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Supporting Information

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9-Fluorenylphosphines for the Pd-catalyzed Sonogashira, Suzuki and Buchwald-Hartwig Coupling in Organic Solvents and in Water

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Petersenstr. 18

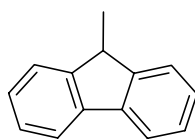
64287 Darmstadt, Germany

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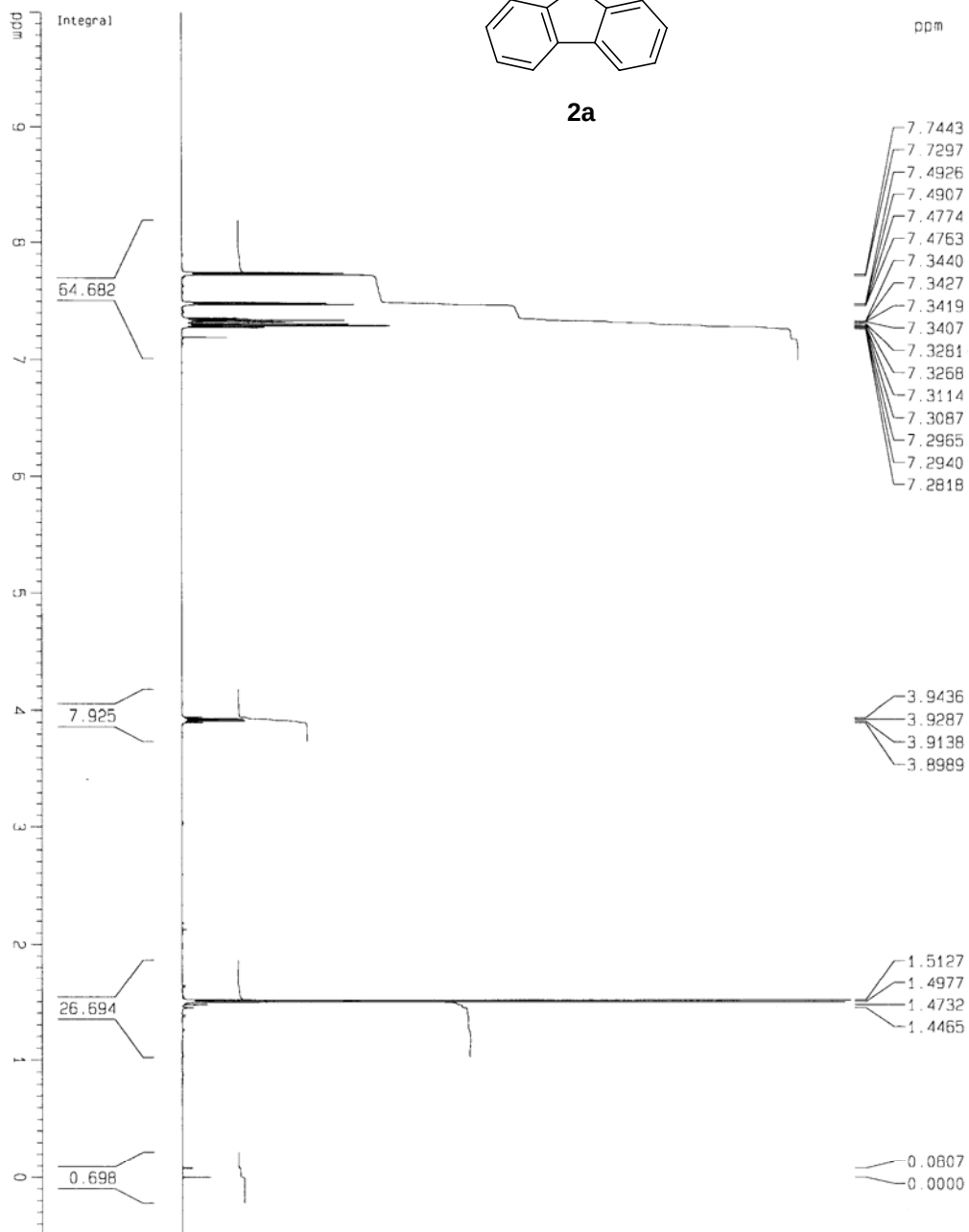
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¹H-NMR



2a

ppm



Fleckenstein CPF 1-1

Current Data Parameters
NAME apr2hav
EXPNO 90
PROCNO 1

F2 - Acquisition Parameters
Date_ 20060425
Time 15.44

INSTRUM spect

PROBHD 5 mm BBO BB-1H

PULPROG zg30

TD 65536

SOLVENT CDCl3

NS 16

DS 2

SWH 10330.578 Hz

FIDRES 0.157632 Hz

AQ 3.172007 sec

RG 71.8

DM 48.400 usec

DE 6.00 usec

TE 300.0 K

D1 0.50000000 sec

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

NUC1 1H

P1 11.10 usec

PL1 0.00 dB

SFO1 500.1330885 MHz

F2 - Processing parameters

SF 32768

WDW EM

SSB 0

LB 0.10 Hz

GB 0

PC 1.00

1D NMR plot parameters

CX 22.00 cm

CY 12.00 cm

F1P 10.000 ppm

F1 5001.30 Hz

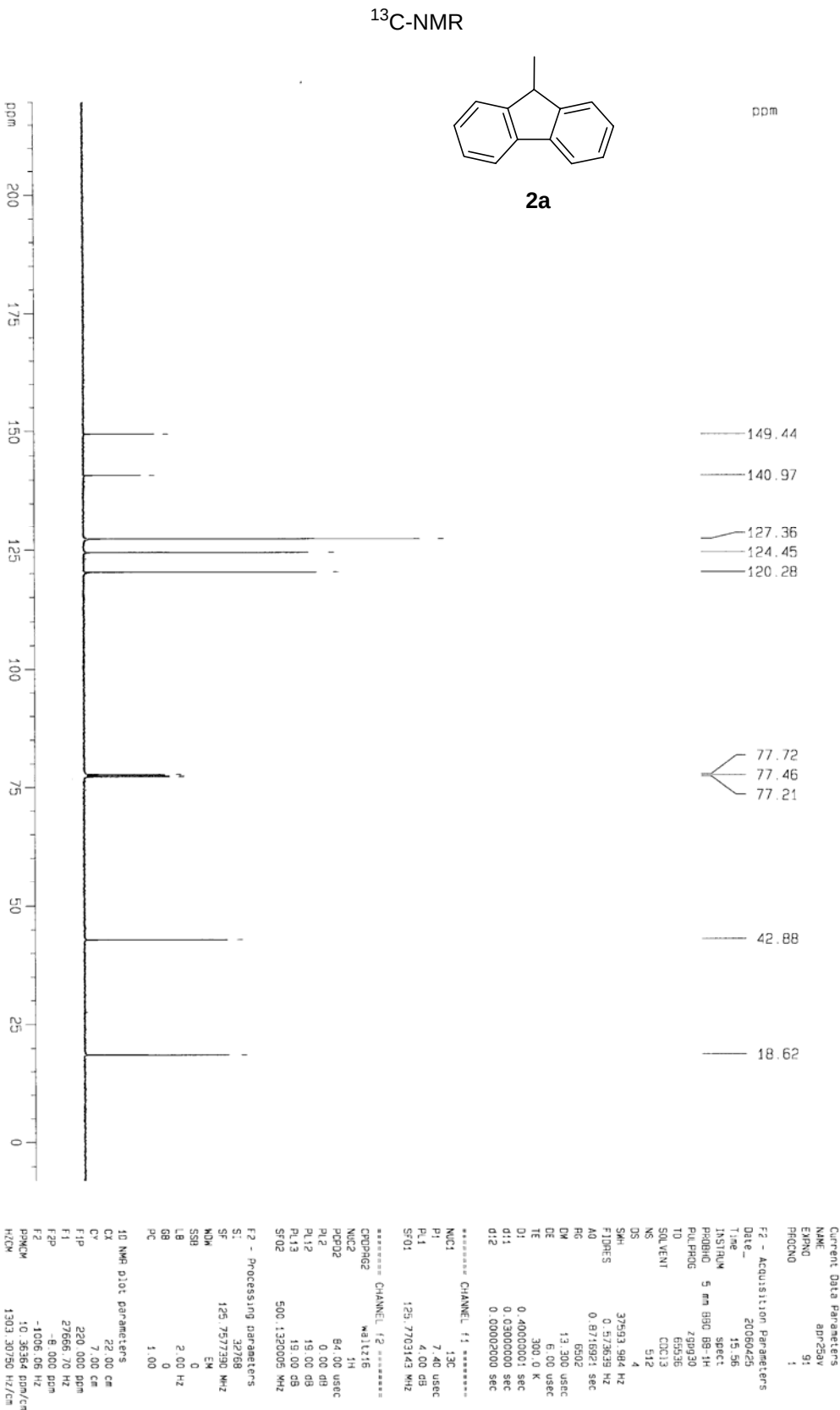
F2P -0.500 ppm

F2 -250.06 Hz

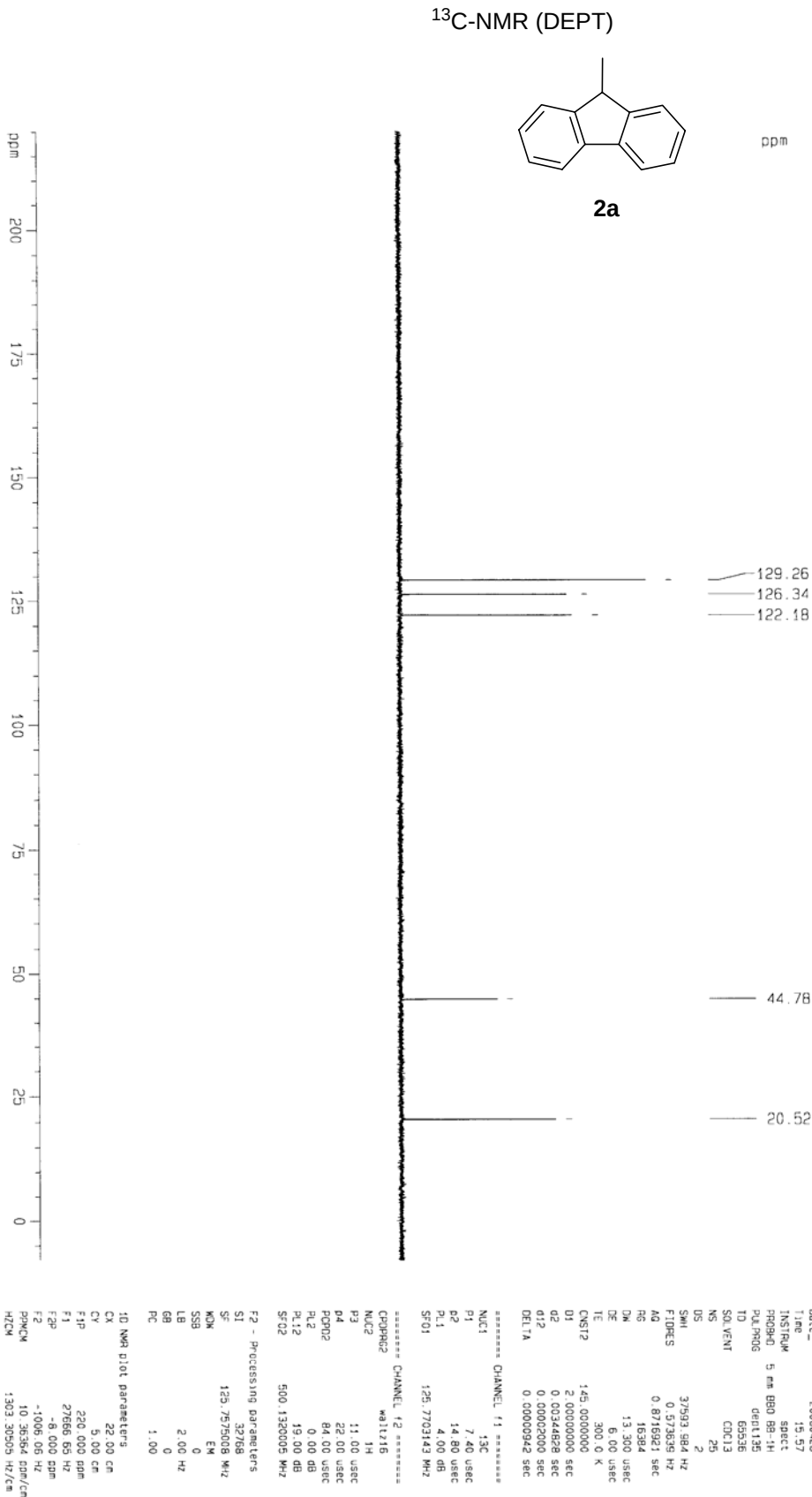
PRPCV 0.47727 ppm/cm

HZCM 238.69841 Hz/cm

Fleckenstein CPF 1-1

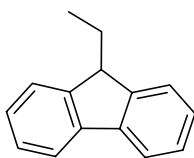


Fleckenstein CPF 1-1

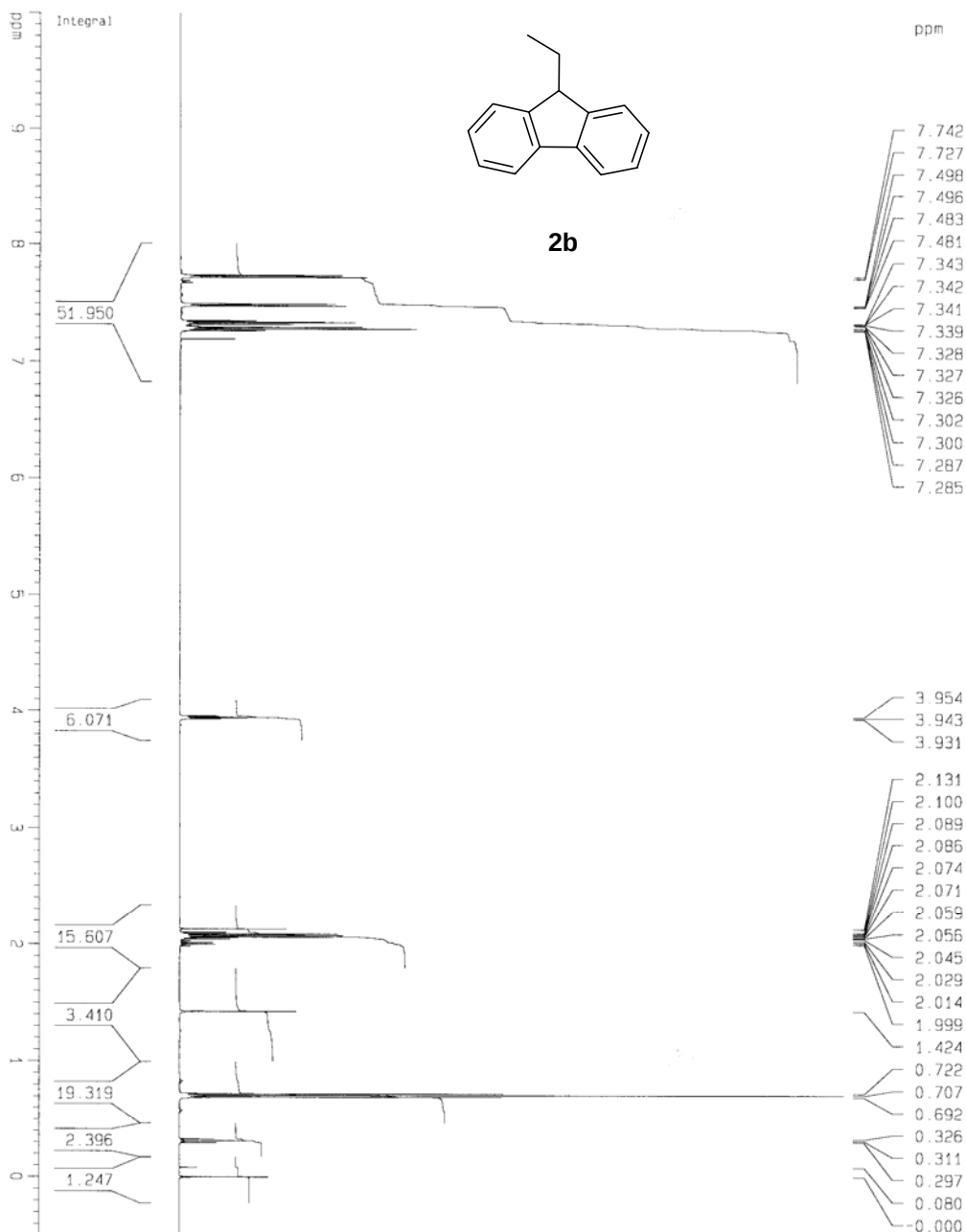


Fleckenstein CFP-2-152

¹H-NMR



2b



Current Data Parameters
NAME Jan13av
EXPNO 40
PROCNO 1

F2 - Acquisition Parameters
Date_ 20060113
Time 11.52

INSTRUM spect
PROBHD 5 mm BBO BB-1H
PULPROG zg30

TD 65536
SOLVENT CDCl3

NS 24
DS 2

SWH 10330.578 Hz
FIDRES 0.157632 Hz

AQ 3.1720407 sec
RG 57

DW 48.400 usec
DE 6.00 usec

TE 300.0 K
D1 0.5000000 sec

===== CHANNEL f1 =====
NUC1 1H

P1 11.10 usec
PL1 0.00 dB

SFO1 500.1330885 MHz
F2 - Processing parameters

SI 32768
SF 500.1300434 MHz

WDW EM
SSB 0

LB 0.10 Hz
GB 0

PC 1.00
10 NMR plot parameters

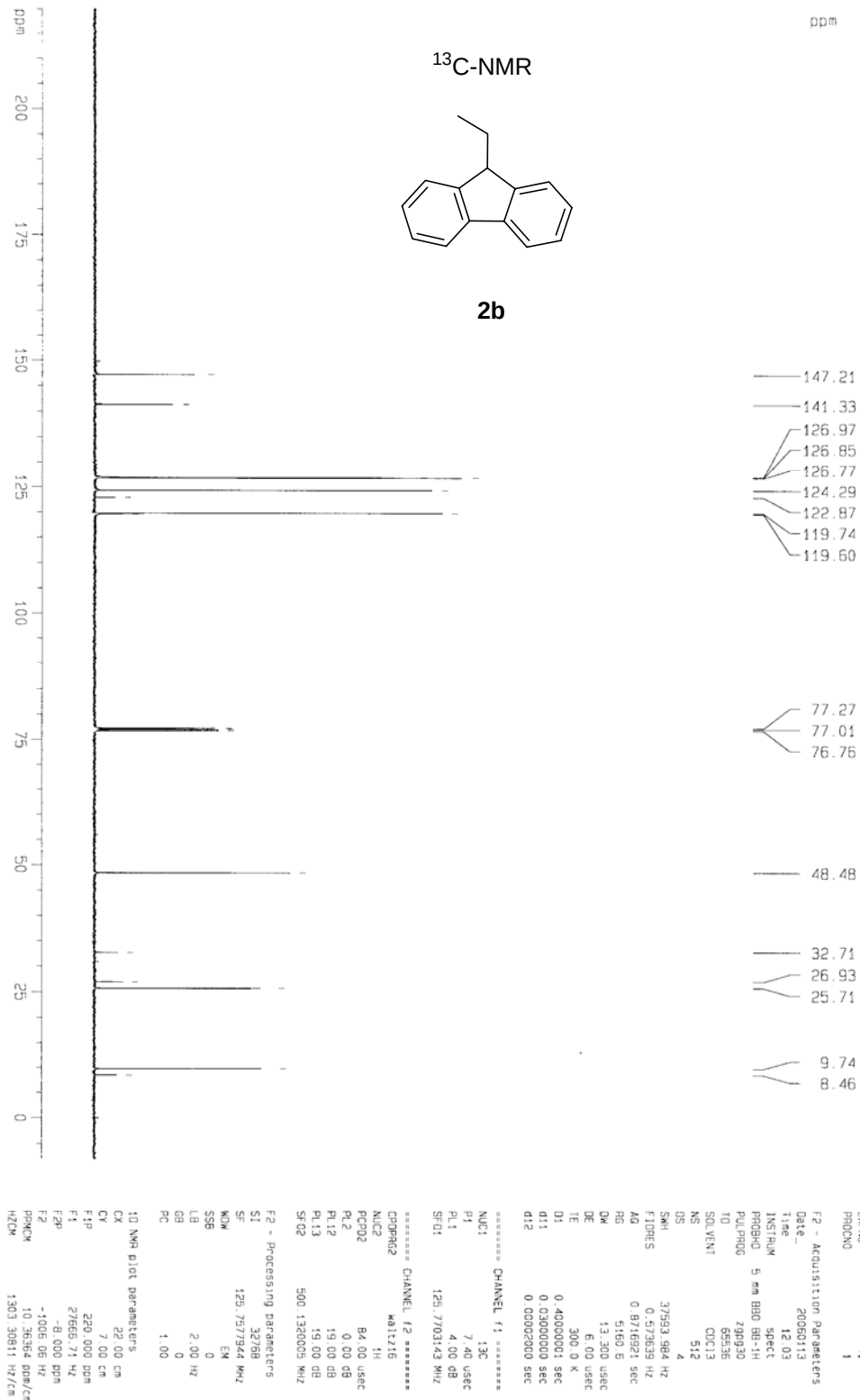
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CY 12.00 cm

F1P 10.000 ppm
F1 5001.30 Hz

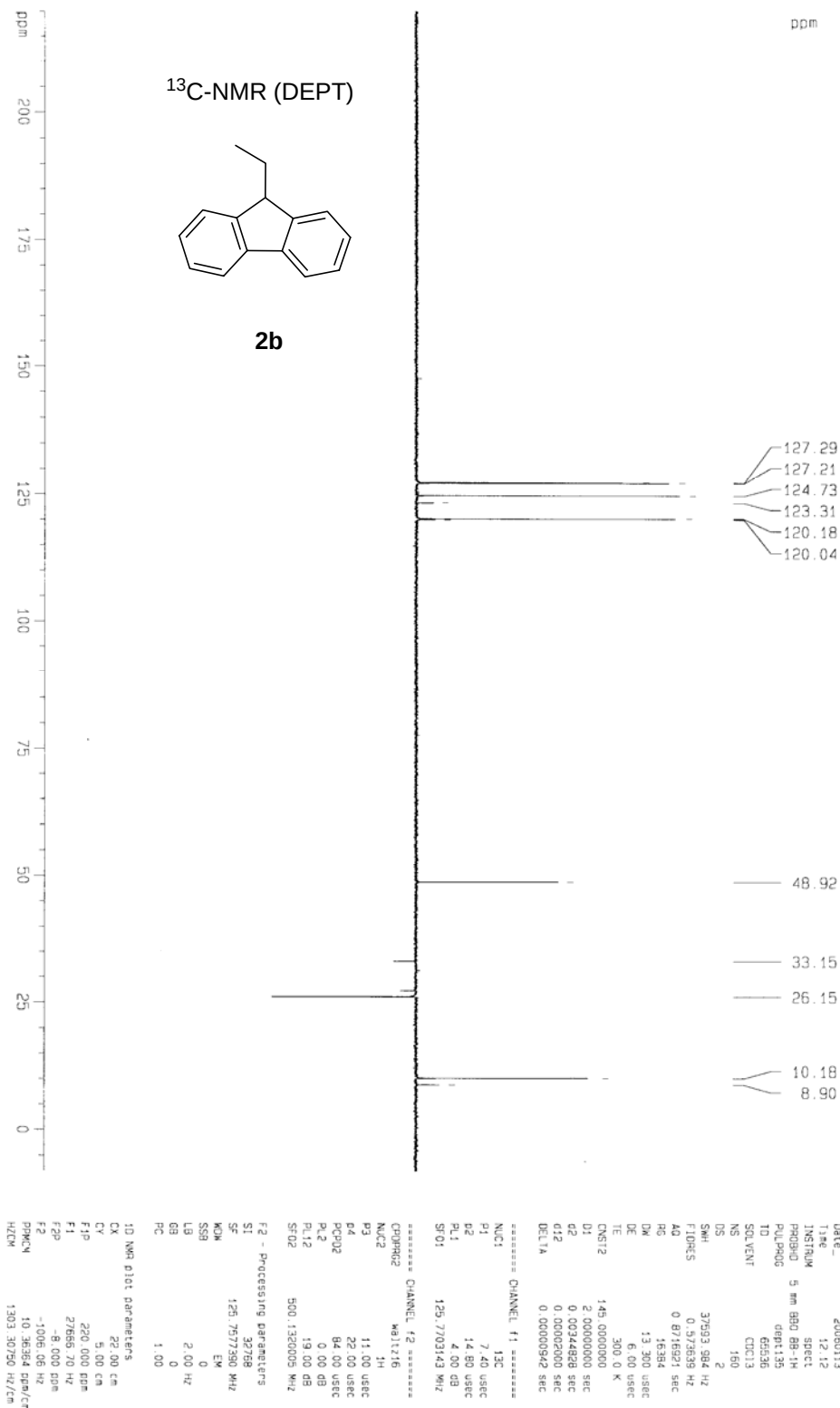
F2P -0.500 ppm
F2 -250.06 Hz

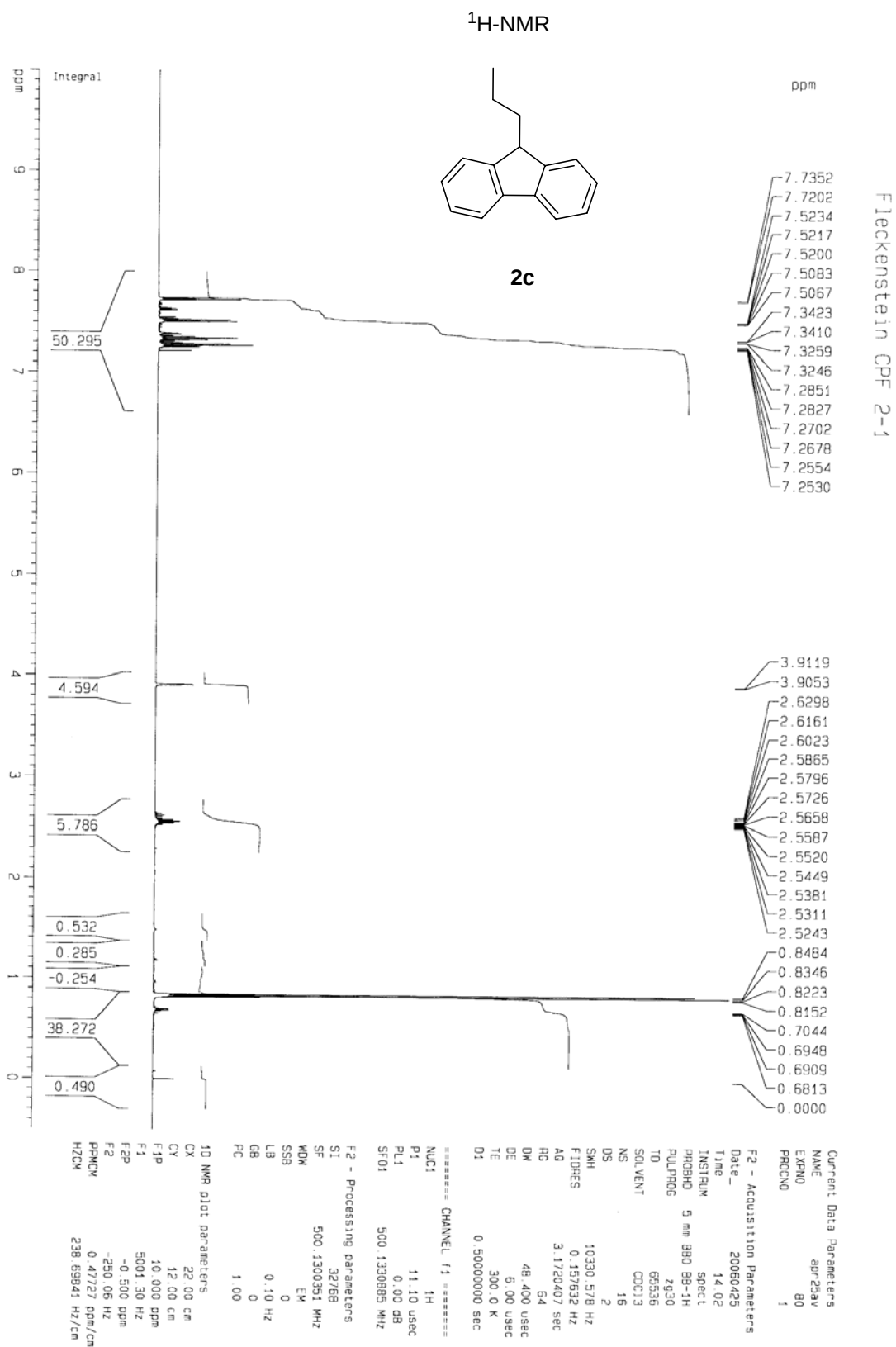
PPMCM 0.47727 ppm/cm
HZCM 238.69841 Hz/cm

Fleckenstein CFP-2-152

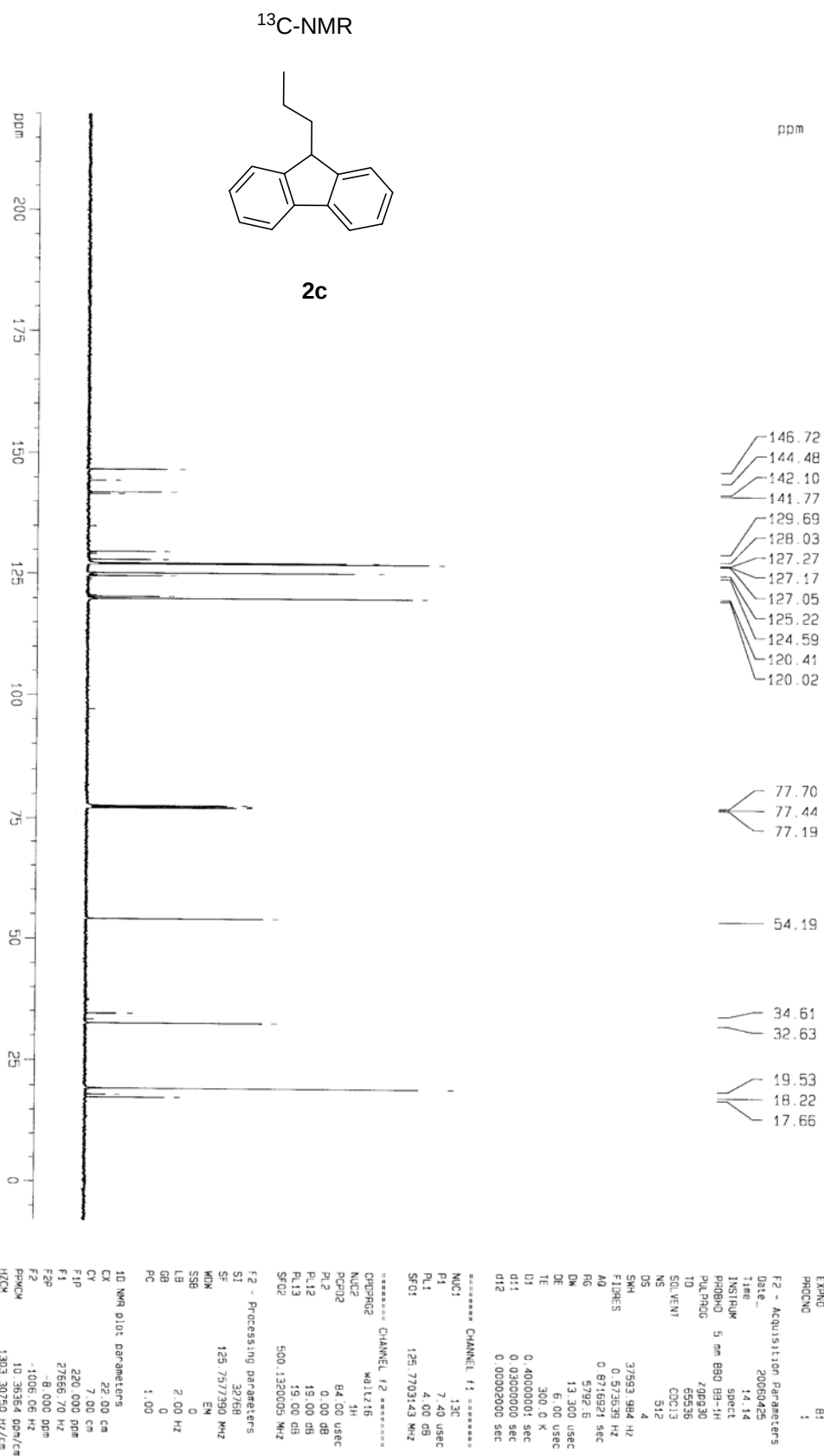


Fleckenstein CFP-2-152

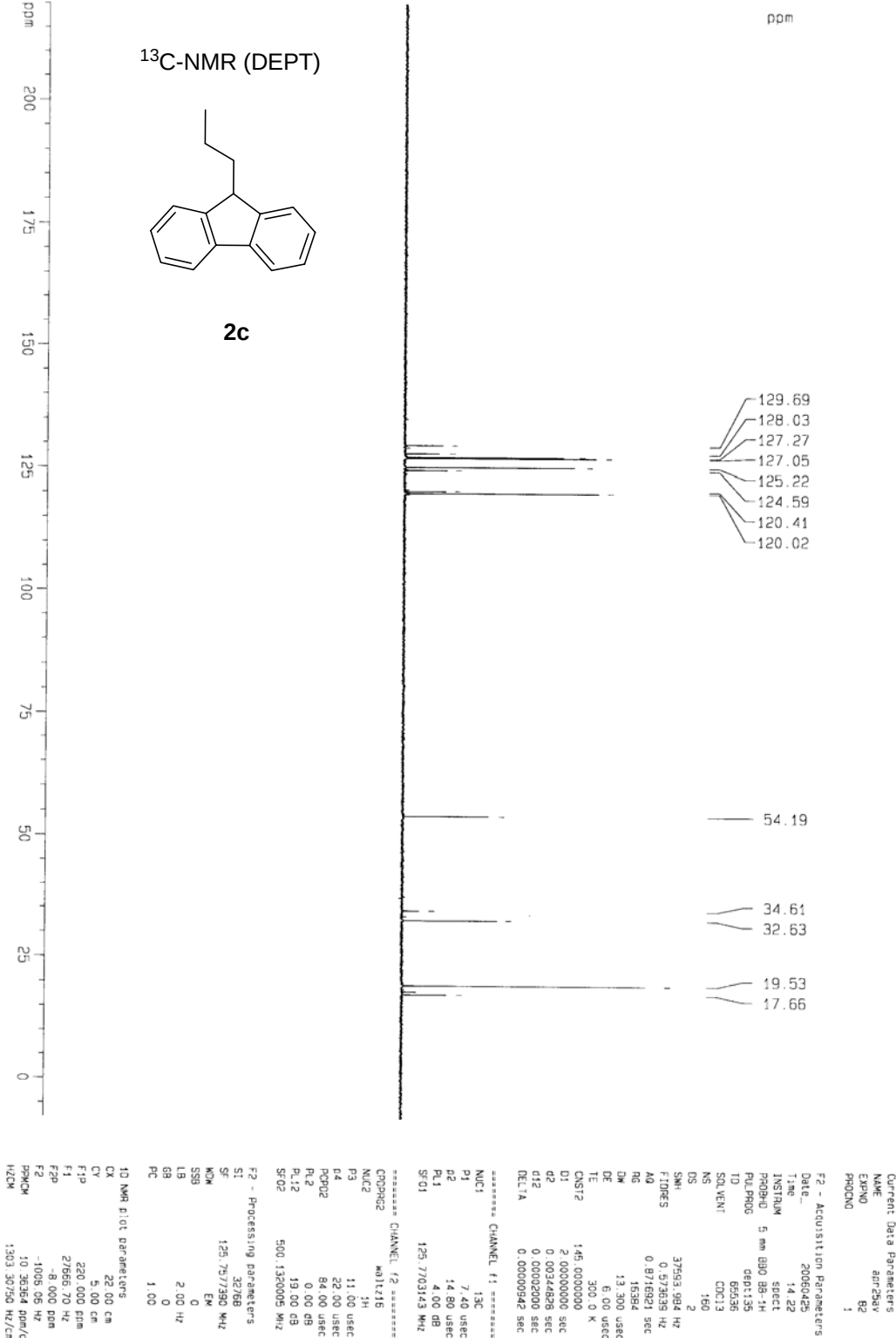


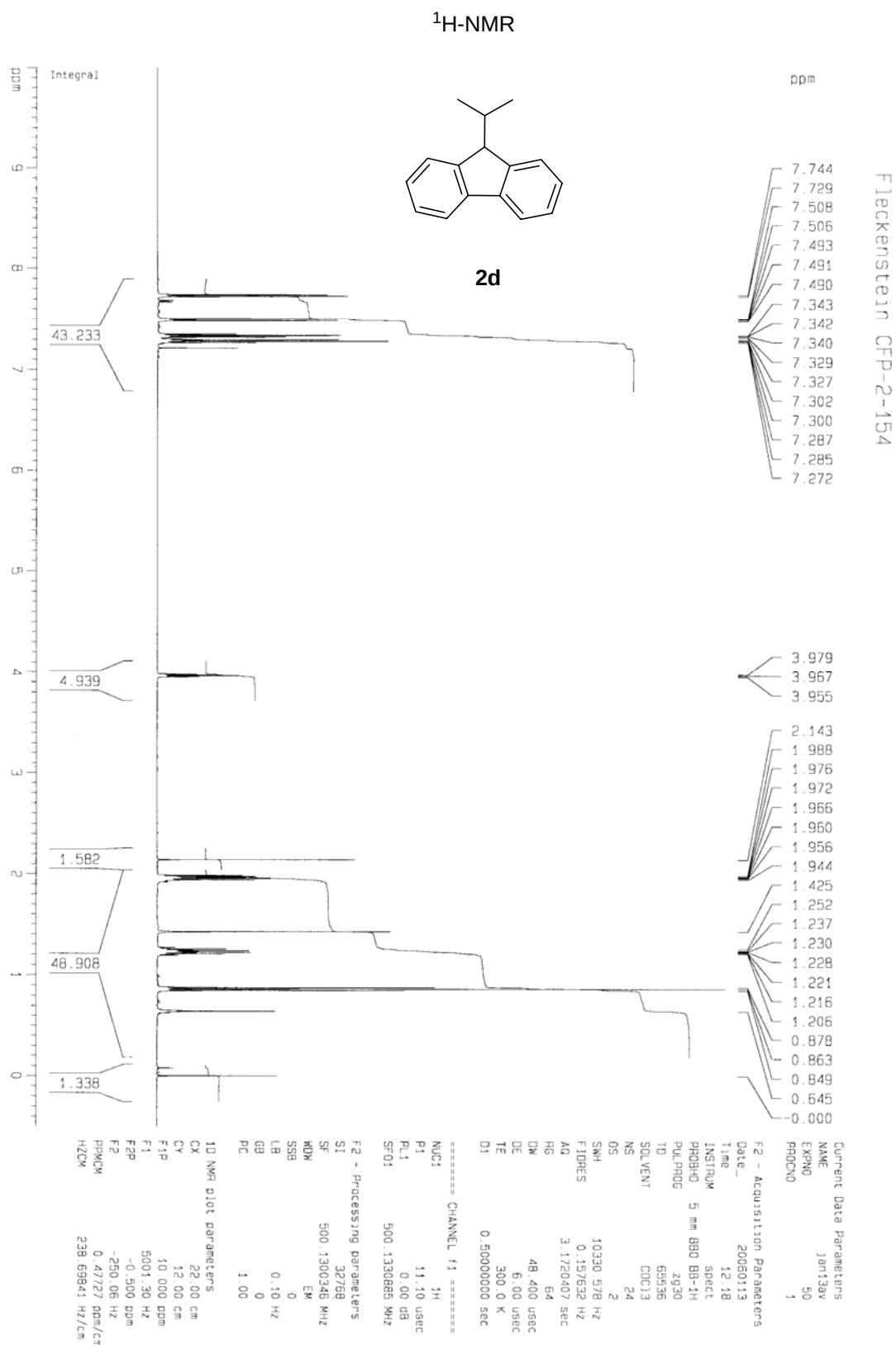


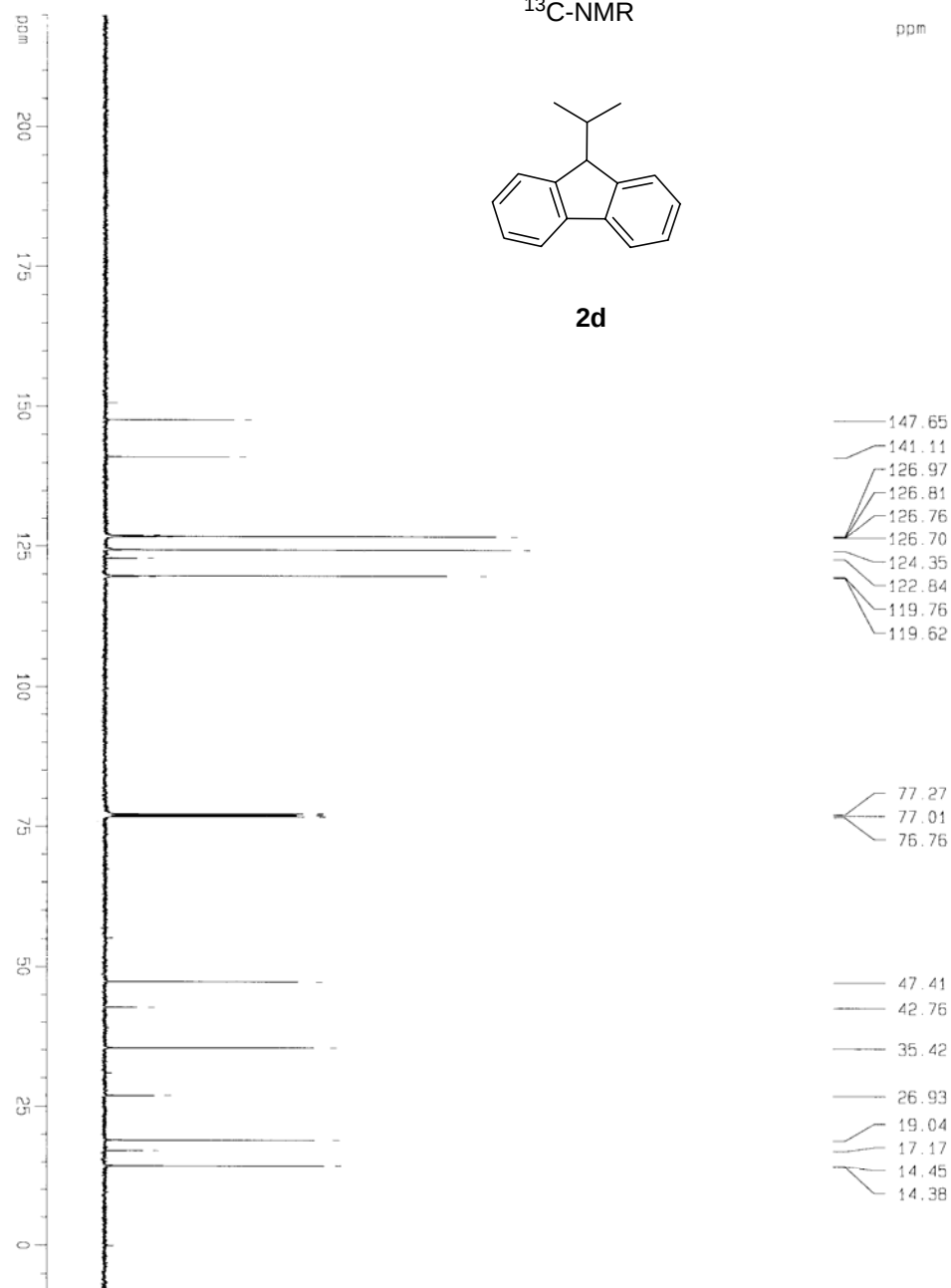
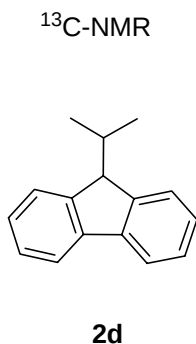
Fieckenstein CPF 2-1



Fleckenstein CPF 2-1







Current Data Parameters
NAME Jan13av
EXPNO 51
PROCNO 1

F2 - Acquisition Parameters
Date_ 20060113
Time 12.30
INSTRUM spect
PROBHD 5 mm BBO BB-1H
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 512
DS 4
SWH 37593.984 Hz
FIDRES 0.573639 Hz
AQ 0.8716921 sec
RG 9195.2
DM 13.300 usec
DE 6.00 usec
TE 300.0 K
D1 0.4000001 sec
d11 0.0300000 sec
d12 0.0002000 sec

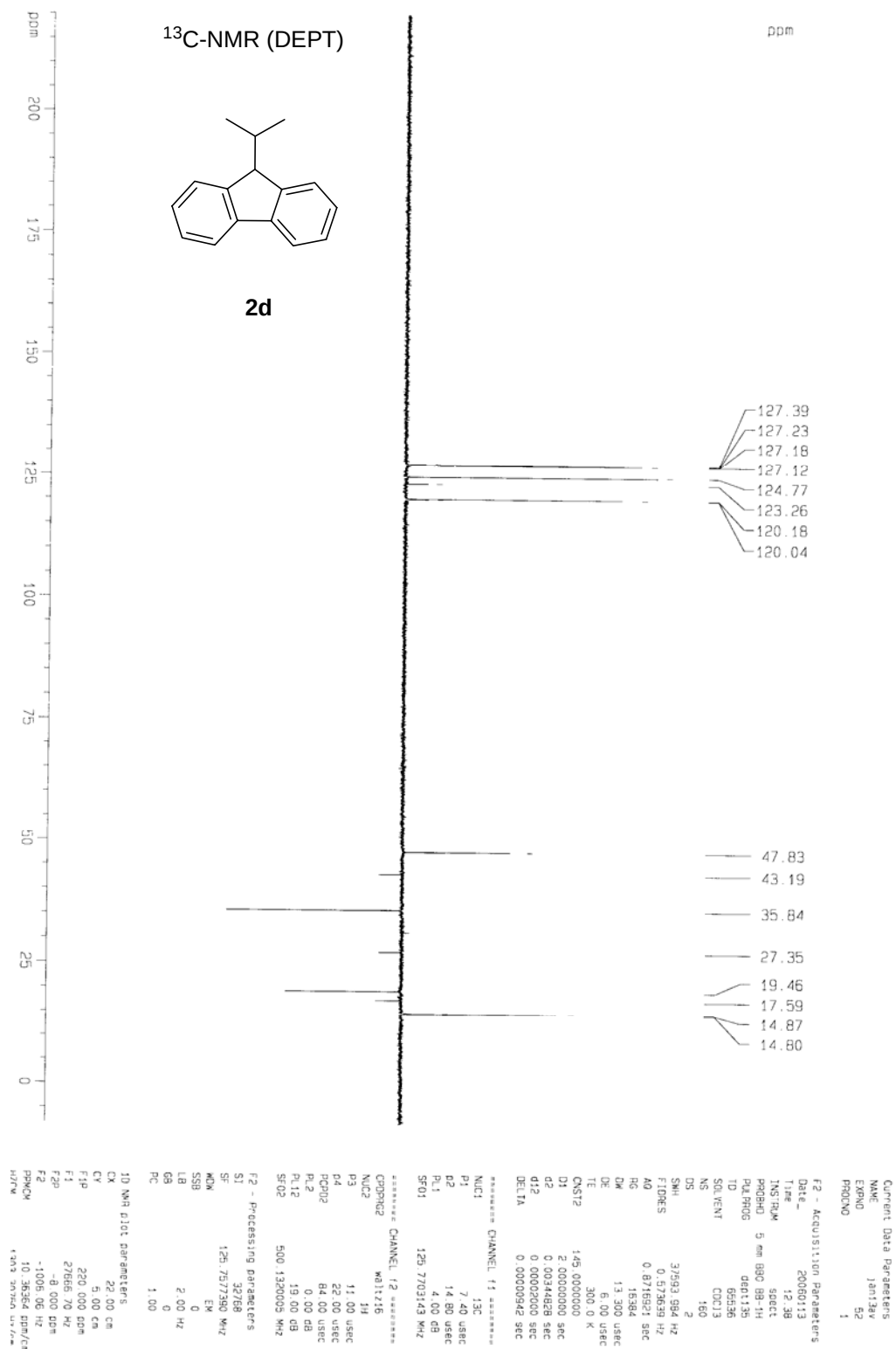
===== CHANNEL f1 =====
NUC1 13C
P1 7.40 usec
PL1 4.00 dB
SFO1 125.7703143 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 84.00 usec
PL2 0.00 dB
PL12 19.00 dB
PL13 19.00 dB
SFO2 500.1320005 MHz

F2 - Processing parameters
SI 32768
SF 125.757918 MHz
WDW EM
SSB 0
LB 2.00 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 22.00 cm
CY 7.00 cm
F1P 220.000 dpm
F1 27686.71 Hz
F2P -8.000 dpm
F2 -1006.06 Hz
FPPCK 10.36564 dpm/cm
HZCK 1303.30798 Hz/cm

Fleckenstein CFP-2-154





Current Data Parameters
 NAME aug23ac
 EXPNO 250
 PROCNO 1

F2 - Acquisition Parameters

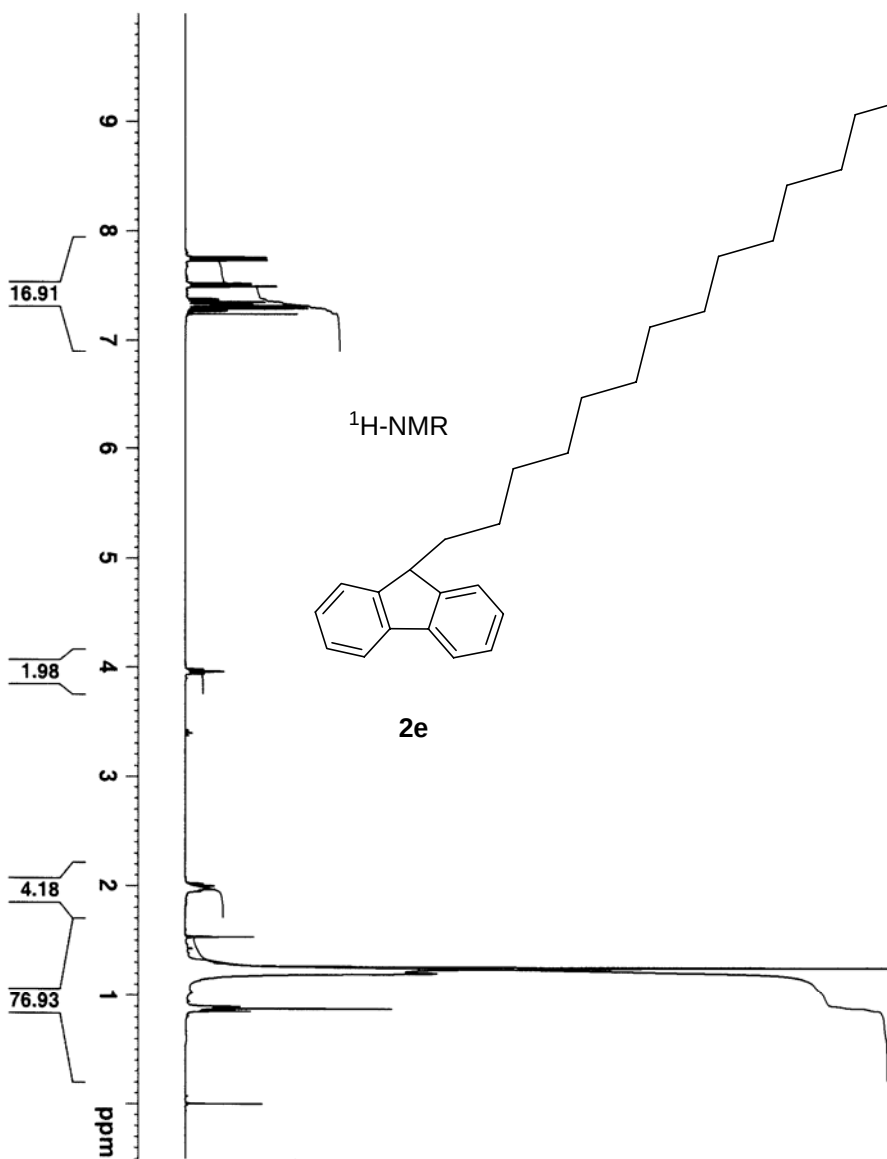
Date 20050823
 Time 21.12
 INSTRUM spect
 PROBD 5 mm PABBO BB-
 PULPROG zg30
 TD 32768
 SOLVENT CDCl3
 NS 32
 DS 2
 SWH 6188.119 Hz
 FIDRES 0.188846 Hz
 AQ 2.6477044 sec
 RG 161
 DW 80.800 usec
 DE 10.00 usec
 TE 300.0 K
 D1 1.00000000 sec
 TD0 1

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

NUC1 ¹H
 P1 9.70 usec
 PL1 -3.00 dB
 SFO1 299.9018520 MHz

F2 - Processing parameters

SI 32768
 SF 299.9000076 MHz
 WDW EM
 SSB 0
 LB 0.10 Hz
 GB 0
 PC 1.00





Current Data Parameters
 NAME aug23ac
 EXPNO 251
 PROCNO 1

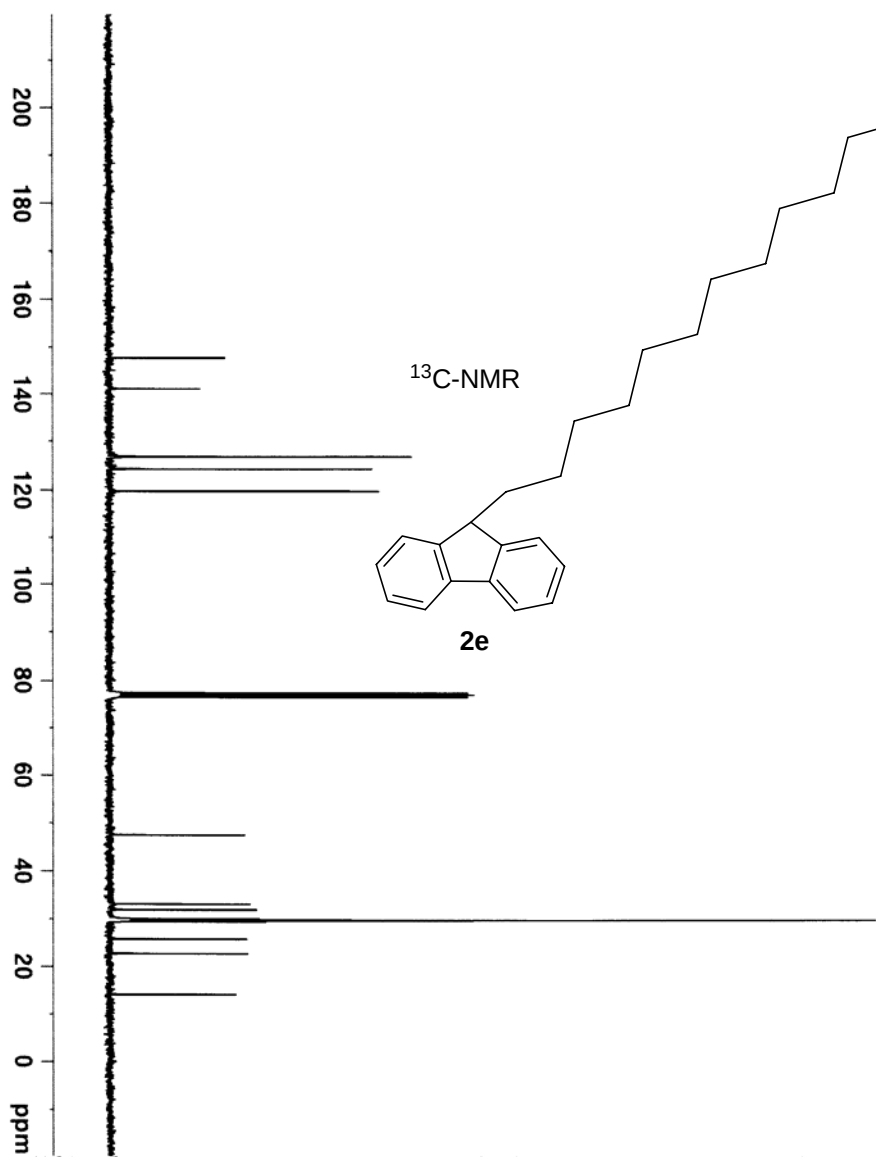
F2 - Acquisition Parameters

Date_ 20050823
 Time 21.47
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG zgpg30
 TD 32768
 SOLVENT CDCl3
 NS 1000
 DS 4
 SWH 18028.846 Hz
 FIDRES 0.550197 Hz
 AQ 0.9088159 sec
 RG 2050
 DW 27.733 usec
 DE 10.00 usec
 TE 300.0 K
 D1 1.00000000 sec
 d11 0.03000000 sec
 DELTA 0.89999998 sec
 TD0 1

===== CHANNEL f1 =====
 NUC1 ¹³C
 P1 11.00 usec
 PL1 0.00 dB
 SFO1 75.4174560 MHz

===== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 ¹H
 PCPD2 95.00 usec
 PL2 -3.00 dB
 PL12 17.00 dB
 PL13 23.00 dB
 SFO2 299.9011996 MHz

F2 - Processing parameters
 SI 32768
 SF 75.4099150 MHz
 WDW EM
 SSB 0
 LB 0
 GB 0
 PC 1.40



Fleckenstein CFP-1-112



Current Data Parameters
NAME aug23ac
EXPNO 252
PROCNO 1

F2 - Acquisition Parameters
Date_ 20050823
Time 22.01

INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG dept135

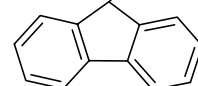
TD 32768
SOLVENT CDCl3

NS 256
DS 4
SWH 18028.846 Hz
FIDRES 0.550197 Hz

AQ 0.9088159 sec
RG 27.733
DW 27.733 usec
DE 10.00 usec

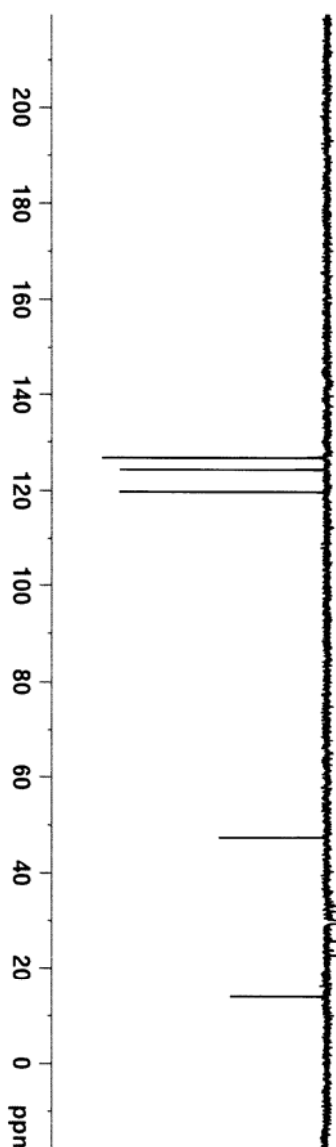
TE 300.0 K
CNST2 145.0000000
D1 2.00000000 sec

d2 0.0034828 sec
d12 0.0002000 sec
DELTA 0.0001401 sec
TD0 1



2e

¹³C-NMR (DEPT)

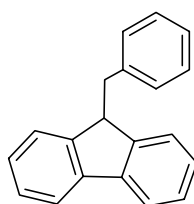


===== CHANNEL f1 =====
NUC1 13C
P1 11.00 usec
P2 22.00 usec
PL1 0.00 dB
SFO1 75.4174560 MHz

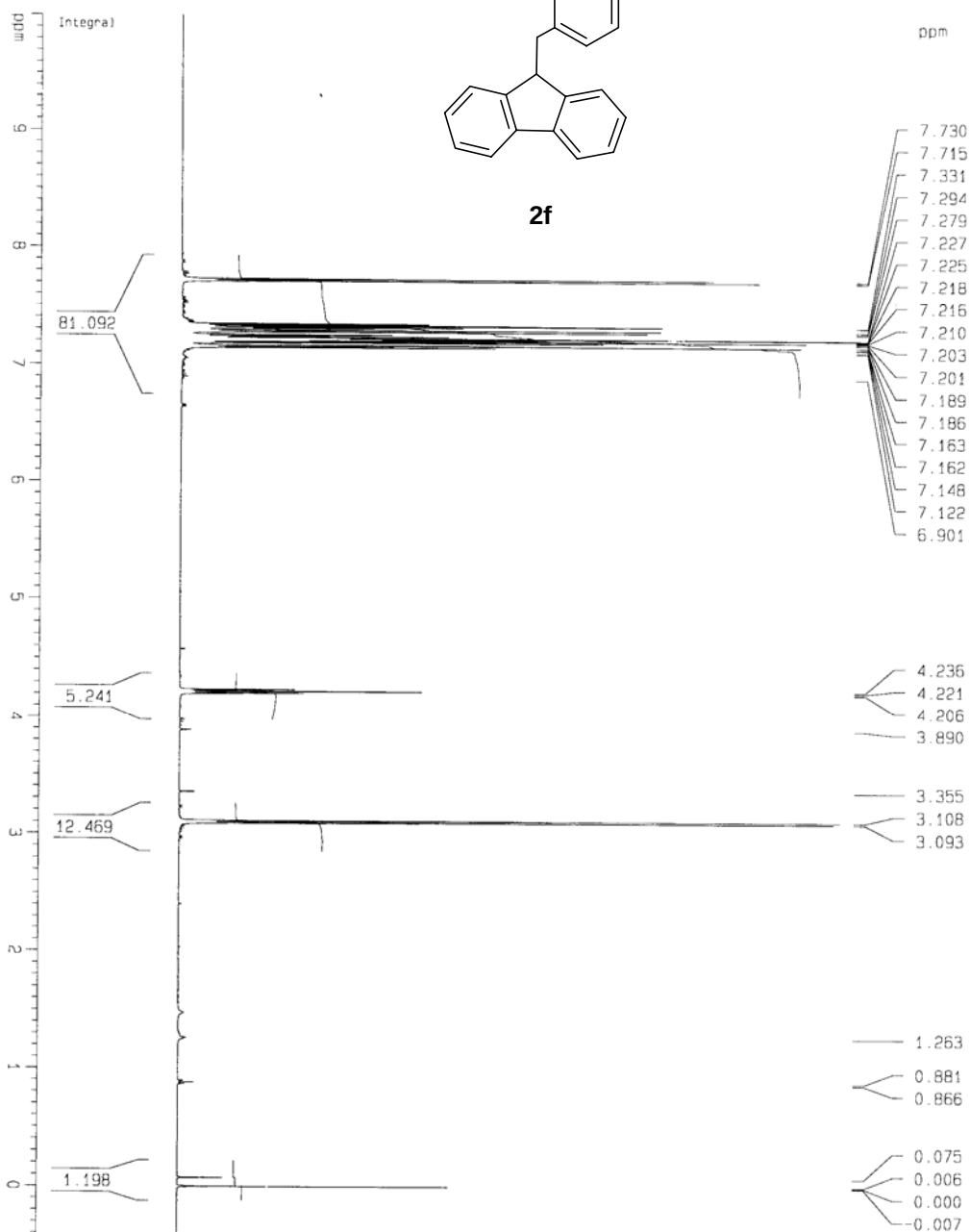
===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
P3 9.50 usec
P4 19.00 usec
PCPD2 95.00 usec
PL2 -3.00 dB
PL12 17.00 dB
SFO2 299.9011996 MHz

F2 - Processing parameters
SI 32768
SF 75.4099150 MHz
WDW EM
SSB 0
LB 2.00 Hz
GB 0
PC 1.40

¹H-NMR



2f



Fleckenstein CFP-4-98

0.001

Current Data Parameters
NAME mar23av
EXPNO 70
PROCNO 1

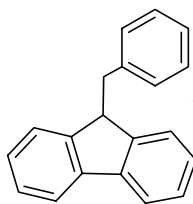
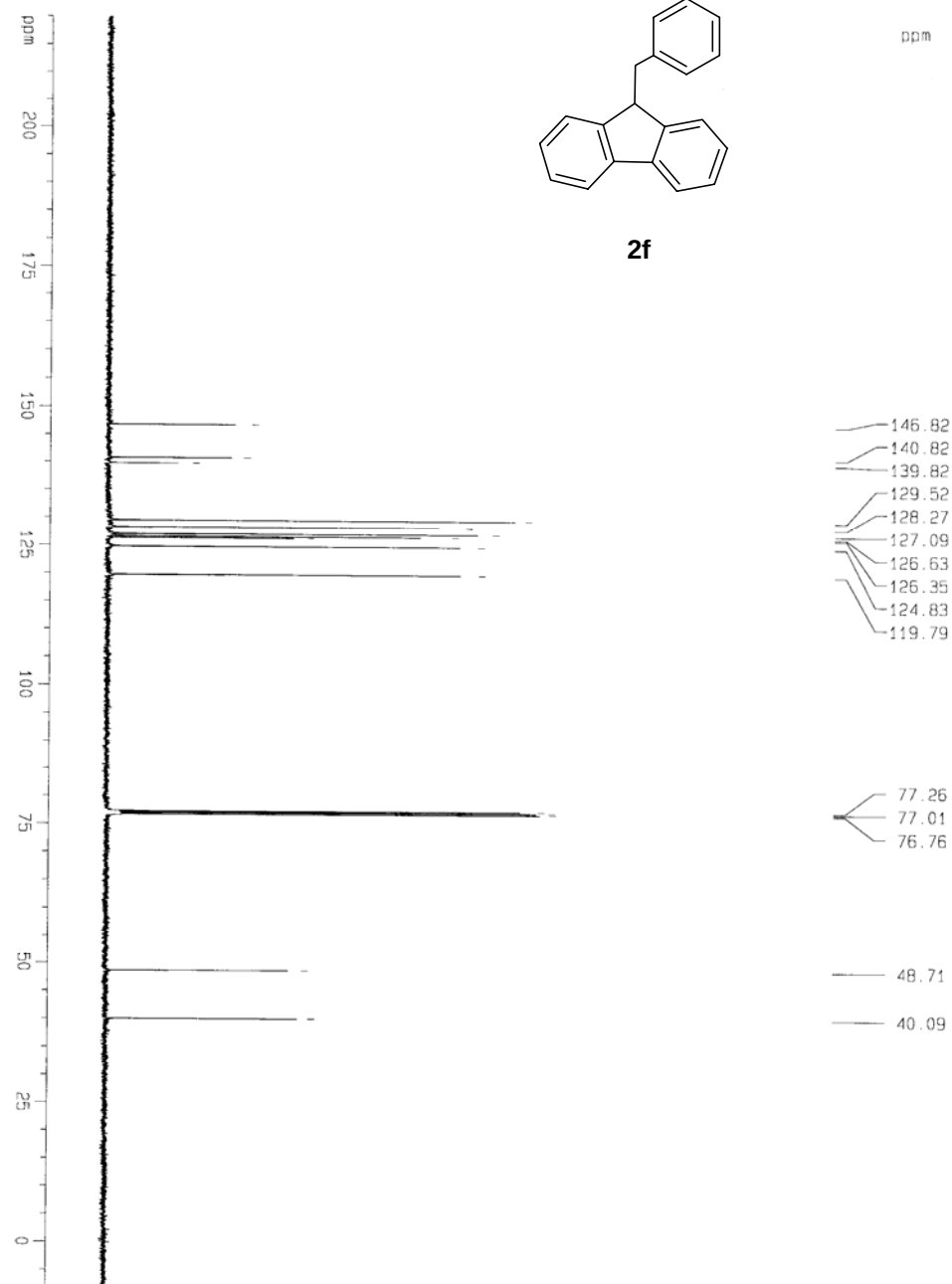
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Time 0.41
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PROBHD 5 mm BBO BB-1H
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 24
DS 2
SWH 10330.578 Hz
FIDRES 0.157632 Hz
AQ 3.1720407 sec
RG 203.2
DM 48.400 usec
DE 6.00 usec
TE 300.0 K
D1 0.50000000 sec

===== CHANNEL f1 =====
NUC1 1H
P1 11.10 usec
PL1 0.00 dB
SFO1 500.1300995 MHz

F2 - Processing parameters
SI 32768
SF 500.1300301 MHz
WDW EM
SSB 0
LB 0.10 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 22.00 cm
CY 12.00 cm
F1p 10.000 ppm
F1 5001.30 Hz
F2p -0.500 ppm
F2 -250.06 Hz
FREQM 0.47727 ppm/cm
HZCM 238.69841 Hz/cm

Fleckenstein CFP-4-98

 ^{13}C -NMR**2f**

Current Data Parameters
 NAME: mar23ay
 EXPNO: 71
 PROCNO: 1

F2 - Acquisition Parameters
 Date_: 20050324
 Time: 1.03
 INSTRUM: spect
 PROBNM: 5 mm BBO BB-1H
 PULPROG: zgpg30
 TO: 65536
 SOLVENT: CDCl3
 NS: 1000
 DS: 4
 SWH: 37593.984 Hz
 FIDRES: 0.572638 Hz
 AQ: 0.8716921 sec
 RG: 5160.6
 DE: 13.300 usec
 TE: 300.2 K
 D1: 0.4000001 sec
 d11: 0.03000006 sec
 d12: 0.00002006 sec

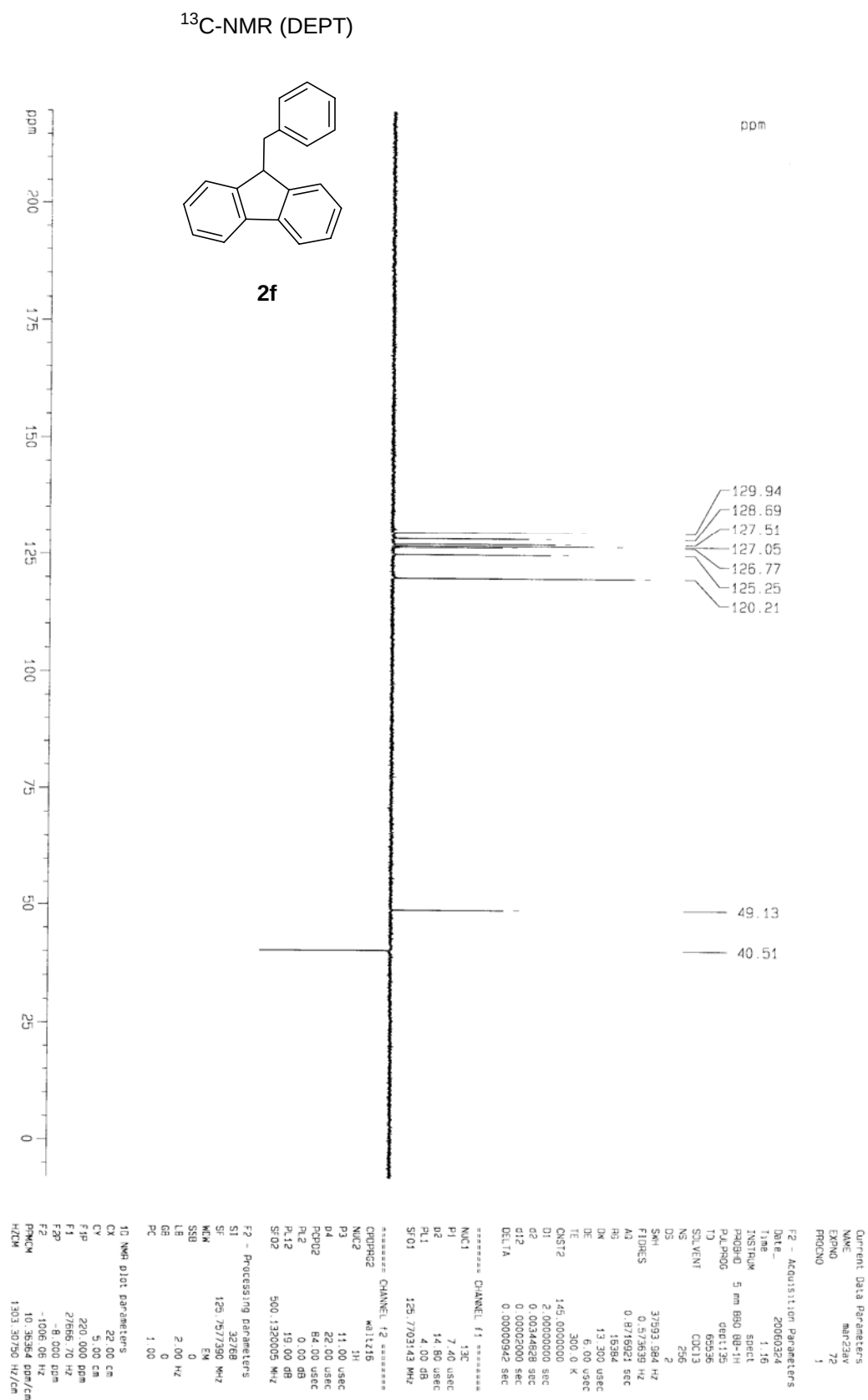
===== CHANNEL f1 =====
 NUC1: ^{13}C
 P1: 7.40 usec
 PL1: 4.00 dB
 SF01: 125.770343 MHz

===== CHANNEL f2 =====
 CPOPRG2: waltz16
 NUC2: ^1H
 P2: 84.00 usec
 PL2: 0.00 dB
 PL12: 19.00 dB
 PL13: 19.00 dB
 SF02: 500.132005 MHz

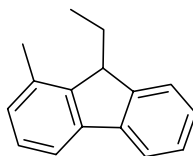
F2 - Processing parameters
 S1: 32768
 SF: 125.7577917 MHz
 WDM: EM
 SSB: 0
 LB: 2.00 Hz
 GB: 0
 PC: 1.00

1D NMR plot parameters
 CX: 22.00 cm
 CY: 7.00 cm
 F1P: 226.000 dB
 F1: 2766.71 Hz
 F2P: -8.000 dB
 F2: -1006.06 Hz
 PPMCM: 10.36364 ppm/cm
 HZCM: 1303.30798 Hz/cm

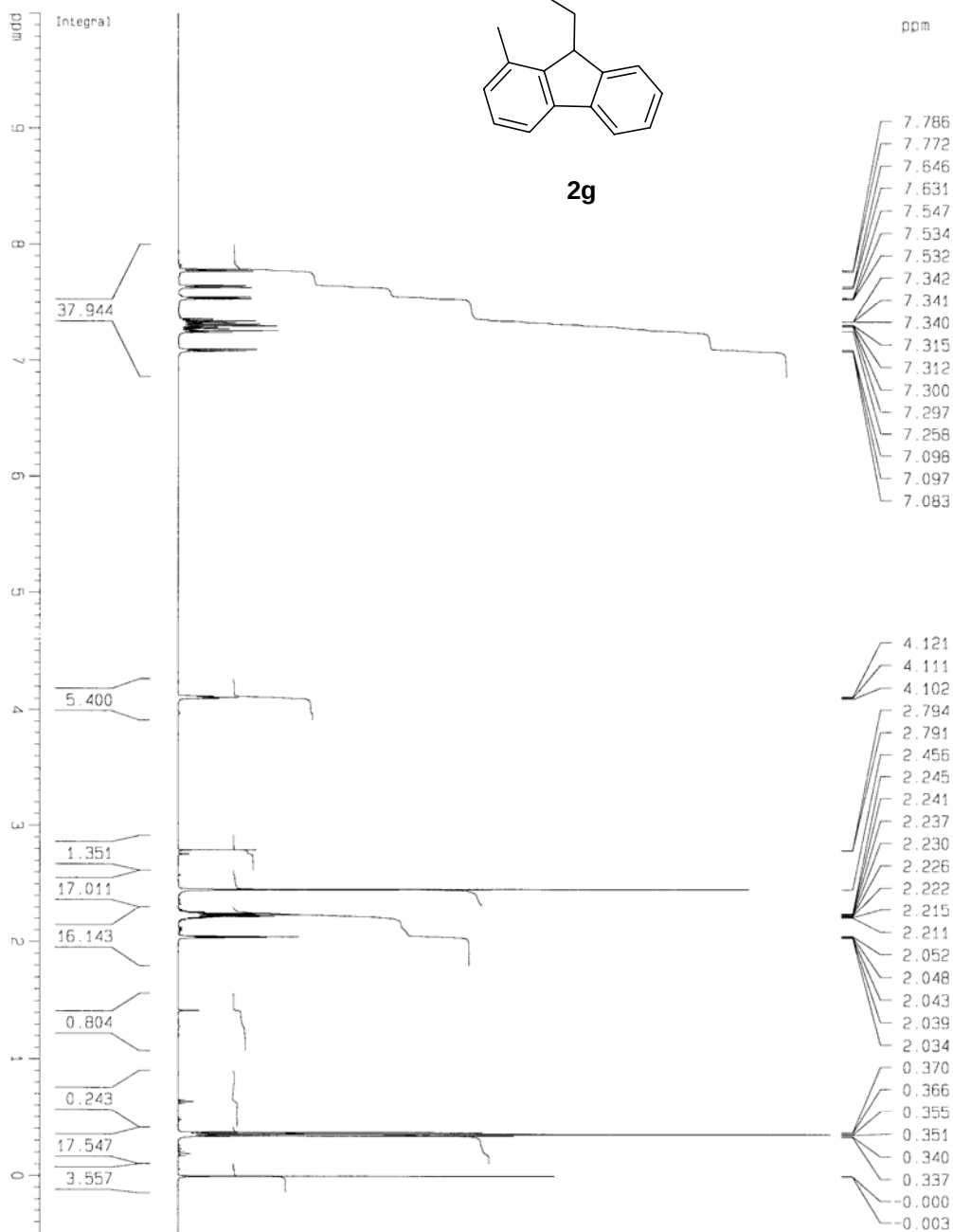
Fleckenstein CFP-4-98



¹H-NMR



2g



Current Data Parameters

NAME	EXPNO	PROCNO
dev13av	30	1

F2 - Acquisition Parameters

Date_	Time	INSTRUM	PROBHD	PULPROG	TD	SOLVENT	NS	DS	SWH	FIDRES	AQ	RG	DM	DE	TE	D1
20051215	8.58	spect	5 mm BBO BB-1H	zg30	65536	Aceton	24	2	10330.578 Hz	0.157632 Hz	3.1720407 sec	80.6	48.400 usec	6.00 usec	300.0 K	0.50000000 sec

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

NUC1	P1	PL1	SFO1
¹ H	11.10 usec	0.00 dB	500.1330885 MHz

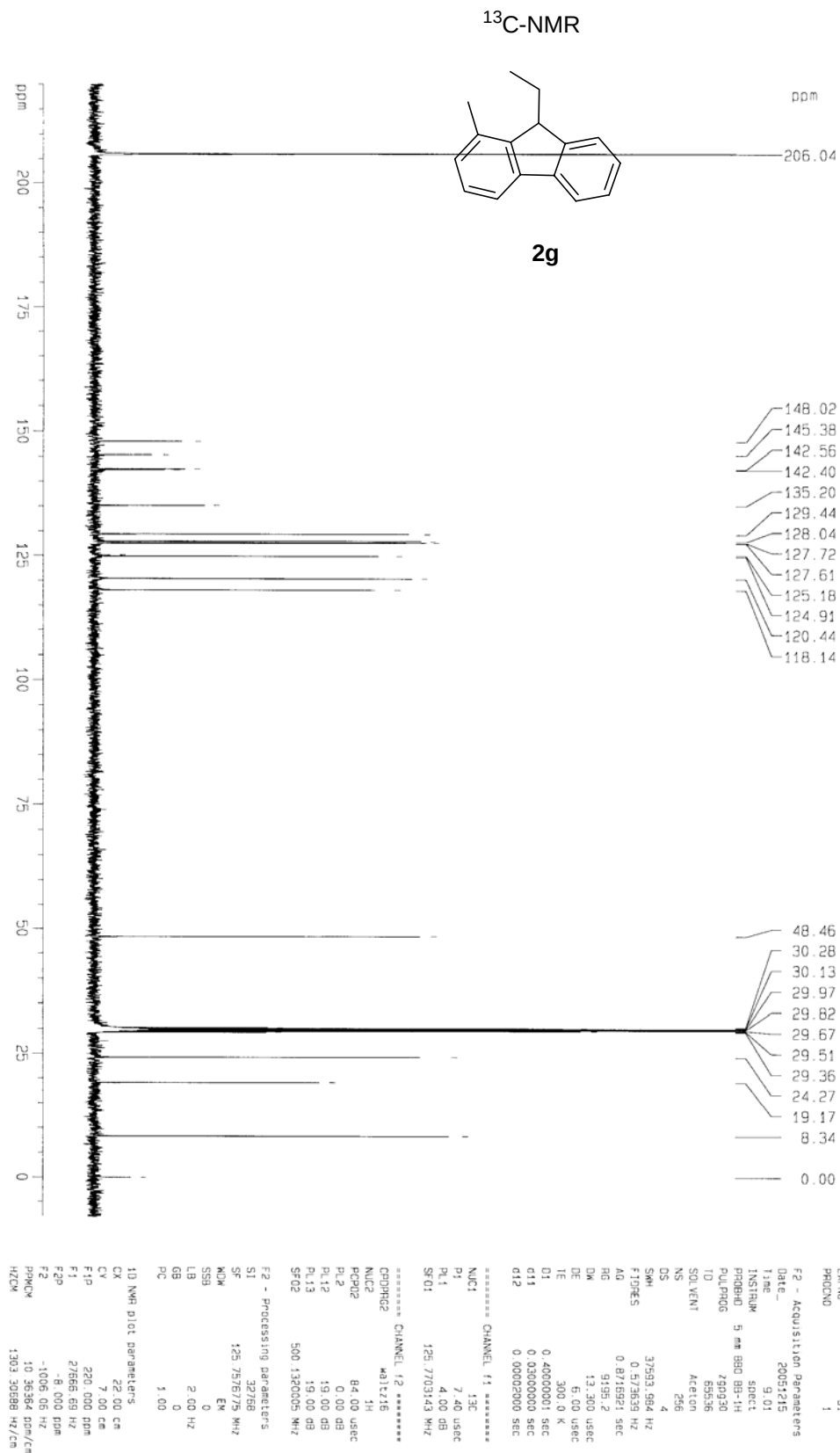
F2 - Processing parameters

SI	WDW	SSB	LB	GB	PC
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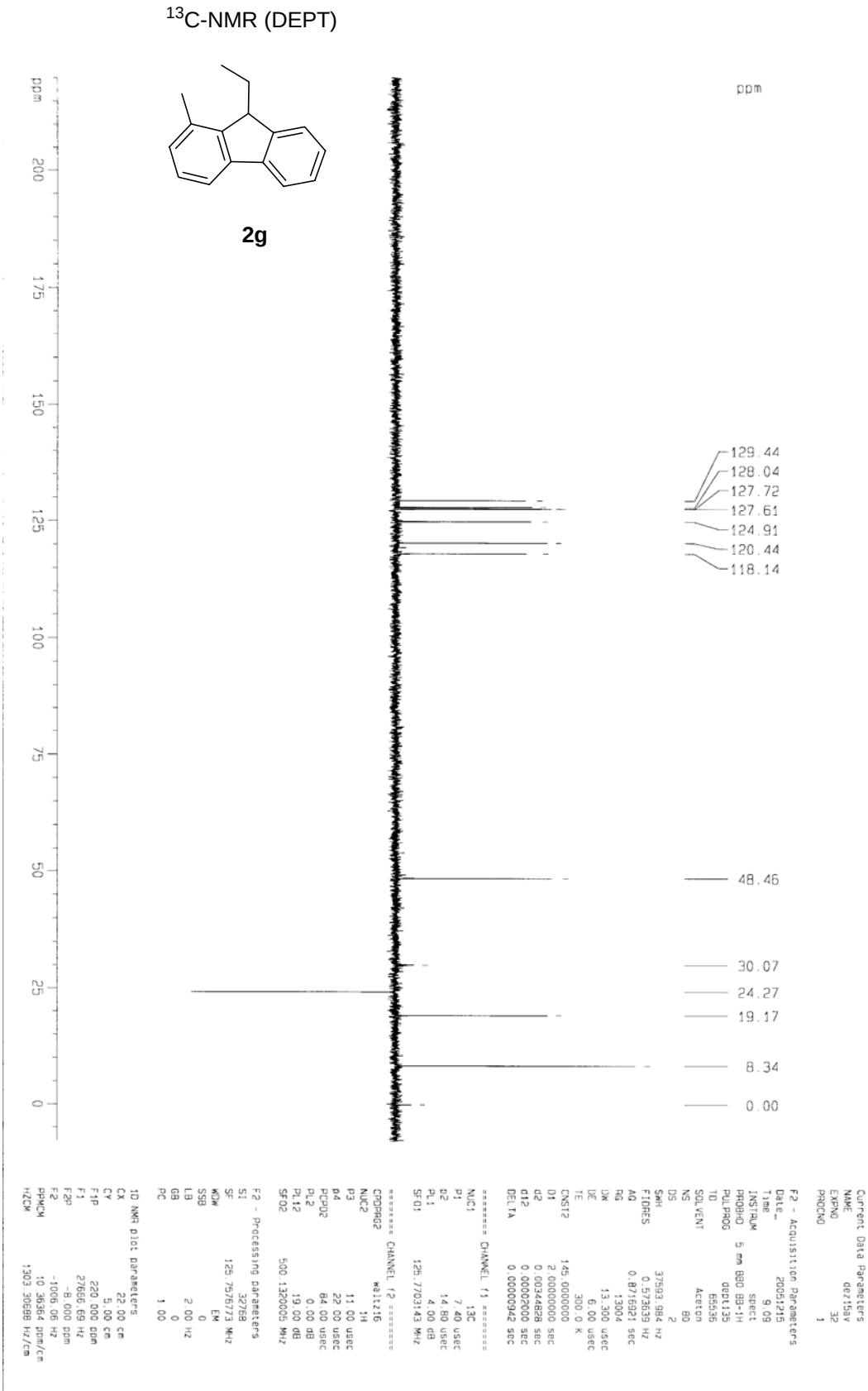
1D NMR plot parameters

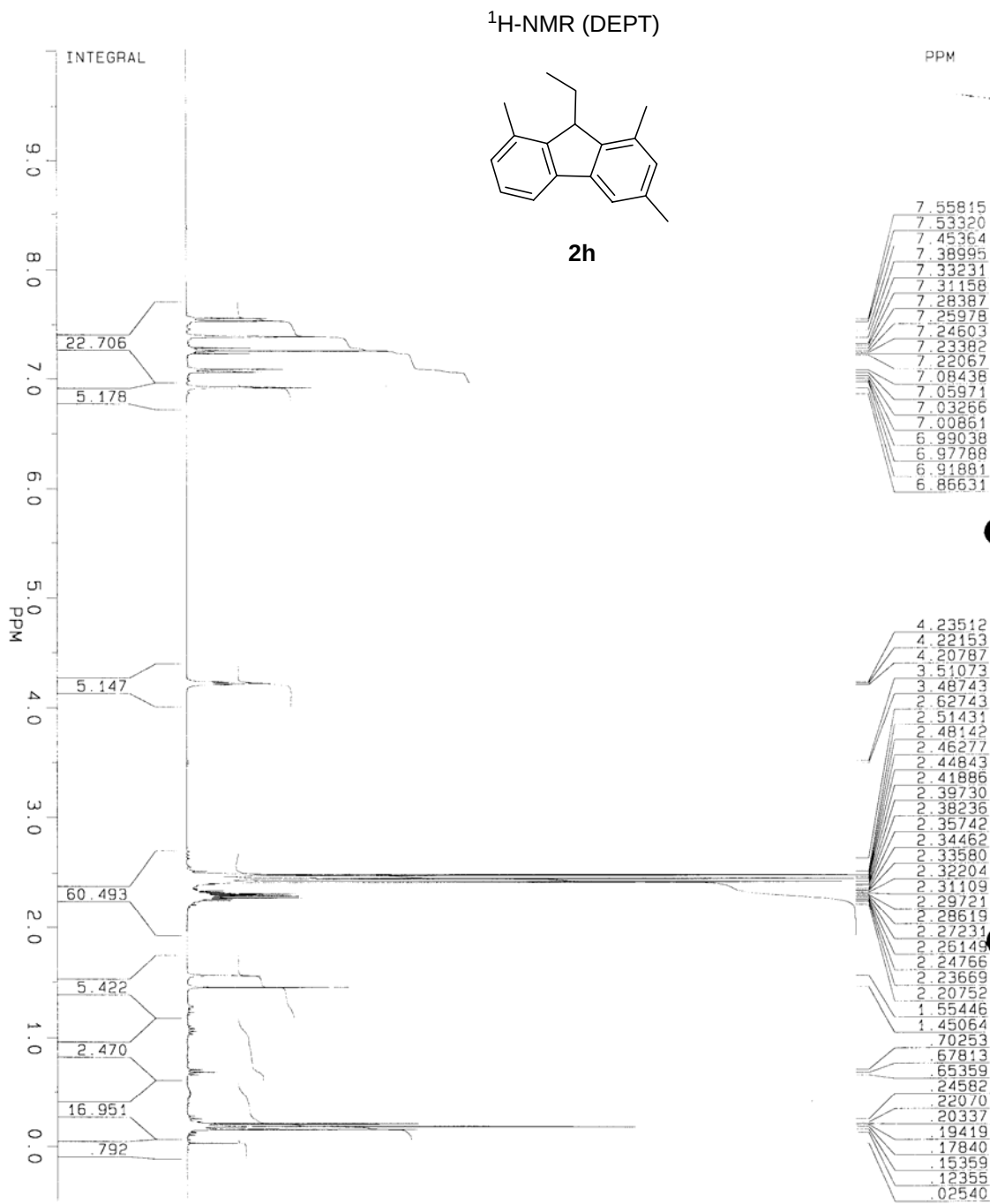
CX	CY	F1P	F2P	PHCKM	HZCM
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238.65839 Hz/cm



Fleckenstein CFP-3-94

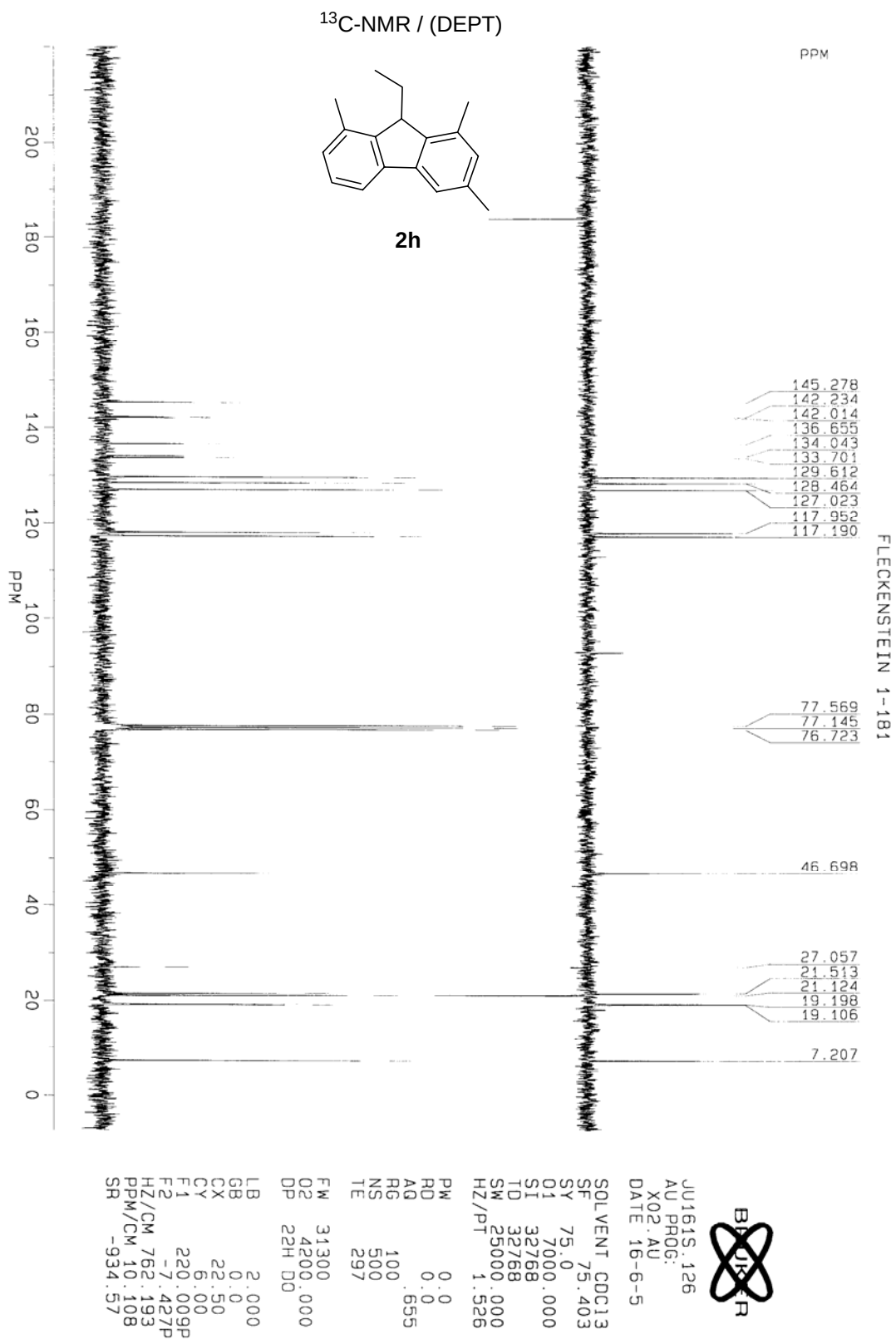




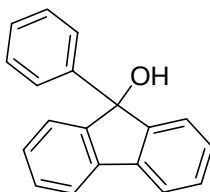
FLECKENSTEIN 1-181



JU1605.126
 AU PROG.
 X00.AU
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 SF 299.873
 SY 209.0
 O1 4800.000
 S1 32768
 TD 32768
 SW 6024.096
 HZ/PT .368
 PW 0.0
 RD 0.0
 AQ 2.720
 RG 10
 NS 40
 TE 297
 FW 7600
 O2 0.0
 DP 63L P0
 LB 0.100
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 CY 13.00
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 F2 -149.28H
 HZ/CM 140.046
 PPM/CM .467
 SR 2793.19

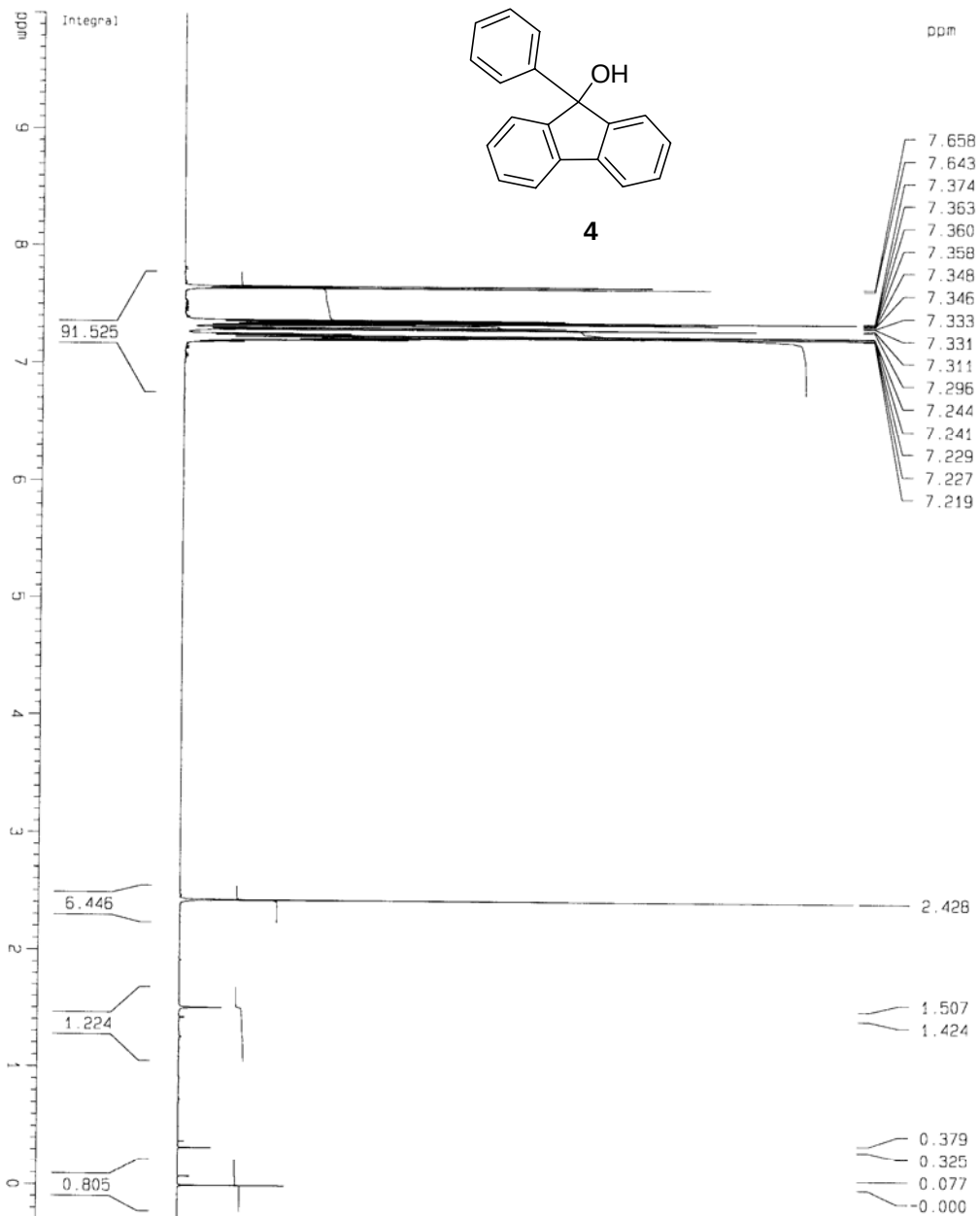


¹H NMR



4

Fleckenstein CPF 2-7



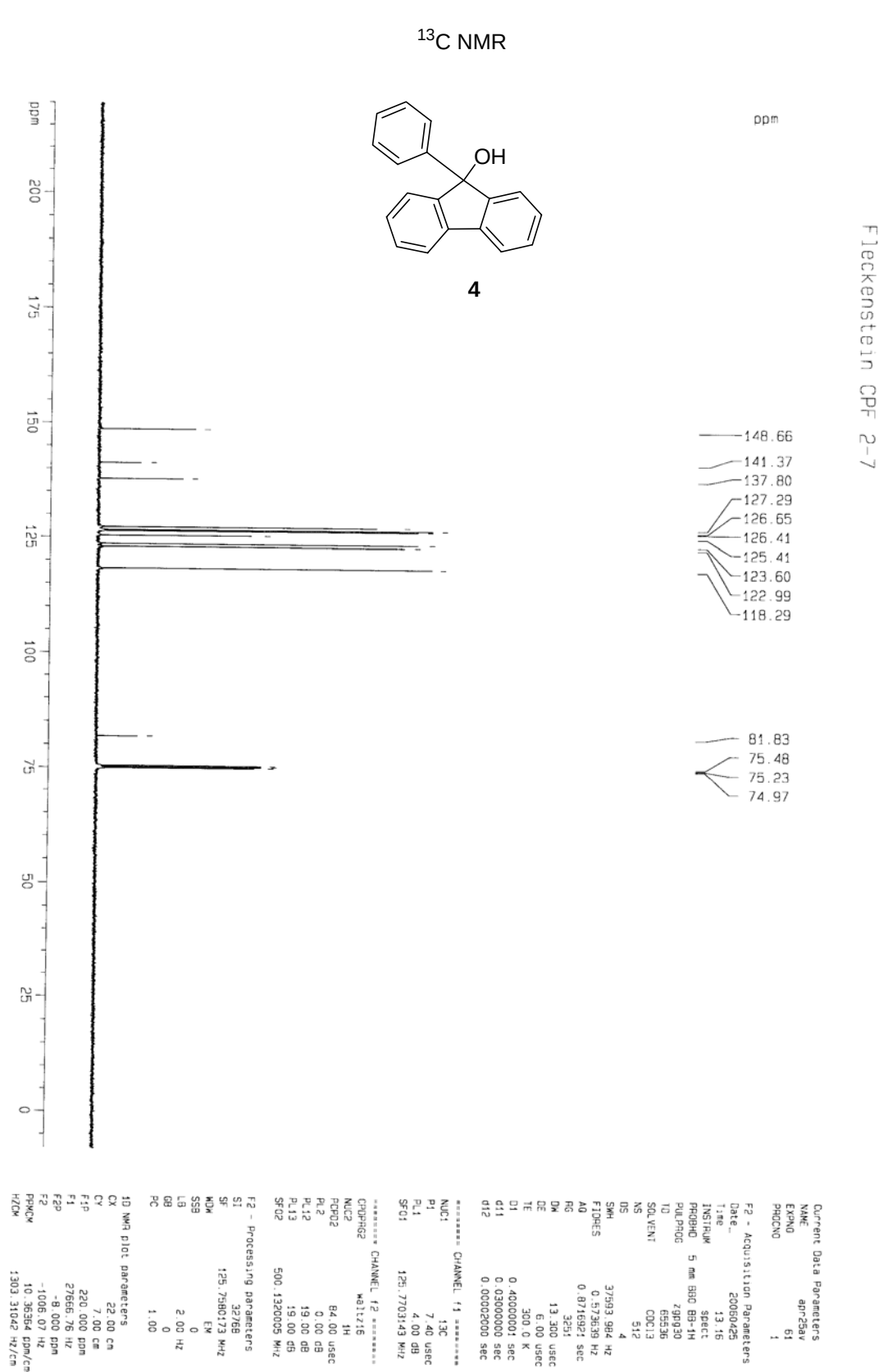
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EXPNO 60
PROCNO 1

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PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 10330.578 HZ
FIDRES 0.157632 HZ
AQ 3.1720407 sec
RG 143.7
DM 48.400 usec
DE 6.00 usec
TE 300.0 K
D1 0.50000000 sec

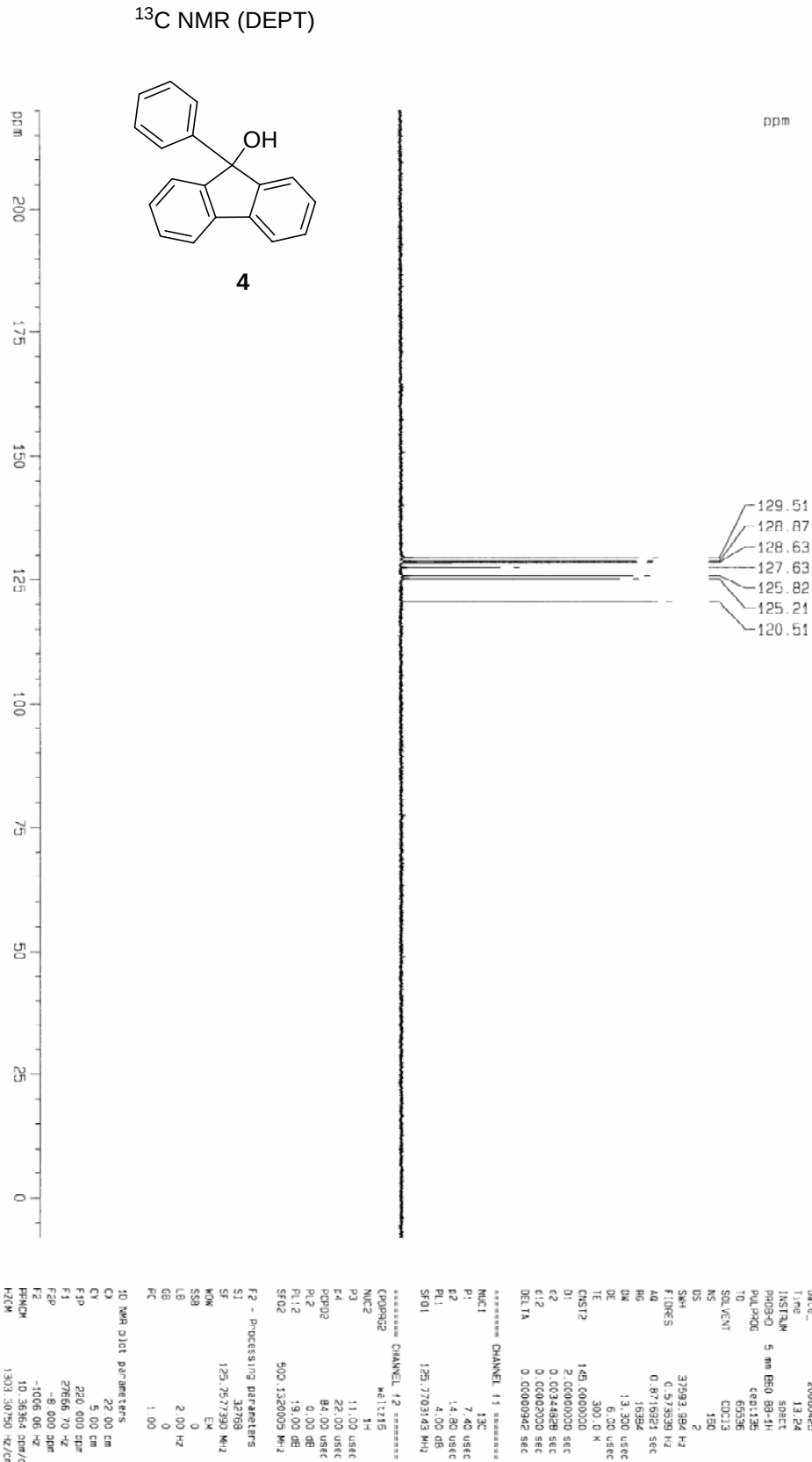
===== CHANNEL f1 =====
NUC1 1H
P1 11.10 usec
PL1 0.00 dB
SFO1 500.130085 MHz

F2 - Processing parameters
SI 32768
SF 500.1300299 MHz
WDW EM
SSB 0
LB 0.10 HZ
GB 0
PC 1.00

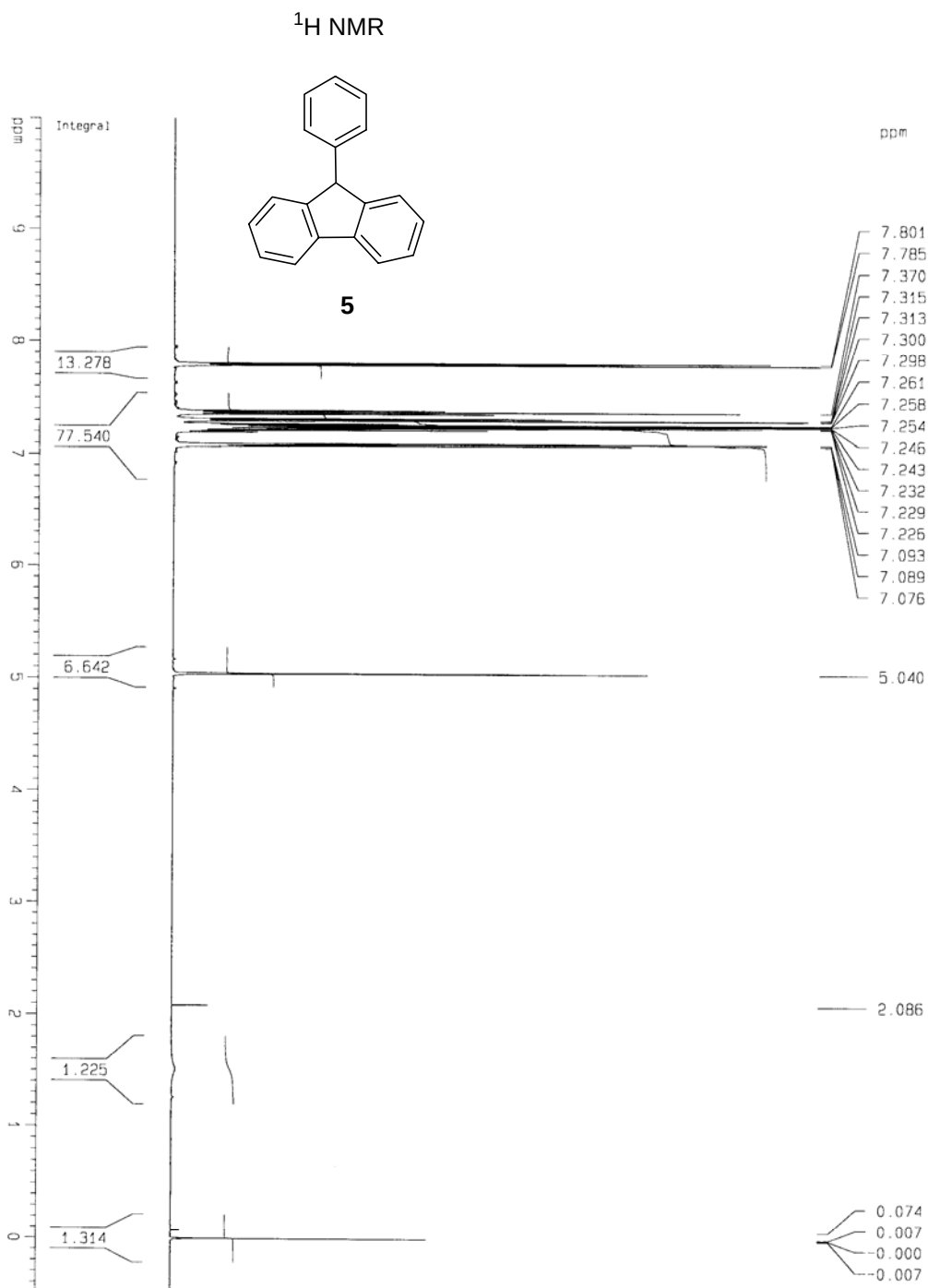
1D NMR plot parameters
CX 22.00 cm
CY 12.00 cm
F1P 10.000 ppm
F1 5001.30 HZ
F2P -0.500 ppm
F2 -250.06 HZ
PPMCM 0.47727 ppm/cm
HZCM 238.69841 HZ/cm



Fleckenstein CPF 2-7



Fleckenstein CFP 2-10



Current Data Parameters

NAME	EXPNO	PROCNO
NAME	apr25av	70
EXPNO		1
PROCNO		1

F2 - Acquisition Parameters

Date_	Time	INSTRUM	PROBHD	PULPROG	TD	SOLVENT	NS	DS	SWH	FIDRES	AQ	RG	OW	DE	TE	D1
20060625	13.34	spect	5 mm BBO BB-31	zg30	65536	CDCl3	16	2	10330.578 Hz	0.157632 Hz	3.1720407 sec	228.1	48.400 usec	6.00 usec	300.0 K	0.50000000 sec

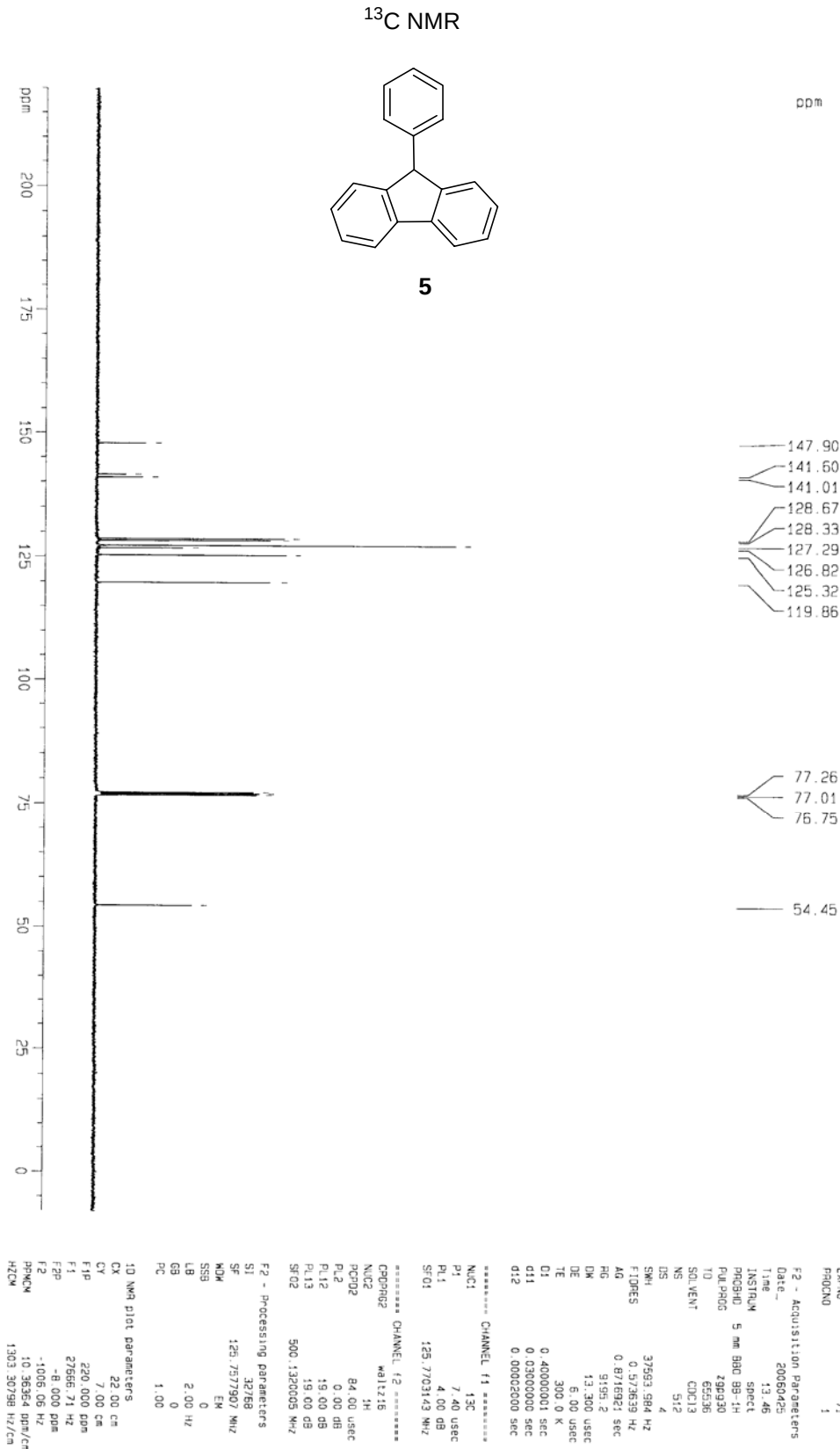
F2 - Processing Parameters

SI	SF	WDW	SSB	LB	GB	PC
32768	500.1300264 MHz	EM	0	0.10 Hz	0	1.00

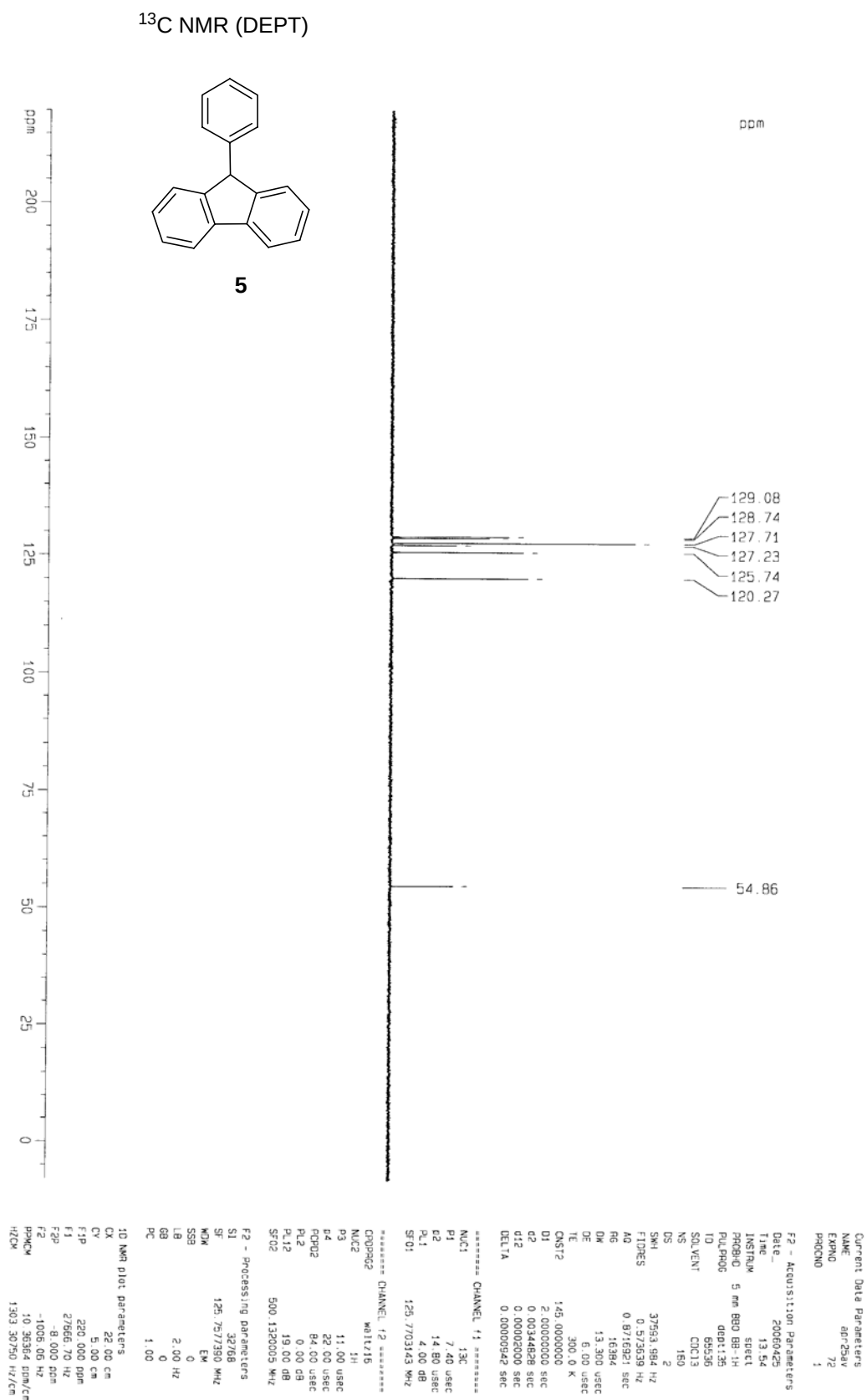
1D NMR plot parameters

CX	CY	F1P	F2P	PPMCK	HZCK
22.00 cm	12.00 cm	10.000 ppm	5001.30 Hz	-0.500 ppm	-250.06 Hz
			0.47227 ppm/cm		238.69841 Hz/cm

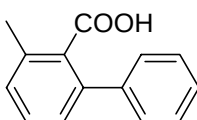
Fleckenstein CFP 2-10



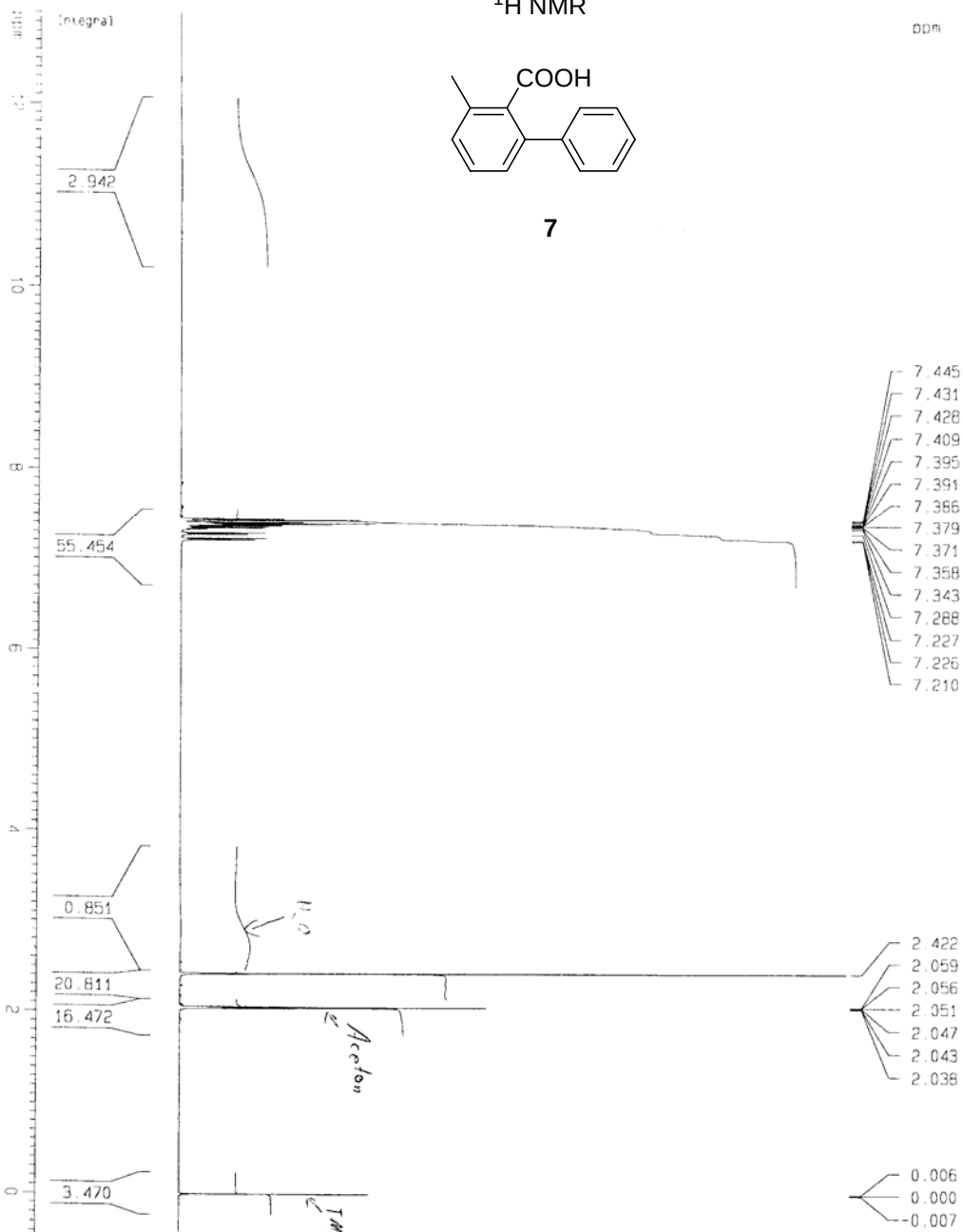
Fleckenstein CFP 2-10



¹H NMR



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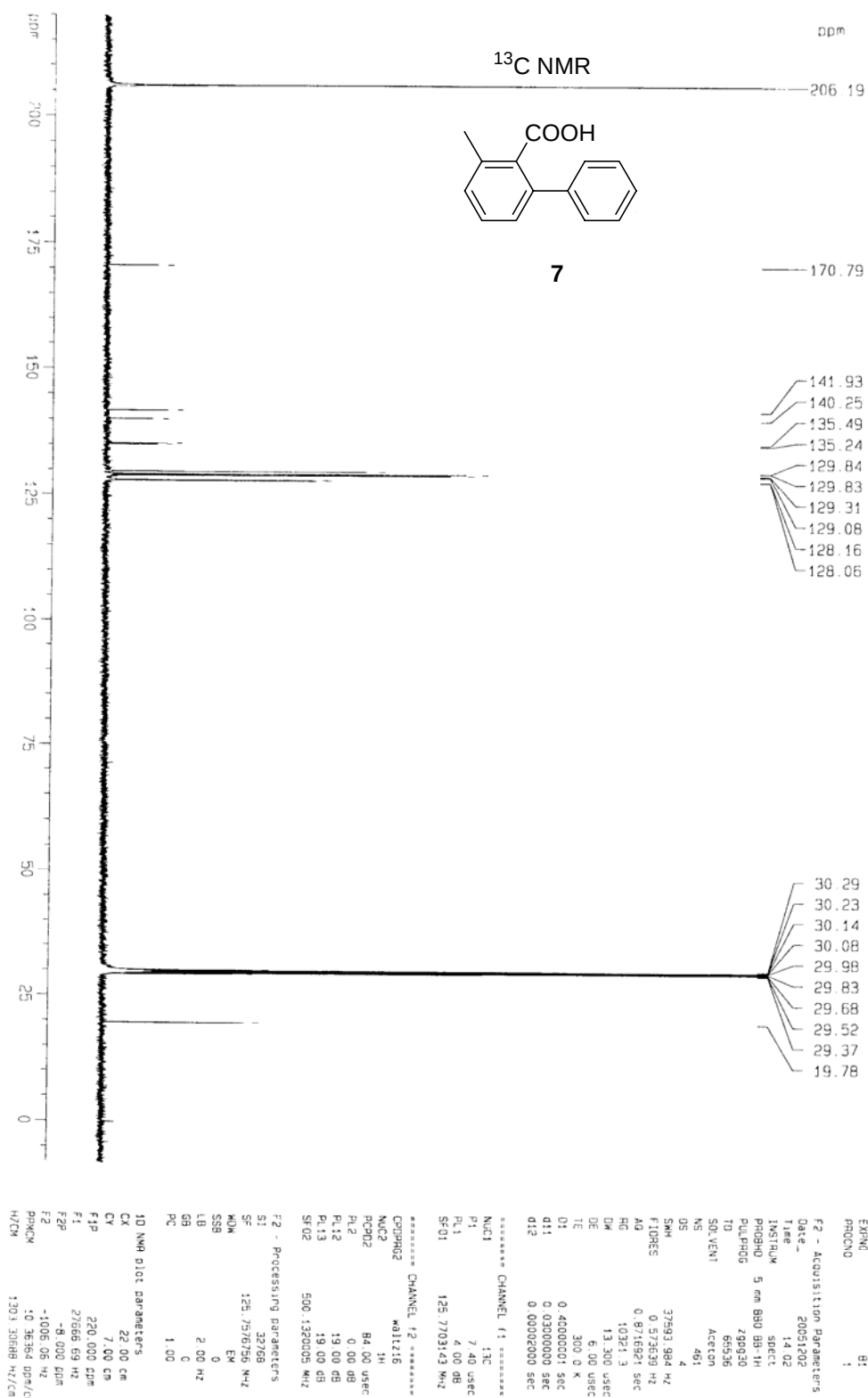
Current Data Parameters
NAME def02av
EXPNO 80
PROCNO 1

F2 - Acquisition Parameters
Date_ 20051202
Time 13:59
INSTRUM spect
PROBHD 5 mm BBO BB-1H
PULPROG zg30
TD 65536
SOLVENT Acetone
NS 24
DS 2
SWH 10330.578 Hz
FIDRES 0.157632 Hz
AQ 3.1720407 sec
RG 101.6
DM 48.400 usec
DE 6.00 usec
TE 300.0 K
D1 0.50000000 sec

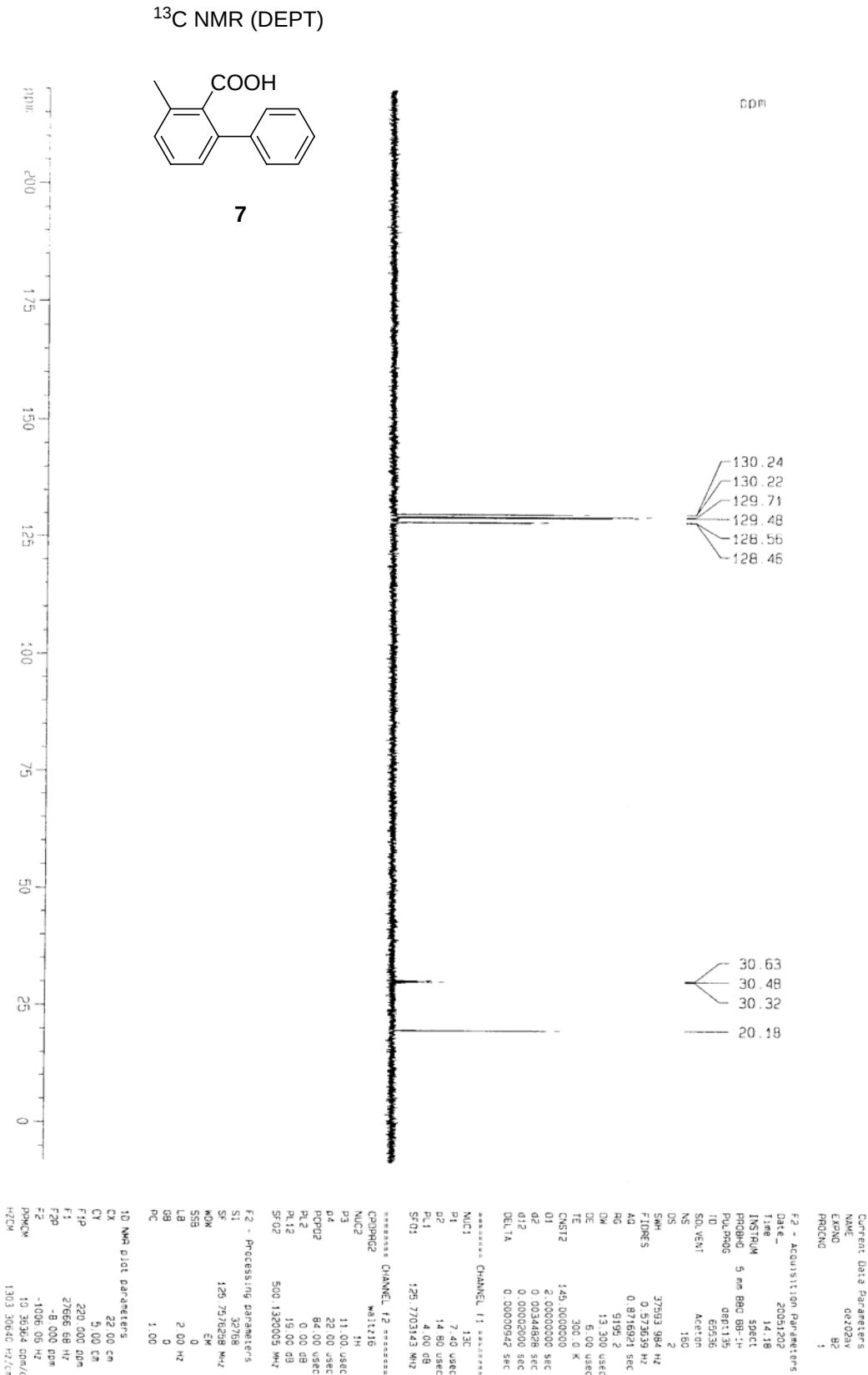
===== CHANNEL f1 =====
NUC1 1H
P1 11.10 usec
PL1 0.00 dB
SF01 500.130085 MHz

F2 - Processing parameters
SI 32768
SF 500.1300111 MHz
WDW EM
SSB 0
LB 0.10 Hz
GB 0
PC 1.00

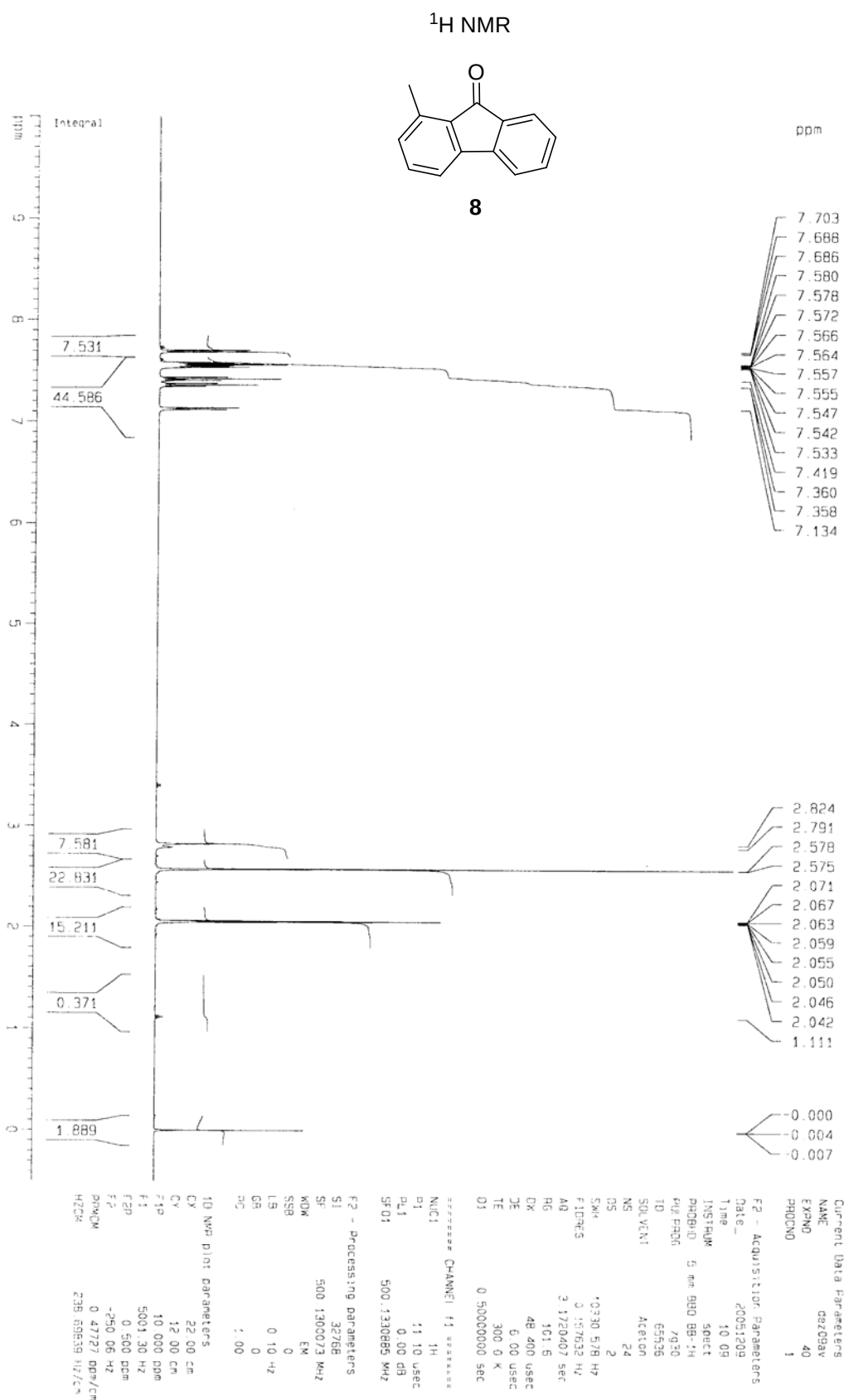
1D NMR plot parameters
CX 22.00 cm
CY 12.00 cm
F1P 13.000 ppm
F1 6501.69 Hz
F2P -0.500 ppm
F2 -250.07 Hz
PPKCM 0.61364 ppm/cm
HZCM 306.89795 Hz/cm



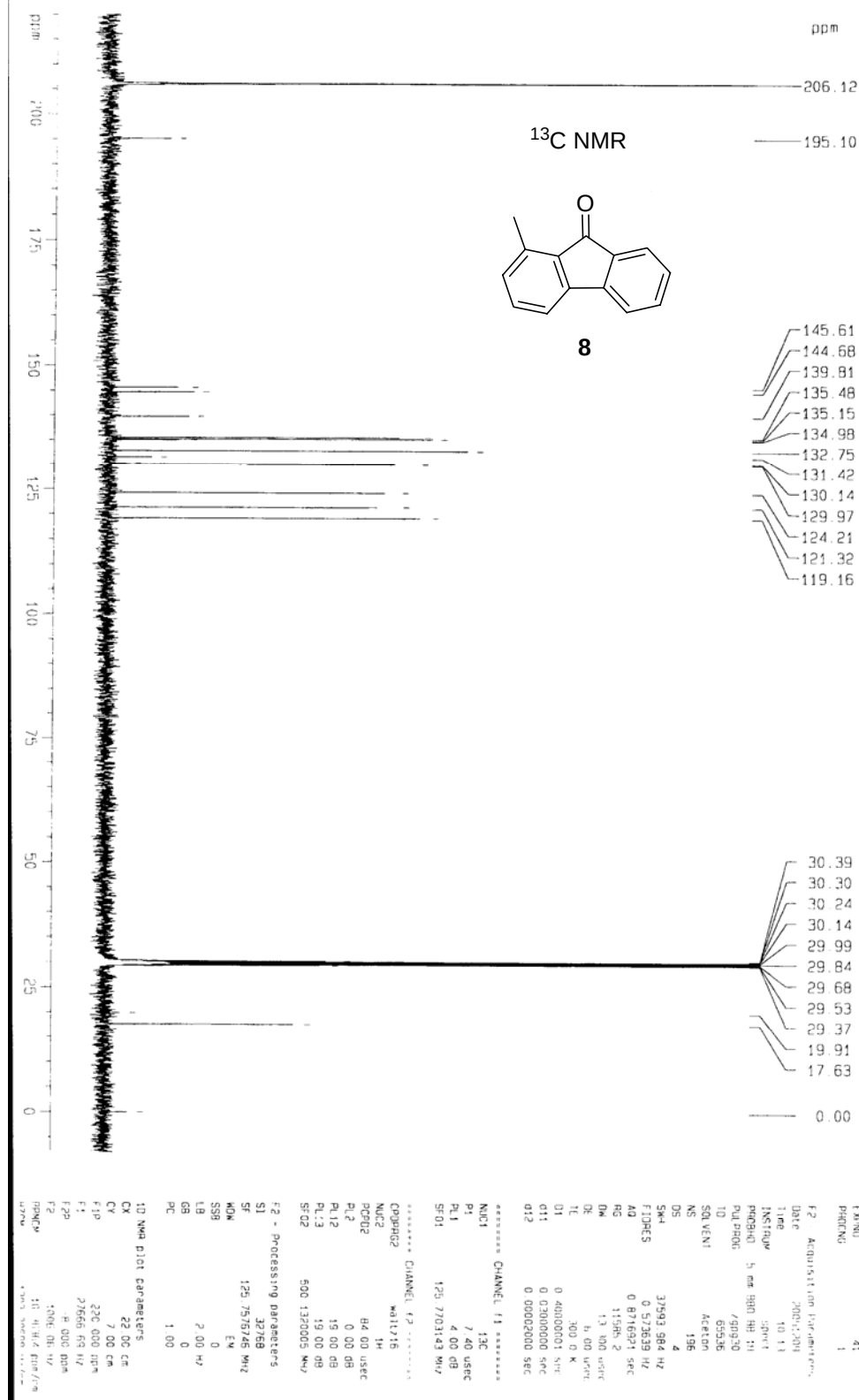
Fleckenstein CFP-2-146



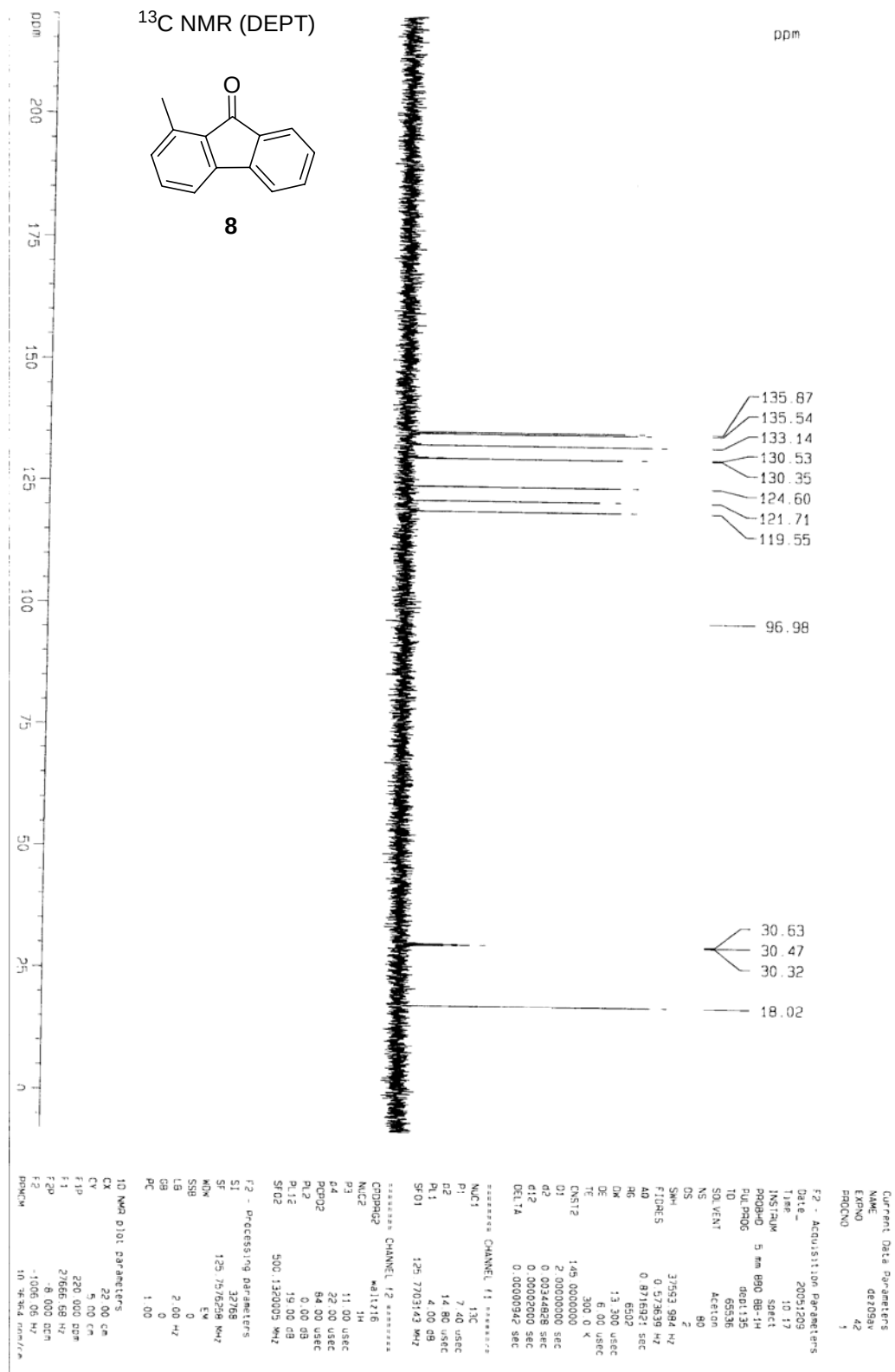
Fleckenstein CFP-2-150

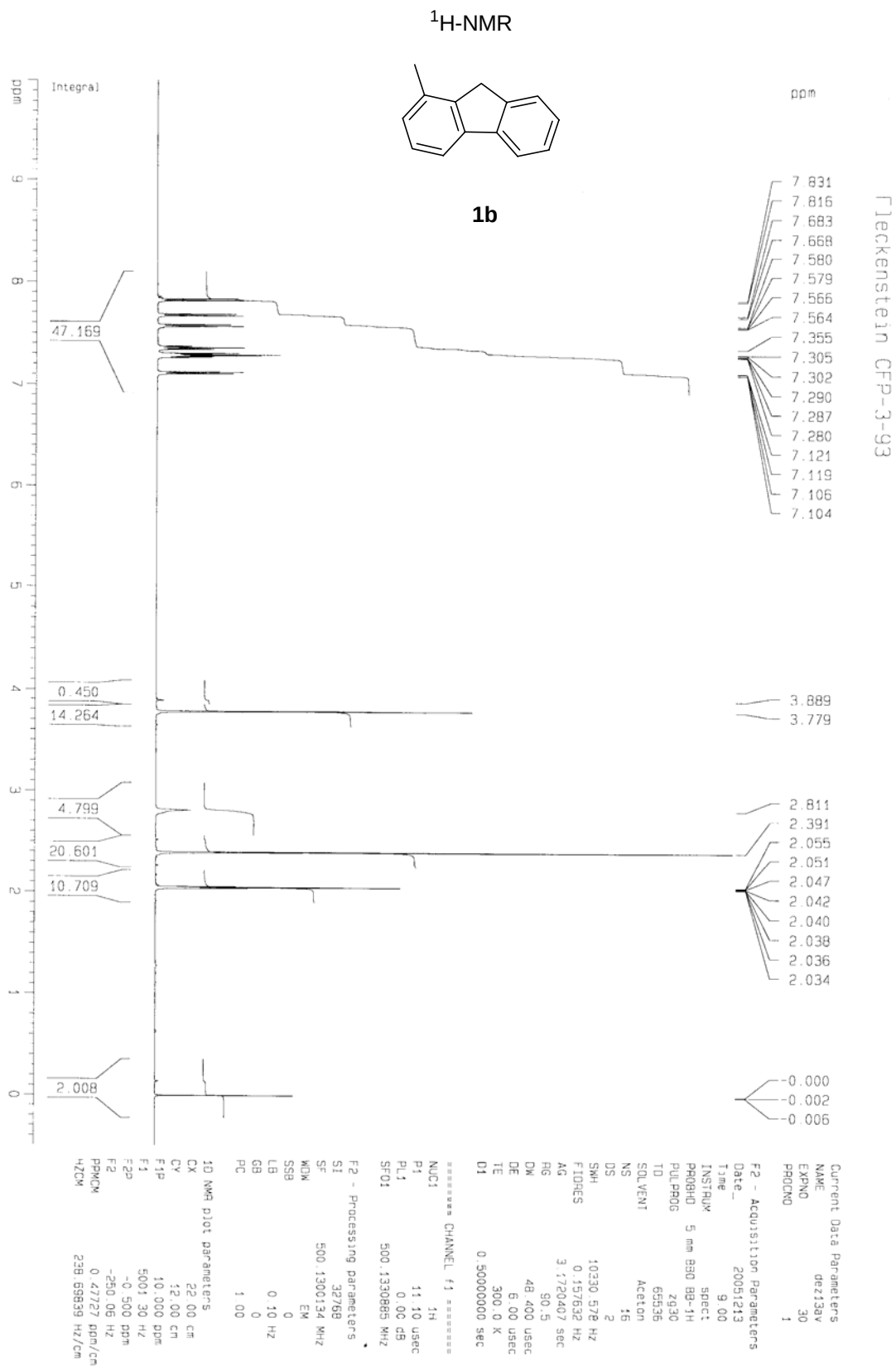


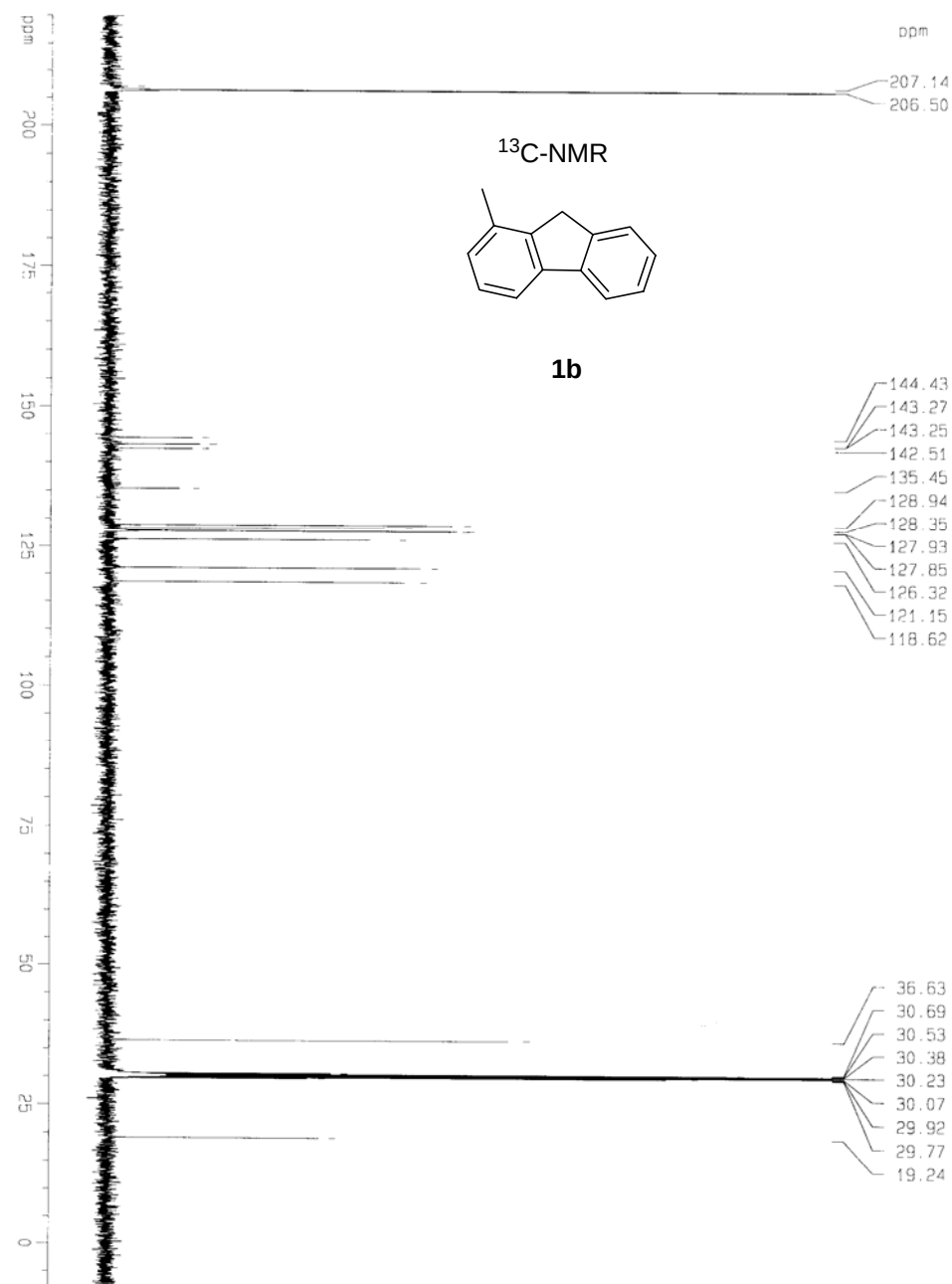
Fleckenstein CFP-2-150



Fleckenstein CFP-2-150







Current Data Parameters

NAME	EXPNO	PROCNO
NAME	00213v	31
EXPNO		
PROCNO		1

F2 - Acquisition Parameters

Date_	Time	INSTRUM	PROBHD	PULPROG	TD	SOLVENT	NS	DS	SWH	FIDRES	AQ	RG	CM	DE	TE	DT	DI	Q1	Q12
20051213	9.02	5 mm BBO BB-1H	zppg30	65536	Aceton	128	4	37593.984 Hz	5.73639 Hz	0.3716921 sec	9195.2	13.300 usec	6.00 usec	300.0 K	0.4000001 sec	0.0300000 sec	0.0002000 sec		

***** CHANNEL f1 *****

NUC1	PC1	PL1	STO1
13C	7.40 usec	4.00 dB	125.770343 MHz

***** CHANNEL f2 *****

CPDPRG2	WALTZ16	NUC2	PCPD2	PL2	PL12	PL13	STO2
WALTZ16	84.00 usec	1H	0.00 dB	19.00 dB	19.00 dB	19.00 dB	500.132005 MHz

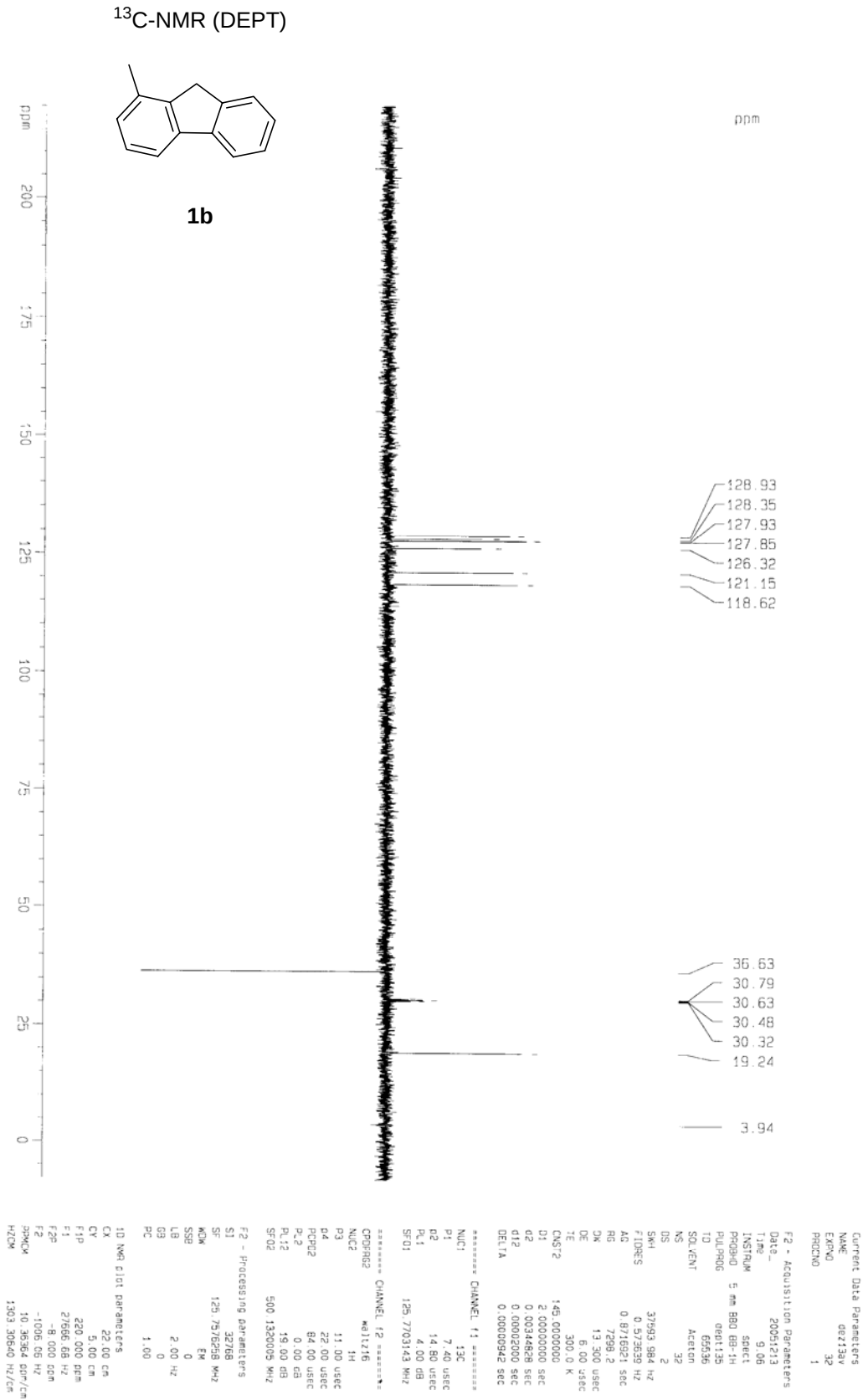
F2 - Processing parameters

SI	SF	WDW	SSB	LB	GB	PC
32768	125.7576256 MHz	EM	0	2.00 Hz	0	1.00

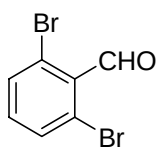
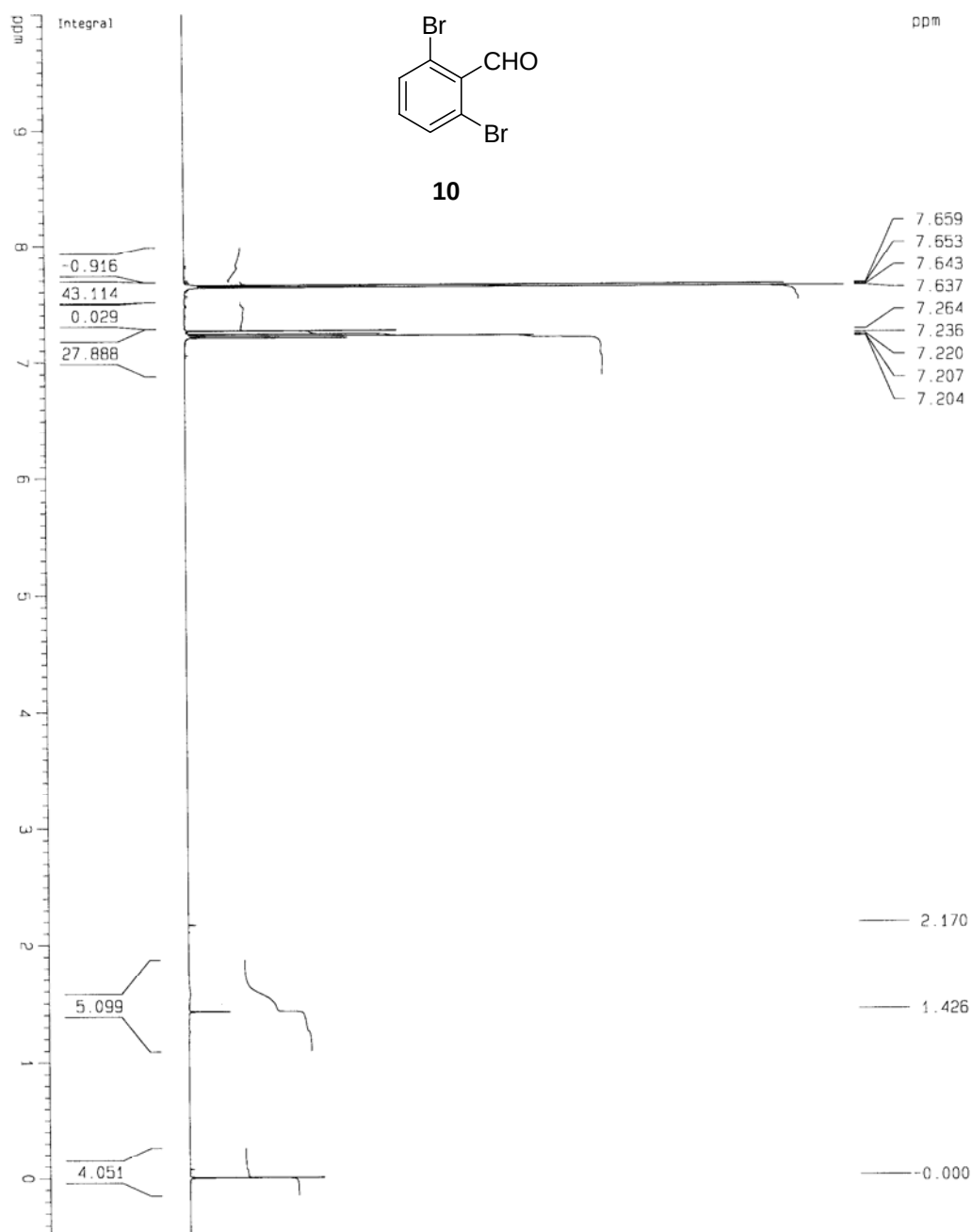
1D NMR plot parameters

CX	CY	F1P	F1	F2P	F2	PPMCK	HZCK
22.00 cm	7.00 cm	220.000 ppm	27666.68 Hz	-68.000 ppm	-1006.00 Hz	10.36364 ppm/cm	1303.30640 Hz/cm

Fleckenstein CFP-3-93



Fleckenstein 1-93

 $^1\text{H-NMR}$ **10**

Current Data Parameters
 NAME ma102av
 EXPNO 50
 PROCNO 1

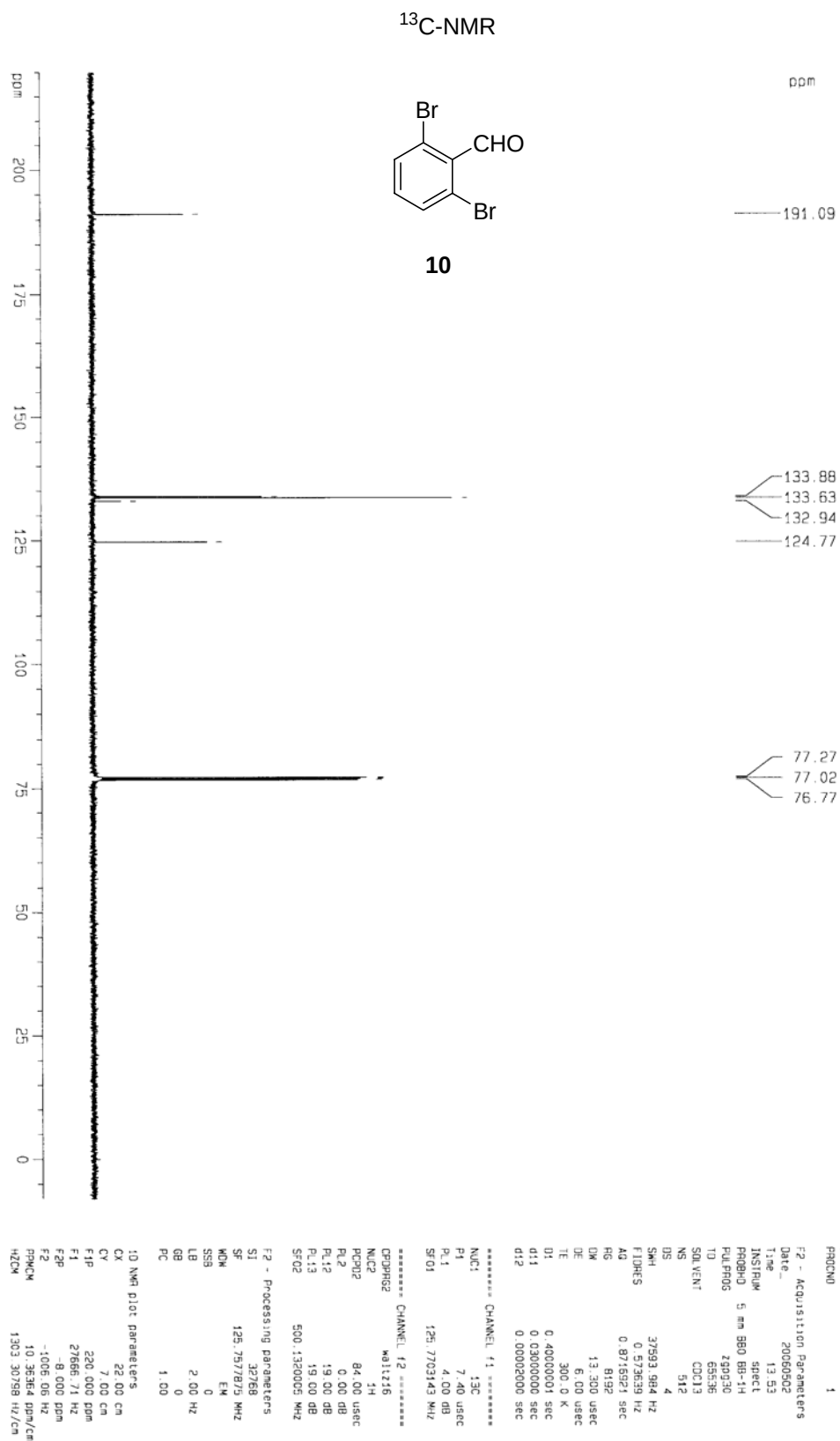
F2 - Acquisition Parameters
 Date_ 20060502
 Time 13.41
 INSTRUM spect
 PROBN 5 mm BBO BB-1H
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 16
 DS 2
 SWH 10330.578 Hz
 FIDRES 0.157632 Hz
 AQ 3.1720407 sec
 RG 362
 DM 48.400 usec
 DE 6.00 usec
 TE 300.0 K
 O1 0.5000000 sec

===== CHANNEL f1 =====
 NUC1 ^1H
 P1 11.10 usec
 PL1 0.00 dB
 SF01 500.130085 MHz

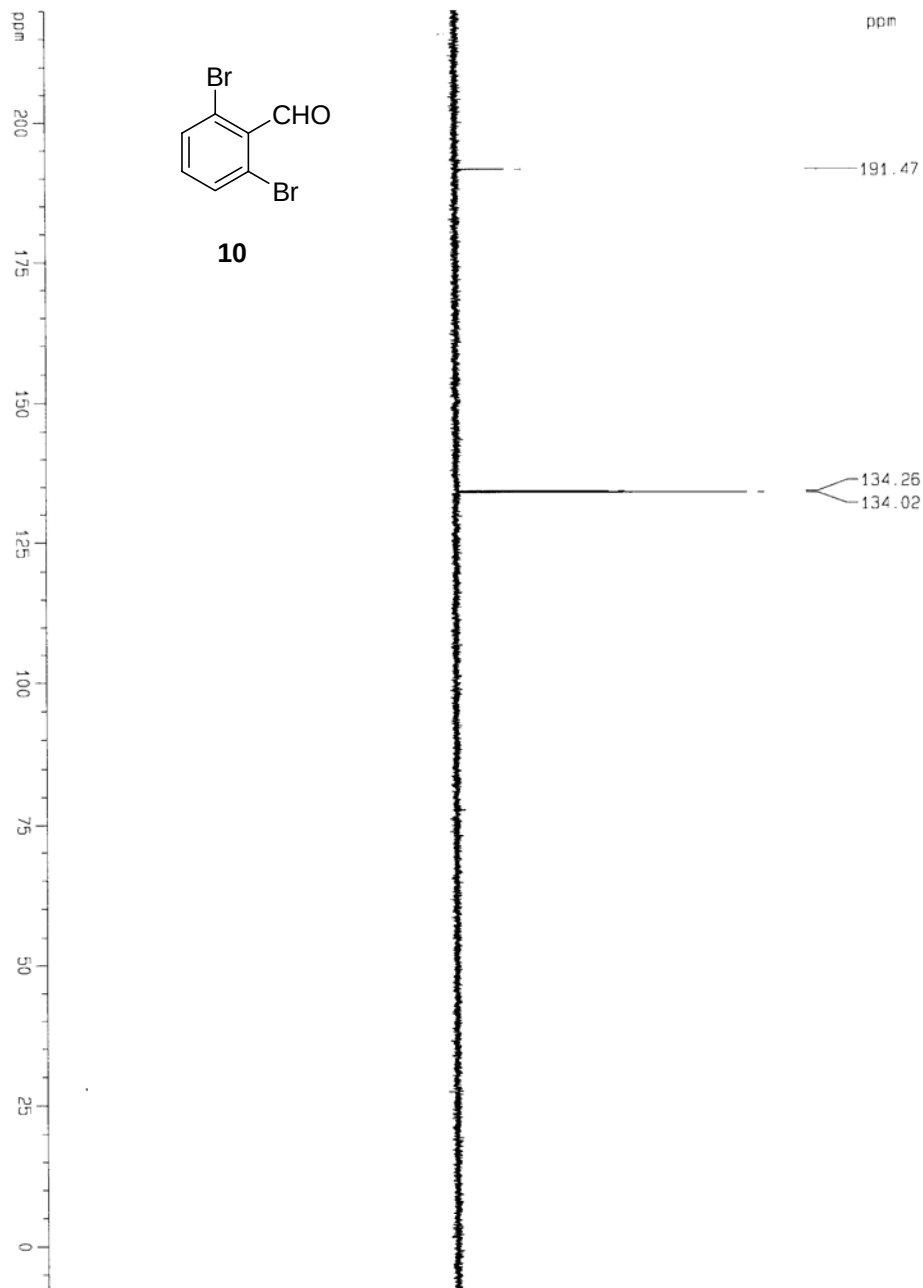
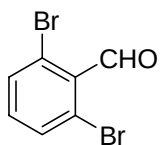
F2 - Processing parameters
 SI 32768
 SF 500.1300105 MHz
 WDM EM
 SSB 0
 LB 0.10 Hz
 GB 0
 PC 1.00

1D NMR plot parameters
 CX 22.00 cm
 CY 12.00 cm
 F1P 10.000 ppm
 F1 5001.30 Hz
 F2P -0.500 ppm
 F2 -250.06 Hz
 PPMCM 0.47727 ppm/cm
 HZCM 238.65835 Hz/cm

Fleckenstein 1-93



¹³C-NMR (DEPT)



Current Data Parameters
NAME: fleckenstein
EXPNO: 52
PROCNO: 1

F2 - Acquisition Parameters

Date_: 20060902
Time: 14.01
INSTRUM: spect
PROBHD: 5 mm BBO BB-1H
PULPROG: zgpg30
TD: 65536
SOLVENT: CDCl3
NS: 180
DS: 2
SWH: 37693.898 Hz
FIDRES: 0.373839 Hz
AQ: 0.8716821 sec
RG: 16384
DN: 13.300 usec
DE: 6.00 usec
TE: 300.0 K
CNS12: 145.0000000 sec
D1: 2.000000000 sec
d2: 0.00344828 sec
d12: 0.00002000 sec
DELTA: 0.00009442 sec

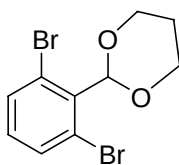
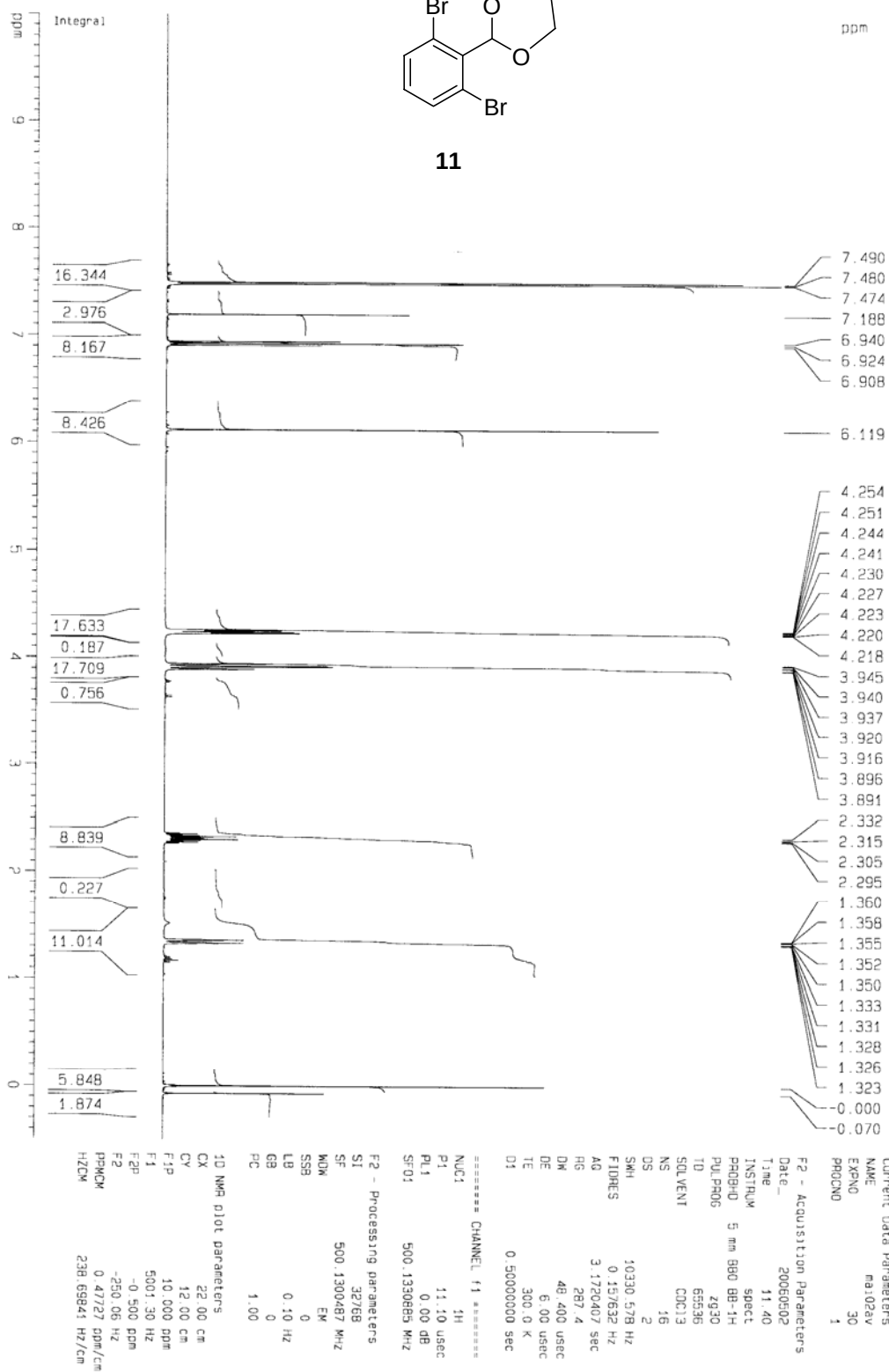
===== CHANNEL f1 =====
NUC1: 13C
P1: 7.40 usec
PL1: 14.80 usec
PL2: 4.00 dB
SFO1: 125.7703143 MHz

===== CHANNEL f2 =====
CPDPRG2: waltz16
NUC2: 1H
P2: 11.00 usec
PL2: 22.00 usec
PCPD2: 84.00 usec
PL2: 0.00 dB
PL12: 19.00 dB
SFO2: 500.1360005 MHz

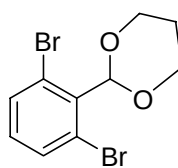
F2 - Processing parameters
SI: 32768
SF: 125.7577390 MHz
WDW: EM
SSB: 0
LB: 2.00 Hz
GB: 0
PC: 1.00

1D NMR Plot Parameters
CX: 22.00 cm
CY: 5.00 cm
F1P: 220.000 dBm
F1: 27066.70 Hz
F2P: -8.000 dBm
F2: -1006.06 Hz
PPHCK: 10.36564 dBm/cm
HZCM: 1303.30750 Hz/cm

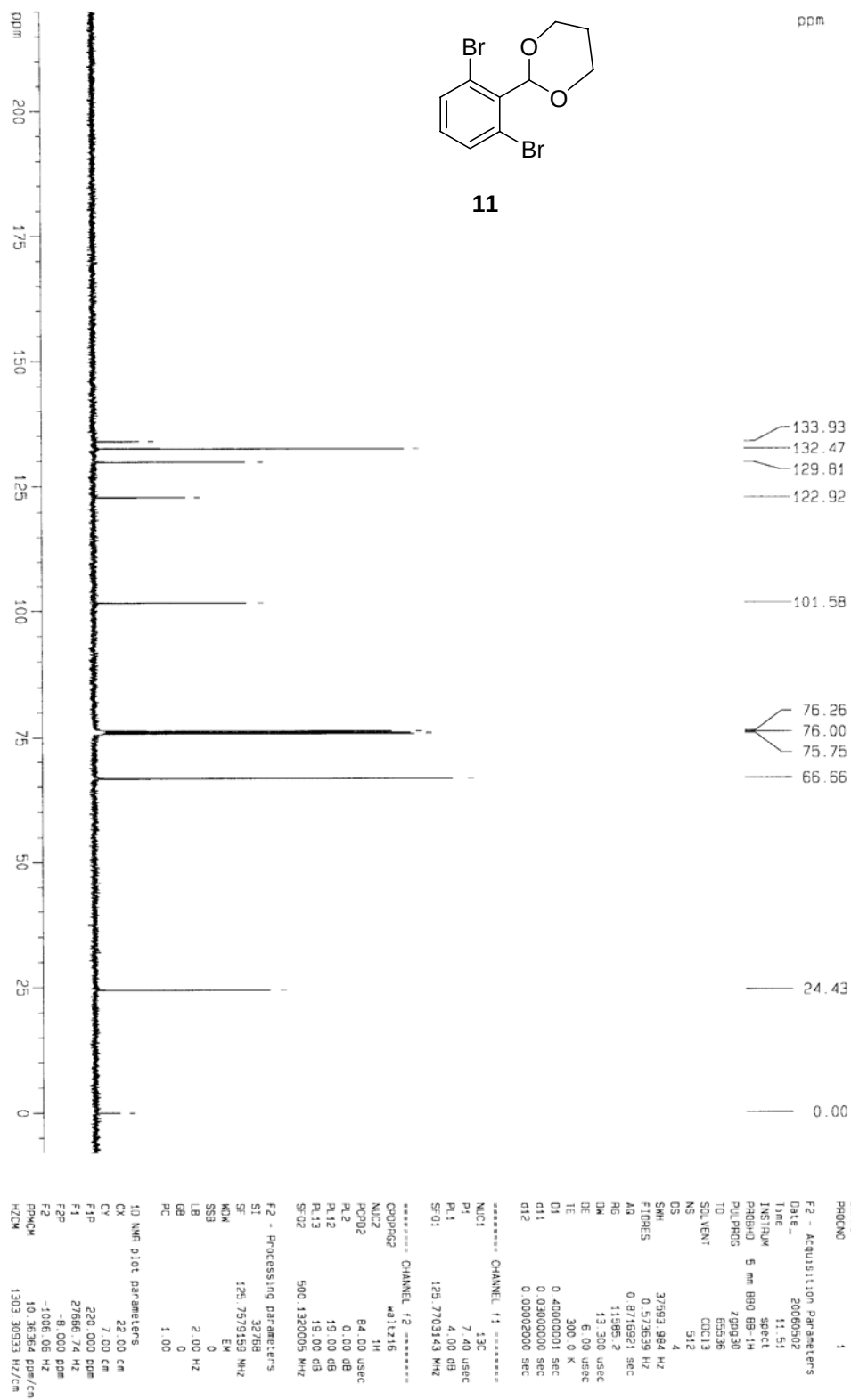
Fleckenstein 1-94

¹H-NMR**11**

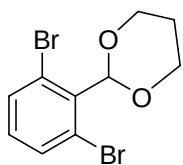
Fleckenstein 1-94

 ^{13}C -NMR

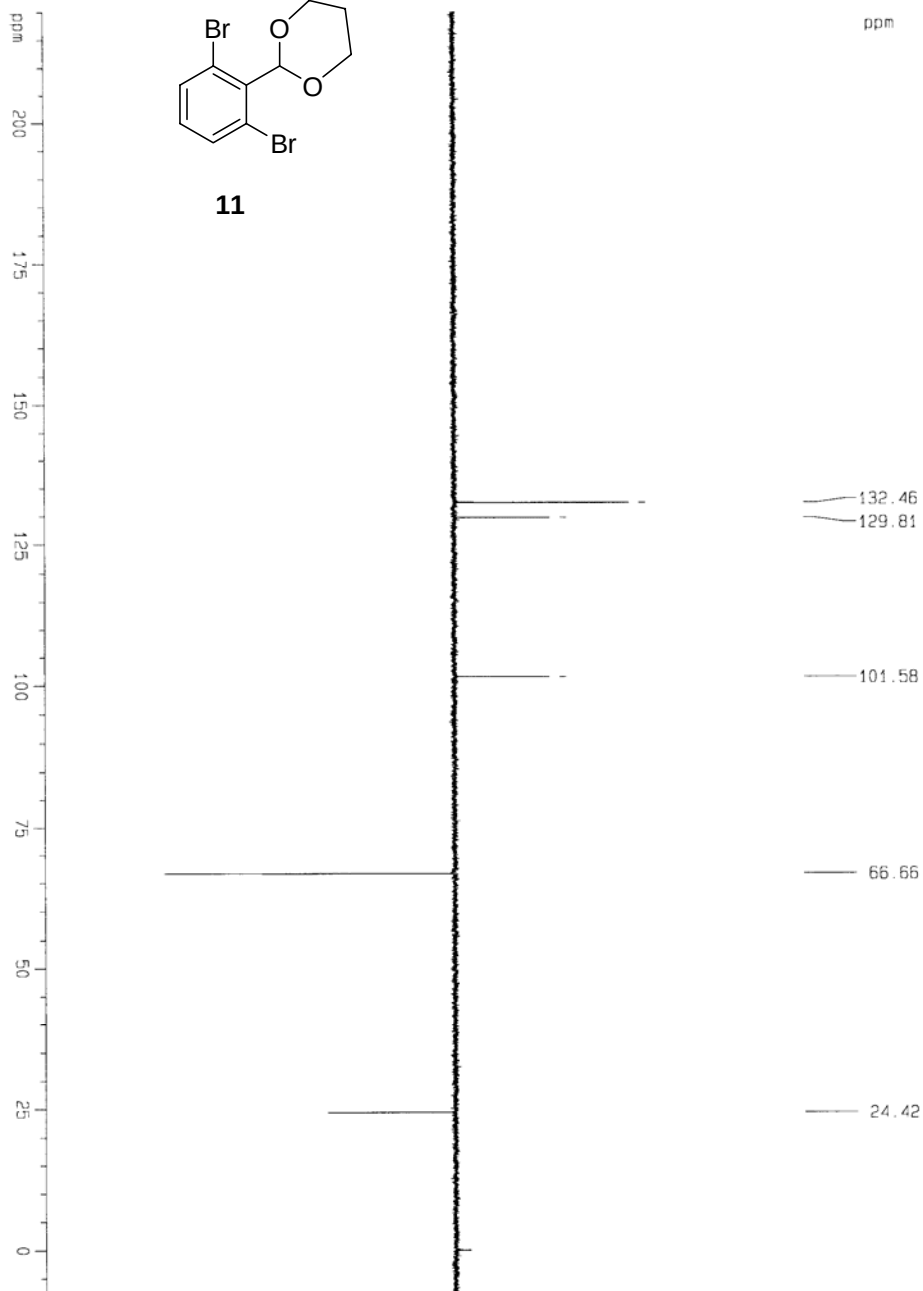
11



¹³C-NMR (DEPT)



11



Current Data Parameters
NAME: m102av
EXPNO: 32
PROCNO: 1

F2 - Acquisition Parameters
Date_: 20060902
Time: 11:56
INSTRUM: spect
PROBHD: 5 mm BBO BB-1H
PULPROG: zgpg30
TD: 65536
SOLVENT: CDCl3
NS: 160
DS: 2
SWH: 37653.964 Hz
FIDRES: 0.373651 Hz
AQ: 0.8716621 sec
RG: 16384
DM: 13.300 usec
DE: 6.00 usec
TE: 300.0 K
ONST2: 145.0000000
D1: 2.0000000 sec
d2: 0.0044688 sec
d12: 0.0000200 sec
DELTA: 0.0000942 sec

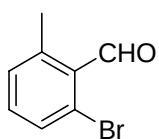
===== CHANNEL f1 =====
NUC1: 13C
P1: 7.40 usec
PL1: 14.60 dB
PC1: 4.00 dB
SFO1: 125.770343 MHz

===== CHANNEL f2 =====
CPDPRG2: waltz16
NUC2: 31P
P2: 11.00 usec
PL2: 22.00 usec
PCPD2: 84.00 usec
PL2: 0.00 dB
PL12: 19.00 dB
SFO2: 500.1320005 MHz

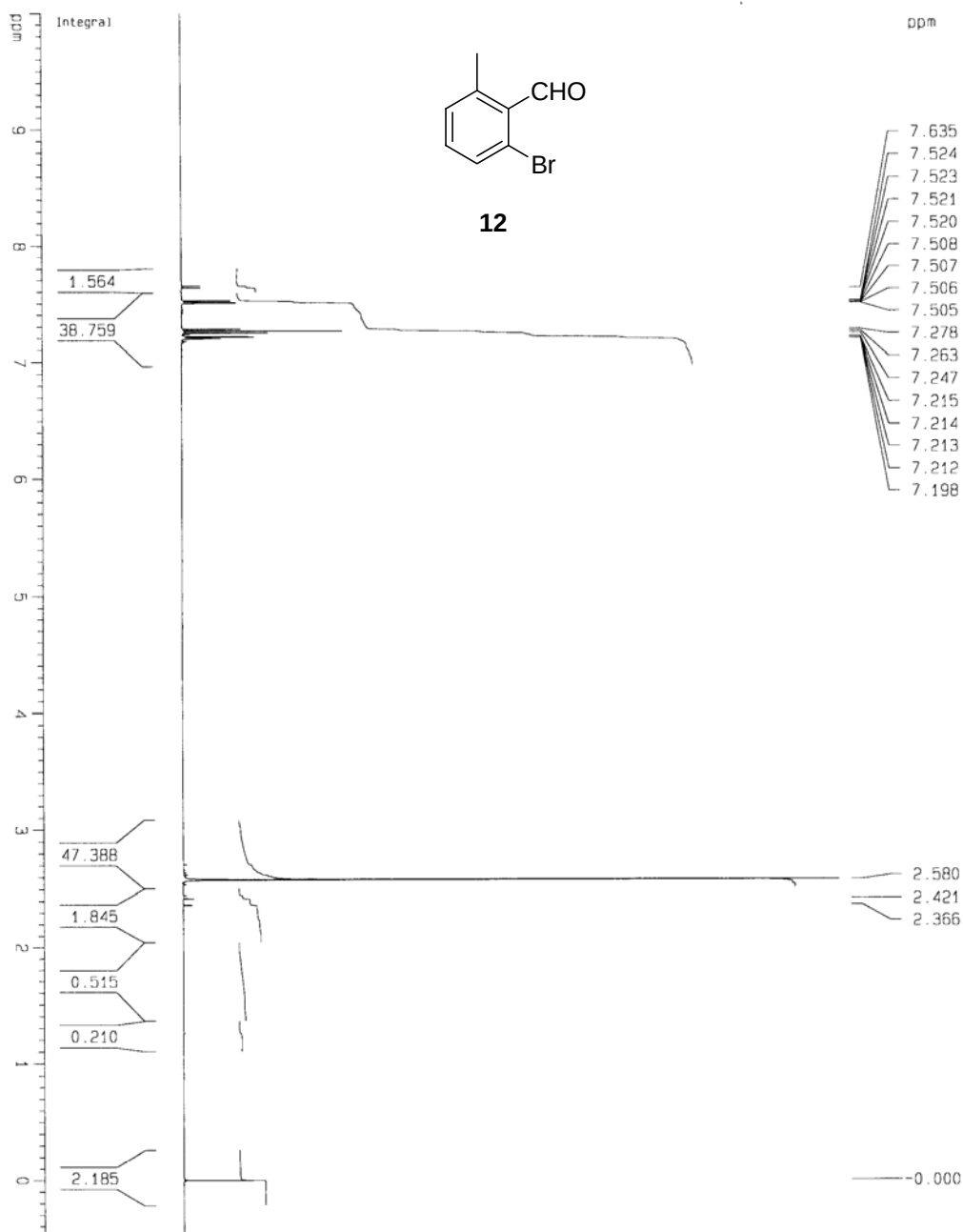
F2 - Processing parameters
SI: 32768
SF: 125.7579162 MHz
WDW: EM
SSB: 0
LB: 2.00 Hz
GB: 0
PC: 1.00

1D NMR plot parameters
CX: 22.00 cm
CY: 9.00 cm
F1P: 220.000 dBm
F1: 27656.74 Hz
F2P: -8.000 dBm
F2: -1006.06 Hz
PPHCK: 10.36364 dBm/cm
HZCK: 1303.30933 Hz/cm

¹H-NMR



12



Fleckenstein 1-99

Current Data Parameters
NAME ma102av
EXPNO 40
PROCNO 1

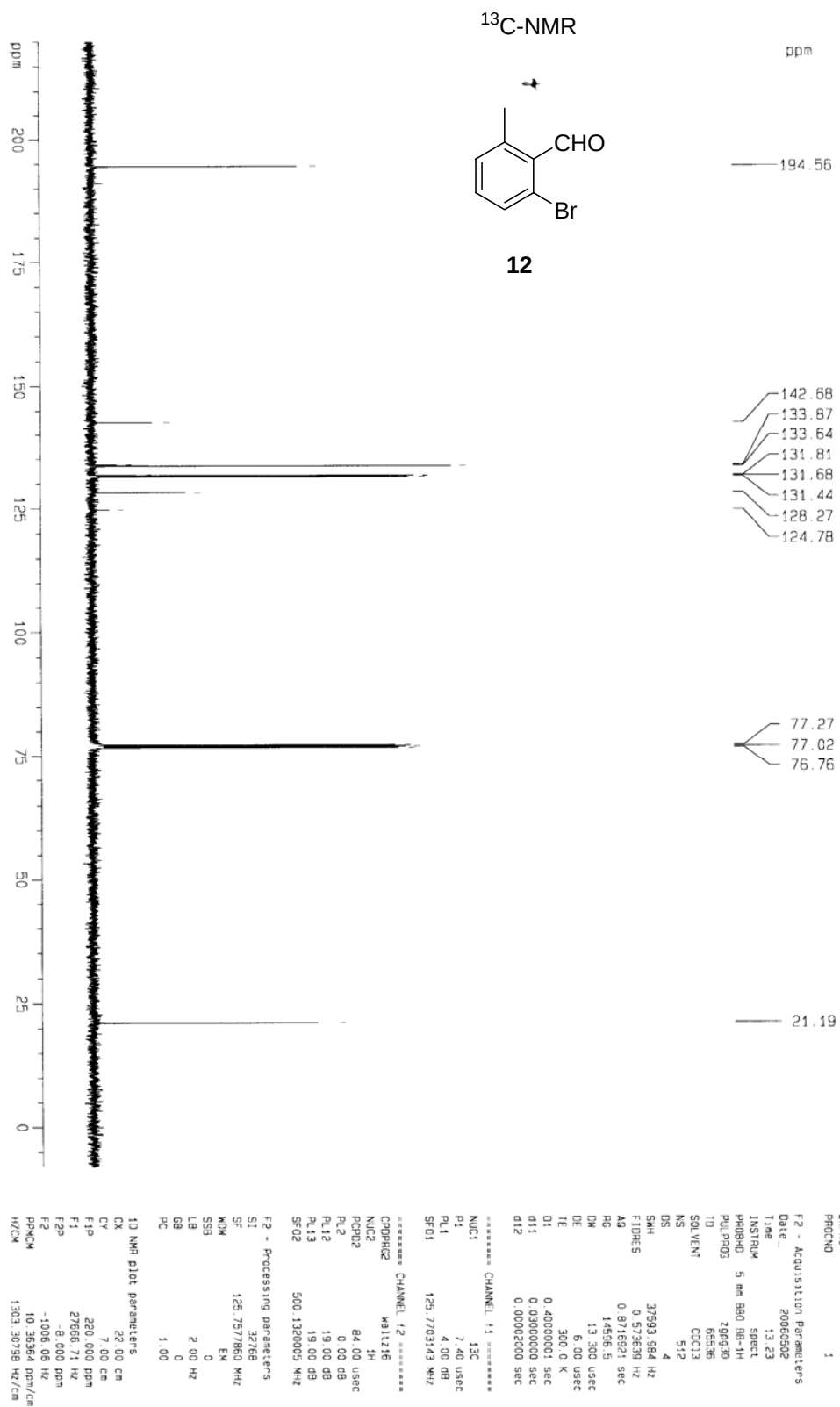
F2 - Acquisition Parameters
Date_ 20060502
Time 13.12
INSTRUM spect
PROBHD 5 mm BBO BB-1H
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 10330.578 Hz
FIDRES 0.157632 Hz
AQ 3.1720407 sec
RG 287.4
DM 48.400 usec
DE 6.00 usec
TE 300.0 K
D1 0.50000000 sec

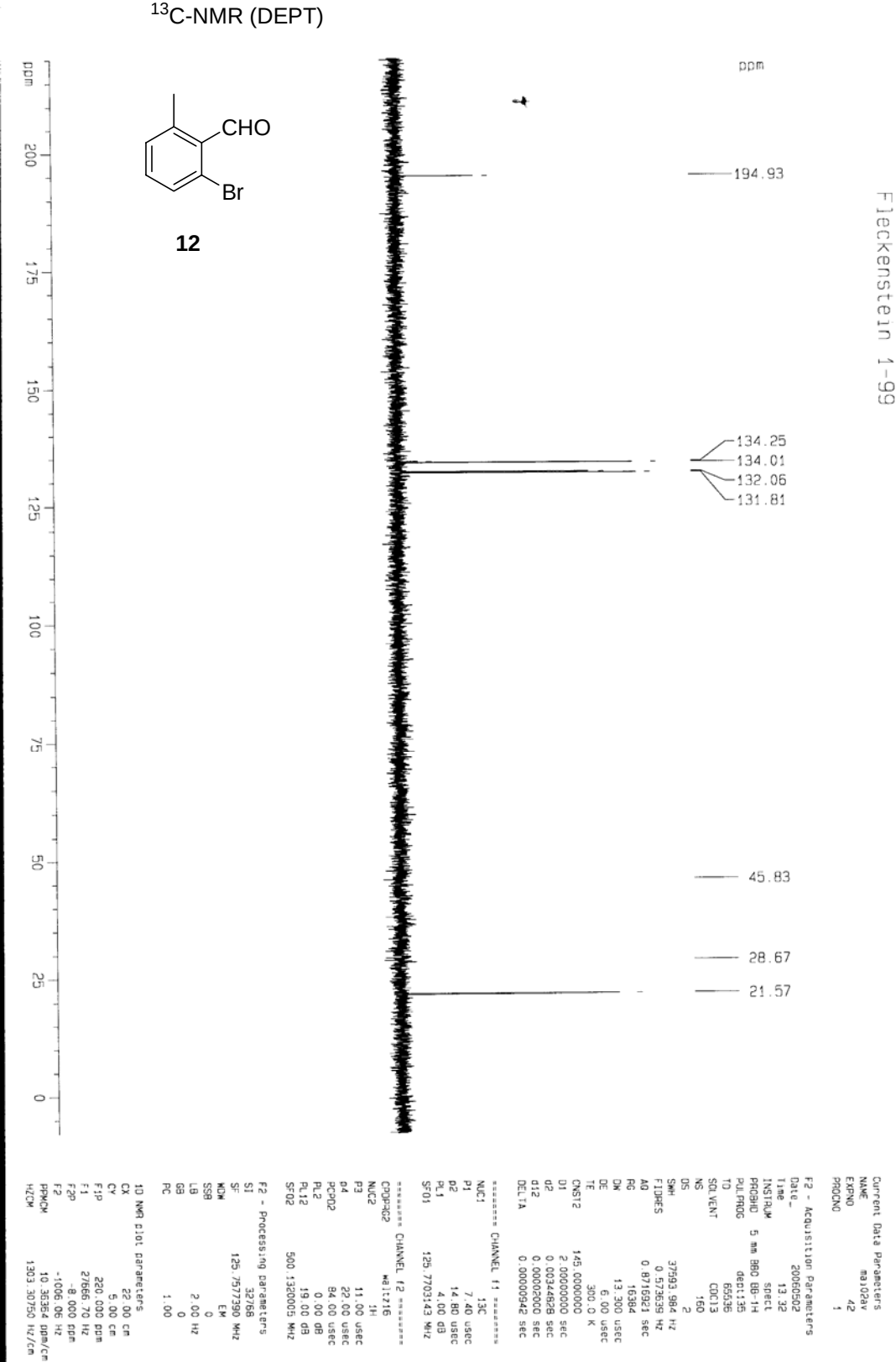
===== CHANNEL f1 =====
NUC1 1H
P1 11.10 usec
PL1 0.00 dB
SFO1 500.130065 MHz

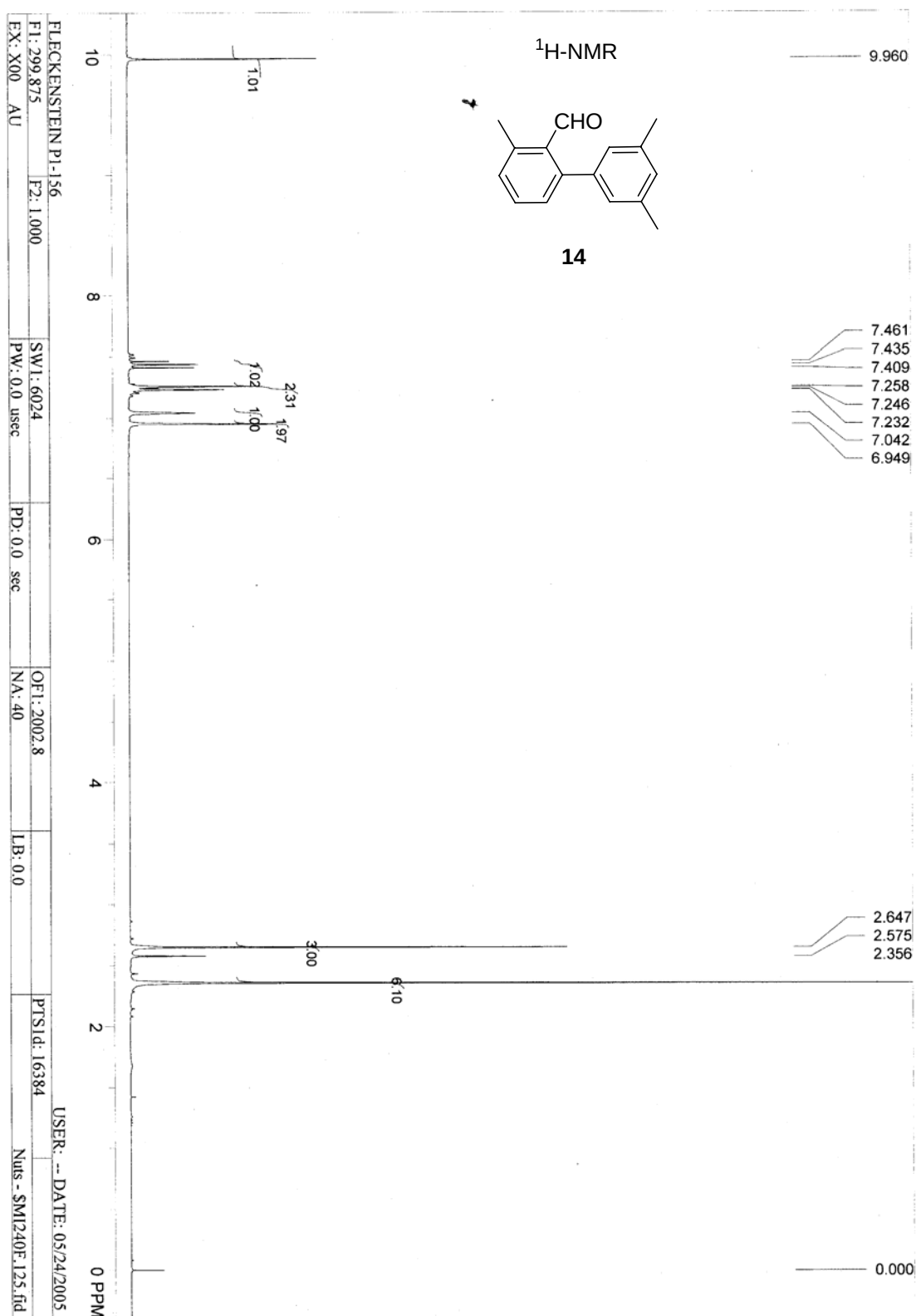
F2 - Processing parameters
SI 32768
SF 500.1300113 MHz
WDW EM
SSB 0
LB 0.10 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 22.00 cm
CY 12.00 cm
F1p 10.000 ppm
F1 5001.30 Hz
F2p -0.500 ppm
F2 -250.05 Hz
PPMCM 0.47727 ppm/cm
HZCM 238.69839 Hz/cm

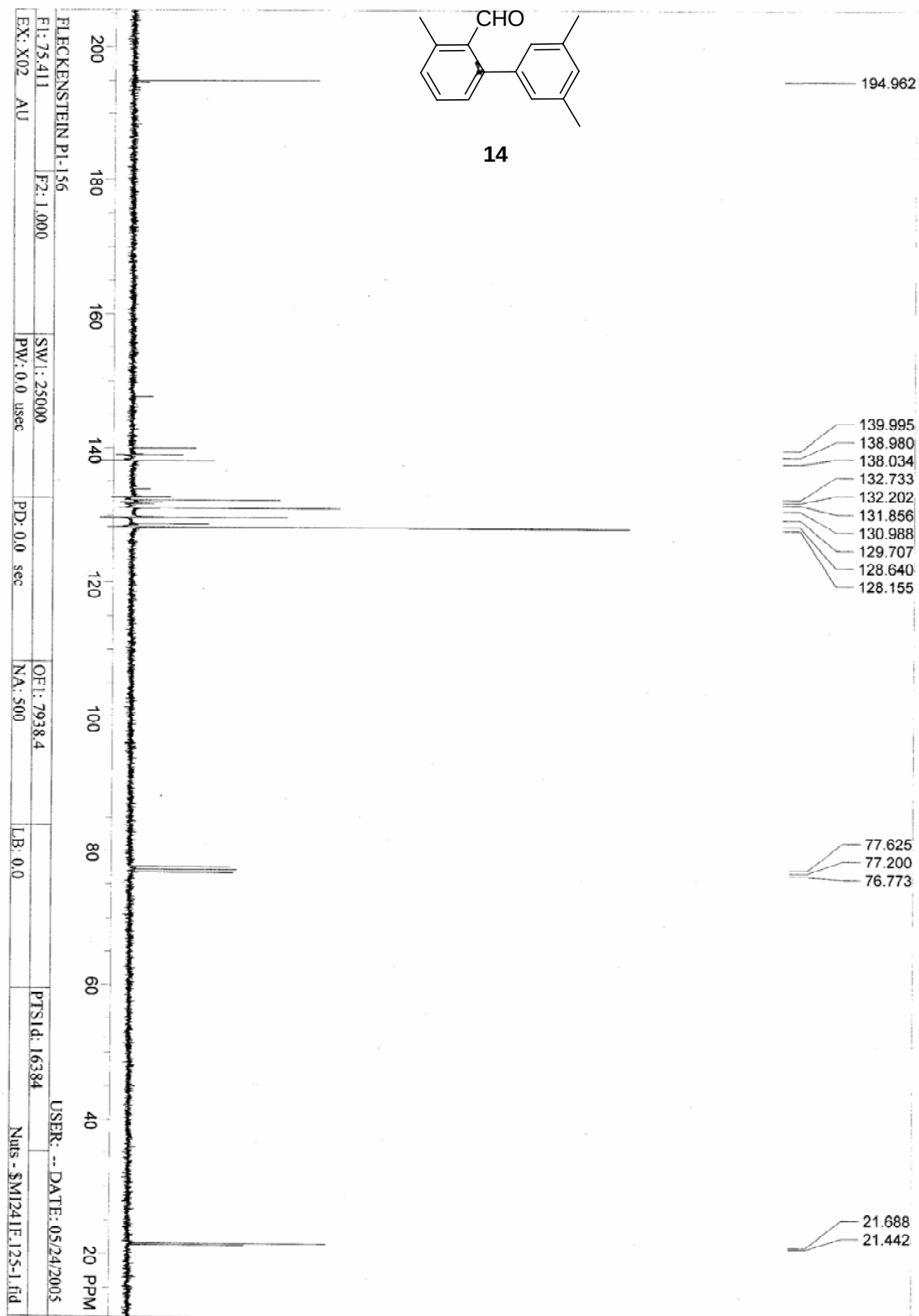
Fleckenstein 1-99

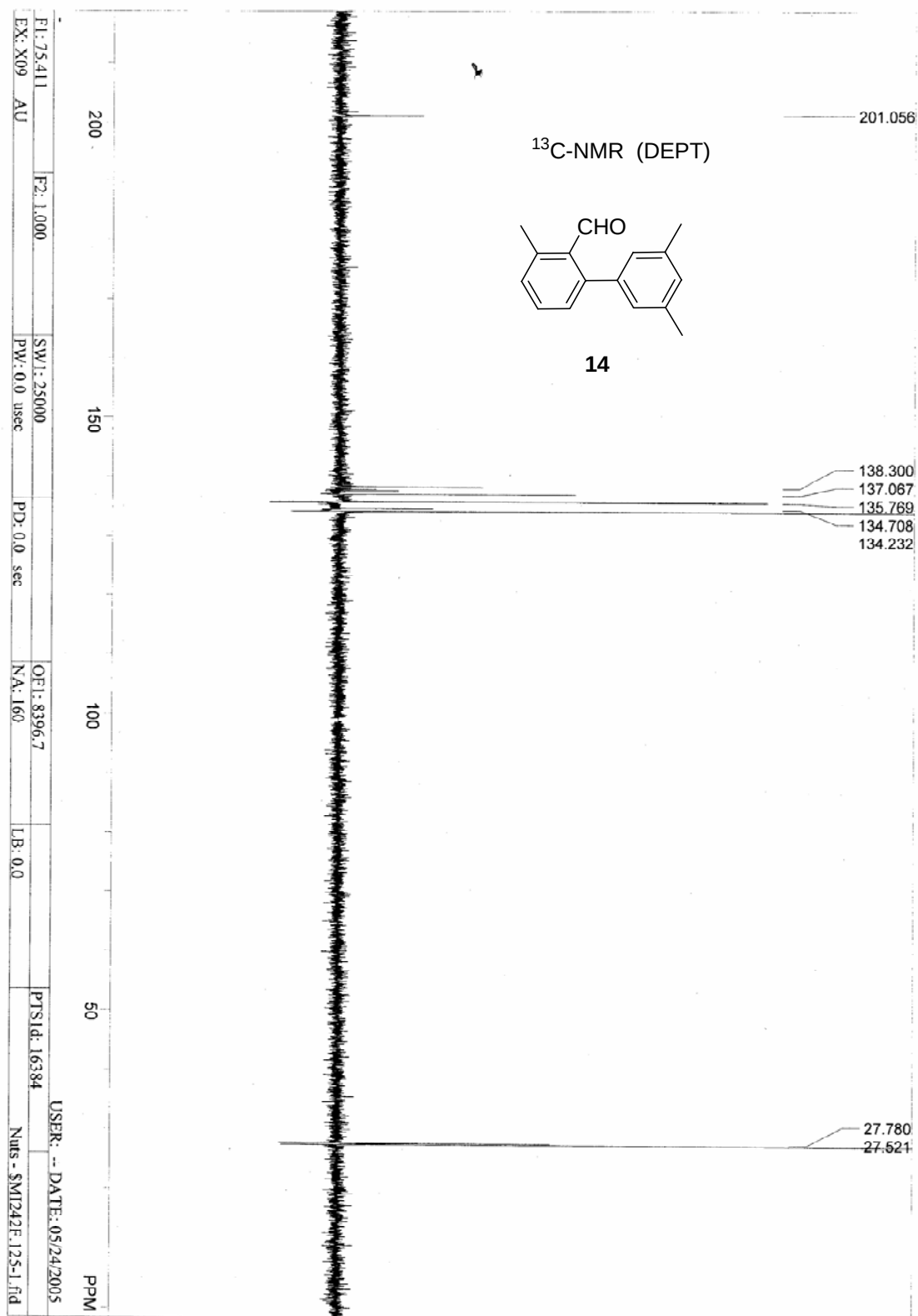


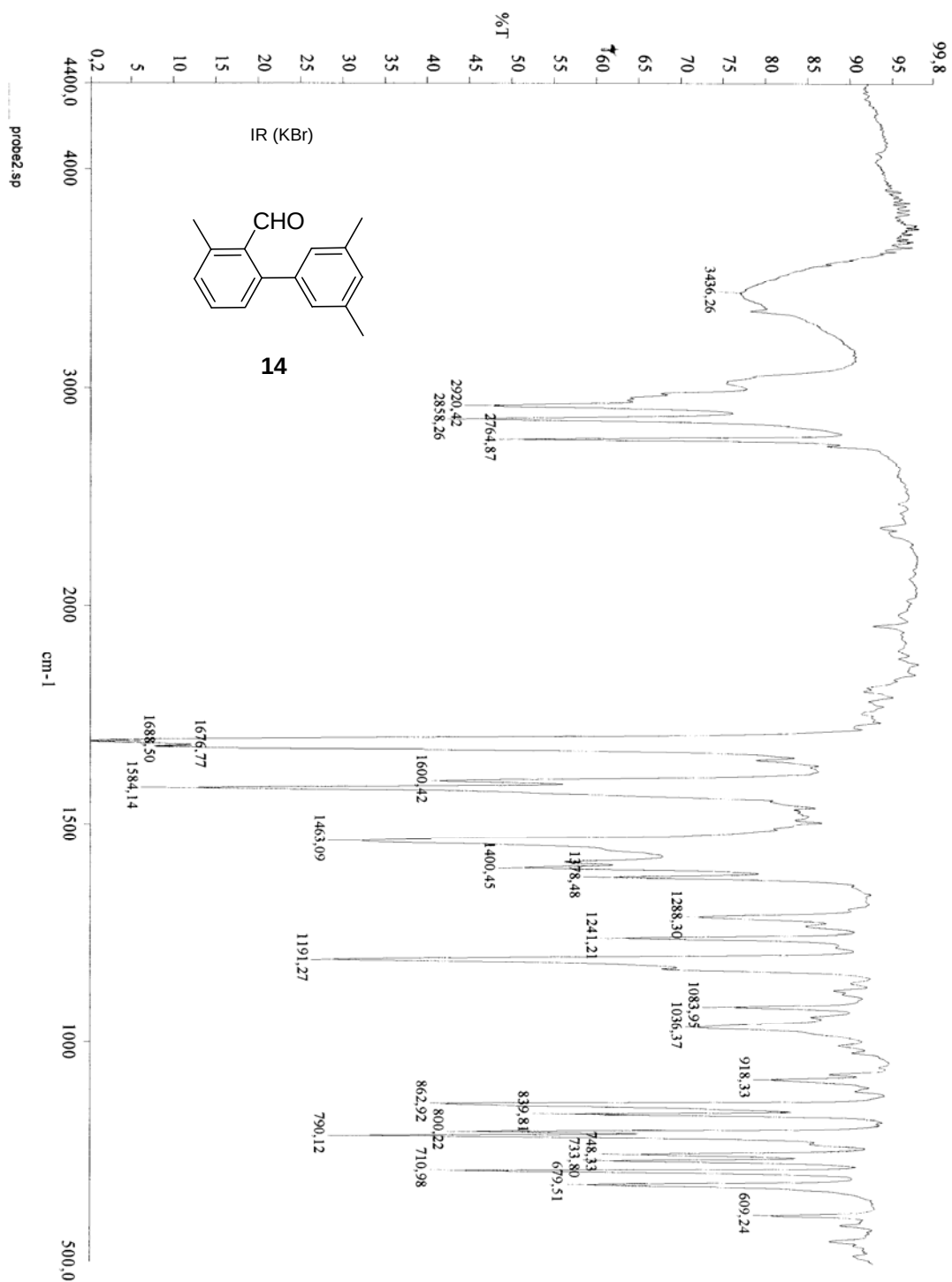


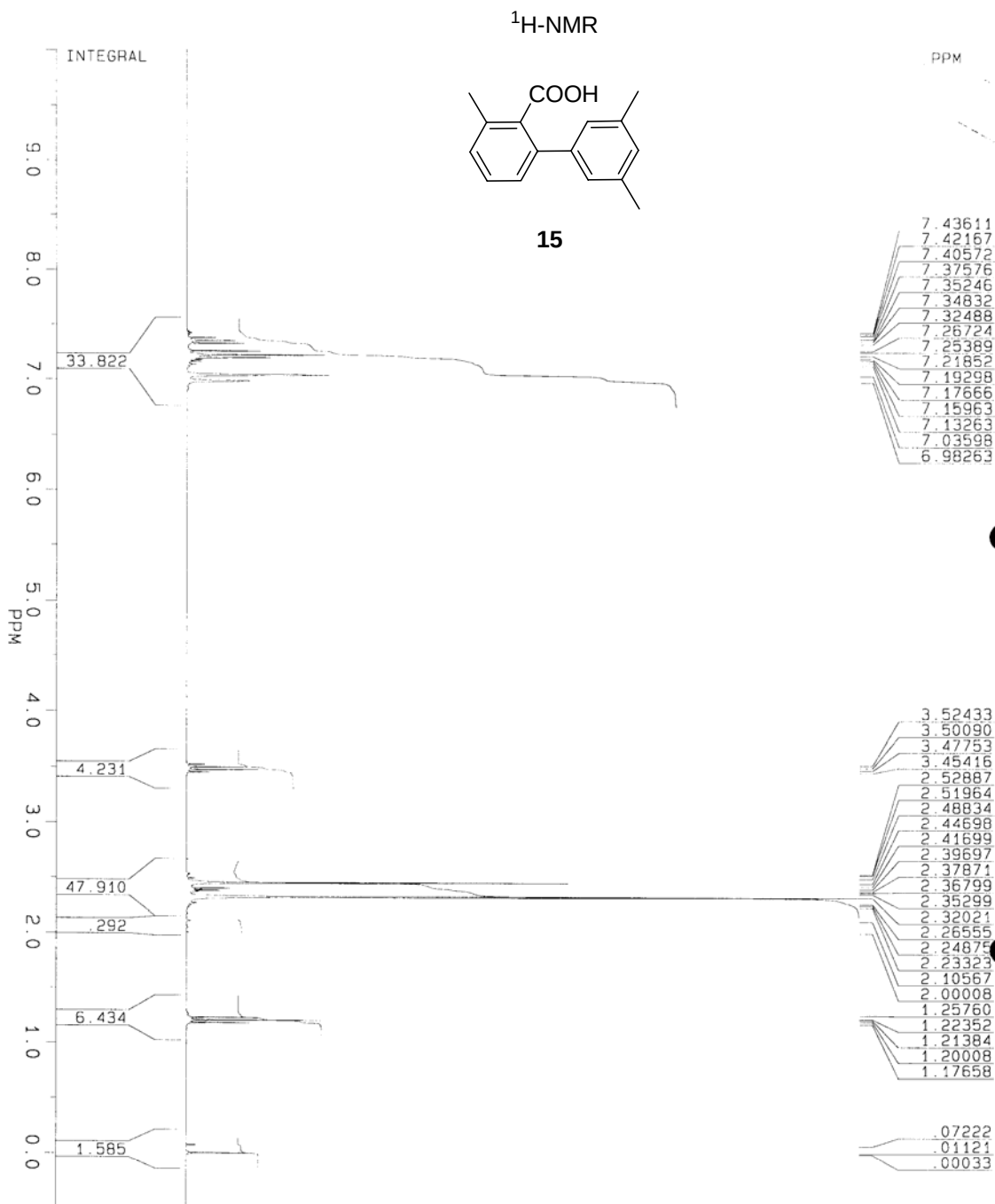


¹³C-NMR



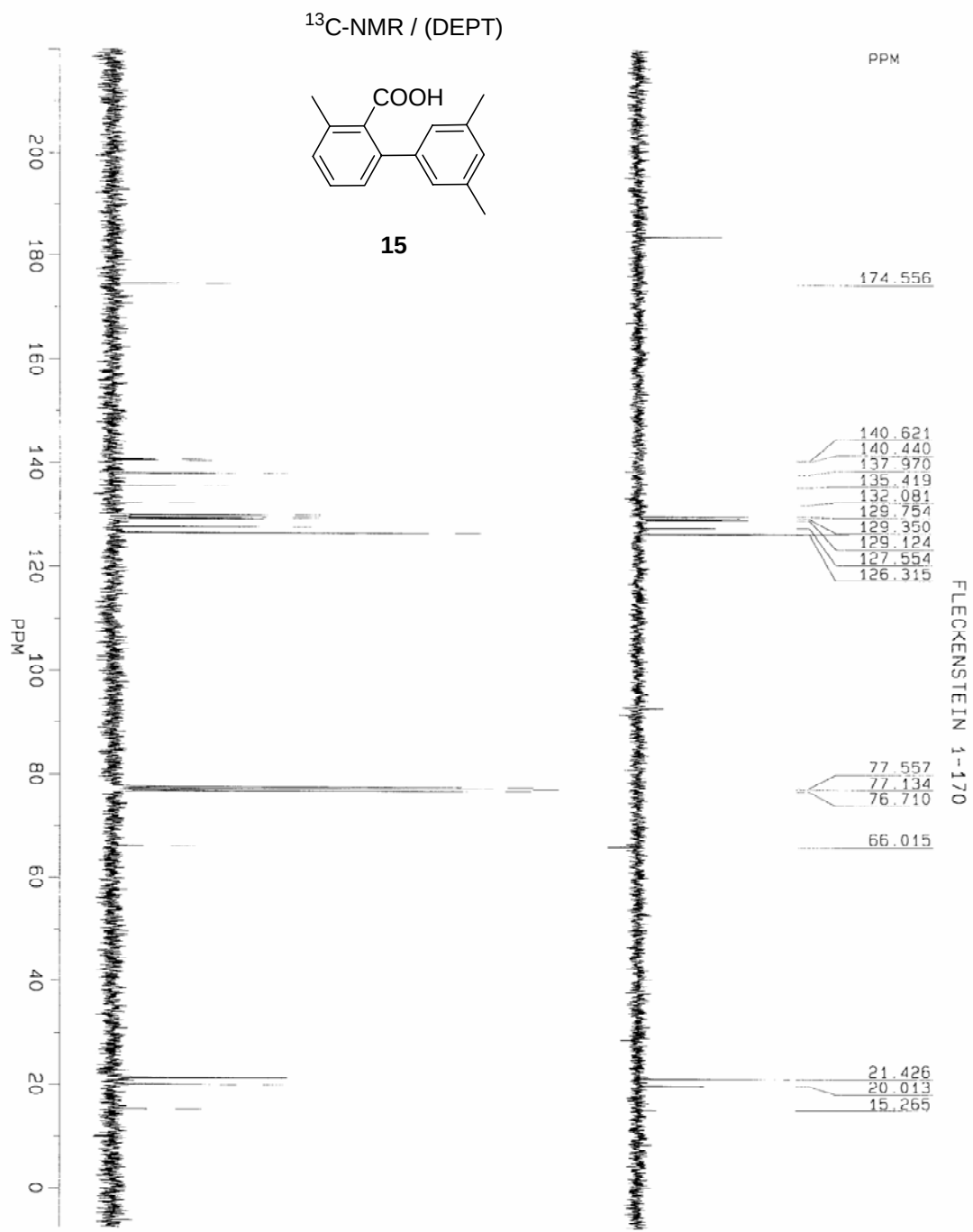






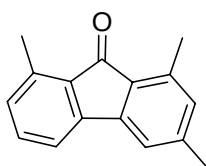
JU0805.113
 AU PROG:
 X00.AU
 DATE 8-6-5
 SOLVENT CDCl₃
 SF 299.873
 SY 209.0
 O1 4800.000
 SI 32768
 TD 32768
 SM 6024.096
 HZ/PT .368
 PM 0.0
 RD 0.0
 AG 2.720
 RG 20
 NS 40
 TE 297
 FW 7600
 O2 0.0
 DP 63L P0
 LB 0.100
 GB 0.0
 CX 22.50
 CY 13.00
 F1 3001.75H
 F2 -149.28H
 HZ/CM 140.046
 PPM/CM 2795.77
 SR





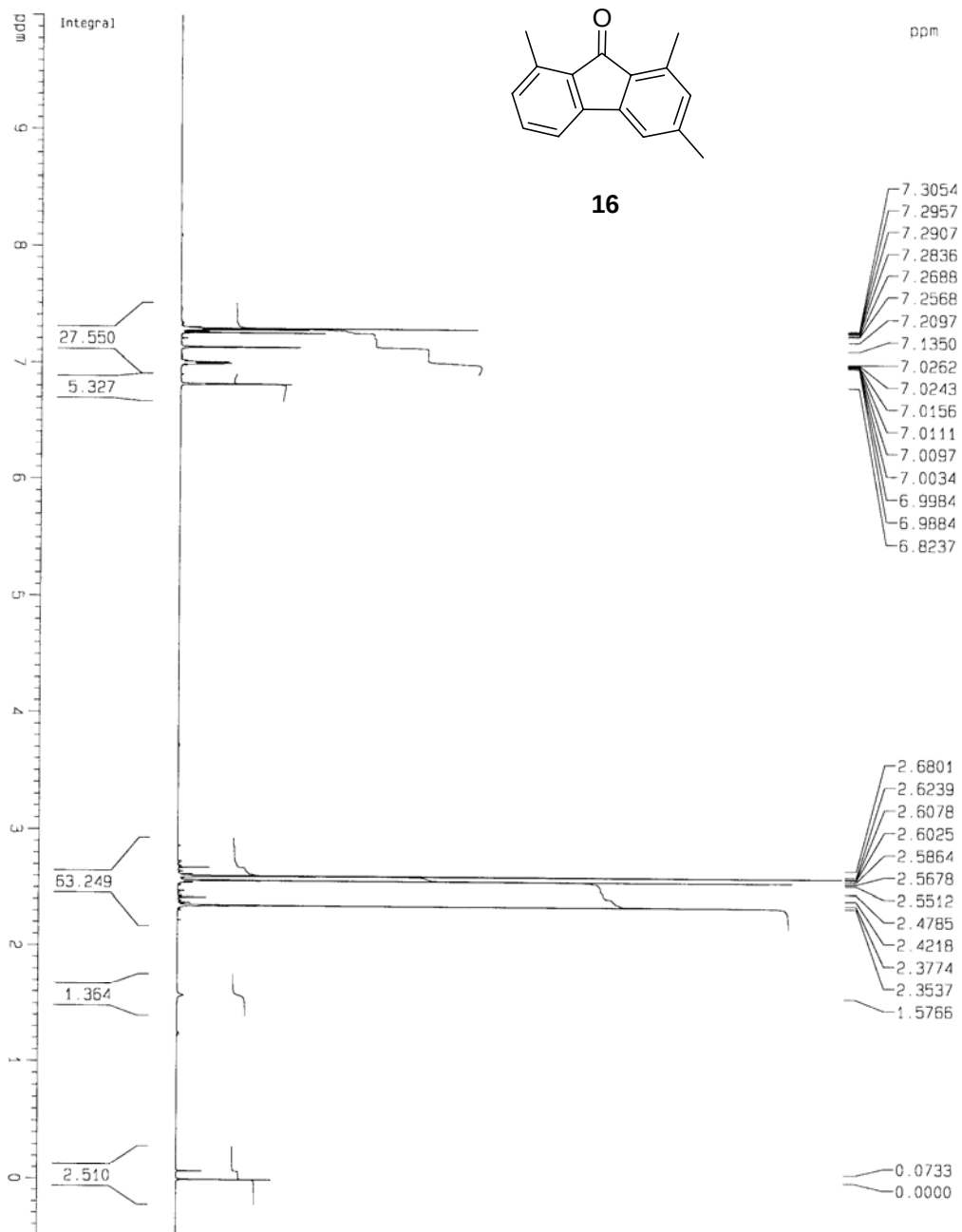
U0815.113
 AU PROG:
 X02.AU
 DATE 8-6-5
 SOLVENT CDCl₃
 SF 75.403
 SY 75.0
 O1 7000.000
 SI 32768
 TD 32768
 SM 25000.000
 HZ/PT 1.526
 PM 0.0
 RD 0.0
 AG 0.0
 RG 80
 NS 500
 TE 297
 FW 31300
 O2 4200.000
 DP 22H DO
 LB 2.000
 GB 0.0
 CX 22.50
 CY 5.00
 F1 220.009P
 F2 -7.427P
 HZ/CM 762.193
 PPM/CM 10.108
 SR -934.57

¹H-NMR



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F]eckenstein 1-175



Current Data Parameters
NAME ma103av
EXPNO 50
PROCNO 1

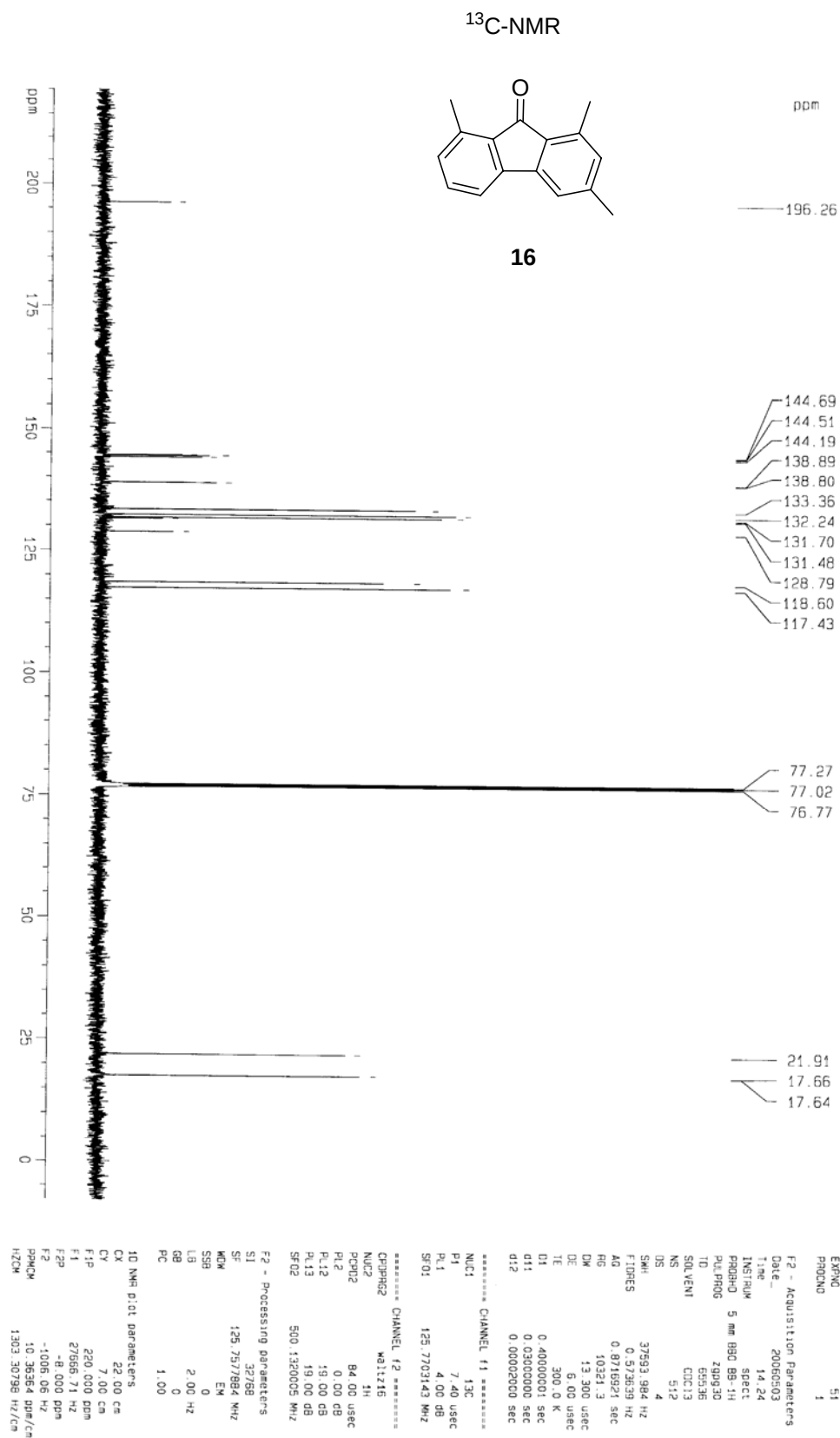
F2 - Acquisition Parameters
Date_ 20060503
Time 14.13
INSTRUM spect
PROBHD 5 mm BBO BB-1H
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 10330.578 Hz
FIDRES 0.157632 Hz
AQ 3.1720407 sec
RG 256
DW 48.400 usec
DE 6.00 usec
TE 300.0 K
D1 0.50000000 sec

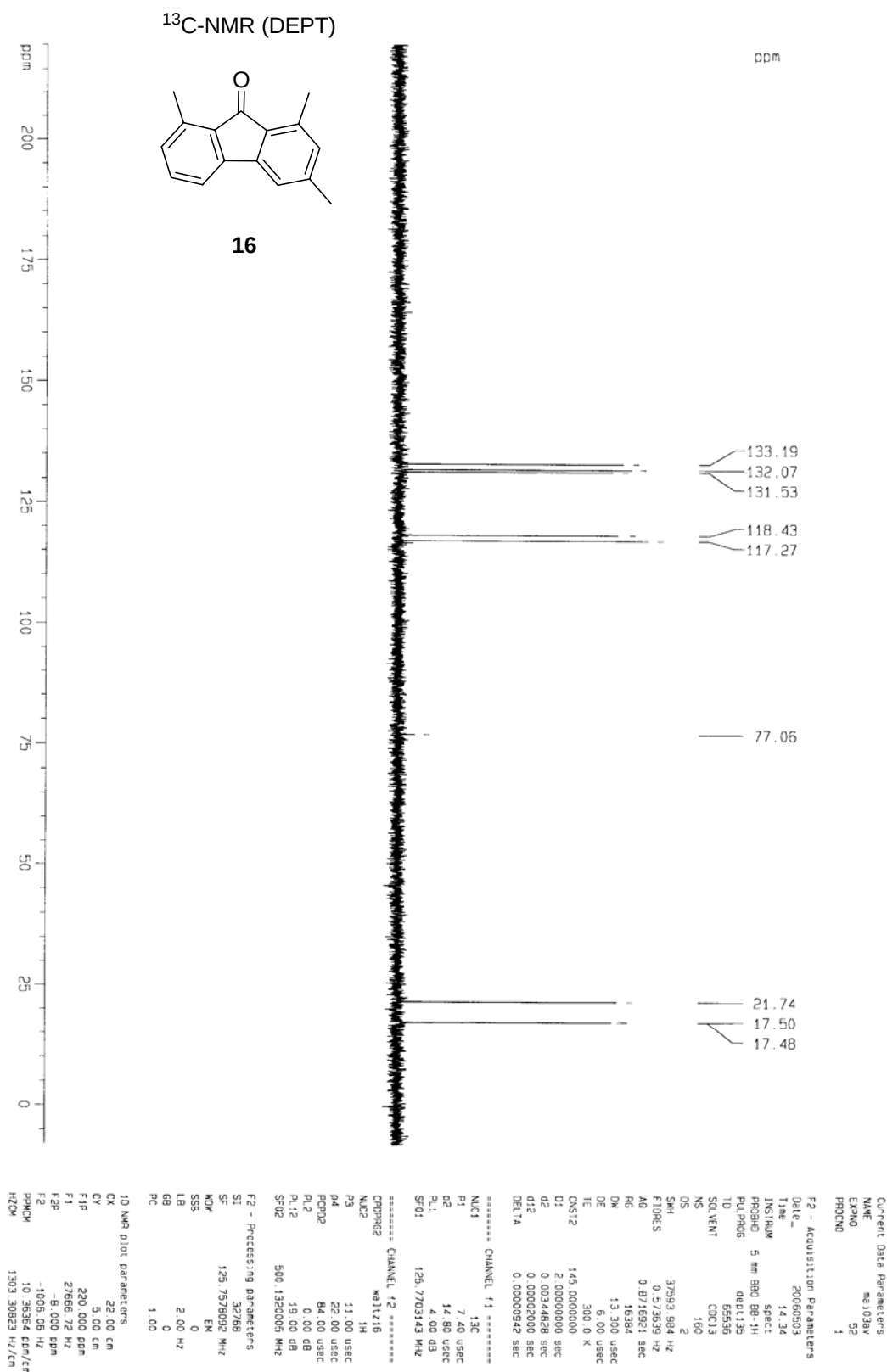
===== CHANNEL f1 =====
NUC1 1H
P1 11.10 usec
PL1 0.00 dB
SFO1 500.1300895 MHz

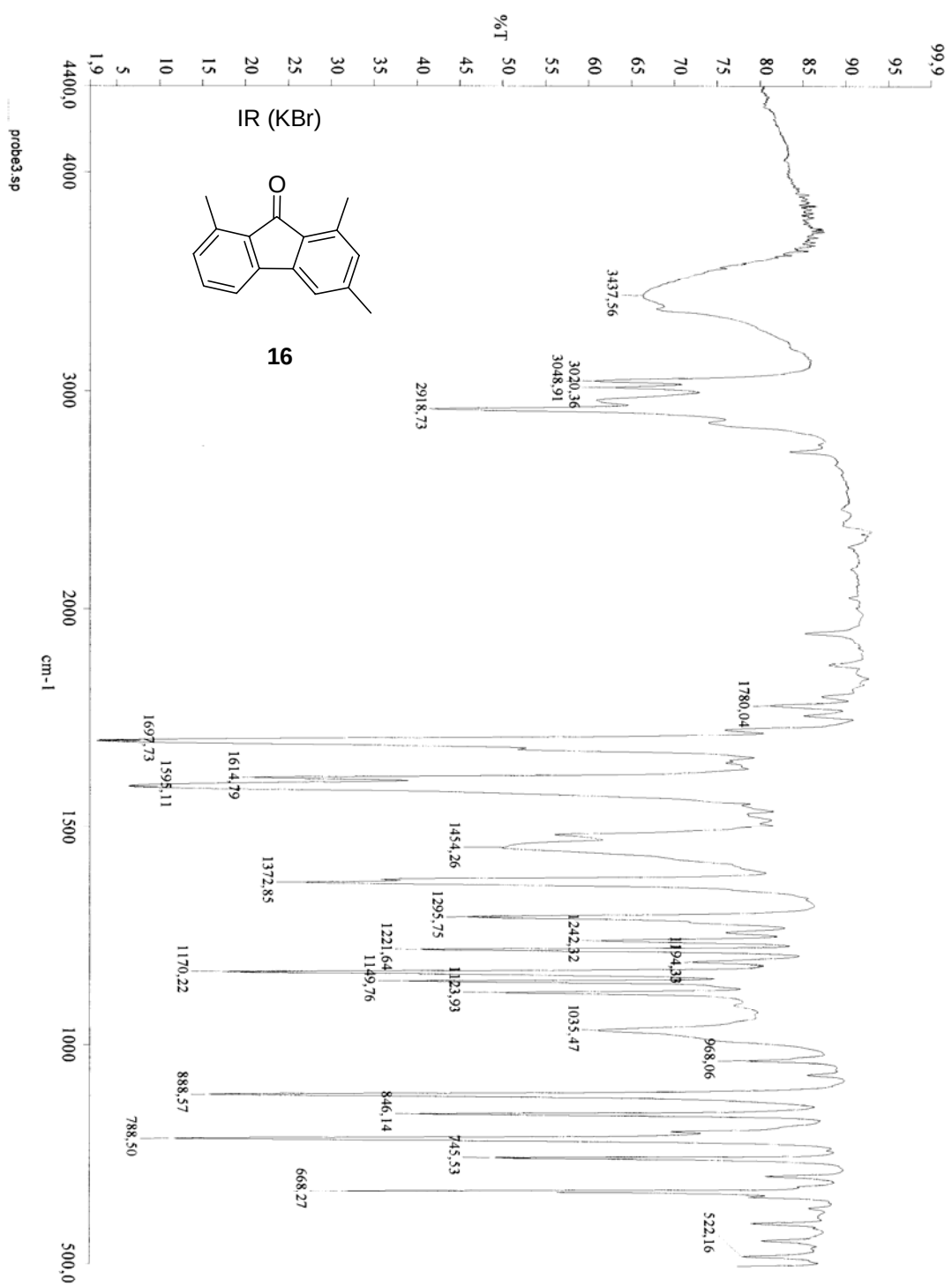
F2 - Processing parameters
SI 32768
SF 500.1300141 MHz
WDW EM
SSB 0
LB 0.10 Hz
GB 0
PC 1.00

10 NMR plot parameters
CX 22.00 cm
CY 12.00 cm
F1P 10.000 ppm
F1 5001.30 Hz
F2P -0.500 ppm
F2 -250.06 Hz
PPMCM 0.47727 ppm/cm
HZCM 238.69839 Hz/cm

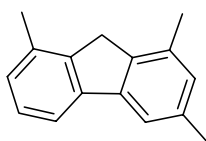
Fleckenstein 1-175



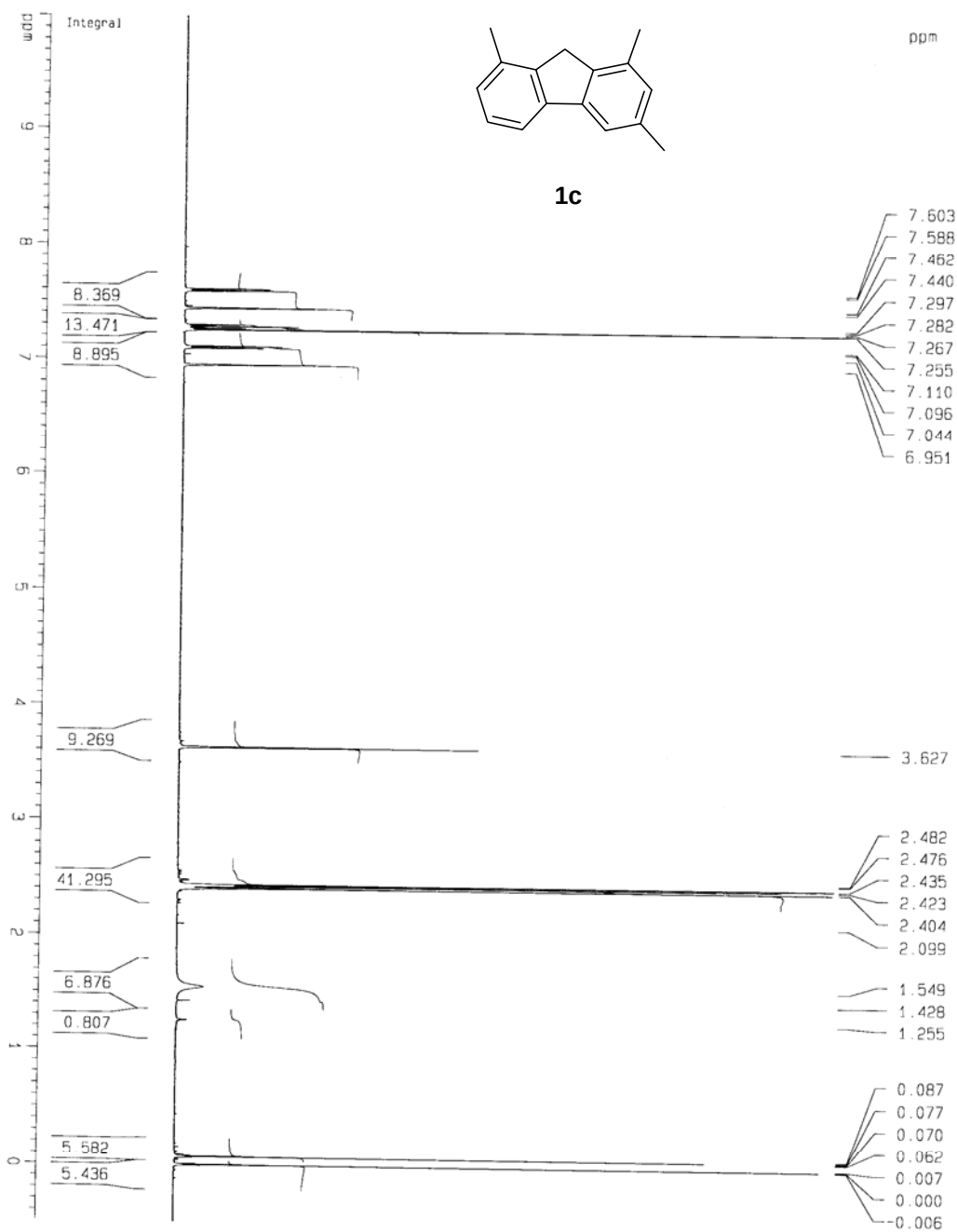




¹H-NMR



1c



Current Data Parameters

NAME	EXPNO	PROCNO
NAME	20060504	1
EXPNO	16	50
PROCNO	1	60

F2 - Acquisition Parameters

Date_	Time	INSTRUM	SPECT	PROBHD	PULPROG	TD	SOLVENT	NS	DS	SWH	FIDRES	AQ	RG	DK	DE	TE	D1
20060504	16:50	5 mm BBO BB-1H	zg30	50536	CDCl3	16	2	10330.578 Hz	0.157632 Hz	3.1720407 sec	456.1	48.400 usec	5.00 usec	300.0 K	0.50000000 sec		

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

NUC1	P1	PL1	SFO1
¹ H	11.10 usec	0.00 dB	500.1300150 MHz

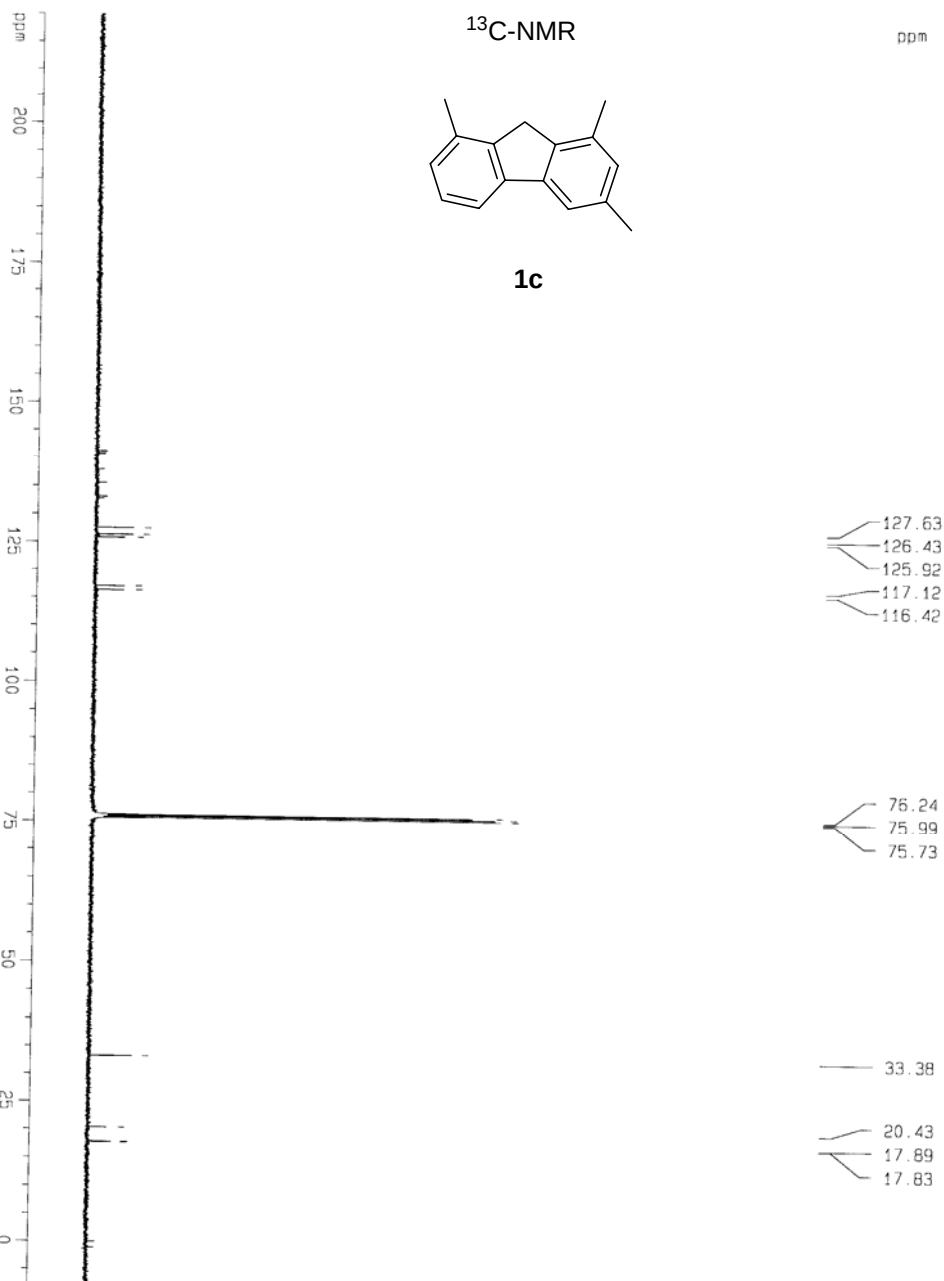
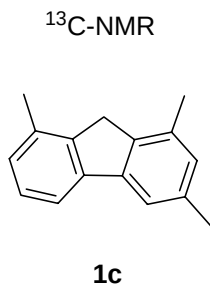
F2 - Processing parameters

SI	SF	WDW	SSB	LB	GB	PC
32768	500.1300150 MHz	EM	0	0.10 Hz	0	1.00

1D NMR plot parameters

CX	CY	F3P	F1	F2P	F2	PPMCK	HZCM
22.00 cm	12.00 cm	10.000 ppm	5001.30 Hz	-0.500 ppm	-250.06 Hz	0.47727 ppm/cm	238.69839 Hz/cm

Fleckenstein CFP-1-178



Current Data Parameters
NAME mo104av
EXPNO 51
PROCNO 1

F2 - Acquisition Parameters
Date_ 20060504
Time 17.34
INSTRUM spect
PROBHD 5 mm BBO BB-1H
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 2048
DS 4
SWH 37593.584 Hz
FIDRES 0.57639 Hz
AQ 0.8718921 sec
RG 6502
DM 13.300 usec
DE 5.00 usec
TE 300.0 K
D1 0.4000001 sec
d11 0.0300000 sec
d12 0.0002000 sec

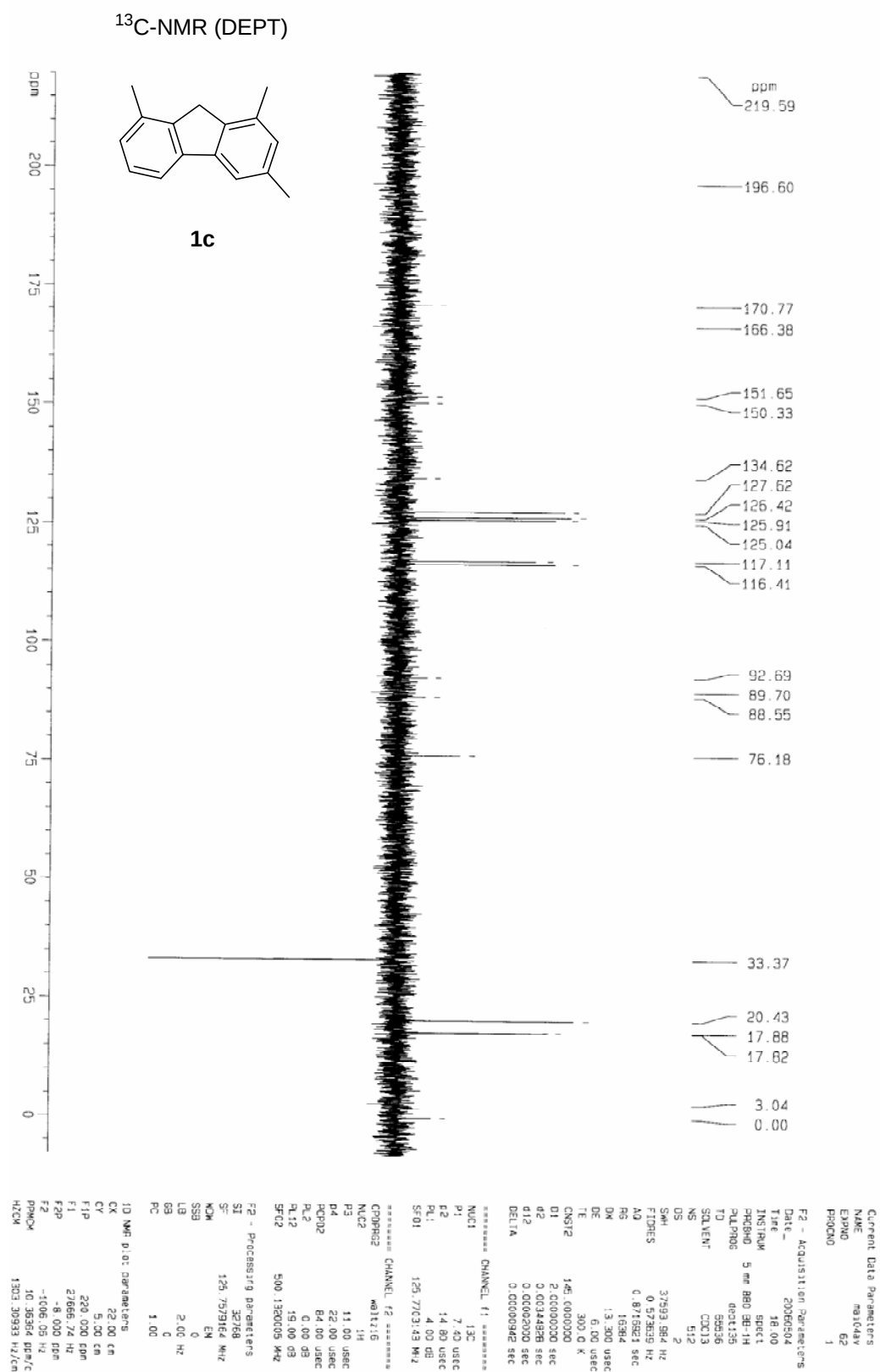
===== CHANNEL f1 =====
NUC1 13C
P1 7.40 usec
PL1 4.00 dB
SFO1 125.7703143 MHz

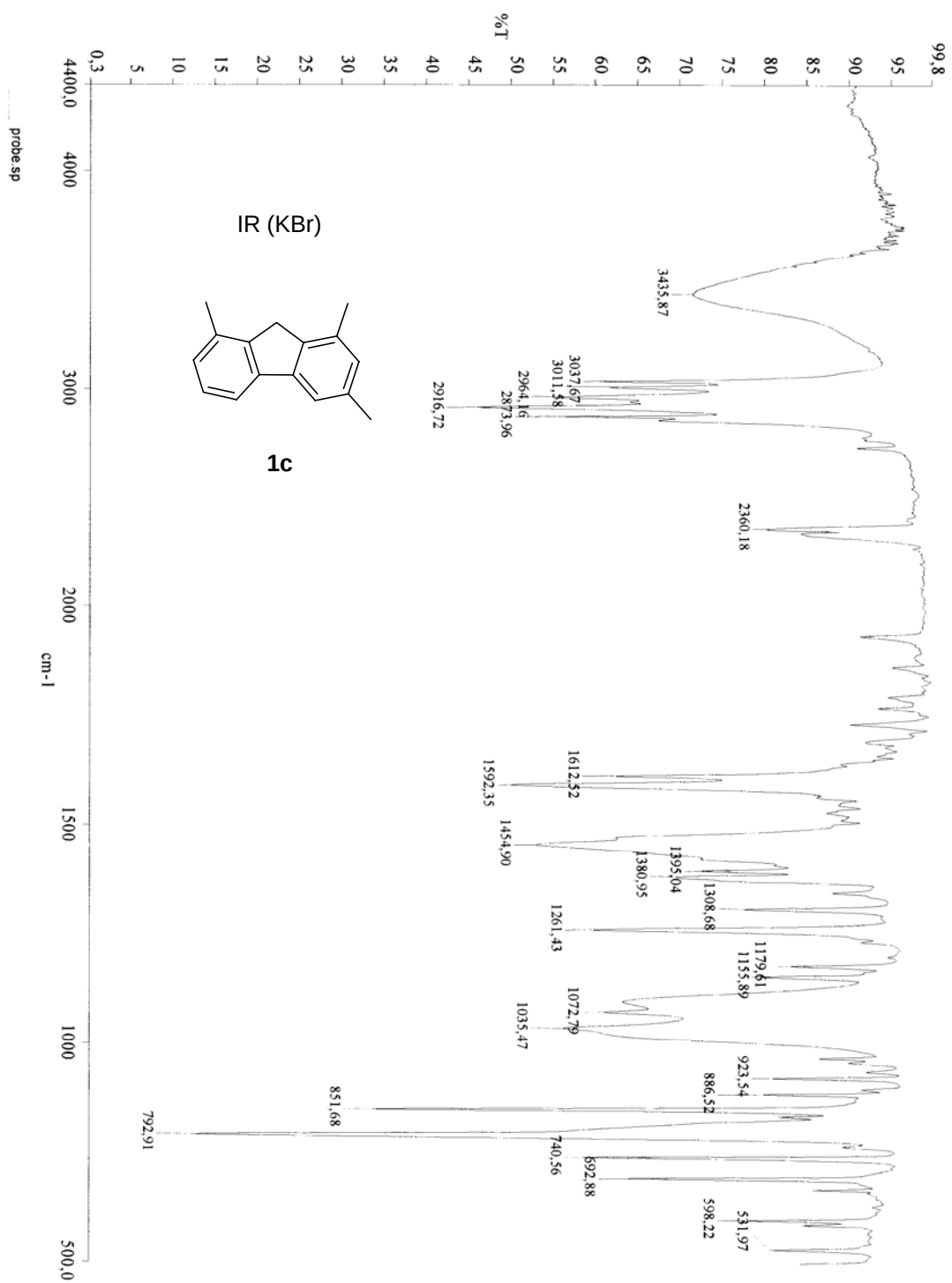
===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 84.00 usec
PL2 0.00 dB
PL12 19.00 dB
PL13 19.00 dB
SFO2 500.132005 MHz

F2 - Processing parameters
SI 32768
SF 125.7579154 MHz
WDW EM
SSB 0
LB 2.00 Hz
GB 0
PC 1.00

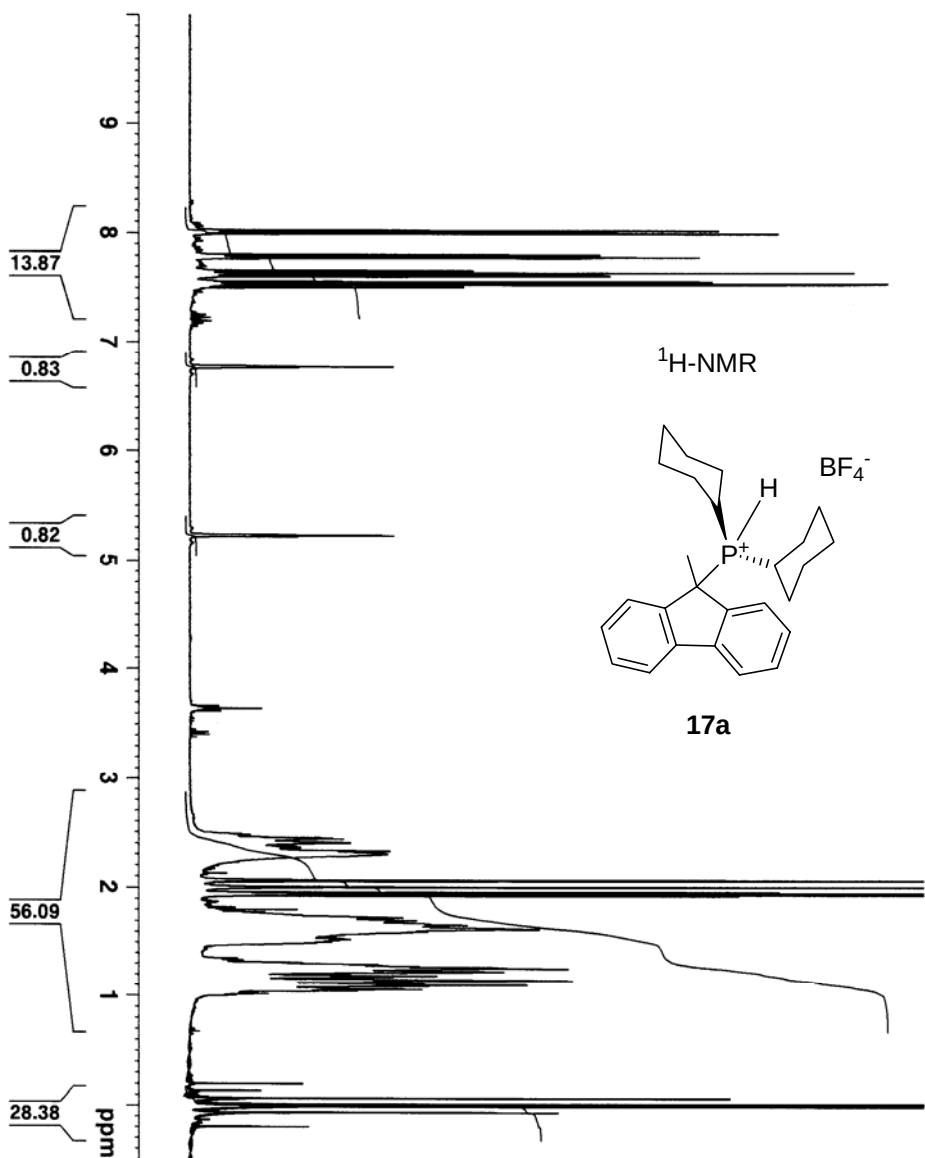
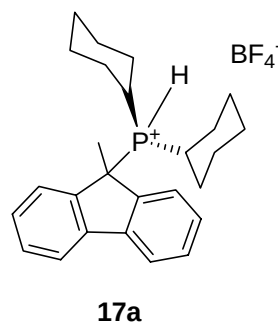
1D NMR plot parameters
CX 22.00 cm
CY 7.00 cm
F1P 220.000 ppm
F1 27565.74 Hz
F2P -1006.06 ppm
F2 -1006.06 Hz
PNUCK 10.3654 ppm/cm
H2CN 1303.30933 Hz/cm

Fleckenstein CFP-1-178





PHOSPHONIUMSALTS

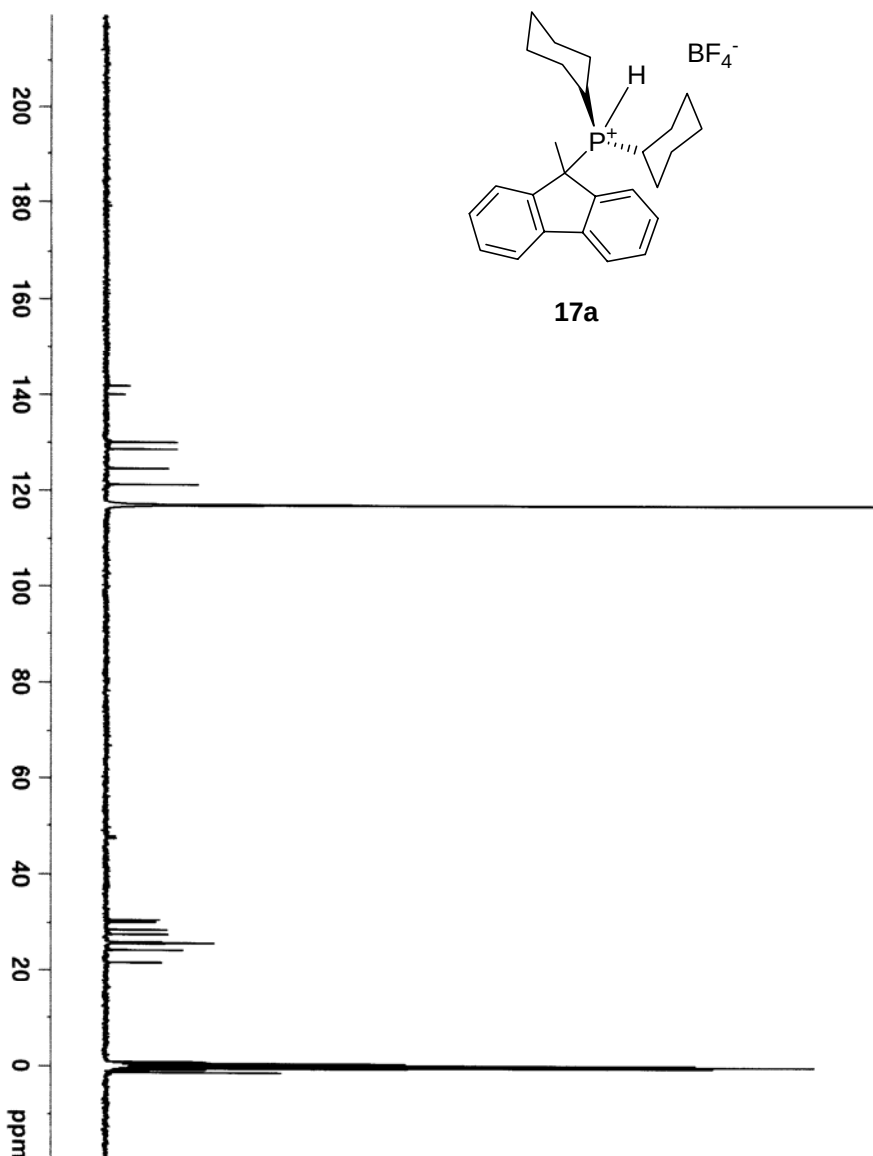
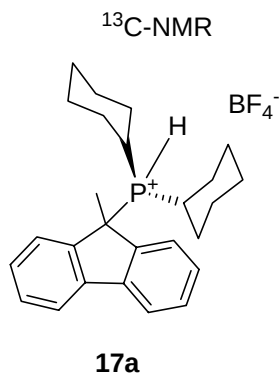
¹H-NMR

Current Data Parameters
 NAME aug23ac
 EXPNO 270
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20050824
 Time 0.11
 INSTRUM spect
 PROBD 5 mm PABBO BB-
 PULPROG zg30
 TD 32768
 SOLVENT CD3CN
 NS 32
 DS 2
 SWH 6188.119 Hz
 FIDRES 0.18846 Hz
 AQ 2.6477044 sec
 RG 203
 DW 80.800 usec
 DE 10.00 usec
 TE 300.0 K
 D1 1.00000000 sec
 TD0 1

===== CHANNEL f1 =====
 NUC1 ¹H
 P1 9.70 usec
 PL1 -3.00 dB
 SFO1 299.9018520 MHz

F2 - Processing parameters
 SI 32768
 SF 299.9000031 MHz
 WDW EM
 SSB 0
 LB 0.10 Hz
 GB 0
 PC 1.00



Current Data Parameters
NAME aug23ac
EXPNO 271
PROCNO 1

F2 - Acquisition Parameters
Date_ 20050824

Time 0.46
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 32768
SOLVENT CD3CN
NS 1000

DS 4
SWH 18028.846 Hz
FIDRES 0.550197 Hz
AQ 0.9088159 sec
RG 2050
DM 27.733 usec
DE 10.00 usec
TE 300.0 K

D1 1.00000000 sec
d11 0.03000000 sec
DELTA 0.89999998 sec
TD0 1

===== CHANNEL f1 =====
NUC1 13C
P1 11.00 usec
PL1 0.00 dB
SFO1 75.4174560 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 95.00 usec
PL2 -3.00 dB
PL12 17.00 dB
PL13 23.00 dB
SFO2 299.9011996 MHz

F2 - Processing parameters
SI 32768
SF 75.4099380 MHz
WDW EM
SSB 0
LB 2.00 Hz
GB 0
PC 1.40



Current Data Parameters
NAME aug23ac
EXPNO 272
PROCNO 1

F2 - Acquisition Parameters
Date_ 20050824

Time 1.00

INSTRUM spect

PROBHD 5 mm PABBO BB-

PULPROG dept135

TD 32768

SOLVENT CD3CN

NS 256

DS 4

SWH 18028.846 Hz

FIDRES 0.350197 Hz

AQ 0.9088159 sec

RG 2050

DW 27.733 usec

DE 10.00 usec

TE 300.0 K

CNST2 145.0000000

D1 2.00000000 sec

d2 0.00344828 sec

d12 0.00002000 sec

DELTA 0.00001401 sec

TD0 1

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

NUC1 ¹³C

P1 11.00 usec

P2 22.00 usec

PL1 0.00 dB

SFO1 75.4174560 MHz

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

CPDPRG2 waltz16

NUC2 ¹H

P3 9.50 usec

P4 19.00 usec

PCPD2 95.00 usec

PL2 -3.00 dB

PL12 17.00 dB

SFO2 299.9011996 MHz

F2 - Processing Parameters

SI 32768

SF 75.4098362 MHz

WDW EM

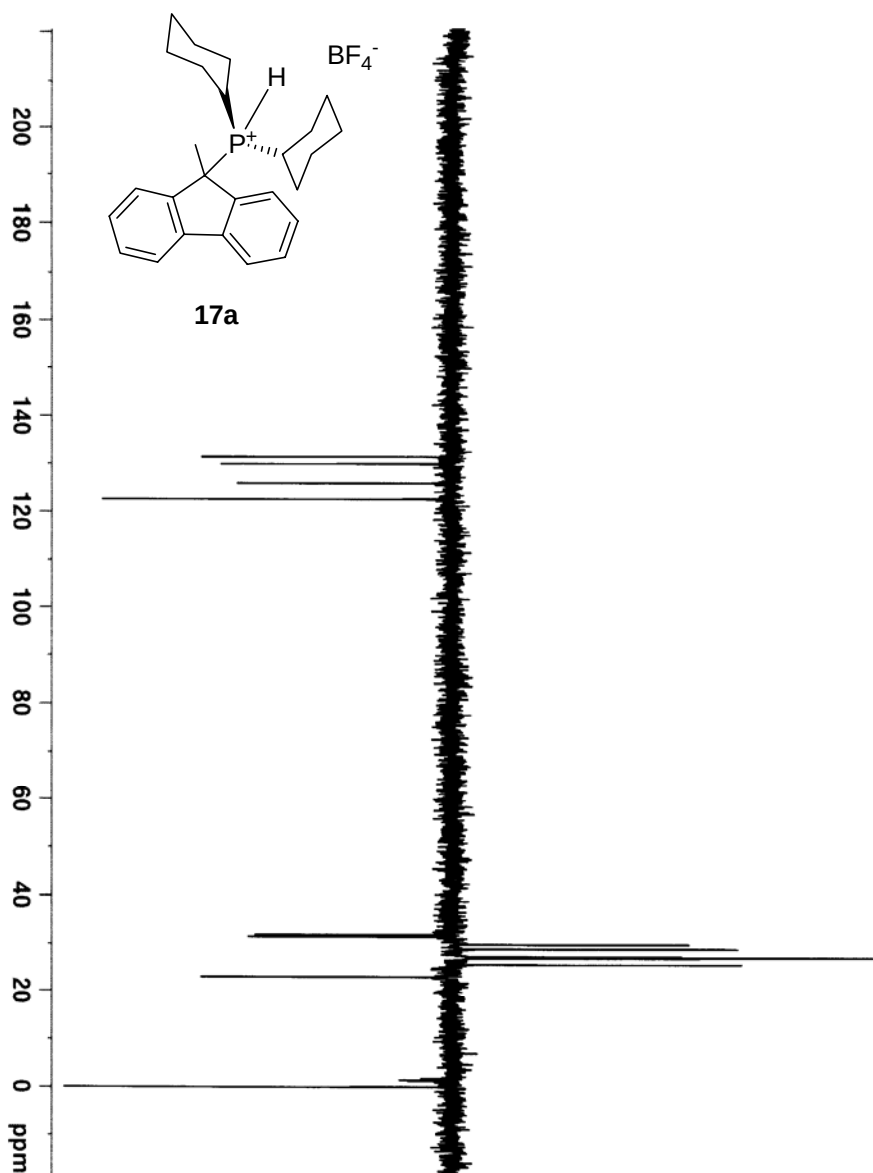
SSB 0

LB 2.00 Hz

GB 0

PC 1.40

¹³C-NMR (DEPT)





Current Data Parameters
 NAME aug23ac
 EXPNO 275
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20050824
 Time 1.31

INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG zgpg30
 TD 65536
 SOLVENT CD3CN
 NS 80
 DS 4

SWH 48076.922 Hz
 FIDRES 0.733596 Hz
 AQ 0.6816244 sec

RG 2050
 DW 10.400 usec
 DE 10.00 usec

TE 300.0 K
 D1 2.00000000 sec
 d11 0.03000000 sec

DELTA 1.89999998 sec
 TD0 1

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

NUC1 31P
 P1 7.50 usec
 PL1 0.00 dB
 SFO1 121.3956752 MHz

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

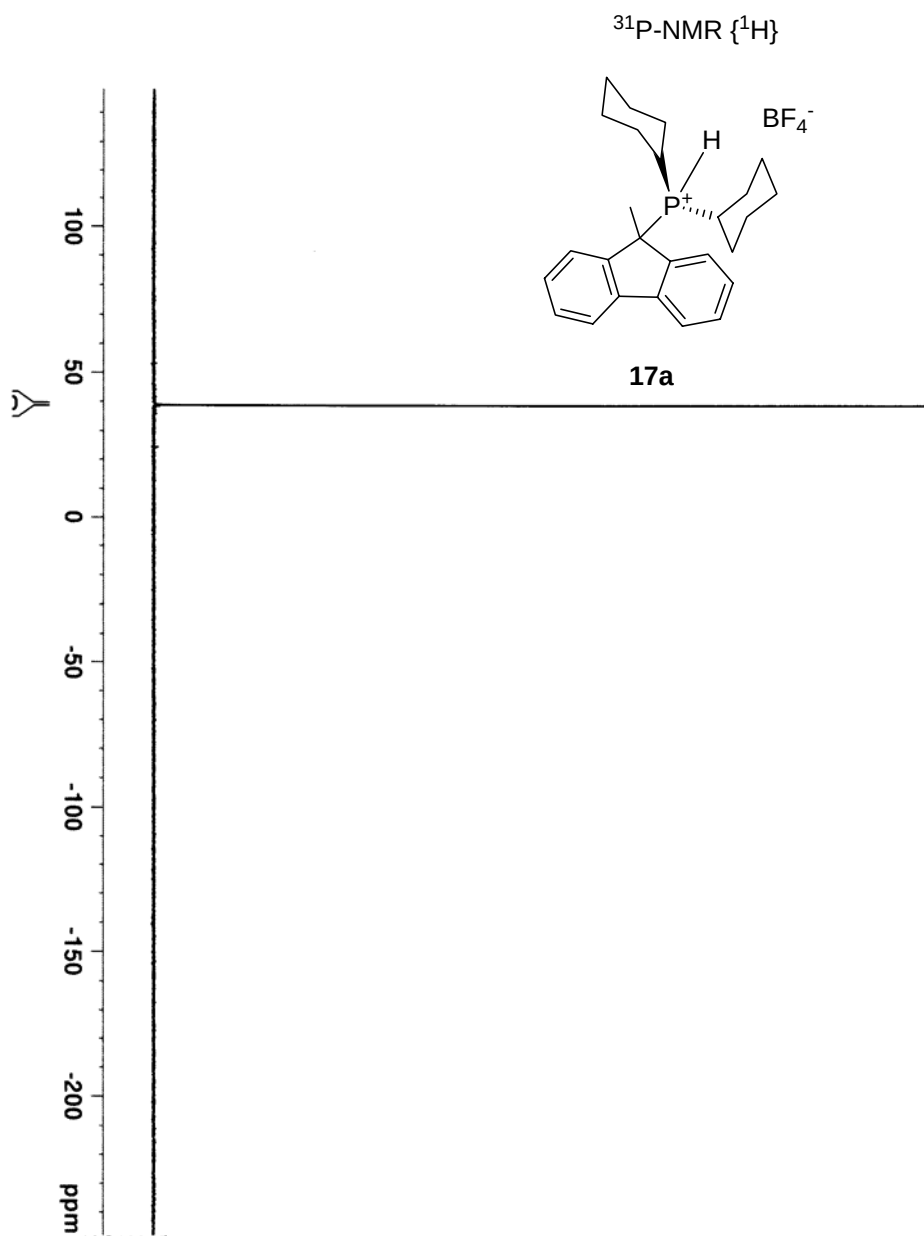
CPDPRG2 waltz16
 NUC2 1H
 PCPD2 95.00 usec
 PL2 3.00 dB
 PL12 17.00 dB
 PL13 23.00 dB
 SFO2 299.9011996 MHz

F2 - Processing parameters

SI 32768
 SF 121.4017450 MHz

WDW EM
 SSB 0
 LB 1.00 Hz

GB 0
 PC 1.40

³¹P-NMR {¹H}BF₄⁻

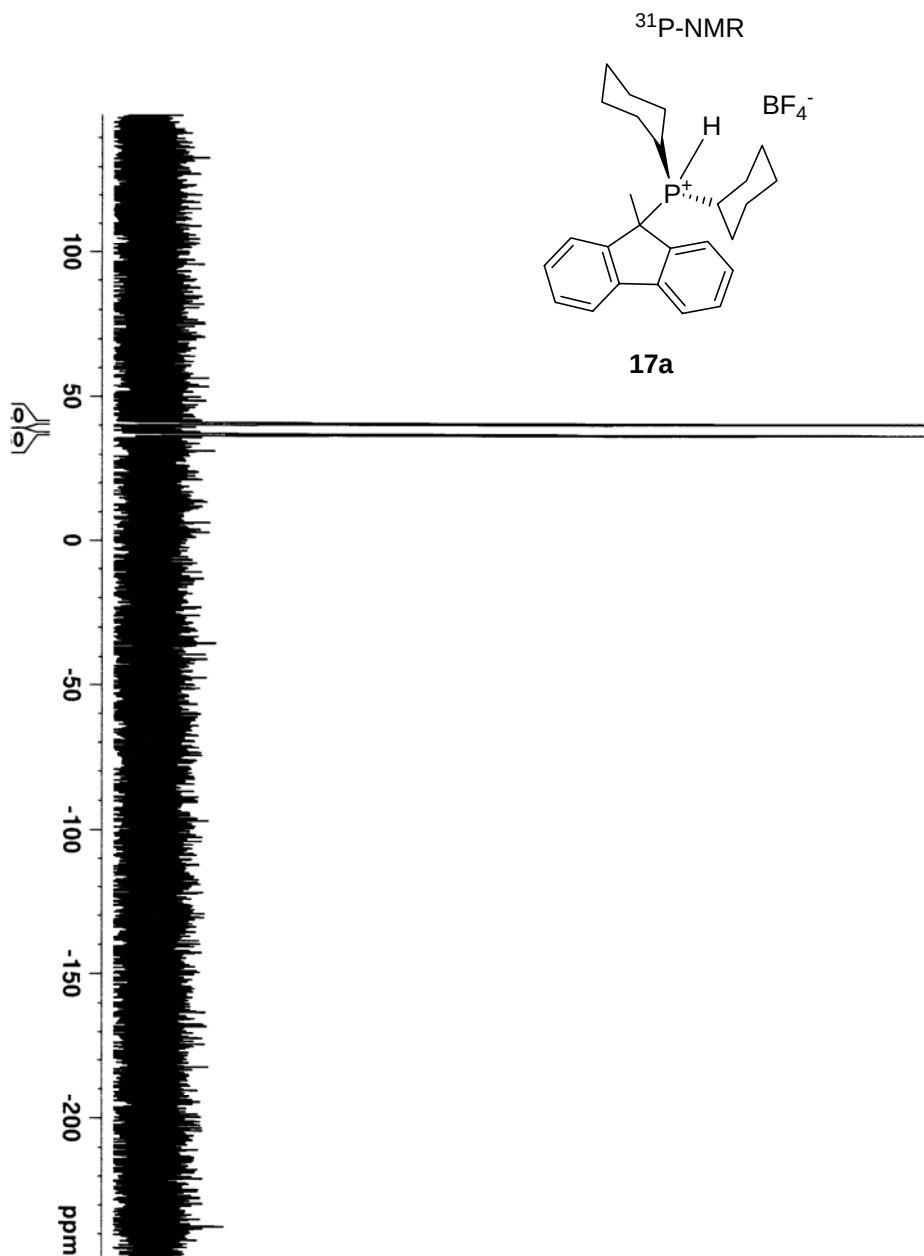
17a



Current Data Parameters
 NAME aug23ac
 EXPNO 276
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20050824
 Time 1.40
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG zg30
 TD 65536
 SOLVENT CD3CN
 NS 160
 DS 4
 SWH 48076.922 Hz
 FIDRES 0.73596 Hz
 AQ 0.6816244 sec
 RG 2050
 DW 10.400 usec
 DE 10.00 usec
 TE 300.0 K
 D1 2.00000000 sec
 TD0 1

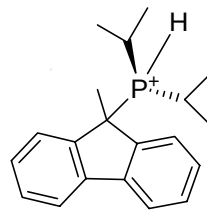
===== CHANNEL f1 =====
 NUC1 31P
 P1 7.50 usec
 PL1 0.00 dB
 SFO1 121.3956752 MHz
 F2 - Processing parameters
 SI 32768
 SF 121.4017450 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40



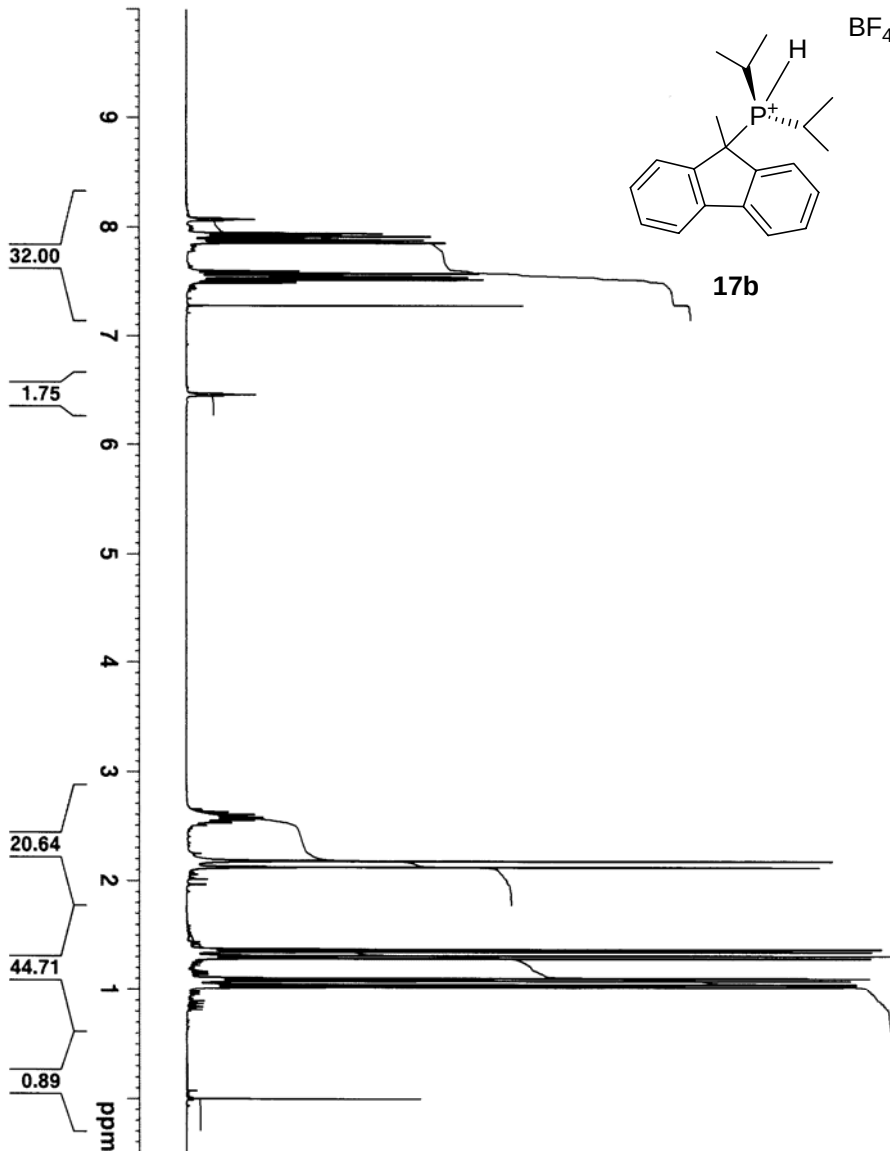
Fleckenstein CFP-2-54
(bitte laergere Roehirchen verwenden)



BF_4^-



17b



Current Data Parameters
NAME aug19ac
EXPNO 240
PROCNO 1

F2 - Acquisition Parameters

Date_ 20050820
Time 3.21
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 32
DS 2
SWH 6188.119 Hz
FIDRES 0.18846 Hz
AQ 2.6477044 sec
RG 228
DW 80.800 usec
DE 10.00 usec
TE 300.0 K
D1 1.00000000 sec
TD0 1

CHANNEL f1
NUC1 1H
P1 9.70 usec
PL1 -3.00 dB
SFO1 299.9018520 MHz

F2 - Processing parameters

SI 32768
SF 299.899968 MHz
WDW EM
SSB 0
LB 0.10 Hz
GB 0
PC 1.00



Current Data Parameters
NAME aug19ac
EXPNO 241
PROCNO 1

F2 - Acquisition Parameters

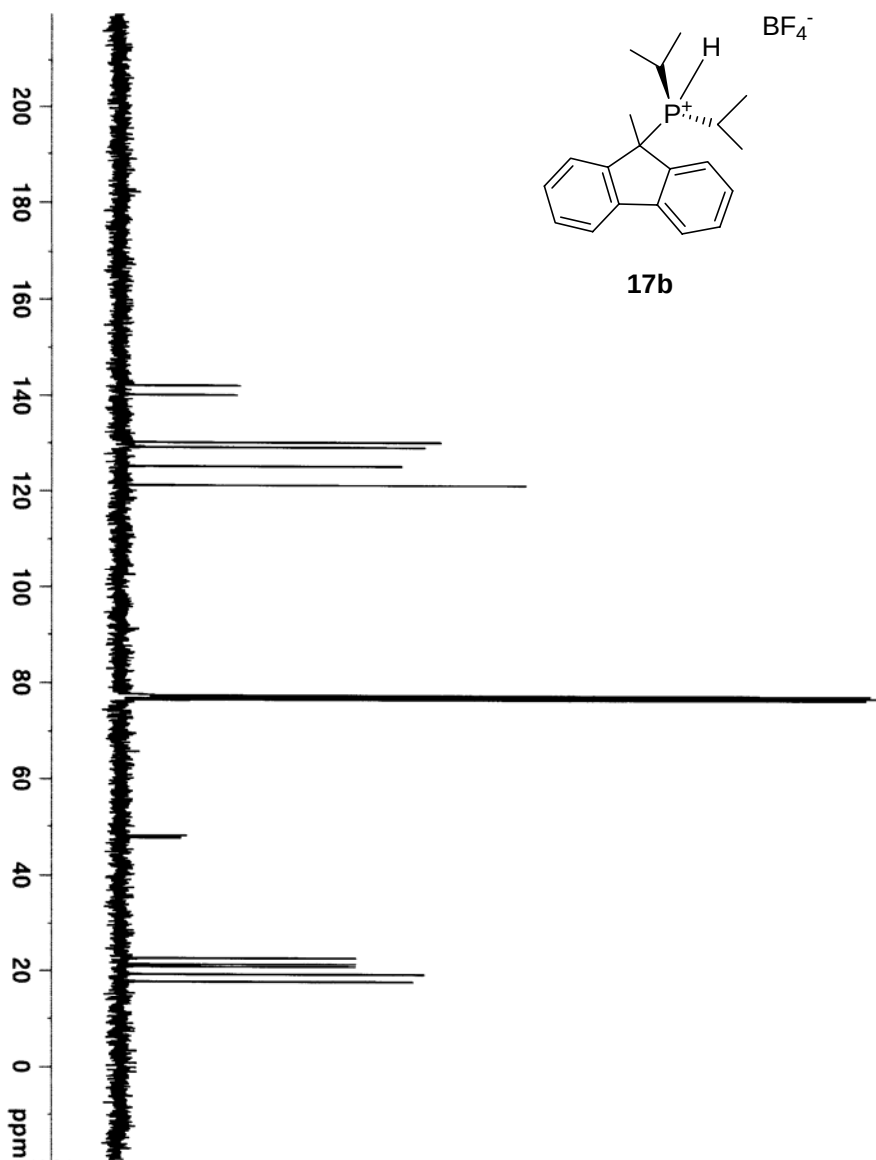
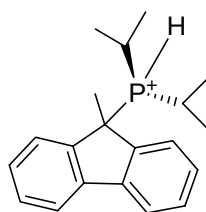
Date_ 20050820
Time 3.39
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 512
DS 4
SWH 18028.846 Hz
FIDRES 0.550197 Hz
AQ 0.9088159 sec
RG 2050
DM 27.733 usec
DE 10.00 usec
TE 300.0 K
D1 1.00000000 sec
d11 0.03000000 sec
DELTA 0.89999998 sec
TD0 1

===== CHANNEL f1 =====
NUC1 ¹³C
P1 11.00 usec
PL1 0.00 dB
SFO1 75.4174560 MHz

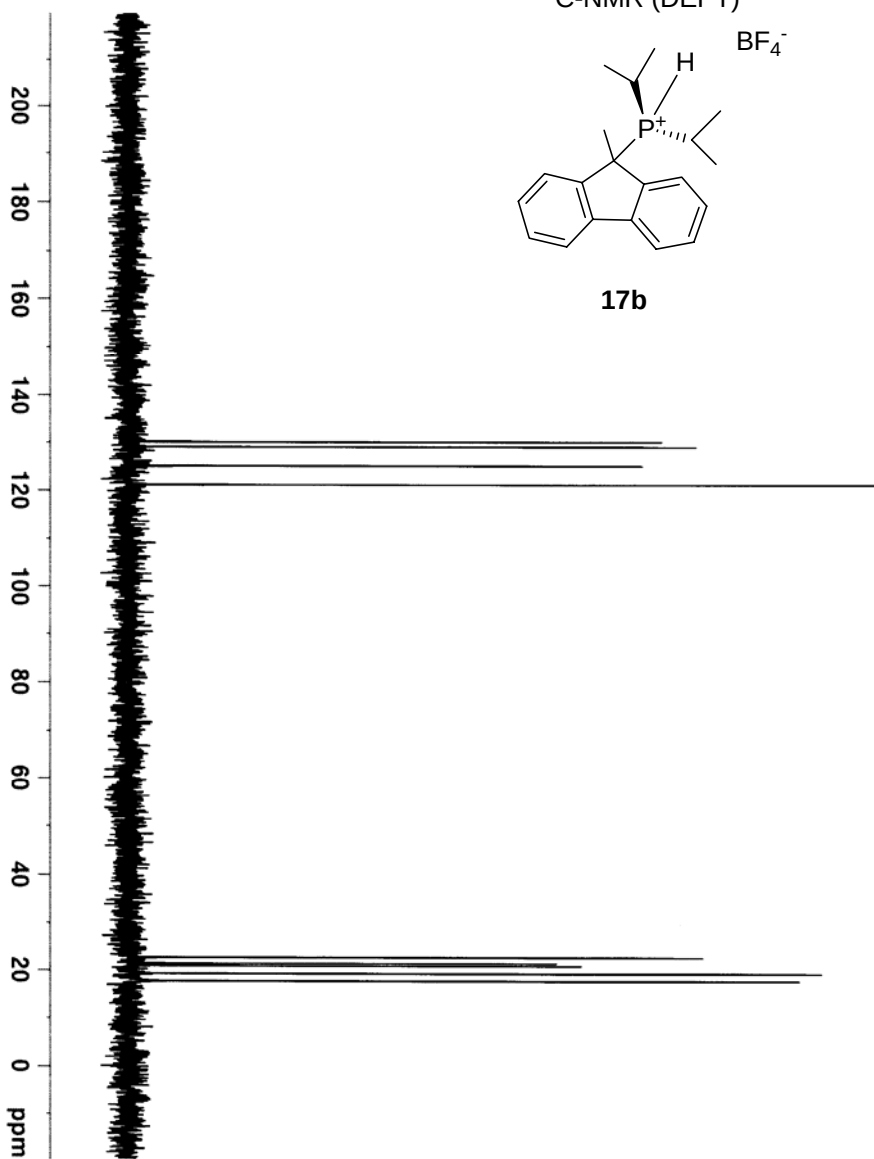
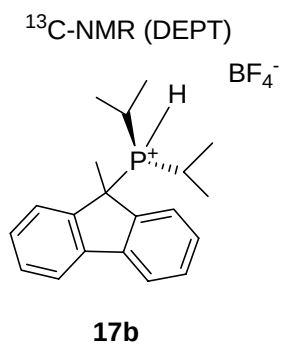
===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 ¹H
PCPD2 95.00 usec
PL2 -3.00 dB
PL12 17.00 dB
PL13 23.00 dB
SFO2 299.9011996 MHz

F2 - Processing parameters

SI 32768
SF 75.4099150 MHz
WDW EM
SSB 0
LB 2.00 Hz
GB 0
PC 1.40

¹³C-NMRBF₄⁻

17b



Current Data Parameters
NAME aug19ac
EXPNO 242
PROCNO 1

F2 - Acquisition Parameters
Date_ 20050820
Time 3.52
INSTRUM spect
PROBHD 5 mm PARBO BB-
PULPROG dept135
TD 32768
SOLVENT CDCl3
NS 256
DS 4
SMH 18028.846 Hz
FIDRES 0.550197 Hz
AQ 0.9088159 sec
RG 2050
DE 27.733 usec
DM 10.00 usec
TE 300.0 K
CNST2 145.0000000
D1 2.00000000 sec
d2 0.00344828 sec
d12 0.00002000 sec
DELTA 0.00001401 sec
TD0 1

===== CHANNEL f1 =====
NUC1 ¹³C
P1 11.00 usec
P2 22.00 usec
PL1 0.00 dB
SFO1 75.4174560 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 ¹H
P3 9.50 usec
P4 19.00 usec
PCPD2 95.00 usec
PL2 -3.00 dB
PL12 17.00 dB
SFO2 299.9011996 MHz

F2 - Processing Parameters
SI 32768
SF 75.4099150 MHz
WDW EM
SSB 0
LB 2.00 Hz
GB 0
PC 1.40



Current Data Parameters
NAME aug19ac
EXPNO 243
PROCNO 1

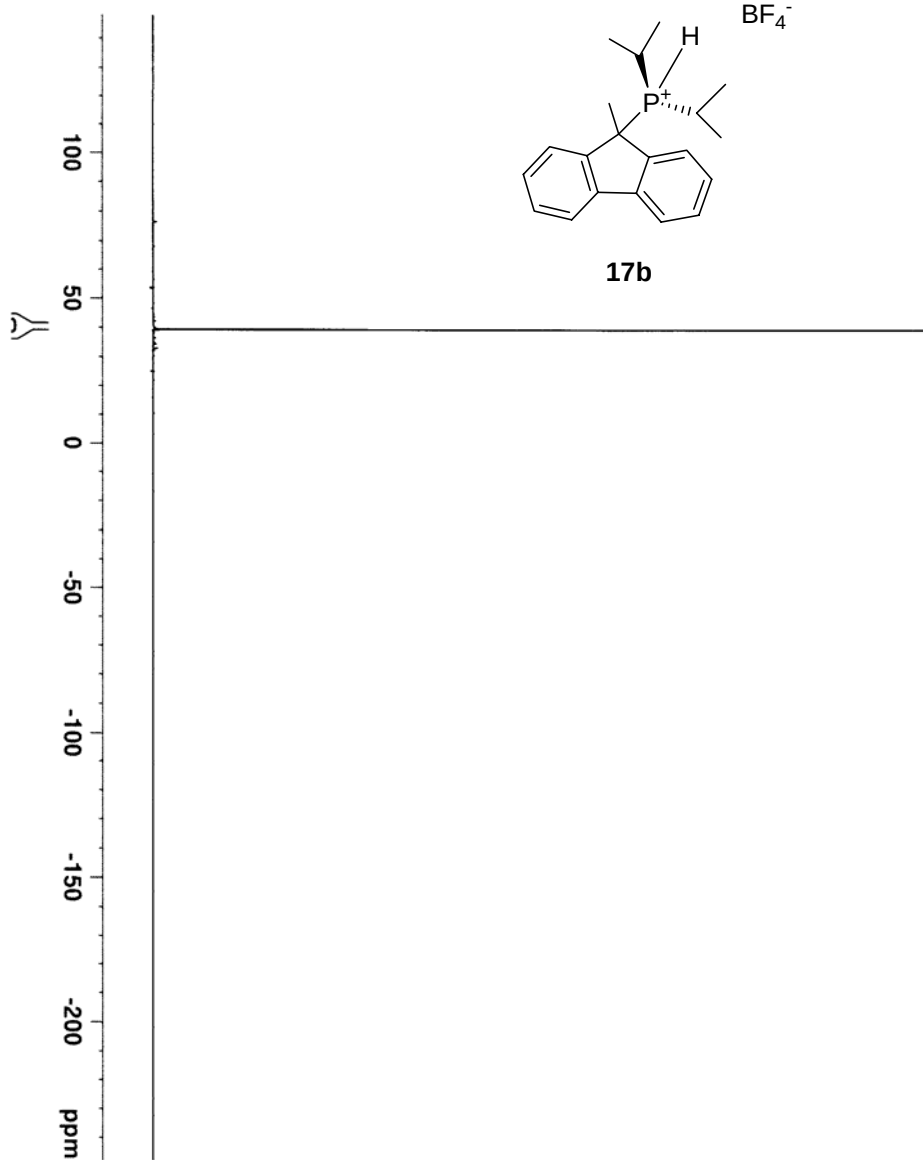
F2 - Acquisition Parameters

Date_ 20050820
Time 4.18
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 512
DS 4
SWH 48076.922 Hz
FIDRES 0.733596 Hz
AQ 0.6816244 sec
RG 2050
DM 10.400 usec
DE 10.00 usec
TE 300.0 K
D1 2.00000000 sec
d11 0.03000000 sec
DELTA 1.89999998 sec
TD0 1

===== CHANNEL f1 =====
NUC1 31P
P1 7.50 usec
PL1 0.00 dB
SFO1 121.3956752 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 95.00 usec
PL2 -3.00 dB
PL12 17.00 dB
PL13 23.00 dB
SFO2 299.9011996 MHz

F2 - Processing Parameters
SI 32768
SF 121.4017450 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40



31P-NMR {¹H}

BF₄⁻

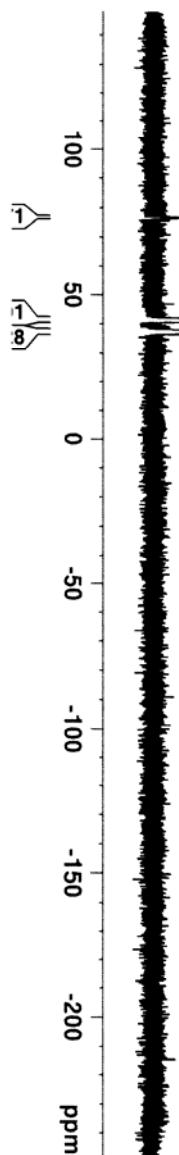
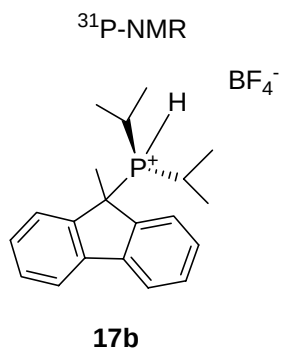
17b



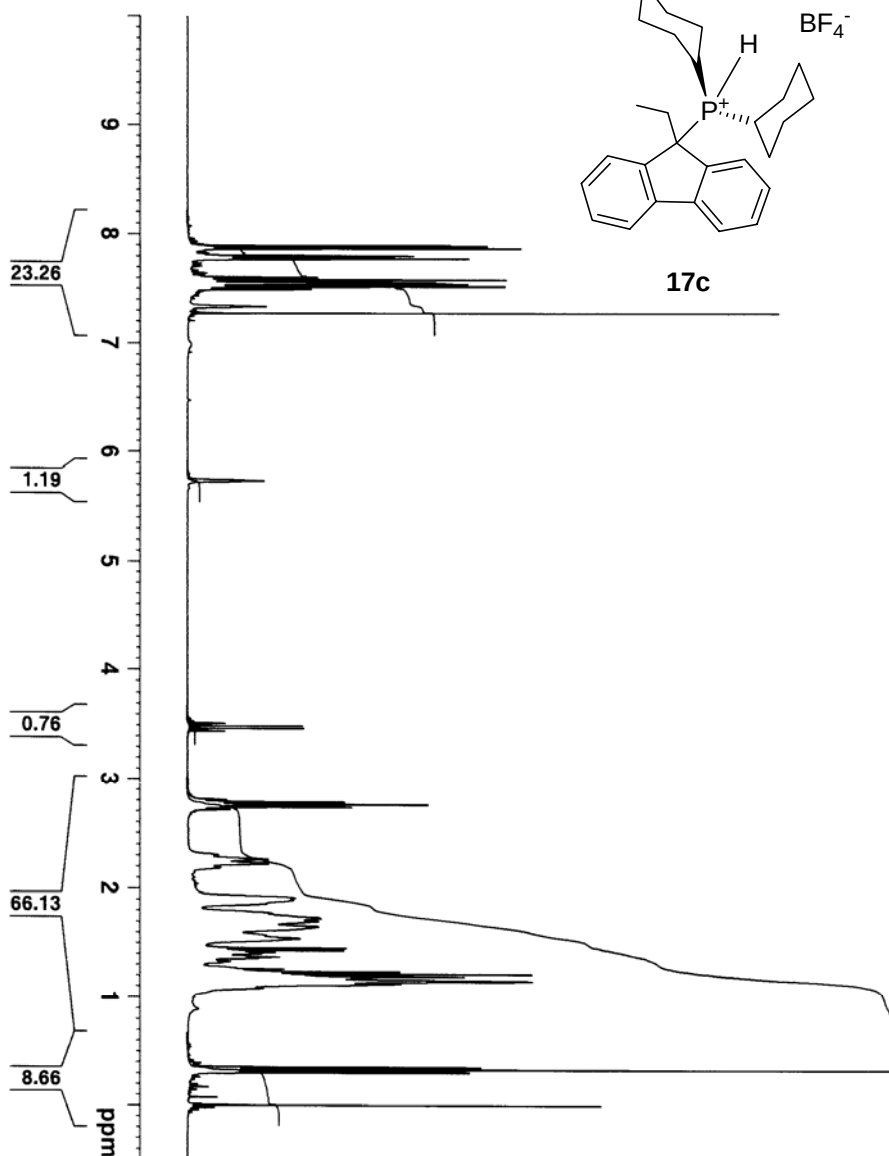
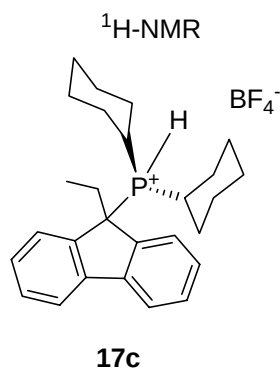
Current Data Parameters
 NAME aug19ac
 EXPNO 244
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20050820
 Time 5.06
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 1024
 DS 4
 SWH 48076.922 Hz
 FIDRES 0.733596 Hz
 AQ 0.6816244 sec
 RG 2050
 DW 10.400 usec
 DE 10.00 usec
 TE 300.0 K
 D1 2.00000000 sec
 TDC 1

===== CHANNEL f1 =====
 NUC1 31P
 P1 7.50 usec
 PL1 0.00 dB
 SFO1 121.3956752 MHz
 F2 - Processing parameters
 SI 32768
 SF 121.4017450 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40



Fleckenstein CFP-2-88
(bitte laengere Roehrichten verwenden)



Current Data Parameters
NAME aug19ac
EXPNO 250
PROCNO 1

F2 - Acquisition Parameters

Date_ 20050820
Time 6.24
INSTRUM spect
PROBHD 5 mm PABO BB-
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 32
DS 2

SWH 6188.119 Hz
FIDRES 0.18846 Hz
AQ 2.647704 sec

RG 181
DM 80.800 usec
DE 10.00 usec
TE 300.0 K
D1 1.00000000 sec
TD0 1

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

NUC1 1H
P1 9.70 usec
PL1 -3.00 dB
SFO1 299.9018520 MHz

F2 - Processing parameters

SI 32768
SF 299.899979 MHz
WDW EM
SSB 0
LB 0.10 Hz
GB 0
PC 1.00



Current Data Parameters
NAME aug19ac
EXPNO 251
PROCNO 1

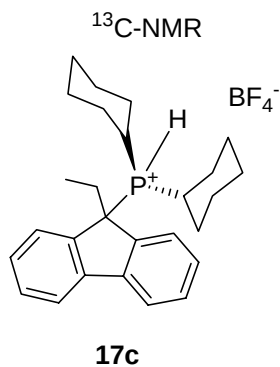
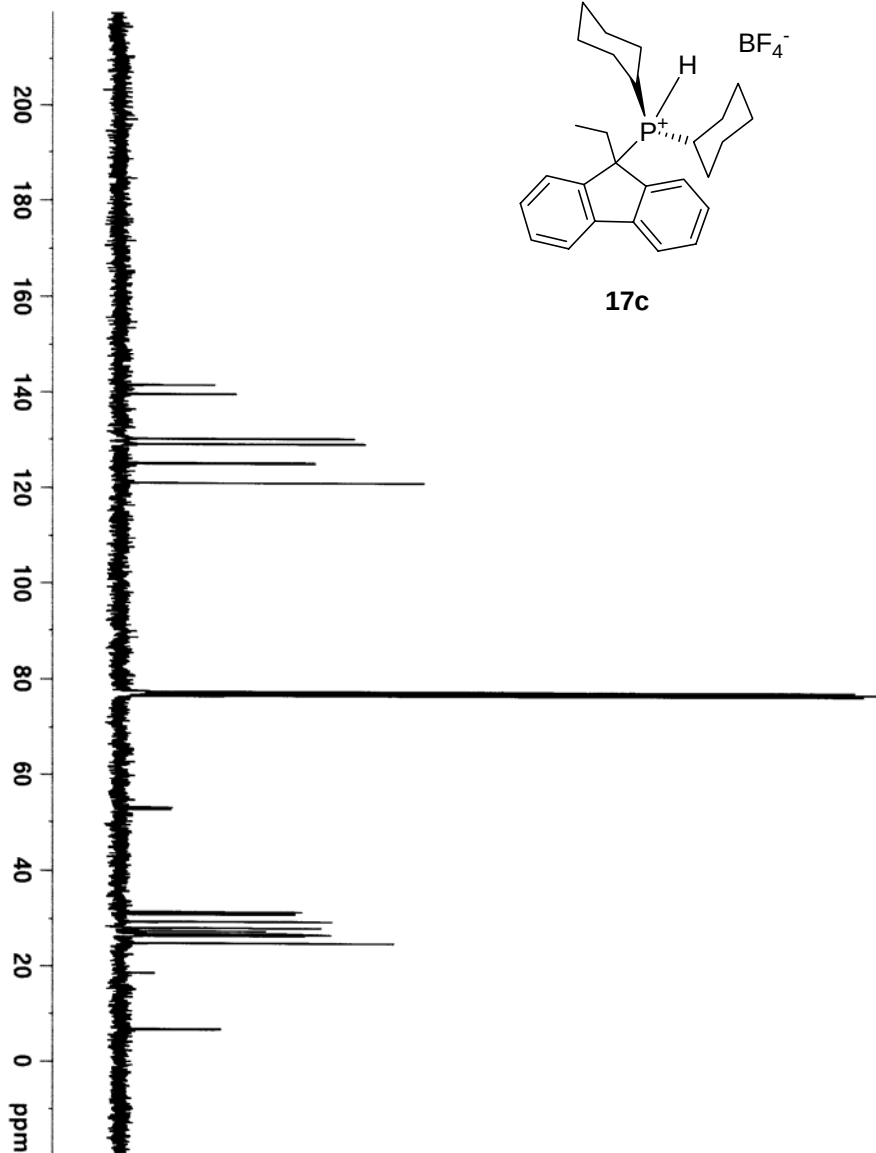
F2 - Acquisition Parameters

Date_ 20050820
Time 6.42
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 512
DS 4
SWH 18028.846 Hz
FIDRES 0.550197 Hz
AQ 0.9088159 sec
RG 2050
DM 27.733 usec
DE 10.00 usec
TE 300.0 K
D1 1.00000000 sec
d11 0.03000000 sec
DELTA 0.89999998 sec
TD0 1

===== CHANNEL f1 =====
NUC1 13C
P1 11.00 usec
PL1 0.00 dB
SFO1 75.4174560 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 95.00 usec
PL2 -3.00 dB
PL12 17.00 dB
PL13 23.00 dB
SFO2 299.9011996 MHz

F2 - Processing parameters
SI 32768
SF 75.4099150 MHz
WDW EM
SSB 0
LB 2.00 Hz
GB 0
PC 1.40





Current Data Parameters
NAME aug19ac
EXPNO 252
PROCNO 1

F2 - Acquisition Parameters
Date_ 20050820
Time 6.56

INSTRUM spect
PROBHD 5 mm PABO HR-
PULPROG dept135
TD 32768
SOLVENT CDCl3
NS 256
DS 4

SWH 18028.846 Hz
FIDRES 0.550197 Hz
AQ 0.9088159 sec
RG 2050

DW 27.733 usec
DE 10.00 usec
TE 300.0 K
CNST2 145.0000000
D1 2.00000000 sec
d2 0.00344828 sec
d12 0.00002000 sec
DELTA 0.0001401 sec
TD0 1

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

NUC1 ¹³C
P1 11.00 usec
P2 22.00 usec
PL1 0.00 dB
SFO1 75.4174560 MHz

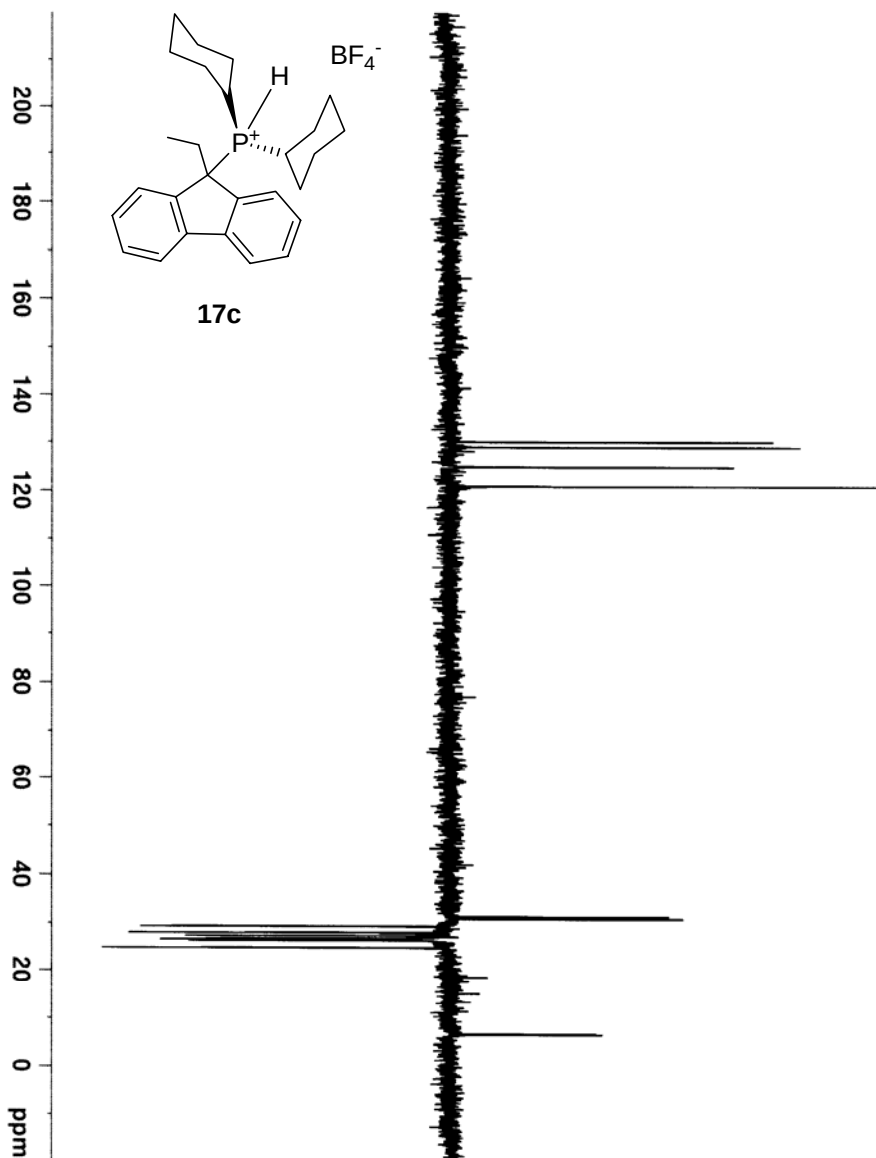
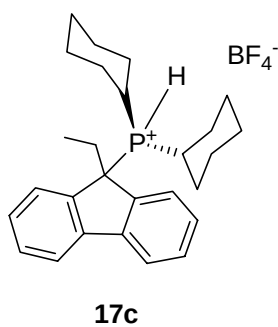
===== CHANNEL f2 =====

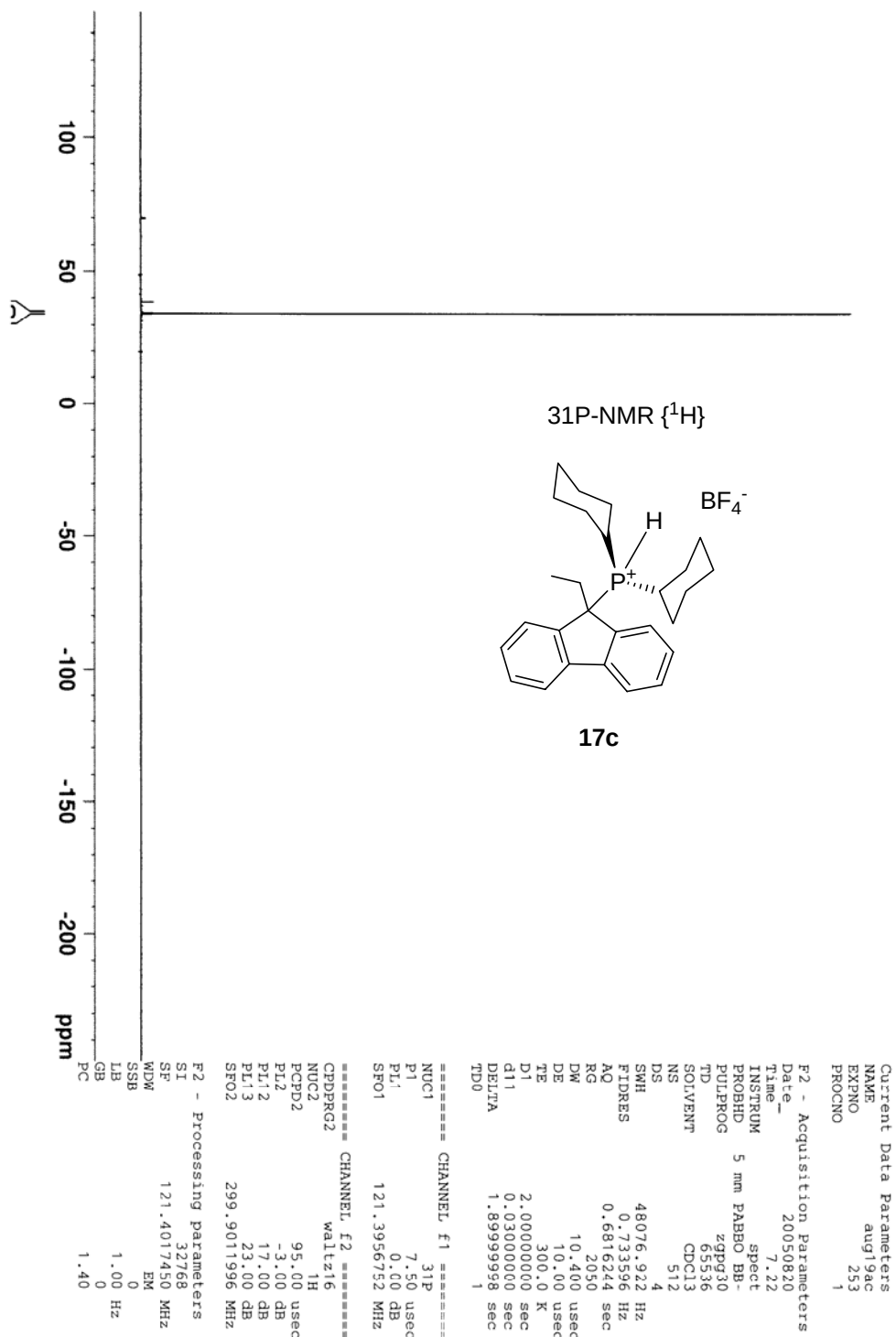
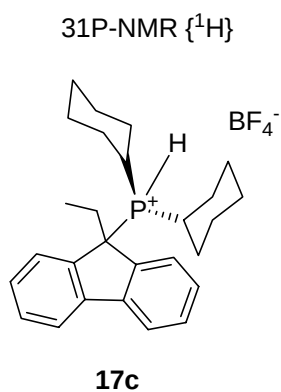
CPDPRG2 waltz16
NUC2 ¹H
P3 9.50 usec
P4 19.00 usec
PCPD2 95.00 usec
PL2 -3.00 dB
PL12 17.00 dB
SFO2 299.9011996 MHz

F2 - Processing parameters

SI 32768
SF 75.4099150 MHz
WDW EM
SSB 0
LB 2.00 Hz
GB 0
PC 1.40

¹³C-NMR (DEPT)



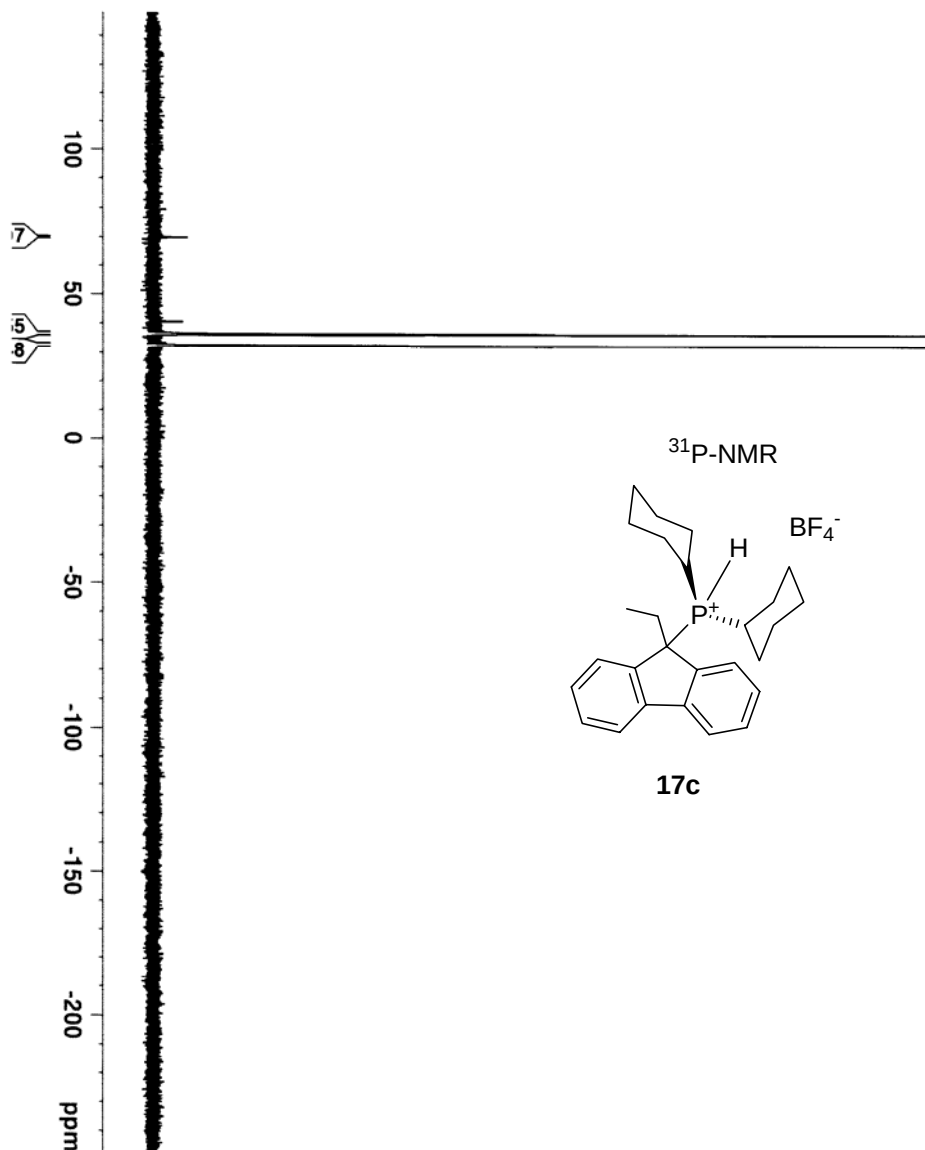
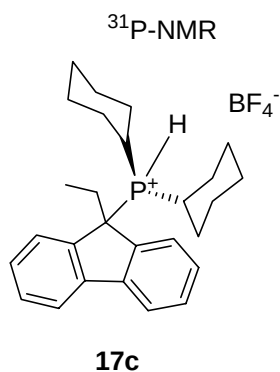




Current Data Parameters
 NAME aug19ac
 EXPNO 254
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20050820
 Time 8.09
 INSTRUM spect
 PROBHD 5 mm PABBO BH-
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 1024
 DS 4
 SWH 48076.922 Hz
 FIDRES 0.733596 Hz
 AQ 0.681624 sec
 RG 2050
 DW 10.400 usec
 DE 10.00 usec
 TE 300.0 K
 D1 2.00000000 sec
 TD0 1

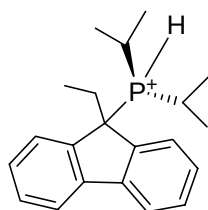
===== CHANNEL f1 =====
 NUC1 ³¹P
 P1 7.50 usec
 PL1 0.00 dB
 SFO1 121.3956752 MHz
 F2 - Processing parameters
 SI 32768
 SF 121.4017450 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40



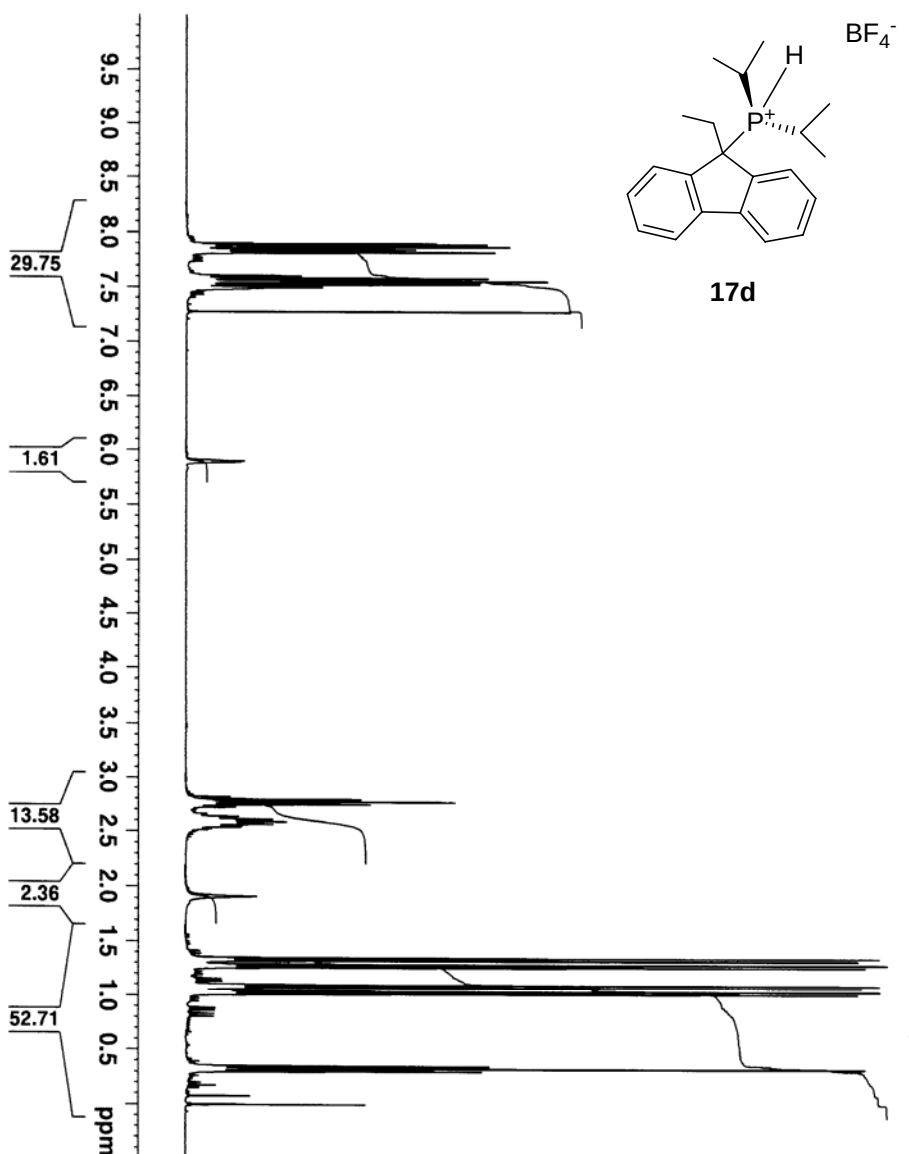


¹H-NMR

BF₄⁻



17d



Current Data Parameters
NAME aug22ac
EXPNO 10
PROCNO 1

F2 - Acquisition Parameters
Date_ 20050822
Time 8.33
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 32
DS 2
SWH 6188.119 Hz
FIDRES 0.188846 Hz
AQ 2.6477044 sec
RG 203
DW 80.800 usec
DE 10.00 usec
TE 300.0 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 1H
P1 9.70 usec
PL1 -3.00 dB
SFO1 299.9018520 MHz

F2 - Processing parameters
SI 32768
SF 299.899973 MHz
WDW EM
SSB 0
LB 0.10 Hz
GB 0
PC 1.00



Current Data Parameters
 NAME aug22ac
 EXPNO 11
 PROCNO 1

F2 - Acquisition Parameters

Date 20050822
 Time 8.49
 INSTRUM spect
 PROBD 5 mm PABBO BB-
 PULPROG zgpg30
 TD 32768
 SOLVENT CDCl3
 NS 424
 DS 4
 SWH 18028.846 Hz
 FIDRES 0.550197 Hz
 AQ 0.9088159 sec
 RG 2050
 DM 27.733 usec
 DE 10.00 usec
 TE 300.0 K
 D1 1.00000000 sec
 d11 0.03000000 sec
 DELTA 0.89999998 sec
 TD0 1

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

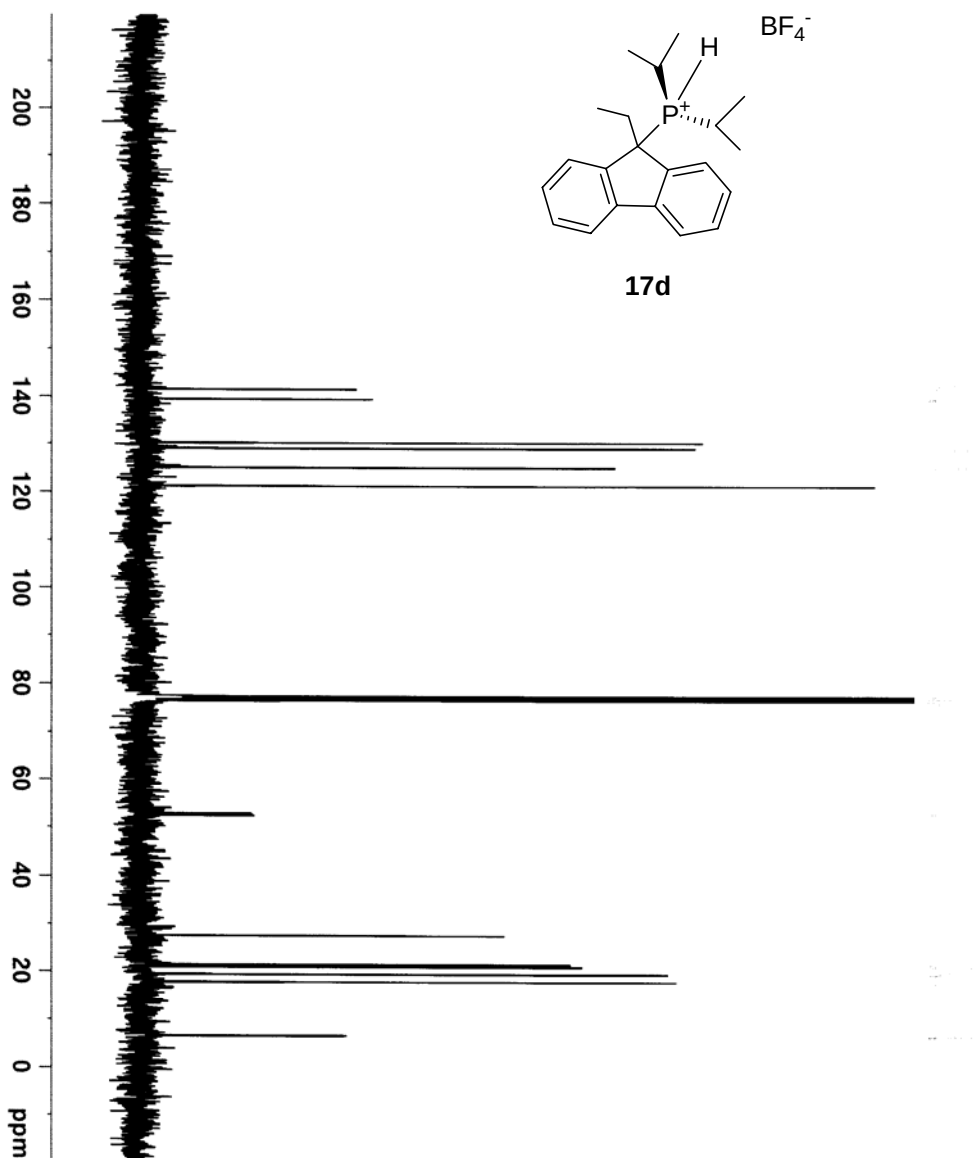
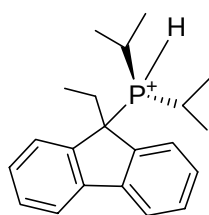
NUC1 13C
 P1 11.00 usec
 PL1 0.00 dB
 SFO1 75.4174560 MHz

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

CPDPRG2 waltz16
 NUC2 1H
 PCPD2 95.00 usec
 PL2 -3.00 dB
 PL12 17.00 dB
 PL13 23.00 dB
 SFO2 299.9011996 MHz

F2 - Processing parameters

SI 32768
 SF 75.4099150 MHz
 WDW EM
 SSB 0
 LB 2.00 Hz
 GB 0
 PC 1.40

¹³C-NMRBF₄⁻

17d



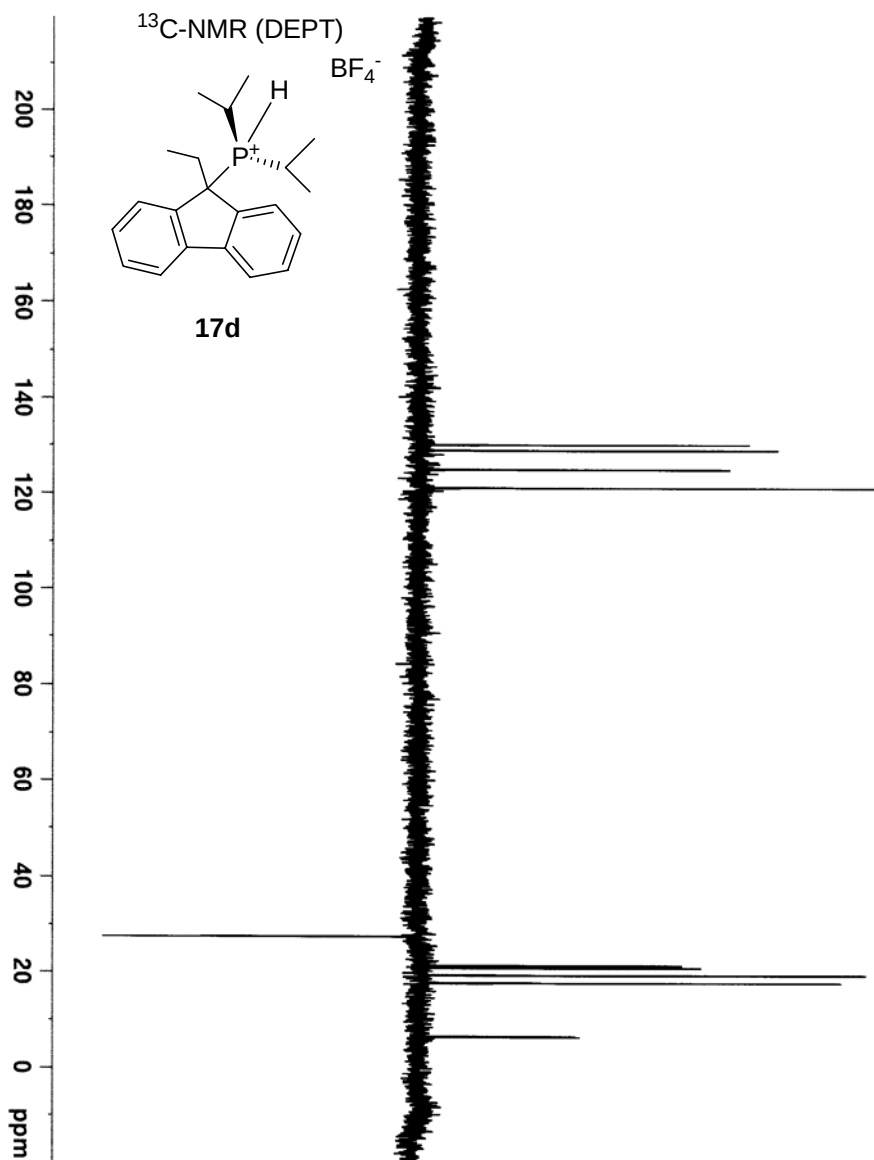
Current Data Parameters
 NAME aug22ac
 EXPNO 12
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20050822
 Time_ 8.58
 INSTRUM spect
 PROBHD 5 mm PABBO-BB-
 PULPROG dept135
 TD 32768
 SOLVENT CDCl3
 NS 160
 DS 4
 SWH 18028.846 Hz
 FIDRES 0.550197 Hz
 AQ 0.9088159 sec
 RG 2050
 DW 27.733 usec
 DE 10.00 usec
 TE 300.0 K
 CNST2 145.0000000
 D1 2.0000000 sec
 d2 0.00344828 sec
 d12 0.00002000 sec
 DELTA 0.0001401 sec
 TDO 1

===== CHANNEL f1 =====
 NUC1 ¹³C
 P1 11.00 usec
 P2 22.00 usec
 PL1 0.00 dB
 SFO1 75.4174560 MHz

===== CHANNEL f2 =====
 CDPRG2 waltz16
 NUC2 ¹H
 P3 9.50 usec
 P4 19.00 usec
 PCPD2 95.00 usec
 PL2 -3.00 dB
 PL12 17.00 dB
 SFO2 299.9011996 MHz

F2 - Processing parameters
 SI 32768
 SF 75.4099150 MHz
 WDW EM
 SSB 0
 LB 2.00 Hz
 GB 0
 PC 1.40





Current Data Parameters
NAME aug22ac
EXPNO 15
PROCNO 1

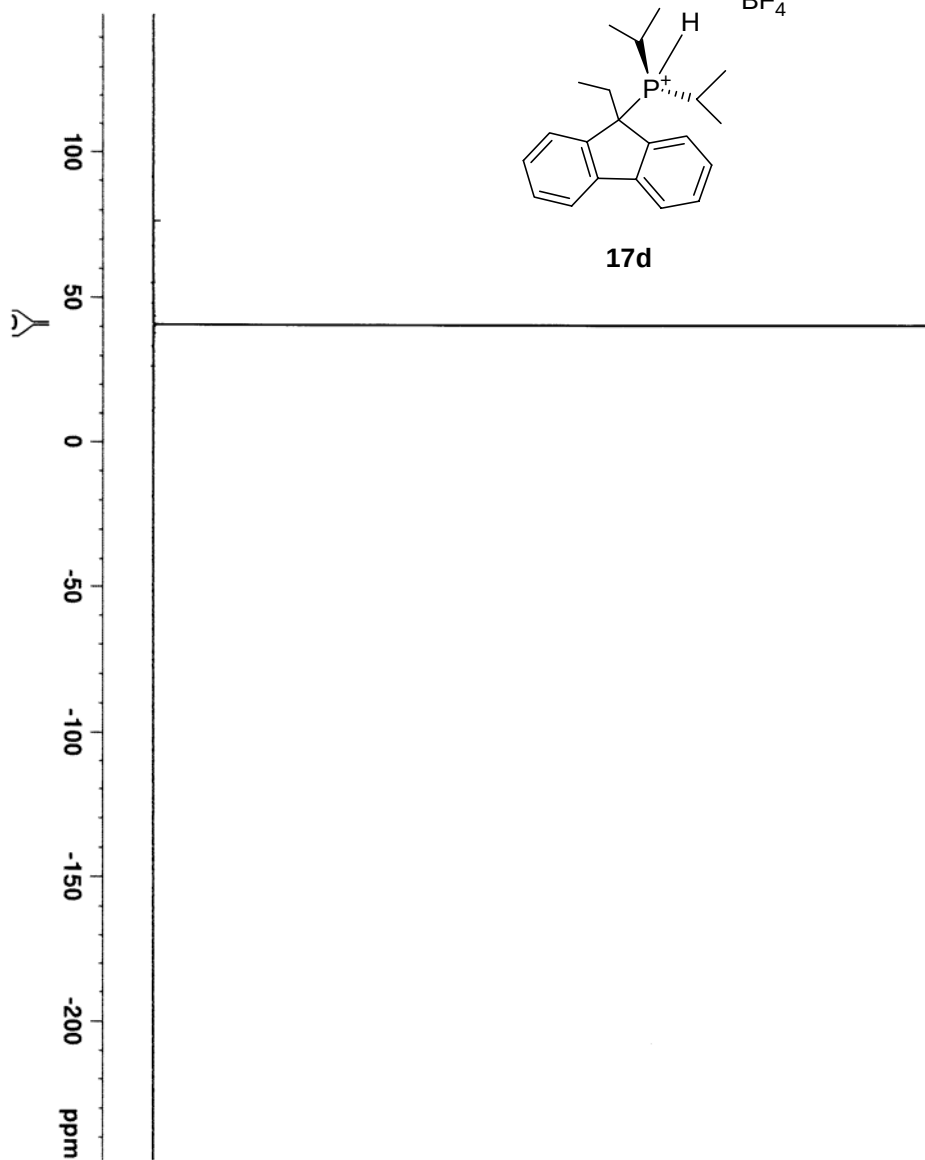
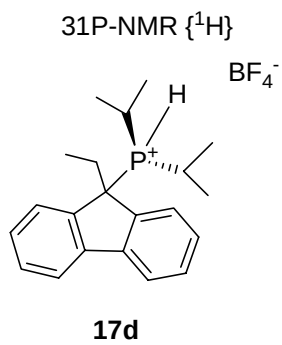
F2 - Acquisition Parameters

Date_ 20050822
Time 9.32
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 80
DS 4
SWH 48076.922 Hz
FIDRES 0.733596 Hz
AQ 0.6816244 sec
RG 2050
DM 10.400 usec
DE 10.00 usec
TE 300.0 K
D1 2.00000000 sec
d11 0.03000000 sec
DELTA 1.89999998 sec
TD0 1

===== CHANNEL f1 =====
NUC1 31P
P1 7.50 usec
PL1 0.00 dB
SFO1 121.3956752 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 95.00 usec
PL2 -3.00 dB
PL12 17.00 dB
PL13 23.00 dB
SFO2 299.9011996 MHz

F2 - Processing parameters
SI 32768
SF 121.4017450 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40



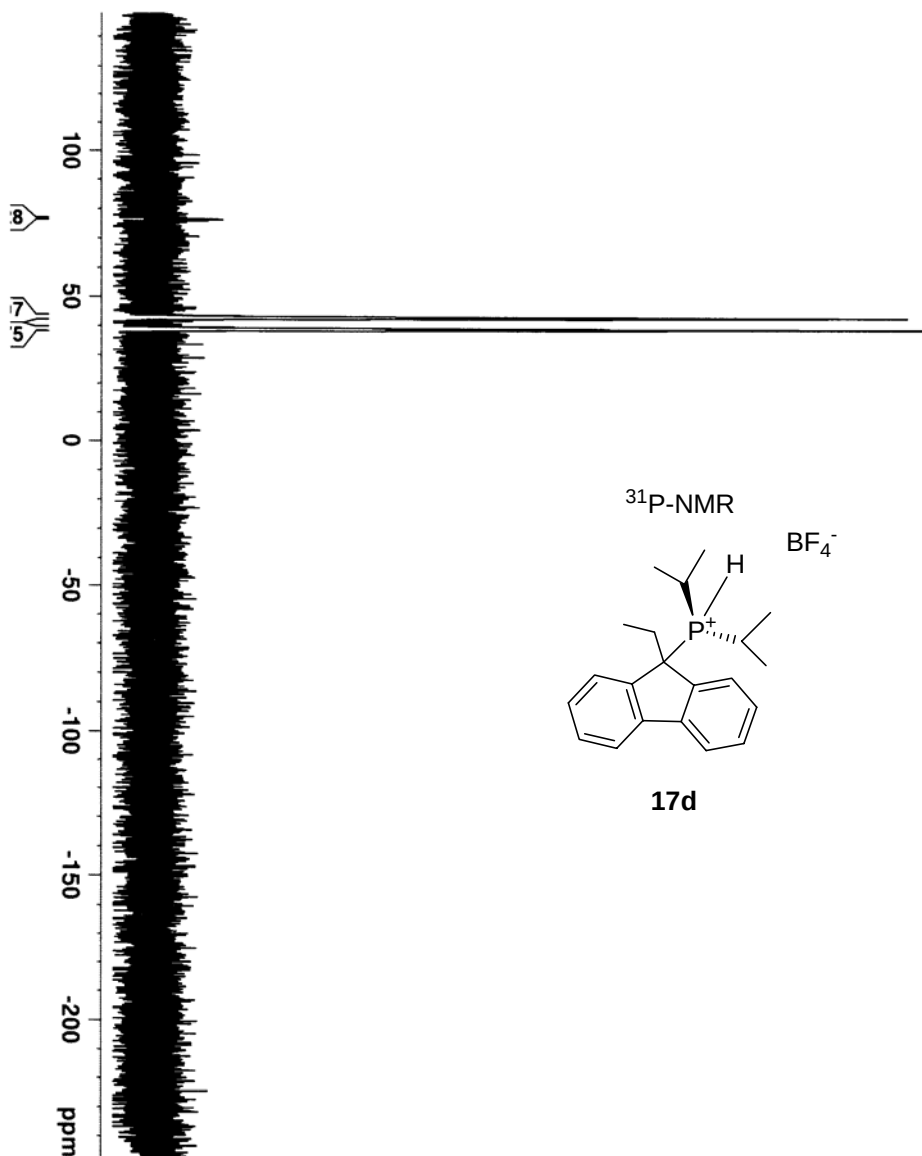
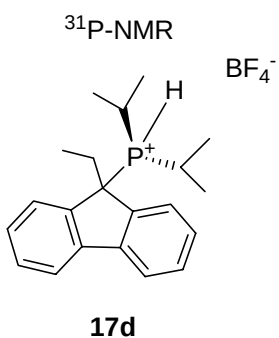


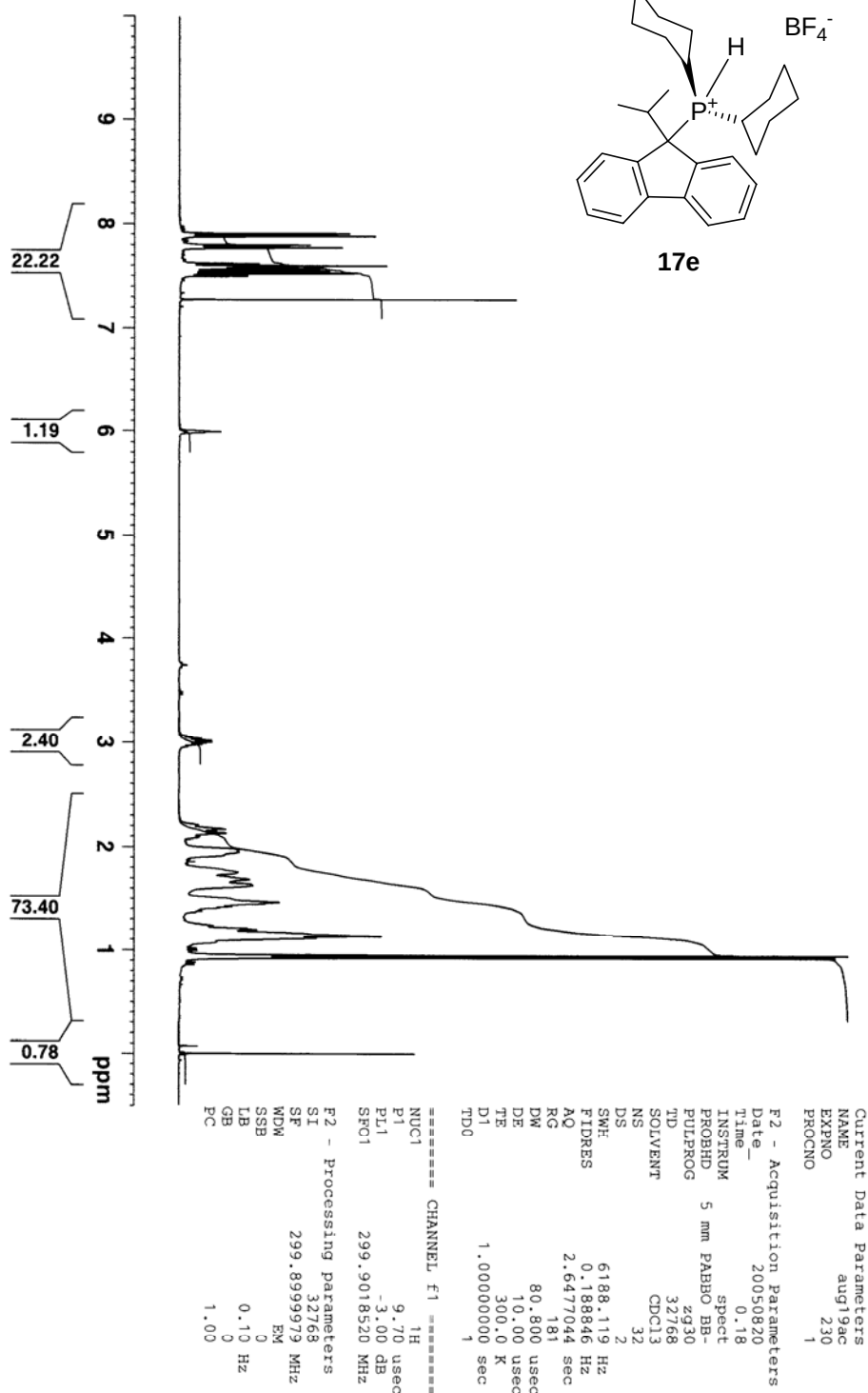
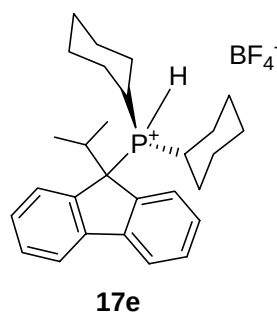
Current Data Parameters
NAME aug22ac
EXPNO 16
PROCNO 1

F2 - Acquisition Parameters
Date_ 20050822
Time 9.39
INSTRUM spect
PROBHD 5 mm PABBO BH-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 128
DS 4
SWH 48076.922 Hz
FIDRES 0.733596 Hz
AQ 0.6816244 sec
RG 2050
DW 10.400 usec
DE 10.00 usec
TE 300.0 K
D1 2.0000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 31P
P1 7.50 usec
PL1 0.00 dB
SFO1 121.3956752 MHz

F2 - Processing parameters
SI 32768
SF 121.4017450 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40



¹H-NMR



Current Data Parameters
NAME aug19ac
EXPNO 231
PROCNO 1

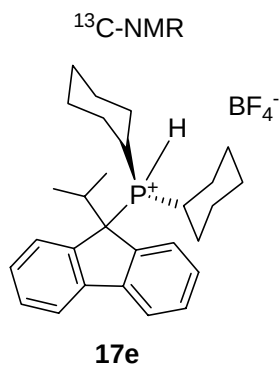
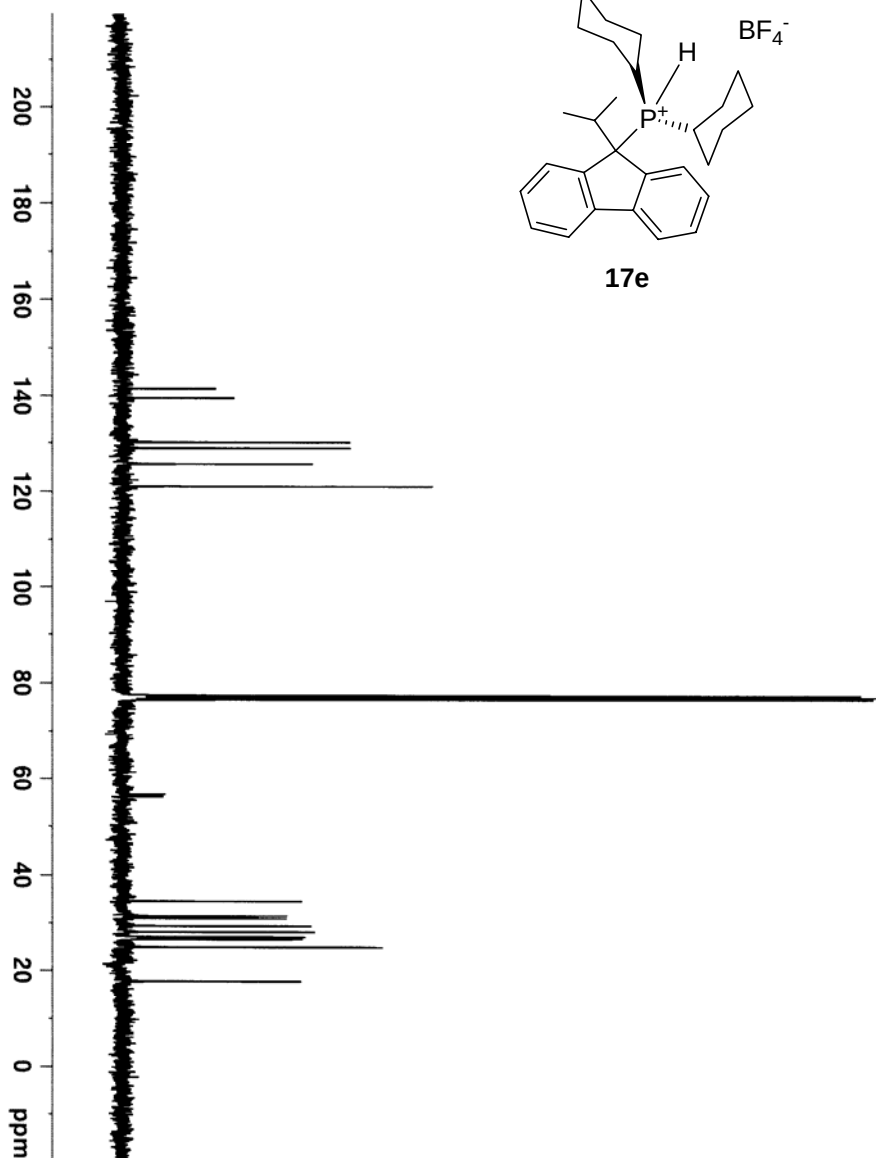
F2 - Acquisition Parameters

Date_ 20050820
Time 0.36
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 512
DS 4
SWH 18028.846 Hz
FIDRES 0.550197 Hz
AQ 0.9088159 sec
RG 2050
DW 27.733 usec
DE 10.00 usec
TE 300.0 K
D1 1.00000000 sec
d11 0.03000000 sec
DELTA 0.89999998 sec
TD0 1

===== CHANNEL f1 =====
NUC1 13C
P1 11.00 usec
PL1 0.00 dB
SFO1 75.4174560 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 95.00 usec
PL2 -3.00 dB
PL12 17.00 dB
PL13 23.00 dB
SFO2 299.9011996 MHz

F2 - Processing Parameters
SI 32768
SF 75.4099150 MHz
WDW EM
SSB 0
LB 2.00 Hz
GB 0
PC 1.40





Current Data Parameters
NAME aug19ac
EXPNO 232
PROCNO 1

F2 - Acquisition Parameters
Date_ 20050820
Time 0.49

INSTRUM 5 mm PABBO BB-
PROBHD spect
PULPROG dept135
TD 32768
SOLVENT CDCl3
NS 256

DS 4
SWH 18028.846 Hz
FIDRES 0.550197 Hz
AQ 0.9088159 sec

RG 2050
DM 27.733 usec
DE 10.00 usec
TE 300.0 K

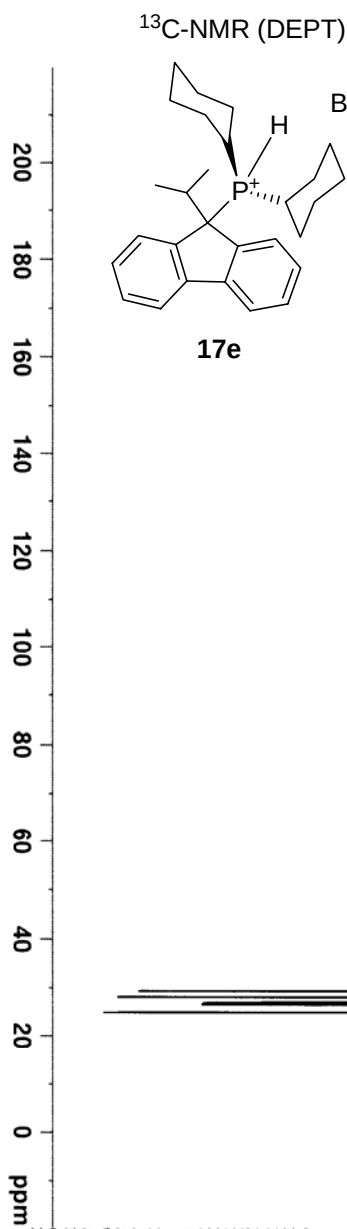
CONST2 145.0000000
D1 2.00000000 sec
d2 0.00344828 sec

d12 0.0002000 sec
DELTA 0.0001401 sec
TD0 1

===== CHANNEL f1 =====
NUC1 ¹³C
P1 11.00 usec
P2 22.00 usec
PL1 0.00 dB
SFO1 75.4174560 MHz

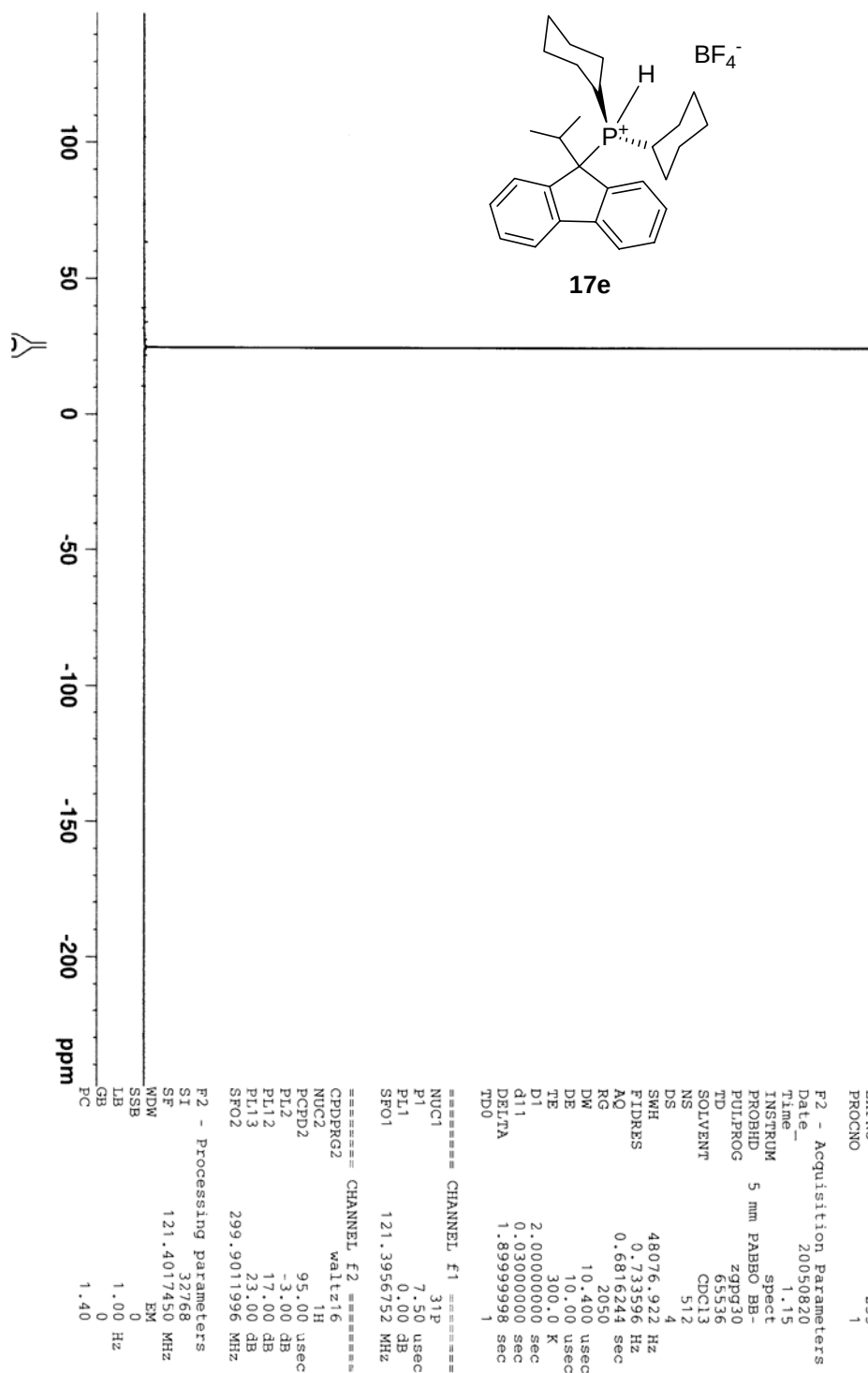
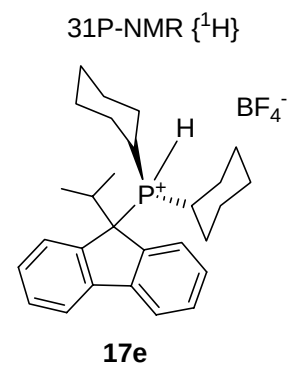
===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 ¹H
P3 9.50 usec
P4 19.00 usec
PCPD2 95.00 usec
PL2 -3.00 dB
PL12 17.00 dB
SFO2 299.9011996 MHz

F2 - Processing parameters
SI 32768
SF 75.4099150 MHz
WDW EM
SSB 0
LB 2.00 Hz
GB 0
PC 1.40





Current Data Parameters
NAME aug19ac
EXPNO 233
PROCNO 1

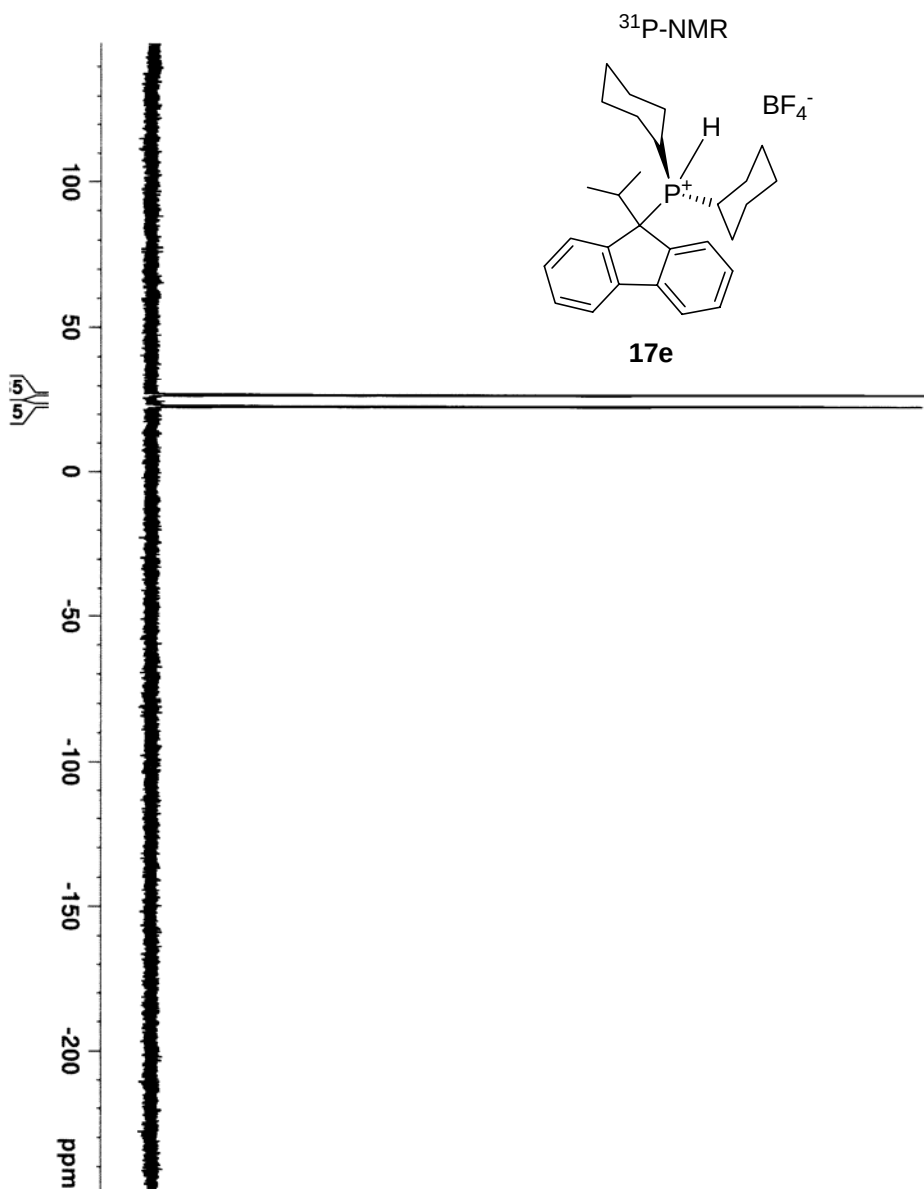


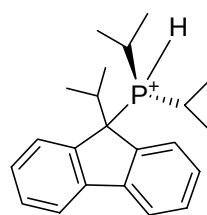


Current Data Parameters
 NAME aug19ac
 EXPNO 234
 PROCNO 1

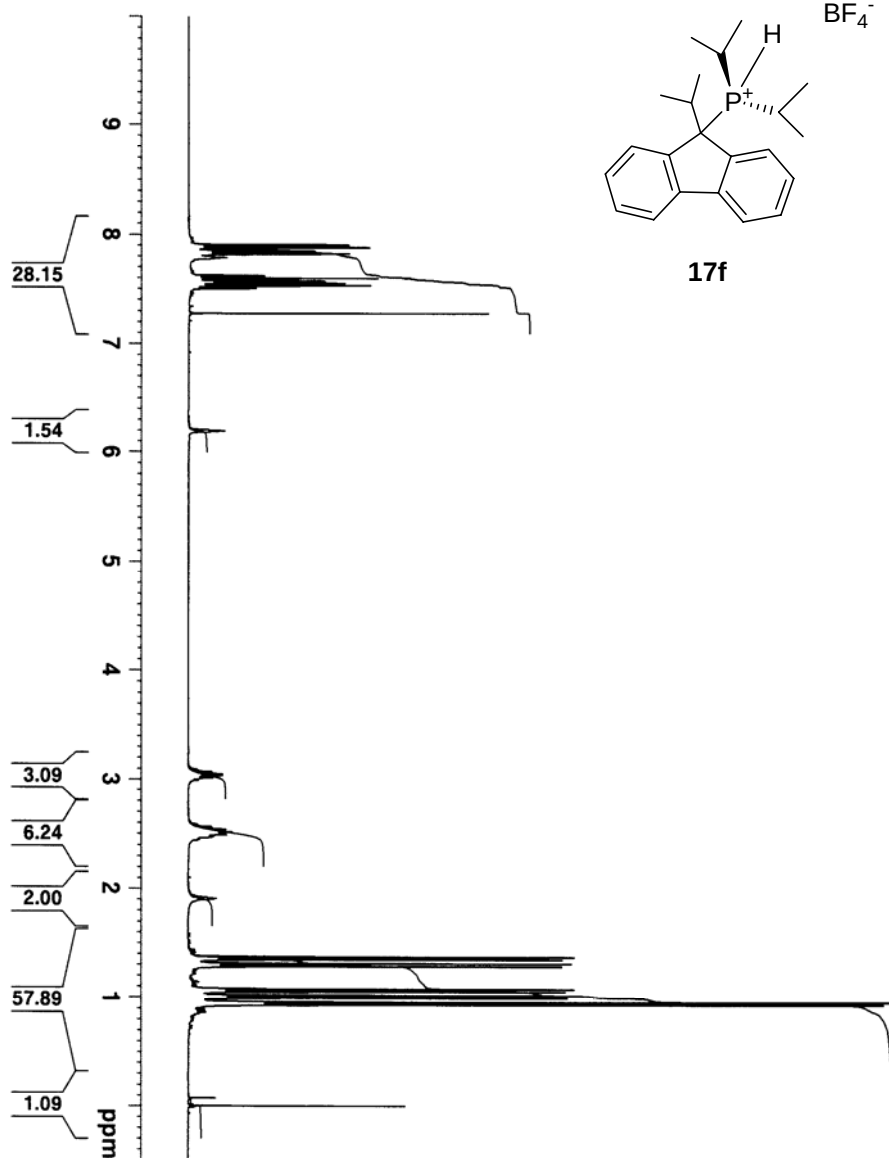
F2 - Acquisition Parameters
 Date_ 20050820
 Time 2.02
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 1024
 DS 4
 SWH 48076.922 Hz
 FIDRES 0.733596 Hz
 AQ 0.6816244 sec
 RG 2050
 DW 10.400 usec
 DE 10.00 usec
 TE 300.0 K
 D1 2.00000000 sec
 TD0 1

===== CHANNEL f1 =====
 NUC1 31P
 P1 7.50 usec
 PL1 0.00 dB
 SFO1 121.3956752 MHz
 F2 - Processing parameters
 SI 32768
 SF 121.4017450 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40



¹H-NMRBF₄⁻

17f



Current Data Parameters
 NAME aug22ac
 EXPNO 270
 PROCNO 1

F2 - Acquisition Parameters

Date_ 20050822
 Time 21.55
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG zg30
 TD 32768
 SOLVENT CDCl3
 NS 32
 DS 2

SWH 6188.119 Hz
 FIDRES 0.18846 Hz
 AQ 2.6477044 sec

RG 203
 DW 80.800 usec
 DE 10.00 usec

TE 300.0 K
 D1 1.00000000 sec

TD0 1

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

NUC1 1H

P1 9.70 usec

PL1 -3.00 dB

SFO1 299.9018520 MHz

F2 - Processing parameters

SI 32768

SF 299.899979 MHz

WDW EM

SSB 0

LB 0.10 Hz

GB 0

PC 1.00



Current Data Parameters
NAME aug22ac
EXPNO 271
PROCNO 1

F2 - Acquisition Parameters

Date_ 20050822
Time 22.30
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 1000
DS 4
SWH 18028.846 Hz
FIDRES 0.550197 Hz
AQ 0.9088159 sec
RG 2050
DM 27.733 usec
DE 10.00 usec
TE 300.0 K
D1 1.00000000 sec
d11 0.03000000 sec
DELTA 0.89999998 sec
TD0 1

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

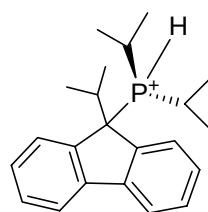
NUC1 ¹³C
P1 11.00 usec
PL1 0.00 dB
SFO1 75.4174560 MHz

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

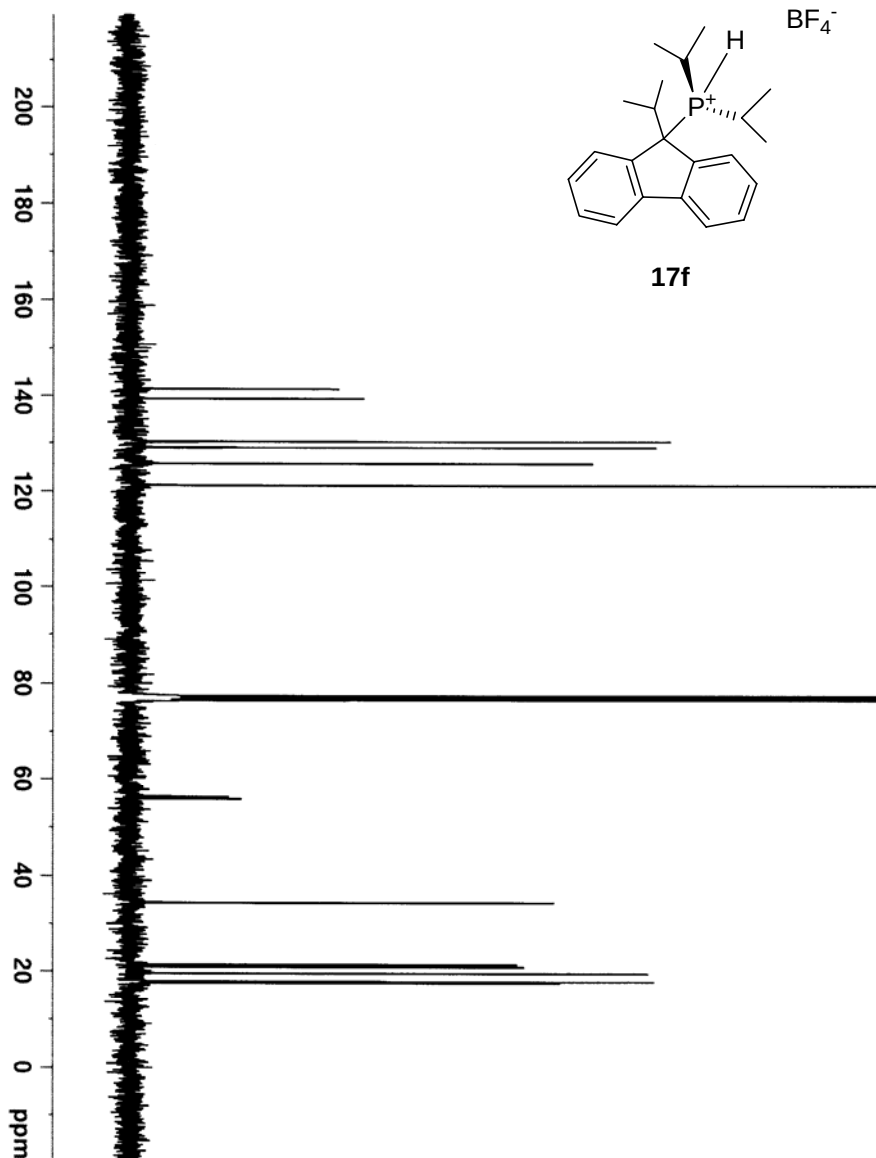
CPDPRG2 waltz16
NUC2 ¹H
PCPD2 95.00 usec
PL2 -3.00 dB
PL12 17.00 dB
PL13 23.00 dB
SFO2 299.9011996 MHz

F2 - Processing parameters

SI 32768
SF 75.4099150 MHz
WDW EM
SSB 0
LB 2.00 Hz
GB 0
PC 1.40

¹³C-NMRBF₄⁻

17f





Current Data Parameters
 NAME aug22ac
 EXPNO 272
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20050822
 Time_ 22.44

INSTRUM spect
 PROBD 5 mm PABBO BB-
 PULPROG dept135

TD 32768
 SOLVENT CDCl3

NS 256
 DS 4
 SWH 18028.846 Hz
 FIDRES 0.550197 Hz

AQ 0.9088159 sec
 RG 27.2050
 DW 27.733 usec
 DE 10.00 usec

TE 300.0 K
 CNST2 145.0000000

D1 2.00000000 sec
 d2 0.0034828 sec
 d12 0.0002000 sec
 DELTA 0.0001401 sec

TD0 1

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

NUC1 13C
 P1 11.00 usec
 P2 22.00 usec
 PL1 0.00 dB
 SFO1 75.4174560 MHz

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

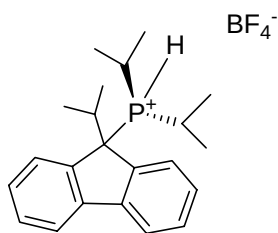
CPDPRG2 waltz16
 NUC2 1H
 P3 9.50 usec
 P4 19.00 usec
 PCPD2 95.00 usec
 PL2 -3.00 dB
 PL12 17.00 dB
 SFO2 299.9011996 MHz

F2 - Processing parameters

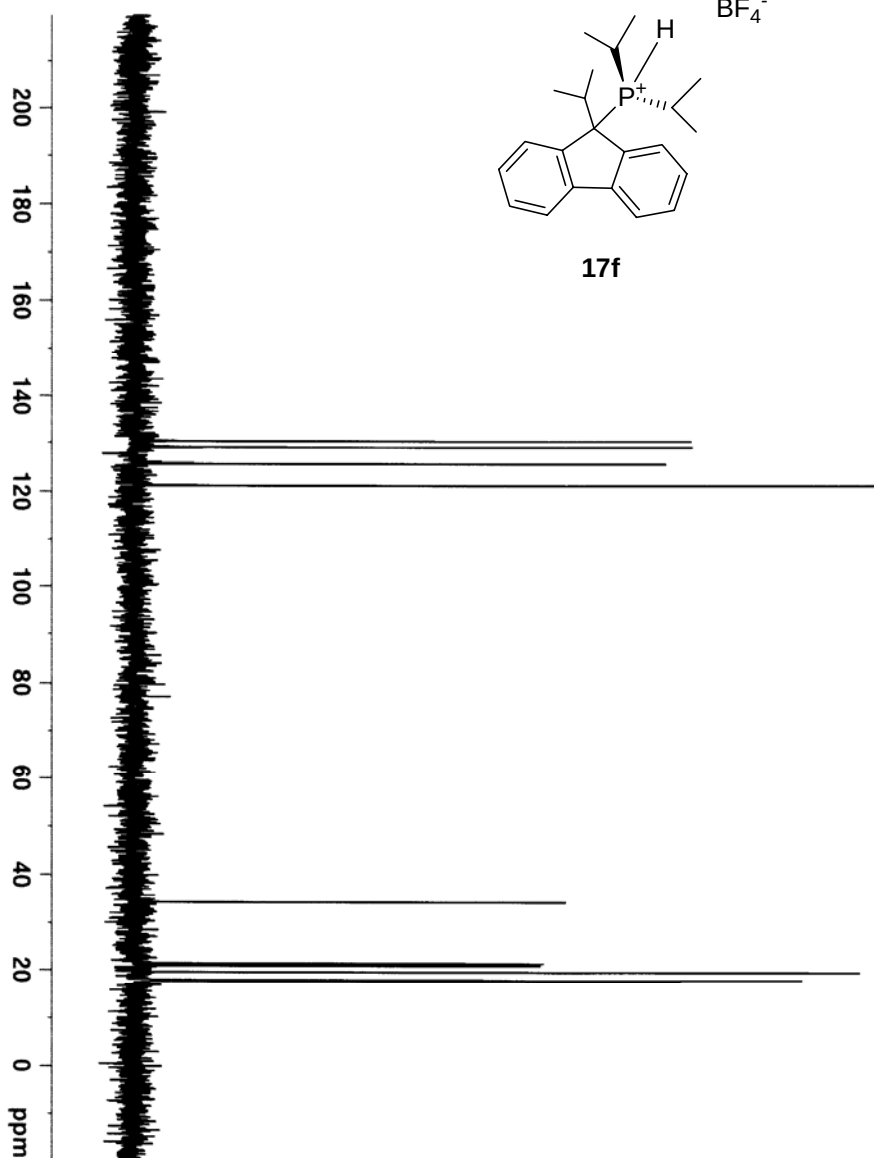
SI 32768
 SF 75.4099150 MHz

WDW EM
 SSB 0
 LB 2.00 Hz

GB 0
 PC 1.40

¹³C-NMR (DEPT)

17f





Current Data Parameters
 NAME aug22ac
 EXPNO 275
 PROCNO 1

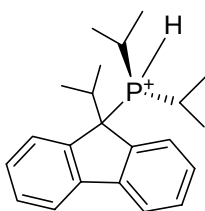
F2 - Acquisition Parameters

Date 20050822
 Time 23.16
 INSTRUM spect
 PROBD 5 mm PABBO BB-
 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl3
 NS 80
 DS 4
 SWH 48076.922 Hz
 FIDRES 0.733596 Hz
 AQ 0.6816244 sec
 RG 2050
 DW 10.400 usec
 DE 10.00 usec
 TE 300.0 K
 D1 2.00000000 sec
 d11 0.03000000 sec
 DELTA 1.89999998 sec
 TD0 1

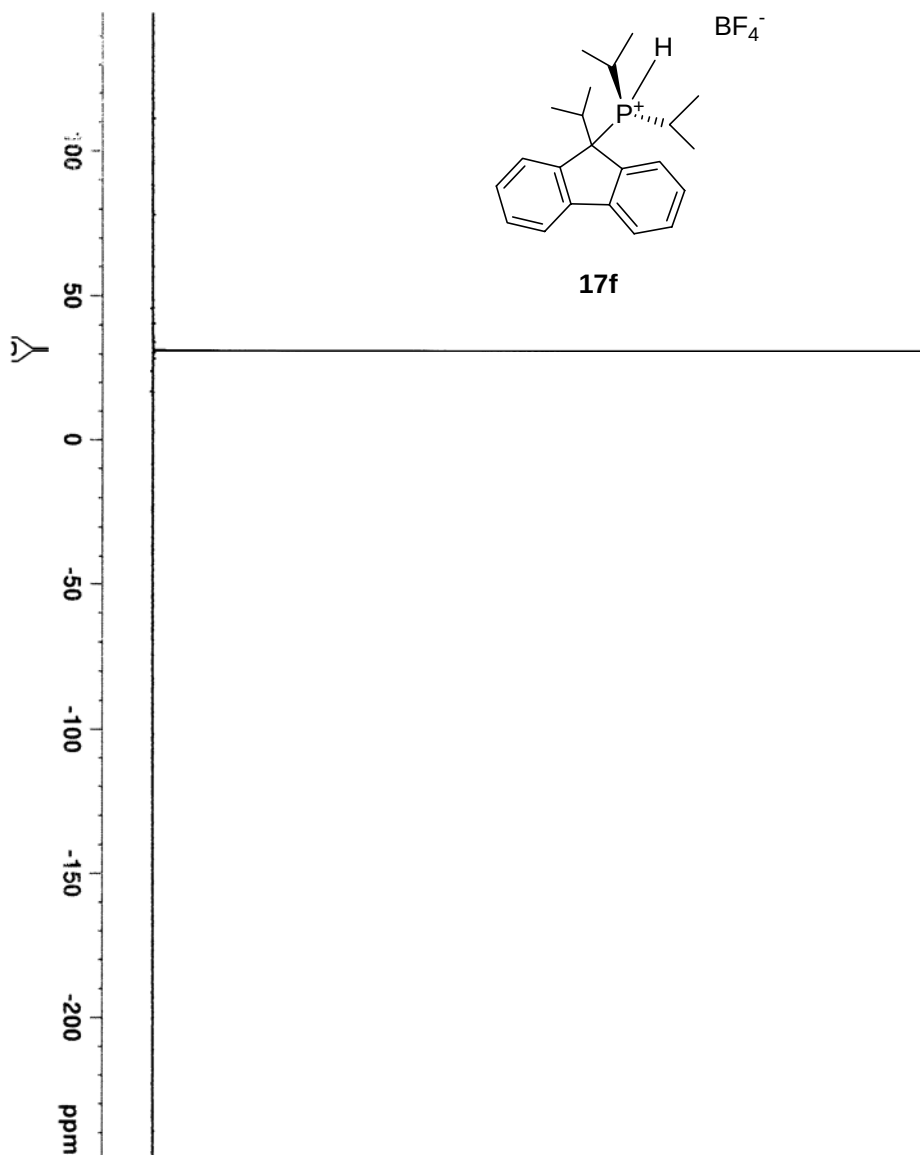
===== CHANNEL f1 =====
 NUC1 31p
 P1 7.50 usec
 PL1 0.00 dB
 SFO1 121.3956752 MHz

===== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 95.00 usec
 PL2 -3.00 dB
 PL12 17.00 dB
 PL13 23.00 dB
 SFO2 299.9011996 MHz

F2 - Processing parameters
 SI 32768
 SF 121.4017450 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40

31P-NMR {¹H}BF₄⁻

17f



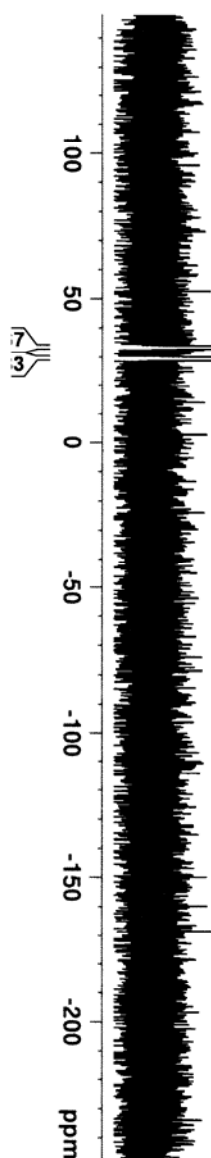
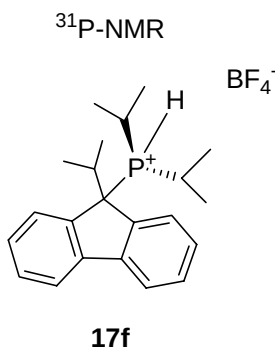


Current Data Parameters
NAME aug22ac
EXPNO 276
PROCNO 1

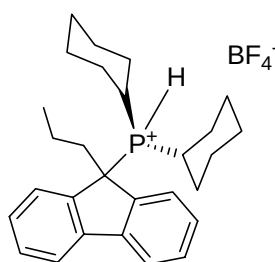
F2 - Acquisition Parameters
Date_ 20050822
Time 23.24
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 160
DS 4
SWH 48076.922 Hz
FIDRES 0.733596 Hz
AQ 0.6816244 sec
RG 2050
DM 10.400 usec
DE 10.00 usec
TE 300.0 K
D1 2.00000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 31P
P1 7.50 usec
PL1 0.00 dB
SFO1 121.3956752 MHz

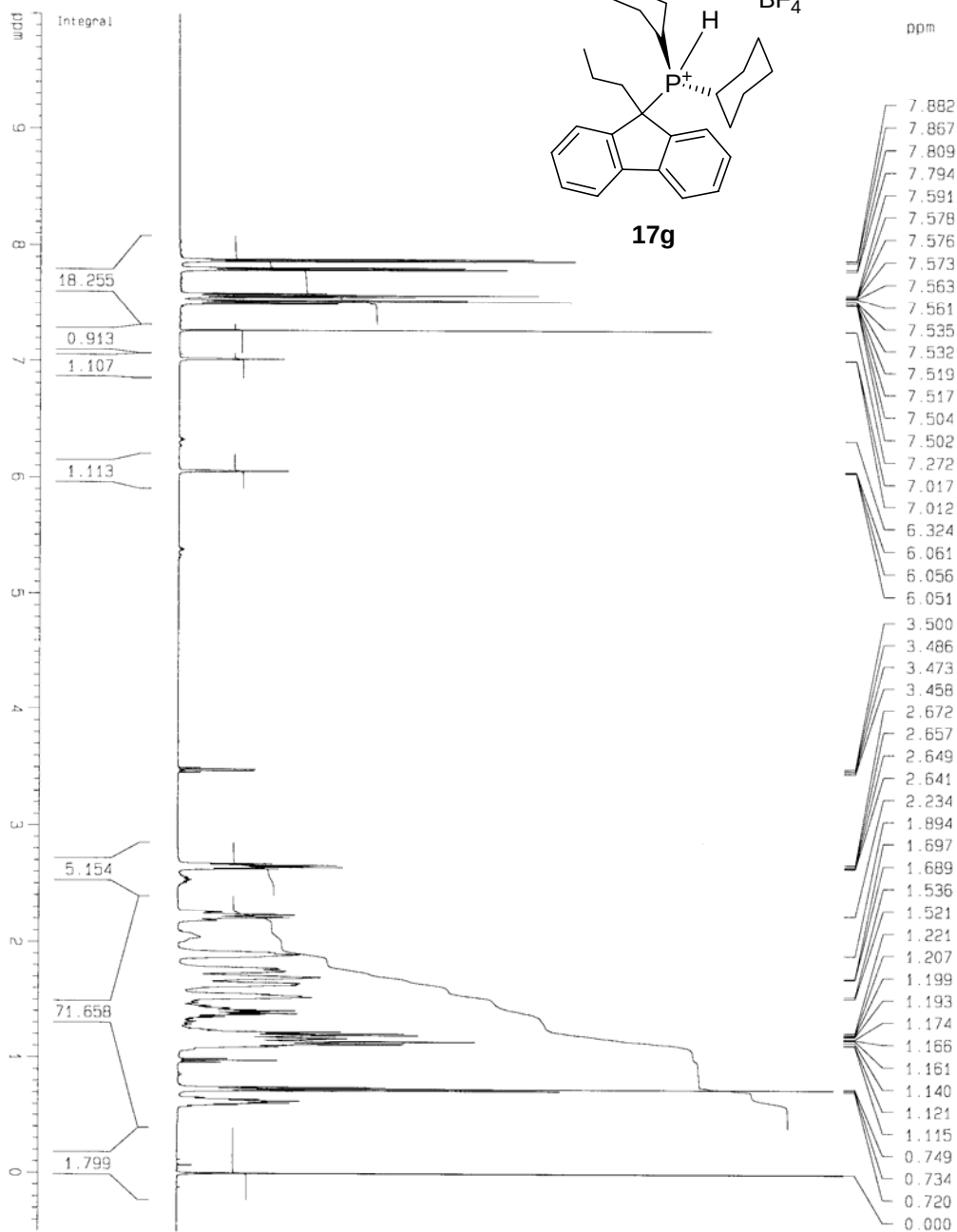
F2 - Processing parameters
SI 32768
SF 121.4017450 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40



¹H-NMR



17g



Current Data Parameters
NAME jmf17av
EXPNO 50
PROCNO 1

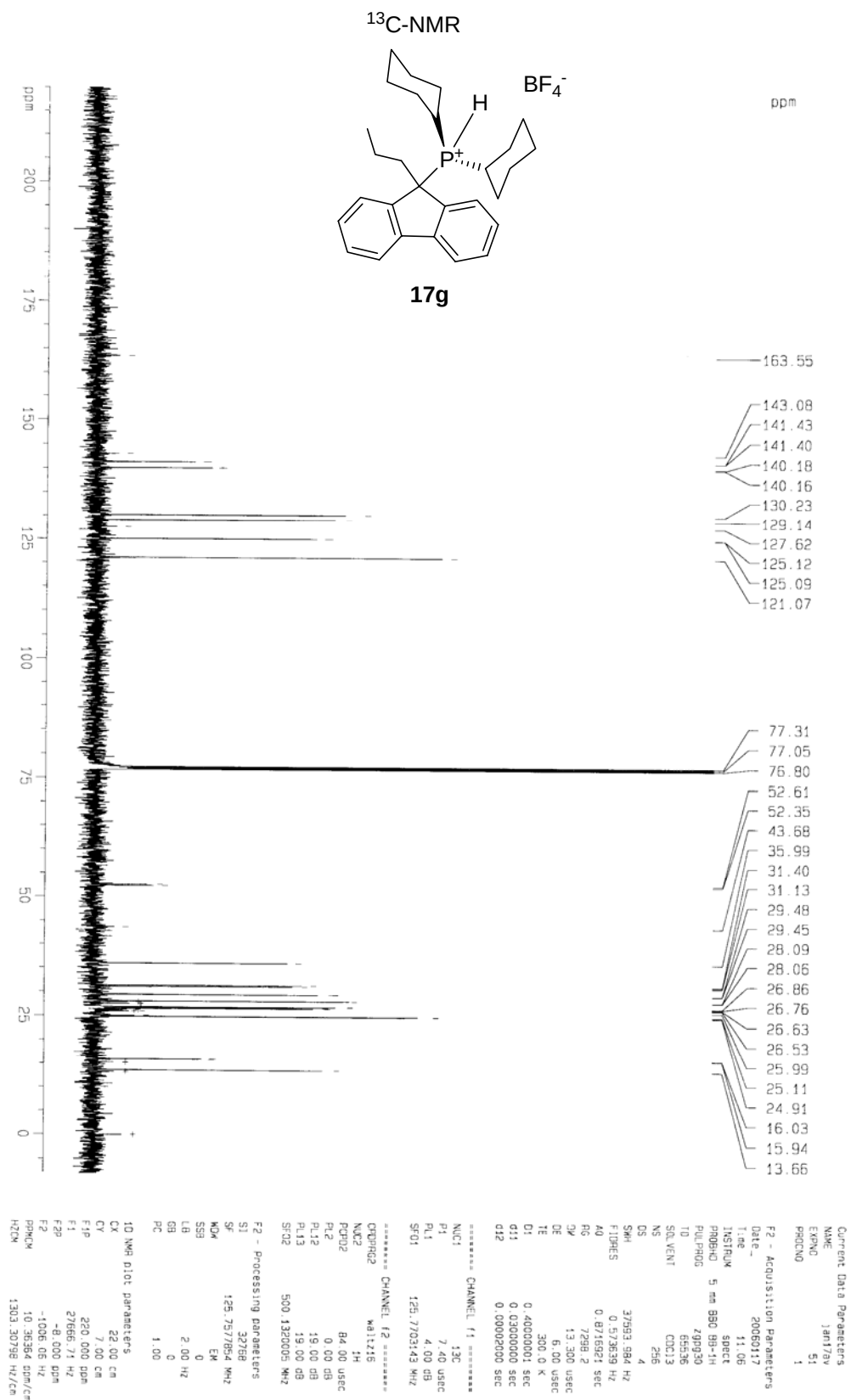
F2 - Acquisition Parameters
Date_ 20060117
Time 11.00
INSTRUM spect
PROBHD 5 mm BBO BB-1H
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 24
DS 2
SWH 10330.578 Hz
FIDRES 0.157632 Hz
AQ 3.1720407 sec
RG 90.5
DM 48.400 usec
DE 6.00 usec
TE 300.0 K
D1 0.50000000 sec

===== CHANNEL f1 =====
NUC1 1H
P1 11.10 usec
PL1 0.00 dB
SFO1 500.1330885 MHz

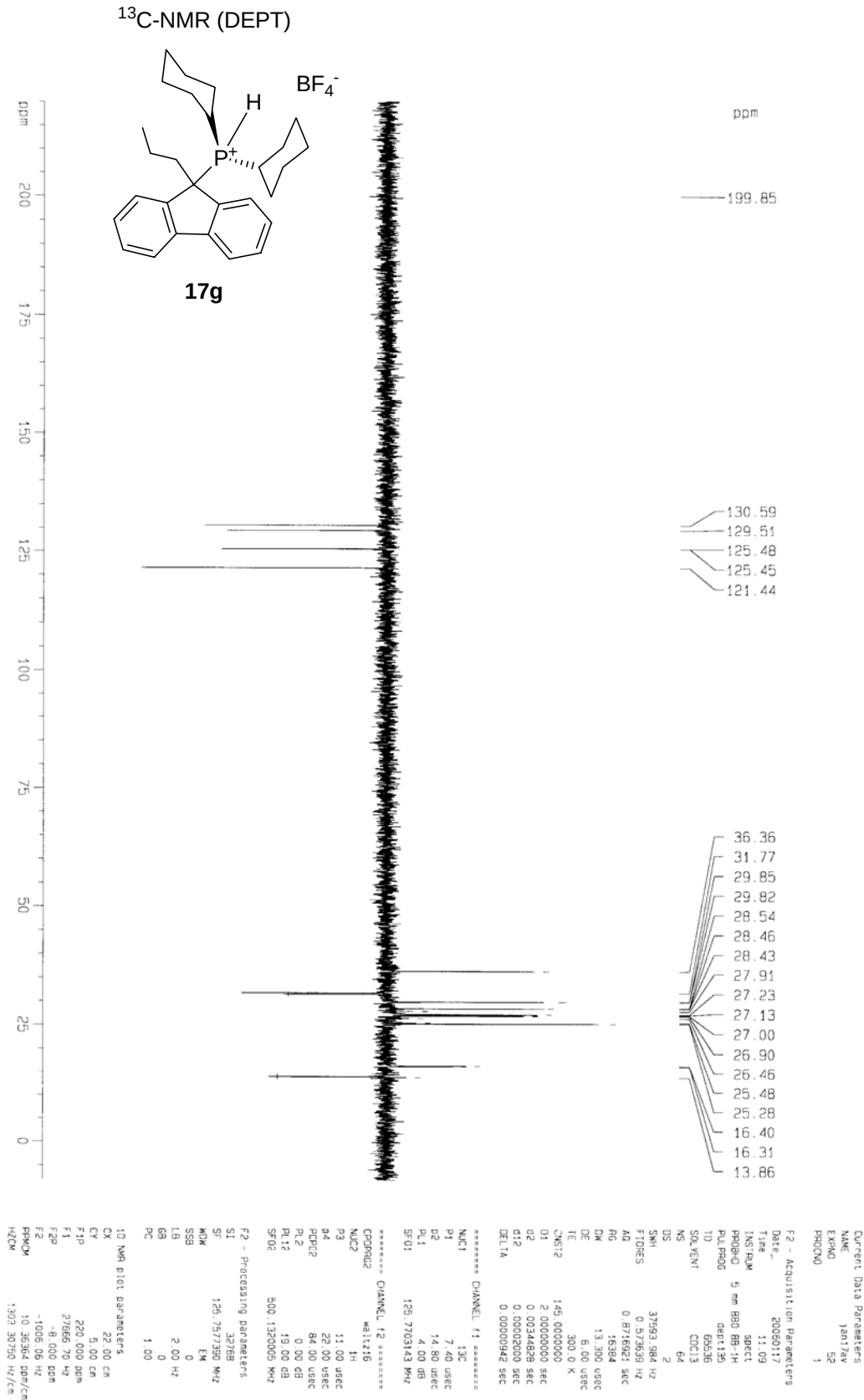
F2 - Processing parameters
SI 32768
SF 500.130065 MHz
WDW EM
SSB 0
LB 0.10 Hz
GB 0
PC 1.00

10 NMR plot parameters
CX 22.00 cm
CY 12.00 cm
F1P 10.000 ppm
F1 5001.30 Hz
F2P -0.500 ppm
F2 -250.06 Hz
PPMCM 0.47727 ppm/cm
HZCM 238.65839 Hz/cm

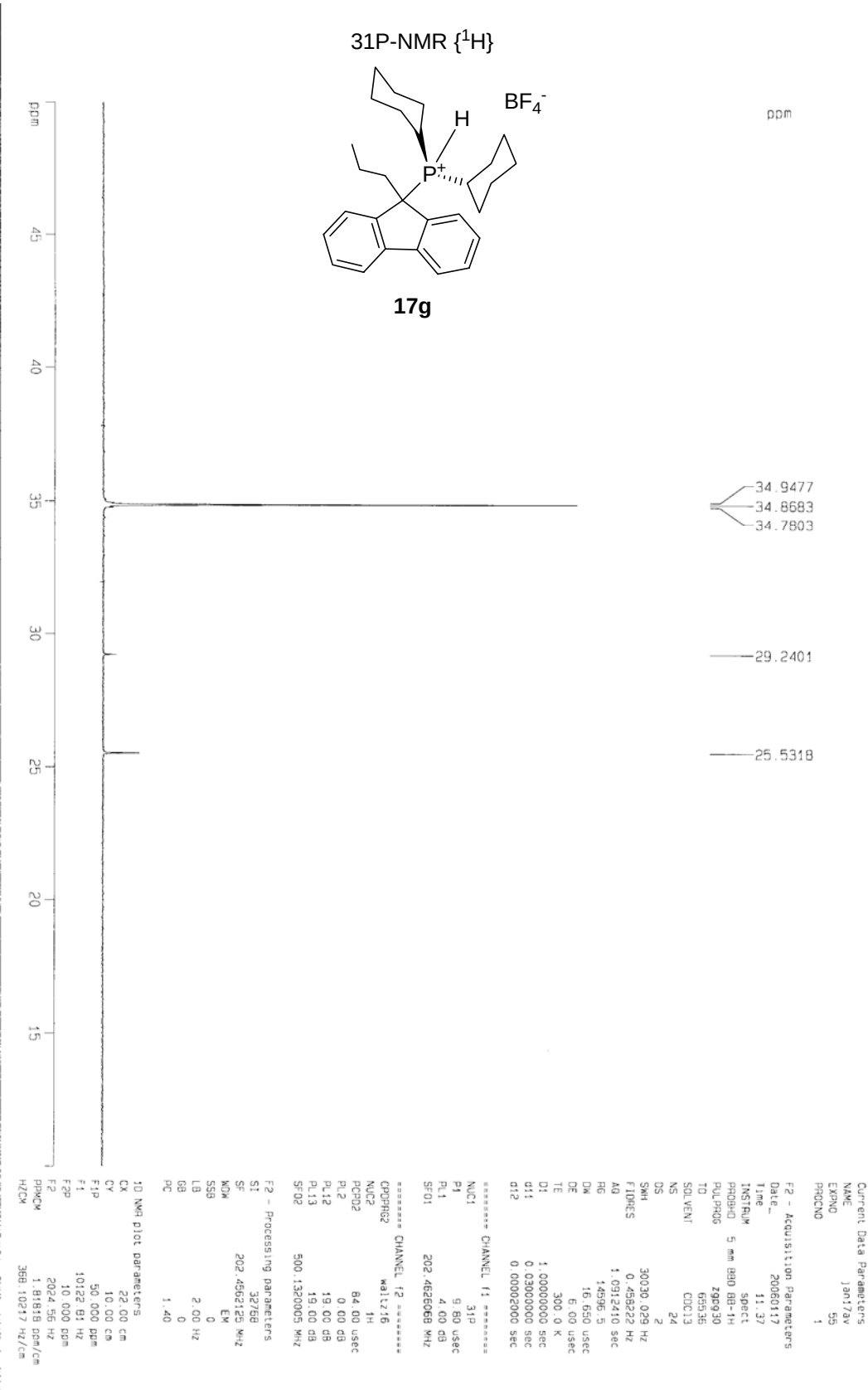
F]eckenstein CFP-2-156

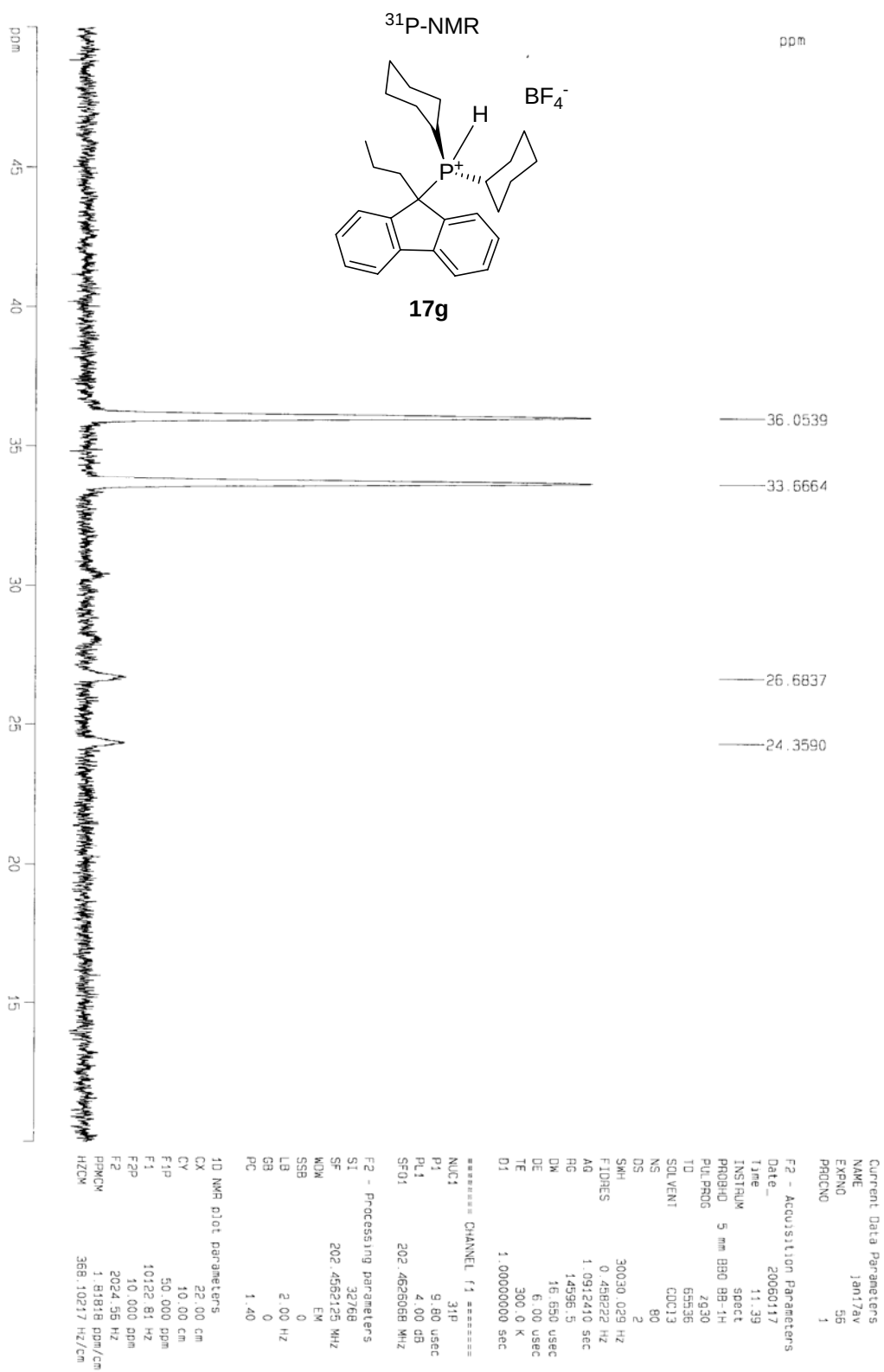


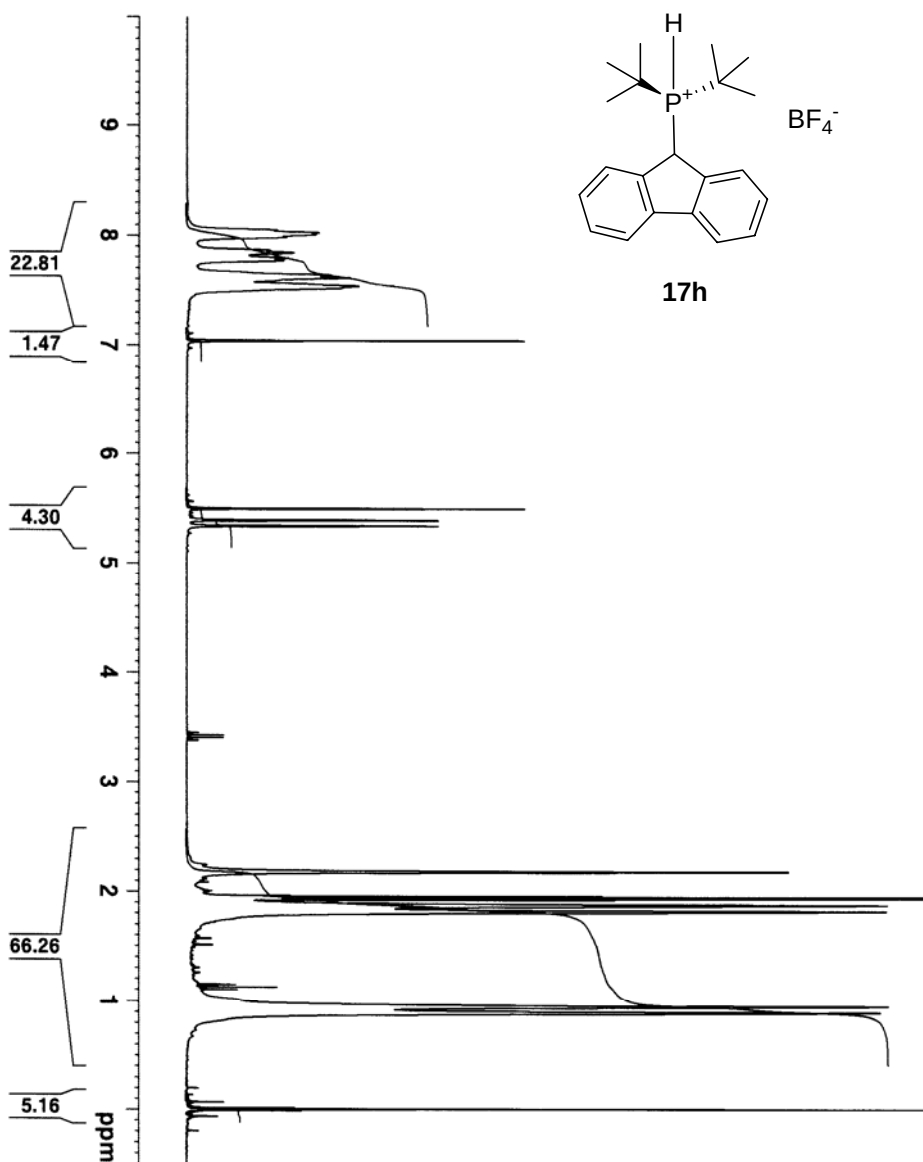
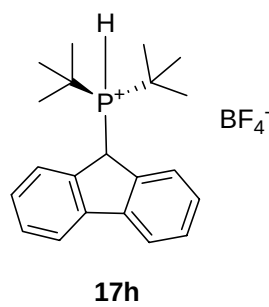
Fleckenstein CFP-2-156



Fleckenstein CFP-2-156/31P



Fleckenstein CFP-2-156/³¹P/no dec.

¹H-NMR

Current Data Parameters
 NAME aug22ac
 EXPNO 250
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20050822
 Time 19.03
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG zg30
 TD 32768
 SOLVENT CD3CN
 NS 32
 DS 2
 SWH 6188.119 Hz
 FIDRES 0.188846 Hz
 AQ 2.6477044 sec
 RG 228
 DW 80.800 usec
 DE 10.00 usec
 TE 300.0 K
 D1 1.00000000 sec
 TD0 1

===== CHANNEL f1 =====
 NUC1 ¹H
 P1 9.70 usec
 PL1 -3.00 dB
 SFO1 299.9018520 MHz

F2 - Processing parameters
 SI 32768
 SF 299.9000036 MHz
 WDW EM
 SSB 0
 LB 0.10 Hz
 GB 0
 PC 1.00



Current Data Parameters
 NAME aug22ac
 EXPNO 251
 PROCNO 1

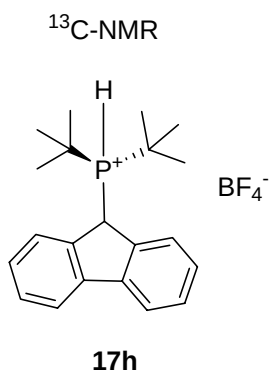
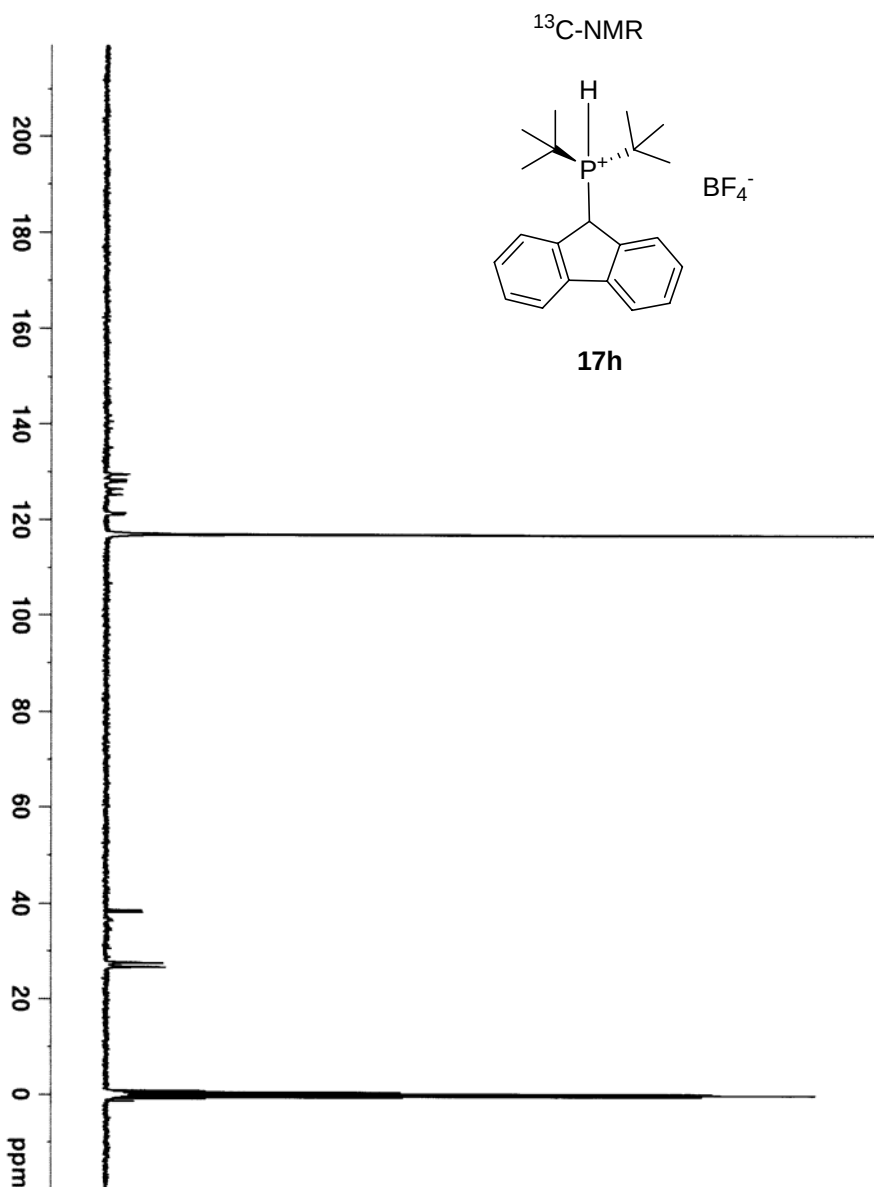
F2 - Acquisition Parameters

Date_ 20050822
 Time 19.38
 INSTRUM spect
 PROBD 5 mm PABBO BB-
 PULPROG zgpg30
 TD 32768
 SOLVENT CD3CN
 NS 1000
 DS 4
 SWH 18028.846 Hz
 FIDRES 0.550197 Hz
 AQ 0.9088159 sec
 RG 2050
 DW 27.733 usec
 DE 10.00 usec
 TE 300.0 K
 D1 1.00000000 sec
 d11 0.03000000 sec
 DELTA 0.89999998 sec
 TD0 1

===== CHANNEL f1 =====
 NUC1 13C
 P1 11.00 usec
 PL1 0.00 dB
 SFO1 75.4174560 MHz

===== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 95.00 usec
 PL2 -3.00 dB
 PL12 17.00 dB
 PL13 23.00 dB
 SFO2 299.9011996 MHz

F2 - Processing parameters
 SI 32768
 SF 75.4099381 MHz
 WDW EM
 SSB 0
 LB 2.00 Hz
 GB 0
 PC 1.40





Current Data Parameters
 NAME aug22ac
 EXPNO 252
 PROCNO 1

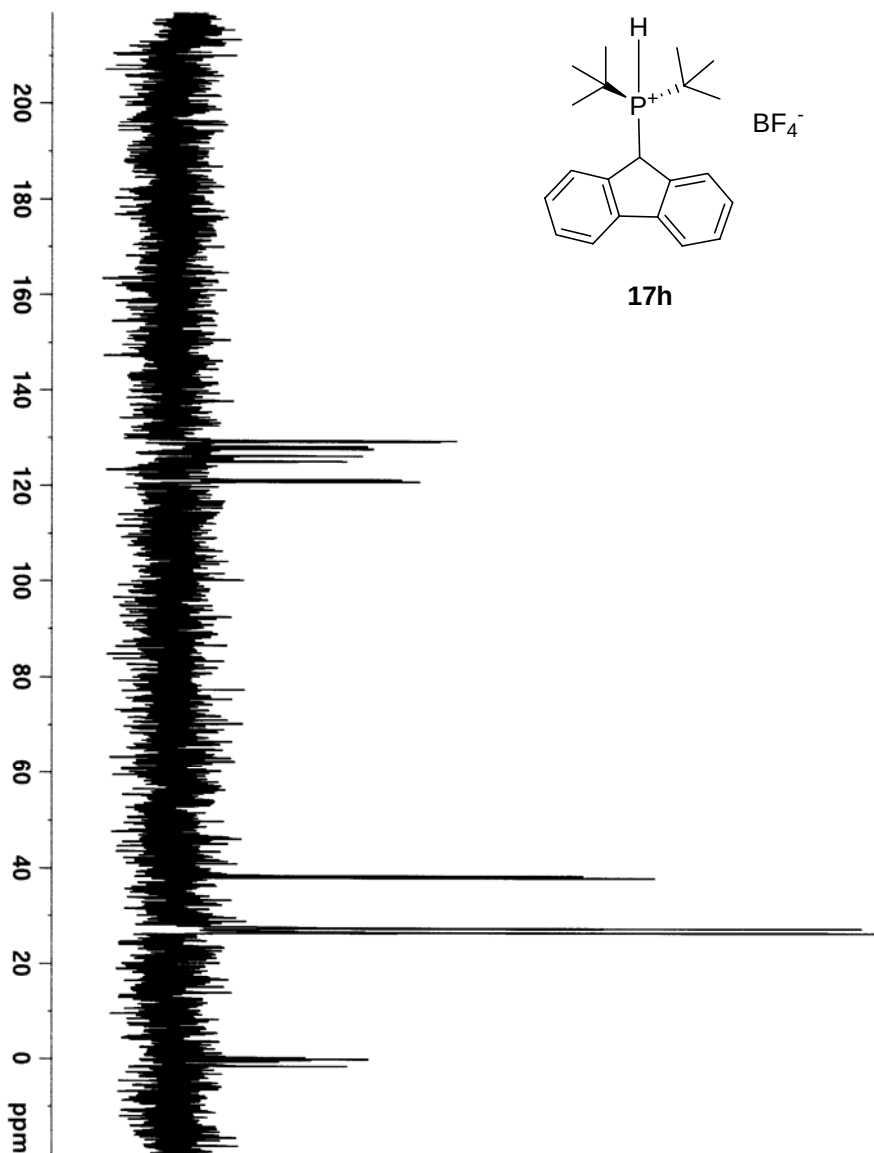
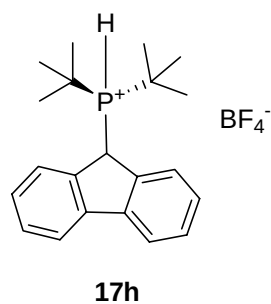
F2 - Acquisition Parameters

Date_ 20050822
 Time 19.52
 INSTRUM spect
 PROBRD 5 mm PAHO BB-
 PULPROG zgpg30
 TD 32768
 SOLVENT CD3CN
 NS 256
 DS 4
 SWH 18028.846 Hz
 FIDRES 0.550197 Hz
 AQ 0.9088159 sec
 RG 2050
 DW 27.733 usec
 DE 10.00 usec
 TE 300.0 K
 CNST2 145.000000
 D1 2.00000000 sec
 d2 0.00344828 sec
 d12 0.0002000 sec
 DELTA 0.0001401 sec
 TDO 1

===== CHANNEL f1 =====
 NUC1 ¹³C
 P1 11.00 usec
 P2 22.00 usec
 PL1 0.00 dB
 SFO1 75.4174560 MHz
 ===== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 ¹H
 P3 9.50 usec
 P4 19.00 usec
 PCPD2 95.00 usec
 PL2 -3.00 dB
 PL12 17.00 dB
 SFO2 299.9011996 MHz

F2 - Processing parameters

SI 32768
 SF 75.409502 MHz
 WDW EM
 SSB 0
 LB 2.00 Hz
 GB 0
 PC 1.40

¹³C-NMR (DEPT)



Current Data Parameters
 NAME aug22ac
 EXPNO 255
 PROCNO 1

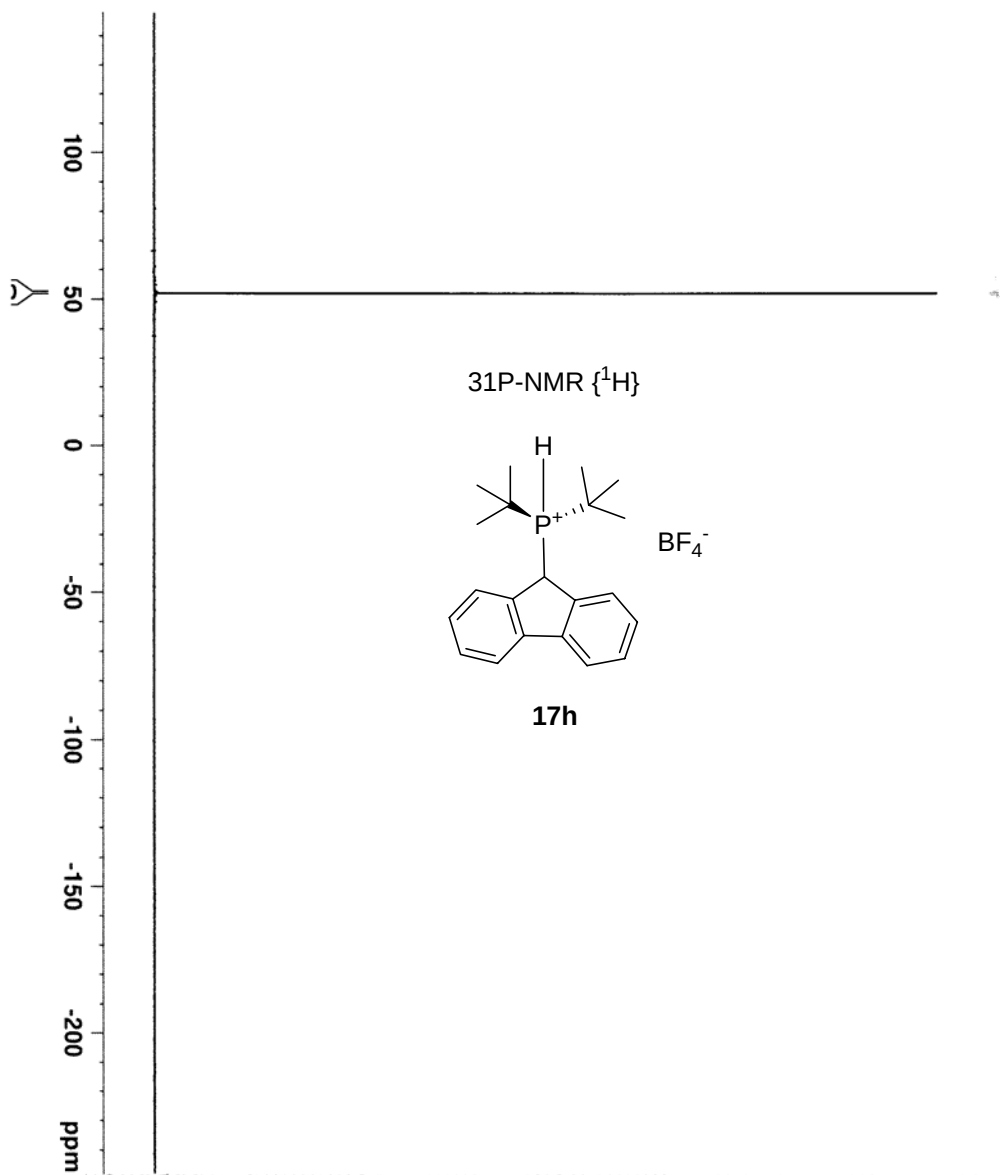
F2 - Acquisition Parameters

Date_ 20050822
 Time_ 20.23
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG zgpg30
 TD 65536
 SOLVENT CD3CN
 NS 80
 DS 4
 SWH 48076.922 Hz
 FIDRES 0.733596 Hz
 AQ 0.6816244 sec
 RG 2050
 DW 10.400 usec
 DE 10.00 usec
 TE 300.0 K
 D1 2.00000000 sec
 d11 0.03000000 sec
 DELTA 1.89999998 sec
 TD0 1

===== CHANNEL f1 =====
 NUC1 31P
 P1 7.50 usec
 PL1 0.00 dB
 SFO1 121.3956752 MHz

===== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 95.00 usec
 PL2 -3.00 dB
 PL12 17.00 dB
 PL13 23.00 dB
 SFO2 299.9011996 MHz

F2 - Processing parameters
 SI 32768
 SF 121.4017450 MHz
 MDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40

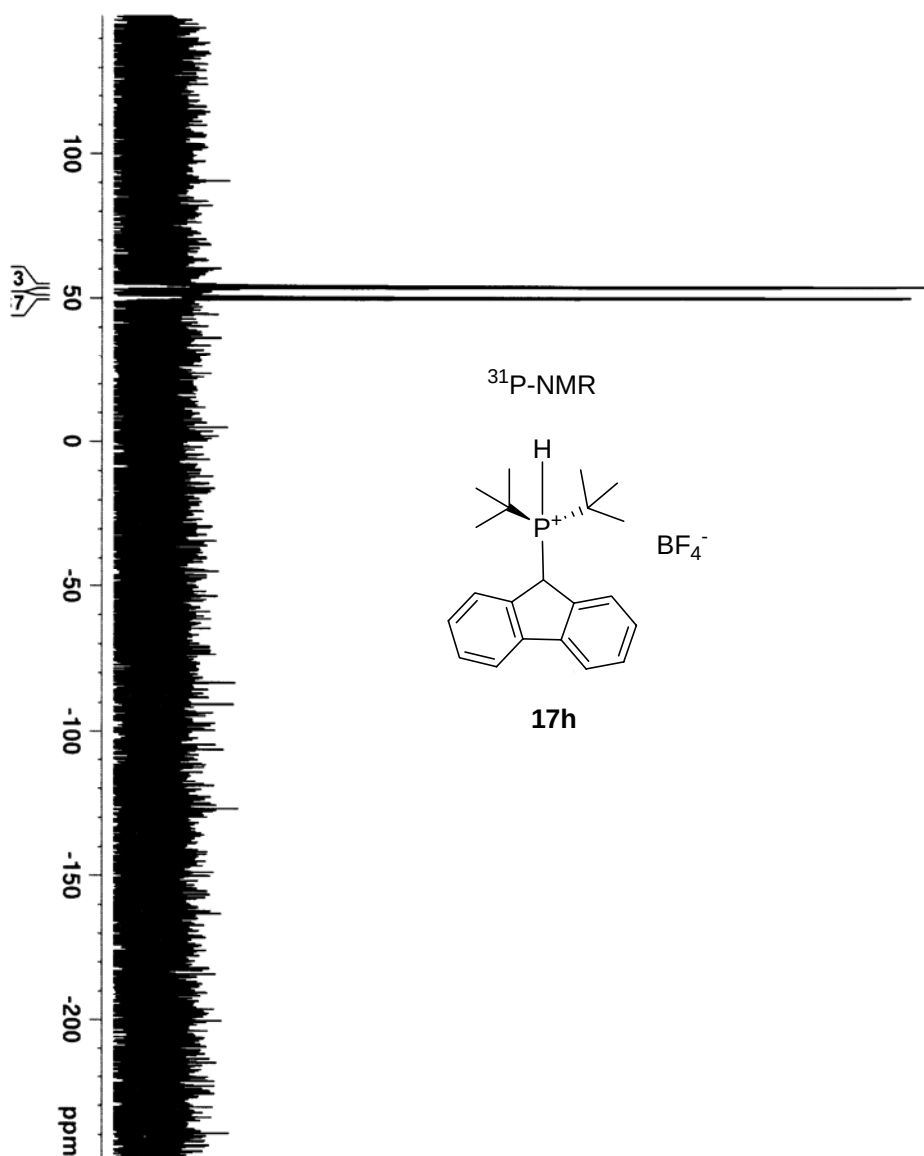


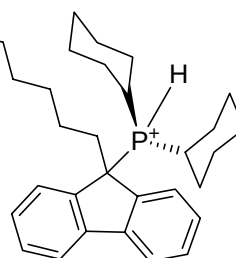


Current Data Parameters
 NAME aug22ac
 EXPNO 256
 PROCNO 1

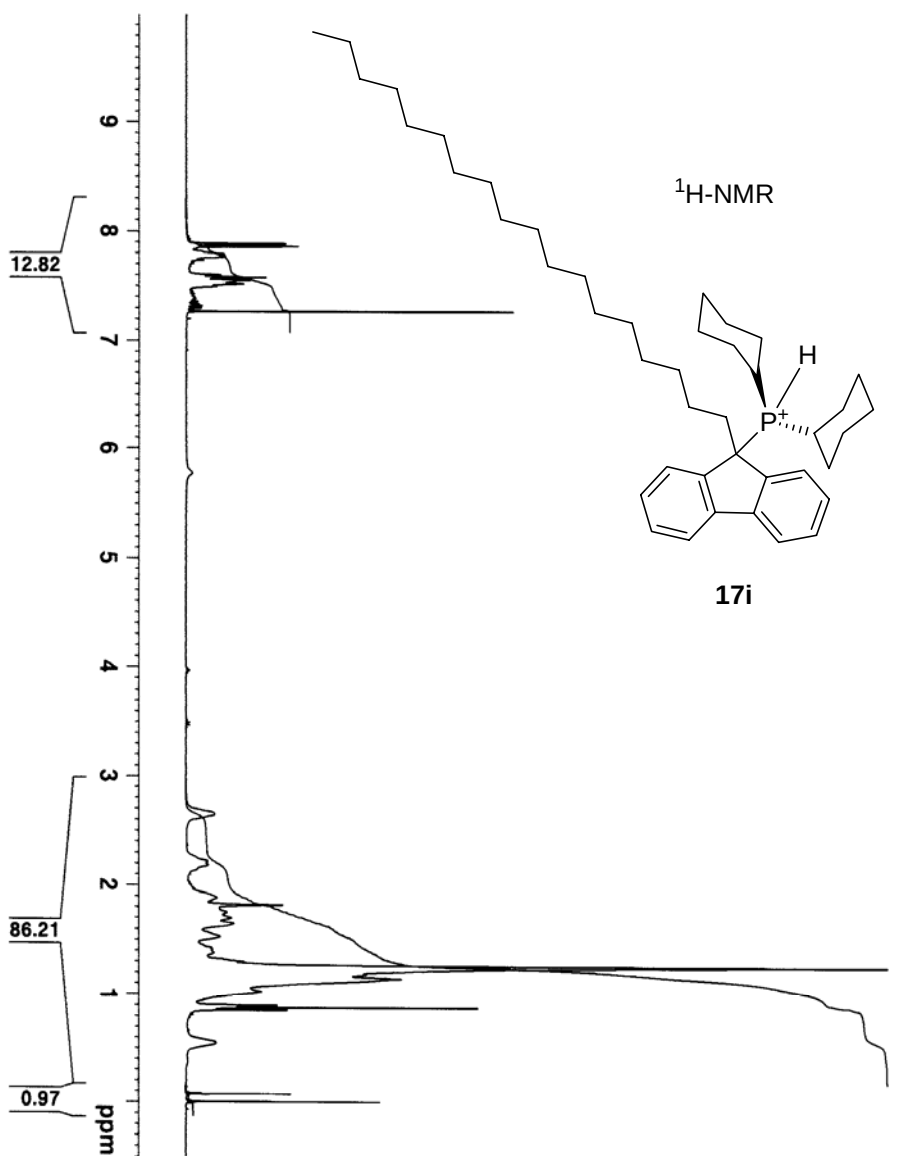
F2 - Acquisition Parameters
 Date_ 20050822
 Time 20.26
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG zg30
 TD 65536
 SOLVENT CD3CN
 NS 32
 DS 4
 SMH 48076.922 Hz
 FIDRES 0.733596 Hz
 AQ 0.6816244 sec
 RG 2050
 DW 10.400 usec
 DE 10.00 usec
 TE 300.0 K
 D1 2.00000000 sec
 TD0 1

===== CHANNEL f1 =====
 NUC1 31P
 P1 7.50 usec
 PL1 0.00 dB
 SFO1 121.3956752 MHz
 F2 - Processing parameters
 SI 32768
 SF 121.4017450 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40



¹H-NMR

17i

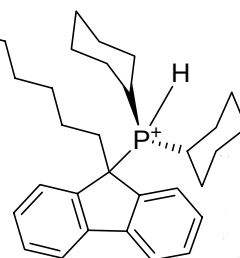


Current Data Parameters
 NAME aug23ac
 EXPNO 240
 PROCNO 1

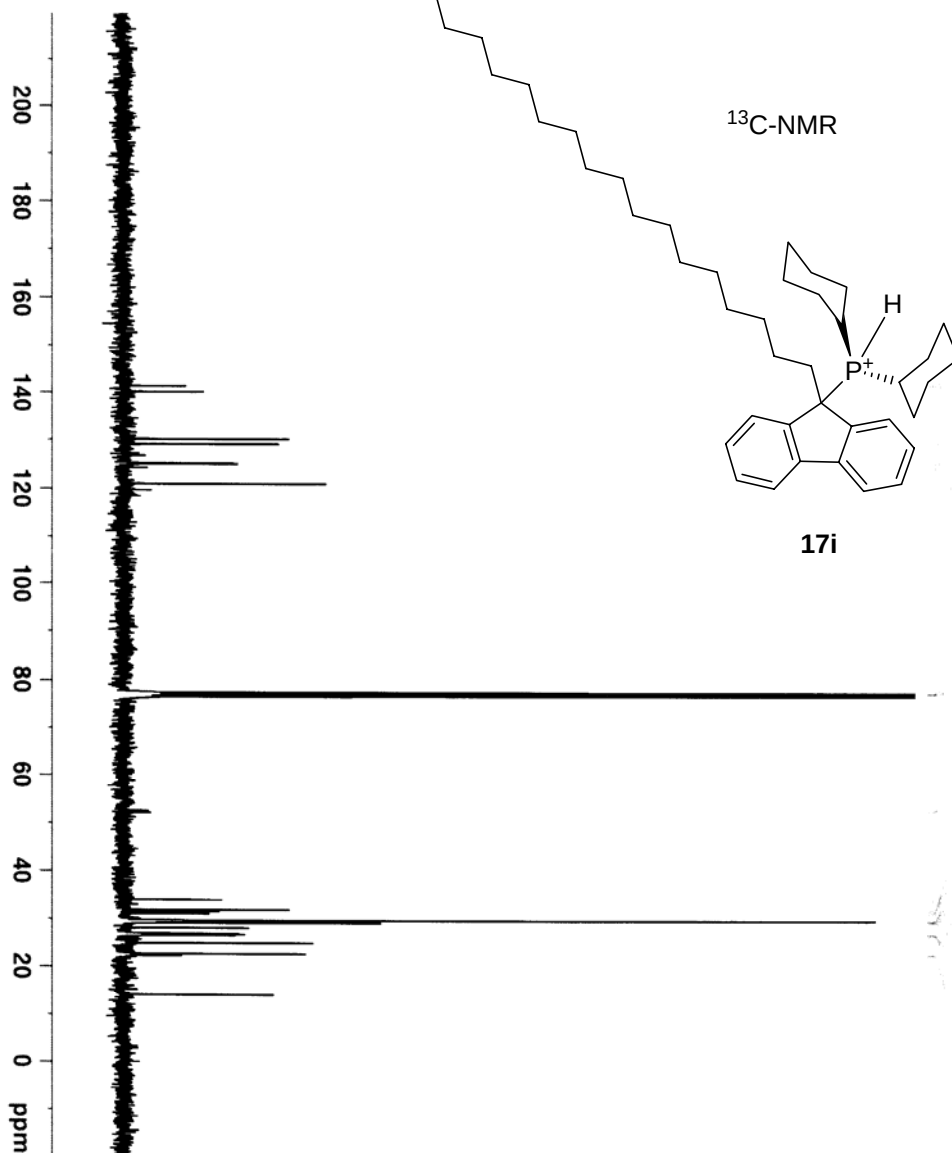
F2 - Acquisition Parameters
 Date_ 20050823
 Time 19.37
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG zg30
 TD 32768
 SOLVENT CDCl3
 NS 32
 DS 2
 SWH 6188.119 Hz
 FIDRES 0.188846 Hz
 AQ 2.6477044 sec
 RG 181
 DW 80.800 usec
 DE 10.00 usec
 TE 300.0 K
 D1 1.00000000 sec
 TD0 1

===== CHANNEL f1 =====
 NUC1 ¹H
 P1 9.70 usec
 PL1 -3.00 dB
 SFO1 299.9018520 MHz

F2 - Processing parameters
 SI 32768
 SF 299.9000001 MHz
 WDN EM
 SSB 0
 LB 0.10 Hz
 GB 0
 PC 1.00

¹³C-NMR

17i



Current Data Parameters
 NAME aug23ac
 EXPNO 241
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20050823
 Time 20.11

INSTRUM spect
 PROBD 5 mm PABBO BB-
 PULPROG zgpg30
 TD 32768
 SOLVENT CDCl3
 NS 1000
 DS 4

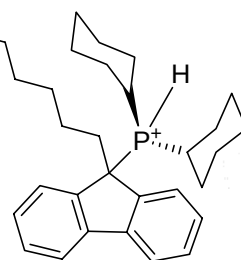
SWH 18028.846 Hz
 FIDRES 0.550197 Hz
 AQ 0.9088159 sec
 RG 2050

DW 27.733 usec
 DE 10.00 usec
 TE 300.0 K
 D1 1.00000000 sec
 d11 0.03000000 sec
 DELTA 0.89999998 sec
 TD0 1

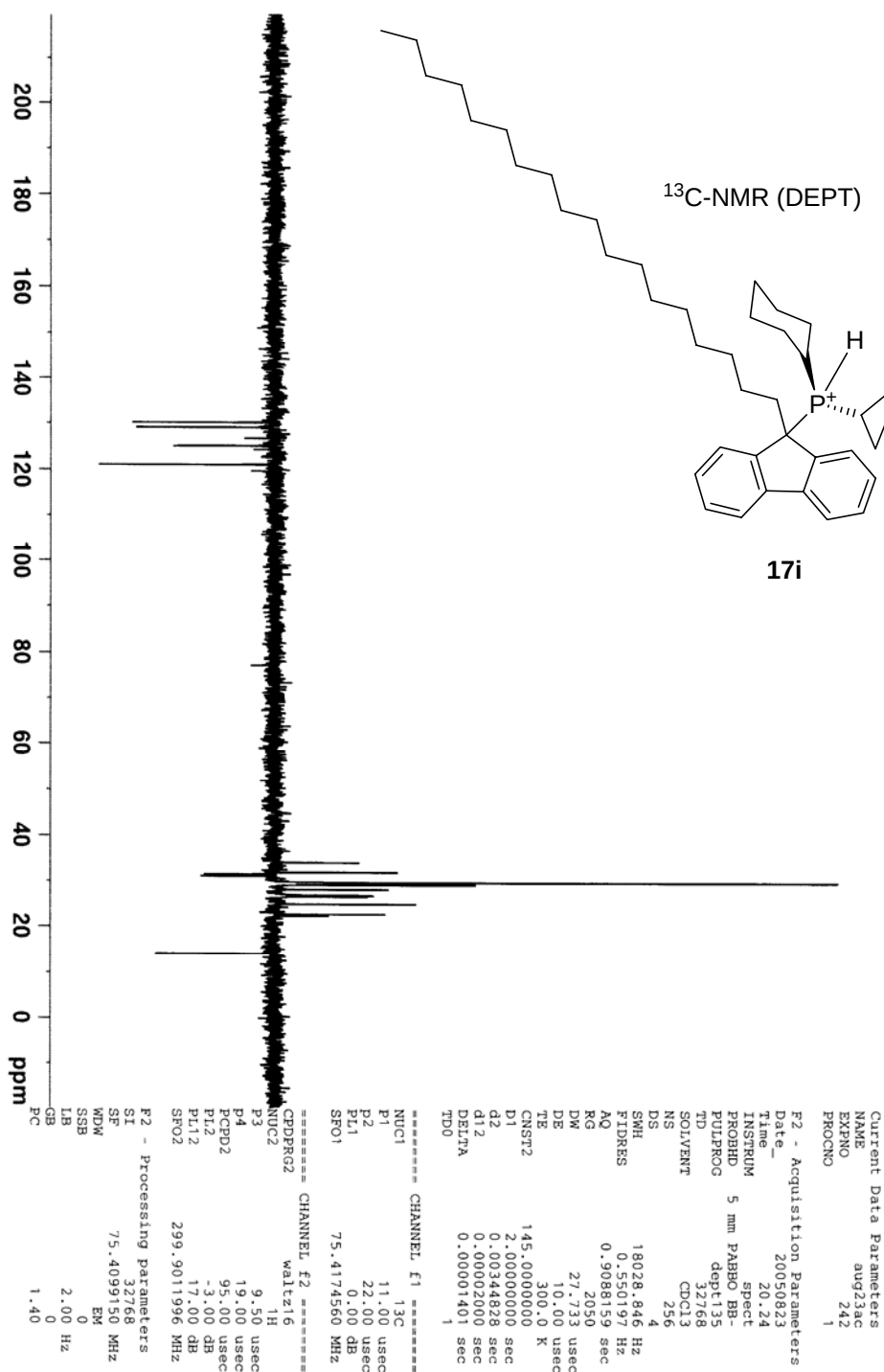
===== CHANNEL f1 =====
 NUC1 ¹³C
 P1 11.00 usec
 PL1 0.00 dB
 SFO1 75.4174560 MHz

===== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 ¹H
 PCPD2 95.00 usec
 PL2 -3.00 dB
 PL12 17.00 dB
 PL13 23.00 dB
 SFO2 299.9011996 MHz

F2 - Processing parameters
 SI 32768
 SF 75.4099150 MHz
 WDW EM
 SSB 0
 LB 0
 GB 0
 PC 1.40

¹³C-NMR (DEPT)

17i





Current Data Parameters
NAME aug23ac
EXPNO 245
PROCNO 1

F2 - Acquisition Parameters

Date_ 20050823
Time 20.56
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 65535
SOLVENT CDCl3
NS 80
DS 4
SWH 48076.922 Hz
FIDRES 0.733596 Hz
AQ 0.6816244 sec
RG 2050
DM 10.400 usec
DE 10.00 usec
TE 300.0 K
D1 2.0000000 sec
d11 0.0300000 sec
DELTA 1.8999998 sec
TD0 1

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

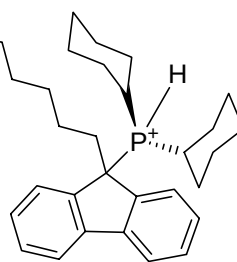
NUC1 31P
P1 7.50 usec
PL1 0.00 dB
SFO1 121.3956752 MHz

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

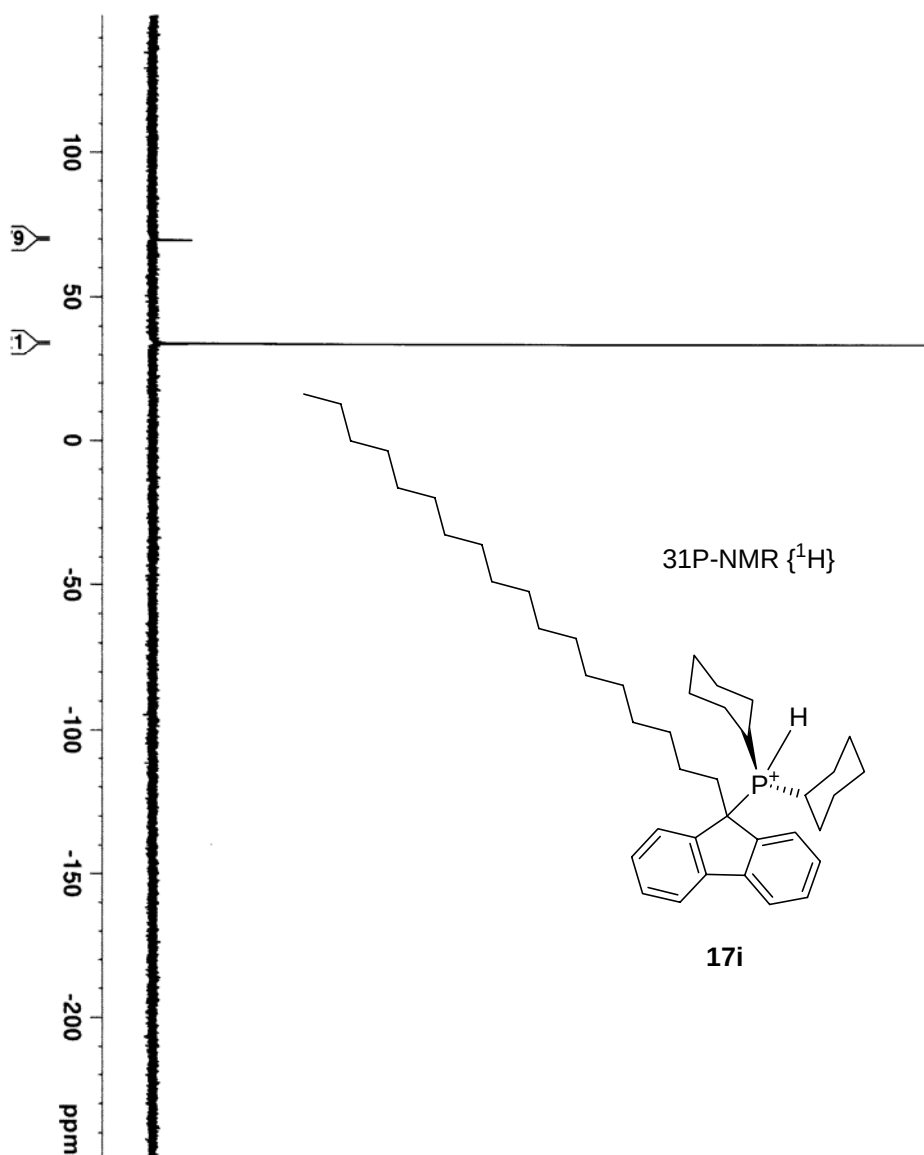
CPDPRG2 waltz16
NUC2 1H
PCPD2 95.00 usec
PL2 -3.00 dB
PL12 17.00 dB
PL13 23.00 dB
SFO2 299.9011996 MHz

F2 - Processing parameters

SI 32768
SF 121.4017450 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

31P-NMR {¹H}

17i





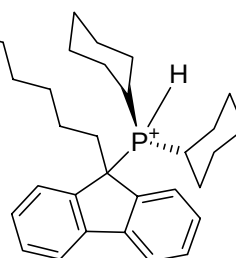
Current Data Parameters
NAME aug23ac
EXPNO 246
PROCNO 1

F2 - Acquisition Parameters
Date_ 20050823
Time 21.04
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 160
DS 4
SWH 48076.922 Hz
FIDRES 0.733596 Hz
AQ 0.681624 sec
RG 2050
DM 10.400 usec
DE 10.00 usec
TE 300.0 K
D1 2.00000000 sec
TD0 1

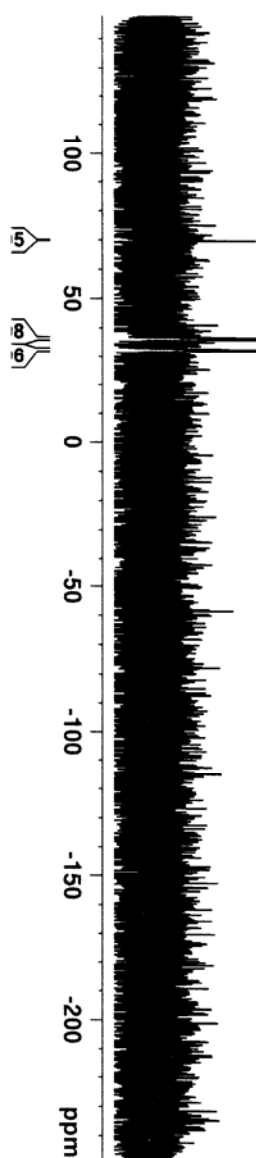
===== CHANNEL f1 =====
NUC1 31P
P1 7.50 usec
PL1 0.00 dB
SFO1 121.3956752 MHz

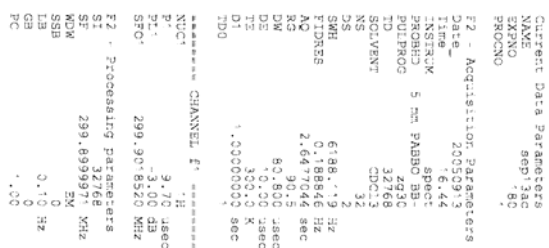
F2 - Processing parameters
SI 32768
SF 121.4017450 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

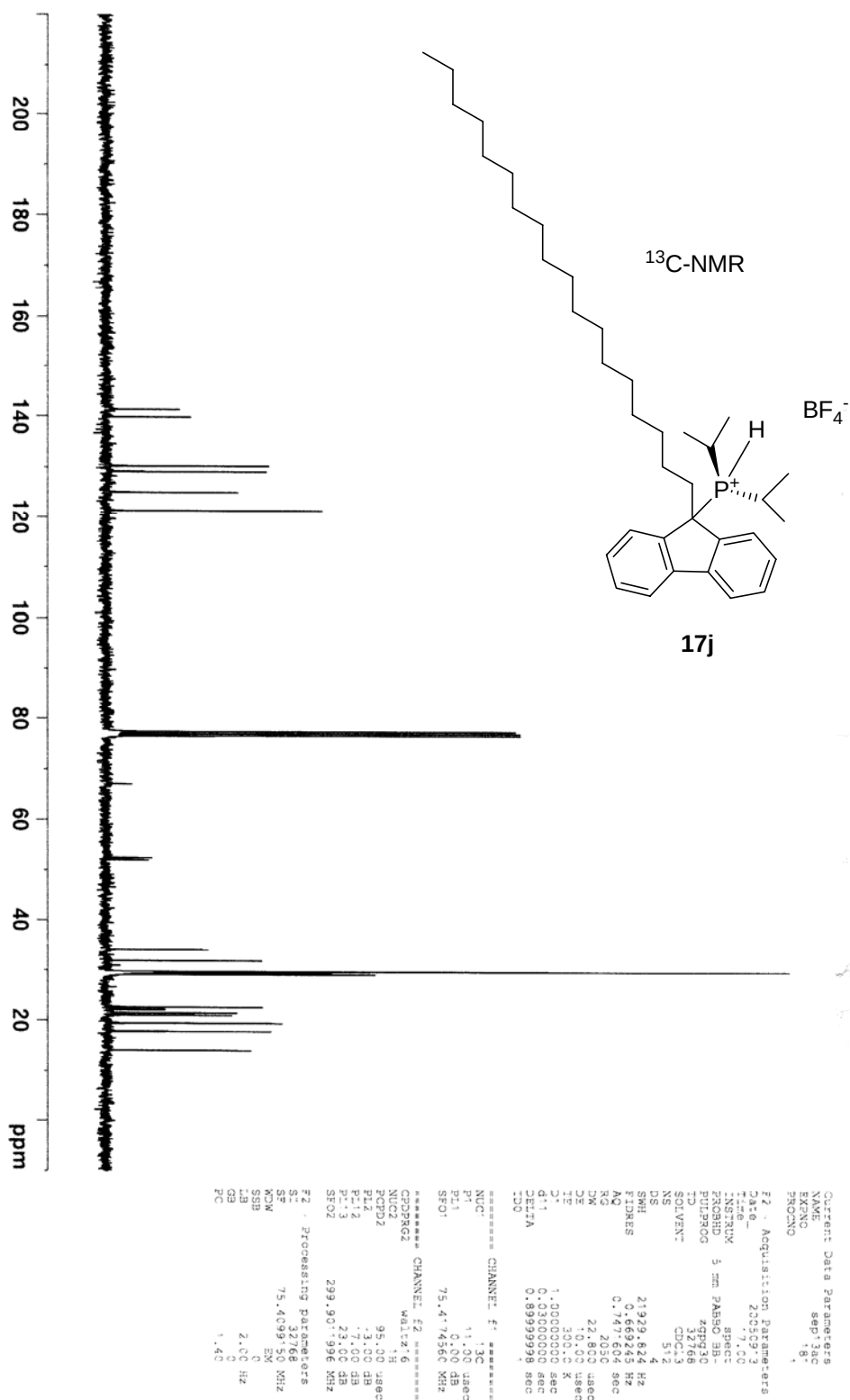
³¹P-NMR

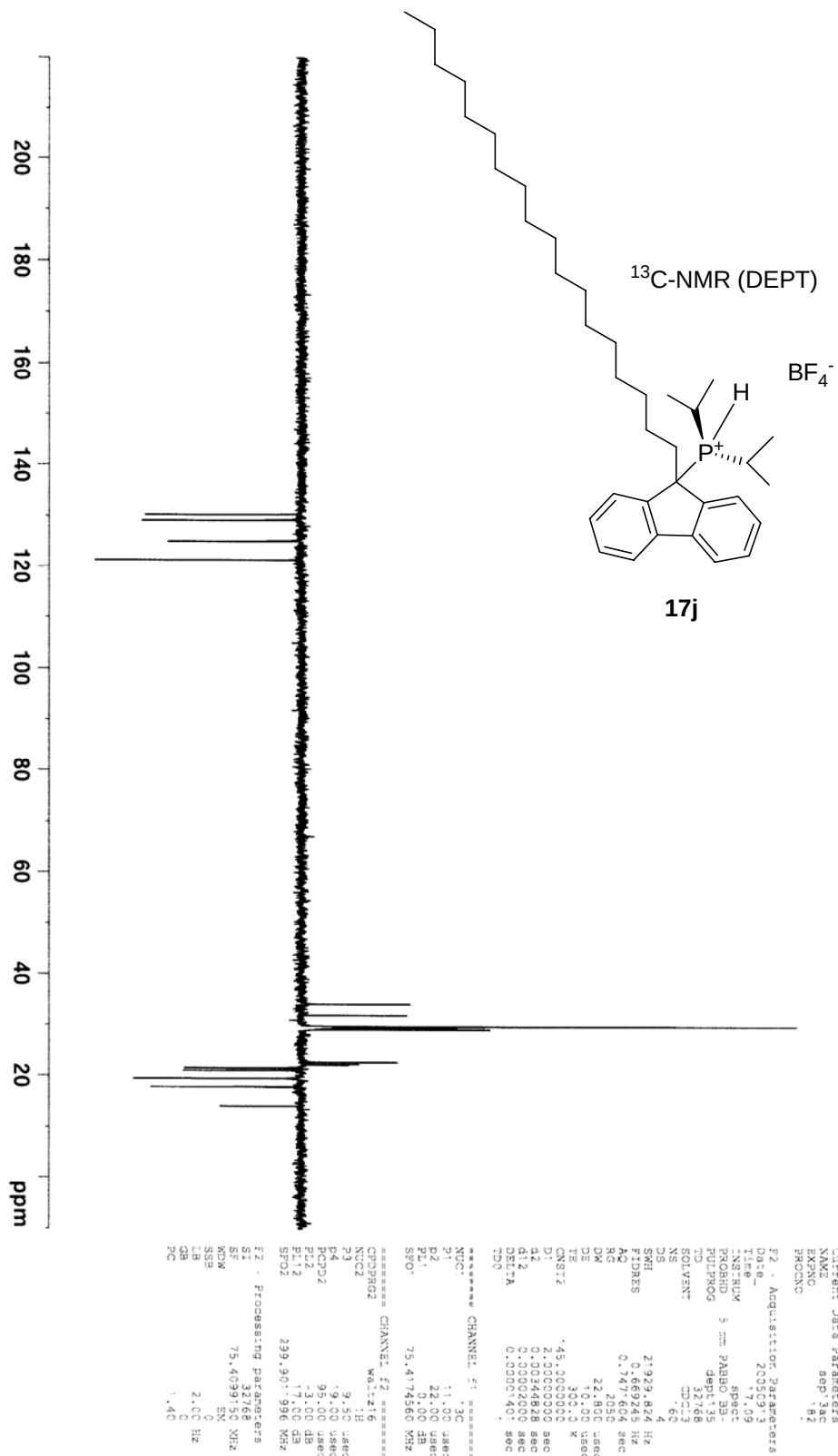


17i











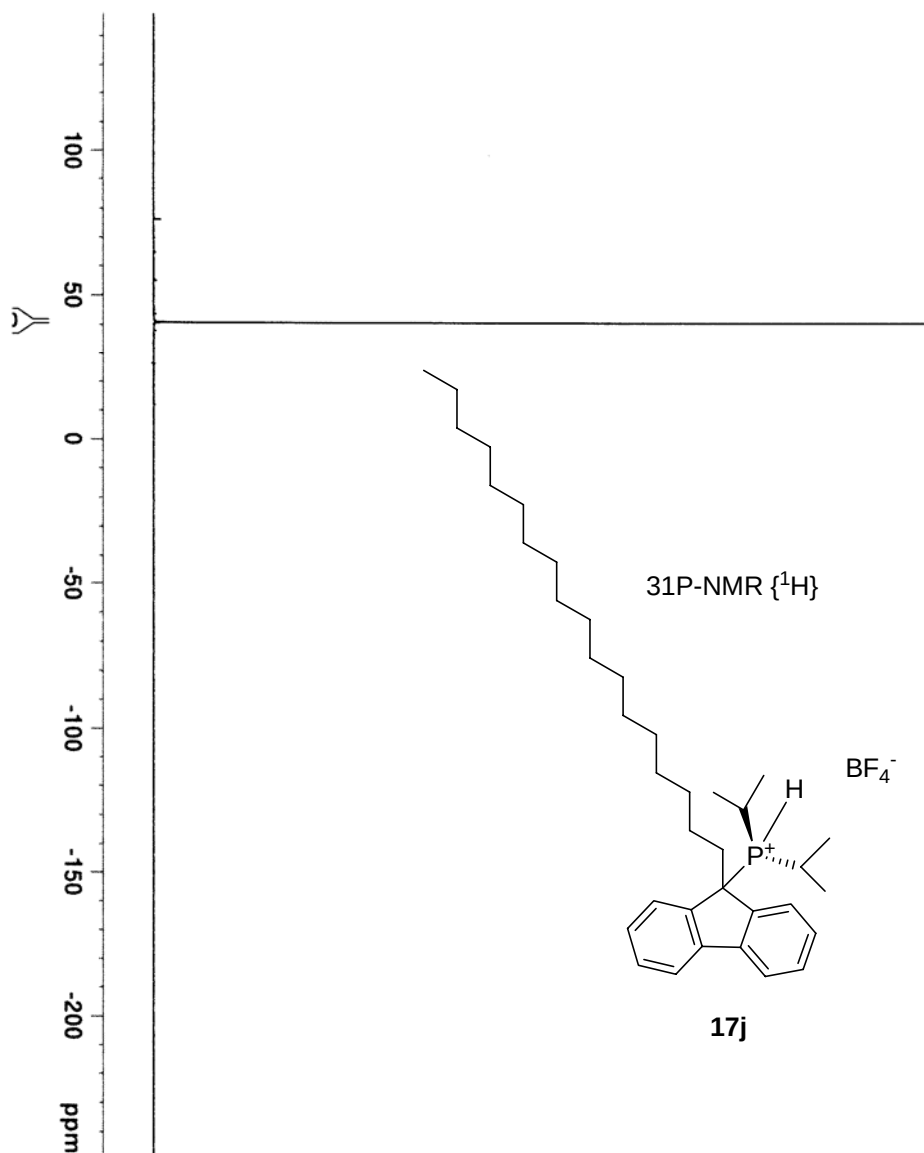
Current Data Parameters
 NAME sep13ac
 EXPNO 185
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20050913
 Time 17.44
 INSTRUM spect
 PROBD 5 mm PABBO BB-
 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl3
 NS 160
 DS 4
 SWH 48076.922 Hz
 FIDRES 0.733596 Hz
 AQ 0.6816244 sec
 RG 2050
 DW 10.400 usec
 DE 10.00 usec
 TE 300.0 K
 D1 2.0000000 sec
 d11 0.0300000 sec
 DELTA 1.8999998 sec
 TD0 1

===== CHANNEL f1 =====
 NUC1 31P
 P1 7.50 usec
 PL1 0.00 dB
 SFO1 121.3956752 MHz

===== CHANNEL f2 =====
 CPPPRG2 waltz16
 NUC2 1H
 PCPD2 95.00 usec
 PL2 -3.00 dB
 PL12 17.00 dB
 PL13 23.00 dB
 SFO2 299.9011996 MHz

F2 - Processing parameters
 SI 32768
 SF 121.4017450 MHz
 WDW EX
 SSB 0
 LB 2.00 Hz
 GB 0
 PC 1.40





Current Data Parameters
NAME sep13ac
EXPNO 185
PROCNO 1

F2 - Acquisition Parameters

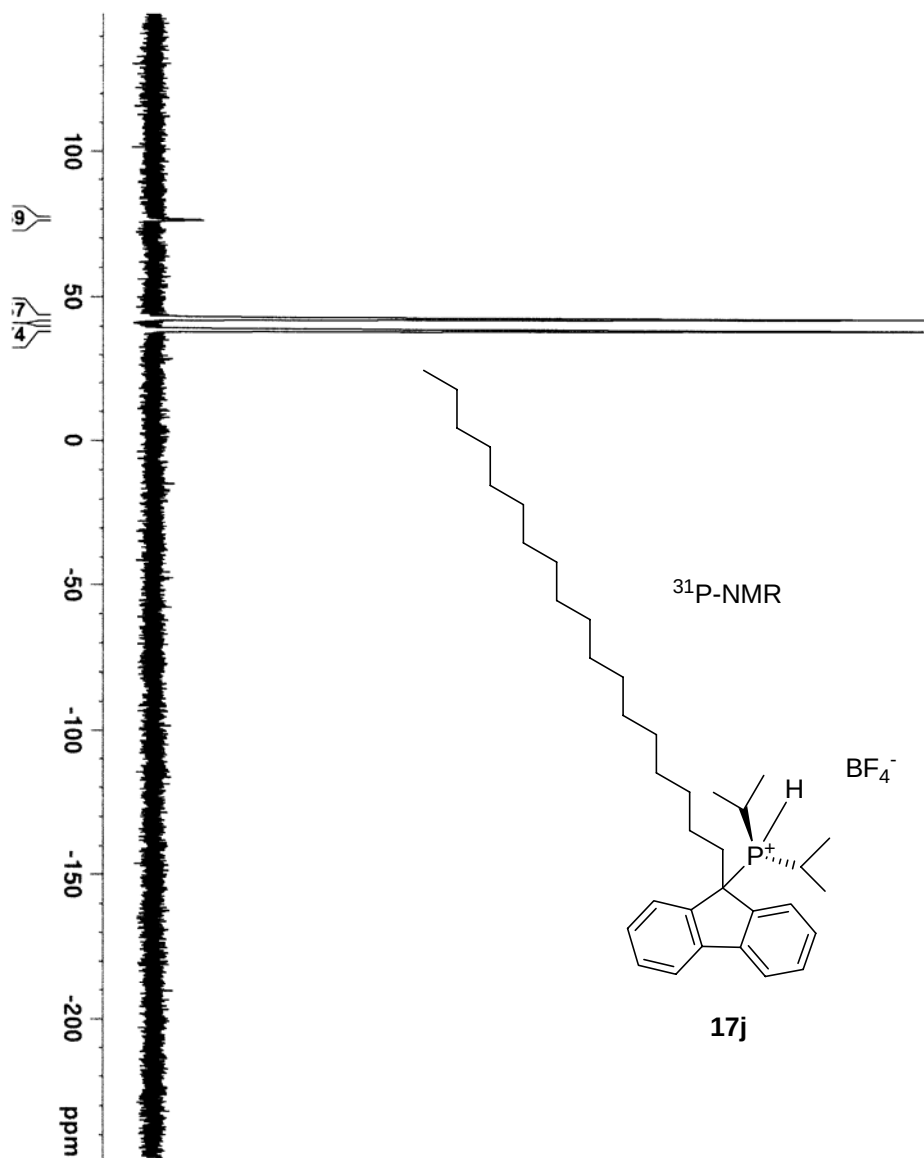
Date_ 20050913
Time 18.14
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 640
DS 4
SWH 48076.922 Hz
FIDRES 0.733596 Hz
AQ 0.6816244 sec
RG 2050
DM 10.400 usec
DE 10.00 usec
TE 300.0 K
D1 2.00000000 sec
TD0 1

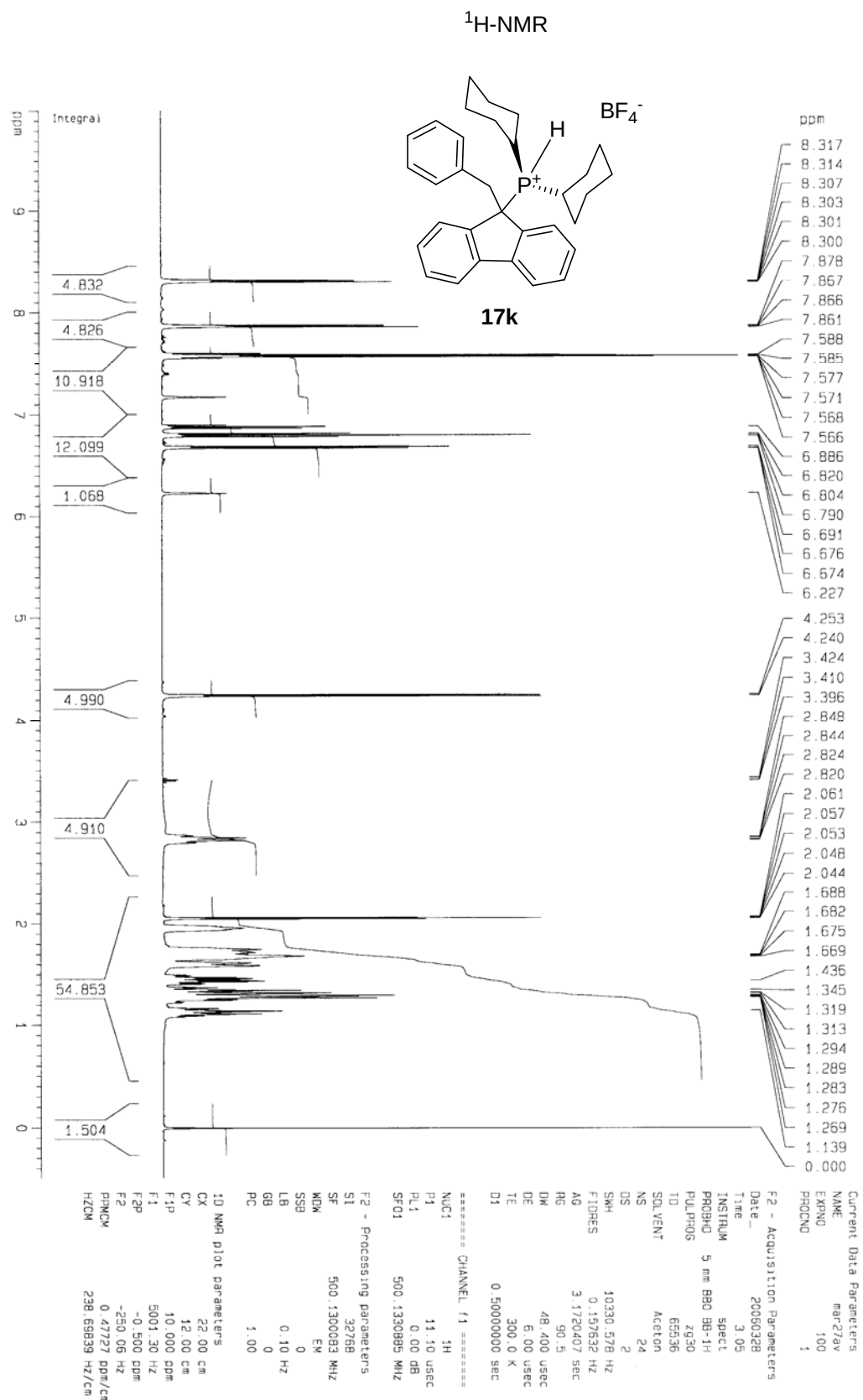
===== CHANNEL f1 =====

NUC1 31P
P1 7.50 usec
PL1 0.00 dB
SFO1 121.3956752 MHz

F2 - Processing parameters

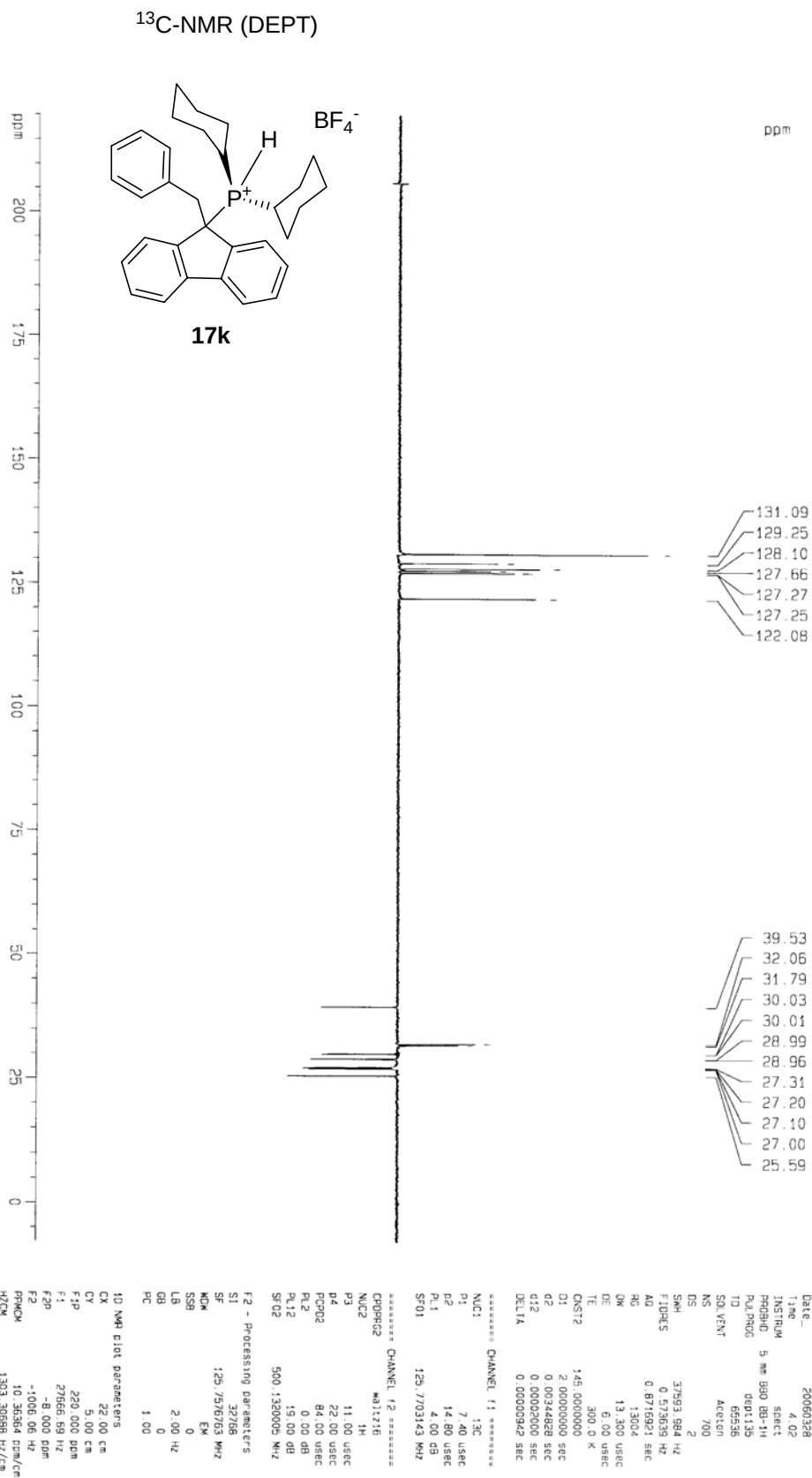
SI 32768
SF 121.4017450 MHz
WDW EX
SSB 0
LB 2.00 Hz
GB 0
PC 1.40



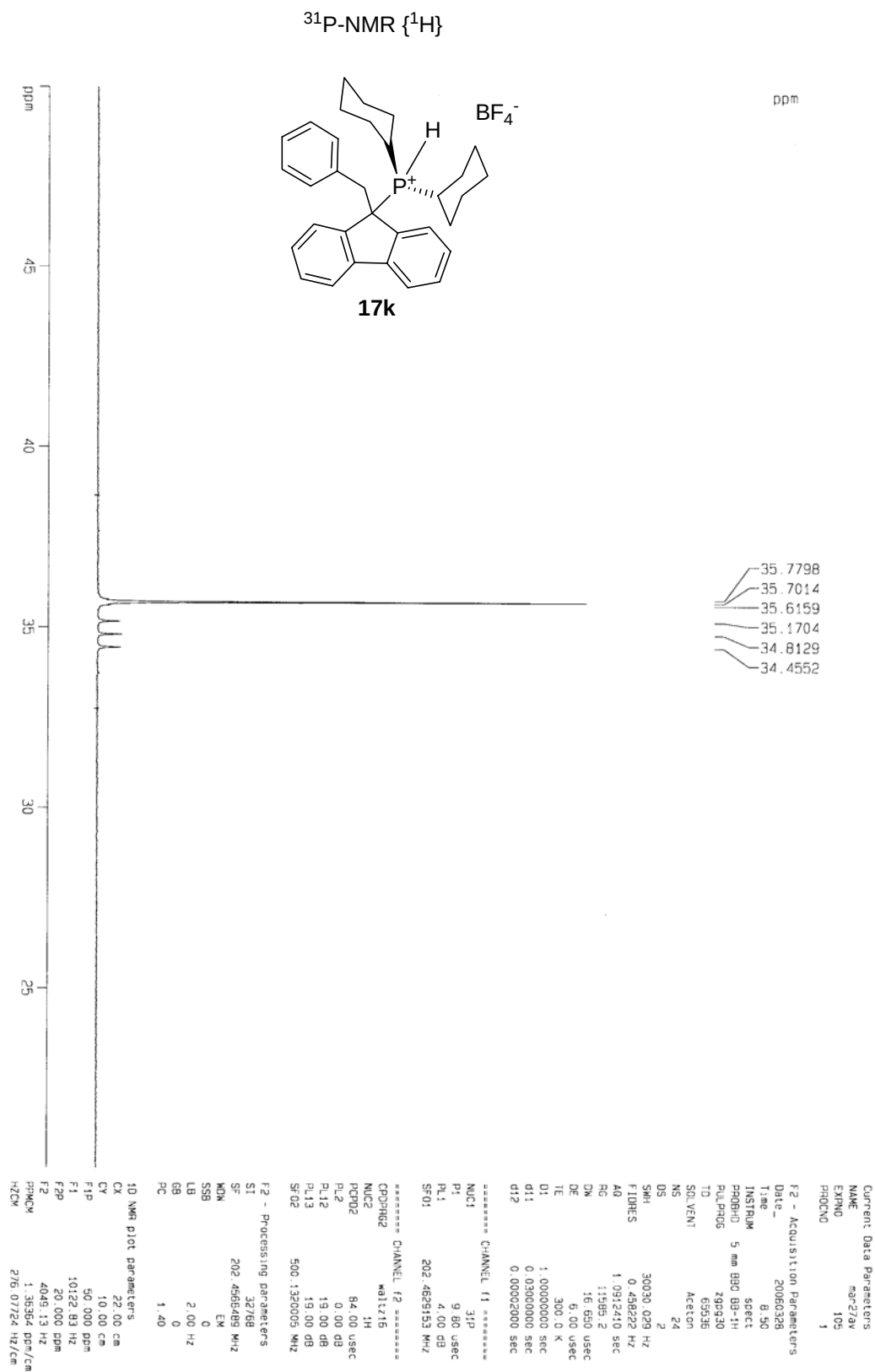


Fleckenstein CFP-4-100

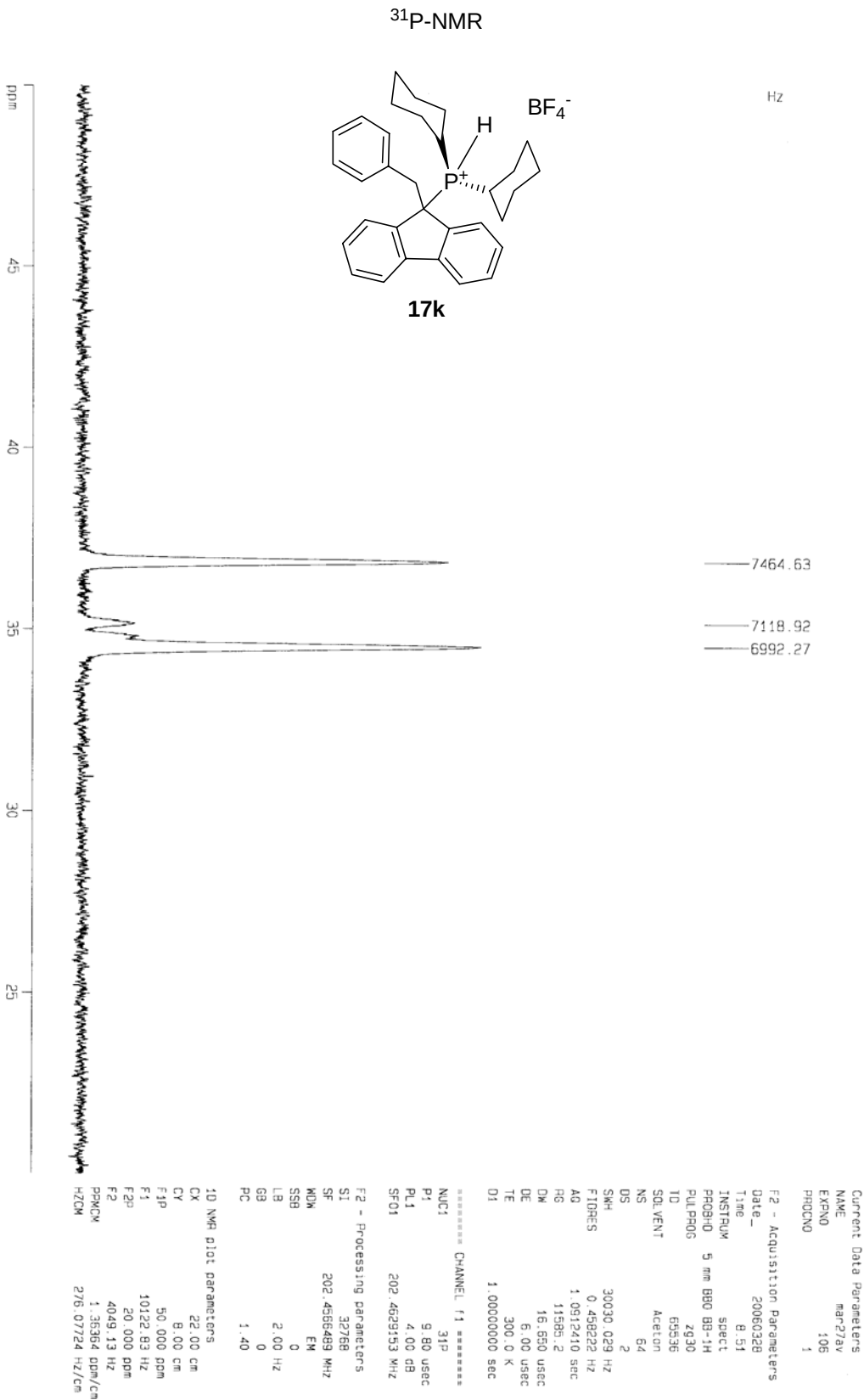




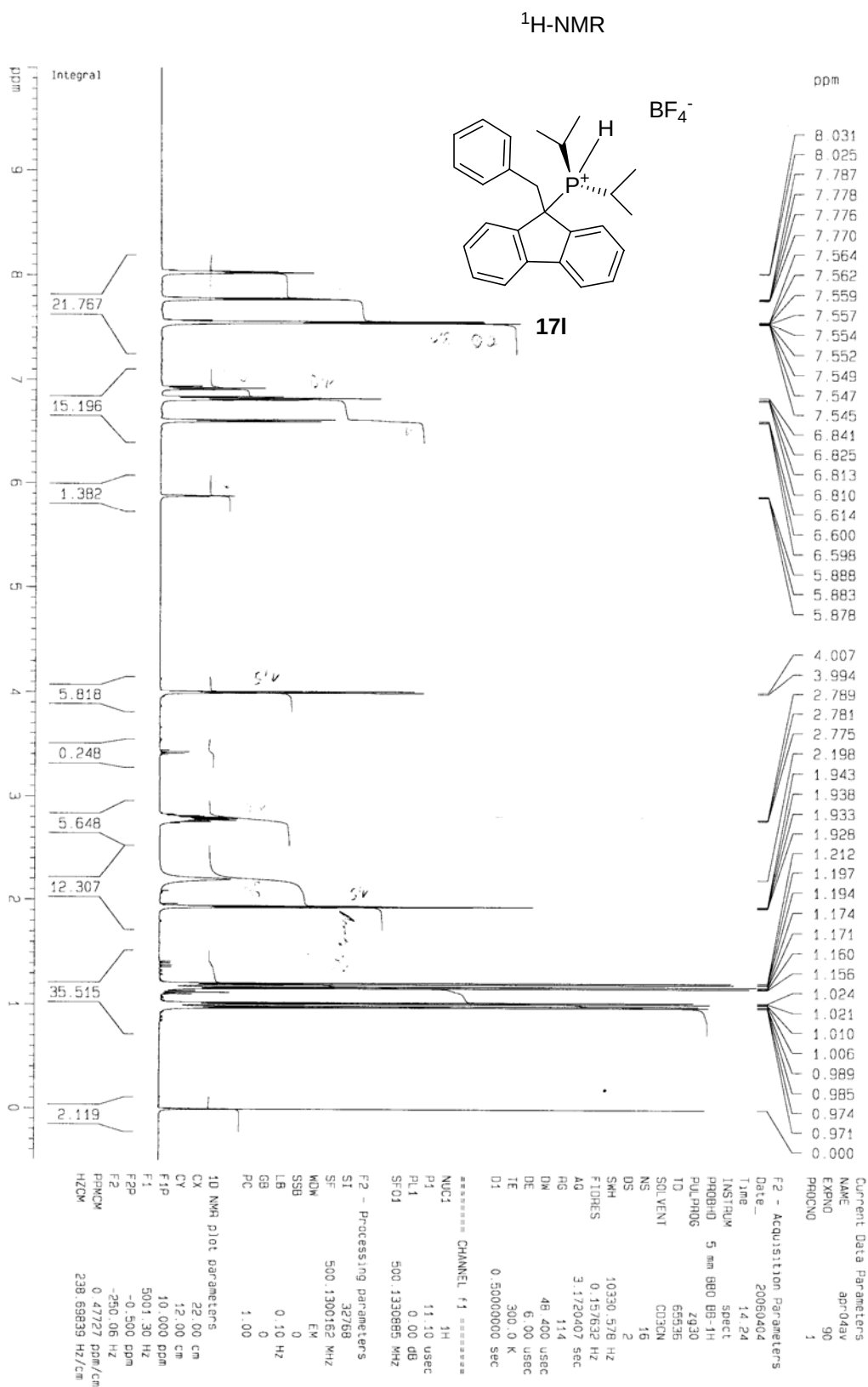
Fleckenstein CFP-4-100/31P



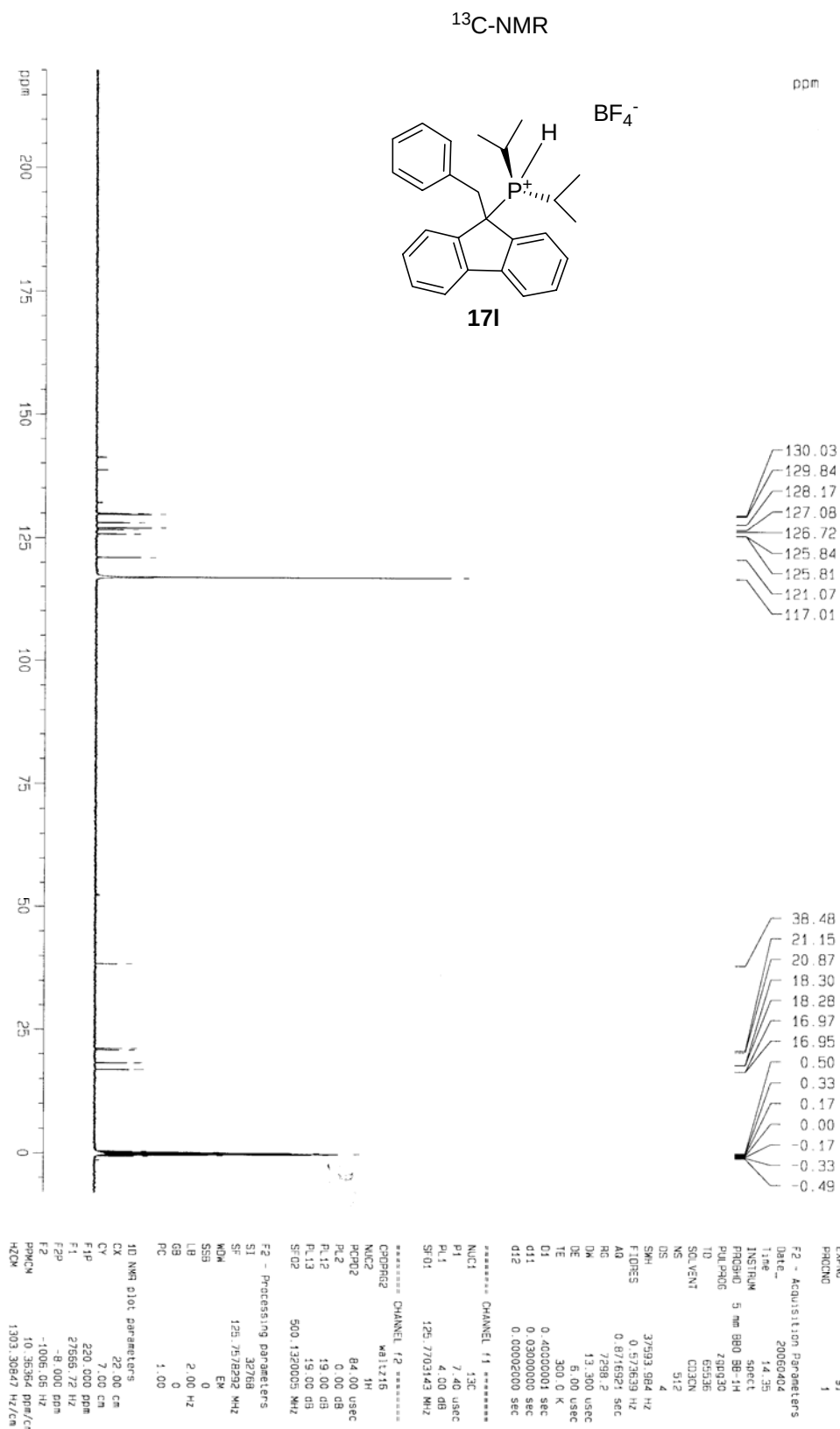
Fleckenstein CFP-4-100/31P no dec.



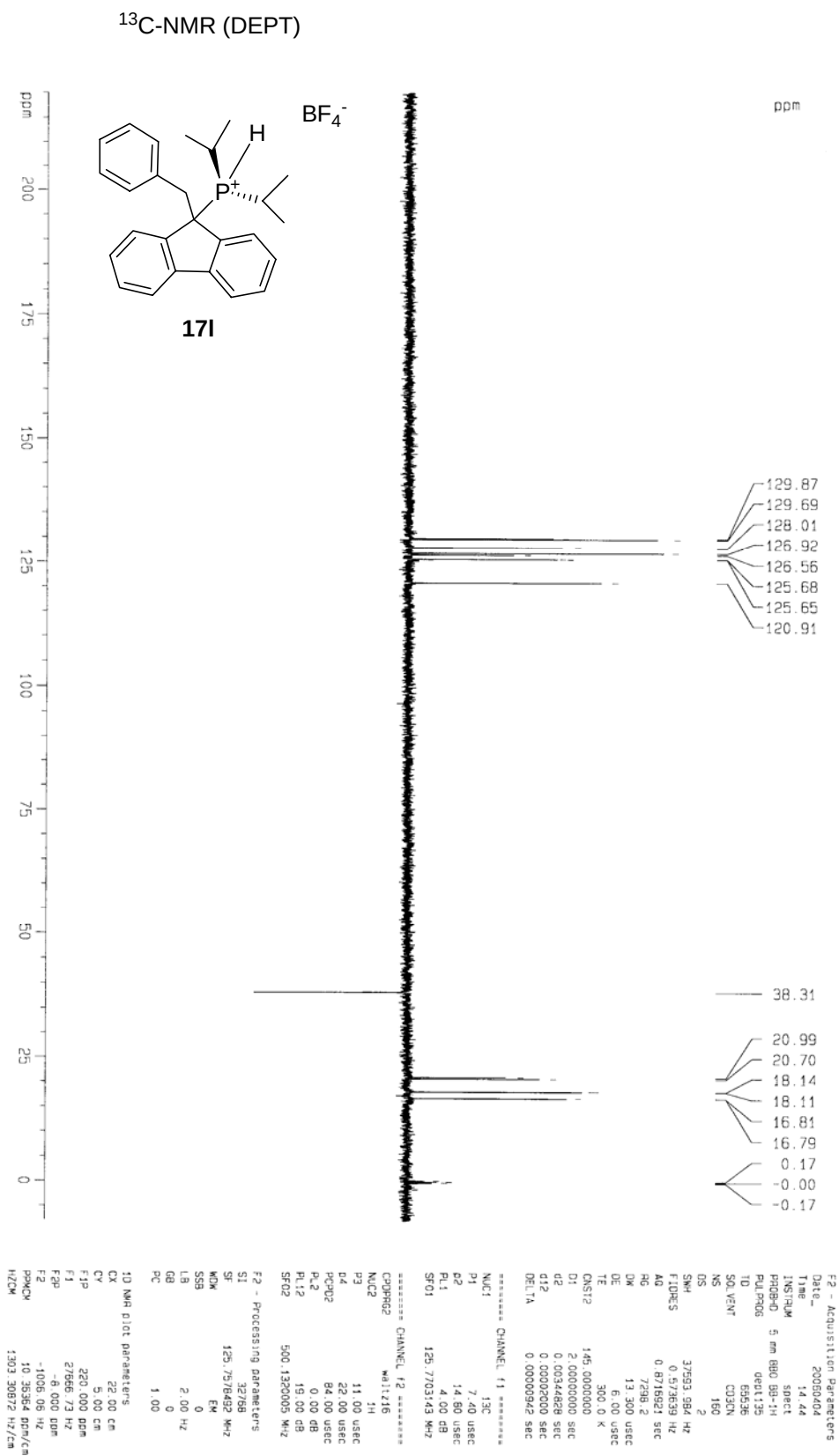
Fleckenstein CFP-4-116

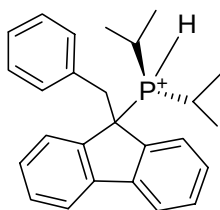


Fleckenstein CFP-4-116

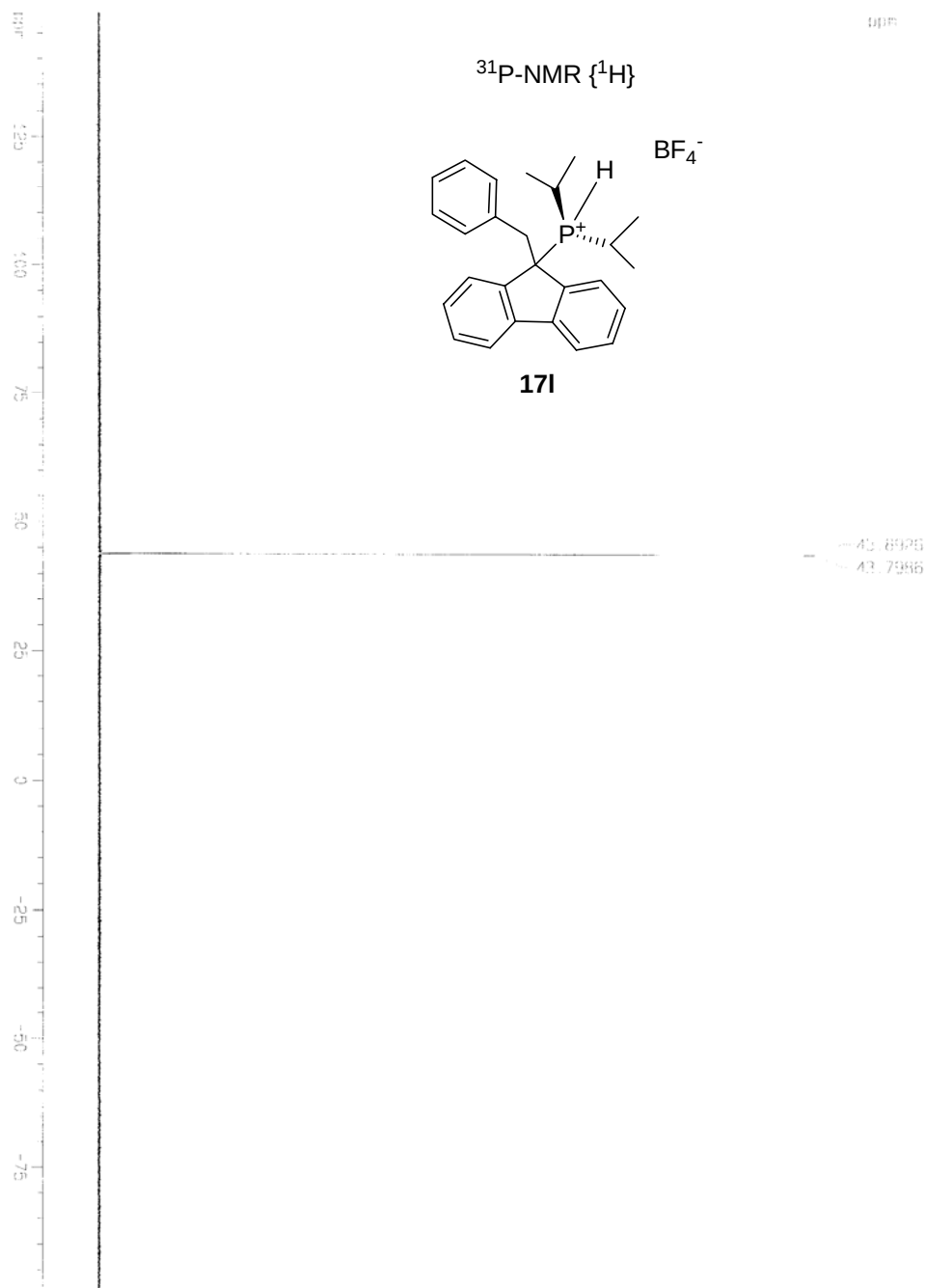


Fleckenstein CFP-4-116



$$\text{BF}_4^-$$


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[illegible]

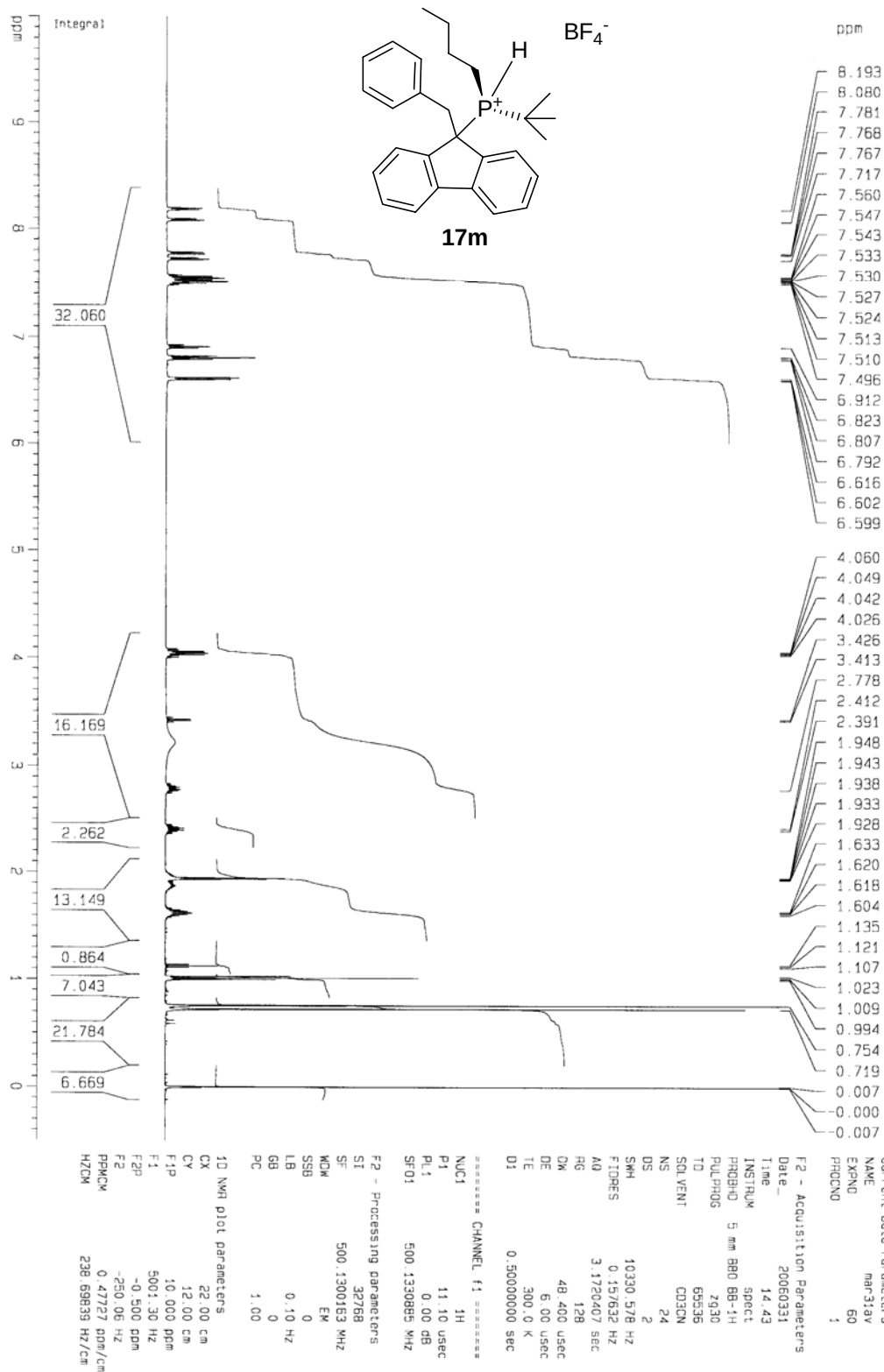
-17

File: 950701-4-116

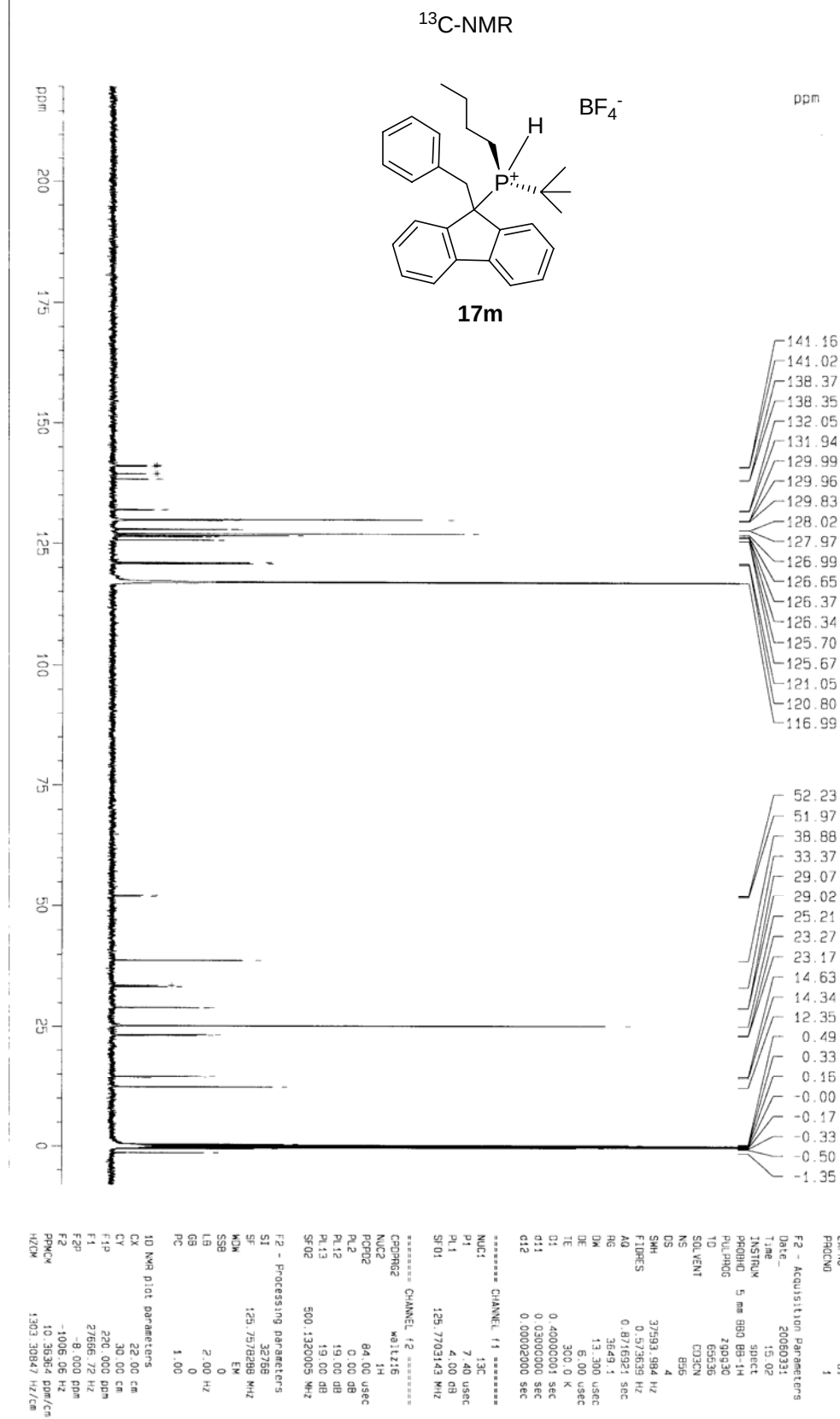
Current Data Parameters	
NAME	ap0030p
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NAME	6
NAME	7
NAME	8
NAME	9
NAME	10
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NAME	95
NAME	96
NAME	97
NAME	98
NAME	99
NAME	100

Fleckenstein CFP-4-110-C

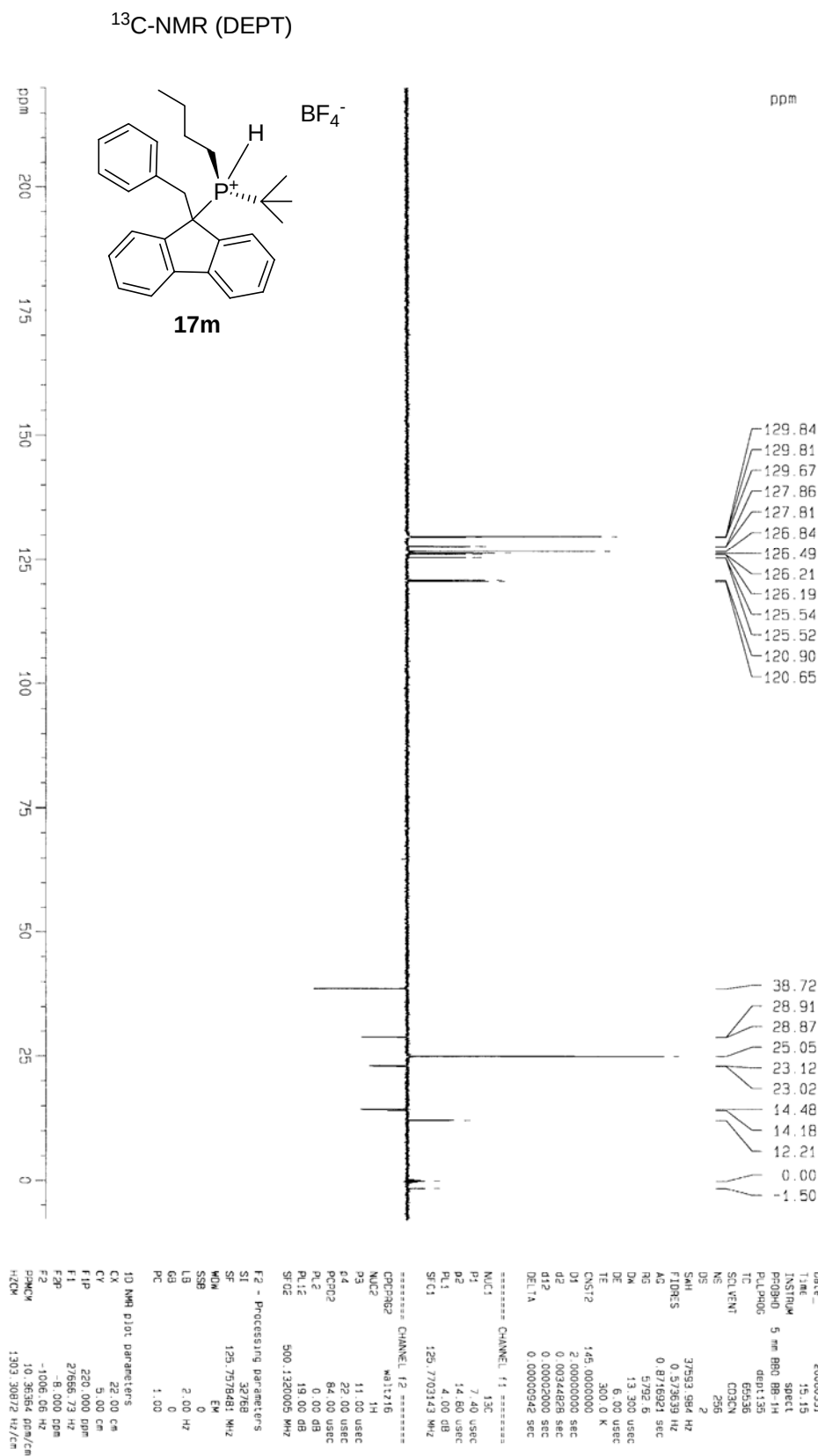
¹H-NMR



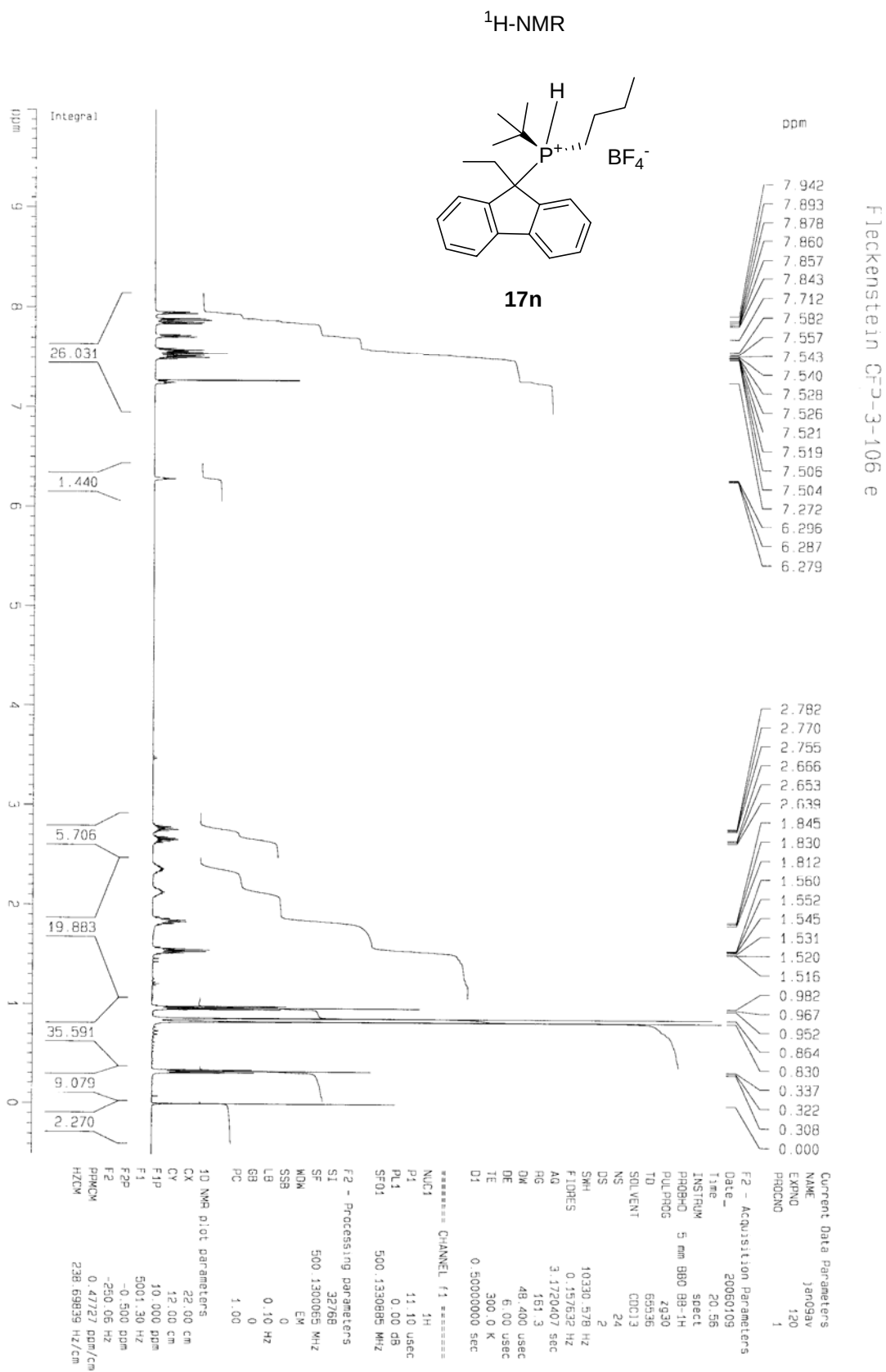
Fleckenstein CFP-4-110-c



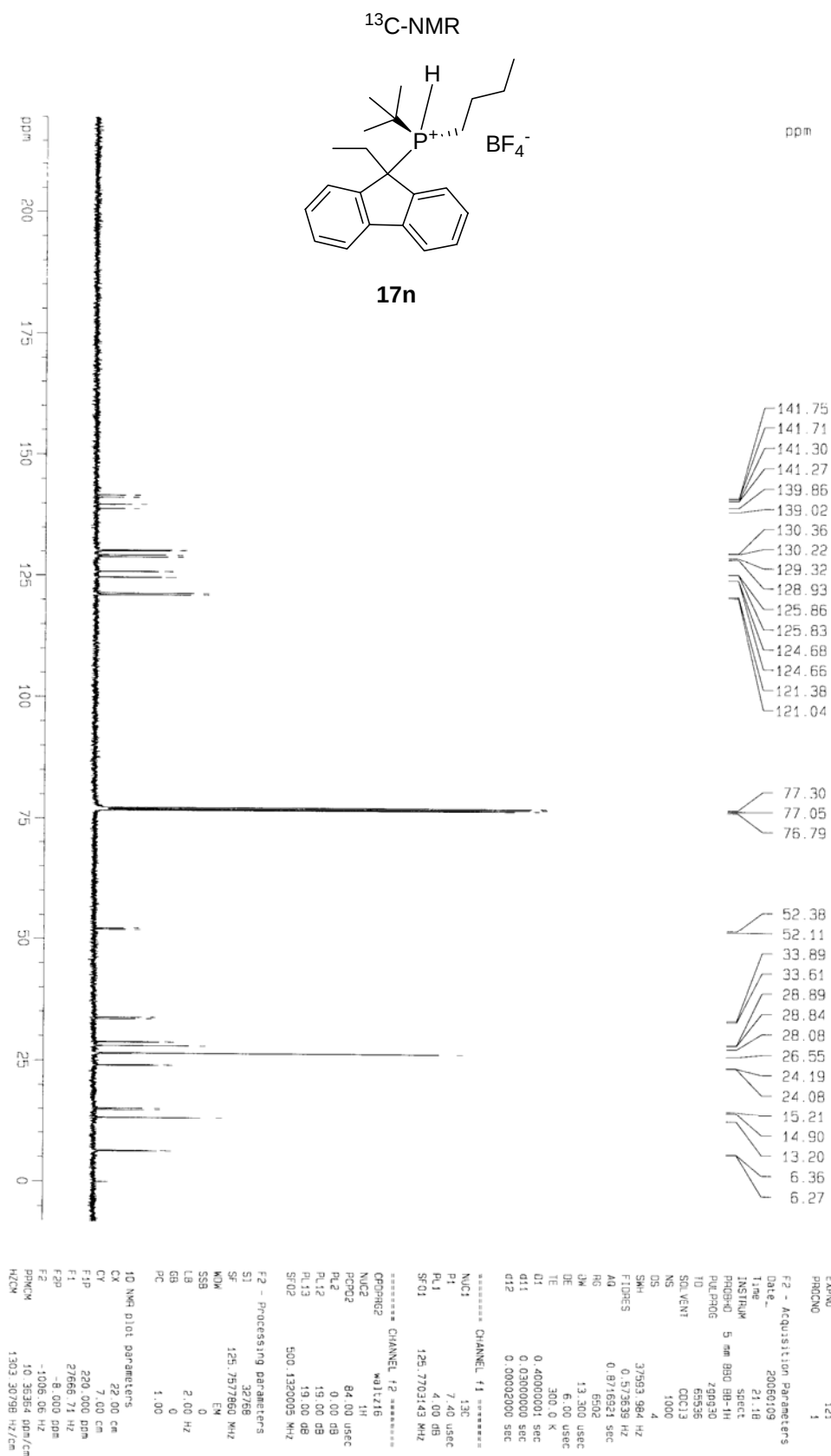
Fleckenstein CFP-4-110-C

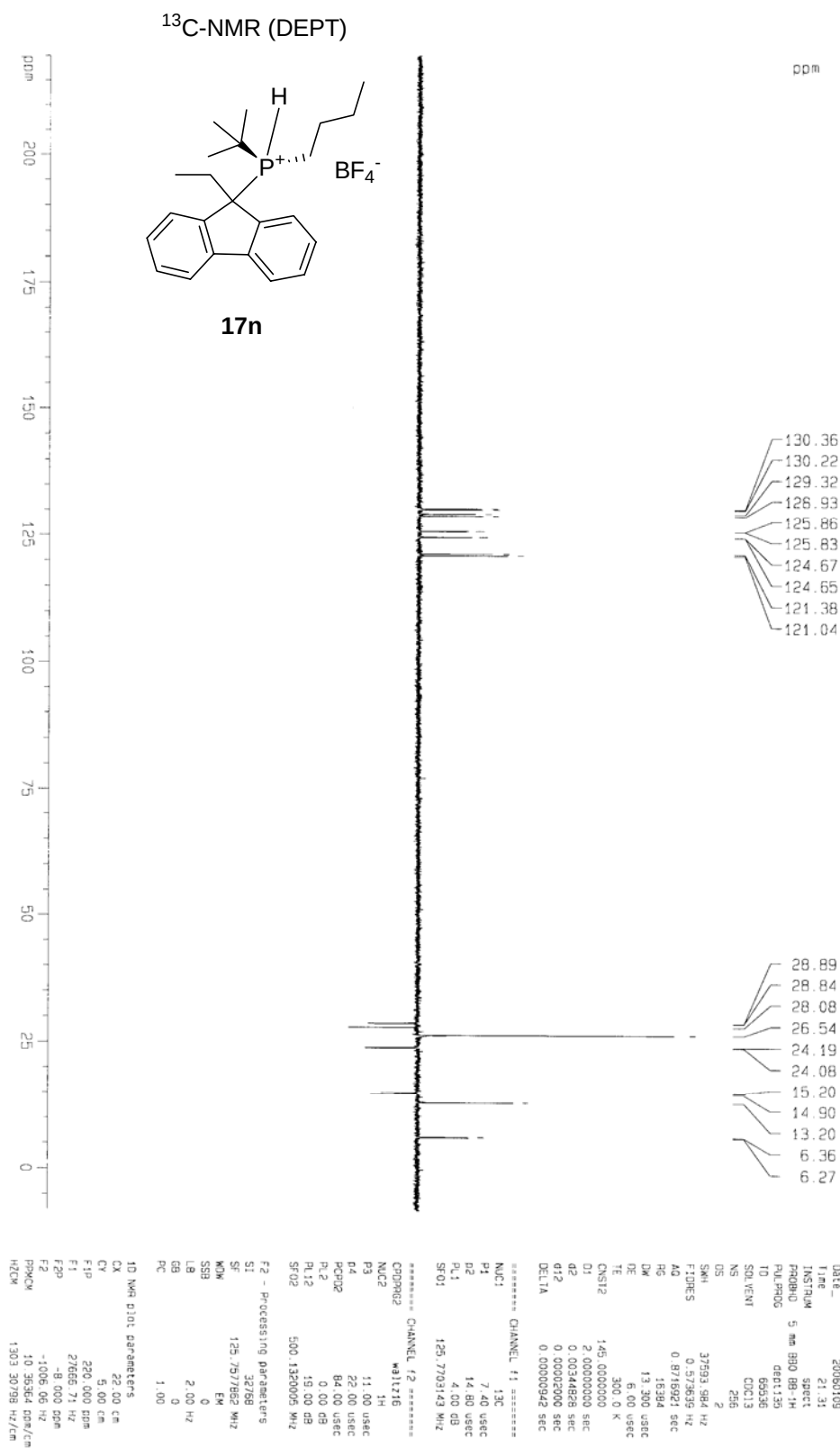




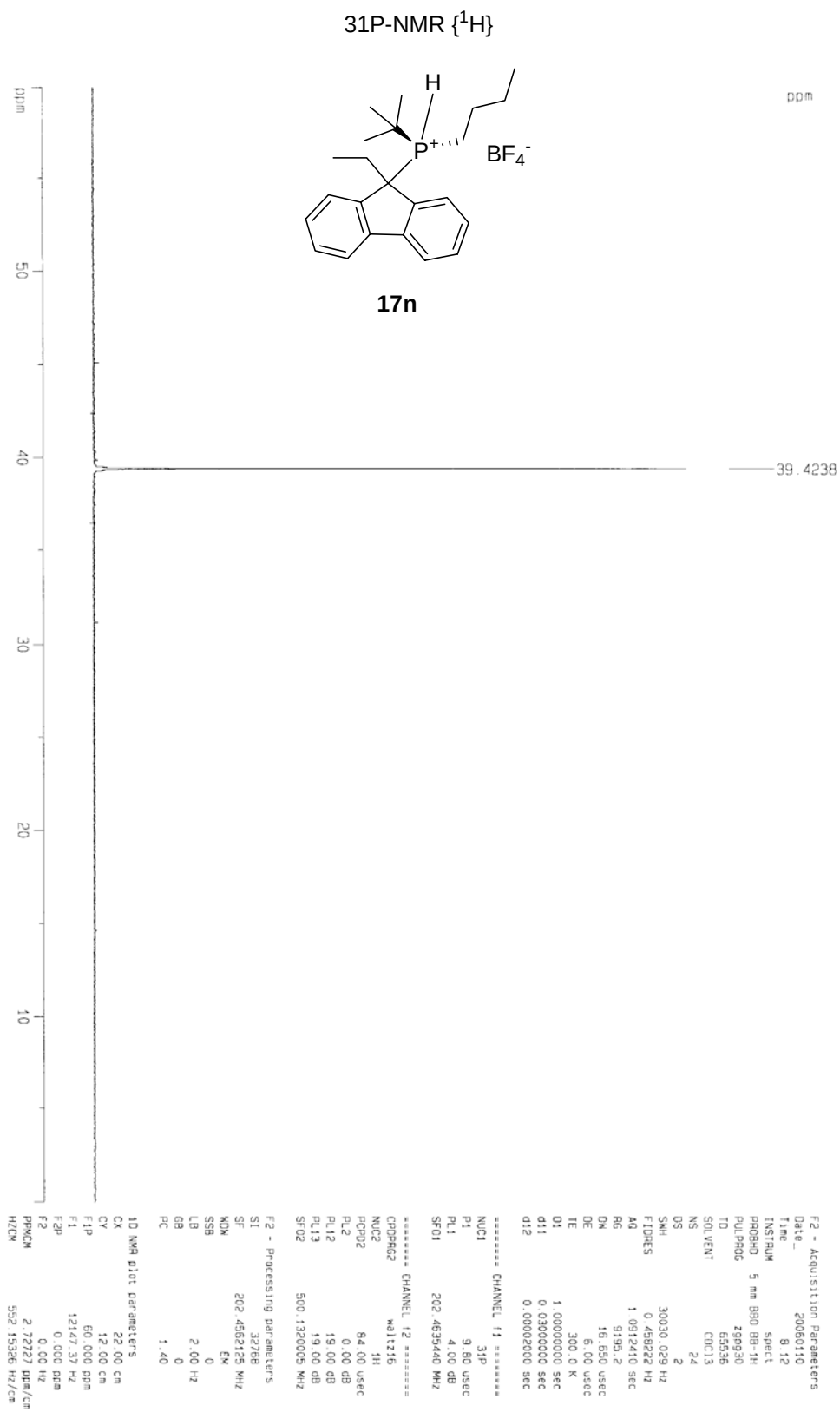


Fleckenstein CFP-3-106 e

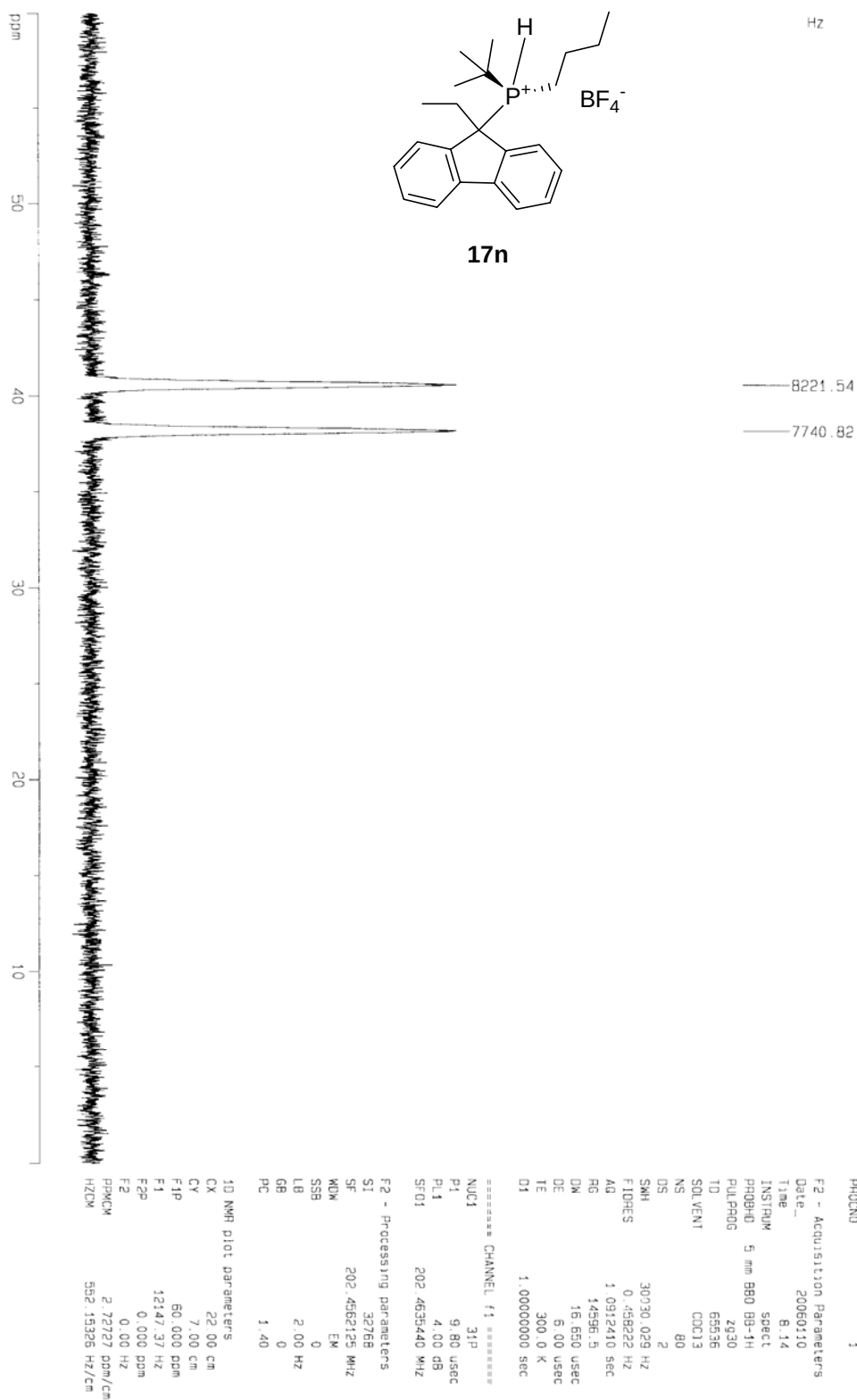
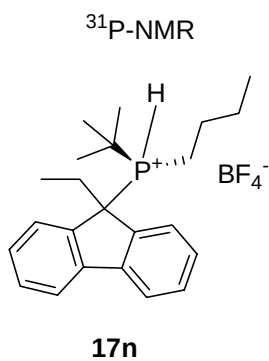


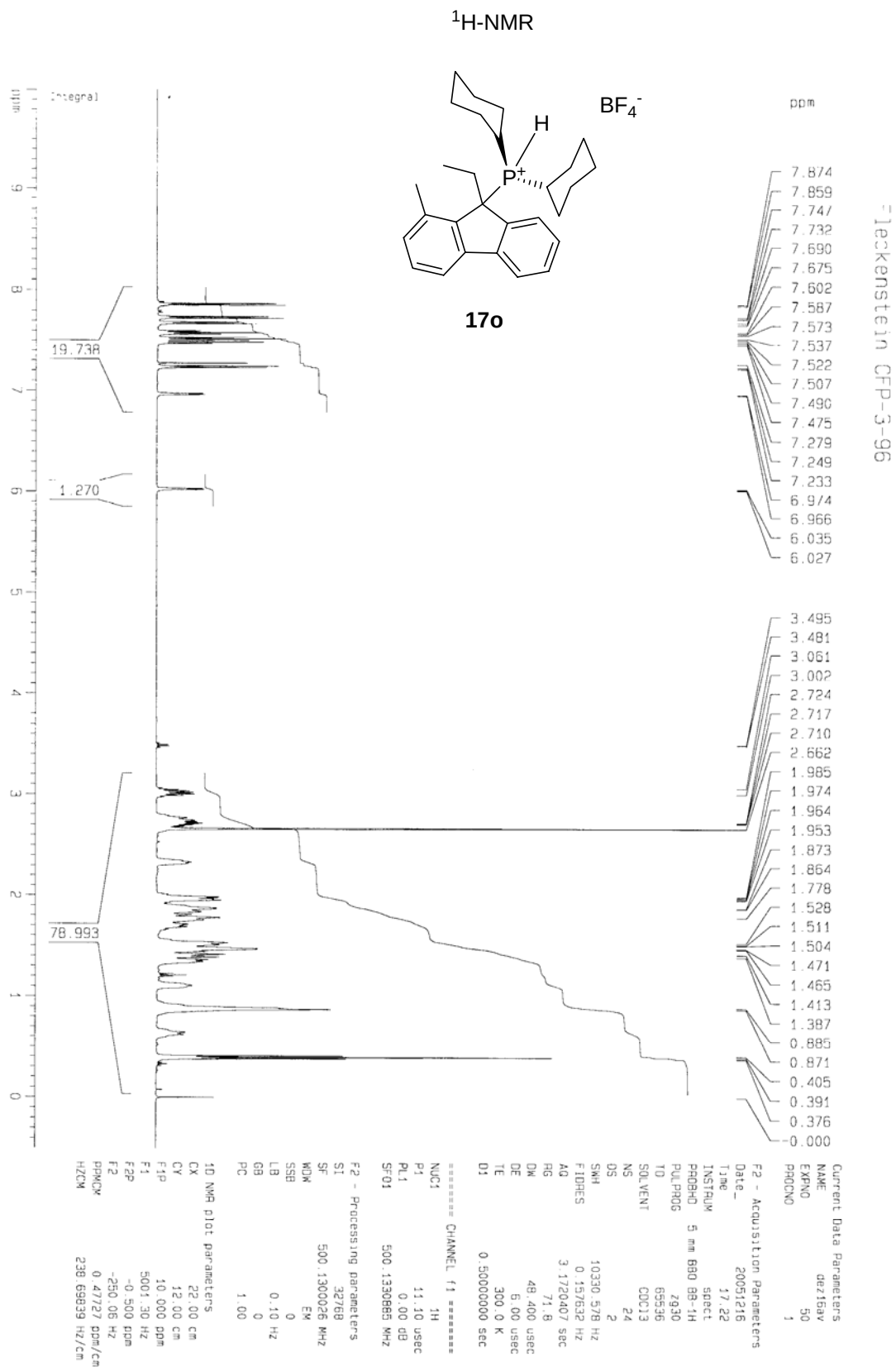


Fleckenstein CFP-3-106 e/31P

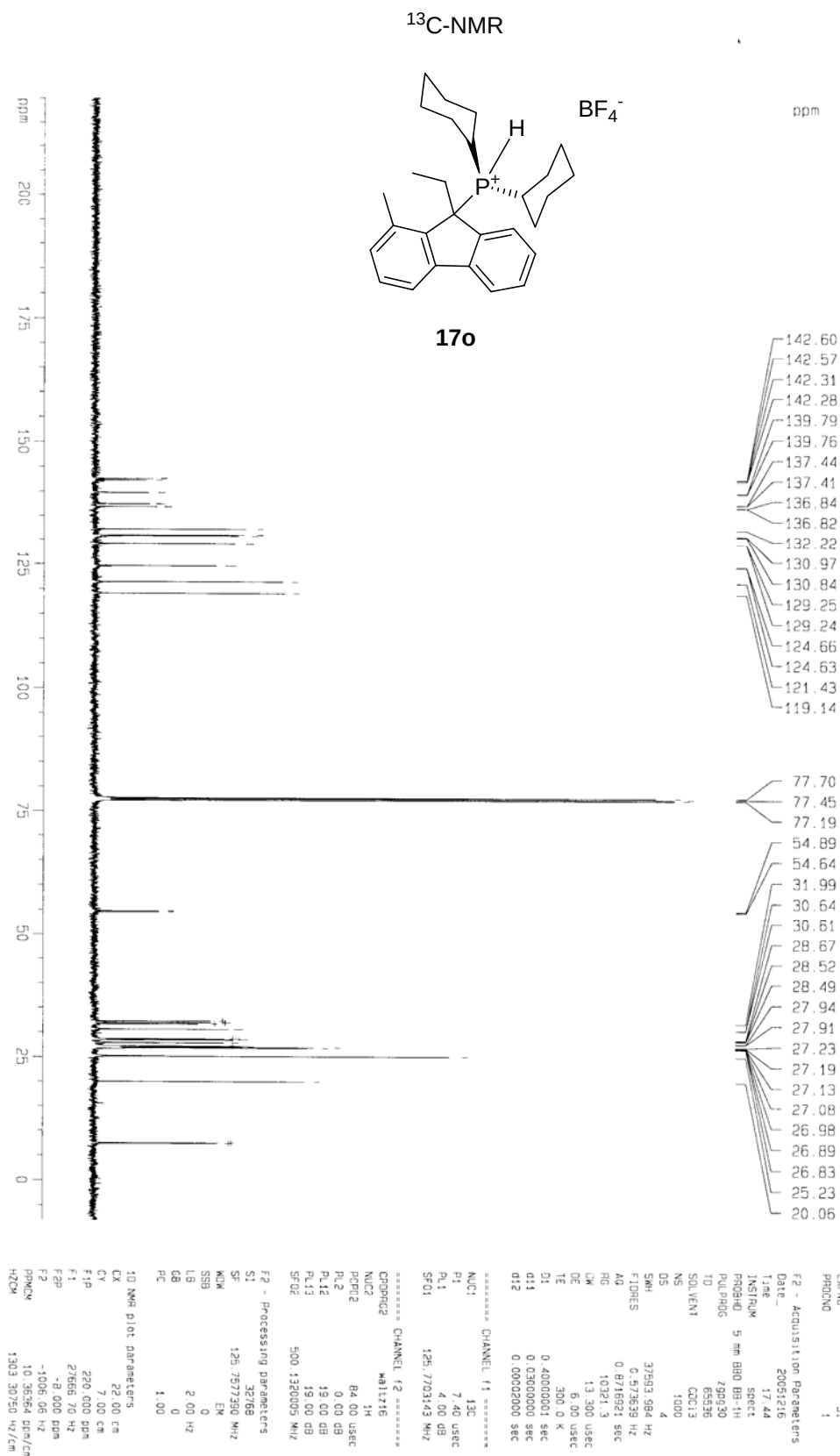


Fleckenstein CFP-3-106 e/31P no dec.

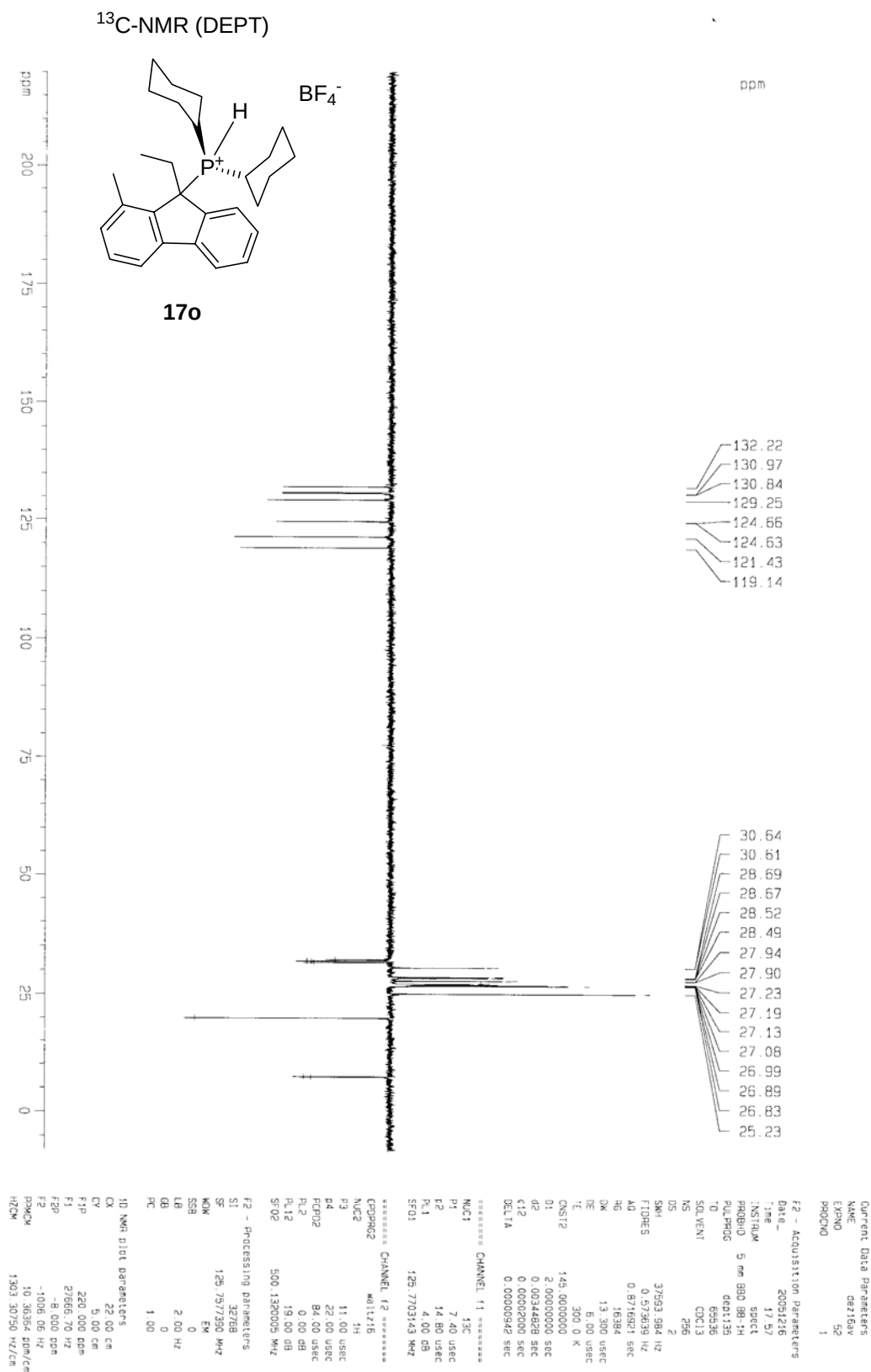




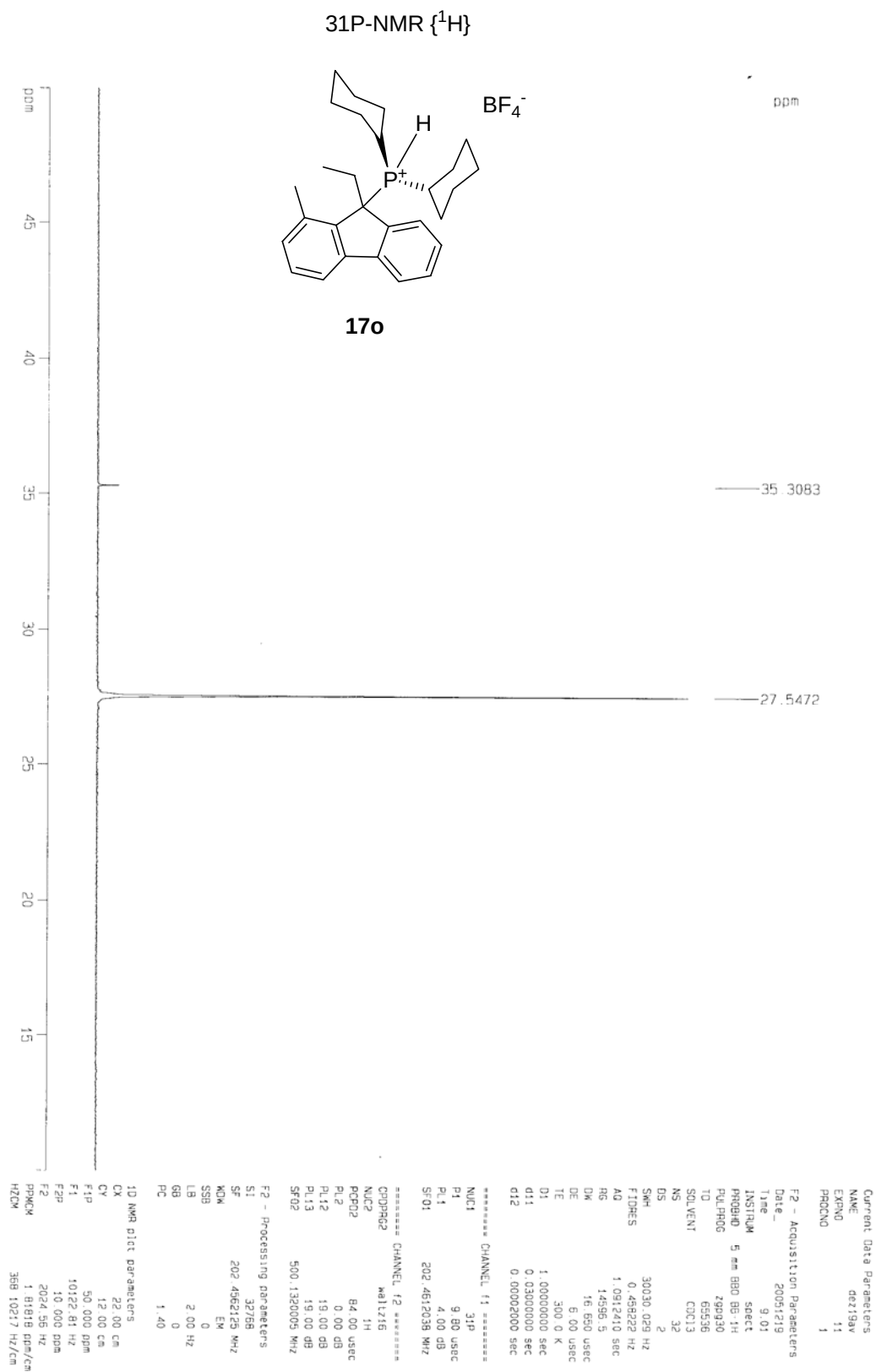
Fleckenstein CFP-3-96



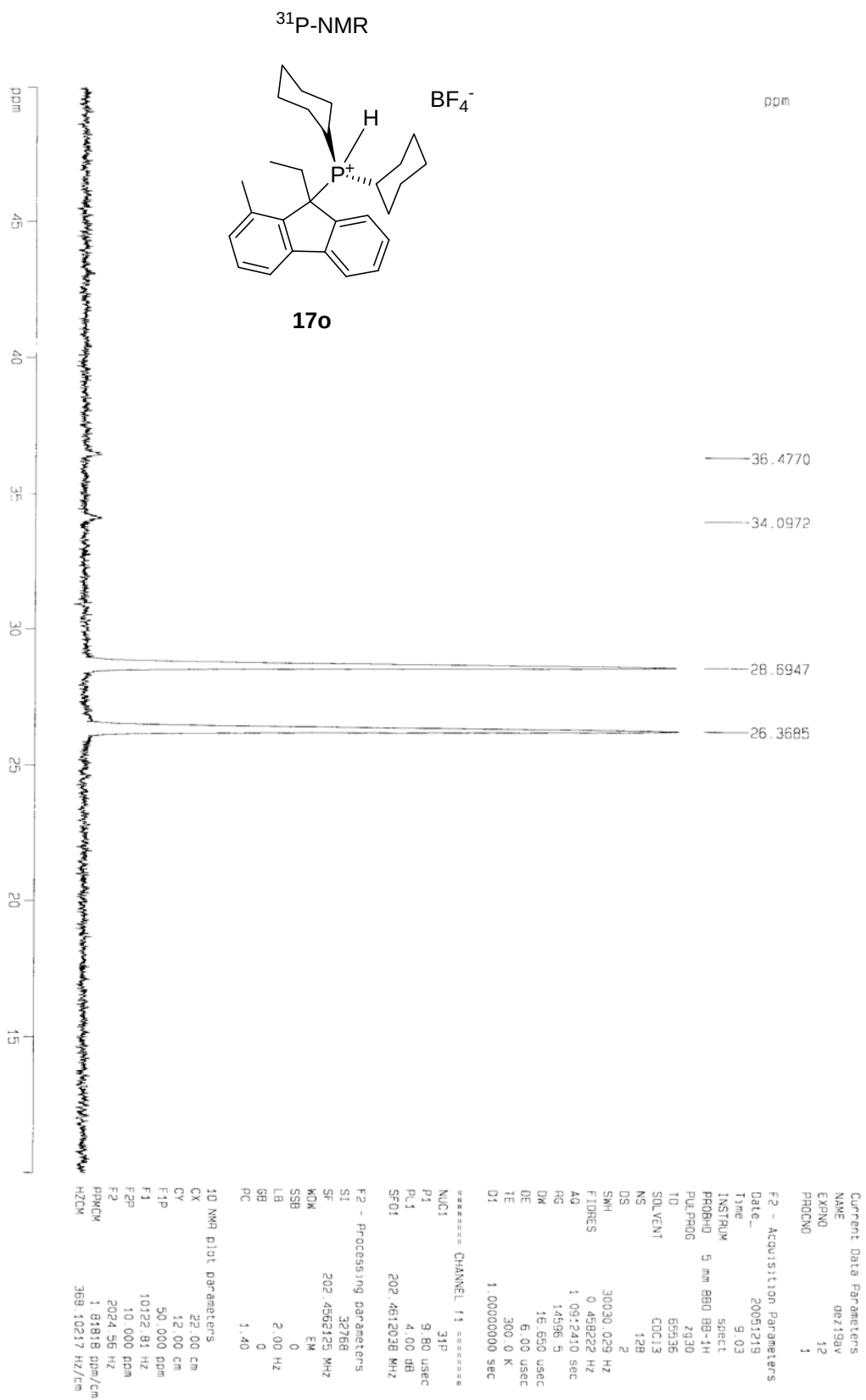
Leckenstein CFP-3-96

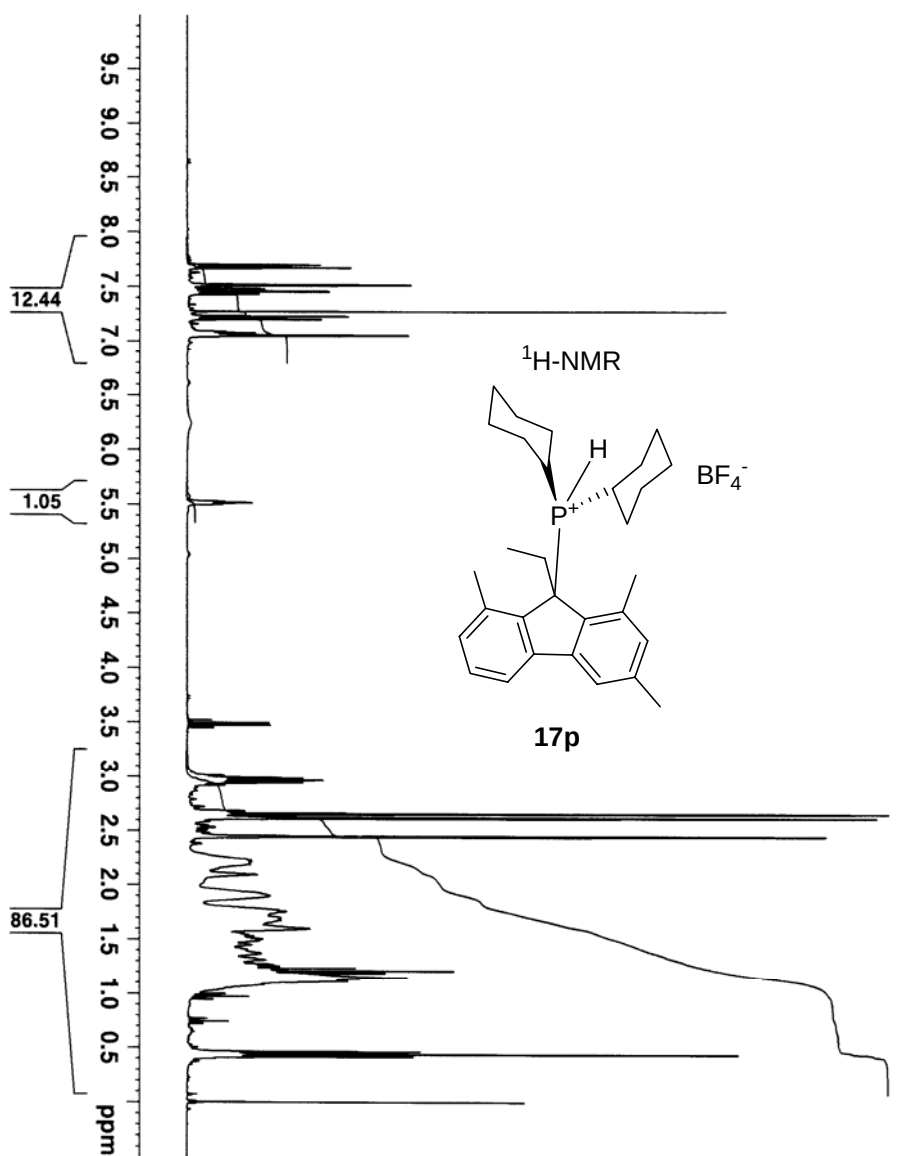


Fleckenstein CFP-3-96/31P/CPD



Fleckenstein CFP-3-96/31P undec.





Current Data Parameters
NAME aug23ac
EXPNO 250
PROCNO 1

F2 - Acquisition Parameters
Date_ 20050823
Time 22.35
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 32
DS 2
SWH 6188.119 Hz
FIDRES 0.188846 Hz
AQ 2.647704 sec
RG 181
DM 80.800 usec
DE 10.00 usec
TE 300.0 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 1H
P1 9.70 usec
PL1 -3.00 dB
SFO1 299.9018520 MHz

F2 - Processing parameters
SI 32768
SF 299.899979 MHz
WDW EM
SSB 0
LB 0.10 Hz
GB 0
PC 1.00



Current Data Parameters
 NAME aug23ac
 EXPNO 261
 PROCNO 1

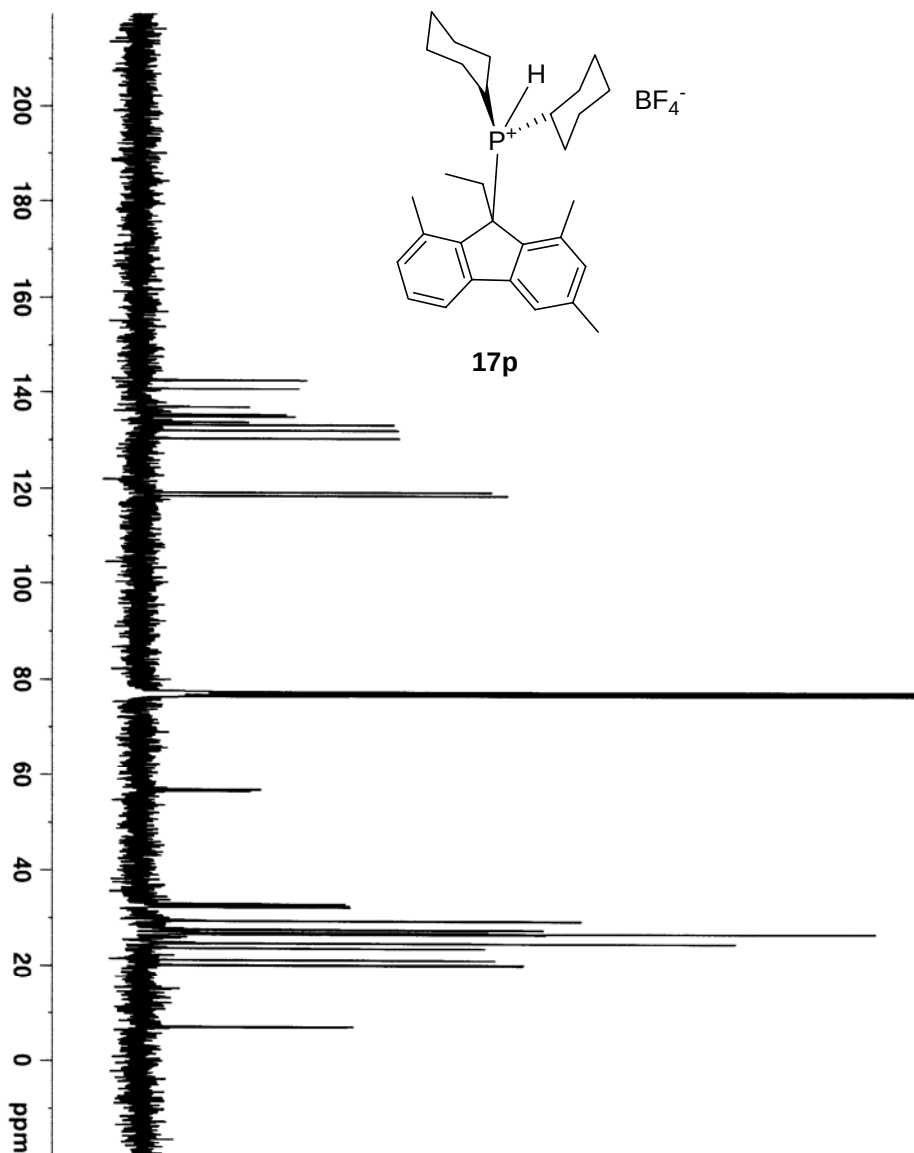
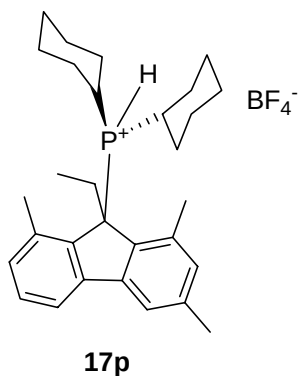
F2 - Acquisition Parameters
 Date_ 20050823
 Time 23.09

INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG zgpg30
 TD 32768
 SOLVENT CDCl3
 NS 1000
 DS 4

SWH 18028.846 Hz
 FIDRES 0.550197 Hz
 AQ 0.9088159 sec

RG 2050
 DW 27.733 usec
 DE 10.00 usec
 TE 300.0 K

D1 1.00000000 sec
 d11 0.03000000 sec
 DELTA 0.89999998 sec
 TD0 1

¹³C-NMR

===== CHANNEL f1 =====
 NUC1 ¹³C
 P1 11.00 usec
 PL1 0.00 dB
 SFO1 75.4174560 MHz

===== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 ¹H
 PCPD2 95.00 usec
 PL2 -3.00 dB
 PL12 17.00 dB
 PL13 23.00 dB
 SFO2 299.9011995 MHz

F2 - Processing parameters
 SI 32768
 SF 75.4099150 MHz
 WDM EM
 SSB 0
 LB 2.00 Hz
 GB 0
 PC 1.40



Current Data Parameters
NAME aug23ac
EXPNO 262
PROCNO 1

F2 - Acquisition Parameters
Date_ 20050823
Time 23.22

INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG dept135
TD 32768

SOLVENT

NS 256
DS 4

SWH 18028.846 Hz
FIDRES 0.350197 Hz

AQ 0.9088159 sec
RG 2050

DW 27.733 usec
DE 10.00 usec

TE 300.0 K
CNST2 145.0000000

D1 2.00000000 sec
d2 0.0034828 sec

d12 0.0002000 sec
DELTA 0.0001401 sec

TD0 1

===== CHANNEL f1 =====
NUC1 13C

P1 11.00 usec
P2 22.00 usec

PL1 0.00 dB
SFO1 75.4174560 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16

NUC2 1H
P3 9.50 usec

P4 19.00 usec
PCPD2 95.00 usec

PL2 -3.00 dB
PL12 17.00 dB

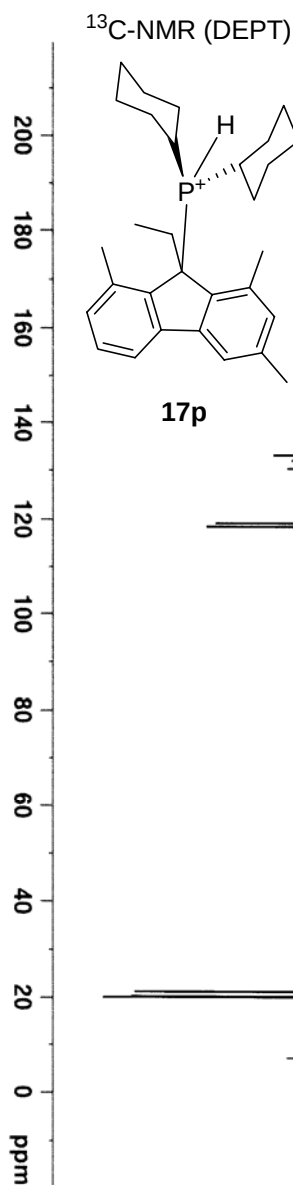
SFO2 299.9011996 MHz

F2 - Processing parameters
SI 32768

SF 75.4099150 MHz
WDW EM

SSB 0
LB 2.00 Hz

GB 0
PC 1.40





Current Data Parameters
 NAME aug23ac
 EXPNO 265
 PROCNO 1

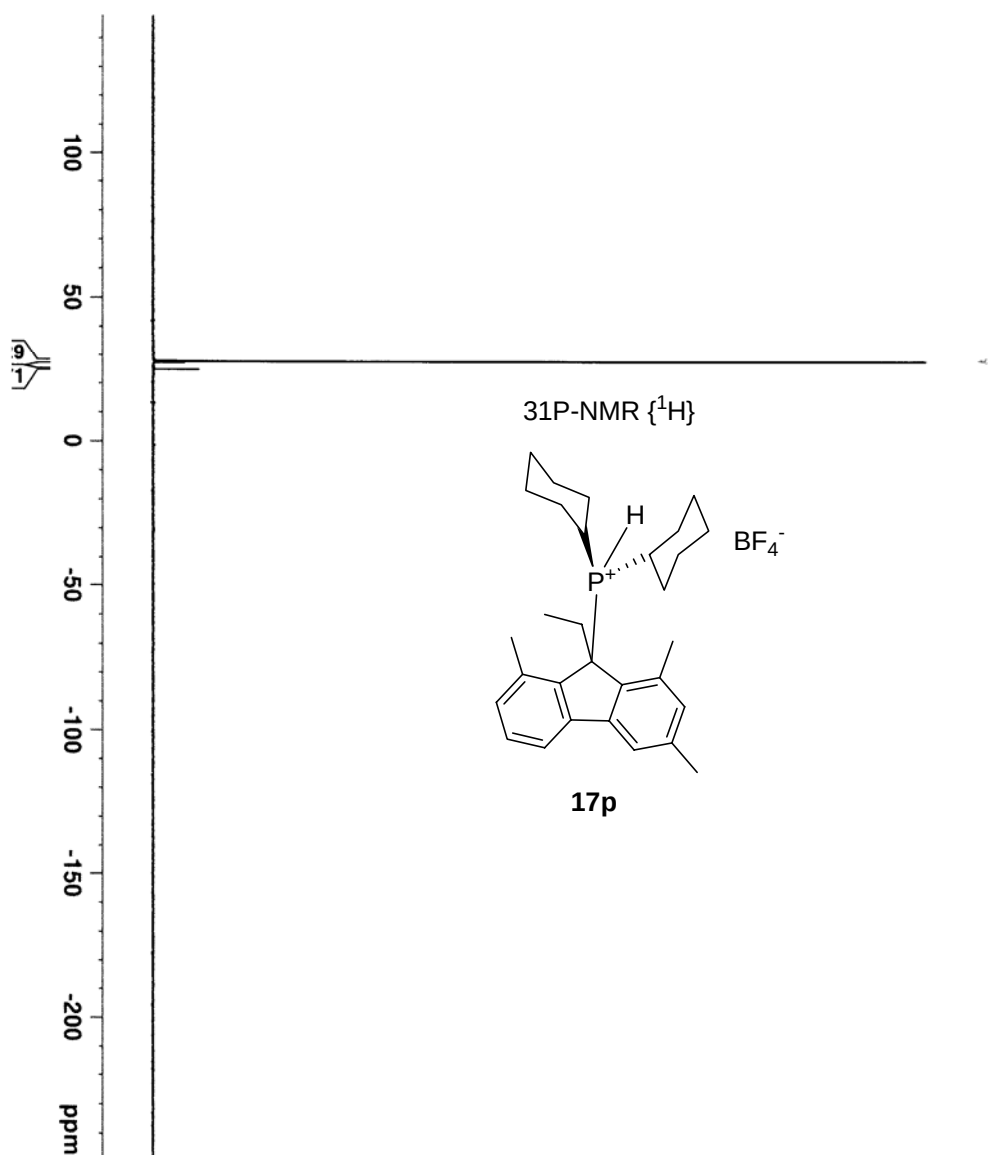
F2 - Acquisition Parameters

Date_ 20050823
 Time 23.54
 INSTRUM spect
 PROBHD 5 mm PABBO BH-
 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl3
 NS 80
 DS 4
 SWH 48076.922 Hz
 FIDRES 0.733596 Hz
 AQ 0.6816244 sec
 RG 2050
 DW 10.400 usec
 DE 10.00 usec
 TE 300.0 K
 D1 2.00000000 sec
 d11 0.03000000 sec
 DELTA 1.89999998 sec
 TD0 1

===== CHANNEL f1 =====
 NUC1 31P
 P1 7.50 usec
 PL1 0.00 dB
 SFO1 121.3956752 MHz

===== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 95.00 usec
 PL2 -3.00 dB
 PL12 17.00 dB
 PL13 23.00 dB
 SFO2 299.9011996 MHz

F2 - Processing parameters
 SI 32768
 SF 121.4017450 MHz
 WDW EM
 SSB 0
 GB 0
 PC 1.40

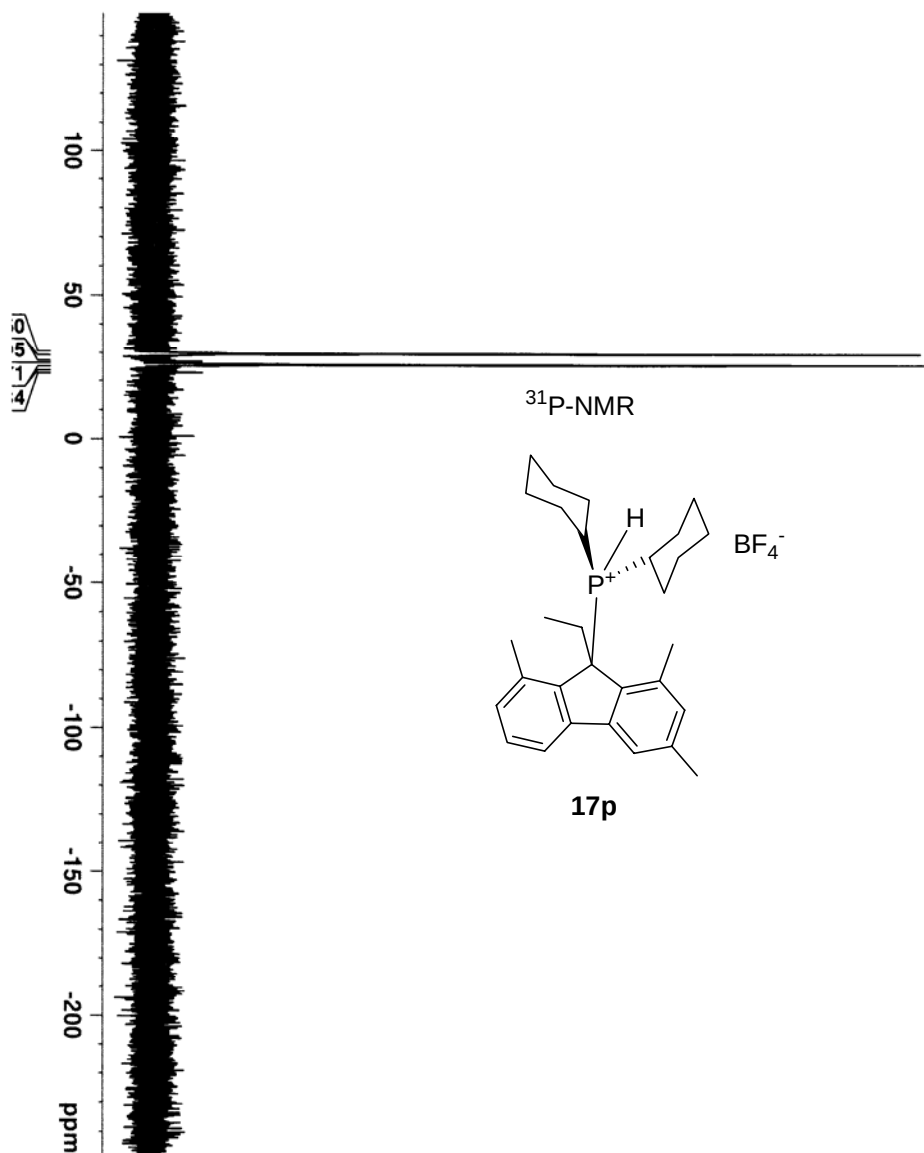


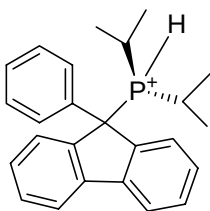


Current Data Parameters
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 EXPNO 256
 PROCNO 1

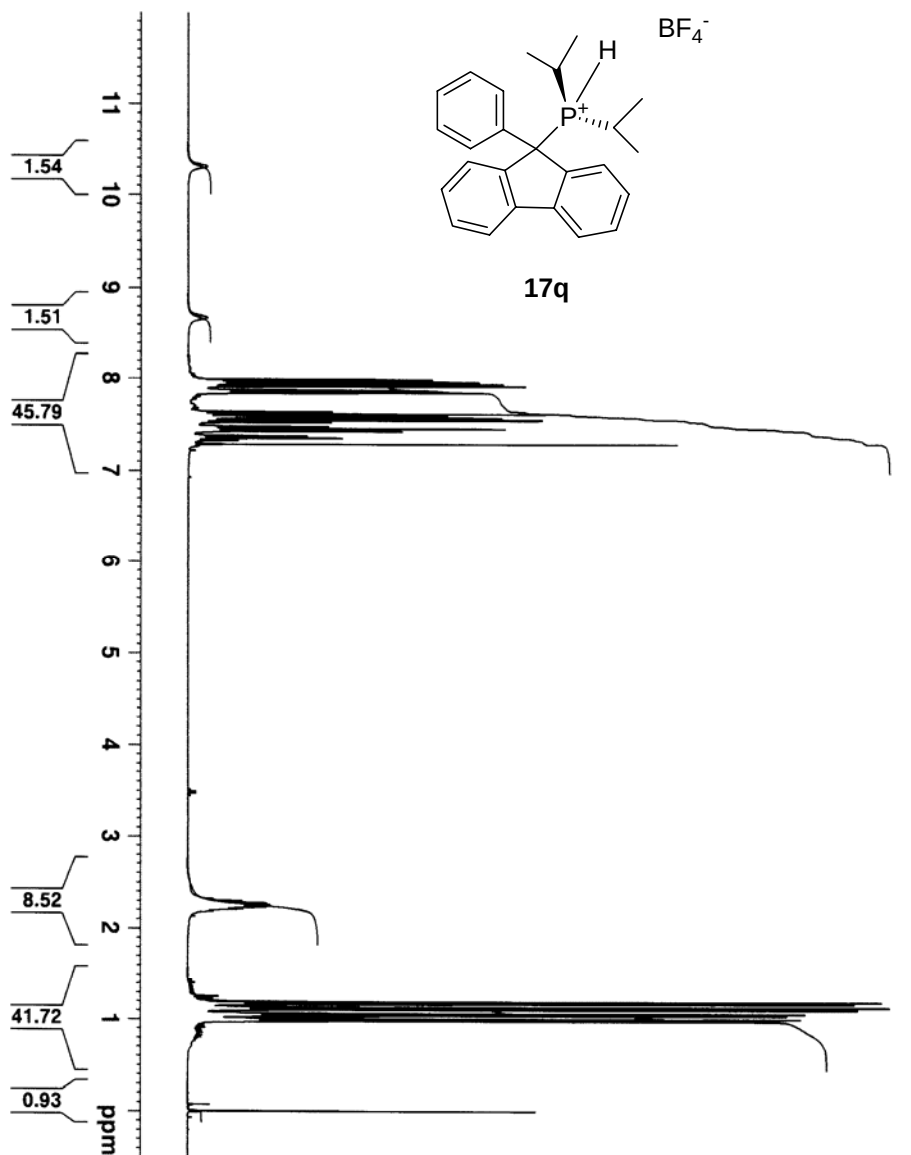
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 Time 0.02
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 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 160
 DS 4
 SWH 48076.922 Hz
 FIDRES 0.733596 Hz
 AQ 0.681624 sec
 RG 2050
 DW 10.400 usec
 DE 10.00 usec
 TE 300.0 K
 D1 2.00000000 sec
 TD0 1

===== CHANNEL f1 =====
 NUC1 31P
 P1 7.50 usec
 PL1 0.00 dB
 SFO1 121.3956752 MHz
 F2 - Processing parameters
 SI 32768
 SF 121.4017450 MHz
 WDK EX
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.43



¹H-NMRBF₄⁻

17q



Current Data Parameters
 NAME aug23ac
 EXPNO 160
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20050823
 Time 14.03
 INSTRUM spect
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 PULPROG zg30
 TD 32768
 SOLVENT CDCl₃
 NS 32
 DS 2
 SWH 6188.119 Hz
 FIDRES 0.188846 Hz
 AQ 2.6477044 sec
 RG 228
 DW 80.800 usec
 DE 10.00 usec
 TE 300.0 K
 D1 1.00000000 sec
 TDC 1

===== CHANNEL f1 =====
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 P1 9.70 usec
 PL1 -3.00 dB
 SFO1 299.9018520 MHz

F2 - Processing parameters
 SI 32768
 SF 299.899961 MHz
 WDW EM
 SSB 0
 LB 0.10 Hz
 GB 0
 PC 1.00



Current Data Parameters
NAME aug23ac
EXPNO 161
PROCNO 1

F2 - Acquisition Parameters

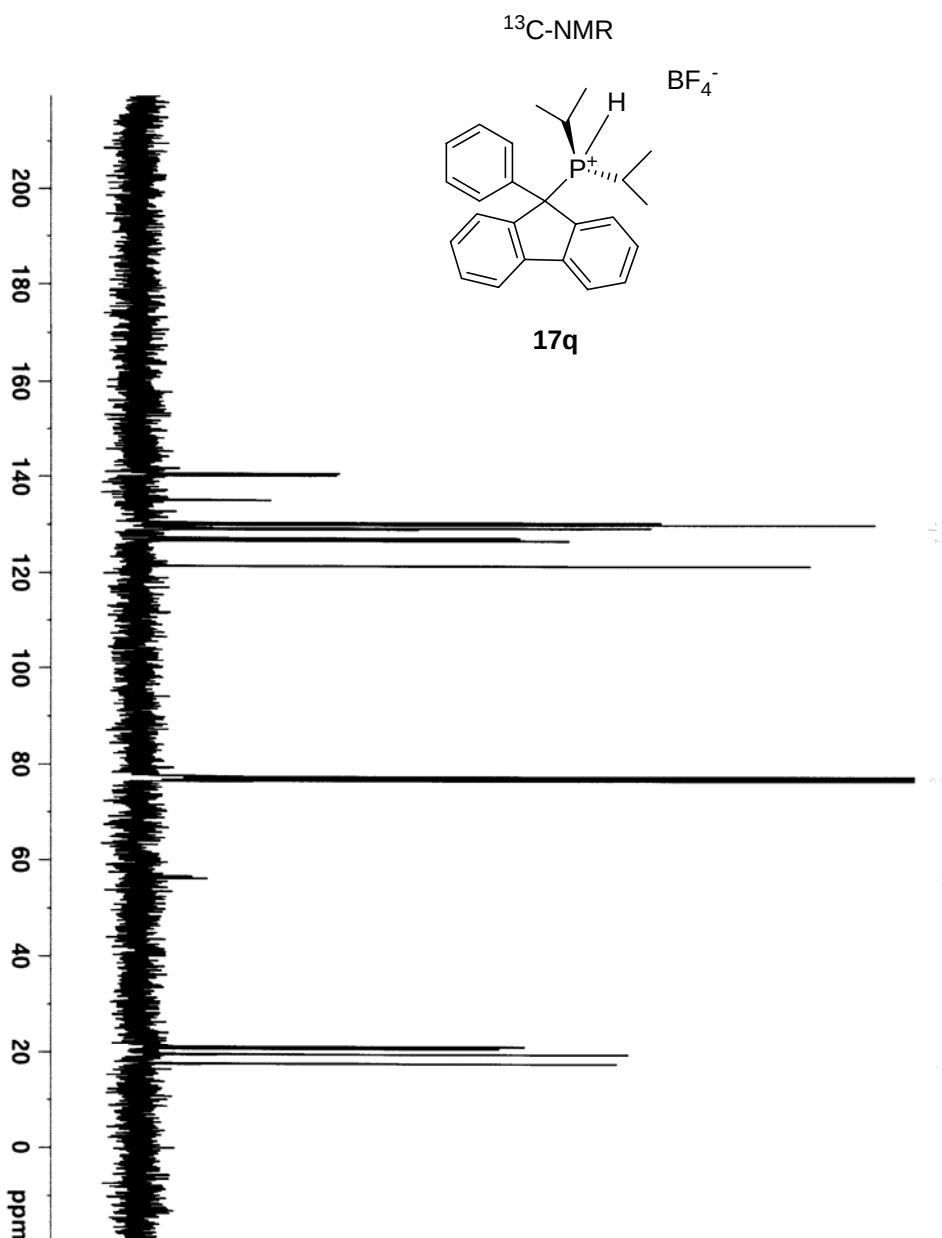
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FIDRES 0.550197 Hz
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RG 2050
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DE 10.00 usec
TE 300.0 K
D1 1.00000000 sec
d11 0.03000000 sec
DELTA 0.89999998 sec
TD0 1

===== CHANNEL f1 =====
NUC1 ¹³C
P1 11.00 usec
PL1 0.00 dB
SFO1 75.4174560 MHz

===== CHANNEL f2 =====
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NUC2 ¹H
PCPD2 95.00 usec
PL2 -3.00 dB
PL12 17.00 dB
PL13 23.00 dB
SFO2 299.9011996 MHz

F2 - Processing Parameters

SI 32768
SF 75.4099150 MHz
WDW EM
SSB 0
LB 2.00 Hz
GB 0
PC 1.40





Current Data Parameters
NAME aug23ac
EXPNO 162
PROCNO 1

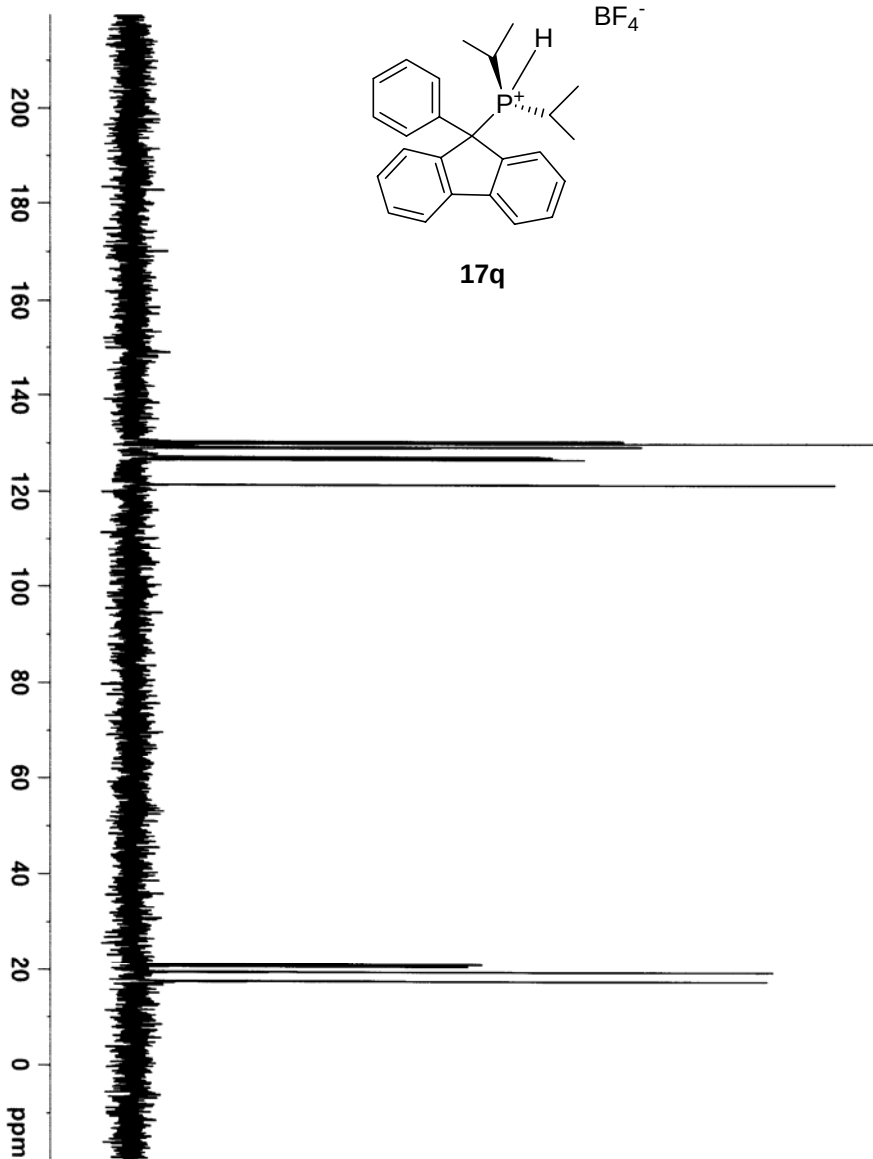
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FIDRES 0.550197 Hz
AQ 0.9088159 sec
RG 2050
DE 27.733 usec
TE 300.0 K
CNST2 145.0000000
D1 2.00000000 sec
d12 0.00344828 sec
d12 0.00002000 sec
DELTA 0.00001401 sec
TD0 1

===== CHANNEL f1 =====
NUC1 ¹³C
P1 11.00 usec
P2 22.00 usec
PL1 0.00 dB
SFO1 75.4174560 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 ¹H
P3 9.50 usec
P4 19.00 usec
PCPD2 95.00 usec
PL2 -3.00 dB
PL12 17.00 dB
SFO2 299.9011996 MHz

F2 - Processing parameters
SI 32768
SF 75.4099150 MHz
WDW EM
SSB 0
LB 2.00 Hz
GB 0
PC 1.40





Current Data Parameters
NAME aug22ac
EXPNO 245
PROCNO 1

F2 - Acquisition Parameters

Date_ 20050822
Time 18.46
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 80
DS 4
SWH 48076.922 Hz
FIDRES 0.733596 Hz
AQ 0.6816244 sec
RG 2050
DW 10.400 usec
DE 10.00 usec
TE 300.0 K
D1 2.00000000 sec
d11 0.03000000 sec
DELTA 1.89999998 sec
TD0 1

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

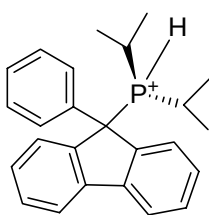
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PL1 0.00 dB
SFO1 121.3956752 MHz

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

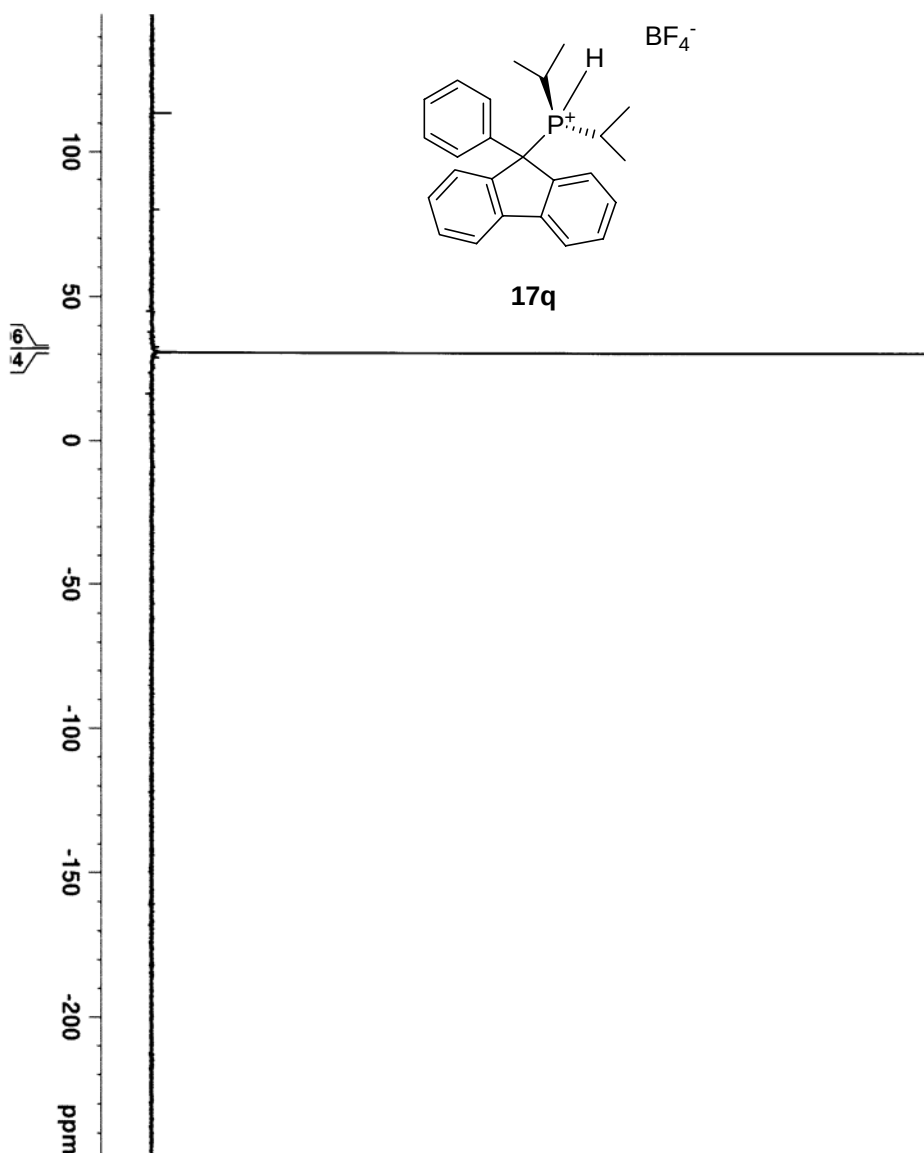
CPDPRG2 waltz16
NUC2 1H
PCPD2 95.00 usec
PL2 -3.00 dB
PL12 17.00 dB
PL13 23.00 dB
SFO2 299.9011996 MHz

F2 - Processing parameters

SI 32768
SF 121.4017450 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

31P-NMR {¹H}BF₄⁻

17q

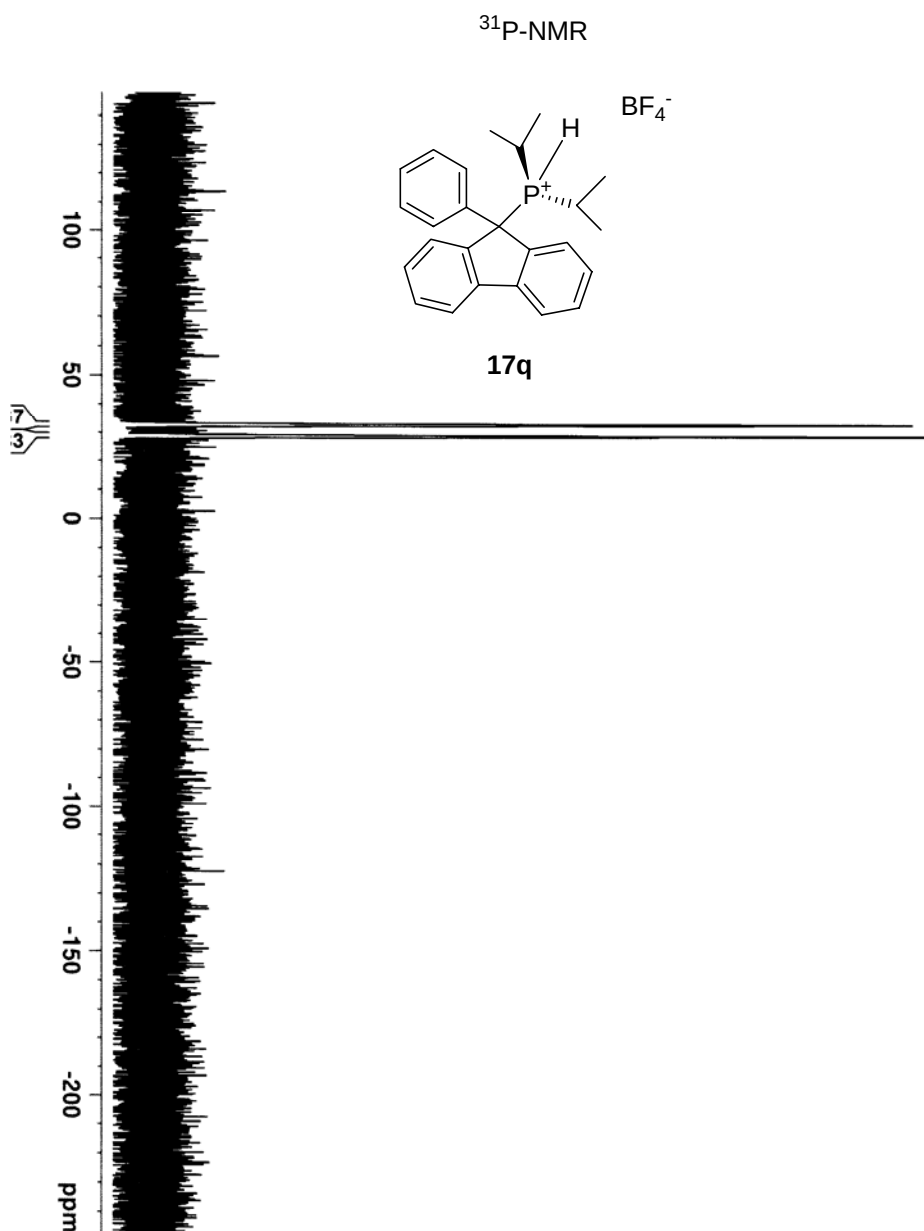


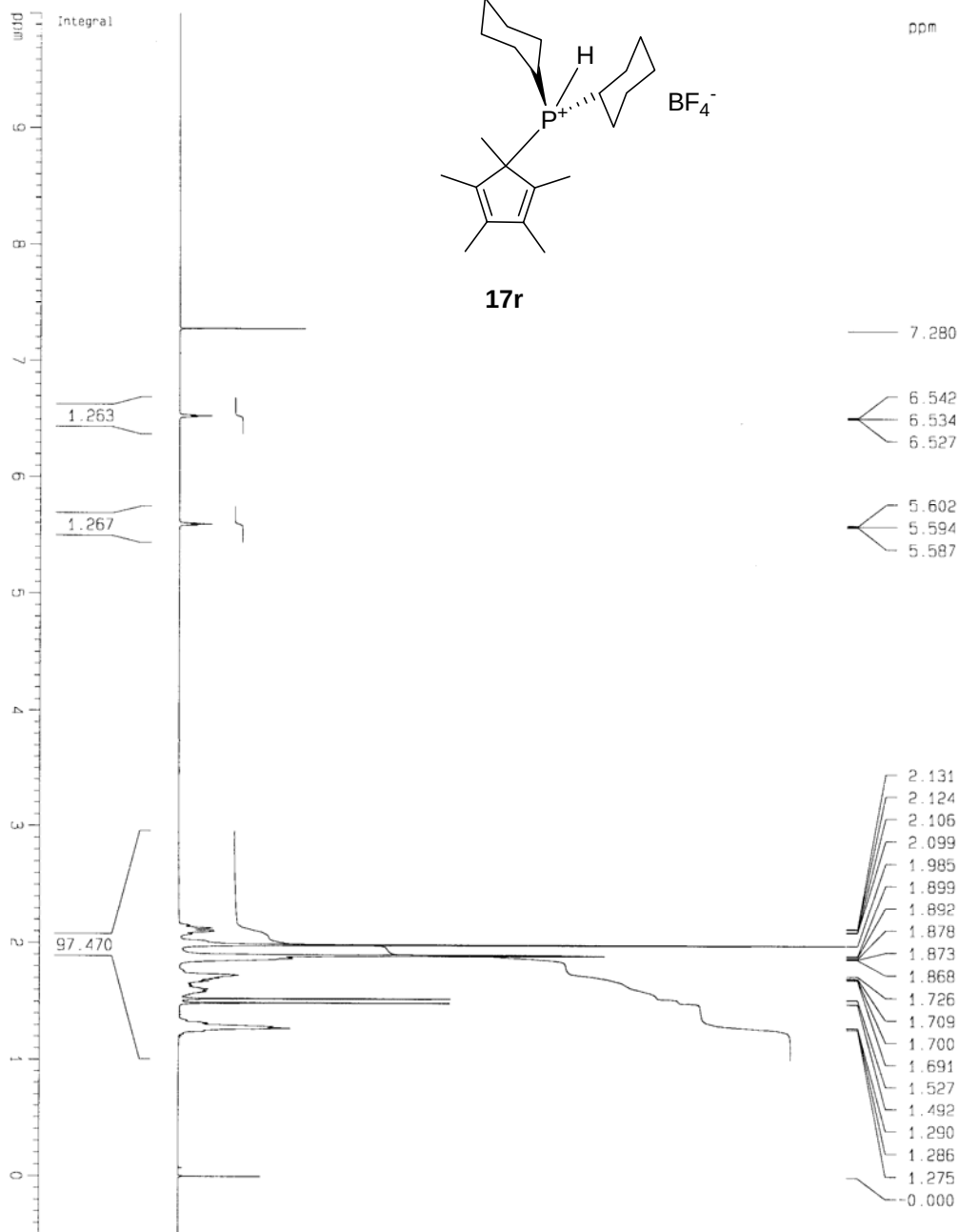
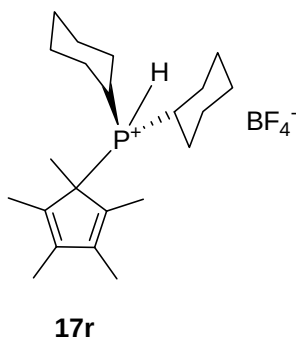


Current Data Parameters
 NAME aug22ac
 EXPNO 246
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20050822
 Time 18.54
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 160
 DS 4
 SWH 48076.922 Hz
 FIDRES 0.733596 Hz
 AQ 0.6816244 sec
 RG 2050
 DW 10.400 usec
 DE 10.00 usec
 TE 300.0 K
 D1 2.00000000 sec
 TD0 1

===== CHANNEL f1 =====
 NUC1 31P
 P1 7.50 usec
 PL1 0.00 dB
 SFO1 121.3956752 MHz
 F2 - Processing parameters
 SI 32768
 SF 121.4017450 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40



¹H-NMR

Current Data Parameters
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 EXPNO: 40
 PROCNO: 1

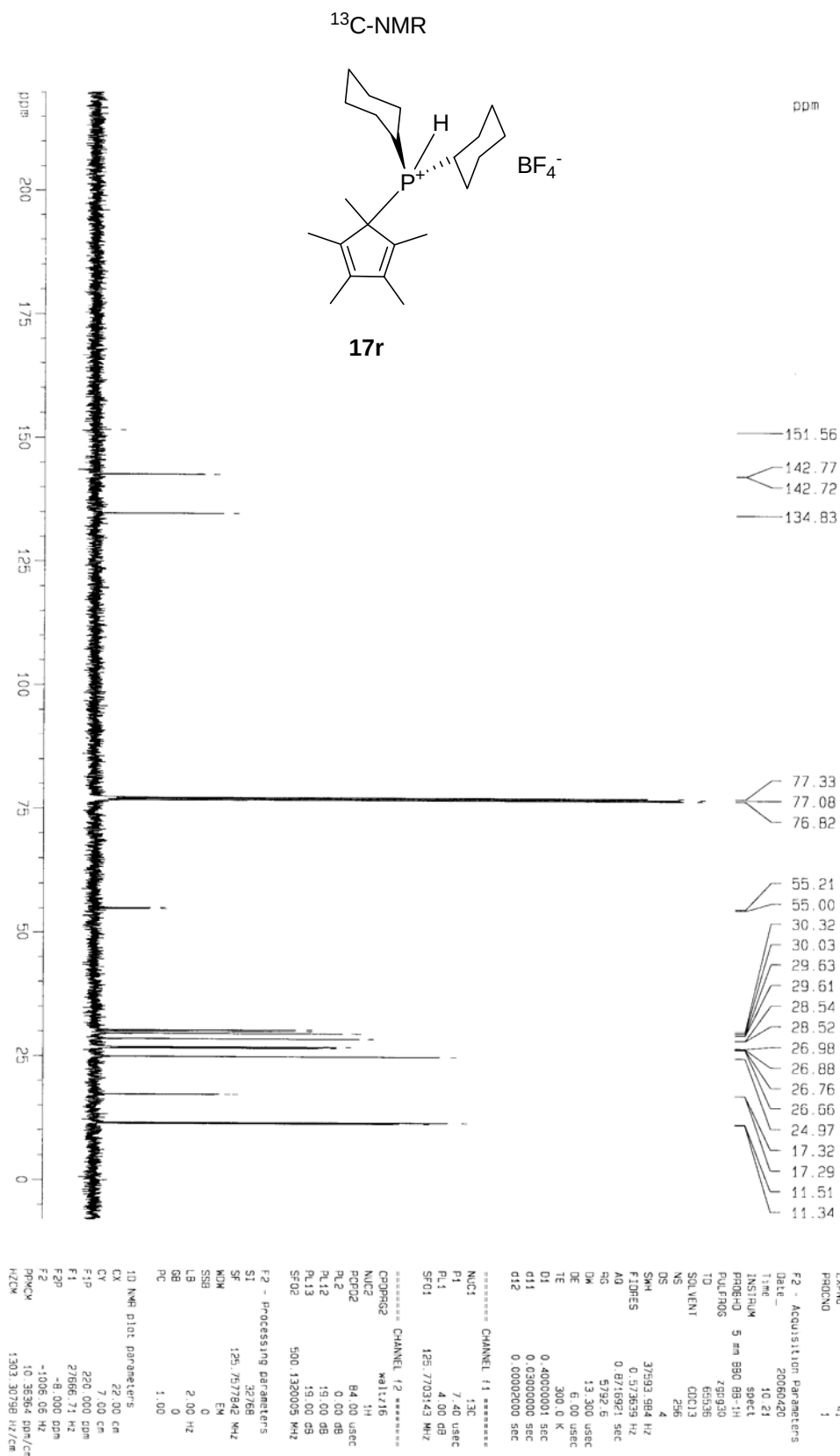
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 Time: 10.15
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 PULPROG: zg30
 TD: 65536
 SOLVENT: CDCl3
 NS: 24
 DS: 2
 SWH: 10330.578 Hz
 FIDRES: 0.157632 Hz
 AQ: 3.1726407 sec
 RG: 80.6
 DW: 48.400 usec
 DE: 6.00 usec
 TE: 300.0 K
 D1: 0.50000000 sec

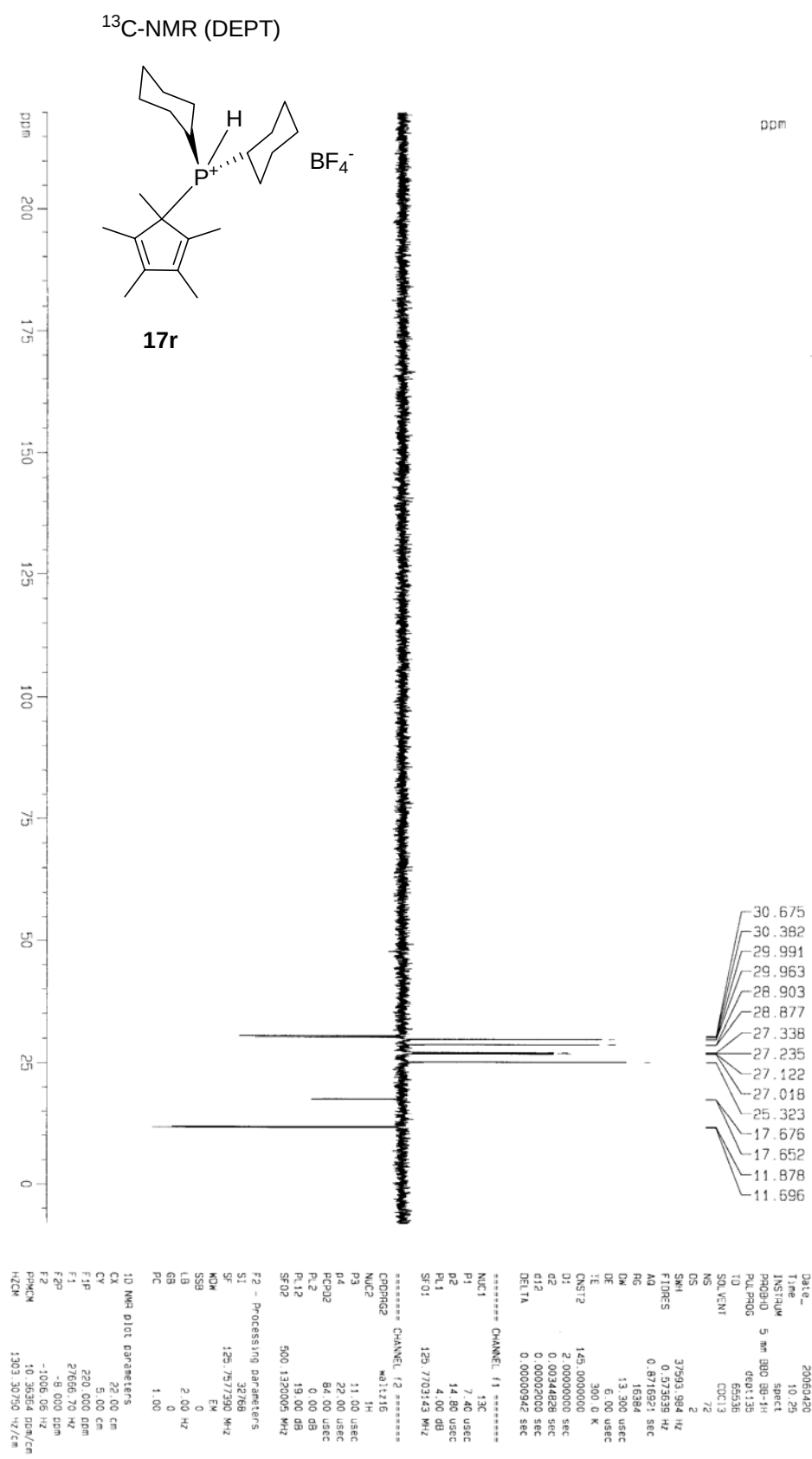
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 P1: 11.10 usec
 PL1: 0.00 dB
 SFO1: 500.130085 MHz

F2 - Processing parameters
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 SF: 500.130023 MHz
 MDW: EM
 SSF: 0
 LB: 0.10 Hz
 GB: 0
 PC: 1.00

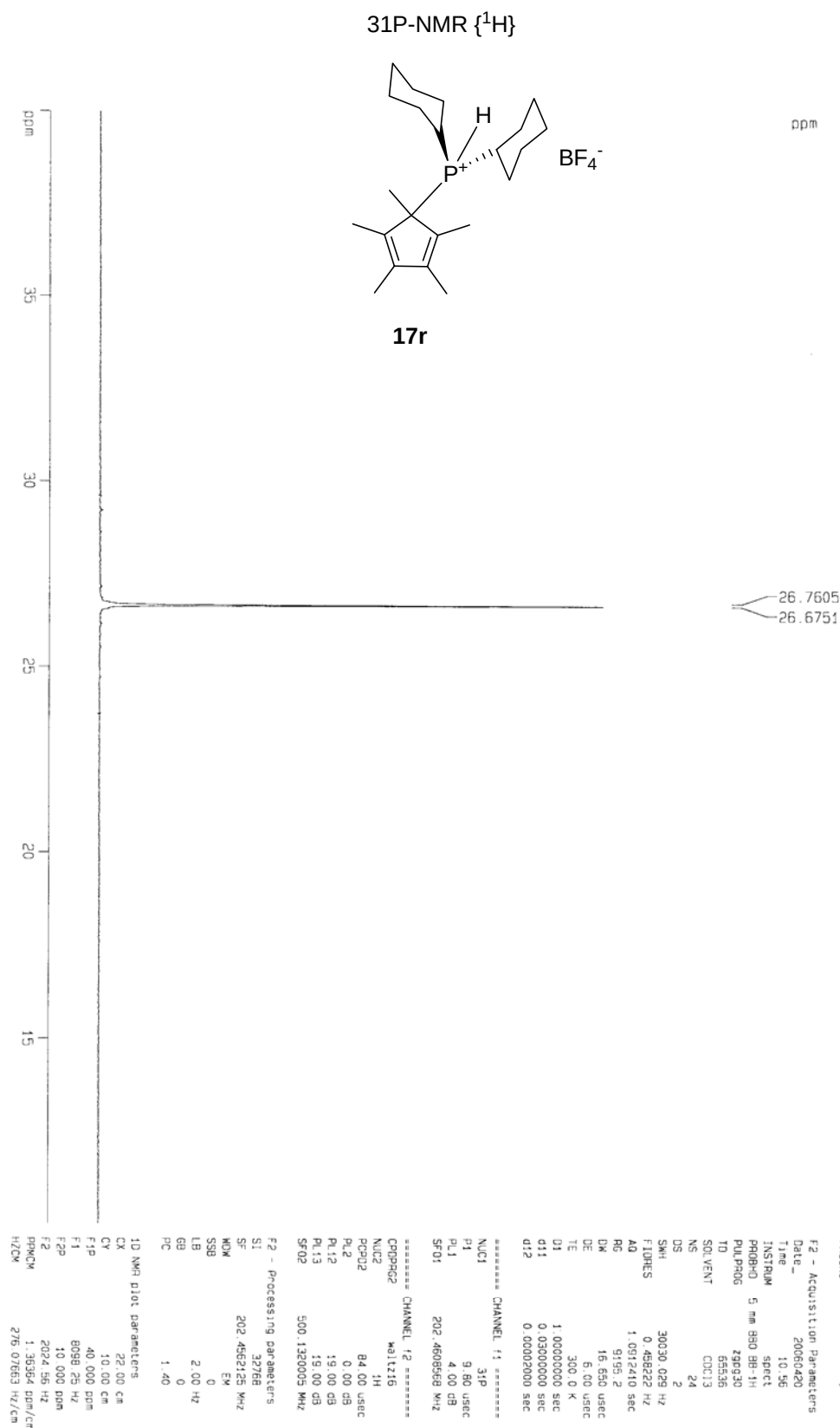
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 CY: 12.00 cm
 F1P: 10.000 ppm
 F1: 500.130 Hz
 F2P: -0.500 ppm
 F2: -250.06 Hz
 PPMCM: 0.47727 ppm/cm
 HZCM: 238.59839 Hz/cm

Fleckenstein CFP-3-164

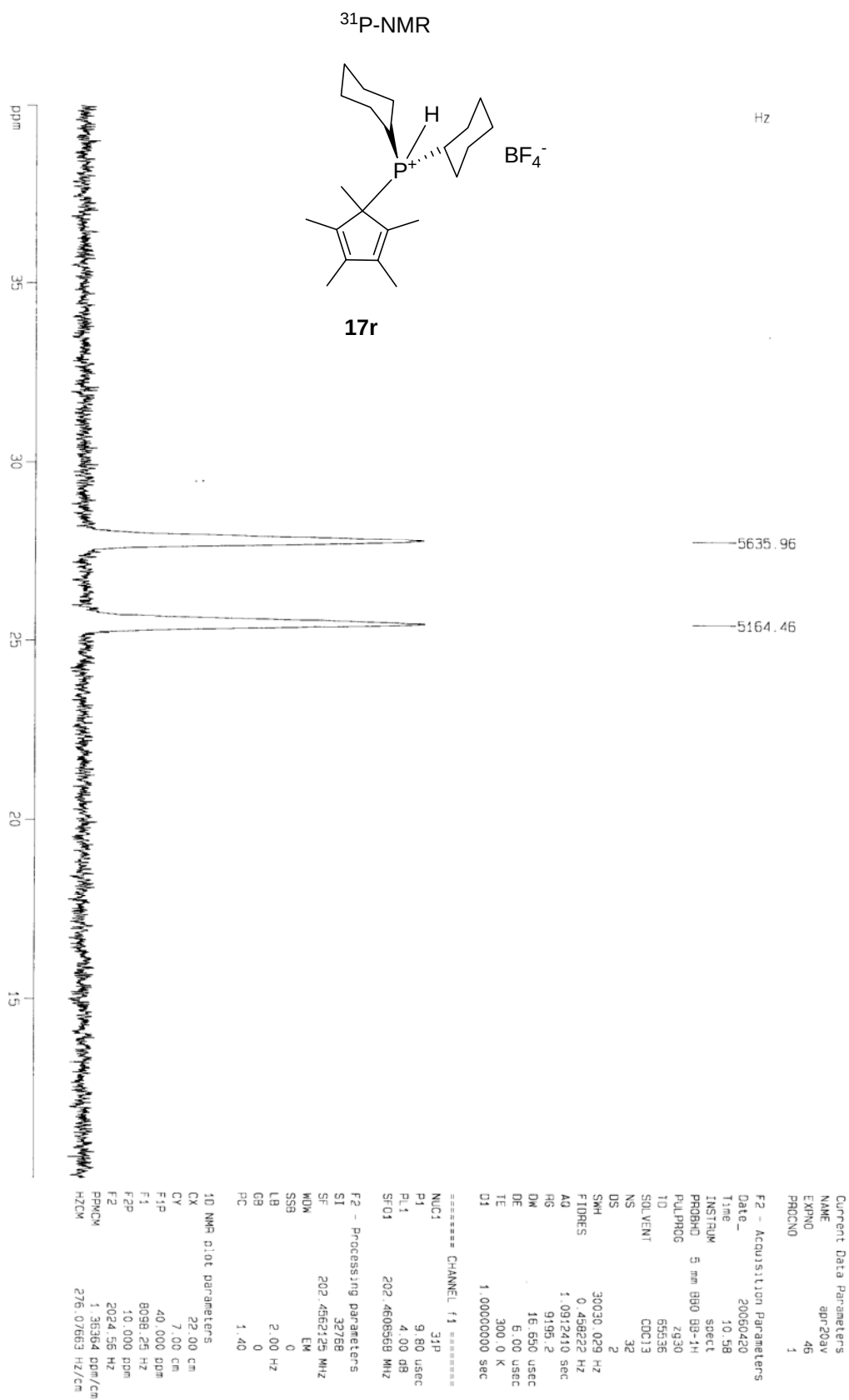


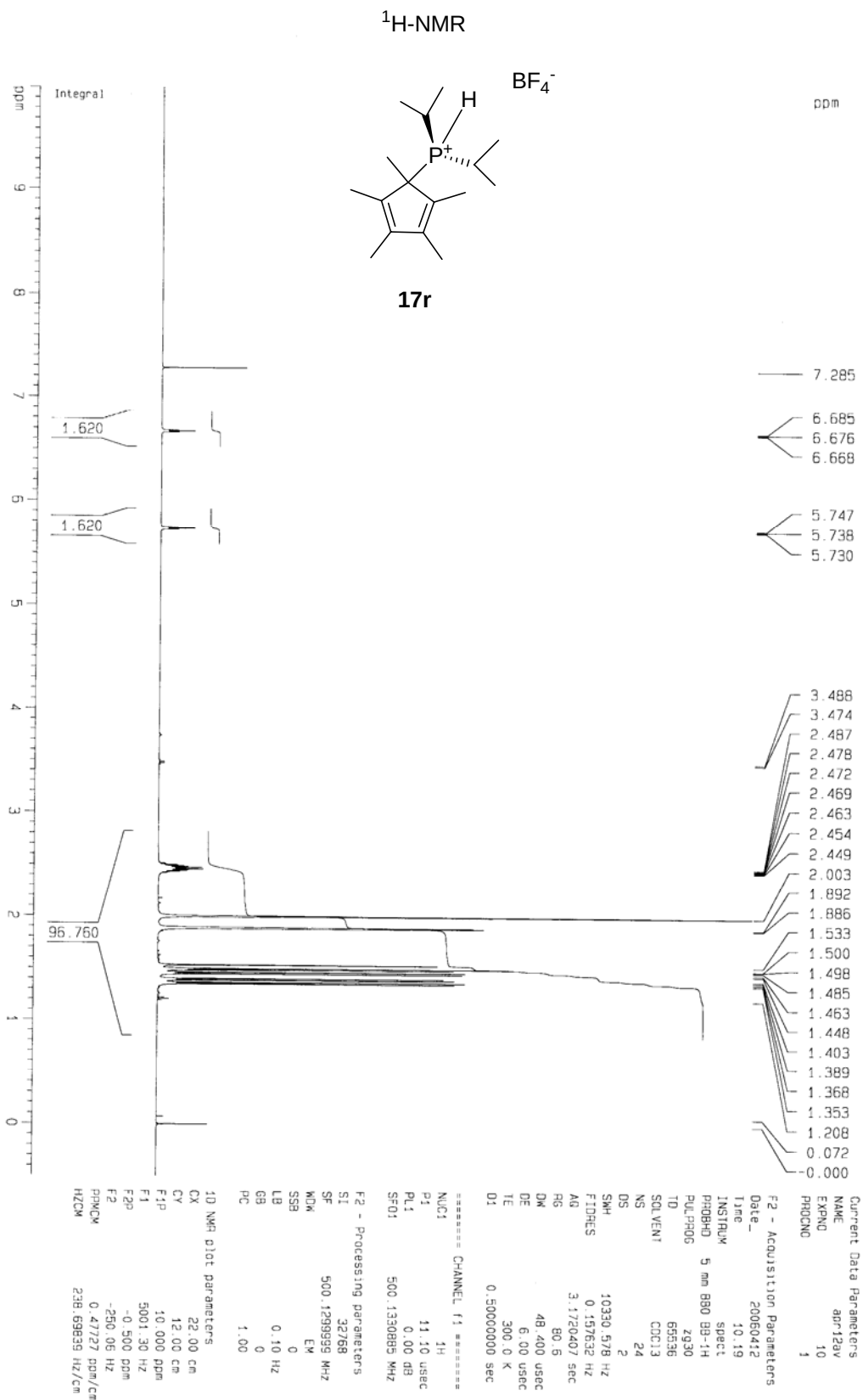


Fleckenstein CFP-3-164/31P

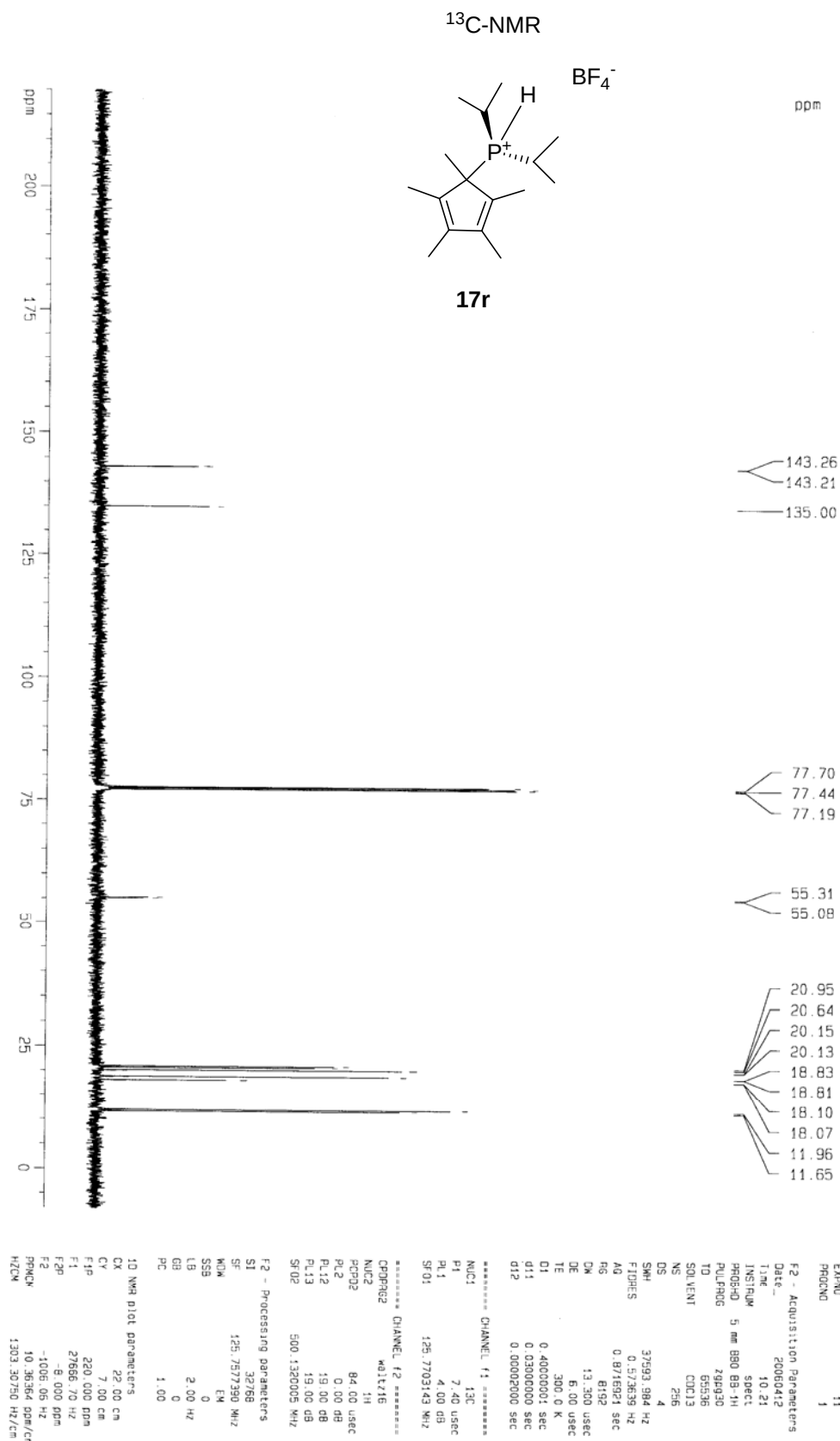


Fleckenstein CFP-3-164/31P no dec.

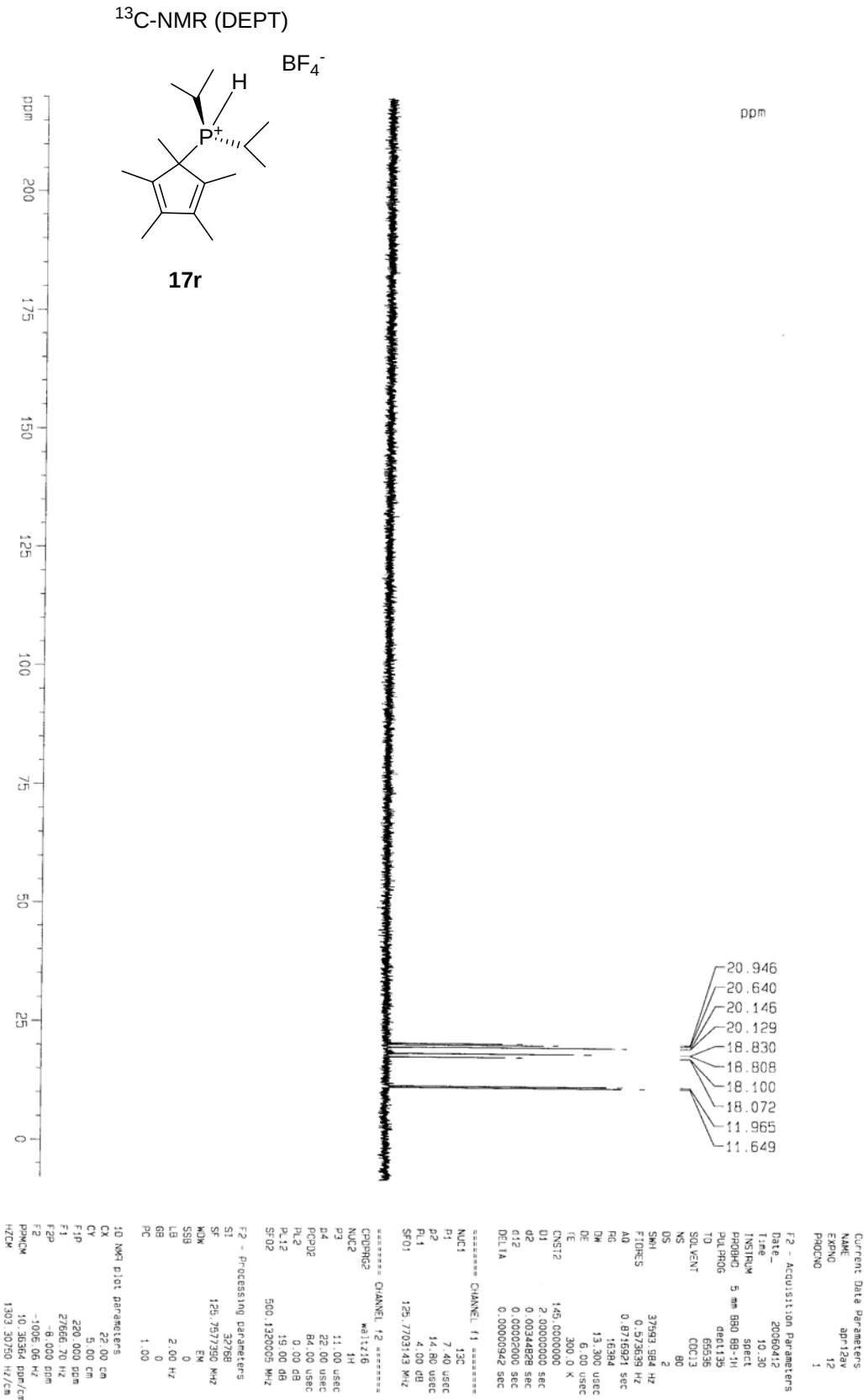




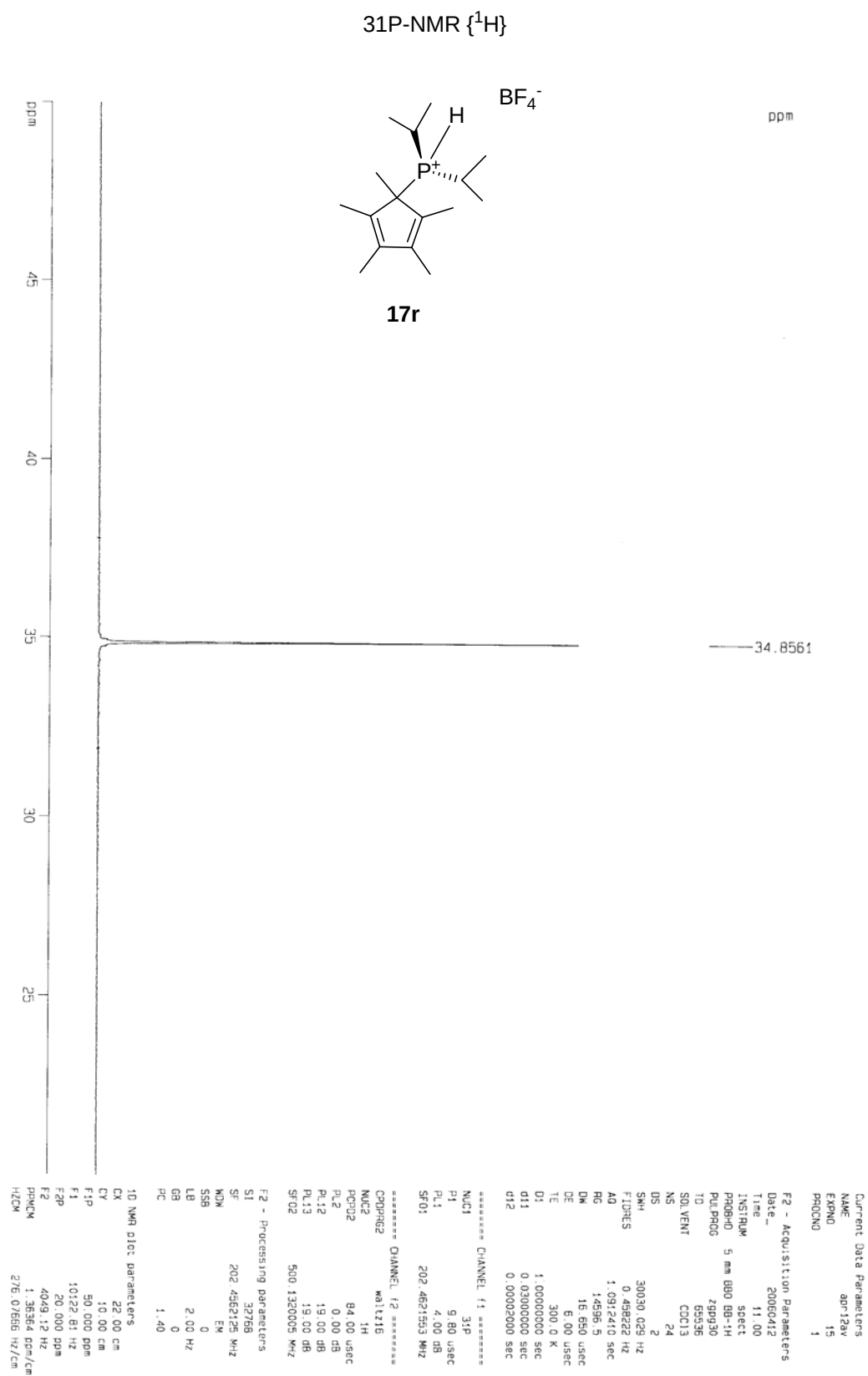
Fleckenstein CFP-3-161



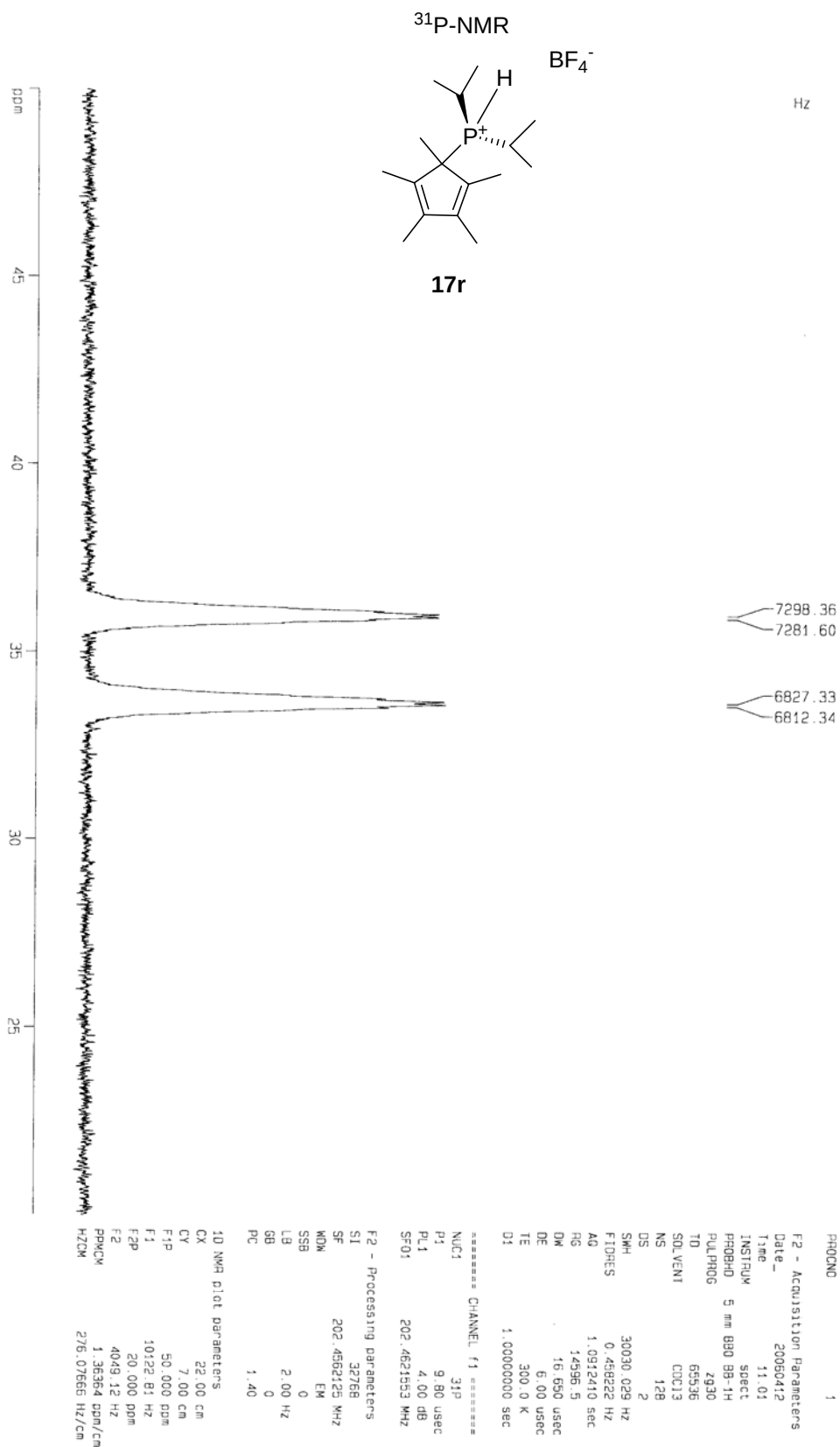
Fleckenstein CFP-3-161



Fleckenstein CFP-3-161/31P



Fleckenstein CFP-3-161/31P undec.



Supplementary Material II

Fluorenylphosphines

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Analytical data of new cross-coupling products

a) Sonogashira

1-(4-Phenylethynyl-phenyl)-propan-1-one

^1H NMR (500 MHz, CDCl_3) δ [ppm] 7.87 (d, $^3J = 9.0$ Hz, 2 H, ar), 7.52 (d, $^3J = 8.5$ Hz, 2 H, ar), 7.48-7.46 (m, 2 H, ar), 7.30-7.28 (m, 3 H, ar), 2.92 (q, $^3J = 7.0$ Hz, 2 H, CH_2), 1.16 (t, $^3J = 7.5$ Hz, 3 H, CH_3); $^{13}\text{C}\{^1\text{H}\}$ NMR (125.77 MHz, CDCl_3) δ [ppm] 199.0, 135.0, 130.7, 130.6, 127.8, 127.4, 126.9, 121.7, 91.5, 87.6, 30.8, 7.2; HRMS Calcd for $\text{C}_{17}\text{H}_{14}\text{O}$: 234.1044, found 234.10362.

1-[4-(3,3-Dimethyl-but-1-ynyl)-phenyl]-propan-1-one

^1H NMR (500 MHz, CDCl_3) δ [ppm] 7.86 (d, $^3J = 8.5$ Hz, 2 H, ar), 7.44 (d, $^3J = 8.5$ Hz, 2 H, ar), 2.97 (q, $^3J = 7.0$ Hz, 2 H, CH_2), 1.33 (s, 9 H, CH_3), 1.21 (t, $^3J = 7.0$ Hz, 3 H, CH_3); $^{13}\text{C}\{^1\text{H}\}$ NMR (125.77 MHz, CDCl_3) δ [ppm] 200.5, 135.8, 132.0, 139.3, 128.2, 102.5, 79.1, 32.2, 31.2, 28.5, 8.6; HRMS Calcd for $\text{C}_{15}\text{H}_{18}\text{O}$: 214.1357, found 214.1356.

2-(3,3-Dimethyl-but-1-ynyl)-1,3-dimethyl-benzene

^1H NMR (500 MHz, CDCl_3) δ [ppm] 7.05-6.99 (m, 3 H, ar), 2.39 (s, 6 H, CH_3), 1.35 (s, 9 H, CH_3 , tBu); $^{13}\text{C}\{^1\text{H}\}$ NMR (125.77 MHz, CDCl_3) δ [ppm] 138.7, 125.8, 125.4, 122.6, 106.5, 75.5, 30.3, 27.4, 20.0; HRMS Calcd for $\text{C}_{14}\text{H}_{18}$: 186.1408, found 186.14013.

b) Suzuki in Wasser

5-*p*-Tolyl-pyridin-3-ylamine

^1H NMR (500 MHz, CDCl_3) δ [ppm] 8.25 (d, $^3J = 5.5$ Hz, 1 H, ar), 7.78 (d, $^3J = 8.0$ Hz, 2 H, ar), 7.21 (d, $^3J = 8.0$ Hz, 2 H, ar), 6.85 (s, 1 H, ar), 6.39 (dd, $^3J = 5.5$ Hz, $^4J = 2.5$ Hz, 1 H, ar), 4.35 (s (br), 2 H, NH_2), 2.36 (s, 3 H, CH_3); $^{13}\text{C}\{^1\text{H}\}$ NMR (125.77 MHz, CDCl_3) δ [ppm] 157.2, 152.6, 159.0, 137.6, 136.0, 128.2, 125.7, 107.2, 105.1, 20.2; HRMS Calcd for $\text{C}_{12}\text{H}_{12}\text{N}_2$: 184.1001, found 184.09808.

5-Naphthalen-1-yl-pyridin-3-ylamine

^1H NMR (500 MHz, CDCl_3) δ [ppm] 8.20 (d, $^3J = 5.5$ Hz, 1 H, ar), 8.01 (d, $^3J = 8.0$ Hz, 1 H, ar), 7.76 (t, $^3J = 9.5$ Hz, 2 H, ar), 7.43-7.33 (m, 4 H, ar), 6.47 (d, $^4J = 2.0$ Hz, 1 H, ar), 6.27 (dd, $^3J = 5.5$ Hz, $^4J = 2.5$ Hz, 1 H, ar), 4.37 (s (br), 2 H, NH_2); $^{13}\text{C}\{^1\text{H}\}$ NMR (125.77 MHz,

CDCl₃) δ [ppm] 158.5, 152.4, 148.5, 138.0, 132.7, 130.2, 127.4, 127.1, 125.8, 125.1, 124.9, 124.7, 124.1, 109.6, 107.1; HRMS Calcd for C₁₅H₁₂N₂: 220.1001, found 220.09869.

3-(2-Trifluoromethyl-phenyl)-pyridine

¹H NMR (500 MHz, CDCl₃) δ [ppm] 8.64 (dd, ³*J* = 4.5 Hz, ⁴*J* = 1.5 Hz, 1 H, ar), 8.59 (d, ⁴*J* = 2.5 Hz, 1 H, ar), 7.78 (d, ³*J* = 8.0 Hz, 1 H, ar), 7.66 (d, ³*J* = 7.5 Hz, 1 H, ar), 7.62-7.59 (m, 1 H, ar), 7.52 (t, ³*J* = 7.5 Hz, 1 H, ar), 7.35-7.32 (m, 2 H, ar); ¹³C{¹H} NMR (125.77 MHz, CDCl₃) δ [ppm] 149.4, 149.1, 137.6, 136.3, 135.6, 132.1, 131.7, 128.2, 126.3 (m, CF₃), 125.1, 122.9, 122.7; HRMS Calcd for C₁₂H₈N₁F₃: 223.0609, found 223.05945.

[2,3']Bipyridinyl-4-ylamine

¹H NMR (500 MHz, CDCl₃) δ [ppm] 9.01 (d, ⁴*J* = 1.5 Hz, 1 H, ar), 8.53 (dd, ³*J* = 5.0 Hz, ⁴*J* = 1.5 Hz, 1 H, ar), 8.22 (d, ³*J* = 6.0 Hz, 1 H, ar), 8.16 (dt, ³*J* = 8.0 Hz, ⁴*J* = 2.0 Hz, 1 H, ar), 6.29-6.26 (m, 1 H, ar), 6.87 (d, ⁴*J* = 2.0 Hz, 1 H, ar), 6.44 (dd, ³*J* = 6.0 Hz, ⁴*J* = 2.5 Hz, 1 H, ar), 4.53 (s, 2 H, NH₂); ¹³C{¹H} NMR (125.77 MHz, CDCl₃) δ [ppm] 154.5, 152.8, 149.5, 148.6, 147.1, 134.4, 133.4, 122.5, 107.9, 105.5; HRMS Calcd for C₁₀H₉N₃: 171.0797, found 171.07820.

4'-Methyl-biphenyl-3-carboxylic acid amide

¹H NMR (300 MHz, DMSO) δ [ppm] 8.14-8.13 (m, 1 H, ar), 7.84-7.76 (m, 2 H, ar), 7.62 (d, ³*J* = 8.4 Hz, 2 H, ar), 7.51 (t, ³*J* = 7.8 Hz, 1 H, ar), 7.28 (d, ³*J* = 7.8 Hz, 2 H, ar), 2.34 (s, 3 H, CH₃); ¹³C{¹H} NMR (75 MHz, DMSO) δ [ppm] 167.8, 140.0, 137.0, 136.6, 134.9, 129.5, 129.1, 128.8, 126.6, 126.3, 125.3, 20.6.

4-Naphthalen-1-yl-benzenesulfonamide

¹H NMR (500 MHz, DMSO) δ [ppm] 8.07-8.02 (m, 3 H, ar), 7.79 (d, ³*J* = 8.0 Hz, 1 H, ar), 7.73-7.71 (m, 2 H, ar), 7.66-7.54 (m, 2 H, ar), 7.52-7.50 (m, 3 H, ar); ¹³C{¹H} NMR (125.77 MHz, DMSO) δ [ppm] 143.3, 143.0, 137.9, 133.2, 130.3, 130.1, 128.3, 128.2, 126.9, 126.6, 126.0, 125.7, 125.4, 124.7; HRMS Calcd for C₁₆H₁₃NO₂S: 283.0667, found 283.06701.

3-Naphthalen-1-yl-benzamide

¹H NMR (500 MHz, DMSO) δ [ppm] 7.95-7.90 (m, 4 H, ar), 7.70 (d, ³*J* = 7.5 Hz, 1 H, ar), 7.56-7.41 (m, 6 H, ar); ¹³C{¹H} NMR (125.77 MHz, DMSO) δ [ppm] 168.1, 140.3, 139.2, 134.9, 133.8, 132.9, 131.1, 129.1, 128.8, 128.8, 128.3, 127.4, 127.0, 126.9, 126.4, 125.9, 125.5; HRMS Calcd for C₁₇H₁₃NO: 247.0997, found 247.09860.

1-(2-Isopropyl-phenyl)-naphthalene

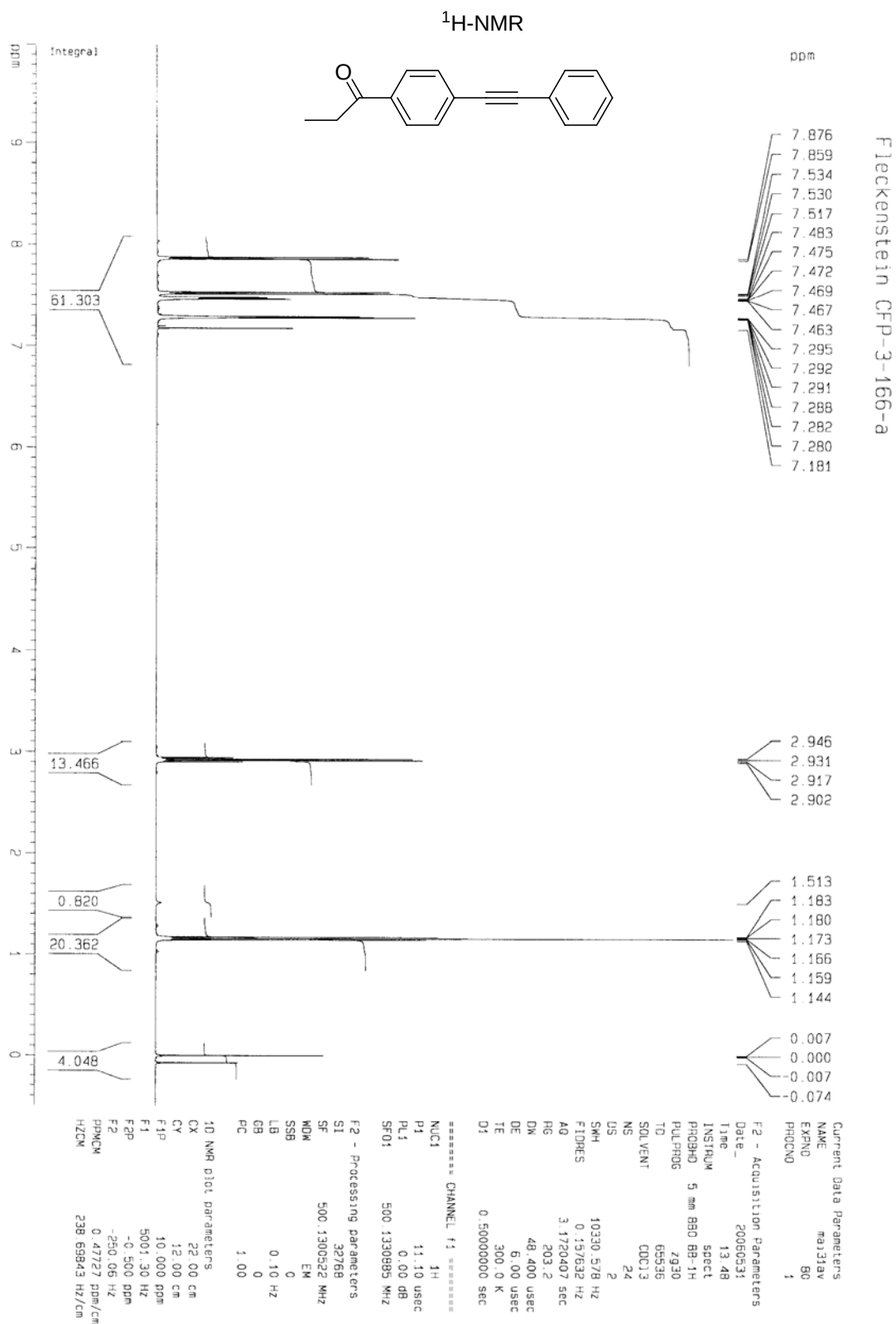
^1H NMR (500 MHz, CD_3CN) δ [ppm] 7.93-7.88 (m, 2 H, ar), 7.54-7.51 (m, 1 H, ar), 7.48-7.47 (m, 1 H, ar), 7.44-7.43 (m, 1 H, ar), 7.37-7.36 (m, 2 H, ar), 7.33-7.31 (m, 1 H, ar), 7.27-7.23 (m, 1 H, ar), 7.13-7.11 (m, 1 H, ar), 2.56-2.50 (m, 1 H, CH), 1.02 (d, $^3J = 7$ Hz, 3 H, CH_3), 1.01 (d, $^3J = 6.5$ Hz, 3 H, CH_3); $^{13}\text{C}\{^1\text{H}\}$ NMR (125 MHz, CD_3CN) δ [ppm] 147.1, 139.2, 138.5, 133.2, 132.1, 129.9, 127.9, 127.1, 126.6, 125.8, 125.7, 125.6, 125.6, 125.1, 125.1, 125.0, 29.7, 29.4, 23.6, 22.2; HRMS Calcd for $\text{C}_{19}\text{H}_{18}$: 246.1408, found 246.13928.

2-Isopropyl-4'-methyl-biphenyl

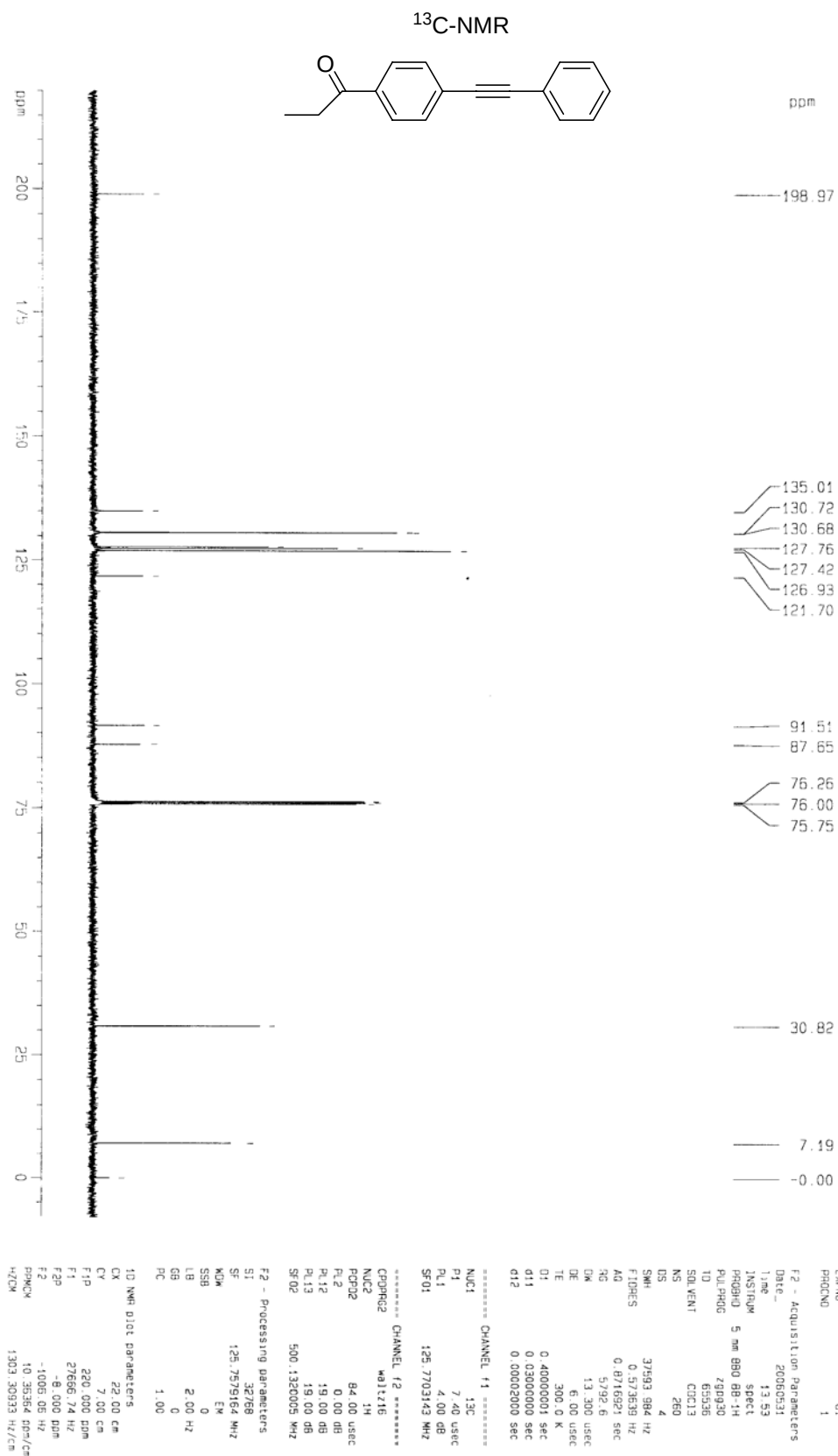
^1H NMR (500 MHz, CDCl_3) δ [ppm] 7.38-7.36 (m, 1 H, ar), 7.33-7.30 (m, 1 H, ar), 7.22-7.15 (m, 6 H, ar), 3.07 (dq, $^3J = 7.0$ Hz, $^3J = 7.0$ Hz, 1 H, CH), 2.40 (s, 3 H, CH_3), 1.15 (d, $^3J = 7.0$ Hz, 6 H, CH_3); $^{13}\text{C}\{^1\text{H}\}$ NMR (125.77 MHz, CDCl_3) δ [ppm] 146.9, 141.5, 139.6, 136.7, 130.5, 129.6, 129.1, 127.9, 125.9, 125.7, 29.8, 24.7, 21.6; HRMS Calcd for $\text{C}_{16}\text{H}_{18}$: 210.1408, found 210.1393.

Dimethyl-(4'-methyl-biphenyl-3-yl)-amine

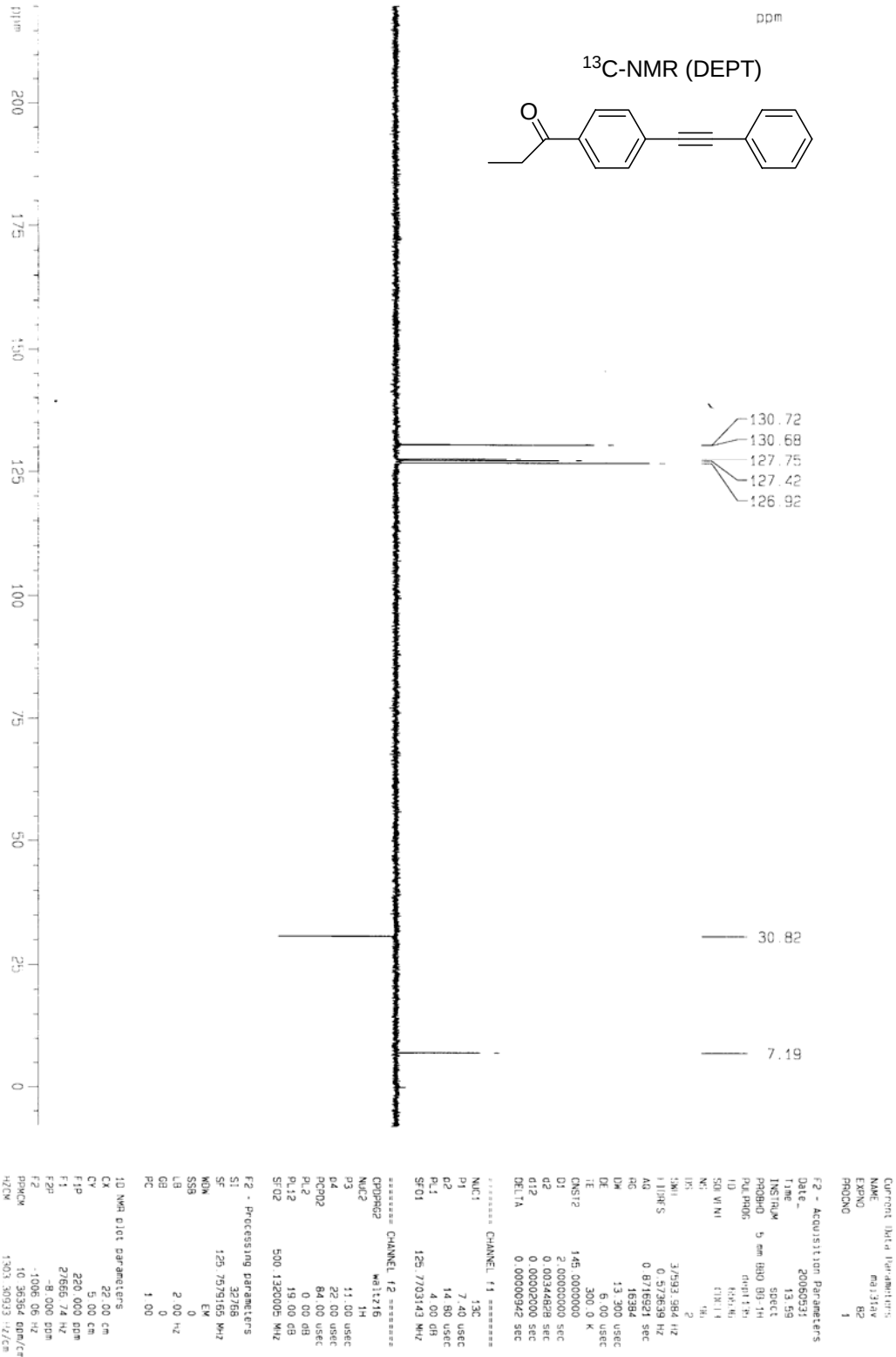
^1H NMR (500 MHz, CDCl_3) δ [ppm] 7.48 (d, $^3J = 8.5$ Hz, 2 H, ar), 7.27 (t, $^3J = 7.5$ Hz, 1 H, ar), 7.21 (d, $^3J = 8.0$ Hz, 2 H, ar), 6.93-6.90 (m, 2 H, ar), 6.71-6.69 (m, 1 H, ar), 2.95 (s, 6 H, CH_3), 2.36 (s, 3 H, CH_3); $^{13}\text{C}\{^1\text{H}\}$ NMR (125.77 MHz, CDCl_3) δ [ppm] 150.9, 142.2, 139.4, 136.7, 129.3, 129.3, 127.1, 115.7, 111.4, 40.7, 21.1; HRMS Calcd for $\text{C}_{15}\text{H}_{17}\text{N}$: 211.1361, found 211.13479.



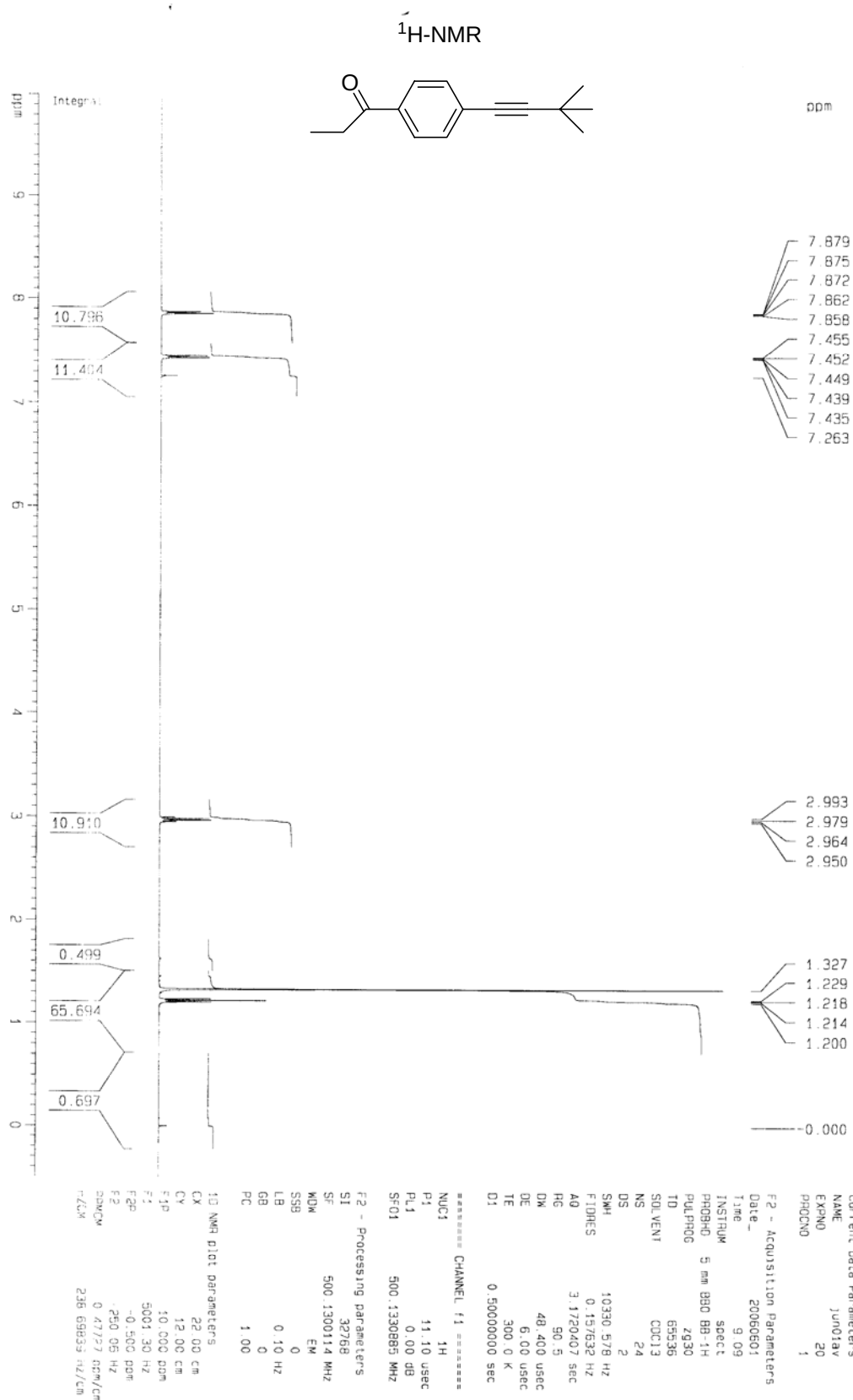
Fleckenstein CFP-3-166-a



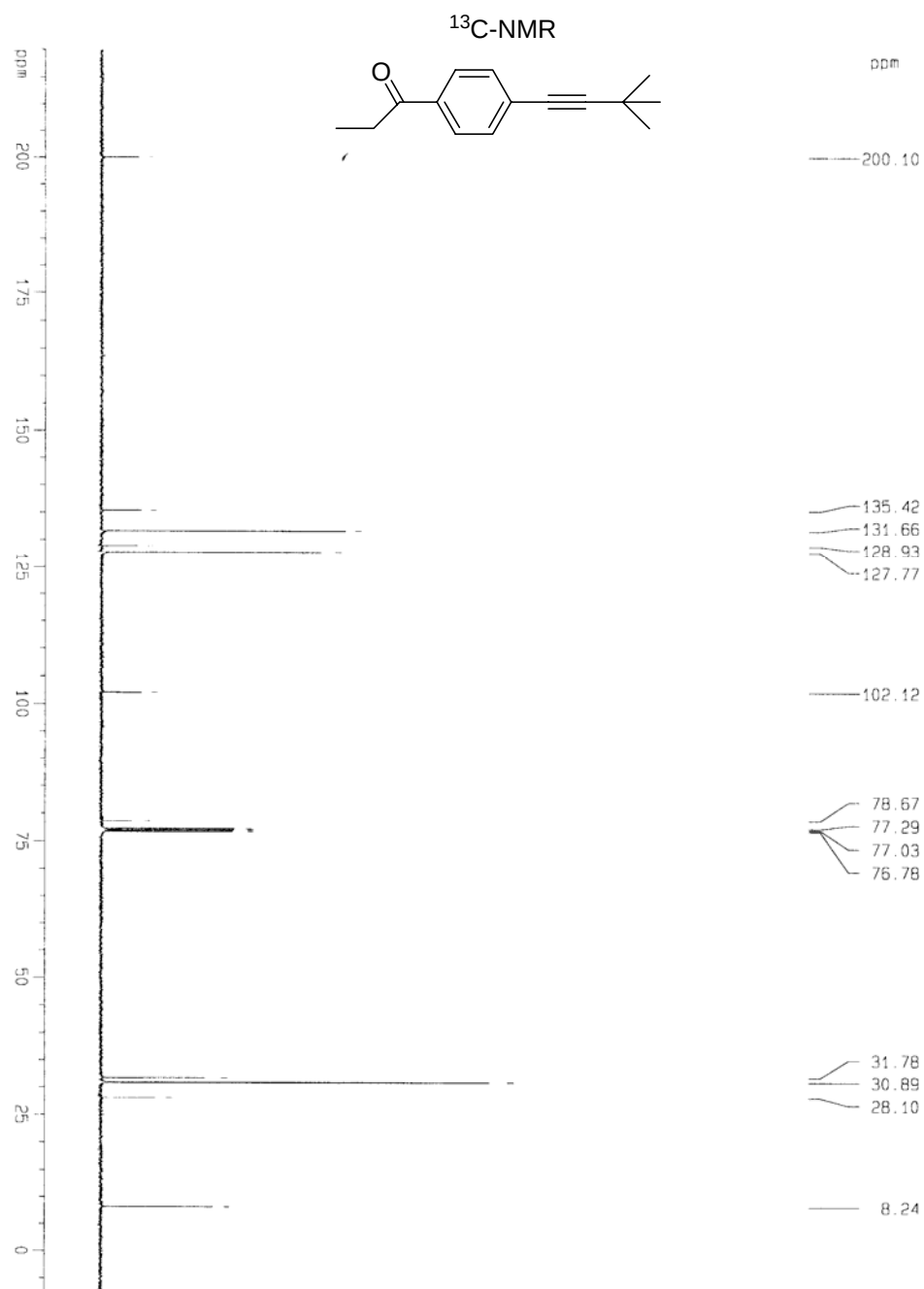
I Leckenstein CIP 3-166-a



Fleckenstein CFP-3-166-e



Fleckenstein CFP-3-166-e



Current Data Parameters

NAME	VALUE
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	Time
20060601	9.15
INSTRUM	spect
PROBHD	5 mm BBO BB-1H
PULPROG	zgpg30
TD	65536
SOLVENT	CDCl3
NS	282
DS	4
SWH	37593.884 Hz
FIDRES	0.573639 Hz
AQ	0.8716921 sec
RG	3649.1
DM	11.300 usec
DE	6.00 usec
TE	300.0 K
D1	0.40000001 sec
d11	0.03000000 sec
d12	0.0002000 sec

***** CHANNEL f1 *****

NUC1	13C
P1	7.40 usec
PL1	4.00 dB
SFO1	125.7703143 MHz

***** CHANNEL f2 *****

CONPRG2	Molt1216
NUC2	1H
PCPD2	84.00 usec
PL2	0.00 dB
PL12	19.00 dB
PL13	19.00 dB
SFO2	500.1320005 MHz

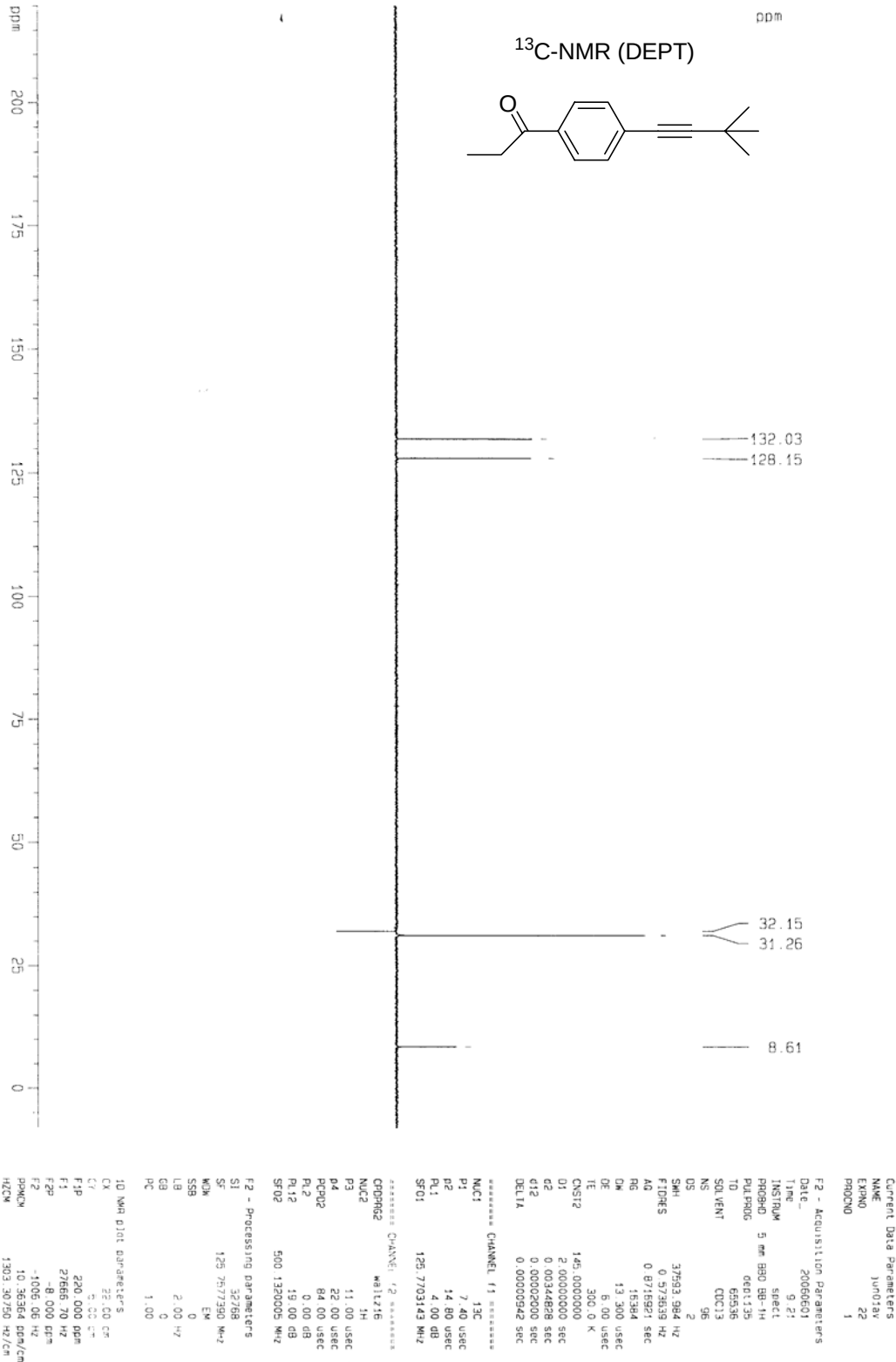
F2 - Processing parameters

SI	32768
SF	125.7577657 MHz
KCN	FW
SSB	0
LB	2.00 Hz
GB	0
PC	1.00

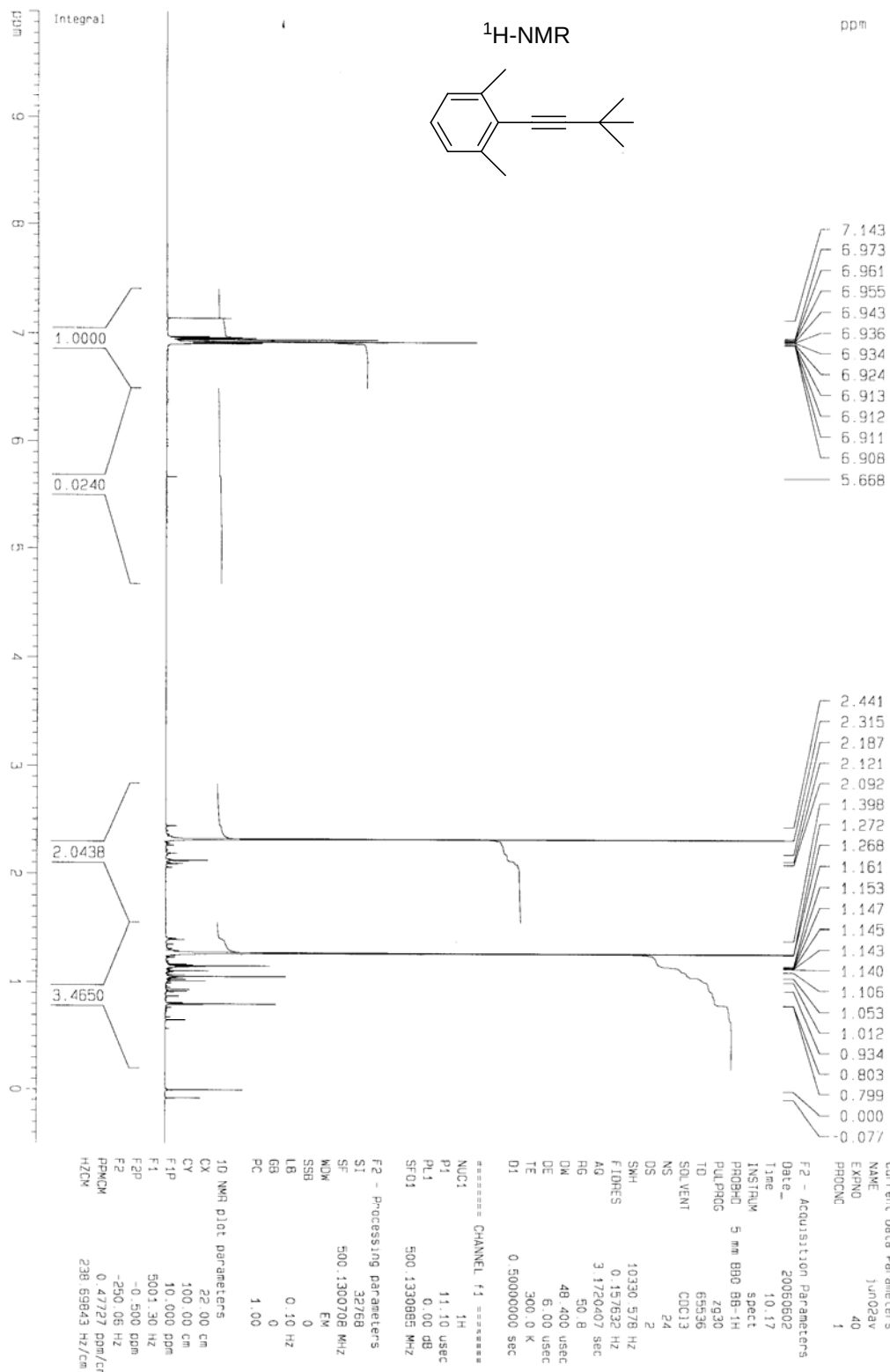
10 NMR plot parameters

CX	22.00 cm
CV	7.00 cm
F1P	220.000 ppm
F1	27666.71 Hz
F2P	-8.000 ppm
F2	-1006.06 Hz
PRNCM	10.36364 ppm/cm
HZCM	1303.30798 Hz/cm

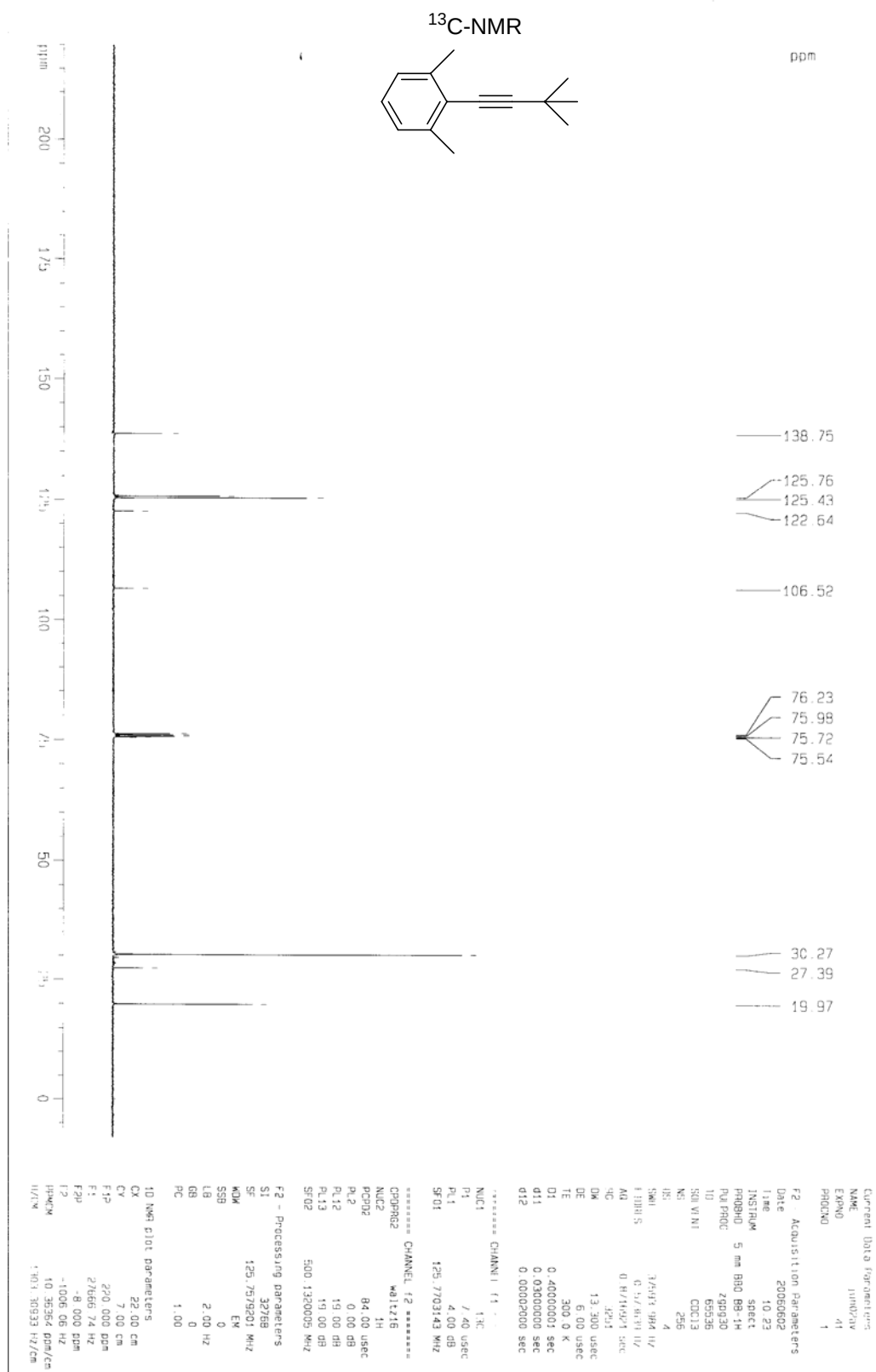
Fleckenstein CFP-3-166-e



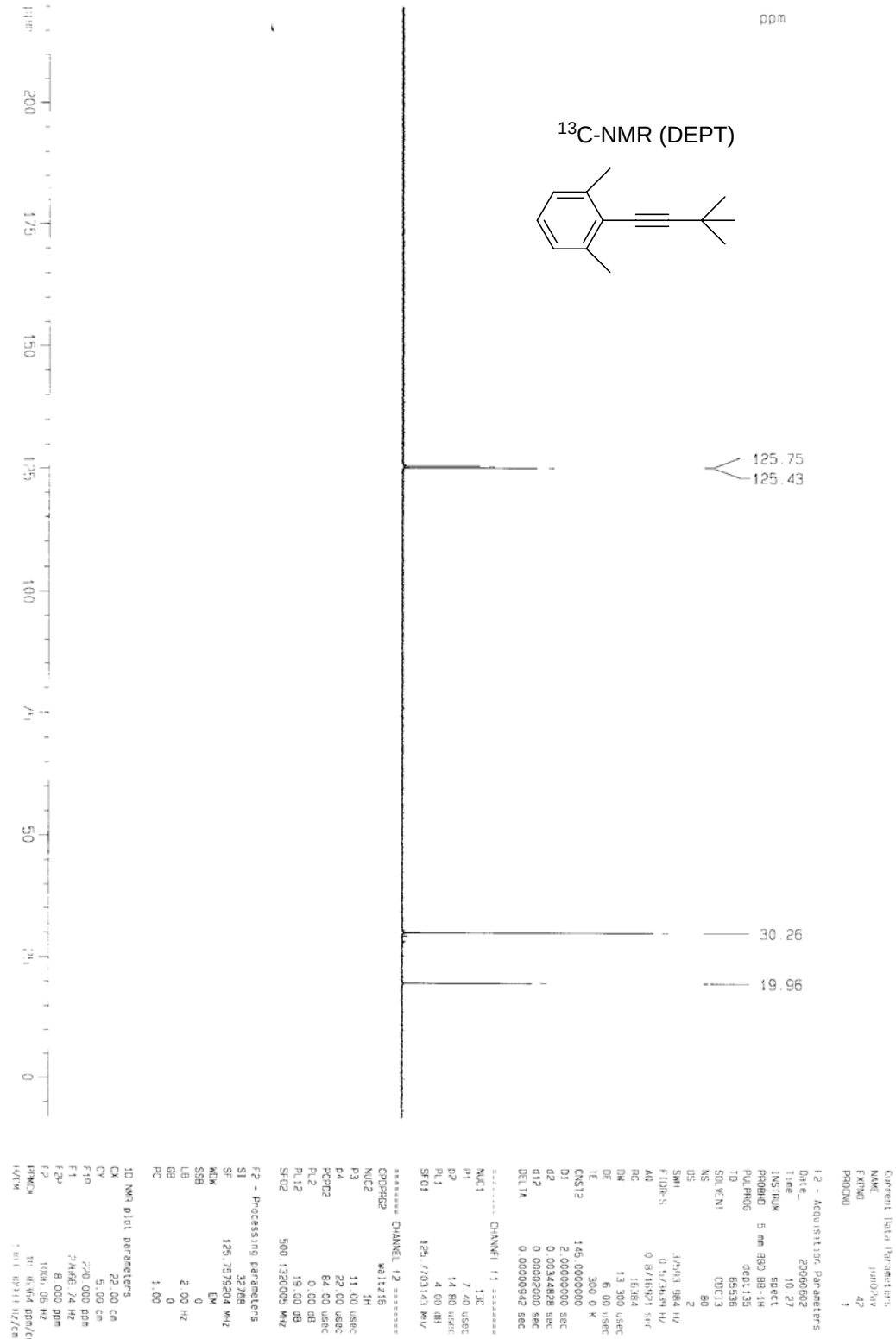
Fieckenstein CFP-3-166-f



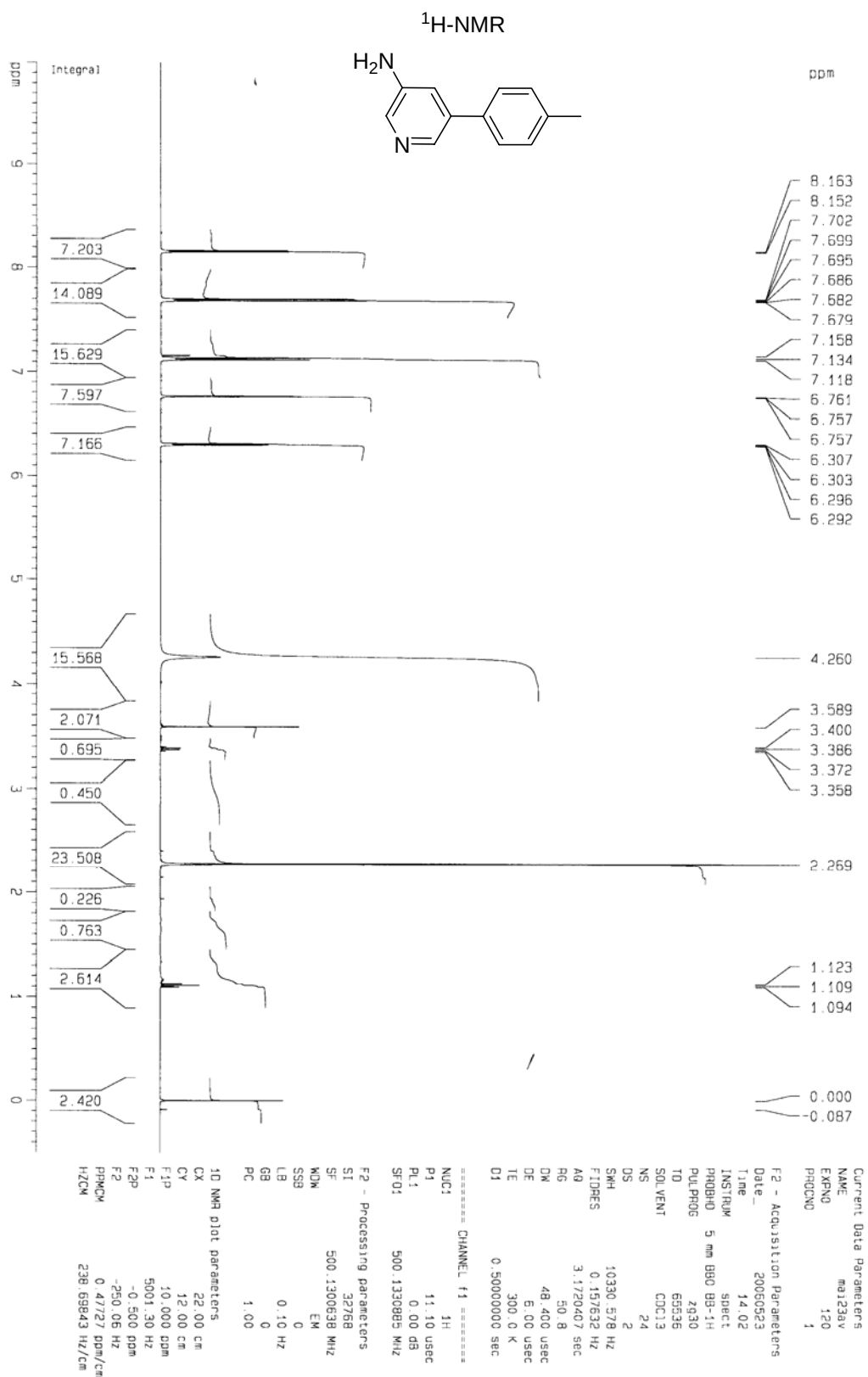
Fleckenstein CFP-3-166-f



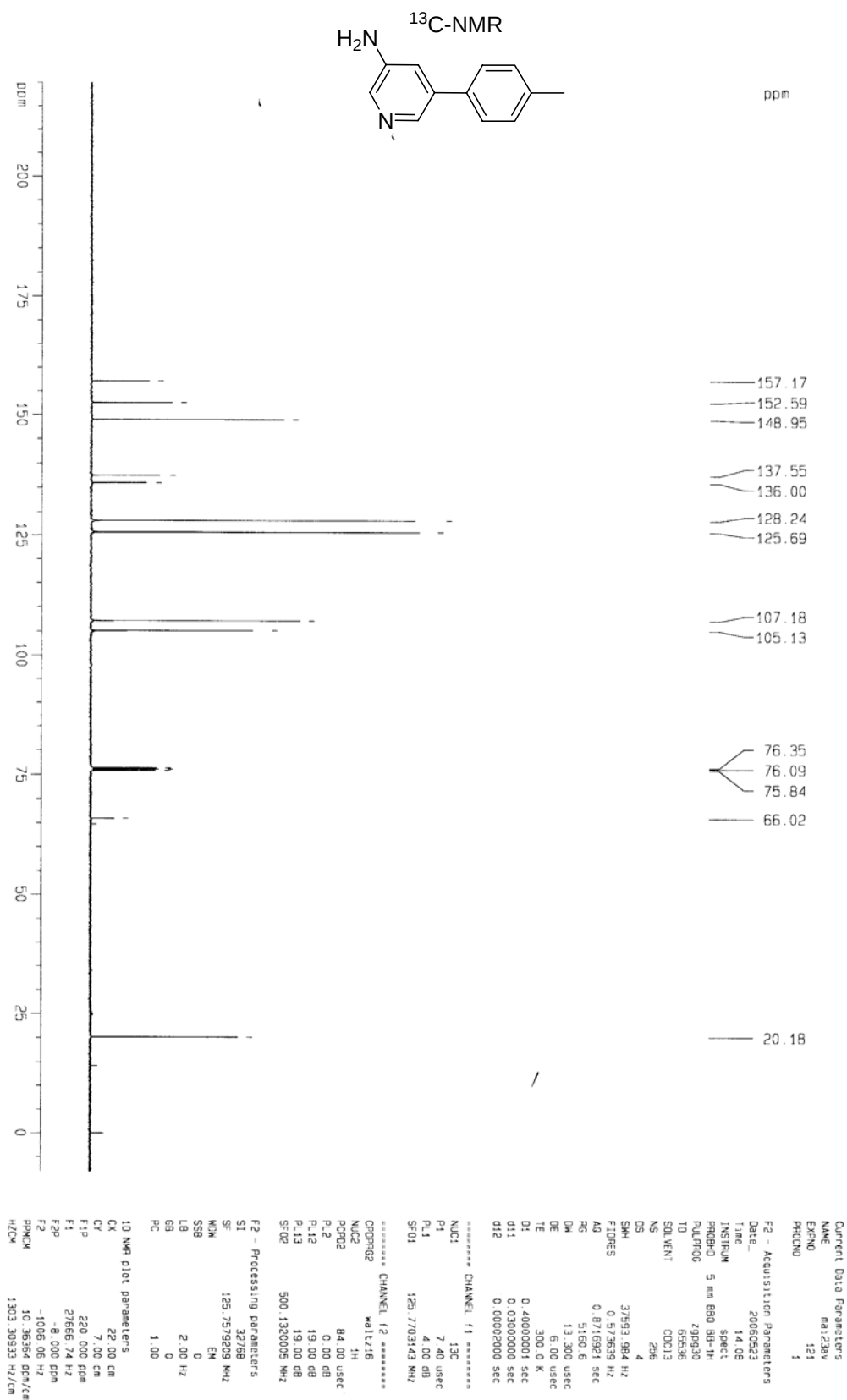
Fleckenstein CFP 3 166-f



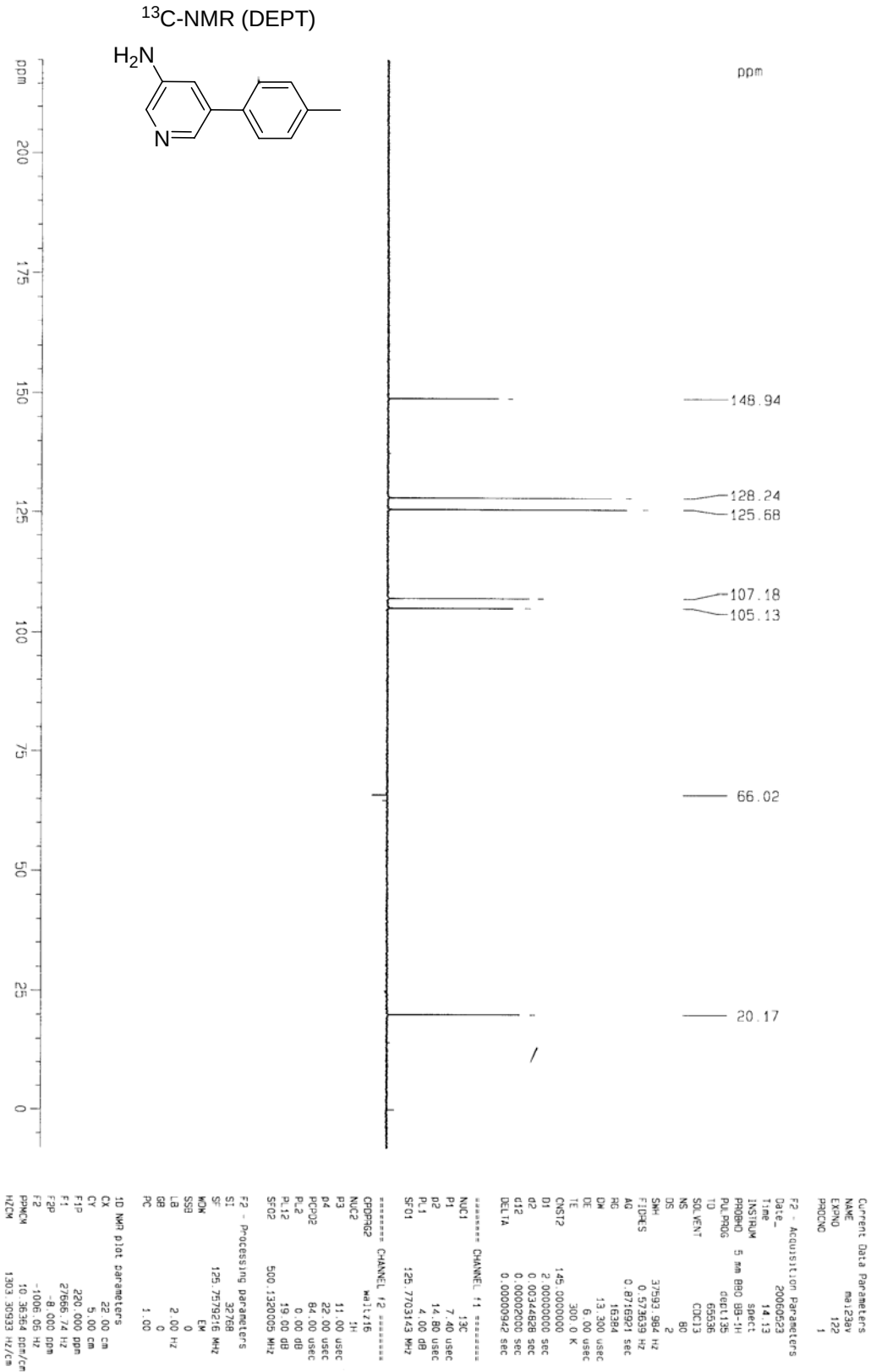
Fleckenstein CFP-3-172-b



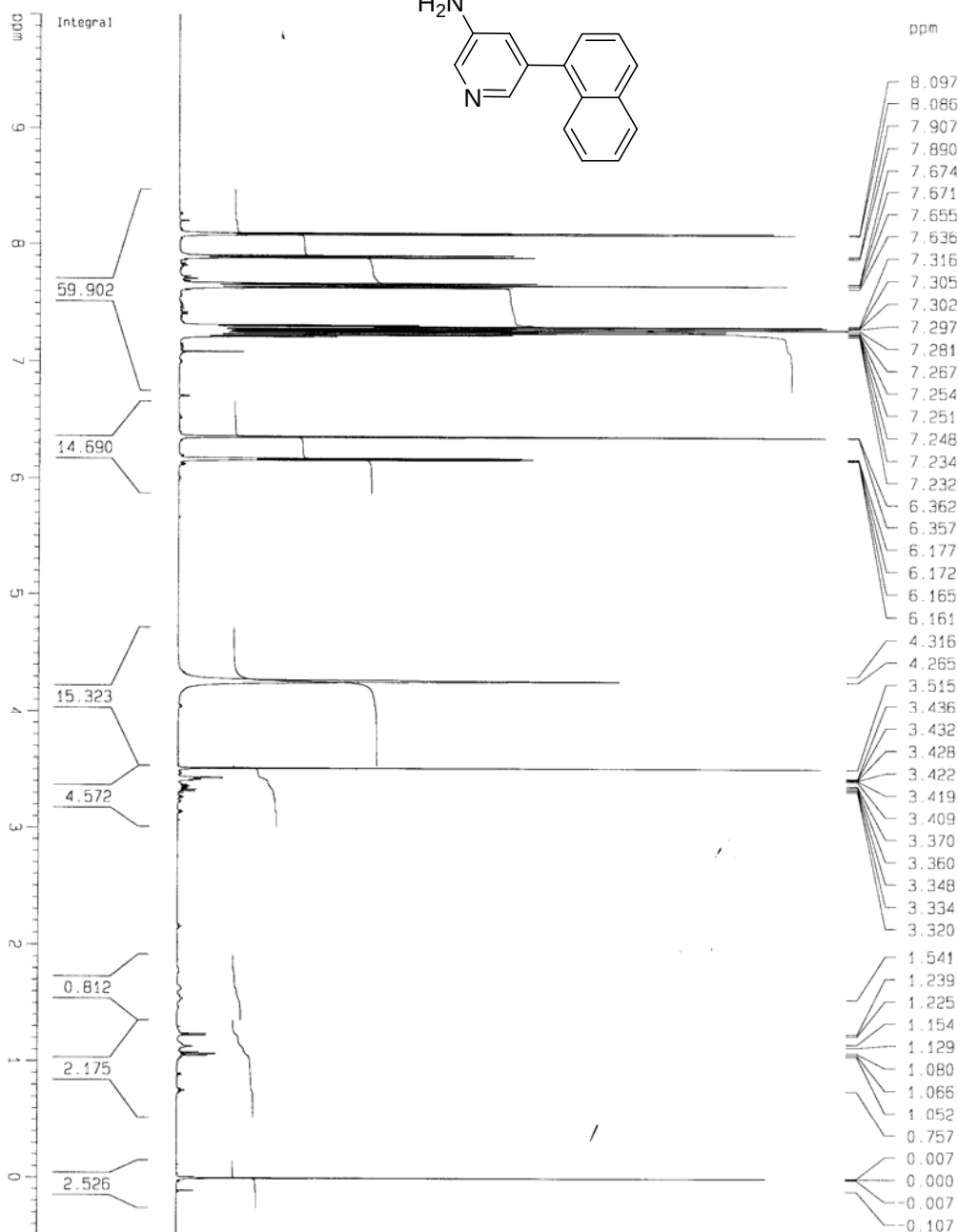
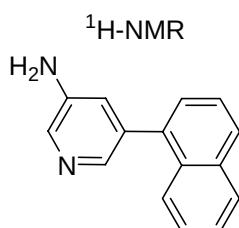
Fleckenstein CFP-3-172-b



Fleckenstein CFP-3-172-b



Fleckenstein CFP-3-172-c



Current Data Parameters
NAME mat24av
EXPNO 130
PROCNO 1

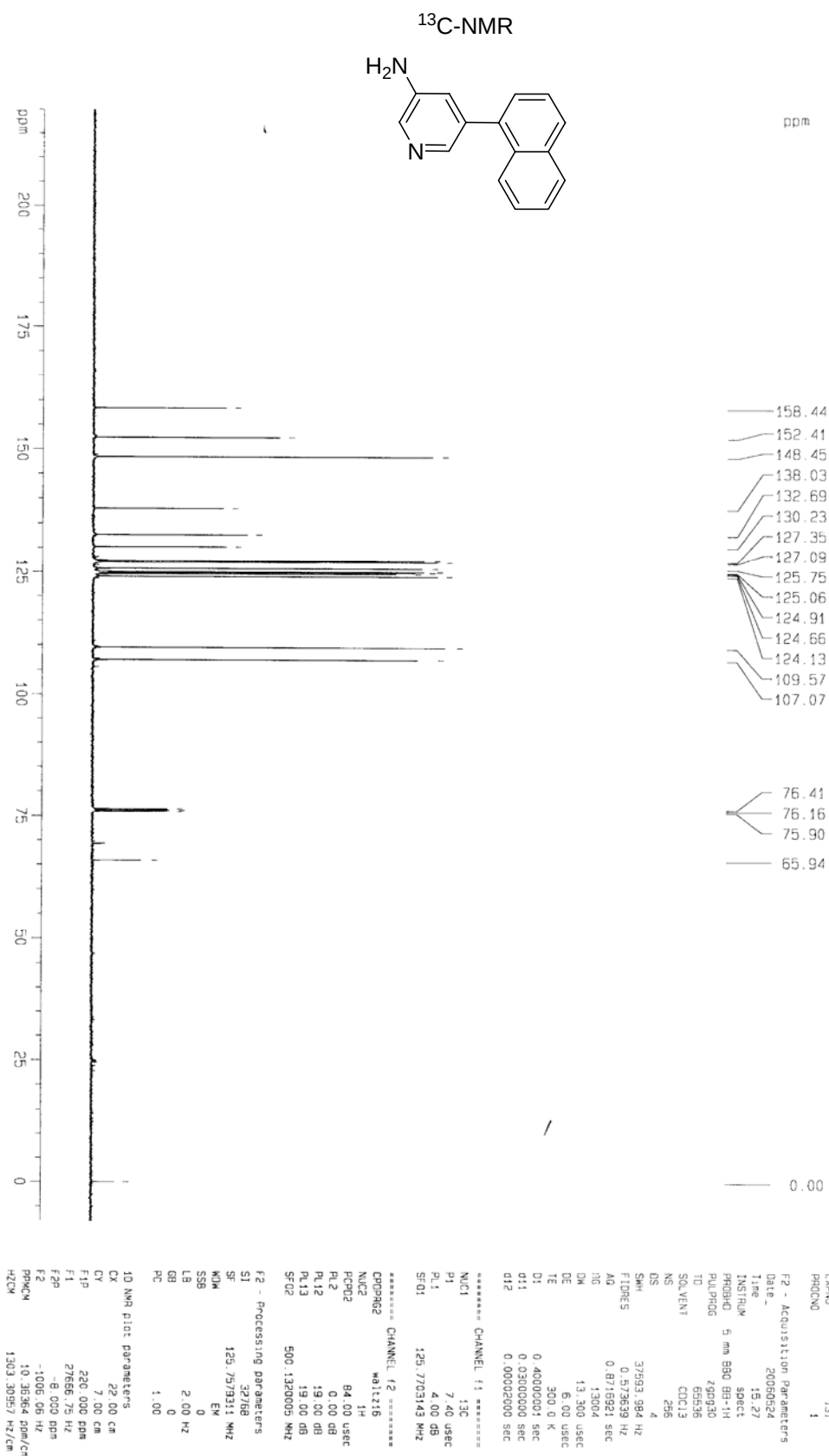
F2 - Acquisition Parameters
Date_ 20060524
Time 15.21
INSTRUM spect
PROBHD 5 mm BBO BB-1H
PULPROG zg30
TD 65536
SOLVENT CDC13
NS 24
DS 2
SWH 10330.578 Hz
FIDRES 0.157632 Hz
AQ 3.1720407 sec
RG 35.9
DW 48.400 usec
DE 5.00 usec
TE 300.0 K
D1 0.50000000 sec

***** CHANNEL f1 *****
NUC1 1H
P1 11.10 usec
PL1 0.00 dB
SFO1 500.130085 MHz

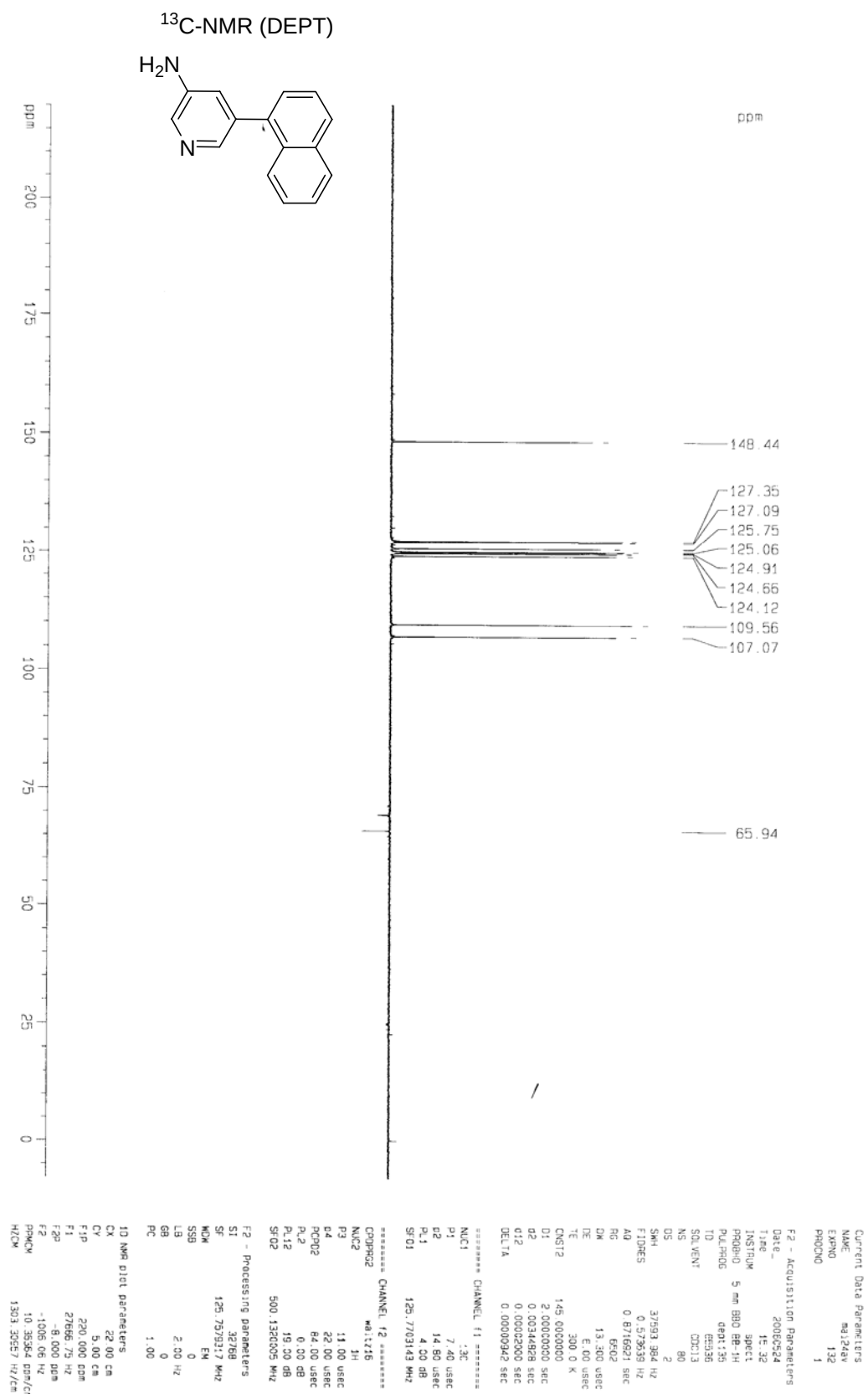
F2 - Processing parameters
SI 32768
SF 500.1300975 MHz
WDW EM
SSB 0
LB 0.10 Hz
GB 0
PC 1.00

1D NMR Plot parameters
CX 22.00 cm
CY 12.00 cm
F1 10.000 ppm
F2 5001.30 Hz
FAP -0.500 ppm
F2 -250.06 Hz
PPMCM 0.47727 ppm/cm
HZCM 238.65844 Hz/cm

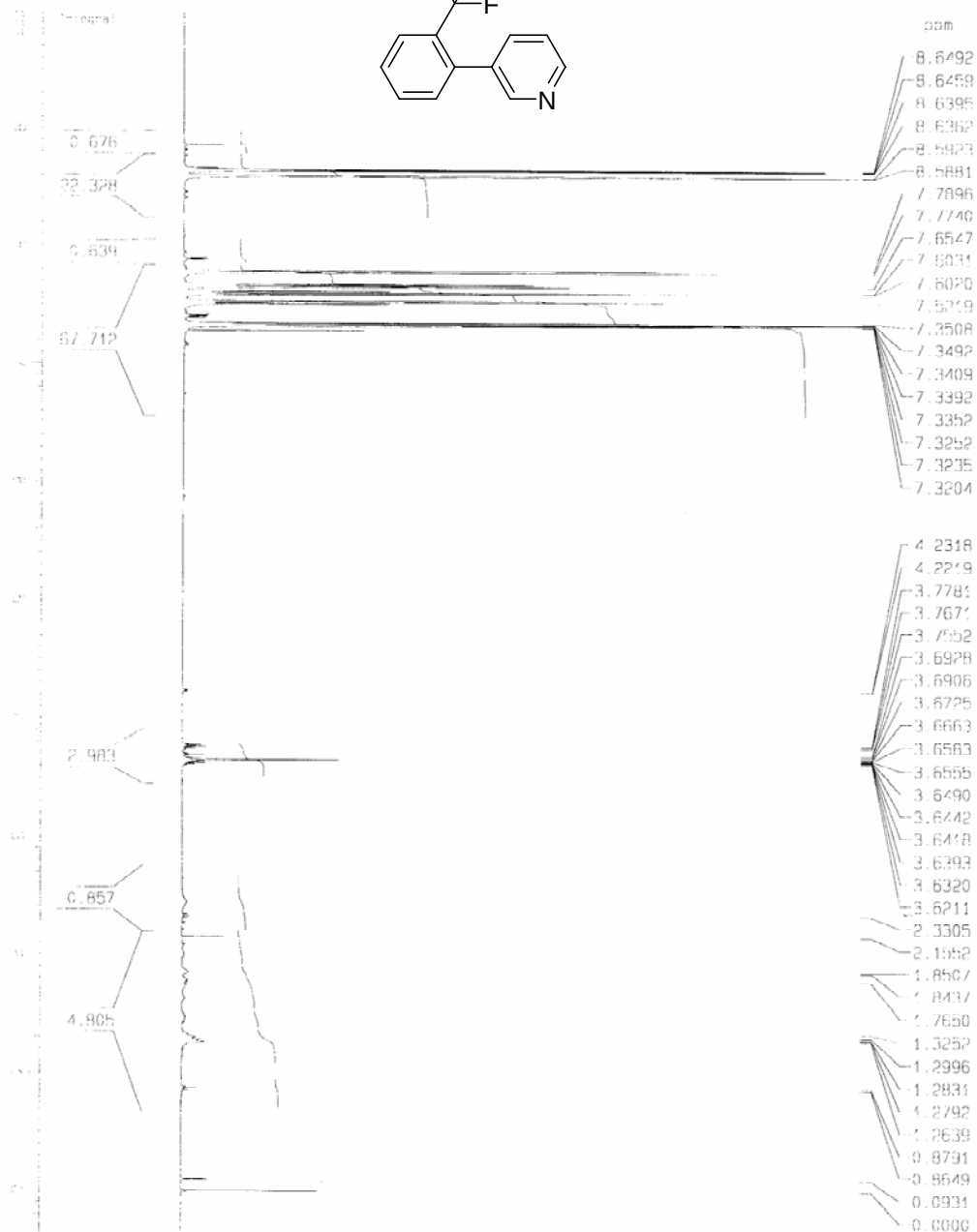
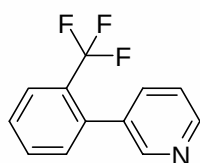
Fleckenstein CFP-3-172-C



Fleckenstein CFP-3-172-c

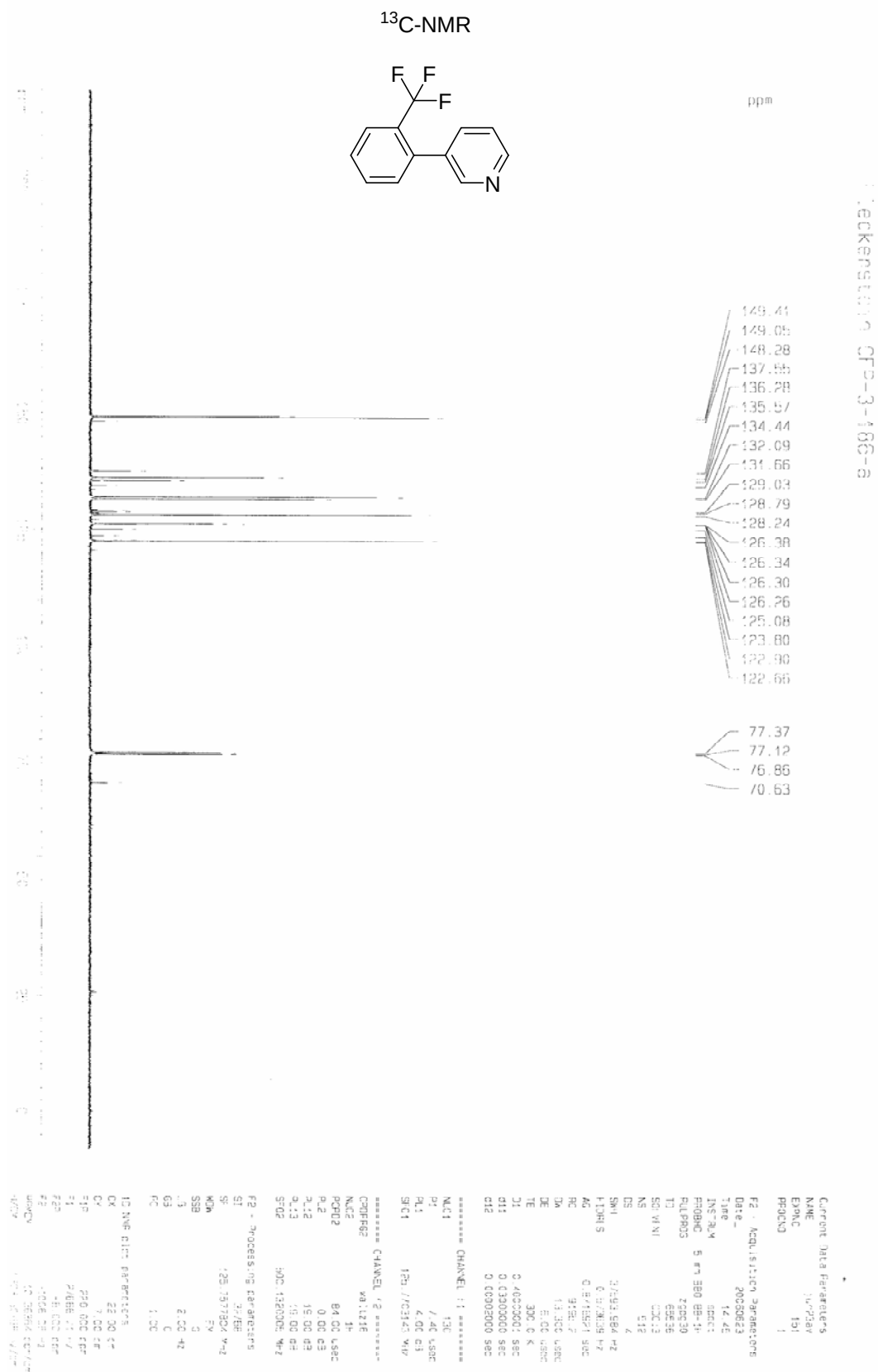


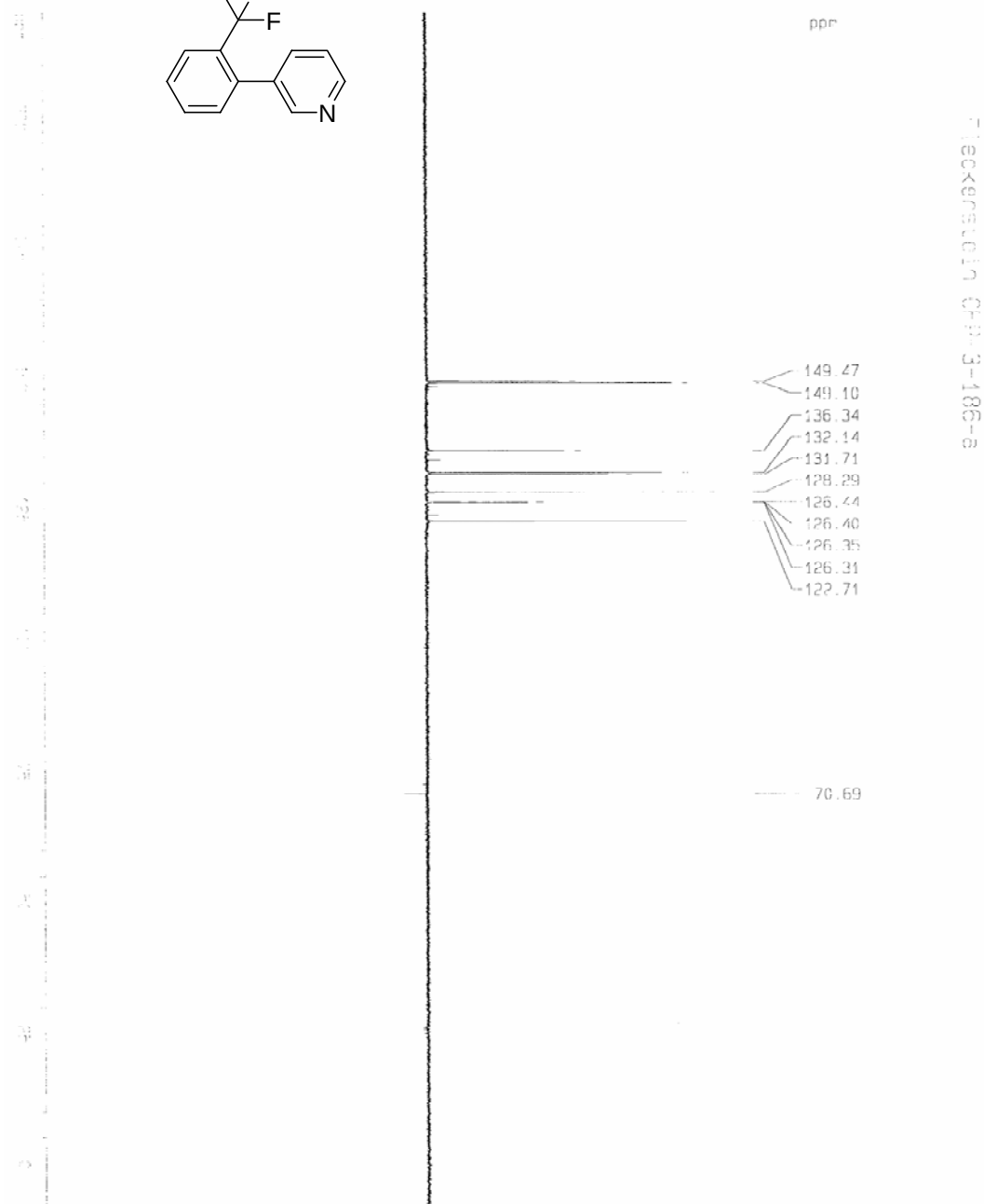
¹H-NMR



Lockenstein CH-3-100-8

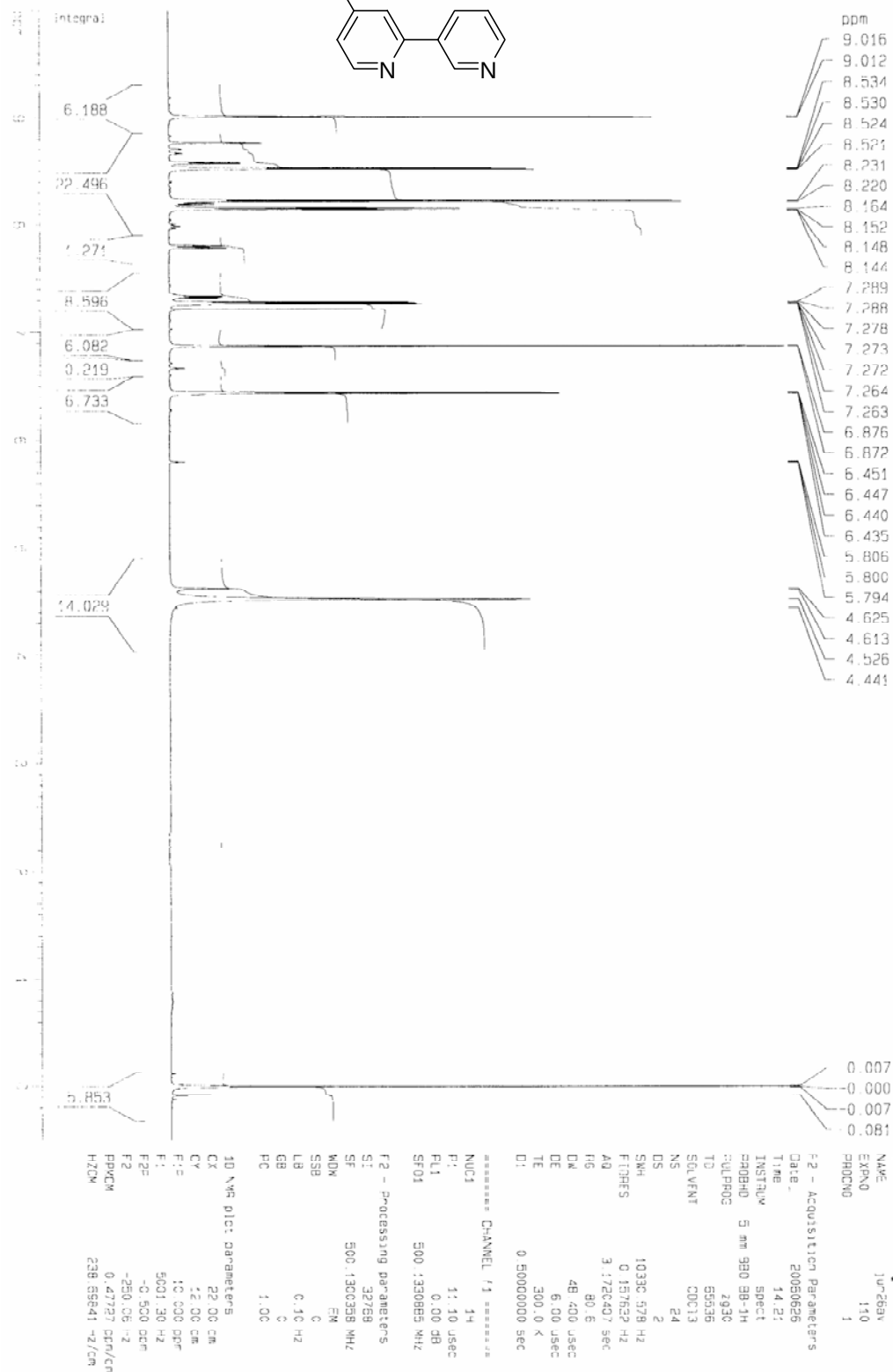
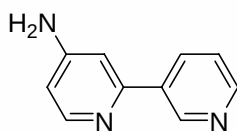
Current Data Parameters
NAME: 10-22-01
EXPNO: 100
PROCNO: 1
F2 - Acquisition Parameters
Date_: 20050823
Time: 14.33
INSTRUM: spect
PROBHD: 5 mm BBO BB-7H
PULPROG: zgpg30
TD: 65536
SOLVENT: CDCl3
NS: 2
DS: 2
SWH: 10230.578 Hz
FIDRES: 0.157637 Hz
AQ: 3.172407 sec
RG: 71.8
JM: 48.400 usec
DE: 6.00 usec
TE: 300.0 K
D1: 0.50000000 sec
===== CHANNEL f1 =====
NUC1: 1H
P1: 11.10 usec
PL1: 0.00 dB
SFO1: 500.1350891 MHz
F2 - Processing parameters
SI: 32768
SF: 500.1350891 MHz
WDW: EM
SSB: 0
LB: 0.10 Hz
GB: 0
PC: 1.00
D0: 0.00000000 sec
EX: 22.00 usec
CY: 12.00 usec
RG: 10.000 usec
F1: 500.1350891 MHz
F2: 0.00000000 MHz
PCPG: 0.41177 usec
RSE: 0.00000000 usec



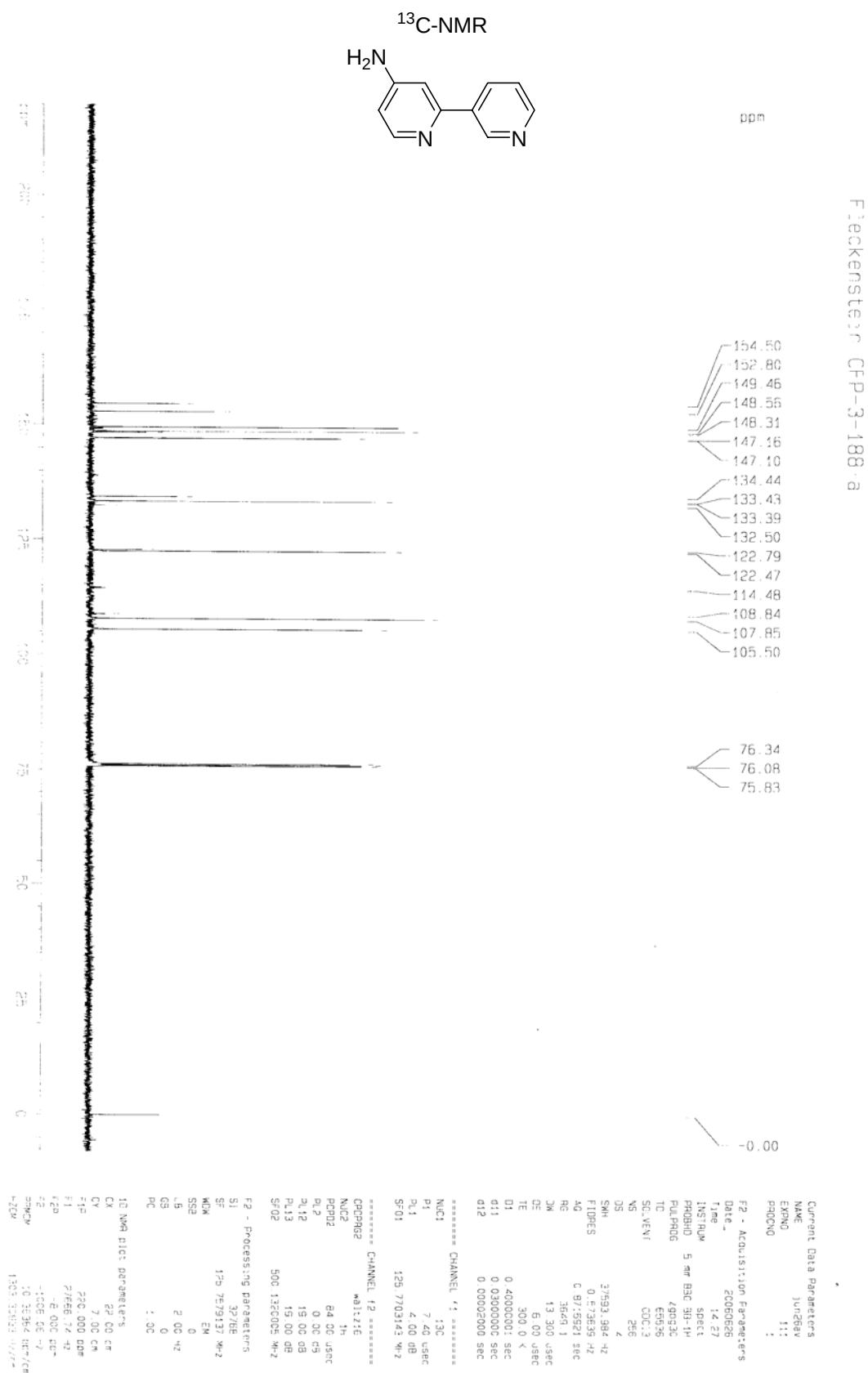
FC(F)(F)c1ccccc1-c2ccncc2

Current Data		Parameters	
NAME	Value	NAME	Value
PCNO	152	PCNO	152
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Date	20060323	Time	14:53
INSTID	INST1	DECT	DECT1
FRQBD	0 m BRG BR1	PRB1	PRB1
TD POS	091135	PRB2	PRB2
SO VENT	ON13	PRB3	PRB3
NO	160	PRB4	PRB4
SN	3	PRB5	PRB5
FILES	0.373219 Hz	PRB6	PRB6
AD	0.874621 Hz	PRB7	PRB7
OK	15.300 uHz	PRB8	PRB8
PM	5.00 uHz	PRB9	PRB9
TE	500.0 K	PRB10	PRB10
CS1	145.000000 Hz	PRB11	PRB11
CS2	0.000000 Hz	PRB12	PRB12
CS3	0.0044428 Hz	PRB13	PRB13
CS4	0.000000 Hz	PRB14	PRB14
CS5	0.000000 Hz	PRB15	PRB15
DELTA	0.0000042 Hz	PRB16	PRB16
F2 - Actual on Parameters			
NAME	Value	NAME	Value
PCNO	152	PCNO	152
PCNO	152	PCNO	152
F2 - Actual on Parameters			
NAME	Value	NAME	Value
PCNO	152	PCNO	152
PCNO	152	PCNO	152
F2 - Actual on Parameters			
NAME	Value	NAME	Value
PCNO	152	PCNO	152
PCNO	152	PCNO	152
F2 - Actual on Parameters			
NAME	Value	NAME	Value
PCNO	152	PCNO	152
PCNO	152	PCNO	152
F2 - Actual on Parameters			
NAME	Value	NAME	Value
PCNO	152	PCNO	152
PCNO	152	PCNO	152
F2 - Actual on Parameters			
NAME	Value	NAME	Value
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PCNO	152	PCNO	152
F2 - Actual on Parameters			
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PCNO	152	PCNO	152
F2 - Actual on Parameters			
NAME	Value	NAME	Value
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PCNO	152	PCNO	152
F2 - Actual on Parameters			
NAME	Value	NAME	Value
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PCNO	152	PCNO	152
F2 - Actual on Parameters			
NAME	Value	NAME	Value
PCNO	152	PCNO	152
PCNO	152	PCNO	152
F2 - Actual on Parameters			
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PCNO	152	PCNO	152
F2 - Actual on Parameters			
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PCNO	152	PCNO	152
F2 - Actual on Parameters			
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PCNO	152	PCNO	152
F2 - Actual on Parameters			
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PCNO	152	PCNO	152
F2 - Actual on Parameters			
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F2 - Actual on Parameters			
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F2 - Actual on Parameters			
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F2 - Actual on Parameters			
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F2 - Actual on Parameters			
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F2 - Actual on Parameters			
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PCNO	152	PCNO	152
F2 - Actual on Parameters			
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PCNO	152	PCNO	152
PCNO	152	PCNO	152
F2 - Actual on Parameters			
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PCNO	152	PCNO	152
F2 - Actual on Parameters			
NAME	Value	NAME	Value
PC			

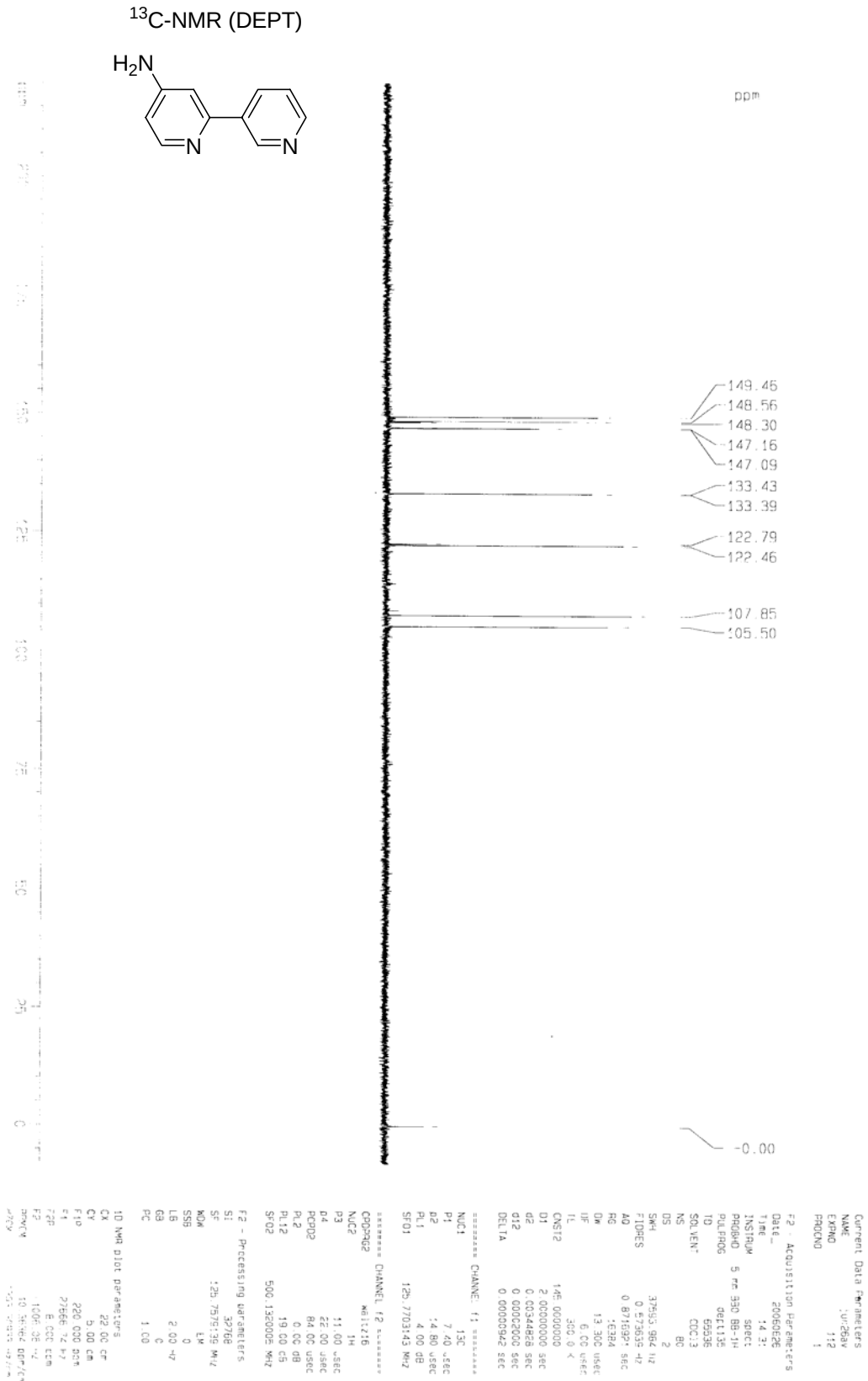
¹H-NMR



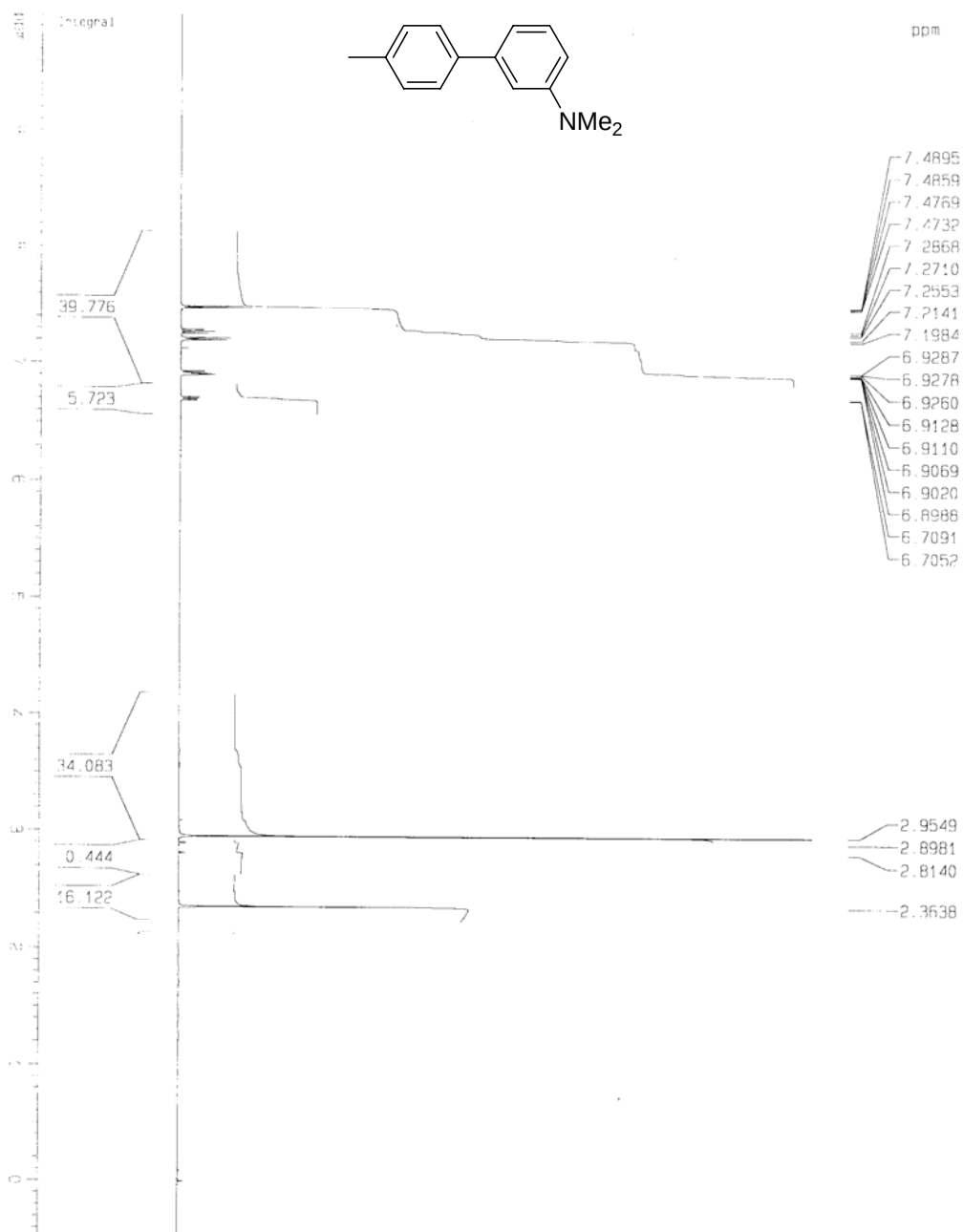
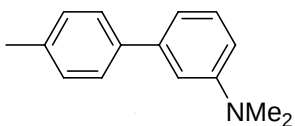
Flockenstein CFP-3-188-a



Fleckenstein CFP-3-188-a



¹H-NMR



Fleckenstein CFP-4-140-C

ppm

7.4895
7.4859
7.4769
7.4732
7.2868
7.2710
7.2553
7.2141
7.1984
6.9287
6.9278
6.9260
6.9128
6.9110
6.9069
6.9020
6.8988
6.7091
6.7052

2.9549
2.8981
2.8140
2.3638

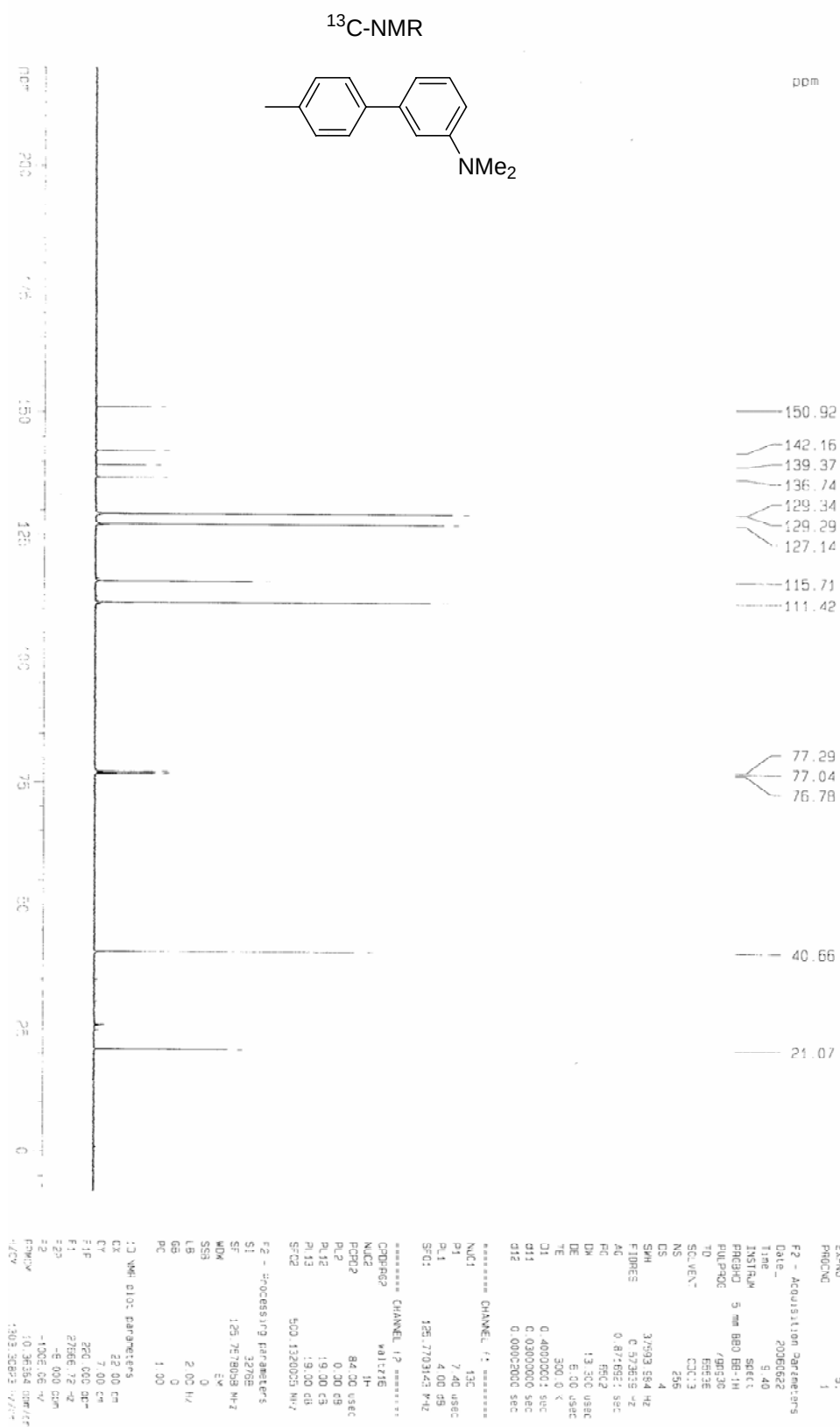
Current Data Parameters
NAME 1un22ay
EXPNO 50
PROCNO 1
F2 - Acquisition Parameters
Date_ 20060622
Time 5.34
INSTRUM spect
PROBHD 5 mm BBO BB-1H
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 24
DS 2
SWH 10350.578 Hz
FIDRES 0.157632 Hz
AQ 3.1720427 sec
RG 35.9
DW 48.400 usec
DE 6.00 usec
TE 300.0 K
D1 0.50000000 sec

===== CHANNEL f1 =====
NUC1 1H
P1 11.10 usec
PL1 0.00 dB
SF01 500.1330885 MHz

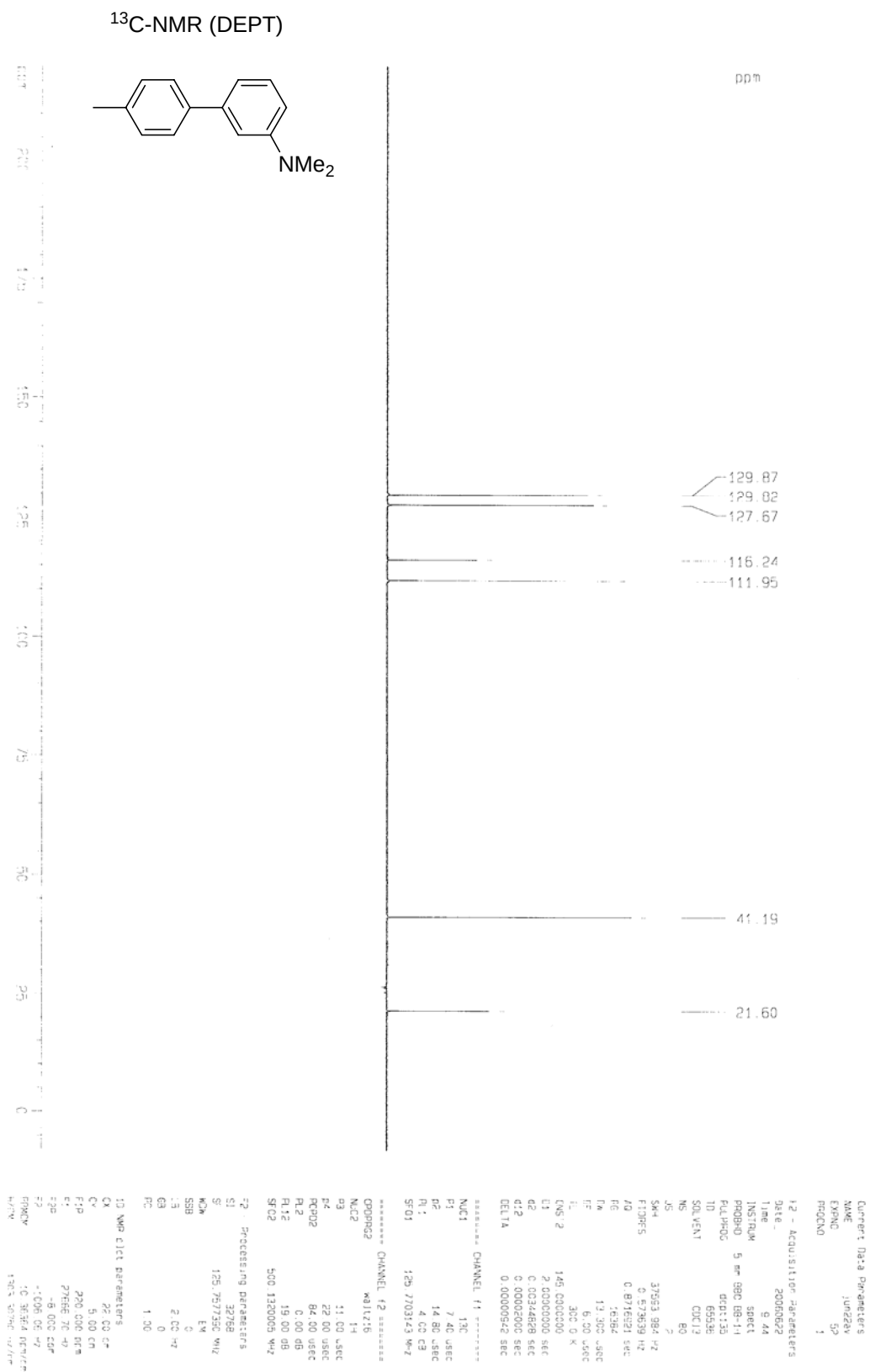
F2 - Processing parameters
SI 32768
SF 500.1330786 MHz
WDW EM
SSB 0
LB 0.10 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 22.00 cm
CY 12.00 cm
F1P 10.000 pch
SFO1 30.47
F2P -0.500 pch
F2 -250.06 Hz
PQCN 0.47727 dBm/Hz
HZCM 238.69848 Hz/Hz

Heckenstein CFP-4-140-C

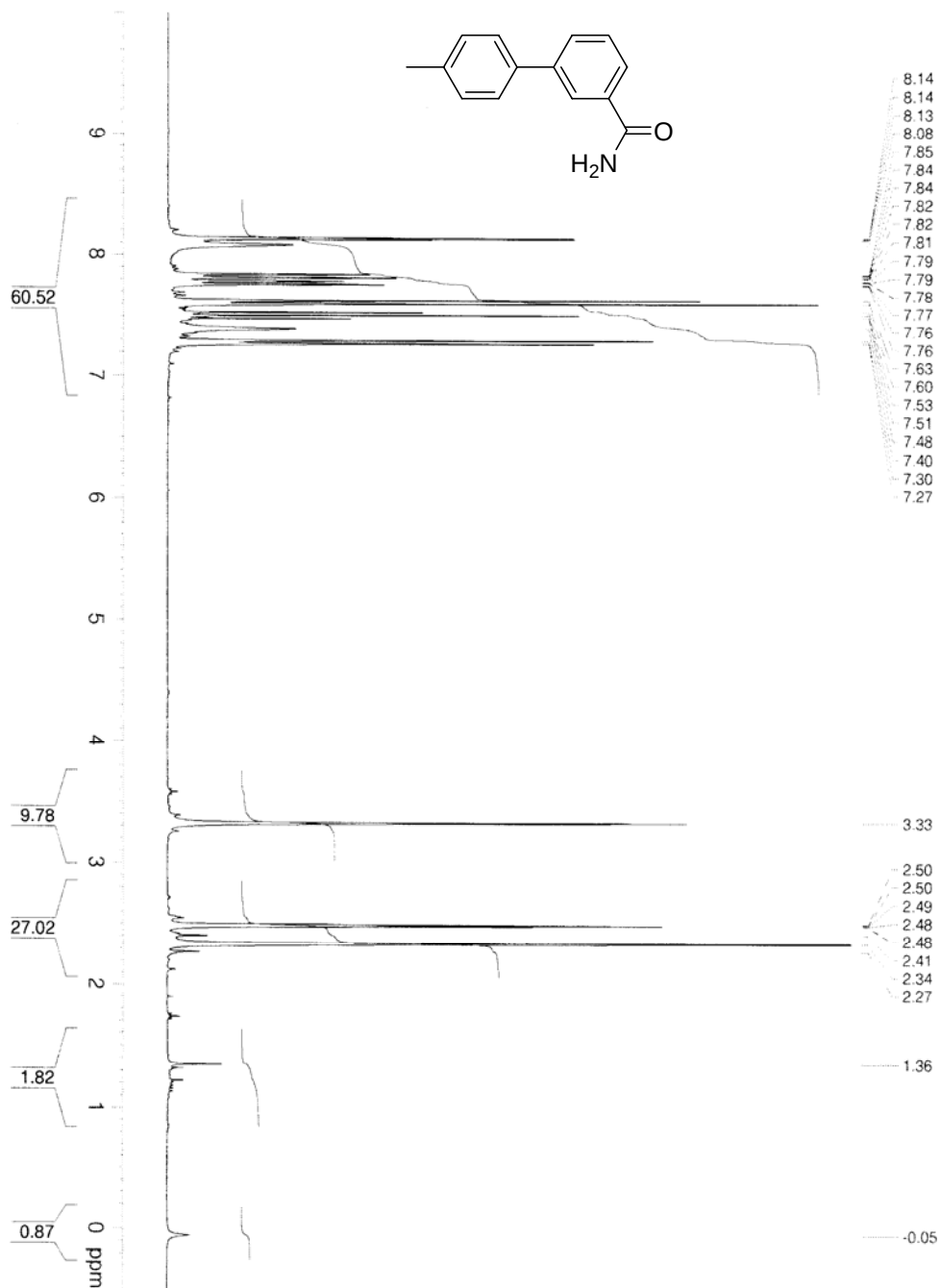
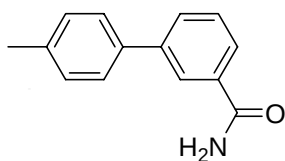


Fieckenstein CFP-4-140-C



Fleckenstein 4-136c

¹H-NMR



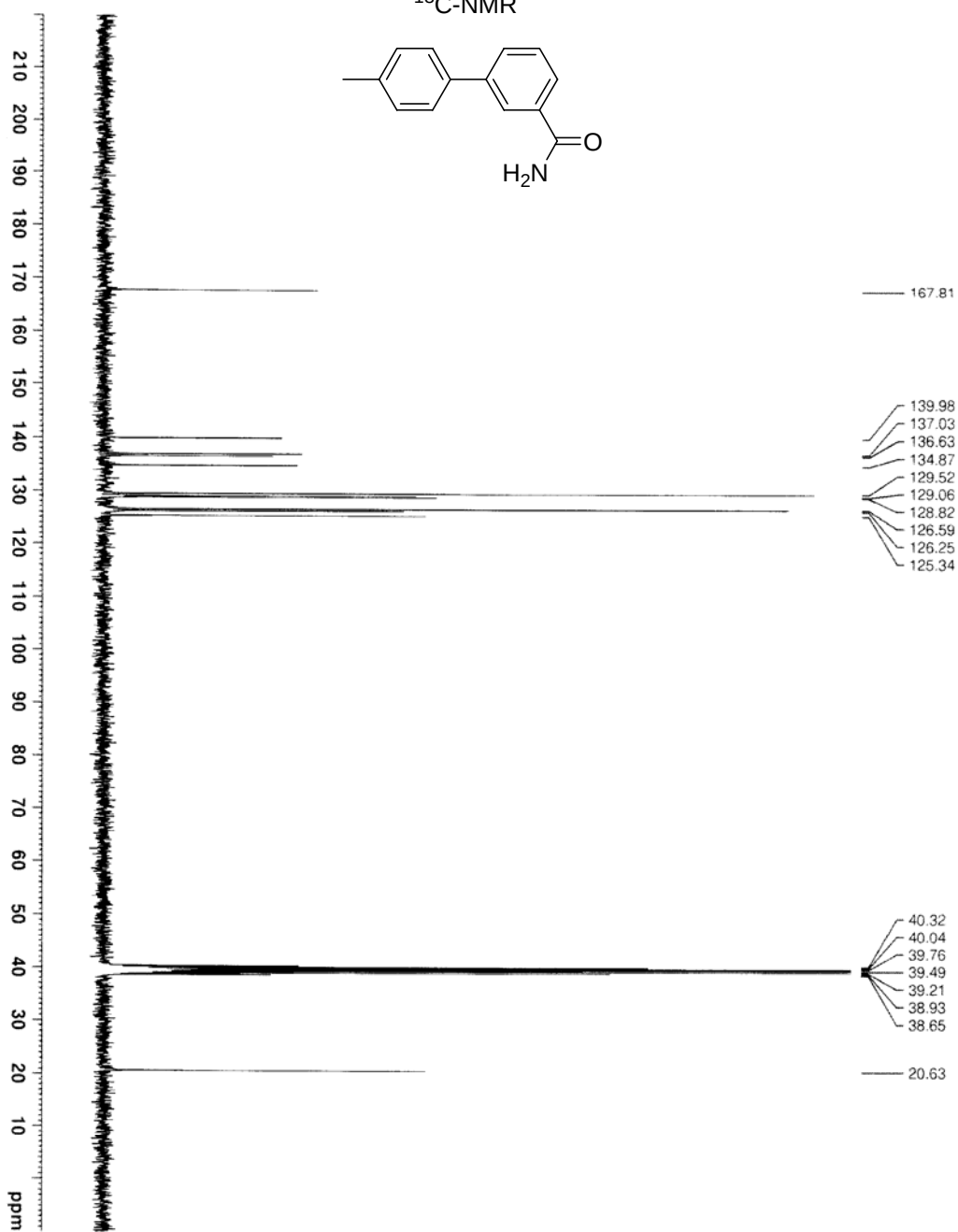
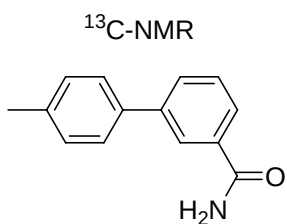
```

Current Data Parameters
NAME      ma05ac
EXPNO     150
PROCNO    1
F2 - Acquisition Parameters
Date_     20060505
Time      15.41
INSTRUM   spect
PROBHD    5 mm PABBO
PULPROG   zg30
TD         32768
SOLVENT   DMSO
NS         32
DS         4
SWH         6188.119 Hz
FIDRES     0.16846 Hz
AQ         2.6477044 sec
RG         203
DM         80.800 usec
DE         1.00
TE         300.2 K
D1         1.00000000 sec
TD0        1

===== CHANNEL f1 =====
NUC1       13C
P1         9.70 usec
PL1        -3.00 dB
SFO1       299.9018520 MHz

F2 - Processing parameters
SI         32768
SF         299.9000000 MHz
WDW        EM
SSB        0
LB         0.10 Hz
GB         0
PC         50.00
  
```

Fleckenstein 4-136c



Current Data Parameters
NAME: m105ac
EXPNO: 1
PROCNO: 1
F2 - Acquisition Parameters
Date_: 20060505
Time: 15.59
INSTRUM: spect
PROBHD: 5 mm PABBO
PULPROG: zgpg30
TO: 32768
SOLVENT: DMSO
NS: 512
DS: 4
SWH: 21939.824 Hz
FIDRES: 0.469245 Hz
AQ: 0.7471604 sec
RG: 2050
DM: 22.800 usec
DE: 10.00 usec
TE: 300.2 K
D1: 1.0000000 sec
d11: 0.0300000 sec
DELTA: 0.8999998 sec
TD0: 1

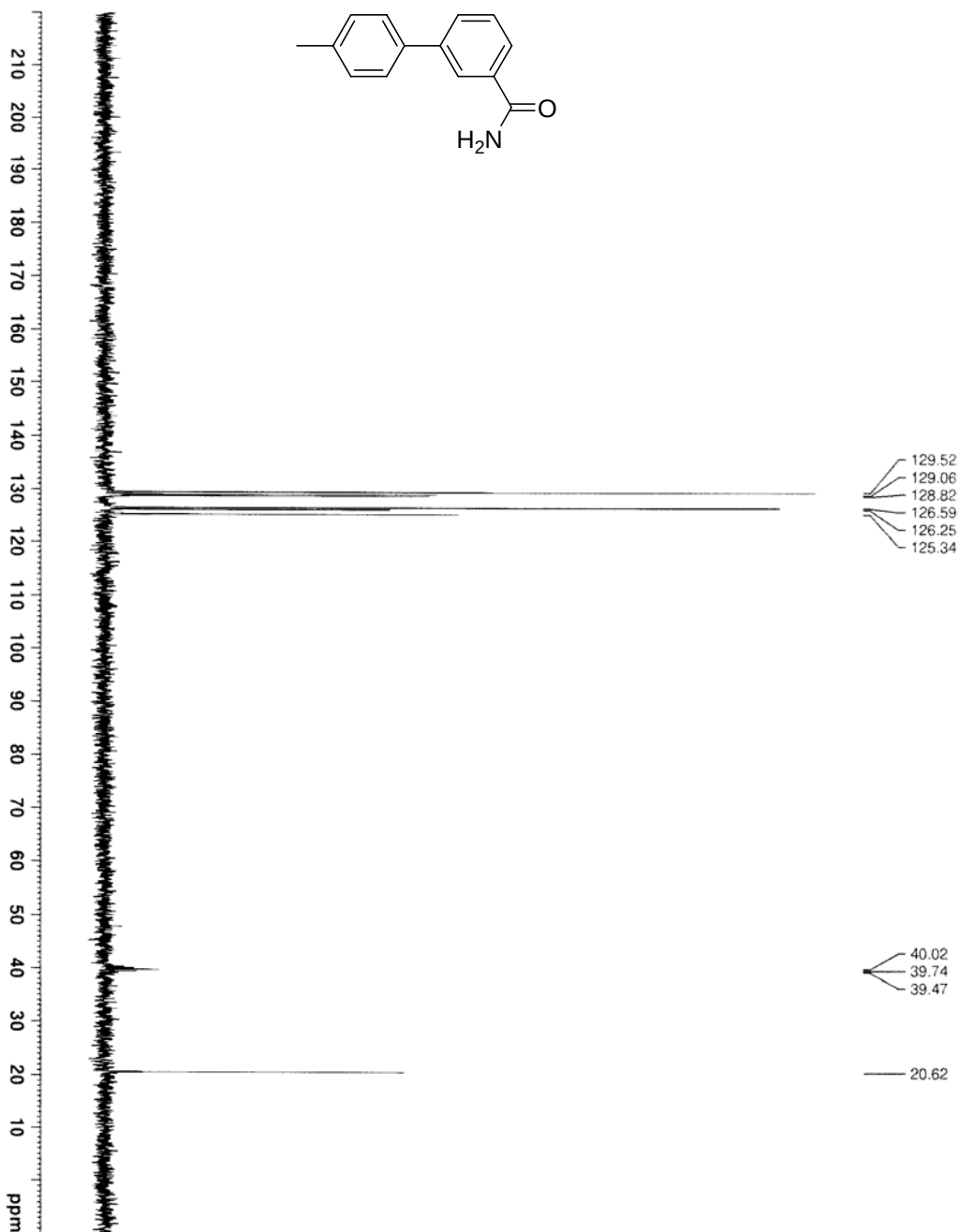
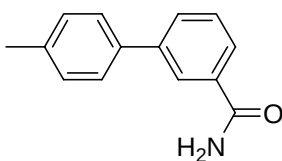
===== CHANNEL f1 =====
NUC1: ¹³C
P1: 11.00 usec
PL1: 0.00 dB
SFO1: 75.4174560 MHz

===== CHANNEL f2 =====
CPDPRG2: waltz16
NUC2: ¹H
PCPD2: 95.00 usec
PL2: -3.00 dB
PL12: 17.00 dB
PL13: 23.00 dB
SFO2: 299.9011996 MHz

F2 - Processing parameters
SI: 32768
SF: 75.4099527 MHz
WDW: EM
SSB: 0
LB: 2.00 Hz
GB: 0
PC: 1.40

Fleckenstein 4-136c

¹³C-NMR (DEPT)

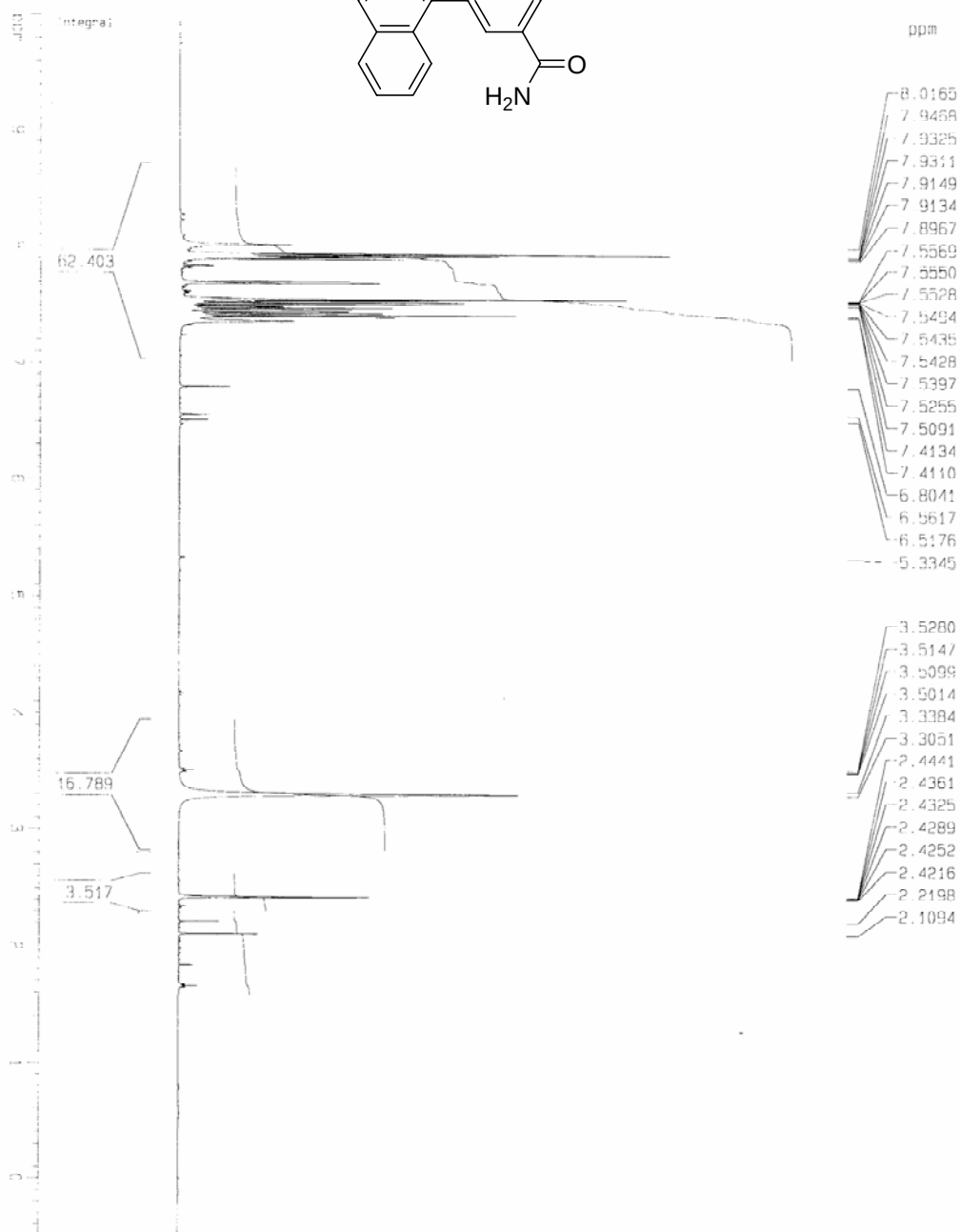
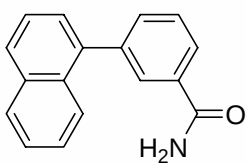


```

Current Data Parameters
NAME          : Fleckenstein 4-136c
EXPNO         : 152
PROCNO       : 1
F2 - Acquisition Parameters
Date_         : 20060505
Time         : 16.07
INSTRUM      : spect
PROBHD      : 5 mm PABBO BH-
PULPROG     : zgpg30
TD           : 32768
SOLVENT     : DMSO
NS          : 160
DS          : 4
SWH          : 21929.824 Hz
FIDRES      : 0.669245 Hz
AQ          : 0.7471654 sec
RG          : 2050
RW          : 223820
DE          : 10.00 usec
TE          : 300.2 K
===== CHANNEL f1 =====
NUC1         : 13C
P1           : 11.00 usec
P2           : 22.00 usec
PC          : 1.40
SFO1         : 75.4174560 MHz
===== CHANNEL f2 =====
NAME2        : water
NUC2         : 1H
P3           : 9.50 usec
P4           : 19.00 usec
PC2          : 95.00 usec
PL12         : 17.00 dB
SFO2         : 299.9011996 MHz
F2 - Processing parameters
SI           : 32768
SF           : 75.4099527 MHz
WDW          : EM
SSB          : 2.00 Hz
GB           : 0
PC           : 1.40
  
```

Heckenstein CFP-X-1

¹H-NMR



Current Data Parameters
NAME: 1-23ay
EXPNO: 40
PROCNO: 1

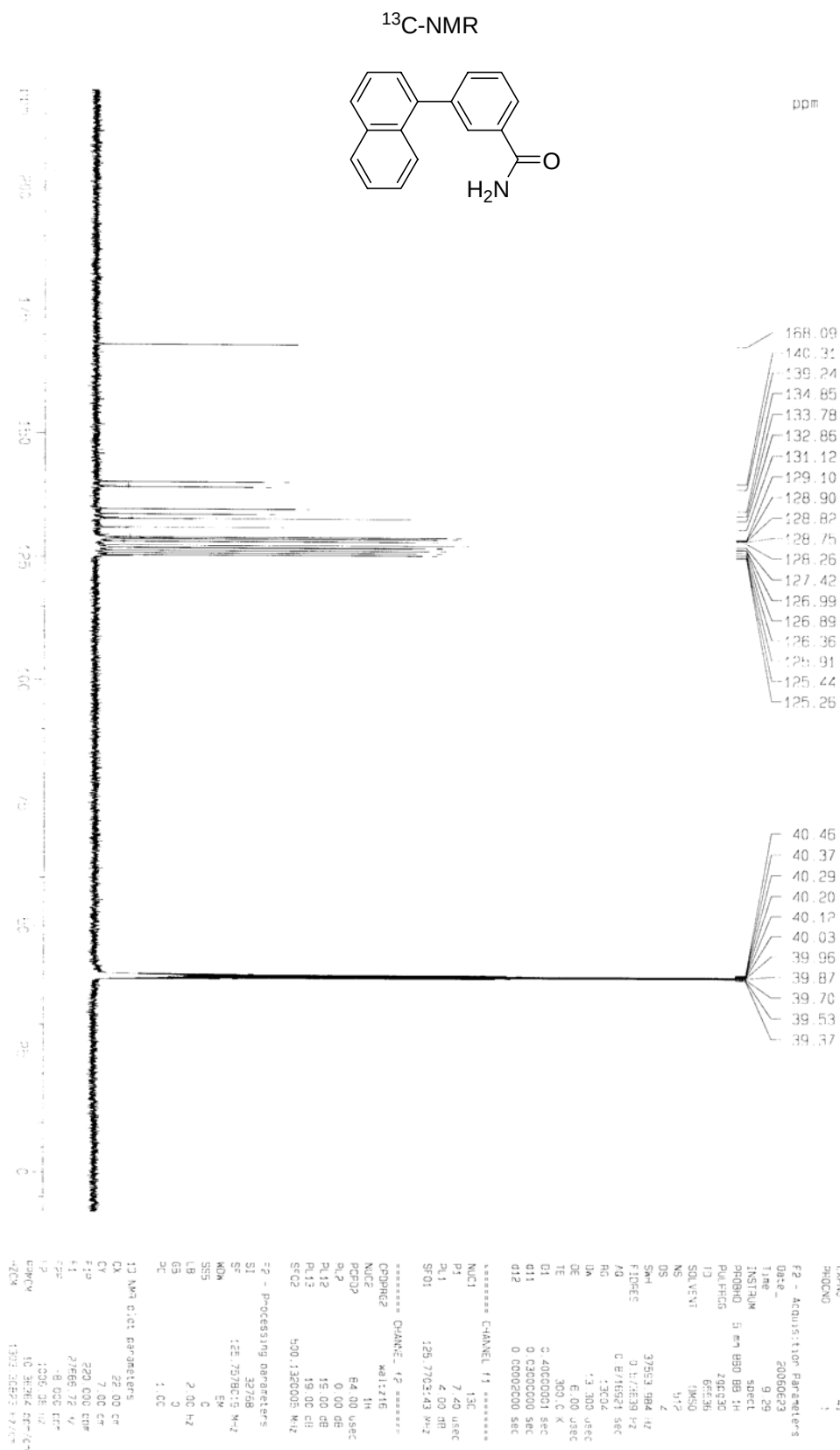
F2 - Acquisition Parameters
Date_: 20050623
Time: 9.17
INSTRUM: spect
PROBHD: 5 mm BBO BB-4-
PULPROG: zgpg30
TD: 65536
SOLVENT: DMSO
NS: 24
DS: 2
SWH: 10330.578 Hz
FIDRES: 0.15632 Hz
AQ: 2.126407 sec
RG: 71.8
PC: 48.400 usec
DE: 8.00 usec
TE: 300.0 K
D1: 0.5000000 sec

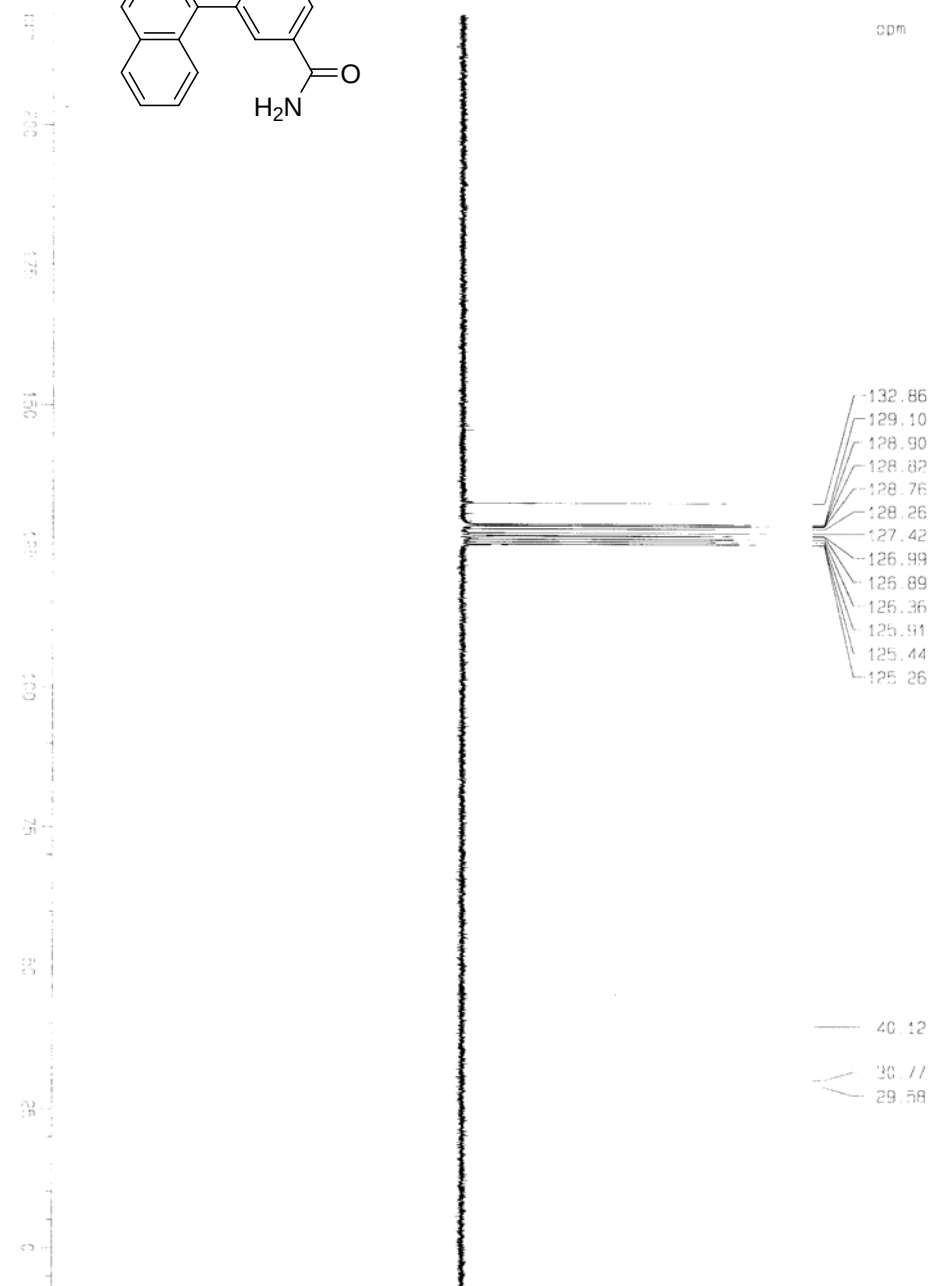
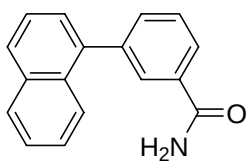
===== CHANNEL f1 =====
NUC1: 1H
P1: 11.10 usec
PL1: 0.00 dB
SFO1: 500.136095 MHz

F2 - Processing parameters
SI: 32768
SF: 500.136095 MHz
WDW: EM
SSB: 0
LB: 0.10 Hz
GB: 0
PC: 1.00

1D NMR plot parameters
CX: 22.00 cm
CY: 12.00 cm
CZ: 10.00 cm
F1: 500.130 Hz
F2: -0.500 DDT
F3: -250.05 Hz
PRGCM: 0.47/27 cm/cm
FZCP: 238.6584 Hz/cm

Fleckenstein CFP-X-1



¹³C-NMR (DEPT)

Current Data Parameters
 NAME Jun29av
 EXPNO 42
 PROCNO 1

F2 Acquisi: Parameters
 Date_ 20060525
 Time 5:37
 INSTRAW spect
 PROBN 5 mm BBO BB-1
 PULPROG zgpg30
 TD 65536
 SFO 500
 NS 160
 DS 2
 SWH 37593.984 Hz
 FIDRES 0.573635 Hz
 AQ 0.871692 sec
 RG 11584.2
 WC 13.300 sec
 ZF 6.00 MHz
 TE 300.2 K
 DELTA 0.0000000 sec
 D1 2.0000000 sec
 D2 0.00244828 sec
 C12 0.0000000 sec
 DELTA 0.0000000 sec

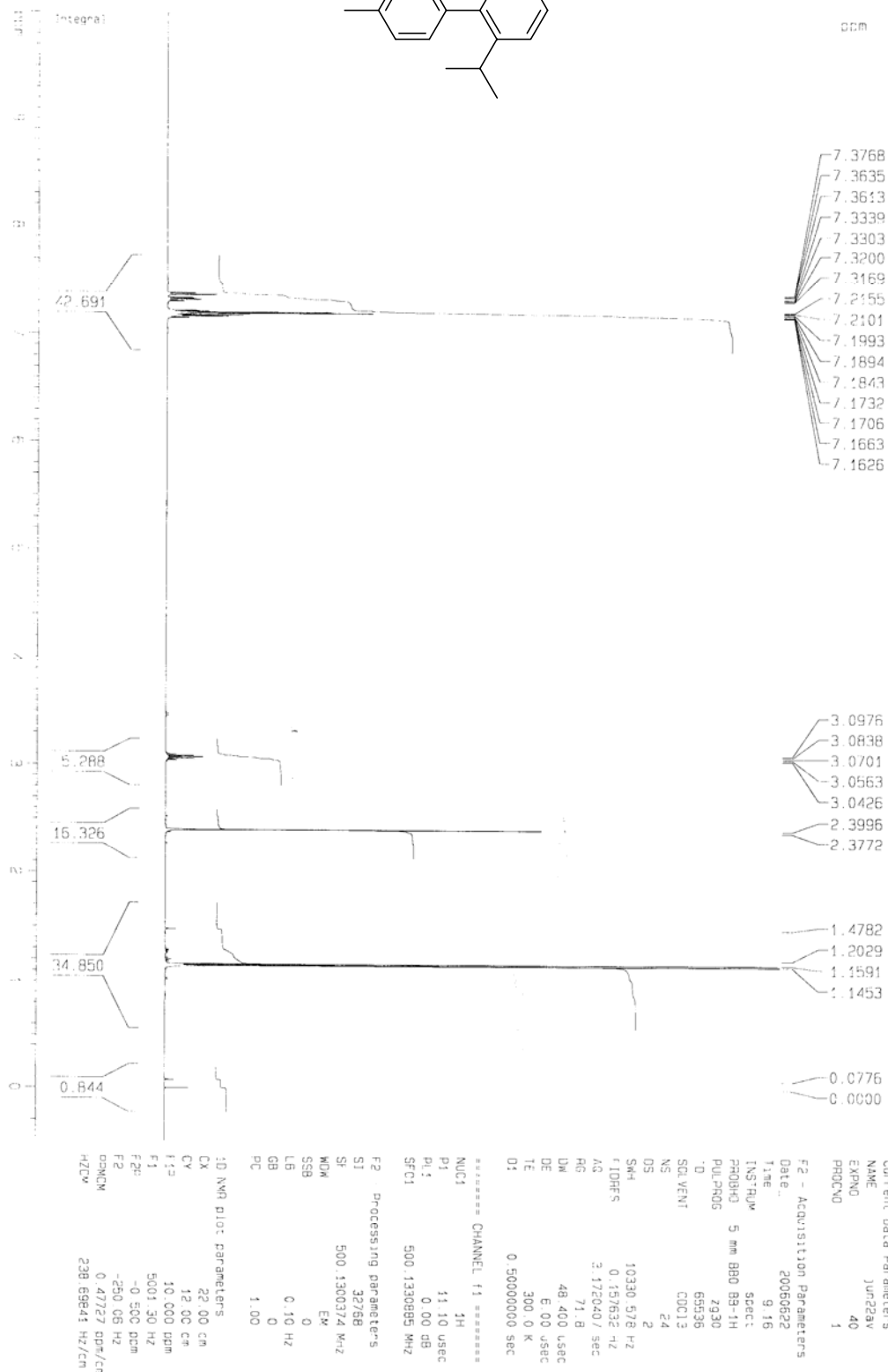
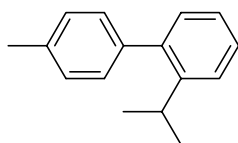
===== CHANNEL f1 =====
 NUC1 ¹³C
 P1 7.40 usec
 F2 14.80 usec
 PL1 4.00 dB
 SFO1 125.130143 MHz

===== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 ^{1H}
 P2 11.00 usec
 F4 22.00 usec
 PCPD2 84.00 usec
 PL2 0.00 dB
 PL12 19.00 dB
 SFO2 500.136000 MHz

F2 - Processing Parameters
 SI 32768
 SF 125.757819 MHz
 KMC 4
 SSB 0
 LB 2.00 Hz
 GB 0
 PC 1.00

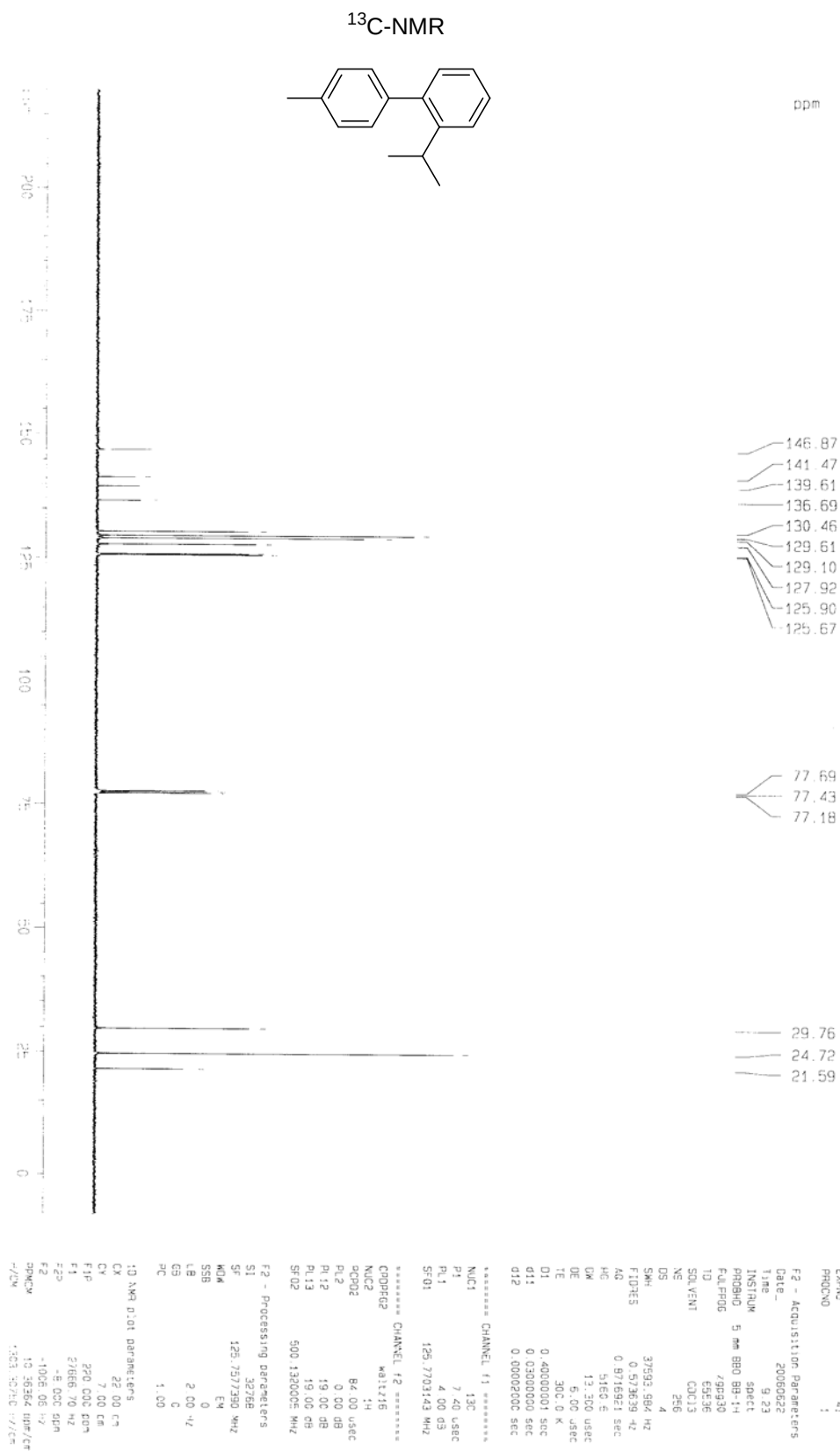
F2 WALTZ16 Parameters
 CX 22.00 Hz
 CY 5.00 Hz
 F1 220.000 MHz
 F2 270.000 MHz
 F3 5.000 MHz
 F4 10.000 MHz
 F5 10.000 MHz
 F6 10.000 MHz

¹H-NMR

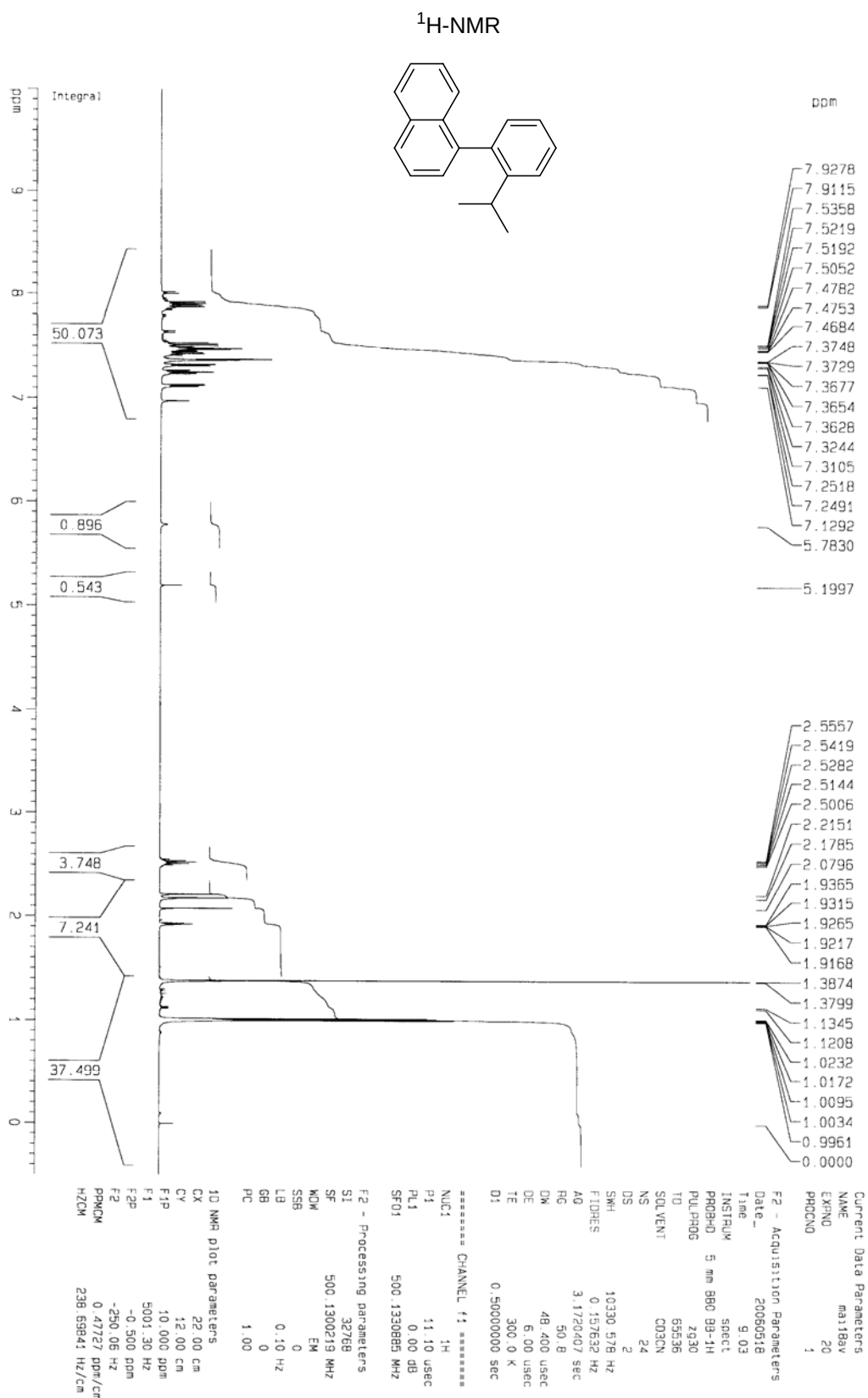


Fleckenstein CFP-4-140-b

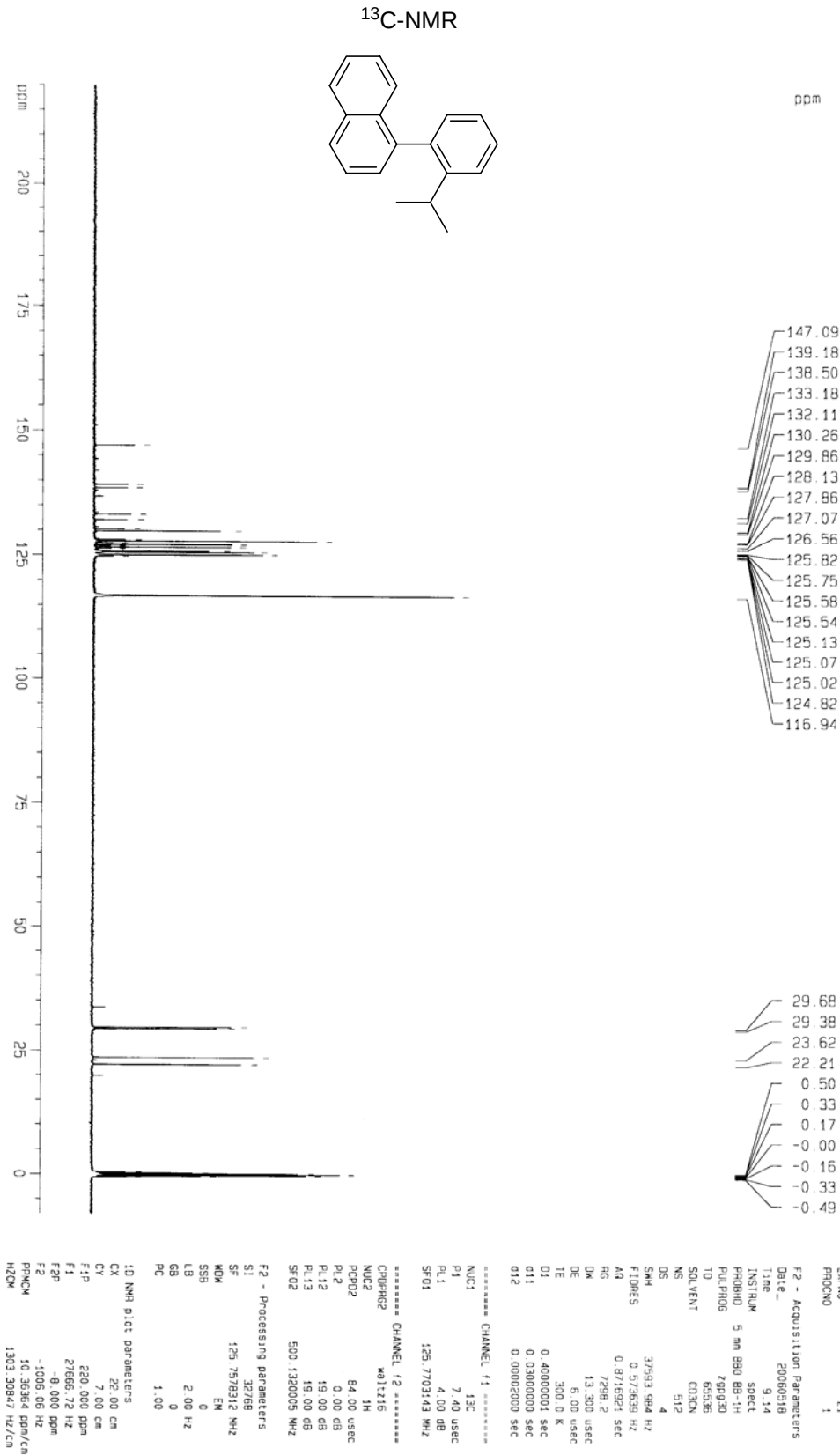
Fieckenstein CFP-4-140-b



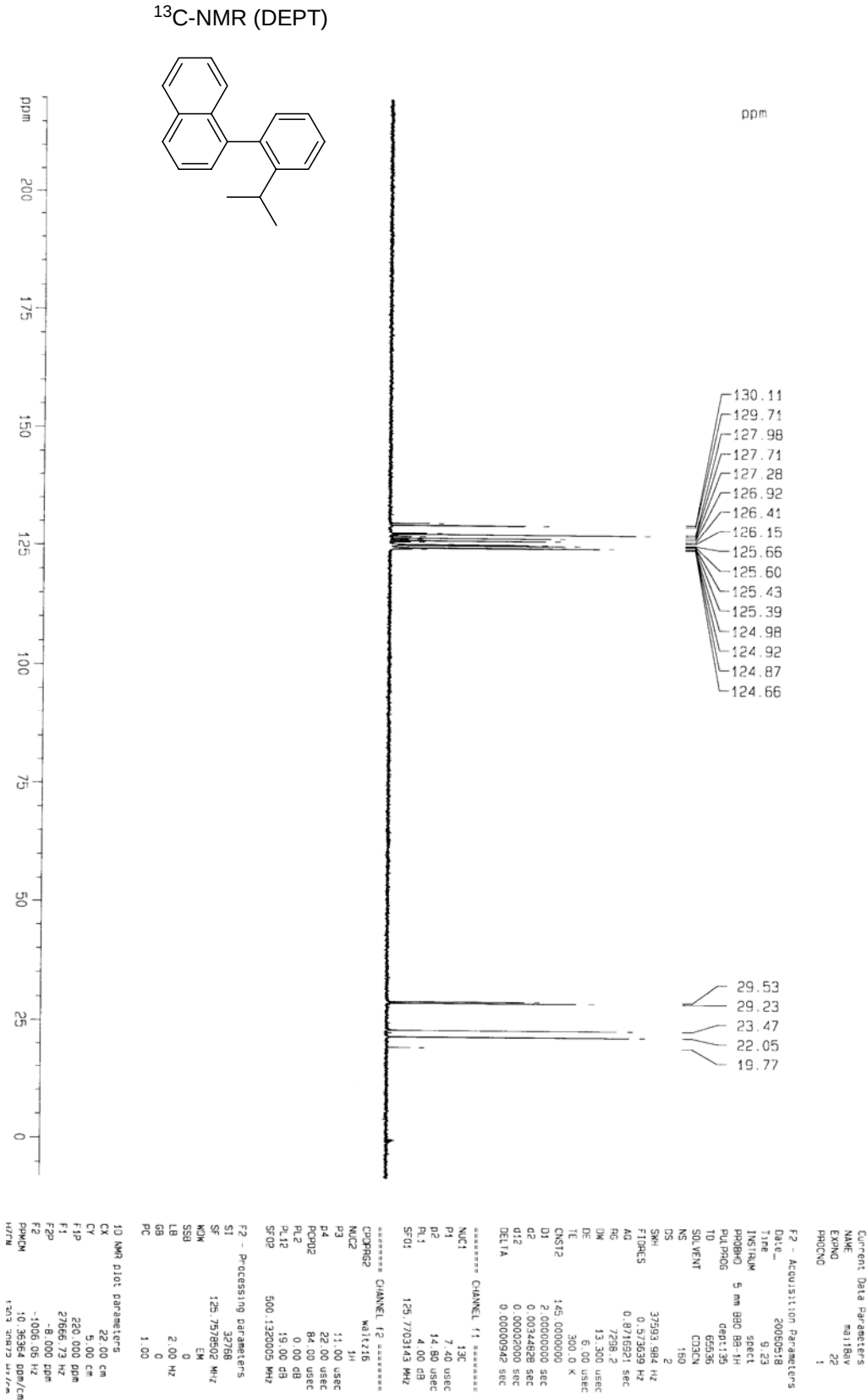
Fleckenstein CFP-4-148-C



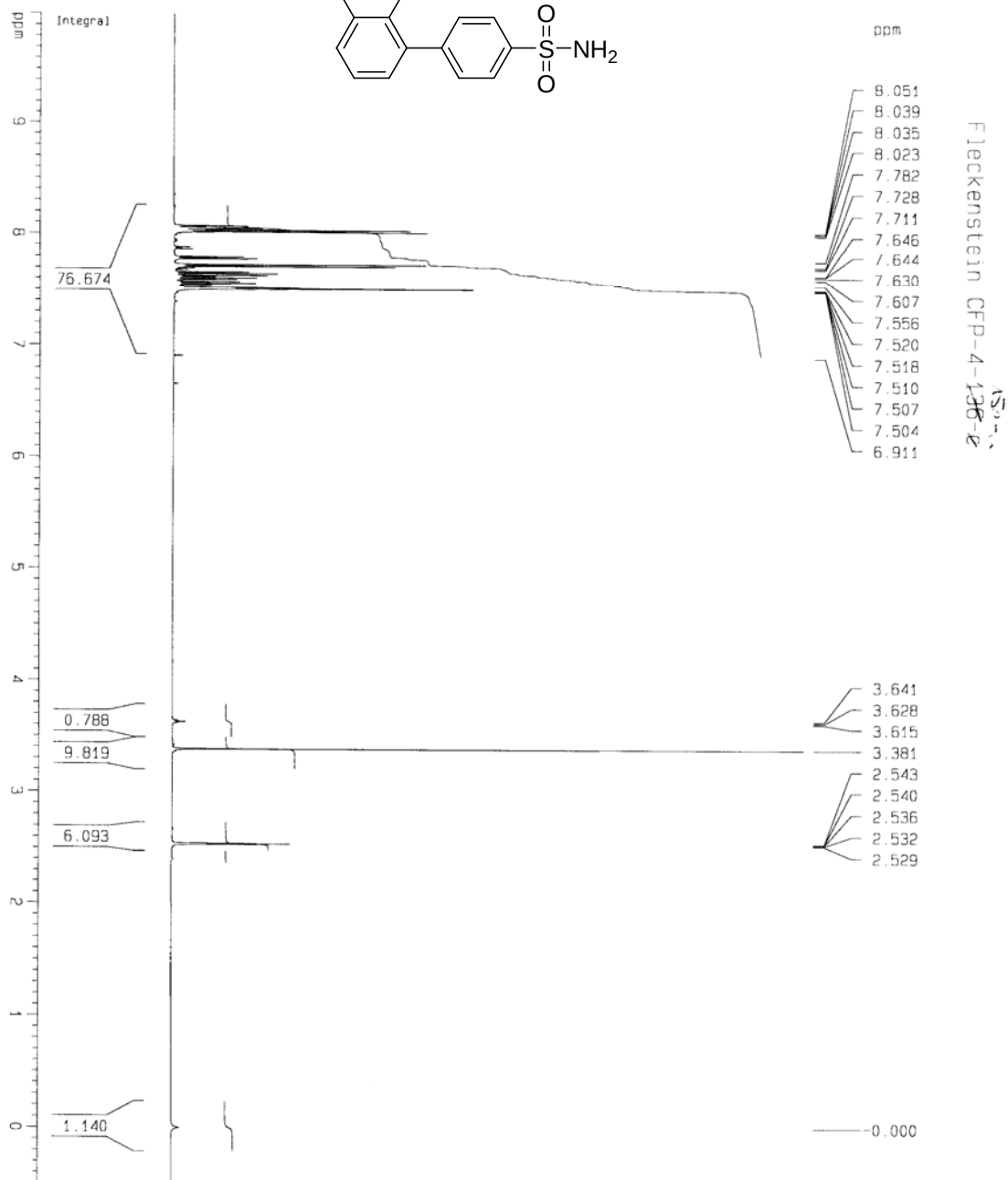
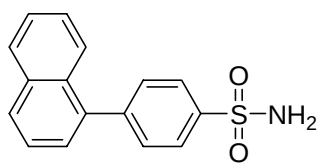
Fleckenstein CFP-4-148-C



Fleckenstein CFP-4-148-c



¹H-NMR



[Leckenstein CFP-4-128-2

Current Data Parameters
NAME maj18av
EXPNO 10
PROCNO 1

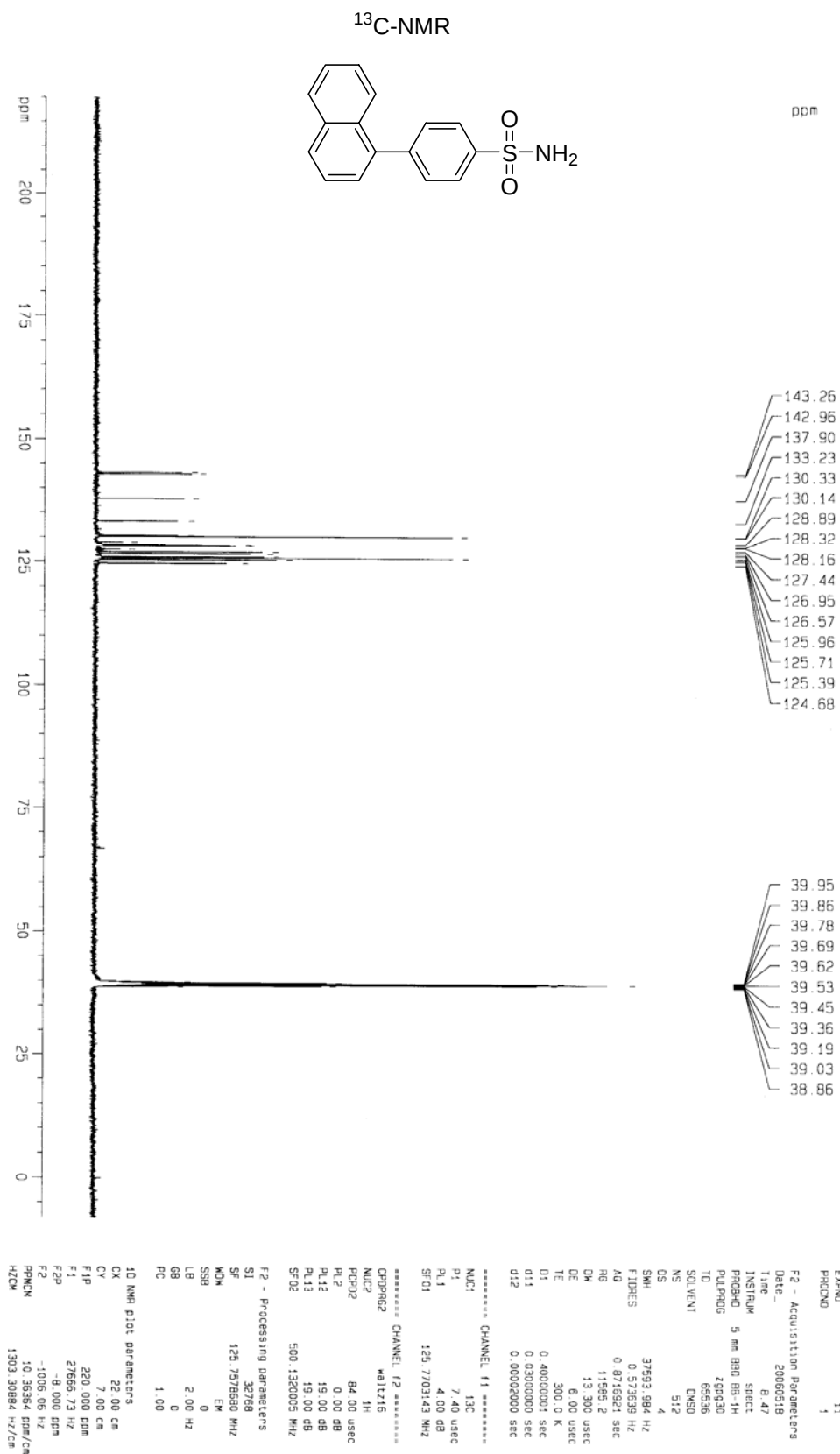
F2 - Acquisition Parameters
Date_ 20060518
Time 8.35
INSTRUM spect
PROBHD 5 mm BBO BB-1H
PULPROG zg30
TD 65536
SOLVENT DMSO
NS 24
DS 2
SWH 10330.578 Hz
FIDRES 0.157632 Hz
AQ 3.172007 sec
RG 101.6
DM 48.400 usec
DE 6.00 usec
TE 300.0 K
D1 0.50000000 sec

===== CHANNEL f1 =====
NUC1 1H
P1 11.10 usec
PL1 0.00 dB
SFO1 500.130085 MHz

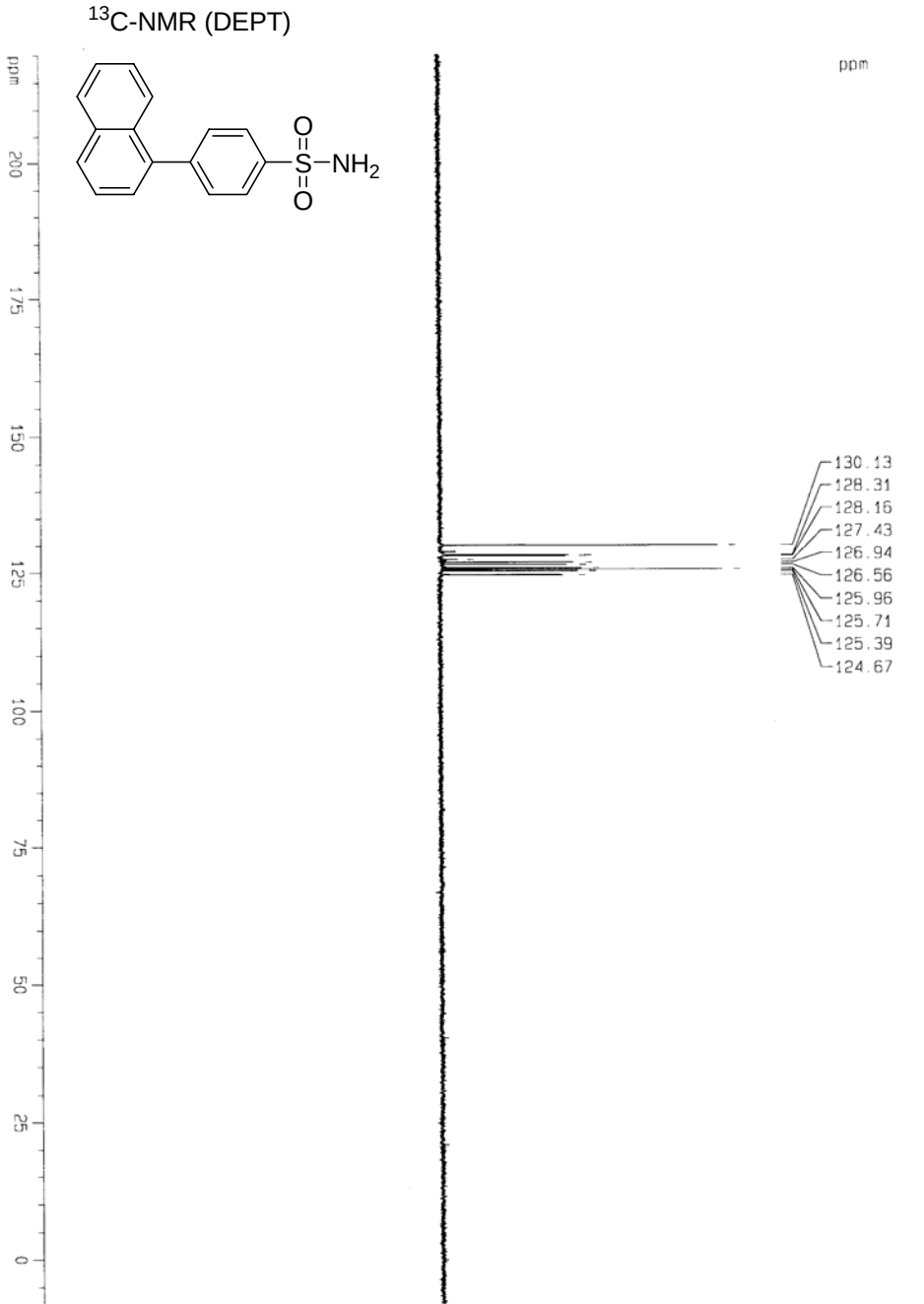
F2 - Processing parameters
SI 32768
SF 500.129895 MHz
WDW EM
SSB 0
LB 0.10 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 22.00 cm
CY 12.00 cm
F1P 10.000 ppm
F1 5001.30 Hz
F2P -0.500 ppm
F2 -250.06 Hz
PPMCM 0.47727 ppm/cm
HZCM 238.65838 Hz/cm

Fleckenstein CFP-4-136-c



F]eckenstein CFP-4-136-c



Current Data Parameters
NAME: maj18ay
EXPNO: 12
PROCNO: 1

F2 - Acquisition Parameters
Date_: 20060518
Time: 8.55
INSTRUM: spect
PROBHD: 5 mm BBO BB-1H
PULPROG: zgpg30
TD: 65536
SOLVENT: DMSO
NS: 160
DS: 2
SWH: 37993.884 Hz
FIDRES: 0.573639 Hz
AQ: 0.8716921 sec
RG: 10321.3
DM: 13.300 usec
DE: 6.00 usec
TE: 300.0 K
CNS12: 145.0000000
D1: 2.00000000 sec
d2: 0.00344828 sec
d12: 0.0002000 sec
DELTA: 0.0000542 sec

***** CHANNEL f1 *****
NUC1: ¹³C
P1: 7.40 usec
PL1: 14.80 usec
PC1: 4.00 dB
SFO1: 125.7703143 MHz

***** CHANNEL f2 *****
CPDPRG2: waltz16
NUC2: ¹H
P2: 11.00 usec
PL2: 22.00 usec
PC202: 84.00 usec
PL2: 0.00 dB
PC12: 19.00 dB
SFO2: 500.1320000 MHz

F2 - Processing parameters
SI: 32768
SF: 125.7578687 MHz
WDW: EM
SSB: 0
LB: 2.00 Hz
GB: 0
PC: 1.00

10 NMR plot parameters
CX: 22.00 cm
CY: 5.00 cm
F1P: 220.000 ppm
F1: 27666.73 Hz
F2P: -8.000 ppm
F2: -1056.06 Hz
PPMCM: 10.36364 ppm/cm
HZCM: 1303.30884 Hz/cm

