Supporting Information

Directed Ortho Borylation of Phenol Derivatives Catalyzed by a Silica-Supported Iridium Complex

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Instrumentation and Chemicals

NMR spectra were recorded on a Varian Gemini 2000 spectrometer, operating at 300 MHz for ^{1}H NMR and 75.4 MHz for ^{13}C NMR. Chemical shift values for ^{1}H and ^{13}C are reference to Me_4Si and the residual solvent resonances respectively. Chemical shifts are reported in δ ppm. Elemental analysis was performed at the Center for Instrument Analysis, Hokkaido University. High-resolution mass spectra were recorded on a Thermo Scientific Exactive or JEOL JMS-T100GC mass spectrometer at the Center for Instrument Analysis, Hokkaido University. TLC analyses were performed on commercial glass plates bearing 0.25-mm layer of Merck Silica gel $60F_{254}$. Silica gel (Kanto Chemical Co., Silica gel 60 N, spherical, neutral) was used for column chromatography. Gas chromatographic (GC) analyses were conducted on a Shimadzu GC-14B equipped with a flame ionization detector. Gel permeation chromatography (GPC) was performed by LC-908 (Japan Analytical Industry Ltd., two in-line JAIGEL-2H, $CHCl_3$, 3.5 mL/min, UV and RI detectors).

All reactions were carried out under nitrogen or argon atmosphere. Materials were obtained from commercial suppliers or prepared according to standard procedures unless otherwise noted. Silica-SMAP was prepared according to the reported procedure.[1] All solvents for catalytic reactions were degassed via four freeze–pump–thaw cycles before use. $[Ir(OMe)(cod)]_2$ was prepared according to the literature.[2] Pinacolatoborane and bis(pinacolato)diboron were purchased from

Aldrich and AllyChem Co., Ltd, respectively.

Experimental Procedures

Typical Procedure for the Ortho-Borylation of Phenyl Diethylcarbamate (3aa) (Scheme 1).

In a glove box, Silica-SMAP (**1**, 0.064 mmol P g^{-1}, 40 mg, 0.0025 mmol), anhydrous, degassed hexane (1.1 mL), and $[Ir(OMe)(cod)]_2$ (0.8 mg, 0.00125 mmol) in hexane (0.4 mL) were placed in a 10 mL-glass tube containing a magnetic stirring bar, and the mixture was stirred for 1 min at 25 ˚C. **3aa** (196.5 mg, 1.0 mmol), and pinacolatoborane (**2**, 62.8 mg, 0.5 mmol) were added in the tube, which was then sealed with a screw cap. The tube was removed from the glove box. After the resulting mixture was stirred at 70 ˚C for 12 h, the mixture was filtered through a glass pipet equipped with a cotton filter. Solvent was removed under reduced pressure. An internal standard (1,1,2,2-tetrachloroethane) was added to the reaction mixture. The yield of the product was determined by ^{1}H NMR. The crude material was purified by GPC to give the borylation product **4aa** (100.5 mg, 0.32 mmol) in 64% isolated yield.

Suzuki–Miyaura Cross-Coupling/Deprotection of Carbamate (Scheme 2, upper side). 2-(4,4,5,5-Tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl *N*,*N*-diethylcarbamate (**4aa**) (96.6 mg, 0.30 mmol), 2-bromothiophene (62.9 mg, 0.36 mmol), Na_2CO_3 (256.0 mg, 2.4 mmol) and $Pd(PPh_3)_4$ (18.1 mg, 0.015 mmol) in a mixed solvent consisting of DME (1.0 mL) and H_2O (0.1 mL) were placed in 10 mL-glass tube containing a magnetic stirring bar. The tube was then sealed with a screw cap in argon. After being stirred at 90 ˚C for 24 h, the glass tube was cooled to rt. The reaction mixture was washed with water and brine, and was dried over $MgSO_4$. Solvent was removed under reduced pressure. The crude material was dissolved in Et_2O (5.0 mL), and the solution was added to a suspension of $LiAlH_4$ (34.1 mg, 0.9 mmol) in Et_2O (10.0 mL) in a two-neck round-bottom flask equipped with a reflux condenser. After being stirred at reflux for 7 h, the flask was cooled to room temperature, and water (5.0 mL) and 1M HCl aq (5.0 mL) were in turn added to the reaction mixture at 0 ˚C. The mixture was extracted with EtOAc (2 × 20 mL). The combined organic layers were washed with brine and dried over $MgSO_4$. The solvent was evaporated. Flash silica gel column chromatography (hexane/EtOAc 90:10) of the crude product provided **6** (36.2 mg, 0.20 mmol) in 68% yield. Spectral data match those previously reported.[3]

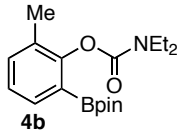
Suzuki–Miyaura Cross-Coupling/Ni-Catalyzed Cross-Coupling (Scheme 2, bottom side). 2-(4,4,5,5-Tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl *N*,*N*-diethylcarbamate (**4aa**) (96.1 mg, 0.30 mmol), 2-bromobenzene (58.1 mg, 0.37 mmol), Na_2CO_3 (258.1 mg, 2.4 mmol), $Pd(PPh_3)_4$ (17.7 mg, 0.015 mmol) in a mix solvent consisting of DME (1.0 ml) and H_2O (0.1 ml) were placed in a 10

mL-glass tube containing a magnetic stirring bar. The tube was then sealed with a screw cap under argon. After being stirred at 90 °C for 24 h, the glass tube was cooled to rt. The reaction mixture was washed with water and brine, and was dried over $MgSO_4$. After filtration, the solvent was evaporated. Flash silica gel column chromatography (hexane/EtOAc 95:5) of the crude product provided **7** (65.4 mg, 0.24 mmol) in 81% yield. In a glove box, **7** (65.4 mg, 0.24 mmol), $Ni(acac)_2$ (3.4 mg, 0.013 mmol), 1-[2-(diphenylphosphino)phenyl]ethanol (3.7 mg, 0.012 mmol) in Et_2O (0.6 mL) and anhydrous, degassed Et_2O (0.9 mL) were placed sequentially in a 10 mL-glass tube containing a magnetic stirring bar, which was then sealed with a screw cap. The tube was removed from the glove box, and 4-methoxyphenylmagnesium bromide (480 μL, 0.48 mmol, 1.0 M in Et_2O) was added to the tube. After being stirred at room temperature for 41 h, sat. NH_4Cl was added to the reaction mixture. The mixture was extracted with EtOAc (2 × 20 mL). The combined organic layers were washed with brine and dried over $MgSO_4$. The solvent was evaporated. Flash silica gel column chromatography (hexane/EtOAc 95:5) of the crude product provided **8** (50.8 mg, 0.20 mmol) in 80% yield. Spectral data match those previously reported.[4]

Compounds Characterization

The phenol derivatives **3ab**, **3ac**, **3ad**, **3ae**, **3af** and **3ah** are known compounds. The Starting materials **3aa**,[5] **3ag**,[6] **3b**,[7] **3c**,[8] **3d**,[8] **3g**,[9] **3i**[5], **3l**[10] and **3m**[9] shown in Scheme 1 and Table 1 are known compounds. Compound **4aa** is found in the literature.[11] The borylation products **4aa** and **4b**–**4s** were purified by GPC.

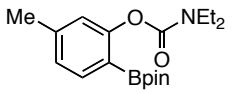
2-Methyl-6-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl *N*,*N*-Diethylcarbamate (4b)



4b

Coloress oil. **^{1}H NMR** ($CDCl_3$) δ 1.18–1.33 (m, 6H), 1.30 (s, 12H), 2.21 (s, 3H), 3.39 (q, *J* = 7.2 Hz, 2H), 3.52 (q, *J* = 7.2 Hz, 2H), 7.10 (t, *J* = 7.2 Hz, 1H), 7.28 (d, *J* = 7.2 Hz, 1H), 7.60 (d, *J* = 7.2 Hz, 1H). **^{13}C NMR** ($CDCl_3$) δ 13.32, 14.05, 16.16, 24.70, 41.53, 41.90, 83.32, 124.92, 130.56, 133.84, 133.88, 154.29, 154.69. A signal for the carbon directly attached to the boron atom was not observed. **Anal.** Calcd for $C_{18}H_{28}BNO_4$: C, 64.88%; H, 8.47%; N, 4.20%. Found: C, 64.65; H, 8.55%; N, 4.22%.

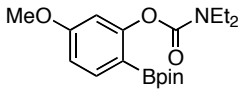
5-Methyl-2-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl *N*,*N*-Diethylcarbamate (4c)



4c

Coloress oil. **^{1}H NMR** ($CDCl_3$) δ 1.17–1.33 (m, 6H), 1.29 (s, 12H), 2.34 (s, 3H), 3.38 (q, *J* = 6.9 Hz, 2H), 3.50 (q, *J* = 7.2 Hz, 2H), 6.90 (s, 1H), 7.01 (d, *J* = 7.5 Hz, 1H), 7.66 (d, *J* = 7.5 Hz, 1H). **^{13}C NMR** ($CDCl_3$) δ 13.20, 13.79, 21.16, 24.60, 41.40, 41.72, 83.16, 122.87, 125.65, 136.11, 142.77, 154.87, 156.33. A signal for the carbon directly attached to the boron atom was not observed. **Anal.** Calcd for $C_{18}H_{28}BNO_4$: C, 64.88%; H, 8.47%; N, 4.20%. Found: C, 64.60; H, 8.54%; N, 4.21%.

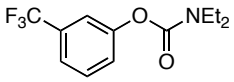
5-Methoxy-2-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl *N*,*N*-Diethylcarbamate (4d)



4d

Colorress oil. **^{1}H NMR** ($CDCl_3$) δ 1.18–1.31 (m, 6H), 1.29 (s, 12H), 3.38 (q, *J* = 7.2, Hz, 2H), 3.51 (q, *J* = 7.2 Hz, 2H), 3.81 (s, 3H), 6.63 (d, *J* = 2.4 Hz, 1H), 6.75 (dd, *J* = 8.4, 2.4 Hz, 1H), 7.70 (d, *J* = 8.4 Hz, 1H). **^{13}C NMR** ($CDCl_3$) δ 13.25, 13.86, 24.68, 41.48, 41.79, 55.18, 83.13, 108.02, 111.11, 137.31, 154.70, 157.92, 163.09. A signal for the carbon directly attached to the boron atom was not observed. **HRMS–ESI** (*m*/*z*): $[M+Na]^+$ calcd for $C_{18}H_{28}O_5NBNa$, 372.19527; found, 372.19570.

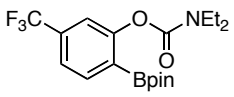
3-Trifluoromethylphenyl *N*,*N*-Diethylcarbamate (3e)



3e

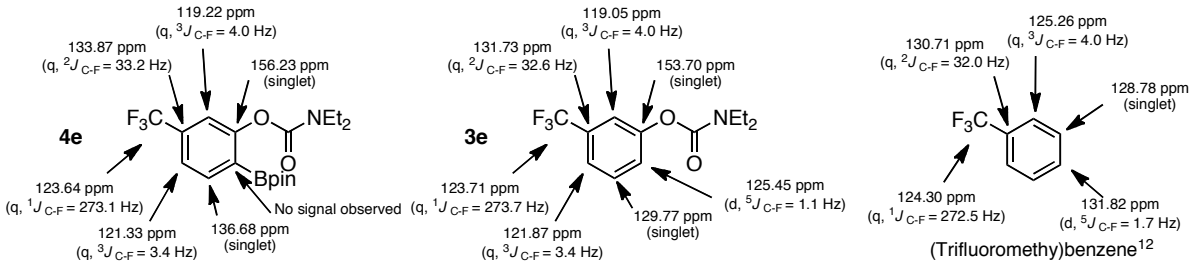
Coloress oil. **^{1}H NMR** ($CDCl_3$) δ 1.19–1.29 (m, 6H), 3,36–3.49 (m, 4H), 7.34 (m, 1H), 7.40 (s, 1H), 7.44–7.51 (m, 2H). **^{13}C NMR** ($CDCl_3$) δ 13.14, 14.06, 41.88, 42.29, 119.05 (q, *J* = 4.0 Hz), 121.87 (q, *J* = 3.4 Hz), 123.71 (q, *J* = 273.7 Hz), 125.45 (d, *J* = 1.1 Hz), 129.77, 131.73 (q, *J* = 32.6 Hz), 151.72, 153.70, 156.23. **Anal.** Calcd for $C_{12}H_{14}F_3NO_2$: C, 55.17%; H, 5.40%; N, 5.36%. Found: C, 55.07%; H, 5.32%; N, 5.34%.

2-(4,4,5,5-Tetramethyl-1,3,2-dioxaborolan-2-yl)-5-trifluoromethylphenyl *N*,*N*-Diethylcarbamate (4e)

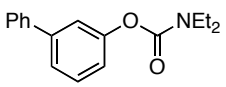


4e

Coloress oil. **^{1}H NMR** ($CDCl_3$) δ 1.18–1.31 (m, 6H), 1.31 (s, 12H), 3.39 (q, *J* = 7.2 Hz, 2H), 3.49 (q, *J* = 7.2 Hz, 2H), 7.33 (s, 1H), 7.44 (d, *J* = 7.8 Hz, 1H), 7.88 (d, *J* = 7.8 Hz, 1H). **^{13}C NMR** ($CDCl_3$) δ 13.20, 13.84, 24.70, 41.59, 41.97, 83.92, 119.23 (q, *J* = 4.0 Hz), 121.36 (q, *J* = 3.4 Hz), 123.65 (q, *J* = 273.1 Hz), 133.89 (q, *J* = 33.2 Hz), 136.68, 154.41, 156.23. A signal for the carbon directly attached to the boron atom was not observed. **HRMS–ESI** (*m/z*): $[M+Na]^+$ calcd for $C_{18}H_{25}O_4BF_3NNa$, 410.17209; found, 410.17247. The regioselectivity was assigned on the basis of the $J_{C–F}$ values in the ^{13}C NMR spectrum.



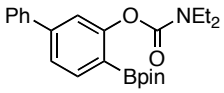
(1,1'-Biphenyl)-3-yl *N*,*N*-Diethylcarbamate (3f)



3f

Coloress oil. **^{1}H NMR** ($CDCl_3$) δ 1.20–1.30 (m, 6H), 3.38–3.50 (m, 4H), 7.12 (m, 1H), 7.31–7.37 (m, 2H), 7.40–7.45 (m, 4H), 7.58–7.61 (m, 2H). **^{13}C NMR** ($CDCl_3$) δ 13.16, 14.03, 41.72, 42.07, 120.51, 120.55, 123.79, 127.16, 127.46, 128.69, 129.44, 140.43, 142.57, 151.94, 154.20. **Anal.** Calcd for $C_{17}H_{19}NO_2$: C, 75.81%; H, 7.11%; N, 5.20%. Found: C, 75.85%; H, 7.17%; N, 5.21%.

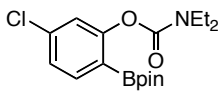
5-Phenyl-2-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl *N*,*N*-Diethylcarbamate (4f)



4f

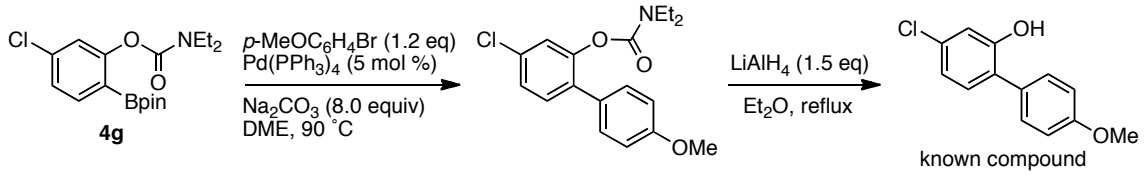
Colorress oil. **^{1}H NMR** ($CDCl_3$) δ 1.19–1.32 (m, 6H), 1.32 (s, 12H), 3.40 (q, *J* = 6.9, Hz, 2H), 3.53 (q, *J* = 7.2 Hz, 2H), 7.31 (d, *J* = 1.8 Hz, 1H), 7.36 (dm, *J* = 7.2 Hz, 1H), 7.40 (m, 1H), 7.61 (dm, *J* = 7.2 Hz, 2H), 7.84 (d, *J* = 7.8 Hz, 1H). **^{13}C NMR** ($CDCl_3$) δ 13.26, 13.88, 24.69, 41.51, 41.82, 83.41, 120.90, 123.44, 127.19, 127.73, 128.70, 136.64, 140.22, 145.28, 154.82, 156.72. A signal for the carbon directly attached to the boron atom was not observed. **HRMS–ESI** (*m/z*): $[M+Na]^+$ calcd for $C_{23}H_{30}O_4NBNa$, 418.21601; found, 418.21634.

5-Chloro-2-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl *N*,*N*-Diethylcarbamate (4g)

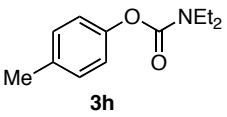


4g

Colorress oil. **^{1}H NMR** ($CDCl_3$) δ 1.17–1.33 (m, 6H), 1.30 (s, 12H), 3.38 (q, *J* = 7.2, Hz, 2H), 3.49 (q, *J* = 7.2 Hz, 2H), 7.11 (d, *J* = 1.8 Hz, 1H), 7.18 (dd, *J* = 8.1, 1.8 Hz, 1H), 7.70 (d, *J* = 8.1 Hz, 1H). **^{13}C NMR** ($CDCl_3$) δ 13.18, 13.81, 24.65, 41.52, 41.89, 83.59, 122.85, 125.11, 137.00, 137.49, 154.33, 156.79. A signal for the carbon directly attached to the boron atom was not observed. **Anal.** Calcd for $C_{17}H_{25}BClNO_4$: C, 57.74%; H, 7.13%; N, 3.96%. Found: C, 57.49; H, 7.10%; N, 3.88%. The synthesis of known compound 4-chloro-4'-methoxy-[1,1'-biphenyl]-2-ol[13] from **4g** by Suzuki-Miyaura coupling followed by deprotection of the carbamate moiety confirmed the assignment for **4g**.

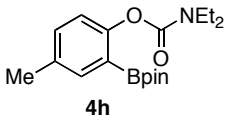


4-Methylphenyl Diethylcarbamate (3h)



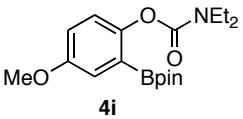
Coloress oil. **^{1}H NMR** ($CDCl_3$) δ 1.20–1.24 (m, 6H), 2.33 (s, 3H), 3.37–3.44 (m, 4H), 6.99 (dm, *J* = 8.1 Hz, 2H), 7.15 (d, *J* = 8.1 Hz, 2H). **^{13}C NMR** ($CDCl_3$) δ 13.13, 13.93, 20.52, 41.58, 41.93, 121.37, 129.60, 134.45, 149.27, 154.42. **Anal.** Calcd for $C_{12}H_{17}NO_2$: C, 69.54%; H, 8.27%; N, 6.76%. Found: C, 69.52%; H, 8.40%; N, 6.75%.

4-Methyl-2-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl *N*,*N*-Diethylcarbamate (4h)



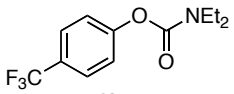
Colorress oil. **^{1}H NMR** ($CDCl_3$) δ 1.17–1.30 (m, 6H), 1.30 (s, 12H), 2.32 (s, 3H), 3.37 (q, *J* = 7.2, Hz, 2H), 3.50 (q, *J* = 7.2 Hz, 2H), 6.95 (d, *J* = 8.1 Hz, 1H), 7.23 (dd, *J* = 8.1, 2.4 Hz, 1H), 7.57 (d, *J* = 2.4 Hz, 1H). **^{13}C NMR** ($CDCl_3$) δ 13.18, 13.79, 20.37, 24.59, 41.34, 41.66, 83.25, 121.90, 132.71, 134.01, 136.48, 154.07, 154.95. A signal for the carbon directly attached to the boron atom was not observed. **HRMS–ESI** (*m*/*z*): $[M+H]^+$ calcd for $C_{18}H_{29}BNO_4$, 334.21896; found, 334.21924.

4-Methoxy-2-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl *N*,*N*-Diethylcarbamate (4i)



Coloress oil. **^{1}H NMR** ($CDCl_3$) δ 1.17–1.30 (m, 6H), 1.30 (s, 12H), 3.37 (q, *J* = 6.9 Hz, 2H), 3.49 (q, *J* = 6.9 Hz, 2H), 3.81 (s, 3H), 6.96-6.97 (m, 2H), 7.27 (m, 1H). **^{13}C NMR** ($CDCl_3$) δ 13.27, 13.87, 24.69, 41.42, 41.78, 55.55, 83.47, 118.23, 119.75, 123.19, 149.90, 155.24, 156.44. A signal for the carbon directly attached to the boron atom was not observed. **HRMS–ESI** (*m*/*z*): $[M+Na]^+$ calcd for $C_{18}H_{28}BNO_5Na$, 372.19527; found, 372.19552.

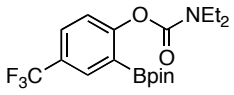
4-Trifluoromethylphenyl *N*,*N*-Diethylcarbamate (3j)



3j

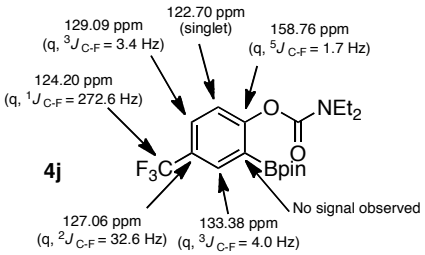
Coloress oil. **^{1}H NMR** ($CDCl_3$) δ 1.19–1.29 (m, 6H), 3.36–3.49 (m, 4H), 7.25 (d, *J* = 8.4 Hz, 2H), 7.63 (d, *J* = 8.4 Hz, 2H). **^{13}C NMR** ($CDCl_3$) δ 12.72, 13.63, 41.62, 42.01, 121.94, 123.94 (q, *J* = 272.0 Hz), 126.24 (q, *J* = 4.0 Hz), 126.89 (q, *J* = 32.6 Hz), 153.25, 154.14 (d, *J* = 1.1 Hz). **Anal.** Calcd for $C_{12}H_{14}F_3NO_2$: C, 55.17%; H, 5.40%; N, 5.36%. Found: C, 55.13%; H, 5.36%; N, 5.36%.

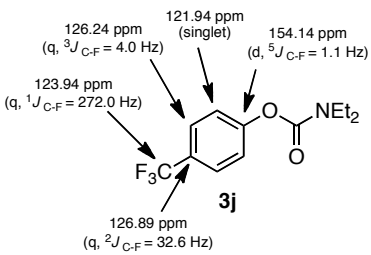
2-(4,4,5,5-Tetramethyl-1,3,2-dioxaborolan-2-yl)-4-trifluoromethylphenyl *N*,*N*-Diethylcarbamate (4j)

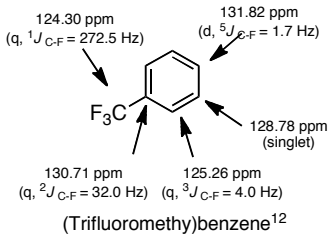


4j

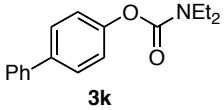
White solid. **^{1}H NMR** ($CDCl_3$) δ 1.18–1.32 (m, 6H), 1.30 (s, 12H), 3.39 (q, *J* = 7.2, Hz, 2H), 3.51 (q, *J* = 7.2 Hz, 2H), 7.19 (d, *J* = 8.4 Hz, 1H), 7.68 (dd, *J* = 8.4, 2.1 Hz, 1H), 8.04 (d, *J* = 2.1 Hz, 1H). **^{13}C NMR** ($CDCl_3$) δ 13.18, 13.84, 24.70, 41.59, 41.95, 83.93, 122.70, 124.20 (q, *J* = 272.6 Hz), 127.06 (q, *J* = 32.6 Hz), 129.09 (q, *J* = 3.4 Hz), 133.38 (q, *J* = 4.0 Hz), 154.24, 158.76 (q, *J* = 1.7 Hz). A signal for the carbon directly attached to the boron atom was not observed. **Anal.** Calcd for $C_{18}H_{25}F_3NO_4$: C, 55.83%; H, 6.51%; N, 3.62%. Found: C, 55.47%; H, 6.43%; N, 3.57%. m.p. 63.5–64.5 ˚C. The regioselectivity was assigned on the basis of the $J_{C–F}$ values in the ^{13}C NMR spectrum.







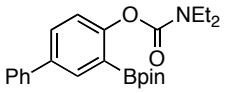
(1,1'-Biphenyl)-4-yl *N*,*N*-Diethylcarbamate (3k)



3k

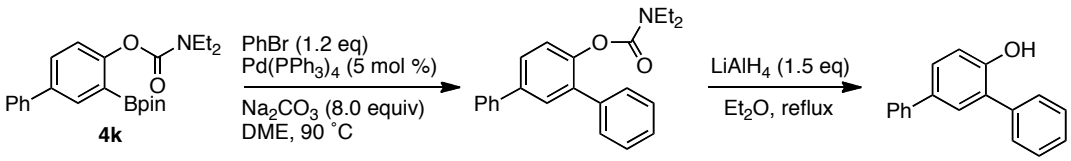
Coloress oil. **^{1}H NMR** ($CDCl_3$) δ 1.20–1.30 (m, 6H), 3.40–3.48 (m, 4H), 7.26 (dm, *J* = 8.4 Hz, 2H), 7.34 (tt, *J* = 7.2, 1.5 Hz, 1H), 7.44 (tm, *J* = 7.2 Hz, 2H), 7.55–7.59 (m, 4H). **^{13}C NMR** ($CDCl_3$) δ 13.16, 14.01, 41.72, 42.08, 121.99, 127.05, 127.12, 127.91, 128.71, 138.15, 140.60, 151.02, 154.22. **Anal.** Calcd for $C_{17}H_{19}NO_2$: C, 75.81%; H, 7.11%; N, 5.20%. Found: C, 75.63; H, 7.15%; N, 5.22%.

4-Phenyl-2-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl *N*,*N*-Diethylcarbamate (4k)

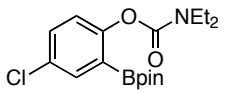


4k

White solid. **^{1}H NMR** ($CDCl_3$) δ 1.19–1.32 (m, 6H), 1.32 (s, 12H), 3.40 (q, *J* = 7.2, Hz, 2H), 3.53 (q, *J* = 7.2 Hz, 2H), 7.15 (d, *J* = 8.4 Hz, 1H) , 7.32 (tt, *J* = 7.5, 1.8 Hz, 1H), 7.42 (t, *J* = 7.5 Hz, 2H), 7.60 (dd, *J* = 7.5, 1.8 Hz, 2H), 7.64 (dd, *J* = 8.4, 2.4 Hz, 1H), 7.99 (d, *J* = 2.4 Hz, 1H). **^{13}C NMR** ($CDCl_3$) δ 13.20, 13.82, 24.64, 41.44, 41.77, 83.41, 122.51, 126.99, 127.14, 128.58, 130.78, 134.94, 137.78, 140.63, 154.80, 155.73. A signal for the carbon directly attached to the boron atom was not observed. **Anal.** Calcd for $C_{23}H_{30}BNO_4$: C, 69.88%; H, 7.65%; N, 3.54%. Found: C, 69.76; H, 7.75%; N, 3.55%. **m.p.** 154.7–156.0 ˚C. The synthesis of known compound [1,1':3',1"-terphenyl]-4'-ol[14] from **4k** by Suzuki–Miyaura coupling followed by deprotection of the carbamate moiety confirmed the assignment for **4k**.



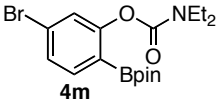
4-Chloro-2-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl *N*,*N*-Diethylcarbamate (4l)



4l

Coloress oil. **^{1}H NMR** ($CDCl_3$) δ 1.17–1.36 (m, 6H), 1.30 (s, 12H), 3.37 (q, *J* = 7.5 Hz, 2H), 3.49 (q, *J* = 7.2 Hz, 2H), 7.01 (d, *J* = 8.4 Hz, 1H), 7.38 (dd, *J* = 8.4, 2.7 Hz, 1H), 7.73 (d, *J* = 2.7 Hz, 1H). **^{13}C NMR** ($CDCl_3$) δ 13.26, 13.89, 24.74, 41.54, 41.92, 83.82, 123.77, 130.47, 131.98, 135.76, 154.62, 154.69. A signal for the carbon directly attached to the boron atom was not observed. **HRMS–ESI** (*m*/*z*): $[M+H]^+$ calcd for $C_{17}H_{26}BClNO_4$, 354.16434; found, 354.16429.

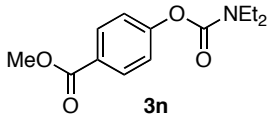
5-Bromo-2-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl *N*,*N*-Diethylcarbamate (4m)



4m

Wthie solid. **^{1}H NMR** ($CDCl_3$) δ 1.17–1.33 (m, 6H), 1.29 (s, 12H), 3.37 (q, *J* = 7.2, Hz, 2H), 3.48 (q, *J* = 7.2 Hz, 2H), 7.27 (d, *J* = 1.8 Hz, 1H) , 7.34 (dd, *J* = 8.1, 1.8 Hz, 1H), 7.63 (d, *J* = 8.1 Hz, 1H). **^{13}C NMR** ($CDCl_3$) δ 13.22, 13.84, 24.69, 41.55, 41.93, 83.64, 125.65, 125.74, 128.07, 137.19, 154.36, 156.72. A signal for the carbon directly attached to the boron atom was not observed. **Anal.** Calcd for $C_{17}H_{25}BBrNO_4$: C, 51.29%; H, 6.33%; N, 3.52%. Found: C, 50.97%; H, 6.28%; N, 3.43%. m.p. 84.5–85.4 ˚C.

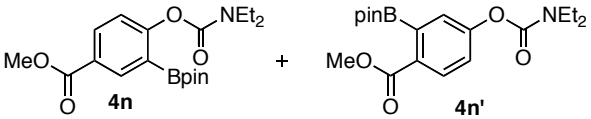
4-(Methoxycarbonyl)phenyl *N*,*N*-Diethylcarbamate (3n)



3n

Colorress oil. **^{1}H NMR** ($CDCl_3$) δ 1.19–1.28 (m, 6H), 3.36–3.48 (m, 4H), 3.91 (s, 3H), 7.21 (dm, *J* = 8.7 Hz, 2H), 8.23 (dm, *J* = 8.7 Hz, 2H). **^{13}C NMR** ($CDCl_3$) δ 12.79. 13.71, 41.54, 41.88, 51.55, 121.26, 126.46, 130.62, 153.08, 155.10, 166.11. **HRMS–ESI** (*m*/*z*): $[M+Na]^+$ calcd for $C_{13}H_{17}NO_4Na$, 274.10498; found, 274.10497.

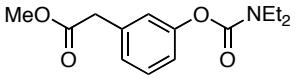
4-(Methoxycarbonyl)-2-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl *N*,*N*-Diethylcarbamate (4n) and 4-(Methoxycarbonyl)-3-(4,4,5,5-tetramethyl-1,3,2-dioxa borolan-2-yl)phenyl *N*,*N*-Diethylcarbamate (4n')



4n **4n'**

Colorress oil. **^{1}H NMR** ($CDCl_3$) **4n**; δ 1.18–1.32 (m, 6H), 1.32 (s, 12H), 3.39 (q, *J* = 7.2 Hz, 2H), 3.51 (q, *J* = 7.2 Hz, 2H), 3.91 (s, 3H), 7.15 (d, *J* = 8.4 Hz, 1H), 8.12 (dd, *J* = 8.4, 2.4 Hz, 1H), 8.45 (d, *J* = 2.4 Hz, 1H). **4n'**; δ 3.90 (s, 3H), 7.21–7.23 (m, 2H), 7.95 (d, *J* = 9.3 Hz, 1H) (only observed peaks). **^{13}C NMR** ($CDCl_3$) **4n**+**4n'**; δ 13.15, 13.20, 13.86, 14.07, 41.56, 41.84, 41.90, 42.15, 83.76, 84.08, 122.15, 122.34, 125.02, 126.67, 129.96, 130.36, 133.65, 137.94, 154.23, 154.57, 159.87, 166.73 (only observed peaks). **HRMS–ESI** (*m*/*z*): $[M+Na]^+$ calcd for $C_{19}H_{28}NO_6BNa$, 400.19014; found, 400.19046. The position of the boron atom was determined by comparison of the ^{1}H NMR chemical shifts with those of the isomer **4n'**: the aromatic proton of **4n** at C3 position was observed at a significantly lower magnetic field than the aromatic proton of **4n'** at C2 position, which indicates that the **4n** is a borylated at the ortho position of the carbamate moiety.

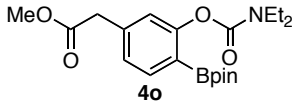
3-(2-Methoxy-2-oxoethyl)phenyl *N*,*N*-Diethylcarbamate (3o)



3o

Colorress oil. **^{1}H NMR** ($CDCl_3$) δ 1.18–1.27 (m, 6H), 3.37–3.45 (m, 4H), 3.63 (s, 2H), 3.70 (s, 3H), 7.04-7.13 (m, 3H), 7.31 (t, *J* = 7.5 Hz, 1H). **^{13}C NMR** ($CDCl_3$) δ 13.13, 13.98, 40.68, 41.69, 42.03, 51.87, 120.54, 122.63, 125.96, 129.22, 135.15, 151.62, 154.10, 171.71. **Anal.** Calcd for $C_{14}H_{19}NO_4$: C, 63.38%; H, 7.22%; N, 5.28%. Found: C, 63.02%; H, 7.21%; N, 5.24%.

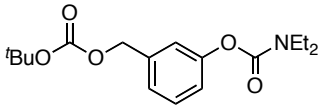
5-(2-Methoxy-2-oxoethyl)-2-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl *N*,*N*-Diethylcarbamate (4o)



4o

Colorress oil. **^{1}H NMR** ($CDCl_3$) δ 1.17–1.35 (m, 6H), 1.29 (s, 12H), 3.38 (q, *J* = 7.2 Hz, 2H), 3.50 (q, *J* = 7.2 Hz, 2H), 3.62 (s, 2H), 3.67 (s, 3H), 7.02 (s, 1H) , 7.12 (d, *J* = 8.1 Hz, 1H), 7.73 (d, *J* = 8.1 Hz, 1H). **^{13}C NMR** ($CDCl_3$) δ 13.28, 13.87, 24.70, 40.93, 41.51, 41.83, 51.99, 83.42, 123.16, 125.80, 136.44, 138.31, 154.78, 156.41, 171.56. **Anal.** Calcd for $C_{20}H_{30}BNO_6$: C, 61.39%; H, 7.73%; N, 3.58%. Found: C, 61.06%; H, 7.65%; N, 3.59%.

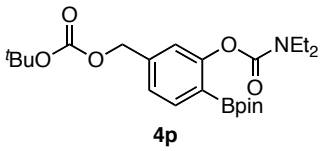
3-[{(*tert*-Butoxycarbonyl)oxy}methyl]phenyl *N*,*N*-Diethylcarbamate (3p)



3p

Colorress oil. **^{1}H NMR** ($CDCl_3$) δ 1.18–1.29 (m, 6H), 1.49 (s, 9H), 3.35–3.47 (m, 4H), 5.08 (s, 2H), 7.10 (dm, *J* = 7.8 Hz, 1H), 7.15 (s, 1H), 7.20 (d, *J* = 7.8 Hz, 1H), 7.35 (t, *J* = 7.8 Hz, 1H). **^{13}C NMR** ($CDCl_3$) δ 13.08, 13.94, 27.48 41.65, 42.00, 67.91, 82.12, 121.39, 121.64, 124.63, 129.24, 136.93, 151.60, 153.31, 153.98. **Anal.** Calcd for $C_{17}H_{25}NO_5$: C, 63.14%; H, 7.79%; N, 4.33%. Found: C, 62.84; H, 7.80%; N, 4.37%.

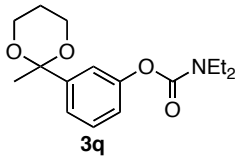
5-[{(*tert*-Butoxycarbonyl)oxy}methyl]-2-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl *N*,*N*-Diethylcarbamate (4p)



4p

Coloress oil. **^{1}H NMR** ($CDCl_3$) δ 1.17–1.32 (m, 6H), 1.30 (s, 12H), 1.49 (s, 9H), 3.37 (q, *J* = 7.2 Hz, 2H), 3.50 (q, *J* = 6.9 Hz, 2H), 5.08 (s, 2H), 7.09 (d, *J* = 1.2 Hz, 1H), 7.19 (dd, *J* = 7.8, 1.2 Hz, 1H) 7.76 (d, *J* = 7.8 Hz, 1H). **^{13}C NMR** ($CDCl_3$) δ 13.24, 13.85, 24.69, 27.60, 41.50, 41.83, 67.81, 82.28, 83.47, 121.57, 124.08, 136.42, 140.07, 153.39, 154.73, 156.40. A signal for the carbon directly attached to the boron atom was not observed. **HRMS–ESI** (*m*/*z*): $[M+Na]^+$ calcd for $C_{23}H_{36}BO_7NNa$, 472.24770; found, 472.24743.

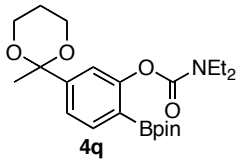
3-(2-Methyl-1,3-dioxan-2-yl)phenyl *N*,*N*-Diethylcarbamate (3q)



3q

Colorress oil. **^{1}H NMR** ($CDCl_3$) δ 1.19–1.29 (m, 7H), 1.52 (s, 3H), 2.12 (m, 1H), 3.37–3.47 (m, 4H), 3.79–3.87 (m, 4H), 7.09 (ddd, *J* = 7.8, 2.4, 1.5 Hz, 1H), 7.18 (t, *J* = 1.5 Hz, 1H), 7.27 (m, 1H), 7.39 (t, *J* = 7.8 Hz, 1H). **^{13}C NMR** ($CDCl_3$) δ 13.18, 14.05, 25.14, 32.12, 41.72, 42.06, 61.18, 100.15, 120.38, 121.00, 123.44, 129.49, 142.84, 152.07, 154.18. **Anal.** Calcd for $C_{16}H_{23}NO_4$: C, 65.51%; H, 7.90%; N, 4.77%. Found: C, 65.20%; H, 7.94%; N, 4.76%.

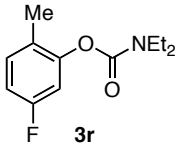
5-(2-Methyl-1,3-dioxan-2-yl)-2-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl *N*,*N*-Diethylcarbamate (4q)



4q

White solid. **^{1}H NMR** ($CDCl_3$) δ 1.18–1.34 (m, 7H), 1.31 (s, 12H), 1.49 (s, 3H), 2.11 (m, 1H), 3.39 (q, *J* = 7.2 Hz, 2H), 3.52 (q, *J* = 7.2 Hz, 2H), 3.77–3.89 (m, 4H), 7.13 (d, *J* = 1.5 Hz, 1H), 7.27 (m, 1H), 7.82 (d, *J* = 8.1 Hz, 1H). **^{13}C NMR** ($CDCl_3$) δ 13.21, 13.85, 24.66, 25.12, 32.01, 41.43, 41.76, 61.27, 83.42, 100.16, 120.86, 123.19, 136.66, 145.95, 154.74, 156.82. **Anal.** Calcd for $C_{22}H_{34}BNO_6$: C, 63.02%; H, 8.17%; N, 3.34%. Found: C, 62.74%; H, 8.30%; N, 3.32%. m.p. 105.5–106.5 °C.

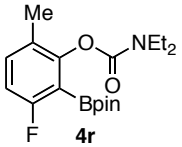
5-Fluoro-2-methylphenyl Diethylcarbamate (3r)



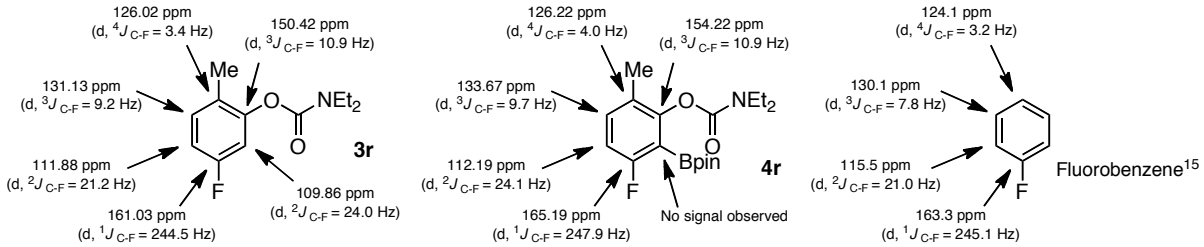
3r

Colorress oil. **^{1}H NMR** ($CDCl_3$) δ 1.19–1.29 (m, 6H), 2.17 (s, 3H), 3.36–3.50 (m, 4H), 6.80–6.88 (m, 2H), 7.14 (tm, *J* = 7.2 Hz, 1H). **^{13}C NMR** ($CDCl_3$) δ 13.01, 13.89, 15.34, 41.69, 42.07, 109.86 (d, *J* = 24.0 Hz), 111.88 (d, *J* = 21.2 Hz), 126.02 (d, *J* = 3.4 Hz), 131.13 (d, *J* = 9.2 Hz), 150.42 (d, *J* = 10.9 Hz), 153.32, 161.03 (d, *J* = 244.5 Hz). **Anal.** Calcd for $C_{12}H_{16}FNO_2$: C, 63.98%; H, 7.16%; N, 6.22%. Found: C, 63.87%; H, 7.18%; N, 6.26%.

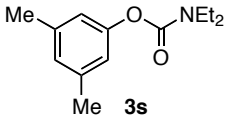
5-Fluoro-2-methyl-6-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl *N*,*N*-Diethylcarbamate (4r)



Coloress oil. **^{1}H NMR** ($CDCl_3$) δ 1.18–1.35 (m, 6H), 1.33 (s, 12H), 2.15 (s, 3H), 3.39 (q, *J* = 7.2 Hz, 2H), 3.49 (q, *J* = 7.2 Hz, 2H), 6.82 (t, *J* = 8.4 Hz, 1H), 7.21 (m, 1H). **^{13}C NMR** ($CDCl_3$) δ 13.24, 14.05, 15.72, 24.64, 41.55, 41.93, 83.48, 112.19 (d, *J* = 24.1 Hz), 126.22 (d, *J* = 4.0 Hz), 133.67 (d, *J* = 9.7 Hz), 153.80, 154.22 (d, *J* = 10.9 Hz), 165.19 (d, *J* = 247.9 Hz). A signal for the carbon directly attached to the boron atom was not observed. **HRMS–ESI** (*m/z*): $[M+H]^+$ calcd for $C_{18}H_{28}O_4NBF$, 352.20954; found, 352.21046. m.p. 112.6–115.2 °C. The regioselectivity was assigned on the basis of the $J_{C–F}$ values in the ^{13}C NMR spectrum.

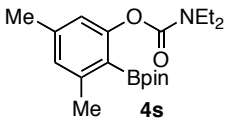


3,5-Dimethylphenyl Diethylcarbamate (3s)



Colorress oil. **^{1}H NMR** ($CDCl_3$) δ 1.17–1.26 (m, 6H), 2.30 (s, 6H), 3.35–3.45 (m, 4H), 6.74 (t, *J* = 0.9 Hz, 2H), 6.82 (d, *J* = 0.9 Hz, 1H). **^{13}C NMR** ($CDCl_3$) δ 13.01, 13.83, 20.81, 41.51, 41.84, 119.22, 126.62, 138.75, 151.30, 154.32. **Anal.** Calcd for $C_{13}H_{19}NO_2$: C, 70.56%; H, 8.65%; N, 6.33%. Found: C, 70.47; H, 8.74%; N, 6.26%.

3,5-Dimethyl-2-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl *N*,*N*-Diethylcarbamate (4s)



White solid. **^{1}H NMR** ($CDCl_3$) δ 1.16–1.35 (m, 6H), 1.31 (s, 12H), 2.27 (s, 3H), 2.44 (s, 3H), 3.37 (q, *J* = 7.2 Hz, 2H), 3.46 (q, *J* = 7.2 Hz, 2H), 6.68 (s, 1H), 6.82 (s, 1H). **^{13}C NMR** ($CDCl_3$) δ 13.27, 13.97, 21.01, 22.16, 24.74, 41.46, 41.73, 83.13, 119.99, 127.98, 141.09, 144.90, 155.02, 156.11. **Anal.** Calcd for $C_{19}H_{30}BNO_4$: C, 65.72; H, 8.71%; N, 4.03%. Found: C, 65.49; H, 8.79%; 3.92%. **m.p.** 71.5–72.4 °C.

References

(1) (a) Hamasaka, G.; Ochida, A.; Hara, K.; Sawamura, M. *Angew. Chem. Int. Ed.* **2007**, *46*, 5381–5383. (b) Hamasaka, G.; Kawamorita, S.; Ochida, A.; Akiyama, R.; Hara, K.; Fukuoka, A.; Asakura, K.; Chun, W. J.; Ohmiya, H.; Sawamura, M. *Organometallics* **2008**, *27*, 6495–6506. (c) Kawamorita, S.; Ohmiya, H.; Hara, K.; Fukuoka, A.; Sawamura, M. *J. Am. Chem. Soc.* **2009**, *131*, 5058–5059.

(2) Uson, R.; Oro, L. A.; Cabeza, J. A. *Inorg. Synth.* **1985**, *23*, 126.

(3) Ohe, K.; Yokoi, T.; Miki, K.; Nishino, F.; Uemura, S. *J. Am. Chem. Soc.* **2002**, *124*, 526–527.

(4) Antelo Miguez, J. M.; Adrio, L. A.; Sousa-Pdedrares, A.; Vila, J. M.; Hii, K. K. *J. Org. Chem.* **2007**, *72*, 7771–7774.

(5) Quasdorf, K. W.; Riener, M.; Petrova, K. V.; Garg, N. K. *J. Am. Chem. Soc.* **2009**, *131*, 17748–17749.

(6) Ryu, S.; Jackson, J. A.; Thompson, C. M. *J. Org. Chem.* **1991**, *56*, 4999–5002.

(7) Azzena, U.; Pisano, L.; Pittalis, M. *Appl. Organometal. Chem.* **2008**, *22*, 525–528.

(8) Bedford, R. B.; Webster, R. L.; Mitchell, C. J. *Org. Biomol. Chem.* **2009**, ***7***, 4853–4857.

(9) Sanz, R.; Castroviejo, M. P.; Fernández, Y.; Fañanás, F. J. *J. Org. Chem.* **2005**, *70*, 6548–6551.

(10) Sibi, M. P.; Chattopadhyay, S.; Dankwardt, J. W.; Snieckus, V. *J. Am. Chem. Soc.* **1985**, *107*, 6312–6315.

(11) Zhao, Z.; Snieckus, V. *Org. Lett.* **2005**, *7*, 2523–2526.

(12) Takahashi, K.; Yoshino, A.; Hosokawa, K.; Muramatsu, H. *Bull. Chem. Soc. Jpn.* **1985**, *58*, 755–756.

(13) Ishikawa, S.; Manabe, K.; *Org. Lett.* **2007**, *9*, 5593–5595.

(14) Haga, N.; Takayanagi, H.; *J. Org. Chem.* **1996**, *61*, 735–745.

(15) Kalinowski, H.-O.; Berger, S.; Braun, S. "Carbon-13 NMR Spectroscopy", Wiley-Interscience, New York, N. Y., 1972.

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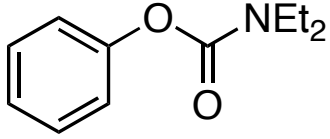

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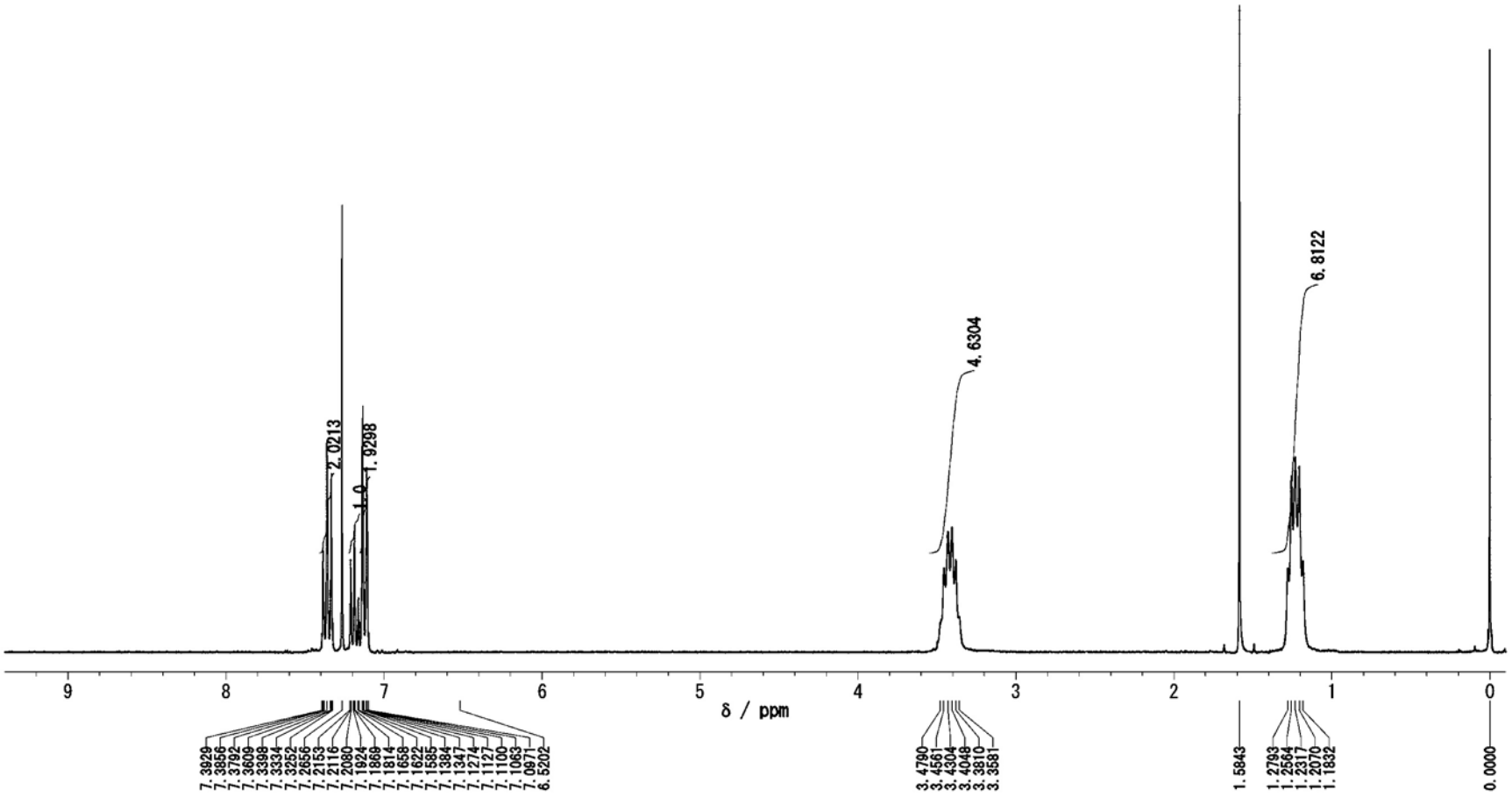

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Pulse1              6.0 μs
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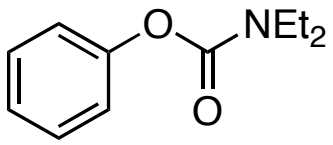

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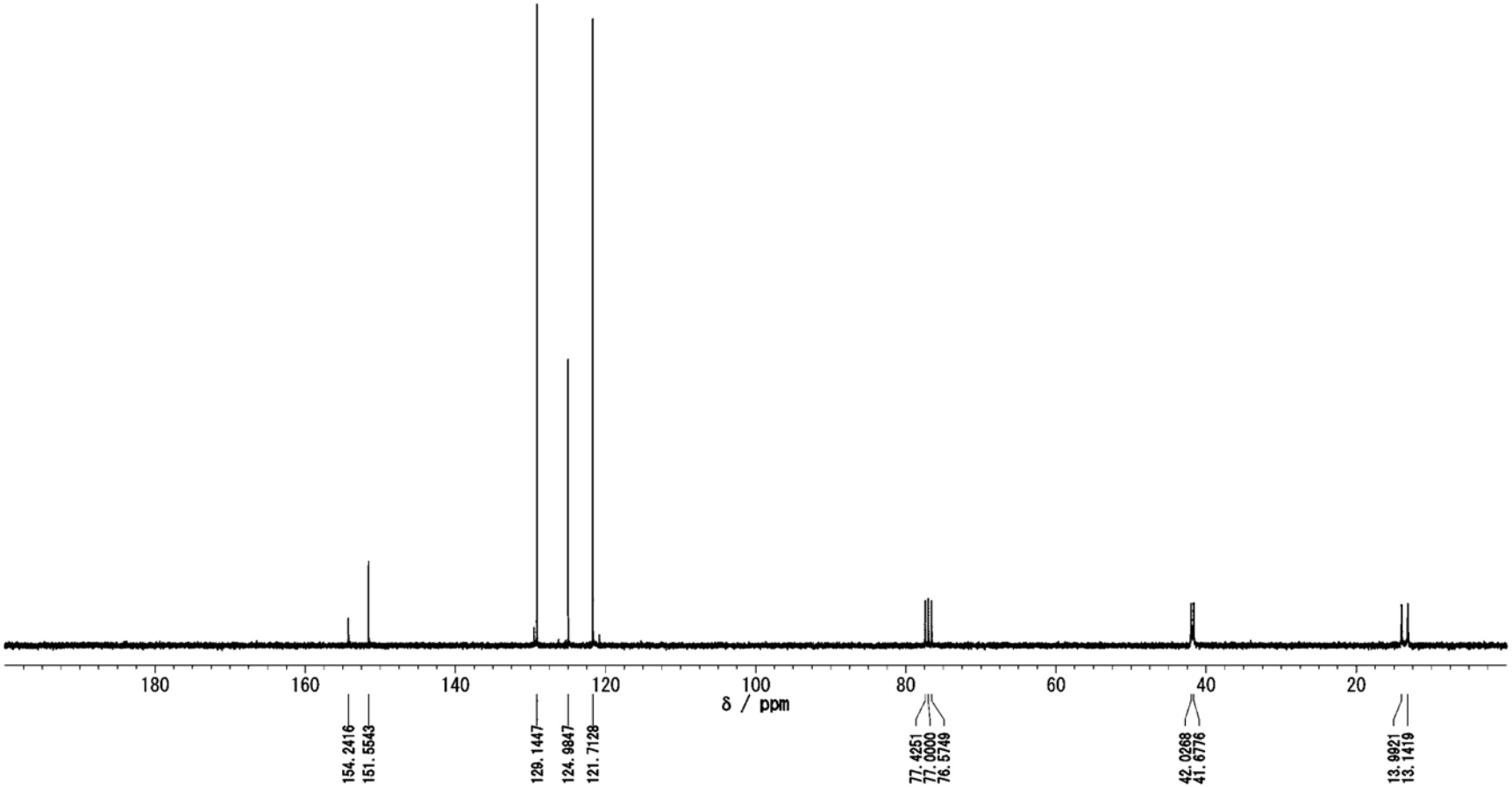

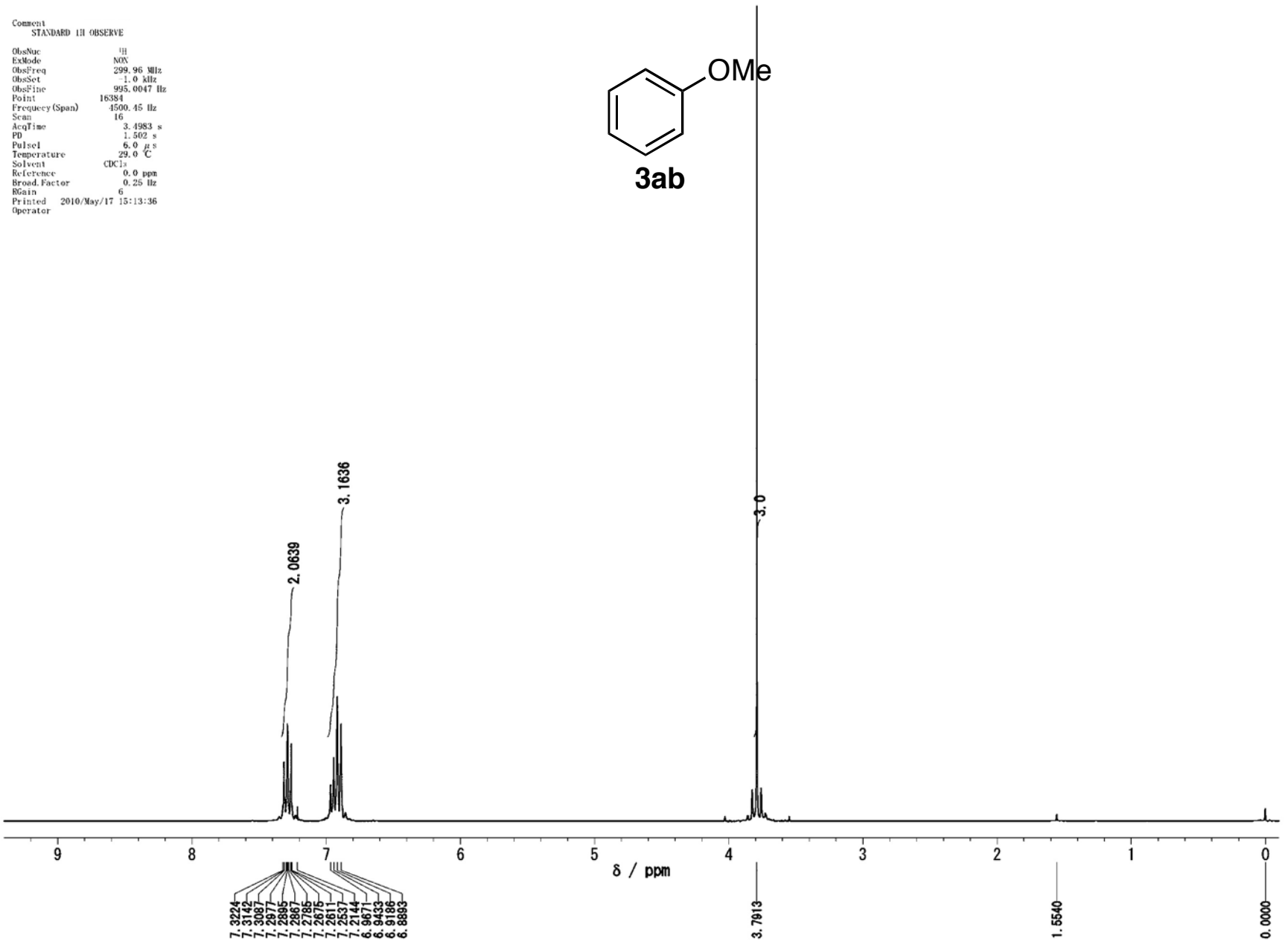
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Pulse1 6.0 μs
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OMe
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7.3087
7.2977
7.2895
7.2867
7.2785
7.2675
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6.8893
3.7913
1.5540
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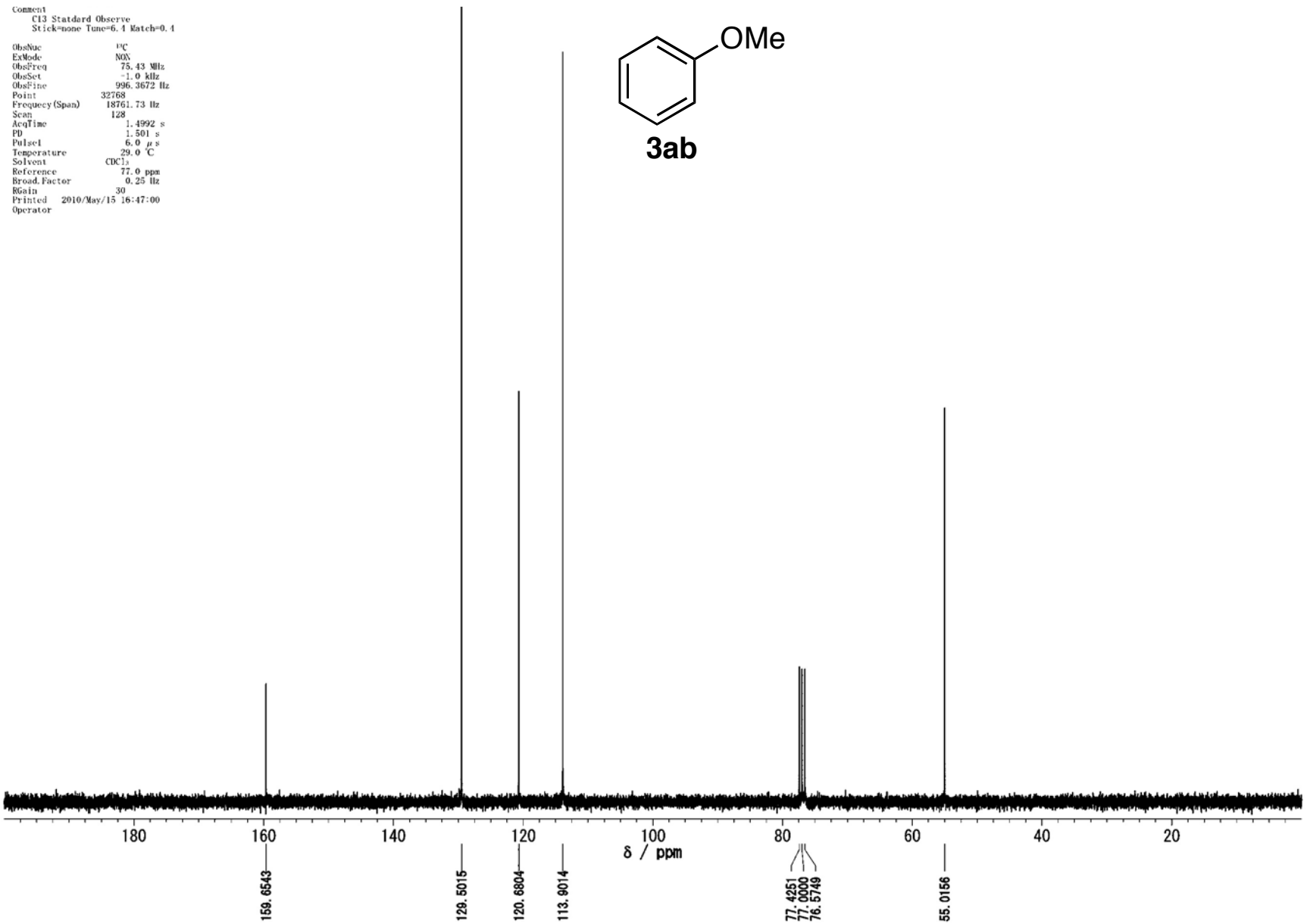
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Pulse1 6.0 μs
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Operator
OMe
3ab
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160
140
120
100
80
60
40
20
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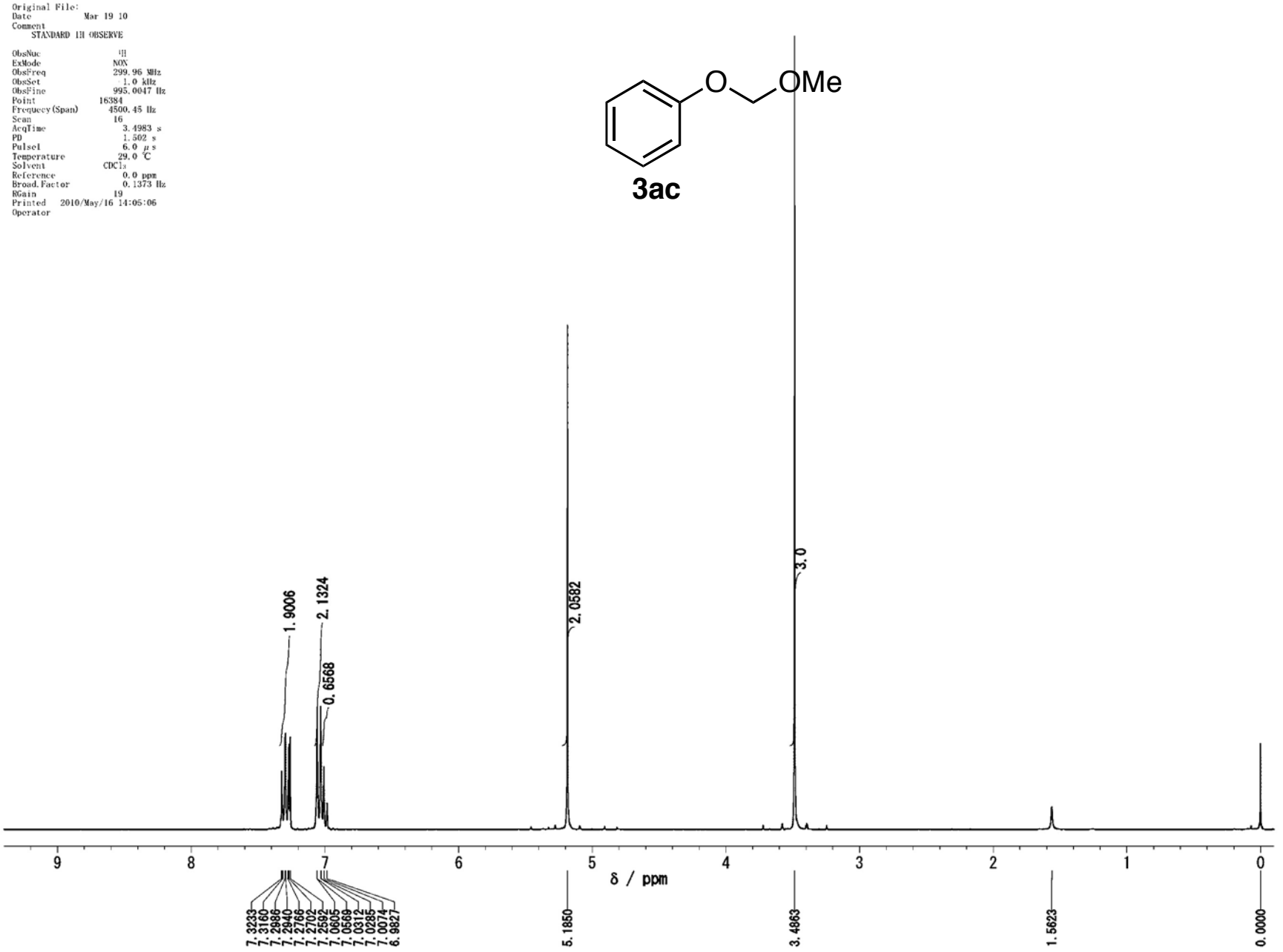
77.0000
76.5749
55.0156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PD 1.502 s
Pulse1 6.0 μs
Temperature 29.0 ℃
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Reference 0.0 ppm
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OMe
3ac
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3.0
9
8
7
6
5
4
3
2
1
0
δ / ppm
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7.3160
7.2986
7.2940
7.2766
7.2702
7.2592
7.0605
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7.0312
7.0285
7.0074
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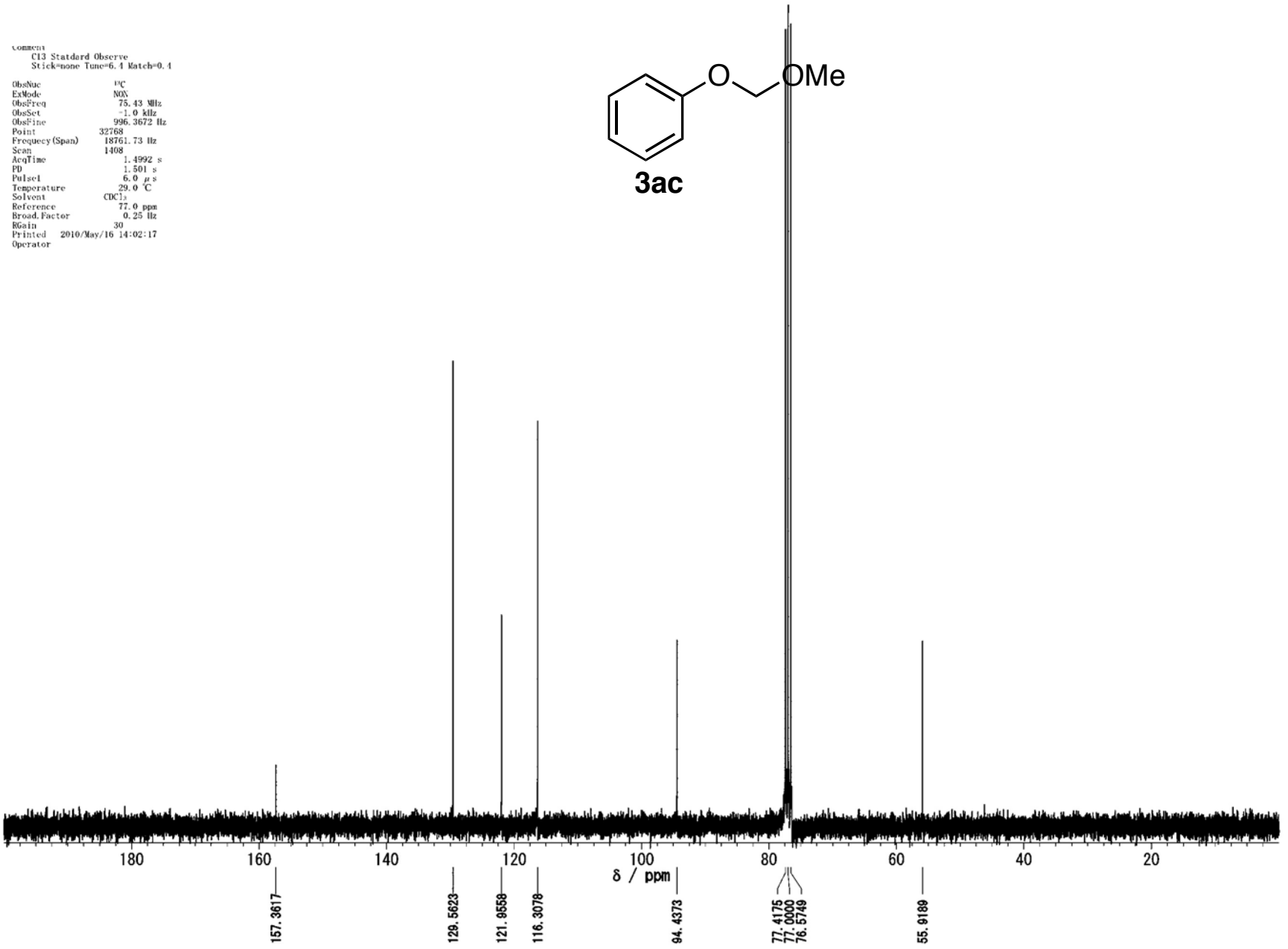
5.1850
3.4863
1.5623
0.0000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O
OMe
3ac
180
160
140
120
100
80
60
40
20
δ / ppm
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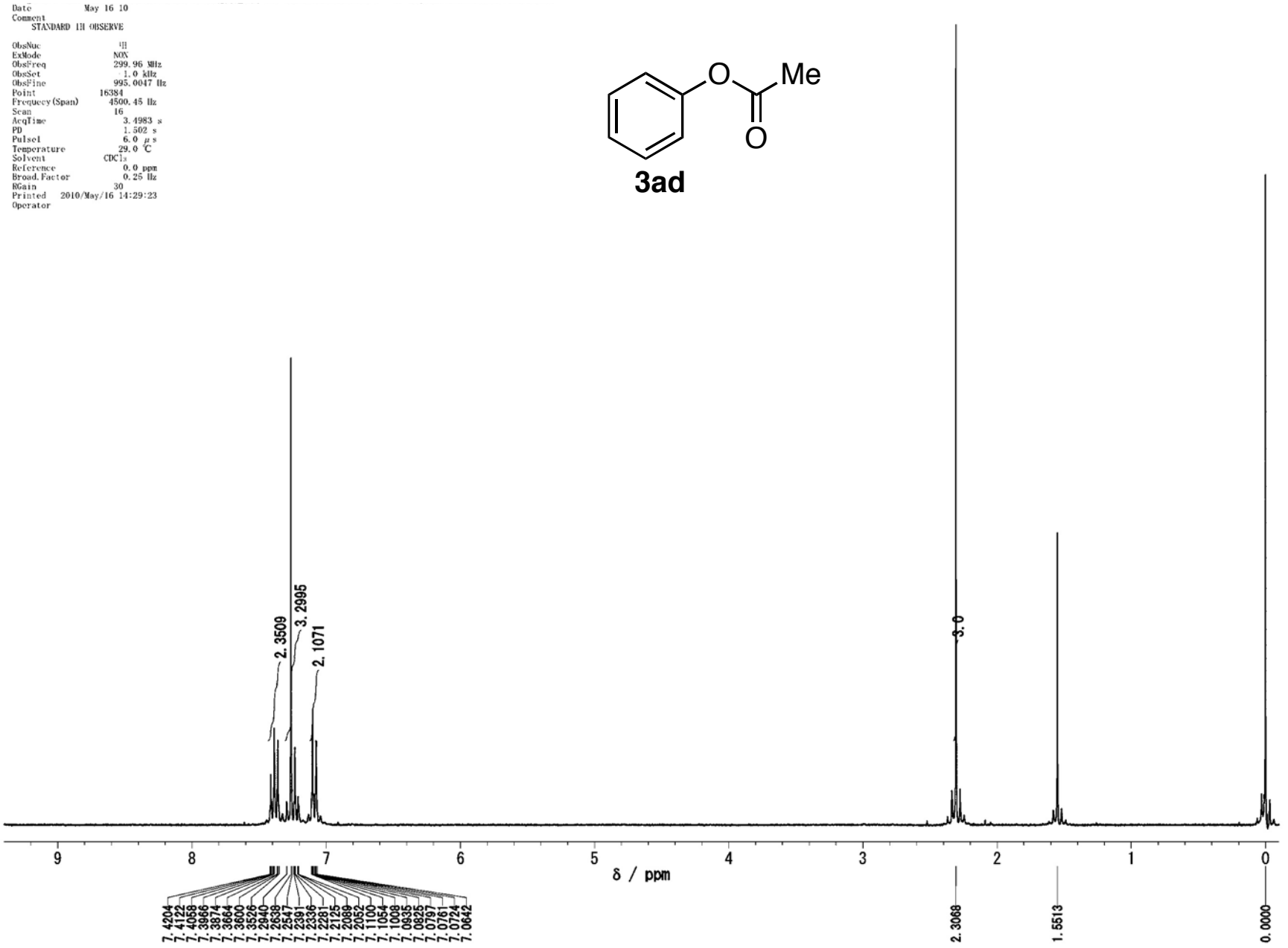
55.9189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Me
O
3ad
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3.2995
2.1071
3.0
9
8
7
6
5
4
3
2
1
0
δ / ppm
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7.4122
7.4058
7.3966
7.3874
7.3664
7.3600
7.3526
7.2940
7.2638
7.2547
7.2391
7.2336
7.2281
7.2125
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7.1100
7.1054
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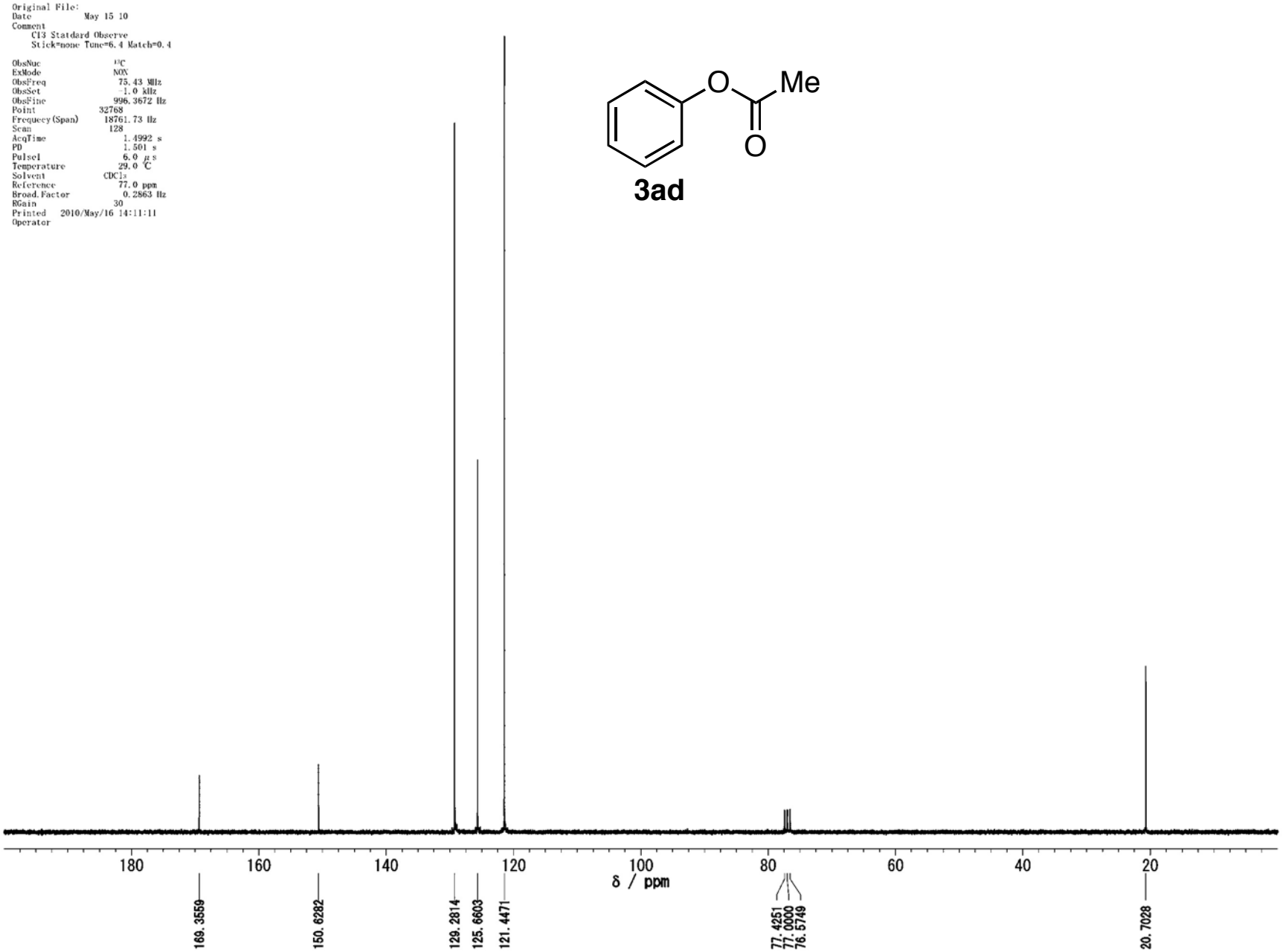
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O
Me
O
3ad
180
160
140
120
100
80
60
40
20
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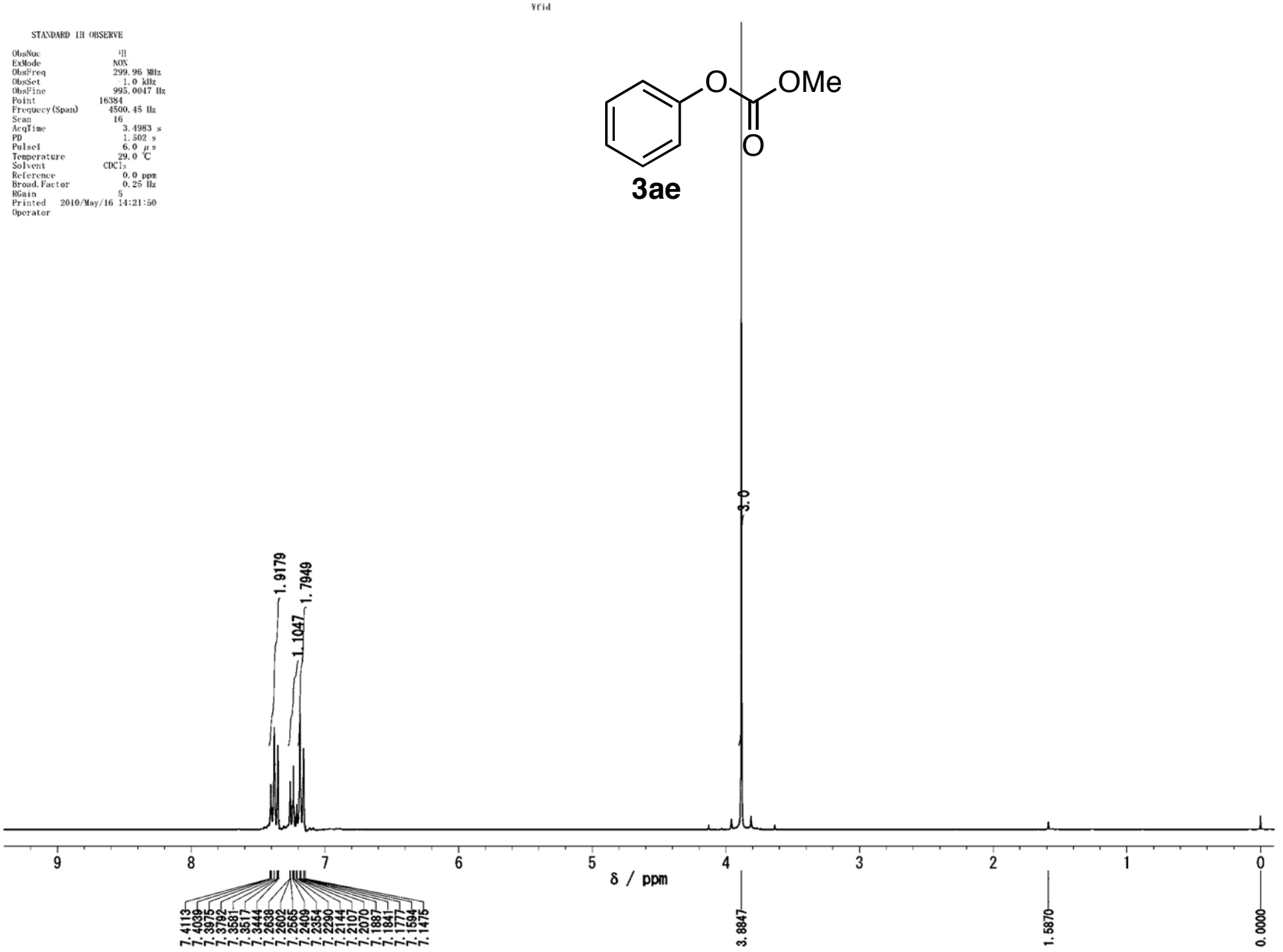
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OMe
O
3ae
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1.7949
1.1047
3.0
9
8
7
6
5
4
3
2
1
0
δ / ppm
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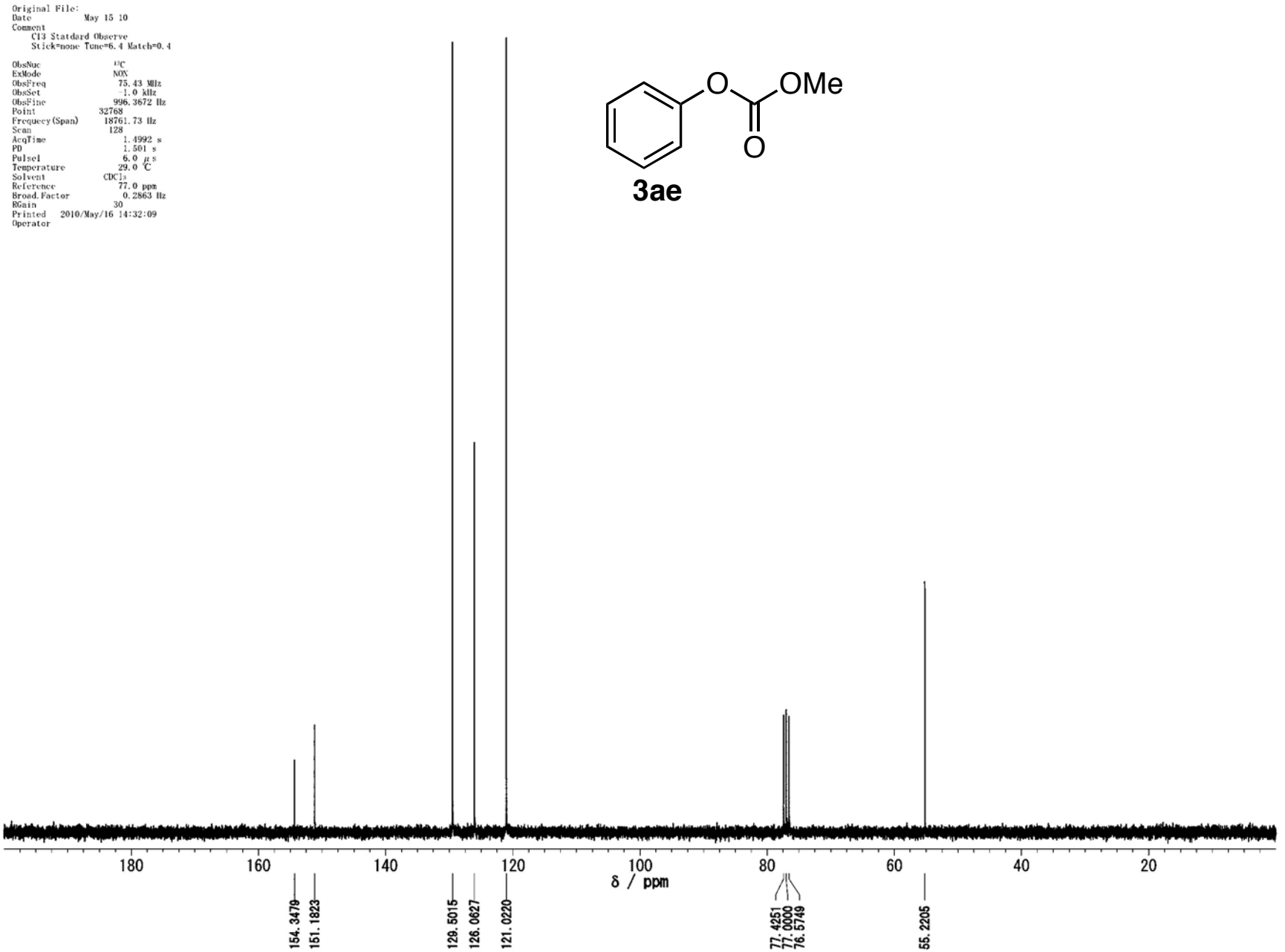
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Scan 128
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O
OMe
O
3ae
180
160
140
120
100
80
60
40
20
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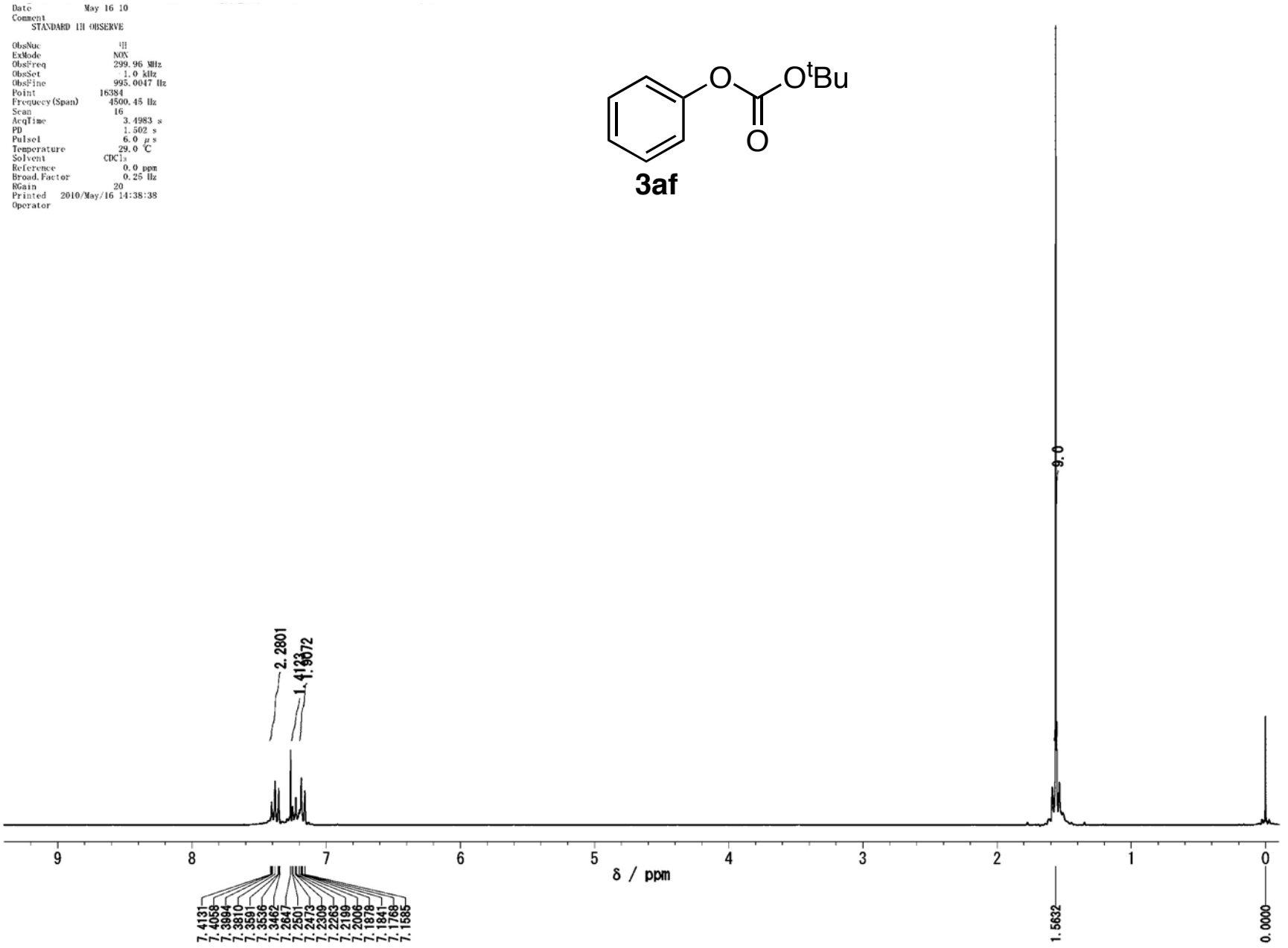
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O
O
O
tBu
3af
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7.3994
7.3810
7.3591
7.3536
7.3462
7.2647
7.2501
7.2473
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7.2263
7.2199
7.2006
7.1878
7.1841
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7.1585
9
8
7
6
5
4
3
2
1
0
δ / ppm
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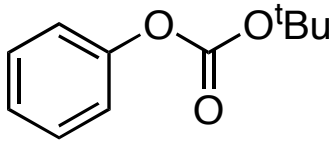

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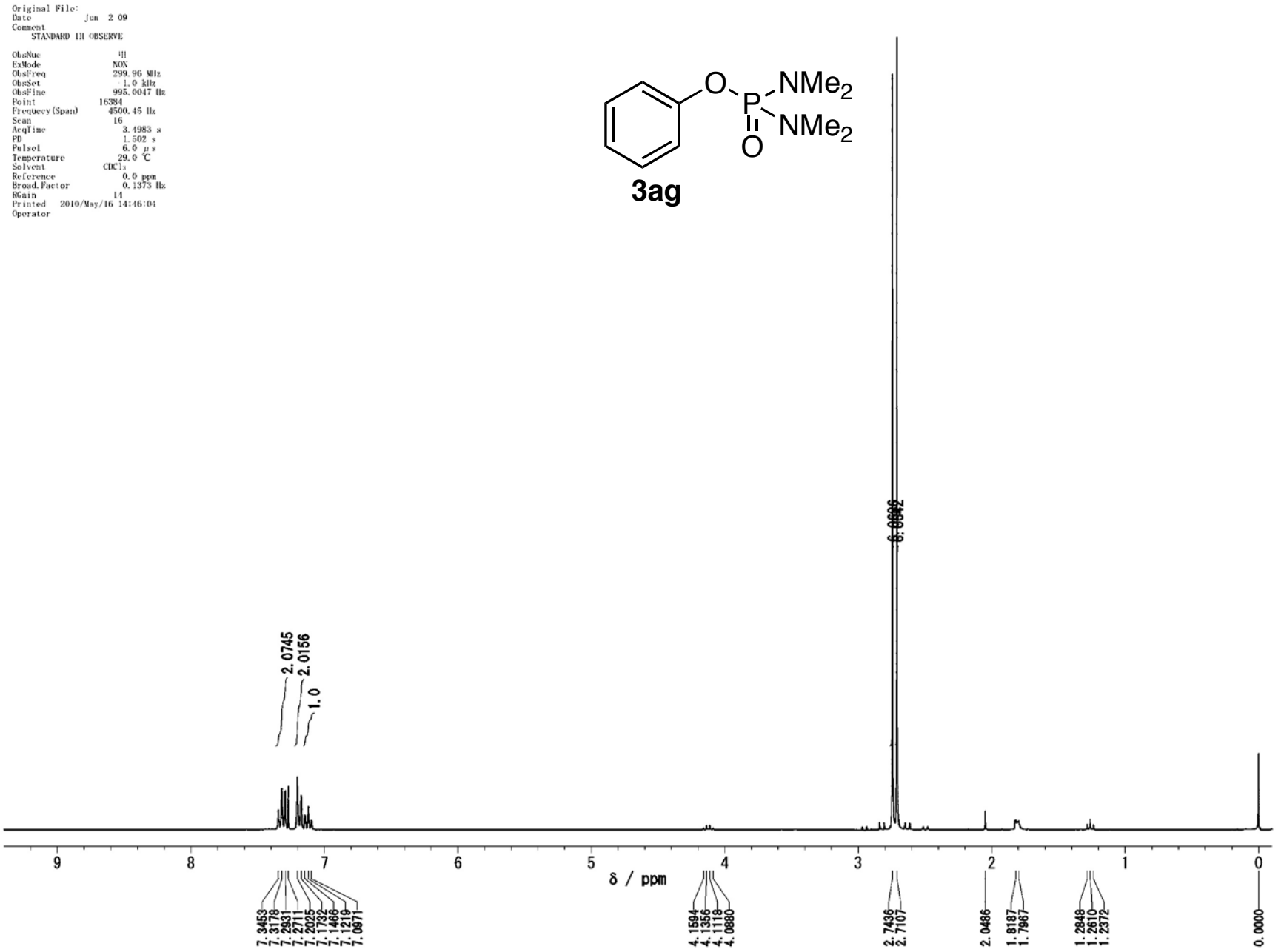
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6.0692
6.0842
9
8
7
6
5
4
3
2
1
0
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7.2931
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7.2025
7.1732
7.1466
7.1219
7.0971
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4.1356
4.1118
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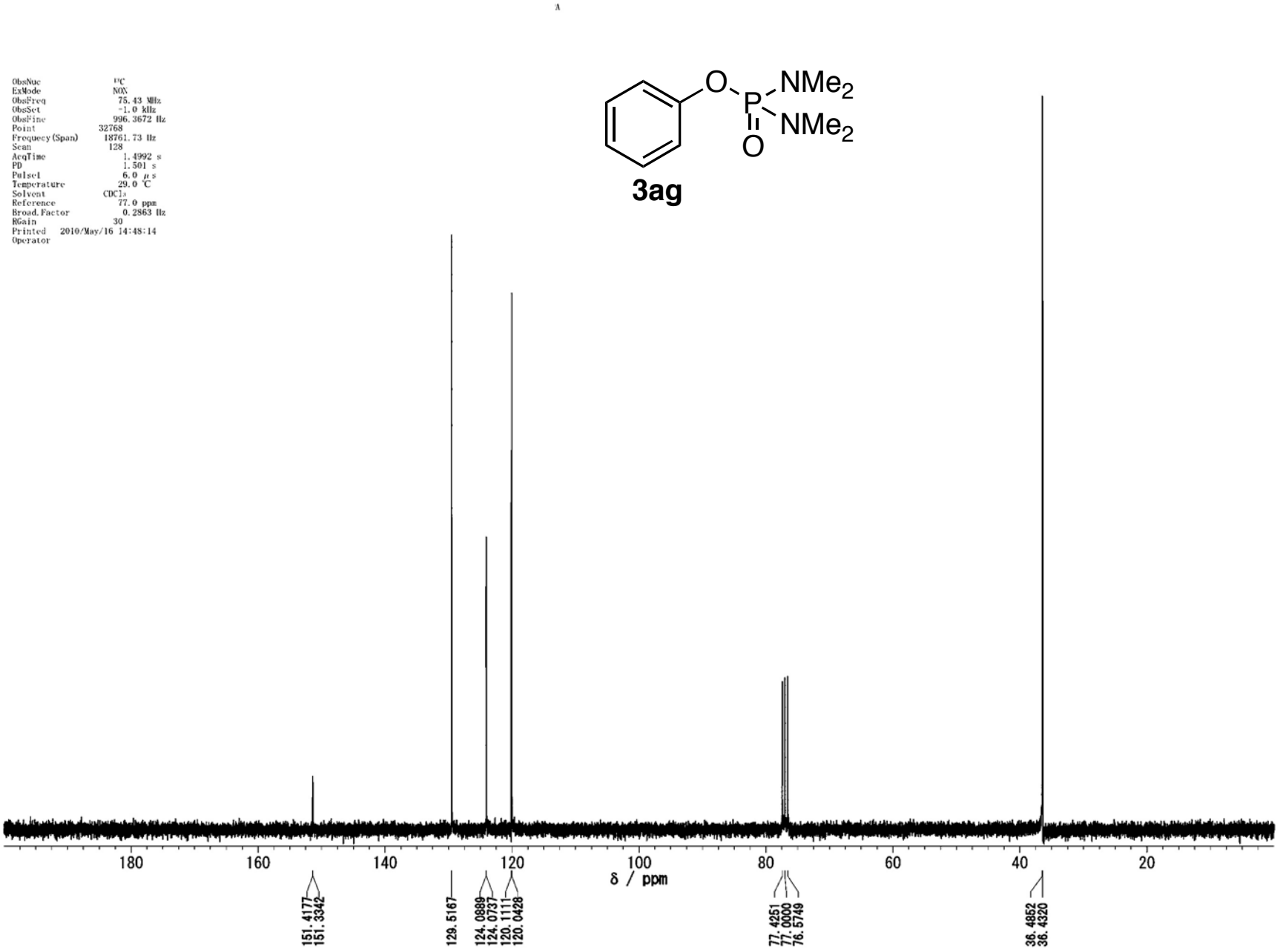
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160
140
120
100
80
60
40
20
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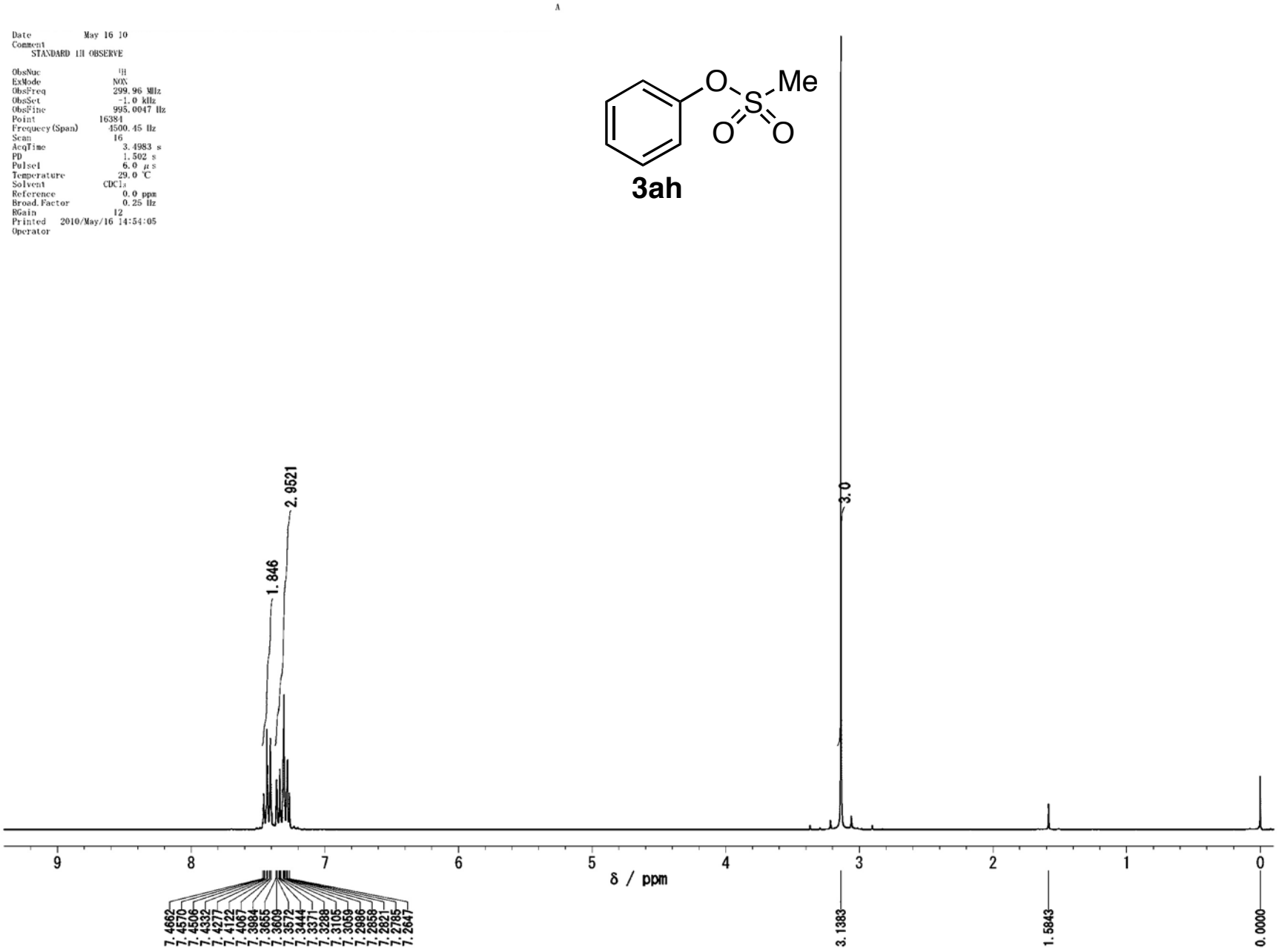
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Scan 16
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S
Me
O
O
3ah
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9
8
7
6
5
4
3
2
1
0
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7.3884
7.3655
7.3609
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7.3288
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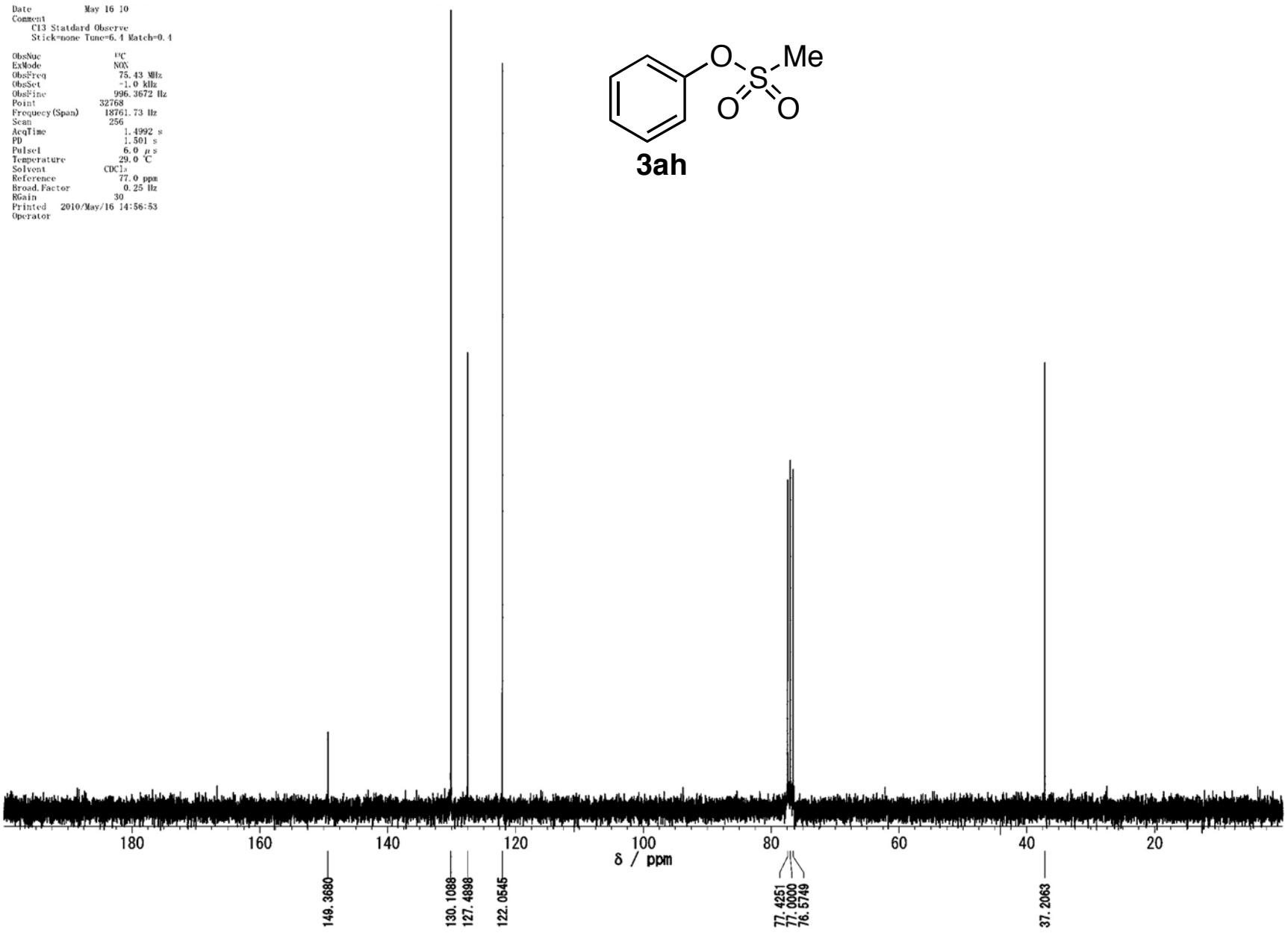
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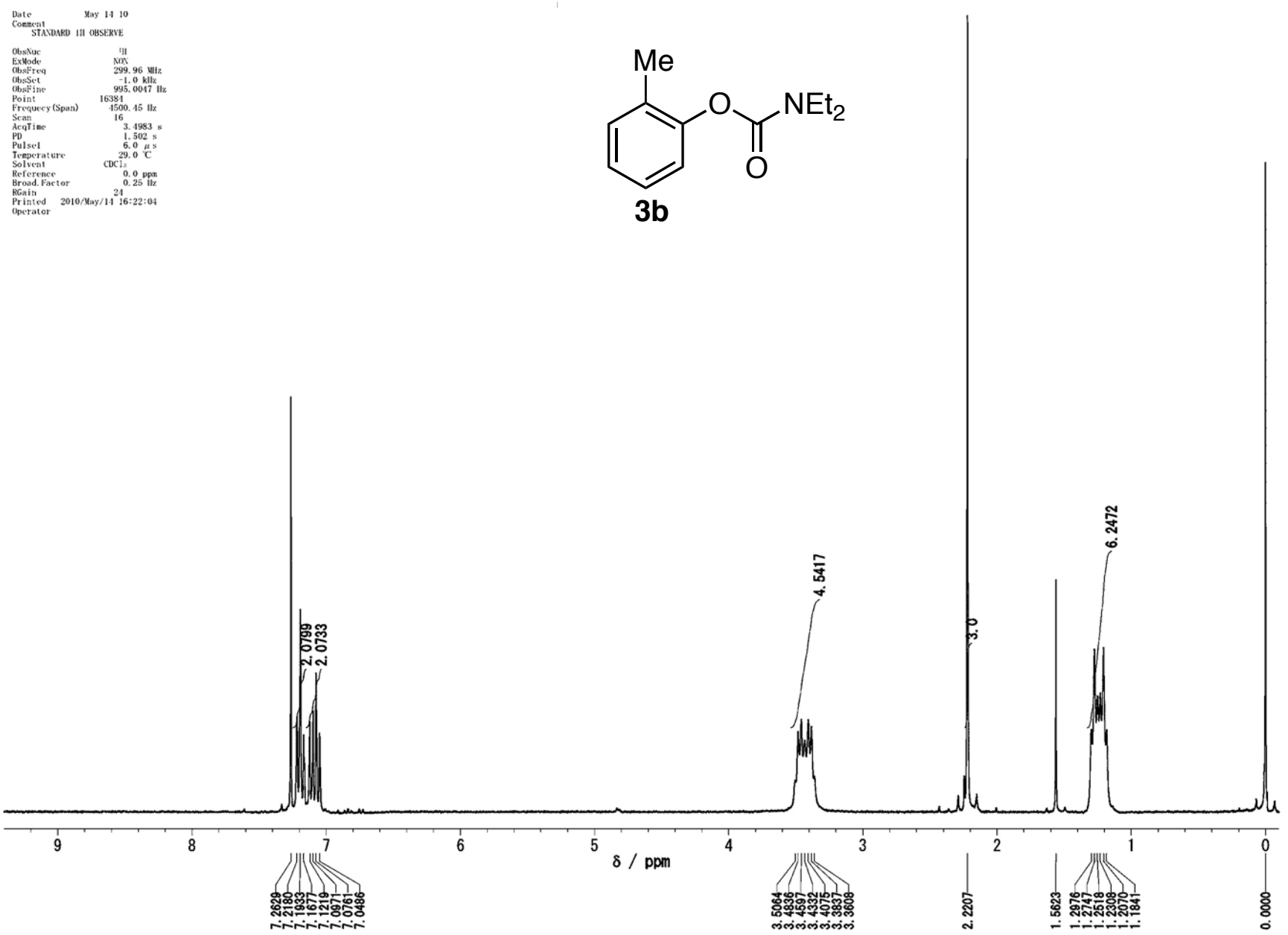
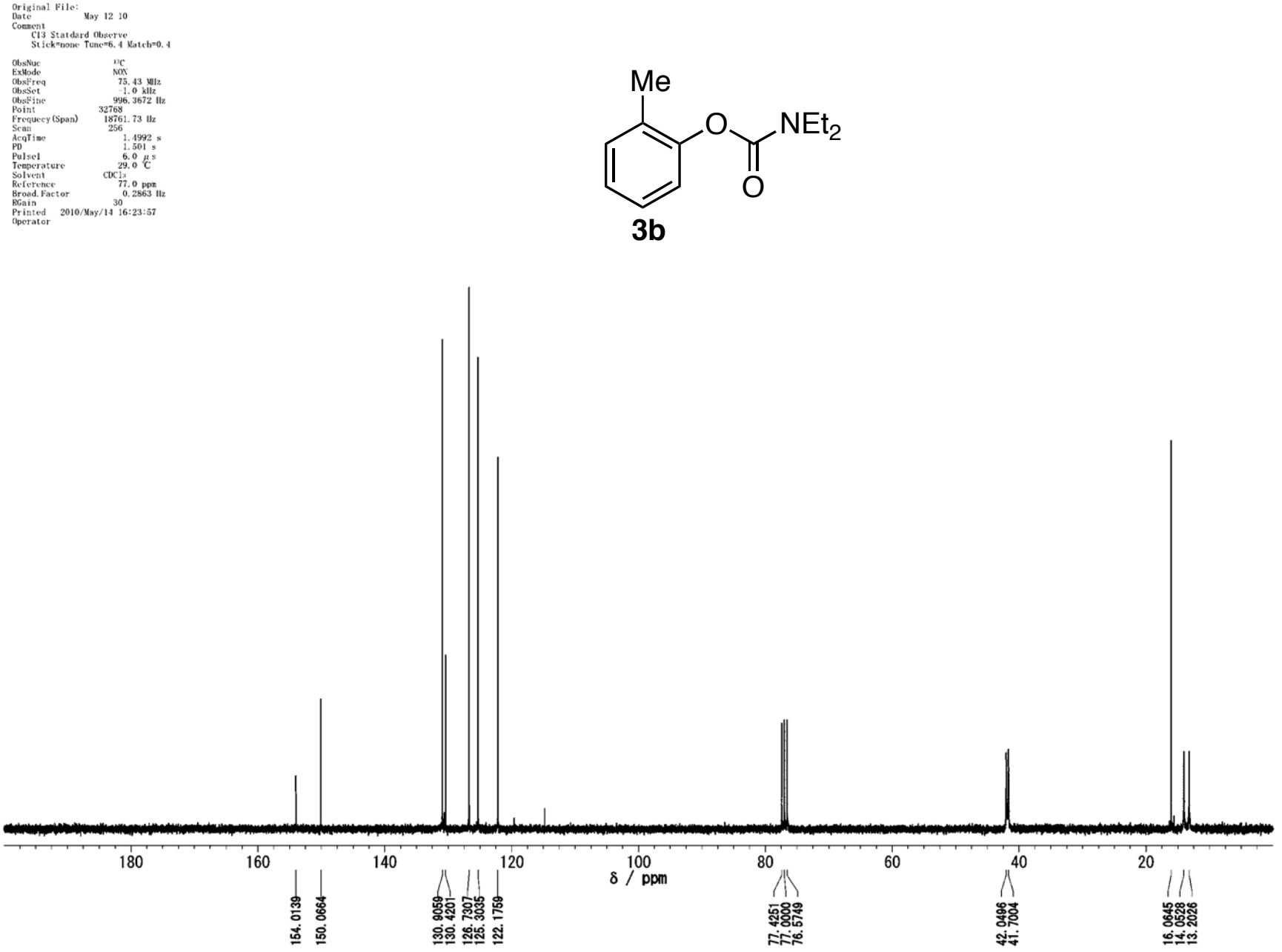
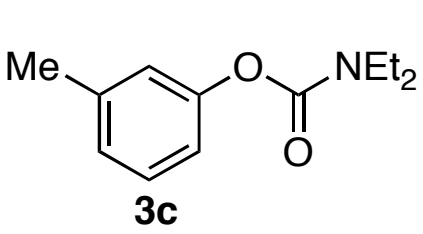
ObsFreq 75.43 MHz
ObsSet -1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 256
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.25 Hz
RGain 30
Printed 2010/May/16 14:56:53
Operator
O
S
Me
O
O
3ah
180
160
140
120
100
80
60
40
20
δ / ppm
149.3680
130.1088
127.4898
122.0545
77.4251
77.0000
76.5749
37.2063


Date May 14 10
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NOE
ObsFreq 299.96 MHz
ObsSet -1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.25 Hz
RGain 24
Printed 2010/May/14 16:22:04
Operator
Me
O
NEt2
O
3b
2.0799
2.0733
4.5417
3.0
6.2472
9
8
7
6
5
4
3
2
1
0
δ / ppm
7.2629
7.2180
7.1933
7.1677
7.1219
7.0971
7.0761
7.0486
3.5064
3.4836
3.4597
3.4332
3.4075
3.3837
3.3608
2.2207
1.5623
1.2976
1.2747
1.2518
1.2308
1.2070
1.1841
0.0000

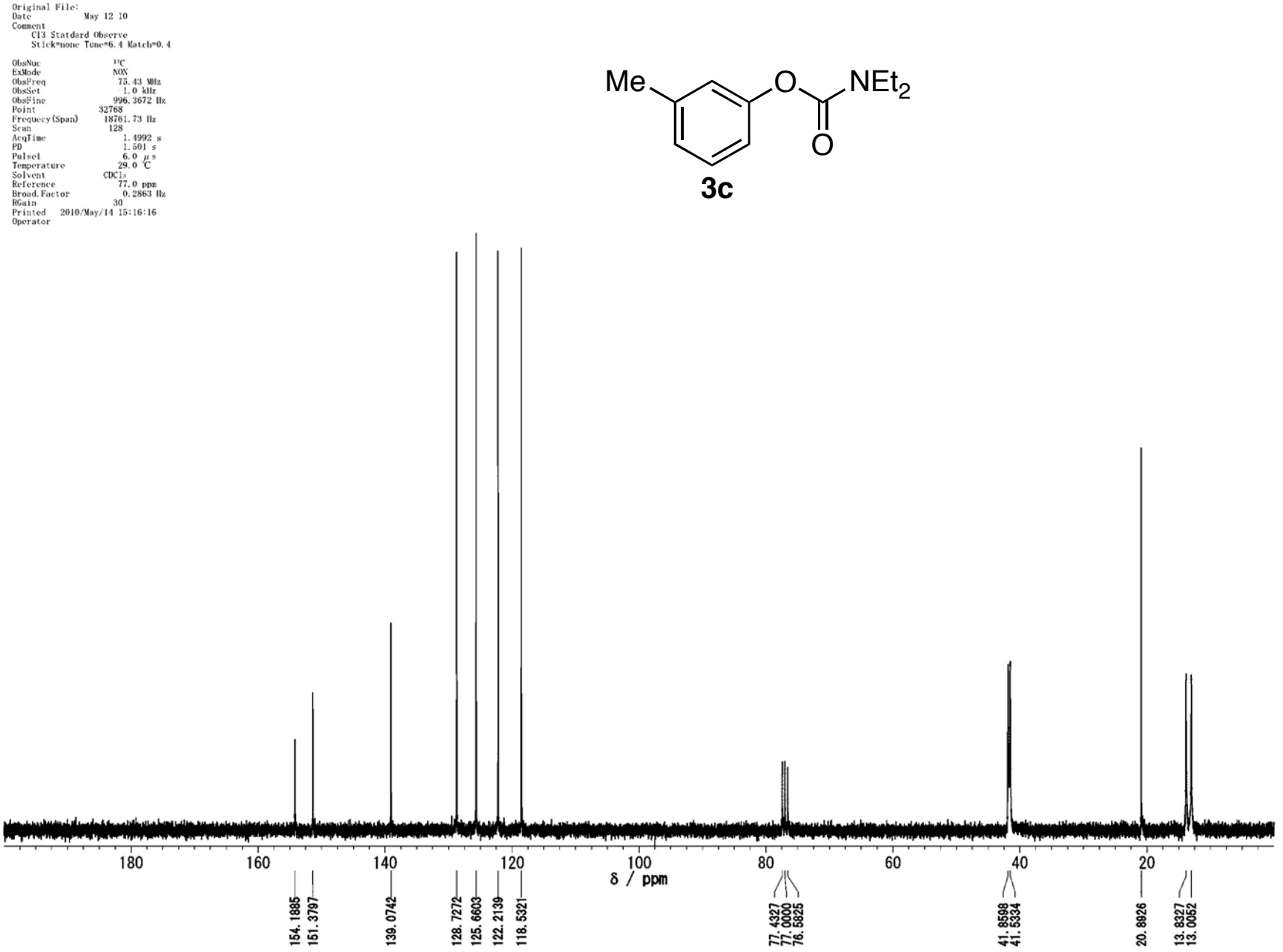

Original File:
Date May 12 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NOE
ObsFreq 75.43 MHz
ObsSet -1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 256
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/14 16:23:57
Operator
Me
O
NEt2
O
3b
180
160
140
120
100
80
60
40
20
δ / ppm
154.0139
150.0664
130.9059
130.4201
126.7307
125.3035
122.1759
77.4251
77.0000
76.5749
42.0496
41.7004
16.0645
14.0528
13.2026

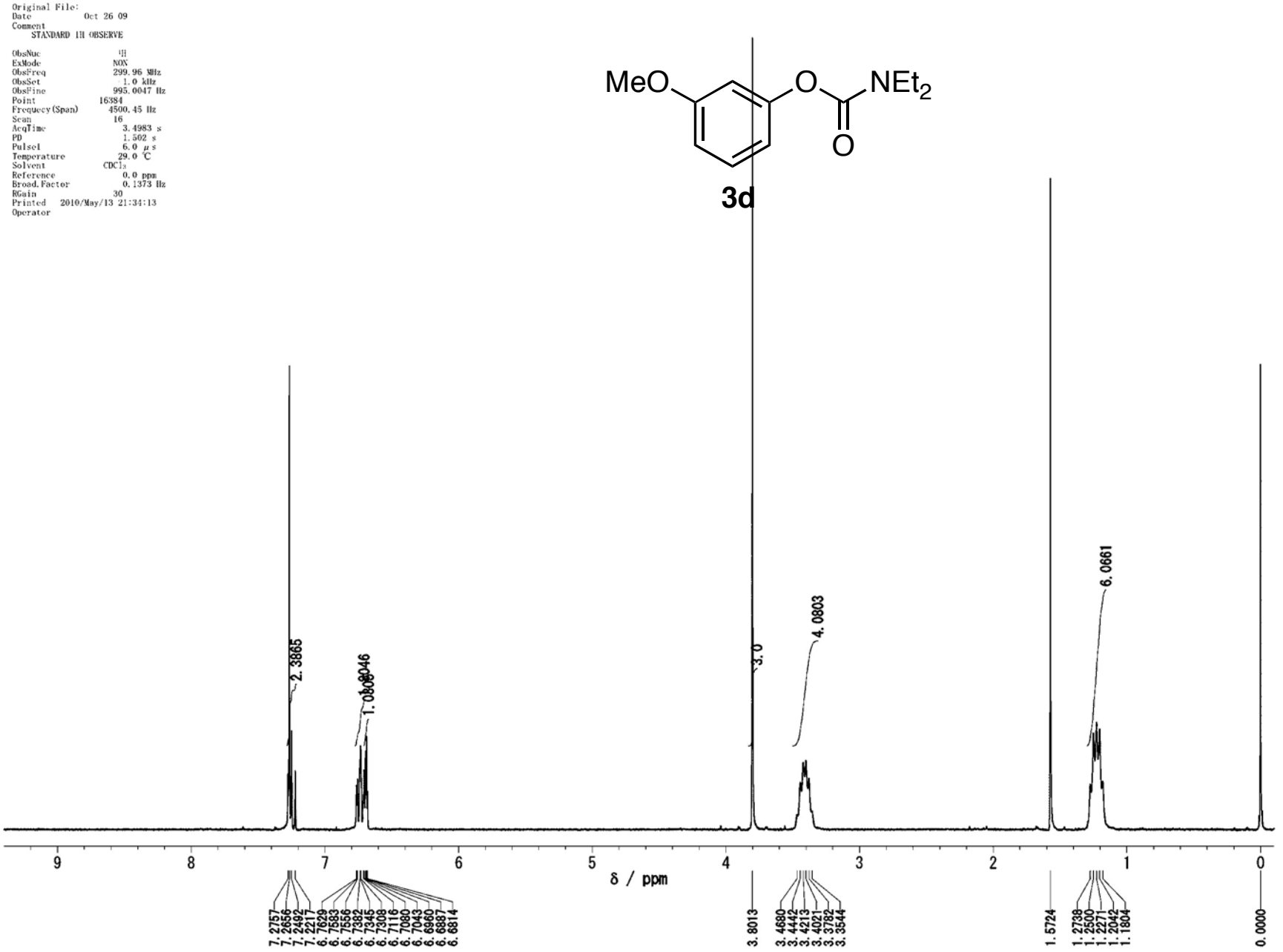
Original File:
Date Oct 22 09
Comment
STANDARD 1H OBSERVE

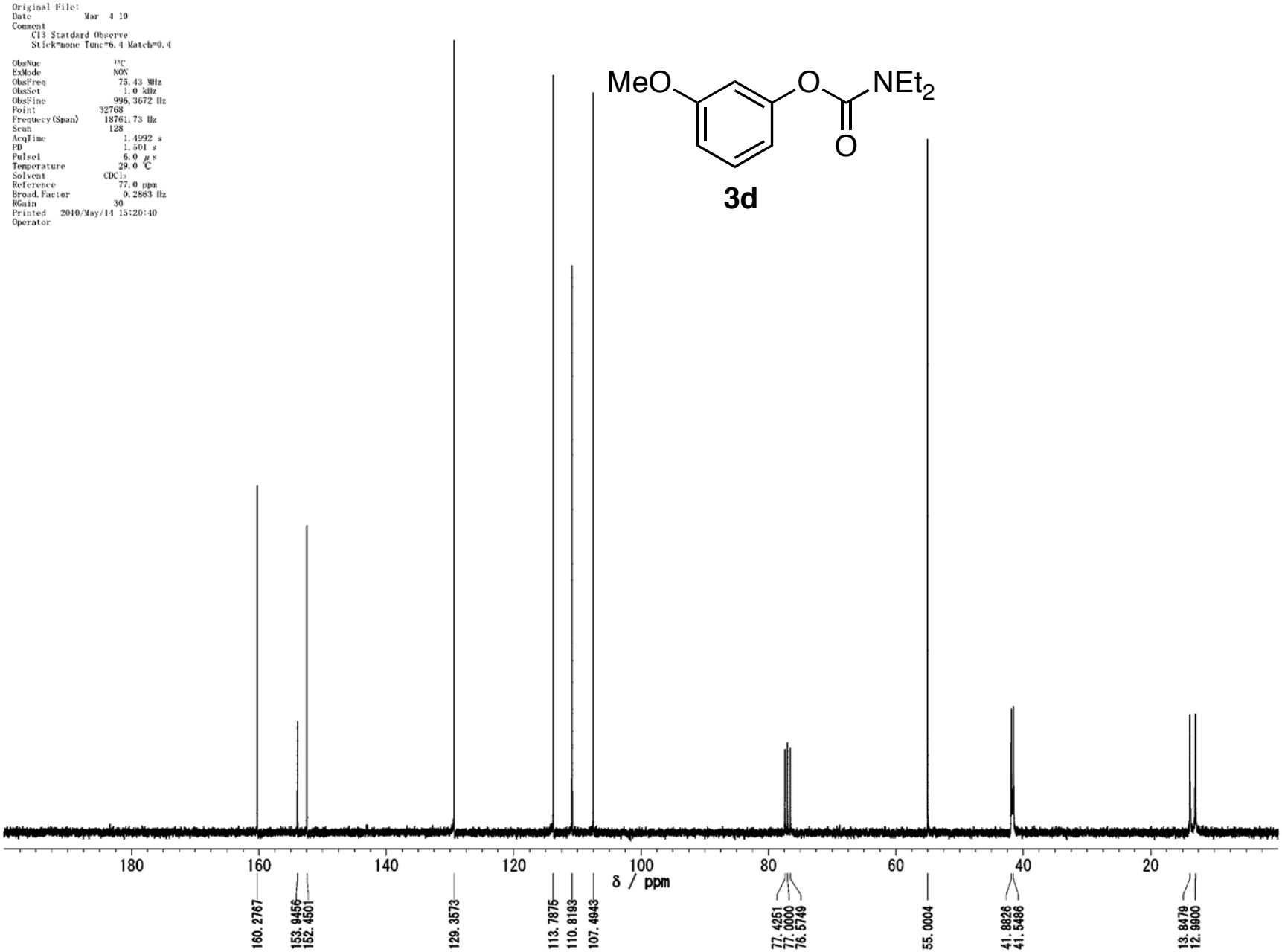
ObsNuc	1H
ExMode	NON
ObsFreq	299.96 MHz
ObsSet	1.0 kHz
ObsFine	995.0047 Hz
Point	16384
Frequency(Span)	1500.15 Hz
Scan	16
AcqTime	5.4983 s
PD	1.502 s
Pulse1	6.0 μs
Temperature	29.0 C
Solvent	CDCl3
Reference	0.0 ppm
Broad Factor	0.1473 Hz
RGain	19
Printed	2010 May 13 21:10:10
Operator	

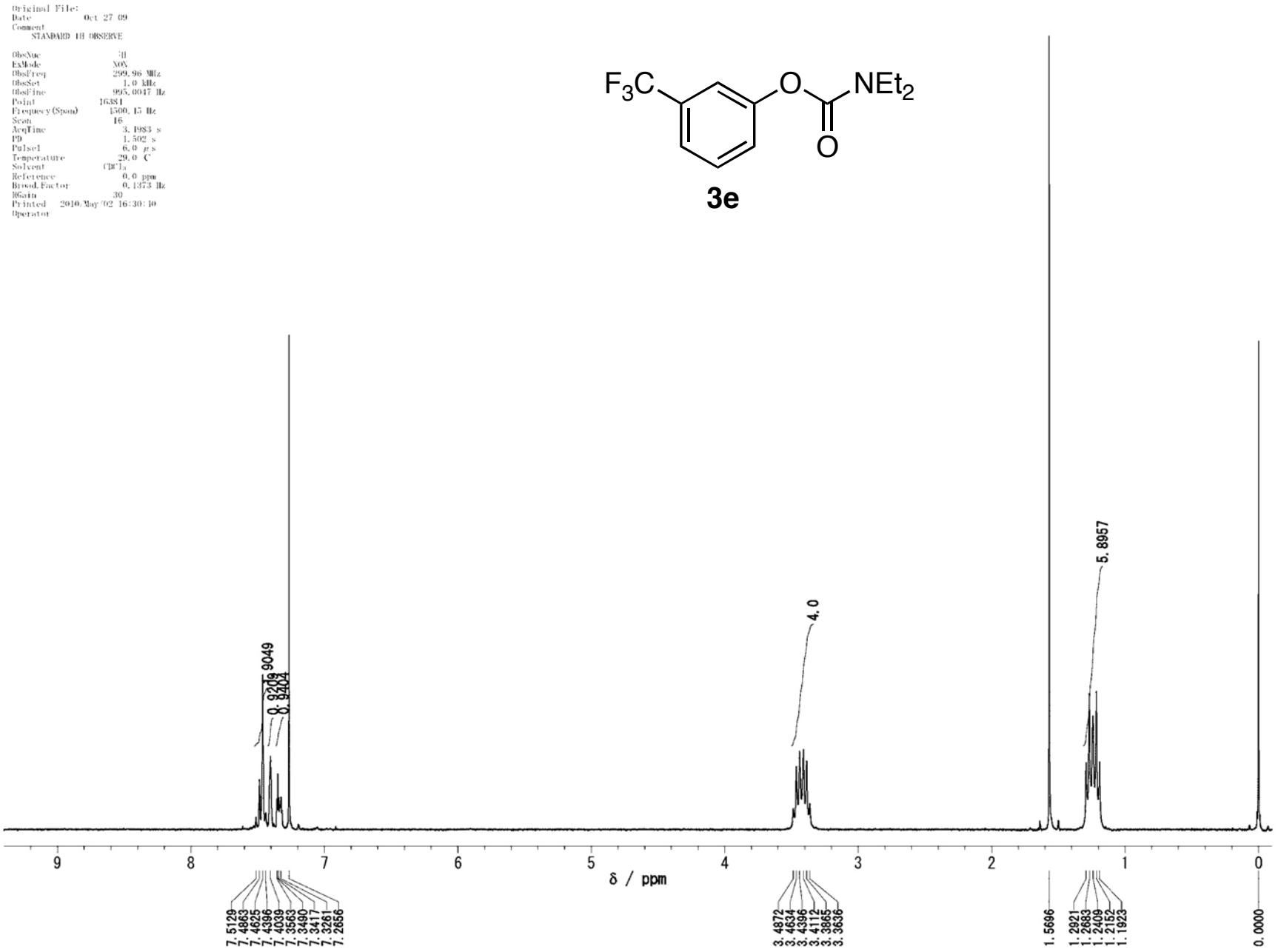


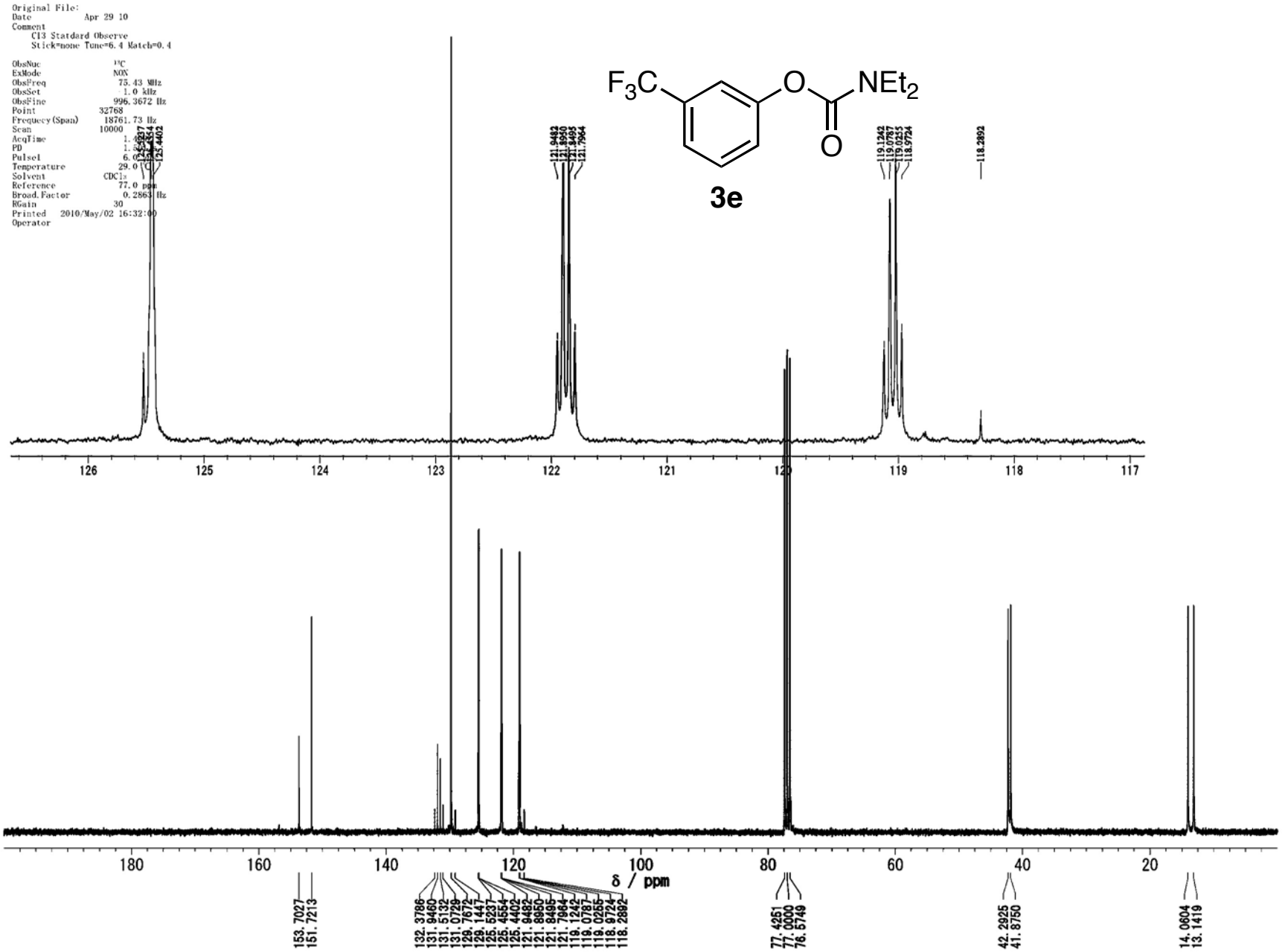
3c


Original File:
Date May 12 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NOE
ObsFreq 75.43 MHz
ObsSet 1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 128
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/14 15:16:16
Operator
Me
O
NEt2
O
3c
180
160
140
120
100
80
60
40
20
δ / ppm
154.1885
151.3797
139.0742
128.7272
125.6603
122.2139
118.5321
77.4327
77.0000
76.5825
41.8598
41.5334
20.8926
13.8327
13.0052


Original File:
Date Oct 26 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsPine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 30
Printed 2010/May/13 21:34:13
Operator
MeO
O
NEt2
O
3d
2.3865
1.0000
3.0
4.0803
6.0661
δ / ppm
7.2757
7.2656
7.2492
7.2217
6.7629
6.7583
6.7556
6.7382
6.7345
6.7308
6.7116
6.7080
6.7043
6.6960
6.6887
6.6814
3.8013
3.4680
3.4442
3.4213
3.4021
3.3782
3.3544
1.5724
1.2738
1.2500
1.2271
1.2042
1.1804
0.0000

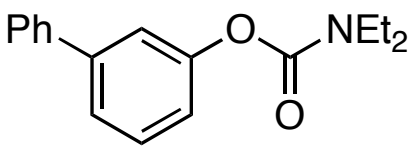

Original File:
Date Mar 4 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NOE
ObsFreq 75.43 MHz
ObsSet 1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 128
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/14 15:20:40
Operator
MeO
O
NEt2
O
3d
180
160
140
120
100
80
60
40
20
δ / ppm
160.2767
153.9456
152.4501
129.3573
113.7875
110.8193
107.4943
77.4251
77.0000
76.5749
55.0004
41.8826
41.5486
13.8479
12.9900


Original File:
Date Oct 27 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NOE
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequency(Span) 1500.15 Hz
Scan 16
AcqTime 3.1983 s
PD 1.502 s
Pulse1 6.0 μs
Temperature 29.0 C
Solvent CDCl3
Reference 0.0 ppm
Blood.Factor 0.1373 Hz
RGain 30
Printed 2010.May'02 16:30:10
Operator
F3C
O
NEt2
O
3e
8.9049
8.8209
8.8024
4.0
5.8957
9
8
7
6
5
4
3
2
1
0
δ / ppm
7.5129
7.4863
7.4625
7.4396
7.4039
7.3563
7.3490
7.3417
7.3261
7.2656
3.4872
3.4634
3.4396
3.4112
3.3865
3.3636
1.5696
1.2921
1.2683
1.2409
1.2152
1.1923
0.0000

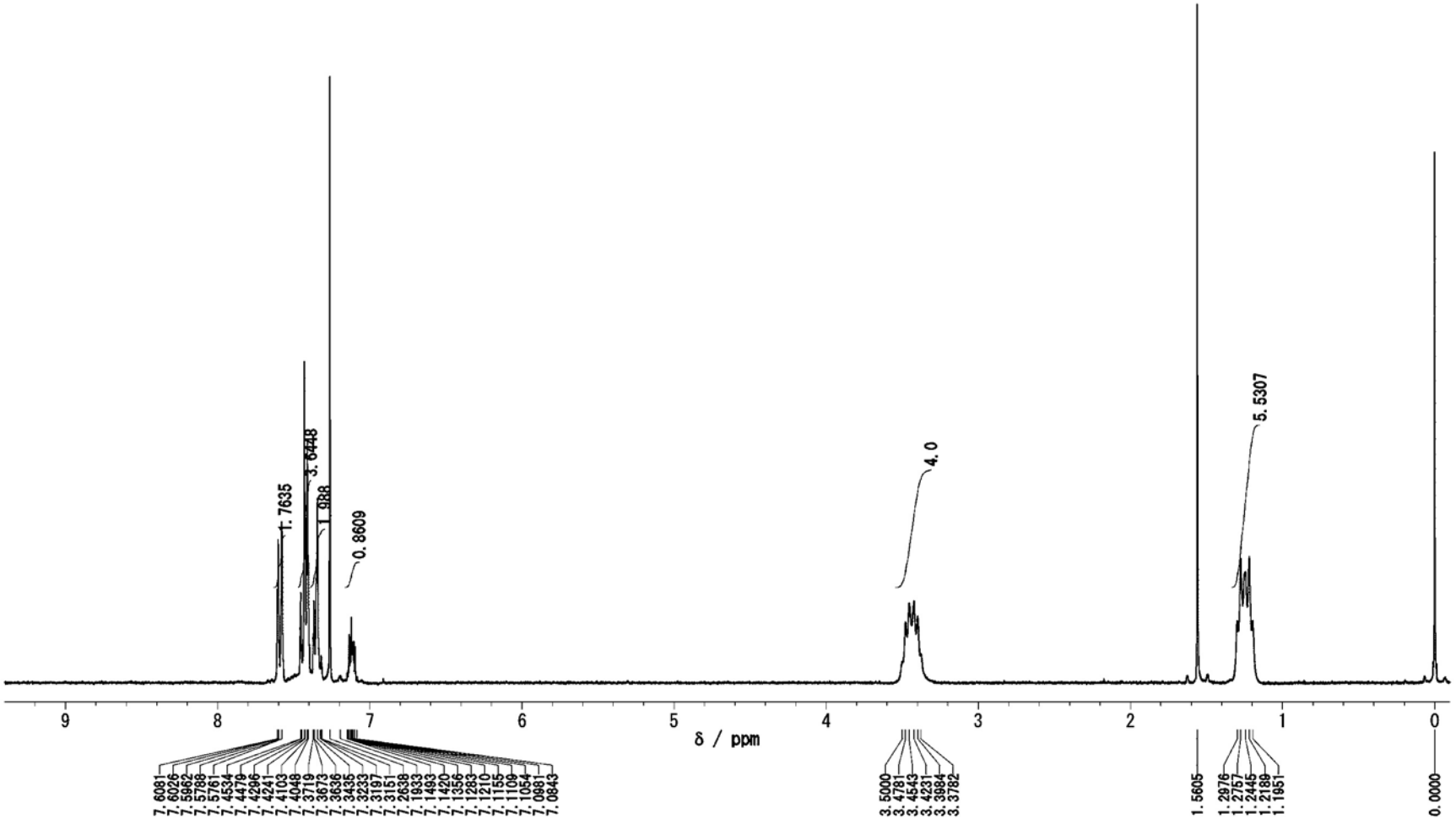

Original File:
Date Apr 29 10
Comment
CI3 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NOE
ObsFreq 75.43 MHz
ObsSet 1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 10000
AcqTime 1.4
PD 1.5
Pulse1 6.0
Temperature 29.0
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/02 16:32:00
Operator
F3C
O
NEt2
O
3e
δ / ppm

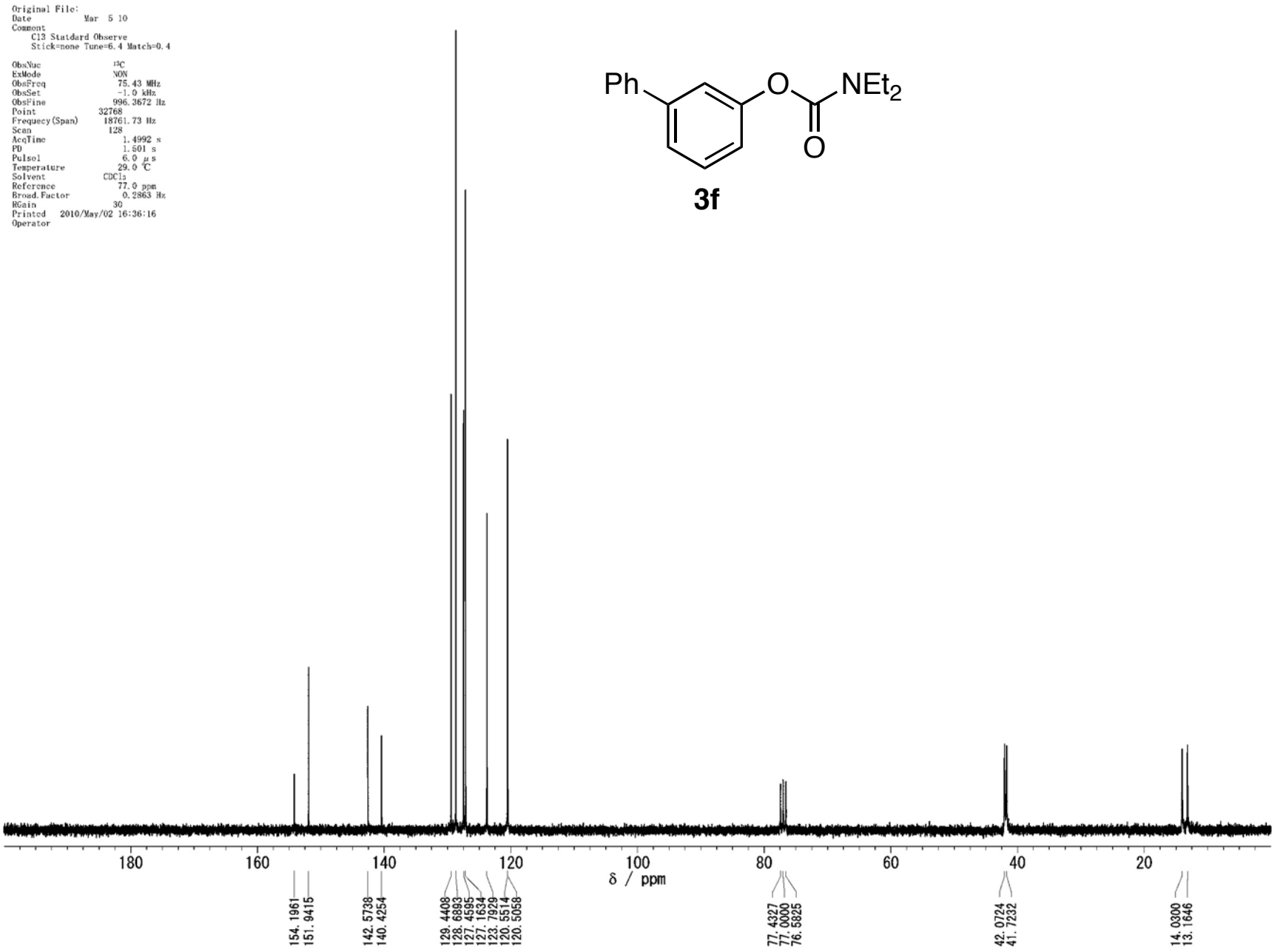
Original File:
Date Apr 30 10
Comment
STANDARD 1H OBSERVE

ObsNuc	^{1}H
ExMode	NON
ObsFreq	299.96 MHz
ObsSet	1.0 kHz
ObsFine	995.0047 Hz
Point	16384
Frequecy(Span)	4500.45 Hz
Scan	16
AcqTime	3.4983 s
PD	1.502 s
Pulse1	6.0 μs
Temperature	29.0 ℃
Solvent	CDCl$_3$
Reference	0.0 ppm
Broad.Factor	0.1373 Hz
RGain	30
Printed	2010/Jun/24 14:32:47
Operator	



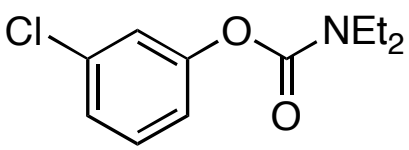
3f



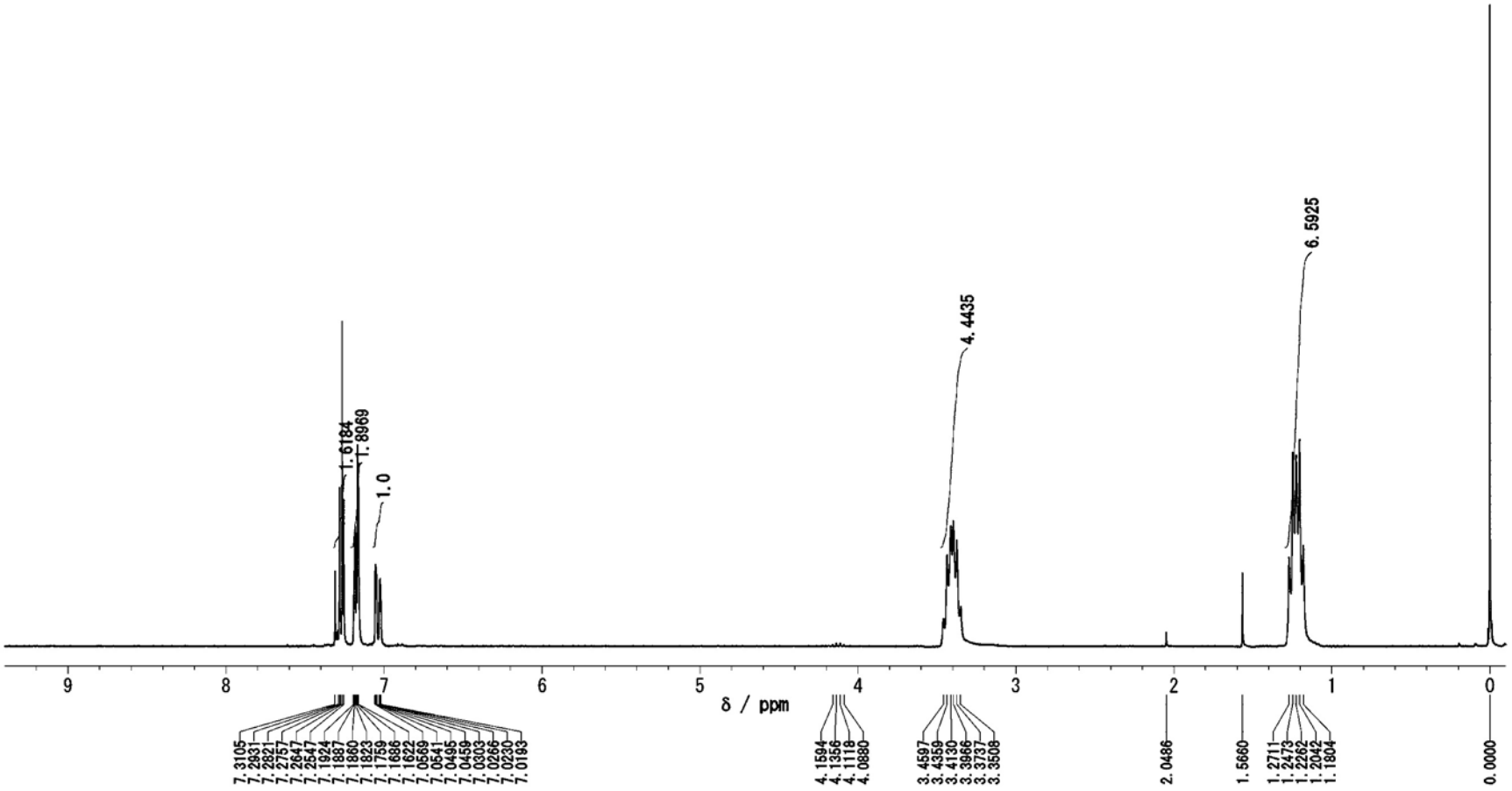

Original File:
Date Mar 5 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NON
ObsFreq 75.43 MHz
ObsSet -1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 128
AcqTime 1.4992 s
PD 1.501 s
Pulsol 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/02 16:36:16
Operator
Ph
O
NEt2
O
3f
180
160
140
120
100
80
60
40
20
δ / ppm
154.1961
151.9415
142.5738
140.4254
129.4408
128.6883
127.4595
127.1634
123.7929
120.5514
120.5058
77.4327
77.0000
76.5825
42.0724
41.7232
14.0300
13.1646

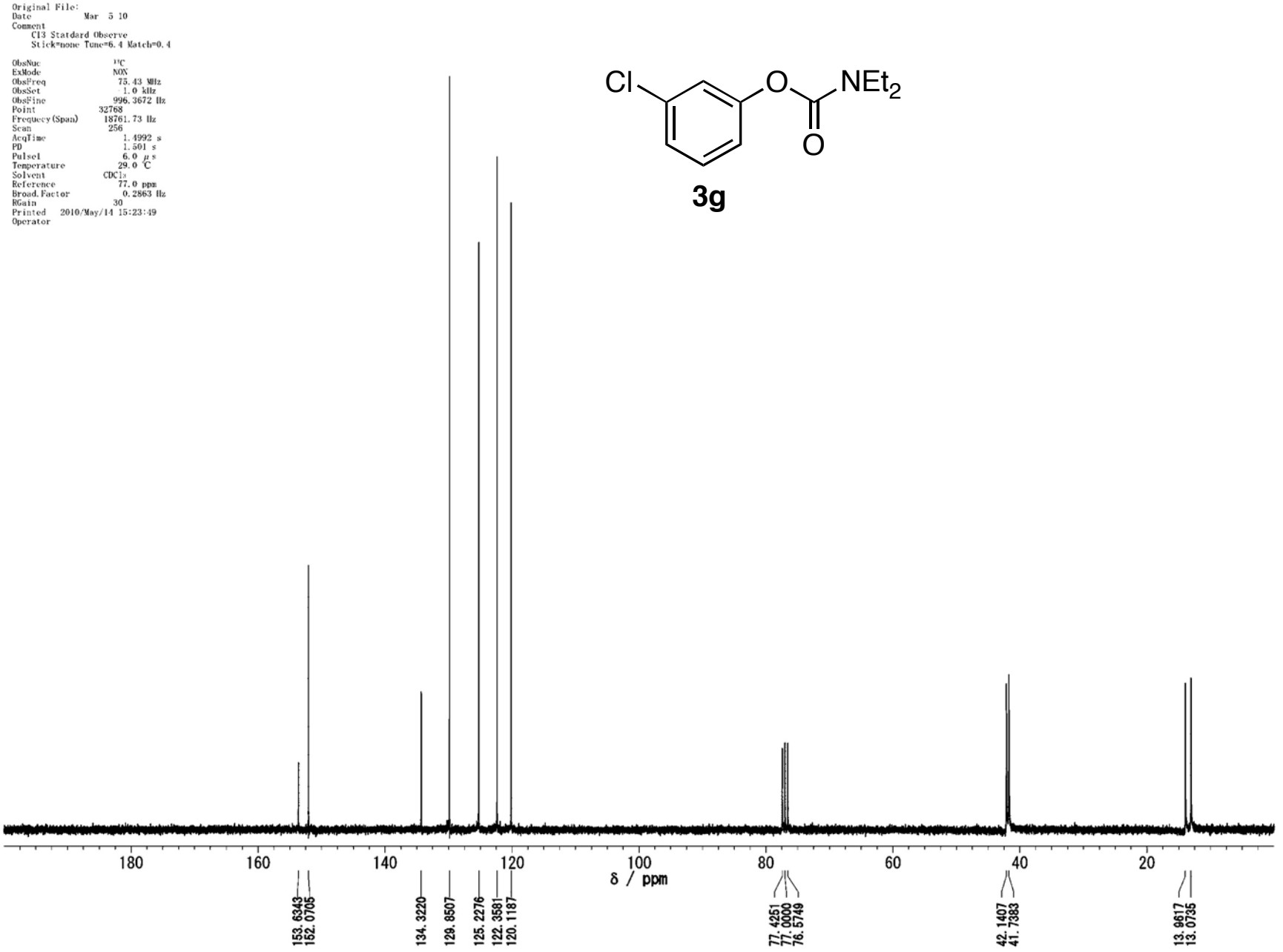
Original File:
Date Nov 5 09
Comment
STANDARD 1H OBSERVE

ObsNuc	^{1}H
ExMode	NON
ObsFreq	299.96 MHz
ObsSet	1.0 kHz
ObsFine	995.0047 Hz
Point	16384
Frequecy(Span)	4500.45 Hz
Scan	16
AcqTime	3.4983 s
PD	1.502 s
Pulse1	6.0 μs
Temperature	29.0 ℃
Solvent	CDCl3
Reference	0.0 ppm
Broad.Factor	0.1373 Hz
RGain	24
Printed	2010/May/13 21:57:58
Operator	

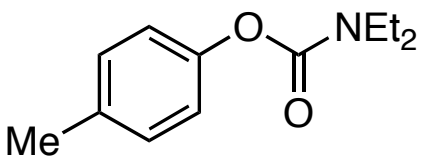


3g

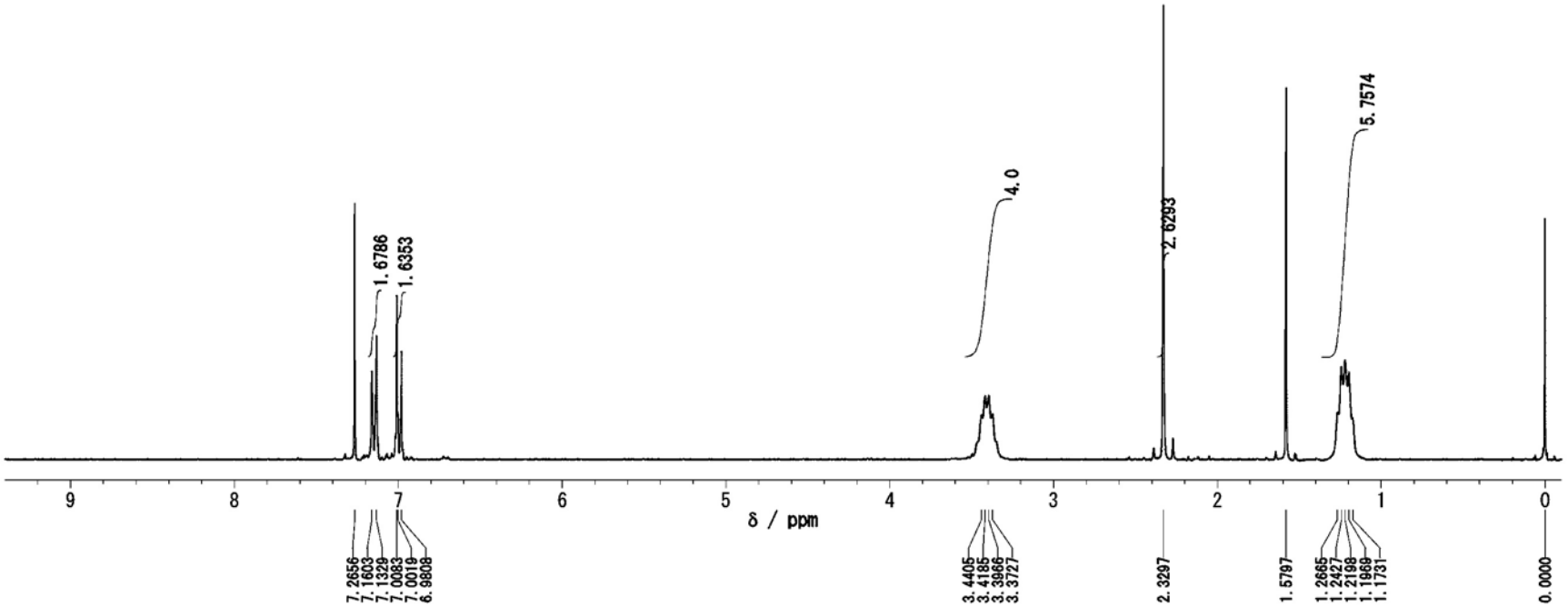


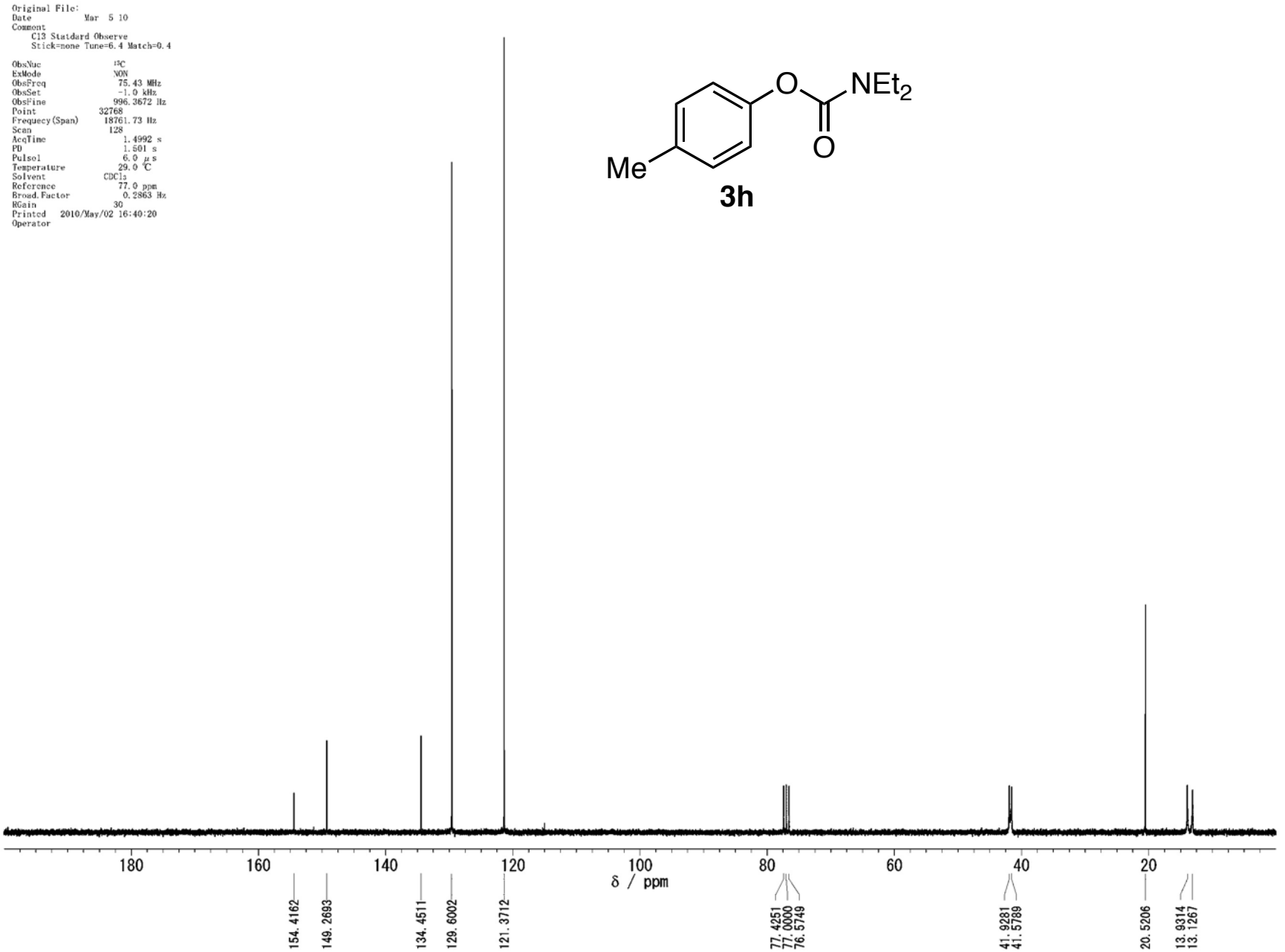

Original File:
Date Mar 5 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NOE
ObsFreq 75.43 MHz
ObsSet 1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 256
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/14 15:23:49
Operator
Cl
O
NEt2
O
3g
180
160
140
120
100
80
60
40
20
δ / ppm
153.6343
152.0705
134.3220
129.8507
125.2276
122.3581
120.1187
77.4251
77.0000
76.5749
42.1407
41.7383
13.9617
13.0735

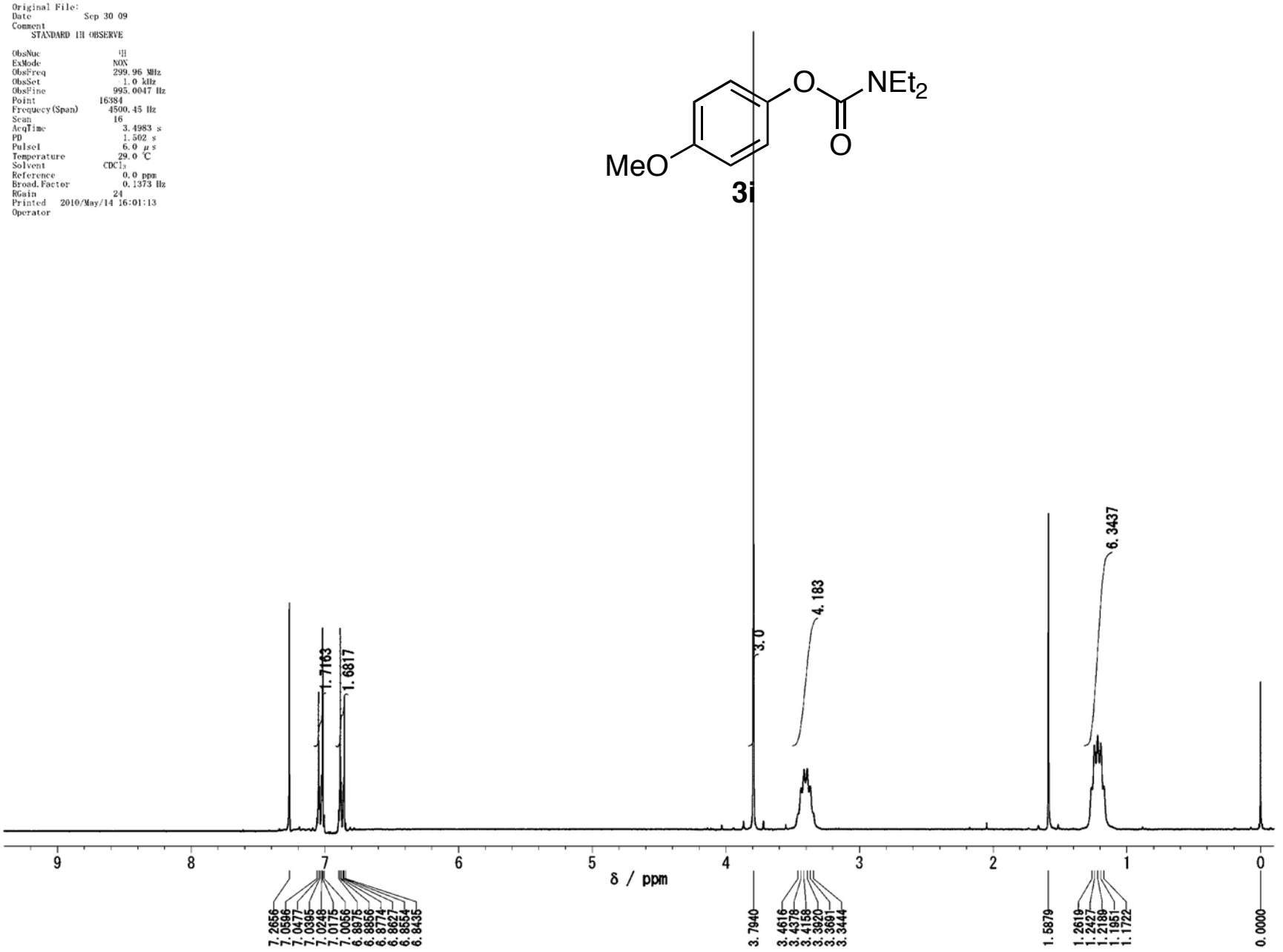
```
Original File:
Date            Sep 26 09
Comment
    STANDARD 1H OBSERVE

ObsNuc                  1H
ExMode                 NON
ObsFreq          299.96 MHz
ObsSet             1.0 kHz
ObsFine          995.0047 Hz
Point              16384
Frequecy(Span)   4500.45 Hz
Scan                   16
AcqTime            3.4983 s
PD                 1.502 s
Pulse1             6.0 μs
Temperature        29.0 ℃
Solvent              CDCl3
Reference          0.0 ppm
Broad.Factor       0.1373 Hz
RGain                  24
Printed   2010/Jun/24 14:34:31
Operator
```

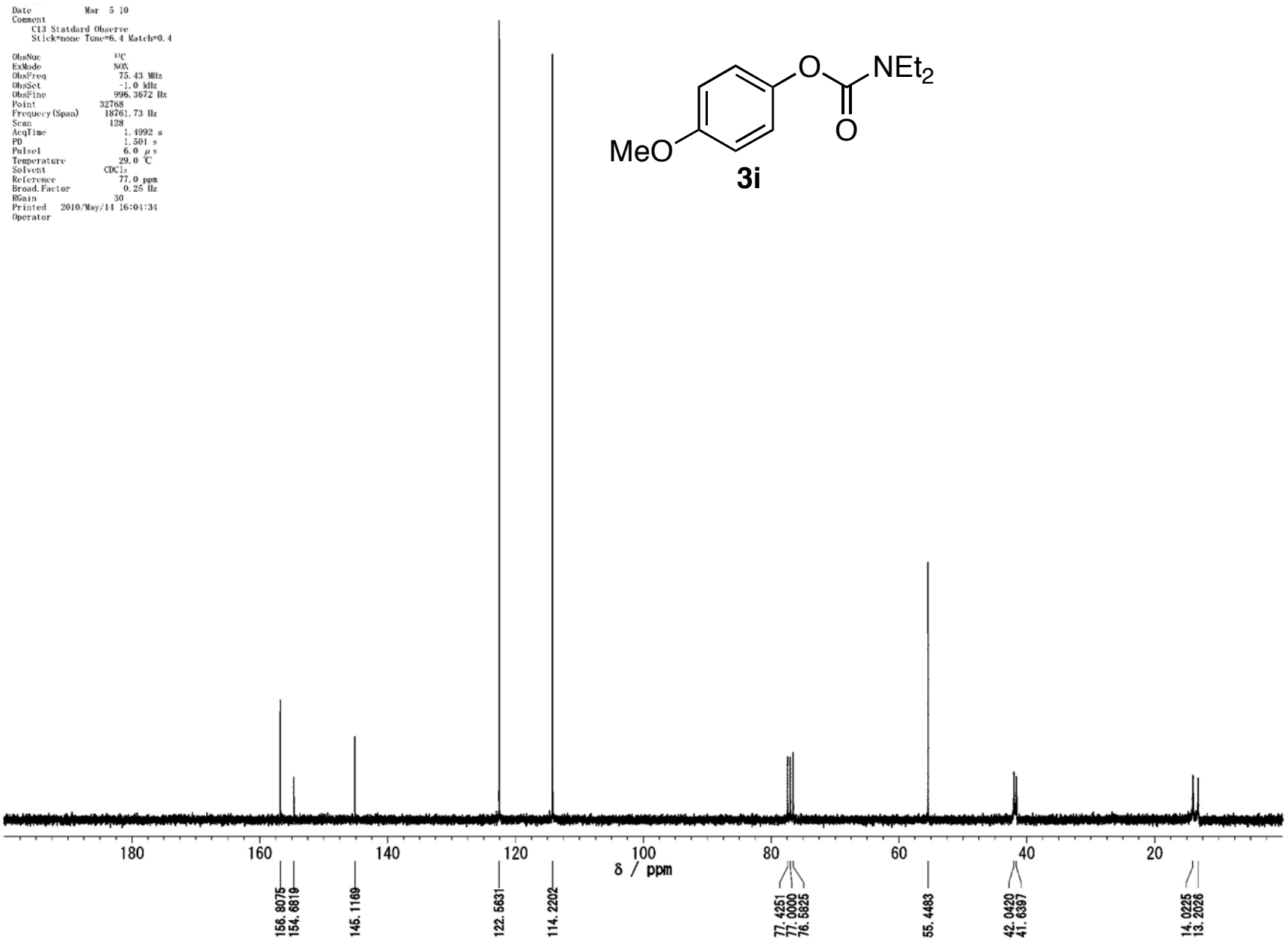


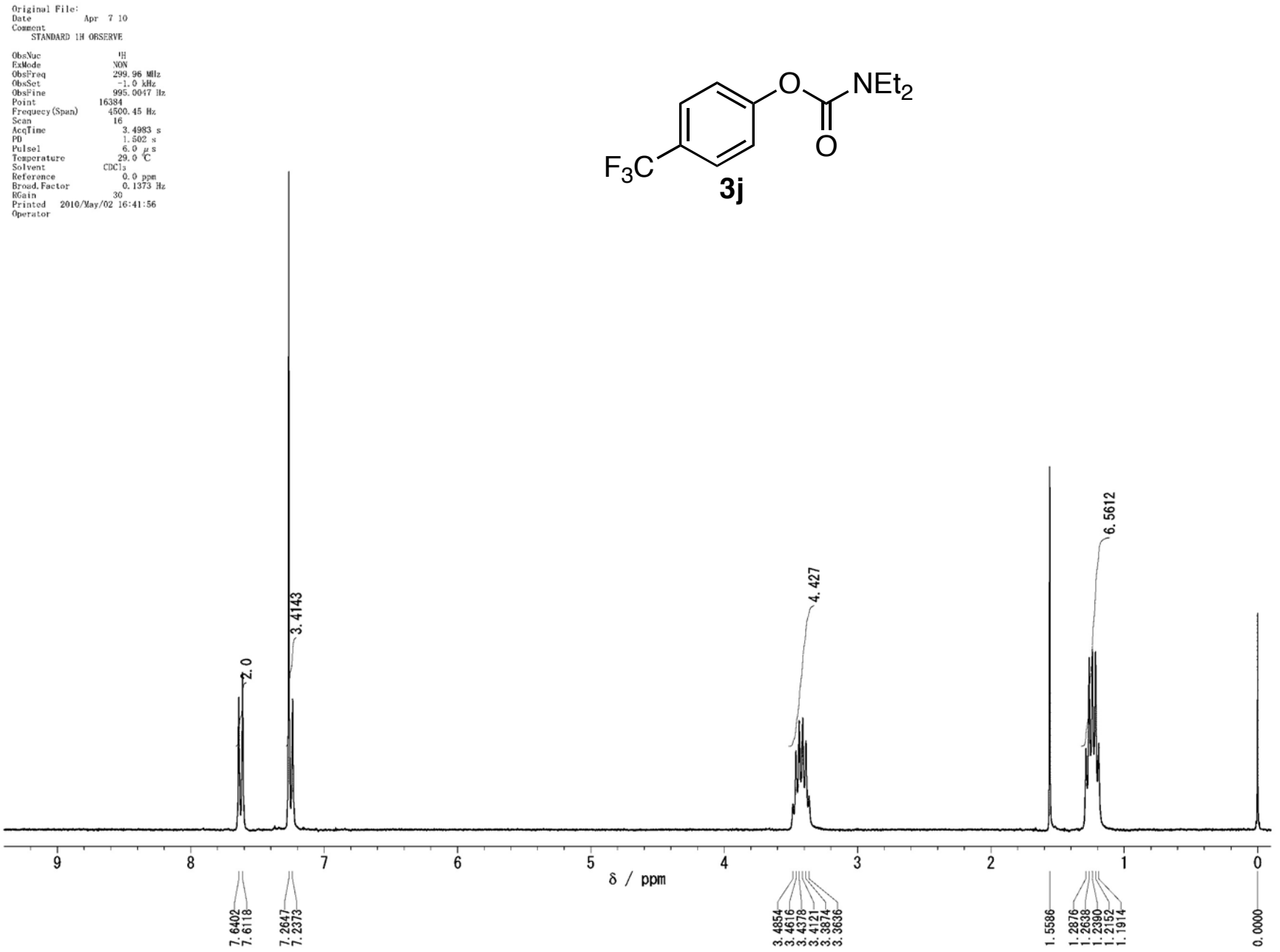
3h

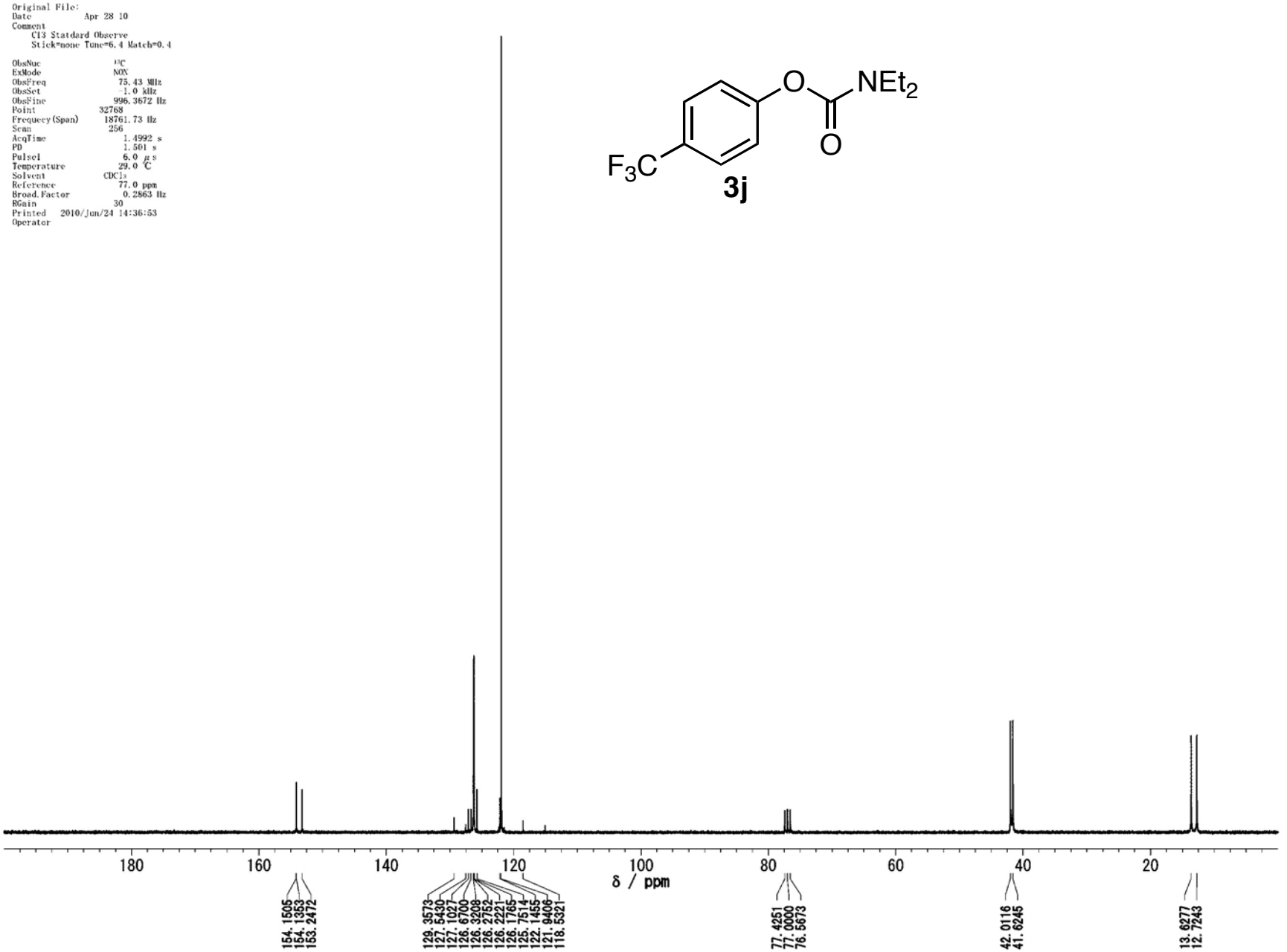



Original File:
Date Mar 5 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NON
ObsFreq 75.43 MHz
ObsSet -1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 128
AcqTime 1.4992 s
PD 1.501 s
Pulsol 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/02 16:40:20
Operator
O
NEt2
O
Me
3h
180
160
140
120
100
80
60
40
20
δ / ppm
154.4162
149.2693
134.4511
129.6002
121.3712
77.4251
77.0000
76.5749
41.9281
41.5789
20.5206
13.9314
13.1267


Original File:
Date Sep 30 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NOE
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 24
Printed 2010/May/14 16:01:13
Operator
MeO
O
O
NEt2
3i
1.7163
1.6817
3.0
4.183
6.3437
δ / ppm
9
8
7
6
5
4
3
2
1
0
7.2656
7.0596
7.0477
7.0395
7.0248
7.0175
7.0056
6.8875
6.8856
6.8774
6.8627
6.8554
6.8435
3.7940
3.4616
3.4378
3.4158
3.3920
3.3691
3.3444
1.5879
1.2619
1.2427
1.2180
1.1951
1.1722
0.0000

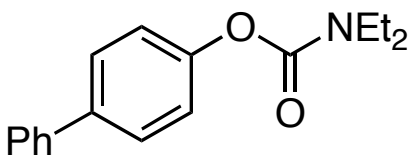

Date Mar 5 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NOE
ObsFreq 75.43 MHz
ObsSet -1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 128
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.25 Hz
RGain 30
Printed 2010/May/14 16:04:34
Operator
O
NEt2
O
MeO
3i
180
160
140
120
100
80
60
40
20
δ / ppm
156.8075
154.6819
145.1169
122.5631
114.2202
77.4251
77.0000
76.5825
55.4483
42.0420
41.6397
14.0225
13.2026


Original File:
Date Apr 7 10
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet -1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulsel 6.0 μs
Temperature 29.0 °C
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 30
Printed 2010/May/02 16:41:56
Operator
O
NEt2
O
F3C
3j
2.0
3.4143
4.427
6.5612
9
8
7
6
5
4
3
2
1
0
δ / ppm
7.6402
7.6118
7.2647
7.2373
3.4854
3.4616
3.4378
3.4121
3.3874
3.3636
1.5586
1.2876
1.2638
1.2390
1.2152
1.1914
0.0000

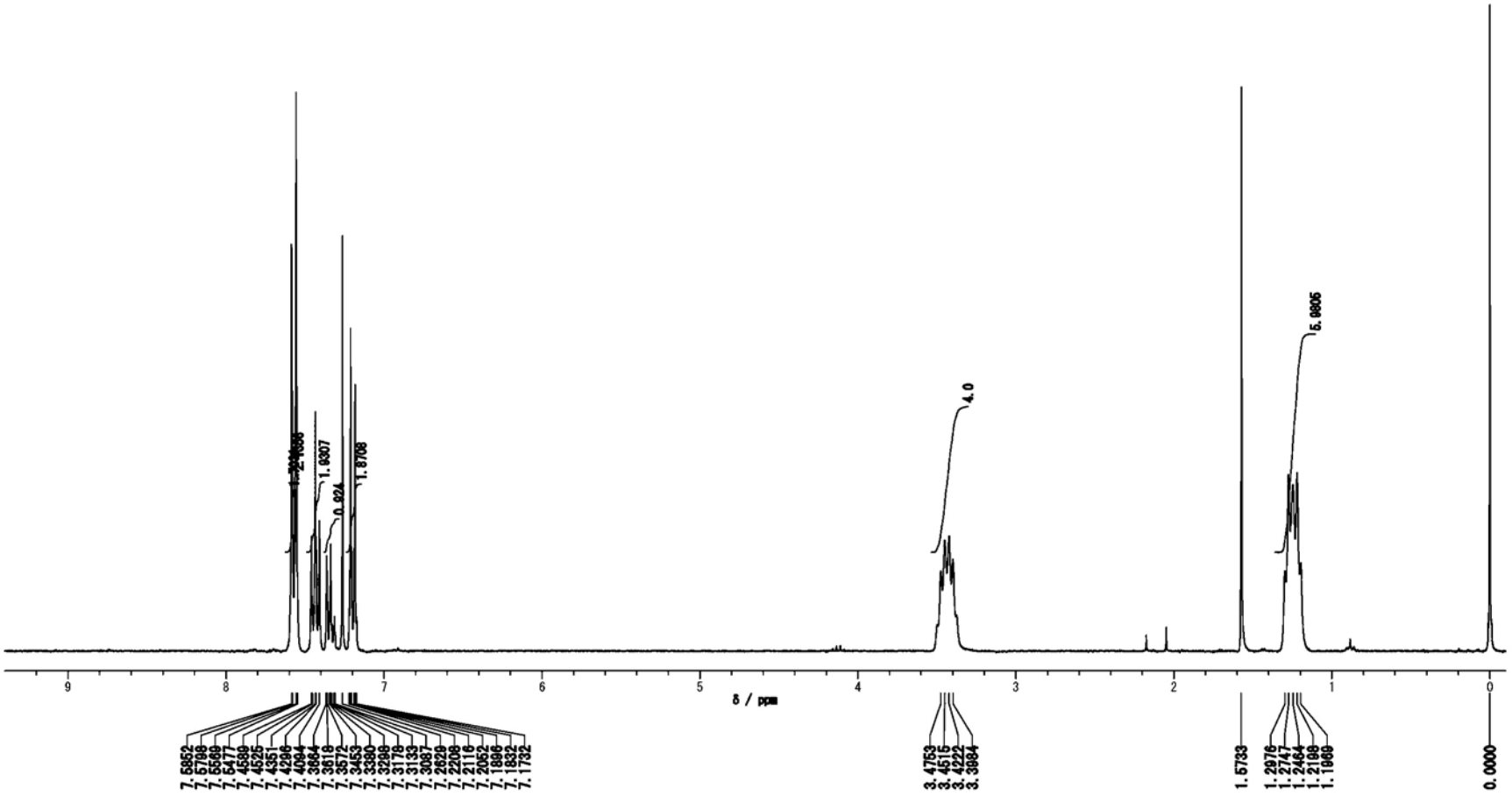

Original File:
Date Apr 28 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NOE
ObsFreq 75.43 MHz
ObsSet -1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 256
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/Jun/24 14:36:53
Operator
O
NEt2
O
F3C
3j
180
160
140
120
100
80
60
40
20
δ / ppm
154.1505
154.1353
153.2472
129.3573
127.5430
127.1027
126.6700
126.3208
126.2752
126.2221
126.1765
125.7514
122.1455
121.9406
118.5321
77.4251
77.0000
76.5673
42.0116
41.6245
13.6277
12.7243

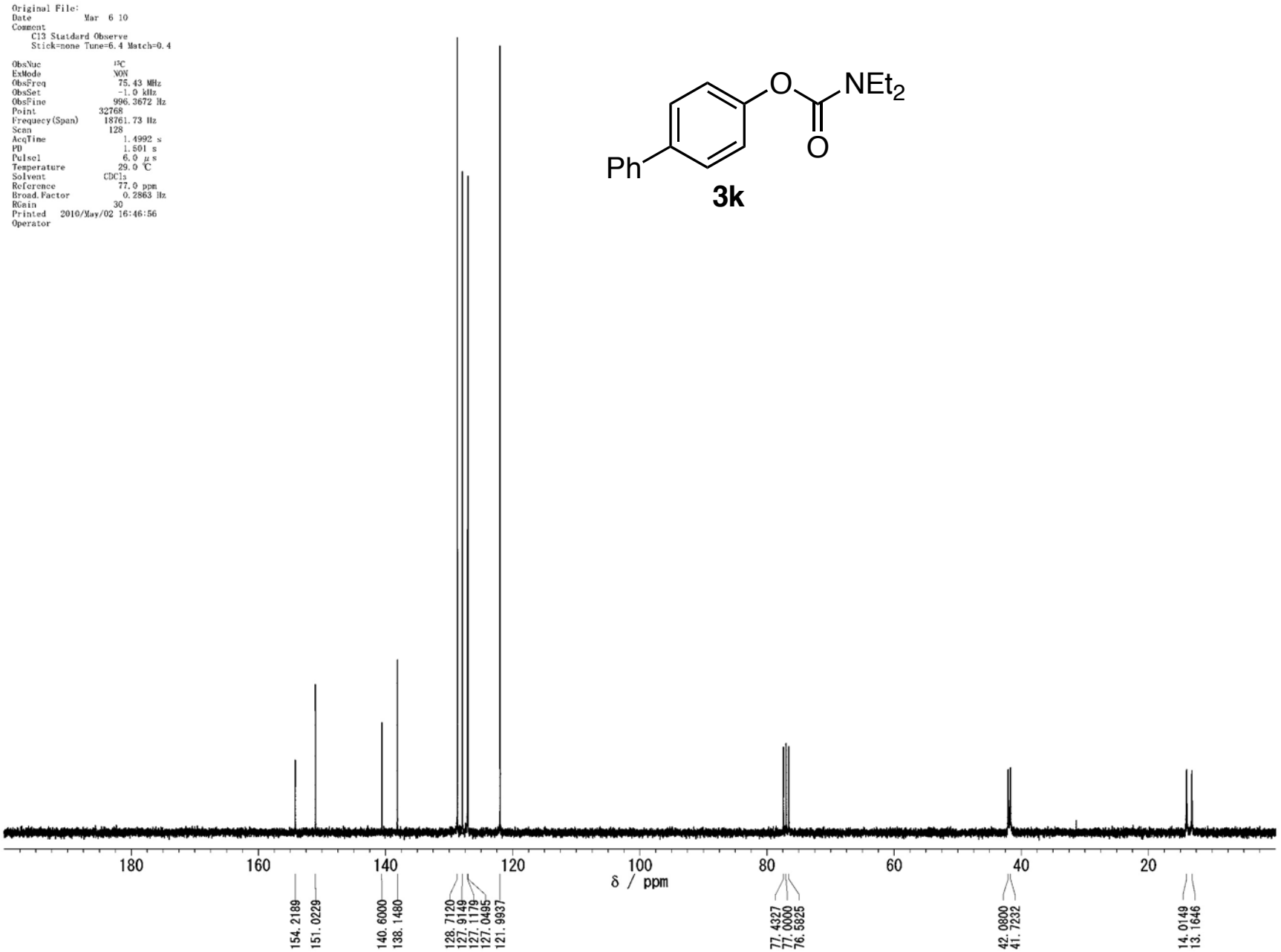
Original File:
Date Sep 10 09
Comment
STANDARD 1H OBSERVE

ObsNuc	^{1}H
ExMode	NON
ObsFreq	299.96 MHz
ObsSet	-1.0 kHz
ObsFine	995.0047 Hz
Point	16384
Frequecy(Span)	4500.45 Hz
Scan	16
AcqTime	3.4983 s
PD	1.502 s
Pulsel	6.0 μs
Temperature	29.0 °C
Solvent	CDCl3
Reference	0.0 ppm
Broad.Factor	0.1373 Hz
RGain	24
Printed	2010/May/02 16:45:25
Operator	



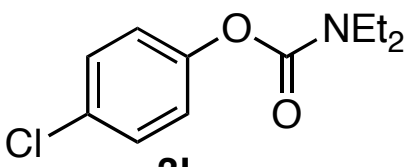
3k



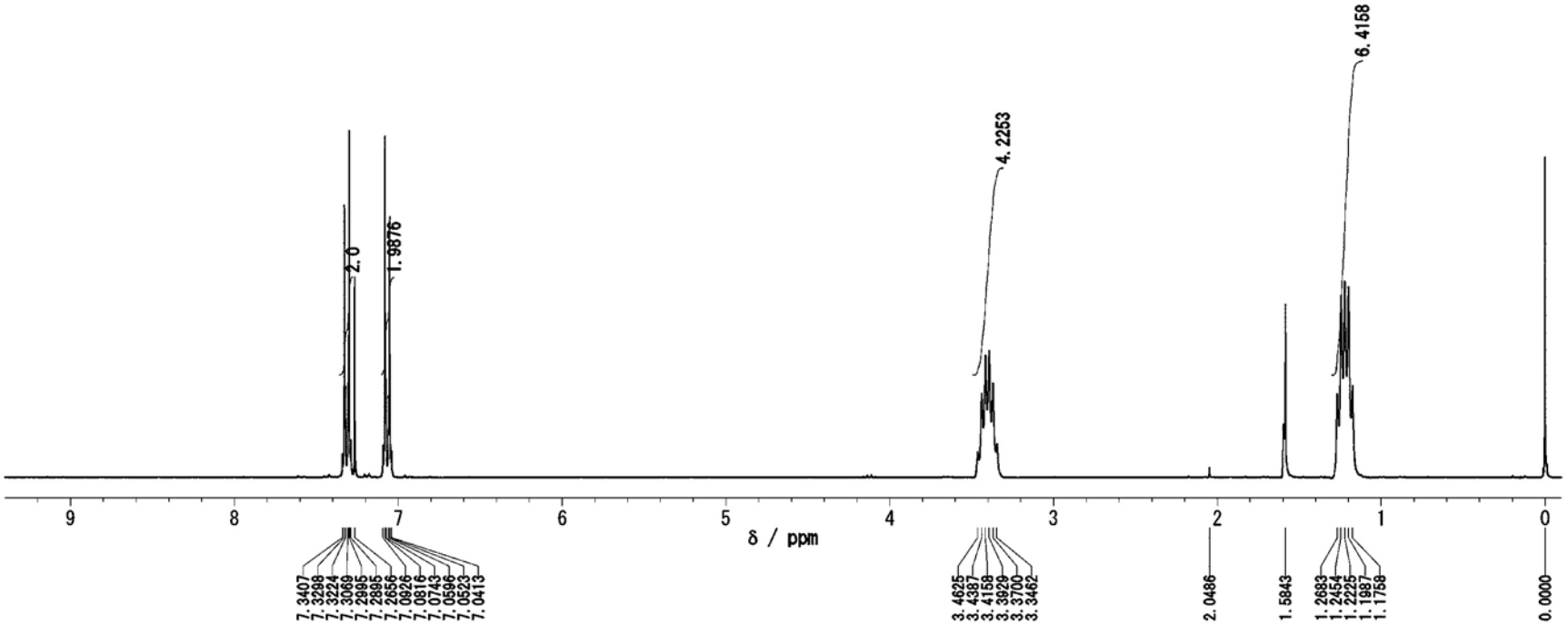

Original File:
Date Mar 6 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NON
ObsFreq 75.43 MHz
ObsSet -1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 128
AcqTime 1.4992 s
PD 1.501 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/02 16:46:56
Operator
O
NEt2
O
Ph
3k
180
160
140
120
100
80
60
40
20
δ / ppm
154.2189
151.0229
140.6000
138.1480
128.7120
127.9149
127.1179
127.0495
121.9937
77.4327
77.0000
76.5825
42.0800
41.7232
14.0149
13.1646

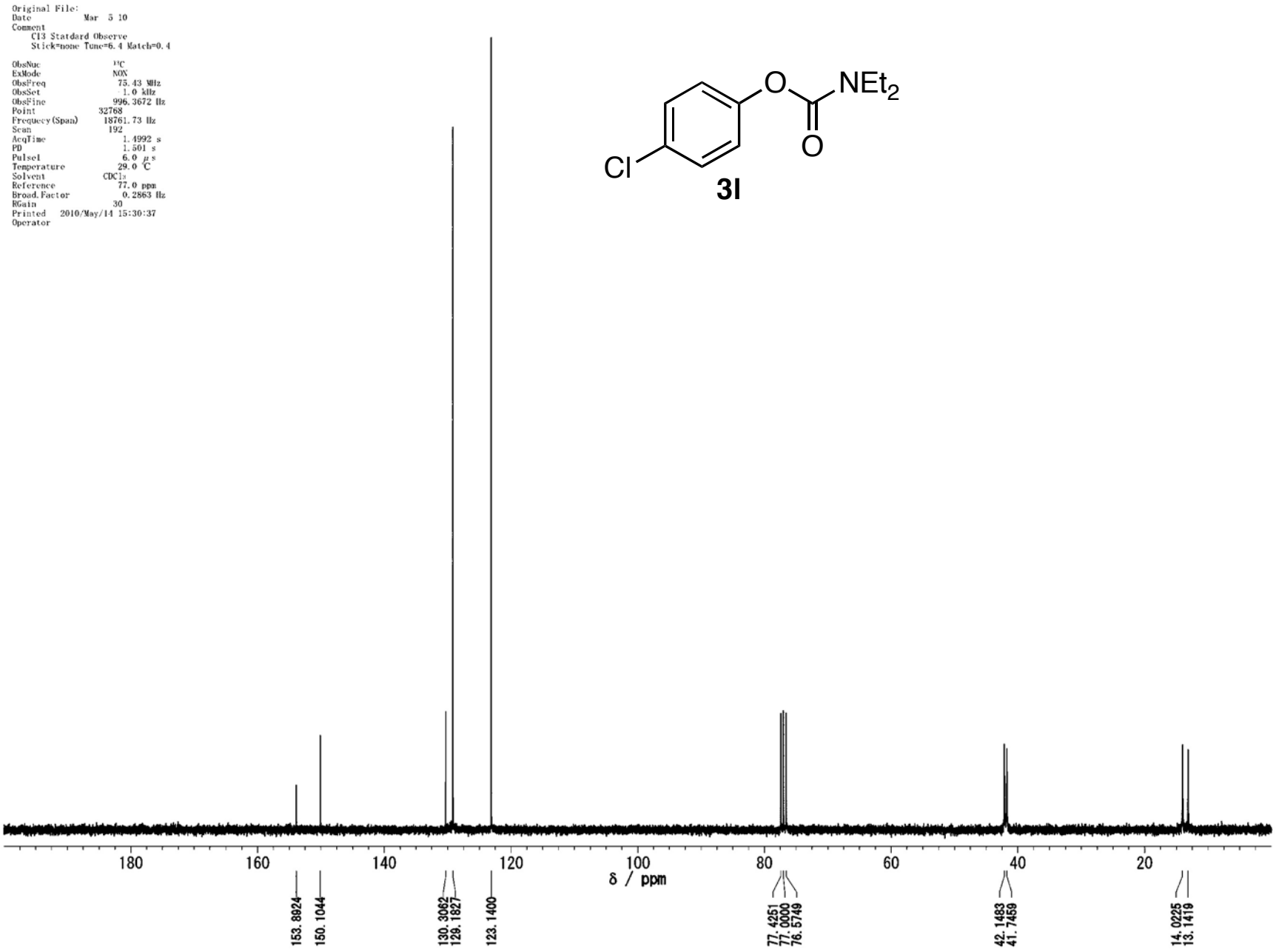
Original File:
Date Jun 6 09
Comment
STANDARD 1H OBSERVE

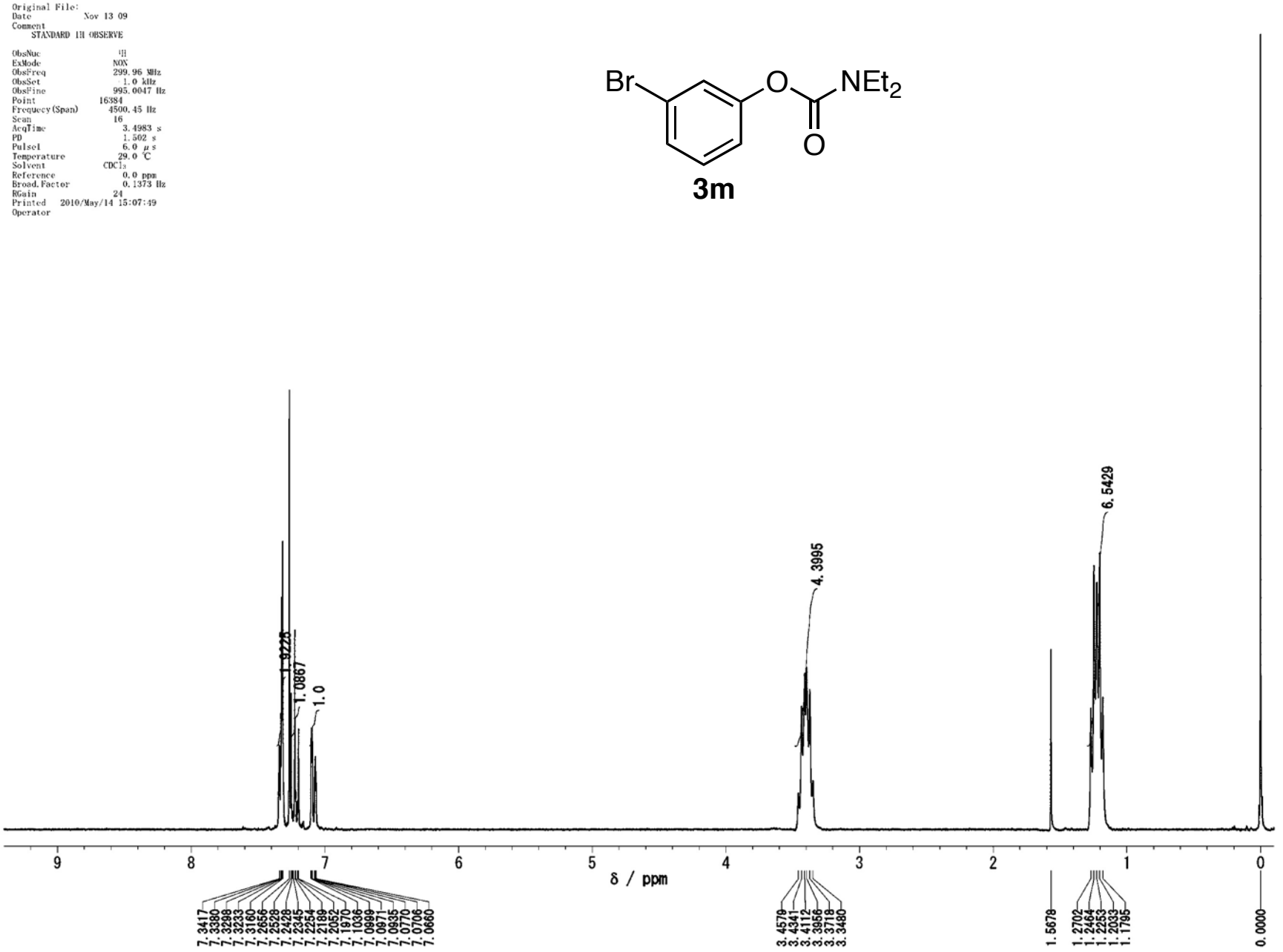
ObsNuc	^{1}H
ExMode	NON
ObsFreq	299.96 MHz
ObsSet	1.0 kHz
ObsPine	995.0047 Hz
Point	16384
Frequecy(Span)	4500.45 Hz
Scan	16
AcqTime	3.4983 s
PD	1.502 s
Pulse1	6.0 μs
Temperature	29.0 ℃
Solvent	CDCl3
Reference	0.0 ppm
Broad.Factor	0.1373 Hz
RGain	19
Printed	2010/May/14 15:02:58
Operator	

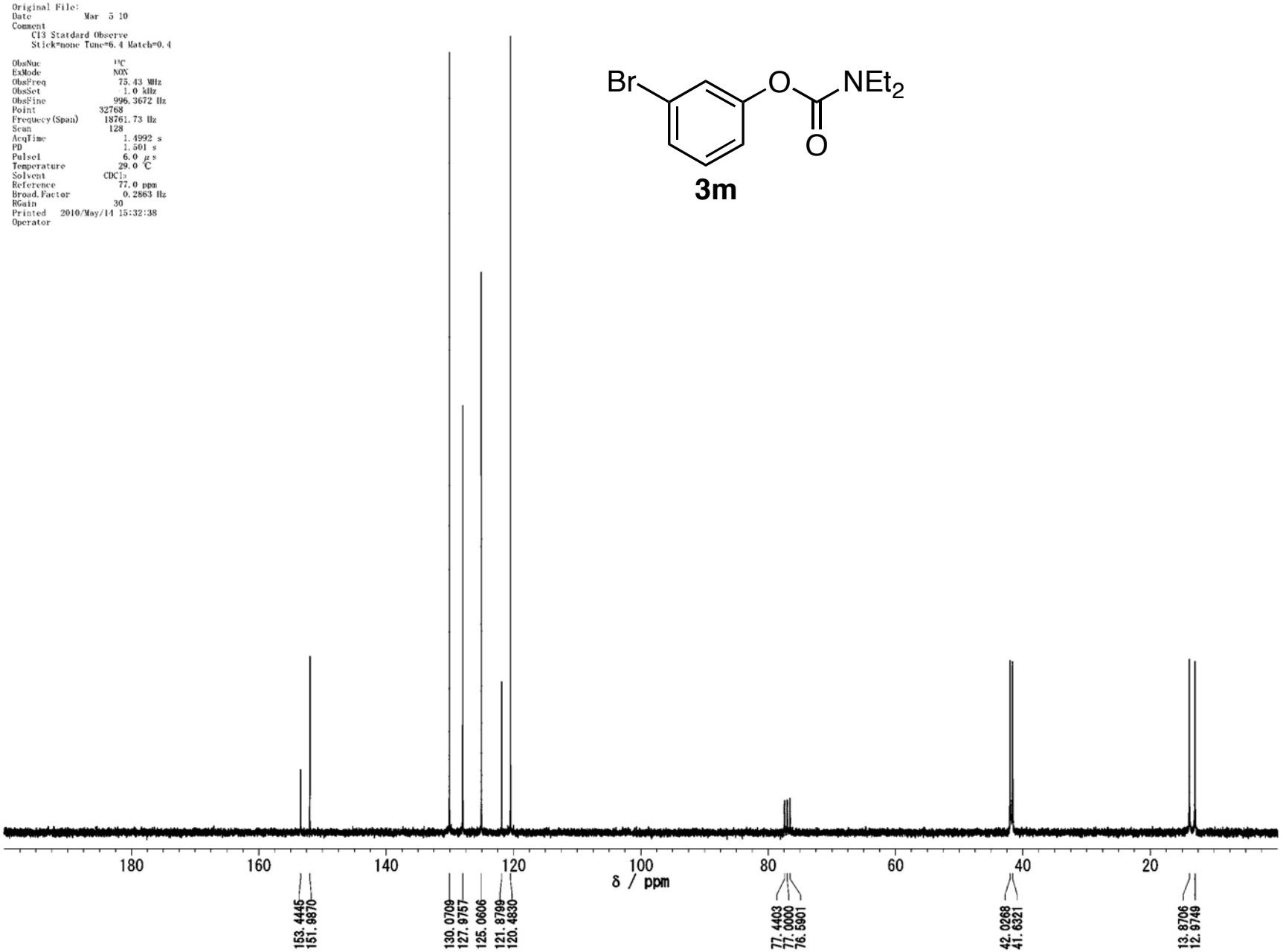


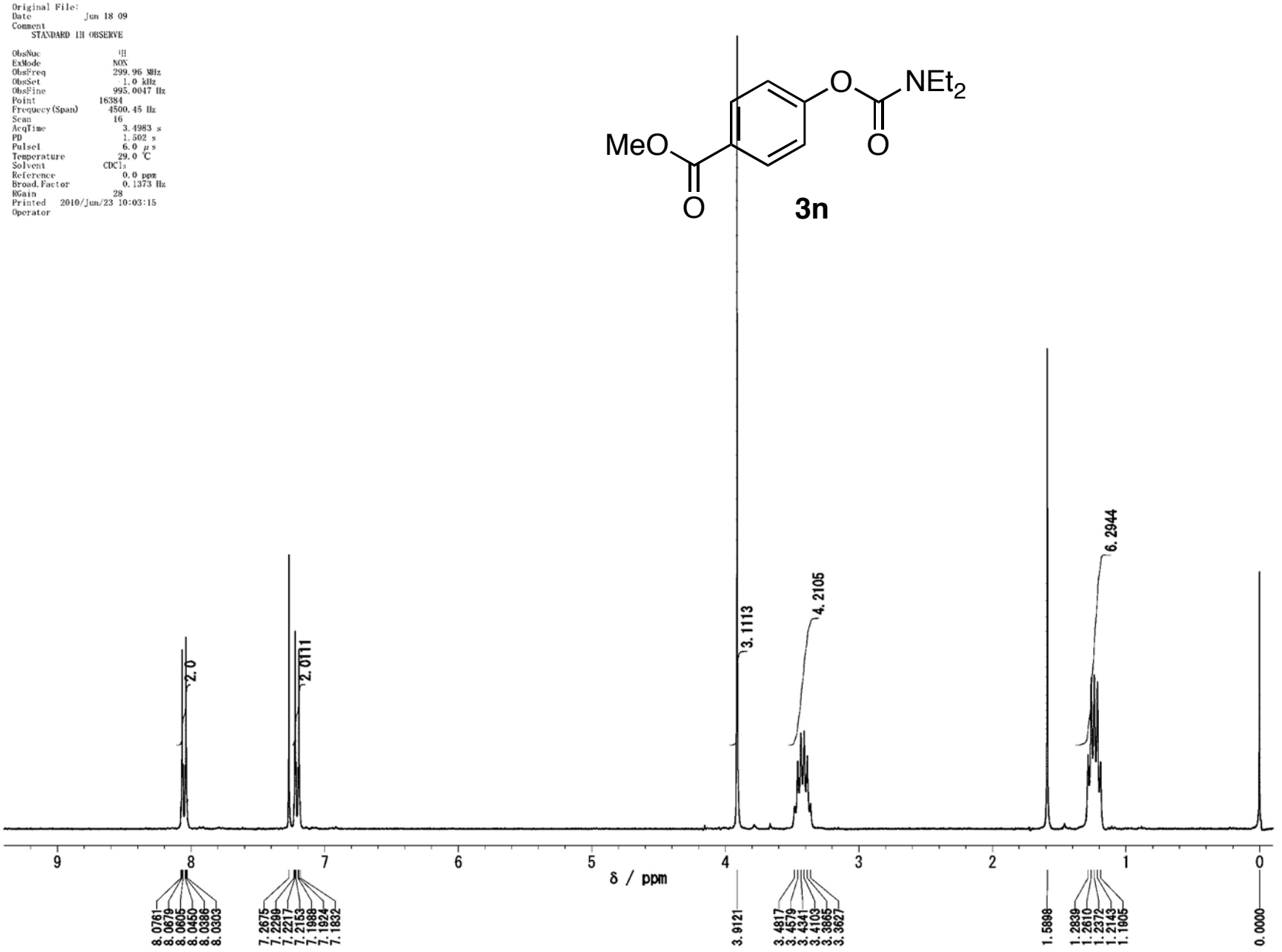
3l

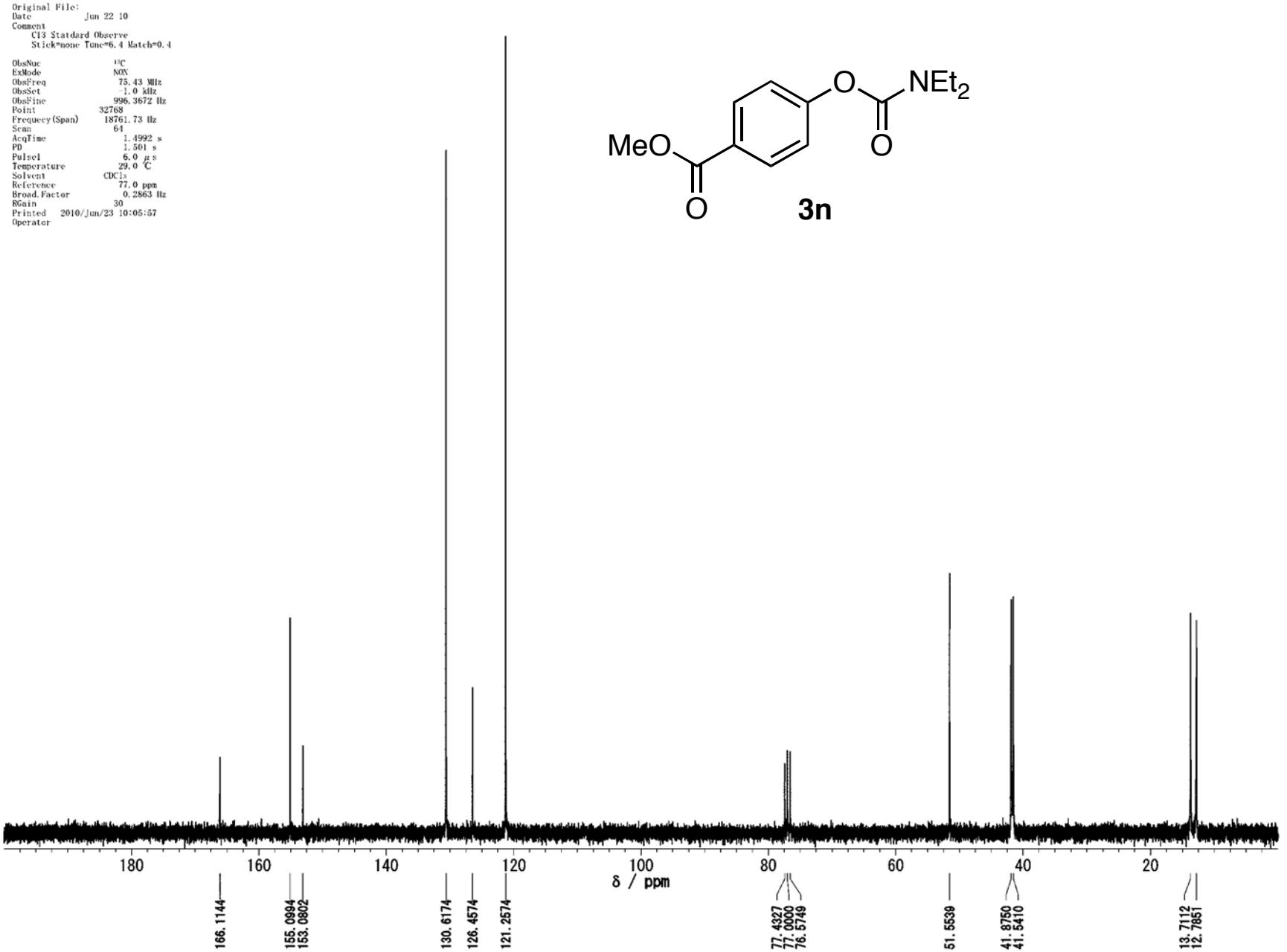


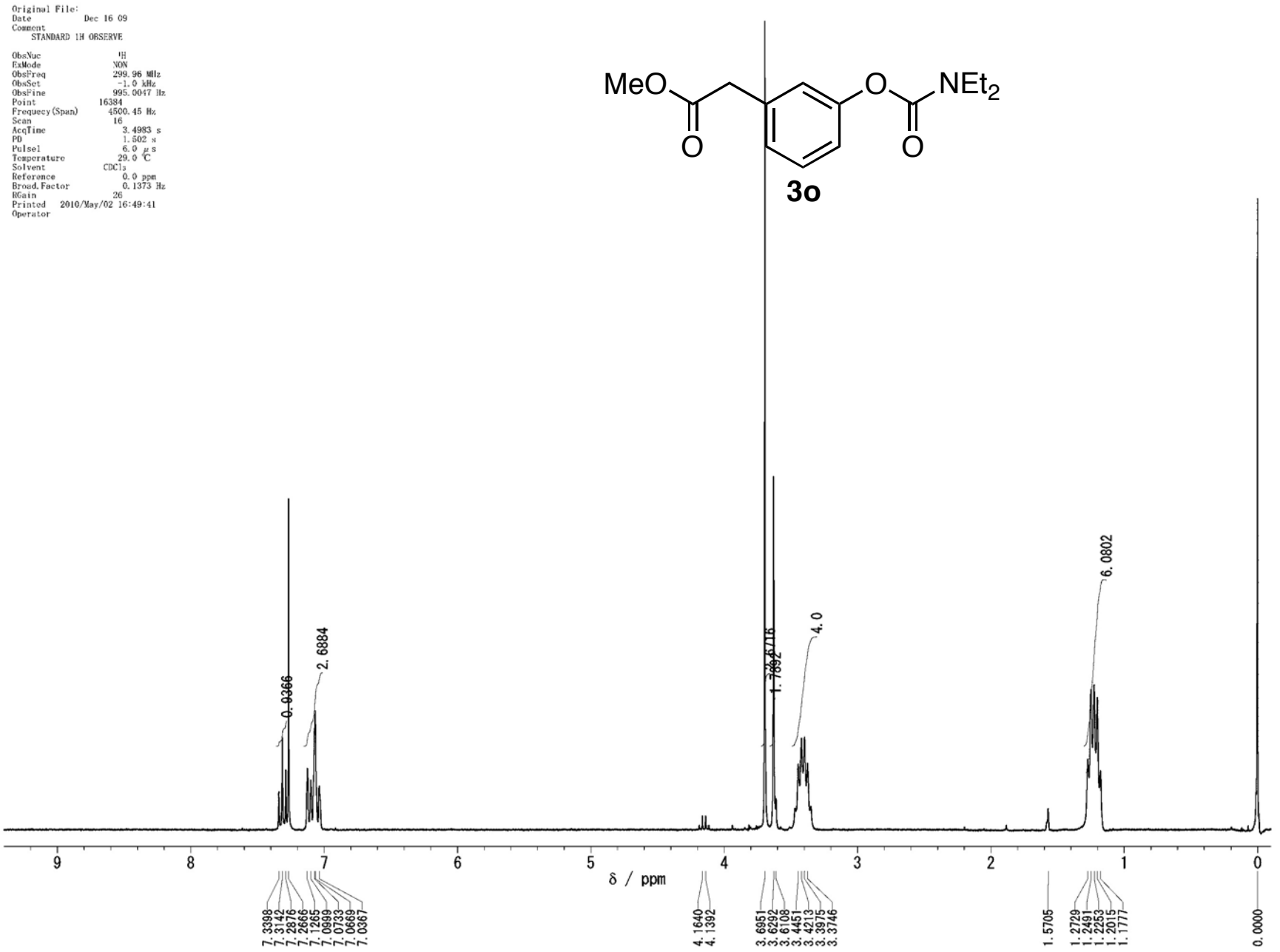

Original File:
Date Mar 5 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NOE
ObsFreq 75.43 MHz
ObsSet 1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 192
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/14 15:30:37
Operator
O
NEt2
O
Cl
3l
180
160
140
120
100
80
60
40
20
δ / ppm
153.8824
150.1044
130.3062
129.1827
123.1400
77.4251
77.0000
76.5749
42.1483
41.7459
14.0225
13.1419

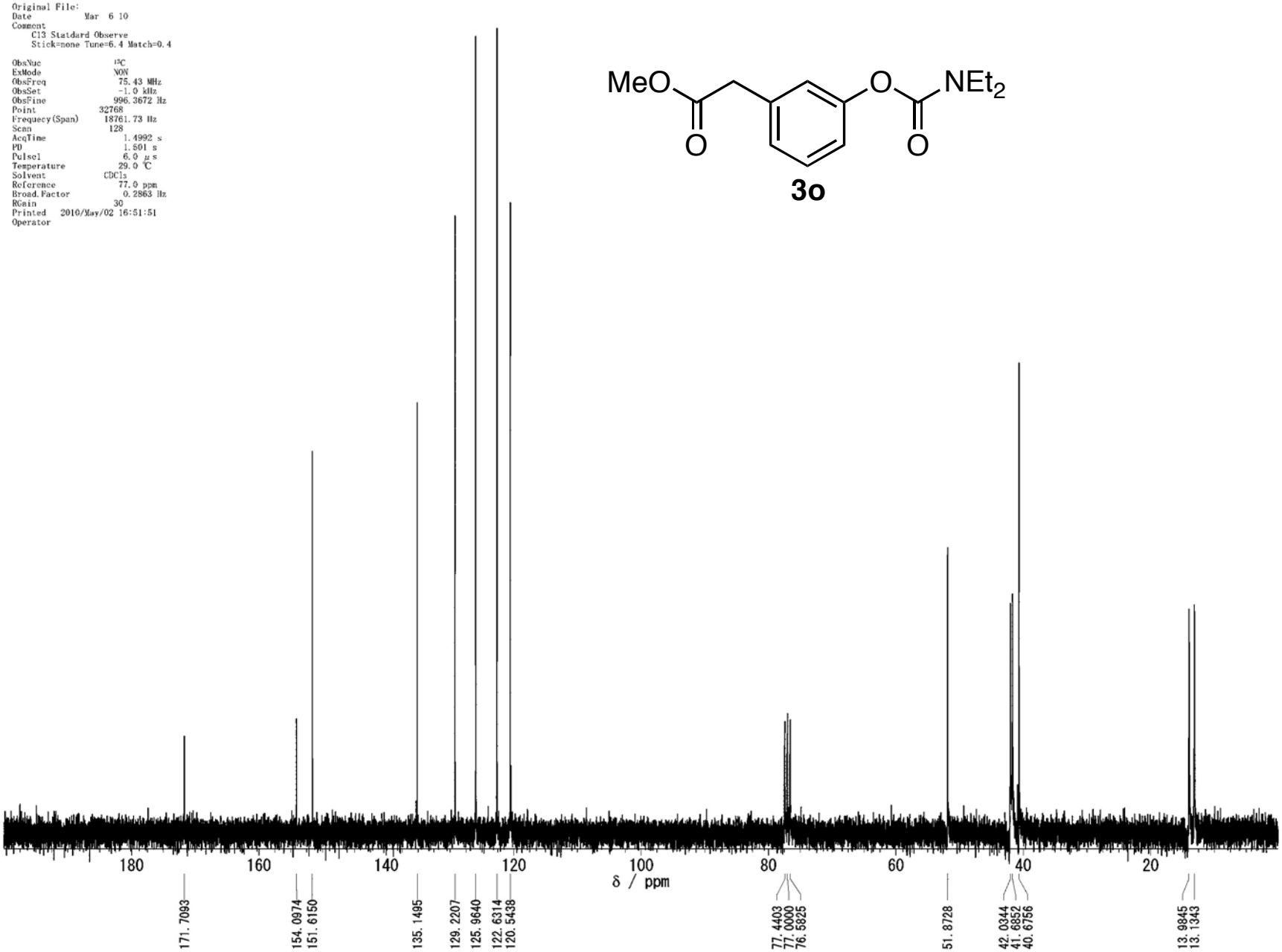

Original File:
Date Nov 13 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 24
Printed 2010/May/14 15:07:49
Operator
Br
O
NEt2
O
3m
1.9226
1.0867
1.0
4.3995
6.5429
δ / ppm
7.3417
7.3380
7.3290
7.3233
7.3160
7.2656
7.2528
7.2428
7.2345
7.2254
7.2189
7.2052
7.1970
7.1036
7.0999
7.0971
7.0935
7.0770
7.0706
7.0660
3.4579
3.4341
3.4112
3.3856
3.3719
3.3480
1.5678
1.2702
1.2464
1.2253
1.2033
1.1795
0.0000


Original File:
Date Mar 5 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NOE
ObsFreq 75.43 MHz
ObsSet 1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 128
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/14 15:32:38
Operator
Br
O
NEt2
O
3m
180
160
140
120
100
80
60
40
20
δ / ppm
153.4445
151.9870
130.0709
127.9757
125.0606
121.8799
120.4830
77.4403
77.0000
76.5901
42.0268
41.6321
13.8706
12.9749

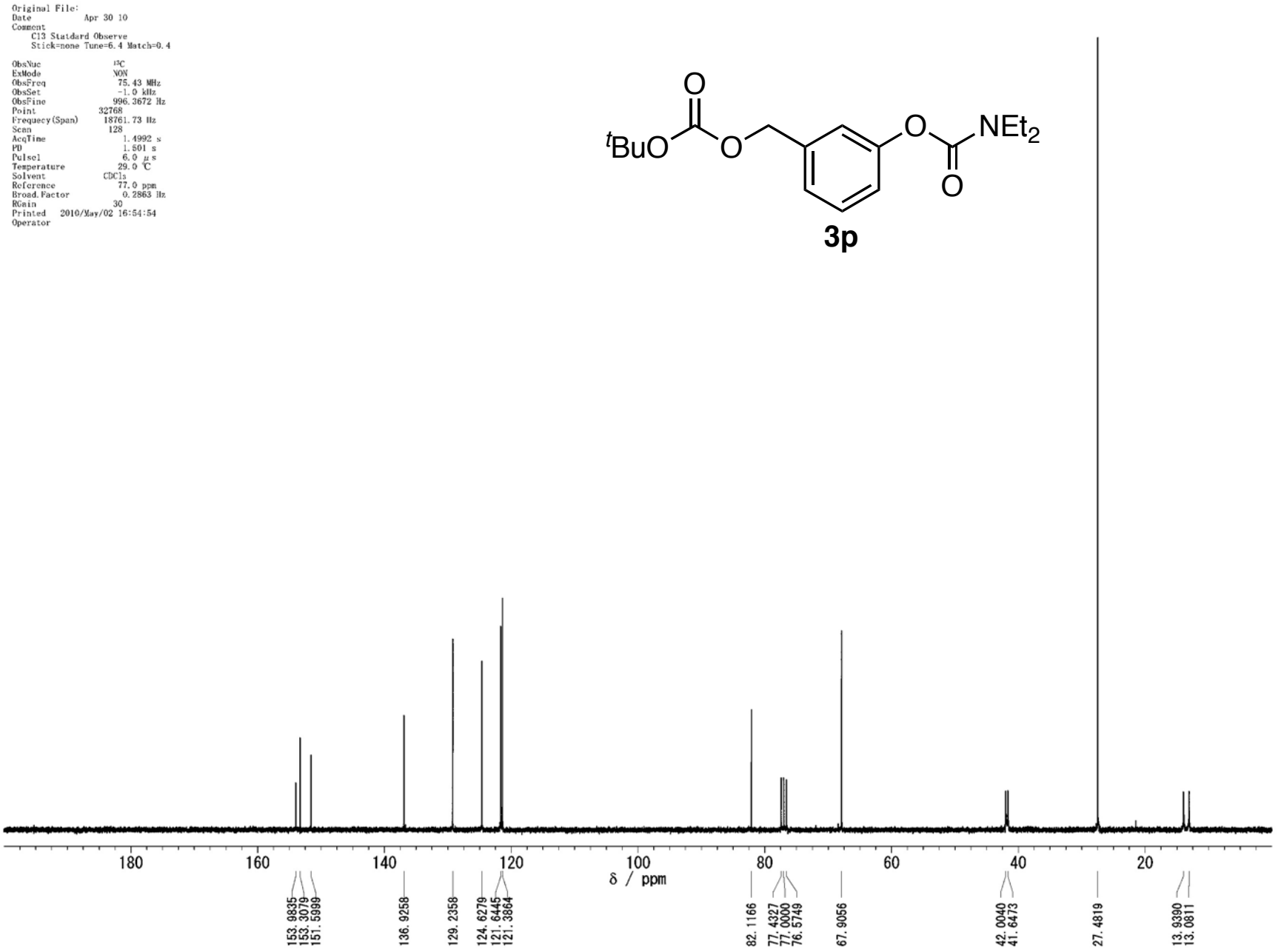

Original File:
Date Jun 18 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 28
Printed 2010/Jun/23 10:03:15
Operator
MeO
O
O
O
NEt2
3n
2.0
2.0111
3.1113
4.2105
6.2944
δ / ppm
8.0761
8.0679
8.0605
8.0450
8.0386
8.0303
7.2675
7.2290
7.2217
7.2153
7.1988
7.1924
7.1832
3.9121
3.4817
3.4579
3.4341
3.4103
3.3865
3.3627
1.5898
1.2839
1.2610
1.2372
1.2143
1.1905
0.0000

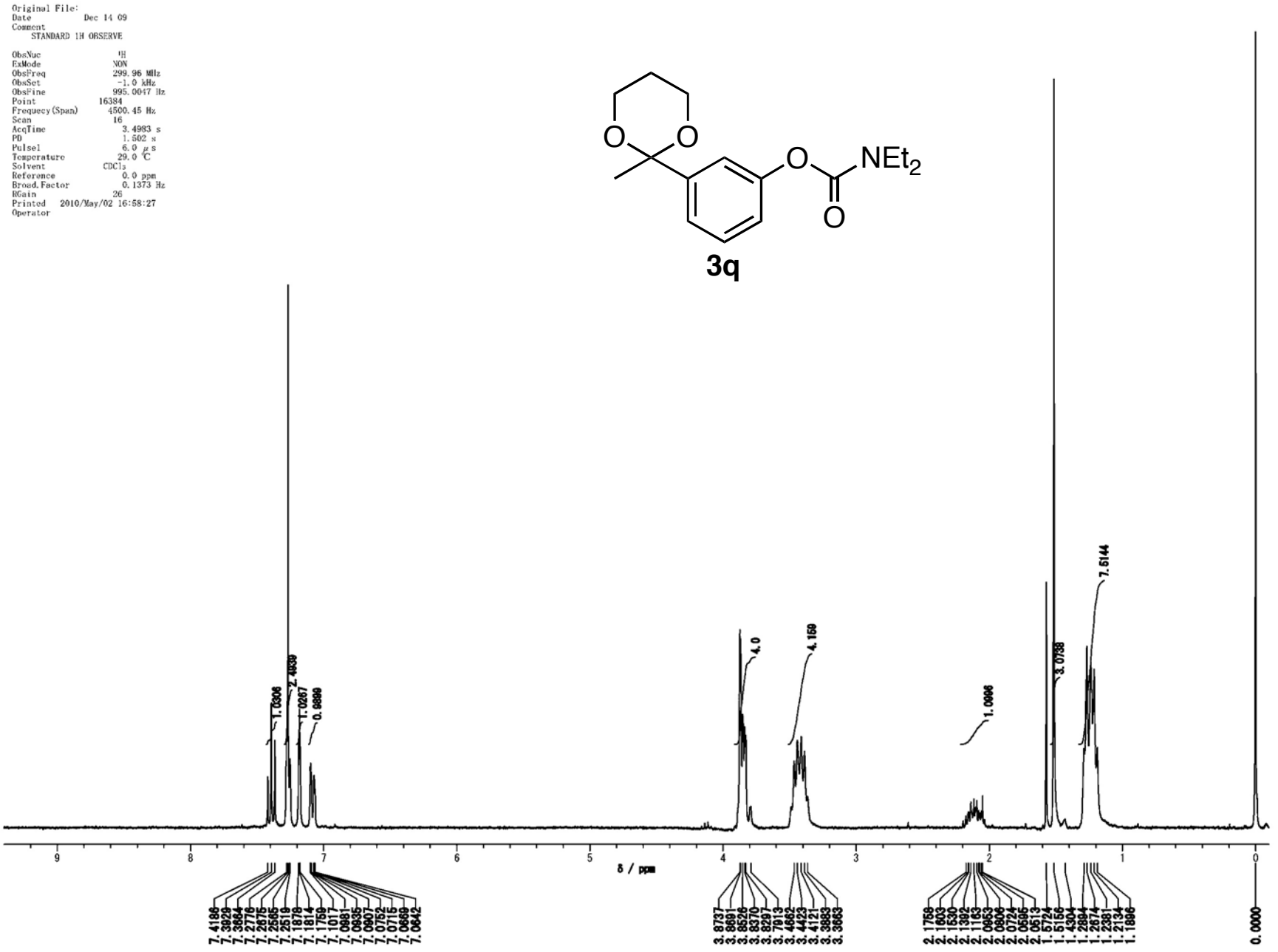

Original File:
Date Jun 22 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NOE
ObsFreq 75.43 MHz
ObsSet -1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 64
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/Jun/23 10:05:57
Operator
MeO
O
O
O
NEt2
3n
180
160
140
120
100
80
60
40
20
δ / ppm
166.1144
155.0994
153.0802
130.6174
126.4574
121.2574
77.4327
77.0000
76.5749
51.5539
41.8750
41.5410
13.7112
12.7851

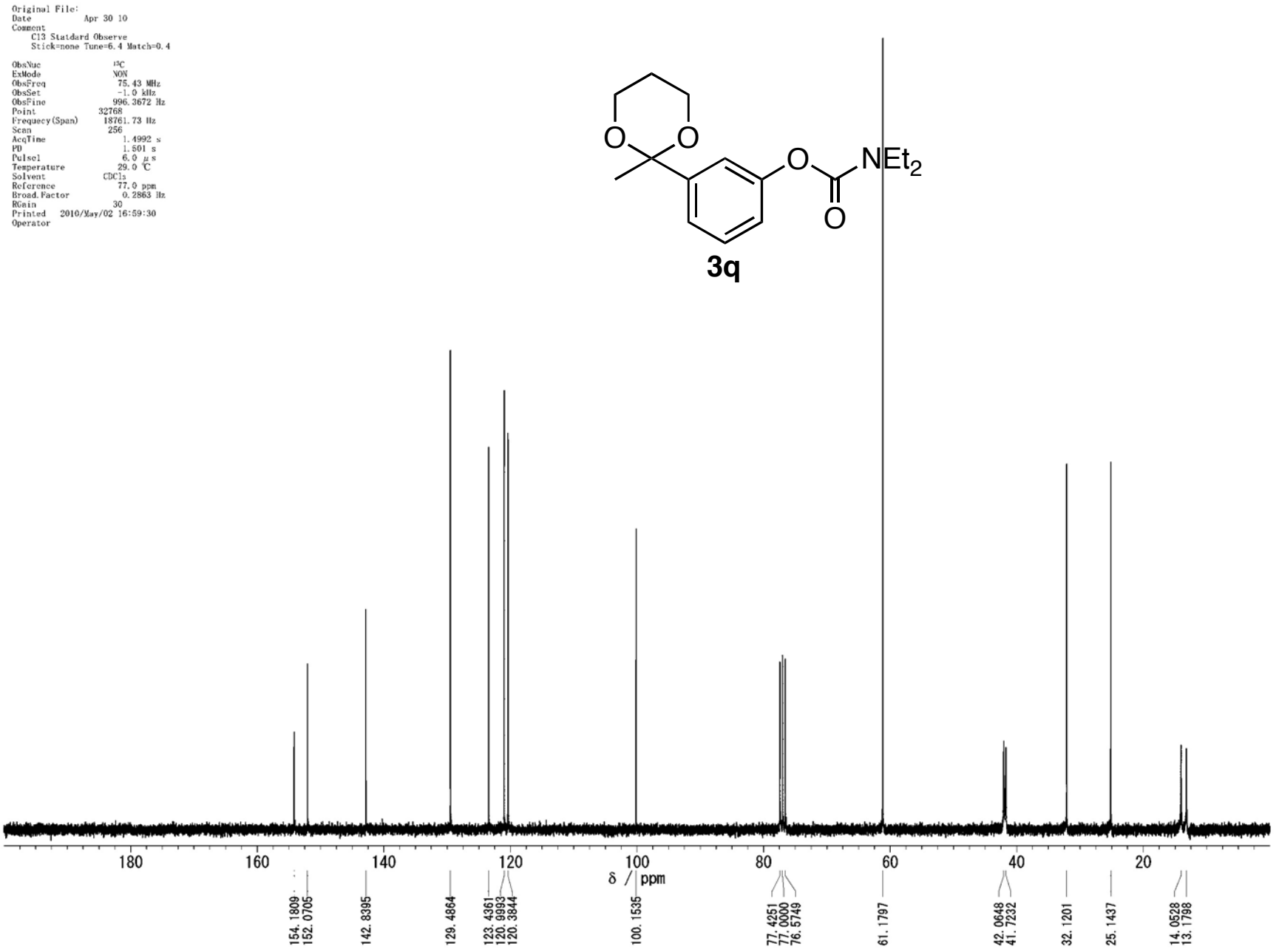

Original File:
Date Dec 16 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet -1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulsel 6.0 μs
Temperature 29.0 °C
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 26
Printed 2010/May/02 16:49:41
Operator
MeO
O
O
O
NEt2
3o
0.0366
2.6884
1.7892
4.0
6.0802
9
8
7
6
5
4
3
2
1
0
δ / ppm
7.3398
7.3142
7.2876
7.2666
7.1265
7.0999
7.0733
7.0669
7.0367
4.1640
4.1392
3.6951
3.6292
3.6108
3.4451
3.4213
3.3975
3.3746
1.5705
1.2729
1.2491
1.2253
1.2015
1.1777
0.0000

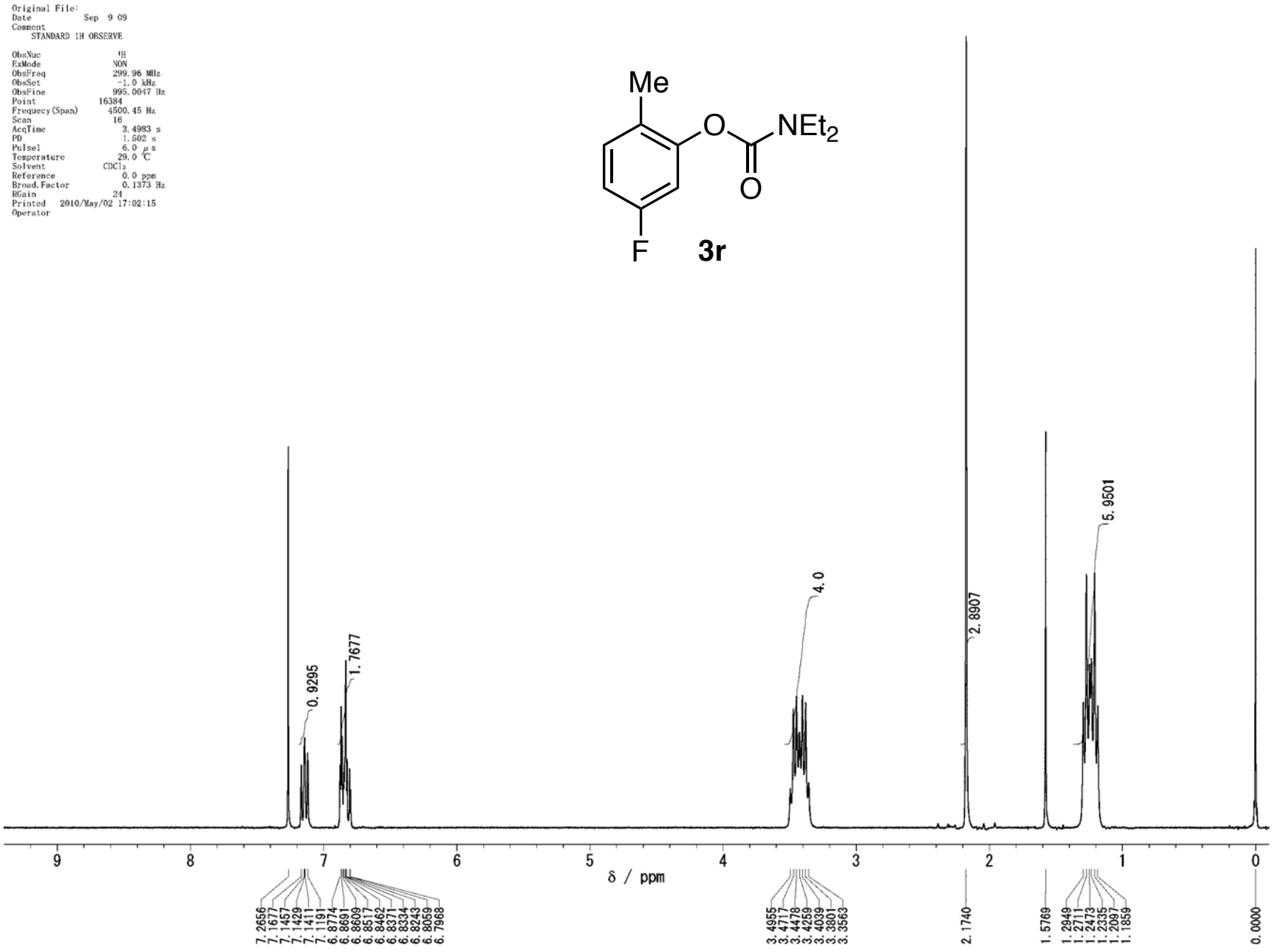

Original File:
Date Mar 6 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NON
ObsFreq 75.43 MHz
ObsSet -1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 128
AcqTime 1.4992 s
PD 1.501 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/02 16:51:51
Operator
MeO
O
O
O
NEt2
3o
180
160
140
120
100
80
60
40
20
δ / ppm
171.7093
154.0974
151.6150
135.1495
129.2207
125.9640
122.6314
120.5438
77.4403
77.0000
76.5825
51.8728
42.0344
41.6852
40.6756
13.9845
13.1343


Original File:
Date Dec 10 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NOE
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 24
Printed 2010/Jun/24 14:43:30
Operator
3p
1.0177
1.8185
4.0
8.3667
6.2052
δ / ppm
5.0834
2.0486
0.0000


Original File:
Date Apr 30 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NON
ObsFreq 75.43 MHz
ObsSet -1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 128
AcqTime 1.4992 s
PD 1.501 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/02 16:54:54
Operator
tBuO
O
O
O
O
NEt2
3p
180
160
140
120
100
80
60
40
20
δ / ppm
153.9835
153.3079
151.5999
136.9258
129.2358
124.6279
121.6445
121.3864
82.1166
77.4327
77.0000
76.5749
67.9056
42.0040
41.6473
27.4819
13.9390
13.0811

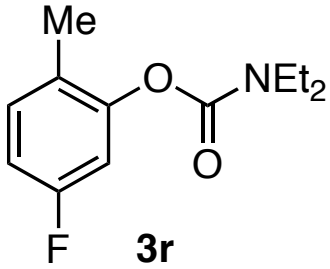

Original File:
Date Dec 14 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet -1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 26
Printed 2010/May/02 16:58:27
Operator
O
O
O
NEt2
O
3q
1.0306
2.4039
1.0267
0.8899
4.0
4.169
1.0000
3.0738
7.5144
δ / ppm
0.0000


Original File:
Date Apr 30 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NON
ObsFreq 75.43 MHz
ObsSet -1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 256
AcqTime 1.4992 s
PD 1.501 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/02 16:59:30
Operator
O
O
O
NEt2
O
3q
180
160
140
120
100
80
60
40
20
δ / ppm
154.1809
152.0705
142.8395
129.4864
123.4361
120.9993
120.3844
100.1535
77.4251
77.0000
76.5749
61.1797
42.0648
41.7232
32.1201
25.1437
14.0528
13.1798

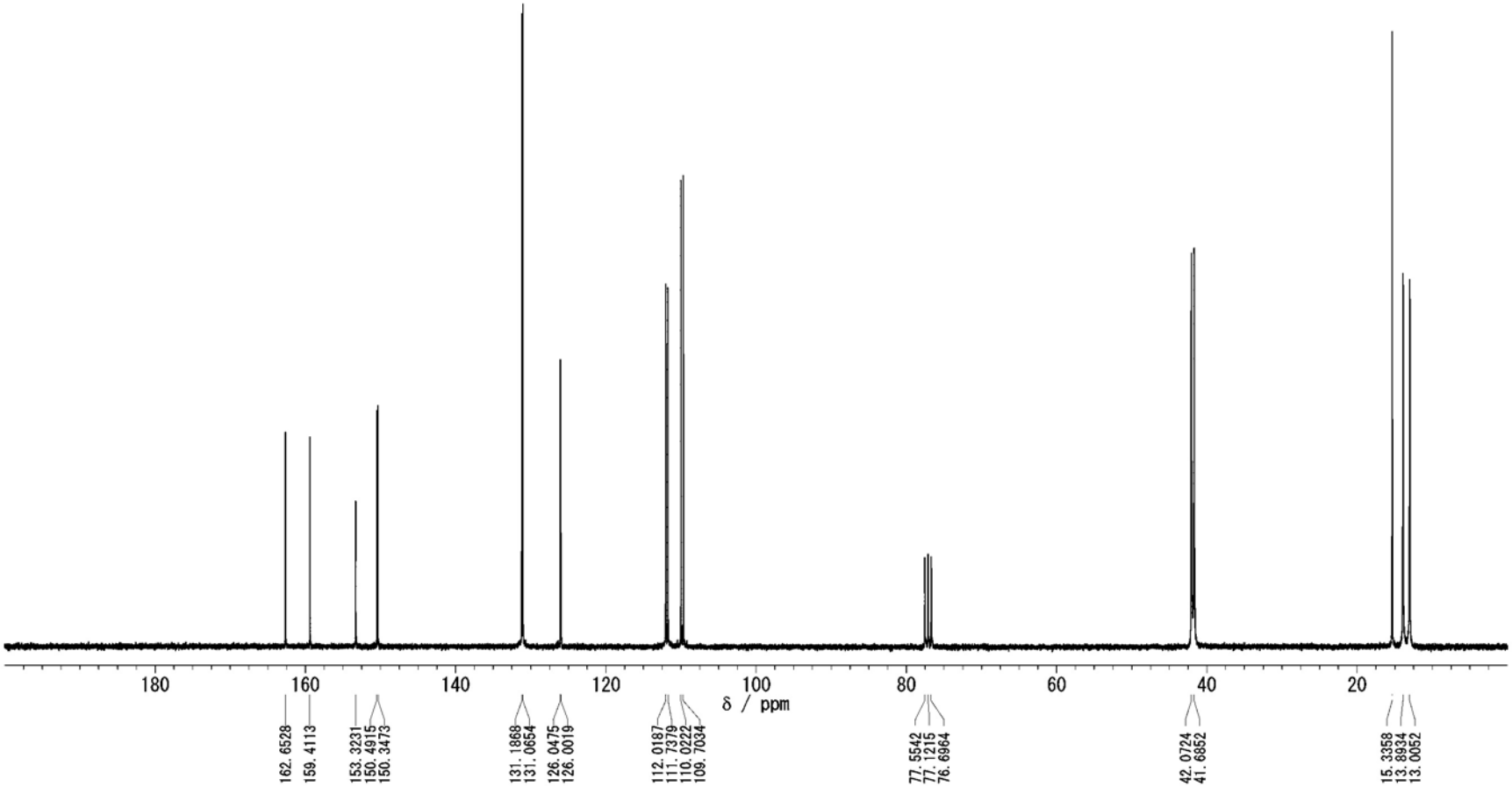

Original File:
Date Sep 9 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet -1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulsel 6.0 μs
Temperature 29.0 °C
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 24
Printed 2010/May/02 17:02:15
Operator
Me
O
NEt2
O
F
3r
0.9295
1.7677
4.0
2.8907
5.9501
δ / ppm
7.2656
7.1677
7.1457
7.1429
7.1411
7.1191
6.8774
6.8691
6.8609
6.8517
6.8462
6.8371
6.8334
6.8243
6.8059
6.7968
3.4955
3.4717
3.4478
3.4259
3.4039
3.3801
3.3563
2.1740
1.5769
1.2949
1.2711
1.2473
1.2335
1.2097
1.1859
0.0000

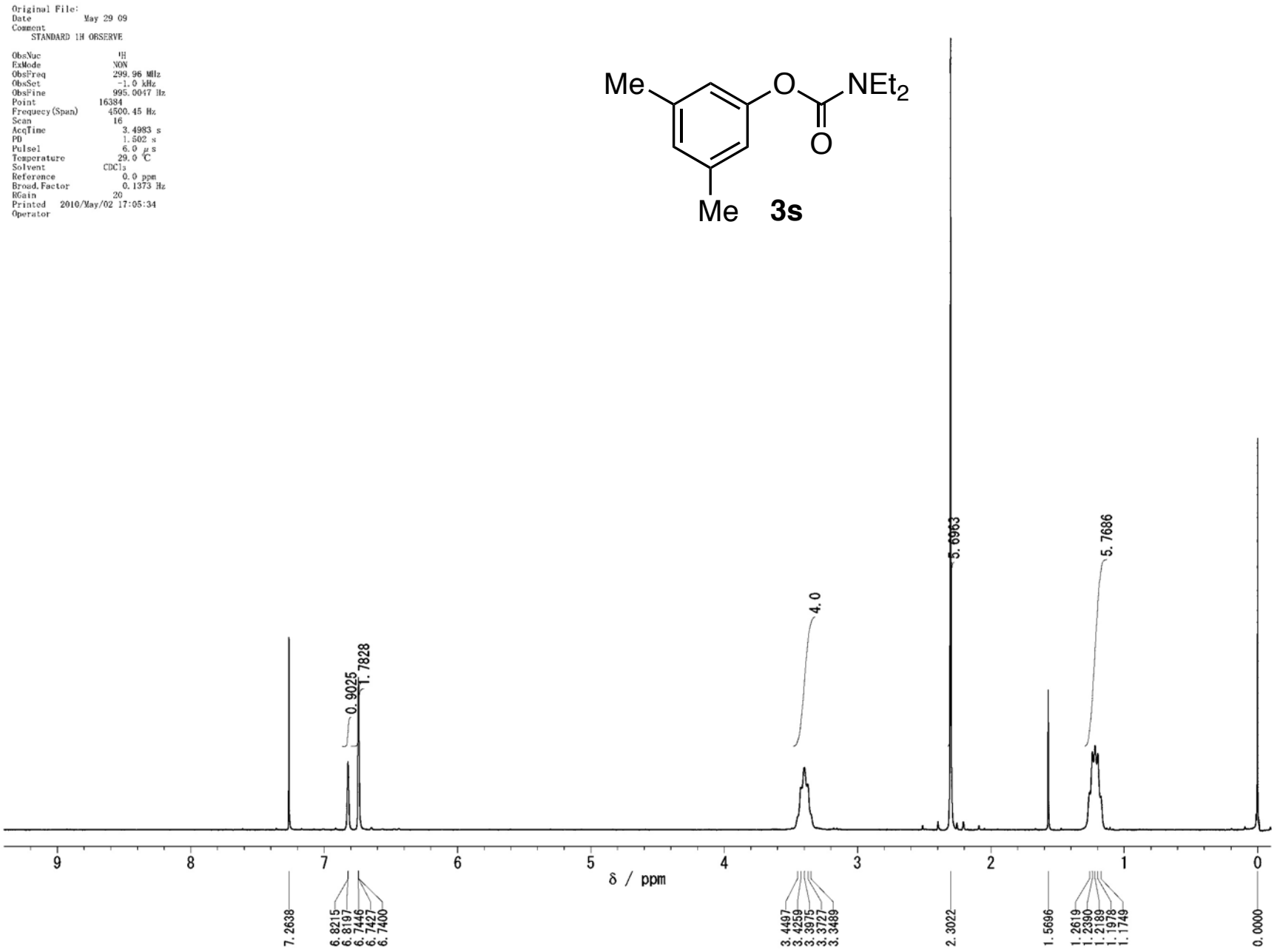
Original File:
Date Apr 30 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4

ObsNuc	^{13}C
ExMode	NON
ObsFreq	75.43 MHz
ObsSet	-1.0 kHz
ObsFine	996.3672 Hz
Point	32768
Frequecy(Span)	18761.73 Hz
Scan	1024
AcqTime	1.4992 s
PD	1.501 s
Pulsel	6.0 μs
Temperature	29.0 ℃
Solvent	CDCl3
Reference	77.0 ppm
Broad.Factor	0.2863 Hz
RGain	30
Printed	2010/May/02 17:03:18
Operator	



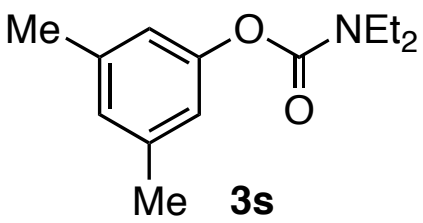
3r



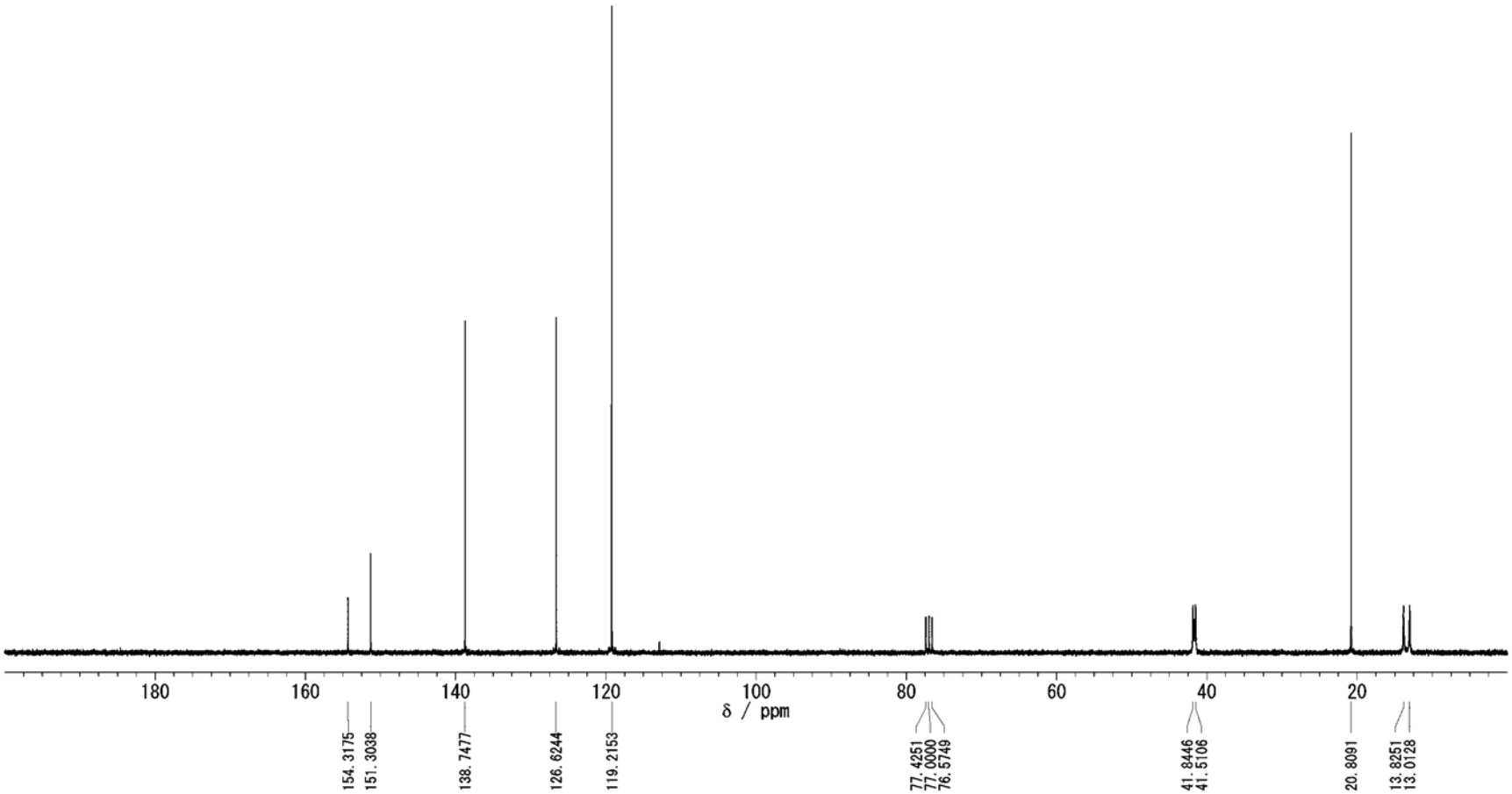

Original File:
Date May 29 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet -1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 20
Printed 2010/May/02 17:05:34
Operator
Me
O
NEt2
O
Me
3s
0.9025
1.7828
4.0
5.6963
5.7686
9
8
7
6
5
4
3
2
1
0
δ / ppm
7.2638
6.8215
6.8197
6.7446
6.7427
6.7400
3.4497
3.4259
3.3975
3.3727
3.3489
2.3022
1.5696
1.2619
1.2390
1.2189
1.1978
1.1749
0.0000

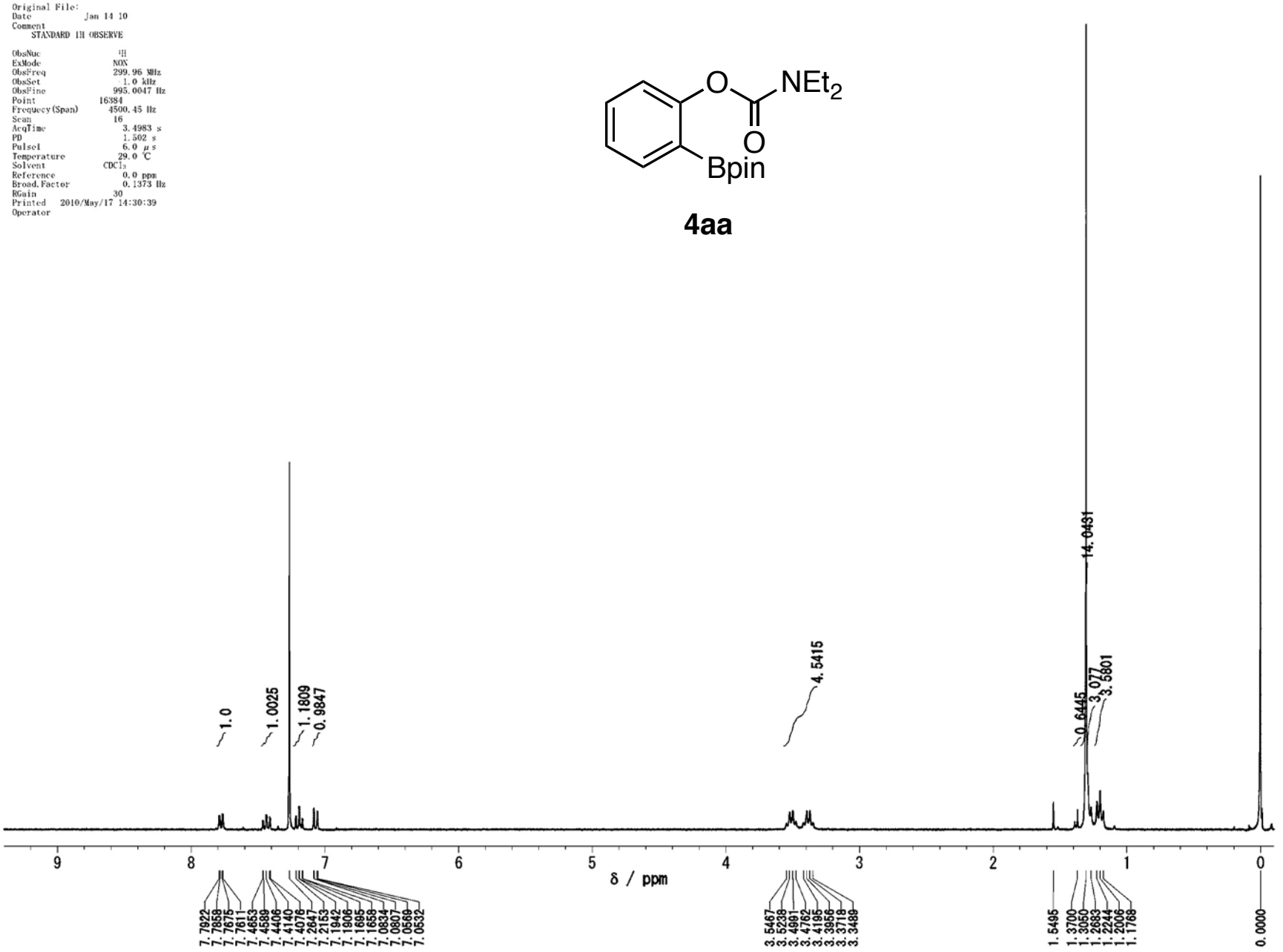
Original File:
Date Apr 30 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4

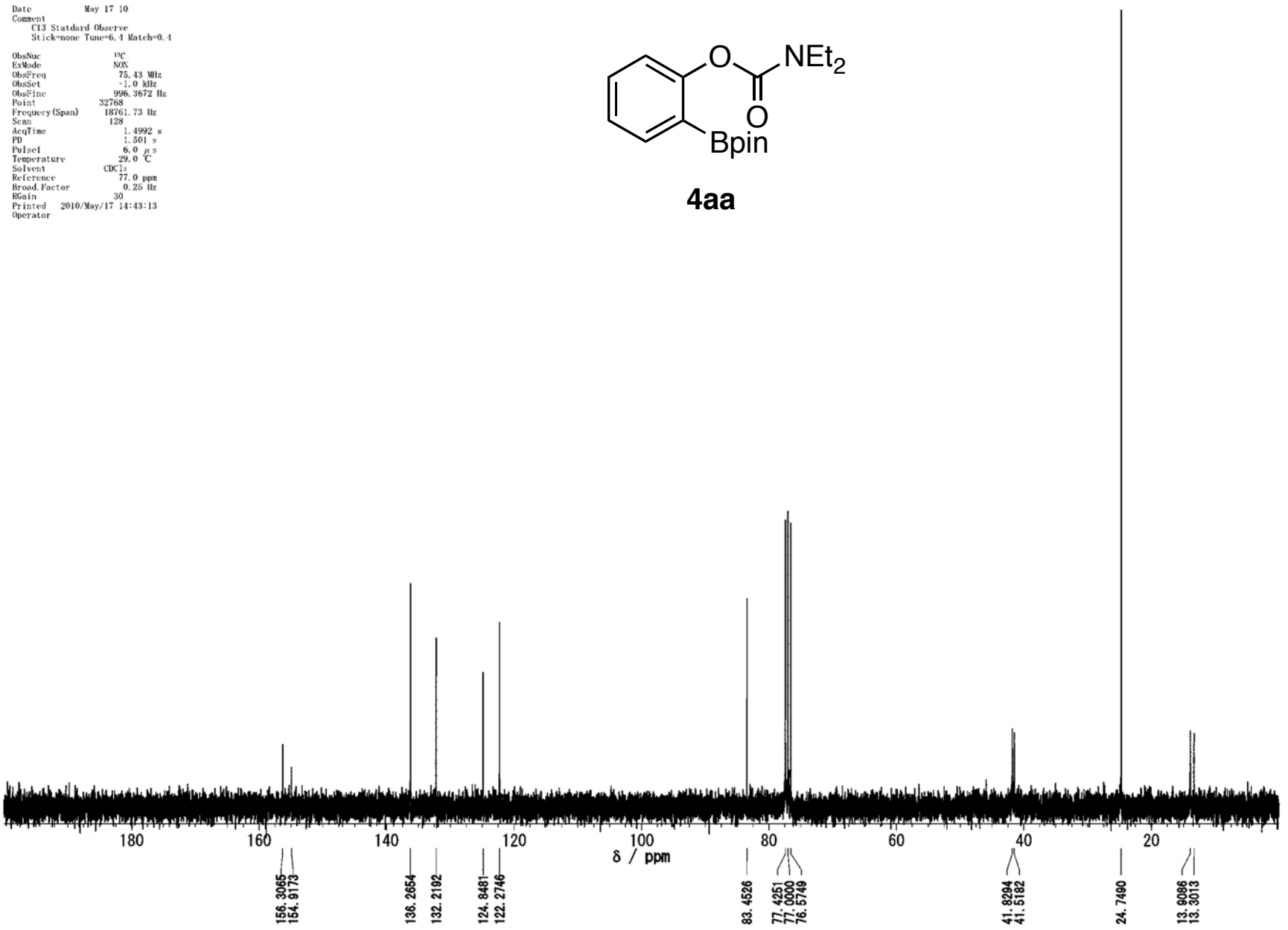
ObsNuc	^{13}C
ExMode	NON
ObsFreq	75.43 MHz
ObsSet	-1.0 kHz
ObsFine	996.3672 Hz
Point	32768
Frequecy(Span)	18761.73 Hz
Scan	128
AcqTime	1.4992 s
PD	1.501 s
Pulsel	6.0 μs
Temperature	29.0 ℃
Solvent	CDCl3
Reference	77.0 ppm
Broad.Factor	0.2863 Hz
RGain	30
Printed	2010/May/02 17:06:52
Operator	

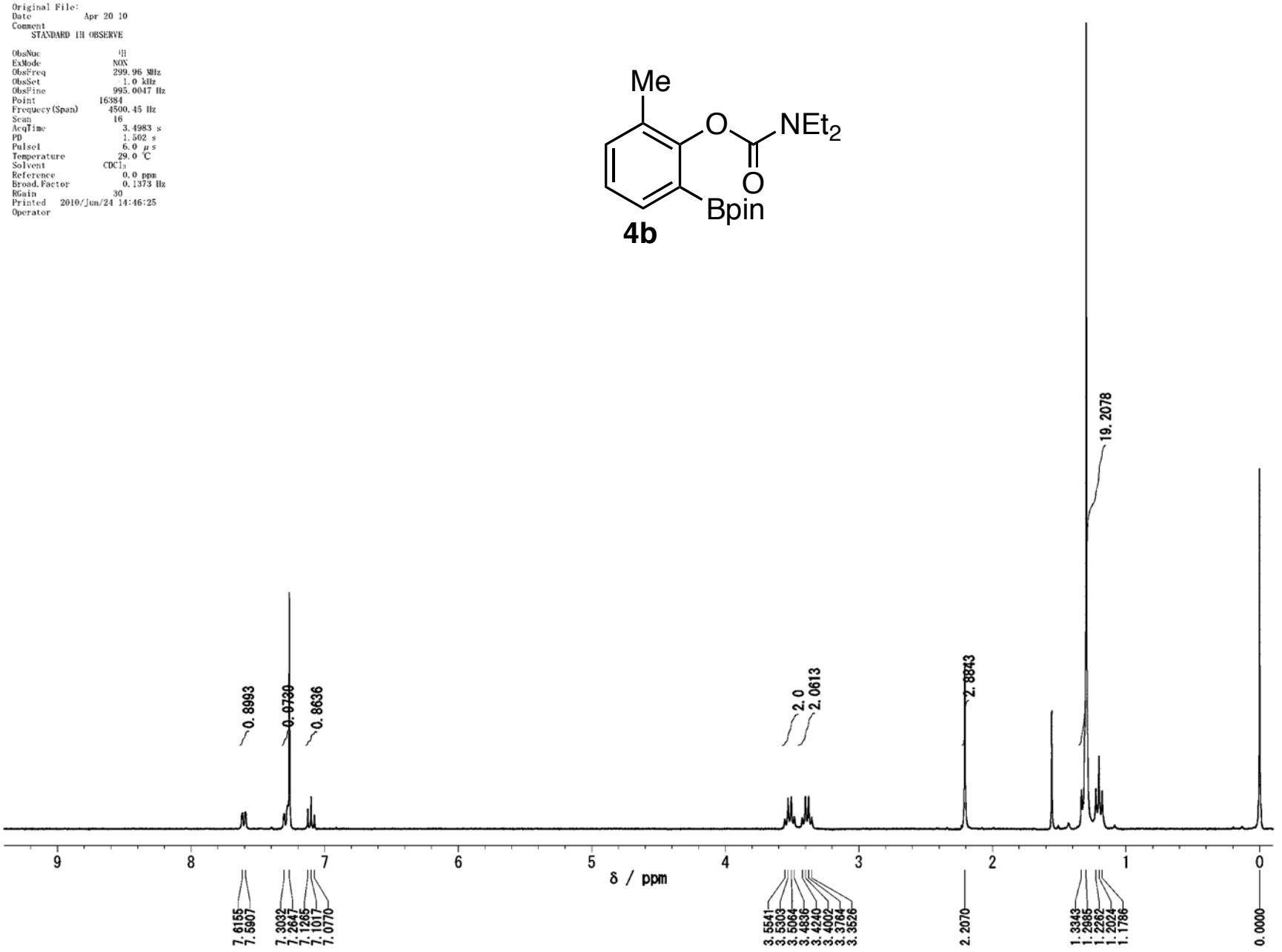


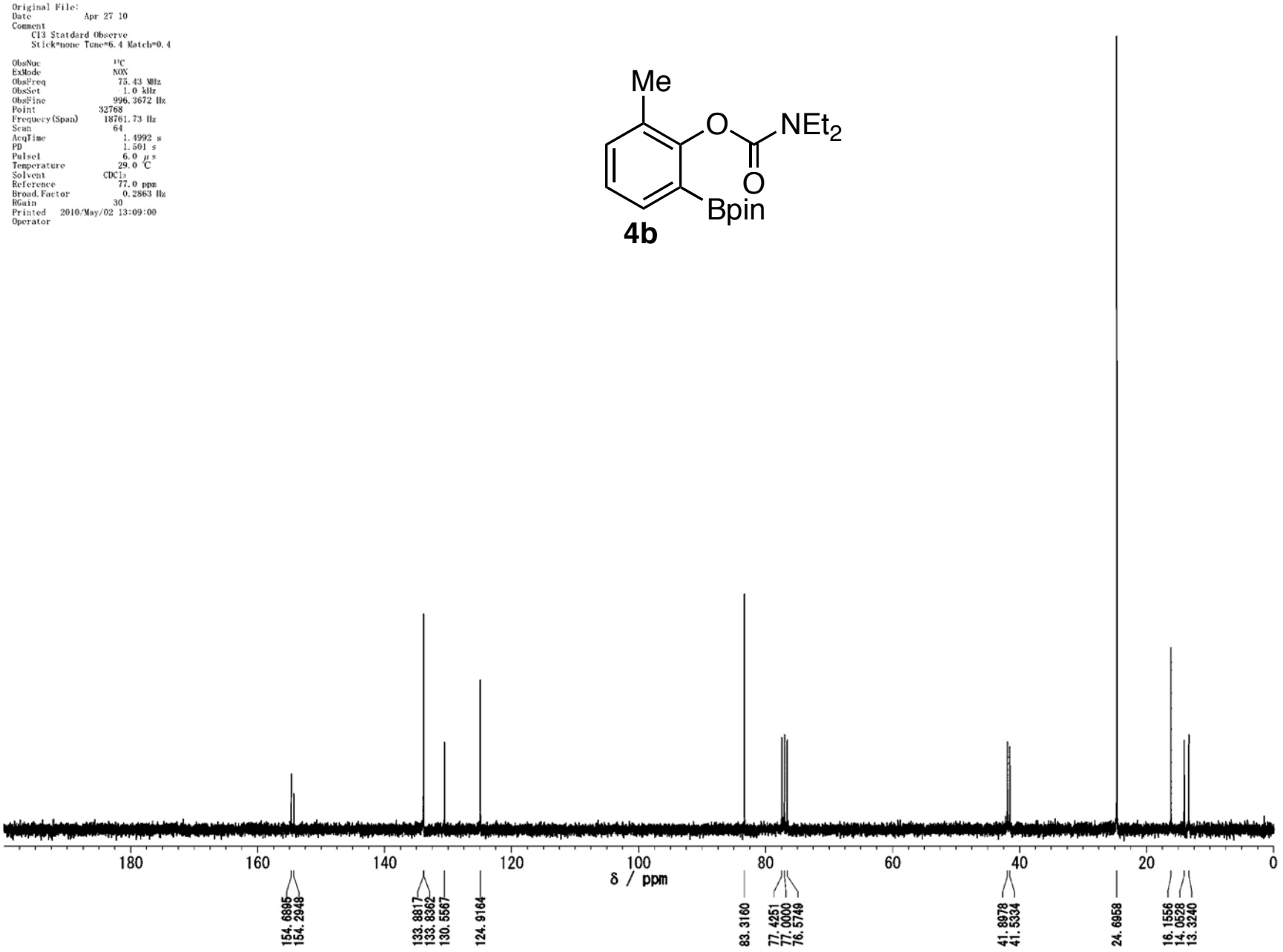
3s

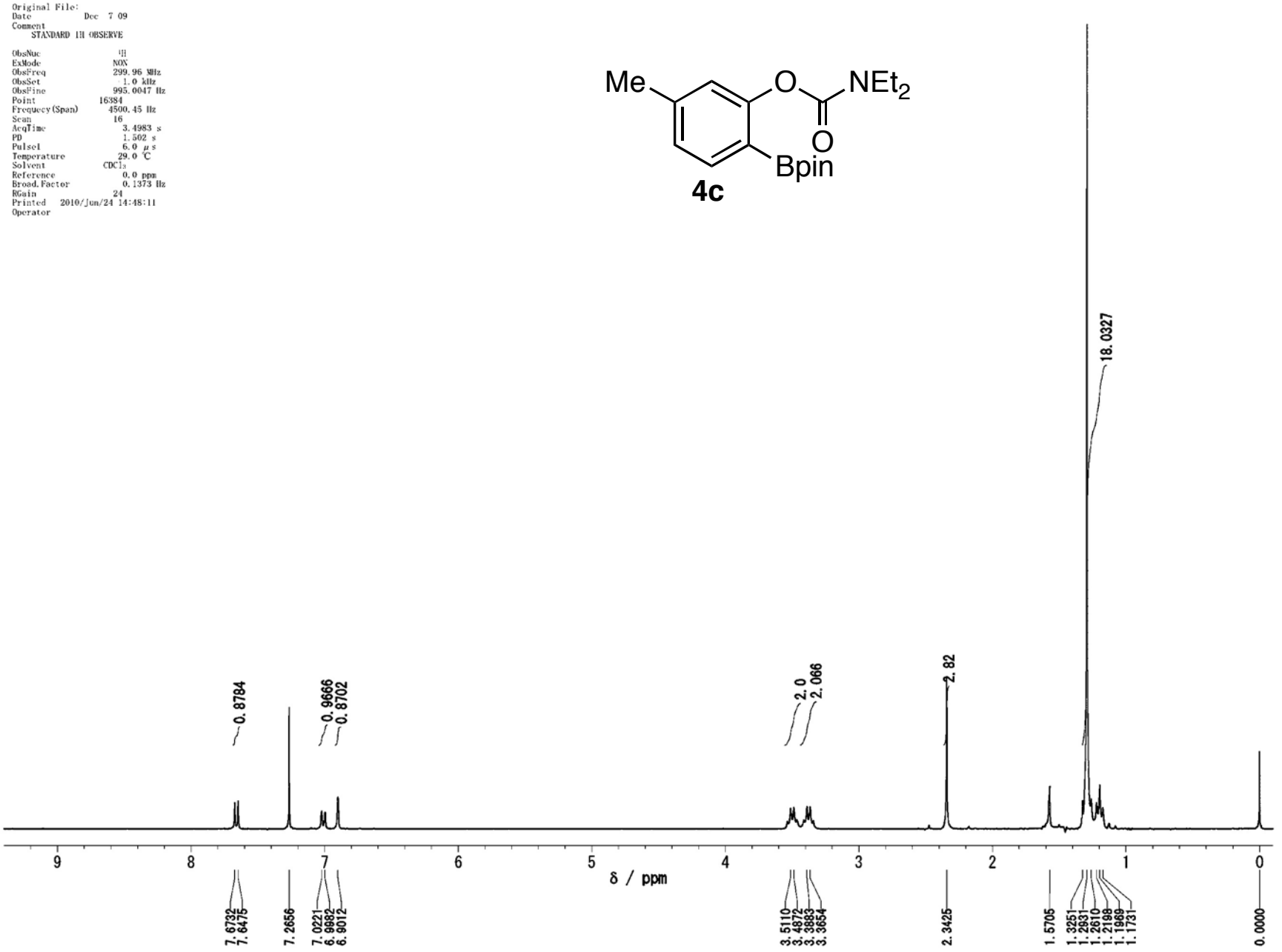


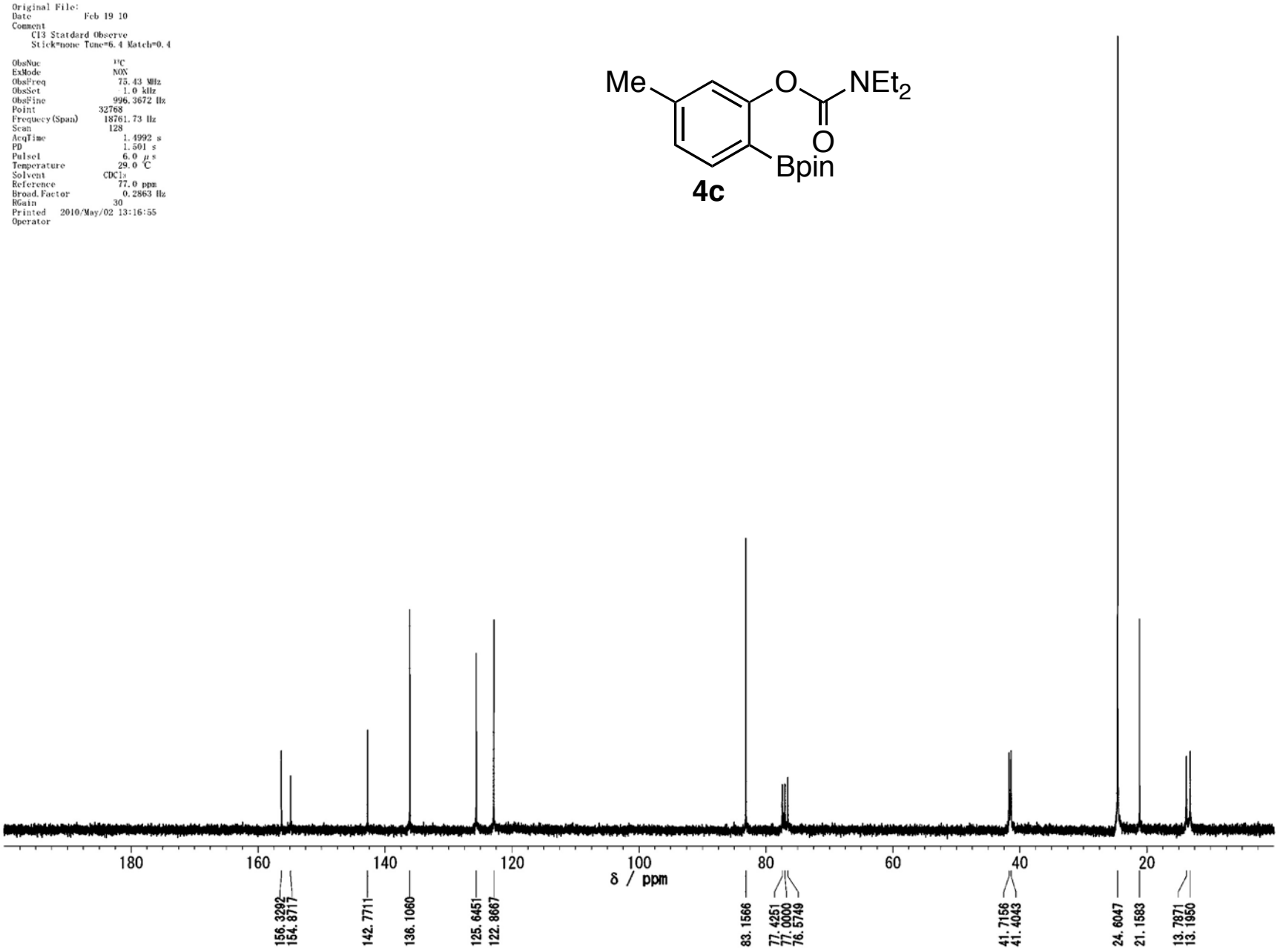

Original File:
Date Jan 14 10
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsPine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 30
Printed 2010/May/17 14:30:39
Operator
O
NEt2
O
Bpin
4aa
1.0
1.0025
1.1809
0.9847
4.5415
14.0431
0.6445
3.077
3.5801
9
8
7
6
5
4
3
2
1
0
δ / ppm
7.7922
7.7859
7.7675
7.7611
7.4653
7.4589
7.4406
7.4140
7.4076
7.2647
7.2153
7.1942
7.1906
7.1695
7.1659
7.0834
7.0807
7.0569
7.0532
3.5467
3.5238
3.4991
3.4762
3.4195
3.3956
3.3718
3.3489
1.5495
1.3700
1.3050
1.2683
1.2244
1.2006
1.1768
0.0000

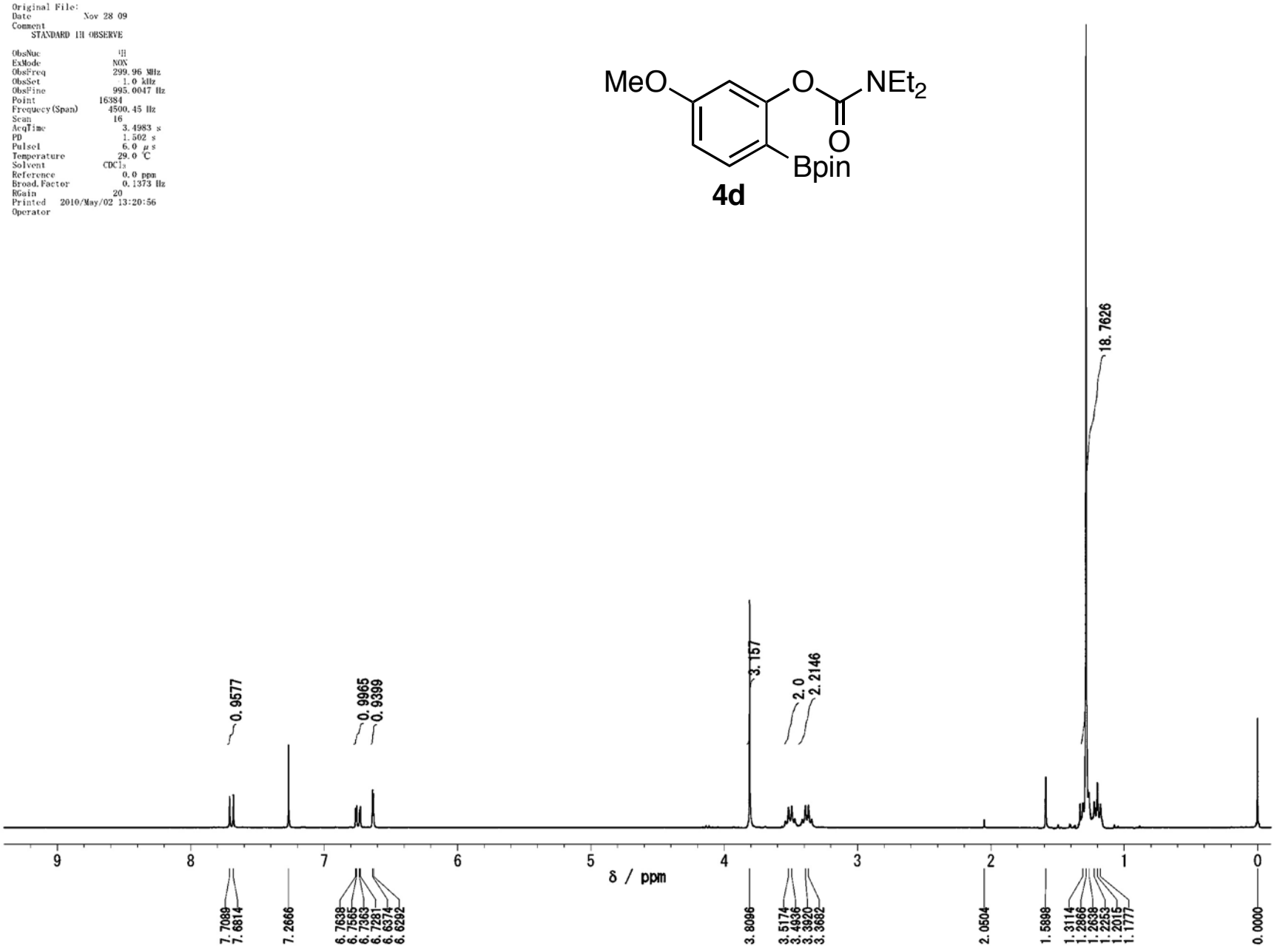

Date May 17 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NON
ObsFreq 75.43 MHz
ObsSet -1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 128
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.25 Hz
RGain 30
Printed 2010/May/17 14:43:13
Operator
O
NEt2
O
Bpin
4aa
180
160
140
120
100
80
60
40
20
δ / ppm
156.3065
154.9173
136.2654
132.2192
124.8481
122.2746
83.4526
77.4251
77.0000
76.5749
41.8294
41.5182
24.7490
13.9086
13.3013


Original File:
Date Apr 20 10
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsPine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 30
Printed 2010/Jun/24 14:46:25
Operator
Me
O
NEt2
O
Bpin
4b
0.8993
0.9730
0.8636
2.0
2.0613
2.8843
19.2078
9
8
7
6
5
4
3
2
1
0
δ / ppm
7.6155
7.5907
7.3032
7.2647
7.1265
7.1017
7.0770
3.5541
3.5303
3.5064
3.4836
3.4240
3.4002
3.3764
3.3528
2.2070
1.3343
1.2985
1.2262
1.2024
1.1786
0.0000


Original File:
Date Apr 27 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NOE
ObsFreq 75.43 MHz
ObsSet 1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 64
AcqTime 1.4992 s
PD 1.501 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/02 13:09:00
Operator
Me
O
NEt2
O
Bpin
4b
180
160
140
120
100
80
60
40
20
0
δ / ppm
154.6895
154.2948
133.8817
133.8362
130.5567
124.9164
83.3160
77.4251
77.0000
76.5749
41.8978
41.5334
24.6958
16.1556
14.0528
13.3240

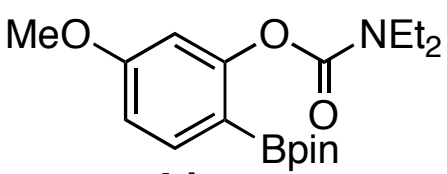

Original File:
Date Dec 7 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsPine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 24
Printed 2010/Jun/24 14:48:11
Operator
Me
O
NEt2
O
Bpin
4c
18.0327
0.8784
0.9666
0.8702
2.0
2.066
2.82
9
8
7
6
5
4
3
2
1
0
δ / ppm
7.6732
7.6475
7.2656
7.0221
6.9882
6.9012
3.5110
3.4872
3.3883
3.3654
2.3425
1.5705
1.3251
1.2931
1.2610
1.2198
1.1969
1.1731
0.0000


Original File:
Date Feb 19 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NOE
ObsFreq 75.43 MHz
ObsSet 1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 128
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/02 13:16:55
Operator
Me
O
NEt2
O
Bpin
4c
180
160
140
120
100
80
60
40
20
δ / ppm
156.3292
154.8717
142.7711
138.1060
125.6451
122.8667
83.1566
77.4251
77.0000
76.5749
41.7156
41.4043
24.6047
21.1583
13.7871
13.1950

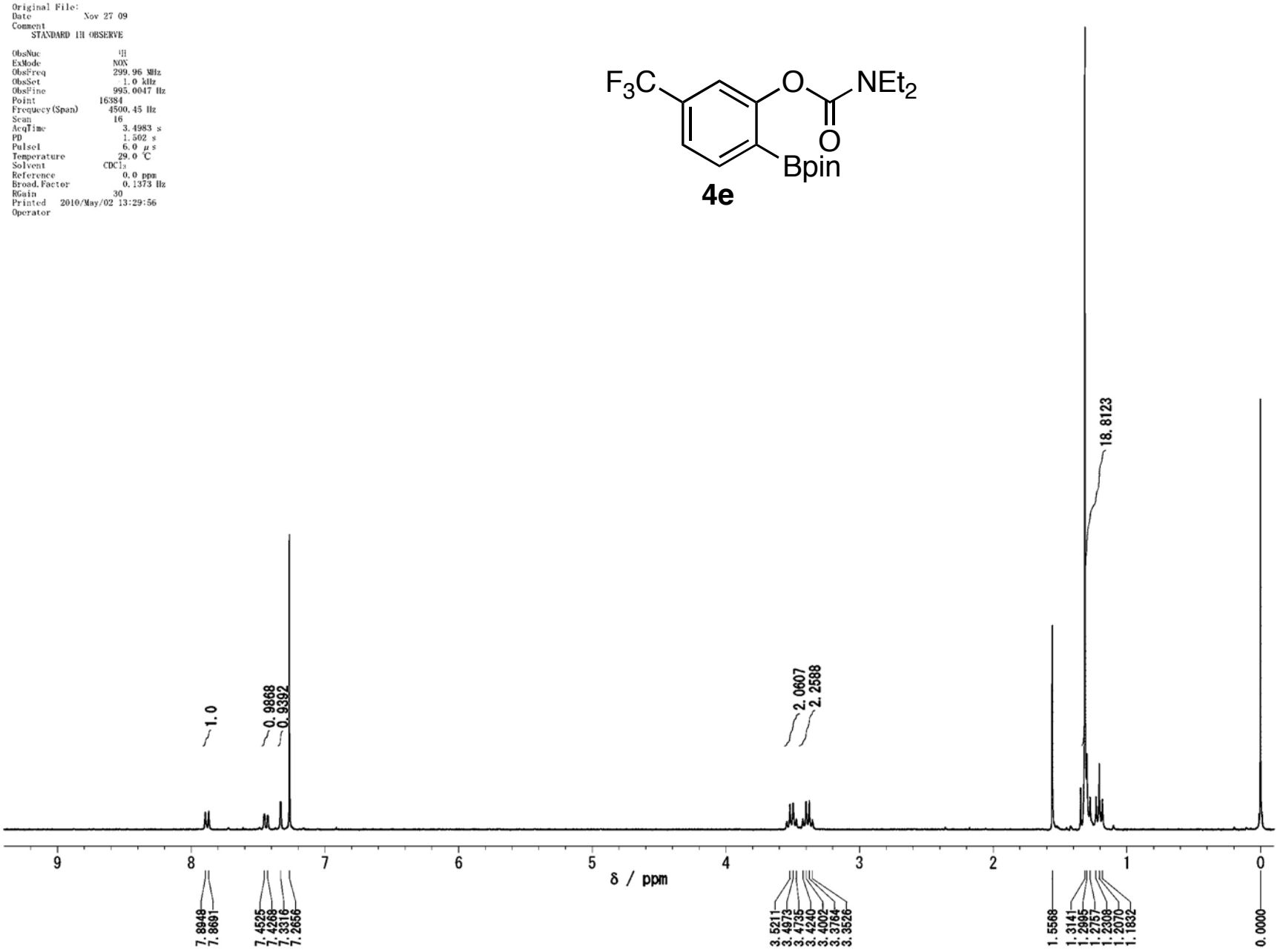

Original File:
Date Nov 28 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsPine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 20
Printed 2010/May/02 13:20:56
Operator
MeO
O
NEt2
O
Bpin
4d
18.7626
0.9577
0.9965
0.9399
3.157
2.0
2.2146
9
8
7
6
5
4
3
2
1
0
δ / ppm
7.7089
7.6814
7.2666
6.7638
6.7565
6.7363
6.7281
6.6374
6.6292
3.8096
3.5174
3.4936
3.3920
3.3682
2.0504
1.5898
1.3114
1.2866
1.2638
1.2253
1.2015
1.1777
0.0000

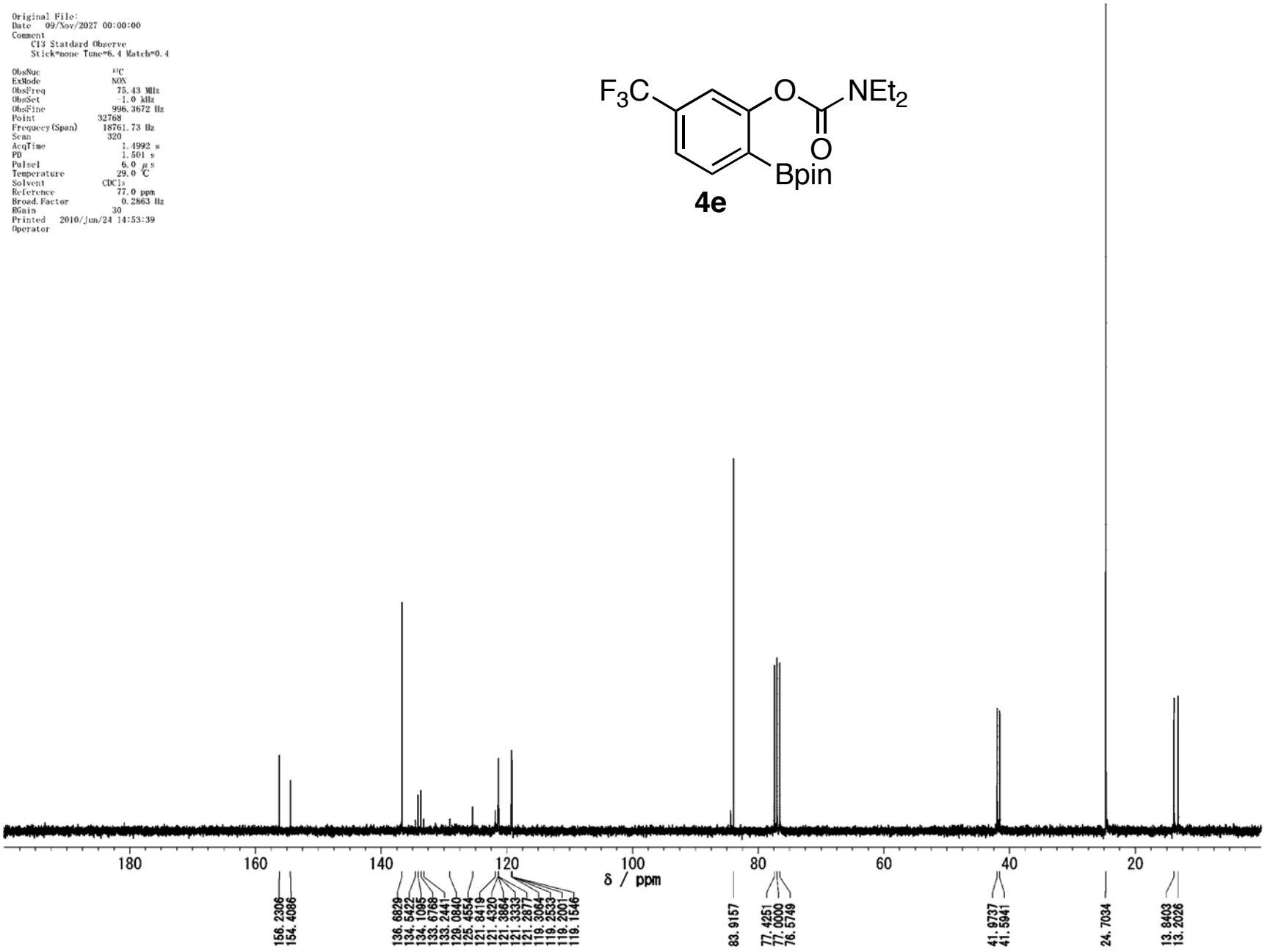
Original File:
Date Feb 20 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4

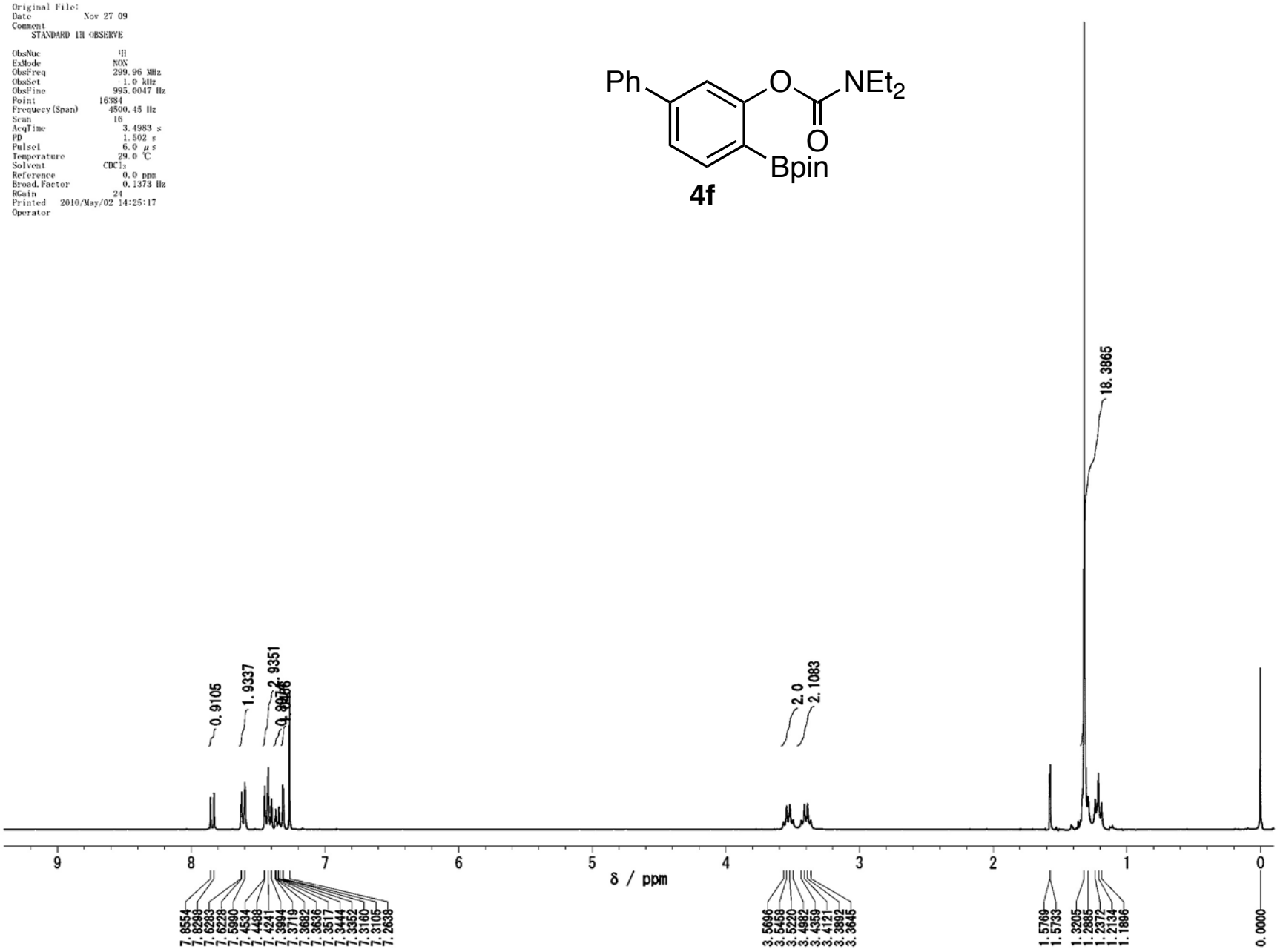
ObsNuc	^{13}C
ExMode	NON
ObsFreq	75.43 MHz
ObsSet	1.0 kHz
ObsFine	996.3672 Hz
Point	32768
Frequecy(Span)	18761.73 Hz
Scan	128
AcqTime	1.4992 s
PD	1.501 s
Pulse1	6.0 μs
Temperature	29.0 ℃
Solvent	$CDCl_3$
Reference	77.0 ppm
Broad.Factor	0.2863 Hz
RGain	30
Printed	2010/May/02 13:24:48
Operator	

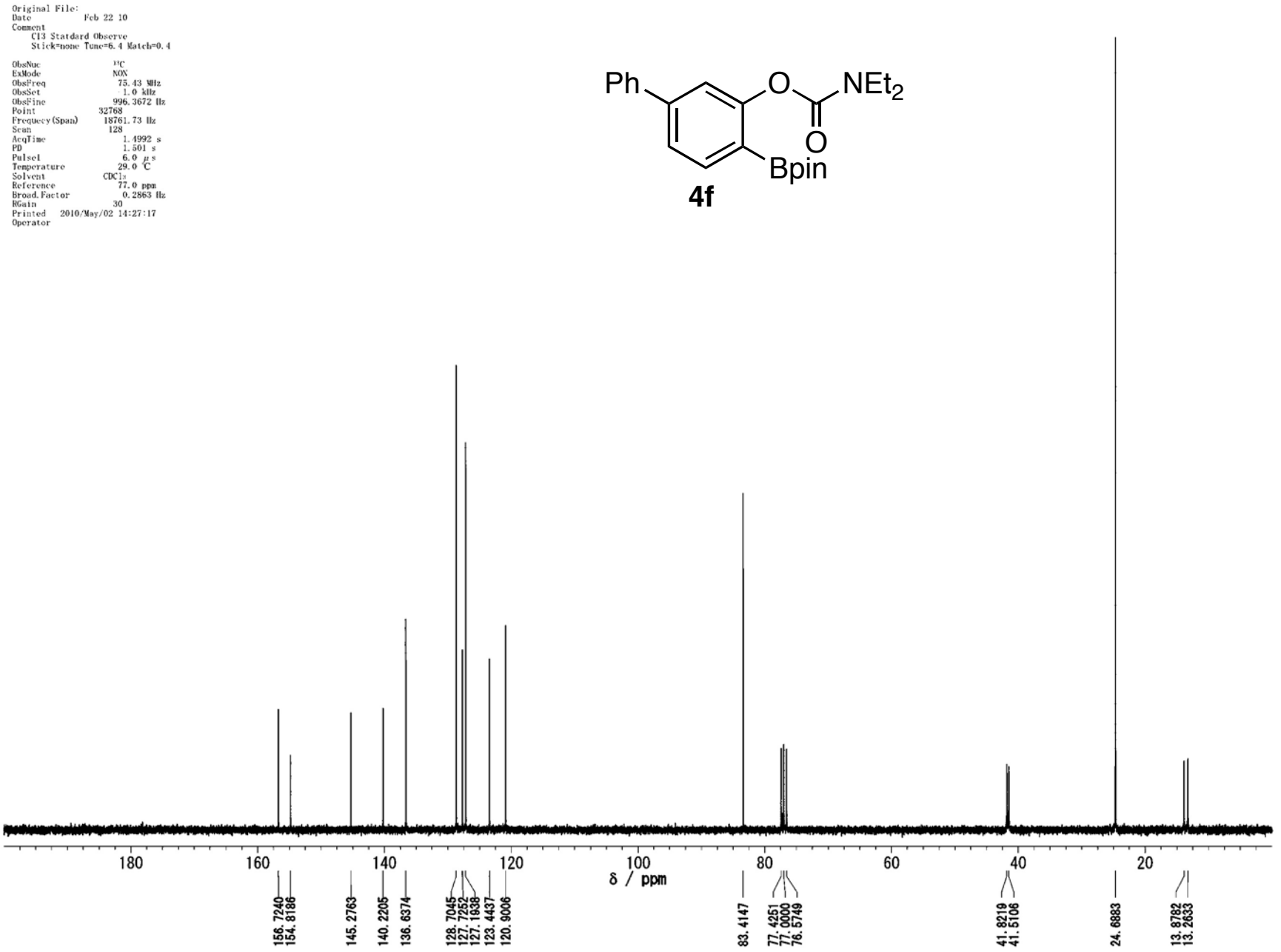


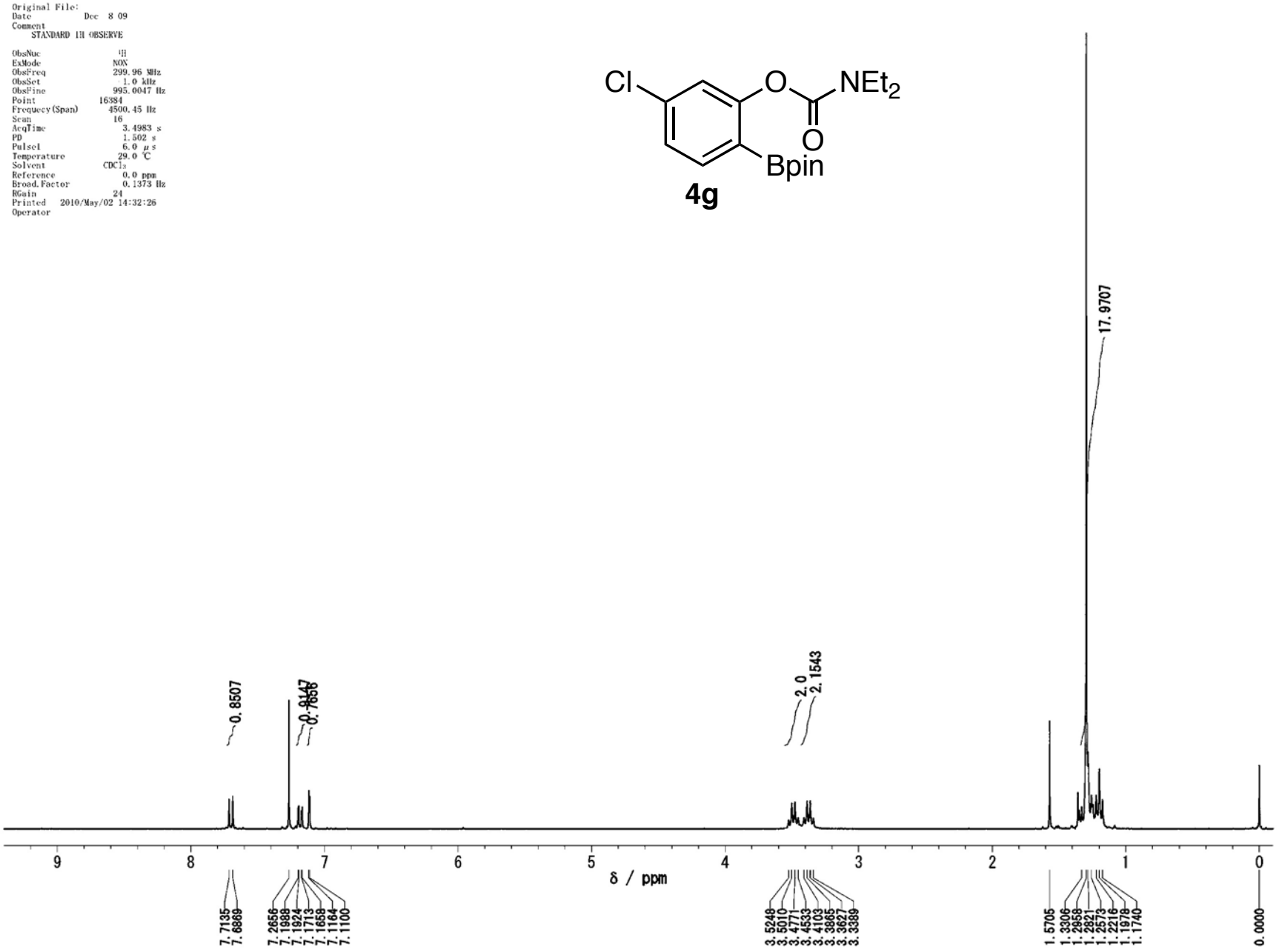
4d

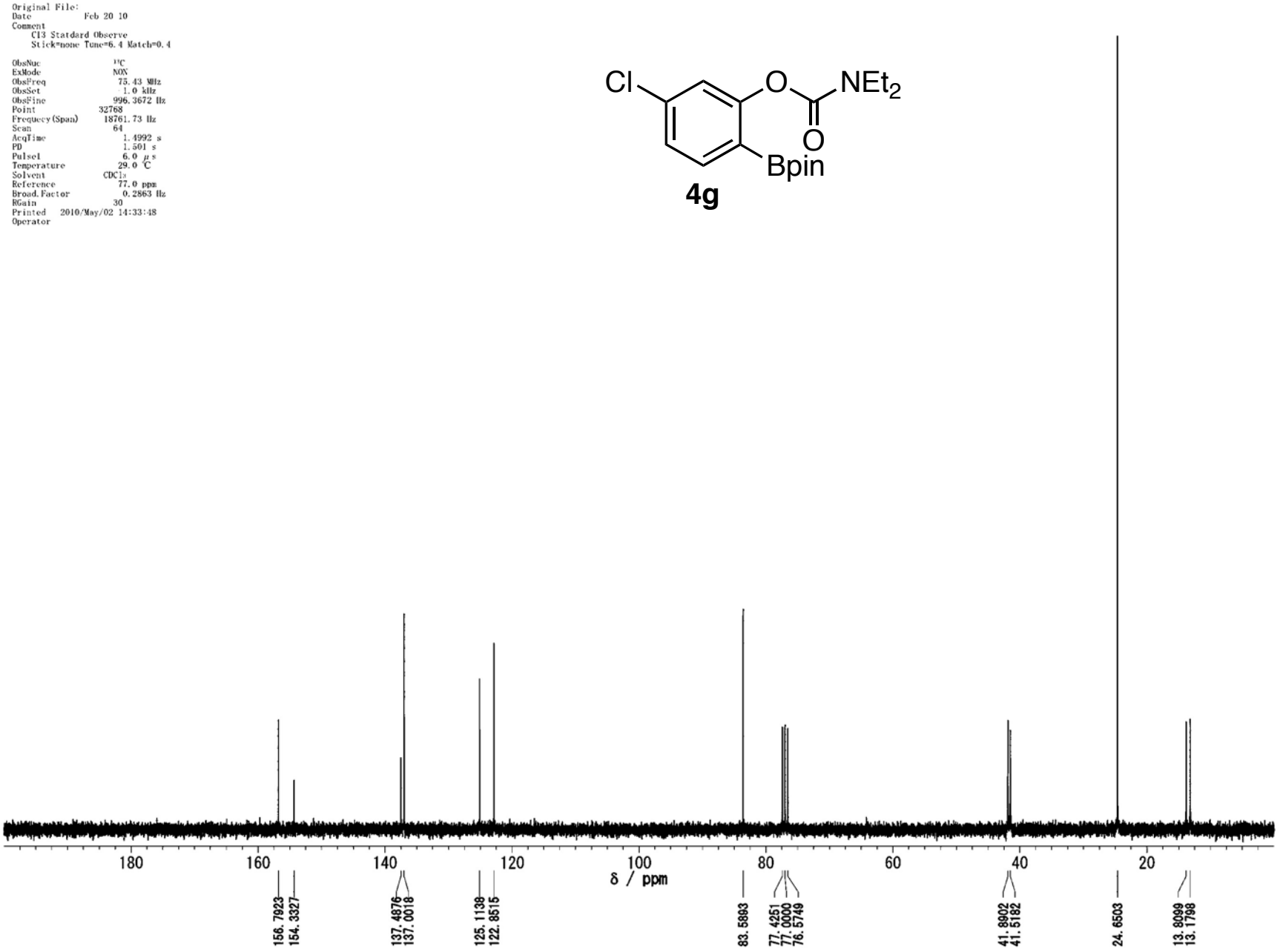

Original File:
Date Nov 27 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsPine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 30
Printed 2010/May/02 13:29:56
Operator
F3C
O
NEt2
O
Bpin
4e
1.0
0.9868
0.9392
2.0607
2.2588
18.8123
δ / ppm
7.8948
7.8691
7.4525
7.4268
7.3316
7.2656
3.5211
3.4973
3.4735
3.4240
3.4002
3.3764
3.3526
1.5568
1.3141
1.2965
1.2757
1.2308
1.2070
1.1832
0.0000

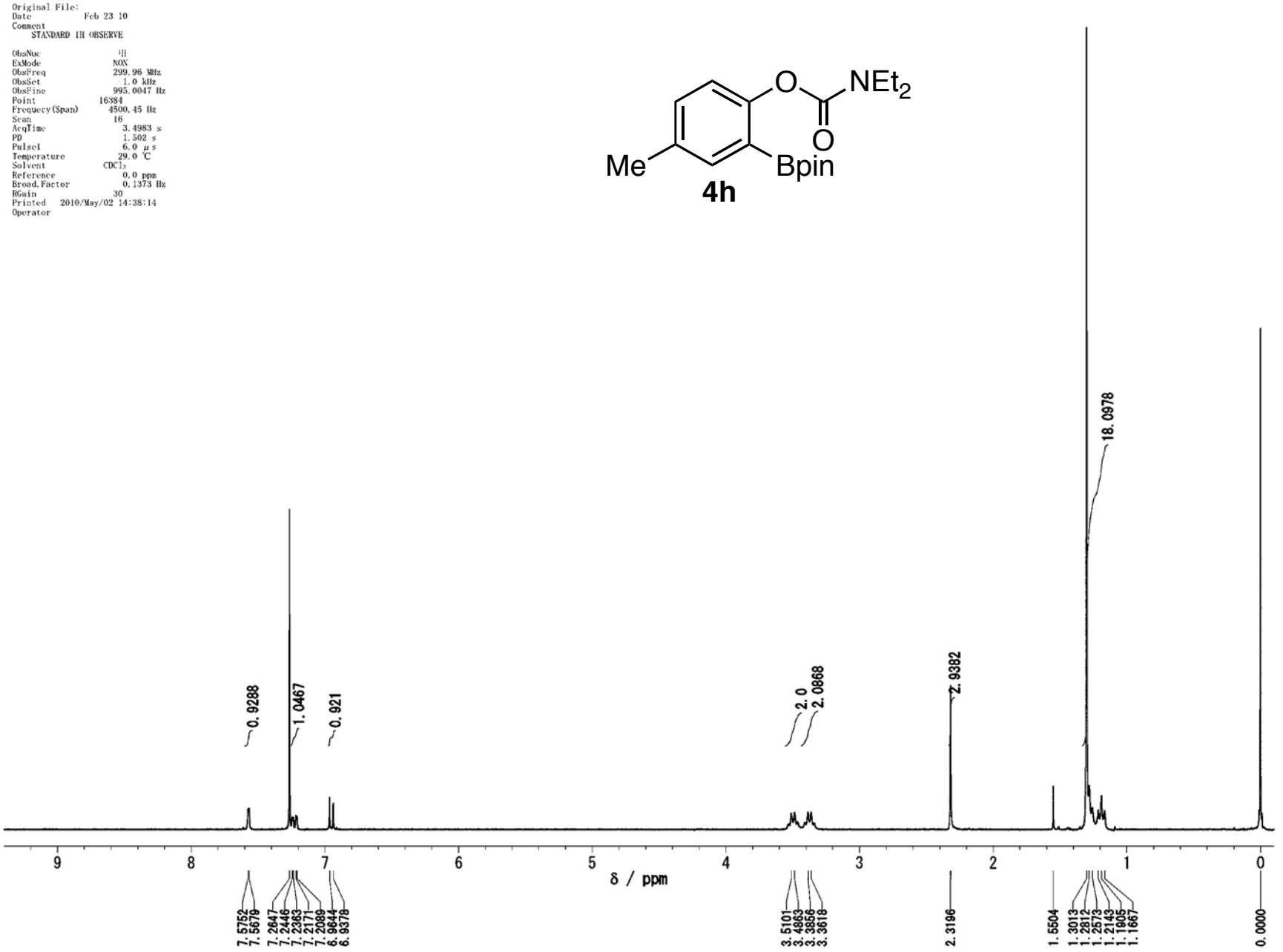

Original File:
Date 09/Nov/2027 00:00:00
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NOE
ObsFreq 75.43 MHz
ObsSet -1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 320
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/Jun/24 14:53:39
Operator
F3C
O
NEt2
O
Bpin
4e
δ / ppm
156.2306
154.4086
136.6829
134.5422
134.1095
133.6768
133.2441
129.0840
125.4554
121.8419
121.4320
121.3884
121.3333
121.2877
119.3064
119.2533
119.2001
119.1546
83.9157
77.4251
77.0000
76.5749
41.9737
41.5941
24.7034
13.8403
13.2026

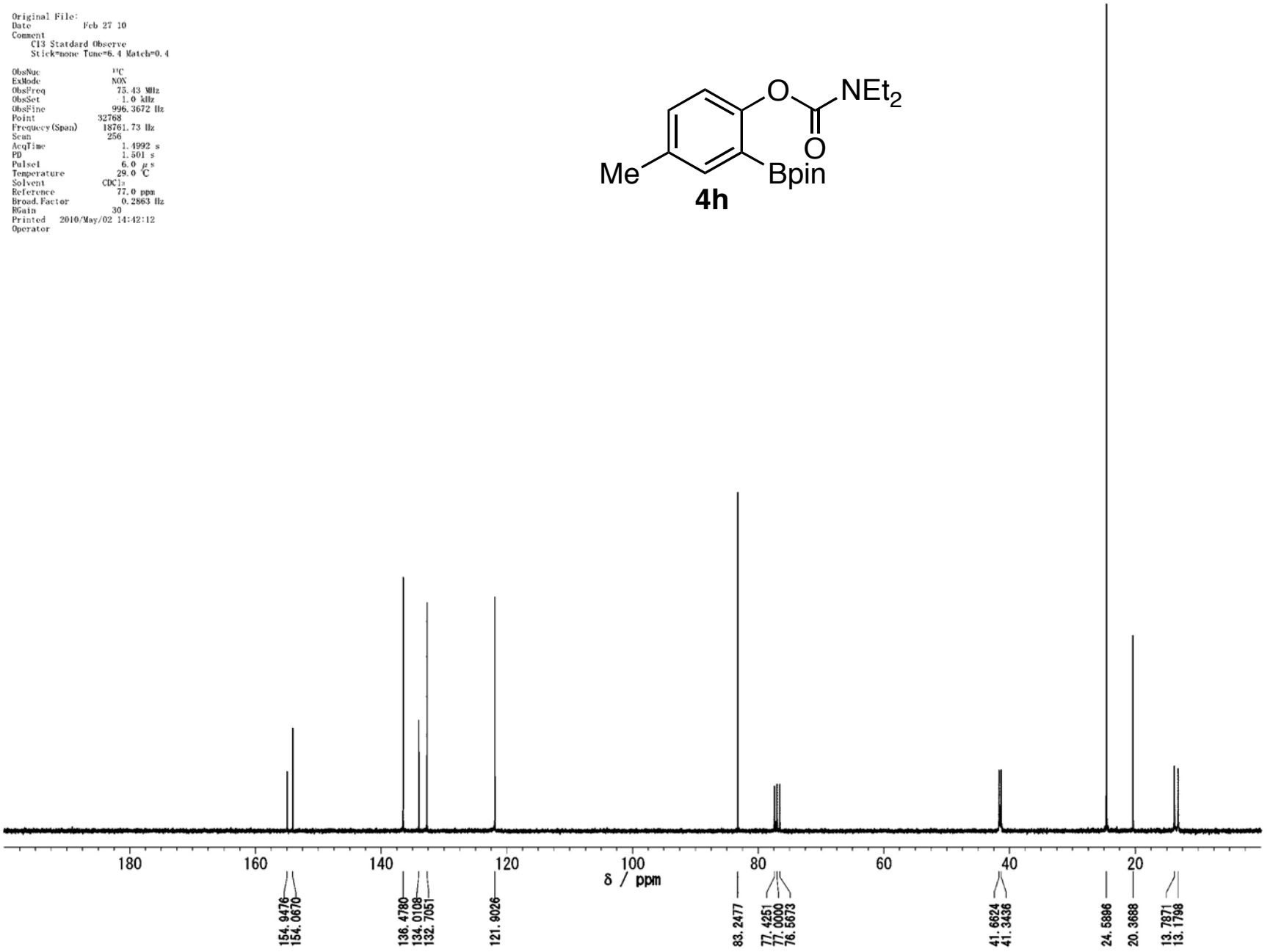

Original File:
Date Nov 27 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsPine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 24
Printed 2010/May/02 14:25:17
Operator
Ph
O
NEt2
O
Bpin
4f
0.9105
1.9337
2.9351
2.0
2.1083
18.3865
δ / ppm
7.8554
7.8296
7.6283
7.6228
7.5990
7.4534
7.4488
7.4241
7.3894
7.3719
7.3682
7.3636
7.3517
7.3444
7.3352
7.3160
7.3105
7.2638
3.5696
3.5458
3.5220
3.4882
3.4359
3.4121
3.3892
3.3645
1.5769
1.5733
1.3205
1.2885
1.2372
1.2134
1.1886
0.0000

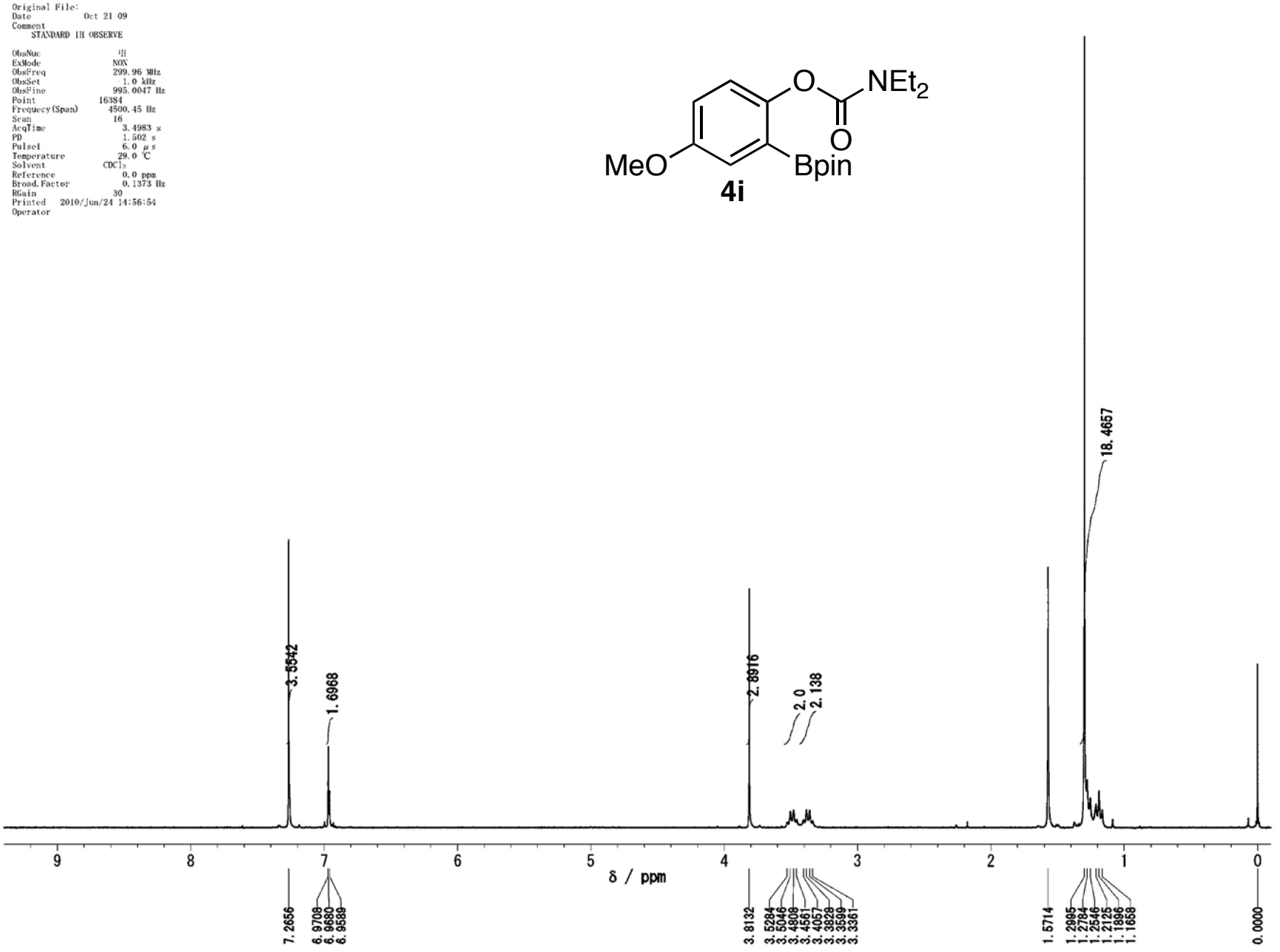

Original File:
Date Feb 22 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NOE
ObsFreq 75.43 MHz
ObsSet 1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 128
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/02 14:27:17
Operator
Ph
O
NEt2
O
Bpin
4f
180
160
140
120
100
80
60
40
20
δ / ppm
156.7240
154.8186
145.2763
140.2205
136.6374
128.7045
127.7252
127.1638
123.4437
120.9006
83.4147
77.4251
77.0000
76.5749
41.8219
41.5106
24.6883
13.8782
13.2633

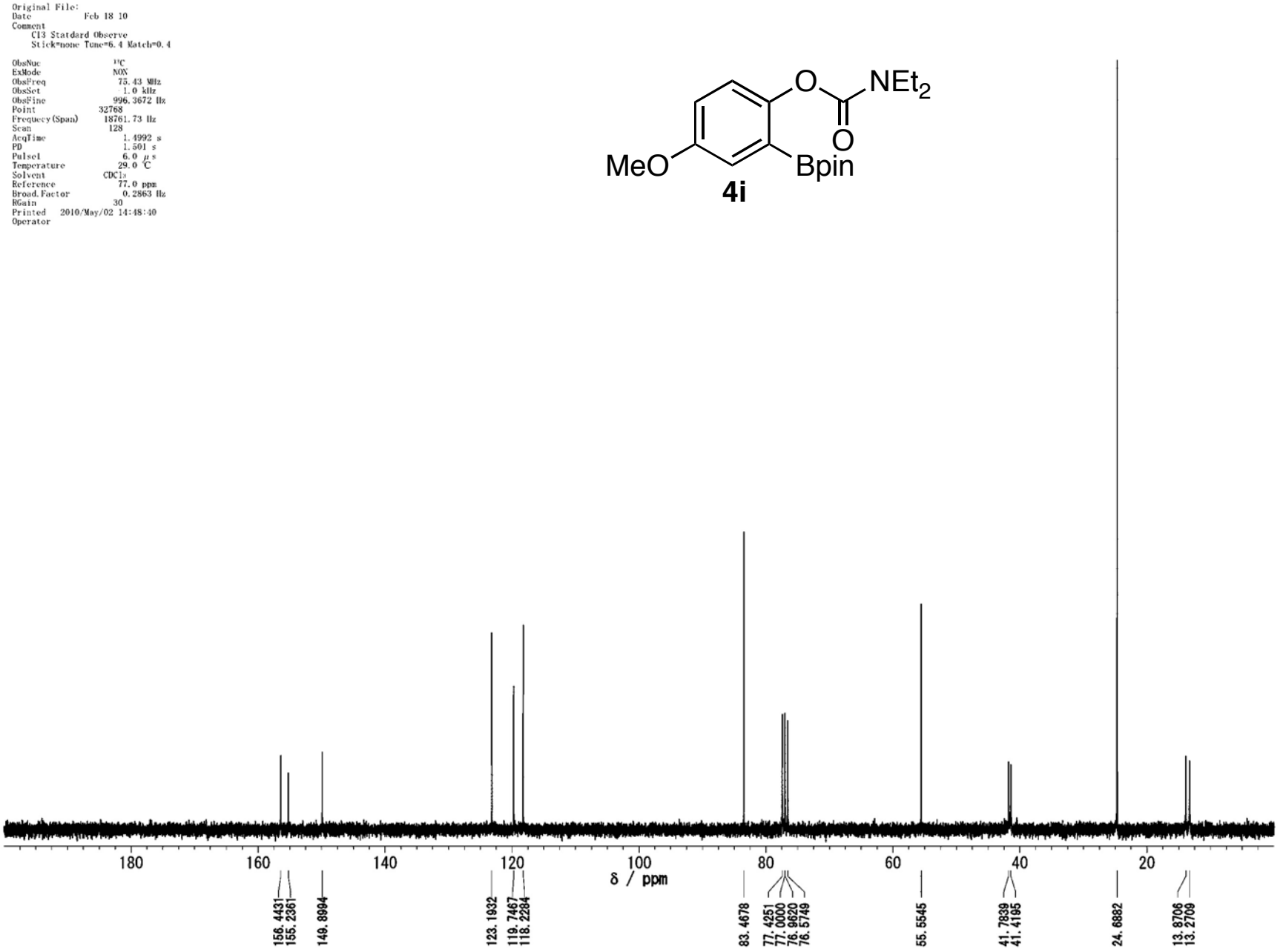

Original File:
Date Dec 8 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NOE
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsPine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 24
Printed 2010/May/02 14:32:26
Operator
Cl
O
NEt2
O
Bpin
4g
17.9707
2.0
2.1543
0.8507
δ / ppm

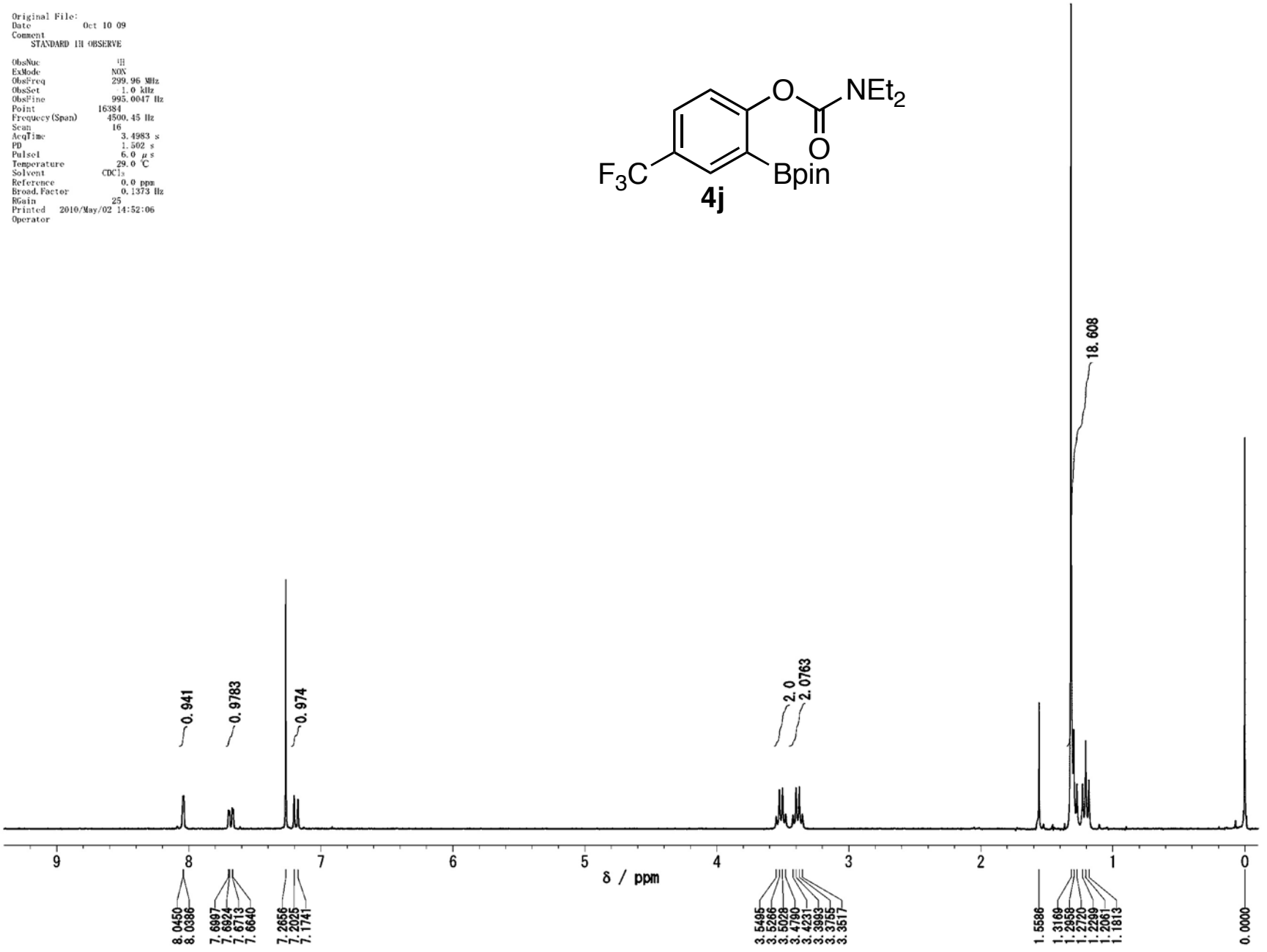

Original File:
Date Feb 20 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NOE
ObsFreq 75.43 MHz
ObsSet 1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 64
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/02 14:33:48
Operator
Cl
O
NEt2
O
Bpin
4g
180
160
140
120
100
80
60
40
20
δ / ppm
156.7923
154.3327
137.4876
137.0018
125.1138
122.8515
83.5883
77.4251
77.0000
76.5749
41.8902
41.5182
24.6503
13.8099
13.1798

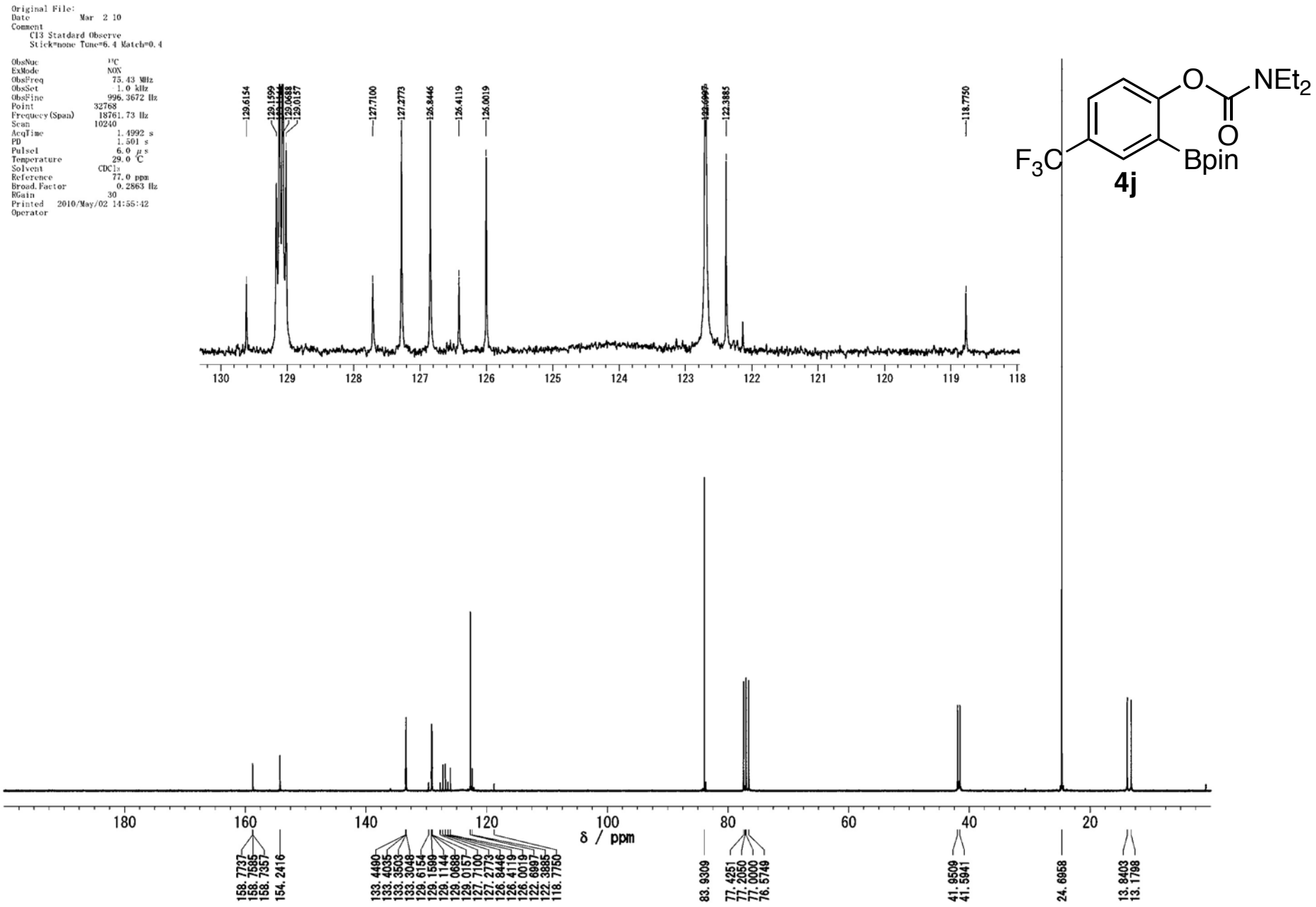

Original File:
Date Feb 23 10
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsPine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 30
Printed 2010/May/02 14:38:14
Operator
O
NEt2
O
Me
Bpin
4h
0.9288
1.0467
0.921
2.0
2.0868
2.9382
18.0978
9
8
7
6
5
4
3
2
1
0
δ / ppm
7.5752
7.5679
7.2647
7.2446
7.2363
7.2171
7.2089
6.9644
6.9378
3.5101
3.4863
3.3856
3.3618
2.3196
1.5504
1.3013
1.2812
1.2573
1.2143
1.1905
1.1667
0.0000

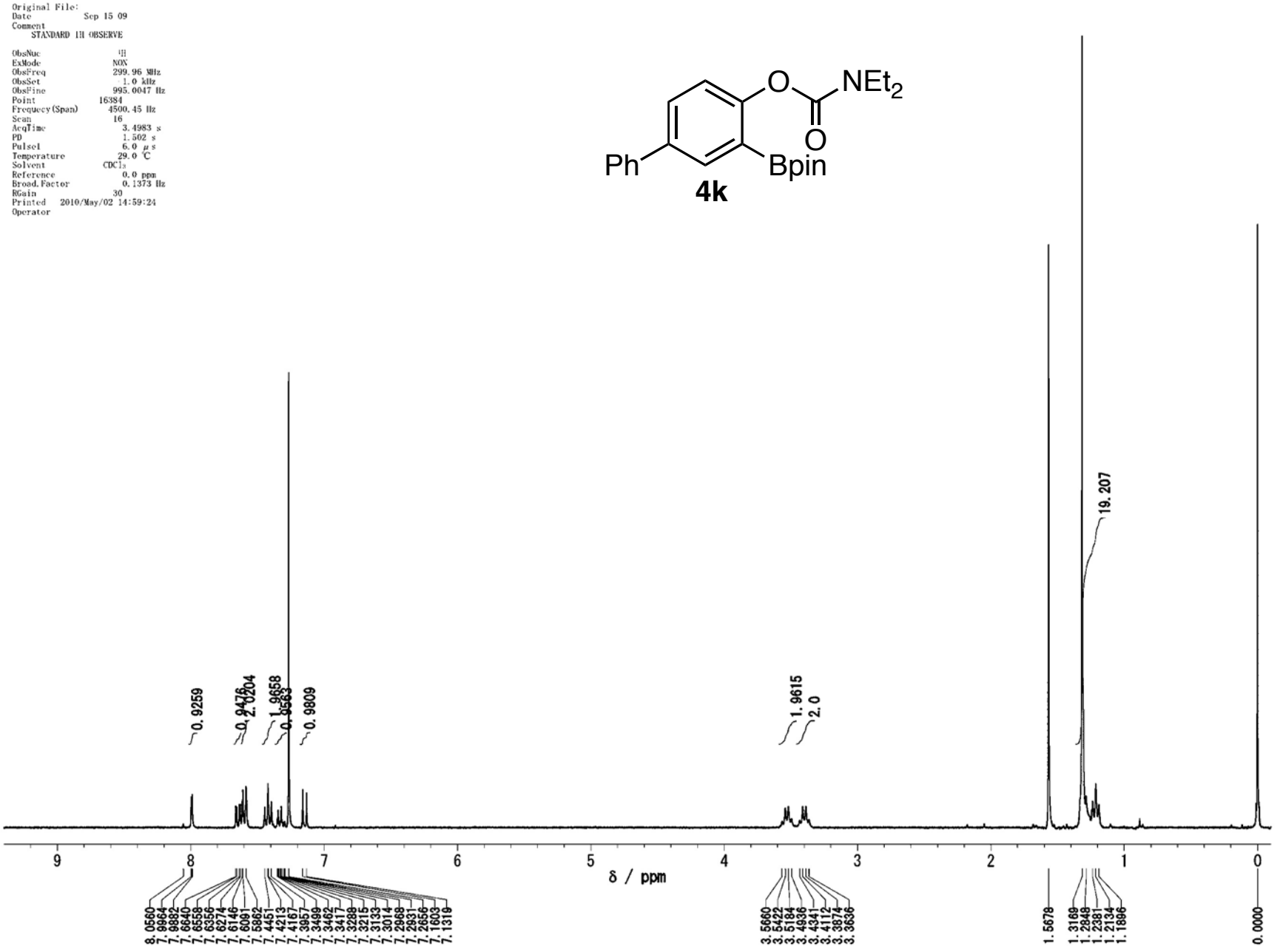

Original File:
Date Feb 27 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NOE
ObsFreq 75.43 MHz
ObsSet 1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 256
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/02 14:42:12
Operator
O
NEt2
O
Me
Bpin
4h
180
160
140
120
100
80
60
40
20
δ / ppm
154.9476
154.0670
136.4780
134.0108
132.7051
121.9026
83.2477
77.4251
77.0000
76.5673
41.6624
41.3436
24.5896
20.3688
13.7871
13.1798

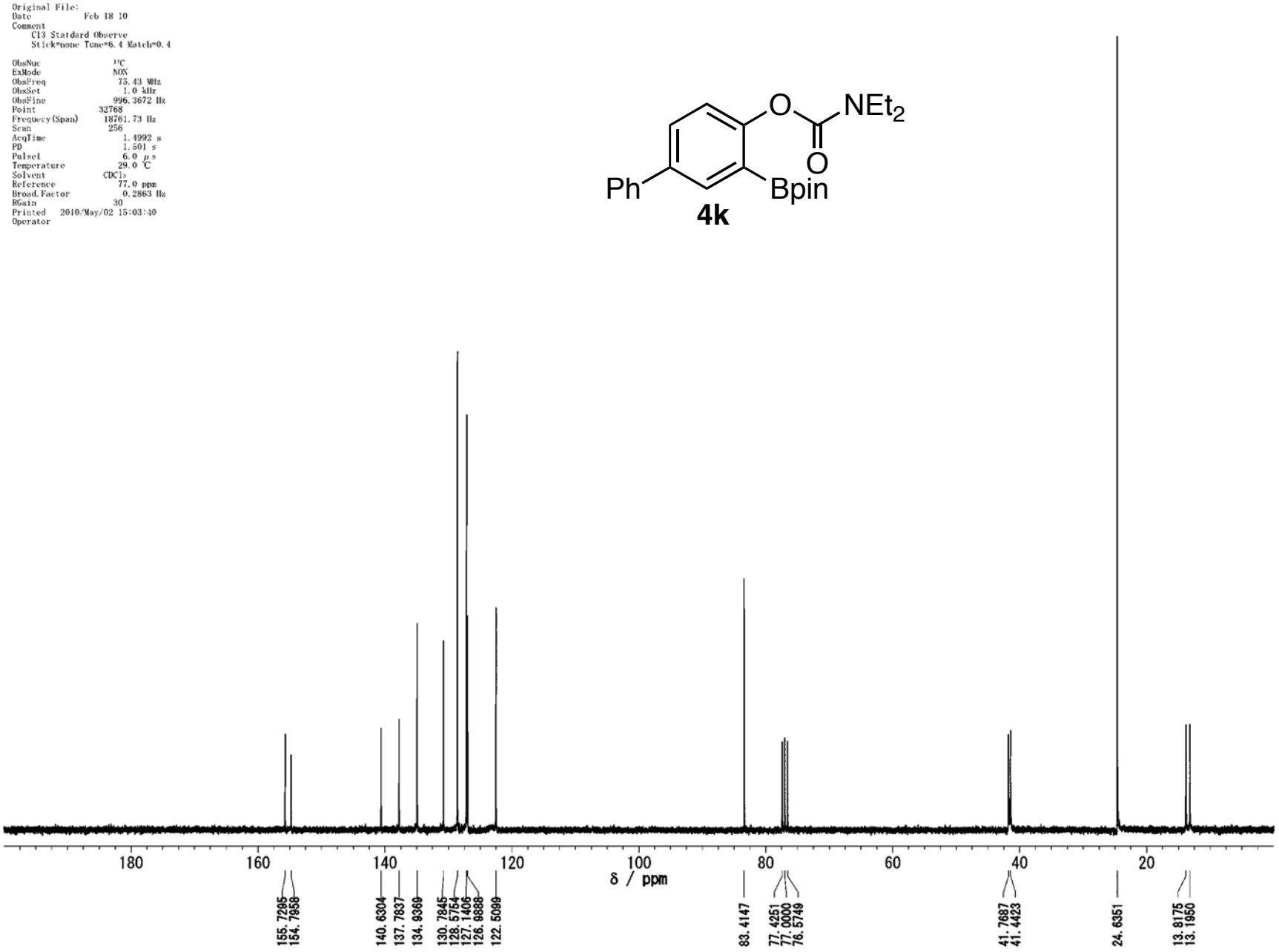

Original File:
Date Oct 21 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsPine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 30
Printed 2010/Jun/24 14:56:54
Operator
O
NEt2
O
MeO
Bpin
4i
3.5542
1.6968
2.8916
2.0
2.138
18.4657
9
8
7
6
5
4
3
2
1
0
δ / ppm
7.2656
6.9708
6.9680
6.9588
3.8132
3.5284
3.5046
3.4808
3.4561
3.4057
3.3828
3.3599
3.3361
1.5714
1.2905
1.2784
1.2546
1.2125
1.1896
1.1658
0.0000

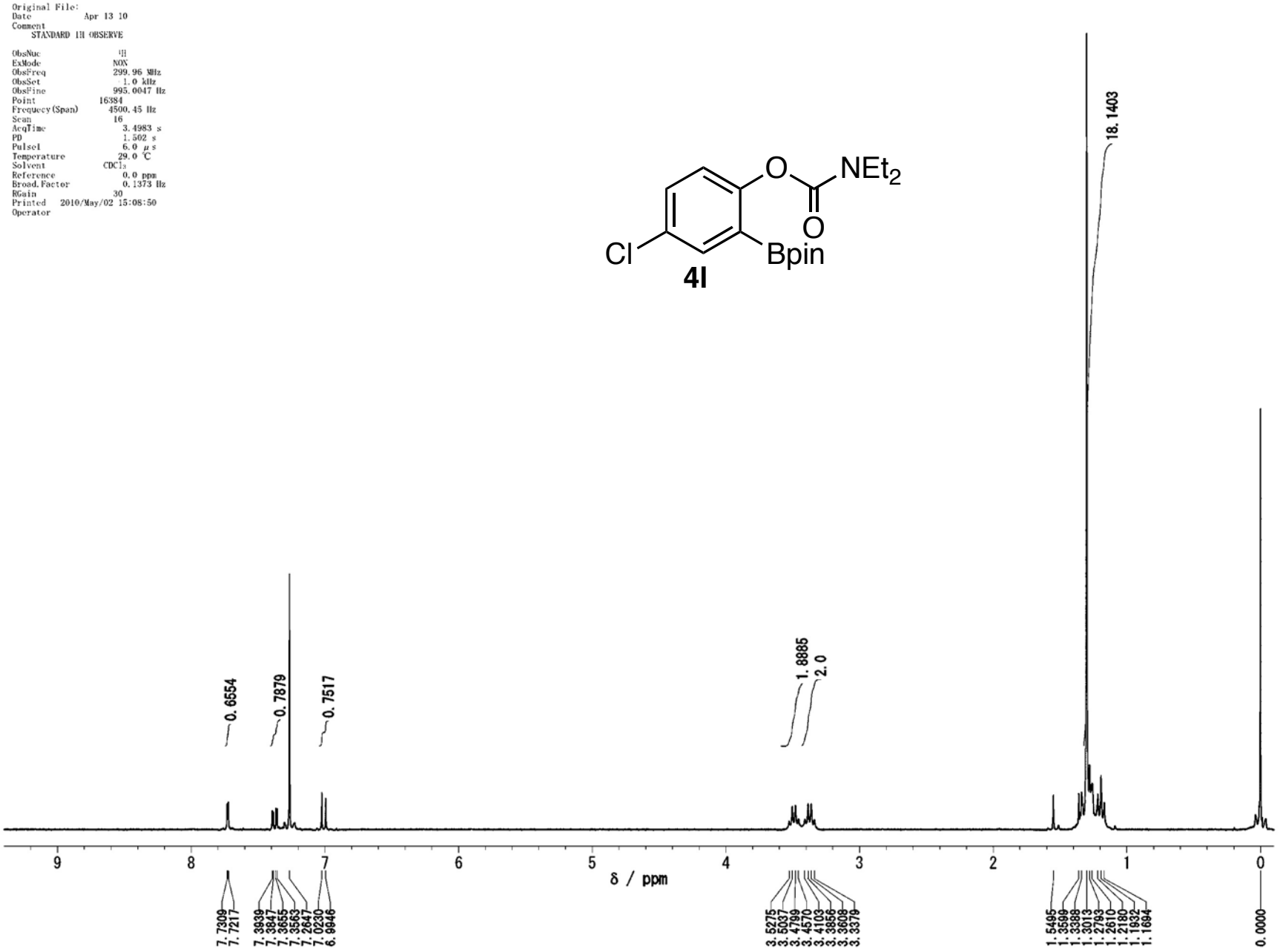

Original File:
Date Feb 18 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NOE
ObsFreq 75.43 MHz
ObsSet 1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 128
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/02 14:48:40
Operator
O
NEt2
O
MeO
Bpin
4i
180
160
140
120
100
80
60
40
20
δ / ppm
156.4431
155.2361
149.8994
123.1932
119.7467
118.2284
83.4678
77.4251
77.0000
76.9620
76.5749
55.5545
41.7839
41.4195
24.6882
13.8706
13.2709

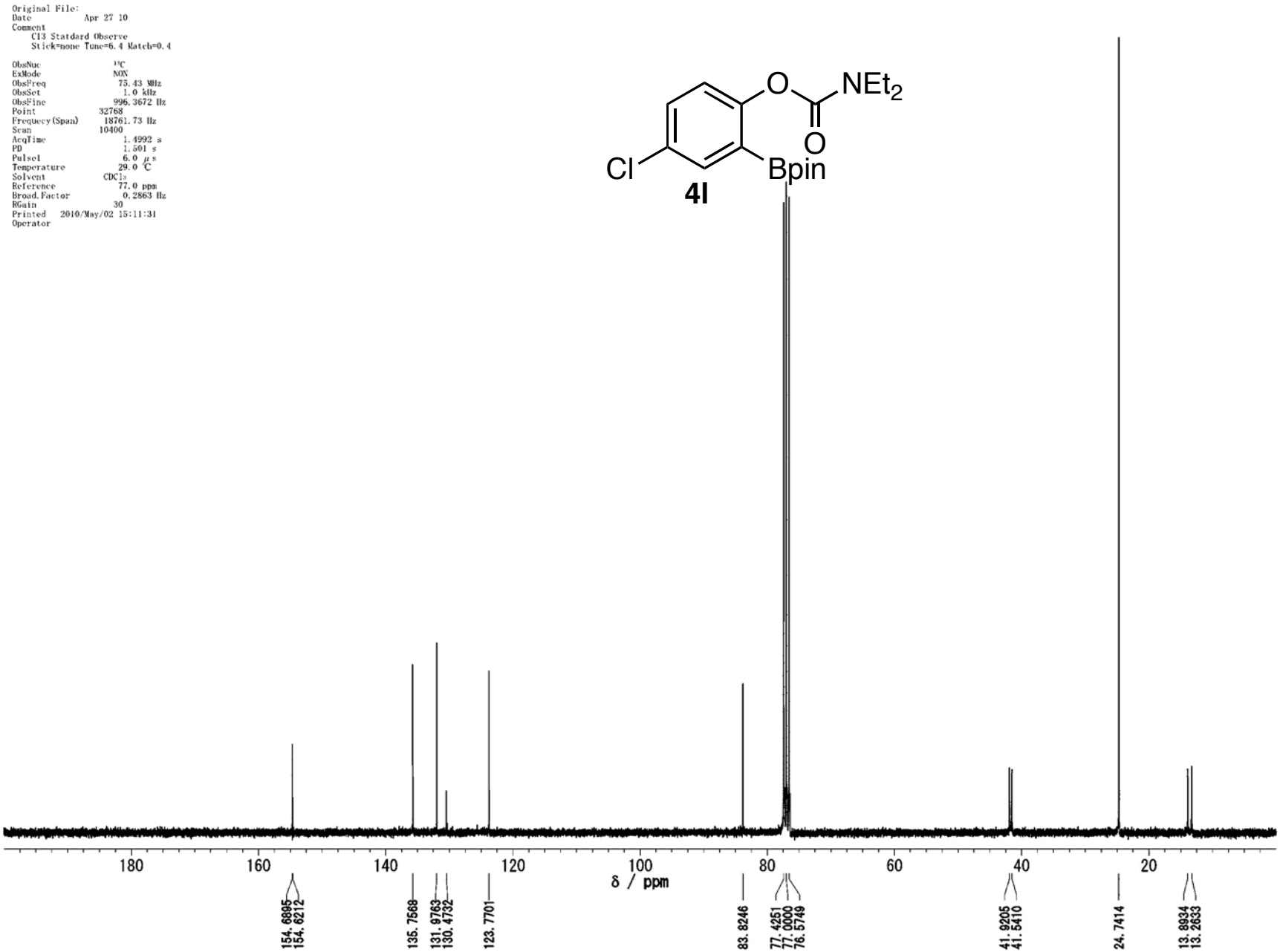

Original File:
Date Oct 10 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsPine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 25
Printed 2010/May/02 14:52:06
Operator
O
NEt2
O
F3C
Bpin
4j
18.608
0.941
0.9783
0.974
2.0
2.0763
9
8
7
6
5
4
3
2
1
0
δ / ppm
8.0450
8.0386
7.6907
7.6924
7.6713
7.6640
7.2656
7.2025
7.1741
3.5495
3.5266
3.5028
3.4790
3.4231
3.3993
3.3755
3.3517
1.5586
1.3169
1.2958
1.2720
1.2299
1.2061
1.1813
0.0000

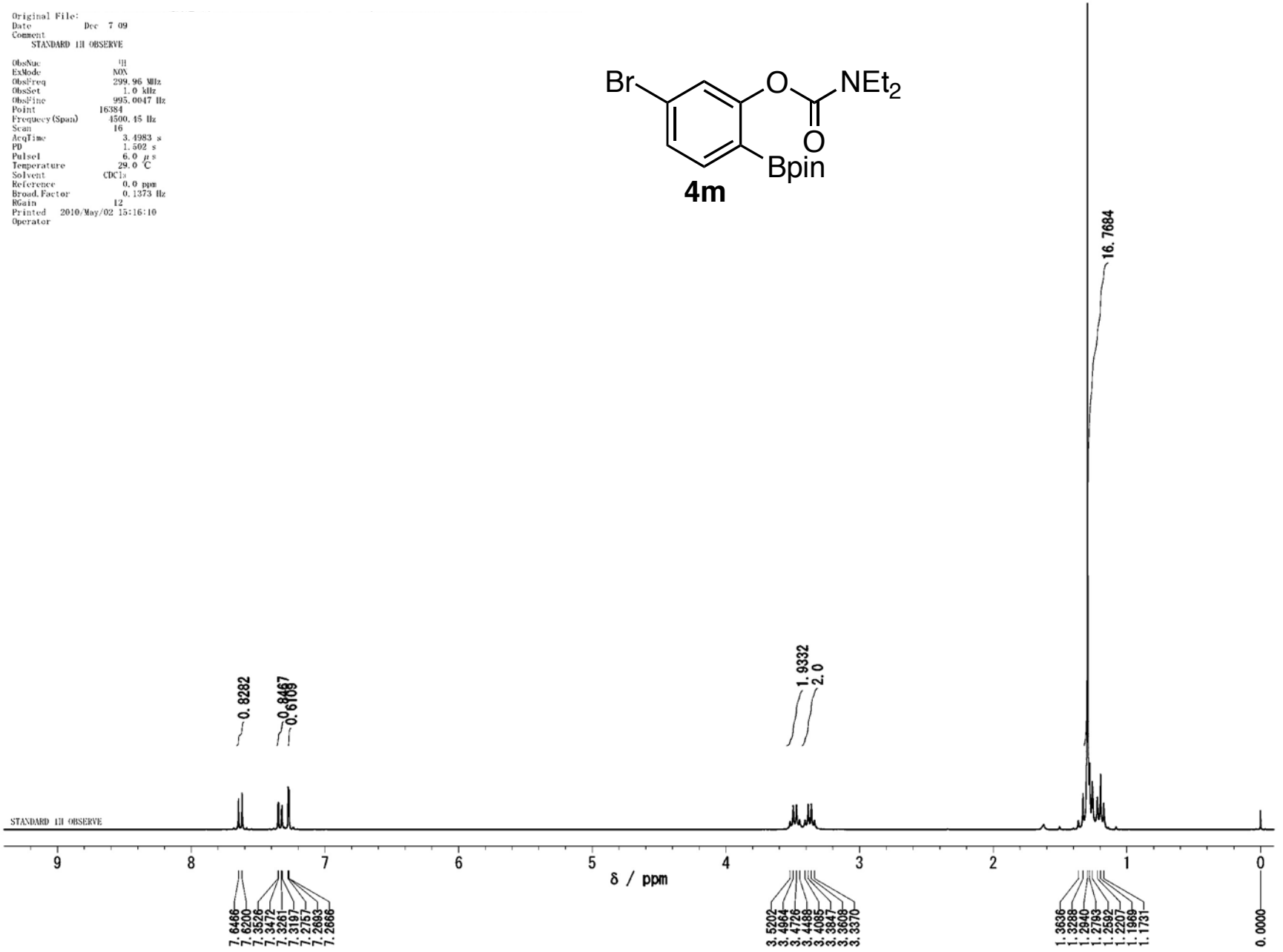

Original File:
Date Mar 2 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NON
ObsFreq 75.43 MHz
ObsSet 1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 10240
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/02 14:55:42
Operator
139.6154
129.1599
129.0688
129.0157
127.7100
127.2773
126.8446
126.4119
126.0019
122.6997
122.3885
118.7750
O
NEt2
O
F3C
Bpin
4j
δ / ppm
158.7737
158.7585
158.7357
154.2416
133.4490
133.4035
133.3503
133.3048
129.6154
129.1599
129.1144
129.0688
129.0157
127.7100
127.2773
126.8446
126.4119
126.0019
122.6997
122.3885
118.7750
83.9309
77.4251
77.2050
77.0000
76.5749
41.9509
41.5941
24.6958
13.8403
13.1798

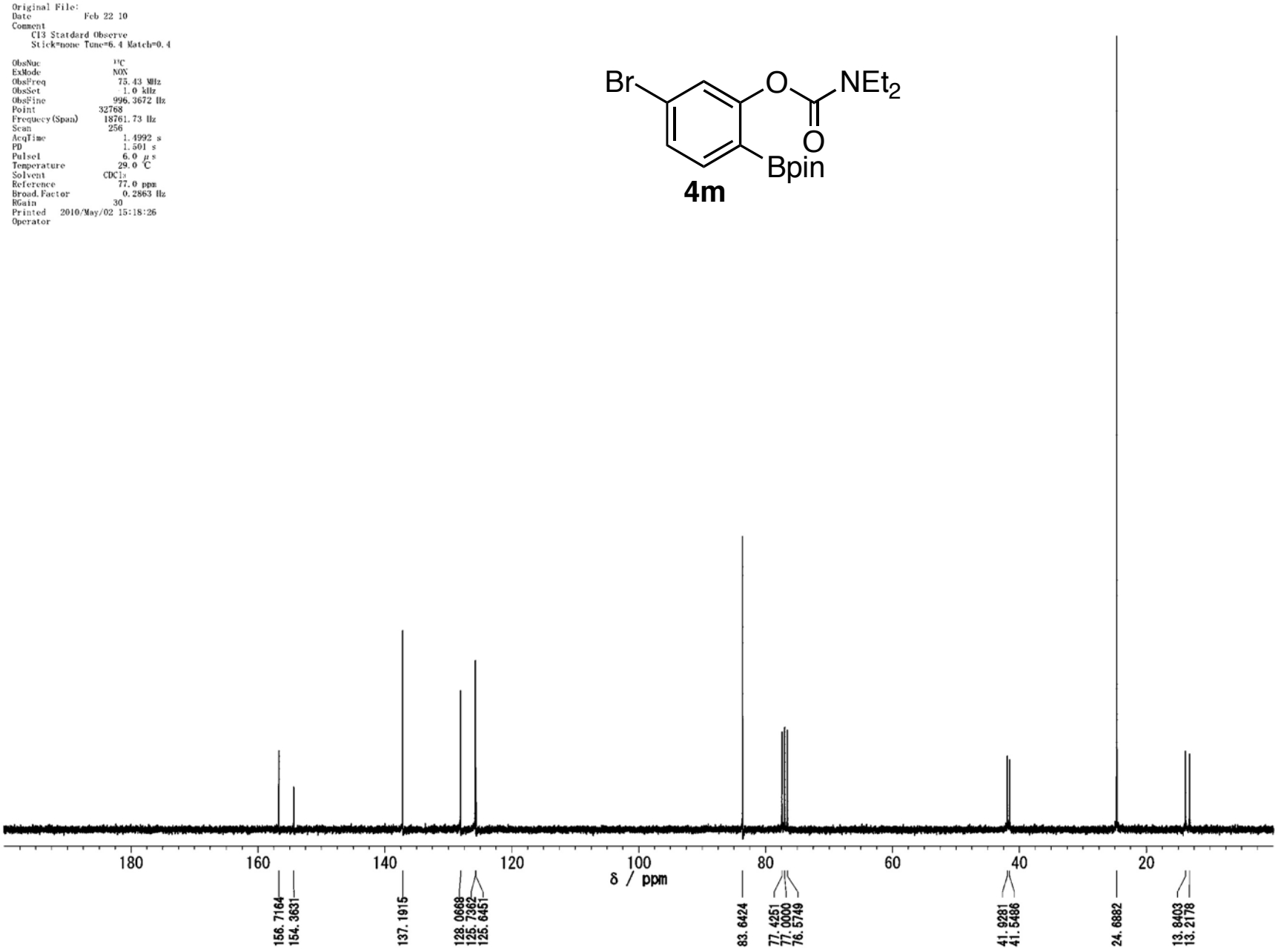

Original File:
Date Sep 15 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsPine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 30
Printed 2010/May/02 14:59:24
Operator
O
NEt2
O
Ph
Bpin
4k
0.9259
2.0204
1.9658
0.9809
1.9615
2.0
19.207
δ / ppm
8.0560
7.9964
7.9882
7.6640
7.6558
7.6356
7.6274
7.6146
7.6091
7.5862
7.4451
7.4213
7.4167
7.3957
7.3499
7.3462
7.3417
7.3288
7.3215
7.3133
7.3014
7.2968
7.2931
7.2656
7.1603
7.1319
3.5660
3.5422
3.5184
3.4936
3.4341
3.4112
3.3874
3.3636
1.5678
1.3169
1.2949
1.2381
1.2134
1.1886
0.0000

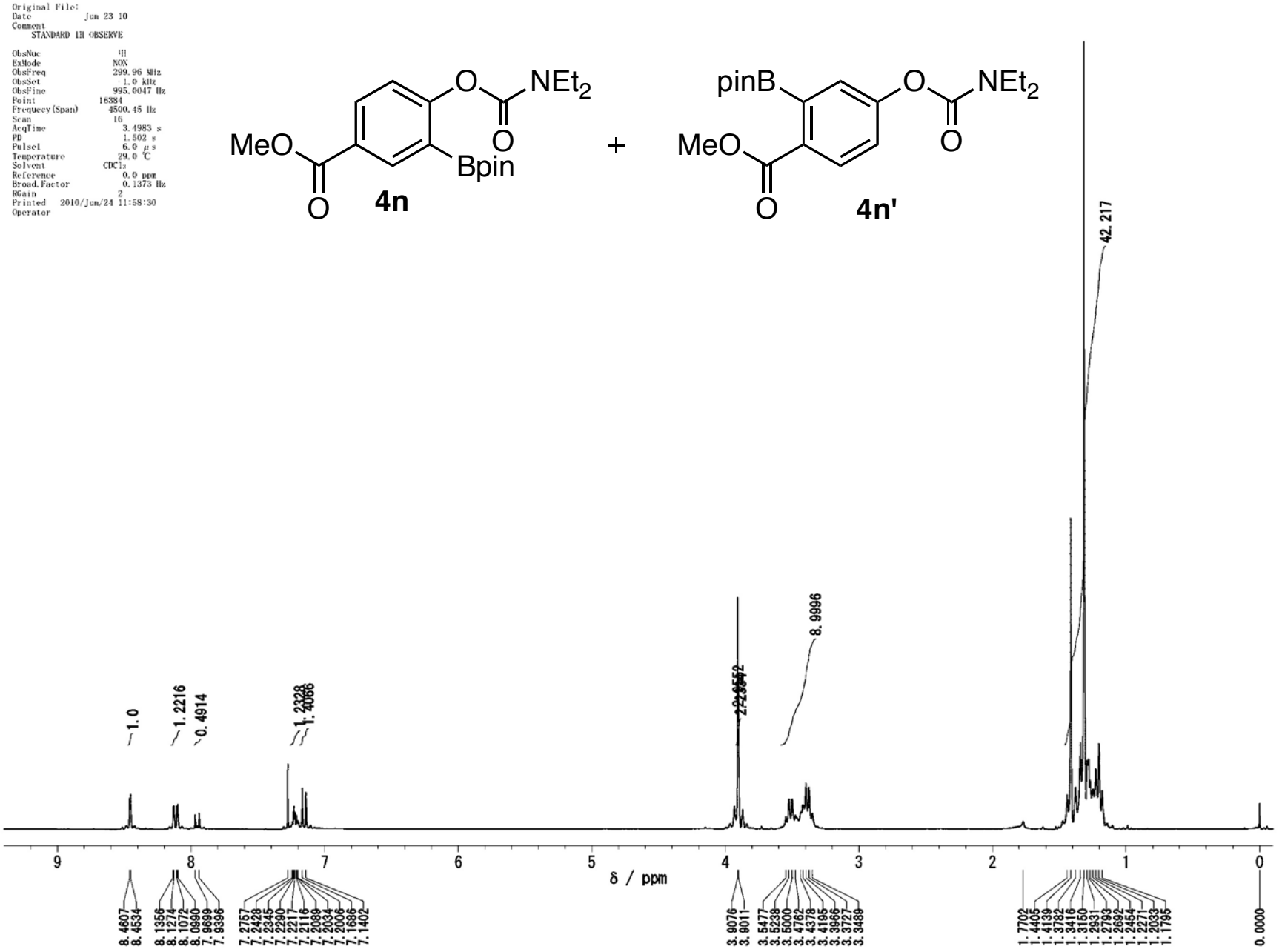

Original File:
Date Feb 18 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NOE
ObsFreq 75.43 MHz
ObsSet 1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 256
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/02 15:03:40
Operator
O
NEt2
O
Ph
Bpin
4k
180
160
140
120
100
80
60
40
20
δ / ppm
155.7295
154.7858
140.6304
137.7837
134.9369
130.7845
128.5764
127.1406
126.9888
122.5099
83.4147
77.4251
77.0000
76.5749
41.7687
41.4423
24.6351
13.8175
13.1950

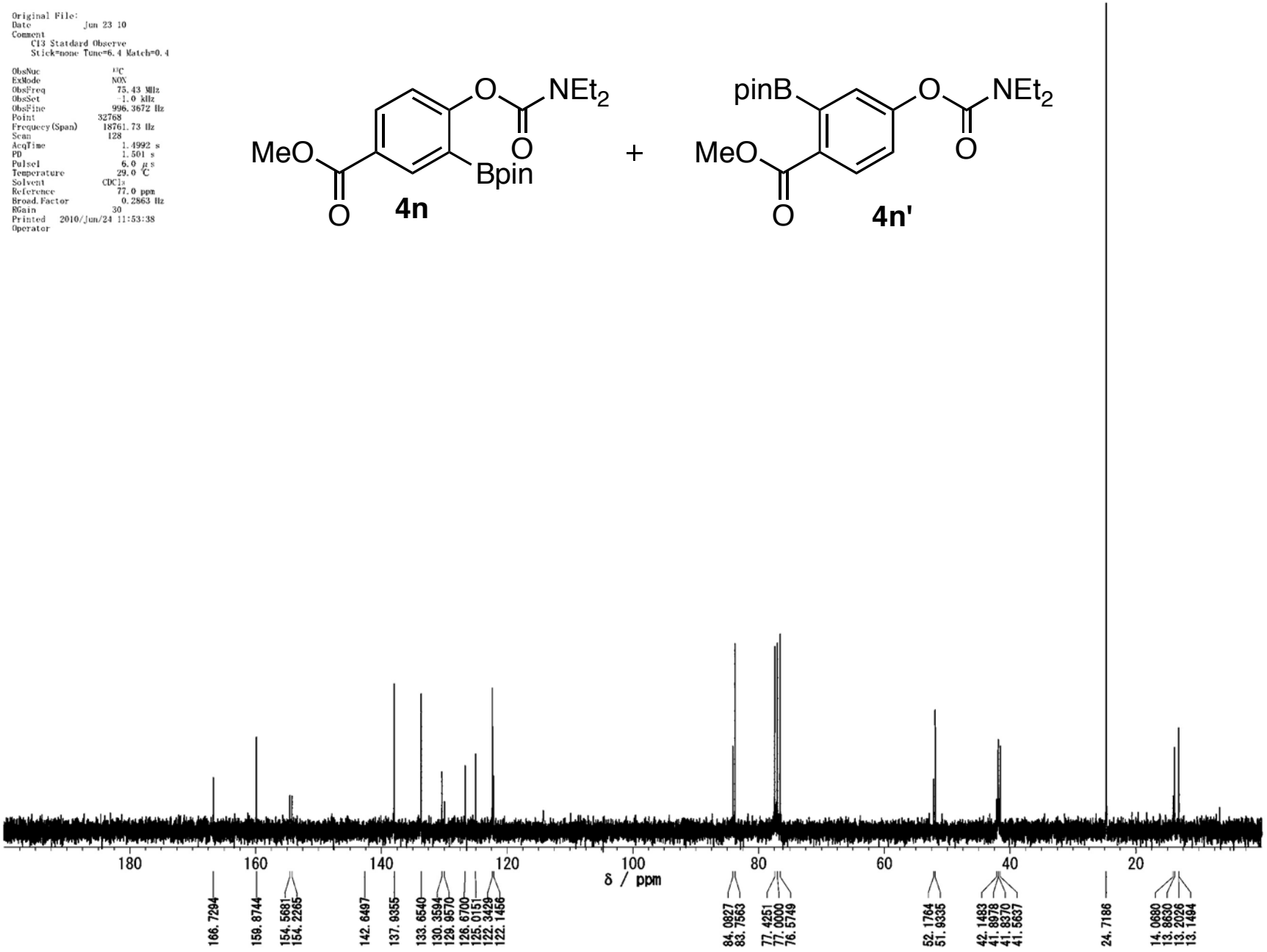

Original File:
Date Apr 13 10
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 30
Printed 2010/May/02 15:08:50
Operator
O
NEt2
O
Cl
Bpin
4l
18.1403
0.6554
0.7879
0.7517
1.8885
2.0
9
8
7
6
5
4
3
2
1
0
δ / ppm
7.7309
7.7217
7.3939
7.3847
7.3655
7.3563
7.2647
7.0230
6.9846
3.5275
3.5037
3.4799
3.4570
3.4103
3.3856
3.3608
3.3379
1.5495
1.3599
1.3388
1.3013
1.2793
1.2610
1.2180
1.1932
1.1694
0.0000

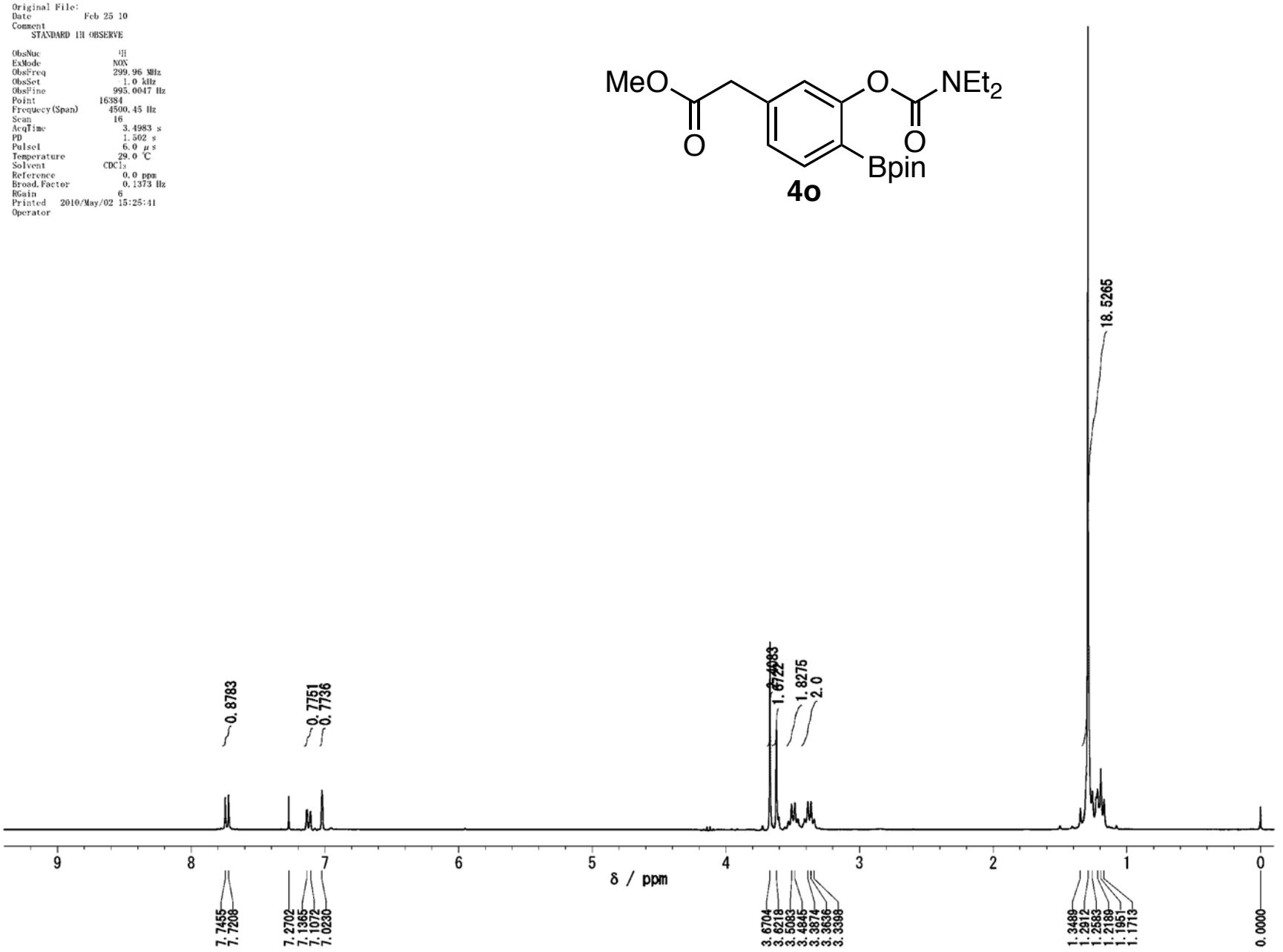

Original File:
Date Apr 27 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NOE
ObsFreq 75.43 MHz
ObsSet 1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 10400
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/02 15:11:31
Operator
O
NEt2
O
Cl
Bpin
4l
180
160
140
120
100
80
60
40
20
δ / ppm
154.6895
154.6212
135.7568
131.9763
130.4732
123.7701
83.8246
77.4251
77.0000
76.5749
41.9205
41.5410
24.7414
13.8934
13.2633

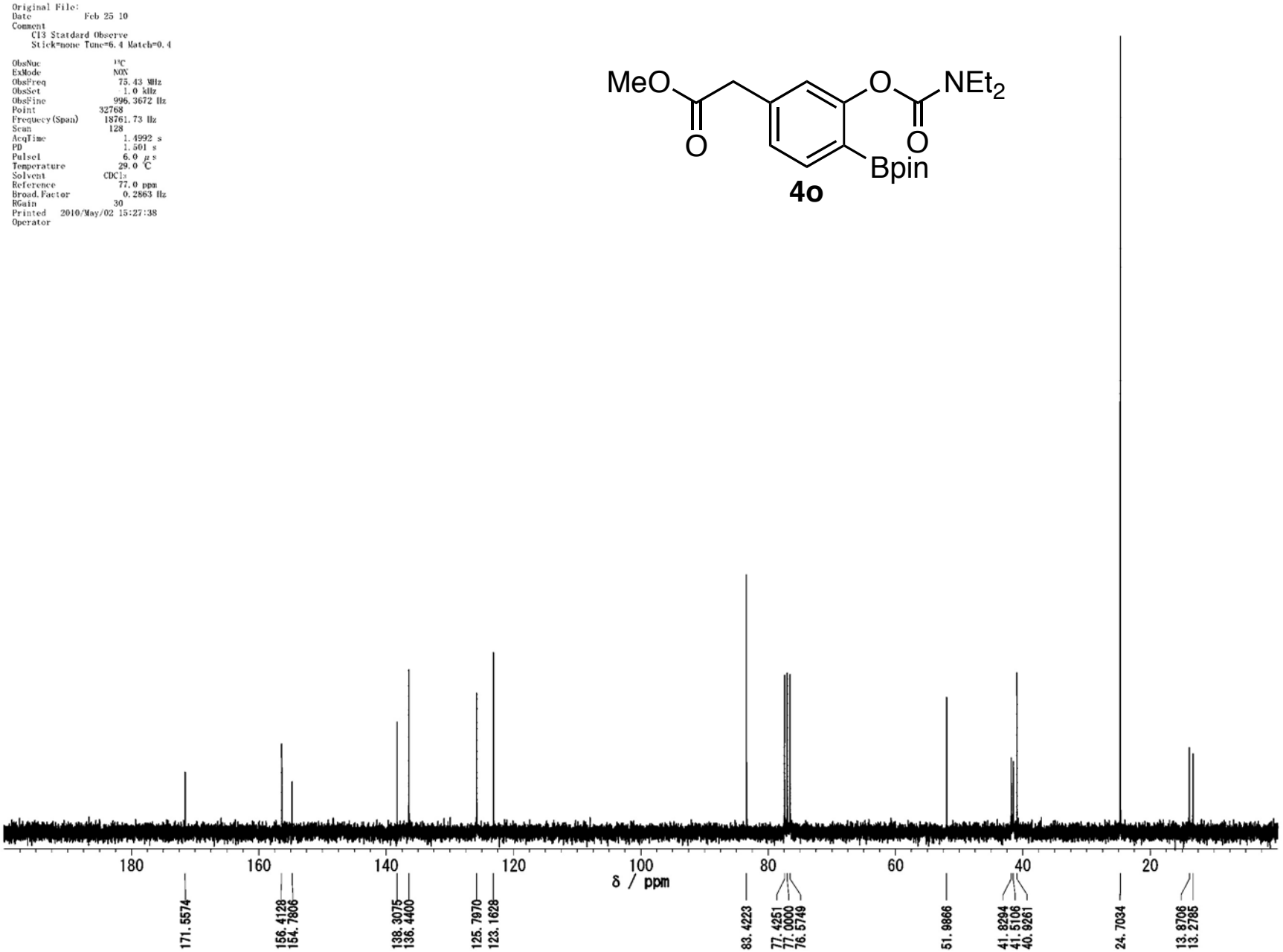

Original File:
Date Dec 7 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 12
Printed 2010/May/02 15:16:10
Operator
Br
O
NEt2
O
Bpin
4m
16.7684
1.9332
2.0
0.8282
0.8467
0.6109
STANDARD 1H OBSERVE
9
8
7
6
5
4
3
2
1
0
δ / ppm
7.6466
7.6200
7.3526
7.3472
7.3261
7.3197
7.2757
7.2693
7.2666
3.5202
3.4964
3.4726
3.4488
3.4085
3.3847
3.3608
3.3370
1.3636
1.3288
1.2940
1.2783
1.2592
1.2207
1.1969
1.1731
0.0000


Original File:
Date Feb 22 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NOE
ObsFreq 75.43 MHz
ObsSet 1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 256
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/02 15:18:26
Operator
Br
O
NEt2
O
Bpin
4m
180
160
140
120
100
80
60
40
20
δ / ppm
156.7164
154.3631
137.1915
128.0668
125.7362
125.6451
83.6424
77.4251
77.0000
76.5749
41.9281
41.5486
24.6882
13.8403
13.2178


Original File:
Date Jun 23 10
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 2
Printed 2010/Jun/24 11:58:30
Operator
MeO
O
NEt2
O
Bpin
4n
+
pinB
MeO
O
NEt2
O
4n'
42.217
8.9996
1.0
1.2216
0.4914
1.2328
1.2066
δ / ppm
9
8
7
6
5
4
3
2
1
0
8.4807
8.4534
8.1356
8.1274
8.1072
8.0990
7.9699
7.9396
7.2757
7.2428
7.2345
7.2290
7.2217
7.2116
7.2089
7.2034
7.2006
7.1686
7.1402
3.9076
3.9011
3.5477
3.5238
3.5000
3.4762
3.4378
3.4195
3.3966
3.3727
3.3489
1.7702
1.4405
1.4139
1.3782
1.3416
1.3150
1.2931
1.2783
1.2692
1.2454
1.2271
1.2033
1.1795
0.0000

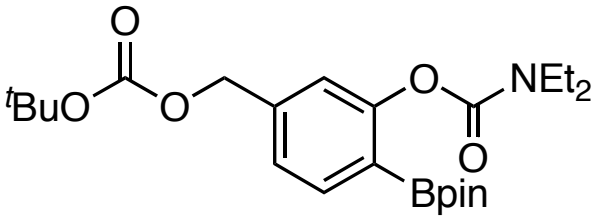

Original File:
Date Jun 23 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NOE
ObsFreq 75.43 MHz
ObsSet -1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 128
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/Jun/24 11:53:38
Operator
MeO
O
NEt2
O
Bpin
4n
+
pinB
MeO
O
NEt2
O
4n'
δ / ppm
180
160
140
120
100
80
60
40
20
166.7294
159.8744
154.5681
154.2265
142.6497
137.9355
133.6540
130.3594
128.9570
126.6700
125.0151
122.3429
122.1456
84.0827
83.7563
77.4251
77.0000
76.5749
52.1764
51.9335
42.1483
41.8978
41.8370
41.5637
24.7186
14.0680
13.8630
13.2026
13.1494


Original File:
Date Feb 25 10
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 6
Printed 2010/May/02 15:25:41
Operator
MeO
O
O
O
NEt2
Bpin
4o
18.5265
0.8783
0.7751
0.7736
1.8275
2.0
9
8
7
6
5
4
3
2
1
0
δ / ppm
7.7455
7.7208
7.2702
7.1365
7.1072
7.0230
3.6704
3.6219
3.5063
3.4845
3.3874
3.3636
3.3398
1.3489
1.2912
1.2583
1.2189
1.1951
1.1713
0.0000

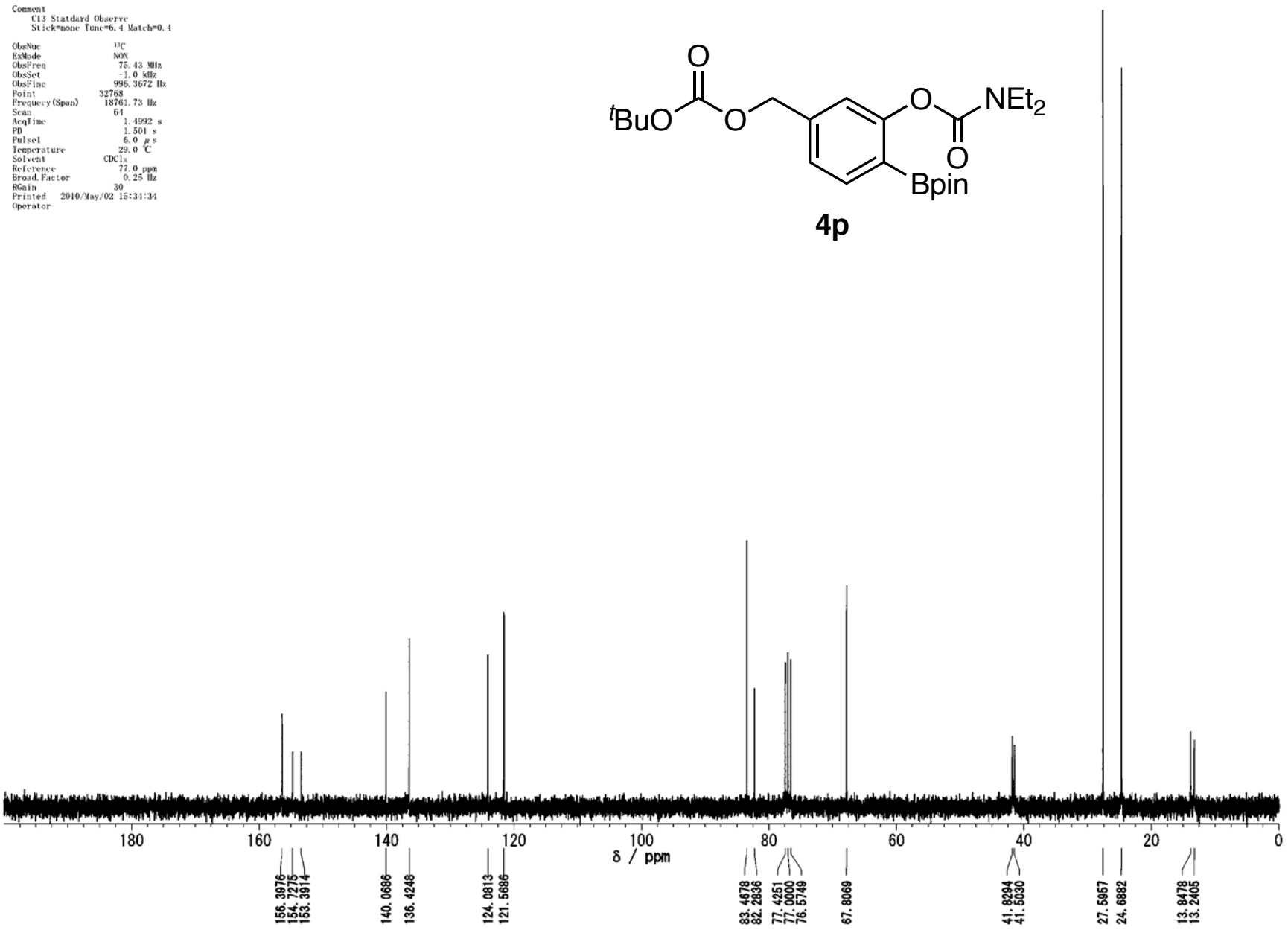

Original File:
Date Feb 25 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NOE
ObsFreq 75.43 MHz
ObsSet 1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 128
AcqTime 1.4992 s
PD 1.501 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/02 15:27:38
Operator
MeO
O
O
O
NEt2
Bpin
4o
180
160
140
120
100
80
60
40
20
δ / ppm
171.5574
156.4128
154.7806
138.3075
136.4400
125.7970
123.1628
83.4223
77.4251
77.0000
76.5749
51.9866
41.8294
41.5106
40.9261
24.7034
13.8706
13.2785

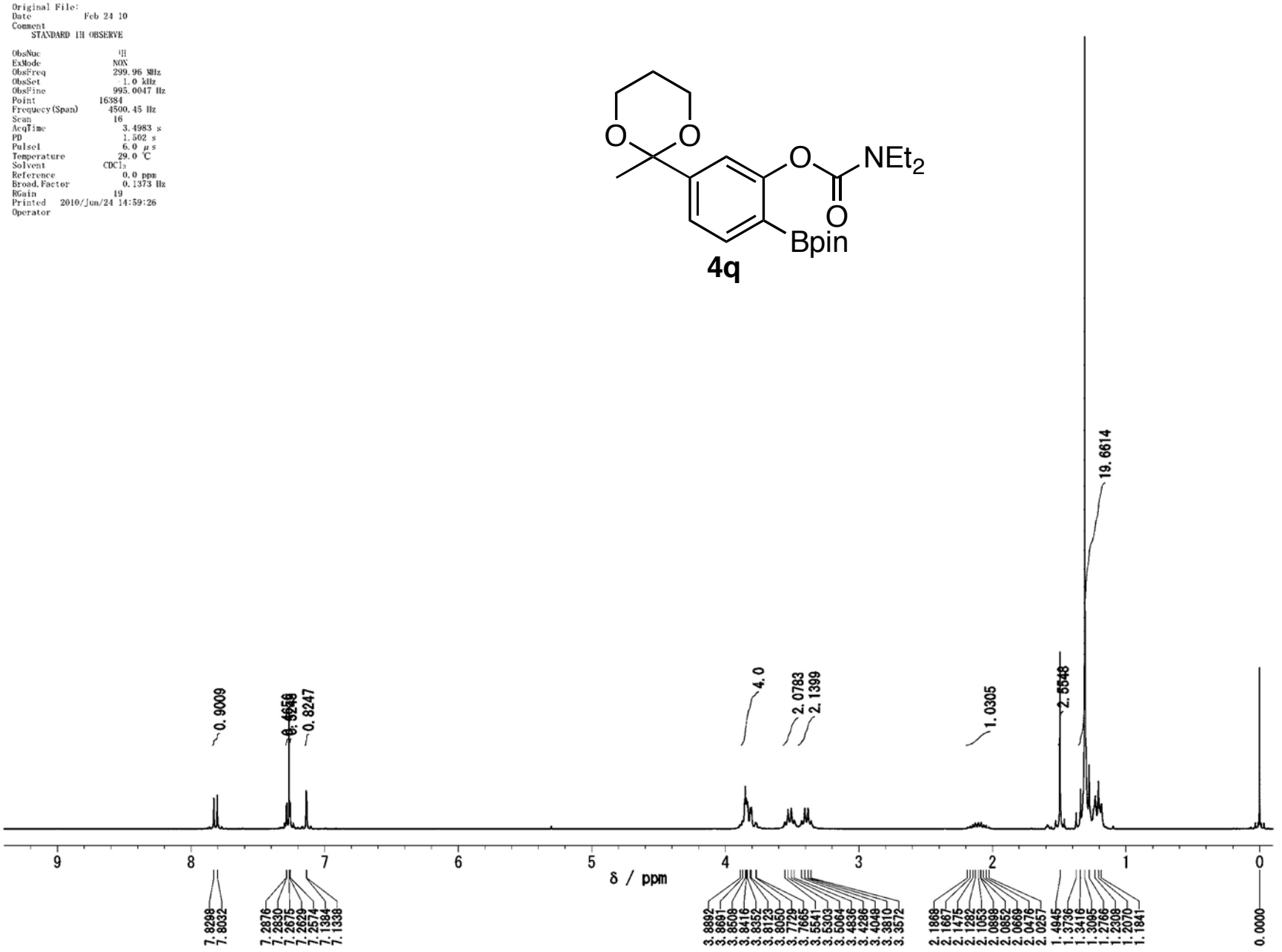
Original File:
Date Apr 24 10
Comment
STANDARD 1H OBSERVE

ObsNuc	^{1}H
ExMode	NON
ObsFreq	299.96 MHz
ObsSet	1.0 kHz
ObsPine	995.0047 Hz
Point	16384
Frequecy(Span)	4500.45 Hz
Scan	16
AcqTime	3.4983 s
PD	1.502 s
Pulse1	6.0 μs
Temperature	29.0 ℃
Solvent	CDCl3
Reference	0.0 ppm
Broad.Factor	0.1373 Hz
RGain	30
Printed	2010/May/02 15:31:32
Operator	



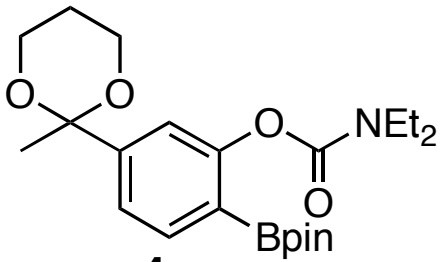
4p


Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NOE
ObsFreq 75.43 MHz
ObsSet -1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 64
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.25 Hz
RGain 30
Printed 2010/May/02 15:34:34
Operator
O
tBuO
O
O
NEt2
O
Bpin
4p
180
160
140
120
100
80
60
40
20
0
δ / ppm
156.3976
154.7275
153.3914
140.0686
136.4248
124.0813
121.5686
83.4678
82.2836
77.4251
77.0000
76.5749
67.8069
41.8294
41.5030
27.5957
24.6882
13.8478
13.2405

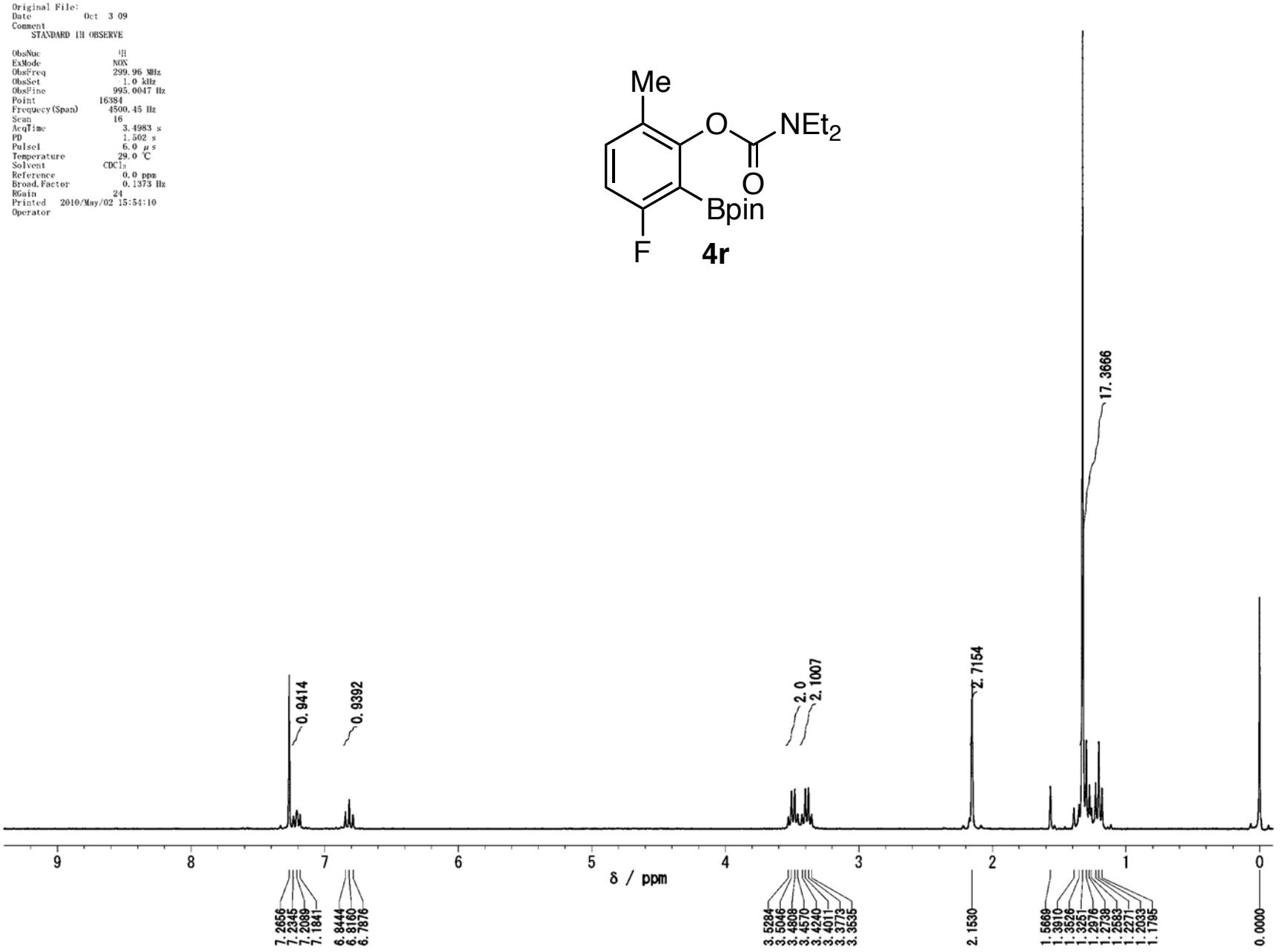

Original File:
Date Feb 24 10
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsPine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 19
Printed 2010/Jun/24 14:59:26
Operator
O
O
O
NEt2
O
Bpin
4q
0.9009
0.8247
4.0
2.0783
2.1399
1.0305
19.6614
δ / ppm

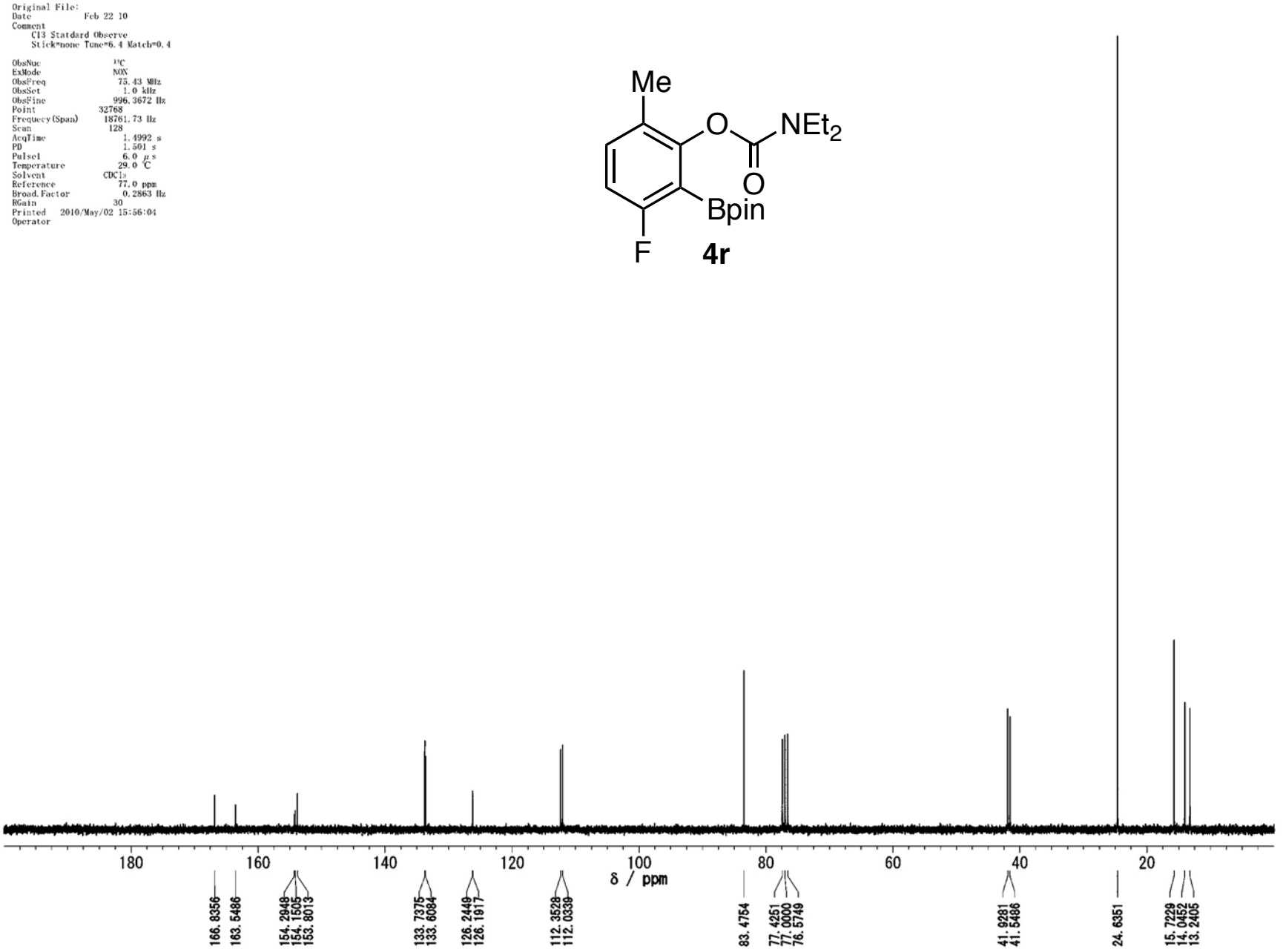
Original File:
Date Feb 25 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4

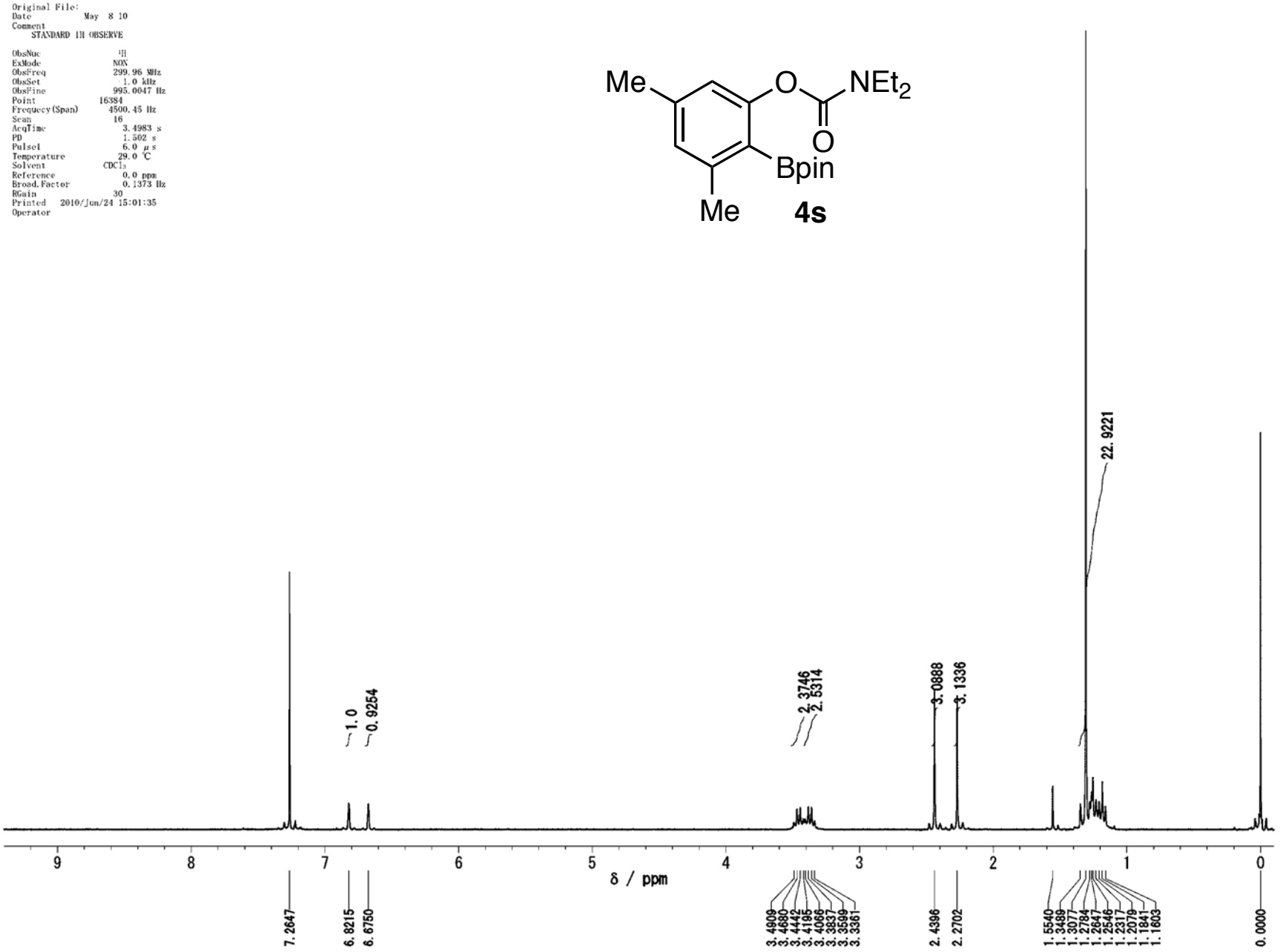
ObsNuc	^{13}C
ExMode	NON
ObsFreq	75.43 MHz
ObsSet	1.0 kHz
ObsFine	996.3672 Hz
Point	32768
Frequecy(Span)	18761.73 Hz
Scan	128
AcqTime	1.4992 s
PD	1.501 s
Pulse1	6.0 μs
Temperature	29.0 ℃
Solvent	$CDCl_3$
Reference	77.0 ppm
Broad.Factor	0.2863 Hz
RGain	30
Printed	2010/May/02 15:43:50
Operator	

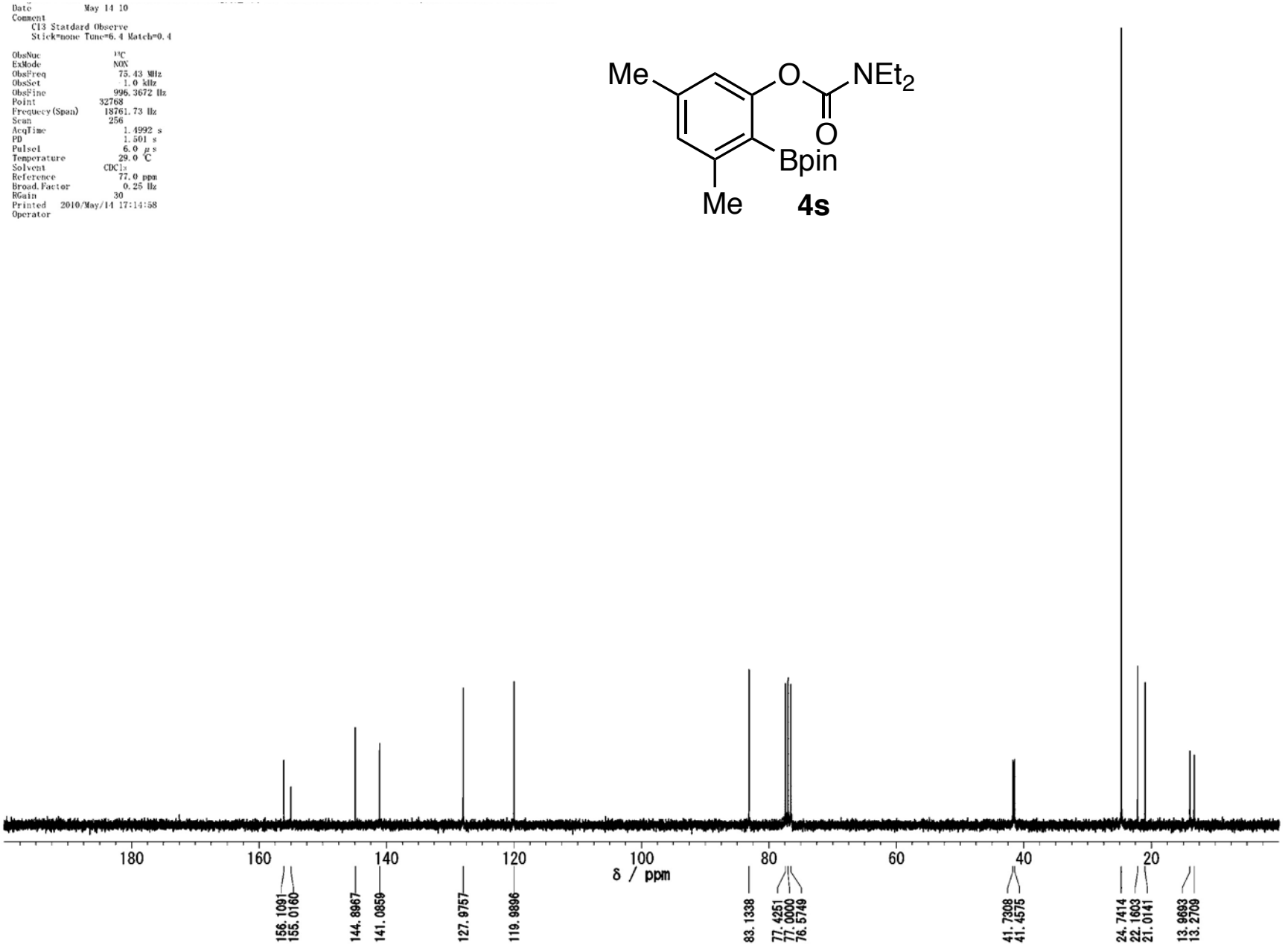


4q


Original File:
Date Oct 3 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsPine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 24
Printed 2010/May/02 15:54:10
Operator
Me
O
NEt2
O
Bpin
F
4r
0.9414
0.9392
2.0
2.1007
2.7154
17.3666
δ / ppm
7.2656
7.2345
7.2089
7.1841
6.8444
6.8160
6.7876
3.5284
3.5046
3.4808
3.4570
3.4240
3.4011
3.3772
3.3535
2.1530
1.5669
1.3910
1.3526
1.3251
1.2976
1.2738
1.2583
1.2271
1.2033
1.1795
0.0000

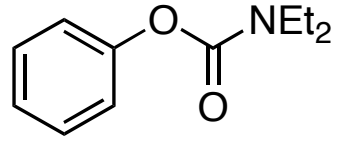

Original File:
Date Feb 22 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NOE
ObsFreq 75.43 MHz
ObsSet 1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 128
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/02 15:56:04
Operator
Me
O
NEt2
O
Bpin
F
4r
180
160
140
120
100
80
60
40
20
δ / ppm
166.8356
163.5486
154.2948
154.1505
153.8013
133.7375
133.6084
126.2449
126.1817
112.3528
112.0339
83.4754
77.4251
77.0000
76.5749
41.9281
41.5486
24.6351
15.7229
14.0452
13.2405


Original File:
Date May 8 10
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsPine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 30
Printed 2010/Jun/24 15:01:35
Operator
Me
O
NEt2
O
Bpin
Me
4s
22.9221
1.0
0.9254
2.3746
2.5314
3.0888
3.1336
δ / ppm
7.2647
6.8215
6.6750
3.4909
3.4680
3.4442
3.4195
3.4066
3.3837
3.3599
3.3361
2.4396
2.2702
1.5540
1.3489
1.3077
1.2784
1.2647
1.2546
1.2317
1.2079
1.1841
1.1603
0.0000

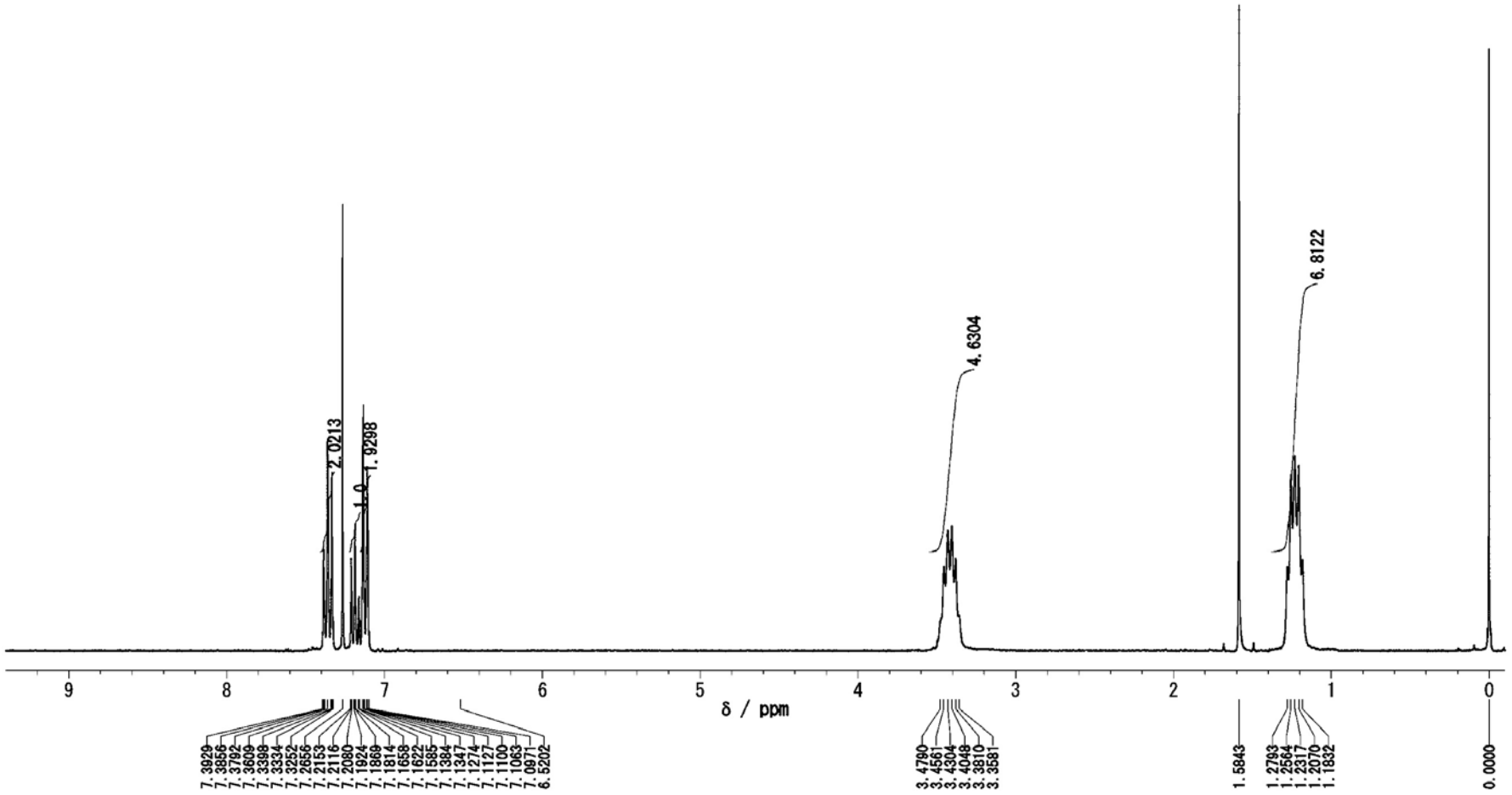

Date May 14 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NON
ObsFreq 75.43 MHz
ObsSet 1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 256
AcqTime 1.4992 s
PD 1.501 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.25 Hz
RGain 30
Printed 2010/May/14 17:14:58
Operator
Me
O
NEt2
O
Bpin
Me
4s
180
160
140
120
100
80
60
40
20
δ / ppm
156.1091
155.0160
144.8967
141.0859
127.9757
119.9886
83.1338
77.4251
77.0000
76.5749
41.7308
41.4575
24.7414
22.1603
21.0141
13.9693
13.2709

Original File:
Date Jul 9 09
Comment
STANDARD 1H OBSERVE

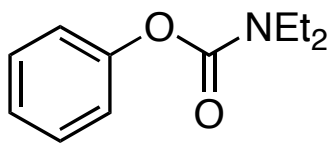
ObsNuc	^{1}H
ExMode	NON
ObsFreq	299.96 MHz
ObsSet	1.0 kHz
ObsFine	995.0047 Hz
Point	16384
Frequecy(Span)	4500.45 Hz
Scan	16
AcqTime	3.4983 s
PD	1.502 s
Pulsel	6.0 μs
Temperature	29.0 ℃
Solvent	CDCl$_3$
Reference	0.0 ppm
Broad.Factor	0.1373 Hz
RGain	24
Printed	2010/May/14 14:57:13
Operator	



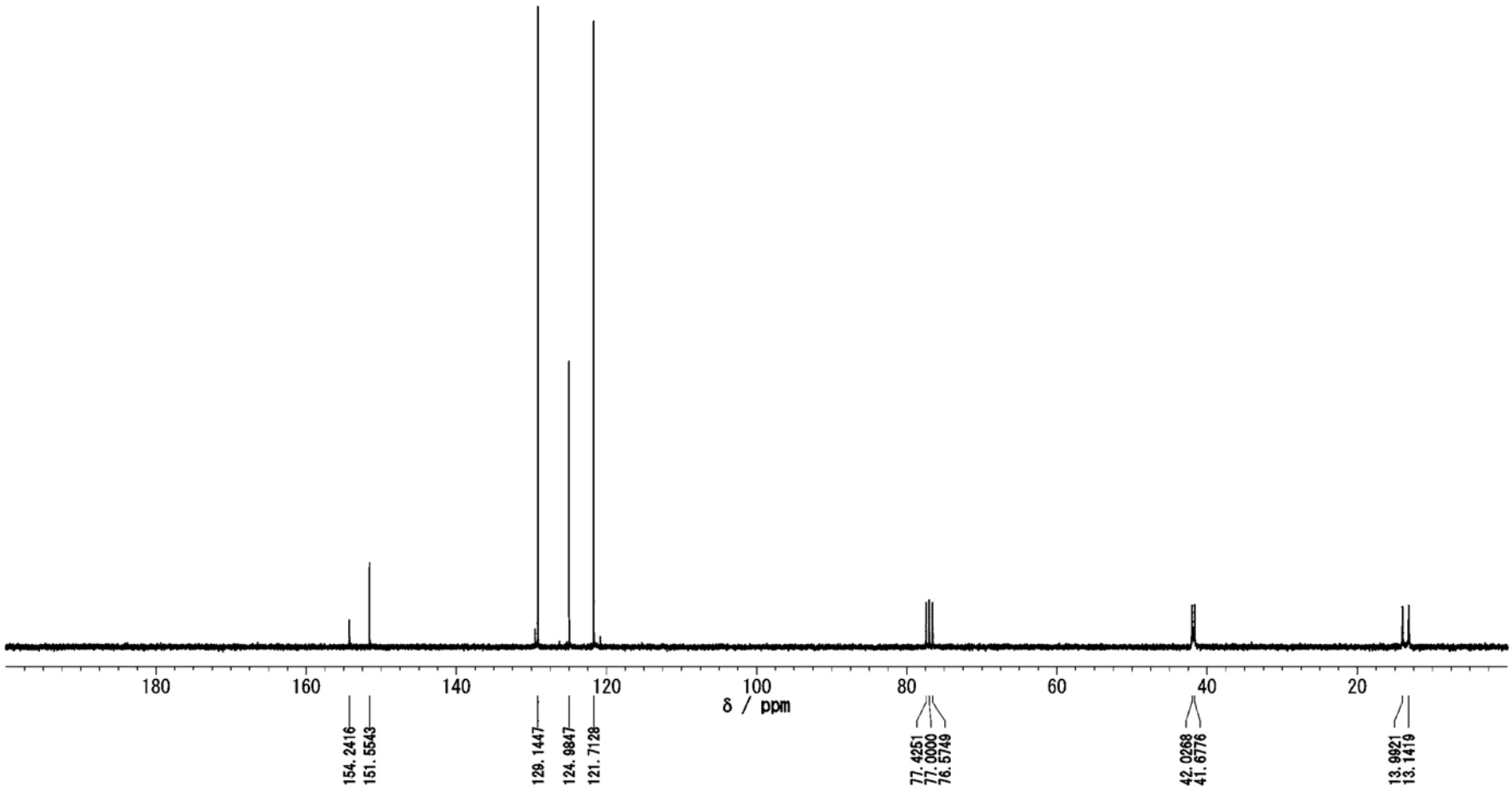
3aa

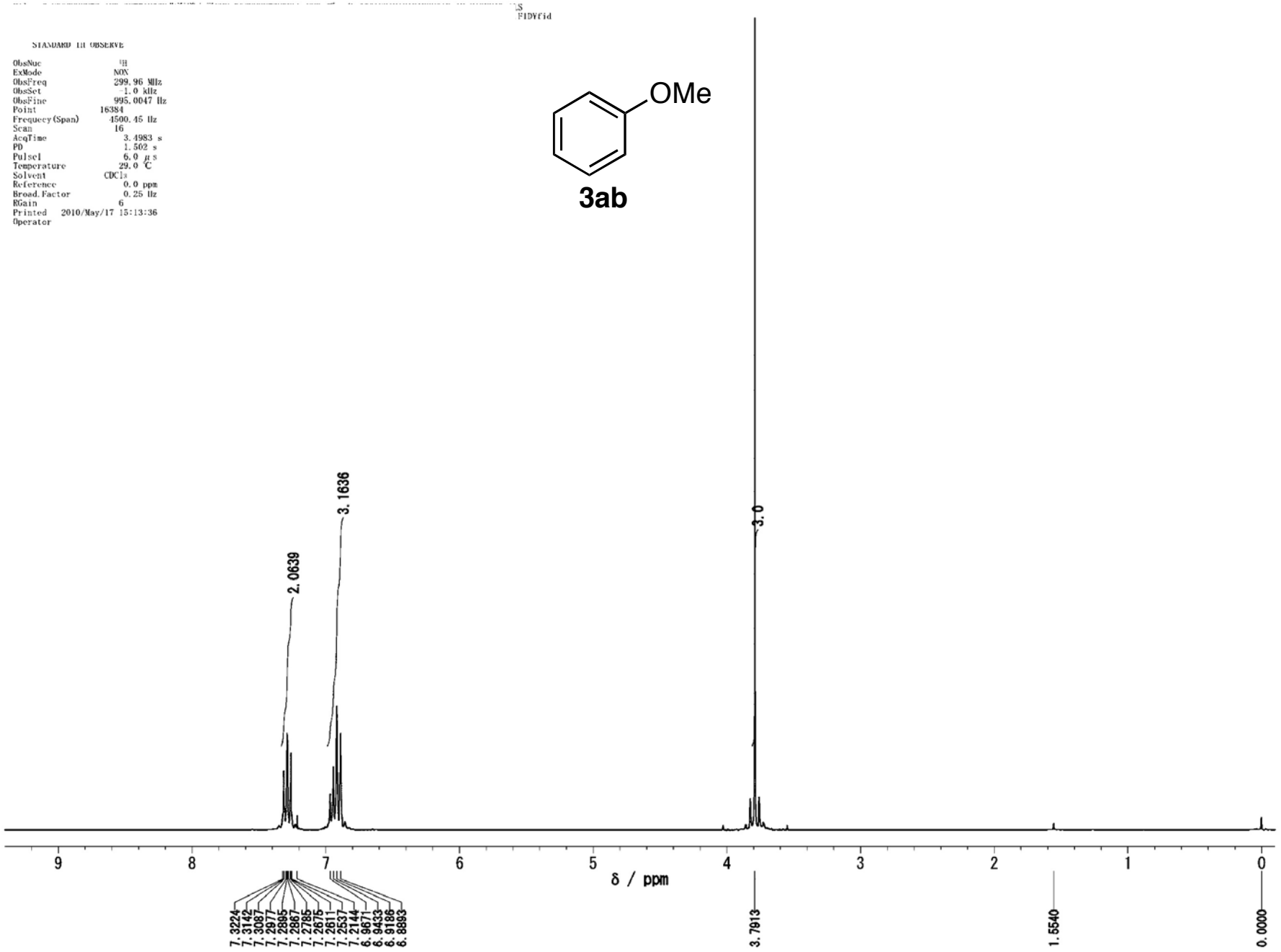


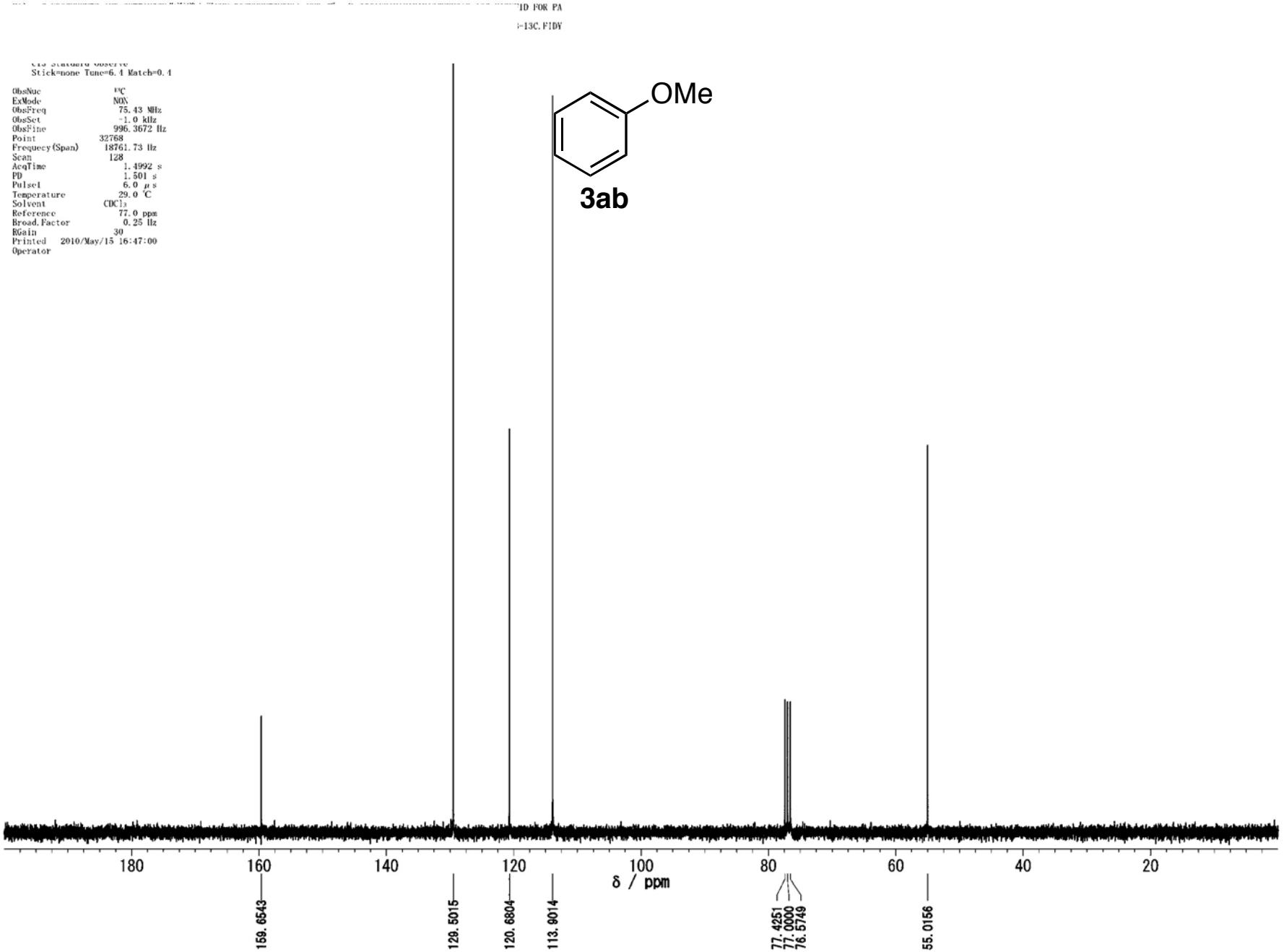
```
Original File:
Date            Mar  4 10
Comment
    C13 Statdard Observe
    Stick*none Tune=6.4 Match=0.4

ObsNuc                  13C
ExMode                  NOX
ObsFreq                 75.43 MHz
ObsSet                  -1.0 kHz
ObsFine                 996.3672 Hz
Point                   32768
Frequecy(Span)          18761.73 Hz
Scan                    128
AcqTime                 1.4992 s
PD                      1.501 s
Pulse1                  6.0 μs
Temperature             29.0 ℃
Solvent                 CDCl3
Reference               77.0 ppm
Broad.Factor            0.2863 Hz
RGain                   30
Printed   2010/May/14 15:18:36
Operator
```

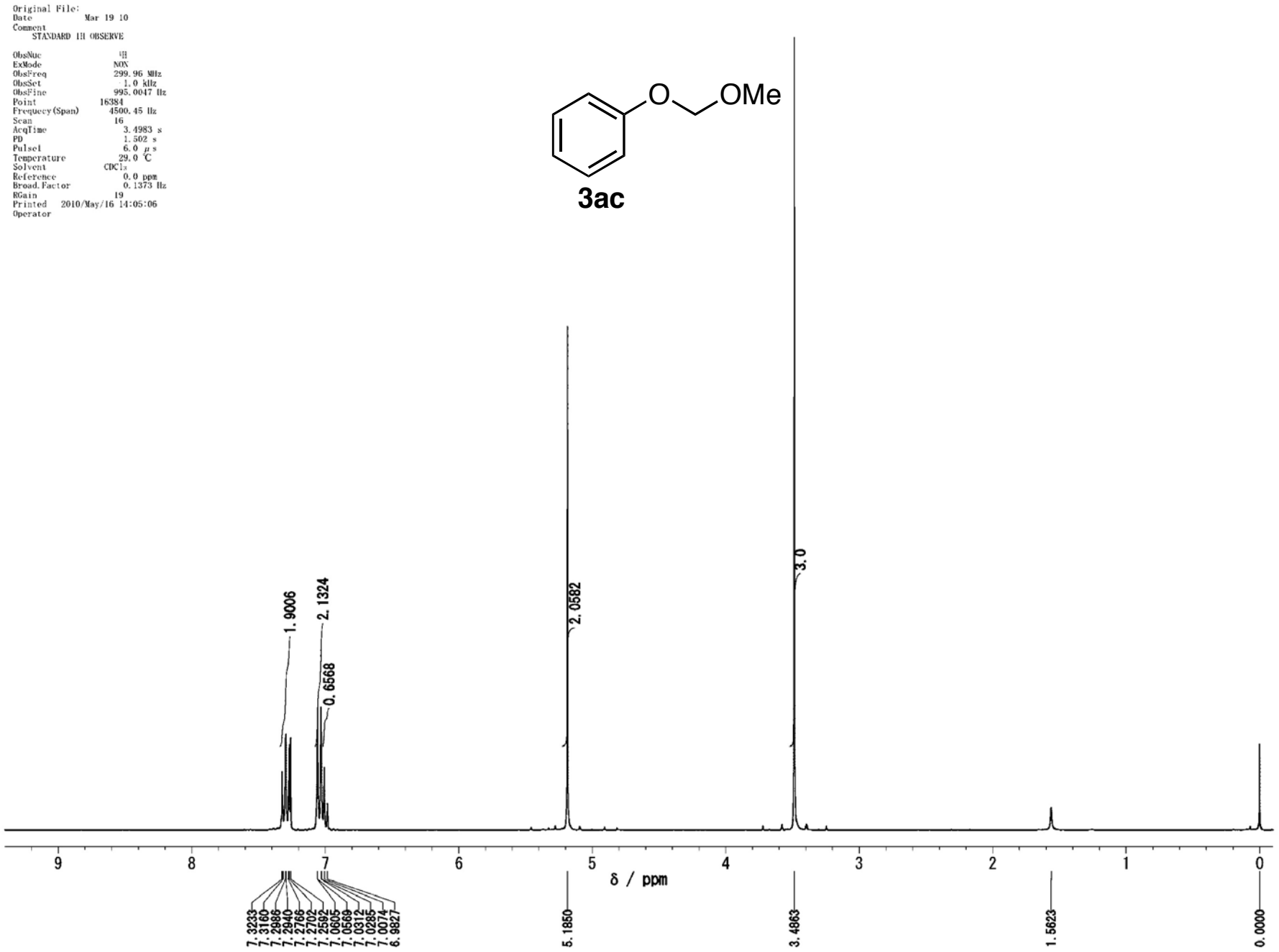


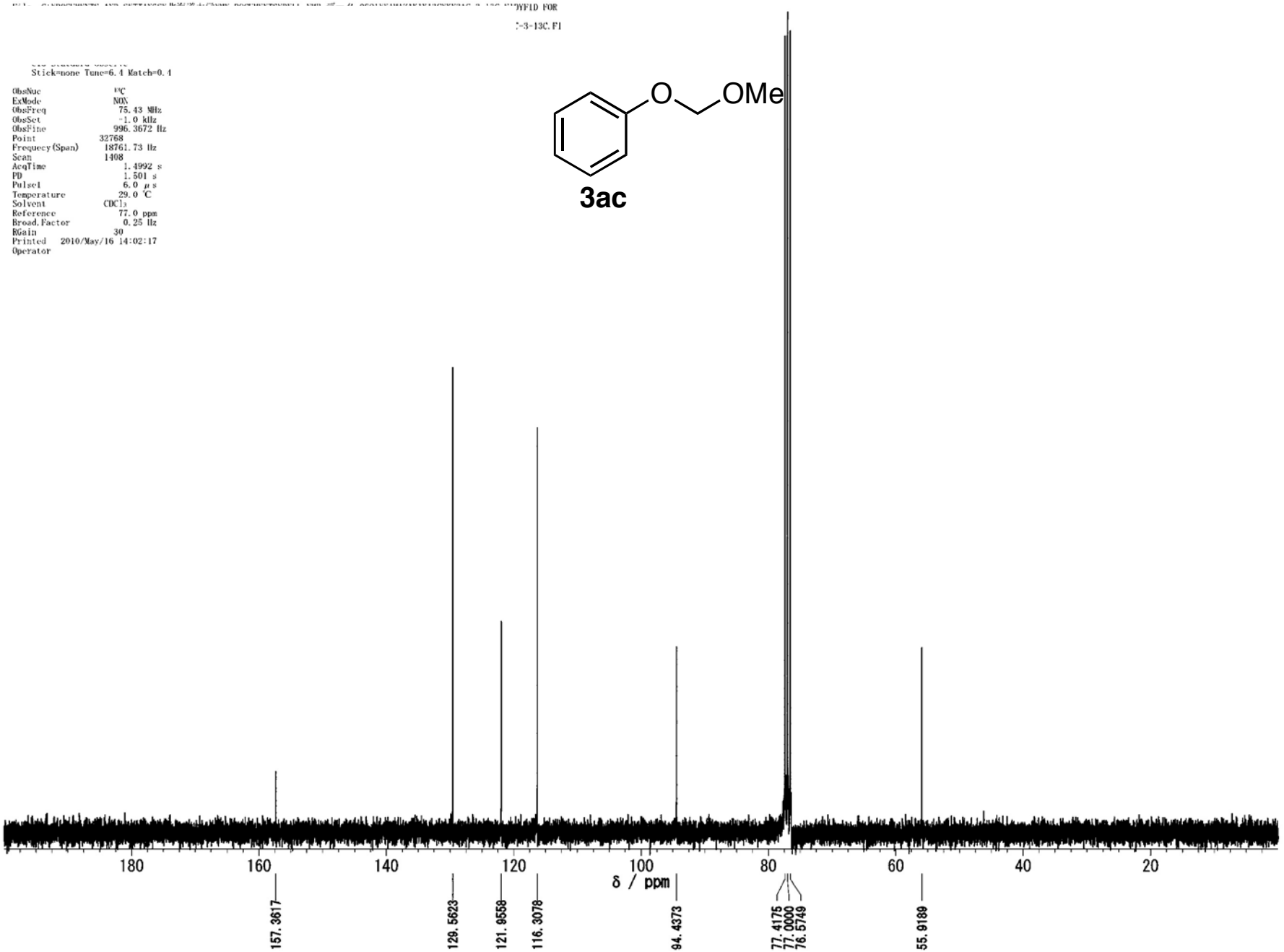
3aa

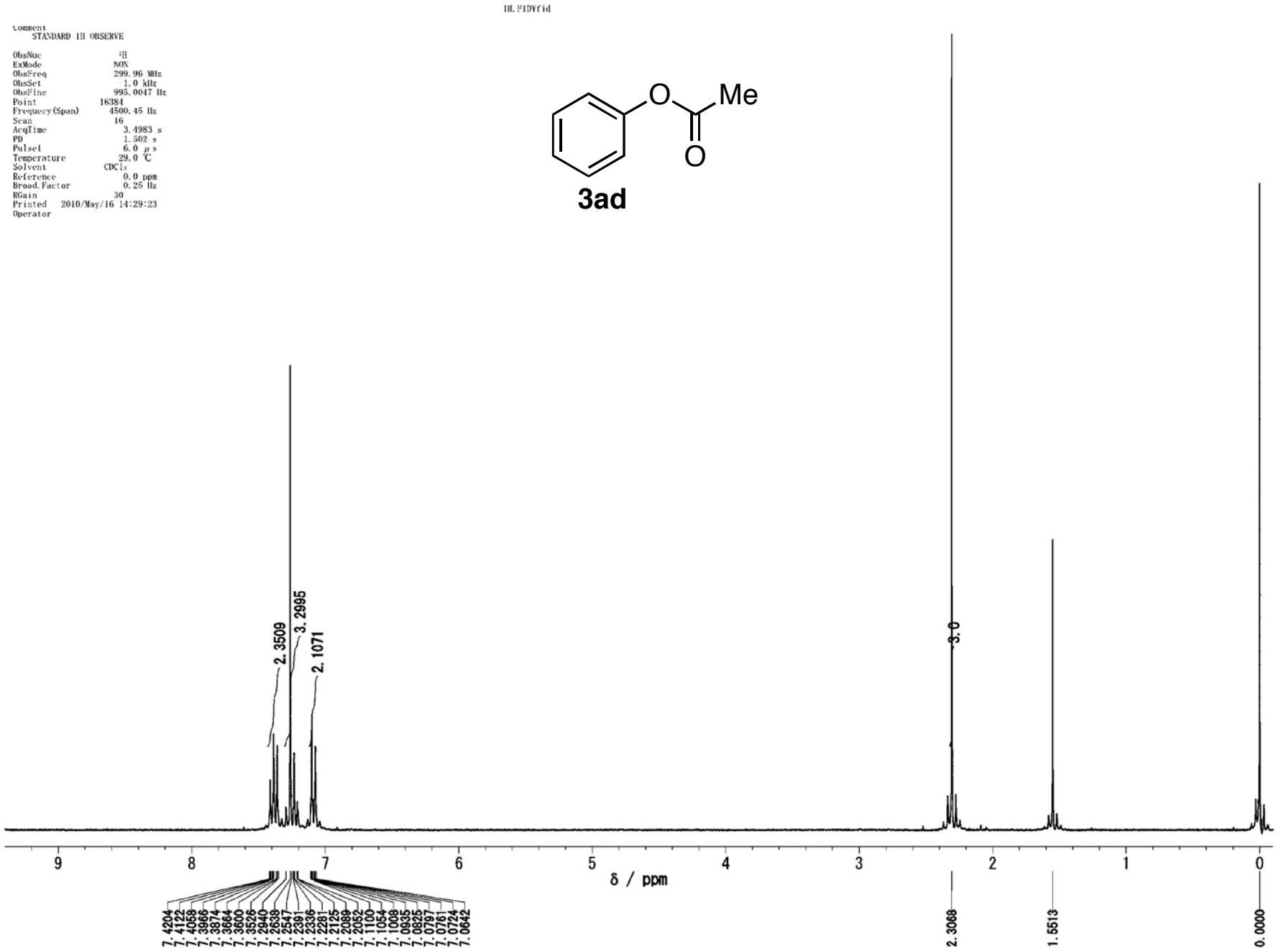


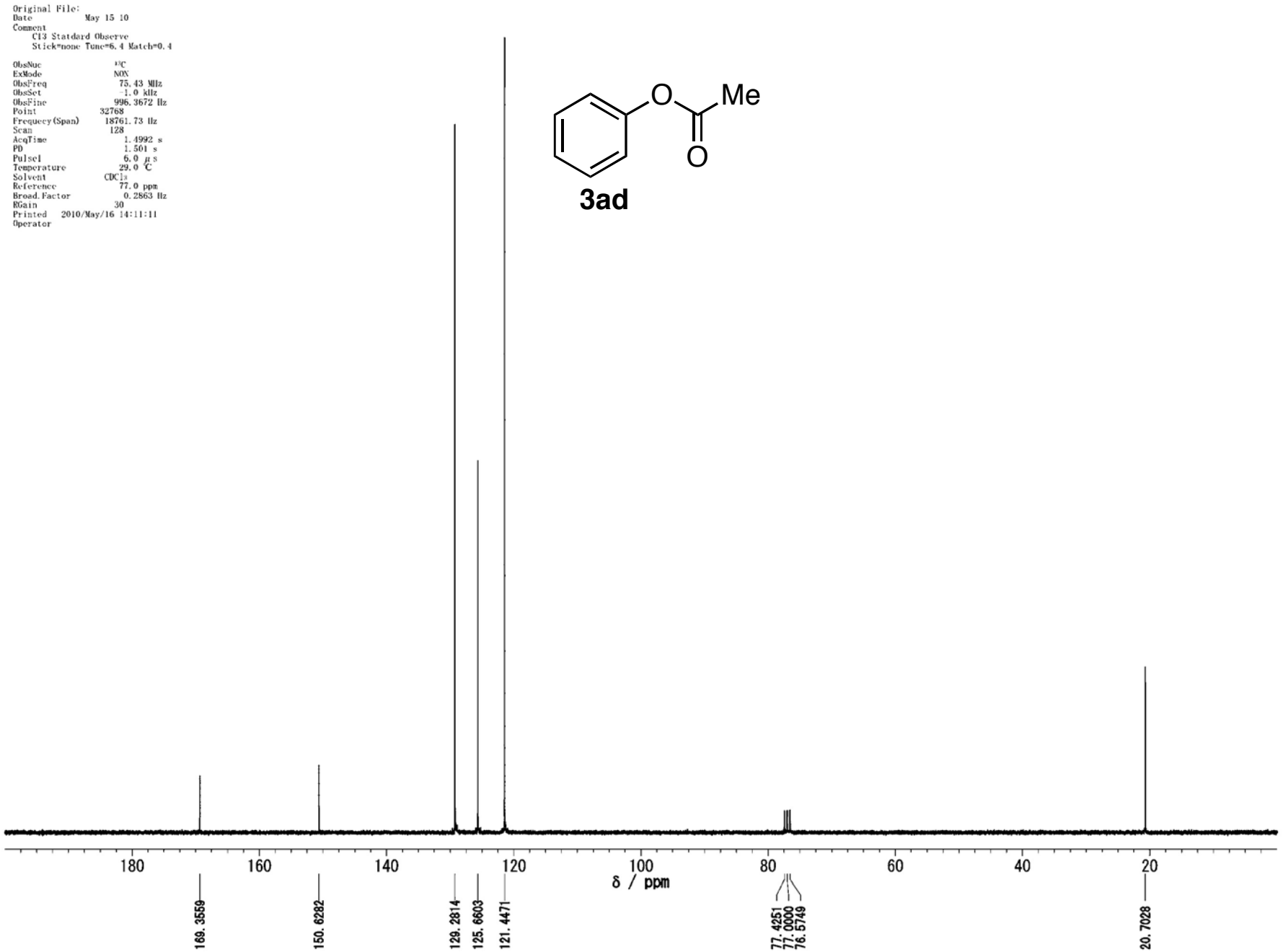

FIDYfid
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet -1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.25 Hz
RGain 6
Printed 2010/May/17 15:13:36
Operator
OMe
3ab
2.0639
3.1636
3.0
δ / ppm
7.3224
7.3142
7.3087
7.2977
7.2895
7.2867
7.2785
7.2675
7.2611
7.2537
7.2144
6.9671
6.9433
6.9186
6.8893
3.7913
1.5540
0.0000

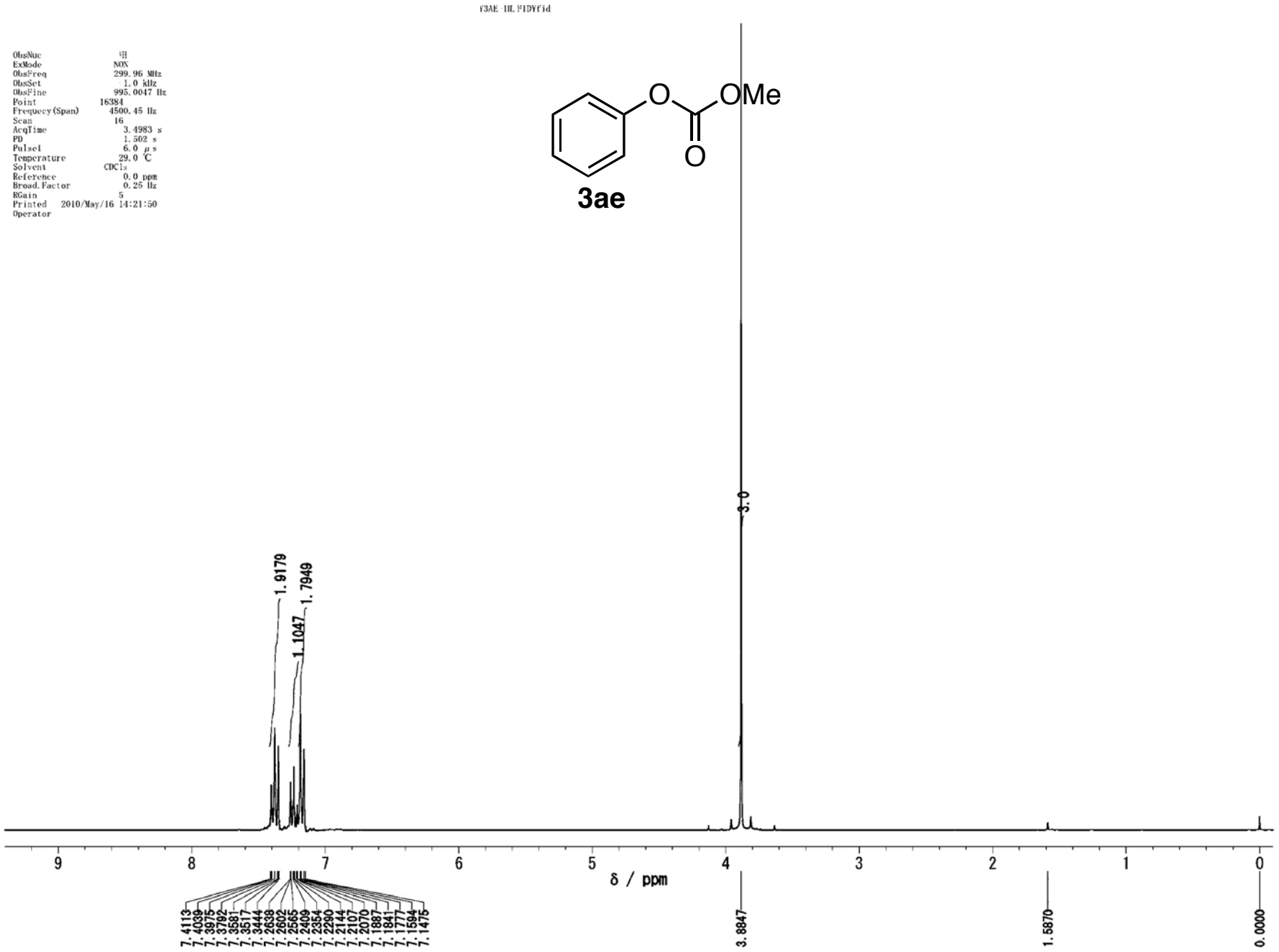

ID FOR PA
-13C.FIDY
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NON
ObsFreq 75.43 MHz
ObsSet -1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 128
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.25 Hz
RGain 30
Printed 2010/May/15 16:47:00
Operator
OMe
3ab
180
160
140
120
100
80
60
40
20
δ / ppm
159.6543
129.5015
120.6804
113.9014
77.4251
77.0000
76.5749
55.0156

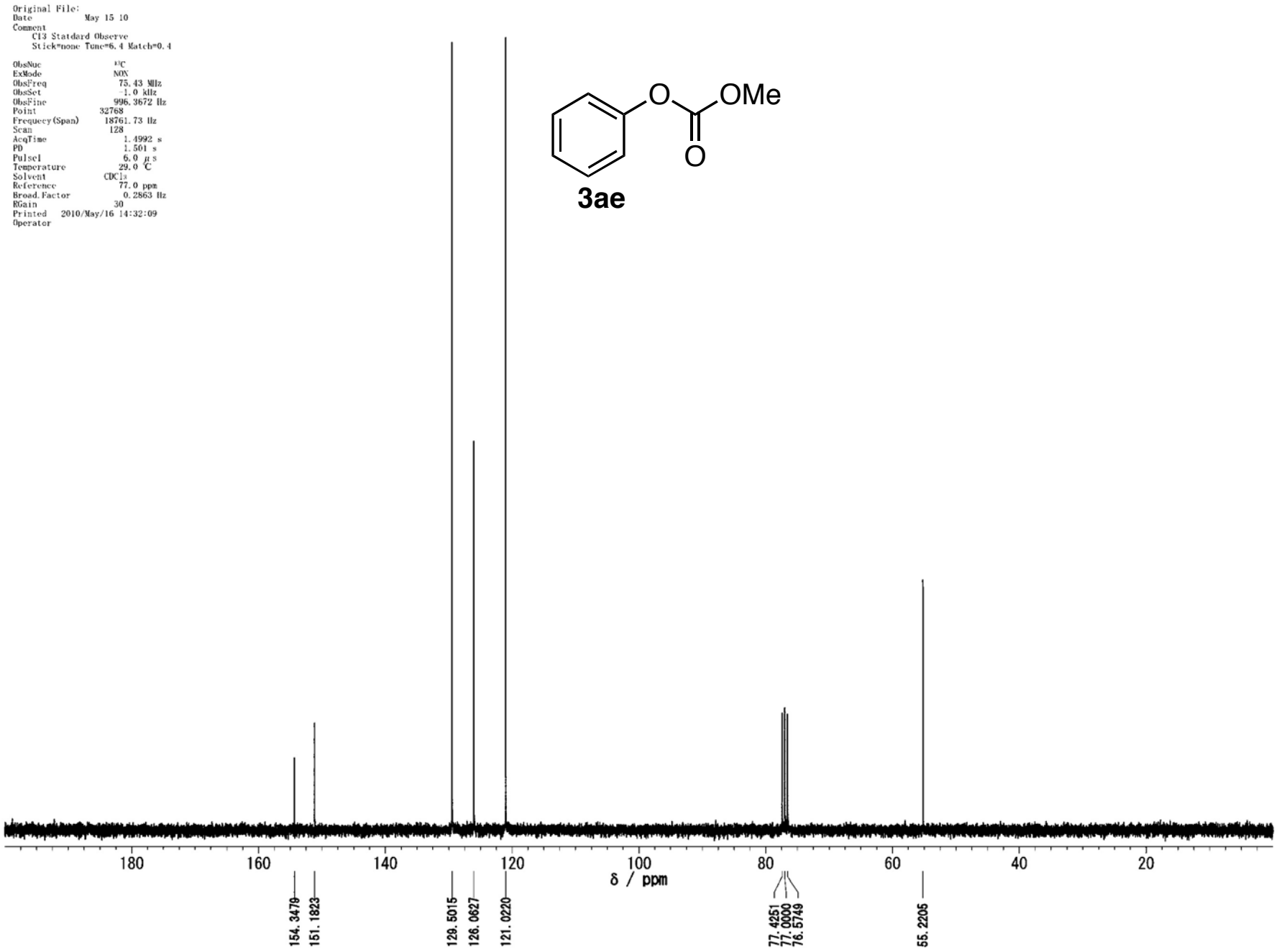

Original File:
Date Mar 19 10
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 19
Printed 2010/May/16 14:05:06
Operator
O
OMe
3ac
1.9006
2.1324
0.6568
2.0582
3.0
9
8
7
6
5
4
3
2
1
0
δ / ppm
7.3233
7.3160
7.2986
7.2940
7.2766
7.2702
7.2592
7.0605
7.0569
7.0312
7.0285
7.0074
6.9827
5.1850
3.4863
1.5623
0.0000

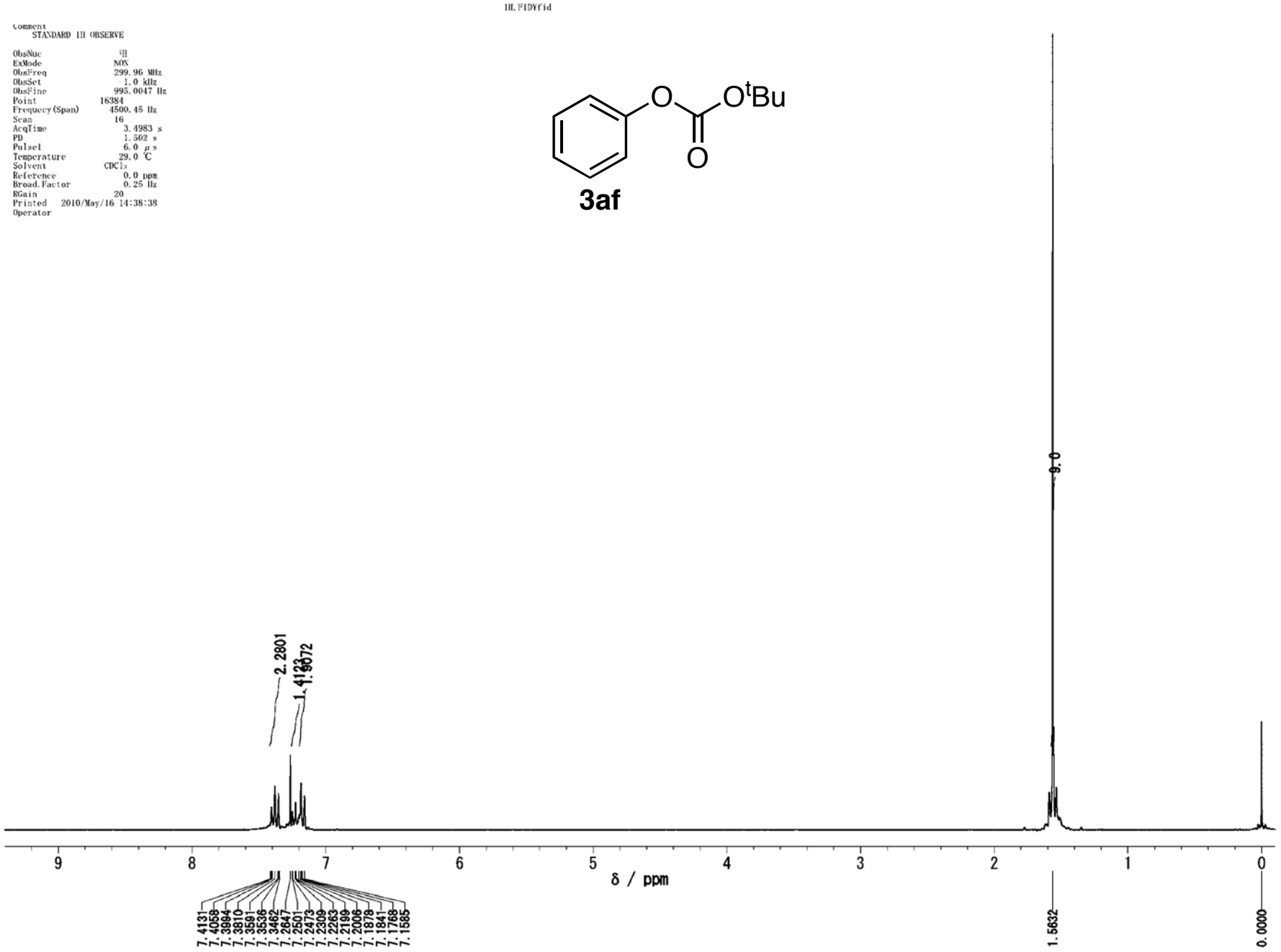

Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NON
ObsFreq 75.43 MHz
ObsSet -1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 1408
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.25 Hz
RGain 30
Printed 2010/May/16 14:02:17
Operator
O
OMe
3ac
180
160
140
120
100
80
60
40
20
δ / ppm
157.3617
129.5623
121.9558
116.3078
94.4373
77.4175
77.0000
76.5749
55.9189

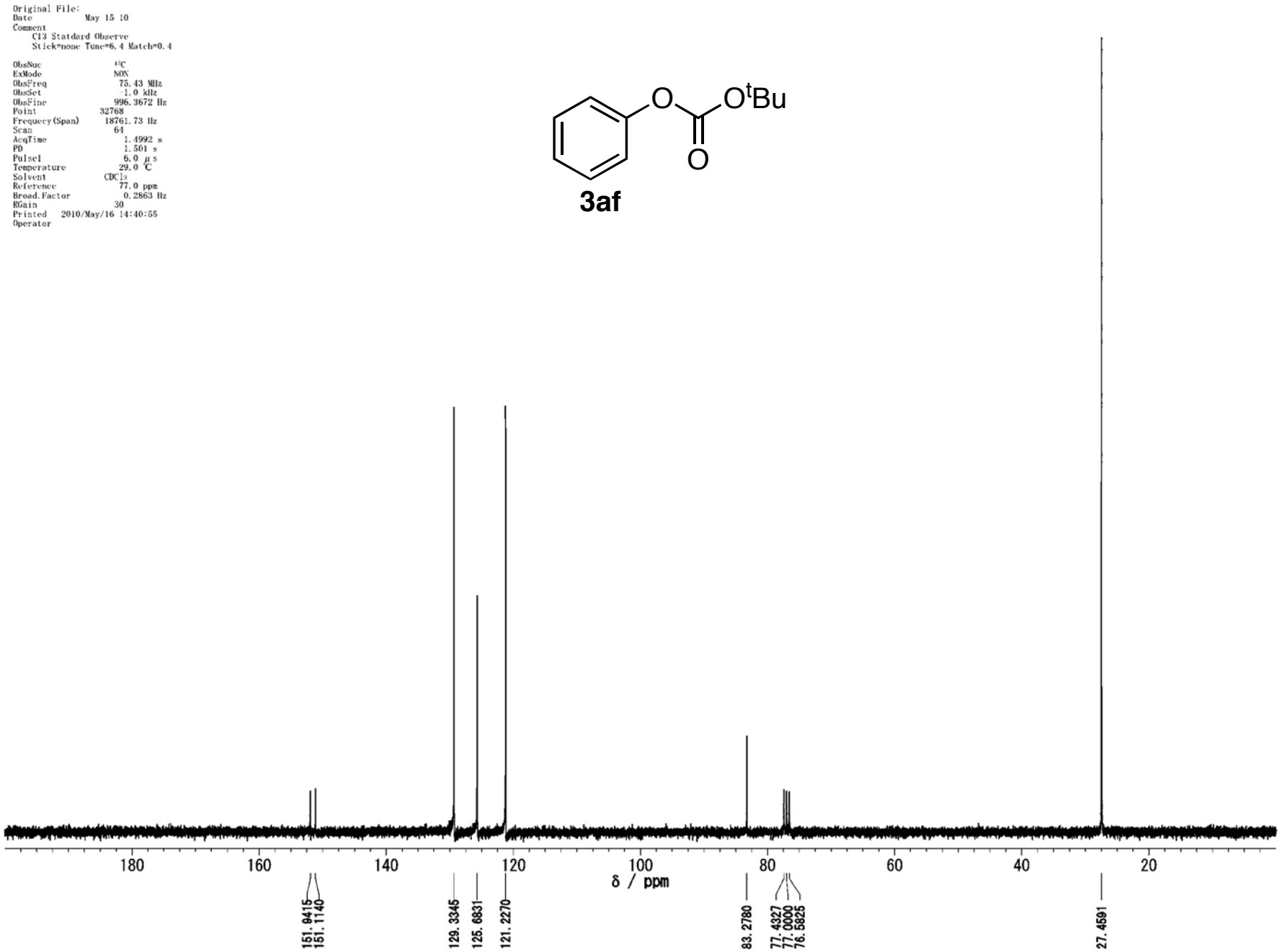

1H FIDYfid
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.25 Hz
RGain 30
Printed 2010/May/16 14:29:23
Operator
O
Me
O
3ad
2.3509
3.2995
2.1071
3.0
9
8
7
6
5
4
3
2
1
0
δ / ppm
7.4204
7.4122
7.4058
7.3966
7.3874
7.3664
7.3600
7.3526
7.2940
7.2638
7.2547
7.2391
7.2336
7.2281
7.2125
7.2089
7.2052
7.1100
7.1054
7.1008
7.0935
7.0825
7.0797
7.0761
7.0724
7.0642
2.3068
1.5513
0.0000

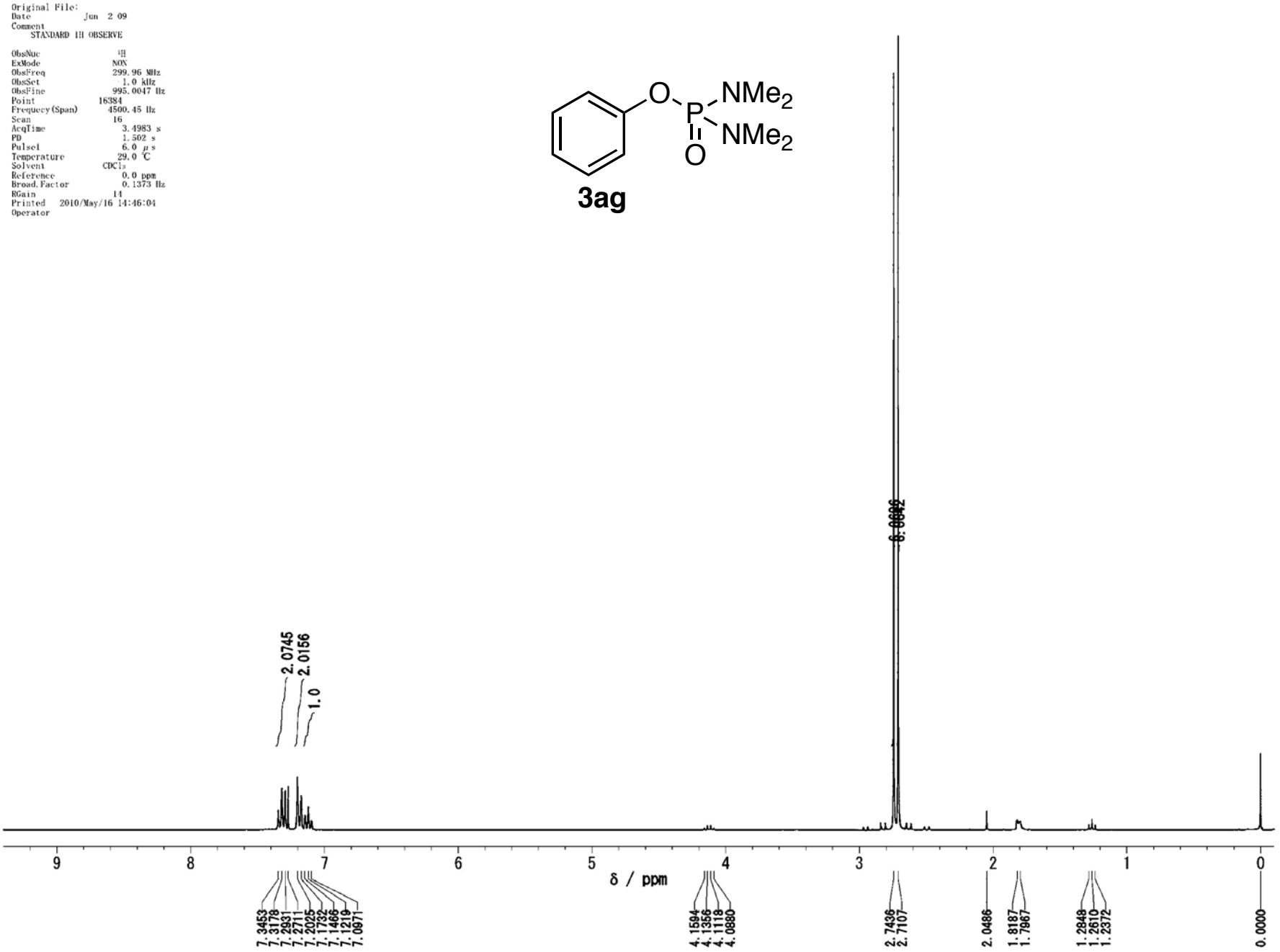

Original File:
Date May 15 10
Comment
C13 Statdard Observe
Stick*none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NOE
ObsFreq 75.43 MHz
ObsSet -1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 128
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/16 14:11:11
Operator
O
Me
O
3ad
180
160
140
120
100
80
60
40
20
δ / ppm
169.3559
150.6282
129.2814
125.6603
121.4471
77.4251
77.0000
76.5749
20.7028

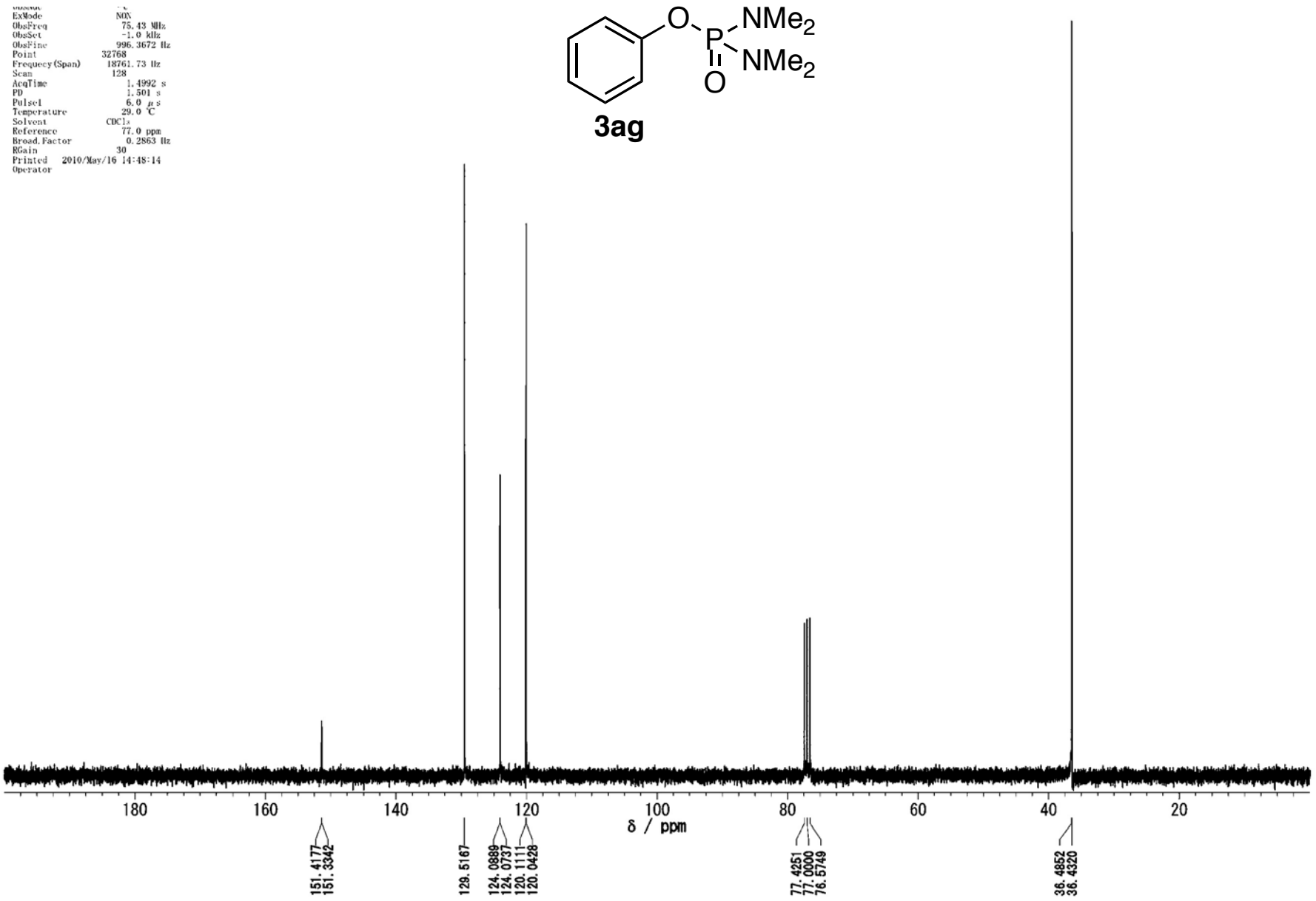

Y3AE-1H.FIDYfid
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.25 Hz
RGain 5
Printed 2010/May/16 14:21:50
Operator
O
O
OMe
O
3ae
1.9179
1.7949
1.1047
3.0
9
8
7
6
5
4
3
2
1
0
δ / ppm
7.4113
7.4039
7.3975
7.3792
7.3581
7.3517
7.3444
7.2638
7.2602
7.2565
7.2409
7.2354
7.2290
7.2144
7.2107
7.2070
7.1887
7.1841
7.1777
7.1594
7.1475
3.8847
1.5870
0.0000

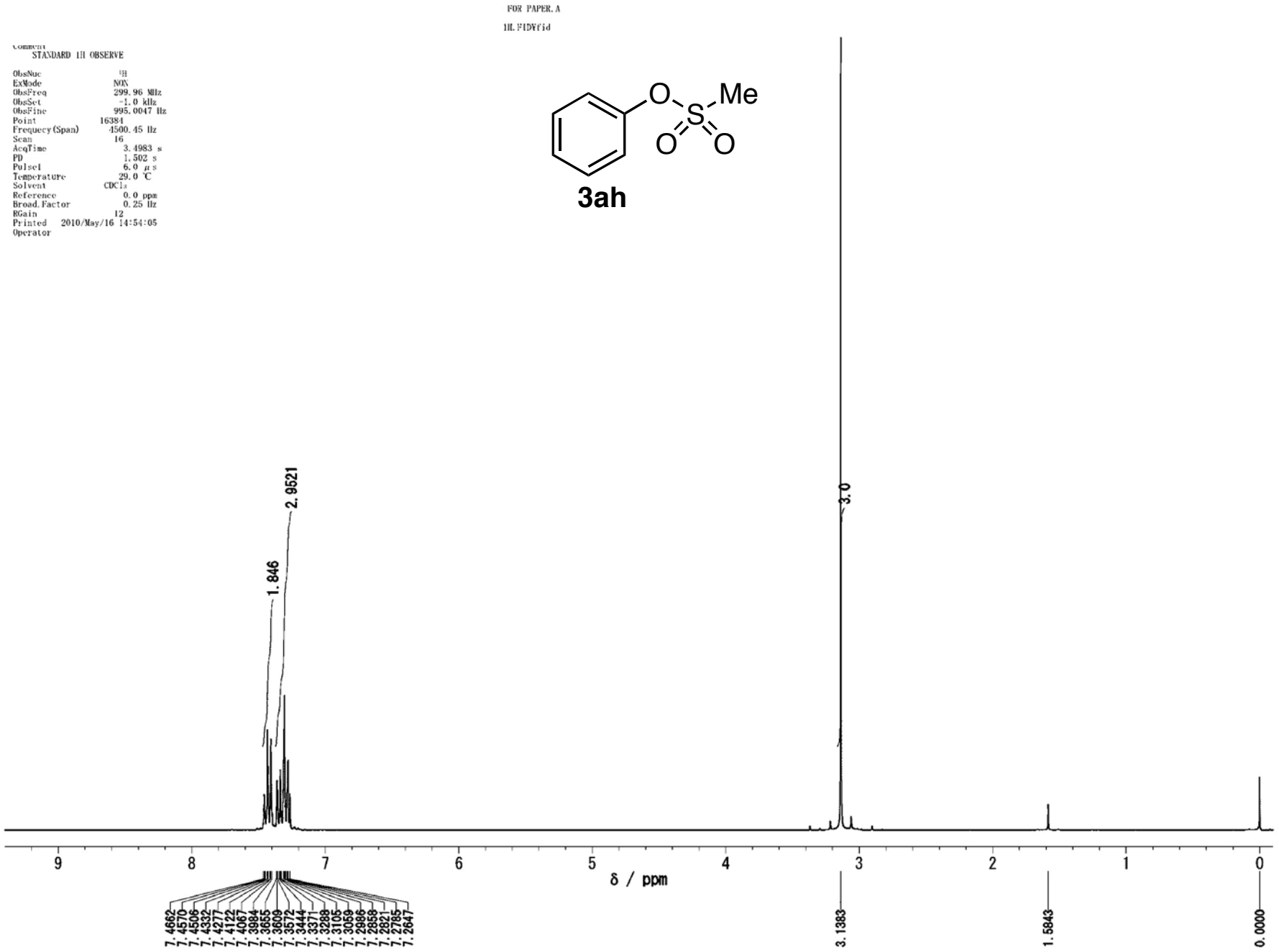

Original File:
Date May 15 10
Comment
C13 Statdard Observe
Stick*none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NOX
ObsFreq 75.43 MHz
ObsSet -1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 128
AcqTime 1.4992 s
PD 1.501 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/16 14:32:09
Operator
O
OMe
O
3ae
180
160
140
120
100
80
60
40
20
δ / ppm
154.3479
151.1823
129.5015
126.0627
121.0220
77.4251
77.0000
76.5749
55.2205

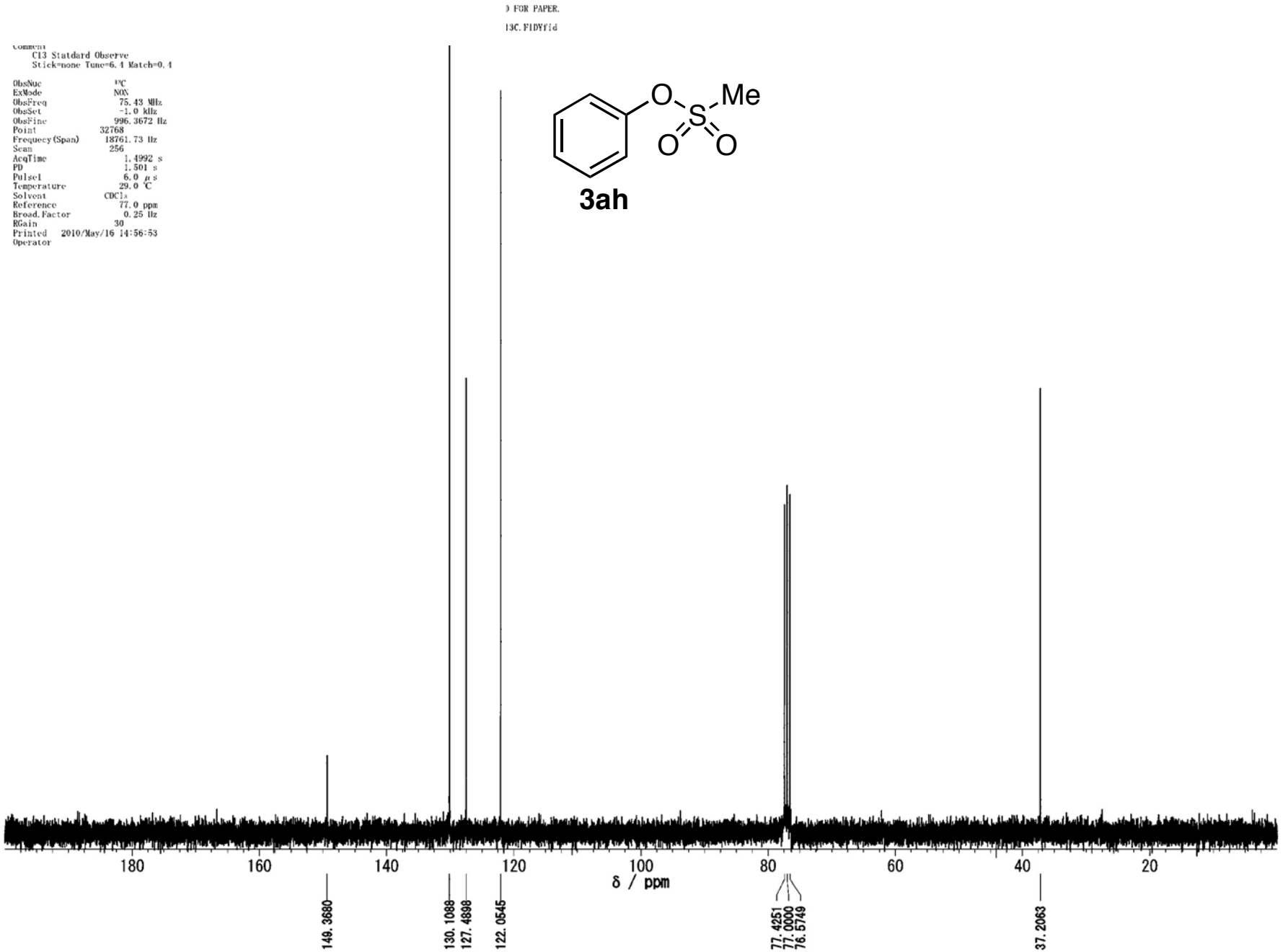

1H FIDYfid
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.25 Hz
RGain 20
Printed 2010/May/16 14:38:38
Operator
O
O
OtBu
3af
2.2801
1.4123
1.4072
9.0
δ / ppm
7.4131
7.4058
7.3994
7.3810
7.3591
7.3536
7.3462
7.2647
7.2501
7.2473
7.2309
7.2263
7.2199
7.2006
7.1878
7.1841
7.1768
7.1585
1.5632
0.0000

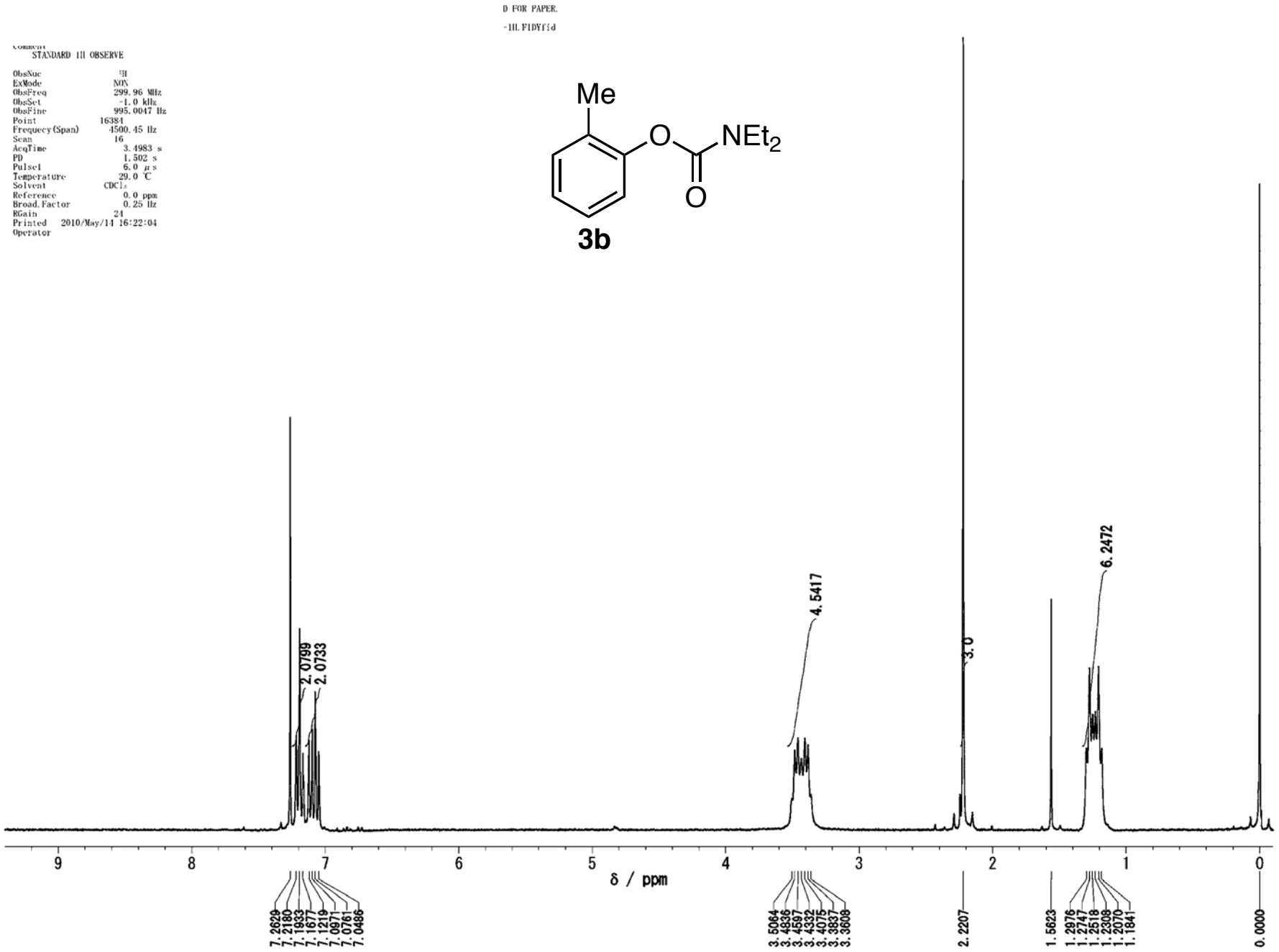

Original File:
Date May 15 10
Comment
C13 Statdard Observe
Stick*none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NOX
ObsFreq 75.43 MHz
ObsSet -1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 64
AcqTime 1.4992 s
PD 1.501 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/16 14:40:55
Operator
O
O
OtBu
3af
180
160
140
120
100
80
60
40
20
δ / ppm
151.9415
151.1140
129.3345
125.6831
121.2270
83.2780
77.4327
77.0000
76.5825
27.4591


Original File:
Date Jun 2 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 14
Printed 2010/May/16 14:46:04
Operator
O
P
O
NMe2
NMe2
3ag
2.0745
2.0156
1.0
δ / ppm
7.3453
7.3178
7.2931
7.2711
7.2025
7.1732
7.1466
7.1219
7.0971
4.1594
4.1356
4.1118
4.0880
2.7436
2.7107
2.0486
1.8187
1.7967
1.2848
1.2610
1.2372
0.0000


ExMode NON
ObsFreq 75.43 MHz
ObsSet -1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 128
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/16 14:48:14
Operator
O
P
NMe2
NMe2
O
3ag
180
160
140
120
100
80
60
40
20
δ / ppm
151.4177
151.3342
129.5167
124.0889
124.0737
120.1111
120.0428
77.4251
77.0000
76.5749
36.4852
36.4320

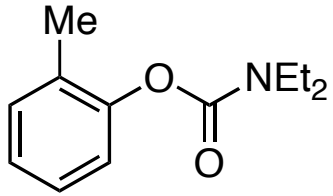

FOR PAPER, A
1H FIDYfid
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet -1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.25 Hz
RGain 12
Printed 2010/May/16 14:54:05
Operator
O
S
Me
O
O
3ah
2.9521
1.846
3.0
9
8
7
6
5
4
3
2
1
0
δ / ppm
7.4662
7.4570
7.4506
7.4332
7.4277
7.4122
7.4067
7.3984
7.3655
7.3609
7.3572
7.3444
7.3371
7.3288
7.3105
7.3059
7.2986
7.2858
7.2821
7.2785
7.2647
3.1383
1.5843
0.0000


D FOR PAPER.
13C.FIDYfid
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NON
ObsFreq 75.43 MHz
ObsSet -1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 256
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.25 Hz
RGain 30
Printed 2010/May/16 14:56:53
Operator
O
S
Me
O
O
3ah
180
160
140
120
100
80
60
40
20
δ / ppm
149.3680
130.1088
127.4898
122.0545
77.4251
77.0000
76.5749
37.2063

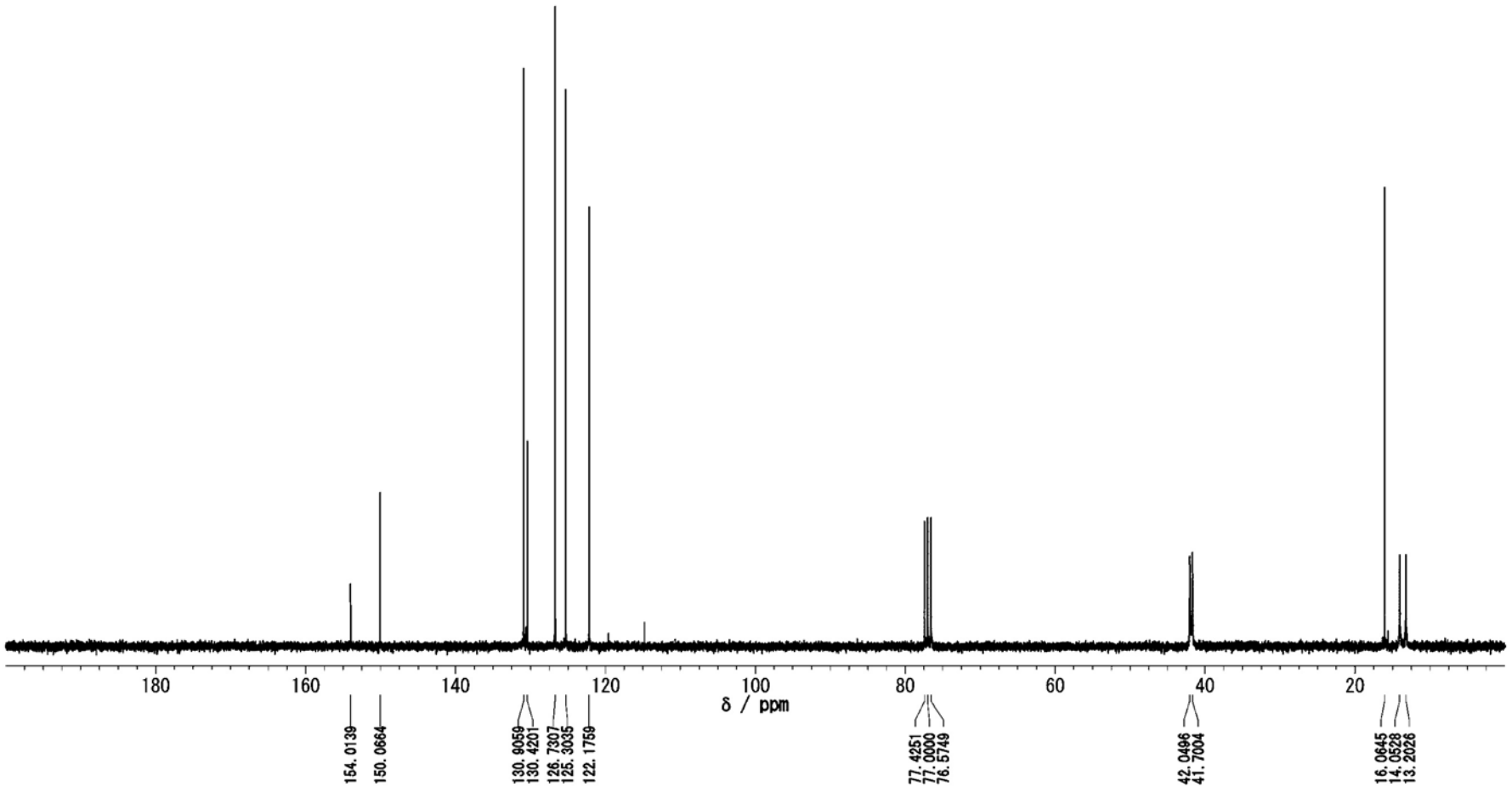

D FOR PAPER.
-1H.FIDYf1d
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet -1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.25 Hz
RGain 24
Printed 2010/May/14 16:22:04
Operator
Me
O
NEt2
O
3b
2.0799
2.0733
4.5417
3.0
6.2472
δ / ppm
9
8
7
6
5
4
3
2
1
0
7.2629
7.2180
7.1933
7.1677
7.1219
7.0971
7.0761
7.0486
3.5064
3.4836
3.4597
3.4332
3.4075
3.3837
3.3608
2.2207
1.5623
1.2976
1.2747
1.2518
1.2309
1.2070
1.1841
0.0000

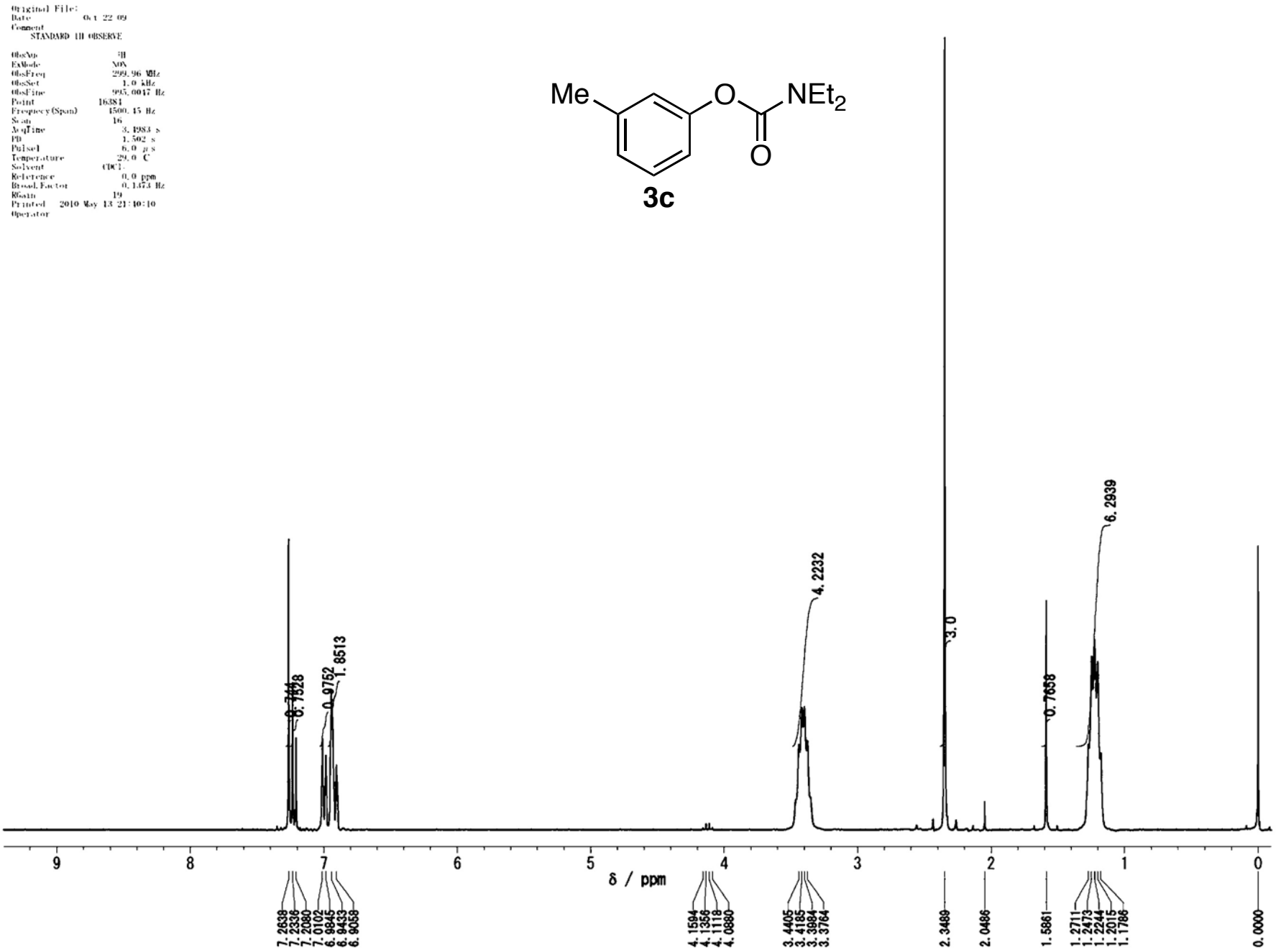
Original File:
Date May 12 10
Comment
CI3 Statdard Observe
Stick=none Tune=6.4 Match=0.4

ObsNuc	^{13}C
ExMode	NOE
ObsFreq	75.43 MHz
ObsSet	-1.0 kHz
ObsFine	996.3672 Hz
Point	32768
Frequecy(Span)	18761.73 Hz
Scan	256
AcqTime	1.4992 s
PD	1.501 s
Pulse1	6.0 μs
Temperature	29.0 ℃
Solvent	CDCl3
Reference	77.0 ppm
Broad.Factor	0.2863 Hz
RGain	30
Printed	2010/May/14 16:23:57
Operator	



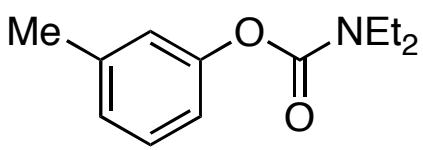
3b



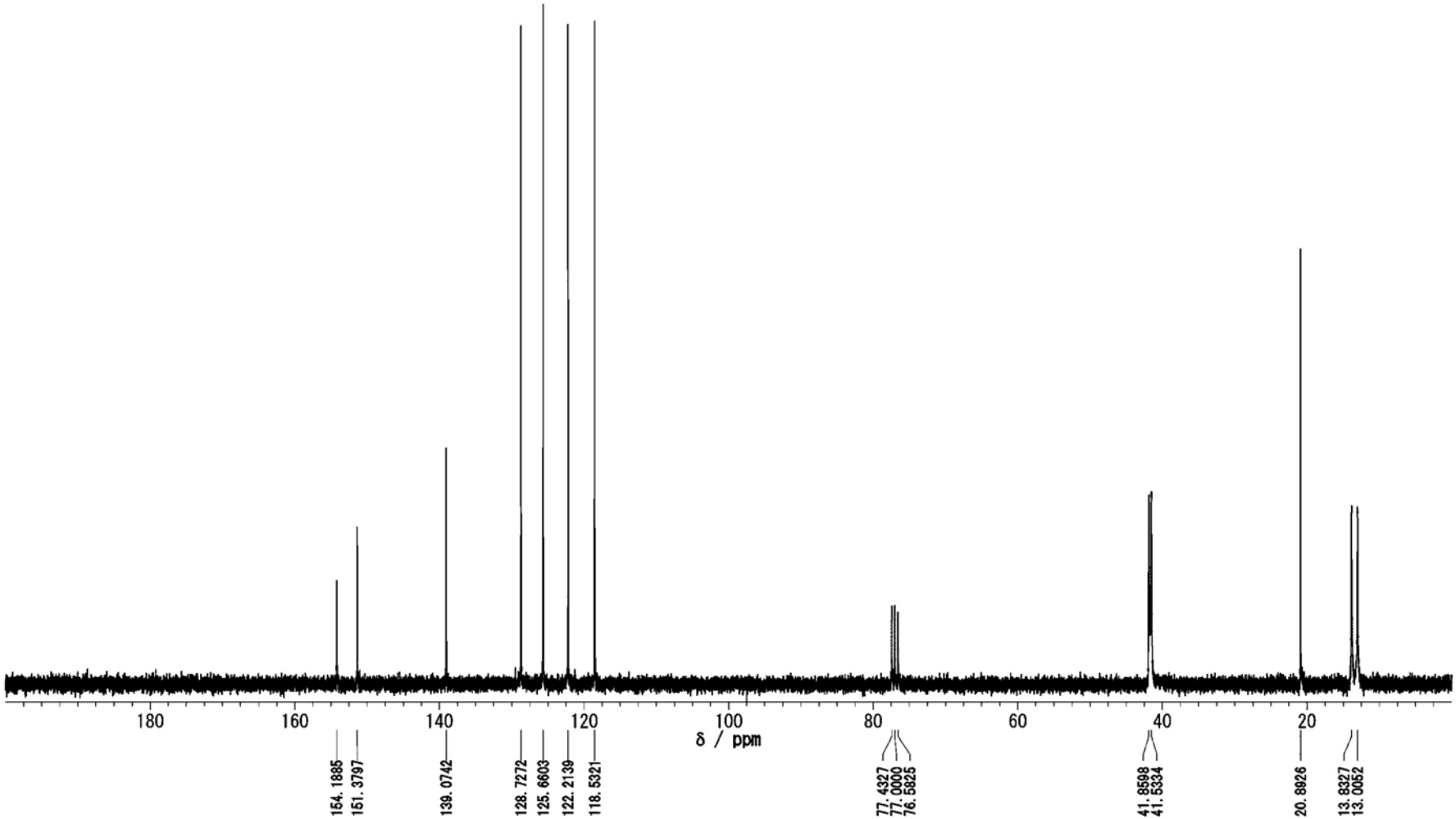

Original File:
Date Oct 22 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequency(Span) 1500.15 Hz
Scan 16
AcqTime 3.4983 s
PD 1.562 s
Pulse1 6.0 μs
Temperature 29.0 C
Solvent CDCl3
Reference 0.0 ppm
Broad Factor 0.1473 Hz
RGain 19
Printed 2010 May 13 21:40:10
Operator
Me
O
O
NEt2
3c
7.2638
7.2338
7.2080
7.0102
6.9845
6.9433
6.9058
4.1594
4.1356
4.1118
4.0880
3.4405
3.4185
3.3984
3.3764
2.3489
2.0486
1.5861
1.2711
1.2473
1.2244
1.2015
1.1786
0.0000
δ / ppm

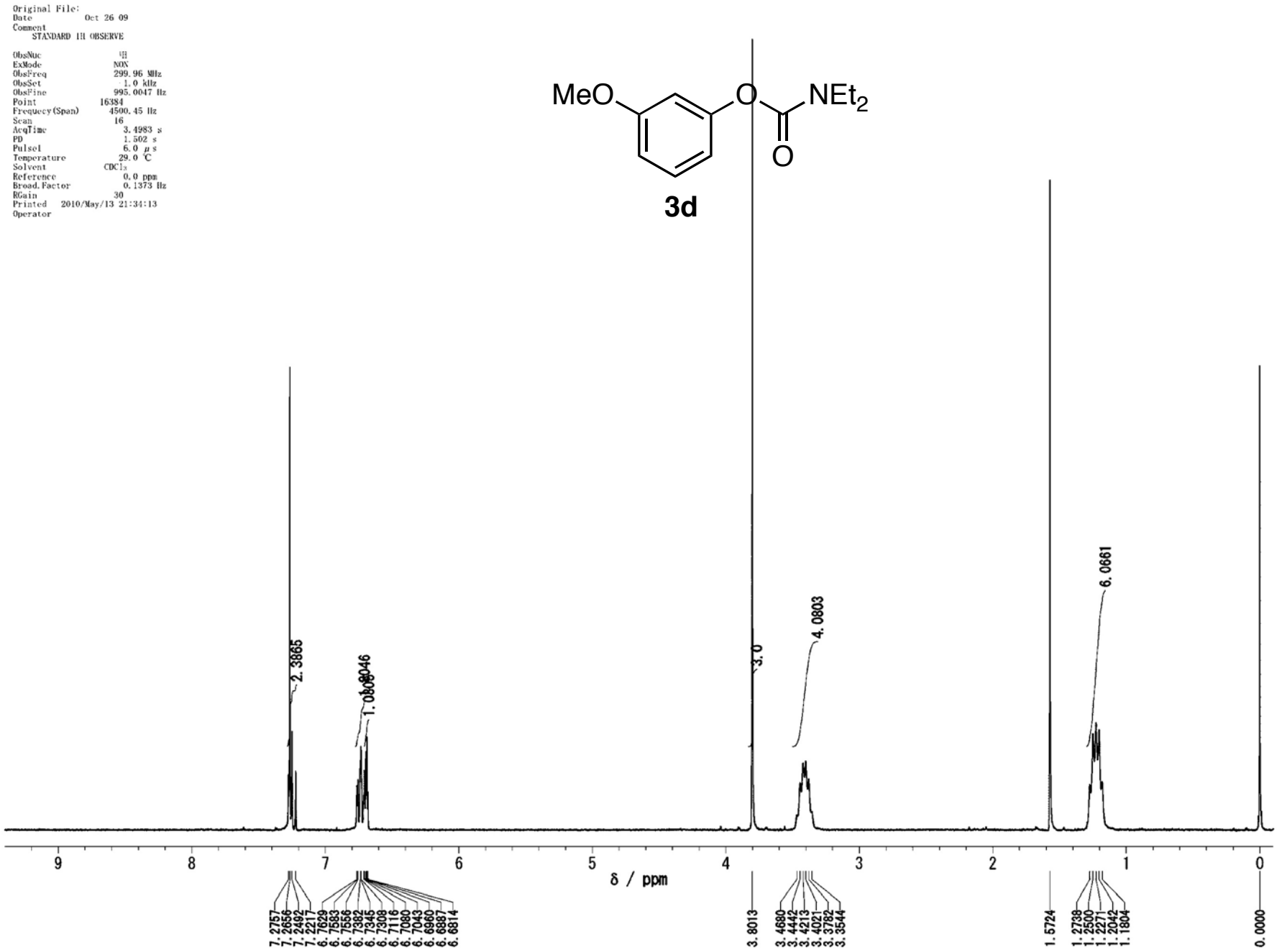
Original File:
Date May 12 10
Comment
CI3 Statdard Observe
Stick=none Tune=6.4 Match=0.4

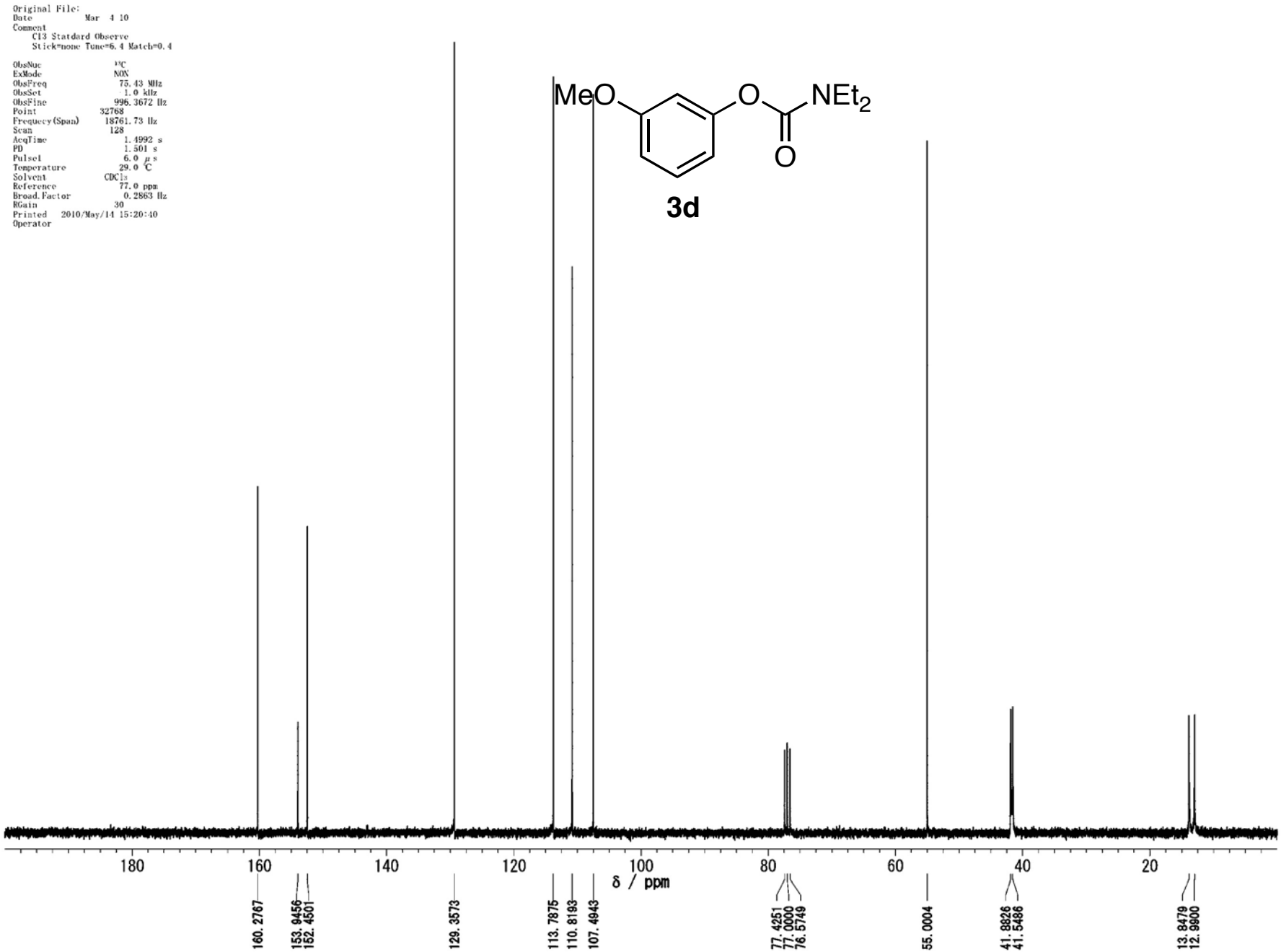
ObsNuc	^{13}C
ExMode	NON
ObsFreq	75.43 MHz
ObsSet	1.0 kHz
ObsFine	996.3672 Hz
Point	32768
Frequecy(Span)	18761.73 Hz
Scan	128
AcqTime	1.4992 s
PD	1.501 s
Pulse1	6.0 μs
Temperature	29.0 ℃
Solvent	CDCl3
Reference	77.0 ppm
Broad.Factor	0.2863 Hz
RGain	30
Printed	2010/May/14 15:16:16
Operator	

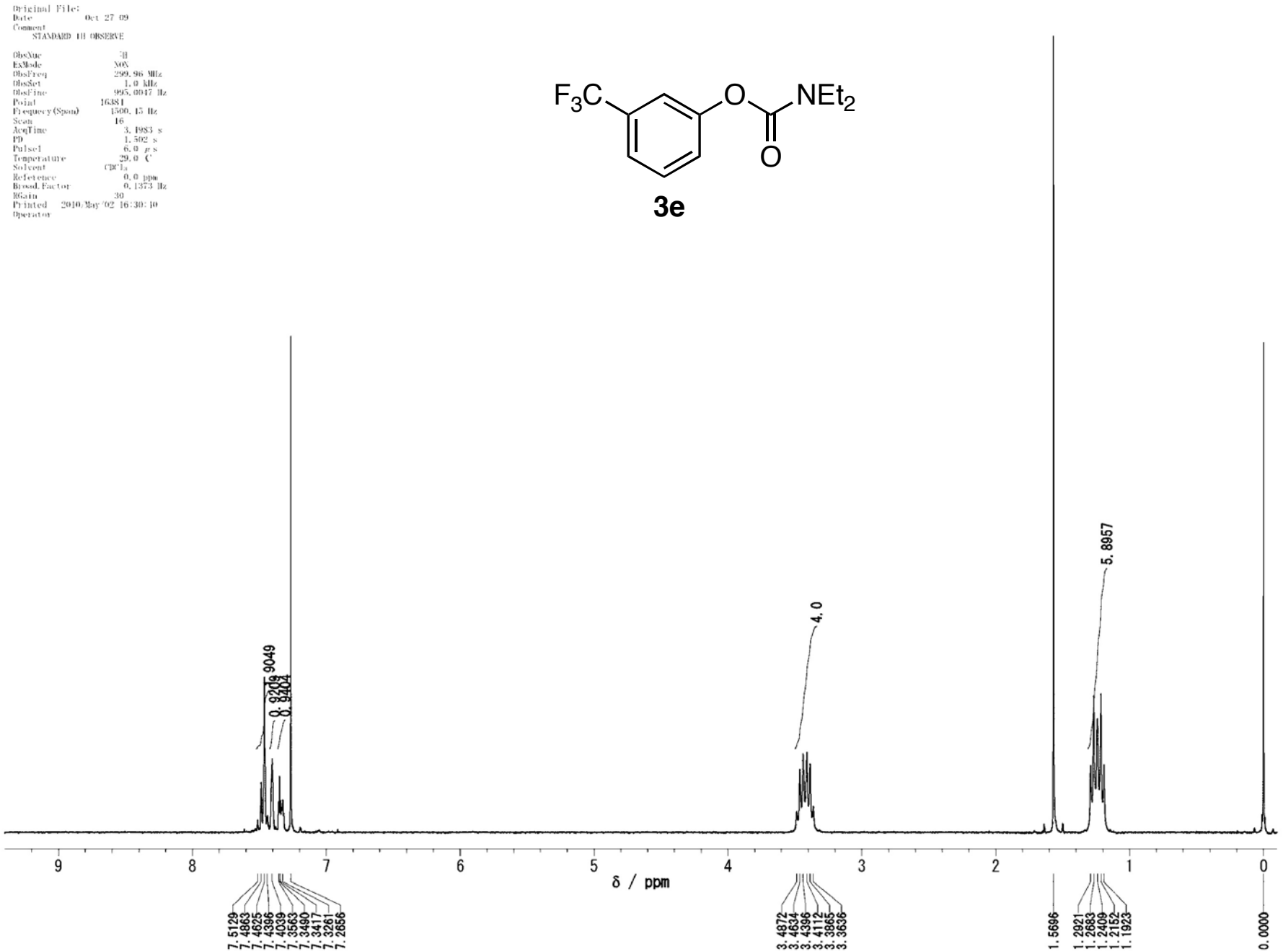


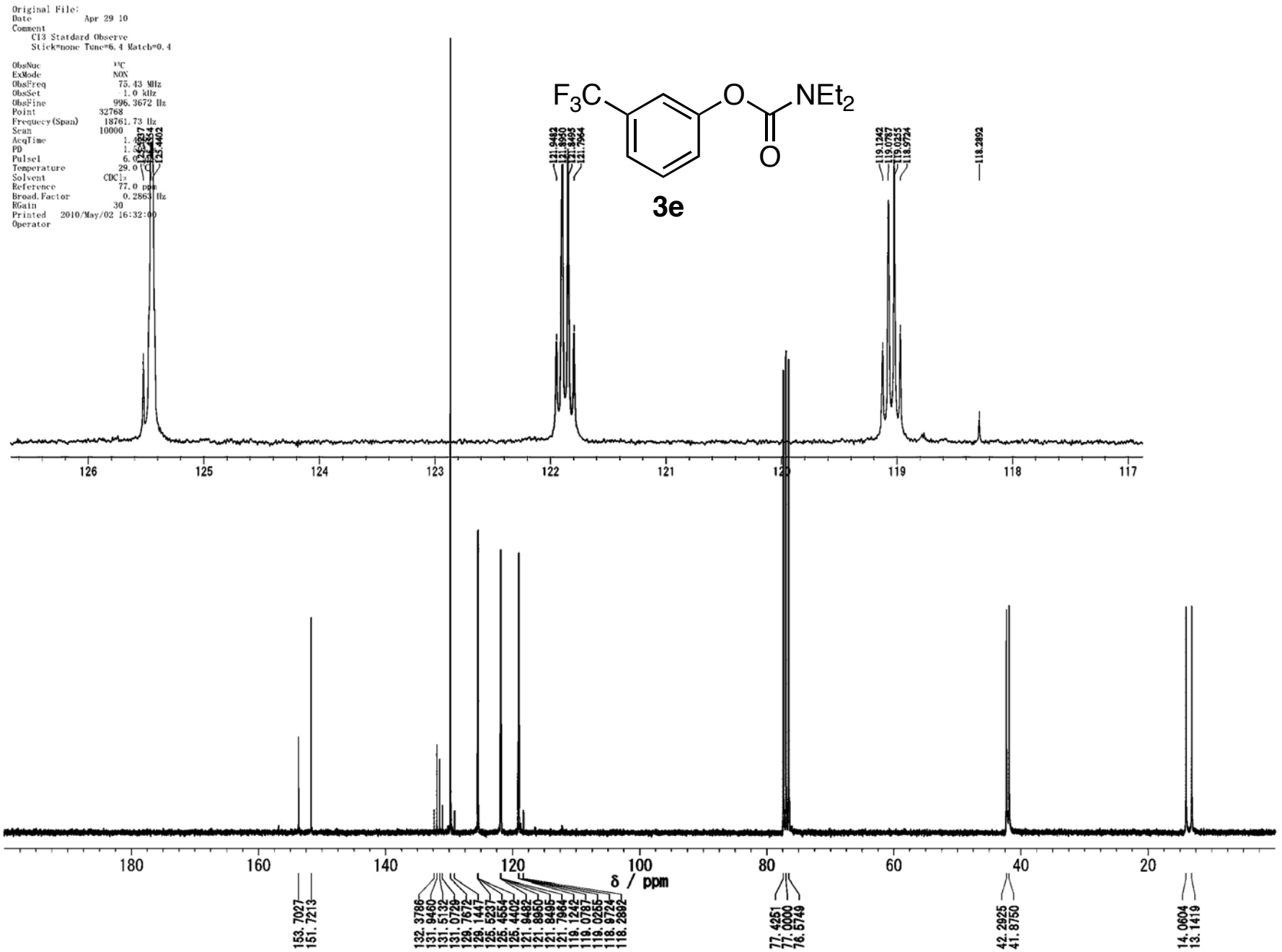
3c




Original File:
Date Oct 26 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 30
Printed 2010/May/13 21:34:13
Operator
MeO
O
NEt2
O
3d
2.3865
1.0000
1.0046
1.0808
3.0
4.0803
6.0661
δ / ppm
7.2757
7.2656
7.2492
7.2217
6.7629
6.7583
6.7556
6.7382
6.7345
6.7308
6.7116
6.7080
6.7043
6.6960
6.6887
6.6814
3.8013
3.4680
3.4442
3.4213
3.4021
3.3782
3.3544
1.5724
1.2738
1.2500
1.2271
1.2042
1.1804
0.0000

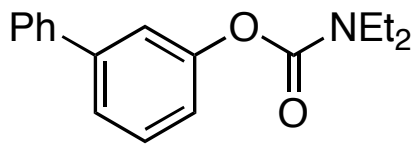

Original File:
Date Mar 4 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NOE
ObsFreq 75.43 MHz
ObsSet 1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 128
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/14 15:20:40
Operator
MeO
O
O
NEt2
3d
180
160
140
120
100
80
60
40
20
δ / ppm
160.2767
153.9456
152.4501
129.3573
113.7875
110.8193
107.4943
77.4251
77.0000
76.5749
55.0004
41.8826
41.5486
13.8479
12.9800


Original File:
Date Oct 27 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NOE
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequency(Span) 1500.15 Hz
Scan 16
AcqTime 3.1983 s
PD 1.502 s
Pulse1 6.0 μs
Temperature 29.0 C
Solvent CDCl3
Reference 0.0 ppm
Broad Factor 0.1373 Hz
RGain 30
Printed 2010/May/02 16:30:10
Operator
F3C
O
NEt2
O
3e
7.9049
7.9024
4.0
5.8957
δ / ppm
9
8
7
6
5
4
3
2
1
0
7.5129
7.4863
7.4625
7.4396
7.4039
7.3563
7.3490
7.3417
7.3261
7.2656
3.4872
3.4634
3.4396
3.4112
3.3865
3.3636
1.5696
1.2921
1.2683
1.2409
1.2152
1.1923
0.0000

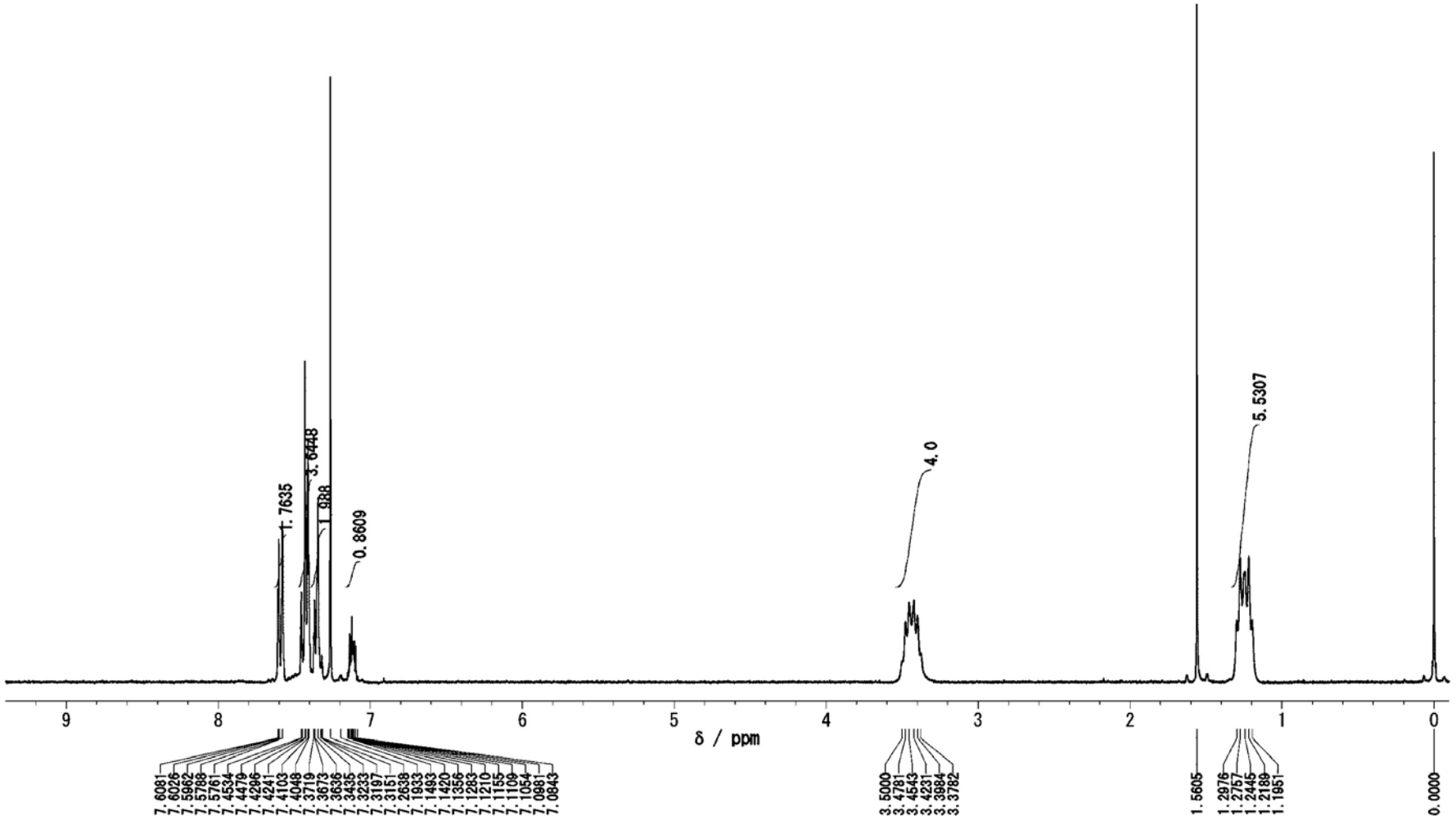

Original File:
Date Apr 29 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NON
ObsFreq 75.43 MHz
ObsSet 1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 10000
AcqTime 1.
PD 1.
Pulsel 6.
Temperature 29.0
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/02 16:32:00
Operator
F3C
O
NEt2
O
3e
δ / ppm

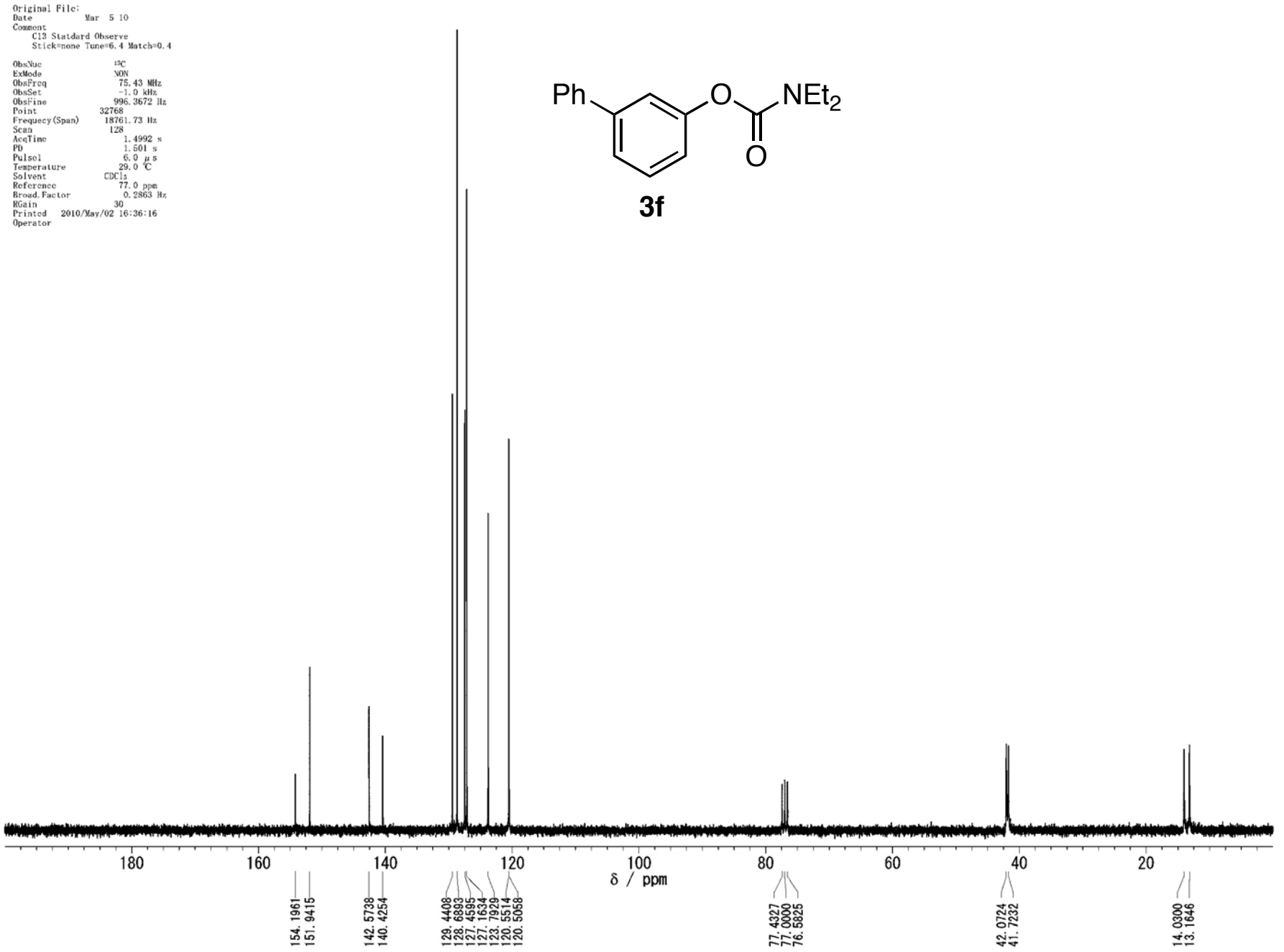
Original File:
Date Apr 30 10
Comment
STANDARD 1H OBSERVE

ObsNuc	^{1}H
ExMode	NON
ObsFreq	299.96 MHz
ObsSet	1.0 kHz
ObsFine	995.0047 Hz
Point	16384
Frequecy(Span)	4500.45 Hz
Scan	16
AcqTime	3.4983 s
PD	1.502 s
Pulsel	6.0 μs
Temperature	29.0 ℃
Solvent	CDCl$_3$
Reference	0.0 ppm
Broad.Factor	0.1373 Hz
RGain	30
Printed	2010/Jun/24 14:32:47
Operator	



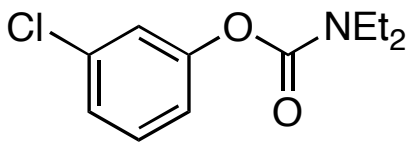
3f



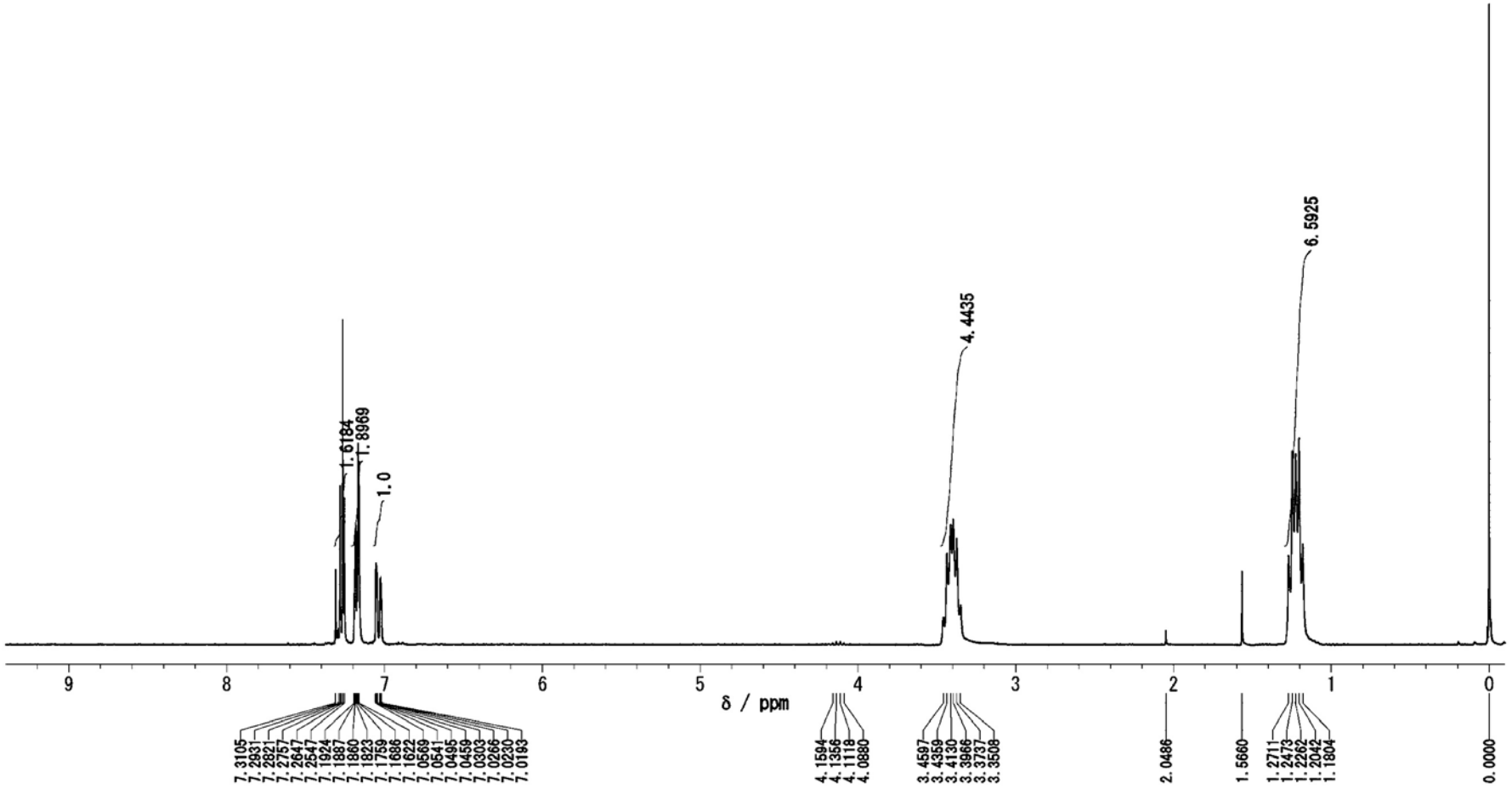

Original File:
Date Mar 5 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NON
ObsFreq 75.43 MHz
ObsSet -1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 128
AcqTime 1.4992 s
PD 1.501 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/02 16:36:16
Operator
Ph
O
NEt2
O
3f
180
160
140
120
100
80
60
40
20
δ / ppm
154.1961
151.9415
142.5738
140.4254
129.4408
128.6893
127.4595
127.1634
123.7929
120.5514
120.5058
77.4327
77.0000
76.5825
42.0724
41.7232
14.0300
13.1646

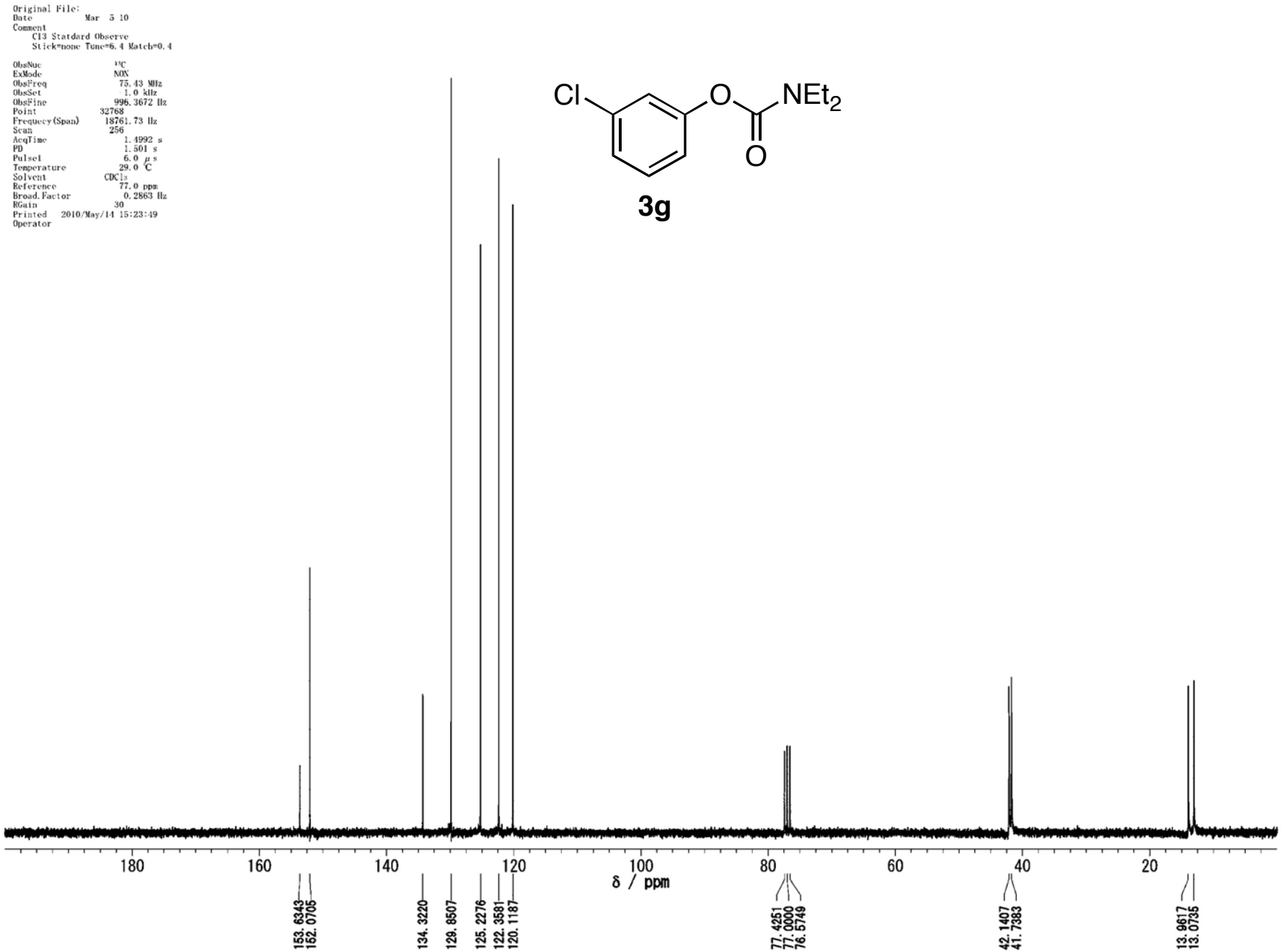
Original File:
Date Nov 5 09
Comment
STANDARD 1H OBSERVE

ObsNuc	^{1}H
ExMode	NON
ObsFreq	299.96 MHz
ObsSet	1.0 kHz
ObsFine	995.0047 Hz
Point	16384
Frequecy(Span)	4500.45 Hz
Scan	16
AcqTime	3.4983 s
PD	1.502 s
Pulsel	6.0 μs
Temperature	29.0 ℃
Solvent	CDCl$_3$
Reference	0.0 ppm
Broad.Factor	0.1373 Hz
RGain	24
Printed	2010/May/13 21:57:58
Operator	

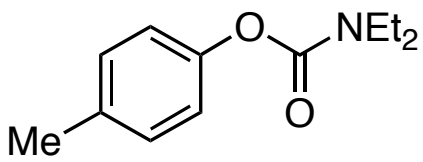


3g

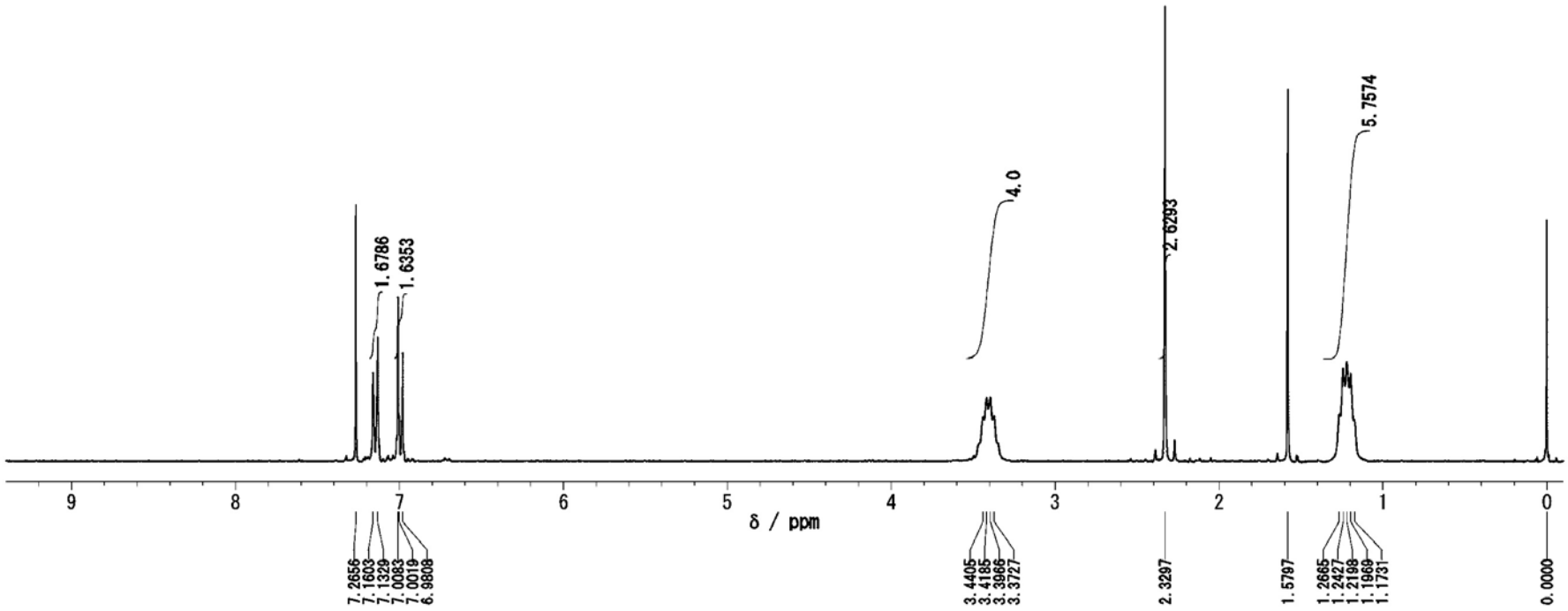


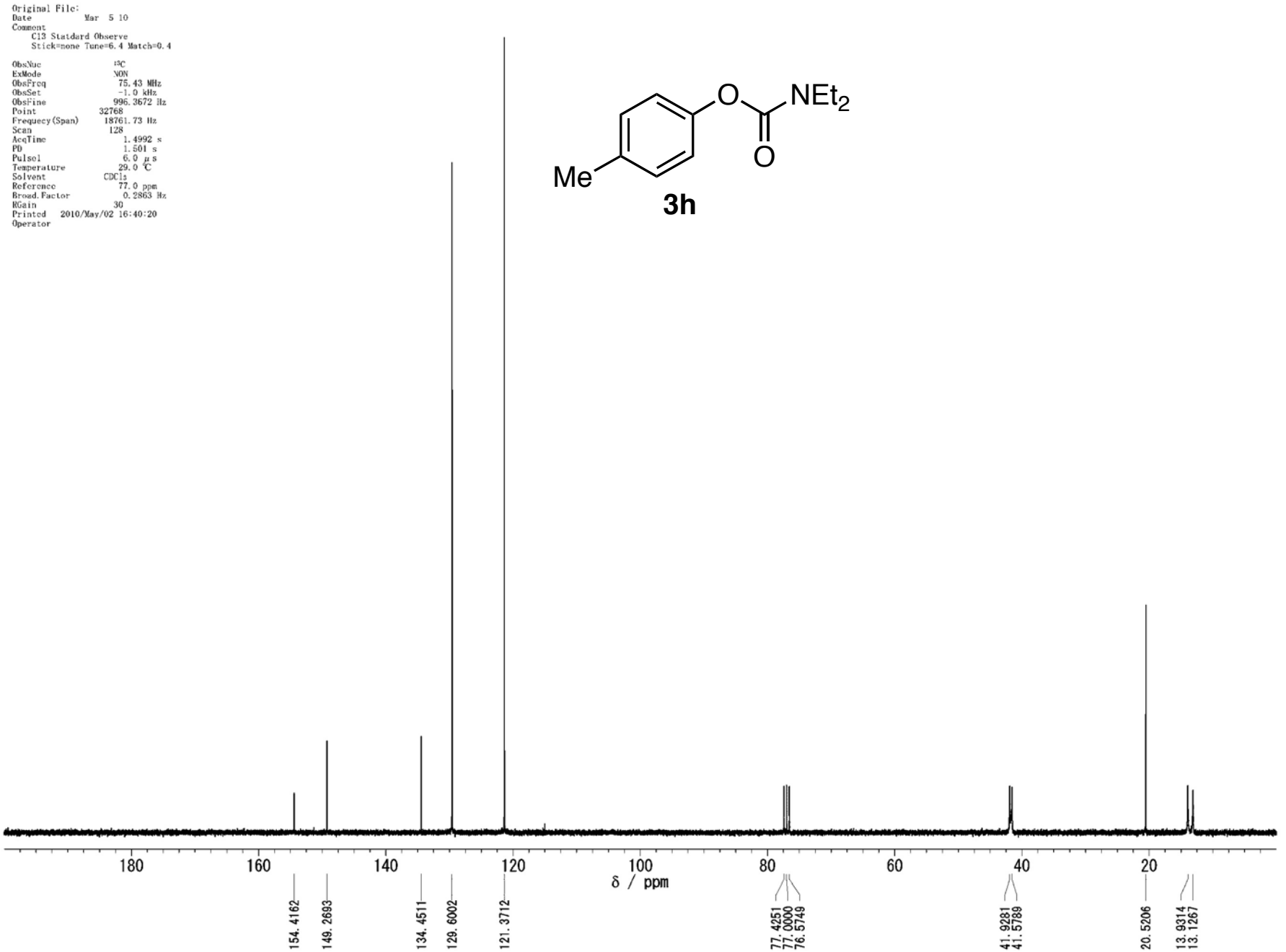

Original File:
Date Mar 5 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NON
ObsFreq 75.43 MHz
ObsSet 1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 256
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/14 15:23:49
Operator
Cl
O
O
NEt2
3g
180
160
140
120
100
80
60
40
20
δ / ppm
153.6343
152.0705
134.3220
129.8507
125.2276
122.3581
120.1187
77.4251
77.0000
76.5749
42.1407
41.7383
13.9617
13.0735

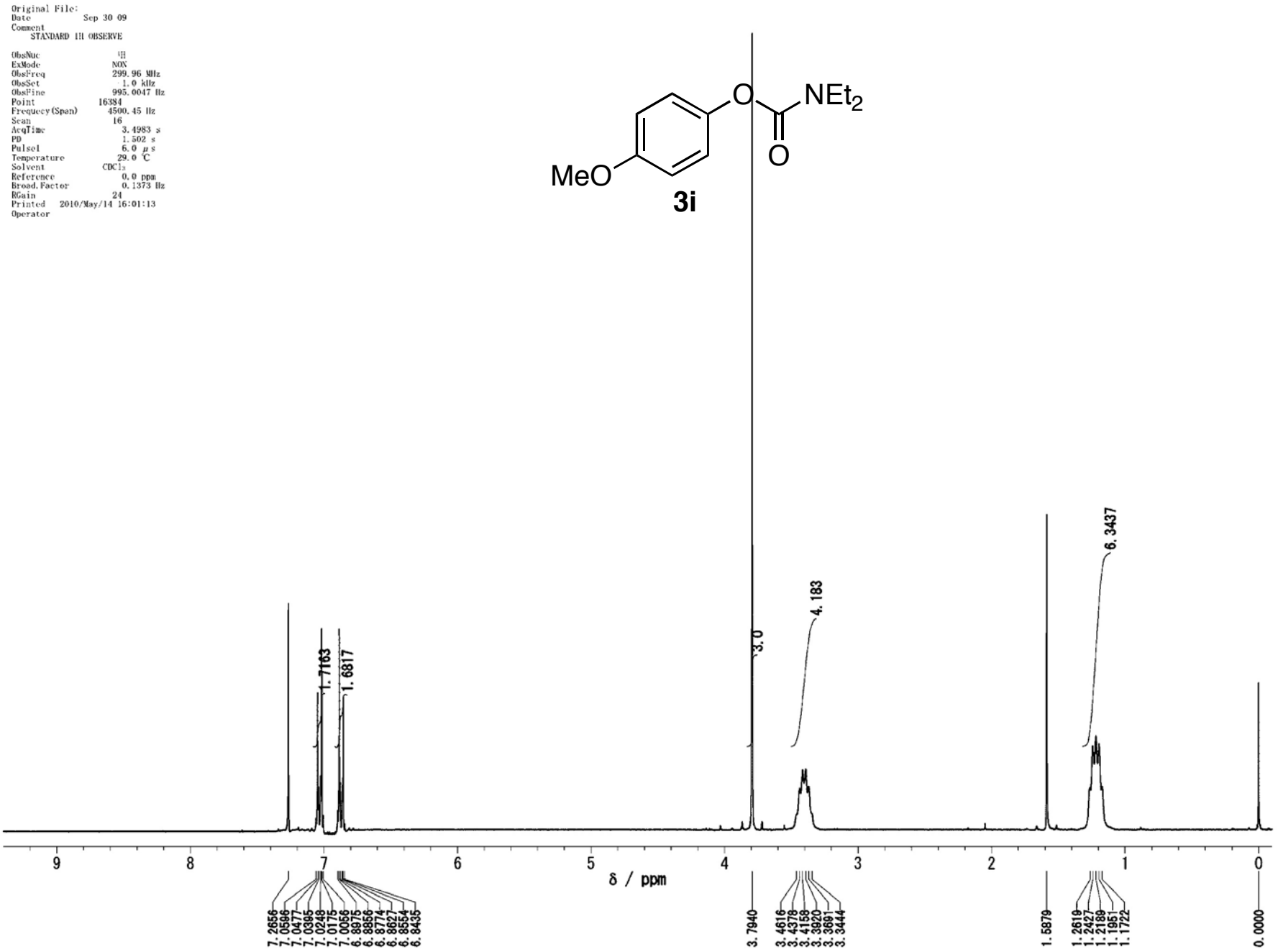
```
Original File:
Date            Sep 26 09
Comment
    STANDARD 1H OBSERVE

ObsNuc                  1H
ExMode                 NON
ObsFreq          299.96 MHz
ObsSet             1.0 kHz
ObsFine          995.0047 Hz
Point               16384
Frequecy(Span)   4500.45 Hz
Scan                   16
AcqTime             3.4983 s
PD                  1.502 s
Pulsel              6.0 μs
Temperature        29.0 ℃
Solvent            CDCl3
Reference          0.0 ppm
Broad.Factor     0.1373 Hz
RGain                  24
Printed   2010/Jun/24 14:34:31
Operator
```

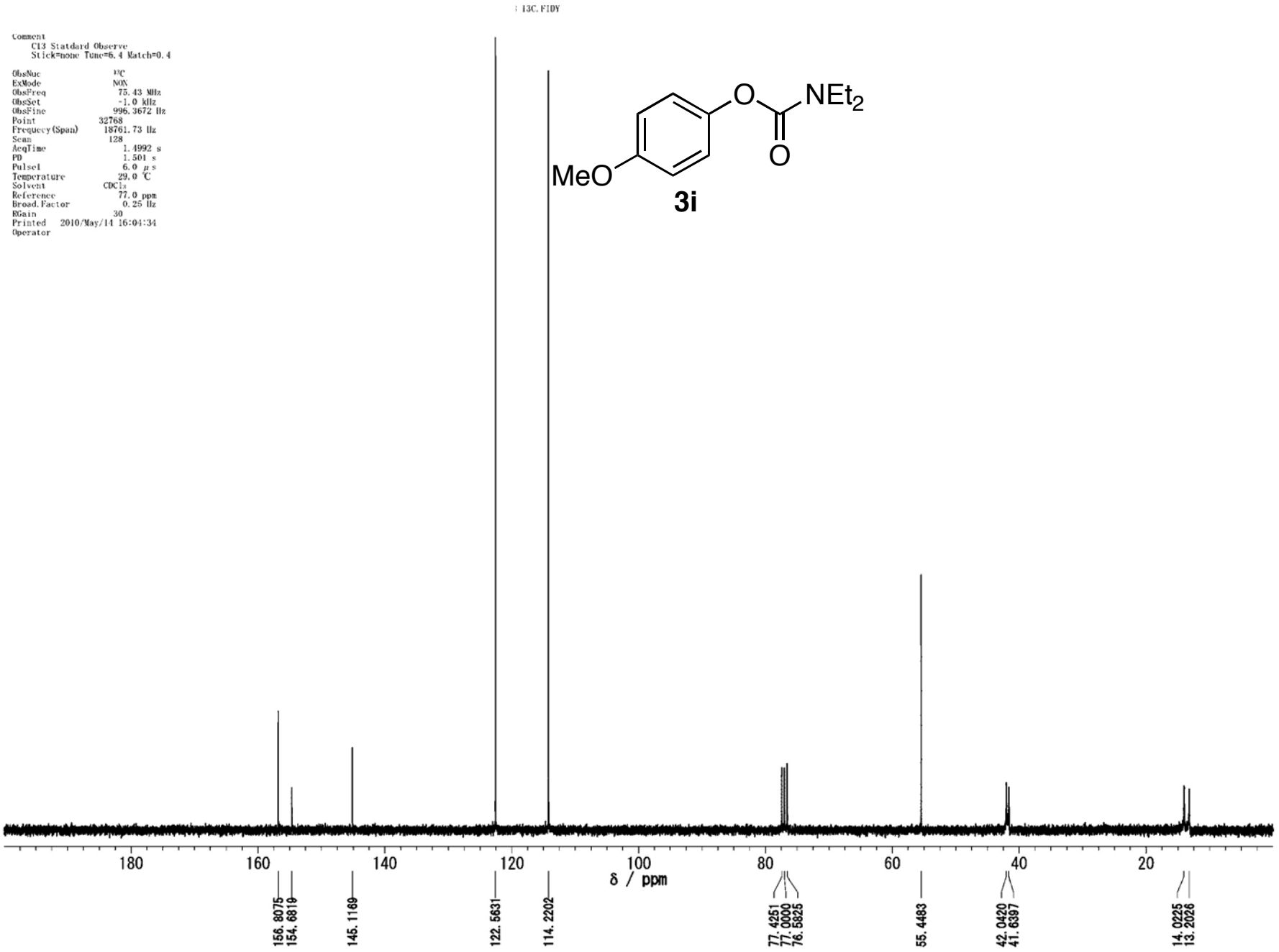


3h



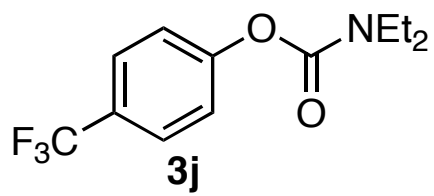

Original File:
Date Mar 5 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NON
ObsFreq 75.43 MHz
ObsSet -1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 128
AcqTime 1.4992 s
PD 1.501 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/02 16:40:20
Operator
O
NEt2
O
Me
3h
180
160
140
120
100
80
60
40
20
δ / ppm
154.4162
149.2693
134.4511
129.6002
121.3712
77.4251
77.0000
76.5749
41.9281
41.5789
20.5206
13.9314
13.1267


Original File:
Date Sep 30 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 24
Printed 2010/May/14 16:01:13
Operator
MeO
O
O
NEt2
3i
7.7163
7.6817
3.0
4.183
6.3437
δ / ppm
7.2656
7.0596
7.0477
7.0385
7.0249
7.0175
7.0056
6.8875
6.8856
6.8774
6.8627
6.8554
6.8435
3.7940
3.4616
3.4378
3.4158
3.3920
3.3691
3.3444
1.5879
1.2619
1.2427
1.2189
1.1951
1.1722
0.0000

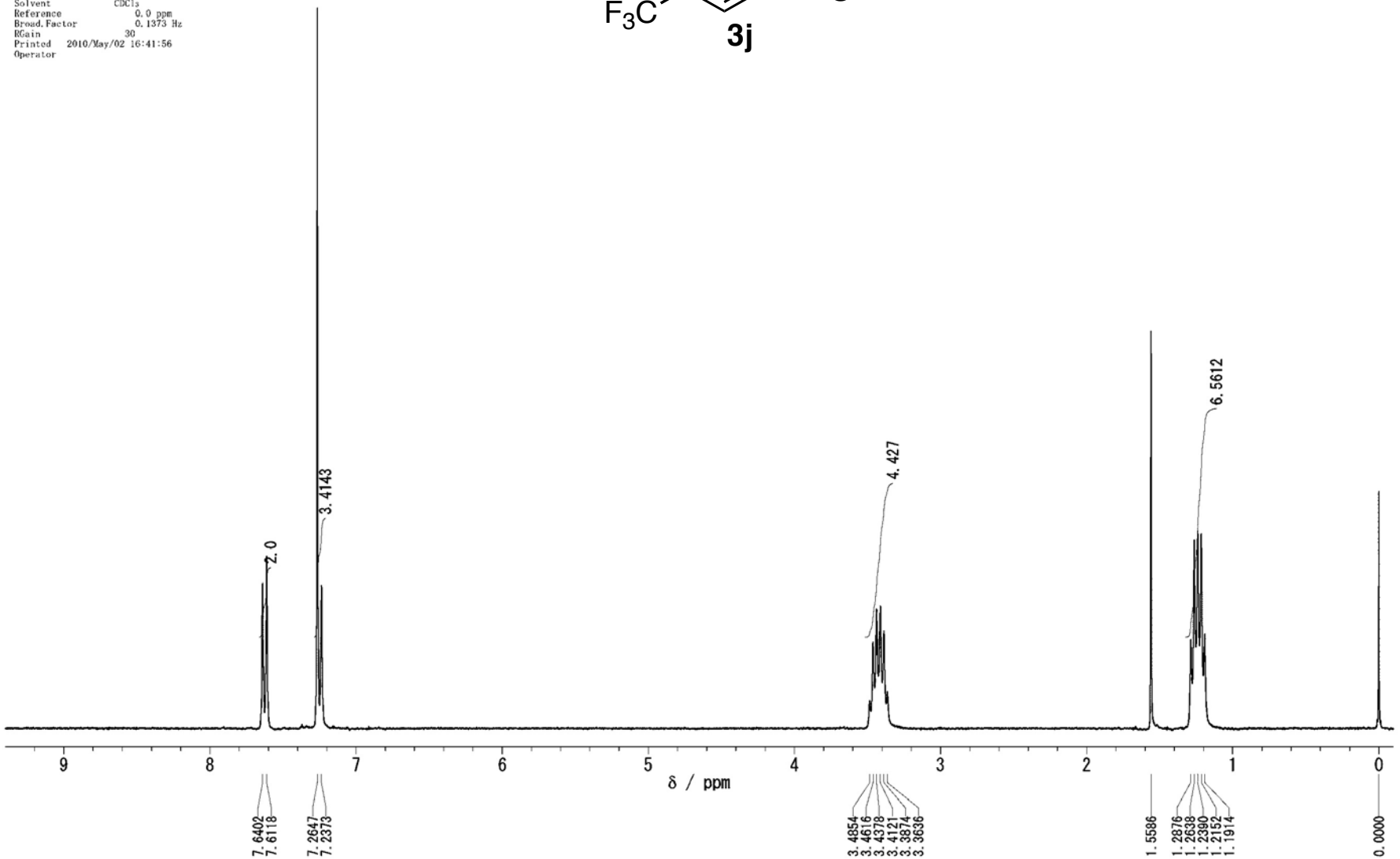

13C. FIDY
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NON
ObsFreq 75.43 MHz
ObsSet -1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 128
AcqTime 1.4992 s
PD 1.501 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.25 Hz
RGain 30
Printed 2010/May/14 16:04:34
Operator
MeO
O
O
NEt2
3i
180
160
140
120
100
80
60
40
20
δ / ppm
156.8075
154.6819
145.1169
122.5631
114.2202
77.4251
77.0000
76.5825
55.4483
42.0420
41.6397
14.0225
13.2026

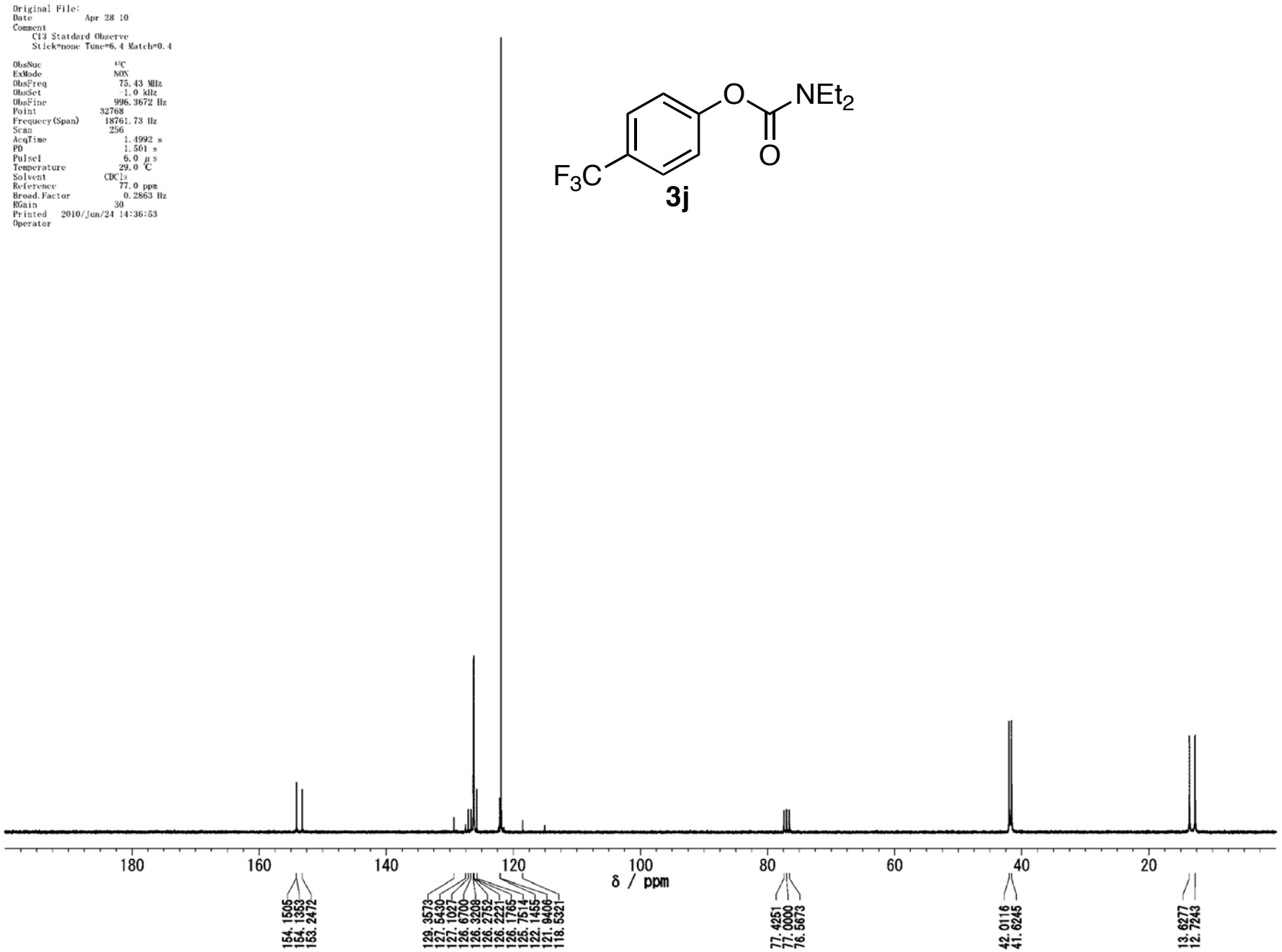
Original File:
Date Apr 7 10
Comment
STANDARD 1H OBSERVE

ObsNuc	^{1}H
ExMode	NON
ObsFreq	299.96 MHz
ObsSet	-1.0 kHz
ObsFine	995.0047 Hz
Point	16384
Frequecy(Span)	4500.45 Hz
Scan	16
AcqTime	3.4983 s
PD	1.502 s
Pulsel	6.0 μs
Temperature	29.0 ℃
Solvent	CDCl$_3$
Reference	0.0 ppm
Broad.Factor	0.1373 Hz
RGain	30
Printed	2010/May/02 16:41:56
Operator	



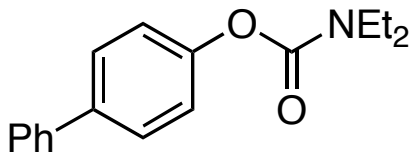
3j



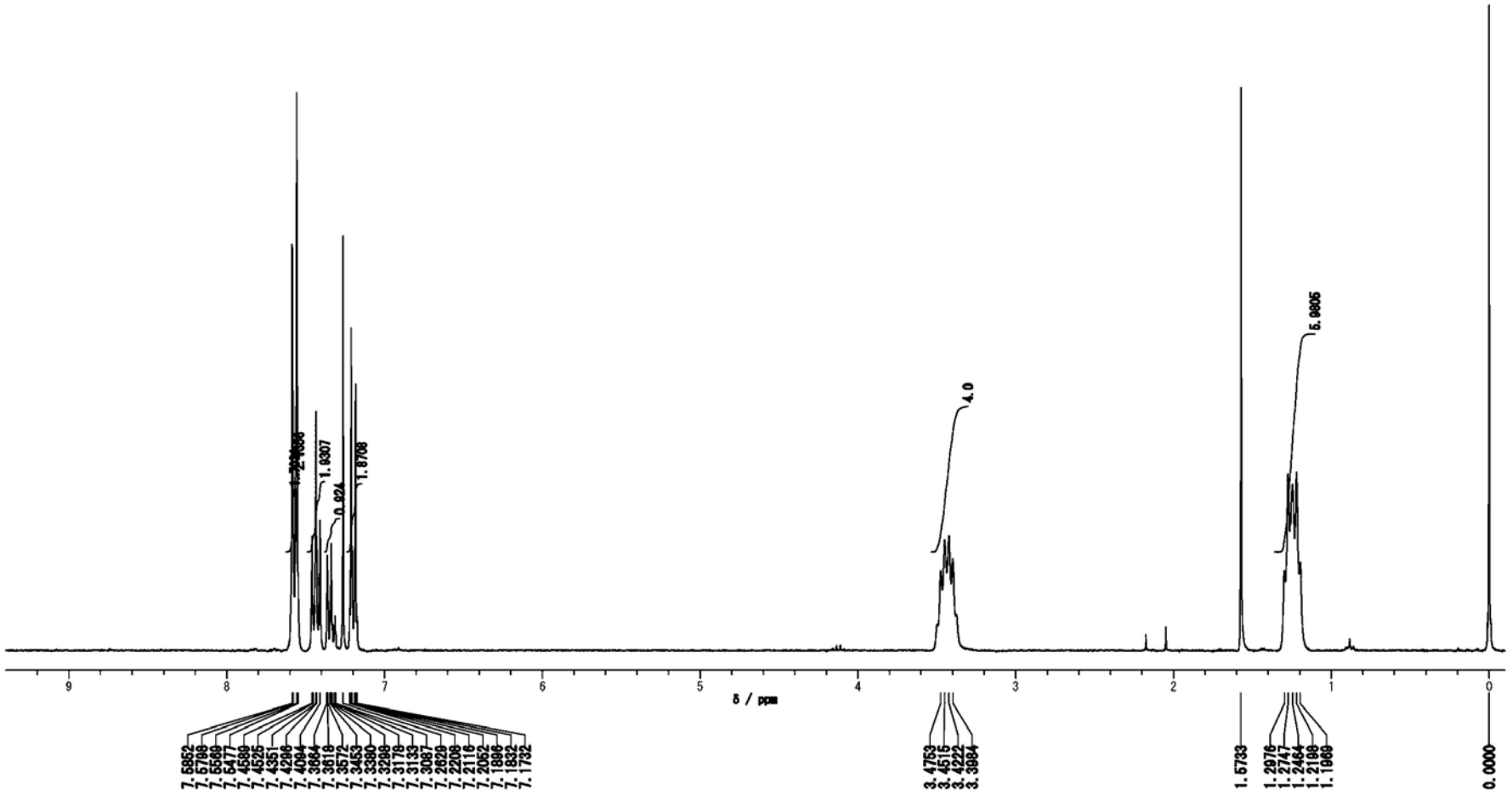

Original File:
Date Apr 28 10
Comment
CI3 Statdard Observe
Stick*none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NOX
ObsFreq 75.43 MHz
ObsSet -1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 256
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/Jun/24 14:36:53
Operator
O
NEt2
O
F3C
3j
180
160
140
120
100
80
60
40
20
δ / ppm
154.1505
154.1353
153.2472
129.3573
127.5430
127.1027
126.6700
126.3208
126.2752
126.2221
126.1765
125.7514
122.1455
121.9406
118.5321
77.4251
77.0000
76.5673
42.0116
41.6245
13.6277
12.7243

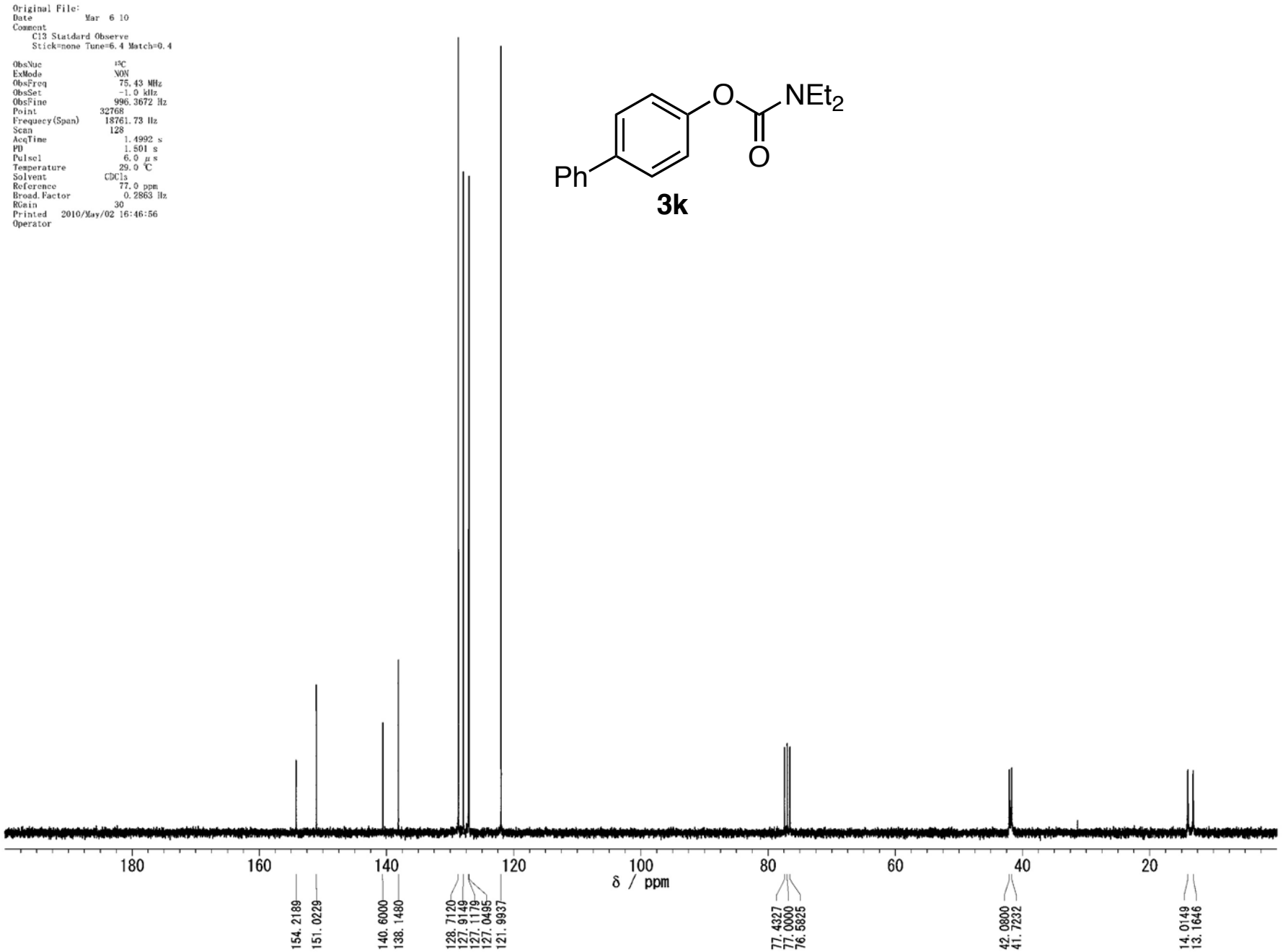
Original File:
Date Sep 10 09
Comment
STANDARD 1H OBSERVE

ObsNuc	^{1}H
ExMode	NON
ObsFreq	299.96 MHz
ObsSet	-1.0 kHz
ObsFine	995.0047 Hz
Point	16384
Frequecy(Span)	4500.45 Hz
Scan	16
AcqTime	3.4983 s
PD	1.502 s
Pulsel	6.0 μs
Temperature	29.0 ℃
Solvent	CDCl$_3$
Reference	0.0 ppm
Broad.Factor	0.1373 Hz
RGain	24
Printed	2010/May/02 16:45:25
Operator	



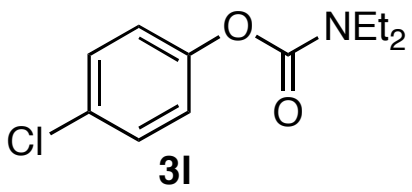
3k



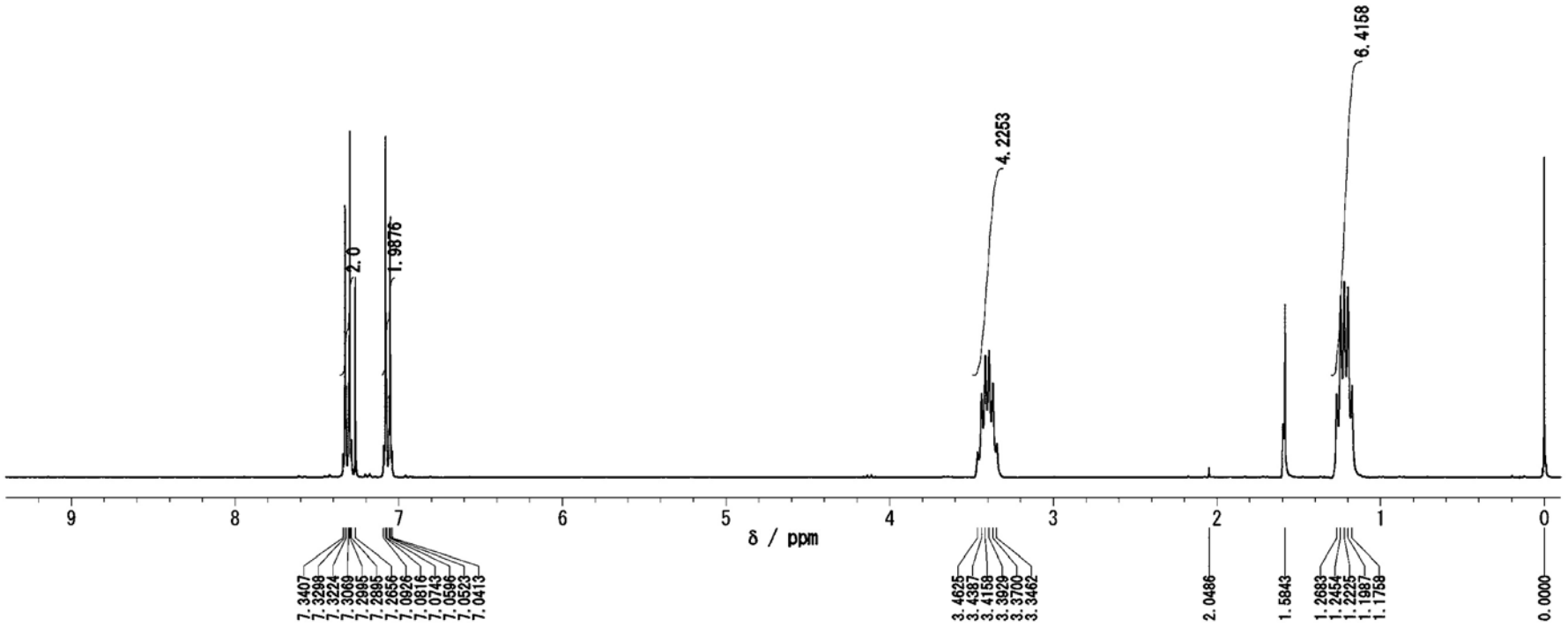

Original File:
Date Mar 6 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NON
ObsFreq 75.43 MHz
ObsSet -1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 128
AcqTime 1.4992 s
PD 1.501 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/02 16:46:56
Operator
O
NEt2
O
Ph
3k
180
160
140
120
100
80
60
40
20
δ / ppm
154.2189
151.0229
140.6000
138.1480
128.7120
127.9149
127.1179
127.0495
121.9937
77.4327
77.0000
76.5825
42.0800
41.7232
14.0149
13.1646

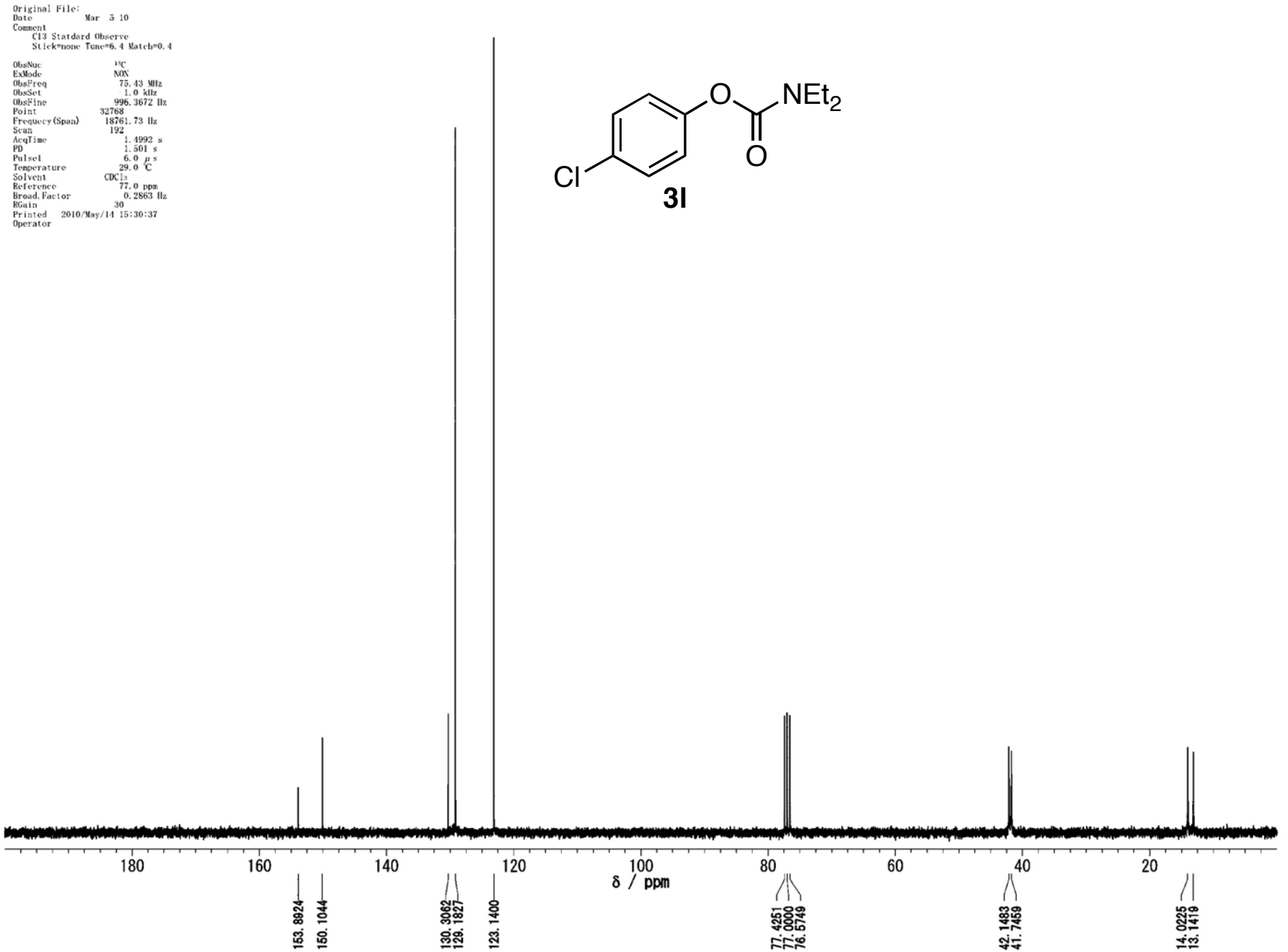
Original File:
Date Jun 6 09
Comment
STANDARD 1H OBSERVE

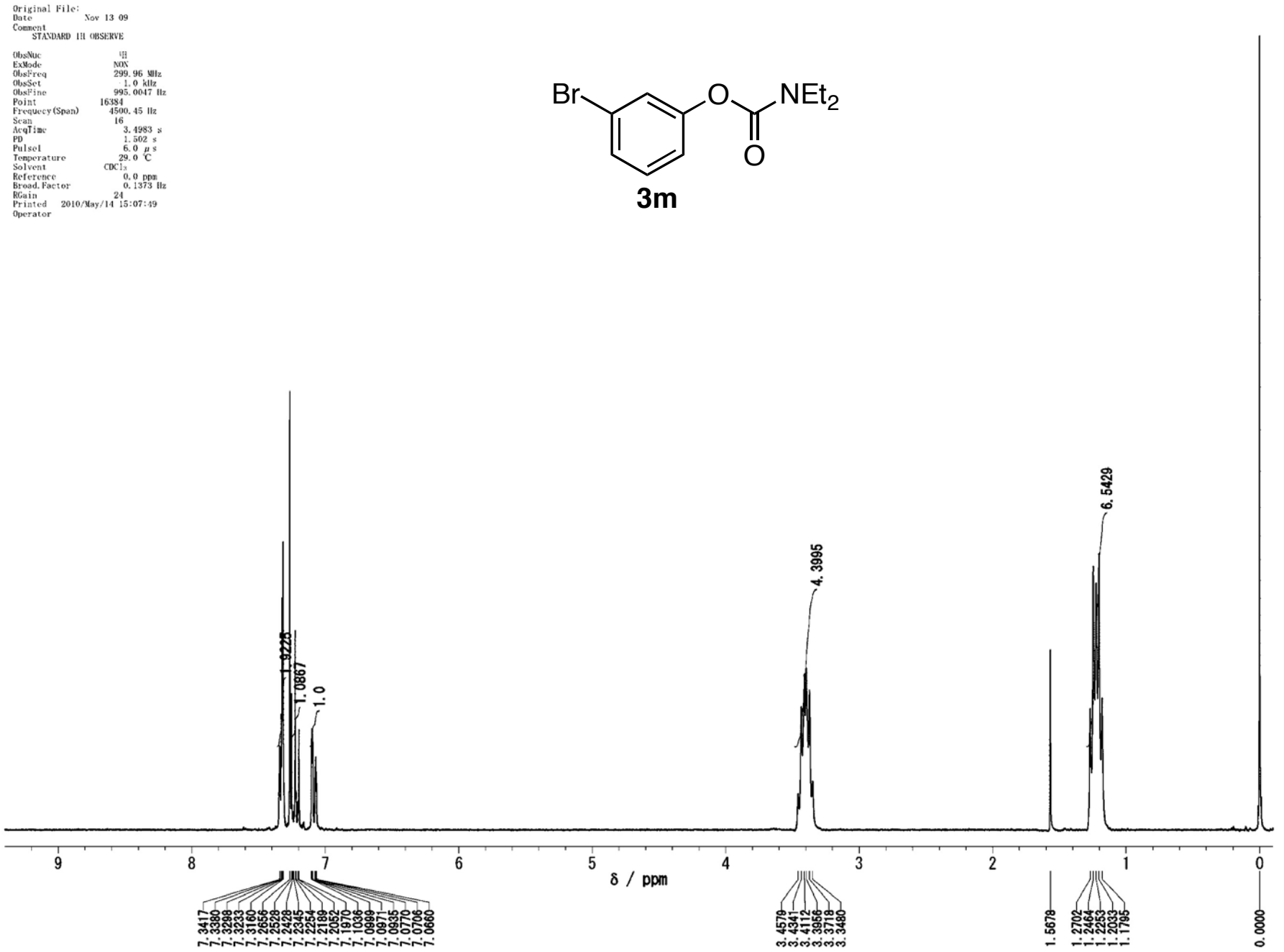
ObsNuc	^{1}H
ExMode	NON
ObsFreq	299.96 MHz
ObsSet	1.0 kHz
ObsFine	995.0047 Hz
Point	16384
Frequecy(Span)	4500.45 Hz
Scan	16
AcqTime	3.4983 s
PD	1.502 s
Pulsel	6.0 μs
Temperature	29.0 ℃
Solvent	$CDCl_3$
Reference	0.0 ppm
Broad.Factor	0.1373 Hz
RGain	19
Printed	2010/May/14 15:02:58
Operator	

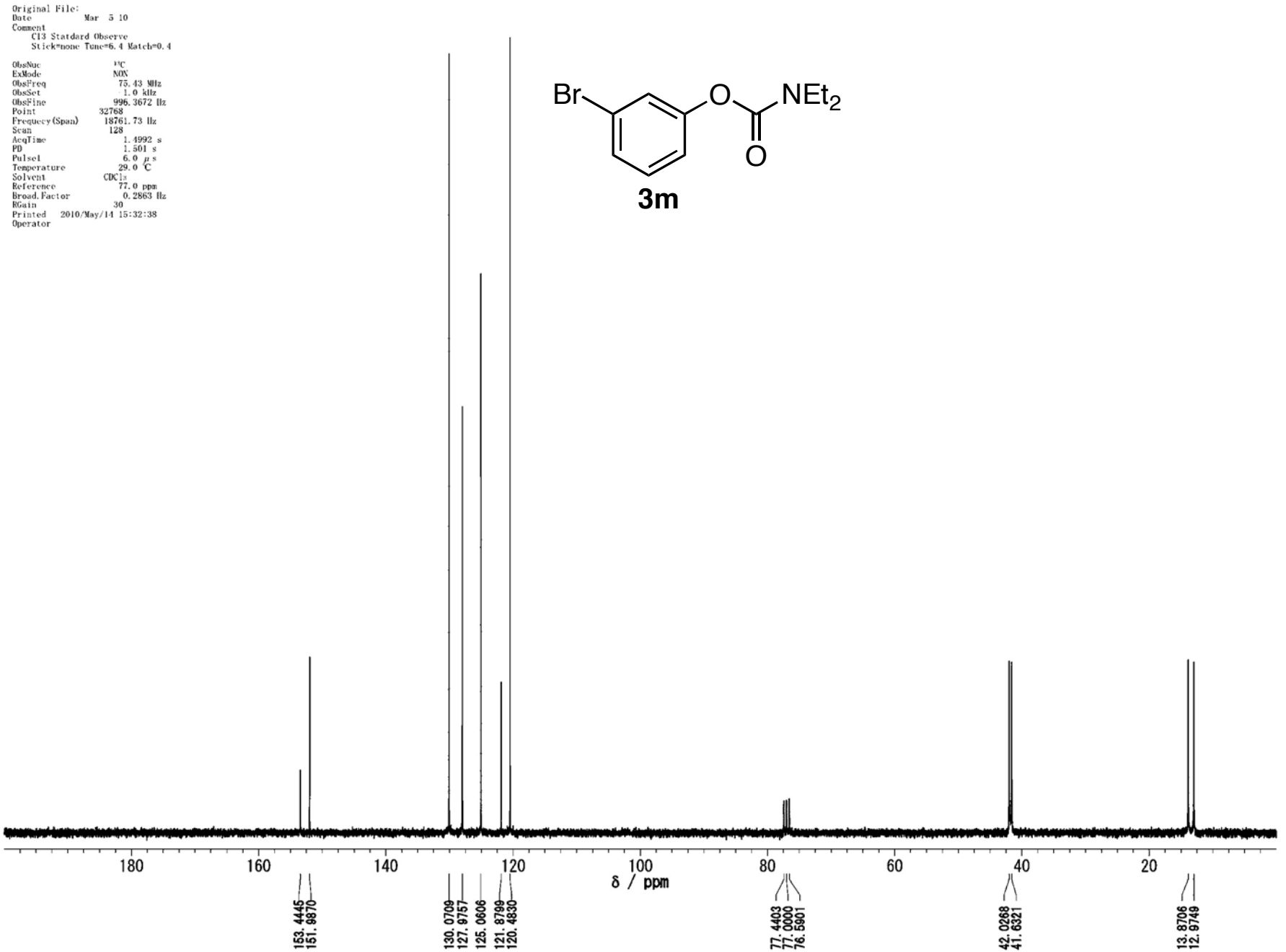


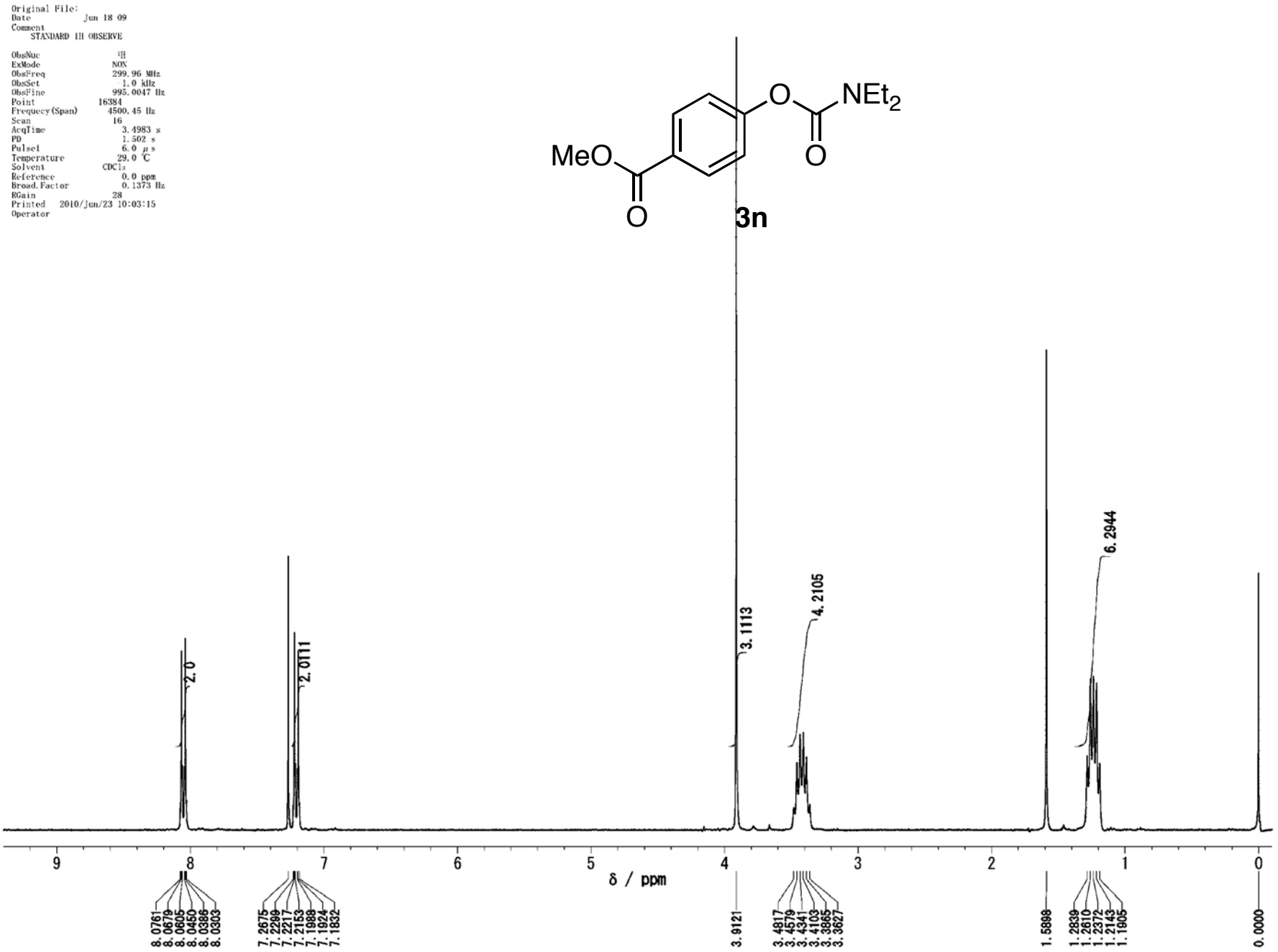
3l

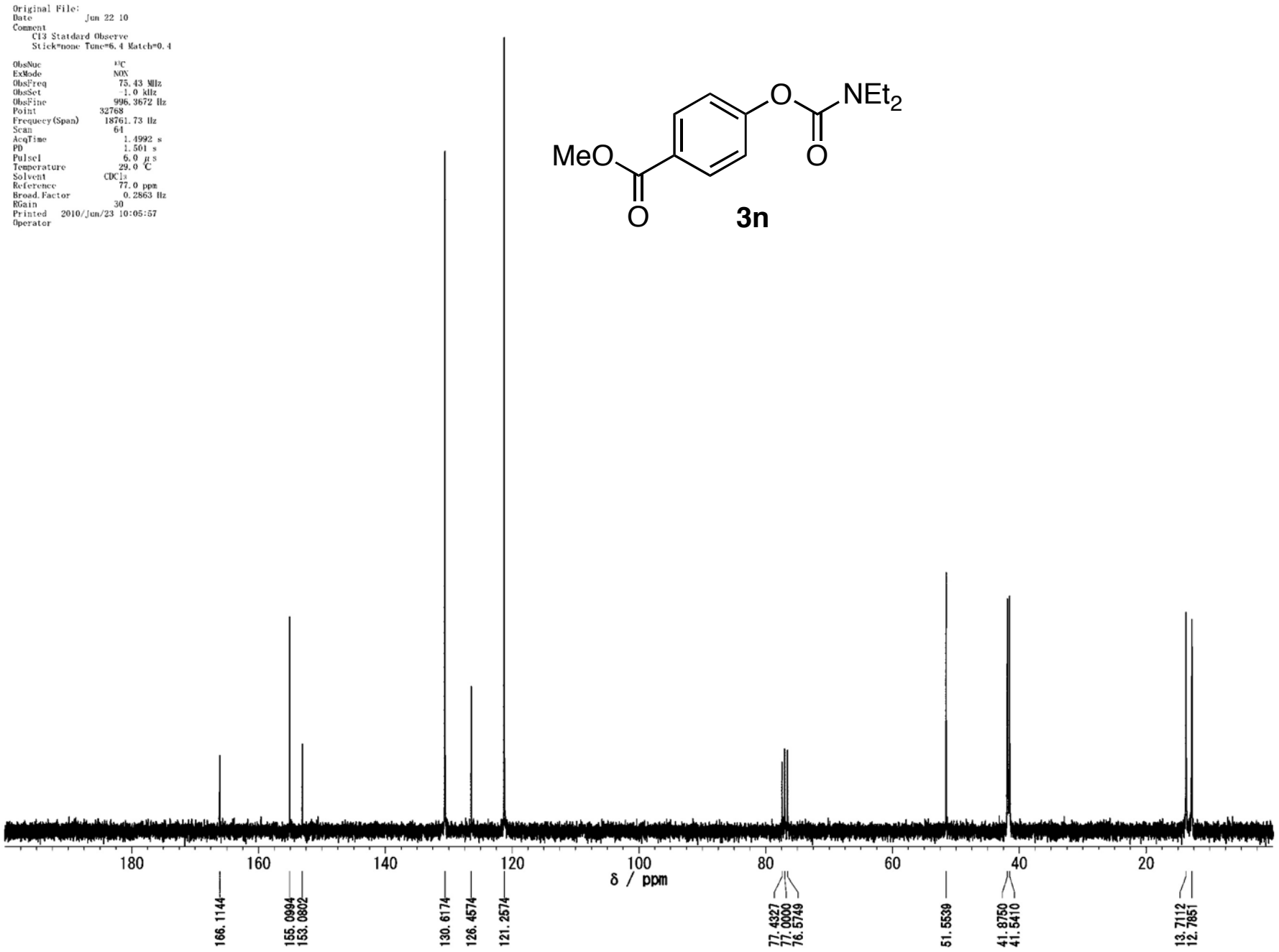


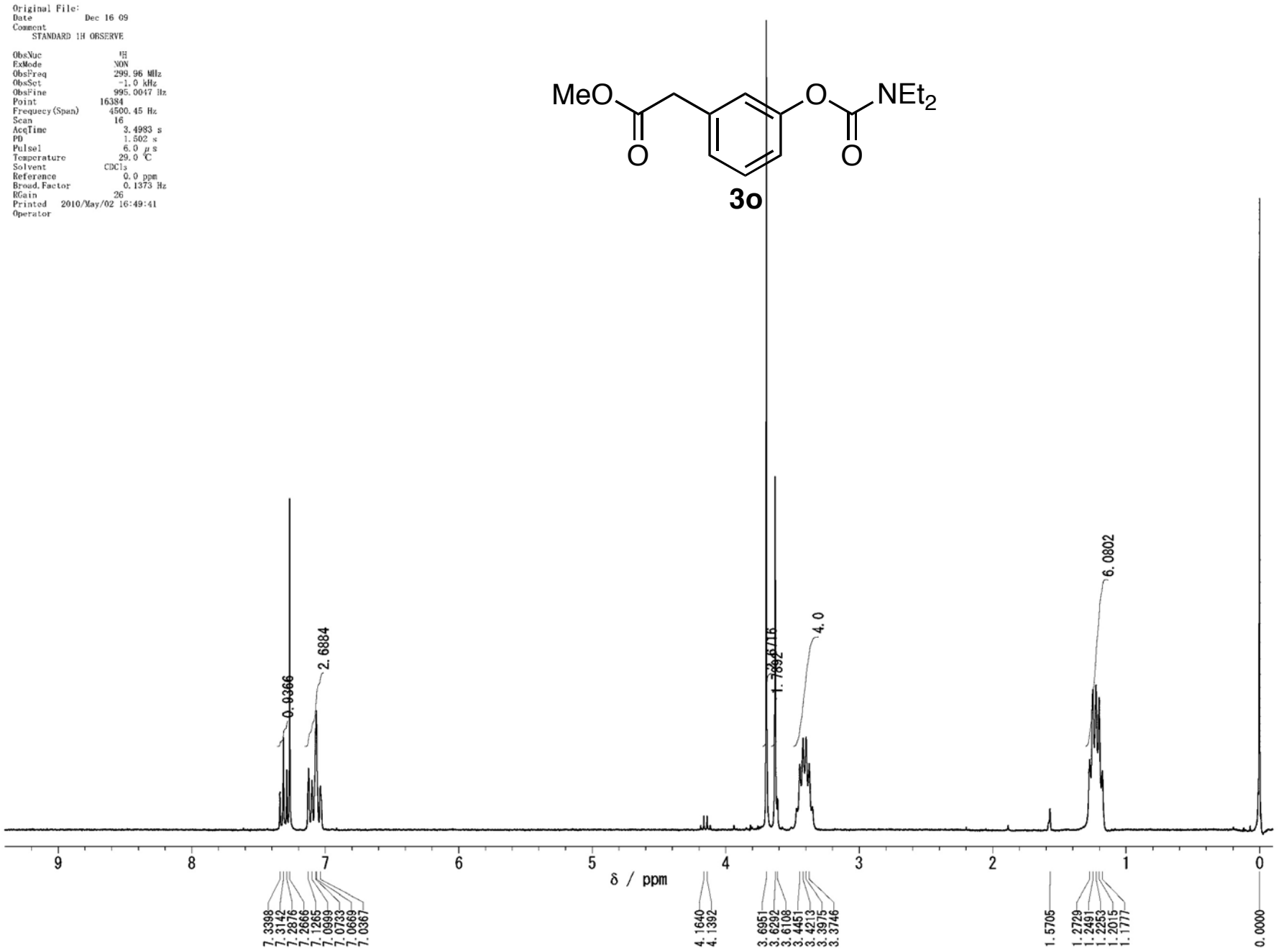

Original File:
Date Mar 5 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NON
ObsFreq 75.43 MHz
ObsSet 1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 192
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/14 15:30:37
Operator
O
NEt2
O
Cl
3l
180
160
140
120
100
80
60
40
20
δ / ppm
153.8924
150.1044
130.3062
129.1827
123.1400
77.4251
77.0000
76.5749
42.1483
41.7459
14.0225
13.1419

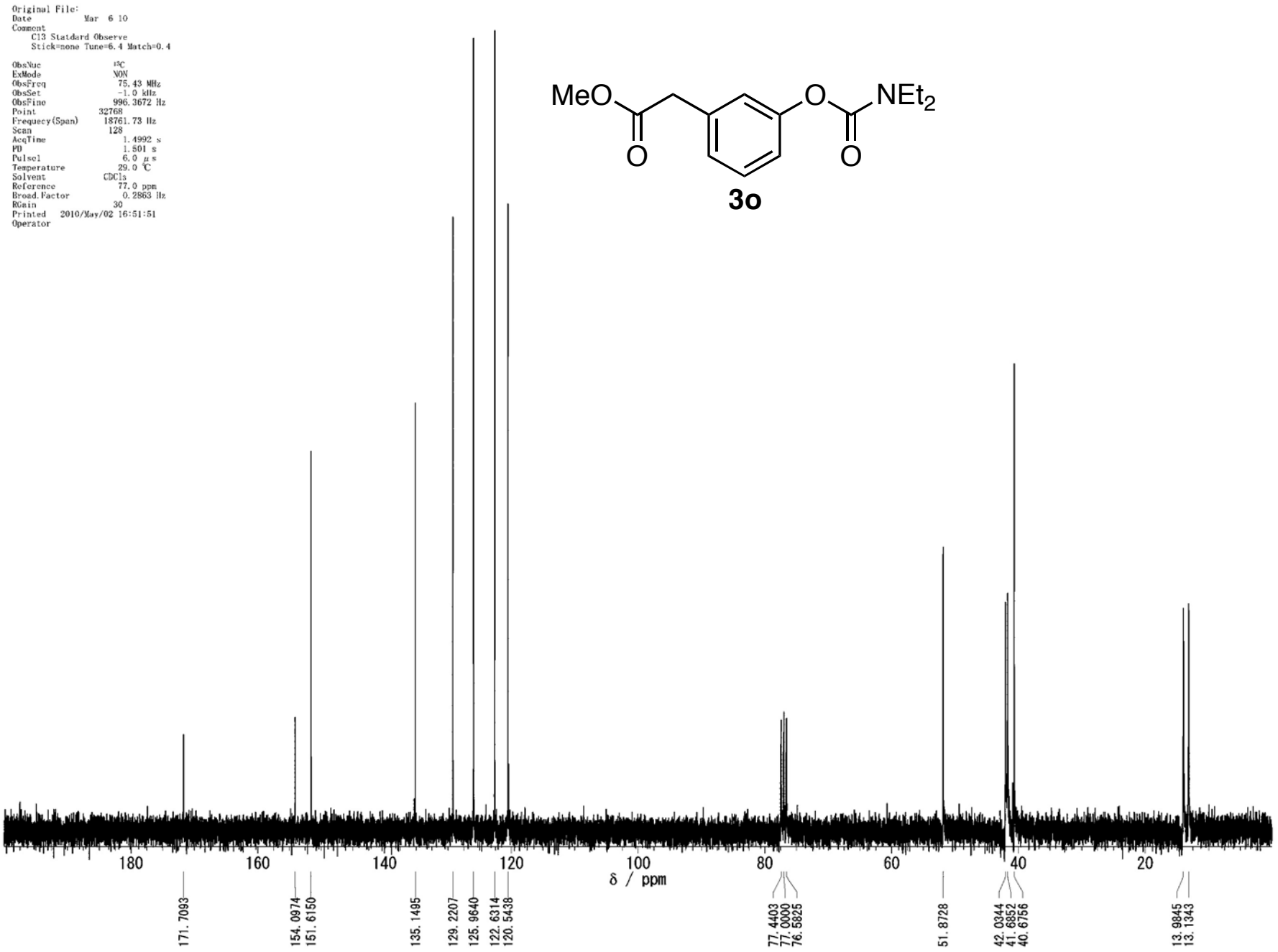

Original File:
Date Nov 13 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 24
Printed 2010/May/14 15:07:49
Operator
Br
O
NEt2
O
3m
1.9228
1.0867
1.0
4.3995
6.5429
δ / ppm
7.3417
7.3380
7.3288
7.3233
7.3160
7.2656
7.2528
7.2428
7.2345
7.2254
7.2189
7.2052
7.1970
7.1036
7.0999
7.0971
7.0935
7.0770
7.0706
7.0660
3.4579
3.4341
3.4112
3.3956
3.3718
3.3480
1.5678
1.2702
1.2464
1.2253
1.2033
1.1795
0.0000

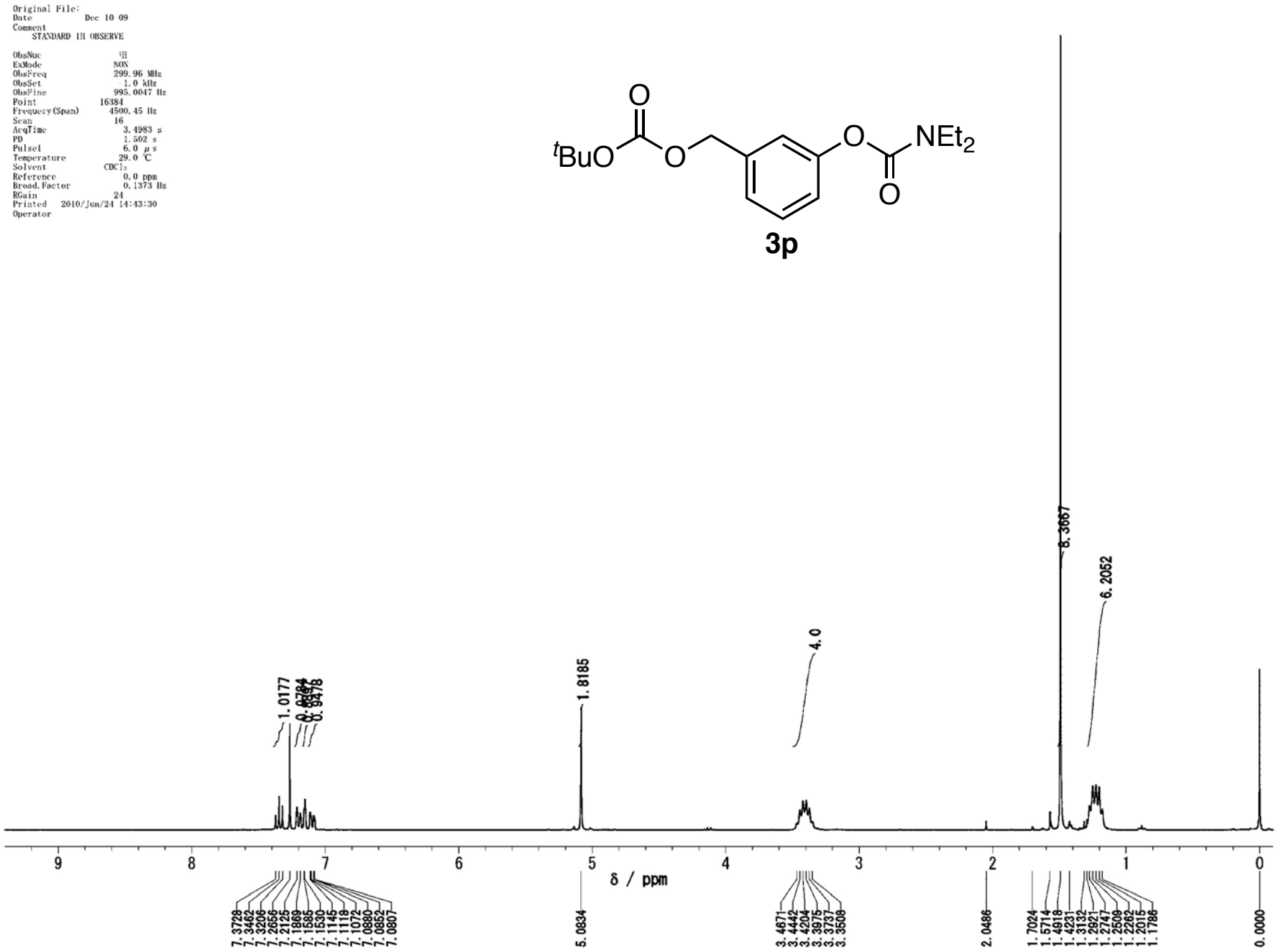

Original File:
Date Mar 5 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NON
ObsFreq 75.43 MHz
ObsSet 1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 128
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/14 15:32:38
Operator
Br
O
NEt2
O
3m
180
160
140
120
100
80
60
40
20
δ / ppm
153.4445
151.9870
130.0709
127.9757
125.0606
121.8799
120.4830
77.4403
77.0000
76.5901
42.0268
41.6321
13.8706
12.9749


Original File:
Date Jun 18 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 28
Printed 2010/Jun/23 10:03:15
Operator
MeO
O
O
O
NEt2
3n
2.0
2.0111
3.1113
4.2105
6.2944
δ / ppm
8.0761
8.0679
8.0605
8.0450
8.0388
8.0303
7.2675
7.2289
7.2217
7.2153
7.1988
7.1924
7.1832
3.9121
3.4817
3.4579
3.4341
3.4103
3.3865
3.3627
1.5898
1.2839
1.2610
1.2372
1.2143
1.1905
0.0000

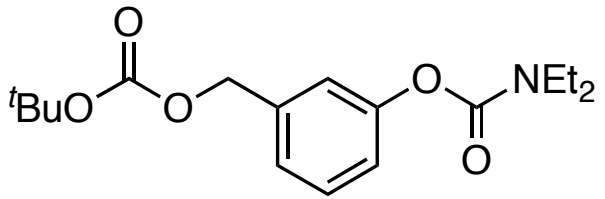

Original File:
Date Jun 22 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NOE
ObsFreq 75.43 MHz
ObsSet -1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 64
AcqTime 1.4992 s
PD 1.501 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/Jun/23 10:05:57
Operator
MeO
O
O
O
NEt2
3n
δ / ppm
180
160
140
120
100
80
60
40
20
166.1144
155.0994
153.0802
130.6174
126.4574
121.2574
77.4327
77.0000
76.5749
51.5539
41.8750
41.5410
13.7112
12.7851


Original File:
Date Dec 16 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet -1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 26
Printed 2010/May/02 16:49:41
Operator
MeO
O
O
O
NEt2
3o
0.0366
2.6884
1.3386
1.7892
4.0
6.0802
9
8
7
6
5
4
3
2
1
0
δ / ppm
7.3398
7.3142
7.2876
7.2666
7.1265
7.0999
7.0733
7.0669
7.0367
4.1640
4.1392
3.6951
3.6292
3.6108
3.4451
3.4213
3.3975
3.3746
1.5705
1.2729
1.2491
1.2253
1.2015
1.1777
0.0000

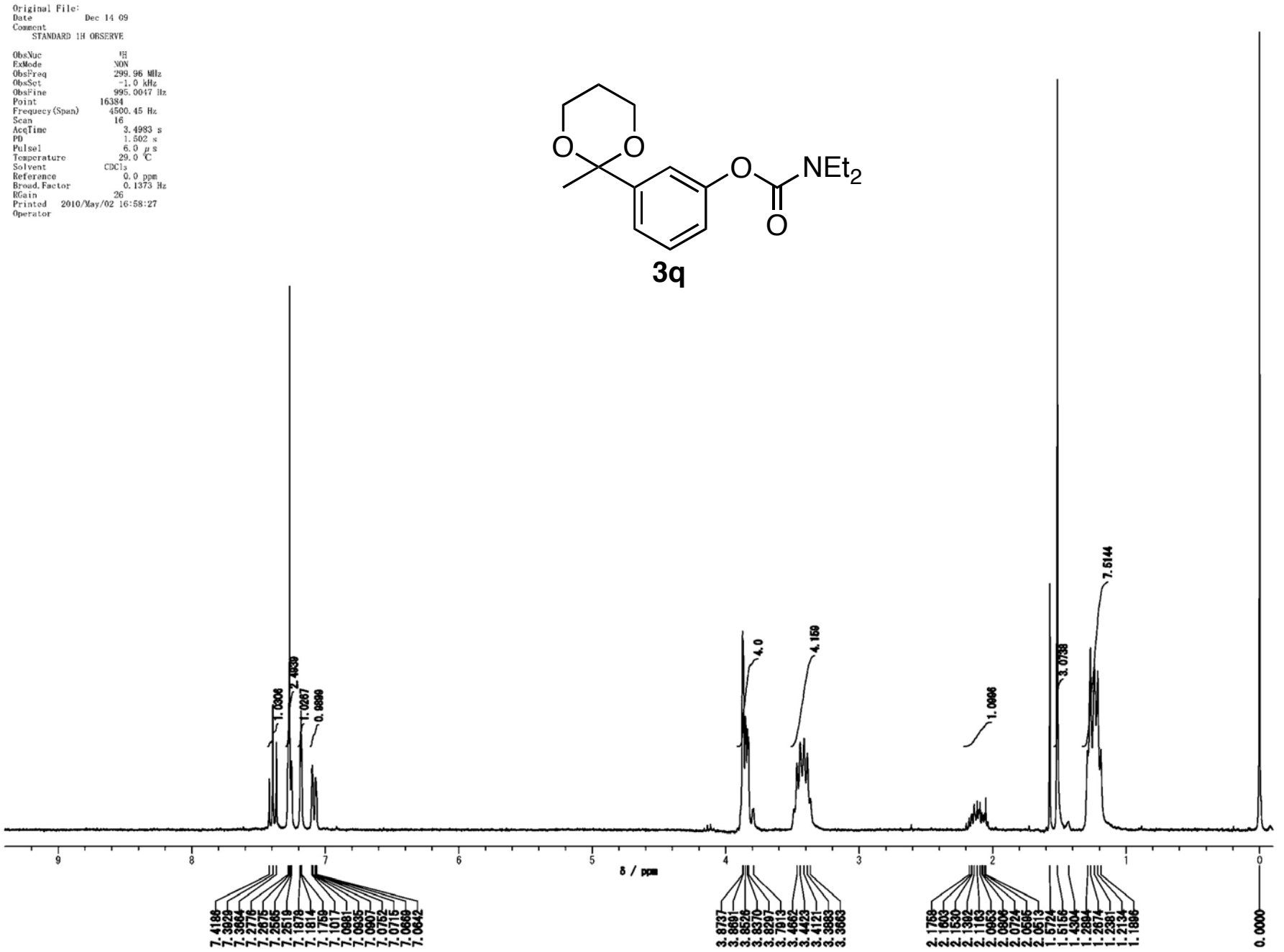

Original File:
Date Mar 6 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NON
ObsFreq 75.43 MHz
ObsSet -1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 128
AcqTime 1.4992 s
PD 1.501 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/02 16:51:51
Operator
MeO
O
O
O
NEt2
3o
180
160
140
120
100
80
60
40
20
δ / ppm
171.7093
154.0974
151.6150
135.1495
129.2207
125.9640
122.6314
120.5438
77.4403
77.0000
76.5825
51.8728
42.0344
41.6852
40.6756
13.9845
13.1343

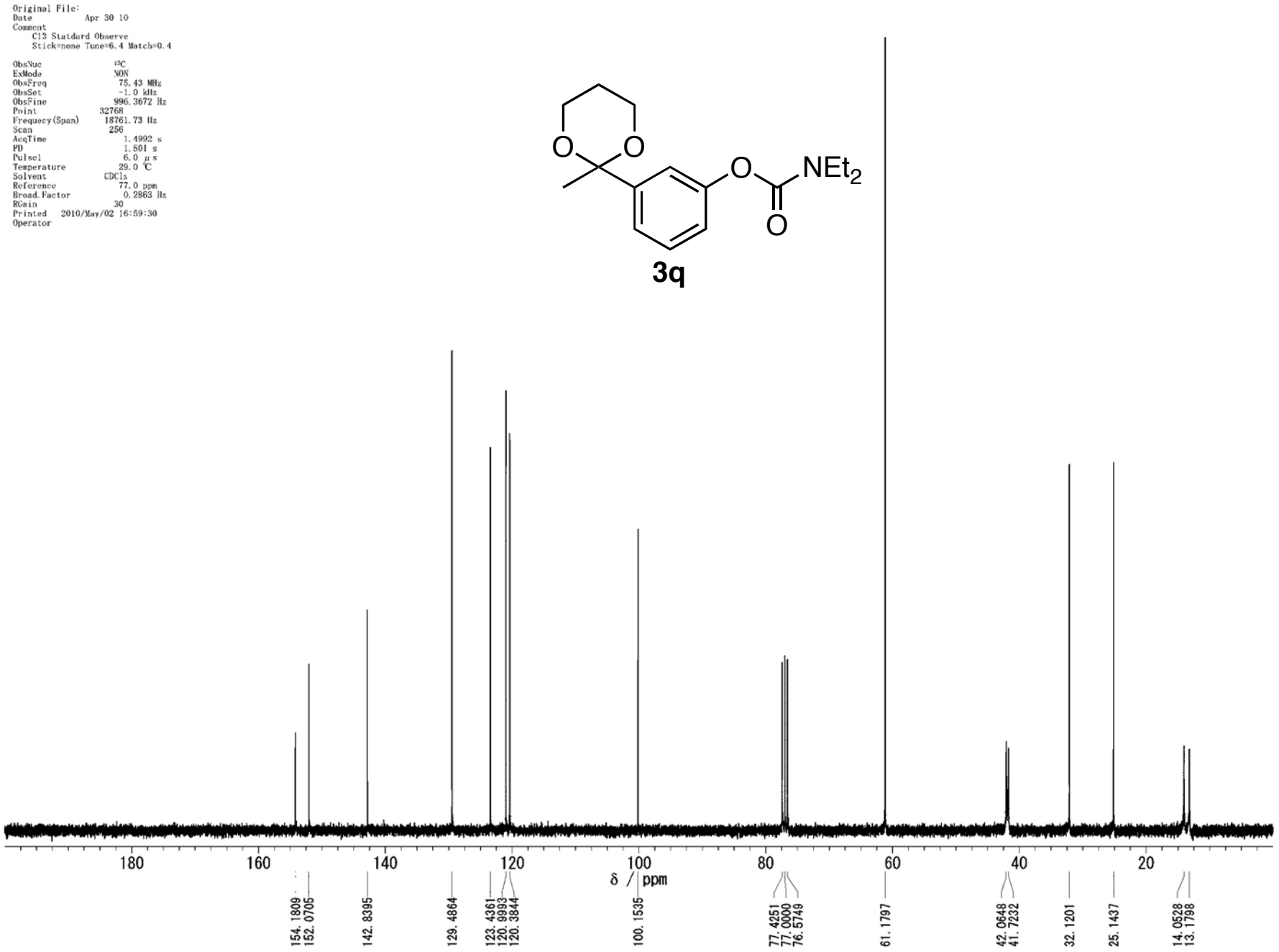

Original File:
Date Dec 10 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 24
Printed 2010/Jun/24 14:43:30
Operator
tBuO
NEt2
3p
1.0177
1.8185
4.0
8.3667
6.2052
δ / ppm
7.3728
7.3462
7.3206
7.2656
7.2125
7.1869
7.1585
7.1530
7.1145
7.1118
7.1072
7.0880
7.0852
7.0807
5.0834
3.4671
3.4442
3.4204
3.3975
3.3737
3.3508
2.0486
1.7024
1.5714
1.4918
1.4231
1.3132
1.2921
1.2747
1.2509
1.2262
1.2015
1.1786
0.0000

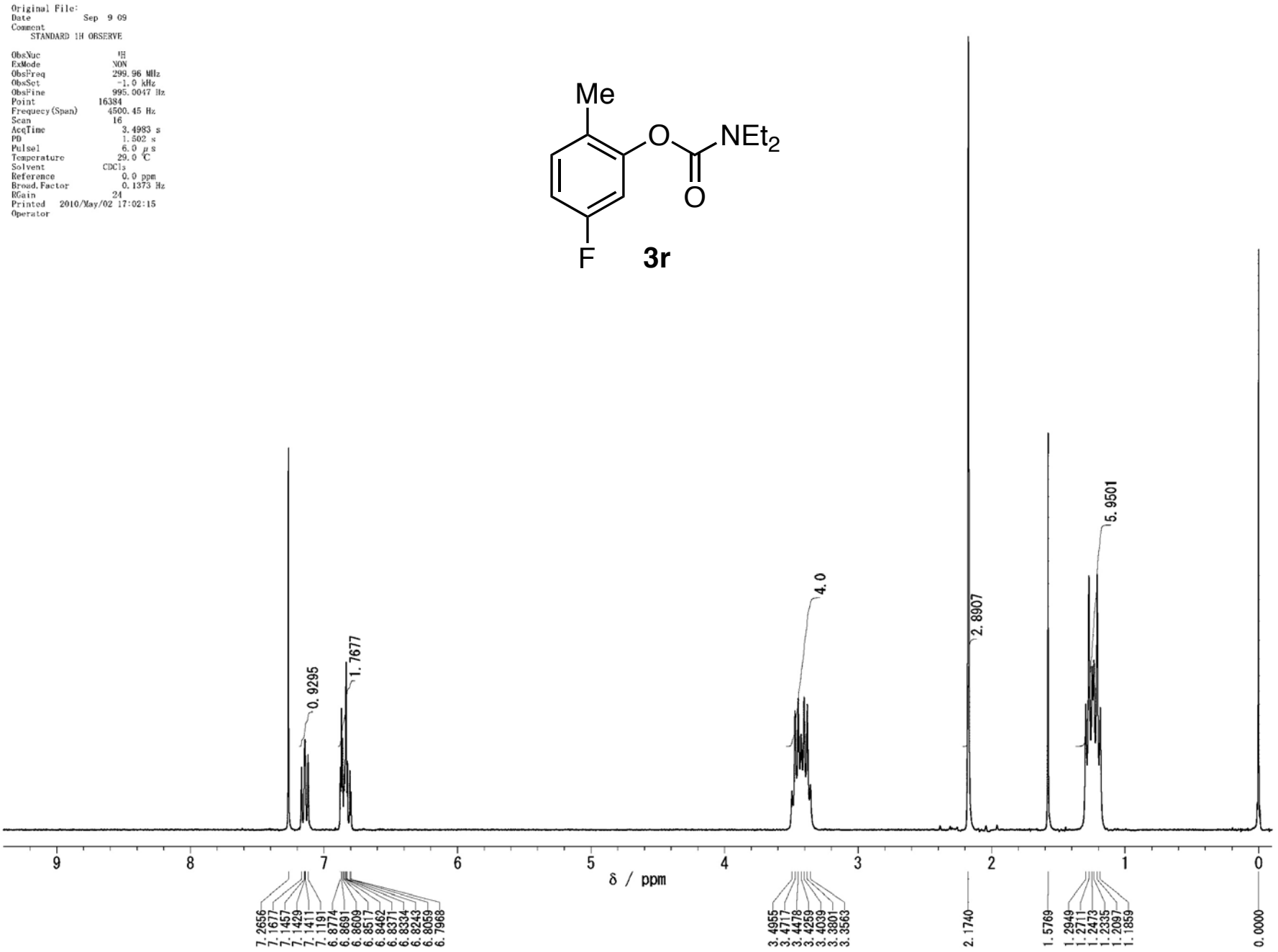
```
Original File:
Date            Apr 30 10
Comment
    C13 Statdard Observe
    Stick=none Tune=6.4 Match=0.4

ObsNuc                  13C
ExMode                  NON
ObsFreq                 75.43 MHz
ObsSet                  -1.0 kHz
ObsFine                 996.3672 Hz
Point                   32768
Frequecy(Span)          18761.73 Hz
Scan                    128
AcqTime                 1.4992 s
PD                      1.501 s
Pulsel                  6.0 μs
Temperature             29.0 ℃
Solvent                 CDCl3
Reference               77.0 ppm
Broad.Factor            0.2863 Hz
RGain                   30
Printed   2010/May/02 16:54:54
Operator
```



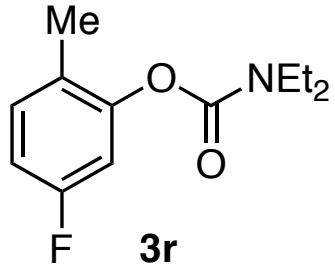
3p


Original File:
Date Dec 14 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet -1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 26
Printed 2010/May/02 16:58:27
Operator
O
O
O
O
NEt2
3q
1.0306
2.4830
1.0267
0.8890
4.0
4.159
1.0996
3.0788
7.6144
δ / ppm
0.0000

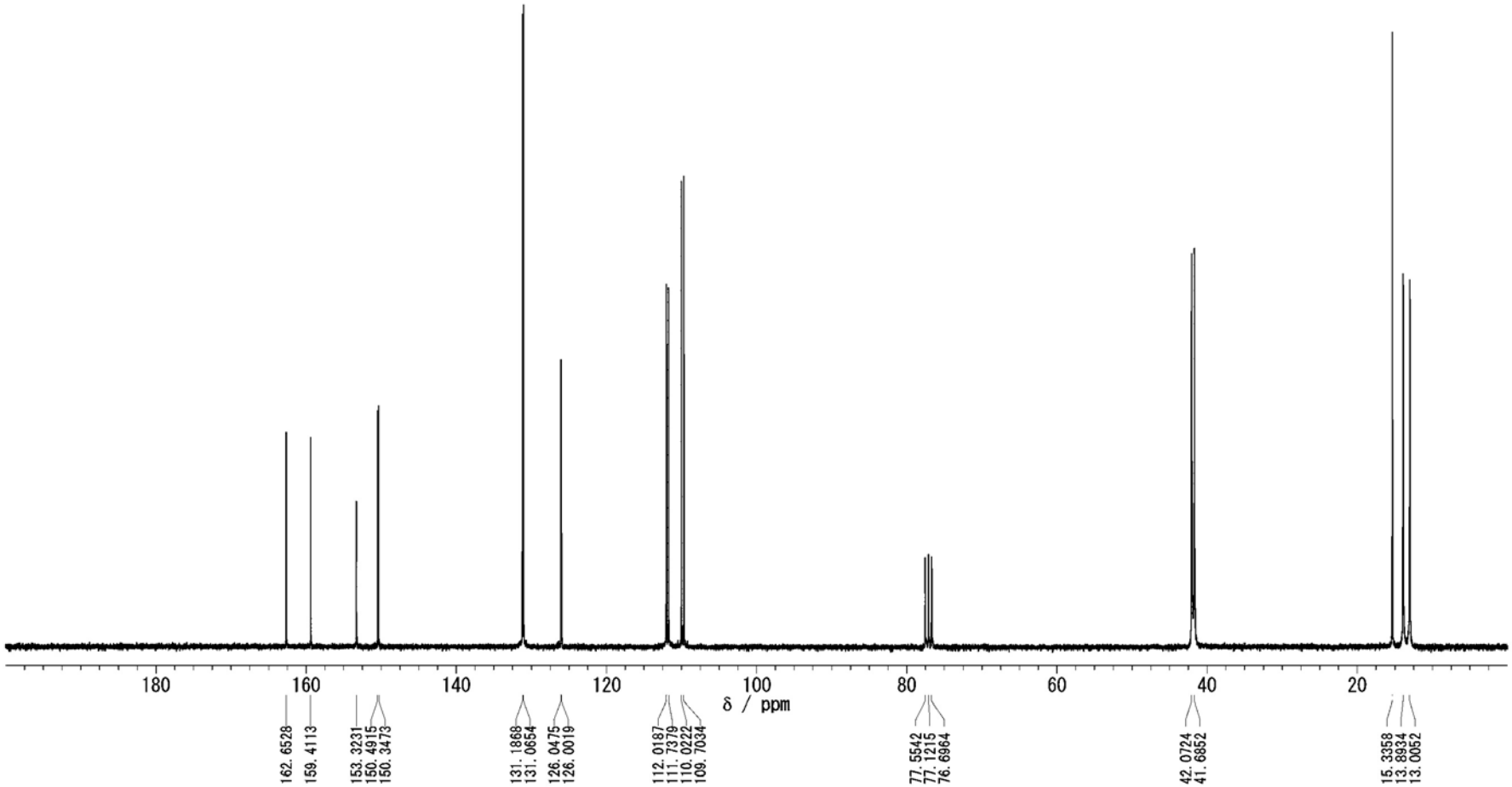

Original File:
Date Apr 30 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NON
ObsFreq 75.43 MHz
ObsSet -1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 256
AcqTime 1.4992 s
PD 1.501 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/02 16:59:30
Operator
O
O
O
NEt2
O
3q
180
160
140
120
100
80
60
40
20
δ / ppm
154.1809
152.0705
142.8395
129.4864
123.4361
120.9993
120.3844
100.1535
77.4251
77.0000
76.5749
61.1797
42.0648
41.7232
32.1201
25.1437
14.0528
13.1798

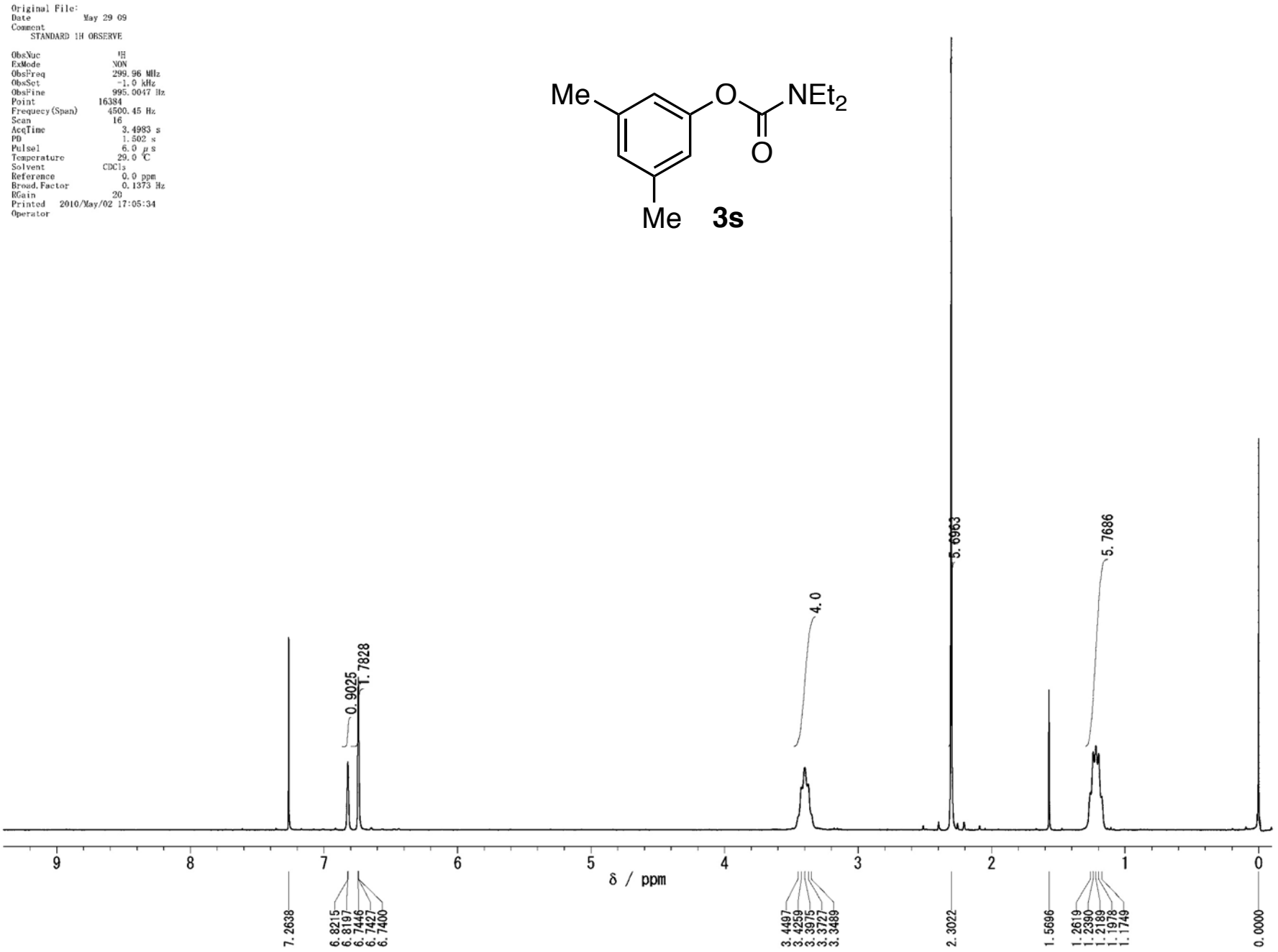

Original File:
Date Sep 9 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet -1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 24
Printed 2010/May/02 17:02:15
Operator
Me
O
NEt2
O
F
3r
0.9295
1.7677
4.0
2.8907
5.9501
9
8
7
6
5
4
3
2
1
0
δ / ppm
7.2656
7.1677
7.1457
7.1429
7.1411
7.1191
6.8774
6.8691
6.8609
6.8517
6.8462
6.8371
6.8334
6.8243
6.8059
6.7968
3.4955
3.4717
3.4478
3.4259
3.4039
3.3801
3.3563
2.1740
1.5769
1.2949
1.2711
1.2473
1.2335
1.2097
1.1859
0.0000

```
Original File:
Date            Apr 30 10
Comment
    C13 Statdard Observe
    Stick=none Tune=6.4 Match=0.4

ObsNuc                  13C
ExMode                  NON
ObsFreq                 75.43 MHz
ObsSet                  -1.0 kHz
ObsFine                 996.3672 Hz
Point                   32768
Frequecy(Span)          18761.73 Hz
Scan                    1024
AcqTime                 1.4992 s
PD                      1.501 s
Pulsel                  6.0 μs
Temperature             29.0 ℃
Solvent                 CDCl3
Reference               77.0 ppm
Broad.Factor            0.2863 Hz
RGain                   30
Printed   2010/May/02 17:03:18
Operator
```



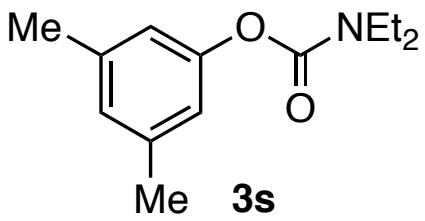
3r



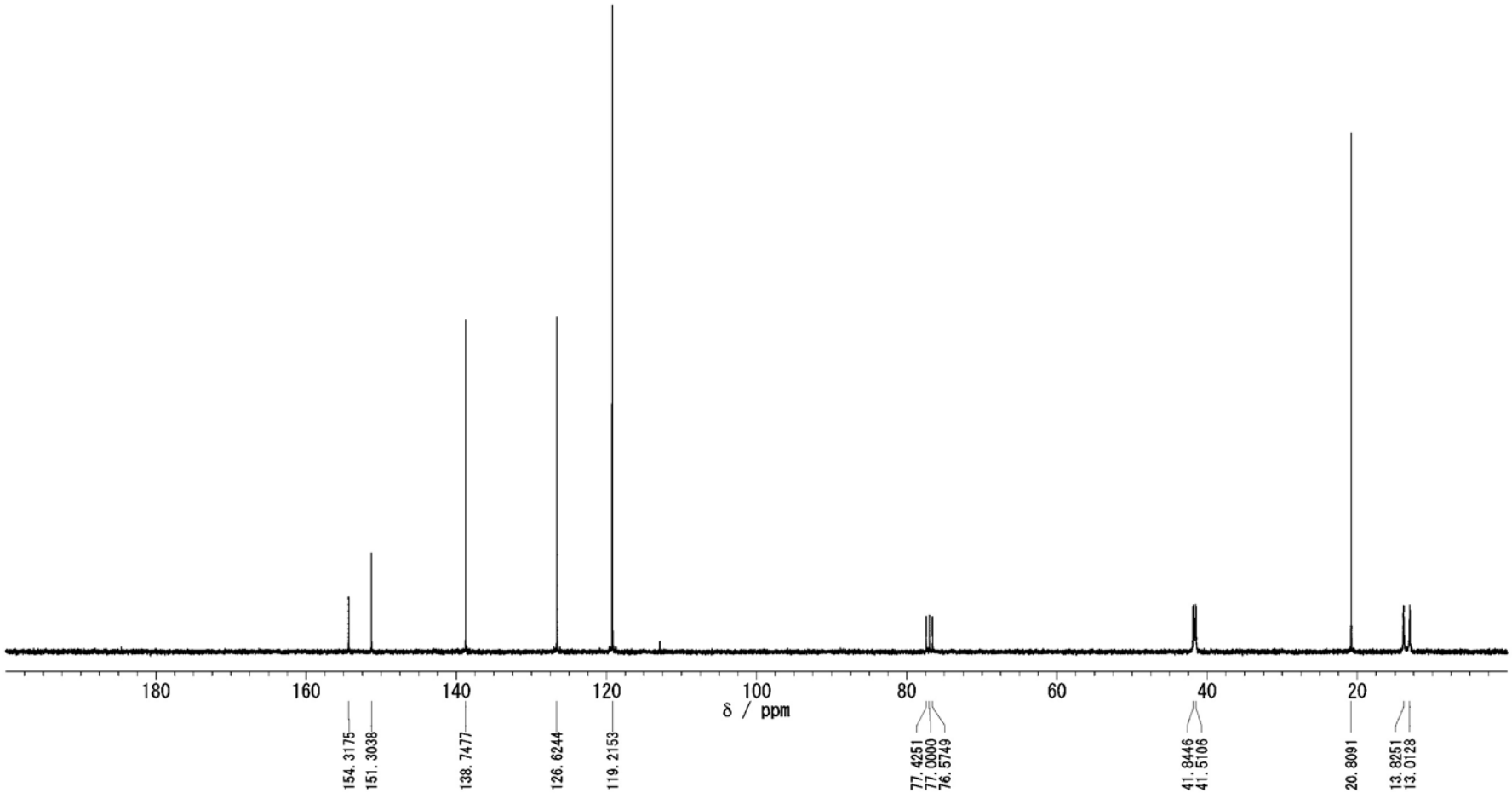

Original File:
Date May 29 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet -1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 20
Printed 2010/May/02 17:05:34
Operator
Me
O
NEt2
O
Me
3s
0.9025
1.7828
4.0
5.6963
5.7686
δ / ppm
7.2638
6.8215
6.8197
6.7446
6.7427
6.7400
3.4497
3.4259
3.3975
3.3727
3.3489
2.3022
1.5696
1.2619
1.2390
1.2189
1.1978
1.1749
0.0000

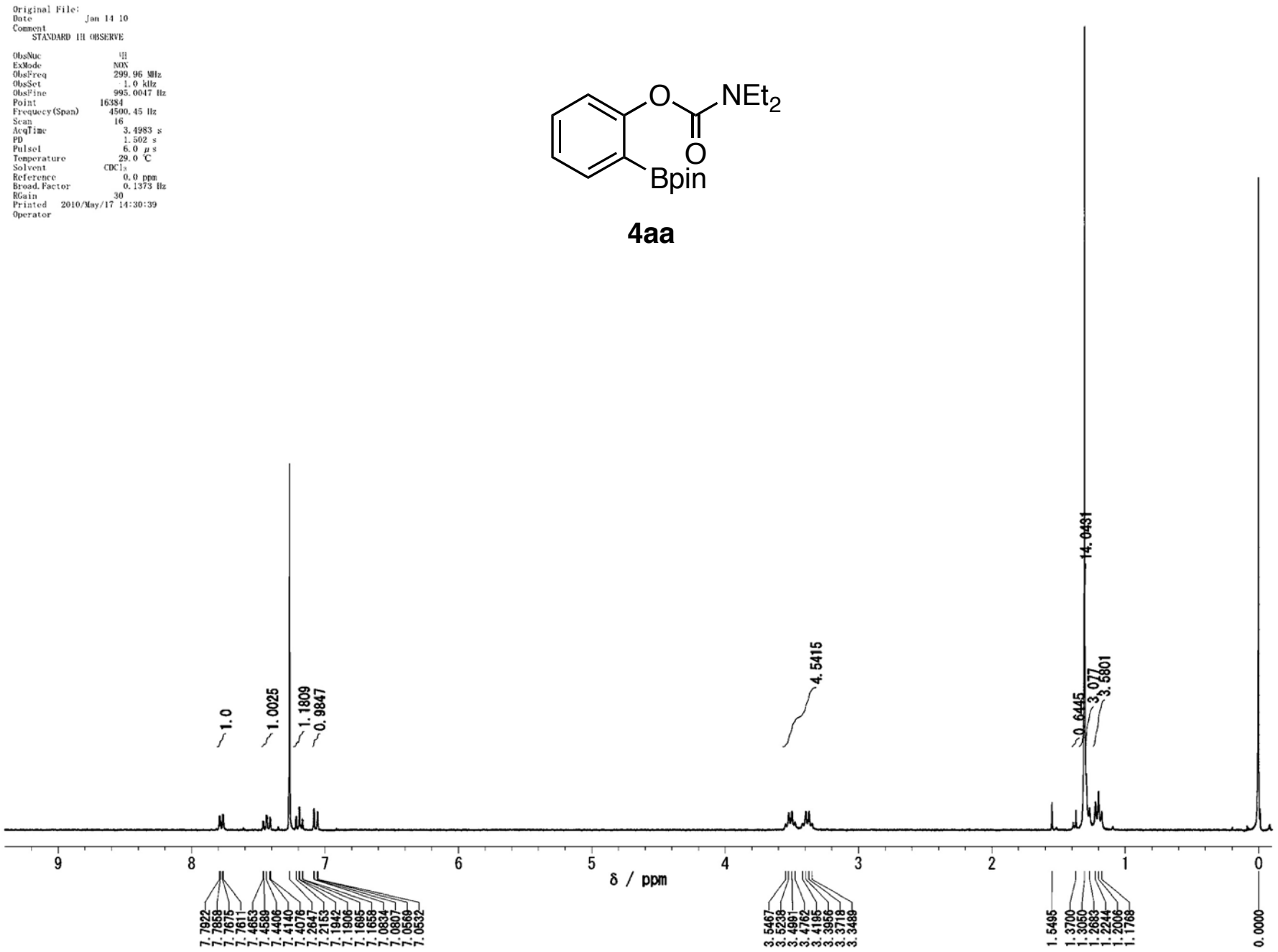
Original File:
Date Apr 30 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4

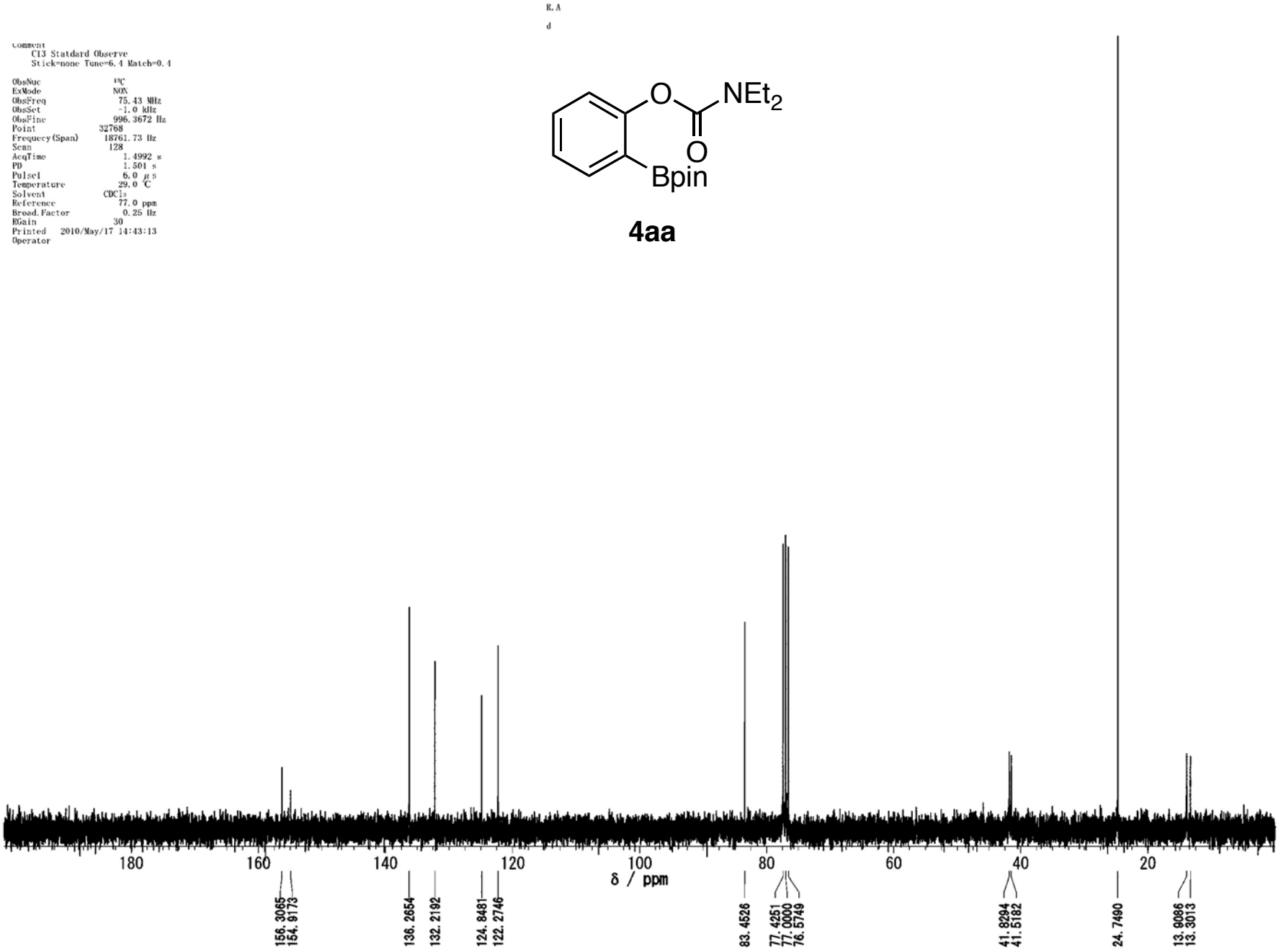
ObsNuc	^{13}C
ExMode	NON
ObsFreq	75.43 MHz
ObsSet	-1.0 kHz
ObsFine	996.3672 Hz
Point	32768
Frequecy(Span)	18761.73 Hz
Scan	128
AcqTime	1.4992 s
PD	1.501 s
Pulsel	6.0 μs
Temperature	29.0 ℃
Solvent	CDCl3
Reference	77.0 ppm
Broad.Factor	0.2863 Hz
RGain	30
Printed	2010/May/02 17:06:52
Operator	

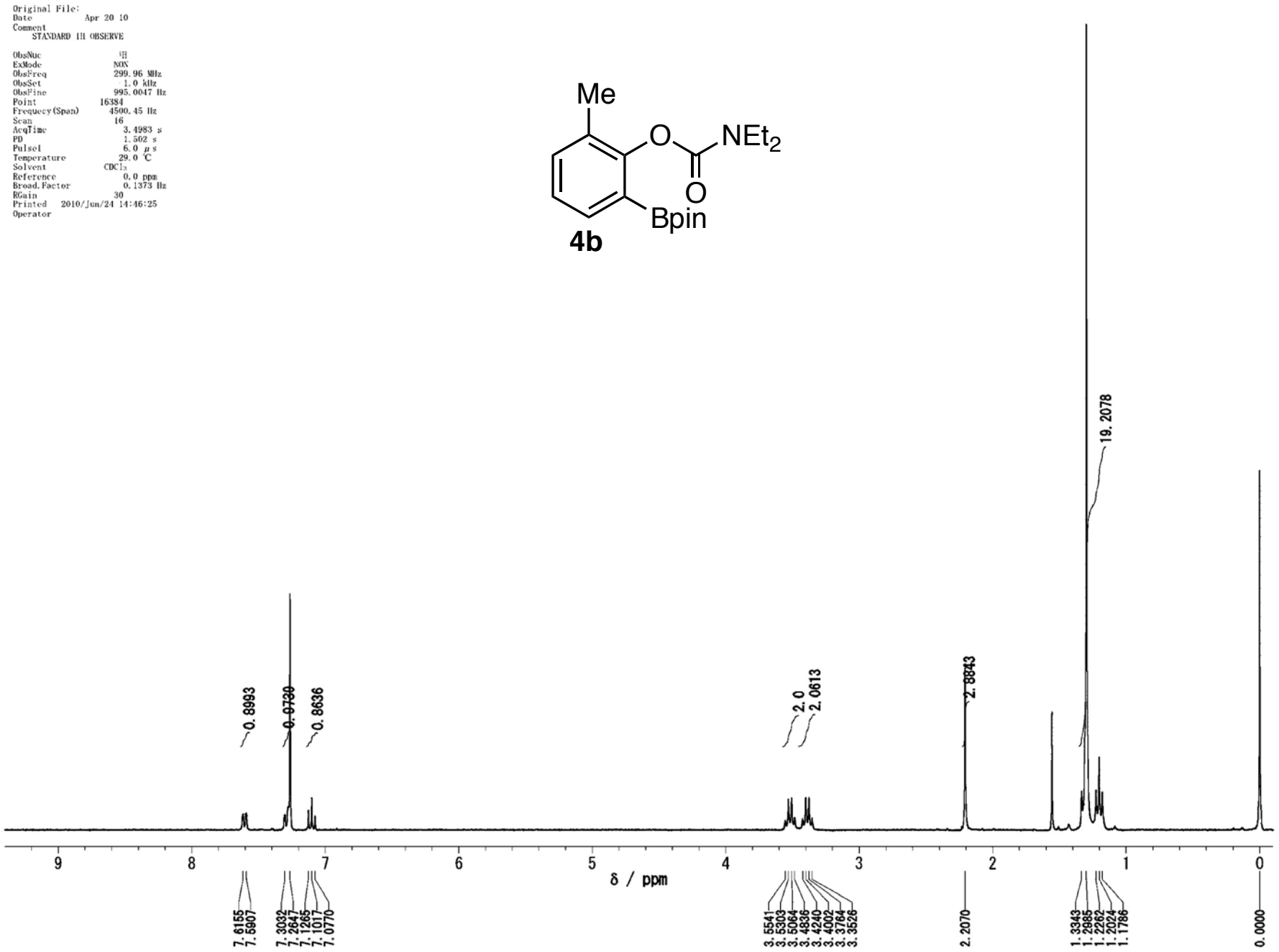


3s



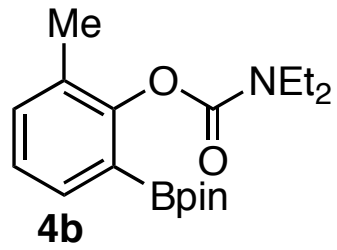

Original File:
Date Jan 14 10
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 30
Printed 2010/May/17 14:30:39
Operator
O
NEt2
O
Bpin
4aa
1.0
1.0025
1.1809
0.9847
4.5415
14.0431
0.6445
3.077
3.5801
δ / ppm
9
8
7
6
5
4
3
2
1
0
7.7922
7.7859
7.7675
7.7611
7.4653
7.4589
7.4406
7.4140
7.4076
7.2847
7.2153
7.1942
7.1906
7.1695
7.1658
7.0834
7.0807
7.0569
7.0532
3.5467
3.5238
3.4991
3.4762
3.4195
3.3956
3.3718
3.3489
1.5495
1.3700
1.3050
1.2683
1.2244
1.2006
1.1768
0.0000


Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NON
ObsFreq 75.43 MHz
ObsSet -1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 128
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.25 Hz
RGain 30
Printed 2010/May/17 14:43:13
Operator
R.A
d
O
NEt2
O
Bpin
4aa
180
160
140
120
100
80
60
40
20
δ / ppm
156.3065
154.9173
136.2654
132.2192
124.8481
122.2746
83.4526
77.4251
77.0000
76.5749
41.8294
41.5182
24.7490
13.9086
13.3013

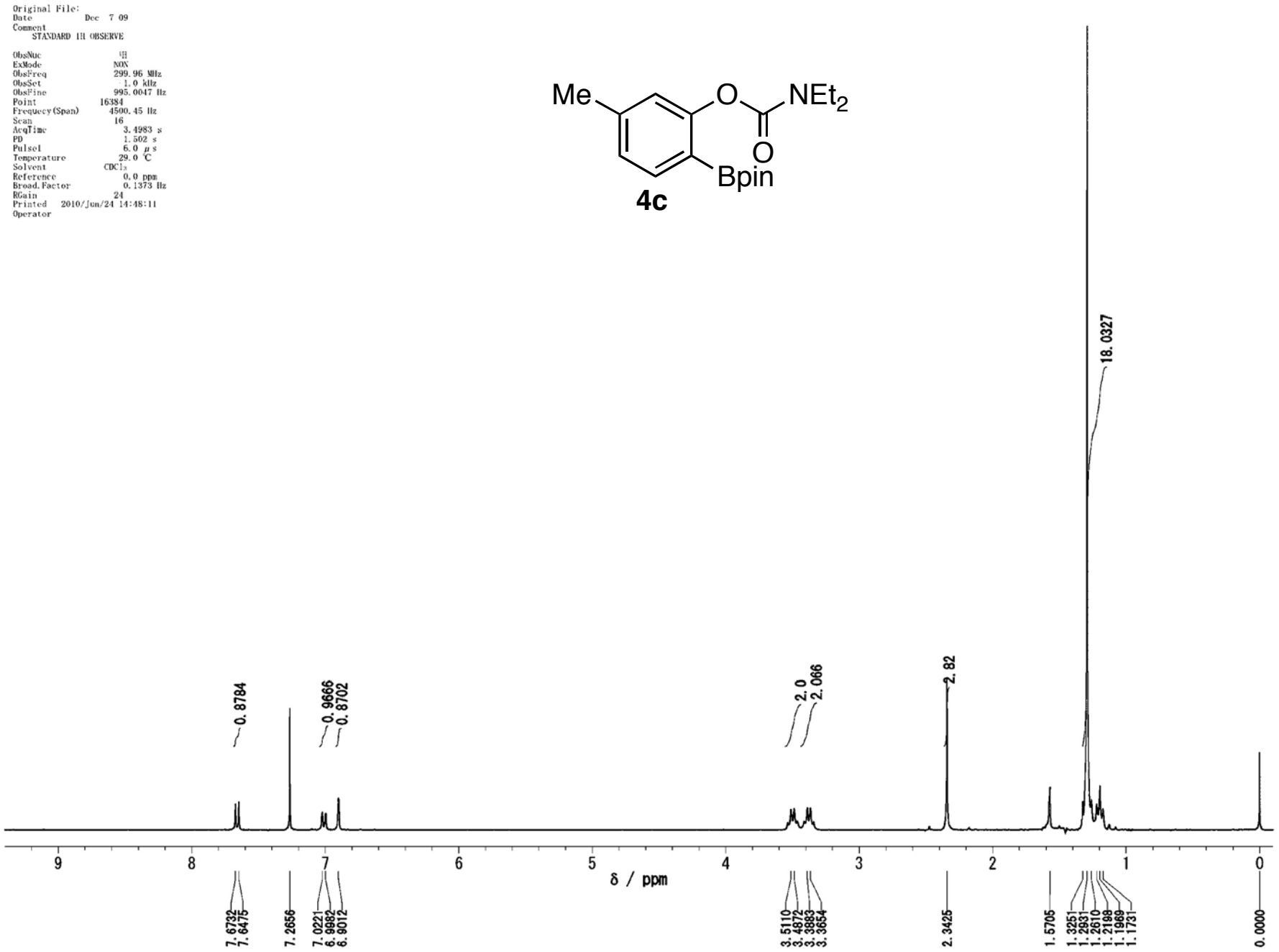

Original File:
Date Apr 20 10
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 30
Printed 2010/Jun/24 14:46:25
Operator
Me
O
NEt2
O
Bpin
4b
0.8993
0.9730
0.8636
2.0
2.0613
2.8843
19.2078
δ / ppm
7.6155
7.5907
7.3032
7.2647
7.1265
7.1017
7.0770
3.5541
3.5303
3.5064
3.4836
3.4240
3.4002
3.3764
3.3526
2.2070
1.3343
1.2985
1.2262
1.2024
1.1786
0.0000

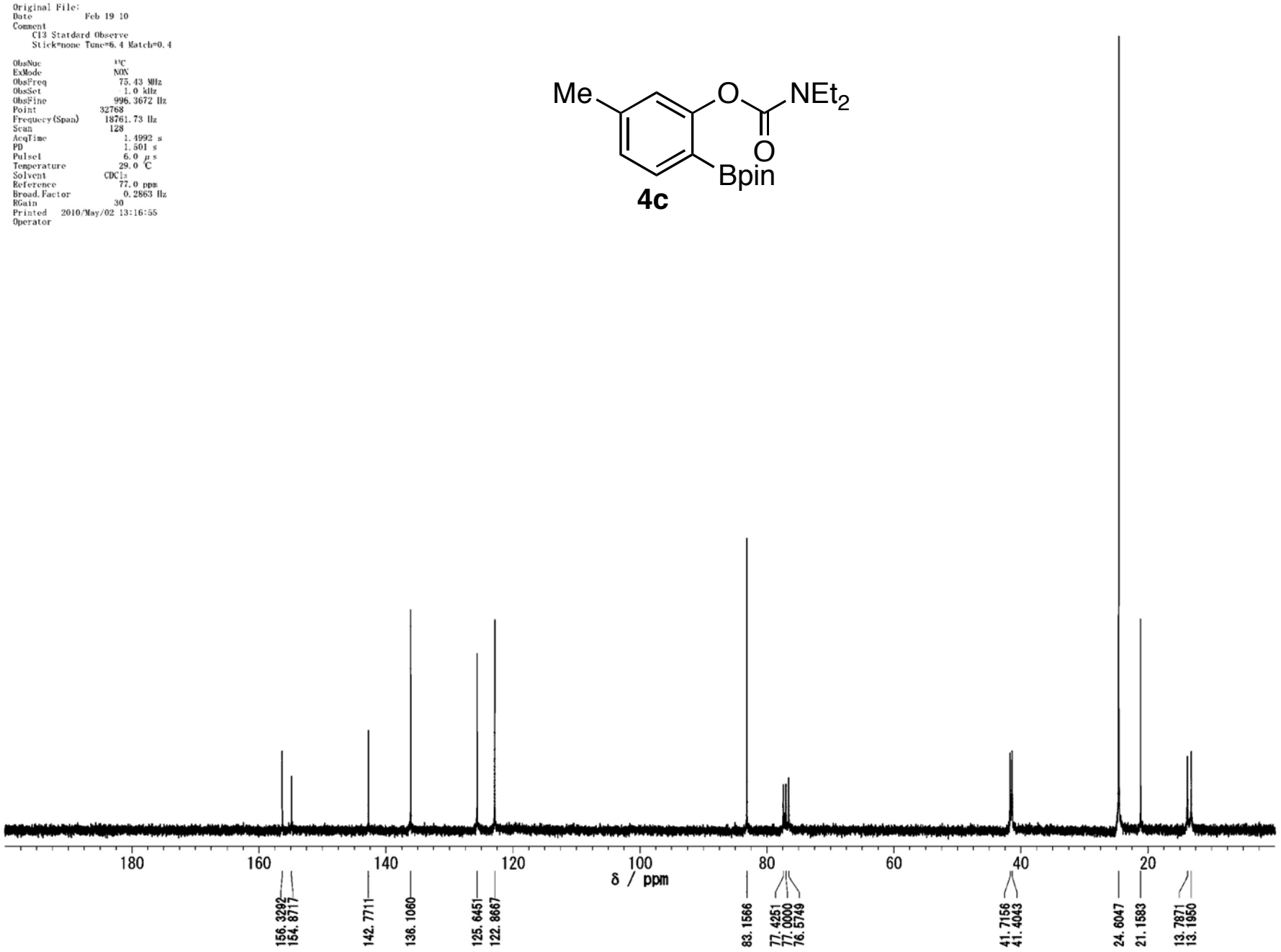
Original File:
Date Apr 27 10
Comment
CI3 Statdard Observe
Stick=none Tune=6.4 Match=0.4

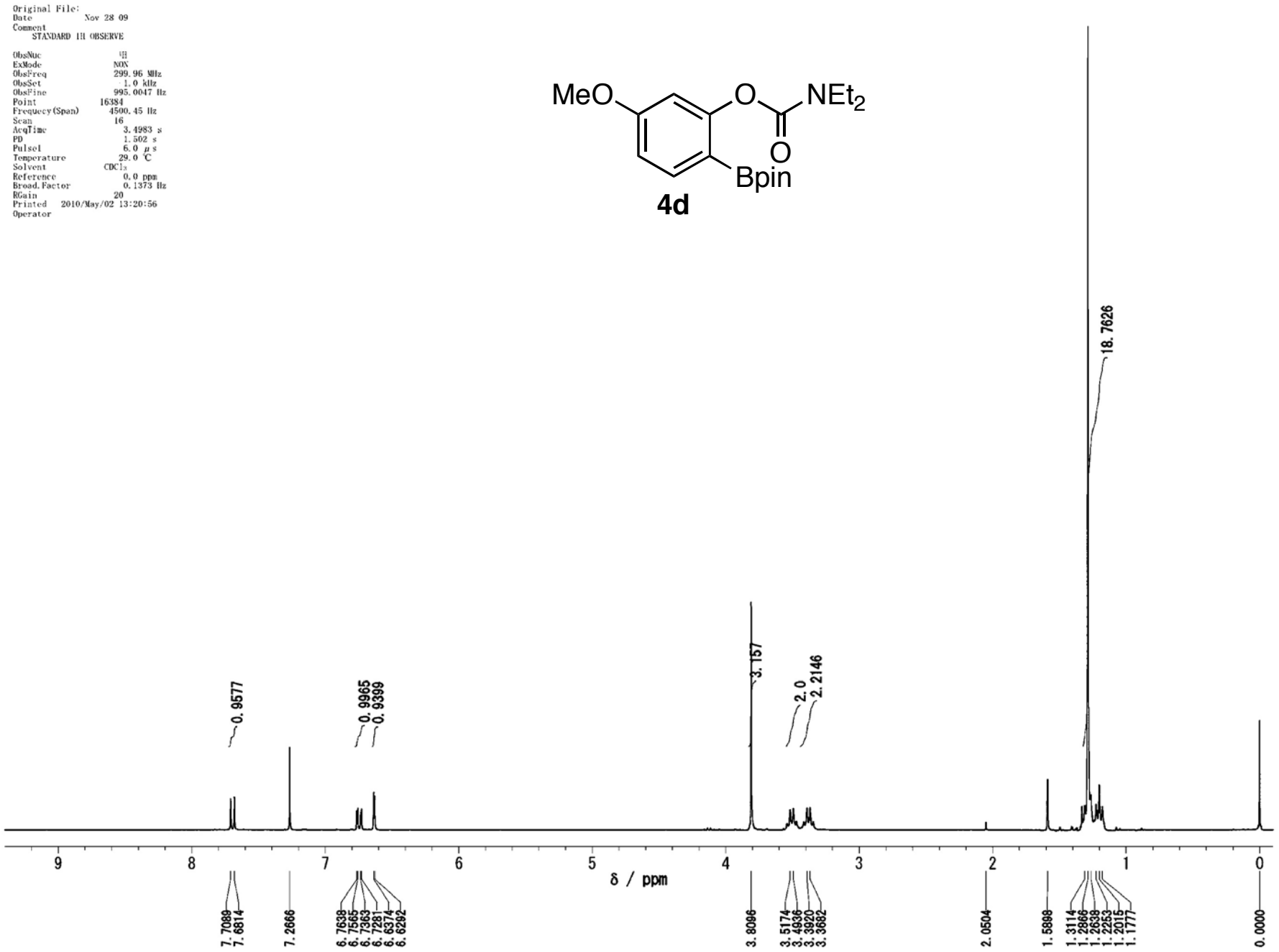
ObsNuc	^{13}C
ExMode	NON
ObsFreq	75.43 MHz
ObsSet	1.0 kHz
ObsFine	996.3672 Hz
Point	32768
Frequecy(Span)	18761.73 Hz
Scan	64
AcqTime	1.4992 s
PD	1.501 s
Pulse1	6.0 μs
Temperature	29.0 ℃
Solvent	CDCl3
Reference	77.0 ppm
Broad.Factor	0.2863 Hz
RGain	30
Printed	2010/May/02 13:09:00
Operator	

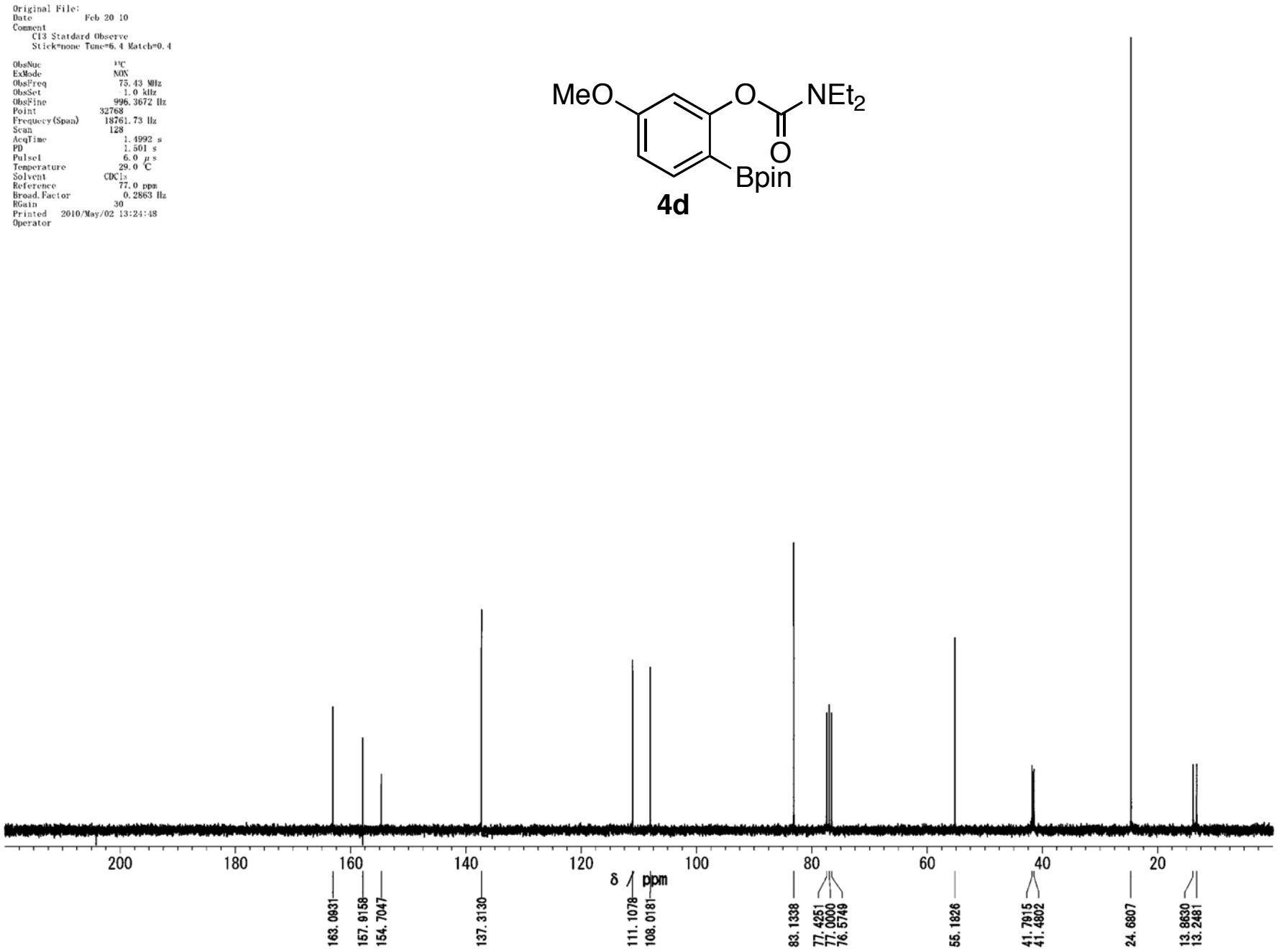


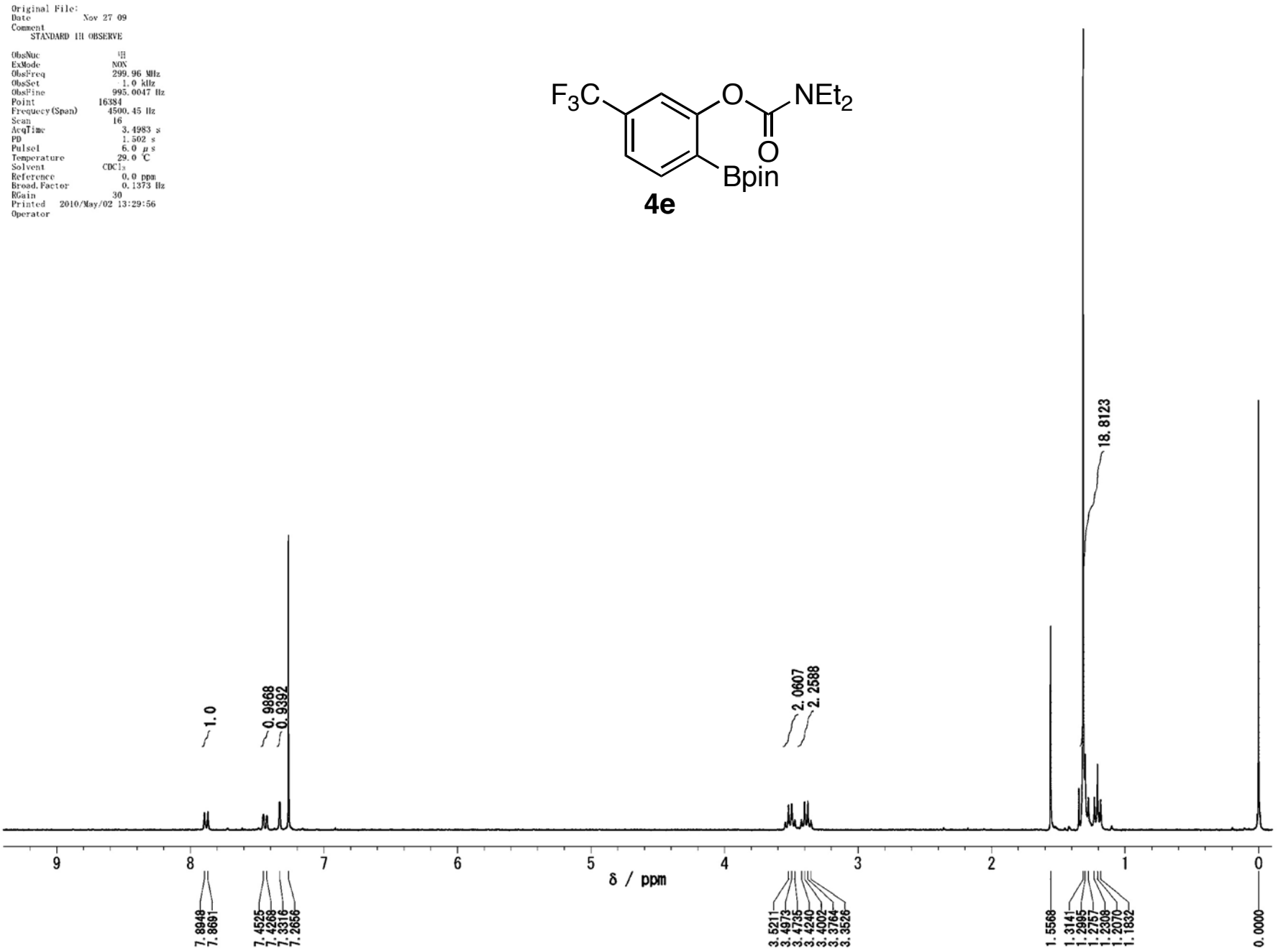
4b

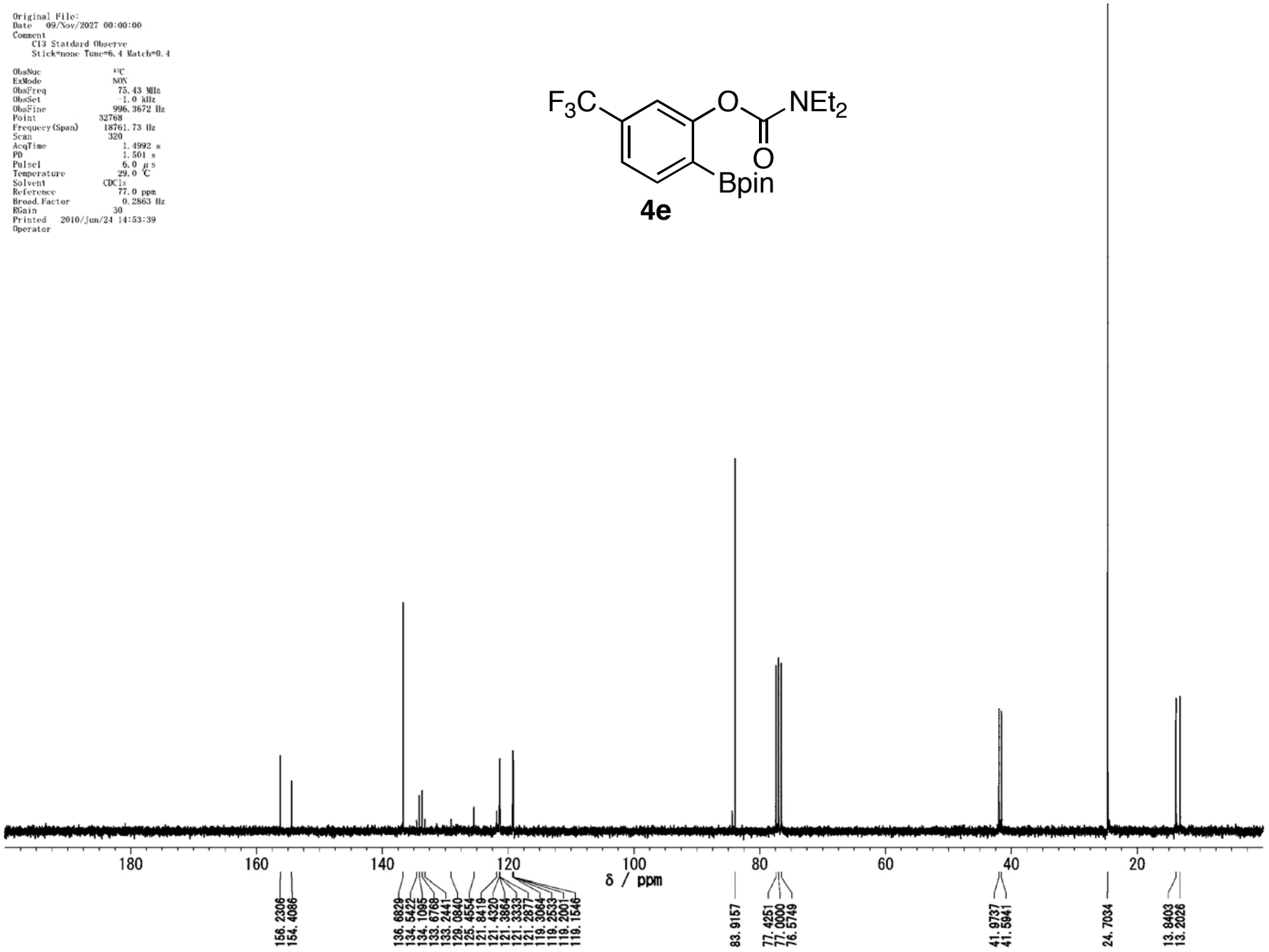

Original File:
Date Dec 7 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 24
Printed 2010/Jun/24 14:48:11
Operator
Me
O
NEt2
O
Bpin
4c
0.8784
0.9666
0.8702
2.0
2.066
2.82
18.0327
δ / ppm
7.6732
7.6475
7.2656
7.0221
6.9982
6.9012
3.5110
3.4872
3.3883
3.3654
2.3425
1.5705
1.3251
1.2931
1.2610
1.2198
1.1969
1.1731
0.0000

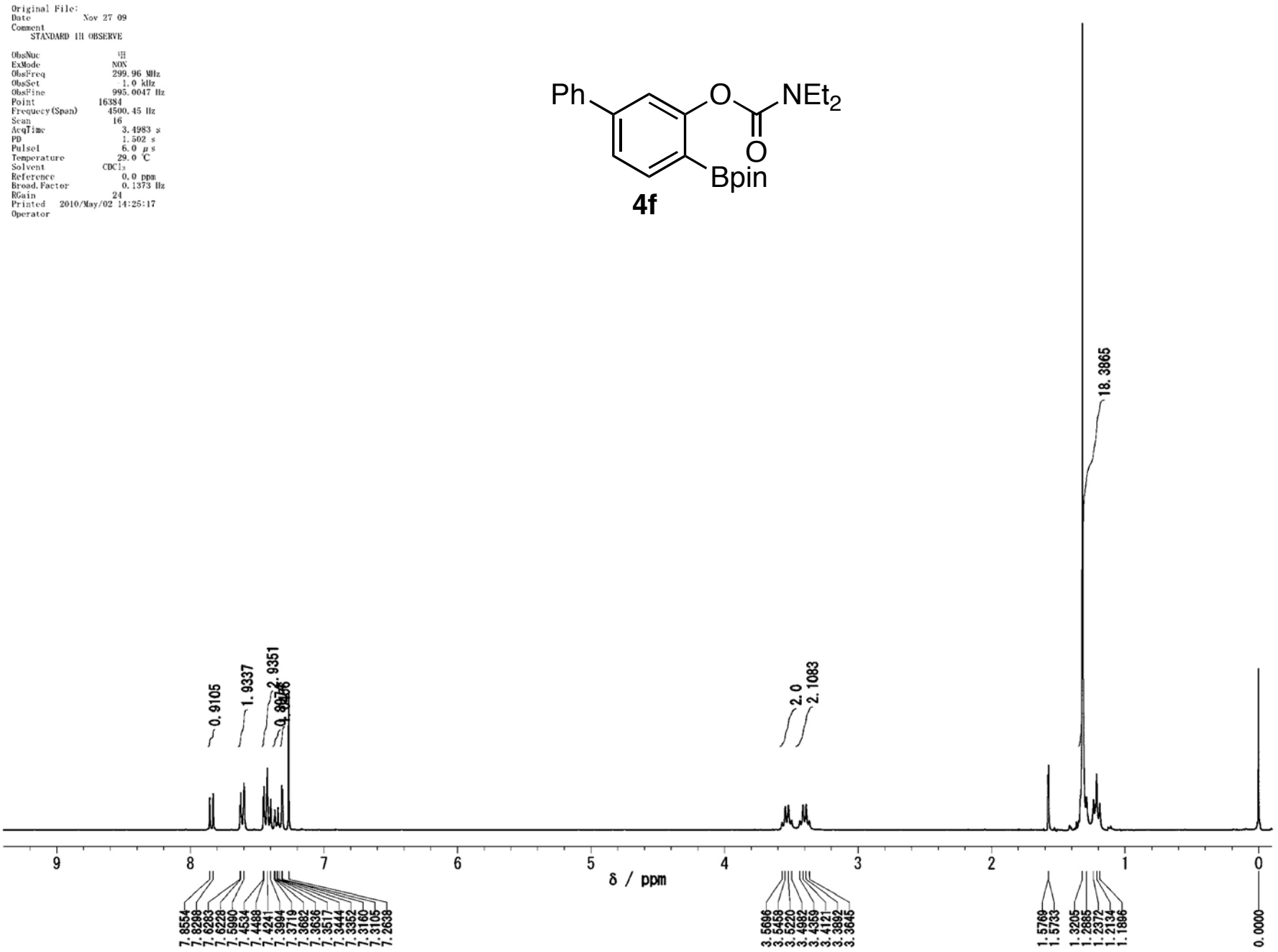

Original File:
Date Feb 19 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NOE
ObsFreq 75.43 MHz
ObsSet 1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 128
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/02 13:16:55
Operator
Me
O
NEt2
O
Bpin
4c
180
160
140
120
100
80
60
40
20
δ / ppm
156.3292
154.8717
142.7711
138.1060
125.6451
122.8667
83.1566
77.4251
77.0000
76.5749
41.7156
41.4043
24.6047
21.1583
13.7871
13.1950

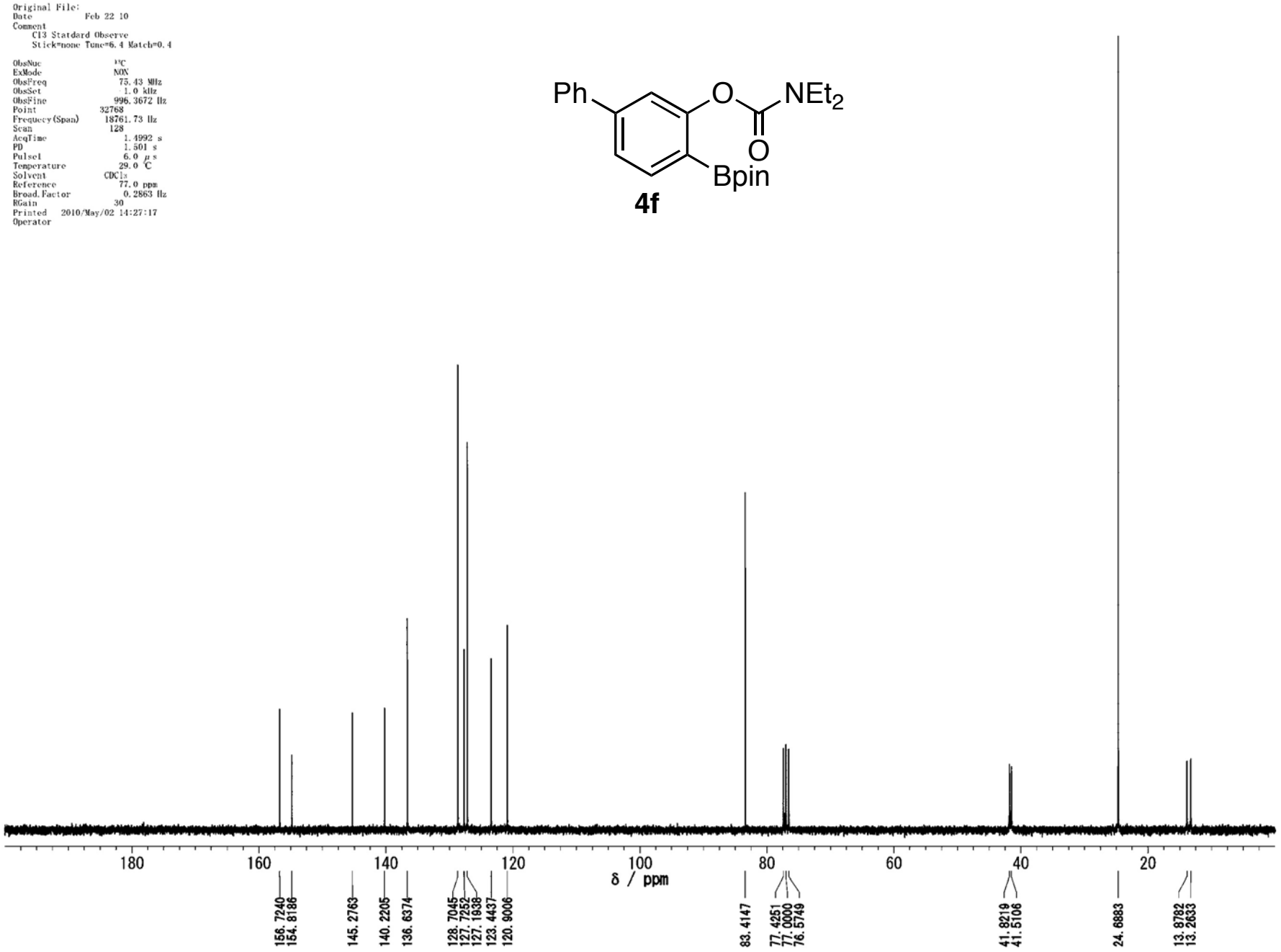

Original File:
Date Nov 28 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 20
Printed 2010/May/02 13:20:56
Operator
MeO
O
NEt2
O
Bpin
4d
18.7626
0.9577
0.9965
0.9399
3.157
2.0
2.2146
δ / ppm
7.7089
7.6814
7.2666
6.7639
6.7565
6.7363
6.7281
6.6374
6.6292
3.8096
3.5174
3.4936
3.3920
3.3682
2.0504
1.5898
1.3114
1.2866
1.2639
1.2253
1.2015
1.1777
0.0000

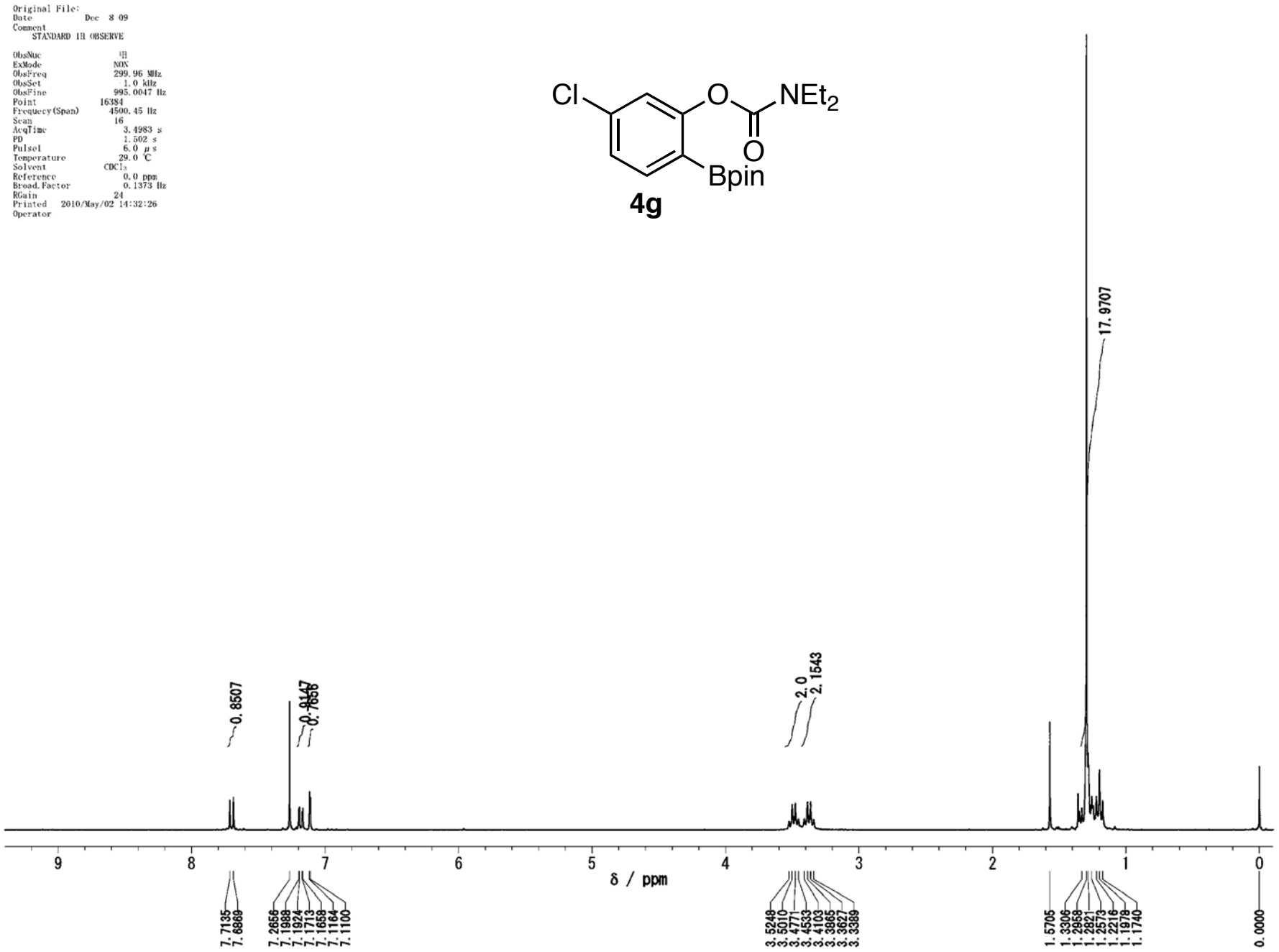

Original File:
Date Feb 20 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NON
ObsFreq 75.43 MHz
ObsSet 1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 128
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/02 13:24:48
Operator
MeO
O
NEt2
O
Bpin
4d
200
180
160
140
120
100
80
60
40
20
δ / ppm
163.0931
157.9158
154.7047
137.3130
111.1078
108.0181
83.1338
77.4251
77.0000
76.5749
55.1826
41.7915
41.4802
24.6807
13.8630
13.2481


Original File:
Date Nov 27 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 30
Printed 2010/May/02 13:29:56
Operator
F3C
O
NEt2
O
Bpin
4e
1.0
0.9868
0.9392
2.0607
2.2588
18.8123
δ / ppm
7.8948
7.8691
7.4525
7.4268
7.3316
7.2656
3.5211
3.4973
3.4735
3.4240
3.4002
3.3764
3.3528
1.5568
1.3141
1.2995
1.2757
1.2309
1.2070
1.1832
0.0000


Original File:
Date 09/Nov/2027 00:00:00
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NOX
ObsFreq 75.43 MHz
ObsSet -1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 320
AcqTime 1.4992 s
PD 1.501 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/Jun/24 14:53:39
Operator
F3C
O
NEt2
O
Bpin
4e
180
160
140
120
100
80
60
40
20
δ / ppm
156.2306
154.4086
136.6829
134.5422
134.1095
133.6768
133.2441
129.0840
125.4554
121.8419
121.4320
121.3864
121.3333
121.2877
119.3064
119.2533
119.2001
119.1546
83.9157
77.4251
77.0000
76.5749
41.9737
41.5941
24.7034
13.8403
13.2026

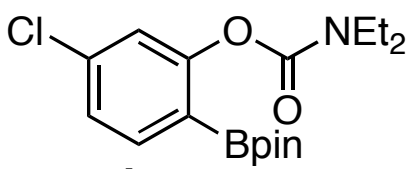

Original File:
Date Nov 27 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 24
Printed 2010/May/02 14:25:17
Operator
Ph
O
NEt2
O
Bpin
4f
0.9105
1.9337
2.9351
2.0
2.1083
18.3865
δ / ppm
7.8554
7.8298
7.6283
7.6228
7.5990
7.4534
7.4488
7.4241
7.3994
7.3719
7.3682
7.3636
7.3517
7.3444
7.3352
7.3160
7.3105
7.2638
3.5696
3.5458
3.5220
3.4982
3.4359
3.4121
3.3892
3.3645
1.5769
1.5733
1.3205
1.2885
1.2372
1.2134
1.1886
0.0000


Original File:
Date Feb 22 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NOX
ObsFreq 75.43 MHz
ObsSet 1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 128
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/02 14:27:17
Operator
Ph
O
NEt2
O
Bpin
4f
180
160
140
120
100
80
60
40
20
δ / ppm
156.7240
154.8186
145.2763
140.2205
136.6374
128.7045
127.7252
127.1938
123.4437
120.9006
83.4147
77.4251
77.0000
76.5749
41.8219
41.5106
24.6883
13.8782
13.2633

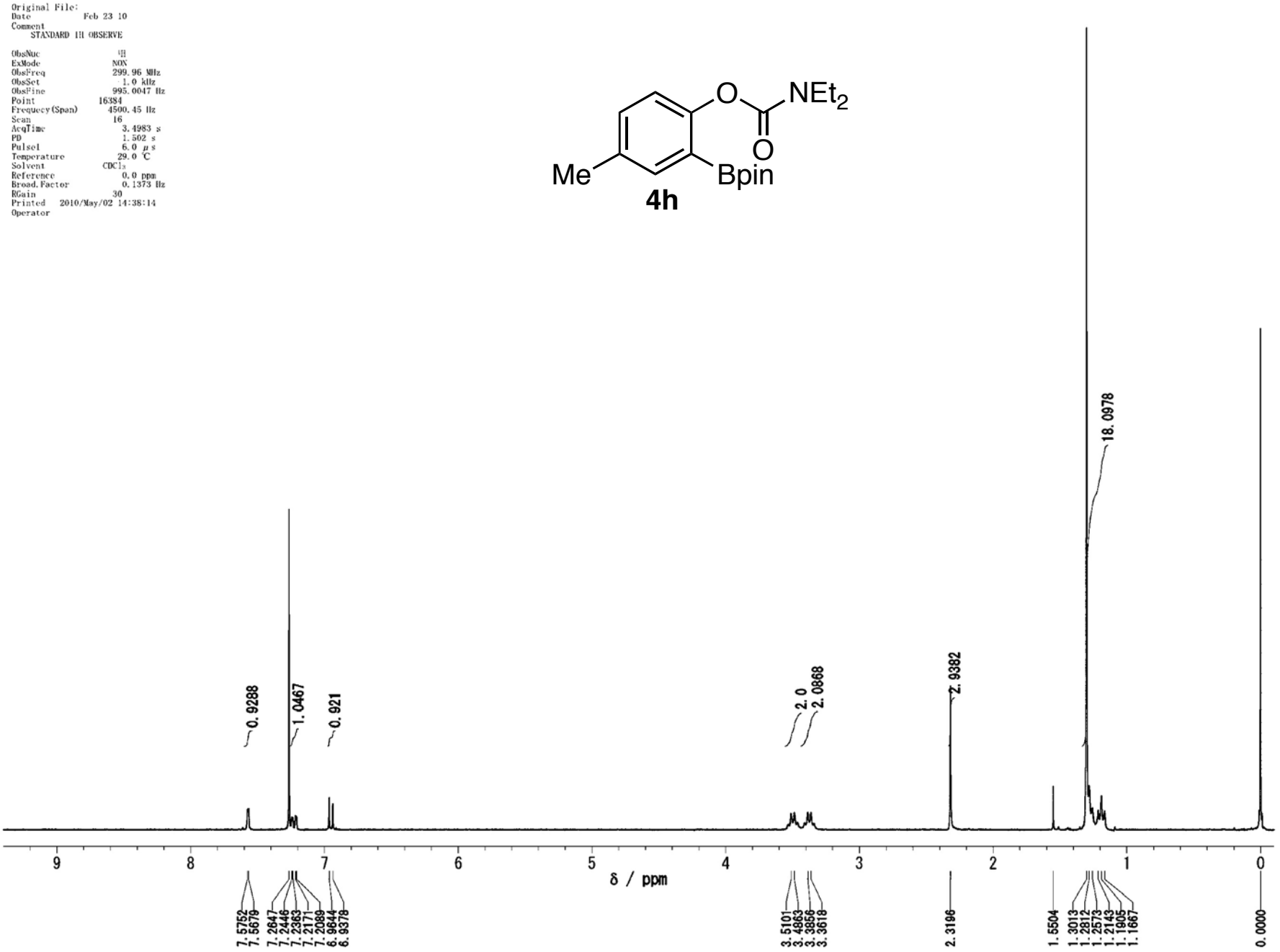

Original File:
Date Dec 8 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 24
Printed 2010/May/02 14:32:26
Operator
Cl
O
NEt2
O
Bpin
4g
0.8507
7.8658
2.0
2.1543
17.9707
δ / ppm
7.7135
7.8869
7.2656
7.1988
7.1924
7.1713
7.1658
7.1164
7.1100
3.5248
3.5010
3.4771
3.4533
3.4103
3.3865
3.3627
3.3389
1.5705
1.3306
1.2958
1.2821
1.2573
1.2216
1.1978
1.1740
0.0000

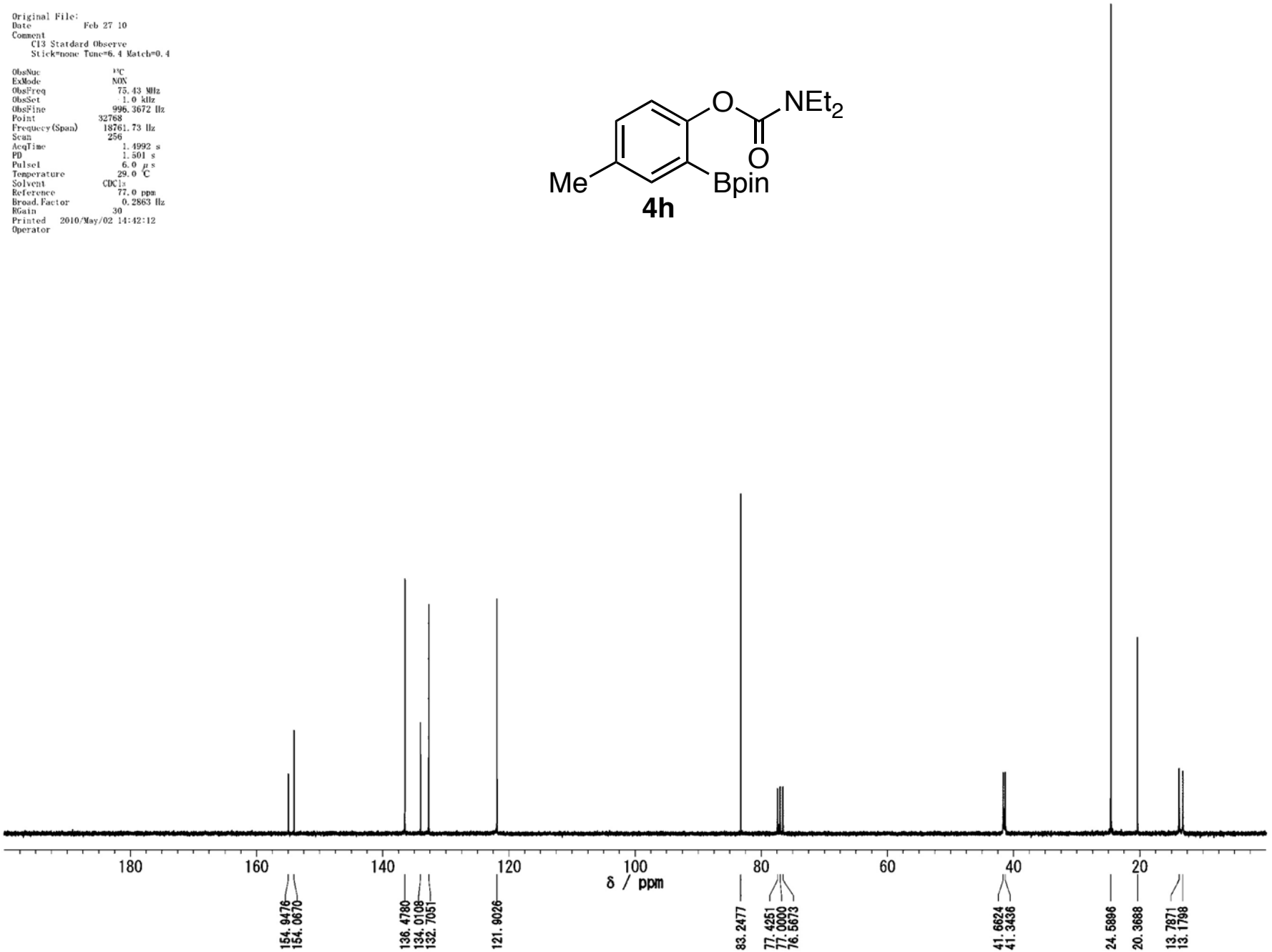
Original File:
Date Feb 20 10
Comment
CI3 Statdard Observe
Stick=none Tune=6.4 Match=0.4

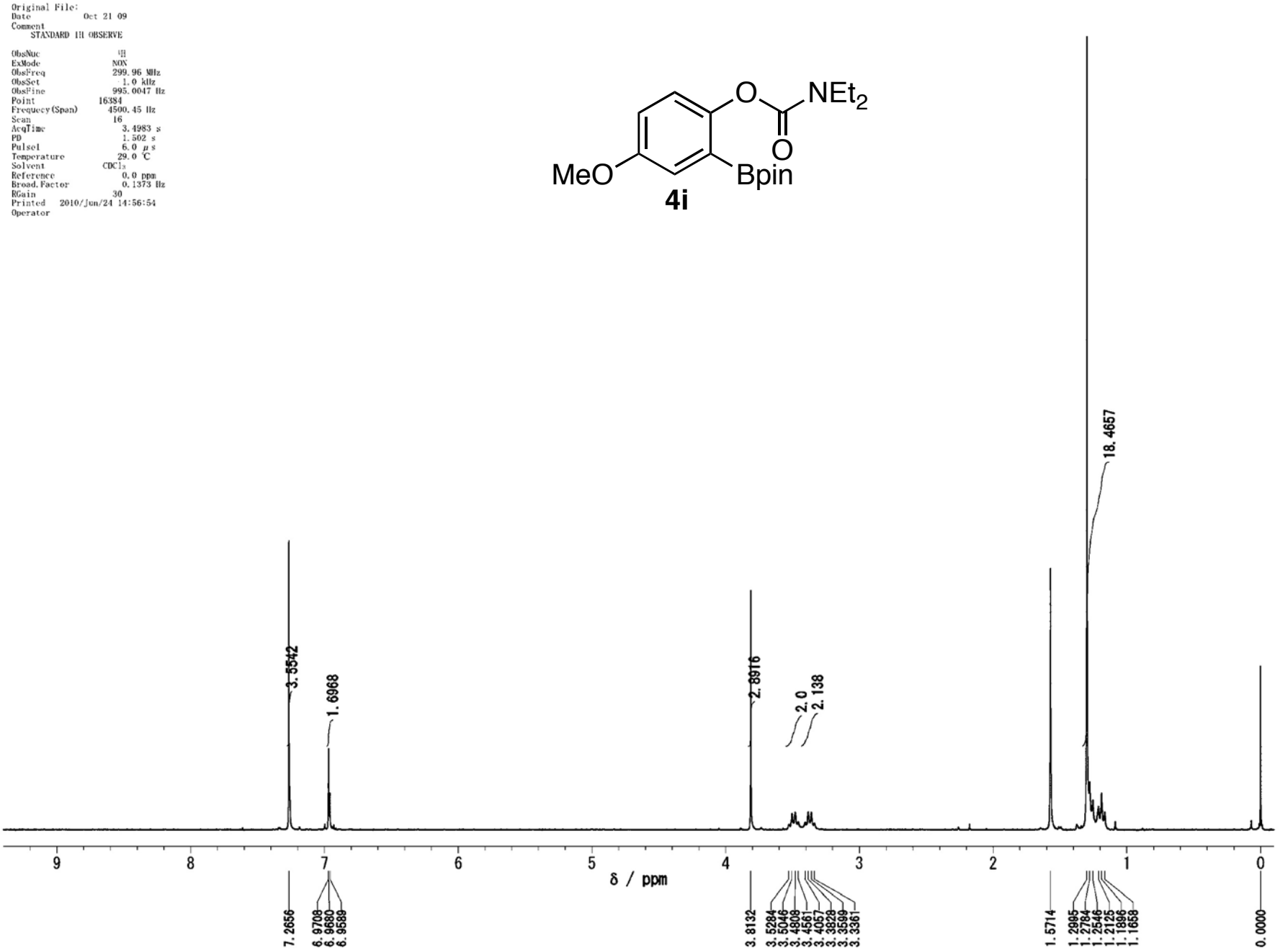
ObsNuc	^{13}C
ExMode	NON
ObsFreq	75.43 MHz
ObsSet	1.0 kHz
ObsFine	996.3672 Hz
Point	32768
Frequecy(Span)	18761.73 Hz
Scan	64
AcqTime	1.4992 s
PD	1.501 s
Pulse1	6.0 μs
Temperature	29.0 ℃
Solvent	CDCl3
Reference	77.0 ppm
Broad.Factor	0.2863 Hz
RGain	30
Printed	2010/May/02 14:33:48
Operator	

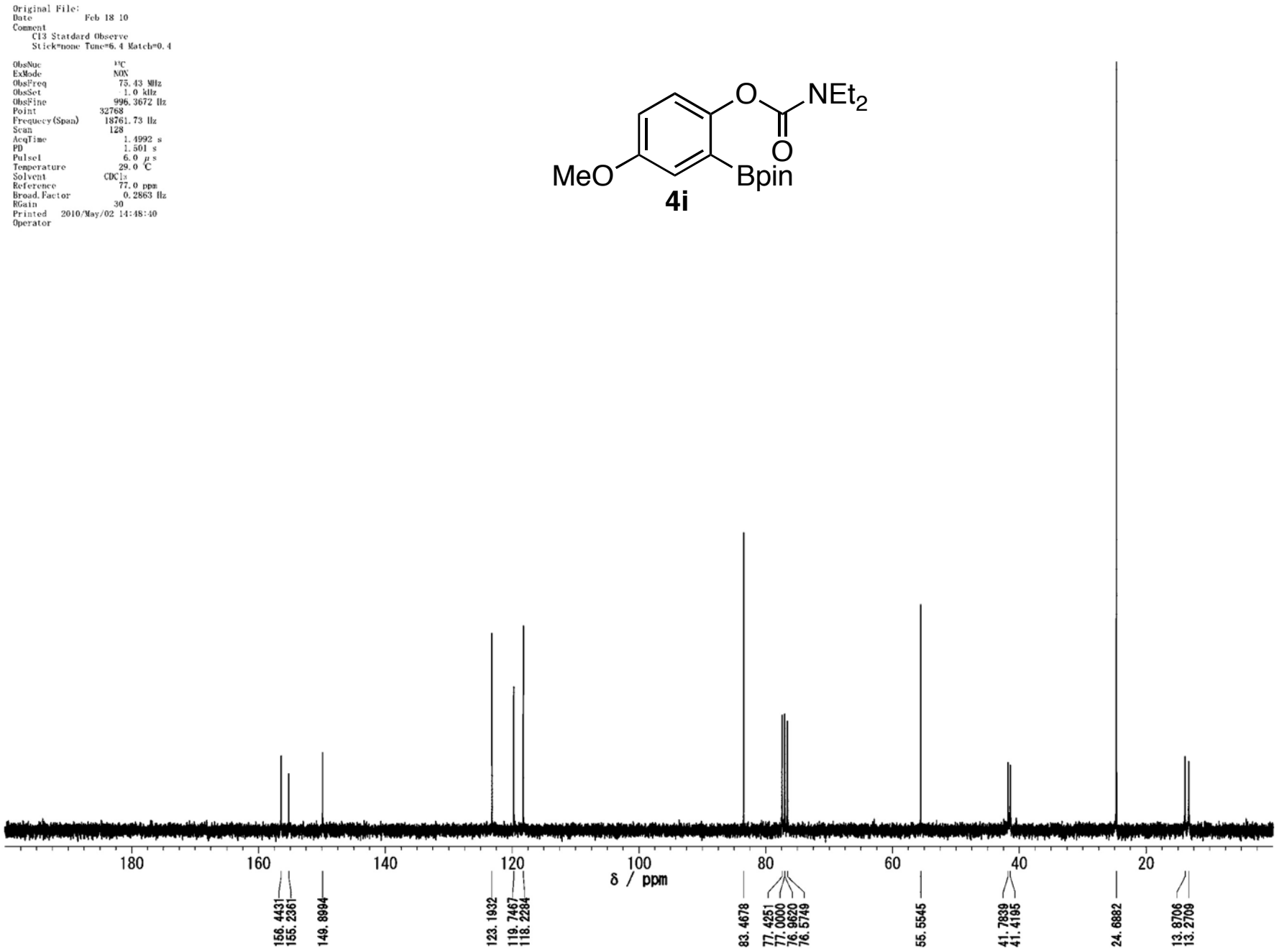


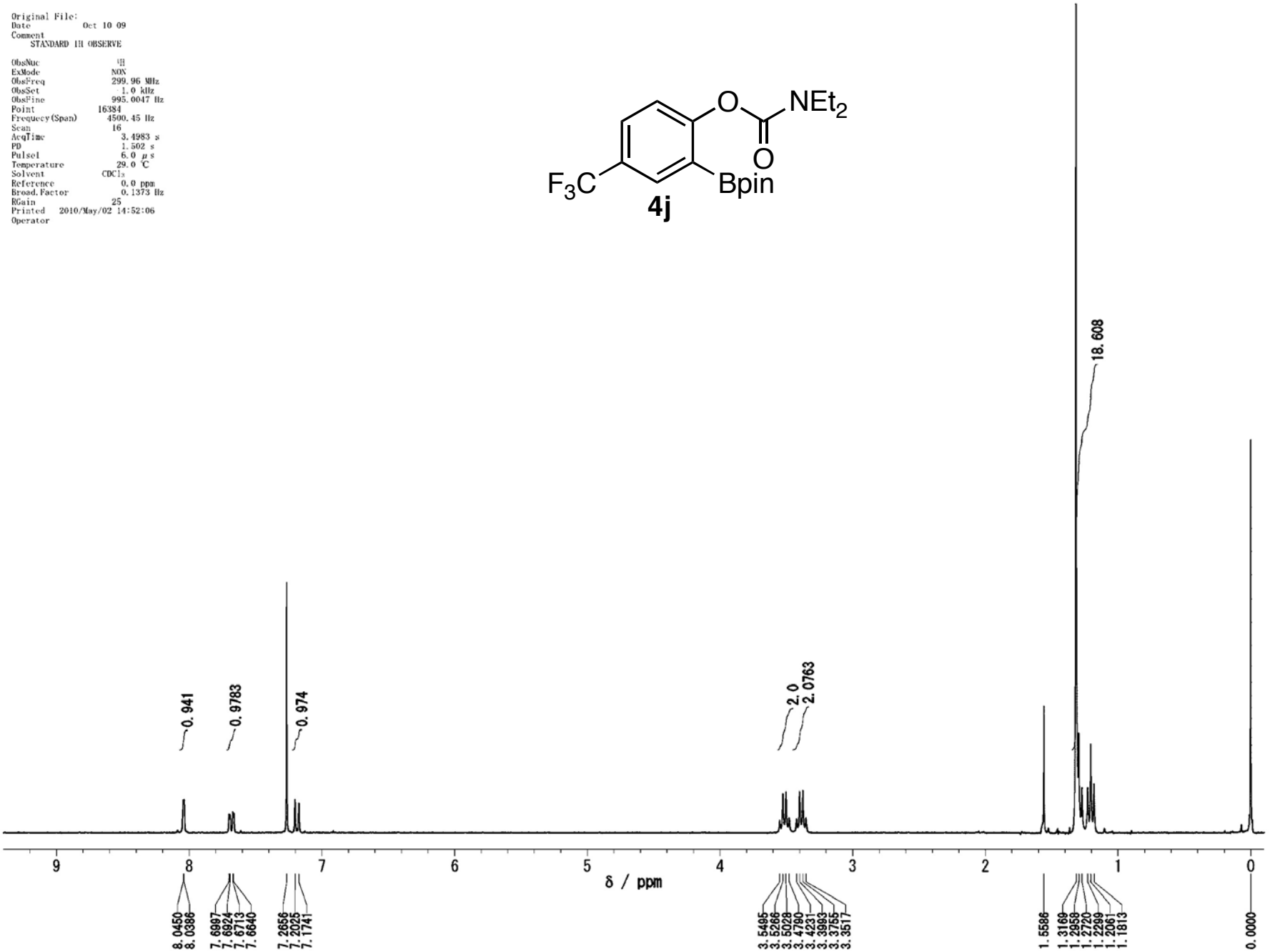
4g

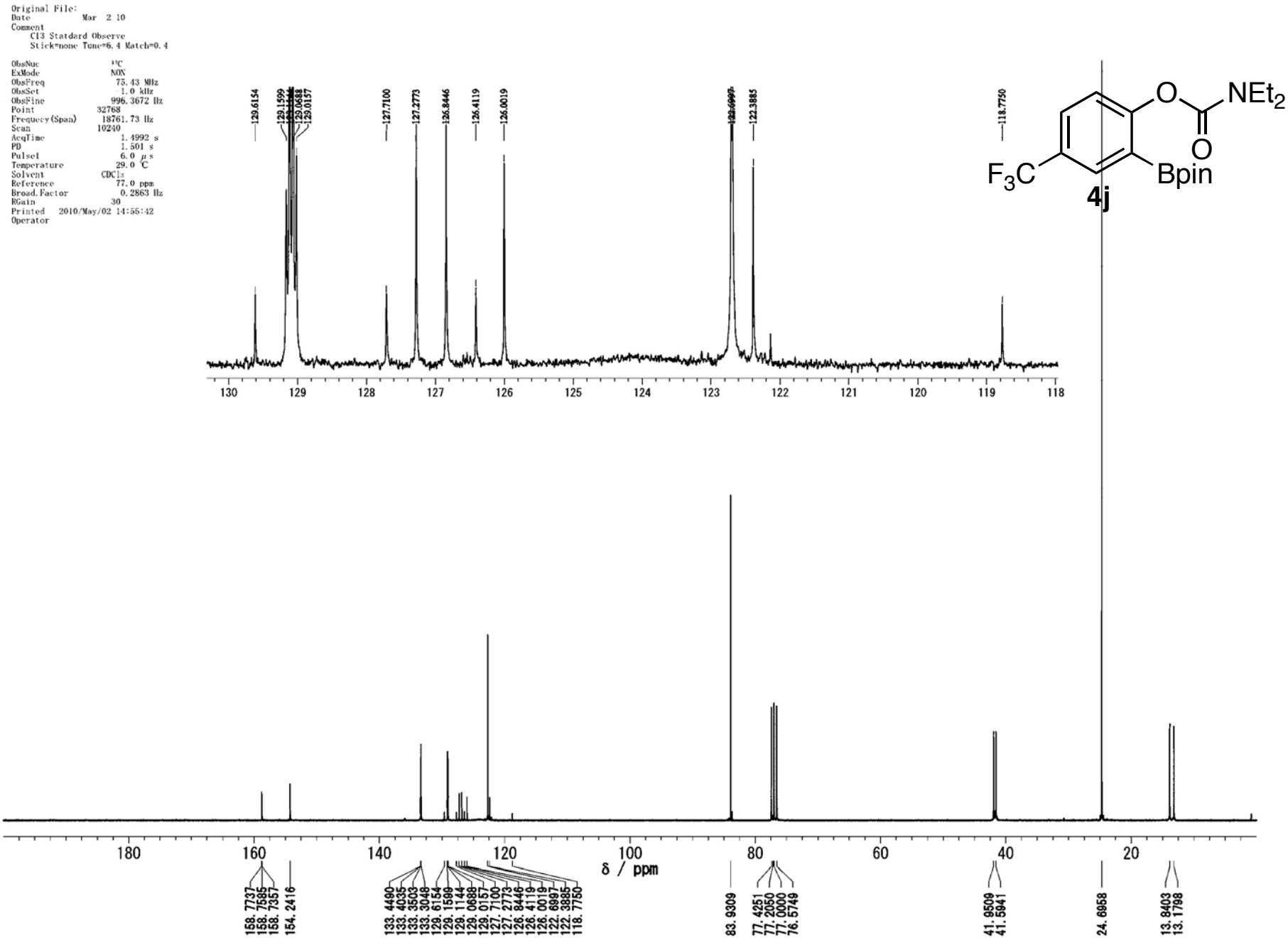

Original File:
Date Feb 23 10
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 30
Printed 2010/May/02 14:38:14
Operator
O
NEt2
O
Me
Bpin
4h
0.9288
1.0467
0.921
2.0
2.0868
2.9382
18.0978
9
8
7
6
5
4
3
2
1
0
δ / ppm
7.5752
7.5679
7.2647
7.2446
7.2363
7.2171
7.2089
6.9844
6.9378
3.5101
3.4863
3.3856
3.3618
2.3196
1.5504
1.3013
1.2812
1.2573
1.2143
1.1905
1.1667
0.0000

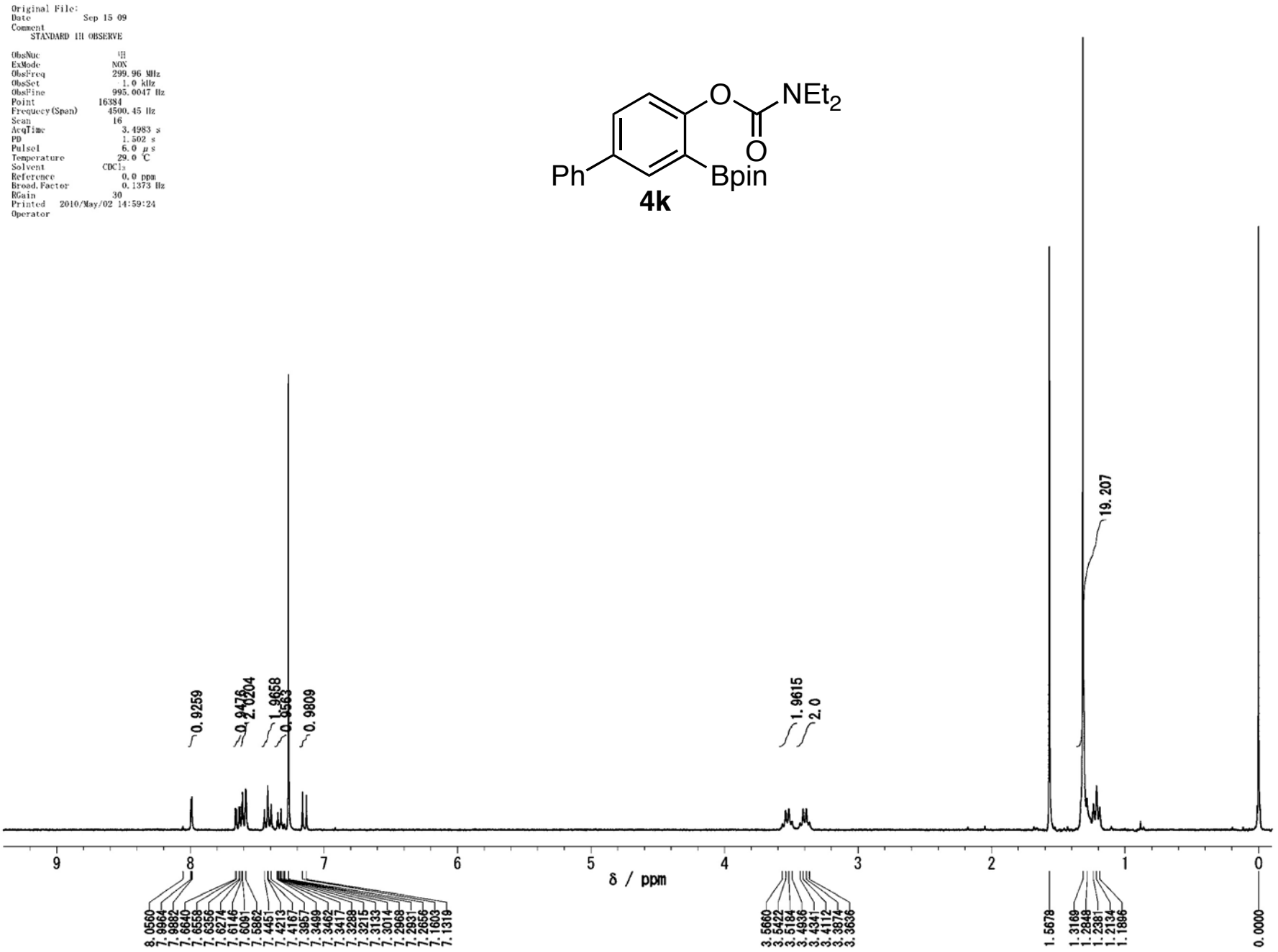

Original File:
Date Feb 27 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NON
ObsFreq 75.43 MHz
ObsSet 1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 256
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/02 14:42:12
Operator
O
NEt2
O
Me
Bpin
4h
180
160
140
120
100
80
60
40
20
δ / ppm
154.9476
154.0670
136.4780
134.0108
132.7051
121.9026
83.2477
77.4251
77.0000
76.5673
41.6624
41.3436
24.5886
20.3688
13.7871
13.1798


Original File:
Date Oct 21 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 30
Printed 2010/Jun/24 14:56:54
Operator
MeO
Bpin
O
NEt2
O
4i
3.5542
1.6968
2.8916
2.0
2.138
18.4657
δ / ppm
7.2656
6.9708
6.9680
6.9589
3.8132
3.5284
3.5046
3.4808
3.4561
3.4057
3.3828
3.3599
3.3361
1.5714
1.2985
1.2784
1.2546
1.2125
1.1896
1.1658
0.0000


Original File:
Date Feb 18 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NON
ObsFreq 75.43 MHz
ObsSet 1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 128
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/02 14:48:40
Operator
O
NEt2
O
MeO
Bpin
4i
180
160
140
120
100
80
60
40
20
δ / ppm
156.4431
155.2361
149.8994
123.1932
119.7467
118.2284
83.4678
77.4251
77.0000
76.9620
76.5749
55.5545
41.7839
41.4195
24.6882
13.8706
13.2709

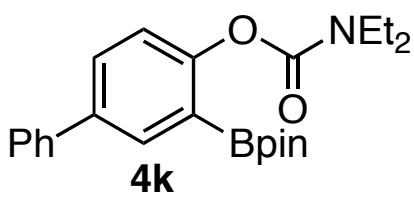

Original File:
Date Oct 10 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 25
Printed 2010/May/02 14:52:06
Operator
O
NEt2
O
F3C
Bpin
4j
18.608
0.941
0.9783
0.974
2.0
2.0763
9
8
7
6
5
4
3
2
1
0
δ / ppm
8.0450
8.0388
7.6997
7.6924
7.6713
7.6640
7.2656
7.2025
7.1741
3.5495
3.5266
3.5029
3.4790
3.4231
3.3983
3.3755
3.3517
1.5586
1.3169
1.2958
1.2720
1.2299
1.2061
1.1813
0.0000


Original File:
Date Mar 2 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NON
ObsFreq 75.43 MHz
ObsSet 1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 10240
AcqTime 1.4992 s
PD 1.501 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/02 14:55:42
Operator
129.6154
129.1599
129.0688
129.0157
127.7100
127.2773
126.8446
126.4119
126.0019
122.3885
118.7750
O
NEt2
O
F3C
Bpin
4j
δ / ppm
158.7737
158.7585
158.7357
154.2416
133.4490
133.4035
133.3503
133.3048
129.6154
129.1599
129.1144
129.0688
129.0157
127.7100
127.2773
126.8446
126.4119
126.0019
122.6997
122.3885
118.7750
83.9309
77.4251
77.2050
77.0000
76.5749
41.9509
41.5941
24.6958
13.8403
13.1798

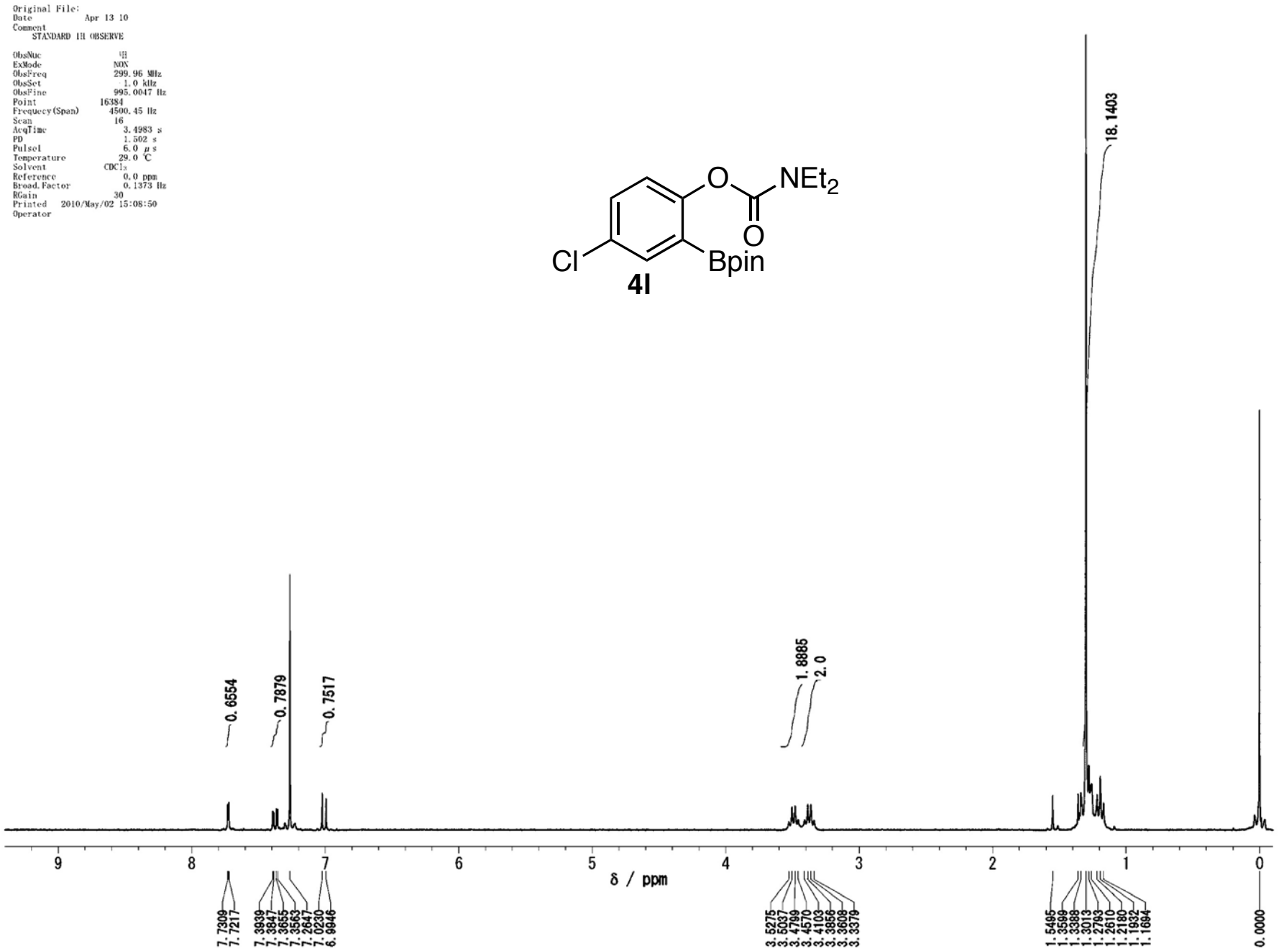

Original File:
Date Sep 15 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 30
Printed 2010/May/02 14:59:24
Operator
O
NEt2
O
Ph
Bpin
4k
0.9259
0.9476
2.0204
1.9658
0.9809
1.9615
2.0
19.207
δ / ppm
8.0560
7.9964
7.9882
7.6640
7.6558
7.6356
7.6274
7.6146
7.6091
7.5862
7.4451
7.4213
7.4167
7.3957
7.3499
7.3462
7.3417
7.3288
7.3215
7.3133
7.3014
7.2968
7.2931
7.2656
7.1603
7.1319
3.5660
3.5422
3.5184
3.4936
3.4341
3.4112
3.3874
3.3636
1.5678
1.3169
1.2848
1.2381
1.2134
1.1886
0.0000

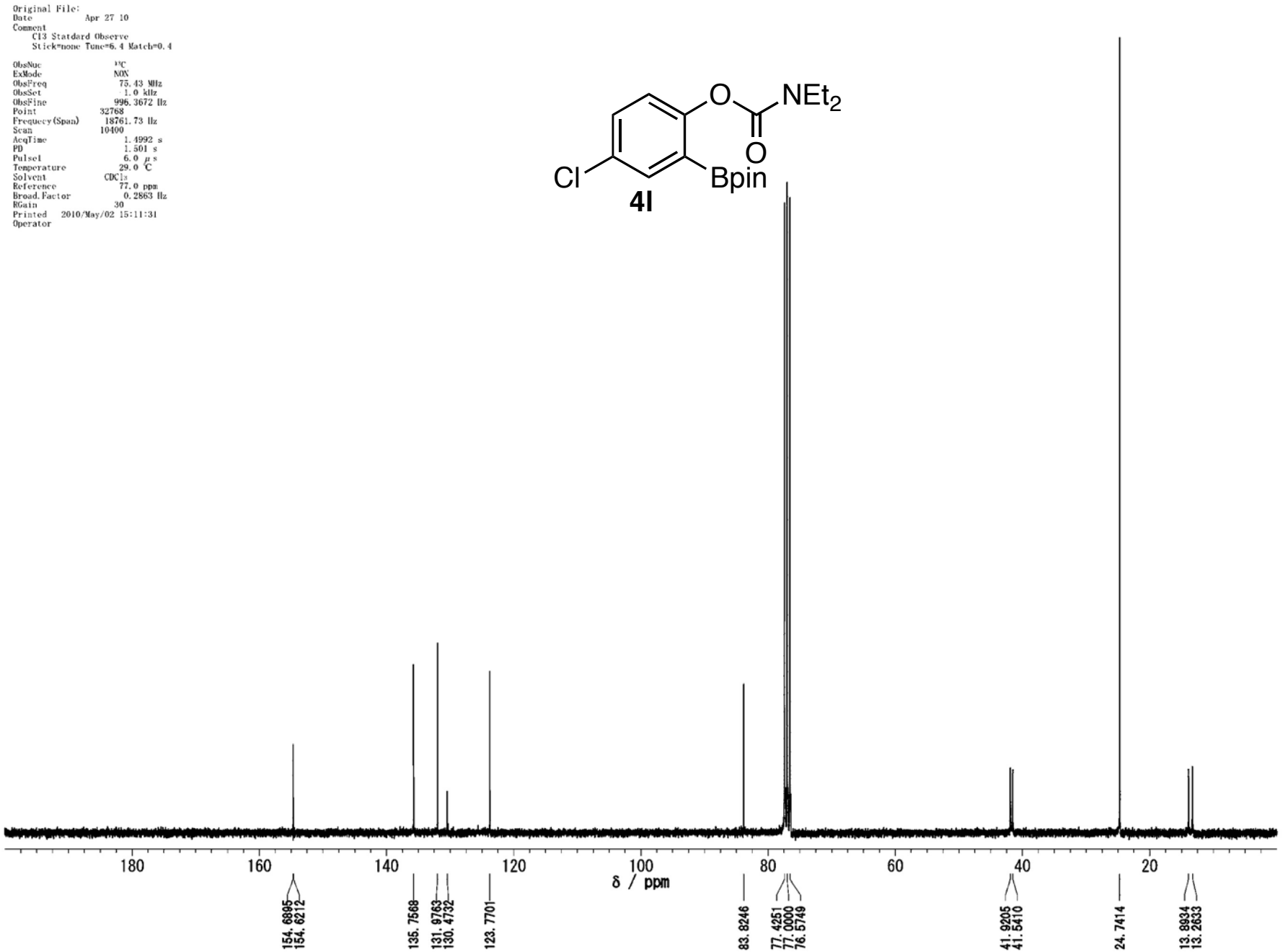
Original File:
Date Feb 18 10
Comment
CI3 Statdard Observe
Stick=none Tune=6.4 Match=0.4

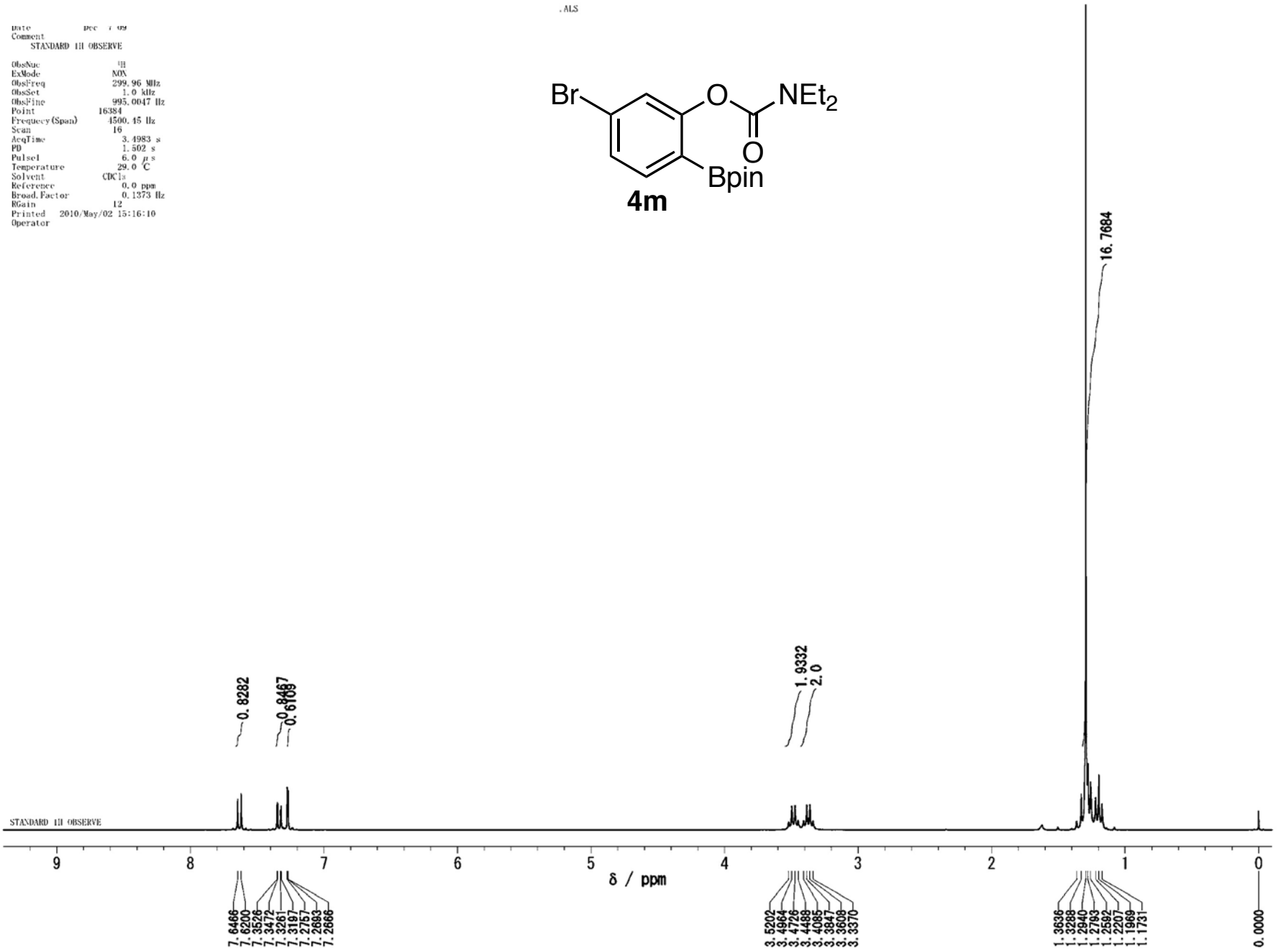
ObsNuc	^{13}C
ExMode	NON
ObsFreq	75.43 MHz
ObsSet	1.0 kHz
ObsFine	996.3672 Hz
Point	32768
Frequecy(Span)	18761.73 Hz
Scan	256
AcqTime	1.4992 s
PD	1.501 s
Pulse1	6.0 μs
Temperature	29.0 ℃
Solvent	CDCl3
Reference	77.0 ppm
Broad.Factor	0.2863 Hz
RGain	30
Printed	2010/May/02 15:03:40
Operator	



4k

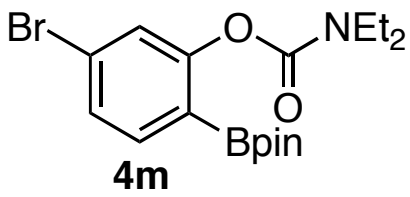

Original File:
Date Apr 13 10
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 30
Printed 2010/May/02 15:08:50
Operator
O
NEt2
O
Cl
Bpin
4l
18.1403
0.6554
0.7879
0.7517
1.8885
2.0
9
8
7
6
5
4
3
2
1
0
δ / ppm
7.7309
7.7217
7.3939
7.3847
7.3655
7.3563
7.2647
7.0230
6.9946
3.5275
3.5037
3.4799
3.4570
3.4103
3.3856
3.3609
3.3379
1.5495
1.3599
1.3388
1.3013
1.2783
1.2610
1.2180
1.1932
1.1694
0.0000


Original File:
Date Apr 27 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NON
ObsFreq 75.43 MHz
ObsSet 1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 10400
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/02 15:11:31
Operator
O
NEt2
O
Cl
Bpin
4l
180
160
140
120
100
80
60
40
20
δ / ppm
154.6895
154.6212
135.7568
131.9763
130.4732
123.7701
83.8246
77.4251
77.0000
76.5749
41.9205
41.5410
24.7414
13.8934
13.2633

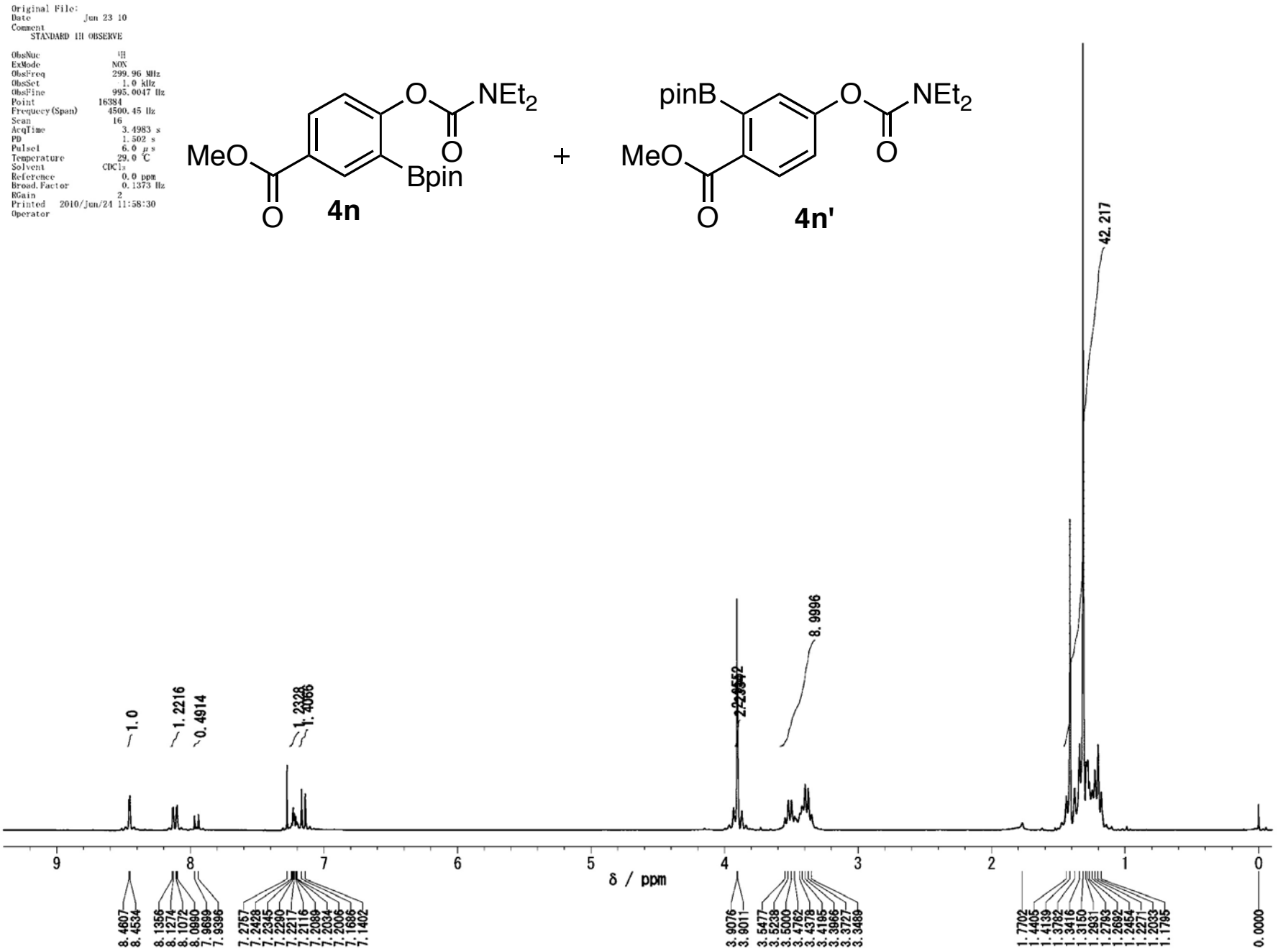

Date pec 7 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.15 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 12
Printed 2010/May/02 15:16:10
Operator
.ALS
Br
O
NEt2
O
Bpin
4m
16.7684
0.8282
0.8467
0.6109
1.9332
2.0
STANDARD 1H OBSERVE
9
8
7
6
5
4
3
2
1
0
δ / ppm
7.6466
7.6200
7.3526
7.3472
7.3261
7.3197
7.2757
7.2683
7.2666
3.5202
3.4964
3.4726
3.4488
3.4085
3.3847
3.3609
3.3370
1.3636
1.3288
1.2940
1.2793
1.2592
1.2207
1.1969
1.1731
0.0000

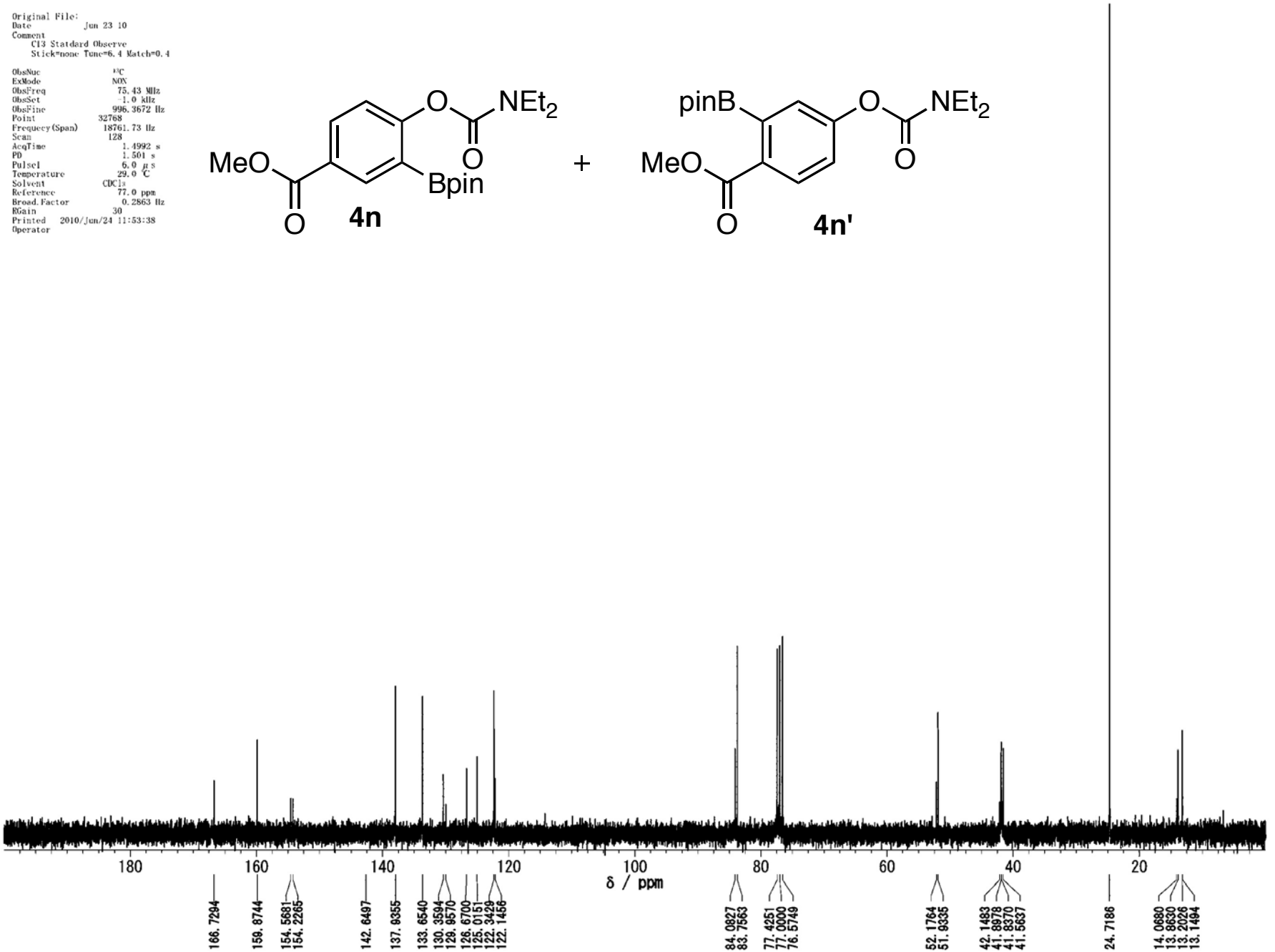
Original File:
Date Feb 22 10
Comment
CI3 Statdard Observe
Stick=none Tune=6.4 Match=0.4

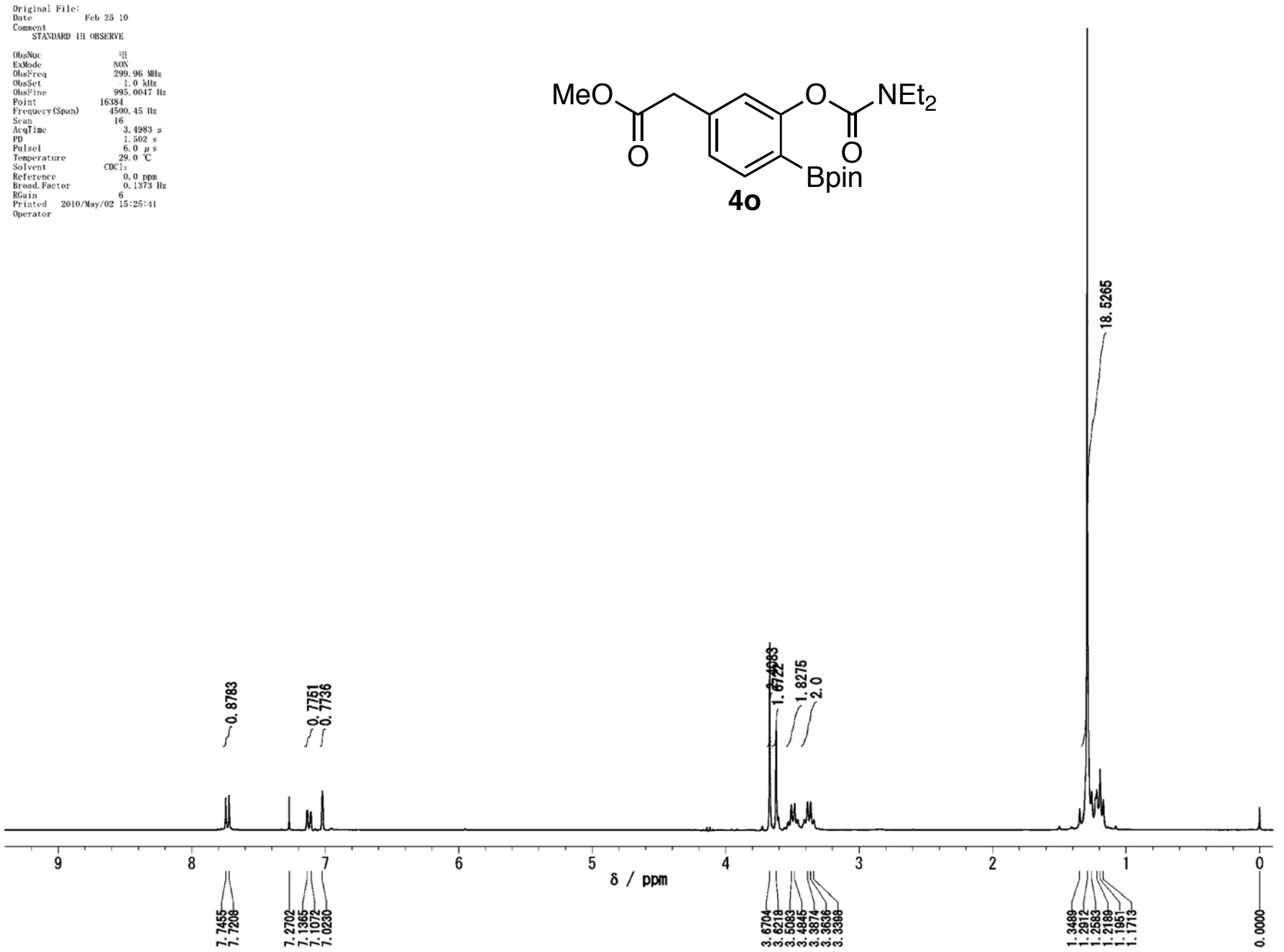
ObsNuc	^{13}C
ExMode	NON
ObsFreq	75.43 MHz
ObsSet	1.0 kHz
ObsFine	996.3672 Hz
Point	32768
Frequecy(Span)	18761.73 Hz
Scan	256
AcqTime	1.4992 s
PD	1.501 s
Pulse1	6.0 μs
Temperature	29.0 ℃
Solvent	CDCl3
Reference	77.0 ppm
Broad.Factor	0.2863 Hz
RGain	30
Printed	2010/May/02 15:18:26
Operator	

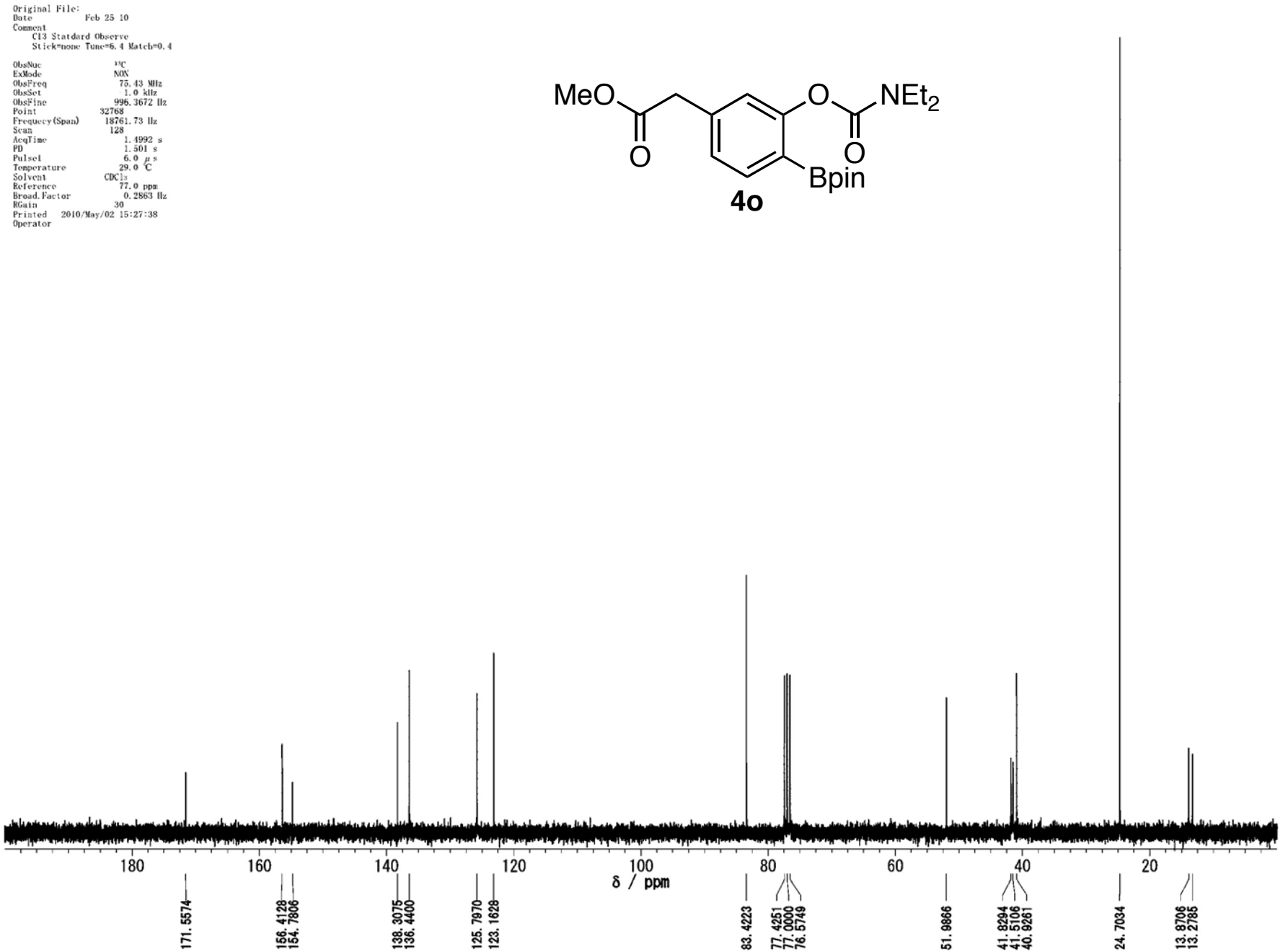


4m


Original File:
Date Jun 23 10
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 2
Printed 2010/Jun/24 11:58:30
Operator
MeO
O
O
NEt2
O
Bpin
4n
+
pinB
MeO
O
O
NEt2
O
4n'
42.217
8.9996
1.0
1.2216
0.4914
1.2328
1.4066
δ / ppm
9
8
7
6
5
4
3
2
1
0
8.4607
8.4534
8.1356
8.1274
8.1072
8.0990
7.9699
7.9396
7.2757
7.2428
7.2345
7.2290
7.2217
7.2116
7.2089
7.2034
7.2006
7.1686
7.1402
3.9076
3.9011
3.5477
3.5238
3.5000
3.4762
3.4378
3.4195
3.3966
3.3727
3.3488
1.7702
1.4405
1.4139
1.3782
1.3416
1.3150
1.2931
1.2793
1.2692
1.2454
1.2271
1.2033
1.1795
0.0000

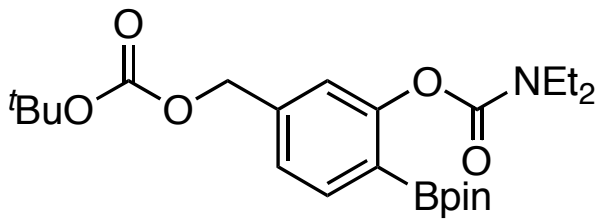

Original File:
Date Jun 23 10
Comment
CI3 Statdard Observe
Stick*none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NOX
ObsFreq 75.43 MHz
ObsSet -1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 128
AcqTime 1.4992 s
PD 1.501 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/Jun/24 11:53:38
Operator
MeO
O
NEt2
O
Bpin
4n
+
pinB
MeO
O
NEt2
O
4n'
δ / ppm
166.7294
159.8744
154.5681
154.2265
142.6497
137.8355
133.6540
130.3594
128.9570
126.6700
125.0151
122.3429
122.1456
84.0827
83.7563
77.4251
77.0000
76.5749
52.1764
51.9335
42.1483
41.8978
41.8370
41.5637
24.7186
14.0680
13.8630
13.2026
13.1494


Original File:
Date Feb 25 10
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 6
Printed 2010/May/02 15:25:41
Operator
MeO
O
O
O
NEt2
Bpin
4o
0.8783
0.7751
0.7736
1.8275
2.0
18.5265
δ / ppm
7.7455
7.7208
7.2702
7.1365
7.1072
7.0230
3.8704
3.8218
3.5083
3.4845
3.3874
3.3636
3.3398
1.3489
1.2912
1.2583
1.2189
1.1951
1.1713
0.0000

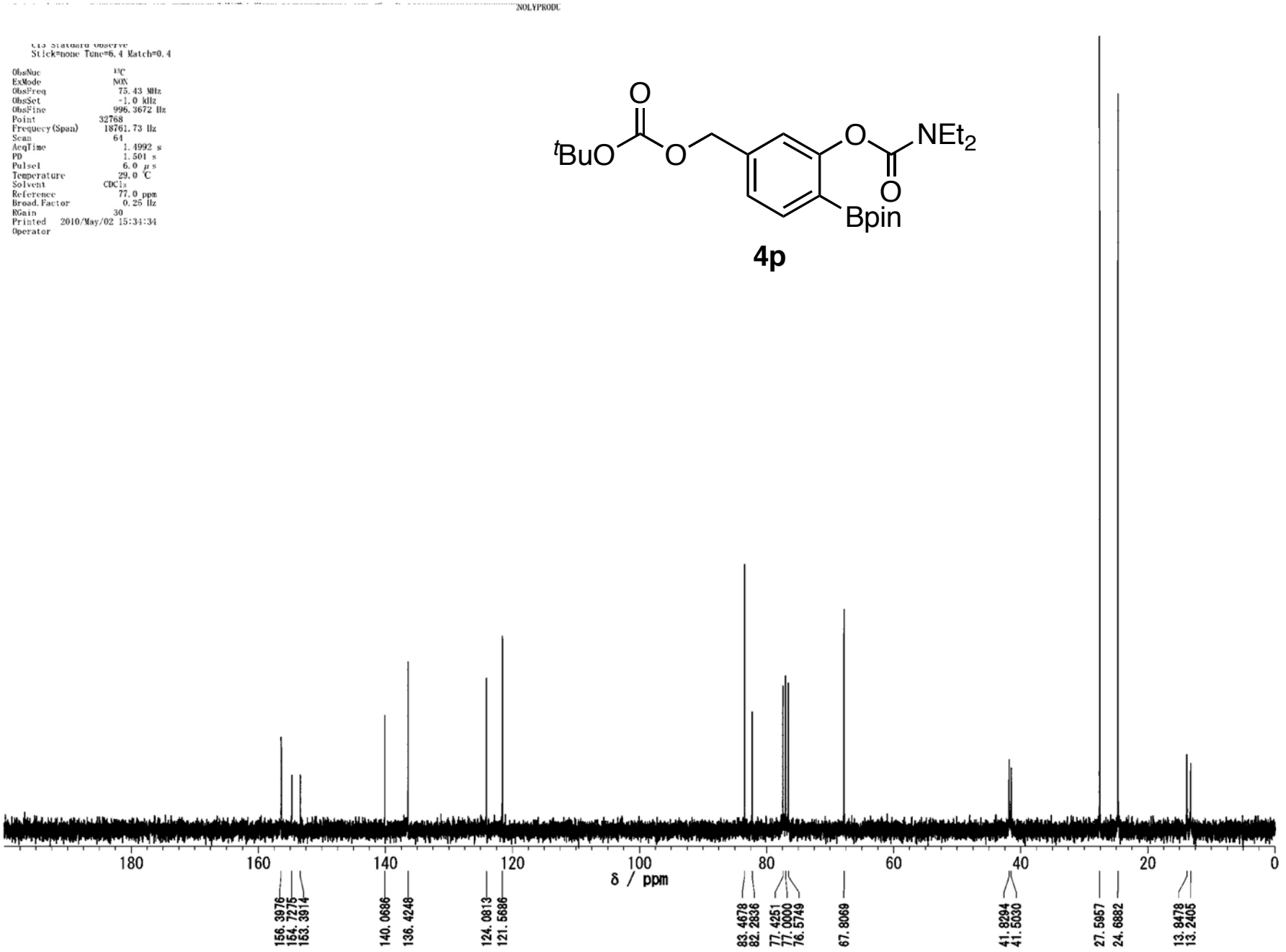

Original File:
Date Feb 25 10
Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NON
ObsFreq 75.43 MHz
ObsSet 1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 128
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.2863 Hz
RGain 30
Printed 2010/May/02 15:27:38
Operator
MeO
O
O
O
NEt2
Bpin
4o
180
160
140
120
100
80
60
40
20
δ / ppm
171.5574
156.4128
154.7806
138.3075
136.4400
125.7970
123.1628
83.4223
77.4251
77.0000
76.5749
51.9866
41.8294
41.5106
40.9261
24.7034
13.8706
13.2785

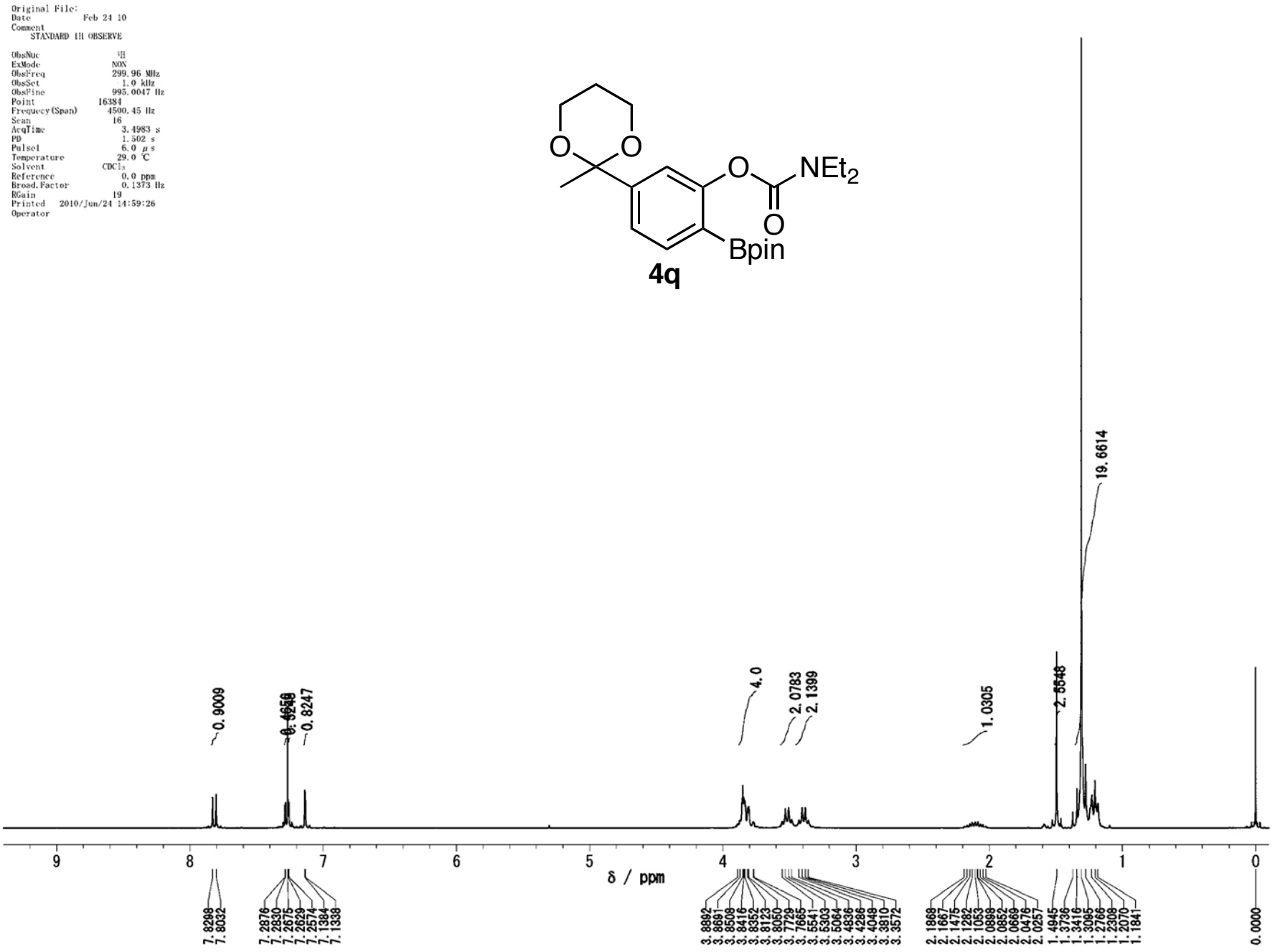
Original File:
Date Apr 24 10
Comment
STANDARD 1H OBSERVE

ObsNuc	^{1}H
ExMode	NON
ObsFreq	299.96 MHz
ObsSet	1.0 kHz
ObsFine	995.0047 Hz
Point	16384
Frequecy(Span)	4500.45 Hz
Scan	16
AcqTime	3.4983 s
PD	1.502 s
Pulsel	6.0 μs
Temperature	29.0 ℃
Solvent	CDCl$_3$
Reference	0.0 ppm
Broad.Factor	0.1373 Hz
RGain	30
Printed	2010/May/02 15:31:32
Operator	



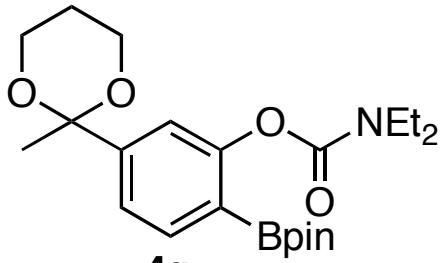
4p


Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NON
ObsFreq 75.43 MHz
ObsSet -1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 64
AcqTime 1.4992 s
PD 1.501 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.25 Hz
RGain 30
Printed 2010/May/02 15:34:34
Operator
O
tBuO
O
O
NEt2
O
Bpin
4p
180
160
140
120
100
80
60
40
20
0
δ / ppm
156.3976
154.7275
153.3914
140.0686
136.4248
124.0813
121.5686
83.4678
82.2836
77.4251
77.0000
76.5749
67.8069
41.8294
41.5030
27.5957
24.6882
13.8478
13.2405

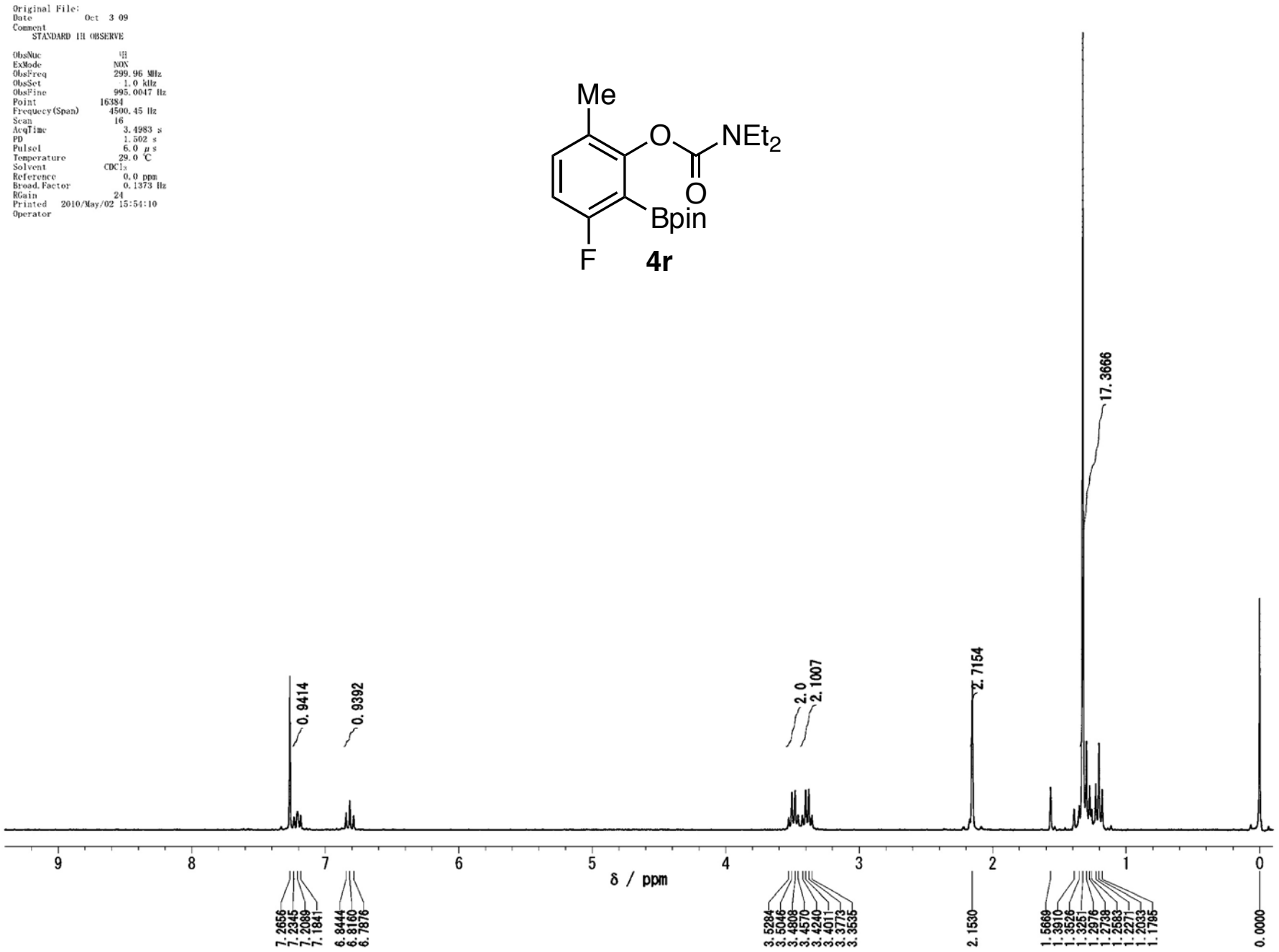

Original File:
Date Feb 24 10
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 19
Printed 2010/Jun/24 14:59:26
Operator
O
O
O
NEt2
O
Bpin
4q
0.9009
0.8247
4.0
2.0783
2.1399
1.0305
2.8548
19.6614
δ / ppm
0.0000

Original File:
Date Feb 25 10
Comment
CI3 Statdard Observe
Stick=none Tune=6.4 Match=0.4

ObsNuc	^{13}C
ExMode	NON
ObsFreq	75.43 MHz
ObsSet	1.0 kHz
ObsFine	996.3672 Hz
Point	32768
Frequecy(Span)	18761.73 Hz
Scan	128
AcqTime	1.4992 s
PD	1.501 s
Pulse1	6.0 μs
Temperature	29.0 ℃
Solvent	CDCl3
Reference	77.0 ppm
Broad.Factor	0.2863 Hz
RGain	30
Printed	2010/May/02 15:43:50
Operator	

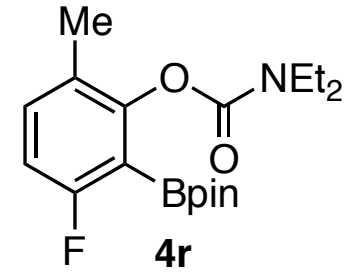


4q

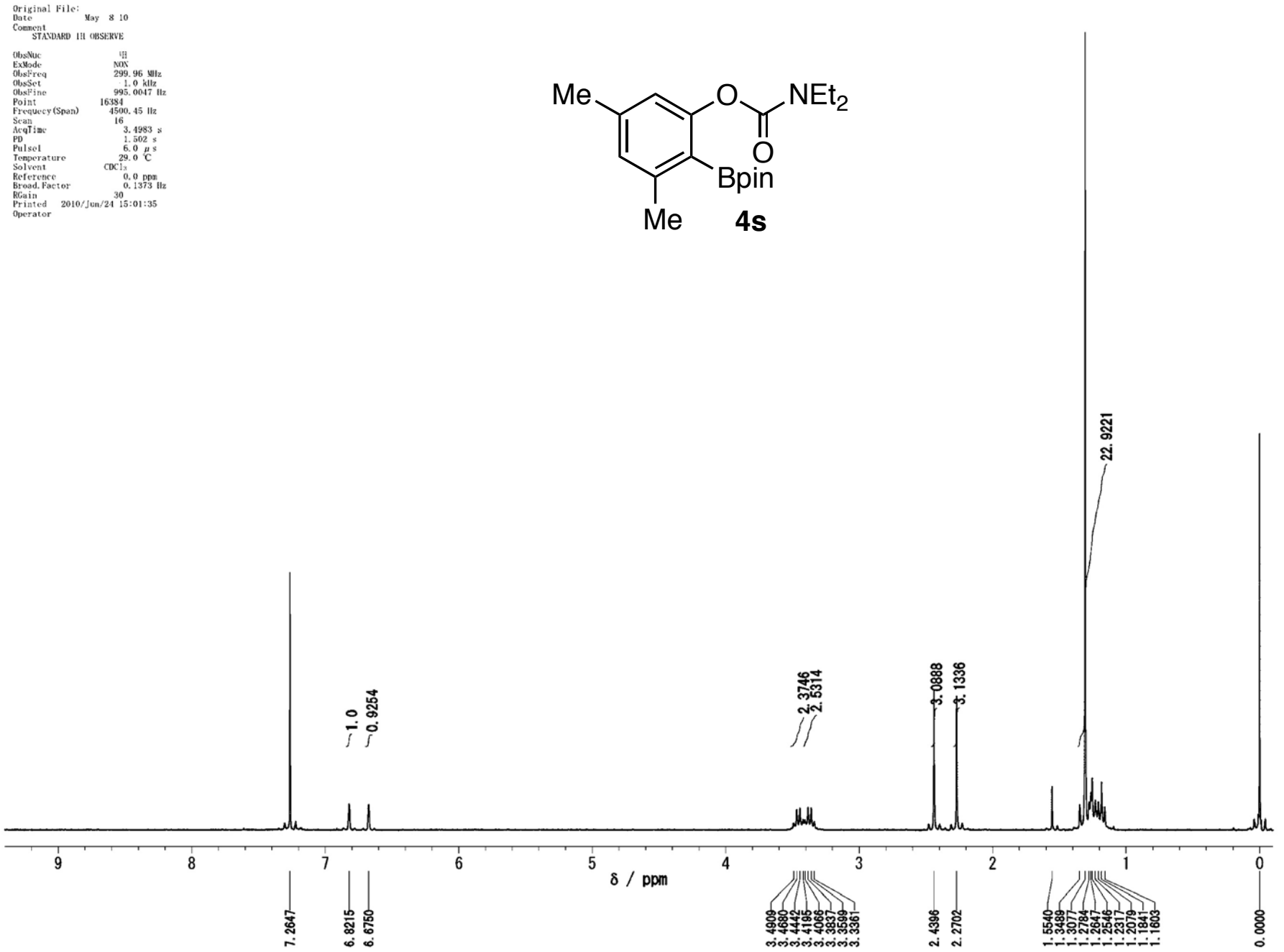

Original File:
Date Oct 3 09
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 24
Printed 2010/May/02 15:54:10
Operator
Me
O
NEt2
O
Bpin
F
4r
0.9414
0.9392
2.0
2.1007
2.7154
17.3666
δ / ppm
7.2656
7.2345
7.2089
7.1841
6.8444
6.8160
6.7876
3.5284
3.5046
3.4809
3.4570
3.4240
3.4011
3.3773
3.3535
2.1530
1.5669
1.3910
1.3526
1.3251
1.2976
1.2739
1.2583
1.2271
1.2033
1.1785
0.0000

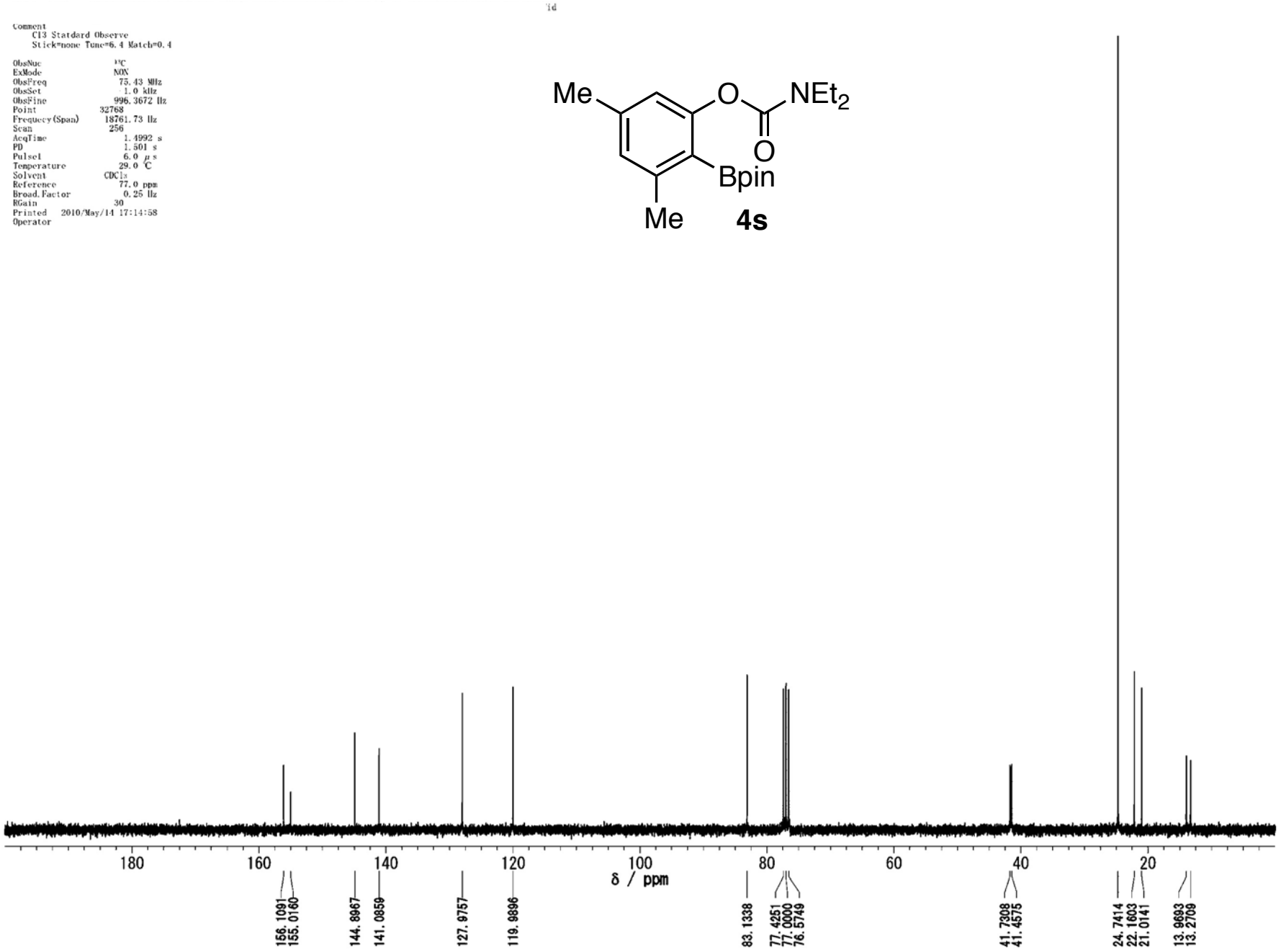
Original File:
Date Feb 22 10
Comment
CI3 Statdard Observe
Stick=none Tune=6.4 Match=0.4

ObsNuc	^{13}C
ExMode	NON
ObsFreq	75.43 MHz
ObsSet	1.0 kHz
ObsFine	996.3672 Hz
Point	32768
Frequecy(Span)	18761.73 Hz
Scan	128
AcqTime	1.4992 s
PD	1.501 s
Pulse1	6.0 μs
Temperature	29.0 ℃
Solvent	CDCl3
Reference	77.0 ppm
Broad.Factor	0.2863 Hz
RGain	30
Printed	2010/May/02 15:56:04
Operator	



4r


Original File:
Date May 8 10
Comment
STANDARD 1H OBSERVE
ObsNuc 1H
ExMode NON
ObsFreq 299.96 MHz
ObsSet 1.0 kHz
ObsFine 995.0047 Hz
Point 16384
Frequecy(Span) 4500.45 Hz
Scan 16
AcqTime 3.4983 s
PD 1.502 s
Pulsel 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 0.0 ppm
Broad.Factor 0.1373 Hz
RGain 30
Printed 2010/Jun/24 15:01:35
Operator
Me
O
NEt2
O
Bpin
Me
4s
22.9221
1.0
0.9254
2.3746
2.5314
3.0888
3.1336
δ / ppm
9
8
7
6
5
4
3
2
1
0
7.2647
6.8215
6.6750
3.4909
3.4680
3.4442
3.4195
3.4066
3.3837
3.3599
3.3361
2.4396
2.2702
1.5540
1.3489
1.3077
1.2784
1.2647
1.2546
1.2317
1.2079
1.1841
1.1603
0.0000


Comment
C13 Statdard Observe
Stick=none Tune=6.4 Match=0.4
ObsNuc 13C
ExMode NON
ObsFreq 75.43 MHz
ObsSet 1.0 kHz
ObsFine 996.3672 Hz
Point 32768
Frequecy(Span) 18761.73 Hz
Scan 256
AcqTime 1.4992 s
PD 1.501 s
Pulse1 6.0 μs
Temperature 29.0 ℃
Solvent CDCl3
Reference 77.0 ppm
Broad.Factor 0.25 Hz
RGain 30
Printed 2010/May/14 17:14:58
Operator
Me
O
NEt2
O
Bpin
Me
4s
180
160
140
120
100
80
60
40
20
δ / ppm
156.1091
155.0160
144.8967
141.0859
127.9757
119.9896
83.1338
77.4251
77.0000
76.5749
41.7308
41.4575
24.7414
22.1603
21.0141
13.9693
13.2709