# STUDIES TOWARD THE TOTAL SYNTHESIS OF AMPHIDINOLIDE N: STEREOCONTROLLED SYNTHESIS OF THE C13–C29 SEGMENT

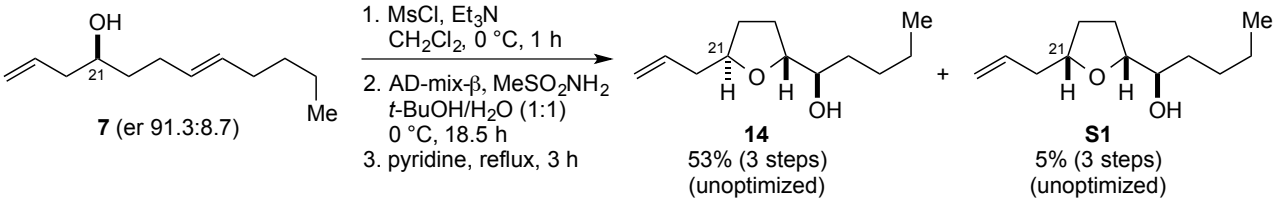
**Makoto Sasaki*, Yuki Kawashima, and Haruhiko Fuwa**

Graduate School of Life Sciences, Tohoku University, 2-1-1 Katahira, Aoba-ku Sendai 980-8577, Japan

e-mail: masasaki@m.tohoku.ac.jp

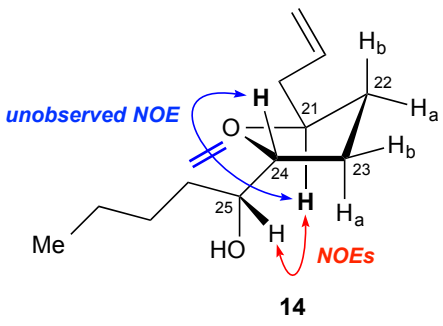
## Supporting Information for

**Proofs for stereochemical assignment for compound 14**



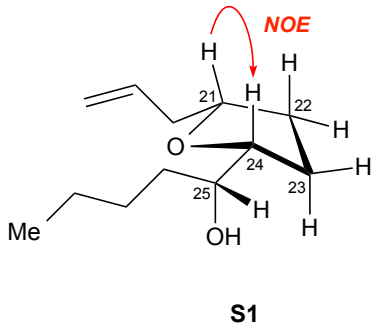

Homoallylic alcohol **7** with a low enantiomer ratio of 91.3:8.7, which was obtained in Keck asymmetric allylation, could be converted to a mixture of the desired **14** and its C21 diastereomer **S1** in a three-step sequence including mesylation, Sharpless asymmetric dihydroxylation using AD-mix-β, and base-treatment. Compound **S1** was readily separable by flash column chromatography on silica gel and subjected to NOE experiment.

Data for compound **S1**: $[\alpha]_D^{26}$ –3.3 (*c* 0.70, $CHCl_3$); IR (film) 3444, 3076, 2932, 2857, 1642, 1260, 1083, 1042 $cm^{-1}$; $^1H$ NMR (600 MHz, $CDCl_3$) δ 5.82 (dddd, *J* = 17.0, 10.1, 6.9, 6.9 Hz, 1H), 5.06 (ddd, *J* = 17.0, 3.2, 1.4 Hz, 1H), 5.02 (ddd, *J* = 10.1, 3.2, 1.4 Hz, 1H), 3.56 (m, 1H), 3.36 (dddd, *J* = 10.6, 6.9, 6.9, 4.1 Hz, 1H), 3.29 (ddd, *J* = 6.9, 6.9, 6.9 Hz, 1H), 2.31 (ddddd, *J* = 12.8, 6.9, 6.9, 1.4, 1.4 Hz, 1H), 2.15 (ddddd, *J* = 12.8, 6.9, 6.9, 1.4, 1.4 Hz, 1H), 1.94 (dddd, *J* = 13.7, 3.2, 3.2, 3.2 Hz, 1H), 1.87 (m, 1H), 1.67–1.45 (m, 4H), 1.39–1.28 (m, 5H), 0.88 (t, *J* = 7.3 Hz, 3H), (one proton missing due to H/D exchange); $^{13}C$ NMR (150 MHz, $CDCl_3$) δ 134.8, 116.6, 80.1, 77.7, 66.1, 40.6, 31.4, 30.8, 27.7, 25.4, 22.6, 13.9; HRMS (ESI) calcd for $C_{12}H_{22}O_2Na$ $[(M + Na)^+]$ 221.1512, found 221.1522.




**14**

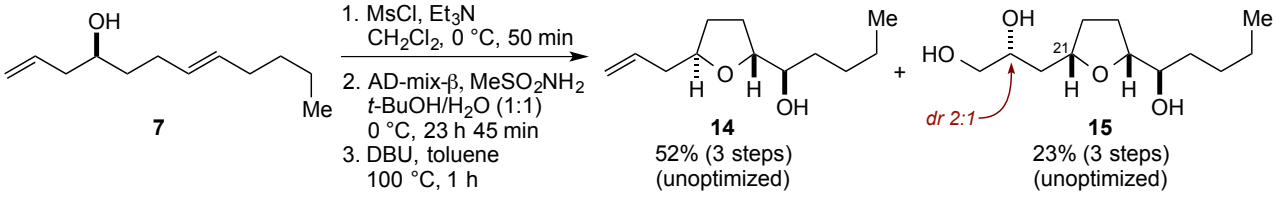
The absence of NOE between H-21 and H-24 and the observation of NOE between H-21 and H-25 suggests a 2,5-*trans* configuration.




**S1**

The observation of NOE between H-21 and H-24 suggests 2,5-*cis* configuration.

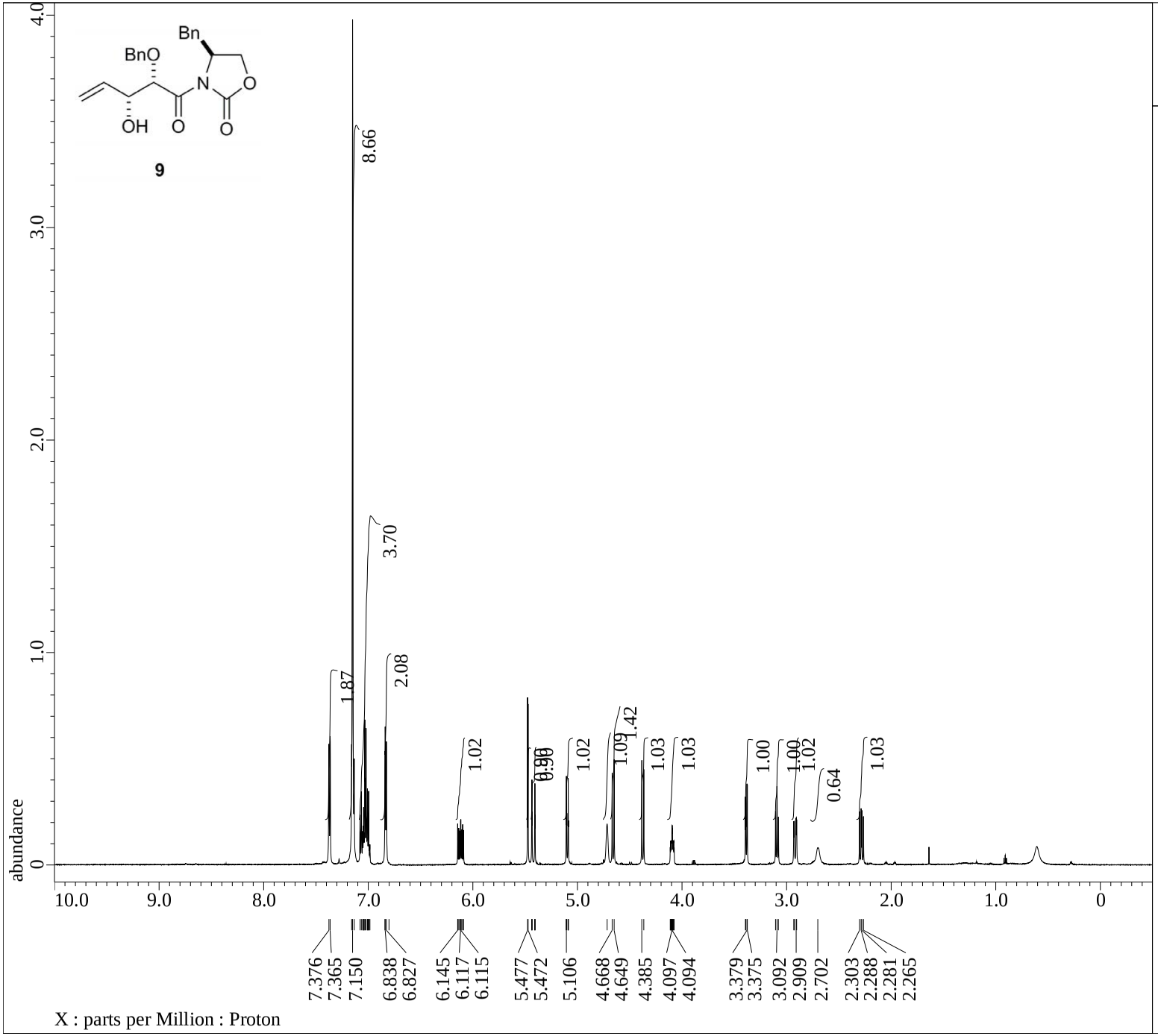
**Experimental procedure for triol 15**




To a solution of homoallylic alcohol **7** (189.7 mg, 1.041 mmol) in $CH_2Cl_2$ (10 mL) at 0 ºC were added $Et_3N$ (280 μL, 2.00 mmol) and MsCl (120 μL, 1.55 mmol), and the resultant solution was stirred at 0 ºC for 50 min. The reaction mixture was diluted with EtOAc and washed successively with 1 M aqueous HCl solution, saturated aqueous $NaHCO_3$ solution, and brine. The organic layer was dried over $Na_2SO_4$, filtered, and concentrated under reduced pressure to give crude mesylate (255.1 mg), which was used in the next reaction without further purification.

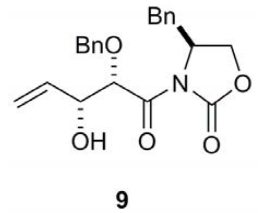
To a solution of the above mesylate in *t*-BuOH/$H_2O$ (1:1, v/v, 10 mL) at 0 ºC were added $MeSO_2NH_2$ (95.5 mg, 1.00 mmol) and AD-mix-β (1.40 g), and the resultant mixture was vigorously stirred at 0 ºC for 23 h 45 min. The reaction was quenched with solid $Na_2SO_3$. The resultant mixture was stirred at room temperature for 1 h and then extracted with EtOAc. The organic layer was washed with 3 M aqueous NaOH solution and brine, dried over $Na_2SO_4$, filtered, and concentrated under reduced pressure to give crude product (260.4 mg), which was used in the next reaction without further purification.

To a solution of the above material in toluene (10 mL) was added DBU (220 μL, 1.47 mmol), and the resultant solution was stirred at 100 ºC for 1 h. The reaction mixture was cooled to room temperature and concentrated under reduced pressure. Purification of the residue by column chromatography (silica gel, 10% EtOAc/hexane then acetone) gave tetrahydrofuran **14** (106.8 mg, 52% for the three steps) as a colorless oil and triol **15** (54.8 mg, 23% for the three steps) as an approximately 2:1 mixture of diastereomers (estimated by 600 MHz $^1$H NMR analysis) and white solids. Recrystallization of **15** twice from $CHCl_3$/hexanes afforded a crystal suitable for X-ray crystallographic analysis. Data for **15**: mp 119.5–120.6 °C; $[\alpha]_D^{23}$ +4.2 (*c* 0.10, $CHCl_3$); $^1$H NMR (600 MHz, $CDCl_3$) δ 4.02 (m, 1H), 3.92 (m, 1H), 3.89 (ddd, *J* = 8.3, 6.0, 6.0 Hz, 1H), 3.62 (dd, *J* = 11.4, 3.7 Hz, 1H), 3.48 (dd, *J* = 11.4, 5.5 Hz, 1H), 2.12 (m, 1H), 1.96 (m, 1H), 1.75–1.44 (m, 6H), 1.42–1.39 (m, 2H), 1.37–1.26 (m, 3H), 0.88 (t, *J* = 7.4 Hz, 3H), (three protons missing due to H/D exchange); $^{13}$C NMR (150 MHz, $CDCl_3$) δ 82.5, 79.3, 73.6, 71.7, 66.6, 38.5, 33.5, 33.1, 27.8 (2C), 22.7, 14.0; HRMS (ESI) calcd for $C_{12}H_{24}O_4Na$ $[(M + Na)^+]$ 255.1567, found 255.1585.




JEOL RESONANCE

```
Filename          = /Users/skk_macbookpro/Desk
Author            = delta
Experiment        = proton.jxp
Sample_Id         = YK-II-195
Solvent           = BENZENE-D6
Creation_Time     =  3-OCT-2013 10:12:38
Revision_Time     = 24-JUN-2014 00:23:36
Current_Time      = 24-JUN-2014 00:24:14

Comment           = single_pulse
Data_Format       = 1D COMPLEX
Dim_Size          = 26214
Dim_Title         = Proton
Dim_Units         = [ppm]
Dimensions        = X
Site              = ECA600
Spectrometer      = DELTA2_NMR

Field_Strength    = 14.09636928[T] (600[MHz])
X_Acq_Duration    = 2.18103808[s]
X_Domain          = 1H
X_Freq            = 600.1723046[MHz]
X_Offset          = 5[ppm]
X_Points          = 32768
X_Prescans        = 1
X_Resolution      = 0.45849727[Hz]
X_Sweep           = 15.02403846[kHz]
X_Sweep_Clipped   = 12.01923077[kHz]
Irr_Domain        = Proton
Irr_Freq          = 600.1723046[MHz]
Irr_Offset        = 5[ppm]
Tri_Domain        = Proton
Tri_Freq          = 600.1723046[MHz]
Tri_Offset        = 5[ppm]
Clipped           = FALSE
Scans             = 8
Total_Scans       = 8

Relaxation_Delay  = 2[s]
Recvr_Gain        = 40
Temp_Get          = 21.4[dC]
X_90_Width        = 14.3[us]
X_Acq_Time        = 2.18103808[s]
X_Angle           = 45[deg]
X_Atn             = 4[dB]
X_Pulse           = 7.15[us]
Irr_Mode          = Off
Tri_Mode          = Off
Dante_Presat      = FALSE
Initial_Wait      = 1[s]
Repetition_Time   = 4.18103808[s]
```

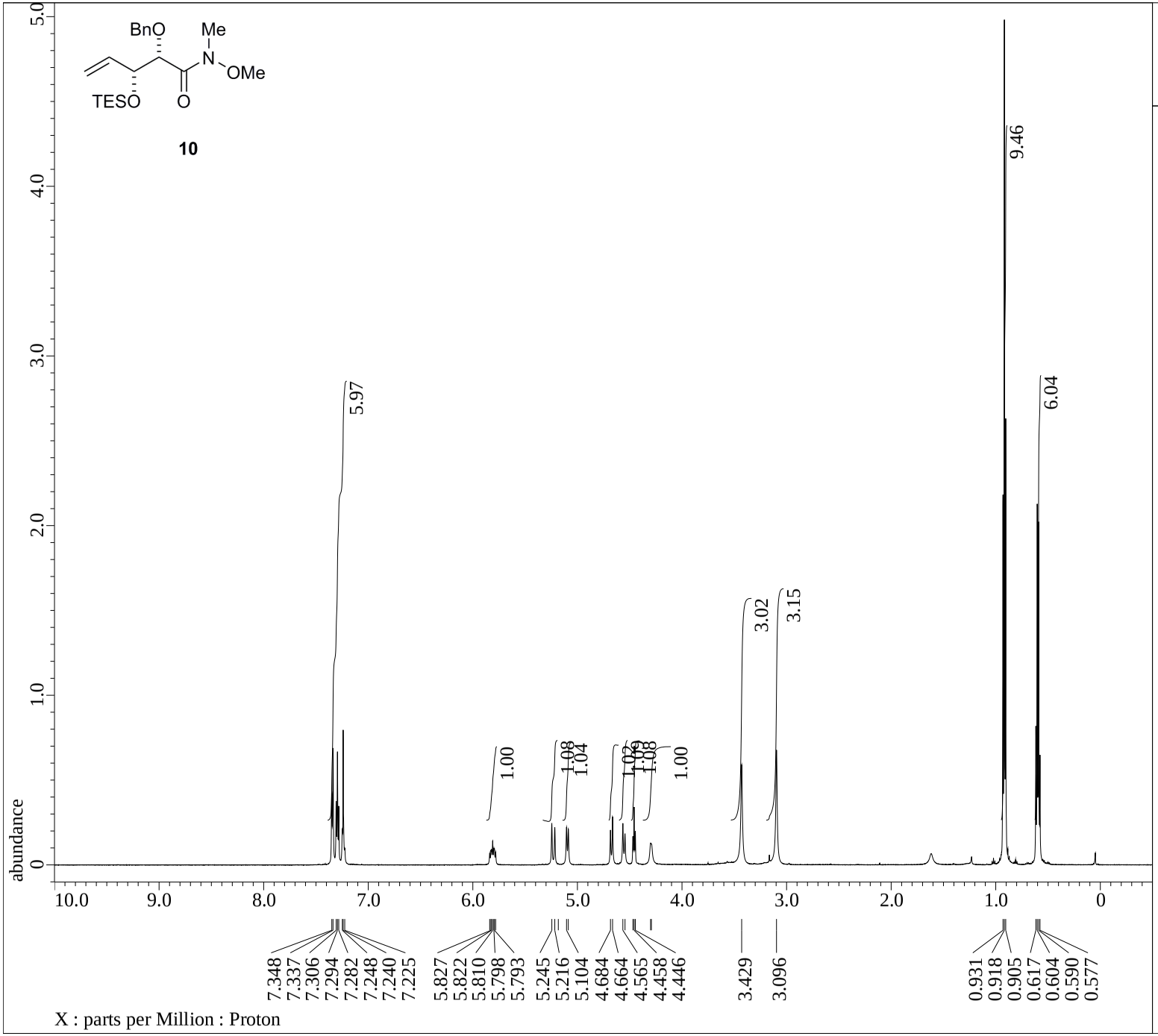



**9**




JEOL RESONANCE

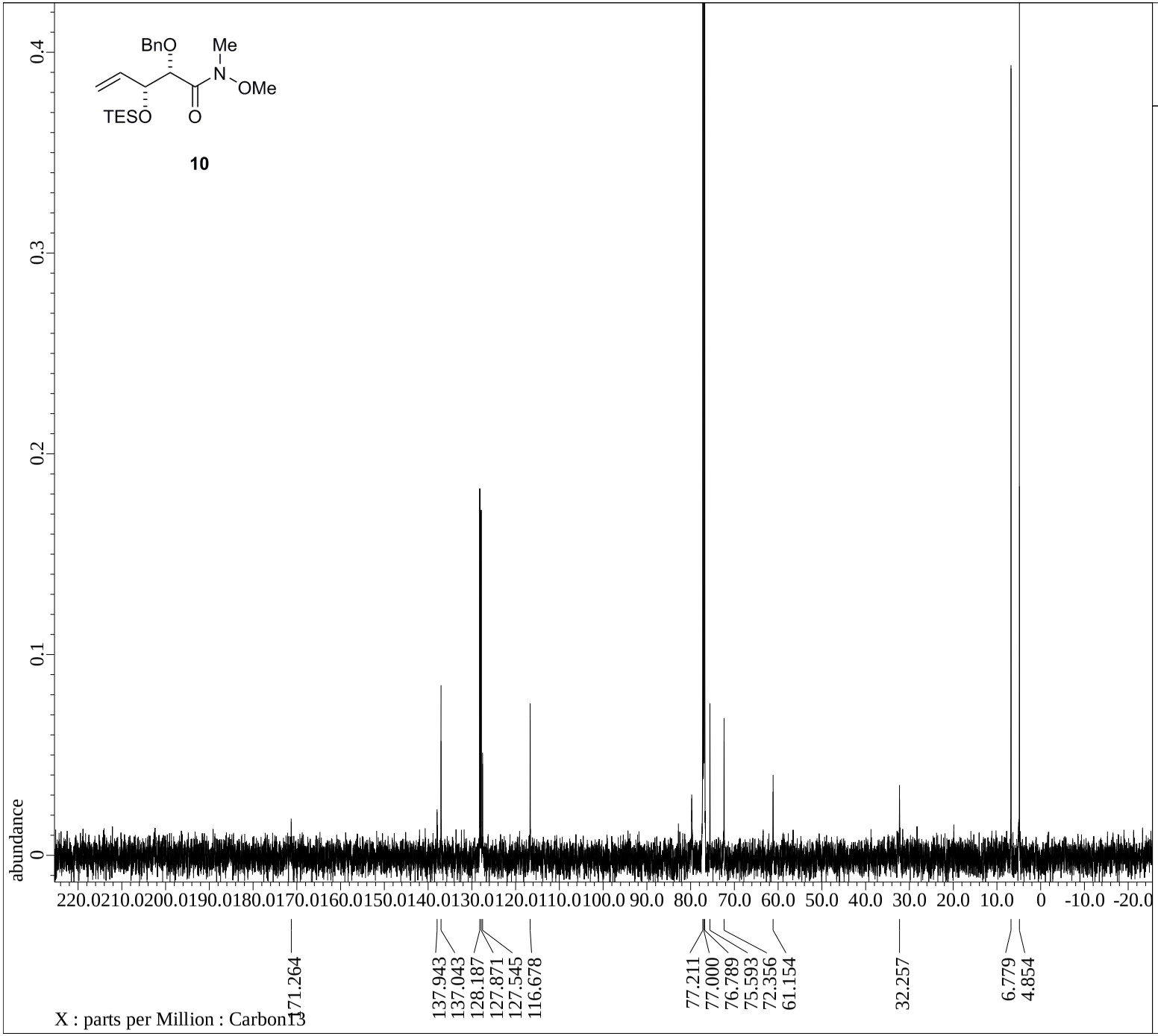
```
Filename          = /Users/skk_macbookpro/Desk
Author            = delta
Experiment        = carbon.jxp
Sample_Id         = YK-II-195
Solvent           = CHLOROFORM-D
Creation_Time     =  3-OCT-2013 22:14:21
Revision_Time     = 24-JUN-2014 00:27:16
Current_Time      = 24-JUN-2014 00:30:37

Comment           = single pulse decoupled gat
Data_Format       = 1D COMPLEX
Dim_Size          = 26214
Dim_Title         = Carbon13
Dim_Units         = [ppm]
Dimensions        = X
Site              = ECA600
Spectrometer      = DELTA2_NMR

Field_Strength    = 14.09636928[T] (600[MHz])
X_Acq_Duration    = 0.69206016[s]
X_Domain          = 13C
X_Freq            = 150.91343039[MHz]
X_Offset          = 100[ppm]
X_Points          = 32768
X_Prescans        = 4
X_Resolution      = 1.44496109[Hz]
X_Sweep           = 47.34848485[kHz]
X_Sweep_Clipped   = 37.87878788[kHz]
Irr_Domain        = Proton
Irr_Freq          = 600.1723046[MHz]
Irr_Offset        = 5[ppm]
Clipped           = TRUE
Scans             = 348
Total_Scans       = 348

Relaxation_Delay  = 2[s]
Recvr_Gain        = 56
Temp_Get          = 22.6[dC]
X_90_Width        = 10[us]
X_Acq_Time        = 0.69206016[s]
X_Angle           = 30[deg]
X_Atn             = 8[dB]
X_Pulse           = 3.33333333[us]
Irr_Atn_Dec       = 18.24[dB]
Irr_Atn_Noe       = 18.24[dB]
Irr_Noise         = WALTZ
Irr_Pwidth        = 76[us]
Decoupling        = TRUE
Initial_Wait      = 1[s]
Noe               = TRUE
Noe_Time          = 2[s]
Repetition_Time   = 2.69206016[s]
```




JEOL RESONANCE

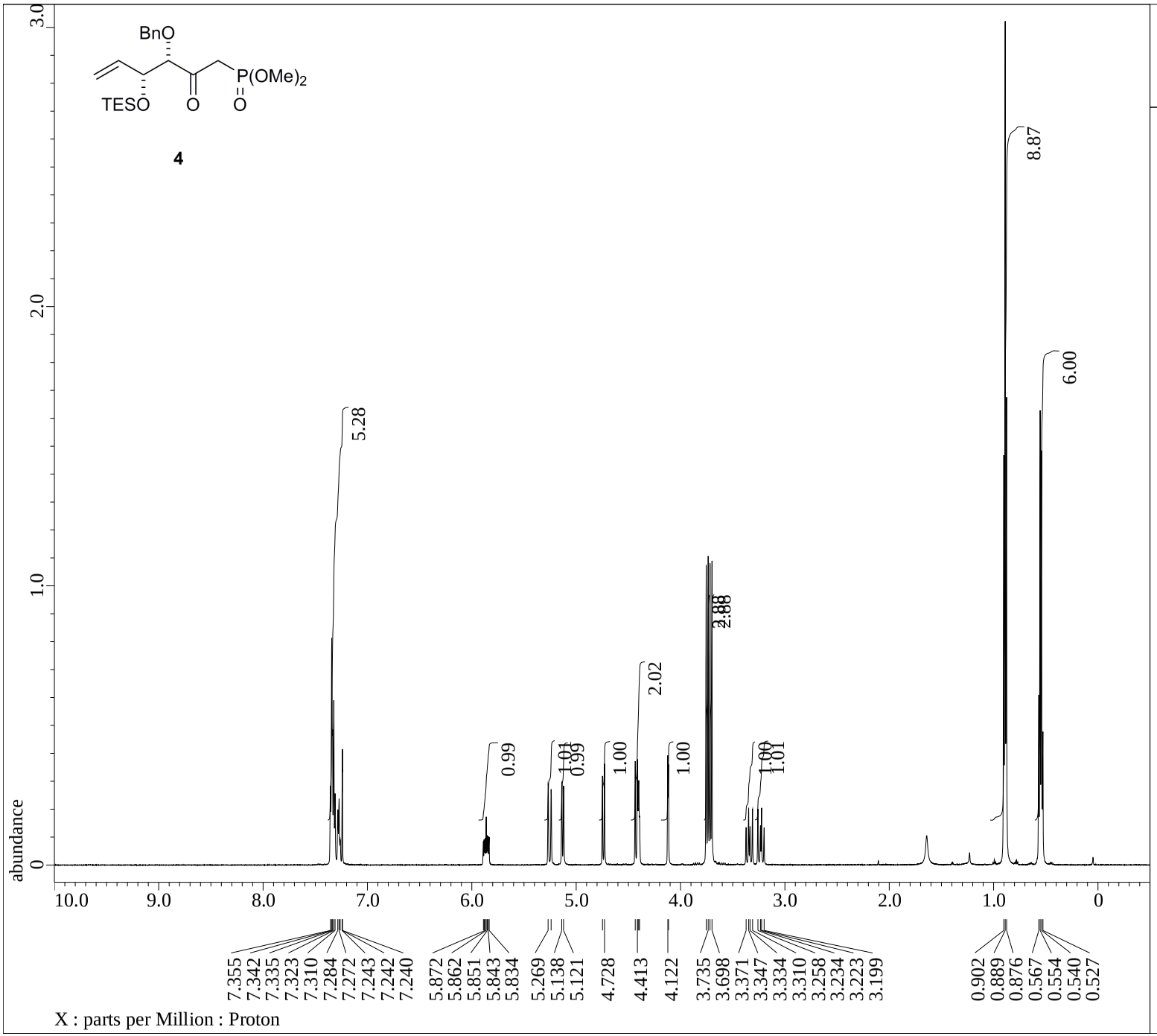
```
Filename          = /Users/skk_macbookpro/Desk
Author            = delta
Experiment        = proton.jxp
Sample_Id         = YK-III-018
Solvent           = CHLOROFORM-D
Creation_Time     = 18-OCT-2013 22:41:39
Revision_Time     = 24-JUN-2014 00:38:35
Current_Time      = 24-JUN-2014 00:39:03

Comment           = single_pulse
Data_Format       = 1D COMPLEX
Dim_Size          = 26214
Dim_Title         = Proton
Dim_Units         = [ppm]
Dimensions        = X
Site              = ECA600
Spectrometer      = DELTA2_NMR

Field_Strength    = 14.09636928[T] (600[MHz])
X_Acq_Duration    = 2.18103808[s]
X_Domain          = 1H
X_Freq            = 600.1723046[MHz]
X_Offset          = 5[ppm]
X_Points          = 32768
X_Prescans        = 1
X_Resolution      = 0.45849727[Hz]
X_Sweep           = 15.02403846[kHz]
X_Sweep_Clipped   = 12.01923077[kHz]
Irr_Domain        = Proton
Irr_Freq          = 600.1723046[MHz]
Irr_Offset        = 5[ppm]
Tri_Domain        = Proton
Tri_Freq          = 600.1723046[MHz]
Tri_Offset        = 5[ppm]
Clipped           = FALSE
Scans             = 8
Total_Scans       = 8

Relaxation_Delay  = 2[s]
Recvr_Gain        = 38
Temp_Get          = 21.2[dC]
X_90_Width        = 14.3[us]
X_Acq_Time        = 2.18103808[s]
X_Angle           = 45[deg]
X_Atn             = 4[dB]
X_Pulse           = 7.15[us]
Irr_Mode          = Off
Tri_Mode          = Off
Dante_Presat      = FALSE
Initial_Wait      = 1[s]
Repetition_Time   = 4.18103808[s]
```

9S



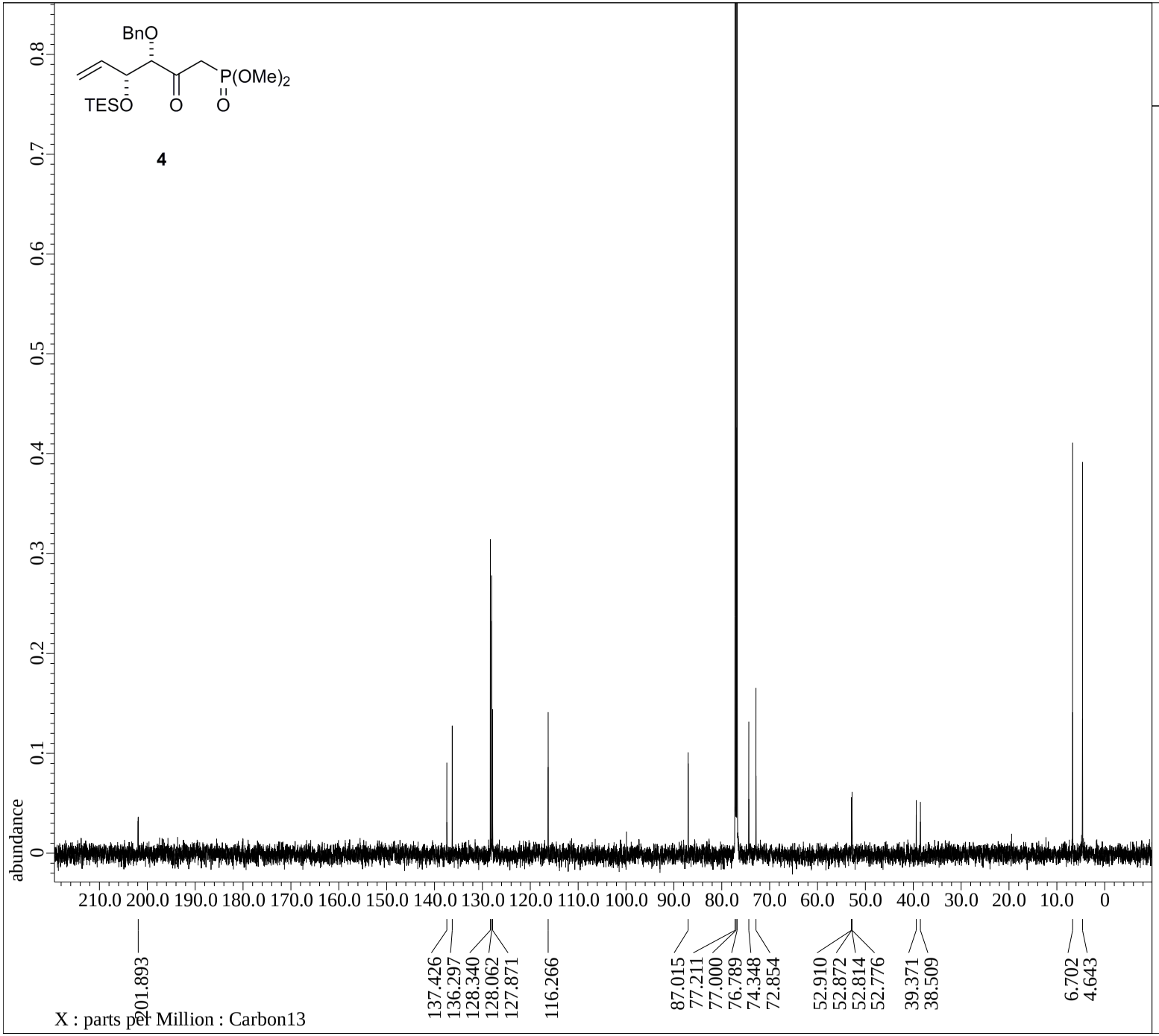

JEOL RESONANCE

```
Filename          = /Users/skk_macbookpro/Desk
Author            = delta
Experiment        = carbon.jxp
Sample_Id         = YK-III-018
Solvent           = CHLOROFORM-D
Creation_Time     = 18-OCT-2013 22:49:52
Revision_Time     = 24-JUN-2014 00:47:00
Current_Time      = 24-JUN-2014 00:47:54

Comment           = single pulse decoupled gat
Data_Format       = 1D COMPLEX
Dim_Size          = 26214
Dim_Title         = Carbon13
Dim_Units         = [ppm]
Dimensions        = X
Site              = ECA600
Spectrometer      = DELTA2_NMR

Field_Strength    = 14.09636928[T] (600[MHz])
X_Acq_Duration    = 0.69206016[s]
X_Domain          = 13C
X_Freq            = 150.91343039[MHz]
X_Offset          = 100[ppm]
X_Points          = 32768
X_Prescans        = 4
X_Resolution      = 1.44496109[Hz]
X_Sweep           = 47.34848485[kHz]
X_Sweep_Clipped   = 37.87878788[kHz]
Irr_Domain        = Proton
Irr_Freq          = 600.1723046[MHz]
Irr_Offset        = 5[ppm]
Clipped           = TRUE
Scans             = 268
Total_Scans       = 268

Relaxation_Delay  = 2[s]
Recvr_Gain        = 54
Temp_Get          = 22.4[dC]
X_90_Width        = 10[us]
X_Acq_Time        = 0.69206016[s]
X_Angle           = 30[deg]
X_Atn             = 8[dB]
X_Pulse           = 3.33333333[us]
Irr_Atn_Dec       = 18.24[dB]
Irr_Atn_Noe       = 18.24[dB]
Irr_Noise         = WALTZ
Irr_Pwidth        = 76[us]
Decoupling        = TRUE
Initial_Wait      = 1[s]
Noe               = TRUE
Noe_Time          = 2[s]
Repetition_Time   = 2.69206016[s]
```



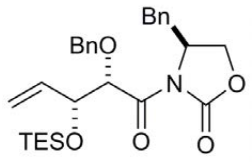

JEOL RESONANCE

| | |
|---|---|
| Filename | = /Users/skk_macbookpro/Desk |
| Author | = delta |
| Experiment | = proton.jxp |
| Sample_Id | = YK--III-019 |
| Solvent | = CHLOROFORM-D |
| Creation_Time | = 19-OCT-2013 13:57:34 |
| Revision_Time | = 23-JUN-2014 23:03:04 |
| Current_Time | = 23-JUN-2014 23:36:44 |
| Comment | = single_pulse |
| Data_Format | = 1D COMPLEX |
| Dim_Size | = 26214 |
| Dim_Title | = Proton |
| Dim_Units | = [ppm] |
| Dimensions | = X |
| Site | = ECA600 |
| Spectrometer | = DELTA2_NMR |
| Field_Strength | = 14.09636928[T] (600[MHz]) |
| X_Acq_Duration | = 2.18103808[s] |
| X_Domain | = 1H |
| X_Freq | = 600.1723046[MHz] |
| X_Offset | = 5[ppm] |
| X_Points | = 32768 |
| X_Prescans | = 1 |
| X_Resolution | = 0.45849727[Hz] |
| X_Sweep | = 15.02403846[kHz] |
| X_Sweep_Clipped | = 12.01923077[kHz] |
| Irr_Domain | = Proton |
| Irr_Freq | = 600.1723046[MHz] |
| Irr_Offset | = 5[ppm] |
| Tri_Domain | = Proton |
| Tri_Freq | = 600.1723046[MHz] |
| Tri_Offset | = 5[ppm] |
| Clipped | = FALSE |
| Scans | = 8 |
| Total_Scans | = 8 |
| Relaxation_Delay | = 2[s] |
| Recvr_Gain | = 38 |
| Temp_Get | = 21.1[dC] |
| X_90_Width | = 14.3[us] |
| X_Acq_Time | = 2.18103808[s] |
| X_Angle | = 45[deg] |
| X_Atn | = 4[dB] |
| X_Pulse | = 7.15[us] |
| Irr_Mode | = Off |
| Tri_Mode | = Off |
| Dante_Presat | = FALSE |
| Initial_Wait | = 1[s] |
| Repetition_Time | = 4.18103808[s] |




JEOL RESONANCE

```
Filename          = /Users/skk_macbookpro/Desk
Author            = delta
Experiment        = carbon.jxp
Sample_Id         = YK--III-019
Solvent           = CHLOROFORM-D
Creation_Time     = 19-OCT-2013 14:00:17
Revision_Time     = 23-JUN-2014 23:37:46
Current_Time      = 23-JUN-2014 23:38:42

Comment           = single pulse decoupled gat
Data_Format       = 1D COMPLEX
Dim_Size          = 26214
Dim_Title         = Carbon13
Dim_Units         = [ppm]
Dimensions        = X
Site              = ECA600
Spectrometer      = DELTA2_NMR

Field_Strength    = 14.09636928[T] (600[MHz])
X_Acq_Duration    = 0.69206016[s]
X_Domain          = 13C
X_Freq            = 150.91343039[MHz]
X_Offset          = 100[ppm]
X_Points          = 32768
X_Prescans        = 4
X_Resolution      = 1.44496109[Hz]
X_Sweep           = 47.34848485[kHz]
X_Sweep_Clipped   = 37.87878788[kHz]
Irr_Domain        = Proton
Irr_Freq          = 600.1723046[MHz]
Irr_Offset        = 5[ppm]
Clipped           = TRUE
Scans             = 224
Total_Scans       = 224

Relaxation_Delay  = 2[s]
Recvr_Gain        = 54
Temp_Get          = 22.3[dC]
X_90_Width        = 10[us]
X_Acq_Time        = 0.69206016[s]
X_Angle           = 30[deg]
X_Atn             = 8[dB]
X_Pulse           = 3.33333333[us]
Irr_Atn_Dec       = 18.24[dB]
Irr_Atn_Noe       = 18.24[dB]
Irr_Noise         = WALTZ
Irr_Pwidth        = 76[us]
Decoupling        = TRUE
Initial_Wait      = 1[s]
Noe               = TRUE
Noe_Time          = 2[s]
Repetition_Time   = 2.69206016[s]
```

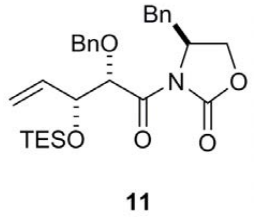



**11**




JEOL RESONANCE

```
Filename          = /Users/skk_macbookpro/Desk
Author            = delta
Experiment        = proton.jxp
Sample_Id         = YK-II-197
Solvent           = CHLOROFORM-D
Creation_Time     =  4-OCT-2013 22:35:41
Revision_Time     = 24-JUN-2014 01:16:49
Current_Time      = 24-JUN-2014 01:17:21

Comment           = single_pulse
Data_Format       = 1D COMPLEX
Dim_Size          = 26214
Dim_Title         = Proton
Dim_Units         = [ppm]
Dimensions        = X
Site              = ECA600
Spectrometer      = DELTA2_NMR

Field_Strength    = 14.09636928[T] (600[MHz])
X_Acq_Duration    = 2.18103808[s]
X_Domain          = 1H
X_Freq            = 600.1723046[MHz]
X_Offset          = 5[ppm]
X_Points          = 32768
X_Prescans        = 1
X_Resolution      = 0.45849727[Hz]
X_Sweep           = 15.02403846[kHz]
X_Sweep_Clipped   = 12.01923077[kHz]
Irr_Domain        = Proton
Irr_Freq          = 600.1723046[MHz]
Irr_Offset        = 5[ppm]
Tri_Domain        = Proton
Tri_Freq          = 600.1723046[MHz]
Tri_Offset        = 5[ppm]
Clipped           = FALSE
Scans             = 8
Total_Scans       = 8

Relaxation_Delay  = 2[s]
Recvr_Gain        = 36
Temp_Get          = 21.3[dC]
X_90_Width        = 14.3[us]
X_Acq_Time        = 2.18103808[s]
X_Angle           = 45[deg]
X_Atn             = 4[dB]
X_Pulse           = 7.15[us]
Irr_Mode          = Off
Tri_Mode          = Off
Dante_Presat      = FALSE
Initial_Wait      = 1[s]
Repetition_Time   = 4.18103808[s]
```

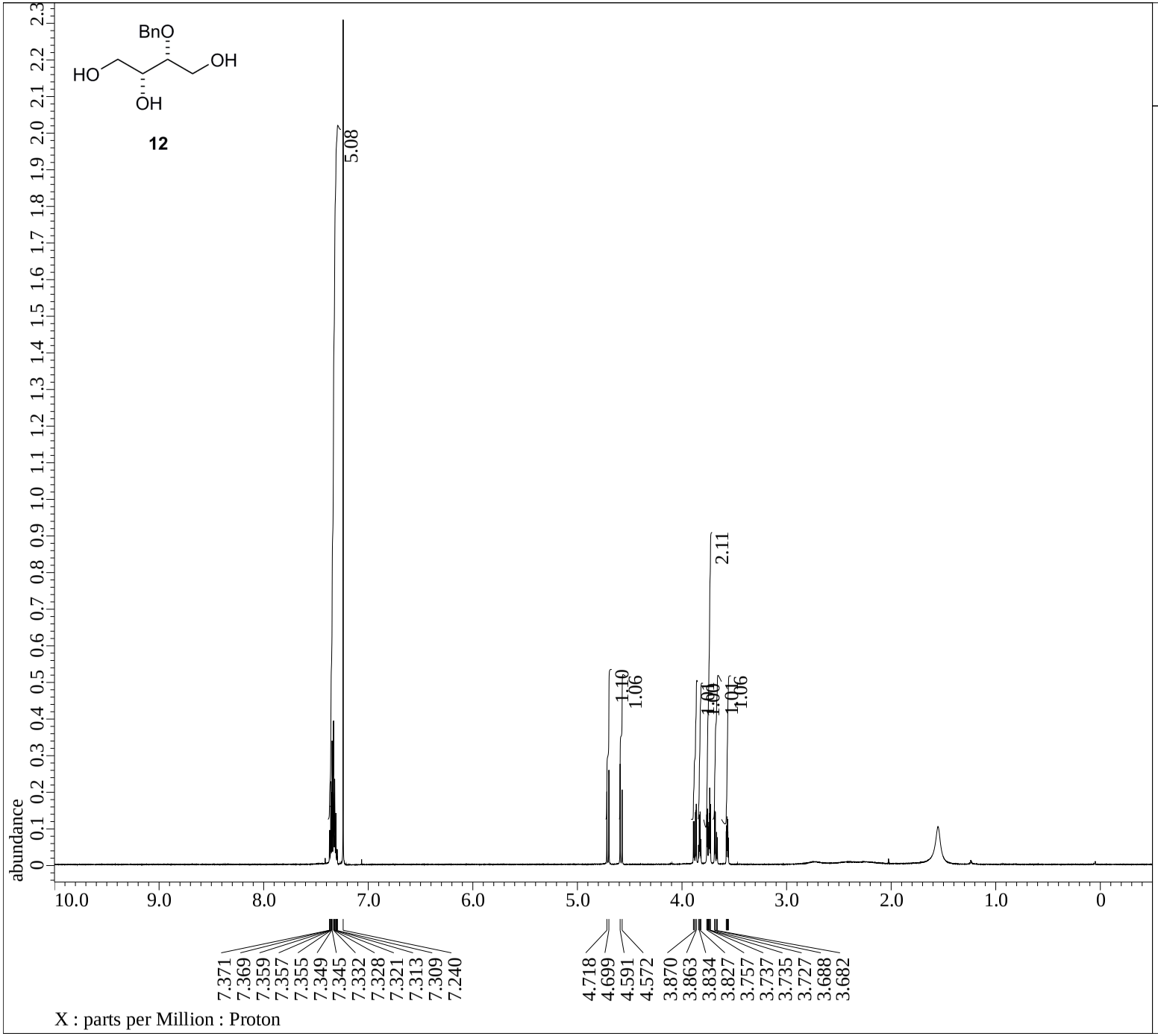



11



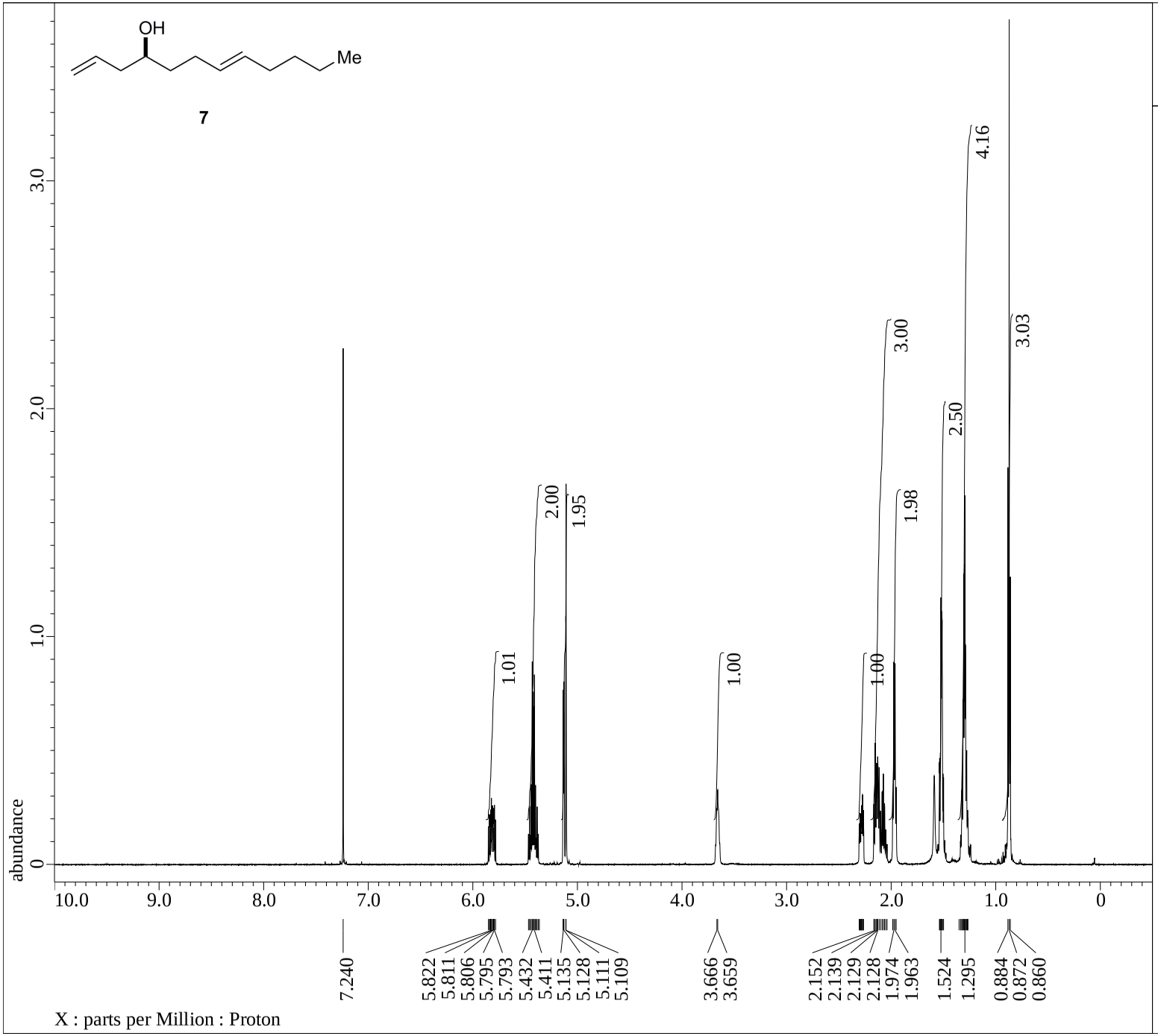

JEOL RESONANCE

```
Filename          = /Users/skk_macbookpro/Desk
Author            = delta
Experiment        = carbon.jxp
Sample_Id         = YK-II-197
Solvent           = CHLOROFORM-D
Creation_Time     =  4-OCT-2013 22:38:43
Revision_Time     = 24-JUN-2014 01:18:02
Current_Time      = 24-JUN-2014 01:18:42

Comment           = single pulse decoupled gat
Data_Format       = 1D COMPLEX
Dim_Size          = 26214
Dim_Title         = Carbon13
Dim_Units         = [ppm]
Dimensions        = X
Site              = ECA600
Spectrometer      = DELTA2_NMR

Field_Strength    = 14.09636928[T] (600[MHz])
X_Acq_Duration    = 0.69206016[s]
X_Domain          = 13C
X_Freq            = 150.91343039[MHz]
X_Offset          = 100[ppm]
X_Points          = 32768
X_Prescans        = 4
X_Resolution      = 1.44496109[Hz]
X_Sweep           = 47.34848485[kHz]
X_Sweep_Clipped   = 37.87878788[kHz]
Irr_Domain        = Proton
Irr_Freq          = 600.1723046[MHz]
Irr_Offset        = 5[ppm]
Clipped           = TRUE
Scans             = 580
Total_Scans       = 580

Relaxation_Delay  = 2[s]
Recvr_Gain        = 56
Temp_Get          = 22.7[dC]
X_90_Width        = 10[us]
X_Acq_Time        = 0.69206016[s]
X_Angle           = 30[deg]
X_Atn             = 8[dB]
X_Pulse           = 3.33333333[us]
Irr_Atn_Dec       = 18.24[dB]
Irr_Atn_Noe       = 18.24[dB]
Irr_Noise         = WALTZ
Irr_Pwidth        = 76[us]
Decoupling        = TRUE
Initial_Wait      = 1[s]
Noe               = TRUE
Noe_Time          = 2[s]
Repetition_Time   = 2.69206016[s]
```



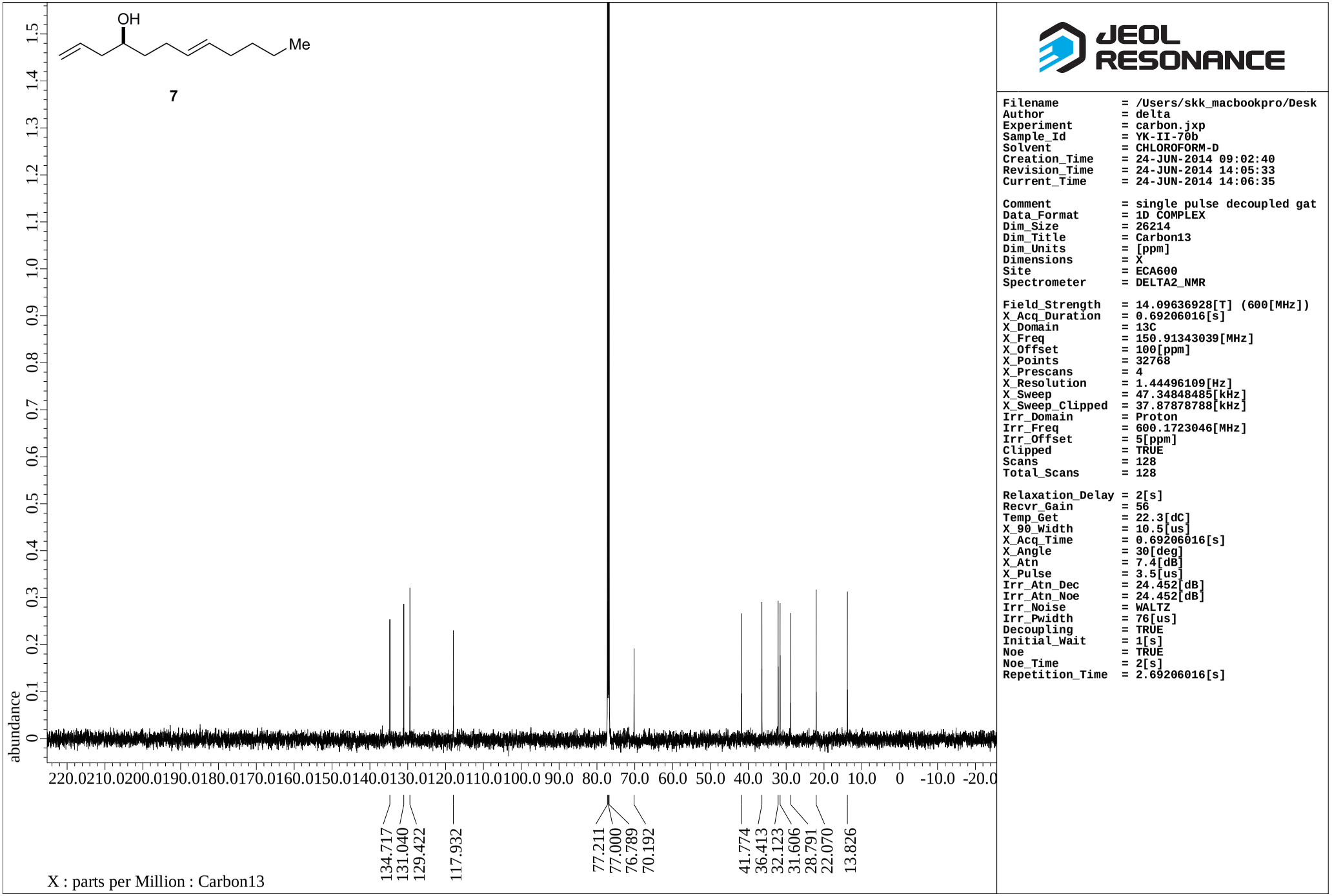

JEOL RESONANCE

```
Filename          = /Users/skk_macbookpro/Desk
Author            = delta
Experiment        = proton.jxp
Sample_Id         = YK-II-174b
Solvent           = CHLOROFORM-D
Creation_Time     =  6-SEP-2013 12:11:35
Revision_Time     = 24-JUN-2014 14:12:28
Current_Time      = 24-JUN-2014 14:13:10

Comment           = single_pulse
Data_Format       = 1D COMPLEX
Dim_Size          = 26214
Dim_Title         = Proton
Dim_Units         = [ppm]
Dimensions        = X
Site              = ECA600
Spectrometer      = DELTA2_NMR

Field_Strength    = 14.09636928[T] (600[MHz])
X_Acq_Duration    = 2.18103808[s]
X_Domain          = 1H
X_Freq            = 600.1723046[MHz]
X_Offset          = 5[ppm]
X_Points          = 32768
X_Prescans        = 1
X_Resolution      = 0.45849727[Hz]
X_Sweep           = 15.02403846[kHz]
X_Sweep_Clipped   = 12.01923077[kHz]
Irr_Domain        = Proton
Irr_Freq          = 600.1723046[MHz]
Irr_Offset        = 5[ppm]
Tri_Domain        = Proton
Tri_Freq          = 600.1723046[MHz]
Tri_Offset        = 5[ppm]
Clipped           = FALSE
Scans             = 32
Total_Scans       = 32

Relaxation_Delay  = 2[s]
Recvr_Gain        = 44
Temp_Get          = 22.1[dC]
X_90_Width        = 14.3[us]
X_Acq_Time        = 2.18103808[s]
X_Angle           = 45[deg]
X_Atn             = 4[dB]
X_Pulse           = 7.15[us]
Irr_Mode          = Off
Tri_Mode          = Off
Dante_Presat      = FALSE
Initial_Wait      = 1[s]
Repetition_Time   = 4.18103808[s]
```



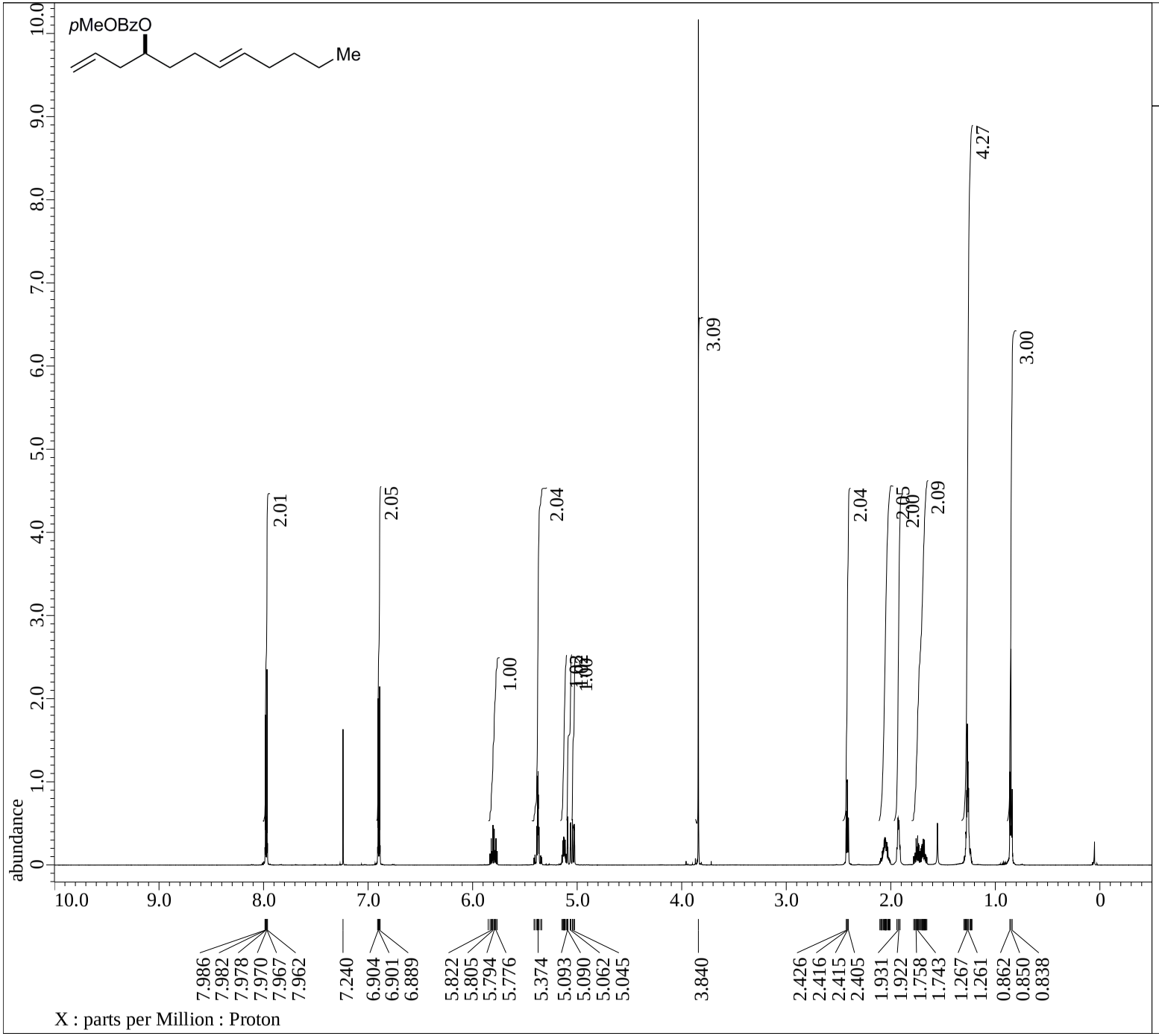

JEOL RESONANCE

```
Filename          = /Users/skk_macbookpro/Desk
Author            = delta
Experiment        = proton.jxp
Sample_Id         = YK-II-70b
Solvent           = CHLOROFORM-D
Creation_Time     = 24-MAY-2013 15:42:44
Revision_Time     = 23-JUN-2014 23:58:49
Current_Time      = 23-JUN-2014 23:59:03

Comment           = single_pulse
Data_Format       = 1D COMPLEX
Dim_Size          = 26214
Dim_Title         = Proton
Dim_Units         = [ppm]
Dimensions        = X
Site              = ECA600
Spectrometer      = DELTA2_NMR

Field_Strength    = 14.09636928[T] (600[MHz])
X_Acq_Duration    = 2.18103808[s]
X_Domain          = 1H
X_Freq            = 600.1723046[MHz]
X_Offset          = 5[ppm]
X_Points          = 32768
X_Prescans        = 1
X_Resolution      = 0.45849727[Hz]
X_Sweep           = 15.02403846[kHz]
X_Sweep_Clipped   = 12.01923077[kHz]
Irr_Domain        = Proton
Irr_Freq          = 600.1723046[MHz]
Irr_Offset        = 5[ppm]
Tri_Domain        = Proton
Tri_Freq          = 600.1723046[MHz]
Tri_Offset        = 5[ppm]
Clipped           = FALSE
Scans             = 8
Total_Scans       = 8

Relaxation_Delay  = 2[s]
Recvr_Gain        = 42
Temp_Get          = 21.3[dC]
X_90_Width        = 11.6[us]
X_Acq_Time        = 2.18103808[s]
X_Angle           = 45[deg]
X_Atn             = 3[dB]
X_Pulse           = 5.8[us]
Irr_Mode          = Off
Tri_Mode          = Off
Dante_Presat      = FALSE
Initial_Wait      = 1[s]
Repetition_Time   = 4.18103808[s]
```



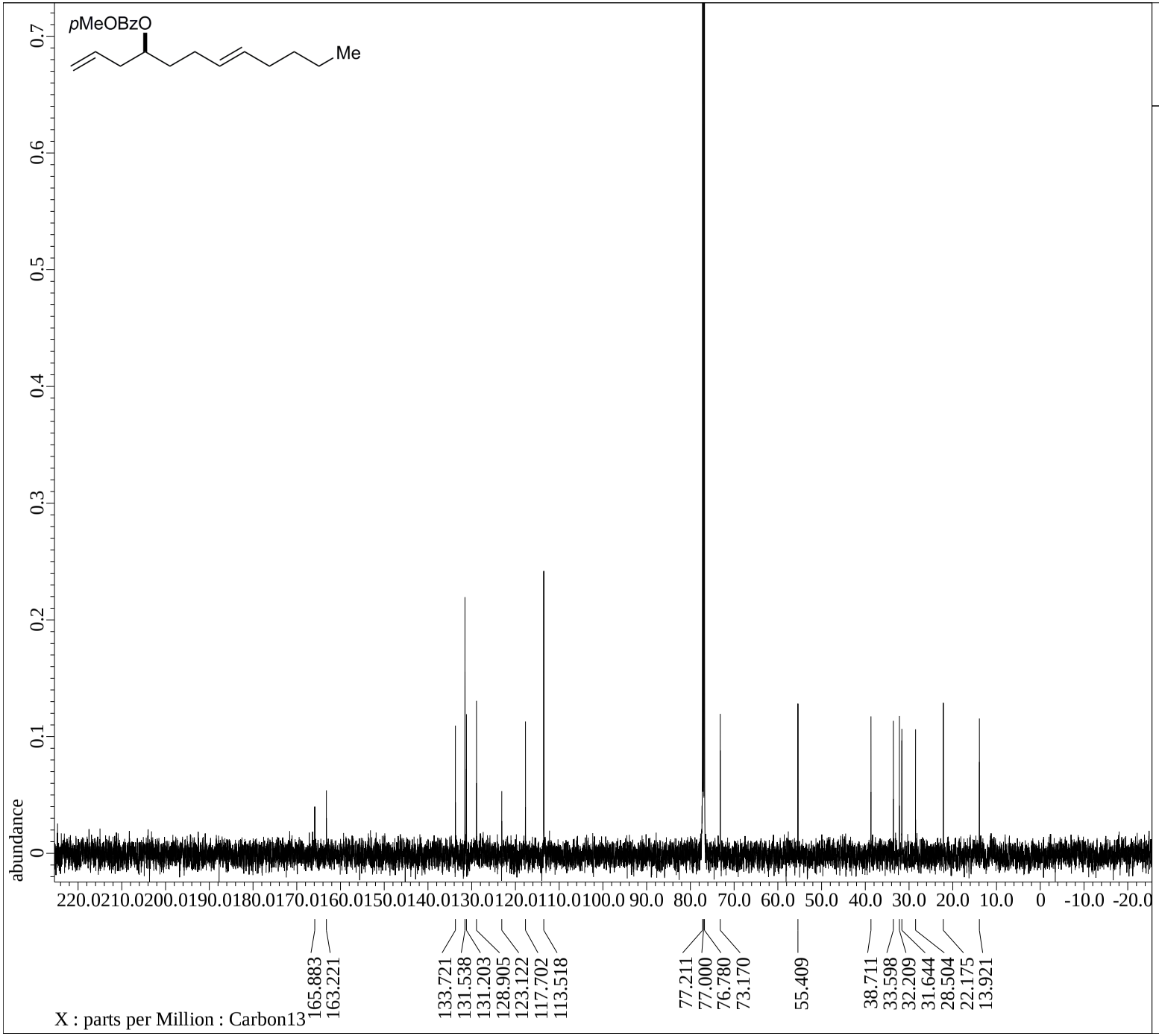

JEOL RESONANCE

```
Filename          = /Users/skk_macbookpro/Desk
Author            = delta
Experiment        = carbon.jxp
Sample_Id         = YK-II-70b
Solvent           = CHLOROFORM-D
Creation_Time     = 24-JUN-2014 09:02:40
Revision_Time     = 24-JUN-2014 14:05:33
Current_Time      = 24-JUN-2014 14:06:35

Comment           = single pulse decoupled gat
Data_Format       = 1D COMPLEX
Dim_Size          = 26214
Dim_Title         = Carbon13
Dim_Units         = [ppm]
Dimensions        = X
Site              = ECA600
Spectrometer      = DELTA2_NMR

Field_Strength    = 14.09636928[T] (600[MHz])
X_Acq_Duration    = 0.69206016[s]
X_Domain          = 13C
X_Freq            = 150.91343039[MHz]
X_Offset          = 100[ppm]
X_Points          = 32768
X_Prescans        = 4
X_Resolution      = 1.44496109[Hz]
X_Sweep           = 47.34848485[kHz]
X_Sweep_Clipped   = 37.87878788[kHz]
Irr_Domain        = Proton
Irr_Freq          = 600.1723046[MHz]
Irr_Offset        = 5[ppm]
Clipped           = TRUE
Scans             = 128
Total_Scans       = 128

Relaxation_Delay  = 2[s]
Recvr_Gain        = 56
Temp_Get          = 22.3[dC]
X_90_Width        = 10.5[us]
X_Acq_Time        = 0.69206016[s]
X_Angle           = 30[deg]
X_Atn             = 7.4[dB]
X_Pulse           = 3.5[us]
Irr_Atn_Dec       = 24.452[dB]
Irr_Atn_Noe       = 24.452[dB]
Irr_Noise         = WALTZ
Irr_Pwidth        = 76[us]
Decoupling        = TRUE
Initial_Wait      = 1[s]
Noe               = TRUE
Noe_Time          = 2[s]
Repetition_Time   = 2.69206016[s]
```



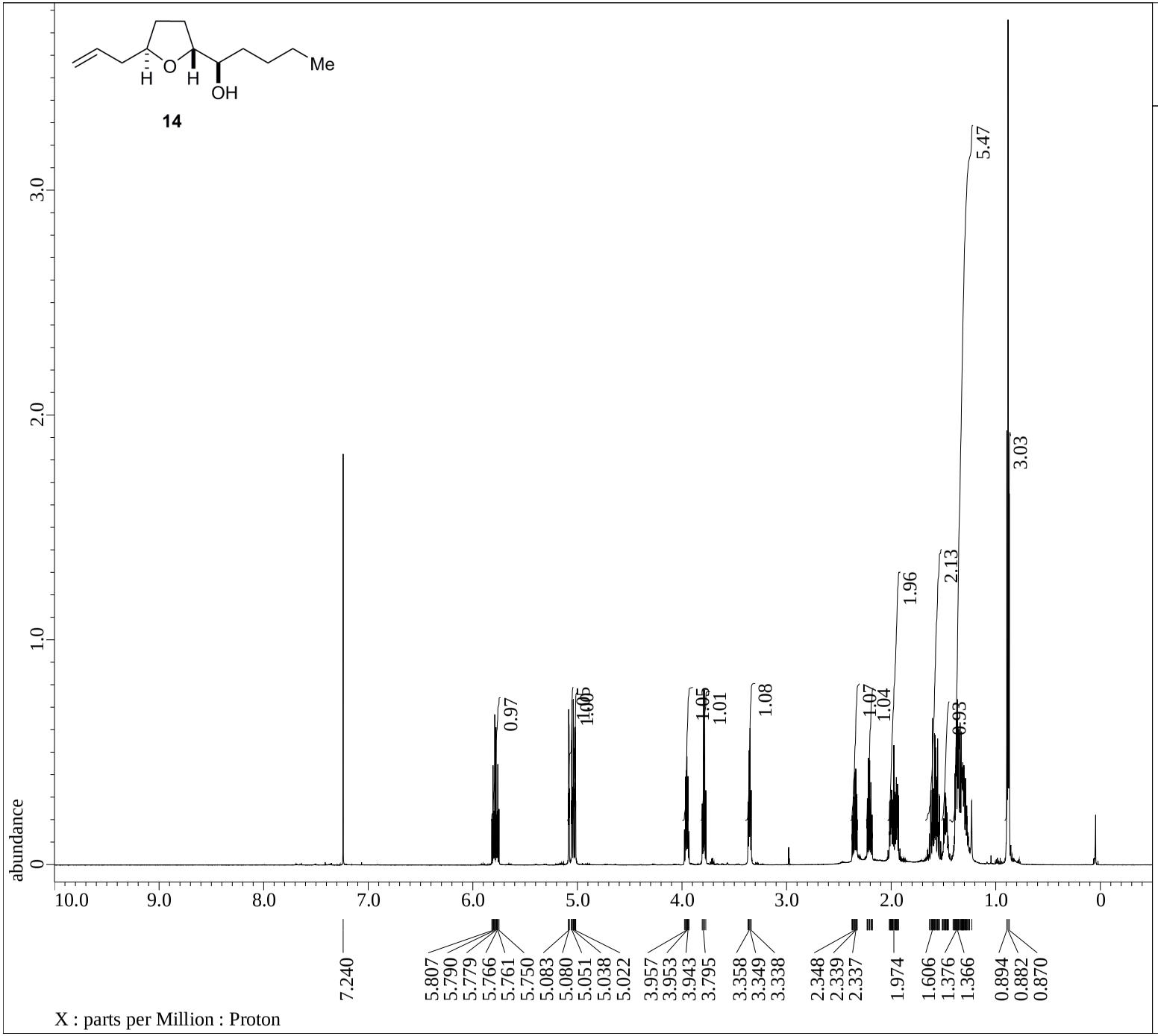

JEOL RESONANCE

```
Filename          = /Users/skk_macbookpro/Desk
Author            = delta
Experiment        = proton.jxp
Sample_Id         = YK-II-74
Solvent           = CHLOROFORM-D
Creation_Time     = 25-MAY-2013 15:23:31
Revision_Time     = 24-JUN-2014 00:08:32
Current_Time      = 24-JUN-2014 00:08:46

Comment           = single_pulse
Data_Format       = 1D COMPLEX
Dim_Size          = 26214
Dim_Title         = Proton
Dim_Units         = [ppm]
Dimensions        = X
Site              = ECA600
Spectrometer      = DELTA2_NMR

Field_Strength    = 14.09636928[T] (600[MHz])
X_Acq_Duration    = 2.18103808[s]
X_Domain          = 1H
X_Freq            = 600.1723046[MHz]
X_Offset          = 5[ppm]
X_Points          = 32768
X_Prescans        = 1
X_Resolution      = 0.45849727[Hz]
X_Sweep           = 15.02403846[kHz]
X_Sweep_Clipped   = 12.01923077[kHz]
Irr_Domain        = Proton
Irr_Freq          = 600.1723046[MHz]
Irr_Offset        = 5[ppm]
Tri_Domain        = Proton
Tri_Freq          = 600.1723046[MHz]
Tri_Offset        = 5[ppm]
Clipped           = FALSE
Scans             = 8
Total_Scans       = 8

Relaxation_Delay  = 2[s]
Recvr_Gain        = 38
Temp_Get          = 21.2[dC]
X_90_Width        = 11.6[us]
X_Acq_Time        = 2.18103808[s]
X_Angle           = 45[deg]
X_Atn             = 3[dB]
X_Pulse           = 5.8[us]
Irr_Mode          = Off
Tri_Mode          = Off
Dante_Presat      = FALSE
Initial_Wait      = 1[s]
Repetition_Time   = 4.18103808[s]
```



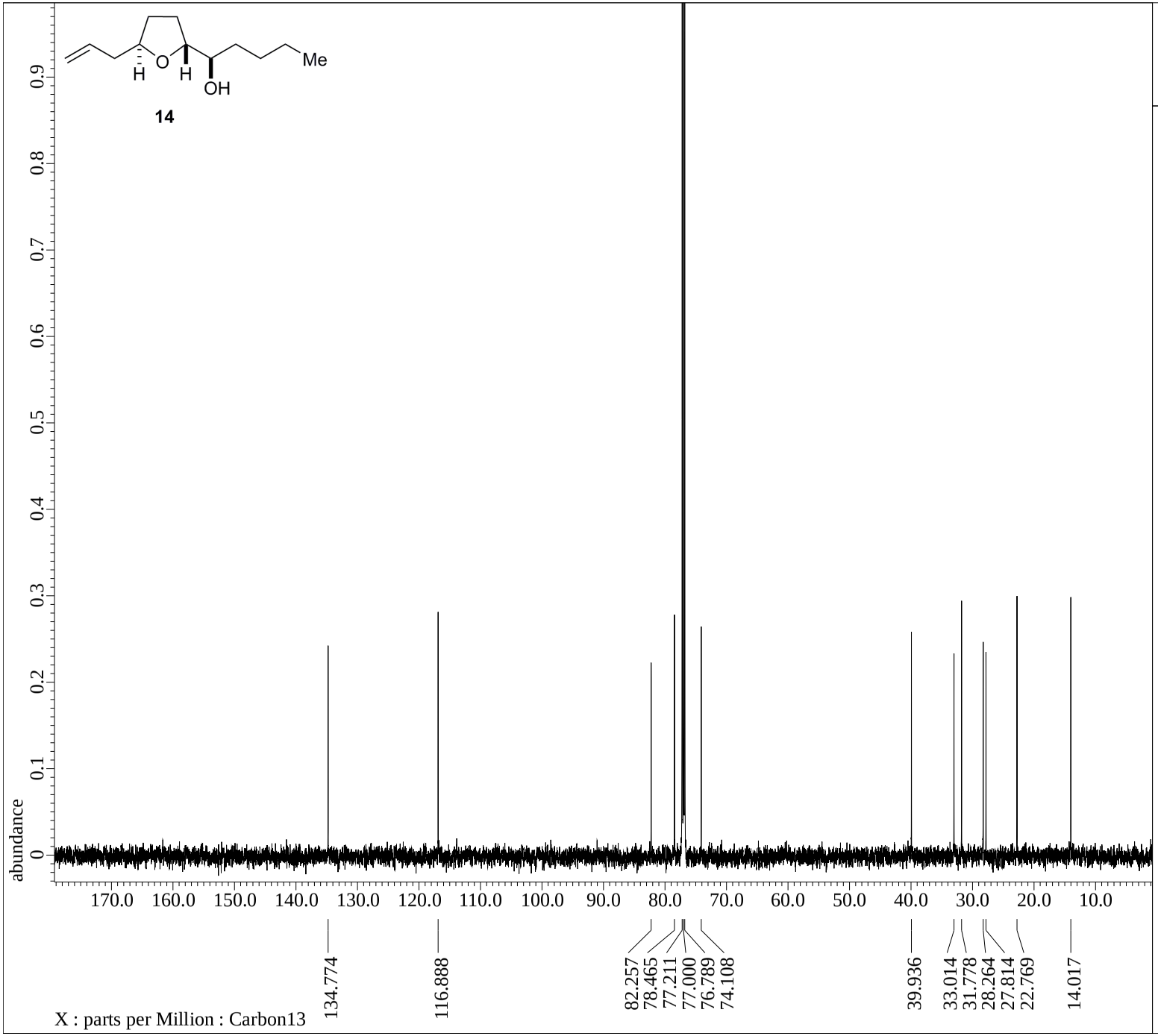

JEOL RESONANCE

```
Filename          = /Users/skk_macbookpro/Desk
Author            = delta
Experiment        = carbon.jxp
Sample_Id         = YK-II-74
Solvent           = CHLOROFORM-D
Creation_Time     = 24-JUN-2014 12:17:25
Revision_Time     = 24-JUN-2014 14:07:38
Current_Time      = 24-JUN-2014 14:08:11

Comment           = single pulse decoupled gat
Data_Format       = 1D COMPLEX
Dim_Size          = 26214
Dim_Title         = Carbon13
Dim_Units         = [ppm]
Dimensions        = X
Site              = ECA600
Spectrometer      = DELTA2_NMR

Field_Strength    = 14.09636928[T] (600[MHz])
X_Acq_Duration    = 0.69206016[s]
X_Domain          = 13C
X_Freq            = 150.91343039[MHz]
X_Offset          = 100[ppm]
X_Points          = 32768
X_Prescans        = 4
X_Resolution      = 1.44496109[Hz]
X_Sweep           = 47.34848485[kHz]
X_Sweep_Clipped   = 37.87878788[kHz]
Irr_Domain        = Proton
Irr_Freq          = 600.1723046[MHz]
Irr_Offset        = 5[ppm]
Clipped           = TRUE
Scans             = 200
Total_Scans       = 200

Relaxation_Delay  = 2[s]
Recvr_Gain        = 56
Temp_Get          = 22.5[dC]
X_90_Width        = 10.5[us]
X_Acq_Time        = 0.69206016[s]
X_Angle           = 30[deg]
X_Atn             = 7.4[dB]
X_Pulse           = 3.5[us]
Irr_Atn_Dec       = 24.452[dB]
Irr_Atn_Noe       = 24.452[dB]
Irr_Noise         = WALTZ
Irr_Pwidth        = 76[us]
Decoupling        = TRUE
Initial_Wait      = 1[s]
Noe               = TRUE
Noe_Time          = 2[s]
Repetition_Time   = 2.69206016[s]
```



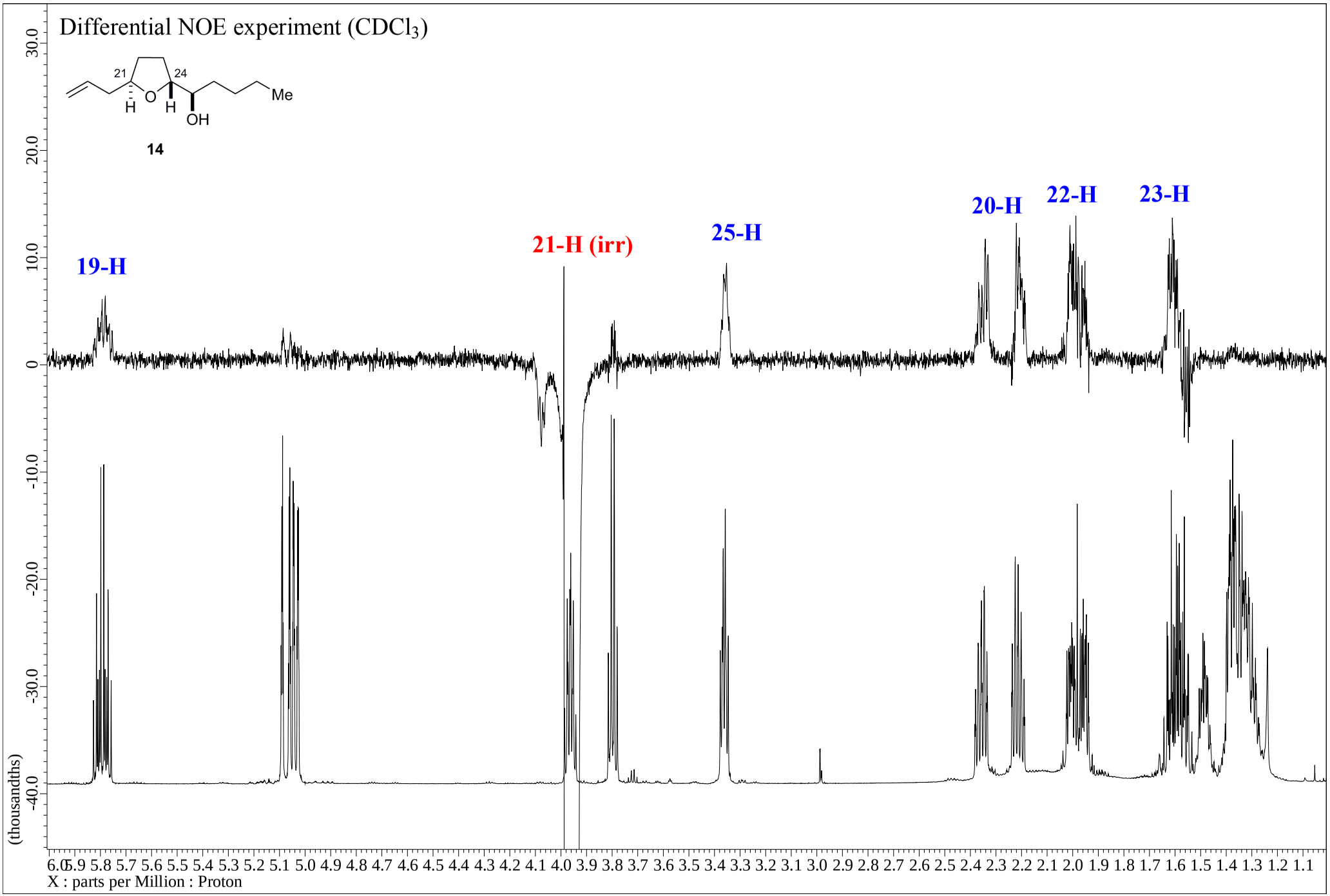

JEOL RESONANCE

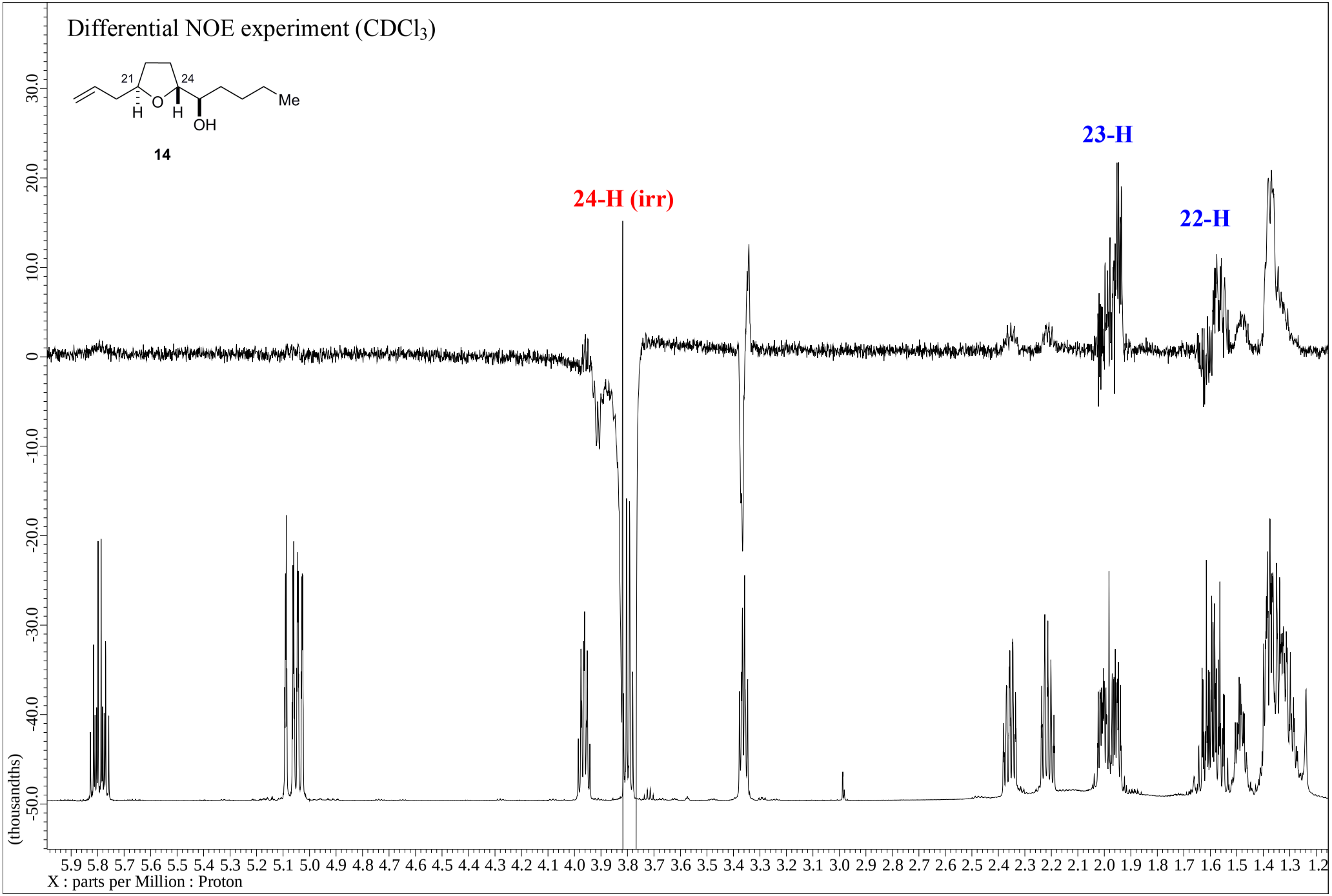
| | |
|---|---|
| Filename | = /Users/skk_macbookpro/Desk |
| Author | = delta |
| Experiment | = proton.jxp |
| Sample_Id | = YK-II-95a |
| Solvent | = CHLOROFORM-D |
| Creation_Time | = 24-JUN-2014 15:37:47 |
| Revision_Time | = 24-JUN-2014 16:01:19 |
| Current_Time | = 24-JUN-2014 16:03:07 |
| Comment | = single_pulse |
| Data_Format | = 1D COMPLEX |
| Dim_Size | = 26214 |
| Dim_Title | = Proton |
| Dim_Units | = [ppm] |
| Dimensions | = X |
| Site | = ECA600 |
| Spectrometer | = DELTA2_NMR |
| Field_Strength | = 14.09636928[T] (600[MHz]) |
| X_Acq_Duration | = 2.18103808[s] |
| X_Domain | = 1H |
| X_Freq | = 600.1723046[MHz] |
| X_Offset | = 5[ppm] |
| X_Points | = 32768 |
| X_Prescans | = 1 |
| X_Resolution | = 0.45849727[Hz] |
| X_Sweep | = 15.02403846[kHz] |
| X_Sweep_Clipped | = 12.01923077[kHz] |
| Irr_Domain | = Proton |
| Irr_Freq | = 600.1723046[MHz] |
| Irr_Offset | = 5[ppm] |
| Tri_Domain | = Proton |
| Tri_Freq | = 600.1723046[MHz] |
| Tri_Offset | = 5[ppm] |
| Clipped | = FALSE |
| Scans | = 8 |
| Total_Scans | = 8 |
| Relaxation_Delay | = 2[s] |
| Recvr_Gain | = 32 |
| Temp_Get | = 22.5[dC] |
| X_90_Width | = 7.215[us] |
| X_Acq_Time | = 2.18103808[s] |
| X_Angle | = 45[deg] |
| X_Atn | = 4[dB] |
| X_Pulse | = 3.6075[us] |
| Irr_Mode | = Off |
| Tri_Mode | = Off |
| Dante_Presat | = FALSE |
| Initial_Wait | = 1[s] |
| Repetition_Time | = 4.18103808[s] |

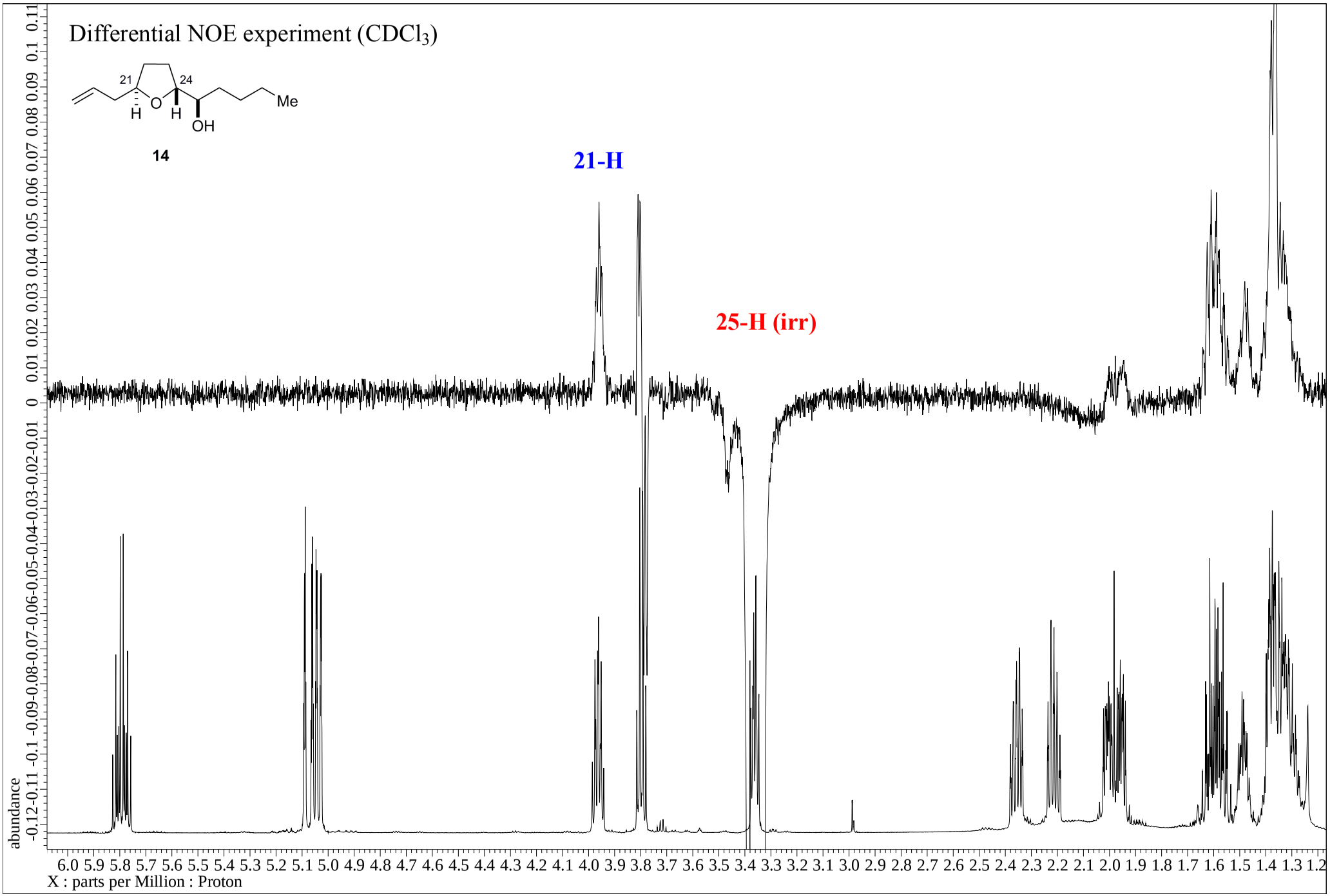



JEOL RESONANCE

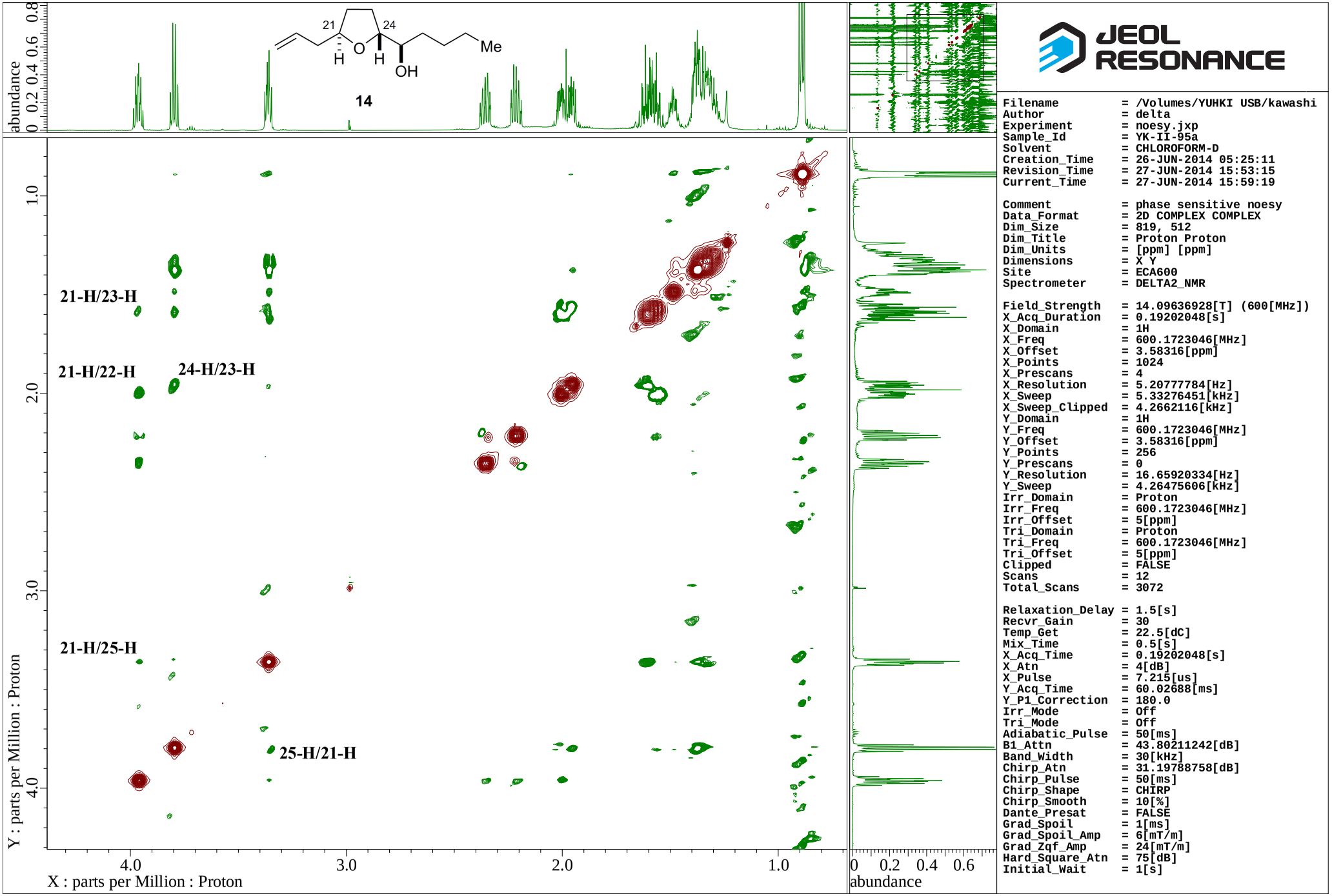
```
Filename          = /Users/skk_macbookpro/Desk
Author            = delta
Experiment        = carbon.jxp
Sample_Id         = YK-II-95a
Solvent           = CHLOROFORM-D
Creation_Time     = 24-JUN-2014 15:41:17
Revision_Time     = 24-JUN-2014 16:03:48
Current_Time      = 24-JUN-2014 16:04:22

Comment           = single pulse decoupled gat
Data_Format       = 1D COMPLEX
Dim_Size          = 26214
Dim_Title         = Carbon13
Dim_Units         = [ppm]
Dimensions        = X
Site              = ECA600
Spectrometer      = DELTA2_NMR

Field_Strength    = 14.09636928[T] (600[MHz])
X_Acq_Duration    = 0.69206016[s]
X_Domain          = 13C
X_Freq            = 150.91343039[MHz]
X_Offset          = 100[ppm]
X_Points          = 32768
X_Prescans        = 4
X_Resolution      = 1.44496109[Hz]
X_Sweep           = 47.34848485[kHz]
X_Sweep_Clipped   = 37.87878788[kHz]
Irr_Domain        = Proton
Irr_Freq          = 600.1723046[MHz]
Irr_Offset        = 5[ppm]
Clipped           = TRUE
Scans             = 260
Total_Scans       = 260

Relaxation_Delay  = 2[s]
Recvr_Gain        = 56
Temp_Get          = 23[dC]
X_90_Width        = 10.5[us]
X_Acq_Time        = 0.69206016[s]
X_Angle           = 30[deg]
X_Atn             = 7.4[dB]
X_Pulse           = 3.5[us]
Irr_Atn_Dec       = 24.452[dB]
Irr_Atn_Noe       = 24.452[dB]
Irr_Noise         = WALTZ
Irr_Pwidth        = 76[us]
Decoupling        = TRUE
Initial_Wait      = 1[s]
Noe               = TRUE
Noe_Time          = 2[s]
Repetition_Time   = 2.69206016[s]
```


Differential NOE experiment ($CDCl_3$)
21
24
O
H
H
OH
Me
14
19-H
21-H (irr)
25-H
20-H
22-H
23-H
30.0
20.0
10.0
0
-10.0
-20.0
-30.0
-40.0
(thousandths)
6.0 5.9 5.8 5.7 5.6 5.5 5.4 5.3 5.2 5.1 5.0 4.9 4.8 4.7 4.6 4.5 4.4 4.3 4.2 4.1 4.0 3.9 3.8 3.7 3.6 3.5 3.4 3.3 3.2 3.1 3.0 2.9 2.8 2.7 2.6 2.5 2.4 2.3 2.2 2.1 2.0 1.9 1.8 1.7 1.6 1.5 1.4 1.3 1.2 1.1
X : parts per Million : Proton


Differential NOE experiment ($CDCl_3$)
21
24
O
H
H
OH
Me
14
24-H (irr)
23-H
22-H
30.0
20.0
10.0
0
-10.0
-20.0
-30.0
-40.0
-50.0
(thousandths)
5.9 5.8 5.7 5.6 5.5 5.4 5.3 5.2 5.1 5.0 4.9 4.8 4.7 4.6 4.5 4.4 4.3 4.2 4.1 4.0 3.9 3.8 3.7 3.6 3.5 3.4 3.3 3.2 3.1 3.0 2.9 2.8 2.7 2.6 2.5 2.4 2.3 2.2 2.1 2.0 1.9 1.8 1.7 1.6 1.5 1.4 1.3 1.2
X : parts per Million : Proton

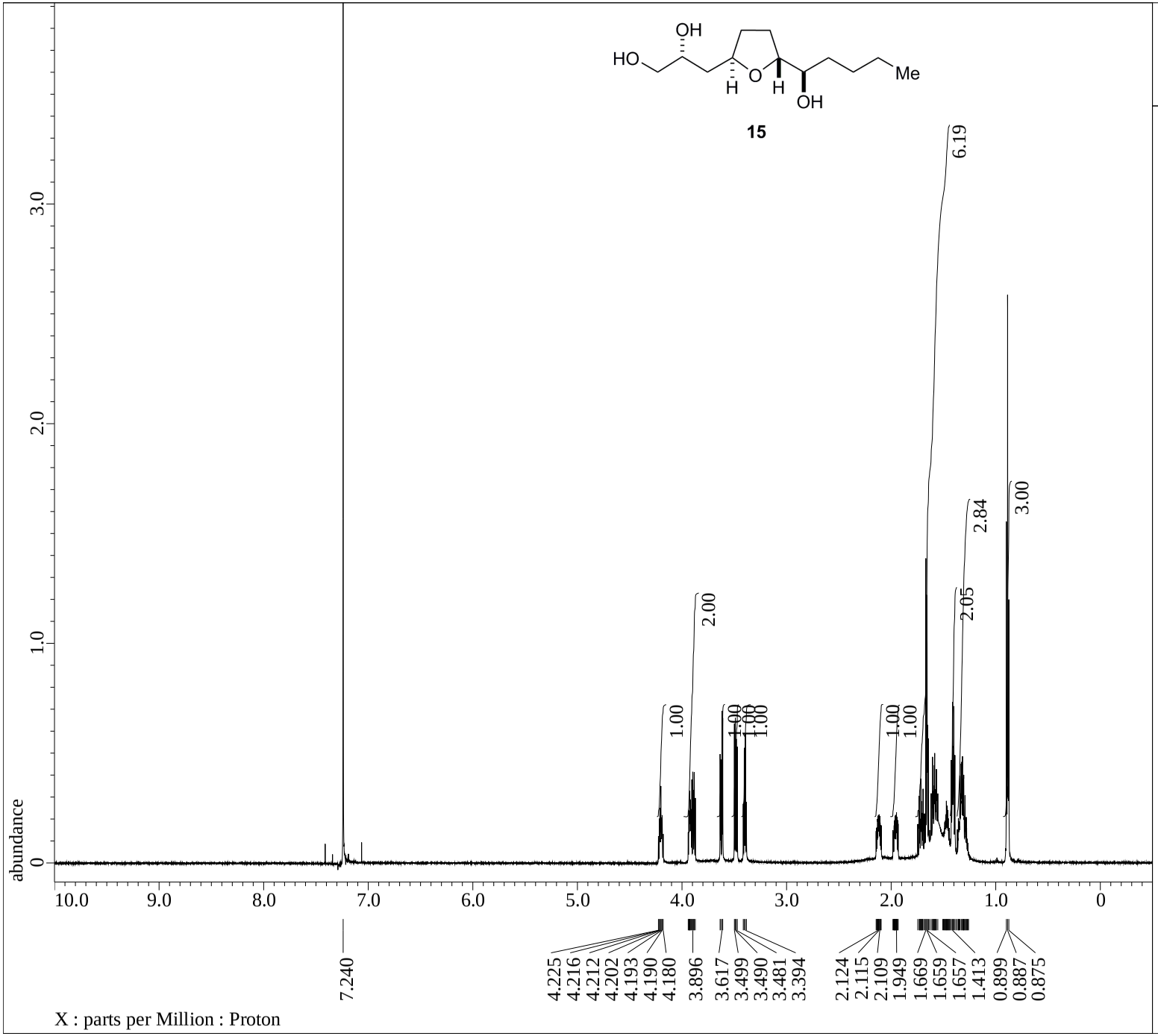

Differential NOE experiment ($CDCl_3$)
21
24
O
H
H
OH
Me
14
21-H
25-H (irr)
abundance
X : parts per Million : Proton

NOESY spectrum ($CDCl_3$)



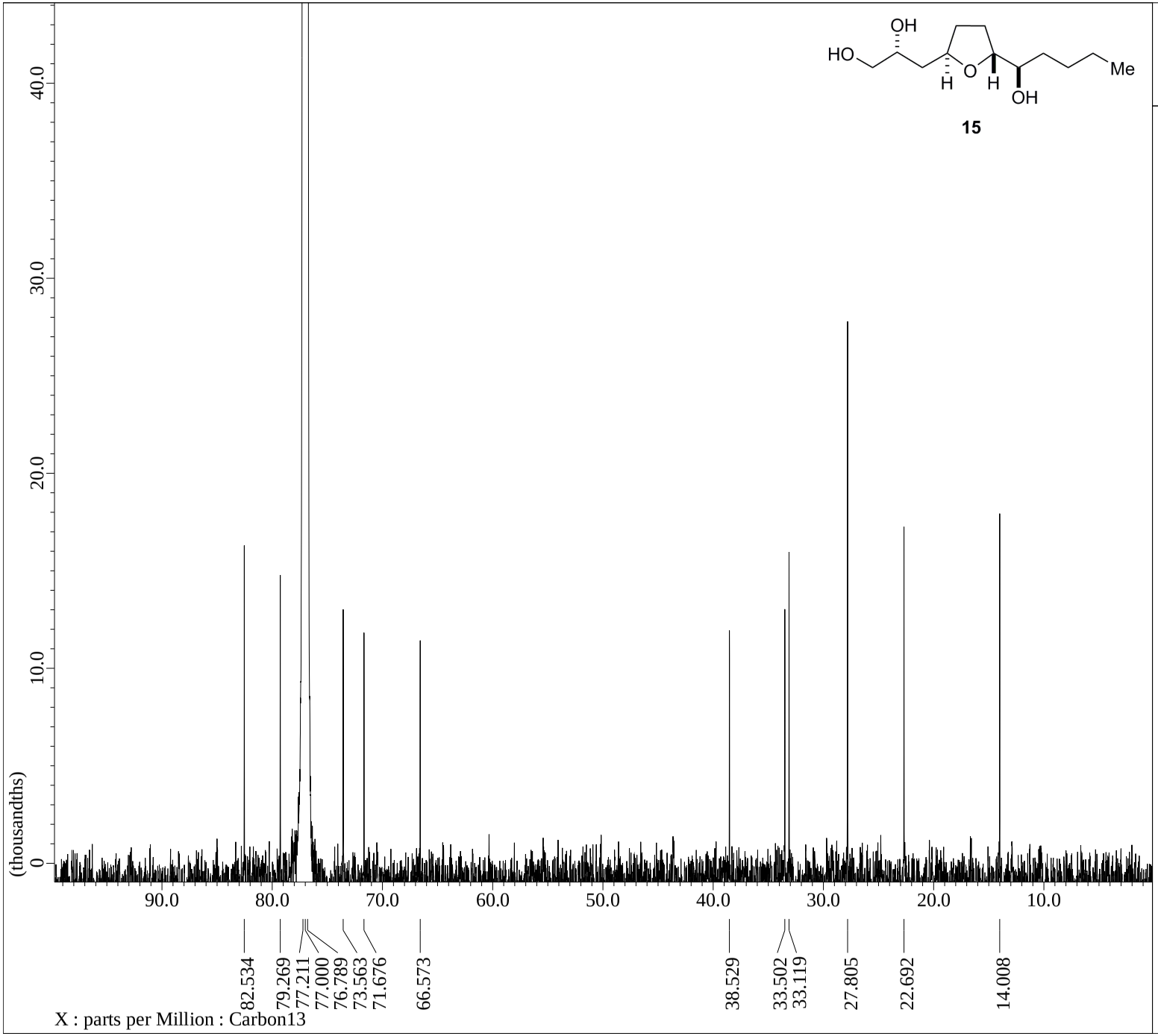

JEOL RESONANCE

```
Filename          = /Volumes/YUHKI USB/kawashi
Author            = delta
Experiment        = noesy.jxp
Sample_Id         = YK-II-95a
Solvent           = CHLOROFORM-D
Creation_Time     = 26-JUN-2014 05:25:11
Revision_Time     = 27-JUN-2014 15:53:15
Current_Time      = 27-JUN-2014 15:59:19

Comment           = phase sensitive noesy
Data_Format       = 2D COMPLEX COMPLEX
Dim_Size          = 819, 512
Dim_Title         = Proton Proton
Dim_Units         = [ppm] [ppm]
Dimensions        = X Y
Site              = ECA600
Spectrometer      = DELTA2_NMR

Field_Strength    = 14.09636928[T] (600[MHz])
X_Acq_Duration    = 0.19202048[s]
X_Domain          = 1H
X_Freq            = 600.1723046[MHz]
X_Offset          = 3.58316[ppm]
X_Points          = 1024
X_Prescans        = 4
X_Resolution      = 5.20777784[Hz]
X_Sweep           = 5.33276451[kHz]
X_Sweep_Clipped   = 4.2662116[kHz]
Y_Domain          = 1H
Y_Freq            = 600.1723046[MHz]
Y_Offset          = 3.58316[ppm]
Y_Points          = 256
Y_Prescans        = 0
Y_Resolution      = 16.65920334[Hz]
Y_Sweep           = 4.26475606[kHz]
Irr_Domain        = Proton
Irr_Freq          = 600.1723046[MHz]
Irr_Offset        = 5[ppm]
Tri_Domain        = Proton
Tri_Freq          = 600.1723046[MHz]
Tri_Offset        = 5[ppm]
Clipped           = FALSE
Scans             = 12
Total_Scans       = 3072

Relaxation_Delay  = 1.5[s]
Recvr_Gain        = 30
Temp_Get          = 22.5[dC]
Mix_Time          = 0.5[s]
X_Acq_Time        = 0.19202048[s]
X_Atn             = 4[dB]
X_Pulse           = 7.215[us]
Y_Acq_Time        = 60.02688[ms]
Y_P1_Correction   = 180.0
Irr_Mode          = Off
Tri_Mode          = Off
Adiabatic_Pulse   = 50[ms]
B1_Attn           = 43.80211242[dB]
Band_Width        = 30[kHz]
Chirp_Atn         = 31.19788758[dB]
Chirp_Pulse       = 50[ms]
Chirp_Shape       = CHIRP
Chirp_Smooth      = 10[%]
Dante_Presat      = FALSE
Grad_Spoil        = 1[ms]
Grad_Spoil_Amp    = 6[mT/m]
Grad_Zqf_Amp      = 24[mT/m]
Hard_Square_Atn   = 75[dB]
Initial_Wait      = 1[s]
```



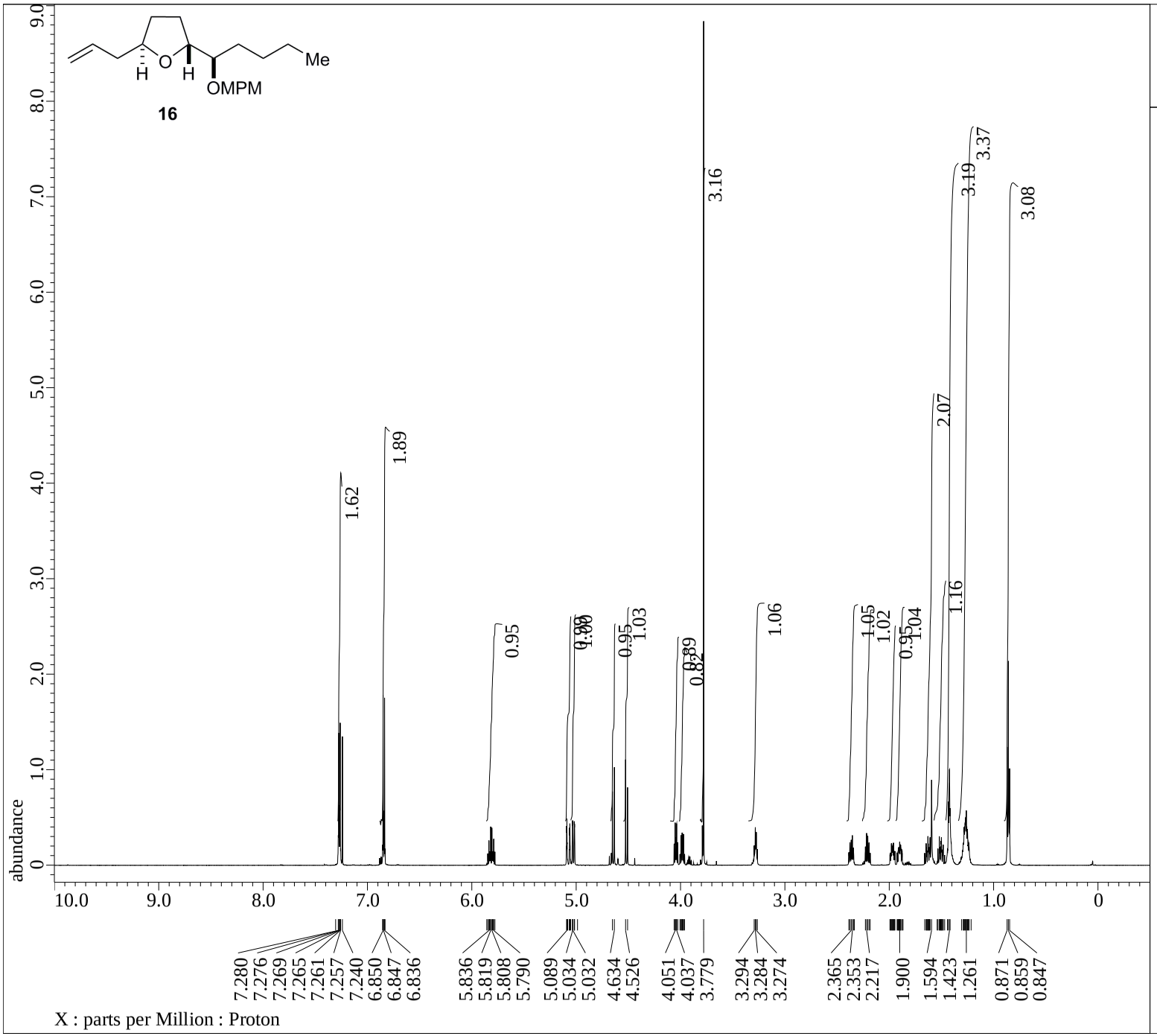

JEOL RESONANCE

```
Filename          = /Volumes/YUHKI USB/YK-IV-0
Author            = delta
Experiment        = proton.jxp
Sample_Id         = YK-IV-007b
Solvent           = CHLOROFORM-D
Creation_Time     = 28-JUN-2014 10:27:33
Revision_Time     =  7-JUL-2014 20:47:26
Current_Time      =  7-JUL-2014 20:48:29

Comment           = single_pulse
Data_Format       = 1D COMPLEX
Dim_Size          = 26214
Dim_Title         = Proton
Dim_Units         = [ppm]
Dimensions        = X
Site              = ECA600
Spectrometer      = DELTA2_NMR

Field_Strength    = 14.09636928[T] (600[MHz])
X_Acq_Duration    = 2.18103808[s]
X_Domain          = 1H
X_Freq            = 600.1723046[MHz]
X_Offset          = 5[ppm]
X_Points          = 32768
X_Prescans        = 1
X_Resolution      = 0.45849727[Hz]
X_Sweep           = 15.02403846[kHz]
X_Sweep_Clipped   = 12.01923077[kHz]
Irr_Domain        = Proton
Irr_Freq          = 600.1723046[MHz]
Irr_Offset        = 5[ppm]
Tri_Domain        = Proton
Tri_Freq          = 600.1723046[MHz]
Tri_Offset        = 5[ppm]
Clipped           = FALSE
Scans             = 8
Total_Scans       = 8

Relaxation_Delay  = 2[s]
Recvr_Gain        = 50
Temp_Get          = 22.5[dC]
X_90_Width        = 7.215[us]
X_Acq_Time        = 2.18103808[s]
X_Angle           = 45[deg]
X_Atn             = 4[dB]
X_Pulse           = 3.6075[us]
Irr_Mode          = Off
Tri_Mode          = Off
Dante_Presat      = FALSE
Initial_Wait      = 1[s]
Repetition_Time   = 4.18103808[s]
```



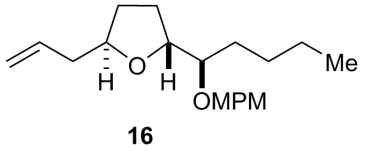

JEOL RESONANCE

```
Filename          = /Volumes/YUHKI USB/YK-IV-0
Author            = delta
Experiment        = carbon.jxp
Sample_Id         = YK-IV-007
Solvent           = CHLOROFORM-D
Creation_Time     =  6-JUL-2014 21:57:52
Revision_Time     =  7-JUL-2014 20:49:14
Current_Time      =  7-JUL-2014 20:49:48

Comment           = single pulse decoupled gat
Data_Format       = 1D COMPLEX
Dim_Size          = 26214
Dim_Title         = Carbon13
Dim_Units         = [ppm]
Dimensions        = X
Site              = ECA600
Spectrometer      = DELTA2_NMR

Field_Strength    = 14.09636928[T] (600[MHz])
X_Acq_Duration    = 0.69206016[s]
X_Domain          = 13C
X_Freq            = 150.91343039[MHz]
X_Offset          = 100[ppm]
X_Points          = 32768
X_Prescans        = 4
X_Resolution      = 1.44496109[Hz]
X_Sweep           = 47.34848485[kHz]
X_Sweep_Clipped   = 37.87878788[kHz]
Irr_Domain        = Proton
Irr_Freq          = 600.1723046[MHz]
Irr_Offset        = 5[ppm]
Clipped           = TRUE
Scans             = 14784
Total_Scans       = 14784

Relaxation_Delay  = 2[s]
Recvr_Gain        = 56
Temp_Get          = 22.6[dC]
X_90_Width        = 10.5[us]
X_Acq_Time        = 0.69206016[s]
X_Angle           = 30[deg]
X_Atn             = 7.4[dB]
X_Pulse           = 3.5[us]
Irr_Atn_Dec       = 24.452[dB]
Irr_Atn_Noe       = 24.452[dB]
Irr_Noise         = WALTZ
Irr_Pwidth        = 76[us]
Decoupling        = TRUE
Initial_Wait      = 1[s]
Noe               = TRUE
Noe_Time          = 2[s]
Repetition_Time   = 2.69206016[s]
```




JEOL RESONANCE

| | |
|---|---|
| Filename | = /Users/skk_macbookpro/Desk |
| Author | = delta |
| Experiment | = proton.jxp |
| Sample_Id | = YK-II-123a |
| Solvent | = CHLOROFORM-D |
| Creation_Time | = 1-JUL-2013 11:56:55 |
| Revision_Time | = 24-JUN-2014 16:14:05 |
| Current_Time | = 24-JUN-2014 16:14:33 |
| Comment | = single_pulse |
| Data_Format | = 1D COMPLEX |
| Dim_Size | = 26214 |
| Dim_Title | = Proton |
| Dim_Units | = [ppm] |
| Dimensions | = X |
| Site | = ECA600 |
| Spectrometer | = DELTA2_NMR |
| Field_Strength | = 14.09636928[T] (600[MHz]) |
| X_Acq_Duration | = 2.18103808[s] |
| X_Domain | = 1H |
| X_Freq | = 600.1723046[MHz] |
| X_Offset | = 5[ppm] |
| X_Points | = 32768 |
| X_Prescans | = 1 |
| X_Resolution | = 0.45849727[Hz] |
| X_Sweep | = 15.02403846[kHz] |
| X_Sweep_Clipped | = 12.01923077[kHz] |
| Irr_Domain | = Proton |
| Irr_Freq | = 600.1723046[MHz] |
| Irr_Offset | = 5[ppm] |
| Tri_Domain | = Proton |
| Tri_Freq | = 600.1723046[MHz] |
| Tri_Offset | = 5[ppm] |
| Clipped | = FALSE |
| Scans | = 8 |
| Total_Scans | = 8 |
| Relaxation_Delay | = 2[s] |
| Recvr_Gain | = 38 |
| Temp_Get | = 21.3[dC] |
| X_90_Width | = 11.6[us] |
| X_Acq_Time | = 2.18103808[s] |
| X_Angle | = 45[deg] |
| X_Atn | = 3[dB] |
| X_Pulse | = 5.8[us] |
| Irr_Mode | = Off |
| Tri_Mode | = Off |
| Dante_Presat | = FALSE |
| Initial_Wait | = 1[s] |
| Repetition_Time | = 4.18103808[s] |

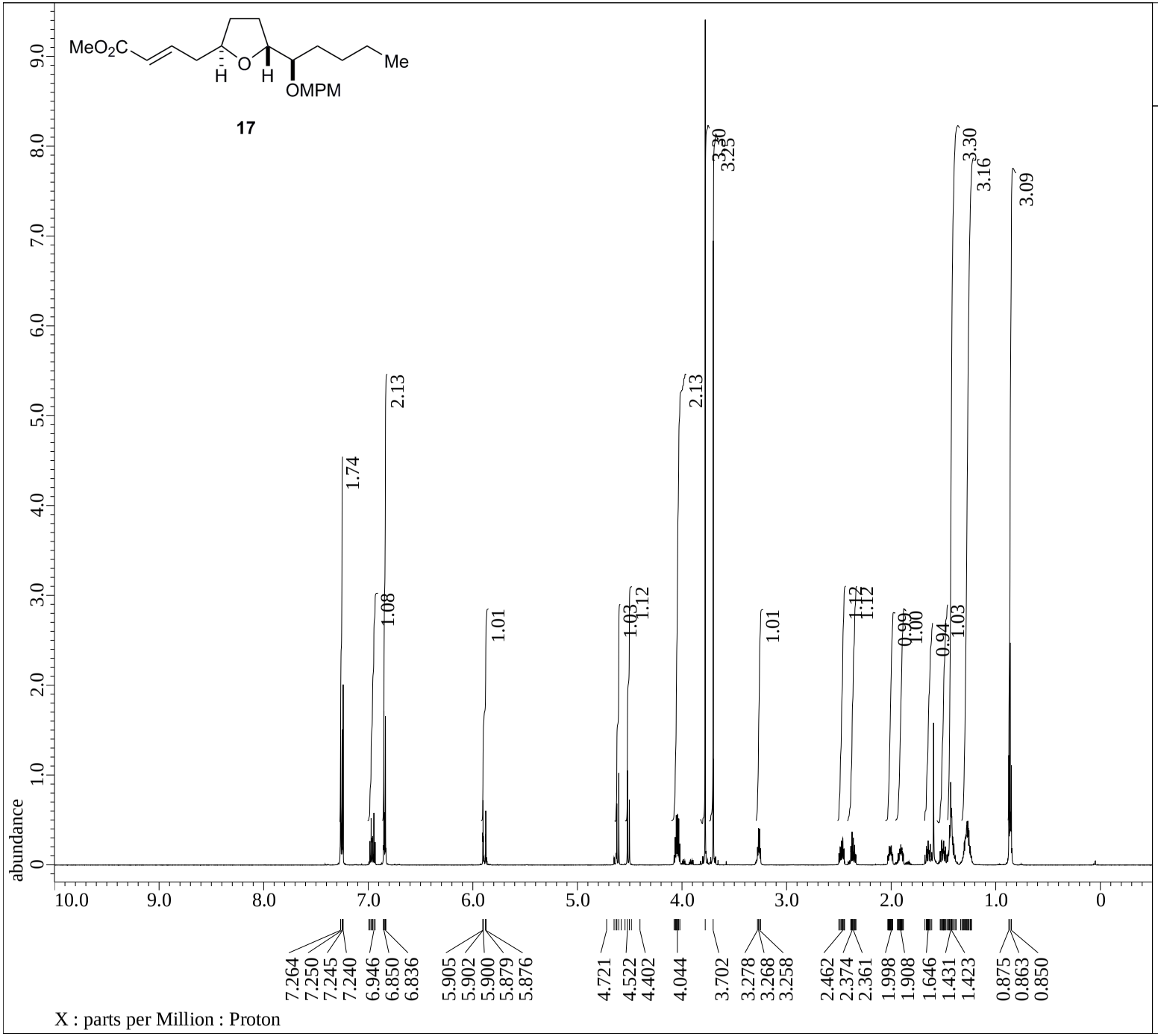



16



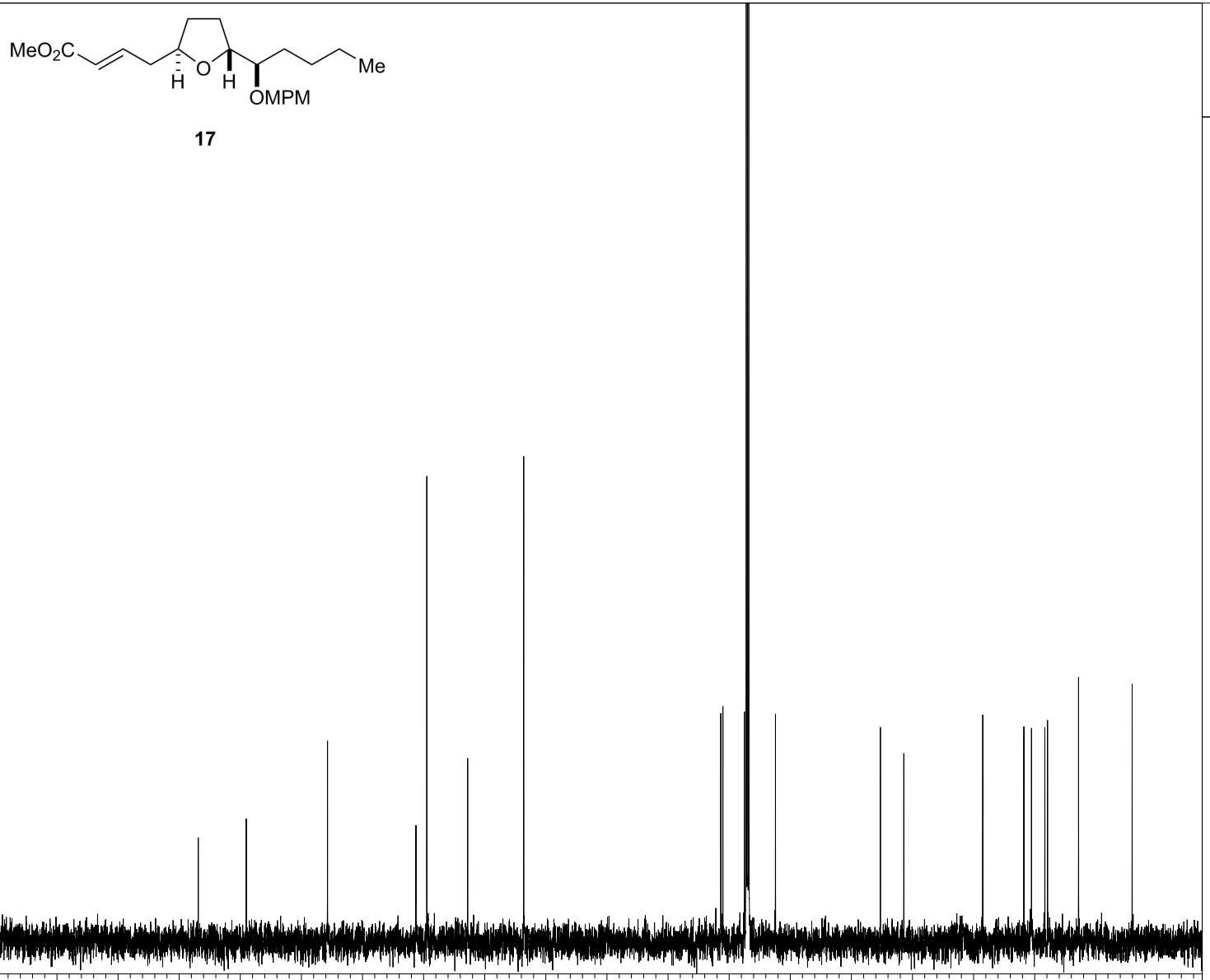

JEOL RESONANCE

```
Filename          = /Users/skk_macbookpro/Desk
Author            = delta
Experiment        = carbon.jxp
Sample_Id         = YK-II-123a
Solvent           = CHLOROFORM-D
Creation_Time     =  1-JUL-2013 18:42:48
Revision_Time     = 24-JUN-2014 16:06:35
Current_Time      = 24-JUN-2014 16:08:37

Comment           = single pulse decoupled gat
Data_Format       = 1D COMPLEX
Dim_Size          = 26214
Dim_Title         = Carbon13
Dim_Units         = [ppm]
Dimensions        = X
Site              = ECA600
Spectrometer      = DELTA2_NMR

Field_Strength    = 14.09636928[T] (600[MHz])
X_Acq_Duration    = 0.69206016[s]
X_Domain          = 13C
X_Freq            = 150.91343039[MHz]
X_Offset          = 100[ppm]
X_Points          = 32768
X_Prescans        = 4
X_Resolution      = 1.44496109[Hz]
X_Sweep           = 47.34848485[kHz]
X_Sweep_Clipped   = 37.87878788[kHz]
Irr_Domain        = Proton
Irr_Freq          = 600.1723046[MHz]
Irr_Offset        = 5[ppm]
Clipped           = TRUE
Scans             = 116.0
Total_Scans       = 116.0

Relaxation_Delay = 2[s]
Recvr_Gain        = 56
Temp_Get          = 22.1[dC]
X_90_Width        = 9.25[us]
X_Acq_Time        = 0.69206016[s]
X_Angle           = 30[deg]
X_Atn             = 8[dB]
X_Pulse           = 3.08333333[us]
Irr_Atn_Dec       = 19.327[dB]
Irr_Atn_Noe       = 19.327[dB]
Irr_Noise         = WALTZ
Irr_Pwidth        = 76[us]
Decoupling        = TRUE
Initial_Wait      = 1[s]
Noe               = TRUE
Noe_Time          = 2[s]
Repetition_Time   = 2.69206016[s]
```



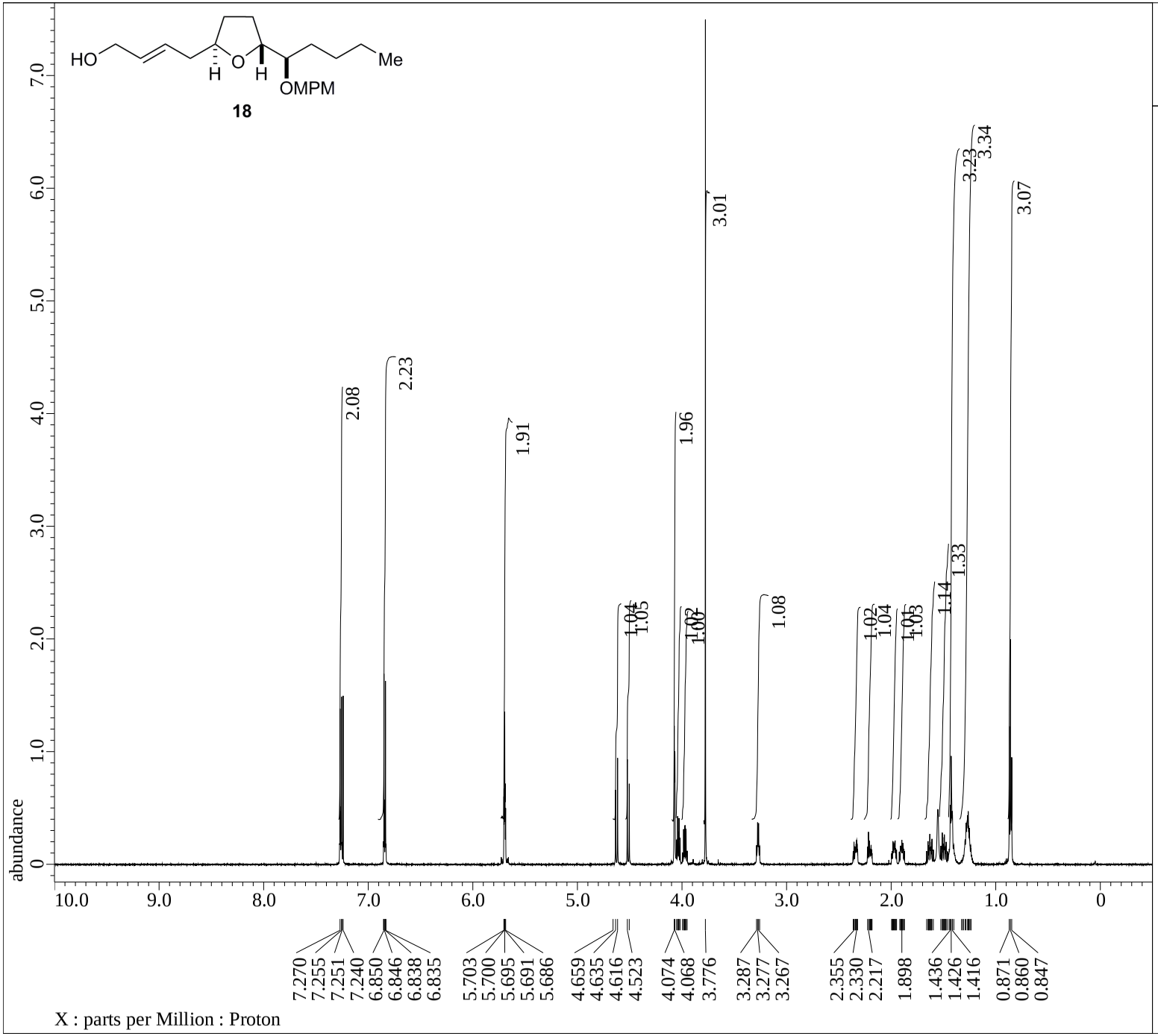

JEOL RESONANCE

| | |
|---|---|
| Filename | = /Users/skk_macbookpro/Desk |
| Author | = delta |
| Experiment | = proton.jxp |
| Sample_Id | = YK-II-130c |
| Solvent | = CHLOROFORM-D |
| Creation_Time | = 11-JUL-2013 14:17:35 |
| Revision_Time | = 24-JUN-2014 02:05:27 |
| Current_Time | = 24-JUN-2014 02:05:56 |
| Comment | = single_pulse |
| Data_Format | = 1D COMPLEX |
| Dim_Size | = 26214 |
| Dim_Title | = Proton |
| Dim_Units | = [ppm] |
| Dimensions | = X |
| Site | = ECA600 |
| Spectrometer | = DELTA2_NMR |
| Field_Strength | = 14.09636928[T] (600[MHz]) |
| X_Acq_Duration | = 2.18103808[s] |
| X_Domain | = 1H |
| X_Freq | = 600.1723046[MHz] |
| X_Offset | = 5[ppm] |
| X_Points | = 32768 |
| X_Prescans | = 1 |
| X_Resolution | = 0.45849727[Hz] |
| X_Sweep | = 15.02403846[kHz] |
| X_Sweep_Clipped | = 12.01923077[kHz] |
| Irr_Domain | = Proton |
| Irr_Freq | = 600.1723046[MHz] |
| Irr_Offset | = 5[ppm] |
| Tri_Domain | = Proton |
| Tri_Freq | = 600.1723046[MHz] |
| Tri_Offset | = 5[ppm] |
| Clipped | = FALSE |
| Scans | = 8 |
| Total_Scans | = 8 |
| Relaxation_Delay | = 2[s] |
| Recvr_Gain | = 40 |
| Temp_Get | = 21.8[dC] |
| X_90_Width | = 11.6[us] |
| X_Acq_Time | = 2.18103808[s] |
| X_Angle | = 45[deg] |
| X_Atn | = 3[dB] |
| X_Pulse | = 5.8[us] |
| Irr_Mode | = Off |
| Tri_Mode | = Off |
| Dante_Presat | = FALSE |
| Initial_Wait | = 1[s] |
| Repetition_Time | = 4.18103808[s] |



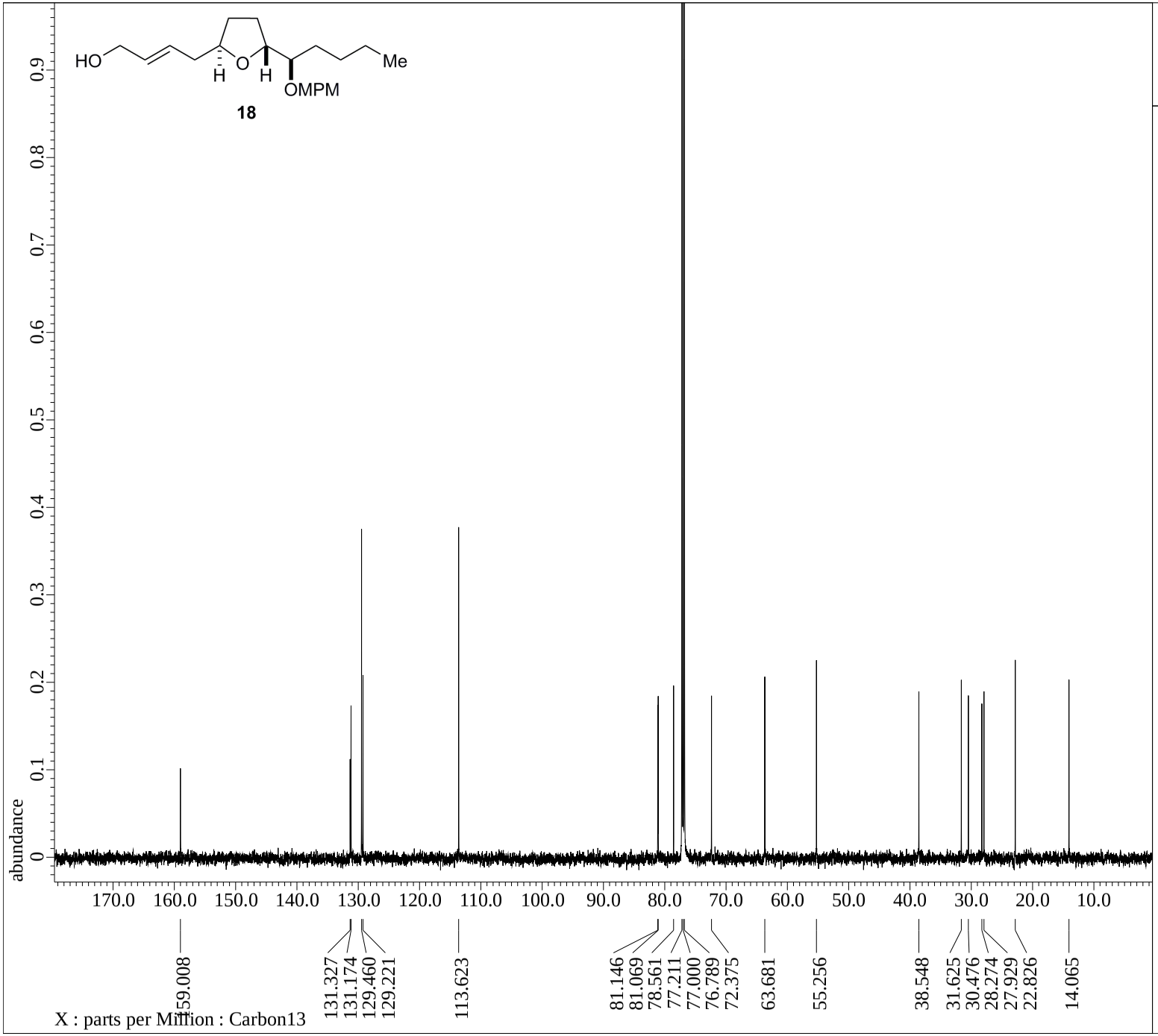

JEOL RESONANCE

```
Filename          = /Users/skk_macbookpro/Desk
Author            = delta
Experiment        = carbon.jxp
Sample_Id         = YK-II-130c
Solvent           = CHLOROFORM-D
Creation_Time     = 11-JUL-2013 18:41:21
Revision_Time     = 24-JUN-2014 02:06:33
Current_Time      = 24-JUN-2014 02:07:27

Comment           = single pulse decoupled gat
Data_Format       = 1D COMPLEX
Dim_Size          = 26214
Dim_Title         = Carbon13
Dim_Units         = [ppm]
Dimensions        = X
Site              = ECA600
Spectrometer      = DELTA2_NMR

Field_Strength    = 14.09636928[T] (600[MHz])
X_Acq_Duration    = 0.69206016[s]
X_Domain          = 13C
X_Freq            = 150.91343039[MHz]
X_Offset          = 100[ppm]
X_Points          = 32768
X_Prescans        = 4
X_Resolution      = 1.44496109[Hz]
X_Sweep           = 47.34848485[kHz]
X_Sweep_Clipped   = 37.87878788[kHz]
Irr_Domain        = Proton
Irr_Freq          = 600.1723046[MHz]
Irr_Offset        = 5[ppm]
Clipped           = TRUE
Scans             = 96
Total_Scans       = 96

Relaxation_Delay  = 2[s]
Recvr_Gain        = 54
Temp_Get          = 22.5[dC]
X_90_Width        = 9.25[us]
X_Acq_Time        = 0.69206016[s]
X_Angle           = 30[deg]
X_Atn             = 8[dB]
X_Pulse           = 3.08333333[us]
Irr_Atn_Dec       = 19.327[dB]
Irr_Atn_Noe       = 19.327[dB]
Irr_Noise         = WALTZ
Irr_Pwidth        = 76[us]
Decoupling        = TRUE
Initial_Wait      = 1[s]
Noe               = TRUE
Noe_Time          = 2[s]
Repetition_Time   = 2.69206016[s]
```



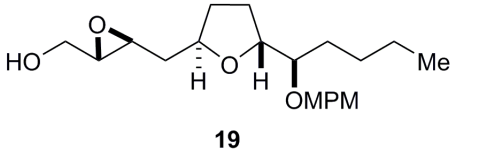

JEOL RESONANCE

```
Filename          = /Users/skk_macbookpro/Desk
Author            = delta
Experiment        = proton.jxp
Sample_Id         = YK-II-151
Solvent           = CHLOROFORM-D
Creation_Time     =  8-AUG-2013 14:22:38
Revision_Time     = 24-JUN-2014 02:14:50
Current_Time      = 24-JUN-2014 02:15:01

Comment           = single_pulse
Data_Format       = 1D COMPLEX
Dim_Size          = 26214
Dim_Title         = Proton
Dim_Units         = [ppm]
Dimensions        = X
Site              = ECA600
Spectrometer      = DELTA2_NMR

Field_Strength    = 14.09636928[T] (600[MHz])
X_Acq_Duration    = 2.18103808[s]
X_Domain          = 1H
X_Freq            = 600.1723046[MHz]
X_Offset          = 5[ppm]
X_Points          = 32768
X_Prescans        = 1
X_Resolution      = 0.45849727[Hz]
X_Sweep           = 15.02403846[kHz]
X_Sweep_Clipped   = 12.01923077[kHz]
Irr_Domain        = Proton
Irr_Freq          = 600.1723046[MHz]
Irr_Offset        = 5[ppm]
Tri_Domain        = Proton
Tri_Freq          = 600.1723046[MHz]
Tri_Offset        = 5[ppm]
Clipped           = FALSE
Scans             = 8
Total_Scans       = 8

Relaxation_Delay  = 2[s]
Recvr_Gain        = 58
Temp_Get          = 22.2[dC]
X_90_Width        = 11.6[us]
X_Acq_Time        = 2.18103808[s]
X_Angle           = 45[deg]
X_Atn             = 3[dB]
X_Pulse           = 5.8[us]
Irr_Mode          = Off
Tri_Mode          = Off
Dante_Presat      = FALSE
Initial_Wait      = 1[s]
Repetition_Time   = 4.18103808[s]
```




JEOL RESONANCE

```
Filename          = /Users/skk_macbookpro/Desk
Author            = delta
Experiment        = carbon.jxp
Sample_Id         = YK-II-151
Solvent           = CHLOROFORM-D
Creation_Time     = 24-JUN-2014 10:44:36
Revision_Time     = 24-JUN-2014 14:14:46
Current_Time      = 24-JUN-2014 14:15:13

Comment           = single pulse decoupled gat
Data_Format       = 1D COMPLEX
Dim_Size          = 26214
Dim_Title         = Carbon13
Dim_Units         = [ppm]
Dimensions        = X
Site              = ECA600
Spectrometer      = DELTA2_NMR

Field_Strength    = 14.09636928[T] (600[MHz])
X_Acq_Duration    = 0.69206016[s]
X_Domain          = 13C
X_Freq            = 150.91343039[MHz]
X_Offset          = 100[ppm]
X_Points          = 32768
X_Prescans        = 4
X_Resolution      = 1.44496109[Hz]
X_Sweep           = 47.34848485[kHz]
X_Sweep_Clipped   = 37.87878788[kHz]
Irr_Domain        = Proton
Irr_Freq          = 600.1723046[MHz]
Irr_Offset        = 5[ppm]
Clipped           = TRUE
Scans             = 424
Total_Scans       = 424

Relaxation_Delay  = 2[s]
Recvr_Gain        = 54
Temp_Get          = 22.4[dC]
X_90_Width        = 10.5[us]
X_Acq_Time        = 0.69206016[s]
X_Angle           = 30[deg]
X_Atn             = 7.4[dB]
X_Pulse           = 3.5[us]
Irr_Atn_Dec       = 24.452[dB]
Irr_Atn_Noe       = 24.452[dB]
Irr_Noise         = WALTZ
Irr_Pwidth        = 76[us]
Decoupling        = TRUE
Initial_Wait      = 1[s]
Noe               = TRUE
Noe_Time          = 2[s]
Repetition_Time   = 2.69206016[s]
```

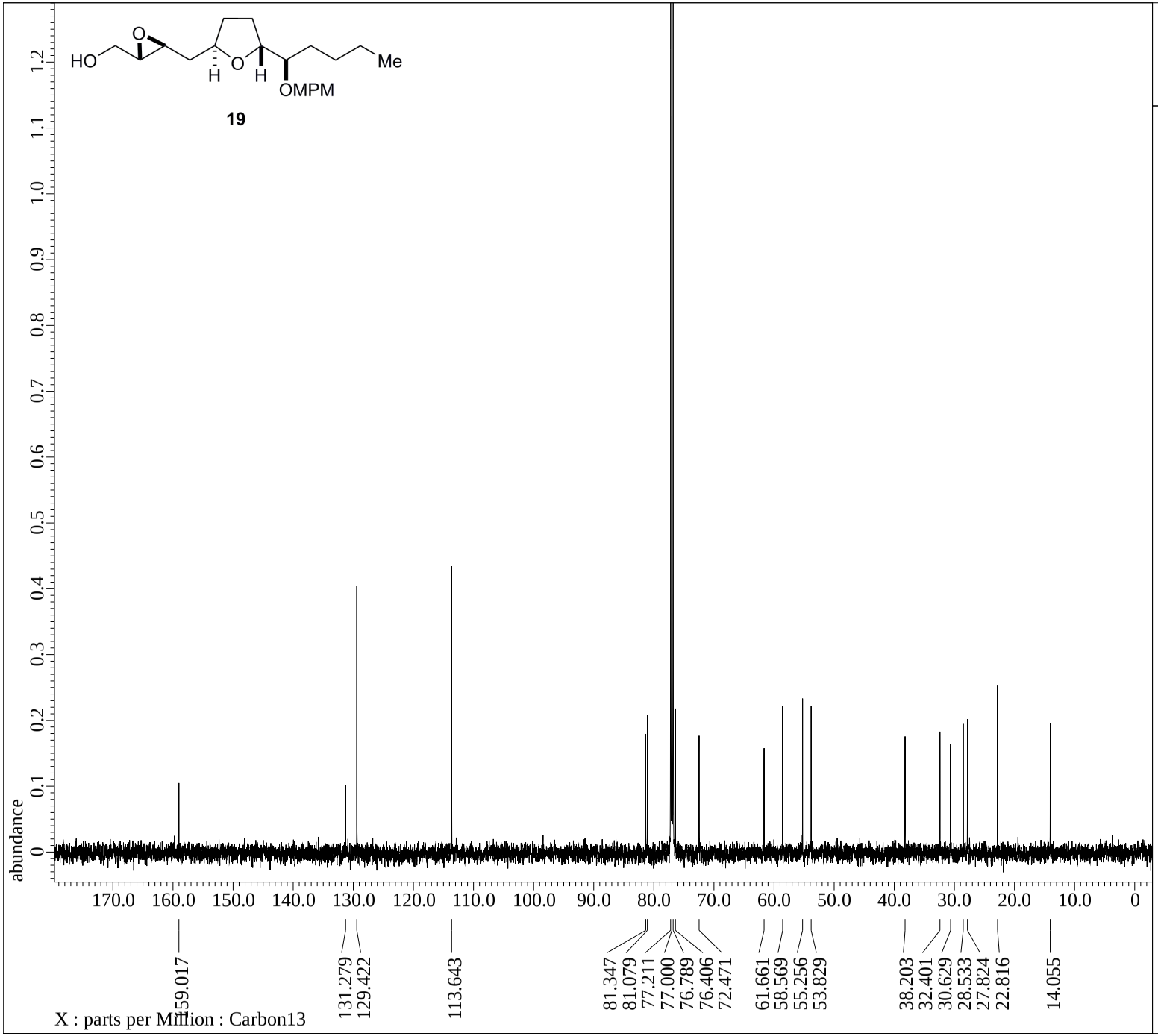



**19**



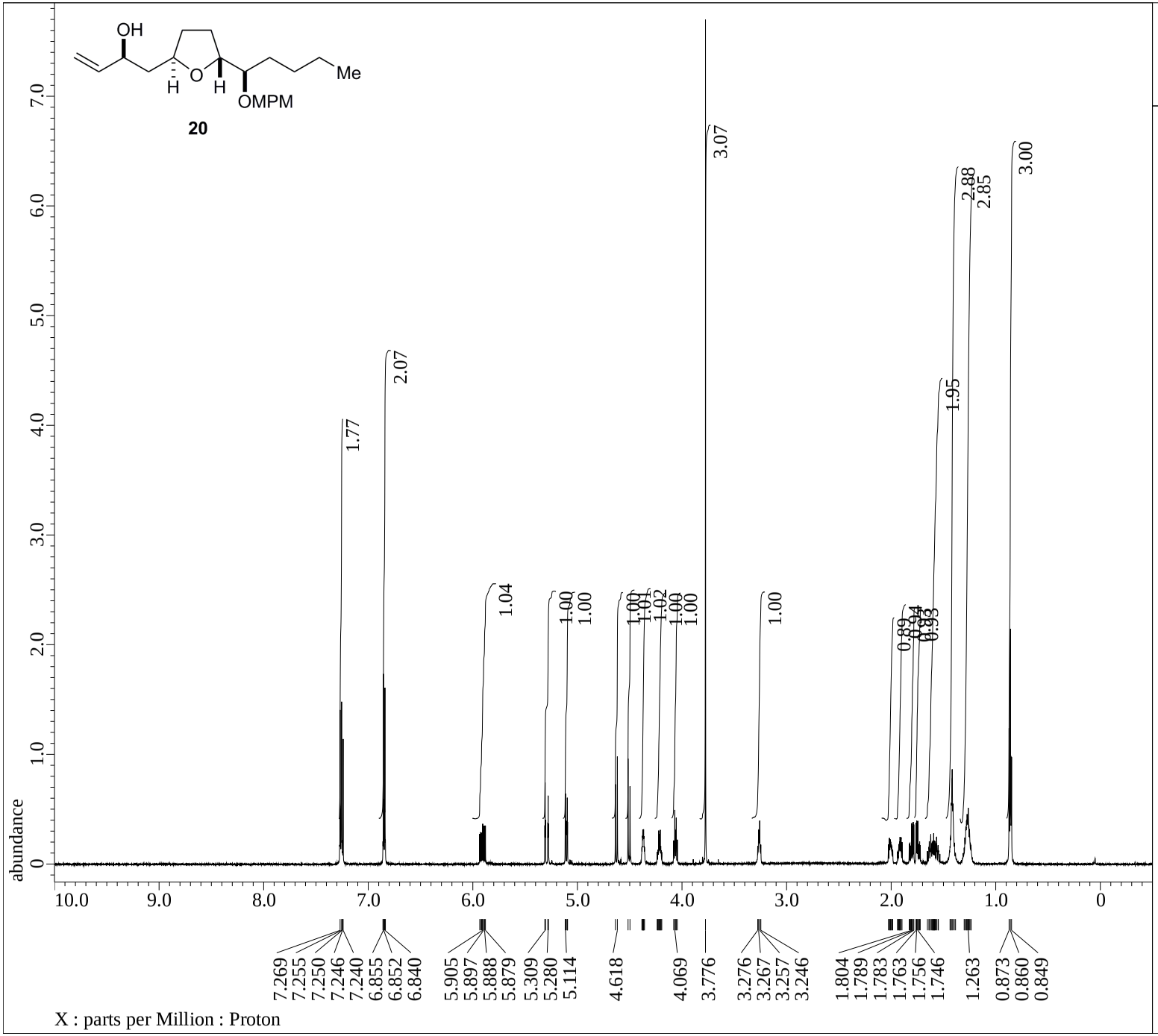

JEOL RESONANCE

| | |
|---|---|
| Filename | = /Users/skk_macbookpro/Desk |
| Author | = delta |
| Experiment | = proton.jxp |
| Sample_Id | = YK-II-158 |
| Solvent | = CHLOROFORM-D |
| Creation_Time | = 22-AUG-2013 13:14:26 |
| Revision_Time | = 24-JUN-2014 02:40:47 |
| Current_Time | = 24-JUN-2014 02:41:21 |
| Comment | = single_pulse |
| Data_Format | = 1D COMPLEX |
| Dim_Size | = 26214 |
| Dim_Title | = Proton |
| Dim_Units | = [ppm] |
| Dimensions | = X |
| Site | = ECA600 |
| Spectrometer | = DELTA2_NMR |
| Field_Strength | = 14.09636928[T] (600[MHz]) |
| X_Acq_Duration | = 2.18103808[s] |
| X_Domain | = 1H |
| X_Freq | = 600.1723046[MHz] |
| X_Offset | = 5[ppm] |
| X_Points | = 32768 |
| X_Prescans | = 1 |
| X_Resolution | = 0.45849727[Hz] |
| X_Sweep | = 15.02403846[kHz] |
| X_Sweep_Clipped | = 12.01923077[kHz] |
| Irr_Domain | = Proton |
| Irr_Freq | = 600.1723046[MHz] |
| Irr_Offset | = 5[ppm] |
| Tri_Domain | = Proton |
| Tri_Freq | = 600.1723046[MHz] |
| Tri_Offset | = 5[ppm] |
| Clipped | = FALSE |
| Scans | = 8 |
| Total_Scans | = 8 |
| Relaxation_Delay | = 2[s] |
| Recvr_Gain | = 36 |
| Temp_Get | = 21.8[dC] |
| X_90_Width | = 11.6[us] |
| X_Acq_Time | = 2.18103808[s] |
| X_Angle | = 45[deg] |
| X_Atn | = 3[dB] |
| X_Pulse | = 5.8[us] |
| Irr_Mode | = Off |
| Tri_Mode | = Off |
| Dante_Presat | = FALSE |
| Initial_Wait | = 1[s] |
| Repetition_Time | = 4.18103808[s] |



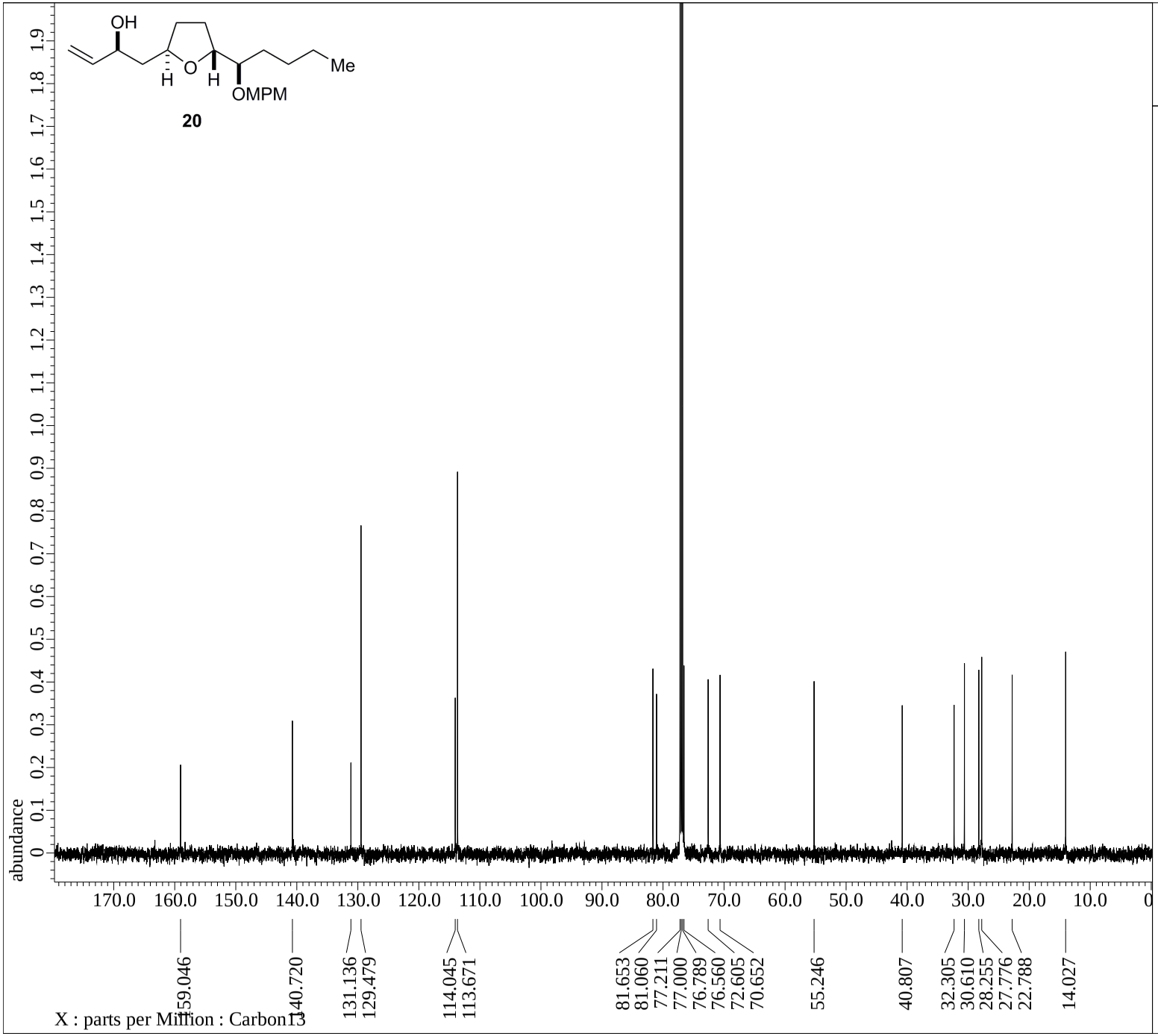

JEOL RESONANCE

```
Filename          = /Users/skk_macbookpro/Desk
Author            = delta
Experiment        = carbon.jxp
Sample_Id         = YK-II-158
Solvent           = CHLOROFORM-D
Creation_Time     = 23-JUN-2014 14:37:44
Revision_Time     = 24-JUN-2014 02:45:27
Current_Time      = 24-JUN-2014 02:46:06

Comment           = single pulse decoupled gat
Data_Format       = 1D COMPLEX
Dim_Size          = 26214
Dim_Title         = Carbon13
Dim_Units         = [ppm]
Dimensions        = X
Site              = ECA600
Spectrometer      = DELTA2_NMR

Field_Strength    = 14.09636928[T] (600[MHz])
X_Acq_Duration    = 0.69206016[s]
X_Domain          = 13C
X_Freq            = 150.91343039[MHz]
X_Offset          = 100[ppm]
X_Points          = 32768
X_Prescans        = 4
X_Resolution      = 1.44496109[Hz]
X_Sweep           = 47.34848485[kHz]
X_Sweep_Clipped   = 37.87878788[kHz]
Irr_Domain        = Proton
Irr_Freq          = 600.1723046[MHz]
Irr_Offset        = 5[ppm]
Clipped           = TRUE
Scans             = 160
Total_Scans       = 160

Relaxation_Delay  = 2[s]
Recvr_Gain        = 56
Temp_Get          = 22.5[dC]
X_90_Width        = 10.5[us]
X_Acq_Time        = 0.69206016[s]
X_Angle           = 30[deg]
X_Atn             = 7.4[dB]
X_Pulse           = 3.5[us]
Irr_Atn_Dec       = 24.452[dB]
Irr_Atn_Noe       = 24.452[dB]
Irr_Noise         = WALTZ
Irr_Pwidth        = 76[us]
Decoupling        = TRUE
Initial_Wait      = 1[s]
Noe               = TRUE
Noe_Time          = 2[s]
Repetition_Time   = 2.69206016[s]
```



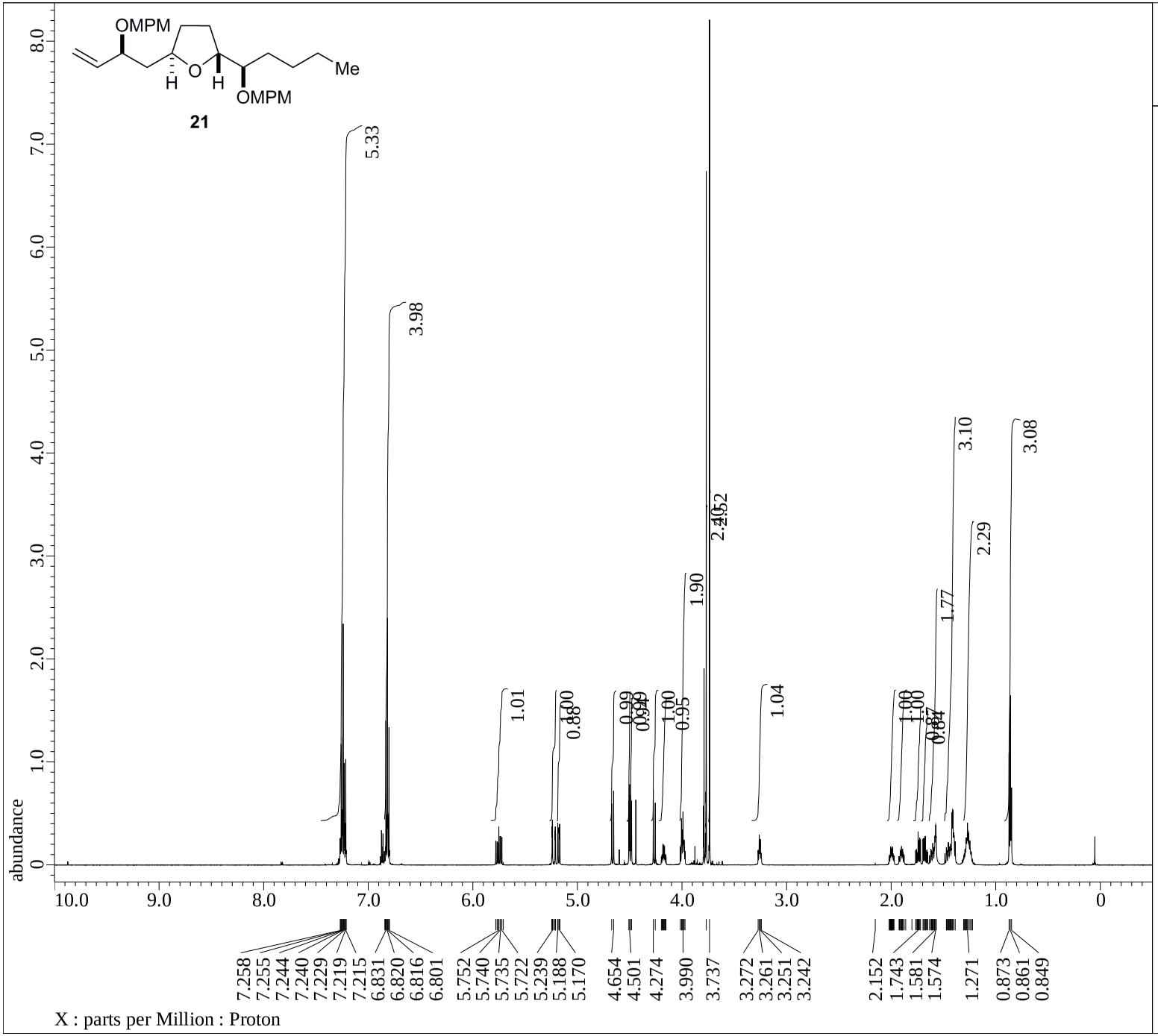

JEOL RESONANCE

| | |
|---|---|
| Filename | = /Users/skk_macbookpro/Desk |
| Author | = delta |
| Experiment | = proton.jxp |
| Sample_Id | = YK-II-154 |
| Solvent | = CHLOROFORM-D |
| Creation_Time | = 20-AUG-2013 18:15:07 |
| Revision_Time | = 24-JUN-2014 02:51:37 |
| Current_Time | = 24-JUN-2014 02:53:43 |
| Comment | = single_pulse |
| Data_Format | = 1D COMPLEX |
| Dim_Size | = 26214 |
| Dim_Title | = Proton |
| Dim_Units | = [ppm] |
| Dimensions | = X |
| Site | = ECA600 |
| Spectrometer | = DELTA2_NMR |
| Field_Strength | = 14.09636928[T] (600[MHz]) |
| X_Acq_Duration | = 2.18103808[s] |
| X_Domain | = 1H |
| X_Freq | = 600.1723046[MHz] |
| X_Offset | = 5[ppm] |
| X_Points | = 32768 |
| X_Prescans | = 1 |
| X_Resolution | = 0.45849727[Hz] |
| X_Sweep | = 15.02403846[kHz] |
| X_Sweep_Clipped | = 12.01923077[kHz] |
| Irr_Domain | = Proton |
| Irr_Freq | = 600.1723046[MHz] |
| Irr_Offset | = 5[ppm] |
| Tri_Domain | = Proton |
| Tri_Freq | = 600.1723046[MHz] |
| Tri_Offset | = 5[ppm] |
| Clipped | = FALSE |
| Scans | = 8 |
| Total_Scans | = 8 |
| Relaxation_Delay | = 2[s] |
| Recvr_Gain | = 60 |
| Temp_Get | = 21.8[dC] |
| X_90_Width | = 11.6[us] |
| X_Acq_Time | = 2.18103808[s] |
| X_Angle | = 45[deg] |
| X_Atn | = 3[dB] |
| X_Pulse | = 5.8[us] |
| Irr_Mode | = Off |
| Tri_Mode | = Off |
| Dante_Presat | = FALSE |
| Initial_Wait | = 1[s] |
| Repetition_Time | = 4.18103808[s] |



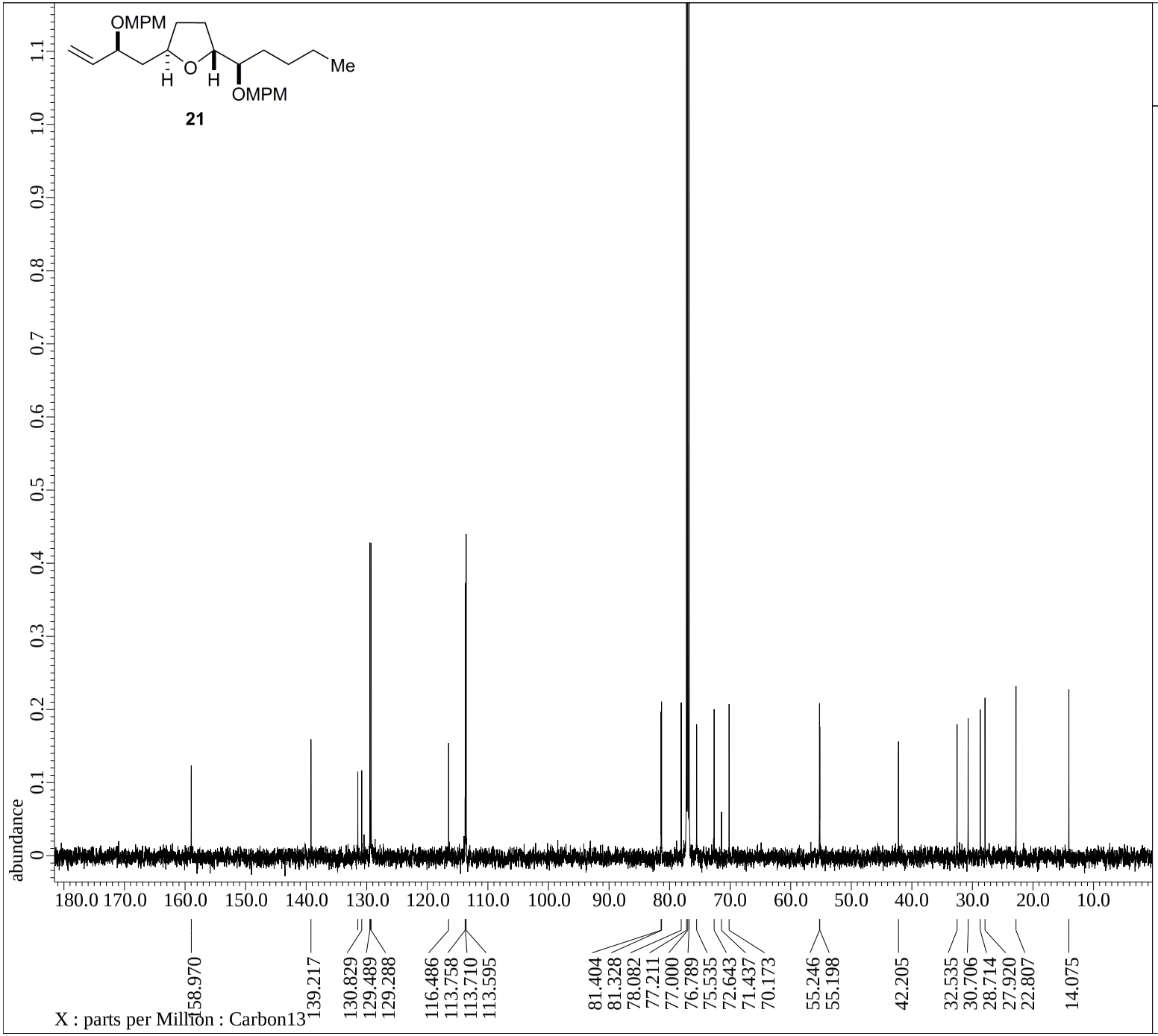

JEOL RESONANCE

```
Filename          = /Users/skk_macbookpro/Desk
Author            = delta
Experiment        = carbon.jxp
Sample_Id         = YK-II-154
Solvent           = CHLOROFORM-D
Creation_Time     = 20-AUG-2013 18:18:18
Revision_Time     = 24-JUN-2014 02:54:20
Current_Time      = 24-JUN-2014 02:54:54

Comment           = single pulse decoupled gat
Data_Format       = 1D COMPLEX
Dim_Size          = 26214
Dim_Title         = Carbon13
Dim_Units         = [ppm]
Dimensions        = X
Site              = ECA600
Spectrometer      = DELTA2_NMR

Field_Strength    = 14.09636928[T] (600[MHz])
X_Acq_Duration    = 0.69206016[s]
X_Domain          = 13C
X_Freq            = 150.91343039[MHz]
X_Offset          = 100[ppm]
X_Points          = 32768
X_Prescans        = 4
X_Resolution      = 1.44496109[Hz]
X_Sweep           = 47.34848485[kHz]
X_Sweep_Clipped   = 37.87878788[kHz]
Irr_Domain        = Proton
Irr_Freq          = 600.1723046[MHz]
Irr_Offset        = 5[ppm]
Clipped           = TRUE
Scans             = 128
Total_Scans       = 128

Relaxation_Delay  = 2[s]
Recvr_Gain        = 56
Temp_Get          = 22.4[dC]
X_90_Width        = 9.25[us]
X_Acq_Time        = 0.69206016[s]
X_Angle           = 30[deg]
X_Atn             = 8[dB]
X_Pulse           = 3.08333333[us]
Irr_Atn_Dec       = 19.327[dB]
Irr_Atn_Noe       = 19.327[dB]
Irr_Noise         = WALTZ
Irr_Pwidth        = 76[us]
Decoupling        = TRUE
Initial_Wait      = 1[s]
Noe               = TRUE
Noe_Time          = 2[s]
Repetition_Time   = 2.69206016[s]
```



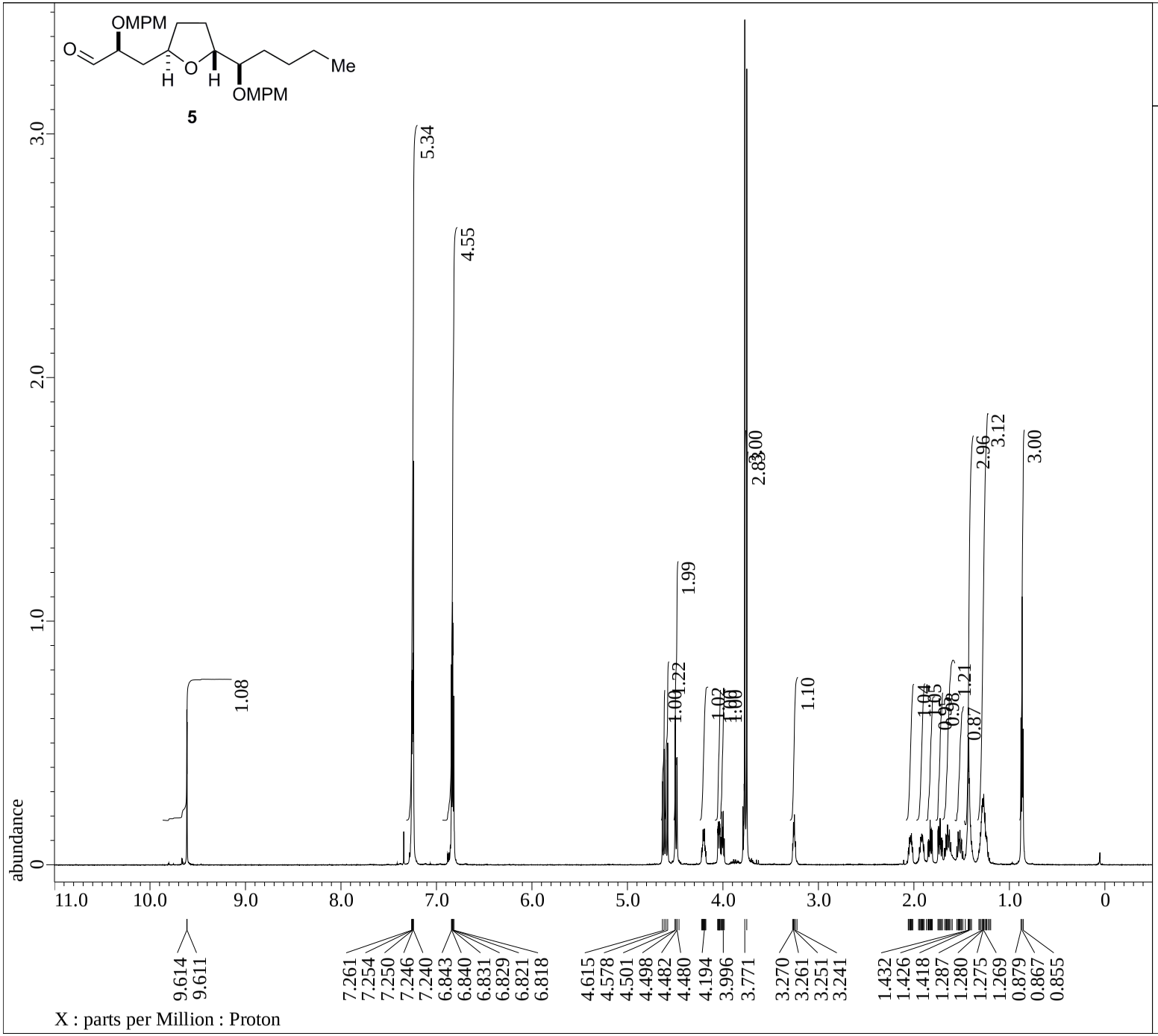

JEOL RESONANCE

| | |
|---|---|
| Filename | = /Users/skk_macbookpro/Desk |
| Author | = delta |
| Experiment | = proton.jxp |
| Sample_Id | = YK-II-161 |
| Solvent | = CHLOROFORM-D |
| Creation_Time | = 23-AUG-2013 14:56:39 |
| Revision_Time | = 24-JUN-2014 03:10:24 |
| Current_Time | = 24-JUN-2014 03:10:50 |
| Comment | = single_pulse |
| Data_Format | = 1D COMPLEX |
| Dim_Size | = 26214 |
| Dim_Title | = Proton |
| Dim_Units | = [ppm] |
| Dimensions | = X |
| Site | = ECA600 |
| Spectrometer | = DELTA2_NMR |
| Field_Strength | = 14.09636928[T] (600[MHz]) |
| X_Acq_Duration | = 2.18103808[s] |
| X_Domain | = 1H |
| X_Freq | = 600.1723046[MHz] |
| X_Offset | = 5[ppm] |
| X_Points | = 32768 |
| X_Prescans | = 1 |
| X_Resolution | = 0.45849727[Hz] |
| X_Sweep | = 15.02403846[kHz] |
| X_Sweep_Clipped | = 12.01923077[kHz] |
| Irr_Domain | = Proton |
| Irr_Freq | = 600.1723046[MHz] |
| Irr_Offset | = 5[ppm] |
| Tri_Domain | = Proton |
| Tri_Freq | = 600.1723046[MHz] |
| Tri_Offset | = 5[ppm] |
| Clipped | = FALSE |
| Scans | = 8 |
| Total_Scans | = 8 |
| Relaxation_Delay | = 2[s] |
| Recvr_Gain | = 40 |
| Temp_Get | = 22.2[dC] |
| X_90_Width | = 11.6[us] |
| X_Acq_Time | = 2.18103808[s] |
| X_Angle | = 45[deg] |
| X_Atn | = 3[dB] |
| X_Pulse | = 5.8[us] |
| Irr_Mode | = Off |
| Tri_Mode | = Off |
| Dante_Presat | = FALSE |
| Initial_Wait | = 1[s] |
| Repetition_Time | = 4.18103808[s] |



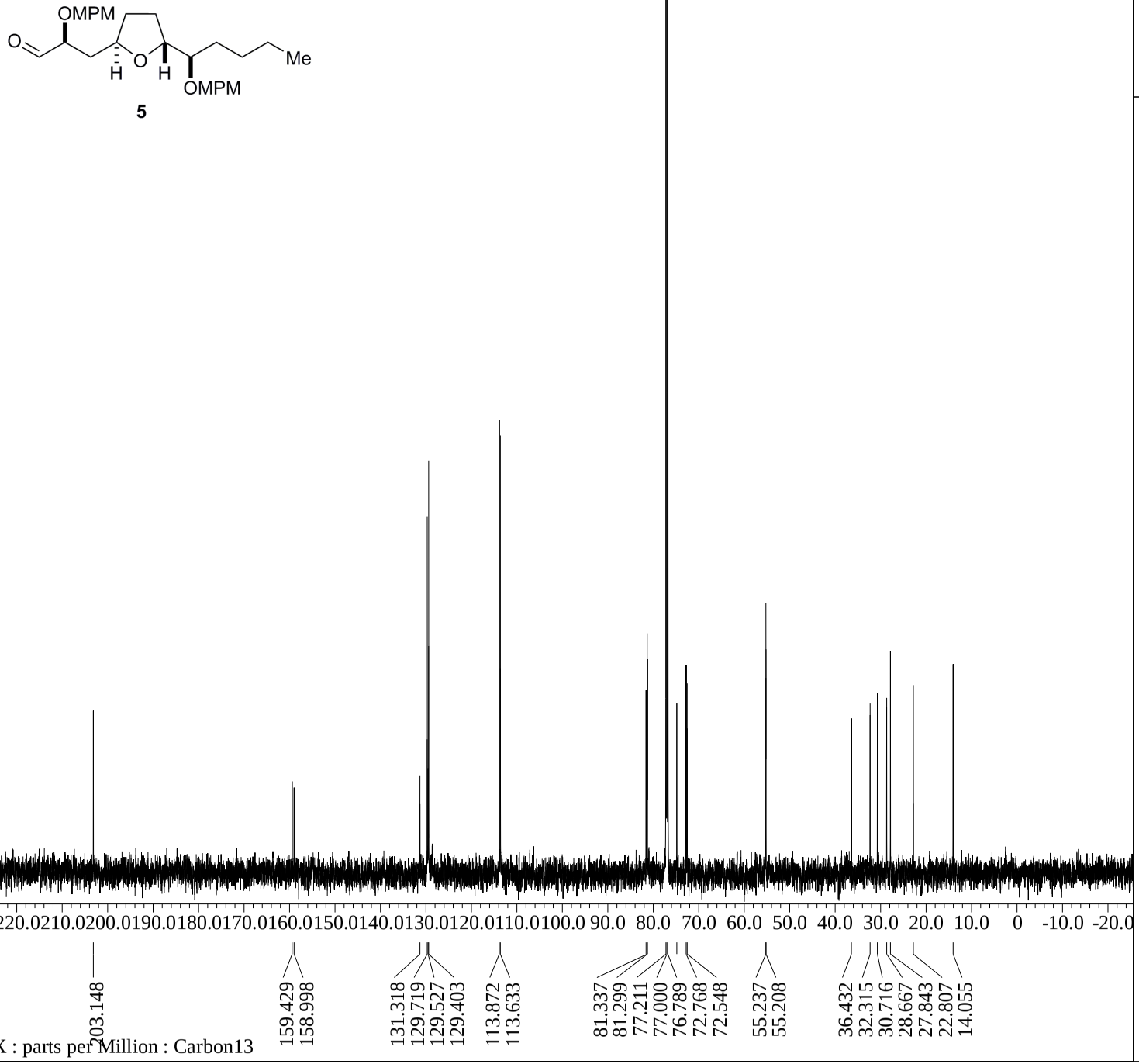

JEOL RESONANCE

| | |
|---|---|
| Filename | = /Users/skk_macbookpro/Desk |
| Author | = delta |
| Experiment | = carbon.jxp |
| Sample_Id | = YK-II-161 |
| Solvent | = CHLOROFORM-D |
| Creation_Time | = 23-AUG-2013 14:59:52 |
| Revision_Time | = 24-JUN-2014 03:11:44 |
| Current_Time | = 24-JUN-2014 03:12:13 |
| Comment | = single pulse decoupled gat |
| Data_Format | = 1D COMPLEX |
| Dim_Size | = 26214 |
| Dim_Title | = Carbon13 |
| Dim_Units | = [ppm] |
| Dimensions | = X |
| Site | = ECA600 |
| Spectrometer | = DELTA2_NMR |
| Field_Strength | = 14.09636928[T] (600[MHz]) |
| X_Acq_Duration | = 0.69206016[s] |
| X_Domain | = 13C |
| X_Freq | = 150.91343039[MHz] |
| X_Offset | = 100[ppm] |
| X_Points | = 32768 |
| X_Prescans | = 4 |
| X_Resolution | = 1.44496109[Hz] |
| X_Sweep | = 47.34848485[kHz] |
| X_Sweep_Clipped | = 37.87878788[kHz] |
| Irr_Domain | = Proton |
| Irr_Freq | = 600.1723046[MHz] |
| Irr_Offset | = 5[ppm] |
| Clipped | = TRUE |
| Scans | = 225 |
| Total_Scans | = 225 |
| Relaxation_Delay | = 2[s] |
| Recvr_Gain | = 56 |
| Temp_Get | = 22.5[dC] |
| X_90_Width | = 9.25[us] |
| X_Acq_Time | = 0.69206016[s] |
| X_Angle | = 30[deg] |
| X_Atn | = 8[dB] |
| X_Pulse | = 3.08333333[us] |
| Irr_Atn_Dec | = 19.327[dB] |
| Irr_Atn_Noe | = 19.327[dB] |
| Irr_Noise | = WALTZ |
| Irr_Pwidth | = 76[us] |
| Decoupling | = TRUE |
| Initial_Wait | = 1[s] |
| Noe | = TRUE |
| Noe_Time | = 2[s] |
| Repetition_Time | = 2.69206016[s] |



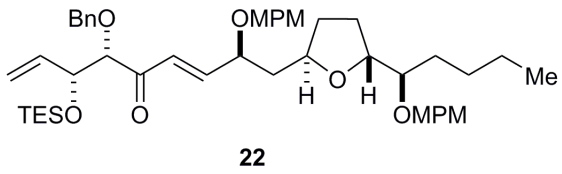

JEOL RESONANCE

| | |
|---|---|
| Filename | = /Users/skk_macbookpro/Desk |
| Author | = delta |
| Experiment | = proton.jxp |
| Sample_Id | = YK-III-021 |
| Solvent | = CHLOROFORM-D |
| Creation_Time | = 21-OCT-2013 14:12:20 |
| Revision_Time | = 23-JUN-2014 23:49:02 |
| Current_Time | = 23-JUN-2014 23:49:51 |
| Comment | = single_pulse |
| Data_Format | = 1D COMPLEX |
| Dim_Size | = 26214 |
| Dim_Title | = Proton |
| Dim_Units | = [ppm] |
| Dimensions | = X |
| Site | = ECA600 |
| Spectrometer | = DELTA2_NMR |
| Field_Strength | = 14.09636928[T] (600[MHz]) |
| X_Acq_Duration | = 2.18103808[s] |
| X_Domain | = 1H |
| X_Freq | = 600.1723046[MHz] |
| X_Offset | = 5[ppm] |
| X_Points | = 32768 |
| X_Prescans | = 1 |
| X_Resolution | = 0.45849727[Hz] |
| X_Sweep | = 15.02403846[kHz] |
| X_Sweep_Clipped | = 12.01923077[kHz] |
| Irr_Domain | = Proton |
| Irr_Freq | = 600.1723046[MHz] |
| Irr_Offset | = 5[ppm] |
| Tri_Domain | = Proton |
| Tri_Freq | = 600.1723046[MHz] |
| Tri_Offset | = 5[ppm] |
| Clipped | = FALSE |
| Scans | = 8 |
| Total_Scans | = 8 |
| Relaxation_Delay | = 2[s] |
| Recvr_Gain | = 36 |
| Temp_Get | = 21.1[dC] |
| X_90_Width | = 14.3[us] |
| X_Acq_Time | = 2.18103808[s] |
| X_Angle | = 45[deg] |
| X_Atn | = 4[dB] |
| X_Pulse | = 7.15[us] |
| Irr_Mode | = Off |
| Tri_Mode | = Off |
| Dante_Presat | = FALSE |
| Initial_Wait | = 1[s] |
| Repetition_Time | = 4.18103808[s] |




JEOL RESONANCE

```
Filename          = /Users/skk_macbookpro/Desk
Author            = delta
Experiment        = carbon.jxp
Sample_Id         = YK-III-021
Solvent           = CHLOROFORM-D
Creation_Time     = 21-OCT-2013 14:15:03
Revision_Time     = 24-JUN-2014 09:46:50
Current_Time      = 24-JUN-2014 09:47:19

Comment           = single pulse decoupled gat
Data_Format       = 1D COMPLEX
Dim_Size          = 26214
Dim_Title         = Carbon13
Dim_Units         = [ppm]
Dimensions        = X
Site              = ECA600
Spectrometer      = DELTA2_NMR

Field_Strength    = 14.09636928[T] (600[MHz])
X_Acq_Duration    = 0.69206016[s]
X_Domain          = 13C
X_Freq            = 150.91343039[MHz]
X_Offset          = 100[ppm]
X_Points          = 32768
X_Prescans        = 4
X_Resolution      = 1.44496109[Hz]
X_Sweep           = 47.34848485[kHz]
X_Sweep_Clipped   = 37.87878788[kHz]
Irr_Domain        = Proton
Irr_Freq          = 600.1723046[MHz]
Irr_Offset        = 5[ppm]
Clipped           = TRUE
Scans             = 160
Total_Scans       = 160

Relaxation_Delay  = 2[s]
Recvr_Gain        = 56
Temp_Get          = 22.3[dC]
X_90_Width        = 10[us]
X_Acq_Time        = 0.69206016[s]
X_Angle           = 30[deg]
X_Atn             = 8[dB]
X_Pulse           = 3.33333333[us]
Irr_Atn_Dec       = 18.24[dB]
Irr_Atn_Noe       = 18.24[dB]
Irr_Noise         = WALTZ
Irr_Pwidth        = 76[us]
Decoupling        = TRUE
Initial_Wait      = 1[s]
Noe               = TRUE
Noe_Time          = 2[s]
Repetition_Time   = 2.69206016[s]
```



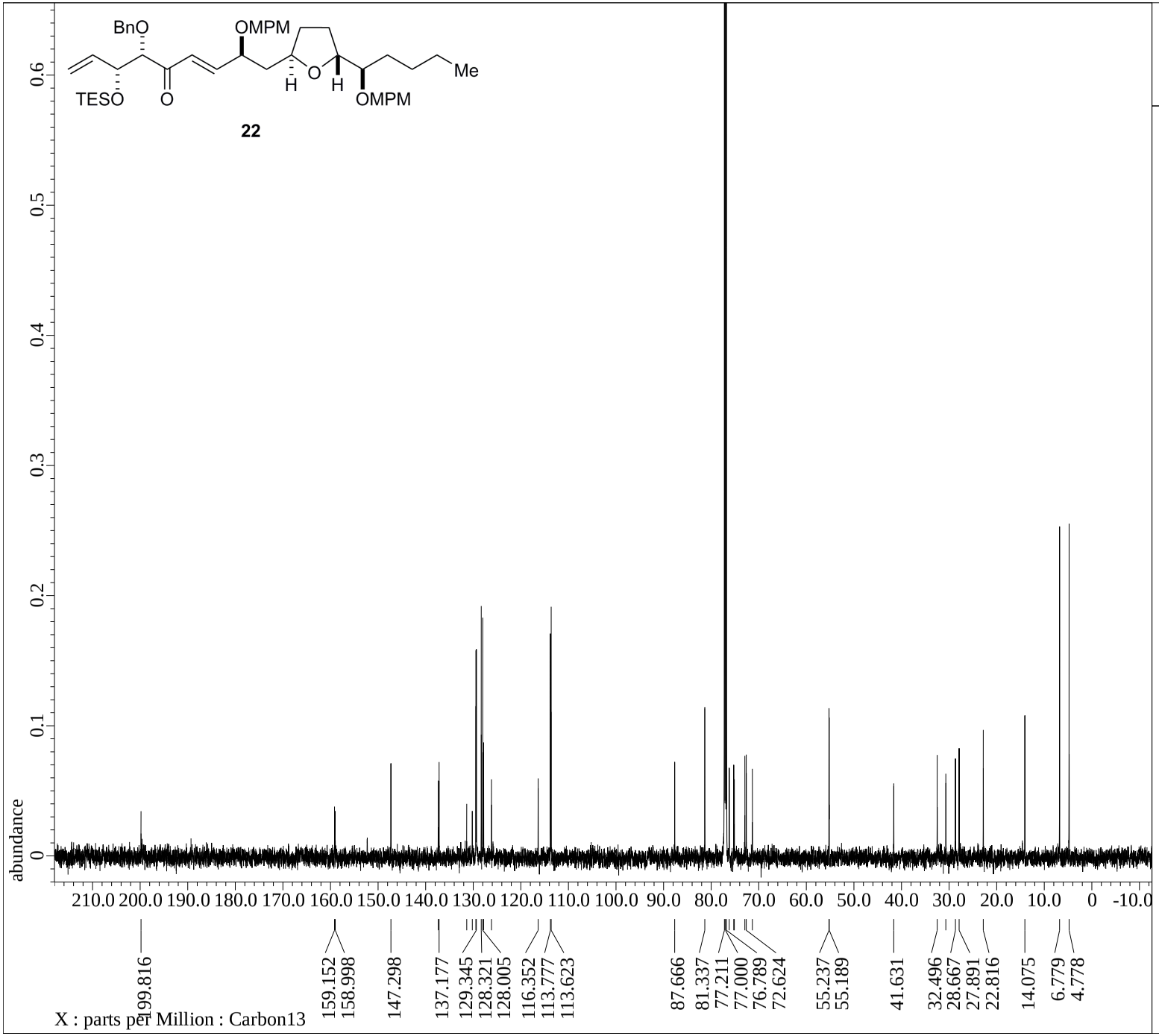

**22**




X : parts per Million : Proton

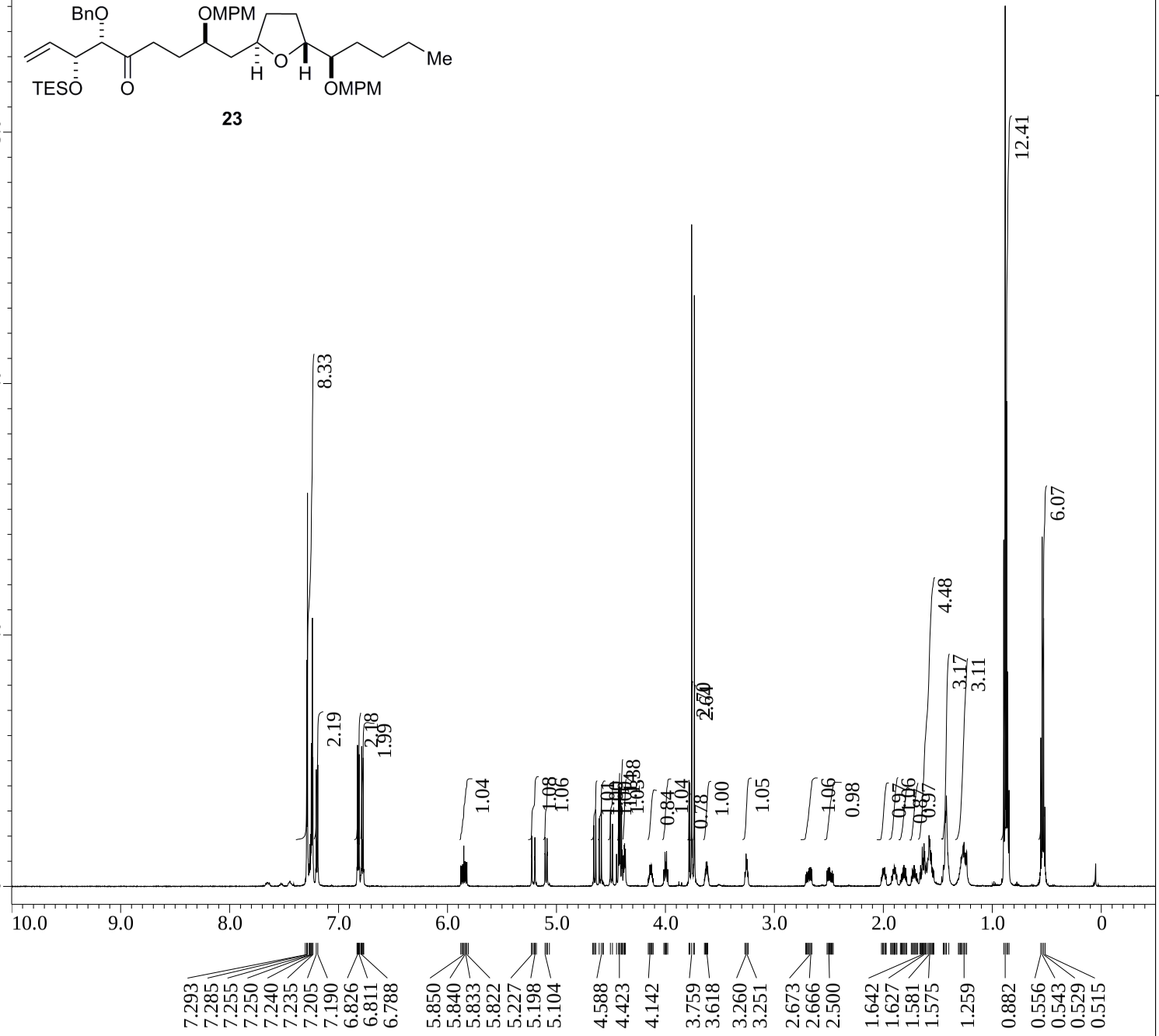
JEOL RESONANCE

```
Filename          = /Users/skk_macbookpro/Desk
Author            = delta
Experiment        = proton.jxp
Sample_Id         = YK-III-023
Solvent           = CHLOROFORM-D
Creation_Time     = 23-OCT-2013 13:19:25
Revision_Time     = 24-JUN-2014 03:39:13
Current_Time      = 24-JUN-2014 03:39:40

Comment           = single_pulse
Data_Format       = 1D COMPLEX
Dim_Size          = 26214
Dim_Title         = Proton
Dim_Units         = [ppm]
Dimensions        = X
Site              = ECA600
Spectrometer      = DELTA2_NMR

Field_Strength    = 14.09636928[T] (600[MHz])
X_Acq_Duration    = 2.18103808[s]
X_Domain          = 1H
X_Freq            = 600.1723046[MHz]
X_Offset          = 5[ppm]
X_Points          = 32768
X_Prescans        = 1
X_Resolution      = 0.45849727[Hz]
X_Sweep           = 15.02403846[kHz]
X_Sweep_Clipped   = 12.01923077[kHz]
Irr_Domain        = Proton
Irr_Freq          = 600.1723046[MHz]
Irr_Offset        = 5[ppm]
Tri_Domain        = Proton
Tri_Freq          = 600.1723046[MHz]
Tri_Offset        = 5[ppm]
Clipped           = FALSE
Scans             = 8
Total_Scans       = 8

Relaxation_Delay  = 2[s]
Recvr_Gain        = 36
Temp_Get          = 21[dC]
X_90_Width        = 14.3[us]
X_Acq_Time        = 2.18103808[s]
X_Angle           = 45[deg]
X_Atn             = 4[dB]
X_Pulse           = 7.15[us]
Irr_Mode          = Off
Tri_Mode          = Off
Dante_Presat      = FALSE
Initial_Wait      = 1[s]
Repetition_Time   = 4.18103808[s]
```



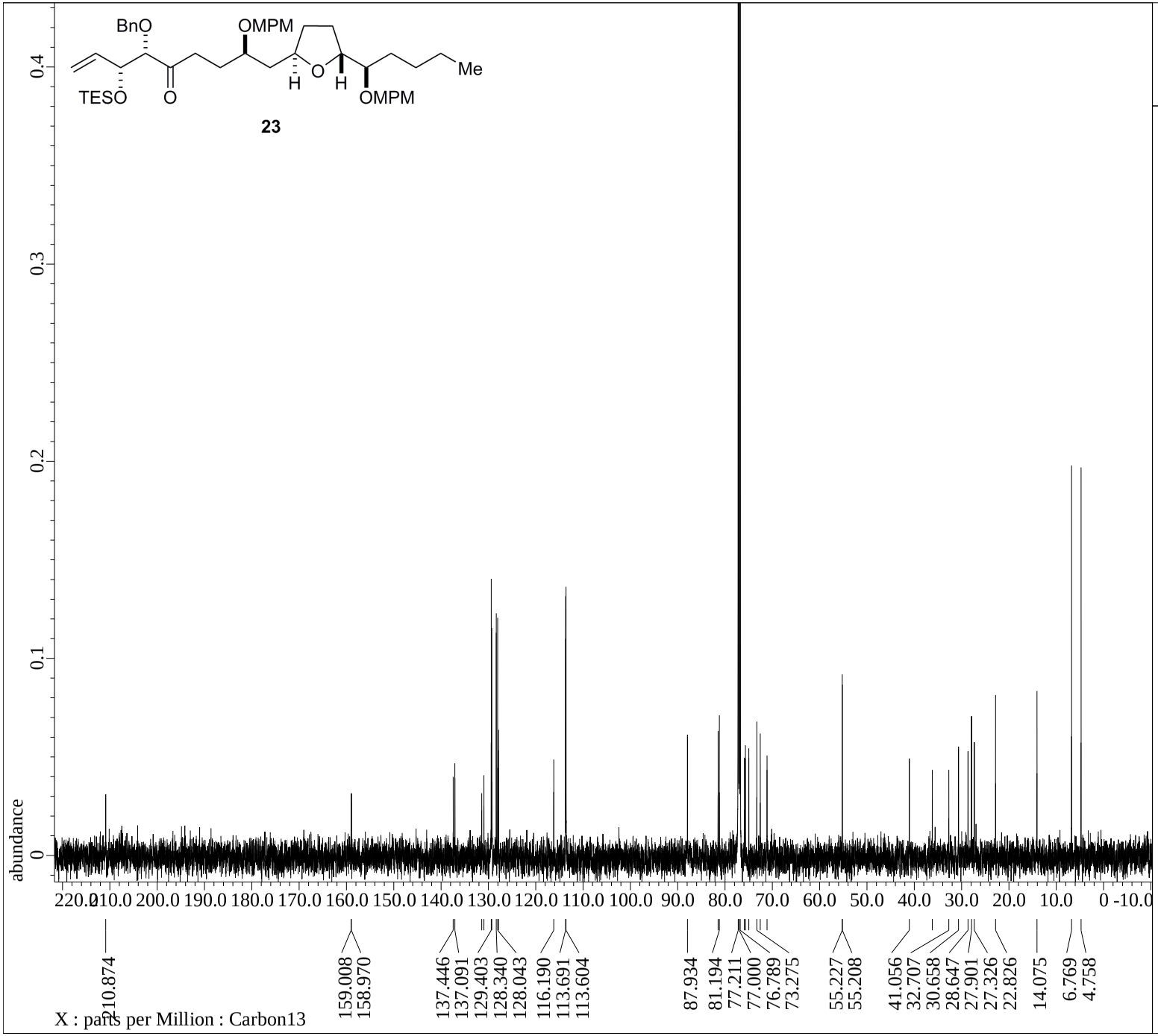

JEOL RESONANCE

```
Filename          = /Users/skk_macbookpro/Desk
Author            = delta
Experiment        = carbon.jxp
Sample_Id         = YK-III-023
Solvent           = CHLOROFORM-D
Creation_Time     = 23-OCT-2013 13:22:10
Revision_Time     = 24-JUN-2014 03:40:19
Current_Time      = 24-JUN-2014 03:40:56

Comment           = single pulse decoupled gat
Data_Format       = 1D COMPLEX
Dim_Size          = 26214
Dim_Title         = Carbon13
Dim_Units         = [ppm]
Dimensions        = X
Site              = ECA600
Spectrometer      = DELTA2_NMR

Field_Strength    = 14.09636928[T] (600[MHz])
X_Acq_Duration    = 0.69206016[s]
X_Domain          = 13C
X_Freq            = 150.91343039[MHz]
X_Offset          = 100[ppm]
X_Points          = 32768
X_Prescans        = 4
X_Resolution      = 1.44496109[Hz]
X_Sweep           = 47.34848485[kHz]
X_Sweep_Clipped   = 37.87878788[kHz]
Irr_Domain        = Proton
Irr_Freq          = 600.1723046[MHz]
Irr_Offset        = 5[ppm]
Clipped           = TRUE
Scans             = 428
Total_Scans       = 428

Relaxation_Delay  = 2[s]
Recvr_Gain        = 54
Temp_Get          = 22.3[dC]
X_90_Width        = 10[us]
X_Acq_Time        = 0.69206016[s]
X_Angle           = 30[deg]
X_Atn             = 8[dB]
X_Pulse           = 3.33333333[us]
Irr_Atn_Dec       = 18.24[dB]
Irr_Atn_Noe       = 18.24[dB]
Irr_Noise         = WALTZ
Irr_Pwidth        = 76[us]
Decoupling        = TRUE
Initial_Wait      = 1[s]
Noe               = TRUE
Noe_Time          = 2[s]
Repetition_Time   = 2.69206016[s]
```



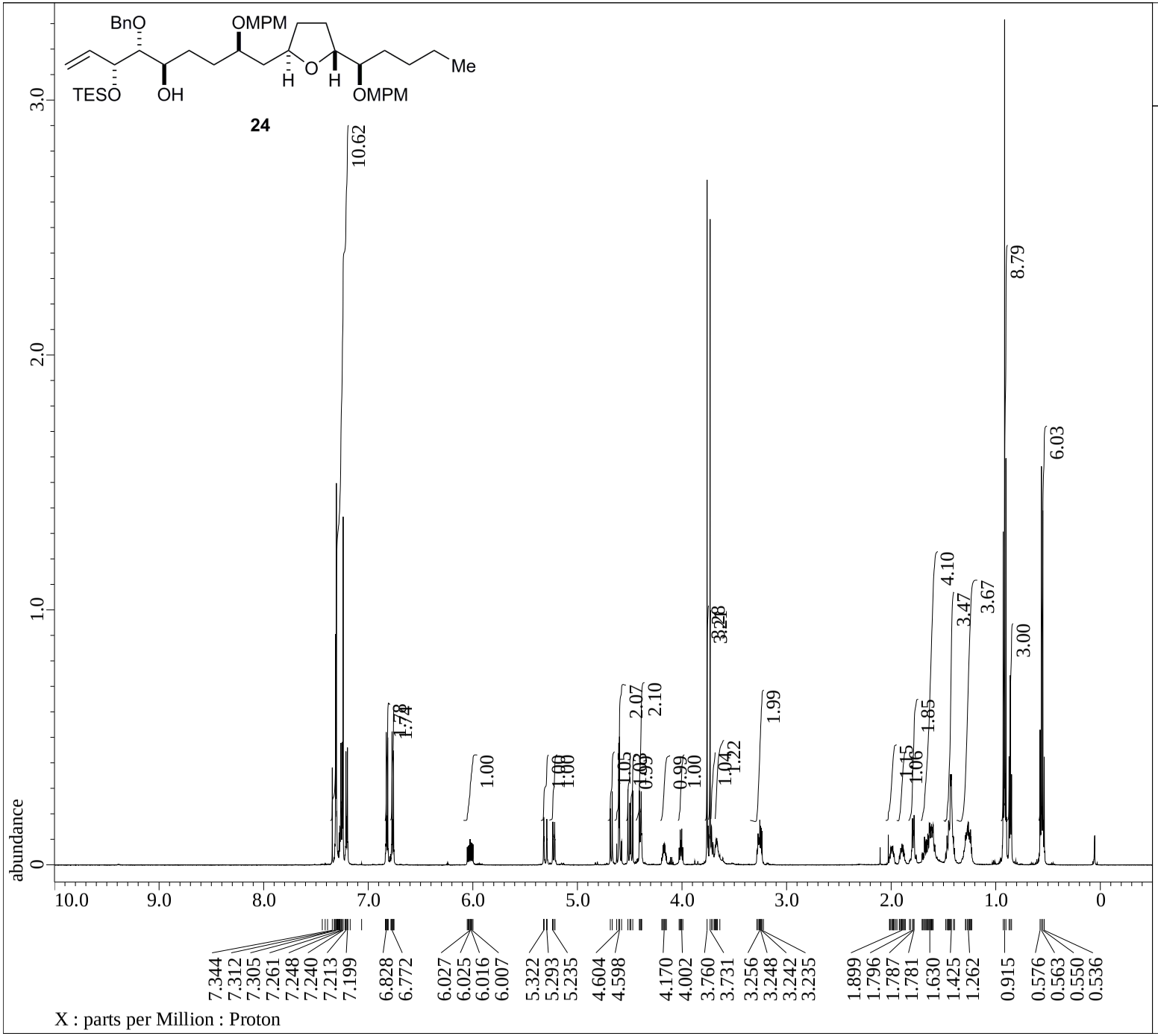

JEOL RESONANCE

| | |
|---|---|
| Filename | = /Users/skk_macbookpro/Desk |
| Author | = delta |
| Experiment | = proton.jxp |
| Sample_Id | = YK-III-026 |
| Solvent | = CHLOROFORM-D |
| Creation_Time | = 25-OCT-2013 15:22:15 |
| Revision_Time | = 24-JUN-2014 03:51:54 |
| Current_Time | = 24-JUN-2014 03:52:24 |
| Comment | = single_pulse |
| Data_Format | = 1D COMPLEX |
| Dim_Size | = 26214 |
| Dim_Title | = Proton |
| Dim_Units | = [ppm] |
| Dimensions | = X |
| Site | = ECA600 |
| Spectrometer | = DELTA2_NMR |
| Field_Strength | = 14.09636928[T] (600[MHz]) |
| X_Acq_Duration | = 2.18103808[s] |
| X_Domain | = 1H |
| X_Freq | = 600.1723046[MHz] |
| X_Offset | = 5[ppm] |
| X_Points | = 32768 |
| X_Prescans | = 1 |
| X_Resolution | = 0.45849727[Hz] |
| X_Sweep | = 15.02403846[kHz] |
| X_Sweep_Clipped | = 12.01923077[kHz] |
| Irr_Domain | = Proton |
| Irr_Freq | = 600.1723046[MHz] |
| Irr_Offset | = 5[ppm] |
| Tri_Domain | = Proton |
| Tri_Freq | = 600.1723046[MHz] |
| Tri_Offset | = 5[ppm] |
| Clipped | = FALSE |
| Scans | = 8 |
| Total_Scans | = 8 |
| Relaxation_Delay | = 2[s] |
| Recvr_Gain | = 38 |
| Temp_Get | = 21.2[dC] |
| X_90_Width | = 14.3[us] |
| X_Acq_Time | = 2.18103808[s] |
| X_Angle | = 45[deg] |
| X_Atn | = 4[dB] |
| X_Pulse | = 7.15[us] |
| Irr_Mode | = Off |
| Tri_Mode | = Off |
| Dante_Presat | = FALSE |
| Initial_Wait | = 1[s] |
| Repetition_Time | = 4.18103808[s] |



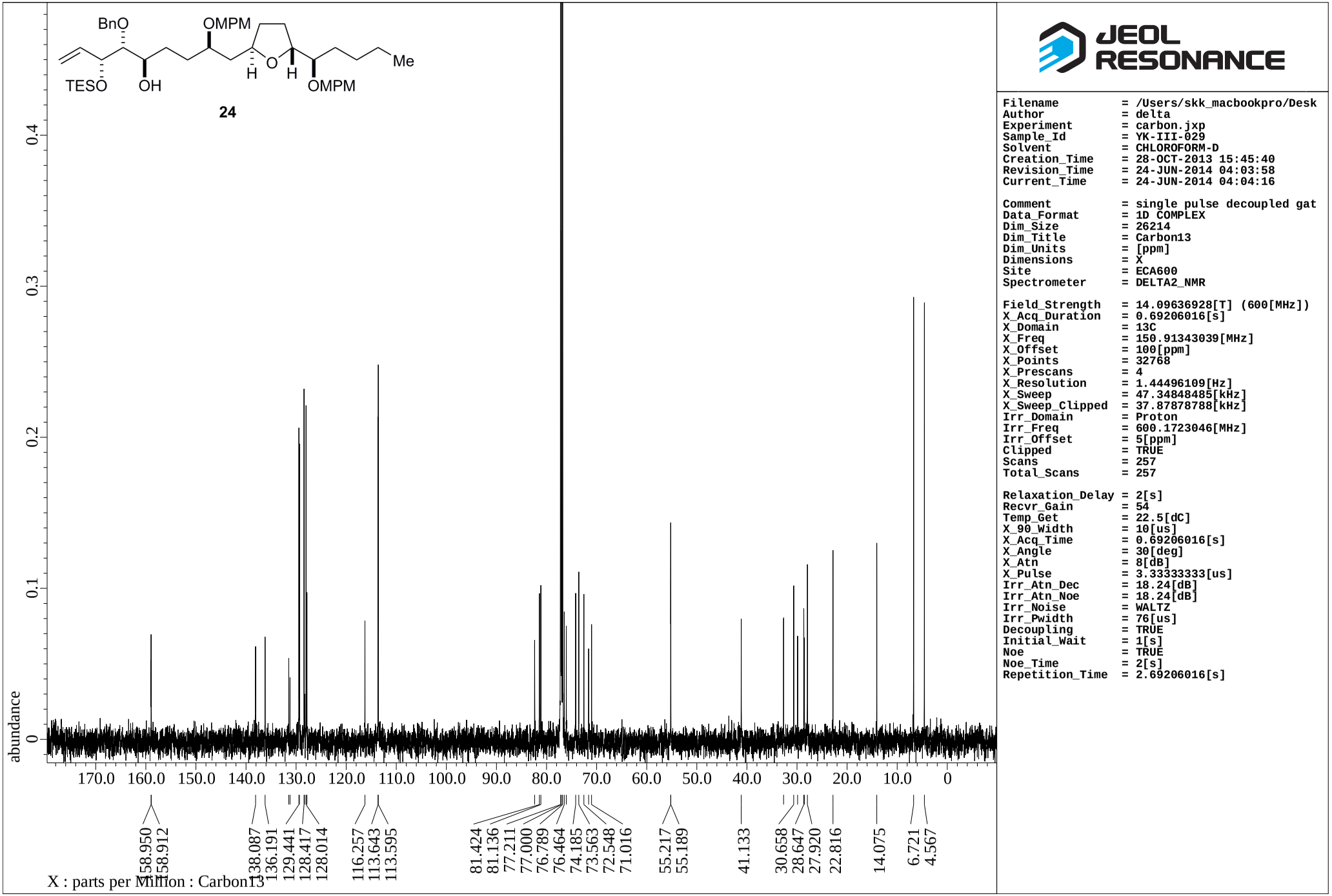

JEOL RESONANCE

```
Filename          = /Users/skk_macbookpro/Desk
Author            = delta
Experiment        = carbon.jxp
Sample_Id         = YK-III-026
Solvent           = CHLOROFORM-D
Creation_Time     = 25-OCT-2013 15:25:49
Revision_Time     = 24-JUN-2014 03:41:42
Current_Time      = 24-JUN-2014 03:43:08

Comment           = single pulse decoupled gat
Data_Format       = 1D COMPLEX
Dim_Size          = 26214
Dim_Title         = Carbon13
Dim_Units         = [ppm]
Dimensions        = X
Site              = ECA600
Spectrometer      = DELTA2_NMR

Field_Strength    = 14.09636928[T] (600[MHz])
X_Acq_Duration    = 0.69206016[s]
X_Domain          = 13C
X_Freq            = 150.91343039[MHz]
X_Offset          = 100[ppm]
X_Points          = 32768
X_Prescans        = 4
X_Resolution      = 1.44496109[Hz]
X_Sweep           = 47.34848485[kHz]
X_Sweep_Clipped   = 37.87878788[kHz]
Irr_Domain        = Proton
Irr_Freq          = 600.1723046[MHz]
Irr_Offset        = 5[ppm]
Clipped           = FALSE
Scans             = 288
Total_Scans       = 288

Relaxation_Delay  = 2[s]
Recvr_Gain        = 54
Temp_Get          = 22.3[dC]
X_90_Width        = 10[us]
X_Acq_Time        = 0.69206016[s]
X_Angle           = 30[deg]
X_Atn             = 8[dB]
X_Pulse           = 3.33333333[us]
Irr_Atn_Dec       = 18.24[dB]
Irr_Atn_Noe       = 18.24[dB]
Irr_Noise         = WALTZ
Irr_Pwidth        = 76[us]
Decoupling        = TRUE
Initial_Wait      = 1[s]
Noe               = TRUE
Noe_Time          = 2[s]
Repetition_Time   = 2.69206016[s]
```



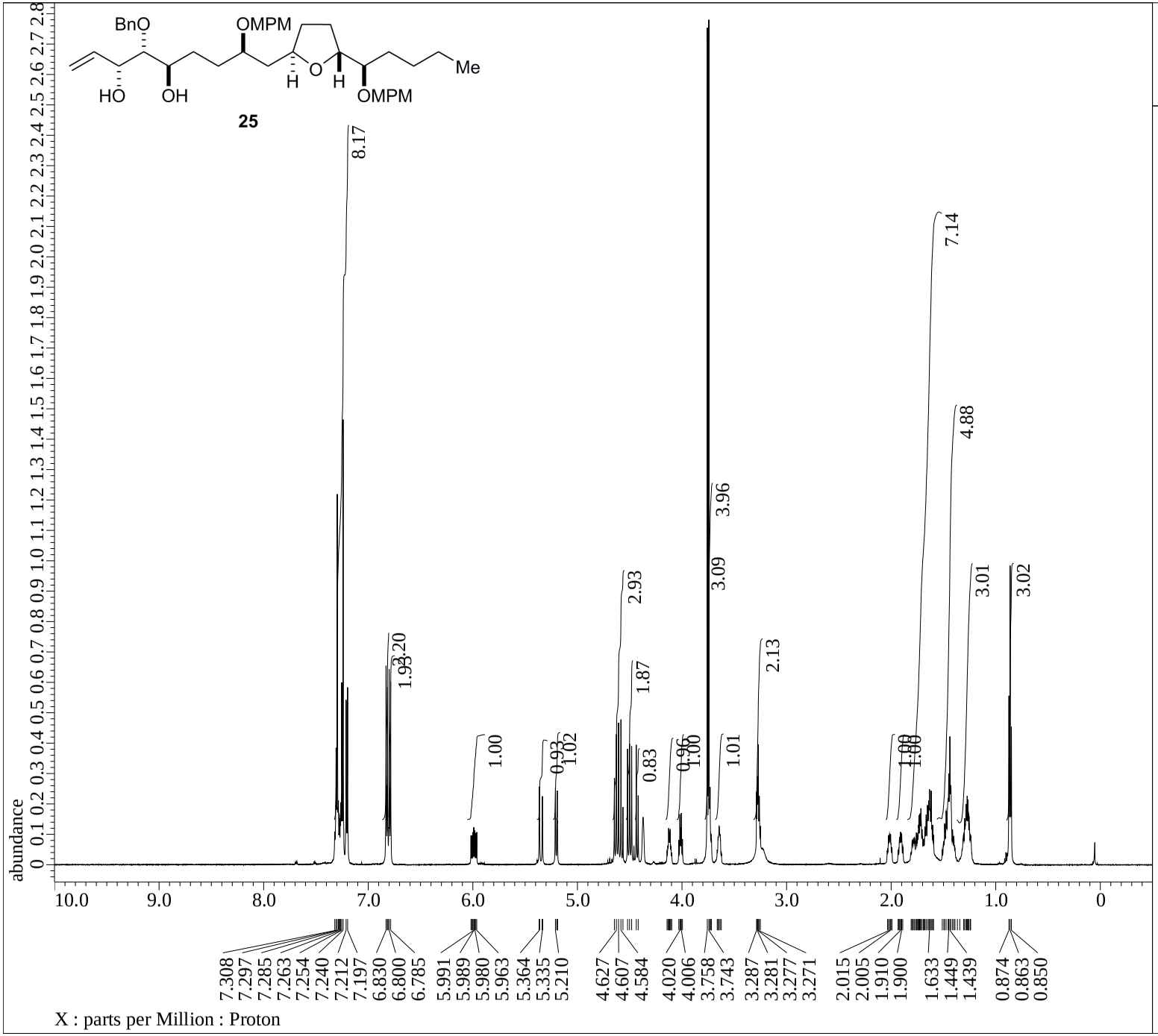

JEOL RESONANCE

```
Filename          = /Users/skk_macbookpro/Desk
Author            = delta
Experiment        = proton.jxp
Sample_Id         = YK-III-029
Solvent           = CHLOROFORM-D
Creation_Time     = 28-OCT-2013 15:42:36
Revision_Time     = 24-JUN-2014 04:02:12
Current_Time      = 24-JUN-2014 04:02:39

Comment           = single_pulse
Data_Format       = 1D COMPLEX
Dim_Size          = 26214
Dim_Title         = Proton
Dim_Units         = [ppm]
Dimensions        = X
Site              = ECA600
Spectrometer      = DELTA2_NMR

Field_Strength    = 14.09636928[T] (600[MHz])
X_Acq_Duration    = 2.18103808[s]
X_Domain          = 1H
X_Freq            = 600.1723046[MHz]
X_Offset          = 5[ppm]
X_Points          = 32768
X_Prescans        = 1
X_Resolution      = 0.45849727[Hz]
X_Sweep           = 15.02403846[kHz]
X_Sweep_Clipped   = 12.01923077[kHz]
Irr_Domain        = Proton
Irr_Freq          = 600.1723046[MHz]
Irr_Offset        = 5[ppm]
Tri_Domain        = Proton
Tri_Freq          = 600.1723046[MHz]
Tri_Offset        = 5[ppm]
Clipped           = FALSE
Scans             = 8
Total_Scans       = 8

Relaxation_Delay  = 2[s]
Recvr_Gain        = 34
Temp_Get          = 21.3[dC]
X_90_Width        = 14.3[us]
X_Acq_Time        = 2.18103808[s]
X_Angle           = 45[deg]
X_Atn             = 4[dB]
X_Pulse           = 7.15[us]
Irr_Mode          = Off
Tri_Mode          = Off
Dante_Presat      = FALSE
Initial_Wait      = 1[s]
Repetition_Time   = 4.18103808[s]
```



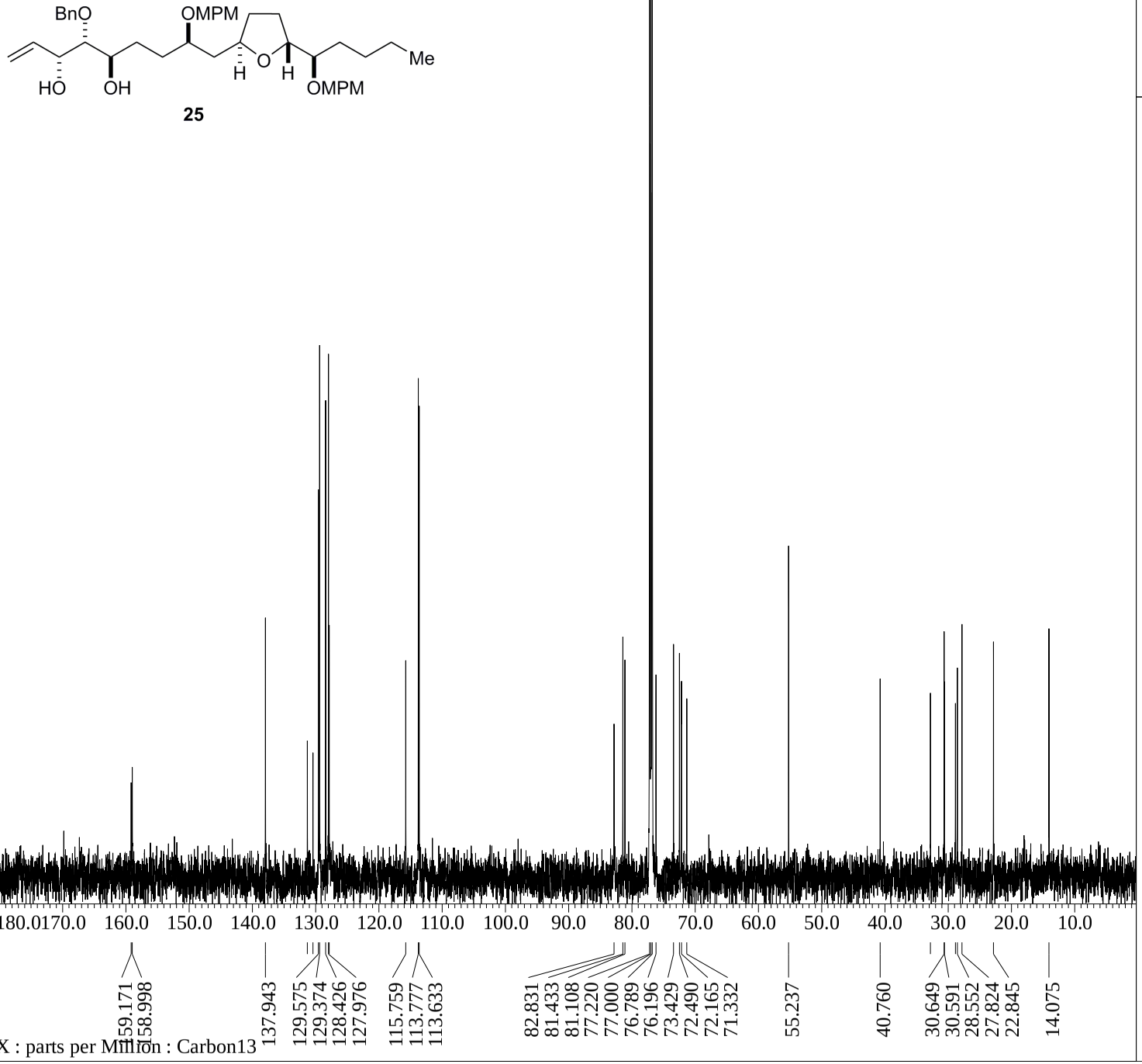

JEOL RESONANCE

```
Filename          = /Users/skk_macbookpro/Desk
Author            = delta
Experiment        = carbon.jxp
Sample_Id         = YK-III-029
Solvent           = CHLOROFORM-D
Creation_Time     = 28-OCT-2013 15:45:40
Revision_Time     = 24-JUN-2014 04:03:58
Current_Time      = 24-JUN-2014 04:04:16

Comment           = single pulse decoupled gat
Data_Format       = 1D COMPLEX
Dim_Size          = 26214
Dim_Title         = Carbon13
Dim_Units         = [ppm]
Dimensions        = X
Site              = ECA600
Spectrometer      = DELTA2_NMR

Field_Strength    = 14.09636928[T] (600[MHz])
X_Acq_Duration    = 0.69206016[s]
X_Domain          = 13C
X_Freq            = 150.91343039[MHz]
X_Offset          = 100[ppm]
X_Points          = 32768
X_Prescans        = 4
X_Resolution      = 1.44496109[Hz]
X_Sweep           = 47.34848485[kHz]
X_Sweep_Clipped   = 37.87878788[kHz]
Irr_Domain        = Proton
Irr_Freq          = 600.1723046[MHz]
Irr_Offset        = 5[ppm]
Clipped           = TRUE
Scans             = 257
Total_Scans       = 257

Relaxation_Delay  = 2[s]
Recvr_Gain        = 54
Temp_Get          = 22.5[dC]
X_90_Width        = 10[us]
X_Acq_Time        = 0.69206016[s]
X_Angle           = 30[deg]
X_Atn             = 8[dB]
X_Pulse           = 3.33333333[us]
Irr_Atn_Dec       = 18.24[dB]
Irr_Atn_Noe       = 18.24[dB]
Irr_Noise         = WALTZ
Irr_Pwidth        = 76[us]
Decoupling        = TRUE
Initial_Wait      = 1[s]
Noe               = TRUE
Noe_Time          = 2[s]
Repetition_Time   = 2.69206016[s]
```



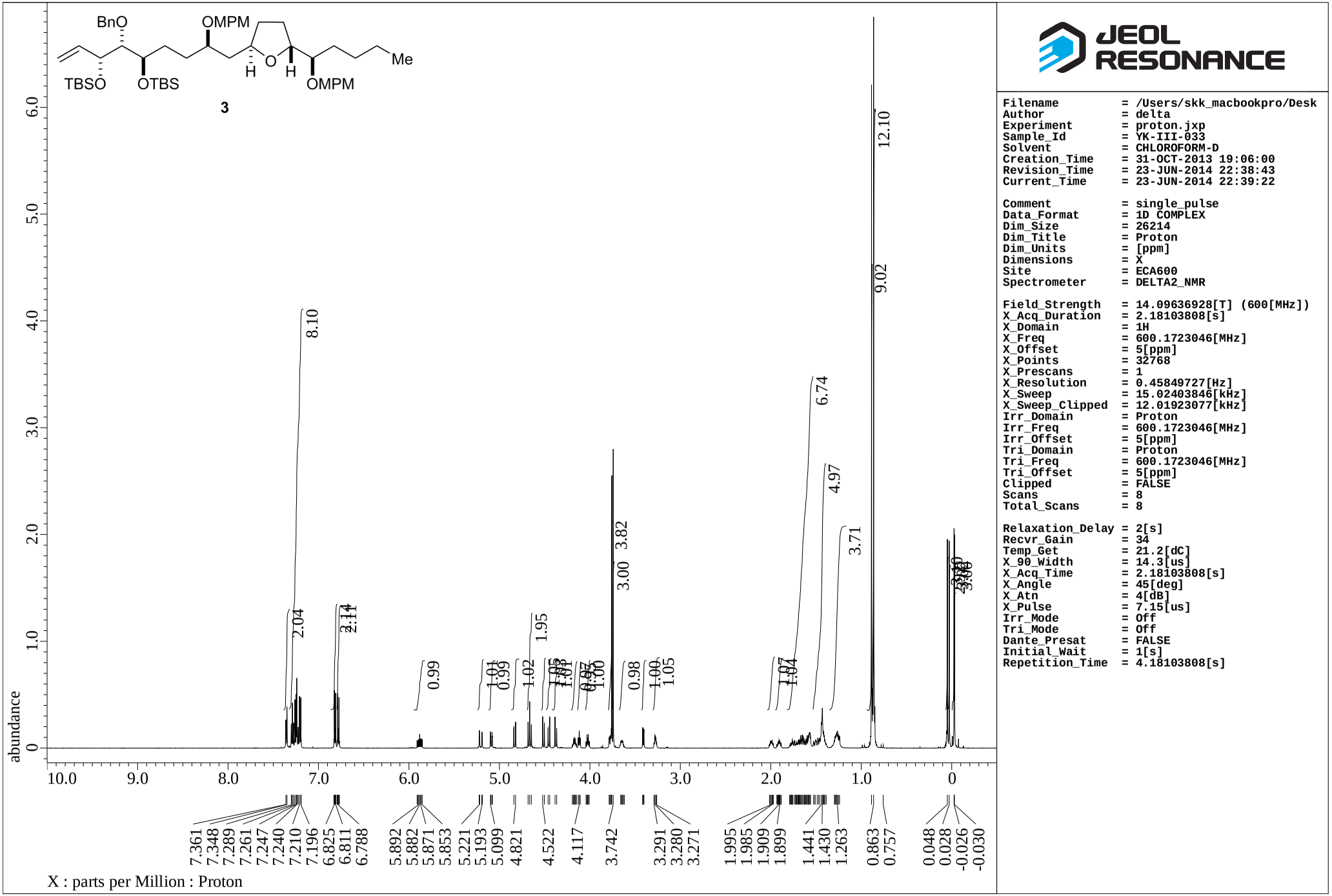

JEOL RESONANCE

| | |
|---|---|
| Filename | = /Users/skk_macbookpro/Desk |
| Author | = delta |
| Experiment | = proton.jxp |
| Sample_Id | = YK-III-032 |
| Solvent | = CHLOROFORM-D |
| Creation_Time | = 31-OCT-2013 10:29:07 |
| Revision_Time | = 24-JUN-2014 09:27:14 |
| Current_Time | = 24-JUN-2014 09:27:50 |
| Comment | = single_pulse |
| Data_Format | = 1D COMPLEX |
| Dim_Size | = 26214 |
| Dim_Title | = Proton |
| Dim_Units | = [ppm] |
| Dimensions | = X |
| Site | = ECA600 |
| Spectrometer | = DELTA2_NMR |
| Field_Strength | = 14.09636928[T] (600[MHz]) |
| X_Acq_Duration | = 2.18103808[s] |
| X_Domain | = 1H |
| X_Freq | = 600.1723046[MHz] |
| X_Offset | = 5[ppm] |
| X_Points | = 32768 |
| X_Prescans | = 1 |
| X_Resolution | = 0.45849727[Hz] |
| X_Sweep | = 15.02403846[kHz] |
| X_Sweep_Clipped | = 12.01923077[kHz] |
| Irr_Domain | = Proton |
| Irr_Freq | = 600.1723046[MHz] |
| Irr_Offset | = 5[ppm] |
| Tri_Domain | = Proton |
| Tri_Freq | = 600.1723046[MHz] |
| Tri_Offset | = 5[ppm] |
| Clipped | = FALSE |
| Scans | = 8 |
| Total_Scans | = 8 |
| Relaxation_Delay | = 2[s] |
| Recvr_Gain | = 38 |
| Temp_Get | = 21.6[dC] |
| X_90_Width | = 14.3[us] |
| X_Acq_Time | = 2.18103808[s] |
| X_Angle | = 45[deg] |
| X_Atn | = 4[dB] |
| X_Pulse | = 7.15[us] |
| Irr_Mode | = Off |
| Tri_Mode | = Off |
| Dante_Presat | = FALSE |
| Initial_Wait | = 1[s] |
| Repetition_Time | = 4.18103808[s] |



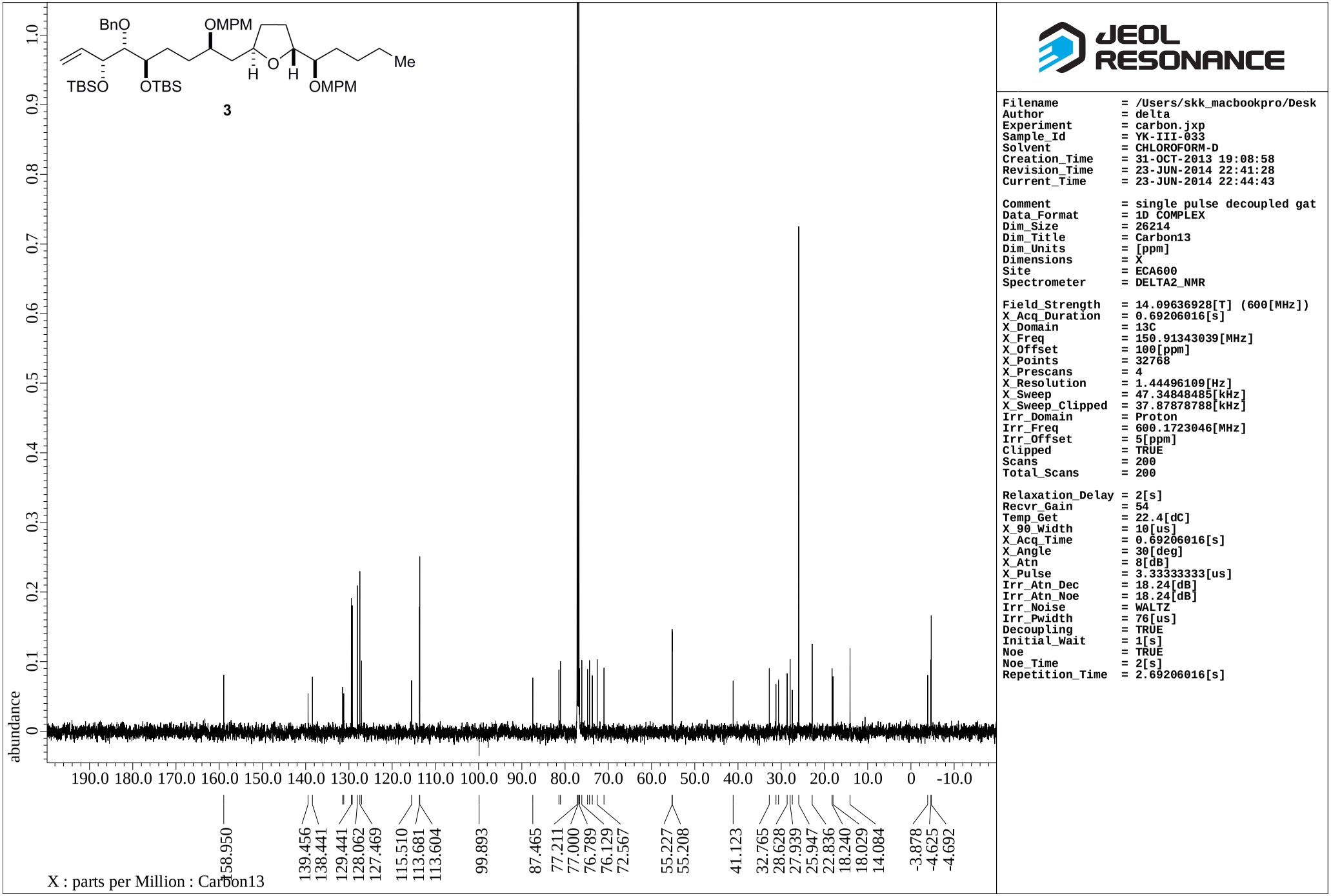

JEOL RESONANCE

```
Filename          = /Users/skk_macbookpro/Desk
Author            = delta
Experiment        = carbon.jxp
Sample_Id         = YK-III-032
Solvent           = CHLOROFORM-D
Creation_Time     = 31-OCT-2013 10:31:50
Revision_Time     = 24-JUN-2014 04:04:55
Current_Time      = 24-JUN-2014 04:05:26

Comment           = single pulse decoupled gat
Data_Format       = 1D COMPLEX
Dim_Size          = 26214
Dim_Title         = Carbon13
Dim_Units         = [ppm]
Dimensions        = X
Site              = ECA600
Spectrometer      = DELTA2_NMR

Field_Strength    = 14.09636928[T] (600[MHz])
X_Acq_Duration    = 0.69206016[s]
X_Domain          = 13C
X_Freq            = 150.91343039[MHz]
X_Offset          = 100[ppm]
X_Points          = 32768
X_Prescans        = 4
X_Resolution      = 1.44496109[Hz]
X_Sweep           = 47.34848485[kHz]
X_Sweep_Clipped   = 37.87878788[kHz]
Irr_Domain        = Proton
Irr_Freq          = 600.1723046[MHz]
Irr_Offset        = 5[ppm]
Clipped           = TRUE
Scans             = 272
Total_Scans       = 272

Relaxation_Delay  = 2[s]
Recvr_Gain        = 54
Temp_Get          = 22.4[dC]
X_90_Width        = 10[us]
X_Acq_Time        = 0.69206016[s]
X_Angle           = 30[deg]
X_Atn             = 8[dB]
X_Pulse           = 3.33333333[us]
Irr_Atn_Dec       = 18.24[dB]
Irr_Atn_Noe       = 18.24[dB]
Irr_Noise         = WALTZ
Irr_Pwidth        = 76[us]
Decoupling        = TRUE
Initial_Wait      = 1[s]
Noe               = TRUE
Noe_Time          = 2[s]
Repetition_Time   = 2.69206016[s]
```



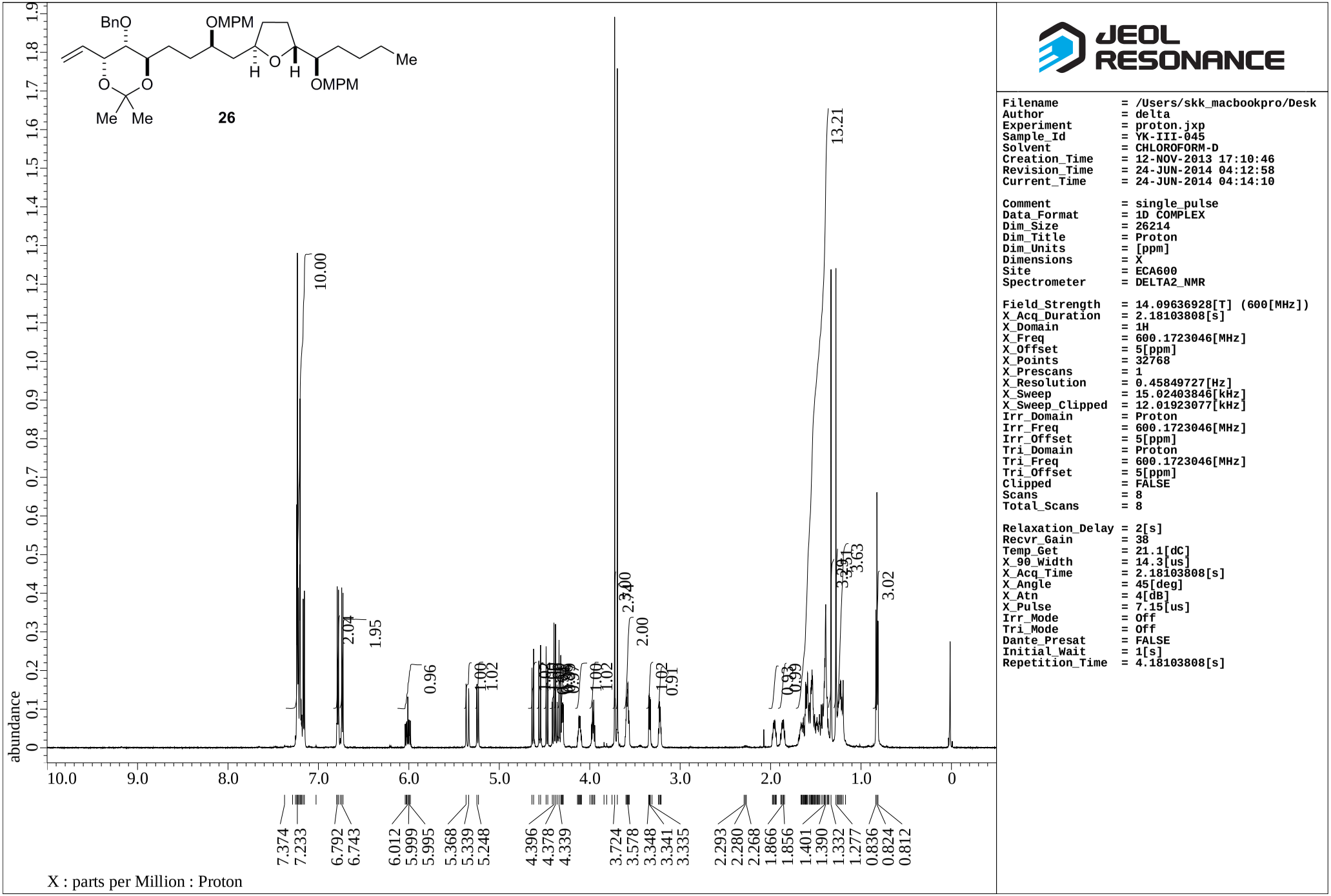

JEOL RESONANCE

```
Filename          = /Users/skk_macbookpro/Desk
Author            = delta
Experiment        = proton.jxp
Sample_Id         = YK-III-033
Solvent           = CHLOROFORM-D
Creation_Time     = 31-OCT-2013 19:06:00
Revision_Time     = 23-JUN-2014 22:38:43
Current_Time      = 23-JUN-2014 22:39:22

Comment           = single_pulse
Data_Format       = 1D COMPLEX
Dim_Size          = 26214
Dim_Title         = Proton
Dim_Units         = [ppm]
Dimensions        = X
Site              = ECA600
Spectrometer      = DELTA2_NMR

Field_Strength    = 14.09636928[T] (600[MHz])
X_Acq_Duration    = 2.18103808[s]
X_Domain          = 1H
X_Freq            = 600.1723046[MHz]
X_Offset          = 5[ppm]
X_Points          = 32768
X_Prescans        = 1
X_Resolution      = 0.45849727[Hz]
X_Sweep           = 15.02403846[kHz]
X_Sweep_Clipped   = 12.01923077[kHz]
Irr_Domain        = Proton
Irr_Freq          = 600.1723046[MHz]
Irr_Offset        = 5[ppm]
Tri_Domain        = Proton
Tri_Freq          = 600.1723046[MHz]
Tri_Offset        = 5[ppm]
Clipped           = FALSE
Scans             = 8
Total_Scans       = 8

Relaxation_Delay  = 2[s]
Recvr_Gain        = 34
Temp_Get          = 21.2[dC]
X_90_Width        = 14.3[us]
X_Acq_Time        = 2.18103808[s]
X_Angle           = 45[deg]
X_Atn             = 4[dB]
X_Pulse           = 7.15[us]
Irr_Mode          = Off
Tri_Mode          = Off
Dante_Presat      = FALSE
Initial_Wait      = 1[s]
Repetition_Time   = 4.18103808[s]
```



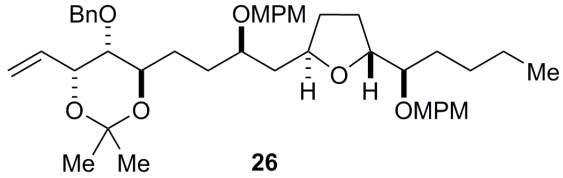

JEOL RESONANCE

```
Filename          = /Users/skk_macbookpro/Desk
Author            = delta
Experiment        = carbon.jxp
Sample_Id         = YK-III-033
Solvent           = CHLOROFORM-D
Creation_Time     = 31-OCT-2013 19:08:58
Revision_Time     = 23-JUN-2014 22:41:28
Current_Time      = 23-JUN-2014 22:44:43

Comment           = single pulse decoupled gat
Data_Format       = 1D COMPLEX
Dim_Size          = 26214
Dim_Title         = Carbon13
Dim_Units         = [ppm]
Dimensions        = X
Site              = ECA600
Spectrometer      = DELTA2_NMR

Field_Strength    = 14.09636928[T] (600[MHz])
X_Acq_Duration    = 0.69206016[s]
X_Domain          = 13C
X_Freq            = 150.91343039[MHz]
X_Offset          = 100[ppm]
X_Points          = 32768
X_Prescans        = 4
X_Resolution      = 1.44496109[Hz]
X_Sweep           = 47.34848485[kHz]
X_Sweep_Clipped   = 37.87878788[kHz]
Irr_Domain        = Proton
Irr_Freq          = 600.1723046[MHz]
Irr_Offset        = 5[ppm]
Clipped           = TRUE
Scans             = 200
Total_Scans       = 200

Relaxation_Delay  = 2[s]
Recvr_Gain        = 54
Temp_Get          = 22.4[dC]
X_90_Width        = 10[us]
X_Acq_Time        = 0.69206016[s]
X_Angle           = 30[deg]
X_Atn             = 8[dB]
X_Pulse           = 3.33333333[us]
Irr_Atn_Dec       = 18.24[dB]
Irr_Atn_Noe       = 18.24[dB]
Irr_Noise         = WALTZ
Irr_Pwidth        = 76[us]
Decoupling        = TRUE
Initial_Wait      = 1[s]
Noe               = TRUE
Noe_Time          = 2[s]
Repetition_Time   = 2.69206016[s]
```




JEOL RESONANCE

```
Filename          = /Users/skk_macbookpro/Desk
Author            = delta
Experiment        = proton.jxp
Sample_Id         = YK-III-045
Solvent           = CHLOROFORM-D
Creation_Time     = 12-NOV-2013 17:10:46
Revision_Time     = 24-JUN-2014 04:12:58
Current_Time      = 24-JUN-2014 04:14:10

Comment           = single_pulse
Data_Format       = 1D COMPLEX
Dim_Size          = 26214
Dim_Title         = Proton
Dim_Units         = [ppm]
Dimensions        = X
Site              = ECA600
Spectrometer      = DELTA2_NMR

Field_Strength    = 14.09636928[T] (600[MHz])
X_Acq_Duration    = 2.18103808[s]
X_Domain          = 1H
X_Freq            = 600.1723046[MHz]
X_Offset          = 5[ppm]
X_Points          = 32768
X_Prescans        = 1
X_Resolution      = 0.45849727[Hz]
X_Sweep           = 15.02403846[kHz]
X_Sweep_Clipped   = 12.01923077[kHz]
Irr_Domain        = Proton
Irr_Freq          = 600.1723046[MHz]
Irr_Offset        = 5[ppm]
Tri_Domain        = Proton
Tri_Freq          = 600.1723046[MHz]
Tri_Offset        = 5[ppm]
Clipped           = FALSE
Scans             = 8
Total_Scans       = 8

Relaxation_Delay  = 2[s]
Recvr_Gain        = 38
Temp_Get          = 21.1[dC]
X_90_Width        = 14.3[us]
X_Acq_Time        = 2.18103808[s]
X_Angle           = 45[deg]
X_Atn             = 4[dB]
X_Pulse           = 7.15[us]
Irr_Mode          = Off
Tri_Mode          = Off
Dante_Presat      = FALSE
Initial_Wait      = 1[s]
Repetition_Time   = 4.18103808[s]
```

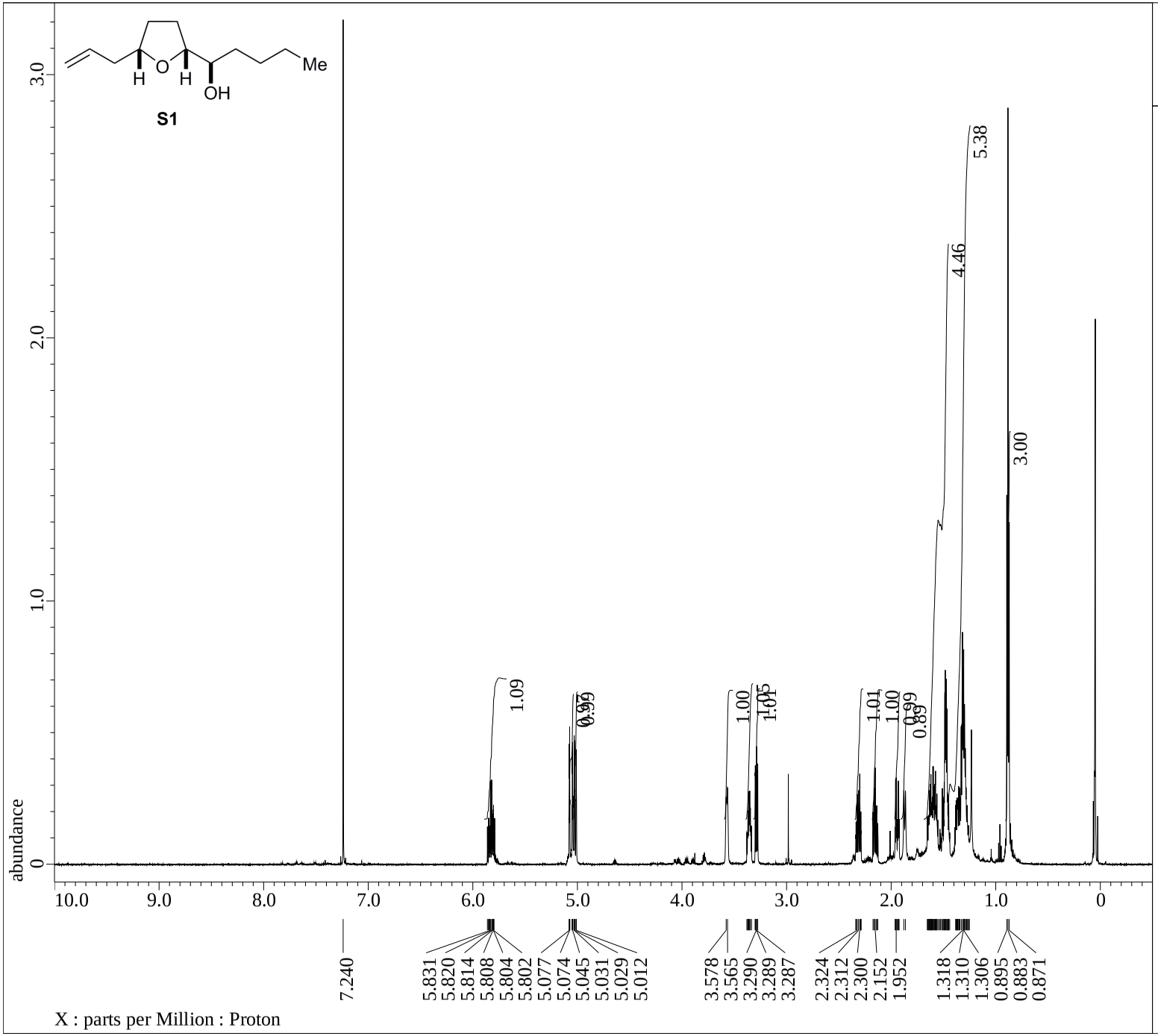



**26**



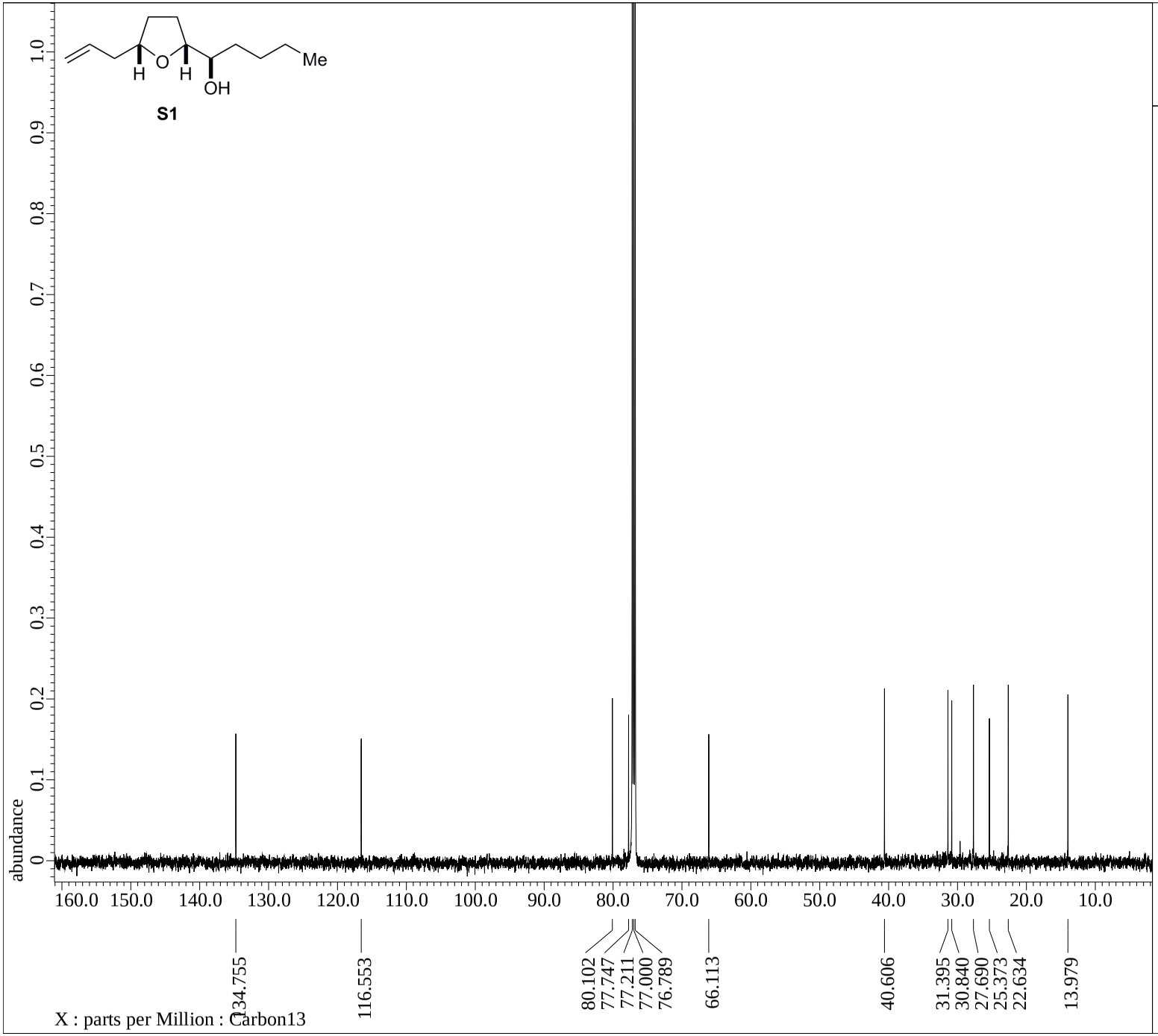

JEOL RESONANCE

```
Filename          = /Users/skk_macbookpro/Desk
Author            = delta
Experiment        = carbon.jxp
Sample_Id         = YK-III-045
Solvent           = CHLOROFORM-D
Creation_Time     = 12-NOV-2013 17:21:43
Revision_Time     = 24-JUN-2014 04:07:13
Current_Time      = 24-JUN-2014 04:07:38

Comment           = single pulse decoupled gat
Data_Format       = 1D COMPLEX
Dim_Size          = 26214
Dim_Title         = Carbon13
Dim_Units         = [ppm]
Dimensions        = X
Site              = ECA600
Spectrometer      = DELTA2_NMR

Field_Strength    = 14.09636928[T] (600[MHz])
X_Acq_Duration    = 0.69206016[s]
X_Domain          = 13C
X_Freq            = 150.91343039[MHz]
X_Offset          = 100[ppm]
X_Points          = 32768
X_Prescans        = 4
X_Resolution      = 1.44496109[Hz]
X_Sweep           = 47.34848485[kHz]
X_Sweep_Clipped   = 37.87878788[kHz]
Irr_Domain        = Proton
Irr_Freq          = 600.1723046[MHz]
Irr_Offset        = 5[ppm]
Clipped           = TRUE
Scans             = 800
Total_Scans       = 800

Relaxation_Delay  = 2[s]
Recvr_Gain        = 54
Temp_Get          = 22.1[dC]
X_90_Width        = 10[us]
X_Acq_Time        = 0.69206016[s]
X_Angle           = 30[deg]
X_Atn             = 8[dB]
X_Pulse           = 3.33333333[us]
Irr_Atn_Dec       = 18.24[dB]
Irr_Atn_Noe       = 18.24[dB]
Irr_Noise         = WALTZ
Irr_Pwidth        = 76[us]
Decoupling        = TRUE
Initial_Wait      = 1[s]
Noe               = TRUE
Noe_Time          = 2[s]
Repetition_Time   = 2.69206016[s]
```



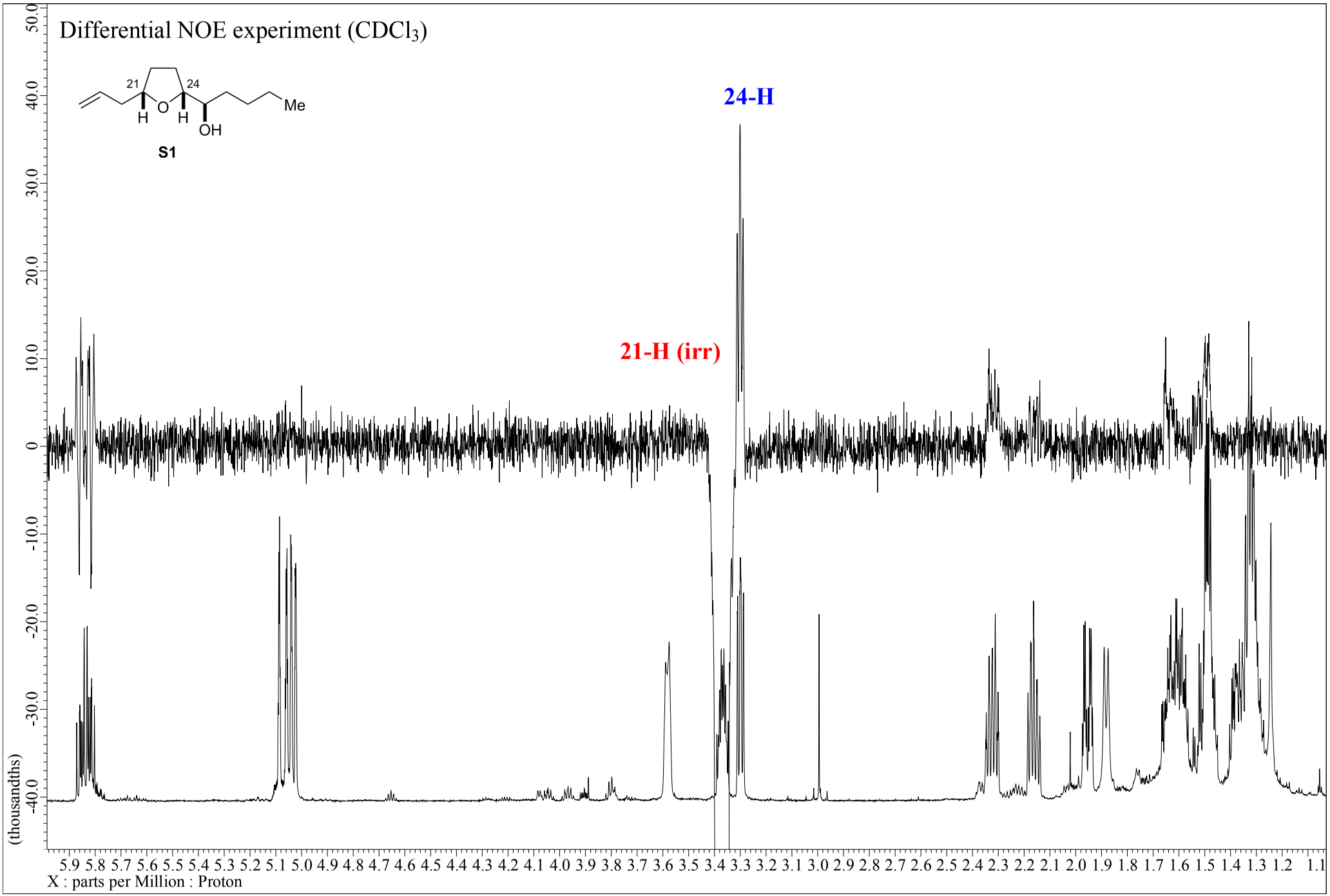

JEOL RESONANCE

```
Filename          = /Volumes/YUHKI USB/kawashi
Author            = delta
Experiment        = proton.jxp
Sample_Id         = YK-II-117b
Solvent           = CHLOROFORM-D
Creation_Time     = 25-JUN-2013 20:50:33
Revision_Time     = 25-JUN-2014 22:43:29
Current_Time      = 25-JUN-2014 22:43:44

Comment           = single_pulse
Data_Format       = 1D COMPLEX
Dim_Size          = 26214
Dim_Title         = Proton
Dim_Units         = [ppm]
Dimensions        = X
Site              = ECA600
Spectrometer      = DELTA2_NMR

Field_Strength    = 14.09636928[T] (600[MHz])
X_Acq_Duration    = 2.18103808[s]
X_Domain          = 1H
X_Freq            = 600.1723046[MHz]
X_Offset          = 5[ppm]
X_Points          = 32768
X_Prescans        = 1
X_Resolution      = 0.45849727[Hz]
X_Sweep           = 15.02403846[kHz]
X_Sweep_Clipped   = 12.01923077[kHz]
Irr_Domain        = Proton
Irr_Freq          = 600.1723046[MHz]
Irr_Offset        = 5[ppm]
Tri_Domain        = Proton
Tri_Freq          = 600.1723046[MHz]
Tri_Offset        = 5[ppm]
Clipped           = FALSE
Scans             = 8
Total_Scans       = 8

Relaxation_Delay  = 2[s]
Recvr_Gain        = 44
Temp_Get          = 21.6[dC]
X_90_Width        = 11.6[us]
X_Acq_Time        = 2.18103808[s]
X_Angle           = 45[deg]
X_Atn             = 3[dB]
X_Pulse           = 5.8[us]
Irr_Mode          = Off
Tri_Mode          = Off
Dante_Presat      = FALSE
Initial_Wait      = 1[s]
Repetition_Time   = 4.18103808[s]
```




JEOL RESONANCE

| | |
|---|---|
| Filename | = /Volumes/YUHKI USB/kawashi |
| Author | = delta |
| Experiment | = carbon.jxp |
| Sample_Id | = YK-II-117b |
| Solvent | = CHLOROFORM-D |
| Creation_Time | = 26-JUN-2013 21:12:10 |
| Revision_Time | = 25-JUN-2014 22:44:48 |
| Current_Time | = 25-JUN-2014 22:45:37 |
| Comment | = single pulse decoupled gat |
| Data_Format | = 1D COMPLEX |
| Dim_Size | = 26214 |
| Dim_Title | = Carbon13 |
| Dim_Units | = [ppm] |
| Dimensions | = X |
| Site | = ECA600 |
| Spectrometer | = DELTA2_NMR |
| Field_Strength | = 14.09636928[T] (600[MHz]) |
| X_Acq_Duration | = 0.69206016[s] |
| X_Domain | = 13C |
| X_Freq | = 150.91343039[MHz] |
| X_Offset | = 100[ppm] |
| X_Points | = 32768 |
| X_Prescans | = 4 |
| X_Resolution | = 1.44496109[Hz] |
| X_Sweep | = 47.34848485[kHz] |
| X_Sweep_Clipped | = 37.87878788[kHz] |
| Irr_Domain | = Proton |
| Irr_Freq | = 600.1723046[MHz] |
| Irr_Offset | = 5[ppm] |
| Clipped | = TRUE |
| Scans | = 528 |
| Total_Scans | = 528 |
| Relaxation_Delay | = 2[s] |
| Recvr_Gain | = 56 |
| Temp_Get | = 22.3[dC] |
| X_90_Width | = 9.25[us] |
| X_Acq_Time | = 0.69206016[s] |
| X_Angle | = 30[deg] |
| X_Atn | = 8[dB] |
| X_Pulse | = 3.08333333[us] |
| Irr_Atn_Dec | = 19.327[dB] |
| Irr_Atn_Noe | = 19.327[dB] |
| Irr_Noise | = WALTZ |
| Irr_Pwidth | = 76[us] |
| Decoupling | = TRUE |
| Initial_Wait | = 1[s] |
| Noe | = TRUE |
| Noe_Time | = 2[s] |
| Repetition_Time | = 2.69206016[s] |


Differential NOE experiment ($CDCl_3$)
21
24
H
O
H
OH
Me
S1
24-H
21-H (irr)
50.0
40.0
30.0
20.0
10.0
0
-10.0
-20.0
-30.0
-40.0
(thousandths)
5.9 5.8 5.7 5.6 5.5 5.4 5.3 5.2 5.1 5.0 4.9 4.8 4.7 4.6 4.5 4.4 4.3 4.2 4.1 4.0 3.9 3.8 3.7 3.6 3.5 3.4 3.3 3.2 3.1 3.0 2.9 2.8 2.7 2.6 2.5 2.4 2.3 2.2 2.1 2.0 1.9 1.8 1.7 1.6 1.5 1.4 1.3 1.2 1.1
X : parts per Million : Proton