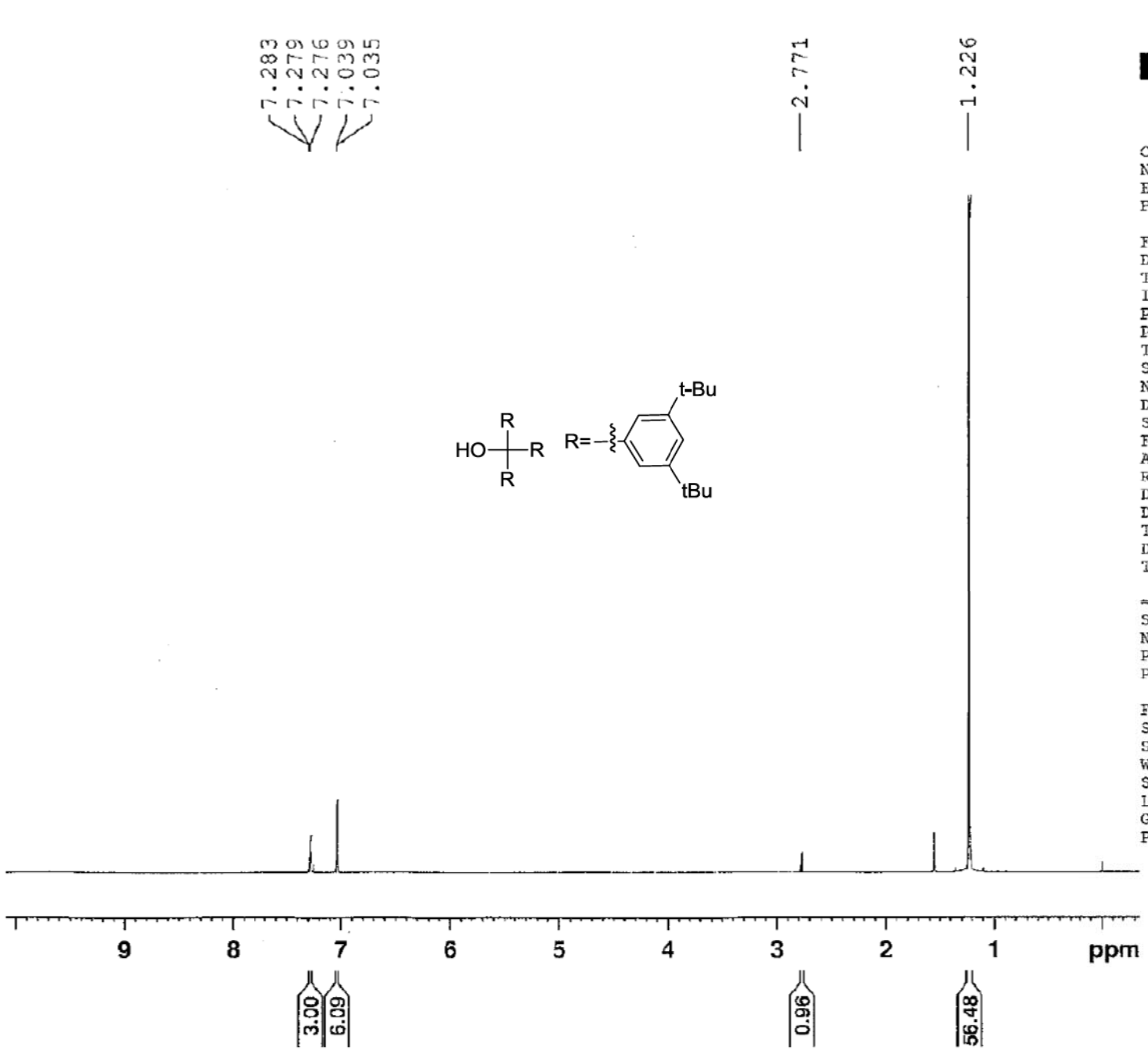
INSTRUM	spect
PROBHD	5 mm PATXI 1H/
PULPROG	zg
TD	59998
SOLVENT	CDCl3
NS	16
DS	0
SWH	10000.000 Hz
FIDRES	0.166672 Hz
AQ	2.9999001 sec
RG	196.79
DW	50.000 usec
DE	10.00 usec
TE	295.8 K
D1	3.00000000 sec
TD0	1

======== CHANNEL f1 ========

SFO1	500.1330885 MHz
NUC1	1H
P1	8.00 usec
PLW1	12.19999981 W

F2 - Processing parameters

SI	65536
SF	500.1300130 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00



BRUKER

Current Data Parameters
NAME cw324a1
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
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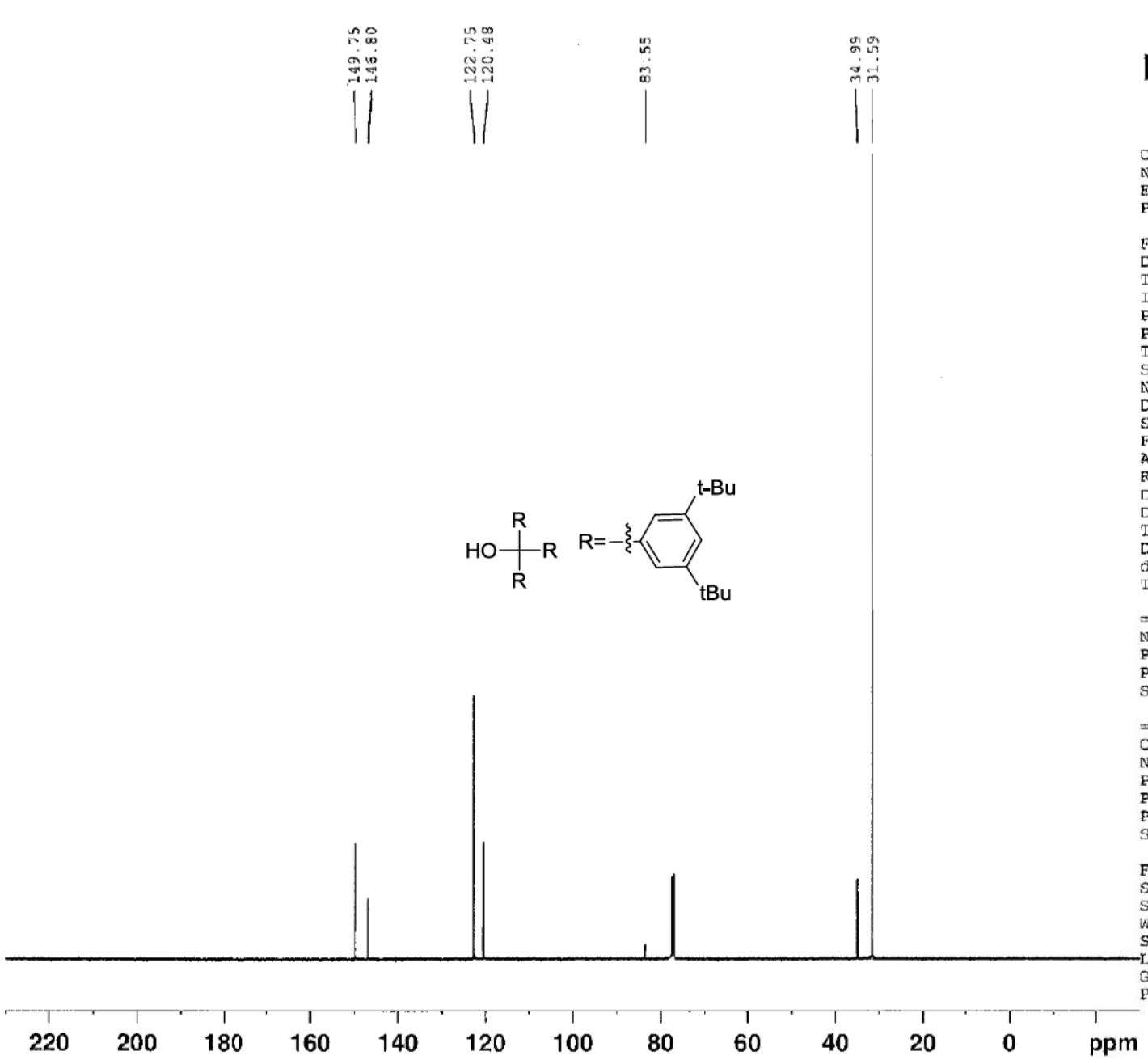
Time 14.19
INSTRUM spect
PROBHD 5 mm PATXI 1H/
PULPROG zg
TD 59998
SOLVENT CDCl3
NS 8
DS 0
SWH 10000.000 Hz
FIDRES 0.166672 Hz
AQ 2.9999001 sec
RG 31.72
DW 50.000 usec
DE 10.00 usec
TE 295.2 K
D1 5.00000000 sec
TD0 1

======== CHANNEL f1 ========
SFO1 500.1330885 MHz
NUC1 1H
P1 8.00 usec
PLW1 12.19999981 W

F2 - Processing parameters
SI 65536
SF 500.1300162 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



Current Data Parameters

NAME	cw324a-13C
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	20130721
Time	15.03
INSTRUM	spect
PROBHD	5 mm QNP 1H/13
PULPROG	zgdc
TD	142854
SOLVENT	CDCl3
NS	475
DS	0
SWH	32679.738 Hz
FIDRES	0.228763 Hz
AQ	2.1857162 sec
RG	18390.4
DW	15.300 usec
DE	7.50 usec
TE	294.9 K
D1	2.00000000 sec
d11	0.03000000 sec
TD0	1

======== CHANNEL f1 ========

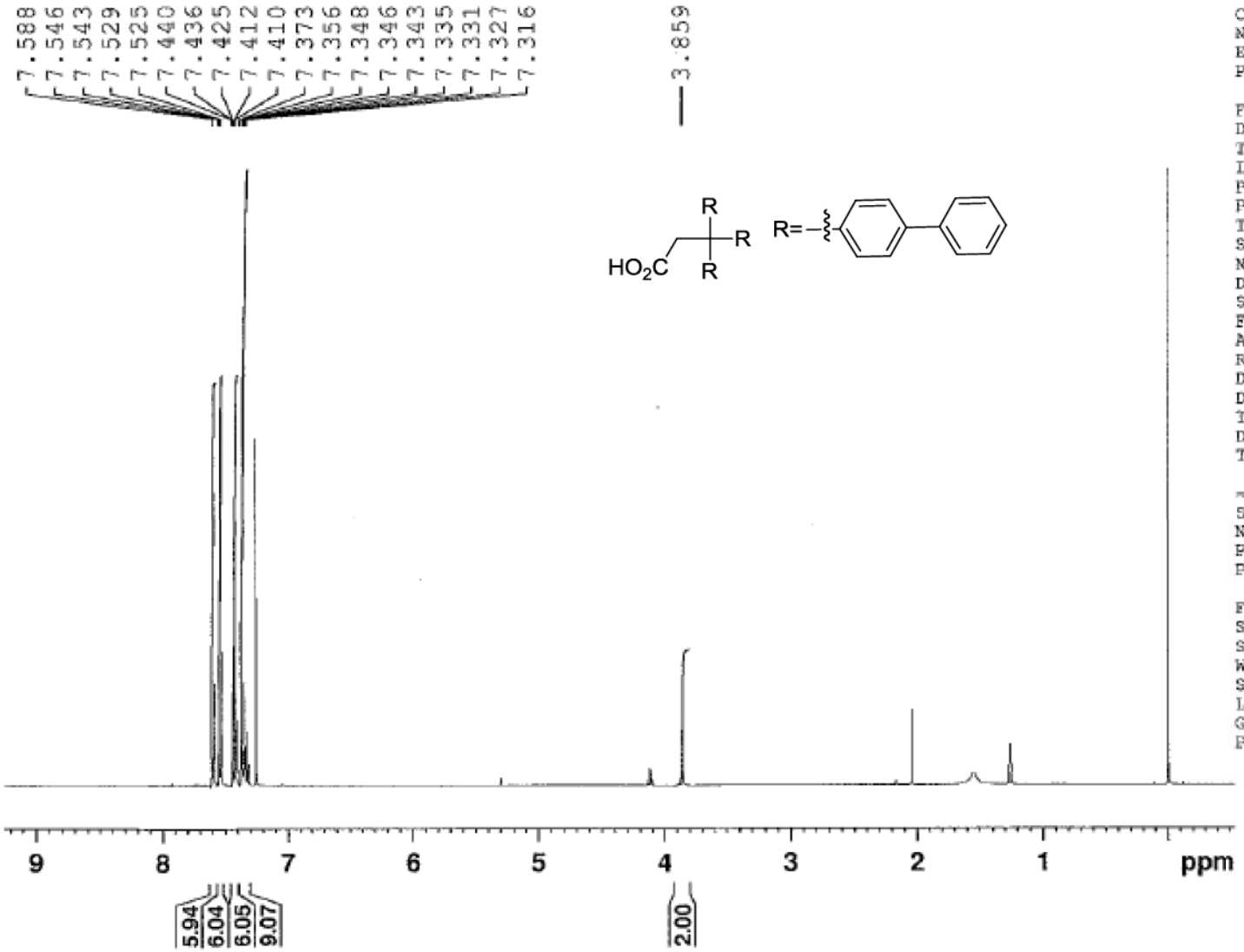
NUC1	13C
P1	8.50 usec
PL1	0.00 dB
SFO1	125.7049802 MHz

======== CHANNEL f2 ========

CPDPRG2	waltz16
NUC2	1H
PCPD2	90.00 usec
PL2	1.00 dB
PL12	21.00 dB
SFO2	499.8734991 MHz

F2 - Processing parameters

SI	65536
SF	125.6923982 MHz
WDW	EM
SSB	0
LB	1.00 Hz
GB	0
PC	1.40



BRUKER

```
Current Data Parameters
NAME                  cw330a
EXPNO                      1
PROCNO                     1

F2 - Acquisition Parameters
Date_              20130505
Time                 17.07
INSTRUM              spect
PROBHD    5 mm PATXI 1H/
PULPROG                zg
TD                   59998
SOLVENT              CDCl3
NS                      24
DS                       0
SWH              10000.000 Hz
FIDRES               0.166672 Hz
AQ                2.9999001 sec
RG                   196.79
DW                   50.000 usec
DE                   10.00 usec
TE                   295.9 K
D1             3.00000000 sec
TD0                      1

======== CHANNEL f1 ========
SFO1          500.1330885 MHz
NUC1                   1H
P1                   8.00 usec
PLW1         12.19999981 W

F2 - Processing parameters
SI                   65536
SF            500.1300135 MHz
WDW                    EM
SSB       0
LB                   0.30 Hz
GB        0
PC                   1.00
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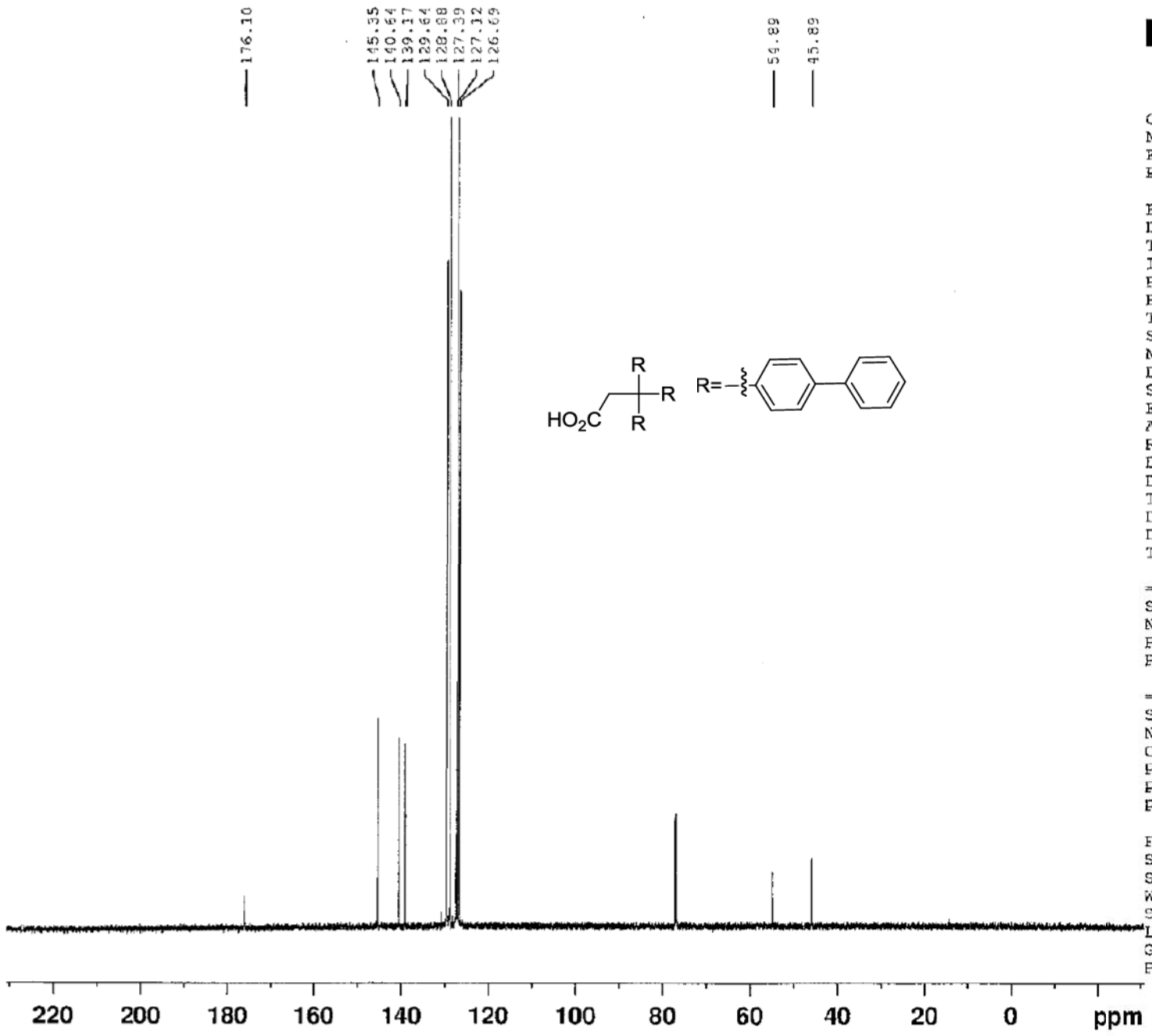

Current Data Parameters
NAME cw330a1-13C
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 20130731
Time 17.45
INSTRUM spect
PROBHD 5 mm PATXI 1H/
PULPROG zgdc
TD 178568
SOLVENT CDCl3
NS 310
DS 0
SWH 32894.738 Hz
FIDRES 0.184214 Hz
AQ 2.7142336 sec
RG 196.79
DW 15.200 usec
DE 10.00 usec
TE 295.6 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1

======== CHANNEL f1 ========
SFO1 125.7703648 MHz
NUC1 13C
P1 14.00 usec
PLW1 170.00000000 W

======== CHANNEL f2 ========
SFO2 500.1320005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 12.19999981 W
PLW12 0.20893000 W

F2 - Processing parameters
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SF 125.7577784 MHz
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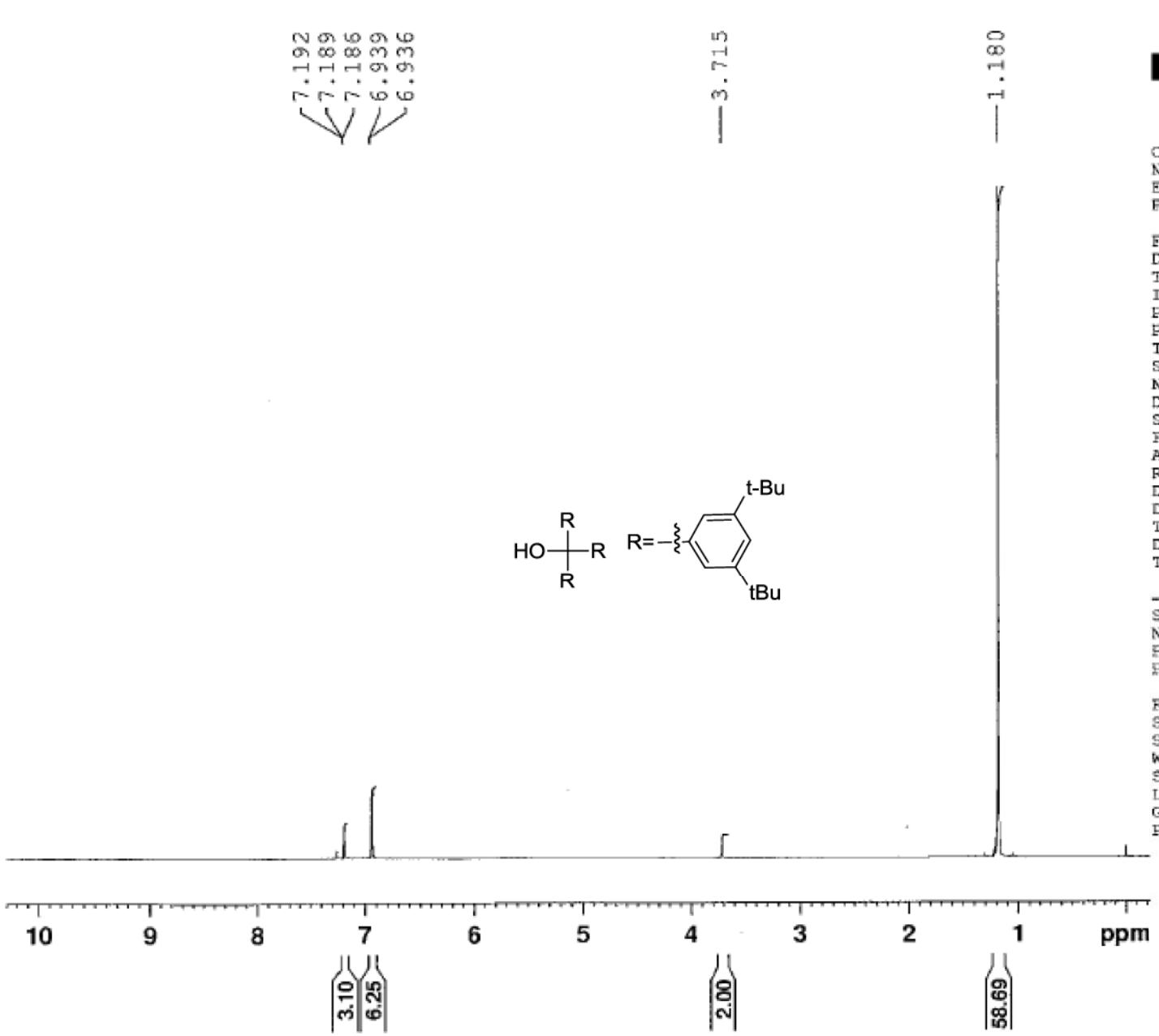
SSB 0
LB 1.00 Hz
GB 0
PC 1.40



BRUKER

```
Current Data Parameters
NAME                  cw325a1
EXPNO                       1
PROCNO                      1

F2 - Acquisition Parameters
Date_              20130721
Time                  14.25
INSTRUM               spect
PROBHD    5 mm PATXI 1H/
PULPROG                 zg
TD                   59998
SOLVENT              CDCl3
NS                       8
DS                       0
SWH           10000.000 Hz
FIDRES            0.166672 Hz
AQ                2.9999001 sec
RG                   31.72
DW                  50.000 usec
DE                  10.00 usec
TE                  295.2 K
D1             5.00000000 sec
TD0                      1

======== CHANNEL f1 ========
SFO1          500.1330885 MHz
NUC1                    1H
P1                   8.00 usec
PLW1         12.19999981 W

F2 - Processing parameters
SI                   65536
SF            500.1300152 MHz
WDW                     EM
SSB       0
LB                   0.30 Hz
GB        0
PC                   1.00
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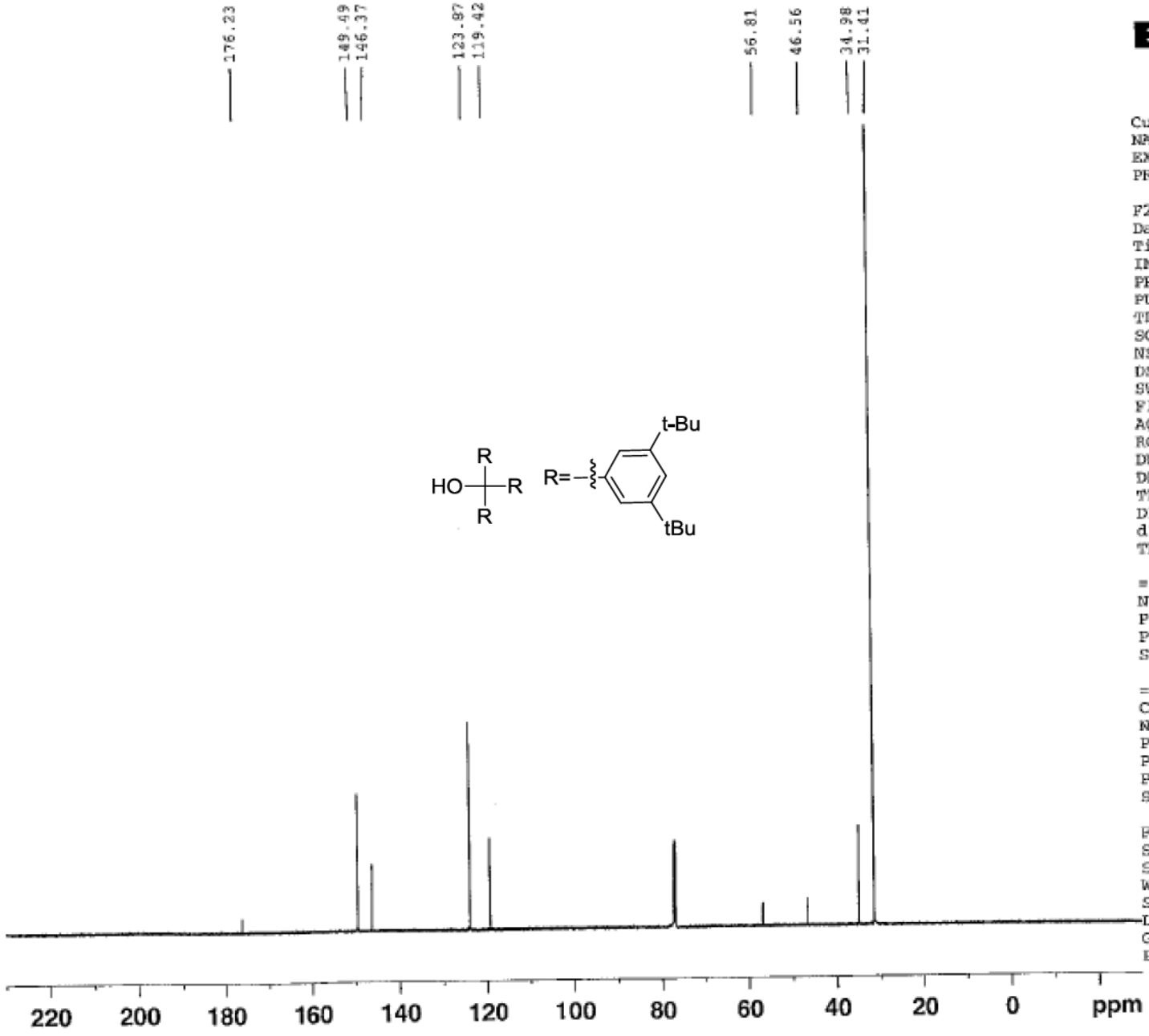

BRUKER

Current Data Parameters
NAME cw325a-13C
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
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Time 14.09
INSTRUM spect
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PULPROG zgdc
TD 142854
SOLVENT CDCl3
NS 537
DS 0
SWH 32679.738 Hz
FIDRES 0.228763 Hz
AQ 2.1857162 sec
RG 18390.4
DW 15.300 usec
DE 7.50 usec
TE 294.8 K
D1 2.00000000 sec
d11 0.03000000 sec
TD0 1

======== CHANNEL f1 ========
NUC1 13C
P1 8.50 usec
PL1 0.00 dB
SFO1 125.7049802 MHz

======== CHANNEL f2 ========
CPDPRG2 waltz16
NUC2 1H
PCPD2 90.00 usec
PL2 1.00 dB
PL12 21.00 dB
SFO2 499.8734991 MHz

F2 - Processing parameters
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SF 125.6923974 MHz
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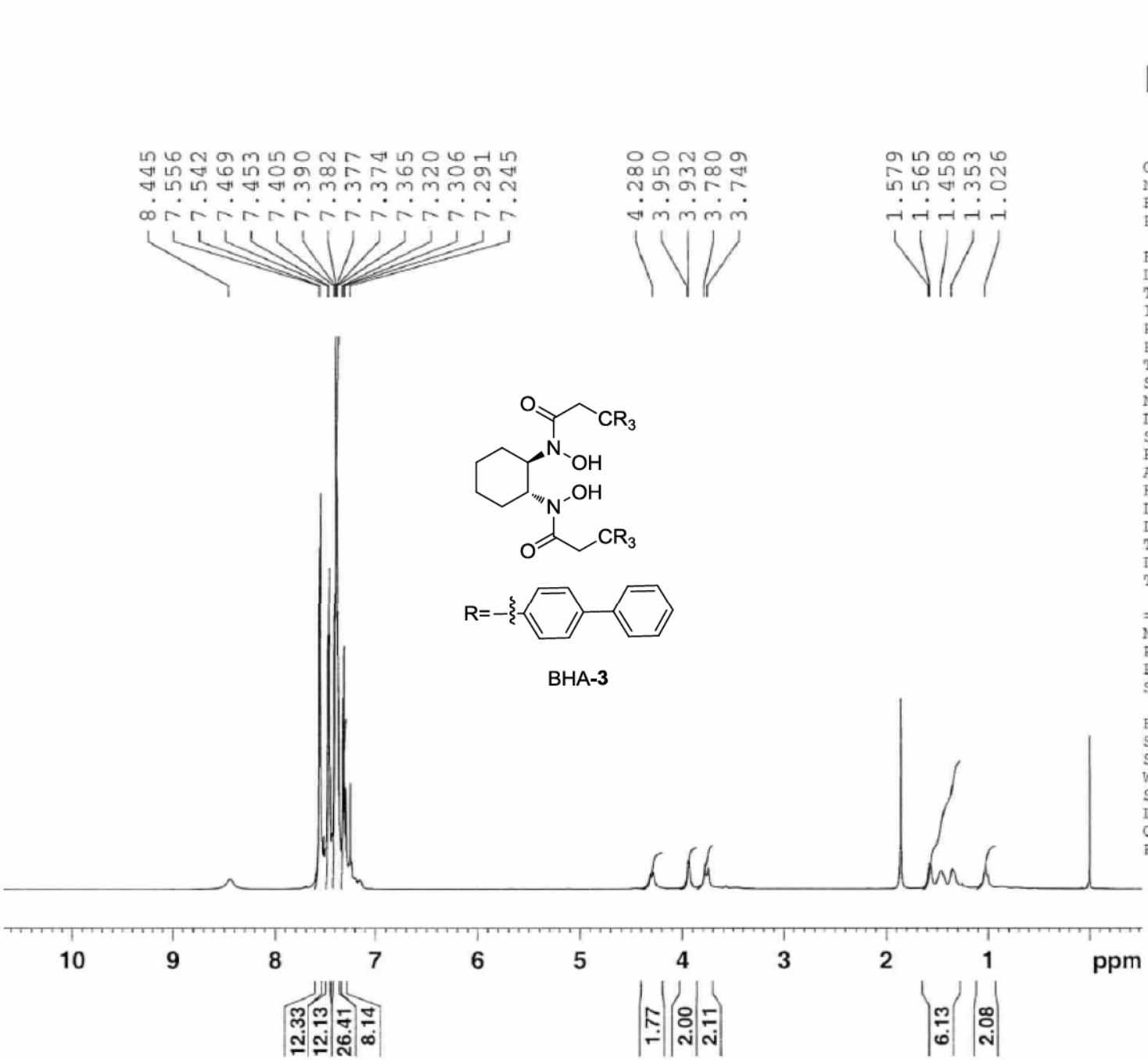
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

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Current Data Parameters
NAME                  cw333a
EXPNO                      1
PROCNO                     1

F2 - Acquisition Parameters
Date_              20130803
Time                  13.08
INSTRUM               spect
PROBHD   5 mm QNP 1H/13
PULPROG                 zg
TD                   59998
SOLVENT              CDCl3
NS                         8
DS                         0
SWH           10000.000 Hz
FIDRES         0.166672 Hz
AQ             2.9999499 sec
RG                   406.4
DW                50.000 usec
DE                 7.50 usec
TE                 293.7 K
D1             5.00000000 sec
TD0                        1

======== CHANNEL f1 ========
NUC1                      1H
P1                   10.00 usec
PL1                   0.00 dB
SFO1          499.8740056 MHz

F2 - Processing parameters
SI                     32768
SF            499.8700277 MHz
WDW                       EM
SSB                        0
LB                    0.30 Hz
GB                         0
PC                      1.00
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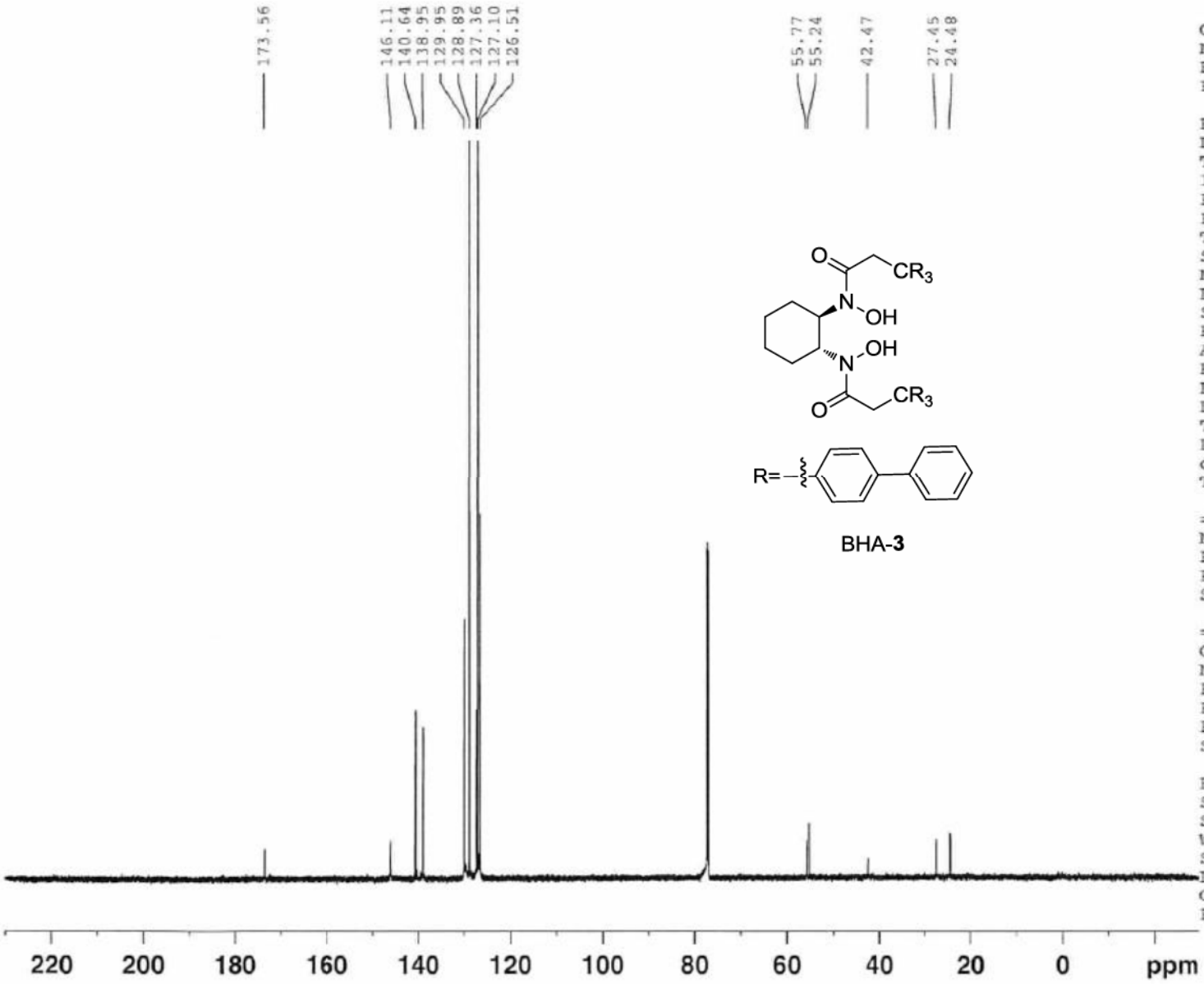

BHA-**3**

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Current Data Parameters
NAME          cw333a-13C
EXPNO                  1
PROCNO                 1

F2 - Acquisition Parameters
Date_           20130803
Time               14.33
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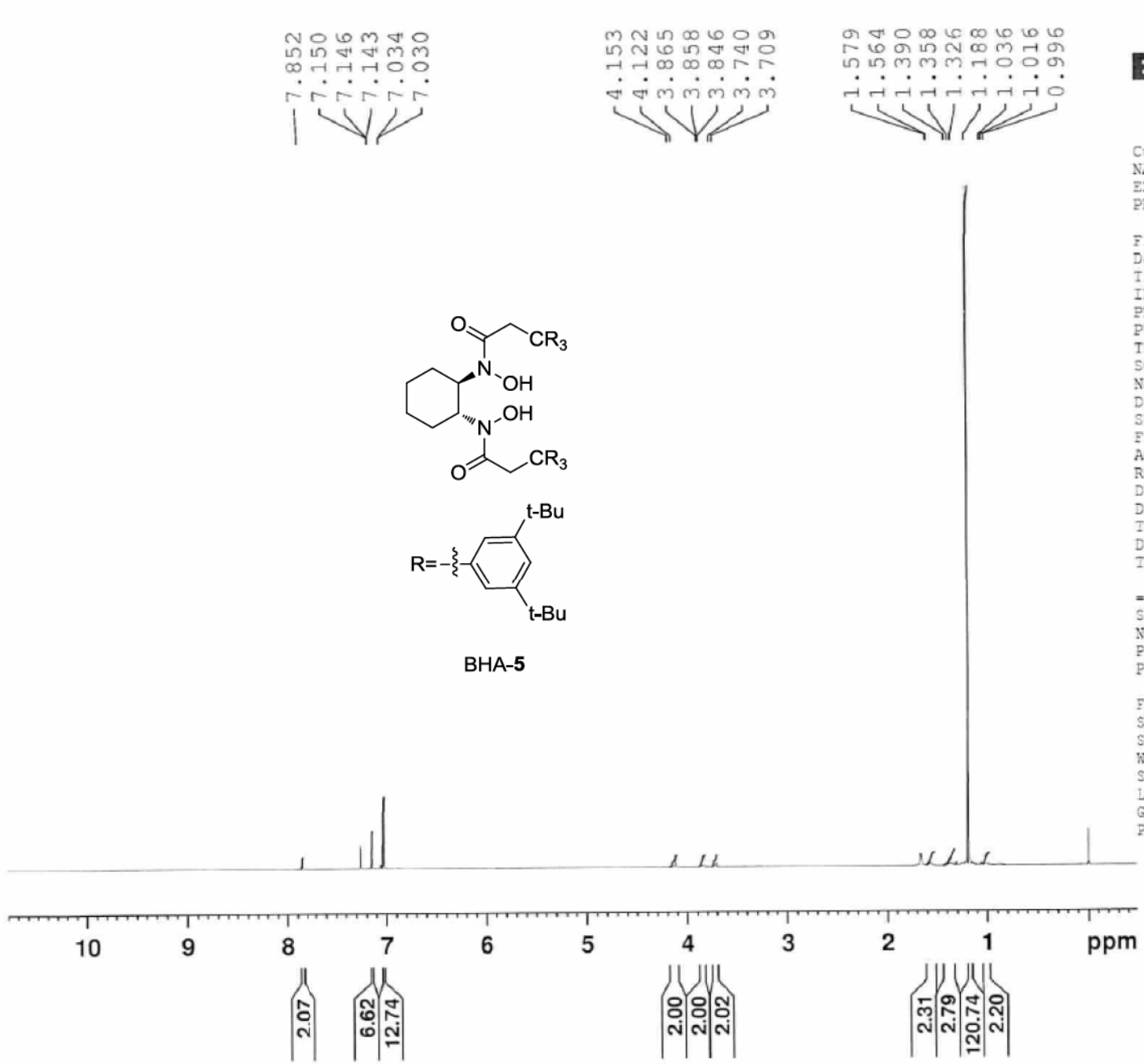
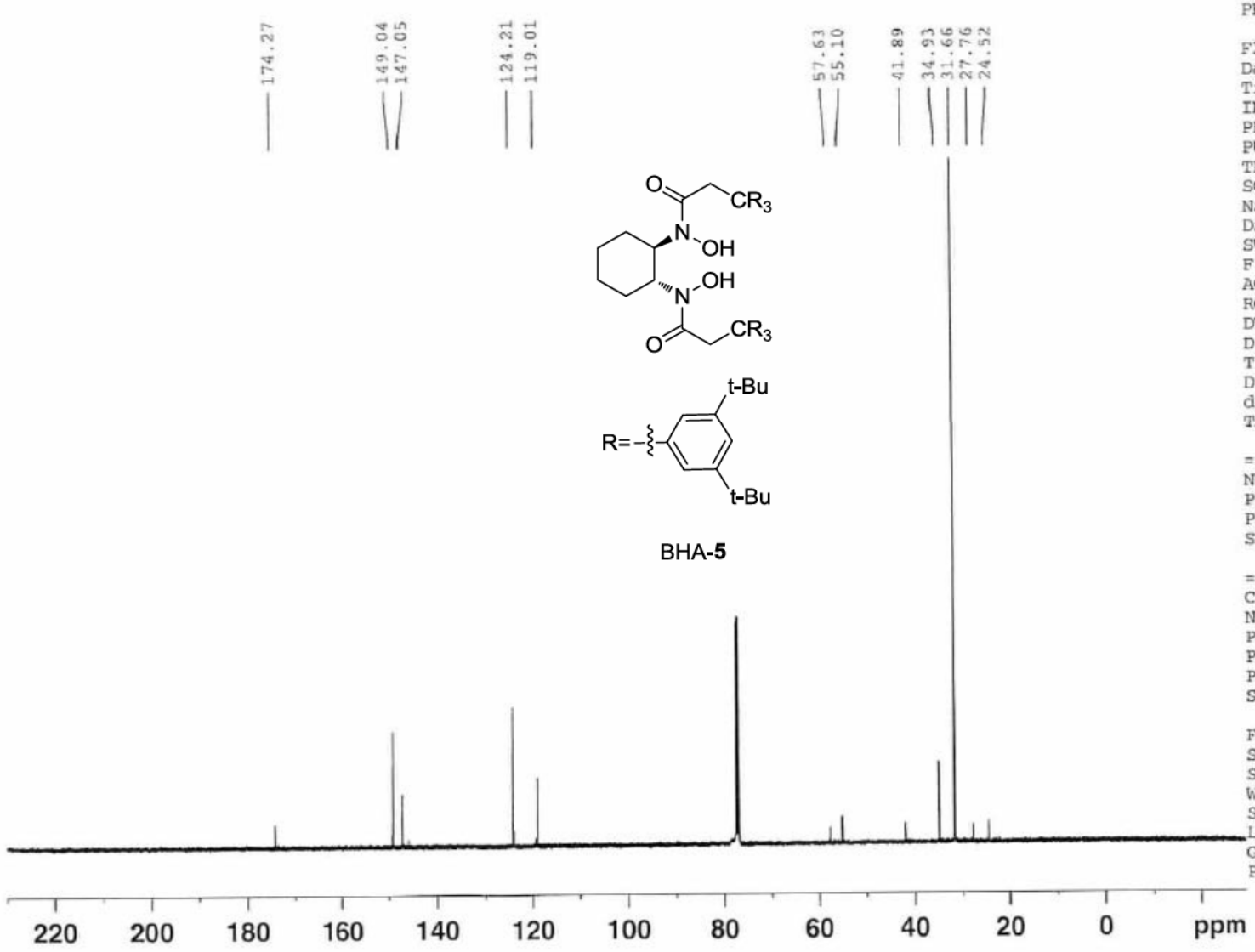
PULPROG              zgdc
TD                142854
SOLVENT            CDCl3
NS                   884
DS                     0
SWH          32679.738 Hz
FIDRES        0.228763 Hz
AQ            2.1857162 sec
RG                 32768
DW               15.300 usec
DE                7.50 usec
TE                294.6 K
D1           3.00000000 sec
d11          0.03000000 sec
TD0                    1

======== CHANNEL f1 ========
NUC1                 13C
P1                8.50 usec
PL1               0.00 dB
SFO1        125.7049802 MHz

======== CHANNEL f2 ========
CPDPRG2          waltz16
NUC2                 1H
PCPD2            90.00 usec
PL2               1.00 dB
PL12              21.00 dB
SFO2        499.8734991 MHz

F2 - Processing parameters
SI                 65536
SF          125.6924015 MHz
WDW                  EM
SSB                   0
LB                1.00 Hz
GB                    0
PC                1.40
```


7.852
7.150
7.146
7.143
7.034
7.030
4.153
4.122
3.865
3.858
3.846
3.740
3.709
1.579
1.564
1.390
1.358
1.326
1.188
1.036
1.016
0.996
BRUKER
Current Data Parameters
NAME cw328a1
EXPNO 1
PROCNO 1
F2 - Acquisition Parameters
Date_ 20130728
Time 14.14
INSTRUM spect
PROBHD 5 mm PATXI 1H/
PULPROG zg
TD 59998
SOLVENT CDCl3
NS 32
DS 0
SWH 10000.000 Hz
FIDRES 0.166672 Hz
AQ 2.9999001 sec
RG 155.5
DW 50.000 usec
DE 10.00 usec
TE 296.2 K
D1 5.00000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 500.1330885 MHz
NUC1 1H
P1 8.00 usec
PLW1 12.19999981 W
F2 - Processing parameters
SI 65536
SF 500.1300138 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
O
CR3
N
OH
OH
N
O
CR3
t-Bu
R=
t-Bu
BHA-5
10
9
8
7
6
5
4
3
2
1
ppm
2.07
6.62
12.74
2.00
2.00
2.02
2.31
2.79
120.74
2.20



Current Data Parameters

NAME	cw328a-13C
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	20130728
Time	16.06
INSTRUM	spect
PROBHD	5 mm QNP 1H/13
PULPROG	zgdc
TD	142854
SOLVENT	CDCl3
NS	2048
DS	0
SWH	32679.738 Hz
FIDRES	0.228763 Hz
AQ	2.1857162 sec
RG	32768
DW	15.300 usec
DE	7.50 usec
TE	296.1 K
D1	1.00000000 sec
d11	0.03000000 sec
TD0	1

======== CHANNEL f1 ========

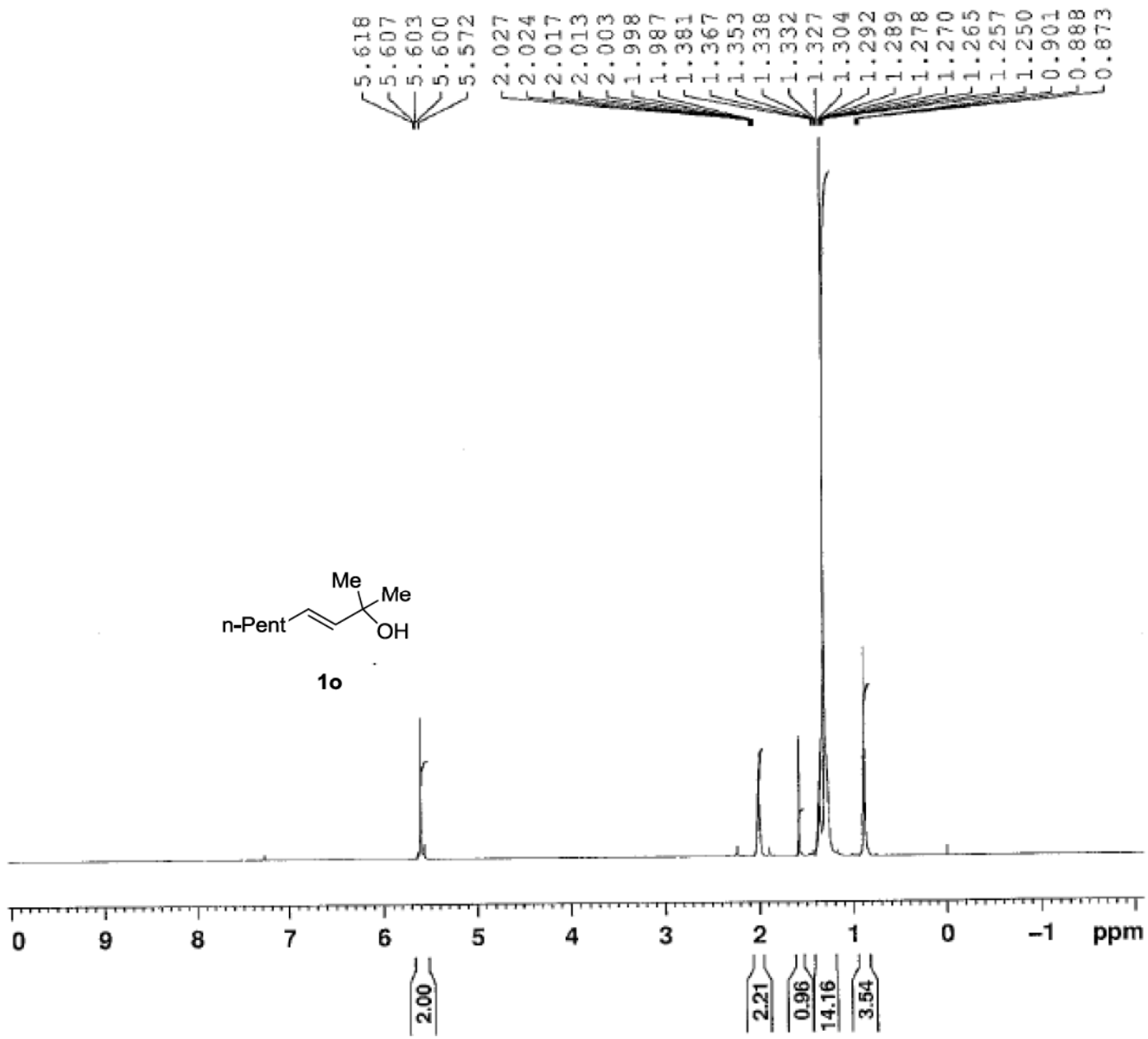
NUC1	13C
P1	8.50 usec
PL1	0.00 dB
SFO1	125.7049802 MHz

======== CHANNEL f2 ========

CPDPRG2	waltz16
NUC2	1H
PCPD2	90.00 usec
PL2	1.00 dB
PL12	21.00 dB
SFO2	499.8734991 MHz

F2 - Processing parameters

SI	65536
SF	125.6923967 MHz
WDW	EM
SSB	0
LB	1.00 Hz
GB	0
PC	1.40



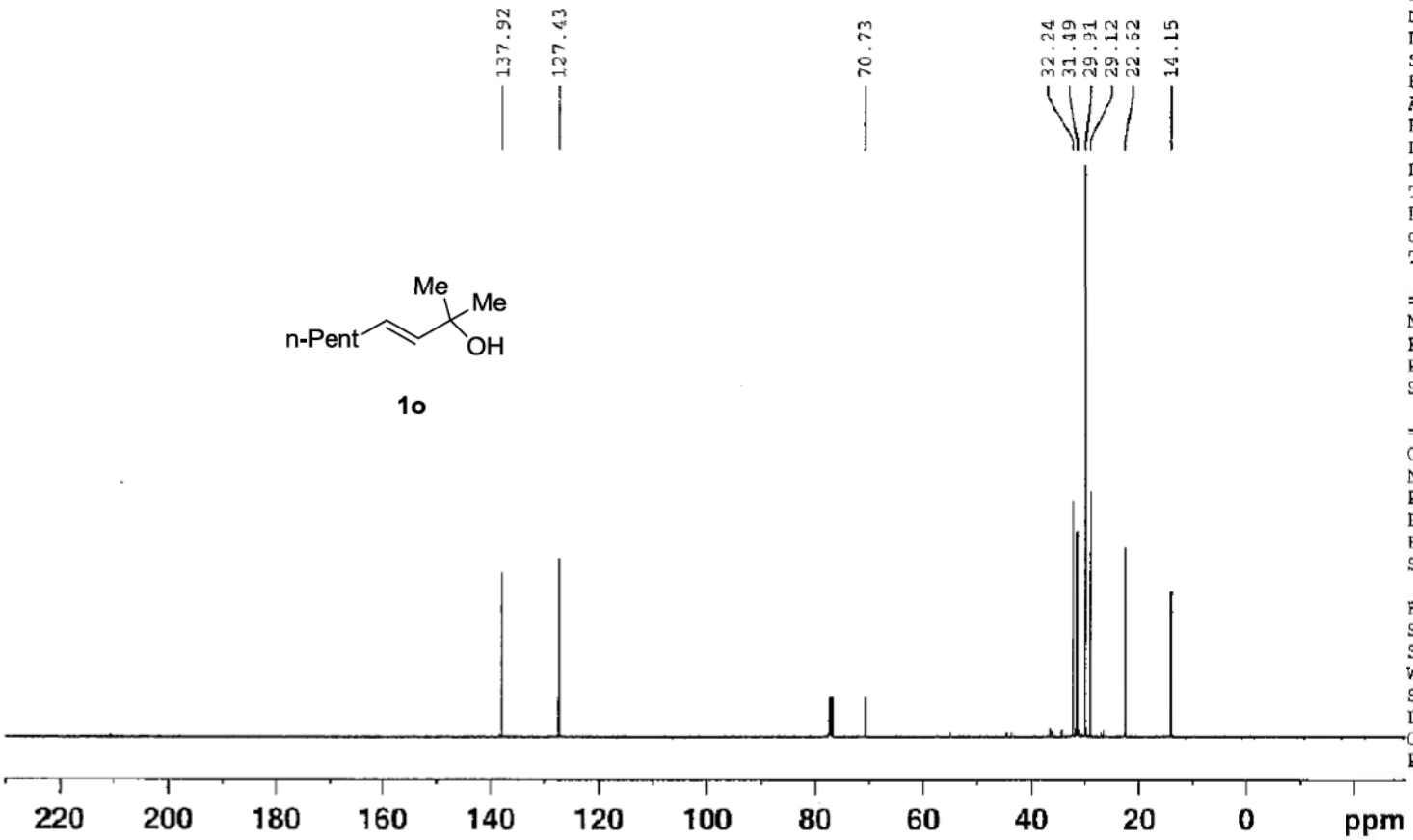
BRUKER

Current Data Parameters
NAME cw378a
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 20130802
Time 14.08
INSTRUM spect
PROBHD 5 mm PATXI 1H/
PULPROG zg
TD 59998
SOLVENT CDCl3
NS 8
DS 0
SWH 10000.000 Hz
FIDRES 0.166672 Hz
AQ 2.9999001 sec
RG 11.29
DW 50.000 usec
DE 10.00 usec
TE 295.0 K
D1 5.00000000 sec
TD0 1

======== CHANNEL f1 ========
SFO1 500.1330885 MHz
NUC1 1H
P1 8.00 usec
PLW1 12.19999981 W

F2 - Processing parameters
SI 65536
SF 500.1300031 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



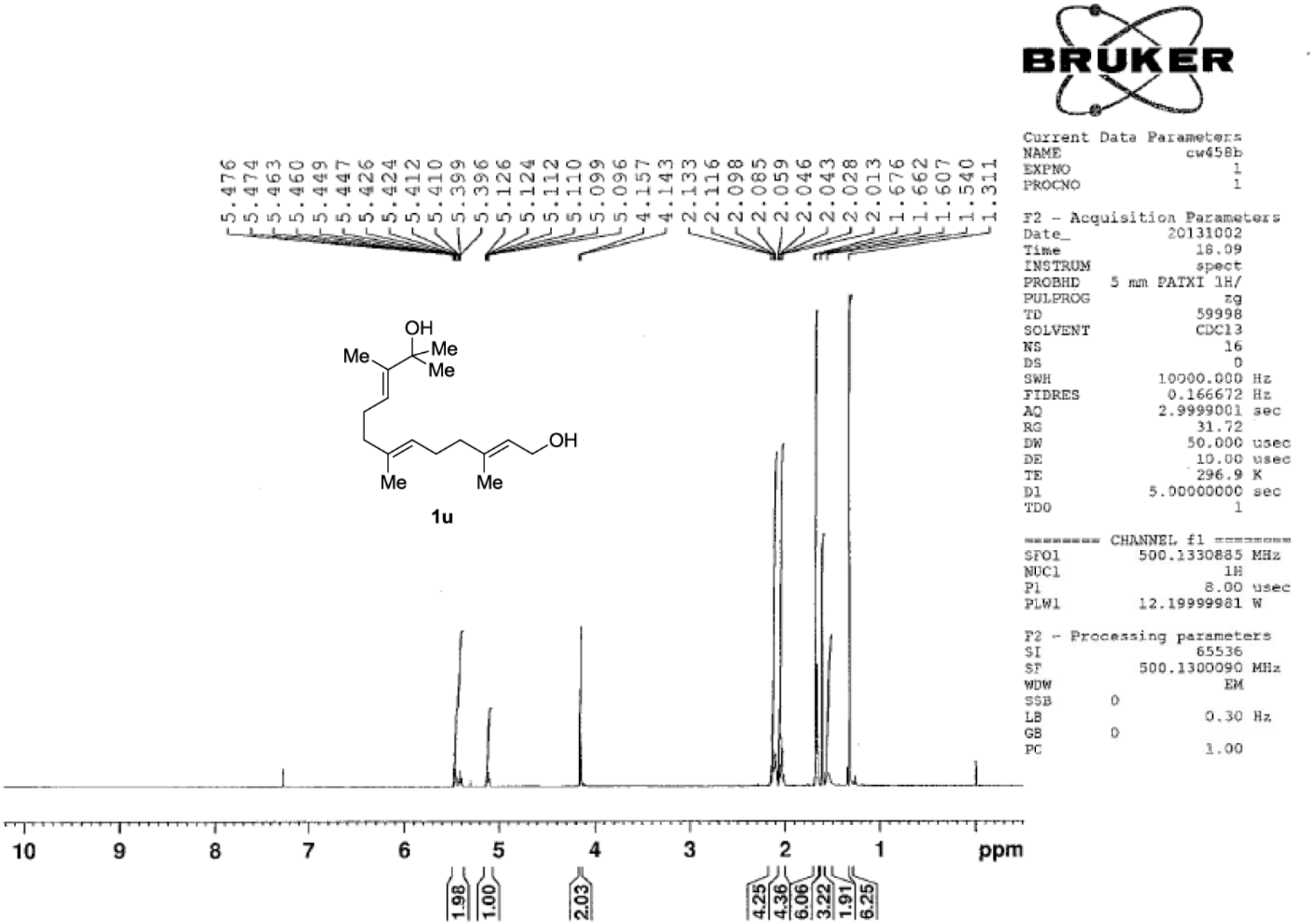

```
Current Data Parameters
NAME                  cw378a-13C
EXPNO                          1
PROCNO                         1

F2 - Acquisition Parameters
Date_                   20130802
Time                       13.36
INSTRUM                    spect
PROBHD     5 mm QNP 1H/13
PULPROG                     zgdc
TD                        142854
SOLVENT                   CDCl3
NS                           280
DS                             0
SWH                    32679.738 Hz
FIDRES                 0.228763 Hz
AQ                     2.1857162 sec
RG                         32768
DW                        15.300 usec
DE                         7.50 usec
TE                        294.7 K
D1                     1.00000000 sec
d11                    0.03000000 sec
TD0                            1

======== CHANNEL f1 ========
NUC1                         13C
P1                         8.50 usec
PL1                        0.00 dB
SFO1                125.7049802 MHz

======== CHANNEL f2 ========
CPDPRG2                 waltz16
NUC2                         1H
PCPD2                     90.00 usec
PL2                        1.00 dB
PL12                      21.00 dB
SFO2                499.8734991 MHz

F2 - Processing parameters
SI                         65536
SF                  125.6924009 MHz
WDW                           EM
SSB                            0
LB                         1.00 Hz
GB                             0
PC                          1.40
```

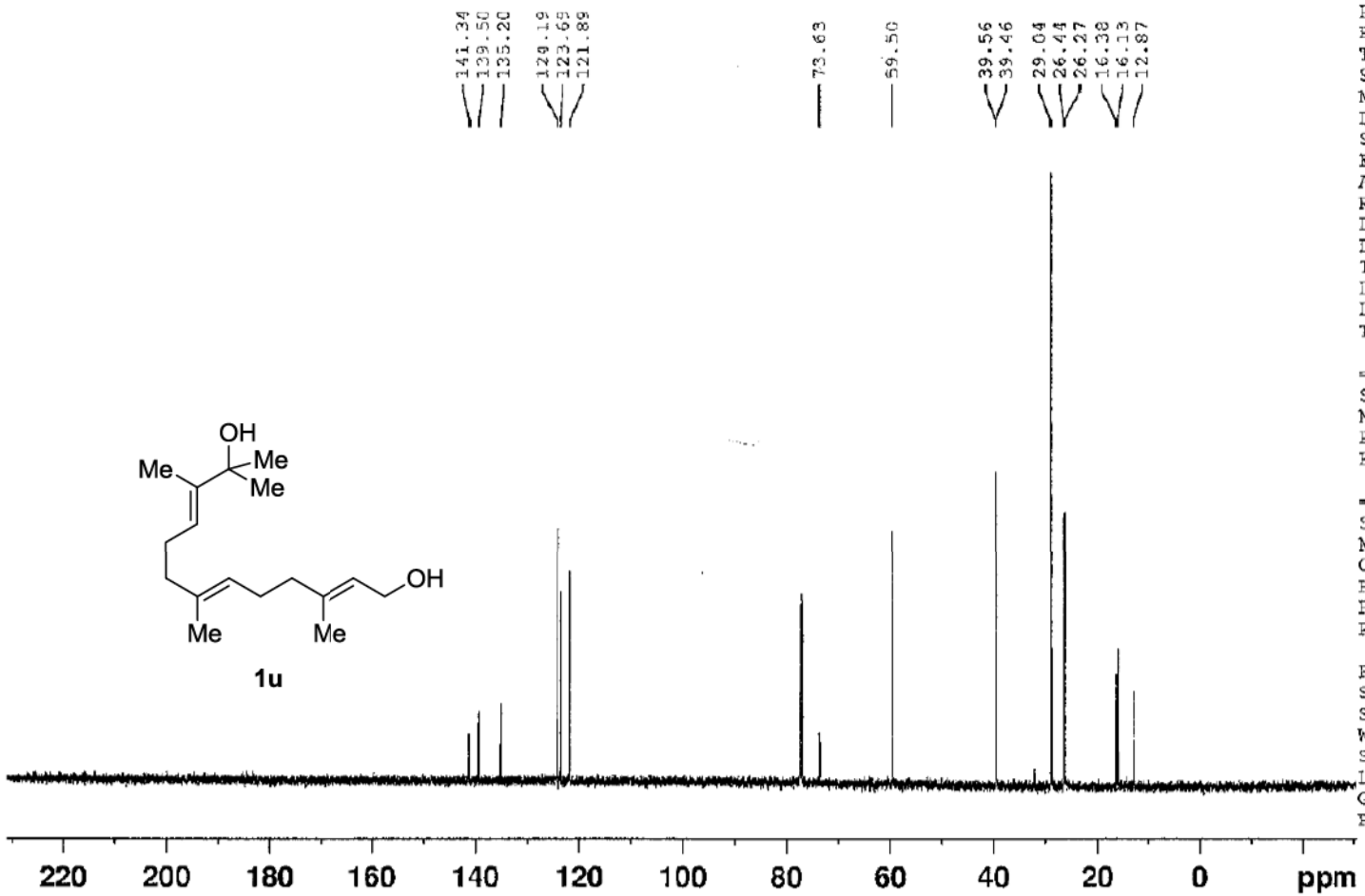



```
Current Data Parameters
NAME                  cw458b
EXPNO                      1
PROCNO                     1

F2 - Acquisition Parameters
Date_              20131002
Time                 16.09
INSTRUM              spect
PROBHD    5 mm PATXI 1H/
PULPROG                 zg
TD                   59998
SOLVENT              CDCl3
NS                      16
DS                       0
SWH            10000.000 Hz
FIDRES          0.166672 Hz
AQ              2.9999001 sec
RG                   31.72
DW                 50.000 usec
DE                 10.00 usec
TE                 296.9 K
D1              5.00000000 sec
TD0                      1

======== CHANNEL f1 ========
SFO1          500.1330885 MHz
NUC1                    1H
P1                   8.00 usec
PLW1         12.19999981 W

F2 - Processing parameters
SI                   65536
SF            500.1300090 MHz
WDW                     EM
SSB       0
LB                   0.30 Hz
GB        0
PC                   1.00
```



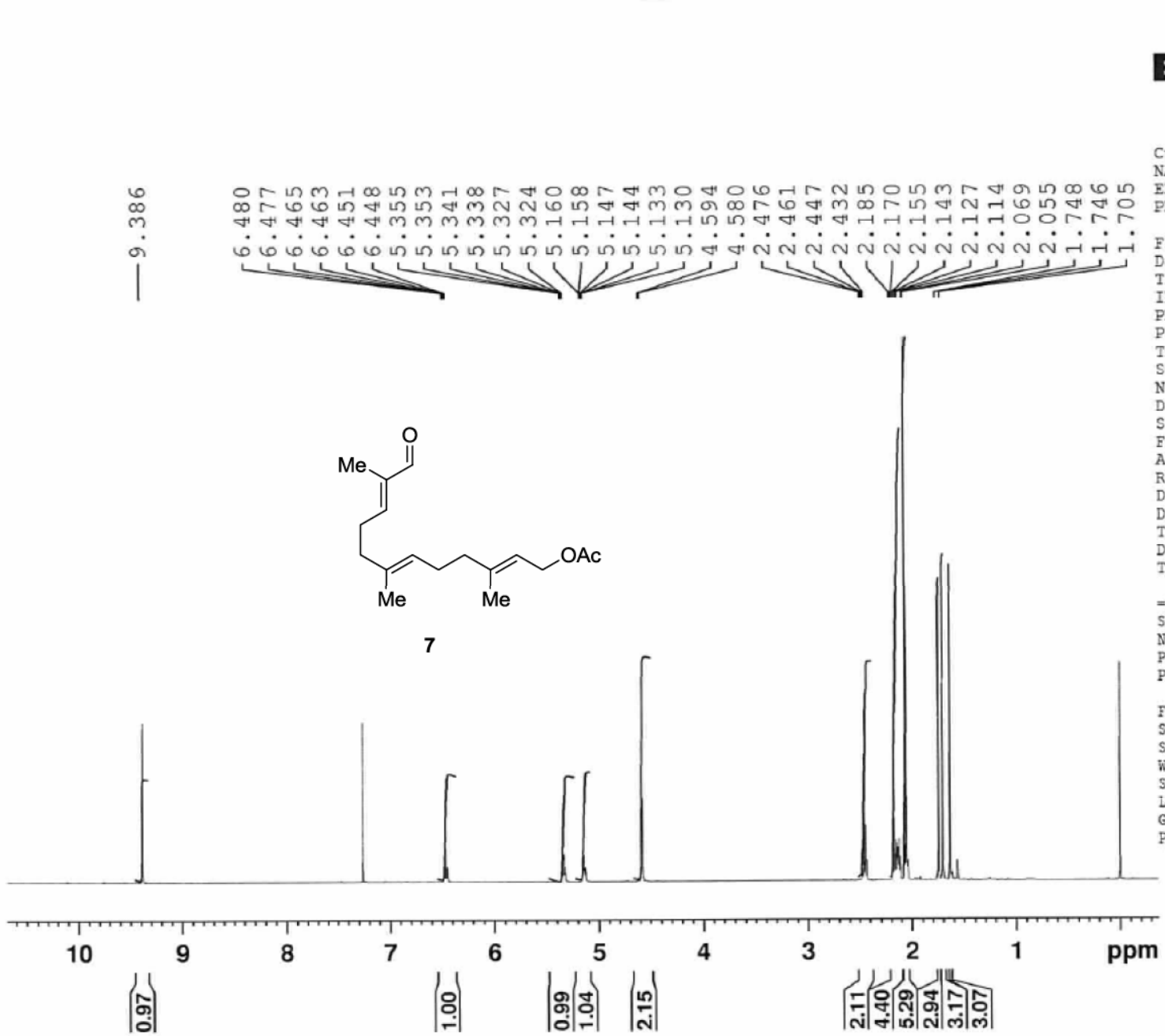

```
Current Data Parameters
NAME          cw458b-13C
EXPNO                  1
PROCNO                 1

F2 - Acquisition Parameters
Date_           20131002
Time               18.50
INSTRUM            spect
PROBHD   5 mm PATXI 1H/
PULPROG            zgdc
TD               178568
SOLVENT           CDCl3
NS                  562
DS                    0
SWH           32894.738 Hz
FIDRES         0.184214 Hz
AQ            2.7142336 sec
RG               196.79
DW               15.200 usec
DE               10.00 usec
TE               297.9 K
D1           1.00000000 sec
D11          0.03000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1        125.7703648 MHz
NUC1               13C
P1               14.00 usec
PLW1       170.00000000 W

======== CHANNEL f2 ========
SFO2        500.1320005 MHz
NUC2               1H
CPDPRG[2        waltz16
PCPD2            90.00 usec
PLW2        12.19999981 W
PLW12        0.20893000 W

F2 - Processing parameters
SI                131072
SF          125.7577738 MHz
WDW                 EM
SSB       0
LB                1.00 Hz
GB        0
PC                1.40
```

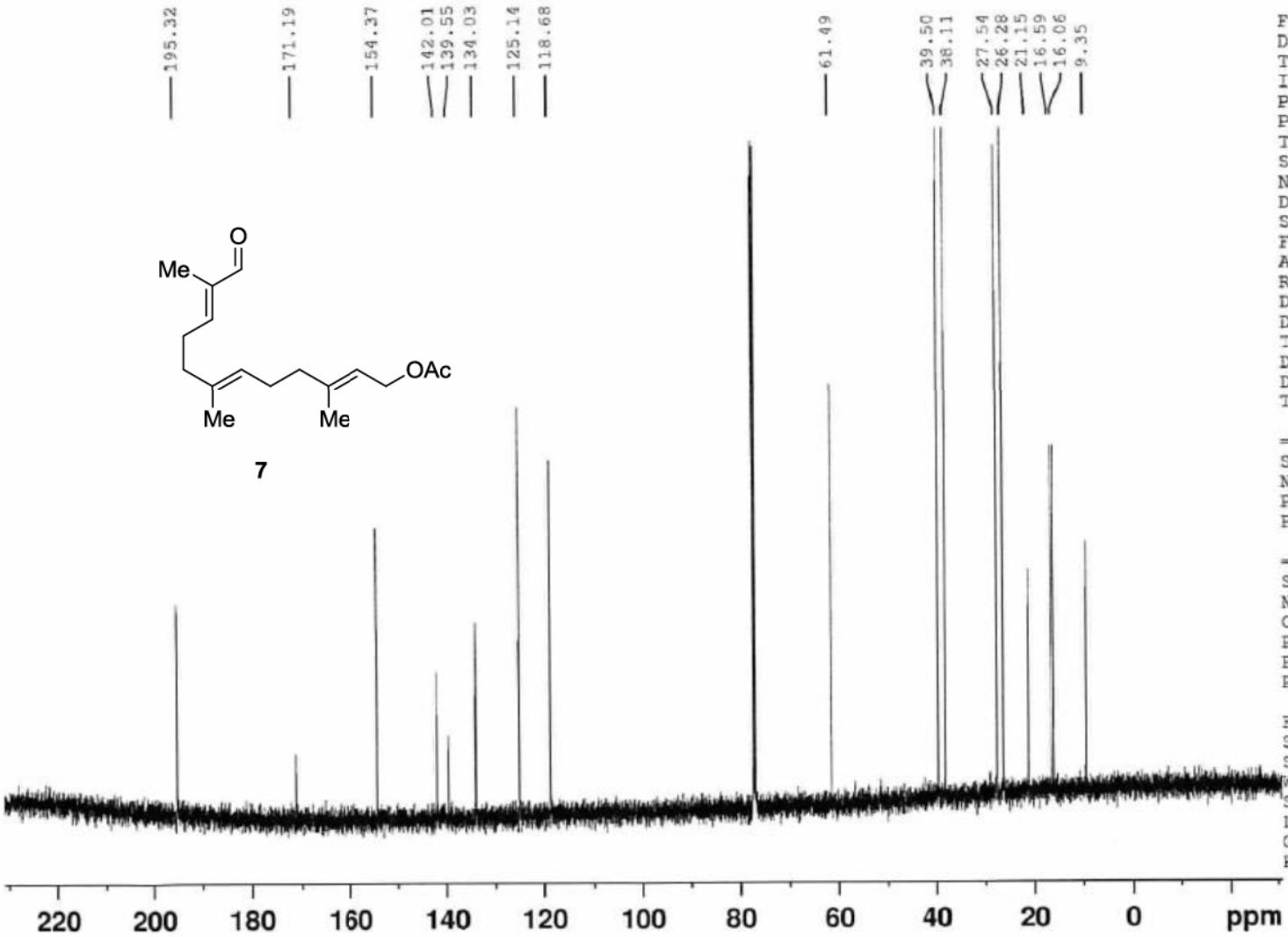



```
Current Data Parameters
NAME                  cw481b
EXPNO                      1
PROCNO                     1

F2 - Acquisition Parameters
Date_              20131021
Time                  16.42
INSTRUM               spect
PROBHD    5 mm PATXI 1H/
PULPROG                 zg
TD                   59998
SOLVENT              CDCl3
NS                      16
DS                       0
SWH             10000.000 Hz
FIDRES          0.166672 Hz
AQ              2.9999001 sec
RG                   155.5
DW                50.000 usec
DE                10.00 usec
TE                295.9 K
D1             5.00000000 sec
TD0                      1

======== CHANNEL f1 ========
SFO1          500.1330885 MHz
NUC1                    1H
P1                   8.00 usec
PLW1         12.19999981 W

F2 - Processing parameters
SI                   65536
SF            500.1300121 MHz
WDW                     EM
SSB       0
LB                   0.30 Hz
GB        0
PC                   1.00
```



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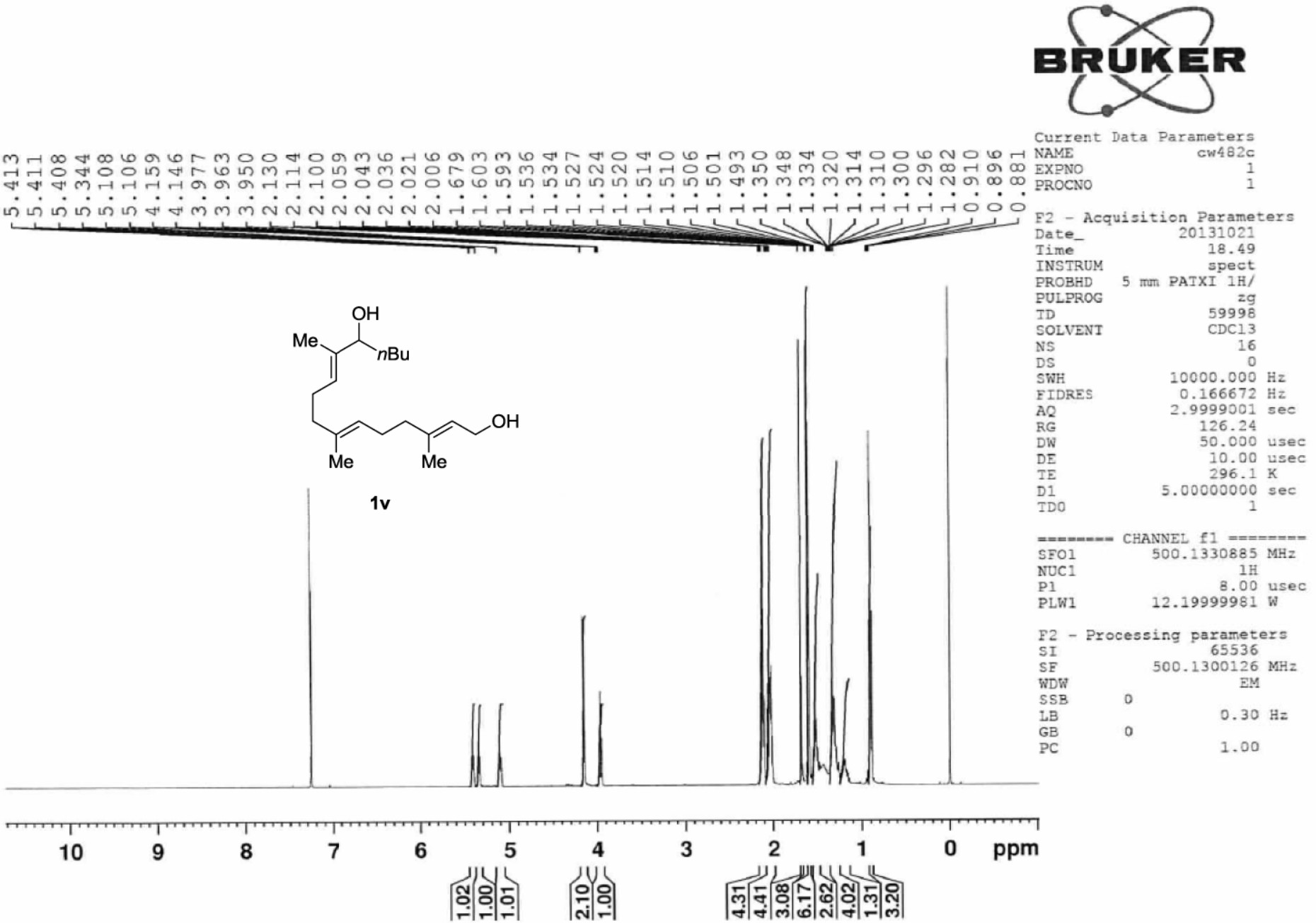
```
Current Data Parameters
NAME                  cw481a-13C
EXPNO                          1
PROCNO                         1

F2 - Acquisition Parameters
Date_                   20131019
Time                       14.55
INSTRUM                    spect
PROBHD    5 mm PATXI 1H/
PULPROG                     zgdc
TD                        178568
SOLVENT                    CDCl3
NS                           745
DS                             0
SWH                    32894.738 Hz
FIDRES                  0.184214 Hz
AQ                      2.7142336 sec
RG                         196.79
DW                         15.200 usec
DE                         10.00 usec
TE                         297.3 K
D1                     1.00000000 sec
D11                    0.03000000 sec
TD0                            1

======== CHANNEL f1 ========
SFO1                 125.7703648 MHz
NUC1                         13C
P1                         14.00 usec
PLW1                170.00000000 W

======== CHANNEL f2 ========
SFO2                 500.1320005 MHz
NUC2                         1H
CPDPRG[2                 waltz16
PCPD2                      90.00 usec
PLW2                12.19999981 W
PLW12                0.20893000 W

F2 - Processing parameters
SI                          131072
SF                   125.7577700 MHz
WDW                            EM
SSB                  0
LB                         1.00 Hz
GB                   0
PC                         1.40
```

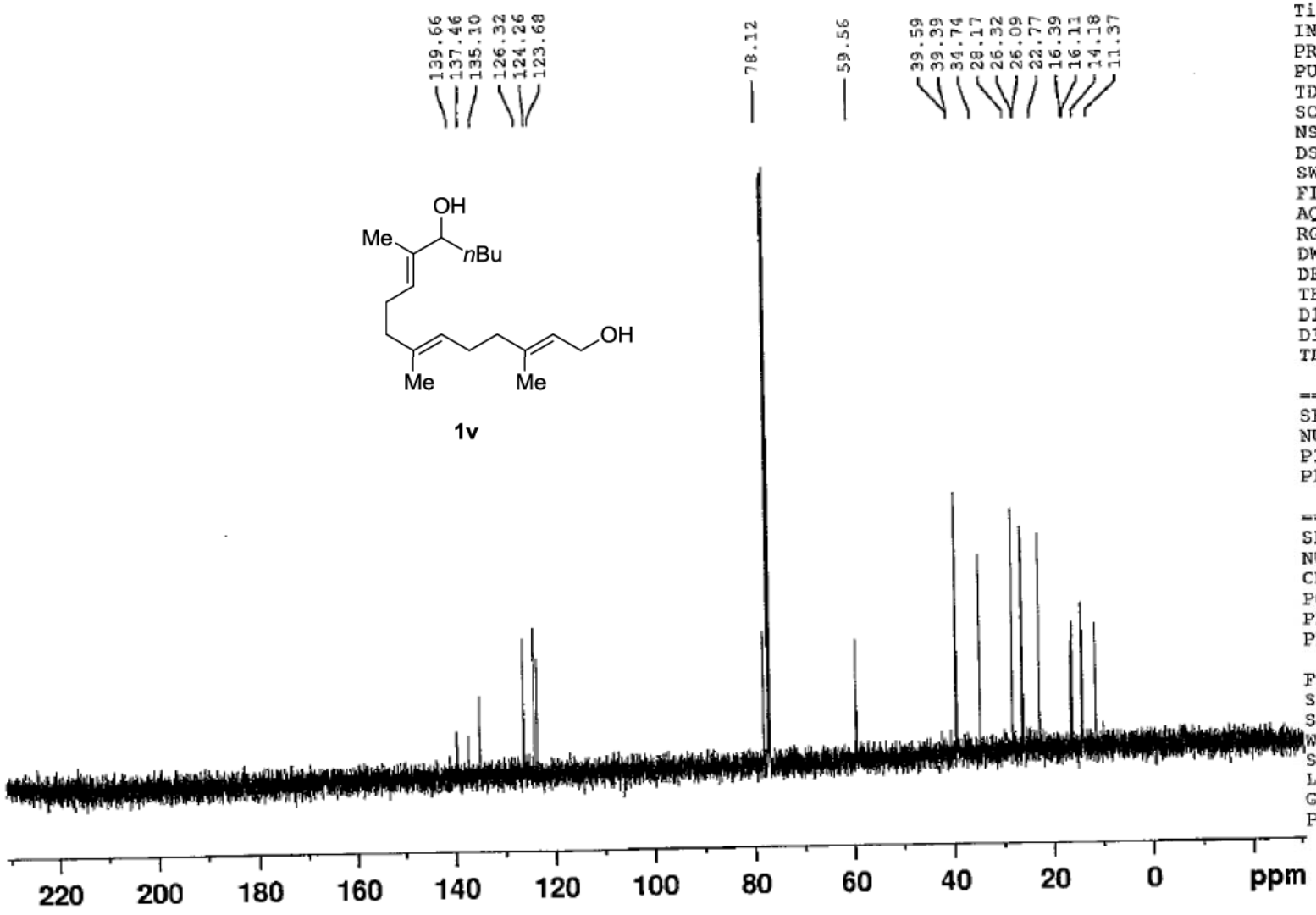


Current Data Parameters
NAME cw482c
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 20131021
Time 18.49
INSTRUM spect
PROBHD 5 mm PATXI 1H/
PULPROG zg
TD 59998
SOLVENT CDCl3
NS 16
DS 0
SWH 10000.000 Hz
FIDRES 0.166672 Hz
AQ 2.9999001 sec
RG 126.24
DW 50.000 usec
DE 10.00 usec
TE 296.1 K
D1 5.00000000 sec
TD0 1

======== CHANNEL f1 ========
SFO1 500.1330885 MHz
NUC1 1H
P1 8.00 usec
PLW1 12.19999981 W

F2 - Processing parameters
SI 65536
SF 500.1300126 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



BRUKER

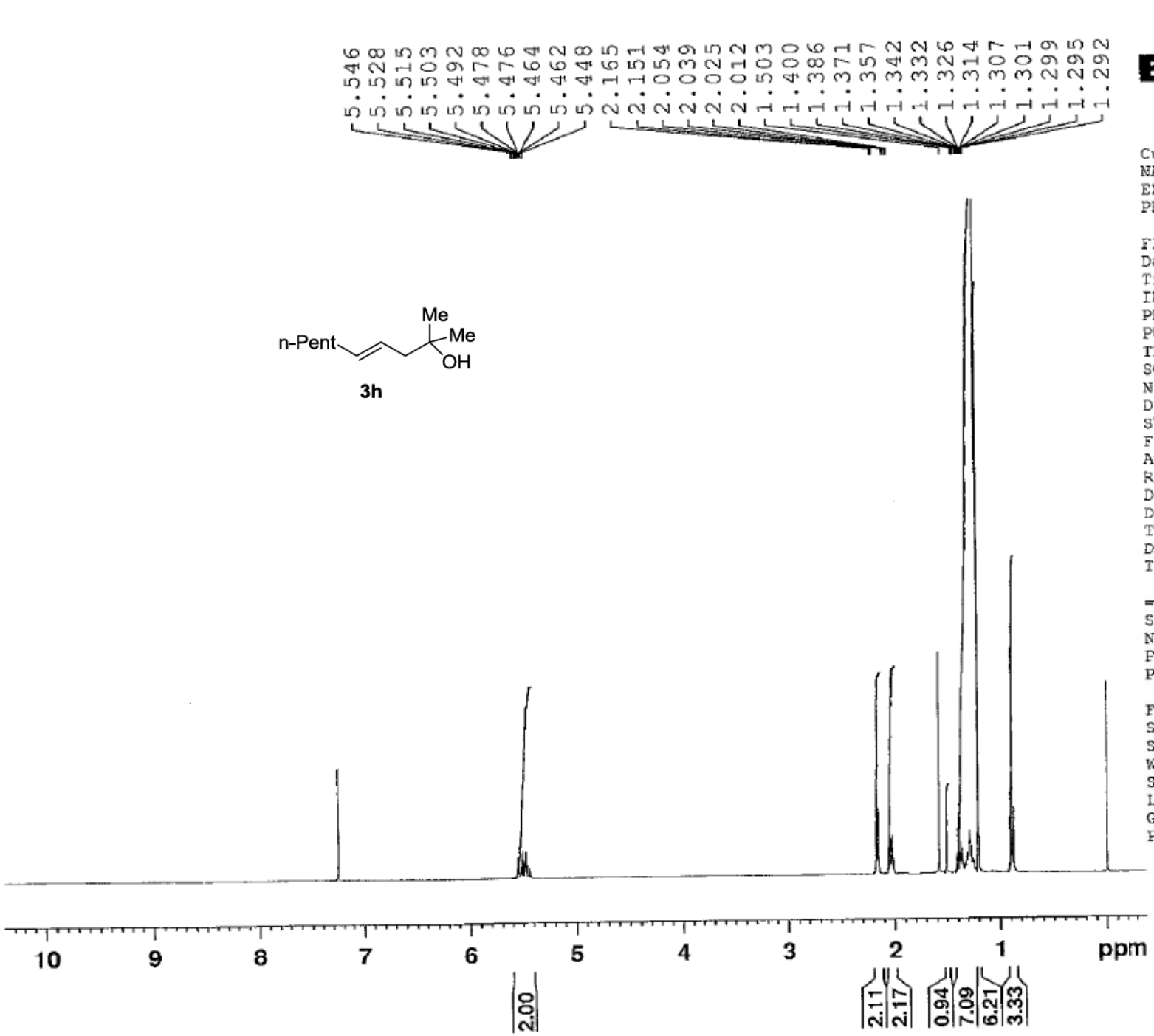
Current Data Parameters
NAME cw482a-13C1
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 20131019
Time 19.04
INSTRUM spect
PROBHD 5 mm PATXI 1H/
PULPROG zgdc
TD 178568
SOLVENT CDCl3
NS 545
DS 0
SWH 32894.738 Hz
FIDRES 0.184214 Hz
AQ 2.7142336 sec
RG 196.79
DW 15.200 usec
DE 10.00 usec
TE 297.2 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1

======== CHANNEL f1 ========
SFO1 125.7703648 MHz
NUC1 13C
P1 14.00 usec
PLW1 170.00000000 W

======== CHANNEL f2 ========
SFO2 500.1320005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 12.19999981 W
PLW12 0.20893000 W

F2 - Processing parameters
SI 131072
SF 125.7577711 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40



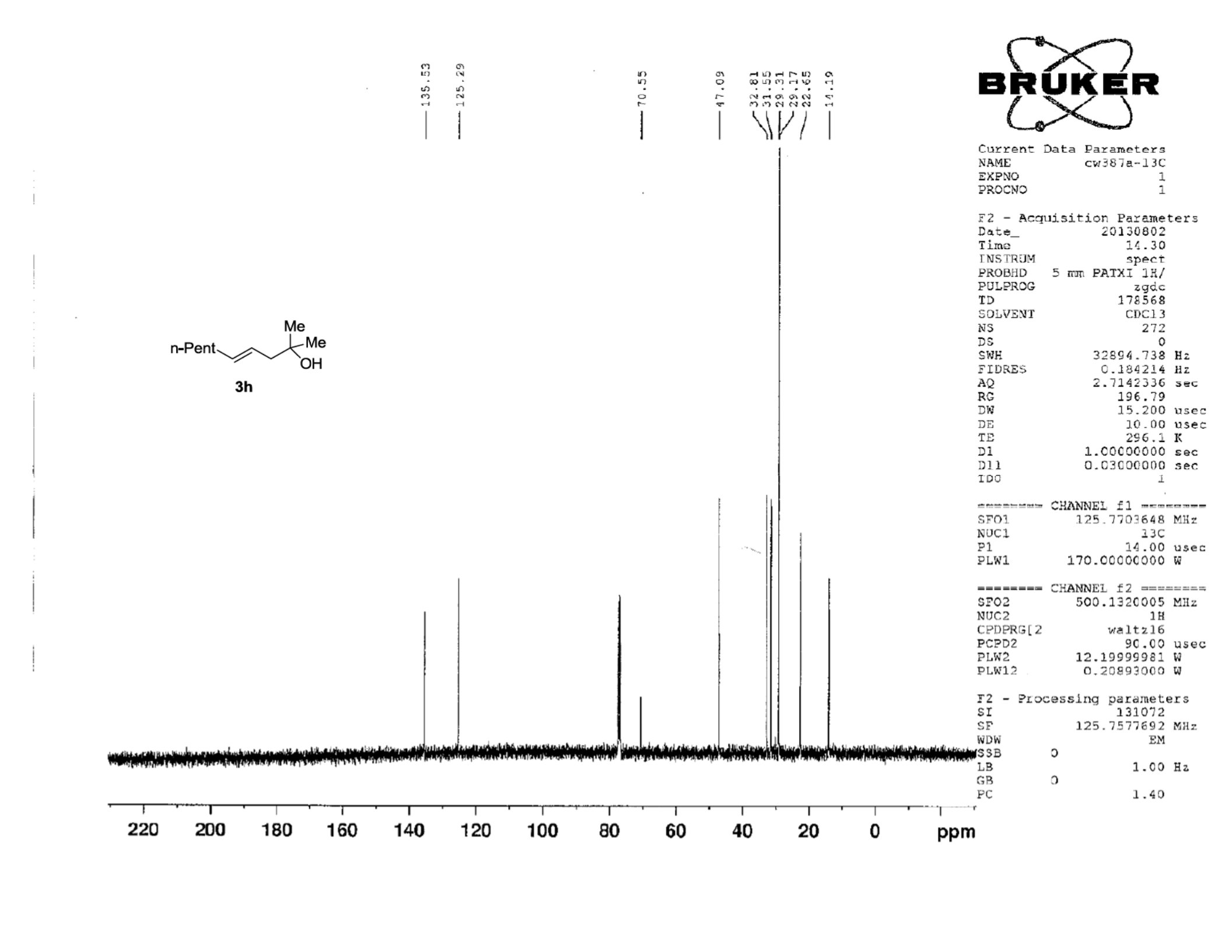
BRUKER

Current Data Parameters
NAME cw387a
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 20130712
Time 16.45
INSTRUM spect
PROBHD 5 mm PATXI 1H/
PULPROG zg
TD 59998
SOLVENT CDCl3
NS 16
DS 0
SWH 10000.000 Hz
FIDRES 0.166672 Hz
AQ 2.9999001 sec
RG 196.79
DW 50.000 usec
DE 10.00 usec
TE 295.0 K
D1 5.00000000 sec
TD0 1

======== CHANNEL f1 ========
SFO1 500.1330885 MHz
NUC1 1H
P1 8.00 usec
PLW1 12.19999981 W

F2 - Processing parameters
SI 65536
SF 500.1300127 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



BRUKER

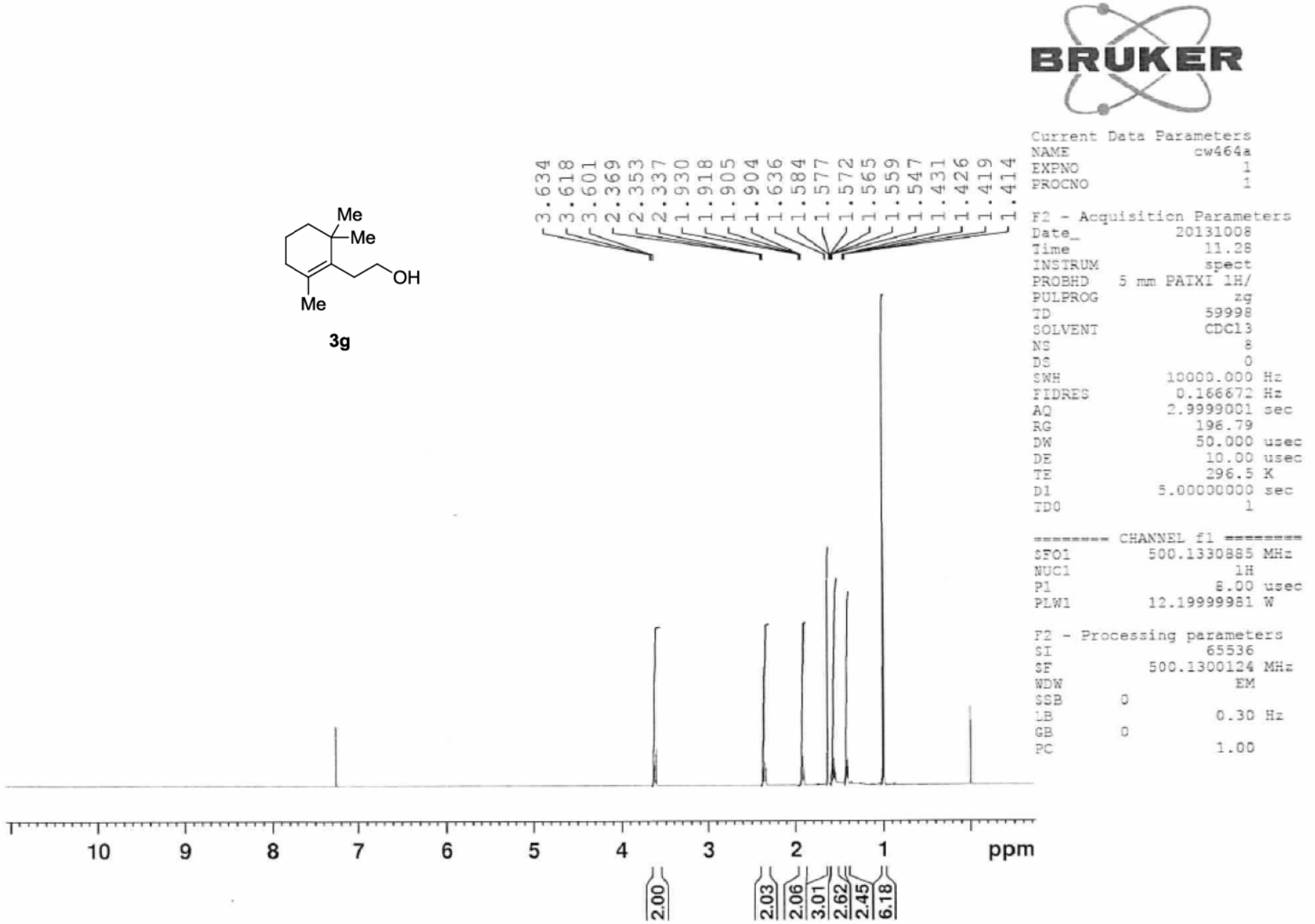
Current Data Parameters
NAME cw387a-13C
EXPNO 1
PROCNO 1

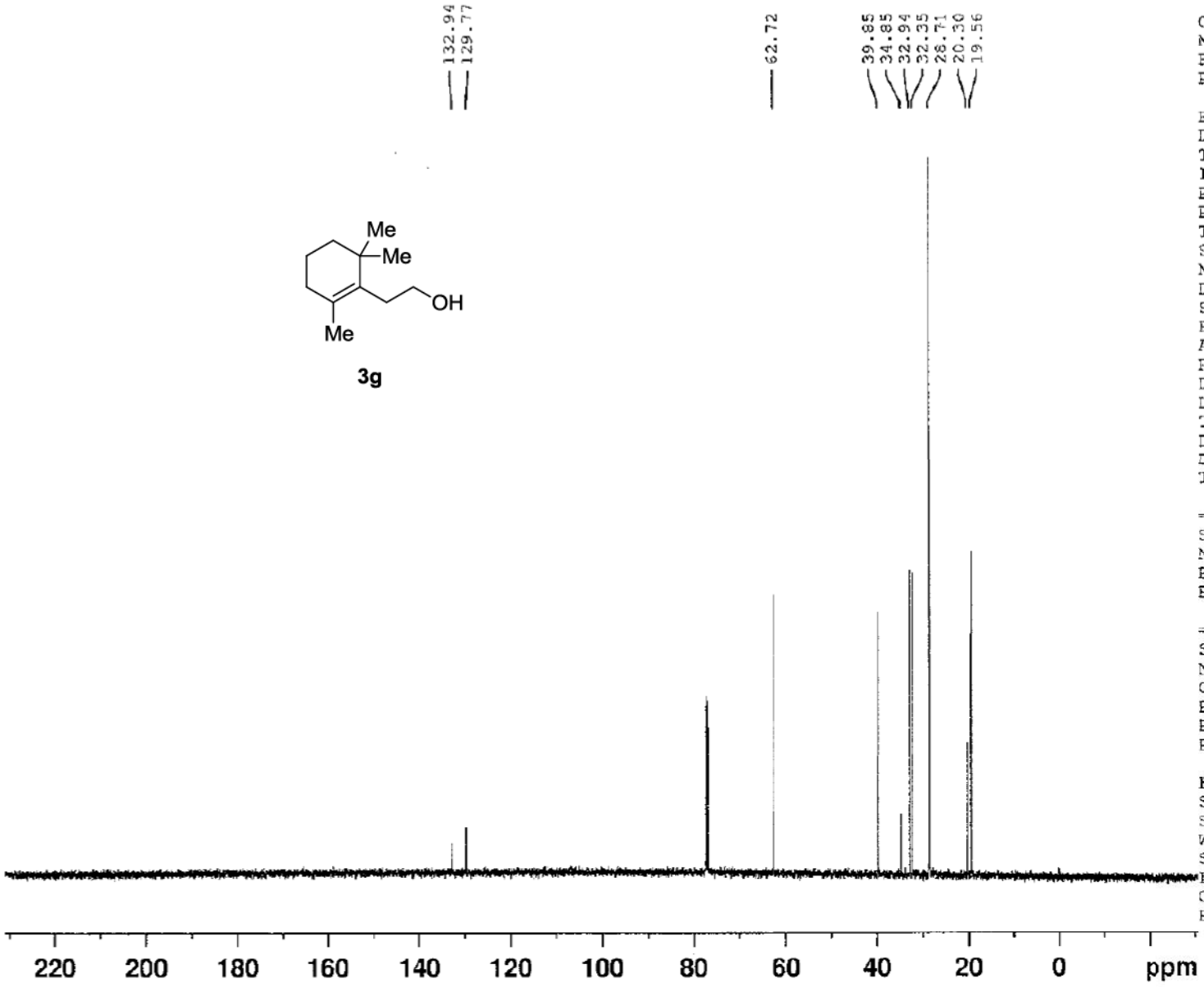
F2 - Acquisition Parameters
Date_ 20130802
Time 14.30
INSTRUM spect
PROBHD 5 mm PATXI 1H/
PULPROG zgdc
TD 178568
SOLVENT CDCl3
NS 272
DS 0
SWH 32894.738 Hz
FIDRES 0.184214 Hz
AQ 2.7142336 sec
RG 196.79
DW 15.200 usec
DE 10.00 usec
TE 296.1 K
D1 1.00000000 sec
D11 0.03000000 sec
ID0 1

======== CHANNEL f1 ========
SFO1 125.7703648 MHz
NUC1 13C
P1 14.00 usec
PLW1 170.00000000 W

======== CHANNEL f2 ========
SFO2 500.1320005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 12.19999981 W
PLW12 0.20893000 W

F2 - Processing parameters
SI 131072
SF 125.7577692 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40


BRUKER
Me
Me
Me
OH
3g
3.634
3.618
3.601
2.369
2.353
2.337
1.930
1.918
1.905
1.904
1.636
1.584
1.577
1.572
1.565
1.559
1.547
1.431
1.426
1.419
1.414
Current Data Parameters
NAME cw464a
EXPNO 1
PROCNO 1
F2 - Acquisition Parameters
Date_ 20131008
Time 11.28
INSTRUM spect
PROBHD 5 mm PAIXI 1H/
PULPROG zg
TD 59998
SOLVENT CDCl3
NS 8
DS 0
SWH 10000.000 Hz
FIDRES 0.166672 Hz
AQ 2.9999001 sec
RG 196.79
DW 50.000 usec
DE 10.00 usec
TE 296.5 K
D1 5.00000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 500.1330885 MHz
NUC1 1H
P1 8.00 usec
PLW1 12.19999981 W
F2 - Processing parameters
SI 65536
SF 500.1300124 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
10
9
8
7
6
5
4
3
2
1
ppm
2.00
2.03
2.06
3.01
2.62
2.45
6.18



3g

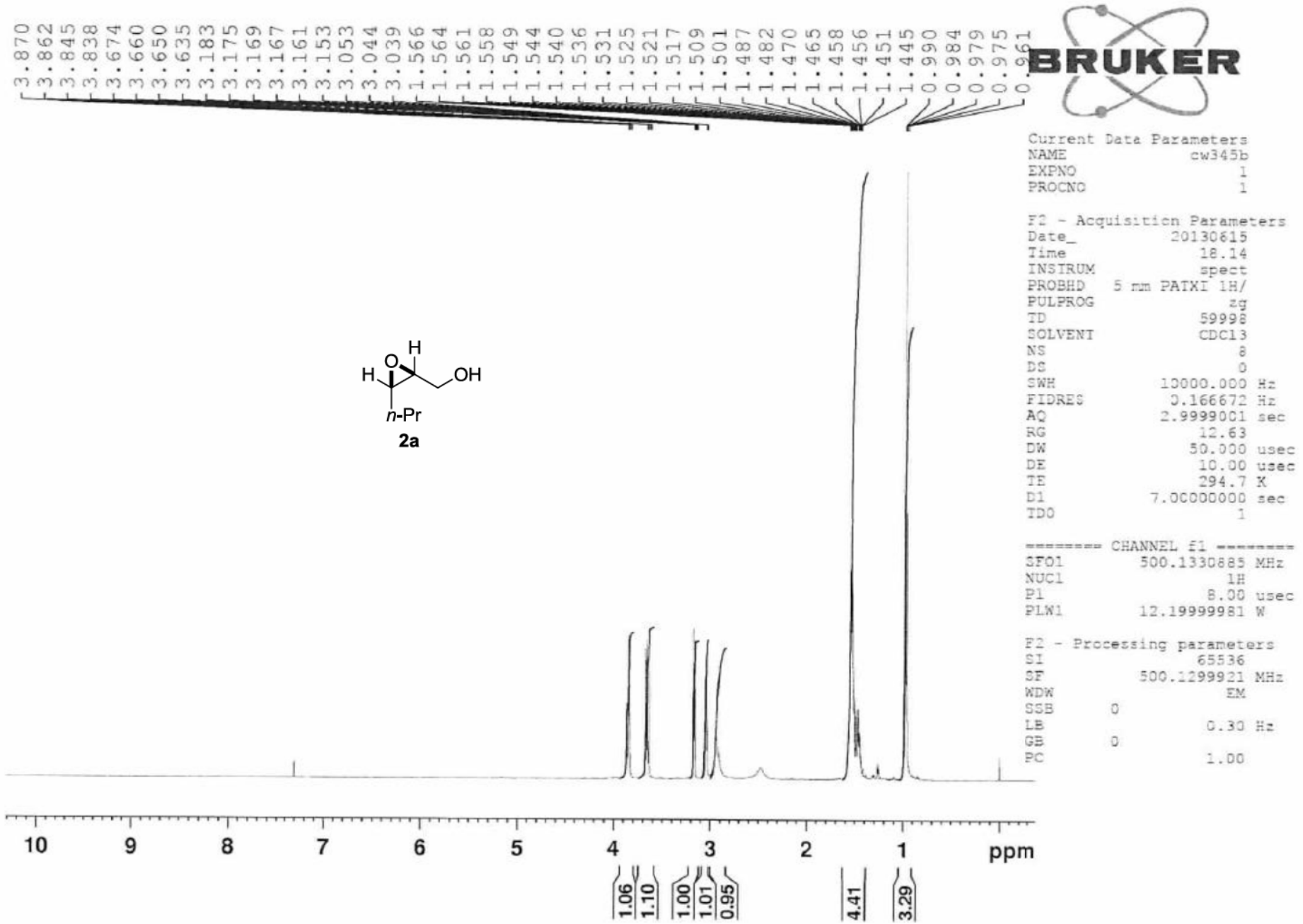
```
Current Data Parameters
NAME                  cw464a-13C
EXPNO                          1
PROCNO                         1

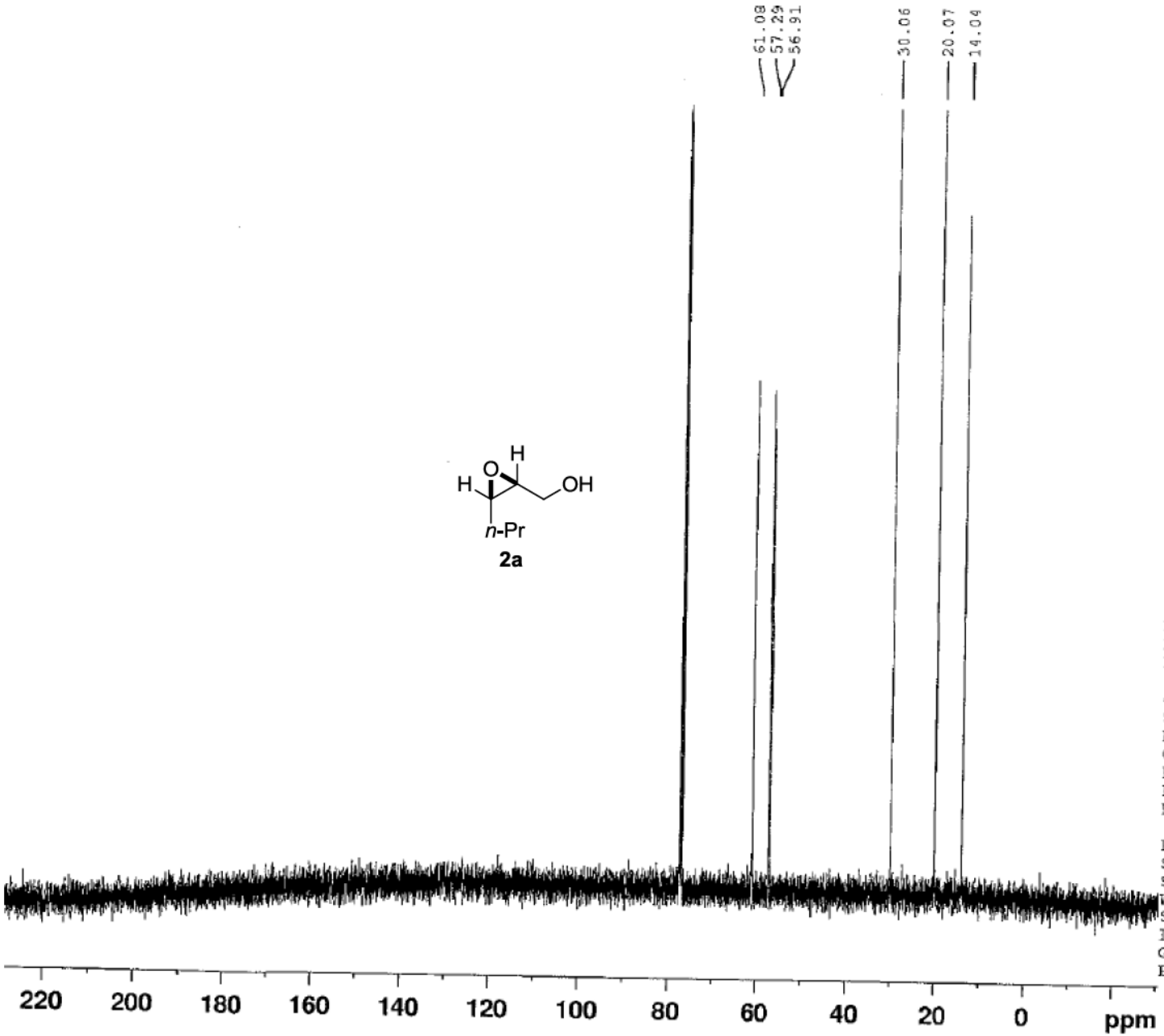
F2 - Acquisition Parameters
Date_                   20131012
Time                       18.14
INSTRUM                    spect
PROBHD     5 mm PATXI 1H/
PULPROG                    zgdc
TD                       178568
SOLVENT                   CDCl3
NS                          490
DS                            0
SWH                   32894.738 Hz
FIDRES                0.184214 Hz
AQ                    2.7142336 sec
RG                       196.79
DW                       15.200 usec
DE                       10.00 usec
TE                       295.5 K
D1                    1.00000000 sec
D11                   0.03000000 sec
TD0                           1

======== CHANNEL f1 ========
SFO1                125.7703648 MHz
NUC1                        13C
P1                       14.00 usec
PLW1              170.00000000 W

======== CHANNEL f2 ========
SFO2                500.1320005 MHz
NUC2                        1H
CPDPRG[2                waltz16
PCPD2                    90.00 usec
PLW2               12.19999981 W
PLW12               0.20893000 W

F2 - Processing parameters
SI                          131072
SF                  125.7577721 MHz
WDW                           EM
SSB                0
LB                        1.00 Hz
GB                 0
PC                        1.40
```


3.870
3.862
3.845
3.838
3.674
3.660
3.650
3.635
3.183
3.175
3.169
3.167
3.161
3.153
3.053
3.044
3.039
1.566
1.564
1.561
1.558
1.549
1.544
1.540
1.536
1.531
1.525
1.521
1.517
1.509
1.501
1.487
1.482
1.470
1.465
1.458
1.456
1.451
1.445
0.990
0.984
0.979
0.975
0.961
BRUKER
Current Data Parameters
NAME cw345b
EXPNO 1
PROCNO 1
F2 - Acquisition Parameters
Date_ 20130615
Time 18.14
INSTRUM spect
PROBHD 5 mm PATXI 1H/
PULPROG zg
TD 59998
SOLVENT CDCl3
NS 8
DS 0
SWH 10000.000 Hz
FIDRES 0.166672 Hz
AQ 2.9999001 sec
RG 12.63
DW 50.000 usec
DE 10.00 usec
TE 294.7 K
D1 7.00000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 500.1330885 MHz
NUC1 1H
P1 8.00 usec
PLW1 12.19999981 W
F2 - Processing parameters
SI 65536
SF 500.1299921 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
O
H
H
OH
n-Pr
2a
10
9
8
7
6
5
4
3
2
1
ppm
1.06
1.10
1.00
1.01
0.95
4.41
3.29



BRUKER

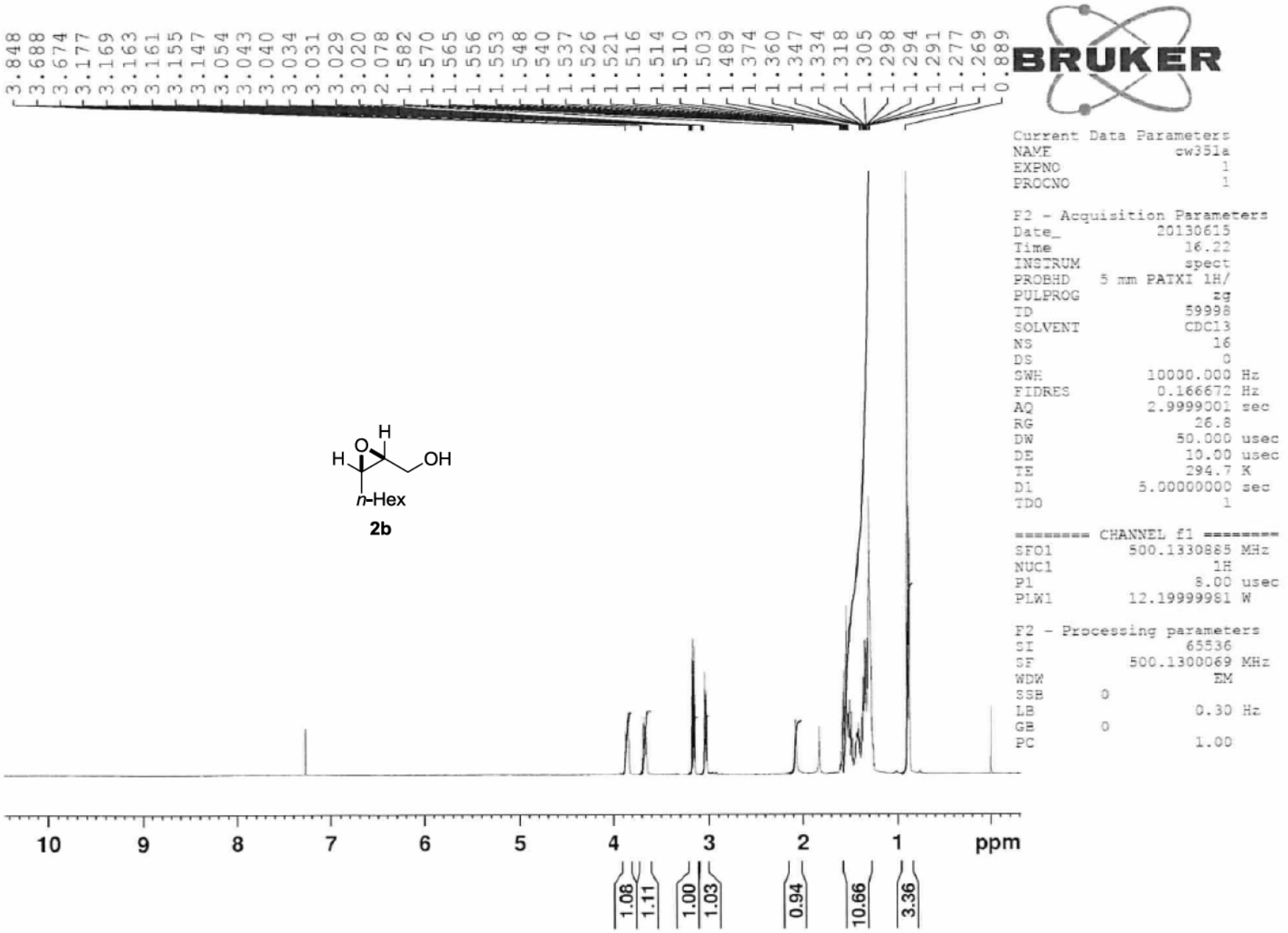
```
Current Data Parameters
NAME                  cw345a-13C
EXPNO                          1
PROCNO                         1

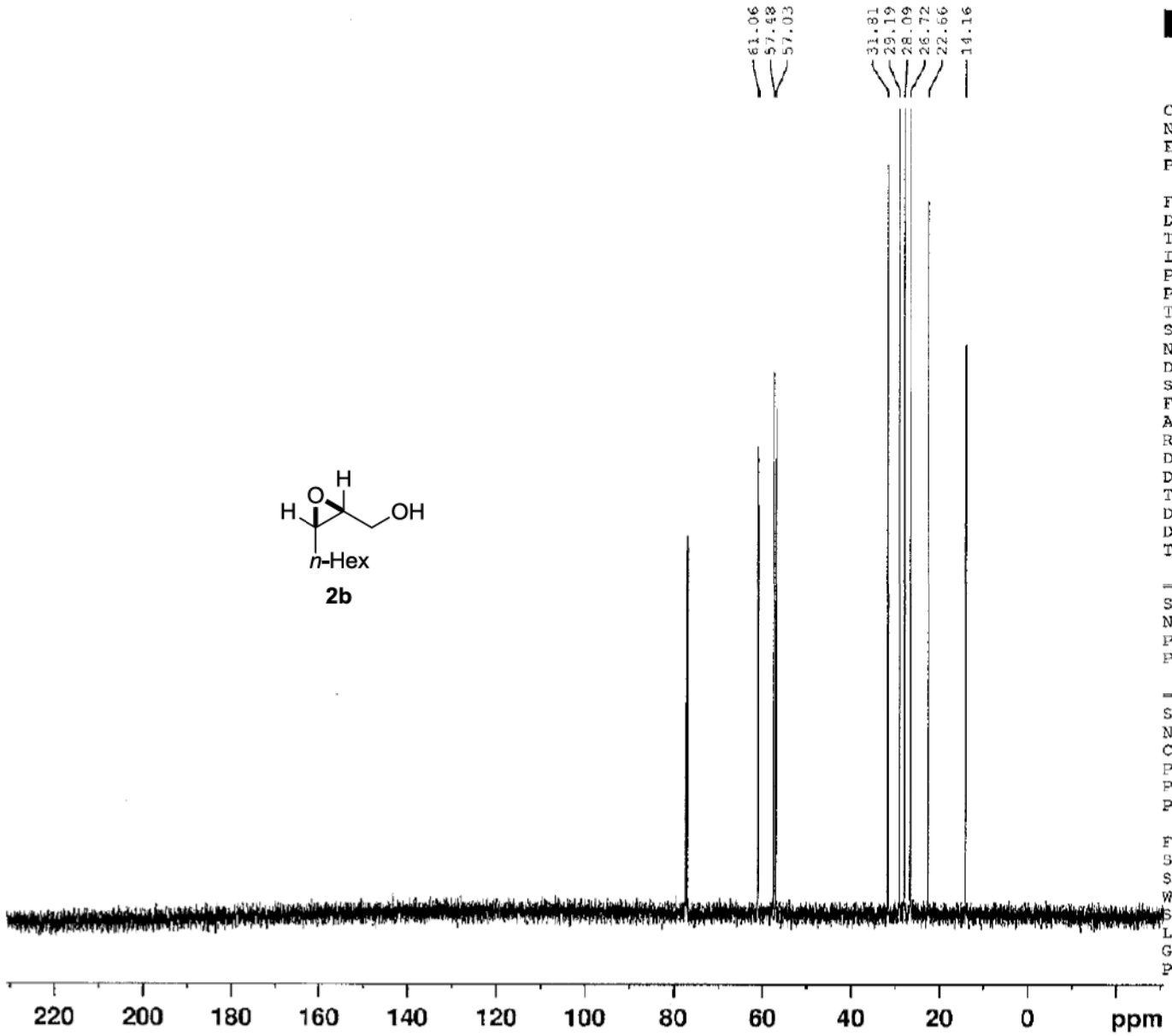
F2 - Acquisition Parameters
Date_                   20130615
Time                       17.31
INSTRUM                    spect
PROBHD     5 mm PATXI 1H/
PULPROG                     zgdc
TD                        178568
SOLVENT                    CDCl3
NS                           287
DS                             0
SWH                    32894.738 Hz
FIDRES                 0.184214 Hz
AQ                     2.7142336 sec
RG                        196.79
DW                        15.200 usec
DE                        10.00 usec
TE                        296.0 K
D1                     3.00000000 sec
D11                    0.03000000 sec
TD0                            1

======== CHANNEL f1 ========
SFO1                 125.7703648 MHz
NUC1                         13C
P1                        14.00 usec
PLW1                170.00000000 W

======== CHANNEL f2 ========
SFO2                 500.1320005 MHz
NUC2                         1H
CPDPRG[2                 waltz16
PCPD2                     90.00 usec
PLW2                 12.19999981 W
PLW12                 0.20893000 W

F2 - Processing parameters
SI                          131072
SF                   125.7577751 MHz
WDW                            EM
SSB                            0
LB                         1.00 Hz
GB                             0
PC                         1.40
```


3.848 3.688 3.674 3.177 3.169 3.163 3.161 3.155 3.147 3.054 3.043 3.040 3.034 3.031 3.029 3.020 3.078 1.582 1.570 1.565 1.556 1.553 1.548 1.540 1.537 1.526 1.521 1.516 1.514 1.510 1.503 1.489 1.374 1.360 1.347 1.334 1.318 1.305 1.298 1.294 1.291 1.277 1.269 0.889
BRUKER
Current Data Parameters
NAME cw351a
EXPNO 1
PROCNO 1
F2 - Acquisition Parameters
Date_ 20130615
Time 16.22
INSTRUM spect
PROBHD 5 mm PATXI 1H/
PULPROG zg
TD 59998
SOLVENT CDCl3
NS 16
DS 0
SWH 10000.000 Hz
FIDRES 0.166672 Hz
AQ 2.9999001 sec
RG 26.8
DW 50.000 usec
DE 10.00 usec
TE 294.7 K
D1 5.00000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 500.1330885 MHz
NUC1 1H
P1 8.00 usec
PLW1 12.19999981 W
F2 - Processing parameters
SI 65536
SF 500.1300069 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
H
O
H
OH
n-Hex
2b
10 9 8 7 6 5 4 3 2 1 ppm
1.08 1.11 1.00 1.03 0.94 10.66 3.36



BRUKER

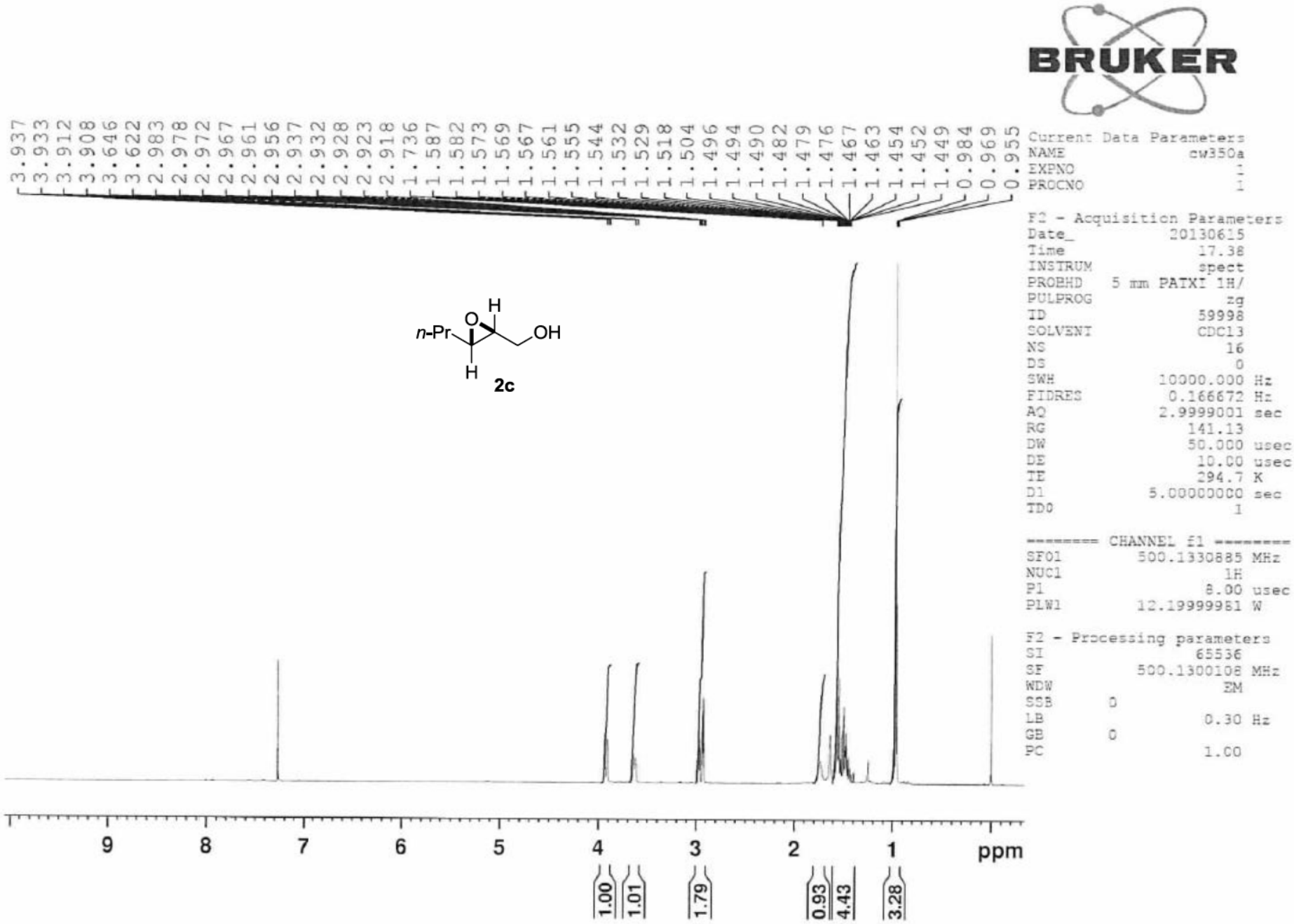
```
Current Data Parameters
NAME          cw351a-13C
EXPNO                  1
PROCNO                 1

F2 - Acquisition Parameters
Date_           20130615
Time               16.49
INSTRUM            spect
PROBHD   5 mm PATXI 1H/
PULPROG            zgdc
TD               178568
SOLVENT            CDCl3
NS                   211
DS                     0
SWH           32894.738 Hz
FIDRES         0.184214 Hz
AQ            2.7142336 sec
RG                196.79
DW                15.200 usec
DE                10.00 usec
TE                295.9 K
D1           3.00000000 sec
D11          0.03000000 sec
TD0                    1

======== CHANNEL f1 ========
SFO1        125.7703648 MHz
NUC1                13C
P1                14.00 usec
PLW1       170.00000000 W

======== CHANNEL f2 ========
SFO2        500.1320005 MHz
NUC2                1H
CPDPRG[2          waltz16
PCPD2             90.00 usec
PLW2       12.19999981 W
PLW12       0.20893000 W

F2 - Processing parameters
SI                131072
SF          125.7577754 MHz
WDW                   EM
SSB       0
LB                 1.00 Hz
GB        0
PC                 1.40
```



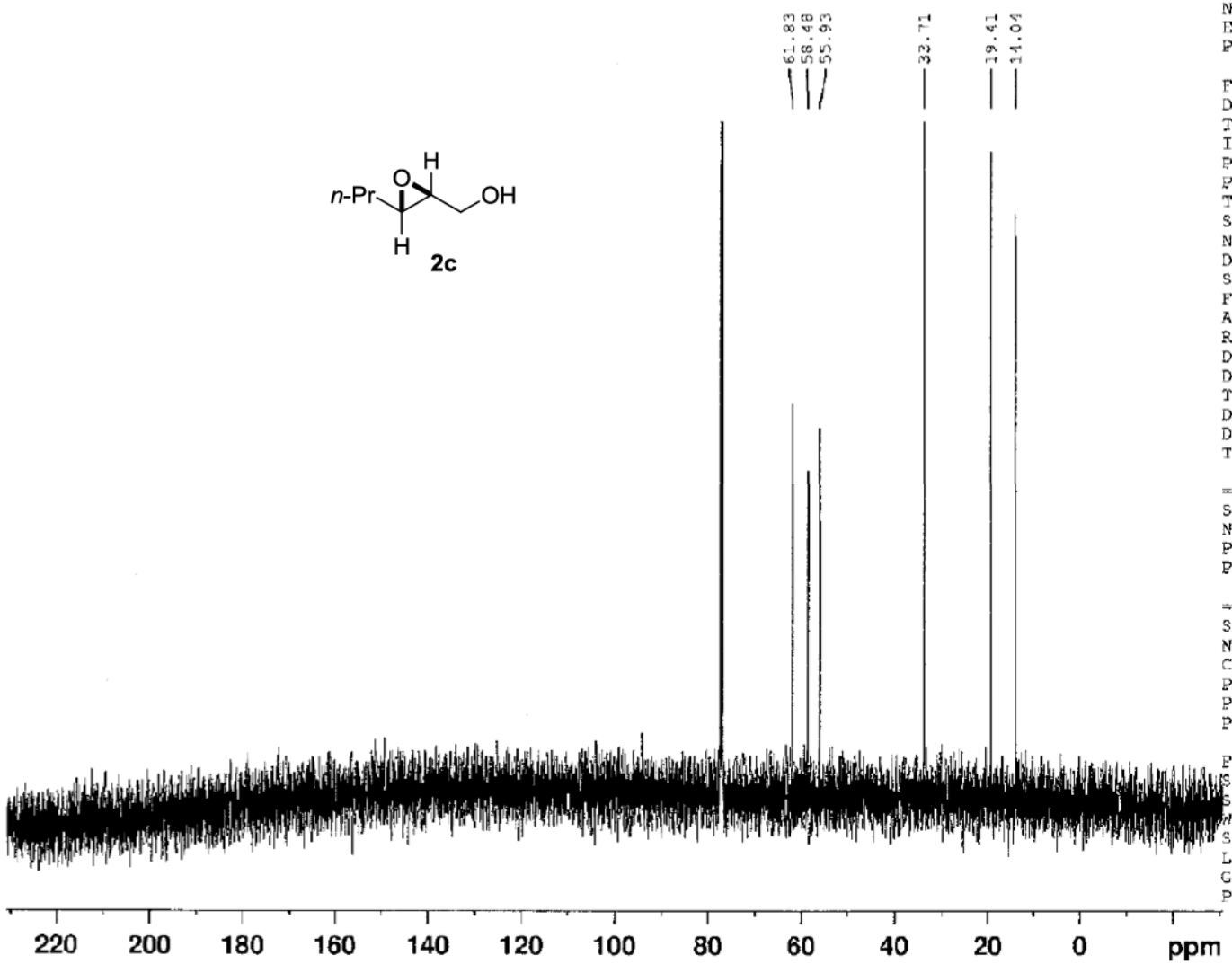
BRUKER

```
Current Data Parameters
NAME                  cw350a
EXPNO                      1
PROCNO                     1

F2 - Acquisition Parameters
Date_              20130615
Time                  17.38
INSTRUM               spect
PROBHD    5 mm PATXI 1H/
PULPROG                 zg
ID                   59998
SOLVENT              CDCl3
NS                      16
DS                       0
SWH             10000.000 Hz
FIDRES          0.166672 Hz
AQ              2.9999001 sec
RG                  141.13
DW                  50.000 usec
DE                  10.00 usec
TE                  294.7 K
D1              5.00000000 sec
TD0                      1

======== CHANNEL f1 ========
SF01          500.1330885 MHz
NUC1                    1H
P1                   8.00 usec
PLW1          12.19999981 W

F2 - Processing parameters
SI                    65536
SF            500.1300108 MHz
WDW                     EM
SSB       0
LB                   0.30 Hz
GB        0
PC                   1.00
```



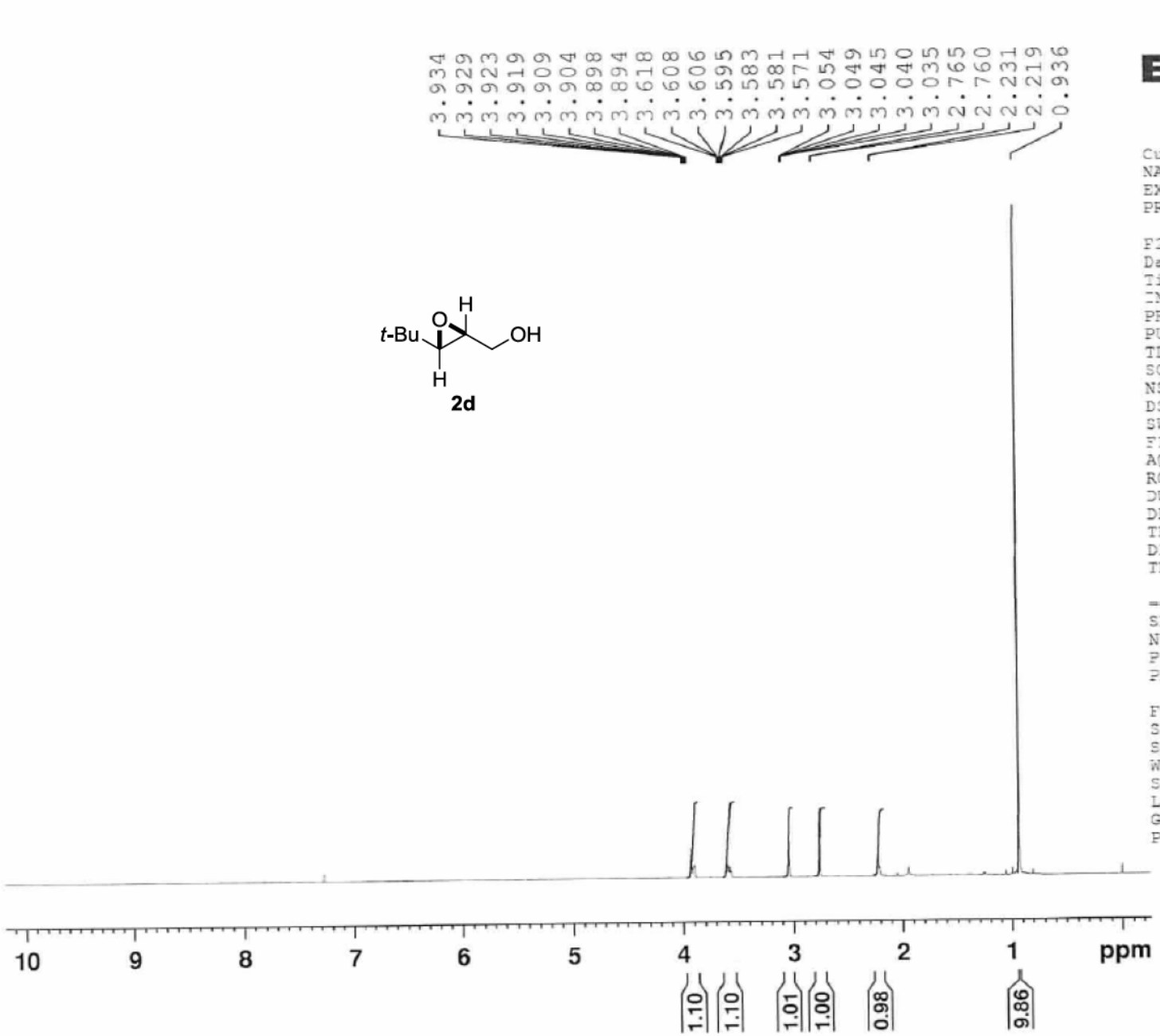

```
Current Data Parameters
NAME                  cw350a-13C
EXPNO                          1
PROCNO                         1

F2 - Acquisition Parameters
Date_                   20130615
Time                       18.07
INSTRUM                    spect
PROBHD     5 mm PAIXI 1H/
PULPROG                    zgdc
TD                       178568
SOLVENT                   CDCl3
NS                           245
DS                             0
SWH                    32894.738 Hz
FIDRES                 0.184214 Hz
AQ                     2.7142336 sec
RG                        196.79
DW                        15.200 usec
DE                        10.00 usec
TE                        295.9 K
D1                     3.00000000 sec
D11                    0.03000000 sec
TD0                            1

======== CHANNEL f1 ========
SFO1                 125.7703648 MHz
NUC1                         13C
P1                         14.00 usec
PLW1                170.00000000 W

======== CHANNEL f2 ========
SFO2                 500.1320005 MHz
NUC2                         1H
CPDPRG[2                 waltz16
PCPD2                      90.00 usec
PLW2                 12.19999981 W
PLW12                 0.20893000 W

F2 - Processing parameters
SI                          131072
SF                   125.7577723 MHz
WDW                            EM
SSB                 0
LB                         1.00 Hz
GB                  0
PC                         1.40
```



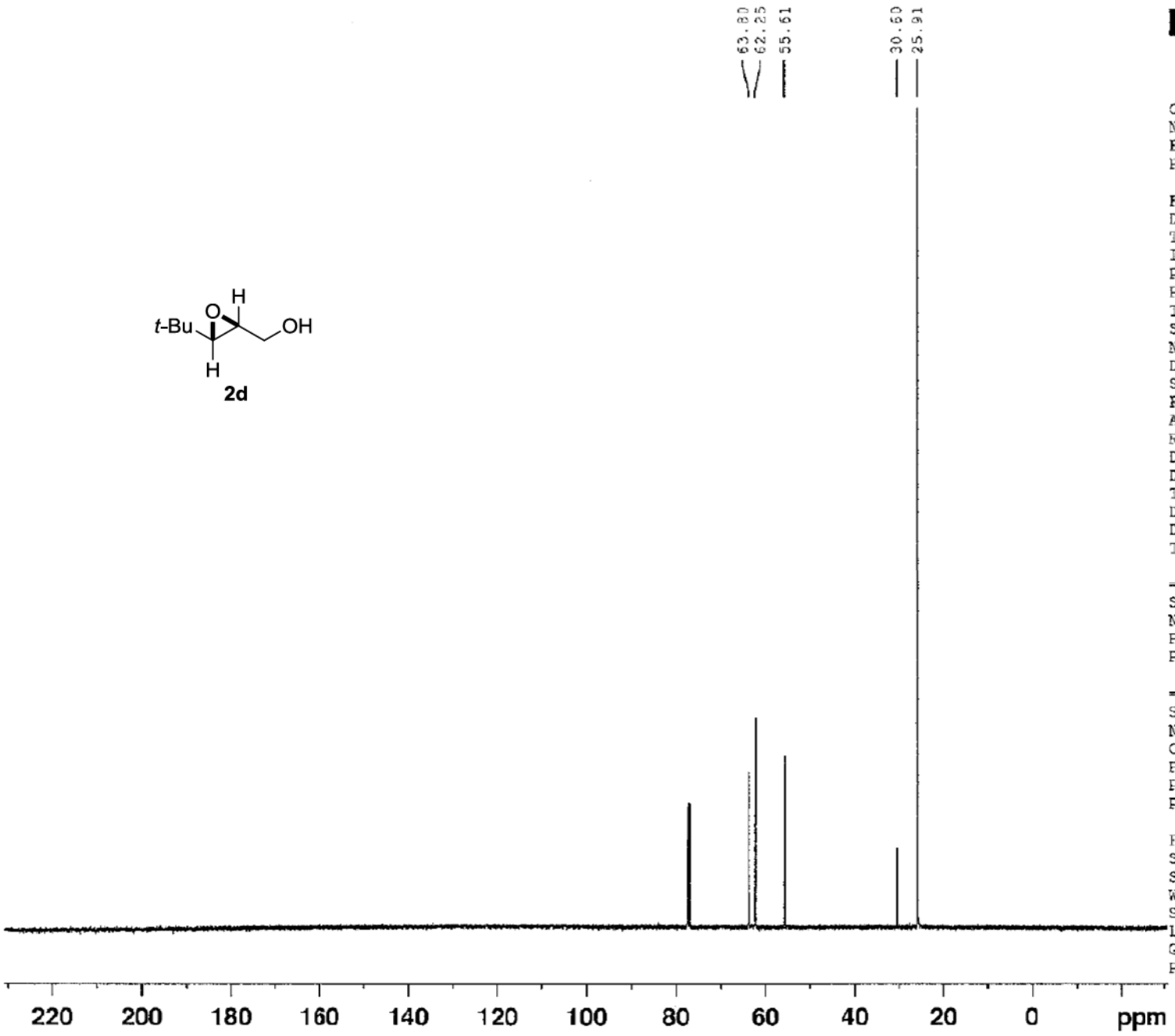
BRUKER

```
Current Data Parameters
NAME                  cw352c
EXPNO                      1
PROCNO                     1

F2 - Acquisition Parameters
Date_              20130616
Time                  19.02
INSTRUM               spect
PROBHD    5 mm PATXI 1H/
PULPROG                 zg
TD                   59998
SOLVENT              CDCl3
NS                      16
DS                       0
SWH             10000.000 Hz
FIDRES              0.166672 Hz
AQ                2.9999001 sec
RG                    23.38
DW                   50.000 usec
DE                   10.00 usec
TE                   294.7 K
D1              5.00000000 sec
TD0                      1

======== CHANNEL f1 ========
SFO1          500.1330885 MHz
NUC1                    1H
P1                   8.00 usec
PLW1          12.19999981 W

F2 - Processing parameters
SI                   65536
SF            500.1300036 MHz
WDW                     EM
SSB       0
LB                   0.30 Hz
GB        0
PC                   1.00
```



BRUKER

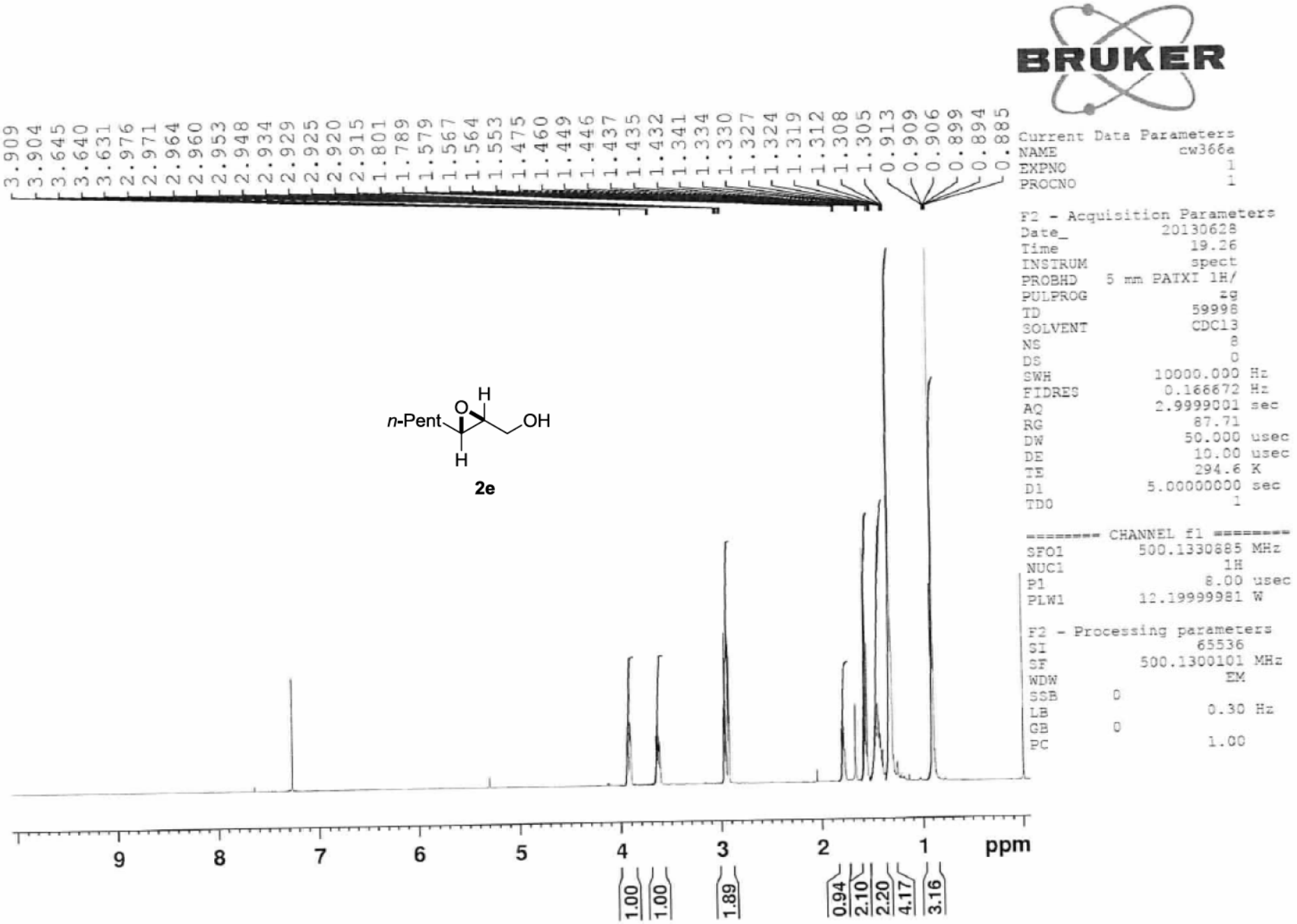
```
Current Data Parameters
NAME          cw352c-13C
EXPNO                  1
PROCNO                 1

F2 - Acquisition Parameters
Date_           20130616
Time               19.40
INSTRUM            spect
PROBHD   5 mm PATXI 1H/
PULPROG             zgdc
TD                178568
SOLVENT            CDCl3
NS                   354
DS                     0
SWH          32894.738 Hz
FIDRES        0.184214 Hz
AQ            2.7142336 sec
RG               196.79
DW               15.200 usec
DE               10.00 usec
TE               296.0 K
D1           3.00000000 sec
D11          0.03000000 sec
TD0                    1

======== CHANNEL f1 ========
SFO1        125.7703648 MHz
NUC1                  13C
P1                 14.00 usec
PLW1       170.00000000 W

======== CHANNEL f2 ========
SFO2        500.1320005 MHz
NUC2                   1H
CPDPRG[2          waltz16
PCPD2              90.00 usec
PLW2        12.19999981 W
PLW12        0.20893000 W

F2 - Processing parameters
SI                  131072
SF          125.7577751 MHz
WDW                    EM
SSB       0
LB                  1.00 Hz
GB        0
PC                  1.40
```

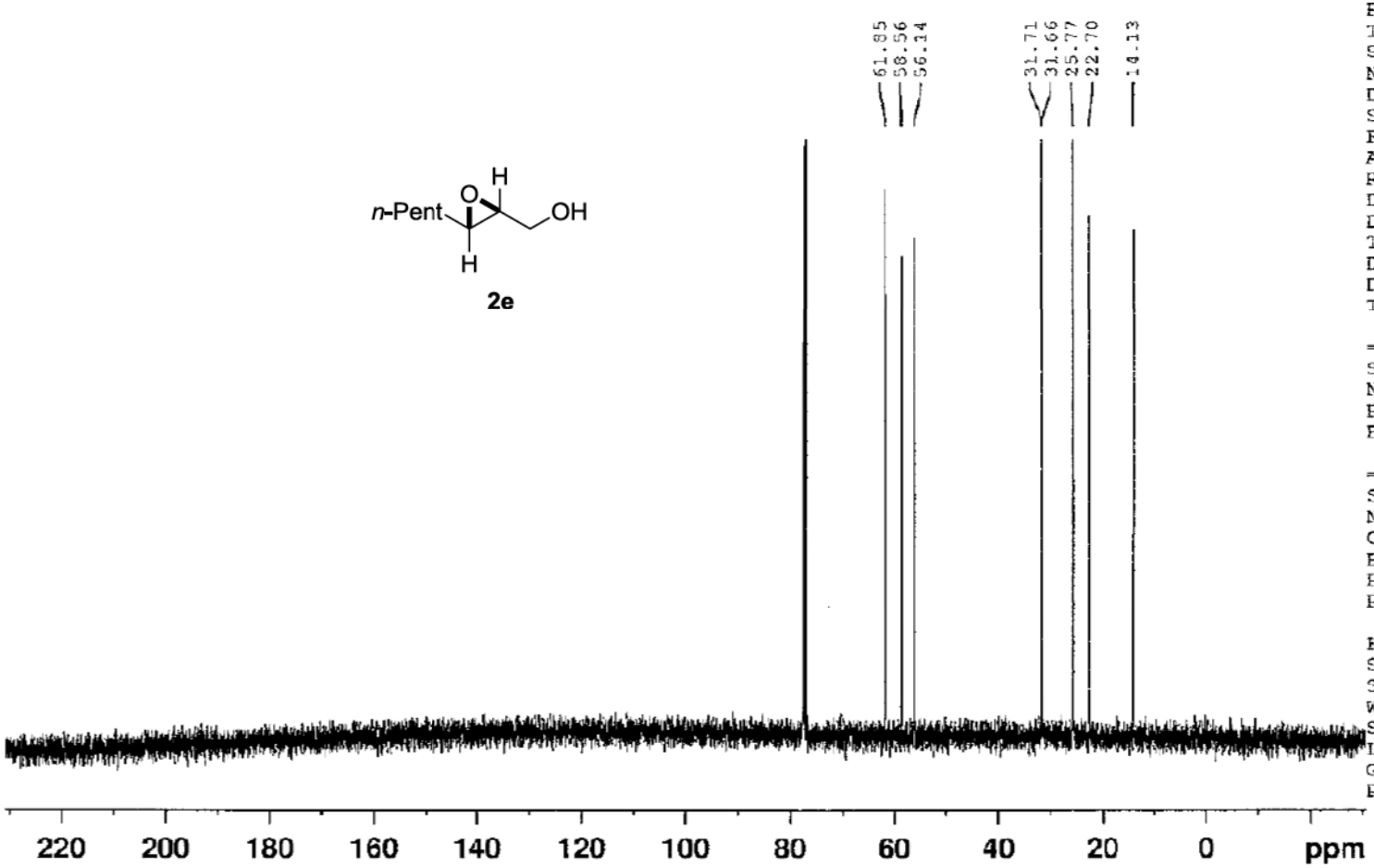



```
Current Data Parameters
NAME                  cw366a
EXPNO                      1
PROCNO                     1

F2 - Acquisition Parameters
Date_              20130628
Time                  19.26
INSTRUM               spect
PROBHD    5 mm PATXI 1H/
PULPROG                 zg
TD                   59998
SOLVENT              CDCl3
NS                       8
DS                       0
SWH           10000.000 Hz
FIDRES            0.166672 Hz
AQ                2.9999001 sec
RG                   87.71
DW                  50.000 usec
DE                  10.00 usec
TE                  294.6 K
D1                5.00000000 sec
TD0                      1

======== CHANNEL f1 ========
SFO1           500.1330885 MHz
NUC1                    1H
P1                   8.00 usec
PLW1          12.19999981 W

F2 - Processing parameters
SI                   65536
SF             500.1300101 MHz
WDW                     EM
SSB          0
LB                   0.30 Hz
GB           0
PC                   1.00
```



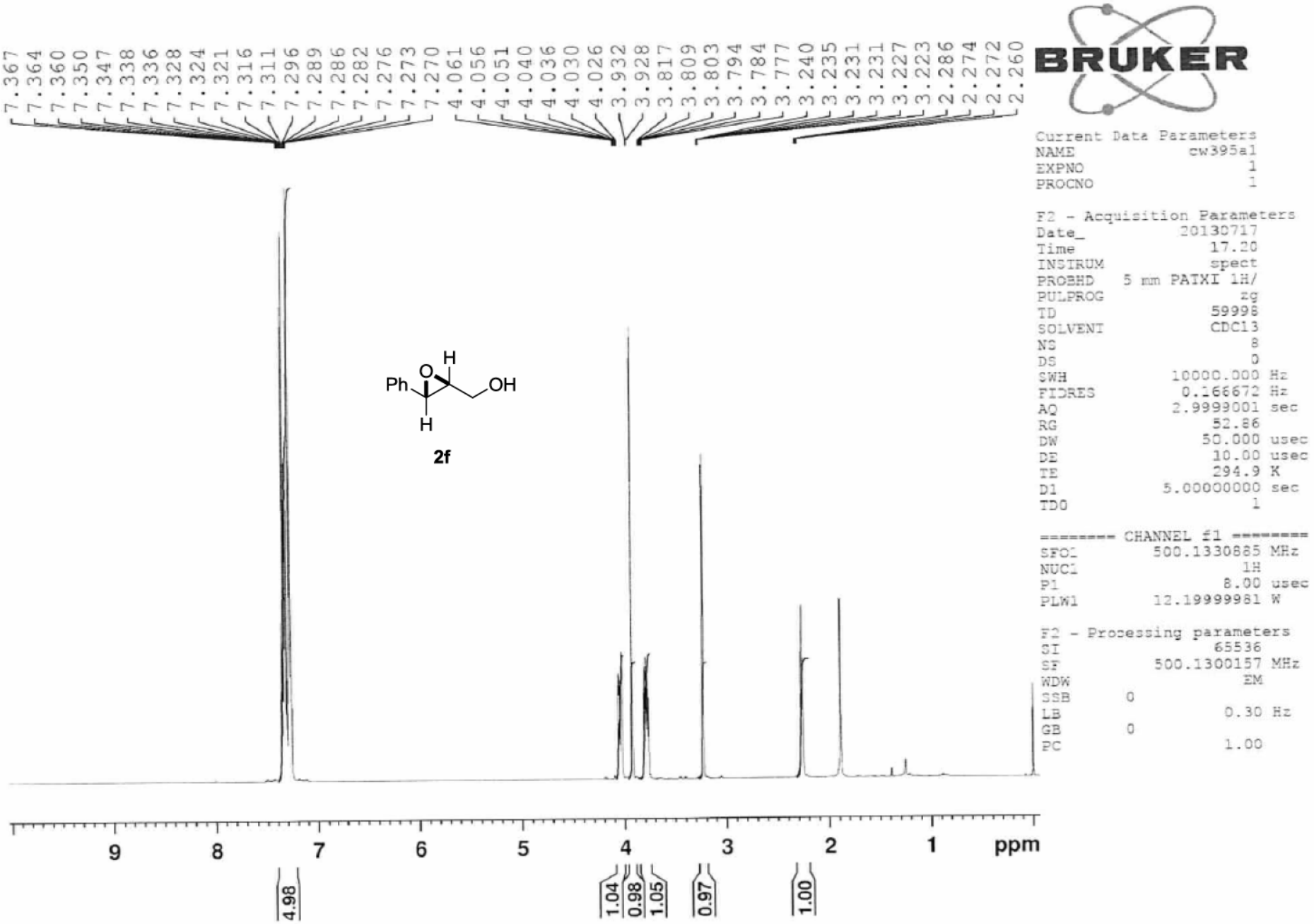

```
Current Data Parameters
NAME          cw366a_13C
EXPNO                  1
PROCNO                 1

F2 - Acquisition Parameters
Date_           20130528
Time               20.00
INSTRUM            spect
PROBHD   5 mm PATXI 1H/
PULPROG            zgdc
TD                178568
SOLVENT            CDCl3
NS                   271
DS                     0
SWH          32894.738 Hz
FIDRES        0.184214 Hz
AQ            2.7142336 sec
RG               196.79
DW                15.200 use
DE                10.00 use
TE                295.6 K
D1           3.00000000 sec
D11          0.03000000 sec
TD0                    1

======== CHANNEL f1 =======
SFO1       125.7703648 MHz
NUC1               13C
P1               14.00 use
PLW1      170.00000000 W

======== CHANNEL f2 =======
SFO2       500.1320005 MHz
NUC2               1H
CPDPRG[2        waltz16
PCPD2            90.00 use
PLW2       12.19999981 W
PLW12       0.20893000 W

F2 - Processing parameters
SI                131072
SF         125.7577720 MHz
WDW                EM
SSB       0
LB                 1.00 Hz
GB        0
PC                 1.40
```

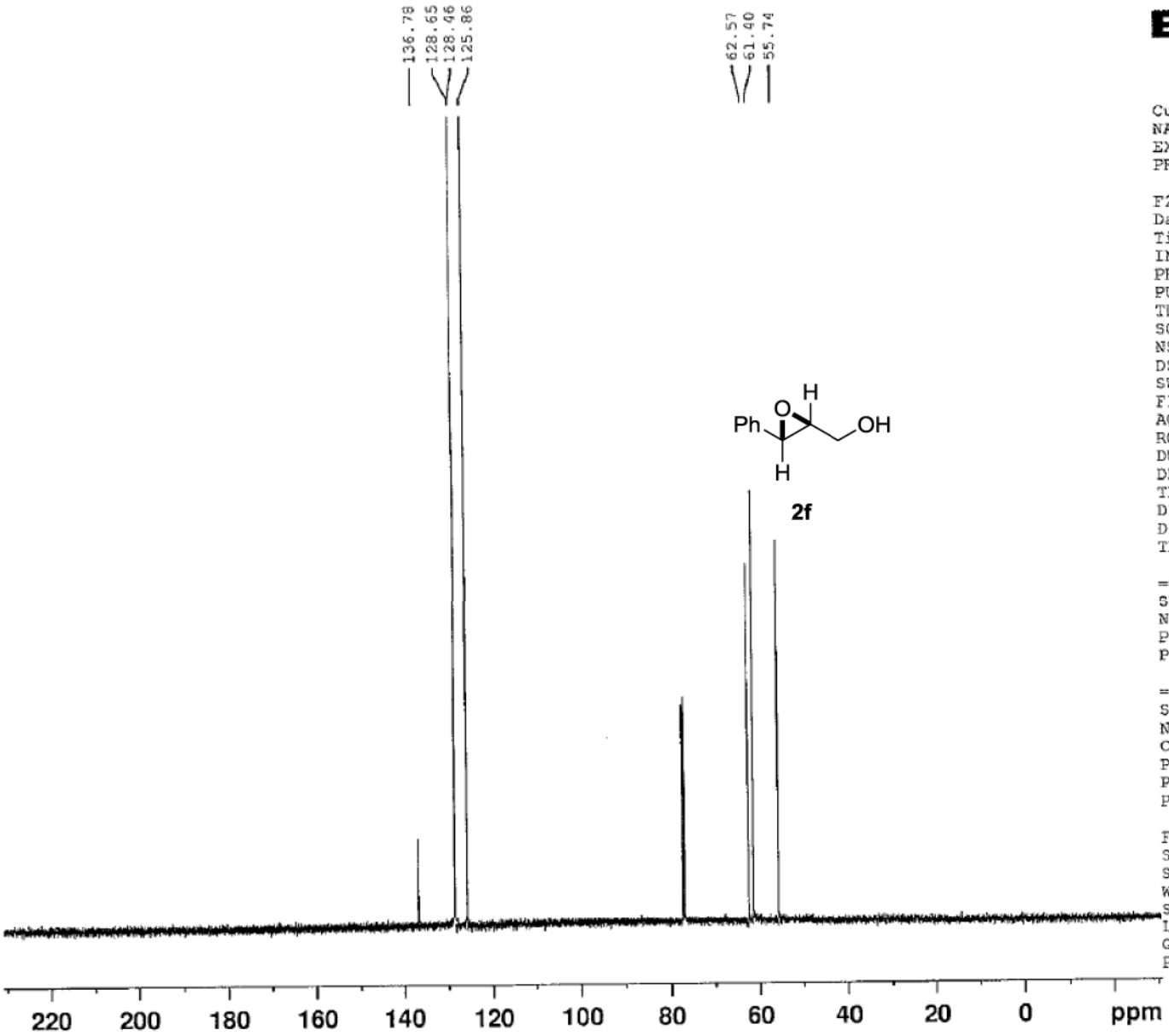



```
Current Data Parameters
NAME                  cw395a1
EXPNO                       1
PROCNO                      1

F2 - Acquisition Parameters
Date_              20130717
Time                   17.20
INSTRUM                spect
PROBHD    5 mm PATXI 1H/
PULPROG                   zg
TD                     59998
SOLVENT                CDCl3
NS                         8
DS                         0
SWH              10000.000 Hz
FIDRES           0.166672 Hz
AQ               2.9999001 sec
RG                     52.86
DW                  50.000 usec
DE                  10.00 usec
TE                    294.9 K
D1               5.00000000 sec
TD0                        1

======== CHANNEL f1 ========
SFO1           500.1330885 MHz
NUC1                    1H
P1                   8.00 usec
PLW1          12.19999981 W

F2 - Processing parameters
SI                     65536
SF             500.1300157 MHz
WDW                    EM
SSB       0
LB                   0.30 Hz
GB        0
PC                     1.00
```



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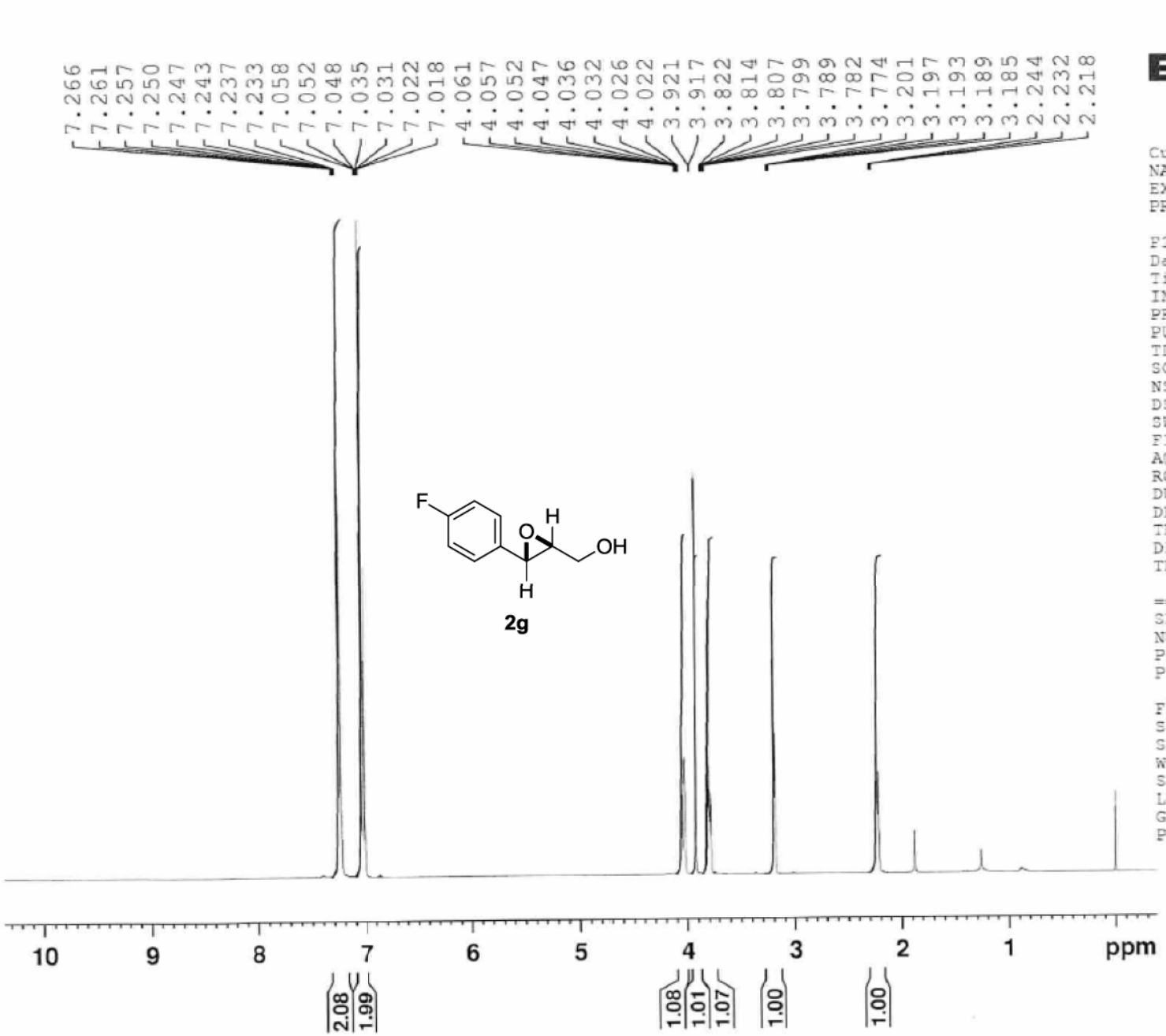
```
Current Data Parameters
NAME                  cw395a-13C
EXPNO                          1
PROCNO                         1

F2 - Acquisition Parameters
Date_                   20130717
Time                       12.00
INSTRUM                    spect
PROBHD     5 mm PATXI 1H/
PULPROG                    zgdc
TD                       178568
SOLVENT                  CDCl3
NS                           269
DS                             0
SWH                  32894.738 Hz
FIDRES                0.184214 Hz
AQ                    2.7142336 sec
RG                       196.79
DW                       15.200 usec
DE                       10.00 usec
TE                       296.1 K
D1                    3.00000000 sec
D11                   0.03000000 sec
TD0                            1

======== CHANNEL f1 ========
SFO1                125.7703648 MHz
NUC1                        13C
P1                       14.00 usec
PLW1                170.00000000 W

======== CHANNEL f2 ========
SFO2                500.1320005 MHz
NUC2                        1H
CPDPRG[2                waltz16
PCPD2                    90.00 usec
PLW2                12.19999981 W
PLW12                0.20893000 W

F2 - Processing parameters
SI                         131072
SF                  125.7577757 MHz
WDW                            EM
SSB                    0
LB                           1.00 Hz
GB                     0
PC                           1.40
```



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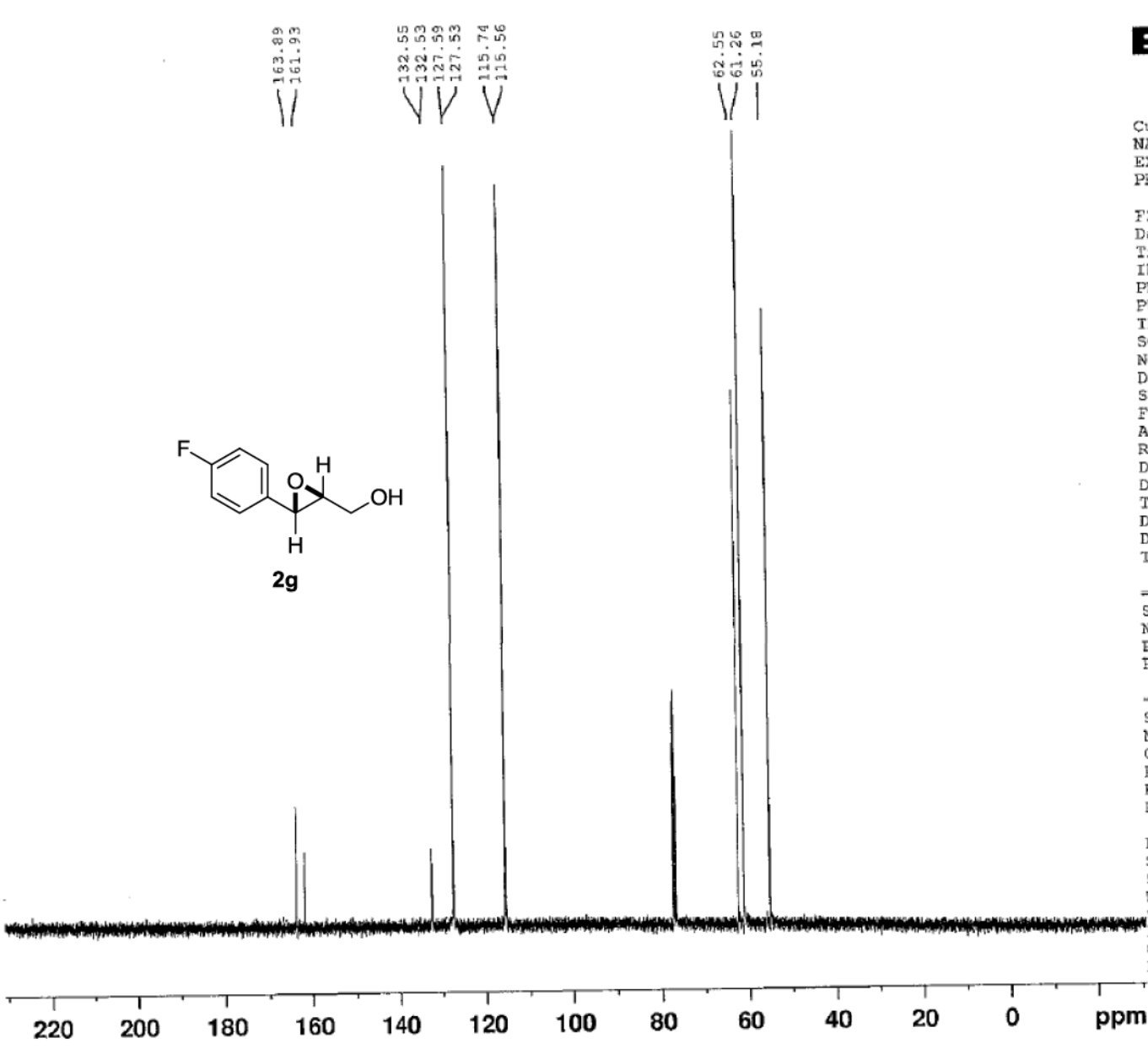
```
Current Data Parameters
NAME                  cw411a1
EXPNO                       1
PROCNO                      1

F2 - Acquisition Parameters
Date_              20130727
Time                  17.19
INSTRUM               spect
PROBHD    5 mm PATXI 1H/
PULPROG                 zg
TD                   59998
SOLVENT              CDCl3
NS                       8
DS                       0
SWH              10000.000 Hz
FIDRES               0.166672 Hz
AQ                2.9999001 sec
RG                    37.62
DW                   50.000 usec
DE                   10.00 usec
TE                   296.9 K
D1               5.00000000 sec
TD0                      1

======== CHANNEL f1 ========
SFO1            500.1330885 MHz
NUC1                    1H
P1                    8.00 usec
PLW1            12.19999981 W

F2 - Processing parameters
SI                   65536
SF              500.1300108 MHz
WDW                     EM
SSB          0
LB                    0.30 Hz
GB           0
PC                    1.00
```



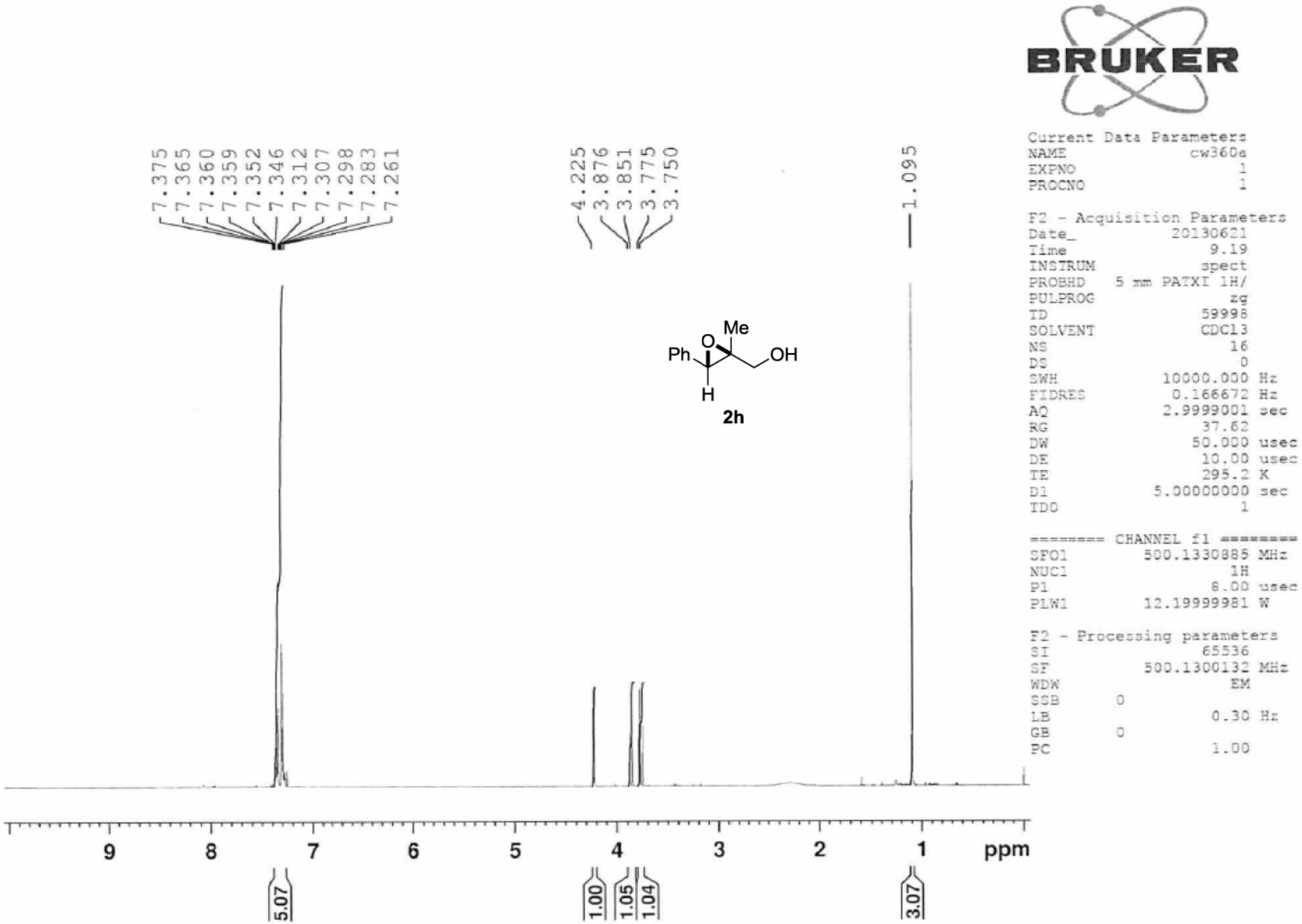
Current Data Parameters
NAME cw411a1-13C
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 20130727
Time 17.52
INSTRUM spect
PROBHD 5 mm PATXI 1H/
PULPROG zgdc
TD 178568
SOLVENT CDCl3
NS 440
DS 0
SWH 32894.738 Hz
FIDRES 0.184214 Hz
AQ 2.7142336 sec
RG 196.79
DW 15.200 usec
DE 10.00 usec
TE 297.7 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1

======== CHANNEL f1 ========
SFO1 125.7703648 MHz
NUC1 13C
P1 14.00 usec
PLW1 170.00000000 W

======== CHANNEL f2 ========
SFO2 500.1320005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 12.19999981 W
PLW12 0.20893000 W

F2 - Processing parameters
SI 131072
SF 125.7577742 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

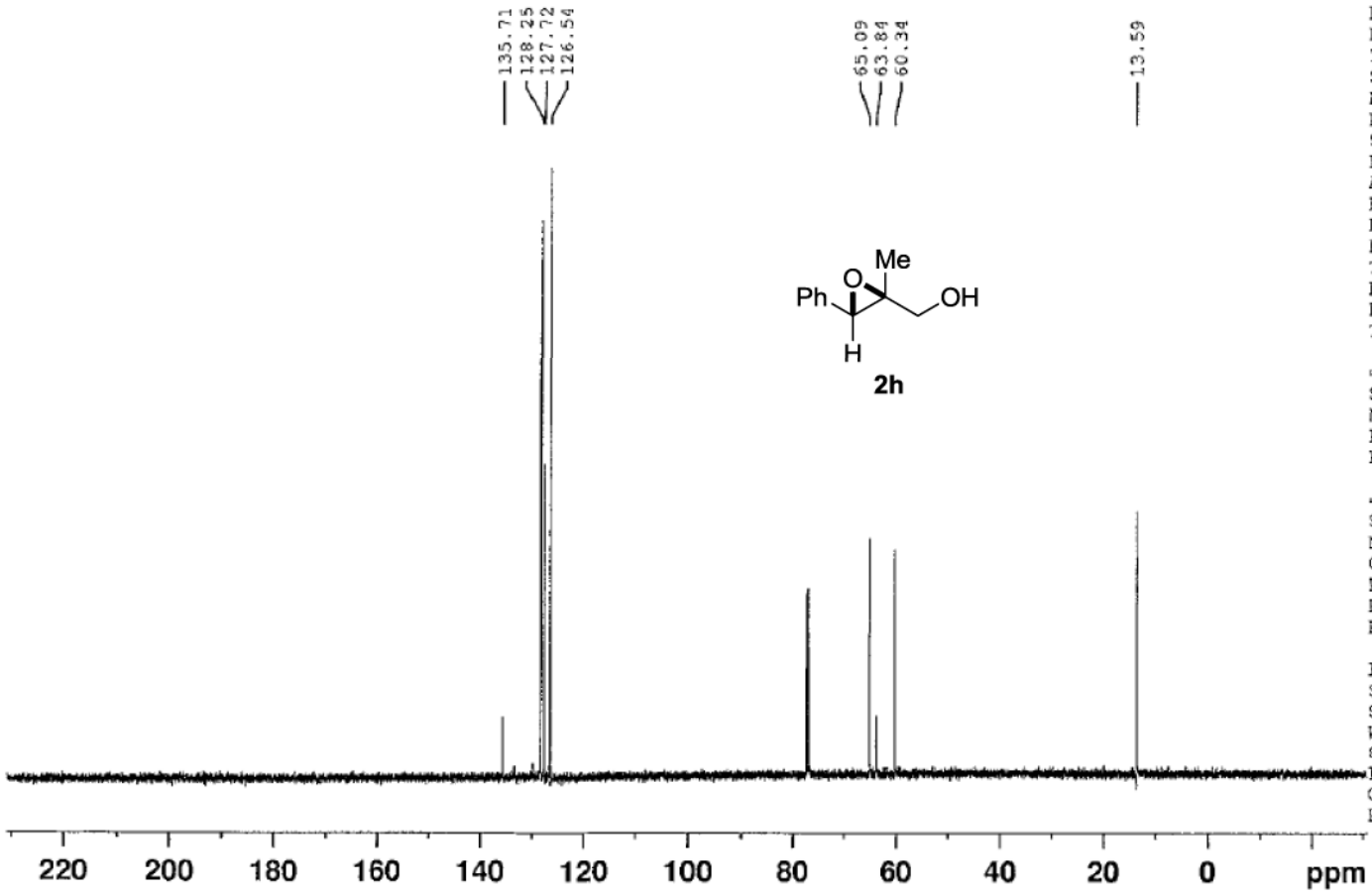



```
Current Data Parameters
NAME                  cw360a
EXPNO                      1
PROCNO                     1

F2 - Acquisition Parameters
Date_              20130621
Time                   9.19
INSTRUM               spect
PROBHD    5 mm PATXI 1H/
PULPROG                  zg
TD                    59998
SOLVENT               CDCl3
NS                       16
DS                        0
SWH               10000.000 Hz
FIDRES                0.166672 Hz
AQ                2.9999001 sec
RG                     37.62
DW                    50.000 usec
DE                    10.00 usec
TE                    295.2 K
D1              5.00000000 sec
TD0                        1

======== CHANNEL f1 ========
SFO1           500.1330885 MHz
NUC1                     1H
P1                    8.00 usec
PLW1           12.19999981 W

F2 - Processing parameters
SI                     65536
SF             500.1300132 MHz
WDW                      EM
SSB       0
LB                    0.30 Hz
GB        0
PC                     1.00
```



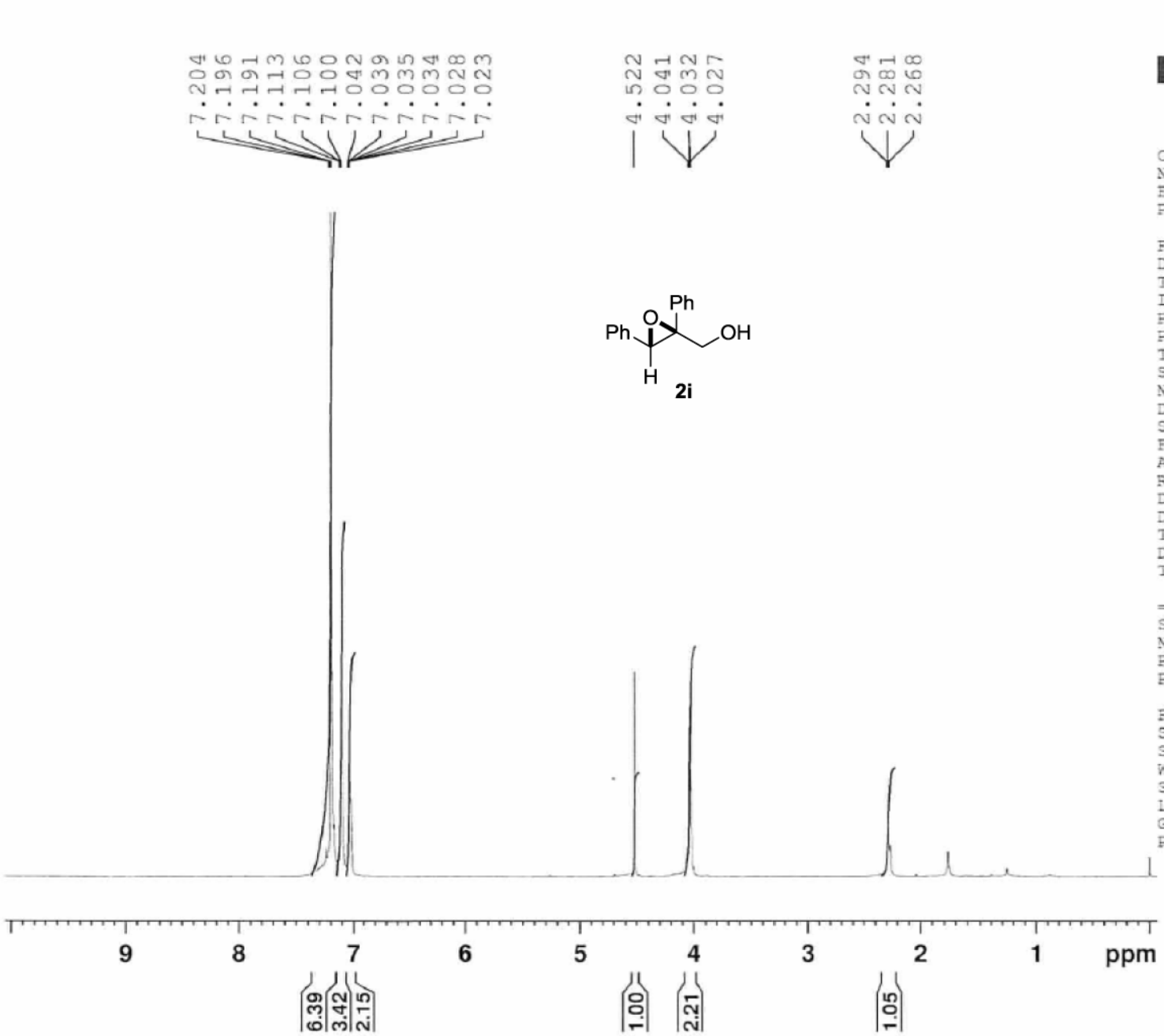

```
Current Data Parameters
NAME          cw360a-13C
EXPNO                  1
PROCNO                 1

F2 - Acquisition Parameters
Date_           20130621
Time                9.45
INSTRUM            spect
PROBHD   5 mm PATXI 1H/
PULPROG             zgdc
TD                178568
SOLVENT            CDCl3
NS                   235
DS                     0
SWH            32894.738 Hz
FIDRES          0.184214 Hz
AQ              2.7142336 sec
RG                196.79
DW                15.200 usec
DE                10.00 usec
TE                296.1 K
D1             3.00000000 sec
D11            0.03000000 sec
TD0                    1

======== CHANNEL f1 ========
SFO1         125.7703648 MHz
NUC1                 13C
P1                14.00 usec
PLW1       170.00000000 W

======== CHANNEL f2 ========
SFO2         500.1320005 MHz
NUC2                 1H
CPDPRG[2          waltz16
PCPD2             90.00 usec
PLW2         12.19999981 W
PLW12         0.20893000 W

F2 - Processing parameters
SI                 131072
SF           125.7577743 MHz
WDW                  EM
SSB       0
LB                 1.00 Hz
GB        0
PC                 1.40
```



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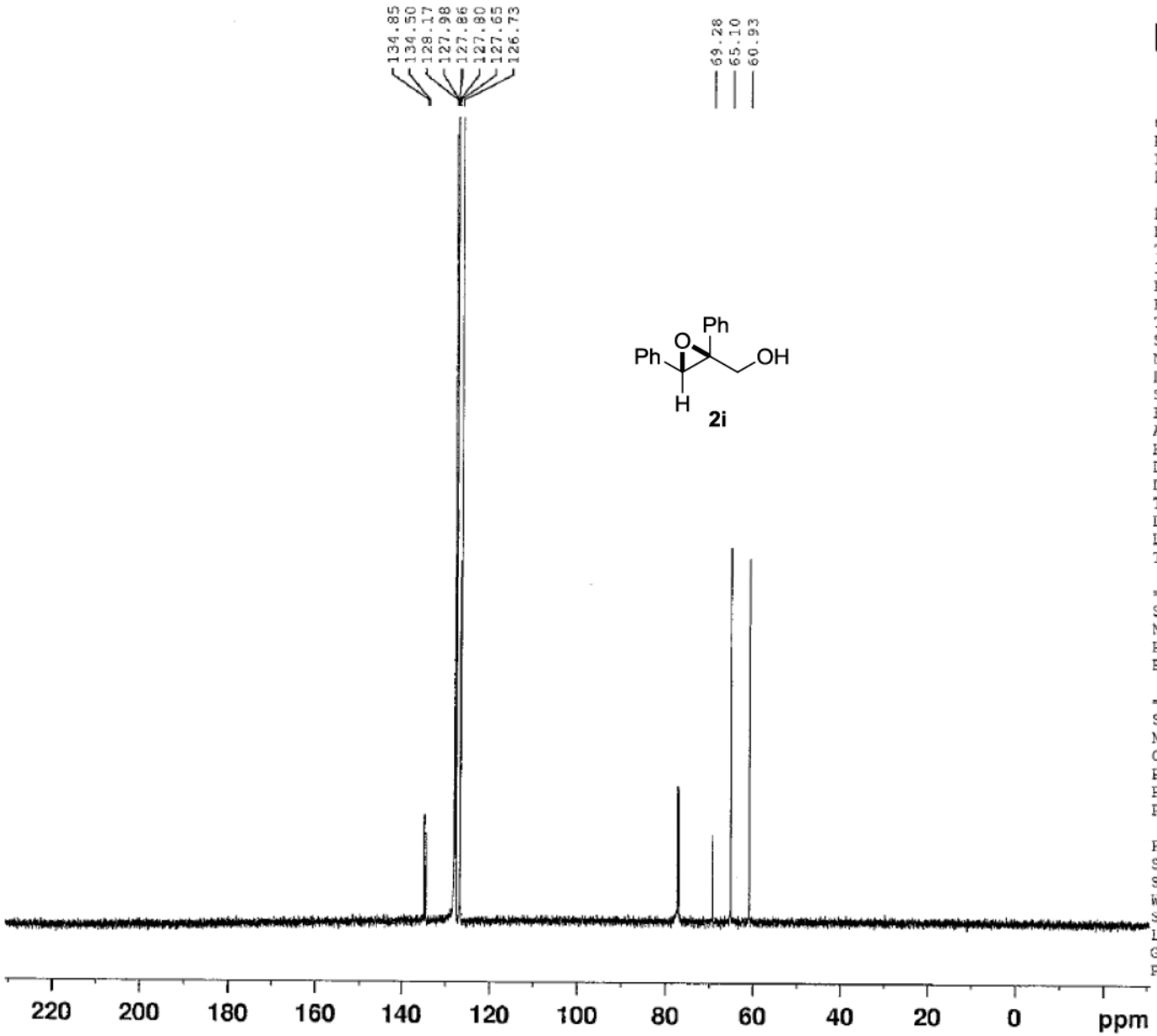
```
Current Data Parameters
NAME                  cw379a
EXPNO                      1
PROCNO                     1

F2 - Acquisition Parameters
Date_              20130707
Time                  17.10
INSTRUM               spect
PROBHD    5 mm PATXI 1H/
PULPROG                 zg
TD                   59998
SOLVENT              CDCl3
NS                       8
DS                       0
SWH           10000.000 Hz
FIDRES         0.166672 Hz
AQ             2.9999001 sec
RG                   30.11
DW                 50.000 usec
DE                 10.00 usec
TE                 295.5 K
D1            5.00000000 sec
TDO                      1

======== CHANNEL f1 ========
SFO1         500.1330885 MHz
NUC1                   1H
P1                   8.00 usec
PLW1         12.19999981 W

F2 - Processing parameters
SI                   65536
SF           500.1300218 MHz
WDW                    EM
SSB       0
LB                   0.30 Hz
GB        0
PC                   1.00
```



BRUKER

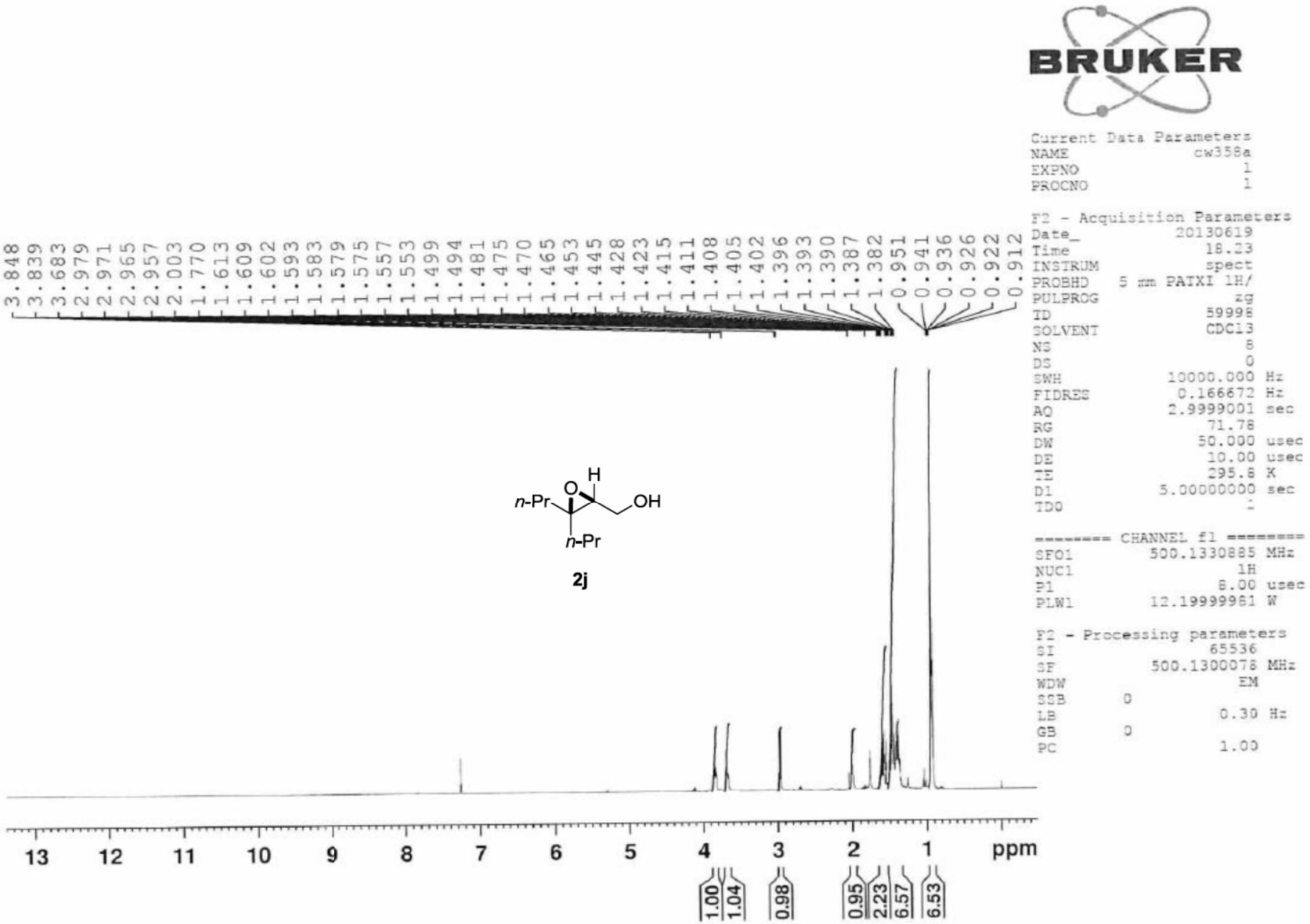
```
Current Data Parameters
NAME          cw379a_13C
EXPNO                  1
PROCNO                 1

F2 - Acquisition Parameters
Date_           20130707
Time               18.45
INSTRUM            spect
PROBHD   5 mm PATXI 1H/
PULPROG             zgdc
TD                178568
SOLVENT             CDCl3
NS                    314
DS                      0
SWH           32894.738 Hz
FIDRES         0.184214 Hz
AQ             2.7142336 sec
RG                196.79
DW                15.200 usec
DE                10.00 usec
TE                296.3 K
D1             3.00000000 sec
D11            0.03000000 sec
TD0                     1

======== CHANNEL f1 ========
SFO1         125.7703648 MHz
NUC1                  13C
P1                 14.00 usec
PLW1        170.00000000 W

======== CHANNEL f2 ========
SFO2         500.1320005 MHz
NUC2                  1H
CPDPRG[2          waltz16
PCPD2              90.00 usec
PLW2         12.19999981 W
PLW12         0.20893000 W

F2 - Processing parameters
SI                  131072
SF           125.7577772 MHz
WDW                    EM
SSB       0
LB                  1.00 Hz
GB        0
PC                  1.40
```



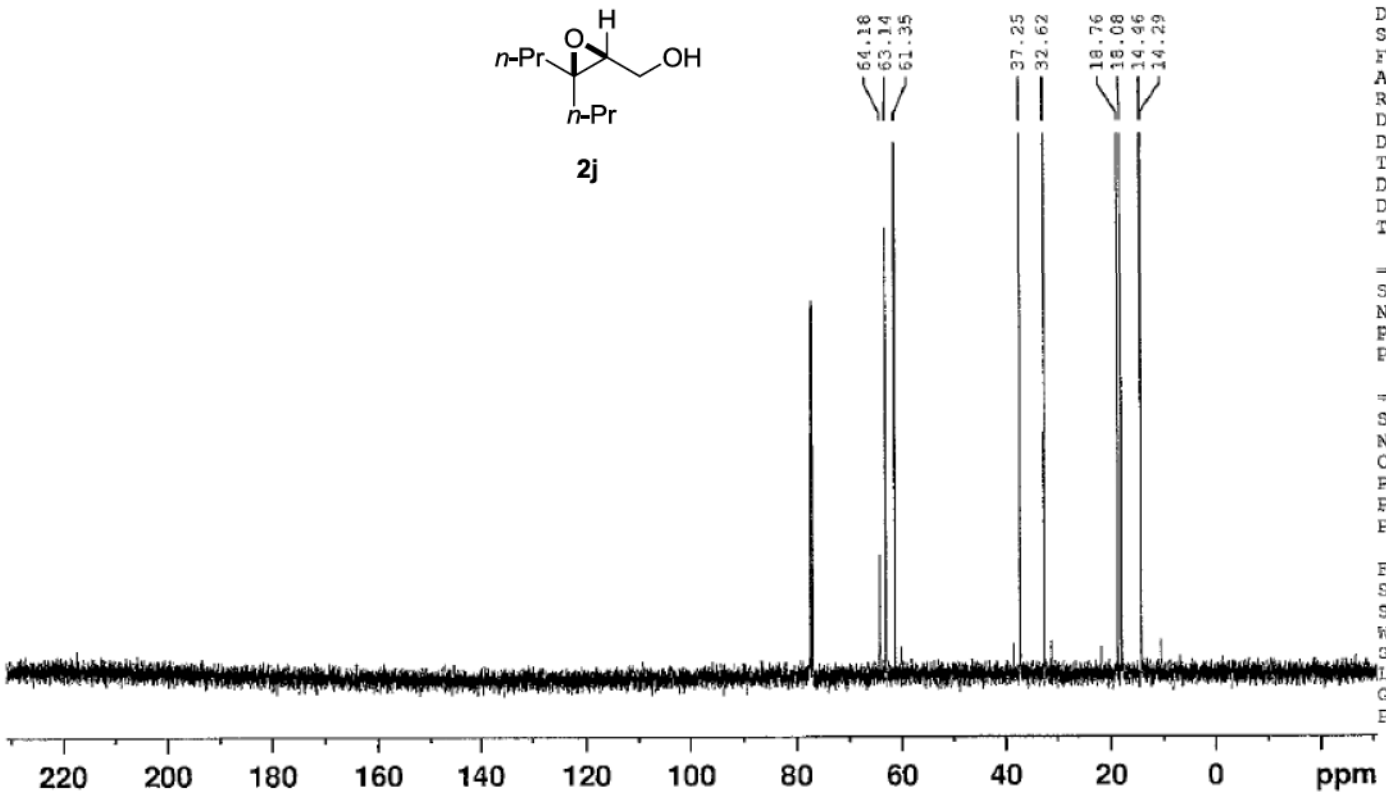
BRUKER

```
Current Data Parameters
NAME                  cw358a
EXPNO                      1
PROCNO                     1

F2 - Acquisition Parameters
Date_              20130619
Time                  18.23
INSTRUM               spect
PROBHD   5 mm PATXI 1H/
PULPROG                 zg
ID                   59998
SOLVENT              CDCl3
NS                         8
DS                         0
SWH           10000.000 Hz
FIDRES         0.166672 Hz
AQ            2.9999001 sec
RG                    71.78
DW                 50.000 usec
DE                 10.00 usec
TE                 295.8 K
D1             5.00000000 sec
TD0                        1

======== CHANNEL f1 ========
SFO1          500.1330885 MHz
NUC1                   1H
P1                  8.00 usec
PLW1          12.19999981 W

F2 - Processing parameters
SI                     65536
SF            500.1300078 MHz
WDW                    EM
SSB       0
LB                  0.30 Hz
GB        0
PC                     1.00
```



BRUKER

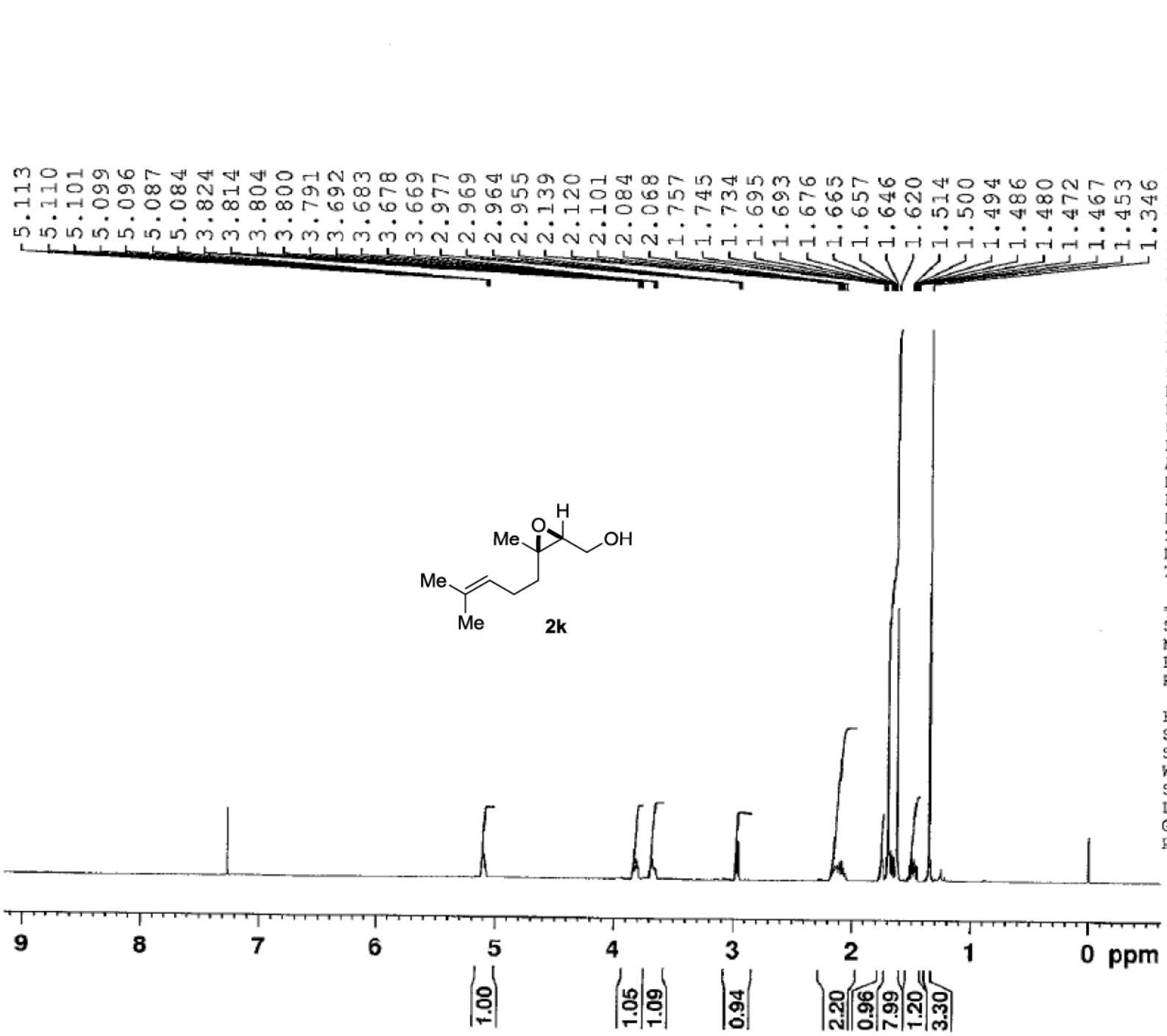
```
Current Data Parameters
NAME          cw358a-13C
EXPNO                  1
PROCNO                 1

F2 - Acquisition Parameters
Date_           20130619
Time               18.43
INSTRUM            spect
PROBHD   5 mm PATXI 1H/
PULPROG             zgdc
TD                178568
SOLVENT             CDCl3
NS                    164
DS                      0
SWH           32894.738 Hz
FIDRES         0.184214 Hz
AQ             2.7142336 sec
RG                196.79
DW                15.200 usec
DE                10.00 usec
TE                296.6 K
D1            3.00000000 sec
D11           0.03000000 sec
TD0                    1

======== CHANNEL f1 ========
SFO1        125.7703648 MHz
NUC1                  13C
P1                 14.00 usec
PLW1       170.00000000 W

======== CHANNEL f2 ========
SFO2        500.1320005 MHz
NUC2                  1H
CPDPRG[2          waltz16
PCPD2              90.00 usec
PLW2         12.19999981 W
PLW12         0.20893000 W

F2 - Processing parameters
SI                  131072
SF           125.7577746 MHz
WDW                    EM
SSB       0
LB                  1.00 Hz
GB        0
PC                  1.40
```



Current Data Parameters

NAME	cw376d
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

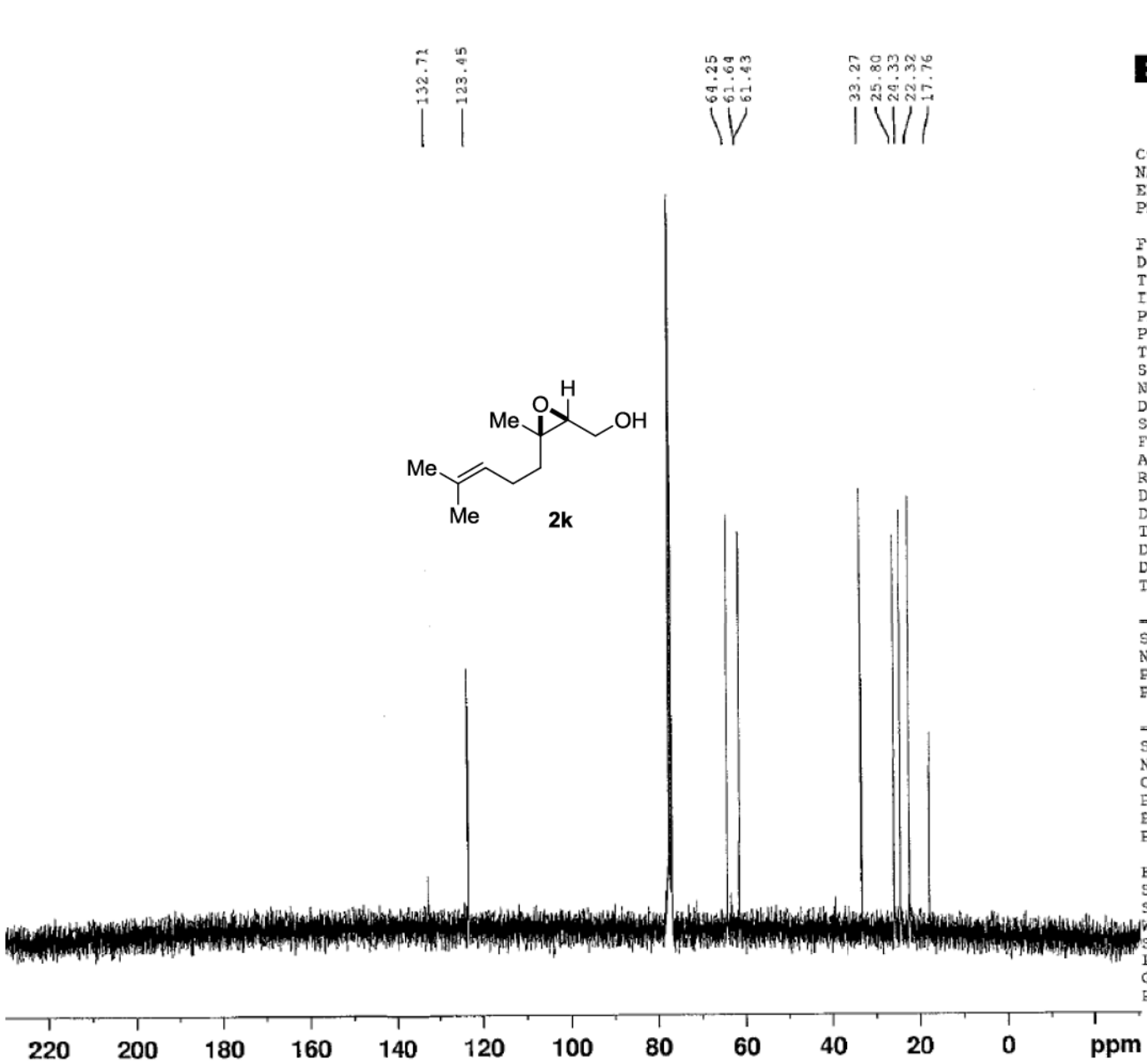
Date_	20131218
Time	11.22
INSTRUM	spect
PROBHD	5 mm PATXI 1H/
PULPROG	zg
TD	59998
SOLVENT	CDCl3
NS	4
DS	0
SWH	10000.000 Hz
FIDRES	0.166672 Hz
AQ	2.9999001 sec
RG	79.04
DW	50.000 usec
DE	10.00 usec
TE	295.8 K
D1	5.00000000 sec
TD0	1

======== CHANNEL f1 ========

SFO1	500.1330885 MHz
NUC1	1H
P1	8.00 usec
PLW1	12.19999981 W

F2 - Processing parameters

SI	65536
SF	500.1300117 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00



BRUKER

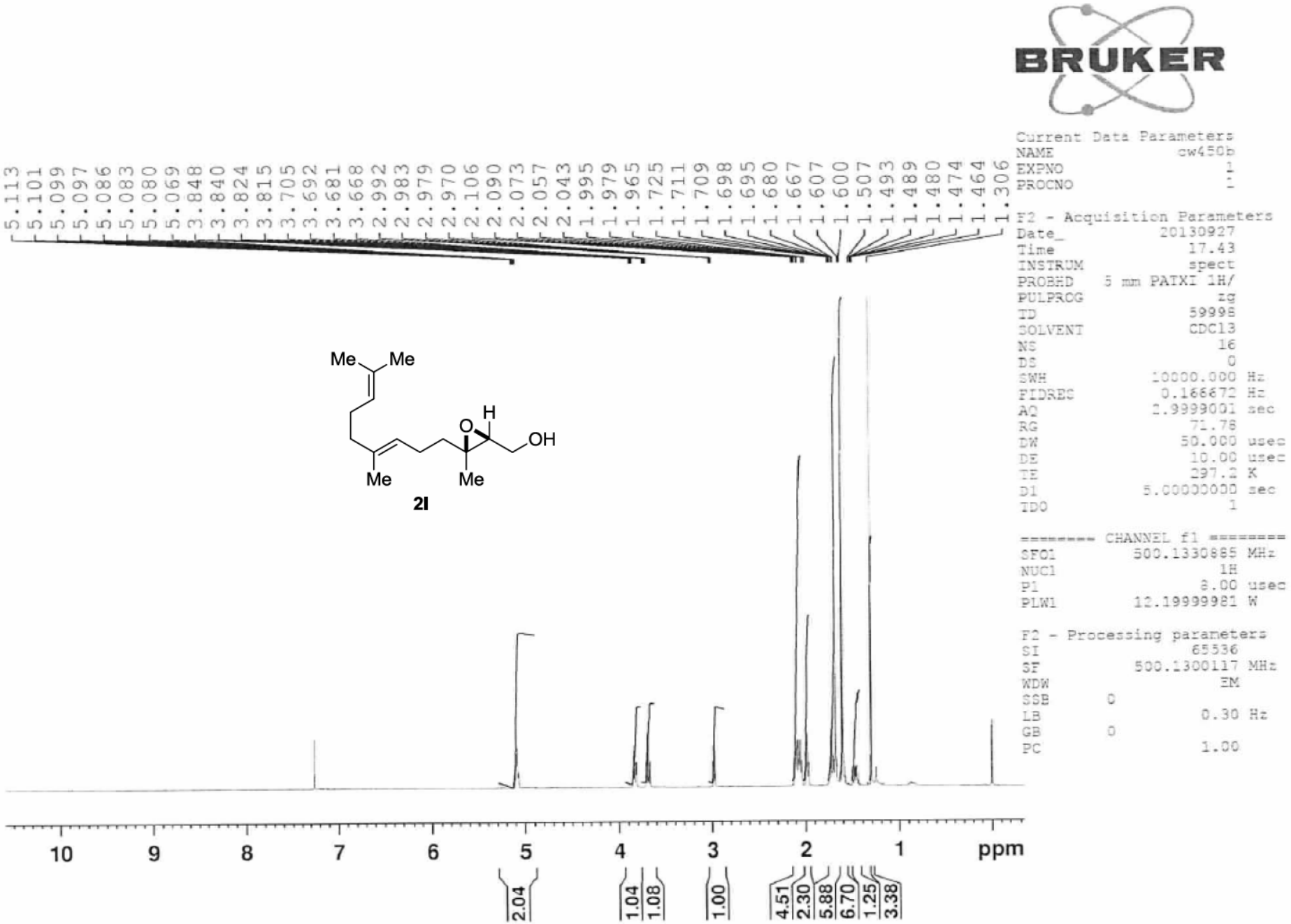
```
Current Data Parameters
NAME          cw376b-13C
EXPNO                  1
PROCNO                 1

F2 - Acquisition Parameters
Date_           20130704
Time               18.59
INSTRUM            spect
PROBHD   5 mm PATXI 1H/
PULPROG            zgdc
TD               178568
SOLVENT           CDCl3
NS                   512
DS                     0
SWH          32894.738 Hz
FIDRES         0.184214 Hz
AQ           2.7142336 sec
RG                196.79
DW              15.200 usec
DE              10.00 usec
TE                296.2 K
D1           3.00000000 sec
D11          0.03000000 sec
TD0                    1

======== CHANNEL f1 ========
SFO1       125.7703648 MHz
NUC1               13C
P1               14.00 usec
PLW1      170.00000000 W

======== CHANNEL f2 ========
SFO2       500.1320005 MHz
NUC2               1H
CPDPRG[2        waltz16
PCPD2            90.00 usec
PLW2       12.19999981 W
PLW12       0.20893000 W

F2 - Processing parameters
SI               131072
SF         125.7577709 MHz
WDW                EM
SSB      0
LB               1.00 Hz
GB       0
PC               1.40
```



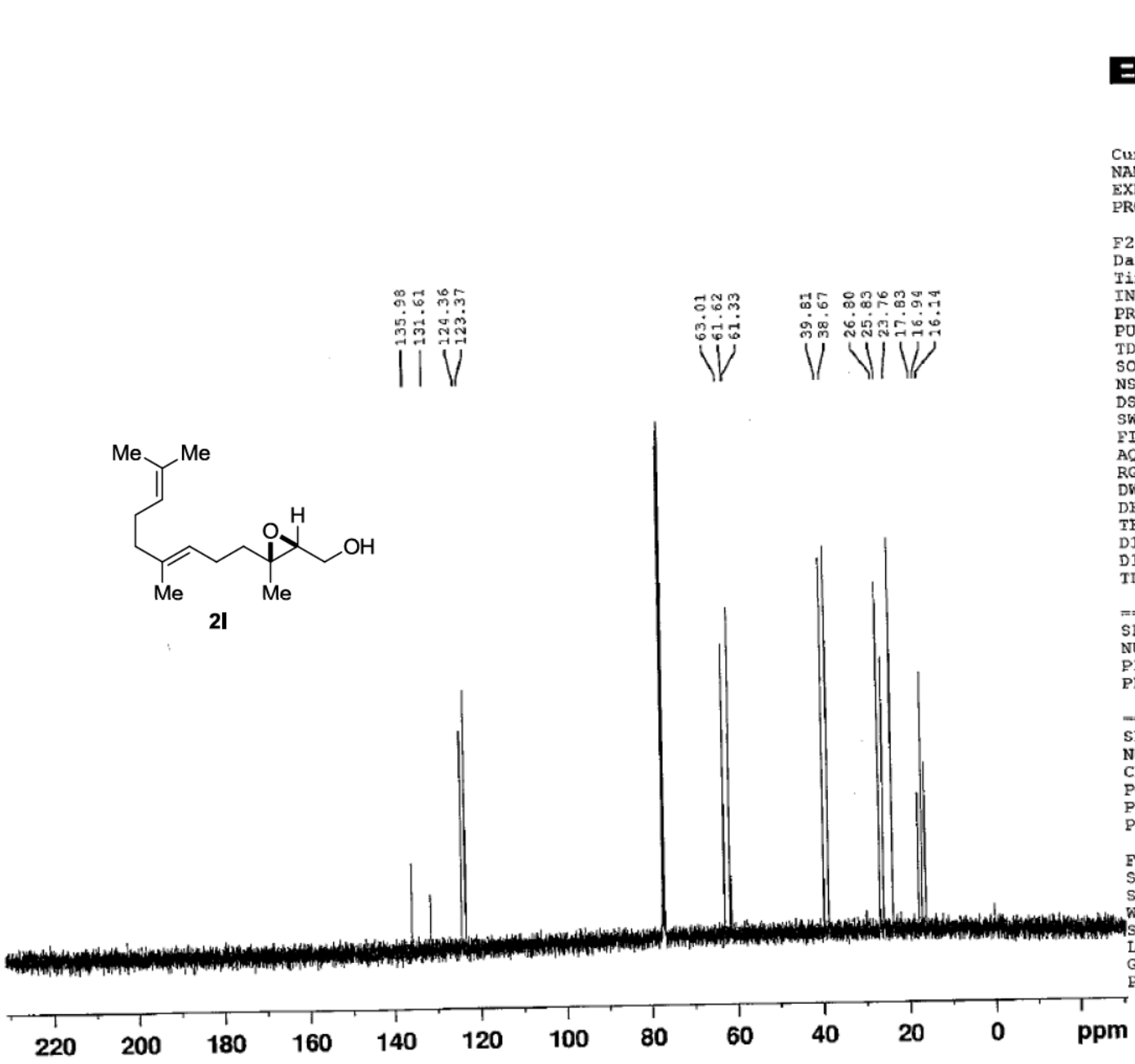
BRUKER

```
Current Data Parameters
NAME                  cw450b
EXPNO                      1
PROCNO                     1

F2 - Acquisition Parameters
Date_              20130927
Time                  17.43
INSTRUM               spect
PROBHD    5 mm PATXI 1H/
PULPROG                 zg
TD                     59998
SOLVENT                CDCl3
NS                        16
DS                         0
SWH               10000.000 Hz
FIDRES             0.166672 Hz
AQ                 2.9999001 sec
RG                     71.76
DW                    50.000 usec
DE                    10.00 usec
TE                    297.2 K
D1                5.00000000 sec
IDO                        1

======== CHANNEL f1 ========
SFO1           500.1330885 MHz
NUC1                   1H
P1                    8.00 usec
PLW1          12.19999981 W

F2 - Processing parameters
SI                     65536
SF             500.1300117 MHz
WDW                    EM
SSB          0
LB                    0.30 Hz
GB           0
PC                     1.00
```



2l

BRUKER

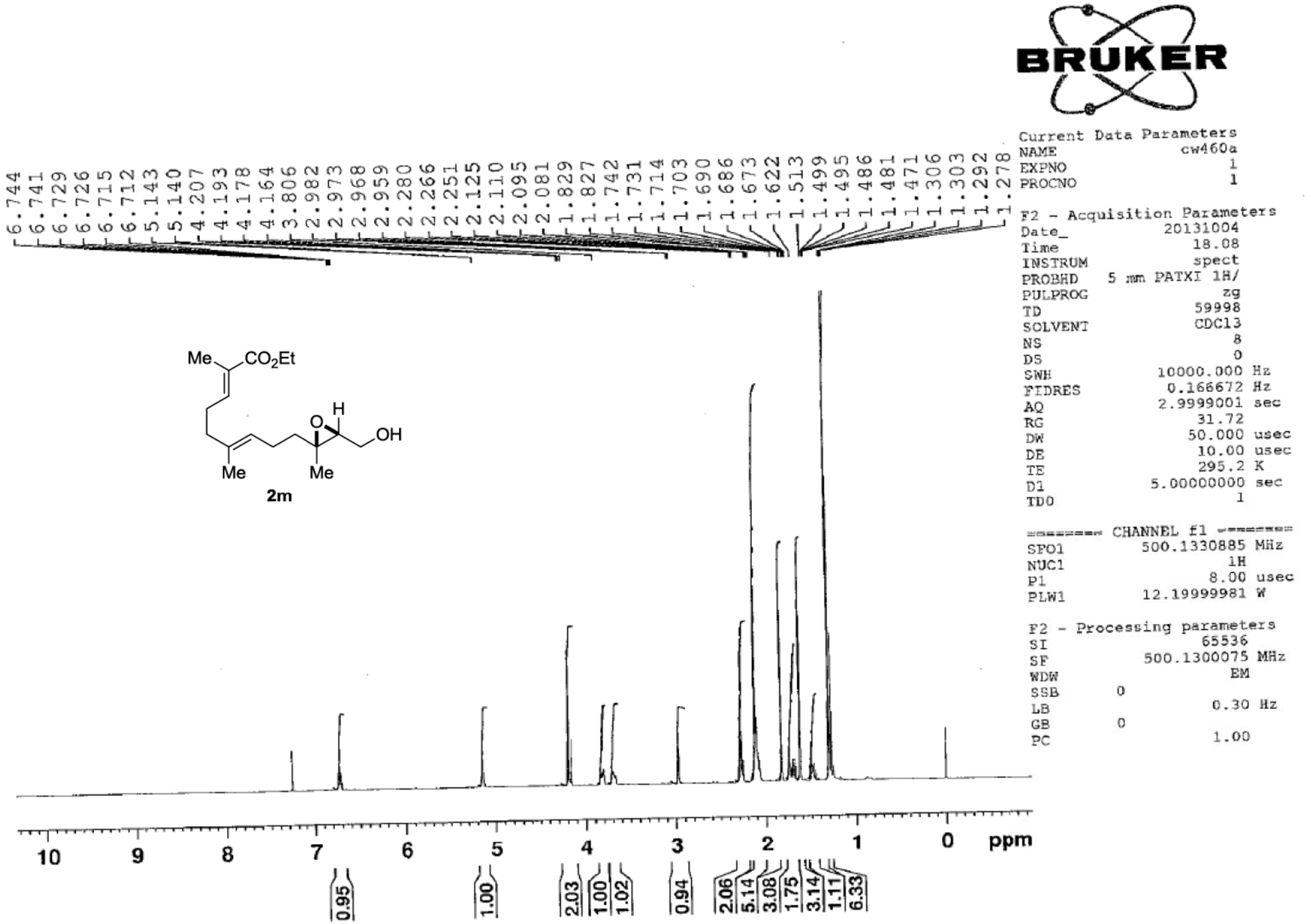
Current Data Parameters
NAME cw450a-13C
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 20130926
Time 18.29
INSTRUM spect
PROBHD 5 mm PATXI 1H/
PULPROG zgdc
TD 178568
SOLVENT CDCl3
NS 721
DS 0
SWH 32894.738 Hz
FIDRES 0.184214 Hz
AQ 2.7142336 sec
RG 196.79
DW 15.200 usec
DE 10.00 usec
TE 296.1 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1

======== CHANNEL f1 ========
SFO1 125.7703648 MHz
NUC1 13C
P1 14.00 usec
PLW1 170.00000000 W

======== CHANNEL f2 ========
SFO2 500.1320005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 12.19999981 W
PLW12 0.20893000 W

F2 - Processing parameters
SI 131072
SF 125.7577698 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40



BRUKER

Current Data Parameters

NAME	cw460a
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

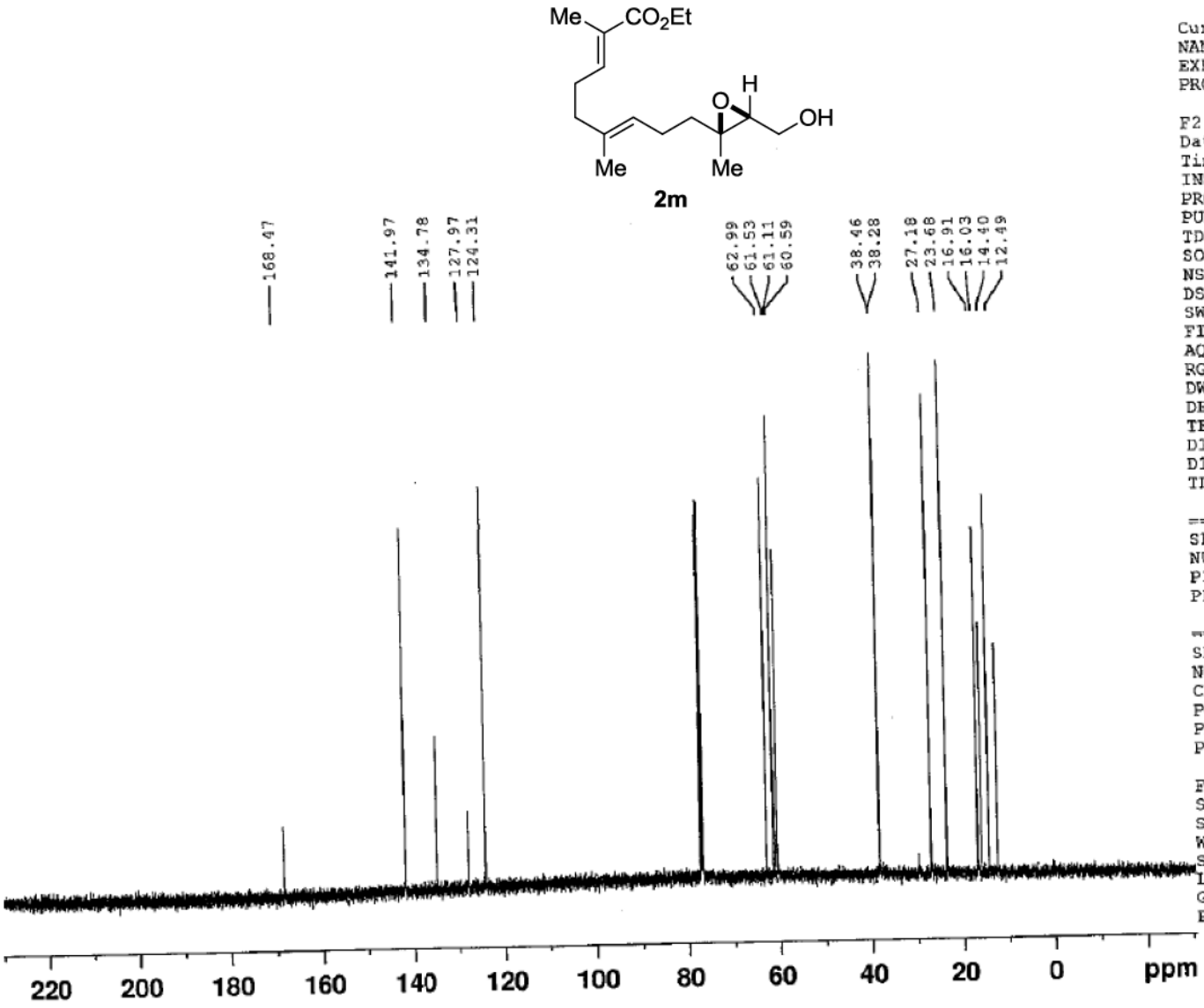
Date_	20131004
Time	18.08
INSTRUM	spect
PROBHD	5 mm PATXI 1H/
PULPROG	zg
TD	59998
SOLVENT	CDCl3
NS	8
DS	0
SWH	10000.000 Hz
FIDRES	0.166672 Hz
AQ	2.9999001 sec
RG	31.72
DW	50.000 usec
DE	10.00 usec
TE	295.2 K
D1	5.00000000 sec
TD0	1

======== CHANNEL f1 ========

SFO1	500.1330885 MHz
NUC1	1H
P1	8.00 usec
PLW1	12.19999981 W

F2 - Processing parameters

SI	65536
SF	500.1300075 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00



BRUKER

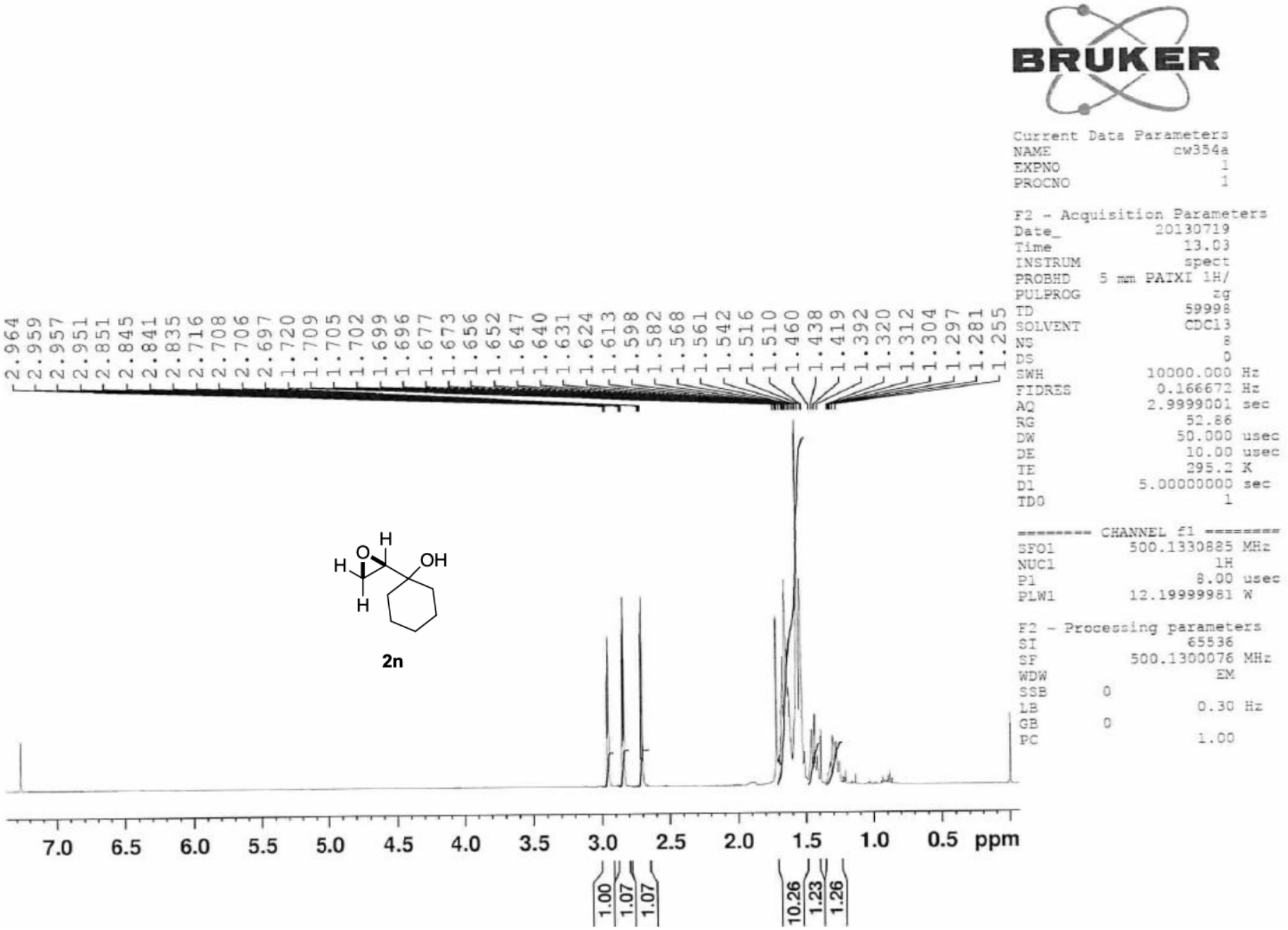
```
Current Data Parameters
NAME                  cw460a_13C
EXPNO                          1
PROCNO                         1

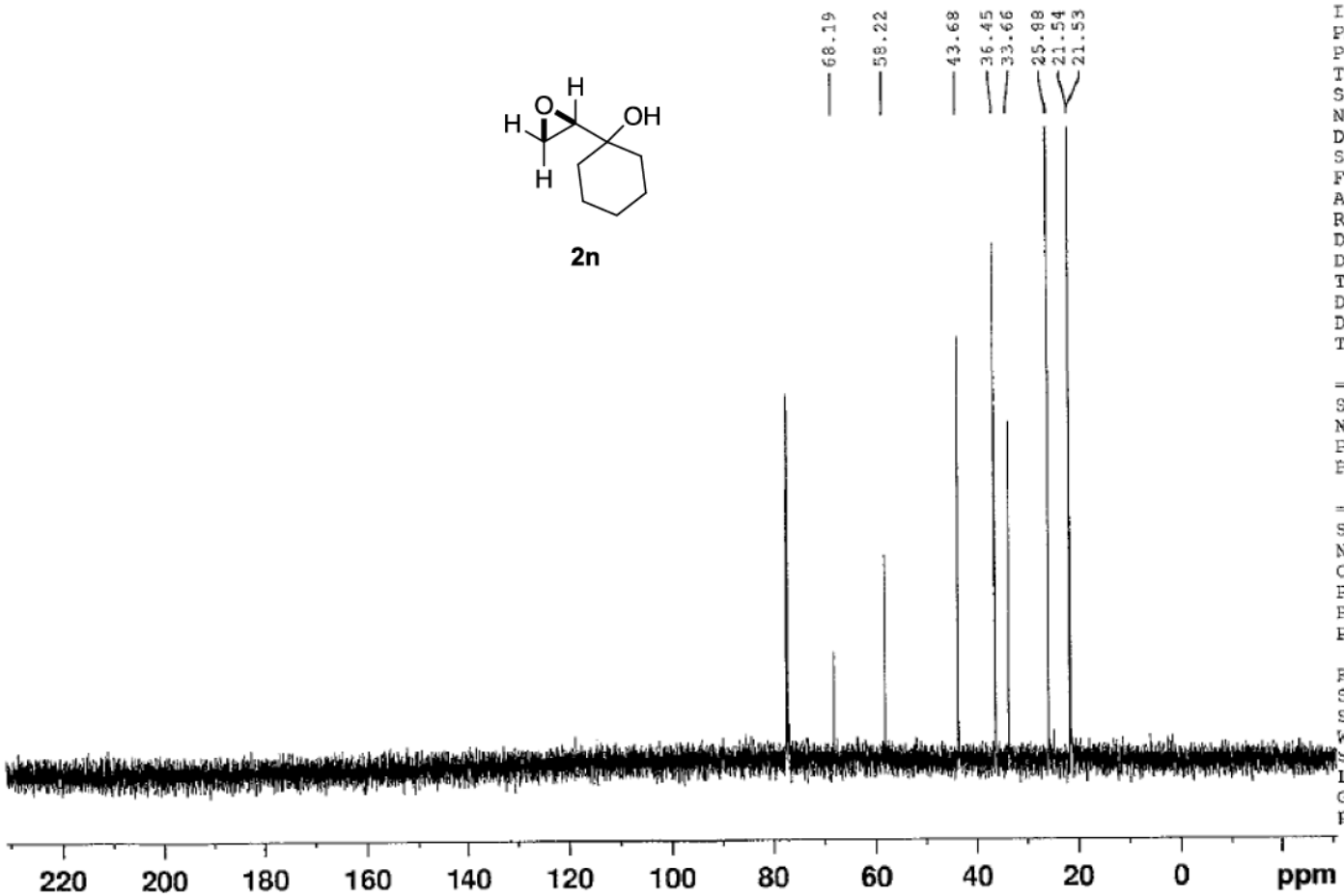
F2 - Acquisition Parameters
Date_                   20131004
Time                       19.00
INSTRUM                    spect
PROBHD     5 mm PATXI 1H/
PULPROG                    zgdc
TD                       178568
SOLVENT                   CDCl3
NS                          704
DS                            0
SWH                   32894.738 Hz
FIDRES                0.184214 Hz
AQ                    2.7142336 sec
RG                       196.79
DW                       15.200 usec
DE                       10.00 usec
TE                       296.1 K
D1                    1.00000000 sec
D11                   0.03000000 sec
TD0                            1

======== CHANNEL f1 ========
SFO1                125.7703648 MHz
NUC1                        13C
P1                       14.00 usec
PLW1               170.00000000 W

======== CHANNEL f2 ========
SFO2                500.1320005 MHz
NUC2                        1H
CPDPRG[2                waltz16
PCPD2                    90.00 usec
PLW2               12.19999981 W
PLW12               0.20893000 W

F2 - Processing parameters
SI                         131072
SF                  125.7577730 MHz
WDW                            EM
SSB                0
LB                          1.00 Hz
GB                 0
PC                          1.40
```


BRUKER
Current Data Parameters
NAME cw354a
EXPNO 1
PROCNO 1
F2 - Acquisition Parameters
Date_ 20130719
Time 13.03
INSTRUM spect
PROBHD 5 mm PAIXI 1H/
PULPROG zg
TD 59998
SOLVENT CDCl3
NS 8
DS 0
SWH 10000.000 Hz
FIDRES 0.166672 Hz
AQ 2.9999001 sec
RG 52.86
DW 50.000 usec
DE 10.00 usec
TE 295.2 K
D1 5.00000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 500.1330885 MHz
NUC1 1H
P1 8.00 usec
PLW1 12.19999981 W
F2 - Processing parameters
SI 65536
SF 500.1300076 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
2.964 2.959 2.957 2.951 2.851 2.845 2.841 2.835 2.716 2.708 2.706 2.697 1.720 1.709 1.705 1.702 1.699 1.696 1.677 1.673 1.656 1.652 1.647 1.640 1.631 1.624 1.613 1.598 1.582 1.568 1.561 1.542 1.516 1.510 1.460 1.438 1.419 1.392 1.320 1.312 1.304 1.297 1.281 1.255
H
O
H
H
OH
2n
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 ppm
1.00 1.07 1.07 10.26 1.23 1.26



2n

BRUKER

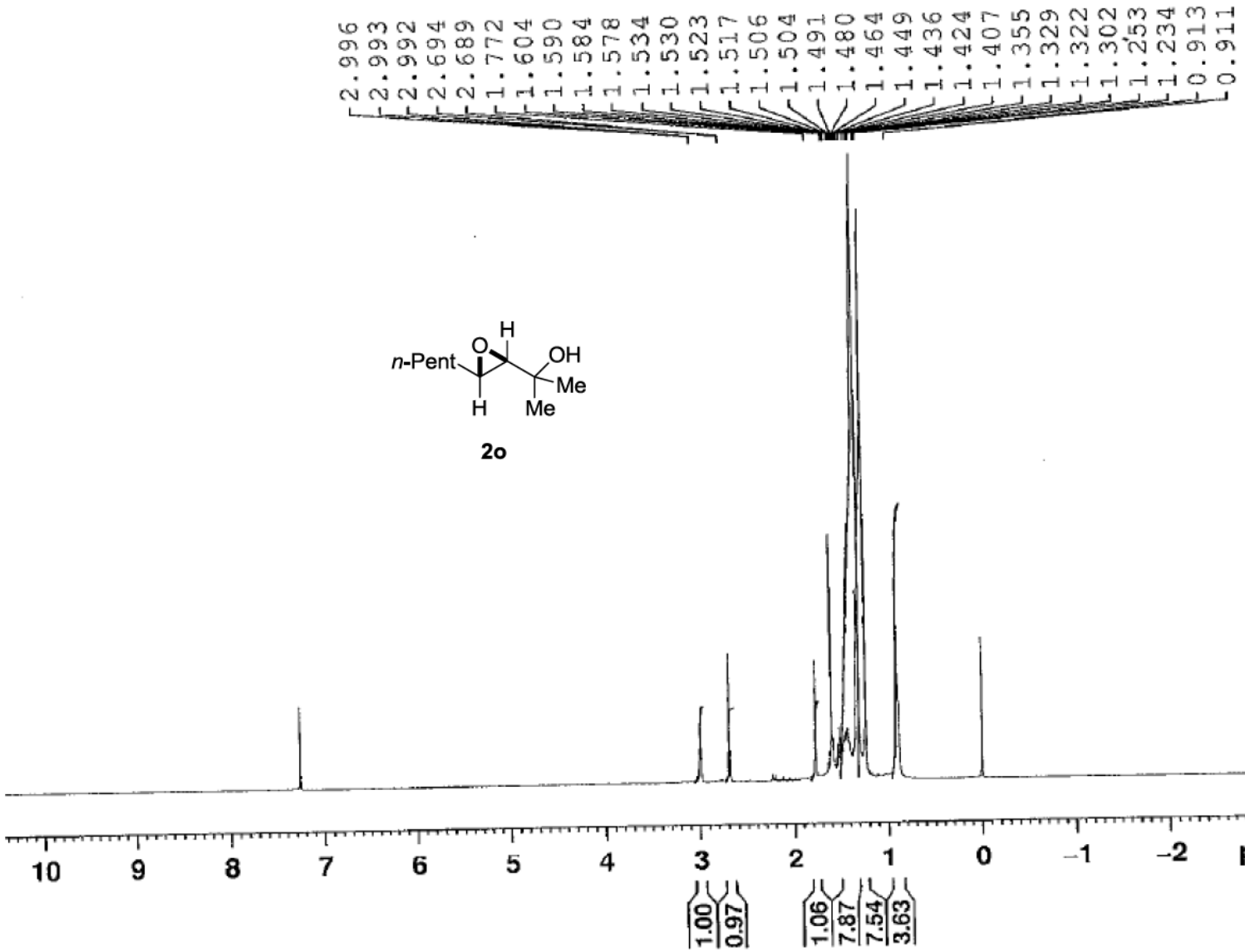
```
Current Data Parameters
NAME          cw354a-13C
EXPNO                  1
PROCNO                 1

F2 - Acquisition Parameters
Date_           20130719
Time               13.15
INSTRUM            spect
PROBHD   5 mm PATXI 1H/
PULPROG            zgdc
TD               178568
SOLVENT            CDCl3
NS                    86
DS                     0
SWH            32894.738 Hz
FIDRES          0.184214 Hz
AQ              2.7142336 sec
RG                196.79
DW                15.200 usec
DE                10.00 usec
TE                295.9 K
D1             3.00000000 sec
D11            0.03000000 sec
TD0                    1

======== CHANNEL f1 ========
SFO1         125.7703648 MHz
NUC1                 13C
P1                 14.00 usec
PLW1        170.00000000 W

======== CHANNEL f2 ========
SFO2         500.1320005 MHz
NUC2                 1H
CPDPRG[2          waltz16
PCPD2              90.00 usec
PLW2         12.19999981 W
PLW12         0.20893000 W

F2 - Processing parameters
SI                 131072
SF           125.7577713 MHz
WDW                  EM
SSB       0
LB                 1.00 Hz
GB        0
PC                 1.40
```



2o

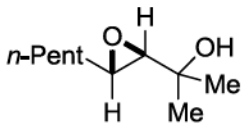
BRUKER

```
Current Data Parameters
NAME                  cw380a
EXPNO                      1
PROCNO                     1

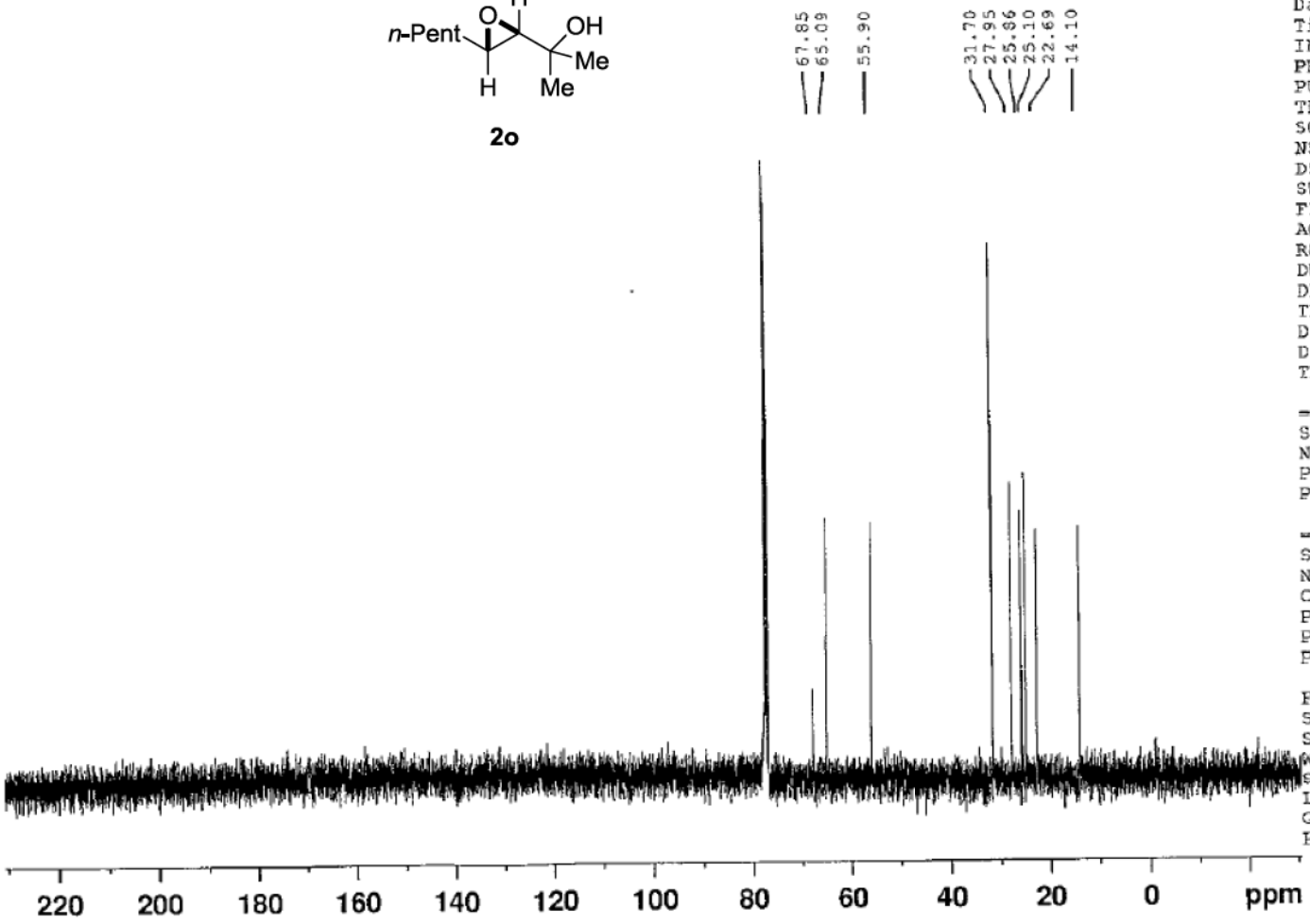
F2 - Acquisition Parameters
Date_              20130707
Time                  16.40
INSTRUM               spect
PROBHD    5 mm PATXI 1H/
PULPROG                 zg
TD                   59998
SOLVENT              CDCl3
NS                       8
DS                       0
SWH           10000.000 Hz
FIDRES            0.166672 Hz
AQ                2.9999001 sec
RG                  126.24
DW                  50.000 usec
DE                  10.00 usec
TE                  295.7 K
D1                5.00000000 sec
TD0                      1

======== CHANNEL f1 ========
SFO1          500.1330885 MHz
NUC1                    1H
P1                   8.00 usec
PLW1         12.19999981 W

F2 - Processing parameters
SI                   65536
SF            500.1300119 MHz
WDW                     EM
SSB       0
LB                   0.30 Hz
GB        0
PC                   1.00
```



2o



BRUKER

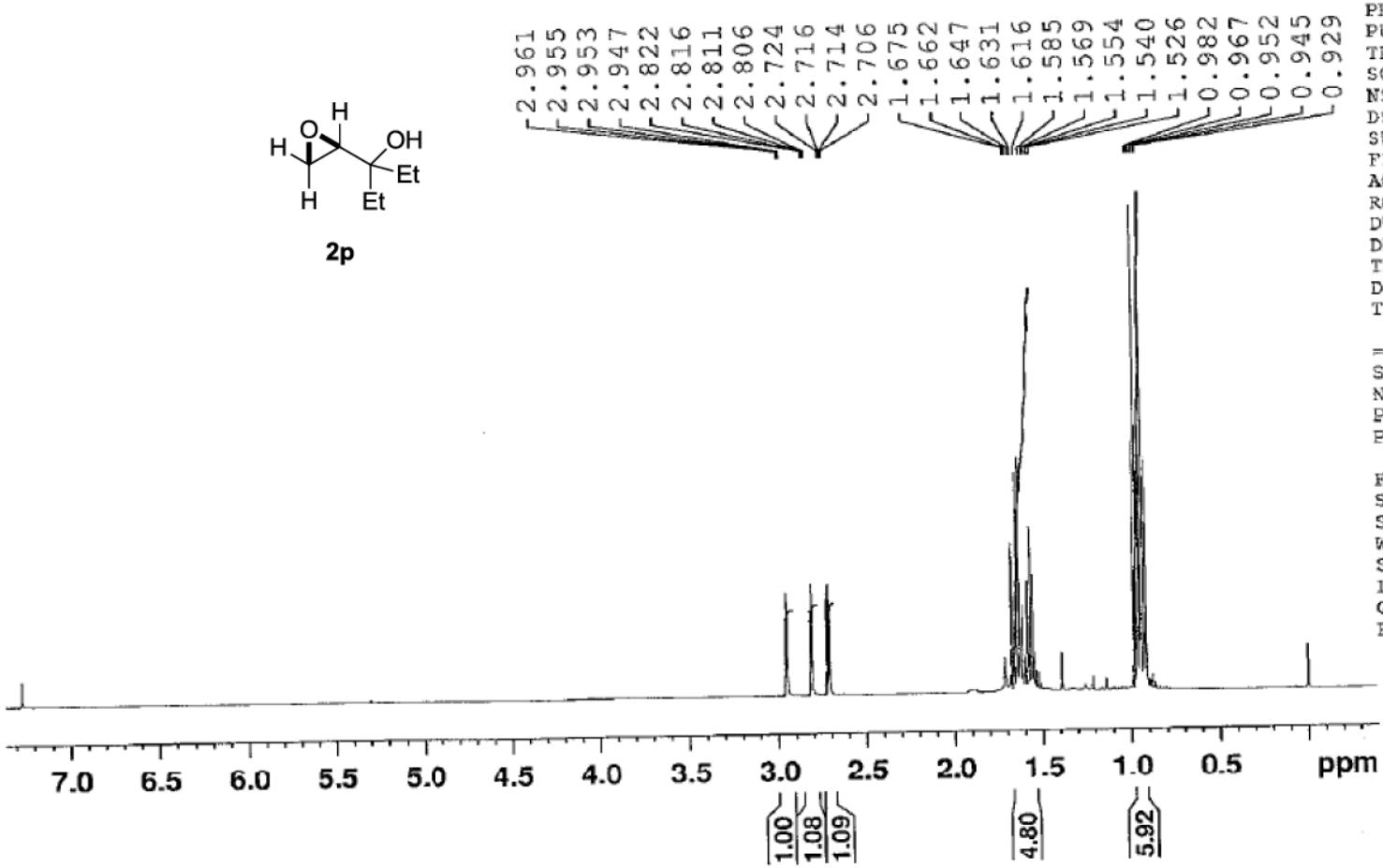
```
Current Data Parameters
NAME          cw380a-13C
EXPNO                  1
PROCNO                 1

F2 - Acquisition Parameters
Date_           20130707
Time               17.43
INSTRUM            spect
PROBHD   5 mm PATXI 1H/
PULPROG            zgdc
TD               178568
SOLVENT           CDCl3
NS                  295
DS                    0
SWH           32894.738 Hz
FIDRES         0.184214 Hz
AQ             2.7142336 sec
RG                196.79
DW                15.200 usec
DE                10.00 usec
TE                296.2 K
D1            3.00000000 sec
D11           0.03000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1        125.7703648 MHz
NUC1               13C
P1                14.00 usec
PLW1       170.00000000 W

======== CHANNEL f2 ========
SFO2        500.1320005 MHz
NUC2               1H
CPDPRG[2         waltz16
PCPD2             90.00 usec
PLW2       12.19999981 W
PLW12       0.20893000 W

F2 - Processing parameters
SI                131072
SF          125.7577710 MHz
WDW                 EM
SSB       0
LB                1.00 Hz
GB        0
PC                1.40
```



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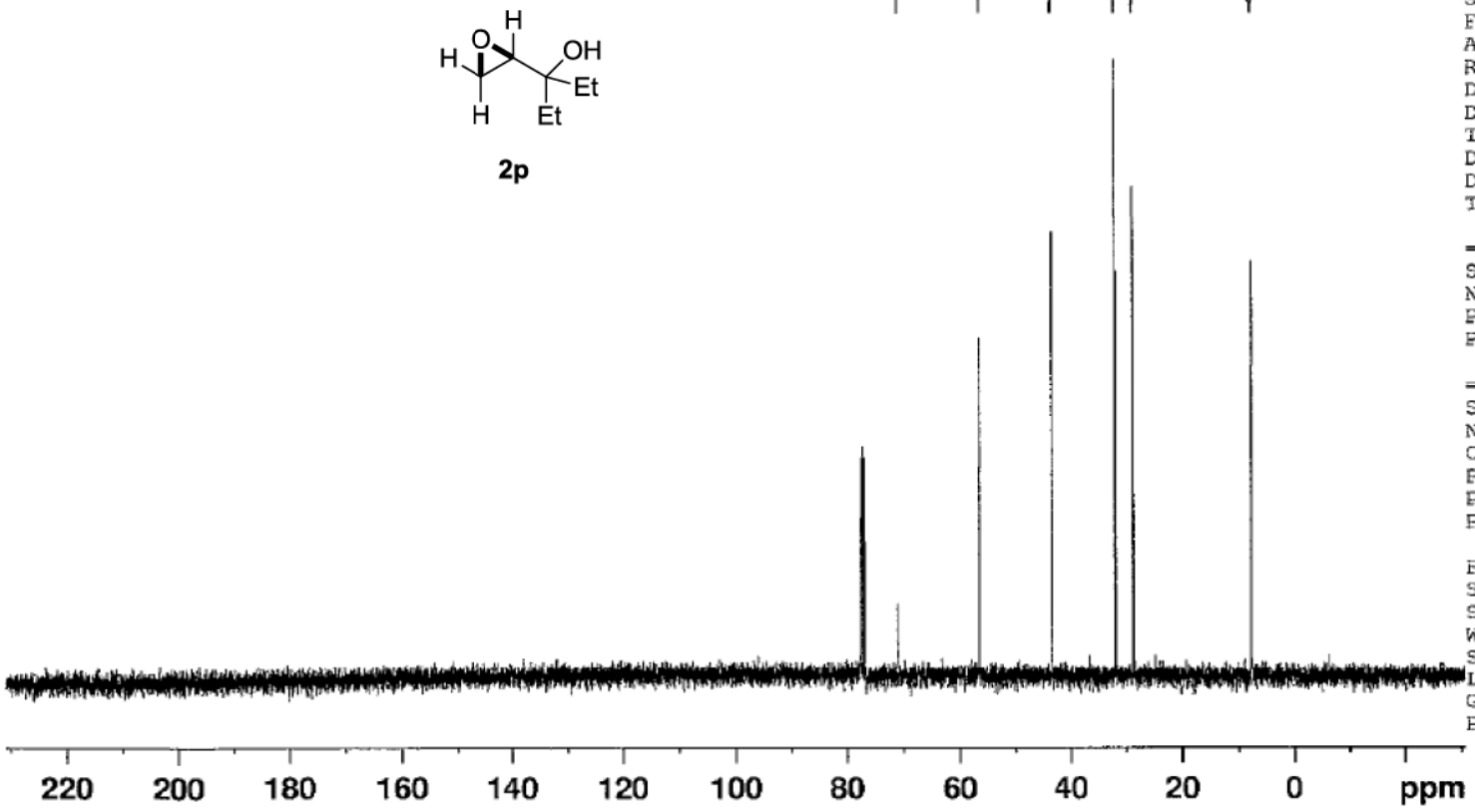
```
Current Data Parameters
NAME                  cw405a2
EXPNO                       1
PROCNO                      1

F2 - Acquisition Parameters
Date_              20130723
Time                  15.16
INSTRUM               spect
PROBHD     5 mm PATXI 1H/
PULPROG                 zg
TD                   59998
SOLVENT              CDCl3
NS                       8
DS                       0
SWH           10000.000 Hz
FIDRES            0.166672 Hz
AQ                2.9999001 sec
RG                    31.72
DW                 50.000 usec
DE                 10.00 usec
TE                   295.4 K
D1              5.00000000 sec
TD0                      1

======== CHANNEL f1 ========
SFO1          500.1330885 MHz
NUC1                    1H
P1                  8.00 usec
PLW1         12.19999981 W

F2 - Processing parameters
SI                   65536
SF            500.1300075 MHz
WDW                     EM
SSB                  0
LB                  0.30 Hz
GB                   0
PC                  1.00
```



2p

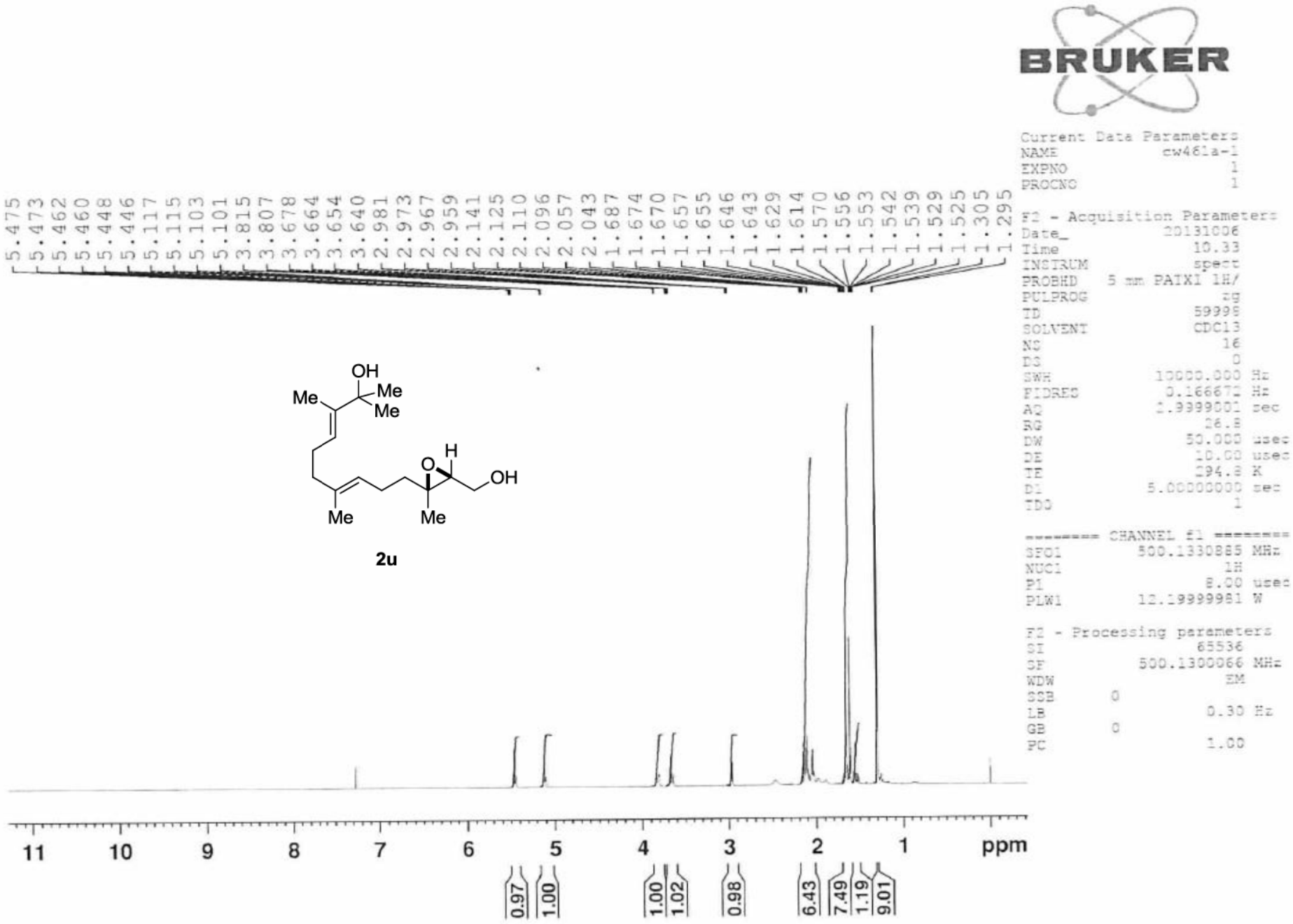
```
Current Data Parameters
NAME          cw405a2-13C
EXPNO                   1
PROCNO                  1

F2 - Acquisition Parameters
Date_            20130723
Time                15.29
INSTRUM             spect
PROBHD    5 mm PATXI 1H/
PULPROG              zgdc
TD                 178568
SOLVENT             CDCl3
NS                    151
DS                      0
SWH             32894.738 Hz
FIDRES          0.184214 Hz
AQ              2.7142336 sec
RG                 196.79
DW                 15.200 usec
DE                 10.00 usec
TE                 295.8 K
D1             1.00000000 sec
D11            0.03000000 sec
TD0                     1

======== CHANNEL f1 ========
SFO1          125.7703648 MHz
NUC1                  13C
P1                 14.00 usec
PLW1       170.00000000 W

======== CHANNEL f2 ========
SFO2          500.1320005 MHz
NUC2                  1H
CPDPRG[2          waltz16
PCPD2              90.00 usec
PLW2          12.19999981 W
PLW12          0.20893000 W

F2 - Processing parameters
SI                  131072
SF            125.7577731 MHz
WDW                   EM
SSB       0
LB                 1.00 Hz
GB        0
PC                 1.40
```



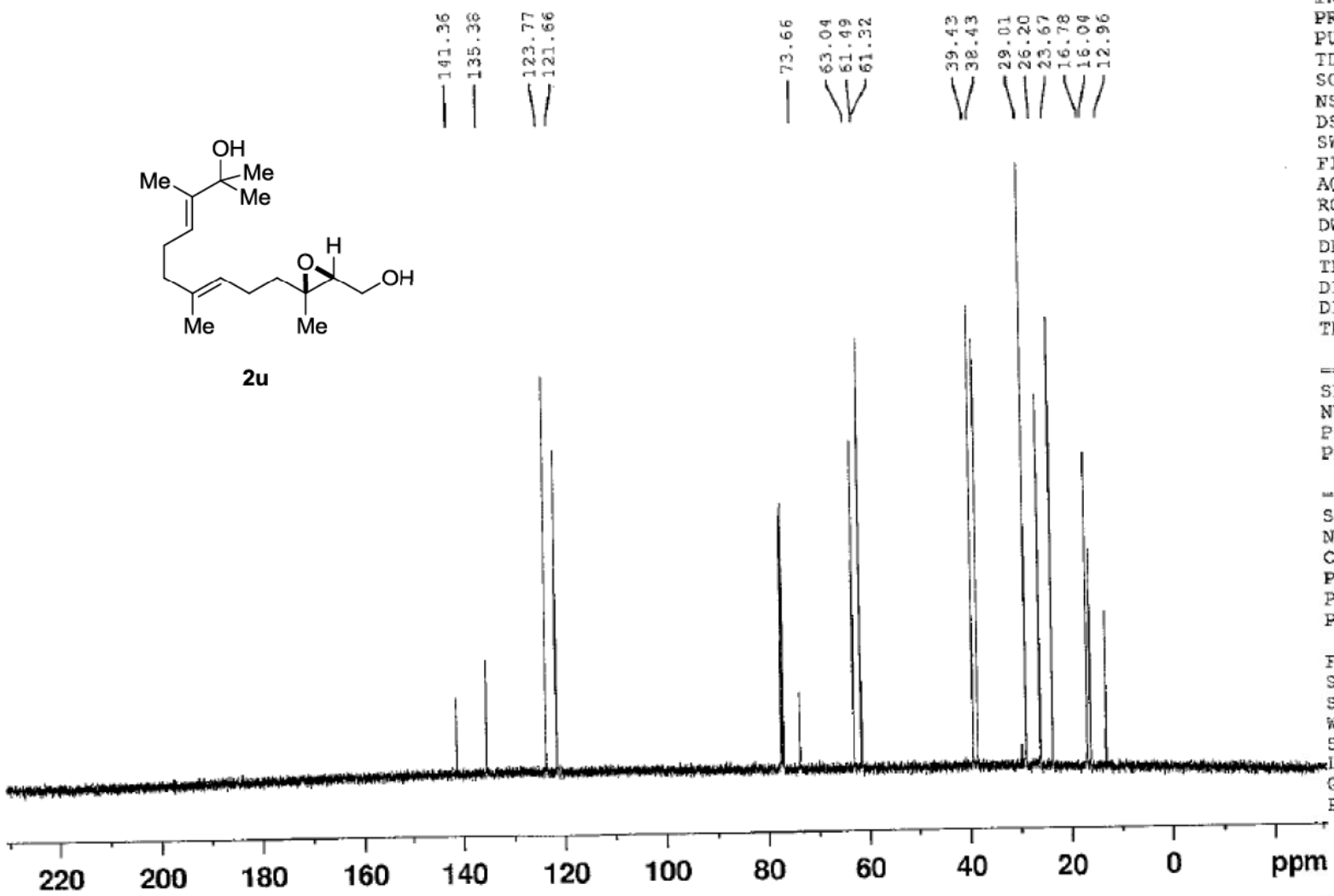
BRUKER

```
Current Data Parameters
NAME                  cw461a-1
EXPNO                        1
PROCNO                       1

F2 - Acquisition Parameters
Date_               20131006
Time                    10.33
INSTRUM                 spect
PROBHD    5 mm PABBI 1H/
PULPROG                   zg
TD                       59998
SOLVENT                  CDCl3
NS                          16
DS                           0
SWH                 10000.000 Hz
FIDRES                0.166672 Hz
AQ                    2.9999001 sec
RG                         26.8
DW                       50.000 usec
DE                       10.00 usec
TE                      294.8 K
D1                  5.00000000 sec
TD0                          1

======== CHANNEL f1 ========
SFO1               500.1330885 MHz
NUC1                       1H
P1                       8.00 usec
PLW1               12.19999981 W

F2 - Processing parameters
SI                       65536
SF                 500.1300066 MHz
WDW                        EM
SSB          0
LB                       0.30 Hz
GB           0
PC                       1.00
```



BRUKER

Current Data Parameters

NAME	cw461a-13C
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	20131006
Time	11.33
INSTRUM	spect
PROBHD	5 mm PATXI 1H/
PULPROG	zgdc
TD	178568
SOLVENT	CDCl3
NS	845
DS	0
SWH	32894.738 Hz
FIDRES	0.184214 Hz
AQ	2.7142336 sec
RG	196.79
DW	15.200 usec
DE	10.00 usec
TE	296.2 K
D1	1.00000000 sec
D11	0.03000000 sec
TD0	1

======== CHANNEL f1 ========

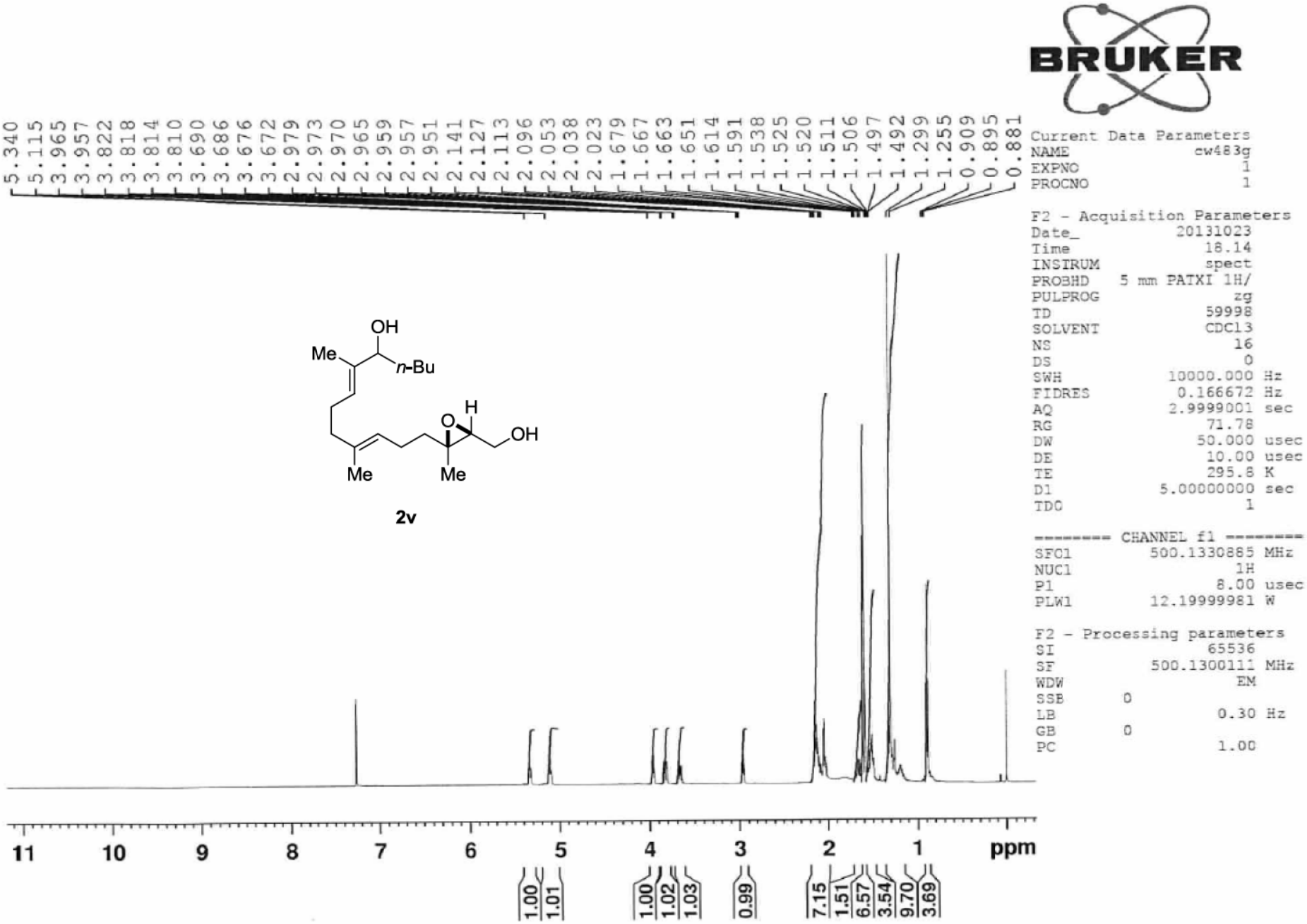
SFO1	125.7703648 MHz
NUC1	13C
P1	14.00 usec
PLW1	170.00000000 W

======== CHANNEL f2 ========

SFO2	500.1320005 MHz
NUC2	1H
CPDPRG[2	waltz16
PCPD2	90.00 usec
PLW2	12.19999981 W
PLW12	0.20893000 W

F2 - Processing parameters

SI	131072
SF	125.7577736 MHz
WDW	EM
SSB	0
LB	1.00 Hz
GB	0
PC	1.40



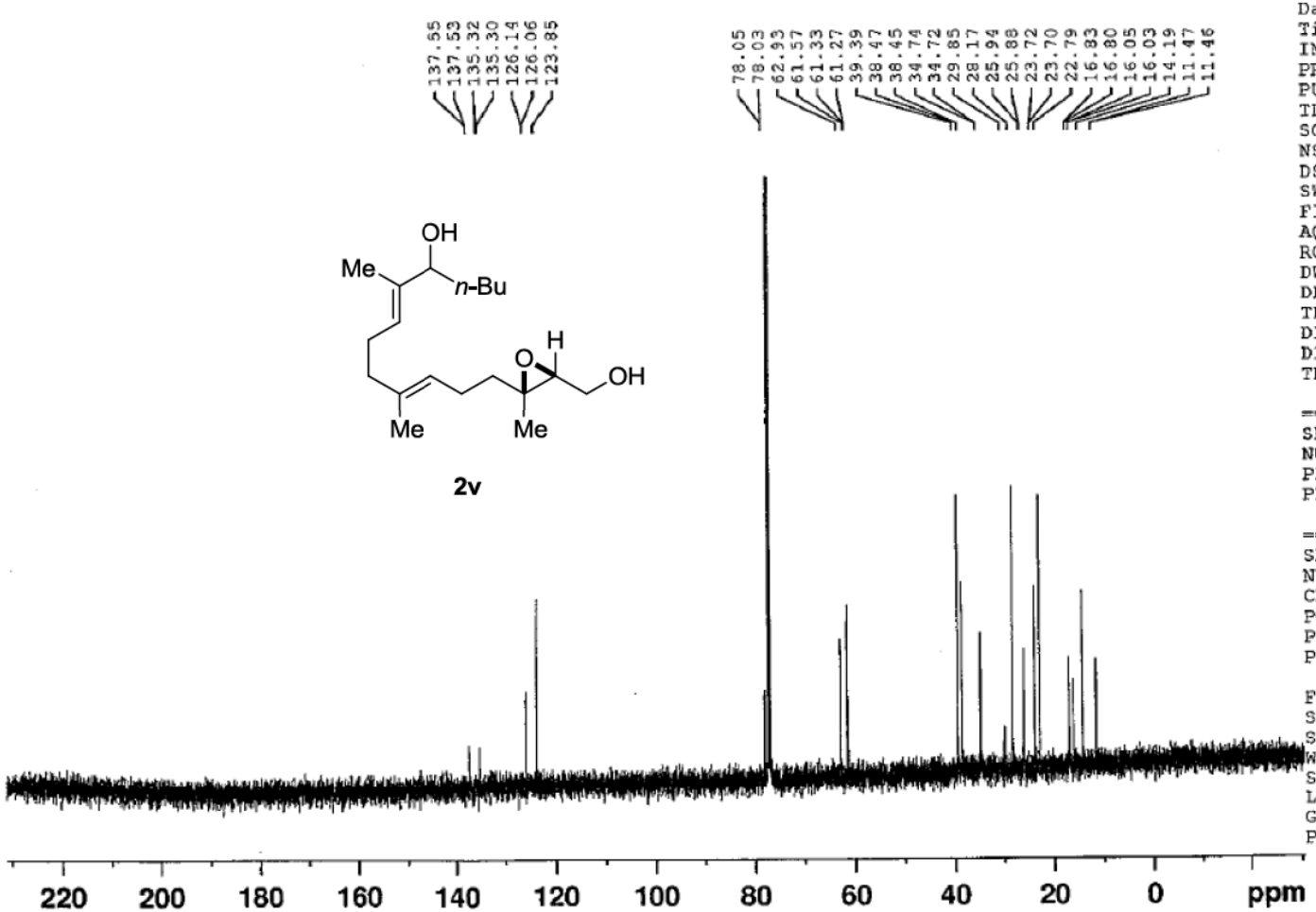
BRUKER

```
Current Data Parameters
NAME                  cw483g
EXPNO                      1
PROCNO                     1

F2 - Acquisition Parameters
Date_              20131023
Time                  18.14
INSTRUM               spect
PROBHD    5 mm PATXI 1H/
PULPROG                 zg
TD                   59998
SOLVENT              CDCl3
NS                      16
DS                       0
SWH             10000.000 Hz
FIDRES              0.166672 Hz
AQ                2.9999001 sec
RG                   71.78
DW                  50.000 usec
DE                  10.00 usec
TE                  295.8 K
D1              5.00000000 sec
TD0                      1

======== CHANNEL f1 ========
SFO1          500.1330885 MHz
NUC1                   1H
P1                   8.00 usec
PLW1          12.19999981 W

F2 - Processing parameters
SI                   65536
SF            500.1300111 MHz
WDW                    EM
SSB       0
LB                   0.30 Hz
GB        0
PC                   1.00
```



BRUKER

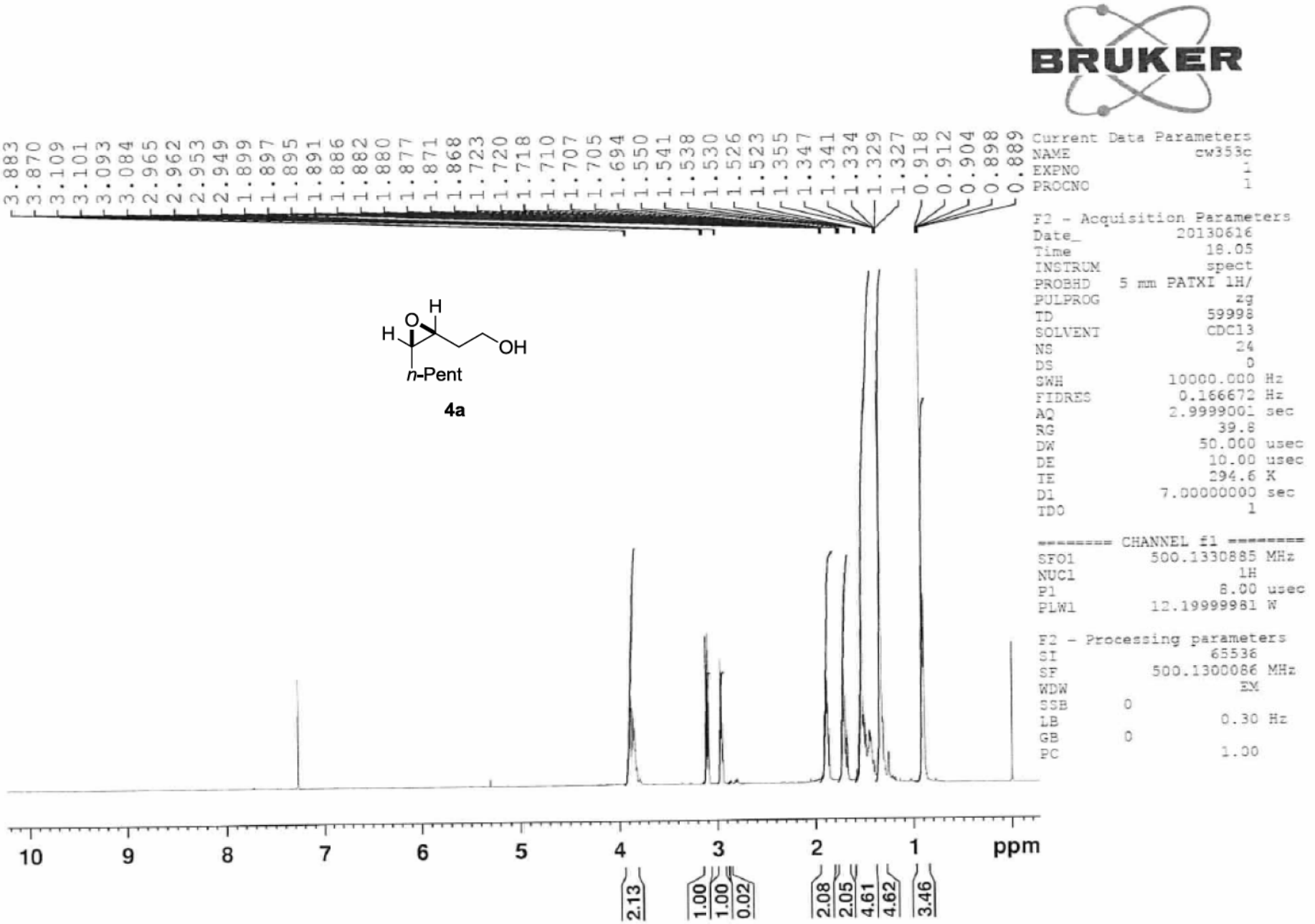
```
Current Data Parameters
NAME                  cw483g-13C
EXPNO                          1
PROCNO                         1

F2 - Acquisition Parameters
Date_                   20131023
Time                       18.58
INSTRUM                    spect
PROBHD     5 mm PATXI 1H/
PULPROG                    zgdc
TD                       178568
SOLVENT                   CDCl3
NS                           606
DS                             0
SWH                    32894.738 Hz
FIDRES                 0.184214 Hz
AQ                     2.7142336 sec
RG                         196.79
DW                         15.200 usec
DE                         10.00 usec
TE                         297.2 K
D1                     1.00000000 sec
D11                    0.03000000 sec
TD0                            1

======== CHANNEL f1 ========
SFO1                 125.7703648 MHz
NUC1                         13C
P1                         14.00 usec
PLW1                170.00000000 W

======== CHANNEL f2 ========
SFO2                 500.1320005 MHz
NUC2                         1H
CPDPRG[2                 waltz16
PCPD2                      90.00 usec
PLW2                 12.19999981 W
PLW12                 0.20893000 W

F2 - Processing parameters
SI                          131072
SF                   125.7577694 MHz
WDW                            EM
SSB                 0
LB                         1.00 Hz
GB                  0
PC                         1.40
```

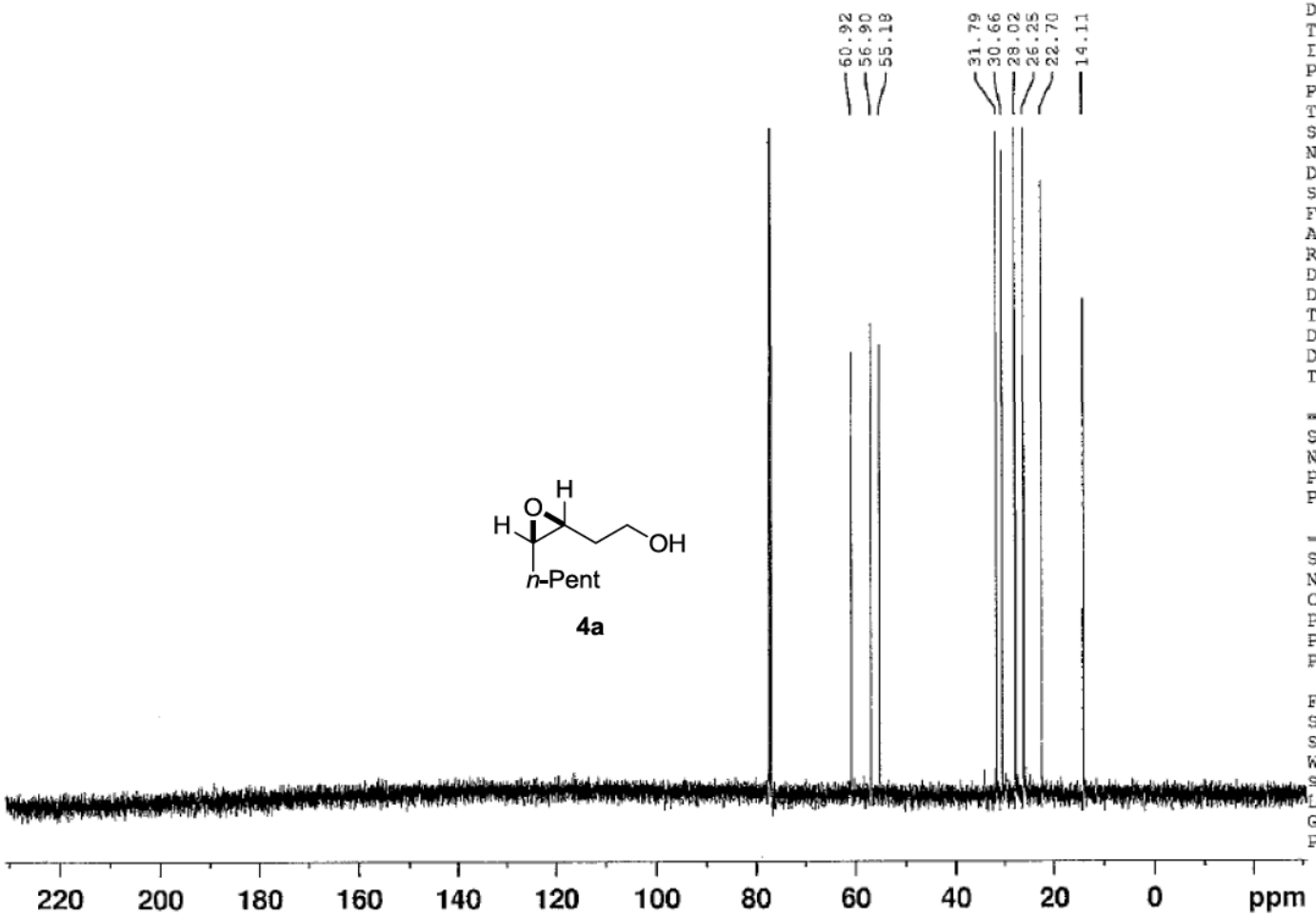



```
Current Data Parameters
NAME                  cw353c
EXPNO                      1
PROCNO                     1

F2 - Acquisition Parameters
Date_              20130616
Time                  18.05
INSTRUM               spect
PROBHD   5 mm PATXI 1H/
PULPROG                 zg
TD                   59998
SOLVENT              CDCl3
NS                      24
DS                       0
SWH              10000.000 Hz
FIDRES               0.166672 Hz
AQ                2.9999001 sec
RG                     39.8
DW                   50.000 usec
DE                   10.00 usec
TE                   294.6 K
D1             7.00000000 sec
TD0                      1

======== CHANNEL f1 ========
SFO1          500.1330885 MHz
NUC1                    1H
P1                    8.00 usec
PLW1          12.19999981 W

F2 - Processing parameters
SI                    65536
SF            500.1300086 MHz
WDW                     EM
SSB       0
LB                    0.30 Hz
GB        0
PC                    1.00
```



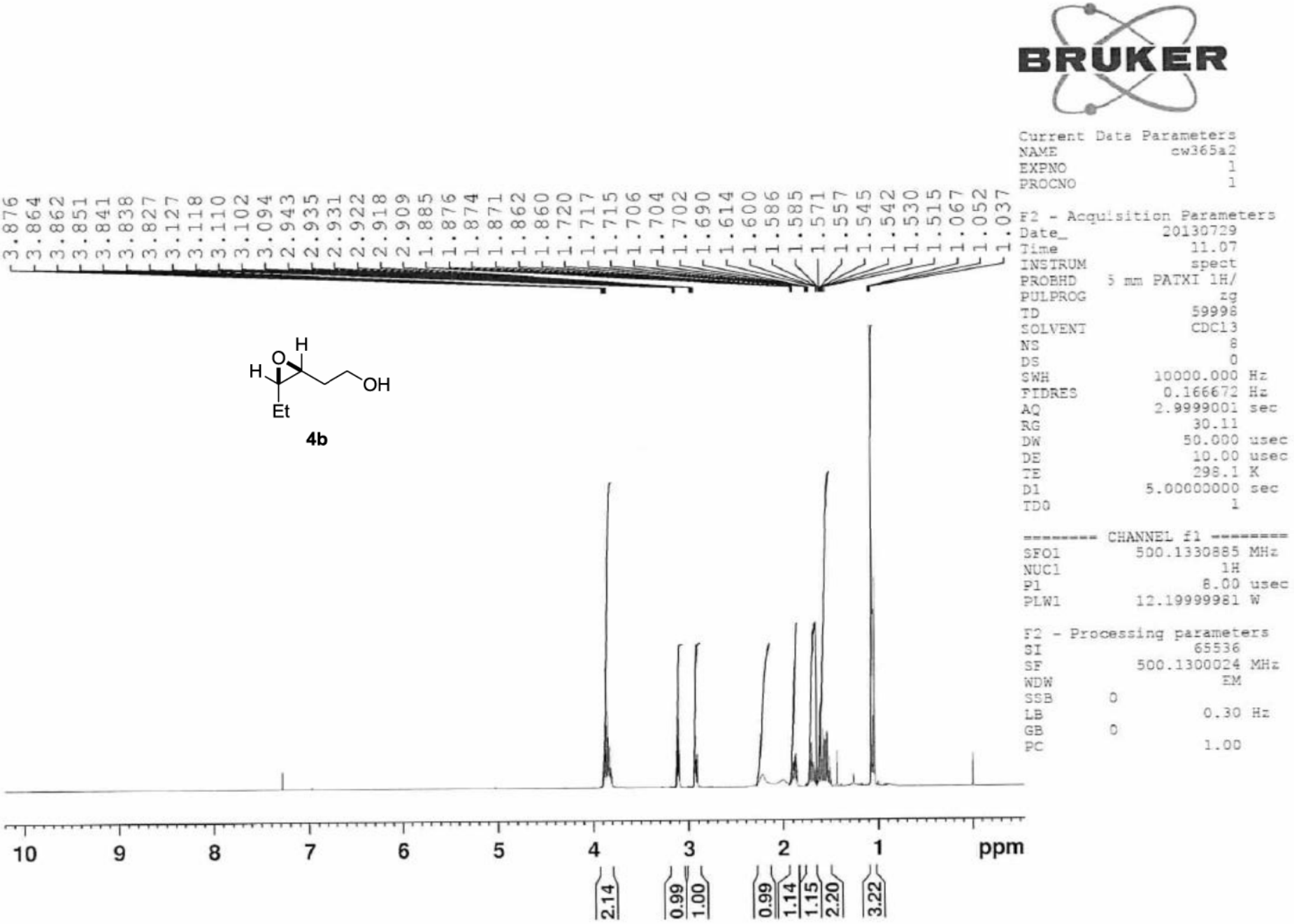

```
Current Data Parameters
NAME          cw353c-13C
EXPNO                  1
PROCNO                 1

F2 - Acquisition Parameters
Date_           20130616
Time               18.55
INSTRUM            spect
PROBHD   5 mm PATXI 1H/
PULPROG             zgdc
TD                178568
SOLVENT             CDCl3
NS                    483
DS                      0
SWH           32894.738 Hz
FIDRES         0.184214 Hz
AQ            2.7142336 sec
RG               196.79
DW               15.200 usec
DE                10.00 usec
TE                296.1 K
D1           3.00000000 sec
D11          0.03000000 sec
TD0                    1

======== CHANNEL f1 ========
SFO1        125.7703648 MHz
NUC1                13C
P1                14.00 usec
PLW1       170.00000000 W

======== CHANNEL f2 ========
SFO2        500.1320005 MHz
NUC2                1H
CPDPRG[2         waltz16
PCPD2             90.00 usec
PLW2        12.19999981 W
PLW12        0.20893000 W

F2 - Processing parameters
SI                131072
SF          125.7577747 MHz
WDW                 EM
SSB       0
LB                1.00 Hz
GB        0
PC                1.40
```



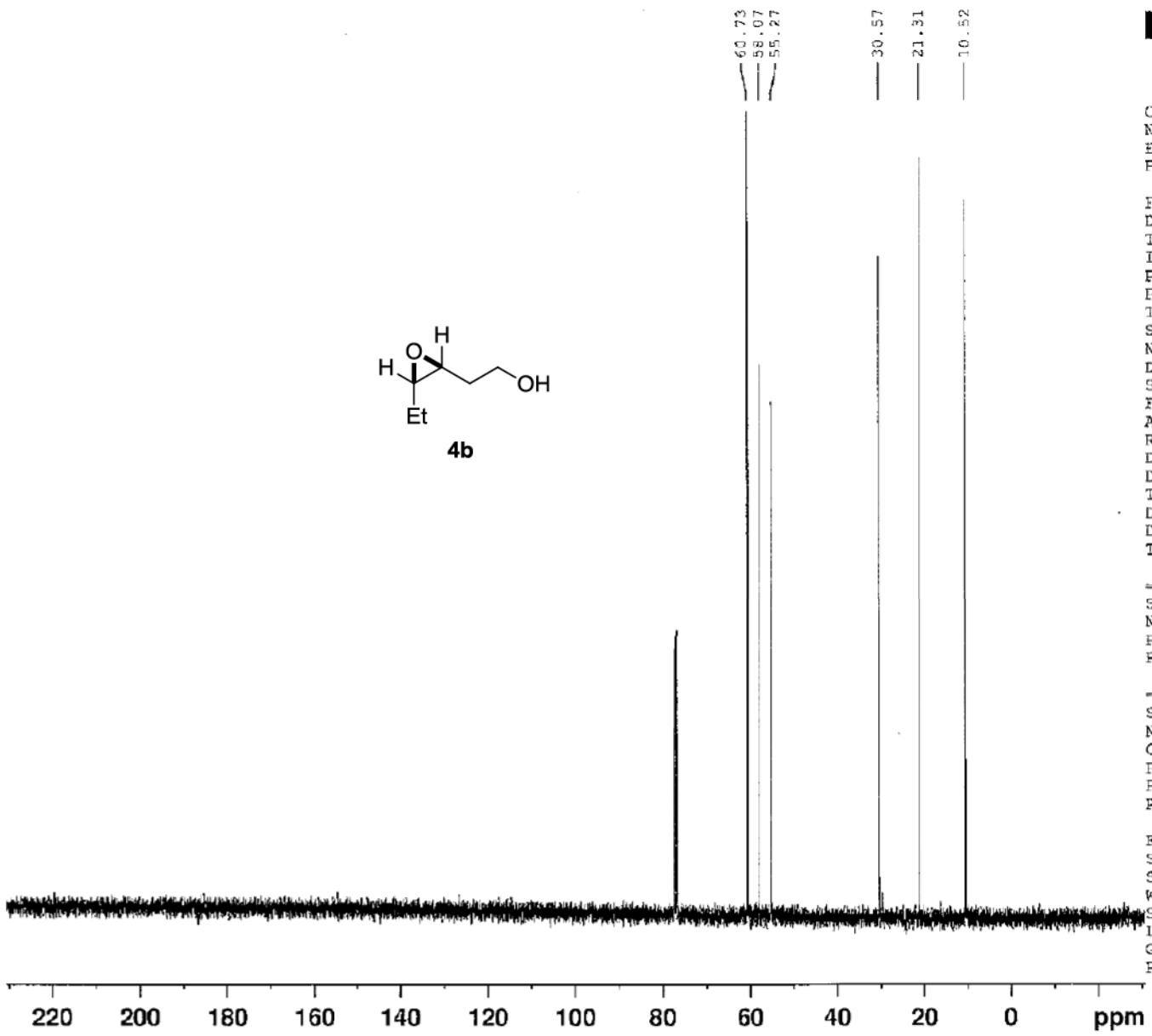
BRUKER

```
Current Data Parameters
NAME                  cw365a2
EXPNO                       1
PROCNO                      1

F2 - Acquisition Parameters
Date_              20130729
Time                  11.07
INSTRUM               spect
PROBHD    5 mm PATXI 1H/
PULPROG                 zg
TD                   59998
SOLVENT              CDCl3
NS                       8
DS                       0
SWH           10000.000 Hz
FIDRES            0.166672 Hz
AQ               2.9999001 sec
RG                   30.11
DW                 50.000 usec
DE                 10.00 usec
TE                  298.1 K
D1              5.00000000 sec
TD0                      1

======== CHANNEL f1 ========
SFO1          500.1330885 MHz
NUC1                    1H
P1                   8.00 usec
PLW1          12.19999981 W

F2 - Processing parameters
SI                   65536
SF            500.1300024 MHz
WDW                     EM
SSB       0
LB                   0.30 Hz
GB        0
PC                   1.00
```



BRUKER

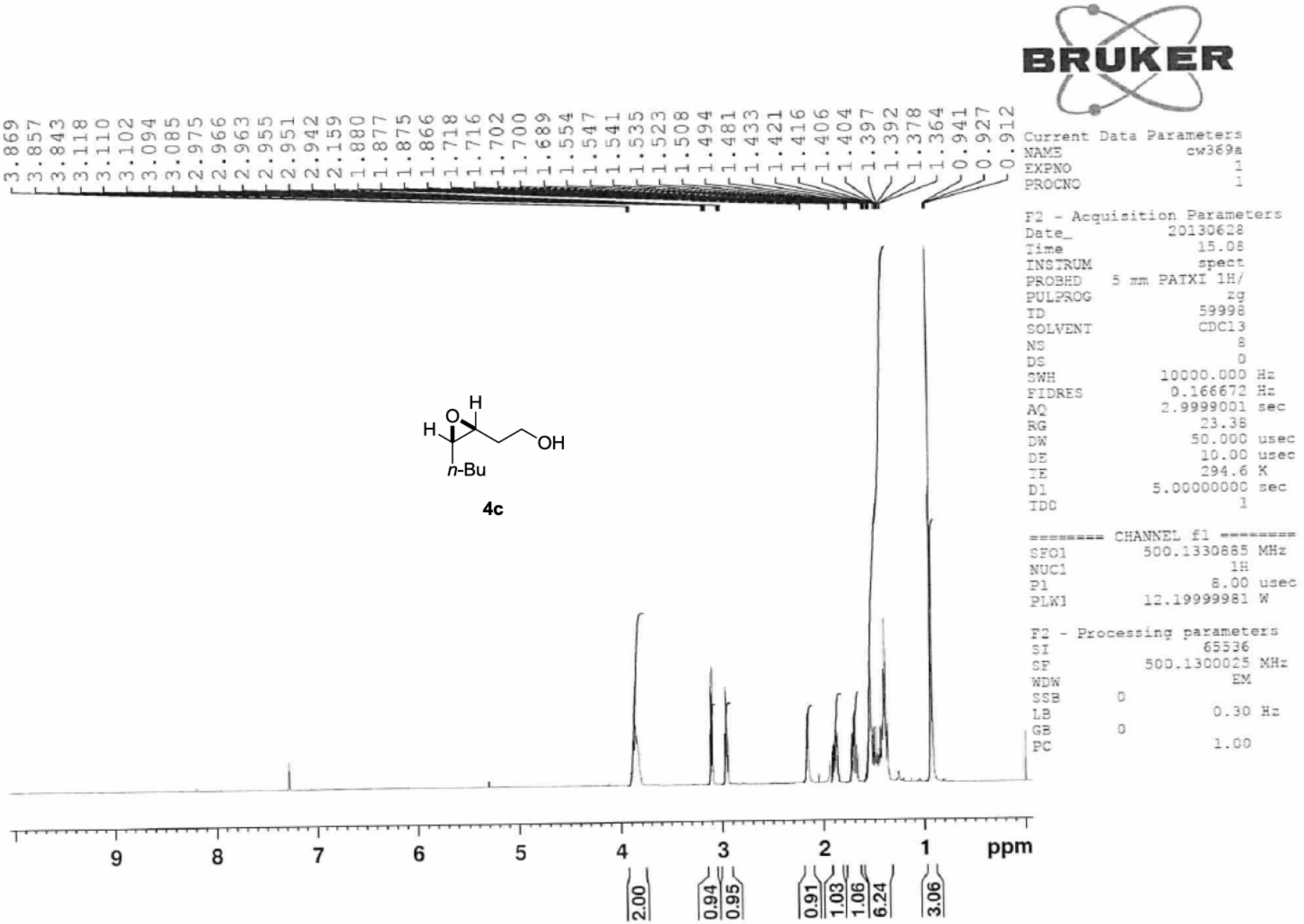
```
Current Data Parameters
NAME          cw365a2-13C
EXPNO                   1
PROCNO                  1

F2 - Acquisition Parameters
Date_              20130729
Time                 11.30
INSTRUM              spect
PROBHD    5 mm PATXI 1H/
PULPROG              zgdc
TD                 178568
SOLVENT             CDCl3
NS                    293
DS                      0
SWH           32894.738 Hz
FIDRES         0.184214 Hz
AQ             2.7142336 sec
RG                196.79
DW                15.200 usec
DE                10.00 usec
TE                298.1 K
D1             1.00000000 sec
D11            0.03000000 sec
TD0                     1

======== CHANNEL f1 ========
SFO1         125.7703648 MHz
NUC1                  13C
P1                  14.00 usec
PLW1        170.00000000 W

======== CHANNEL f2 ========
SFO2         500.1320005 MHz
NUC2                  1H
CPDPRG[2          waltz16
PCPD2               90.00 usec
PLW2         12.19999981 W
PLW12         0.20893000 W

F2 - Processing parameters
SI                  131072
SF           125.7577748 MHz
WDW                   EM
SSB       0
LB                  1.00 Hz
GB        0
PC                  1.40
```



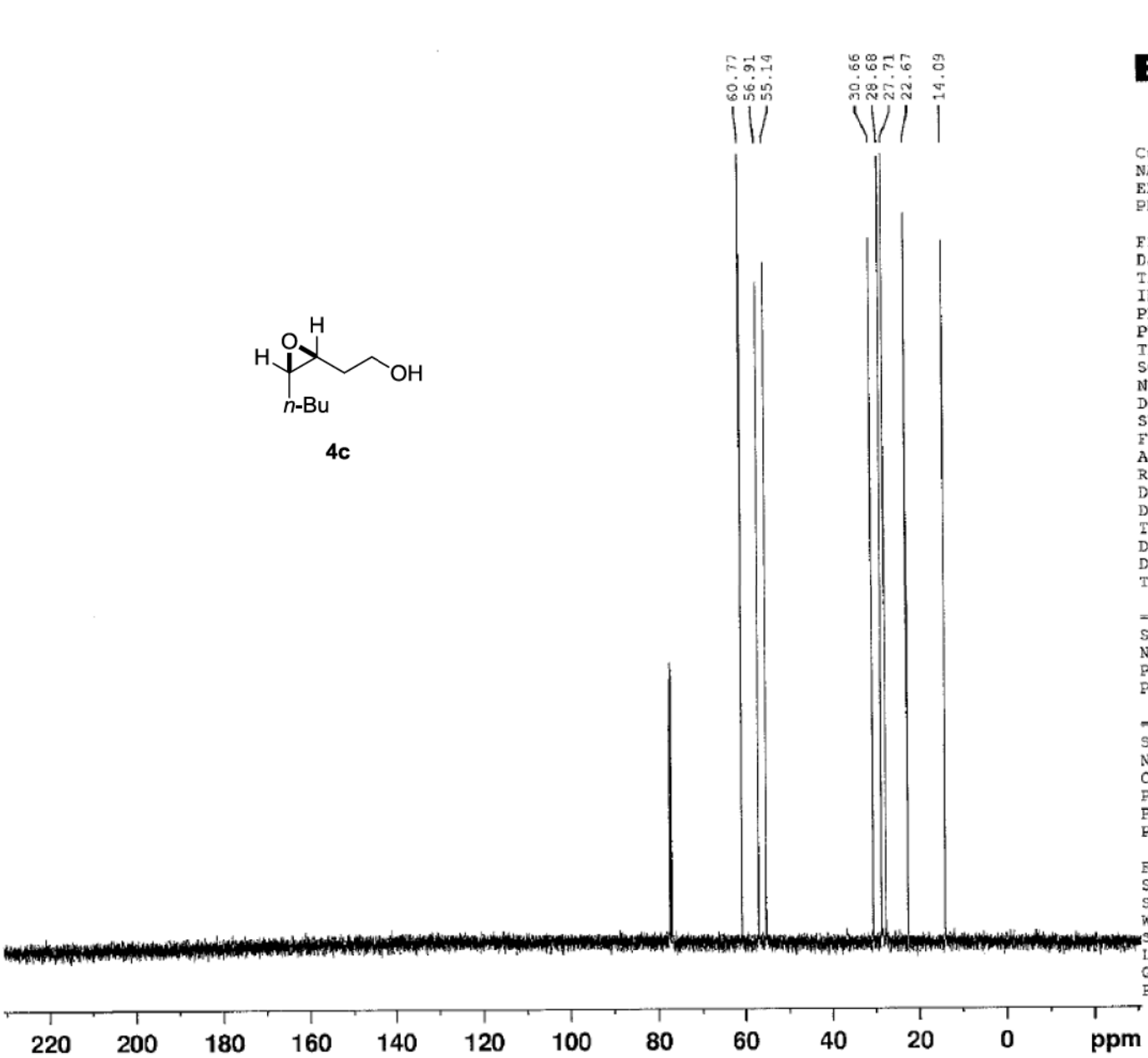
BRUKER

```
Current Data Parameters
NAME                  cw369a
EXPNO                      1
PROCNO                     1

F2 - Acquisition Parameters
Date_              20130628
Time                  15.08
INSTRUM               spect
PROBHD    5 mm PATXI 1H/
PULPROG                 zg
ID                   59998
SOLVENT              CDCl3
NS                       8
DS                       0
SWH           10000.000 Hz
FIDRES            0.166672 Hz
AQ                2.9999001 sec
RG                   23.38
DW                  50.000 usec
DE                  10.00 usec
TE                  294.6 K
D1              5.00000000 sec
TD0                      1

======== CHANNEL f1 ========
SFO1          500.1330885 MHz
NUC1                    1H
P1                   8.00 usec
PLW1          12.19999981 W

F2 - Processing parameters
SI                   65536
SF          500.1300025 MHz
WDW                     EM
SSB       0
LB                   0.30 Hz
GB        0
PC                   1.00
```



4c

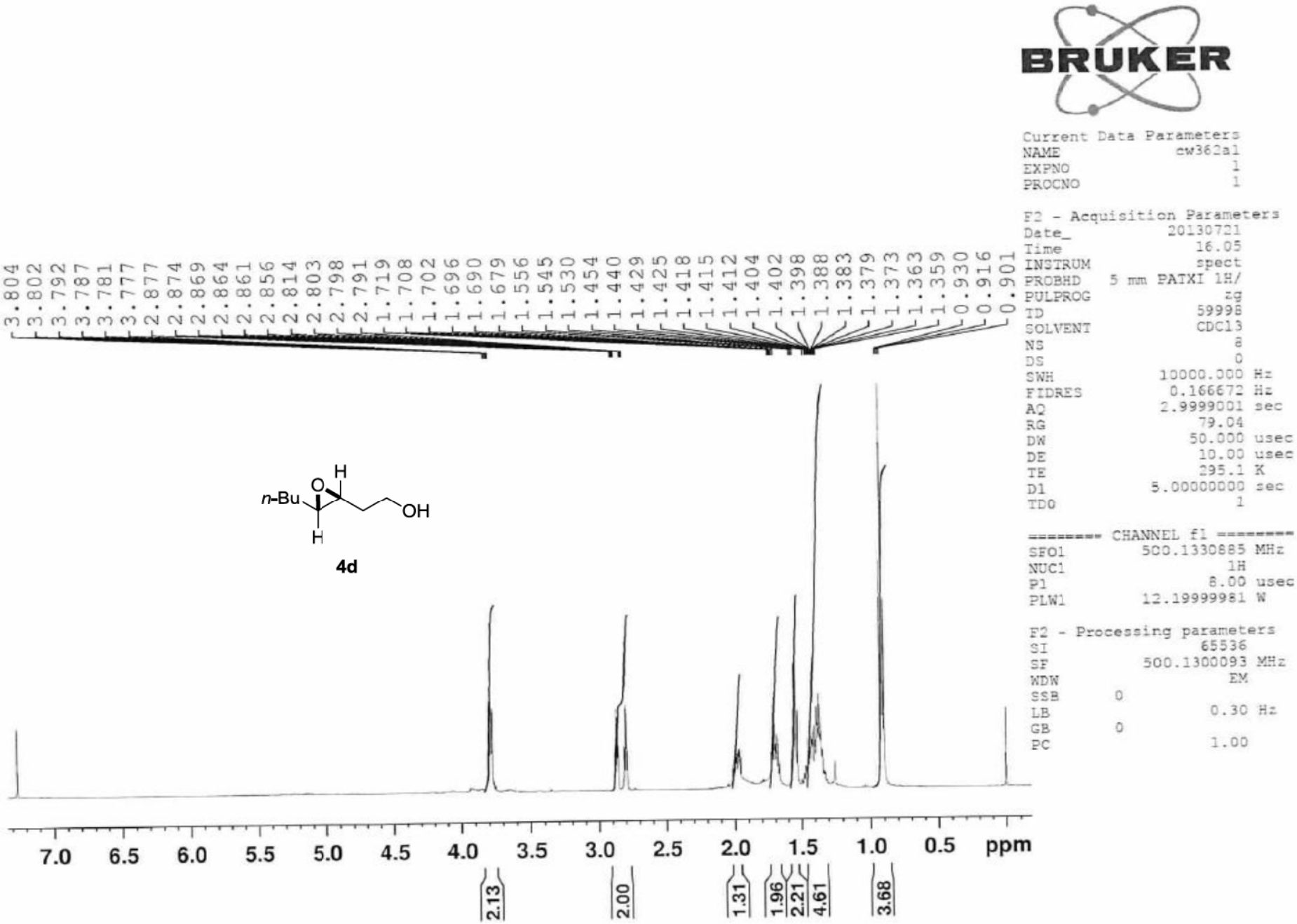
```
Current Data Parameters
NAME          cw369a-13C
EXPNO                  1
PROCNO                 1

F2 - Acquisition Parameters
Date_           20130628
Time               15.29
INSTRUM            spect
PROBHD   5 mm PATXI 1H/
PULPROG            zgdc
TD               178568
SOLVENT           CDCl3
NS                  156
DS                    0
SWH           32894.738 Hz
FIDRES         0.184214 Hz
AQ             2.7142336 sec
RG                196.79
DW                15.200 usec
DE                10.00 usec
TE                295.7 K
D1            3.00000000 sec
D11           0.03000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1        125.7703648 MHz
NUC1                13C
P1                14.00 usec
PLW1       170.00000000 W

======== CHANNEL f2 ========
SFO2        500.1320005 MHz
NUC2                1H
CPDPRG[2         waltz16
PCPD2             90.00 usec
PLW2        12.19999981 W
PLW12        0.20893000 W

F2 - Processing parameters
SI                131072
SF          125.7577771 MHz
WDW                 EM
SSB       0
LB                1.00 Hz
GB        0
PC                1.40
```



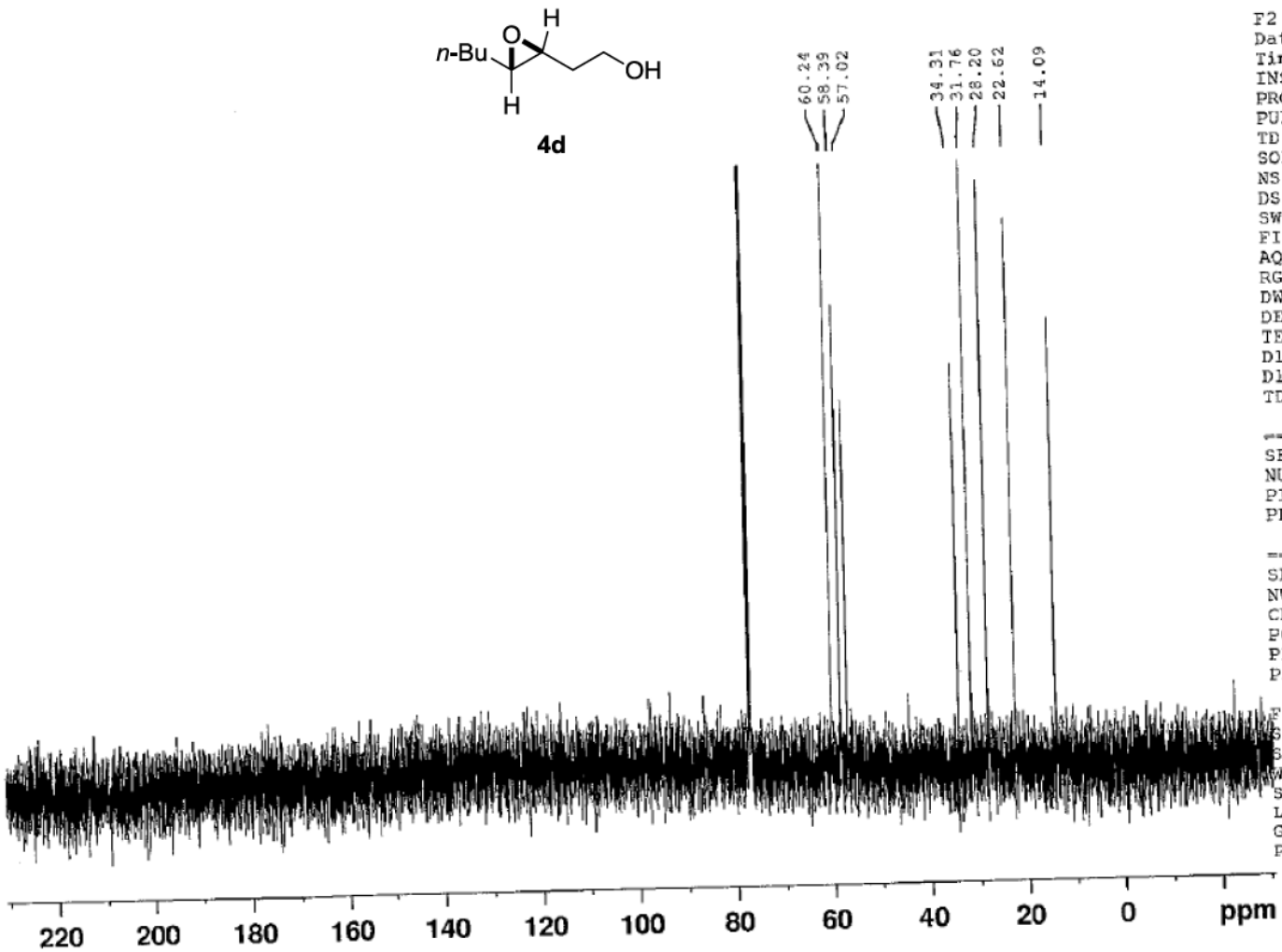
BRUKER

```
Current Data Parameters
NAME                  cw362a1
EXPNO                       1
PROCNO                      1

F2 - Acquisition Parameters
Date_              20130721
Time                  16.05
INSTRUM               spect
PROBHD   5 mm PATXI 1H/
PULPROG                 zg
TD                   59998
SOLVENT               CDCl3
NS                        8
DS                        0
SWH              10000.000 Hz
FIDRES               0.166672 Hz
AQ                2.9999001 sec
RG                   79.04
DW                  50.000 usec
DE                  10.00 usec
TE                  295.1 K
D1               5.00000000 sec
TD0                       1

======== CHANNEL f1 ========
SFO1            500.1330885 MHz
NUC1                    1H
P1                   8.00 usec
PLW1            12.19999981 W

F2 - Processing parameters
SI                    65536
SF              500.1300093 MHz
WDW                     EM
SSB       0
LB                   0.30 Hz
GB        0
PC                   1.00
```



BRUKER

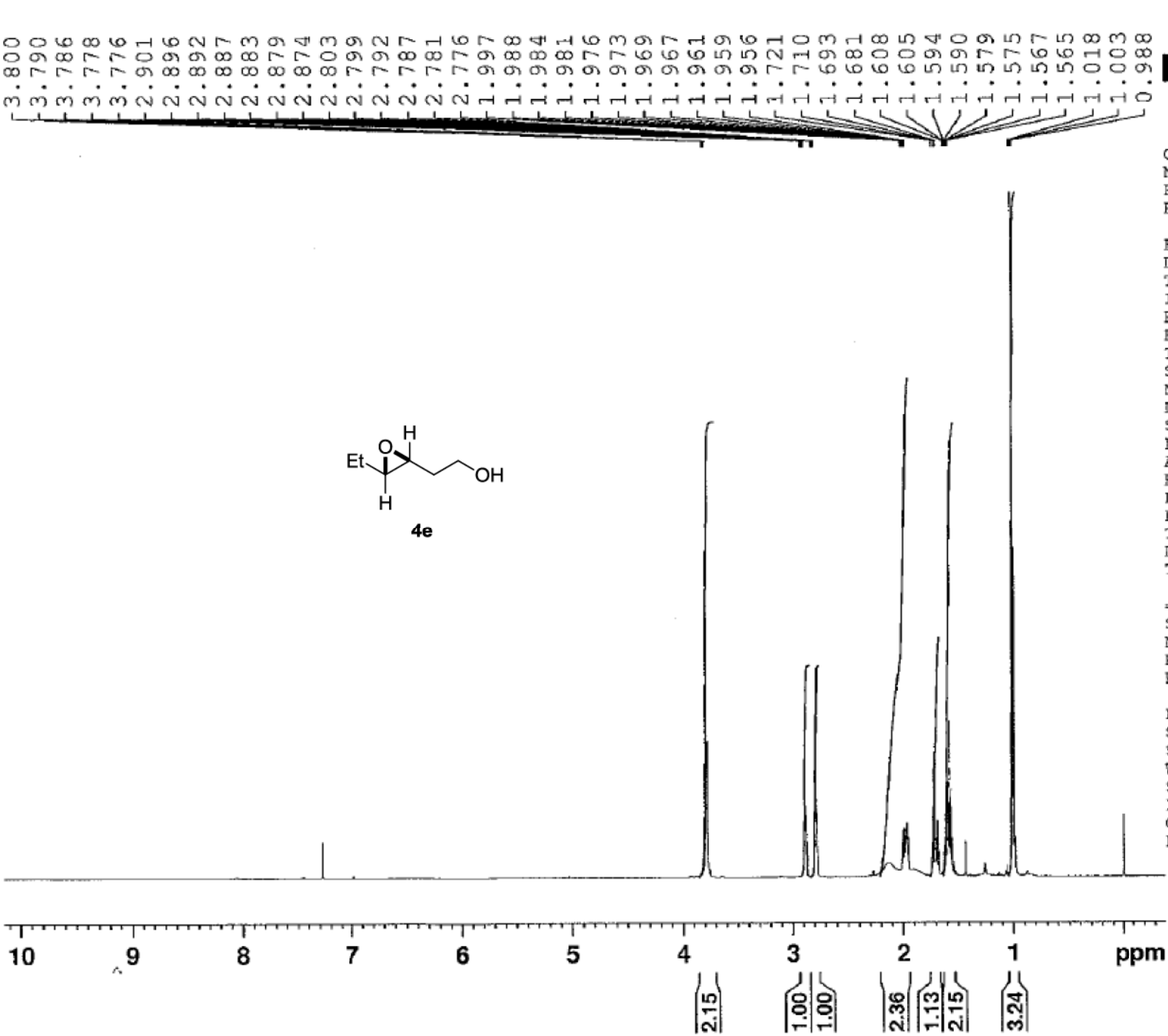
```
Current Data Parameters
NAME          cw362al-13C
EXPNO                   1
PROCNO                  1

F2 - Acquisition Parameters
Date_              20130721
Time                 16.22
INSTRUM              spect
PROBHD    5 mm PATXI 1H/
PULPROG              zgdc
TD                 178568
SOLVENT             CDCl3
NS                     91
DS                      0
SWH            32894.738 Hz
FIDRES          0.184214 Hz
AQ             2.7142336 sec
RG                 196.79
DW                 15.200 usec
DE                 10.00 usec
TE                 295.8 K
D1             3.00000000 sec
D11            0.03000000 sec
TD0                     1

======== CHANNEL f1 ========
SFO1         125.7703648 MHz
NUC1                   13C
P1                 14.00 usec
PLW1        170.00000000 W

======== CHANNEL f2 ========
SFO2         500.1320005 MHz
NUC2                   1H
CPDPRG[2           waltz16
PCPD2              90.00 usec
PLW2          12.19999981 W
PLW12          0.20893000 W

F2 - Processing parameters
SI                  131072
SF           125.7577732 MHz
WDW                    EM
SSB                     0
LB                 1.00 Hz
GB                      0
PC                 1.40
```



Current Data Parameters

NAME	cw373a3
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

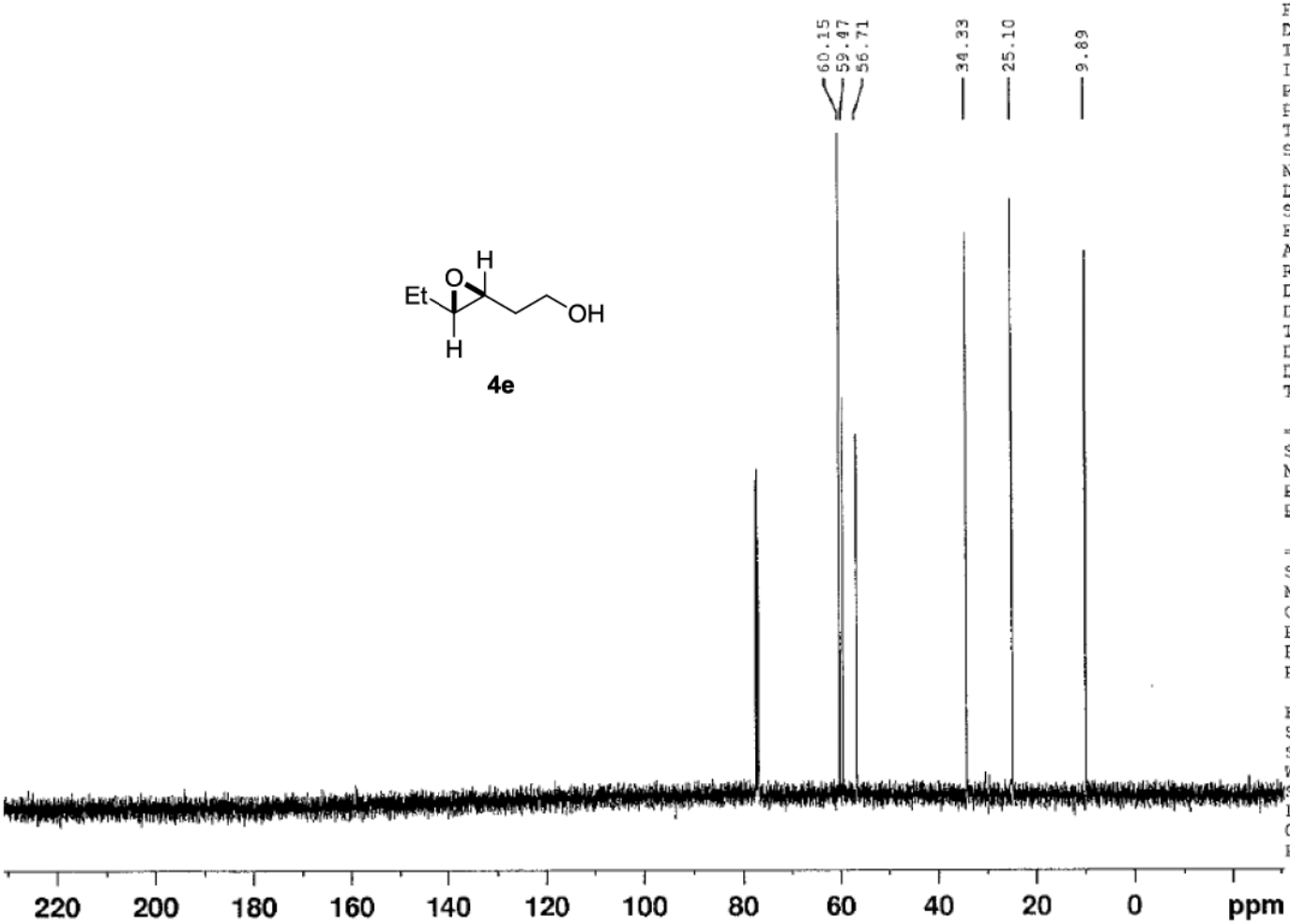
Date_	20130730
Time	11.52
INSTRUM	spect
PROBHD	5 mm PATXI 1H/
PULPROG	zg
TD	59998
SOLVENT	CDCl3
NS	8
DS	0
SWH	10000.000 Hz
FIDRES	0.166672 Hz
AQ	2.9999001 sec
RG	37.62
DW	50.000 usec
DE	10.00 usec
TE	295.2 K
D1	5.00000000 sec
TD0	1

======== CHANNEL f1 ========

SFO1	500.1330885 MHz
NUC1	1H
P1	8.00 usec
PLW1	12.19999981 W

F2 - Processing parameters

SI	65536
SF	500.1300047 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00



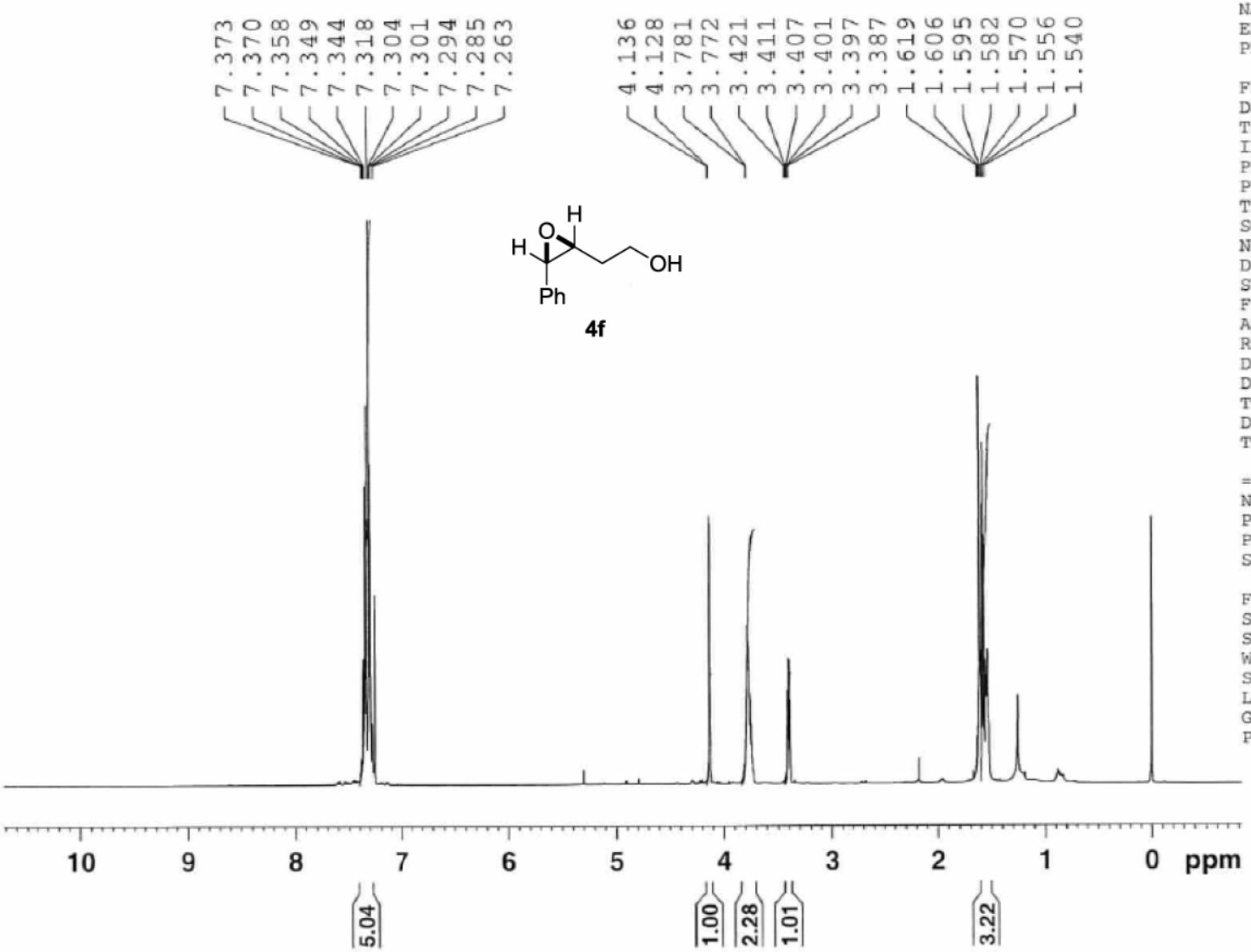

```
Current Data Parameters
NAME          cw373a3-13C
EXPNO                   1
PROCNO                  1

F2 - Acquisition Parameters
Date_           20130730
Time               12.13
INSTRUM            spect
PROBHD   5 mm PATXI 1H/
PULPROG            zqdc
TD               178568
SOLVENT           CDCl3
NS                  251
DS                    0
SWH           32894.738 Hz
FIDRES         0.184214 Hz
AQ             2.7142336 sec
RG                196.79
DW                15.200 usec
DE                10.00 usec
TE                295.8 K
D1            1.00000000 sec
D11           0.03000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1         125.7703648 MHz
NUC1                13C
P1                14.00 usec
PLW1       170.00000000 W

======== CHANNEL f2 ========
SFO2         500.1320005 MHz
NUC2                1H
CPDPRG[2         waltz16
PCPD2             90.00 usec
PLW2         12.19999981 W
PLW12         0.20893000 W

F2 - Processing parameters
SI                131072
SF           125.7577759 MHz
WDW                 EM
SSB       0
LB                 1.00 Hz
GB        0
PC                 1.40
```



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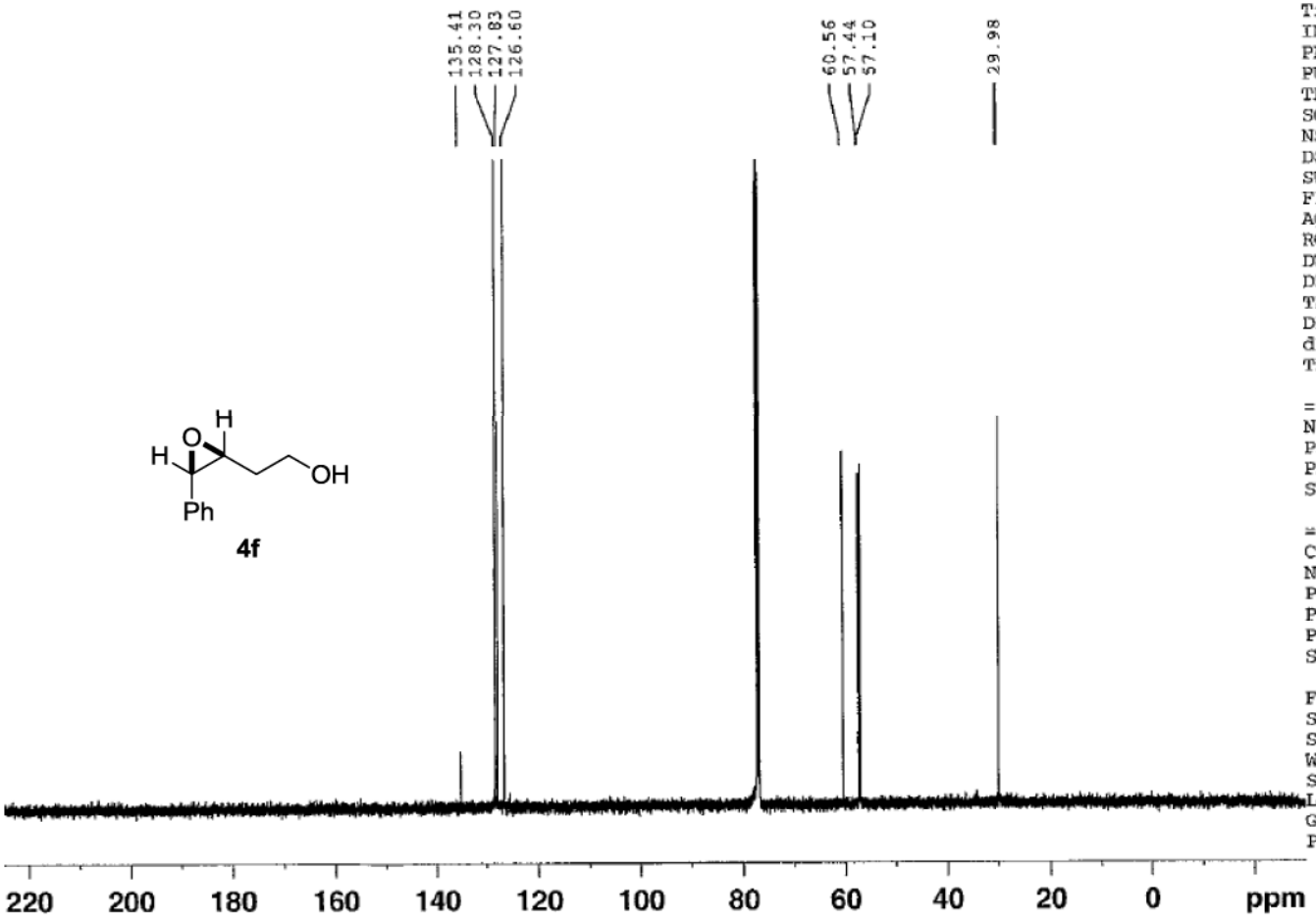
```
Current Data Parameters
NAME                  cw386b
EXPNO                      1
PROCNO                     1

F2 - Acquisition Parameters
Date_              20130713
Time                  13.15
INSTRUM               spect
PROBHD    5 mm QNP 1H/13
PULPROG                zg
TD                  59998
SOLVENT             CDC13
NS                     16
DS                      0
SWH           10000.000 Hz
FIDRES            0.166672 Hz
AQ              2.9999499 sec
RG                  406.4
DW                 50.000 usec
DE                  7.50 usec
TE                 293.7 K
D1             5.00000000 sec
TD0                     1

======== CHANNEL f1 ========
NUC1                   1H
P1                 10.00 usec
PL1                 0.00 dB
SFO1         499.8740056 MHz

F2 - Processing parameters
SI                  32768
SF           499.8700179 MHz
WDW                    EM
SSB                     0
LB                  0.30 Hz
GB                      0
PC                   1.00
```



4f

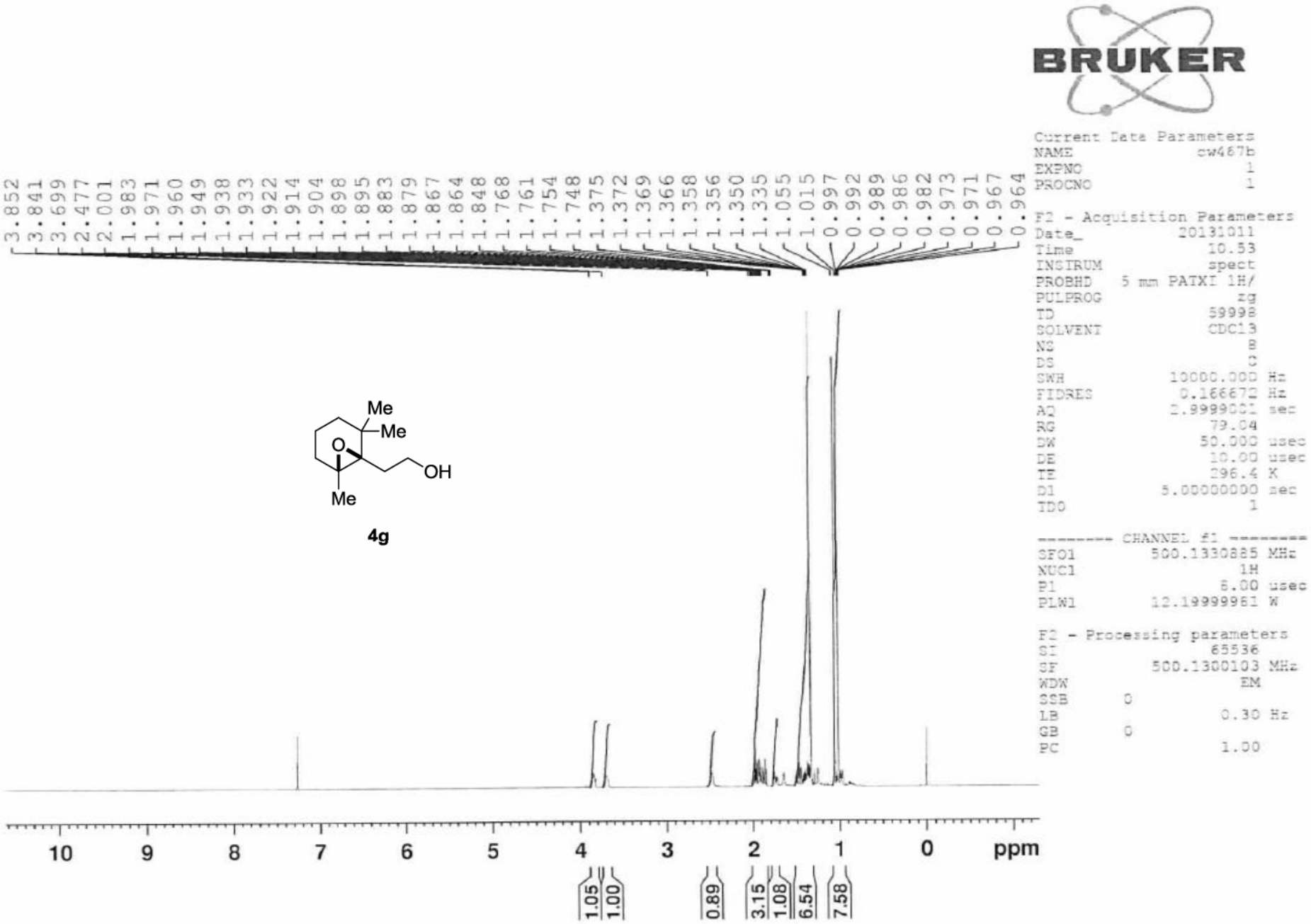
```
Current Data Parameters
NAME                  cw386b-13C
EXPNO                          1
PROCNO                         1

F2 - Acquisition Parameters
Date_                   20130713
Time                       14.55
INSTRUM                    spect
PROBHD    5 mm QNP 1H/13
PULPROG                     zgdc
TD                        142854
SOLVENT                    CDCl3
NS                          1330
DS                             0
SWH                    32679.738 Hz
FIDRES                 0.228763 Hz
AQ                     2.1857162 sec
RG                       18390.4
DW                        15.300 usec
DE                         7.50 usec
TE                        294.7 K
D1                     2.00000000 sec
d11                    0.03000000 sec
TD0                            1

======== CHANNEL f1 ========
NUC1                         13C
P1                         8.50 usec
PL1                        0.00 dB
SFO1                125.7049802 MHz

======== CHANNEL f2 ========
CPDPRG2                  waltz16
NUC2                         1H
PCPD2                     90.00 usec
PL2                        1.00 dB
PL12                      21.00 dB
SFO2                499.8734991 MHz

F2 - Processing parameters
SI                         65536
SF                  125.6923981 MHz
WDW                           EM
SSB                            0
LB                          1.00 Hz
GB                             0
PC                          1.40
```



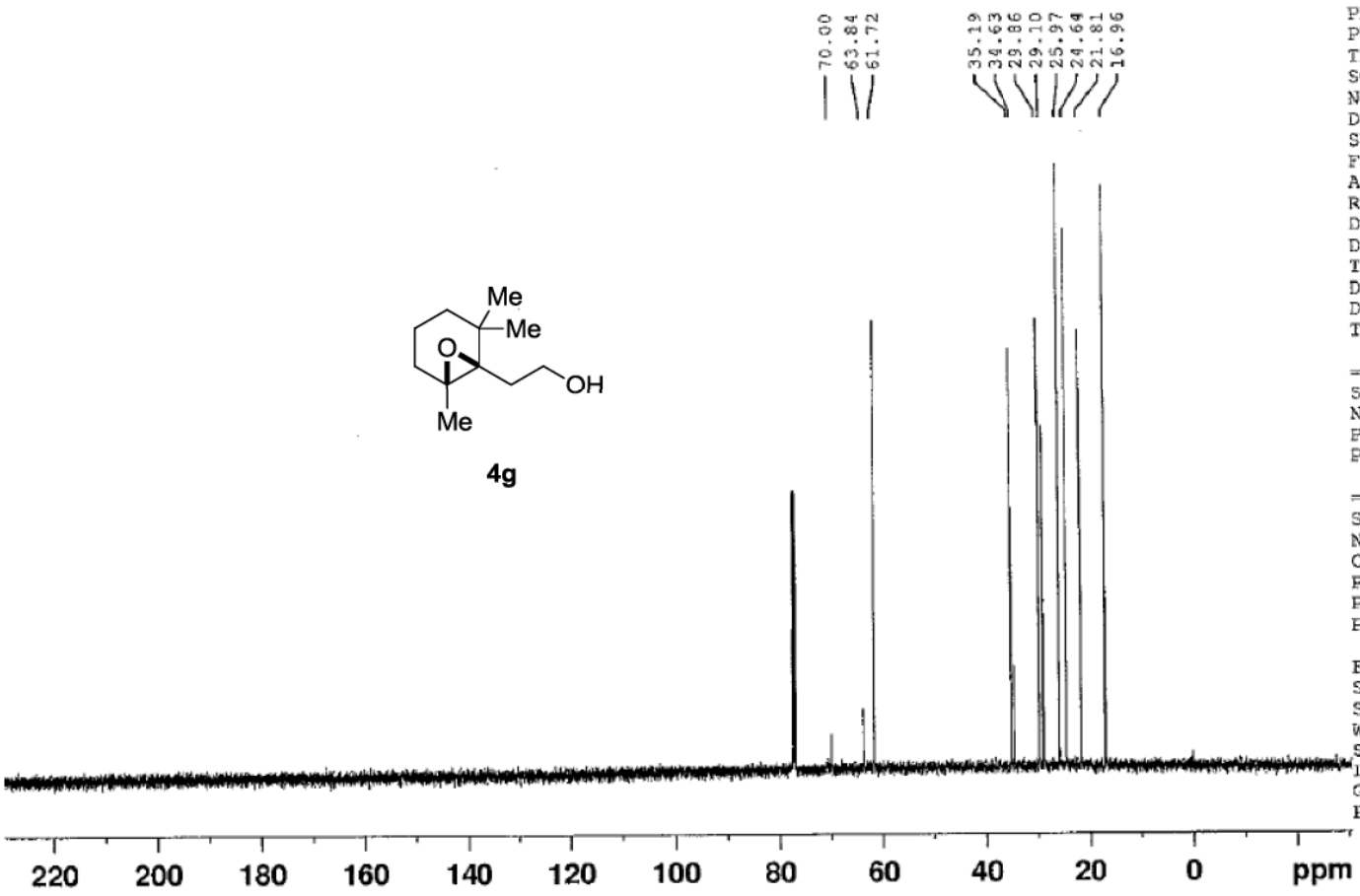
BRUKER

```
Current Data Parameters
NAME                  cw467b
EXPNO                      1
PROCNO                     1

F2 - Acquisition Parameters
Date_              20131011
Time                  10.53
INSTRUM                spect
PROBHD    5 mm PATXI 1H/
PULPROG                  zg
TD                    59998
SOLVENT               CDCl3
NS                        8
DS                        0
SWH              10000.000 Hz
FIDRES               0.166672 Hz
AQ                2.9999001 sec
RG                     79.04
DW                    50.000 usec
DE                    10.00 usec
TE                    296.4 K
D1               5.00000000 sec
TD0                       1

======== CHANNEL f1 ========
SFO1           500.1330885 MHz
NUC1                     1H
P1                     8.00 usec
PLW1          12.19999981 W

F2 - Processing parameters
SI                    65536
SF             500.1300103 MHz
WDW                      EM
SSB          0
LB                     0.30 Hz
GB           0
PC                     1.00
```



4g

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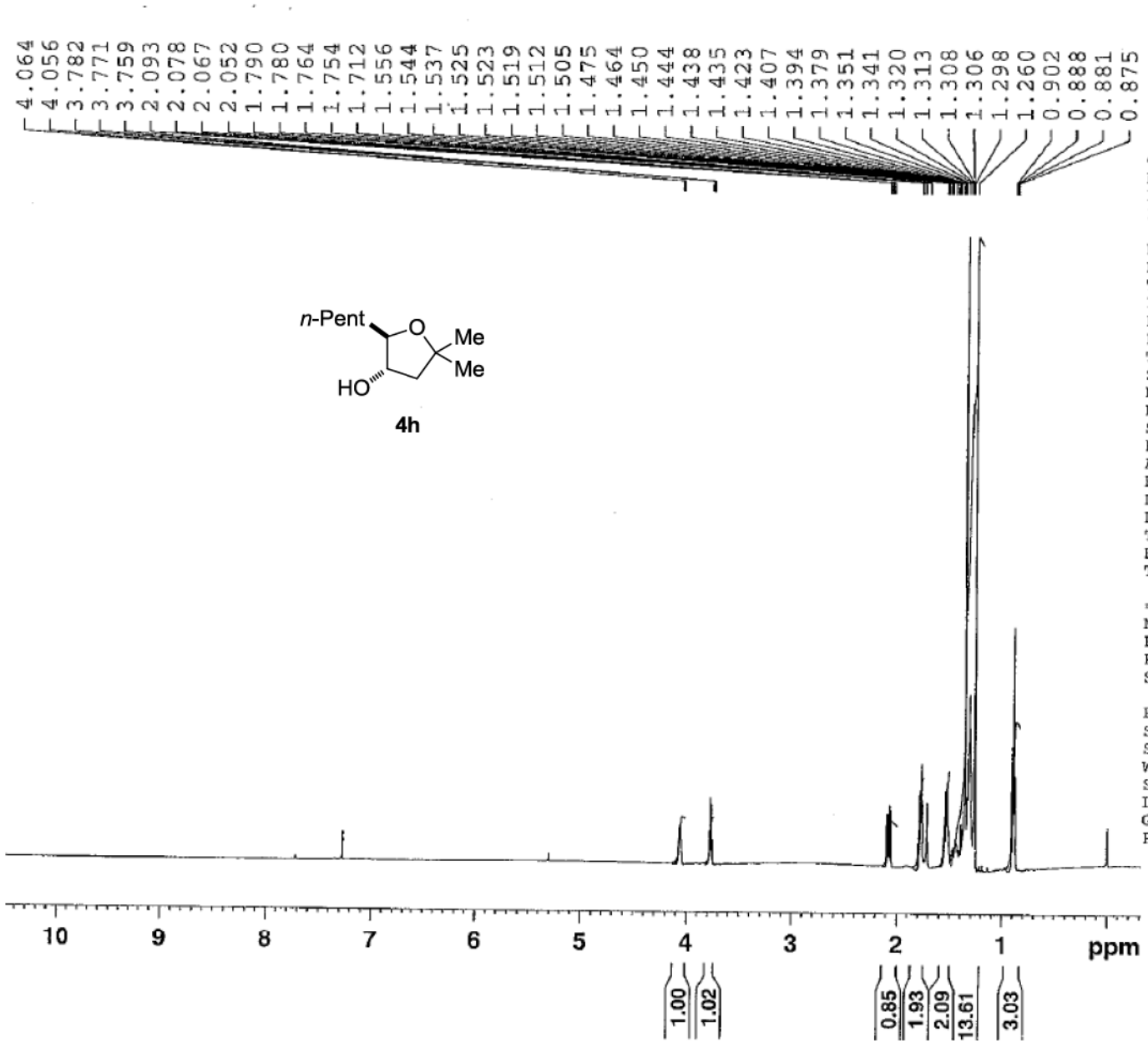
```
Current Data Parameters
NAME                 cw467a-13C
EXPNO                         1
PROCNO                        1

F2 - Acquisition Parameters
Date_                  20131010
Time                      18.59
INSTRUM                   spect
PROBHD     5 mm PATXI 1H/
PULPROG                   zgdc
TD                      178568
SOLVENT                  CDCl3
NS                         571
DS                           0
SWH                  32894.738 Hz
FIDRES               0.184214 Hz
AQ                   2.7142336 sec
RG                       196.79
DW                       15.200 usec
DE                       10.00 usec
TE                       296.6 K
D1                   1.00000000 sec
D11                  0.03000000 sec
TD0                          1

======== CHANNEL f1 ========
SFO1               125.7703648 MHz
NUC1                        13C
P1                        14.00 usec
PLW1              170.00000000 W

======== CHANNEL f2 ========
SFO2               500.1320005 MHz
NUC2                        1H
CPDPRG[2                waltz16
PCPD2                     90.00 usec
PLW2               12.19999981 W
PLW12               0.20893000 W

F2 - Processing parameters
SI                        131072
SF                 125.7577729 MHz
WDW                         EM
SSB                  0
LB                        1.00 Hz
GB                   0
PC                        1.40
```



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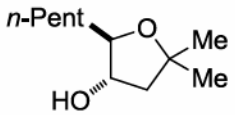
Current Data Parameters
NAME cw389a
EXPNO 1
PROCNO 1

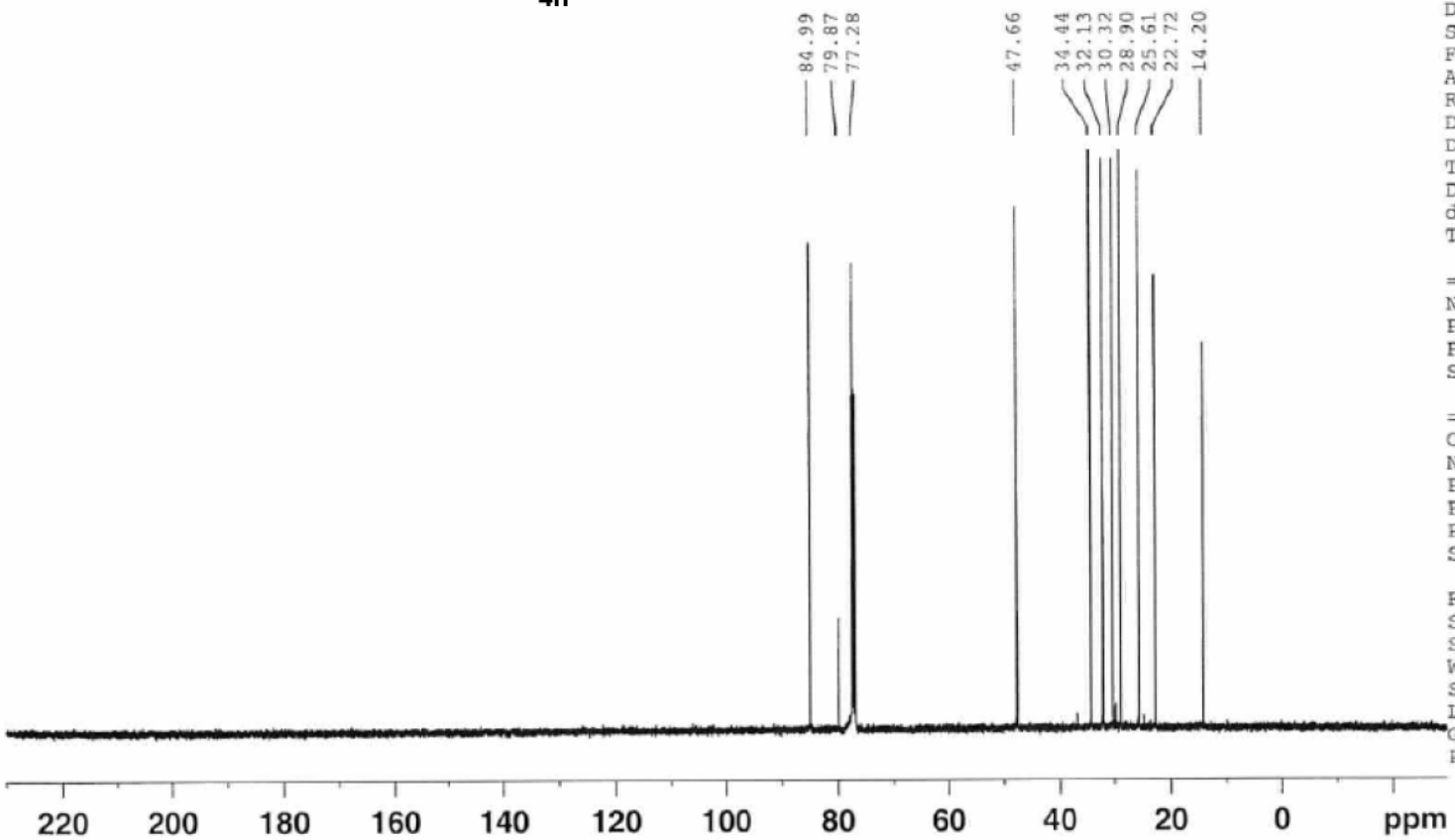
F2 - Acquisition Parameters
Date_ 20130714
Time 16.50
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zg
TD 59998
SOLVENT CDCl3
NS 8
DS 0
SWH 10000.000 Hz
FIDRES 0.166672 Hz
AQ 2.9999499 sec
RG 406.4
DW 50.000 usec
DE 7.50 usec
TE 294.1 K
D1 5.00000000 sec
TD0 1

======== CHANNEL f1 ========
NUC1 1H
P1 10.00 usec
PL1 0.00 dB
SFO1 499.8740056 MHz

F2 - Processing parameters
SI 32768
SF 499.8700149 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



4h



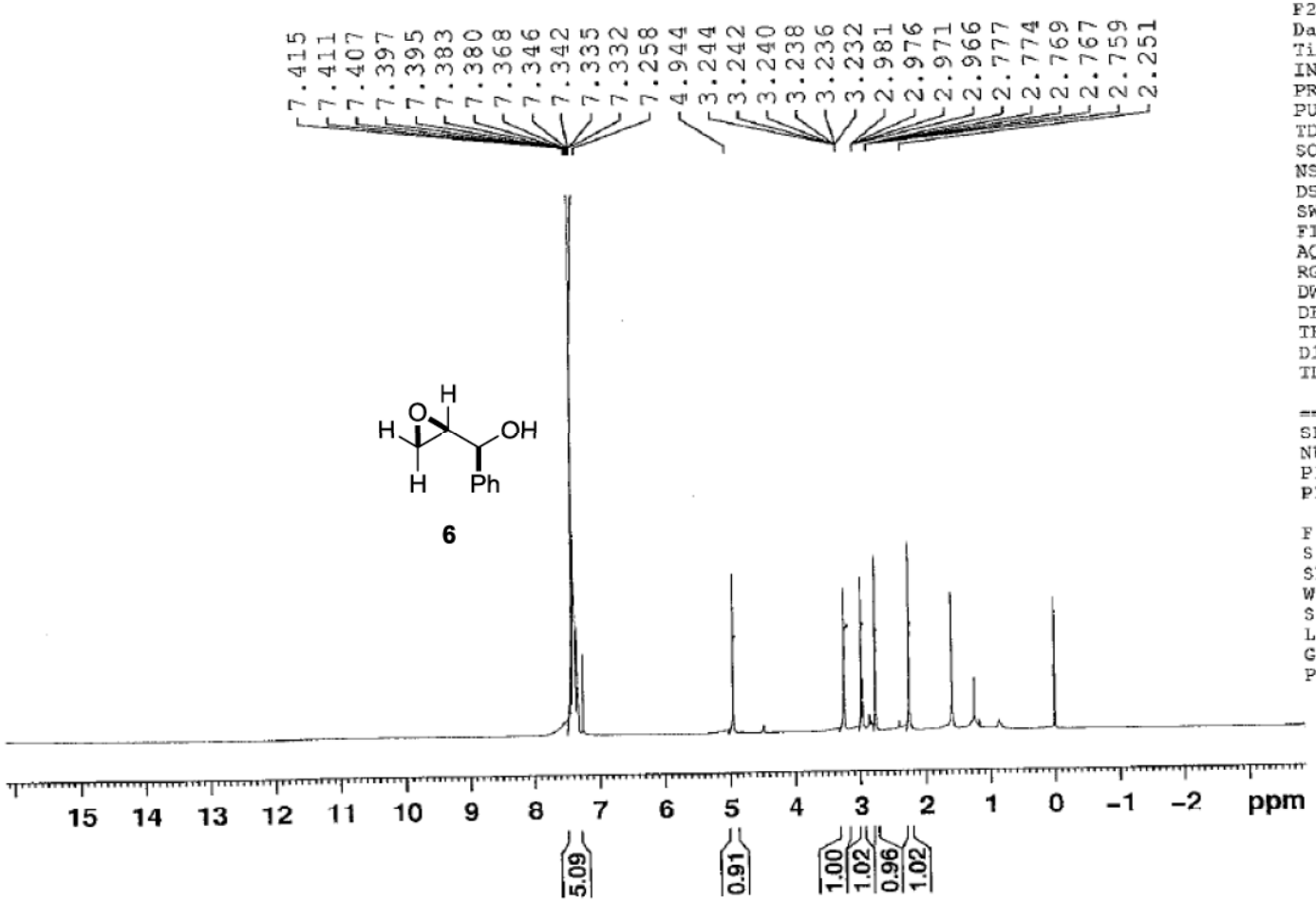

```
Current Data Parameters
NAME                  cw389a-13C
EXPNO                          1
PROCNO                         1

F2 - Acquisition Parameters
Date_                   20130714
Time                       17.52
INSTRUM                    spect
PROBHD    5 mm QNP 1H/13
PULPROG                     zgdc
TD                        142854
SOLVENT                    CDCl3
NS                           793
DS                             0
SWH                  32679.738 Hz
FIDRES                0.228763 Hz
AQ                    2.1857162 sec
RG                       18390.4
DW                        15.300 usec
DE                         7.50 usec
TE                        294.7 K
D1                    2.00000000 sec
d11                   0.03000000 sec
TD0                            1

======== CHANNEL f1 ========
NUC1                         13C
P1                         8.50 usec
PL1                        0.00 dB
SFO1               125.7049802 MHz

======== CHANNEL f2 ========
CPDPRG2                 waltz16
NUC2                         1H
PCPD2                     90.00 usec
PL2                        1.00 dB
PL12                      21.00 dB
SFO2               499.8734991 MHz

F2 - Processing parameters
SI                         65536
SF                 125.6923986 MHz
WDW                           EM
SSB                            0
LB                         1.00 Hz
GB                             0
PC                          1.40
```



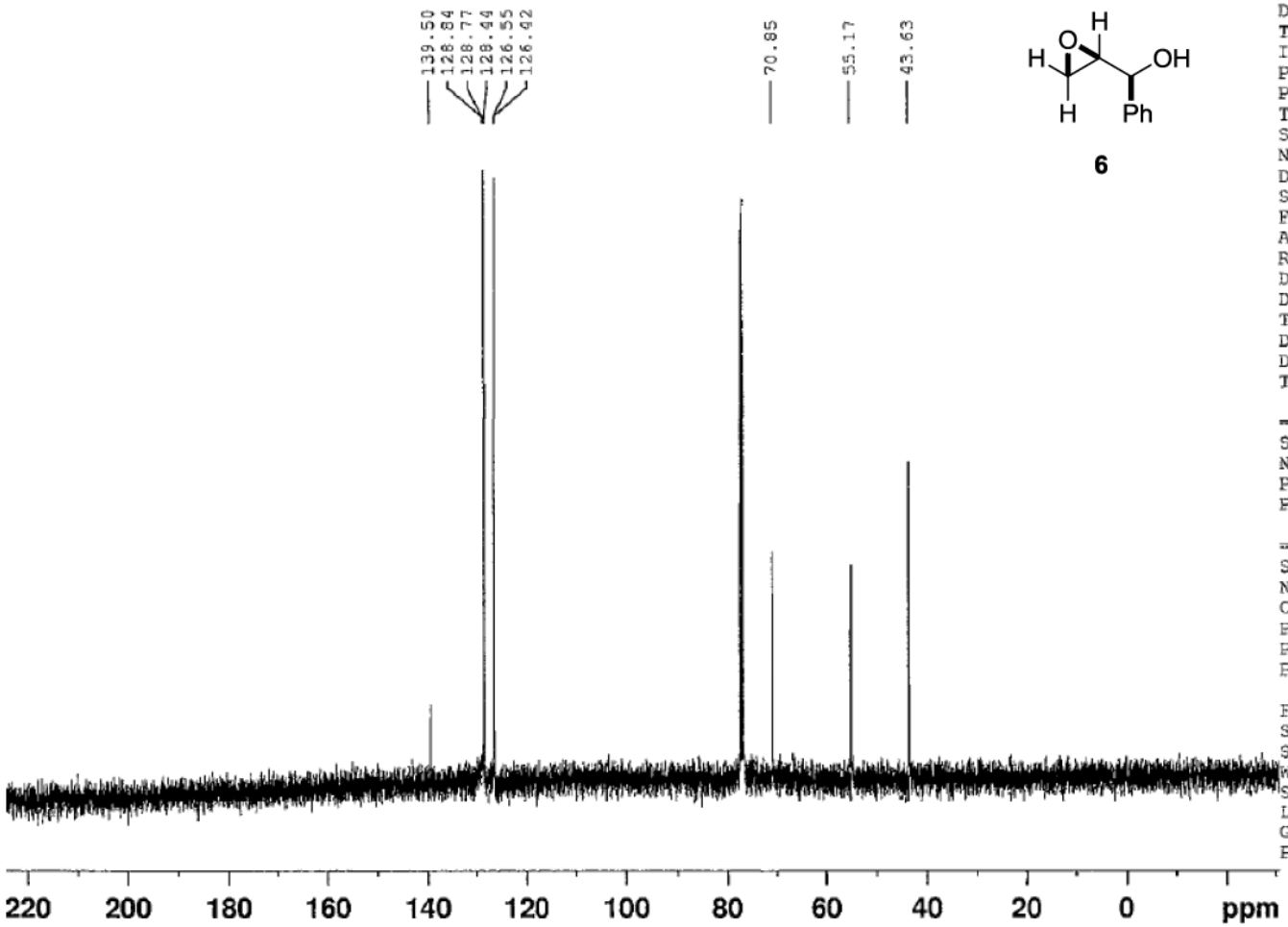
BRUKER

```
Current Data Parameters
NAME                  cw418a
EXPNO                      1
PROCNO                     1

F2 - Acquisition Parameters
Date_              20130808
Time                  11.06
INSTRUM               spect
PROBHD    5 mm PATXI 1H/
PULPROG                 zg
TD                     59998
SOLVENT                CDCl3
NS                         8
DS                         0
SWH               10000.000 Hz
FIDRES                0.166672 Hz
AQ                2.9999001 sec
RG                    126.24
DW                    50.000 usec
DE                    10.00 usec
TE                    298.2 K
D1               5.00000000 sec
TD0                        1

========== CHANNEL f1 ==========
SFO1             500.1330885 MHz
NUC1                       1H
P1                    8.00 usec
PLW1            12.19999981 W

F2 - Processing parameters
SI                         65536
SF               500.1300149 MHz
WDW                       EM
SSB          0
LB                    0.30 Hz
GB           0
PC                    1.00
```



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Current Data Parameters

NAME	cw418a-13C
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	20130808	
Time	11.59	
INSTRUM	spect	
PROBHD	5 mm PATXI 1H/	
PULPROG	zgdc	
TD	178568	
SOLVENT	CDCl3	
NS	751	
DS	0	
SWH	32894.738	Hz
FIDRES	0.184214	Hz
AQ	2.7142336	sec
RG	196.79	
DW	15.200	usec
DE	10.00	usec
TE	298.2	K
D1	1.00000000	sec
D11	0.03000000	sec
TD0	1	

======== CHANNEL f1 ========

SFO1	125.7703648	MHz
NUC1	13C	
P1	14.00	usec
PLW1	170.00000000	W

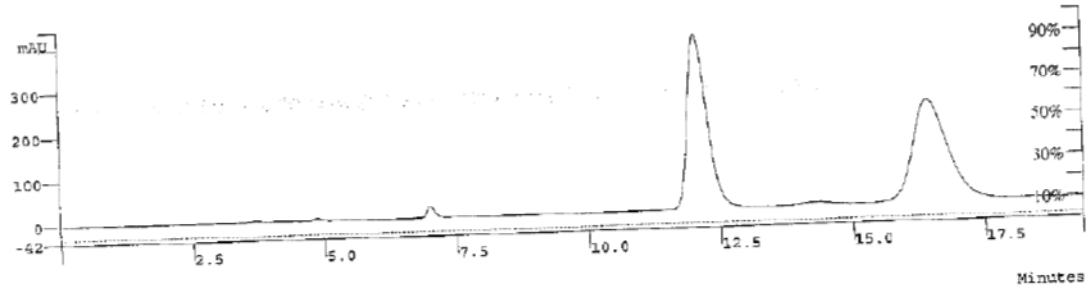
======== CHANNEL f2 ========

SFO2	500.1320005	MHz
NUC2	1H	
CPDPRG[2	waltz16	
PCPD2	90.00	usec
PLW2	12.19999981	W
PLW12	0.20893000	W

F2 - Processing parameters

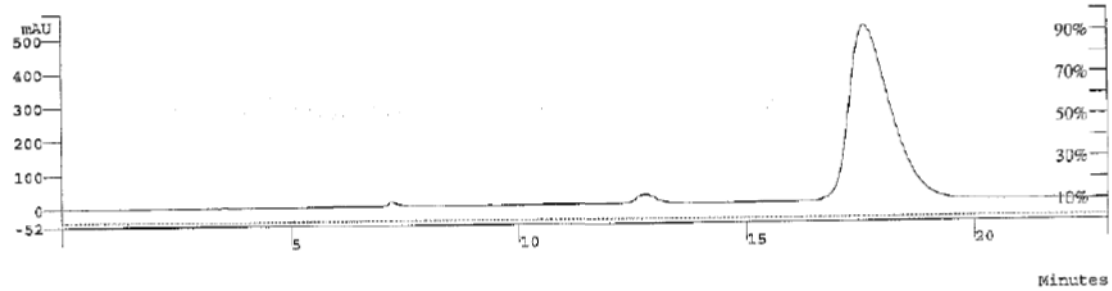
SI	131072	
SF	125.7577726	MHz
WDW	EM	
SSB	0	
LB	1.00	Hz
GB	0	
PC	1.40	

Data File:	c:\star\5-14-13 2;08;41 pm -1.run	Operator (Calc):	
Channel:	2 = 225.00 nm RESULTS	Calc Date:	05/14/13 02:31:17 PM
Sample ID:	cw234aaarac	Times Calculated:	1
Operator (Inj):	OB-H, hex:IPA= 98:2, 1.0 mL/min	Calculation Method:	c:\windows\temp\~5-14-13 2;08;41 pm
Injection Date:		Instrument (Calc):	Varian Star #1
Injection Method:	c:\star\chuan\standard 2%.mth	Run Mode:	Analysis
Run Time (min):	19.387	Peak Measurement:	Peak Area
Workstation:		Calculation Type:	Percent
Instrument (Inj):	Varian Star #1	Calibration Level:	N/A
		Verification Tolerance:	N/A

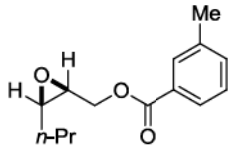


Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		49.4845	12.040	0.000	52721944	0.00	BB	23.5		0
2		50.5155	16.413	0.000	53820408	0.00	BB	42.3		0
	Totals	**100.0000**		**0.000**	**106542352**					

Data File:	c:\star\12-28-13 2;11;58 pm -1.run	Operator (Calc):	
Channel:	2 = 225.00 nm RESULTS	Calc Date:	12/28/13 02:37:57 PM
Sample ID:	cw345	Times Calculated:	1
Operator (Inj):	OB-H, hex:IPA=95:%, 1.0 mL/min	Calculation Method:	c:\windows\temp\~12-28-13 2;11;58
Injection Date:		Instrument (Calc):	Varian Star #1
Injection Method:	c:\star\chuan\standard 2%.mth	Run Mode:	Analysis
Run Time (min):	22.960	Peak Measurement:	Peak Area
Workstation:		Calculation Type:	Percent
Instrument (Inj):	Varian Star #1	Calibration Level:	N/A
		Verification Tolerance:	N/A

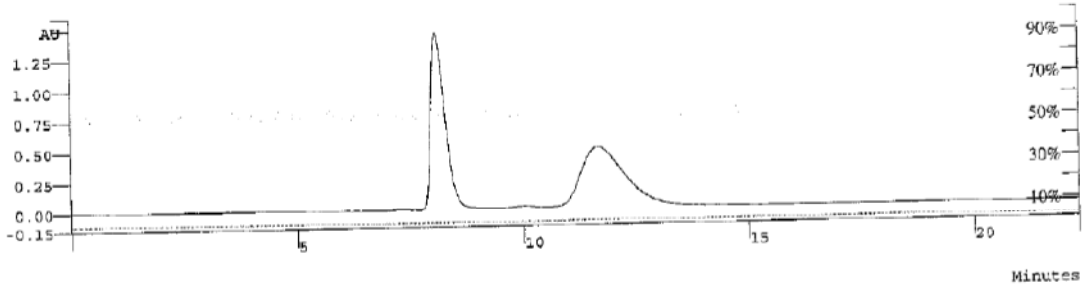


Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		2.2000	12.787	0.000	3790007	0.00	BB	27.3		0
2		97.8000	17.613	0.000	168479248	0.00	BB	57.9		0
	Totals	**100.0000**		**0.000**	**172269248**					



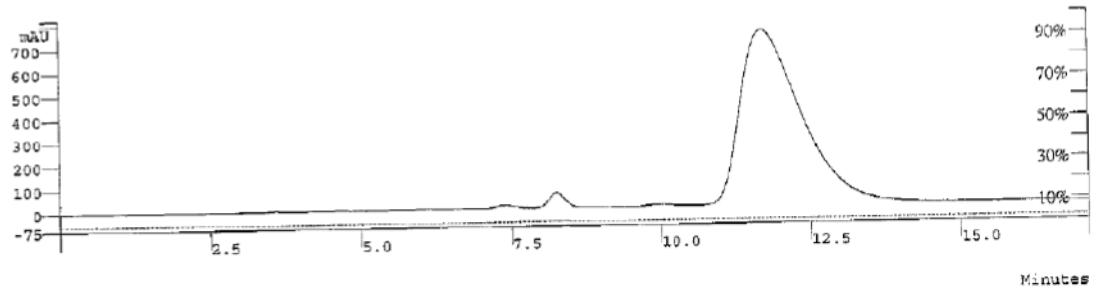
2a

Data File:	c:\star\6-14-13 7;04;02 pm -1.run	Operator (Calc):	
Channel:	2 = 225.00 nm RESULTS	Calc Date:	06/14/13 07:27:23 PM
Sample ID:	cw351rac	Times Calculated:	1
Operator (Inj):	OB-H, hex:IPA= 98:2, 1.0 mL/min	Calculation Method:	c:\windows\temp\~6-14-13 7;04;02 pm
Injection Date:		Instrument (Calc):	Varian Star #1
Injection Method:	c:\star\chuan\standard 2%.mth	Run Mode:	Analysis
Run Time (min):	22.347	Peak Measurement:	Peak Area
Workstation:		Calculation Type:	Percent
Instrument (Inj):	Varian Star #1	Calibration Level:	N/A
		Verification Tolerance:	N/A

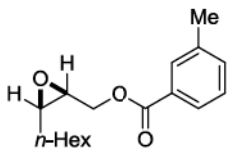


Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		48.7266	8.067	0.000	163505696	0.00	BB	20.4		0
2		51.2734	11.667	0.000	172051616	0.00	BB	62.8		0
	Totals	**100.0000**		**0.000**	**335557312**					

Data File:	c:\star\6-15-13 10;49;31 am -1.run	Operator (Calc):	
Channel:	2 = 225.00 nm RESULTS	Calc Date:	06/15/13 11:12:18 AM
Sample ID:	cw351a	Times Calculated:	1
Operator (Inj):	OB-H, hex:IPA=98:2, 1.0 mL/min	Calculation Method:	c:\windows\temp\~6-15-13 10;49;31
Injection Date:		Instrument (Calc):	Varian Star #1
Injection Method:	c:\star\chuan\standard 2%.mth	Run Mode:	Analysis
Run Time (min):	17.147	Peak Measurement:	Peak Area
Workstation:		Calculation Type:	Percent
Instrument (Inj):	Varian Star #1	Calibration Level:	N/A
		Verification Tolerance:	N/A

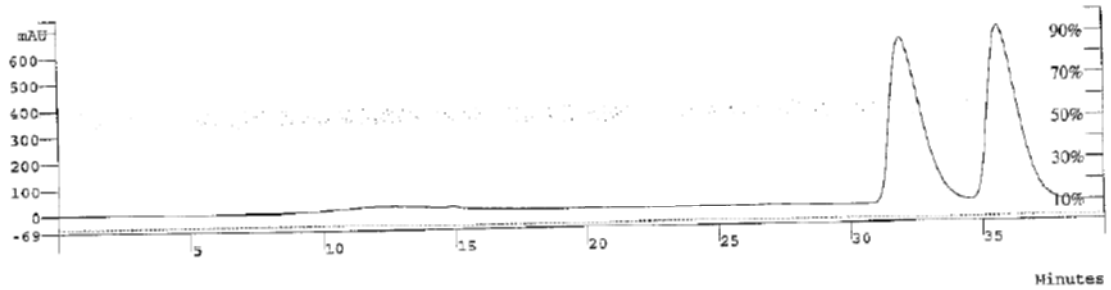


Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		1.9681	8.253	0.000	5407514	0.00	BB	16.6		0
2		98.0319	11.693	0.000	269354656	0.00	BB	64.7		0
	Totals	**100.0000**		**0.000**	**274762176**					



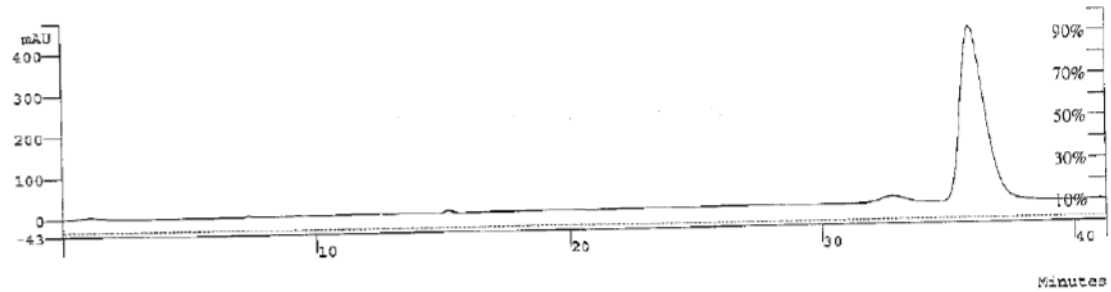
2b

Data File:	c:\star\6-13-13 5;49;11 pm -1.run	Operator (Calc):	
Channel:	2 = 225.00 nm RESULTS	Calc Date:	06/13/13 06:29:58 PM
Sample ID:	cw350rac	Times Calculated:	1
Operator (Inj):	OB-H, hex:IPA=98:2, 0.5 mL/min	Calculation Method:	c:\windows\temp\~6-13-13 5;49;11 pm
Injection Date:		Instrument (Calc):	Varian Star #1
Injection Method:	c:\star\chuan\standard 2% 0.5ml	Run Mode:	Analysis
Run Time (min):	39.627	Peak Measurement:	Peak Area
Workstation:		Calculation Type:	Percent
Instrument (Inj):	Varian Star #1	Calibration Level:	N/A
		Verification Tolerance:	N/A

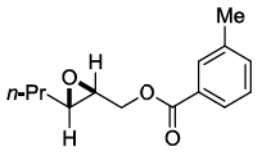


Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		49.6694	31.880	0.000	257637872	0.00	BB	76.4		0
2		50.3306	35.587	0.000	261067216	0.00	BB	71.8		0
	Totals	**100.0000**		**0.000**	**518705088**					

Data File:	c:\star\6-13-13 6;31;56 pm -1.run	Operator (Calc):	
Channel:	2 = 225.00 nm RESULTS	Calc Date:	06/13/13 07:14:06 PM
Sample ID:	cw350A	Times Calculated:	1
Operator (Inj):	OB-h, hex:IPA=98:2, .05 mL/min	Calculation Method:	c:\windows\temp\~6-13-13 6;31;56 pm
Injection Date:		Instrument (Calc):	Varian Star #1
Injection Method:	c:\star\chuan\standard 2% 0.5ml	Run Mode:	Analysis
Run Time (min):	41.280	Peak Measurement:	Peak Area
Workstation:		Calculation Type:	Percent
Instrument (Inj):	Varian Star #1	Calibration Level:	N/A
		Verification Tolerance:	N/A



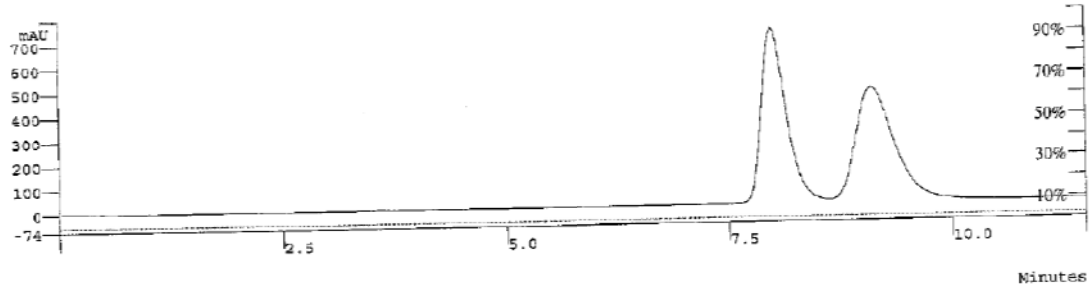
Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		3.4503	32.760	0.000	5225233	0.00	BB	64.4		0
2		96.5497	35.880	0.000	146216448	0.00	BB	61.8		0
	Totals	**100.0000**		**0.000**	**151441680**					



2c

Data File:	c:\star\6-15-13 9;11;54 am -1.run
Channel:	2 = 225.00 nm RESULTS
Sample ID:	cw352rac
Operator (Inj):	OB-H, hex:IPA=98:2, 1.0 mL/min
Injection Date:	
Injection Method:	c:\star\chuan\standard 2%.mth
Run Time (min):	11.520
Workstation:	
Instrument (Inj):	Varian Star #1

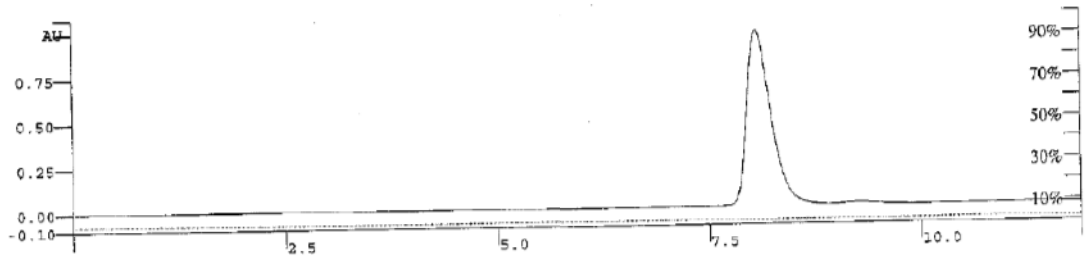
Operator (Calc):	
Calc Date:	06/15/13 10:02:14 AM
Times Calculated:	1
Calculation Method:	c:\windows\temp\~6-15-13 9;11;54 am
Instrument (Calc):	Varian Star #1
Run Mode:	Analysis
Peak Measurement:	Peak Area
Calculation Type:	Percent
Calibration Level:	N/A
Verification Tolerance:	N/A



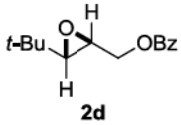
Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		50.1984	7.987	0.000	70649136	0.00	BB	17.6		0
2		49.8016	9.107	0.000	70090760	0.00	BB	26.6		0
	Totals	**100.0000**		**0.000**	**140739904**					

Data File:	c:\star\6-15-13 11;24;08 am -1.run
Channel:	2 = 225.00 nm RESULTS
Sample ID:	cw352a
Operator (Inj):	OB-H, hex:IPA= 98:2, 1.0 mL/min
Injection Date:	
Injection Method:	c:\star\chuan\standard 2%.mth
Run Time (min):	11.893
Workstation:	
Instrument (Inj):	Varian Star #1

Operator (Calc):	
Calc Date:	06/15/13 11:38:03 AM
Times Calculated:	1
Calculation Method:	c:\windows\temp\~6-15-13 11;24;08
Instrument (Calc):	Varian Star #1
Run Mode:	Analysis
Peak Measurement:	Peak Area
Calculation Type:	Percent
Calibration Level:	N/A
Verification Tolerance:	N/A



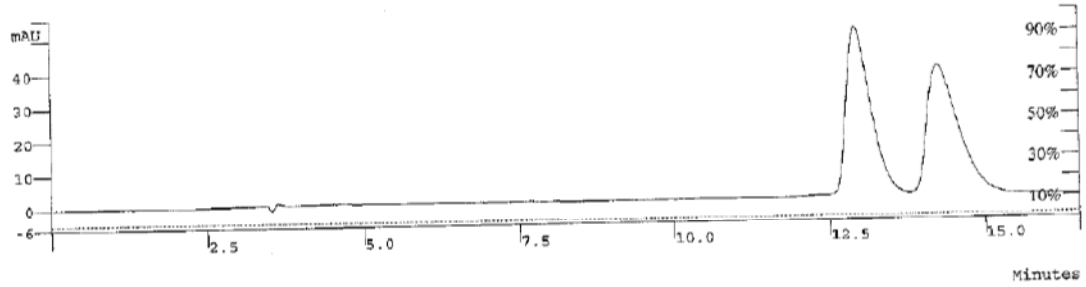
Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		99.2600	8.067	0.000	97840952	0.00	BB	17.9		0
2		0.7400	9.240	0.000	729414	0.00	BB	15.6		0
	Totals	**100.0000**		**0.000**	**98570368**					



2d

Data File:	c:\star\6-28-13 6;50;08 pm -1.run
Channel:	1 = 254.00 nm RESULTS
Sample ID:	cw366rac
Operator (Inj):	OB-H, hex:IPA= 98:2, 1.0 mL/min
Injection Date:	
Injection Method:	c:\star\chuan\standard 2%.mth
Run Time (min):	16.533
Workstation:	
Instrument (Inj):	Varian Star #1

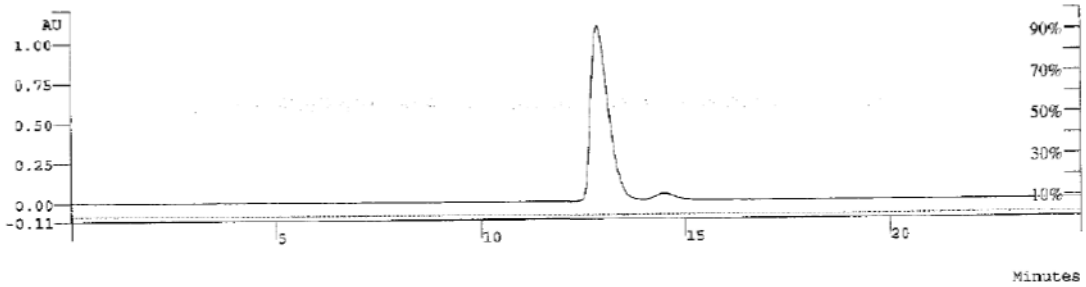
Operator (Calc):	
Calc Date:	06/28/13 07:36:22 PM
Times Calculated:	1
Calculation Method:	c:\windows\temp\~6-28-13 7;08;36 pm
Instrument (Calc):	Varian Star #1
Run Mode:	Analysis
Peak Measurement:	Peak Area
Calculation Type:	Percent
Calibration Level:	N/A
Verification Tolerance:	N/A



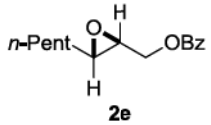
Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		50.3672	12.920	0.000	6900983	0.00	BB	25.3		0
2		49.6328	14.253	0.000	6800351	0.00	BB	32.0		0
	Totals	**100.0000**		**0.000**	**13701334**					

Data File:	c:\star\6-28-13 7;08;36 pm -1.run
Channel:	2 = 225.00 nm RESULTS
Sample ID:	cw366a
Operator (Inj):	OB-H, hex:IPA=98:2, 1.0 mL/min
Injection Date:	
Injection Method:	c:\star\chuan\standard 2%.mth
Run Time (min):	24.693
Workstation:	
Instrument (Inj):	Varian Star #1

Operator (Calc):	
Calc Date:	06/28/13 07:34:18 PM
Times Calculated:	1
Calculation Method:	c:\windows\temp\~6-28-13 7;08;36 pm
Instrument (Calc):	Varian Star #1
Run Mode:	Analysis
Peak Measurement:	Peak Area
Calculation Type:	Percent
Calibration Level:	N/A
Verification Tolerance:	N/A

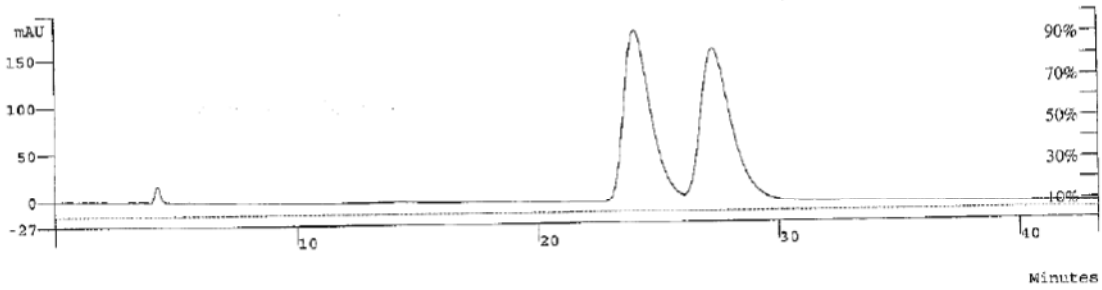


Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		96.9515	12.840	0.000	163261904	0.00	BB	27.3		0
2		3.0485	14.467	0.000	5133586	0.00	BB	25.1		0
	Totals	**100.0000**		**0.000**	**168395488**					



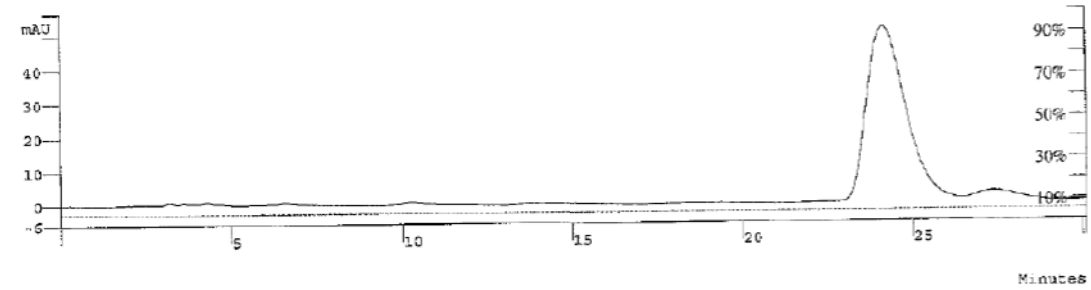
2e

Data File:	c:\star\7-17-13 10;51;01 am -1.run	Operator (Calc):	
Channel:	2 = 225.00 nm RESULTS	Calc Date:	07/17/13 11:35:55 AM
Sample ID:	cw395rac	Times Calculated:	1
Operator (Inj):	OD-H, hex:IPA= 95:5, 1.0 mL/min	Calculation Method:	c:\windows\temp\~7-17-13 10;51;01
Injection Date:		Instrument (Calc):	Varian Star #1
Injection Method:	c:\star\chuan\standard 5%.mth	Run Mode:	Analysis
Run Time (min):	43.280	Peak Measurement:	Peak Area
Workstation:		Calculation Type:	Percent
Instrument (Inj):	Varian Star #1	Calibration Level:	N/A
		Verification Tolerance:	N/A

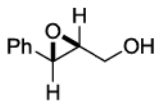


Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		50.0151	24.040	0.000	68615864	0.00	BB	72.2		0
2		49.9849	27.293	0.000	68574440	0.00	BB	78.1		0
	Totals	**100.0000**		**0.000**	**137190304**					

Data File:	c:\star\7-18-13 6;33;22 pm -1.run	Operator (Calc):	
Channel:	2 = 225.00 nm RESULTS	Calc Date:	07/18/13 07:04:41 PM
Sample ID:	cw395b	Times Calculated:	1
Operator (Inj):	OD-H, hex:IPA= 95:5, 1.0 mL/min	Calculation Method:	c:\windows\temp\~7-18-13 6;33;22 pm
Injection Date:		Instrument (Calc):	Varian Star #1
Injection Method:	c:\star\chuan\standard 5%.mth	Run Mode:	Analysis
Run Time (min):	30.107	Peak Measurement:	Peak Area
Workstation:		Calculation Type:	Percent
Instrument (Inj):	Varian Star #1	Calibration Level:	N/A
		Verification Tolerance:	N/A

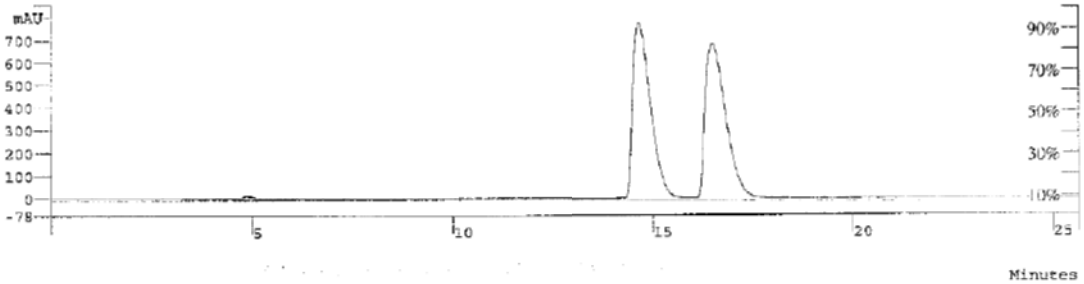


Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		96.7354	24.120	0.000	20666868	0.00	BB	74.6		0
2		3.2646	27.373	0.000	697454	0.00	BB	57.0		0
	Totals	**100.0000**		**0.000**	**21364322**					



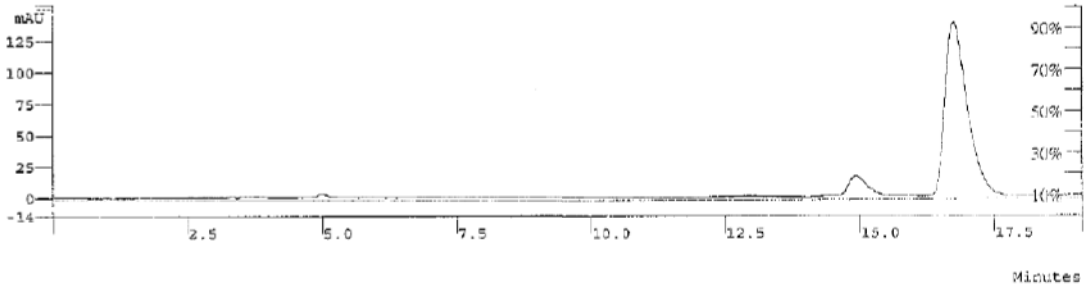
2f

Data File:	c:\star\7-28-13 11;07;09 am -1.run	Operator (Calc):	
Channel:	2 = 225.00 nm RESULTS	Calc Date:	07/28/13 11:37:02 AM
Sample ID:	cw411rac	Times Calculated:	1
Operator (Inj):	OJ-H, hex:IPA= 97.5:2.5, 1.0	Calculation Method:	c:\windows\temp\~7-28-13 11:07:09
Injection Date:	mL/min	Instrument (Calc):	Varian Star #1
Injection Method:	c:\star\chuan\standard 7.5%.mth	Run Mode:	Analysis
Run Time (min):	25.653	Peak Measurement:	Peak Area
Workstation:		Calculation Type:	Percent
Instrument (Inj):	Varian Star #1	Calibration Level:	N/A
		Verification Tolerance:	N/A

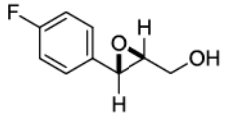


Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		50.0185	14.653	0.000	121827328	0.00	BB	28.9		0
2		49.9815	16.493	0.000	121737288	0.00	BB	33.1		0
	Totals	**100.0000**		**0.000**	**243564608**					

Data File:	c:\star\7-28-13 11;35;58 am -1.run	Operator (Calc):	
Channel:	2 = 225.00 nm RESULTS	Calc Date:	07/28/13 11:56:14 AM
Sample ID:	cw411a	Times Calculated:	1
Operator (Inj):	OJ-H, hex:IPA= 97.5:2.5, 1.0	Calculation Method:	c:\windows\temp\~7-28-13 11:35:58
Injection Date:	mL/min	Instrument (Calc):	Varian Star #1
Injection Method:	c:\star\chuan\standard 7.5%.mth	Run Mode:	Analysis
Run Time (min):	19.147	Peak Measurement:	Peak Area
Workstation:		Calculation Type:	Percent
Instrument (Inj):	Varian Star #1	Calibration Level:	N/A
		Verification Tolerance:	N/A

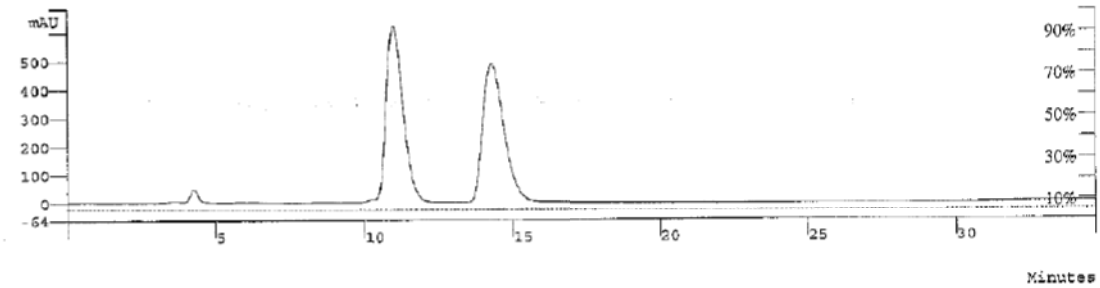


Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		8.2426	14.920	0.000	1840808	0.00	BB	20.8		0
2		91.7574	16.733	0.000	20492092	0.00	BB	26.5		0
	Totals	**100.0000**		**0.000**	**22332900**					



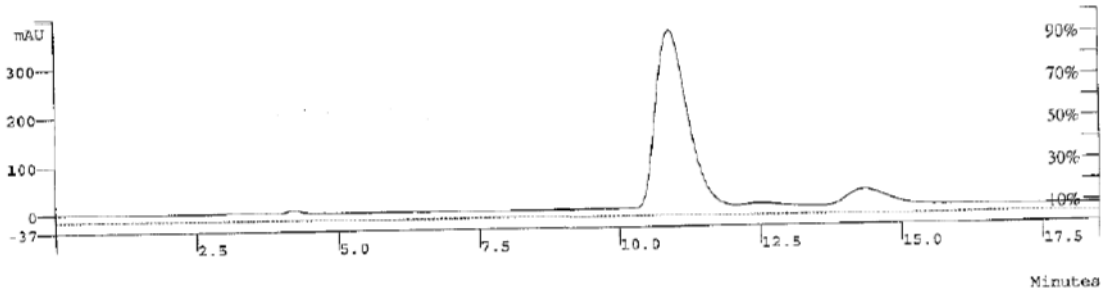
2g

Data File:	c:\star\6-20-13 3;37;59 pm -1.run	Operator (Calc):	
Channel:	2 = 225.00 nm RESULTS	Calc Date:	06/20/13 04:16:04 PM
Sample ID:	cw360rac	Times Calculated:	1
Operator (Inj):	OD-H, hex:IPA=95:5, 1.0 mL/min	Calculation Method:	c:\windows\temp\~6-20-13 3;37;59 pm
Injection Date:		Instrument (Calc):	Varian Star #1
Injection Method:	c:\star\chuan\standard 5%.mth	Run Mode:	Analysis
Run Time (min):	34.747	Peak Measurement:	Peak Area
Workstation:		Calculation Type:	Percent
Instrument (Inj):	Varian Star #1	Calibration Level:	N/A
		Verification Tolerance:	N/A

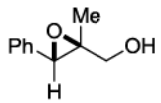


Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		50.6567	10.973	0.000	127222736	0.00	BB	37.0		0
2		49.3433	14.280	0.000	123924416	0.00	BB	46.5		0
	Totals	**100.0000**		**0.000**	**251147152**					

Data File:	c:\star\6-20-13 7;13;54 pm -1.run	Operator (Calc):	
Channel:	2 = 225.00 nm RESULTS	Calc Date:	06/20/13 07:33:19 PM
Sample ID:	cw360A	Times Calculated:	1
Operator (Inj):	OD-H, hex:IPA=95:5, 1.0 mL/min	Calculation Method:	c:\windows\temp\~6-20-13 7;13;54 pm
Injection Date:		Instrument (Calc):	Varian Star #1
Injection Method:	c:\star\chuan\standard 5%.mth	Run Mode:	Analysis
Run Time (min):	18.533	Peak Measurement:	Peak Area
Workstation:		Calculation Type:	Percent
Instrument (Inj):	Varian Star #1	Calibration Level:	N/A
		Verification Tolerance:	N/A

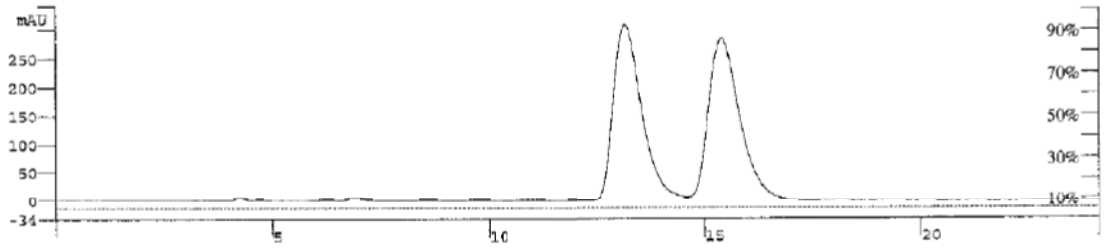


Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		91.8708	10.893	0.000	72572808	0.00	BB	36.8		0
2		8.1292	14.333	0.000	6421587	0.00	BB	42.4		0
	Totals	**100.0000**		**0.000**	**78994392**					



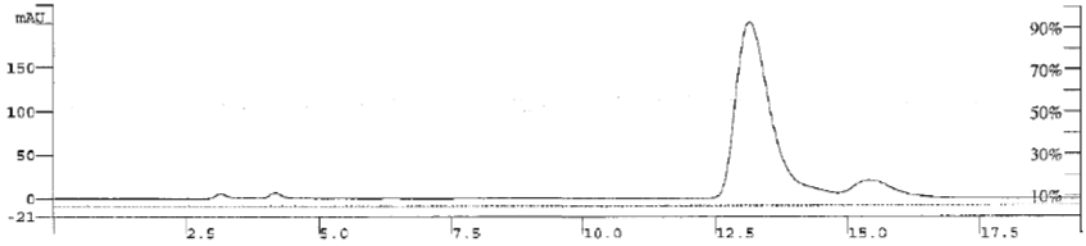
2h

Data File:	c:\star\7-5-13 3;12;28 pm -1.run	Operator (Calc):	
Channel:	2 = 225.00 nm RESULTS	Calc Date:	07/05/13 03:37:26 PM
Sample ID:	cw379rac	Times Calculated:	1
Operator (Inj):	OD-H, hex:IPA= 95:5, 1.0 mL/min	Calculation Method:	c:\windows\temp\~7-5-13 3;12;28 pm
Injection Date:		Instrument (Calc):	Varian Star #1
Injection Method:	c:\star\chuan\standard 5%.mth	Run Mode:	Analysis
Run Time (min):	24.133	Peak Measurement:	Peak Area
Workstation:		Calculation Type:	Percent
Instrument (Inj):	Varian Star #1	Calibration Level:	N/A
		Verification Tolerance:	N/A

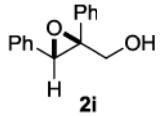


Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		49.9041	13.160	0.000	71353808	0.00	BB	42.2		0
2		50.0959	15.373	0.000	71628032	0.00	BB	45.6		0
	Totals	**100.0000**		**0.000**	**142981840**					

Data File:	c:\star\7-5-13 3;55;08 pm -1.run	Operator (Calc):	
Channel:	2 = 225.00 nm RESULTS	Calc Date:	07/05/13 04:16:00 PM
Sample ID:	cw379a	Times Calculated:	1
Operator (Inj):	OD-H, hex:IPA=95:5, 1.0 mL/min	Calculation Method:	c:\windows\temp\~7-5-13 3;55;08 pm
Injection Date:		Instrument (Calc):	Varian Star #1
Injection Method:	c:\star\chuan\standard 5%.mth	Run Mode:	Analysis
Run Time (min):	19.440	Peak Measurement:	Peak Area
Workstation:		Calculation Type:	Percent
Instrument (Inj):	Varian Star #1	Calibration Level:	N/A
		Verification Tolerance:	N/A

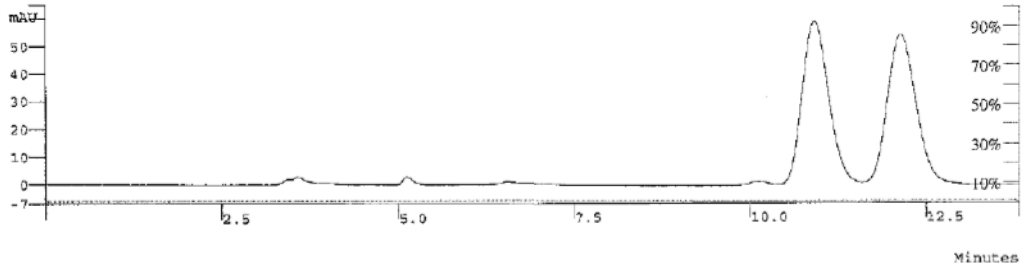


Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		93.0695	13.160	0.000	44928284	0.00	BB	40.7		0
2		6.9304	15.400	0.000	3345597	0.00	BB	37.6		0
	Totals	**99.9999**		**0.000**	**48273880**					



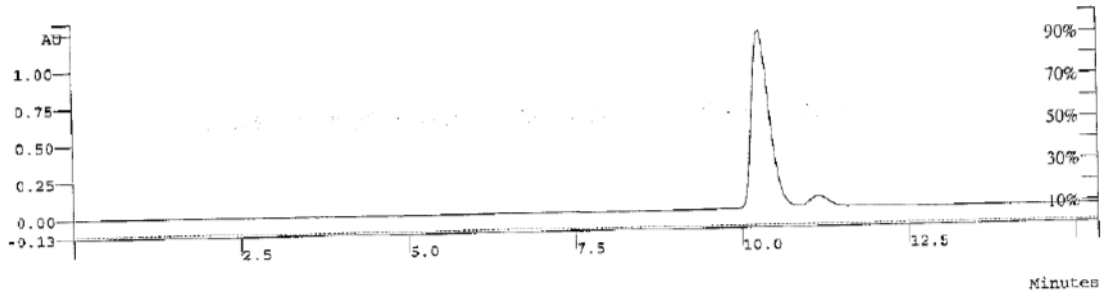
2i

Data File:	c:\star\6-21-13 5;37;04 pm -1.run	Operator (Calc):	
Channel:	2 = 225.00 nm RESULTS	Calc Date:	06/21/13 05:51:50 PM
Sample ID:	cw358rac	Times Calculated:	1
Operator (Inj):	OJ-H, hex:IPA=99:1, 1.0 mL/min	Calculation Method:	c:\windows\temp\~6-21-13 5;37;04 pm
Injection Date:		Instrument (Calc):	Varian Star #1
Injection Method:	c:\star\chuan\standard 1%.mth	Run Mode:	Analysis
Run Time (min):	13.840	Peak Measurement:	Peak Area
Workstation:		Calculation Type:	Percent
Instrument (Inj):	Varian Star #1	Calibration Level:	N/A
		Verification Tolerance:	N/A

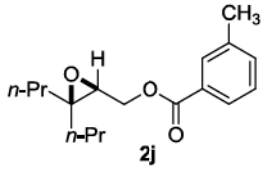


Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		50.3361	10.920	0.000	7731413	0.00	BB	24.1		0
2		49.6639	12.120	0.000	7628171	0.00	BB	25.7		0
	Totals	**100.0000**		**0.000**	**15359584**					

Data File:	c:\star\6-22-13 9;03;29 am -1.run	Operator (Calc):	
Channel:	2 = 225.00 nm RESULTS	Calc Date:	06/22/13 09:19:45 AM
Sample ID:	cw358A	Times Calculated:	1
Operator (Inj):	OJ-H, hex:IPA= 99:1, 1.0 mL/min	Calculation Method:	c:\windows\temp\~6-22-13 9;03;29 am
Injection Date:		Instrument (Calc):	Varian Star #1
Injection Method:	c:\star\chuan\standard 1%.mth	Run Mode:	Analysis
Run Time (min):	15.360	Peak Measurement:	Peak Area
Workstation:		Calculation Type:	Percent
Instrument (Inj):	Varian Star #1	Calibration Level:	N/A
		Verification Tolerance:	N/A

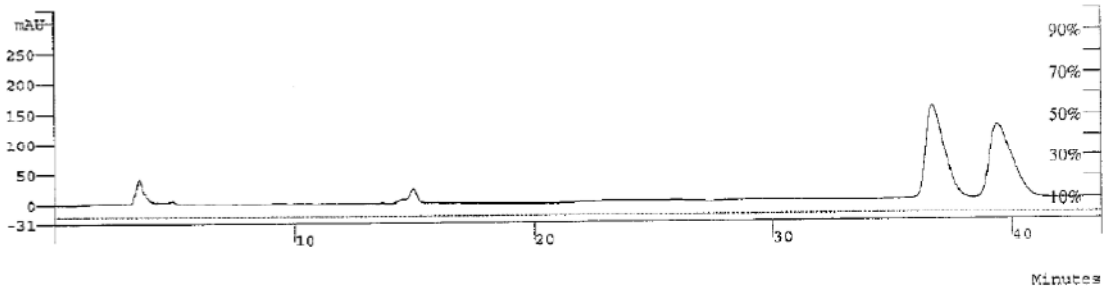


Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		96.0696	10.280	0.000	109252344	0.00	BB	16.9		0
2		3.9304	11.160	0.000	4469776	0.00	BB	13.7		0
	Totals	**100.0000**		**0.000**	**113722120**					



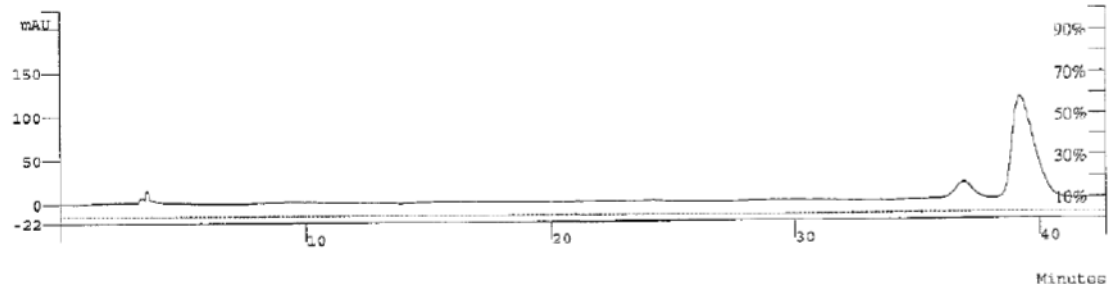
2j

Data File:	c:\star\12-20-13 3;55;43 pm -1.run	Operator (Calc):	
Channel:	3 = 210.00 nm RESULTS	Calc Date:	12/20/13 04:40:28 PM
Sample ID:	cw372rac	Times Calculated:	1
Operator (Inj):	IC, hex:IPA=97:3, 1.0 mL/min	Calculation Method:	c:\windows\temp\~12-20-13 3;55;43
Injection Date:		Instrument (Calc):	Varian Star #1
Injection Method:	c:\star\chuan\standard 3%.mth	Run Mode:	Analysis
Run Time (min):	43.760	Peak Measurement:	Peak Area
Workstation:		Calculation Type:	Percent
Instrument (Inj):	Varian Star #1	Calibration Level:	N/A
		Verification Tolerance:	N/A

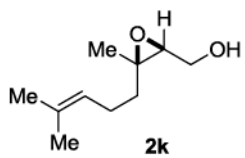


Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		51.1251	36.680	0.000	42075612	0.00	BB	49.7		0
2		48.8749	39.373	0.000	40223668	0.00	BB	60.5		0
	Totals	**100.0000**		**0.000**	**82299280**					

Data File:	c:\star\12-20-13 4;42;28 pm -1.run	Operator (Calc):	
Channel:	3 = 210.00 nm RESULTS	Calc Date:	12/20/13 05:27:08 PM
Sample ID:	cw372a	Times Calculated:	2
Operator (Inj):	IC, hex:IPA=97:3, 1.0 mL/min	Calculation Method:	c:\windows\temp\~12-20-13 4;42;28
Injection Date:		Instrument (Calc):	Varian Star #1
Injection Method:	c:\star\chuan\standard 3%.mth	Run Mode:	Analysis
Run Time (min):	42.747	Peak Measurement:	Peak Area
Workstation:		Calculation Type:	Percent
Instrument (Inj):	Varian Star #1	Calibration Level:	N/A
		Verification Tolerance:	N/A

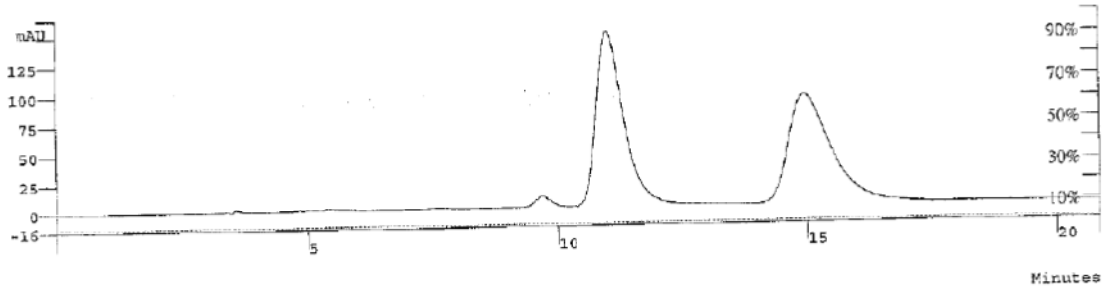


Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		8.0587	36.867	0.000	3246977	0.00	BB	37.7		0
2		91.9413	39.187	0.000	37044600	0.00	BB	58.3		0
	Totals	**100.0000**		**0.000**	**40291576**					



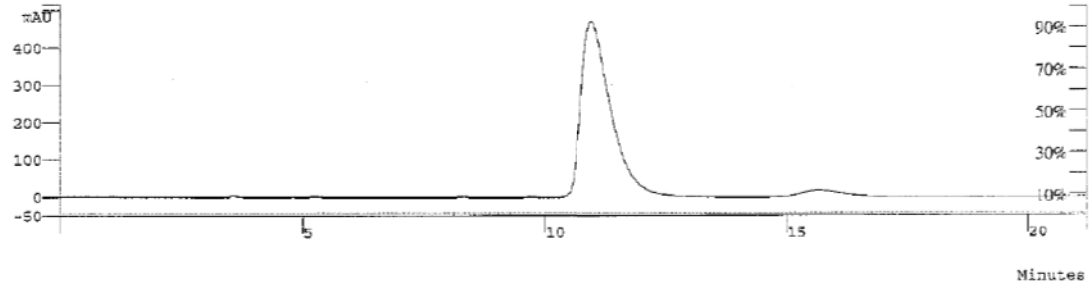
2k

Data File:	c:\star\10-1-13 2;42;11 pm -1.run	Operator (Calc):	
Channel:	2 = 225.00 nm RESULTS	Calc Date:	10/01/13 03:04:46 PM
Sample ID:	cw450rac	Times Calculated:	1
Operator (Inj):	OB-H, hex:IPA=99:1, 1.0 mL/min	Calculation Method:	c:\windows\temp\~10-1-13 2;42;11 pm
Injection Date:		Instrument (Calc):	Varian Star #1
Injection Method:	c:\star\chuan\standard 1%.mth	Run Mode:	Analysis
Run Time (min):	20.880	Peak Measurement:	Peak Area
Workstation:		Calculation Type:	Percent
Instrument (Inj):	Varian Star #1	Calibration Level:	N/A
		Verification Tolerance:	N/A

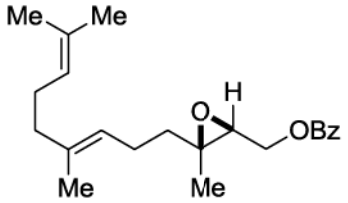


Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		50.4762	11.027	0.000	29271514	0.00	BB	34.5		0
2		49.5238	14.947	0.000	28719262	0.00	BB	53.2		0
	Totals	**100.0000**		**0.000**	**57990776**					

Data File:	c:\star\10-1-13 2;17;27 pm -1.run	Operator (Calc):	
Channel:	2 = 225.00 nm RESULTS	Calc Date:	10/01/13 02:39:45 PM
Sample ID:	cw450b	Times Calculated:	1
Operator (Inj):	OB-H, hex:IPA=99:1, 1.0 mL/min	Calculation Method:	c:\windows\temp\~10-1-13 2;17;27 pm
Injection Date:		Instrument (Calc):	Varian Star #1
Injection Method:	c:\star\chuan\standard 1%.mth	Run Mode:	Analysis
Run Time (min):	21.227	Peak Measurement:	Peak Area
Workstation:		Calculation Type:	Percent
Instrument (Inj):	Varian Star #1	Calibration Level:	N/A
		Verification Tolerance:	N/A

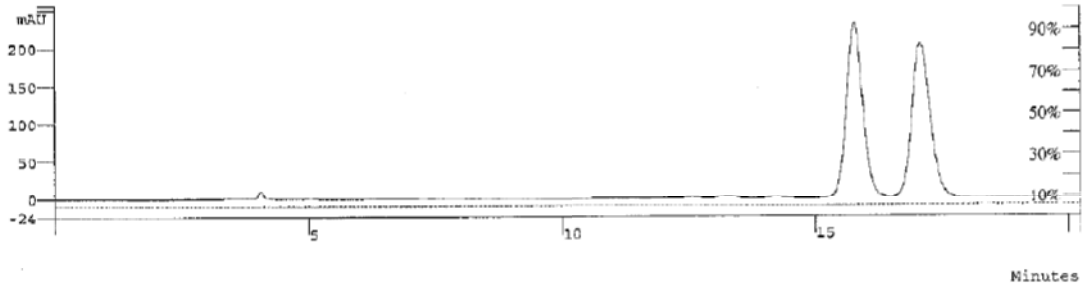


Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		95.1714	10.973	0.000	105111600	0.00	BB	38.8		0
2		4.8286	15.667	0.000	5332953	0.00	BB	53.7		0
	Totals	**100.0000**		**0.000**	**110444552**					



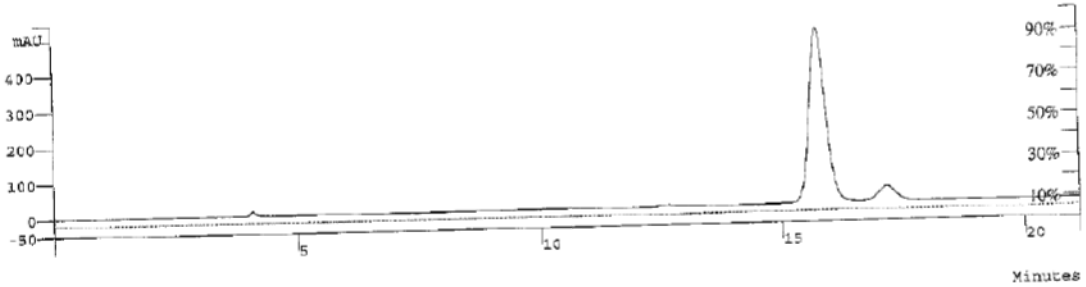
2l

Data File:	c:\star\10-3-13 3;00;56 pm -1.run	Operator (Calc):	
Channel:	2 = 225.00 nm RESULTS	Calc Date:	10/03/13 03:27:36 PM
Sample ID:	cw460rac	Times Calculated:	1
Operator (Inj):	IA, Hex:IPA=95:5, 1.0 mL/min	Calculation Method:	c:\windows\temp\~10-3-13 3;00;56 pm
Injection Date:		Instrument (Calc):	Varian Star #1
Injection Method:	c:\star\chuan\standard 5%.mth	Run Mode:	Analysis
Run Time (min):	20.240	Peak Measurement:	Peak Area
Workstation:		Calculation Type:	Percent
Instrument (Inj):	Varian Star #1	Calibration Level:	N/A
		Verification Tolerance:	N/A

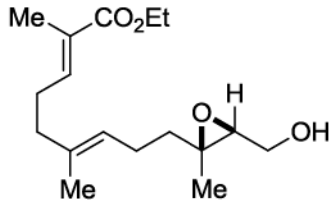


Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		50.3685	15.773	0.000	26602120	0.00	BB	20.7		0
2		49.6315	17.080	0.000	26212922	0.00	BB	23.1		0
	Totals	**100.0000**		**0.000**	**52815040**					

Data File:	c:\star\10-3-13 3;26;26 pm -1.run	Operator (Calc):	
Channel:	2 = 225.00 nm RESULTS	Calc Date:	10/03/13 03:48:37 PM
Sample ID:	cw460a	Times Calculated:	1
Operator (Inj):	IA, hex:IPA=95:5, 1.0 mL/min	Calculation Method:	c:\windows\temp\~10-3-13 3;26;26 pm
Injection Date:		Instrument (Calc):	Varian Star #1
Injection Method:	c:\star\chuan\standard 5%.mth	Run Mode:	Analysis
Run Time (min):	21.147	Peak Measurement:	Peak Area
Workstation:		Calculation Type:	Percent
Instrument (Inj):	Varian Star #1	Calibration Level:	N/A
		Verification Tolerance:	N/A



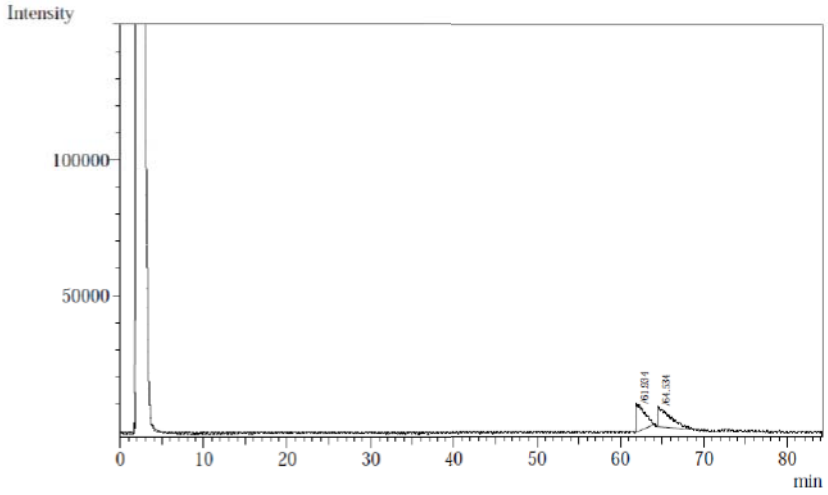
Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		94.0124	15.747	0.000	58178720	0.00	BB	21.5		0
2		5.9876	17.160	0.000	3705405	0.00	BB	19.5		0
	Totals	**100.0000**		**0.000**	**61884124**					



2m

Analysis Date & Time : 12/23/2013 3:53:38 PM
User Name : Admin
Vial# : 0
Sample Name : 354rac
Sample ID : 354rac
Sample Type : Unknown
Injection Volume :
ISTD Amount :

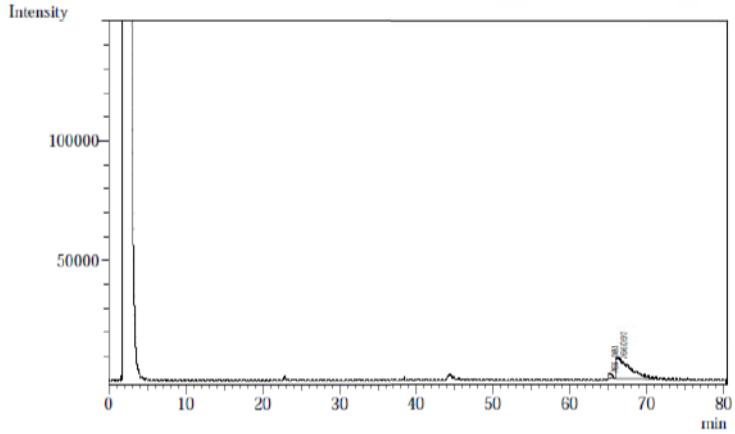
Data Name : C:\Documents and Settings\Administrator\Desktop\Data\Project1\Chuan\354rac7.gcd
Method Name : C:\Documents and Settings\Administrator\Desktop\Method File\Chuan\120.gcm



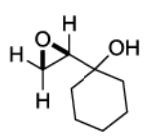
Peak#	Ret.Time	Area	Area%	Height	Mark	ID#	Cmpd Name
1	61.934	732873	48.195	10121			
2	64.534	787762	51.805	7366			
Total		1520635	100.000	17487			

Analysis Date & Time : 12/24/2013 2:48:00 PM
User Name : Admin
Vial# : 0
Sample Name : 354a
Sample ID : 354a
Sample Type : Unknown
Injection Volume :
ISTD Amount :

Data Name : C:\Documents and Settings\Administrator\Desktop\Data\Project1\Chuan\354a3.gcd
Method Name : C:\Documents and Settings\Administrator\Desktop\Method File\Chuan\120.gcm



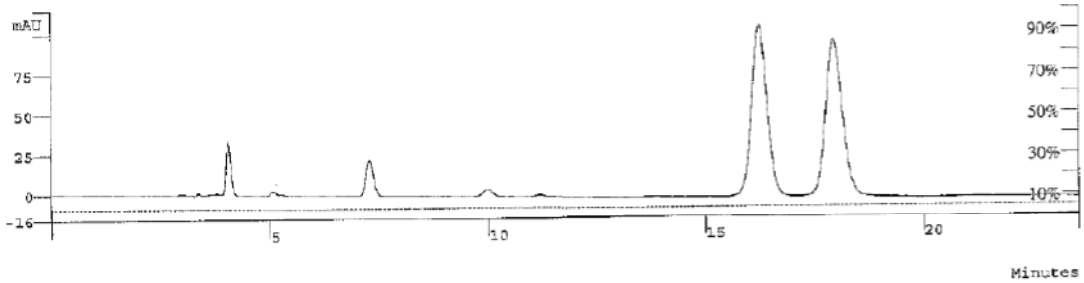
Peak#	Ret.Time	Area	Area%	Height	Mark	ID#	Cmpd Name
1	65.083	62382	5.478	2010			
2	66.097	1076356	94.522	8557			
Total		1138738	100.000	10567			



2n

Data File:	c:\star\10-4-13 1;21;29 pm -1.run
Channel:	2 = 225.00 nm RESULTS
Sample ID:	cw461rac
Operator (Inj):	IA, hex:IPA=95:5, 1.0 mL/min
Injection Date:	
Injection Method:	c:\star\chuan\standard 5%.mth
Run Time (min):	23.600
Workstation:	
Instrument (Inj):	Varian Star #1

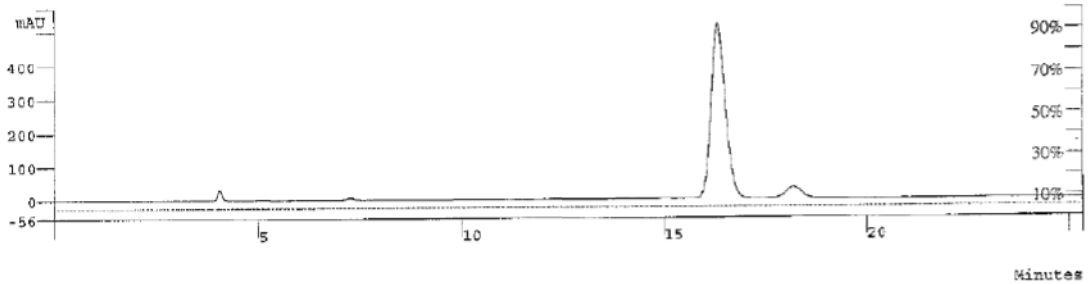
Operator (Calc):	
Calc Date:	10/04/13 01:49:36 PM
Times Calculated:	1
Calculation Method:	c:\windows\temp\~10-4-13 1;21;29 pm
Instrument (Calc):	Varian Star #1
Run Mode:	Analysis
Peak Measurement:	Peak Area
Calculation Type:	Percent
Calibration Level:	N/A
Verification Tolerance:	N/A



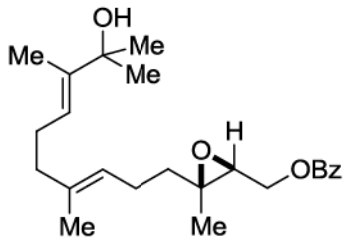
Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		50.1418	16.253	0.000	13383110	0.00	BB	22.5		0
2		49.8582	17.960	0.000	13307417	0.00	BB	24.3		0
	Totals	**100.0000**		**0.000**	**26690528**					

Data File:	c:\star\10-5-13 11;15;52 am -1.run
Channel:	2 = 225.00 nm RESULTS
Sample ID:	cw461a
Operator (Inj):	IA, hex:IPA=95:5, 1.0 mL/min
Injection Date:	
Injection Method:	c:\star\chuan\standard 5%.mth
Run Time (min):	25.360
Workstation:	
Instrument (Inj):	Varian Star #1

Operator (Calc):	
Calc Date:	10/05/13 11:42:13 AM
Times Calculated:	1
Calculation Method:	c:\windows\temp\~10-5-13 11;15;52
Instrument (Calc):	Varian Star #1
Run Mode:	Analysis
Peak Measurement:	Peak Area
Calculation Type:	Percent
Calibration Level:	N/A
Verification Tolerance:	N/A

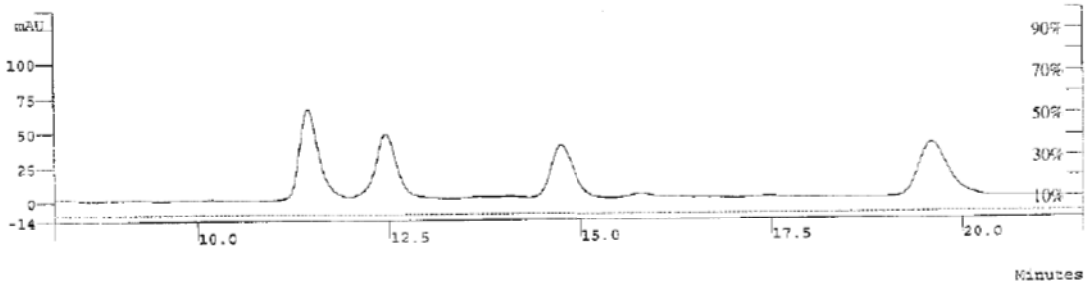


Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		95.7613	16.333	0.000	64904304	0.00	BB	22.4		0
2		4.2387	18.200	0.000	2872845	0.00	BB	19.1		0
	Totals	**100.0000**		**0.000**	**67777152**					



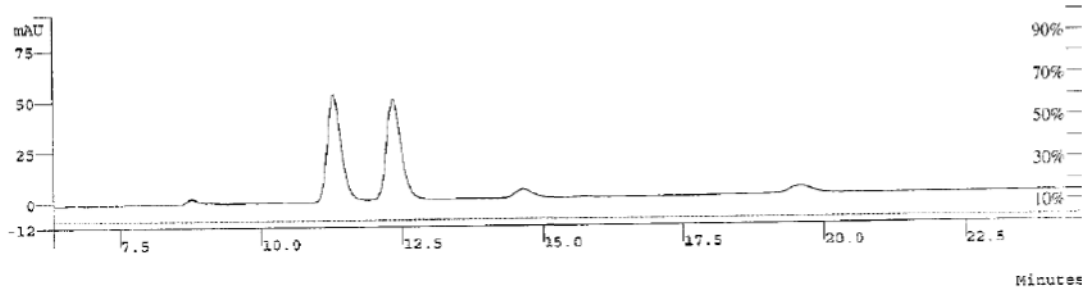
2u

Data File:	c:\star\10-21-13 3;58;38 pm -1.run	Operator (Calc):	
Channel:	2 = 225.00 nm RESULTS	Calc Date:	10/21/13 04:21:14 PM
Sample ID:	cw483rac	Times Calculated:	1
Operator (Inj):	IB, hex:IPA=97:3, 1.0 mL/min	Calculation Method:	c:\windows\temp\~10-21-13 3;58;38
Injection Date:		Instrument (Calc):	Varian Star #1
Injection Method:	c:\star\chuan\standard 3%.mth	Run Mode:	Analysis
Run Time (min):	21.600	Peak Measurement:	Peak Area
Workstation:		Calculation Type:	Percent
Instrument (Inj):	Varian Star #1	Calibration Level:	N/A
		Verification Tolerance:	N/A

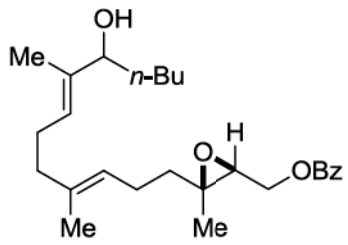


Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		29.2508	11.427	0.000	5619429	0.00	BB	15.6		0
2		21.9416	12.440	0.000	4215258	0.00	BB	16.1		0
3		20.7022	14.733	0.000	3977154	0.00	BB	18.9		0
4		28.1054	19.587	0.000	5399383	0.00	BB	24.6		0
	Totals	**100.0000**		**0.000**	**19211224**					

Data File:	c:\star\10-23-13 1;26;05 pm -1.run	Operator (Calc):	
Channel:	2 = 225.00 nm RESULTS	Calc Date:	10/23/13 02:36:42 PM
Sample ID:	cw483b	Times Calculated:	3
Operator (Inj):	IB, hex:IPA=97:3, 1.0 mL/min	Calculation Method:	c:\windows\temp\~10-23-13 1;26;05
Injection Date:		Instrument (Calc):	Varian Star #1
Injection Method:	c:\star\chuan\standard 3%.mth	Run Mode:	Analysis
Run Time (min):	28.213	Peak Measurement:	Peak Area
Workstation:		Calculation Type:	Percent
Instrument (Inj):	Varian Star #1	Calibration Level:	N/A
		Verification Tolerance:	N/A

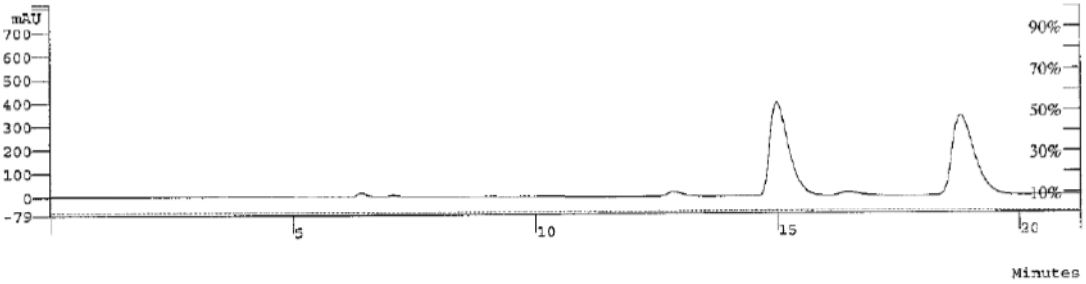


Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		47.5336	11.293	0.000	4474522	0.00	BB	15.7		0
2		46.8312	12.333	0.000	4408405	0.00	BB	16.1		0
3		2.5204	14.653	0.000	237254	0.00	BB	13.9		0
4		3.1148	19.587	0.000	293209	0.00	BB	19.9		0
	Totals	**100.0000**		**0.000**	**9413390**					



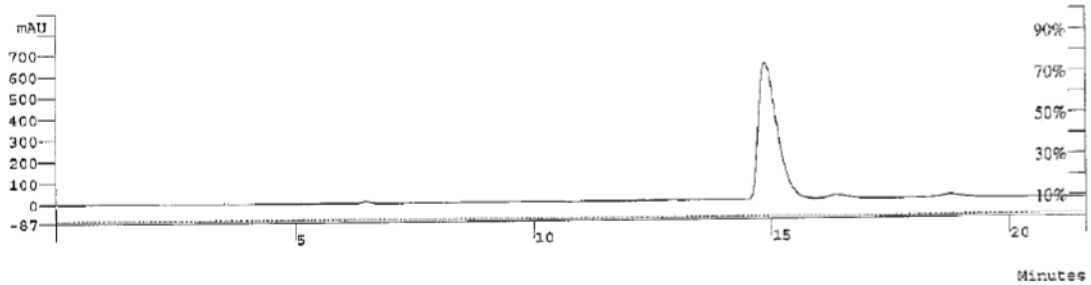
2v

Data File:	c:\star\12-20-13 12;49;29 pm -1.run	Operator (Calc):	
Channel:	2 = 225.00 nm RESULTS	Calc Date:	12/20/13 01:37:02 PM
Sample ID:	cw353rac	Times Calculated:	1
Operator (Inj):	OJ-H, hex:IPA=99:1, 1.0 mL/min	Calculation Method:	c:\windows\temp\~12-20-13 12;49;29
Injection Date:		Instrument (Calc):	Varian Star #1
Injection Method:	c:\star\chuan\standard 1%.mth	Run Mode:	Analysis
Run Time (min):	21.280	Peak Measurement:	Peak Area
Workstation:		Calculation Type:	Percent
Instrument (Inj):	Varian Star #1	Calibration Level:	N/A
		Verification Tolerance:	N/A

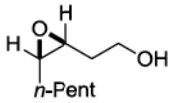


Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		49.7316	14.973	0.000	54689036	0.00	BB	24.9		0
2		50.2684	18.787	0.000	55279256	0.00	BB	29.3		0
	Totals	**100.0000**		**0.000**	**109968288**					

Data File:	c:\star\12-20-13 3;12;27 pm -1.run	Operator (Calc):	
Channel:	2 = 225.00 nm RESULTS	Calc Date:	12/20/13 03:35:02 PM
Sample ID:	CW353a	Times Calculated:	1
Operator (Inj):	OJ-H, hex:IPA=99:1, 1.0 mL/min	Calculation Method:	c:\windows\temp\~12-20-13 3;12;27
Injection Date:		Instrument (Calc):	Varian Star #1
Injection Method:	c:\star\chuan\standard 1%.mth	Run Mode:	Analysis
Run Time (min):	21.627	Peak Measurement:	Peak Area
Workstation:		Calculation Type:	Percent
Instrument (Inj):	Varian Star #1	Calibration Level:	N/A
		Verification Tolerance:	N/A

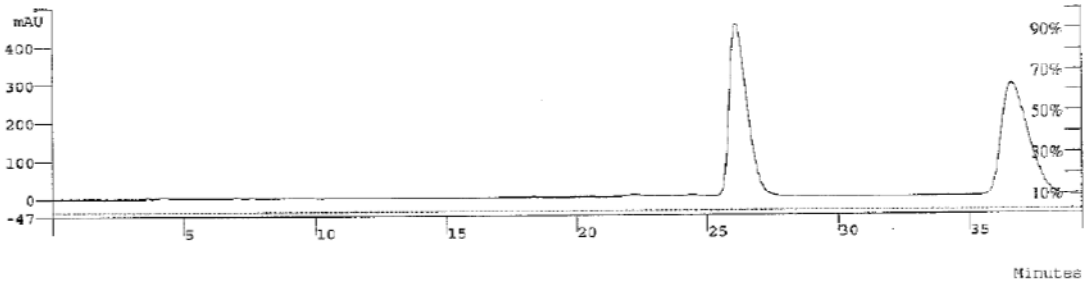


Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		97.4617	14.867	0.000	87846240	0.00	BB	25.0		0
2		2.5383	18.760	0.000	2287903	0.00	BB	27.3		0
	Totals	**100.0000**		**0.000**	**90134144**					



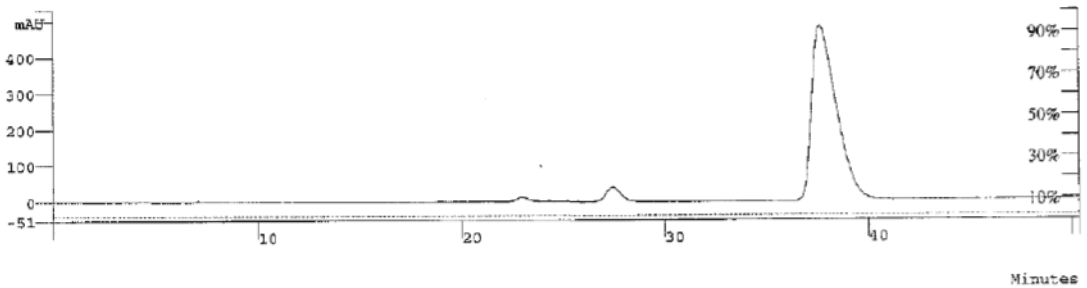
4a

Data File:	c:\star\6-23-13 7;38;49 pm -1.run	Operator (Calc):	
Channel:	2 = 225.00 nm RESULTS	Calc Date:	06/23/13 08:18:54 PM
Sample ID:	cw365rac	Times Calculated:	1
Operator (Inj):	OB-H, hex:IPA= 98:2, 1.0 mL/min	Calculation Method:	c:\windows\temp\~6-23-13 7;38;49 pm
Injection Date:		Instrument (Calc):	Varian Star #1
Injection Method:	c:\star\chuan\standard 2%.mth	Run Mode:	Analysis
Run Time (min):	39.333	Peak Measurement:	Peak Area
Workstation:		Calculation Type:	Percent
Instrument (Inj):	Varian Star #1	Calibration Level:	N/A
		Verification Tolerance:	N/A

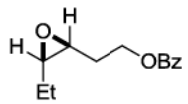


Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		49.9623	26.067	0.000	111041960	0.00	BB	43.8		0
2		50.0377	36.600	0.000	111209624	0.00	BB	67.9		0
	Totals	**100.0000**		**0.000**	**222251584**					

Data File:	c:\star\6-24-13 8;56;35 am -1.run	Operator (Calc):	
Channel:	2 = 225.00 nm RESULTS	Calc Date:	06/24/13 09:48:08 AM
Sample ID:	cw365a	Times Calculated:	1
Operator (Inj):	OB-H, hex:IPA=98:2, 1.0 mL/min	Calculation Method:	c:\windows\temp\~6-24-13 8;56;35 am
Injection Date:		Instrument (Calc):	Varian Star #1
Injection Method:	c:\star\chuan\standard 2%.mth	Run Mode:	Analysis
Run Time (min):	50.373	Peak Measurement:	Peak Area
Workstation:		Calculation Type:	Percent
Instrument (Inj):	Varian Star #1	Calibration Level:	N/A
		Verification Tolerance:	N/A

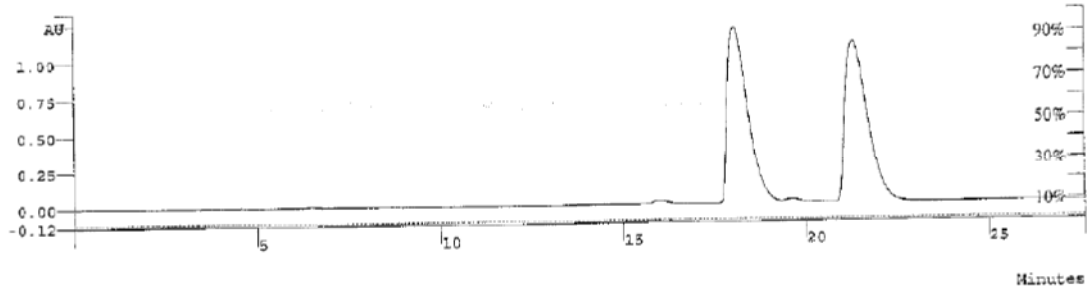


Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		3.8998	27.453	0.000	8395430	0.00	BB	42.4		0
2		96.1002	37.613	0.000	206884720	0.00	BB	78.4		0
	Totals	**100.0000**		**0.000**	**215280144**					



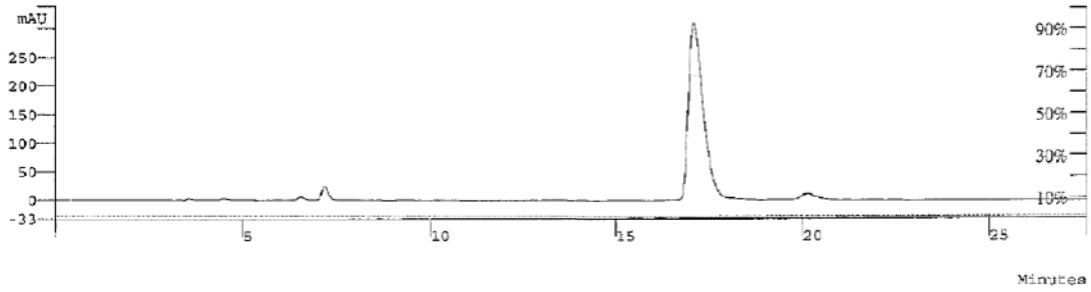
4b

Data File:	c:\star\12-14-13 11;51;30 am -1.run	Operator (Calc):	
Channel:	2 = 225.00 nm RESULTS	Calc Date:	12/14/13 12:20:58 PM
Sample ID:	cw369rac	Times Calculated:	1
Operator (Inj):	OJ-H, hex:IPA=99:1, 1.0 mL/min	Calculation Method:	c:\windows\temp\~12-14-13 11;51;30
Injection Date:		Instrument (Calc):	Varian Star #1
Injection Method:	c:\star\chuan\standard 1%.mth	Run Mode:	Analysis
Run Time (min):	27.653	Peak Measurement:	Peak Area
Workstation:		Calculation Type:	Percent
Instrument (Inj):	Varian Star #1	Calibration Level:	N/A
		Verification Tolerance:	N/A

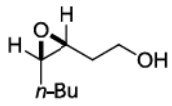


Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		49.3556	18.067	0.000	236198176	0.00	BB	36.3		0
2		50.6444	21.293	0.000	242366048	0.00	BB	40.3		0
	Totals	**100.0000**		**0.000**	**478564224**					

Data File:	c:\star\12-18-13 3;11;48 pm -1.run	Operator (Calc):	
Channel:	2 = 225.00 nm RESULTS	Calc Date:	12/18/13 03:40:20 PM
Sample ID:	cw369a	Times Calculated:	1
Operator (Inj):	OJ-H, hex:IPA=98:2, 1.0 mL/min	Calculation Method:	c:\windows\temp\~12-18-13 3;11;48
Injection Date:		Instrument (Calc):	Varian Star #1
Injection Method:	c:\star\chuan\standard 1%.mth	Run Mode:	Analysis
Run Time (min):	27.653	Peak Measurement:	Peak Area
Workstation:		Calculation Type:	Percent
Instrument (Inj):	Varian Star #1	Calibration Level:	N/A
		Verification Tolerance:	N/A

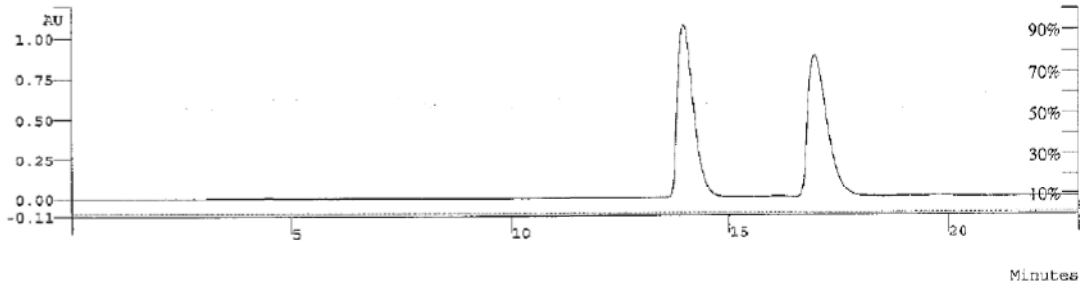


Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		96.6920	17.107	0.000	44061856	0.00	BB	25.2		0
2		3.3080	20.147	0.000	1507419	0.00	BB	26.6		0
	Totals	**100.0000**		**0.000**	**45569276**					



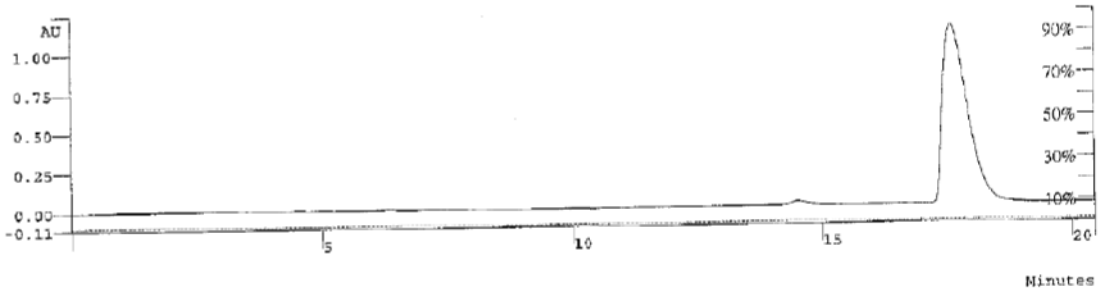
4c

Data File:	c:\star\6-23-13 3;14;00 pm -1.run	Operator (Calc):	
Channel:	2 = 225.00 nm RESULTS	Calc Date:	06/23/13 03:52:52 PM
Sample ID:	cw362rac	Times Calculated:	1
Operator (Inj):	OJ-H, hex:IPA= 99:1, 1.0 mL/min	Calculation Method:	c:\windows\temp\~6-23-13 3;14;00 pm
Injection Date:		Instrument (Calc):	Varian Star #1
Injection Method:	c:\star\chuan\standard 1%.mth	Run Mode:	Analysis
Run Time (min):	23.013	Peak Measurement:	Peak Area
Workstation:		Calculation Type:	Percent
Instrument (Inj):	Varian Star #1	Calibration Level:	N/A
		Verification Tolerance:	N/A

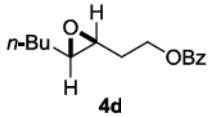


Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		50.1561	13.960	0.000	140633904	0.00	BB	23.7		0
2		49.8439	16.947	0.000	139758384	0.00	BB	28.6		0
	Totals	**100.0000**		**0.000**	**280392288**					

Data File:	c:\star\6-23-13 6;19;11 pm -1.run	Operator (Calc):	
Channel:	2 = 225.00 nm RESULTS	Calc Date:	06/23/13 06:40:55 PM
Sample ID:	cw362A	Times Calculated:	1
Operator (Inj):	OJ-H, hex:IPA= 99:1, 1.0 mL/min	Calculation Method:	c:\windows\temp\~6-23-13 6;19;11 pm
Injection Date:		Instrument (Calc):	Varian Star #1
Injection Method:	c:\star\chuan\standard 1%.mth	Run Mode:	Analysis
Run Time (min):	20.480	Peak Measurement:	Peak Area
Workstation:		Calculation Type:	Percent
Instrument (Inj):	Varian Star #1	Calibration Level:	N/A
		Verification Tolerance:	N/A

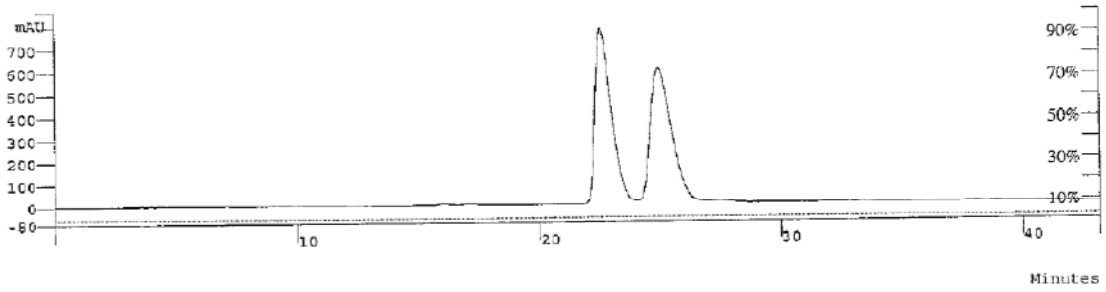


Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		1.4913	14.520	0.000	3018698	0.00	BB	20.8		0
2		98.5087	17.587	0.000	199399408	0.00	BB	32.2		0
	Totals	**100.0000**		**0.000**	**202418112**					



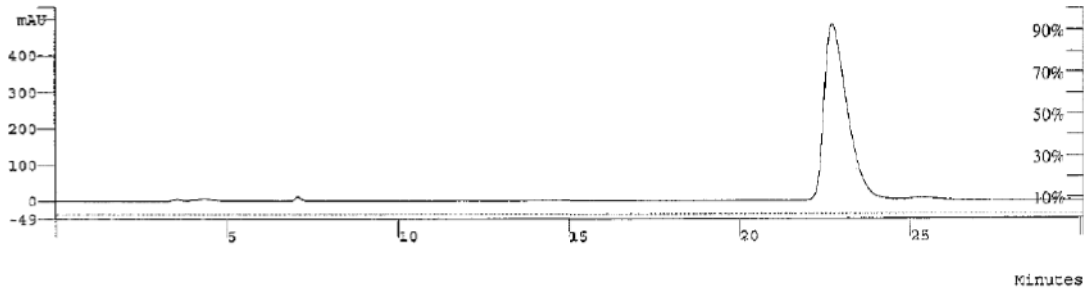
4d

Data File:	c:\star\7-3-13 5;40;57 pm -1.run	Operator (Calc):	
Channel:	2 = 225.00 nm RESULTS	Calc Date:	07/03/13 06:24:52 PM
Sample ID:	cw373r4ac	Times Calculated:	1
Operator (Inj):	OB-H, hex:IPA=98:2, 1.0 mL/min	Calculation Method:	c:\windows\temp\~7-3-13 5;40;57 pm
Injection Date:		Instrument (Calc):	Varian Star #1
Injection Method:	c:\star\chuan\standard 2%.mth	Run Mode:	Analysis
Run Time (min):	43.200	Peak Measurement:	Peak Area
Workstation:		Calculation Type:	Percent
Instrument (Inj):	Varian Star #1	Calibration Level:	N/A
		Verification Tolerance:	N/A

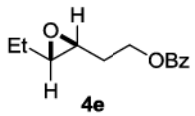


Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		50.0448	22.547	0.000	185075296	0.00	BB	43.7		0
2		49.9552	24.920	0.000	184743600	0.00	BB	56.4		0
	Totals	**100.0000**		**0.000**	**369818880**					

Data File:	c:\star\7-3-13 6;28;47 pm -1.run	Operator (Calc):	
Channel:	2 = 225.00 nm RESULTS	Calc Date:	07/03/13 07:02:00 PM
Sample ID:	cw373a	Times Calculated:	2
Operator (Inj):	OB-H, hex:IPA= 98:2, 1.0 mL/min	Calculation Method:	c:\windows\temp\~7-3-13 6;28;47 pm
Injection Date:		Instrument (Calc):	Varian Star #1
Injection Method:	c:\star\chuan\standard 2%.mth	Run Mode:	Analysis
Run Time (min):	30.107	Peak Measurement:	Peak Area
Workstation:		Calculation Type:	Percent
Instrument (Inj):	Varian Star #1	Calibration Level:	N/A
		Verification Tolerance:	N/A

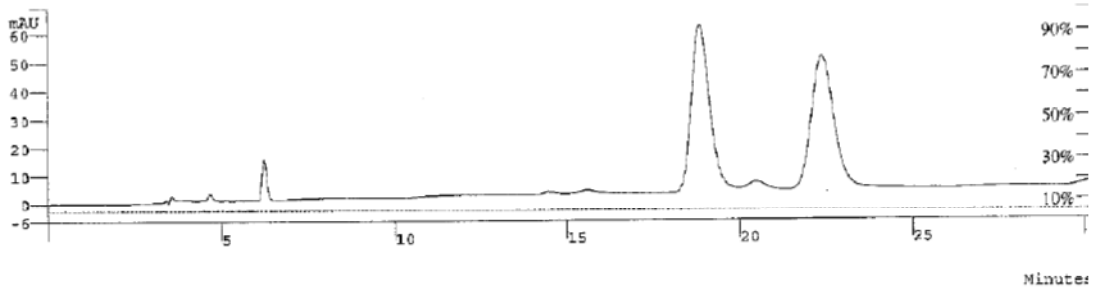


Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		99.2010	22.733	0.000	114692360	0.00	BB	43.0		0
2		0.7990	25.373	0.000	923753	0.00	BB	37.4		0
	Totals	**100.0000**		**0.000**	**115616112**					



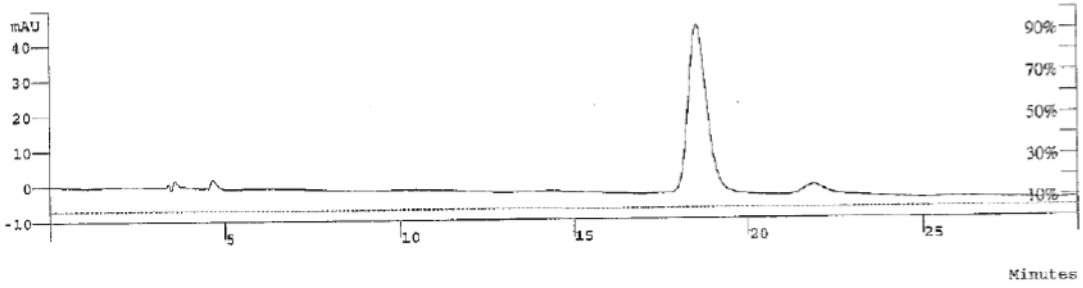
4e

Data File:	c:\star\7-12-13 10;44;34 am -1.run	Operator (Calc):	
Channel:	2 = 225.00 nm RESULTS	Calc Date:	07/12/13 11:22:26 AM
Sample ID:	cw386rac	Times Calculated:	1
Operator (Inj):	OB-H, hex:IPA= 95:5, 1.0 mL/min	Calculation Method:	c:\windows\temp\~7-12-13 10;44;34
Injection Date:		Instrument (Calc):	Varian Star #1
Injection Method:	c:\star\chuan\standard 5%.mth	Run Mode:	Analysis
Run Time (min):	30.267	Peak Measurement:	Peak Area
Workstation:		Calculation Type:	Percent
Instrument (Inj):	Varian Star #1	Calibration Level:	N/A
		Verification Tolerance:	N/A

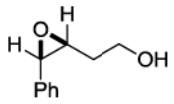


Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		50.2843	18.840	0.000	10856680	0.00	BB	33.8		0
2		49.7157	22.387	0.000	10733912	0.00	BB	42.1		0
	Totals	**100.0000**		**0.000**	**21590592**					

Data File:	c:\star\7-13-13 12;21;04 pm -1.run	Operator (Calc):	
Channel:	2 = 225.00 nm RESULTS	Calc Date:	07/13/13 12:51:30 PM
Sample ID:	cw386b	Times Calculated:	1
Operator (Inj):	OB-H, hex:IPA=95:5, 1.0 mL/min	Calculation Method:	c:\windows\temp\~7-13-13 12;21;04
Injection Date:		Instrument (Calc):	Varian Star #1
Injection Method:	c:\star\chuan\standard 5%.mth	Run Mode:	Analysis
Run Time (min):	29.440	Peak Measurement:	Peak Area
Workstation:		Calculation Type:	Percent
Instrument (Inj):	Varian Star #1	Calibration Level:	N/A
		Verification Tolerance:	N/A

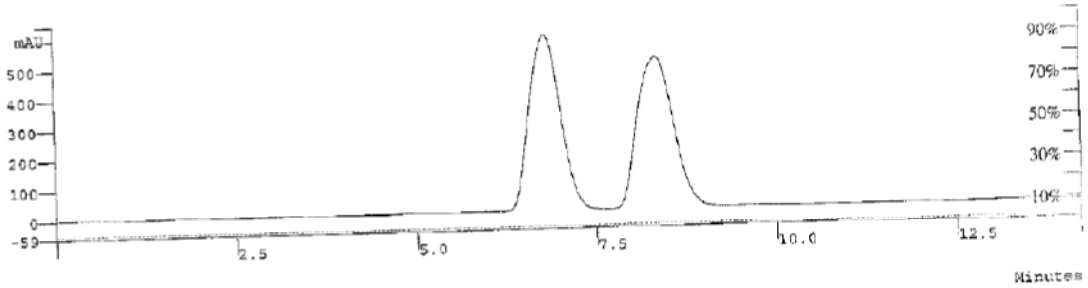


Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		93.8404	18.520	0.000	9070010	0.00	BB	33.7		0
2		6.1596	21.853	0.000	595347	0.00	BB	38.9		0
	Totals	**100.0000**		**0.000**	**9665357**					



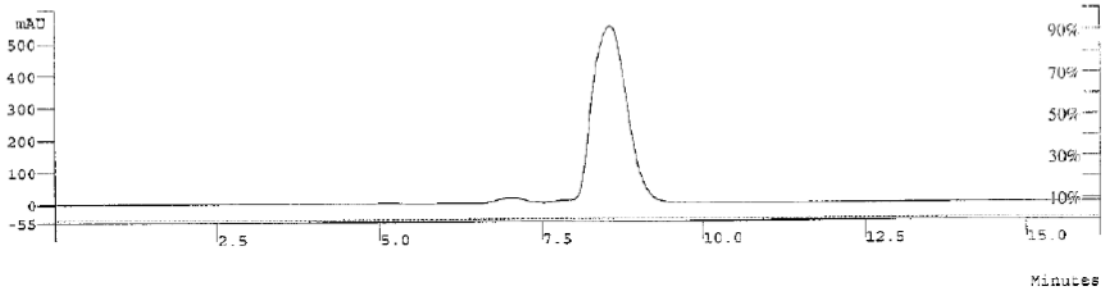
4f

Data File:	c:\star\10-11-13 4;58;35 pm -1.run	Operator (Calc):	
Channel:	2 = 225.00 nm RESULTS	Calc Date:	10/11/13 05:13:48 PM
Sample ID:	cw467rac	Times Calculated:	1
Operator (Inj):	OD-H, hex:IPA=99:1, 1.0 mL/min	Calculation Method:	c:\windows\temp\~10-11-13 4;58;35
Injection Date:		Instrument (Calc):	Varian Star #1
Injection Method:	c:\star\chuan\standard 1%.mth	Run Mode:	Analysis
Run Time (min):	14.240	Peak Measurement:	Peak Area
Workstation:		Calculation Type:	Percent
Instrument (Inj):	Varian Star #1	Calibration Level:	N/A
		Verification Tolerance:	N/A

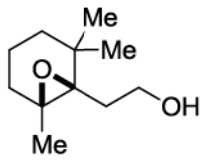


Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		50.1030	6.787	0.000	89597232	0.00	BB	29.0		0
2		49.8970	8.333	0.000	89228800	0.00	BB	33.7		0
	Totals	100.0000		0.000	178826032					

Data File:	c:\star\10-11-13 5;31;01 pm -1.run	Operator (Calc):	
Channel:	2 = 225.00 nm RESULTS	Calc Date:	10/11/13 05:49:44 PM
Sample ID:	cw467a	Times Calculated:	1
Operator (Inj):	OD-H, hex:IPA= 99:1, 1.0 mL/min	Calculation Method:	c:\windows\temp\~10-11-13 5;31;01
Injection Date:		Instrument (Calc):	Varian Star #1
Injection Method:	c:\star\chuan\standard 1%.mth	Run Mode:	Analysis
Run Time (min):	16.160	Peak Measurement:	Peak Area
Workstation:		Calculation Type:	Percent
Instrument (Inj):	Varian Star #1	Calibration Level:	N/A
		Verification Tolerance:	N/A



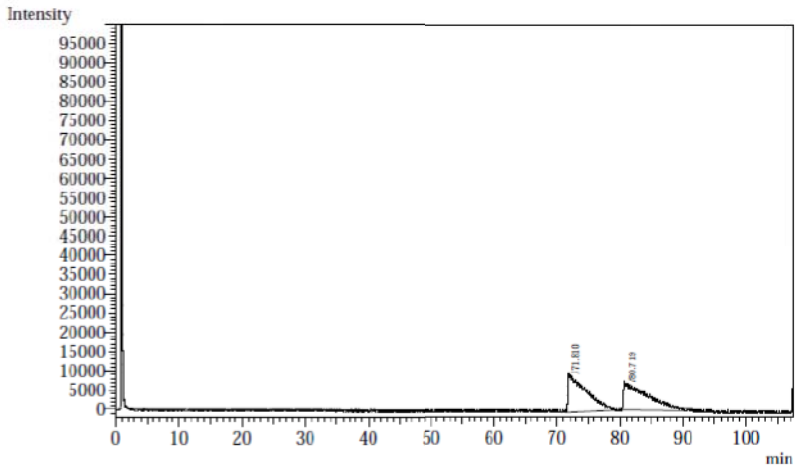
Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		2.2800	7.027	0.000	2347757	0.00	BB	28.2		0
2		97.7200	8.573	0.000	100624568	0.00	BB	35.4		0
	Totals	100.0000		0.000	102972328					



4g

Analysis Date & Time : 12/26/2013 11:06:47 AM
User Name : Admin
Vial# : 0
Sample Name : 389rac
Sample ID : 389rac
Sample Type : Unknown
Injection Volume :
ISTD Amount :

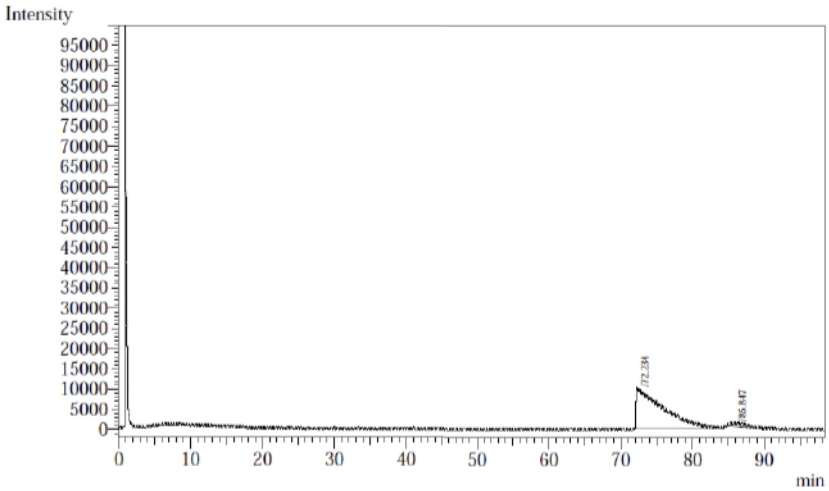
Data Name : C:\Documents and Settings\Administrator\Desktop\Data\Project1\Chuan\389rac2.gcd
Method Name : C:\Documents and Settings\Administrator\Desktop\Method File\Chuan\120.gcm



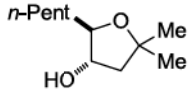
Peak#	Ret.Time	Area	Area%	Height	Mark	ID#	Cmpd Name
1	71.810	2021849	51.459	9893			
2	80.719	1907173	48.541	7157			
Total		3929022	100.000	17050			

Analysis Date & Time : 12/26/2013 1:00:44 PM
User Name : Admin
Vial# : 0
Sample Name : 389a
Sample ID : 389a
Sample Type : Unknown
Injection Volume :
ISTD Amount :

Data Name : C:\Documents and Settings\Administrator\Desktop\Data\Project1\Chuan\389a2.gcd
Method Name : C:\Documents and Settings\Administrator\Desktop\Method File\Chuan\120.gcm



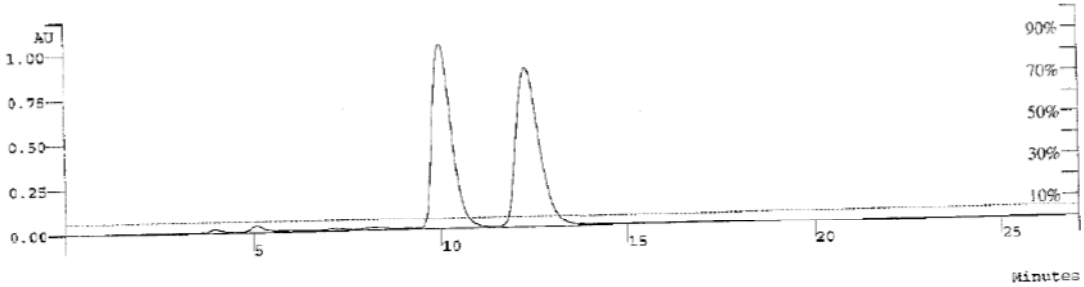
Peak#	Ret.Time	Area	Area%	Height	Mark	ID#	Cmpd Name
1	72.234	2595840	94.664	9867			
2	85.847	146308	5.336	1143			
Total		2742148	100.000	11010			



4h

Data File:	c:\star\8-5-13 3;33;10 pm -1.run
Channel:	3 = 210.00 nm RESULTS
Sample ID:	cw418ed-rac
Operator (Inj):	OD-H, hex:IPA= 95:5, 1.0 mL/min
Injection Date:	
Injection Method:	c:\star\chuan\standard 5%.mth
Run Time (min):	27.093
Workstation:	
Instrument (Inj):	Varian Star #1

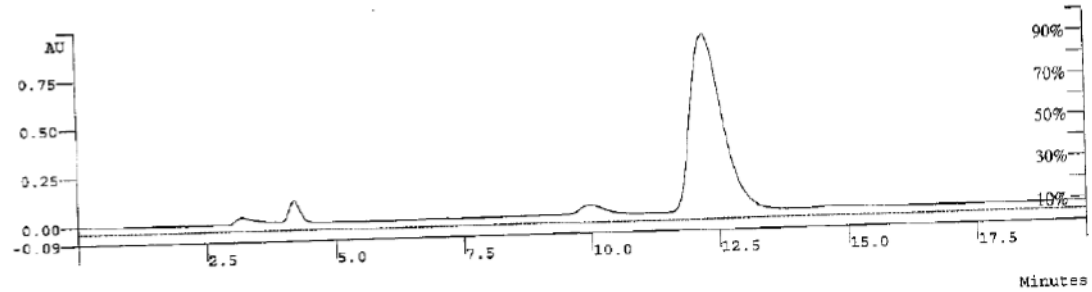
Operator (Calc):	
Calc Date:	08/05/13 04:01:11 PM
Times Calculated:	1
Calculation Method:	c:\windows\temp\~8-5-13 3;33;10 pm
Instrument (Calc):	Varian Star #1
Run Mode:	Analysis
Peak Measurement:	Peak Area
Calculation Type:	Percent
Calibration Level:	N/A
Verification Tolerance:	N/A



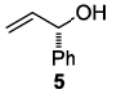
Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		49.1763	10.013	0.000	184714528	0.00	BB	32.9		0
2		50.8237	12.280	0.000	190902192	0.00	BB	39.1		0
	Totals	**100.0000**		**0.000**	**375616704**					

Data File:	c:\star\8-8-13 1;50;13 pm -1.run
Channel:	3 = 210.00 nm RESULTS
Sample ID:	cw418ed-c
Operator (Inj):	OD-H, hex:IPA= 95:5, 1.0 mL/min
Injection Date:	
Injection Method:	c:\star\chuan\standard 5%.mth
Run Time (min):	19.653
Workstation:	
Instrument (Inj):	Varian Star #1

Operator (Calc):	
Calc Date:	08/08/13 02:13:47 PM
Times Calculated:	1
Calculation Method:	c:\windows\temp\~8-8-13 1;50;13 pm
Instrument (Calc):	Varian Star #1
Run Mode:	Analysis
Peak Measurement:	Peak Area
Calculation Type:	Percent
Calibration Level:	N/A
Verification Tolerance:	N/A

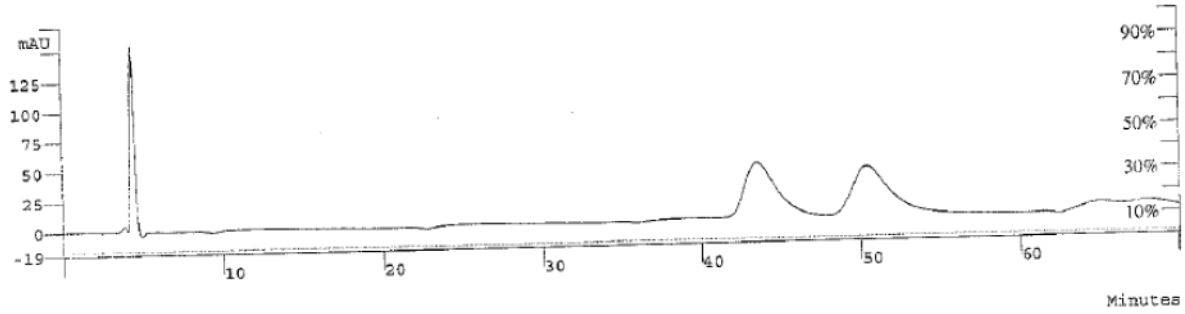


Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		3.7683	9.960	0.000	7812011	0.00	BB	30.1		0
2		96.2317	12.200	0.000	199497936	0.00	BB	39.7		0
	Totals	**100.0000**		**0.000**	**207309952**					



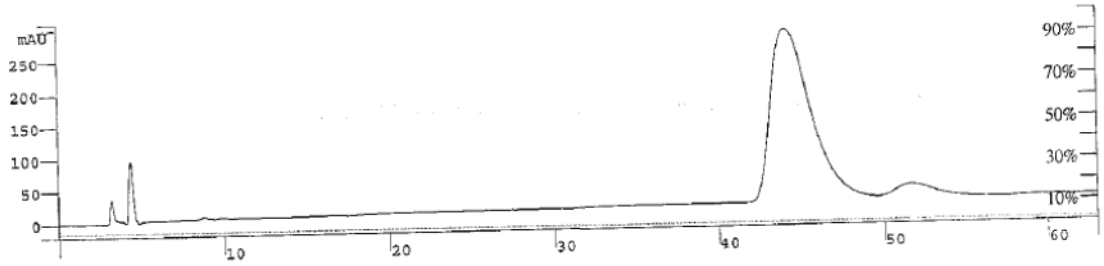
5

Data File:	c:\star\8-5-13 6;29;29 pm -1.run	Operator (Calc):	
Channel:	3 = 210.00 nm RESULTS	Calc Date:	08/05/13 07:42:14 PM
Sample ID:	cw418pr-rac	Times Calculated:	1
Operator (Inj):	OD-H, hex:IPA=98.5:1.5, 1.0 mL/min	Calculation Method:	c:\windows\temp\~8-5-13 6;29;29 pm
Injection Date:		Instrument (Calc):	Varian Star #1
Injection Method:	c:\star\chuan\standard 1.5%.mth	Run Mode:	Analysis
Run Time (min):	70.107	Peak Measurement:	Peak Area
Workstation:		Calculation Type:	Percent
Instrument (Inj):	Varian Star #1	Calibration Level:	N/A
		Verification Tolerance:	N/A

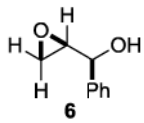


Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		49.2514	43.480	0.000	32235450	0.00	BB	127.0		0
2		50.7486	50.360	0.000	33215394	0.00	BB	142.2		0
	Totals	**100.0000**		**0.000**	**65450844**					

Data File:	c:\star\8-8-13 2;55;47 pm -1.run	Operator (Calc):	
Channel:	3 = 210.00 nm RESULTS	Calc Date:	08/13/13 05:19:18 PM
Sample ID:	cw418b	Times Calculated:	2
Operator (Inj):	OD-H, hex:IPA=98.5:1.5, 1.0 mL/min	Calculation Method:	c:\windows\temp\~8-12-13 12;07;00
Injection Date:		Instrument (Calc):	Varian Star #1
Injection Method:	c:\star\chuan\standard 1.5%.mth	Run Mode:	Analysis
Run Time (min):	72.053	Peak Measurement:	Peak Area
Workstation:		Calculation Type:	Percent
Instrument (Inj):	Varian Star #1	Calibration Level:	N/A
		Verification Tolerance:	N/A



Peak No	Peak Name	Result ()	Ret. Time (min)	Time Offset (min)	Area (counts)	Rel Ret Time	Sep. Code	Width 1/2 (sec)	Status Codes	Group
1		95.6938	44.067	0.000	224631008	0.00	BB	157.0		0
2		4.3062	51.667	0.000	10108422	0.00	BB	109.9		0
		100.0000		**0.000**	**234739424**					



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