Supporting Information

Biomimetic Total Synthesis of Plakortone Q *via* Acid-mediated Tandem Cyclization

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Table of Contents

Experimental

General experimental procedures

Optical rotations were measured with a JASCO P-1030 polarimeter. IR spectra were recorded with a JASCO FT-IR/620 spectrometer. ^{1}H and ^{13}C NMR spectra were recorded on a Bruker Biospin AVANCE III HD 400 (400 MHz for ^{1}H, 100 MHz for ^{13}C) and a Bruker Biospin AVANCE III HD 500 (500 MHz for ^{1}H, 125 MHz for ^{13}C). The reported chemical shifts (δ) in parts per million (ppm) were relative to the internal $CHCl_3$ (7.26 ppm for ^{1}H and 77.0 ppm for ^{13}C); the coupling constant (*J*) values were measured in hertz. The coupling patterns are denoted as s (singlet), d (doublet), t (triplet), q (quartet), m (multiplet), and br (broad). HR-ESI-MS spectra were obtained using a Micromass LCT spectrometer with a time-of-flight (TOF) analyzer. Precoated silica gel plates with a fluorescent indicator (Merck 60 F254) were used for analytical and preparative thin-layer chromatography (TLC). Flash column chromatography was performed using Kanto Chemical silica gel 60N (spherical, natural) 40−50 μm. All reagents and solvents were of commercial quality and were used as received.

(*S*)-5-Methylnonan-3-one (5a). To a stirred solution of (*S*)-3-methylheptan-1-ol (**3a**) (5.58 g, 42.8 mmol) in CH_2Cl_2 (214 mL) were added DMSO (30.4 mL, 428 mmol), DIPEA (37.3 mL, 214 mmol), and SO_3·Py (27.2 g, 171 mmol) at 0 °C. After stirring for 30 min at room temperature, the reaction mixture was diluted with Et_2O, washed with saturated aqueous $NaHCO_3$ solution, H_2O and brine, dried over anhydrous Na_2SO_4, and then concentrated *in vacuo* to give a crude product.

To a solution of the crude product in THF (214 mL) was added ethylmagnesium bromide (64.0 mL, 64.6 mmol, 1.01 M in THF) at −78 °C. After stirring for 20 min at 0 °C, the reaction mixture was diluted with Et_2O, washed with saturated aqueous NH_4Cl solution, H_2O and brine, dried over anhydrous Na_2SO_4, and then concentrated *in vacuo*. The residue was passed through a pad of silica gel (hexane/AcOEt = 8:1) and then concentrated *in vacuo* to give a crude product.

To a stirred solution of the crude product in CH_2Cl_2 (154 mL) were added DMSO (21.9 mL, 308 mmol), DIPEA (19.9 mL, 114 mmol), and SO_3·Py (19.6 g, 123 mmol) at 0 °C. After stirring for 30 min at room temperature, the reaction mixture was diluted with Et_2O,

washed with saturated aqueous $NaHCO_3$ solution, H_2O and brine, dried over anhydrous Na_2SO_4, and then concentrated *in vacuo*. The residue was purified with flash column chromatography on silica gel (hexane/AcOEt = 25:1) to give ketone **5a** (3.81 g, 57% yield, 3 steps) as a colorless oil.; R_f 0.50 (hexane/AcOEt 6:1); $[\alpha]^{25}_D$ –5.0 (*c* 1.75, $CHCl_3$); IR (neat) ν_{max} = 2958, 2928, 2873, 2859, 1715, 1460, 1413, 1377, 1106 cm^{-1}; ^1H ($CDCl_3$, 400 MHz) δ 2.41 (1H, q, *J* = 7.4 Hz), 2.40 (1H, q, *J* = 7.4 Hz), 2.38 (1H, dd, *J* = 5.7, 15.3 Hz), 2.20 (1H, dd, *J* = 8.0, 15.6 Hz), 1.99 (1H, m), 1.31–1.14 (6H, m), 1.04 (3H, t, *J* = 7.3 Hz), 0.88 (3H, t, *J* = 6.5 Hz), 0.88 (3H, dd, *J* = 6.6 Hz); ^{13}C ($CDCl_3$, 100 MHz) δ 211.8 (C), 50.0 (CH_2), 36.6 (CH_2), 36.5 (CH_2), 29.3 (CH), 29.2 (CH_2), 22.8 (CH_2), 19.9 (CH_3), 14.1 (CH_3), 7.8 (CH_3); HRMS (ESI-TOF) *m*/*z*: $[M+Na]^+$ Calcd for $C_{10}H_{20}ONa$ 179.1412, Found 179.1426.

(*S*,*E*)-3-Ethyl-5-methylnon-2-en-1-ol and (*S*,*Z*)-3-ethyl-5-methylnon-2-en-1-ol (6a). To a suspension of NaH (7.45 g, 171 mmol, 55% in oil) in THF (230 mL) was slowly added ethyl 2-(diethoxyphosphoryl)acetate (43.7 g, 195 mmol) at 0 °C, and the mixture

was stirred for 30 min. A solution of ketone **5a** (3.81 g, 24.4 mmol) in THF (14.0 mL) at the same temperature was slowly added, and the mixture was then refluxed and stirred for 17 hr. The mixture was quenched with saturated aqueous NH_4Cl and diluted with Et_2O. The organic layer was washed with H_2O and brine, dried over anhydrous Na_2SO_4, and then concentrated *in vacuo*. The residue was passed through a pad of silica gel (hexane/AcOEt = 30:1) and then concentrated *in vacuo* to give a crude product (*E*/*Z* = 2:1).

To a solution of the crude product in CH_2Cl_2 (220 mL) was slowly added DIBAH (47.2 mL, 48.2 mmol, 1.02 M in hexane) at −78 °C under Ar, and the mixture was stirred at the same temperature for 30 min. The mixture was diluted with Et_2O, and $Na_2SO_4 \cdot 10H_2O$ was added; the mixture stirred at rt for 12 hr. $MgSO_4$ was added to the suspension, and the mixture stirred for 15 min. The suspension was filtered through anhydrous Na_2SO_4 and then concentrated *in vacuo*. The residue was purified with flash column chromatography on silica gel (hexane/AcOEt = 5:1) to give allylic alcohol **6a** (3.69 g, 82% yield, 2 steps, *E*/*Z* = 2:1) as a colorless oil.; R_f 0.10 (hexane/AcOEt 10:1); IR (neat)

ν_{max} = 3325, 2962, 2925, 2872, 1661, 1460, 1377, 1008 cm^{-1}; ^1H ($CDCl_3$, 400 MHz) δ 5.46 (0.33H, t, *J* = 7.0 Hz), 5.34 (0.67H, t, *J* = 7.0 Hz), 4.17–4.16 (2H, m), 2.12–1.99 (3H, m), 1.91 (0.33H, dd, *J* = 8.8, 13.4 Hz), 1.75 (0.67H, dd, *J* = 8.3, 13.7 Hz), 1.56 (1H, m), 1.33–1.20 (6H, m), 1.02 (1H, t, *J* = 7.5 Hz), 0.98 (2H, t, *J* = 7.6 Hz), 0.91–0.87 (3H, m), 0.82 (3H, t, *J* = 6.5 Hz); ^{13}C ($CDCl_3$, 100 MHz) δ 144.6 (C), 144.4 (C), 124.3 (CH), 123.3 (CH), 59.3 (CH_2), 59.1 (CH_2), 44.5 (CH_2), 37.9 (CH_2), 36.8 (CH_2), 36.7 (CH_2), 31.5 (CH), 30.7 (CH), 29.4 (CH_2), 29.3 (CH_2), 23.1 (CH_2), 22.93 (CH_2), 22.91 (CH_2), 19.53 (CH_3), 19.47 (CH_3), 14.12 (CH_3), 14.09 (CH_3), 13.6 (CH_3), 12.5 (CH_3); HRMS (ESI-TOF) *m*/*z*: $[M+Na]^+$ Calcd for $C_{12}H_{24}ONa$ 207.1725, Found 207.1721.

3-Ethyl-3-((*S*)-2-methylhexyl)oxirane-2-carbaldehyde (7a). To a cold (−20 °C) suspension of 4Å molecular sieves (3.42 g) in CH_2Cl_2 (600 mL) were added D-(−)-DIPT (652 mg, 2.79 mmol), Ti(O*i*Pr)$_4$ (0.710 mL, 2.41 mmol), and TBHP (9.80 mL, 55.7 mmol, 5.69 M in CH_2Cl_2). After stirring for 30 min at the same temperature, a solution of allylic alcohol **6a** (3.42 g, 18.6 mmol) in CH_2Cl_2 (325 mL) was added over 6 hr. After stirring at

−20 °C for 1 hr, NaOH (1.63 mL, 30% in brine) was added. The mixture was diluted with Et_2O, warmed to room temperature, and stirred for 30 min. $MgSO_4$ (1.45 g) was then added, and after stirring for 15 min the mixture was passed through a pad of celite and then concentrated *in vacuo*. The residue was passed through a pad of silica gel (hexane/AcOEt = 3:1) and then concentrated *in vacuo* to give a crude product.

To a stirred solution of the crude product in CH_2Cl_2 (176 mL) were added DMSO (12.5 mL, 176 mmol), DIPEA (15.3 mL, 88.1 mmol), and SO_3·Py (11.2 g, 70.5 mmol) at 0 °C. After stirring for 30 min at room temperature, the reaction mixture was diluted with Et_2O, washed with saturated aqueous $NaHCO_3$ solution, H_2O and brine, dried over anhydrous Na_2SO_4, and then concentrated *in vacuo*. The residue was purified with flash column chromatography on silica gel (hexane/AcOEt = 12:1) to give epoxyaldehyde **7a** (3.03 g, 82% yield, 2 steps, dr 1.0:11.0:4.5:1.4) as a colorless oil.; R_f 0.60 (hexane/AcOEt 3:1); IR (neat) ν_{max} = 2959, 2930, 2873, 2859, 1723, 1462, 1051 cm^{-1}; ^1H ($CDCl_3$, 400 MHz) δ 9.52–9.49 (1H, m), 3.17 (0.05H, d, J = 5.0 Hz), 3.15 (0.57H, d, J = 4.9 Hz), 3.12 (0.29H, d, J = 5.0 Hz), 3.10 (0.09H, d, J = 4.9 Hz), 2.17–2.16 (0.14H, m), 1.96–1.43 (4.86H, m),

1.37–1.15 (6H, m), 1.06–0.82 (9H, m); ^{13}C ($CDCl_3$, 100 MHz) δ 199.9 (C), 199.7 (C), 67.51 (C), 67.48 (C), 64.6 (CH), 63.6 (CH), 63.3 (CH), 62.5 (CH), 41.5 (CH_2), 37.6 (CH_2), 36.95 (CH_2), 36.92 (CH_2), 36.80 (CH_2), 36.76 (CH_2), 30.05 (CH), 30.01 (CH), 29.5 (CH), 29.25 (CH), 29.23 (CH_2), 29.13 (CH_2), 29.07 (CH_2), 27.9 (CH_2), 27.8 (CH_2), 23.8 (CH_2), 23.7 (CH_2), 22.84 (CH_2), 22.82 (CH_2), 22.76 (CH_2), 20.0 (CH_3), 19.9 (CH_3), 19.8 (CH_3), 19.6 (CH_3), 14.1 (CH_3), 14.0 (CH_3), 9.8 (CH_3), 9.5 (CH_3), 8.8 (CH_3), 8.4 (CH_3); HRMS (ESI-TOF) *m*/*z*: $[M–H]^+$ Calcd for $C_{12}H_{21}O_2$ 197.1542, Found 197.1545.

1-((2*S*,3*R*)-3-Ethyl-3-((*S*)-2-methylhexyl)oxiran-2-yl)propan-1-one and 1-((2*R*,3*S*)-3-ethyl-3-((*S*)-2-methylhexyl)oxiran-2-yl)propan-1-one (8a) and 1-((2*S*,3*S*)-3-ethyl-3-((*S*)-2-methylhexyl)oxiran-2-yl)propan-1-one and 1-((2*R*,3*R*)-3-ethyl-3-((*S*)-2-methylhexyl)oxiran-2-yl)propan-1-one (9a). To a solution of epoxyaldehyde **7a** (2.96 g, 14.9 mmol) in THF (149 mL) was added ethylmagnesium bromide (37.7 mL, 37.3 mmol, 1.01 M in THF) at −78 °C. After stirring for 1 hr at 0 °C, the reaction mixture was diluted with Et_2O, washed with saturated aqueous NH_4Cl solution, H_2O and brine, dried

over anhydrous Na_2SO_4, and then concentrated *in vacuo*. The residue was passed through a pad of silica gel (hexane/AcOEt = 7:1) and then concentrated *in vacuo* to give a crude product.

To a stirred solution of the crude product in CH_2Cl_2 (135 mL) were added DMSO (9.60 mL, 135 mmol), DIPEA (11.8 mL, 67.7 mmol), and SO_3·Py (8.61 g, 54.1 mmol) at 0 °C. After stirring for 1 hr at room temperature, the reaction mixture was diluted with Et_2O, washed with saturated aqueous $NaHCO_3$ solution, H_2O and brine, dried over anhydrous Na_2SO_4, and then concentrated *in vacuo*. The residue was purified with flash column chromatography on silica gel (hexane/AcOEt = 15:1) to give epoxyketone **8a** (1.61 g, 48% yield, 2 steps, α-epoxide/β-epoxide = 6:1) as a colorless oil and epoxyketone **9a** (814 mg, 24% yield, 2 steps, α-epoxide/β-epoxide = 1:4) as a colorless oil.; Epoxyketone **8a**: R_f 0.55 (hexane/AcOEt 4:1); IR (neat) ν_{max} = 2959, 2929, 2873, 2859, 1725, 1460, 1416, 1379, 1111, 979 cm^{-1}; ^1H ($CDCl_3$, 400 MHz) δ 3.38 (0.86H, s), 3.34 (0.14H, s), 2.54 (2H, ddq, *J* = 14.6, 17.8, 7.3 Hz), 1.94 (0.86H, dd, *J* = 5.4, 14.1 Hz), 1.71 (0.14H, dd, *J* = 6.1, 14.0 Hz), 1.62–1.50 (2H, m), 1.45–1.13 (8H, m), 1.10 (0.42H, t, *J* = 7.3 Hz), 1.10 (2.58H,

t, J = 7.3 Hz), 0.99–0.88 (9H, m); ^{13}C ($CDCl_3$, 100 MHz) δ 206.73 (C), 206.68 (C), 66.5 (C), 66.2 (C), 65.5 (CH), 64.4 (CH), 41.4 (CH_2), 41.3 (CH_2), 37.0 (CH_2), 36.7 (CH_2), 34.2 (CH_2), 34.1 (CH_2), 29.6 (CH), 29.5 (CH), 29.0 (CH_2), 22.80 (CH_2), 22.77 (CH_2), 22.5 (CH_2), 22.3 (CH_2), 19.9 (CH_3), 19.8 (CH_3), 14.0 (CH_3), 9.5 (CH_3), 9.1 (CH_3), 7.14 (CH_3), 7.06 (CH_3); HRMS (ESI-TOF) m/z: $[M+Na]^+$ Calcd for $C_{14}H_{26}O_2Na$ 249.1830, Found 249.1825. Epoxyketone **9a**: R_f 0.50 (hexane/AcOEt 4:1); IR (neat) ν_{max} = 2931, 2873, 1724, 1460, 1413, 1379, 1111, 924 cm^{-1}; ^{1}H ($CDCl_3$, 400 MHz) δ 3.38 (0.2H, s), 3.34 (0.8H, s), 2.54 (2H, ddq, J = 14.8, 17.9, 7.4 Hz), 1.83 (0.8H, dq, J = 14.9, 7.5 Hz), 1.76–1.49 (4.2H, m), 1.33–1.13 (6H, m), 1.09 (3H, t, J = 7.3 Hz), 0.98–0.77 (9H, m); ^{13}C ($CDCl_3$, 100 MHz) δ 206.9 (C), 206.8 (C), 66.4 (C), 66.3 (C), 63.7 (CH), 62.9 (CH), 36.9 (CH_2), 36.6 (CH_2), 36.0 (CH_2), 35.6 (CH_2), 34.4 (CH_2), 34.2 (CH_2), 29.6 (CH), 29.2 (CH_2), 29.0 (CH_2), 27.8 (CH_2), 27.7 (CH_2), 22.7 (CH_3), 19.7 (CH_3), 19.5 (CH_3), 13.93 (CH_3), 13.90 (CH_3), 9.0 (CH_3), 8.6 (CH_3), 7.0 (CH_3); HRMS (ESI-TOF) m/z: $[M+Na]^+$ Calcd for $C_{14}H_{26}O_2Na$ 249.1830, Found 249.1827.

(*Z*)-3-((2*R*,3*R*)-3-Ethyl-3-((*S*)-2-methylhexyl)oxiran-2-yl)pent-2-en-1-ol and (*Z*)-3-((2*S*,3*S*)-3-ethyl-3-((*S*)-2-methylhexyl)oxiran-2-yl)pent-2-en-1-ol (10a) and (*E*)-3-((2*R*,3*R*)-3-ethyl-3-((*S*)-2-methylhexyl)oxiran-2-yl)pent-2-en-1-ol and (*E*)-3-((2*S*,3*S*)-3-ethyl-3-((*S*)-2-methylhexyl)oxiran-2-yl)pent-2-en-1-ol (11a). To a suspension of NaH (925 mg, 21.2 mmol, 55% in oil) in THF (90.0 mL) was slowly added ethyl 2-(diethoxyphosphoryl)acetate (7.13 g, 31.8 mmol) at 0 °C, and the mixture was stirred for 30 min. A solution of epoxyketone **8a** (1.20 g, 5.30 mmol, dr 6:1) in THF (16.0 mL) at the same temperature was slowly added, and the mixture was warmed to room temperature and stirred for 4 hr. The mixture was quenched with saturated aqueous NH_4Cl and diluted with Et_2O. The organic layer was washed with H_2O and brine, dried over anhydrous Na_2SO_4, and then concentrated *in vacuo*. The residue was passed through a pad of silica gel (hexane/AcOEt = 30:1) and then concentrated *in vacuo* to give a crude product.

To a solution of the crude product in THF (106 mL) was slowly added $LiAlH_4$ (476 mg, 12.5 mmol) at 0 °C under Ar, and the mixture was stirred at the same temperature for 30

min. The mixture was diluted with Et_2O, and $Na_2SO_4 \cdot 10H_2O$ was added; the mixture stirred at rt for 15 min. $MgSO_4$ was added to the suspension, and the mixture stirred for 15 min. The suspension was filtered through anhydrous Na_2SO_4 and then concentrated *in vacuo*. The residue was purified with flash column chromatography on silica gel (hexane/AcOEt = 4:1) to give allylic alcohol **10a** (1.10 g, 82% yield, 2 steps, dr 6:1) as a colorless oil and allylic alcohol **11a** (85.0 mg, 6% yield, 2 steps, dr 6:1) as a colorless oil.; Allylic alcohol **10a**: R_f 0.30 (hexane/AcOEt 4:1); IR (neat) ν_{max} = 3390, 2964, 2928, 2873, 2858, 1660, 1461, 1378, 1059, 932 cm^{-1}; ^1H ($CDCl_3$, 400 MHz) δ 5.65–5.60 (1H, m), 4.30 (1H, ddd, *J* = 5.6, 6.3, 12.3 Hz), 4.12 (1H, ddd, *J* = 6.4, 6.7, 13.0 Hz), 3.36 (0.86H, s), 3.32 (0.14H, s), 2.12 (1H, dd, *J* = 5.8, 6.8 Hz), 2.04 (2H, q, *J* = 7.3 Hz), 1.98 (1H, dd, *J* = 4.8, 14.0 Hz), 1.63–1.42 (4H, m), 1.40–1.10 (6H, m), 1.07 (3H, t, *J* = 7.4 Hz), 0.99–0.88 (9H, m); ^{13}C ($CDCl_3$, 100 MHz) δ 139.33 (C), 139.26 (C), 126.2 (CH), 126.1 (CH), 65.0 (CH), 64.1 (CH), 63.9 (C), 63.8 (C), 58.93 (CH_2), 58.87 (CH_2), 41.4 (CH_2), 41.3 (CH_2), 37.5 (CH_2), 36.9 (CH_2), 29.7 (CH), 29.6 (CH), 29.23 (CH_2), 29.20 (CH_2), 27.3 (CH_2), 27.1 (CH_2), 22.93 (CH_2), 22.89 (CH_2), 22.87 (CH_2), 22.5 (CH_2), 20.4 (CH_3), 20.1

(CH_3), 14.1 (CH_3), 12.5 (CH_3), 12.4 (CH_3), 9.2 (CH_3), 8.9 (CH_3); HRMS (ESI-TOF) *m*/*z*: $[M+Na]^+$ Calcd for $C_{16}H_{30}O_2Na$ 277.2143, Found 277.2141. Allylic alcohol **11a**: R_f 0.20 (hexane/AcOEt 4:1); IR (neat) ν_{max} = 3369, 2964, 2928, 2873, 1666, 1462, 1378, 1012, 932 cm^{-1}; ^1H ($CDCl_3$, 400 MHz) δ 5.54 (1H, t, *J* = 7.0 Hz), 4.26–4.21 (2H, m), 3.29 (0.86H, s), 3.18 (0.14H, s), 2.21–2.11 (2H, m), 2.01 (1H, dd, *J* = 4.8, 14.0 Hz), 1.56–1.05 (10H, m), 1.05–0.99 (3H, m), 0.97–0.88 (9H, m); ^{13}C ($CDCl_3$, 100 MHz) δ 138.7 (C), 138.5 (C), 124.8 (CH), 124.7 (CH), 66.3 (C), 66.1 (C), 65.6 (CH), 64.8 (CH), 58.5 (CH_2), 42.0 (CH_2), 41.8 (CH_2), 37.5 (CH_2), 36.7 (CH_2), 29.8 (CH), 29.7 (CH), 29.21 (CH_2), 29.18 (CH_2), 22.94 (CH_2), 22.88 (CH_2), 22.4 (CH_2), 22.3 (CH_2), 21.2 (CH_2), 20.9 (CH_2), 20.4 (CH_3), 19.9 (CH_3), 14.1 (CH_3), 13.7 (CH_3), 9.4 (CH_3), 9.1 (CH_3); HRMS (ESI-TOF) *m*/*z*: $[M+Na]^+$ Calcd for $C_{16}H_{30}O_2Na$ 277.2143, Found 277.2142.

((2*S*,2'*S*,3*S*,3'*R*)-2,3'-Diethyl-3'-((*S*)-2-methylhexyl)-[2,2'-bioxiran]-3-yl)methanol and ((2*R*,2'*R*,3*R*,3'*S*)-2,3'-diethyl-3'-((*S*)-2-methylhexyl)-[2,2'-bioxiran]-3-yl)methanol (12a) and ((2*R*,2'*S*,3*R*,3'*R*)-2,3'-diethyl-3'-((*S*)-2-methylhexyl)-[2,2'-

bioxiran]-3-yl)methanol and ((2*S*,2'*R*,3*S*,3'*S*)-2,3'-diethyl-3'-((*S*)-2-methylhexyl)-[2,2'-bioxiran]-3-yl)methanol (13a). To a cold (−20 °C) suspension of 4Å molecular sieves (721 mg) in CH_2Cl_2 (15.4 mL) were added L-(+)-DIPT (732 mg, 3.12 mmol), $Ti(OiPr)_4$ (0.859 mL, 2.84 mmol), and TBHP (1.58 mL, 8.51 mmol, 5.37 M in CH_2Cl_2). After stirring for 30 min at the same temperature and then cooled to −40 °C. To a stirred solution was added a solution of allylic alcohol **10a** (721 mg, 2.84 mmol) in CH_2Cl_2 (10.0 mL) was added over 2 hr. After stirring at −13 °C for 16 hr, NaOH (30% solution in brine, 1.90 mL) was added. The mixture was diluted with Et_2O, warmed to room temperature, and stirred for 30 min. $MgSO_4$ (1.90 g) was then added, and after stirring for 15 min the mixture was passed through a pad of celite and then concentrated *in vacuo*. The residue was purified with flash column chromatography on silica gel (hexane/AcOEt = 5:2) to give *syn*-diepoxide **12a** (551 mg, 72% yield, dr >20:1) as a colorless oil and *anti*-diepoxide **13a** (205 mg, 27% yield, dr 3:2) as a colorless oil.; *syn*-Diepoxide **12a**: R_f 0.40 (hexane/AcOEt 2:1); $[\alpha]^{25}_D$ +10.4 (*c* 0.59, $CHCl_3$); IR (neat) ν_{max} = 3433, 2961, 2928, 2873, 1462, 1379, 1029, 936 cm^{-1}; ^1H ($CDCl_3$, 400 MHz) δ 3.91 (1H, m), 3.89 (1H, dd,

J = 1.2, 4.5 Hz), 3.05 (1H, dd, *J* = 4.8, 5.9 Hz), 3.00 (1H, s), 2.01 (1H, dd, *J* = 4.5, 14.1 Hz), 1.93 (1H, dd, *J* = 5.8, 6.7 Hz), 1.85 (1H, dq, *J* = 15.0, 7.5 Hz), 1.76 (1H, dq, *J* = 15.1, 7.4 Hz), 1.65 (1H, dq, *J* = 15.0, 7.5 Hz), 1.62 (1H, dq, *J* = 15.3, 7.6 Hz), 1.54 (1H, m), 1.34–1.15 (7H, m), 1.03 (3H, t, *J* = 7.5 Hz), 0.98 (3H, t, *J* = 7.6 Hz), 0.93 (3H, d, *J* = 6.6 Hz), 0.89 (3H, t, *J* = 6.5 Hz); ^{13}C ($CDCl_3$, 100 MHz) δ 63.7 (C), 61.7 (CH), 60.8 (C), 60.6 (CH_2), 59.7 (CH), 41.5 (CH_2), 37.6 (CH_2), 29.6 (CH), 29.2 (CH_2), 26.5 (CH_2), 22.9 (CH_2), 22.2 (CH_2), 20.0 (CH_3), 14.1 (CH_3), 9.1 (CH_3), 8.7 (CH_3); HRMS (ESI-TOF) *m*/*z*: $[M+Na]^+$ Calcd for $C_{16}H_{30}O_3Na$ 293.2093, Found 293.2092. *anti*-Diepoxide **13a**: R_f 0.50 (hexane/AcOEt 2:1); IR (neat) ν_{max} = 3430, 2962, 2929, 2874, 2858, 1463, 1379, 1028, 933, 908 cm^{-1}; ^{1}H ($CDCl_3$, 400 MHz) δ 3.97–3.89 (1H, m), 3.80–3.74 (1H, m), 3.14 (0.58H, s), 3.01 (0.42H, s), 3.08–3.04 (1H, m), 2.12–2.05 (1H, m), 1.96 (0.58H, dd, *J* = 4.8, 14.1 Hz), 1.83–1.64 (3H, m), 1.62–1.38 (2.42H, m), 1.35–1.08 (6H, m), 1.05–0.88 (12H, m); ^{13}C ($CDCl_3$, 100 MHz) δ 64.7 (C), 64.4 (C), 63.4 (CH), 63.2 (C), 63.0 (C), 62.6 (CH), 62.3 (CH), 62.2 (CH), 62.05 (CH_2), 61.99 (CH_2), 41.4 (CH_2), 41.2 (CH_2), 37.4 (CH_2), 36.9 (CH_2), 29.6 (CH), 29.5 (CH), 29.2 (CH_2), 27.1 (CH_2), 26.8 (CH_2), 24.3 (CH_2),

23.9 (CH_2), 22.92 (CH_2), 22.86 (CH_2), 20.4 (CH_3), 20.2 (CH_3), 14.1 (CH_3), 9.4 (CH_3), 9.1 (CH_3), 8.4 (CH_3), 8.2 (CH_3); HRMS (ESI-TOF) *m/z*: $[M+Na]^+$ Calcd for $C_{16}H_{30}O_3Na$ 293.2093, Found 293.2093.

2-((2*S*,2'*S*,3*S*,3'*R*)-2,3'-Diethyl-3'-((*S*)-2-methylhexyl)-[2,2'-bioxiran]-3-yl)ethan-1-ol (14a). To a stirred solution of *syn*-diepoxide **12a** (200 mg, 0.740 mmol) in CH_2Cl_2 (14.8 mL) were added $NaHCO_3$ (249 mg, 2.96 mmol) and Dess–Martin periodinane (628 mg, 1.48 mmol) at room temperature. After stirring for 45 min, $NaHCO_3$ (125 mg, 1.48 mmol) and Dess–Martin periodinane (314 mg, 0.740 mmol) were added. After stirring for 30 min, the reaction mixture was diluted with Et_2O, washed with saturated aqueous $Na_2S_2O_3$ solution, H_2O and brine, dried over anhydrous Na_2SO_4, and then concentrated *in vacuo*. The residue was passed through a pad of silica gel (hexane/AcOEt = 9:1) and then concentrated *in vacuo* to give a crude product.

To a stirred suspension of methyltriphenylphosphonium bromide (424 mg, 1.19 mmol) in THF (7.20 mL) were added BuLi (0.677 mL, 1.06 mmol, 1.56 M in hexane) dropwise

at 0 °C and the resulting mixture was stirred for 30 min at same temperature. The mixture was cooled to −78 °C. A solution of the crude product in THF (6.00 mL) was then added to the mixture. After stirring for 30 min at room temperature, the reaction mixture was diluted with Et_2O, washed with saturated aqueous NH_4Cl solution, H_2O and brine, dried over anhydrous Na_2SO_4, and then concentrated *in vacuo*. The residue was passed through a pad of silica gel (hexane/AcOEt = 20:1) and then concentrated *in vacuo* to give a crude product.

To a solution of the crude product in THF (6.00 mL) was added 9-BBN (1.80 mL, 0.900 mmol, 0.50 M in THF) dropwise at 0 °C. After stirring for 2 hr at room temperature, $NaBO_3 \cdot 4H_2O$ (138 mg, 0.897 mmol) and H_2O were added to the reaction mixture. After stirring for 24 hr, $NaBO_3 \cdot 4H_2O$ (46.0 mg, 0.299 mmol) was added and then stirred for 24hr, the reaction mixture was diluted with Et_2O, washed with saturated aqueous NH_4Cl solution, H_2O and brine, dried over anhydrous Na_2SO_4, and then concentrated *in vacuo*. The residue was purified with flash column chromatography on silica gel (hexane/AcOEt = 2:1) to give alcohol **14a** (50.0 mg, 24% yield, 3 steps) as a colorless oil.; R_f 0.50

(hexane/AcOEt 1:2); $[\alpha]^{25}_{D}$ +4.6 (*c* 0.86, $CHCl_3$); IR (neat) ν_{max} = 3433, 2961, 2928, 2875, 1461, 1379, 1057, 939, 904 cm^{-1}; ^1H ($CDCl_3$, 400 MHz) δ 3.93–3.78 (2H, m), 3.02 (1H, s), 2.97 (1H, dd, *J* = 5.4, 7.1 Hz), 2.04–1.91 (2H, m), 2.01 (1H, dd, *J* = 4.5, 14.1 Hz), 1.83 (1H, dq, *J* = 14.9, 7.5 Hz), 1.75 (1H, dq, *J* = 15.0, 7.4 Hz), 1.68–1.43 (4H, m), 1.34–1.13 (6H, m), 1.03 (3H, t, *J* = 7.5 Hz), 0.98 (3H, t, *J* = 7.6 Hz), 0.94 (3H, d, *J* = 6.5 Hz), 0.93–0.87 (3H, m); ^{13}C ($CDCl_3$, 100 MHz) δ 62.7 (C), 62.0 (CH), 60.6 (CH_2), 60.4 (C), 58.0 (CH), 41.5 (CH_2), 37.6 (CH_2), 30.9 (CH_2), 29.6 (CH), 29.2 (CH_2), 26.7 (CH_2), 22.9 (CH_2), 22.3 (CH_2), 20.0 (CH_3), 14.1 (CH_3), 9.1 (CH_3), 8.7 (CH_3); HRMS (ESI-TOF) *m*/*z*: $[M+Na]^+$ Calcd for $C_{17}H_{32}O_3Na$ 307.2249, Found 307.2248.

Methyl 2-((2*S*,2'*S*,3*S*,3'*R*)-2,3'-diethyl-3'-((*S*)-2-methylhexyl)-[2,2'-bioxiran]-3-yl)acetate (2a), plakdiepoxide. To a stirred solution of alcohol **14a** (45.2 mg, 0.159 mmol) in pH 6.8 phosphate buffer (0.530 mL, 1.0 M in H_2O) were added a solution of 1-Me-AZADO (2.7 mg, 0.0159 mmol) in CH_3CN (0.795 mL), $NaClO_2$ (0.024 mL, 0.0159 mmol, 5% in H_2O), and NaClO (54.6 mg, 0.477 mmol) at room temperature. After stirring

for 30 min at room temperature, the reaction mixture was quenched with pH 2.3 phosphate buffer (1.0 M in H_2O), diluted with $CHCl_3$, washed with brine, dried over anhydrous Na_2SO_4, and then concentrated *in vacuo* to give a crude product.

To a solution of the crude product in benzene/MeOH (2:1, 3.20 mL) was added $TMSCHN_2$ (0.400 mL, 0.240 mmol, 0.60 M in hexane) dropwise at room temperature. After stirring for 30 min at same temperature, the reaction mixture was quenched with acetic acid and diluted with Et_2O. After stirring for 15 min, the resultant mixture was concentrated *in vacuo*. The residue was purified with flash column chromatography on silica gel (hexane/AcOEt = 10:1) to give diepoxyester **2a** (40.4 mg, 81% yield, 2 steps) as a colorless oil.; R_f 0.60 (hexane/AcOEt 5:1); $[\alpha]^{25}_D$ +32.3 (*c* 0.80, $CHCl_3$); IR (neat) ν_{max} = 2960, 2928, 2874, 2858, 1742, 1461, 1436, 1198, 1174 cm^{-1}; ^1H NMR ($CDCl_3$, 500 MHz) δ 3.72 (3H, s), 3.14 (1H, dd, *J* = 6.1, 6.5 Hz), 3.03 (1H, s), 2.89 (1H, dd, *J* = 6.0, 17.3 Hz), 2.79 (1H, dd, *J* = 6.6, 17.3 Hz), 2.03 (1H, dd, *J* = 4.4, 14.0 Hz), 1.89 (1H, dq, *J* = 14.4, 7.4 Hz), 1.75 (1H, dq, *J* = 14.3, 7.5 Hz), 1.64 (1H, dq, *J* = 14.6, 7.4 Hz), 1.58 (1H, dq, *J* = 14.3, 7.6 Hz), 1.55 (1H, m), 1.36–1.12 (6H, m), 1.02 (3H, t, *J* = 7.5 Hz),

1.01 (3H, t, *J* = 7.6 Hz), 0.94 (3H, d, *J* = 6.6 Hz), 0.90 (3H, t, *J* = 6.9 Hz), 0.88 (1H, m); ^{13}C NMR ($CDCl_3$, 125 MHz) δ 171.5 (C), 62.7 (C), 61.6 (CH), 60.2 (C), 55.2 (CH), 51.8 (CH_3), 41.6 (CH_2), 37.6 (CH_2), 33.5 (CH_2), 29.6 (CH), 29.2 (CH_2), 26.6 (CH_2), 22.9 (CH_2), 22.1 (CH_2), 20.0 (CH_3), 14.1 (CH_3), 9.1 (CH_3), 8.7 (CH_3); HRMS (ESI-TOF) *m*/*z*: $[M+Na]^+$ Calcd for $C_{18}H_{32}O_4Na$ 335.2198, Found 335.2194.

(3a*S*,5*S*,6*S*,6a*S*)-5,6a-Diethyl-6-hydroxy-5-((*S*)-2-methylhexyl)tetrahydrofuro[3,2-b]furan-2(3*H*)-one (1a), plakortone Q. A solution of 10-camphorsulfonic acid (1.48 mL, 0.0637 mmol, 1% in CH_2Cl_2) and H_2O (0.0013 mL, 0.0721 mmol) were added to diepoxyester **2a** (23.1 mg, 0.0739 mmol) at room temperature. After stirring for 10 hr at same temperature, the reaction mixture was concentrated *in vacuo*. The residue was purified with flash column chromatography on silica gel (hexane/acetone = 7:1) to give tetrahydrofuran-γ-lactone **1a** (18.1 mg, 82% yield) as a colorless oil.; R_f 0.40 (hexane/acetone 3:1); $[\alpha]^{25}_D$ –19.8 (*c* 0.81, $CHCl_3$); IR (neat) ν_{max} = 3468, 2928, 1783, 1462, 1219, 1127 cm^{-1}; ^{1}H NMR ($CDCl_3$, 500 MHz) δ 4.33 (1H, dd, *J* = 0.6, 5.5 Hz),

3.87 (1H, d, J = 10.3 Hz), 2.77 (1H, dd, J = 5.5, 18.5 Hz), 2.67 (1H, dd, J = 0.6, 18.5 Hz), 2.25 (1H, d, J = 10.3 Hz), 1.92 (1H, dq, J = 14.5, 7.5 Hz), 1.79 (1H, dq, J = 14.5, 7.4 Hz), 1.62 (1H, dq, J = 14.2, 7.4 Hz), 1.57–1.45 (3H, m), 1.36 (1H, dd, J = 7.0, 14.5 Hz), 1.36–1.20 (5H, m), 1.16 (1H, m), 1.04 (3H, t, J = 7.4 Hz), 0.95 (3H, d, J = 6.7 Hz), 0.91 (3H, t, J = 7.4 Hz), 0.89 (3H, t, J = 7.0 Hz); ^{13}C NMR ($CDCl_3$, 125 MHz) δ 174.7 (C), 94.9 (C), 88.3 (C), 81.6 (CH), 77.3 (CH), 42.4 (CH_2), 38.3 (CH_2), 38.0 (CH_2), 29.2 (CH_2), 29.1 (CH_2), 28.5 (CH), 26.0 (CH_2), 22.9 (CH_2), 21.1 (CH_3), 14.1 (CH_3), 8.1 (CH_3), 7.9 (CH_3); HRMS (ESI-TOF) m/z: $[M+Na]^+$ Calcd for $C_{17}H_{30}O_4Na$ 321.2042, Found 321.2041.

(*R*)-5-Methylnonan-3-one (5b). To a stirred solution of (*R*)-3-methylheptan-1-ol (**3b**) (3.22 g, 24.7 mmol) in CH_2Cl_2 (247 mL) were added DMSO (17.6 mL, 248 mmol), DIPEA (21.5 mL, 123 mmol), and SO_3·Py (15.7 g, 98.9 mmol) at 0 °C. After stirring for 30 min at room temperature, the reaction mixture was diluted with Et_2O, washed with saturated aqueous $NaHCO_3$ solution, H_2O and brine, dried over anhydrous Na_2SO_4, and then concentrated *in vacuo* to give a crude product.

To a solution of the crude product in THF (247 mL) was added ethylmagnesium bromide (36.7 mL, 37.1 mmol, 1.01 M in THF) at −78 °C. After stirring for 20 min at 0 °C, the reaction mixture was diluted with Et_2O, washed with saturated aqueous NH_4Cl solution, H_2O and brine, dried over anhydrous Na_2SO_4, and then concentrated *in vacuo*. The residue was passed through a pad of silica gel (hexane/AcOEt = 8:1) and then concentrated *in vacuo* to give a crude product.

To a stirred solution of the crude product in CH_2Cl_2 (195 mL) were added DMSO (13.8 mL, 194 mmol), DIPEA (16.9 mL, 97.0 mmol), and SO_3·Py (12.4 g, 77.8 mmol) at 0 °C. After stirring for 30 min at room temperature, the reaction mixture was diluted with Et_2O, washed with saturated aqueous $NaHCO_3$ solution, H_2O and brine, dried over anhydrous Na_2SO_4, and then concentrated *in vacuo*. The residue was purified with flash column chromatography on silica gel (hexane/AcOEt = 25:1) to give ketone **5b** (2.41 g, 62% yield, 3 steps) as a colorless oil.; $[\alpha]^{25}_D$ +5.4 (*c* 1.84, $CHCl_3$). The spectra data were consistent with the literature[1] and our synthesized compound **5a**.

(*R*,*E*)-3-Ethyl-5-methylnon-2-en-1-ol and (*R*,*Z*)-3-ethyl-5-methylnon-2-en-1-ol (6b).

To a suspension of NaH (854 mg, 19.6 mmol, 55% in oil) in THF (25.0 mL) was slowly added ethyl 2-(diethoxyphosphoryl)acetate (6.58 g, 29.3 mmol) at 0 °C, and the mixture was stirred for 30 min. A solution of ketone **5b** (504 mg, 3.23 mmol) in THF (7.60 mL) at the same temperature was slowly added, and the mixture was then refluxed and stirred for 20 hr. The mixture was quenched with saturated aqueous NH_4Cl and diluted with Et_2O. The organic layer was washed with H_2O and brine, dried over anhydrous Na_2SO_4, and then concentrated *in vacuo*. The residue was passed through a pad of silica gel (hexane/AcOEt = 30:1) and then concentrated *in vacuo* to give a crude product (*E*/*Z* = 2:1).

To a solution of the crude product in CH_2Cl_2 (28.7 mL) was slowly added DIBAH (6.18 mL, 6.31 mmol, 1.02 M in hexane) at −78 °C under Ar, and the mixture was stirred at the same temperature for 30 min. The mixture was diluted with Et_2O, and $Na_2SO_4 \cdot 10H_2O$ was added; the mixture stirred at rt for 12 hr. $MgSO_4$ was added to the suspension, and the mixture stirred for 15 min. The suspension was filtered through anhydrous Na_2SO_4

and then concentrated *in vacuo*. The residue was purified with flash column chromatography on silica gel (hexane/AcOEt = 5:1) to give allylic alcohol **6b** (495 mg, 82% yield, 2 steps, *E*/*Z* = 2:1) as a colorless oil.; HRMS (ESI-TOF) *m*/*z*: $[M+Na]^+$ Calcd for $C_{12}H_{24}ONa$ 207.1725, Found 207.1721. The spectra data were consistent with our synthesized compound **6a**.

3-Ethyl-3-((*R*)-2-methylhexyl)oxirane-2-carbaldehyde (7b). To a cold (−20 °C) suspension of 4Å molecular sieves (1.94 g) in CH_2Cl_2 (300 mL) were added D-(−)-DIPT (370 mg, 1.58 mmol), $Ti(OiPr)_4$ (0.404 mL, 1.37 mmol), and TBHP (5.88 mL, 31.6 mmol, 5.37 M in CH_2Cl_2). After stirring for 30 min at the same temperature, a solution of allylic alcohol **6b** (1.94 g, 10.5 mmol) in CH_2Cl_2 (200 mL) was added over 2 hr. After stirring at −20 °C for 4 hr, NaOH (0.920 mL, 30% in brine) was added. The mixture was diluted with Et_2O, warmed to room temperature, and stirred for 30 min. $MgSO_4$ (0.920 g) was then added, and after stirring for 15 min the mixture was passed through a pad of celite and then concentrated *in vacuo*. The residue was passed through a pad of silica gel

(hexane/AcOEt = 3:1) and then concentrated *in vacuo* to give a crude product.

To a stirred solution of the crude product in CH_2Cl_2 (105 mL) were added DMSO (7.50 mL, 106 mmol), DIPEA (9.20 mL, 52.8 mmol), and SO_3·Py (6.70 g, 42.1 mmol) at 0 °C. After stirring for 30 min at room temperature, the reaction mixture was diluted with Et_2O, washed with saturated aqueous $NaHCO_3$ solution, H_2O and brine, dried over anhydrous Na_2SO_4, and then concentrated *in vacuo*. The residue was purified with flash column chromatography on silica gel (hexane/AcOEt = 12:1) to give epoxyaldehyde **7b** (1.95 g, 93% yield, 2 steps, dr 6.3:2.1:1.0:10.7) as a colorless oil.; R_f 0.60 (hexane/AcOEt 3:1); IR (neat) ν_{max} = 2958, 2929, 2873, 2858, 1723, 1461 cm^{-1}; ^1H ($CDCl_3$, 400 MHz) δ 9.52–9.49 (1H, m), 3.17 (0.30H, d, *J* = 4.9 Hz), 3.15 (0.10H, d, *J* = 4.9 Hz), 3.12 (0.05H, d, *J* = 5.1 Hz), 3.10 (0.55H, d, *J* = 4.9 Hz), 2.17–2.16 (0.09H, m), 1.96–1.84 (0.91H, m), 1.82–1.53 (3H, m), 1.38–1.11 (7H, m), 1.06–0.82 (9H, m); ^{13}C ($CDCl_3$, 100 MHz) δ 199.9 (C), 199.7 (C), 67.8 (C), 67.49 (C), 67.46 (C), 67.2 (C), 64.6 (CH), 63.6 (CH), 63.3 (CH), 62.5 (CH), 41.5 (CH_2), 37.6 (CH_2), 37.2 (CH_2), 36.9 (CH_2), 36.8 (CH_2), 36.7 (CH_2), 30.04 (CH), 30.00 (CH), 29.5 (CH), 29.2 (CH), 29.13 (CH_2), 29.07 (CH_2), 27.9 (CH_2), 27.8

(CH_2), 23.8 (CH_2), 23.7 (CH_2), 22.84 (CH_2), 22.81 (CH_2), 20.0 (CH_3), 19.9 (CH_3), 19.8 (CH_3), 19.6 (CH_3), 14.1 (CH_3), 14.0 (CH_3), 9.8 (CH_3), 9.5 (CH_3), 8.8 (CH_3), 8.4 (CH_3); HRMS (ESI-TOF) *m*/*z*: $[M–H]^+$ Calcd for $C_{12}H_{21}O_2$ 197.1542, Found 197.1560.

1-((2*S*,3*R*)-3-Ethyl-3-((*R*)-2-methylhexyl)oxiran-2-yl)propan-1-one and 1-((2*R*,3*S*)-3-ethyl-3-((*R*)-2-methylhexyl)oxiran-2-yl)propan-1-one (8b) and 1-((2*S*,3*S*)-3-ethyl-3-((*R*)-2-methylhexyl)oxiran-2-yl)propan-1-one and 1-((2*R*,3*R*)-3-ethyl-3-((*R*)-2-methylhexyl)oxiran-2-yl)propan-1-one (9b). To a solution of epoxyaldehyde **7b** (1.90 g, 9.58 mmol) in THF (95.8 mL) was added ethylmagnesium bromide (23.7 mL, 24.0 mmol, 1.01 M in THF) at −78 °C. After stirring for 1 hr at 0 °C, the reaction mixture was diluted with Et_2O, washed with saturated aqueous NH_4Cl solution, H_2O and brine, dried over anhydrous Na_2SO_4, and then concentrated *in vacuo*. The residue was passed through a pad of silica gel (hexane/AcOEt = 7:1) and then concentrated *in vacuo* to give a crude product.

To a stirred solution of the crude product in CH_2Cl_2 (96.0 mL) were added DMSO (6.80

mL, 95.8 mmol), DIPEA (8.30 mL, 47.7 mmol), and SO_3·Py (6.10 g, 38.3 mmol) at 0 °C. After stirring for 1 hr at room temperature, the reaction mixture was diluted with Et_2O, washed with saturated aqueous $NaHCO_3$ solution, H_2O and brine, dried over anhydrous Na_2SO_4, and then concentrated *in vacuo*. The residue was purified with flash column chromatography on silica gel (hexane/AcOEt = 15:1) to give epoxyketone **8b** (1.04 g, 48% yield, 2 steps, α-epoxide/β-epoxide = 5:1) as a colorless oil and epoxyketone **9b** (535 mg, 25% yield, 2 steps, α-epoxide/β-epoxide = 1:4) as a colorless oil.; Epoxyketone **8b**: R_f 0.55 (hexane/AcOEt 4:1); IR (neat) ν_{max} = 2961, 2931, 2873, 1724, 1460, 1412, 1379, 1112, 937 cm^{-1}; ^1H ($CDCl_3$, 400 MHz) δ 3.38 (0.17H, s), 3.34 (0.83H, s), 2.65–2.44 (2H, m), 1.94 (0.17H, dd, J = 5.4, 14.0 Hz), 1.71 (0.83H, dd, J = 6.2, 14.0 Hz), 1.64–1.49 (2H, m), 1.47–1.13 (8H, m), 1.10 (2.49H, t, J = 7.3 Hz), 1.10 (0.51H, t, J = 7.4 Hz), 0.99–0.88 (9H, m); ^{13}C ($CDCl_3$, 100 MHz) δ 206.91 (C), 206.86 (C), 66.6 (C), 66.3 (C), 65.6 (CH), 64.6 (CH), 41.5 (CH_2), 41.4 (CH_2), 37.1 (CH_2), 36.8 (CH_2), 34.3 (CH_2), 34.2 (CH_2), 29.7 (CH), 29.6 (CH), 29.1 (CH_2), 22.90 (CH_2), 22.87 (CH_2), 22.6 (CH_2), 22.4 (CH_2), 20.1 (CH_3), 19.9 (CH_3), 14.1 (CH_3), 9.6 (CH_3), 9.3 (CH_3), 7.3 (CH_3), 7.2 (CH_3); HRMS (ESI-

TOF) *m*/*z*: [M+Na]$^+$ Calcd for $C_{14}H_{26}O_2Na$ 249.1830, Found 249.1839. Epoxyketone **9b**: R_f 0.50 (hexane/AcOEt 4:1); IR (neat) ν_{max} = 2959, 2931, 2873, 2859, 1723, 1460, 1413, 1379, 1111, 930 cm^{-1}; ^{1}H ($CDCl_3$, 400 MHz) δ 3.38 (0.8H, s), 3.34 (0.2H, s), 2.63–2.47 (2H, m), 1.83 (0.2H, dq, *J* = 15.0, 7.6 Hz), 1.72 (0.8H, dq, *J* = 14.4, 7.6 Hz), 1.69–1.51 (4H, m), 1.40–1.15 (6H, m), 1.09 (3H, t, *J* = 7.3 Hz), 0.97 (3H, t, *J* = 7.5 Hz), 0.90–0.86 (3H, m), 0.78 (3H, d, *J* = 6.6 Hz); ^{13}C ($CDCl_3$, 100 MHz) δ 206.9 (C), 66.5 (C), 66.4 (C), 63.8 (CH), 63.0 (CH), 36.9 (CH_2), 36.7 (CH_2), 36.0 (CH_2), 35.6 (CH_2), 34.4 (CH_2), 34.3 (CH_2), 29.6 (CH), 29.2 (CH_2), 29.0 (CH_2), 27.83 (CH_2), 27.76 (CH_2), 22.8 (CH_2), 19.7 (CH_3), 19.6 (CH_3), 14.00 (CH_3), 13.96 (CH_3), 9.1 (CH_3), 8.7 (CH_3), 7.1 (CH_3); HRMS (ESI-TOF) *m*/*z*: [M+Na]$^+$ Calcd for $C_{14}H_{26}O_2Na$ 249.1830, Found 249.1838.

(*Z*)-3-((2*R*,3*R*)-3-Ethyl-3-((*R*)-2-methylhexyl)oxiran-2-yl)pent-2-en-1-ol and (*Z*)-3-((2*S*,3*S*)-3-ethyl-3-((*R*)-2-methylhexyl)oxiran-2-yl)pent-2-en-1-ol (10b) and (*E*)-3-((2*R*,3*R*)-3-ethyl-3-((*R*)-2-methylhexyl)oxiran-2-yl)pent-2-en-1-ol and (*E*)-3-((2*S*,3*S*)-3-ethyl-3-((*R*)-2-methylhexyl)oxiran-2-yl)pent-2-en-1-ol (11b). To a

suspension of NaH (623 mg, 14.3 mmol, 55% in oil) in THF (60.0 mL) was slowly added ethyl 2-(diethoxyphosphoryl)acetate (4.80 g, 21.4 mmol) at 0 °C, and the mixture was stirred for 30 min. A solution of epoxyketone **8b** (809 mg, 3.57 mmol, dr 6:1) in THF (11.5 mL) at the same temperature was slowly added, and the mixture was warmed to room temperature and stirred for 4 hr. The mixture was quenched with saturated aqueous NH_4Cl and diluted with Et_2O. The organic layer was washed with H_2O and brine, dried over anhydrous Na_2SO_4, and then concentrated *in vacuo*. The residue was passed through a pad of silica gel (hexane/AcOEt = 30:1) and then concentrated *in vacuo* to give a crude product.

To a solution of the crude product in THF (71.5 mL) was slowly added $LiAlH_4$ (339 mg, 8.93 mmol) at 0 °C under Ar, and the mixture was stirred at the same temperature for 40 min. The mixture was diluted with Et_2O, and $Na_2SO_4 \cdot 10H_2O$ was added; the mixture stirred at rt for 15 min. $MgSO_4$ was added to the suspension, and the mixture stirred for 15 min. The suspension was filtered through anhydrous Na_2SO_4 and then concentrated *in vacuo*. The residue was purified with flash column chromatography on silica gel

(hexane/AcOEt = 4:1) to give allylic alcohol **10b** (776 mg, 86% yield, 2 steps, dr 5:1) as a colorless oil and allylic alcohol **11b** (75.0 mg, 8% yield, 2 steps, dr 5:1) as a colorless oil.; Allylic alcohol **10b**: R_f 0.30 (hexane/AcOEt 4:1); IR (neat) ν_{max} = 3365, 2964, 2928, 2873, 2858, 1661, 1462, 1379, 1041 cm^{-1}; ^1H ($CDCl_3$, 400 MHz) δ 5.64–5.59 (1H, m), 4.33–4.26 (1H, m), 4.16–4.10 (1H, m), 3.36 (0.17H, s), 3.32 (0.83H, s), 2.11 (0.17H, dd, *J* = 5.5, 7.1 Hz), 2.08–2.02 (2.83H, m), 1.98 (0.17H, dd, *J* = 4.8, 14.1 Hz), 1.62–1.55 (1H, m), 1.52–1.42 (3.83H, m), 1.38–1.13 (6H, m), 1.07 (3H, t, *J* = 7.4 Hz), 0.99–0.88 (9H, m); ^{13}C ($CDCl_3$, 100 MHz) δ 139.45 (C), 139.37 (C), 126.2 (CH), 126.0 (CH), 65.1 (CH), 64.1 (CH), 63.9 (C), 63.7 (C), 59.0 (CH_2), 58.9 (CH_2), 41.5 (CH_2), 41.3 (CH_2), 37.5 (CH_2), 36.9 (CH_2), 29.70 (CH), 29.66 (CH), 29.24 (CH_2), 29.21 (CH_2), 27.3 (CH_2), 27.1 (CH_2), 22.95 (CH_2), 22.89 (CH_2), 22.5 (CH_2), 20.5 (CH_3), 20.1 (CH_3), 14.1 (CH_3), 12.5 (CH_3), 12.4 (CH_3), 9.2 (CH_3), 8.9 (CH_3); HRMS (ESI-TOF) *m*/*z*: $[M+Na]^+$ Calcd for $C_{16}H_{30}O_2Na$ 277.2143, Found 277.2144. Allylic alcohol **11b**: R_f 0.20 (hexane/AcOEt 4:1); IR (neat) ν_{max} = 3365, 2964, 2928, 2872, 2858, 1668, 1463, 1378, 1012 cm^{-1}; ^1H ($CDCl_3$, 400 MHz) δ 5.56–5.52 (1H, m), 4.26–4.22 (2H, m), 3.22 (0.17H, s), 3.18 (0.83H, s), 2.24–2.09 (2H,

m), 2.02 (0.17H, dd, J = 4.8, 14.0 Hz), 1.64–1.41 (4.83H, m), 1.35–1.08 (6H, m), 1.04 (3H, t, J = 7.6 Hz), 0.97–0.88 (9H, m); ^{13}C ($CDCl_3$, 100 MHz) δ 138.8 (C), 138.6 (C), 124.7 (CH), 124.6 (CH), 66.2 (C), 66.1 (C), 65.6 (CH), 64.8 (CH), 58.6 (CH_2), 42.0 (CH_2), 41.8 (CH_2), 37.5 (CH_2), 36.7 (CH_2), 29.8 (CH), 29.7 (CH), 29.23 (CH_2), 29.20 (CH_2), 23.0 (CH_2), 22.9 (CH_2), 22.4 (CH_2), 22.3 (CH_2), 21.2 (CH_2), 20.9 (CH_2), 20.4 (CH_3), 19.9 (CH_3), 14.1 (CH_3), 13.8 (CH_3), 9.4 (CH_3), 9.1 (CH_3); HRMS (ESI-TOF) *m*/*z*: $[M+Na]^+$ Calcd for $C_{16}H_{30}O_2Na$ 277.2143, Found 277.2146.

((2*S*,2'*S*,3*S*,3'*R*)-2,3'-Diethyl-3'-((*R*)-2-methylhexyl)-[2,2'-bioxiran]-3-yl)methanol and ((2*R*,2'*R*,3*R*,3'*S*)-2,3'-diethyl-3'-((*R*)-2-methylhexyl)-[2,2'-bioxiran]-3-yl)methanol (12b) and ((2*R*,2'*S*,3*R*,3'*R*)-2,3'-diethyl-3'-((*R*)-2-methylhexyl)-[2,2'-bioxiran]-3-yl)methanol and ((2*S*,2'*R*,3*S*,3'*S*)-2,3'-diethyl-3'-((*R*)-2-methylhexyl)-[2,2'-bioxiran]-3-yl)methanol (13b). To a cold (−20 °C) suspension of 4Å molecular sieves (358 mg) in CH_2Cl_2 (8.10 mL) were added L-(+)-DIPT (363 mg, 1.55 mmol), $Ti(O\textit{i}Pr)_4$ (0.416 mL, 1.38 mmol), and TBHP (0.790 mL, 4.24 mmol, 5.37 M in CH_2Cl_2).

After stirring for 30 min at the same temperature and then cooled to −40 °C. To a stirred solution was added a solution of allylic alcohol **10b** (358 mg, 1.41 mmol) in CH_2Cl_2 (4.00 mL) was added over 1 hr. After stirring at −13 °C for 16 hr, NaOH (30% solution in brine, 0.940 mL) was added. The mixture was diluted with Et_2O, warmed to room temperature, and stirred for 30 min. $MgSO_4$ (0.940 g) was then added, and after stirring for 15 min the mixture was passed through a pad of celite and then concentrated *in vacuo*. The residue was purified with flash column chromatography on silica gel (hexane/AcOEt = 5:2) to give *syn*-diepoxide **12b** (255 mg, 67% yield, dr >20:1) as a colorless oil and *anti*-diepoxide **13b** (82.0 mg, 22% yield, dr 3:2) as a colorless oil.; *syn*-Diepoxide **12b**: R_f 0.40 (hexane/AcOEt 2:1); $[\alpha]^{25}_D$ +9.5 (*c* 1.38, $CHCl_3$); IR (neat) ν_{max} = 3433, 2961, 2928, 2873, 1462, 1379, 1028, 938, 914 cm^{-1}; ^1H ($CDCl_3$, 400 MHz) δ 3.92–3.88 (2H, m), 3.05 (1H, t, *J* = 5.4 Hz), 2.96 (1H, s), 1.87 (1H, t, *J* = 6.2 Hz), 1.82 (1H, dd, *J* = 7.4, 14.9 Hz), 1.72 (1H, q, *J* = 7.6 Hz), 1.72 (1H, q, *J* = 7.5 Hz), 1.63 (1H, dd, *J* = 7.6, 14.4 Hz), 1.59–1.54 (2H, m), 1.40–1.19 (6H, m), 1.10 (1H, m), 1.03 (3H, t, *J* = 7.5 Hz), 0.99 (3H, t, *J* = 7.6 Hz), 0.94 (3H, d, *J* = 6.2 Hz), 0.90 (3H, t, *J* = 7.0 Hz); ^{13}C ($CDCl_3$, 100 MHz) δ 63.6 (C),

61.1 (CH), 60.7 (C), 60.5 (CH_2), 60.0 (CH), 41.7 (CH_2), 36.7 (CH_2), 29.5 (CH), 29.2 (CH_2), 26.7 (CH_2), 22.9 (CH_2), 22.5 (CH_2), 20.4 (CH_3), 14.1 (CH_3), 9.4 (CH_3), 8.8 (CH_3); HRMS (ESI-TOF) *m*/*z*: $[M+Na]^+$ Calcd for $C_{16}H_{30}O_3Na$ 293.2093, Found 293.2092. *anti*-Diepoxide **13b**: R_f 0.50 (hexane/AcOEt 2:1); IR (neat) ν_{max} = 3434, 2962, 2929, 2873, 2858, 1462, 1379, 1028, 933, 908 cm^{-1}; ^1H ($CDCl_3$, 400 MHz) δ 3.98–3.89 (1H, m), 3.80–3.74 (1H, m), 3.15 (0.58H, s), 3.10 (0.42H, s), 3.09–3.05 (1H, m), 2.07 (0.58H, dd, *J* = 6.7, 6.8 Hz), 2.03 (0.42H, dd, *J* = 6.7, 6.8 Hz), 1.97 (0.58H, dd, *J* = 4.8, 14.1 Hz), 1.82–1.67 (2.42H, m), 1.60–1.40 (3H, m), 1.31–1.09 (6H, m), 1.06–0.88 (12H, m); ^{13}C ($CDCl_3$, 100 MHz) δ 64.7 (C), 64.4 (C), 63.4 (CH), 63.2 (C), 63.0 (C), 62.6 (CH), 62.3 (CH), 62.2 (CH), 62.1 (CH_2), 62.0 (CH_2), 41.4 (CH_2), 41.2 (CH_2), 37.4 (CH_2), 36.9 (CH_2), 29.6 (CH), 29.5 (CH), 29.2 (CH_2), 27.1 (CH_2), 26.8 (CH_2), 24.3 (CH_2), 23.9 (CH_2), 22.93 (CH_2), 22.87 (CH_2), 20.4 (CH_3), 20.2 (CH_3), 14.1 (CH_3), 9.4 (CH_3), 9.1 (CH_3), 8.4 (CH_3), 8.3 (CH_3); HRMS (ESI-TOF) *m*/*z*: $[M+Na]^+$ Calcd for $C_{16}H_{30}O_3Na$ 293.2093, Found 293.2094.

2-((2*S*,2'*S*,3*S*,3'*R*)-2,3'-Diethyl-3'-((*R*)-2-methylhexyl)-[2,2'-bioxiran]-3-yl)ethan-1-ol (14b). To a stirred solution of *syn*-diepoxide **12b** (107 mg, 0.396 mmol) in CH_2Cl_2 (8.00 mL) were added $NaHCO_3$ (200 mg, 2.38 mmol) and Dess–Martin periodinane (503 mg, 1.19 mmol) at room temperature. After stirring for 35 min, the reaction mixture was diluted with Et_2O, washed with saturated aqueous $Na_2S_2O_3$ solution, H_2O and brine, dried over anhydrous Na_2SO_4, and then concentrated *in vacuo*. The residue was passed through a pad of silica gel (hexane/AcOEt = 9:1) and then concentrated *in vacuo* to give a crude product.

To a stirred suspension of methyltriphenylphosphonium bromide (198 mg, 0.554 mmol) in THF (3.40 mL) were added BuLi (0.310 mL, 0.487 mmol, 1.57 M in hexane) dropwise at 0 °C and the resulting mixture was stirred for 30 min at same temperature. The mixture was cooled to −78 °C. A solution of the crude product in THF (4.00 mL) was then added to the mixture. After stirring for 30 min at room temperature, the reaction mixture was diluted with Et_2O, washed with saturated aqueous NH_4Cl solution, H_2O and brine, dried over anhydrous Na_2SO_4, and then concentrated *in vacuo*. The residue was passed through

a pad of silica gel (hexane/AcOEt = 30:1) and then concentrated *in vacuo* to give a crude product.

To a solution of the crude product in THF (2.60 mL) was added 9-BBN (1.56 mL, 0.780 mmol, 0.50 M in THF) dropwise at 0 °C. After stirring for 2 hr at room temperature, $NaBO_3 \cdot 4H_2O$ (80.0 mg, 0.520 mmol) and H_2O were added to the reaction mixture. After stirring for 24 hr, the reaction mixture was diluted with Et_2O, washed with saturated aqueous NH_4Cl solution, H_2O and brine, dried over anhydrous Na_2SO_4, and then concentrated *in vacuo*. The residue was purified with flash column chromatography on silica gel (hexane/AcOEt = 2:1) to give alcohol **14b** (50.0 mg, 35% yield, 3 steps) as a colorless oil.; R_f 0.50 (hexane/AcOEt 1:2); $[\alpha]^{25}_D$ +2.4 (*c* 0.49, $CHCl_3$); IR (neat) ν_{max} = 3446, 2961, 2928, 2875, 1461, 1379, 1057, 939, 904 cm^{-1}; ^1H ($CDCl_3$, 400 MHz) δ 3.88 (1H, ddd, *J* = 5.4, 6.2, 10.6 Hz), 3.84 (1H, ddd, *J* = 5.0, 7.4, 10.6 Hz), 2.98 (1H, s), 2.97 (1H, dd, *J* = 5.0, 7.4 Hz), 2.00 (1H, dddd, *J* = 5.0, 5.4, 7.4, 14.4 Hz), 1.93 (1H, dddd, *J* = 5.0, 6.2, 7.4, 14.4 Hz), 1.81 (1H, dq, *J* = 14.3, 7.5 Hz), 1.72 (1H, ddd, *J* = 6.6, 7.4, 14.2 Hz), 1.70 (1H, ddd, *J* = 7.0, 7.4, 14.2 Hz), 1.64–1.54 (3H, m), 1.44–1.08 (7H, m), 1.03

(3H, t, *J* = 7.5 Hz), 0.99 (3H, t, *J* = 7.6 Hz), 0.94 (3H, d, *J* = 6.2 Hz), 0.90 (3H, t, *J* = 7.0 Hz); ^{13}C ($CDCl_3$, 100 MHz) δ 62.7 (C), 61.5 (CH), 60.7 (CH_2), 60.4 (C), 58.3 (CH), 41.9 (CH_2), 36.8 (CH_2), 31.0 (CH_2), 29.6 (CH), 29.3 (CH_2), 27.0 (CH_2), 23.0 (CH_2), 22.6 (CH_2), 20.5 (CH_3), 14.1 (CH_3), 9.5 (CH_3), 9.0 (CH_3). NMR ($CDCl_3$, 400 MHz) δ 3.82 (1H, dd, *J* = 4.2, 12.1 Hz); HRMS (ESI-TOF) *m*/*z*: $[M+Na]^+$ Calcd for $C_{17}H_{32}O_3Na$ 307.2249, Found 307.2248.

Methyl 2-((2*S*,2'*S*,3*S*,3'*R*)-2,3'-diethyl-3'-((*R*)-2-methylhexyl)-[2,2'-bioxiran]-3-yl)acetate (2b). To a stirred solution of alcohol **14b** (21.0 mg, 0.0738 mmol) in pH 6.8 phosphate buffer (0.250 mL, 1.0 M in H_2O) were added a solution of 1-Me-AZADO (1.2 mg, 0.00722 mmol) in CH_3CN (0.370 mL), $NaClO_2$ (0.011 mL, 0.00738 mmol, 5% in H_2O), and NaClO (25.0 mg, 0.218 mmol) at room temperature. After stirring for 30 min at room temperature, the reaction mixture was quenched with pH 2.3 phosphate buffer (1.0 M in H_2O), diluted with $CHCl_3$, washed with brine, dried over anhydrous Na_2SO_4, and then concentrated *in vacuo* to give a crude product.

To a solution of the crude product in benzene/MeOH (2:1, 1.50 mL) was added $TMSCHN_2$ (0.180 mL, 0.108 mmol, 0.60 M in hexane) dropwise at room temperature. After stirring for 30 min at same temperature, the reaction mixture was quenched with acetic acid and diluted with Et_2O. After stirring for 15 min, the resultant mixture was concentrated *in vacuo*. The residue was purified with flash column chromatography on silica gel (hexane/AcOEt = 10:1) to give diepoxyester **2b** (20.2 mg, 88% yield, 2 steps) as a colorless oil.; R_f 0.60 (hexane/AcOEt 5:1); $[\alpha]^{25}_D$ +33.6 (*c* 0.42, $CHCl_3$); IR (neat) ν_{max} = 2957, 2928, 2873, 1742, 1461, 1436, 1341, 1197, 1174 cm^{-1}; ^1H NMR ($CDCl_3$, 500 MHz) δ 3.72 (3H, s), 3.13 (1H, dd, *J* = 6.0, 6.3 Hz), 2.99 (1H, s), 2.88 (1H, dd, *J* = 5.9, 17.2 Hz), 2.79 (1H, dd, *J* = 6.4, 17.2 Hz), 1.87 (1H, dq, *J* = 14.3, 7.5 Hz), 1.713 (1H, q, *J* = 7.5 Hz), 1.706 (1H, q, *J* = 7.5 Hz), 1.63–1.55 (3H, m), 1.44–1.18 (6H, m), 1.09 (1H, m), 1.024 (3H, t, *J* = 7.5 Hz), 1.017 (3H, t, *J* = 7.6 Hz), 0.94 (3H, d, *J* = 6.4 Hz), 0.90 (3H, t, *J* = 7.0 Hz); ^{13}C NMR ($CDCl_3$, 125 MHz) δ 171.5 (C), 62.8 (C), 60.9 (CH), 60.2 (C), 55.5 (CH), 51.8 (CH_3), 41.9 (CH_2), 36.7 (CH_2), 33.6 (CH_2), 29.7 (CH), 29.3 (CH_2), 26.9 (CH_2), 23.0 (CH_2), 22.4 (CH_2), 20.5 (CH_3), 14.1 (CH_3), 9.4 (CH_3), 8.9 (CH_3); HRMS

(ESI-TOF) *m*/*z*: $[M+Na]^+$ Calcd for $C_{18}H_{32}O_4Na$ 335.2198, Found 335.2197.

(3a*S*,5*S*,6*S*,6a*S*)-5,6a-Diethyl-6-hydroxy-5-((*R*)-2-methylhexyl)tetrahydrofuro[3,2-b]furan-2(3*H*)-one (1b). A solution of 10-camphorsulfonic acid (0.560 mL, 0.0241 mmol, 1% in CH_2Cl_2) and H_2O (0.00051 mL, 0.0283 mmol) were added to diepoxyester **2b** (8.8 mg, 0.0283 mmol) at room temperature. After stirring for 9 hr at same temperature, the reaction mixture was concentrated *in vacuo*. The residue was purified with flash column chromatography on silica gel (hexane/acetone = 7:1) to give tetrahydrofuran-γ-lactone **1b** (7.4 mg, 88% yield) as a colorless oil.; R_f 0.40 (hexane/acetone 3:1); $[\alpha]^{25}_D$ – 14.7 (*c* 0.29, $CHCl_3$); IR (neat) ν_{max} = 3468, 2928, 1783, 1462, 1218, 1129, 1055 cm^{-1}; ^1H NMR ($CDCl_3$, 500 MHz) δ 4.35 (1H, dd, *J* = 0.6, 5.5 Hz), 3.93 (1H, d, *J* = 10.9 Hz), 2.77 (1H, dd, *J* = 5.5, 18.5 Hz), 2.67 (1H, dd, *J* = 0.6, 18.5 Hz), 2.23 (1H, d, *J* = 10.9 Hz), 1.93 (1H, dq, *J* = 14.6, 7.5 Hz), 1.80 (1H, dq, *J* = 14.6, 7.5 Hz), 1.60 (1H, dd, *J* = 4.0, 14.2 Hz), 1.58 (1H, dd, *J* = 7.5, 14.2 Hz), 1.50 (1H, m), 1.47 (1H, dd, *J* = 14.2, 7.5 Hz), 1.38–1.21 (6H, m), 1.17 (1H, m), 1.03 (3H, t, *J* = 7.5 Hz), 0.96 (3H, d, *J* = 6.6 Hz), 0.91

(3H, t, J = 7.5 Hz), 0.89 (3H, t, J = 6.8 Hz); ^{13}C NMR ($CDCl_3$, 125 MHz) δ 174.7 (C), 95.0 (C), 87.8 (C), 81.1 (CH), 77.3 (CH), 43.1 (CH_2), 38.33 (CH_2), 38.27 (CH_2), 29.2 (CH_2), 29.0 (CH_2), 28.7 (CH), 26.2 (CH_2), 22.9 (CH_2), 21.1 (CH_3), 14.1 (CH_3), 8.0 (CH_3), 7.8 (CH_3); HRMS (ESI-TOF) m/z: $[M+Na]^+$ Calcd for $C_{17}H_{30}O_4Na$ 321.2042, Found 321.2043.

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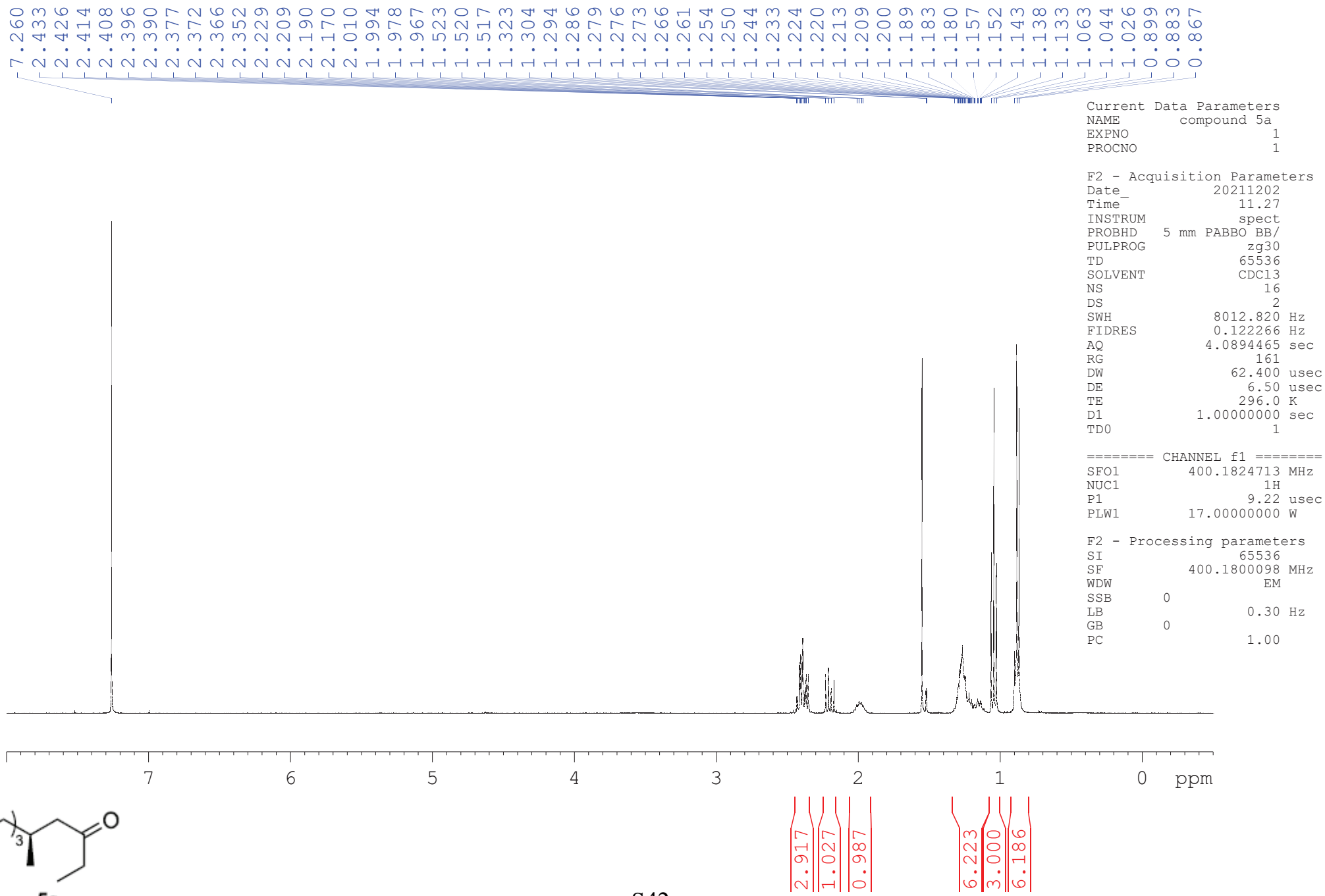
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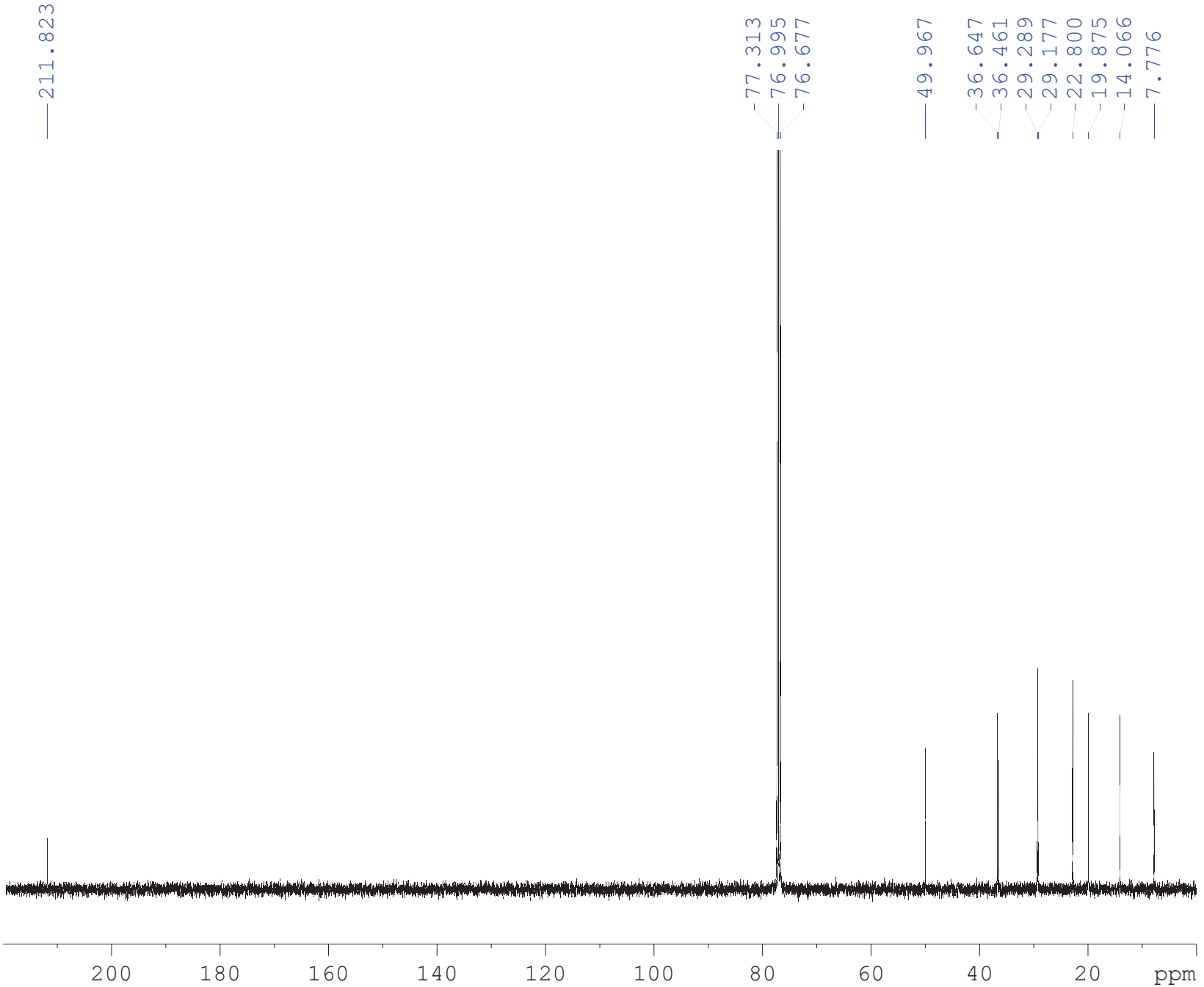
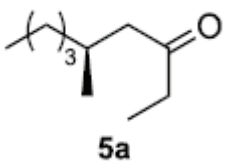
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 161
DW 62.400 usec
DE 6.50 usec
TE 296.0 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1824713 MHz
NUC1 1H
P1 9.22 usec
PLW1 17.00000000 W
F2 - Processing parameters
SI 65536
SF 400.1800098 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
7
6
5
4
3
2
1
0
ppm
2.917
1.027
0.987
6.223
3.000
6.186
O
3

5a





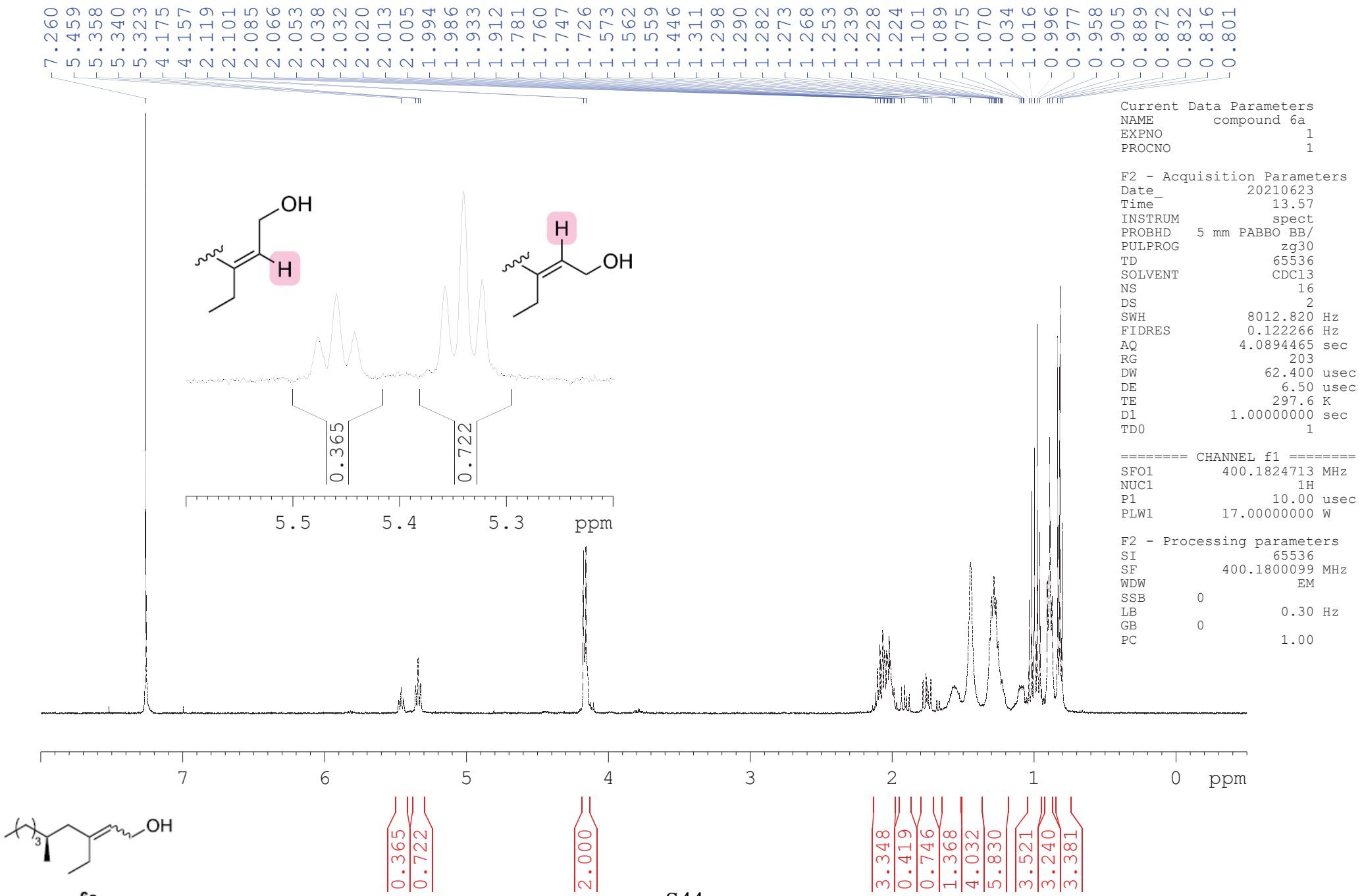
5a

Current Data Parameters
NAME compound 5a
EXPNO 1
PROCNO 1

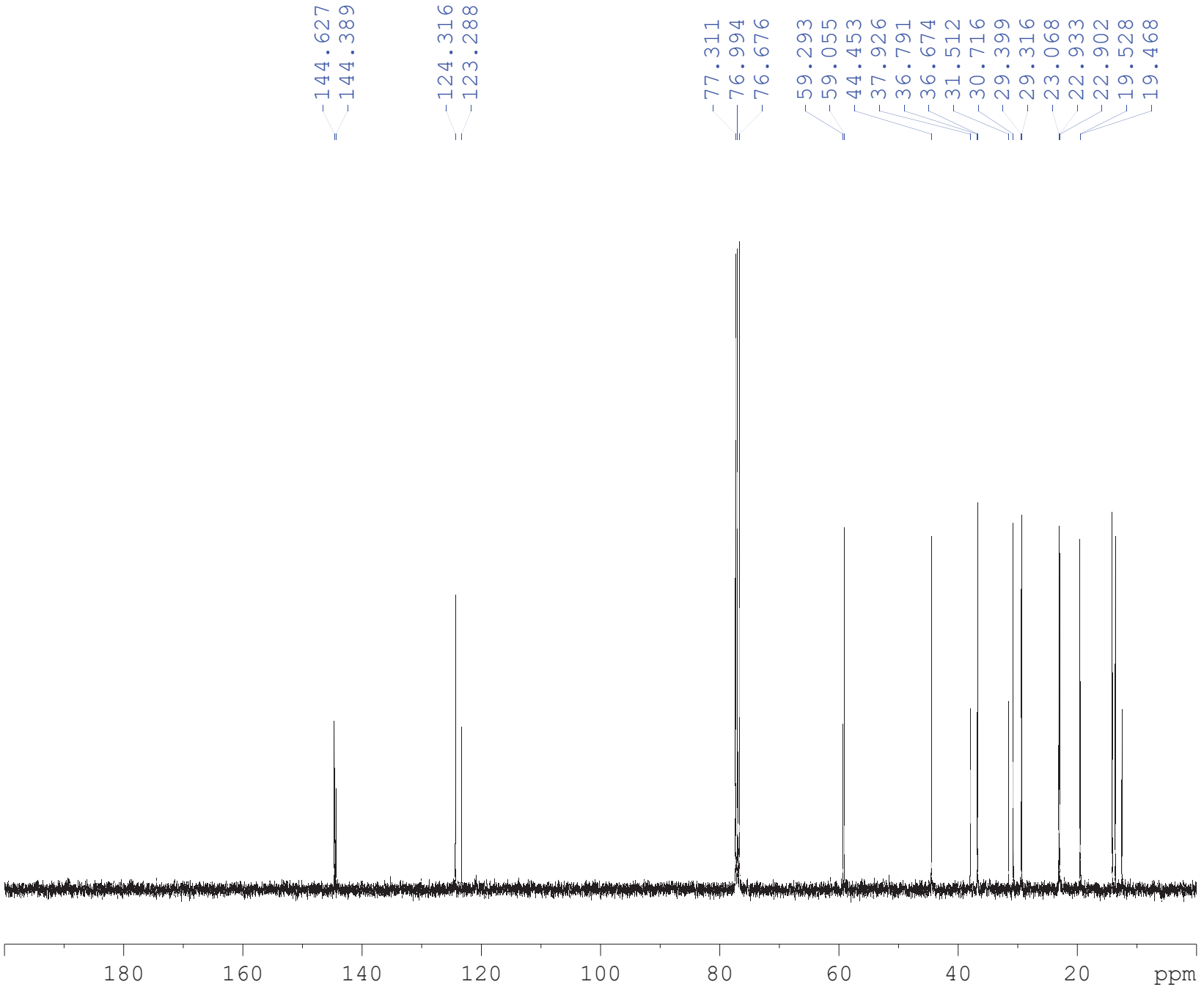
F2 - Acquisition Parameters
Date_ 20211202
Time 11.46
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 256
DS 4
SWH 24038.461 Hz
FIDRES 0.366798 Hz
AQ 1.3631488 sec
RG 203
DW 20.800 usec
DE 6.50 usec
TE 297.3 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

======== CHANNEL f1 ========
SFO1 100.6354031 MHz
NUC1 13C
P1 10.00 usec
PLW1 70.00000000 W

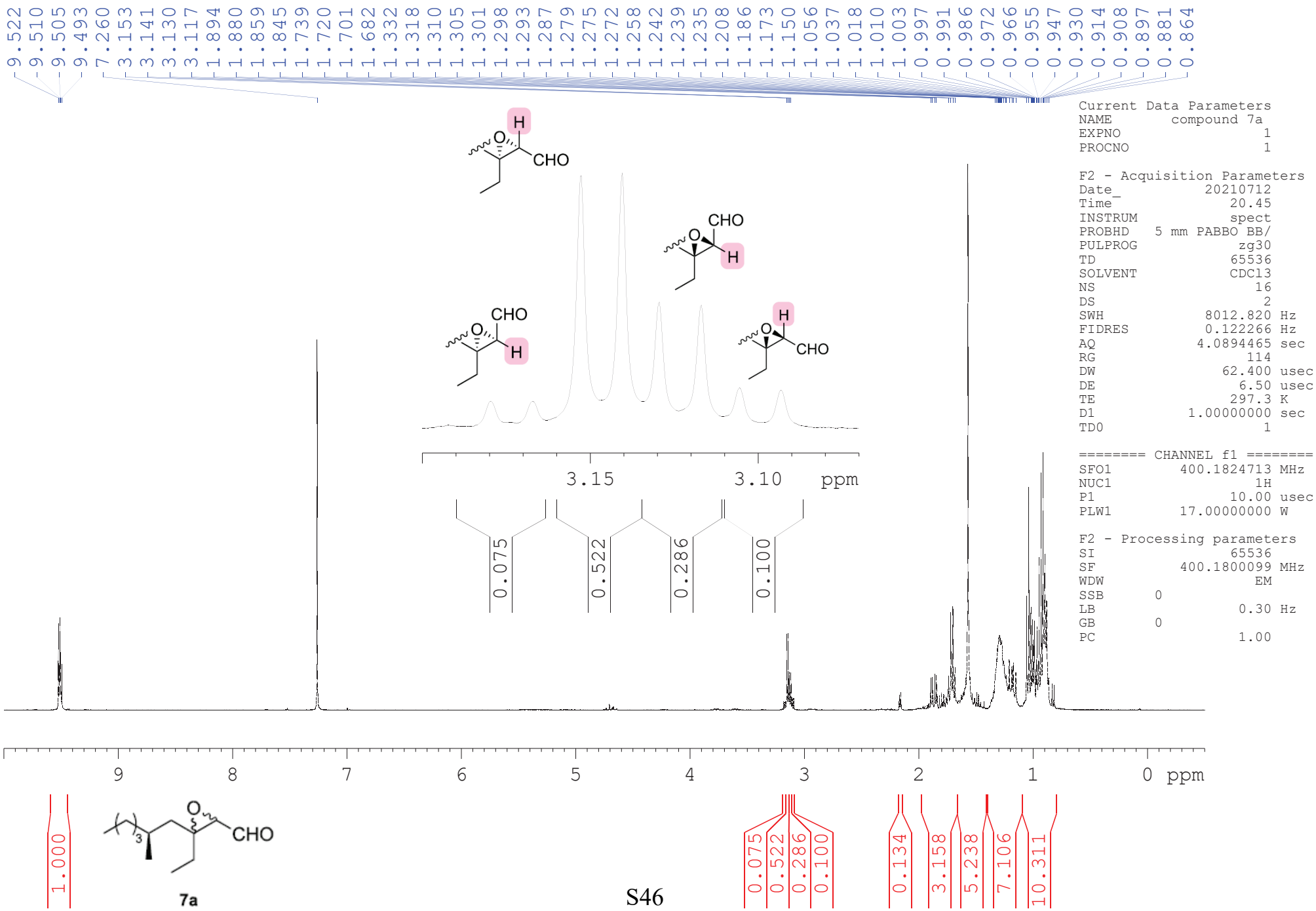
======== CHANNEL f2 ========
SFO2 400.1816007 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 17.00000000 W
PLW12 0.17840999 W
PLW13 0.08974000 W


7.260 5.459 5.358 5.340 5.323 4.175 4.157 2.119 2.101 2.085 2.066 2.053 2.038 2.032 2.020 2.013 2.005 1.994 1.986 1.933 1.912 1.781 1.760 1.747 1.726 1.573 1.562 1.559 1.446 1.311 1.298 1.290 1.282 1.273 1.268 1.253 1.239 1.228 1.224 1.101 1.089 1.075 1.070 1.034 1.016 0.996 0.977 0.958 0.905 0.889 0.872 0.832 0.816 0.801
OH
H
H
OH
0.365
0.722
5.5
5.4
5.3
ppm
Current Data Parameters
NAME compound 6a
EXPNO 1
PROCNO 1
F2 - Acquisition Parameters
Date_ 20210623
Time 13.57
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 203
DW 62.400 usec
DE 6.50 usec
TE 297.6 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1824713 MHz
NUC1 1H
P1 10.00 usec
PLW1 17.00000000 W
F2 - Processing parameters
SI 65536
SF 400.1800099 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
7 6 5 4 3 2 1 0 ppm
OH
3
0.365
0.722
2.000
3.348
0.419
0.746
1.368
4.032
5.830
3.521
3.240
3.381

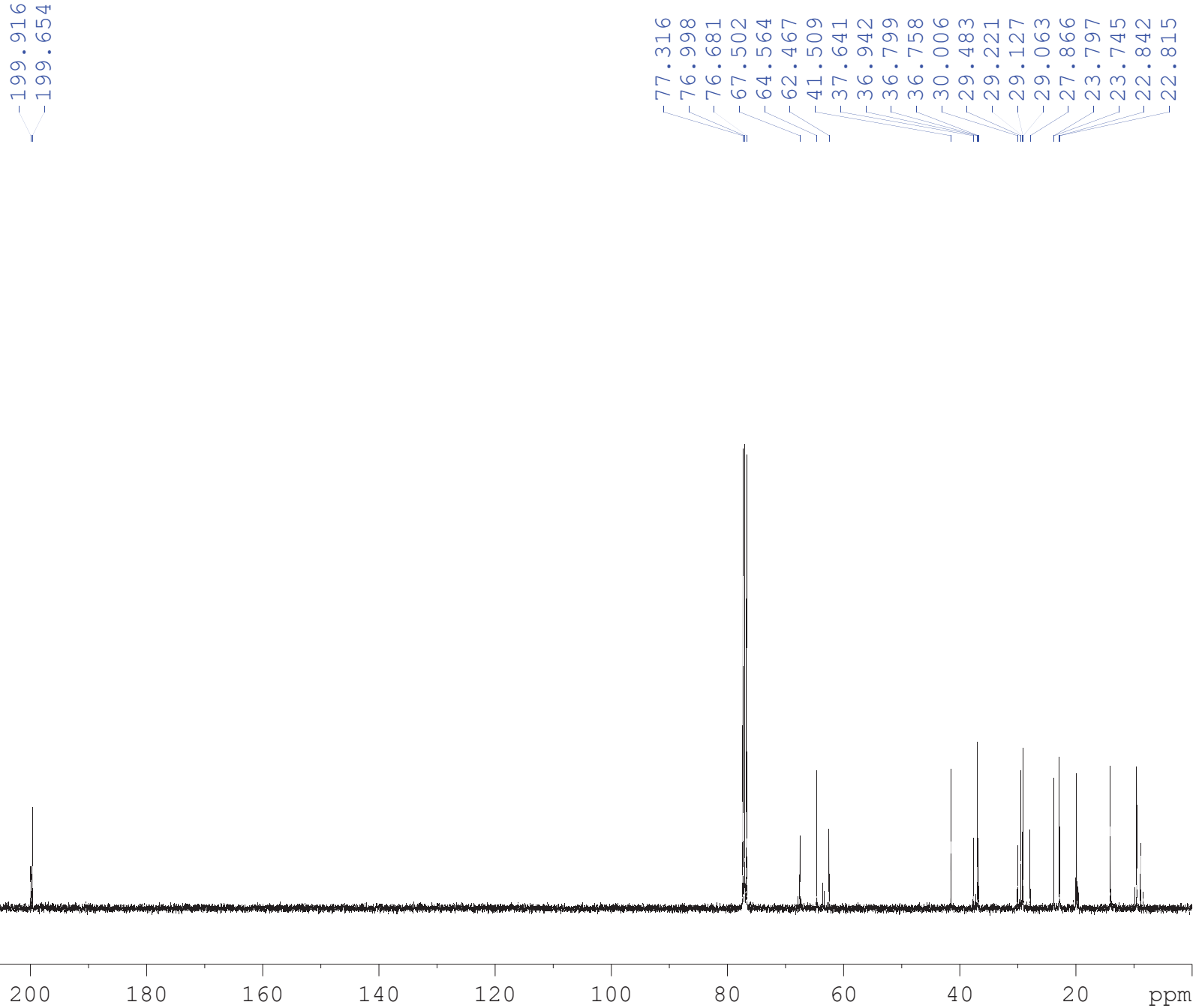
6a




```
Current Data Parameters
NAME        compound 6a
EXPNO                 1
PROCNO                1

F2 - Acquisition Parameters
Date_          20210702
Time              15.45
INSTRUM           spect
PROBHD   5 mm PABBO BB/
PULPROG         zgpg30
TD                65536
SOLVENT           CDCl3
NS                  128
DS                    4
SWH           24038.461 Hz
FIDRES         0.366798 Hz
AQ             1.3631488 sec
RG                  203
DW                20.800 usec
DE                 6.50 usec
TE                298.8 K
D1           2.00000000 sec
D11          0.03000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1        100.6354031 MHz
NUC1               13C
P1                10.00 usec
PLW1         70.00000000 W

======== CHANNEL f2 ========
SFO2        400.1816007 MHz
NUC2               1H
CPDPRG[2        waltz16
PCPD2             90.00 usec
PLW2         17.00000000 W
PLW12         0.20987999 W
PLW13         0.10557000 W
```

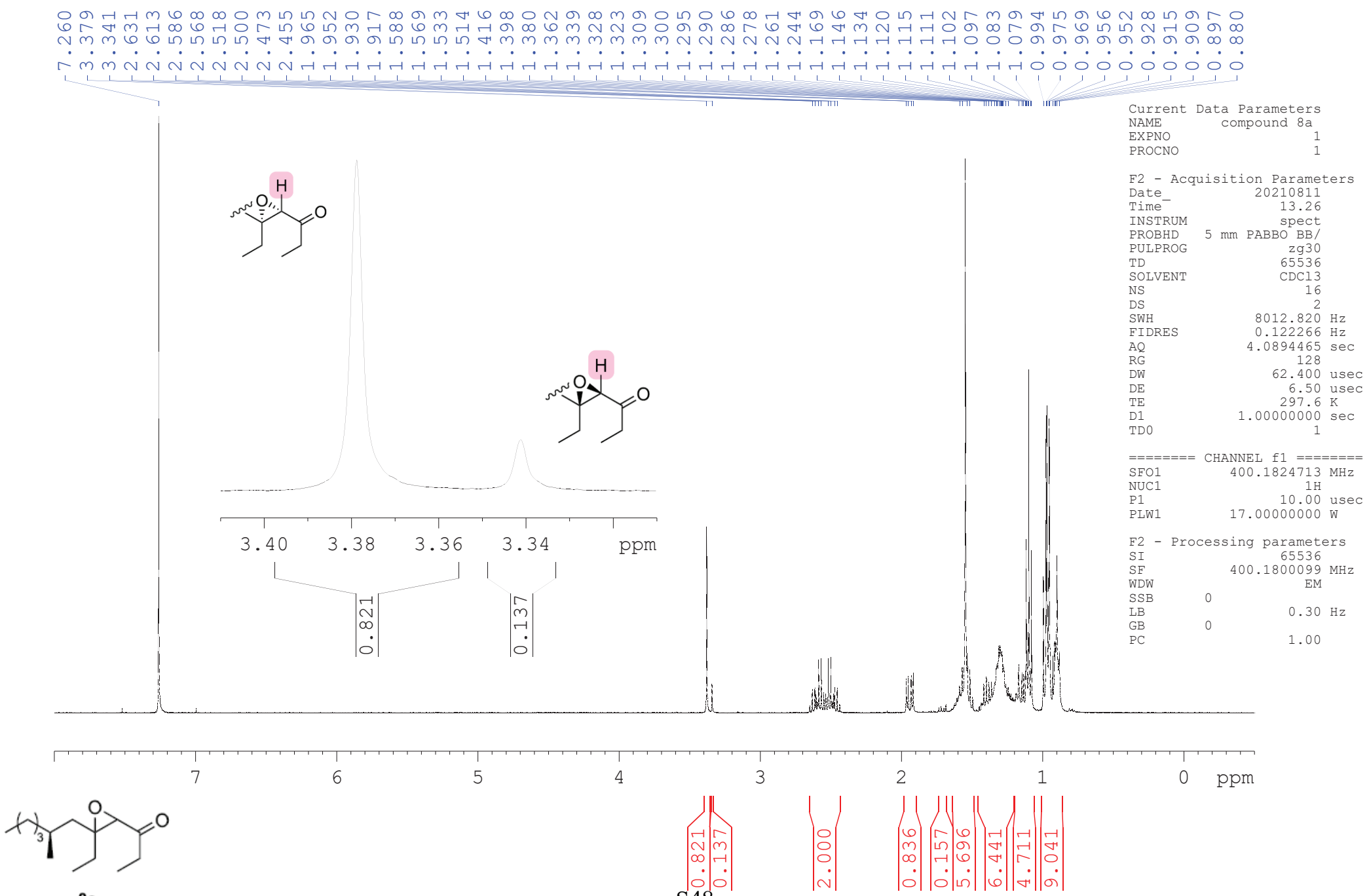

9.522 9.510 9.505 9.493 7.260 3.153 3.141 3.130 3.117 1.894 1.880 1.859 1.845 1.739 1.720 1.701 1.682 1.332 1.318 1.310 1.305 1.301 1.298 1.293 1.287 1.279 1.275 1.272 1.258 1.242 1.239 1.235 1.208 1.186 1.173 1.150 1.056 1.037 1.018 1.010 1.003 0.997 0.991 0.986 0.972 0.966 0.955 0.947 0.930 0.914 0.908 0.897 0.881 0.864
Current Data Parameters
NAME compound 7a
EXPNO 1
PROCNO 1
F2 - Acquisition Parameters
Date_ 20210712
Time 20.45
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 114
DW 62.400 usec
DE 6.50 usec
TE 297.3 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1824713 MHz
NUC1 1H
P1 10.00 usec
PLW1 17.00000000 W
F2 - Processing parameters
SI 65536
SF 400.1800099 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
3.15
3.10
ppm
0.075
0.522
0.286
0.100
9 8 7 6 5 4 3 2 1 0 ppm
1.000
0.075 0.522 0.286 0.100
0.134 3.158 5.238 7.106 10.311

7a

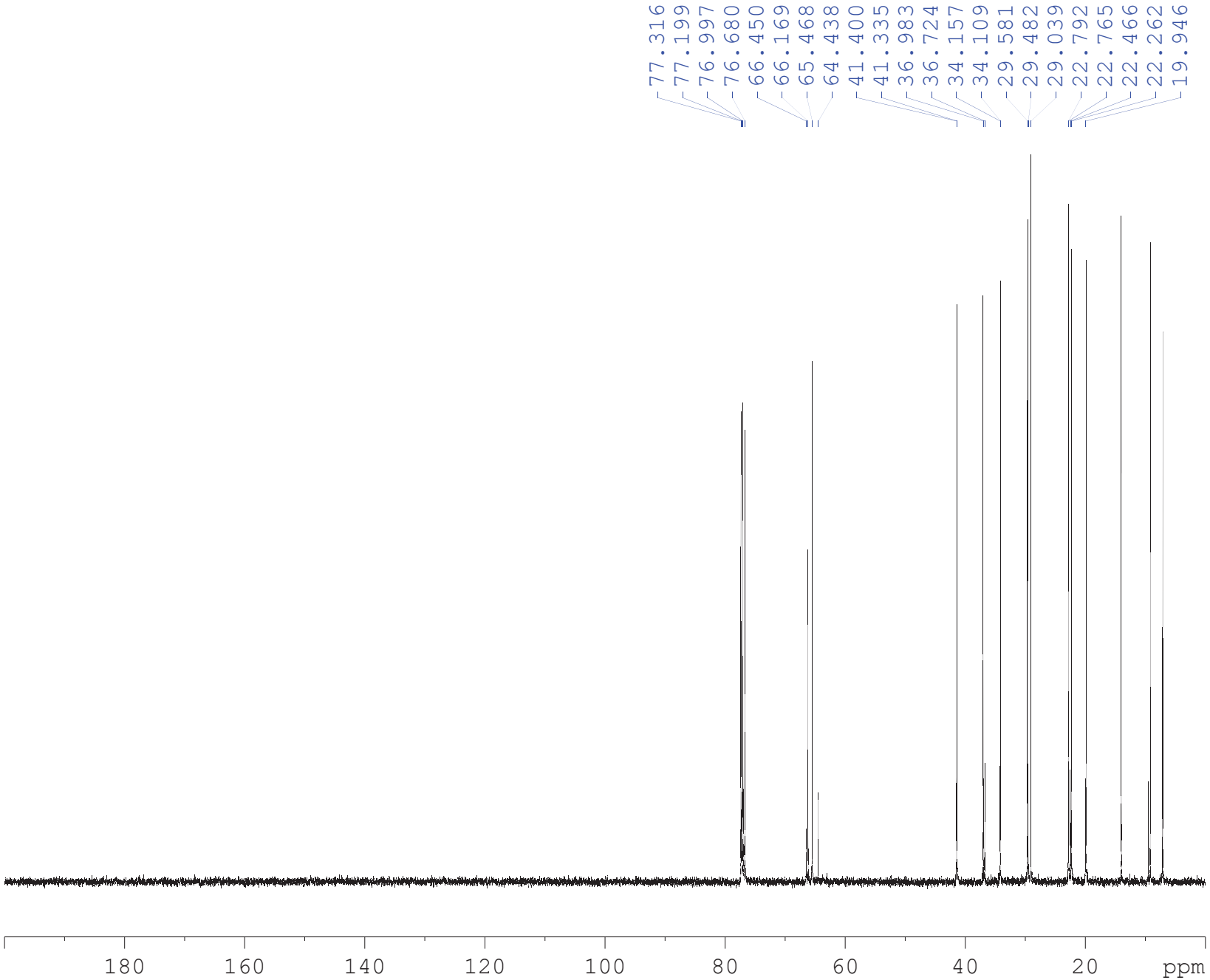


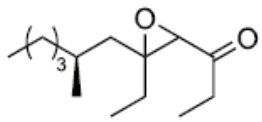
7a

```
Current Data Parameters
NAME        compound 7a
EXPNO                 1
PROCNO                1

F2 - Acquisition Parameters
Date_          20210712
Time              21.03
INSTRUM           spect
PROBHD   5 mm PABBO BB/
PULPROG         zgpg30
TD                65536
SOLVENT           CDCl3
NS                  256
DS                    4
SWH           24038.461 Hz
FIDRES         0.366798 Hz
AQ            1.3631488 sec
RG                  203
DW               20.800 usec
DE                6.50 usec
TE               299.0 K
D1           2.00000000 sec
D11          0.03000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1        100.6354031 MHz
NUC1               13C
P1               10.00 usec
PLW1         70.00000000 W

======== CHANNEL f2 ========
SFO2        400.1816007 MHz
NUC2               1H
CPDPRG[2        waltz16
PCPD2            90.00 usec
PLW2         17.00000000 W
PLW12         0.20987999 W
PLW13         0.10557000 W
```


7.260 3.379 3.341 2.631 2.613 2.586 2.568 2.518 2.500 2.473 2.455 1.965 1.952 1.930 1.917 1.588 1.569 1.533 1.514 1.416 1.398 1.380 1.362 1.339 1.328 1.323 1.309 1.300 1.295 1.290 1.286 1.278 1.261 1.244 1.169 1.146 1.134 1.120 1.115 1.111 1.102 1.097 1.083 1.079 0.994 0.975 0.969 0.956 0.952 0.928 0.915 0.909 0.897 0.880
Current Data Parameters
NAME compound 8a
EXPNO 1
PROCNO 1
F2 - Acquisition Parameters
Date_ 20210811
Time 13.26
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 128
DW 62.400 usec
DE 6.50 usec
TE 297.6 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1824713 MHz
NUC1 1H
P1 10.00 usec
PLW1 17.00000000 W
F2 - Processing parameters
SI 65536
SF 400.1800099 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
H
O
O
H
O
O
3.40 3.38 3.36 3.34 ppm
0.821
0.137
7 6 5 4 3 2 1 0 ppm
0.821 0.137 2.000 0.836 0.157 5.696 6.441 4.711 9.041

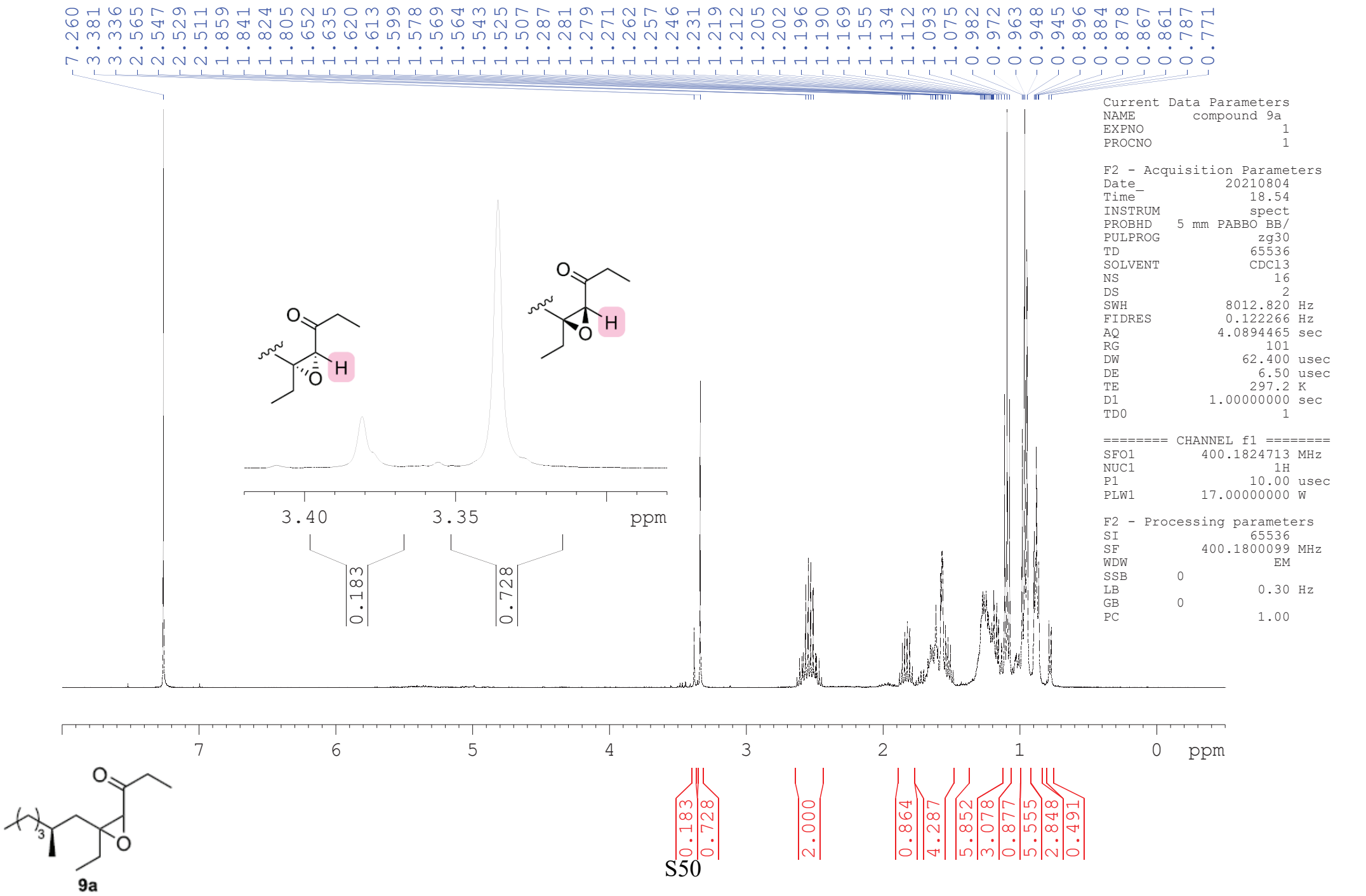
8a

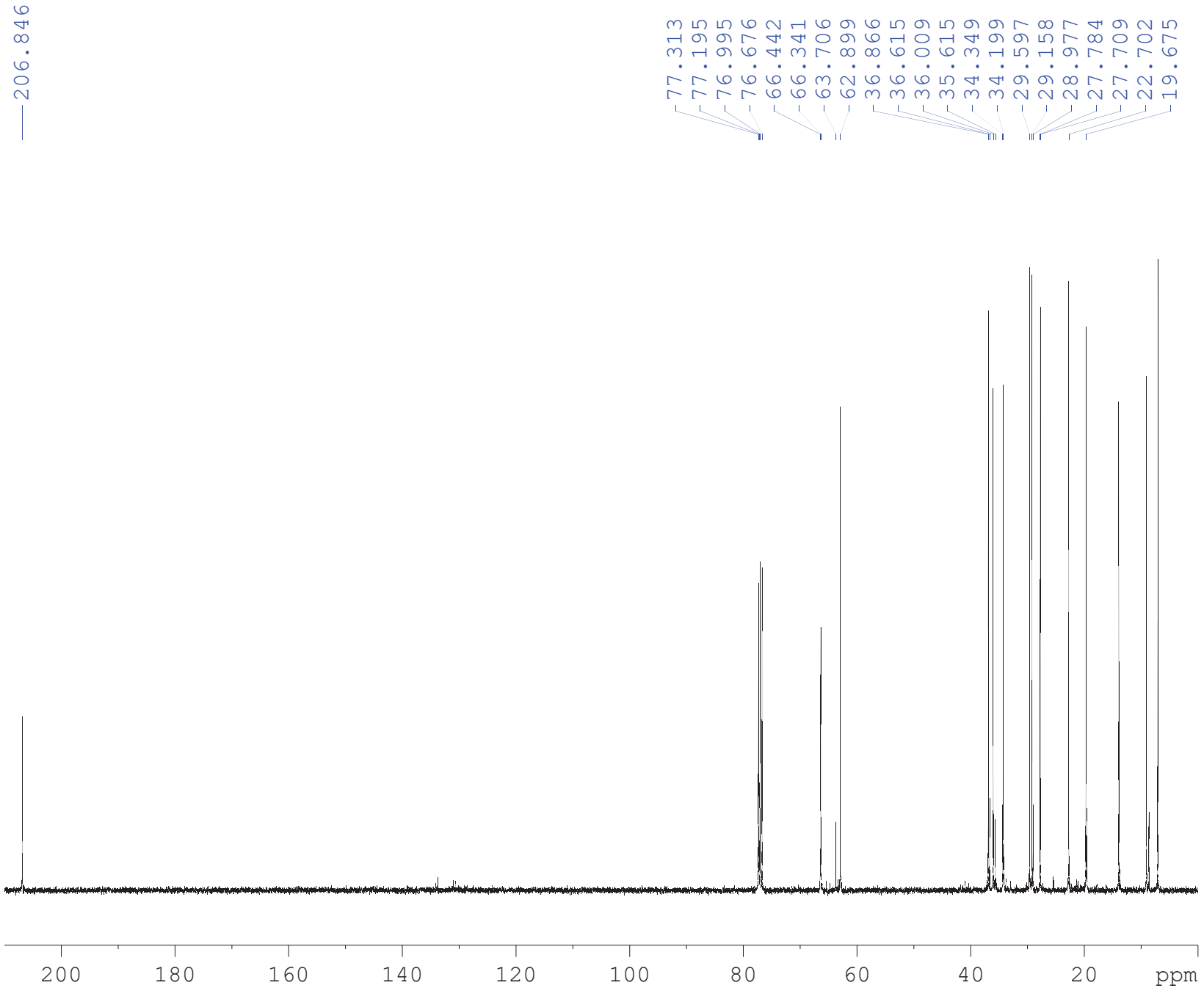




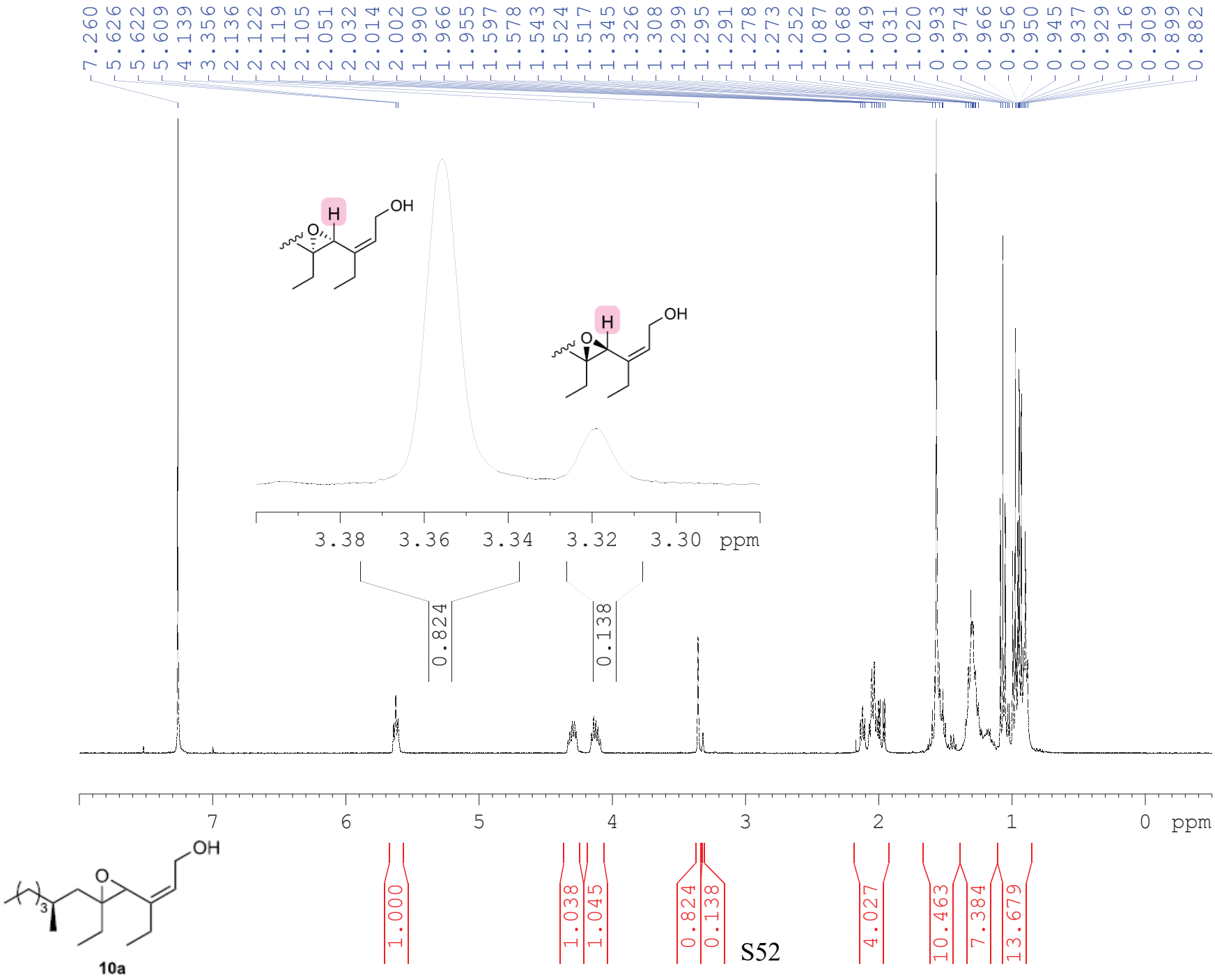
8a

```
Current Data Parameters
NAME        compound 8a
EXPNO                 1
PROCNO                1

F2 - Acquisition Parameters
Date_          20210811
Time              14.04
INSTRUM           spect
PROBHD   5 mm PABBO BB/
PULPROG         zgpg30
TD                65536
SOLVENT           CDCl3
NS                  256
DS                    4
SWH           24038.461 Hz
FIDRES         0.366798 Hz
AQ             1.3631488 sec
RG                  203
DW               20.800 usec
DE                6.50 usec
TE               297.9 K
D1            2.00000000 sec
D11           0.03000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1        100.6354031 MHz
NUC1               13C
P1               10.00 usec
PLW1         70.00000000 W

======== CHANNEL f2 ========
SFO2        400.1816007 MHz
NUC2               1H
CPDPRG[2        waltz16
PCPD2             90.00 usec
PLW2         17.00000000 W
PLW12         0.20987999 W
PLW13         0.10557000 W
```


7.260
3.381
3.336
2.565
2.547
2.529
2.511
1.859
1.841
1.824
1.805
1.652
1.635
1.620
1.613
1.599
1.578
1.569
1.564
1.543
1.525
1.507
1.287
1.281
1.279
1.271
1.262
1.257
1.246
1.231
1.219
1.212
1.205
1.202
1.196
1.190
1.169
1.155
1.134
1.112
1.093
1.075
0.982
0.972
0.963
0.948
0.945
0.896
0.884
0.878
0.867
0.861
0.787
0.771
Current Data Parameters
NAME compound 9a
EXPNO 1
PROCNO 1
F2 - Acquisition Parameters
Date_ 20210804
Time 18.54
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 101
DW 62.400 usec
DE 6.50 usec
TE 297.2 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1824713 MHz
NUC1 1H
P1 10.00 usec
PLW1 17.00000000 W
F2 - Processing parameters
SI 65536
SF 400.1800099 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
3.40
3.35
ppm
0.183
0.728
7
6
5
4
3
2
1
0
ppm
0.183
0.728
2.000
0.864
4.287
5.852
3.078
0.877
5.555
2.848
0.491
9a




```
Current Data Parameters
NAME        Compound 9a
EXPNO                 1
PROCNO                1

F2 - Acquisition Parameters
Date_          20210804
Time              16.36
INSTRUM           spect
PROBHD   5 mm PABBO BB/
PULPROG         zgpg30
TD                65536
SOLVENT           CDCl3
NS                  256
DS                    4
SWH           24038.461 Hz
FIDRES         0.366798 Hz
AQ             1.3631488 sec
RG                  203
DW                20.800 usec
DE                 6.50 usec
TE                298.6 K
D1           2.00000000 sec
D11          0.03000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1        100.6354031 MHz
NUC1               13C
P1                10.00 usec
PLW1         70.00000000 W

======== CHANNEL f2 ========
SFO2        400.1816007 MHz
NUC2               1H
CPDPRG[2        waltz16
PCPD2             90.00 usec
PLW2         17.00000000 W
PLW12         0.20987999 W
PLW13         0.10557000 W
```



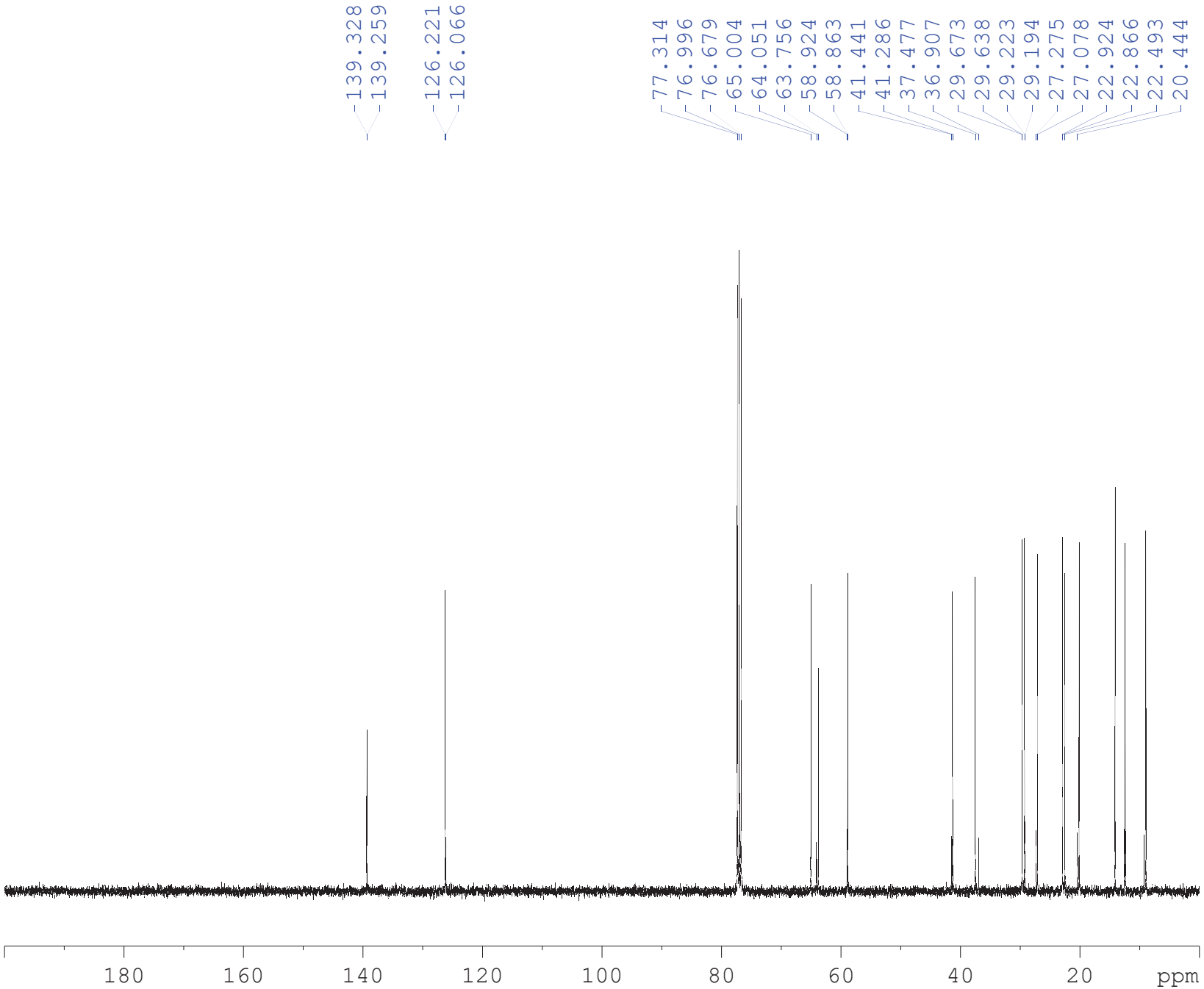
Current Data Parameters
NAME compound 10a
EXPNO 1
PROCNO 1

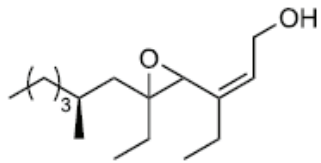
F2 - Acquisition Parameters
Date_ 20210812
Time 14.12
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 128
DW 62.400 usec
DE 6.50 usec
TE 297.8 K
D1 1.00000000 sec
TD0 1

======== CHANNEL f1 ========
SFO1 400.1824713 MHz
NUC1 1H
P1 10.00 usec
PLW1 17.00000000 W

F2 - Processing parameters
SI 65536
SF 400.1800099 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

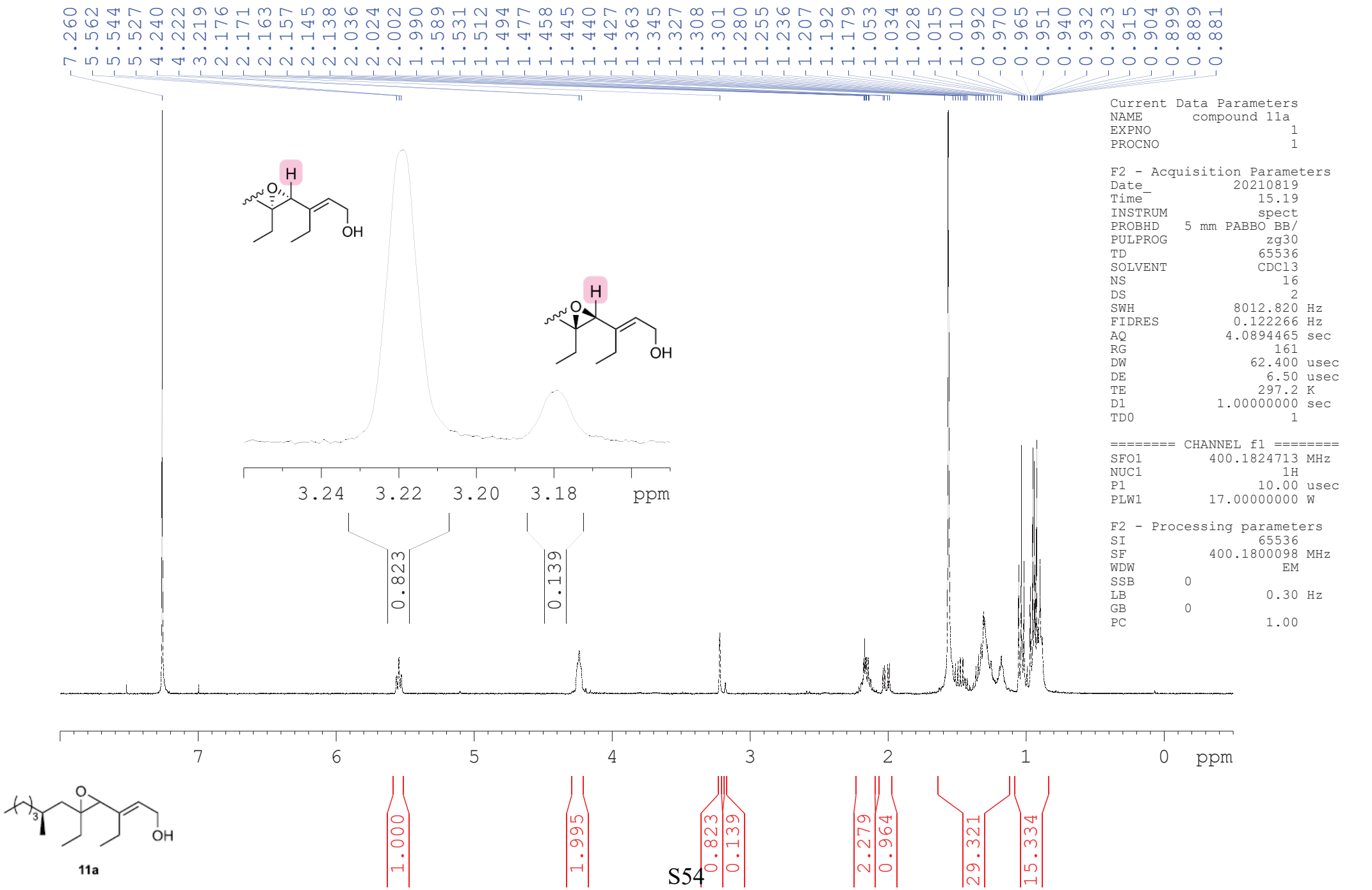
10a



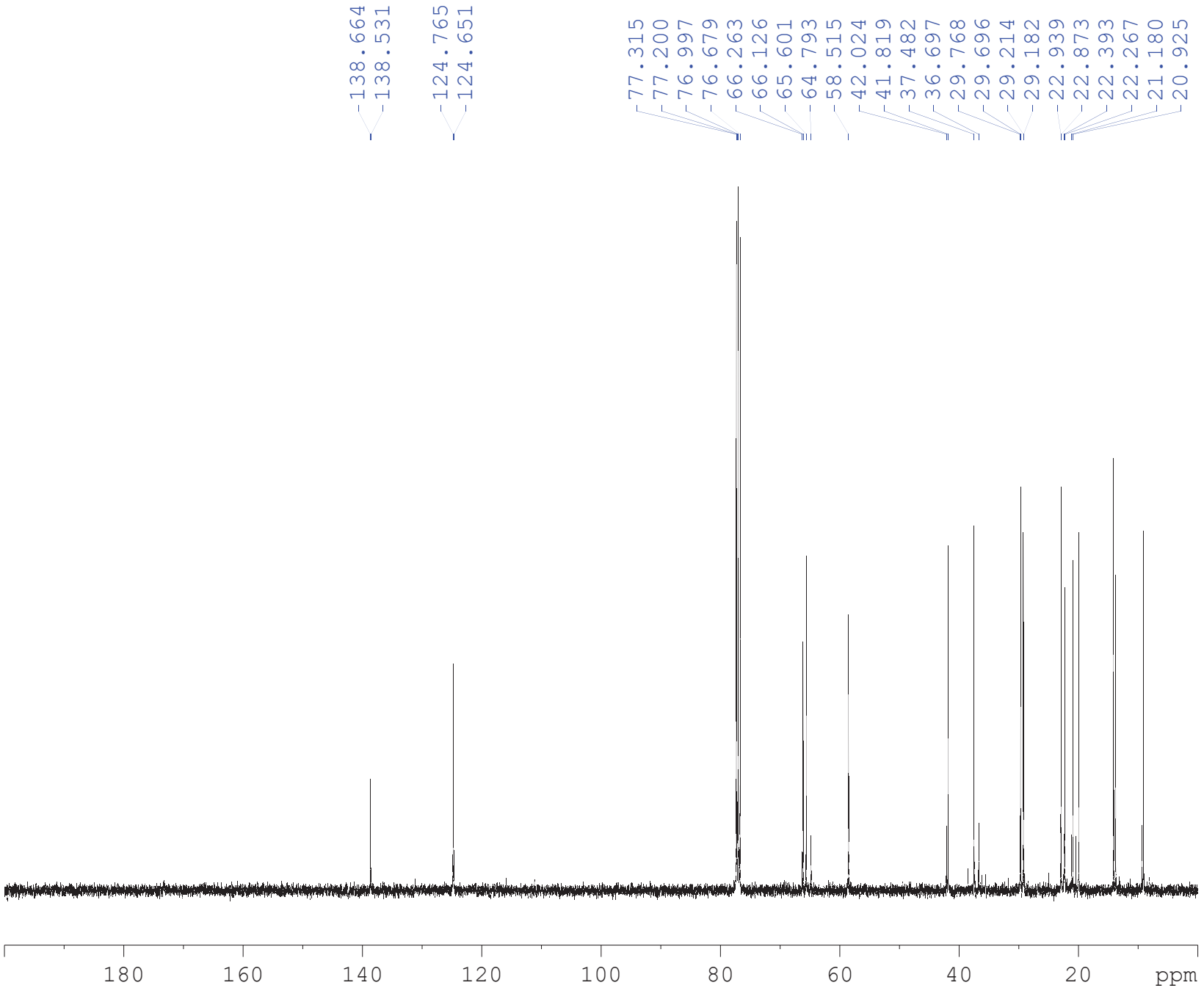


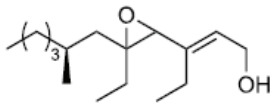
10a

```
Current Data Parameters
NAME      compound 10a
EXPNO                1
PROCNO               1

F2 - Acquisition Parameters
Date_          20210812
Time              14.30
INSTRUM           spect
PROBHD   5 mm PABBO BB/
PULPROG         zgpg30
TD                65536
SOLVENT           CDCl3
NS                  256
DS                    4
SWH           24038.461 Hz
FIDRES         0.366798 Hz
AQ             1.3631488 sec
RG                  203
DW               20.800 usec
DE                6.50 usec
TE               298.2 K
D1            2.00000000 sec
D11           0.03000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1        100.6354031 MHz
NUC1               13C
P1               10.00 usec
PLW1         70.00000000 W

======== CHANNEL f2 ========
SFO2        400.1816007 MHz
NUC2               1H
CPDPRG[2        waltz16
PCPD2             90.00 usec
PLW2         17.00000000 W
PLW12         0.20987999 W
PLW13         0.10557000 W
```


7.260 5.562 5.544 5.527 4.240 4.222 3.219 2.176 2.171 2.163 2.157 2.145 2.138 2.036 2.024 2.002 1.990 1.589 1.531 1.512 1.494 1.477 1.458 1.445 1.440 1.427 1.363 1.345 1.327 1.308 1.301 1.280 1.255 1.236 1.207 1.192 1.179 1.053 1.034 1.028 1.015 1.010 0.992 0.970 0.965 0.951 0.940 0.932 0.923 0.915 0.904 0.899 0.889 0.881
Current Data Parameters
NAME compound 11a
EXPNO 1
PROCNO 1
F2 - Acquisition Parameters
Date_ 20210819
Time 15.19
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 161
DW 62.400 usec
DE 6.50 usec
TE 297.2 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1824713 MHz
NUC1 1H
P1 10.00 usec
PLW1 17.00000000 W
F2 - Processing parameters
SI 65536
SF 400.1800098 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
H
O
OH
3.24 3.22 3.20 3.18 ppm
0.823
0.139
7 6 5 4 3 2 1 0 ppm
1.000
1.995
0.823
0.139
2.279
0.964
29.321
15.334

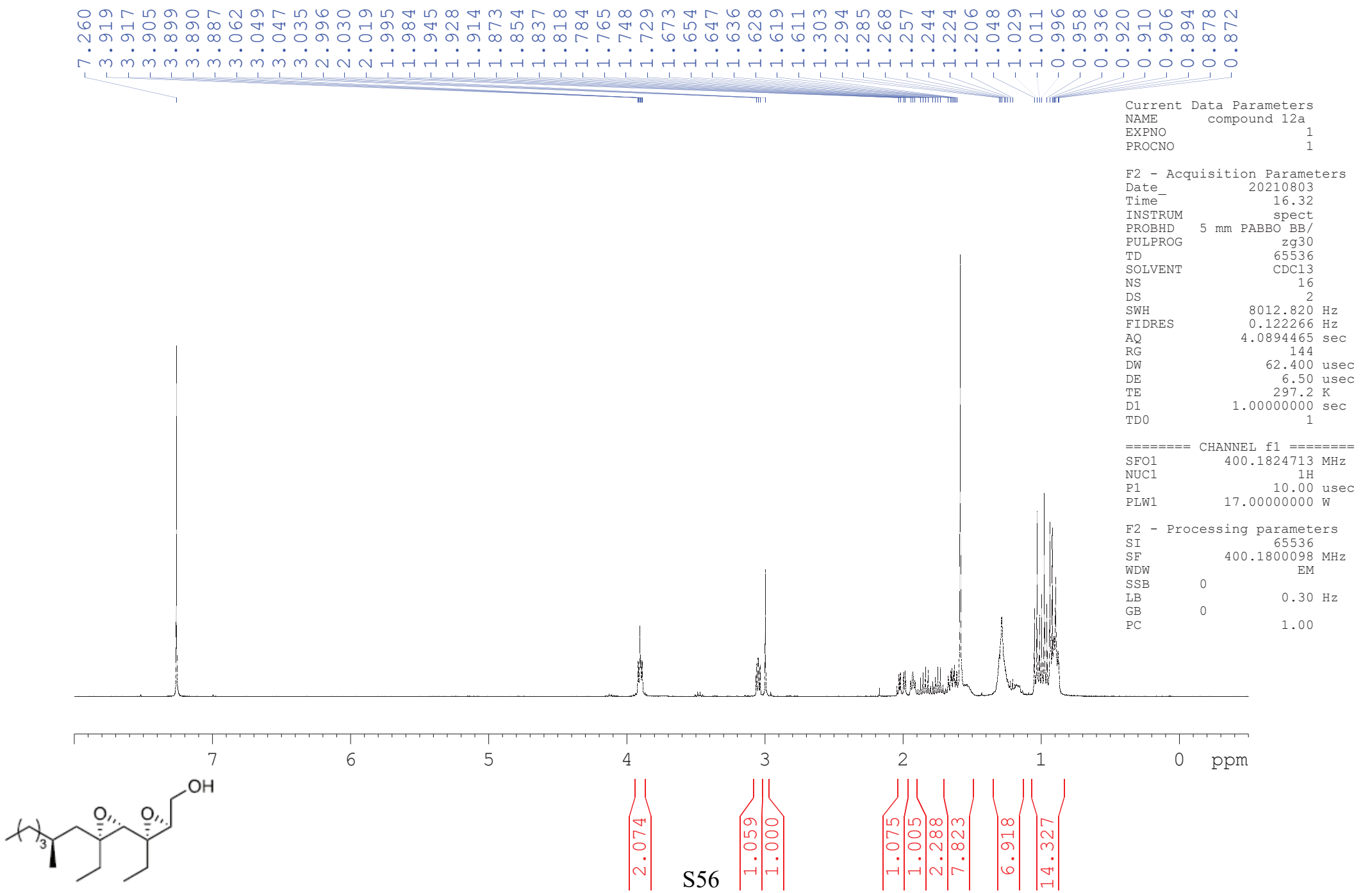
11a



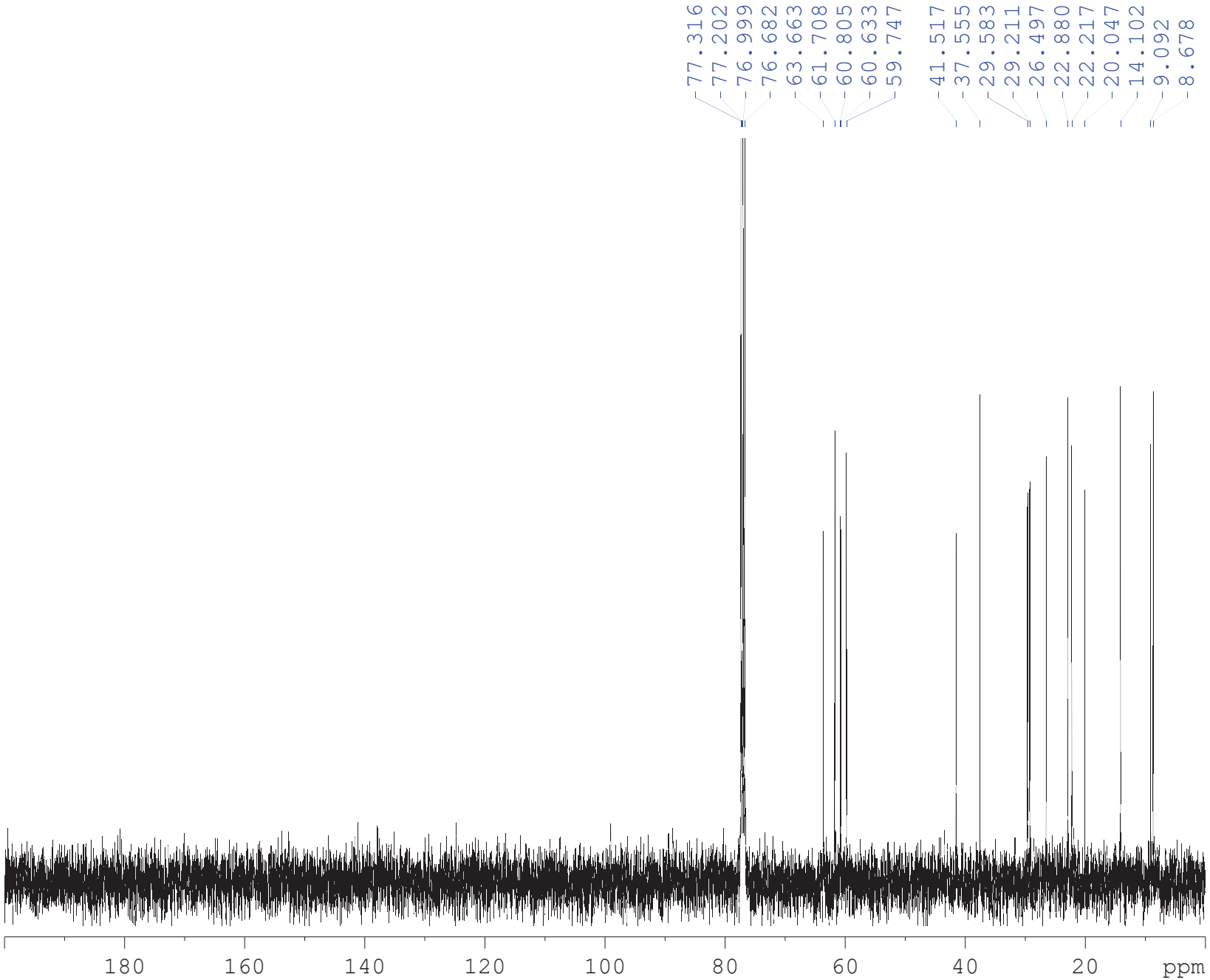


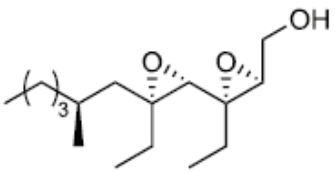
11a

```
Current Data Parameters
NAME       compound 11a
EXPNO                 1
PROCNO                1

F2 - Acquisition Parameters
Date_          20210819
Time              15.47
INSTRUM           spect
PROBHD   5 mm PABBO BB/
PULPROG         zgpg30
TD                65536
SOLVENT           CDCl3
NS                  256
DS                    4
SWH           24038.461 Hz
FIDRES         0.366798 Hz
AQ             1.3631488 sec
RG                  203
DW                20.800 usec
DE                 6.50 usec
TE                297.3 K
D1           2.00000000 sec
D11          0.03000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1        100.6354031 MHz
NUC1                13C
P1                10.00 usec
PLW1         70.00000000 W

======== CHANNEL f2 ========
SFO2        400.1816007 MHz
NUC2                 1H
CPDPRG[2         waltz16
PCPD2              90.00 usec
PLW2         17.00000000 W
PLW12         0.20987999 W
PLW13         0.10557000 W
```


7.260
3.919
3.917
3.905
3.899
3.890
3.887
3.062
3.049
3.047
3.035
2.996
2.030
2.019
1.995
1.984
1.945
1.928
1.914
1.873
1.854
1.837
1.818
1.784
1.765
1.748
1.729
1.673
1.654
1.647
1.636
1.628
1.619
1.611
1.303
1.294
1.285
1.268
1.257
1.244
1.224
1.206
1.048
1.029
1.011
0.996
0.958
0.936
0.920
0.910
0.906
0.894
0.878
0.872
Current Data Parameters
NAME compound 12a
EXPNO 1
PROCNO 1
F2 - Acquisition Parameters
Date_ 20210803
Time 16.32
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 144
DW 62.400 usec
DE 6.50 usec
TE 297.2 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1824713 MHz
NUC1 1H
P1 10.00 usec
PLW1 17.00000000 W
F2 - Processing parameters
SI 65536
SF 400.1800098 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
7
6
5
4
3
2
1
0
ppm
2.074
1.059
1.000
1.075
1.005
2.288
7.823
6.918
14.327
OH
O
O
3

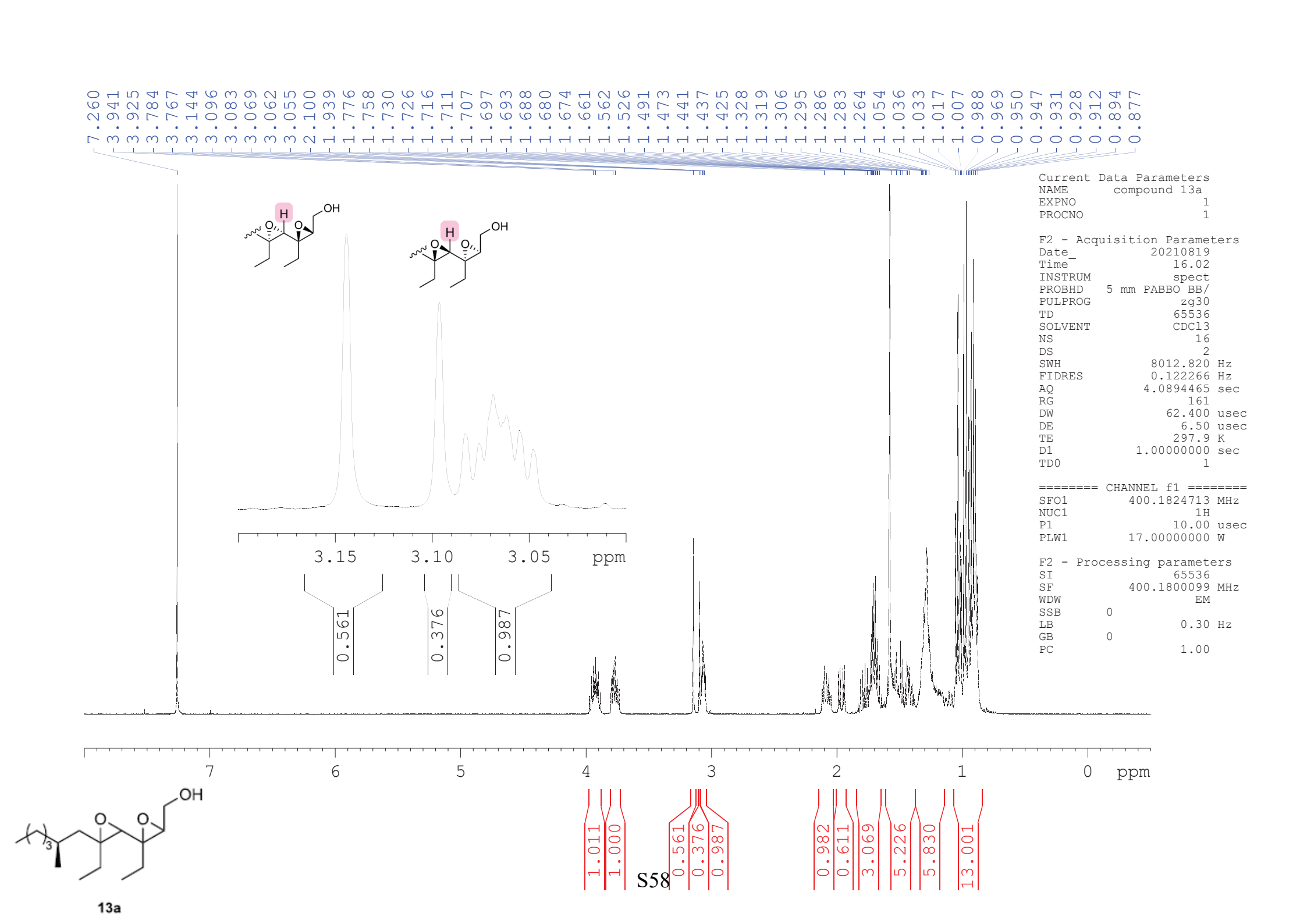
12a



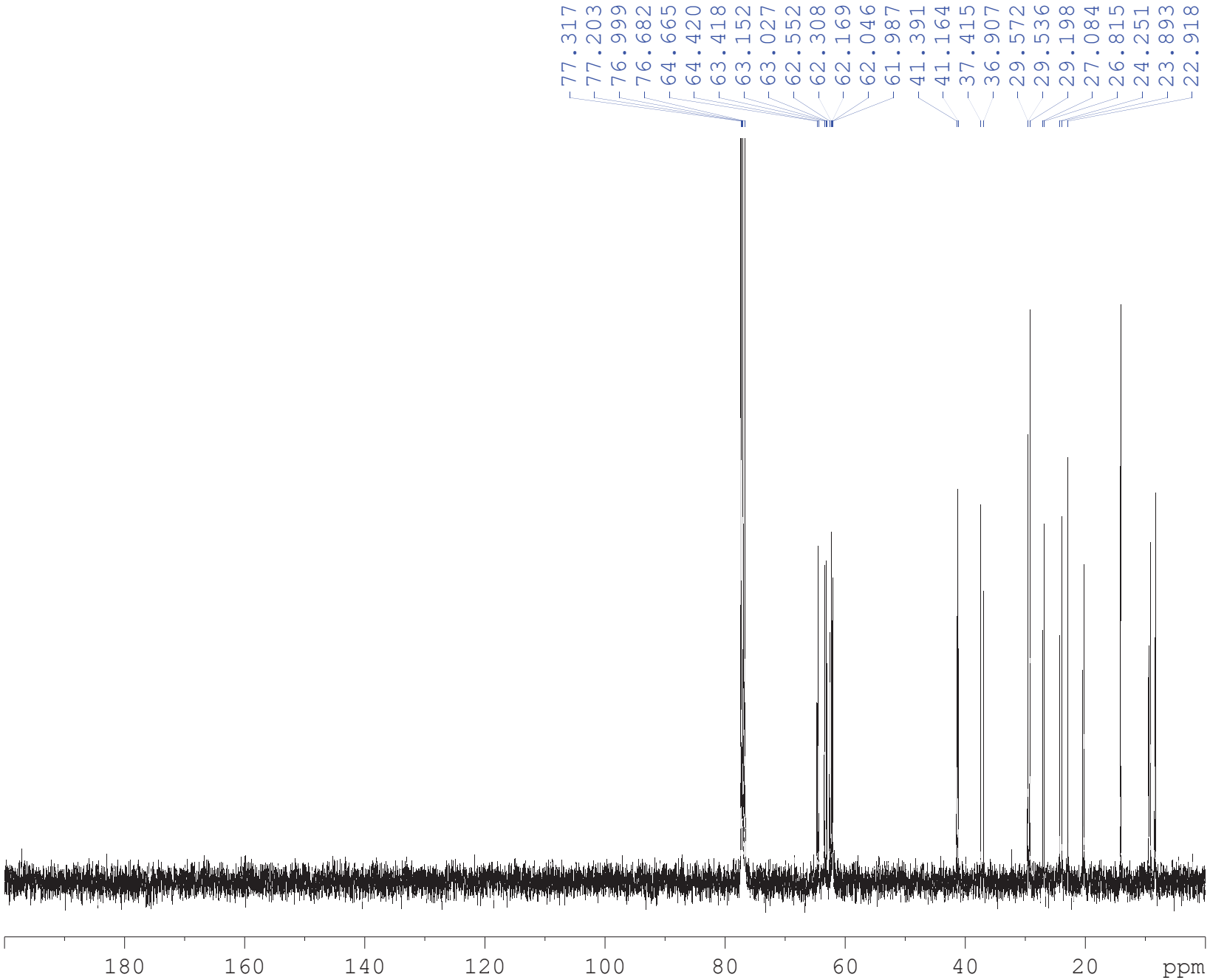


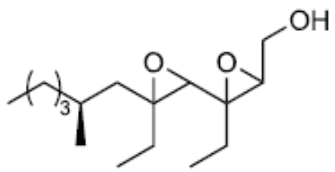
12a

```
Current Data Parameters
NAME       compound 12a
EXPNO                 1
PROCNO                1

F2 - Acquisition Parameters
Date_          20210803
Time              19.14
INSTRUM           spect
PROBHD   5 mm PABBO BB/
PULPROG         zgpg30
TD                65536
SOLVENT           CDCl3
NS                  256
DS                    4
SWH           24038.461 Hz
FIDRES         0.366798 Hz
AQ             1.3631488 sec
RG                  203
DW                20.800 usec
DE                 6.50 usec
TE                298.0 K
D1           2.00000000 sec
D11          0.03000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1        100.6354031 MHz
NUC1               13C
P1                10.00 usec
PLW1         70.00000000 W

======== CHANNEL f2 ========
SFO2        400.1816007 MHz
NUC2               1H
CPDPRG[2        waltz16
PCPD2             90.00 usec
PLW2         17.00000000 W
PLW12         0.20987999 W
PLW13         0.10557000 W
```


7.260 3.941 3.925 3.784 3.767 3.144 3.096 3.083 3.069 3.062 3.055 2.100 1.939 1.776 1.758 1.730 1.726 1.716 1.711 1.707 1.697 1.693 1.688 1.680 1.674 1.661 1.562 1.526 1.491 1.473 1.441 1.437 1.425 1.328 1.319 1.306 1.295 1.286 1.283 1.264 1.054 1.036 1.033 1.017 1.007 0.988 0.969 0.950 0.947 0.931 0.928 0.912 0.894 0.877
Current Data Parameters
NAME compound 13a
EXPNO 1
PROCNO 1
F2 - Acquisition Parameters
Date_ 20210819
Time 16.02
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 161
DW 62.400 usec
DE 6.50 usec
TE 297.9 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1824713 MHz
NUC1 1H
P1 10.00 usec
PLW1 17.00000000 W
F2 - Processing parameters
SI 65536
SF 400.1800099 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
3.15 3.10 3.05 ppm
0.561 0.376 0.987
7 6 5 4 3 2 1 0 ppm
1.011 1.000 0.561 0.376 0.987 0.982 0.611 3.069 5.226 5.830 13.001

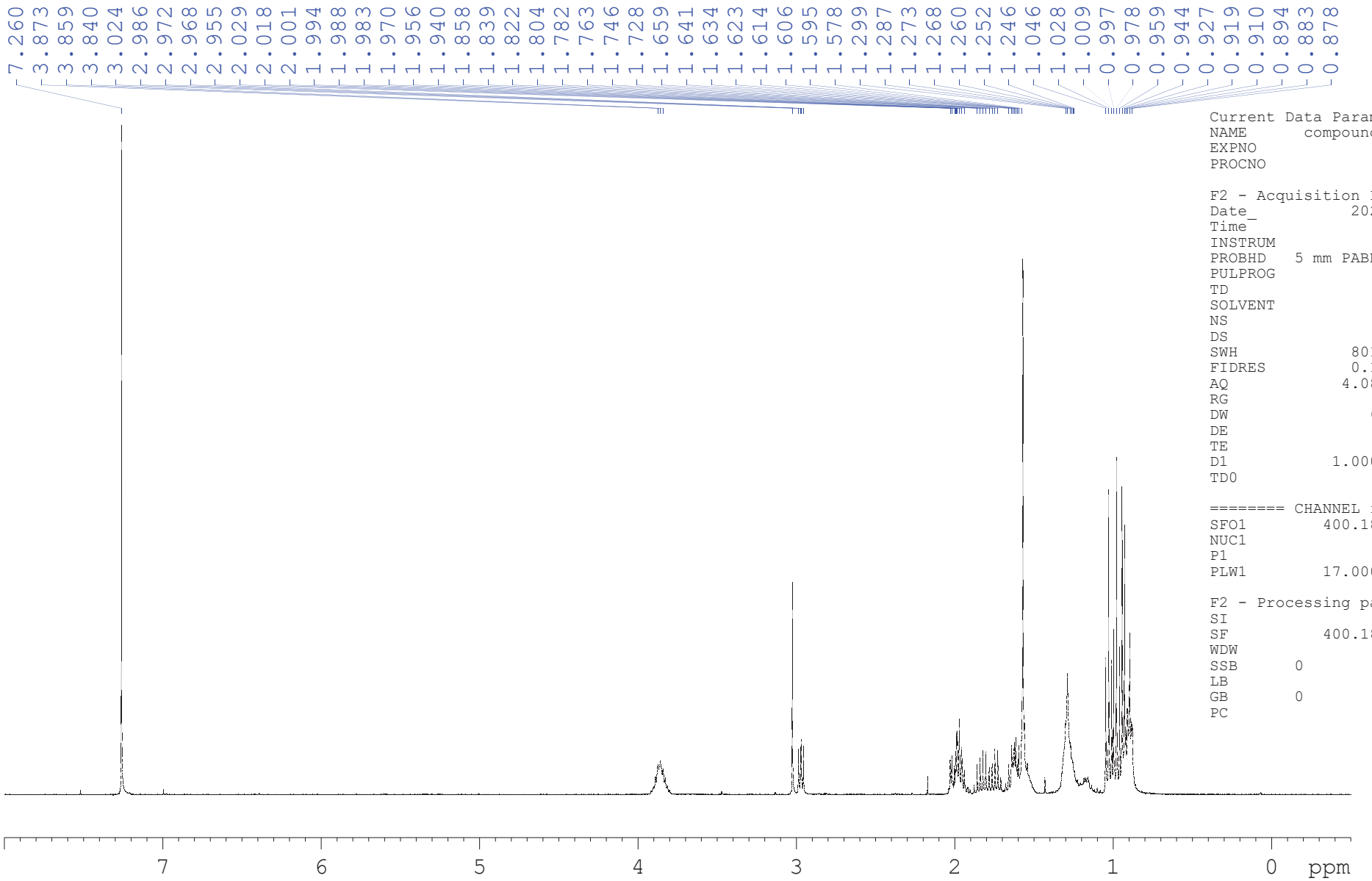
13a



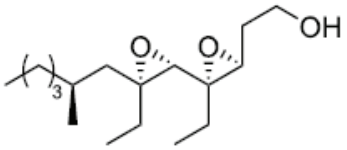


13a

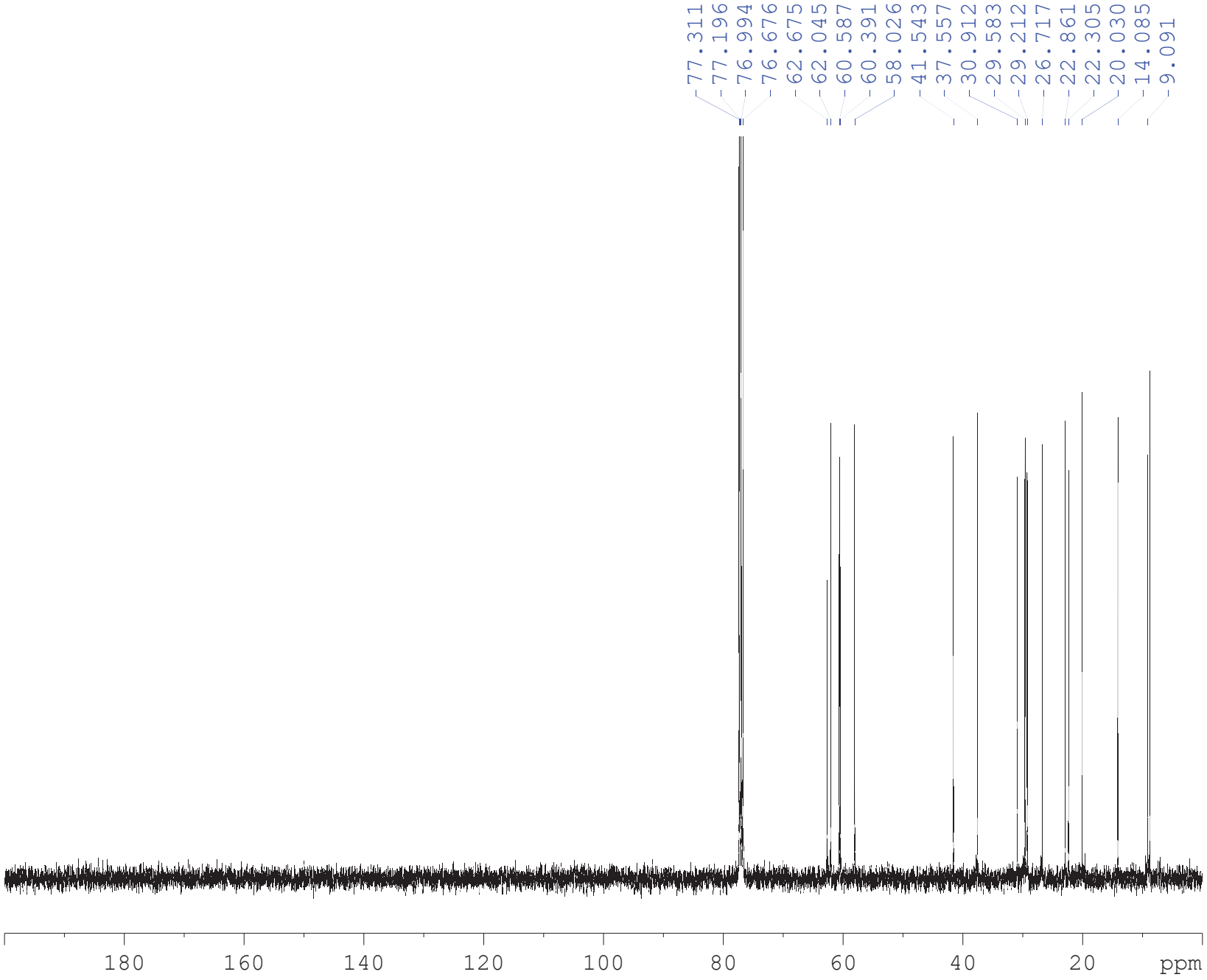
```
Current Data Parameters
NAME       compound 13a
EXPNO                 1
PROCNO                1

F2 - Acquisition Parameters
Date_          20210819
Time              16.19
INSTRUM           spect
PROBHD   5 mm PABBO BB/
PULPROG         zgpg30
TD                65536
SOLVENT           CDCl3
NS                  256
DS                    4
SWH           24038.461 Hz
FIDRES         0.366798 Hz
AQ             1.3631488 sec
RG                  203
DW                20.800 usec
DE                 6.50 usec
TE                297.7 K
D1           2.00000000 sec
D11          0.03000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1        100.6354031 MHz
NUC1               13C
P1                10.00 usec
PLW1         70.00000000 W

======== CHANNEL f2 ========
SFO2        400.1816007 MHz
NUC2               1H
CPDPRG[2        waltz16
PCPD2             90.00 usec
PLW2         17.00000000 W
PLW12         0.20987999 W
PLW13         0.10557000 W
```

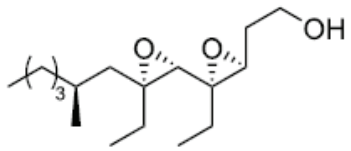



```
Current Data Parameters
NAME       compound 14a
EXPNO                 1
PROCNO                1

F2 - Acquisition Parameters
Date_          20210928
Time              12.06
INSTRUM           spect
PROBHD   5 mm PABBO BB/
PULPROG            zg30
TD                65536
SOLVENT           CDCl3
NS                   16
DS                    2
SWH            8012.820 Hz
FIDRES        0.122266 Hz
AQ            4.0894465 sec
RG                  144
DW               62.400 usec
DE                6.50 usec
TE                297.6 K
D1           1.00000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1         400.1824713 MHz
NUC1                 1H
P1                10.00 usec
PLW1         17.00000000 W

F2 - Processing parameters
SI                65536
SF           400.1800098 MHz
WDW                  EM
SSB       0
LB                0.30 Hz
GB        0
PC                1.00
```



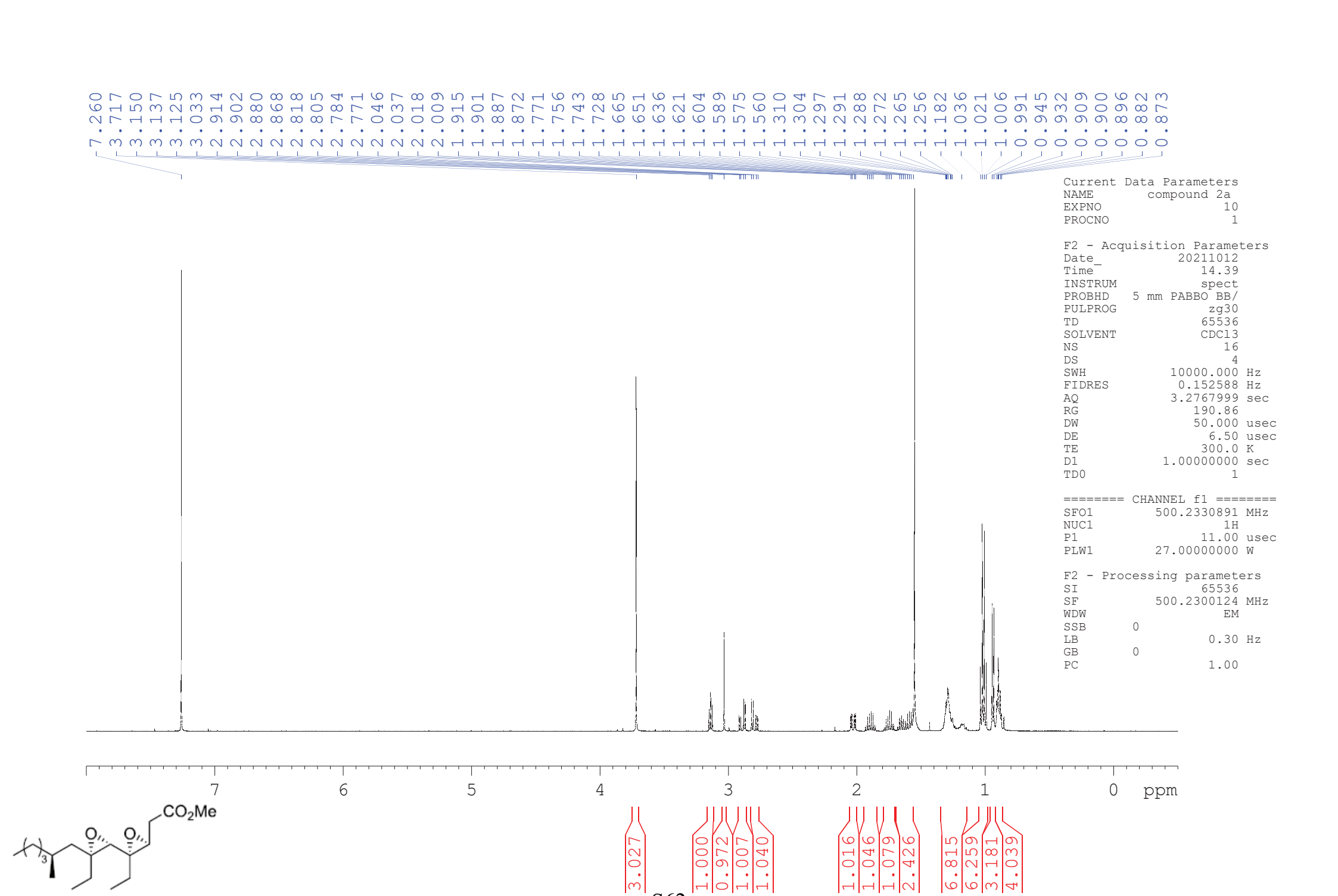
14a



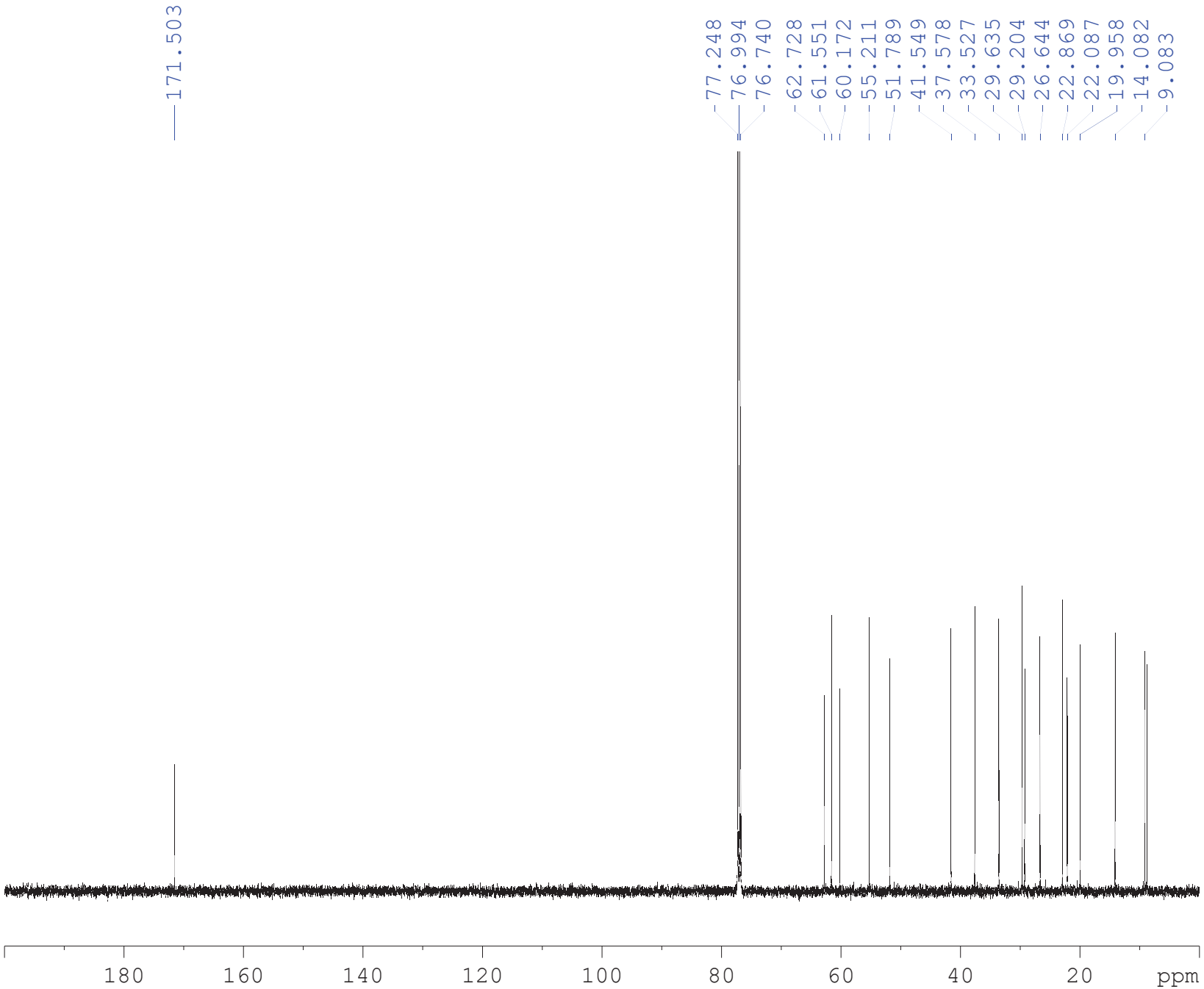


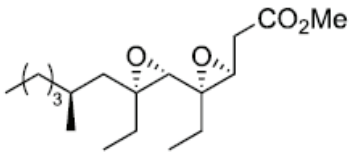
14a

```
Current Data Parameters
NAME       compound 14a
EXPNO                 1
PROCNO                1

F2 - Acquisition Parameters
Date_          20210826
Time              16.26
INSTRUM           spect
PROBHD   5 mm PABBO BB/
PULPROG         zgpg30
TD                65536
SOLVENT           CDCl3
NS                  256
DS                    4
SWH           24038.461 Hz
FIDRES         0.366798 Hz
AQ             1.3631488 sec
RG                  203
DW                20.800 usec
DE                 6.50 usec
TE                297.7 K
D1           2.00000000 sec
D11          0.03000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1        100.6354031 MHz
NUC1               13C
P1                10.00 usec
PLW1         70.00000000 W

======== CHANNEL f2 ========
SFO2        400.1816007 MHz
NUC2               1H
CPDPRG[2        waltz16
PCPD2             90.00 usec
PLW2         17.00000000 W
PLW12         0.20987999 W
PLW13         0.10557000 W
```



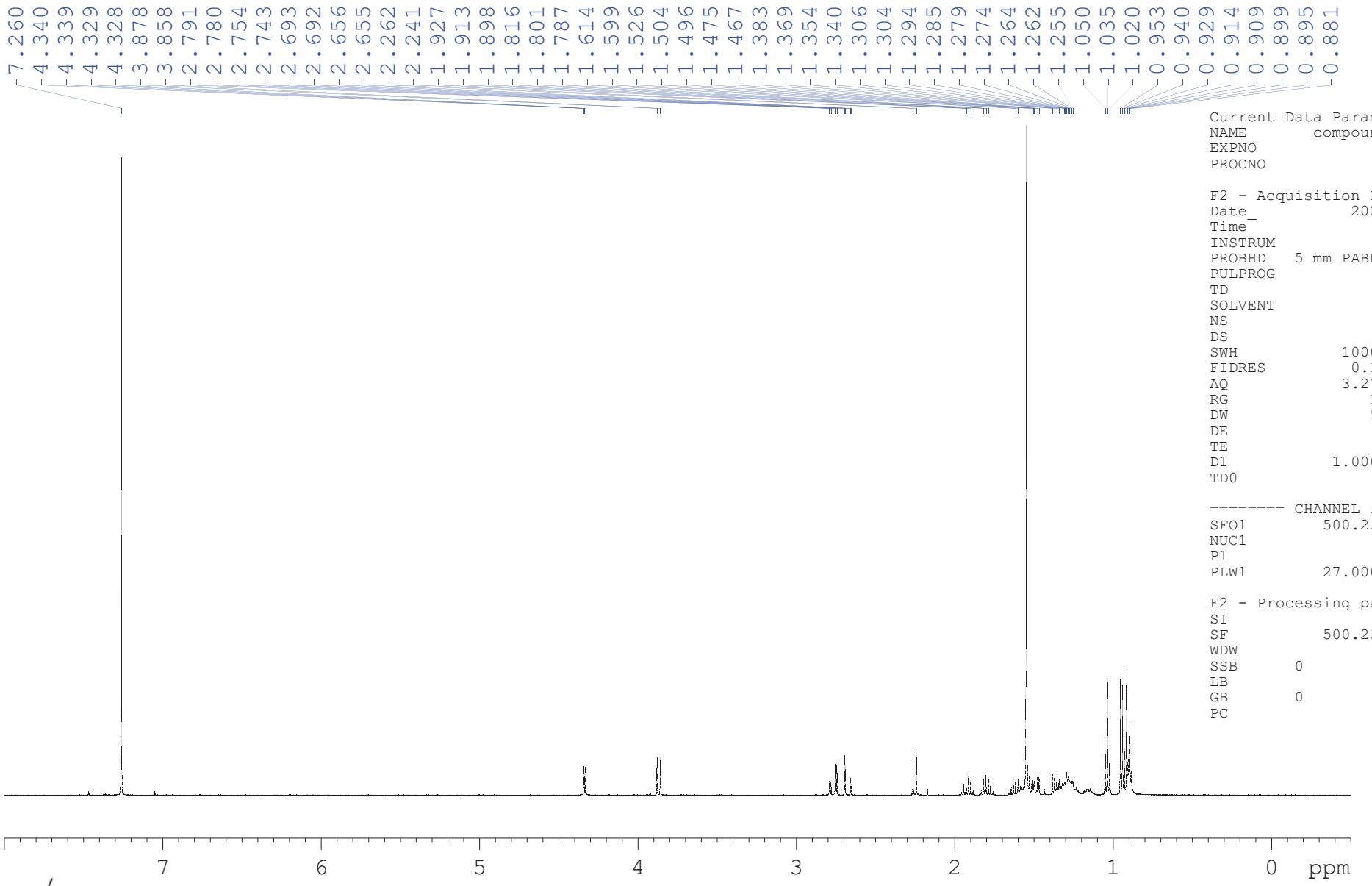
plakdiepoxide (2a)

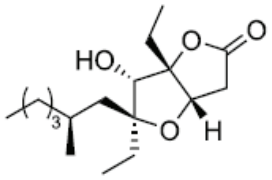




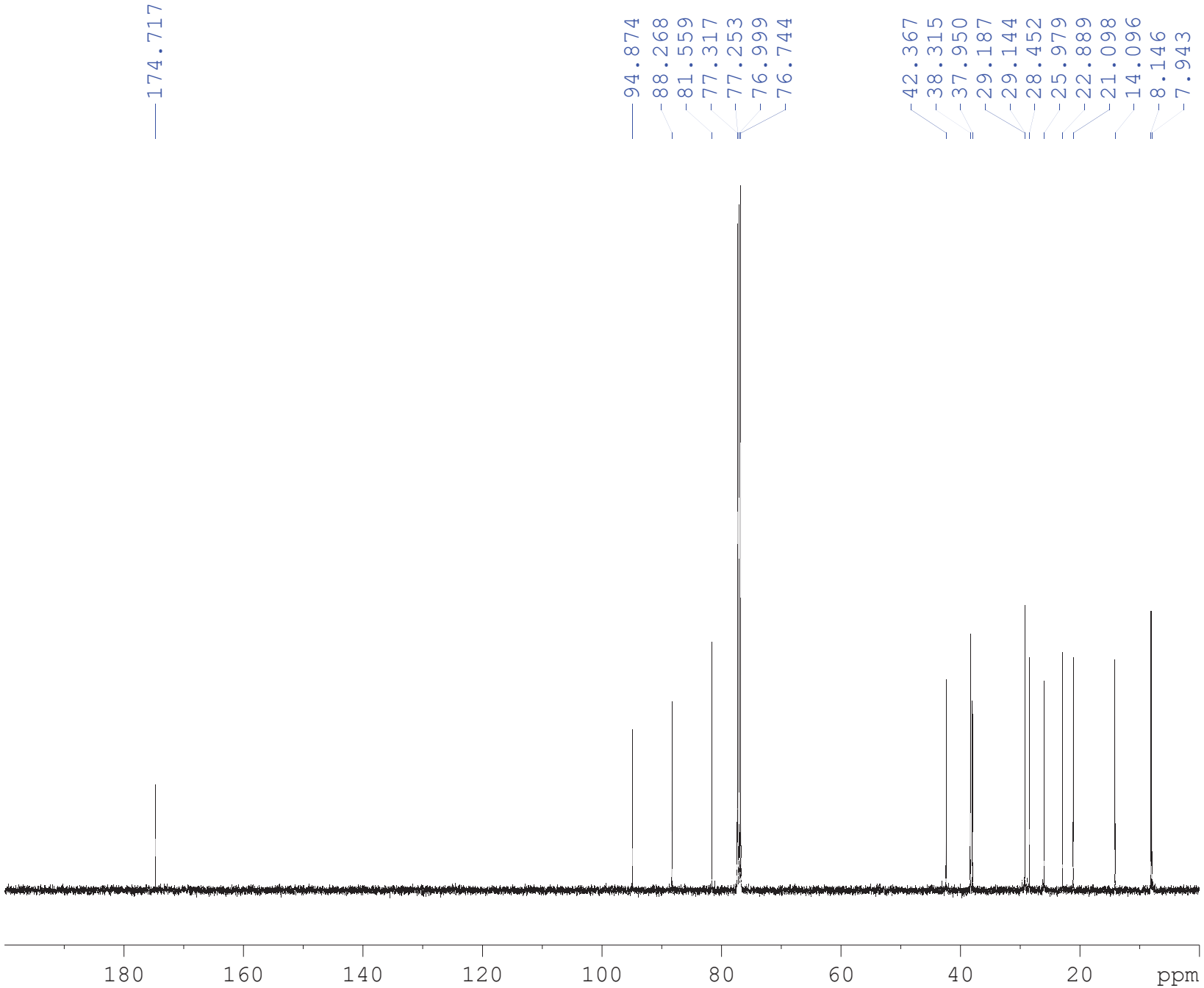
plakdiepoxide (2a)

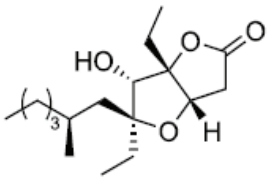
```
Current Data Parameters
NAME       compound 2a
EXPNO                10
PROCNO                1

F2 - Acquisition Parameters
Date_          20211012
Time               16.02
INSTRUM            spect
PROBHD   5 mm PABBO BB/
PULPROG          zgpg30
TD                65536
SOLVENT           CDCl3
NS                  256
DS                    4
SWH           29761.904 Hz
FIDRES         0.454131 Hz
AQ             1.1010048 sec
RG                190.86
DW                16.800 usec
DE                 6.50 usec
TE                300.0 K
D1           2.00000000 sec
D11          0.03000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1        125.7955112 MHz
NUC1                13C
P1                10.00 usec
PLW1         88.00000000 W

======== CHANNEL f2 ========
SFO2        500.2320009 MHz
NUC2                 1H
CPDPRG[2         waltz16
PCPD2              80.00 usec
PLW2         27.00000000 W
PLW12         0.51046997 W
PLW13         0.32670000 W
```





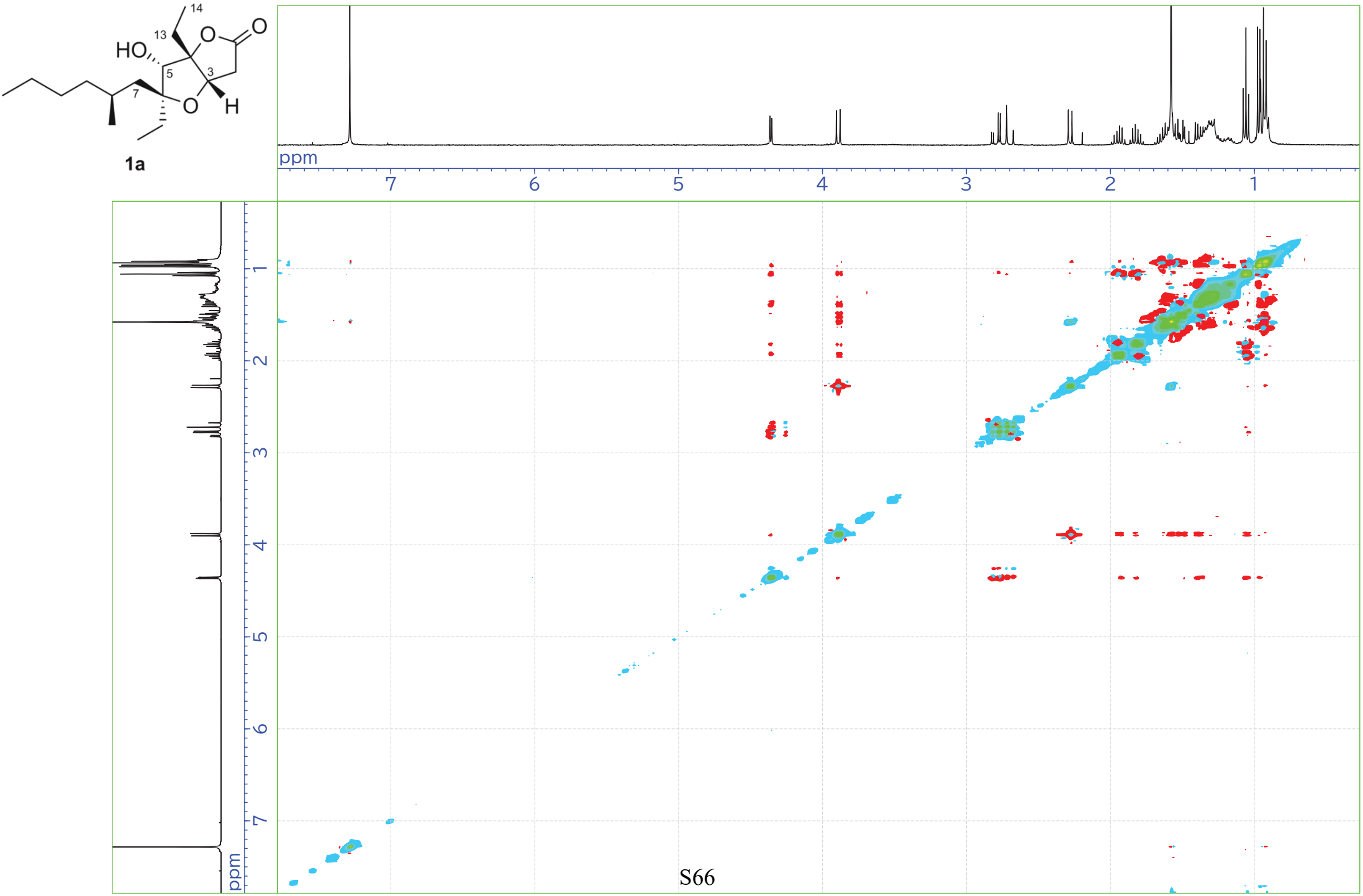
plakortone Q (1a)

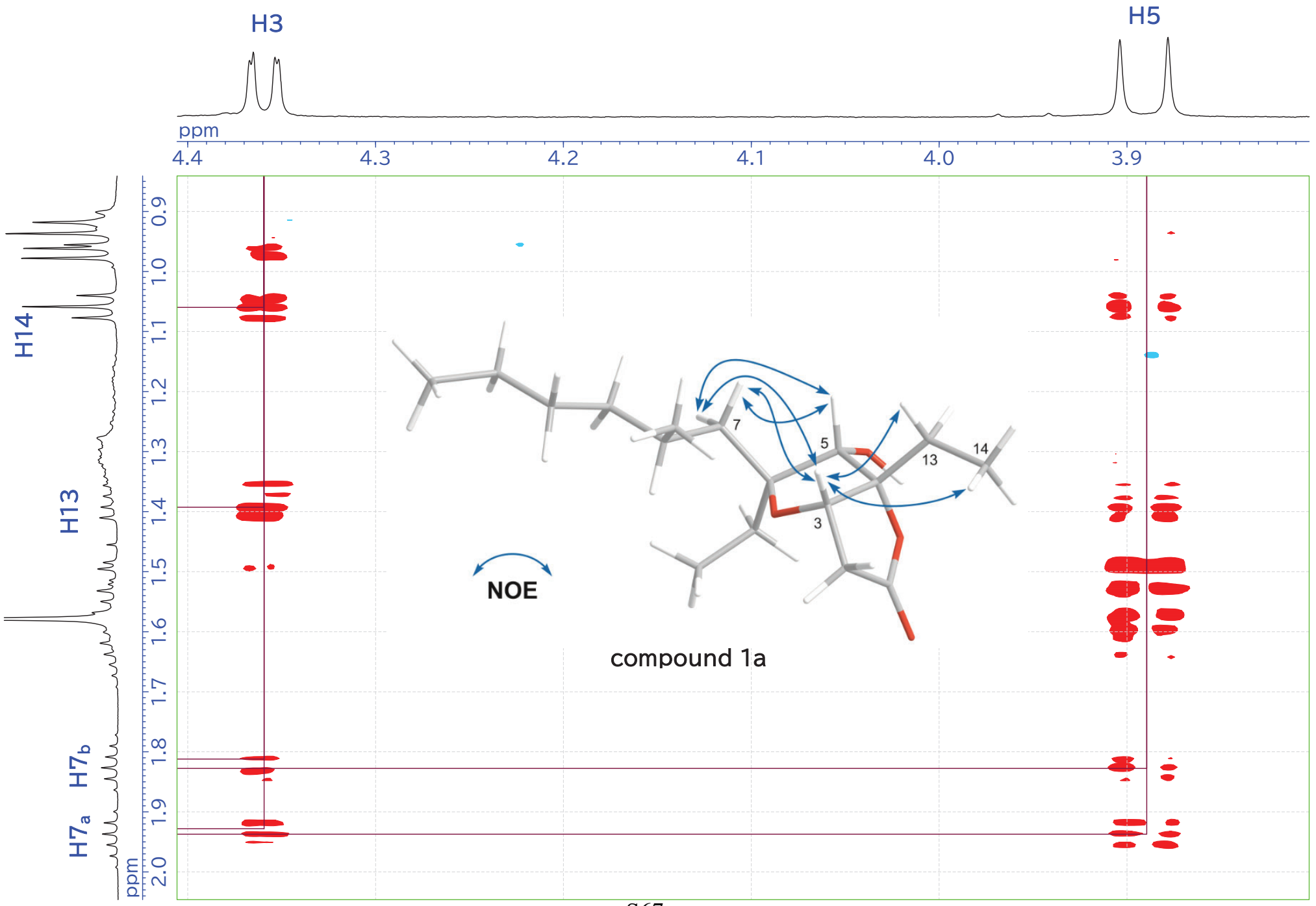


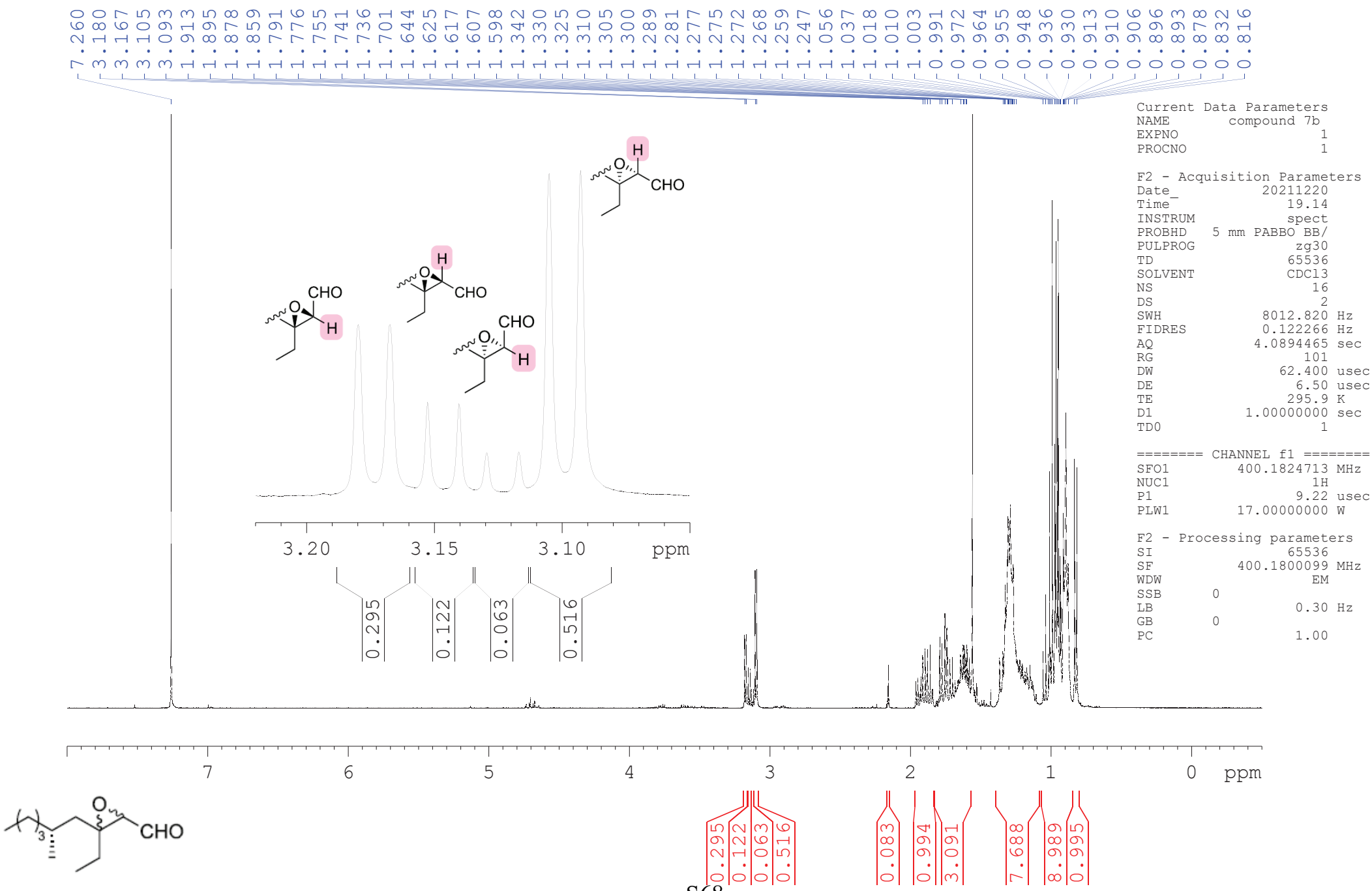


plakortone Q (1a)

```
Current Data Parameters
NAME        compound 1a
EXPNO                10
PROCNO                1

F2 - Acquisition Parameters
Date_          20211012
Time               15.42
INSTRUM            spect
PROBHD   5 mm PABBO BB/
PULPROG          zgpg30
TD                65536
SOLVENT           CDCl3
NS                  256
DS                    4
SWH           29761.904 Hz
FIDRES         0.454131 Hz
AQ            1.1010048 sec
RG               190.86
DW               16.800 usec
DE                6.50 usec
TE               300.0 K
D1            2.00000000 sec
D11           0.03000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1        125.7955112 MHz
NUC1                13C
P1                10.00 usec
PLW1         88.00000000 W

======== CHANNEL f2 ========
SFO2        500.2320009 MHz
NUC2                 1H
CPDPRG[2         waltz16
PCPD2              80.00 usec
PLW2         27.00000000 W
PLW12         0.51046997 W
PLW13         0.32670000 W
```

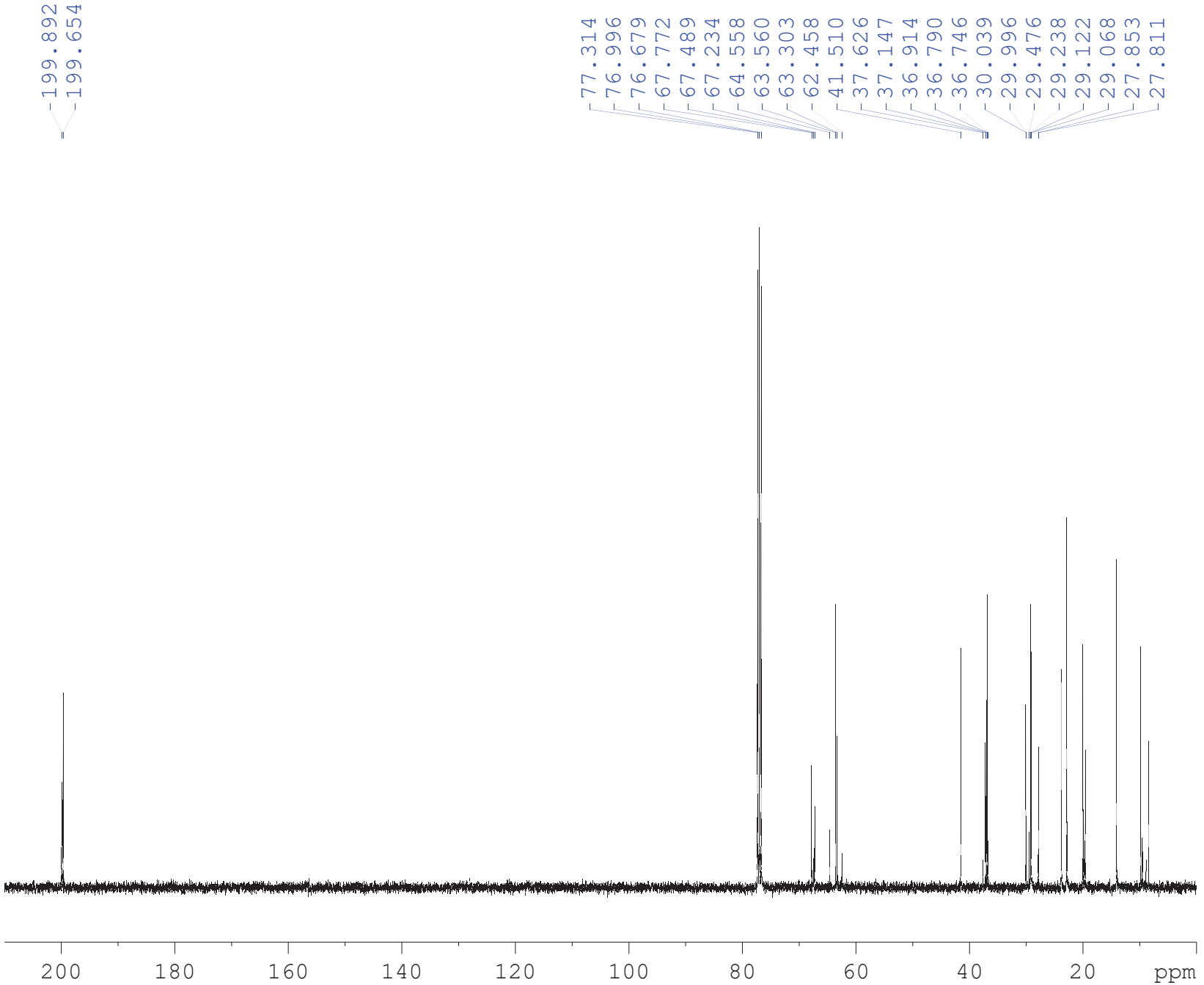

14
13
HO
O
O
5
3
7
O
H
1a
ppm
7
6
5
4
3
2
1
ppm
1
2
3
4
5
6
7

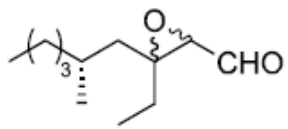

H3
H5
ppm
4.4
4.3
4.2
4.1
4.0
3.9
H14
H13
H7a
H7b
ppm
0.9
1.0
1.1
1.2
1.3
1.4
1.5
1.6
1.7
1.8
1.9
2.0
NOE
7
5
13
14
3
compound 1a


7.260
3.180
3.167
3.105
3.093
1.913
1.895
1.878
1.859
1.791
1.776
1.755
1.741
1.736
1.701
1.644
1.625
1.617
1.607
1.598
1.342
1.330
1.325
1.310
1.305
1.300
1.289
1.281
1.277
1.275
1.272
1.268
1.259
1.247
1.056
1.037
1.018
1.010
1.003
0.991
0.972
0.964
0.955
0.948
0.936
0.930
0.913
0.910
0.906
0.896
0.893
0.878
0.832
0.816
CHO
H
O
3.20
3.15
3.10
ppm
0.295
0.122
0.063
0.516
Current Data Parameters
NAME compound 7b
EXPNO 1
PROCNO 1
F2 - Acquisition Parameters
Date_ 20211220
Time 19.14
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 101
DW 62.400 usec
DE 6.50 usec
TE 295.9 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1824713 MHz
NUC1 1H
P1 9.22 usec
PLW1 17.00000000 W
F2 - Processing parameters
SI 65536
SF 400.1800099 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
7 6 5 4 3 2 1 0 ppm
0.295 0.122 0.063 0.516
0.083 0.994 3.091 7.688 8.989 0.995

O
CHO
3

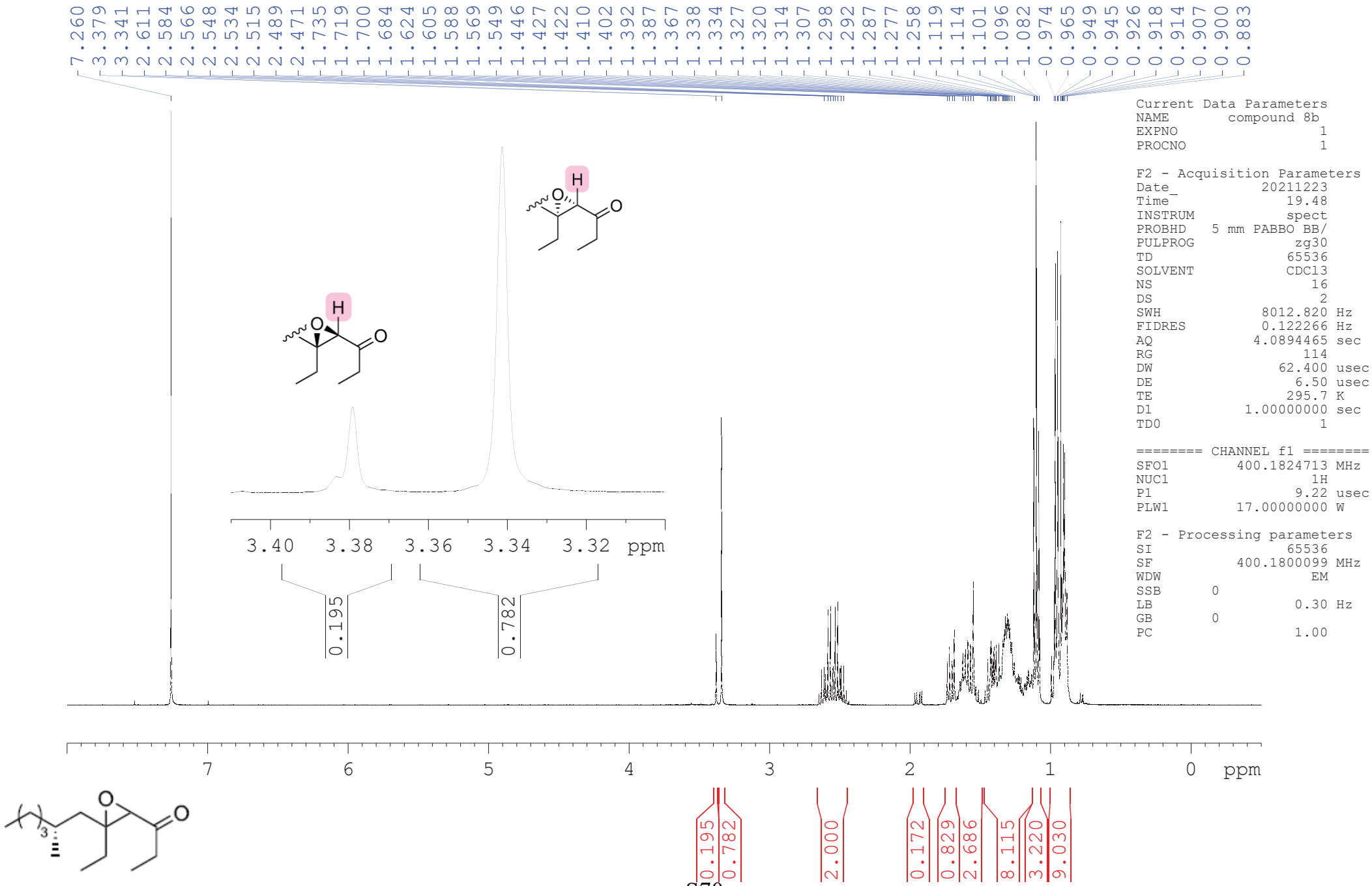
7b



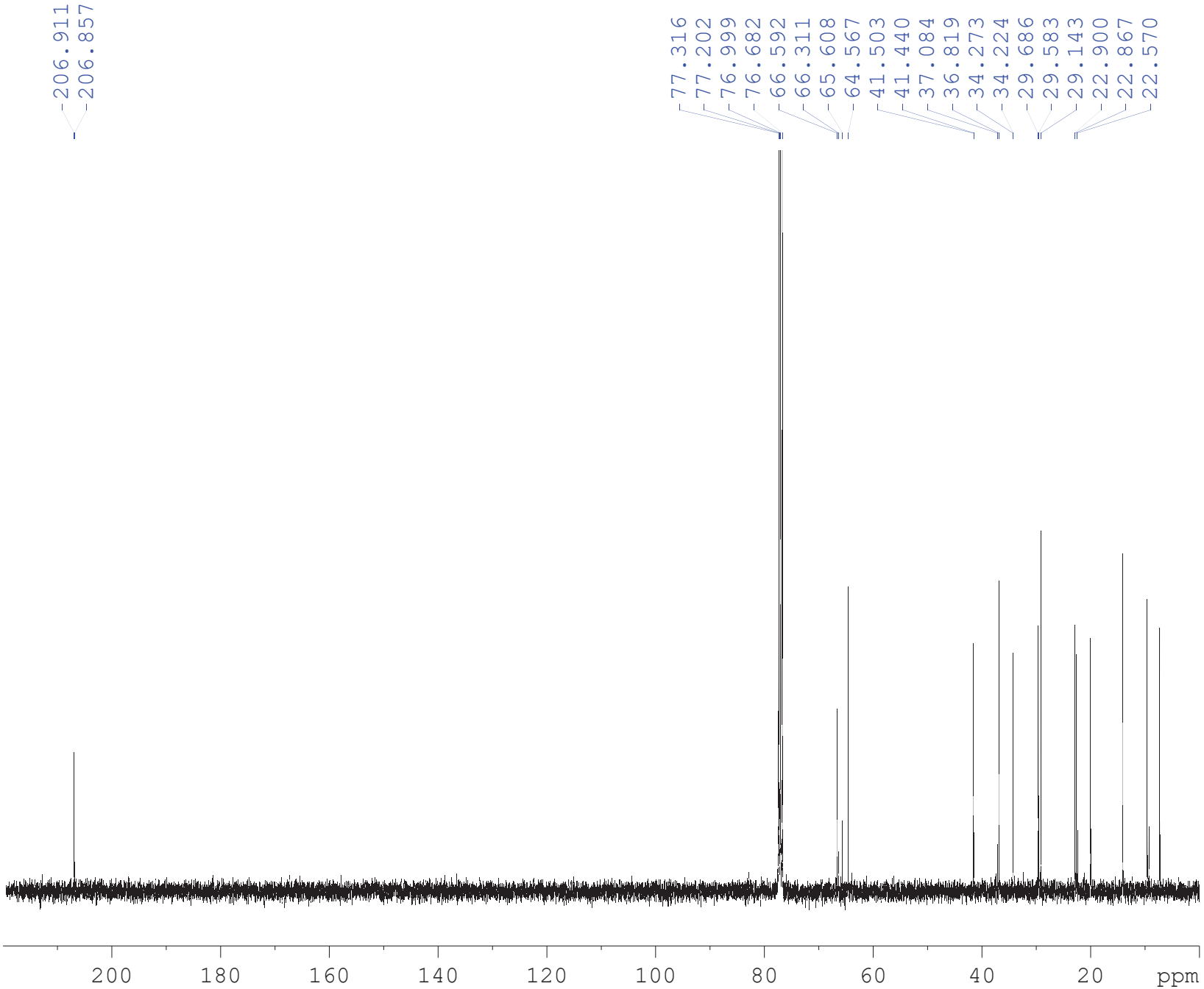


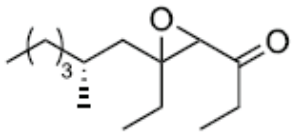
7b

```
Current Data Parameters
NAME        compound 7b
EXPNO                 1
PROCNO                1

F2 - Acquisition Parameters
Date_          20211223
Time              18.39
INSTRUM           spect
PROBHD   5 mm PABBO BB/
PULPROG         zgpg30
TD                65536
SOLVENT           CDCl3
NS                  256
DS                    4
SWH           24038.461 Hz
FIDRES         0.366798 Hz
AQ             1.3631488 sec
RG                  203
DW                20.800 usec
DE                 6.50 usec
TE                297.0 K
D1             2.00000000 sec
D11            0.03000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1         100.6354031 MHz
NUC1                13C
P1                10.00 usec
PLW1         70.00000000 W

======== CHANNEL f2 ========
SFO2         400.1816007 MHz
NUC2                 1H
CPDPRG[2         waltz16
PCPD2              90.00 usec
PLW2         17.00000000 W
PLW12         0.17840999 W
PLW13         0.08974000 W
```


7.260 3.379 3.341 2.611 2.584 2.566 2.548 2.534 2.515 2.489 2.471 1.735 1.719 1.700 1.684 1.624 1.605 1.588 1.569 1.549 1.446 1.427 1.422 1.410 1.402 1.392 1.387 1.367 1.338 1.334 1.327 1.320 1.314 1.307 1.298 1.292 1.287 1.277 1.258 1.119 1.114 1.101 1.096 1.082 0.974 0.965 0.949 0.945 0.926 0.918 0.914 0.907 0.900 0.883
Current Data Parameters
NAME compound 8b
EXPNO 1
PROCNO 1
F2 - Acquisition Parameters
Date_ 20211223
Time 19.48
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 114
DW 62.400 usec
DE 6.50 usec
TE 295.7 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1824713 MHz
NUC1 1H
P1 9.22 usec
PLW1 17.00000000 W
F2 - Processing parameters
SI 65536
SF 400.1800099 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
H
O
O
3.40 3.38 3.36 3.34 3.32 ppm
0.195
0.782
7 6 5 4 3 2 1 0 ppm
0.195 0.782 2.000 0.172 0.829 2.686 8.115 3.220 9.030

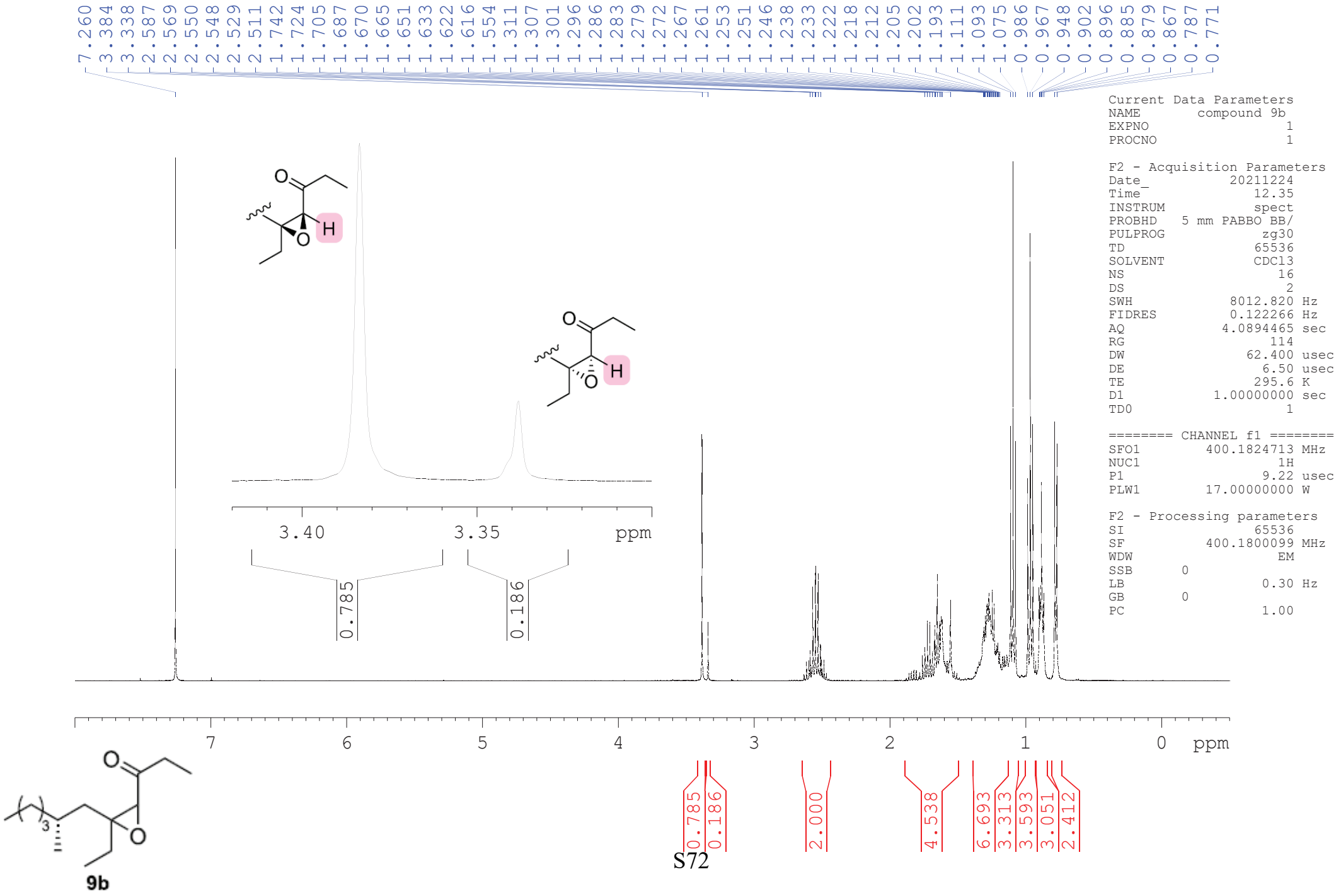
8b



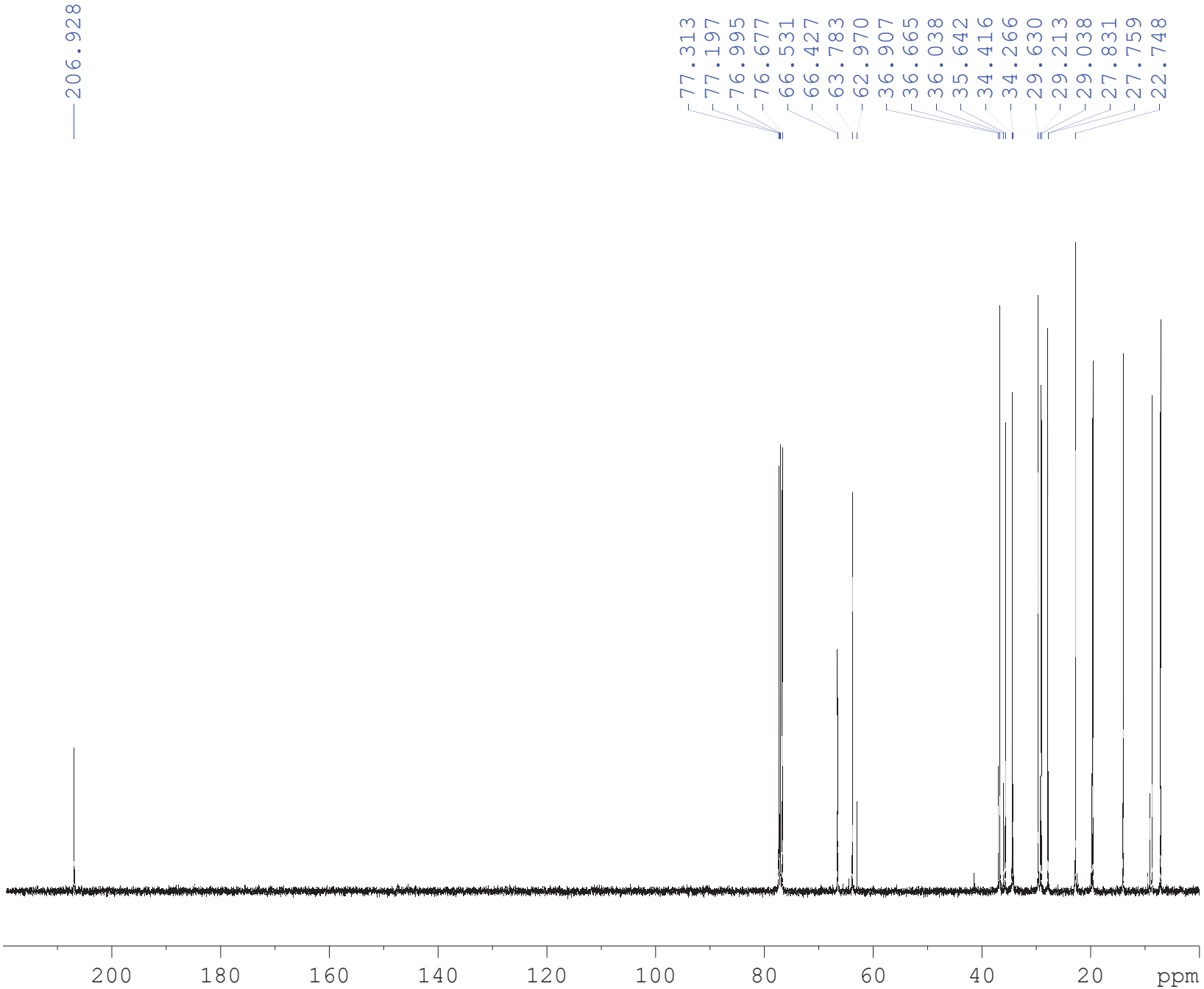


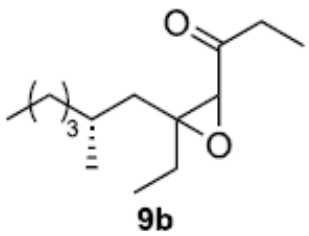
8b

```
Current Data Parameters
NAME       compound 8b
EXPNO                 1
PROCNO                1

F2 - Acquisition Parameters
Date_          20211224
Time              11.26
INSTRUM           spect
PROBHD   5 mm PABBO BB/
PULPROG         zgpg30
TD                65536
SOLVENT           CDCl3
NS                  256
DS                    4
SWH           24038.461 Hz
FIDRES         0.366798 Hz
AQ             1.3631488 sec
RG                  203
DW               20.800 usec
DE                6.50 usec
TE               296.7 K
D1            2.00000000 sec
D11           0.03000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1        100.6354031 MHz
NUC1                13C
P1                10.00 usec
PLW1         70.00000000 W

======== CHANNEL f2 ========
SFO2        400.1816007 MHz
NUC2                 1H
CPDPRG[2         waltz16
PCPD2              90.00 usec
PLW2         17.00000000 W
PLW12         0.17840999 W
PLW13         0.08974000 W
```


7.260
3.384
3.338
2.587
2.569
2.550
2.548
2.529
2.511
1.742
1.724
1.705
1.687
1.670
1.665
1.651
1.633
1.622
1.616
1.554
1.311
1.307
1.301
1.296
1.286
1.283
1.279
1.272
1.267
1.261
1.253
1.251
1.246
1.238
1.233
1.222
1.218
1.212
1.205
1.202
1.193
1.111
1.093
1.075
0.986
0.967
0.948
0.902
0.896
0.885
0.879
0.867
0.787
0.771
Current Data Parameters
NAME compound 9b
EXPNO 1
PROCNO 1
F2 - Acquisition Parameters
Date_ 20211224
Time 12.35
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 114
DW 62.400 usec
DE 6.50 usec
TE 295.6 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1824713 MHz
NUC1 1H
P1 9.22 usec
PLW1 17.00000000 W
F2 - Processing parameters
SI 65536
SF 400.1800099 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
3.40
3.35
ppm
0.785
0.186
7
6
5
4
3
2
1
0
ppm
0.785
0.186
2.000
4.538
6.693
3.313
3.593
3.051
2.412

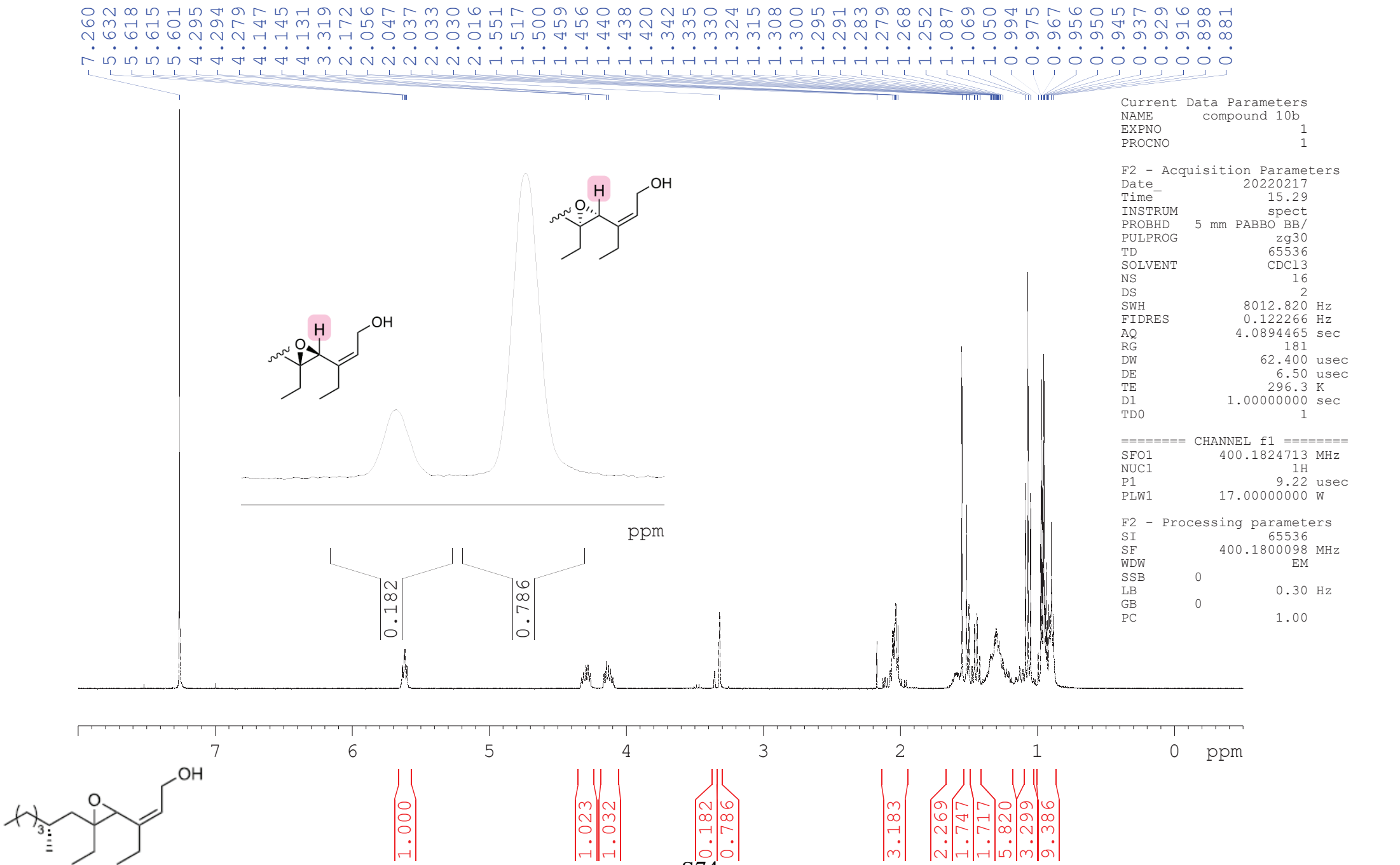
9b

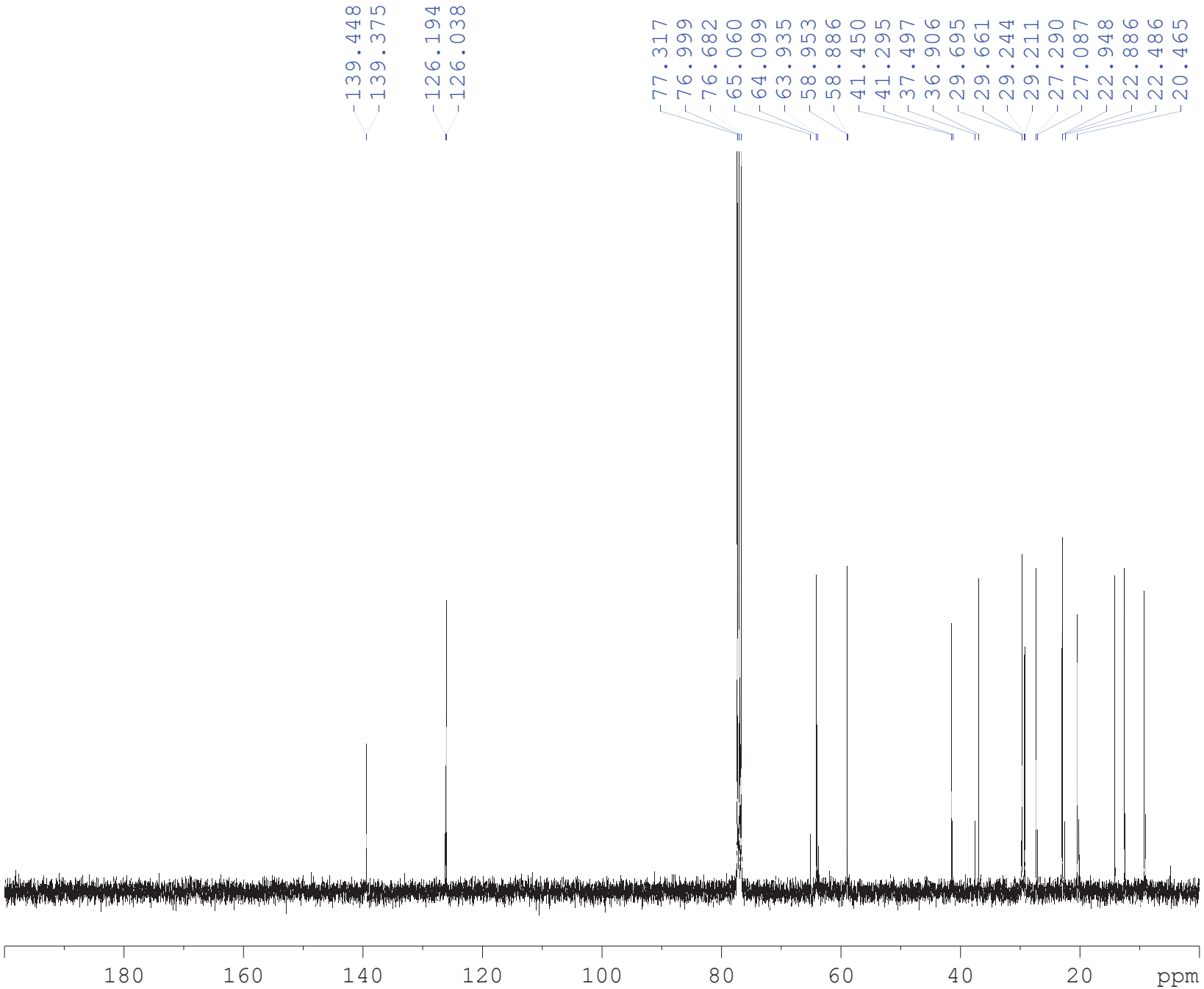


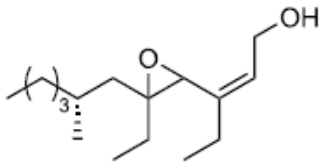


9b

```
Current Data Parameters
NAME        compound 9b
EXPNO                 1
PROCNO                1

F2 - Acquisition Parameters
Date_          20211224
Time              14.21
INSTRUM           spect
PROBHD   5 mm PABBO BB/
PULPROG         zgpg30
TD               65536
SOLVENT          CDCl3
NS                 256
DS                   4
SWH          24038.461 Hz
FIDRES        0.366798 Hz
AQ            1.3631488 sec
RG                 203
DW              20.800 usec
DE               6.50 usec
TE              296.2 K
D1           2.00000000 sec
D11          0.03000000 sec
TD0                  1

======== CHANNEL f1 ========
SFO1       100.6354031 MHz
NUC1               13C
P1               10.00 usec
PLW1       70.00000000 W

======== CHANNEL f2 ========
SFO2       400.1816007 MHz
NUC2               1H
CPDPRG[2        waltz16
PCPD2            90.00 usec
PLW2       17.00000000 W
PLW12       0.17840999 W
PLW13       0.08974000 W
```

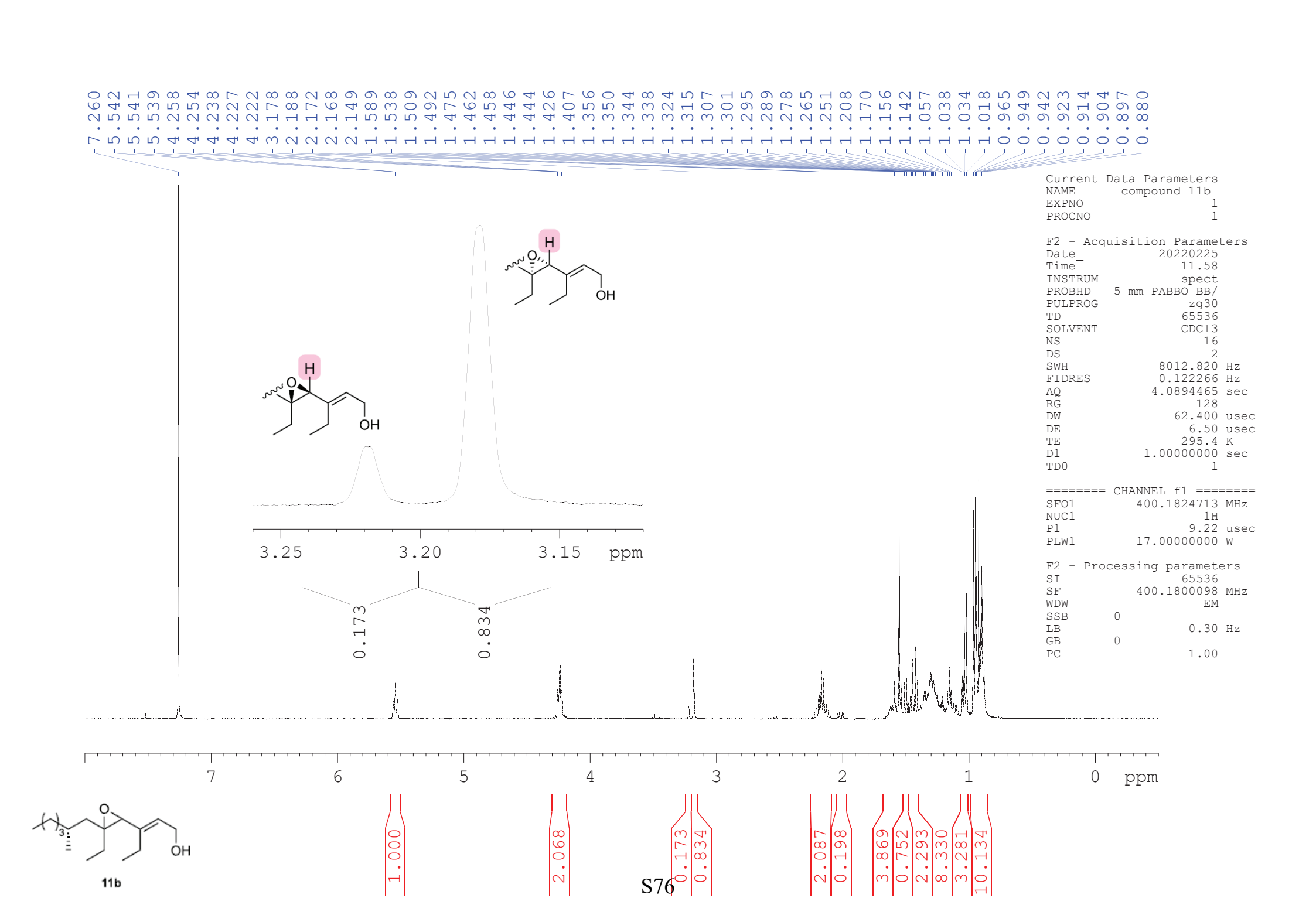

7.260 5.632 5.618 5.615 5.601 4.295 4.294 4.279 4.147 4.145 4.131 3.319 2.172 2.056 2.047 2.037 2.033 2.030 2.016 1.551 1.517 1.500 1.459 1.456 1.440 1.438 1.420 1.342 1.335 1.330 1.324 1.315 1.308 1.300 1.295 1.291 1.283 1.279 1.268 1.252 1.087 1.069 1.050 0.994 0.975 0.967 0.956 0.950 0.945 0.937 0.929 0.916 0.898 0.881
Current Data Parameters
NAME compound 10b
EXPNO 1
PROCNO 1
F2 - Acquisition Parameters
Date_ 20220217
Time 15.29
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 181
DW 62.400 usec
DE 6.50 usec
TE 296.3 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1824713 MHz
NUC1 1H
P1 9.22 usec
PLW1 17.00000000 W
F2 - Processing parameters
SI 65536
SF 400.1800098 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
H
OH
O
ppm
0.182
0.786
7
6
5
4
3
2
1
0
ppm
1.000
1.023
1.032
0.182
0.786
3.183
2.269
1.747
1.717
5.820
3.299
9.386
OH
O
3
10b



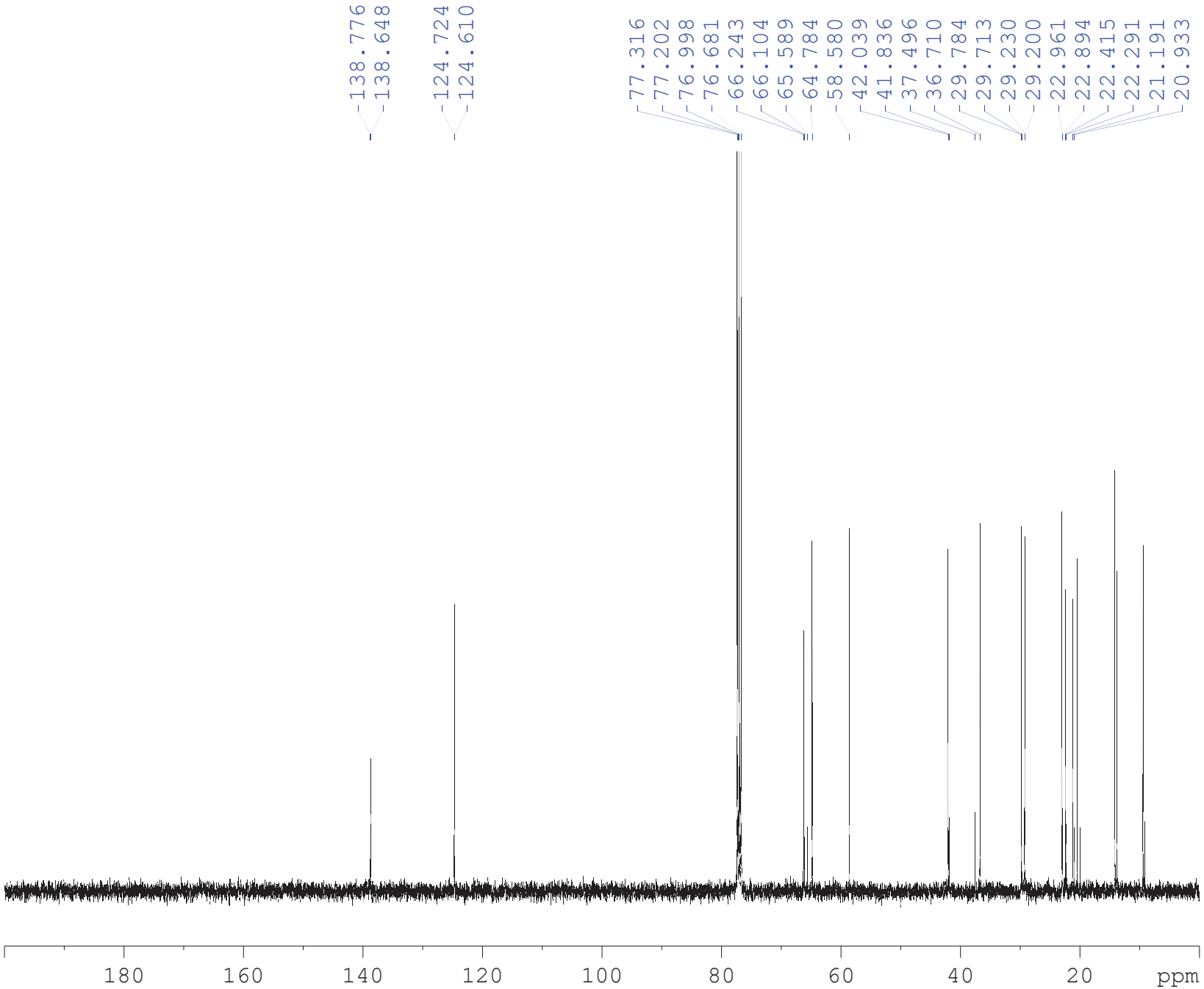


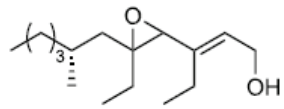
10b

```
Current Data Parameters
NAME       compound 10b
EXPNO                 1
PROCNO                1

F2 - Acquisition Parameters
Date_          20220217
Time              16.54
INSTRUM           spect
PROBHD   5 mm PABBO BB/
PULPROG         zgpg30
TD                65536
SOLVENT           CDCl3
NS                  256
DS                    4
SWH           24038.461 Hz
FIDRES         0.366798 Hz
AQ             1.3631488 sec
RG                  203
DW               20.800 usec
DE                6.50 usec
TE               295.9 K
D1            2.00000000 sec
D11           0.03000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1        100.6354031 MHz
NUC1                13C
P1                10.00 usec
PLW1         70.00000000 W

======== CHANNEL f2 ========
SFO2        400.1816007 MHz
NUC2                 1H
CPDPRG[2         waltz16
PCPD2              90.00 usec
PLW2         17.00000000 W
PLW12         0.17840999 W
PLW13         0.08974000 W
```


7.260 5.542 5.541 5.539 4.258 4.254 4.238 4.227 4.222 3.178 2.188 2.172 2.168 2.149 1.589 1.538 1.509 1.492 1.475 1.462 1.458 1.446 1.444 1.426 1.407 1.356 1.350 1.344 1.338 1.324 1.315 1.307 1.301 1.295 1.289 1.278 1.265 1.251 1.208 1.170 1.156 1.142 1.057 1.038 1.034 1.018 0.965 0.949 0.942 0.923 0.914 0.904 0.897 0.880
Current Data Parameters
NAME compound 11b
EXPNO 1
PROCNO 1
F2 - Acquisition Parameters
Date_ 20220225
Time 11.58
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 128
DW 62.400 usec
DE 6.50 usec
TE 295.4 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1824713 MHz
NUC1 1H
P1 9.22 usec
PLW1 17.00000000 W
F2 - Processing parameters
SI 65536
SF 400.1800098 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
H
O
OH
3.25
3.20
3.15
ppm
0.173
0.834
7
6
5
4
3
2
1
0
ppm
1.000
2.068
0.173
0.834
2.087
0.198
3.869
0.752
2.293
8.330
3.281
10.134

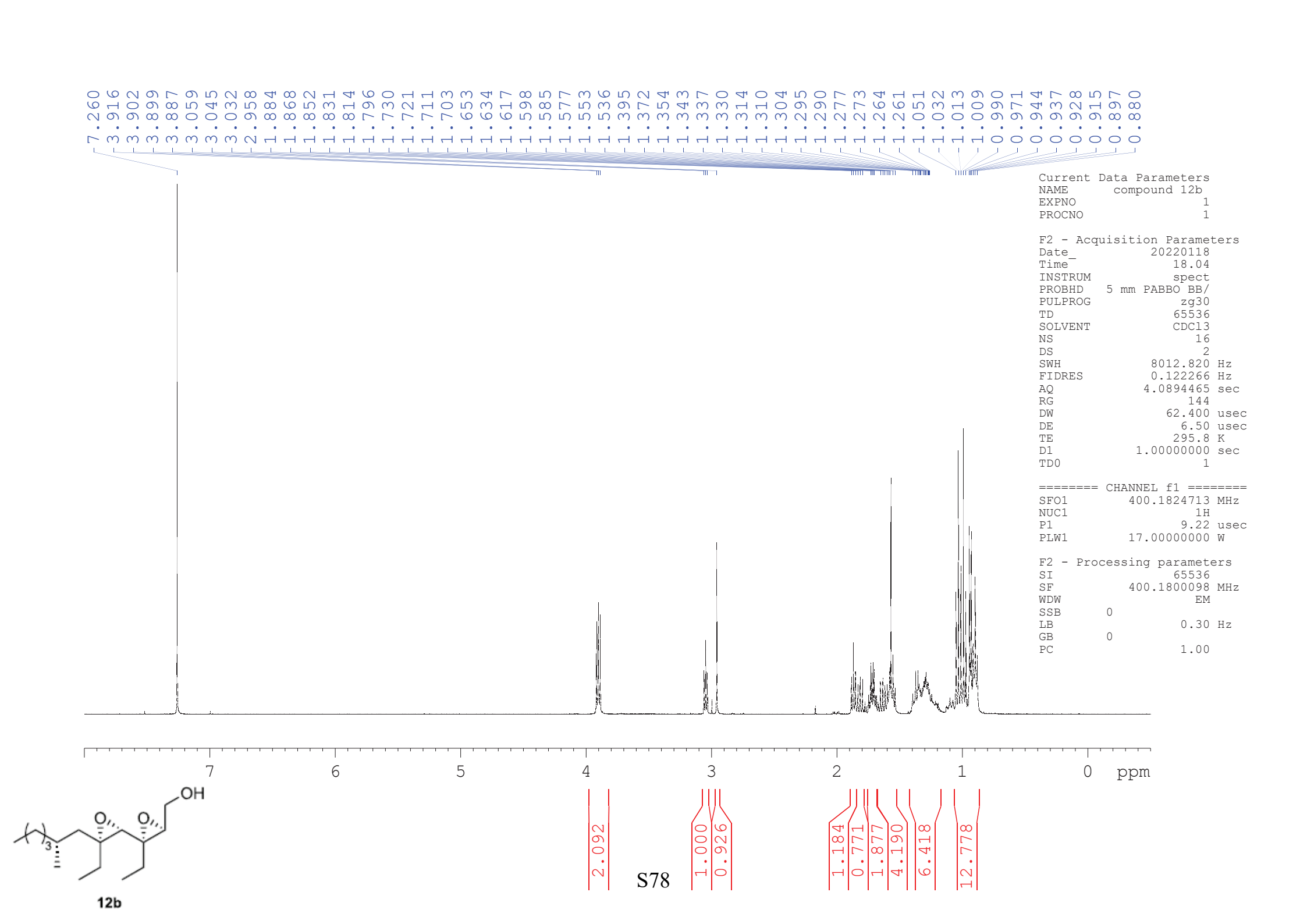
11b



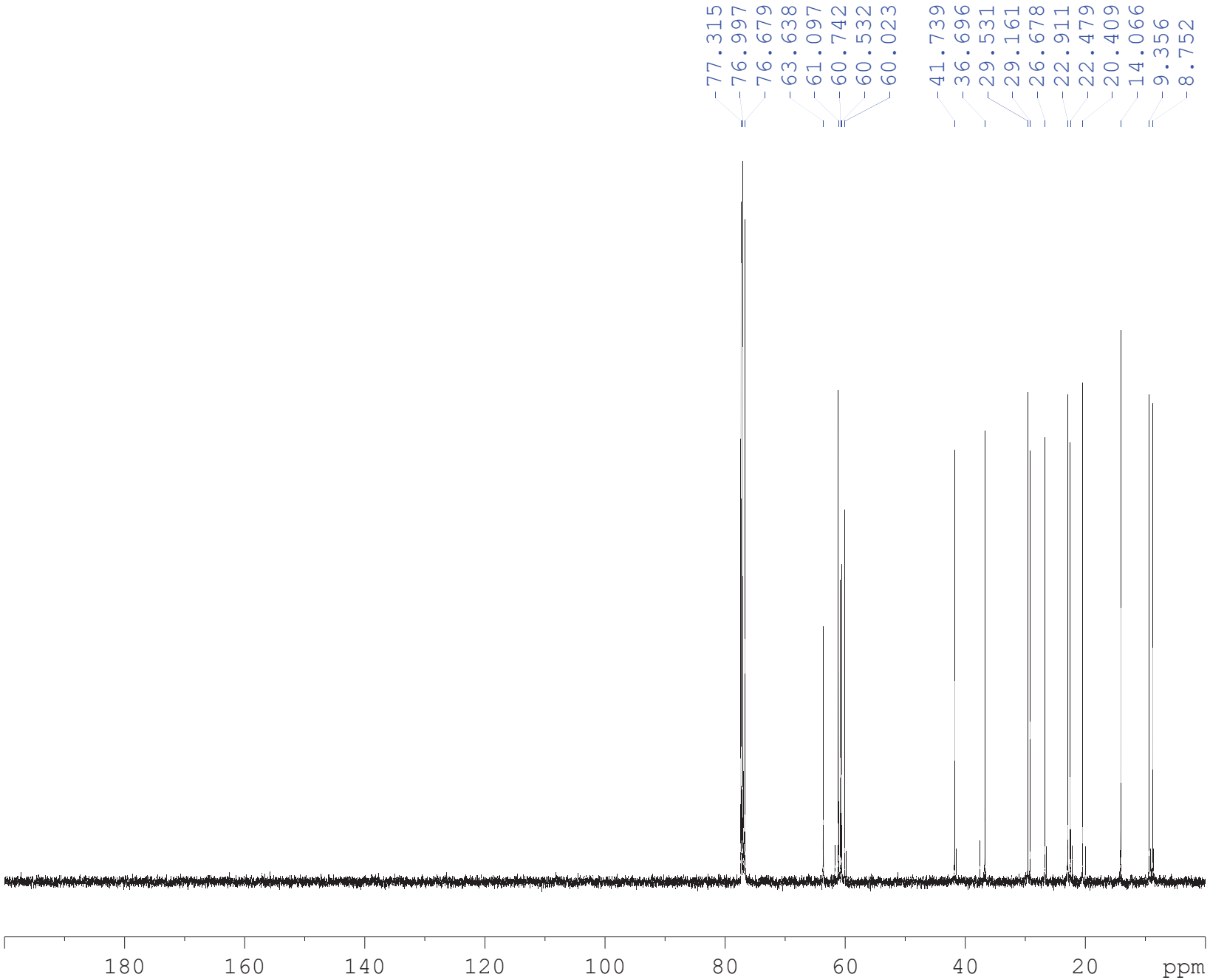


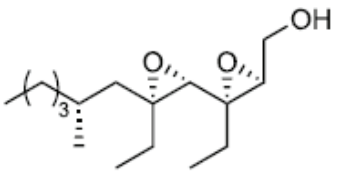
11b

```
Current Data Parameters
NAME       compound 11b
EXPNO                 1
PROCNO                1

F2 - Acquisition Parameters
Date_          20220225
Time              12.16
INSTRUM           spect
PROBHD   5 mm PABBO BB/
PULPROG         zgpg30
TD                65536
SOLVENT           CDCl3
NS                  256
DS                    4
SWH           24038.461 Hz
FIDRES         0.366798 Hz
AQ             1.3631488 sec
RG                  203
DW               20.800 usec
DE                6.50 usec
TE               296.0 K
D1            2.00000000 sec
D11           0.03000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1        100.6354031 MHz
NUC1               13C
P1               10.00 usec
PLW1         70.00000000 W

======== CHANNEL f2 ========
SFO2        400.1816007 MHz
NUC2               1H
CPDPRG[2        waltz16
PCPD2             90.00 usec
PLW2         17.00000000 W
PLW12         0.17840999 W
PLW13         0.08974000 W
```


7.260
3.916
3.902
3.899
3.887
3.059
3.045
3.032
2.958
1.884
1.868
1.852
1.831
1.814
1.796
1.730
1.721
1.711
1.703
1.653
1.634
1.617
1.598
1.585
1.577
1.553
1.536
1.395
1.372
1.354
1.343
1.337
1.330
1.314
1.310
1.304
1.295
1.290
1.277
1.273
1.264
1.261
1.051
1.032
1.013
1.009
0.990
0.971
0.944
0.937
0.928
0.915
0.897
0.880
Current Data Parameters
NAME compound 12b
EXPNO 1
PROCNO 1
F2 - Acquisition Parameters
Date_ 20220118
Time 18.04
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 144
DW 62.400 usec
DE 6.50 usec
TE 295.8 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1824713 MHz
NUC1 1H
P1 9.22 usec
PLW1 17.00000000 W
F2 - Processing parameters
SI 65536
SF 400.1800098 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
7
6
5
4
3
2
1
0
ppm
OH
O
O
3
2.092
1.000
0.926
1.184
0.771
1.877
4.190
6.418
12.778

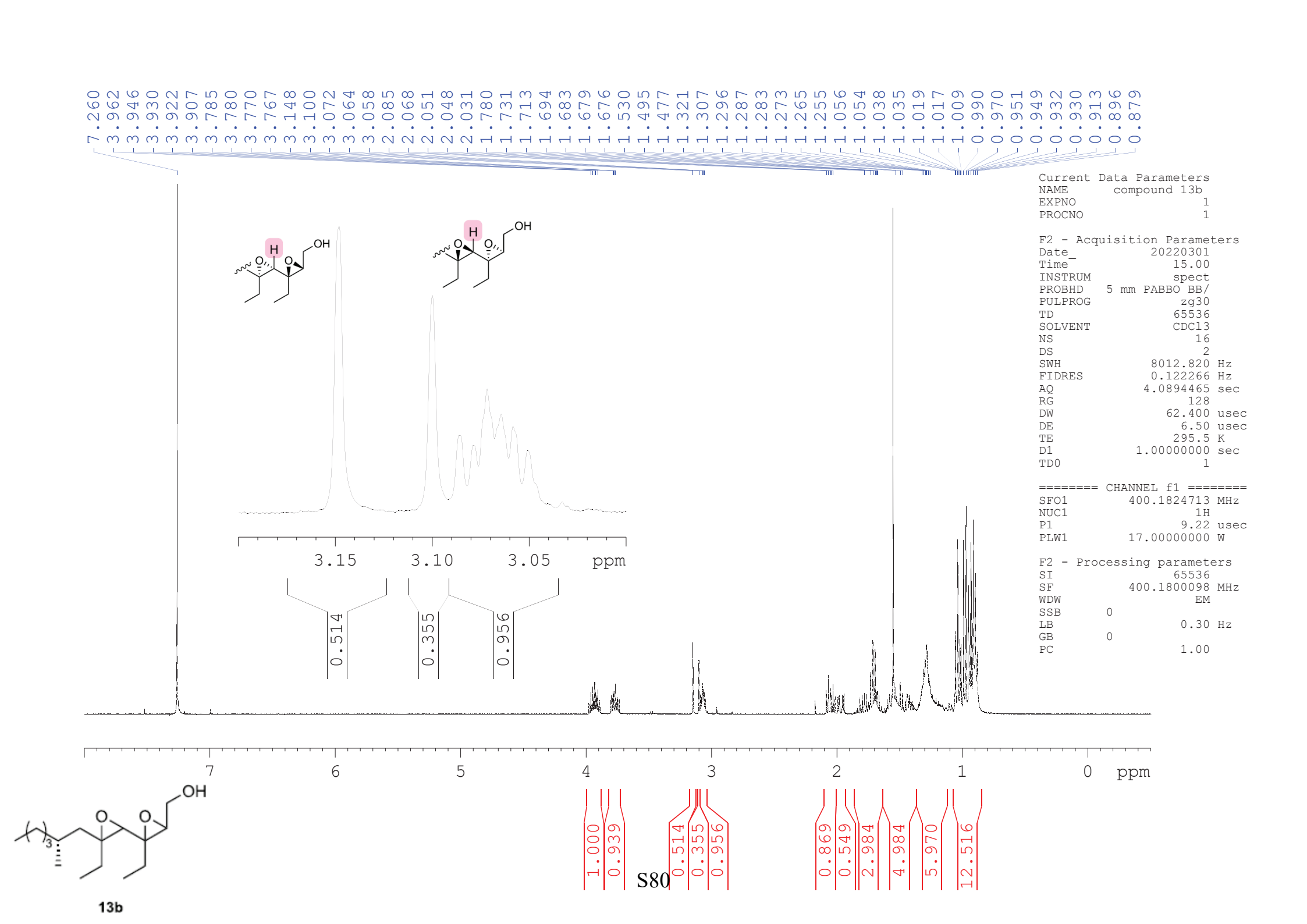
12b



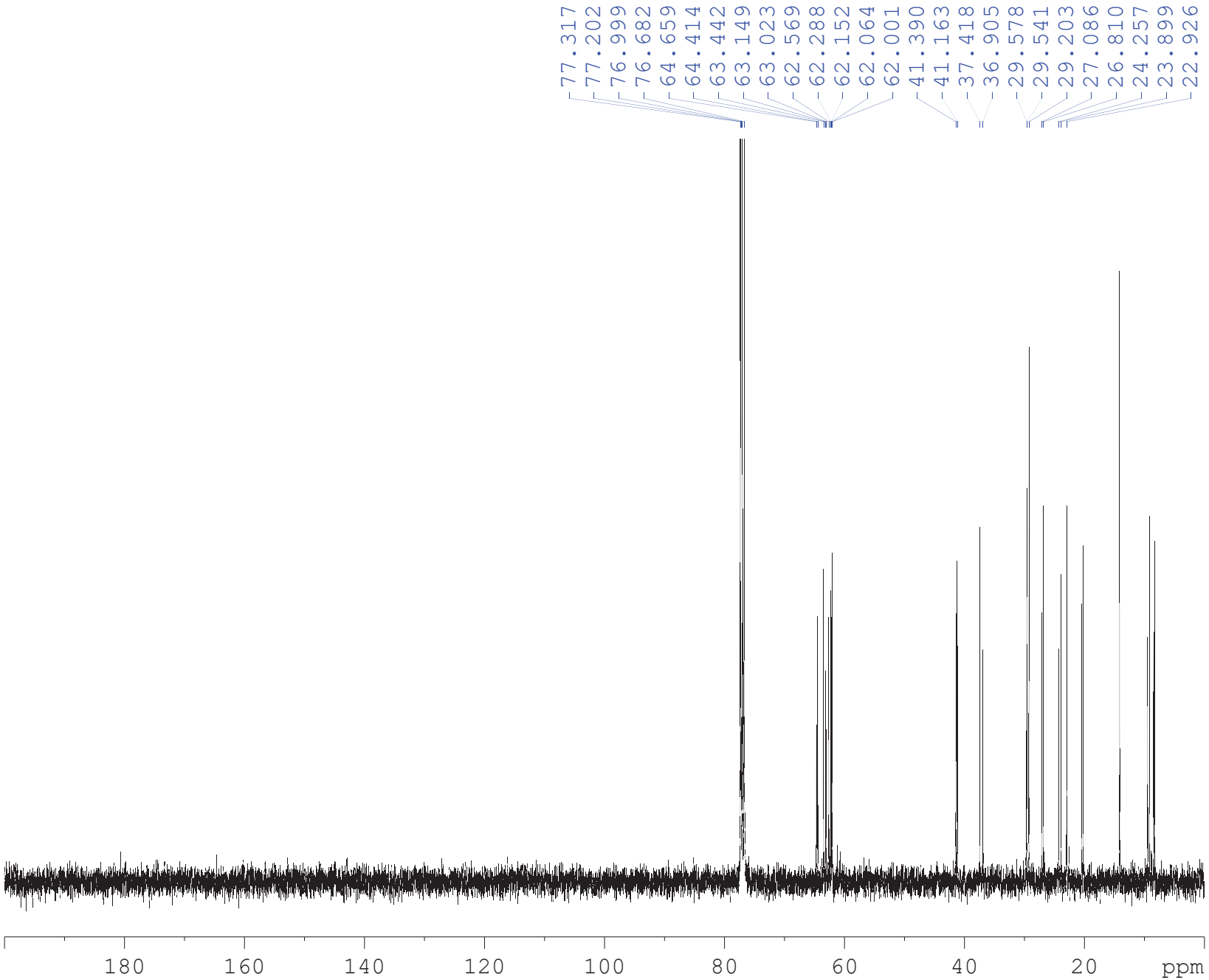


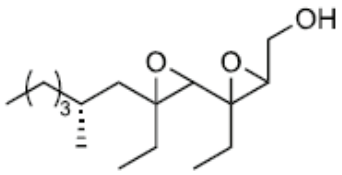
12b

```
Current Data Parameters
NAME       compound 12b
EXPNO                 1
PROCNO                1

F2 - Acquisition Parameters
Date_          20220118
Time              18.32
INSTRUM           spect
PROBHD   5 mm PABBO BB/
PULPROG         zgpg30
TD                65536
SOLVENT           CDCl3
NS                  256
DS                    4
SWH           24038.461 Hz
FIDRES         0.366798 Hz
AQ             1.3631488 sec
RG                  203
DW                20.800 usec
DE                 6.50 usec
TE                296.3 K
D1           2.00000000 sec
D11          0.03000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1        100.6354031 MHz
NUC1               13C
P1                10.00 usec
PLW1         70.00000000 W

======== CHANNEL f2 ========
SFO2        400.1816007 MHz
NUC2               1H
CPDPRG[2        waltz16
PCPD2             90.00 usec
PLW2         17.00000000 W
PLW12         0.17840999 W
PLW13         0.08974000 W
```


7.260 3.962 3.946 3.930 3.922 3.907 3.785 3.780 3.770 3.767 3.148 3.100 3.072 3.064 3.058 2.085 2.068 2.051 2.048 2.031 1.780 1.731 1.713 1.694 1.683 1.679 1.676 1.530 1.495 1.477 1.321 1.307 1.296 1.287 1.283 1.273 1.265 1.255 1.056 1.054 1.038 1.035 1.019 1.017 1.009 0.990 0.970 0.951 0.949 0.932 0.930 0.913 0.896 0.879
Current Data Parameters
NAME compound 13b
EXPNO 1
PROCNO 1
F2 - Acquisition Parameters
Date_ 20220301
Time 15.00
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 128
DW 62.400 usec
DE 6.50 usec
TE 295.5 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1824713 MHz
NUC1 1H
P1 9.22 usec
PLW1 17.00000000 W
F2 - Processing parameters
SI 65536
SF 400.1800098 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
H
OH
O
O
3.15
3.10
3.05
ppm
0.514
0.355
0.956
7
6
5
4
3
2
1
0
ppm
1.000
0.939
0.514
0.355
0.956
0.869
0.549
2.984
4.984
5.970
12.516

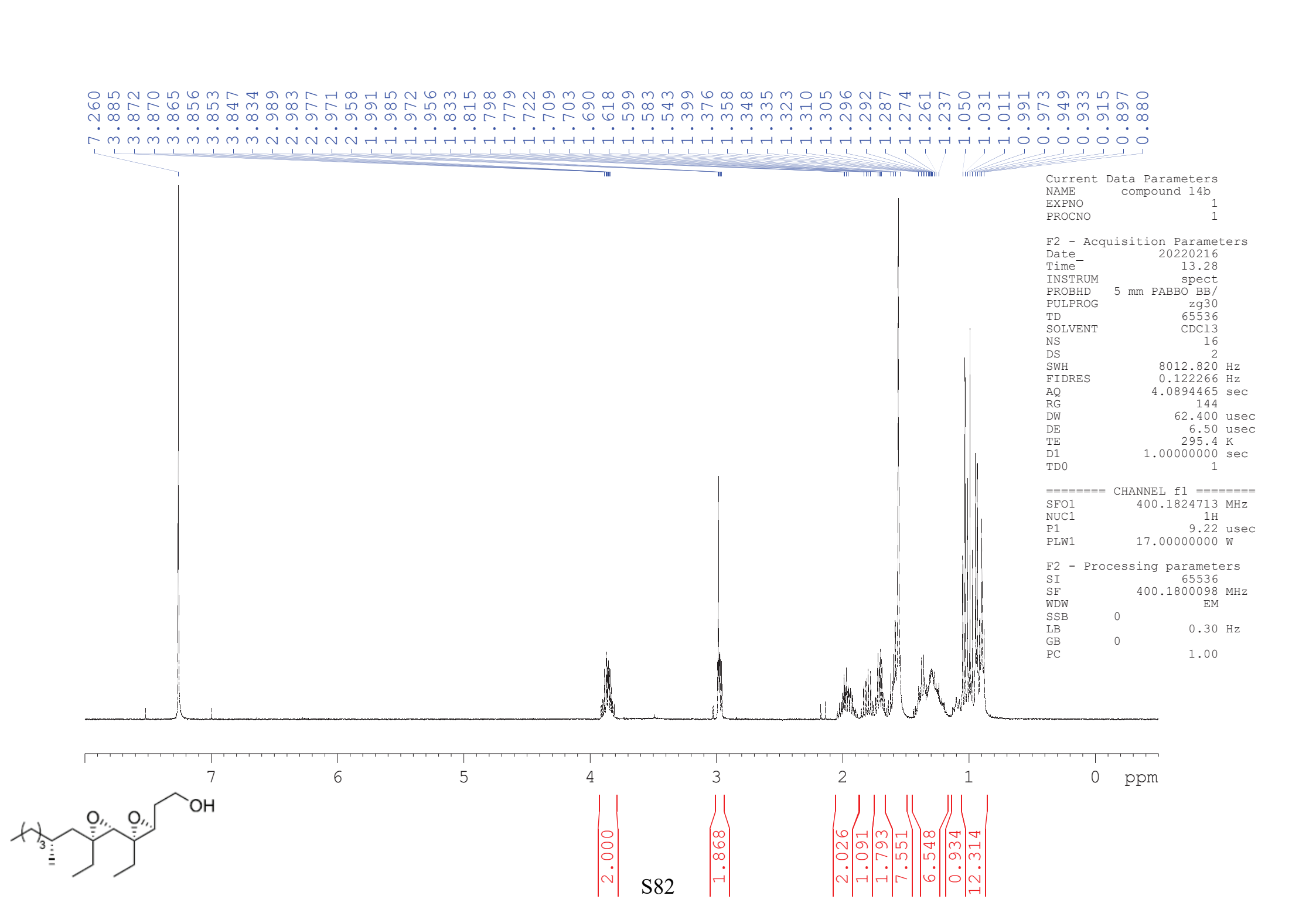
13b



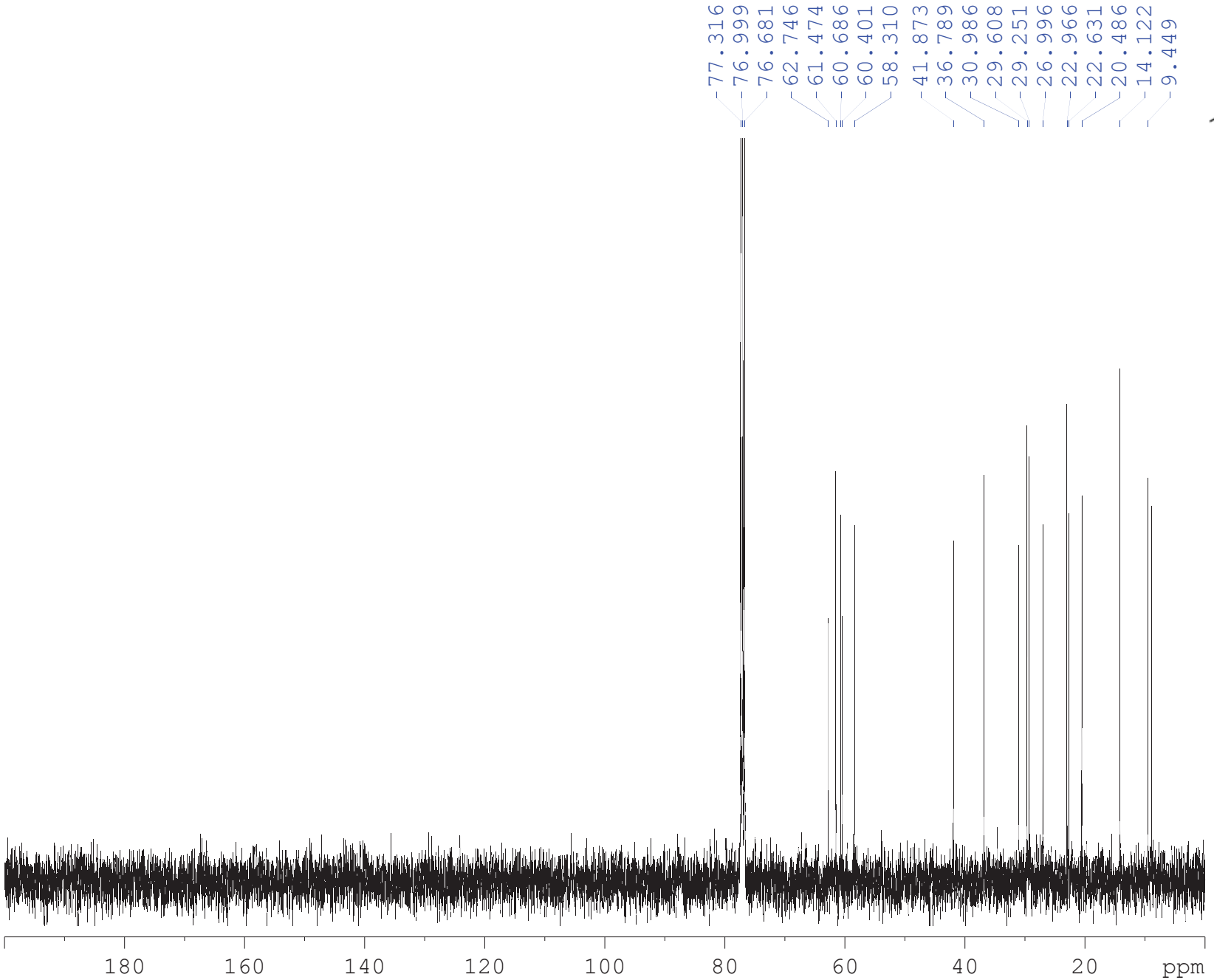


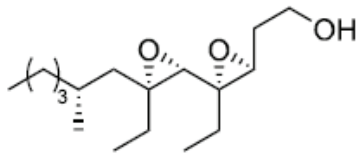
13b

```
Current Data Parameters
NAME       compound 13b
EXPNO                 1
PROCNO                1

F2 - Acquisition Parameters
Date_          20220301
Time              15.53
INSTRUM           spect
PROBHD   5 mm PABBO BB/
PULPROG         zgpg30
TD                65536
SOLVENT           CDCl3
NS                  434
DS                    4
SWH           24038.461 Hz
FIDRES         0.366798 Hz
AQ             1.3631488 sec
RG                  203
DW                20.800 usec
DE                 6.50 usec
TE                296.2 K
D1           2.00000000 sec
D11          0.03000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1        100.6354031 MHz
NUC1               13C
P1                10.00 usec
PLW1         70.00000000 W

======== CHANNEL f2 ========
SFO2        400.1816007 MHz
NUC2               1H
CPDPRG[2        waltz16
PCPD2             90.00 usec
PLW2         17.00000000 W
PLW12         0.17840999 W
PLW13         0.08974000 W
```


7.260
3.885
3.872
3.870
3.865
3.856
3.853
3.847
3.834
2.989
2.983
2.977
2.971
2.958
1.991
1.985
1.972
1.956
1.833
1.815
1.798
1.779
1.722
1.709
1.703
1.690
1.618
1.599
1.583
1.543
1.399
1.376
1.358
1.348
1.335
1.323
1.310
1.305
1.296
1.292
1.287
1.274
1.261
1.237
1.050
1.031
1.011
0.991
0.973
0.949
0.933
0.915
0.897
0.880
Current Data Parameters
NAME compound 14b
EXPNO 1
PROCNO 1
F2 - Acquisition Parameters
Date_ 20220216
Time 13.28
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 144
DW 62.400 usec
DE 6.50 usec
TE 295.4 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1824713 MHz
NUC1 1H
P1 9.22 usec
PLW1 17.00000000 W
F2 - Processing parameters
SI 65536
SF 400.1800098 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
7
6
5
4
3
2
1
0
ppm
OH
O
O
3
2.000
1.868
2.026
1.091
1.793
7.551
6.548
0.934
12.314

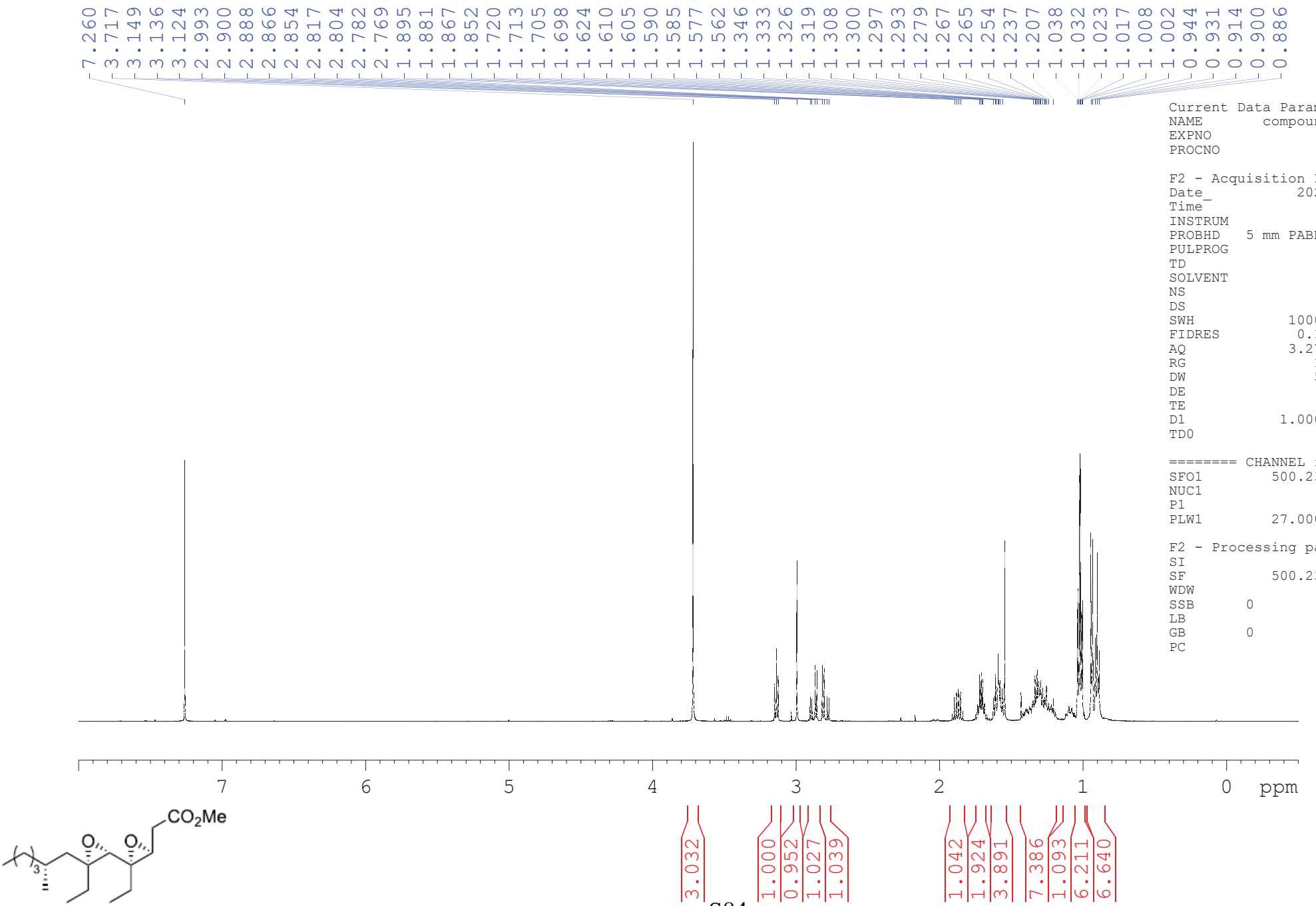
14b



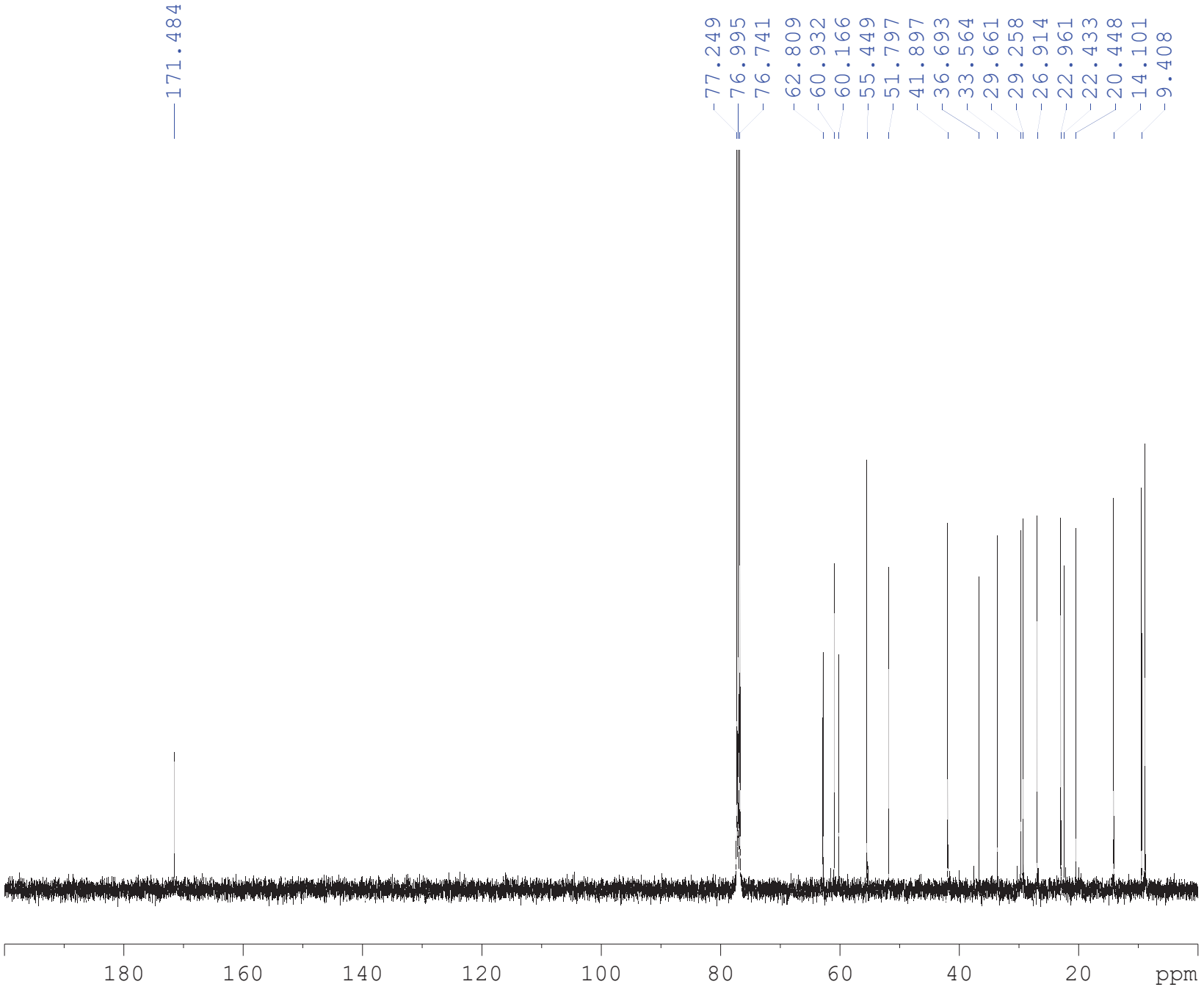


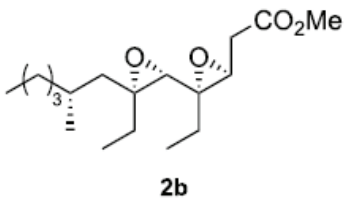
14b

```
Current Data Parameters
NAME      compound 14b
EXPNO                1
PROCNO               1

F2 - Acquisition Parameters
Date_          20220204
Time              18.30
INSTRUM           spect
PROBHD   5 mm PABBO BB/
PULPROG         zgpg30
TD               65536
SOLVENT          CDCl3
NS                 256
DS                   4
SWH          24038.461 Hz
FIDRES        0.366798 Hz
AQ            1.3631488 sec
RG                 203
DW              20.800 usec
DE               6.50 usec
TE              295.9 K
D1           2.00000000 sec
D11          0.03000000 sec
TD0                  1

======== CHANNEL f1 ========
SFO1       100.6354031 MHz
NUC1              13C
P1              10.00 usec
PLW1       70.00000000 W

======== CHANNEL f2 ========
SFO2       400.1816007 MHz
NUC2               1H
CPDPRG[2       waltz16
PCPD2            90.00 usec
PLW2       17.00000000 W
PLW12       0.17840999 W
PLW13       0.08974000 W
```


7.260
3.717
3.149
3.136
3.124
2.993
2.900
2.888
2.866
2.854
2.817
2.804
2.782
2.769
1.895
1.881
1.867
1.852
1.720
1.713
1.705
1.698
1.624
1.610
1.605
1.590
1.585
1.577
1.562
1.346
1.333
1.326
1.319
1.308
1.300
1.297
1.293
1.279
1.267
1.265
1.254
1.237
1.207
1.038
1.032
1.023
1.017
1.008
1.002
0.944
0.931
0.914
0.900
0.886
Current Data Parameters
NAME compound 2b
EXPNO 10
PROCNO 1
F2 - Acquisition Parameters
Date_ 20220228
Time 12.36
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 4
SWH 10000.000 Hz
FIDRES 0.152588 Hz
AQ 3.2767999 sec
RG 190.86
DW 50.000 usec
DE 6.50 usec
TE 300.0 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 500.2330891 MHz
NUC1 1H
P1 11.00 usec
PLW1 27.00000000 W
F2 - Processing parameters
SI 65536
SF 500.2300120 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
7
6
5
4
3
2
1
0
ppm
3.032
1.000
0.952
1.027
1.039
1.042
1.924
3.891
7.386
1.093
6.211
6.640
CO2Me
O
O
3

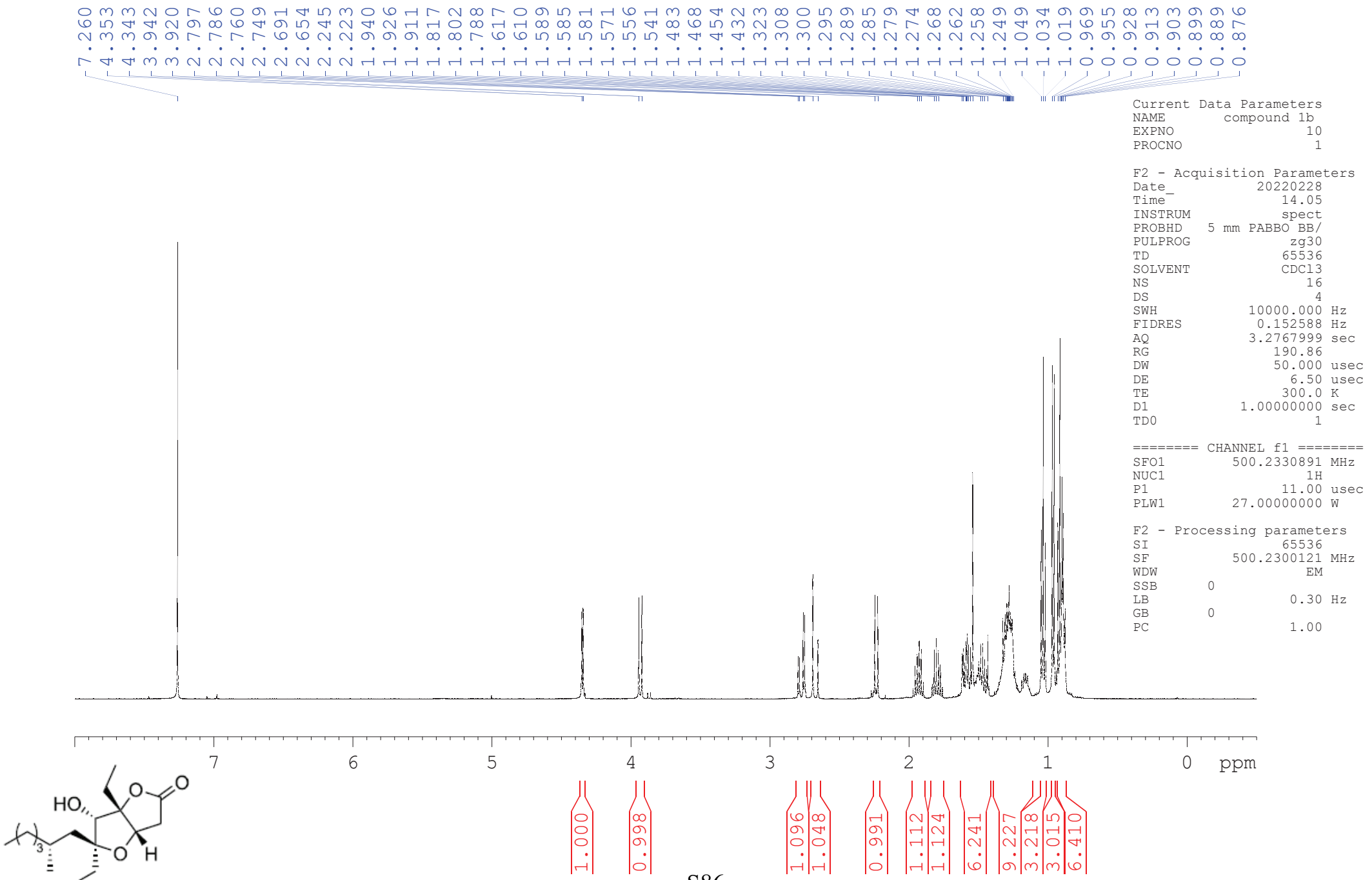
2b



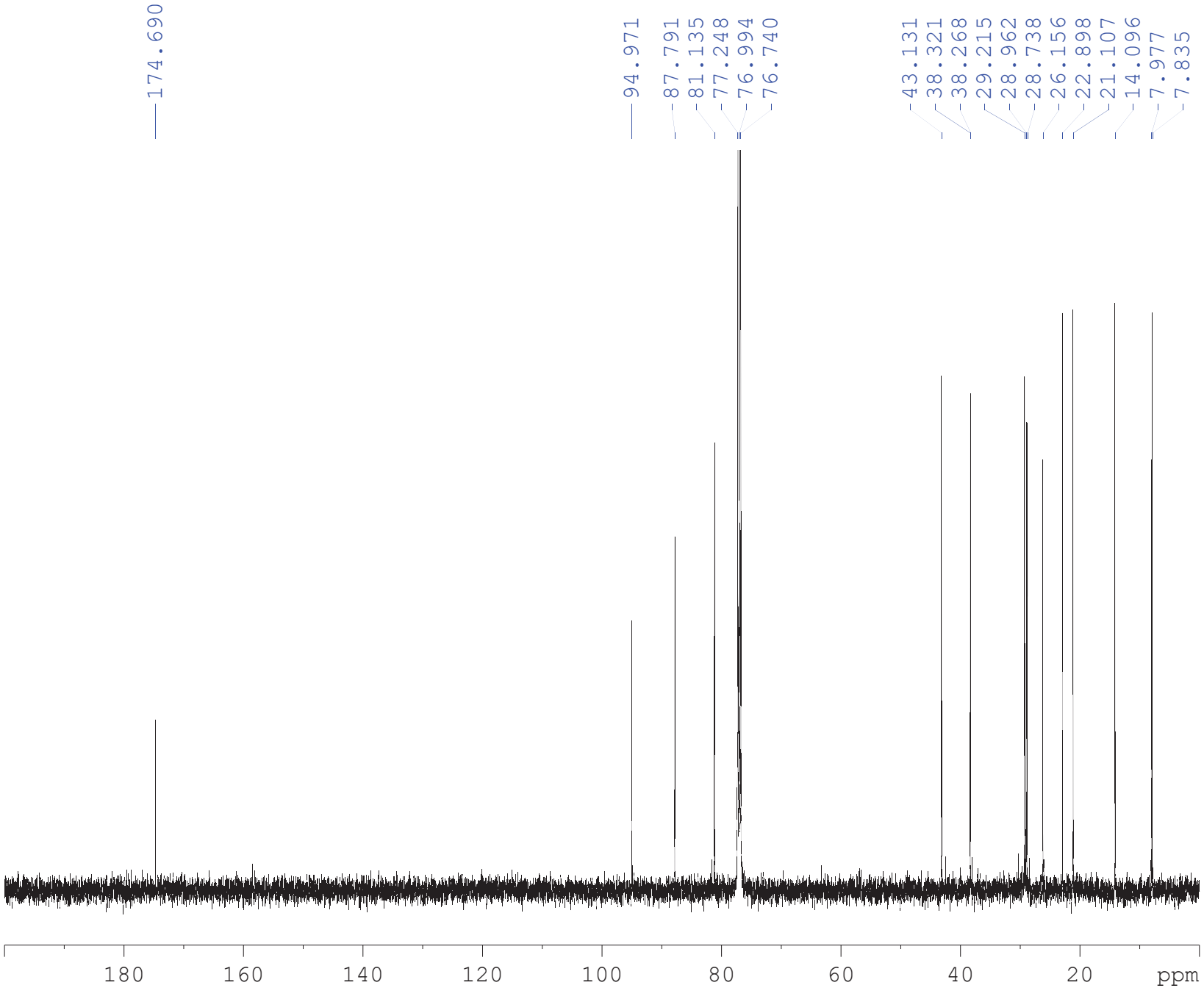


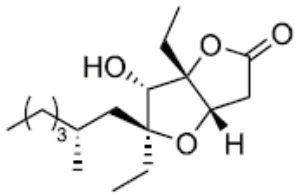
2b

```
Current Data Parameters
NAME        compound 2b
EXPNO                10
PROCNO                1

F2 - Acquisition Parameters
Date_          20220228
Time               13.37
INSTRUM            spect
PROBHD   5 mm PABBO BB/
PULPROG          zgpg30
TD                65536
SOLVENT           CDCl3
NS                  512
DS                    4
SWH           29761.904 Hz
FIDRES         0.454131 Hz
AQ             1.1010048 sec
RG                190.86
DW                16.800 usec
DE                 6.50 usec
TE                300.0 K
D1             2.00000000 sec
D11            0.03000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1         125.7955112 MHz
NUC1               13C
P1                10.00 usec
PLW1          88.00000000 W

======== CHANNEL f2 ========
SFO2         500.2320009 MHz
NUC2               1H
CPDPRG[2         waltz16
PCPD2             80.00 usec
PLW2          27.00000000 W
PLW12          0.51046997 W
PLW13          0.32670000 W
```


7.260
4.353
4.343
3.942
3.920
2.797
2.786
2.760
2.749
2.691
2.654
2.245
2.223
1.940
1.926
1.911
1.817
1.802
1.788
1.617
1.610
1.589
1.585
1.581
1.571
1.556
1.541
1.483
1.468
1.454
1.432
1.323
1.308
1.300
1.295
1.289
1.285
1.279
1.274
1.268
1.262
1.258
1.249
1.049
1.034
1.019
0.969
0.955
0.928
0.913
0.903
0.899
0.889
0.876
Current Data Parameters
NAME compound 1b
EXPNO 10
PROCNO 1
F2 - Acquisition Parameters
Date_ 20220228
Time 14.05
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 4
SWH 10000.000 Hz
FIDRES 0.152588 Hz
AQ 3.2767999 sec
RG 190.86
DW 50.000 usec
DE 6.50 usec
TE 300.0 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 500.2330891 MHz
NUC1 1H
P1 11.00 usec
PLW1 27.00000000 W
F2 - Processing parameters
SI 65536
SF 500.2300121 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
7
6
5
4
3
2
1
0
ppm
1.000
0.998
1.096
1.048
0.991
1.112
1.124
6.241
9.227
3.218
3.015
6.410
HO
O
O
O
H
3

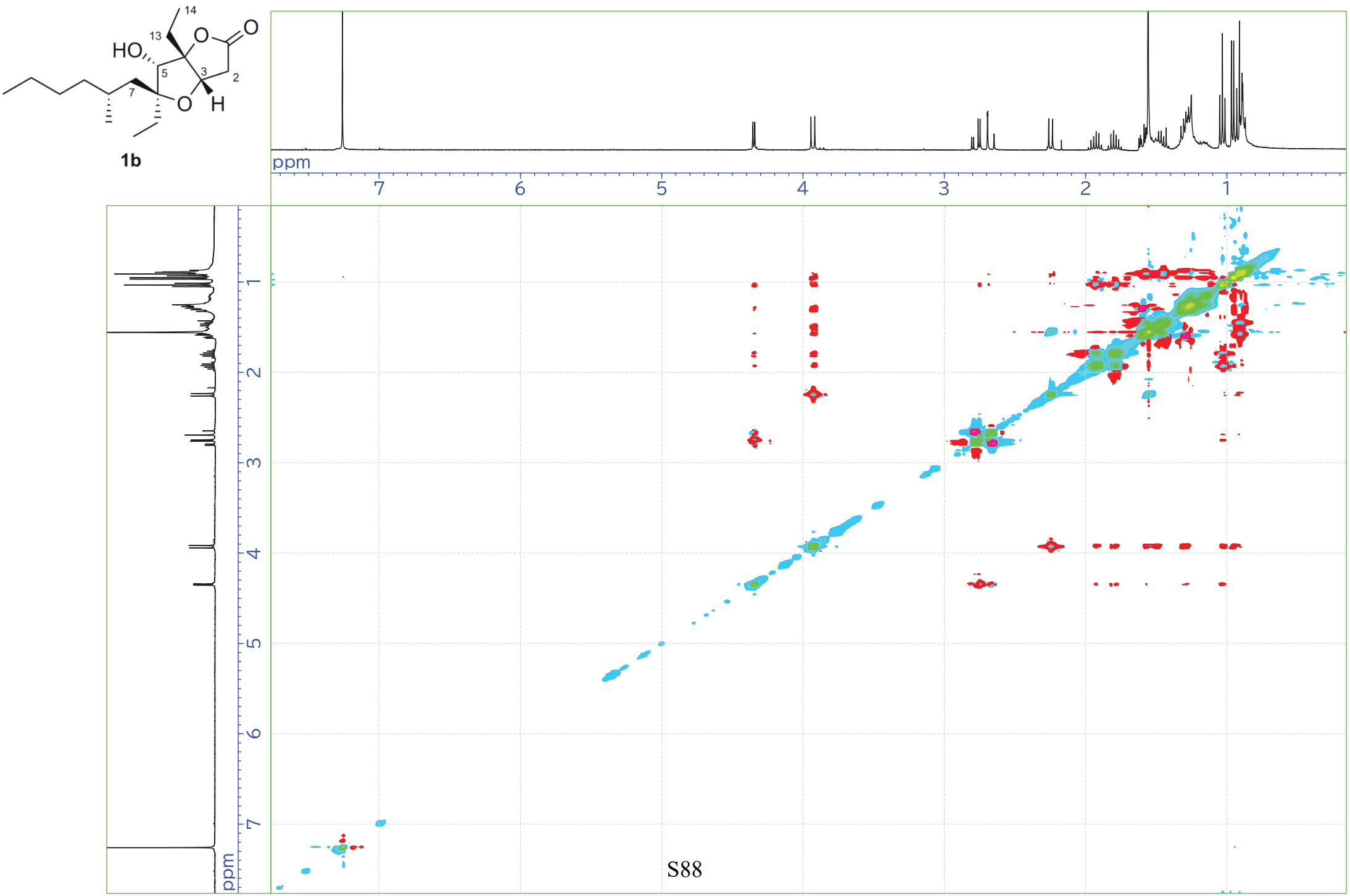
1b

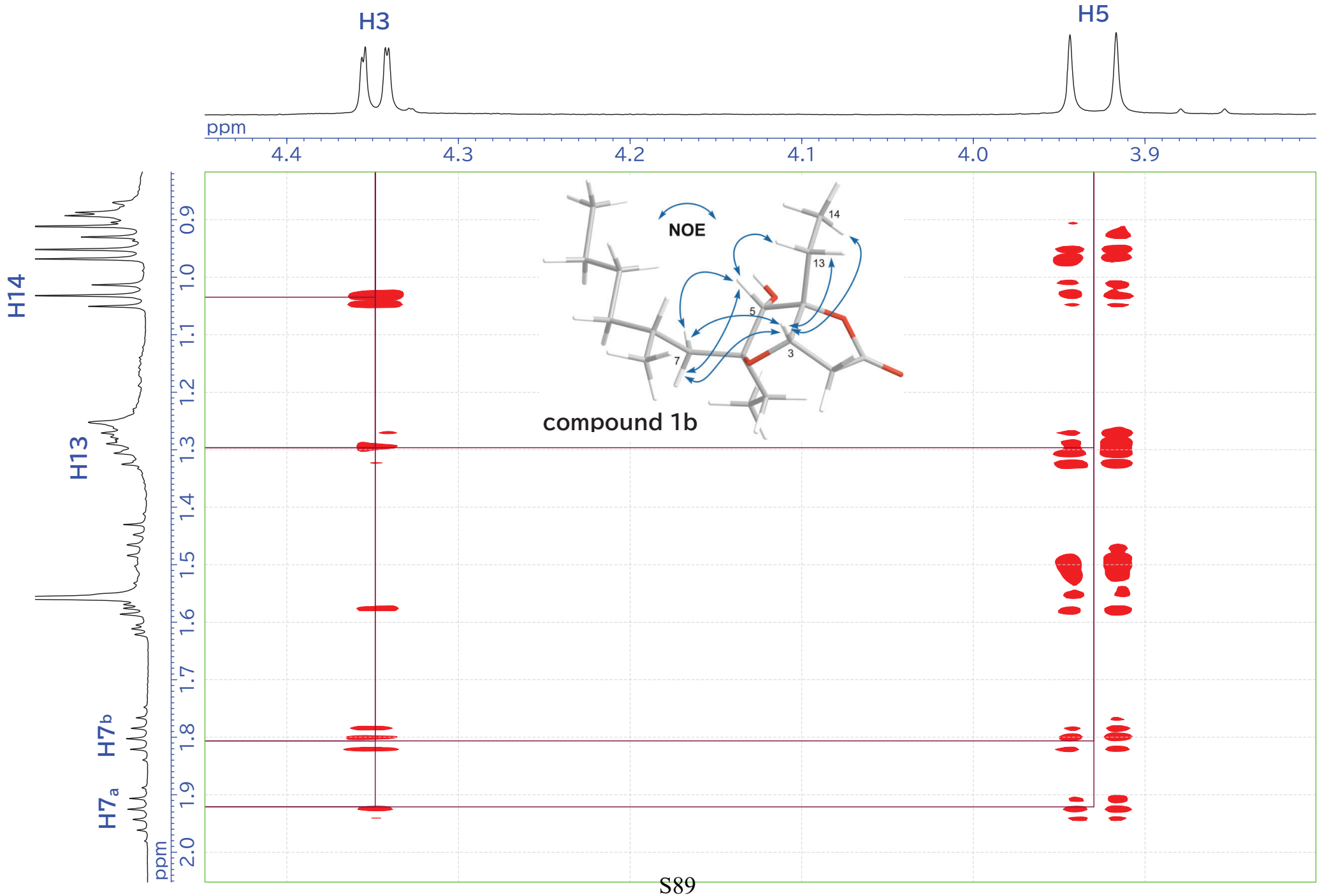




1b

```
Current Data Parameters
NAME        compound 1b
EXPNO                10
PROCNO                1

F2 - Acquisition Parameters
Date_          20220228
Time               16.11
INSTRUM            spect
PROBHD   5 mm PABBO BB/
PULPROG          zgpg30
TD                65536
SOLVENT           CDCl3
NS                 1024
DS                    4
SWH           29761.904 Hz
FIDRES         0.454131 Hz
AQ             1.1010048 sec
RG                190.86
DW                16.800 usec
DE                 6.50 usec
TE                299.8 K
D1           2.00000000 sec
D11          0.03000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1        125.7955112 MHz
NUC1               13C
P1                10.00 usec
PLW1         88.00000000 W

======== CHANNEL f2 ========
SFO2        500.2320009 MHz
NUC2               1H
CPDPRG[2         waltz16
PCPD2             80.00 usec
PLW2         27.00000000 W
PLW12         0.51046997 W
PLW13         0.32670000 W
```


14
13
HO
O
O
5
3
2
7
O
H
1b
ppm
7
6
5
4
3
2
1
ppm
1
2
3
4
5
6
7


H3
H5
ppm
4.4
4.3
4.2
4.1
4.0
3.9
H14
H13
H7a
H7b
ppm
0.9
1.0
1.1
1.2
1.3
1.4
1.5
1.6
1.7
1.8
1.9
2.0
NOE
14
13
5
7
3
compound 1b