Electronic Supplementary Material (ESI) for Organic & Biomolecular Chemistry.

Visible light mediated oxidative lactonization of 2-methyl-1,1'-biaryls for the synthesis of benzocoumarins

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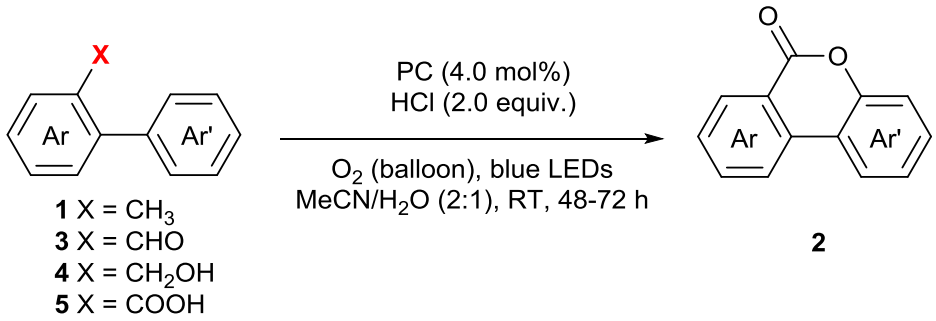
Part I Experimental part

1. General information

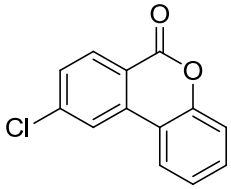
Unless otherwise indicated, all reagents were purchased from commercial suppliers and used without purification. 2-Methyl-1,1'-biphenyl[1], 2-phenylbenzaldehyde[2], and 2-phenylbenzyl alcohol[3] derivatives were prepared according to literatures. Column chromatography was performed on silica gel 200~300 mesh. ^{1}H NMR, ^{13}C NMR, and ^{19}F NMR spectra were recorded at room temperature in $CDCl_3$ with tetramethylsilane (TMS) as internal standard and reported in parts per million (ppm, δ). ^{1}H NMR Spectroscopy splitting patterns were designated as singlet (s), doublet (d), triplet (t), quartet (q). Splitting patterns that could not be interpreted or easily visualized were designated as multiplet (m) or broad (br).

2. Photocatalyzed synthesis of benzocoumarins 2 (Scheme 2 & 3)



General procedure: To an oven-dried 10 mL Schlenk tube equipped with a stir bar was charged with substrate **1**, **3**, **4** or **5** (0.3 mmol) and $Acr^{+}MesClO_4^{-}$ (5.0 mg, 0.012 mmol). The tube was closed with a septum, evacuated, and back-filled with oxygen (balloon). To this mixture was added 1.0 mL solvent ($MeCN/H_2O$ = 2:1) and HCl (150 um, 0.6 mmol, 4M in 1,3-dioxane). The reaction mixture was stirred at room temperature under blue LEDs until the full consumption of the starting materials (typically, 48 h). The reaction mixture was concentrated under reduced pressure, and the residue was purified by column chromatography on silica gel

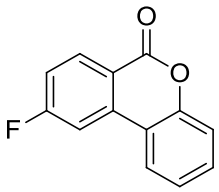
(petroleum ether/EtOAc = 70:1 - 20:1) to furnish the benzocoumarins **2**.



2a

9-chloro-6*H*-benzo[*c*]chromen-6-one[4]

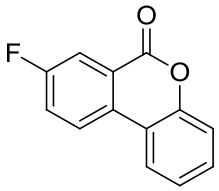
45.1 mg, 65% yield. White solid, ^{1}H NMR (400 MHz, Chloroform-*d*) δ 8.34 (d, *J* = 8.5 Hz, 1H), 8.08 (d, *J* = 1.9 Hz, 1H), 8.00 (dd, *J* = 8.0, 1.5 Hz, 1H), 7.53 (ddd, *J* = 9.4, 7.9, 1.8 Hz, 2H), 7.41 – 7.32 (m, 2H). ^{13}C NMR (101 MHz, Chloroform-*d*) δ 160.4, 151.6, 141.9, 136.4, 132.3, 131.2, 129.3, 124.8, 122.9, 121.8, 119.6, 118.0, 117.0.



2b

9-fluoro-6*H*-benzo[*c*]chromen-6-one[5]

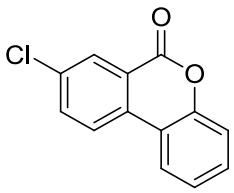
38.6 mg, 64% yield. White solid, ^{1}H NMR (400 MHz, Chloroform-*d*) δ 8.43 (dd, *J* = 8.8, 5.7 Hz, 1H), 7.96 (dd, *J* = 8.0, 1.5 Hz, 1H), 7.73 (dd, *J* = 9.7, 2.4 Hz, 1H), 7.52 (ddd, *J* = 8.5, 7.2, 1.5 Hz, 1H), 7.41 – 7.31 (m, 2H), 7.32 – 7.23 (m, 1H). ^{13}C NMR (101 MHz, Chloroform-*d*) δ 167.0 (d, *J* = 256.7 Hz), 160.2, 151.6, 137.7 (d, *J* = 10.0 Hz), 133.9 (d, *J* = 10.2 Hz), 131.2, 124.7, 123.0, 117.9, 117.8, 117.34 (d, *J* = 2.9 Hz), 117.0 (d, *J* = 23.0 Hz), 108.2 (d, *J* = 23.6 Hz). ^{19}F NMR (377 MHz, Chloroform-*d*) δ -101.1.



2c

8-fluoro-6*H*-benzo[*c*]chromen-6-one[6]

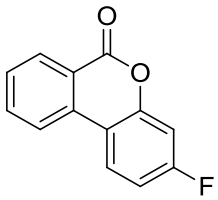
35.3 mg, 59% yield. White solid, ^{1}H NMR (400 MHz, Chloroform-*d*) δ 8.13 (dd, *J* = 8.9, 4.8 Hz, 1H), 8.08 – 7.95 (m, 2H), 7.62 – 7.42 (m, 2H), 7.41 – 7.30 (m, 2H). ^{13}C NMR (101 MHz, Chloroform-*d*) δ 162.4 (d, *J* = 252.5 Hz), 160.0 (d, *J* = 256.7 Hz), 150.8, 131.2 (d, *J* = 2.5 Hz), 130.4, 124.8, 124.3 (d, *J* = 7.6 Hz), 123.2 (d, *J* = 8.9 Hz), 122.9 (d, *J* = 22.7 Hz), 122.6, 117.8, 117.4, 116.2 (d, *J* = 22.7 Hz). ^{19}F NMR (377 MHz, Chloroform-*d*) δ -110.2.



2d

8-chloro-6*H*-benzo[*c*]chromen-6-one[6]

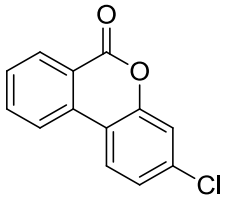
42.2 mg, 61% yield. White solid, ^{1}H NMR (400 MHz, Chloroform-*d*) δ 8.45 (d, *J* = 8.0 Hz, 1H), 8.19 (t, *J* = 8.1 Hz, 2H), 7.96 – 7.86 (m, 1H), 7.69 (t, *J* = 7.6 Hz, 1H), 7.65 – 7.56 (m, 2H). ^{13}C NMR (101 MHz, Chloroform-*d*) δ 160.3, 151.0, 135.2, 133.4, 130.9, 130.2, 123.6, 122.2, 121.7, 121.1, 121.1, 115.3, 115.3.



2e

3-fluoro-6*H*-benzo[*c*]chromen-6-one[7]

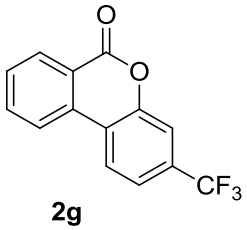
44.1 mg, 74% yield. White solid, ^{1}H NMR (400 MHz, Chloroform-*d*) δ 8.37 (d, *J* = 7.9 Hz, 1H), 8.03 (dd, *J* = 9.2, 5.7 Hz, 2H), 7.83 (t, *J* = 7.7 Hz, 1H), 7.57 (t, *J* = 7.6 Hz, 1H), 7.08 (ddd, *J* = 7.7, 4.5, 1.9 Hz, 2H). ^{13}C NMR (101 MHz, Chloroform-*d*) δ 163.4 (d, *J* = 251.5 Hz), 160.8, 152.2 (d, *J* = 12.1 Hz), 135.1, 134.2, 130.7, 128.7, 124.3(d, *J* = 10.1 Hz), 121.5, 120.4, 114.6, 112.4 (d, *J* = 22.2 Hz), 105.1 (d, *J* = 25.2 Hz). ^{19}F NMR (377 MHz, Chloroform-*d*) δ -108.4.



2f

3-chloro-6*H*-benzo[*c*]chromen-6-one[7]

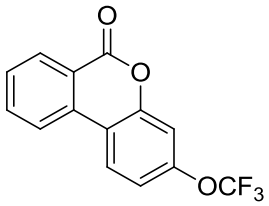
40.8 mg, 60% yield. White solid, ^{1}H NMR (500 MHz, Chloroform-*d*) δ 8.40 (dd, *J* = 8.0, 1.3 Hz, 1H), 8.08 (d, *J* = 8.1 Hz, 1H), 7.99 (d, *J* = 8.6 Hz, 1H), 7.84 (ddd, *J* = 8.3, 7.3, 1.4 Hz, 1H), 7.61 (ddd, *J* = 8.1, 7.3, 1.1 Hz, 1H), 7.39 (d, *J* = 2.0 Hz, 1H), 7.32 (dd, *J* = 8.5, 2.1 Hz, 1H). ^{13}C NMR (126 MHz, Chloroform-*d*) δ 160.6, 151.6, 136.0, 135.1, 134.0, 130.8, 129.2, 125.0, 123.8, 121.7, 121.0, 118.0, 116.7.



2g

3-(trifluoromethyl)-6*H*-benzo[*c*]chromen-6-one[7]

39.3 mg, 50% yield. White solid, ^{1}H NMR (400 MHz, Chloroform-*d*) δ 8.40 (dd, *J* = 7.9, 1.3 Hz, 1H), 8.15 (t, *J* = 7.7 Hz, 2H), 7.88 (td, *J* = 7.7, 1.4 Hz, 1H), 7.72 – 7.63 (m, 1H), 7.57 (d, *J* = 9.0 Hz, 2H). ^{13}C NMR (101 MHz, Chloroform-*d*) δ 160.3, 150.9, 135.2, 132.2 (q, *J* = 33.5 Hz), 130.8, 130.1, 123.6, 123.3 (q, *J* = 272.5 Hz), 122.2, 121.6, 121.1 (q, *J* = 3.6 Hz), 121.06, 115.2 (q, *J* = 4.0 Hz). ^{19}F NMR (377 MHz, Chloroform-*d*) δ -62.8.

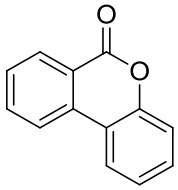


2h

3-(trifluoromethoxy)-6*H*-benzo[*c*]chromen-6-one[8]

45.2 mg, 54% yield. White solid, ^{1}H NMR (500 MHz, Chloroform-*d*) δ 8.40 (dd, *J* = 8.0, 1.4 Hz, 1H), 8.08 (dd, *J* = 8.4, 3.0 Hz, 2H), 7.86 (td, *J* = 7.7, 1.4 Hz, 1H), 7.62 (t, *J* = 7.6 Hz, 1H), 7.31 – 7.14 (m, 2H). ^{13}C NMR (126 MHz, Chloroform-*d*) δ 160.5,

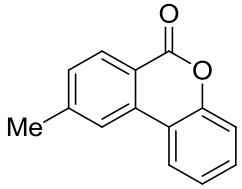
151.8, 150.2, 135.2, 133.8, 130.8, 129.3, 124.2, 121.7, 120.9, 120.3 (q, *J* = 259.6 Hz), 117.0, 116.8, 110.2. ^{19}F NMR (377 MHz, Chloroform-*d*) δ -57.8.



2i

6*H*-benzo[*c*]chromen-6-one[6]

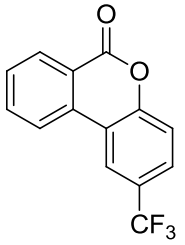
28.2 mg, 48% yield. White solid, ^{1}H NMR (400 MHz, Chloroform-*d*) δ 8.39 (dd, *J* = 7.9, 1.4 Hz, 1H), 8.11 (d, *J* = 8.1 Hz, 1H), 8.05 (dd, *J* = 8.0, 1.5 Hz, 1H), 7.82 (td, *J* = 7.8, 1.5 Hz, 1H), 7.64 – 7.54 (m, 1H), 7.47 (ddd, *J* = 8.5, 7.1, 1.5 Hz, 1H), 7.41 – 7.28 (m, 2H). ^{13}C NMR (101 MHz, Chloroform-*d*) δ 161.1, 151.2, 134.8, 134.7, 130.5, 130.4, 128.8, 124.5, 122.7, 121.6, 121.2, 118.0, 117.7.



2j

9-methyl-6*H*-benzo[*c*]chromen-6-one[7]

39.1 mg, 62% yield. White solid, ^{1}H NMR (400 MHz, Chloroform-*d*) δ 8.28 (d, *J* = 8.1 Hz, 1H), 8.05 (dd, *J* = 8.0, 1.5 Hz, 1H), 7.90 (s, 1H), 7.47 (ddd, *J* = 8.5, 7.2, 1.5 Hz, 1H), 7.41 – 7.29 (m, 3H), 2.56 (s, 3H). ^{13}C NMR (101 MHz, Chloroform-*d*) δ 161.3, 151.4, 145.9, 134.7, 130.6, 130.3, 130.2, 124.4, 122.7, 121.8, 118.8, 118.1, 117.8, 22.3.



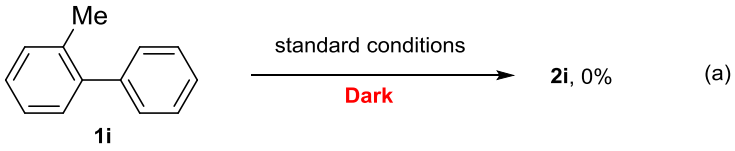
2k

2-(trifluoromethyl)-6*H*-benzo[*c*]chromen-6-one[9]

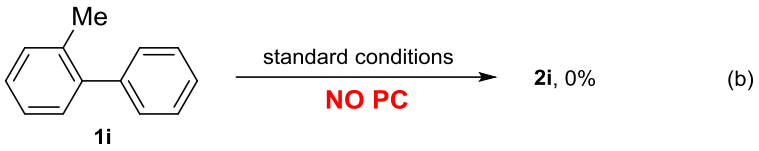
51.9 mg, 66% yield. White solid, ^{1}H NMR (500 MHz, Chloroform-*d*) δ 8.43 (dd, *J* = 7.9, 1.4 Hz, 1H), 8.32 (d, *J* = 2.0 Hz, 1H), 8.17 (d, *J* = 8.0 Hz, 1H), 7.90 (td, *J* = 7.8,

1.5 Hz, 1H), 7.73 (dd, *J* = 8.7, 2.1 Hz, 1H), 7.70 – 7.62 (m, 1H), 7.48 (d, *J* = 8.6 Hz, 1H). ^{13}C NMR (126 MHz, Chloroform-*d*) δ 160.2, 153.1, 135.3, 133.5, 130.8, 129.9, 127.0 (q, *J* = 3.5 Hz), 126.9 (q, *J* = 32.8 Hz), 123.8 (q, *J* = 270.5 Hz), 121.9, 121.3, 120.4 (q, *J* = 3.8 Hz), 118.6, 118.4. ^{19}F NMR (377 MHz, Chloroform-*d*) δ -62.0.

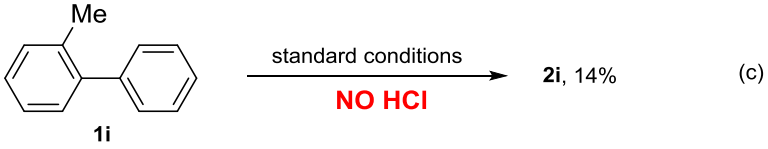
3. Control experiments (Scheme 4)



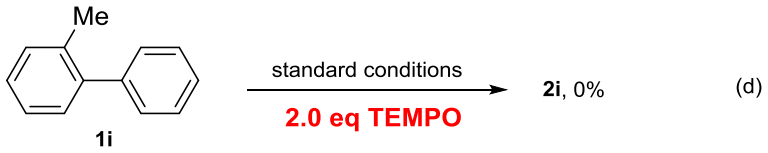
Reaction (a): To an oven-dried 10 mL Schlenk tube equipped with a stir bar was charged with substrate **1i** (50.4 mg, 0.3 mol) and $Acr^{+}MesClO_4^{-}$ (5.0 mg, 0.012 mmol). The tube was closed with a septum, evacuated, and back-filled with oxygen (balloon). To this mixture was added 1.0 mL solvent (MeCN/H_2O = 2:1) and HCl (150 um, 0.6 mmol, 4M in 1,3-dioxane). The reaction mixture was stirred at room temperature under dark for 3 days. No benzocoumarin **2i** was detected by TLC.



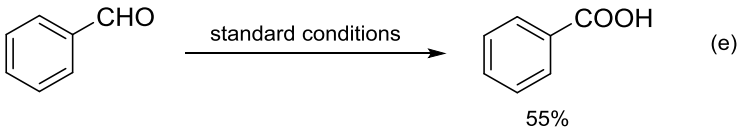
Reaction (b): To an oven-dried 10 mL Schlenk tube equipped with a stir bar was charged with substrate **1i** (50.4 mg, 0.3 mol). The tube was closed with a septum, evacuated, and back-filled with oxygen (balloon). To this mixture was added 1.0 mL solvent (MeCN/H_2O = 2:1) and HCl (150 um, 0.6 mmol, 4M in 1,3-dioxane). The reaction mixture was stirred at room temperature under blue LEDs for 3 days. No benzocoumarin **2i** was detected by TLC.



Reaction (c): To an oven-dried 10 mL Schlenk tube equipped with a stir bar was charged with substrate **1i** (50.4 mg, 0.3 mol) and $Acr^{+}MesClO_4^{-}$ (5.0 mg, 0.012 mmol). The tube was closed with a septum, evacuated, and back-filled with oxygen (balloon). To this mixture was added 1.0 mL solvent ($MeCN/H_2O$ = 2:1). The reaction mixture was stirred at room temperature under blue LEDs until the full consumption of the starting materials. The reaction mixture was concentrated under reduced pressure, and the residue was purified by column chromatography on silica gel (petroleum ether/EtOAc = 70:1 - 20:1) to furnish the benzocoumarins **2i** (8.2 mg, 14% yield).

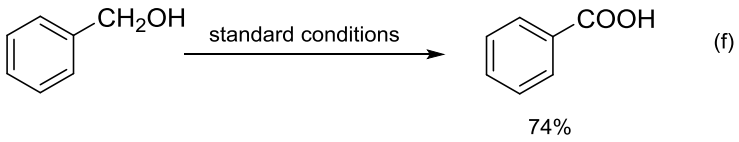


Reaction (d): To an oven-dried 10 mL Schlenk tube equipped with a stir bar was charged with substrate **1i** (50.4 mg, 0.3 mol), $Acr^{+}MesClO_4^{-}$ (5.0 mg, 0.012 mmol) and TEMPO (93.6 mg, 0.6 mmol). The tube was closed with a septum, evacuated, and back-filled with oxygen (balloon). To this mixture was added 1.0 mL solvent ($MeCN/H_2O$ = 2:1) and HCl (150 um, 0.6 mmol, 4M in 1,3-dioxane). The reaction mixture was stirred at room temperature under blue LEDs for 2 days. No benzocoumarin **2i** was detected by TLC.



Reaction (e): To an oven-dried 10 mL Schlenk tube equipped with a stir bar was charged with benzaldehyde (31.8 mg, 0.3 mol) and $Acr^{+}MesClO_4^{-}$ (5.0 mg, 0.012 mmol). The tube was closed with a septum, evacuated, and back-filled with oxygen (balloon). To this mixture was added 1.0 mL solvent ($MeCN/H_2O$ = 2:1) and HCl (150 um, 0.6 mmol, 4M in 1,3-dioxane). The reaction mixture was stirred at room temperature under blue LEDs for 2 days. The reaction mixture

was concentrated under reduced pressure, and the residue was purified by column chromatography on silica gel (petroleum ether/EtOAc = 10:1 - 5:1) to furnish the benzoic acid (20.0 mg, 55% yield).



(f)

Reaction (f): To an oven-dried 10 mL Schlenk tube equipped with a stir bar was charged with benzyl alcohol (32.4 mg, 0.3 mol) and $Acr^{+}MesClO_4^{-}$ (5.0 mg, 0.012 mmol). The tube was closed with a septum, evacuated, and back-filled with oxygen (balloon). To this mixture was added 1.0 mL solvent ($MeCN/H_2O$ = 2:1) and HCl (150 um, 0.6 mmol, 4M in 1,3-dioxane). The reaction mixture was stirred at room temperature under blue LEDs for 2 days. The reaction mixture was concentrated under reduced pressure, and the residue was purified by column chromatography on silica gel (petroleum ether/EtOAc = 10:1 - 5:1) to furnish the benzoic acid (27.2 mg, 74% yield).

4. References

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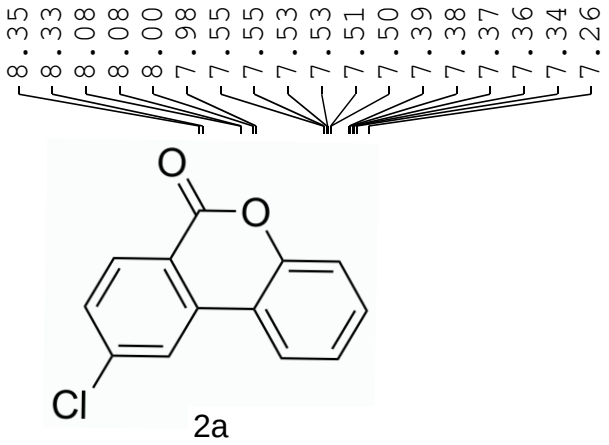

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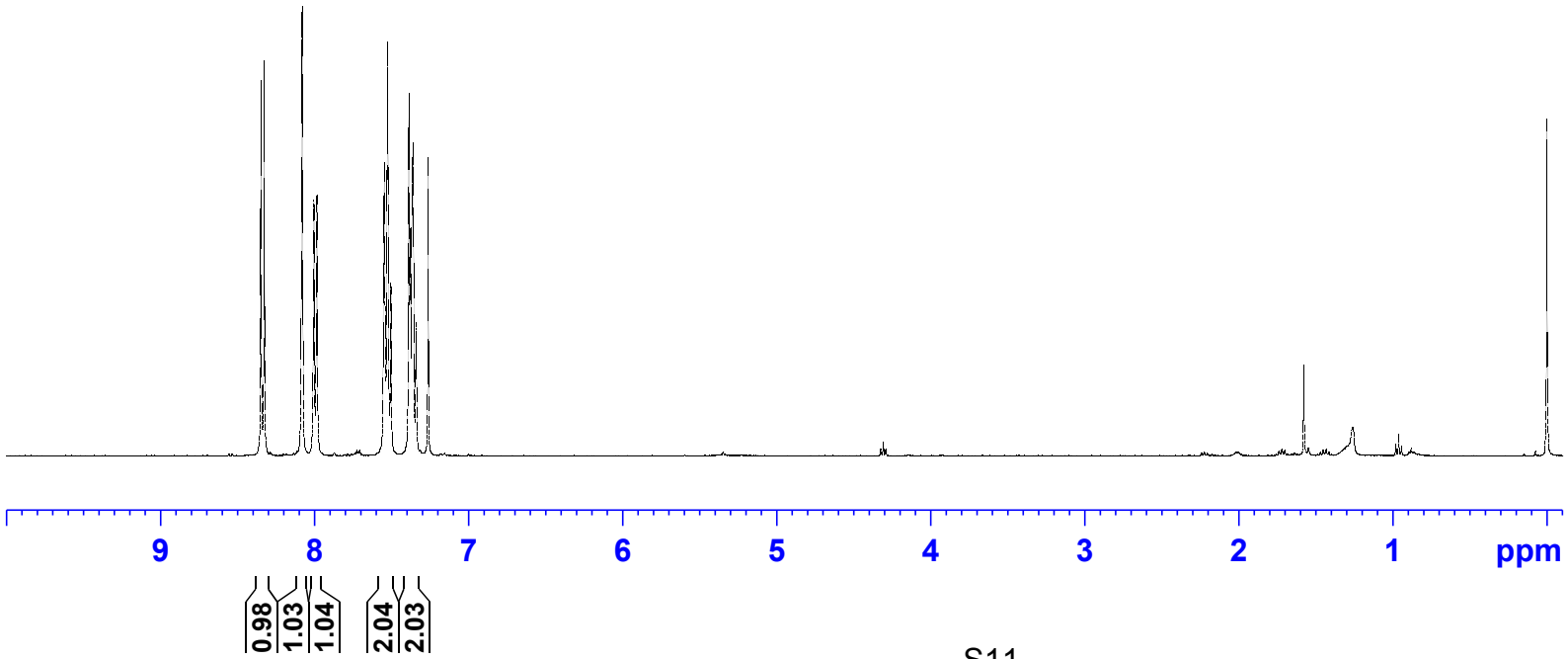


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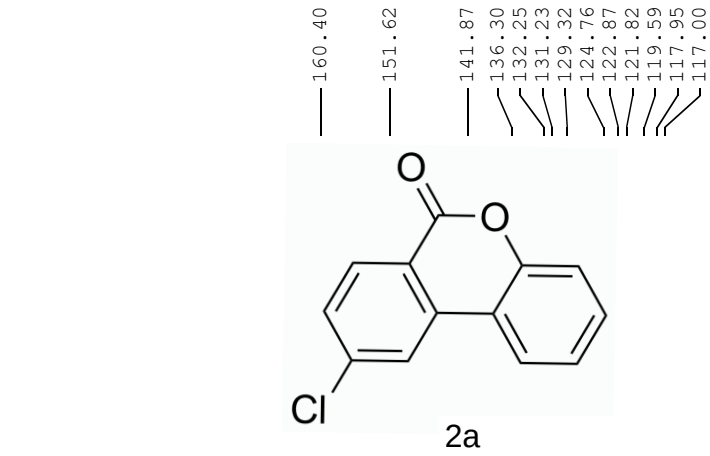
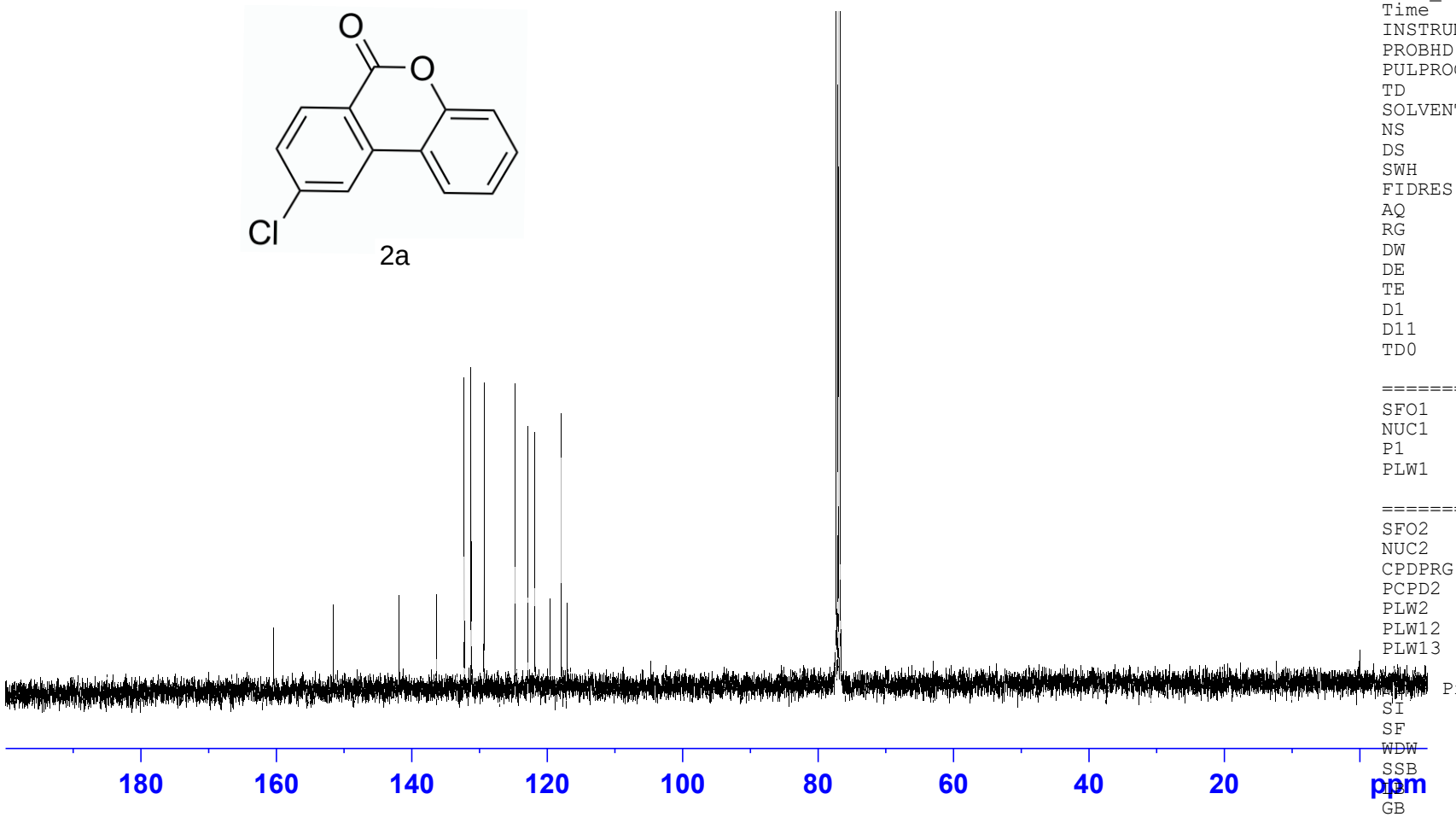
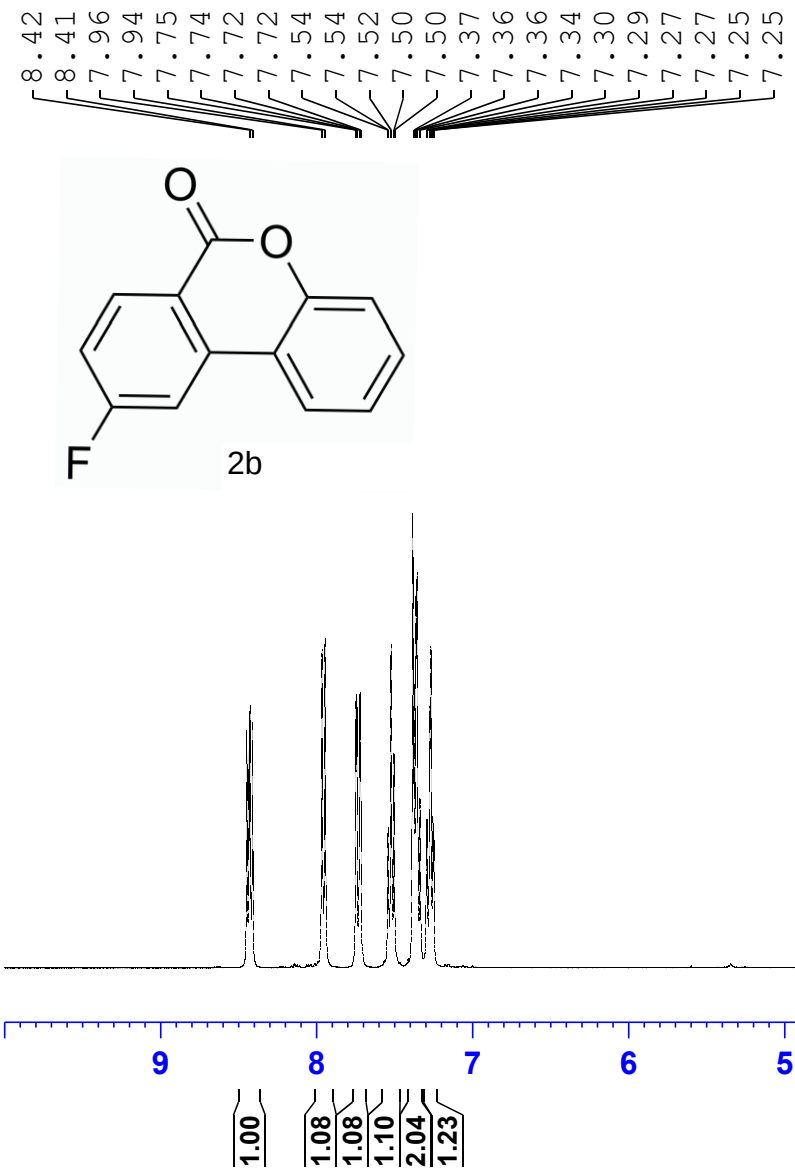


2a



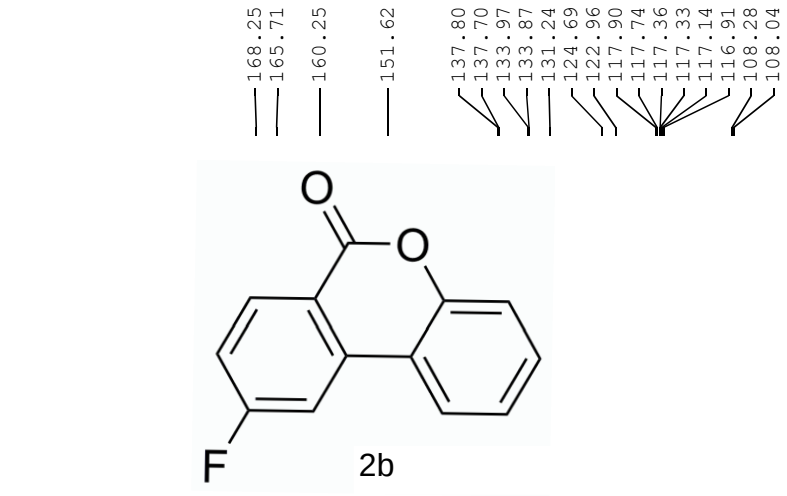

```
Current Data Parameters
NAME                  lz
EXPNO                 10
PROCNO                 1

F2 - Acquisition Parameters
Date_           20190122
Time              14.33
INSTRUM           spect
PROBHD   5 mm PABBO BB/
PULPROG          zgpg30
TD                65536
SOLVENT           CDCl3
NS                  120
DS                    4
SWH           24038.461 Hz
FIDRES         0.366798 Hz
AQ             1.3631488 sec
RG                206.33
DW                20.800 usec
DE                 6.50 usec
TE                298.0 K
D1           2.00000000 sec
D11          0.03000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1        100.6504916 MHz
NUC1                13C
P1                10.00 usec
PLW1        54.00000000 W

======== CHANNEL f2 ========
SFO2        400.2416010 MHz
NUC2                1H
CPDPRG[2         waltz16
PCPD2             90.00 usec
PLW2        12.00000000 W
PLW12        0.30294999 W
PLW13        0.24539000 W

Processing parameters
SI                32768
SF          100.6404299 MHz
WDW                 EM
SSB       0
LB                1.00 Hz
GB        0
PC                1.40
```

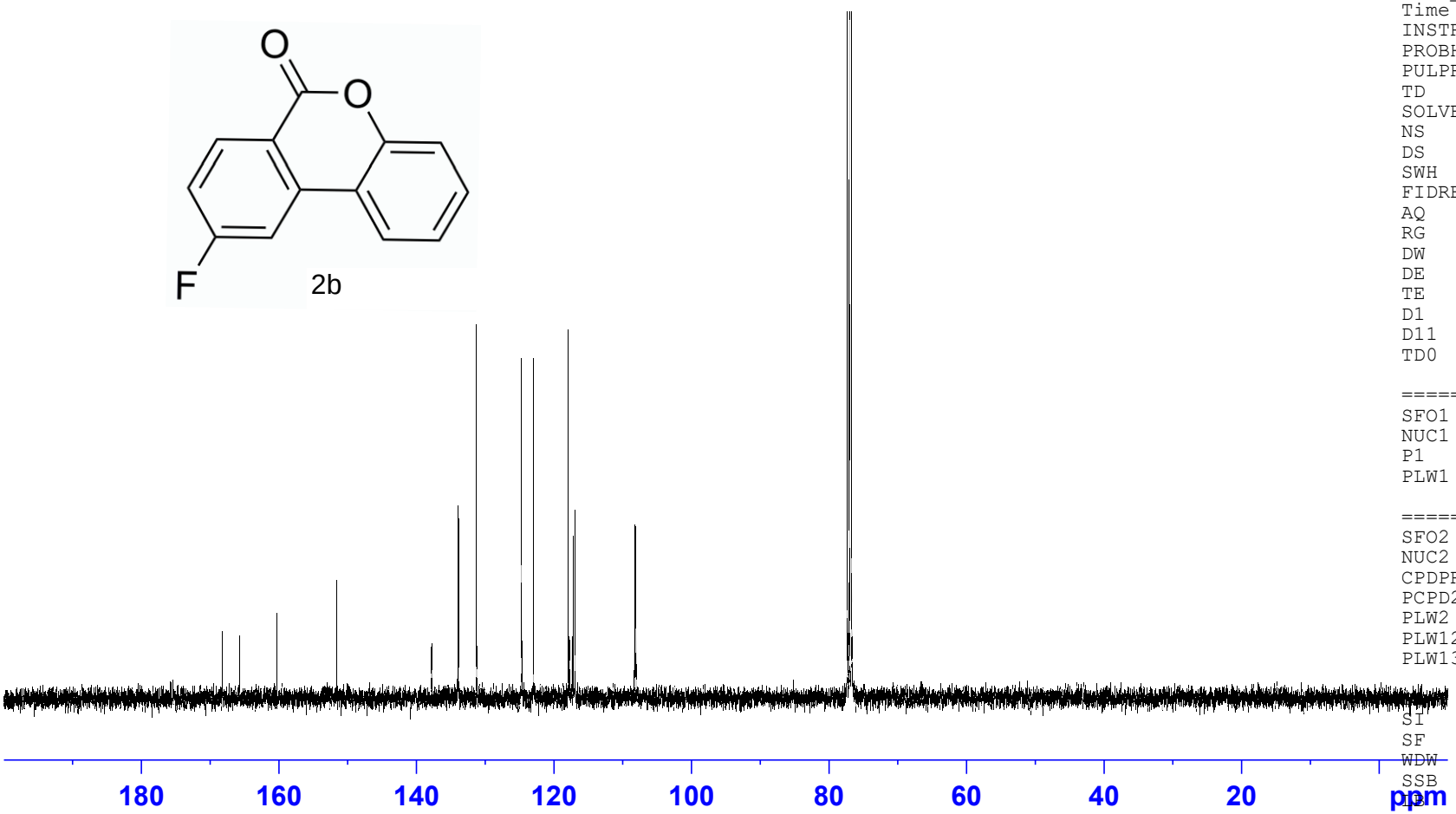
lz-1065C




```
Current Data Parameters
NAME                   lz
EXPNO                  11
PROCNO                  1

F2 - Acquisition Parameters
Date_           20190124
Time               15.05
INSTRUM            spect
PROBHD   5 mm PABBO BB/
PULPROG             zg30
TD                 32768
SOLVENT            CDCl3
NS                    16
DS                     0
SWH             8012.820 Hz
FIDRES          0.244532 Hz
AQ             2.0447233 sec
RG                206.33
DW                62.400 usec
DE                 6.50 usec
TE                298.0 K
D1           2.00000000 sec
D11      0 sec
TD0                    1

======== CHANNEL f1 ========
SFO1         400.2424716 MHz
NUC1                   1H
P1                 14.30 usec
PLW1        12.00000000 W

======== CHANNEL f2 ========
SFO2         400.2424716 MHz
NUC2                  off
CPDPRG[2
PCPD2     0 usec
PLW2      0 W
PLW12     0 W
PLW13     0 W

F2 - Processing parameters
SI                 65536
SF           400.2400073 MHz
WDW                   EM
SSB       0
LB                 0.30 Hz
GB        0
PC                 1.00
```

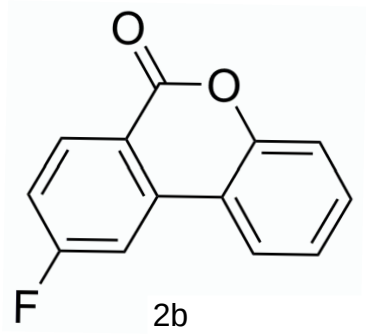
lz-1065C





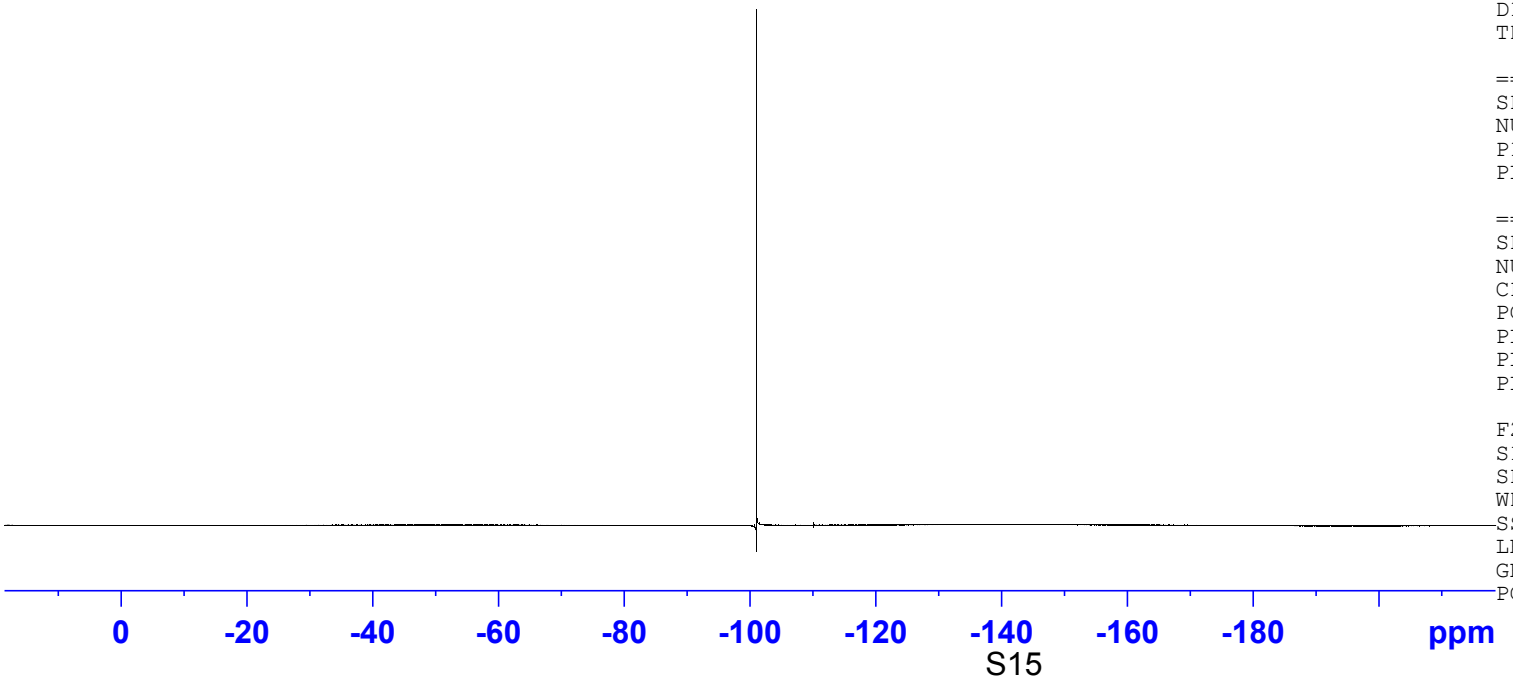

```
Current Data Parameters
NAME                   lz
EXPNO                  12
PROCNO                  1

F2 - Acquisition Parameters
Date_           20190124
Time               15.08
INSTRUM            spect
PROBHD   5 mm PABBO BB/
PULPROG          zgpg30
TD                65536
SOLVENT           CDCl3
NS                  100
DS                    4
SWH           24038.461 Hz
FIDRES         0.366798 Hz
AQ             1.3631488 sec
RG                206.33
DW                20.800 usec
DE                 6.50 usec
TE                298.0 K
D1           2.00000000 sec
D11          0.03000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1        100.6504916 MHz
NUC1                13C
P1                10.00 usec
PLW1        54.00000000 W

======== CHANNEL f2 ========
SFO2        400.2416010 MHz
NUC2                1H
CPDPRG[2         waltz16
PCPD2             90.00 usec
PLW2        12.00000000 W
PLW12        0.30294999 W
PLW13        0.24539000 W

Processing parameters
SI                32768
SF          100.6404306 MHz
WDW                  EM
SSB       0
LB                1.00 Hz
GB        0
PC                1.40
```

1065C



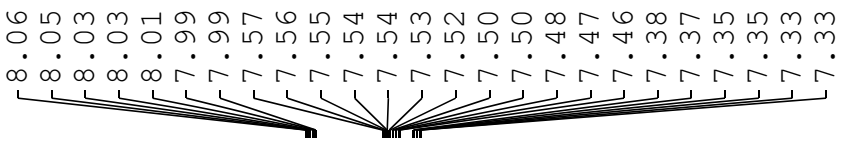
2b

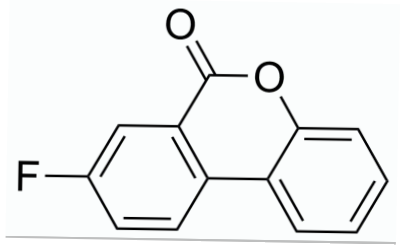
-101.08



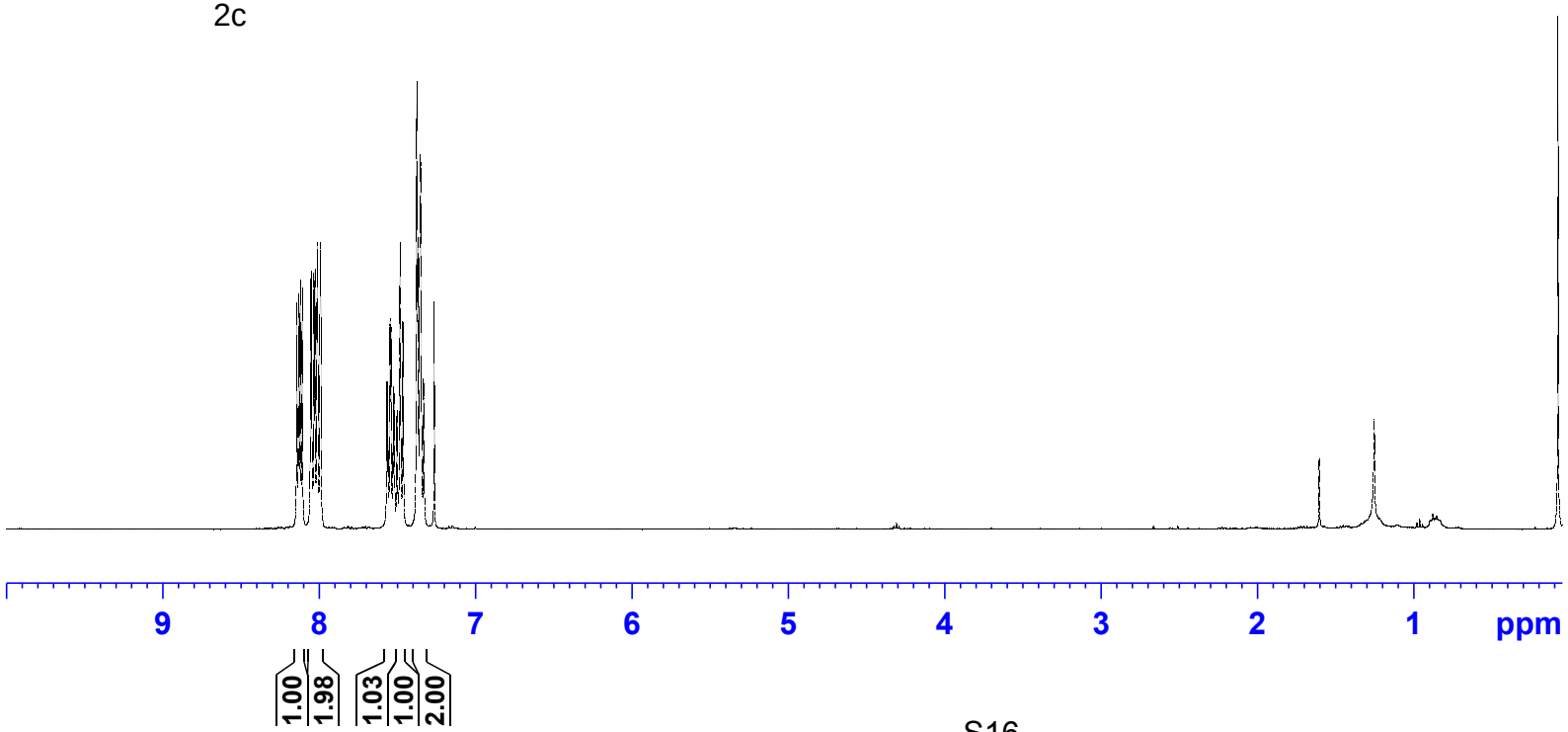

```
Current Data Parameters
NAME                  lz-F
EXPNO                    4
PROCNO                   1

F2 - Acquisition Parameters
Date_              20190124
Time                 15.15
INSTRUM              spect
PROBHD   5 mm PABBO BB/
PULPROG       zgfhigqn.2
TD                  131072
SOLVENT              CDCl3
NS                      12
DS                       4
SWH             89285.711 Hz
FIDRES           0.681196 Hz
AQ              0.7340032 sec
RG                 206.33
DW                  5.600 usec
DE                  6.50 usec
TE                 298.1 K
D1            1.00000000 sec
D11           0.03000000 sec
TD0                      1

======== CHANNEL f1 ========
SFO1          376.5642094 MHz
NUC1                  19F
P1                  14.50 usec
PLW1          17.98900032 W

======== CHANNEL f2 ========
SFO2          400.2416010 MHz
NUC2                  1H
CPDPRG[2          waltz16
PCPD2               90.00 usec
PLW2          12.00000000 W
PLW12          0.30294999 W
PLW13          0.24539000 W

F2 - Processing parameters
SI                   65536
SF            376.6018696 MHz
WDW                     EM
SSB       0
LB                  0.30 Hz
GB        0
PC                  1.00
```

1010B(p'-F)-T



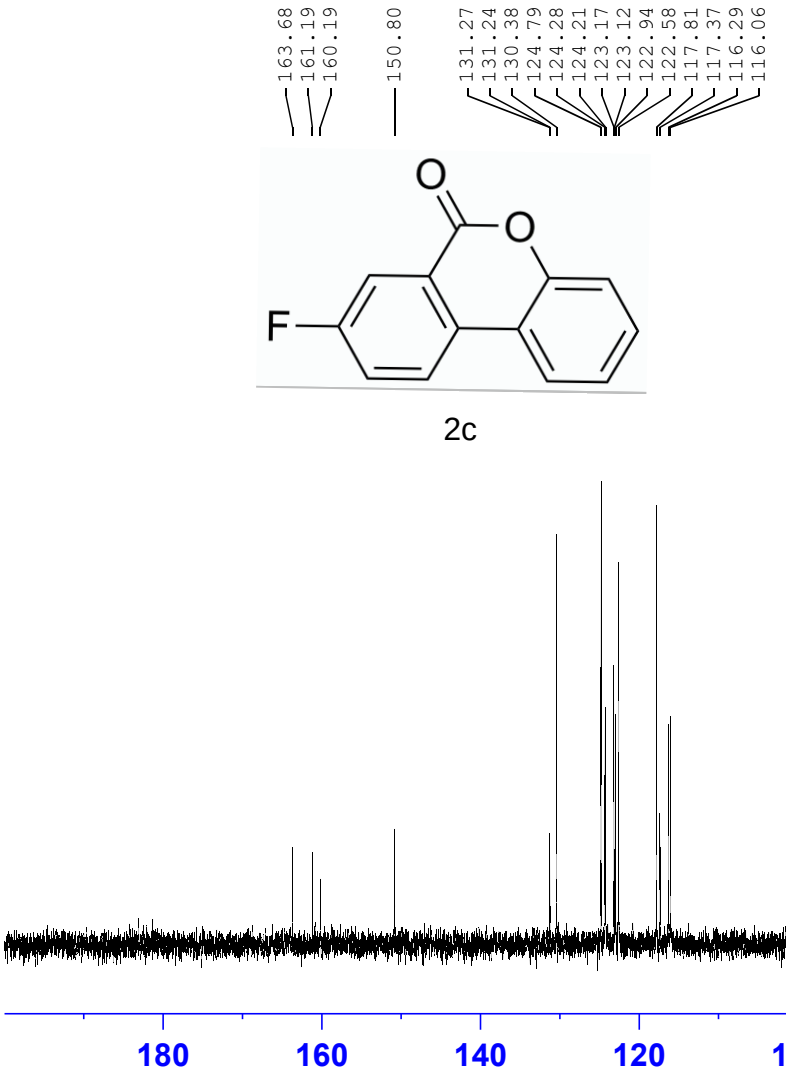


2c

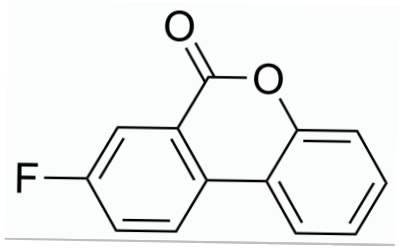



```
Current Data Parameters
NAME                  lz
EXPNO                  7
PROCNO                 1

F2 - Acquisition Parameters
Date_           20181218
Time               9.58
INSTRUM           spect
PROBHD   5 mm PABBO BB/
PULPROG            zg30
TD                32768
SOLVENT           CDCl3
NS                   10
DS                    0
SWH            8012.820 Hz
FIDRES         0.244532 Hz
AQ            2.0447233 sec
RG               206.33
DW               62.400 usec
DE                6.50 usec
TE               298.0 K
D1           2.00000000 sec
D11      0 sec
TD0                   1

======== CHANNEL f1 ========
SFO1        400.2424716 MHz
NUC1                1H
P1                14.80 usec
PLW1        12.00000000 W

======== CHANNEL f2 ========
SFO2        400.2424716 MHz
NUC2                off
CPDPRG[2
PCPD2     0 usec
PLW2      0 W
PLW12     0 W
PLW13     0 W

F2 - Processing parameters
SI                 65536
SF          400.2400080 MHz
WDW                 EM
SSB       0
LB                0.30 Hz
GB        0
PC                1.00
```

1010B(p'-F)-T




```
Current Data Parameters
NAME                   lz
EXPNO                   8
PROCNO                  1

F2 - Acquisition Parameters
Date_           20181218
Time              10.00
INSTRUM           spect
PROBHD   5 mm PABBO BB/
PULPROG          zgpg30
TD                65536
SOLVENT           CDCl3
NS                  150
DS                    4
SWH           24038.461 Hz
FIDRES         0.366798 Hz
AQ             1.3631488 sec
RG                206.33
DW                20.800 usec
DE                 6.50 usec
TE                298.5 K
D1           2.00000000 sec
D11          0.03000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1        100.6504916 MHz
NUC1               13C
P1                10.00 usec
PLW1        54.00000000 W

======== CHANNEL f2 ========
SFO2        400.2416010 MHz
NUC2               1H
CPDPRG[2         waltz16
PCPD2             90.00 usec
PLW2        12.00000000 W
PLW12        0.34680000 W
PLW13        0.28090999 W

Processing parameters
SI                32768
SF          100.6404306 MHz
WDW                EM
SSB       0
LB                1.00 Hz
GB        0
PC                1.40
```

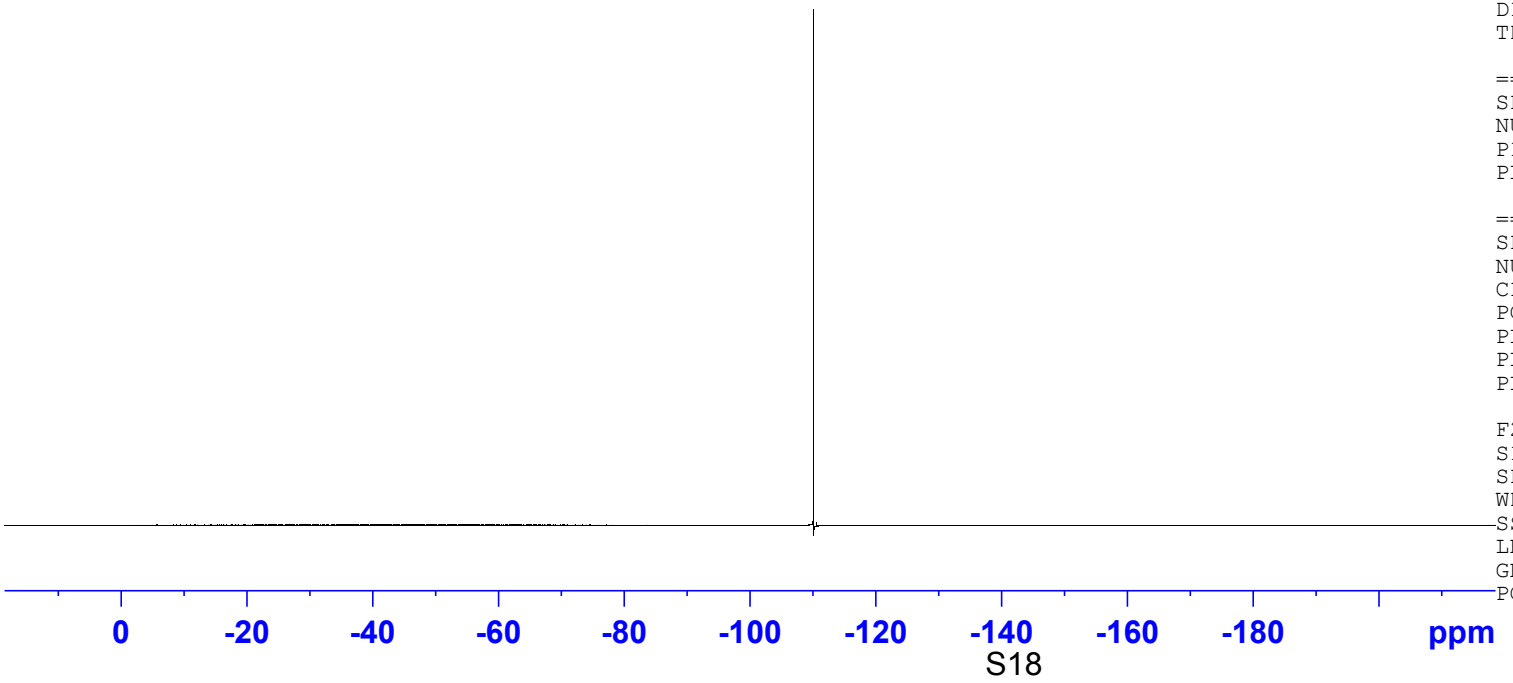


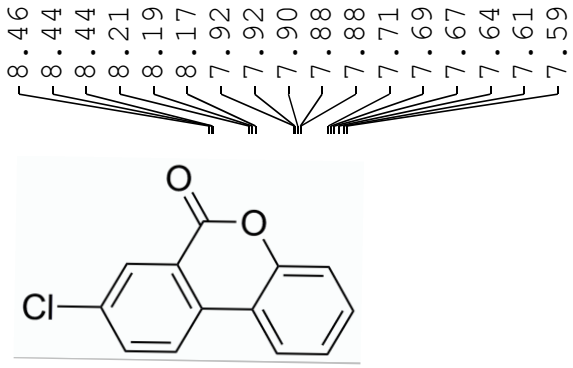
2c

-110.16

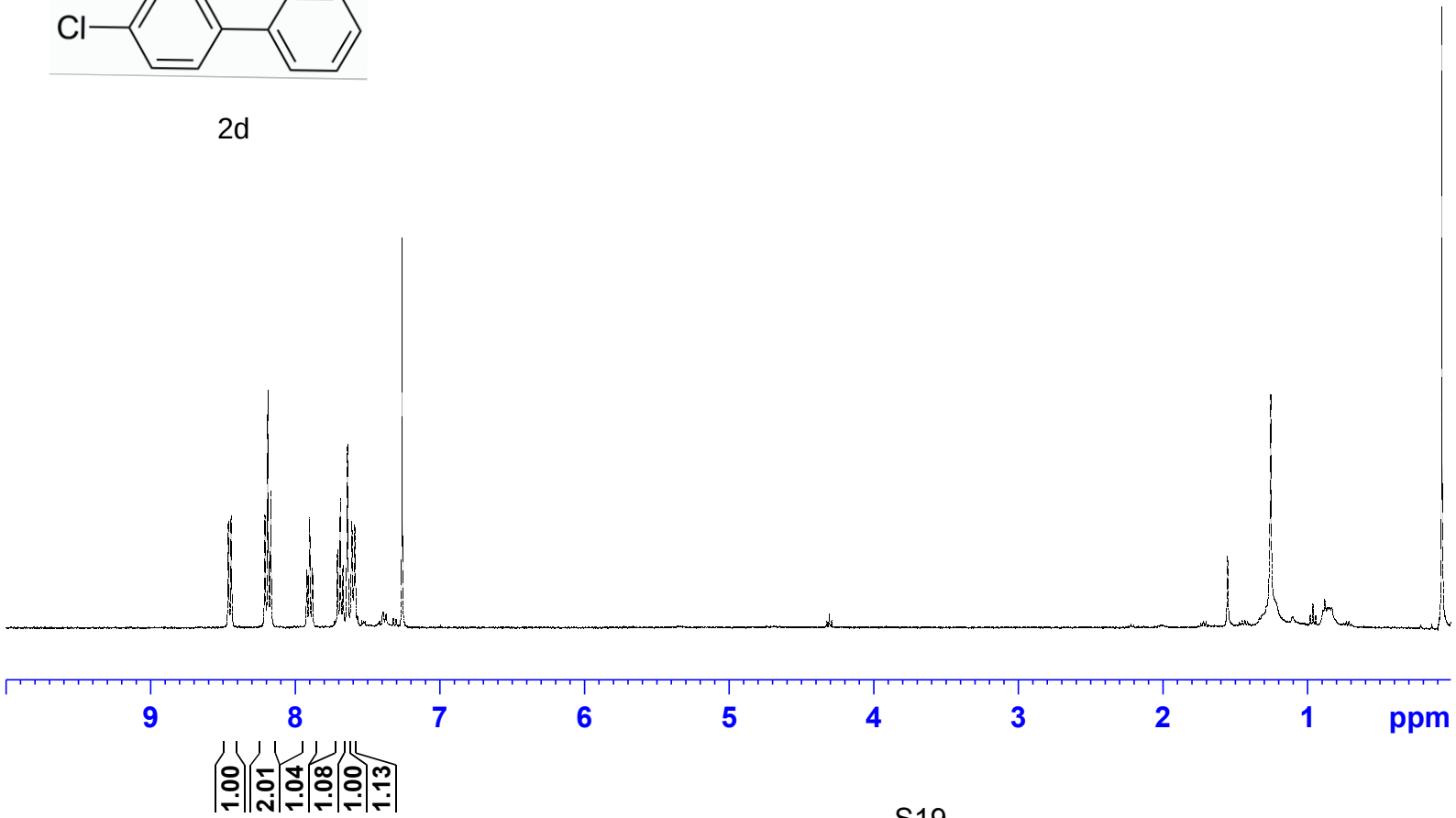
1010B(p'-F)

```
Current Data Parameters
NAME                  lz-F
EXPNO                    3
PROCNO                   1

F2 - Acquisition Parameters
Date_              20181218
Time                 10.09
INSTRUM              spect
PROBHD   5 mm PABBO BB/
PULPROG       zgfhigqn.2
TD                  131072
SOLVENT              CDCl3
NS                       9
DS                       4
SWH             89285.711 Hz
FIDRES           0.681196 Hz
AQ              0.7340032 sec
RG                 206.33
DW                  5.600 usec
DE                  6.50 usec
TE                 298.1 K
D1            1.00000000 sec
D11           0.03000000 sec
TD0                      1

======== CHANNEL f1 ========
SFO1          376.5642094 MHz
NUC1                  19F
P1                  14.50 usec
PLW1          17.98900032 W

======== CHANNEL f2 ========
SFO2          400.2416010 MHz
NUC2                  1H
CPDPRG[2          waltz16
PCPD2               90.00 usec
PLW2          12.00000000 W
PLW12          0.34680000 W
PLW13          0.28090999 W

F2 - Processing parameters
SI                   65536
SF            376.6018696 MHz
WDW                     EM
SSB       0
LB                  0.30 Hz
GB        0
PC                  1.00
```



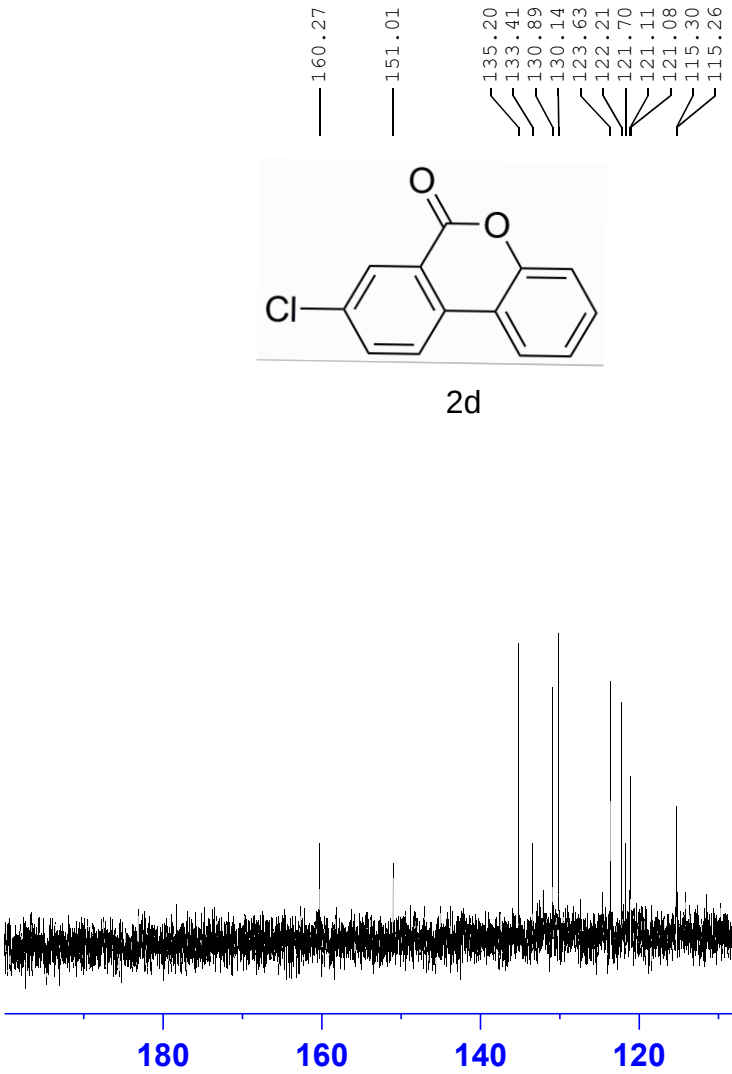


2d



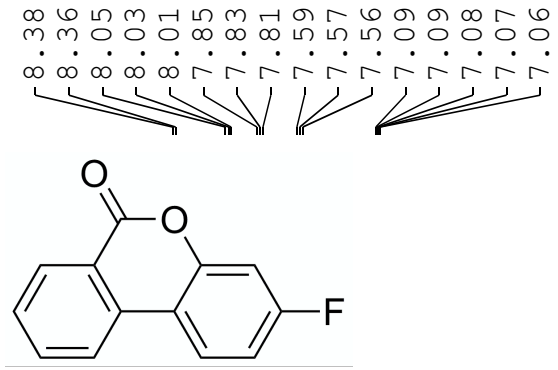

```
Current Data Parameters
NAME                   lz
EXPNO                   5
PROCNO                  1

F2 - Acquisition Parameters
Date_           20181218
Time                9.34
INSTRUM            spect
PROBHD   5 mm PABBO BB/
PULPROG             zg30
TD                 32768
SOLVENT            CDCl3
NS                     6
DS                     0
SWH             8012.820 Hz
FIDRES          0.244532 Hz
AQ             2.0447233 sec
RG                206.33
DW                62.400 usec
DE                 6.50 usec
TE                298.0 K
D1           2.00000000 sec
D11      0 sec
TD0                    1

======== CHANNEL f1 ========
SFO1         400.2424716 MHz
NUC1                   1H
P1                 14.80 usec
PLW1         12.00000000 W

======== CHANNEL f2 ========
SFO2         400.2424716 MHz
NUC2                 off
CPDPRG[2
PCPD2     0 usec
PLW2      0 W
PLW12     0 W
PLW13     0 W

F2 - Processing parameters
SI                 65536
SF           400.2400092 MHz
WDW                  EM
SSB       0
LB                 0.30 Hz
GB        0
PC                 1.00
```

1010C(p'-Br)

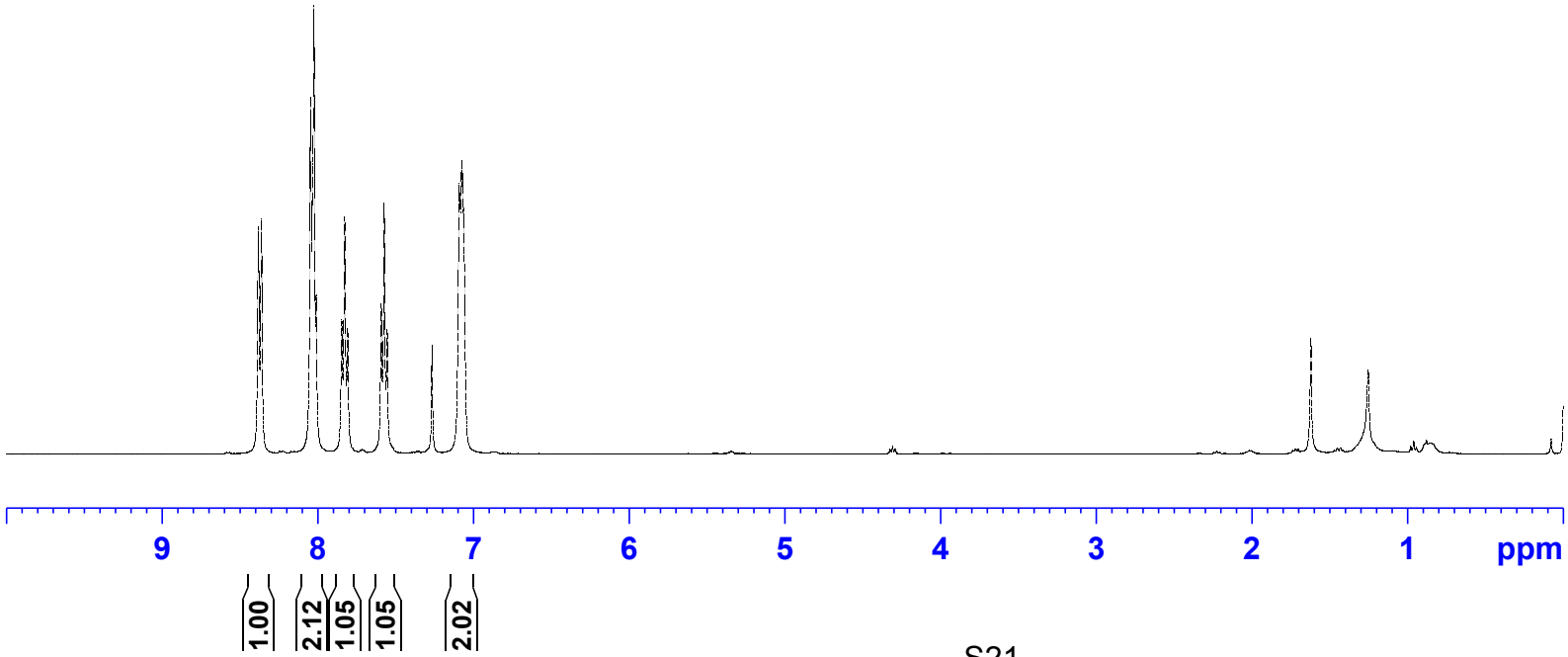



```
Current Data Parameters
NAME                   lz
EXPNO                   6
PROCNO                  1

F2 - Acquisition Parameters
Date_           20181218
Time                9.36
INSTRUM            spect
PROBHD   5 mm PABBO BB/
PULPROG          zgpg30
TD                65536
SOLVENT           CDC13
NS                  300
DS                    4
SWH           24038.461 Hz
FIDRES         0.366798 Hz
AQ             1.3631488 sec
RG                206.33
DW                20.800 usec
DE                 6.50 usec
TE                298.3 K
D1           2.00000000 sec
D11          0.03000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1        100.6504916 MHz
NUC1                13C
P1                10.00 usec
PLW1        54.00000000 W

======== CHANNEL f2 ========
SFO2        400.2416010 MHz
NUC2                1H
CPDPRG[2         waltz16
PCPD2             90.00 usec
PLW2        12.00000000 W
PLW12        0.34680000 W
PLW13        0.28090999 W

Processing parameters
SI                 32768
SF          100.6404291 MHz
WDW                   EM
SSB       0
LB                 1.00 Hz
GB        0
PC                 1.40
```

lz-1066A

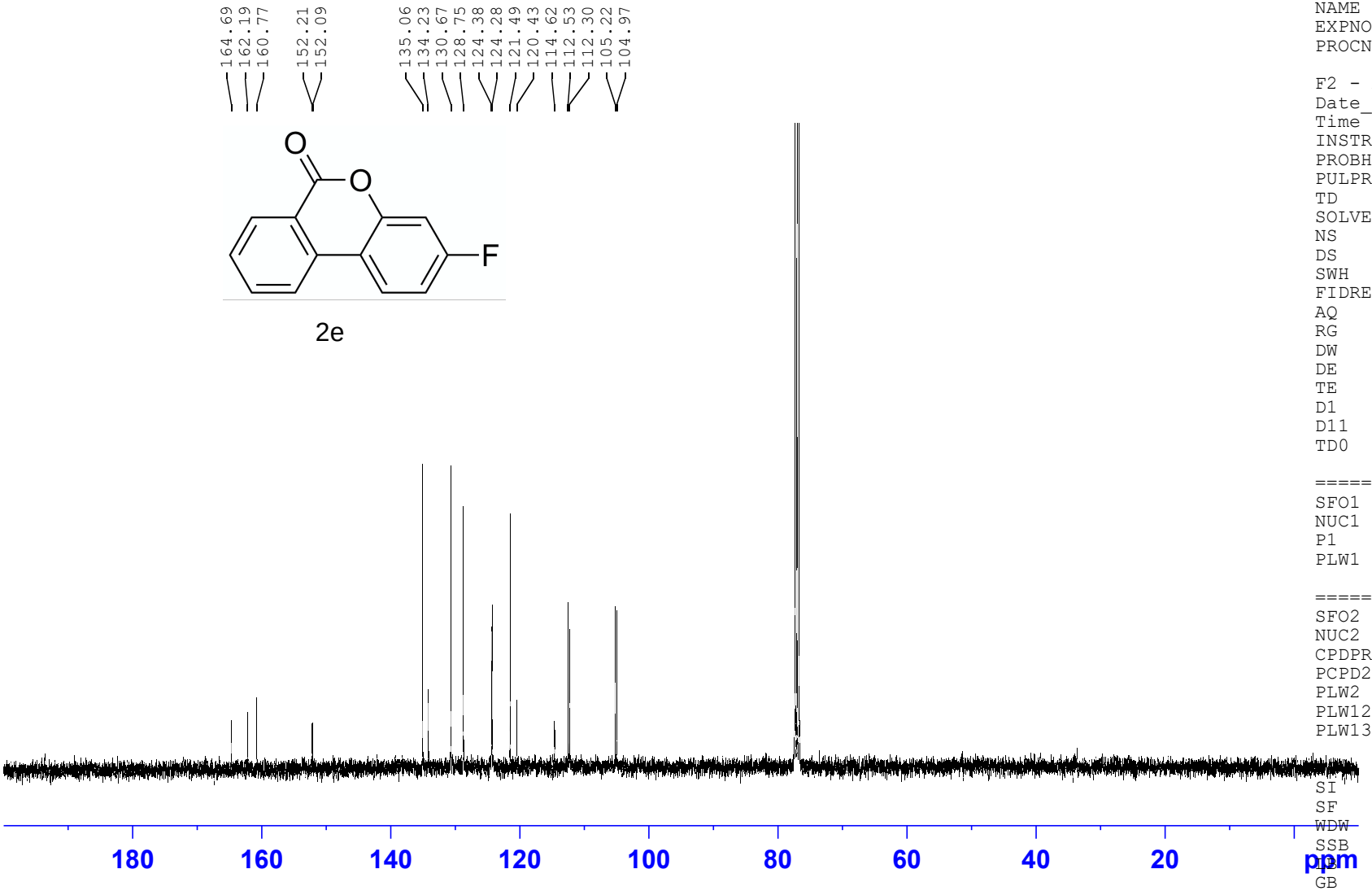


2e

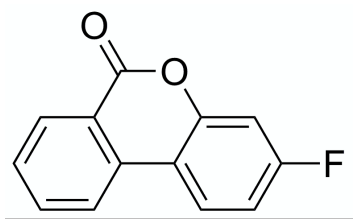



```
Current Data Parameters
NAME                  lz
EXPNO                 13
PROCNO                 1

F2 - Acquisition Parameters
Date_           20190124
Time               15.20
INSTRUM            spect
PROBHD   5 mm PABBO BB/
PULPROG             zg30
TD                 32768
SOLVENT            CDCl3
NS                    12
DS                     0
SWH             8012.820 Hz
FIDRES          0.244532 Hz
AQ             2.0447233 sec
RG                206.33
DW                62.400 usec
DE                 6.50 usec
TE                298.0 K
D1           2.00000000 sec
D11      0 sec
TD0                    1

======== CHANNEL f1 ========
SFO1         400.2424716 MHz
NUC1                   1H
P1                 14.30 usec
PLW1         12.00000000 W

======== CHANNEL f2 ========
SFO2         400.2424716 MHz
NUC2                  off
CPDPRG[2
PCPD2     0 usec
PLW2      0 W
PLW12     0 W
PLW13     0 W

F2 - Processing parameters
SI                 65536
SF           400.2400071 MHz
WDW                   EM
SSB       0
LB                 0.30 Hz
GB        0
PC                 1.00
```

lz-1066A




```
Current Data Parameters
NAME                  lz
EXPNO                 14
PROCNO                 1

F2 - Acquisition Parameters
Date_           20190124
Time              15.23
INSTRUM           spect
PROBHD   5 mm PABBO BB/
PULPROG          zgpg30
TD                65536
SOLVENT           CDCl3
NS                  150
DS                    4
SWH           24038.461 Hz
FIDRES         0.366798 Hz
AQ             1.3631488 sec
RG                206.33
DW                20.800 usec
DE                 6.50 usec
TE                298.0 K
D1           2.00000000 sec
D11          0.03000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1        100.6504916 MHz
NUC1                13C
P1                10.00 usec
PLW1        54.00000000 W

======== CHANNEL f2 ========
SFO2        400.2416010 MHz
NUC2                1H
CPDPRG[2         waltz16
PCPD2             90.00 usec
PLW2        12.00000000 W
PLW12        0.30294999 W
PLW13        0.24539000 W

Processing parameters
SI                 32768
SF          100.6404306 MHz
WDW                   EM
SSB       0
LB                 1.00 Hz
GB        0
PC                 1.40
```



2e

-108.39

1066A

Current Data Parameters
NAME lz-F
EXPNO 5
PROCNO 1

F2 - Acquisition Parameters
Date_ 20190124
Time 15.32
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgfhigqn.2
TD 131072
SOLVENT CDCl3
NS 7
DS 4
SWH 89285.711 Hz
FIDRES 0.681196 Hz
AQ 0.7340032 sec
RG 206.33
DW 5.600 usec
DE 6.50 usec
TE 298.1 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1

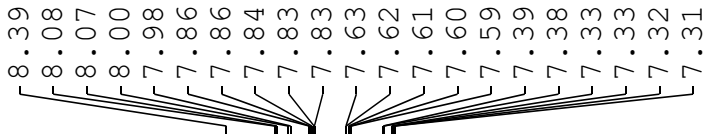
======== CHANNEL f1 ========
SFO1 376.5642094 MHz
NUC1 19F
P1 14.50 usec
PLW1 17.98900032 W

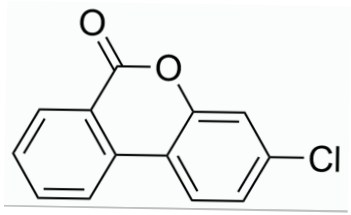
======== CHANNEL f2 ========
SFO2 400.2416010 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 12.00000000 W
PLW12 0.30294999 W
PLW13 0.24539000 W

F2 - Processing parameters
SI 65536
SF 376.6018696 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

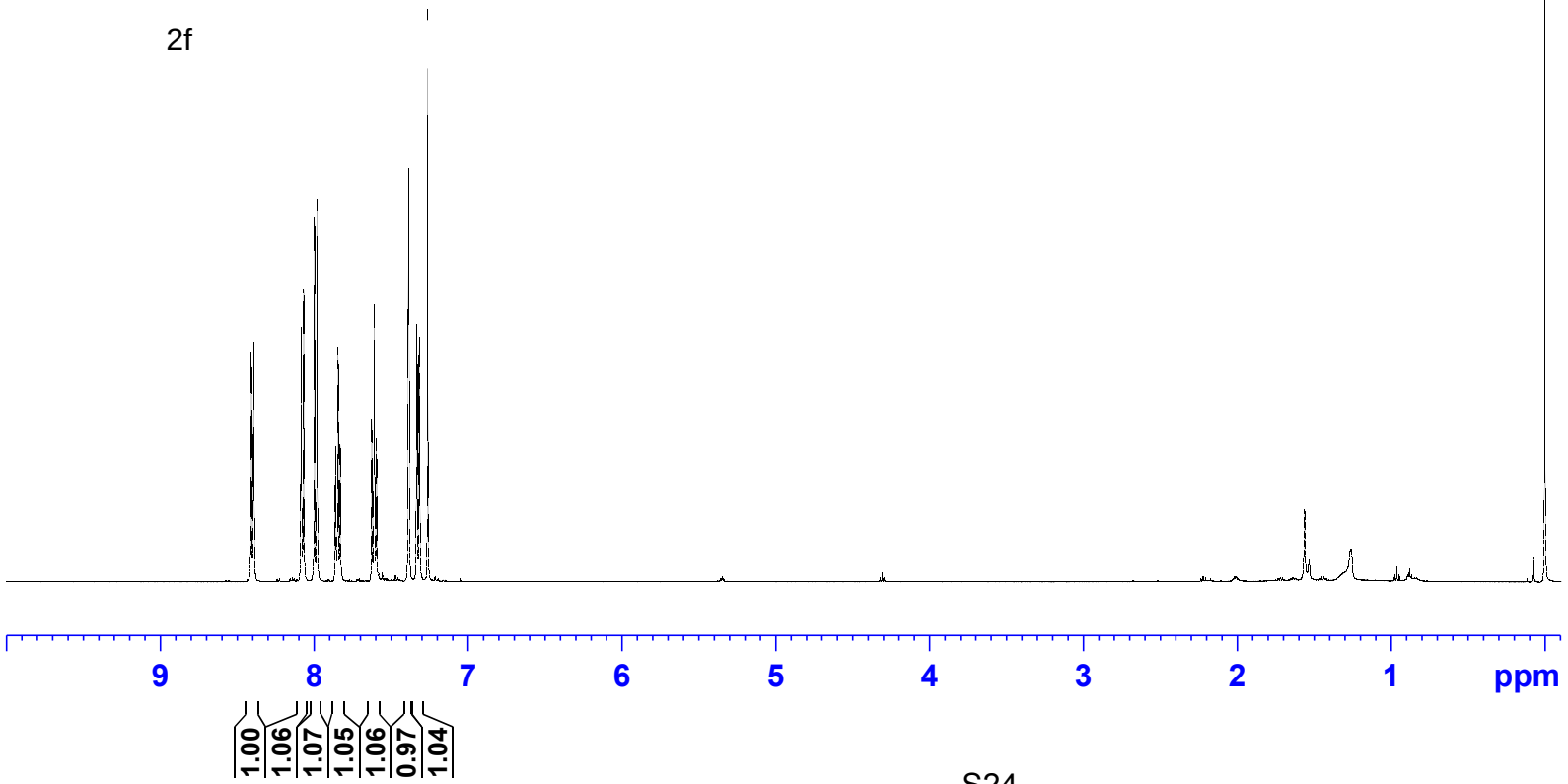
0 -20 -40 -60 -80 -100 -120 -140 -160 -180 ppm

lz-976A



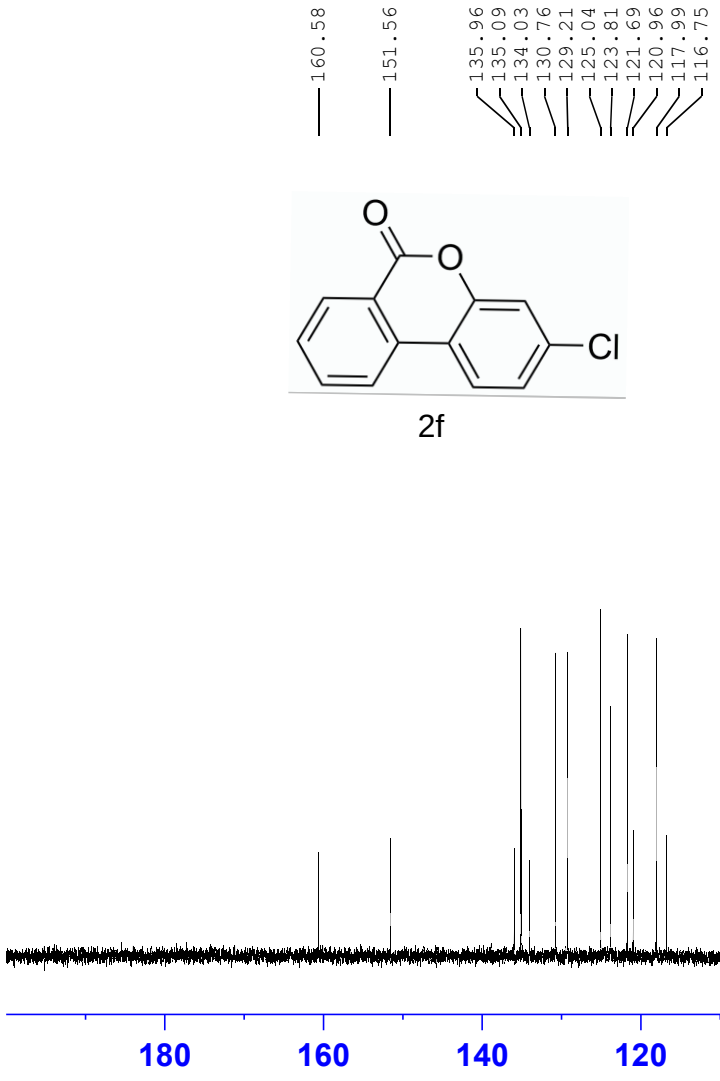


2f

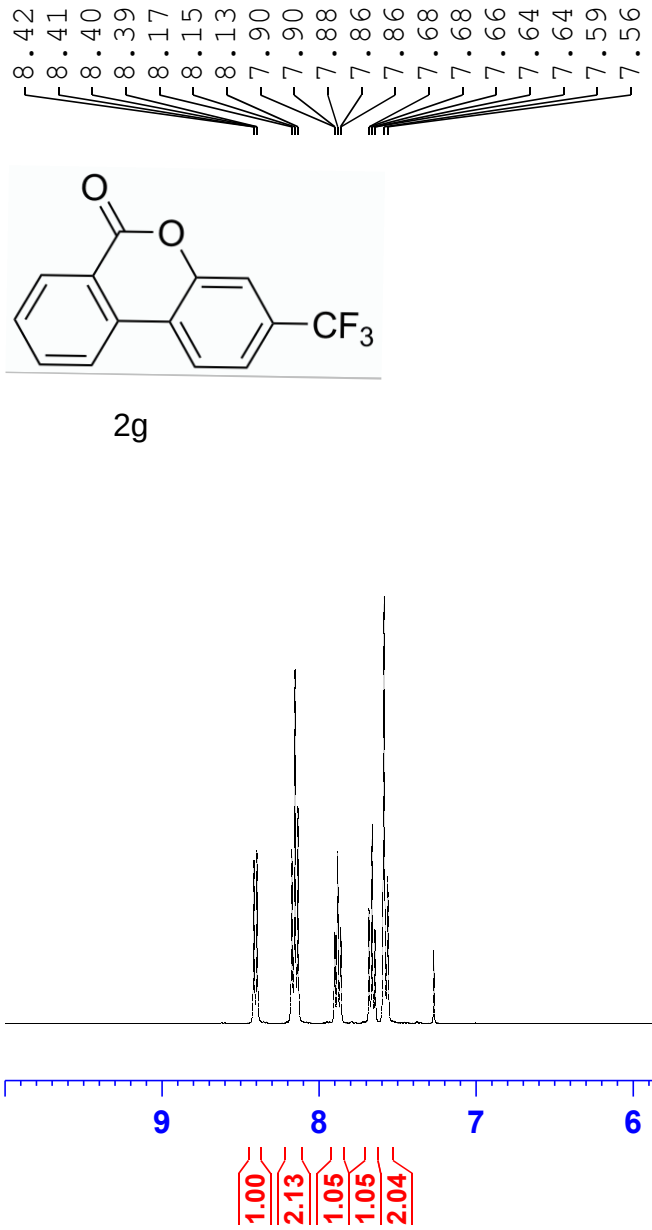



```
Current Data Parameters
NAME                   lz
EXPNO                  37
PROCNO                  1

F2 - Acquisition Parameters
Date_           20181117
Time               21.15
INSTRUM            spect
PROBHD   5 mm CPPBBO BB
PULPROG             zg30
TD                 65536
SOLVENT            CDCl3
NS                    16
DS                     2
SWH           10000.000 Hz
FIDRES         0.152588 Hz
AQ             3.2767999 sec
RG                 31.72
DW                50.000 usec
DE                 6.50 usec
TE                 298.1 K
D1            1.00000000 sec
D11      0 sec
TD0                    1

======== CHANNEL f1 ========
SFO1         500.1330885 MHz
NUC1                   1H
P1                 11.50 usec
PLW1         20.00000000 W

======== CHANNEL f2 ========
SFO2         500.1330885 MHz
NUC2                  off
CPDPRG[2
PCPD2     0 usec
PLW2      0 W
PLW12     0 W
PLW13     0 W

F2 - Processing parameters
SI                 65536
SF           500.1300112 MHz
WDW                   EM
SSB       0
LB                 0.30 Hz
GB        0
PC                 1.00
```

lz-976A



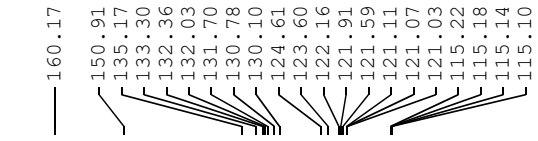

```
Current Data Parameters
NAME                   lz
EXPNO                  38
PROCNO                  1

F2 - Acquisition Parameters
Date_           20181117
Time               21.19
INSTRUM            spect
PROBHD   5 mm CPPBBO BB
PULPROG           zgpg30
TD                 65536
SOLVENT            CDCl3
NS                   120
DS                     4
SWH            29761.904 Hz
FIDRES          0.454131 Hz
AQ              1.1010048 sec
RG                192.89
DW                16.800 usec
DE                18.00 usec
TE                298.1 K
D1             2.00000000 sec
D11            0.03000000 sec
TD0                    1

======== CHANNEL f1 ========
SFO1         125.7703637 MHz
NUC1                 13C
P1                  9.80 usec
PLW1         57.00000000 W

======== CHANNEL f2 ========
SFO2         500.1320005 MHz
NUC2                 1H
CPDPRG[2          waltz16
PCPD2               80.00 usec
PLW2         20.00000000 W
PLW12         0.35778001 W
PLW13         0.22898000 W

F2 - Processing parameters
SI                   32768
SF         125.7577901 MHz
                      EM
SSB      0
LB                 1.00 Hz
GB       0
PC                 1.40
```

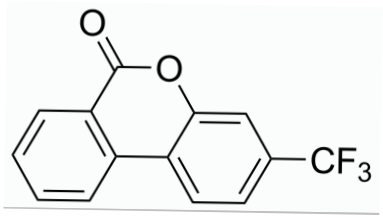


2g

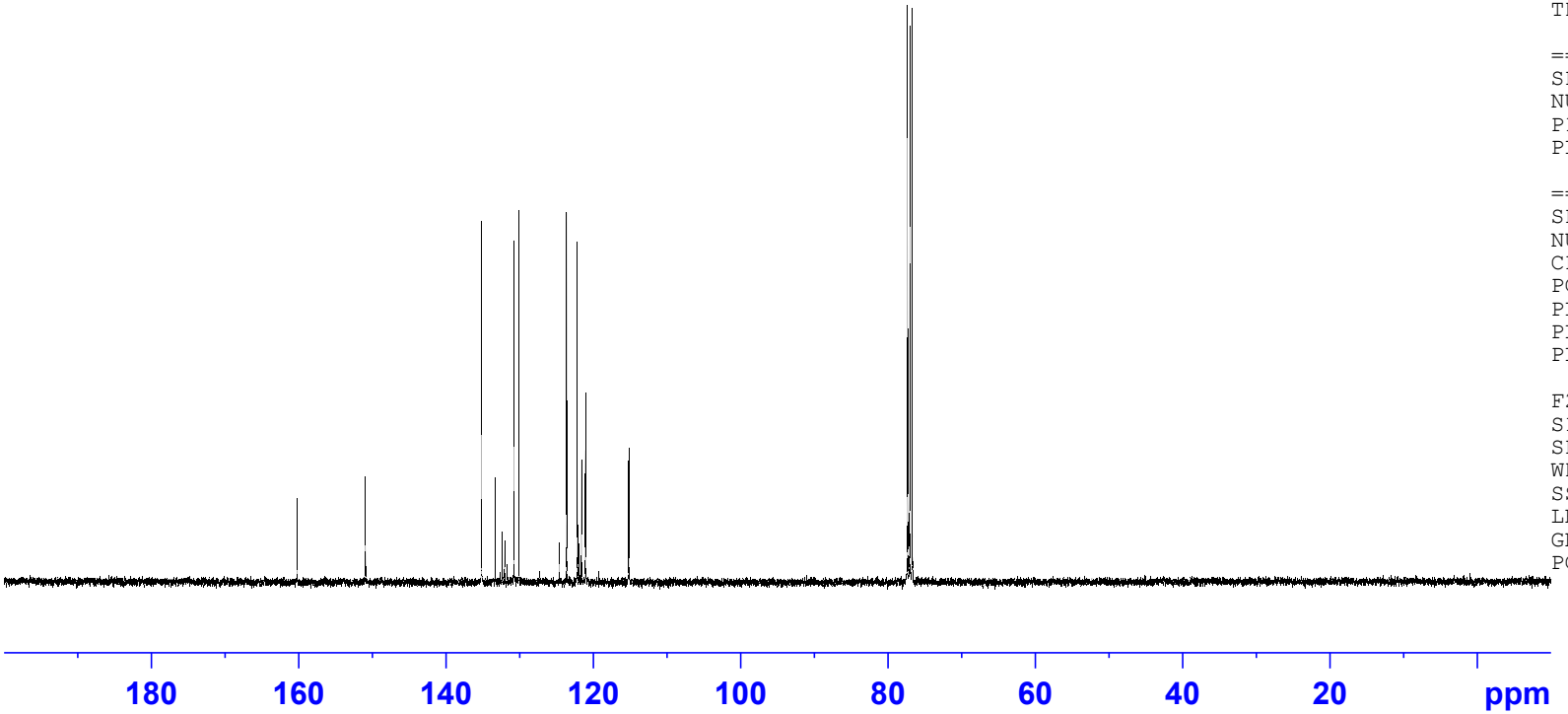
```
lz-p-CF3

Current Data Parameters
NAME                   lz
EXPNO                  18
PROCNO                  1

F2 - Acquisition Parameters
Date_           20190227
Time               14.33
INSTRUM            spect
PROBHD   5 mm PABBO BB/
PULPROG             zg30
TD                 32768
SOLVENT            CDCl3
NS                     6
DS                     0
SWH             8012.820 Hz
FIDRES          0.244532 Hz
AQ             2.0447233 sec
RG                206.33
DW                62.400 usec
DE                 6.50 usec
TE                297.8 K
D1           2.00000000 sec
D11      0 sec
TD0                    1

======== CHANNEL f1 ========
SFO1         400.2424716 MHz
NUC1                   1H
P1                14.30 usec
PLW1         12.00000000 W

======== CHANNEL f2 ========
SFO2         400.2424716 MHz
NUC2                 off
CPDPRG[2
PCPD2     0 usec
PLW2      0 W
PLW12     0 W
PLW13     0 W

F2 - Processing parameters
SI                 65536
SF           400.2400062 MHz
WDW                   EM
SSB       0
LB                0.30 Hz
GB        0
PC                1.00
```

lz-p-CF3



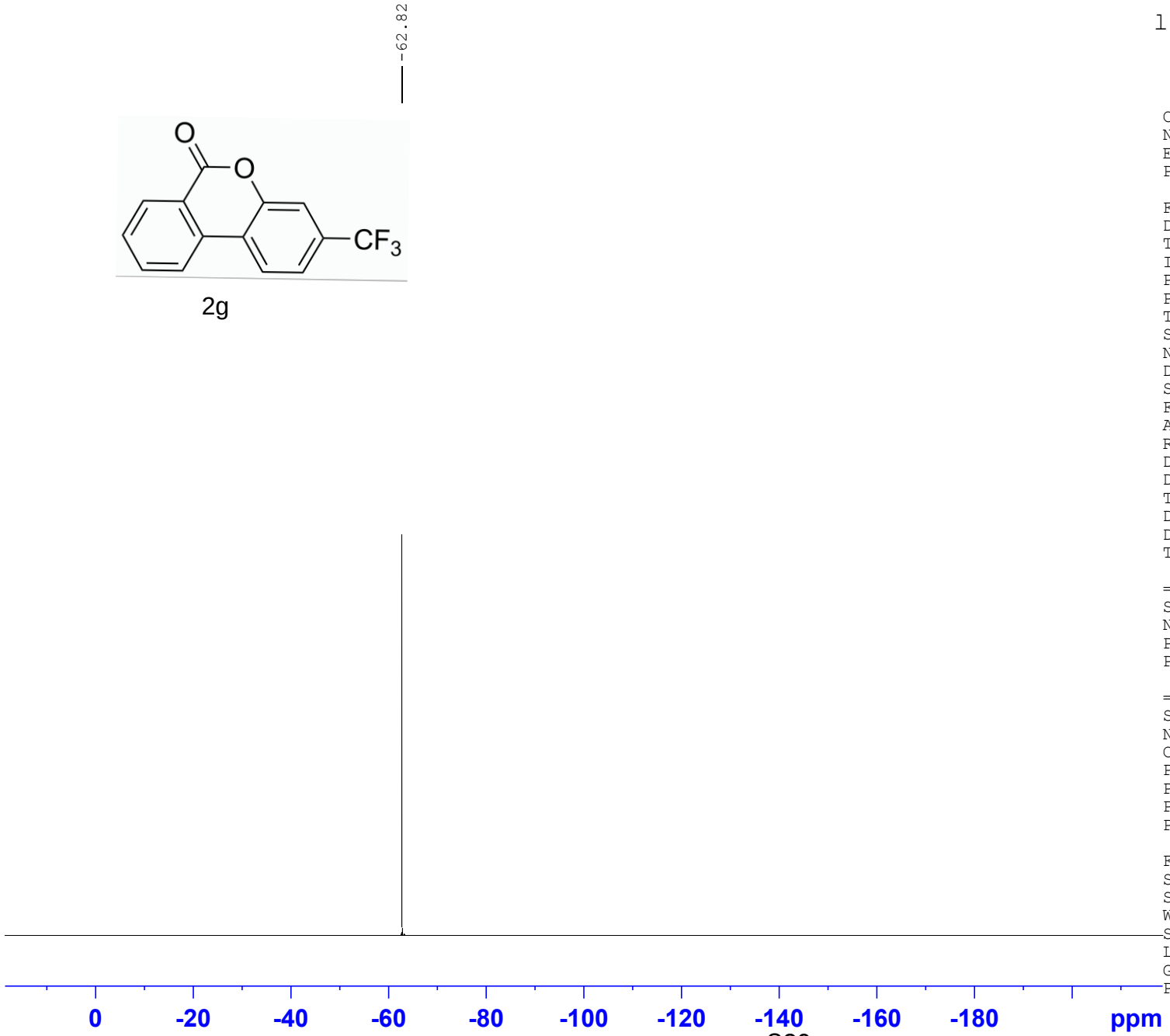


2g




```
Current Data Parameters
NAME                  lz
EXPNO                 17
PROCNO                 1

F2 - Acquisition Parameters
Date_           20190227
Time              14.20
INSTRUM           spect
PROBHD   5 mm PABBO BB/
PULPROG          zgpg30
TD                65536
SOLVENT           CDCl3
NS                  230
DS                    4
SWH           24038.461 Hz
FIDRES         0.366798 Hz
AQ             1.3631488 sec
RG                206.33
DW                20.800 usec
DE                 6.50 usec
TE                298.2 K
D1           2.00000000 sec
D11          0.03000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1        100.6504916 MHz
NUC1                13C
P1                10.00 usec
PLW1        54.00000000 W

======== CHANNEL f2 ========
SFO2        400.2416010 MHz
NUC2                1H
CPDPRG[2         waltz16
PCPD2             90.00 usec
PLW2        12.00000000 W
PLW12        0.30294999 W
PLW13        0.24539000 W

F2 - Processing parameters
SI                32768
SF          100.6404306 MHz
WDW                EM
SSB       0
LB                1.00 Hz
GB        0
PC                1.40
```

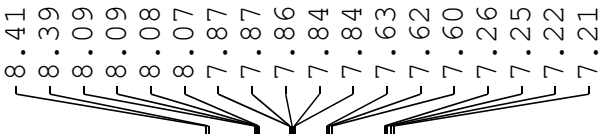
2g

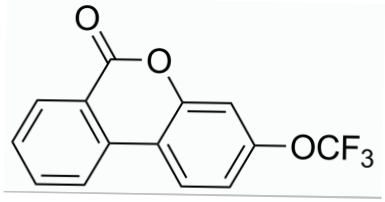


lz-p-cf3

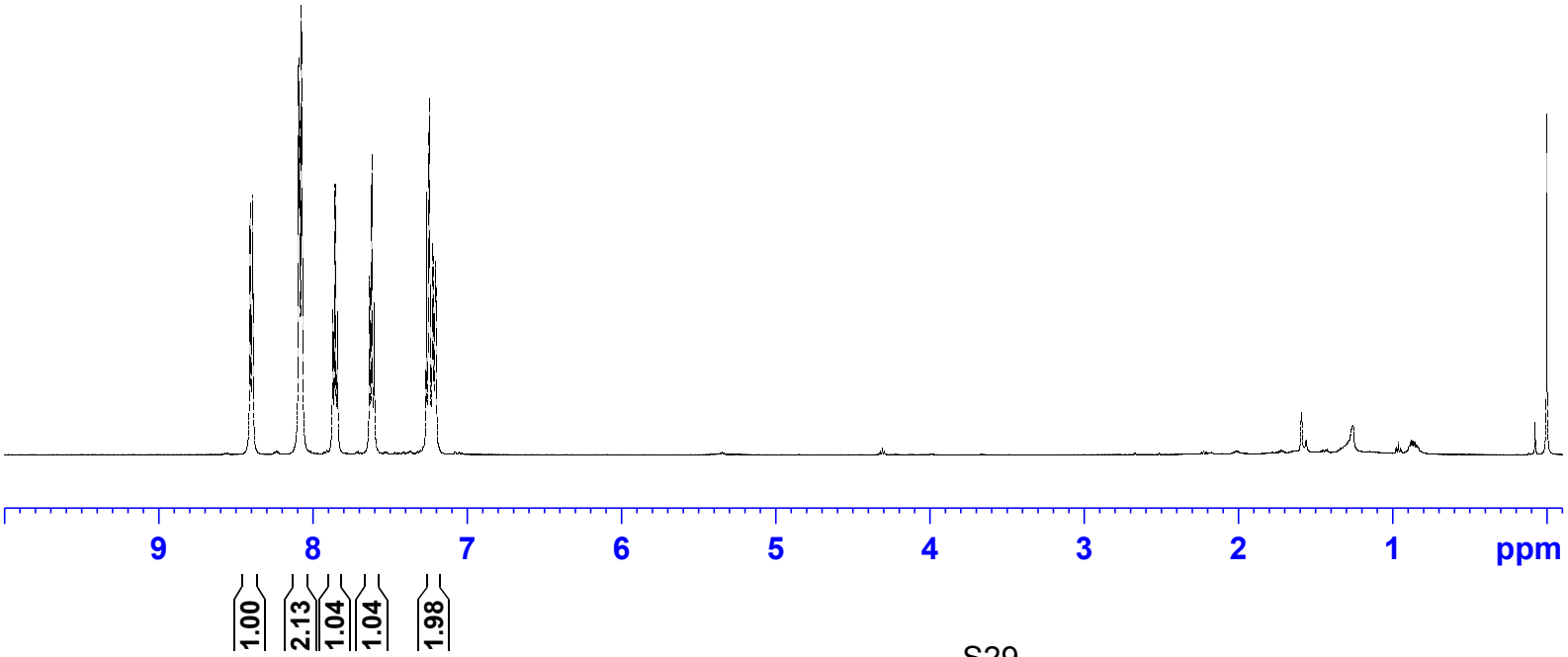
```
Current Data Parameters
NAME                  lz-F
EXPNO                    7
PROCNO                   1

F2 - Acquisition Parameters
Date_             20190227
Time                14.36
INSTRUM             spect
PROBHD   5 mm PABBO BB/
PULPROG       zgfhigqn.2
TD                 131072
SOLVENT             CDCl3
NS                     16
DS                      4
SWH             89285.711 Hz
FIDRES           0.681196 Hz
AQ              0.7340032 sec
RG                 206.33
DW                  5.600 usec
DE                  6.50 usec
TE                 298.1 K
D1             1.00000000 sec
D11            0.03000000 sec
TD0                     1

======== CHANNEL f1 ========
SFO1          376.5642094 MHz
NUC1                  19F
P1                 14.50 usec
PLW1          17.98900032 W

======== CHANNEL f2 ========
SFO2          400.2416010 MHz
NUC2                  1H
CPDPRG[2          waltz16
PCPD2              90.00 usec
PLW2          12.00000000 W
PLW12          0.30294999 W
PLW13          0.24539000 W

F2 - Processing parameters
SI                  65536
SF            376.6018696 MHz
WDW                    EM
SSB       0
LB                  0.30 Hz
GB        0
PC                  1.00
```

lz-976C



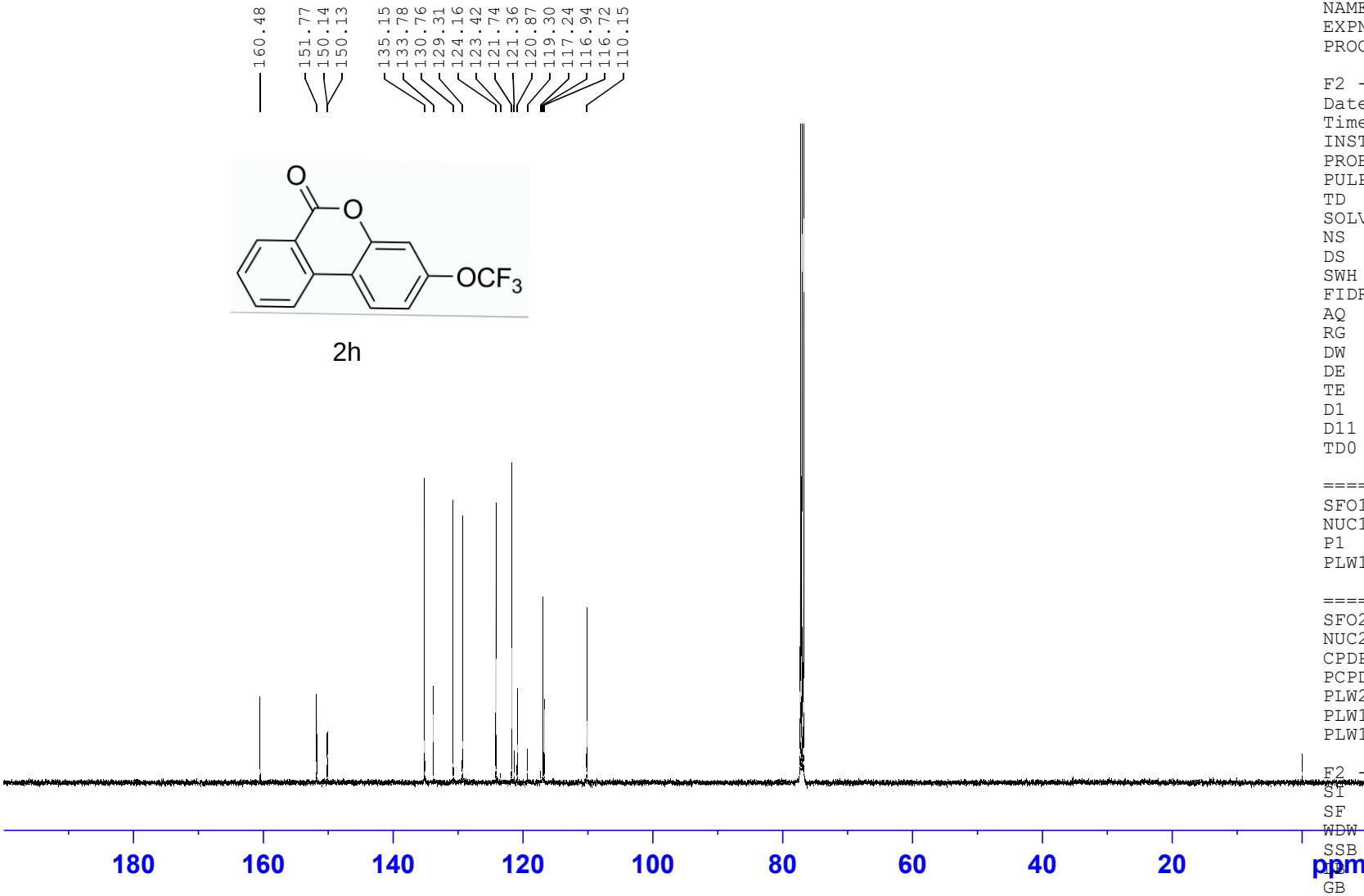


2h



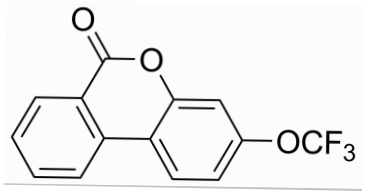

```
Current Data Parameters
NAME                   lz
EXPNO                  41
PROCNO                  1

F2 - Acquisition Parameters
Date_           20181117
Time               21.42
INSTRUM            spect
PROBHD   5 mm CPPBBO BB
PULPROG             zg30
TD                 65536
SOLVENT            CDCl3
NS                    16
DS                     2
SWH           10000.000 Hz
FIDRES            0.152588 Hz
AQ             3.2767999 sec
RG                 31.72
DW                50.000 usec
DE                 6.50 usec
TE                298.1 K
D1           1.00000000 sec
D11      0 sec
TD0                    1

======== CHANNEL f1 ========
SFO1          500.1330885 MHz
NUC1                  1H
P1                 11.50 usec
PLW1         20.00000000 W

======== CHANNEL f2 ========
SFO2          500.1330885 MHz
NUC2                 off
CPDPRG[2
PCPD2     0 usec
PLW2      0 W
PLW12     0 W
PLW13     0 W

F2 - Processing parameters
SI                 65536
SF            500.1300101 MHz
WDW                  EM
SSB       0
LB                 0.30 Hz
GB        0
PC                 1.00
```

lz-976C



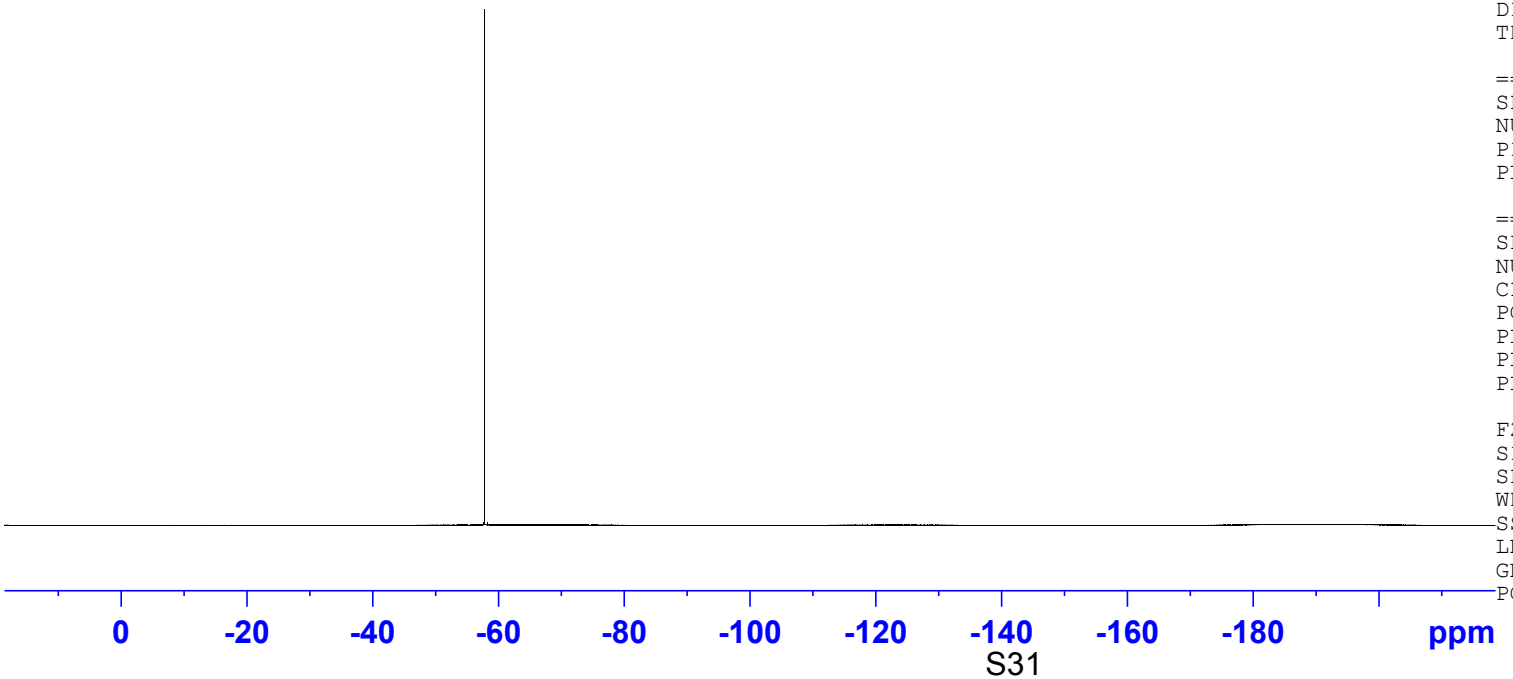

```
Current Data Parameters
NAME                   lz
EXPNO                  42
PROCNO                  1

F2 - Acquisition Parameters
Date_           20181117
Time               21.53
INSTRUM            spect
PROBHD   5 mm CPPBBO BB
PULPROG          zgpg30
TD                65536
SOLVENT           CDCl3
NS                  200
DS                    4
SWH           29761.904 Hz
FIDRES         0.454131 Hz
AQ             1.1010048 sec
RG                192.89
DW                16.800 usec
DE                18.00 usec
TE                298.2 K
D1            2.00000000 sec
D11           0.03000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1         125.7703637 MHz
NUC1                13C
P1                 9.80 usec
PLW1         57.00000000 W

======== CHANNEL f2 ========
SFO2         500.1320005 MHz
NUC2                1H
CPDPRG[2         waltz16
PCPD2             80.00 usec
PLW2         20.00000000 W
PLW12         0.35778001 W
PLW13         0.22898000 W

F2 - Processing parameters
SI                 32768
SF           125.7577910 MHz
WDW                   EM
SSB                    0
LB                  1.00 Hz
GB                     0
PC                  1.40
```

lz-976C



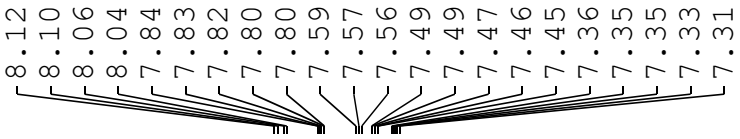
2h

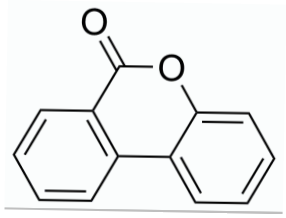
-57.84



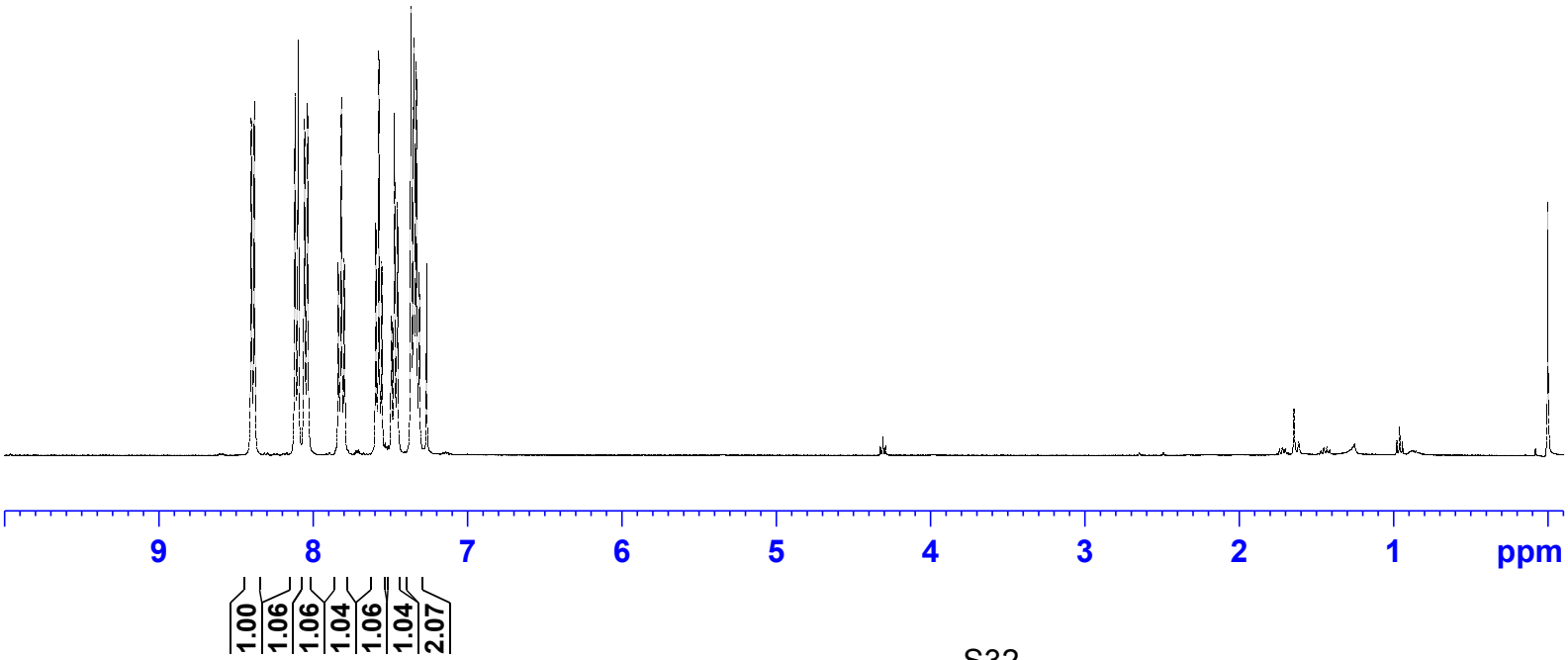

```
Current Data Parameters
NAME                  lz-F
EXPNO                    4
PROCNO                   1

F2 - Acquisition Parameters
Date_              20181118
Time                 13.45
INSTRUM              spect
PROBHD   5 mm PABBO BB/
PULPROG       zgfhigqn.2
TD                  131072
SOLVENT              CDCl3
NS                       7
DS                       4
SWH             89285.711 Hz
FIDRES           0.681196 Hz
AQ              0.7340032 sec
RG                 206.33
DW                  5.600 usec
DE                  6.50 usec
TE                 298.1 K
D1             1.00000000 sec
D11            0.03000000 sec
TD0                      1

======== CHANNEL f1 ========
SFO1          376.5642094 MHz
NUC1                  19F
P1                  14.50 usec
PLW1          17.98900032 W

======== CHANNEL f2 ========
SFO2          400.2416010 MHz
NUC2                  1H
CPDPRG[2          waltz16
PCPD2               90.00 usec
PLW2          12.00000000 W
PLW12          0.34680000 W
PLW13          0.28090999 W

F2 - Processing parameters
SI                   65536
SF            376.6018696 MHz
WDW                     EM
SSB       0
LB                  0.30 Hz
GB        0
PC                  1.00
```

lz-975C



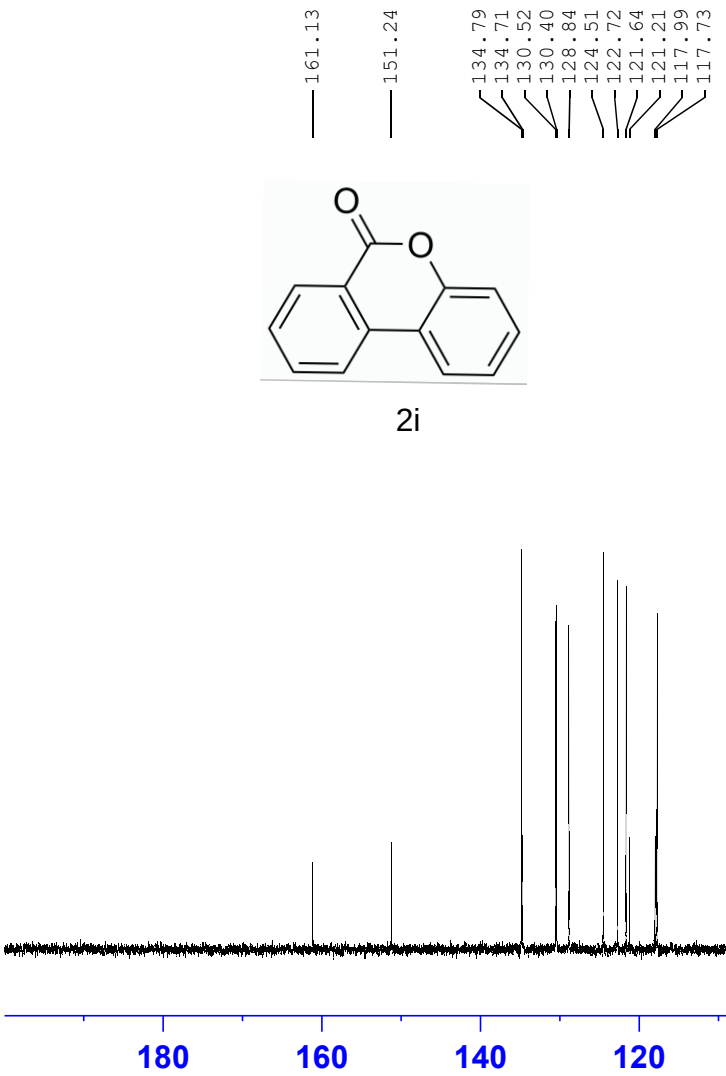


2i

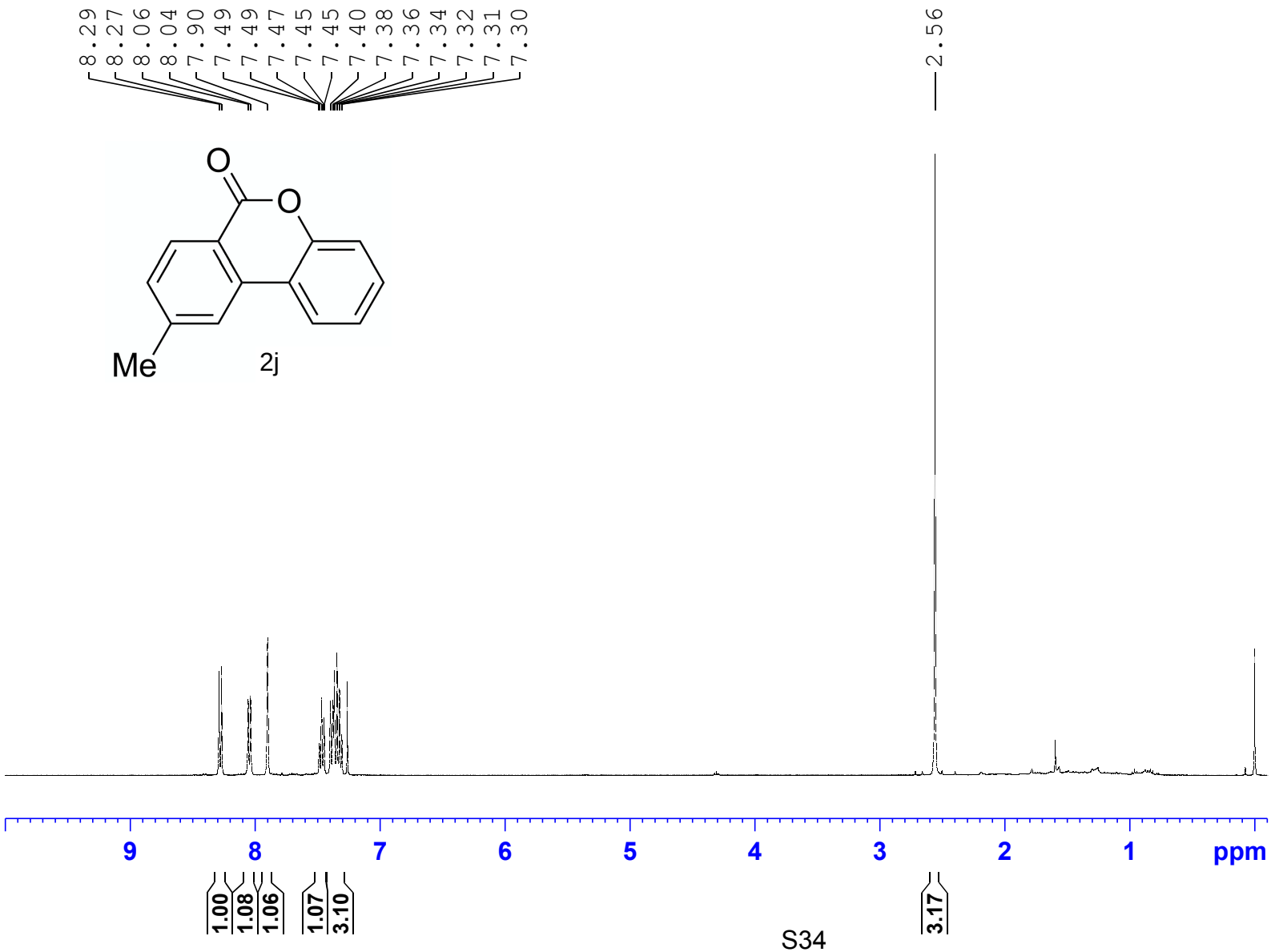



```
Current Data Parameters
NAME                  lz
EXPNO                107
PROCNO                 1

F2 - Acquisition Parameters
Date_           20181120
Time               22.28
INSTRUM            spect
PROBHD   5 mm PABBO BB/
PULPROG             zg30
TD                 32768
SOLVENT            CDCl3
NS                    16
DS                     0
SWH             8012.820 Hz
FIDRES          0.244532 Hz
AQ             2.0447233 sec
RG                206.33
DW                62.400 usec
DE                 6.50 usec
TE                298.0 K
D1           2.00000000 sec
D11      0 sec
TD0                    1

======== CHANNEL f1 ========
SFO1         400.2424716 MHz
NUC1                  1H
P1                14.80 usec
PLW1         12.00000000 W

======== CHANNEL f2 ========
SFO2         400.2424716 MHz
NUC2                 off
CPDPRG[2
PCPD2     0 usec
PLW2      0 W
PLW12     0 W
PLW13     0 W

F2 - Processing parameters
SI                 65536
SF           400.2400077 MHz
WDW                  EM
SSB       0
LB                0.30 Hz
GB        0
PC                1.00
```

lz-975C



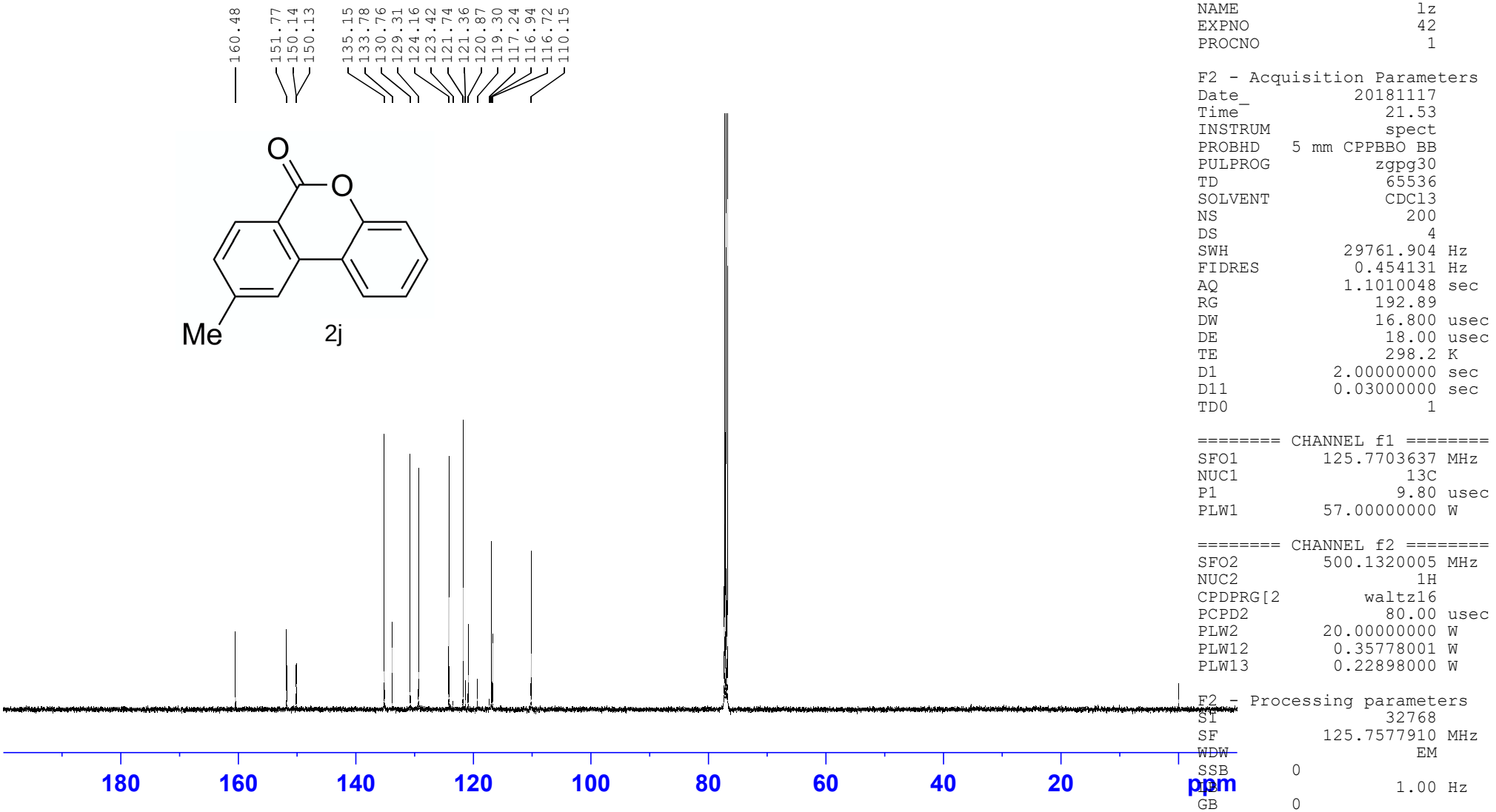

```
Current Data Parameters
NAME                   lz
EXPNO                 108
PROCNO                  1

F2 - Acquisition Parameters
Date_           20181120
Time               22.40
INSTRUM            spect
PROBHD   5 mm PABBO BB/
PULPROG          zgpg30
TD                65536
SOLVENT           CDCl3
NS                  200
DS                    4
SWH           24038.461 Hz
FIDRES         0.366798 Hz
AQ             1.3631488 sec
RG                206.33
DW                20.800 usec
DE                 6.50 usec
TE                298.0 K
D1             2.00000000 sec
D11            0.03000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1         100.6504916 MHz
NUC1                13C
P1                10.00 usec
PLW1         54.00000000 W

======== CHANNEL f2 ========
SFO2         400.2416010 MHz
NUC2                1H
CPDPRG[2         waltz16
PCPD2             90.00 usec
PLW2         12.00000000 W
PLW12         0.34680000 W
PLW13         0.28090999 W

F2 - Processing parameters
SI                 32768
SF           100.6404328 MHz
WDW                   EM
SSB       0
LB                 1.00 Hz
GB        0
PC                 1.40
```



lz-979C

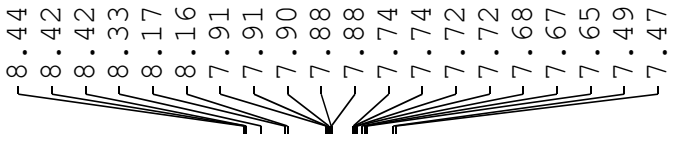
```
Current Data Parameters
NAME                   lz
EXPNO                 106
PROCNO                  1

F2 - Acquisition Parameters
Date_           20181120
Time                8.21
INSTRUM            spect
PROBHD   5 mm PABBO BB/
PULPROG             zg30
TD                 32768
SOLVENT            CDCl3
NS                    16
DS                     0
SWH             8012.820 Hz
FIDRES          0.244532 Hz
AQ             2.0447233 sec
RG                206.33
DW                62.400 usec
DE                 6.50 usec
TE                298.0 K
D1           2.00000000 sec
D11      0 sec
TD0                    1

======== CHANNEL f1 ========
SFO1         400.2424716 MHz
NUC1                   1H
P1                 14.80 usec
PLW1        12.00000000 W

======== CHANNEL f2 ========
SFO2         400.2424716 MHz
NUC2                  off
CPDPRG[2
PCPD2     0 usec
PLW2      0 W
PLW12     0 W
PLW13     0 W

F2 - Processing parameters
SI                 65536
SF           400.2400087 MHz
WDW                   EM
SSB       0
LB                 0.30 Hz
GB        0
PC                 1.00
```

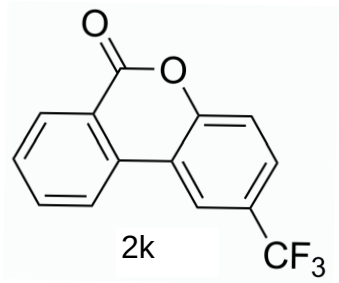
lz-976C

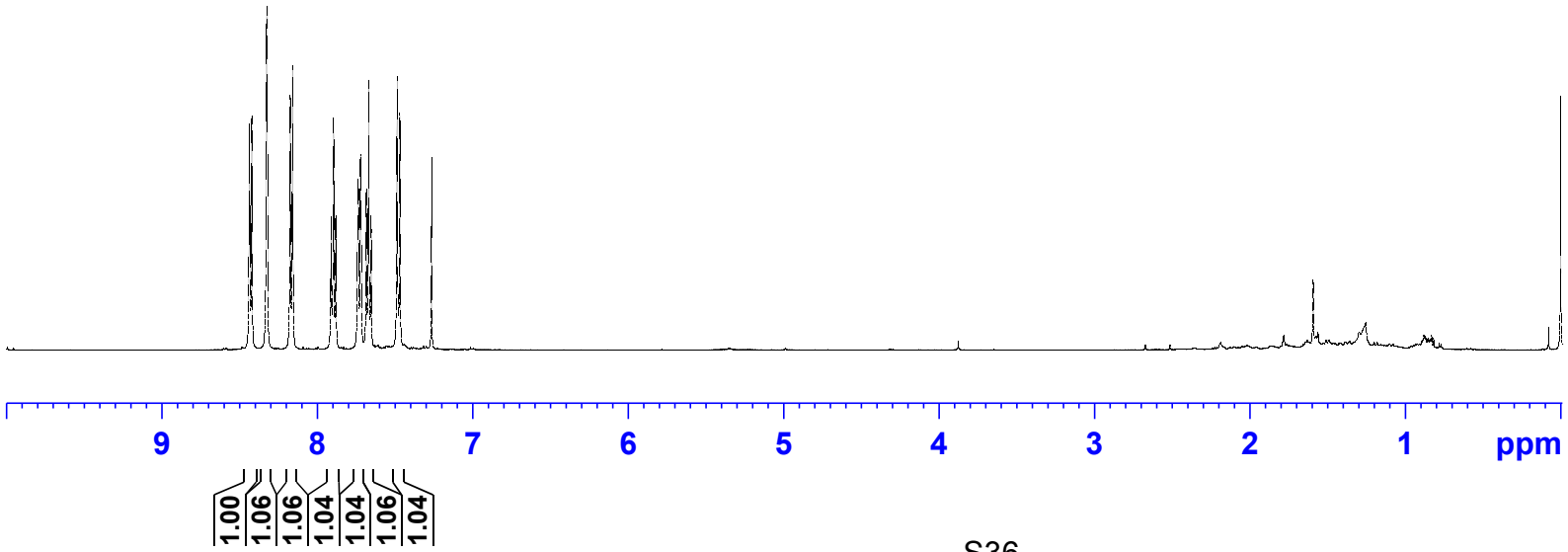



```
Current Data Parameters
NAME                   lz
EXPNO                  42
PROCNO                  1

F2 - Acquisition Parameters
Date_           20181117
Time               21.53
INSTRUM            spect
PROBHD   5 mm CPPBBO BB
PULPROG          zgpg30
TD                65536
SOLVENT           CDCl3
NS                  200
DS                    4
SWH           29761.904 Hz
FIDRES         0.454131 Hz
AQ             1.1010048 sec
RG                192.89
DW                16.800 usec
DE                18.00 usec
TE                298.2 K
D1            2.00000000 sec
D11           0.03000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1         125.7703637 MHz
NUC1                13C
P1                 9.80 usec
PLW1         57.00000000 W

======== CHANNEL f2 ========
SFO2         500.1320005 MHz
NUC2                1H
CPDPRG[2         waltz16
PCPD2             80.00 usec
PLW2         20.00000000 W
PLW12         0.35778001 W
PLW13         0.22898000 W

F2 - Processing parameters
SI                 32768
SF           125.7577910 MHz
WDW                   EM
SSB                    0
LB                  1.00 Hz
GB                     0
PC                  1.40
```

lz-977A1

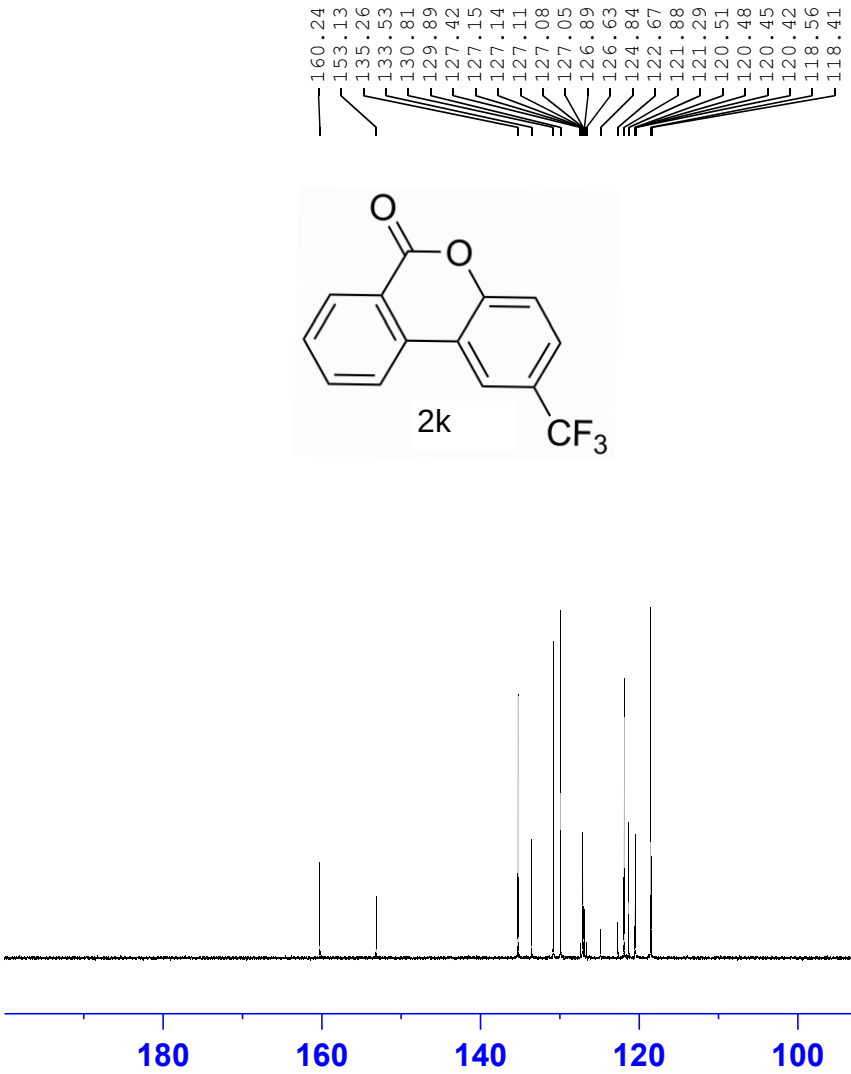






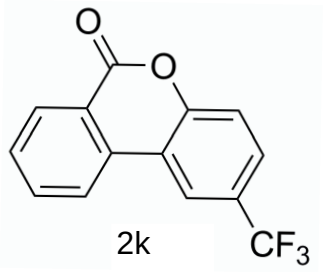

```
Current Data Parameters
NAME                  lz
EXPNO                 45
PROCNO                 1

F2 - Acquisition Parameters
Date_           20181117
Time               22.28
INSTRUM            spect
PROBHD   5 mm CPPBBO BB
PULPROG             zg30
TD                 65536
SOLVENT            CDCl3
NS                    16
DS                     2
SWH           10000.000 Hz
FIDRES         0.152588 Hz
AQ             3.2767999 sec
RG                 31.72
DW                50.000 usec
DE                 6.50 usec
TE                298.2 K
D1             1.00000000 sec
D11      0 sec
TD0                    1

======== CHANNEL f1 ========
SFO1          500.1330885 MHz
NUC1                  1H
P1                 11.50 usec
PLW1          20.00000000 W

======== CHANNEL f2 ========
SFO2          500.1330885 MHz
NUC2                 off
CPDPRG[2
PCPD2     0 usec
PLW2      0 W
PLW12     0 W
PLW13     0 W

F2 - Processing parameters
SI                 65536
SF            500.1300099 MHz
WDW                  EM
SSB       0
LB                 0.30 Hz
GB        0
PC                 1.00
```

lz-977A1

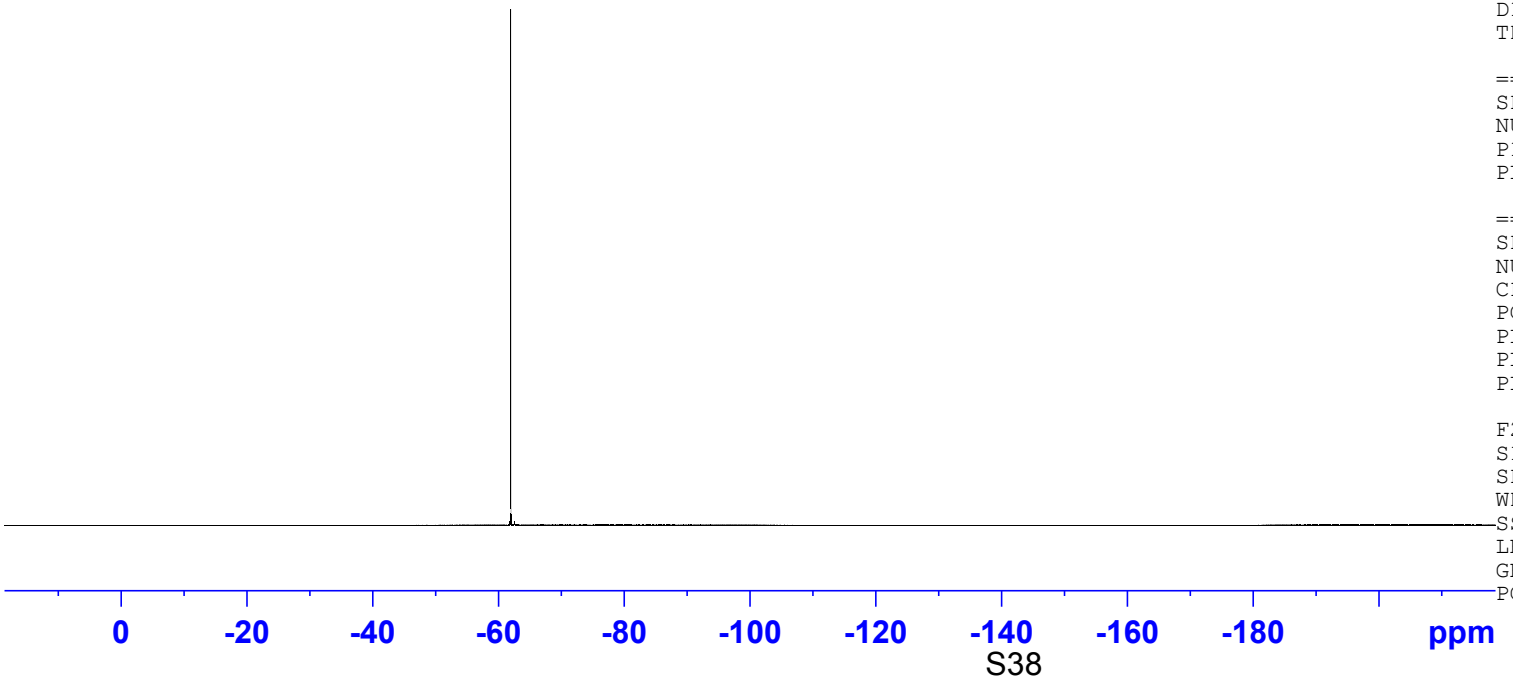



```
Current Data Parameters
NAME                  lz
EXPNO                 46
PROCNO                 1

F2 - Acquisition Parameters
Date_           20181117
Time               22.55
INSTRUM            spect
PROBHD   5 mm CPPBBO BB
PULPROG          zgpg30
TD                65536
SOLVENT           CDCl3
NS                  500
DS                    4
SWH           29761.904 Hz
FIDRES         0.454131 Hz
AQ             1.1010048 sec
RG                192.89
DW                16.800 usec
DE                18.00 usec
TE                298.2 K
D1           2.00000000 sec
D11          0.03000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1        125.7703637 MHz
NUC1                13C
P1                9.80 usec
PLW1        57.00000000 W

======== CHANNEL f2 ========
SFO2        500.1320005 MHz
NUC2                1H
CPDPRG[2         waltz16
PCPD2             80.00 usec
PLW2        20.00000000 W
PLW12        0.35778001 W
PLW13        0.22898000 W

F2 - Processing parameters
SI                 32768
SF          125.7577910 MHz
WDW                   EM
SSB       0
LB                1.00 Hz
GB        0
PC                1.40
```

lz-977A1



-62.03




```
Current Data Parameters
NAME                  lz-F
EXPNO                    5
PROCNO                   1

F2 - Acquisition Parameters
Date_              20181118
Time                 13.41
INSTRUM              spect
PROBHD   5 mm PABBO BB/
PULPROG       zgfhigqn.2
TD                  131072
SOLVENT              CDCl3
NS                       9
DS                       4
SWH             89285.711 Hz
FIDRES           0.681196 Hz
AQ              0.7340032 sec
RG                 206.33
DW                  5.600 usec
DE                  6.50 usec
TE                 298.1 K
D1             1.00000000 sec
D11            0.03000000 sec
TD0                      1

======== CHANNEL f1 ========
SFO1          376.5642094 MHz
NUC1                  19F
P1                  14.50 usec
PLW1          17.98900032 W

======== CHANNEL f2 ========
SFO2          400.2416010 MHz
NUC2                  1H
CPDPRG[2          waltz16
PCPD2               90.00 usec
PLW2          12.00000000 W
PLW12          0.34680000 W
PLW13          0.28090999 W

F2 - Processing parameters
SI                   65536
SF            376.6018696 MHz
WDW                     EM
SSB       0
LB                  0.30 Hz
GB        0
PC                  1.00
```