



Supporting Information

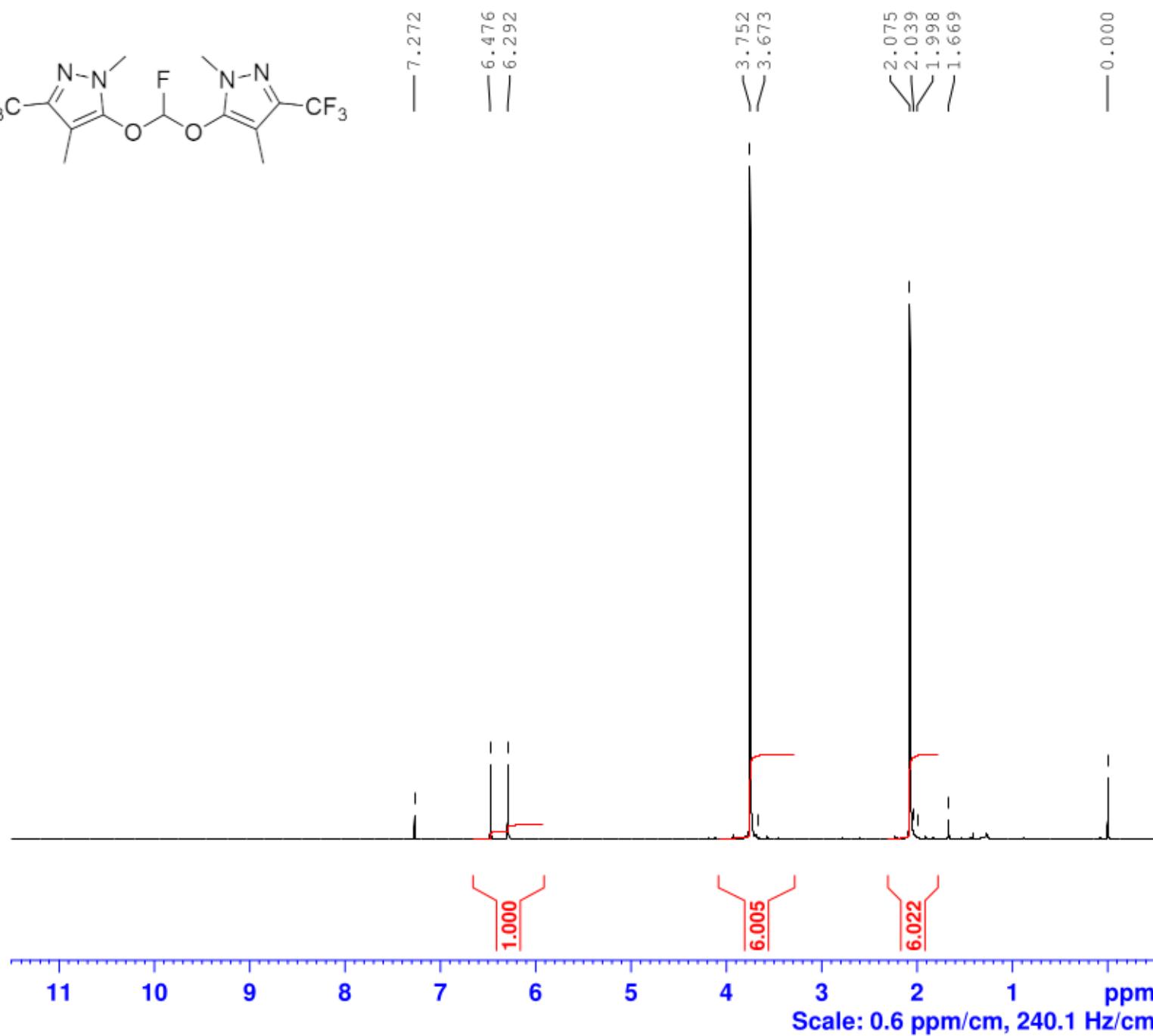
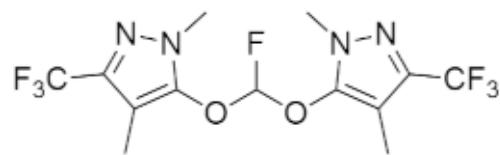
for

Synthesis of bis(aryloxy)fluoromethanes using a heterodihalocarbene strategy

Carl Recsei and Yaniv Barda

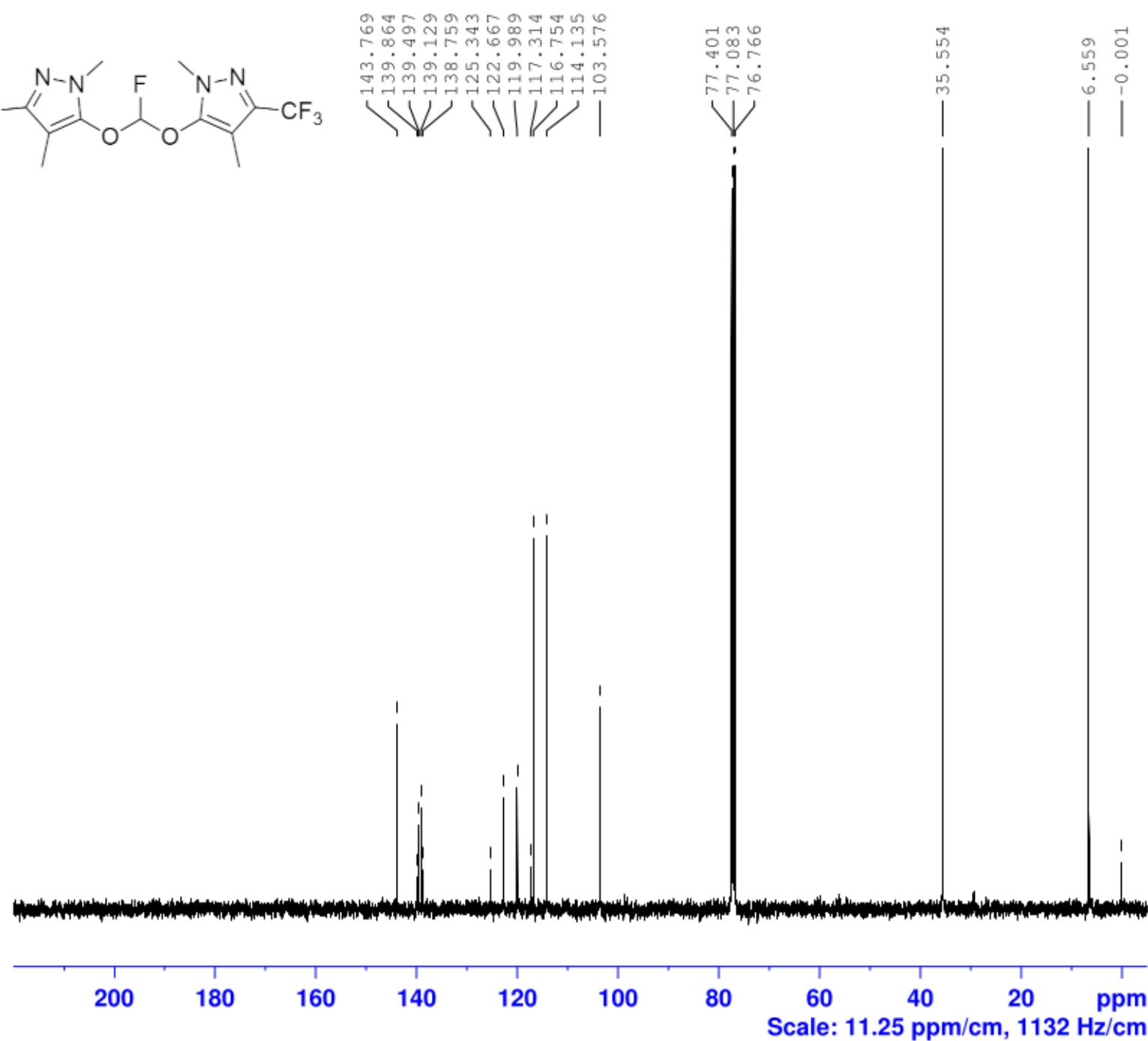
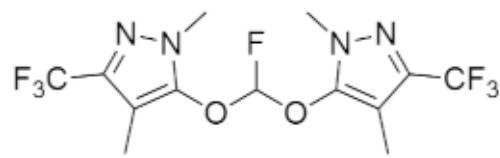
Beilstein J. Org. Chem. **2021**, *17*, 813–818. doi:10.3762/bjoc.17.70

Copies of NMR spectra



NAME P7K8.12.19
 EXPNO 1
 PROCNO 1
 Date_ 20191208
 Time 13.13
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 24
 DS 0
 SWH 7183.908 Hz
 FIDRES 0.109618 Hz
 AQ 4.5613556 sec
 RG 128
 DW 69.600 usec
 DE 6.50 usec
 TE 300.0 K
 D1 0.1000000 sec
 TDO 1

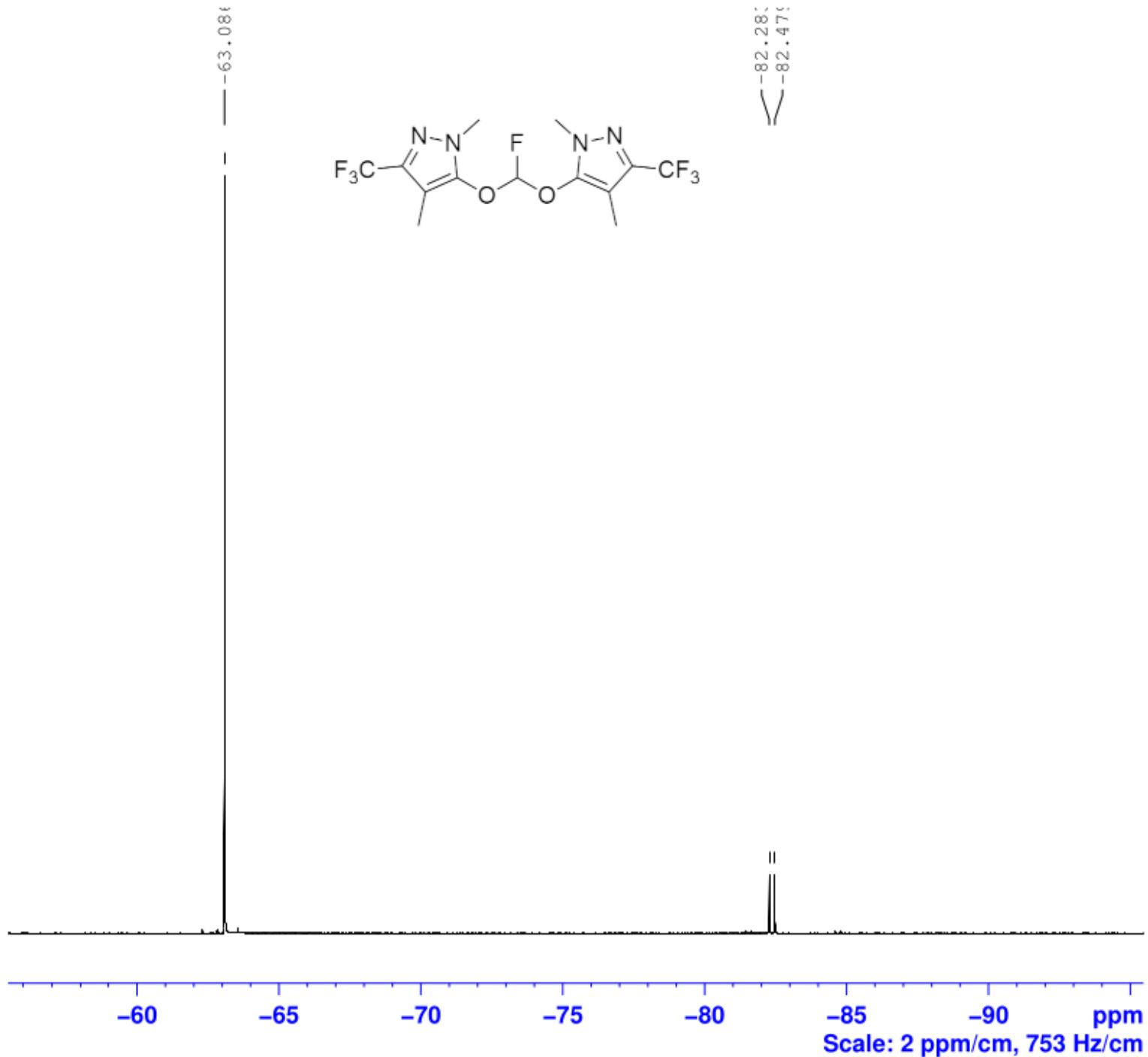
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 NUCL 1H
 P1 10.10 usec
 PL1 0.00 dB
 SF01 400.1032008 MHz
 SI 32768
 SF 400.1000058 MHz
 WDW F.M
 SSB 0
 LB 0.00 Hz
 GB 0
 PC 1.00



NAME P7K8.12.19
 EXPNO 6
 PROCNO 1
 Date_ 20191209
 Time 10.45
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG zgdc30
 TD 32768
 SOLVENT CDC13
 NS 6076
 DS 0
 SWH 24154.590 Hz
 FIDRES 0.737140 Hz
 AQ 0.6783476 se
 RG 71.8
 DW 20.700 us
 DE 29.57 us
 TE 301.1 K
 D1 0.10000000 se
 D11 0.03000000 se
 TDO 1

===== CHANNEL f1 =====
 NUC1 13C
 P1 9.20 us
 PL1 3.00 dE
 SFO1 100.6152865 MF

===== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 80.00 us
 PL2 0.00 dE
 PL12 18.00 dE
 SFO2 400.1009202 MF
 SI 32768
 SF 100.6052174 MF
 WDW EM
 SSB 0
 LB 2.00 Hz
 GB 0
 PC 1.00



The Bruker logo consists of the word "BRUKER" in a bold, black, sans-serif font. Above the letter "B", there is a blue stylized atom model with three elliptical orbits and a central nucleus.

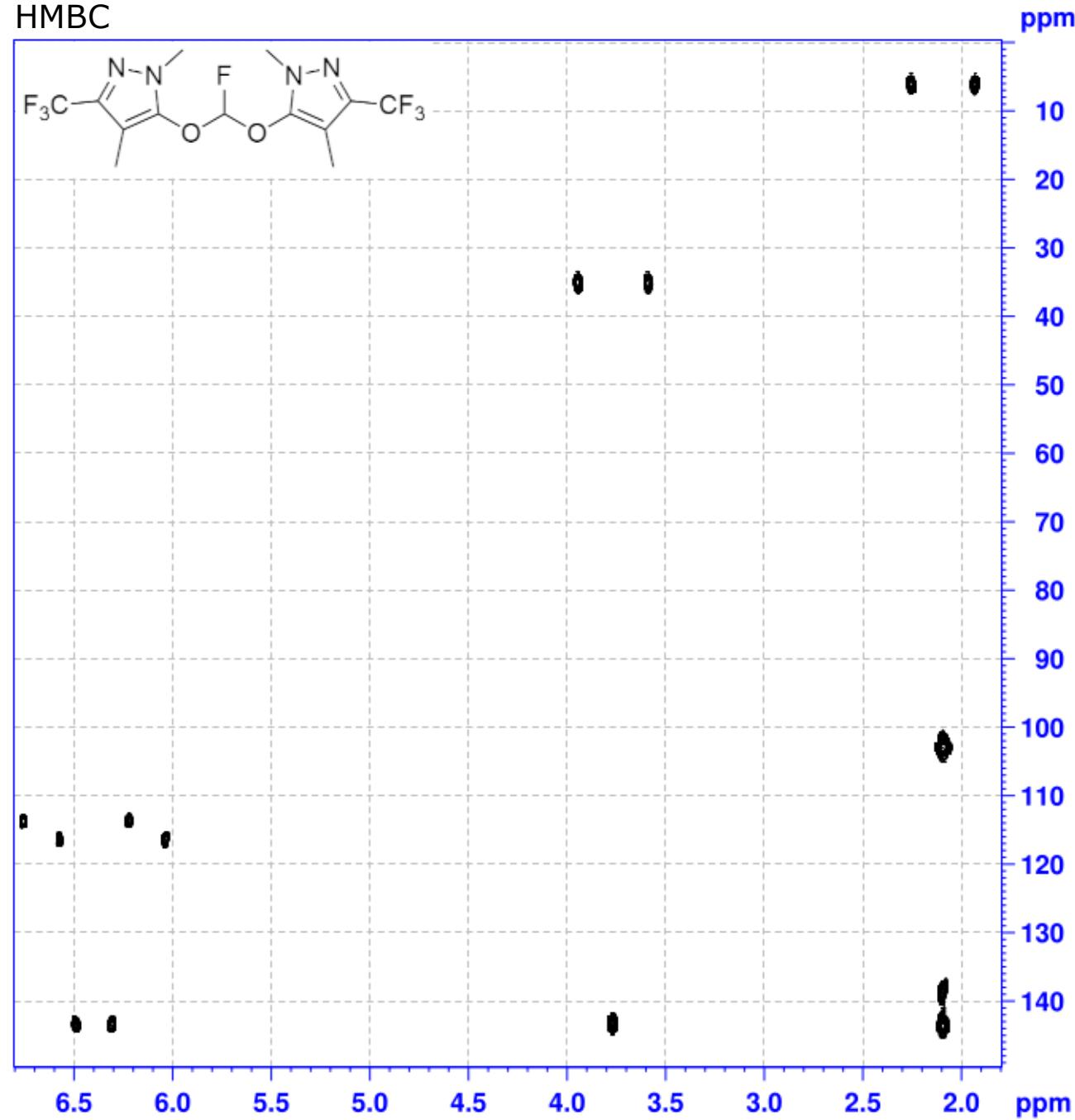
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PROCNO          1
Date_        20191208
Time          13.59
INSTRUM     spect
PROBHD      5 mm PABBO BB-
PULPROG      zg30
TD            32768
SOLVENT      CDC13
NS            8
DS            0
SWH          15060.241 Hz
FIDRES      0.459602 Hz
AQ            1.0879476 sec
RG            1149.4
DW            33.200 us
DE            6.32 us
TE            300.0 K
D1           0.10000000 se
TD0            1

```

```
===== CHANNEL f1 =====
NUC1          19F
P1            7.90 us
PL1          0.00 dE
SFO1        376.4419017 MHz
SI            32768
SF        376.4703092 MHz
WDW          EM
SSB            0
LB            0.50 Hz
GB            0
PC          1.00
```

HMBC



BRUKER

NAME P7K8.12.19
 EXPNO 4
 PROCNO 1
 Date_ 20191208
 Time 13.49
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG hmbcqplpndqr
 TD 1024
 SOLVENT CDCl3
 NS 4
 DS 2
 SWH 2003.205 Hz
 FIDRES 1.956255 Hz
 AQ 0.2556404 sec
 RG 46341
 DW 249.600 usec
 DE 241.25 usec
 TE 300.1 K
 CNST2 145.000000
 CNST13 8.000000
 D0 0.00000300 sec
 D1 1.00000000 sec
 D2 0.00344828 sec
 D6 0.06250000 sec
 D16 0.00020000 sec
 IN0 0.00003315 sec

----- CHANNEL f1 -----

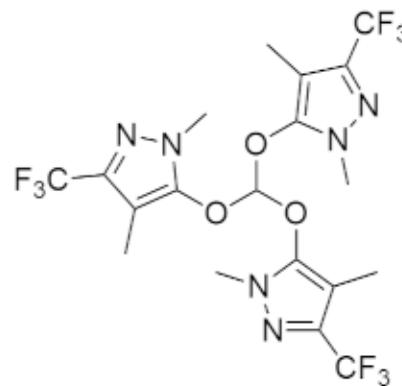
NUC1 1H
 P1 10.10 usec
 P2 20.20 usec
 PL1 0.00 dB
 SF01 400.1017204 MHz

----- CHANNEL f2 -----

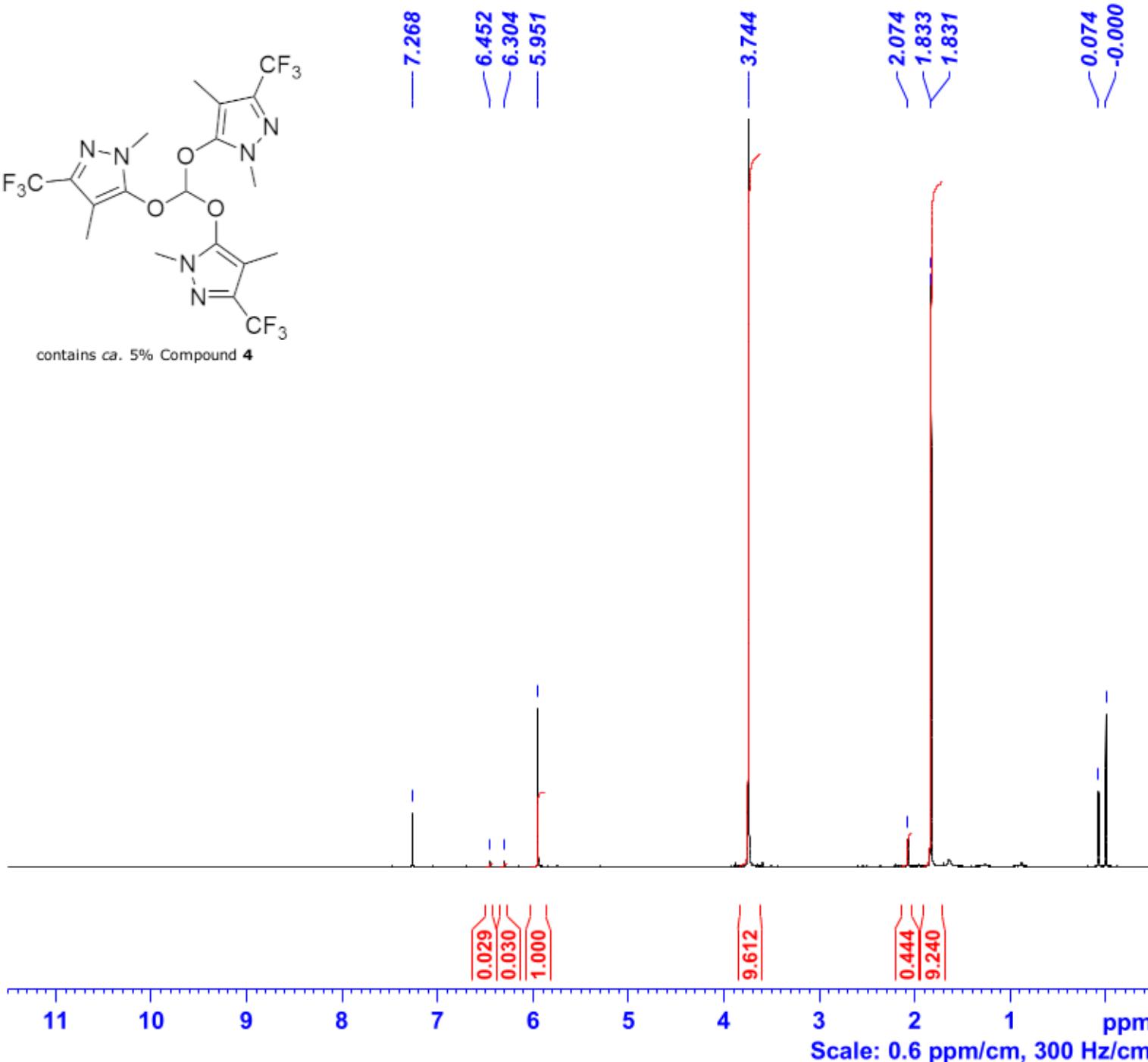
NUC2 13C
 P3 9.20 usec
 PL2 0.00 dB
 SF02 100.6127714 MHz

===== GRADIENT CHANNEL =====

GPNAM1 sine.100
 GPNAM2 sine.100
 GPNAM3 sine.100
 GPZ1 50.00 %
 GPZ2 30.00 %
 GPZ3 40.10 %
 P16 1000.00 usec
 ND0 2
 TD 67
 SF01 100.6128 MHz
 FIDRES 225.252472 Hz
 SW 150.000 ppm
 FnMODE QF
 SI 1024
 SF 400.1000005 MHz
 MDW QSINE
 SSB 0
 LB 0.00 Hz
 GB 0
 PC 1.00
 SI 512
 MC2 QF
 SF 100.6052572 MHz
 MDW QSINE
 SSB 0
 LB 0.00 Hz
 GB 0



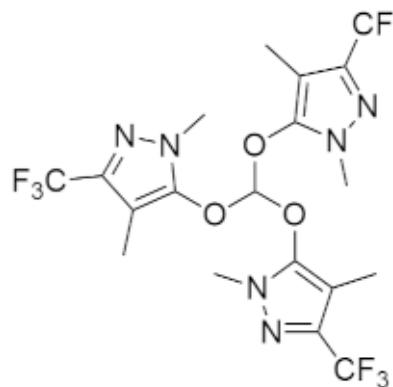
contains ca. 5% Compound 4



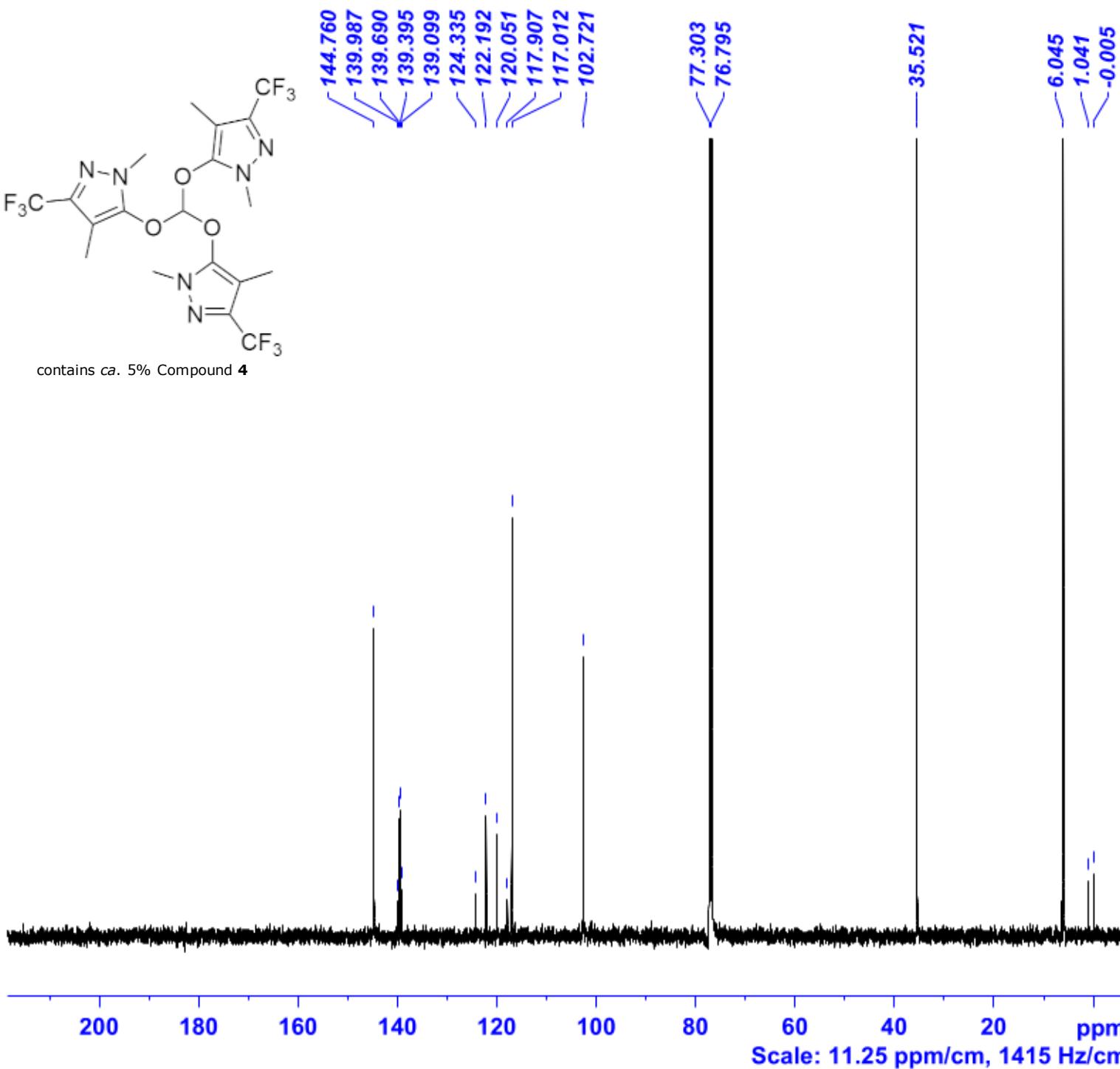
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 NAME P7K1.12.20
 EXPNO 1
 PROCNO 1

F2 - Acquisition Parameters
 Date 20201201
 Time 10.26 h
 INSTRUM spect
 PROBHD 28420_0082 (PH
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 16
 DS 0
 SWH 7002.801 Hz
 FIDRES 0.213709 Hz
 AQ 4.6792703 sec
 RG 322
 DW 71.400 usec
 DE 6.50 usec
 TE 300.0 K
 D1 0.1000000 sec
 TDO 1
 SF01 500.0430002 MHz
 NUC1 1H
 P1 10.32 usec
 PLW1 15.00000000 W

F2 - Processing parameters
 SI 65536
 SF 500.0400079 MHz
 WDW EM
 SSB 0
 LB 0 Hz
 GB 0
 PC 1.00



contains ca. 5% Compound 4

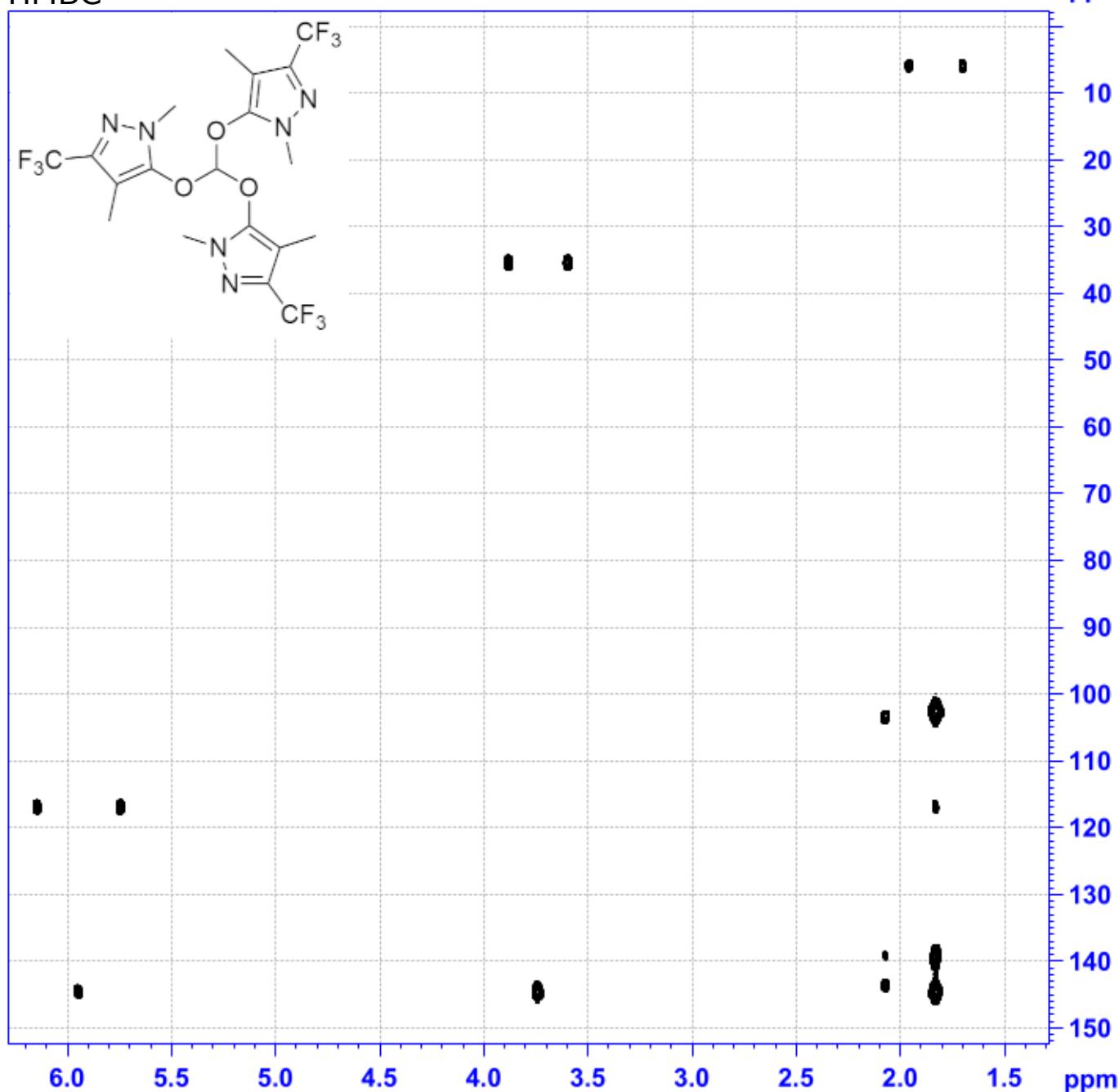


Current Data Parameters
 NAME P7K1.12.20
 EXPNO 2
 PROCNO 1

F2 - Acquisition Parameters
 Date 20201201
 Time 10.49 h
 INSTRUM spect
 PROBHD Z8420_0082 (PH
 PULPROG zgdc30
 TD 65536
 SOLVENT CDCl3
 NS 1046
 DS 0
 SWH 29761.904 Hz
 FIDRES 0.908261 Hz
 AQ 1.1010048 sec
 RG 2050
 DW 16.800 usec
 DE 6.50 usec
 TE 300.0 K
 D1 0.1000000 sec
 D11 0.0300000 sec
 TDO 1
 SFO1 125.7477315 MHz
 NUC1 13C
 P1 13.00 usec
 PLW1 55.00000000 W
 SFO2 500.0425002 MHz
 NUC2 1H
 CPDPRG[2] waltz16
 PCPD2 80.00 usec
 PLW2 15.00000000 W
 PLW12 0.24962001 W

F2 - Processing parameters
 SI 32768
 SF 125.7351531 MHz
 WDW EM
 SSB 0
 LB 2.00 Hz
 GB 0
 PC 1.00

HMBC



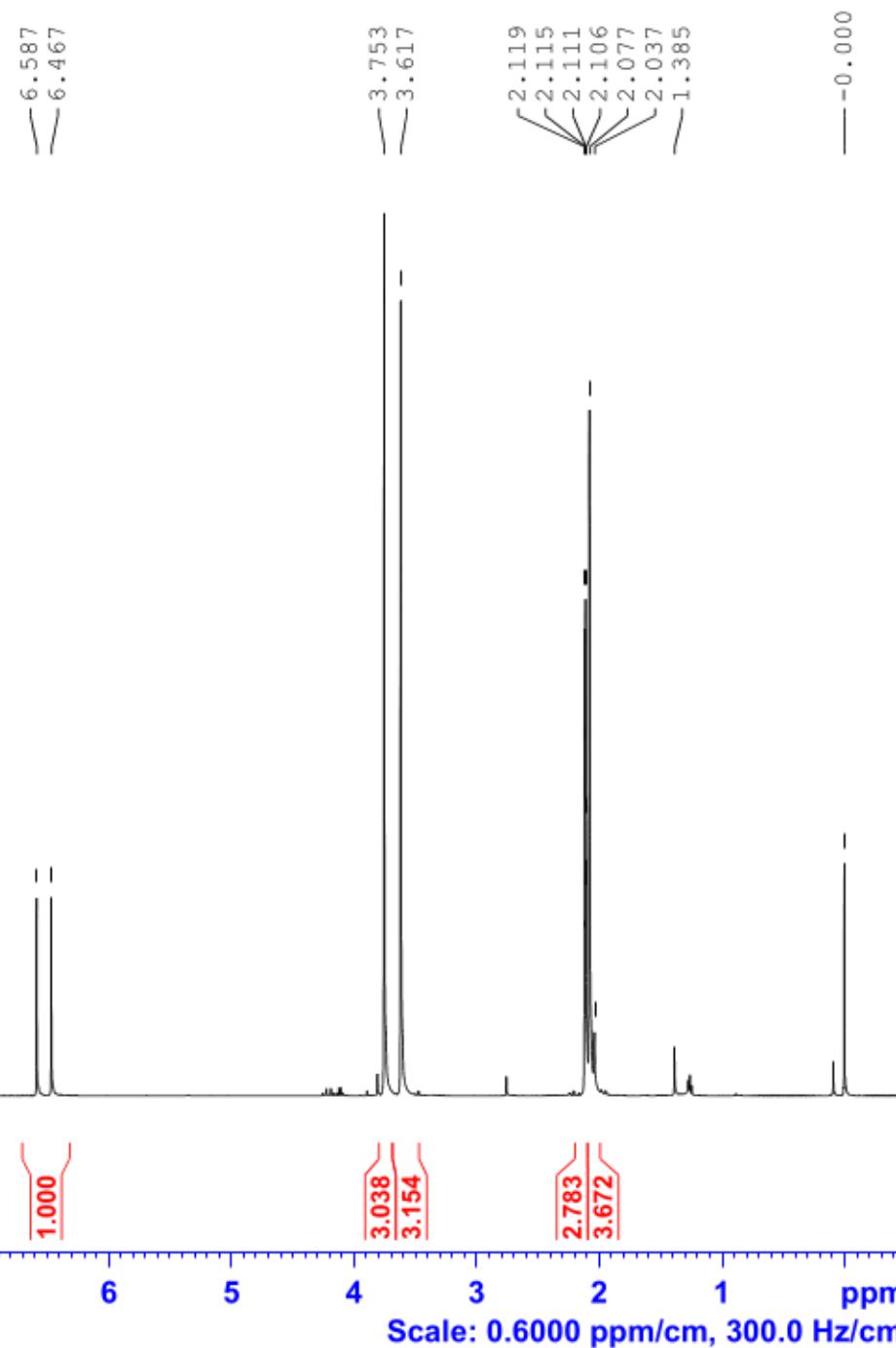
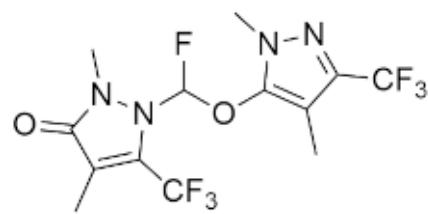
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 NAME P7K1.12.20
 EXPT 5
 PROCNO 1

F2 - Acquisition Parameters
 Date 20201201
 Time 11.21 h
 INSTRUM spect
 PROBHD Z8420_0082 (PH
 PULPROG hmbcgp1pndgf
 TD 1024
 SOLVENT CDCl3
 NS 8
 DS 2
 SWH 2500.000 Hz
 FIDRES 4.882813 Hz
 AQ 0.2048000 sec
 RG 2050
 DW 200.000 usec
 DE 6.50 usec
 TE 300.0 K
 CNST2 145.000000
 CNST13 8.000000
 D0 0.00000300 sec
 D1 1.00000000 sec
 D2 0.00344828 sec
 D6 0.06250000 sec
 D16 0.00020000 sec
 IN0 0.00002570 sec
 TDav 1
 SF01 500.0419002 MHz
 NUC1 1H
 P1 10.32 usec
 P2 20.64 usec
 PLW1 15.00000000 W
 SF02 125.7445881 MHz
 NUC2 13C
 P3 13.00 usec
 PLW2 55.00000000 W
 GPNAM[1] SMSQ10.100
 GPZ1 50.00 %
 GPNAM[2] SMSQ10.100
 GPZ2 30.00 %
 GPNAM[3] SMSQ10.100
 GPZ3 40.10 %
 P16 1000.00 usec

F1 - Acquisition parameters
 TD 128
 SF01 125.7446 MHz
 FIDRES 303.988312 Hz
 SW 154.720 ppm
 F1MODE QF

F2 - Processing parameters
 SI 1024
 SF 500.0400090 MHz
 WDW QSINE
 SSB 0
 LB 0 Hz
 GB 0
 PC 1.00

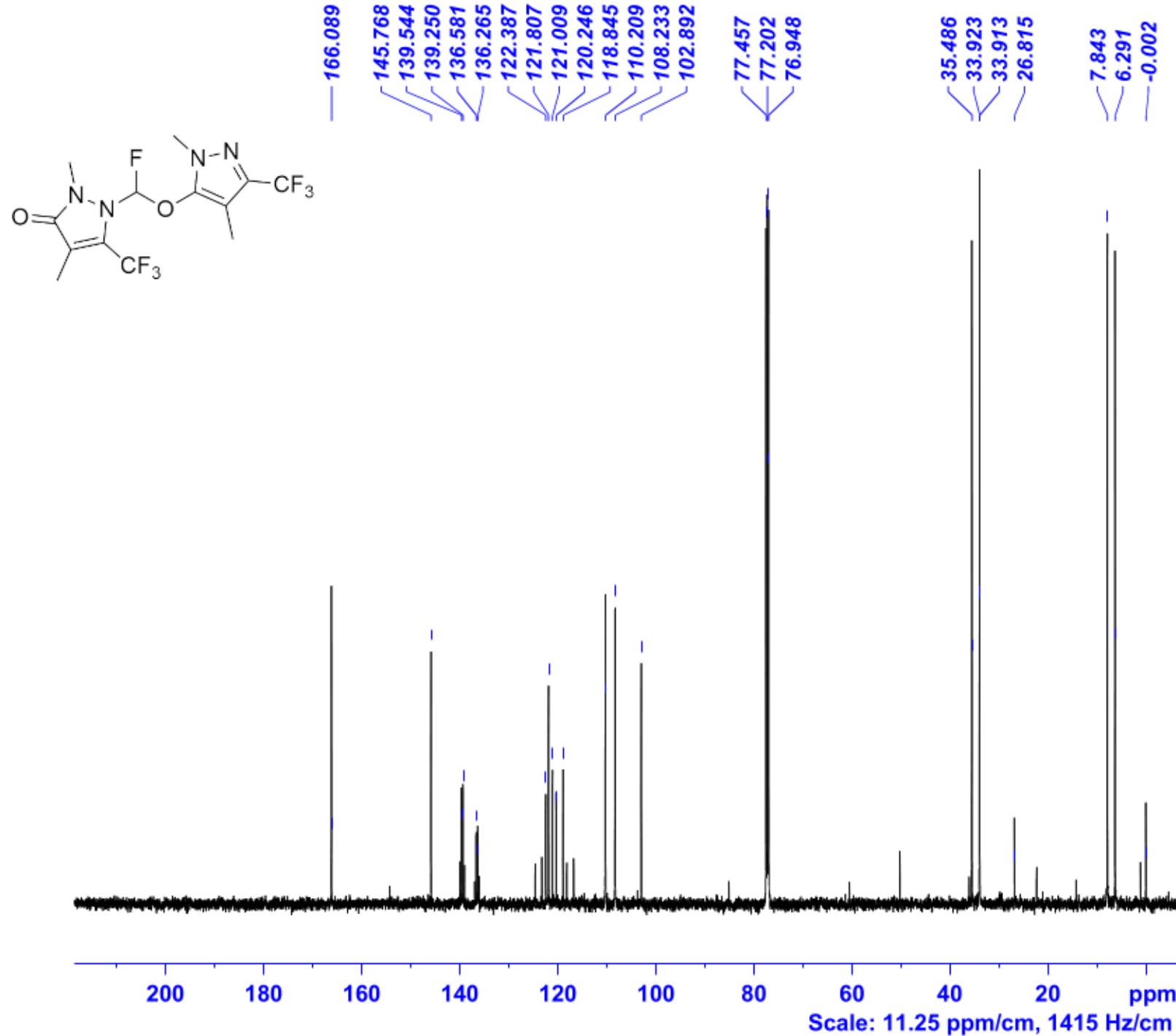
F1 - Processing parameters
 SI 512
 MC2 QF
 SF 125.7351530 MHz
 WDW QSINE
 SSB 0
 LB 0 Hz
 GB 0



Current Data Parameters
 NAME P7K10.2.21
 EXPNO 1
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20210210
 Time 14.31 h
 INSTRUM spect
 PROBHD Z8420_0082 (PH
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 24
 DS 0
 SWH 7002.801 Hz
 FIDRES 0.213709 Hz
 AQ 4.6792703 sec
 RG 45.2
 DW 71.400 usec
 DE 6.50 usec
 TE 300.0 K
 D1 0.10000000 sec
 TDO 1
 SF01 500.0430002 MHz
 NUC1 1H
 P1 10.32 usec
 PLW1 15.00000000 W

F2 - Processing parameters
 SI 65536
 SF 500.0399851 MHz
 WDW EM
 SSB 0
 LB 0 Hz
 GB 0
 PC 1.00



Current Data Parameters
 NAME P7K10.2.21
 EXPNO 2
 PROCNO 1

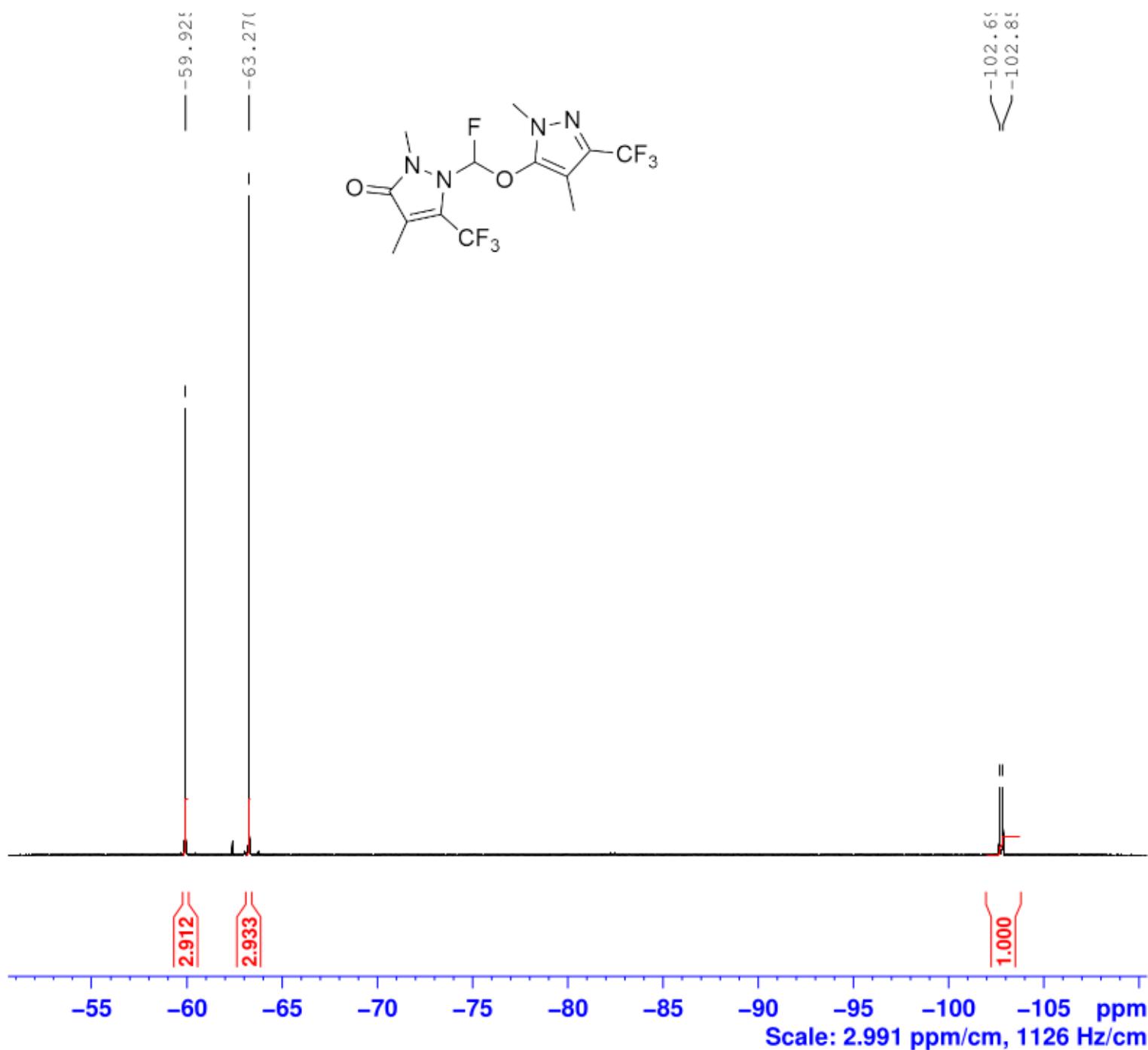
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 Date 20210210
 Time 15.51 h
 INSTRUM spect
 PROBHD Z8420_0082 (PH
 PULPROG zgdc30
 TD 65536
 SOLVENT CDCl3
 NS 900
 DS 0
 SWH 29761.904 Hz
 FIDRES 0.908261 Hz
 AQ 1.1010048 sec
 RG 2050
 DW 16.800 usec
 DE 6.50 usec
 TE 300.0 K
 D1 0.1000000 sec
 D11 0.0300000 sec
 TD0 1
 SFO1 125.7477315 MHz
 NUC1 13C
 P1 13.00 usec
 PLW1 55.00000000 W
 SFO2 500.0425002 MHz
 NUC2 1H
 CPDPRG[2] waltz16
 PCPD2 80.00 usec
 PLW2 15.00000000 W
 PLW12 0.24962001 W

F2 - Processing parameters
 SI 32768
 SF 125.7351385 MHz
 WDW EM
 SSB 0
 LB 2.00 Hz
 GB 0
 PC 1.00

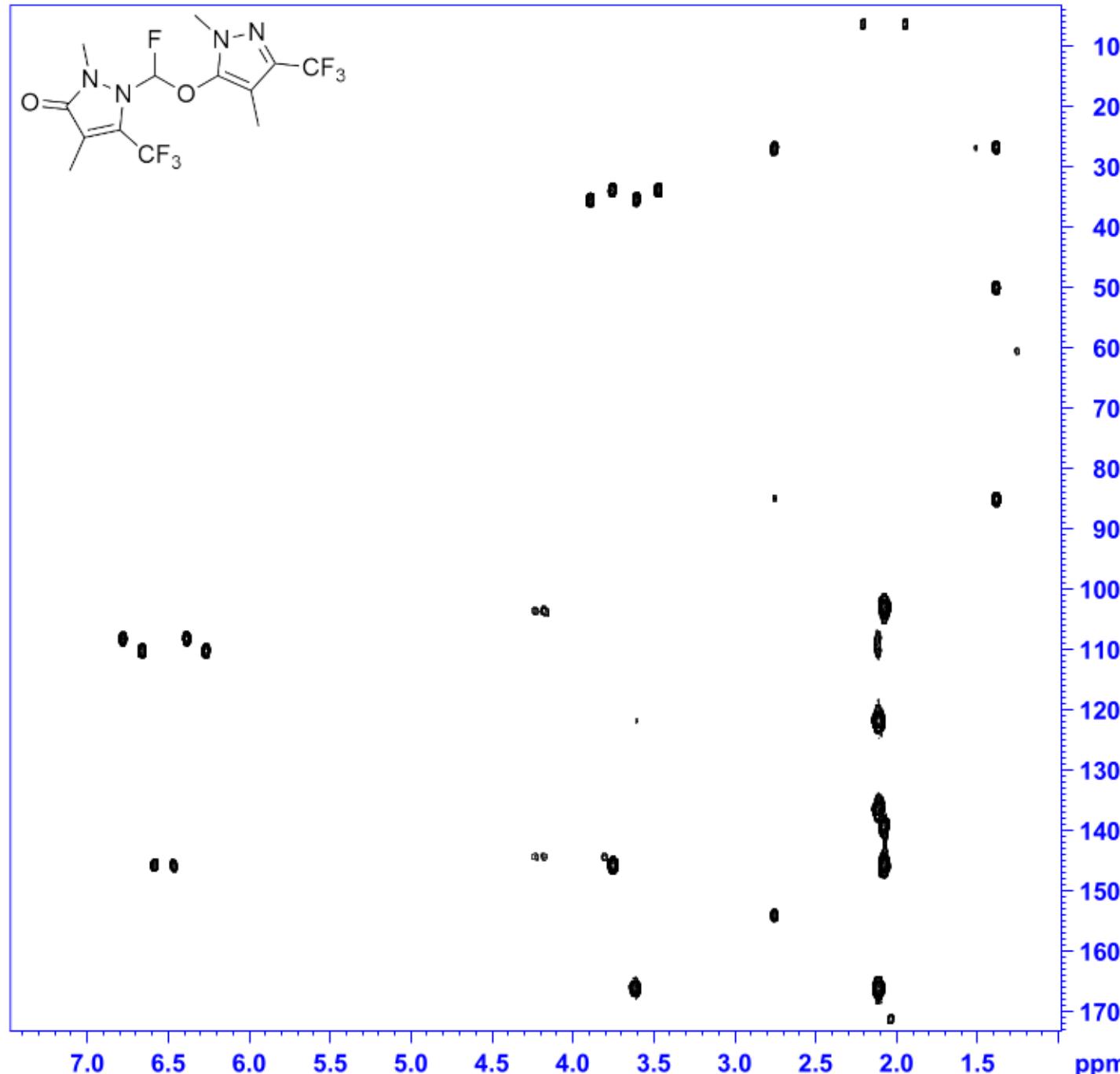
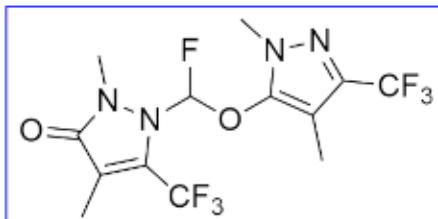


NAME P7K10.2.21
 EXPNO 3
 PROCNO 1
 Date_ 20210214
 Time 11.24
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG zg30
 TD 32768
 SOLVENT CDC13
 NS 48
 DS 0
 SWH 22522.523 Hz
 FIDRES 0.687333 Hz
 AQ 0.7274996 se
 RG 1625.5
 DW 22.200 us
 DE 6.32 us
 TE 300.1 K
 D1 0.1000000 se
 TDO 1

===== CHANNEL f1 =====
 NUC1 19F
 P1 7.90 us
 PL1 0.00 cE
 SE01 376.4400194 MF
 SI 32768
 SF 376.4703301 MF
 WDW EM
 SSB 0
 LB 0.50 Hz
 GB 0
 PC 1.00



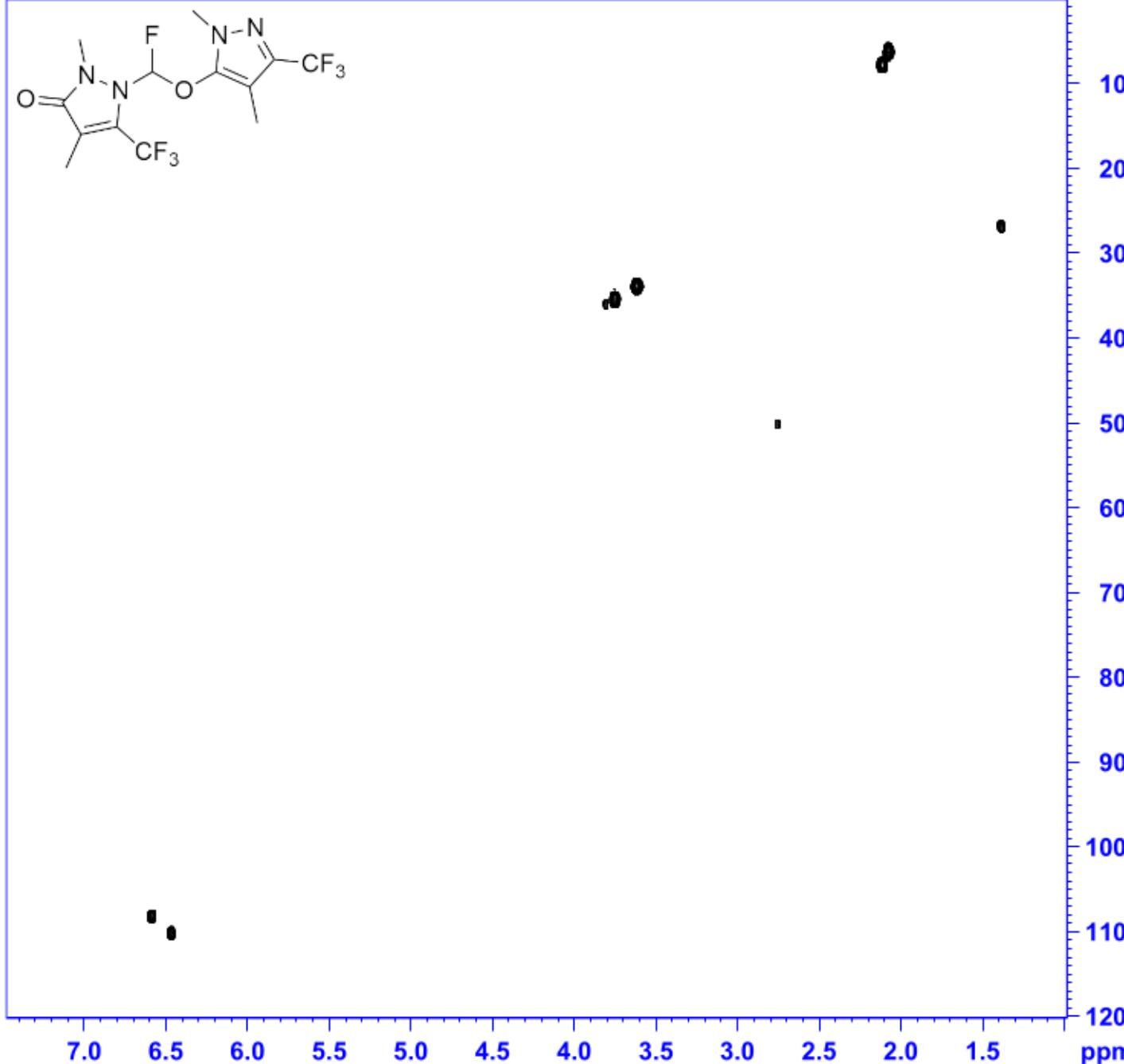
HMBC



30 Current Data Parameters
NAME PTK10.2.21
EXPNO 6
PROCNO 1

40	F2 - Acquisition Parameters
	Date 20210210
	Time 15.25 h
	INSTRUM spect
	PROBHD Z8420_0082 (PH
50	PULPROG hmbcgp1pndgf
	TD 1024
	SOLVENT CDC13
	NS 8
	DS 2
60	SWH 3246.753 Hz
	FIDRES 6.3413151 Hz
	AQ 0.1576960 sec
	RG 2050
	DW 154.000 used
70	DE 6.50 used
	TE 300.0 K
	CNST2 145.000000
	CNST13 8.000000
	D0 0.00000300 sec
80	D1 1.00000000 sec
	D2 0.00344828 sec
	D6 0.06250000 sec
	D16 0.00020000 sec
90	INO 0.00002340 sec
	TDav 1
	SF01 500.0421000 MHz
	NVC1 1H
100	P1 10.32 used
	P2 20.64 used
	PLW1 15.00000000 W
	SF02 125.746227 MHz
	NUC2 13C
	P3 13.00 used
	PLW2 55.00000000 W
	GPNNAM[1] SMSQ10.100
	GPZ1 50.00 %
110	GPNNAM[2] SMSQ10.100
	GPZ2 30.00 %
120	GPNNAM[3] SMSQ10.100
	GPZ3 40.10 %
	P16 1000.00 used
130	F1 - Acquisition parameters
	TD 107
	SF01 125.7462 MHz
	FIDRES 399.392914 Hz
140	SW 169.926 ppm
	FnMODE QF
150	F2 - Processing parameters
	SI 1024
	SF 500.0399851 MHz
	WDW QSINE
	SSB 0
	LB 0 Hz
160	GB 0
	PC 1.00
170	F1 - Processing parameters
	SI 512
	MC2 QF
	SF 125.7351385 MHz
	WDW QSINE
ppm	SSB 0
	LB 0 Hz
	GB 0

HSQC



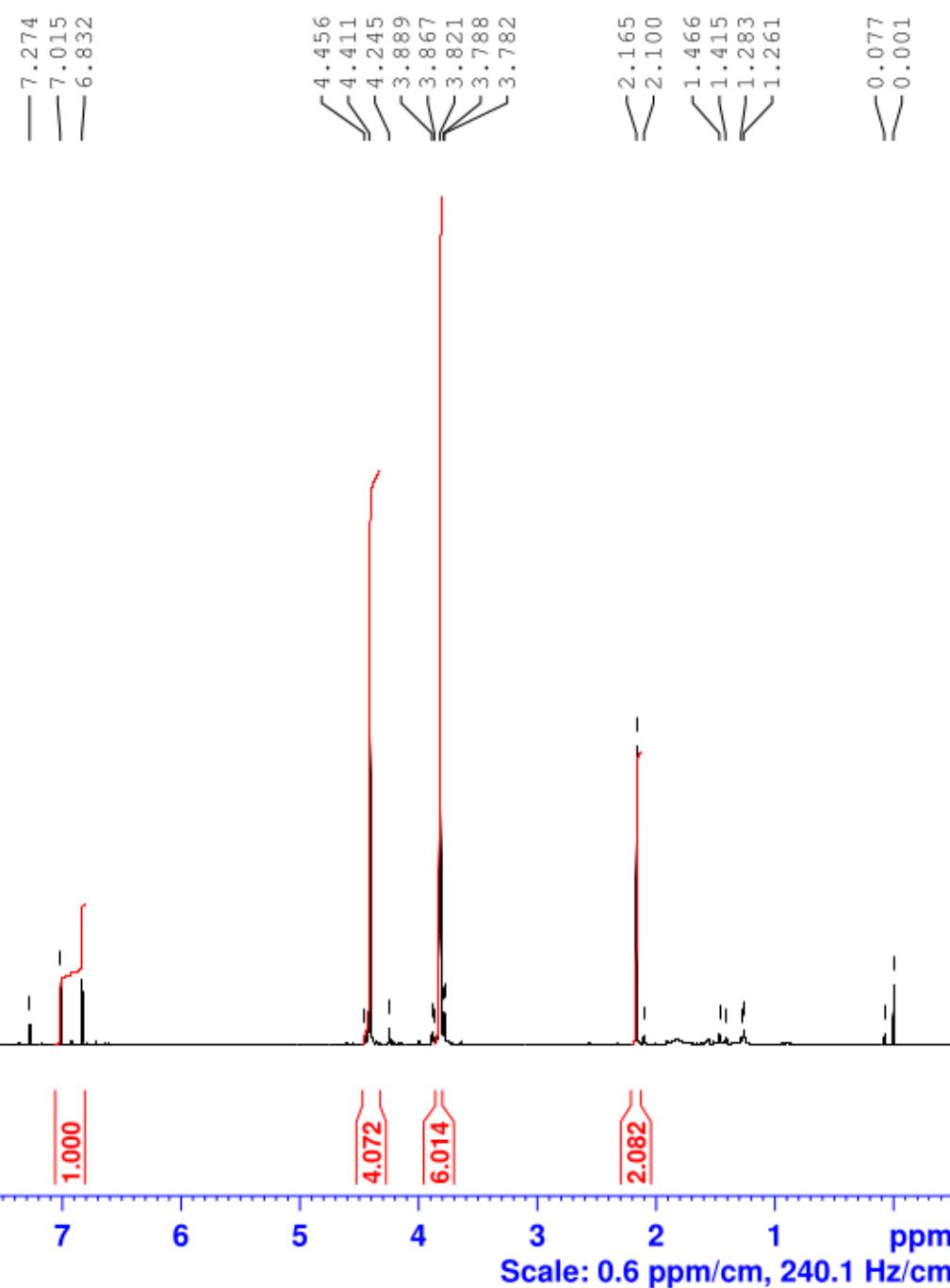
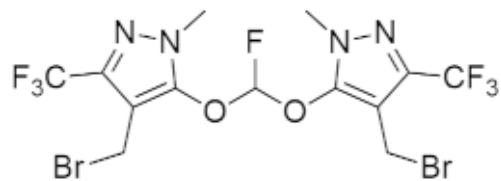
Current Data Parameters
 NAME PTK10.2.21
 EXPNO 5
 PROCNNO 1

F2 - Acquisition Parameters
 Date 20210210
 Time 15.15 h
 INSTRUM spect
 PROBHD Z8420_0082_1PH
 PULPROG hsqcpgqf
 TD 1024
 SOLVENT CDCl3
 NS 4
 DS 2
 SWH 3246.753 Hz
 FIDRES 6.341315 Hz
 AQ 0.1576960 sec
 RG 2050
 DM 154.000 usec
 DE 6.50 usec
 TE 300.1 K
 CNST2 145.0000000
 D0 0.00000300 sec
 D1 1.00000000 sec
 D2 0.00344828 sec
 D12 0.00002000 sec
 D13 0.00000400 sec
 D16 0.00020000 sec
 IN0 0.00003310 sec
 TDav 1
 SF01 500.0421002 MHz
 NUC1 1H
 P1 10.32 usec
 P2 20.64 usec
 PLM1 15.00000000 M
 SF02 125.7427021 MHz
 NUC2 13C
 CPDPRG[2] garp
 P3 13.00 usec
 PCPD2 55.00 usec
 PLM2 55.00000000 M
 PLM12 2.88000011 M
 GPNAME[1] SMSQ10.100
 GPZ1 50.00 %
 GPNAME[2] SMSQ10.100
 GPZ2 30.00 %
 GPNAME[3] SMSQ10.100
 GPZ3 40.10 %
 P16 1000.00 usec

F1 - Acquisition parameters
 TD 128
 SF01 125.7427 MHz
 FIDRES 236.027191 Hz
 SW 120.132 ppm
 FmMODE QF

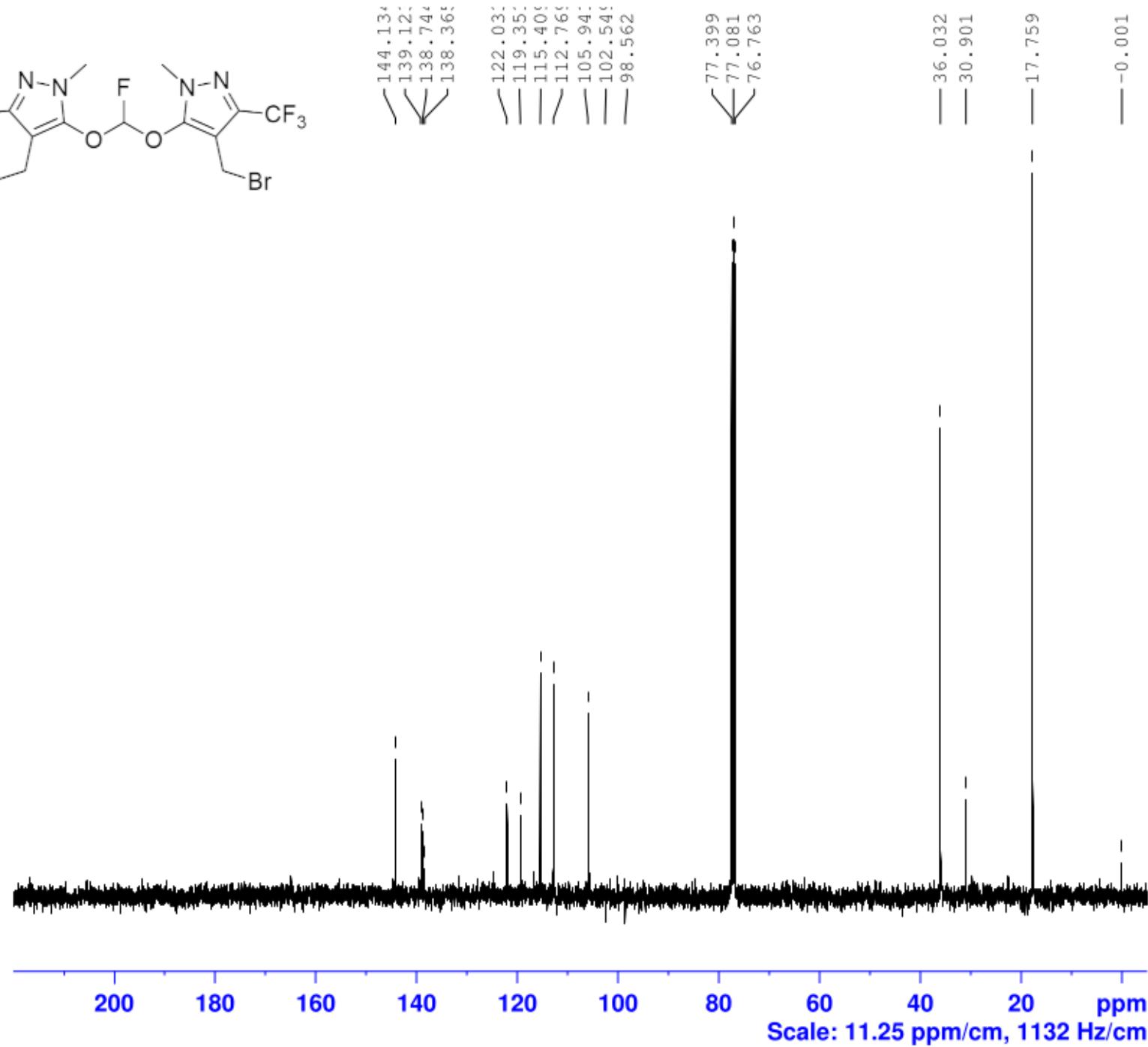
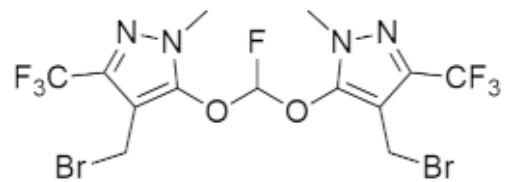
F2 - Processing parameters
 SI 1024
 SF 500.0399851 MHz
 WDW QSIMINE
 SSB 0
 LB 0 Hz
 GB 0
 PC 1.00

F1 - Processing parameters
 SI 512
 MC2 QF
 SF 125.7351385 MHz
 WDW QSIMINE
 SSB 0
 LB 0 Hz
 GB 0



NAME P7K4.5.20
 EXPNO 1
 PROCNO 1
 Date_ 20200504
 Time 11.18
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 24
 DS 0
 SWH 7183.908 Hz
 FIDRES 0.109618 Hz
 AQ 4.5613556 sec
 RG 128
 DW 69.600 usec
 DE 6.50 usec
 TE 301.0 K
 D1 0.1000000 sec
 TDO 1

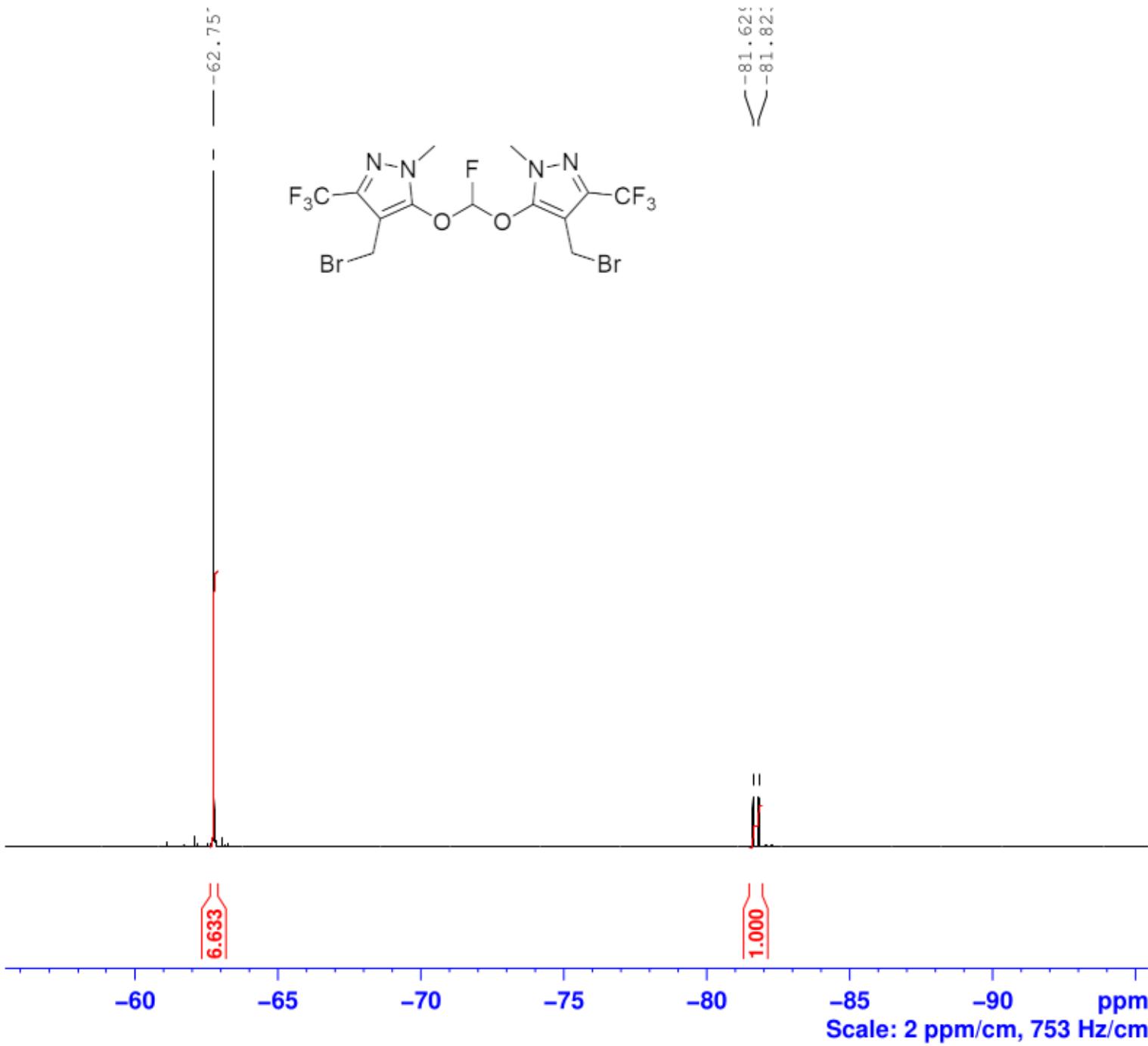
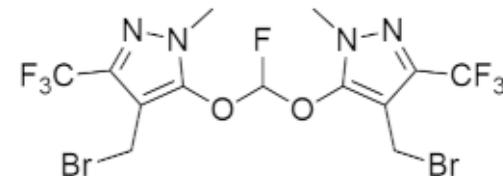
===== CHANNEL f1 =====
 NUCL 1H
 P1 10.10 usec
 PL1 0.00 dB
 SF01 400.1032008 MHz
 SI 32768
 SF 400.1000046 MHz
 WDW F.M
 SSB 0
 LB 0.00 Hz
 GB 0
 PC 1.00



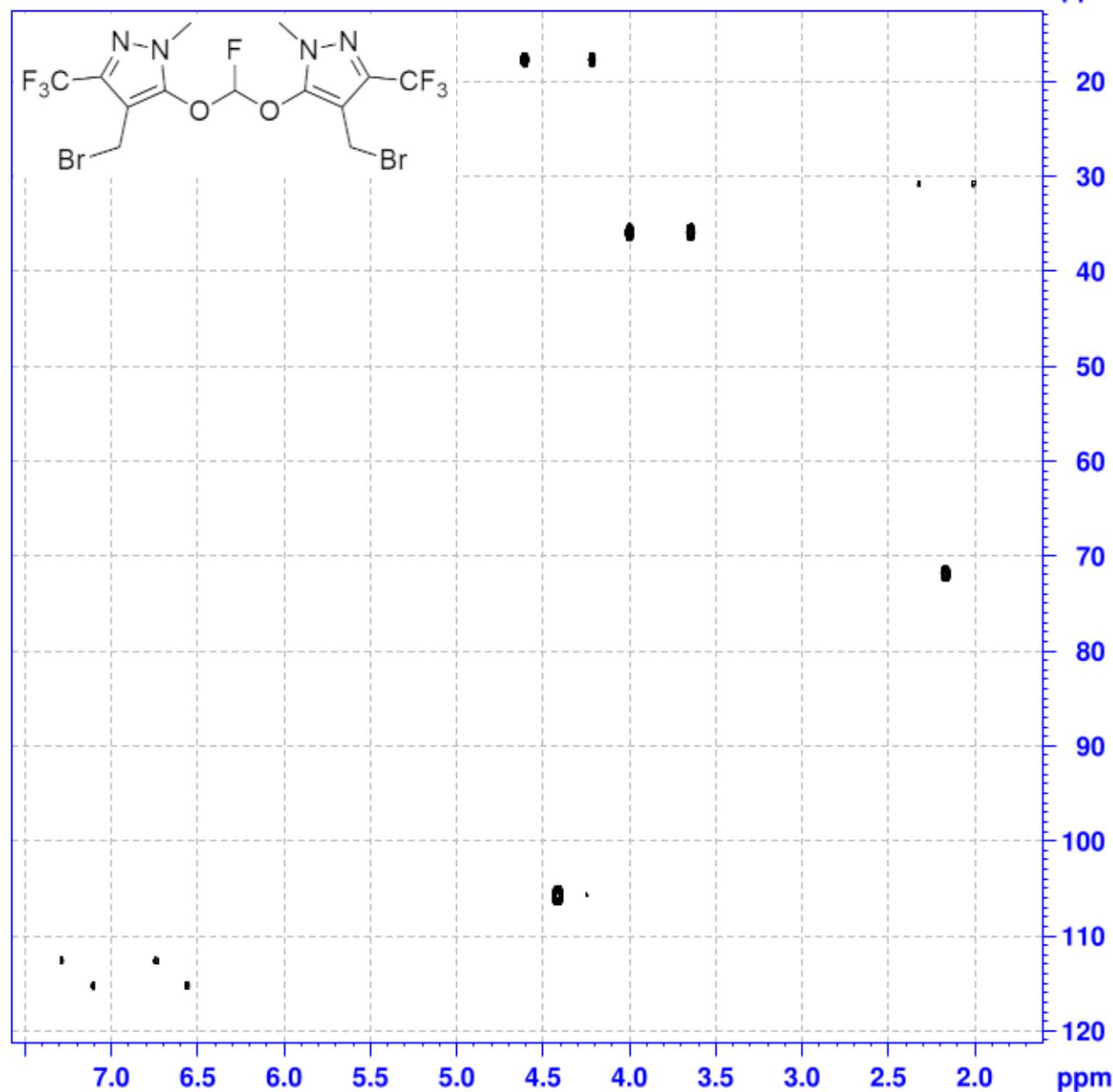
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 EXPNO 3
 PROCNO 1
 Date_ 20200504
 Time 11.27
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG zgdc30
 TD 32768
 SOLVENT CDC13
 NS 2375
 DS 0
 SWH 24154.590 Hz
 FIDRES 0.737140 Hz
 AQ 0.6783476 se
 RG 71.8
 DW 20.700 us
 DE 29.57 us
 TE 302.3 K
 D1 0.10000000 se
 D11 0.03000000 se
 TDO 1

===== CHANNEL f1 =====
 NUC1 13C
 P1 9.20 us
 PL1 3.00 dE
 SFO1 100.6152865 MF

===== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 80.00 us
 PL2 0.00 dE
 PL12 18.00 dE
 SFO2 400.1009202 MF
 SI 32768
 SF 100.6052190 MF
 WDW EM
 SSB 0
 LB 2.00 Hz
 GB 0
 PC 1.00



HMBC



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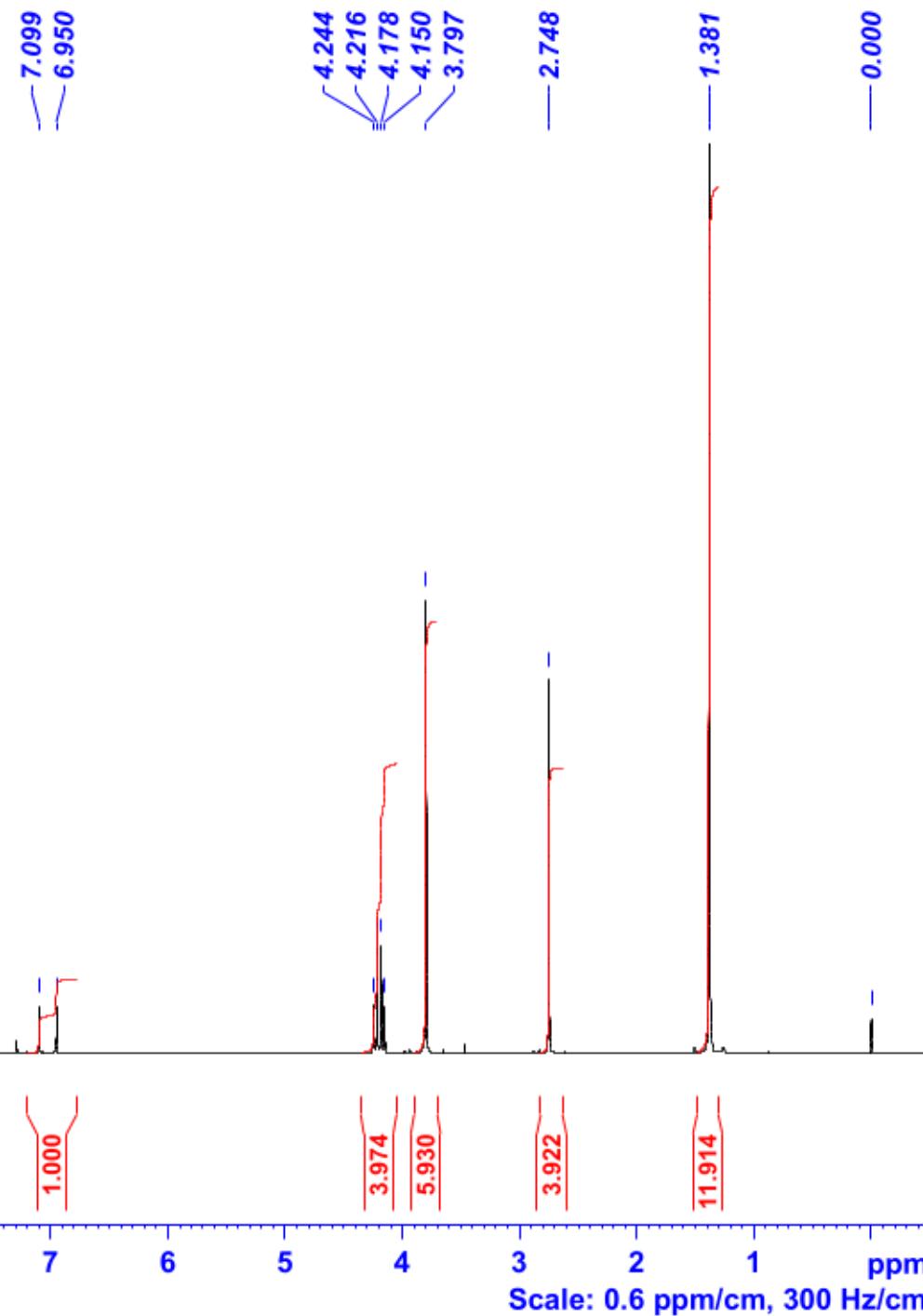
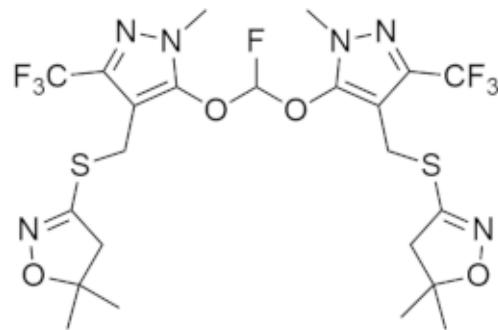
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EXPNO     6
PROCNO    1
Date_     20200504
Time     12.26
INSTRUM  spect
PROBHD  5 mm PABBO BB-
PULPROG hmbcgpipndgf
TD        1024
SOLVENT   CDCl3
NS        10
DS        2
SWH      2394.636 Hz
FIDRES   2.338512 Hz
AQ        0.2138612 sec
RG        46341
DW        208.800 usec
DE        241.25 usec
TE        302.2 K
CNST2    145.000000
CNST13   8.0000000
D0        0.00000300 sec
D1        1.0000000 sec
D2        0.00344828 sec
D6        0.006250000 sec
D16       0.000200000 sec
IND0     0.00003680 sec

===== CHANNEL f1 =====
NUC1      1H
P1        10.10 usec
P2        20.20 usec
PL1       0.00 dB
SFO1     400.1018405 MHz

===== CHANNEL f2 =====
NUC2      13C
P3        9.20 usec
PL2       0.00 dB
SFO2     100.6132744 MHz

===== GRADIENT CHANNEL =====
GPNAME1  sine.100
GPNAME2  sine.100
GPNAME3  sine.100
GPZ1     50.00 %
GPZ2     30.00 %
GPZ3     40.10 %
P16      1000.00 usec
ND0      2
TD        128
SFO1     100.6133 MHz
FIDRES   106.115562 Hz
SW        135.000 ppm
FnMODE   QF
SI        1024
SF        400.1000046 MHz
WDW      QSINE
SSB      0
LB       0.00 Hz
GB       0
PC       1.00
SI       512
MC2      QF
SF        100.6052190 MHz
WDW      QSINE
SSB      0
LB       0.00 Hz
GB       0

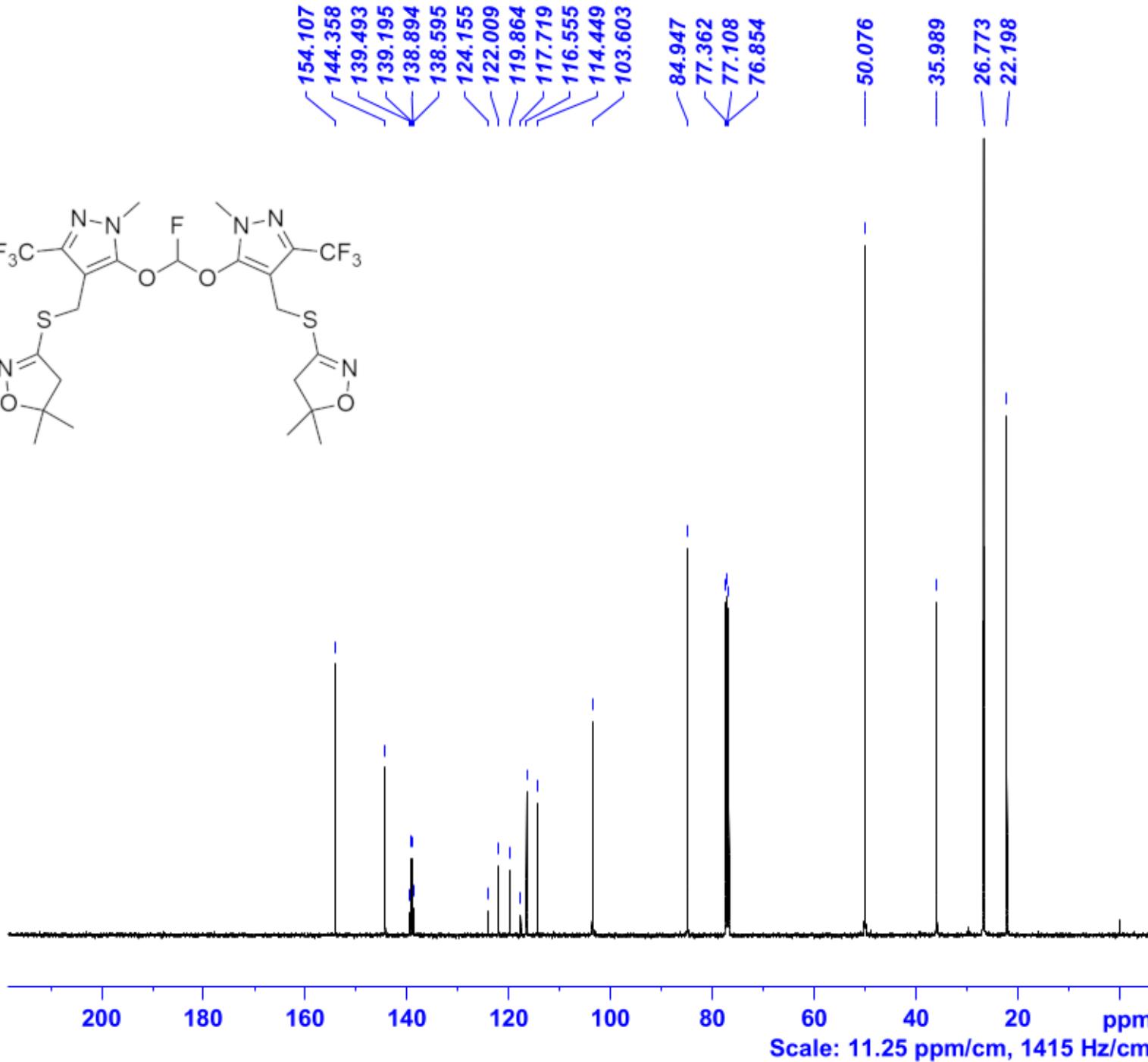
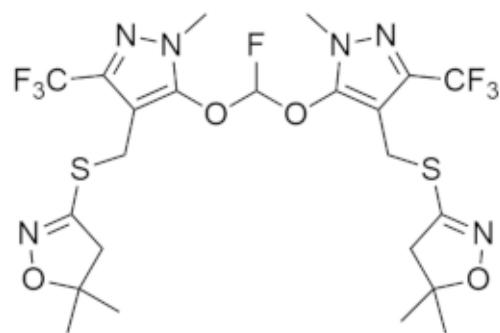
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Current Data Parameters
 NAME P7K4.3.21
 EXPNO 1
 PROCNO 1

F2 - Acquisition Parameters
 Date 20210304
 Time 11.00 h
 INSTRUM spect
 PROBHD 28420_0082 (PH
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 24
 DS 0
 SWH 7002.801 Hz
 FIDRES 0.213709 Hz
 AQ 4.6792703 sec
 RG 128
 DW 71.400 usec
 DE 6.50 usec
 TE 300.0 K
 D1 0.1000000 sec
 TDO 1
 SF01 500.0430002 MHz
 NUC1 1H
 P1 10.32 usec
 PLW1 15.00000000 W

F2 - Processing parameters
 SI 65536
 SF 500.0399969 MHz
 WDW EM
 SSB 0
 LB 0 Hz
 GB 0
 PC 1.00



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Current Data Parameters
NAME P7K4.3.21
EXPNO 2
PROCNO 1

```

F2 - Acquisition Parameters
Date_           20210304
Time_           11.31 h
INSTRUM        spect
PROBHD         28420_0082 (PH)
PULPROG        zgdc30
TD             65536
SOLVENT         CDC13
NS              1500
DS                 0
SWH             29761.904 Hz
FIDRES        0.908261 Hz
AQ             1.1010048 sec
RG              2050
DW              16.800 usec
DE              6.50  usec
TE              300.0 K
D1              0.1000000 sec
D11             0.0300000 sec
TDO                 1
SFO1            125.7477315 MHz
NUC1             13C
P1              13.00 usec
PLW1            55.000000000 W
SFO2            500.0425002 MHz
NUC2             1H
CPDPRG[2]      waltz16
PCPD2            80.00 usec
PLW2            15.000000000 W
PLW12           0.24962001 W

```

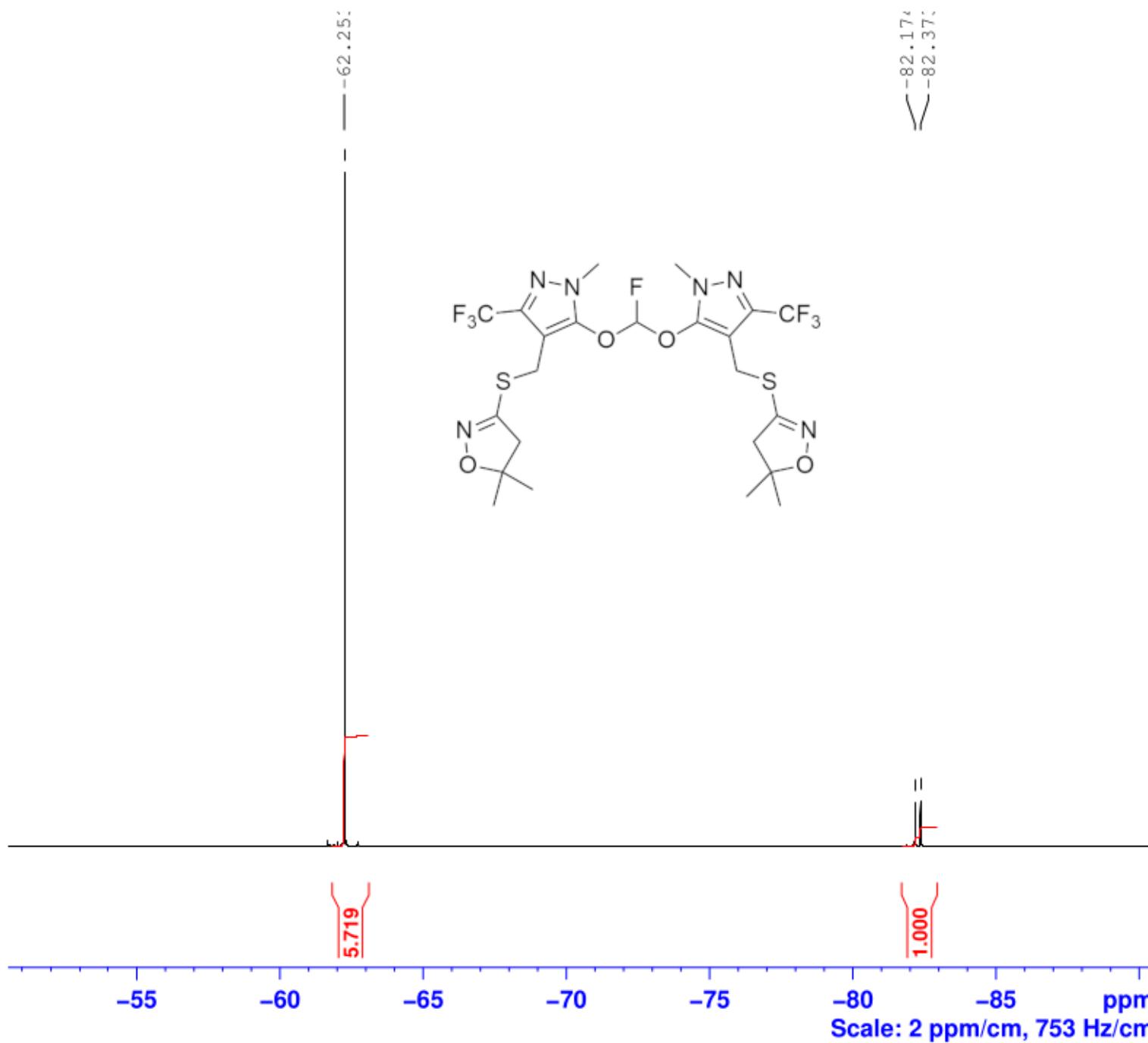
```

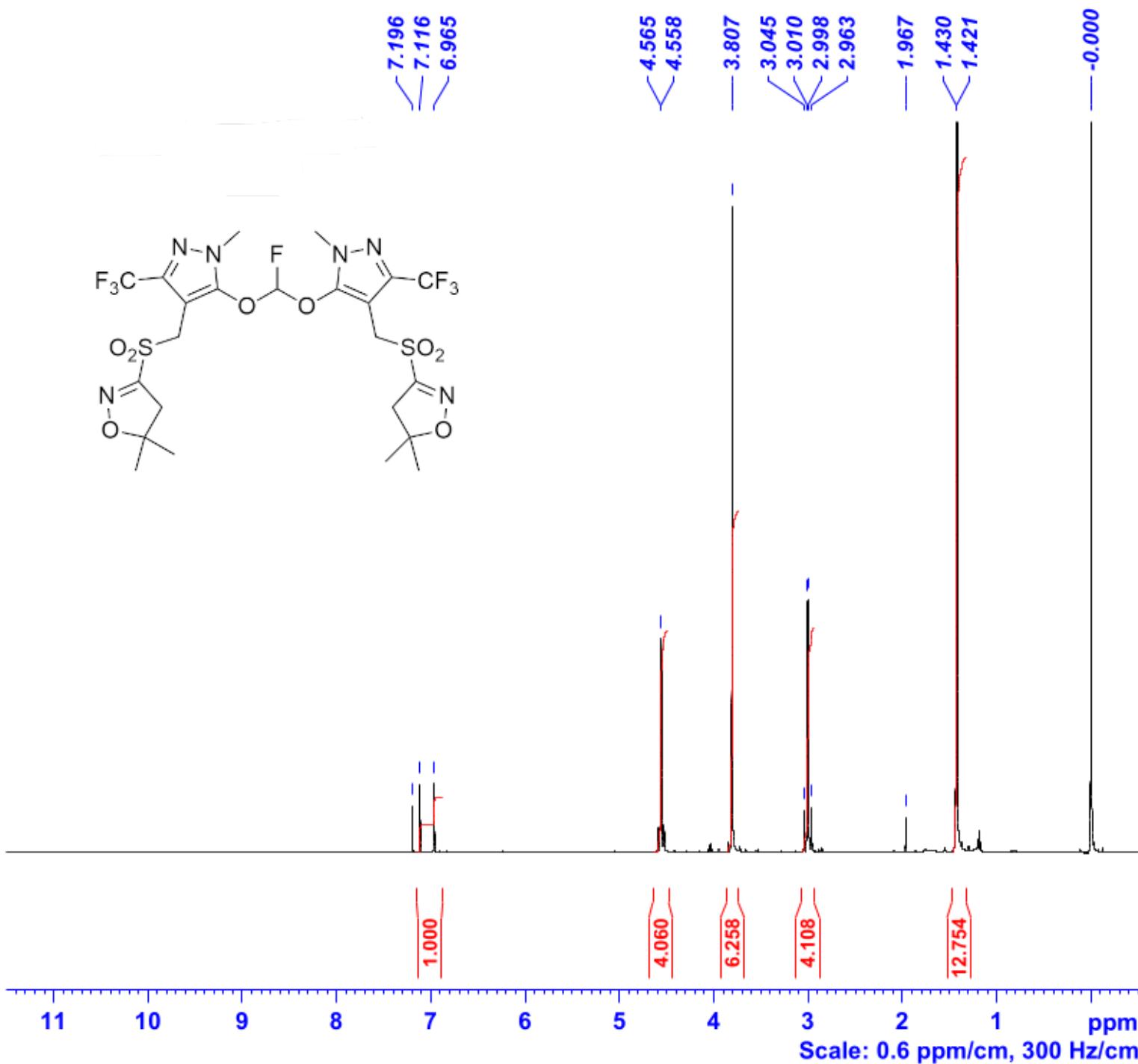
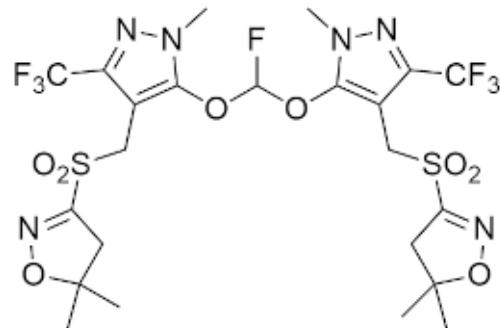
F2 - Processing parameters
SI          32768
SF          125.7351521 MHz
WDW          EM
SSB          0
LB          2.00 Hz
GB          0
PC          1.00

```

NAME P7K4.3.21
 EXPNO 5
 PROCNO 1
 Date_ 20210304
 Time 12.11
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG zg30
 TD 32768
 SOLVENT CDC13
 NS 24
 DS 0
 SWH 15060.241 Hz
 FIDRES 0.459602 Hz
 AQ 1.0879476 se
 RG 1625.5
 DW 33.200 us
 DE 6.32 us
 TE 299.9 K
 D1 0.1000000 se
 TDO 1

===== CHANNEL f1 =====
 NUC1 19F
 P1 7.90 us
 PL1 0.00 cE
 SE01 376.4437841 MF
 SI 32768
 SF 376.4703301 MF
 WDW EM
 SSB 0
 LB 0.50 Hz
 GB 0
 PC 1.00





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Current Data Parameters
NAME P7K3.11.20
EXPNO 1
PROCNO 1

```

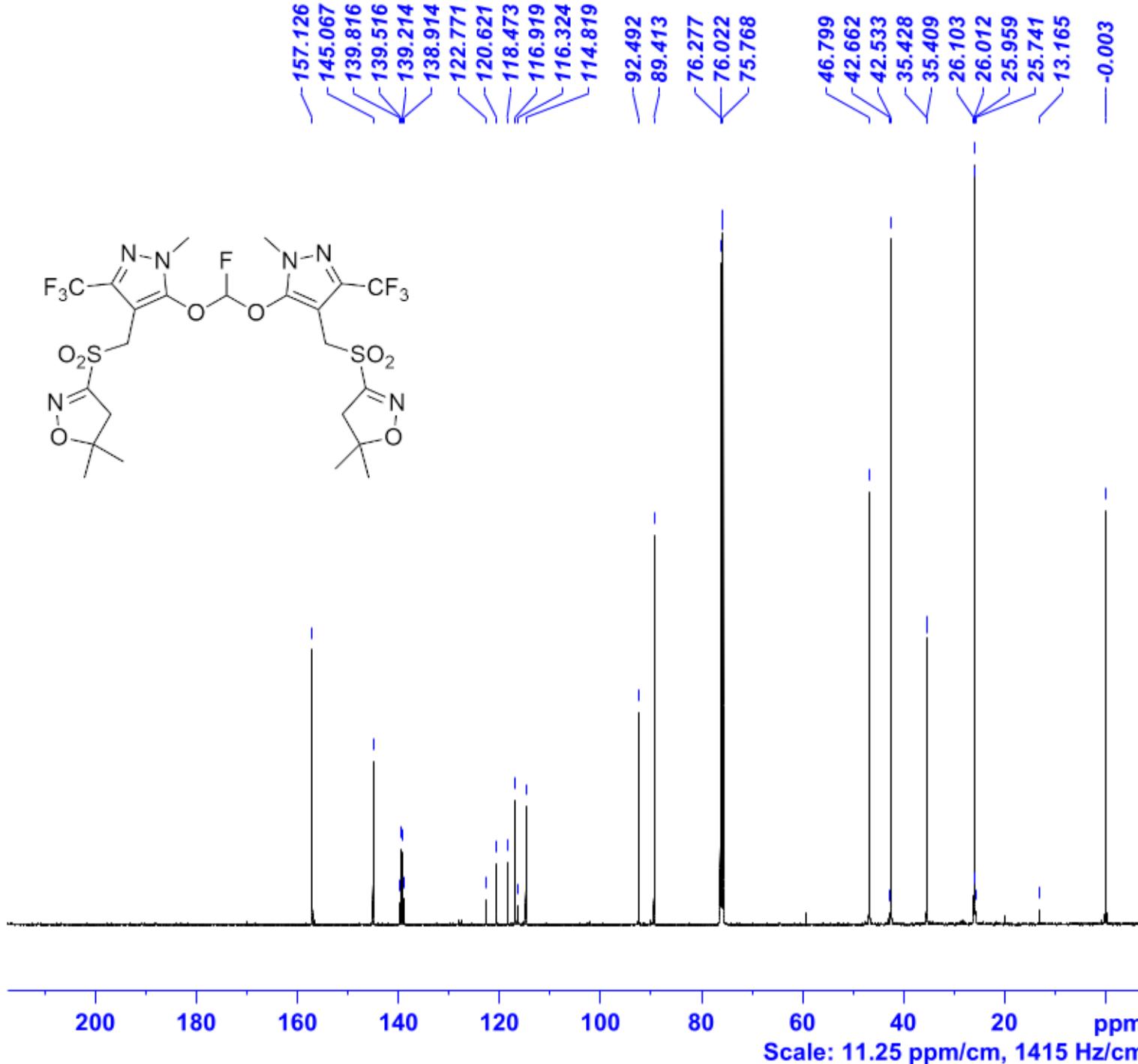
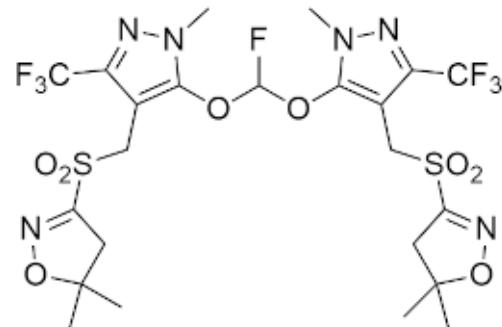
F2 - Acquisition Parameters
Date_           20201103
Time            16.47 h
INSTRUM         spect
PROBHD         Z8420_0082 (PH)
PULPROG        zg30
TD              65536
SOLVENT         CDC13
NS              48
DS              0
SWH             7002.801 Hz
FIDRES         0.213709 Hz
AQ              4.6792703 sec
RG              181
DW              71.400 usec
DE              6.50 usec
TE              300.0 K
D1              0.1000000 sec
TD0             1
SFO1            500.0430002 MHz
NUC1            1H
P1              10.32 usec
PLW1            15.00000000 W

```

```

F2 - Processing parameters
SI           65536
SF          500.0400437 MHz
WDW          EM
SSB          0
LB           0 Hz
GB           0
PC           1.00

```



BRUKER

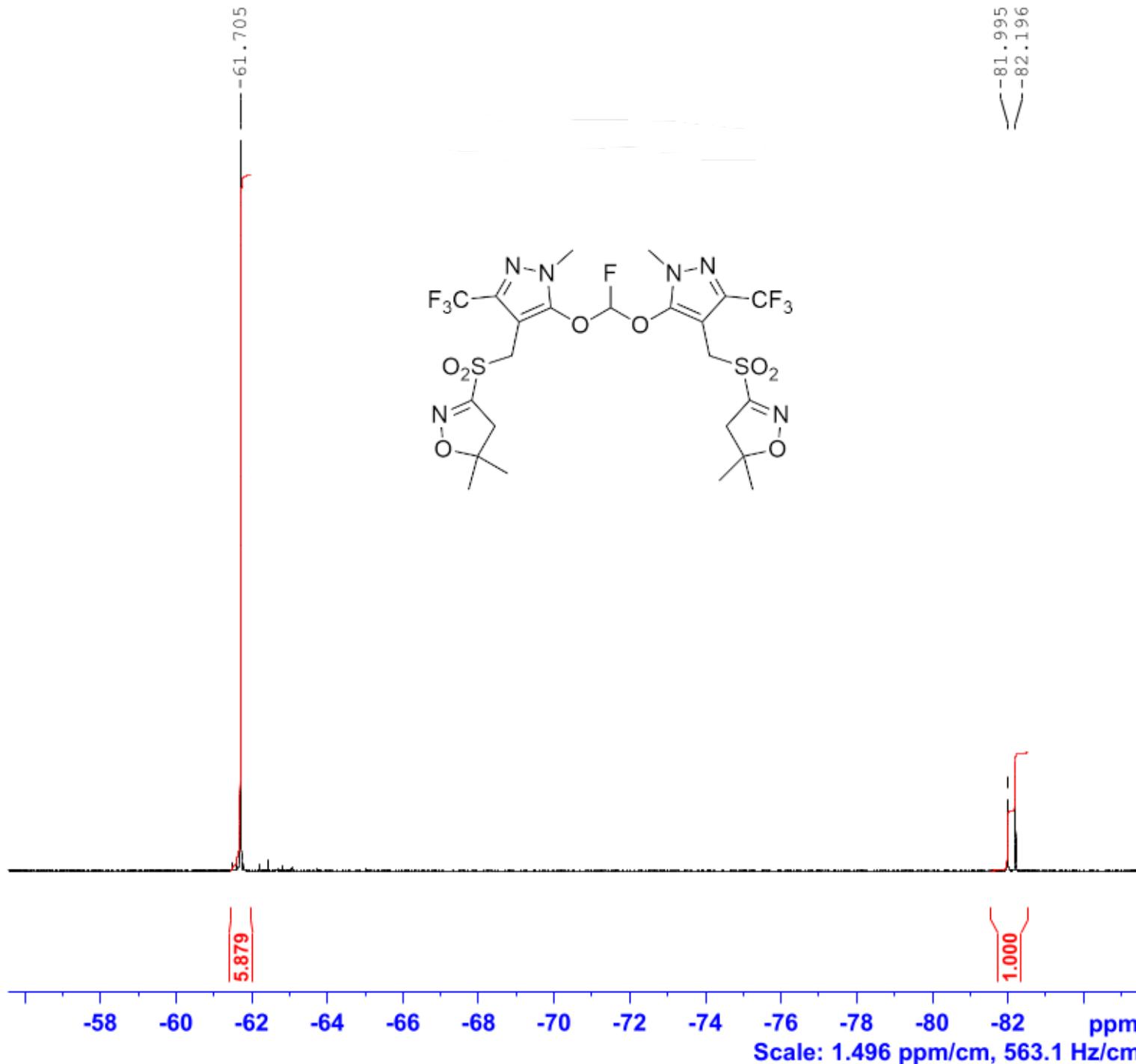
Current Data Parameters
NAME P7K3.11.20
EXPNO 3
PROCNO 1

```

F2 - Acquisition Parameters
Date_           20201104
Time_           7.59 h
INSTRUM        spect
PROBHD         Z8420_0082 (PH
PULPROG        zgdc30
TD             65536
SOLVENT         CDC13
NS              33323
DS              0
SWH             29761.904 Hz
FIDRES         0.908261 Hz
AQ             1.1010048 sec
RG              2050
DW              16.800 usec
DE              6.50  usec
TE              300.0 K
D1              0.10000000 sec
D11             0.03000000 sec
TD0              1
SFO1            125.7477315 MHz
NUC1            13C
P1              13.00 usec
PLW1            55.00000000 W
SFO2            500.0425002 MHz
NUC2            1H
CPDPRG[2]      waltz16
PCPD2           80.00 usec
PLW2            15.00000000 W
PLW12           0.24962001 W

F2 - Processing parameters
SI              32768
SF             125.7352853 MHz
WDW             EM
SSB              0
LB              2.00 Hz
GB              0
PC              1.00

```



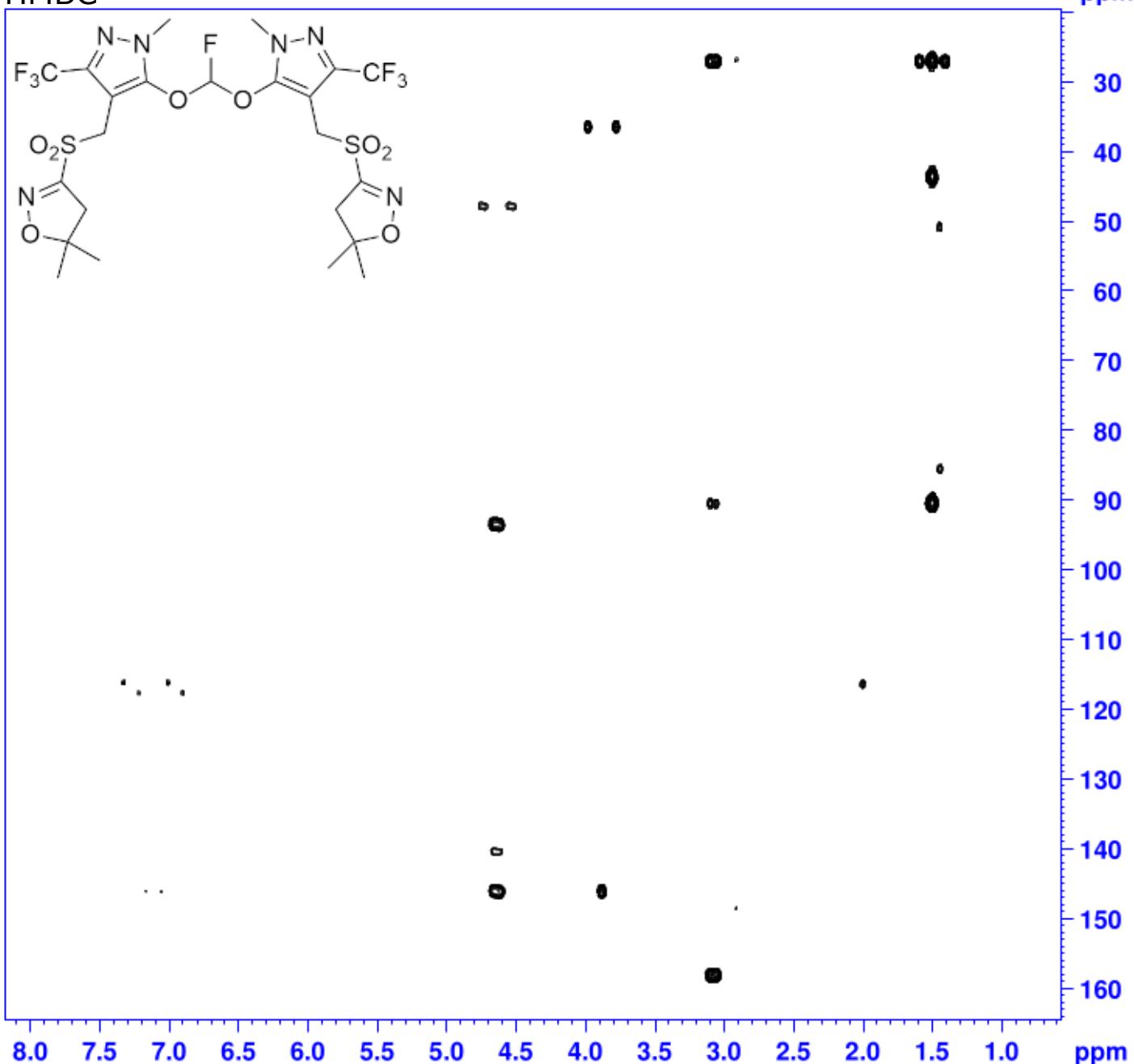
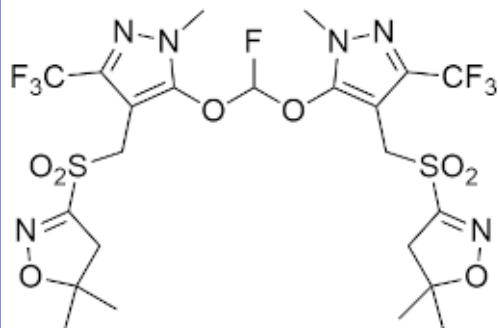
Current Data Parameters
 NAME P7K3.11.20
 EXPNO 5
 PROCNO 1

F2 - Acquisition Parameters
 Date 20201103
 Time 14.34
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG zg30
 TD 32768
 SOLVENT CDCl3
 NS 8
 DS 0
 SWH 11261.262 Hz
 FIDRES 0.343666 Hz
 AQ 1.4548992 sec
 RG 3251
 DW 44.400 usec
 DE 6.32 usec
 TE 301.0 K
 D1 0.1000000 sec
 TDO 1

===== CHANNEL f1 =====
 NUC1 19F
 P1 7.90 usec
 PL1 0 dB
 SF01 376.4437841 MHz

F2 - Processing parameters
 SI 32768
 SF 376.4703301 MHz
 WDW EM
 SSB 0 0.50 Hz
 LB 0
 GB 0 1.00
 PC

HMBC



Current Data Parameters
NAME P7K3.9.19
EXPNO 6
PROCNO 1

```

F2 - Acquisition Parameters
Date_           20190903
Time            9.20 h
INSTRUM         spect
PROBHD         Z44900_0030 (C
PULPROG        hmbcgp1pndqf
TD              1024
SOLVENT         CDCl3
NS              4
DS              2
SWH             5326.705 Hz
FIDRES         10.403720 Hz
AQ              0.0561195 sec
RG              2050
DW              93.867 used
DE              10.00 used
TE              300.0 K
CNST2           145.000000
CNST13          8.000000
D0              0.000000300 sec
D1              1.0000000 sec
D2              0.0034482 sec
D6              0.06250000 sec
D16             0.00020000 sec
IND0            0.00001960 sec
TDav            1
SF01            700.4530820 MHz
NUC1            1H
F1              9.32 used
F2              18.64 used
FLW1            9.00000000 W
SF02            176.1444968 MHz
NUC2            13C
F3              14.00 used
FLW2            18.94449999 W
GPNAM[1]        SINE.100
GPZ1            50.00 %
GPNAM[2]        SINE.100
GPZ2            30.00 %
GPNAM[3]        SINE.100
GPZ3            40.00 %
P16             1000.00 us

```

```

F1 - Acquisition parameters
TD           128
SFO1        176.1445 MHz
FIDRES     398.59624 Hz
SW          144.825 ppm
FnMODE      OF

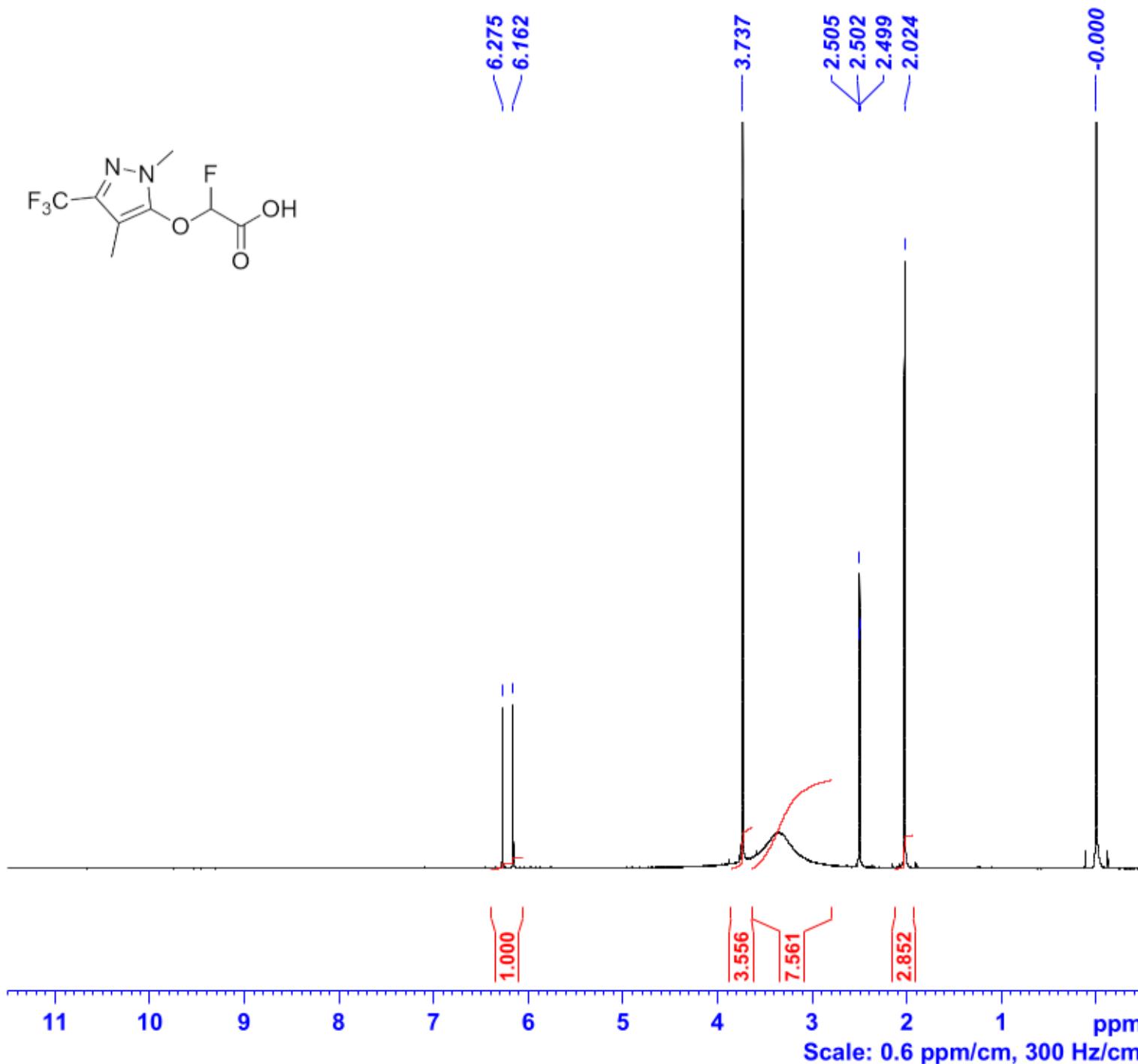
```

```

F2 - Processing parameters
SI           1024
SF      700.4500162 MHz
WDW           QSINE
SSB           0
LB           0 Hz
GB           0
PC           1.00

```

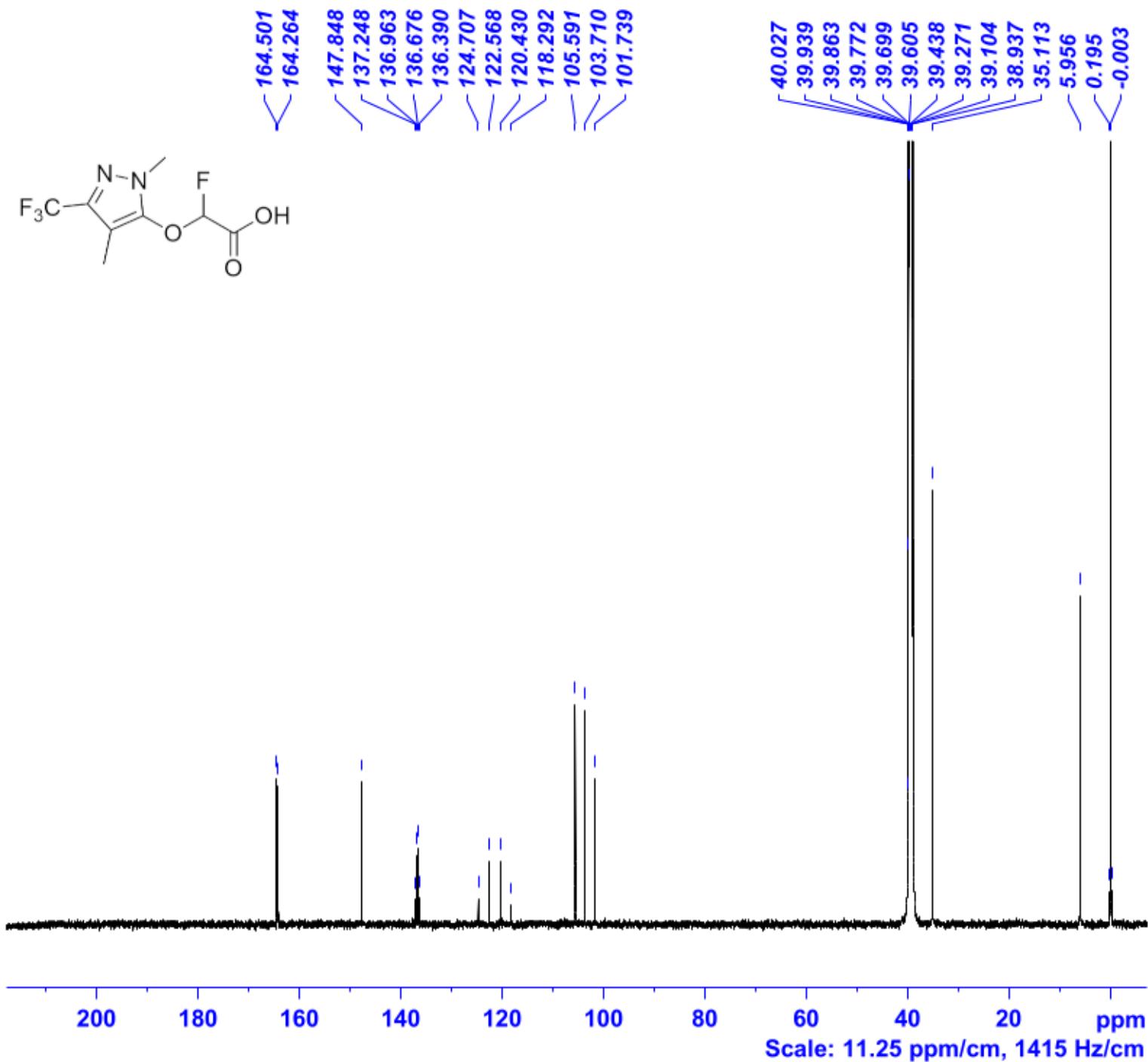
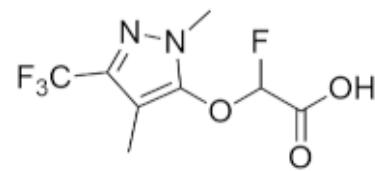
```
Fl - Processing parameters
SI           512
MC2          QF
SF          176.1282756 MHz
WDW          QSINE
SSB          0
LB           0 Hz
GB          0
```



Current Data Parameters
 NAME P7K18.2.21
 EXPNO 11
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20210220
 Time_ 3.36 h
 INSTRUM spect
 PROBHD 28420_0082 (PH
 PULPROG zg30
 TD 65536
 SOLVENT DMSO
 NS 24
 DS 0
 SWH 7002.801 Hz
 FIDRES 0.213709 Hz
 AQ 4.6792703 sec
 RG 512
 DW 71.400 usec
 DE 6.50 usec
 TE 300.0 K
 D1 0.1000000 sec
 TDO 1
 SF01 500.0430002 MHz
 NUC1 1H
 P1 10.32 usec
 PLW1 15.00000000 W

F2 - Processing parameters
 SI 65536
 SF 500.0400026 MHz
 WDW EM
 SSB 0
 LB 0.20 Hz
 GB 0
 PC 1.00



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Current Data Parameters
NAME P7K18.2.21
EXPNO 10
PROCNO 1

```

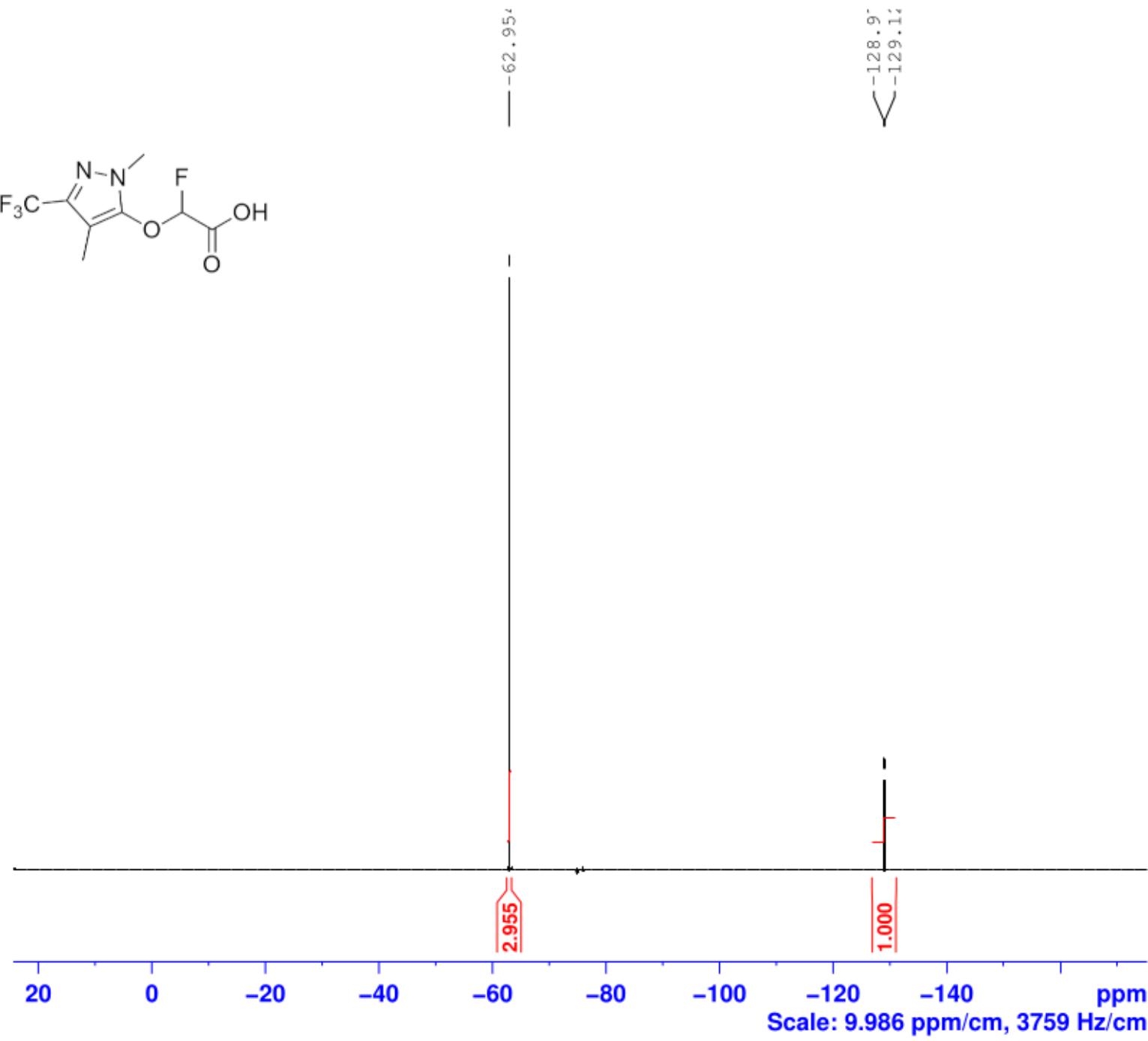
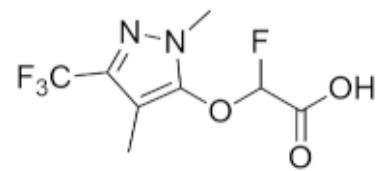
F2 - Acquisition Parameters
Date_          20210220
Time_          3.34 h
INSTRUM       spect
PROBHD        28420_0082 (PH)
PULPROG       zgdc30
TD             65536
SOLVENT        DMSO
NS             100000
DS              0
SWH            29761.904 Hz
FIDRES        0.908261 Hz
AQ             1.1010048 sec
RG             2050
DW             16.800 usec
DE             6.50 usec
TE             300.0 K
D1             0.1000000 sec
D11            0.0300000 sec
TDO             1
SFO1           125.7477315 MHz
NUC1            13C
P1              13.00 usec
PLW1           55.00000000 W
SFO2           500.0425002 MHz
NUC2            1H
CPDPRG[2]      waltz16
PCPD2          80.00 usec
PLW2           15.00000000 W
PLW12          0.24962001 W

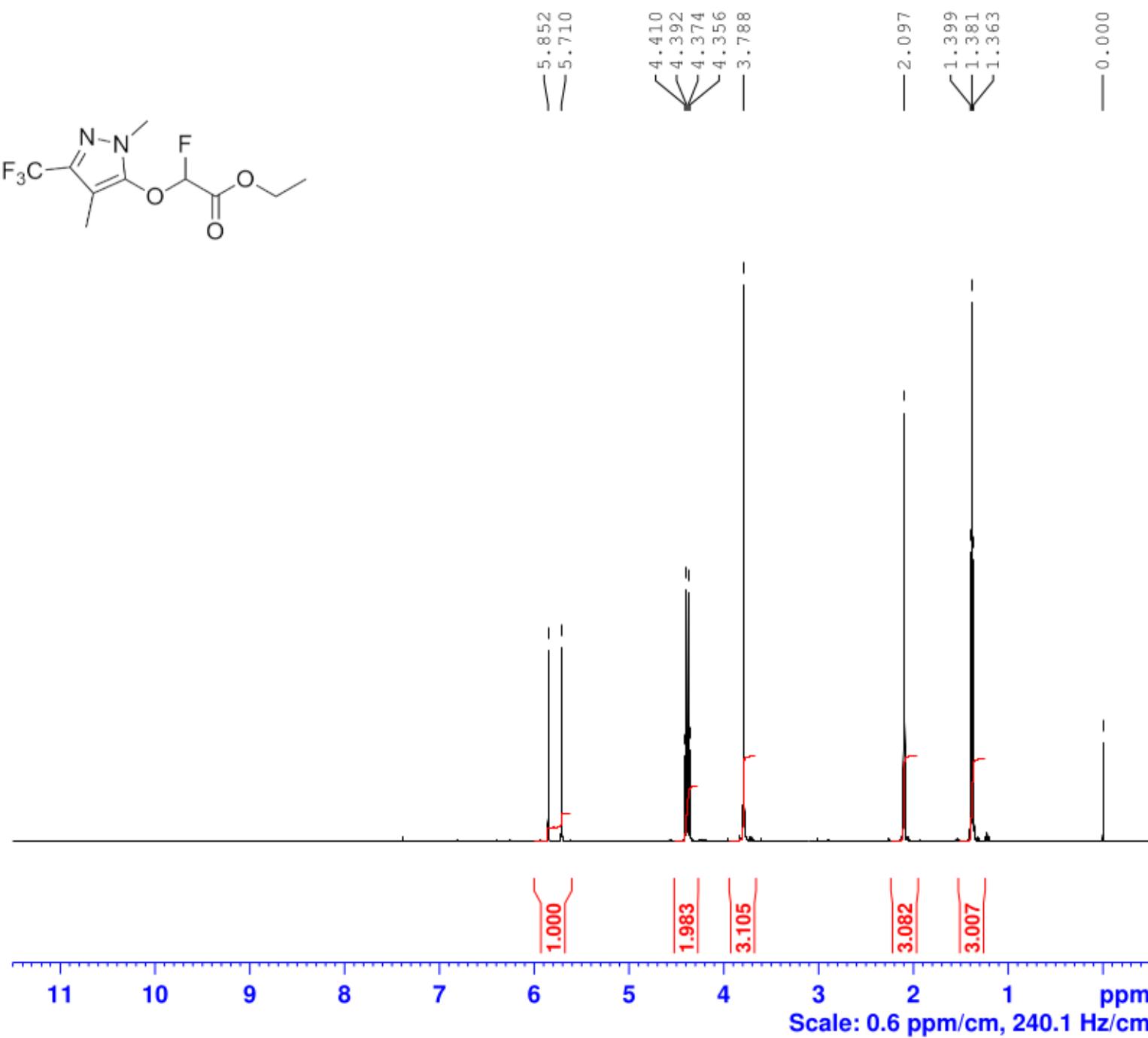
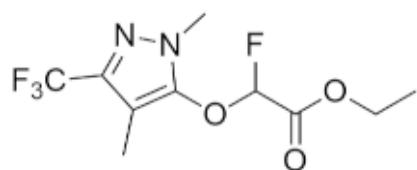
```

```

F2 - Processing parameters
SI           32768
SF          125.7352290 MHz
WDW          EM
SSB          0
LB           2.00 Hz
GB          0
PC          1.00

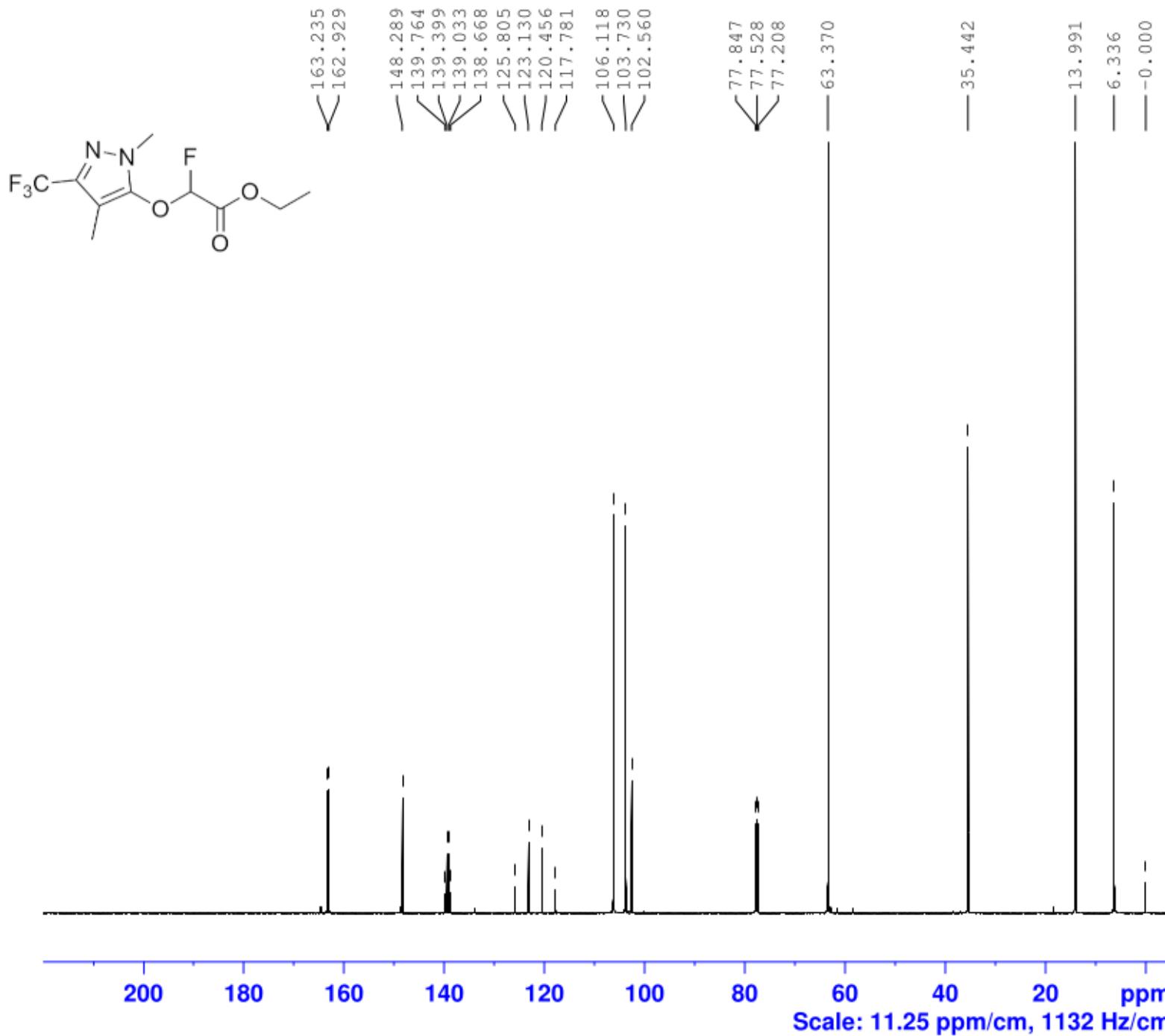
```





NAME P7K15.2.21
 EXPNO 15
 PROCNO 1
 Date_ 20210216
 Time 7.55
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 8
 DS 0
 SWH 7183.908 Hz
 FIDRES 0.109618 Hz
 AQ 4.5613556 sec
 RG 20.2
 DW 69.600 usec
 DE 6.50 usec
 TE 299.7 K
 D1 0.1000000 sec
 TD0 1

===== CHANNEL f1 =====
 NUCL 1H
 P1 10.10 usec
 PL1 0.00 dB
 SF01 400.1032008 MHz
 SI 32768
 SF 400.0999574 MHz
 WDW F.M
 SSB 0
 LB 0.00 Hz
 GB 0
 PC 1.00



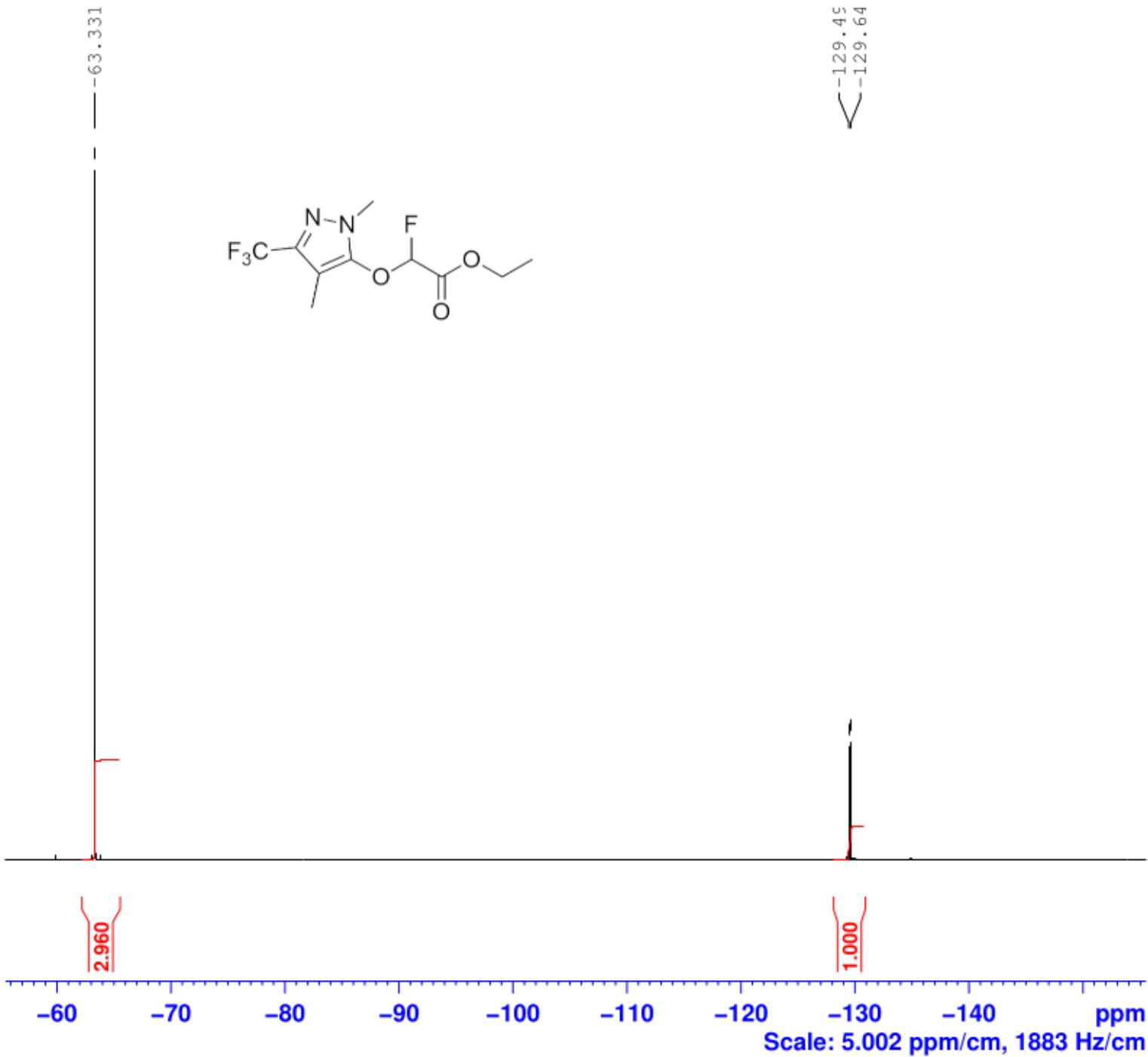
NAME P7K15.2.21
 EXPNO 14
 PROCNO 1
 Date_ 20210216
 Time 3.06
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG zgdc30
 TD 32768
 SOLVENT CDC13
 NS 40000
 DS 0
 SWH 24154.590 Hz
 FIDRES 0.737140 Hz
 AQ 0.6783476 se
 RG 71.8
 DW 20.700 us
 DE 29.57 us
 TE 299.9 K
 D1 0.10000000 se
 D11 0.03000000 se
 TDO 1

===== CHANNEL f1 =====

NUC1 ¹³C
 P1 9.20 us
 PL1 3.00 dE
 SFO1 100.6152865 MF

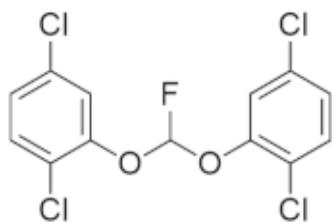
===== CHANNEL f2 =====

CPDPRG2 waltz16
 NUC2 ^{1H}
 PCPD2 80.00 us
 PL2 0.00 dE
 PL12 18.00 dE
 SFO2 400.1009202 MF
 SI 32768
 SF 100.6051785 MF
 WDW EM
 SSB 0
 LB 2.00 Hz
 GB 0
 PC 1.00



NAME P7K15.2.21
 EXPNO 6
 PROCNO 1
 Date_ 20210215
 Time 9.18
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG zg30
 TD 32768
 SOLVENT CDC13
 NS 48
 DS 0
 SWH 37664.785 Hz
 FIDRES 1.149438 Hz
 AQ 0.4350452 se
 RG 1290.2
 DW 13.275 us
 DE 6.32 us
 TE 300.0 K
 D1 0.1000000 se
 TDO 1

===== CHANNEL f1 =====
 NUC1 19F
 P1 7.90 us
 PL1 0.00 cE
 SE01 376.4306076 MF
 SI 32768
 SF 376.4703301 MF
 WDW EM
 SSB 0
 LB 0.50 Hz
 GB 0
 PC 1.00



7.651
7.640
7.638
7.634
7.631
7.629
7.607
7.582
7.464
7.346
7.340
7.324
7.318

3.340
2.521
2.517

0.000

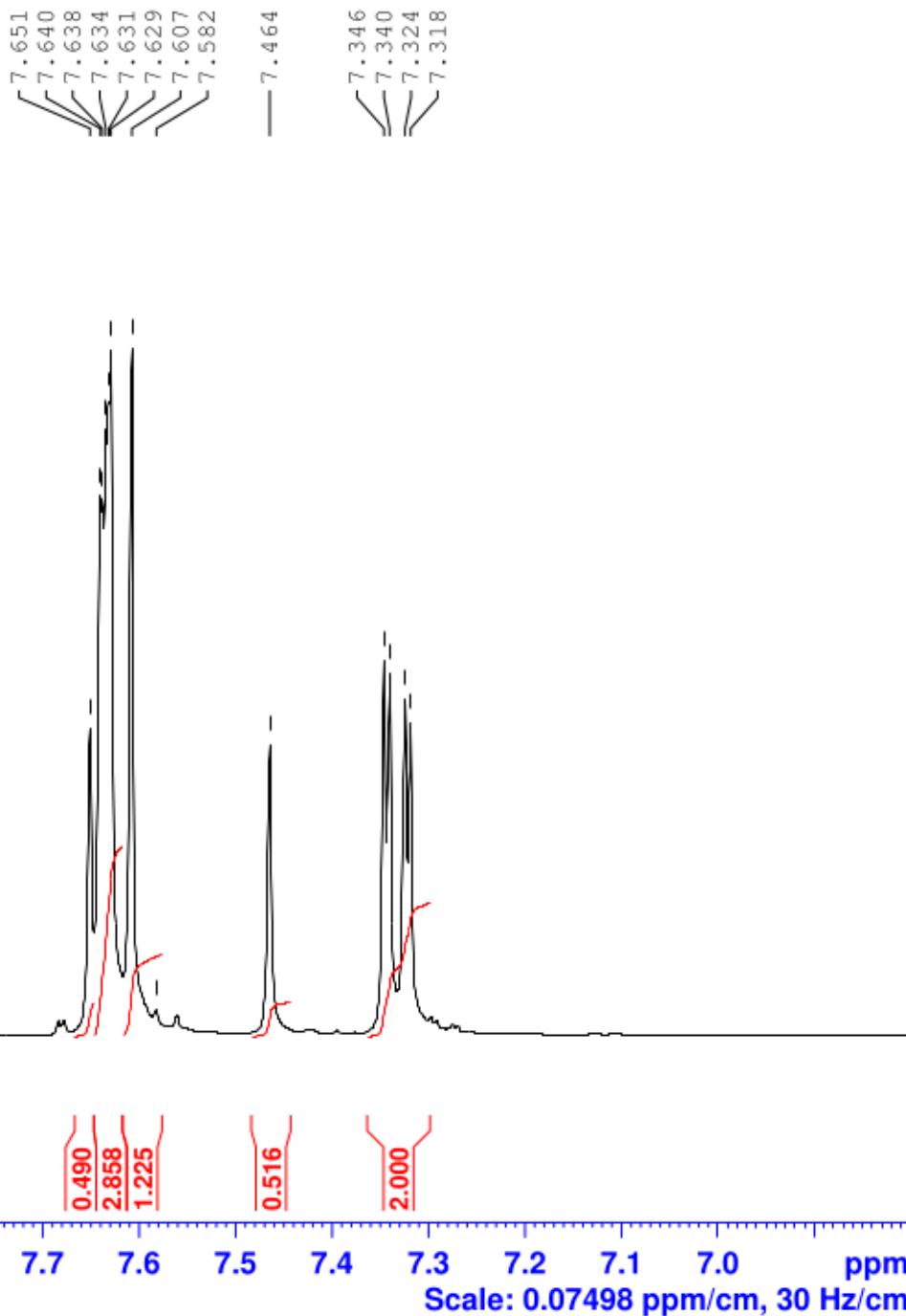
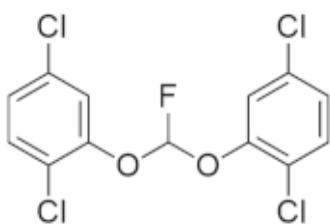


NAME P7K26.1.21
EXPNO 4
PROCNO 1
Date_ 20210126
Time 10.05
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT DMSO
NS 24
DS 0
SWH 7183.908 Hz
FIDRES 0.109618 Hz
AQ 4.5613556 sec
RG 362
DW 69.600 usec
DE 6.50 usec
TE 299.9 K
D1 0.10000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 1H
P1 10.10 usec
PL1 0.00 dB
SF01 400.1032008 MHz
SI 32768
SF 400.0999959 MHz
WDW F.M
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

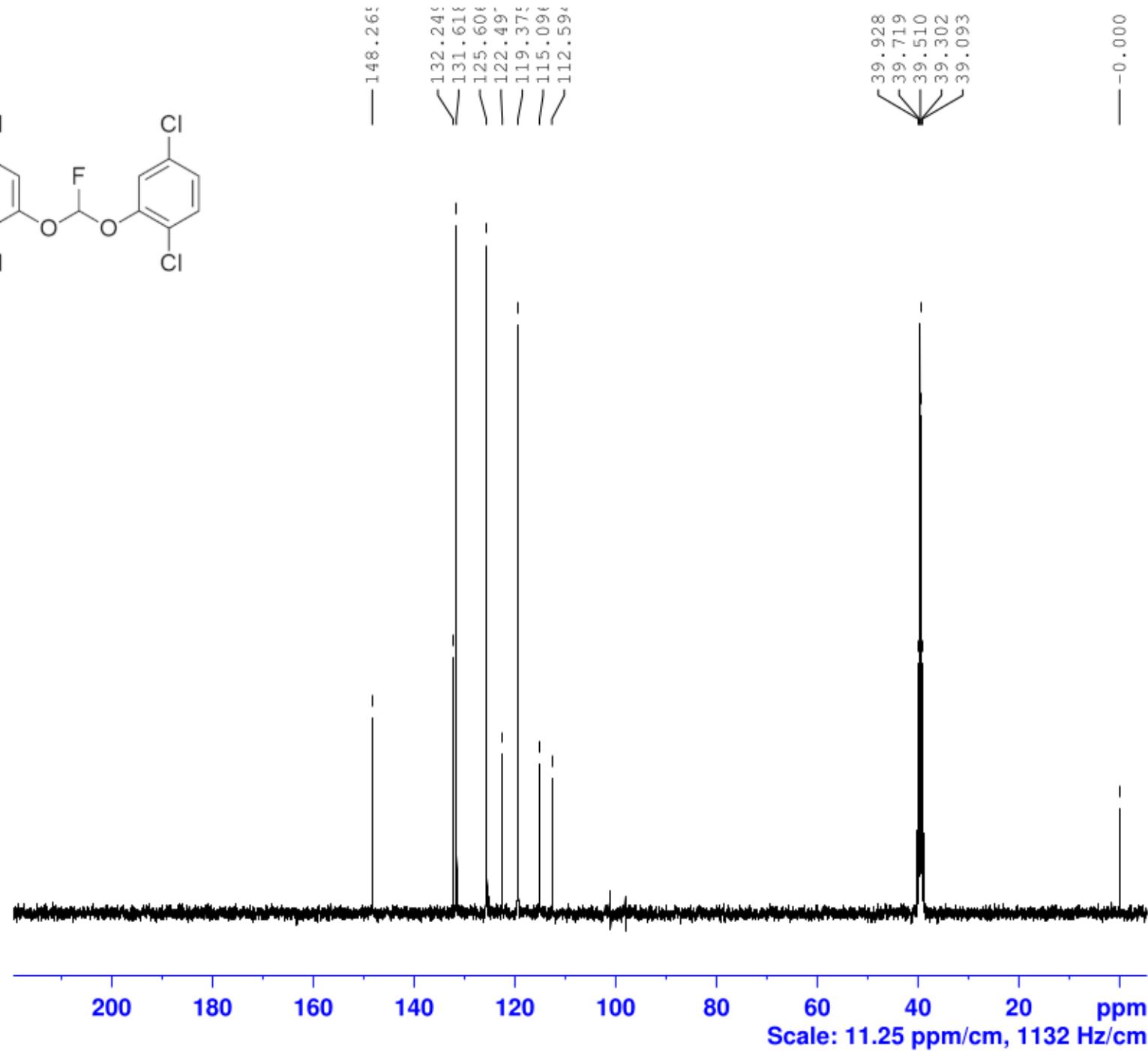
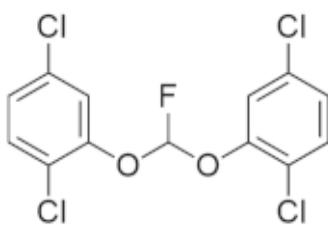
0.490
2.858
1.225
0.516
2.000

11 10 9 8 7 6 5 4 3 2 1 ppm
Scale: 0.6 ppm/cm, 240.1 Hz/cm



NAME P7K26.1.21
 EXPNO 4
 PROCNO 1
 Date_ 20210126
 Time 10.05
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG zg30
 TD 65536
 SOLVENT DMSO
 NS 24
 DS 0
 SWH 7183.908 Hz
 FIDRES 0.109618 Hz
 AQ 4.5613556 sec
 RG 362
 DW 69.600 usec
 DE 6.50 usec
 TE 299.9 K
 D1 0.10000000 sec
 TDO 1

===== CHANNEL f1 =====
 NUCL 1H
 P1 10.10 usec
 PL1 0.00 dB
 SF01 400.1032008 MHz
 SI 32768
 SF 400.0999959 MHz
 WDW F.M
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00



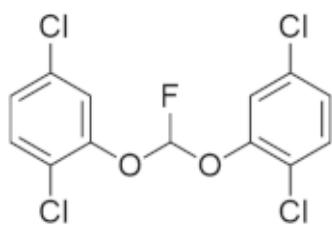
NAME P7K26.1.21
 EXPNO 7
 PROCNO 1
 Date_ 20210126
 Time 10.10
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG zgdc30
 TD 32768
 SOLVENT DMSO
 NS 1200
 DS 0
 SWH 24154.590 Hz
 FIDRES 0.737140 Hz
 AQ 0.6783476 se
 RG 71.8
 DW 20.700 us
 DE 29.57 us
 TE 300.5 K
 D1 0.10000000 se
 D11 0.03000000 se
 TDO 1

===== CHANNEL f1 =====

NUC1	13C
P1	9.20 us
PL1	3.00 dE
SFO1	100.6152865 MF

===== CHANNEL f2 =====

CPDPRG2	waltz16
NUC2	1H
PCPD2	80.00 us
PL2	0.00 dE
PL12	18.00 dE
SFO2	400.1009202 MF
SI	32768
SF	100.6052769 MF
WDW	EM
SSB	0
LB	2.00 Hz
GB	0
PC	1.00



--87.01:
--87.21:



NAME P7K26.1.21
EXPNO 6
PROCNO 1
Date_ 20210126
Time 10.06
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 32768
SOLVENT DMSO
NS 24
DS 0
SWH 11261.262 Hz
FIDRES 0.343666 Hz
AQ 1.4549491 se
RG 1625.5
DW 44.400 us
DE 6.32 us
TE 299.9 K
D1 0.1000000 se
TD0 1

===== CHANNEL f1 =====
NUC1 19F
P1 7.90 us
PL1 0.00 cE
SF01 376.4381370 MF
SI 32768
SF 376.4703301 MF
WDW EM
SSB 0
LB 0.50 Hz
GB 0
PC 1.00

-75

-80

-85

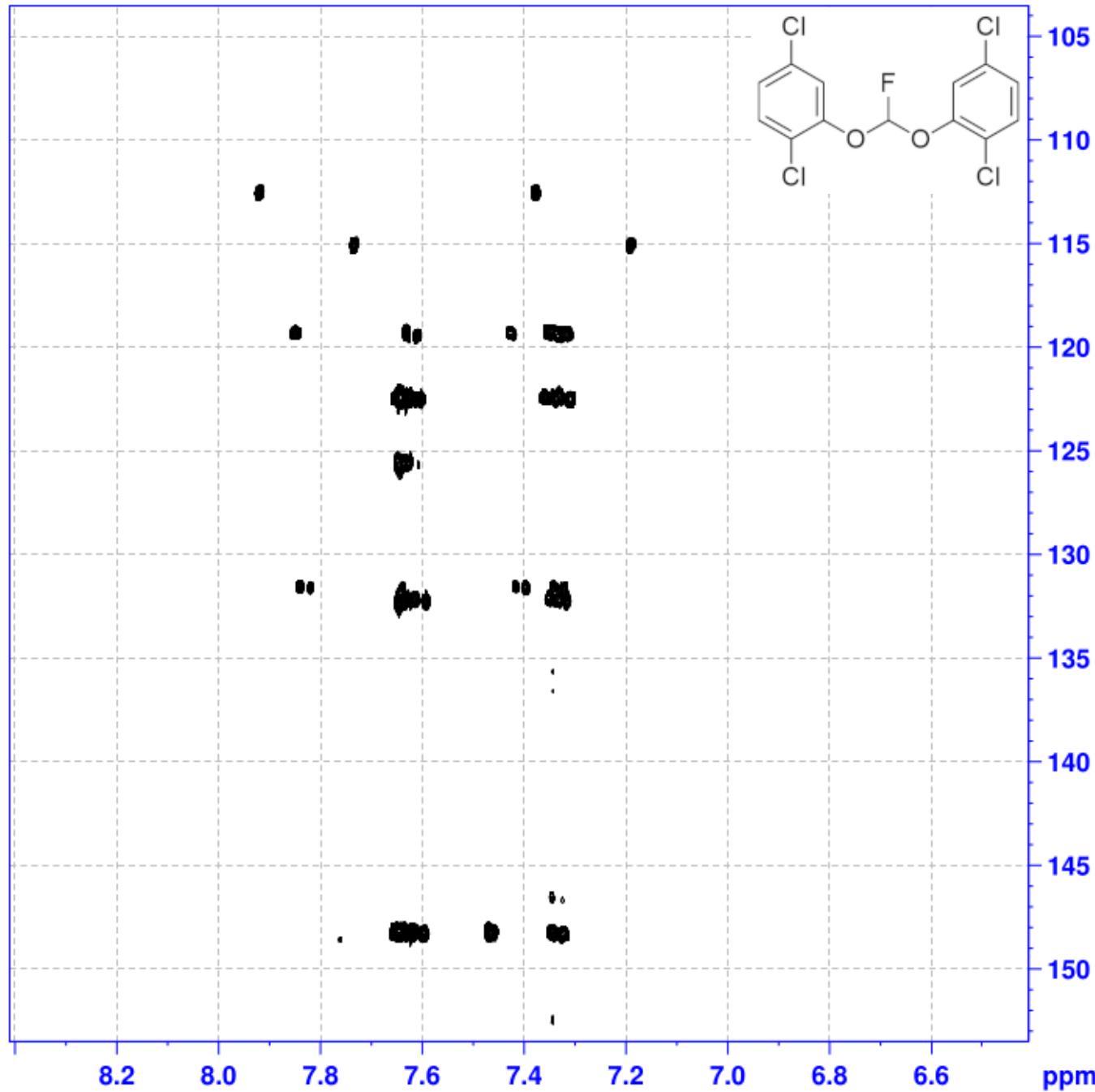
-90

-95

ppm

Scale: 1.496 ppm/cm, 563.1 Hz/cm

HMBC



BRUKER

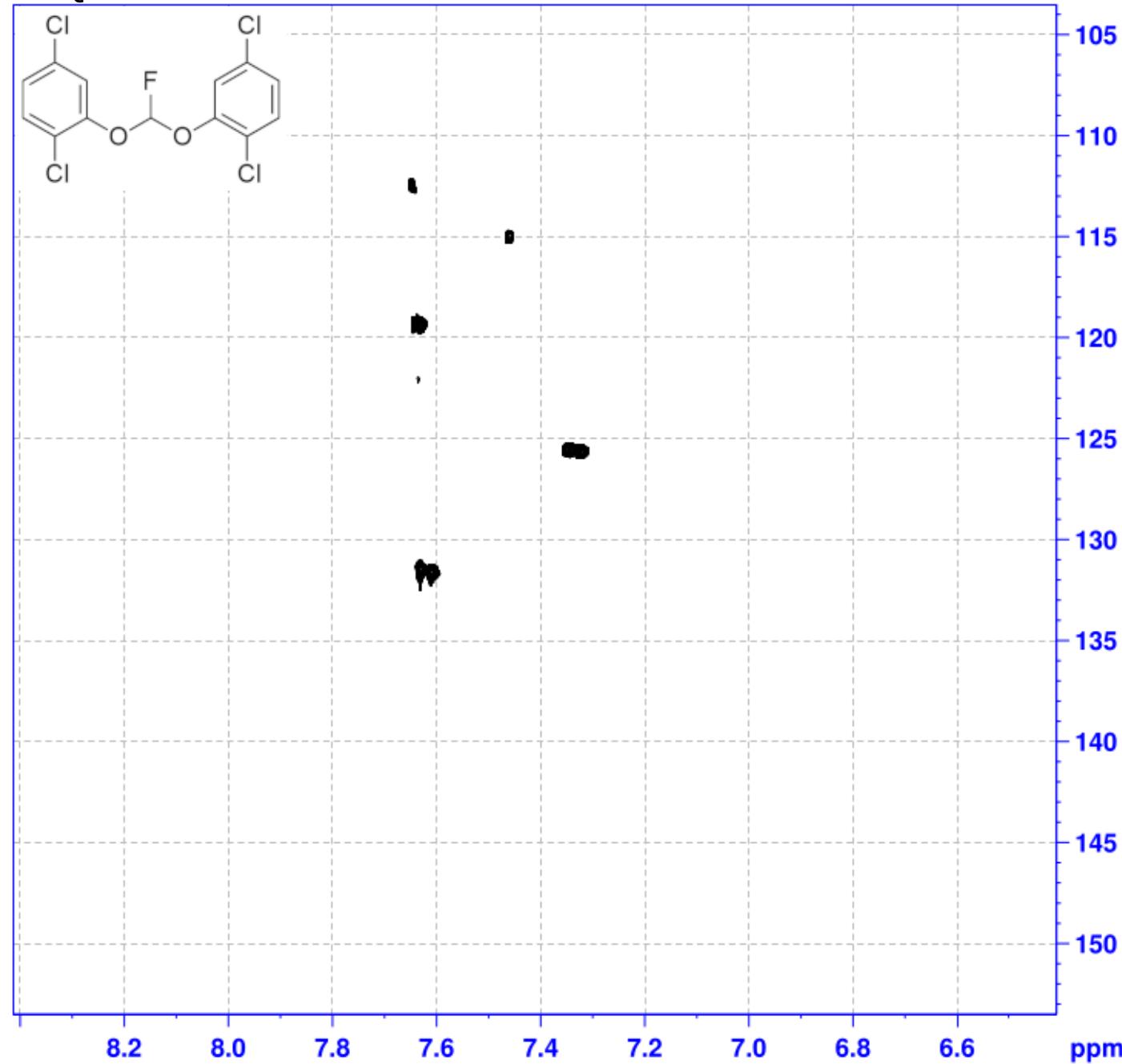
NAME P7K26.1.21
 EXPNO 11
 PROCN0 1
 Date_ 20210126
 Time 10.56
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG hmbcqplpndqr
 TD 1024
 SOLVENT DMSO
 NS 8
 DS 2
 SWH 801.282 Hz
 FIDRES 0.782502 Hz
 AQ 0.6390260 sec
 RG 46341
 DW 624.000 usec
 DE 241.25 usec
 TE 299.2 K
 CNST2 145.0000000
 CNST13 8.0000000
 D0 0.00000300 sec
 D1 1.00000000 sec
 D2 0.00344828 sec
 D6 0.06250000 sec
 D16 0.00020000 sec
 IN0 0.00009940 sec

----- CHANNEL f1 -----
 NUC1 1H
 P1 10.10 usec
 P2 20.20 usec
 PL1 0.00 dB
 SF01 400.1029607 MHz

----- CHANNEL f2 -----
 NUC2 13C
 P3 9.20 usec
 PL2 0.00 dB
 SF02 100.6182041 MHz

===== GRADIENT CHANNEL =====
 GPNAM1 sine.100
 GPNAM2 sine.100
 GPNAM3 sine.100
 GPZ1 50.00 %
 GPZ2 30.00 %
 GPZ3 40.10 %
 P16 1000.00 usec
 ND0 2
 TD 128
 SF01 100.6182 MHz
 FIDRES 39.303986 Hz
 SW 50.000 ppm
 FnMODE QF
 SI 1024
 SF 400.0999959 MHz
 MDW QSINE
 SSB 0
 LB 0.00 Hz
 GB 0
 PC 1.00
 SI 512
 MC2 QF
 SF 100.6052769 MHz
 MDW QSINE
 SSB 0
 LB 0.00 Hz
 GB 0

HSQC



```

NAME      P7K26.1.21
EXPNO        10
PROCNO       1
Date_ 20210126
Time   10.41
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG hmqcgpqf
TD      1024
SOLVENT   DMSO
NS       4
DS       2
SWH     801.282 Hz
FIDRES  0.782502 Hz
AQ      0.6390260 sec
RG      46341
DW      624.000 usec
DE      241.25 usec
TE      300.1 K
CNST2   145.0000000
D0      0.00000300 sec
D1      1.00000000 sec
D2      0.00344828 sec
D12     0.00002000 sec
D13     0.00000400 sec
D16     0.00020000 sec
IN0      0.00009940 sec

```

```

===== CHANNEL f1 =====
NUC1      1H
P1       10.50 usec
P2       21.00 usec
PL1      0.00 dB
SFO1    400.1029607 MHz

```

```

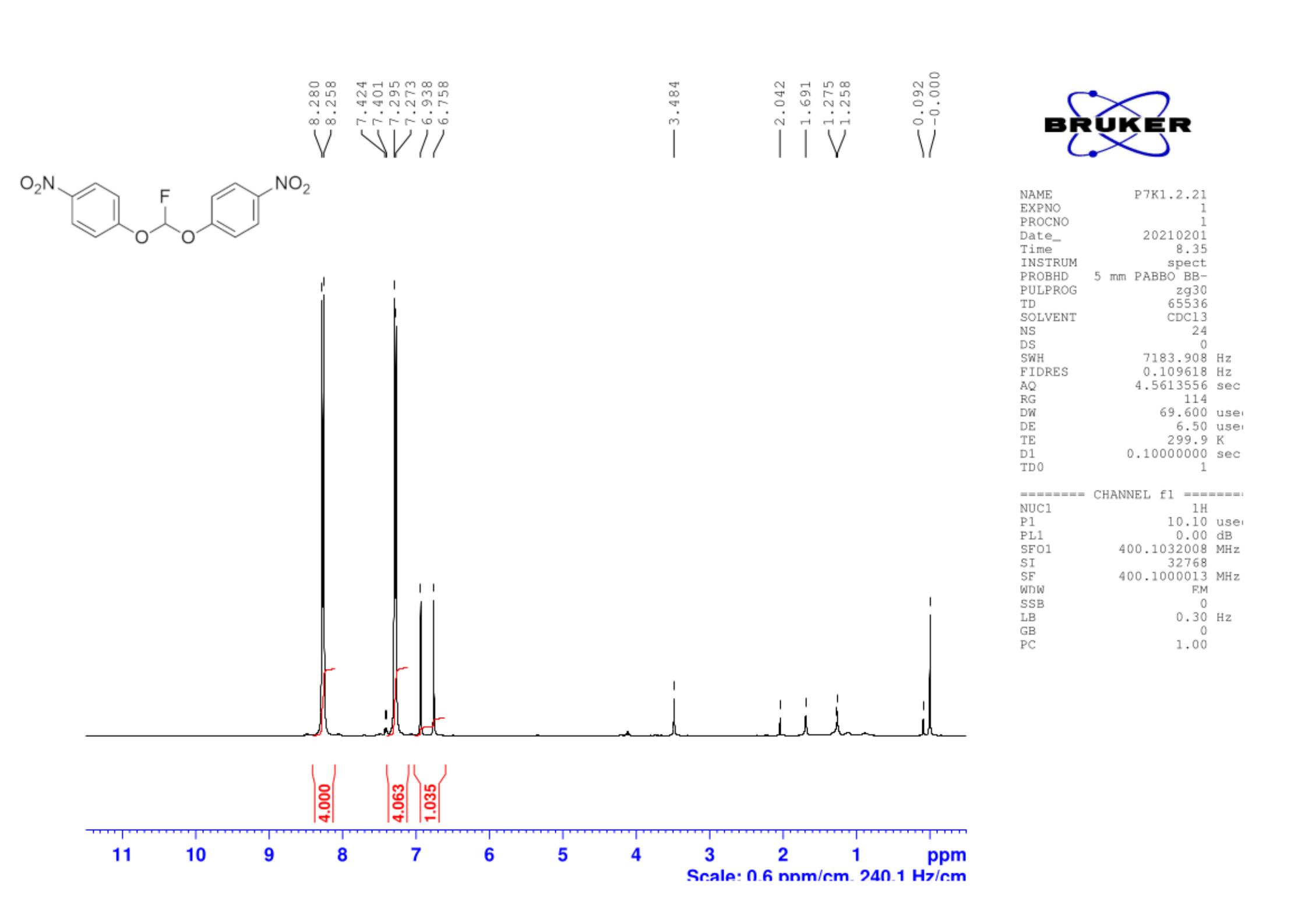
===== CHANNEL f2 =====
CPDPRG2  garp
NUC2      13C
P3       9.10 usec
PCPD2    55.00 usec
PL2      3.00 dB
PL12     18.40 dB
SFO2    100.6182041 MHz

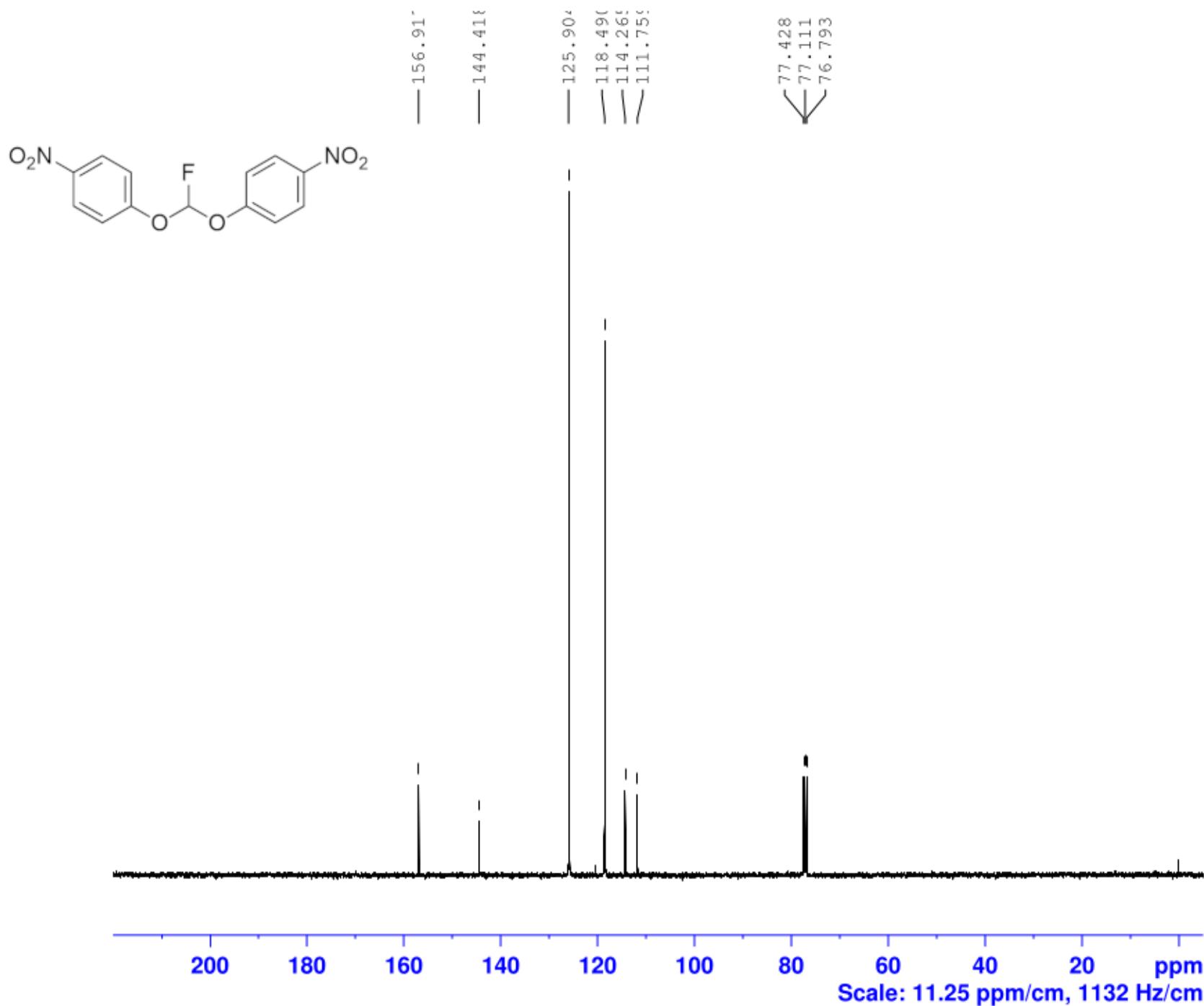
```

```

===== GRADIENT CHANNEL =====
GPNAM1    sine.100
GPNAM2    sine.100
GPNAM3    sine.100
GP21      50.00 %
GP22      30.00 %
GP23      40.10 %
P16      1000.00 usec
ND0      2
TD      128
SFO1    100.6182 MHz
FIDRES  39.303986 Hz
SW      50.000 ppm
PnMODE   QF
SI      1024
SF      400.0999959 MHz
MDW      QSINE
SSB      0
LB      0.00 Hz
GB      0
PC      1.00
SI      512
MC2      QF
SF      100.6052769 MHz
WDW      QSINE
SSB      0
LB      0.00 Hz
GB      0

```

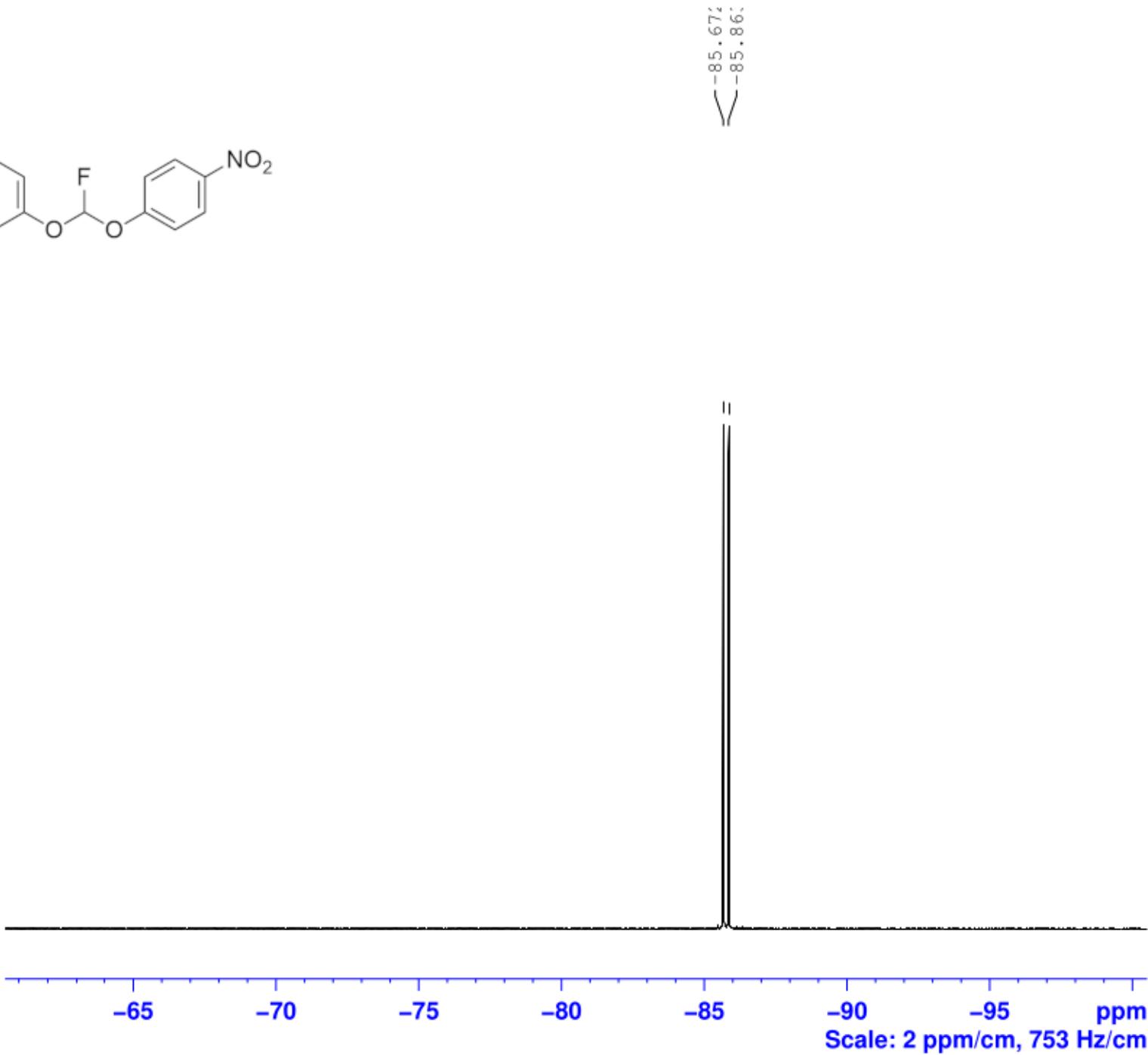
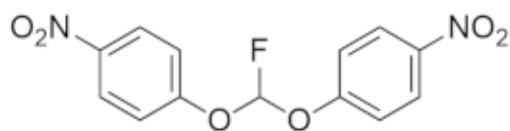




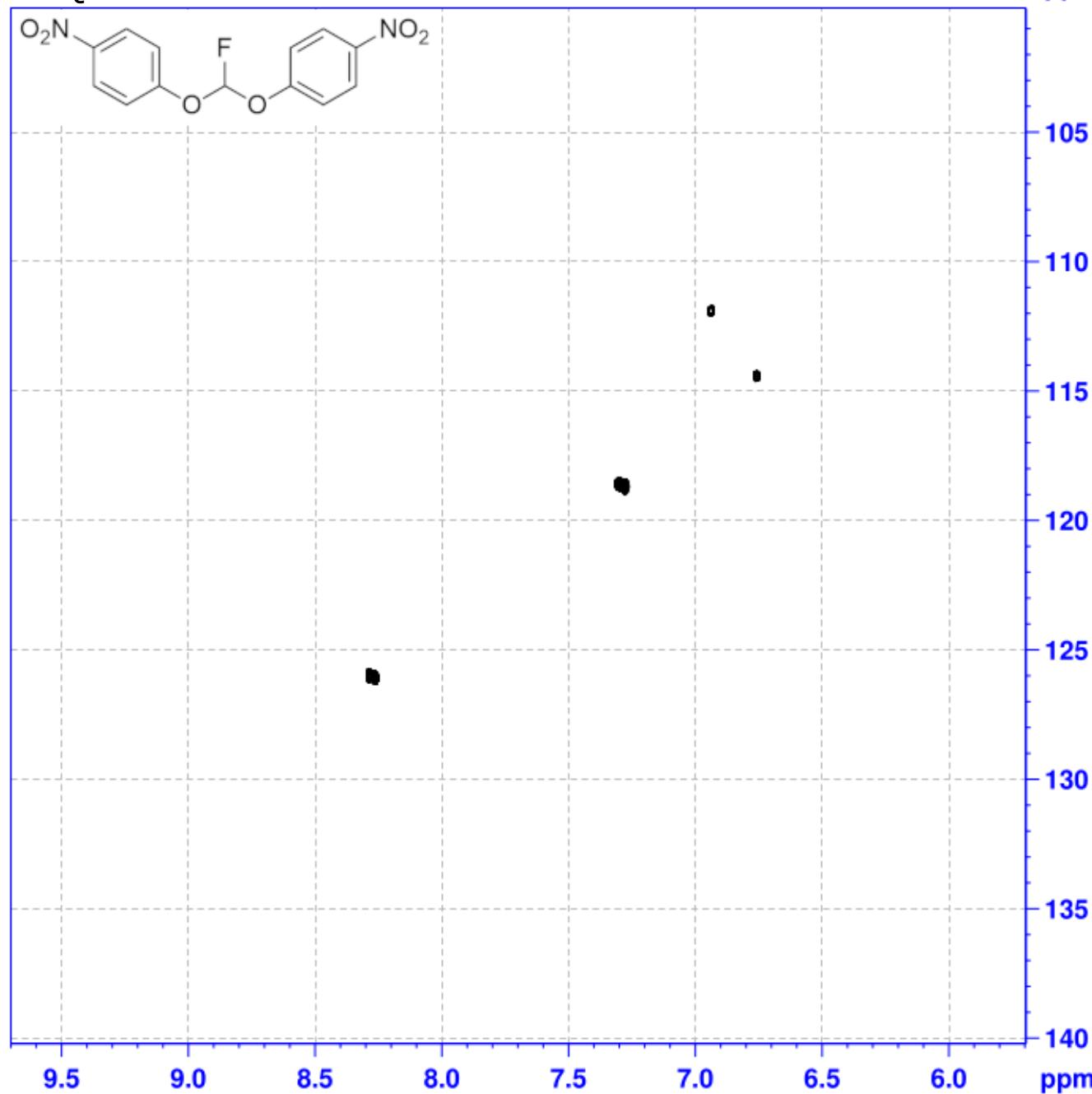
NAME P7K1.2.21
 EXPNO 3
 PROCNO 1
 Date_ 20210201
 Time 8.39
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG zgdc30
 TD 32768
 SOLVENT CDC13
 NS 1000
 DS 0
 SWH 24154.590 Hz
 FIDRES 0.737140 Hz
 AQ 0.6783476 se
 RG 71.8
 DW 20.700 us
 DE 29.57 us
 TE 300.5 K
 D1 0.10000000 se
 D11 0.03000000 se
 TDO 1

===== CHANNEL f1 =====
 NUC1 13C
 P1 9.20 us
 PL1 3.00 dE
 SFO1 100.6152865 MF

===== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 80.00 us
 PL2 0.00 dE
 PL12 18.00 dE
 SFO2 400.1009202 MF
 SI 32768
 SF 100.6052219 MF
 WDW EM
 SSB 0
 LB 2.00 Hz
 GB 0
 PC 1.00



HMQC



```

NAME      P7K1.2.21
EXPNO     5
PROCNO    1
Date_     20210201
Time      9.11
INSTRUM   spect
PROBHD   5 mm PABBO BB-
PULPROG  hmqcgpqf
TD        1024
SOLVENT   CDCl3
NS        4
DS        2
SWH      1602.564 Hz
FIDRES   1.565004 Hz
AQ        0.3195380 sec
RG        20642.5
DW        312.000 usec
DE        241.25 usec
TE        300.2 K
CNST2    145.0000000
D0        0.00000300 sec
D1        1.0000000 sec
D2        0.00344828 sec
D12       0.00002000 sec
D13       0.00000400 sec
D16       0.00020000 sec
IN0       0.00012425 sec

===== CHANNEL f1 =====
NUC1      1H
P1        10.50 usec
P2        21.00 usec
PL1       0.00 dB
SFO1     400.1030808 MHz

===== CHANNEL f2 =====
CPDPRG2  garp
NUC2      13C
P3        9.10 usec
PCPD2    55.00 usec
PL2       3.00 dB
PL12      18.40 dB
SFO2     100.6172986 MHz

===== GRADIENT CHANNEL =====
GPNAME1  sine.100
GPNAME2  sine.100
GPNAME3  sine.100
GPZ1     50.00 %
GPZ2     30.00 %
GPZ3     40.10 %
P16      1000.00 usec
ND0      2
TD       128
SFO1    100.6173 MHz
FIDRES  31.442905 Hz
SW       40.000 ppm
FnMODE   QF
SI       1024
SF      400.1000009 MHz
MDW      QSINE
SSB      0
LB       0.00 Hz
GB       0
PC       1.00
SI       512
MC2      QF
SF      100.6052043 MHz
WDW      QSINE
SSB      0
LB       0.00 Hz
GB       0

```

```

===== CHANNEL f1 =====
NUC1      1H
P1        10.50 usec
P2        21.00 usec
PL1       0.00 dB
SFO1     400.1030808 MHz

===== CHANNEL f2 =====
CPDPRG2  garp
NUC2      13C
P3        9.10 usec
PCPD2    55.00 usec
PL2       3.00 dB
PL12      18.40 dB
SFO2     100.6172986 MHz

===== GRADIENT CHANNEL =====
GPNAME1  sine.100
GPNAME2  sine.100
GPNAME3  sine.100
GPZ1     50.00 %
GPZ2     30.00 %
GPZ3     40.10 %
P16      1000.00 usec
ND0      2
TD       128
SFO1    100.6173 MHz
FIDRES  31.442905 Hz
SW       40.000 ppm
FnMODE   QF
SI       1024
SF      400.1000009 MHz
MDW      QSINE
SSB      0
LB       0.00 Hz
GB       0
PC       1.00
SI       512
MC2      QF
SF      100.6052043 MHz
WDW      QSINE
SSB      0
LB       0.00 Hz
GB       0

```

```

===== CHANNEL f1 =====
NUC1      1H
P1        10.50 usec
P2        21.00 usec
PL1       0.00 dB
SFO1     400.1030808 MHz

===== CHANNEL f2 =====
CPDPRG2  garp
NUC2      13C
P3        9.10 usec
PCPD2    55.00 usec
PL2       3.00 dB
PL12      18.40 dB
SFO2     100.6172986 MHz

===== GRADIENT CHANNEL =====
GPNAME1  sine.100
GPNAME2  sine.100
GPNAME3  sine.100
GPZ1     50.00 %
GPZ2     30.00 %
GPZ3     40.10 %
P16      1000.00 usec
ND0      2
TD       128
SFO1    100.6173 MHz
FIDRES  31.442905 Hz
SW       40.000 ppm
FnMODE   QF
SI       1024
SF      400.1000009 MHz
MDW      QSINE
SSB      0
LB       0.00 Hz
GB       0
PC       1.00
SI       512
MC2      QF
SF      100.6052043 MHz
WDW      QSINE
SSB      0
LB       0.00 Hz
GB       0

```