

Tunable Optical Properties of Chromophores derived from Oligo(p-phenylene vinylene)

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SUPPLEMENTARY INFORMATION

NMR AND IR SPECTRA

Molecule 7

¹ H NMR spectrum	p.3
¹³ C NMR spectrum	p.4

Molecule 8

¹ H NMR spectrum	p.5
¹³ C NMR spectrum	p.6
DEPT NMR spectrum	p.7

Molecule 9

¹ H NMR spectrum	p.8
¹³ C NMR spectrum	p.9
DEPT NMR spectrum	p.10

SOPV2

¹ H NMR spectrum	p.11
¹³ C NMR spectrum	p.12
DEPT NMR spectrum	p.13
COSY spectrum	p.14
IR spectrum	p.15

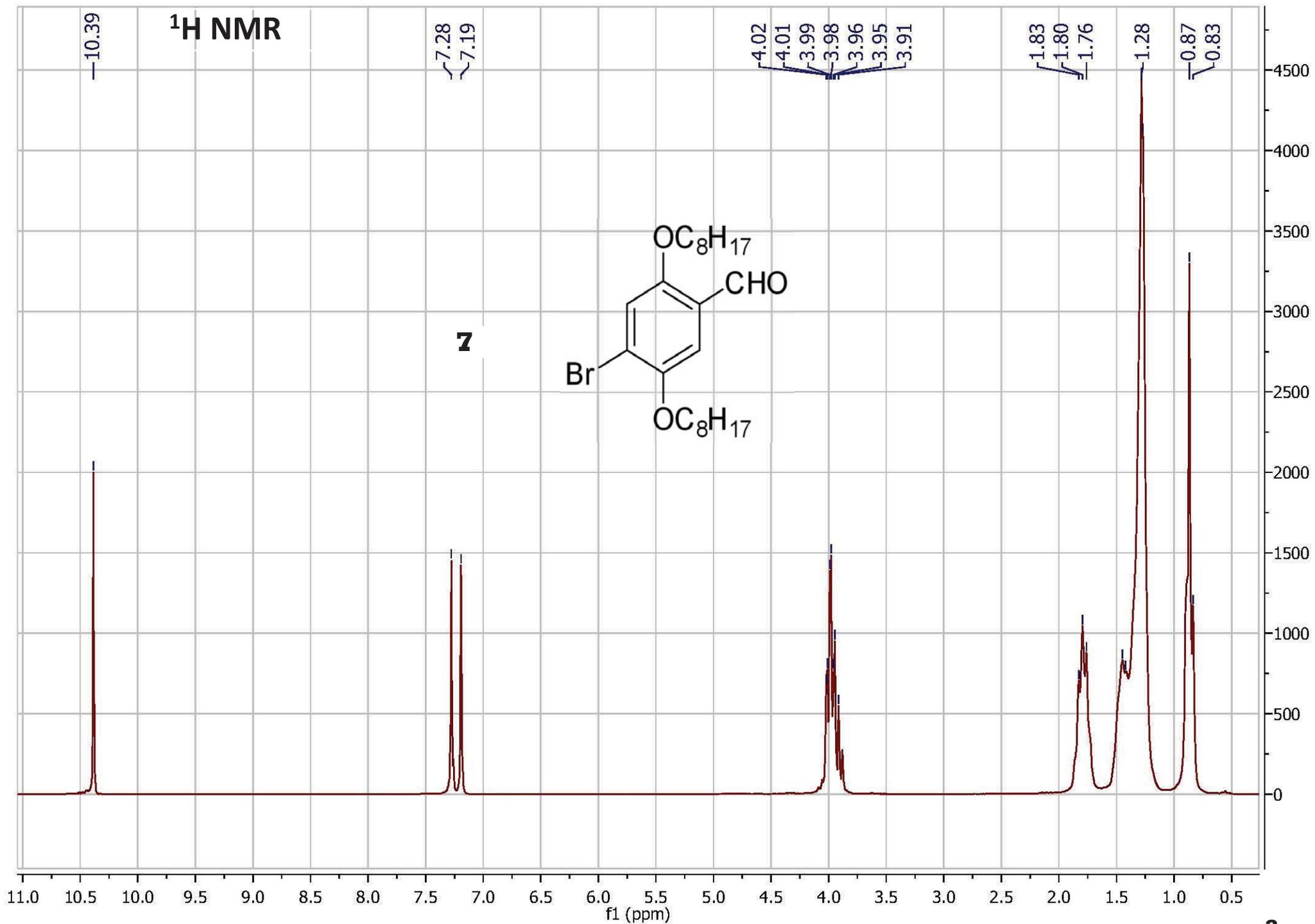
SOPV3

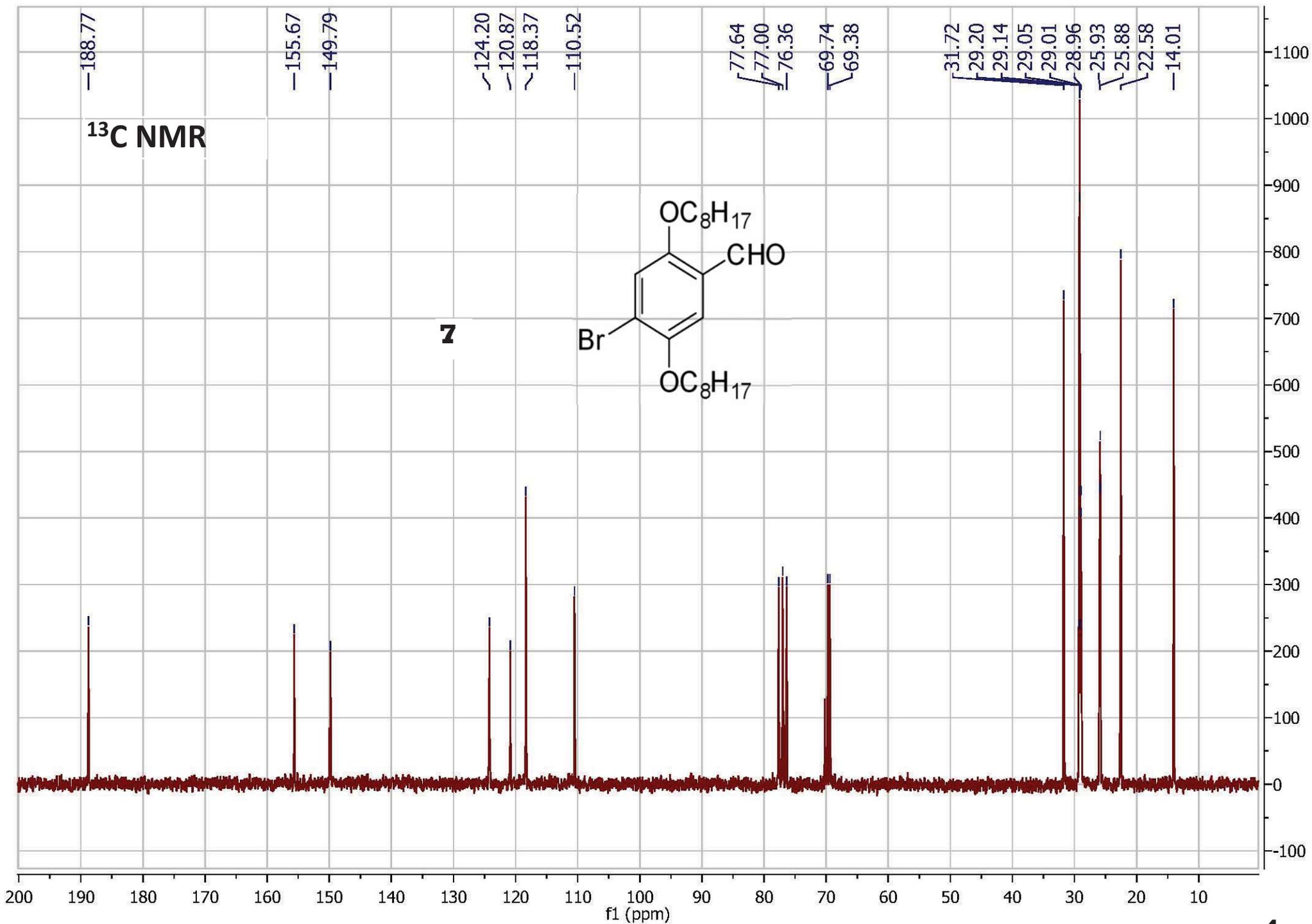
¹ H NMR spectrum	p.16
¹³ C NMR spectrum	p.17
DEPT NMR spectrum	p.18
COSY spectrum	p.19
IR spectrum	p.20

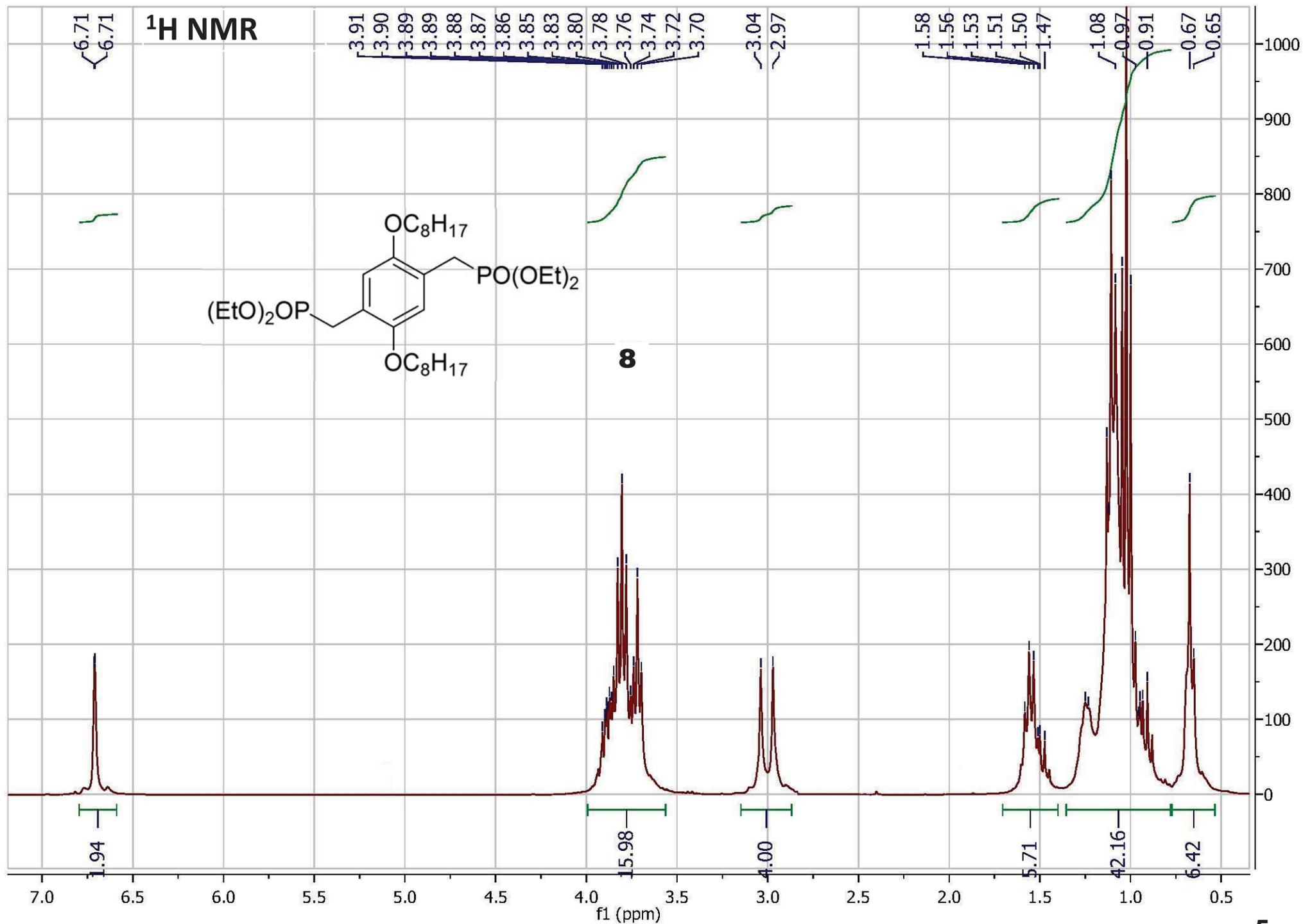
SOPV4

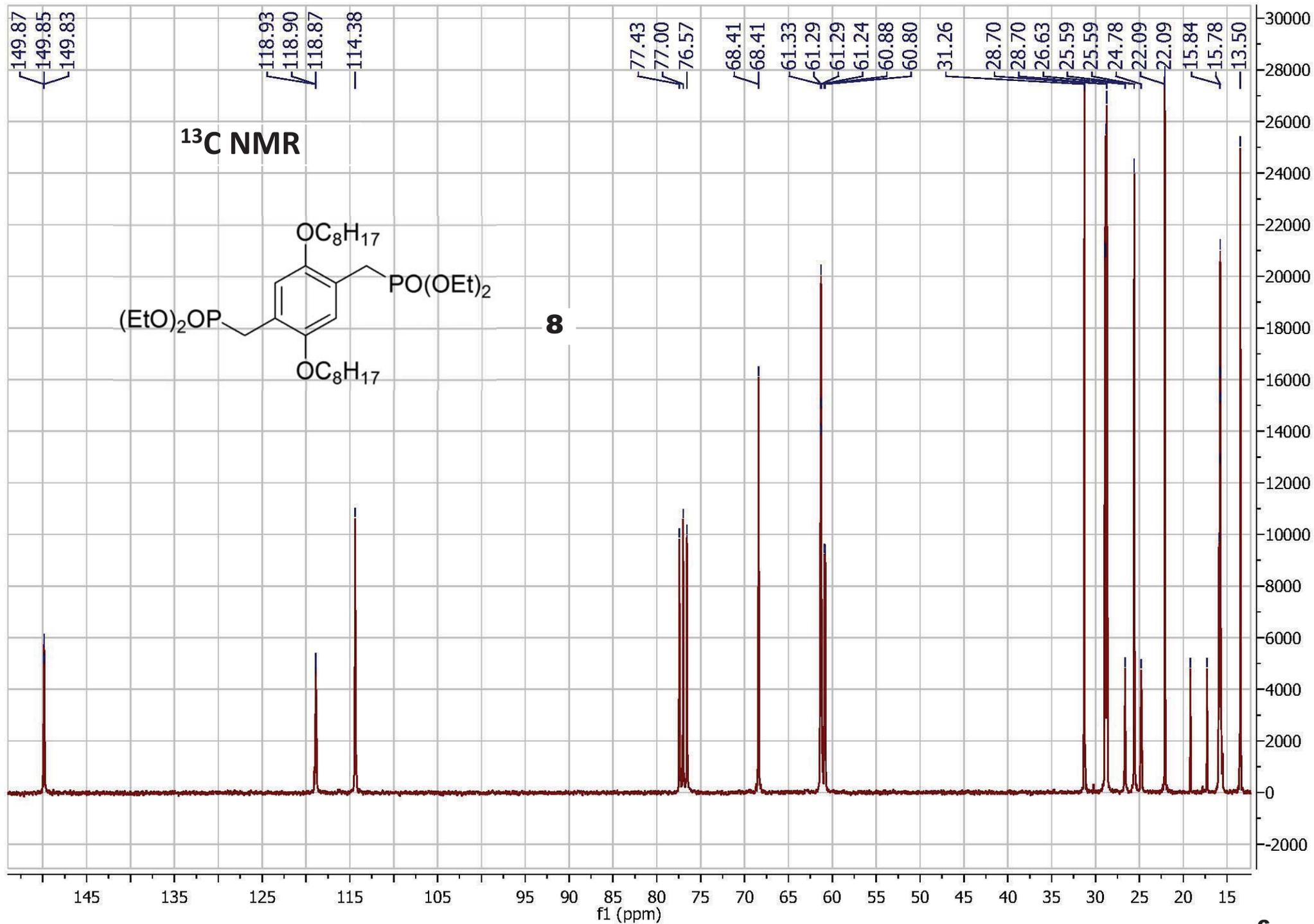
¹ H NMR spectrum	p.21
¹³ C NMR spectrum	p.22
COSY spectrum	p.23
IR spectrum	p.24

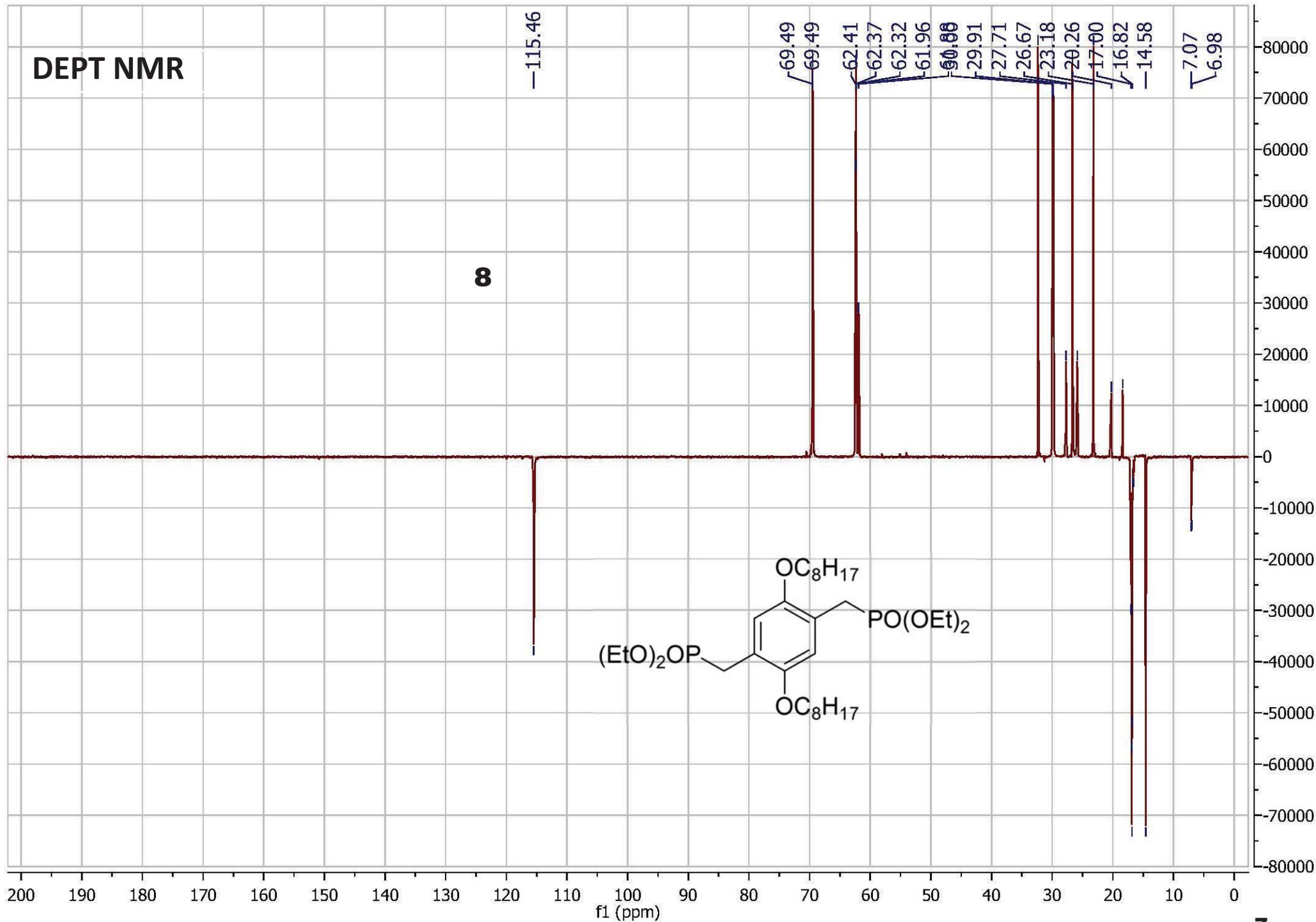
SOPV5		
	¹ H NMR spectrum	p.25
	IR spectrum	p.26
SOPV6		
	¹ H NMR spectrum	p.27
	¹³ C NMR spectrum	p.28
	DEPT NMR spectrum	p.29
SOPV7		
	¹ H NMR spectrum	p.30
	¹³ C NMR spectrum	p.31
	COSY spectrum	p.32-33
	IR spectrum	p.34
LOPV2		
	¹ H NMR spectrum	p.35
	¹³ C NMR spectrum	p.36
	DEPT NMR spectrum	p.37
	COSY spectrum	p.38
	IR spectrum	p.39
LOPV3		
	¹ H NMR spectrum	p.40
	¹³ C NMR spectrum	p.41
	DEPT NMR spectrum	p.42
	COSY spectrum	p.43
	IR spectrum	p.44
LOPV4		
	¹ H NMR spectrum	p.45
	COSY spectrum	p.46
	IR spectrum	p.47
LOPV5		
	¹ H NMR spectrum	p.48
	COSY spectrum	p.49
	IR spectrum	p.50
LOPV6		
	¹ H NMR spectrum	p.51
	¹³ C NMR spectrum	p.52
	DEPT NMR spectrum	p.53
LOPV7		
	¹ H NMR spectrum	p.54
	¹³ C NMR spectrum	p.55



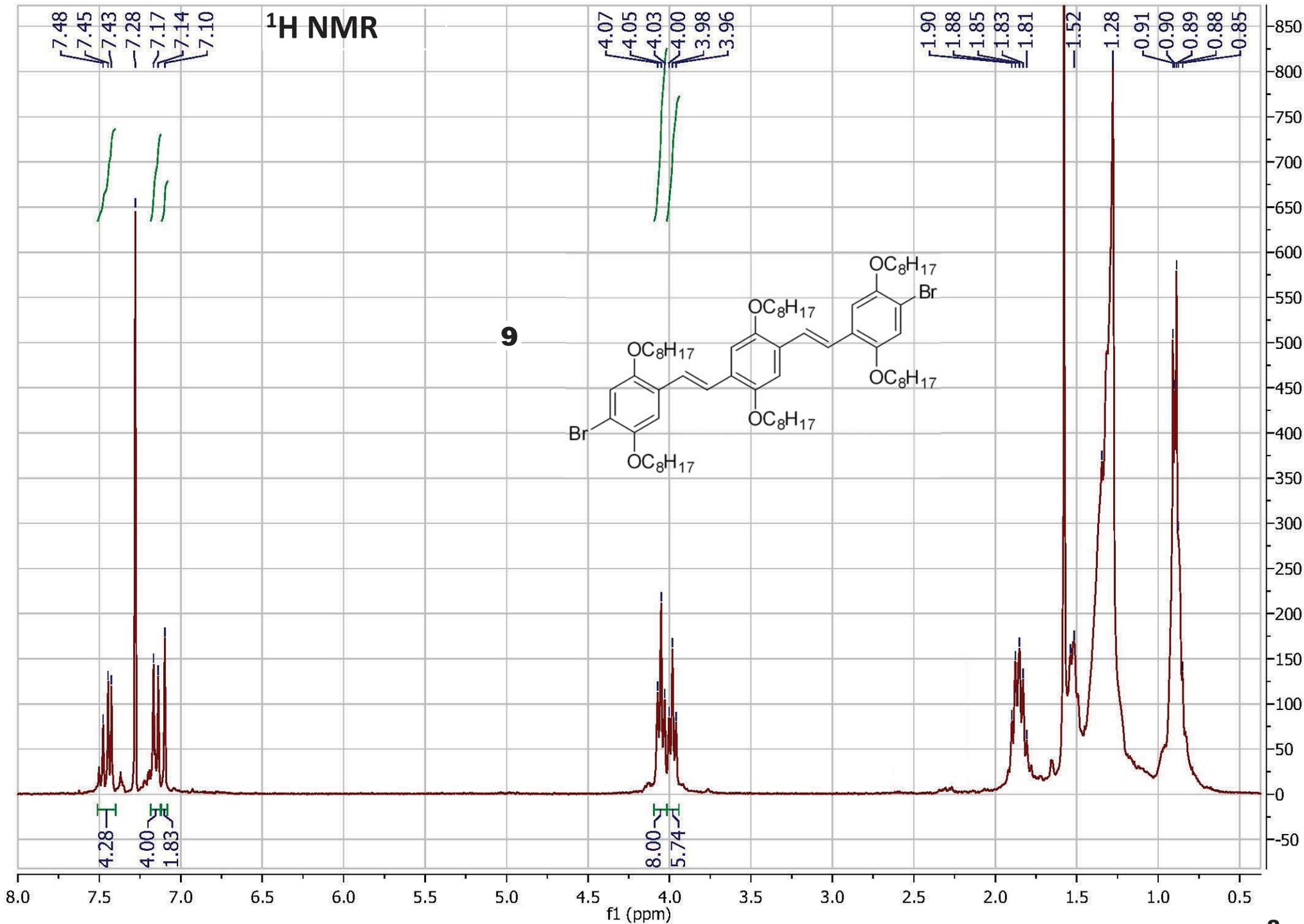




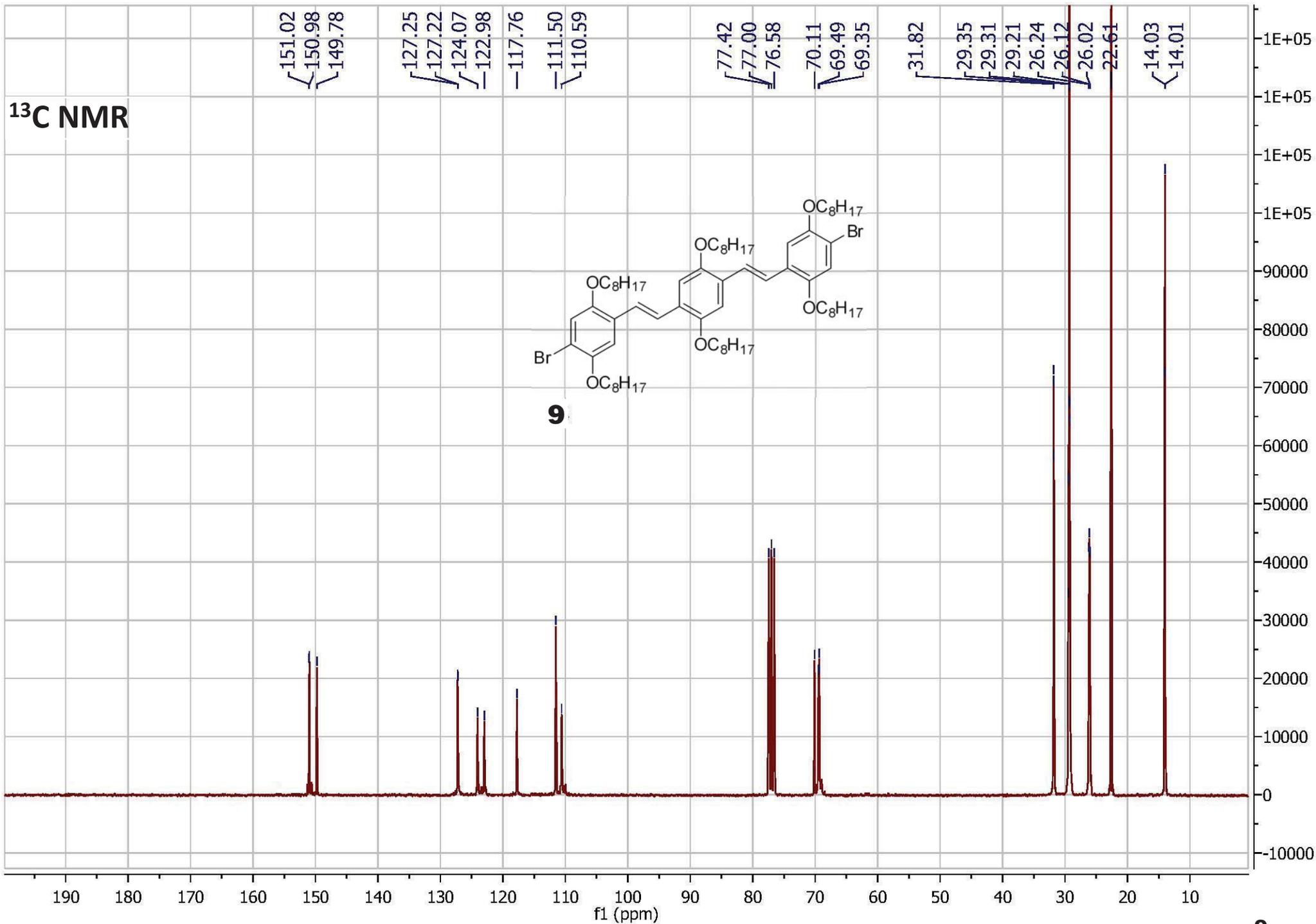


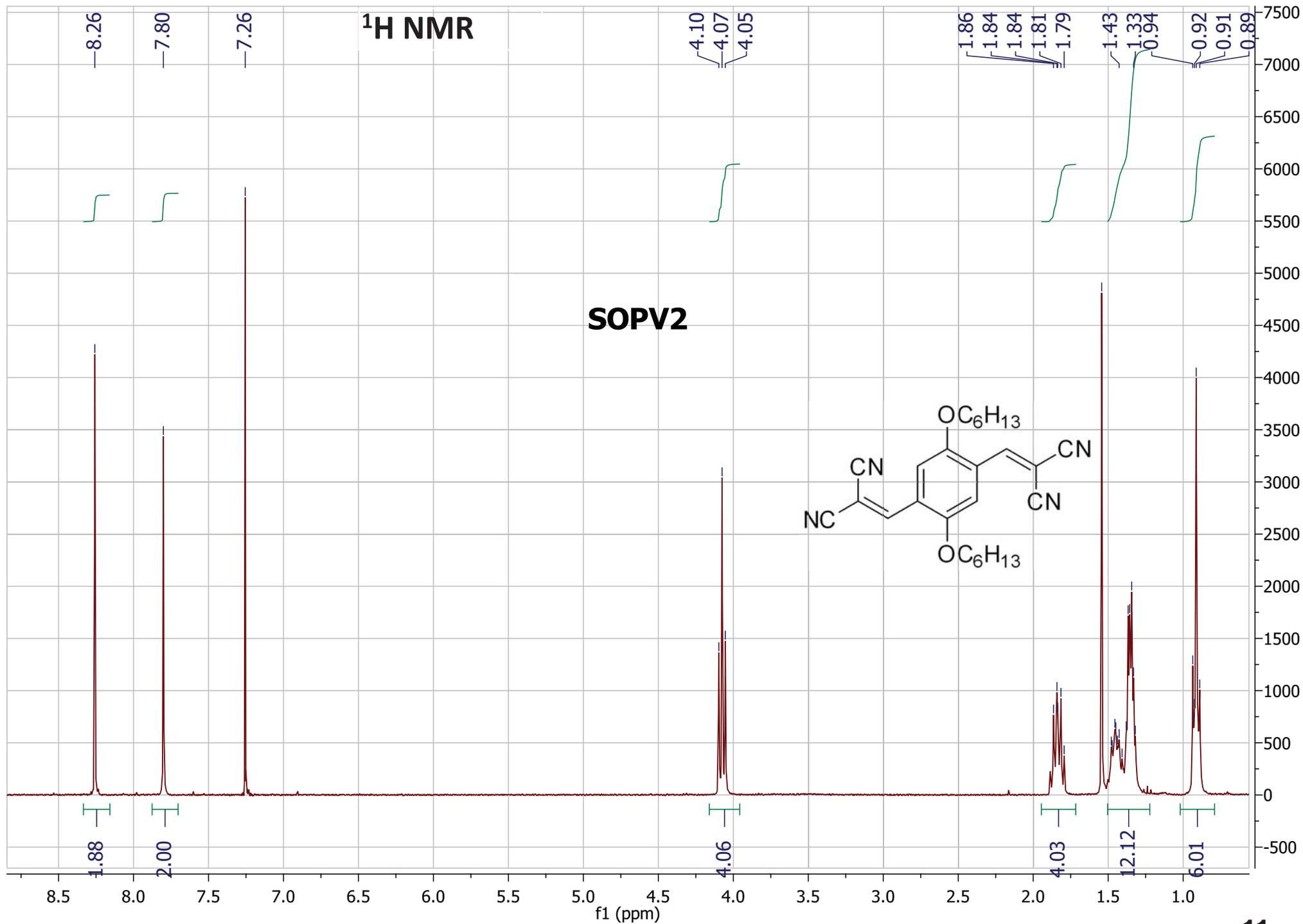


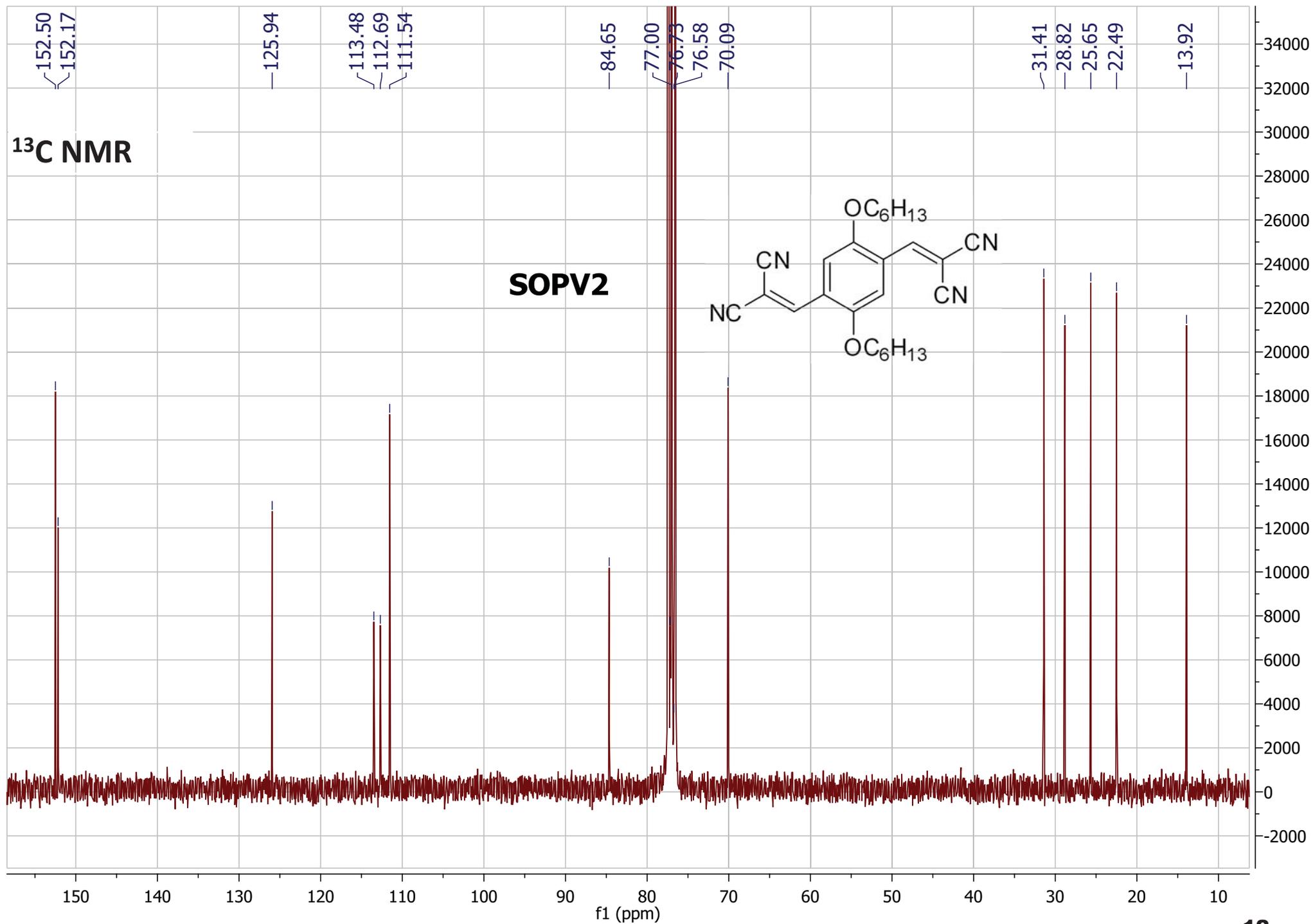
¹H NMR

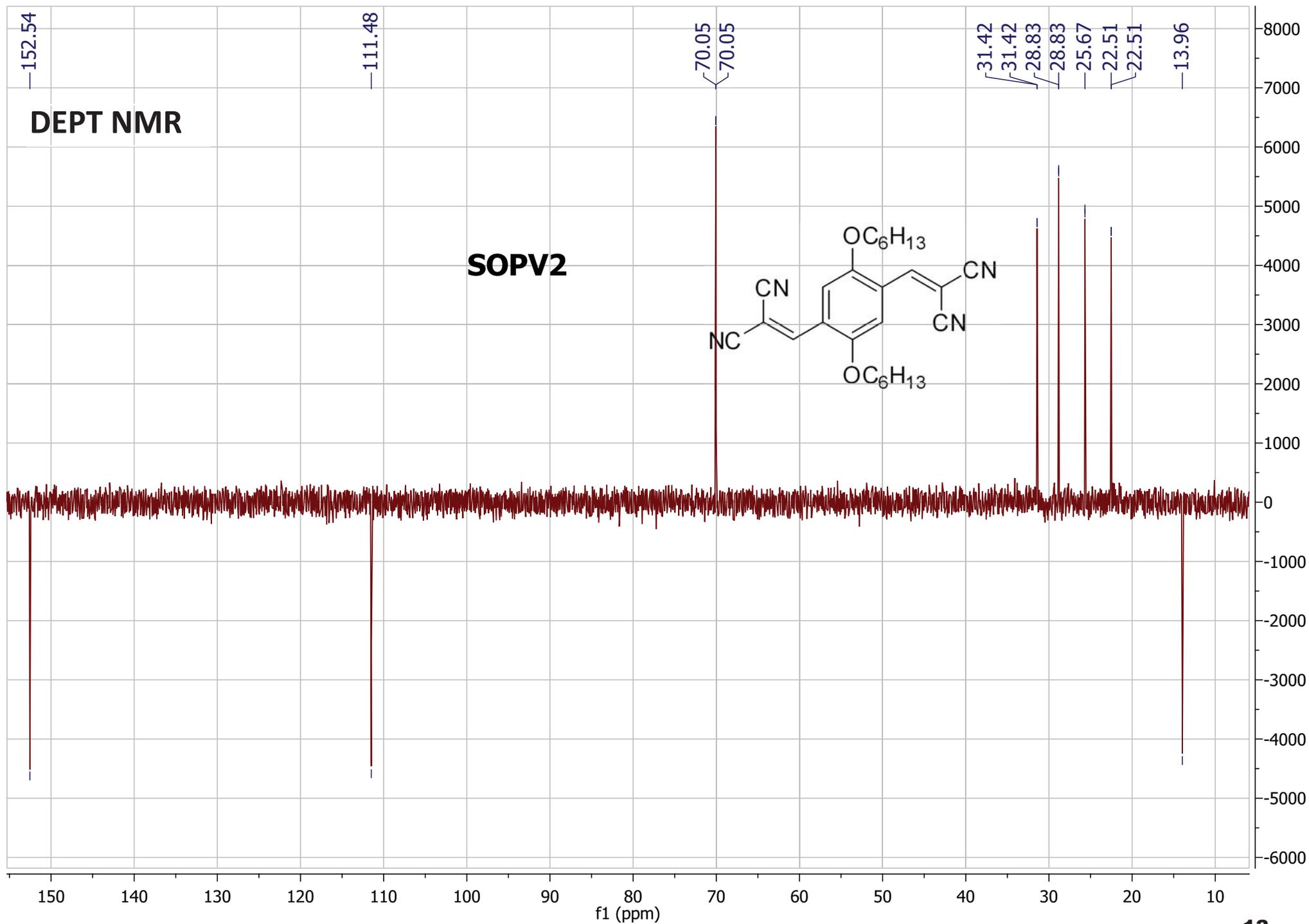


¹³C NMR



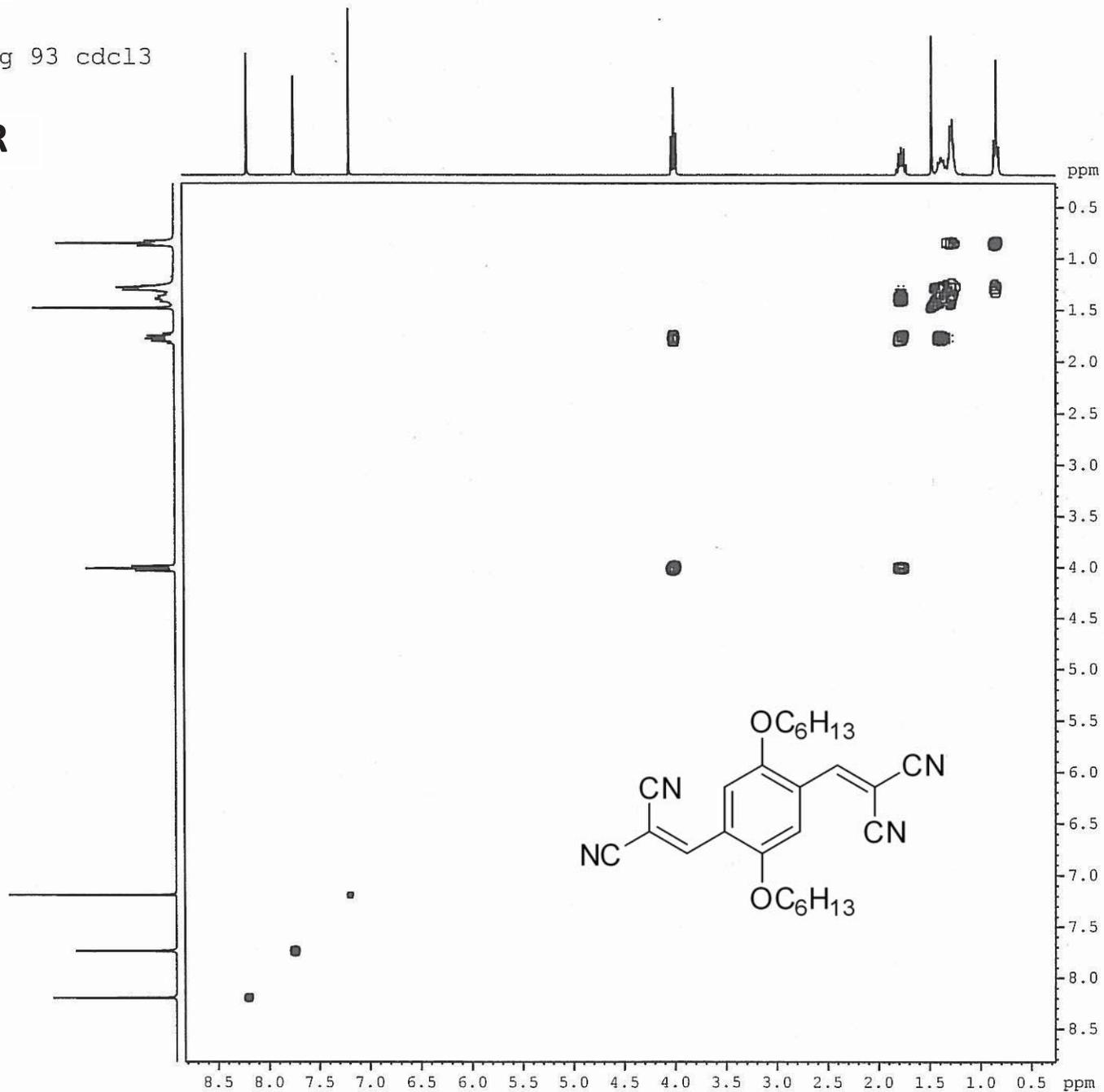






ag 93 cdcl3

COSY NMR



```

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EXPNO    13
PROCNO   1

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Time     5.22
INSTRUM  spect
PROBHD   5 mm QNP 1H/13
PULPROG  cosyqf45
TD       2048
SOLVENT  CDC13
NS       8
DS       4
SWH      2572.016 Hz
FIDRES   1.255867 Hz
AQ       0.3981812 sec
RG       812.7
DW       194.400 usec
DE       10.00 usec
TE       294.6 K
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D1       1.93446195 sec
IN0      0.00038880 sec
MCREST   0.00000000 sec
MCWRK    1.93446195 sec

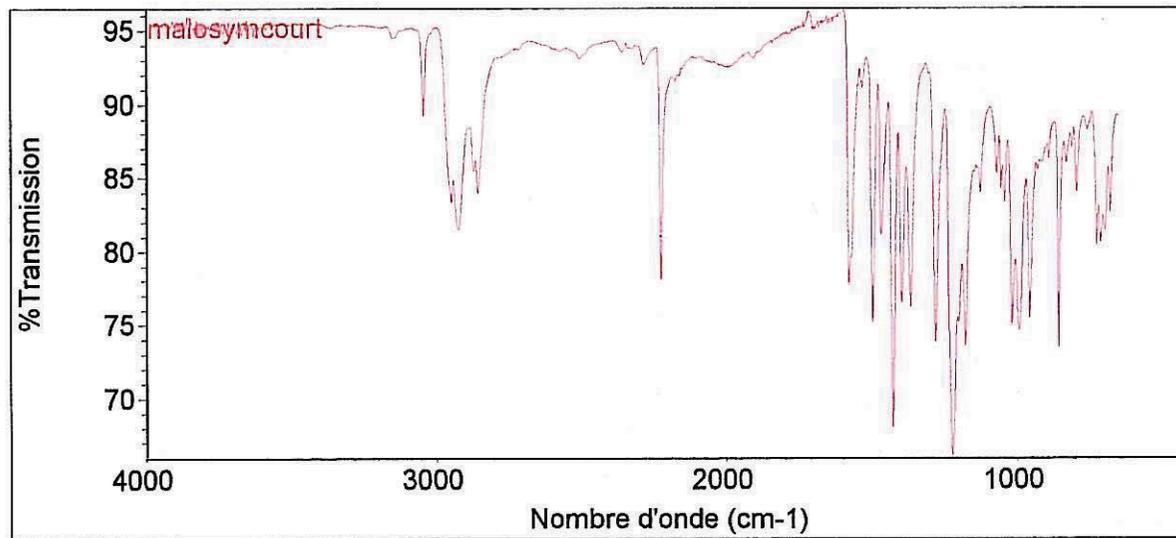
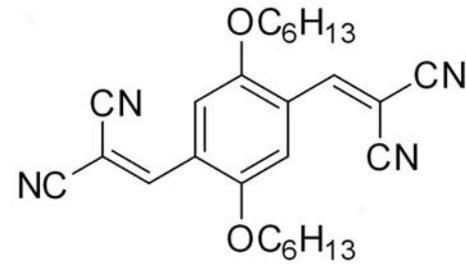
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PL1     -6.00 dB
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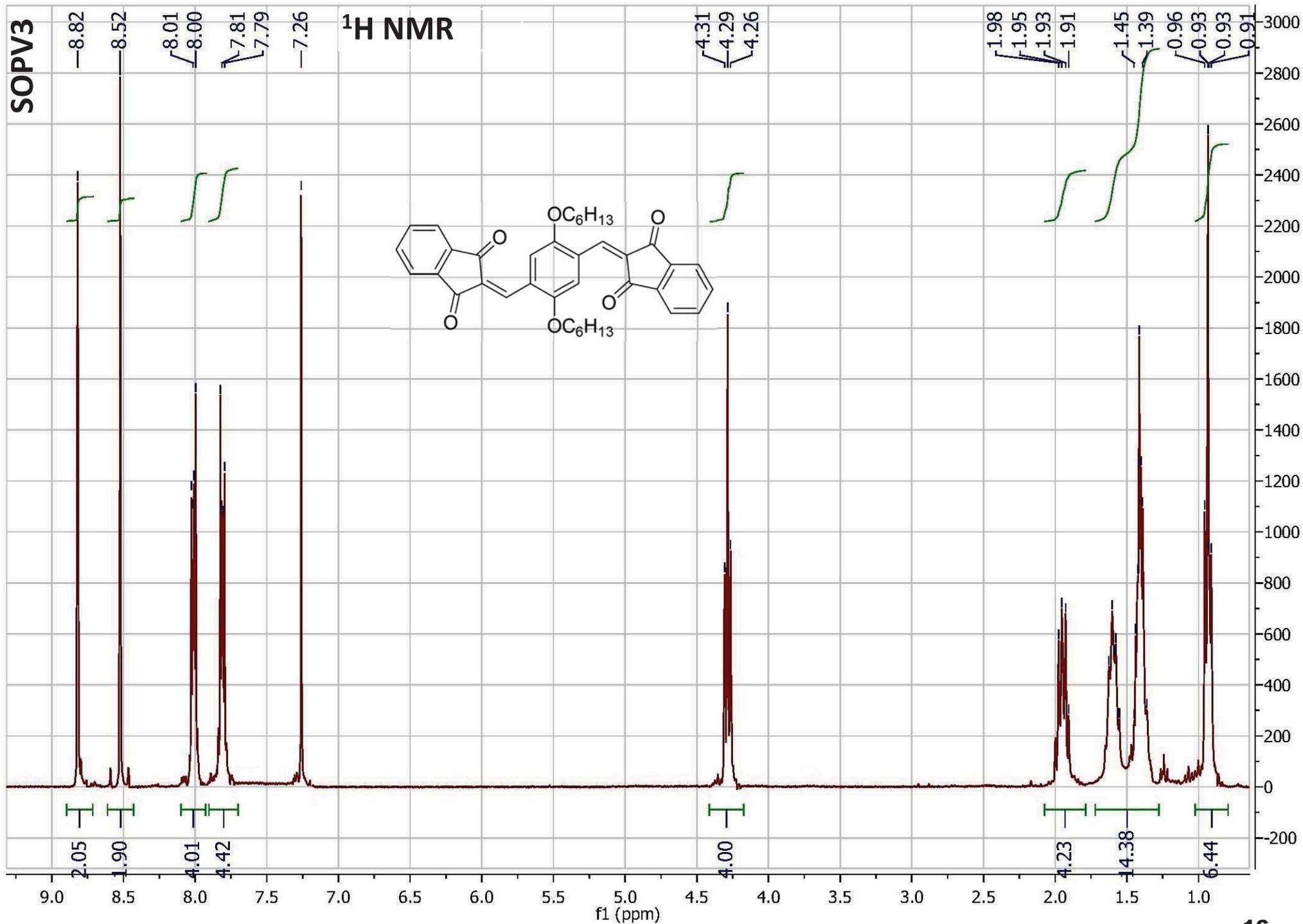
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FIDRES  20.093878 Hz
SW      8.570 ppm
FnMODE  QF

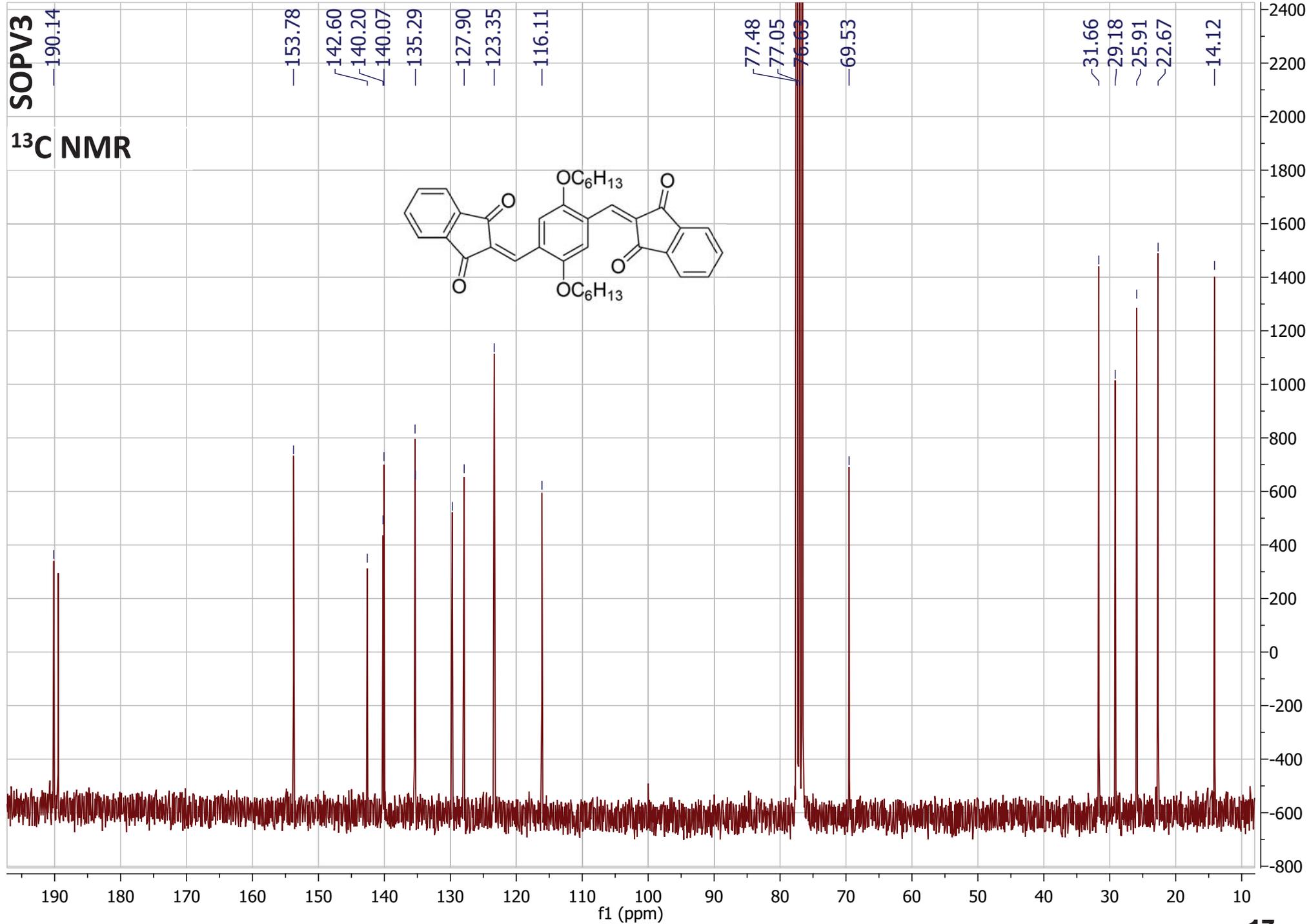
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GB      0
PC      1.40

F1 - Processing parameters
SI      1024
MC2     QF
SF      300.1300361 MHz
WDW     SINE
SSB     0
LB      0.00 Hz
GB      0
    
```

IR spectrum

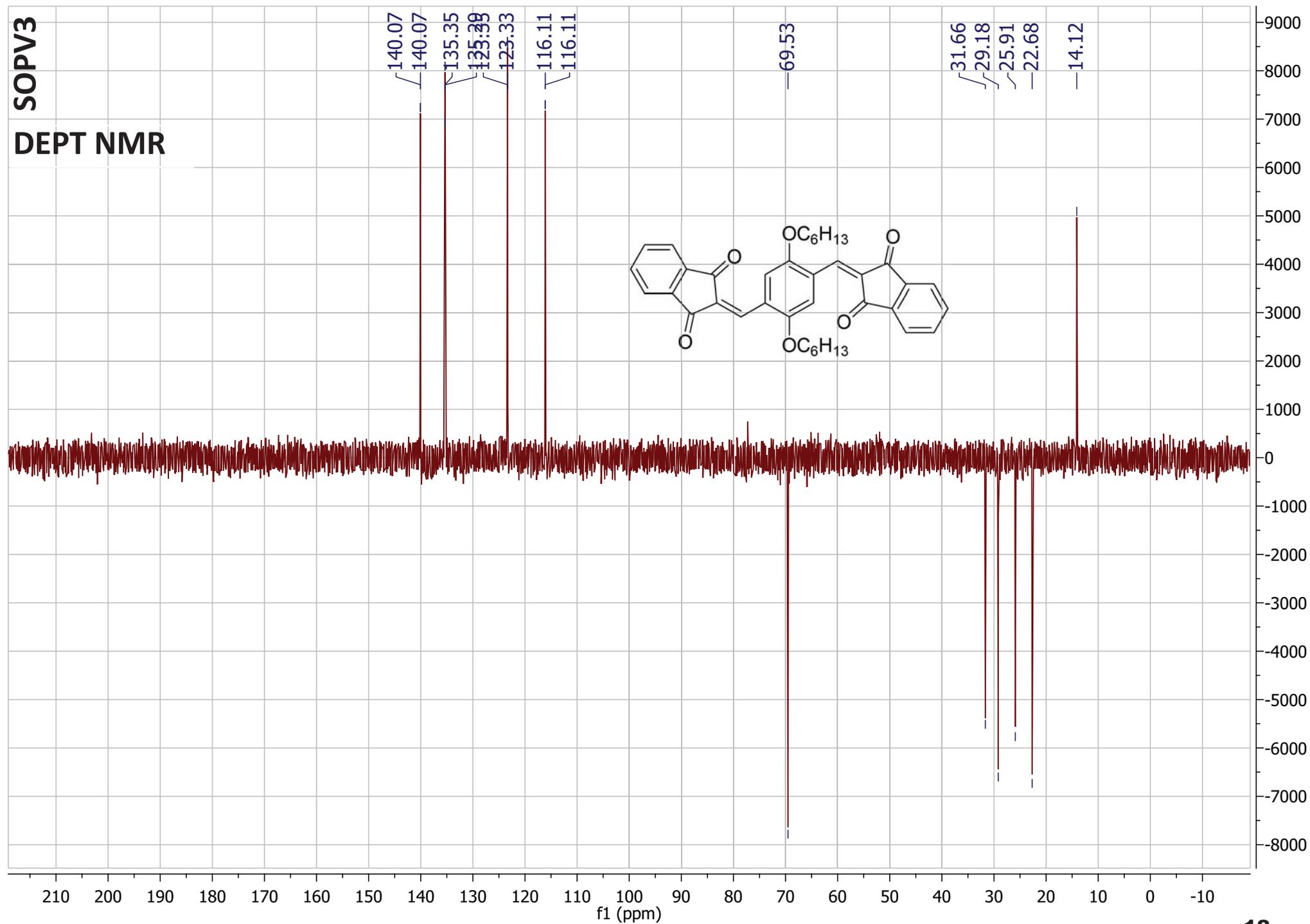






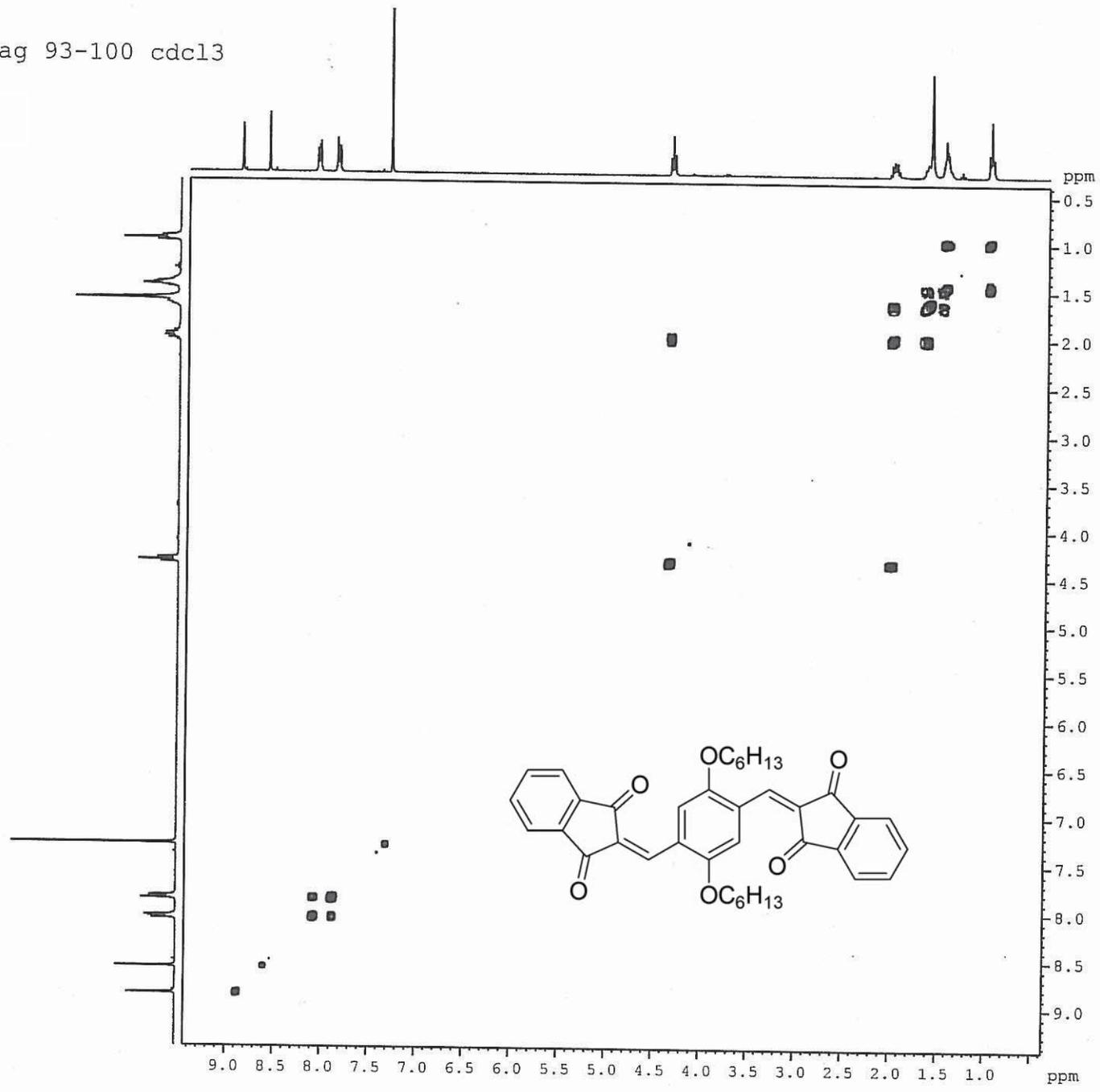
SOPV3

DEPT NMR



ag 93-100 cdcl3

COSY NMR



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 NAME fs26ag93.100
 EXPNO 13
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20090626
 Time 22.57
 INSTRUM spect
 PROBHD 5 mm QNP 1H/13
 PULPROG cosyqf45
 TD 2048
 SOLVENT CDCl3
 NS 8
 DS 4
 SWH 2723.312 Hz
 FIDRES 1.329742 Hz
 AQ 0.3760628 sec
 RG 1448.2
 DW 183.600 usec
 DE 10.00 usec
 TE 295.8 K
 d0 0.00000300 sec
 D1 1.95494199 sec
 INO 0.00036720 sec
 MCREST 0.00000000 sec
 MCWRK 1.95494199 sec

===== CHANNEL f1 =====
 NUC1 1H
 P1 6.70 usec
 PL1 -6.00 dB
 SFO1 300.1314712 MHz

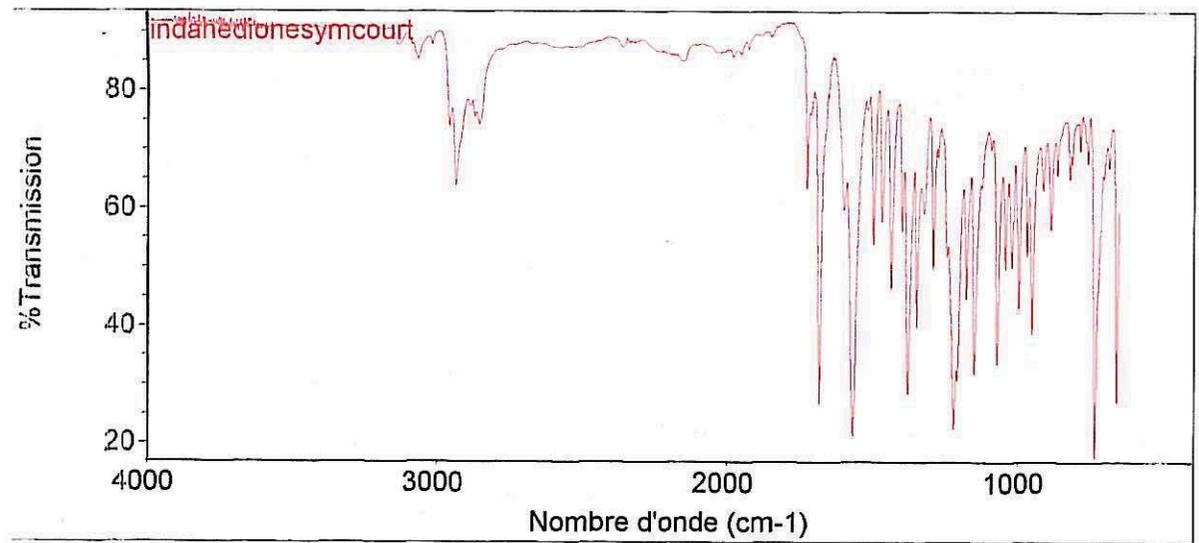
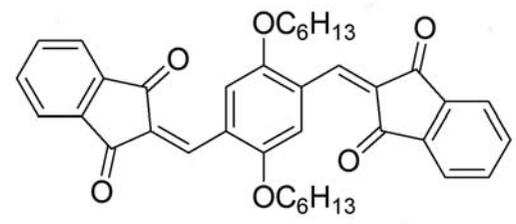
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 SFO1 300.1315 MHz
 FIDRES 21.275871 Hz
 SW 9.074 ppm
 FMODE QF

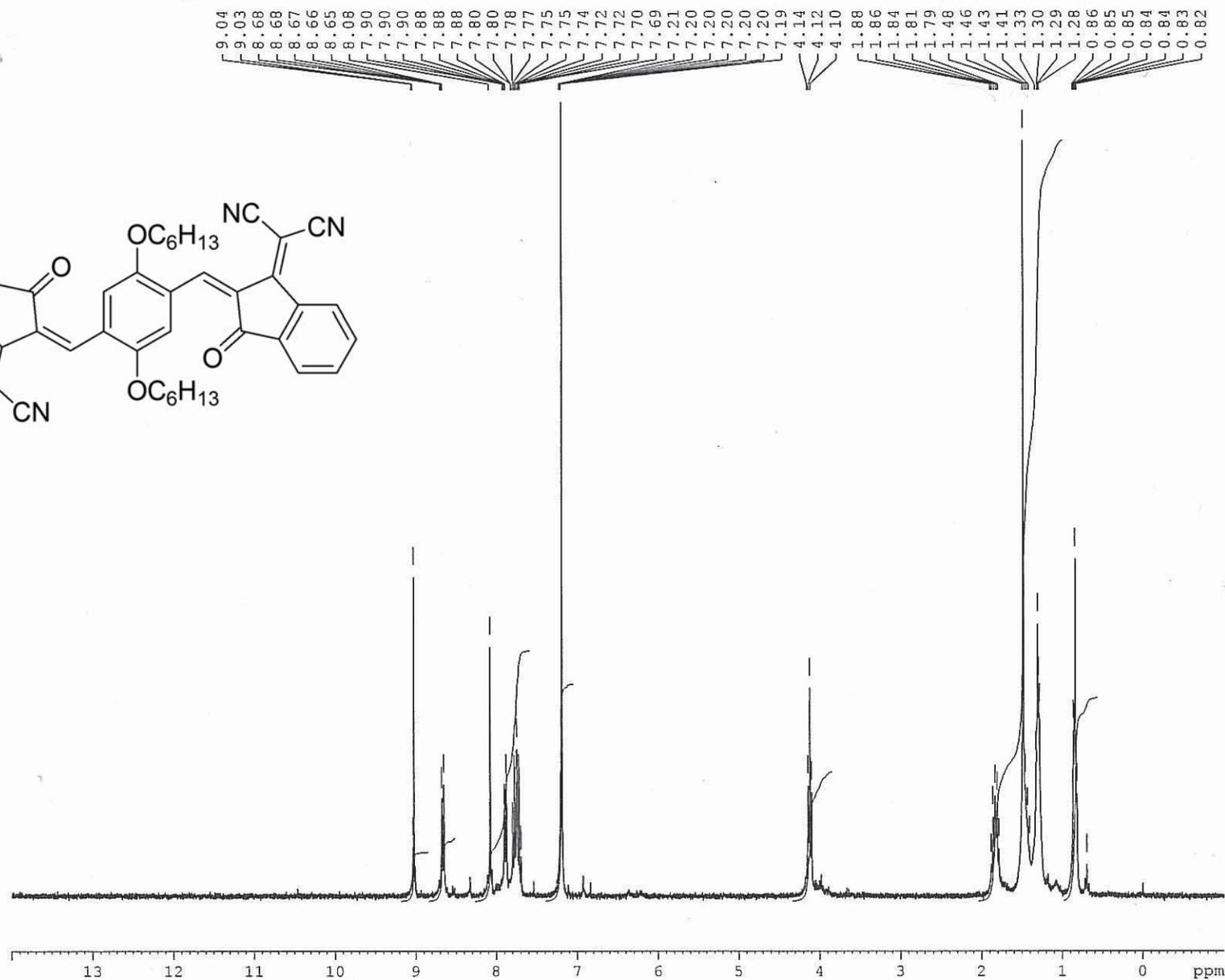
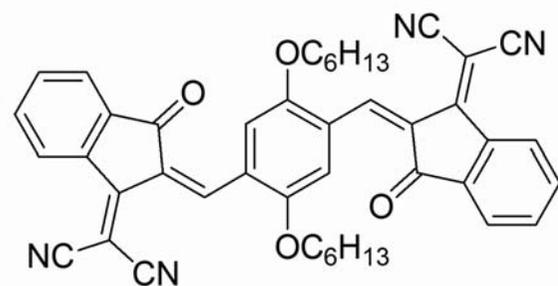
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 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0
 PC 1.40

F1 - Processing parameters
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 MC2- QF
 SF 300.1300000 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0

SOPV3

IR spectrum



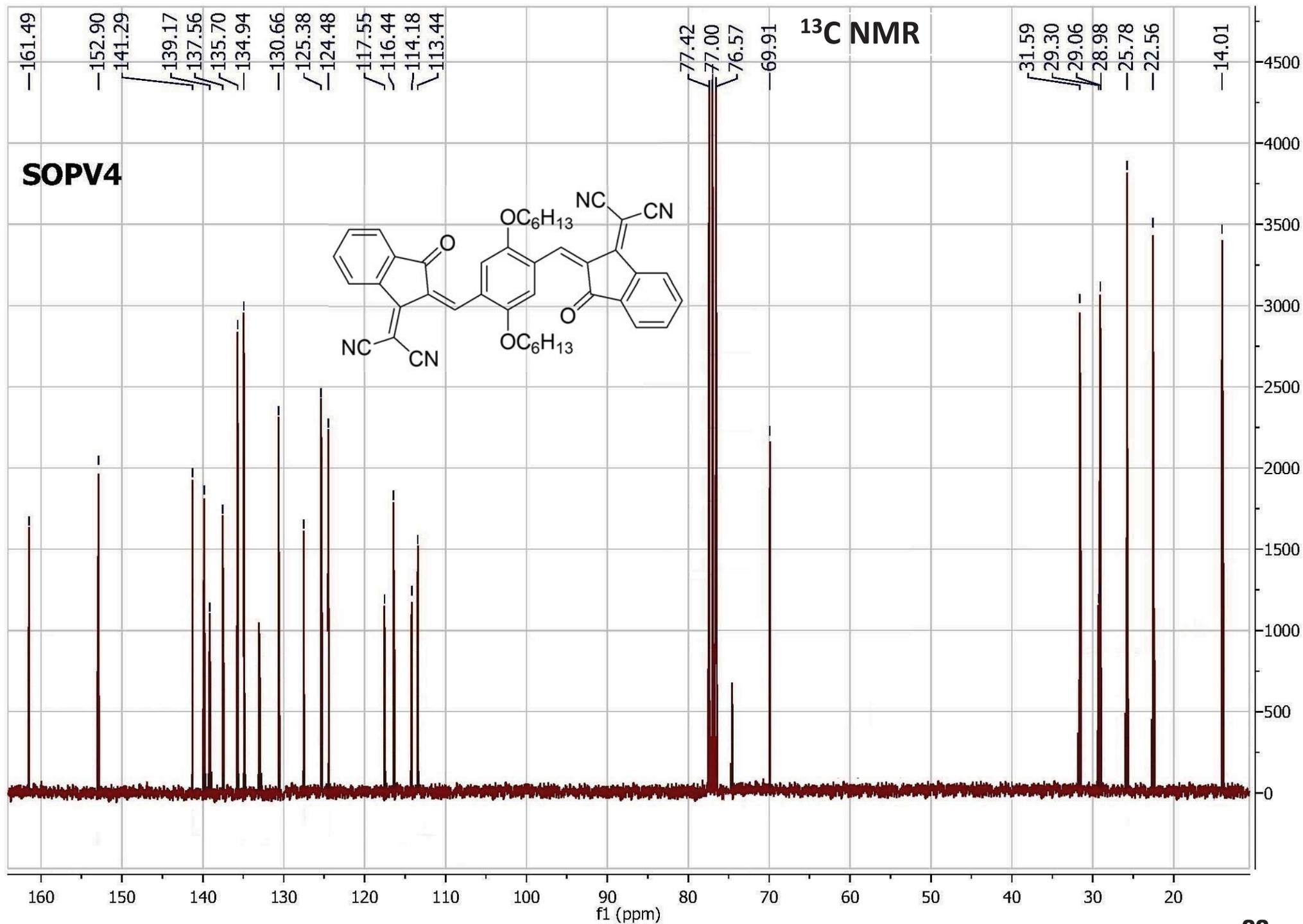


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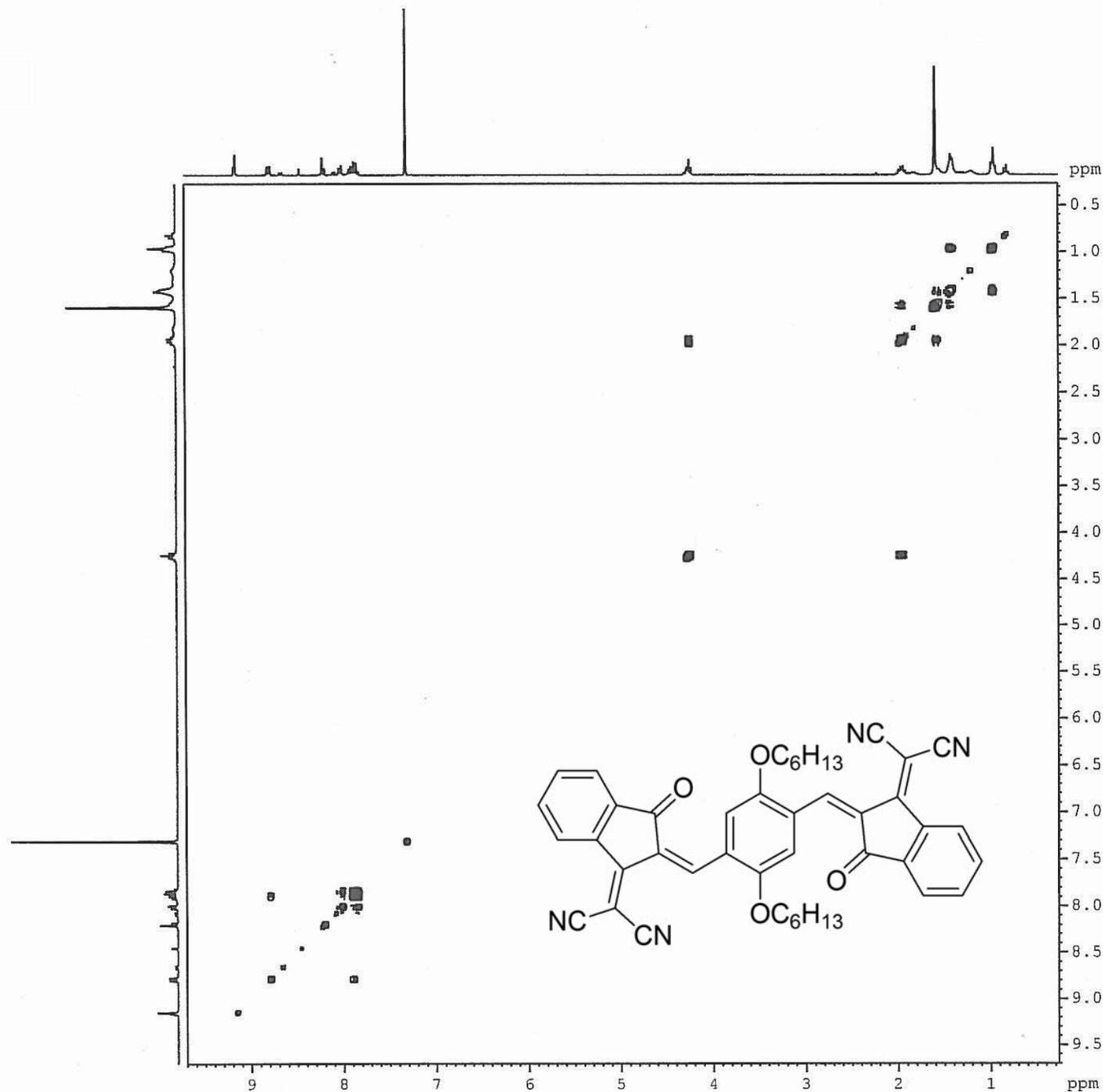
F2 - Acquisition Parameters
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 Time 17.42
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 PULPROG zg30
 TD 32768
 SOLVENT CDCl3
 NS 16
 DS 2
 SWH 6313.131 Hz
 FIDRES 0.192661 Hz
 AQ 2.5952756 sec
 RG 912.3
 DW 79.200 usec
 DE 6.50 usec
 TE 295.2 K
 D1 1.00000000 sec
 MCREST 0.00000000 sec
 MCWRK 0.01500000 sec

===== CHANNEL f1 =====
 NUC1 1H
 P1 6.20 usec
 PL1 0.00 dB
 SFO1 300.1328512 MHz

F2 - Processing parameters
 SI 32768
 SF 300.1300354 MHz
 WDW EM
 SSB 0
 LB 0.10 Hz
 GB 0
 PC 1.00



COSY NMR



Current Data Parameters
 NAME fs28ag93-111
 EXPNO 13
 PROCNO 1

F2 - Acquisition Parameters
 Date 20090712
 Time 3.47
 INSTRUM spect
 PROBHD 5 mm QNP 1H/13
 PULPROG cosyqf45
 TD 2048
 SOLVENT CDCl3
 NS 8
 DS 4
 SWH 2834.467 Hz
 FIDRES 1.384017 Hz
 AQ 0.3613172 sec
 RG 1625.5
 DW 176.400 usec
 DE 10.00 usec
 TE 296.0 K
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 INO 0.00035280 sec
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 MCWRK 1.97132599 sec

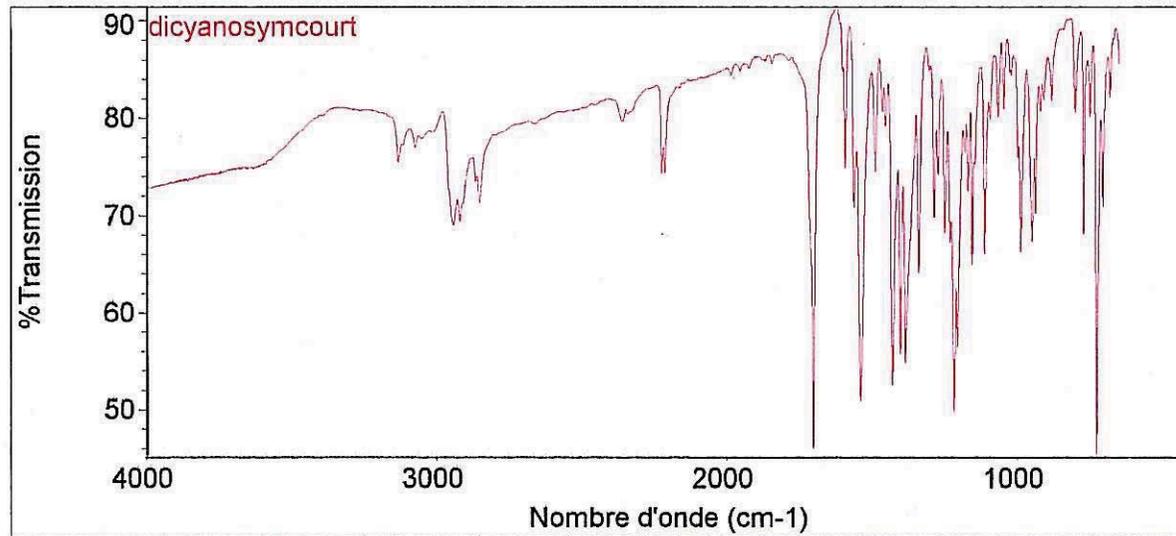
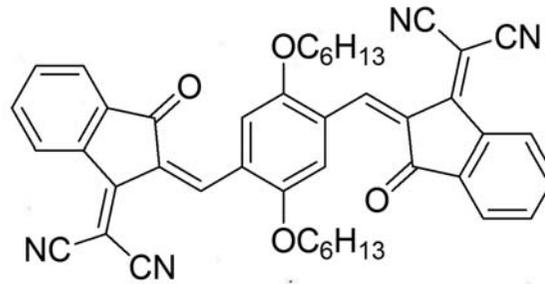
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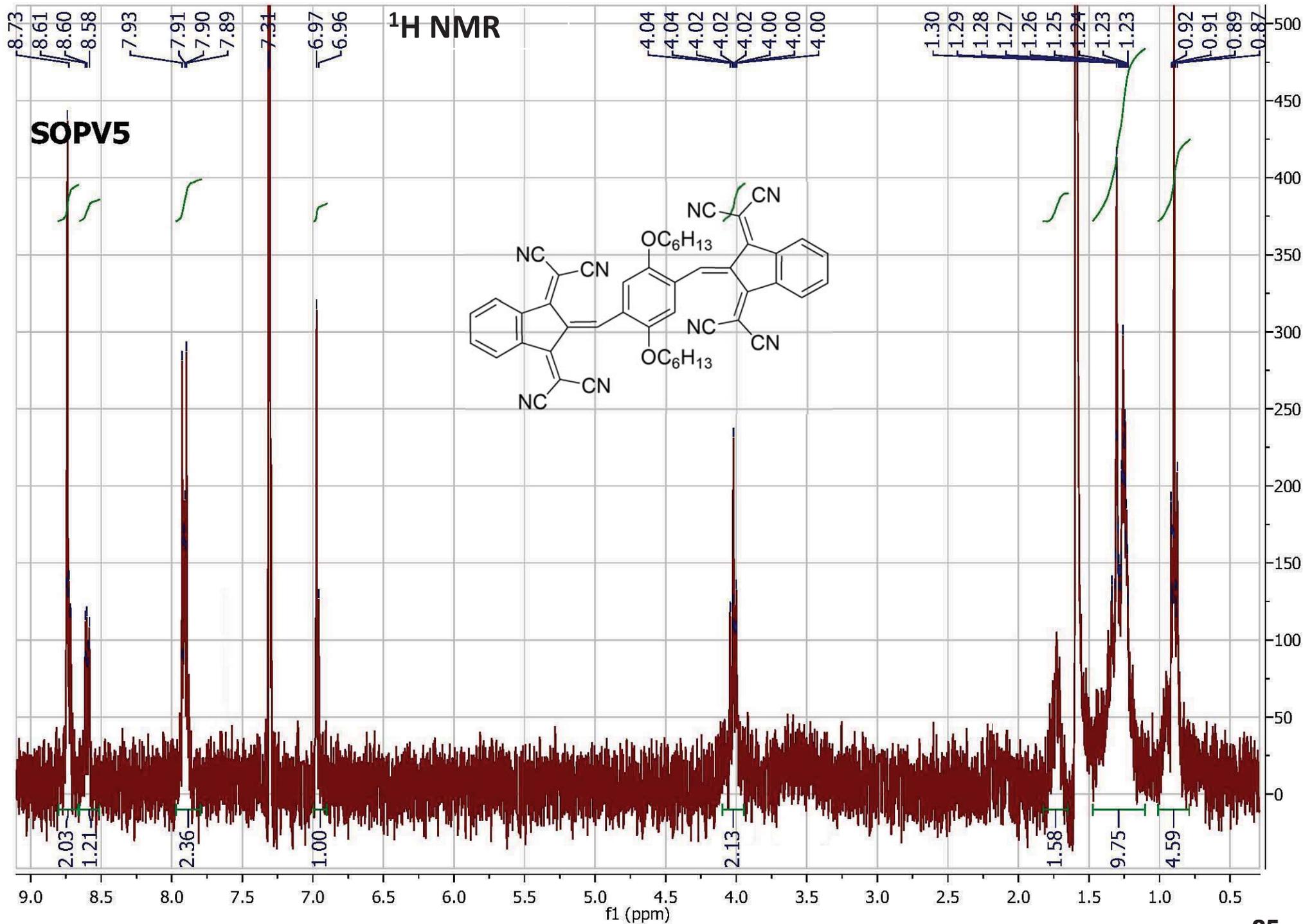
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 TD 128
 SFO1 300.1315 MHz
 FIDRES 22.144274 Hz
 SW 9.444 ppm
 FnMODE QF

F2 - Processing parameters
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 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0
 PC 1.40

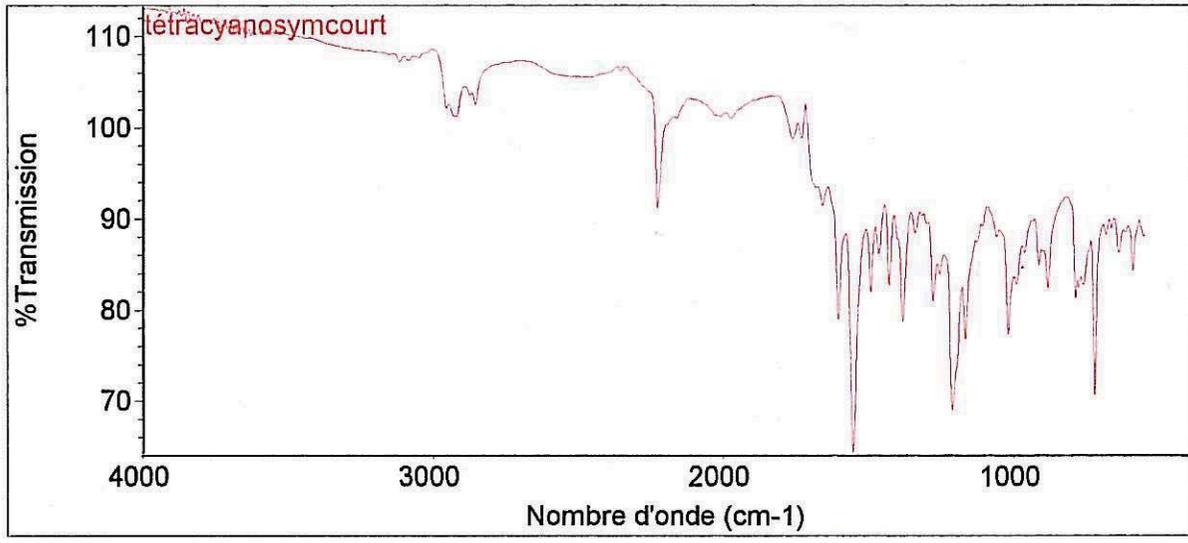
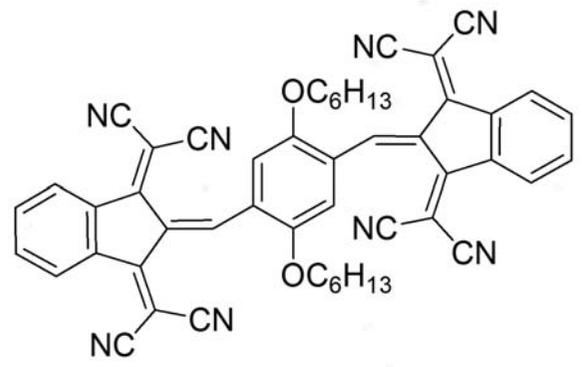
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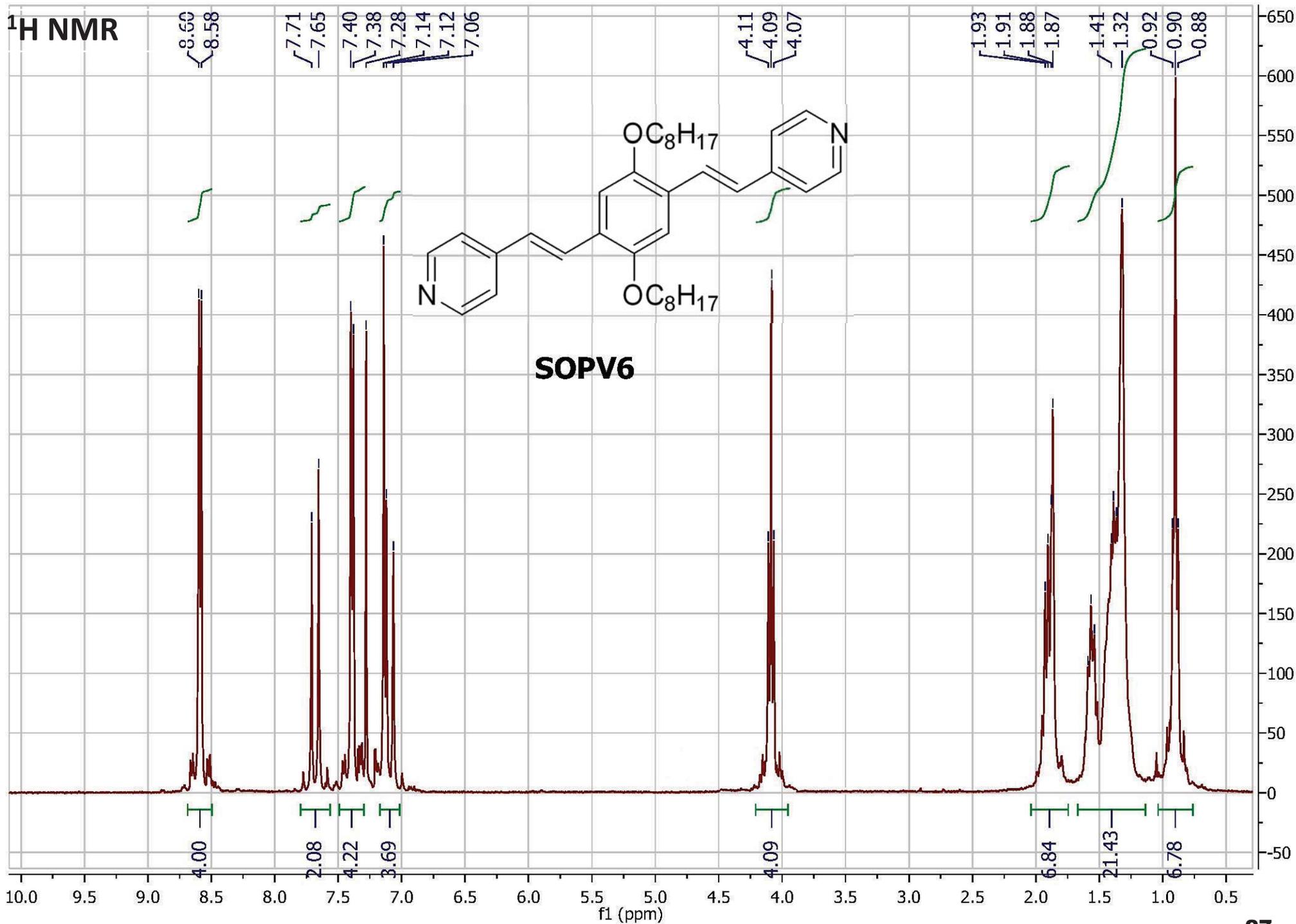
IR spectrum



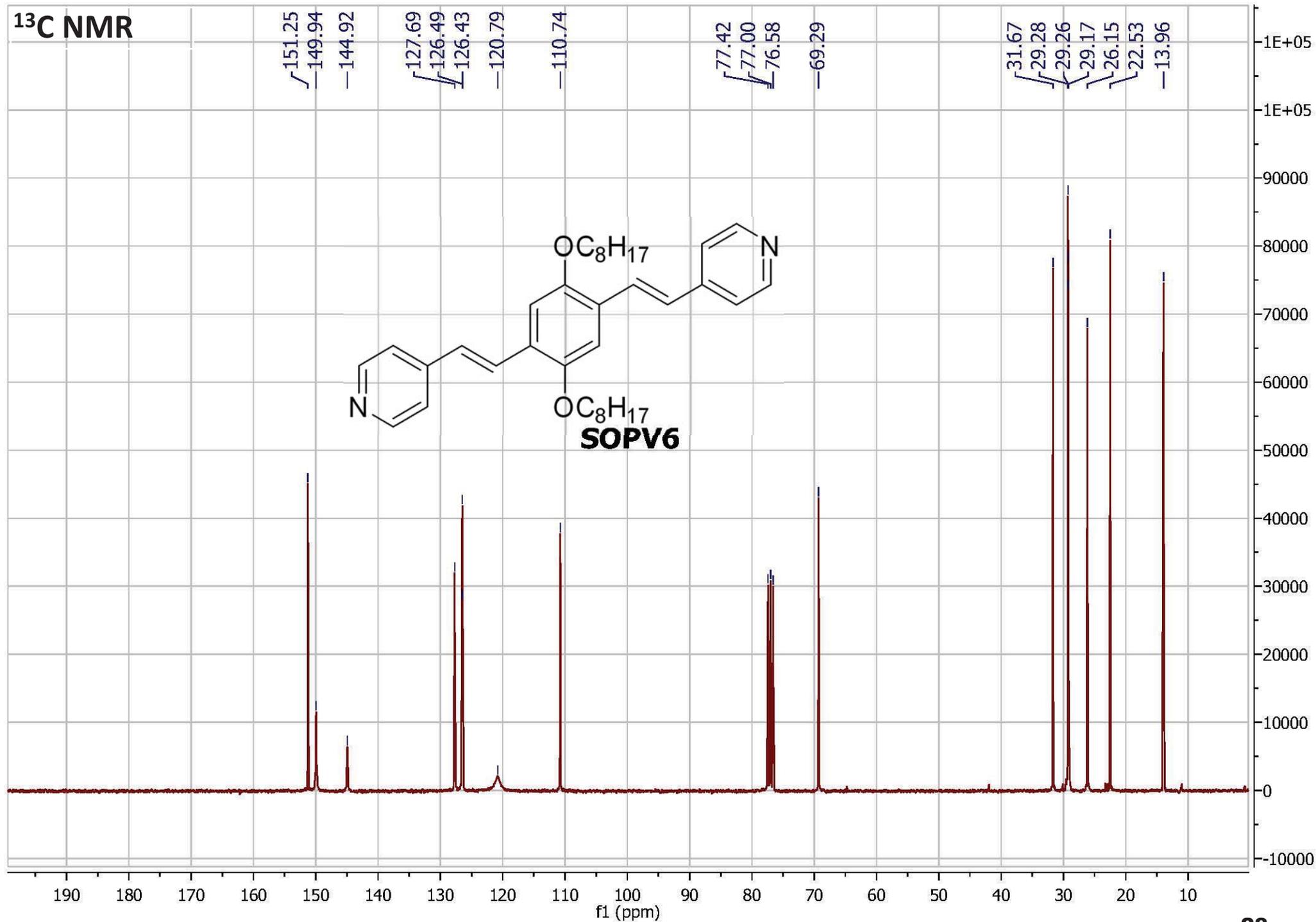


IR spectrum

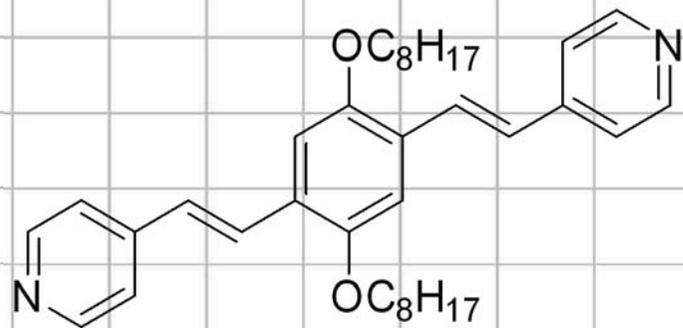




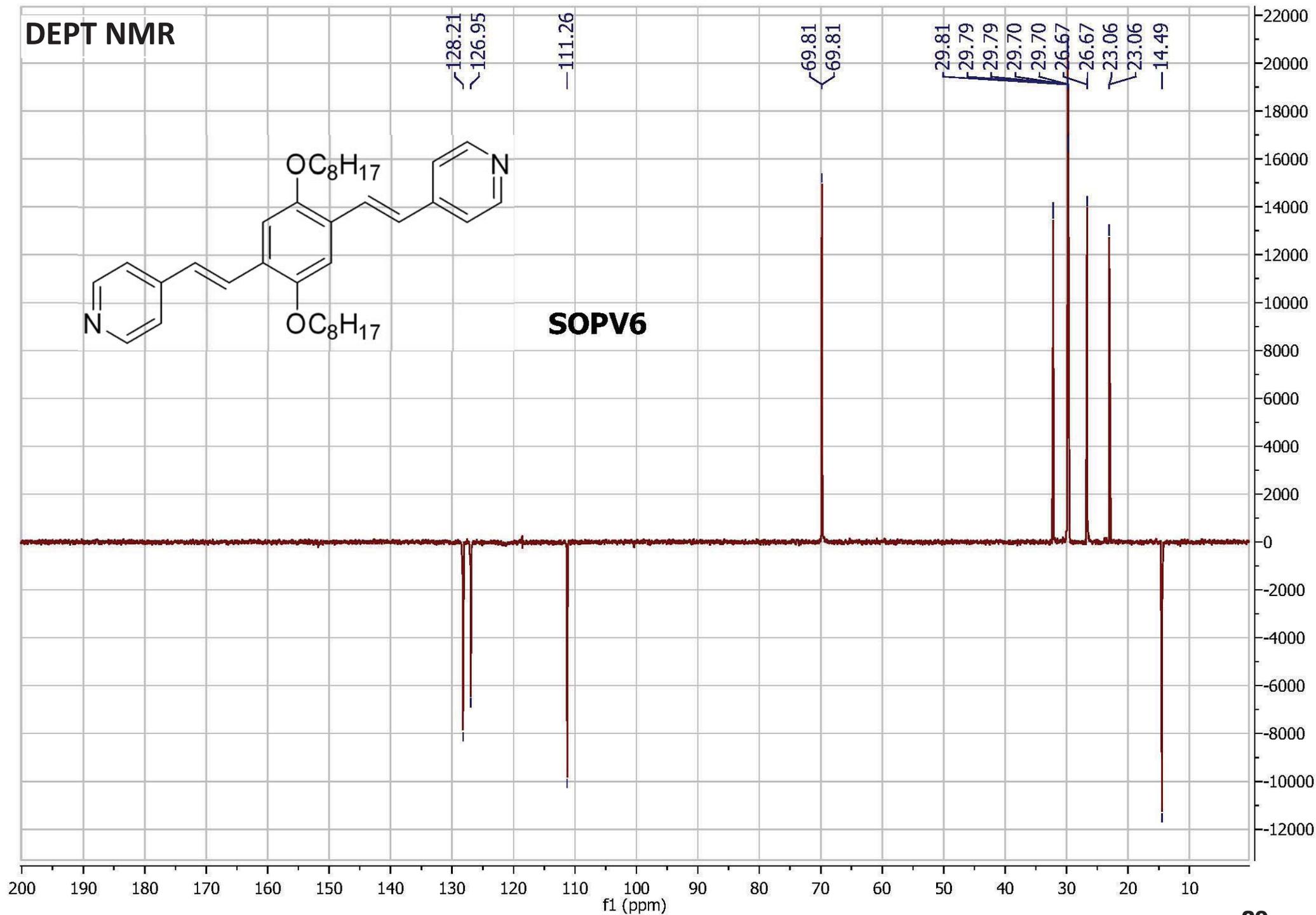
¹³C NMR

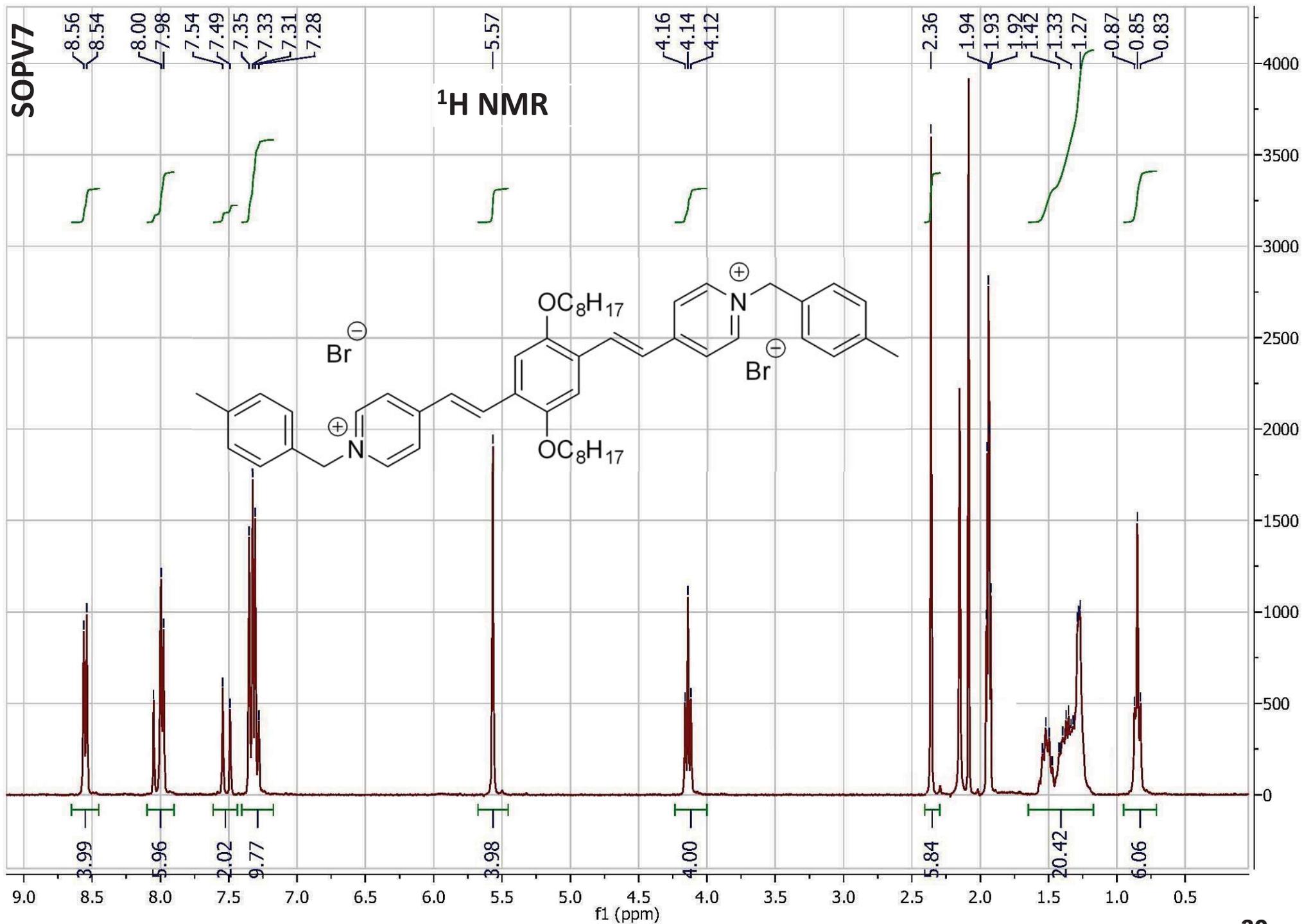


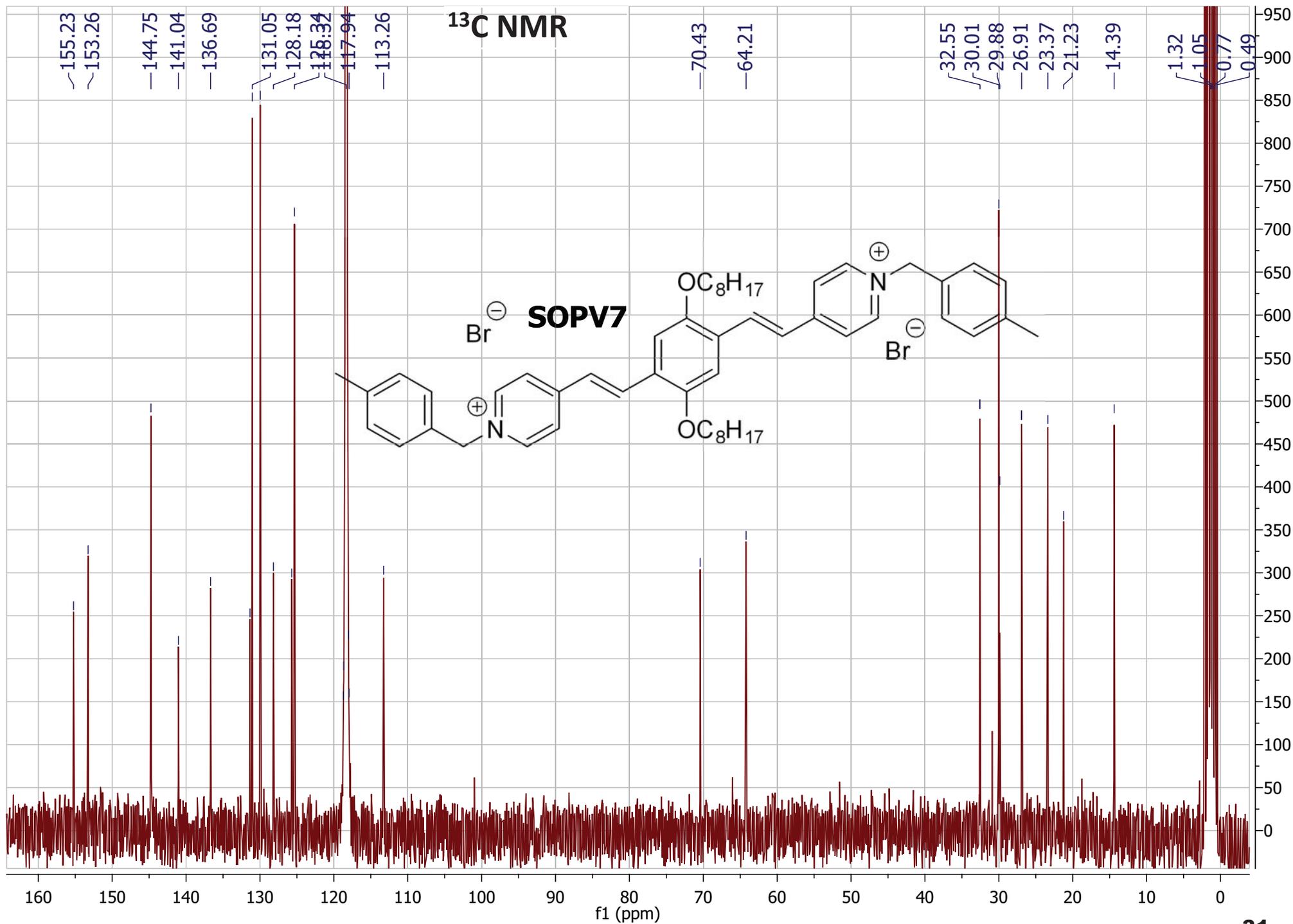
DEPT NMR



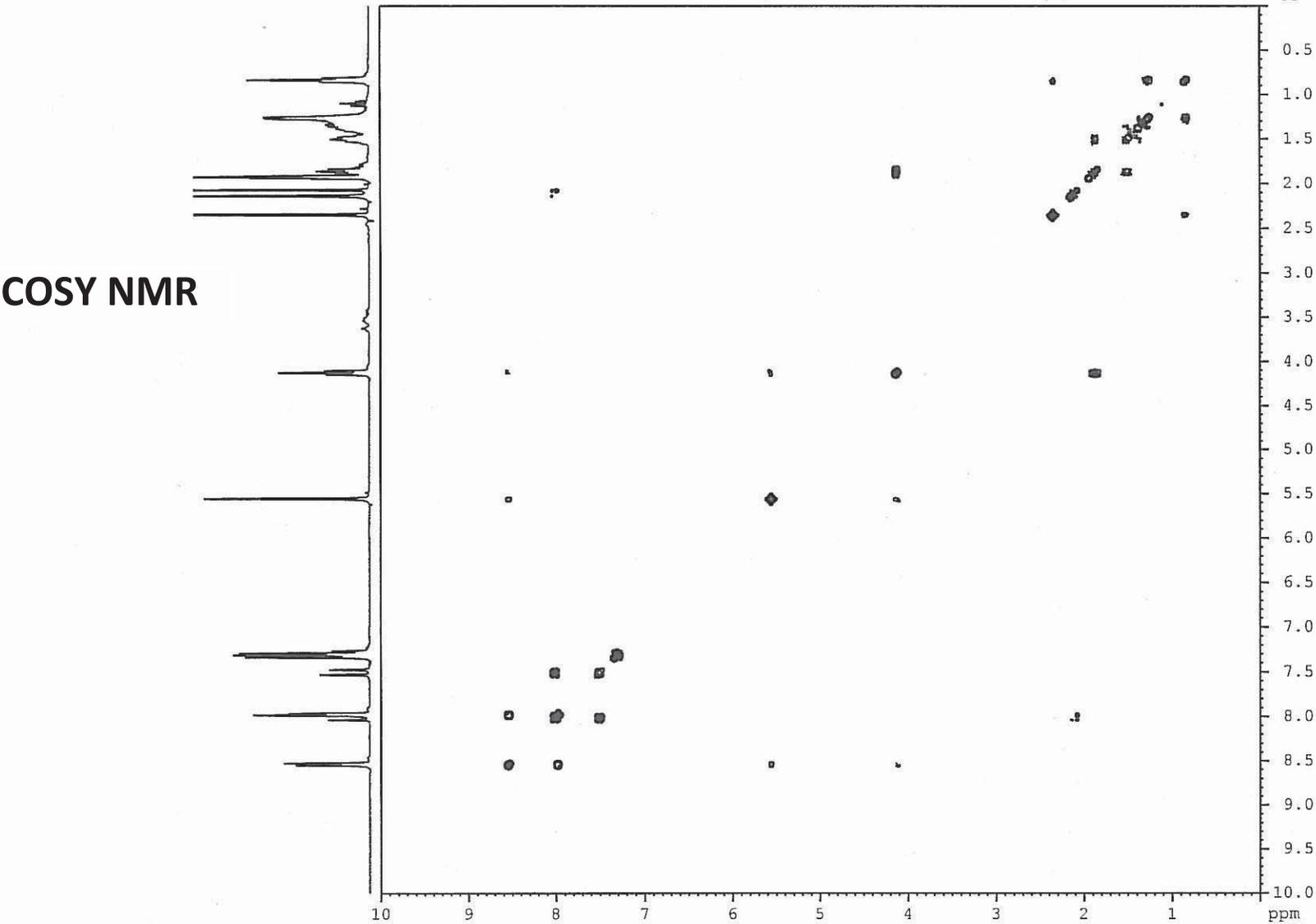
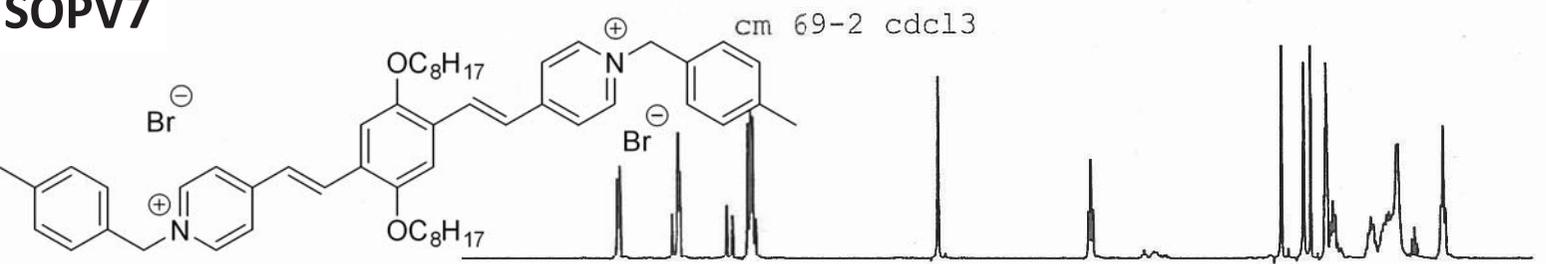
SOPV6







COSY NMR



Current Data Parameters
 NAME fs07cm69-2
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 PROCNO 1

F2 - Acquisition Parameters
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 Time 11.49
 INSTRUM spect
 PROBHD 5 mm BBI 1H-BB
 PULPROG cosygppqf
 TD 2048
 SOLVENT CD3CN
 NS 1
 DS 8
 SWH 2670.940 Hz
 FIDRES 1.304170 Hz
 AQ 0.3834356 sec
 RG 181
 DW 187.200 usec
 DE 6.00 usec
 TE 295.4 K
 d0 0.00000300 sec
 D1 1.35950601 sec
 d13 0.00000400 sec
 D16 0.00010000 sec
 IN0 0.00037440 sec
 MCREST 0.00000000 sec
 MCWRK 1.35950601 sec

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 P1 6.20 usec
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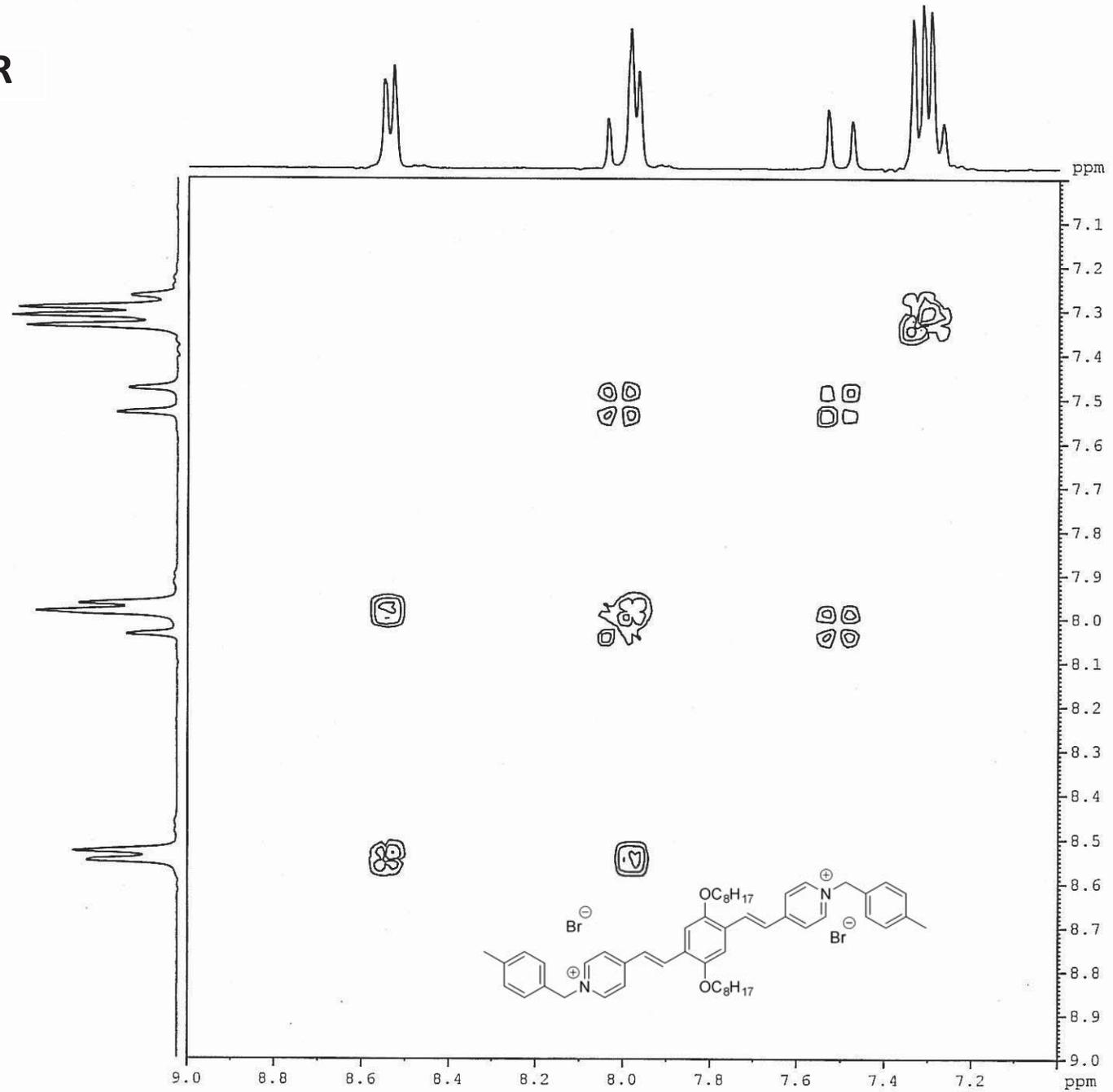
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 GPNAM2 SINE.100
 GPX1 0.00 %
 GPX2 0.00 %
 GPY1 0.00 %
 GPY2 0.00 %
 GPZ1 10.00 %
 GPZ2 10.00 %
 P16 1000.00 usec

F1 - Acquisition parameters
 NDO 1
 TD 128
 SFO1 300.133 MHz
 FIDRES 20.866720 Hz
 SW 8.899 ppm
 FhMODE QF

F2 - Processing parameters
 SI 1024
 SF 300.1300000 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0
 PC 1.40

F1 - Processing parameters
 SI 1024
 MC2 QF
 SF 300.1300000 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0

COSY NMR



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Current Data Parameters
NAME      fs07cm69-2
EXPNO    23
PROCNO    1

F2 - Acquisition Parameters
Date_    20100219
Time     11.49
INSTRUM  spect
PROBHD   5 mm BBI 1H-BB
PULPROG  cosygpgqf
TD       2048
SOLVENT  CD3CN
NS       1
DS       8
SWH      2670.940 Hz
FIDRES   1.304170 Hz
AQ       0.3834356 sec
RG       181
DW       187.200 usec
DE       6.00 usec
TE       295.4 K
d0       0.00000300 sec
D1       1.35950601 sec
d13      0.00000400 sec
D16      0.00010000 sec
IN0      0.00037440 sec
MCREST   0.00000000 sec
MCWRK    1.35950601 sec

===== CHANNEL f1 =====
NUC1     1H
P0       6.20 usec
P1       6.20 usec
PL1      0.00 dB
SF01     300.1330065 MHz

===== GRADIENT CHANNEL =====
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GPNAM2   SINE.100
GPX1     0.00 %
GPX2     0.00 %
GPY1     0.00 %
GPY2     0.00 %
GPZ1     10.00 %
GPZ2     10.00 %
P16      1000.00 usec

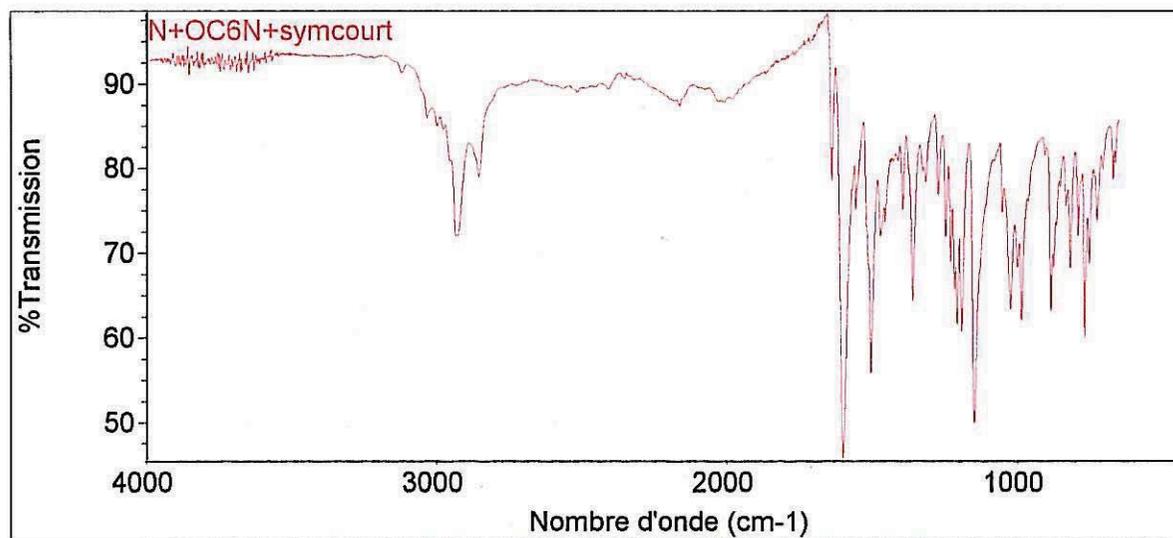
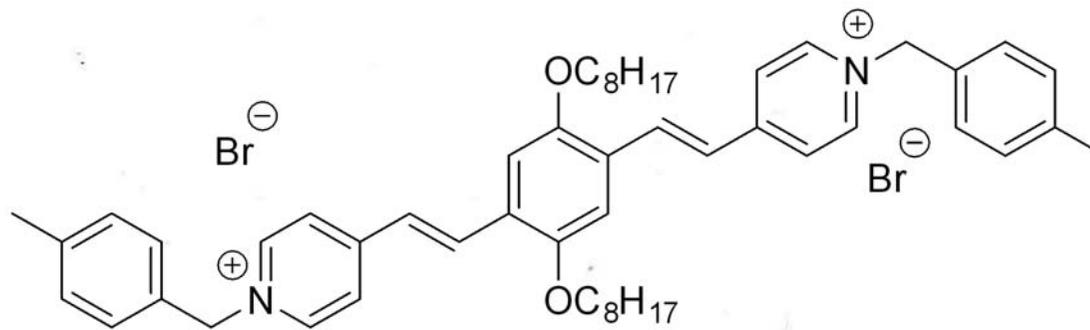
F1 - Acquisition parameters
NDO      1
TD       128
SF01     300.133 MHz
FIDRES   20.866720 Hz
SW       8.899 ppm
FnMODE   QF

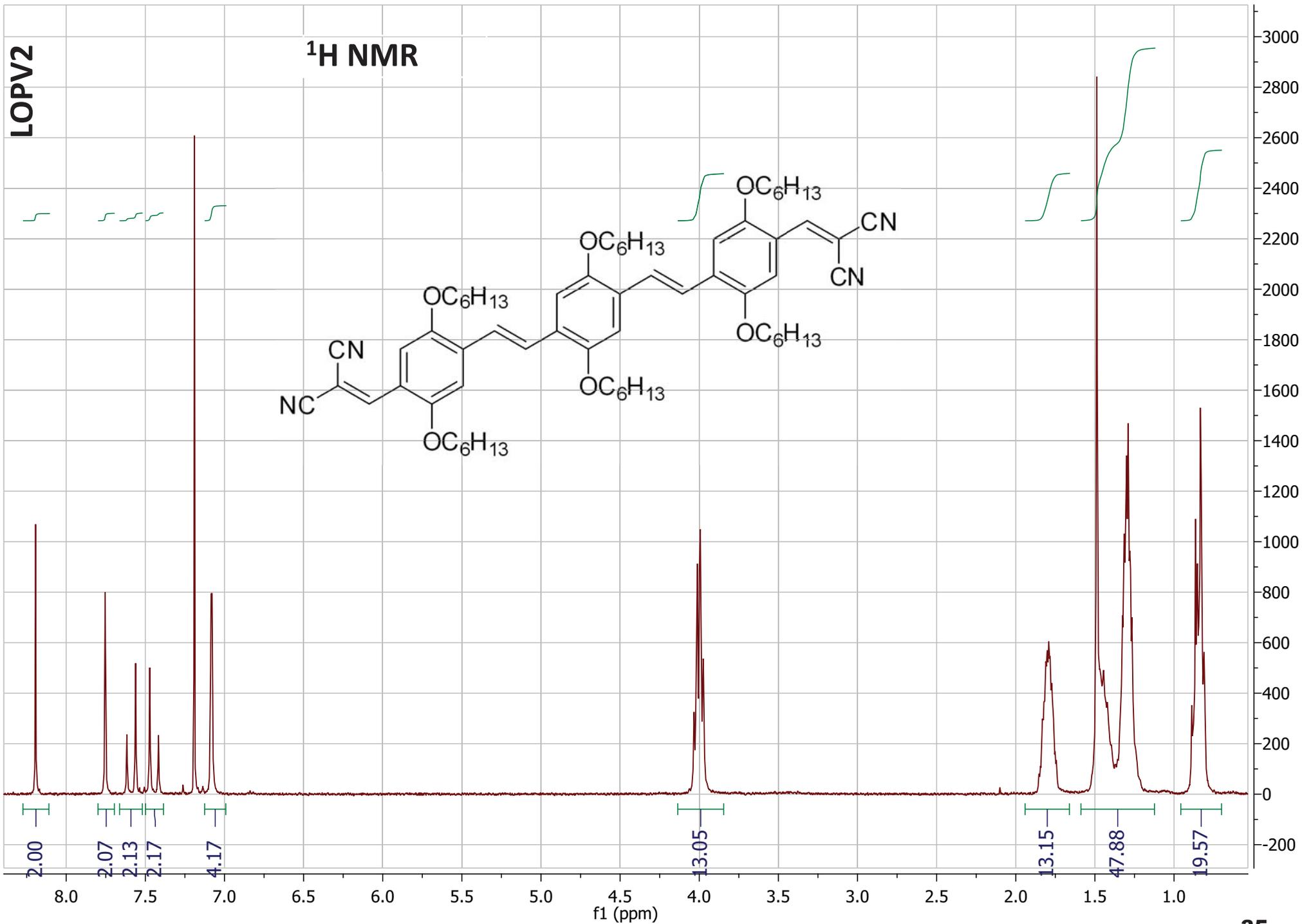
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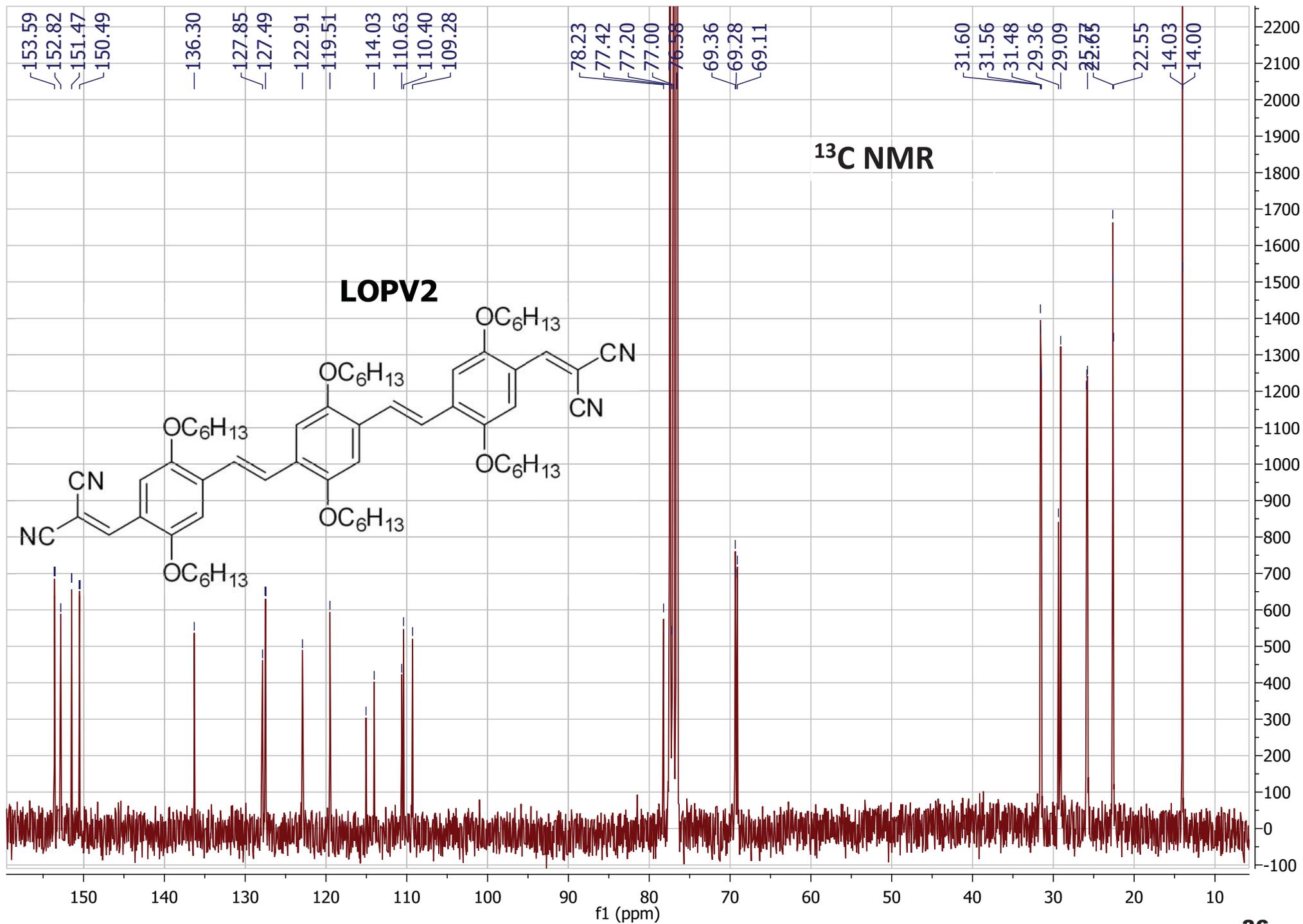
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SF       300.1300000 MHz
WDW      SINE
SSB      0
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GB       0
  
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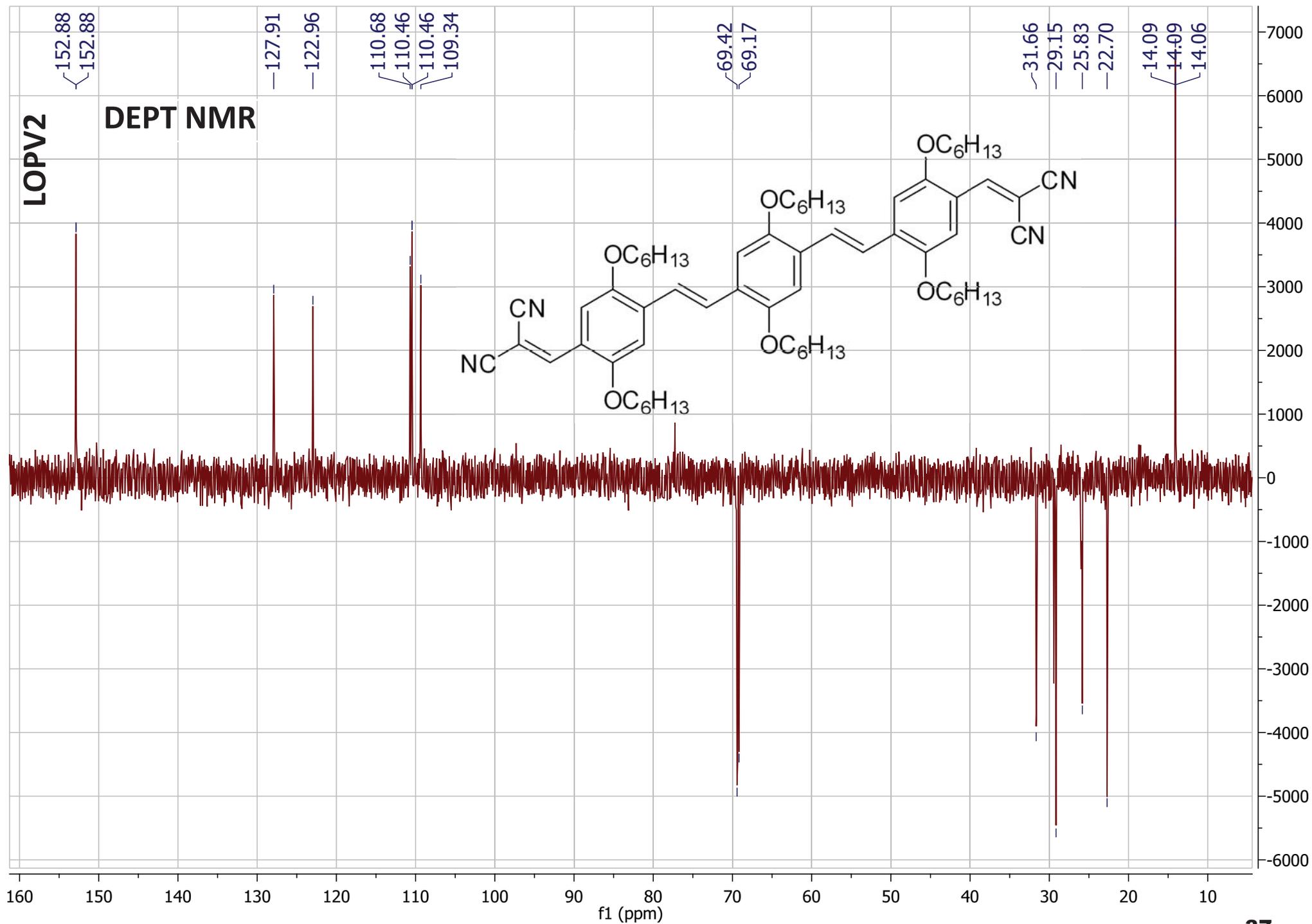
SOPV7

IR spectrum



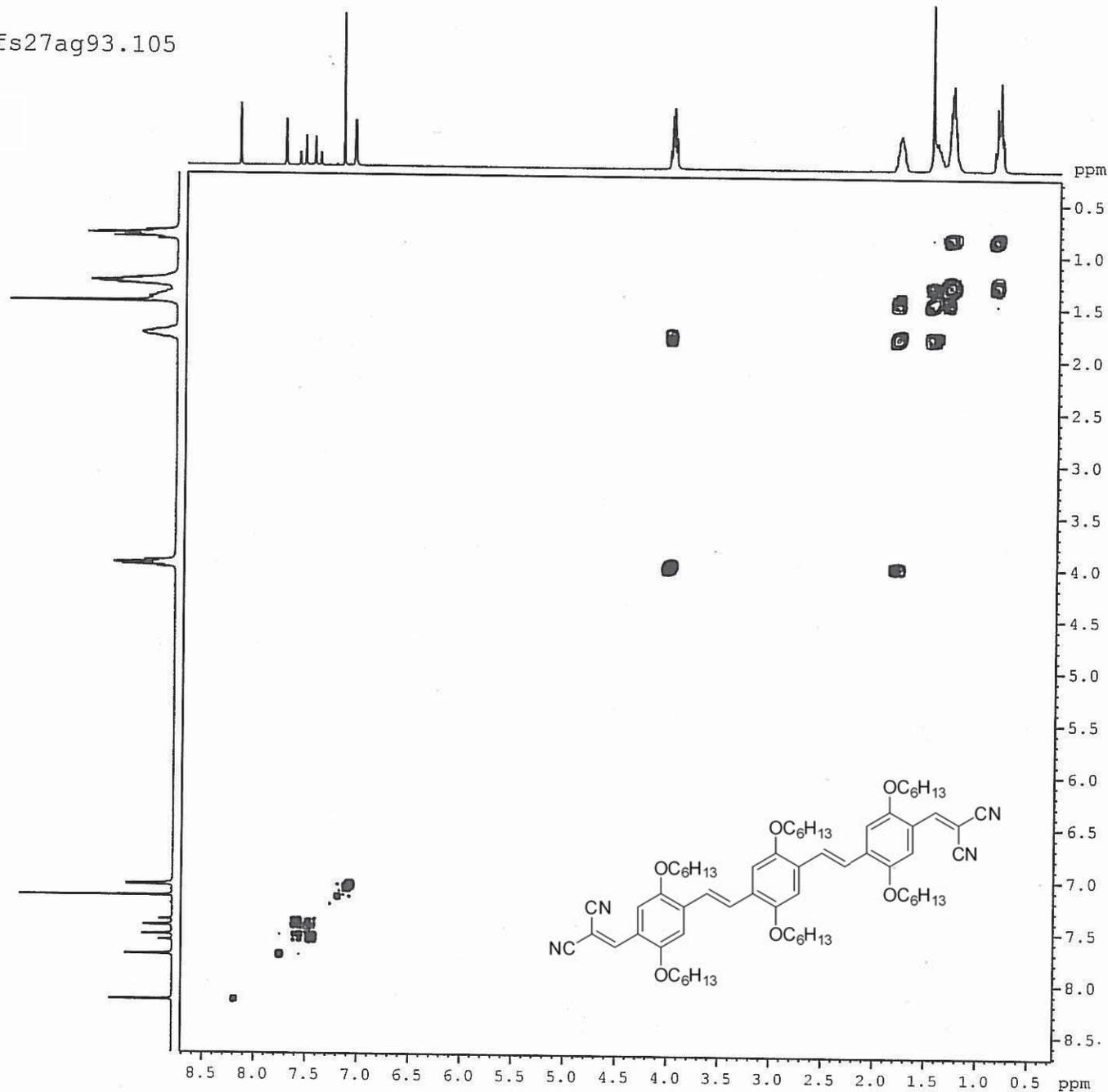






fs27ag93.105

COSY NMR



Current Data Parameters
 NAME fs27ag93.105
 EXPNO 12
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20090702
 Time 0.19
 INSTRUM spect
 PROBHD 5 mm QNP 1H/13
 PULPROG cosyqf45
 TD 2048
 SOLVENT CDCl3
 NS 8
 DS 4
 SWH 2540.650 Hz
 FIDRES 1.240552 Hz
 AQ 0.4030964 sec
 RG 574.7
 DW 196.800 usec
 DE 10.00 usec
 TE 295.6 K
 d0 0.00000300 sec
 D1 1.92831802 sec
 IN0 0.00039360 sec
 MCREST 0.00000000 sec
 MCWRK 1.92831802 sec

==== CHANNEL f1 =====
 NUC1 1H
 P1 6.70 usec
 PL1 -6.00 dB
 SFO1 300.1313804 MHz

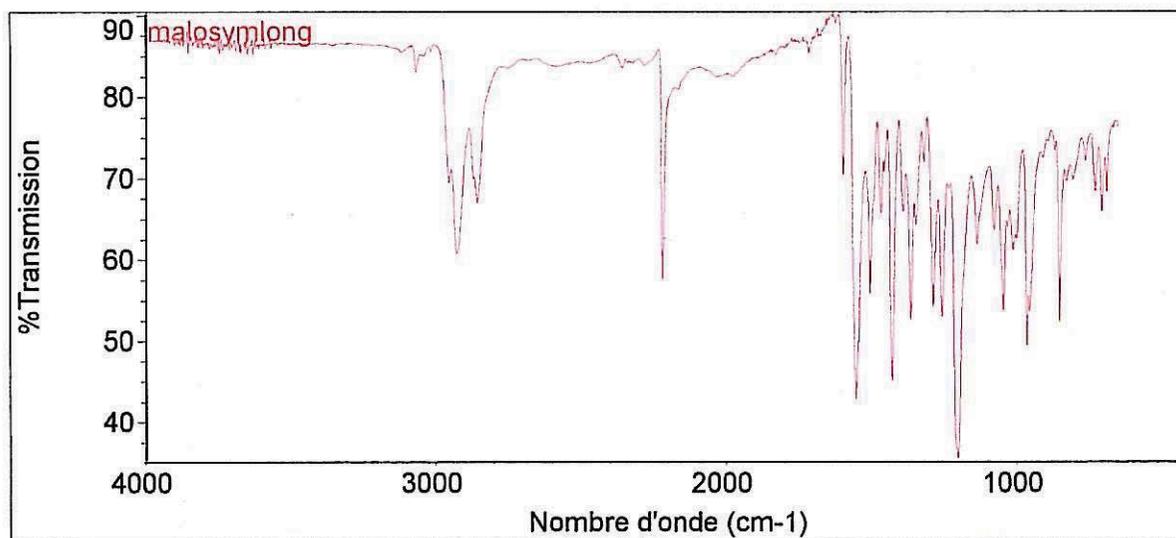
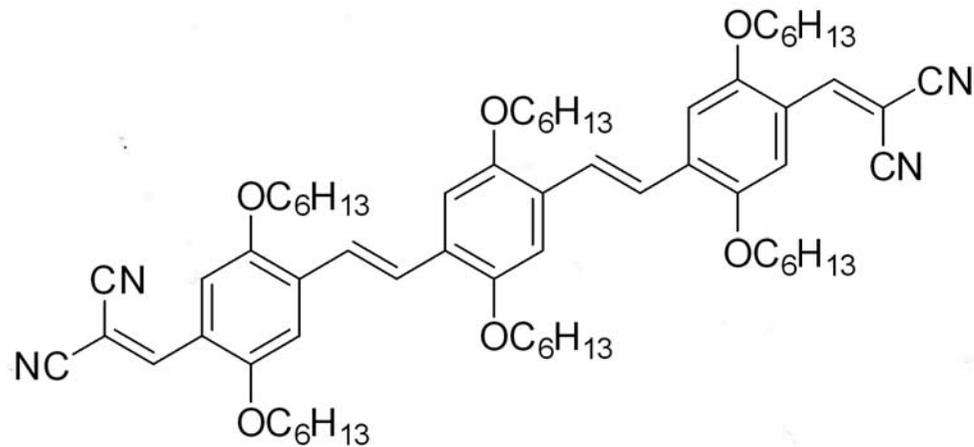
F1 - Acquisition parameters
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 TD 128
 SFO1 300.1314 MHz
 FIDRES 19.848831 Hz
 SW 8.465 ppm
 FnmODE QF

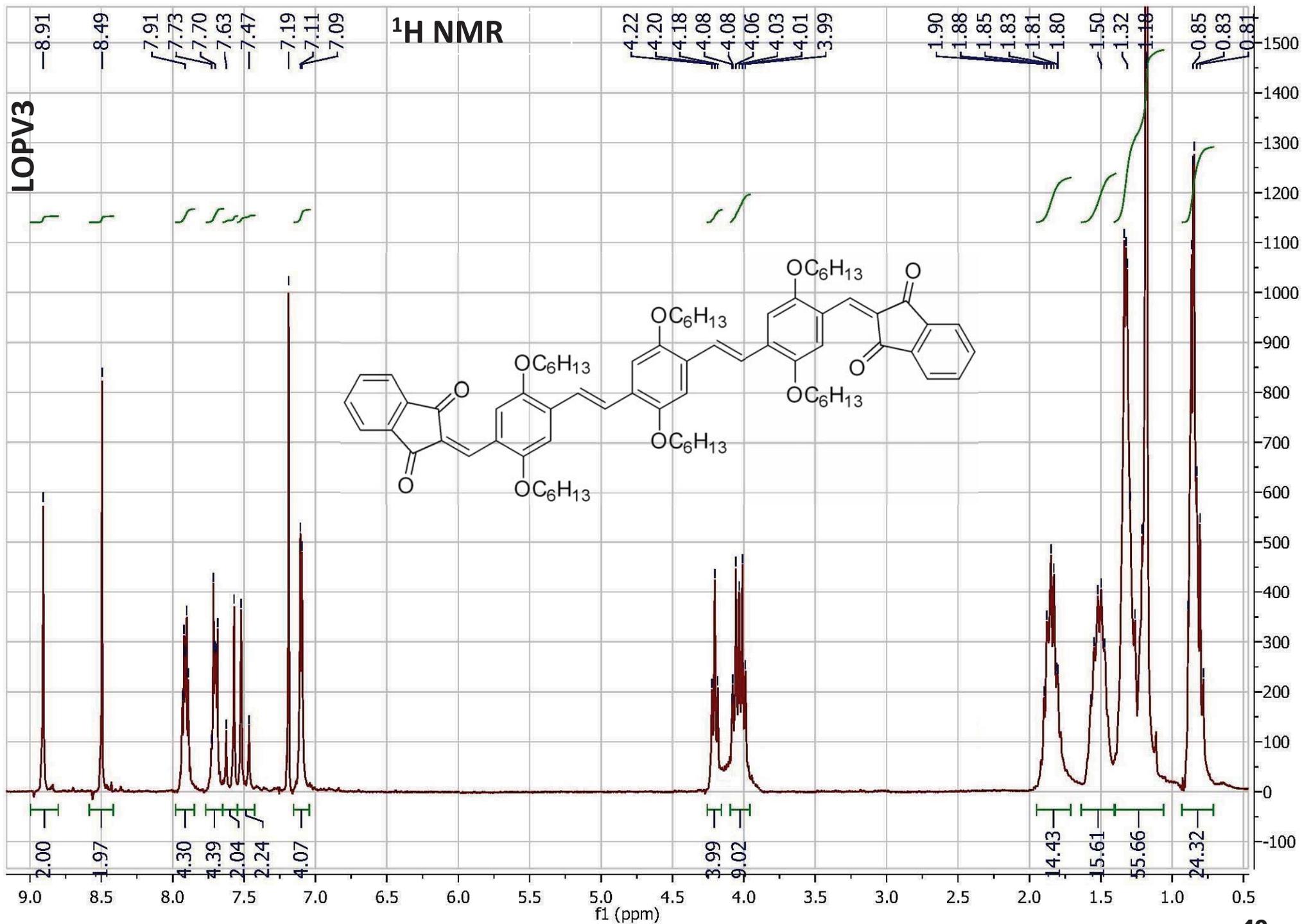
F2 - Processing parameters
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 SF 300.1300362 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0
 PC 1.40

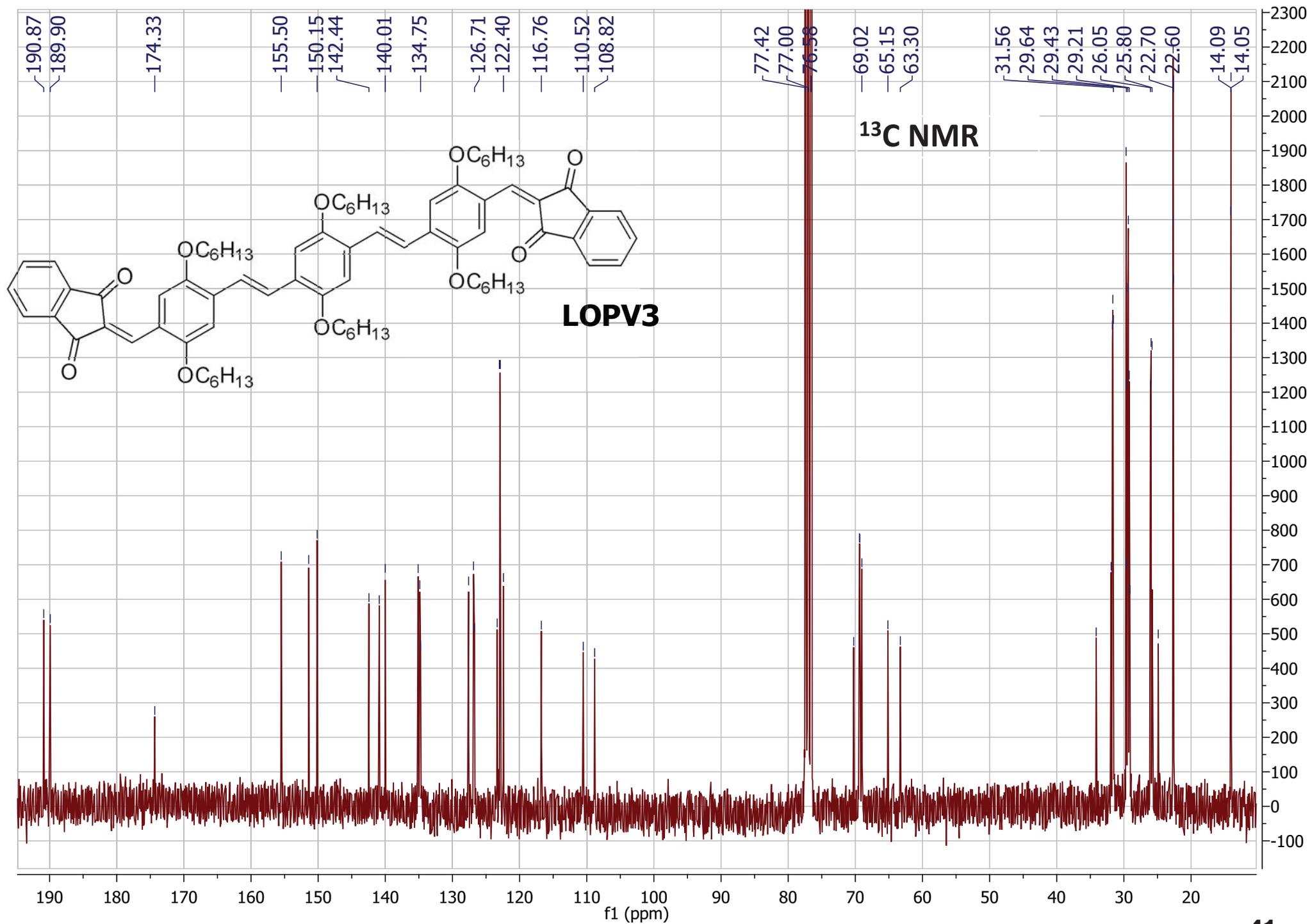
F1 - Processing parameters
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 MC2 QF
 SF 300.1300362 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
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LOPV2

IR spectrum

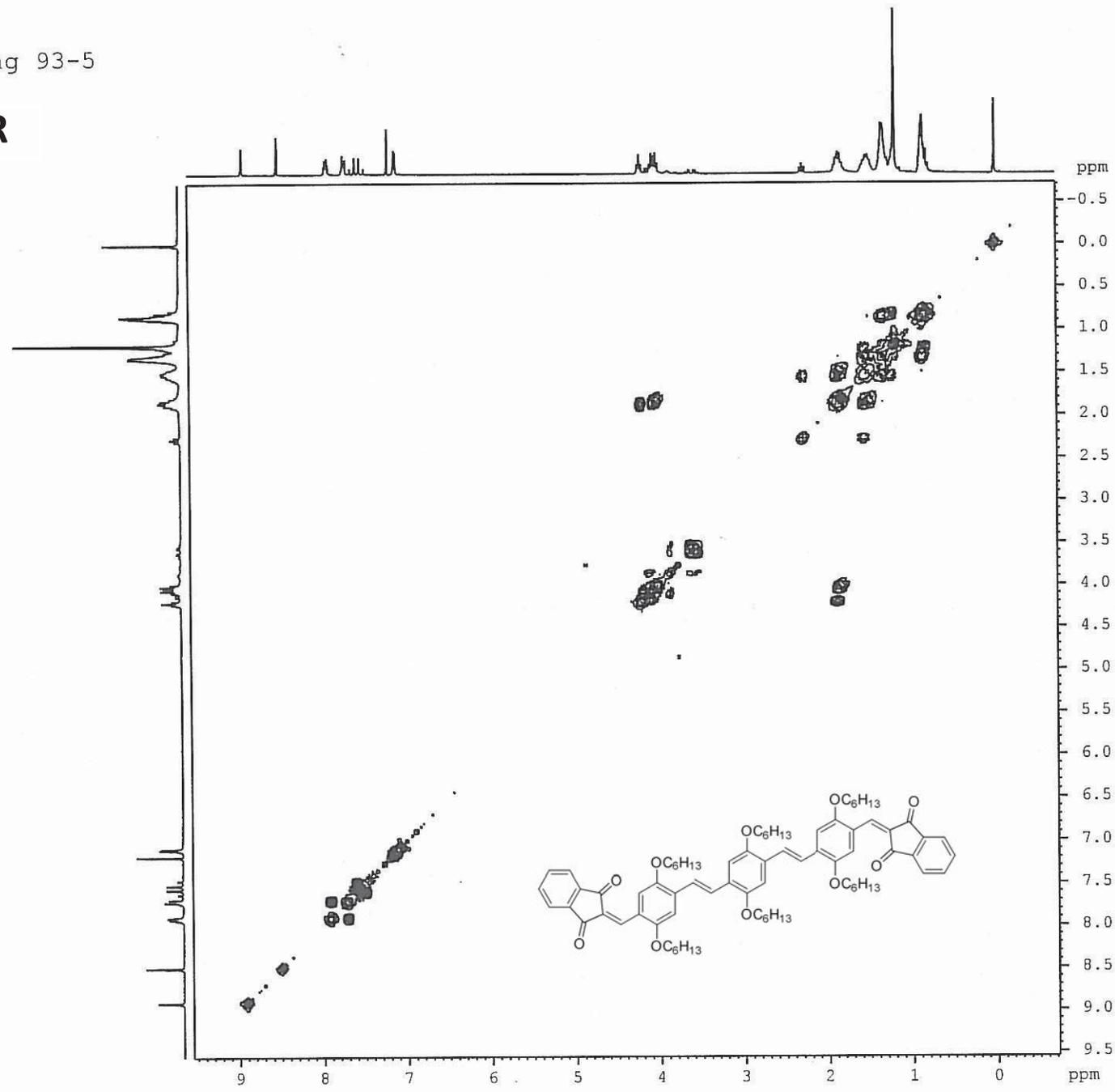






COSY NMR

ag 93-5



Current Data Parameters
 NAME fs45ag93.5
 EXPNO 11
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20091108
 Time_ 2.54
 INSTRUM spect
 PROBHD 5 mm BBI 1H-BB
 PULPROG cosygppf
 TD 2048
 SOLVENT CDCl3
 NS 1
 DS 8
 SWH 3086.420 Hz
 FIDRES 1.507041 Hz
 AQ 0.3318260 sec
 RG 90.5
 DW 162.000 usec
 DE 6.00 usec
 TE 295.3 K
 d0 0.00000300 sec
 D1 1.41070497 sec
 d13 0.00000400 sec
 D16 0.00010000 sec
 IN0 0.00032400 sec
 MCREST 0.00000000 sec
 MCWRK 1.41070497 sec

===== CHANNEL f1 =====
 NUC1 1H
 P0 6.20 usec
 P1 6.20 usec
 PL1 0.00 dB
 SFO1 300.1313606 MHz

===== GRADIENT CHANNEL =====
 GPNAM1 SINE.100
 GPNAM2 SINE.100
 GPX1 0.00 %
 GPX2 0.00 %
 GPY1 0.00 %
 GPY2 0.00 %
 GPZ1 10.00 %
 GPZ2 10.00 %
 P16 1000.00 usec

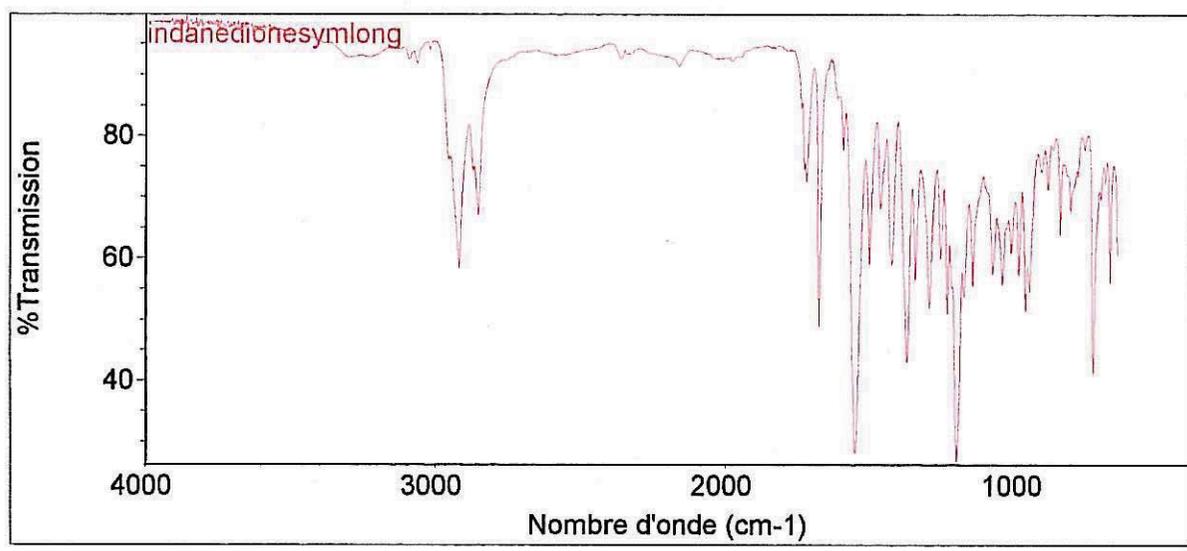
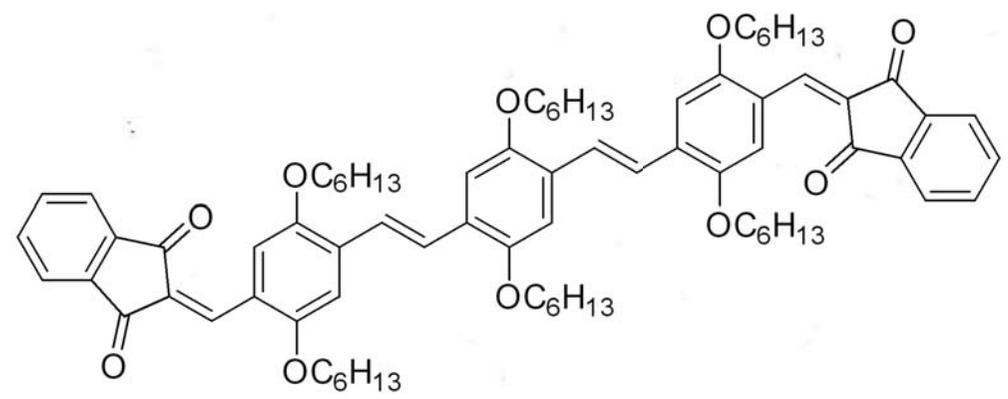
F1 - Acquisition parameters
 ND0 1
 TD 128
 SFO1 300.1314 MHz
 FIDRES 24.112654 Hz
 SW 10.284 ppm
 FnMODE QF

F2 - Processing parameters
 SI 1024
 SF 300.1300365 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0
 PC 1.40

F1 - Processing parameters
 SI 1024
 MC2 QF
 SF 300.1300365 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0

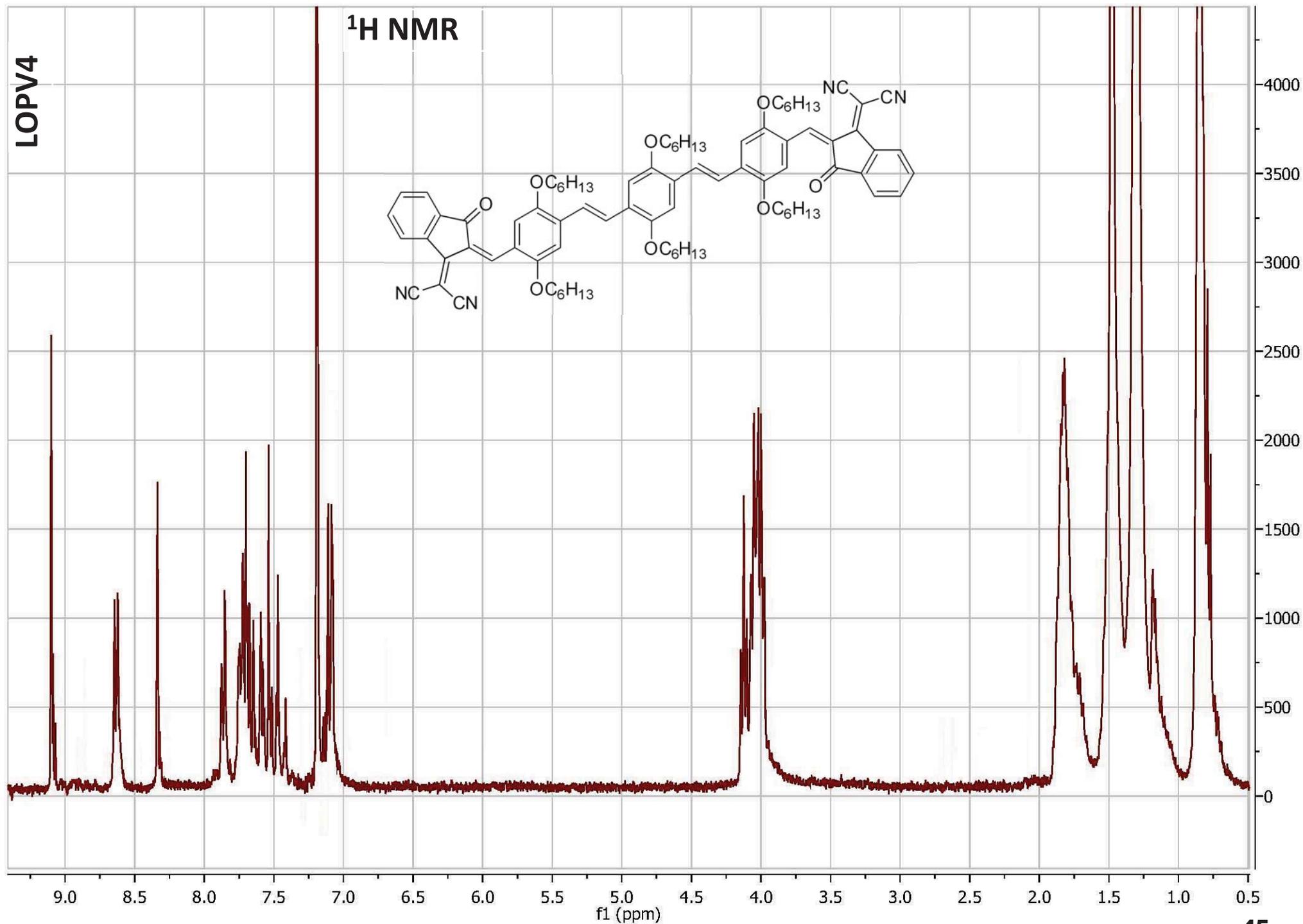
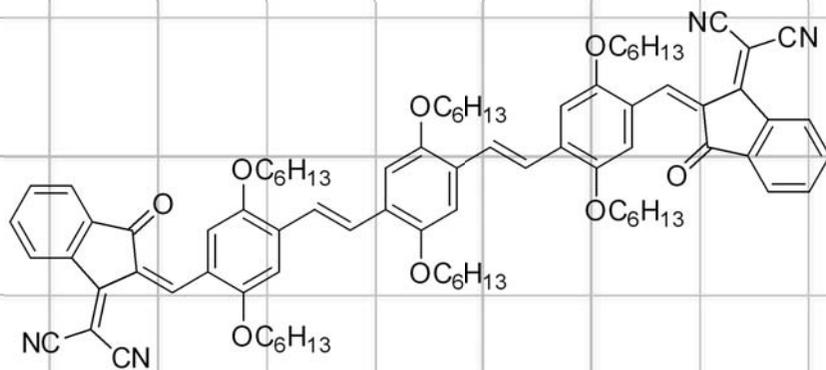
LOPV3

IR spectrum



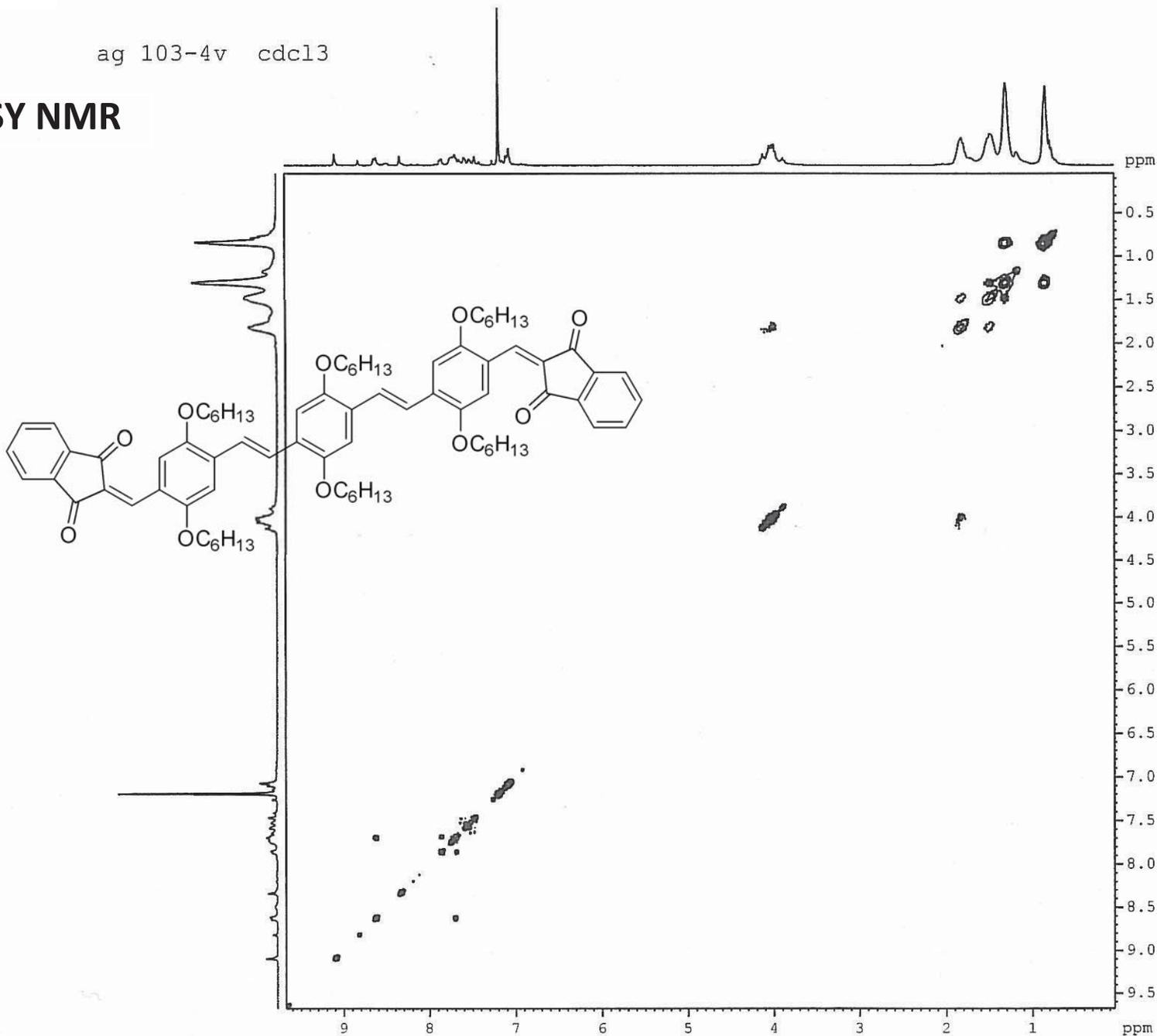
LOPV4

¹H NMR



ag 103-4v cdcl3

COSY NMR



Current Data Parameters
 NAME fs05ag103-4
 EXPNO 11
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20100203
 Time_ 7.47
 INSTRUM spect
 PROBHD 5 mm BBI 1H-BB
 PULPROG cosygpgf
 TD 2048
 SOLVENT C6D6
 NS 1
 DS 8
 SWH 2893.519 Hz
 FIDRES 1.412851 Hz
 AQ 0.3539444 sec
 RG 181
 DW 172.800 usec
 DE 6.00 usec
 TE 295.1 K
 d0 0.00000300 sec
 D1 1.38817799 sec
 d13 0.00000400 sec
 D16 0.00010000 sec
 INO 0.00034560 sec
 MCREST 0.00000000 sec
 MCWRK 1.38817799 sec

==== CHANNEL f1 =====
 NUC1 1H
 P0 6.20 usec
 P1 6.20 usec
 PL1 0.00 dB
 SFO1 300.1314958 MHz

==== GRADIENT CHANNEL =====
 GPNAM1 SINE.100
 GPNAM2 SINE.100
 GPX1 0.00 %
 GPX2 0.00 %
 GPY1 0.00 %
 GPY2 0.00 %
 GPZ1 10.00 %
 GPZ2 10.00 %
 P16 1000.00 usec

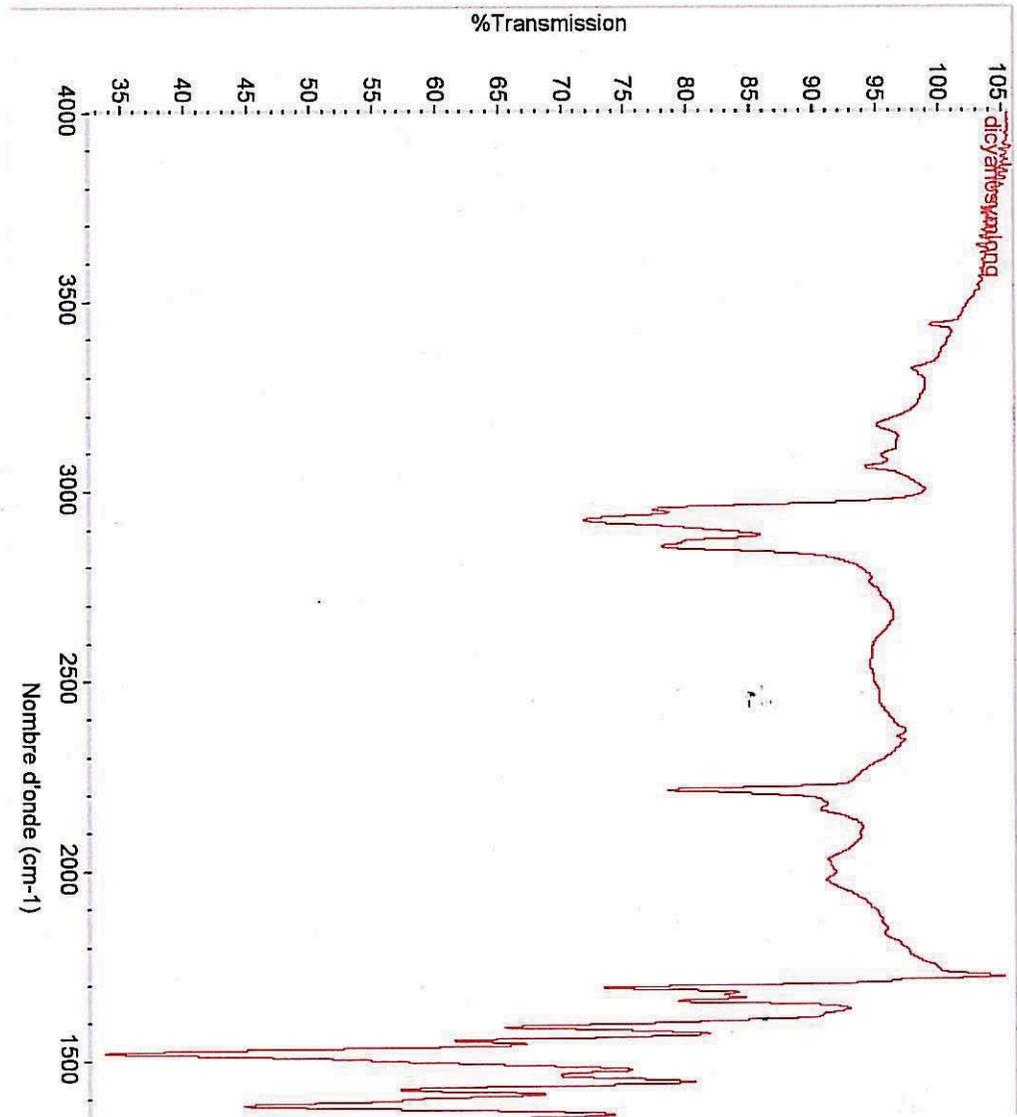
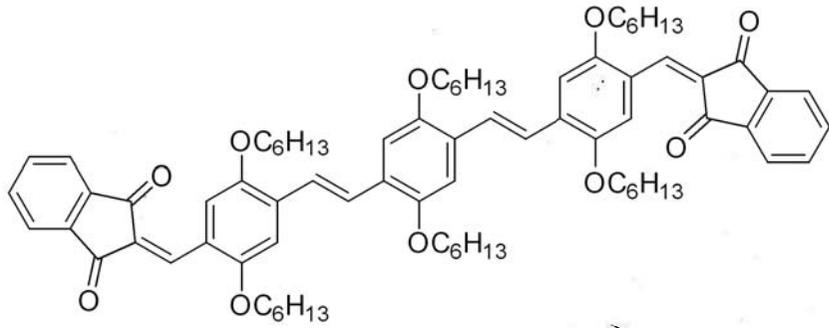
F1 - Acquisition parameters
 NDO 1
 TD 128
 SFO1 300.1315 MHz
 FIDRES 22.605614 Hz
 SW 9.641 ppm
 FnmODE QF

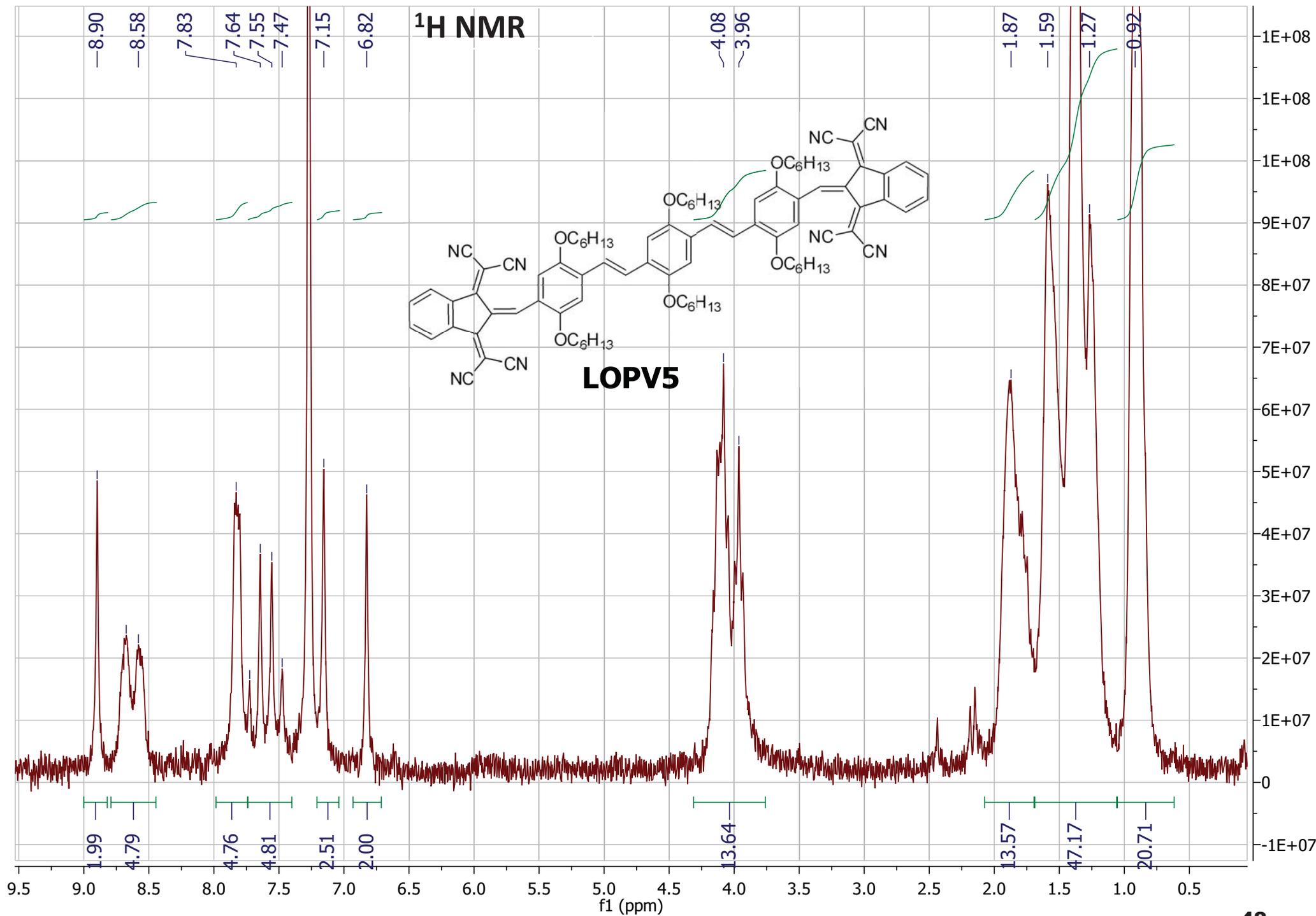
F2 - Processing parameters
 SI 1024
 SF 300.1300390 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0
 PC 1.40

F1 - Processing parameters
 SI 1024
 MC2 QF
 SF 300.1300390 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0

LOPV4

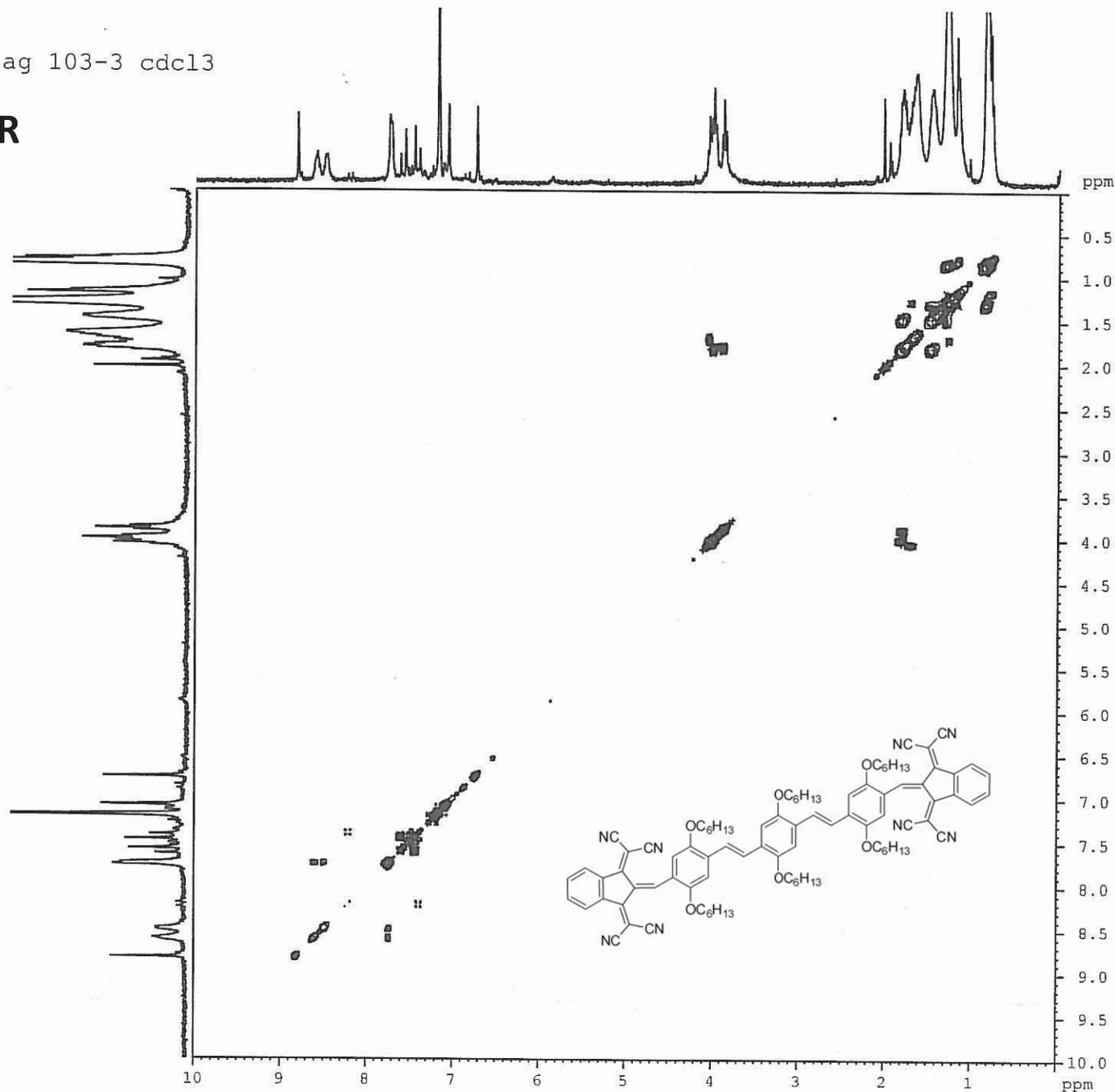
IR spectrum





ag 103-3 cdcl3

COSY NMR



```

Current Data Parameters
NAME          fs05103-3
EXPNO         11
PROCNO        1

F2 - Acquisition Parameters
Date_         20100204
Time          13.20
INSTRUM       spect
PROBHD        5 mm BBI 1H-BB
PULPROG       cosygpqf
TD            2048
SOLVENT       CDCl3
NS            1
DS            8
SWH           2815.315 Hz
FIDRES        1.374666 Hz
AQ            0.3637748 sec
RG            362
DW            177.600 usec
DE            6.00 usec
TE            294.6 K
d0            0.00000300 sec
d1            1.37793696 sec
d13           0.00000400 sec
D16           0.00010000 sec
INO           0.00035520 sec
MCREST        0.00000000 sec
MCWRK         1.37793696 sec

===== CHANNEL f1 =====
NUC1           1H
P0             6.20 usec
P1             6.20 usec
PL1            0.00 dB
SFO1           300.1314803 MHz

===== GRADIENT CHANNEL =====
GPNAM1         SINE.100
GPNAM2         SINE.100
GPX1           0.00 %
GPX2           0.00 %
GPY1           0.00 %
GPY2           0.00 %
GPZ1           10.00 %
GPZ2           10.00 %
P16            1000.00 usec

F1 - Acquisition parameters
ND0            1
TD             128
SFO1           300.1315 MHz
FIDRES         21.994652 Hz
SW             9.380 ppm
FnMODE         QF

F2 - Processing parameters
SI             1024
SF             300.1300355 MHz
WDW            SINE
SSB            0
LB             0.00 Hz
GB             0
PC             1.40

F1 - Processing parameters
SI             1024
MC2            QF
SF             300.1300355 MHz
WDW            SINE
SSB            0
LB             0.00 Hz
GB             0
    
```