PROTONATION-ASSISTED CONJUGATE ADDITION OF AXIALLY CHIRAL ENOLATES: ASYMMETRIC SYNTHESIS OF β-LACTAMS WITH CONTIGUOUS TETRASUBSTITUTED STEREOCENTERS FROM α-AMINO ACIDS VIA MEMORY OF CHIRALITY

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Supporting Information

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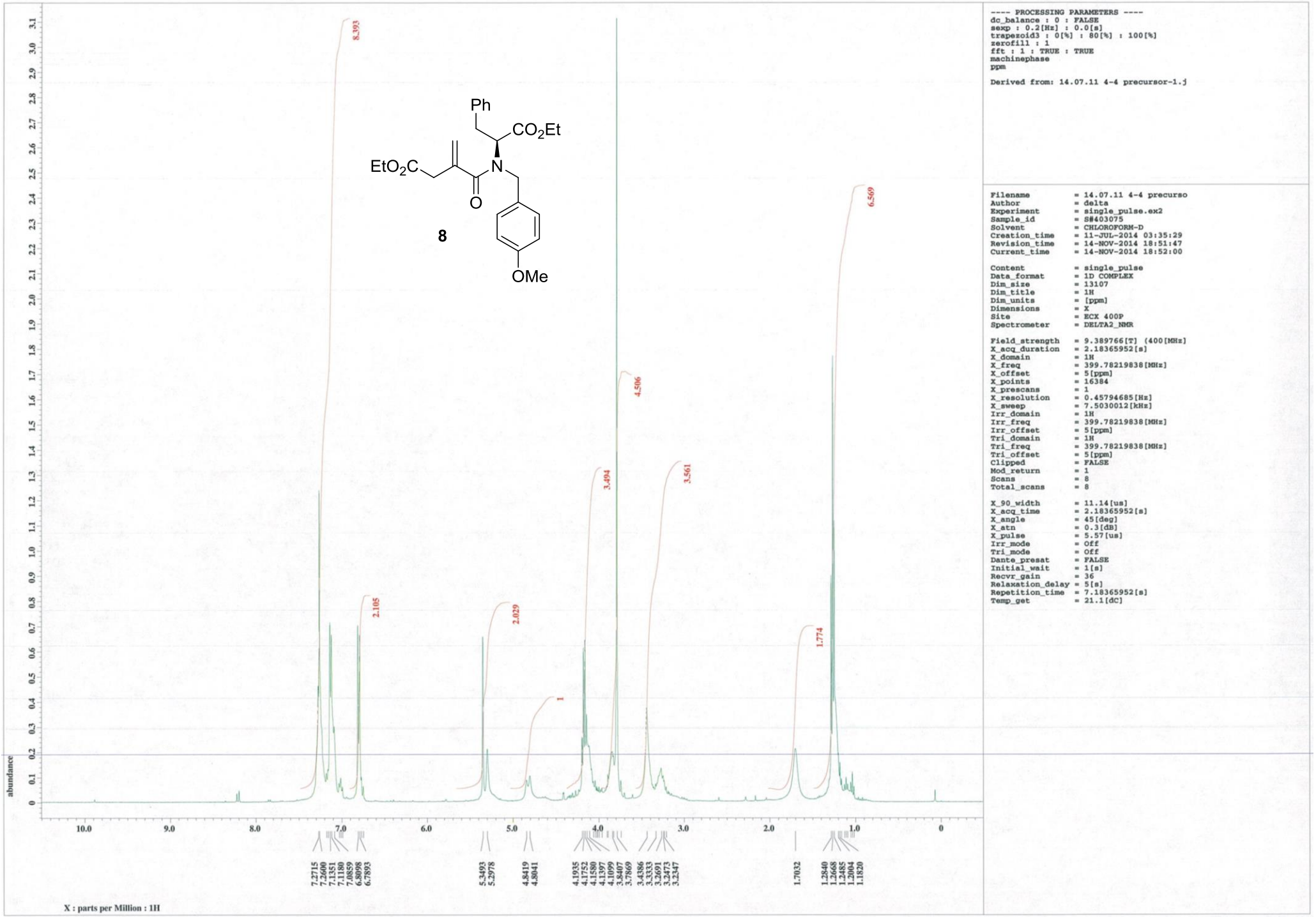
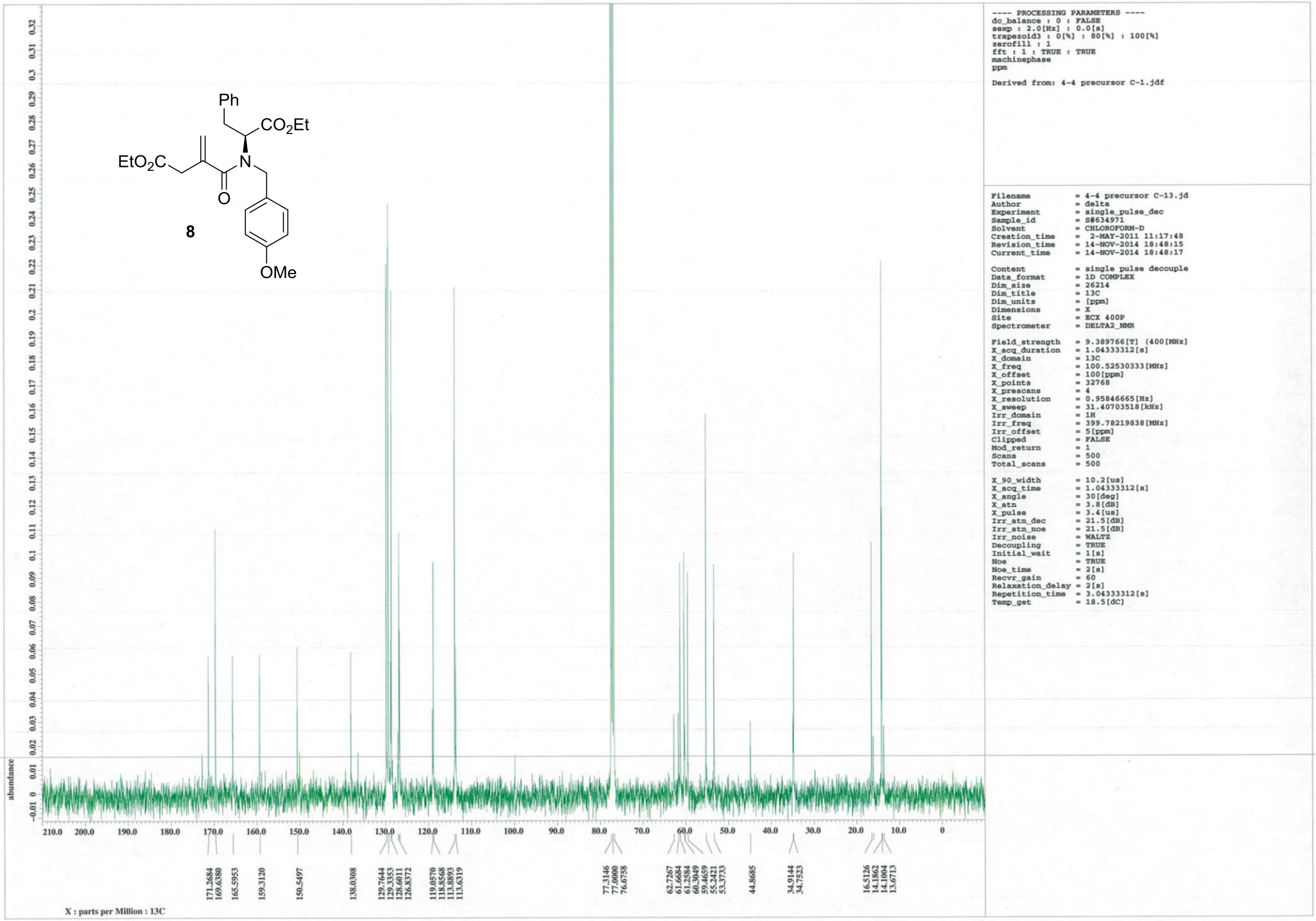
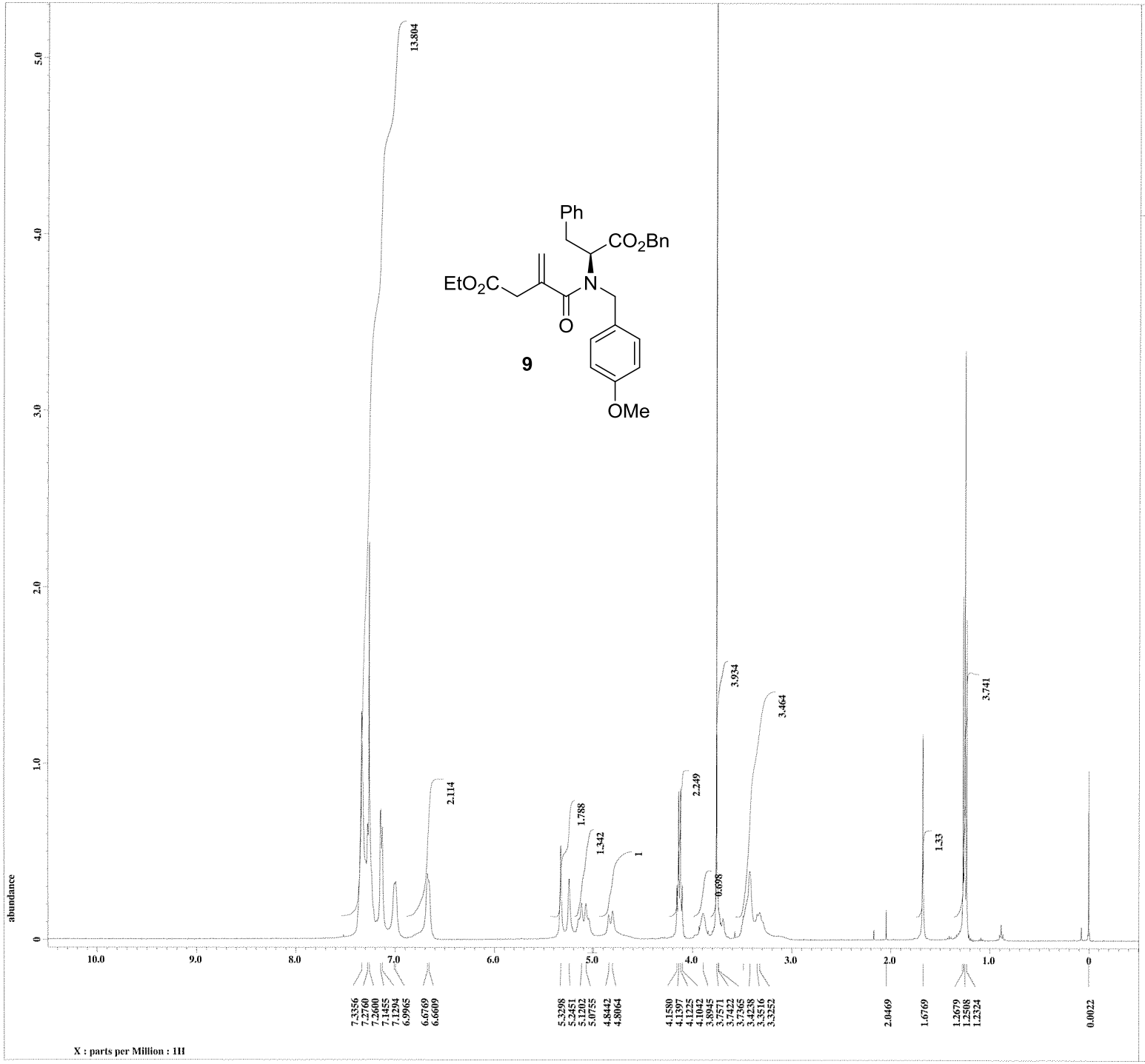
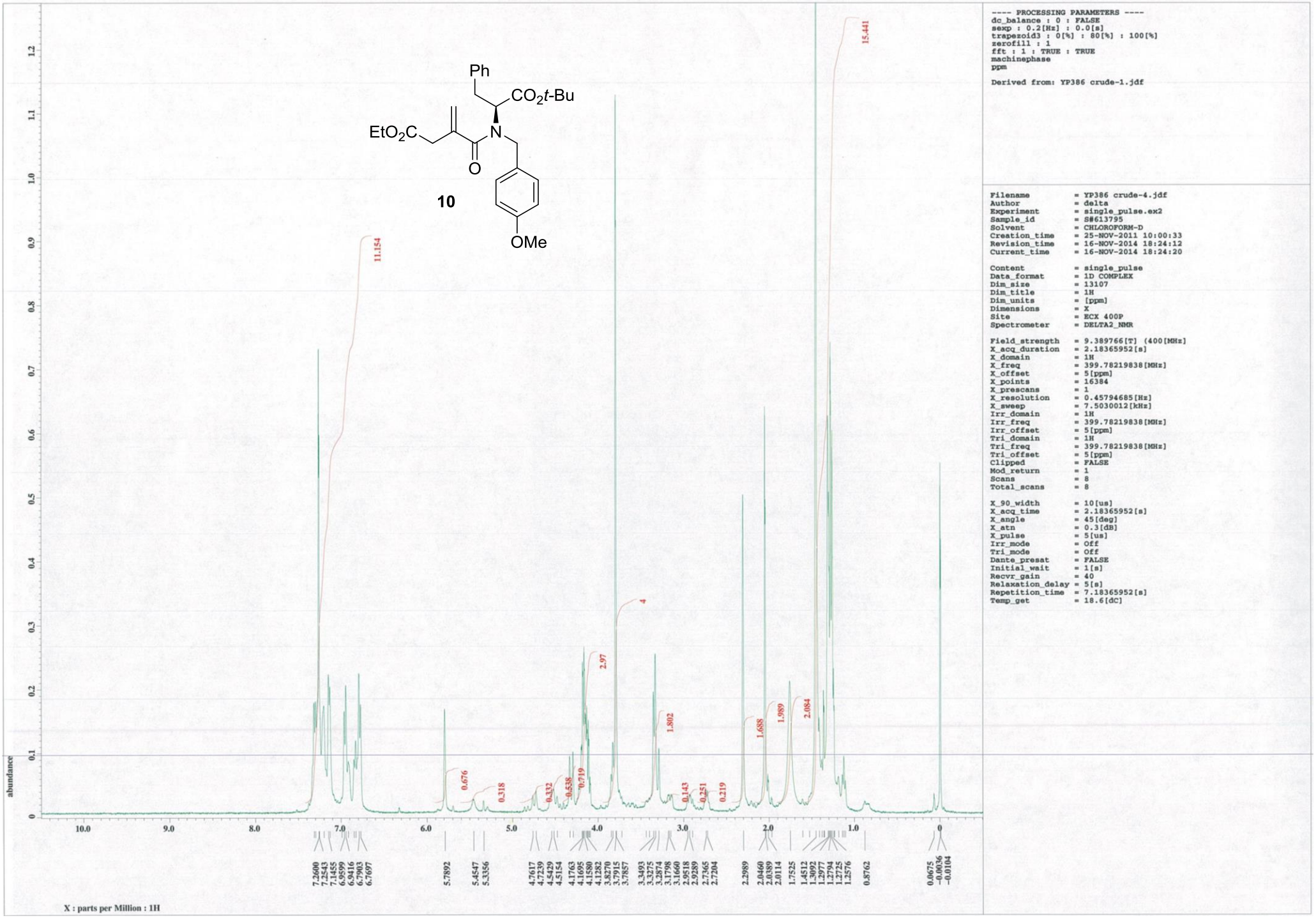

Ph
CO2Et
EtO2C
N
O
8
OMe
8.393
6.569
4.506
3.494
3.561
2.105
2.029
1.774
1
abundance
X : parts per Million : 1H
---- PROCESSING PARAMETERS ----
dc_balance : 0 : FALSE
sexp : 0.2[Hz] : 0.0[s]
trapezoid3 : 0[%] : 80[%] : 100[%]
zerofill : 1
fft : 1 : TRUE : TRUE
machinephase
ppm
Derived from: 14.07.11 4-4 precursor-1.j
Filename = 14.07.11 4-4 precurso
Author = delta
Experiment = single_pulse.ex2
Sample_id = S#403075
Solvent = CHLOROFORM-D
Creation_time = 11-JUL-2014 03:35:29
Revision_time = 14-NOV-2014 18:51:47
Current_time = 14-NOV-2014 18:52:00
Content = single_pulse
Data_format = 1D COMPLEX
Dim_size = 13107
Dim_title = 1H
Dim_units = [ppm]
Dimensions = X
Site = ECX 400P
Spectrometer = DELTA2_NMR
Field_strength = 9.389766[T] (400[MHz]
X_acq_duration = 2.18365952[s]
X_domain = 1H
X_freq = 399.78219838[MHz]
X_offset = 5[ppm]
X_points = 16384
X_prescans = 1
X_resolution = 0.45794685[Hz]
X_sweep = 7.5030012[kHz]
Irr_domain = 1H
Irr_freq = 399.78219838[MHz]
Irr_offset = 5[ppm]
Tri_domain = 1H
Tri_freq = 399.78219838[MHz]
Tri_offset = 5[ppm]
Clipped = FALSE
Mod_return = 1
Scans = 8
Total_scans = 8
X_90_width = 11.14[us]
X_acq_time = 2.18365952[s]
X_angle = 45[deg]
X_atn = 0.3[dB]
X_pulse = 5.57[us]
Irr_mode = Off
Tri_mode = Off
Dante_presat = FALSE
Initial_wait = 1[s]
Recvr_gain = 36
Relaxation_delay = 5[s]
Repetition_time = 7.18365952[s]
Temp_get = 21.1[dC]
7.2715
7.2600
7.1351
7.1180
7.0859
6.8098
6.7893
5.3493
5.2978
4.8419
4.8041
4.1935
4.1752
4.1580
4.1397
4.1099
3.5407
3.7869
3.4386
3.3333
3.2691
3.2473
3.2347
1.7032
1.2840
1.2668
1.2485
1.2004
1.1820


Ph
CO2Et
EtO2C
N
O
8
OMe
abundance
X : parts per Million : 13C
---- PROCESSING PARAMETERS ----
dc_balance : 0 : FALSE
sexp : 2.0[Hz] : 0.0[s]
trapezoid3 : 0[%] : 80[%] : 100[%]
zerofill : 1
fft : 1 : TRUE : TRUE
machinephase
ppm
Derived from: 4-4 precursor C-1.jdf
Filename = 4-4 precursor C-13.jd
Author = delta
Experiment = single_pulse_dec
Sample_id = S#634971
Solvent = CHLOROFORM-D
Creation_time = 2-MAY-2011 11:17:48
Revision_time = 14-NOV-2014 18:48:15
Current_time = 14-NOV-2014 18:48:17
Content = single pulse decouple
Data_format = 1D COMPLEX
Dim_size = 26214
Dim_title = 13C
Dim_units = [ppm]
Dimensions = X
Site = ECX 400P
Spectrometer = DELTA2_NMR
Field_strength = 9.389766[T] (400[MHz]
X_acq_duration = 1.04333312[s]
X_domain = 13C
X_freq = 100.52530333[MHz]
X_offset = 100[ppm]
X_points = 32768
X_prescans = 4
X_resolution = 0.95846665[Hz]
X_sweep = 31.40703518[kHz]
Irr_domain = 1H
Irr_freq = 399.78219838[MHz]
Irr_offset = 5[ppm]
Clipped = FALSE
Mod_return = 1
Scans = 500
Total_scans = 500
X_90_width = 10.2[us]
X_acq_time = 1.04333312[s]
X_angle = 30[deg]
X_atn = 3.8[dB]
X_pulse = 3.4[us]
Irr_atn_dec = 21.5[dB]
Irr_atn_noe = 21.5[dB]
Irr_noise = WALTZ
Decoupling = TRUE
Initial_wait = 1[s]
Noe = TRUE
Noe_time = 2[s]
Recvr_gain = 60
Relaxation_delay = 2[s]
Repetition_time = 3.04333312[s]
Temp_get = 18.5[dC]
171.2684
169.6380
165.5953
159.3120
150.5497
138.0308
129.7644
129.3353
128.6011
126.8372
119.0570
118.8568
113.8893
113.6319
77.3146
77.0000
76.6758
62.7267
61.6684
61.2584
60.3049
59.4659
55.2421
53.3733
44.8685
34.9144
34.7523
16.5126
14.1862
14.1004
13.6713



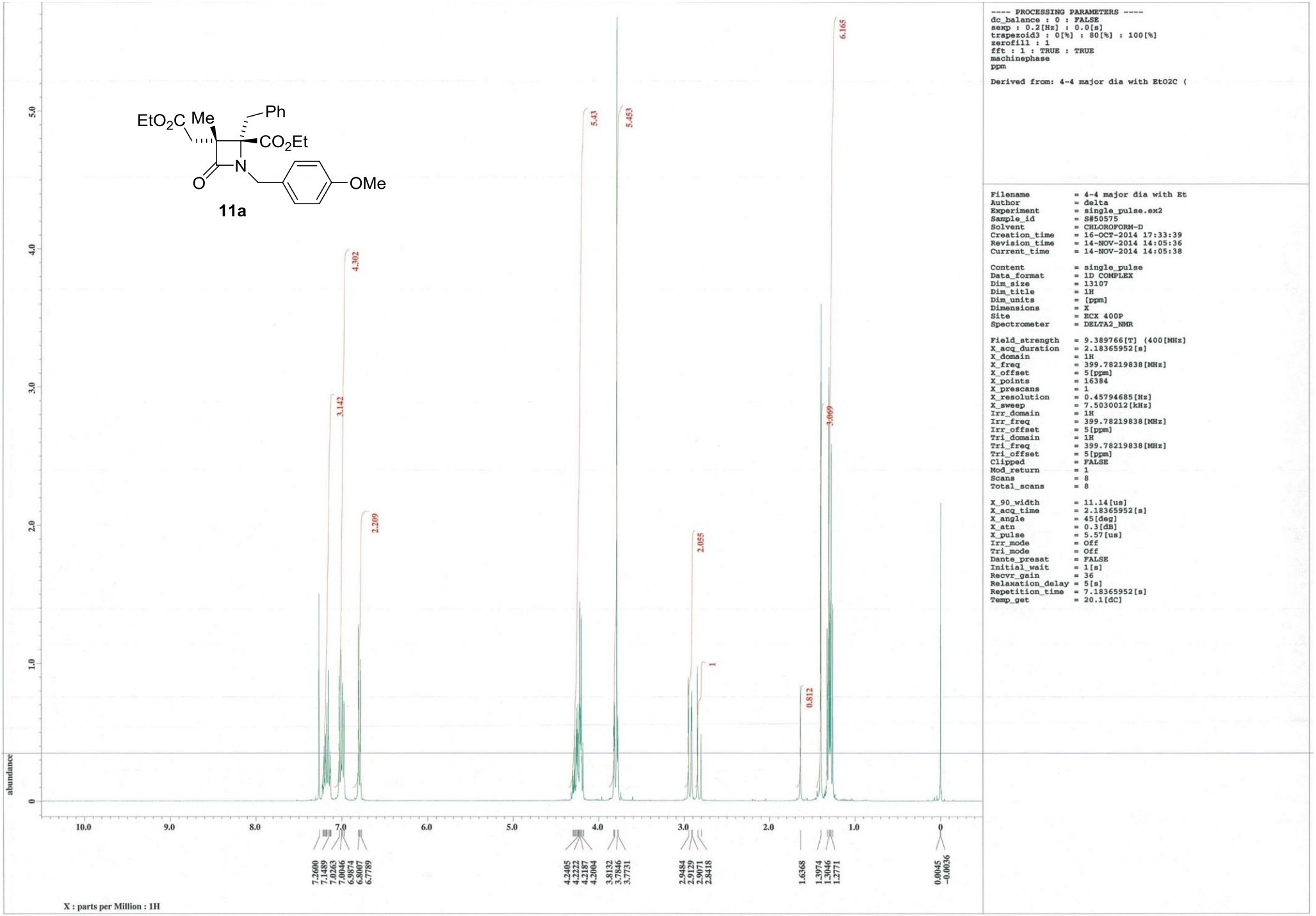

```
---- PROCESSING PARAMETERS ----
dc_balance : 0 : FALSE
sexp : 0.2[Hz] : 0.0[s]
trapezoid3 : 0[%] : 80[%] : 100[%]
zerofill : 1
fft : 1 : TRUE : TRUE
machinephase
ppm

Derived from: YP282-1.jdf
```

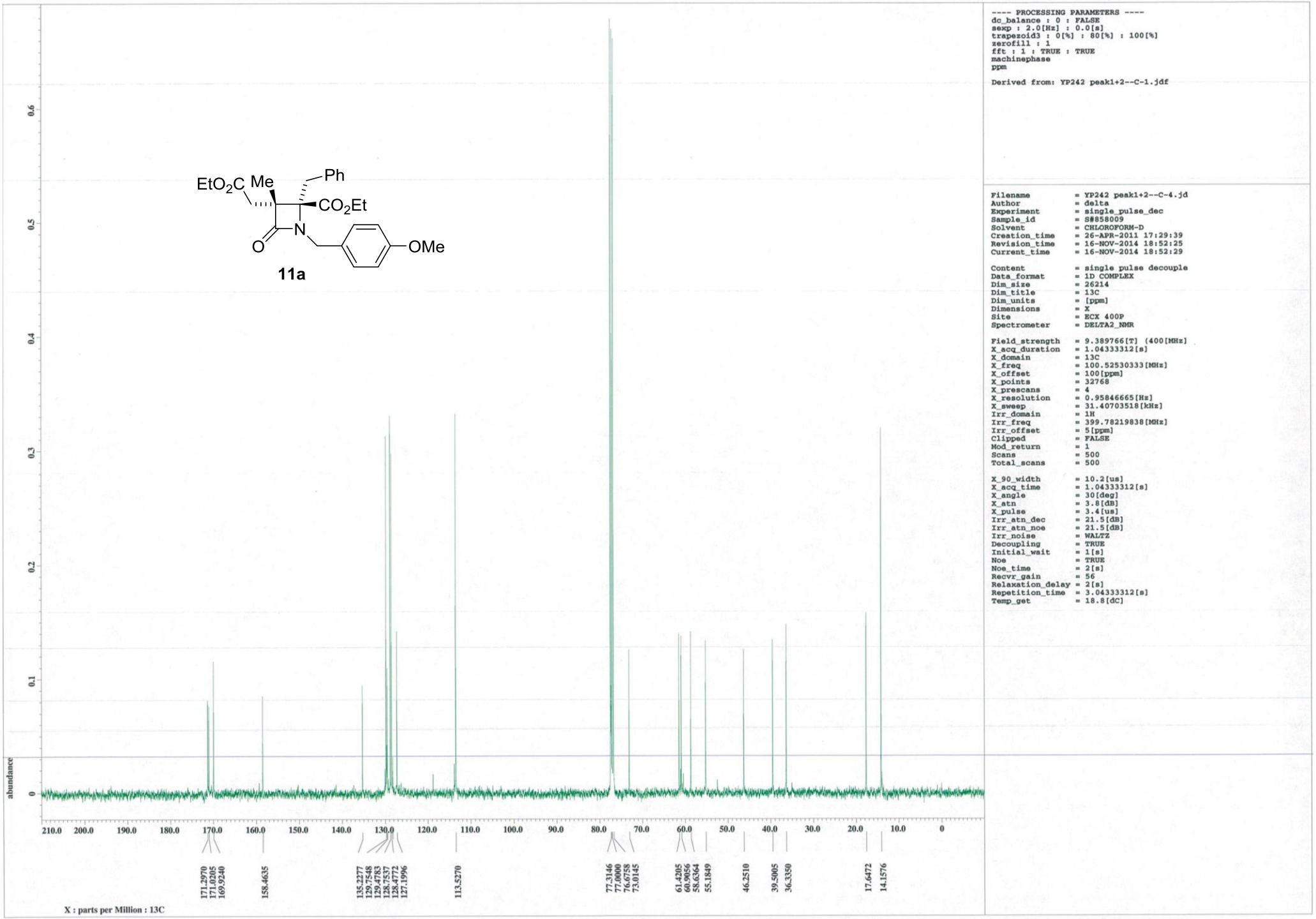
```
Filename          = YP282-5.jdf
Author            = delta
Experiment        = single_pulse.ex2
Sample_id         = S#804365
Solvent           = CHLOROFORM-D
Creation_time     =  8-JUL-2011 15:28:14
Revision_time     = 16-NOV-2014 17:04:49
Current_time      = 16-NOV-2014 17:04:52

Content           = single_pulse
Data_format       = 1D COMPLEX
Dim_size          = 13107
Dim_title         = 1H
Dim_units         = [ppm]
Dimensions        = X
Site              = ECX 400P
Spectrometer      = DELTA2_NMR

Field_strength    = 9.389766[T] (400[MHz]
X_acq_duration    = 2.18365952[s]
X_domain          = 1H
X_freq            = 399.78219838[MHz]
X_offset          = 5[ppm]
X_points          = 16384
X_prescans        = 1
X_resolution      = 0.45794685[Hz]
X_sweep           = 7.5030012[kHz]
Irr_domain        = 1H
Irr_freq          = 399.78219838[MHz]
Irr_offset        = 5[ppm]
Tri_domain        = 1H
Tri_freq          = 399.78219838[MHz]
Tri_offset        = 5[ppm]
Clipped           = FALSE
Mod_return        = 1
Scans             = 8
Total_scans       = 8

X_90_width        = 10[us]
X_acq_time        = 2.18365952[s]
X_angle           = 45[deg]
X_atn             = 0.3[dB]
X_pulse           = 5[us]
Irr_mode          = Off
Tri_mode          = Off
Dante_presat      = FALSE
Initial_wait      = 1[s]
Recvr_gain        = 36
Relaxation_delay  = 5[s]
Repetition_time   = 7.18365952[s]
Temp_get          = 20.9[dC]
```

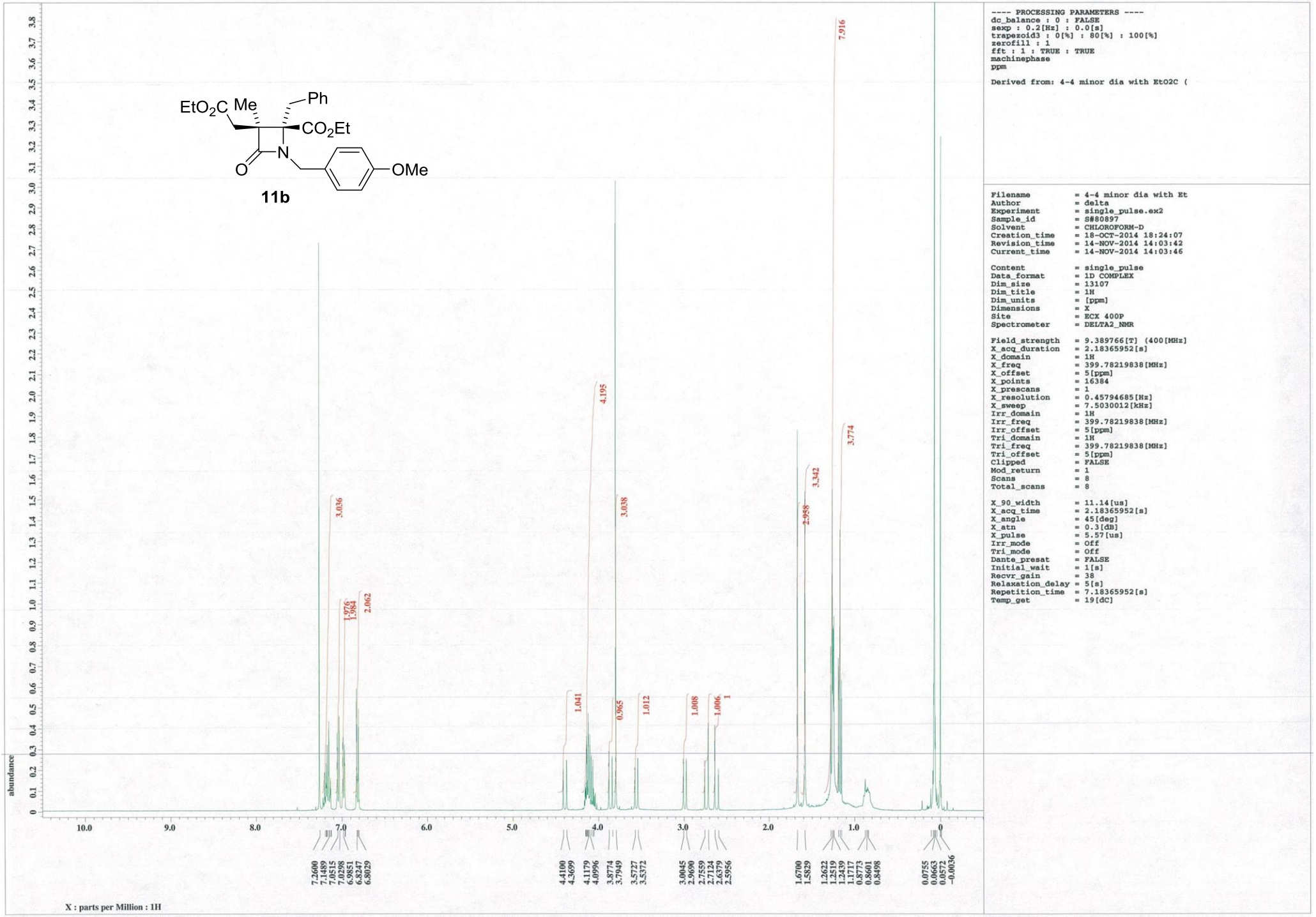


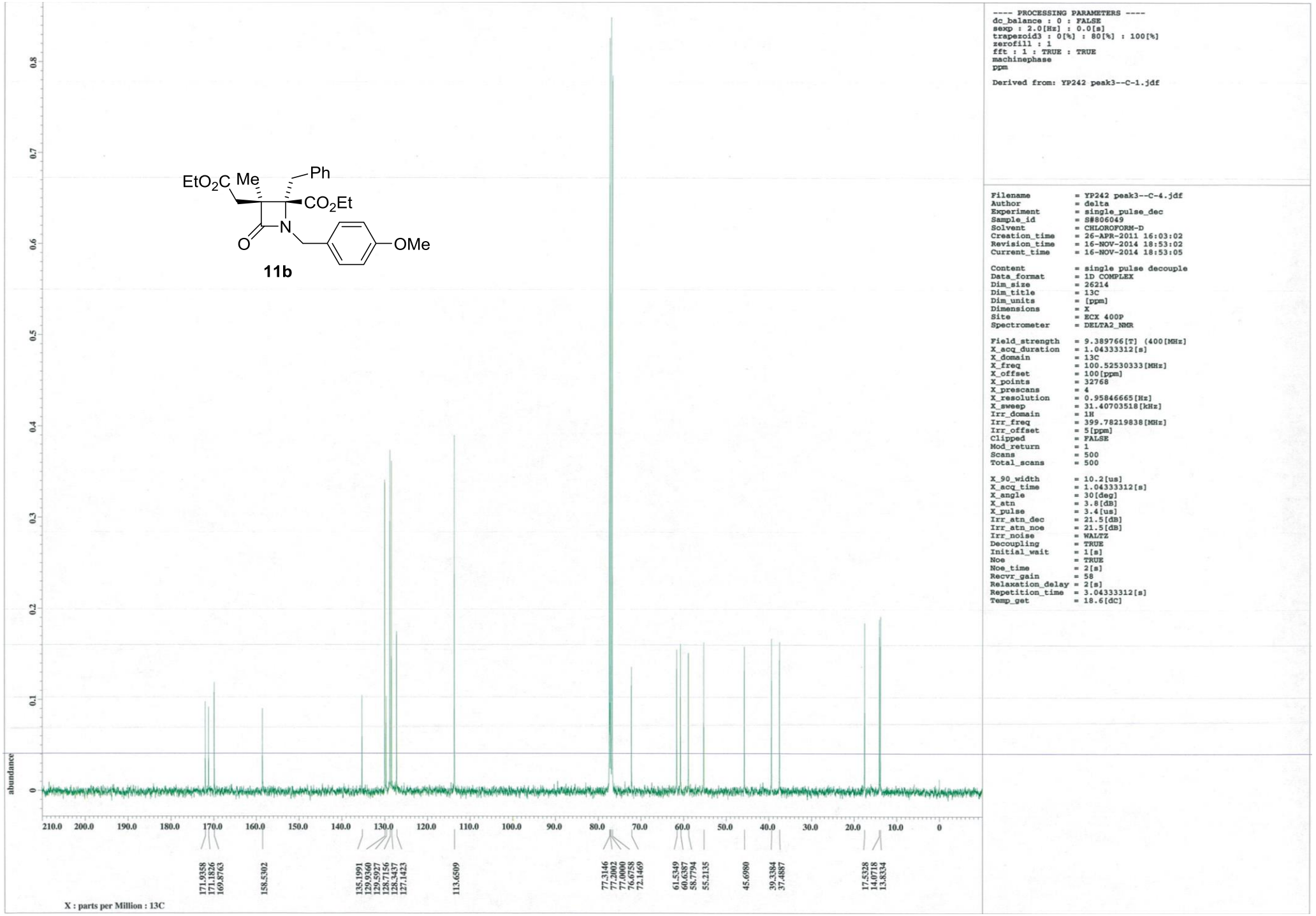

```
---- PROCESSING PARAMETERS ----
dc_balance : 0 : FALSE
sexp : 0.2[Hz] : 0.0[s]
trapezoid3 : 0[%] : 80[%] : 100[%]
zerofill : 1
fft : 1 : TRUE : TRUE
machinephase
ppm

Derived from: YP386 crude-1.jdf
```

```
Filename          = YP386 crude-4.jdf
Author            = delta
Experiment        = single_pulse.ex2
Sample_id         = S#613795
Solvent           = CHLOROFORM-D
Creation_time     = 25-NOV-2011 10:00:33
Revision_time     = 16-NOV-2014 18:24:12
Current_time      = 16-NOV-2014 18:24:20

Content           = single_pulse
Data_format       = 1D COMPLEX
Dim_size          = 13107
Dim_title         = 1H
Dim_units         = [ppm]
Dimensions        = X
Site              = ECX 400P
Spectrometer      = DELTA2_NMR

Field_strength    = 9.389766[T] (400[MHz]
X_acq_duration    = 2.18365952[s]
X_domain          = 1H
X_freq            = 399.78219838[MHz]
X_offset          = 5[ppm]
X_points          = 16384
X_prescans        = 1
X_resolution      = 0.45794685[Hz]
X_sweep           = 7.5030012[kHz]
Irr_domain        = 1H
Irr_freq          = 399.78219838[MHz]
Irr_offset        = 5[ppm]
Tri_domain        = 1H
Tri_freq          = 399.78219838[MHz]
Tri_offset        = 5[ppm]
Clipped           = FALSE
Mod_return        = 1
Scans             = 8
Total_scans       = 8

X_90_width        = 10[us]
X_acq_time        = 2.18365952[s]
X_angle           = 45[deg]
X_atn             = 0.3[dB]
X_pulse           = 5[us]
Irr_mode          = Off
Tri_mode          = Off
Dante_presat      = FALSE
Initial_wait      = 1[s]
Recvr_gain        = 40
Relaxation_delay  = 5[s]
Repetition_time   = 7.18365952[s]
Temp_get          = 18.6[dC]
```


EtO2C Me
Ph
CO2Et
O
N
OMe
11a
---- PROCESSING PARAMETERS ----
dc_balance : 0 : FALSE
sexp : 0.2[Hz] : 0.0[s]
trapezoid3 : 0[%] : 80[%] : 100[%]
zerofill : 1
fft : 1 : TRUE : TRUE
machinephase
ppm
Derived from: 4-4 major dia with Et02C (
Filename = 4-4 major dia with Et
Author = delta
Experiment = single_pulse.ex2
Sample_id = S#50575
Solvent = CHLOROFORM-D
Creation_time = 16-OCT-2014 17:33:39
Revision_time = 14-NOV-2014 14:05:36
Current_time = 14-NOV-2014 14:05:38
Content = single_pulse
Data_format = 1D COMPLEX
Dim_size = 13107
Dim_title = 1H
Dim_units = [ppm]
Dimensions = X
Site = ECX 400P
Spectrometer = DELTA2_NMR
Field_strength = 9.389766[T] (400[MHz]
X_acq_duration = 2.18365952[s]
X_domain = 1H
X_freq = 399.78219838[MHz]
X_offset = 5[ppm]
X_points = 16384
X_prescans = 1
X_resolution = 0.45794685[Hz]
X_sweep = 7.5030012[kHz]
Irr_domain = 1H
Irr_freq = 399.78219838[MHz]
Irr_offset = 5[ppm]
Tri_domain = 1H
Tri_freq = 399.78219838[MHz]
Tri_offset = 5[ppm]
Clipped = FALSE
Mod_return = 1
Scans = 8
Total_scans = 8
X_90_width = 11.14[us]
X_acq_time = 2.18365952[s]
X_angle = 45[deg]
X_atn = 0.3[dB]
X_pulse = 5.57[us]
Irr_mode = Off
Tri_mode = Off
Dante_presat = FALSE
Initial_wait = 1[s]
Recvr_gain = 36
Relaxation_delay = 5[s]
Repetition_time = 7.18365952[s]
Temp_get = 20.1[dC]
abundance
5.0
4.0
3.0
2.0
1.0
0
6.165
5.453
5.43
4.302
3.142
3.069
2.209
2.055
1
0.812
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0
7.2600
7.1489
7.0263
7.0046
6.9874
6.8007
6.7789
4.2405
4.2222
4.2187
4.2004
3.8132
3.7846
3.7731
2.9484
2.9129
2.9071
2.8418
1.6368
1.3974
1.3046
1.2771
0.0045
−0.0036
X : parts per Million : 1H

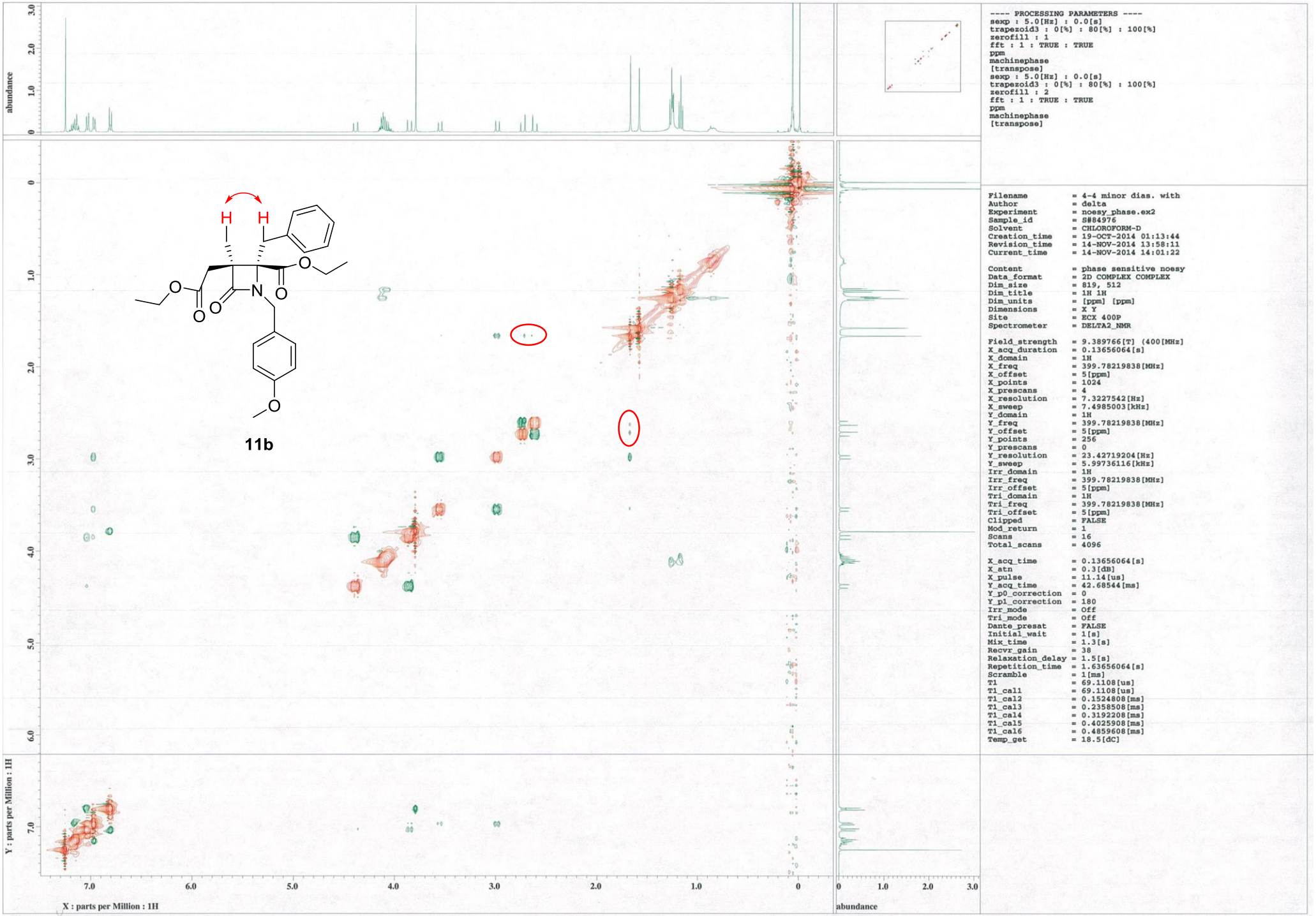

EtO2C Me
Ph
CO2Et
N
O
OMe
11a
abundance
X : parts per Million : 13C
171.2970
171.0205
169.9240
158.4635
135.2277
129.7548
129.4783
128.7537
128.4772
127.1996
113.5270
77.3146
77.0000
76.6758
73.0145
61.4205
60.9056
58.6364
55.1849
46.2510
39.5005
36.3350
17.6472
14.1576
---- PROCESSING PARAMETERS ----
dc_balance : 0 : FALSE
sexp : 2.0[Hz] : 0.0[s]
trapezoid3 : 0[%] : 80[%] : 100[%]
zerofill : 1
fft : 1 : TRUE : TRUE
machinephase
ppm
Derived from: YP242 peak1+2--C-1.jdf
Filename = YP242 peak1+2--C-4.jd
Author = delta
Experiment = single_pulse_dec
Sample_id = S#858009
Solvent = CHLOROFORM-D
Creation_time = 26-APR-2011 17:29:39
Revision_time = 16-NOV-2014 18:52:25
Current_time = 16-NOV-2014 18:52:29
Content = single pulse decouple
Data_format = 1D COMPLEX
Dim_size = 26214
Dim_title = 13C
Dim_units = [ppm]
Dimensions = X
Site = ECX 400P
Spectrometer = DELTA2_NMR
Field_strength = 9.389766[T] (400[MHz]
X_acq_duration = 1.04333312[s]
X_domain = 13C
X_freq = 100.52530333[MHz]
X_offset = 100[ppm]
X_points = 32768
X_prescans = 4
X_resolution = 0.95846665[Hz]
X_sweep = 31.40703518[kHz]
Irr_domain = 1H
Irr_freq = 399.78219838[MHz]
Irr_offset = 5[ppm]
Clipped = FALSE
Mod_return = 1
Scans = 500
Total_scans = 500
X_90_width = 10.2[us]
X_acq_time = 1.04333312[s]
X_angle = 30[deg]
X_atn = 3.8[dB]
X_pulse = 3.4[us]
Irr_atn_dec = 21.5[dB]
Irr_atn_noe = 21.5[dB]
Irr_noise = WALTZ
Decoupling = TRUE
Initial_wait = 1[s]
Noe = TRUE
Noe_time = 2[s]
Recvr_gain = 56
Relaxation_delay = 2[s]
Repetition_time = 3.04333312[s]
Temp_get = 18.8[dC]


EtO2C Me
Ph
CO2Et
N
O
OMe
11b
---- PROCESSING PARAMETERS ----
dc_balance : 0 : FALSE
sexp : 0.2[Hz] : 0.0[s]
trapezoid3 : 0[%] : 80[%] : 100[%]
zerofill : 1
fft : 1 : TRUE : TRUE
machinephase
ppm
Derived from: 4-4 minor dia with EtO2C (
Filename = 4-4 minor dia with Et
Author = delta
Experiment = single_pulse.ex2
Sample_id = S#80897
Solvent = CHLOROFORM-D
Creation_time = 18-OCT-2014 18:24:07
Revision_time = 14-NOV-2014 14:03:42
Current_time = 14-NOV-2014 14:03:46
Content = single_pulse
Data_format = 1D COMPLEX
Dim_size = 13107
Dim_title = 1H
Dim_units = [ppm]
Dimensions = X
Site = ECX 400P
Spectrometer = DELTA2_NMR
Field_strength = 9.389766[T] (400[MHz]
X_acq_duration = 2.18365952[s]
X_domain = 1H
X_freq = 399.78219838[MHz]
X_offset = 5[ppm]
X_points = 16384
X_prescans = 1
X_resolution = 0.45794685[Hz]
X_sweep = 7.5030012[kHz]
Irr_domain = 1H
Irr_freq = 399.78219838[MHz]
Irr_offset = 5[ppm]
Tri_domain = 1H
Tri_freq = 399.78219838[MHz]
Tri_offset = 5[ppm]
Clipped = FALSE
Mod_return = 1
Scans = 8
Total_scans = 8
X_90_width = 11.14[us]
X_acq_time = 2.18365952[s]
X_angle = 45[deg]
X_atn = 0.3[dB]
X_pulse = 5.57[us]
Irr_mode = Off
Tri_mode = Off
Dante_presat = FALSE
Initial_wait = 1[s]
Recvr_gain = 38
Relaxation_delay = 5[s]
Repetition_time = 7.18365952[s]
Temp_get = 19[dC]
abundance
X : parts per Million : 1H



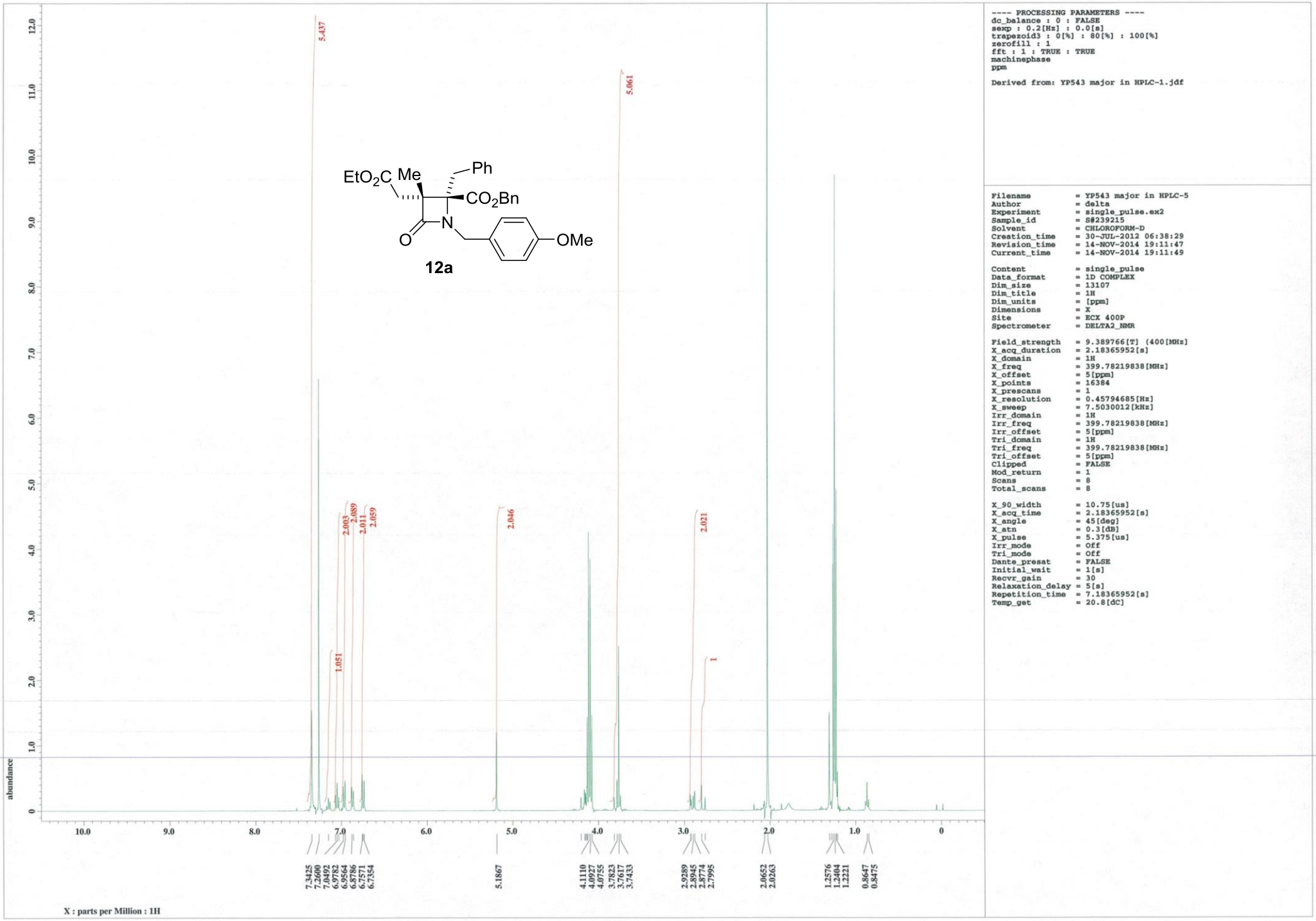

```
---- PROCESSING PARAMETERS ----
dc_balance : 0 : FALSE
sexp : 2.0[Hz] : 0.0[s]
trapezoid3 : 0[%] : 80[%] : 100[%]
zerofill : 1
fft : 1 : TRUE : TRUE
machinephase
ppm

Derived from: YP242 peak3--C-1.jdf
```

```
Filename          = YP242 peak3--C-4.jdf
Author            = delta
Experiment        = single_pulse_dec
Sample_id         = S#806049
Solvent           = CHLOROFORM-D
Creation_time     = 26-APR-2011 16:03:02
Revision_time     = 16-NOV-2014 18:53:02
Current_time      = 16-NOV-2014 18:53:05

Content           = single pulse decouple
Data_format       = 1D COMPLEX
Dim_size          = 26214
Dim_title         = 13C
Dim_units         = [ppm]
Dimensions        = X
Site              = ECX 400P
Spectrometer      = DELTA2_NMR

Field_strength    = 9.389766[T] (400[MHz]
X_acq_duration    = 1.04333312[s]
X_domain          = 13C
X_freq            = 100.52530333[MHz]
X_offset          = 100[ppm]
X_points          = 32768
X_prescans        = 4
X_resolution      = 0.95846665[Hz]
X_sweep           = 31.40703518[kHz]
Irr_domain        = 1H
Irr_freq          = 399.78219838[MHz]
Irr_offset        = 5[ppm]
Clipped           = FALSE
Mod_return        = 1
Scans             = 500
Total_scans       = 500

X_90_width        = 10.2[us]
X_acq_time        = 1.04333312[s]
X_angle           = 30[deg]
X_atn             = 3.8[dB]
X_pulse           = 3.4[us]
Irr_atn_dec       = 21.5[dB]
Irr_atn_noe       = 21.5[dB]
Irr_noise         = WALTZ
Decoupling        = TRUE
Initial_wait      = 1[s]
Noe               = TRUE
Noe_time          = 2[s]
Recvr_gain        = 58
Relaxation_delay  = 2[s]
Repetition_time   = 3.04333312[s]
Temp_get          = 18.6[dC]
```



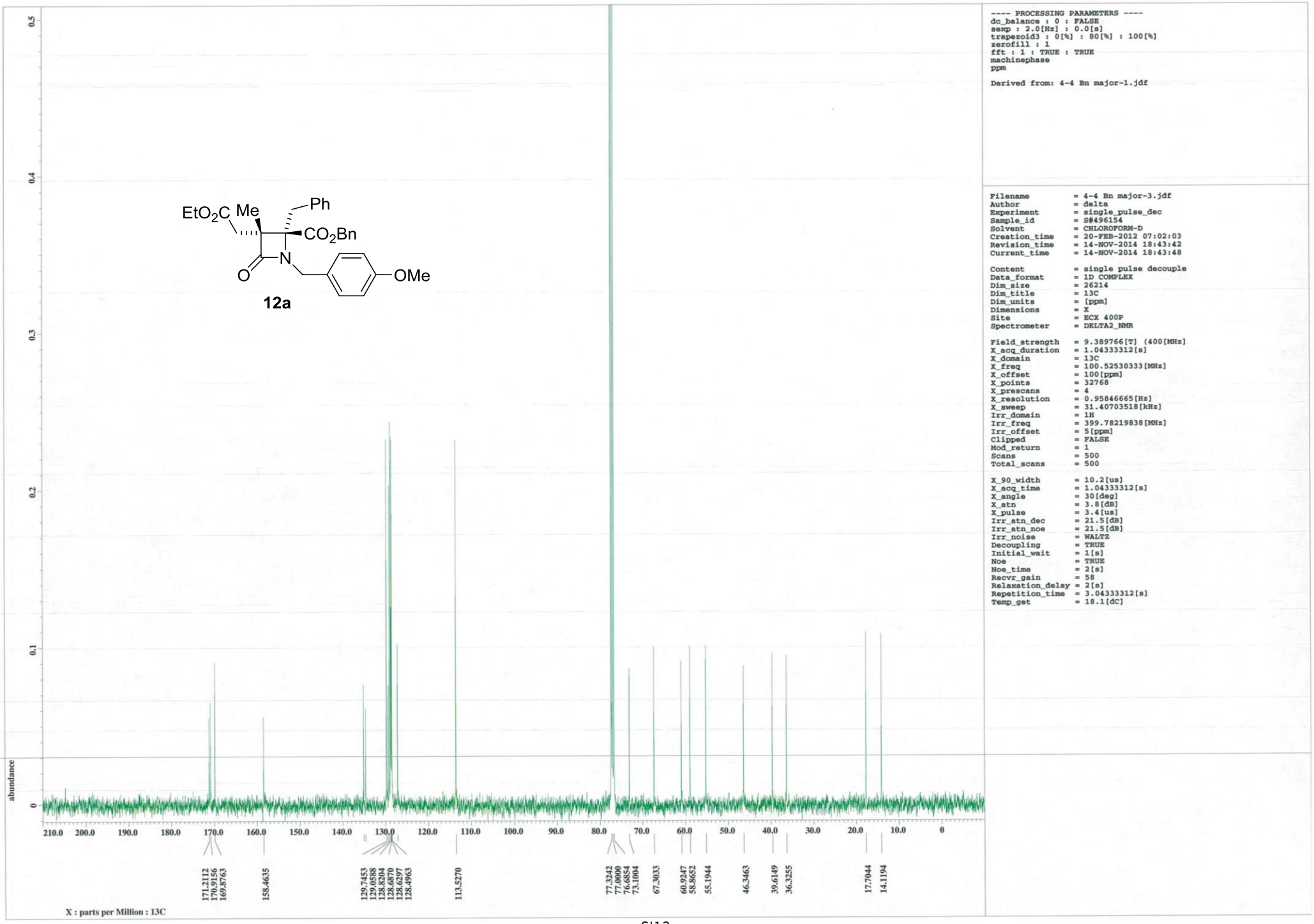

```
---- PROCESSING PARAMETERS ----
sexp : 5.0[Hz] : 0.0[s]
trapezoid3 : 0[%] : 80[%] : 100[%]
zerofill : 1
fft : 1 : TRUE : TRUE
ppm
machinephase
[transpose]
sexp : 5.0[Hz] : 0.0[s]
trapezoid3 : 0[%] : 80[%] : 100[%]
zerofill : 2
fft : 1 : TRUE : TRUE
ppm
machinephase
[transpose]
```

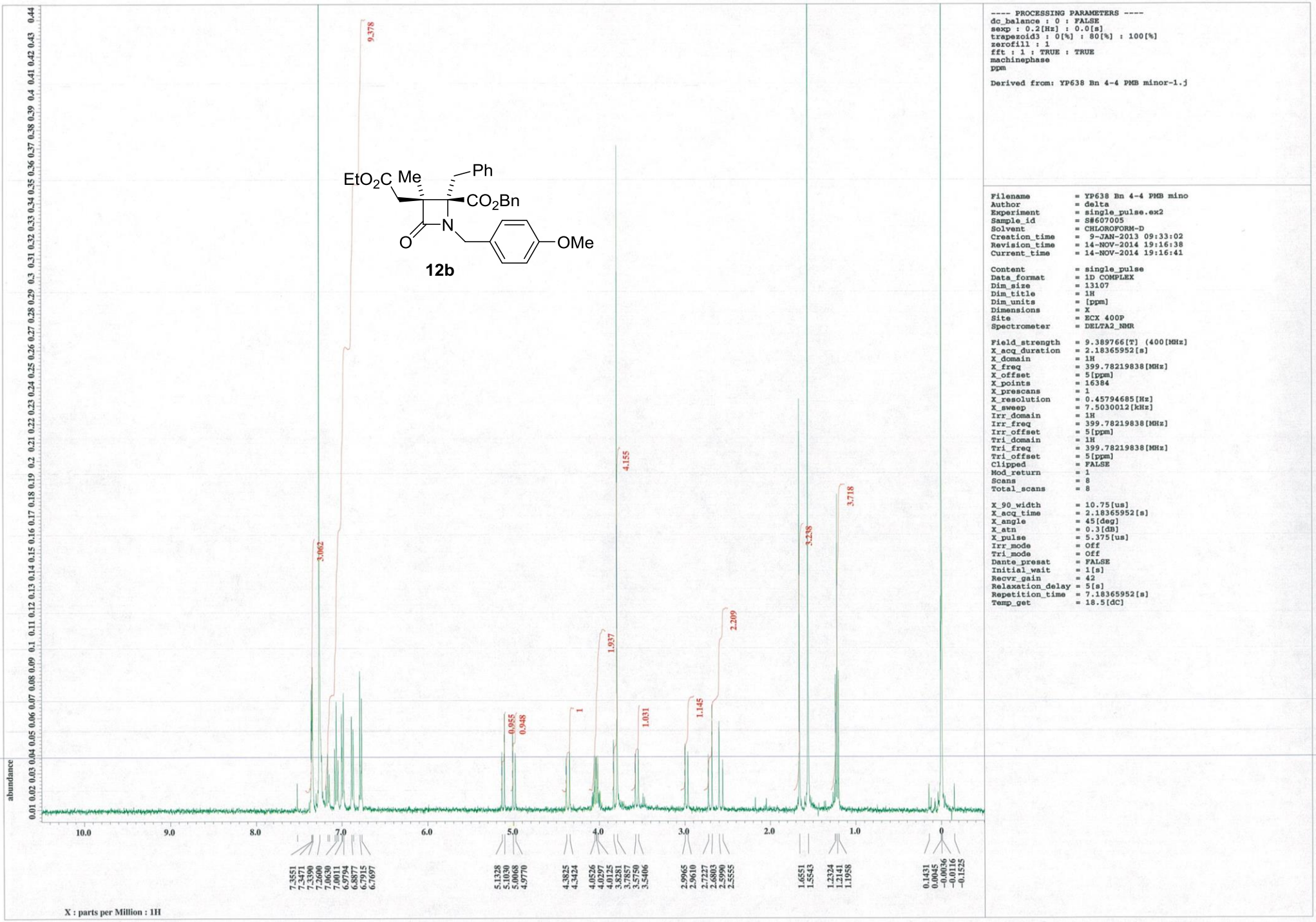
```
Filename            = 4-4 minor dias. with
Author              = delta
Experiment          = noesy_phase.ex2
Sample_id           = S#84976
Solvent             = CHLOROFORM-D
Creation_time       = 19-OCT-2014 01:13:44
Revision_time       = 14-NOV-2014 13:58:11
Current_time        = 14-NOV-2014 14:01:22

Content             = phase sensitive noesy
Data_format         = 2D COMPLEX COMPLEX
Dim_size            = 819, 512
Dim_title           = 1H 1H
Dim_units           = [ppm] [ppm]
Dimensions          = X Y
Site                = ECX 400P
Spectrometer        = DELTA2_NMR

Field_strength      = 9.389766[T] (400[MHz]
X_acq_duration      = 0.13656064[s]
X_domain            = 1H
X_freq              = 399.78219838[MHz]
X_offset            = 5[ppm]
X_points            = 1024
X_prescans          = 4
X_resolution        = 7.3227542[Hz]
X_sweep             = 7.4985003[kHz]
Y_domain            = 1H
Y_freq              = 399.78219838[MHz]
Y_offset            = 5[ppm]
Y_points            = 256
Y_prescans          = 0
Y_resolution        = 23.42719204[Hz]
Y_sweep             = 5.99736116[kHz]
Irr_domain          = 1H
Irr_freq            = 399.78219838[MHz]
Irr_offset          = 5[ppm]
Tri_domain          = 1H
Tri_freq            = 399.78219838[MHz]
Tri_offset          = 5[ppm]
Clipped             = FALSE
Mod_return          = 1
Scans               = 16
Total_scans         = 4096

X_acq_time          = 0.13656064[s]
X_atn               = 0.3[dB]
X_pulse             = 11.14[us]
Y_acq_time          = 42.68544[ms]
Y_p0_correction     = 0
Y_p1_correction     = 180
Irr_mode            = Off
Tri_mode            = Off
Dante_presat        = FALSE
Initial_wait        = 1[s]
Mix_time            = 1.3[s]
Recvr_gain          = 38
Relaxation_delay    = 1.5[s]
Repetition_time     = 1.63656064[s]
Scramble            = 1[ms]
T1                  = 69.1108[us]
T1_cal1             = 69.1108[us]
T1_cal2             = 0.1524808[ms]
T1_cal3             = 0.2358508[ms]
T1_cal4             = 0.3192208[ms]
T1_cal5             = 0.4025908[ms]
T1_cal6             = 0.4859608[ms]
Temp_get            = 18.5[dC]
```

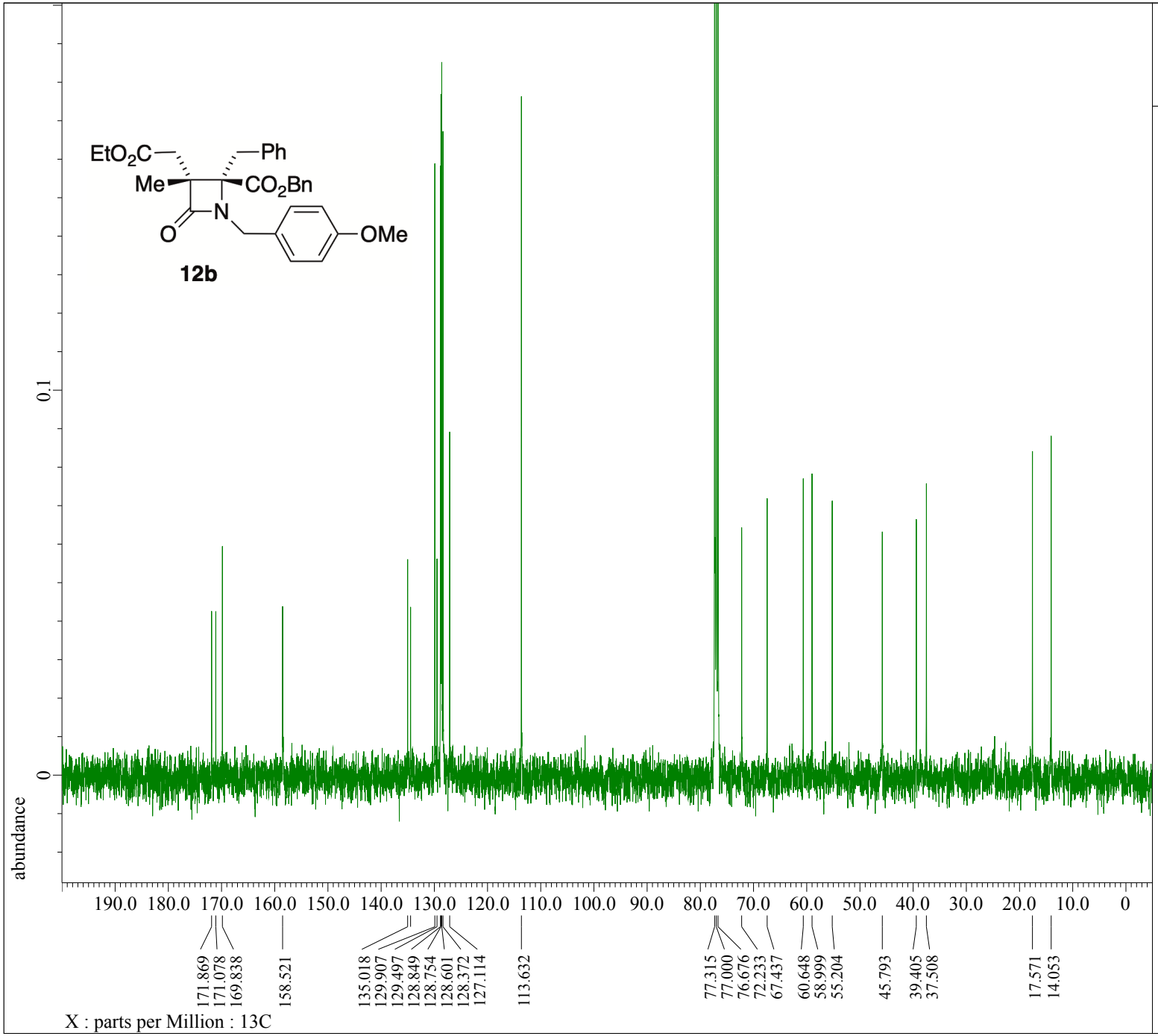



```
---- PROCESSING PARAMETERS ----
dc_balance : 0 : FALSE
sexp : 0.2[Hz] : 0.0[s]
trapezoid3 : 0[%] : 80[%] : 100[%]
zerofill : 1
fft : 1 : TRUE : TRUE
machinephase
ppm

Derived from: YP543 major in HPLC-1.jdf
```

```
Filename          = YP543 major in HPLC-5
Author            = delta
Experiment        = single_pulse.ex2
Sample_id         = S#239215
Solvent           = CHLOROFORM-D
Creation_time     = 30-JUL-2012 06:38:29
Revision_time     = 14-NOV-2014 19:11:47
Current_time      = 14-NOV-2014 19:11:49

Content           = single_pulse
Data_format       = 1D COMPLEX
Dim_size          = 13107
Dim_title         = 1H
Dim_units         = [ppm]
Dimensions        = X
Site              = ECX 400P
Spectrometer      = DELTA2_NMR

Field_strength    = 9.389766[T] (400[MHz]
X_acq_duration    = 2.18365952[s]
X_domain          = 1H
X_freq            = 399.78219838[MHz]
X_offset          = 5[ppm]
X_points          = 16384
X_prescans        = 1
X_resolution      = 0.45794685[Hz]
X_sweep           = 7.5030012[kHz]
Irr_domain        = 1H
Irr_freq          = 399.78219838[MHz]
Irr_offset        = 5[ppm]
Tri_domain        = 1H
Tri_freq          = 399.78219838[MHz]
Tri_offset        = 5[ppm]
Clipped           = FALSE
Mod_return        = 1
Scans             = 8
Total_scans       = 8

X_90_width        = 10.75[us]
X_acq_time        = 2.18365952[s]
X_angle           = 45[deg]
X_atn             = 0.3[dB]
X_pulse           = 5.375[us]
Irr_mode          = Off
Tri_mode          = Off
Dante_presat      = FALSE
Initial_wait      = 1[s]
Recvr_gain        = 30
Relaxation_delay  = 5[s]
Repetition_time   = 7.18365952[s]
Temp_get          = 20.8[dC]
```

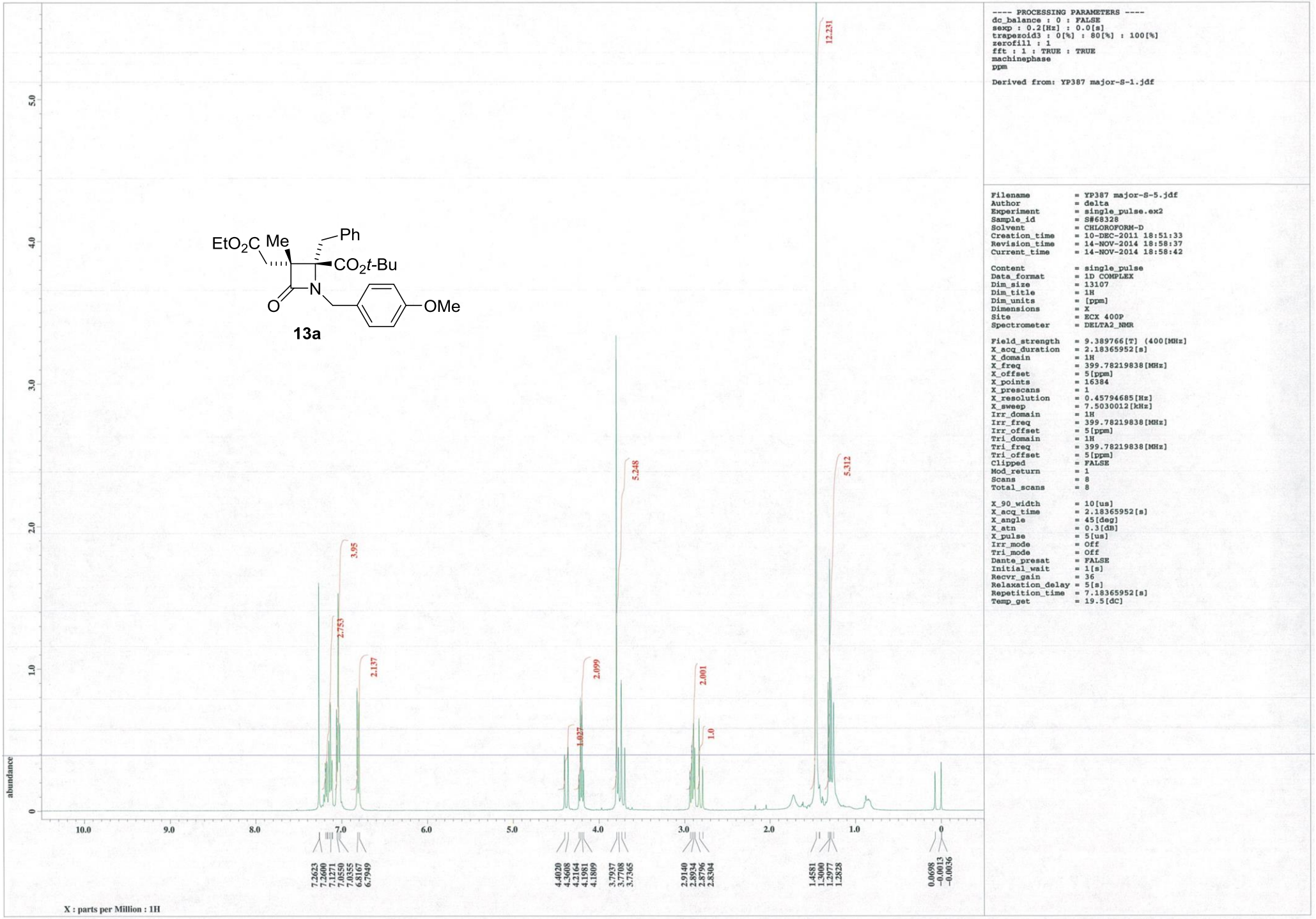

EtO2C Me
Ph
CO2Bn
N
O
OMe
12a
abundance
X : parts per Million : 13C
171.2112
170.9156
169.8763
158.4635
129.7453
129.0588
128.8204
128.6870
128.6297
128.4963
113.5270
77.3242
77.0000
76.6854
73.1004
67.3033
60.9247
58.8652
55.1944
46.3463
39.6149
36.3255
17.7044
14.1194
---- PROCESSING PARAMETERS ----
dc_balance : 0 : FALSE
sexp : 2.0[Hz] : 0.0[s]
trapezoid3 : 0[%] : 80[%] : 100[%]
zerofill : 1
fft : 1 : TRUE : TRUE
machinephase
ppm
Derived from: 4-4 Bn major-1.jdf
Filename = 4-4 Bn major-3.jdf
Author = delta
Experiment = single_pulse_dec
Sample_id = S#496154
Solvent = CHLOROFORM-D
Creation_time = 20-FEB-2012 07:02:03
Revision_time = 14-NOV-2014 18:43:42
Current_time = 14-NOV-2014 18:43:48
Content = single pulse decouple
Data_format = 1D COMPLEX
Dim_size = 26214
Dim_title = 13C
Dim_units = [ppm]
Dimensions = X
Site = ECX 400P
Spectrometer = DELTA2_NMR
Field_strength = 9.389766[T] (400[MHz]
X_acq_duration = 1.04333312[s]
X_domain = 13C
X_freq = 100.52530333[MHz]
X_offset = 100[ppm]
X_points = 32768
X_prescans = 4
X_resolution = 0.95846665[Hz]
X_sweep = 31.40703518[kHz]
Irr_domain = 1H
Irr_freq = 399.78219838[MHz]
Irr_offset = 5[ppm]
Clipped = FALSE
Mod_return = 1
Scans = 500
Total_scans = 500
X_90_width = 10.2[us]
X_acq_time = 1.04333312[s]
X_angle = 30[deg]
X_atn = 3.8[dB]
X_pulse = 3.4[us]
Irr_atn_dec = 21.5[dB]
Irr_atn_noe = 21.5[dB]
Irr_noise = WALTZ
Decoupling = TRUE
Initial_wait = 1[s]
Noe = TRUE
Noe_time = 2[s]
Recvr_gain = 58
Relaxation_delay = 2[s]
Repetition_time = 3.04333312[s]
Temp_get = 18.1[dC]

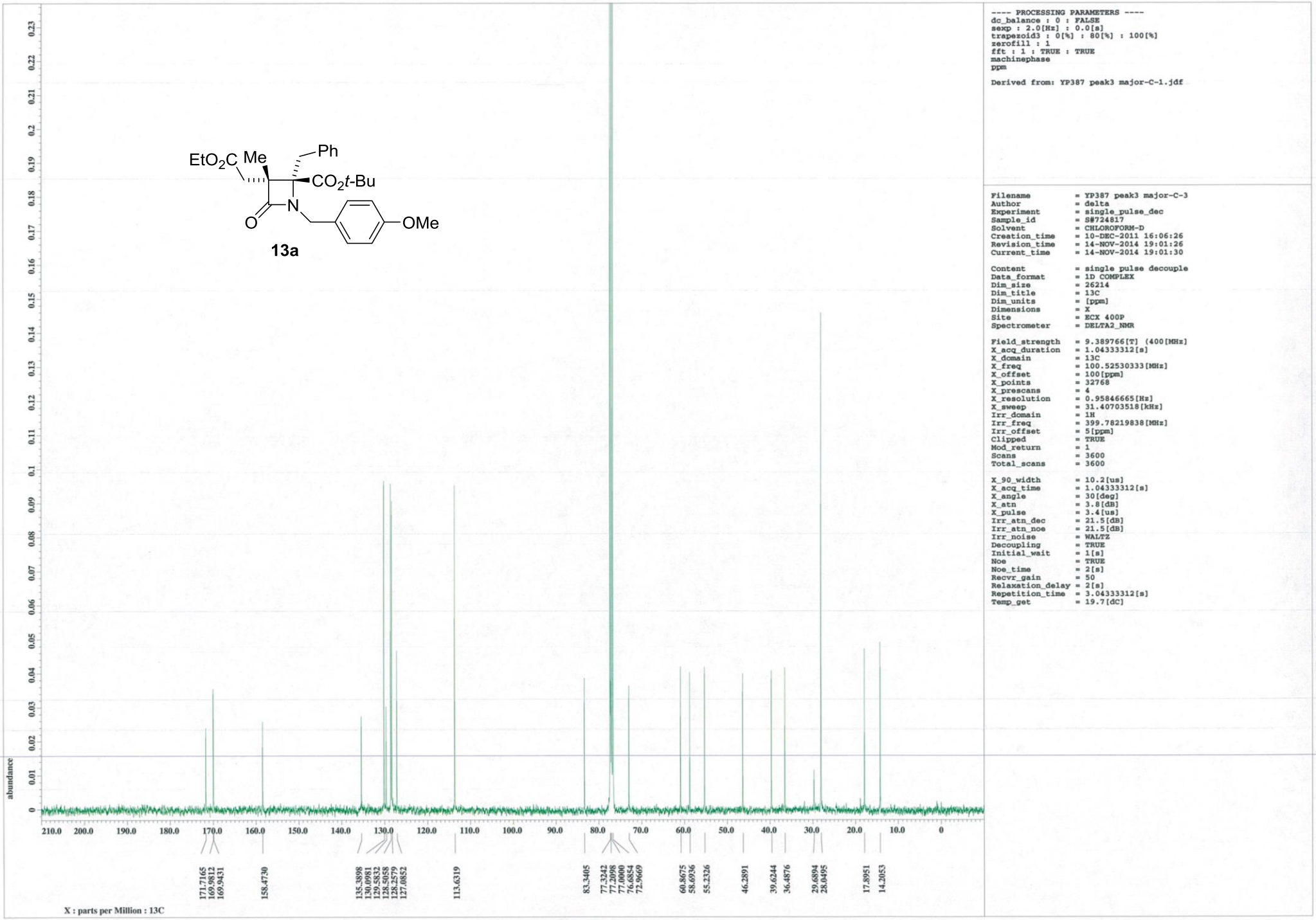

EtO2C Me
Ph
CO2Bn
N
O
OMe
12b
9.378
3.062
4.155
3.718
3.238
1.937
2.209
1.031
1.145
0.955
0.948
1
abundance
X : parts per Million : 1H
---- PROCESSING PARAMETERS ----
dc_balance : 0 : FALSE
sexp : 0.2[Hz] : 0.0[s]
trapezoid3 : 0[%] : 80[%] : 100[%]
zerofill : 1
fft : 1 : TRUE : TRUE
machinephase
ppm
Derived from: YP638 Bn 4-4 PMB minor-1.j
Filename = YP638 Bn 4-4 PMB mino
Author = delta
Experiment = single_pulse.ex2
Sample_id = S#607005
Solvent = CHLOROFORM-D
Creation_time = 9-JAN-2013 09:33:02
Revision_time = 14-NOV-2014 19:16:38
Current_time = 14-NOV-2014 19:16:41
Content = single_pulse
Data_format = 1D COMPLEX
Dim_size = 13107
Dim_title = 1H
Dim_units = [ppm]
Dimensions = X
Site = ECX 400P
Spectrometer = DELTA2_NMR
Field_strength = 9.389766[T] (400[MHz]
X_acq_duration = 2.18365952[s]
X_domain = 1H
X_freq = 399.78219838[MHz]
X_offset = 5[ppm]
X_points = 16384
X_prescans = 1
X_resolution = 0.45794685[Hz]
X_sweep = 7.5030012[kHz]
Irr_domain = 1H
Irr_freq = 399.78219838[MHz]
Irr_offset = 5[ppm]
Tri_domain = 1H
Tri_freq = 399.78219838[MHz]
Tri_offset = 5[ppm]
Clipped = FALSE
Mod_return = 1
Scans = 8
Total_scans = 8
X_90_width = 10.75[us]
X_acq_time = 2.18365952[s]
X_angle = 45[deg]
X_atn = 0.3[dB]
X_pulse = 5.375[us]
Irr_mode = Off
Tri_mode = Off
Dante_presat = FALSE
Initial_wait = 1[s]
Recvr_gain = 42
Relaxation_delay = 5[s]
Repetition_time = 7.18365952[s]
Temp_get = 18.5[dC]

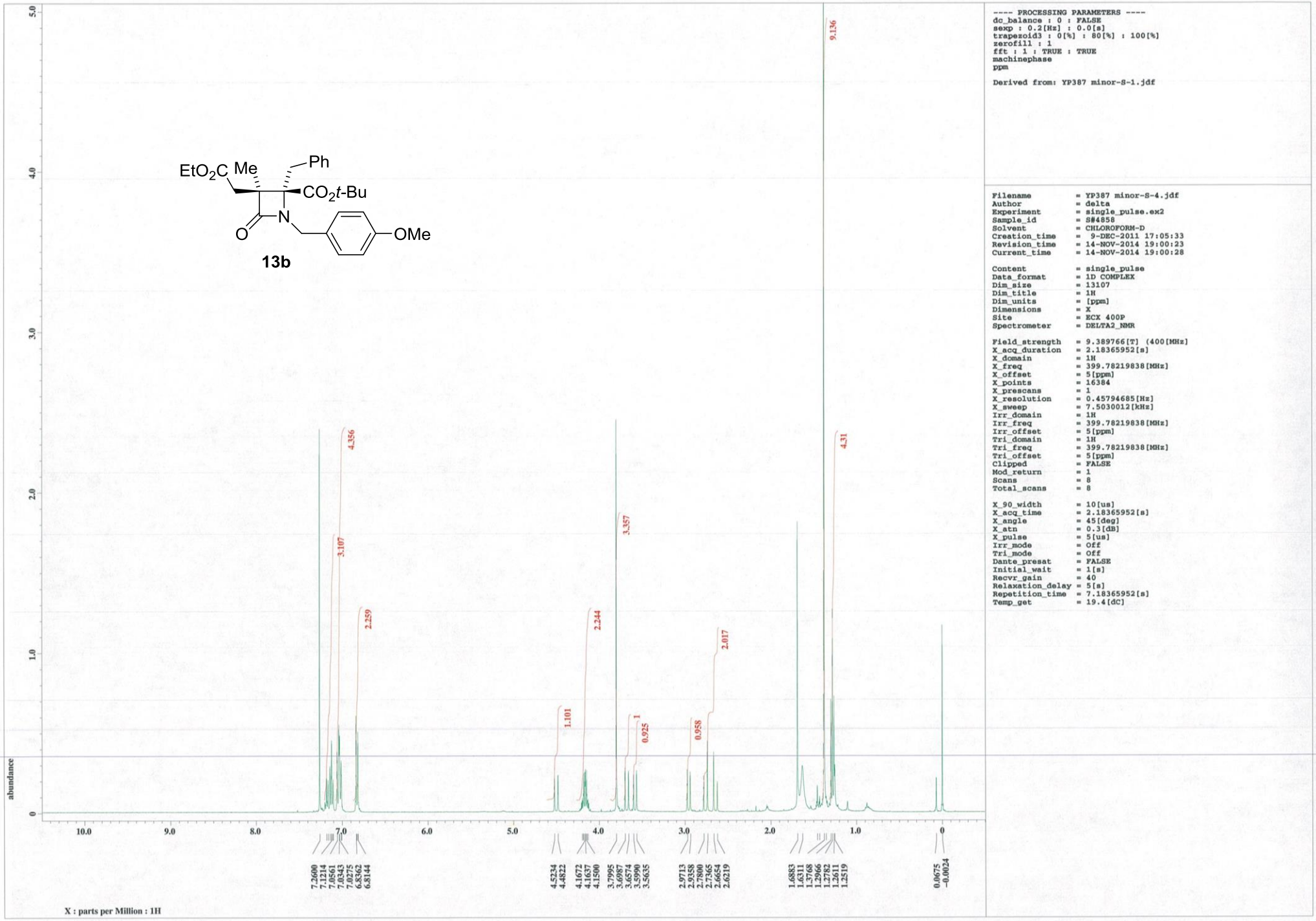


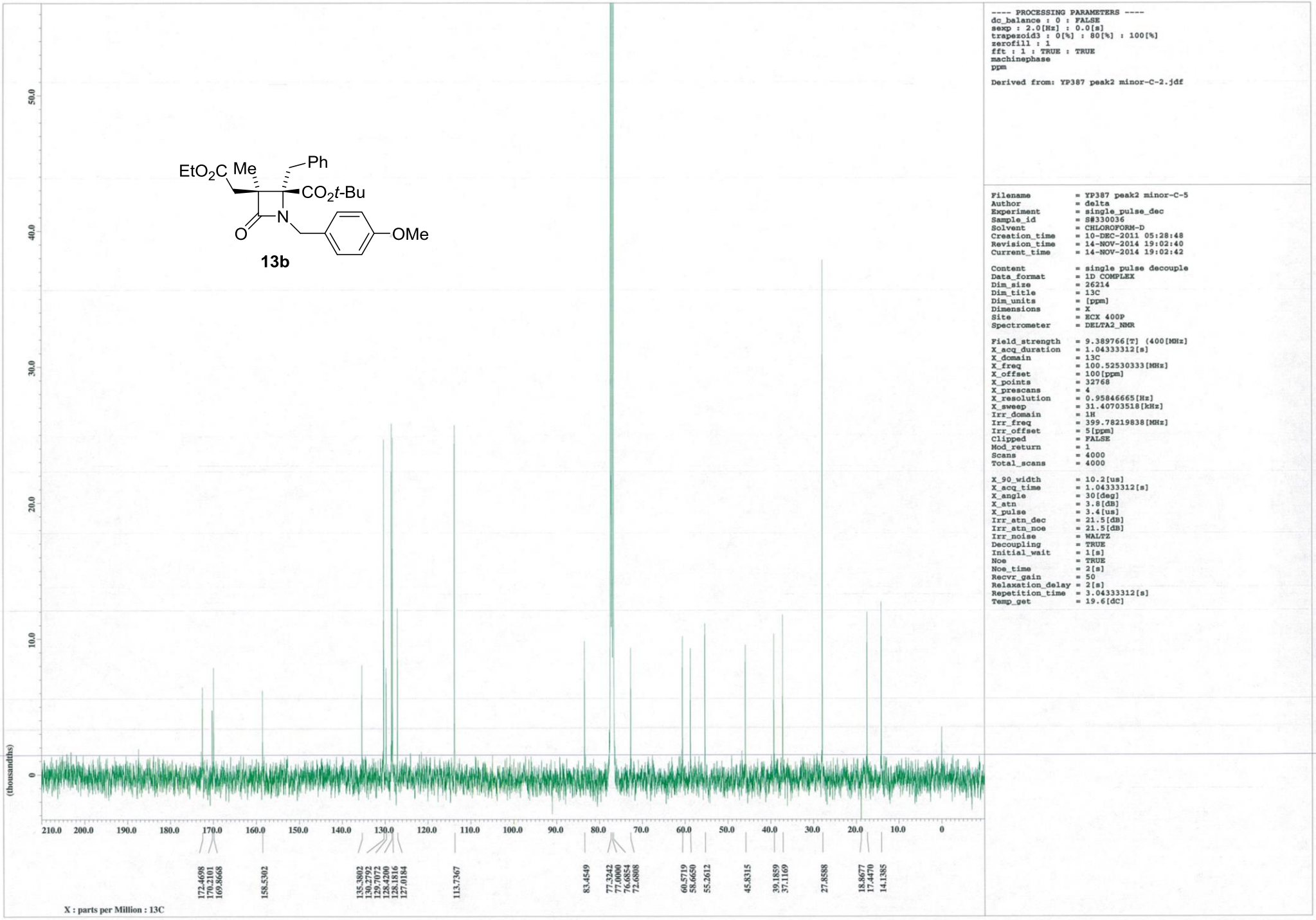
JEOL

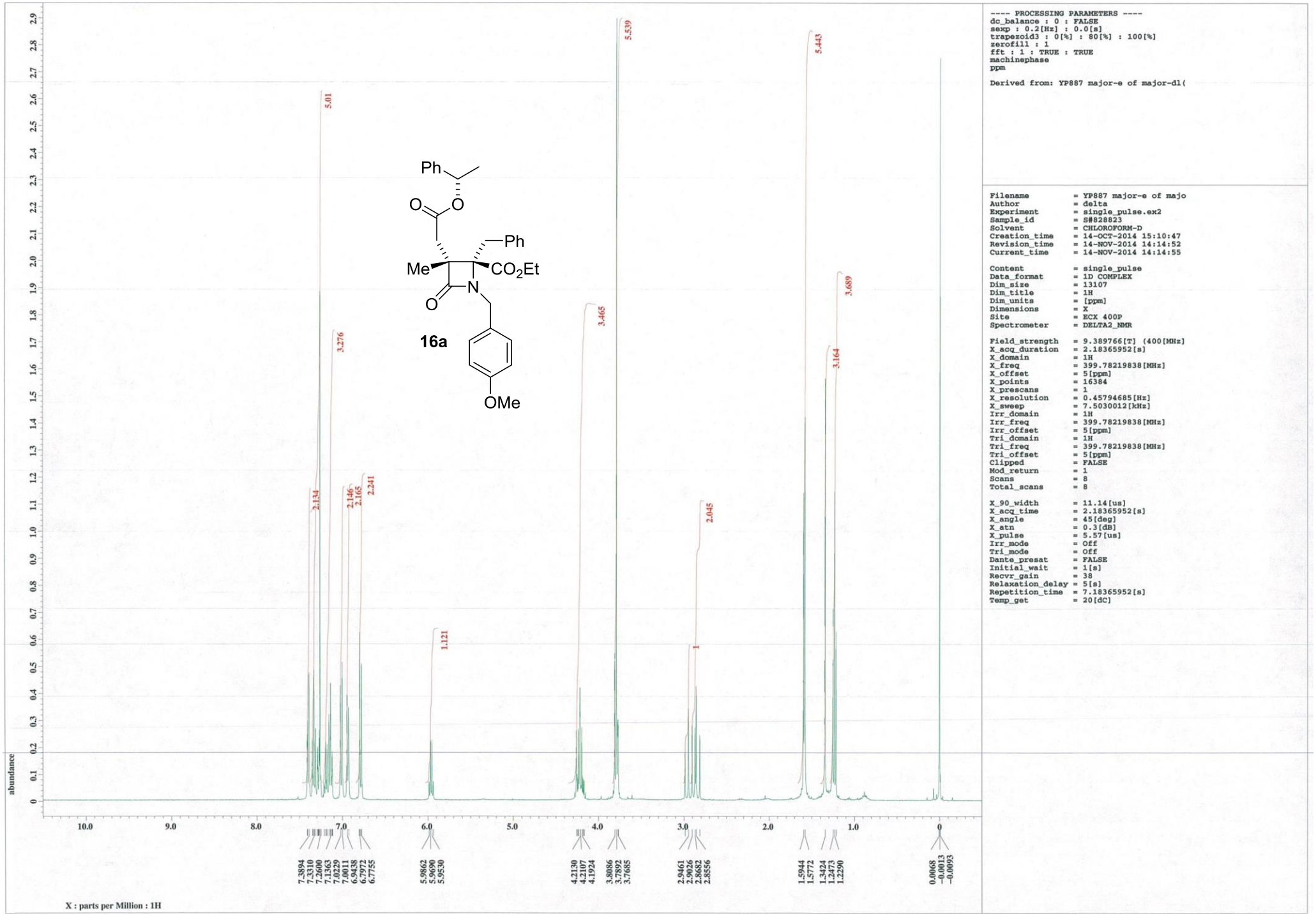
```
Filename            = 4-4 Bn minor-2.jdf
Author              = delta
Experiment          = single_pulse_dec
Sample_Id           = S#691282
Solvent             = CHLOROFORM-D
Actual_Start_Time   = 20-FEB-2012 21:01:42
Revision_Time       = 17-SEP-2019 14:15:13

Comment             = single pulse decoupled ga
Data_Format         = 1D COMPLEX
Dim_Size            = 26214
X_Domain            = 13C
Dim_Title           = 13C
Dim_Units           = [ppm]
Dimensions          = X
Site                = ECX 400P
Spectrometer        = DELTA2_NMR

Field_Strength      = 9.389766[T] (400[MHz])
X_Acq_Duration      = 1.04333312[s]
X_Domain            = 13C
X_Freq              = 100.52530333[MHz]
X_Offset            = 100[ppm]
X_Points            = 32768
X_Prescans          = 4
X_Resolution        = 0.95846665[Hz]
X_Sweep             = 31.40703518[kHz]
Irr_Domain          = 1H
Irr_Freq            = 399.78219838[MHz]
Irr_Offset          = 5[ppm]
Clipped             = FALSE
Scans               = 500
Total_Scans         = 500

Relaxation_Delay    = 2[s]
Recvr_Gain          = 58
Temp_Get            = 18.7[dC]
X_90_Width          = 10.2[us]
X_Acq_Time          = 1.04333312[s]
X_Angle             = 30[deg]
X_Atn               = 3.8[dB]
X_Pulse             = 3.4[us]
Irr_Atn_Dec         = 21.5[dB]
Irr_Atn_Noe         = 21.5[dB]
Irr_Noise           = WALTZ
Decoupling          = TRUE
Initial_Wait        = 1[s]
Noe                 = TRUE
Noe_Time            = 2[s]
Repetition_Time     = 3.04333312[s]
```


EtO2C Me
Ph
CO2t-Bu
N
O
OMe
13a
---- PROCESSING PARAMETERS ----
dc_balance : 0 : FALSE
sexp : 0.2[Hz] : 0.0[s]
trapezoid3 : 0[%] : 80[%] : 100[%]
zerofill : 1
fft : 1 : TRUE : TRUE
machinephase
ppm
Derived from: YP387 major-S-1.jdf
Filename = YP387 major-S-5.jdf
Author = delta
Experiment = single_pulse.ex2
Sample_id = S#68328
Solvent = CHLOROFORM-D
Creation_time = 10-DEC-2011 18:51:33
Revision_time = 14-NOV-2014 18:58:37
Current_time = 14-NOV-2014 18:58:42
Content = single_pulse
Data_format = 1D COMPLEX
Dim_size = 13107
Dim_title = 1H
Dim_units = [ppm]
Dimensions = X
Site = ECX 400P
Spectrometer = DELTA2_NMR
Field_strength = 9.389766[T] (400[MHz]
X_acq_duration = 2.18365952[s]
X_domain = 1H
X_freq = 399.78219838[MHz]
X_offset = 5[ppm]
X_points = 16384
X_prescans = 1
X_resolution = 0.45794685[Hz]
X_sweep = 7.5030012[kHz]
Irr_domain = 1H
Irr_freq = 399.78219838[MHz]
Irr_offset = 5[ppm]
Tri_domain = 1H
Tri_freq = 399.78219838[MHz]
Tri_offset = 5[ppm]
Clipped = FALSE
Mod_return = 1
Scans = 8
Total_scans = 8
X_90_width = 10[us]
X_acq_time = 2.18365952[s]
X_angle = 45[deg]
X_atn = 0.3[dB]
X_pulse = 5[us]
Irr_mode = Off
Tri_mode = Off
Dante_presat = FALSE
Initial_wait = 1[s]
Recvr_gain = 36
Relaxation_delay = 5[s]
Repetition_time = 7.18365952[s]
Temp_get = 19.5[dC]
12.231
5.248
5.312
3.95
2.753
2.137
2.099
2.001
1.027
1.0
abundance
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0
7.2623
7.2600
7.1271
7.0550
7.0355
6.8167
6.7949
4.4020
4.3608
4.2264
4.1981
4.1809
3.7937
3.7708
3.7565
2.9140
2.8934
2.8796
2.8304
1.4581
1.3000
1.2977
1.2828
0.0698
-0.0013
-0.0036
X : parts per Million : 1H


EtO2C Me
Ph
CO2t-Bu
N
O
OMe
13a
---- PROCESSING PARAMETERS ----
dc_balance : 0 : FALSE
sexp : 2.0[Hz] : 0.0[s]
trapezoid3 : 0[%] : 80[%] : 100[%]
zerofill : 1
fft : 1 : TRUE : TRUE
machinephase
ppm
Derived from: YP387 peak3 major-C-1.jdf
Filename = YP387 peak3 major-C-3
Author = delta
Experiment = single_pulse_dec
Sample_id = S#724817
Solvent = CHLOROFORM-D
Creation_time = 10-DEC-2011 16:06:26
Revision_time = 14-NOV-2014 19:01:26
Current_time = 14-NOV-2014 19:01:30
Content = single pulse decouple
Data_format = 1D COMPLEX
Dim_size = 26214
Dim_title = 13C
Dim_units = [ppm]
Dimensions = X
Site = ECX 400P
Spectrometer = DELTA2_NMR
Field_strength = 9.389766[T] (400[MHz]
X_acq_duration = 1.04333312[s]
X_domain = 13C
X_freq = 100.52530333[MHz]
X_offset = 100[ppm]
X_points = 32768
X_prescans = 4
X_resolution = 0.95846665[Hz]
X_sweep = 31.40703518[kHz]
Irr_domain = 1H
Irr_freq = 399.78219838[MHz]
Irr_offset = 5[ppm]
Clipped = TRUE
Mod_return = 1
Scans = 3600
Total_scans = 3600
X_90_width = 10.2[us]
X_acq_time = 1.04333312[s]
X_angle = 30[deg]
X_atn = 3.8[dB]
X_pulse = 3.4[us]
Irr_atn_dec = 21.5[dB]
Irr_atn_noe = 21.5[dB]
Irr_noise = WALTZ
Decoupling = TRUE
Initial_wait = 1[s]
Noe = TRUE
Noe_time = 2[s]
Recvr_gain = 50
Relaxation_delay = 2[s]
Repetition_time = 3.04333312[s]
Temp_get = 19.7[dC]
abundance
0 0.01 0.02 0.03 0.04 0.05 0.06 0.07 0.08 0.09 0.1 0.11 0.12 0.13 0.14 0.15 0.16 0.17 0.18 0.19 0.2 0.21 0.22 0.23
210.0 200.0 190.0 180.0 170.0 160.0 150.0 140.0 130.0 120.0 110.0 100.0 90.0 80.0 70.0 60.0 50.0 40.0 30.0 20.0 10.0 0
171.7165
169.9812
169.9431
158.4730
135.3898
130.0981
129.5832
128.6658
128.2579
127.0852
113.6319
83.3405
77.3242
77.2098
77.0000
76.6854
72.9669
60.8675
58.6936
55.2326
46.2891
39.6244
36.4876
29.6894
28.0495
17.8951
14.2053
X : parts per Million : 13C

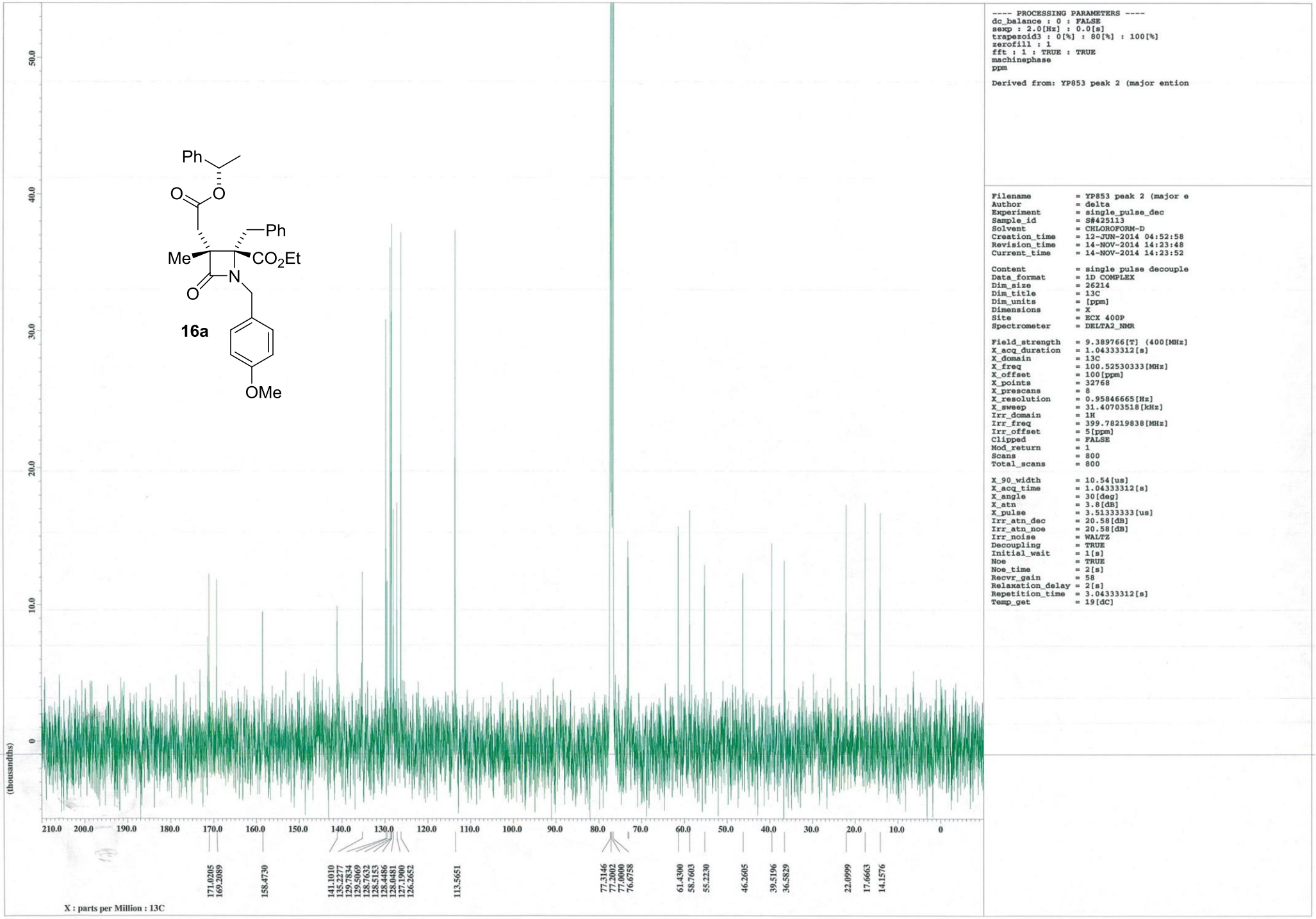

EtO2C Me
Ph
CO2t-Bu
N
O
OMe
13b
---- PROCESSING PARAMETERS ----
dc_balance : 0 : FALSE
sexp : 0.2[Hz] : 0.0[s]
trapezoid3 : 0[%] : 80[%] : 100[%]
zerofill : 1
fft : 1 : TRUE : TRUE
machinephase
ppm
Derived from: YP387 minor-S-1.jdf
Filename = YP387 minor-S-4.jdf
Author = delta
Experiment = single_pulse.ex2
Sample_id = S#4858
Solvent = CHLOROFORM-D
Creation_time = 9-DEC-2011 17:05:33
Revision_time = 14-NOV-2014 19:00:23
Current_time = 14-NOV-2014 19:00:28
Content = single_pulse
Data_format = 1D COMPLEX
Dim_size = 13107
Dim_title = 1H
Dim_units = [ppm]
Dimensions = X
Site = ECX 400P
Spectrometer = DELTA2_NMR
Field_strength = 9.389766[T] (400[MHz]
X_acq_duration = 2.18365952[s]
X_domain = 1H
X_freq = 399.78219838[MHz]
X_offset = 5[ppm]
X_points = 16384
X_prescans = 1
X_resolution = 0.45794685[Hz]
X_sweep = 7.5030012[kHz]
Irr_domain = 1H
Irr_freq = 399.78219838[MHz]
Irr_offset = 5[ppm]
Tri_domain = 1H
Tri_freq = 399.78219838[MHz]
Tri_offset = 5[ppm]
Clipped = FALSE
Mod_return = 1
Scans = 8
Total_scans = 8
X_90_width = 10[us]
X_acq_time = 2.18365952[s]
X_angle = 45[deg]
X_atn = 0.3[dB]
X_pulse = 5[us]
Irr_mode = Off
Tri_mode = Off
Dante_presat = FALSE
Initial_wait = 1[s]
Recvr_gain = 40
Relaxation_delay = 5[s]
Repetition_time = 7.18365952[s]
Temp_get = 19.4[dC]
9.136
4.356
4.31
3.357
3.107
2.259
2.244
2.017
1.101
1
0.925
0.958
abundance
X : parts per Million : 1H


EtO2C Me
Ph
CO2t-Bu
N
O
OMe
13b
---- PROCESSING PARAMETERS ----
dc_balance : 0 : FALSE
sexp : 2.0[Hz] : 0.0[s]
trapezoid3 : 0[%] : 80[%] : 100[%]
zerofill : 1
fft : 1 : TRUE : TRUE
machinephase
ppm
Derived from: YP387 peak2 minor-C-2.jdf
Filename = YP387 peak2 minor-C-5
Author = delta
Experiment = single_pulse_dec
Sample_id = S#330036
Solvent = CHLOROFORM-D
Creation_time = 10-DEC-2011 05:28:48
Revision_time = 14-NOV-2014 19:02:40
Current_time = 14-NOV-2014 19:02:42
Content = single pulse decouple
Data_format = 1D COMPLEX
Dim_size = 26214
Dim_title = 13C
Dim_units = [ppm]
Dimensions = X
Site = ECX 400P
Spectrometer = DELTA2_NMR
Field_strength = 9.389766[T] (400[MHz]
X_acq_duration = 1.04333312[s]
X_domain = 13C
X_freq = 100.52530333[MHz]
X_offset = 100[ppm]
X_points = 32768
X_prescans = 4
X_resolution = 0.95846665[Hz]
X_sweep = 31.40703518[kHz]
Irr_domain = 1H
Irr_freq = 399.78219838[MHz]
Irr_offset = 5[ppm]
Clipped = FALSE
Mod_return = 1
Scans = 4000
Total_scans = 4000
X_90_width = 10.2[us]
X_acq_time = 1.04333312[s]
X_angle = 30[deg]
X_atn = 3.8[dB]
X_pulse = 3.4[us]
Irr_atn_dec = 21.5[dB]
Irr_atn_noe = 21.5[dB]
Irr_noise = WALTZ
Decoupling = TRUE
Initial_wait = 1[s]
Noe = TRUE
Noe_time = 2[s]
Recvr_gain = 50
Relaxation_delay = 2[s]
Repetition_time = 3.04333312[s]
Temp_get = 19.6[dC]
(thousandths)
50.0
40.0
30.0
20.0
10.0
0
210.0 200.0 190.0 180.0 170.0 160.0 150.0 140.0 130.0 120.0 110.0 100.0 90.0 80.0 70.0 60.0 50.0 40.0 30.0 20.0 10.0 0
172.4698
170.2101
169.8668
158.5302
135.3802
130.2792
129.7072
128.4200
128.1816
127.0184
113.7367
83.4549
77.3242
77.0000
76.6854
72.6808
60.5719
58.6650
55.2612
45.8315
39.1859
37.1169
27.8588
18.8677
17.4470
14.1385
X : parts per Million : 13C



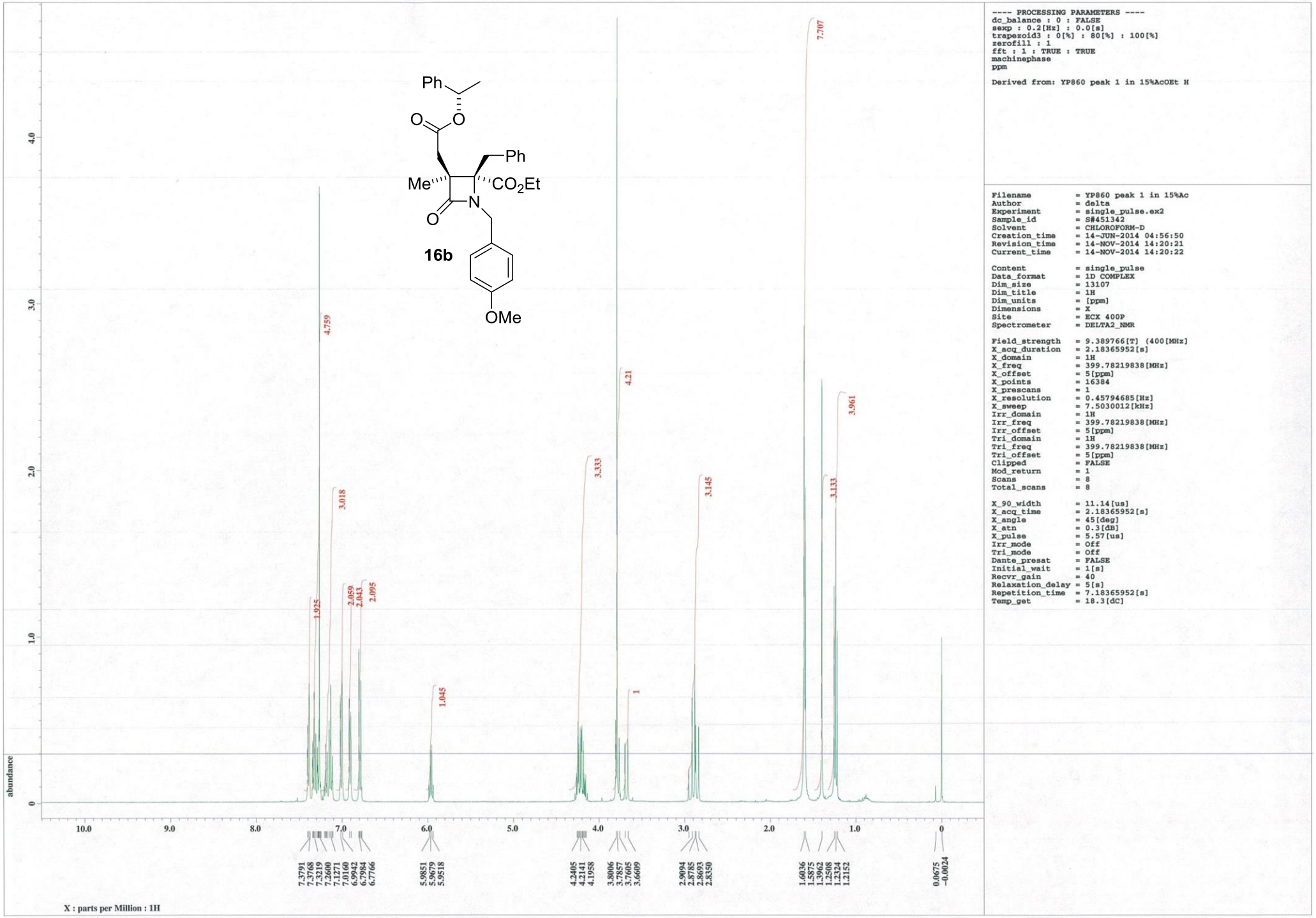

```
---- PROCESSING PARAMETERS ----
dc_balance : 0 : FALSE
sexp : 0.2[Hz] : 0.0[s]
trapezoid3 : 0[%] : 80[%] : 100[%]
zerofill : 1
fft : 1 : TRUE : TRUE
machinephase
ppm

Derived from: YP887 major-e of major-dl(
```

```
Filename          = YP887 major-e of majo
Author            = delta
Experiment        = single_pulse.ex2
Sample_id         = S#828823
Solvent           = CHLOROFORM-D
Creation_time     = 14-OCT-2014 15:10:47
Revision_time     = 14-NOV-2014 14:14:52
Current_time      = 14-NOV-2014 14:14:55

Content           = single_pulse
Data_format       = 1D COMPLEX
Dim_size          = 13107
Dim_title         = 1H
Dim_units         = [ppm]
Dimensions        = X
Site              = ECX 400P
Spectrometer      = DELTA2_NMR

Field_strength    = 9.389766[T] (400[MHz]
X_acq_duration    = 2.18365952[s]
X_domain          = 1H
X_freq            = 399.78219838[MHz]
X_offset          = 5[ppm]
X_points          = 16384
X_prescans        = 1
X_resolution      = 0.45794685[Hz]
X_sweep           = 7.5030012[kHz]
Irr_domain        = 1H
Irr_freq          = 399.78219838[MHz]
Irr_offset        = 5[ppm]
Tri_domain        = 1H
Tri_freq          = 399.78219838[MHz]
Tri_offset        = 5[ppm]
Clipped           = FALSE
Mod_return        = 1
Scans             = 8
Total_scans       = 8

X_90_width        = 11.14[us]
X_acq_time        = 2.18365952[s]
X_angle           = 45[deg]
X_atn             = 0.3[dB]
X_pulse           = 5.57[us]
Irr_mode          = Off
Tri_mode          = Off
Dante_presat      = FALSE
Initial_wait      = 1[s]
Recvr_gain        = 38
Relaxation_delay  = 5[s]
Repetition_time   = 7.18365952[s]
Temp_get          = 20[dC]
```



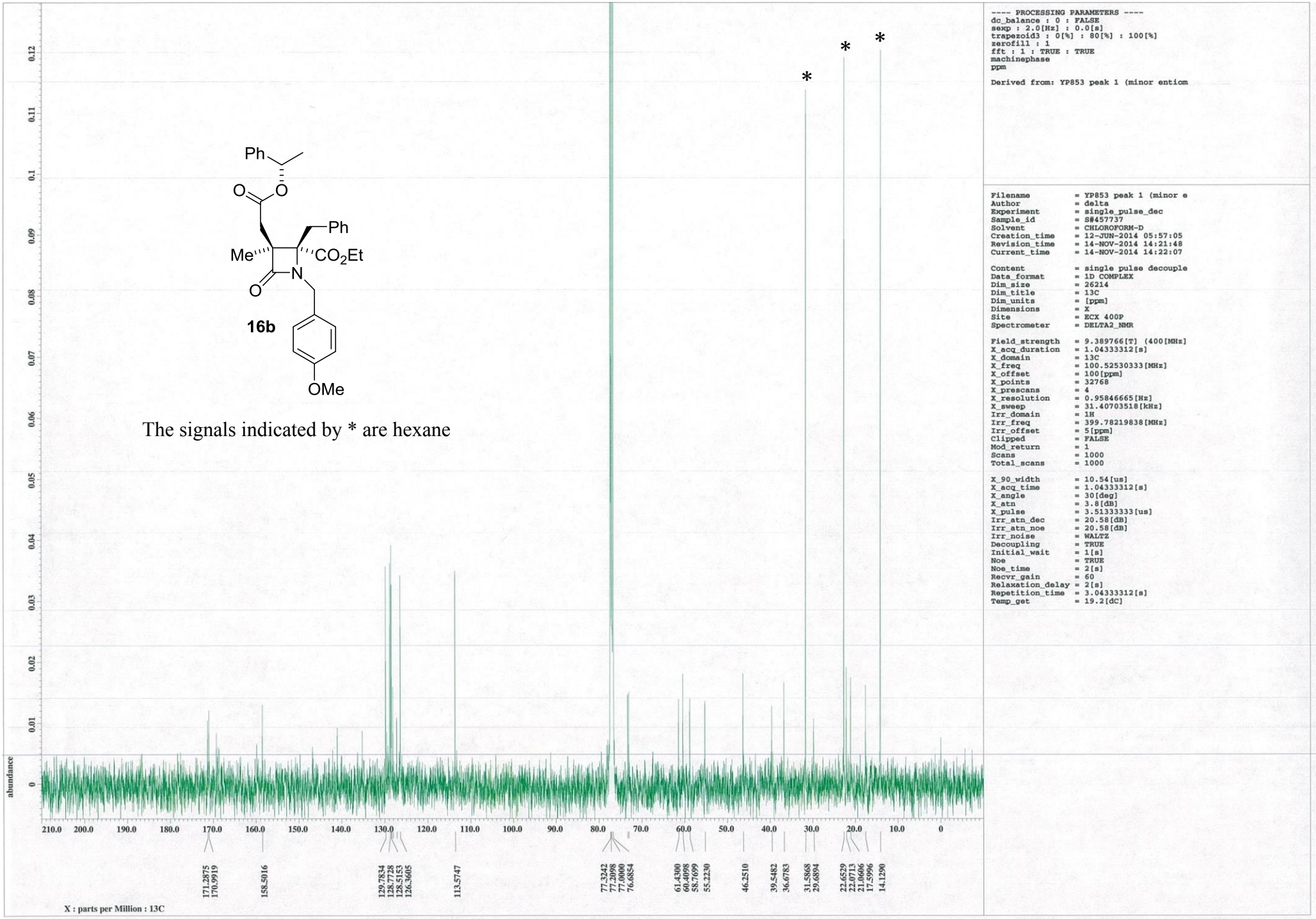

```
---- PROCESSING PARAMETERS ----
dc_balance : 0 : FALSE
sexp : 2.0[Hz] : 0.0[s]
trapezoid3 : 0[%] : 80[%] : 100[%]
zerofill : 1
fft : 1 : TRUE : TRUE
machinephase
ppm

Derived from: YP853 peak 2 (major ention
```

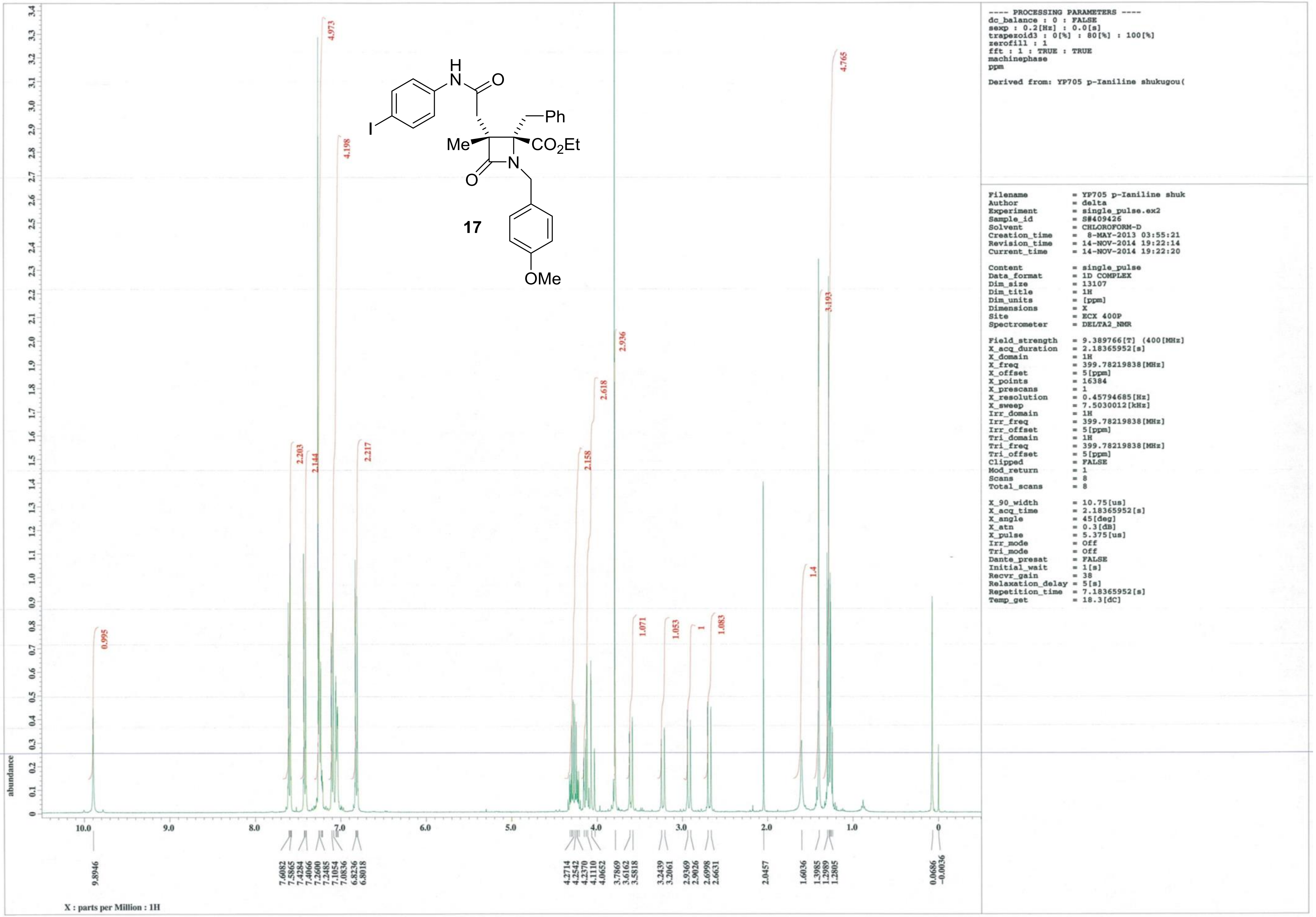
```
Filename            = YP853 peak 2 (major e
Author              = delta
Experiment          = single_pulse_dec
Sample_id           = S#425113
Solvent             = CHLOROFORM-D
Creation_time       = 12-JUN-2014 04:52:58
Revision_time       = 14-NOV-2014 14:23:48
Current_time        = 14-NOV-2014 14:23:52

Content             = single pulse decouple
Data_format         = 1D COMPLEX
Dim_size            = 26214
Dim_title           = 13C
Dim_units           = [ppm]
Dimensions          = X
Site                = ECX 400P
Spectrometer        = DELTA2_NMR

Field_strength      = 9.389766[T] (400[MHz]
X_acq_duration      = 1.04333312[s]
X_domain            = 13C
X_freq              = 100.52530333[MHz]
X_offset            = 100[ppm]
X_points            = 32768
X_prescans          = 8
X_resolution        = 0.95846665[Hz]
X_sweep             = 31.40703518[kHz]
Irr_domain          = 1H
Irr_freq            = 399.78219838[MHz]
Irr_offset          = 5[ppm]
Clipped             = FALSE
Mod_return          = 1
Scans               = 800
Total_scans         = 800

X_90_width          = 10.54[us]
X_acq_time          = 1.04333312[s]
X_angle             = 30[deg]
X_atn               = 3.8[dB]
X_pulse             = 3.51333333[us]
Irr_atn_dec         = 20.58[dB]
Irr_atn_noe         = 20.58[dB]
Irr_noise           = WALTZ
Decoupling          = TRUE
Initial_wait        = 1[s]
Noe                 = TRUE
Noe_time            = 2[s]
Recvr_gain          = 58
Relaxation_delay    = 2[s]
Repetition_time     = 3.04333312[s]
Temp_get            = 19[dC]
```




```
---- PROCESSING PARAMETERS ----
dc_balance : 0 : FALSE
sexp : 0.2[Hz] : 0.0[s]
trapezoid3 : 0[%] : 80[%] : 100[%]
zerofill : 1
fft : 1 : TRUE : TRUE
machinephase
ppm

Derived from: YP860 peak 1 in 15%AcOEt H
```

```
Filename            = YP860 peak 1 in 15%Ac
Author              = delta
Experiment          = single_pulse.ex2
Sample_id           = S#451342
Solvent             = CHLOROFORM-D
Creation_time       = 14-JUN-2014 04:56:50
Revision_time       = 14-NOV-2014 14:20:21
Current_time        = 14-NOV-2014 14:20:22

Content             = single_pulse
Data_format         = 1D COMPLEX
Dim_size            = 13107
Dim_title           = 1H
Dim_units           = [ppm]
Dimensions          = X
Site                = ECX 400P
Spectrometer        = DELTA2_NMR

Field_strength      = 9.389766[T] (400[MHz]
X_acq_duration      = 2.18365952[s]
X_domain            = 1H
X_freq              = 399.78219838[MHz]
X_offset            = 5[ppm]
X_points            = 16384
X_prescans          = 1
X_resolution        = 0.45794685[Hz]
X_sweep             = 7.5030012[kHz]
Irr_domain          = 1H
Irr_freq            = 399.78219838[MHz]
Irr_offset          = 5[ppm]
Tri_domain          = 1H
Tri_freq            = 399.78219838[MHz]
Tri_offset          = 5[ppm]
Clipped             = FALSE
Mod_return          = 1
Scans               = 8
Total_scans         = 8

X_90_width          = 11.14[us]
X_acq_time          = 2.18365952[s]
X_angle             = 45[deg]
X_atn               = 0.3[dB]
X_pulse             = 5.57[us]
Irr_mode            = Off
Tri_mode            = Off
Dante_presat        = FALSE
Initial_wait        = 1[s]
Recvr_gain          = 40
Relaxation_delay    = 5[s]
Repetition_time     = 7.18365952[s]
Temp_get            = 18.3[dC]
```


Ph
O
O
Ph
Me
CO2Et
N
O
16b
OMe
The signals indicated by * are hexane
---- PROCESSING PARAMETERS ----
dc_balance : 0 : FALSE
sexp : 2.0[Hz] : 0.0[s]
trapezoid3 : 0[%] : 80[%] : 100[%]
zerofill : 1
fft : 1 : TRUE : TRUE
machinephase
ppm
Derived from: YP853 peak 1 (minor entiom
Filename = YP853 peak 1 (minor e
Author = delta
Experiment = single_pulse_dec
Sample_id = S#457737
Solvent = CHLOROFORM-D
Creation_time = 12-JUN-2014 05:57:05
Revision_time = 14-NOV-2014 14:21:48
Current_time = 14-NOV-2014 14:22:07
Content = single pulse decouple
Data_format = 1D COMPLEX
Dim_size = 26214
Dim_title = 13C
Dim_units = [ppm]
Dimensions = X
Site = ECX 400P
Spectrometer = DELTA2_NMR
Field_strength = 9.389766[T] (400[MHz]
X_acq_duration = 1.04333312[s]
X_domain = 13C
X_freq = 100.52530333[MHz]
X_offset = 100[ppm]
X_points = 32768
X_prescans = 4
X_resolution = 0.95846665[Hz]
X_sweep = 31.40703518[kHz]
Irr_domain = 1H
Irr_freq = 399.78219838[MHz]
Irr_offset = 5[ppm]
Clipped = FALSE
Mod_return = 1
Scans = 1000
Total_scans = 1000
X_90_width = 10.54[us]
X_acq_time = 1.04333312[s]
X_angle = 30[deg]
X_atn = 3.8[dB]
X_pulse = 3.51333333[us]
Irr_atn_dec = 20.58[dB]
Irr_atn_noe = 20.58[dB]
Irr_noise = WALTZ
Decoupling = TRUE
Initial_wait = 1[s]
Noe = TRUE
Noe_time = 2[s]
Recvr_gain = 60
Relaxation_delay = 2[s]
Repetition_time = 3.04333312[s]
Temp_get = 19.2[dC]
abundance
X : parts per Million : 13C
171.2875
170.9919
158.5016
129.7834
128.7728
128.5153
126.3605
113.5747
77.3242
77.2098
77.0000
76.6854
61.4300
60.4098
58.7699
55.2230
46.2510
39.5482
36.6783
31.5868
29.6894
22.6529
22.0713
21.0606
17.5996
14.1290



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---- PROCESSING PARAMETERS ----
dc_balance : 0 : FALSE
sexp : 0.2[Hz] : 0.0[s]
trapezoid3 : 0[%] : 80[%] : 100[%]
zerofill : 1
fft : 1 : TRUE : TRUE
machinephase
ppm
Derived from: YP705 p-Ianiline shukugou(
Filename = YP705 p-Ianiline shuk
Author = delta
Experiment = single_pulse.ex2
Sample_id = S#409426
Solvent = CHLOROFORM-D
Creation_time = 8-MAY-2013 03:55:21
Revision_time = 14-NOV-2014 19:22:14
Current_time = 14-NOV-2014 19:22:20
Content = single_pulse
Data_format = 1D COMPLEX
Dim_size = 13107
Dim_title = 1H
Dim_units = [ppm]
Dimensions = X
Site = ECX 400P
Spectrometer = DELTA2_NMR
Field_strength = 9.389766[T] (400[MHz]
X_acq_duration = 2.18365952[s]
X_domain = 1H
X_freq = 399.78219838[MHz]
X_offset = 5[ppm]
X_points = 16384
X_prescans = 1
X_resolution = 0.45794685[Hz]
X_sweep = 7.5030012[kHz]
Irr_domain = 1H
Irr_freq = 399.78219838[MHz]
Irr_offset = 5[ppm]
Tri_domain = 1H
Tri_freq = 399.78219838[MHz]
Tri_offset = 5[ppm]
Clipped = FALSE
Mod_return = 1
Scans = 8
Total_scans = 8
X_90_width = 10.75[us]
X_acq_time = 2.18365952[s]
X_angle = 45[deg]
X_atn = 0.3[dB]
X_pulse = 5.375[us]
Irr_mode = Off
Tri_mode = Off
Dante_presat = FALSE
Initial_wait = 1[s]
Recvr_gain = 38
Relaxation_delay = 5[s]
Repetition_time = 7.18365952[s]
Temp_get = 18.3[dC]
abundance
X : parts per Million : 1H