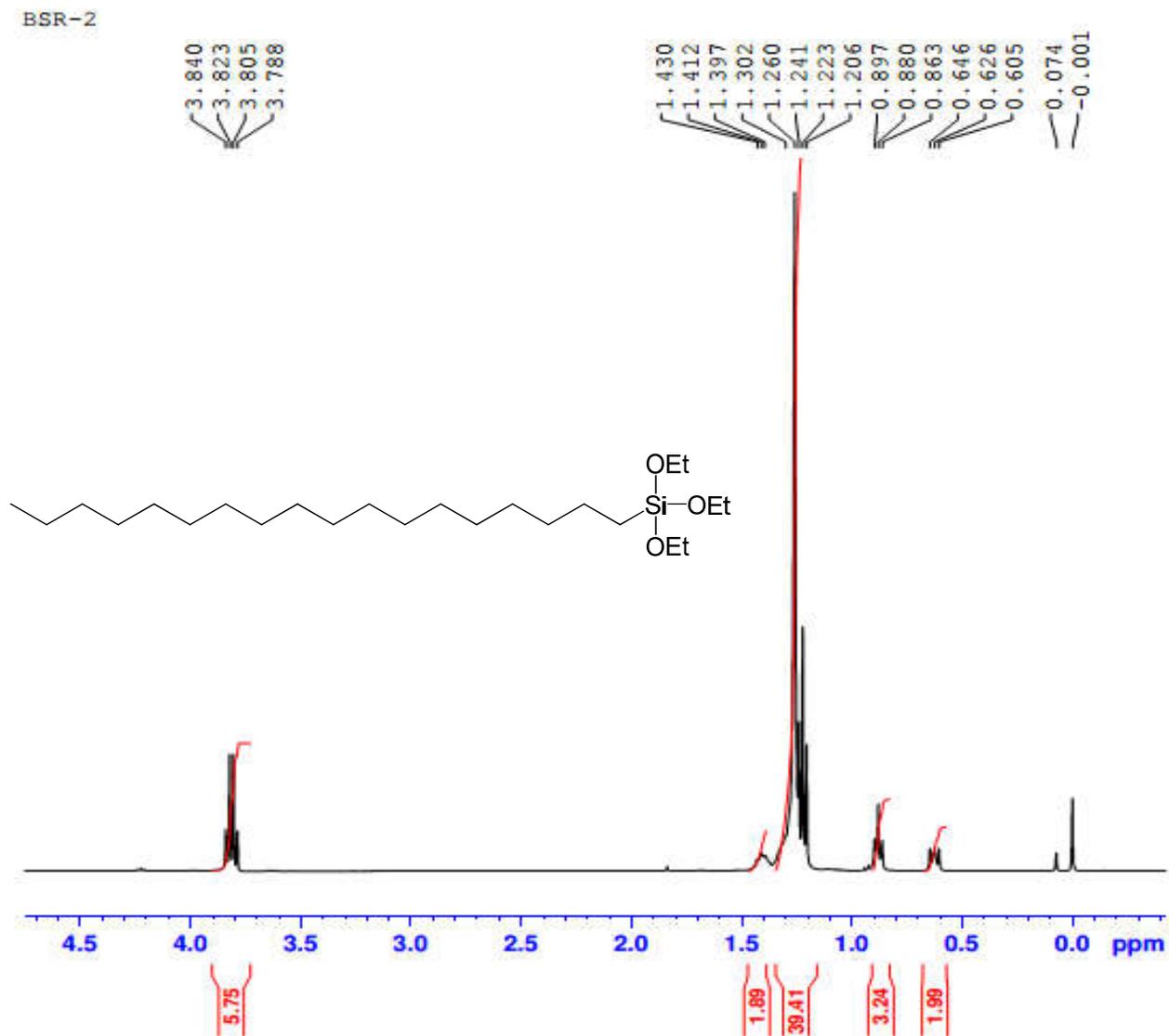


Supporting Information

Nano-dispersed platinum(0) in organically modified silicate matrices as sustainable catalysts for a regioselective hydrosilylation of alkenes and alkynes

Brett J. Duke, Evan N. Akeroyd, Shreeja V. Bhatt, Chibueze I. Onyeagusi, Shreya V. Bhatt, Brandy R. Adolph and Jean Fotie*

Triethoxy(octadecyl)silane (**1**)– ¹H-NMR (CDCl₃, 400 MHz)



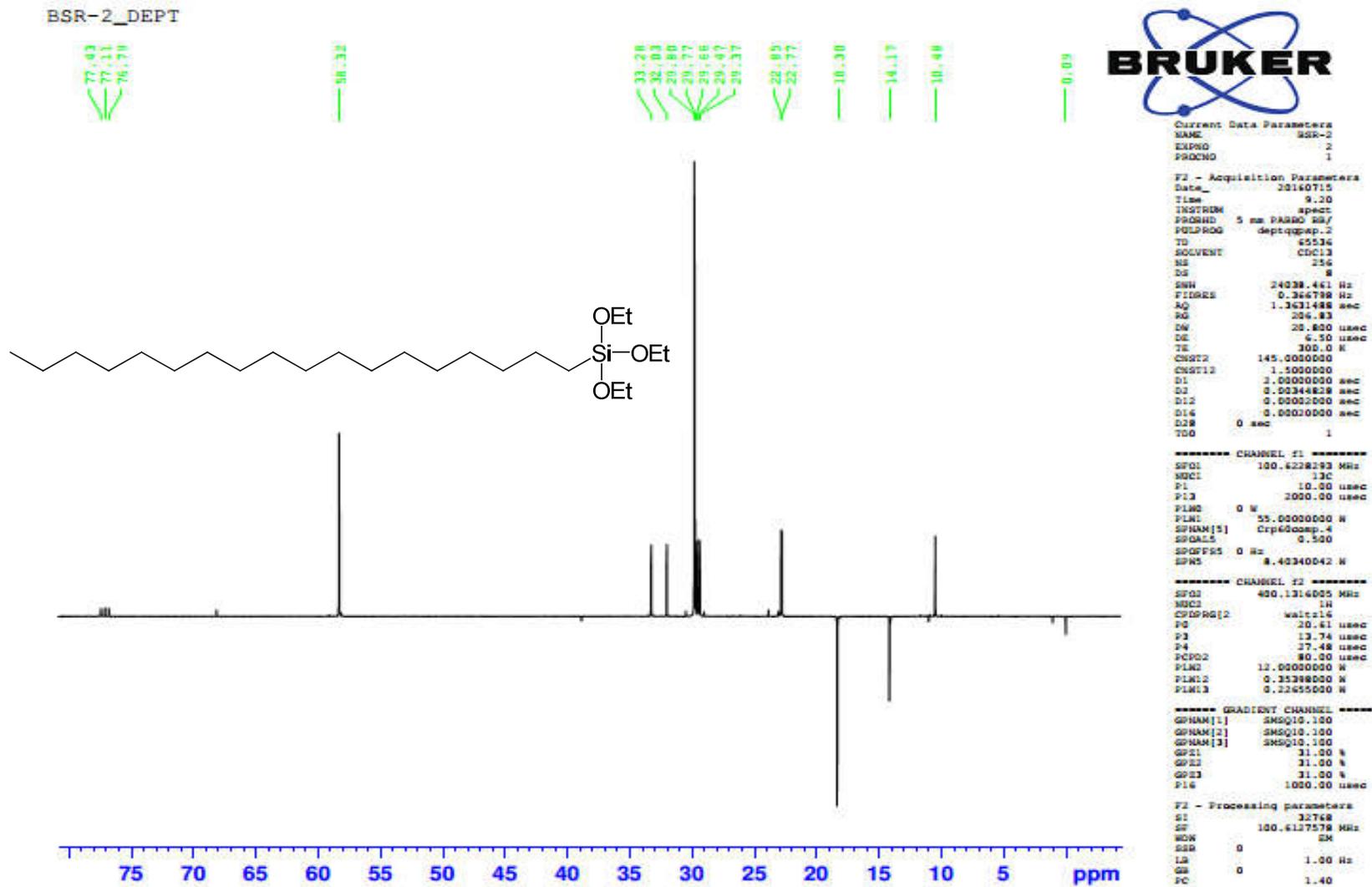
Current Data Parameters
 NAME BSR-2
 EXPNO 1
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20160715
 Time 8.58
 INSTRUM spect
 PROBHD 5 mm PABBO BB/
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 16
 DS 2
 SWH 8012.820 Hz
 FIDRES 0.122266 Hz
 AQ 4.0894465 sec
 RG 10.19
 DW 62.400 usec
 DE 6.50 usec
 TE 300.0 K
 D1 1.00000000 sec
 TD0 1

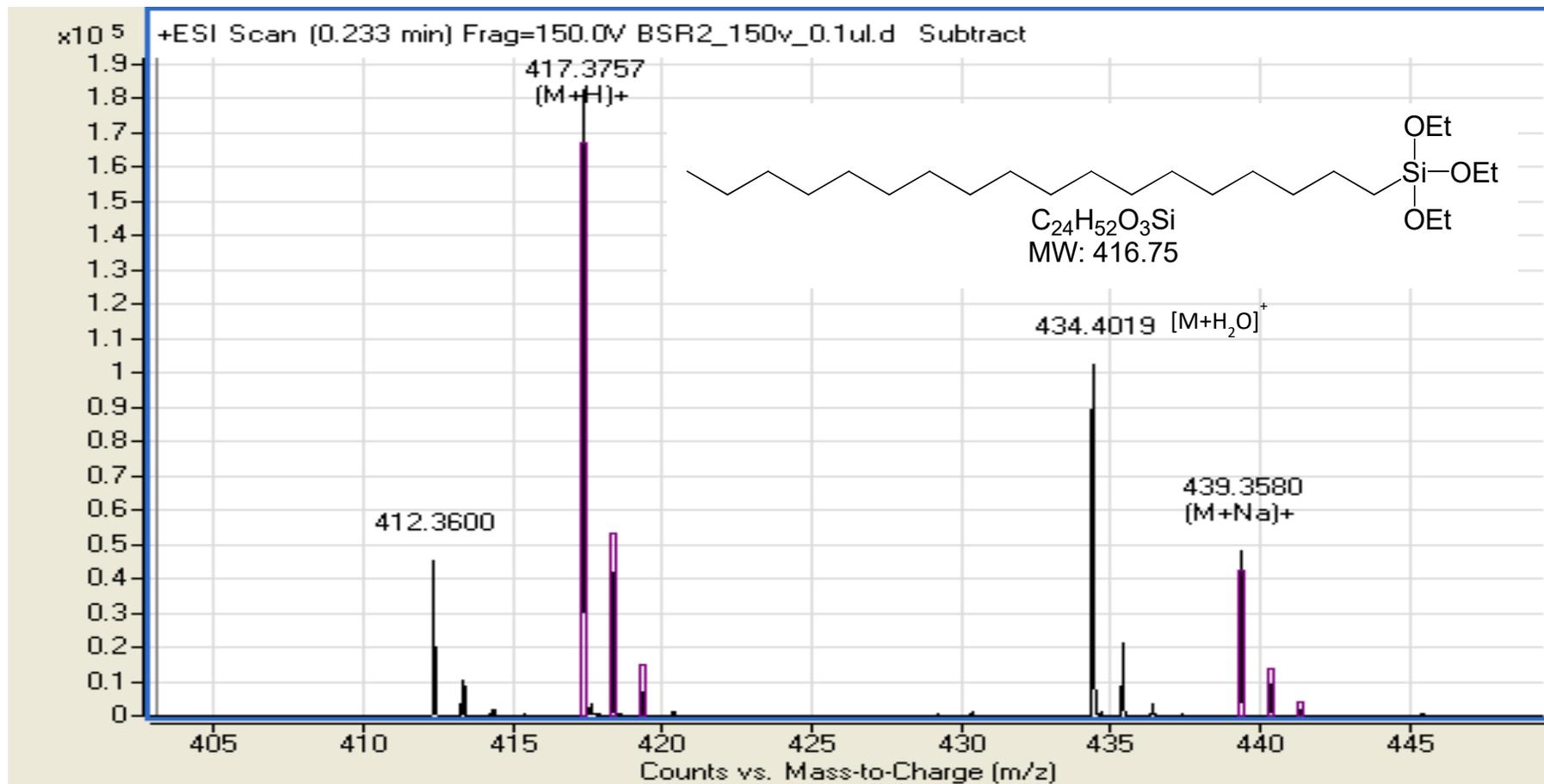
===== CHANNEL f1 =====
 SFO1 400.1324710 MHz
 NUC1 1H
 P1 13.74 usec
 PLW1 12.00000000 W

F2 - Processing parameters
 SI 65536
 SF 400.1300009 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

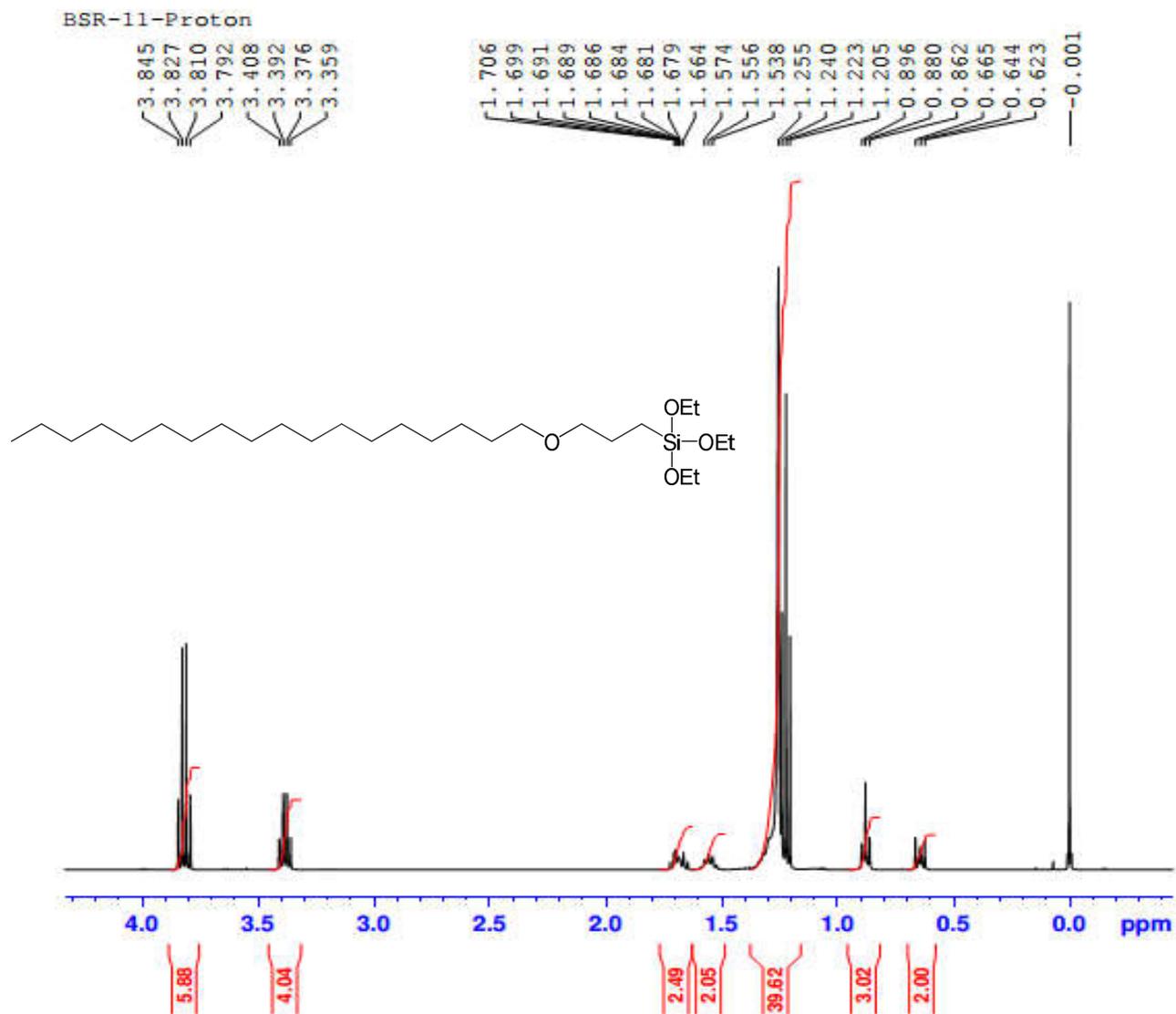
Triethoxy(octadecyl)silane (**1**) – ¹³C-NMR (CDCl₃, 100 MHz)



Triethoxy(octadecyl)silane (**1**) – HR-ESIMS [M+H]⁺ Calculated 417.3758; Observed 417.3757



Triethoxy[3-(octadecyloxy)propyl]silane (2) – ¹H-NMR (CDCl₃, 400 MHz)



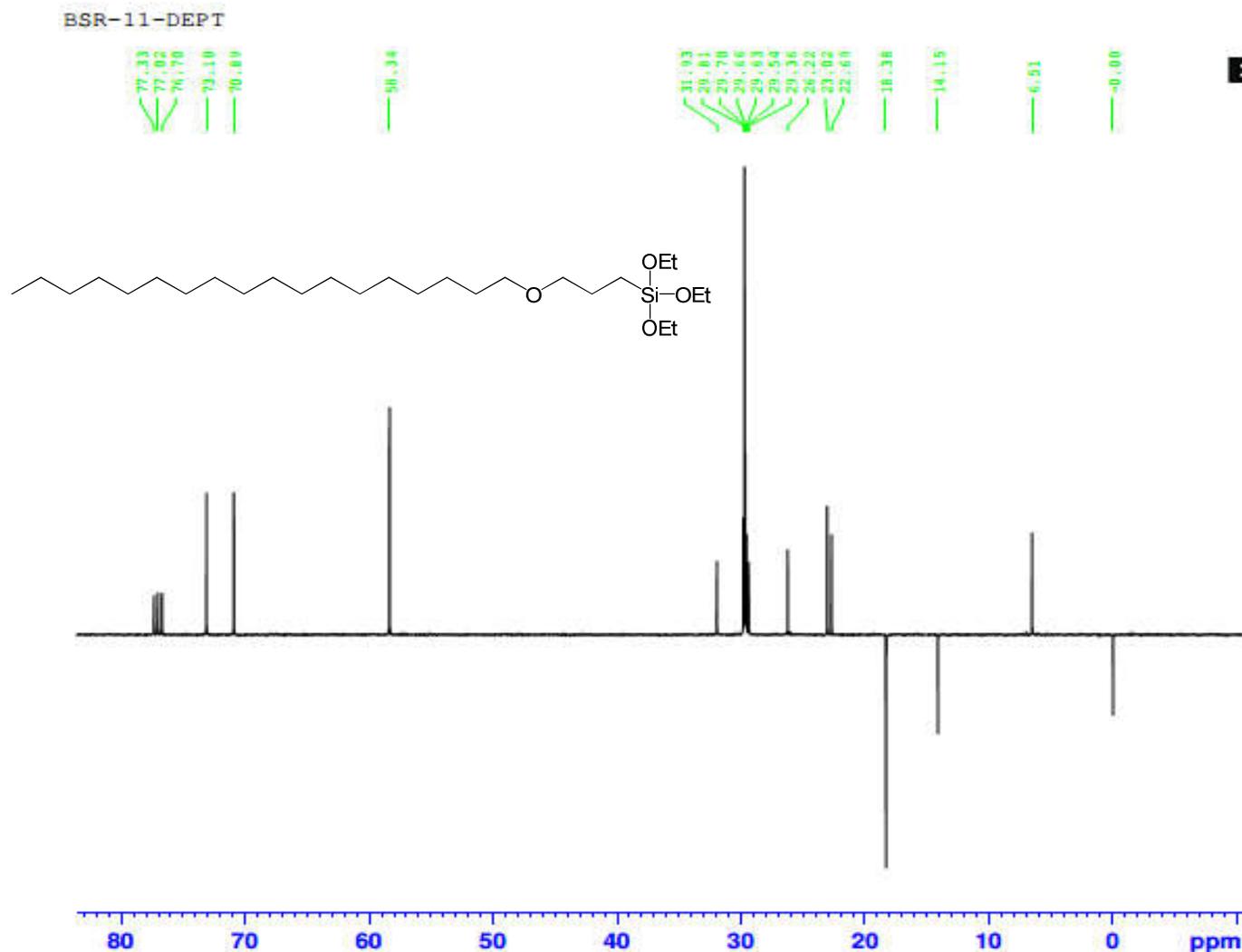
Current Data Parameters
 NAME BSR-11
 EXPNO 1
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20160819
 Time 9.24
 INSTRUM spect
 PROBHD 5 mm PABBO SS/
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 16
 DS 2
 SWH 8012.820 Hz
 FIDRES 0.122266 Hz
 AQ 4.0894465 sec
 RG 32.86
 DW 62.400 usec
 DE 6.50 usec
 TE 300.0 K
 D1 1.00000000 sec
 TD0 1

***** CHANNEL f1 *****
 SFO1 400.1324710 MHz
 NUC1 1H
 P1 13.74 usec
 PLW1 12.00000000 W

F2 - Processing parameters
 SI 65536
 SF 400.1300066 MHz
 WDW no
 SSB 0
 LB 0 Hz
 GB 0
 PC 1.00

Triethoxy[3-(octadecyloxy)propyl]silane (2) – ¹³C-NMR (CDCl₃, 100 MHz)



```

NAME      BSR-11
EXPNO     2
PROCNO    1

F2 - Acquisition Parameters
Date_     20160819
Time      9.48
INSTRUM   spect
PROBHD    5 mm PABBO RG/
PULPROG   deptqqep-2
TD         65536
SOLVENT   CDCl3
NS         256
DS         8
SWH        24038.461 Hz
FIDRES     0.366799 Hz
AQ         1.3631488 sec
RG         206.83
DW         20.800 usec
DE         6.50 usec
TE         300.0 K
CNS272    145.0000000
CNS712    1.5000000
D1         2.00000000 sec
D2         0.00344828 sec
D12        0.00000000 sec
D16        0.00000000 sec
D28        0 sec
TD0        1

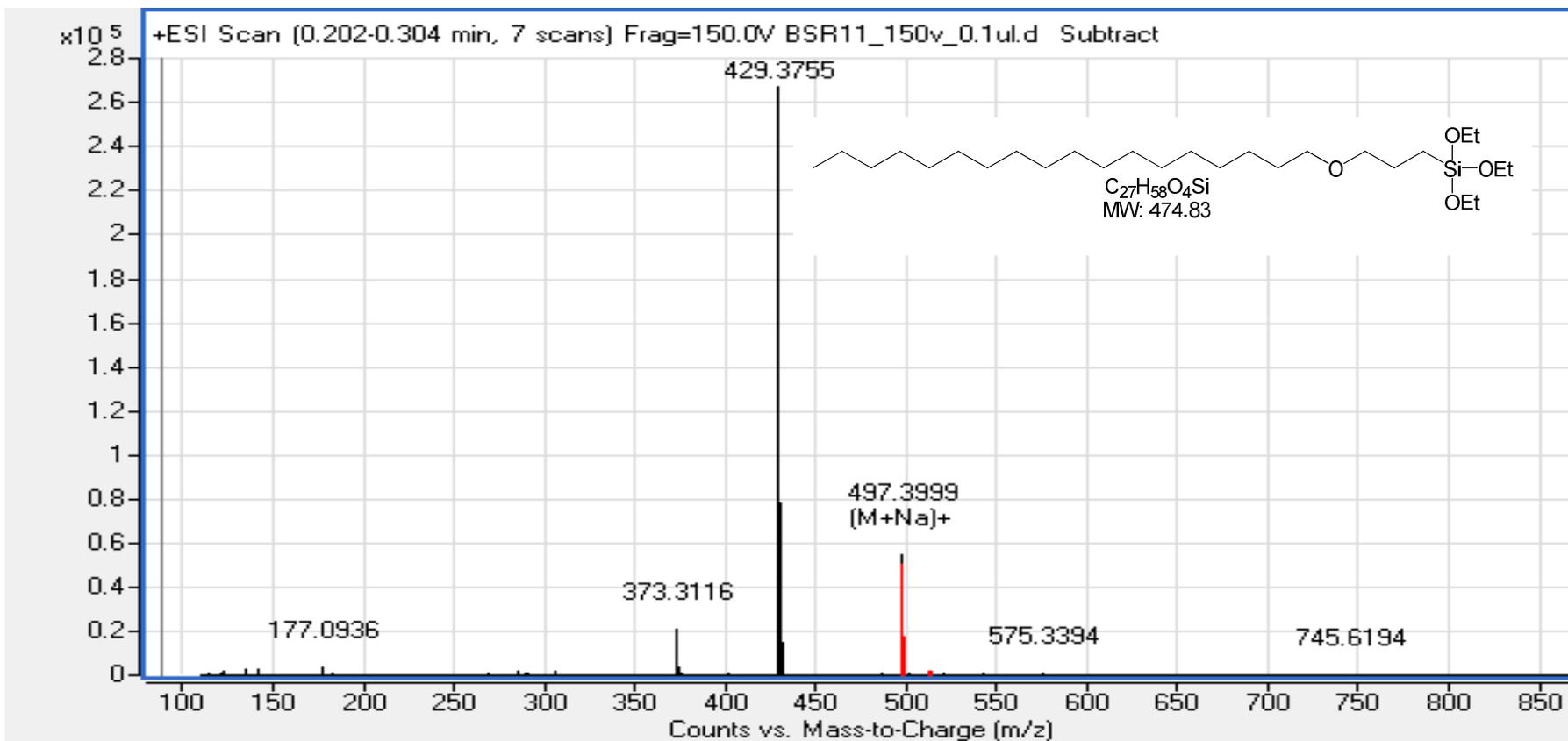
----- CHANNEL f1 -----
SFO1      100.6228293 MHz
NUC1       13C
P1         10.00 usec
PL1        0 W
PLW1       55.00000000 W
SFO1[5]    Cpt6comp-4
SPDACS     0.500
SFOFFS1    0 Hz
SPH5       8.40340042 W

----- CHANNEL f2 -----
SFO2      400.1314005 MHz
NUC2       1H
CDDPRG[2]  waltz16
P2         20.61 usec
P3         13.74 usec
P4         27.48 usec
PCPD2      80.00 usec
PLW2       12.00000000 W
PLW12      0.35398000 W
PLW13      0.22455000 W

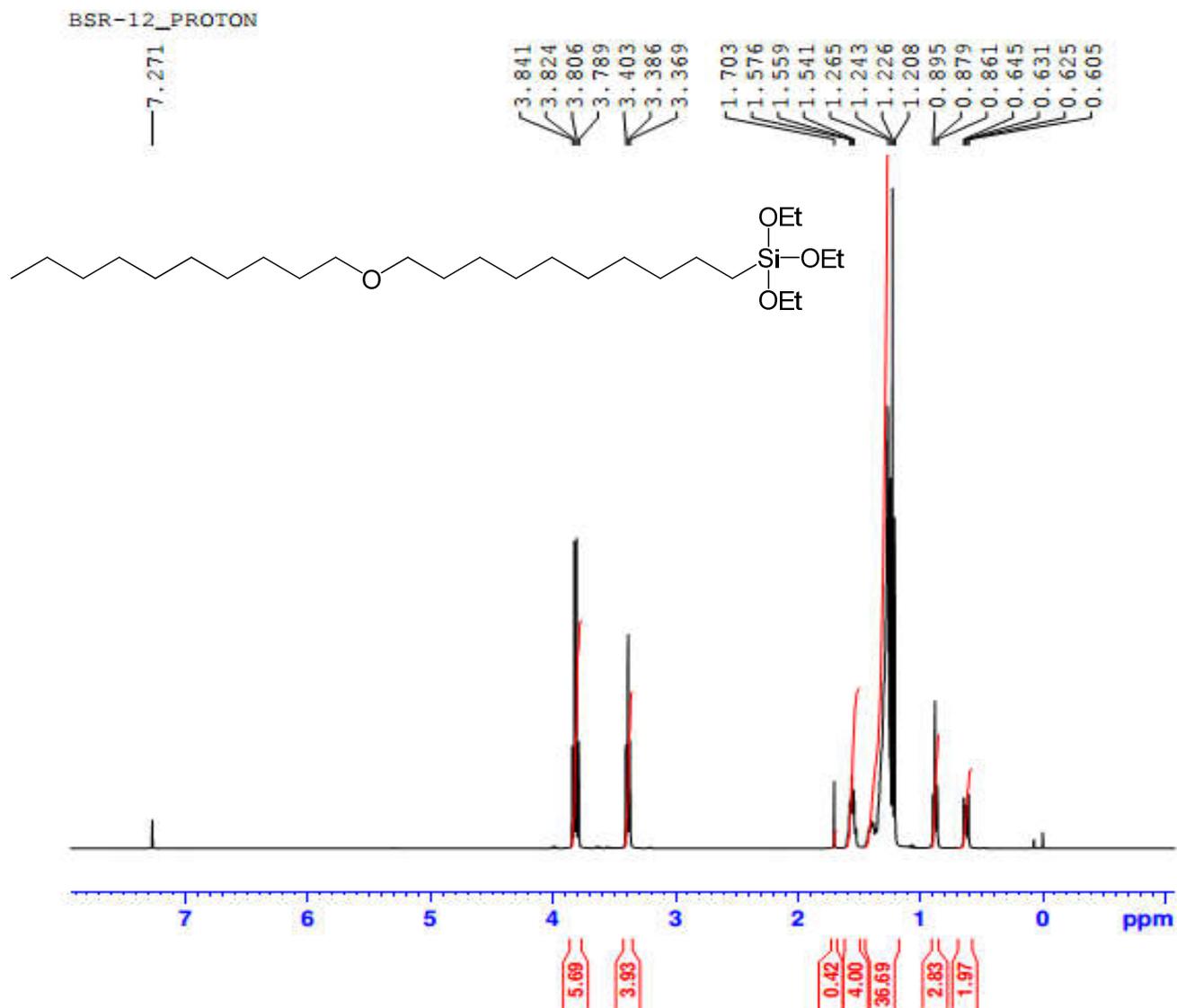
----- GRADIENT CHANNEL -----
GPHAM[1]   SMSQ10.100
GPHAM[2]   SMSQ10.100
GPHAM[3]   SMSQ10.100
GP11       31.00 %
GP22       31.00 %
GP33       31.00 %
P16        1000.00 usec

F2 - Processing parameters
SI         32768
SF         100.6127685 MHz
SDW        EM
SSW        0
LB         1.00 Hz
GB         0
PC         1.40
    
```

Triethoxy[3-(octadecyloxy)propyl]silane (2) – HR-ESIMS [M+Na]⁺ Calculated 497.3997; Observed 497.3999.



[10-(Decyloxy)decyl]triethoxysilane (**3**) – ¹H-NMR (CDCl₃, 400 MHz)



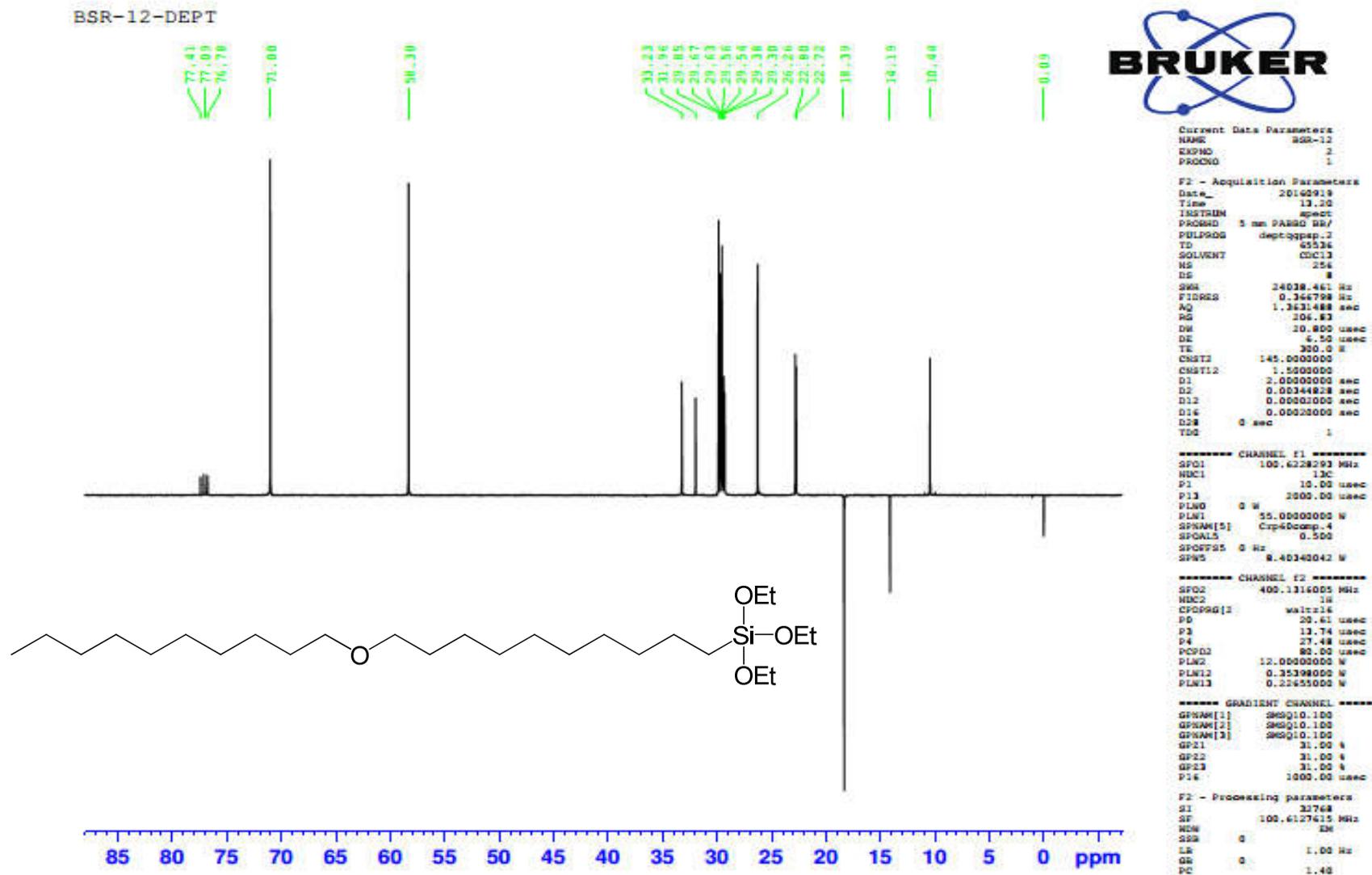
Current Data Parameters
 NAME BSR-12
 EXPNO 12
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20170213
 Time 15.55
 INSTRUM spect
 PROBHD 5 mm PABBO BB/
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 16
 DS 2
 SWH 8012.820 Hz
 FIDRES 0.122266 Hz
 AQ 4.0894465 sec
 RG 32.86
 DW 62.400 usec
 DE 6.50 usec
 TE 300.1 K
 D1 1.00000000 sec
 TD0 1

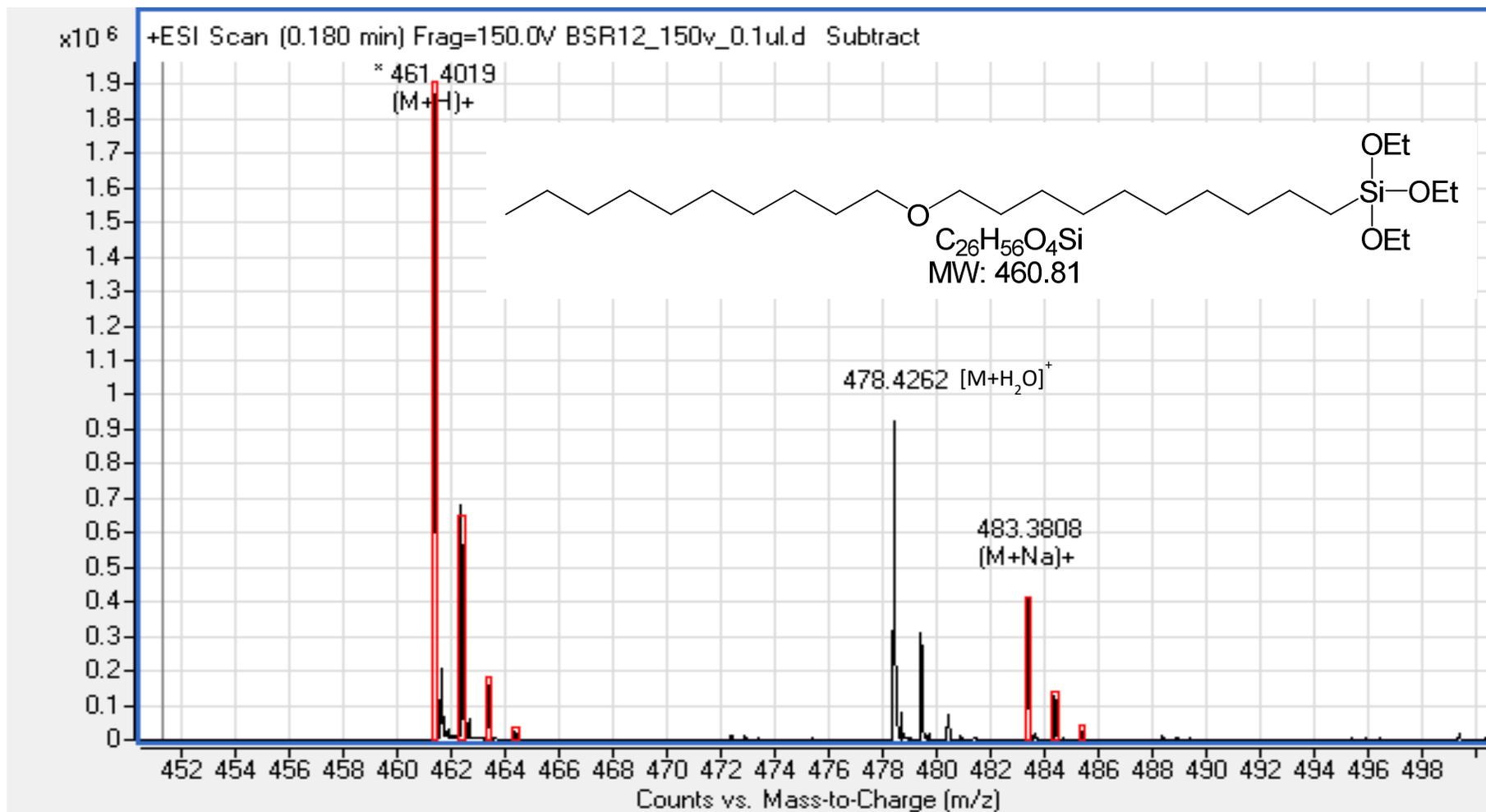
===== CHANNEL f1 =====
 SFO1 400.1324710 MHz
 NUC1 1H
 P1 13.74 usec
 PLW1 12.00000000 W

F2 - Processing parameters
 SI 65536
 SF 400.1300052 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

[10-(Decyloxy)decyl]triethoxysilane (**3**) – ¹³C-NMR (CDCl₃, 100 MHz)

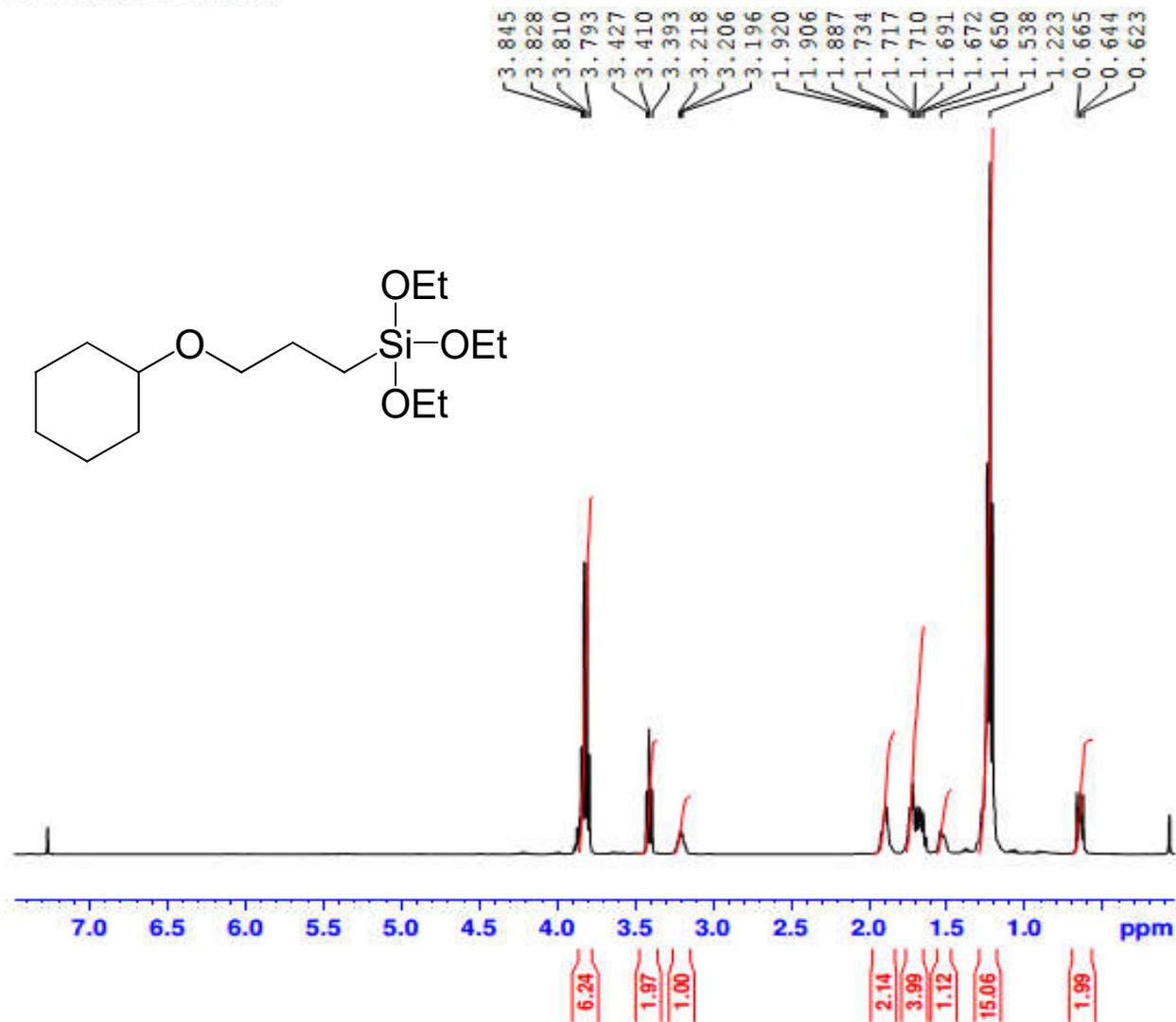
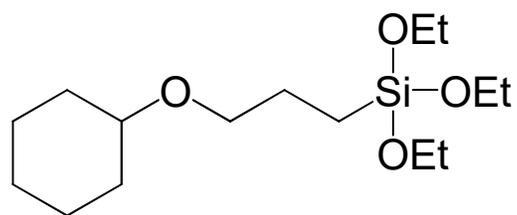


[10-(Decyloxy)decyl]triethoxysilane (**3**) – HR-ESIMS [M+H]⁺ Calculated 461.4021; Observed 461.4019.



[3-(cyclohexyloxy)propyl]triethoxysilane (**4**) – $^1\text{H-NMR}$ (CDCl_3 , 400 MHz)

BSR-32H2PT_PROTON



Current Data Parameters
 NAME BSR-32H2PT
 EXPNO 1
 PROCNO 1

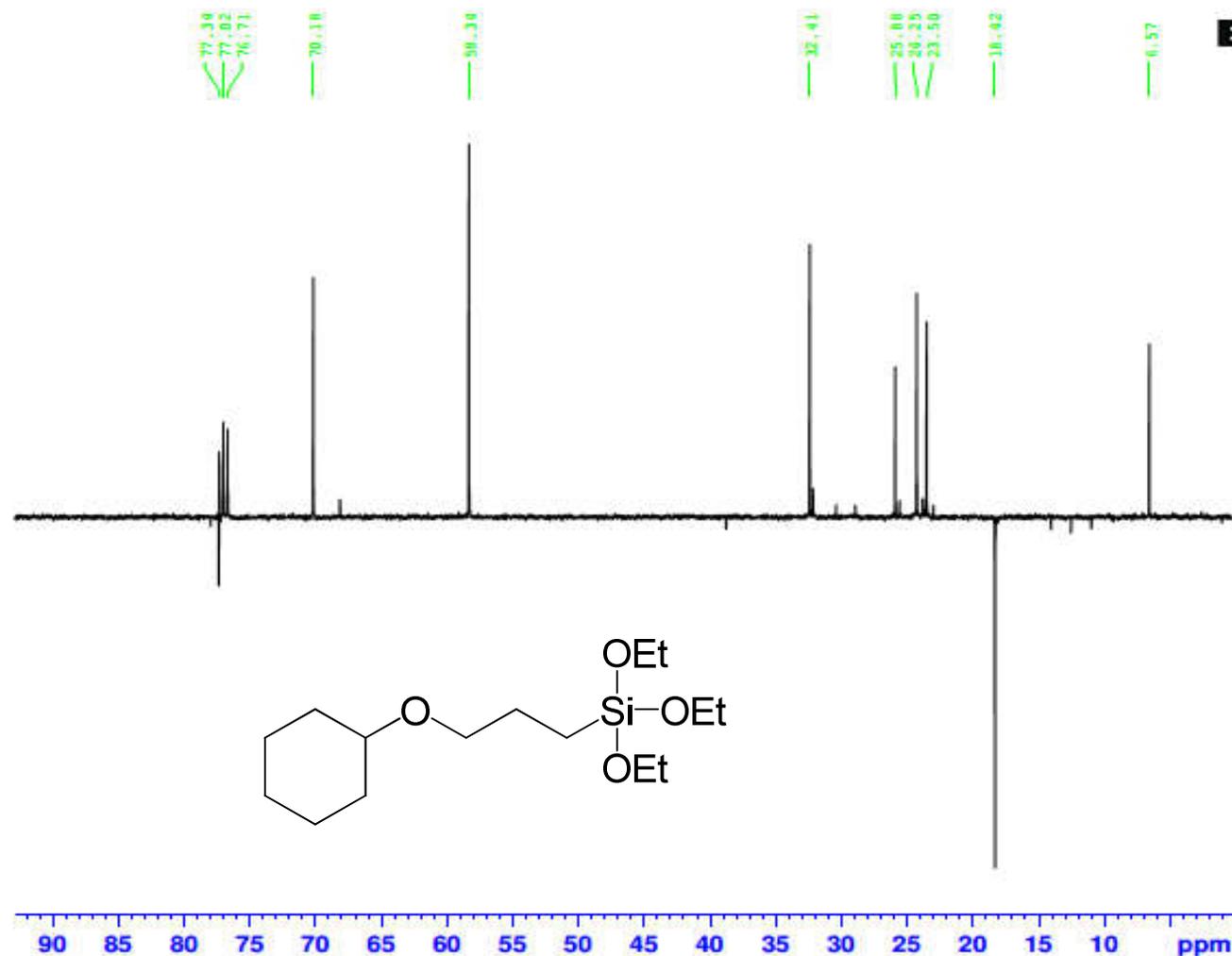
F2 - Acquisition Parameters
 Date_ 20170629
 Time 10.19
 INSTRUM spect
 PROBHD 5 mm PABBO BB/
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 16
 DS 2
 SWH 8012.820 Hz
 FIDRES 0.122266 Hz
 AQ 4.0894465 sec
 RG 56.91
 DW 62.400 usec
 DE 6.50 usec
 TE 300.0 K
 D1 1.00000000 sec
 TD0 1

===== CHANNEL f1 =====
 SFO1 400.1324710 MHz
 NUC1 1H
 P1 13.74 usec
 PLW1 12.00000000 W

F2 - Processing parameters
 SI 65536
 SF 400.1300051 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

[3-(cyclohexyloxy)propyl]triethoxysilane (**4**) – ¹³C-NMR (CDCl₃, 100 MHz)

BSR-32_CARBON_TEOS



```

Current Data Parameters
NAME          BSR-32
EXPNO        2
PROCNO       1

F2 - Acquisition Parameters
Date_        20170628
Time         15.23
INSTRUM      spect
PROBHD       5 mm PABBO DR/
PULPROG      deptqqppp.2
TD           65536
SOLVENT      CDCl3
NS           256
DS           8
SWH          24038.461 Hz
FIDRES      0.366798 Hz
AQ          1.3631488 sec
RG          204.83
DSF         20.850 usec
DE          6.50 usec
TE          300.0 K
CMT2        145.000000
CMT12       1.500000
D1          2.0000000 sec
D2          0.00344828 sec
D12         0.00002000 sec
D16         0.00002000 sec
D18         0 sec
TD0         1

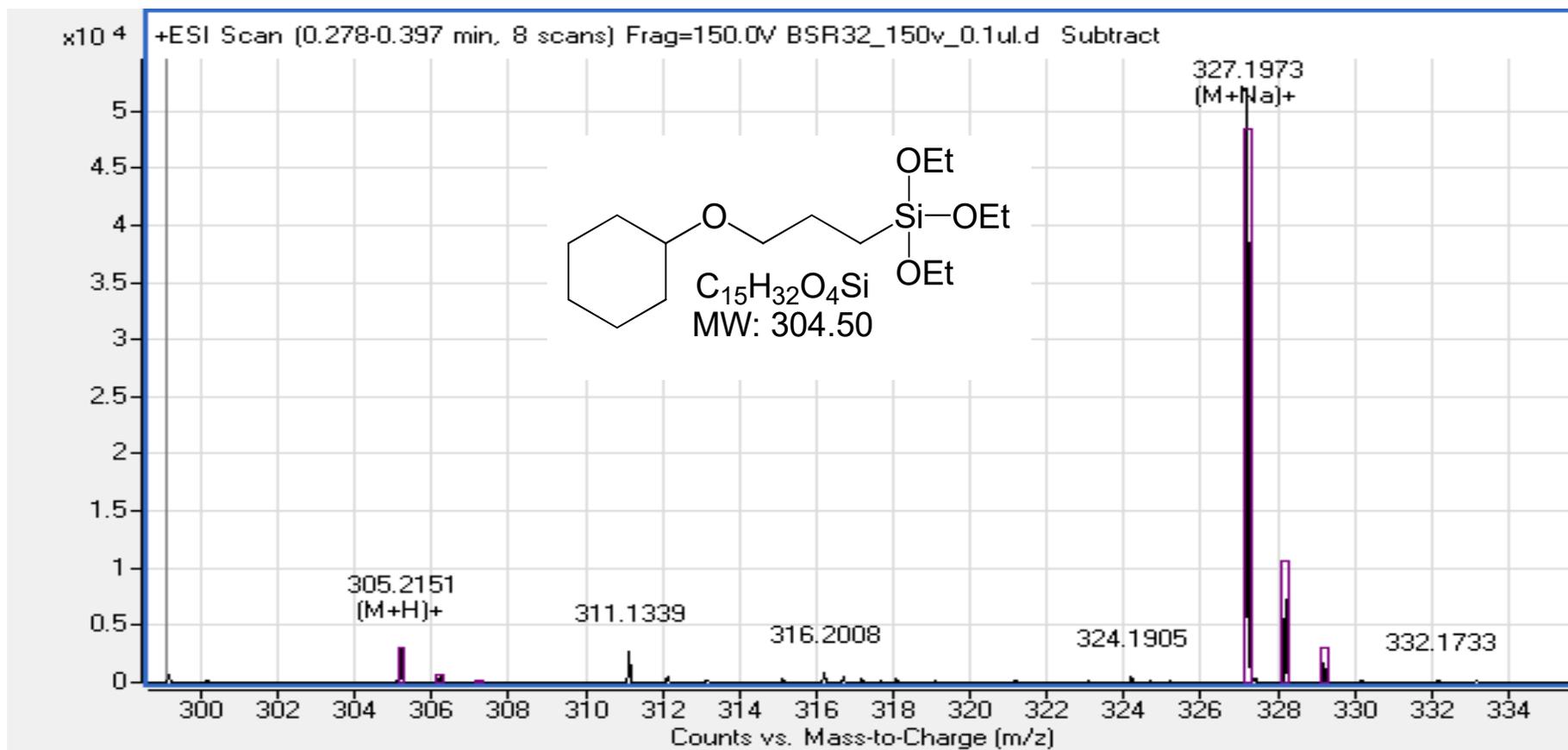
===== CHANNEL f1 =====
SFO1        100.628293 MHz
NUC1         13C
P1          10.00 usec
P13         1000.00 usec
PLW0        0 W
PLW1        35.0000000 W
SFOAK[5]    Cp60comp. 4
SFOAL5      0.500
SFOFTS5     0 Hz
SFW5        8.40340042 W

===== CHANNEL f2 =====
SFO2        400.1314005 MHz
NUC2         1H
CPDPRG[2]   waltz16
P2          20.61 usec
P3          11.74 usec
P4          27.48 usec
PCPD2       80.00 usec
PLW2        12.0000000 W
PLW12       0.35398000 W
PLW13       0.22655000 W

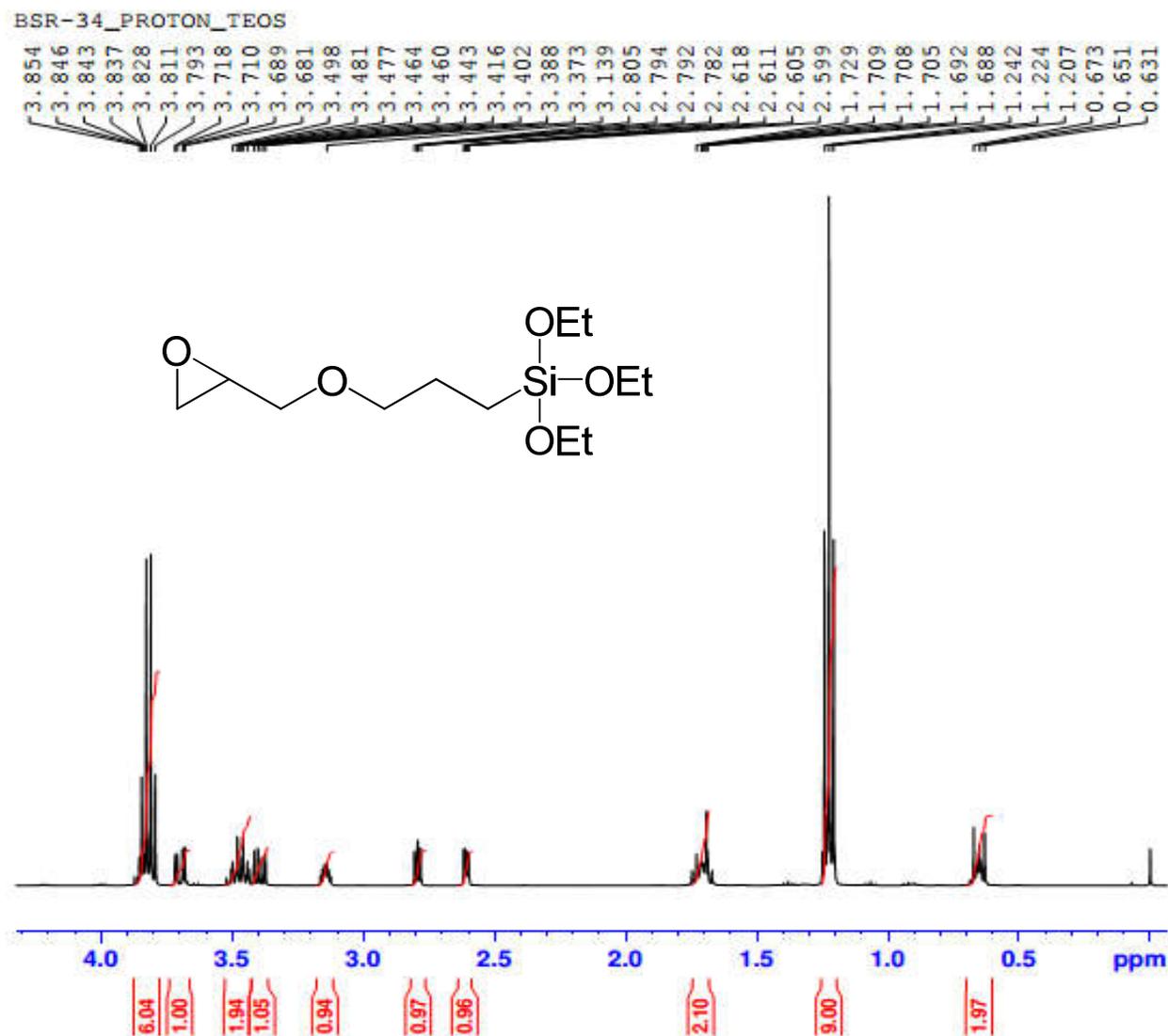
===== GRADIENT CHANNEL =====
GPRAM[1]    SMOg10.100
GPRAM[2]    SMOg10.100
GPRAM[3]    SMOg10.100
GP21        31.00 %
GP22        31.00 %
GP23        31.00 %
P16         1000.00 usec

F2 - Processing parameters
SI          32768
SF          100.6127685 MHz
WDW         EM
SSB         0
LR          1.00 Hz
GB          0
PC          1.40
    
```

[3-(cyclohexyloxy)propyl]triethoxysilane (**4**) – HR-ESIMS [M+Na]⁺ Calculated 327.1962; Observed 327.1973.



4-[3-(triethoxysilyl)propoxy]piperidine (**5**) – ¹H-NMR (CDCl₃, 400 MHz)



Current Data Parameters
 NAME BSR-34
 EXPNO 2
 PROCNO 1

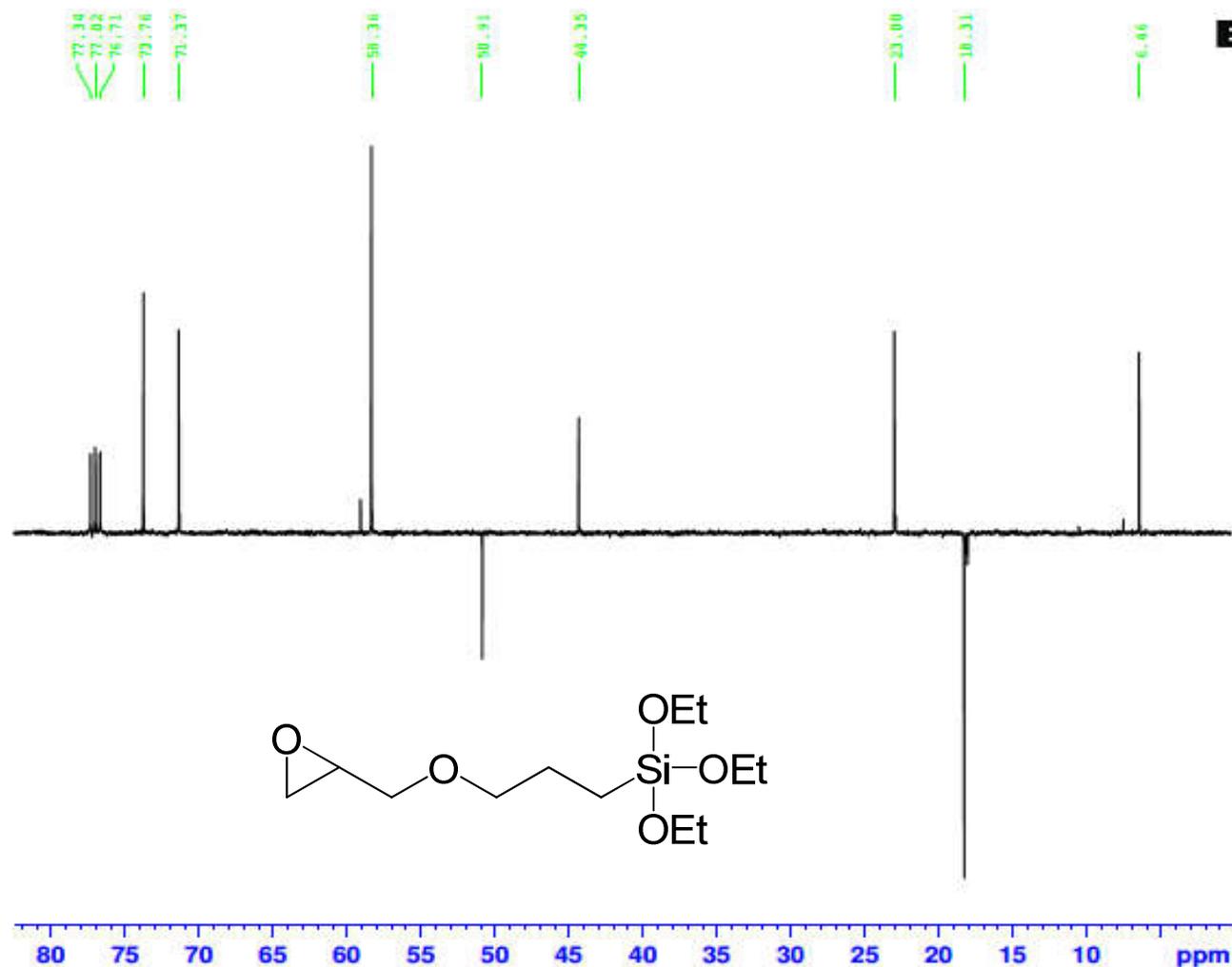
F2 - Acquisition Parameters
 Date_ 20170707
 Time 9.35
 INSTRUM spect
 PROBHD 5 mm PABBO BB/
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 16
 DS 2
 SWH 8012.820 Hz
 FIDRES 0.122266 Hz
 AQ 4.0894465 sec
 RG 74.37
 DW 62.400 usec
 DE 6.50 usec
 TE 300.0 K
 D1 1.00000000 sec
 TD0 1

===== CHANNEL f1 =====
 SFO1 400.1324710 MHz
 NUC1 1H
 P1 13.74 usec
 PLW1 12.00000000 W

F2 - Processing parameters
 SI 65536
 SF 400.1300046 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

4-[3-(triethoxysilyl)propoxy]piperidine (5) – ^{13}C -NMR (CDCl_3 , 100 MHz)

BSR-34_CARBON_TEOS



```

Current data parameters
NAME      BSR-34
EXPNO    3
PROCNO   1

F2 - Acquisition Parameters
Date_    20170707
Time     10.06
INSTRUM  spect
PROBHD   5 mm PABBO BB/
PULPROG  zgpg30
TD       65536
SOLVENT  CDCl3
NS       256
DS       8
SWH      24038.461 Hz
FIDRES   0.366798 Hz
AQ       1.3431488 sec
RG       206.83
DN       20.800 usec
DE       6.50 usec
TE       300.0 K
CMT2     145.000000
CMT12    1.500000
D1       2.0000000 sec
D2       0.00344828 sec
D12      0.00002000 sec
D14      0.00002000 sec
D24      0 sec
TD0      1

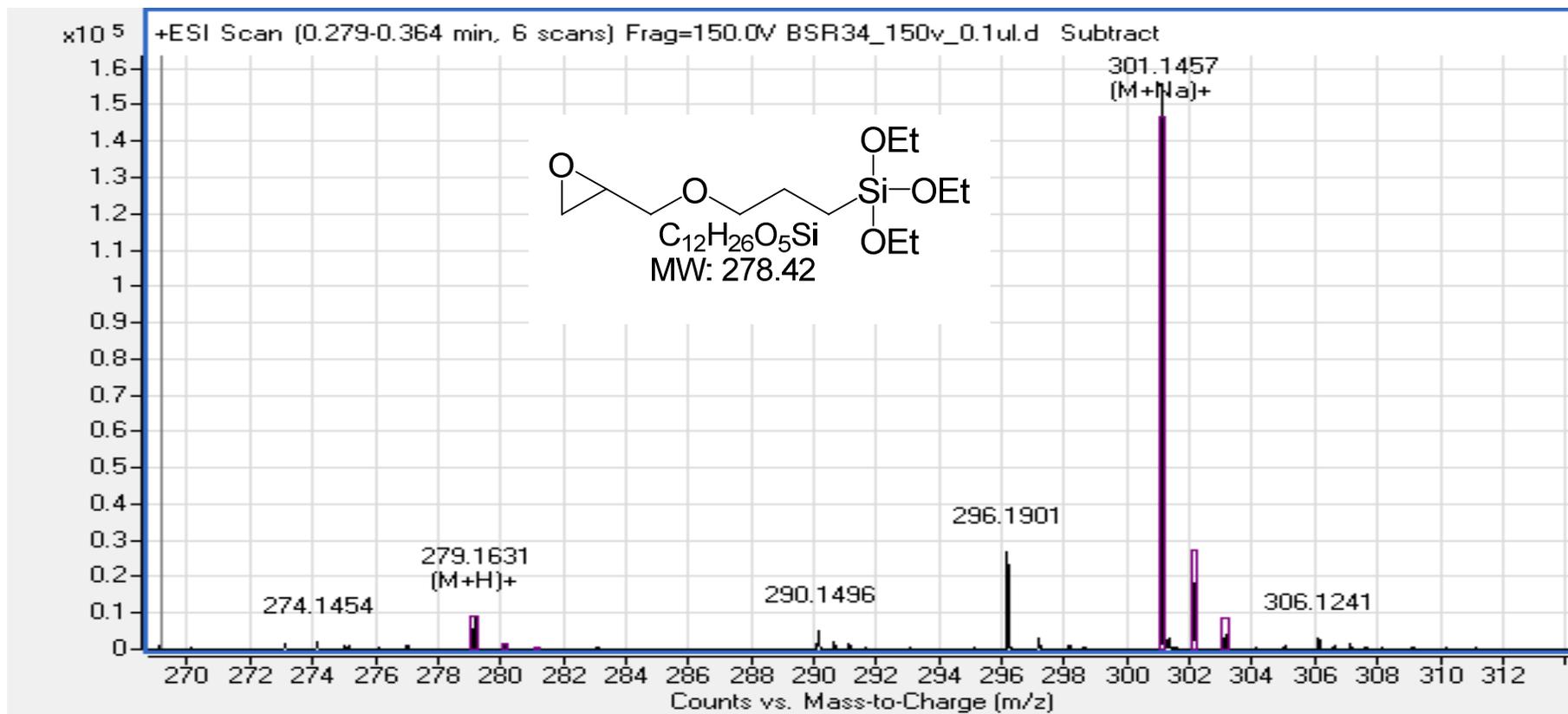
===== CHANNEL f1 =====
SFO1     100.6228293 MHz
NUC1     13C
P1       10.00 usec
P13      2000.00 usec
PLW0     0 W
PLW1     55.0000000 W
SFOA1[5] Cpu60comp 4
SFOAL5   0.500
SFOF7[5] 0 Hz
SFW5     8.40340042 W

===== CHANNEL f2 =====
SFO2     400.1314005 MHz
NUC2     1H
CPOPRG[2] waltz16
P2       20.61 usec
P3       13.74 usec
P4       27.48 usec
PCPD2    80.00 usec
PLW2     12.0000000 W
PLW12    0.35398000 W
PLW13    0.22655000 W

===== GRADIENT CHANNEL =====
GPRAM[1] SHGg10.100
GPRAM[2] SHGg10.100
GPRAM[3] SHGg10.100
GF21     31.00 %
GF22     31.00 %
GF23     31.00 %
P14      1000.00 usec

F2 - Processing parameters
SI       32768
SF       100.6127485 MHz
WDW      EM
SSB      0
LB       1.00 Hz
GB       0
PC       1.40
    
```

4-[3-(triethoxysilyl)propoxy]piperidine (5) – HR-ESIMS [M+Na]⁺ Calculated 301.1442; Observed 301.1457.



3-[3-(triethoxysilyl)propoxy]piperidine (6) – ¹H-NMR (CDCl₃, 400 MHz)

BSR-36H2PT_PROTON

7.010
6.990
6.627
6.607

3.847
3.829
3.811
3.794
3.541
2.653
2.640
2.632
2.623
2.610

1.248
1.231
1.213
0.971
0.949
0.927

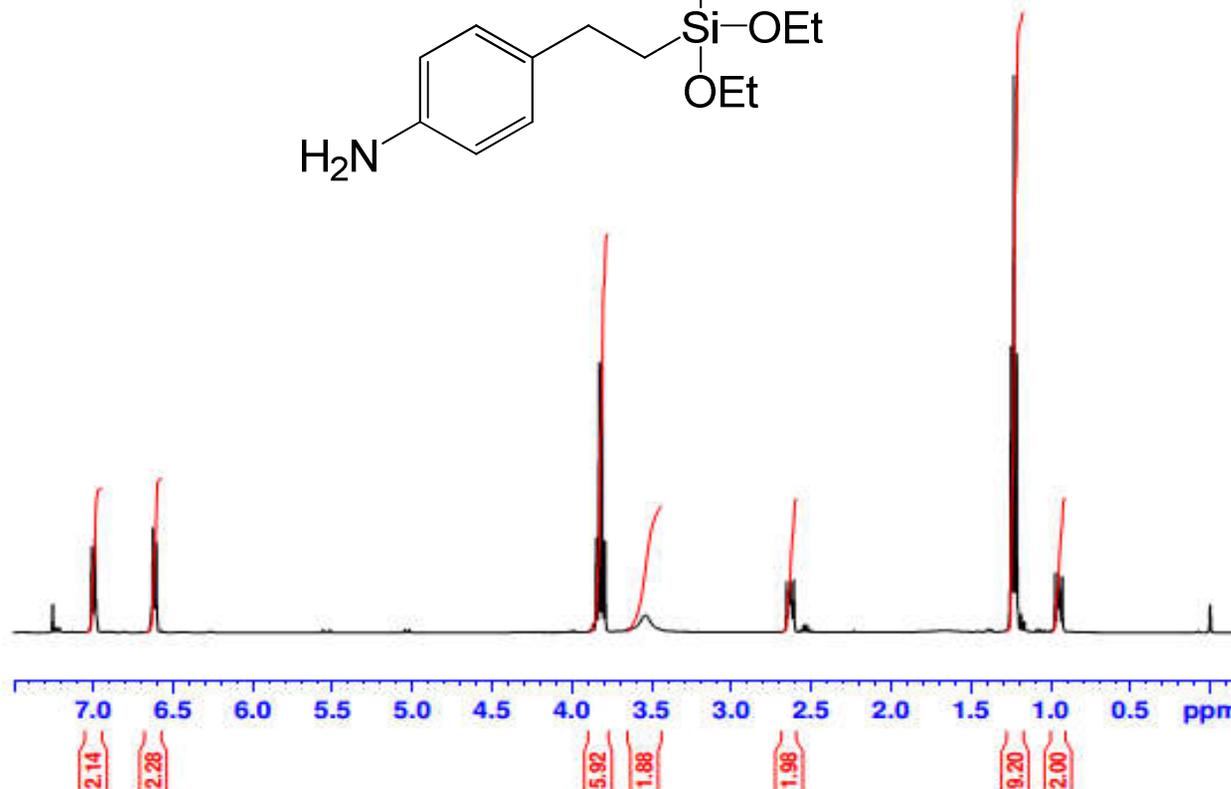
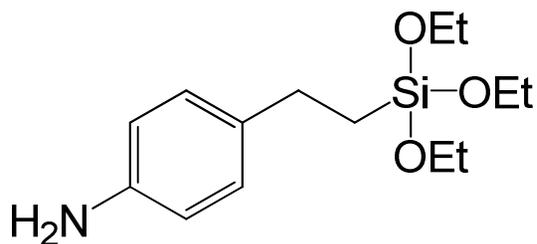


Current Data Parameters
NAME BSR-36H2PT
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 20170712
Time 10.51
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 74.37
DW 62.400 usec
DE 6.50 usec
TE 300.0 K
D1 1.00000000 sec
TD0 1

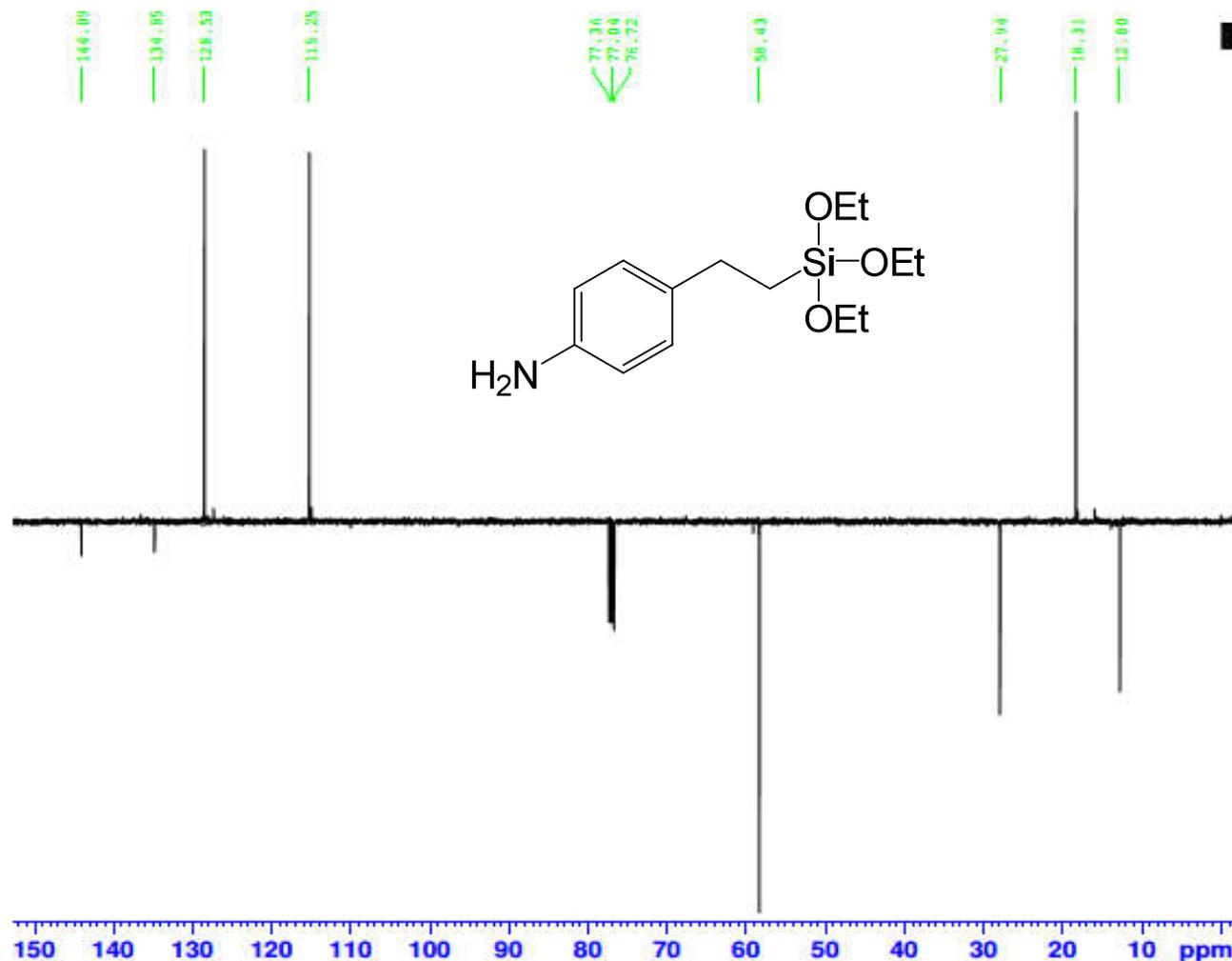
===== CHANNEL f1 =====
SFO1 400.1324710 MHz
NUC1 1H
P1 13.74 usec
PLW1 12.00000000 W

F2 - Processing parameters
SI 65536
SF 400.1300116 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



3-[3-(triethoxysilyl)propoxy]piperidine (6) – ^{13}C -NMR (CDCl_3 , 100 MHz)

BSR-36H2PT_CARBON



```

Current Data Parameters
NAME      BSR-36H2PT
EXPNO    2
PROCNO   1

F2 - Acquisition Parameters
Date_    20170712
Time     11.19
INSTRUM  spect
PROBHD   5 mm PASSED RG/
PULPROG  deptqqcp.2
TD       65536
SOLVENT  CDCl3
NS       256
DS       8
SWH      24038.461 Hz
FIDRES   0.364798 Hz
AQ       1.3621488 sec
RG       256.83
DW       20.800 usec
DE       6.50 usec
TE       300.0 K
CONST1   145.000000
CONST2   1.5000000
D1       2.0000000 sec
D2       0.00344828 sec
D12      0.00002000 sec
D16      0.00020000 sec
D38      0 sec
TD0      1

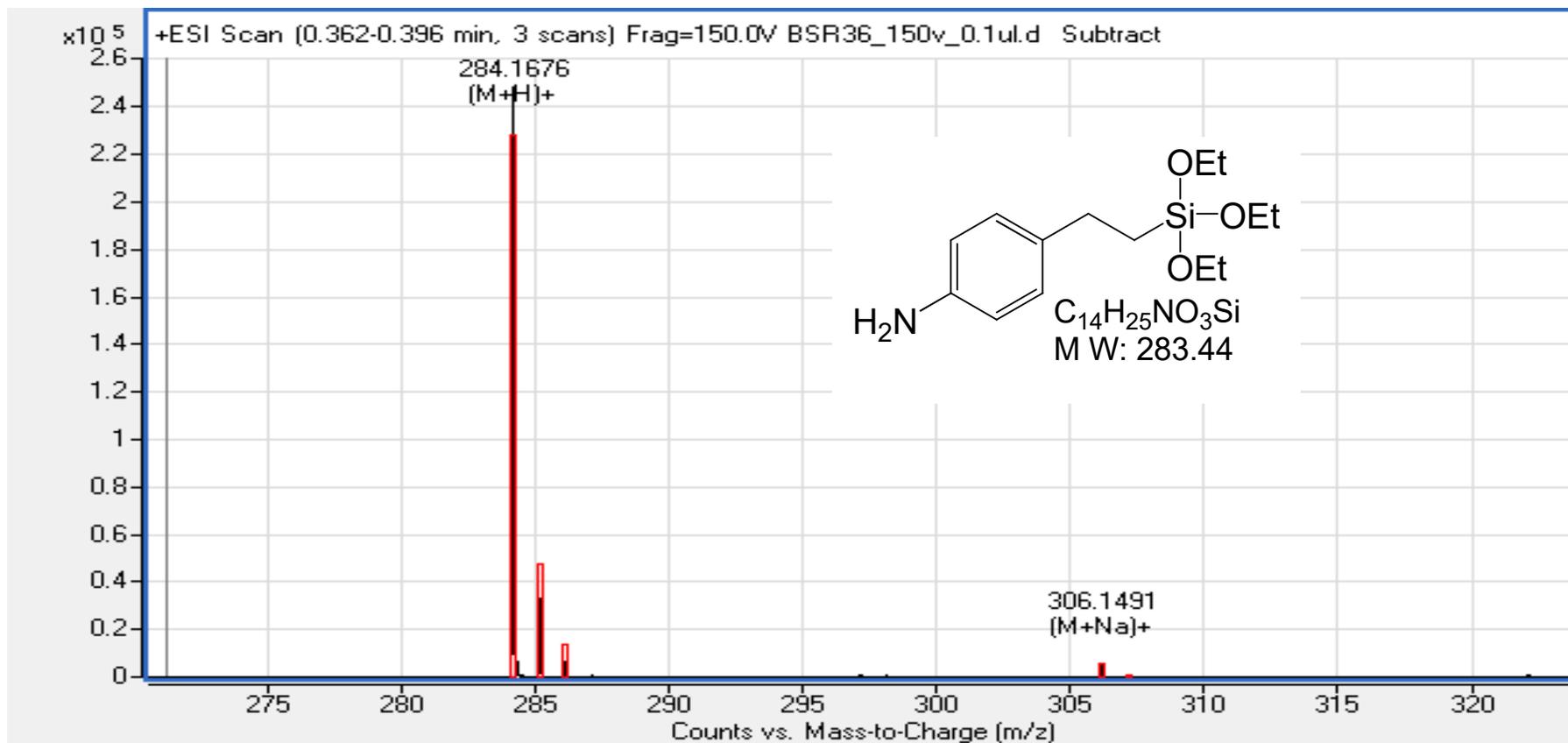
===== CHANNEL f1 =====
SFO1    100.6228293 MHz
NUC1     13C
P1      10.00 usec
P13     2000.00 usec
PLM0    0 W
PLM1    55.0000000 W
SFOHM[5] Crp40comp.4
SFOAL5   0.500
SFOFF05  0 Hz
SFO5     8.40340042 W

===== CHANNEL f2 =====
SFO2    400.1316005 MHz
NUC2     1H
CDPRPG[2] wait.216
P2      20.61 usec
P3      13.74 usec
P4      27.48 usec
PCPD02  80.00 usec
PLM2    11.0000000 W
PLM12   0.35398000 W
PLM13   0.22655000 W

===== GRADIENT CHANNEL =====
GPHAM[1] SMS010.100
GPHAM[2] SMS010.100
GPHAM[3] SMS010.100
GP21    31.00 %
GP22    31.00 %
GP23    31.00 %
P16     1000.00 usec

F2 - Processing parameters
SI      32768
SF      100.6127685 MHz
WDW     EM
SSB     0
LA      1.00 Hz
GB      0
PC      1.40
    
```

3-[3-(triethoxysilyl)propoxy]piperidine (**6**) – HR-ESIMS [M+H]⁺ Calculated 284.1676; Observed 284.1676.

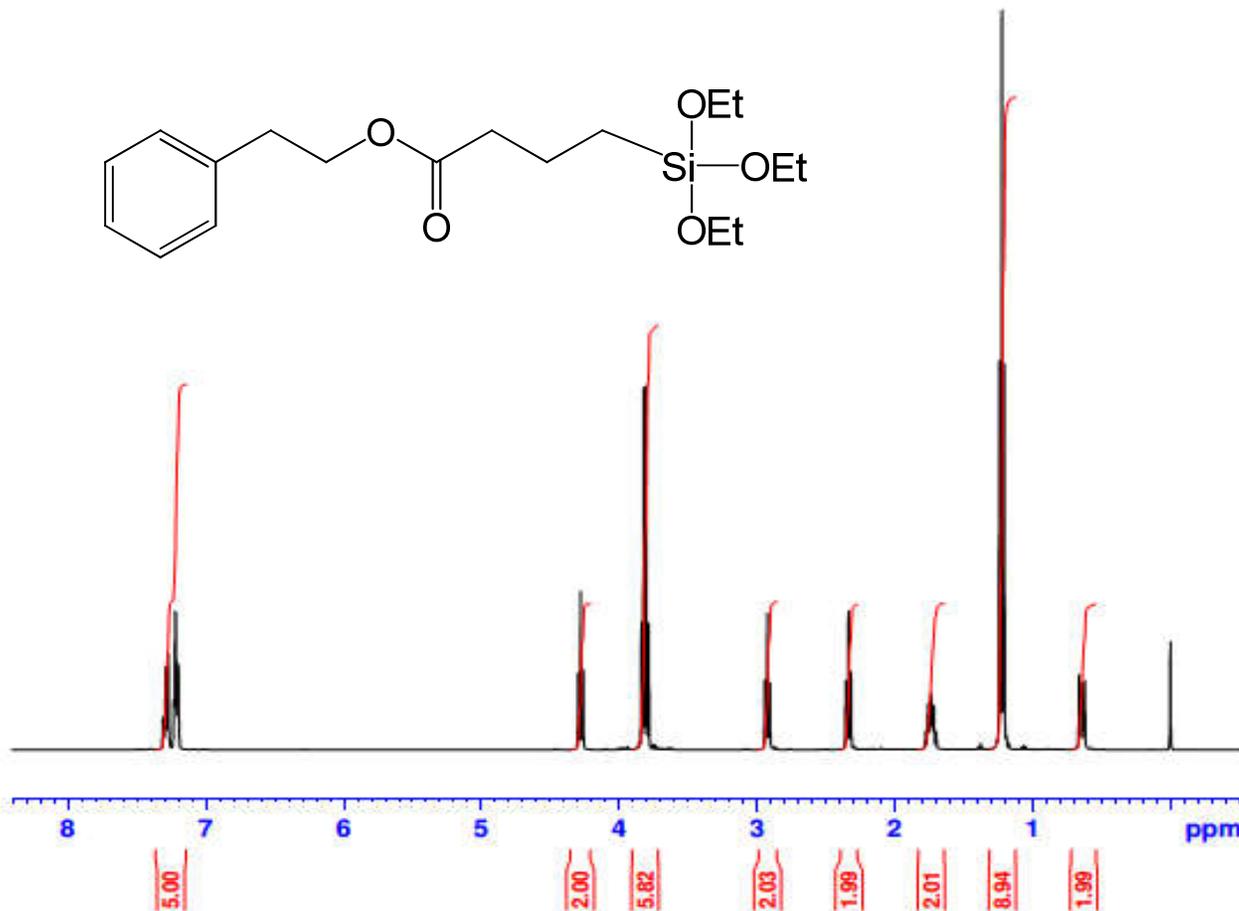
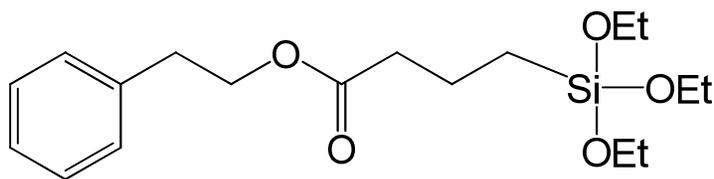


Phenethyl 4-(triethoxysilyl)butanoate (**7**) – ¹H-NMR (CDCl₃, 400 MHz)

BSR-4F2_proton

7.309
7.289
7.271
7.229
7.219
7.199

4.296
4.278
4.261
3.838
3.821
3.803
3.786
2.942
2.924
2.906
2.355
2.336
2.318
1.777
1.758
1.738
1.717
1.698
1.240
1.223
1.205
0.662
0.646
0.641
0.636
0.620



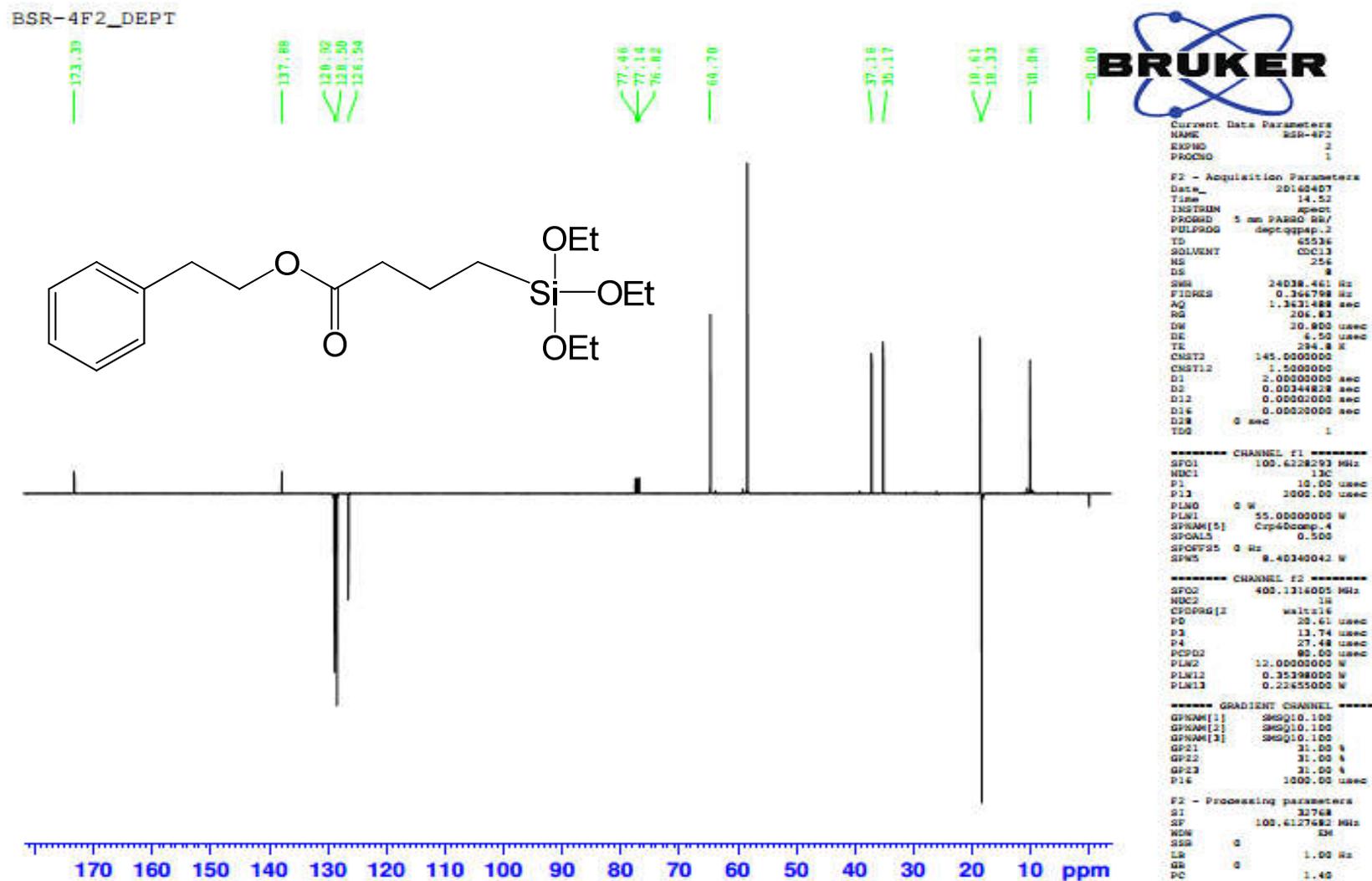
Current Data Parameters
NAME BSR-4F2
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 20160407
Time 14.31
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 16.29
DW 62.400 usec
DE 6.50 usec
TE 293.9 K
D1 1.00000000 sec
TD0 1

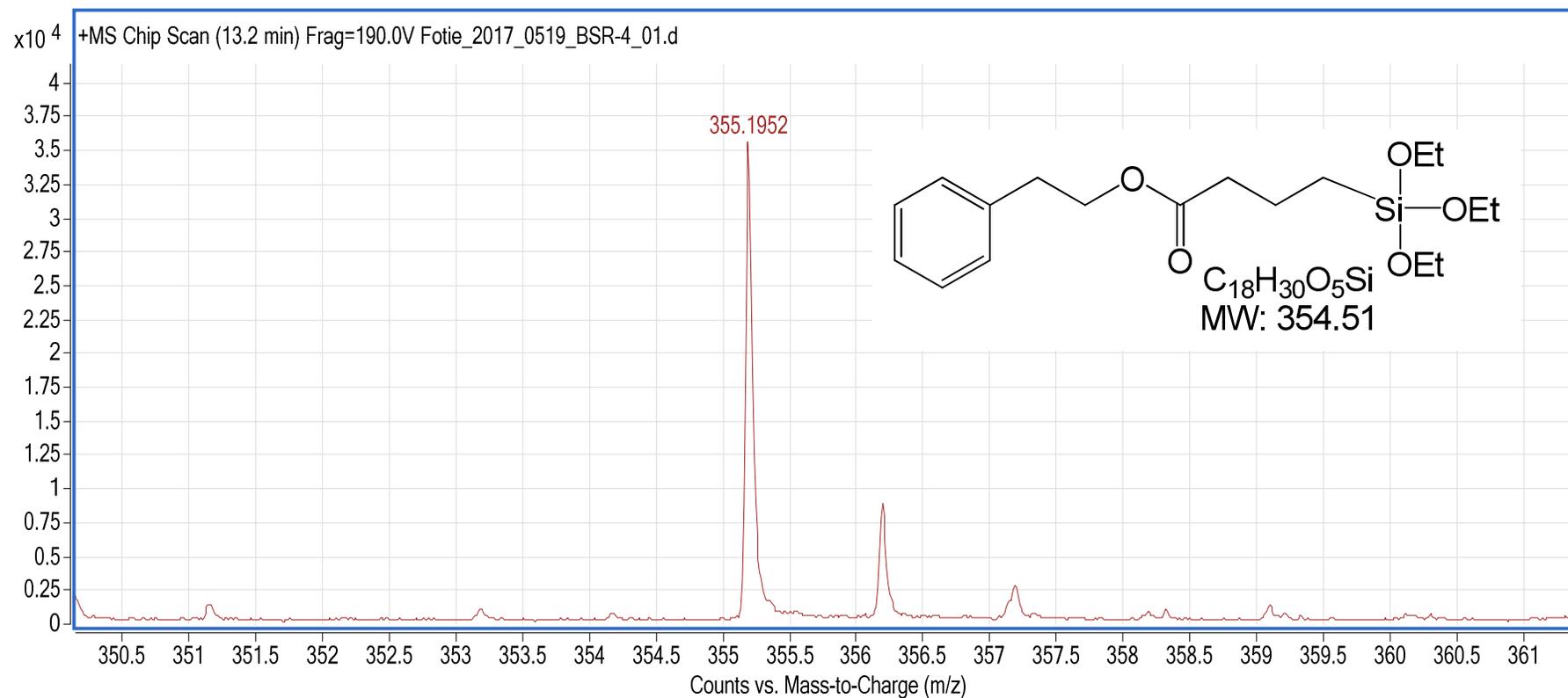
===== CHANNEL f1 =====
SFO1 400.1324710 MHz
NUC1 1H
P1 13.74 usec
PLW1 12.00000000 W

F2 - Processing parameters
SI 65536
SF 400.1300090 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

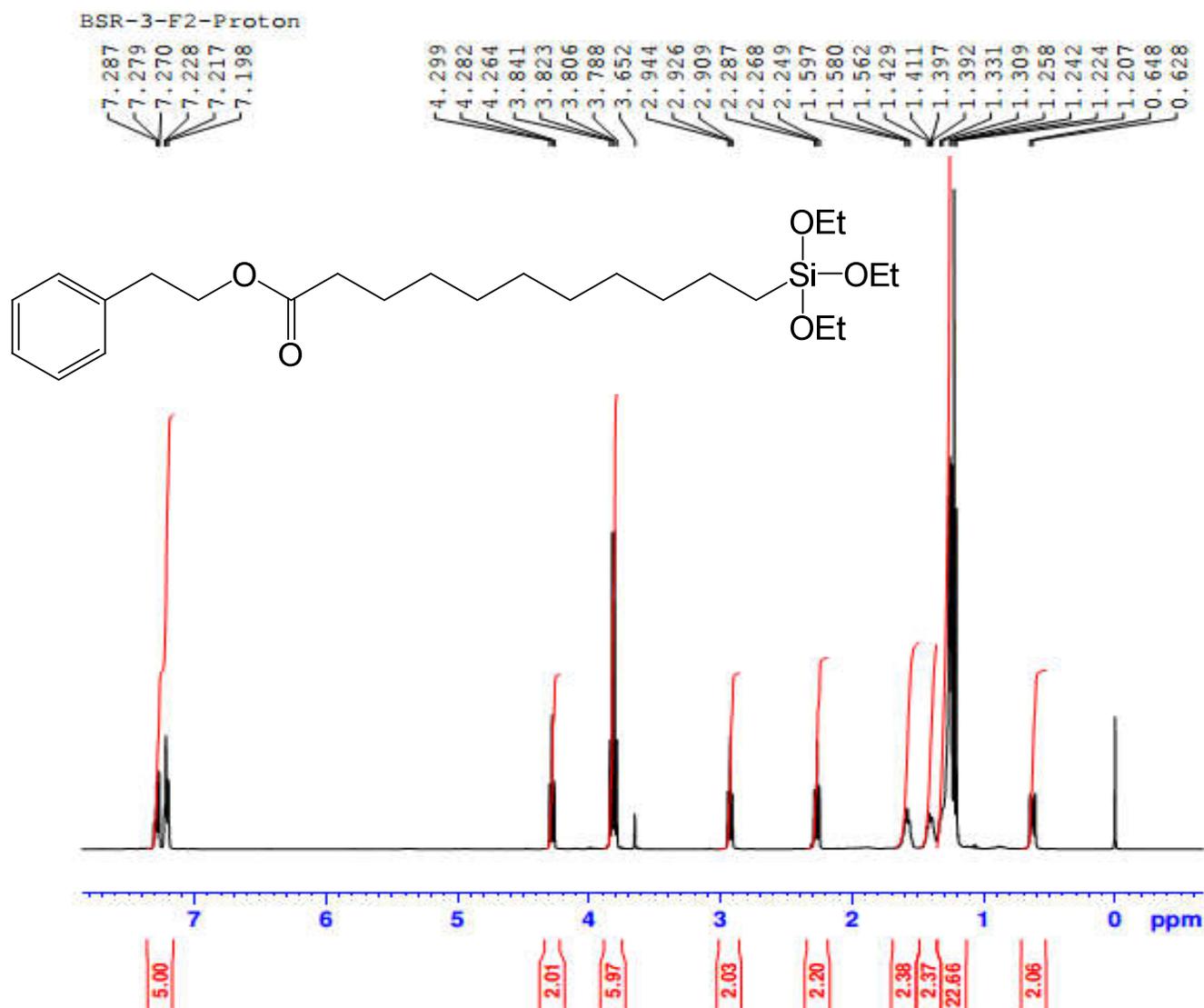
Phenethyl 4-(triethoxysilyl)butanoate (**7**) – ¹³C-NMR (CDCl₃, 100 MHz)



Phenethyl 4-(triethoxysilyl)butanoate (**7**) – HR-ESIMS [M+H]⁺ Calculated 355.1935; Observed 355.1952.



Phenethyl 11-(triethoxysilyl)undecanoate (**8**) – ¹H-NMR (CDCl₃, 400 MHz)



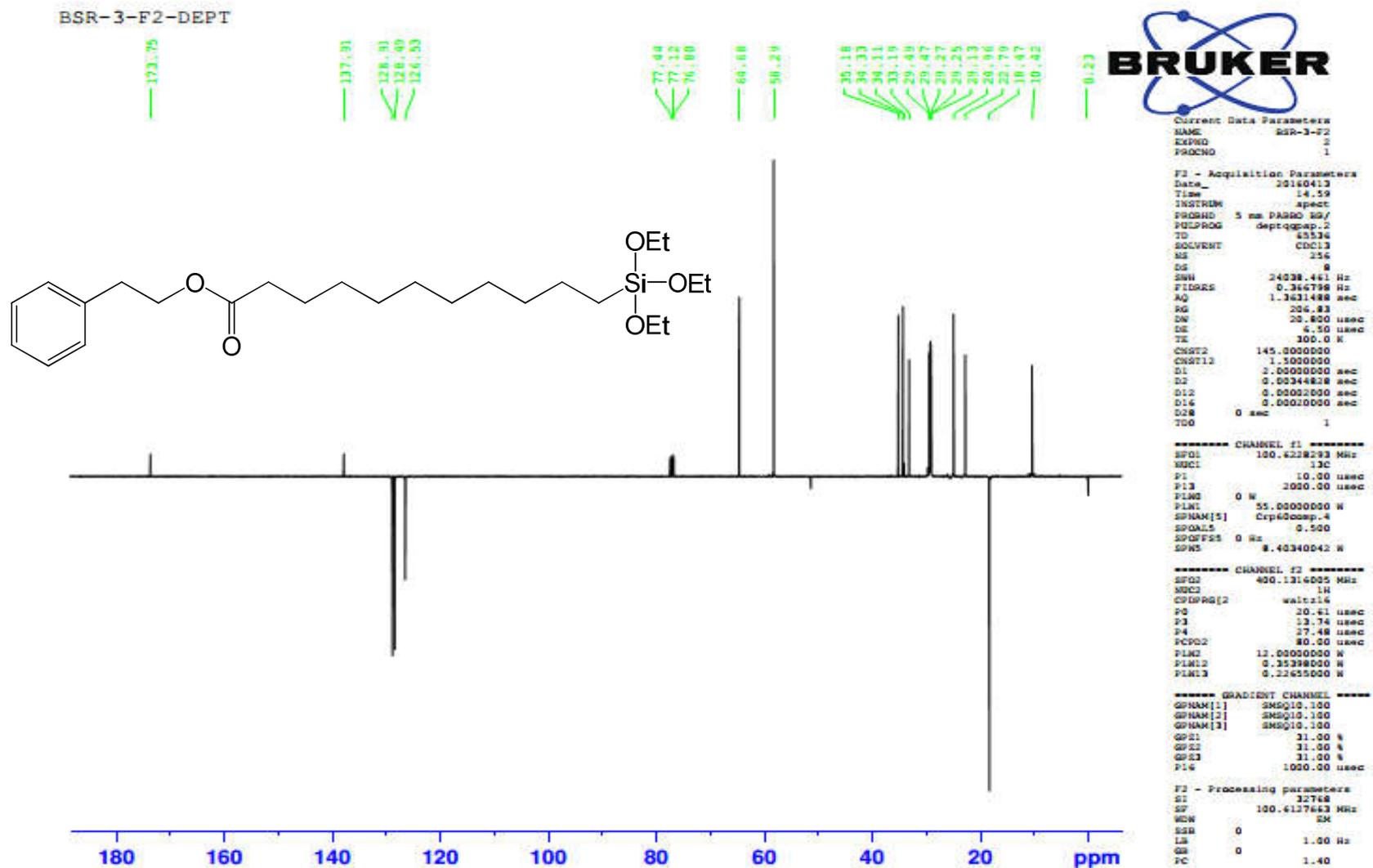
Current Data Parameters
 NAME BSR-3-F2
 EXPNO 1
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20160413
 Time 14.39
 INSTRUM spect
 PROBHD 5 mm PABBO BB/
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 16
 DS 2
 SWH 8012.820 Hz
 FIDRES 0.122266 Hz
 AQ 4.0894465 sec
 RG 16.29
 DW 62.400 usec
 DE 6.50 usec
 TE 300.0 K
 D1 1.00000000 sec
 TD0 1

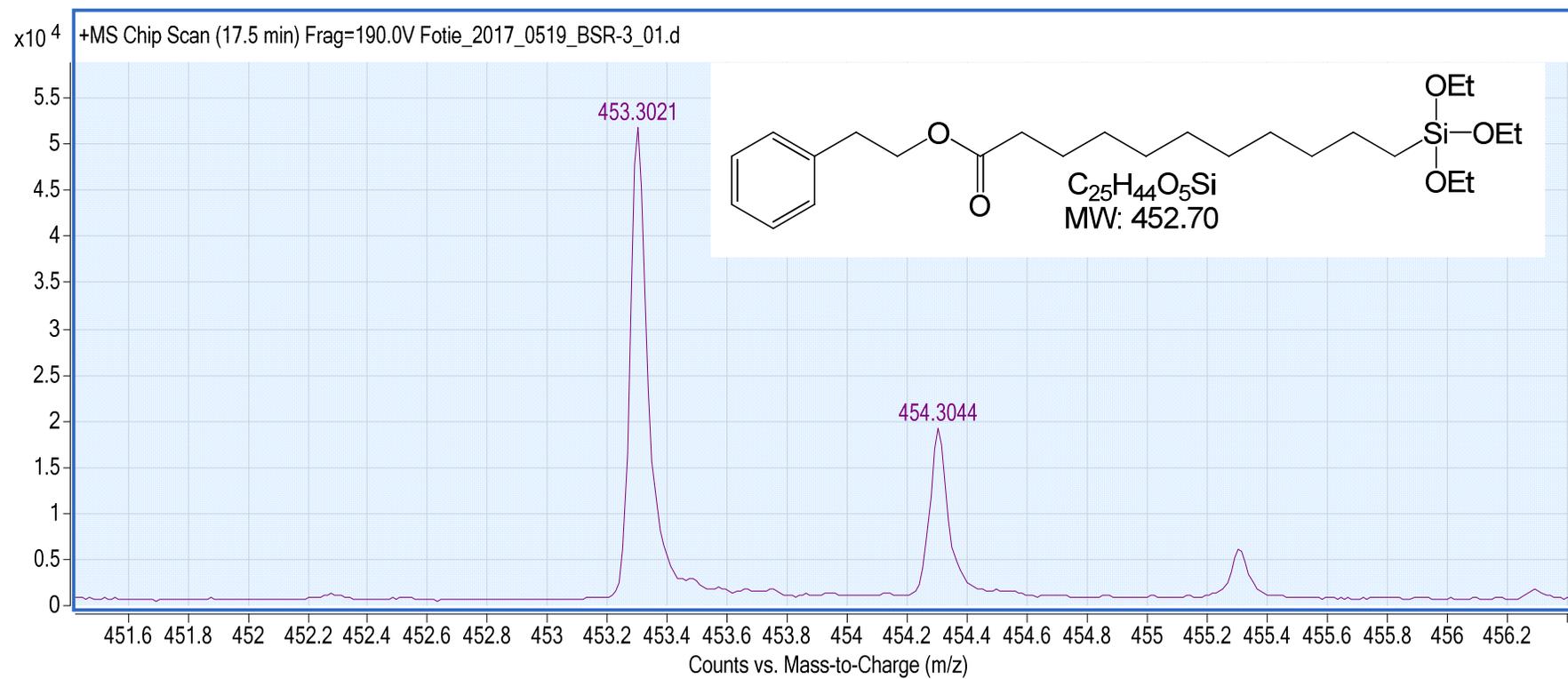
===== CHANNEL f1 =====
 SF01 400.1324710 MHz
 NUC1 1H
 P1 13.74 usec
 PLW1 12.00000000 W

F2 - Processing parameters
 SI 65536
 SF 400.1300081 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

Phenethyl 11-(triethoxysilyl)undecanoate (**8**) – ¹³C-NMR (CDCl₃, 100 MHz)



Phenethyl 11-(triethoxysilyl)undecanoate (**8**) – HR-ESIMS [M+H]⁺ Calculated 453.3031; Observed 453.3021.

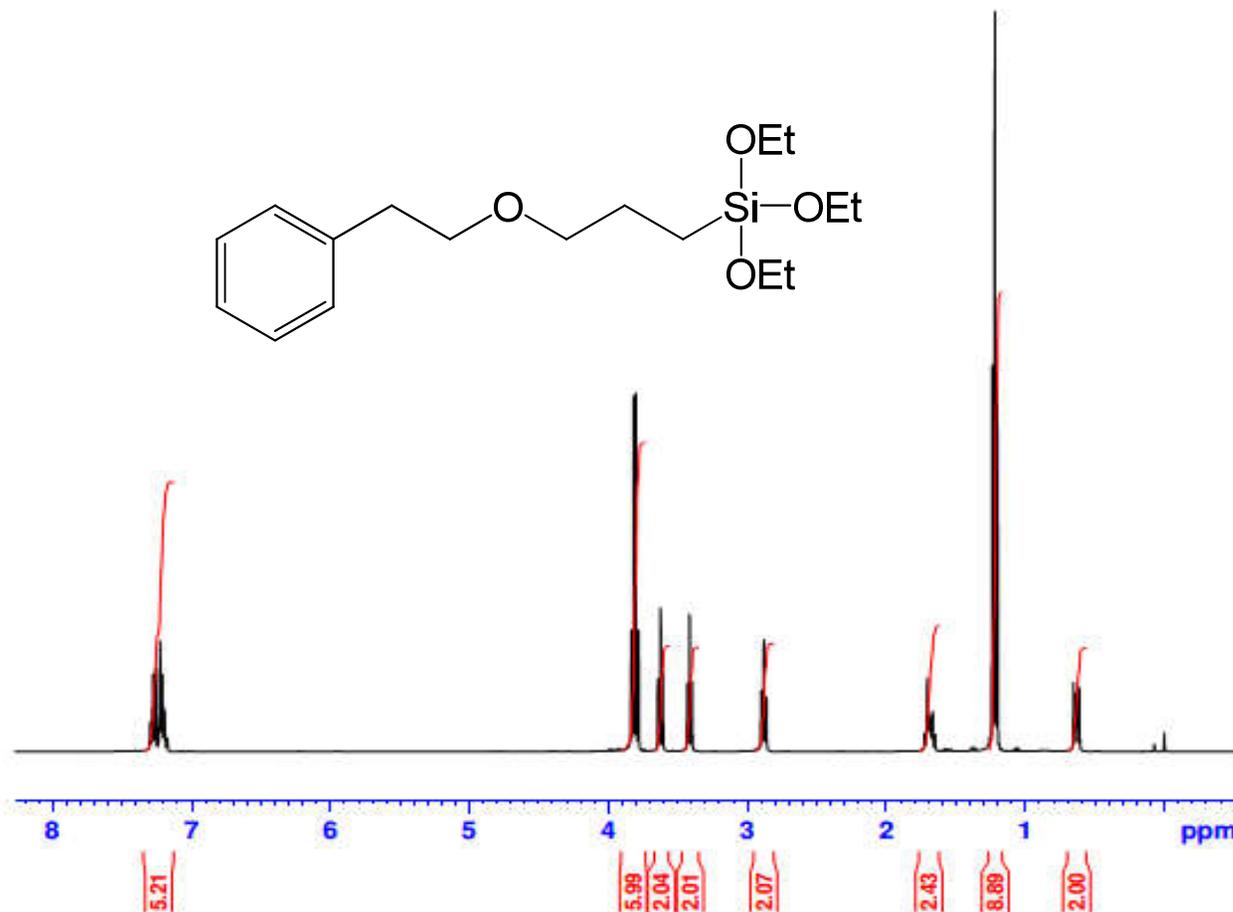
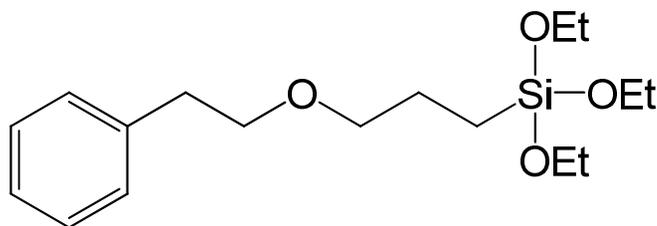


Triethoxy(3-phenethoxypropyl)silane (9) – ¹H-NMR (CDCl₃, 400 MHz)

BSR-14-SILICATE

7.294
7.276
7.262
7.258
7.254
7.226
7.209
7.191

3.818
3.801
3.643
3.625
3.607
3.433
3.416
3.399
2.900
2.882
2.863
1.726
1.705
1.698
1.692
1.688
1.684
1.678
1.667
1.650
1.238
1.220
1.203
0.654
0.633
0.612



Current Data Parameters
NAME BSR-14-SILICATE
EXPNO 2
PROCNO 1

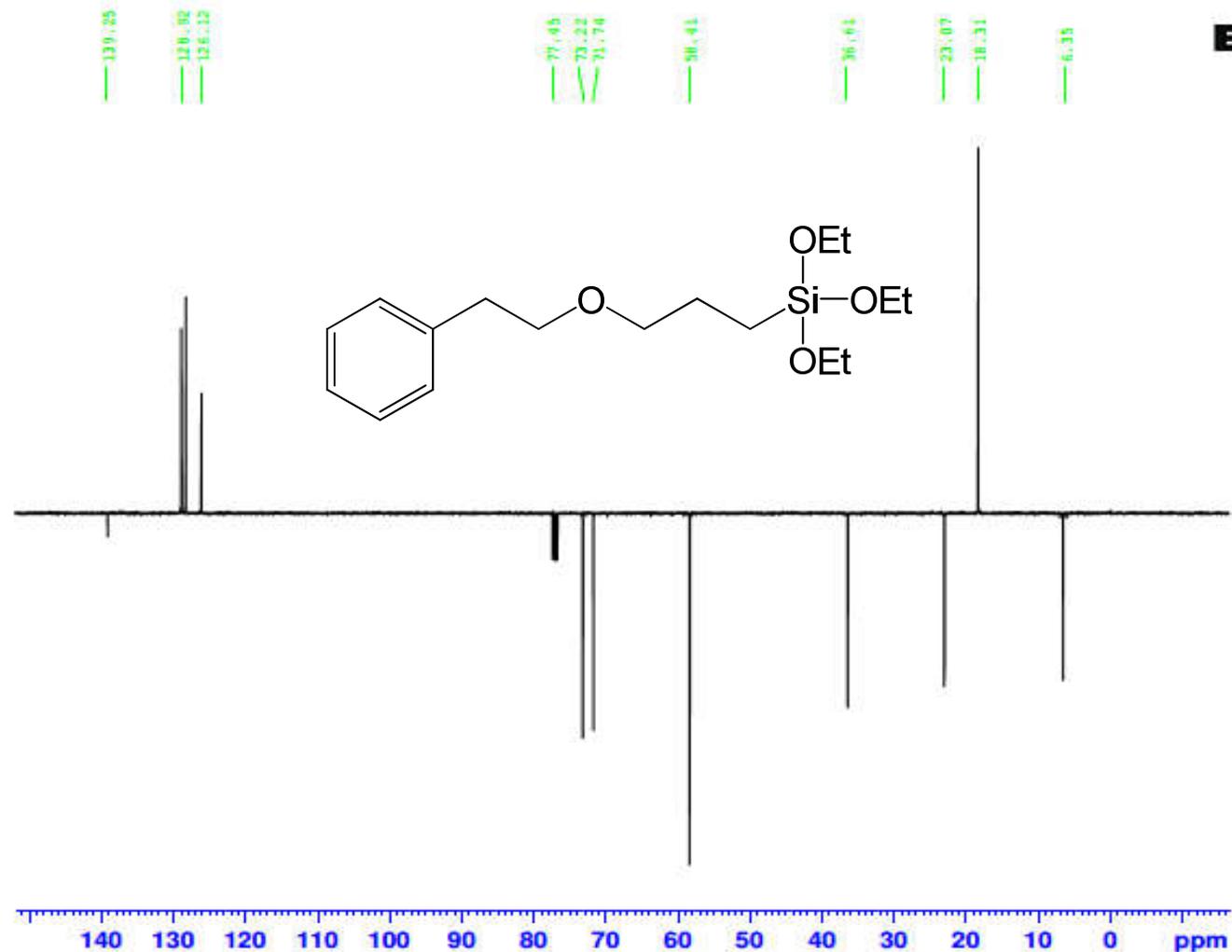
F2 - Acquisition Parameters
Date_ 20170117
Time 8.33
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 32.86
DW 62.400 usec
DE 6.50 usec
TE 300.0 K
D1 1.00000000 sec
TD0 1

***** CHANNEL f1 *****
SFO1 400.1324710 MHz
NUC1 1H
P1 13.74 usec
PLW1 12.00000000 W

F2 - Processing parameters
SI 65536
SF 400.1300122 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

Triethoxy(3-phenethoxypropyl)silane (9) – ¹³C-NMR (CDCl₃, 100 MHz)

BSR-14-SILICATE-CARBON



```

Current Data Parameters
NAME      BSR-14-SILICATE-CARBON
EXPNO    1
PROCNO   1

F2 - Acquisition Parameters
Date_    20170117
Time     9.10
INSTRUM  spect
PROBHD   5 mm PABBO BB/
PULPROG  dept-qqzap.2
TD       65536
SOLVENT  CDCl3
NS       256
DS       8
SWH      34038.461 Hz
FIDRES   0.366798 Hz
AQ       1.3431488 sec
RG       204.83
DW       10.800 usec
DE       6.50 usec
TE       300.2 K
CHST12   145.0000000
CHST12   1.5000000
D1       2.00000000 sec
D2       0.00344828 sec
D12      0.00002000 sec
D16      0.00020000 sec
D18      0 sec
TD0      1

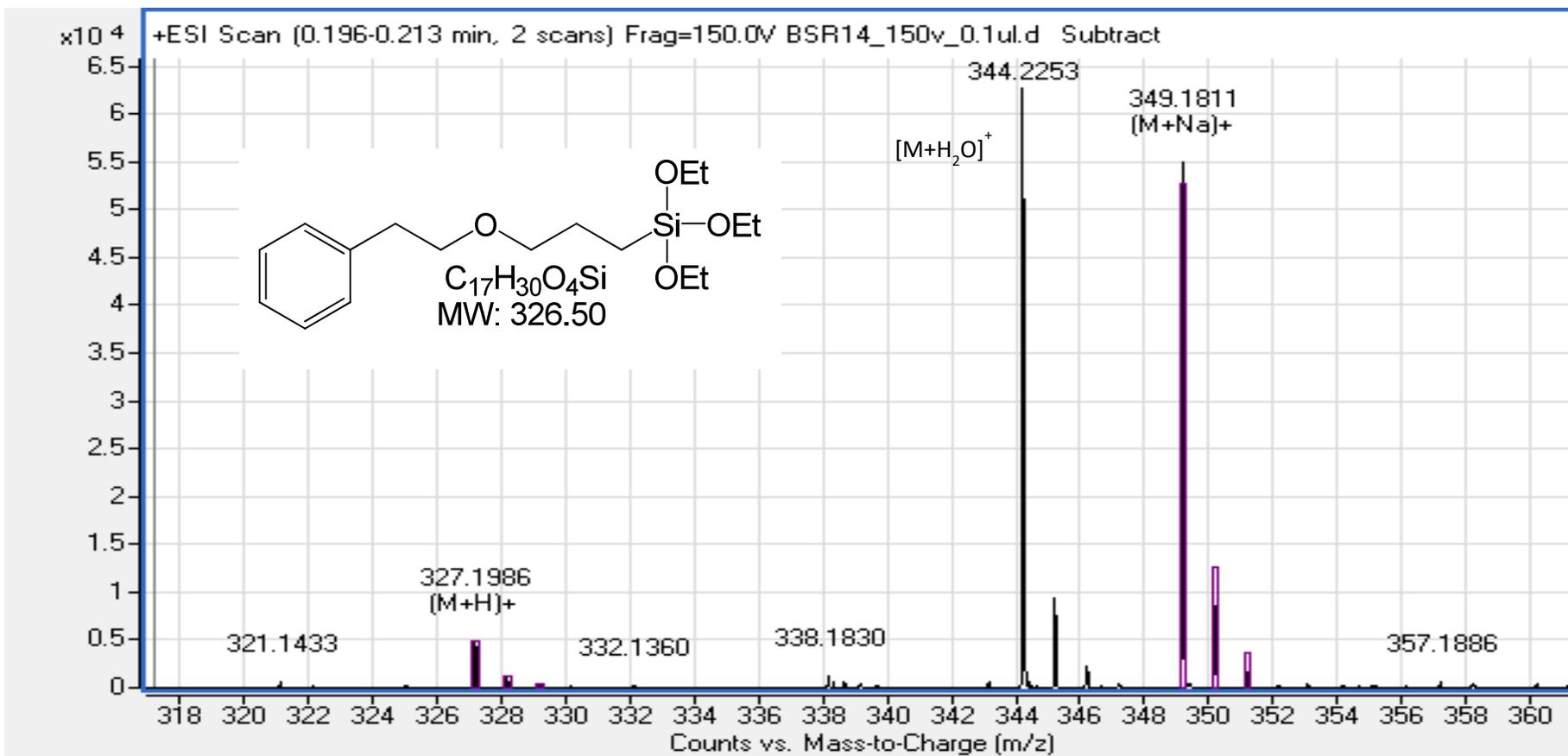
----- CHANNEL f1 -----
SF01     100.6228293 MHz
NUC1     13C
P1       10.00 usec
P13      1000.00 usec
PLW0     0 W
PLW1     55.0000000 W
SFOAM[5] Crp40comp.4
SFOALS   0.500
SPOFF25  0 Hz
SPW5     8.40340042 W

----- CHANNEL f2 -----
SF02     400.1316005 MHz
NUC2     1H
CPGPRG[2] waltz16
P0       20.61 usec
P3       13.74 usec
P4       27.48 usec
PCPD2    80.00 usec
PLW2     12.0000000 W
PLW12    0.35398000 W
PLW13    0.22455000 W

----- GRADIENT CHANNEL -----
GPRAM[1] SHGQ10.100
GPRAM[2] SHGQ10.100
GPRAM[3] SHGQ10.100
GP21     31.00 %
GP22     31.00 %
GP23     31.00 %
P16      1000.00 usec

F2 - Processing parameters
SI       32768
SF       100.6127685 MHz
NSW      328
SSB      0
LR       1.00 Hz
GB       0
PC       1.40
    
```

Triethoxy(3-phenethoxypropyl)silane (9) – HR-ESIMS [M+Na]⁺ Calculated 349.1806; Observed 349.1811.



[3-(benzyloxy)propyl]triethoxysilane (**10**) – ¹H-NMR (CDCl₃, 400 MHz)

BSR_17_PROTON

7.338
7.327
7.273
7.262
7.252
7.241

4.502
3.839
3.821
3.804
3.786
3.472
3.455
3.438

1.779
1.762
1.742
1.738
1.732
1.721
1.704
1.235
1.218
1.200
0.694
0.680
0.673
0.668
0.653

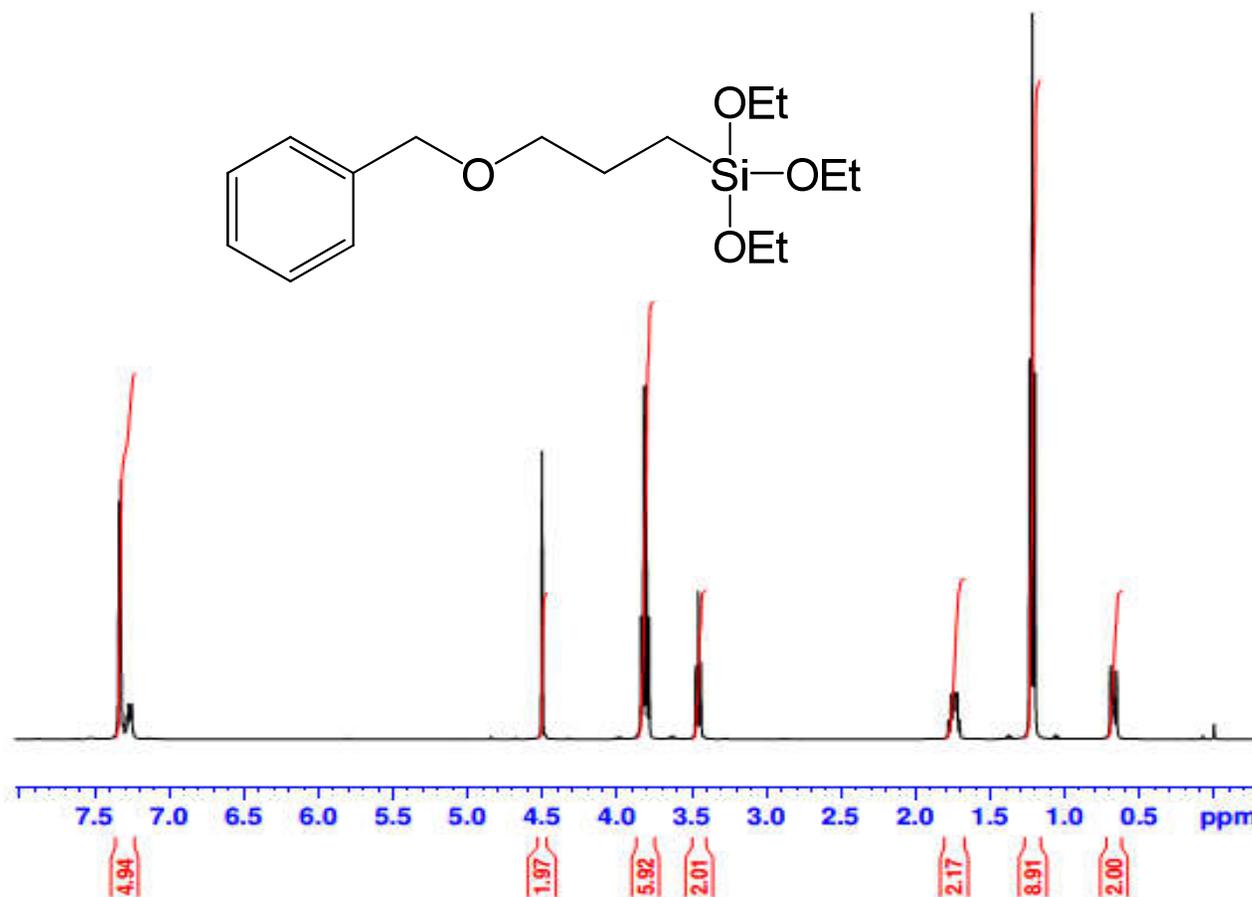
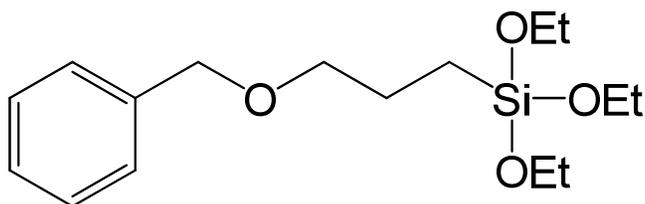


Current Data Parameters
NAME BSR-17
EXPNO 1
PROCNO 1

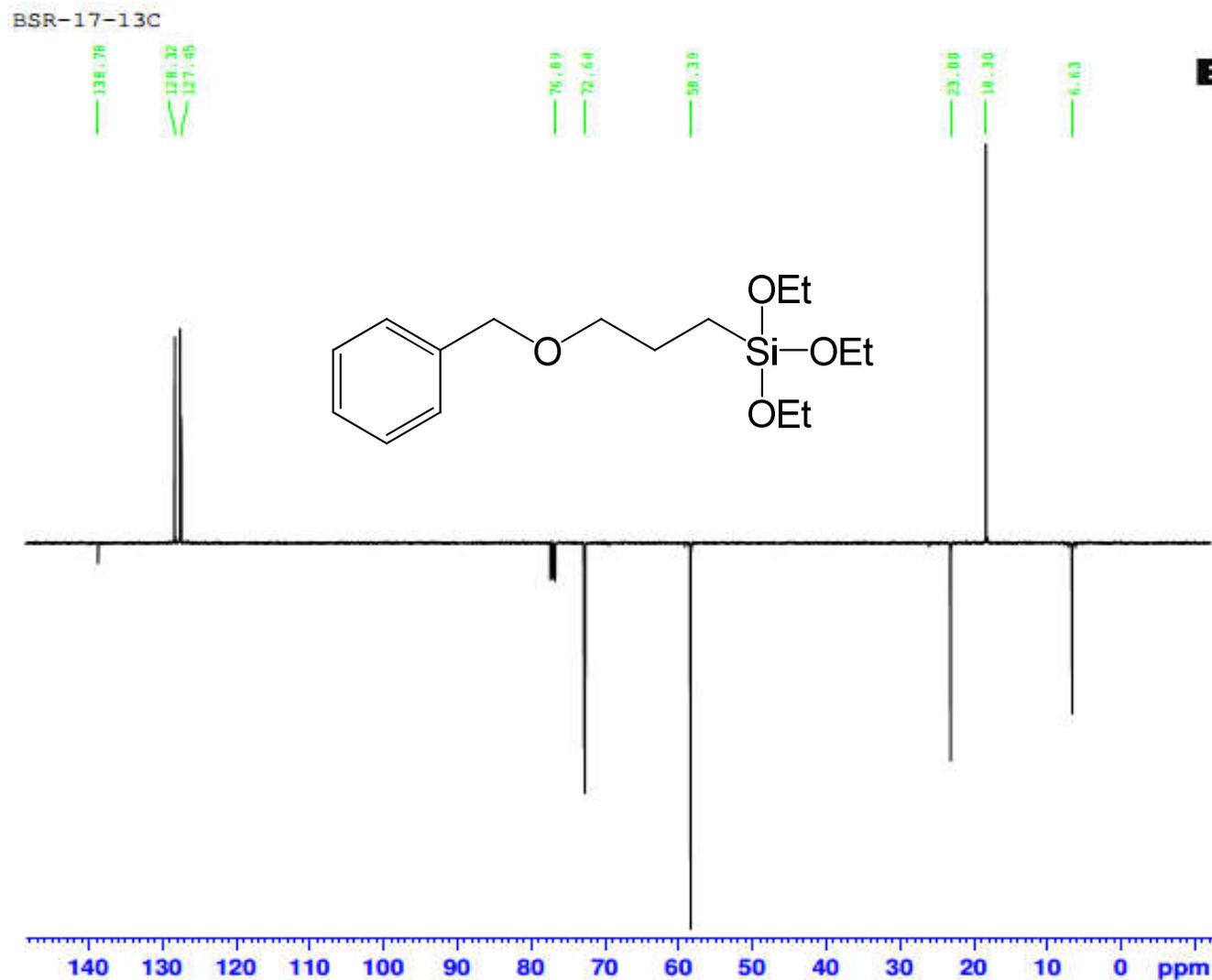
F2 - Acquisition Parameters
Date_ 20170221
Time 15.46
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 32.86
DW 62.400 usec
DE 6.50 usec
TE 300.1 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
SFO1 400.1324710 MHz
NUC1 1H
P1 13.74 usec
PLW1 12.00000000 W

F2 - Processing parameters
SI 65536
SF 400.1300127 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



[3-(benzyloxy)propyl]triethoxysilane (**10**) – ¹³C-NMR (CDCl₃, 100 MHz)



```

Current Data Parameters
NAME      BSR-17-013
EXPSO    2
PROCNO    1

F2 - Acquisition Parameters
Date_    20170221
Time     16.16
INSTRUM  spect
PROBHD   5 mm PABBO 50/
PULPROG  zgpg30p.2
TD       65536
SOLVENT  CDCl3
NS       256
DS       8
SWH      24038.461 Hz
FIDRES   0.366798 Hz
AQ       1.3631488 sec
RG       306.83
RW       20.800 usec
DE       6.50 usec
TE       300.0 K
CONST1   145.0000000
CONST2   1.5000000
D1       2.0000000 sec
D2       0.00344828 sec
D12      0.0000000 sec
D14      0.0000000 sec
D28      0 sec
TDO      1

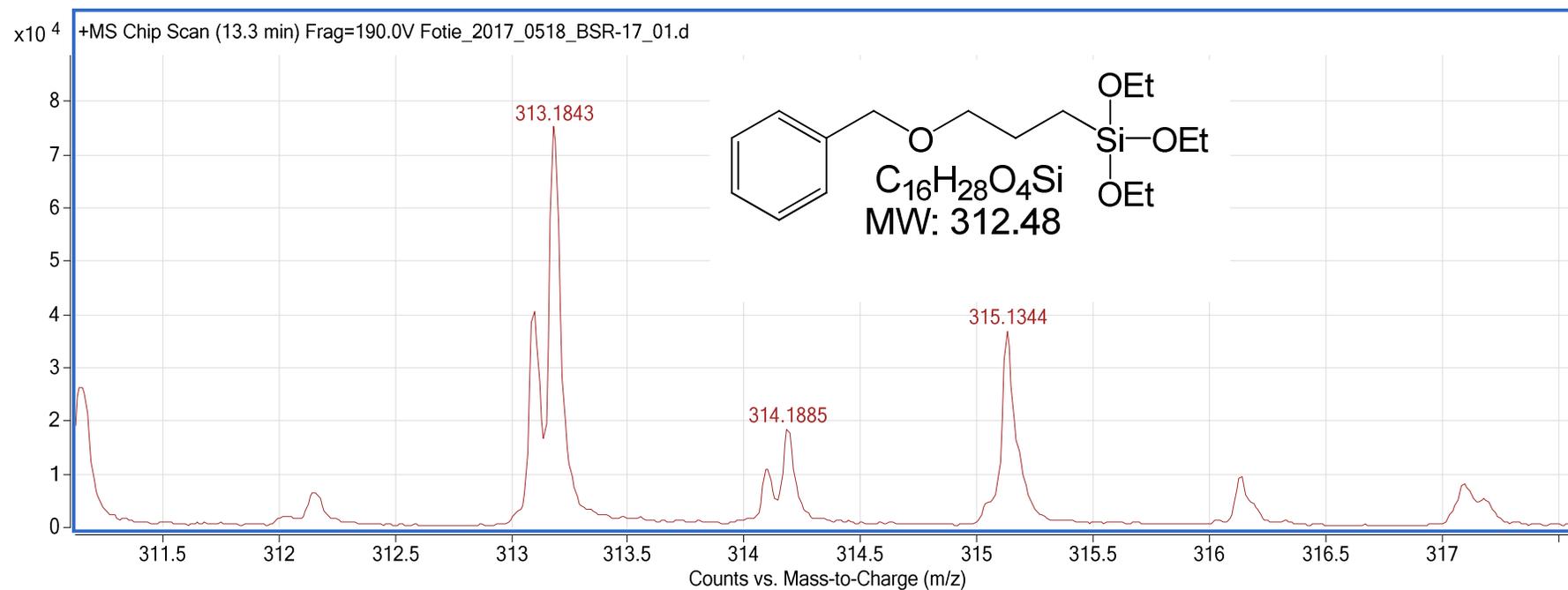
===== CHANNEL f1 =====
SF01    100.6228293 MHz
NUC1     13C
P1       10.00 usec
PL1      0 W
PL12     0 W
PL13     55.0000000 W
SFOAM[5] Crp60comp.4
SFOALS   0.500
SFOFF5   0 Hz
SFO5     8.40340042 W

===== CHANNEL f2 =====
SF02    400.1316005 MHz
NUC2     1H
CPDPRG2  waltz16
P0       20.41 usec
P3       13.74 usec
P4       27.48 usec
PCPD2    80.00 usec
PLM2     11.0000000 W
PLM12    0.15298000 W
PLM13    0.22655000 W

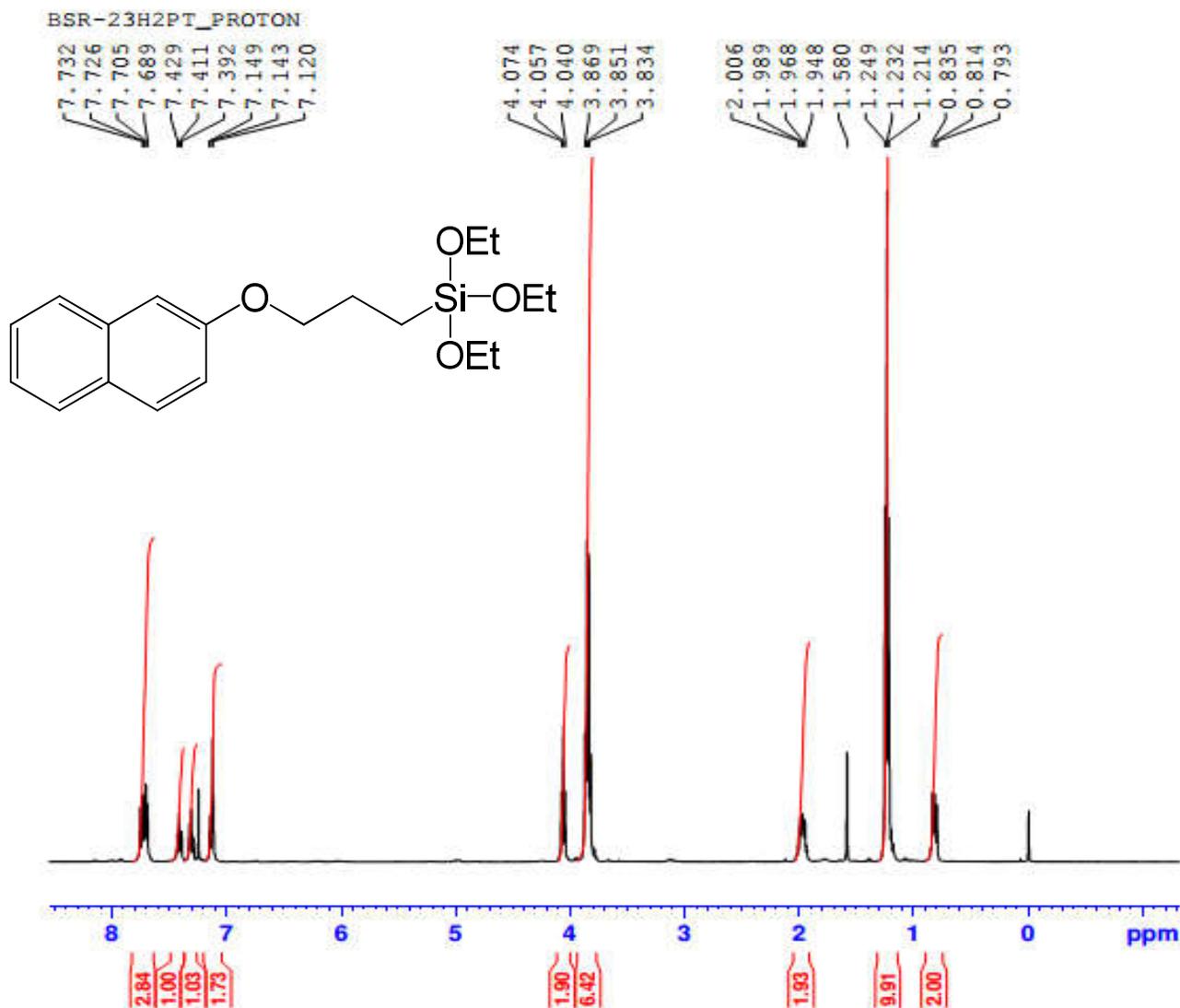
===== GRADIENT CHANNEL =====
GPMAM[1] SMSQ10.100
GPMAM[2] SMSQ10.100
GPMAM[3] SMSQ10.100
GPE1     31.00 %
GPE2     31.00 %
GPE3     31.00 %
File     1000.00 usec

F2 - Processing parameters
SI       32768
SF       100.6127685 MHz
SOLV     CD
SSB      0
LB       1.00 Hz
GB       0
PC       1.40
    
```

[3-(benzyloxy)propyl]triethoxysilane (**10**) – HR-ESIMS ($[M+H]^+$ Calculated 313.1830; Observed 313.1843).



Triethoxy[3-(naphthalen-2-yloxy)propyl]silane (**11**) – ¹H-NMR (CDCl₃, 400 MHz)



Current Data Parameters
 NAME BSR-23H2PT
 EXPNO 1
 PROCNO 1

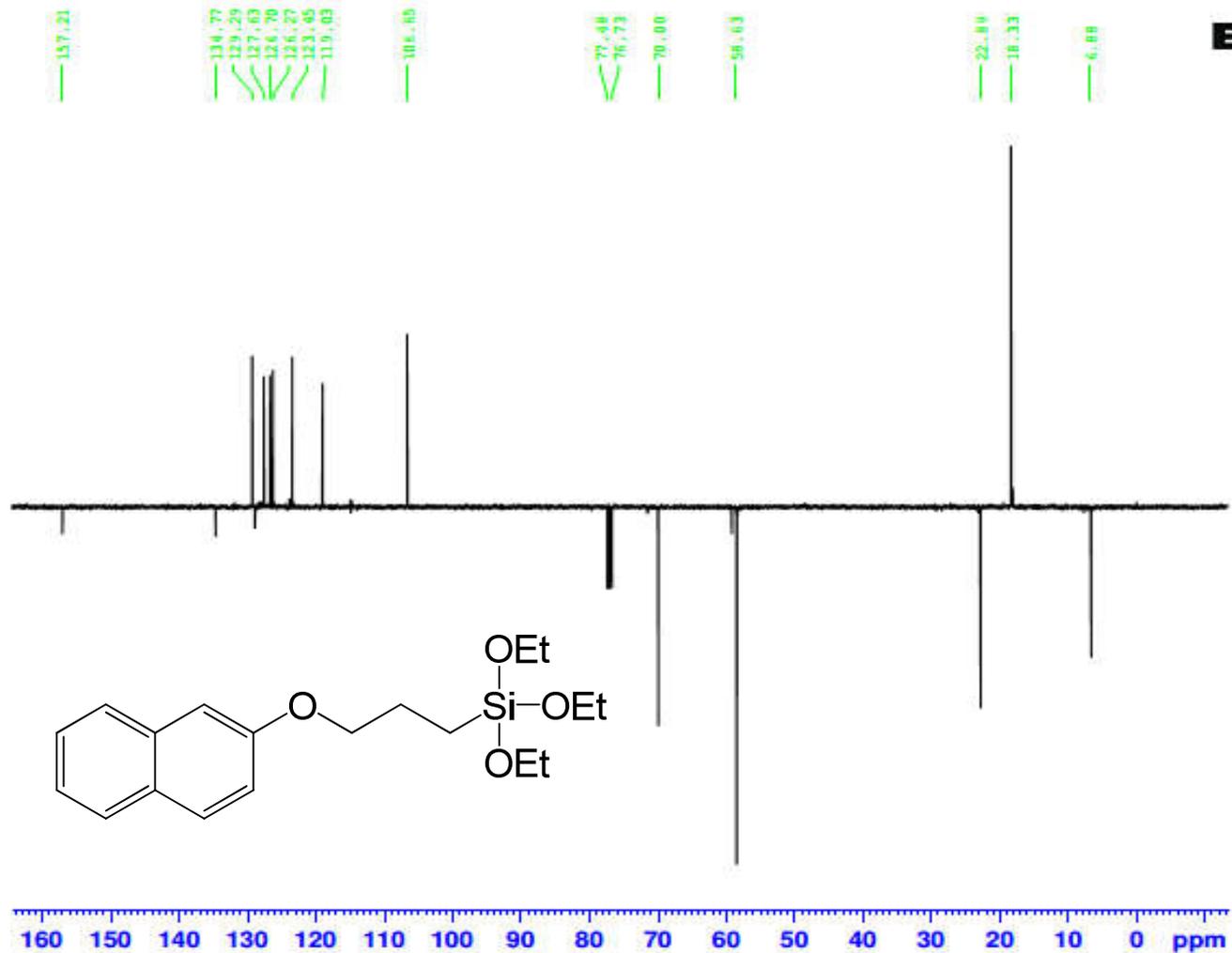
F2 - Acquisition Parameters
 Date_ 20170522
 Time 9.13
 INSTRUM spect
 PROBHD 5 mm PABBO BB/
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 16
 DS 2
 SWH 8012.820 Hz
 FIDRES 0.122266 Hz
 AQ 4.0894465 sec
 RG 91.48
 DW 62.400 usec
 DE 6.50 usec
 TE 300.0 K
 D1 1.00000000 sec
 TD0 1

===== CHANNEL f1 =====
 SFO1 400.1324710 MHz
 NUC1 1H
 P1 13.74 usec
 PLW1 12.00000000 W

F2 - Processing parameters
 SI 65536
 SF 400.1300160 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

Triethoxy[3-(naphthalen-2-yloxy)propyl]silane (**11**) – ¹³C-NMR (CDCl₃, 100 MHz)

BSR-23-SILICATE_CARBON



```

Current Data Parameters
NAME      BSR-23-SILICATE
EXPNO     2
PROCNO    1

F2 - Acquisition Parameters
Date_     20170518
Time      13.28
INSTRUM   spect
PROBHD    5 mm PABBO BBI
PULPROG   deptqqqqp.2
TD         65536
SOLVENT   CDCl3
NS         356
DS         8
SWH        24038.461 Hz
FIDRES     0.366798 Hz
AQ         1.3631488 sec
RG         206.83
SW         20.800 usec
GC         6.50 usec
TE         300.0 K
CHST2     145.0000000
CHST12    1.5000000
D1         1.0000000 sec
D2         0.00344828 sec
D12        0.0000000 sec
D16        0.0000000 sec
D28        0 sec
D58        0 sec
TD0        1

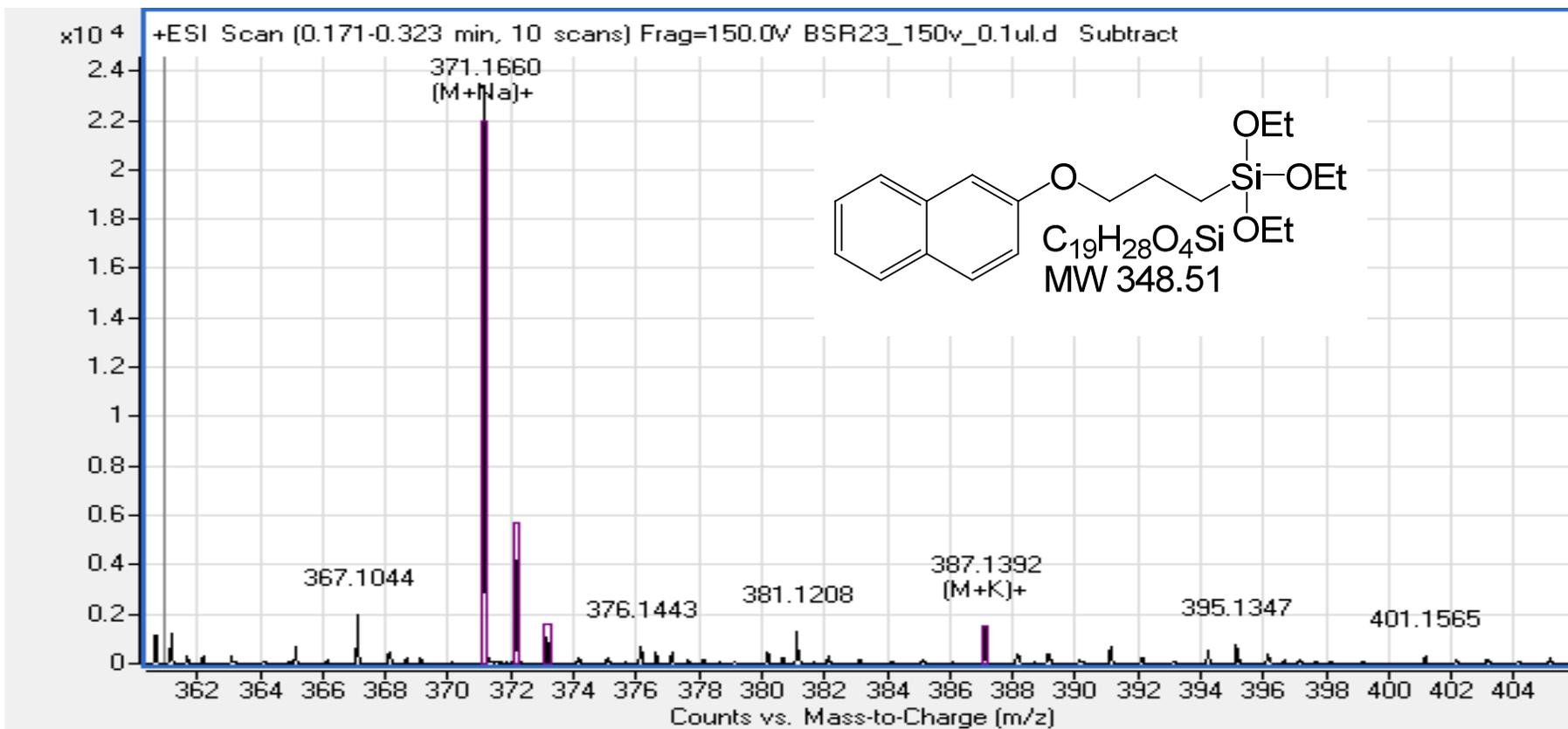
===== CHANNEL F1 =====
SFO1      100.6228293 MHz
NUC1       13C
P1         10.00 usec
PL1        2000.00 usec
PLW0       0 W
PLW1       55.0000000 W
SFOAL5     Crp60comp.4
SFOAL5     0.500
SPOFF55    0 Hz
SPW5       8.40340042 W

===== CHANNEL F2 =====
SFO2      400.1314005 MHz
NUC2       1H
CPDPRG2    waltz16
P2         20.61 usec
P3         13.74 usec
P4         37.48 usec
PCPD2      80.00 usec
PLW2       12.0000000 W
PLW12      0.35398000 W
PLW13      0.22655000 W

===== GRADIENT CHANNEL =====
GPMAM[1]   SMSQ10.100
GPMAM[2]   SMSQ10.100
GPMAM[3]   SMSQ10.100
GP11       31.00 %
GP12       31.00 %
GP13       31.00 %
P16        1000.00 usec

F2 - Processing parameters
SI         32768
SF         100.6127685 MHz
SOLVENT    CH
SSB        0
GB         1.00 Hz
PC         1.40
    
```

Triethoxy[3-(naphthalen-2-yloxy)propyl]silane (**11**) – HR-ESIMS [M+Na]⁺ Calculated 371.1649; Observed 371.1660.

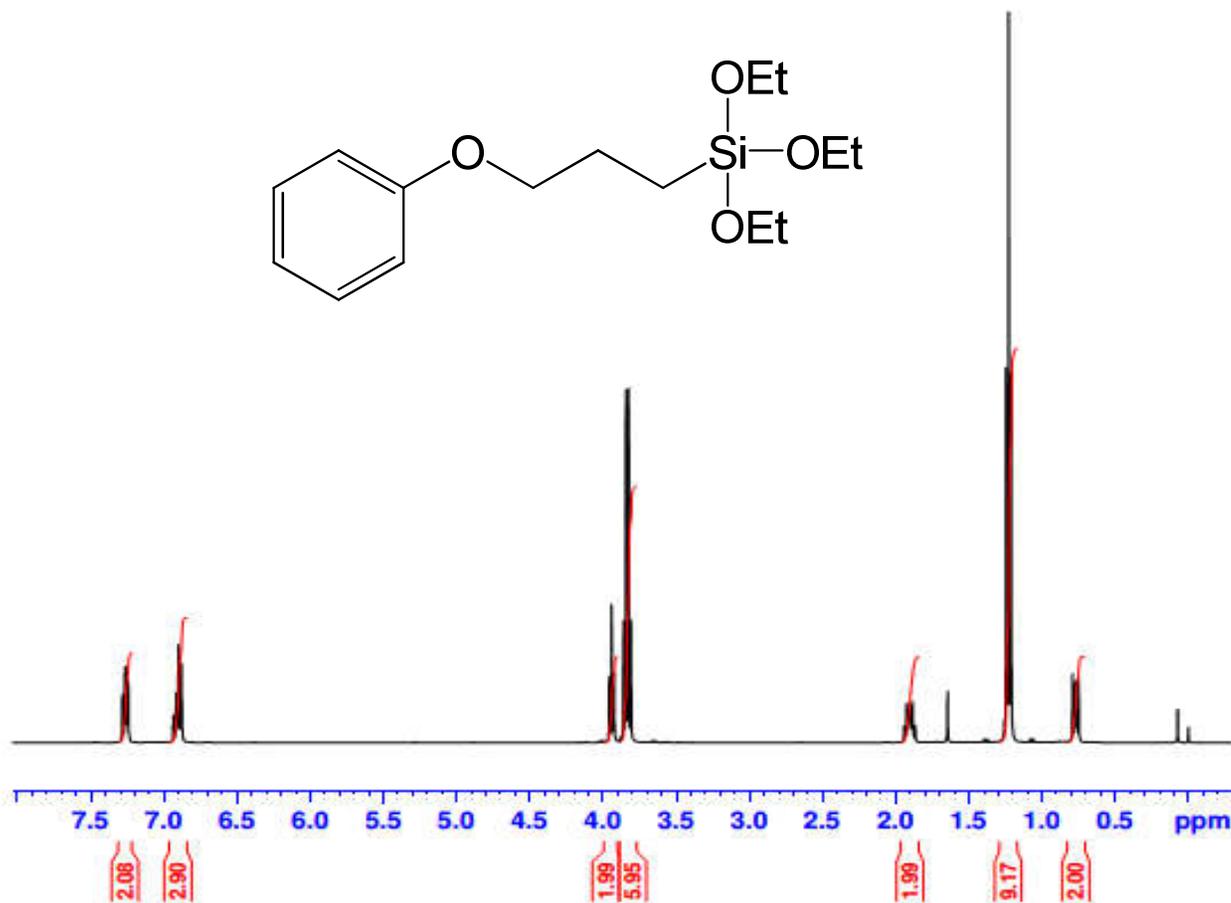
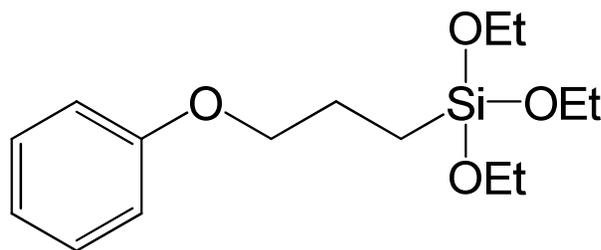


Triethoxy(3-phenoxypropyl)silane (**12a**) – ¹H-NMR (CDCl₃, 400 MHz)

BSR-16_PROTON
 7.265
 7.262
 7.252
 7.248
 7.243
 6.935
 6.916
 6.900
 6.880

3.957
 3.941
 3.924
 3.860
 3.842
 3.825
 3.807

1.942
 1.925
 1.909
 1.905
 1.900
 1.884
 1.867
 1.246
 1.229
 1.211
 0.791
 0.776
 0.770
 0.765
 0.750



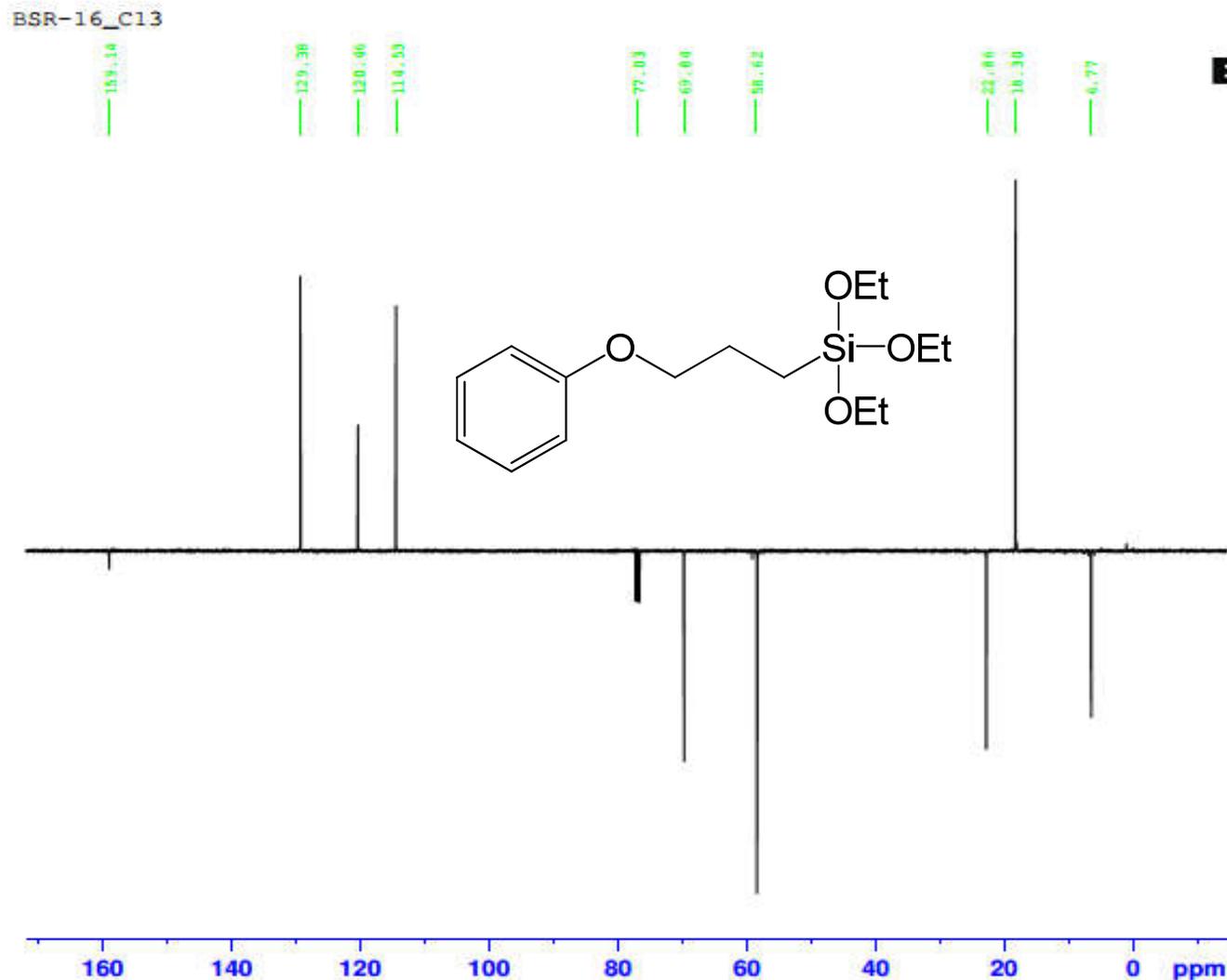
Current Data Parameters
 NAME BSR-16
 EXPNO 1
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20170214
 Time 12.54
 INSTRUM spect
 PROBHD 5 mm PABBO BB/
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 16
 DS 2
 SWH 8012.820 Hz
 FIDRES 0.122266 Hz
 AQ 4.0894465 sec
 RG 56.91
 DW 62.400 usec
 DE 6.50 usec
 TE 300.0 K
 D1 1.00000000 sec
 TD0 1

===== CHANNEL f1 =====
 SFO1 400.1324710 MHz
 NUC1 1H
 P1 13.74 usec
 PLW1 12.00000000 W

F2 - Processing parameters
 SI 65536
 SF 400.1300127 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

Triethoxy(3-phenoxypropyl)silane (**12a**) – ¹³C-NMR (CDCl₃, 100 MHz)



```

Current Data Parameters
NAME      BSR-16
EXPNO    2
PROCNO   1

F2 - Acquisition Parameters
Date_    20170214
Time     13.22
INSTRUM  spect
PROBHD   5 mm PABBO 5B/
PULPROG  zgpg30p2
TD       65536
SOLVENT  CDCl3
NS       256
DS       8
SWH      24038.461 Hz
FIDRES   0.366798 Hz
AQ       1.3631488 sec
RG       204.83
DN       20.800 usec
DC       6.50 usec
TK       300.0 K
CNS22    145.000000
CNS12    1.5000000
DI       2.0000000 sec
D2       0.5034488 sec
D12      0.0000000 sec
D14      0.0000000 sec
D28      0 sec
TD0      1

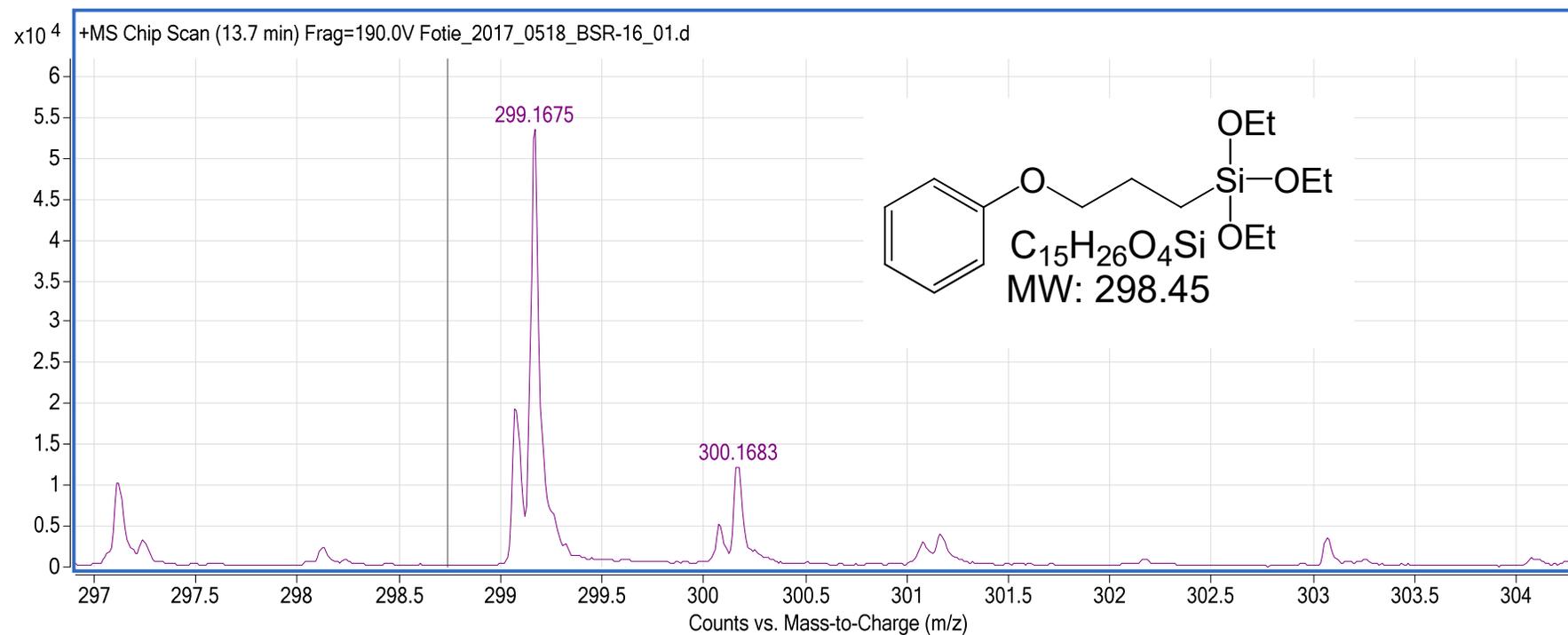
===== CHANNEL f1 =====
SF01    100.6238293 MHz
NUC1     13C
P1       10.00 usec
P13      2000.00 usec
SFO2     0 Hz
PLW1     55.00000000 W
SFO3     0 Hz
SFO4     0 Hz
SFO5     0 Hz
SFO6     0 Hz
SFO7     0 Hz
SFO8     0 Hz
SFO9     0 Hz
SFO10    0 Hz
SFO11    0 Hz
SFO12    0 Hz
SFO13    0 Hz
SFO14    0 Hz
SFO15    0 Hz
SFO16    0 Hz
SFO17    0 Hz
SFO18    0 Hz
SFO19    0 Hz
SFO20    0 Hz
SFO21    0 Hz
SFO22    0 Hz
SFO23    0 Hz
SFO24    0 Hz
SFO25    0 Hz
SFO26    0 Hz
SFO27    0 Hz
SFO28    0 Hz
SFO29    0 Hz
SFO30    0 Hz
SFO31    0 Hz
SFO32    0 Hz
SFO33    0 Hz
SFO34    0 Hz
SFO35    0 Hz
SFO36    0 Hz
SFO37    0 Hz
SFO38    0 Hz
SFO39    0 Hz
SFO40    0 Hz
SFO41    0 Hz
SFO42    0 Hz
SFO43    0 Hz
SFO44    0 Hz
SFO45    0 Hz
SFO46    0 Hz
SFO47    0 Hz
SFO48    0 Hz
SFO49    0 Hz
SFO50    0 Hz
SFO51    0 Hz
SFO52    0 Hz
SFO53    0 Hz
SFO54    0 Hz
SFO55    0 Hz
SFO56    0 Hz
SFO57    0 Hz
SFO58    0 Hz
SFO59    0 Hz
SFO60    0 Hz
SFO61    0 Hz
SFO62    0 Hz
SFO63    0 Hz
SFO64    0 Hz
SFO65    0 Hz
SFO66    0 Hz
SFO67    0 Hz
SFO68    0 Hz
SFO69    0 Hz
SFO70    0 Hz
SFO71    0 Hz
SFO72    0 Hz
SFO73    0 Hz
SFO74    0 Hz
SFO75    0 Hz
SFO76    0 Hz
SFO77    0 Hz
SFO78    0 Hz
SFO79    0 Hz
SFO80    0 Hz
SFO81    0 Hz
SFO82    0 Hz
SFO83    0 Hz
SFO84    0 Hz
SFO85    0 Hz
SFO86    0 Hz
SFO87    0 Hz
SFO88    0 Hz
SFO89    0 Hz
SFO90    0 Hz
SFO91    0 Hz
SFO92    0 Hz
SFO93    0 Hz
SFO94    0 Hz
SFO95    0 Hz
SFO96    0 Hz
SFO97    0 Hz
SFO98    0 Hz
SFO99    0 Hz
SFO100   0 Hz

===== CHANNEL f2 =====
SF02    400.1314005 MHz
NUC2     1H
CPODPRG2  waltz16
P2       20.61 usec
P3       13.74 usec
P4       27.48 usec
PCPD2    80.00 usec
PLM2     12.00000000 W
PLM12    0.35398000 W
PLM13    0.22455000 W

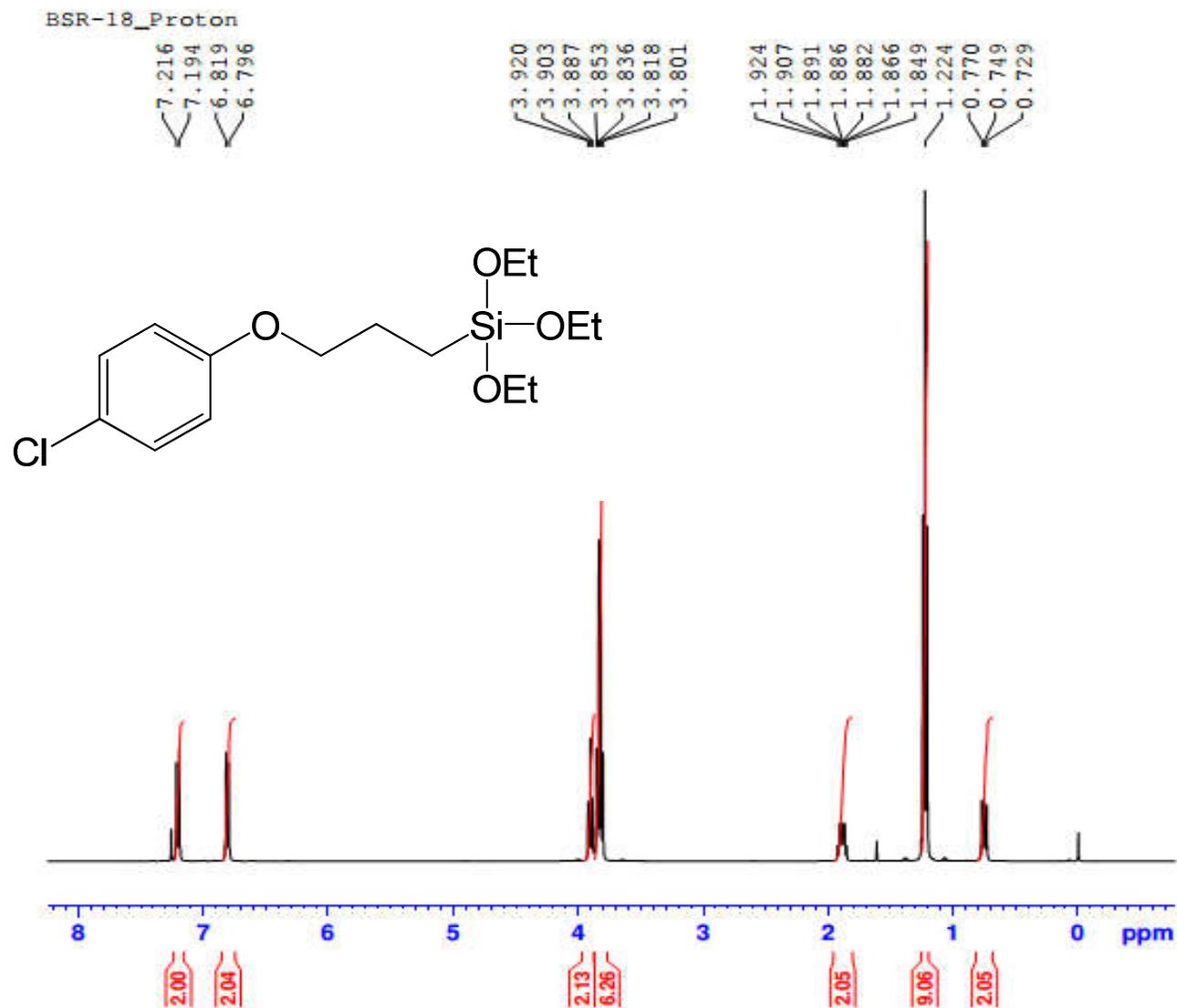
===== GRADIENT CHANNEL =====
GPRAM[1] SMSQ10.100
GPRAM[2] SMSQ10.100
GPRAM[3] SMSQ10.100
GP21     31.00 %
GP22     31.00 %
GP23     31.00 %
P14      1000.00 usec

F2 - Processing parameters
SI       32768
SF       100.6237685 MHz
WDW      EM
SSB      0
LB       1.00 Hz
GB       0
PC       1.40
    
```

Triethoxy(3-phenoxypropyl)silane (**12a**) – HR-ESIMS [M+H]⁺ Calculated 299.1673; Observed 299.1675.



[3-(4-chlorophenoxy)propyl]triethoxysilane (**12b**) – ¹H-NMR (CDCl₃, 400 MHz)



Current Data Parameters
 NAME BSR-18
 EXPNO 1
 PROCNO 1

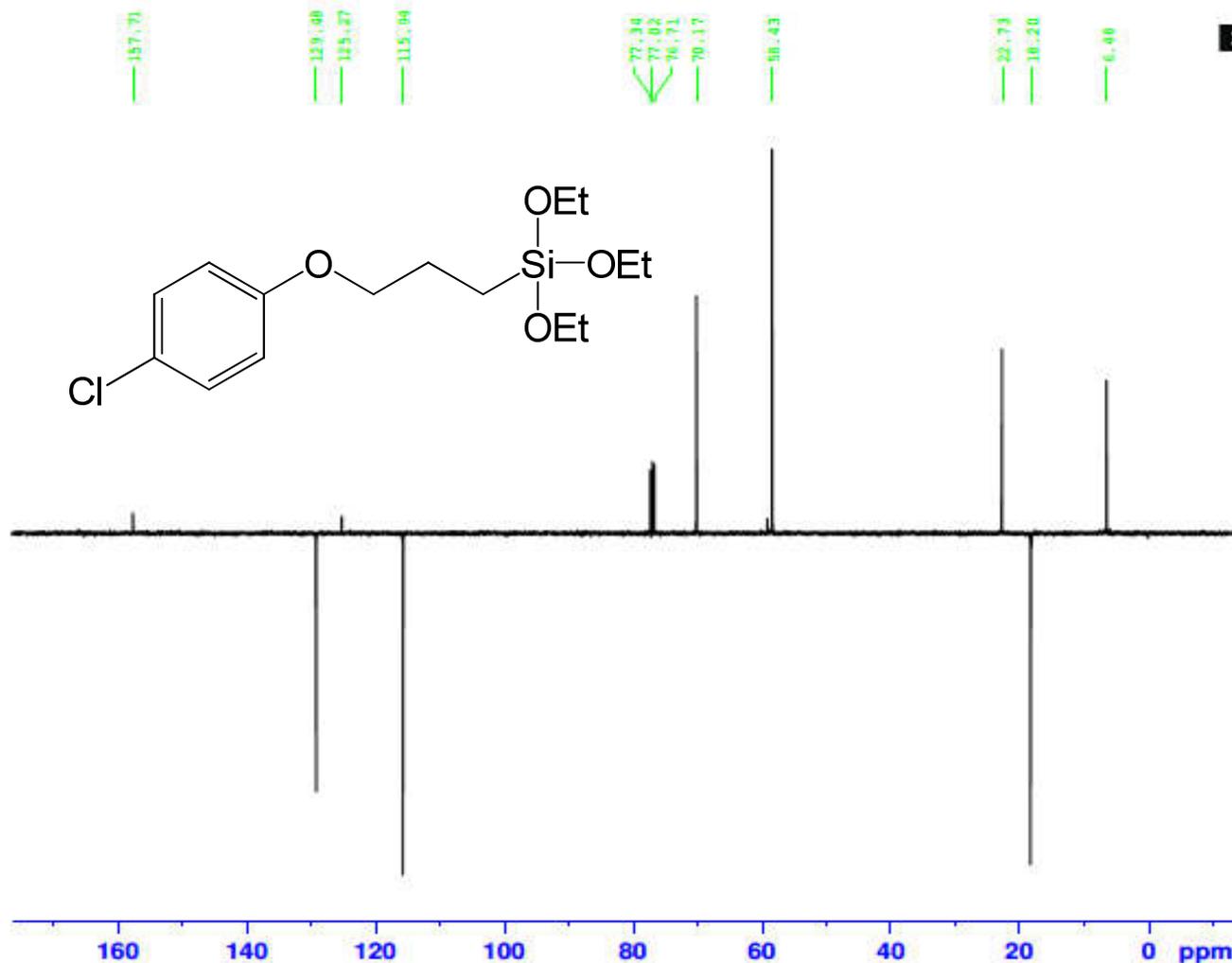
F2 - Acquisition Parameters
 Date_ 20170302
 Time 10.42
 INSTRUM spect
 PROBHD 5 mm PABBO BB/
 PULPROG zg30
 ID 65536
 SOLVENT CDCl3
 NS 16
 DS 2
 SWH 8012.820 Hz
 FIDRES 0.122266 Hz
 AQ 4.0894465 sec
 RG 65.89
 DW 62.400 usec
 DE 6.50 usec
 TE 300.0 K
 D1 1.00000000 sec
 TD0 1

===== CHANNEL f1 =====
 SFO1 400.1324710 MHz
 NUC1 1H
 P1 13.74 usec
 PLW1 12.00000000 W

F2 - Processing parameters
 SI 65536
 SF 400.1300112 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

[3-(4-chlorophenoxy)propyl]triethoxysilane (**12b**) – ¹³C-NMR (CDCl₃, 100 MHz)

BSR-18_Carbon



```

Current Data Parameters
NAME      BSR-18_Carbon
EXPNO    2
PROCNO   1

F2 - Acquisition Parameters
Date_    20170302
Time     11.18
INSTRUM  spect
PROBHD   5 mm PABBO BB/
PULPROG  deptqqcp_2
TD       65536
SOLVENT  CDCl3
NS       256
DS       8
SWH      24038.461 Hz
FIDRES   0.366798 Hz
AQ       1.3631488 sec
RG       304.83
DW       20.800 usec
DE       6.50 usec
TE       300.0 K
CNS12    145.0000000
CNS12    1.5000000
D1       2.0000000 sec
D2       0.00344818 sec
D11      0.0002000 sec
D16      0.0002000 sec
D28      0 sec
TD0      1

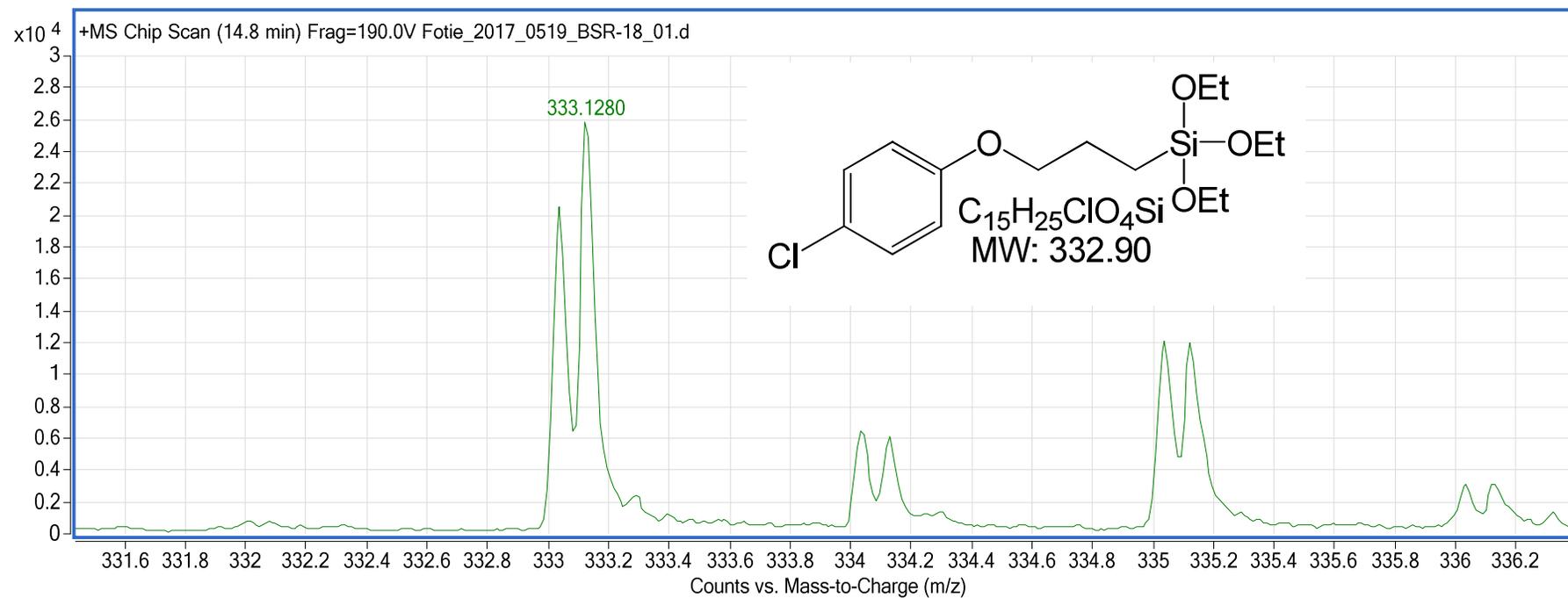
===== CHANNEL f1 =====
SFO1    100.6228293 MHz
NUC1     13C
P1       10.00 usec
P13      1000.00 usec
PLNO     0 W
PLN1     55.0000000 W
SFOA1(5) Cyp60comp_4
SFOA15   0 Hz
SFOFF55   0 Hz
SFA5     6.40340041 W

===== CHANNEL f2 =====
SFO2    400.1316005 MHz
NUC2     1H
CFOPRG12 waltz16
P2       20.61 usec
P3       13.74 usec
P4       27.48 usec
PCPD2    80.00 usec
PLN2     12.0000000 W
PLN12    0.35398000 W
PLN13    0.22455000 W

===== GRADIENT CHANNEL =====
GPM1(1)  SHGQ10.100
GPM1(2)  SHGQ10.100
GPM1(3)  SHGQ10.100
GP21     31.00 %
GP22     31.00 %
GP23     31.00 %
P16      1000.00 usec

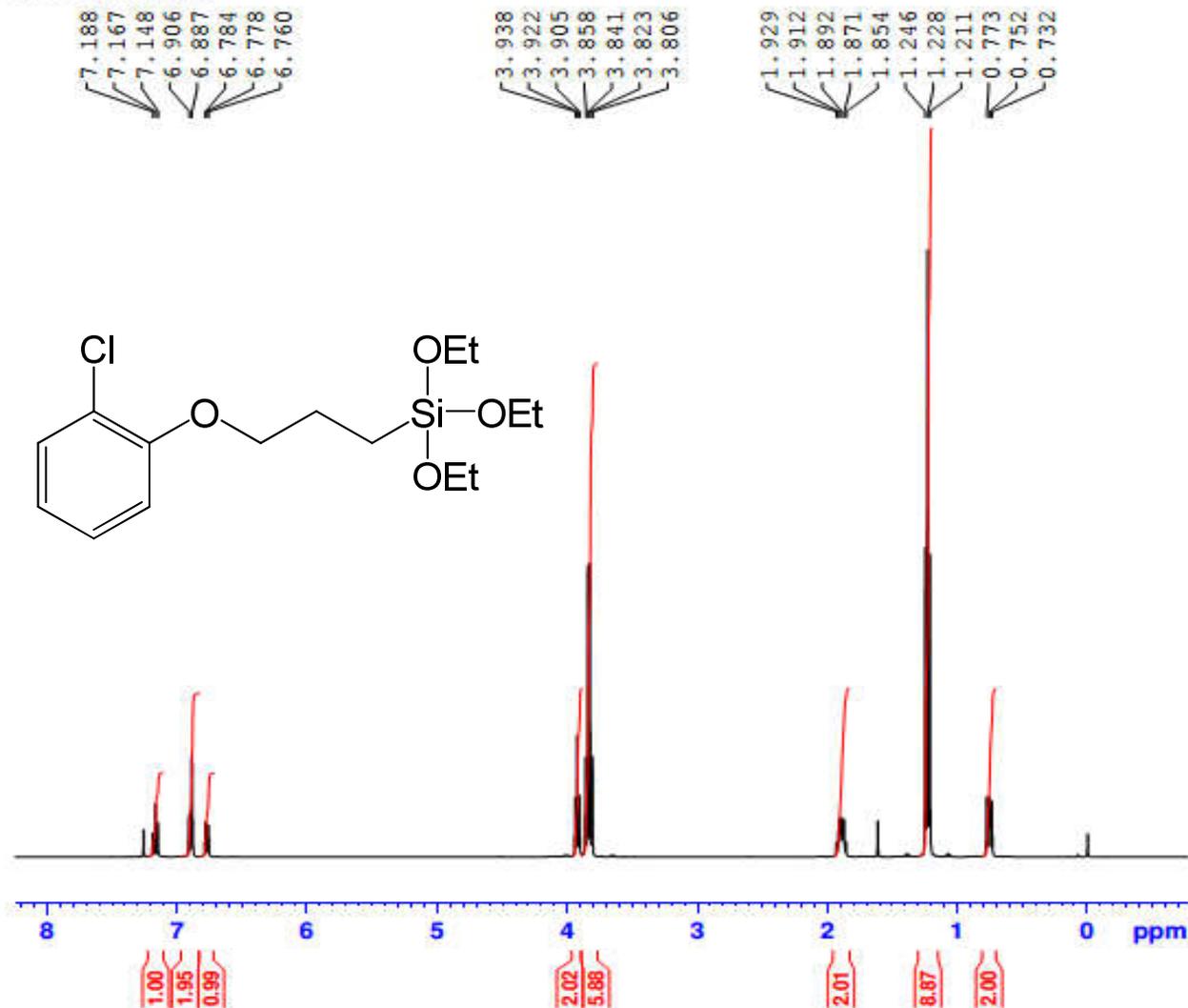
F2 - Processing parameters
SI       32768
SF       100.6127685 MHz
WDW      EM
SSB      0
LB       1.00 Hz
GB       0
PC       1.40
    
```

[3-(4-chlorophenoxy)propyl]triethoxysilane (**12b**) – HR-ESIMS [M+H]⁺ Calculated 333.1283; Observed 333.1280.



[3-(2-chlorophenoxy)propyl]triethoxysilane (**12c**) – ¹H-NMR (CDCl₃, 400 MHz)

BSR-19_PROTON



Current Data Parameters
 NAME BSR-19
 EXPNO 1
 PROCNO 1

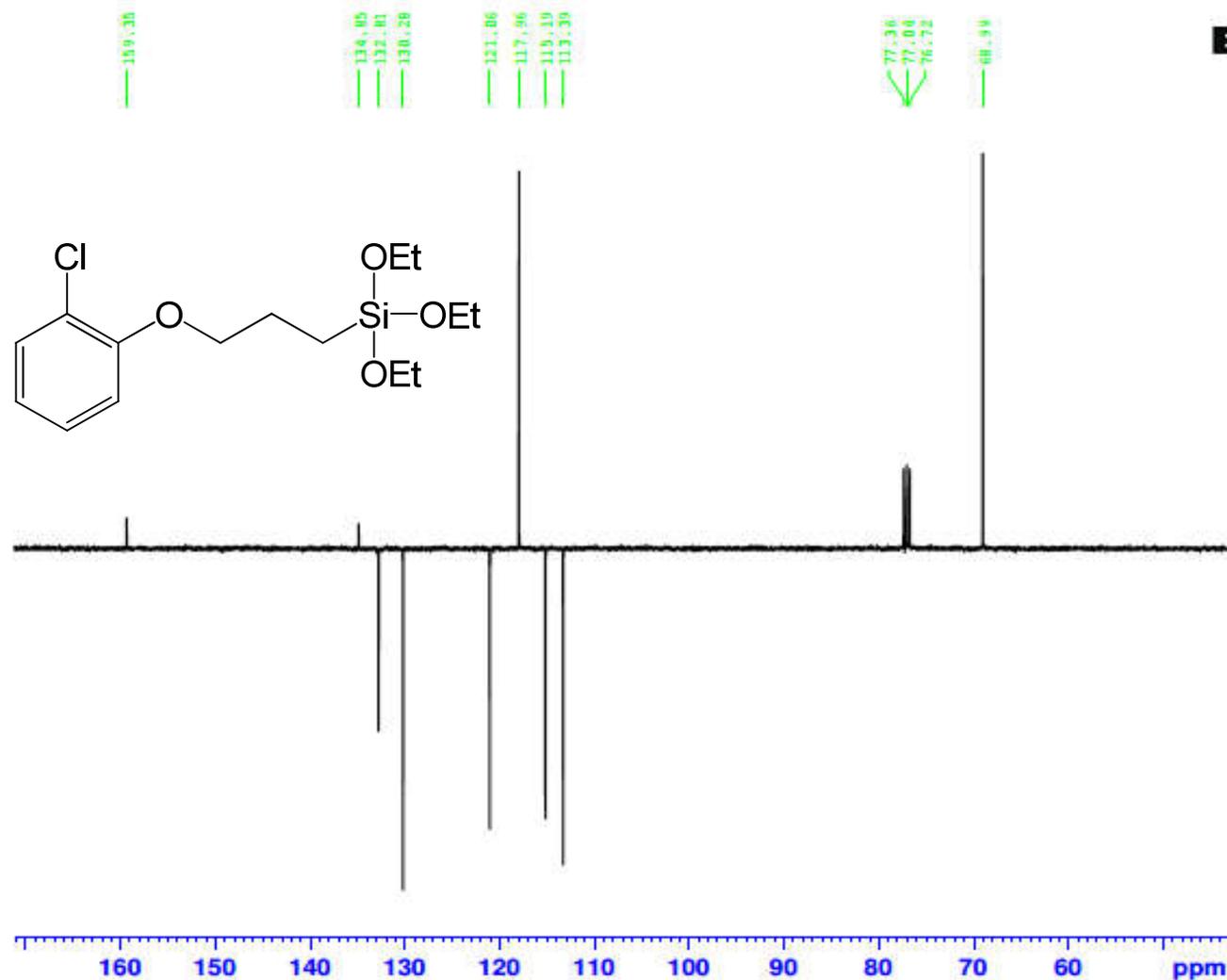
F2 - Acquisition Parameters
 Date_ 20170330
 Time 12.50
 INSTRUM spect
 PROBHD 5 mm PABBO BB/
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 16
 DS 2
 SWH 8012.820 Hz
 FIDRES 0.122266 Hz
 AQ 4.0894465 sec
 RG 74.37
 DW 62.400 usec
 DE 6.50 usec
 TE 300.0 K
 D1 1.00000000 sec
 TD0 1

***** CHANNEL f1 *****
 SFO1 400.1324710 MHz
 NUC1 1H
 P1 13.74 usec
 PLW1 12.00000000 W

F2 - Processing parameters
 SI 65536
 SF 400.1300108 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

[3-(2-chlorophenoxy)propyl]triethoxysilane (**12c**) – ^{13}C -NMR (CDCl_3 , 100 MHz)

BSR-19A-CARBON



```

Current Data Parameters
NAME      BSR-19A-Carbon
EXPNO     1
PROCNO    2

F2 - Acquisition Parameters
Date_     20170329
Time      14.37
INSTRUM   spect
PROBHD    5 mm PABBO QNP
PULPROG   zgpg30p2
TD         65536
SOLVENT   CDCl3
NS         256
DS         8
SWH        24038.461 Hz
FIDRES     0.344798 Hz
AQ          1.3631488 sec
RG          204.83
DW          20.800 usec
DE          6.50 usec
TE          300.0 K
CMT2       145.0000000
CMT12      1.5000000
D1          2.0000000 sec
D2          0.0344828 sec
D12         0.0002000 sec
D14         0.0002000 sec
D3          0 sec
TD0         1

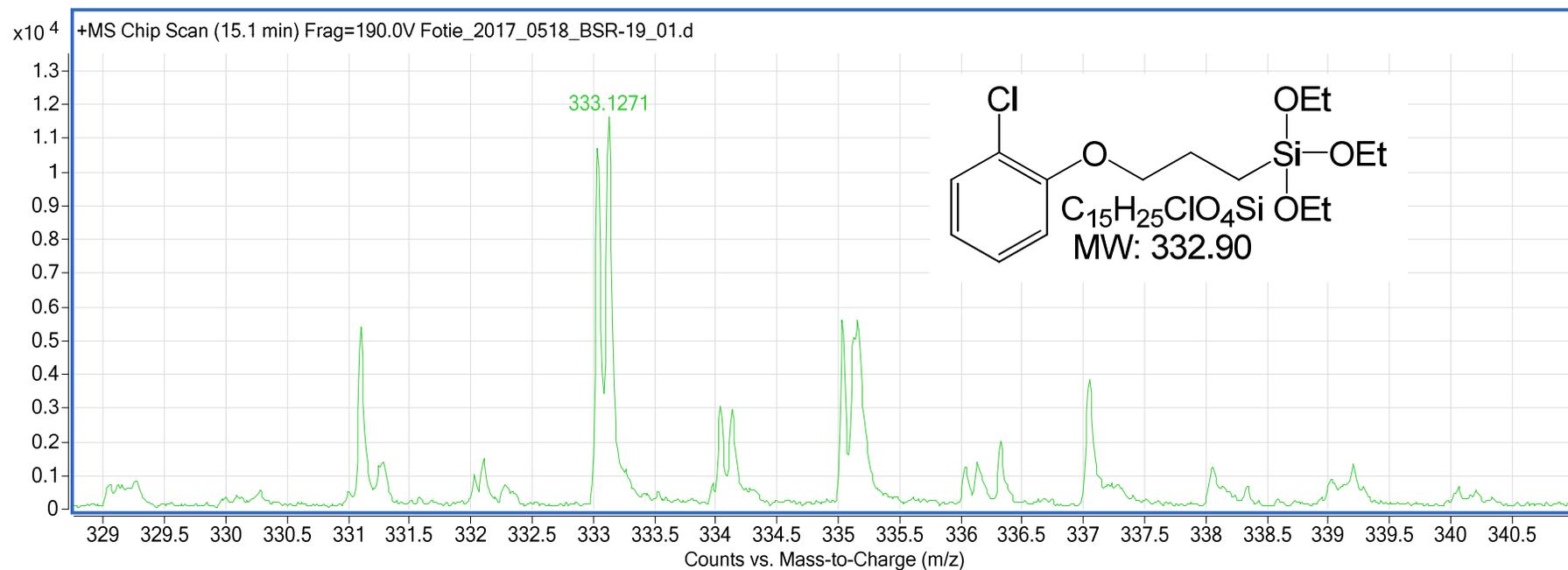
===== CHANNEL f1 =====
SFO1      100.6228293 MHz
NUC1       13C
P1         10.00 usec
PLA0       0 W
PLN1       55.0000000 W
SFO1A[5]   Crp6dcomp.4
SFO1A5     0.500
SFO1F15    0 Hz
SFO1F15    8.40340042 W

===== CHANNEL f2 =====
SFO2      400.1316005 MHz
NUC2       1H
CPCPRG[2]  waltz16
P0         20.61 usec
P3         13.74 usec
P4         27.48 usec
PCPD2      80.00 usec
PLA2       12.0000000 W
PLA12      0.35398000 W
PLA13      0.22455000 W

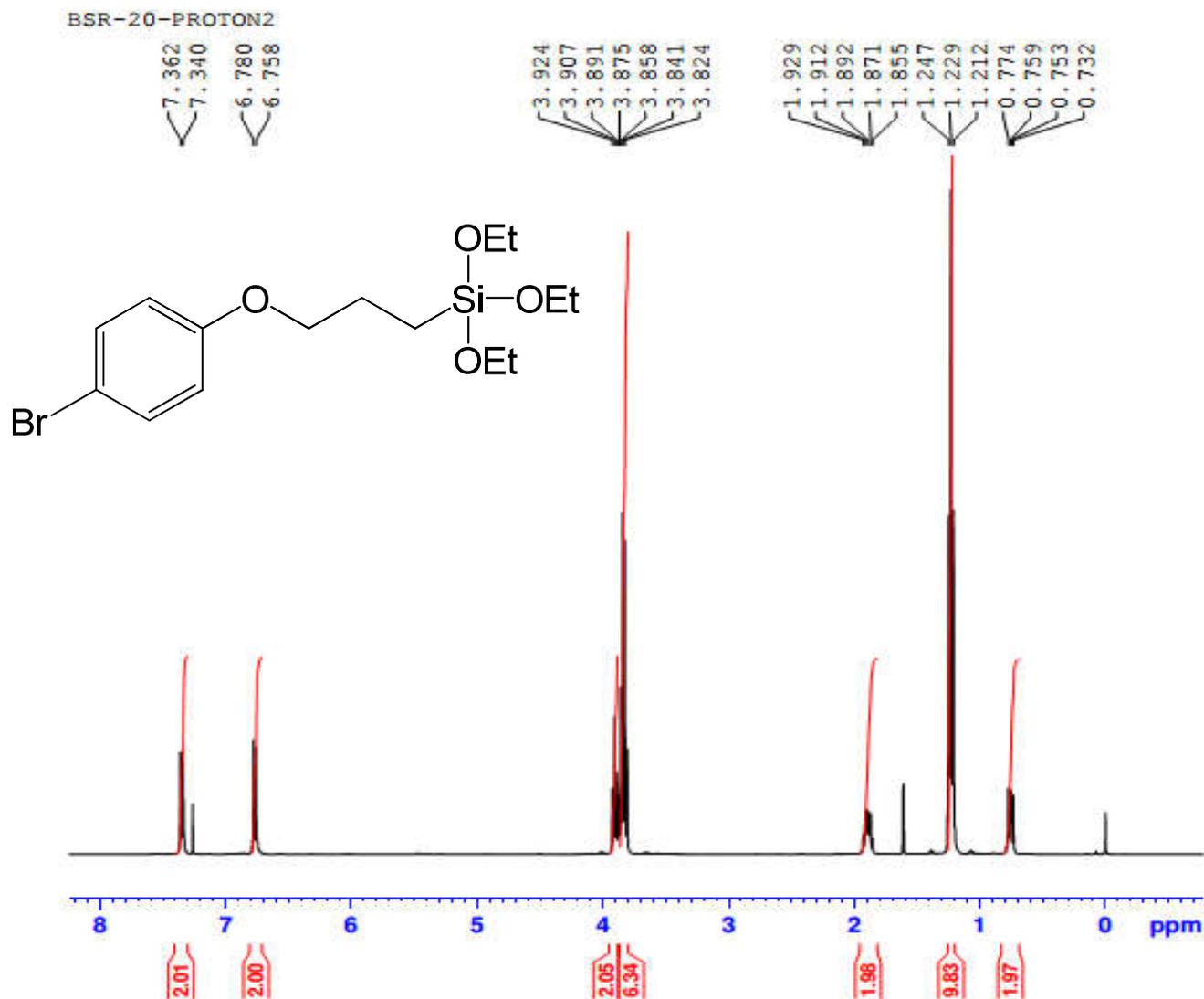
===== GRADIENT CHANNEL =====
GPNAM[1]   SMO[10.100
GPNAM[2]   SMO[10.100
GPNAM[3]   SMO[10.100
GP21       31.00 %
GP22       31.00 %
GP23       31.00 %
V14        1000.00 usec

F2 - Processing parameters
SI          32768
SF          100.6127685 MHz
WDW         EM
SSB         0
LR          1.00 Hz
GB          0
PC          1.40
    
```

[3-(2-chlorophenoxy)propyl]triethoxysilane (**12c**) – HR-ESIMS [M+H]⁺ Calculated 333.1283; Observed 333.1271.



[3-(4-bromophenoxy)propyl]triethoxysilane (**12d**) – ¹H-NMR (CDCl₃, 400 MHz)



Current Data Parameters
 NAME BSR-20
 EXPNO 1
 PROCNO 2

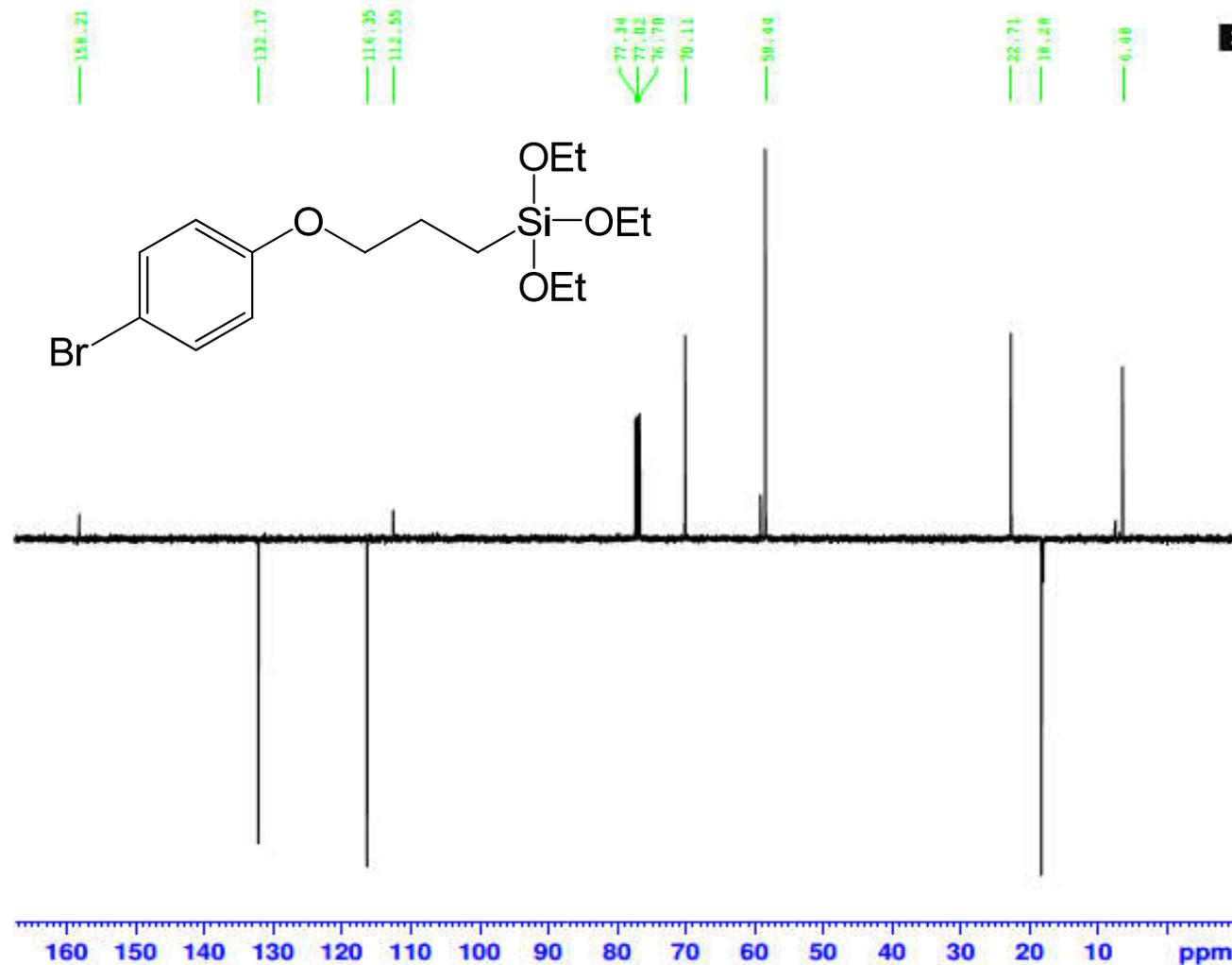
F2 - Acquisition Parameters
 Date_ 20170413
 Time 9.54
 INSTRUM spect
 PROBHD 5 mm PABBO B2/
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 16
 DS 2
 SWH 8012.820 Hz
 FIDRES 0.122266 Hz
 AQ 4.0894465 sec
 RG 65.89
 DW 62.400 usec
 DE 6.50 usec
 TE 300.1 K
 D1 1.00000000 sec
 TD0 1

***** CHANNEL f1 *****
 SFO1 400.1324710 MHz
 NUC1 1H
 P1 13.74 usec
 PLW1 12.00000000 W

F2 - Processing parameters
 SI 65536
 SF 400.1300084 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

[3-(4-bromophenoxy)propyl]triethoxysilane (**12d**) – ¹³C-NMR (CDCl₃, 100 MHz)

BSR-20_CARBON



```

NAME      BSR-20-CARBON
EXPNO     1
PROCNO    1

F2 - Acquisition Parameters
Date_     20170413
Time      10.23
INSTRUM   spect
PROBHD    5 mm PABBO 50/
PULPROG   zgpg30
TD         65536
SOLVENT   CDCl3
NS         256
DS         8
SWH        24038.461 Hz
FIDRES     0.364798 Hz
AQ          1.3431488 sec
RG          304.83
SN         20.800 usec
DE          6.50 usec
TE          300.0 K
CNS12     145.0000000
CNS112    1.5000000
D1         2.50000000 sec
D2         0.50344828 sec
D12        0.50000000 sec
D14        0.50000000 sec
DS8        0 sec
TDD        1

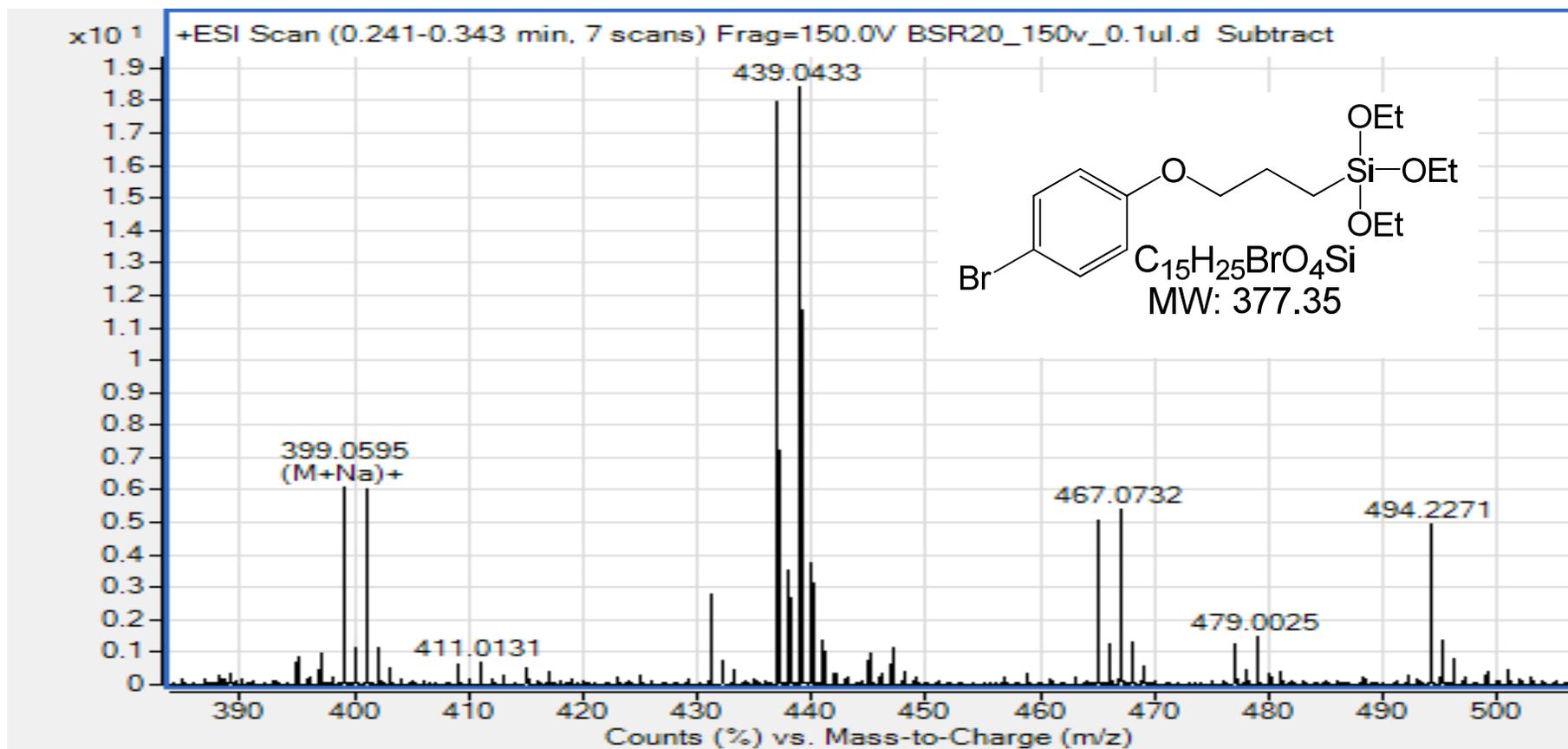
===== CHANNEL f1 =====
SFO1      100.6228293 MHz
NUC1       13C
P1         10.00 usec
P13        2000.00 usec
PL10       0 W
SFO1       55.00000000 W
SFO1[5]    Crp40comp.4
SFOALS     0.500
SFOFFS5    0 Hz
SFO5       8.40340042 W

===== CHANNEL f2 =====
SFO2      400.1316005 MHz
NUC2       1H
CFOPRG[2]  waltz16
P0         20.61 usec
P3         13.74 usec
P4         27.48 usec
PCPD0     80.00 usec
PLM2       12.50000000 W
PLM12     0.35398000 W
PLM13     0.22455500 W

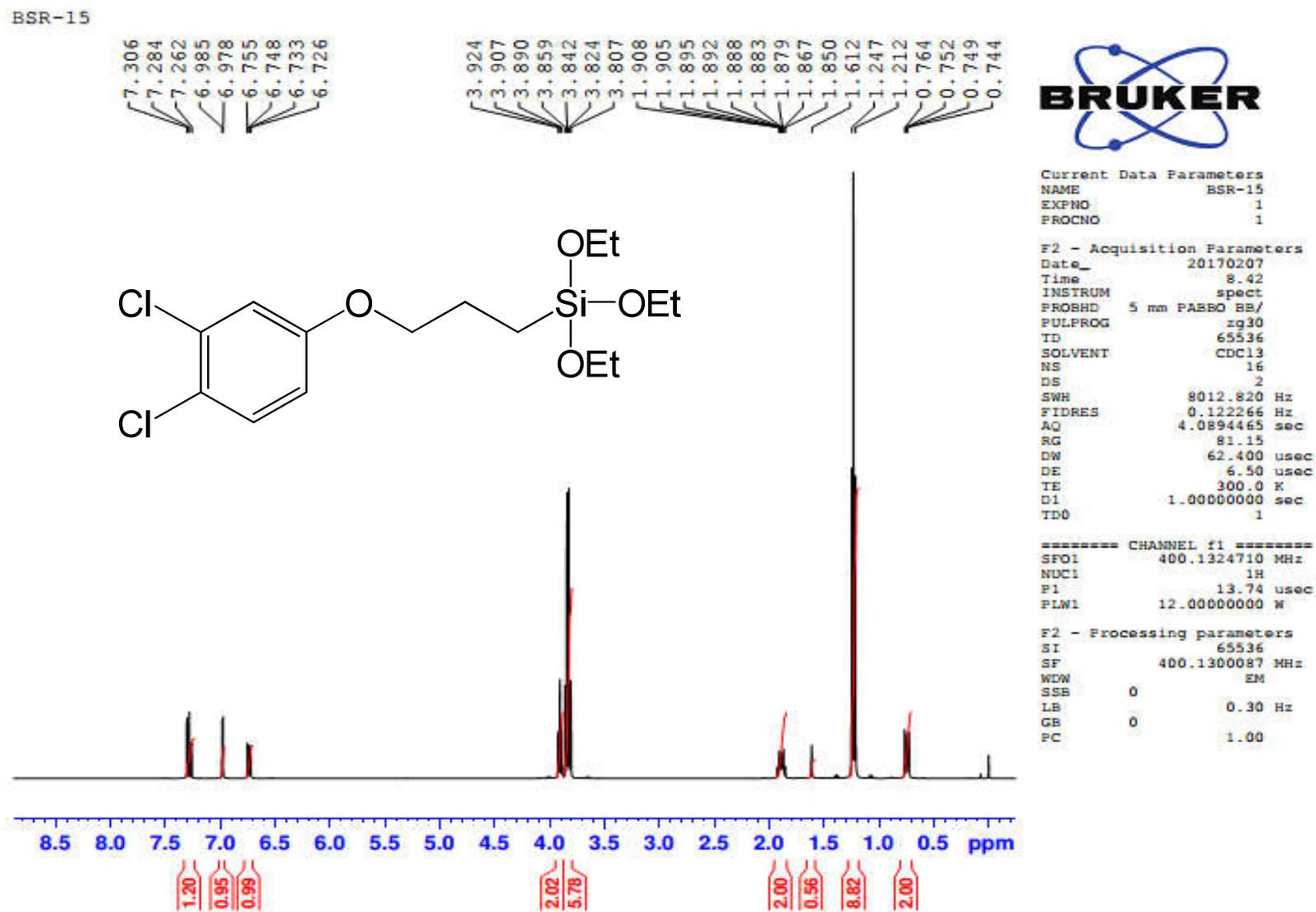
===== GRADIENT CHANNEL =====
GPNAM[1]   SMSQ10.100
GPNAM[2]   SMSQ10.100
GPNAM[3]   SMSQ10.100
GP11       31.00 %
GP22       31.00 %
GP23       31.00 %
P16        1500.00 usec

F2 - Processing parameters
SI         32768
SF         100.6127685 MHz
NSR        ON
SSB        0
LR         1.00 Hz
GR         0
PC         1.40
    
```

[3-(4-bromophenoxy)propyl]triethoxysilane (**12d**) – HR-ESIMS [M+Na]⁺ Calculated 399.0598; Observed 399.0595.

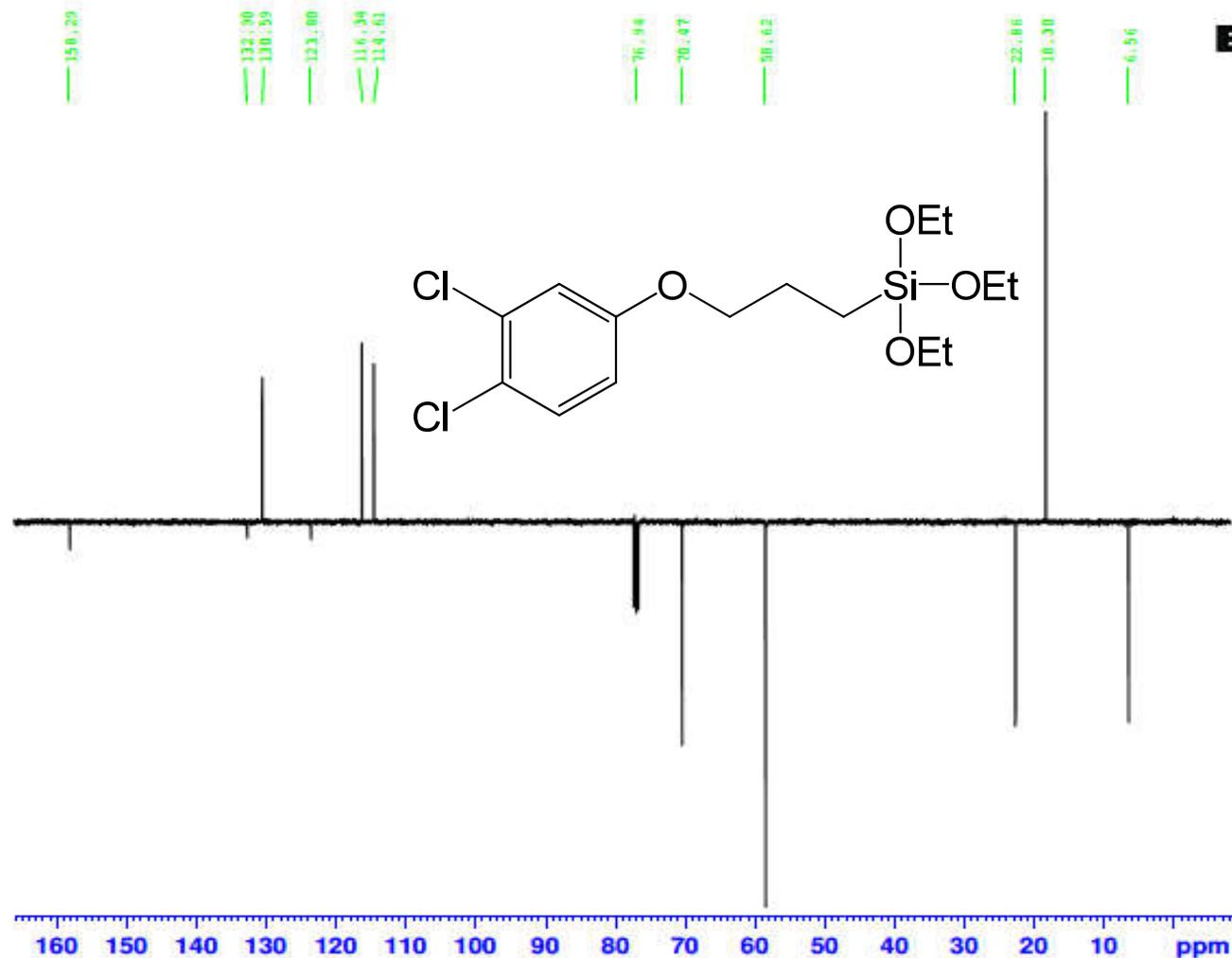


[3-(3,4-dichlorophenoxy)propyl]triethoxysilane (**12e**) – ¹H-NMR (CDCl₃, 400 MHz)



[3-(3,4-dichlorophenoxy)propyl]triethoxysilane (**12e**) – ^{13}C -NMR (CDCl_3 , 100 MHz)

BSR-15-CARBON



```

Current Data Parameters
NAME      BSR-15-CARBON
EXPNO    1
PROCNO   1

F2 - Acquisition Parameters
Date_    20170207
Time     9.11
INSTRUM spect
PROBHD   5 mm PABBO 90/
PULPROG  deptppp2
TD       65536
SOLVENT  cdcl3
NS       256
DS       4
SWH      24038.461 Hz
FIDRES   0.366798 Hz
AQ       1.3621488 sec
RG       306.83
SN       20.800 usec
DE       6.50 usec
TE       300.2 K
CMT1     145.000000
CMT2     1.5000000
D1       2.0000000 sec
D2       0.00344828 sec
D12      0.00002000 sec
D16      0.00000000 sec
D28      0 sec
TD0      1

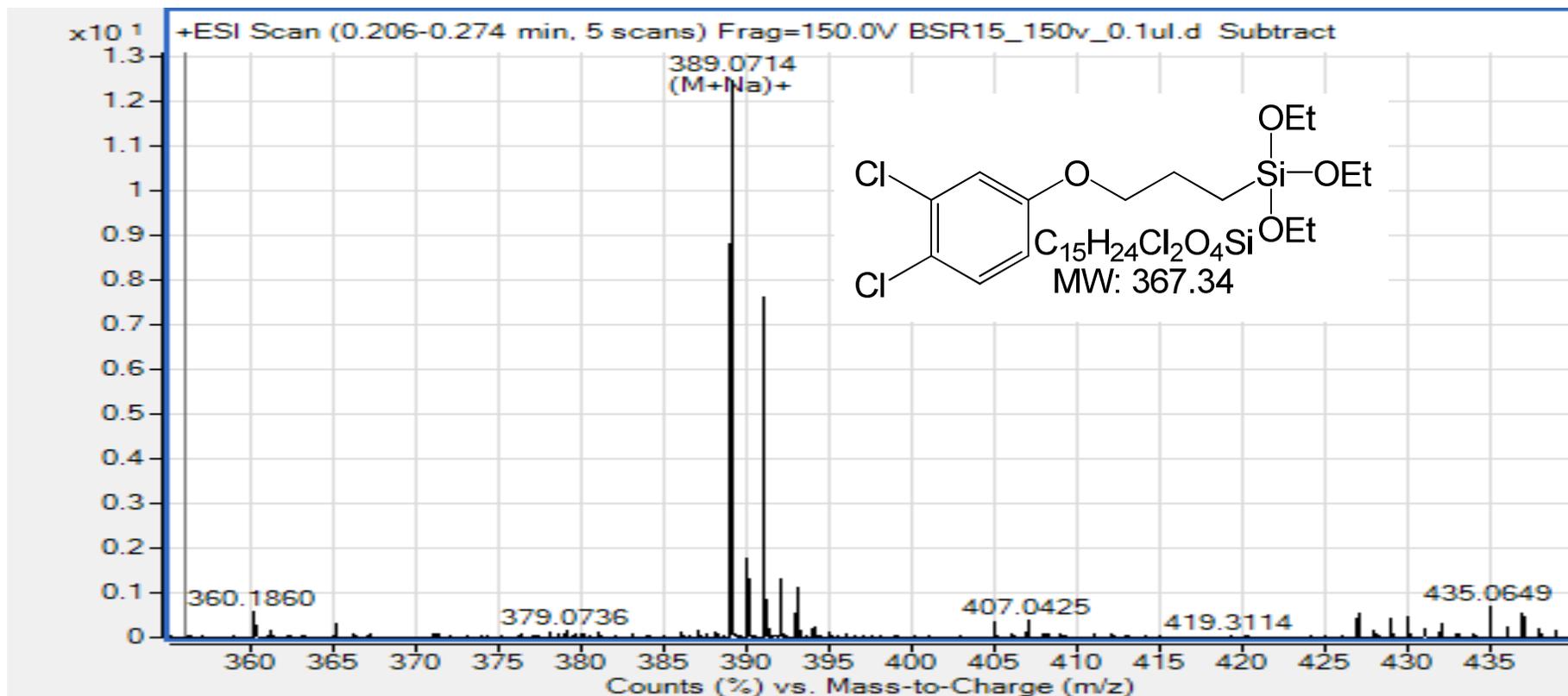
===== CHANNEL f1 =====
SFO1    100.628293 MHz
NUC1     13C
P1       10.00 usec
P12      0
PL1      0 W
PL12     0 W
SFO1A5  0 Hz
SFOFF55 0 Hz
SWS      8.40340041 W

===== CHANNEL f2 =====
SFO2    400.1316005 MHz
NUC2     1H
CPCPRG[2] waltz16
P0       20.41 usec
P3       13.74 usec
P4       27.48 usec
PCPD1    80.00 usec
PL12     12.00000000 W
PL13     0.35398000 W
PL14     0.22655000 W

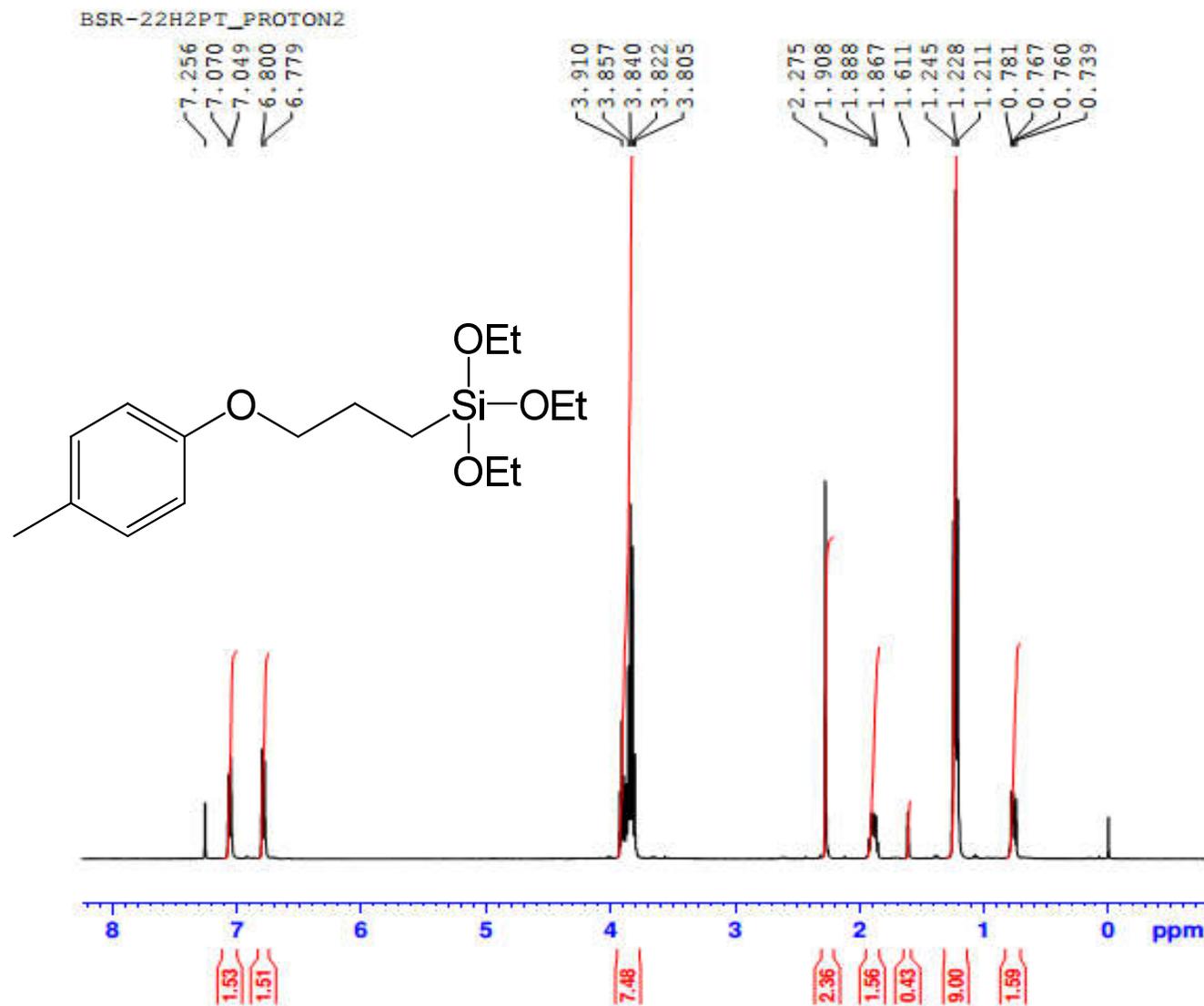
===== GRADIENT CHANNEL =====
GPMAN[1] SMGQ10.100
GPMAN[2] SMGQ10.100
GPMAN[3] SMGQ10.100
GP21     31.00 %
GP22     31.00 %
GP23     31.00 %
P14      1000.00 usec

F2 - Processing parameters
SI       32768
SF       100.6127685 MHz
WDW      EM
SSB      0
LB       1.00 Hz
GB       0
PC       1.40
    
```

[3-(3,4-dichlorophenoxy)propyl]triethoxysilane (**12e**) – HR-ESIMS [M+Na]⁺ Calculated 389.0713; Observed 389.0714.



Triethoxy[3-(p-tolyloxy)propyl]silane (**12f**) – ¹H-NMR (CDCl₃, 400 MHz)



Current Data Parameters
 NAME BSR-22H2PT
 EXPNO 2
 PROCNO 1

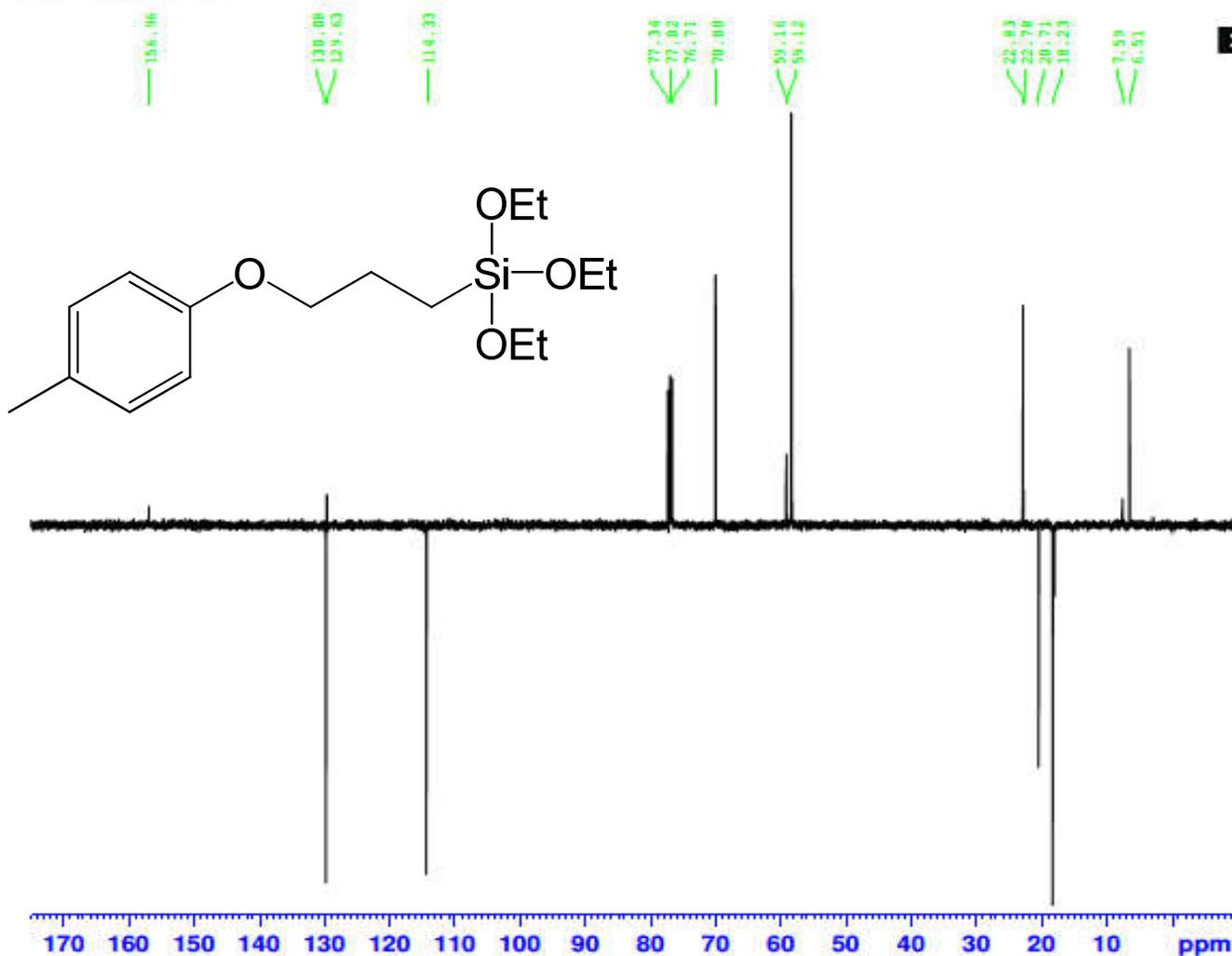
F2 - Acquisition Parameters
 Date_ 20170425
 Time 10.13
 INSTRUM spect
 PROBHD 5 mm PABBO BB/
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 16
 DS 2
 SWH 8012.820 Hz
 FIDRES 0.122266 Hz
 AQ 4.0894465 sec
 RG 81.15
 DW 62.400 usec
 DE 6.50 usec
 TE 300.0 K
 D1 1.00000000 sec
 TDO 1

===== CHANNEL f1 =====
 SFO1 400.1324710 MHz
 NUC1 1H
 P1 13.74 usec
 PLW1 12.00000000 W

F2 - Processing parameters
 SI 65536
 SF 400.1300109 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 FC 1.00

Triethoxy[3-(p-tolyloxy)propyl]silane (**12f**) – ¹³C-NMR (CDCl₃, 100 MHz)

BSR-22-CARBON2



```

Current Data Parameters
NAME      BSR-22-CARBON2
EXPNO     2
PROCNO    1

F2 - Acquisition Parameters
Date_     20170425
Time      15.42
INSTRUM   spect
PROBHD    5 mm PABBO 5B/
PULPROG   zgpg30
TD         65536
SOLVENT   CDCl3
NS         256
DS         8
SWH        24038.441 Hz
FIDRES     0.366798 Hz
AQ         1.3631488 sec
RG         206.83
DN         20.800 usec
DE         6.50 usec
TE         300.0 K
CNET2     145.0000000
CNET12    1.5000000
D1         2.0000000 sec
D2         0.00344828 sec
D13        0.00002000 sec
D14        0.00000000 sec
D28        0 sec
TDD        1

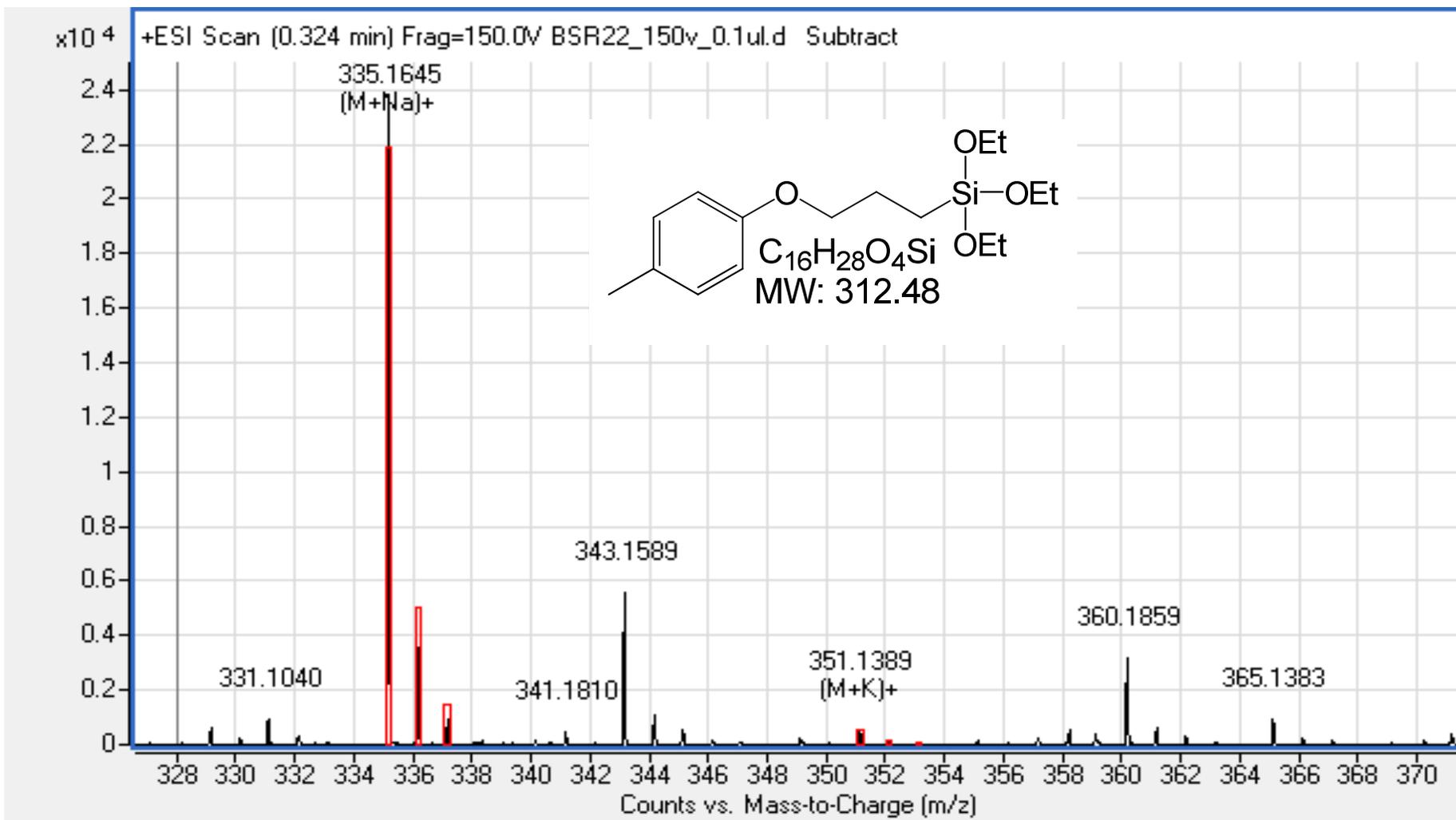
===== CHANNEL f1 =====
SFO1      100.6208293 MHz
NUC1       13C
P1         10.00 usec
P13        2000.00 usec
PLM0       0 W
PLM1       55.0000000 W
SFO1A[5]   Crp60comp.4
SFOALS     0.500
SFOFF25    0 Hz
SFO5       8.40340042 W

===== CHANNEL f2 =====
SFO2      400.1316005 MHz
NUC2       1H
CROSSRG[2]  Waltz16
P0         20.61 usec
P3         13.74 usec
P4         27.48 usec
PCPD01     80.00 usec
PLM2       12.0000000 W
PLM12      0.35398000 W
PLM13      0.22655000 W

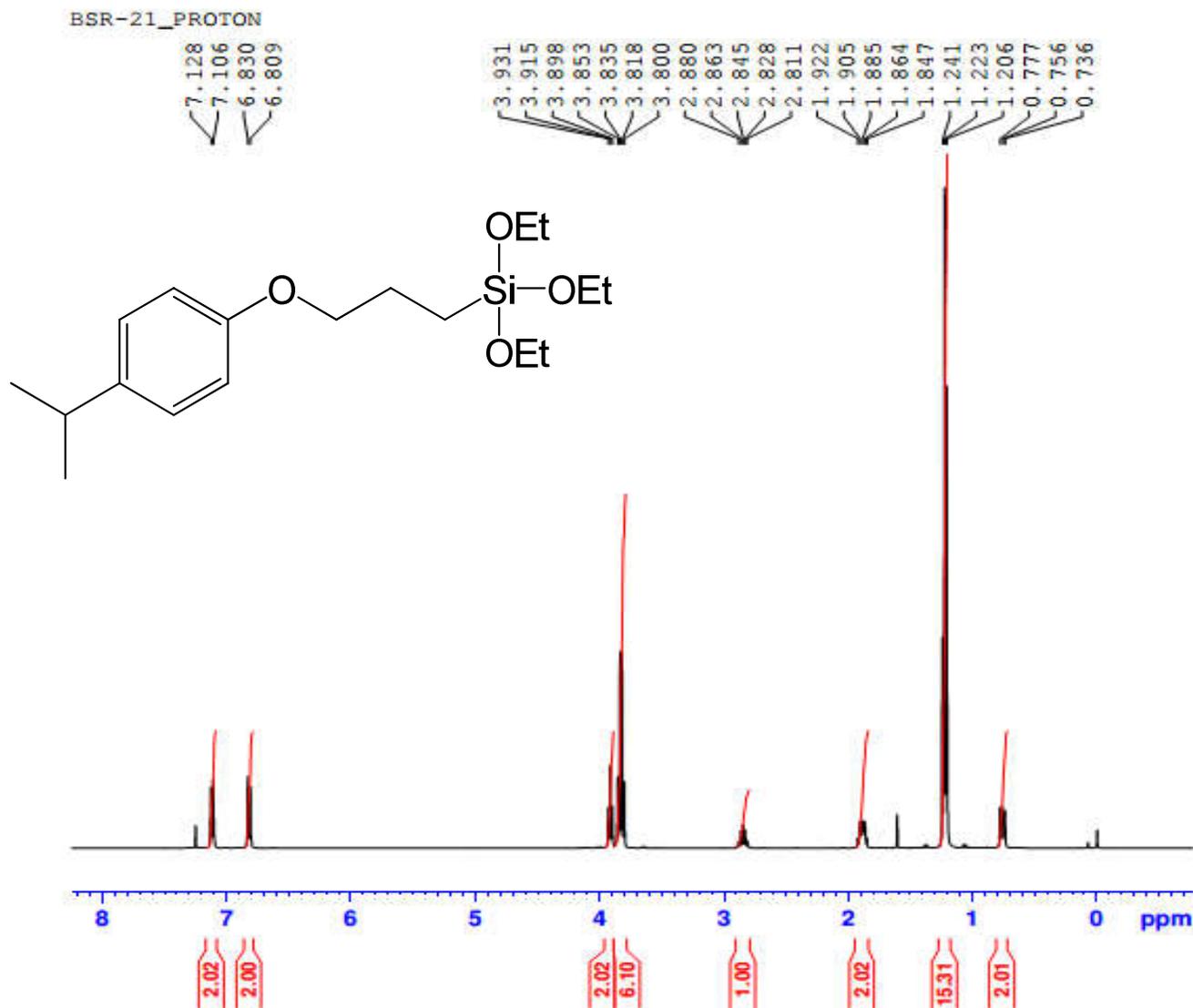
===== GRADIENT CHANNEL =====
GPM1A[1]   SMS010.100
GPM1A[2]   SMS010.100
GPM1A[3]   SMS010.100
GP11       31.00 %
GP12       31.00 %
GP13       31.00 %
P14        1500.00 usec

F2 - Processing parameters
SI         32768
SF         100.6207685 MHz
WDW        EM
SSB        0
LR         1.00 Hz
GB         0
PC         1.40
    
```

Triethoxy[3-(*p*-toloxy)propyl]silane (**12f**) – HR-ESIMS [M+Na]⁺ Calculated 335.1649; Observed 335.1645.



Triethoxy[3-(4-isopropylphenoxy)propyl]silane (**12g**) – ¹H-NMR (CDCl₃, 400 MHz)



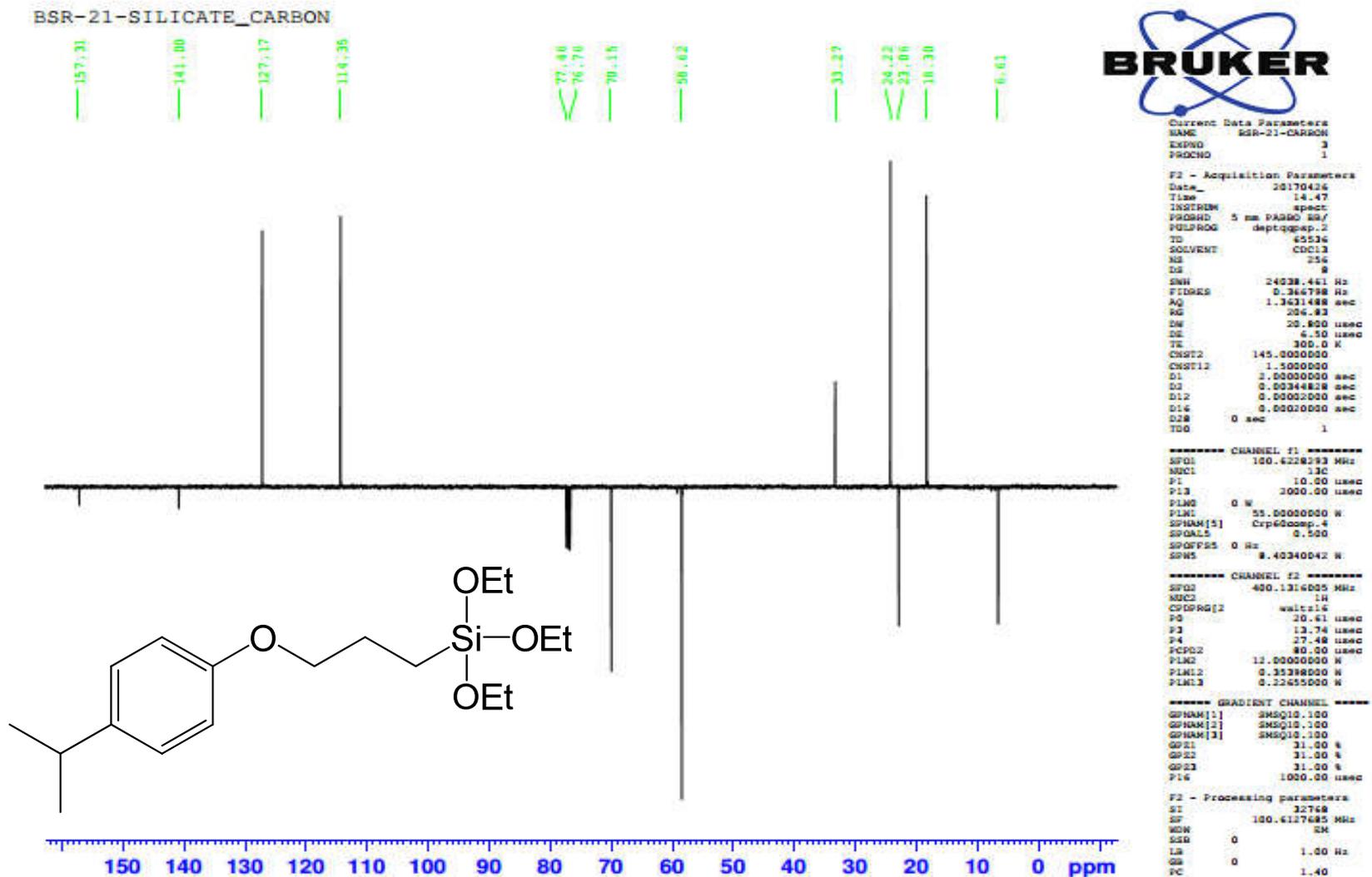
Current Data Parameters
 NAME BSR-21
 EXPNO 1
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20170425
 Time 12.43
 INSTRUM spect
 PROBHD 5 mm PABBO BB/
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 16
 DS 2
 SWH 8012.820 Hz
 FIDRES 0.122266 Hz
 AQ 4.0894465 sec
 RG 65.89
 DW 62.400 usec
 DE 6.50 usec
 TE 300.0 K
 D1 1.00000000 sec
 TD0 1

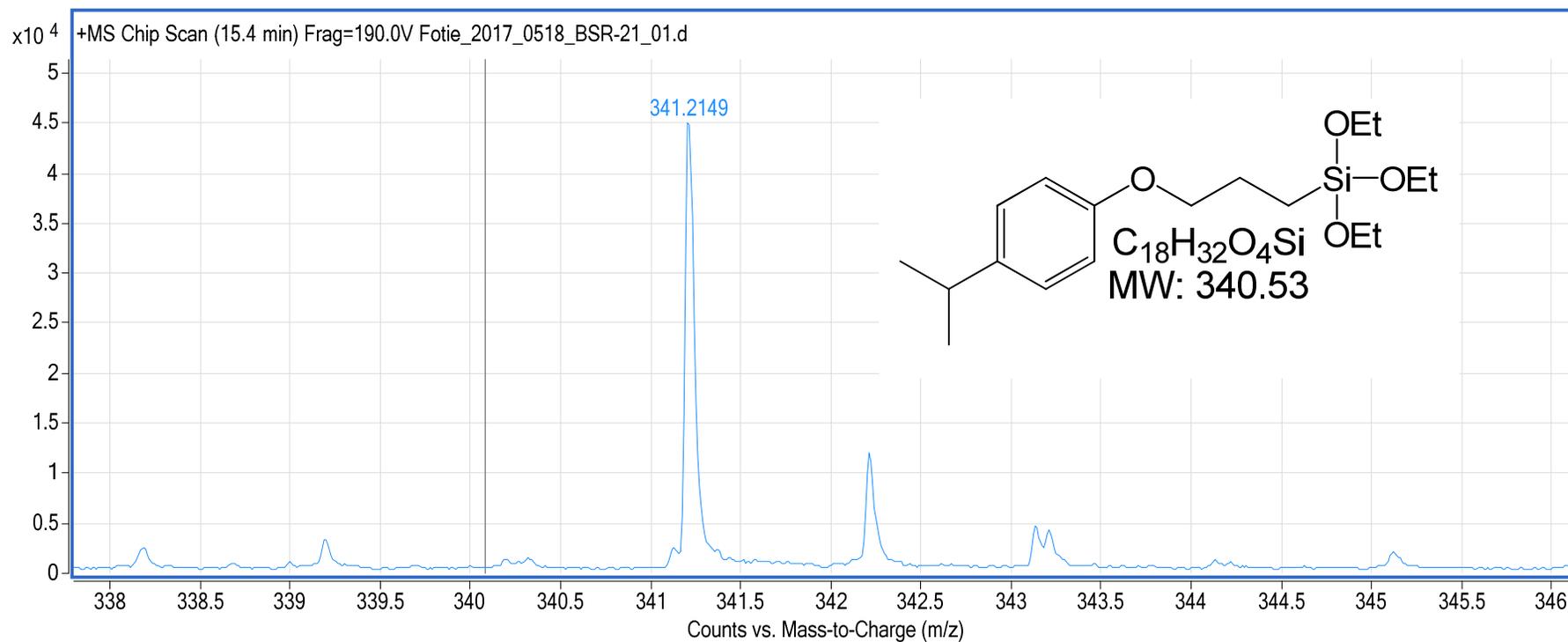
***** CHANNEL f1 *****
 SF01 400.1324710 MHz
 NUC1 1H
 P1 13.74 usec
 PLW1 12.00000000 W

F2 - Processing parameters
 SI 65536
 SF 400.1300137 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

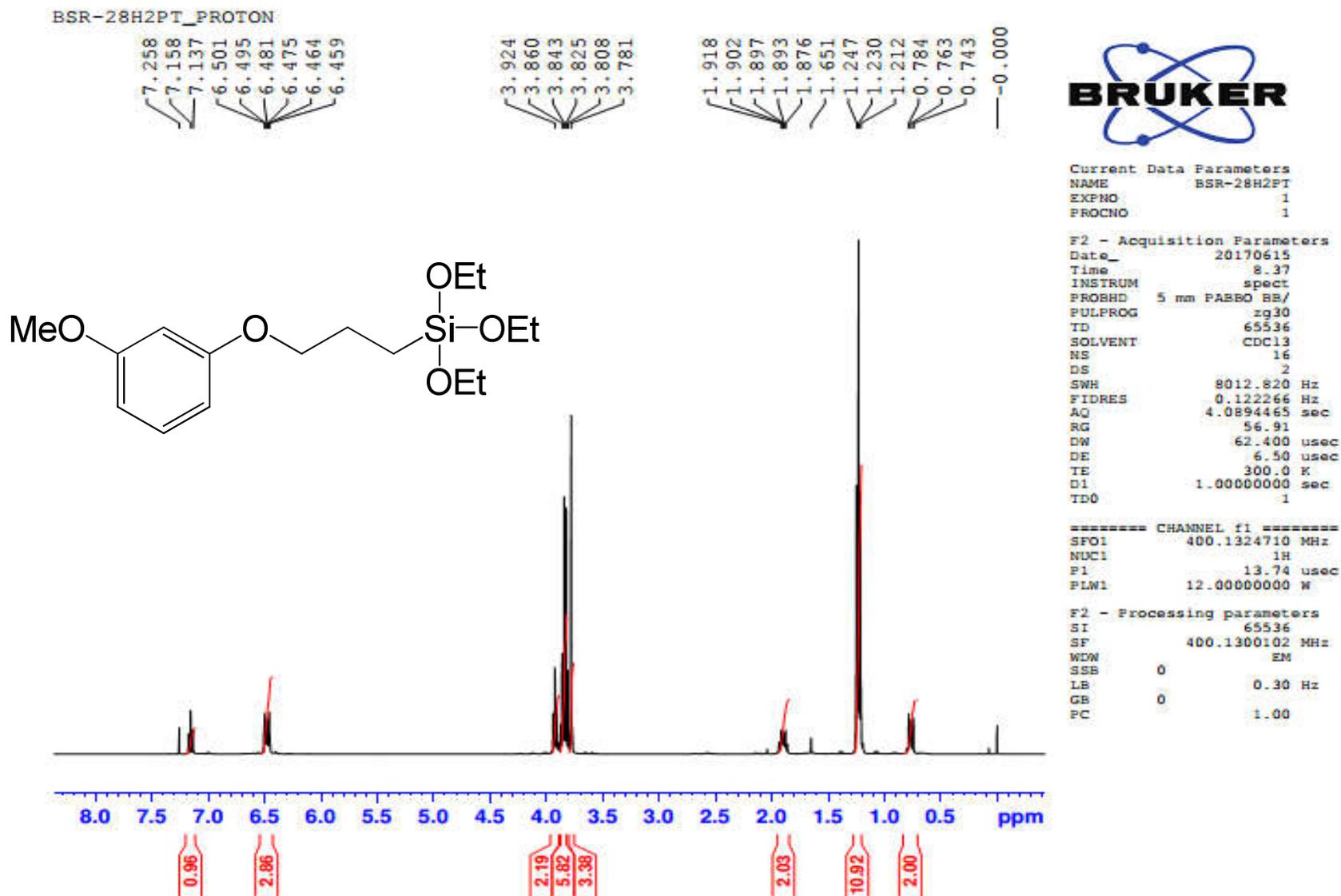
Triethoxy[3-(4-isopropylphenoxy)propyl]silane (**12g**) – ¹³C-NMR (CDCl₃, 100 MHz)



Triethoxy[3-(4-isopropylphenoxy)propyl]silane (**12g**) – HR-ESIMS [M+H]⁺ Calculated 341.2143; Observed 341.2149.

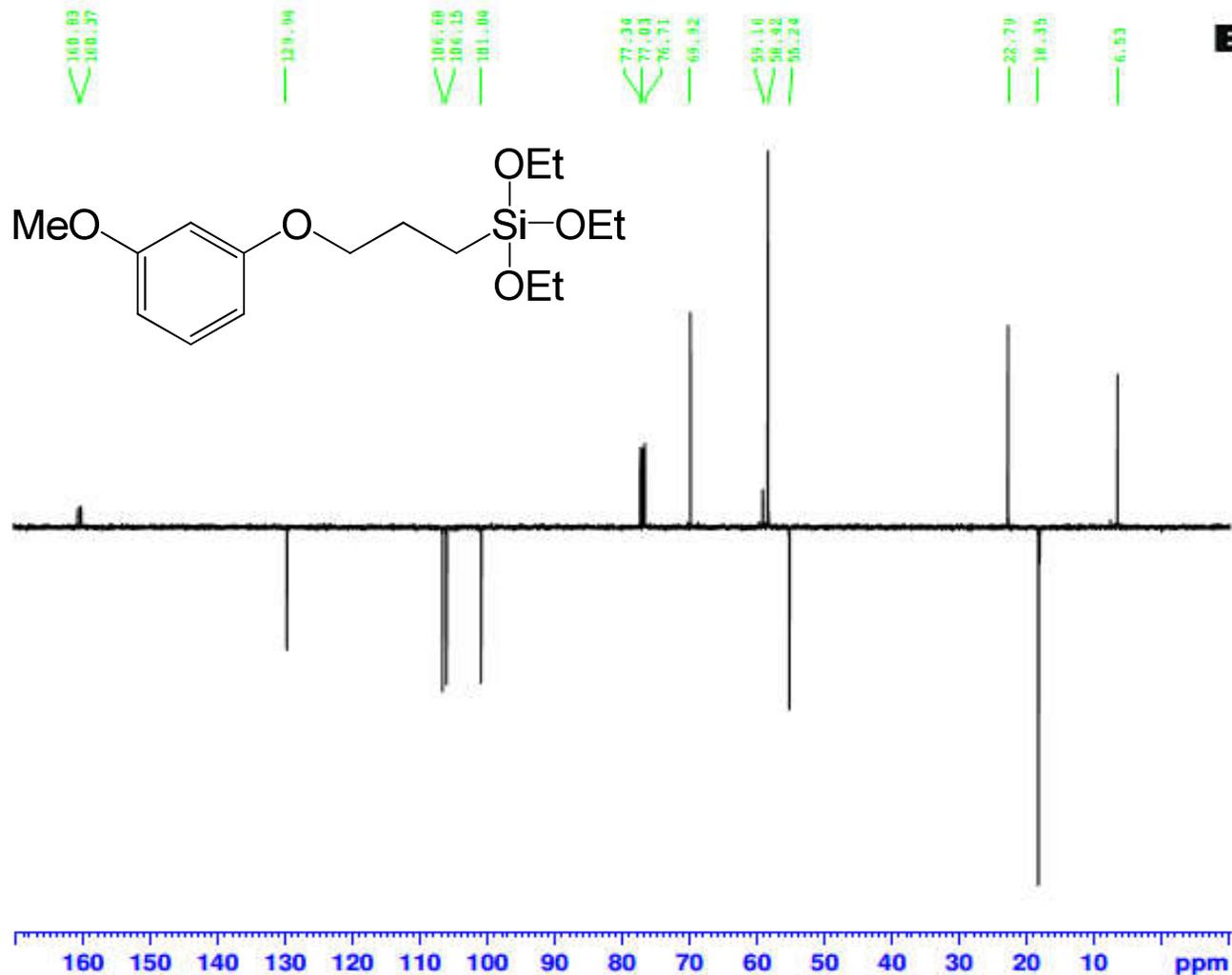


Triethoxy[3-(3-methoxyphenoxy)propyl]silane (**12h**) – ¹H-NMR (CDCl₃, 400 MHz)



Triethoxy[3-(3-methoxyphenoxy)propyl]silane (**12h**) – ¹³C-NMR (CDCl₃, 100 MHz)

BSR-28-TEOS_CARBN



```

=====
NAME      BSR-28-SILICATE
EXPNO     2
PROCNO    1

F2 - Acquisition Parameters
Date_     20170614
Time      14.04
INSTRUM   spect
PROBHD    5 mm PARRO 50/
PULPROG   deptqqep.2
TD         65536
SOLVENT   CDCl3
NS         256
DS         8
SWH        24038.441 Hz
FIDRES     0.346798 Hz
AQ         1.3431488 sec
RG         256.83
DW         20.800 usec
DE         6.50 usec
TE         300.0 K
CHST2     145.0000000
CHST13    1.10000000
D1         3.00000000 sec
D2         0.00344828 sec
D12        0.00002000 sec
D16        0.00000000 sec
D28        0 sec
TD0        1

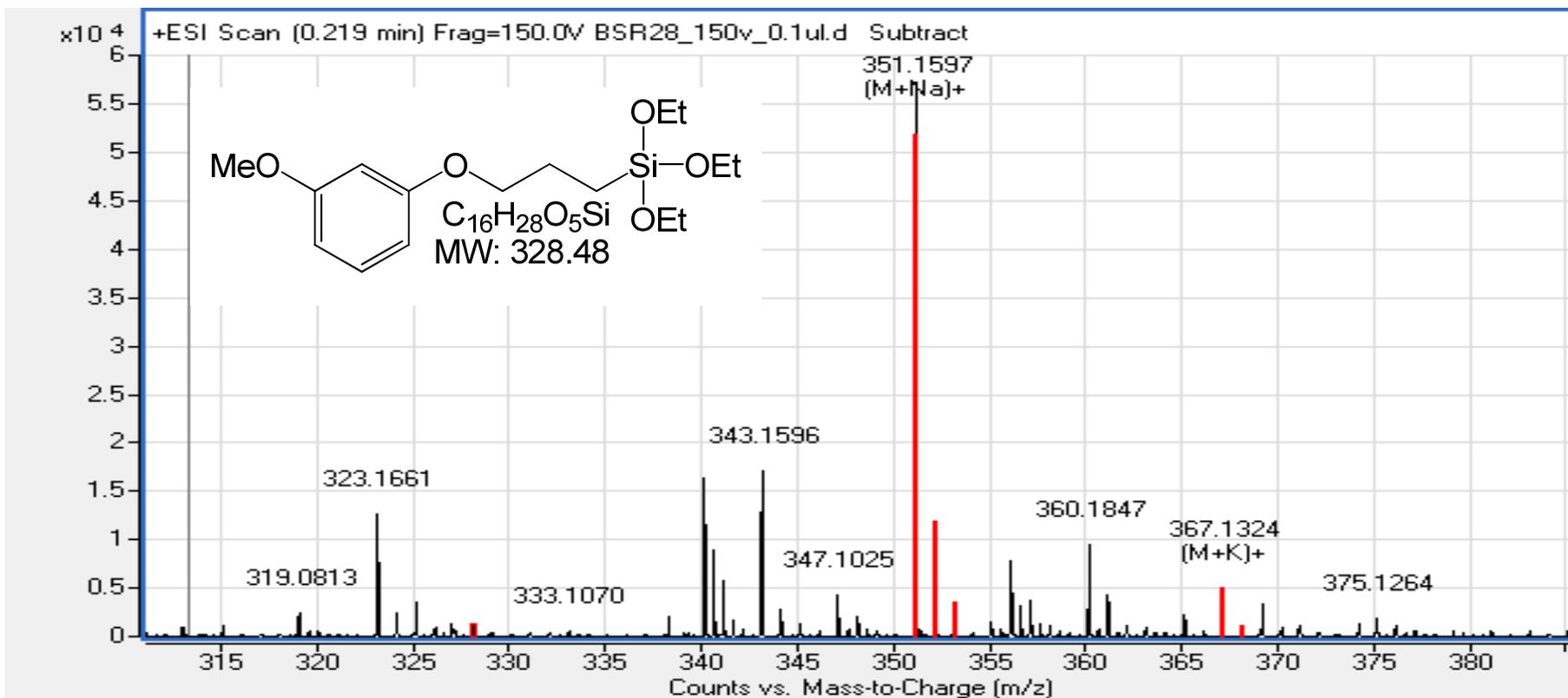
===== CHANNEL f1 =====
SFO1     100.6228233 MHz
NUC1      13C
P1        10.00 usec
P13       3000.00 usec
PLN0      0 W
PLM1     55.00000000 W
SFOAM[5]  Crp60comp. 4
SFOALS    0.500
SFOFF25   0 Hz
SFW1      4.40340042 W

===== CHANNEL f2 =====
SFO2     400.1314005 MHz
NUC2      1H
CPDPRG[2] waltz16
P0        20.41 usec
P3        13.74 usec
P4        27.48 usec
PCPD2     80.00 usec
PLM2     13.00000000 W
PLM12    0.35398000 W
PLM13    0.32655000 W

===== GRADIENT CHANNEL =====
GPHAM[1]  SMSQ10.100
GPHAM[2]  SMSQ10.100
GPHAM[3]  SMSQ10.100
GP21      31.00 %
GP22      31.00 %
GP23      31.00 %
P16       1000.00 usec

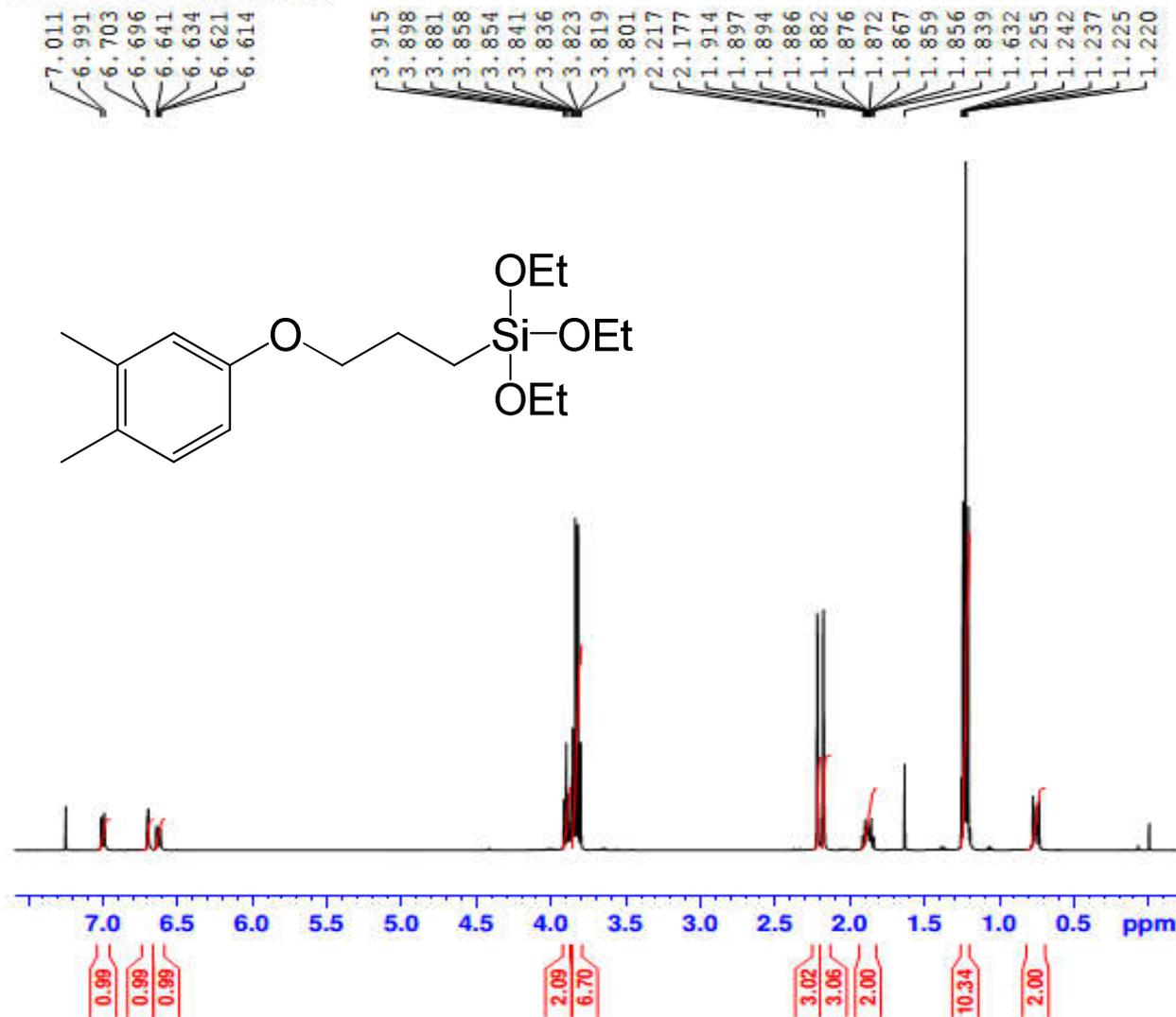
F2 - Processing parameters
SI         32768
SF         100.6127685 MHz
WDW        EM
SSB        0
LB         1.00 Hz
GB         0
PC         1.40
    
```

Triethoxy[3-(3-methoxyphenoxy)propyl]silane (**12h**) – HR-ESIMS [M+Na]⁺ Calculated 351.1598; Observed 351.1597.



[3-(3,4-dimethylphenoxy)propyl]triethoxysilane (**12i**) – ¹H-NMR (CDCl₃, 400 MHz)

BSR-9-SILICATE_PROTON



Current Data Parameters
 NAME BSR-9
 EXPNO 1
 PROCNO 1

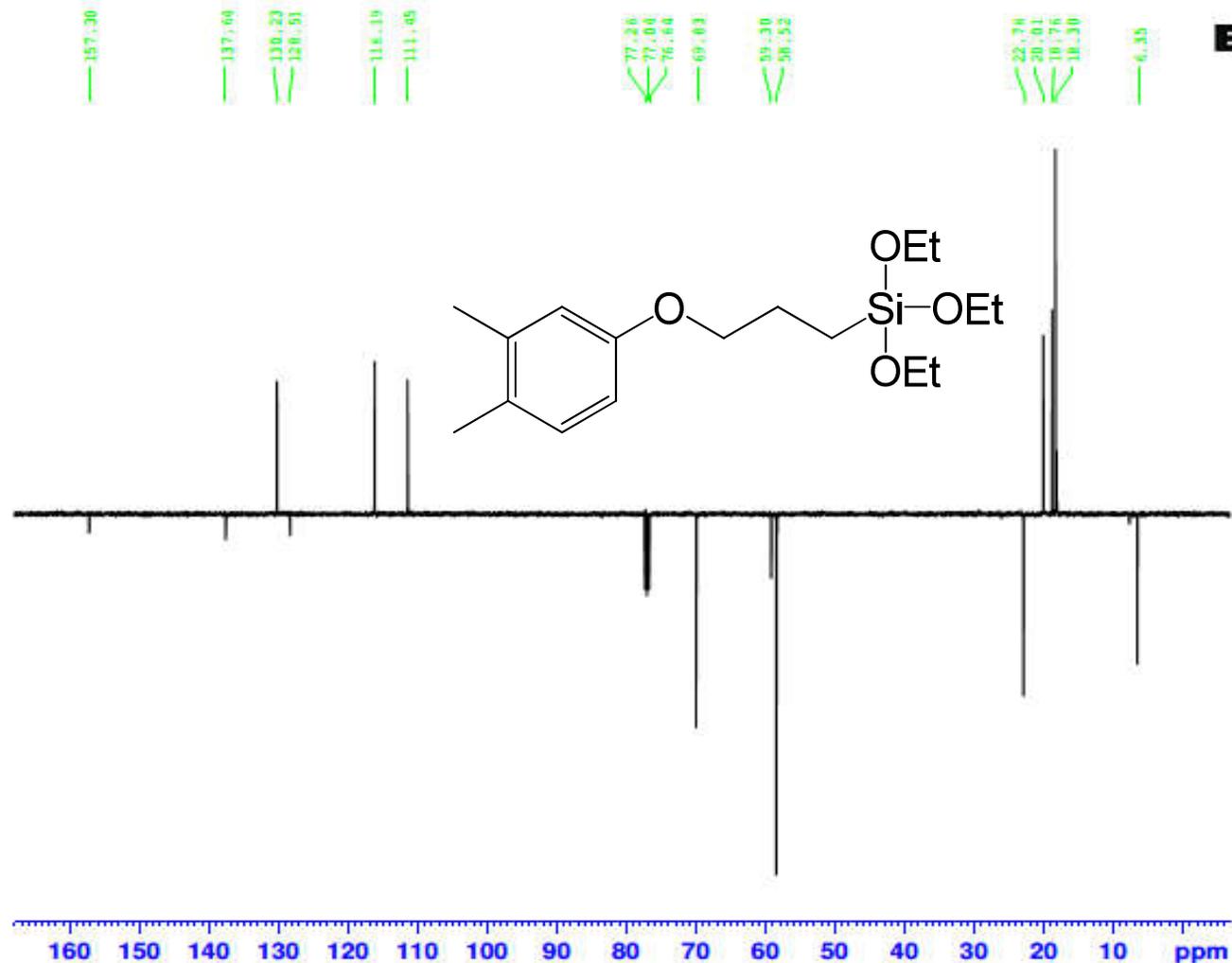
F2 - Acquisition Parameters
 Date_ 20170609
 Time 8.24
 INSTRUM spect
 PROBHD 5 mm PABBO B5/
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 16
 DS 2
 SWH 8012.820 Hz
 FIDRES 0.122266 Hz
 AQ 4.0894465 sec
 RG 56.91
 DW 62.400 usec
 DE 6.50 usec
 TE 300.0 K
 D1 1.00000000 sec
 TD0 1

***** CHANNEL f1 *****
 SF01 400.1324710 MHz
 NUC1 1H
 P1 13.74 usec
 PLW1 12.00000000 W

F2 - Processing parameters
 SI 65536
 SF 400.1300140 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

[3-(3,4-dimethylphenoxy)propyl]triethoxysilane (**12i**) – ¹³C-NMR (CDCl₃, 100 MHz)

BSR-9-SILICATE_CARBON



```

Current Data Parameters
NAME      BSR-9
EXPNO    2
PROCNO   1

F2 - Acquisition Parameters
Date_    20170609
Time     8.53
INSTRUM  spect
PROBHD   5 mm PABBO BB/
PULPROG  zgpg30p2
TD       65536
SOLVENT  CDCl3
NS       256
DS       8
SWH      24039.461 Hz
FIDRES   0.366798 Hz
AQ       1.3231488 sec
RG       206.83
DW       20.900 usec
DE       6.50 usec
TE       300.2 K
CNS12    145.0000000
CNS112   1.5000000
D1       2.0000000 sec
D2       0.0034482 sec
D12      0.0000000 sec
D14      0.0002000 sec
D2#      0 sec
TD0      1

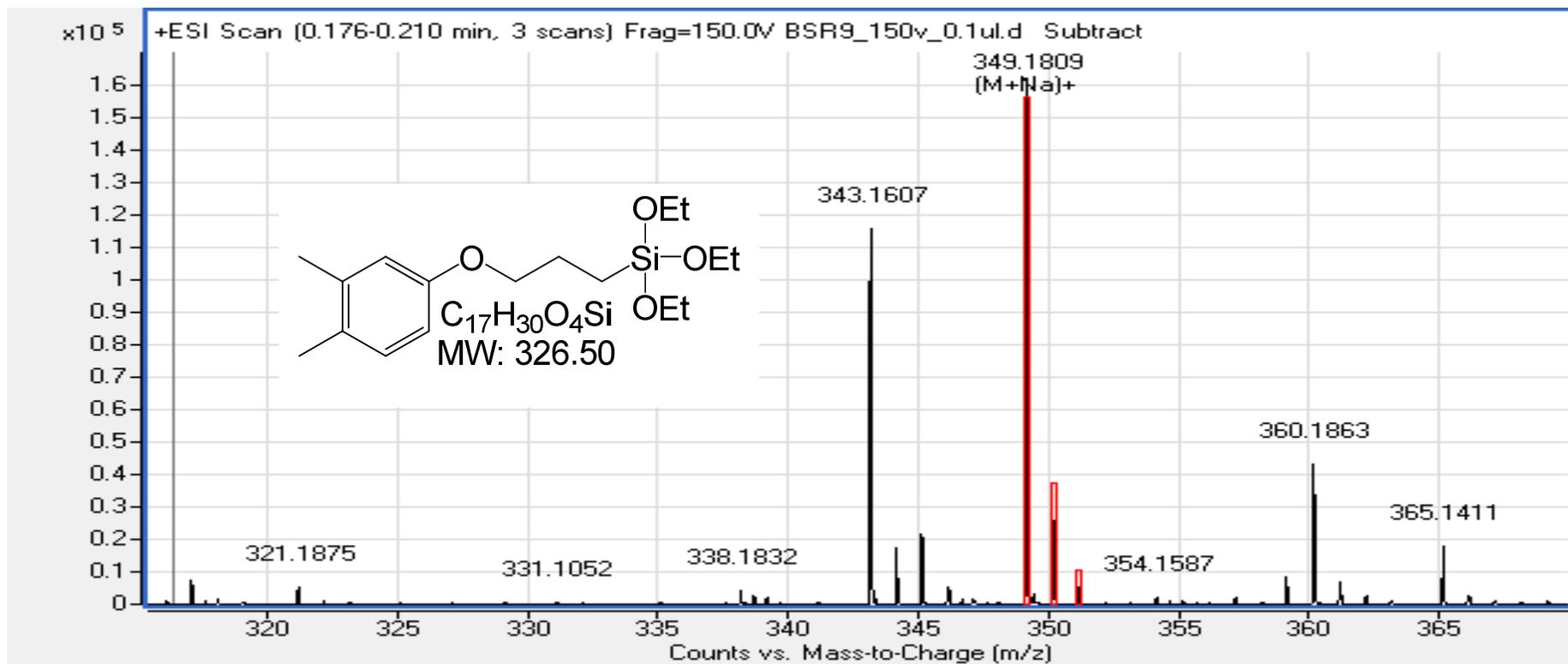
===== CHANNEL f1 =====
SFO1    100.6228293 MHz
NUC1     13C
P1       10.00 usec
P13      1000.00 usec
PL10     0 W
PL11     55.0000000 W
SFO1A[5] Crp60comp.4
SFO1A5   0 Hz
SFO1F15  8.40340043 W
SFO1F5

===== CHANNEL f2 =====
SFO2    400.1316005 MHz
NUC2     1H
CPDPRG2  waltz16
P2       20.61 usec
P3       13.74 usec
P4       27.48 usec
PCPD2    80.00 usec
PL12     13.0000000 W
PL13     0.35398000 W
PL14     0.22455000 W

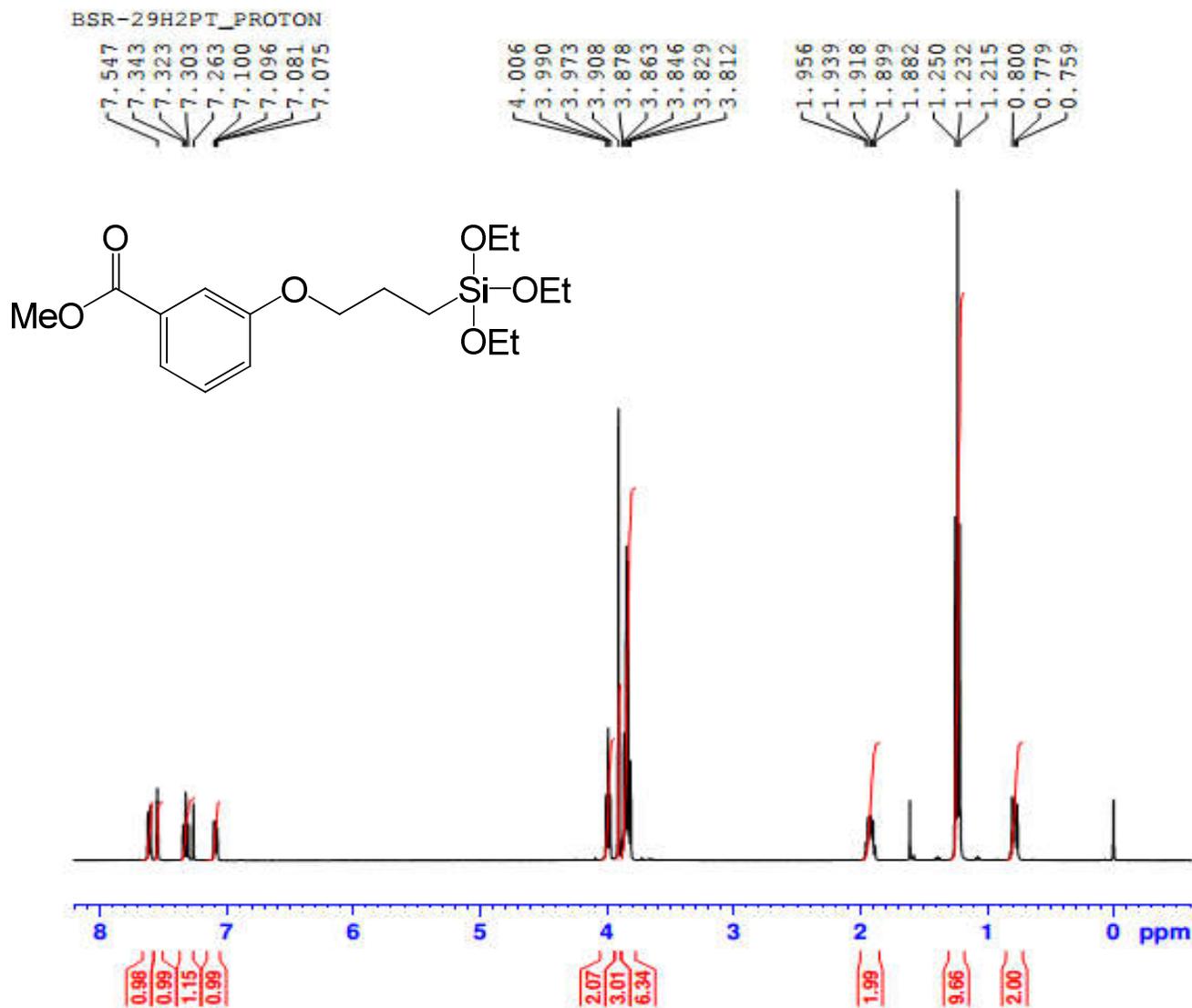
===== GRADIENT CHANNEL =====
GPNAM[1]  SMO10.100
GPNAM[2]  SMO10.100
GPNAM[3]  SMO10.100
GP21     31.00 %
GP22     31.00 %
GP23     31.00 %
P16      1000.00 usec

F2 - Processing parameters
SI       32768
SF       100.6127685 MHz
WDW      EM
SSB      0
LA       1.00 Hz
GB       0
PC       1.40
    
```

[3-(3,4-dimethylphenoxy)propyl]triethoxysilane (**12i**) – HR-ESIMS [M+Na]⁺ Calculated 349.1806; Observed 349.1809.



Methyl 3-[3-(triethoxysilyl)propoxy]benzoate (**12j**) – ¹H-NMR (CDCl₃, 400 MHz)



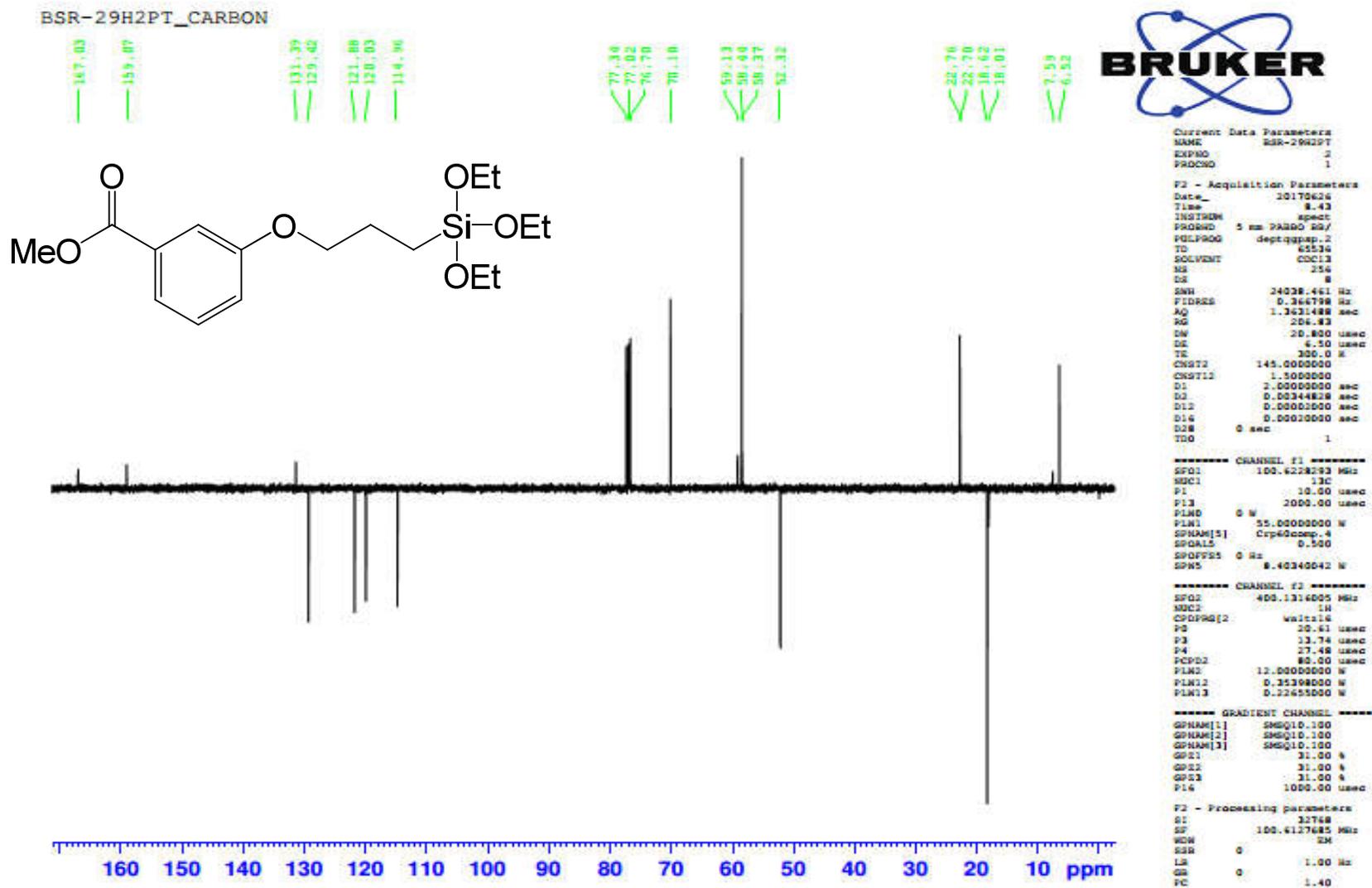
Current Data Parameters
NAME BSR-29H2PT
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 20170626
Time 8.18
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 115.38
DW 62.400 usec
DE 6.50 usec
TE 300.1 K
D1 1.00000000 sec
TD0 1

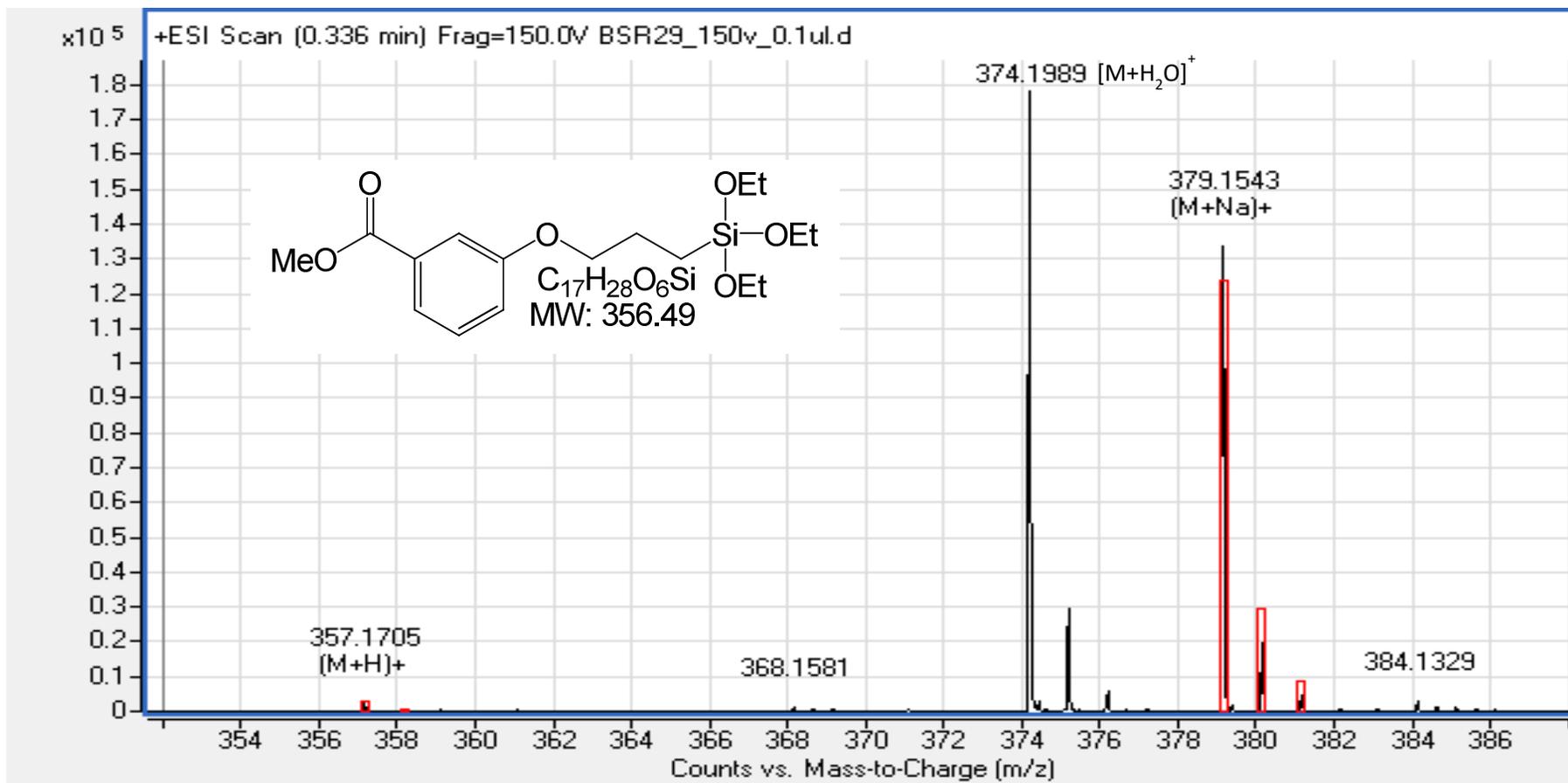
===== CHANNEL f1 =====
SFO1 400.1324710 MHz
NUC1 1H
P1 13.74 usec
PLW1 12.00000000 W

F2 - Processing parameters
SI 65536
SF 400.1300081 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

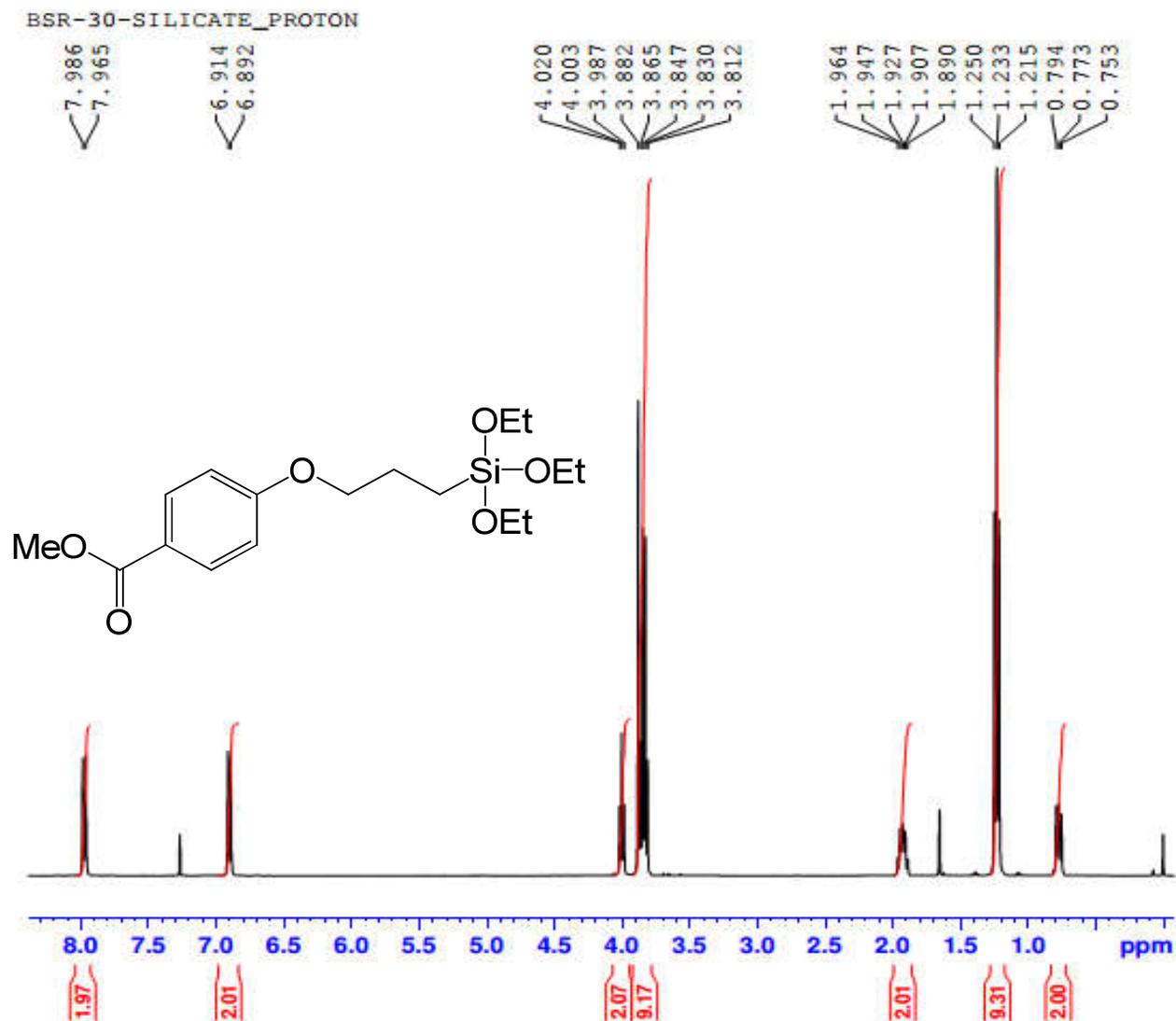
Methyl 3-[3-(triethoxysilyl)propoxy]benzoate (**12j**) – ¹³C-NMR (CDCl₃, 100 MHz)



Methyl 3-[3-(triethoxysilyl)propoxy]benzoate (**12j**) – HR-ESIMS [M+Na]⁺ Calculated 379.1547; Observed 379.1543.



Methyl 4-[3-(triethoxysilyl)propoxy]benzoate (**12k**) – ¹H-NMR (CDCl₃, 400 MHz)



Current Data Parameters
 NAME BSR-30
 EXPNO 1
 PROCNO 1

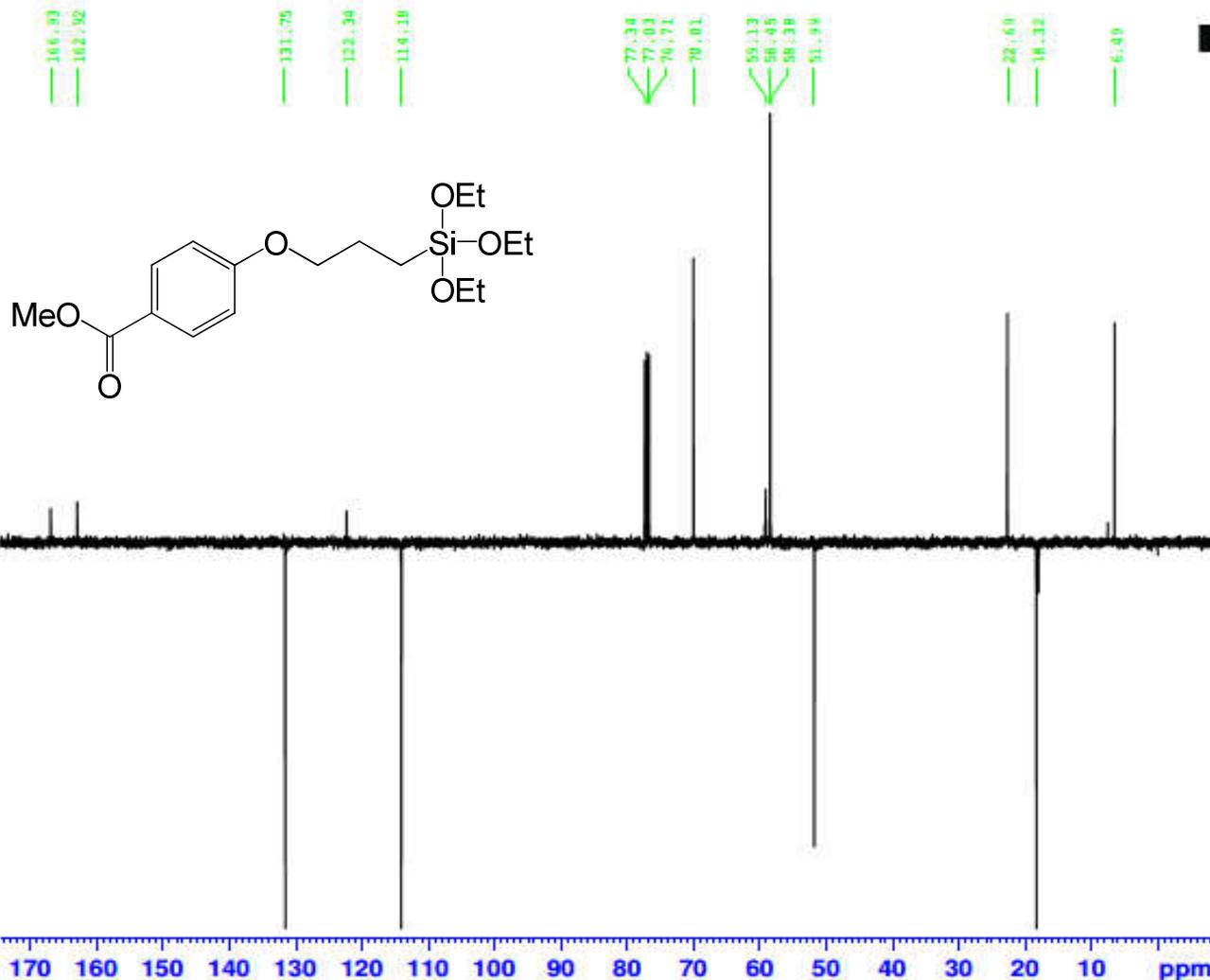
F2 - Acquisition Parameters
 Date_ 20170710
 Time 10.12
 INSTRUM spect
 PROBHD 5 mm PABBO BB/
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 16
 DS 2
 SWH 8012.820 Hz
 FIDRES 0.122266 Hz
 AQ 4.0894465 sec
 RG 81.15
 DW 62.400 usec
 DE 6.50 usec
 TE 300.0 K
 D1 1.00000000 sec
 TD0 1

===== CHANNEL f1 =====
 SFO1 400.1324710 MHz
 NUC1 1H
 P1 13.74 usec
 PLW1 12.00000000 W

F2 - Processing parameters
 SI 65536
 SF 400.1300060 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

Methyl 4-[3-(triethoxysilyl)propoxy]benzoate (**12k**) – ¹³C-NMR (CDCl₃, 100 MHz)

BSR-30H2PT_CARBON



```

Current Data Parameters
NAME      BSR-30H2PT
EXPNO    2
PROCNO   1

F2 - Acquisition Parameters
Date_    20170710
Time     9.45
INSTRUM  spect
PROBHD   5 mm BBOBO 1H/
PULPROG  zgpg30p2
TD       65536
SOLVENT  CDCl3
NS       256
DS       8
SWH      24038.461 Hz
FIDRES   0.364798 Hz
AQ       1.3631488 sec
RG       204.83
IN       20.900 usec
DE       6.50 usec
TE       300.0 K
CNS12    145.0000000
CNS112   1.5000000
D1       2.00000000 sec
D2       0.02344818 sec
D12      0.00000000 sec
D14      0.00020000 sec
D18      0 sec
TD0      1

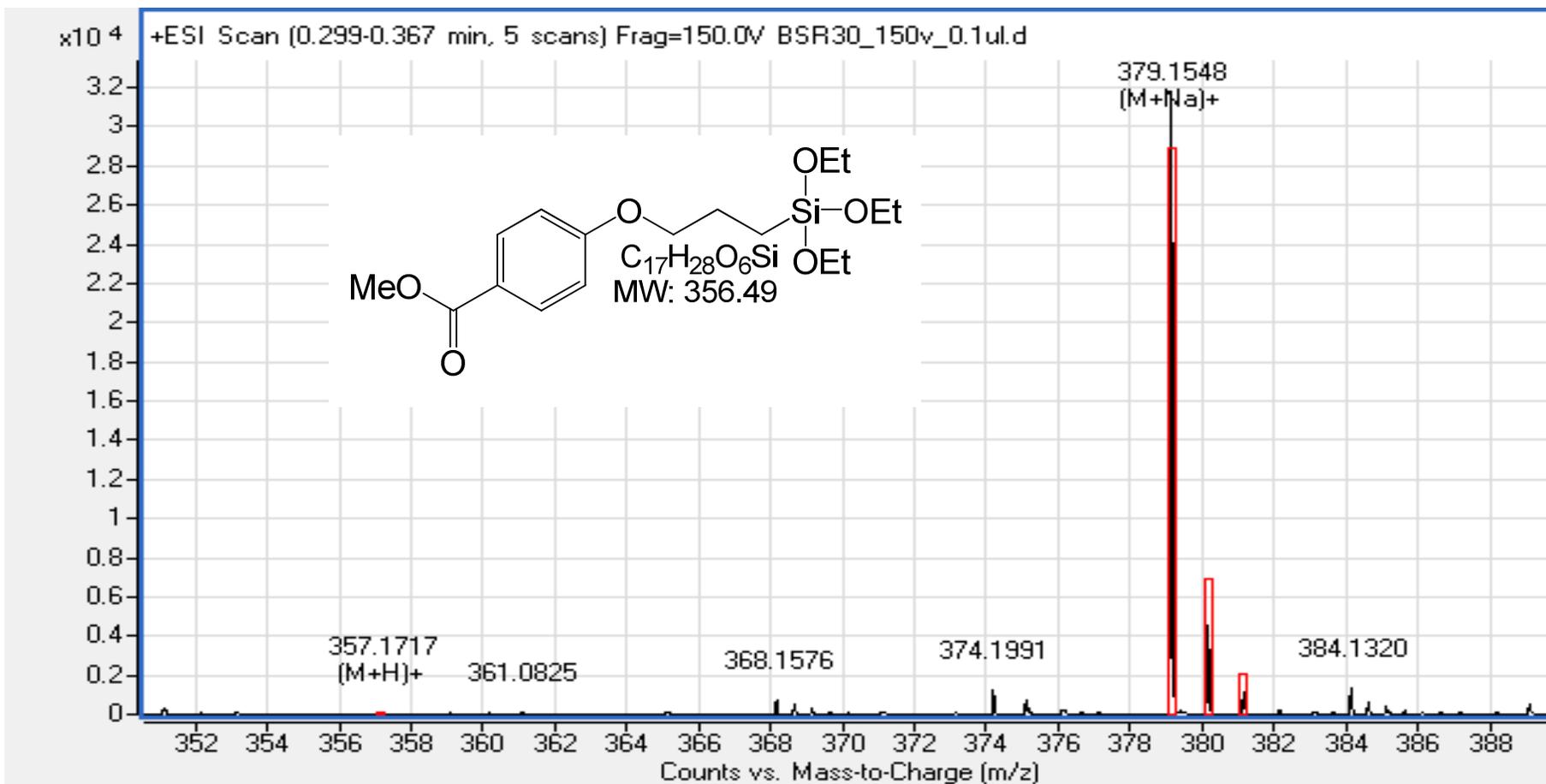
----- CHANNEL f1 -----
SF01    100.6228293 MHz
NUC01    13C
P1       10.00 usec
PL1      0 W
PL12     55.00000000 W
SFOALS[5] Crp40comp.4
SFOALS   0.500
SFOFFS5  0 Hz
SFO5     8.40340042 W

----- CHANNEL f2 -----
SF02    400.1316005 MHz
NUC02    1H
CPOPRG[2] waltz16
P2       20.61 usec
P3       13.74 usec
P4       27.48 usec
PCPD2    80.00 usec
PLW2     12.00000000 W
PLW12    0.35398000 W
PLW13    0.22455000 W

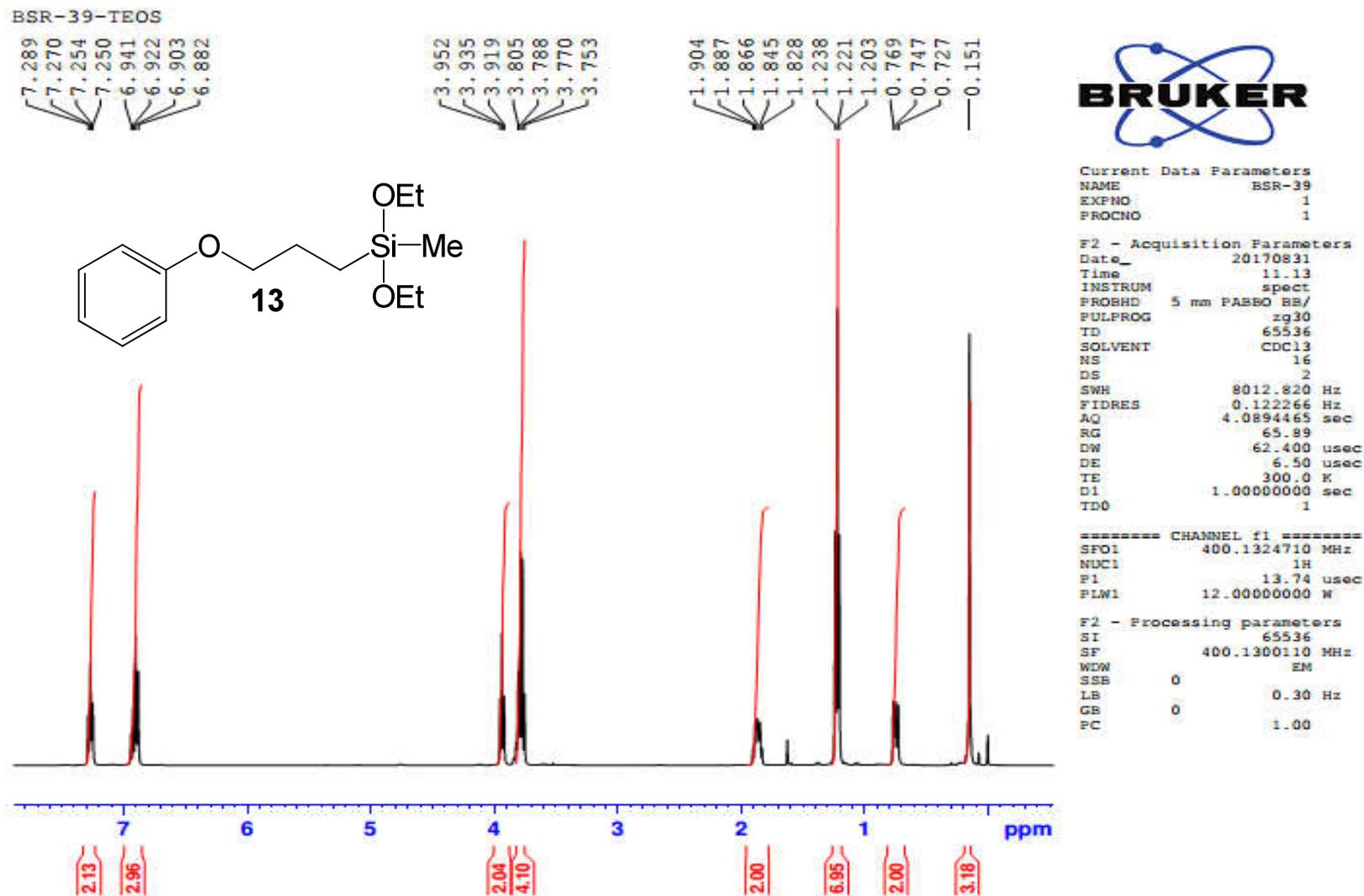
----- GRADIENT CHANNEL -----
GPNAM[1] SMO10.100
GPNAM[2] SMO210.100
GPNAM[3] SMO310.100
GP11     31.00 %
GP12     31.00 %
GP13     31.00 %
PL14     1000.00 usec

F2 - Processing parameters
SI       32768
SF       100.6127685 MHz
MSH      SM
SFA      0
GB       1.00 Hz
PC       1.40
    
```

Methyl 4-[3-(triethoxysilyl)propoxy]benzoate (**12k**) – HR-ESIMS [M+Na]⁺ Calculated 379.1547; Observed 379.1548.

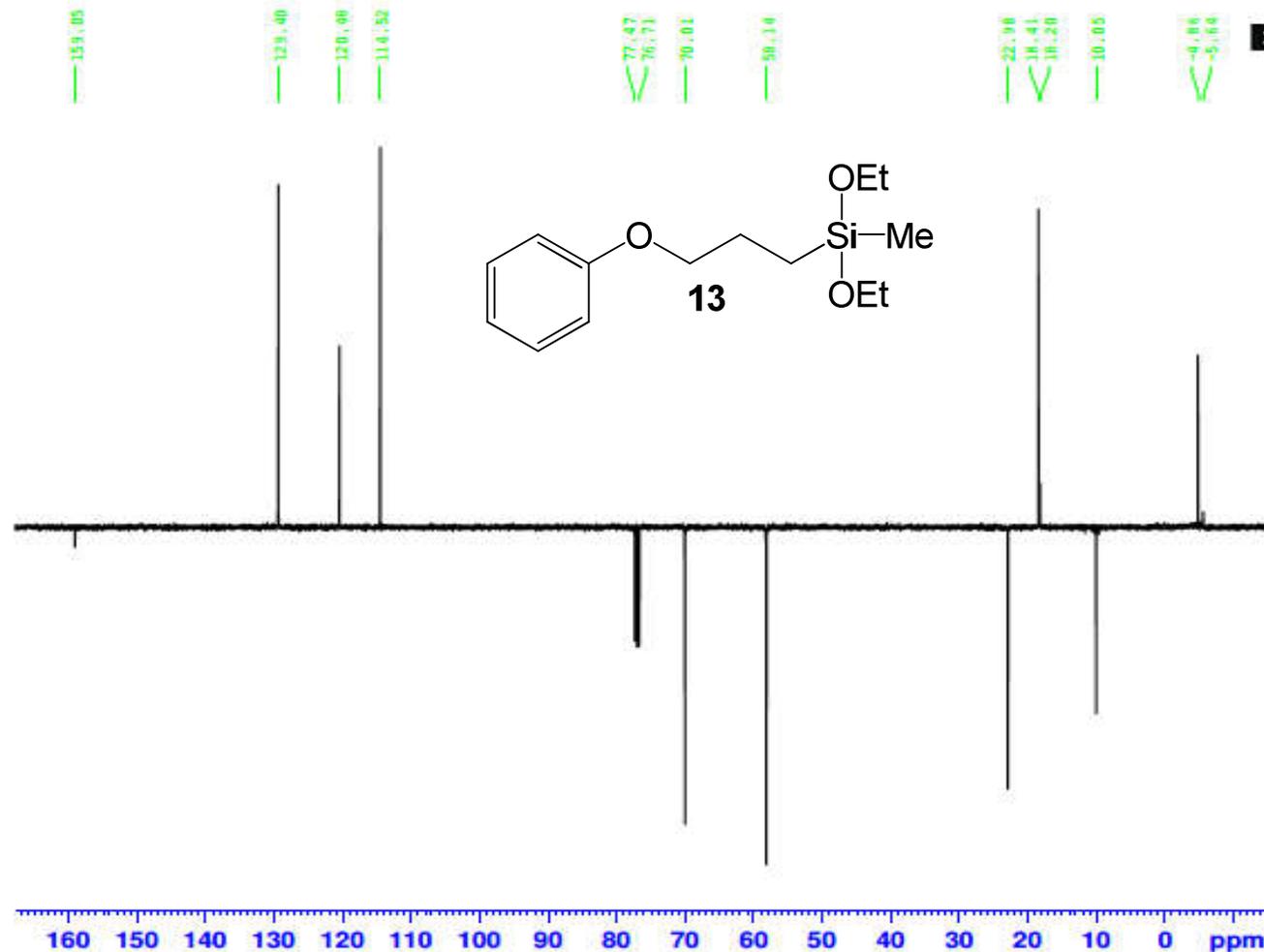


Diethoxy(methyl)(3-phenoxypropyl)silane (**13**) – $^1\text{H-NMR}$ (CDCl_3 , 400 MHz)



Diethoxy(methyl)(3-phenoxypropyl)silane (**13**) – ^{13}C -NMR (CDCl_3 , 100 MHz)

BSR-39-TEOS_CARBON



```

Current Data Parameters
NAME      BSR-39
EXPNO     3
PROCNO    1

F2 - Acquisition Parameters
Date_     20170831
Time      11.41
INSTRUM   spect
PROBHD    5 mm PABBO 2B/
PULPROG   deptqqzap.2
TD         65536
SOLVENT   CDCl3
NS         256
DS         8
SWH        24038.461 Hz
FIDRES     0.366798 Hz
AQ         1.3621488 sec
RG         256.83
DE         20.800 usec
TE         6.50 usec
TE         300.0 K
CHST2     145.000000
CHST12    1.5000000
D1         2.0000000 sec
D2         0.00344828 sec
D12        0.0000000 sec
D16        0.0000000 sec
D3R        0 sec
TD0        1

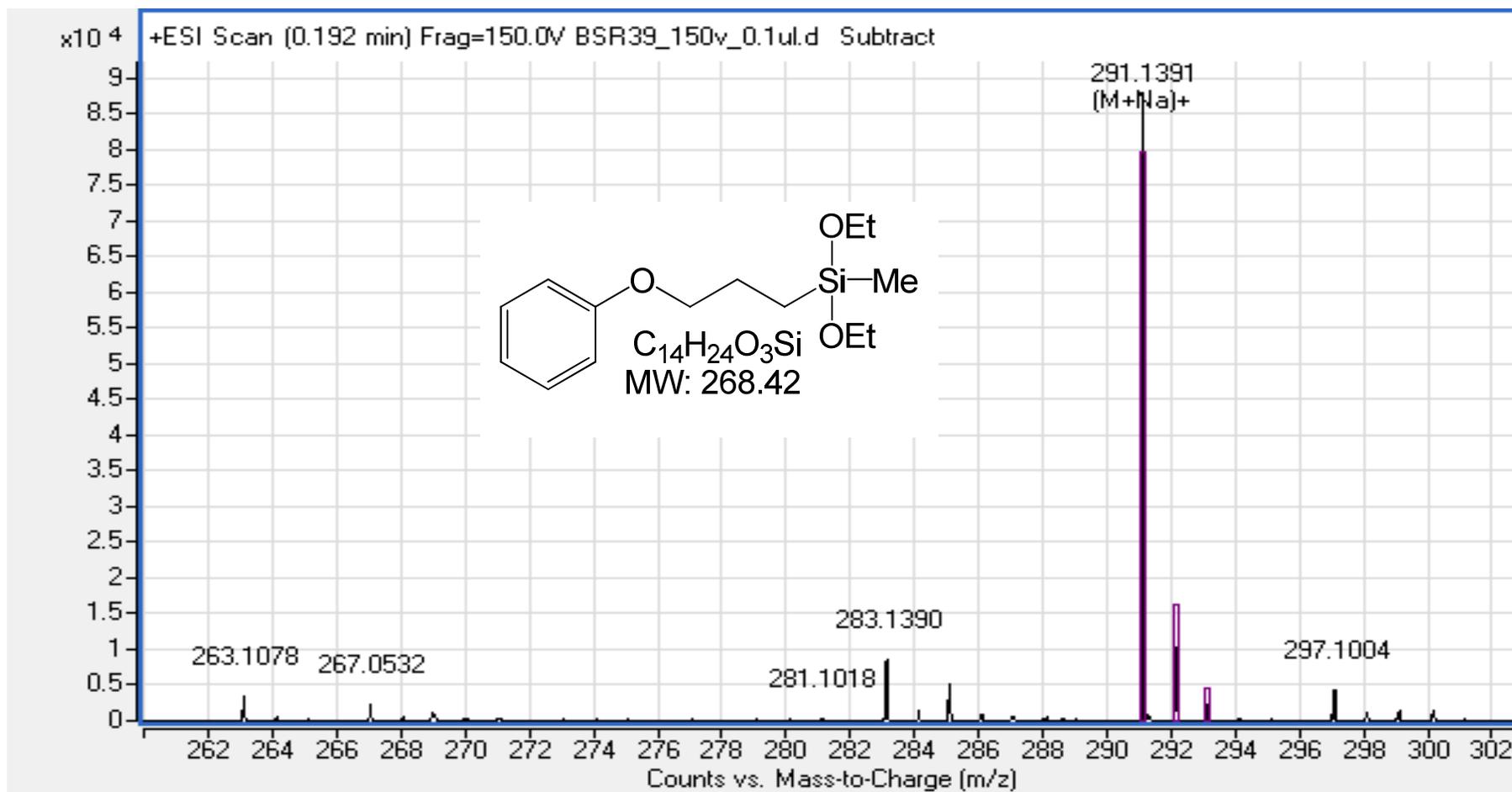
----- CHANNEL f1 -----
SFO1      100.6228293 MHz
NUC1       13C
P1         20.00 usec
P13        2000.00 usec
PLW0       0 W
PLW1       55.0000000 W
SPNAM[5]   Crp4Gcomp.4
SFOALS    0.500
SFOFFS5    0 Hz
SPW5       8.40340042 W

----- CHANNEL f2 -----
SFO2      400.1314005 MHz
NUC2       1H
CPDPRG[2]  waltz16
P2         20.61 usec
P3         13.74 usec
P4         27.48 usec
PCPD2      80.00 usec
PLW2       12.0000000 W
PLW12      0.2539000 W
PLW13      0.2245500 W

----- GRADIENT CHANNEL -----
SPNAM[1]   SMSG10.100
SPNAM[2]   SMSG10.100
SPNAM[3]   SMSG10.100
GP21       31.00 %
GP22       31.00 %
GP23       31.00 %
P16        1000.00 usec

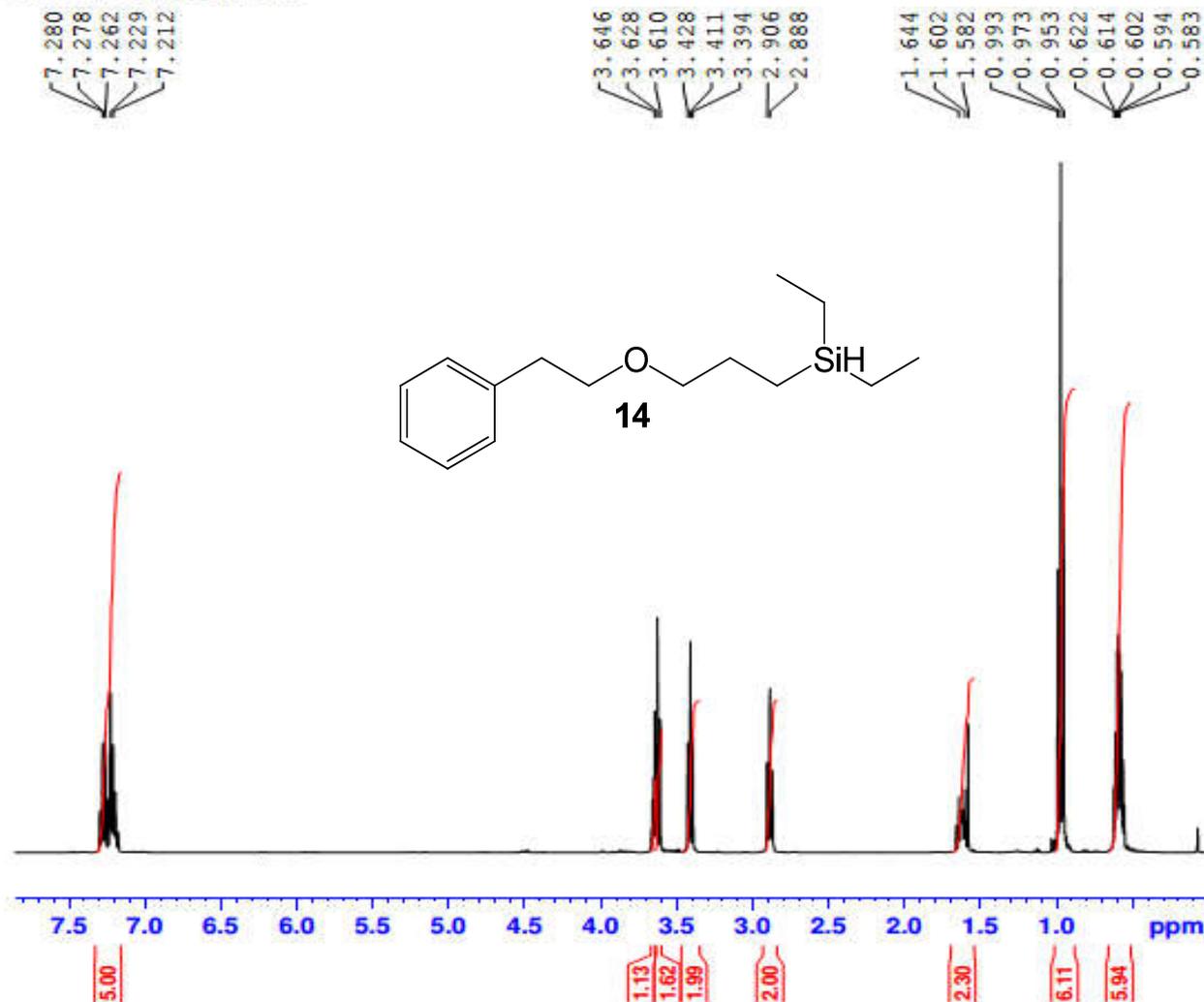
F2 - Processing parameters
SI         32768
SF         100.6127685 MHz
WDW        EM
SFR        0
GB         1.00 Hz
PC         1.40
    
```

Diethoxy(methyl)(3-phenoxypropyl)silane (**13**) – HR-ESIMS [M+Na]⁺ Calculated 291.1387; Observed 291.1391.



Diethyl(3-phenethoxypropyl)silane (**14**) – $^1\text{H-NMR}$ (CDCl_3 , 400 MHz)

BSR-37-TEOS_PROTON



Current Data Parameters
 NAME BSR-37
 EXPNO 4
 PROCNO 1

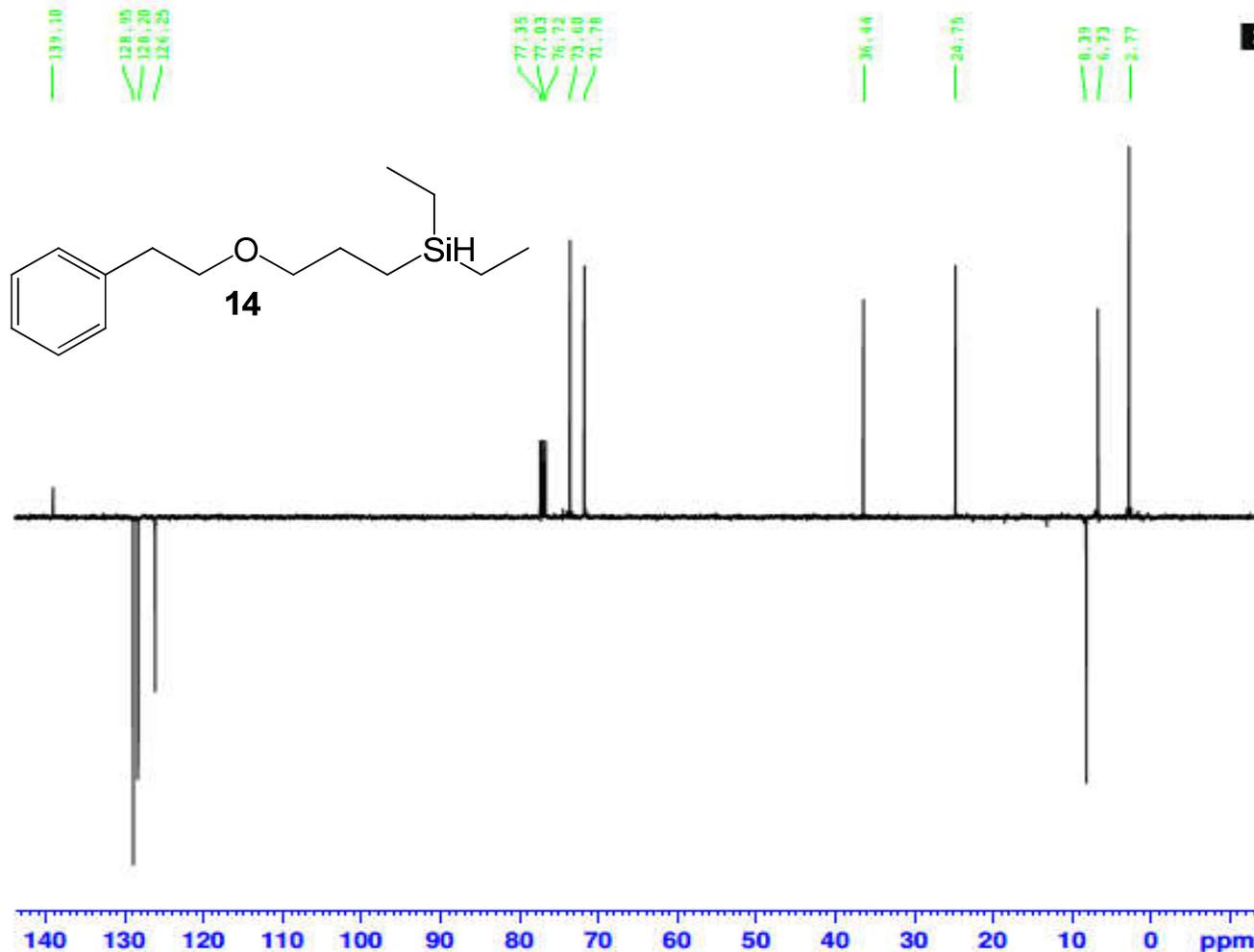
F2 - Acquisition Parameters
 Date_ 20170803
 Time 9.49
 INSTRUM spect
 PROBHD 5 mm PABBO BB/
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 16
 DS 2
 SWH 8012.820 Hz
 FIDRES 0.122266 Hz
 AQ 4.0894465 sec
 RG 56.91
 DW 62.400 usec
 DE 6.50 usec
 TE 300.1 K
 D1 1.00000000 sec
 TD0 1

===== CHANNEL f1 =====
 SFO1 400.1324710 MHz
 NUC1 1H
 P1 13.74 usec
 PLW1 12.00000000 W

F2 - Processing parameters
 SI 65536
 SF 400.1300155 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

Diethyl(3-phenethoxypropyl)silane (**14**) – ^{13}C -NMR (CDCl_3 , 100 MHz)

BSR-37-TEOS_CARBON



```

Current Data Parameters
NAME      BSR-37
EXPNO     5
PROCNO    1

F2 - Acquisition Parameters
Data_     20170803
Time      10.12
INSTRUM   spect
PROBHD    5 mm PABBO 25f
PULPROG   deptqqcp.1
TD         65536
SOLVENT   CDCl3
NS        256
DS         8
SFR        24038.461 Hz
FIDRES     0.266798 Hz
AQ         1.3631488 sec
RG         206.83
DN         20.800 usec
DE         6.50 usec
TE         300.0 K
CMT2      145.000000
CMT13     1.5000000
D1         2.0000000 sec
D2         0.00344828 sec
D12        0.0000000 sec
D16        0.0001000 sec
D28        0 sec
TD0        1

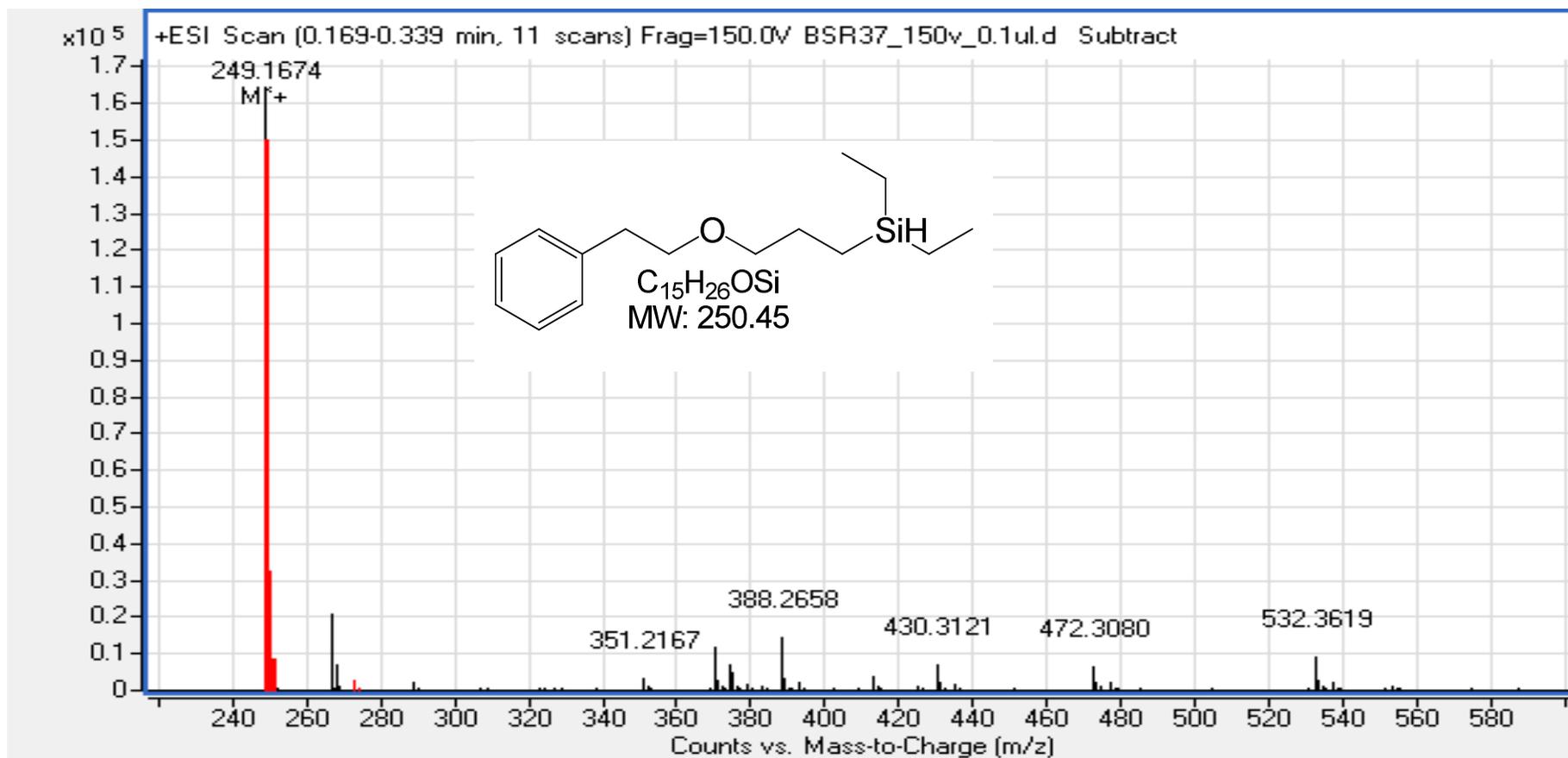
----- CHANNEL f1 -----
SFO1      100.6228293 MHz
NUC1       13C
P1         10.00 usec
PL1        0 W
PLM1       55.00000000 W
SFOALS5    Crp40comp.4
SFOALS5    0.500
SFOFF51    0 Hz
SFF5       8.40340042 W

----- CHANNEL f2 -----
SFO2      400.1314005 MHz
NUC2       1H
CPOPRG[2]  waix16
PQ         20.61 usec
P3         13.74 usec
P4         27.48 usec
PCPD2      80.00 usec
PLM2       12.00000000 W
PLM12      0.25298000 W
PLM13      0.23655000 W

----- GRADIENT CHANNEL -----
GPNAM[1]   SMSG10.100
GPNAM[2]   SMSG10.100
GPNAM[3]   SMSG10.100
GP11       31.00 %
GP12       31.00 %
GP13       31.00 %
P16        1000.00 usec

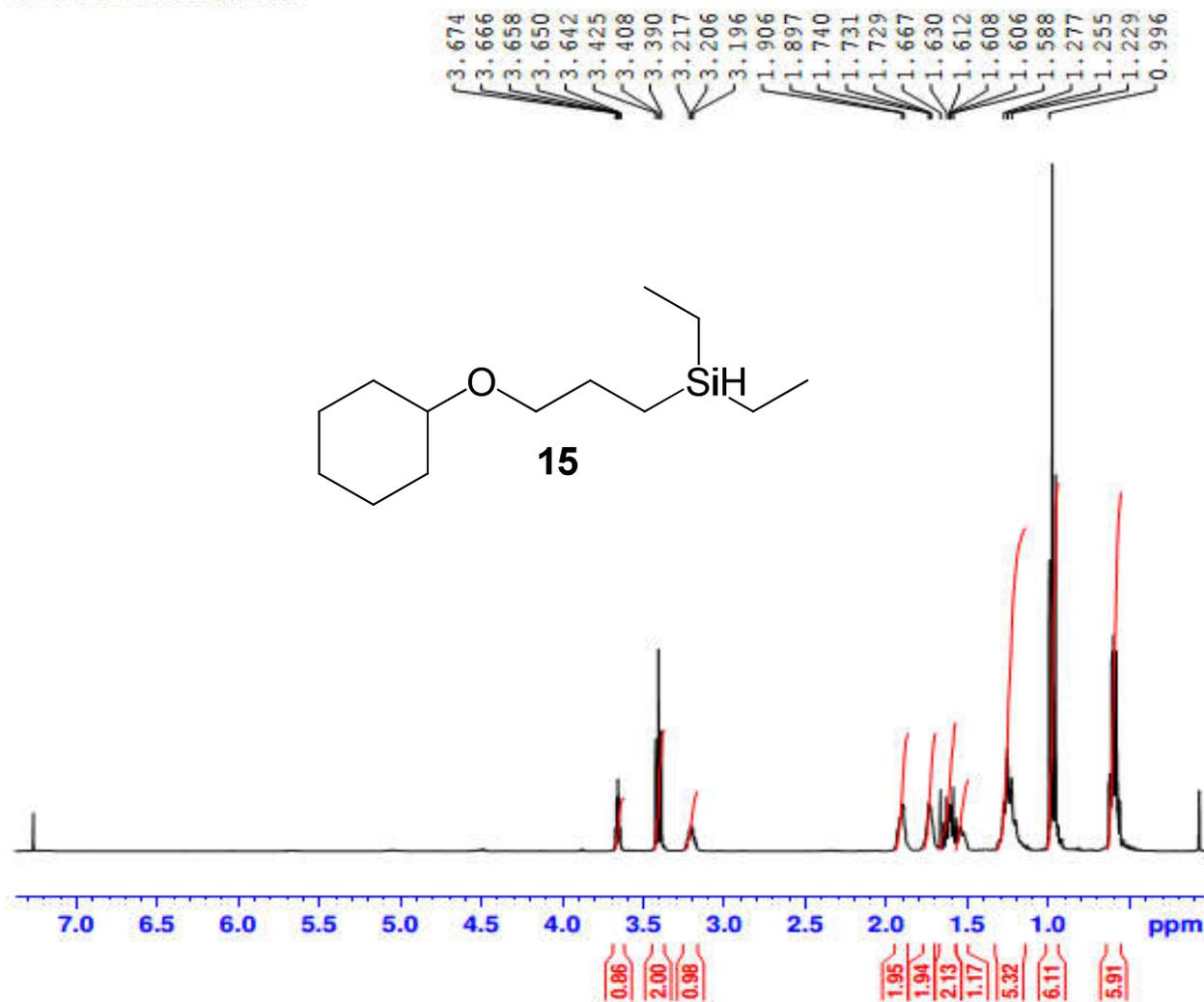
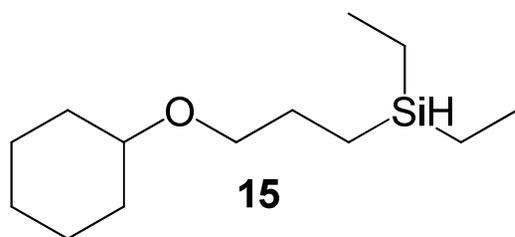
F2 - Processing parameters
SI         32768
SF         100.6227685 MHz
SOLV       DM
SSR        0
LR         1.00 Hz
GR         0
VC         1.40
    
```

Diethyl(3-phenethoxypropyl)silane (**14**) – HR-ESIMS ($[M-H]^+$ Calculated 249.1675; Observed 249.1674).



[3-(Cyclohexyloxy)propyl]diethylsilane (**15**) – ¹H-NMR (CDCl₃, 400 MHz)

BSR-43_TEOS_PROTON



Current Data Parameters
 NAME BSR-43
 EXPNO 1
 PROCNO 1

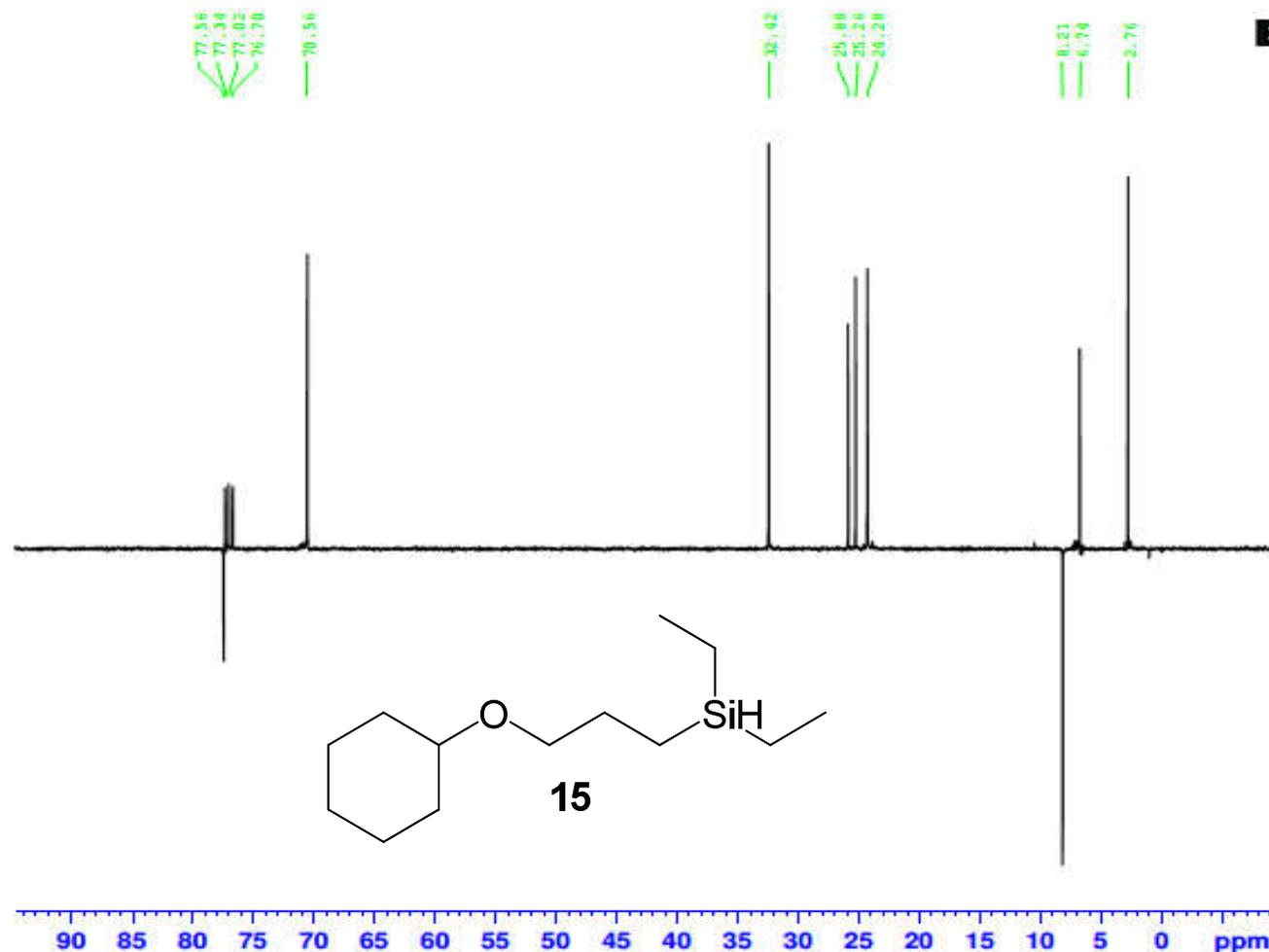
F2 - Acquisition Parameters
 Date_ 20170907
 Time 11.06
 INSTRUM spect
 PROBHD 5 mm PABBO BB/
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 16
 DS 2
 SWH 8012.820 Hz
 FIDRES 0.122266 Hz
 AQ 4.0894465 sec
 RG 32.86
 DW 62.400 usec
 DE 6.50 usec
 TE 300.1 K
 D1 1.00000000 sec
 TD0 1

===== CHANNEL f1 =====
 SFO1 400.1324710 MHz
 NUC1 1H
 P1 13.74 usec
 PLW1 12.00000000 W

F2 - Processing parameters
 SI 65536
 SF 400.1300072 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

[3-(Cyclohexyloxy)propyl]diethylsilane (**15**)– ¹³C-NMR (CDCl₃, 100 MHz)

BSR-43_TEOS_CARBON



```

Current Data Parameters
NAME      BSR-43
EXPNO    2
PROCNO   1

F2 - Acquisition Parameters
Date_    20170907
Time     11.40
INSTRUM  spect
PROBHD   5 mm PABBO 50/
PULPROG  deptqqcp.2
TD       65536
SOLVENT  CDCl3
NS       256
DS       8
SWH      24038.461 Hz
FIDRES   0.266798 Hz
AQ       1.3631488 sec
RG       206.83
DN       20.800 usec
DC       6.50 usec
TE       300.0 K
CNS12    145.000000
CNS112   1.500000
D1       2.0000000 sec
D2       0.20244828 sec
D12      0.00002000 sec
D16      0.00020000 sec
D28      0 sec
TD0      1

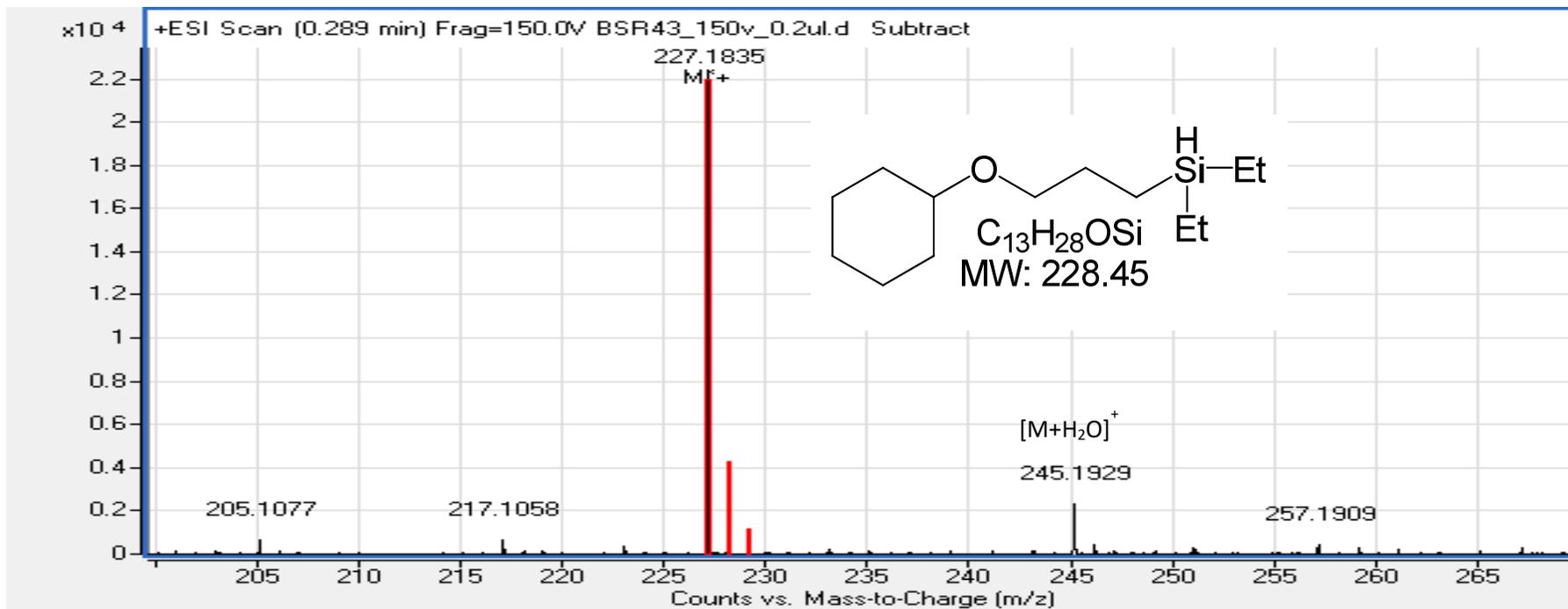
===== CHANNEL f1 =====
SFO1    100.6228293 MHz
NUC1     13C
P1       10.00 usec
P13      2000.00 usec
PL10     0 W
PL11     55.0000000 W
SFO1[5]  Cyp60comp.4
SFO1[5]  0.500
SFO1[5]  0 Hz
SFO1[5]  8.40340642 W

===== CHANNEL f2 =====
SFO2    400.1314005 MHz
NUC2     1H
CPDPRG2  waltz16
P2       20.61 usec
P3       13.74 usec
P4       27.48 usec
PCPD2    40.00 usec
PL12     11.0000000 W
PL11[2]  0.35398000 W
PL11[3]  0.22455000 W

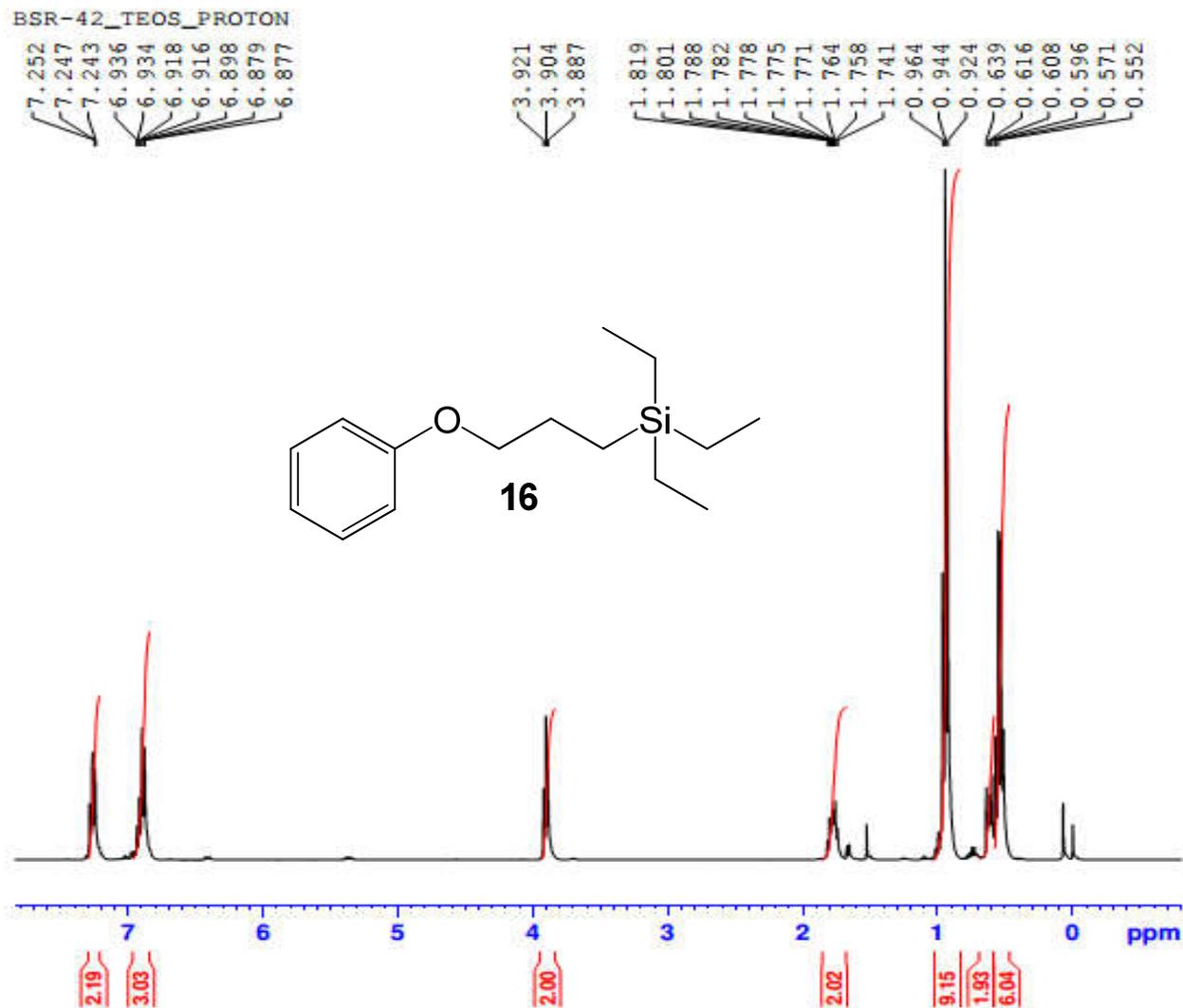
===== GRADIENT CHANNEL =====
GPHAM[1] SMSQ10.100
GPHAM[2] SMSQ10.100
GPHAM[3] SMSQ10.100
GP21     31.00 %
GP22     31.00 %
GP23     31.00 %
P16      1000.00 usec

F2 - Processing parameters
SI       32768
SF       100.6127685 MHz
WDW      EM
SSB      0
LB       1.00 Hz
GB       0
PC       1.40
    
```

[3-(Cyclohexyloxy)propyl]diethylsilane (**15**) – HR-ESIMS [M-H]⁺ Calculated 227.1831; Observed 227.1835.



Triethyl(3-phenoxypropyl)silane (**16**) – ¹H-NMR (CDCl₃, 400 MHz)



Current Data Parameters
 NAME BSR-42
 EXPNO 1
 PROCNO 1

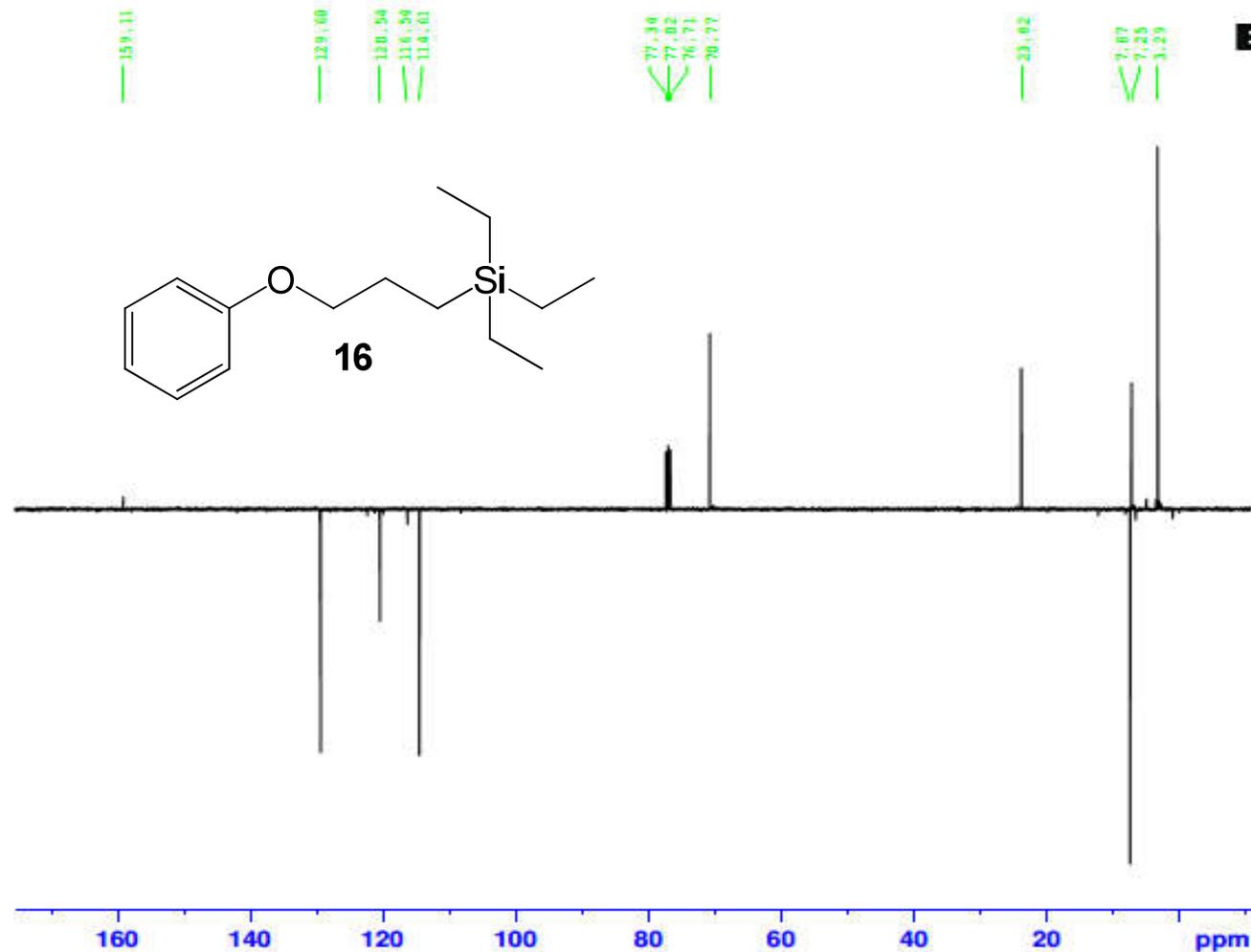
F2 - Acquisition Parameters
 Date_ 20170905
 Time 11.13
 INSTRUM spect
 PROBHD 5 mm PABBO BB/
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 16
 DS 2
 SWH 8012.820 Hz
 FIDRES 0.122266 Hz
 AQ 4.0894465 sec
 RG 65.89
 DW 62.400 usec
 DE 6.50 usec
 TE 300.0 K
 D1 1.00000000 sec
 TDO 1

===== CHANNEL f1 =====
 SFO1 400.1324710 MHz
 NUC1 1H
 P1 13.74 usec
 PLW1 12.00000000 W

F2 - Processing parameters
 SI 65536
 SF 400.1300168 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

Triethyl(3-phenoxypropyl)silane (**16**) – ¹³C-NMR (CDCl₃, 100 MHz)

BSR-42_TEOS_CARBON



```

Current Data Parameters
NAME      BSR-42
EXPNO    2
PROCNO    1

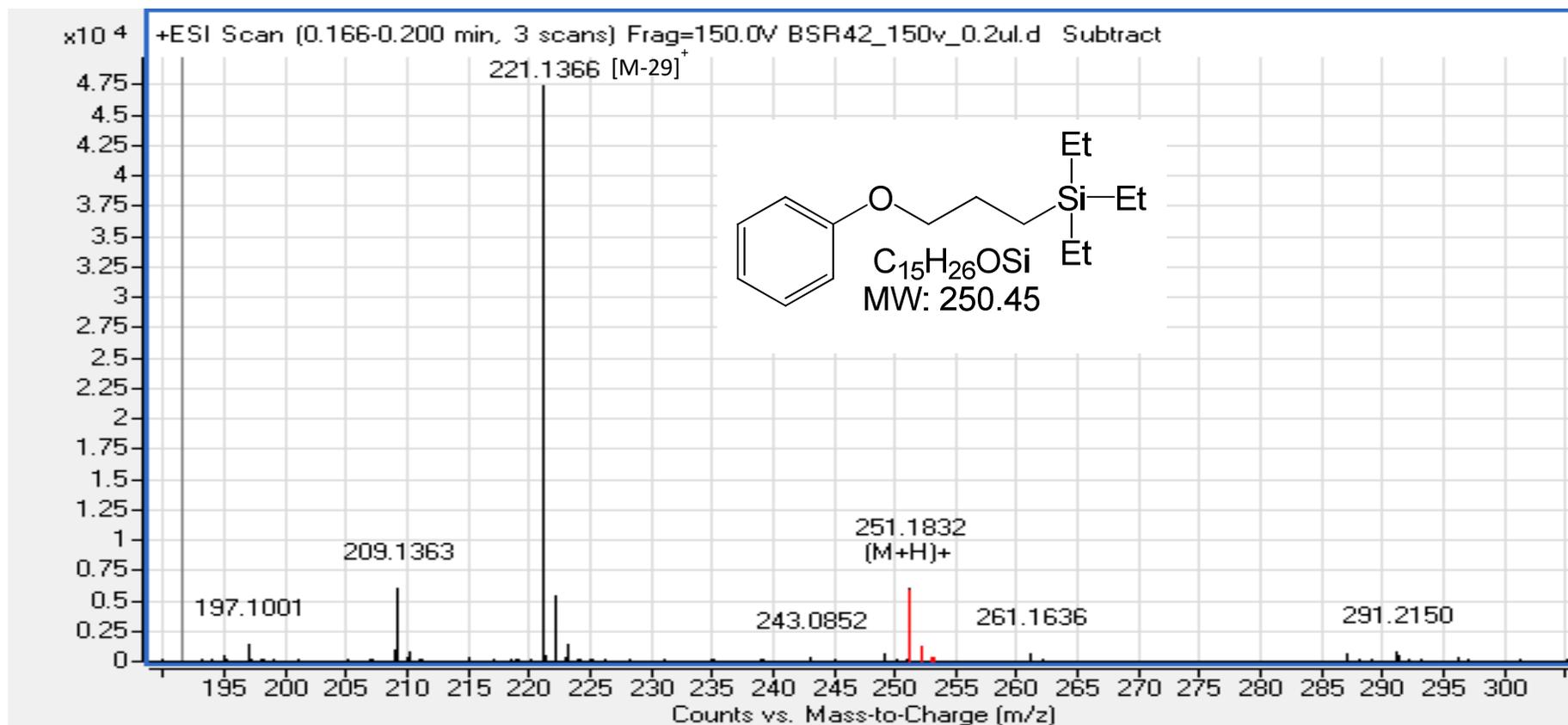
F2 - Acquisition Parameters
Date_     20170905
Time      11.36
INSTRUM   spect
PROBHD    5 mm PABBO SP/
PULPROG   zgpg30
TD         65536
SOLVENT   CDCl3
NS         256
DS         8
SWH        24038.441 Hz
FIDRES     0.364798 Hz
AQ         1.3431488 sec
RG         306.83
RW         20.800 usec
DE         6.50 usec
TE         300.0 K
CNST1     145.000000
CNST2     1.500000
D1         2.0000000 sec
D2         0.00344828 sec
D12        0.0000000 sec
D16        0.0000000 sec
D29        0 sec
TD0        1

----- CHANNEL f1 -----
SFO1      100.6228293 MHz
NUC1       13C
P1         10.00 usec
PL1        0 W
SFO2      400.1316005 MHz
CPDPRG2   mltz16
P2         20.41 usec
PL2        13.74 usec
P3         27.48 usec
PL3        80.00 usec
PLM1      35.0000000 W
PLM2      0.35298000 W
PLM3      0.22655000 W

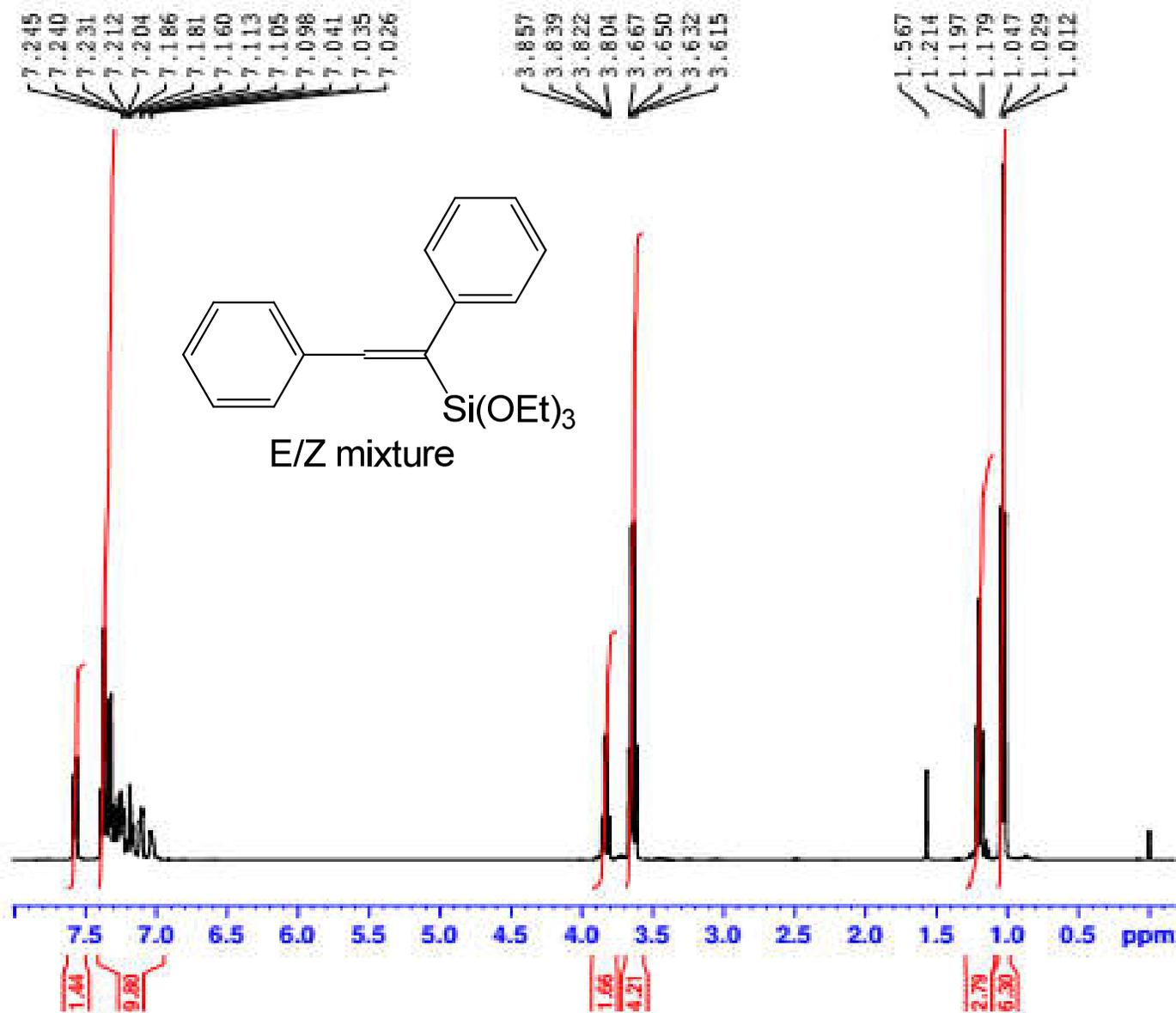
----- GRADIENT CHANNEL -----
GPNAM[1]  SMSG10.100
GPNAM[2]  SMSG10.100
GPNAM[3]  SMSG10.100
GP11      31.00 %
GP12      31.00 %
GP13      31.00 %
P16       1000.00 usec

F2 - Processing parameters
SI         31768
SF         100.6127685 MHz
WDW        EM
SSB        0
LR         1.00 Hz
GB         0
PC         1.40
    
```

Triethyl(3-phenoxypropyl)silane (**16**) – HR-ESIMS [M+H]⁺ Calculated 251.1826; Observed 251.1832.



(E/Z)-(1,2-diphenylvinyl)triethoxysilane (**17**) – ¹H-NMR (CDCl₃, 400 MHz)



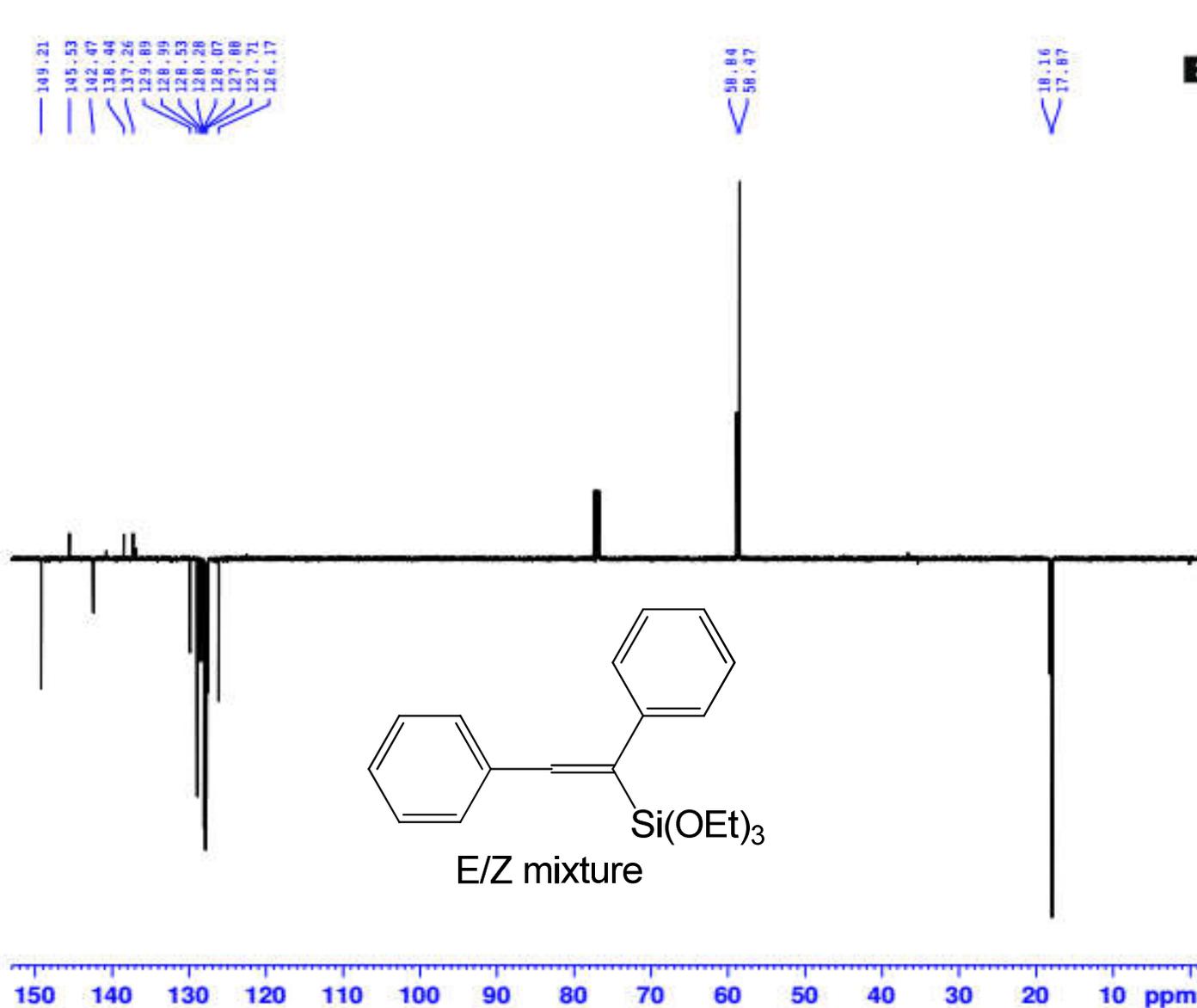
Current Data Parameters
 NAME BERY-1
 EXPNO 1
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20180714
 Time 8.35
 INSTRUM spect
 PROBNM 5 mm PABBO BB/
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 16
 DS 2
 SWH 8012.820 Hz
 FIDRES 0.122266 Hz
 AQ 4.0894465 sec
 RG 56.91
 DW 62.400 usec
 DE 6.50 usec
 TE 300.0 K
 D1 1.0000000 sec
 TD0 1

----- CHANNEL F1 -----
 SFO1 400.1324710 MHz
 SUC1 1H
 P1 13.74 usec
 PLW1 12.0000000 W

F2 - Processing parameters
 SI 65536
 SF 400.1300176 MHz
 MDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

(E/Z)-(1,2-diphenylvinyl)triethoxysilane (**17**) – ¹³C-NMR (CDCl₃, 100 MHz)



```

Current Data Parameters
NAME      BSKY-1
EXPNO     3
PROCNO    1

F2 - Acquisition Parameters
Date_     20160714
Time      9.05
INSTRUM   spect
PROBHD    5 mm F400 QNP/
PULPROG   zgpg30
TD         65536
SOLVENT   CDCl3
NS         256
DS         4
SWH        24038.461 Hz
FIDRES     0.366798 Hz
AQ         1.3621488 sec
RG         206.83
CW         20.800 usec
DE         4.50 usec
TE         300.0 K
CONST1    145.000000
CONST2    1.500000
D1         2.0000000 sec
D2         0.00344828 sec
D12        0.00001000 sec
D16        0.00000000 sec
D18        0 sec
TD0        1

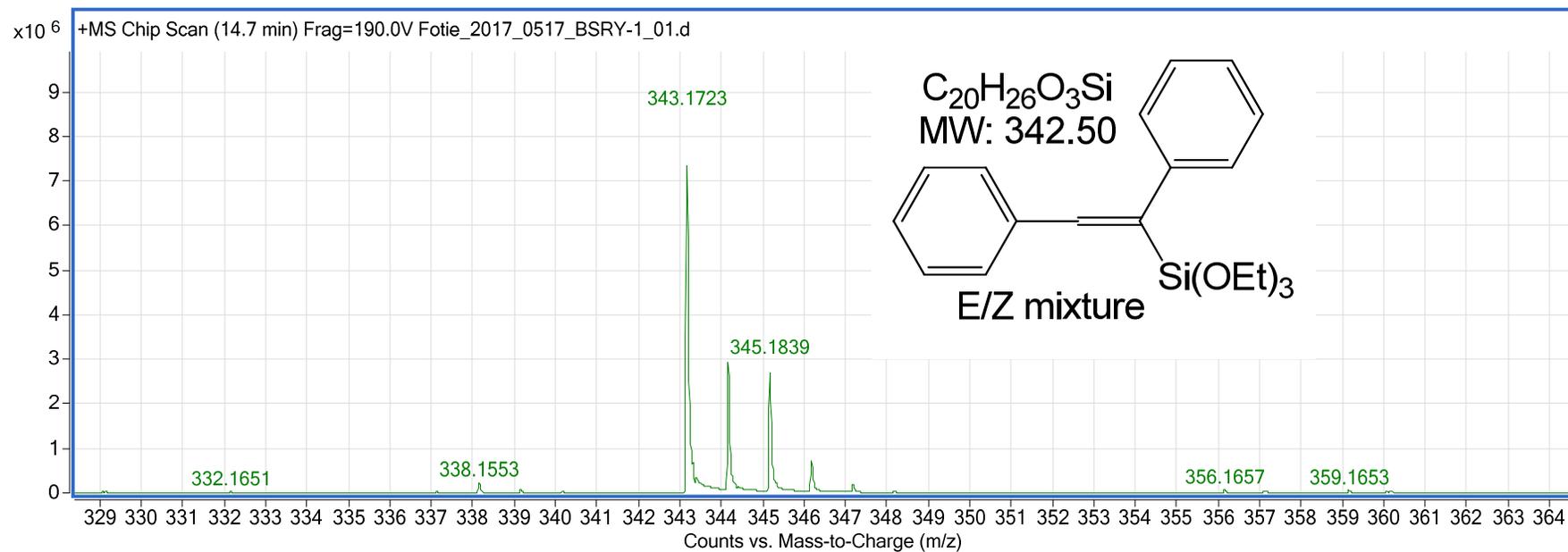
===== CHANNEL f1 =====
SFO1      100.6228293 MHz
NUC1       13C
P1         10.00 usec
PL1        0 W
PLW1       35.0000000 W
SFOALS[5] 0.500
SFOFFS5    0 Hz
SFOFFS     8.40340042 W

===== CHANNEL f2 =====
SFO2      400.1316005 MHz
NUC2       1H
CPOPRG[2] waltz16
P2         20.41 usec
P3         13.74 usec
P4         27.48 usec
PCPD2     80.00 usec
PLW2       12.0000000 W
PLW12     0.35398000 W
PLW13     0.22455000 W

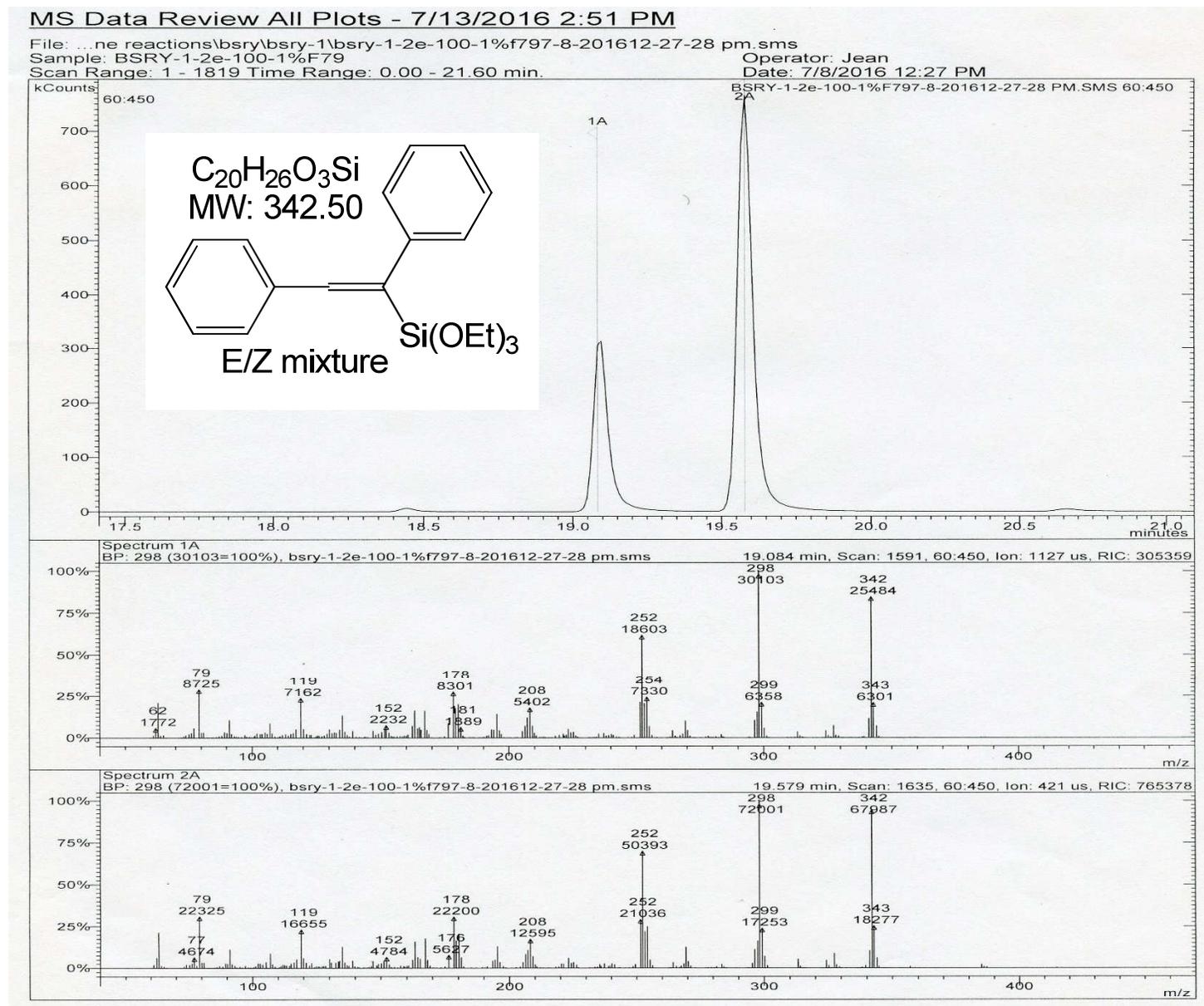
===== GRADIENT CHANNEL =====
GPNAM[1]   SMSQ10.100
GPNAM[2]   SMSQ10.100
GPNAM[3]   SMSQ10.100
GP21       31.00 %
GP22       31.00 %
GP23       31.00 %
P14        1000.00 usec

F2 - Processing parameters
SI         32768
SF         100.6127702 MHz
WDW        EM
SSB        0
LB         1.00 Hz
GB         0
PC         1.40
    
```

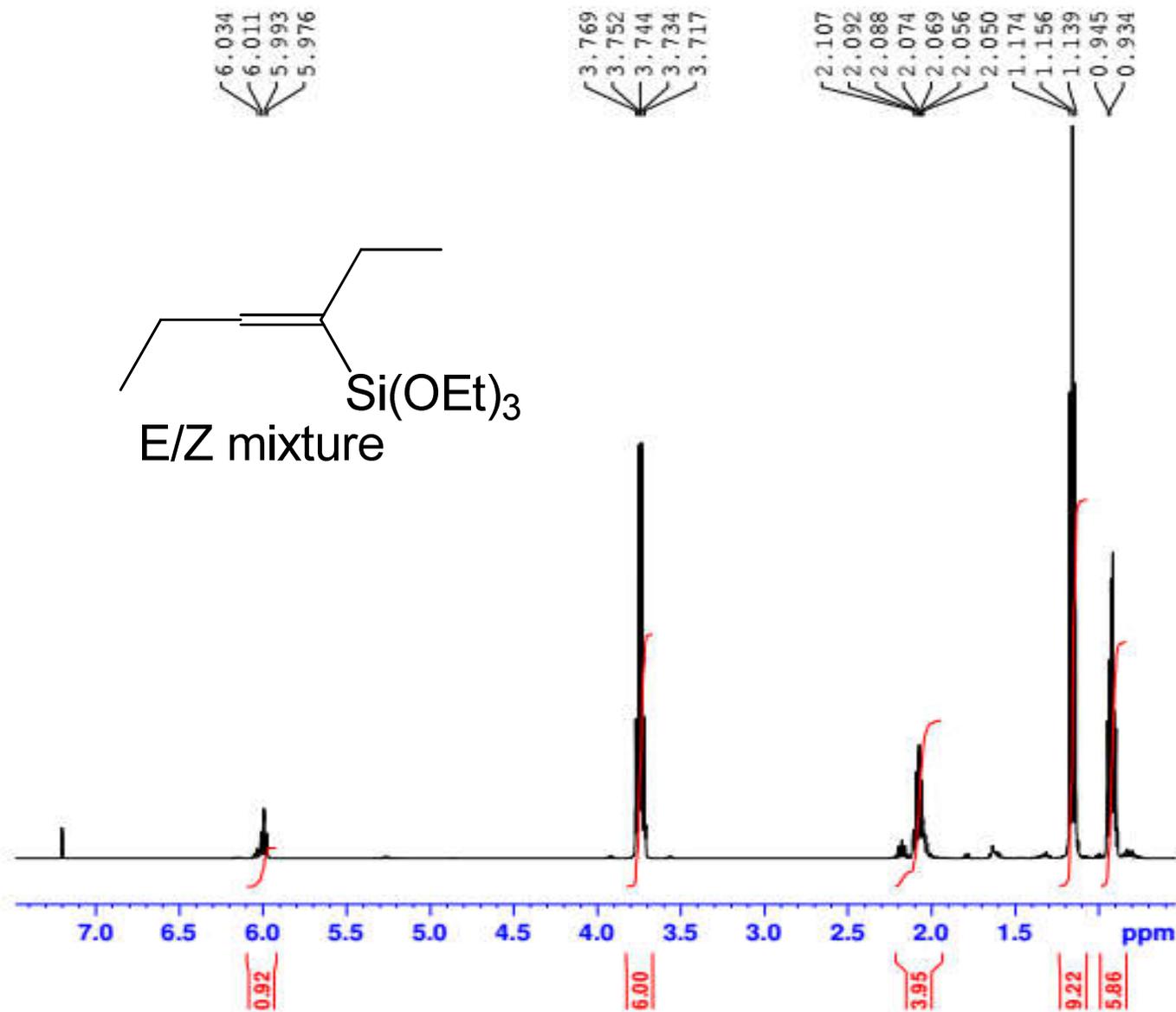
(E/Z)-(1,2-diphenylvinyl)triethoxysilane (**17**) – HR-ESIMS [M+H]⁺ Calculated 343.1724; Observed 343.1723.



(E/Z)-(1,2-diphenylvinyl)triethoxysilane (17) – GC-MS (showing the mixture of E/Z isomers)



(E/Z)-triethoxy(hex-3-en-3-yl)silane (**18**) – ¹H-NMR (CDCl₃, 400 MHz)



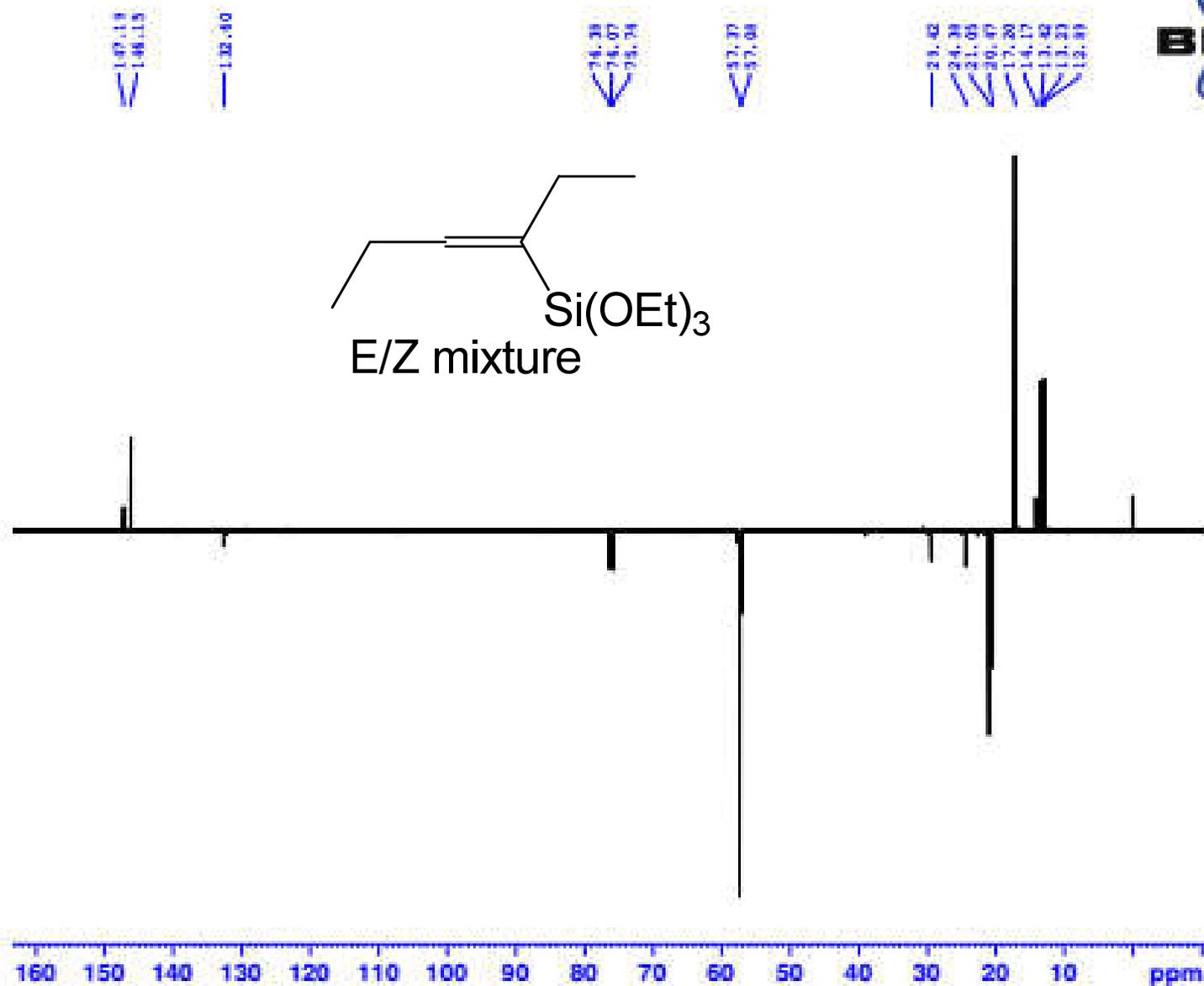
Current Data Parameters
 NAME BSRV-5
 EXPNO 1
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20161012
 Time 13.02
 INSTRUM spect
 PROBHD 5 mm PABBO BB/
 PULPROG zg30
 ID 65536
 SOLVENT CDCl3
 NS 16
 DS 2
 SWH 8012.820 Hz
 FIDRES 0.122266 Hz
 AQ 4.089465 sec
 RG 32.86
 DW 62.400 usec
 DE 6.50 usec
 TE 300.0 K
 D1 1.00000000 sec
 TD0 1

===== CHANNEL f1 =====
 SFO1 400.1324710 MHz
 NUC1 1H
 P1 13.74 usec
 PLW1 12.00000000 W

F2 - Processing parameters
 SI 65536
 SF 400.1300331 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

(E/Z)-triethoxy(hex-3-en-3-yl)silane (**18**)– ¹³C-NMR (CDCl₃, 100 MHz)



```

Current Data Parameters
NAME      18181-8
EXPNO    2
PROCNO   1

F2 - Acquisition Parameters
Date_    20080213
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INSTRUM  spect
PROBHD   5 mm PABBO 901
PULPROG  zgpg30p1
TD       65536
SOLVENT  CDCl3
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RG       8
SM       32768.000 Hz
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AQ       0.165104 s
RG       204.83
DE       20.800 cm/s
TE       300.2 K
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CH2F2    0.0000000
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DD       0.000000000
EE       0.000000000
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GD       0.000000000
GE       0.000000000
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GN       0.000000000
GP       0.000000000
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GR       0.000000000
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GW       0.000000000
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GZ       0.000000000
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HJ       0.000000000
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JV       0.000000000
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KD       0.000000000
KE       0.000000000
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KG       0.000000000
KH       0.000000000
KI       0.000000000
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KK       0.000000000
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MJ       0.000000000
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XH       0.000000000
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XS       0.000000000
XT       0.000000000
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YT       0.000000000
YU       0.000000000
YV       0.000000000
YW       0.000000000
YX       0.000000000
YY       0.000000000
YZ       0.000000000
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ZB       0.000000000
ZC       0.000000000
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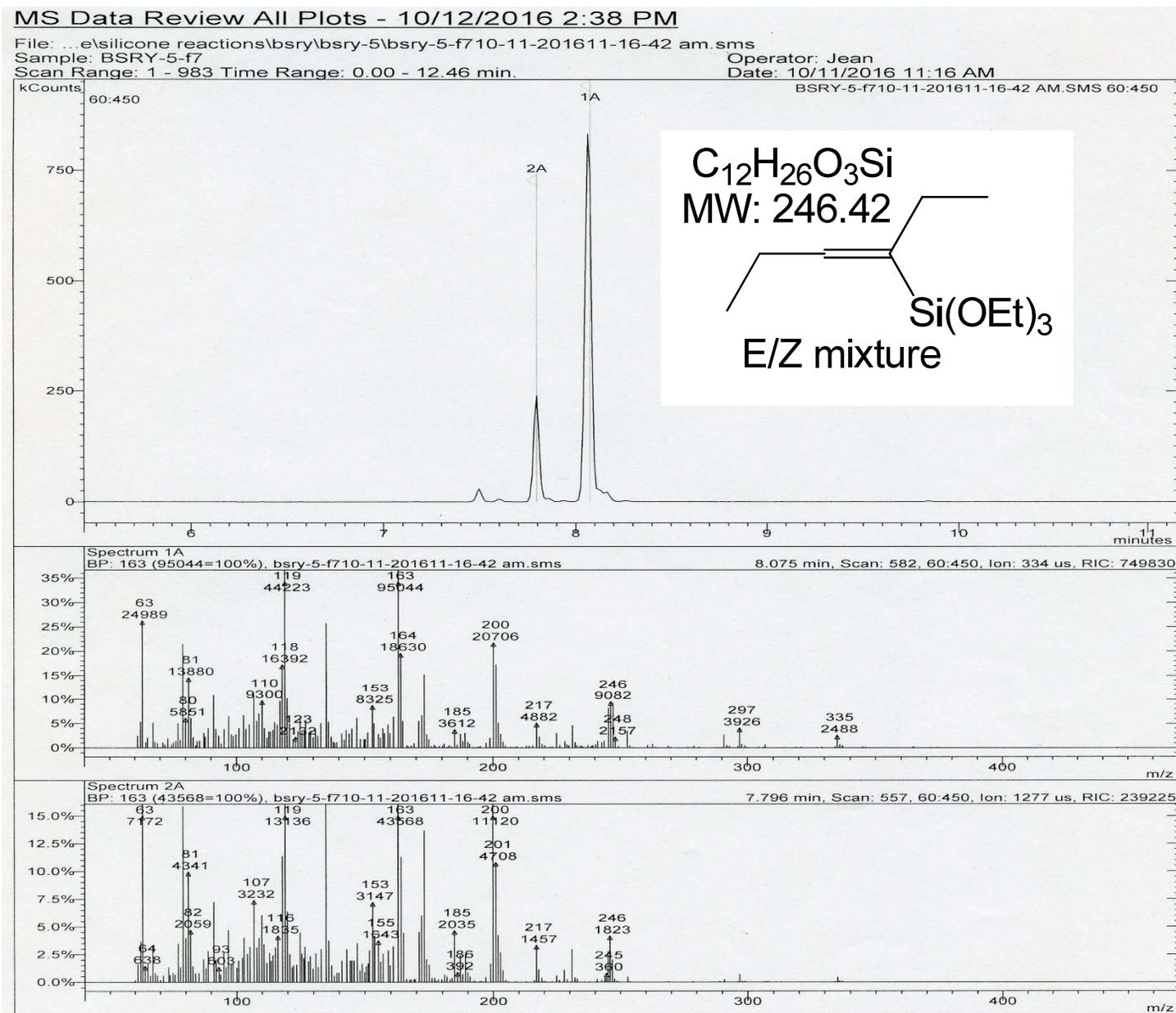
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NUC1    13C
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PC1     1000.00
PL1     0.00
PR1     0.00
RG1     32768.000
SFO1    125.7611500
===== CHANNEL f2 =====
NUC2    13C
P2      20.45
PC2     1000.00
PL2     0.00
PR2     0.00
RG2     32768.000
SFO2    125.7611500
===== CHANNEL f3 =====
NUC3    13C
P3      27.18
PC3     1000.00
PL3     0.00
PR3     0.00
RG3     32768.000
SFO3    125.7611500

===== CHANNEL f4 =====
NUC4    13C
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PC4     1000.00
PL4     0.00
PR4     0.00
RG4     32768.000
SFO4    125.7611500

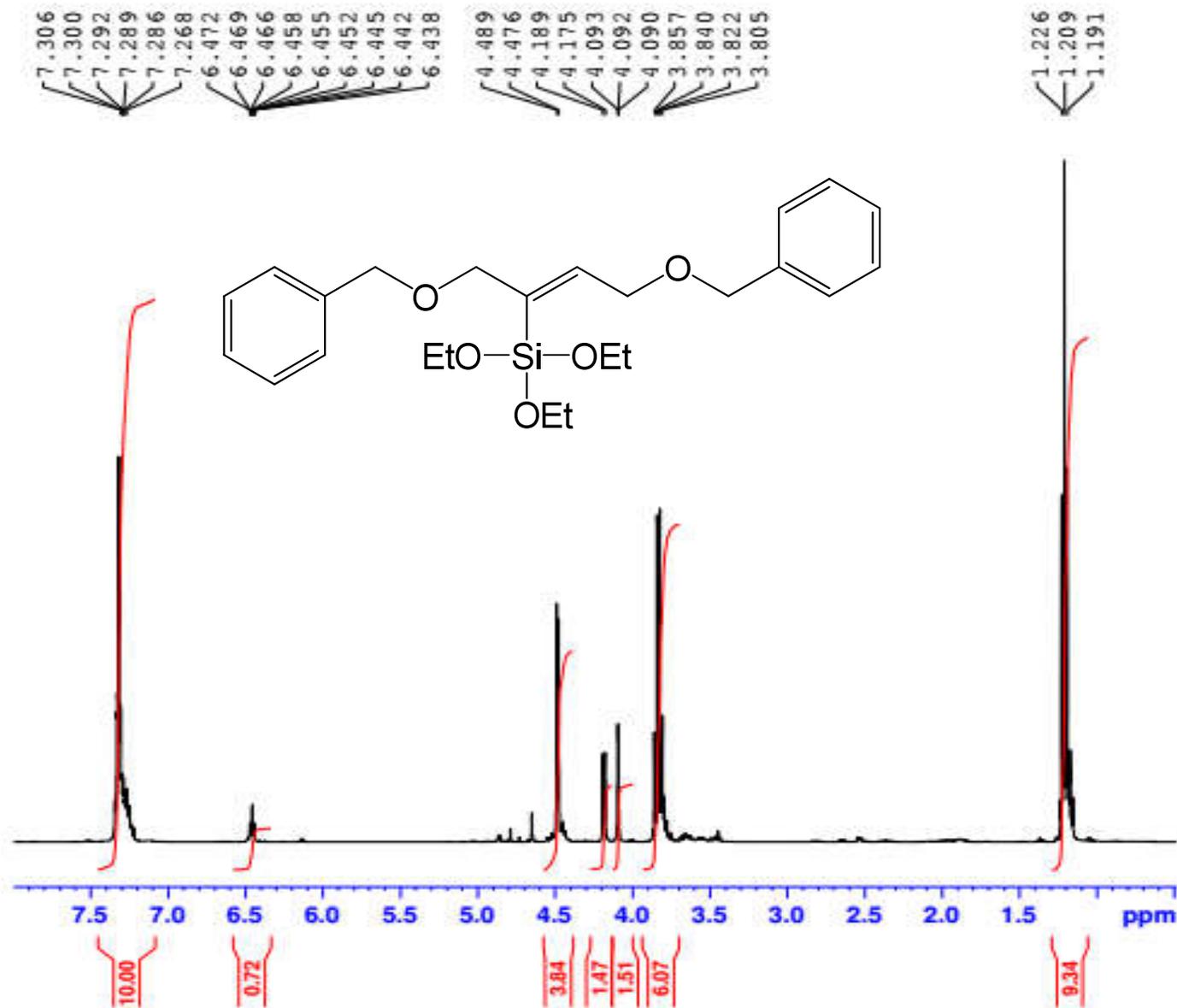
F2 - Processing parameters
SI      32768
SF      100.6261250 MHz
WDW     EM
SSB     0
LB      1.00 Hz
GB      0
PC      1.00
FC      1.00

```

(E/Z)-triethoxy(hex-3-en-3-yl)silane (**18**)– GC-MS (showing the mixture of isomers)



(Z)-(1,4-bis(benzyloxy)but-2-en-2-yl)triethoxysilane (**19**) – ¹H-NMR (CDCl₃, 400 MHz)



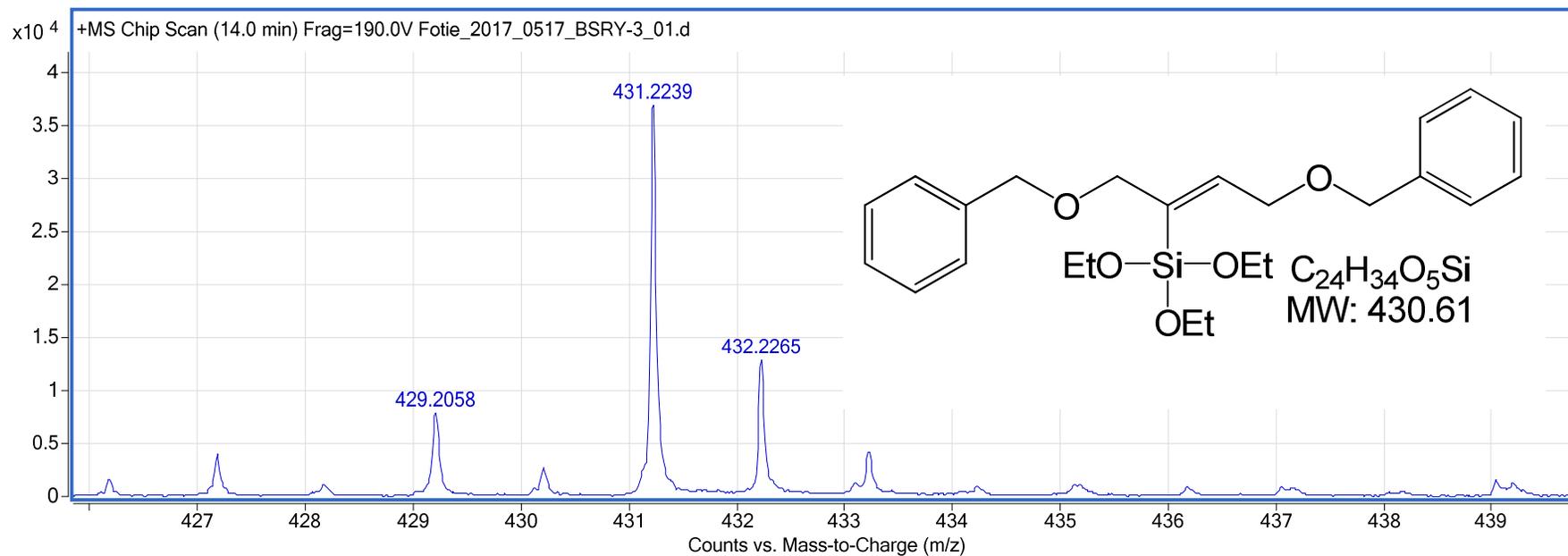
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 PROCNO 1

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 INSTRUM spect
 PROBHD 5 mm PABBO BB/
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 16
 DS 2
 SWH 8012.820 Hz
 FIDRES 0.122266 Hz
 AQ 4.0894465 sec
 RG 22.08
 DW 62.400 usec
 DE 6.50 usec
 TE 300.0 K
 D1 1.00000000 sec
 TDO 1

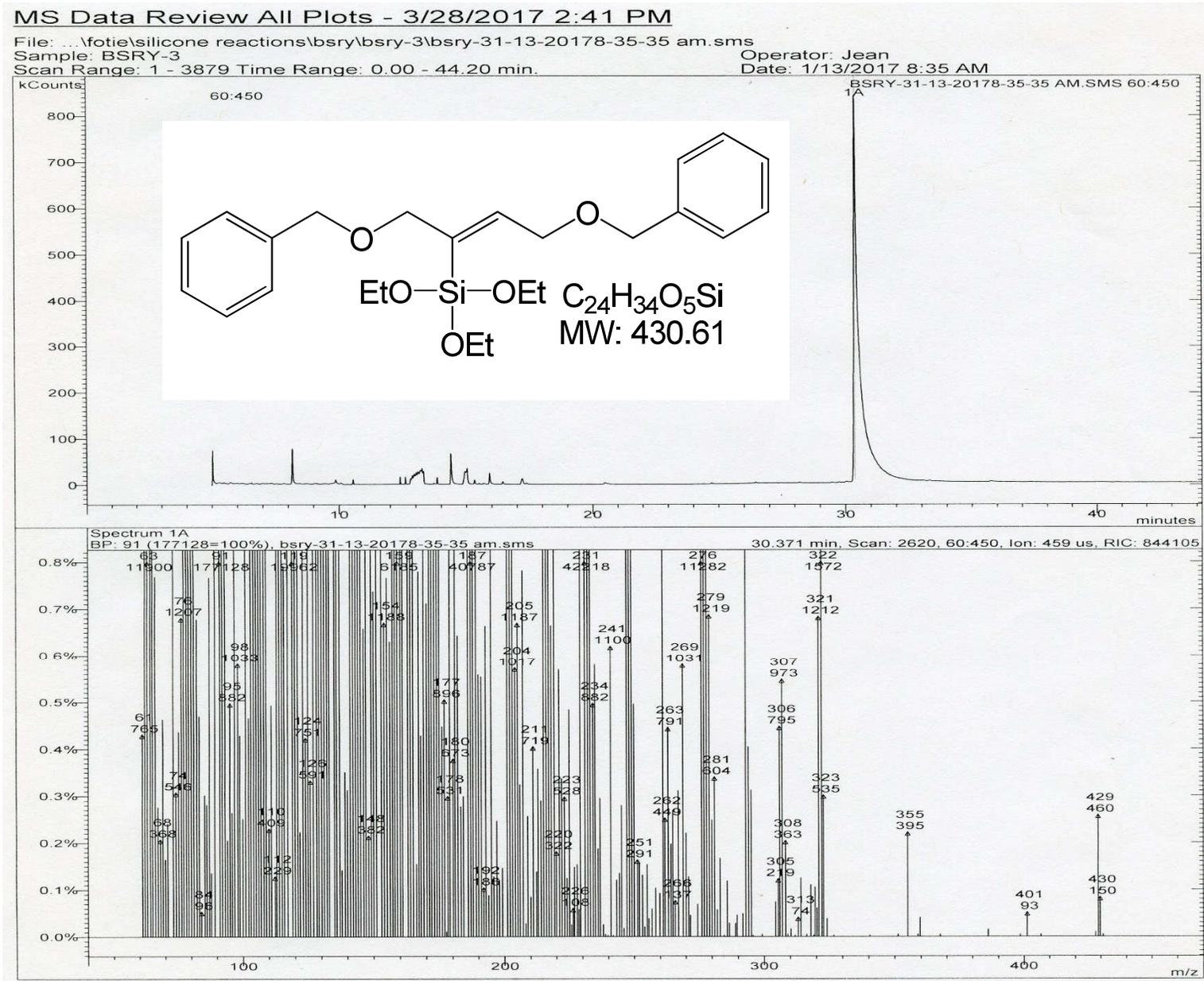
----- CHANNEL f1 -----
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 NUC1 1H
 P1 13.74 usec
 PLW1 12.00000000 W

F2 - Processing parameters
 SI 65536
 SF 400.1300245 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

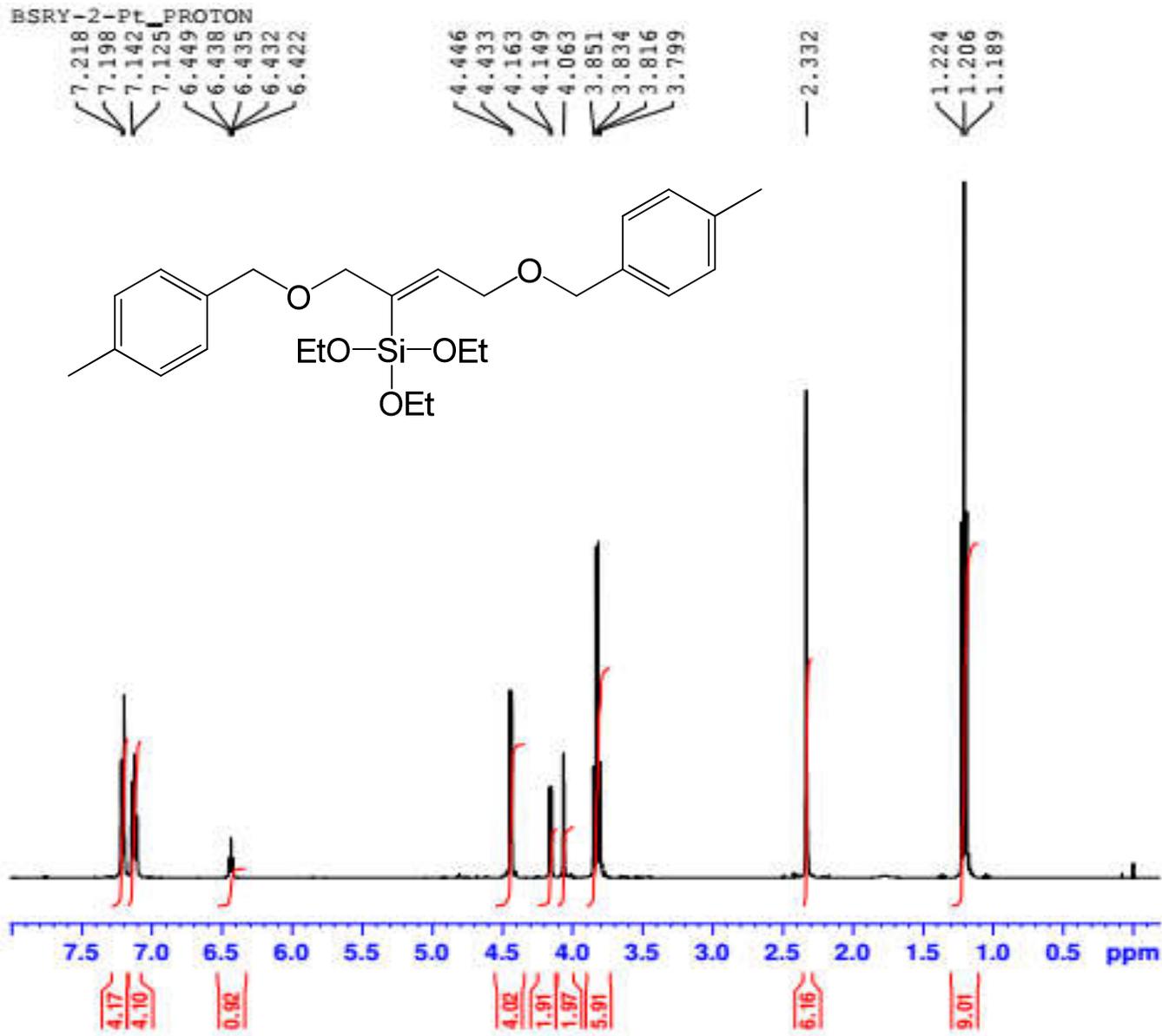
(Z)-(1,4-bis(benzyloxy)but-2-en-2-yl)triethoxysilane (**19**) – HR-ESIMS [M+H]⁺ Calculated 431.2248; Observed 431.2239.



(Z)-(1,4-bis(benzyloxy)but-2-en-2-yl)triethoxysilane (19) – GC-MS (showing a single product)



(Z)-(1,4-bis(4-methylbenzyloxy)but-2-en-2-yl)triethoxysilane (**20**) – ¹H-NMR (CDCl₃, 400 MHz)



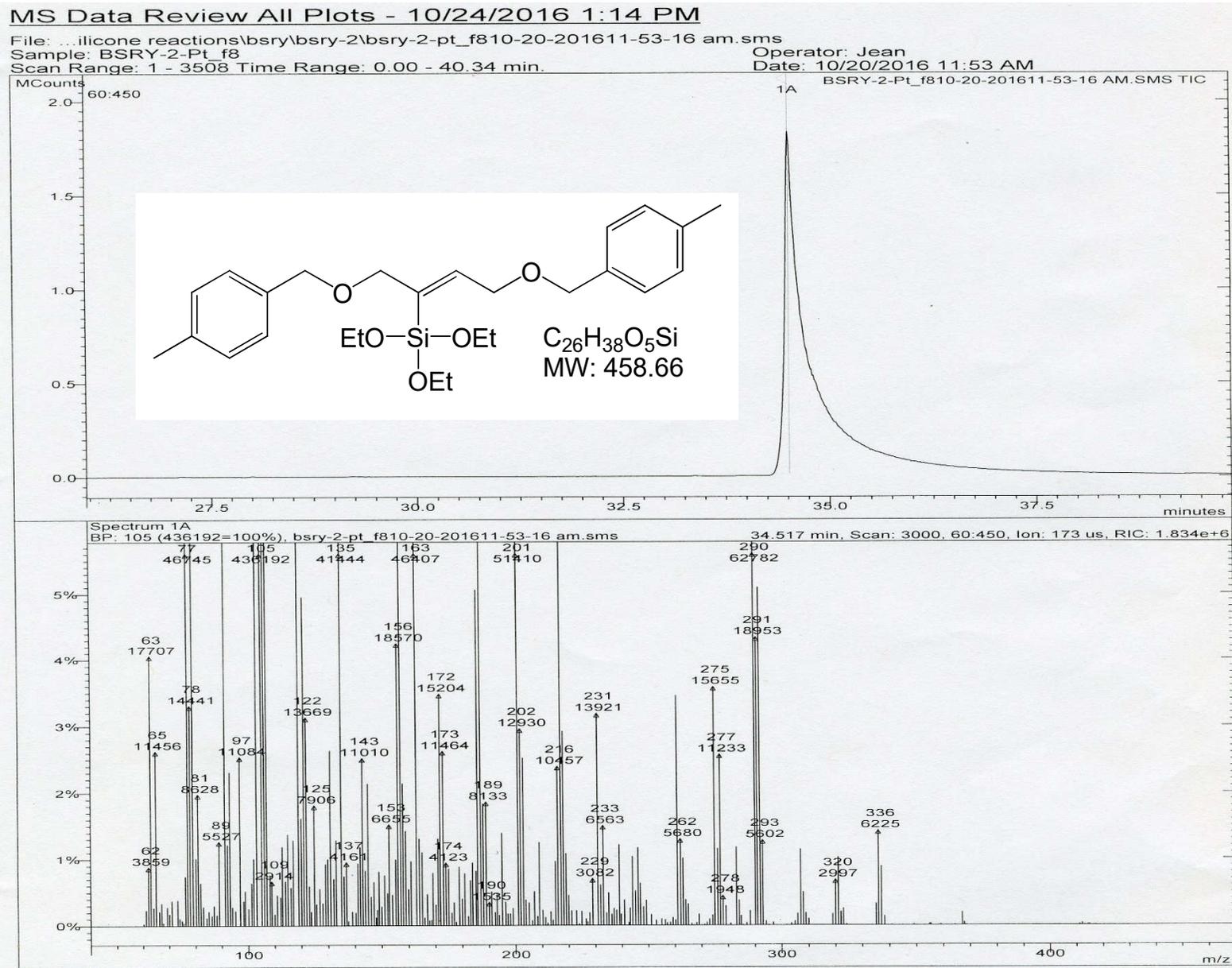
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 PROCNO 1

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 Time 11.34
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 PROBHD 5 mm PABBO BB/
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 16
 DS 2
 SWH 8012.820 Hz
 FIDRES 0.122266 Hz
 AQ 4.0894465 sec
 RG 32.86
 DW 62.400 usec
 DE 6.50 usec
 TE 300.0 K
 D1 1.00000000 sec
 TD0 1

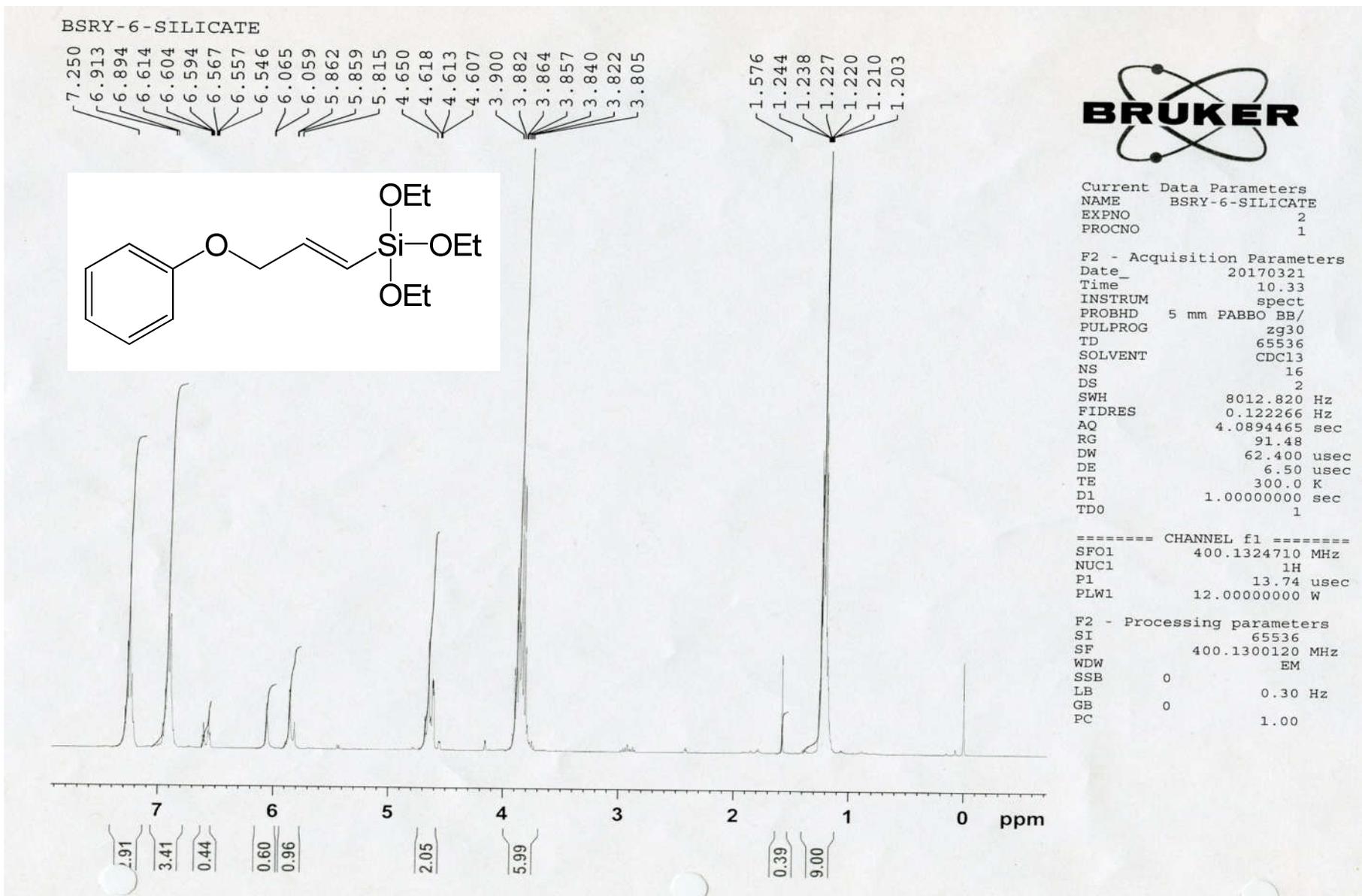
----- CHANNEL f1 -----
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 NUC1 1H
 P1 13.74 usec
 PLW1 12.00000000 W

F2 - Processing parameters
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 SF 400.1300247 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

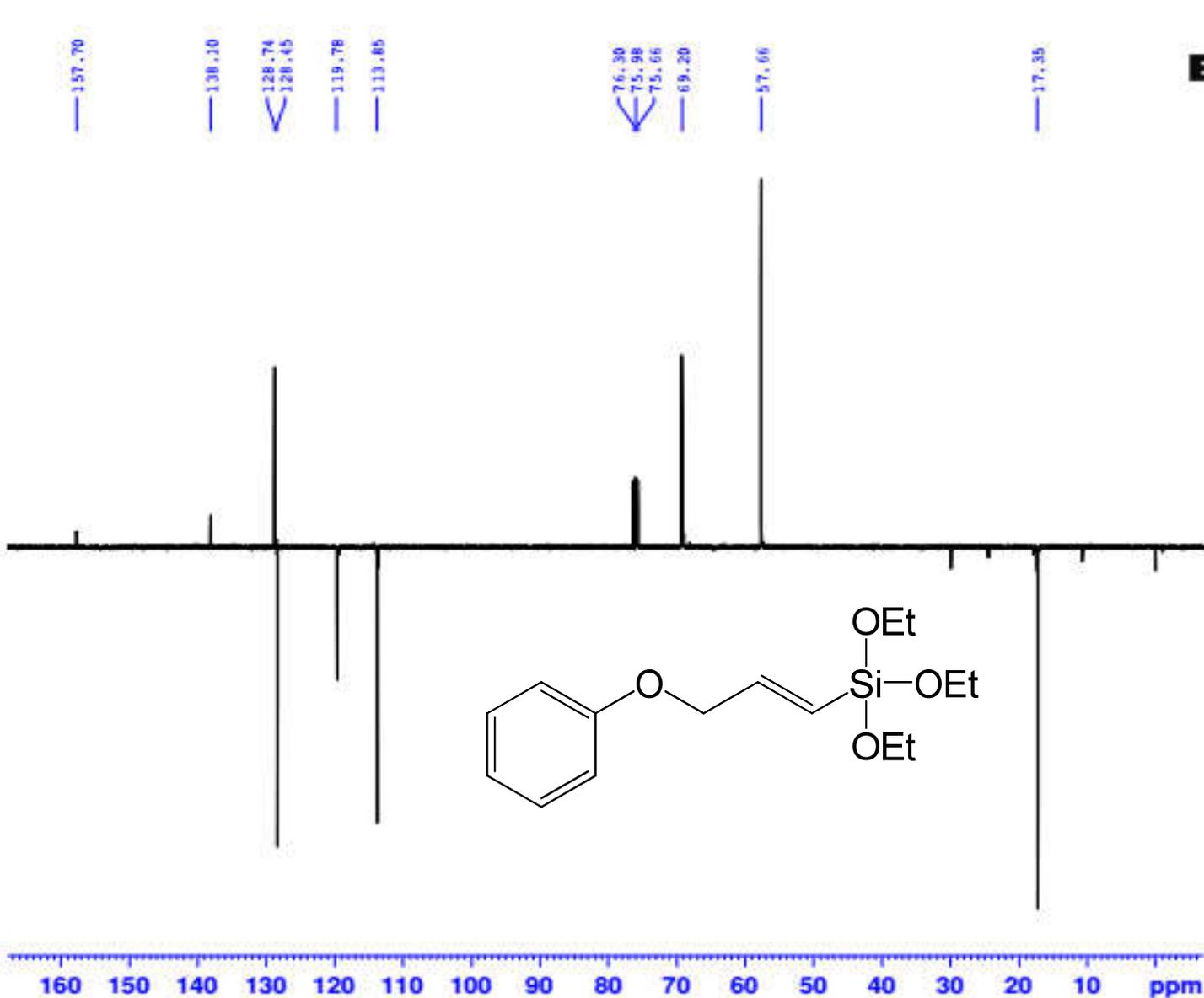
(Z)-(1,4-bis(4-methylbenzyloxy)but-2-en-2-yl)triethoxysilane (**20**) – GC-MS (showing a single product)



(E)-triethoxy(3-phenoxyprop-1-enyl)silane (**21**) – ¹H-NMR (CDCl₃, 400 MHz)



(E)-triethoxy(3-phenoxyprop-1-enyl)silane (**21**) – ¹³C-NMR (CDCl₃, 100 MHz)



```

Current Data Parameters
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EXPNO    2
PROCNO   1

F2 - Acquisition Parameters
Date_    20170206
Time     12.02
INSTRUM  spect
PROBHD   5 mm PANGO BB/
PULPROG  deptqqqp2
TD        65536
SOLVENT  cdcl3
NS       256
DS        8
SWH       24038.461 Hz
FIDRES    0.366780 Hz
AQ        1.3431488 sec
RG        384.83
CW        20.000 usec
DE        6.50 usec
TE        300.0 K
CHFT2    145.0000000
CHFT12   1.5000000
D1        2.0000000 sec
D2        0.0034428 sec
S12       0.0000000 sec
S14       0.0000000 sec
S18       0 sec
S10       1

----- CHANNEL f1 -----
SFO1    100.6219293 MHz
NUC1     13C
P1       10.00 usec
PL1      0 W
PL12     0 W
PL13     0 W
PL14     0 W
PL15     0 W
PL16     0 W
PL17     0 W
PL18     0 W
PL19     0 W
PL20     0 W
PL21     0 W
PL22     0 W
PL23     0 W
PL24     0 W
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PL29     0 W
PL30     0 W
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PL38     0 W
PL39     0 W
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PL90     0 W
PL91     0 W
PL92     0 W
PL93     0 W
PL94     0 W
PL95     0 W
PL96     0 W
PL97     0 W
PL98     0 W
PL99     0 W
PL100    0 W
SFO2     400.1314085 MHz
NUC2      1H
CPOPRG[2]  waltz16
P2       10.61 usec
P3       13.74 usec
P4       17.48 usec
PCPD2    80.00 usec
PLM2     12.0000000 W
PLM12    0.35398000 W
PLM13    0.32455000 W

----- GRADIENT CHANNEL -----
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GPNAM[2]  smg18.100
GPNAM[3]  smg18.100
GP21     31.00 %
GP22     31.00 %
GP23     31.00 %
P14      1000.00 usec

F2 - Processing parameters
SI        32768
SF        100.619744 MHz
UCR       EM
SMA       0
LA        1.00 Hz
GB        0
PC        1.40
    
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(E)-triethoxy(3-phenoxyprop-1-enyl)silane (**21**) – GC_MS (showing one product)

MS Data Review All Plots - 4/11/2018 12:10 PM

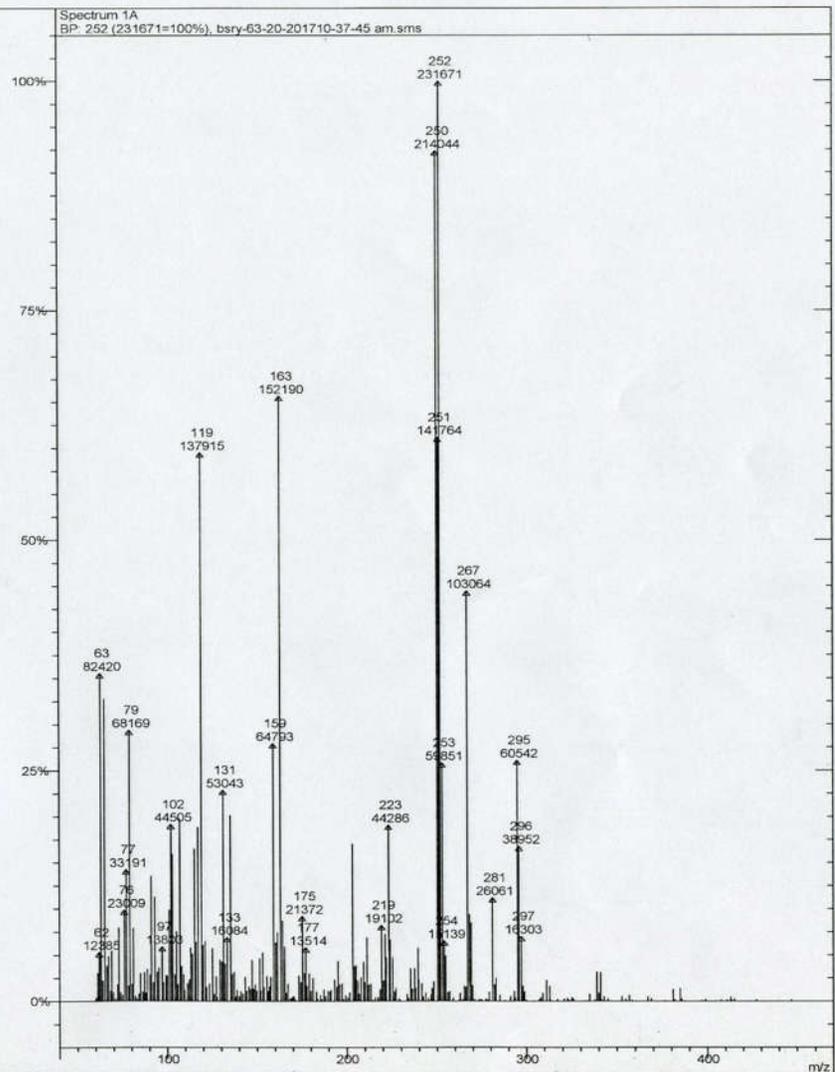
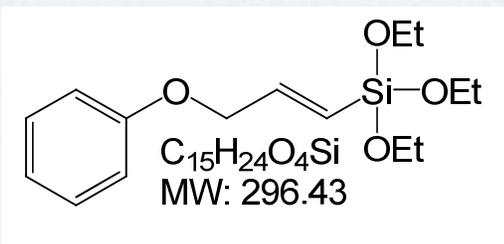
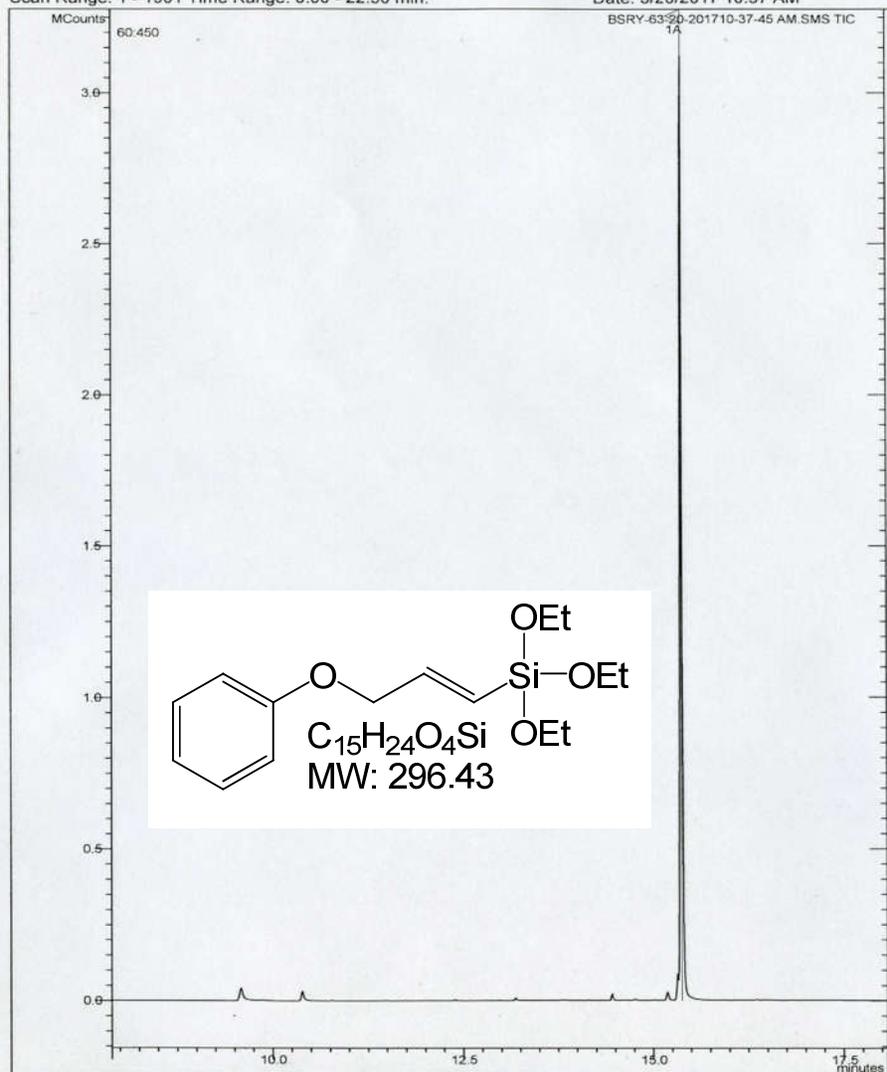
File: c:\varianws\data\fortie\silicone reactions\bsry\bsry-6\bsry-63-20-201710-37-45 am.sms

Sample: BSRY-6

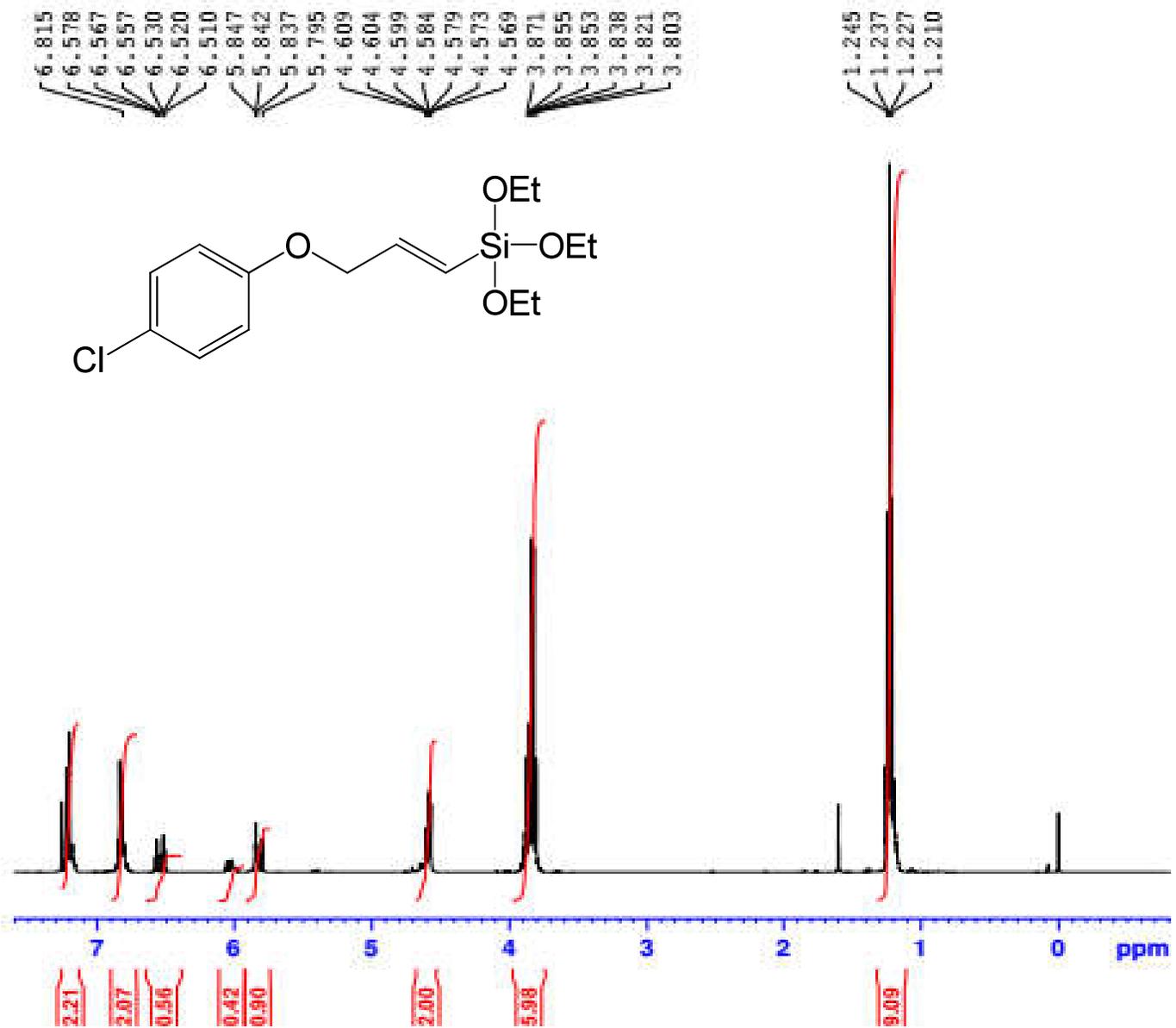
Operator: Jean

Scan Range: 1 - 1901 Time Range: 0.00 - 22.50 min.

Date: 3/20/2017 10:37 AM



(E)-3-(4-chlorophenoxy)prop-1-enyltriethoxysilane (**22**) – ¹H-NMR (CDCl₃, 400 MHz)



```

Current Data Parameters
NAME      BSRV-7-SILICATE
EXPNO    1
PROCNO   1

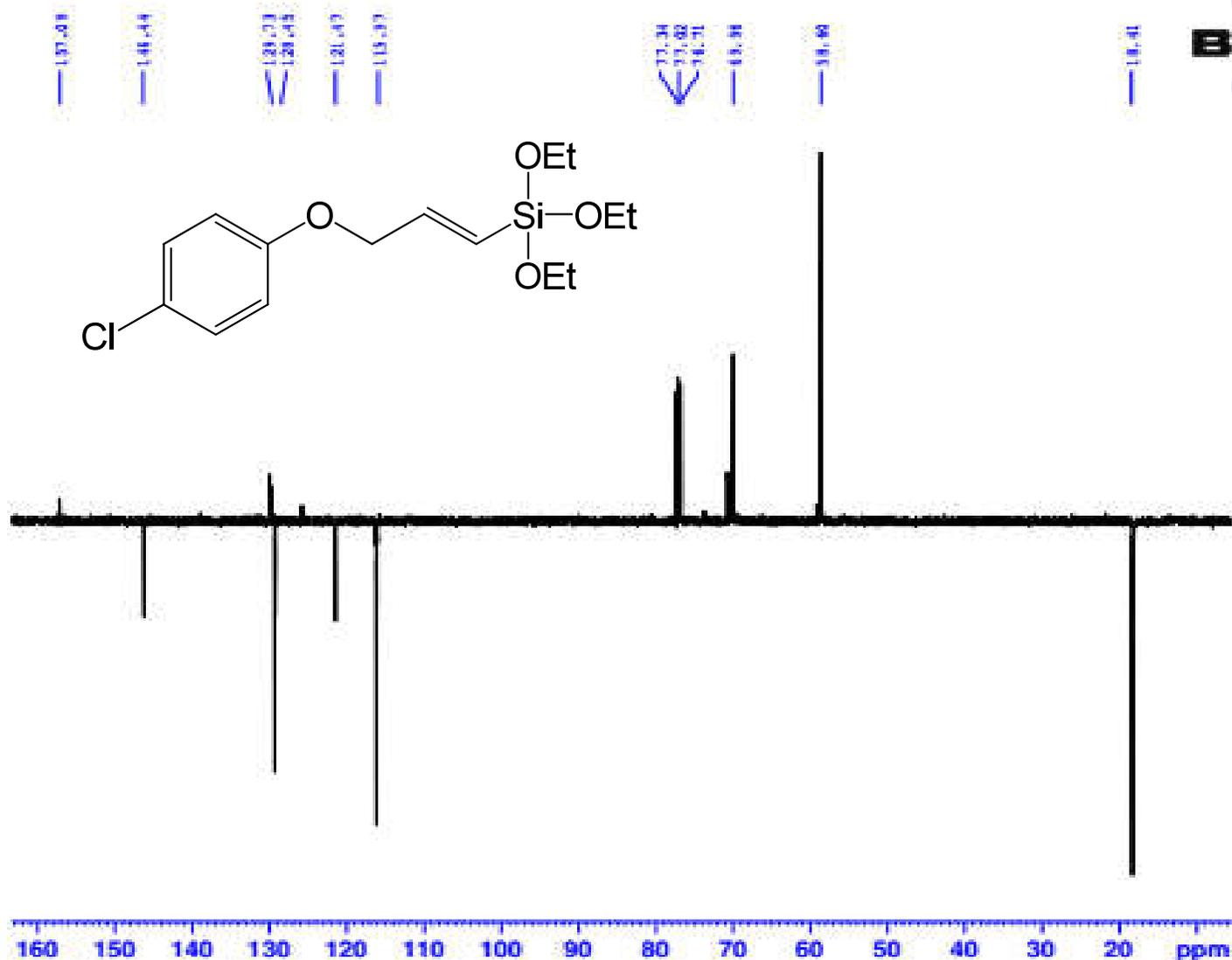
F2 - Acquisition Parameters
Date_    20170403
Time     12.21
INSTRUM spect
PROBHD   5 mm PABBO BB/
PULPROG zg30
TD       65536
SOLVENT  CDCl3
NS       16
DS       2
SWH      8012.820 Hz
FIDRES   0.122266 Hz
AQ       4.0894465 sec
RG       74.37
DW       62.400 usec
DE       6.50 usec
TE       300.1 K
D1       1.00000000 sec
TD0      1

----- CHANNEL f1 -----
SFO1    400.1324710 MHz
NUC1    1H
P1      13.74 usec
PLW1    12.00000000 W

F2 - Processing parameters
SI      65536
SF      400.130098 MHz
WDW     EM
SSB     0
LB      0.30 Hz
GB      0
PC      1.00
    
```

(E)-3-(4-chlorophenoxy)prop-1-enyltriethoxysilane (**22**) – ¹³C-NMR (CDCl₃, 100 MHz)

BSRY-7-SILICATE_CARBON



```

Current Data Parameters
NAME      BSRY-7-SILICATE
EXPNO    2
PROCNO   1

F2 - Acquisition Parameters
Date_    202003
Time     13.50
INSTRUM  spect
PROBHD   5 mm PABBO QNP
PULPROG  zgpg30
SI        32768
SOLVENT  CDCl3
SS        328
DS         8
SWH       10000.161 Hz
FIDRES    0.001798 Hz
AQ         1.763188 sec
RG         328.88
DE         33.800 uum
TE         300.2 K
DWT2      0.0000000
DWT3      1.0000000
SI         0.0000000 uum
SFO         0.0000000 uum
SFA         0.0000000 uum
SFB         0.0000000 uum
SFC         0 uum
SFD         1

===== CHANNEL f1 =====
NUC1      13C
P1         12.00 uum
PL1        0 dB
PL12       0.0000000 u
PL13       0.0000000 u
PL14       0.0000000 u
SFO1      100.628159 MHz
SFC1      0

===== CHANNEL f2 =====
CPDPRG2   waltz16
NUC2       1H
P2         12.00 uum
PL2         0 dB
PL22       0.0000000 u
PL23       0.0000000 u
PL24       0.0000000 u
SFO2      400.151993 MHz
SFC2      0

===== CHANNEL f3 =====
SFO3      100.628159 MHz
SFC3      0
SFO4      100.628159 MHz
SFC4      0
SFO5      100.628159 MHz
SFC5      0
SFO6      100.628159 MHz
SFC6      0
SFO7      100.628159 MHz
SFC7      0
SFO8      100.628159 MHz
SFC8      0
SFO9      100.628159 MHz
SFC9      0
SFO10     100.628159 MHz
SFC10     0
SFO11     100.628159 MHz
SFC11     0
SFO12     100.628159 MHz
SFC12     0
SFO13     100.628159 MHz
SFC13     0
SFO14     100.628159 MHz
SFC14     0
SFO15     100.628159 MHz
SFC15     0
SFO16     100.628159 MHz
SFC16     0
SFO17     100.628159 MHz
SFC17     0
SFO18     100.628159 MHz
SFC18     0
SFO19     100.628159 MHz
SFC19     0
SFO20     100.628159 MHz
SFC20     0
SFO21     100.628159 MHz
SFC21     0
SFO22     100.628159 MHz
SFC22     0
SFO23     100.628159 MHz
SFC23     0
SFO24     100.628159 MHz
SFC24     0
SFO25     100.628159 MHz
SFC25     0
SFO26     100.628159 MHz
SFC26     0
SFO27     100.628159 MHz
SFC27     0
SFO28     100.628159 MHz
SFC28     0
SFO29     100.628159 MHz
SFC29     0
SFO30     100.628159 MHz
SFC30     0
SFO31     100.628159 MHz
SFC31     0
SFO32     100.628159 MHz
SFC32     0
SFO33     100.628159 MHz
SFC33     0
SFO34     100.628159 MHz
SFC34     0
SFO35     100.628159 MHz
SFC35     0
SFO36     100.628159 MHz
SFC36     0
SFO37     100.628159 MHz
SFC37     0
SFO38     100.628159 MHz
SFC38     0
SFO39     100.628159 MHz
SFC39     0
SFO40     100.628159 MHz
SFC40     0
SFO41     100.628159 MHz
SFC41     0
SFO42     100.628159 MHz
SFC42     0
SFO43     100.628159 MHz
SFC43     0
SFO44     100.628159 MHz
SFC44     0
SFO45     100.628159 MHz
SFC45     0
SFO46     100.628159 MHz
SFC46     0
SFO47     100.628159 MHz
SFC47     0
SFO48     100.628159 MHz
SFC48     0
SFO49     100.628159 MHz
SFC49     0
SFO50     100.628159 MHz
SFC50     0
SFO51     100.628159 MHz
SFC51     0
SFO52     100.628159 MHz
SFC52     0
SFO53     100.628159 MHz
SFC53     0
SFO54     100.628159 MHz
SFC54     0
SFO55     100.628159 MHz
SFC55     0
SFO56     100.628159 MHz
SFC56     0
SFO57     100.628159 MHz
SFC57     0
SFO58     100.628159 MHz
SFC58     0
SFO59     100.628159 MHz
SFC59     0
SFO60     100.628159 MHz
SFC60     0
SFO61     100.628159 MHz
SFC61     0
SFO62     100.628159 MHz
SFC62     0
SFO63     100.628159 MHz
SFC63     0
SFO64     100.628159 MHz
SFC64     0
SFO65     100.628159 MHz
SFC65     0
SFO66     100.628159 MHz
SFC66     0
SFO67     100.628159 MHz
SFC67     0
SFO68     100.628159 MHz
SFC68     0
SFO69     100.628159 MHz
SFC69     0
SFO70     100.628159 MHz
SFC70     0
SFO71     100.628159 MHz
SFC71     0
SFO72     100.628159 MHz
SFC72     0
SFO73     100.628159 MHz
SFC73     0
SFO74     100.628159 MHz
SFC74     0
SFO75     100.628159 MHz
SFC75     0
SFO76     100.628159 MHz
SFC76     0
SFO77     100.628159 MHz
SFC77     0
SFO78     100.628159 MHz
SFC78     0
SFO79     100.628159 MHz
SFC79     0
SFO80     100.628159 MHz
SFC80     0
SFO81     100.628159 MHz
SFC81     0
SFO82     100.628159 MHz
SFC82     0
SFO83     100.628159 MHz
SFC83     0
SFO84     100.628159 MHz
SFC84     0
SFO85     100.628159 MHz
SFC85     0
SFO86     100.628159 MHz
SFC86     0
SFO87     100.628159 MHz
SFC87     0
SFO88     100.628159 MHz
SFC88     0
SFO89     100.628159 MHz
SFC89     0
SFO90     100.628159 MHz
SFC90     0
SFO91     100.628159 MHz
SFC91     0
SFO92     100.628159 MHz
SFC92     0
SFO93     100.628159 MHz
SFC93     0
SFO94     100.628159 MHz
SFC94     0
SFO95     100.628159 MHz
SFC95     0
SFO96     100.628159 MHz
SFC96     0
SFO97     100.628159 MHz
SFC97     0
SFO98     100.628159 MHz
SFC98     0
SFO99     100.628159 MHz
SFC99     0
SFO100    100.628159 MHz
SFC100    0

F2 - Processing parameters
SI         32768
SF         100.628159 MHz
WDW        EM
SSB         0
LB         1.00 Hz
GB         0
PC         1.00
    
```

(E)-3-(4-chlorophenoxy)prop-1-enyltriethoxysilane (**22**) – GC-MS (showing only one product, the small signal is a byproduct from the degradation of the expected product as indicated by the mass spectrum at the bottom right, and not an isomer).

