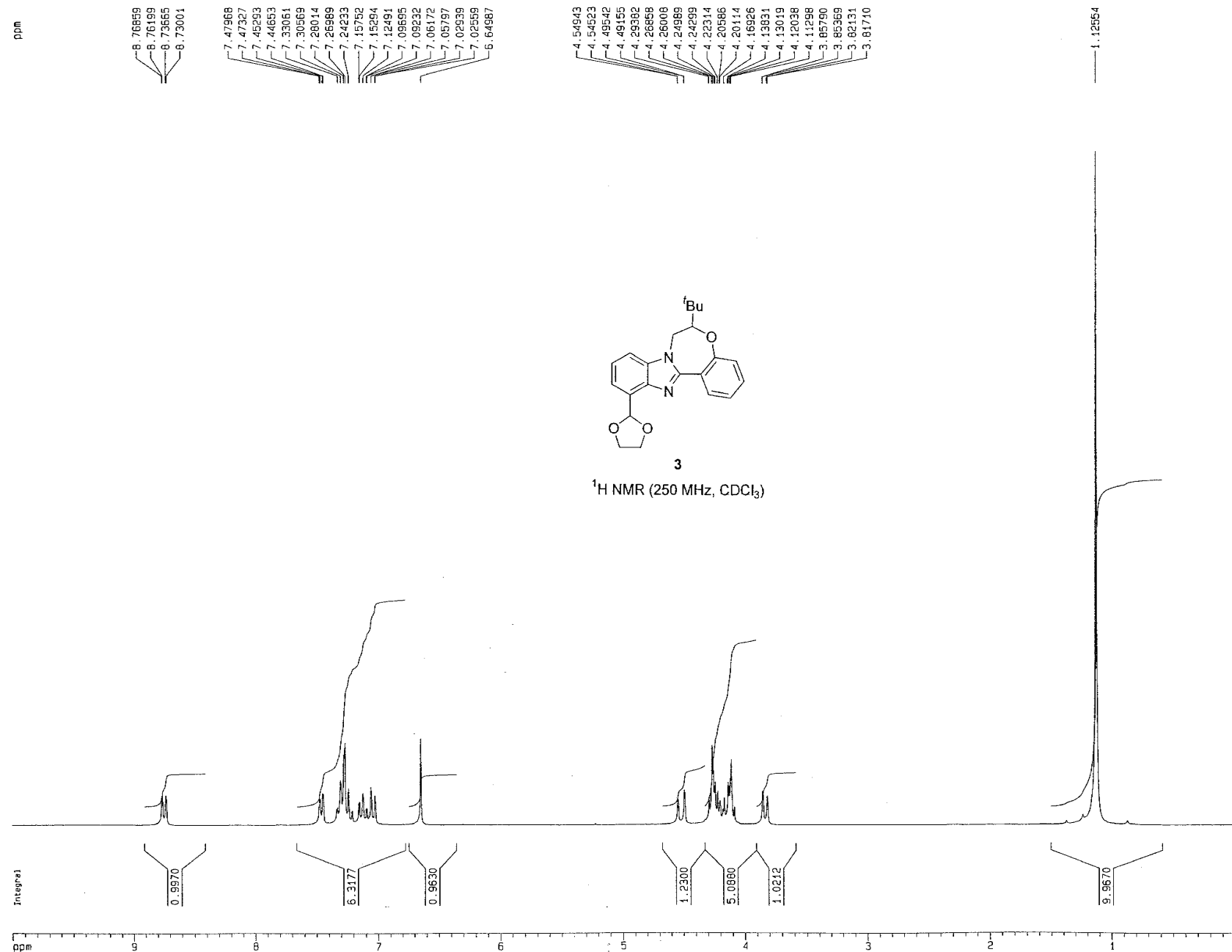




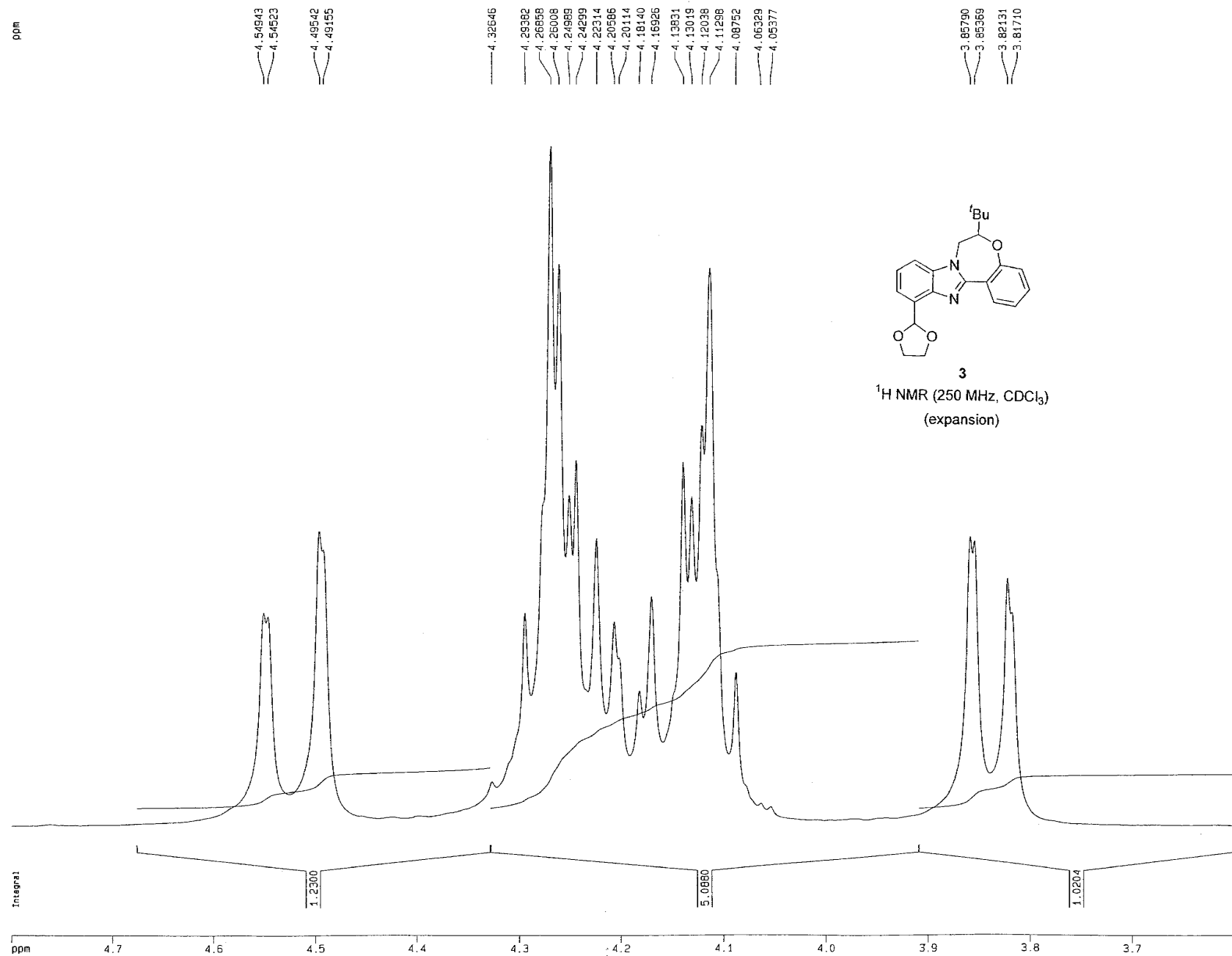
Current Data Parameters
 NAME Nov06-2002
 EXPNO 10
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20021106
 Time 18.36
 INSTRUM spect
 PROBHD 5 mm QNP 1H/
 PULPROG zg30
 TD 16384
 SOLVENT CDCl_3
 NS 16
 DS 2
 SWH 5175.883 Hz
 FIDRES 0.315917 Hz
 AQ 1.5827444 sec
 RG 90.5
 OW 96.600 usec
 DE 6.00 usec
 TE 300.0 K
 D1 1.00000000 sec

***** CHANNEL f1 *****
 NUC1 ^1H
 P1 7.20 usec
 PL1 -4.00 dB
 SF01 250.1315447 MHz

F2 - Processing parameters
 SI 32768
 SF 250.1300191 MHz
 MW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

1D NMR plot parameters
 CX 34.00 cm
 F1P 10.000 ppm
 F1 2501.30 Hz
 F2P 0.000 ppm
 F2 0.00 Hz
 PPMCK 0.29412 ppa/cm
 HZCM 73.56765 Hz/cm



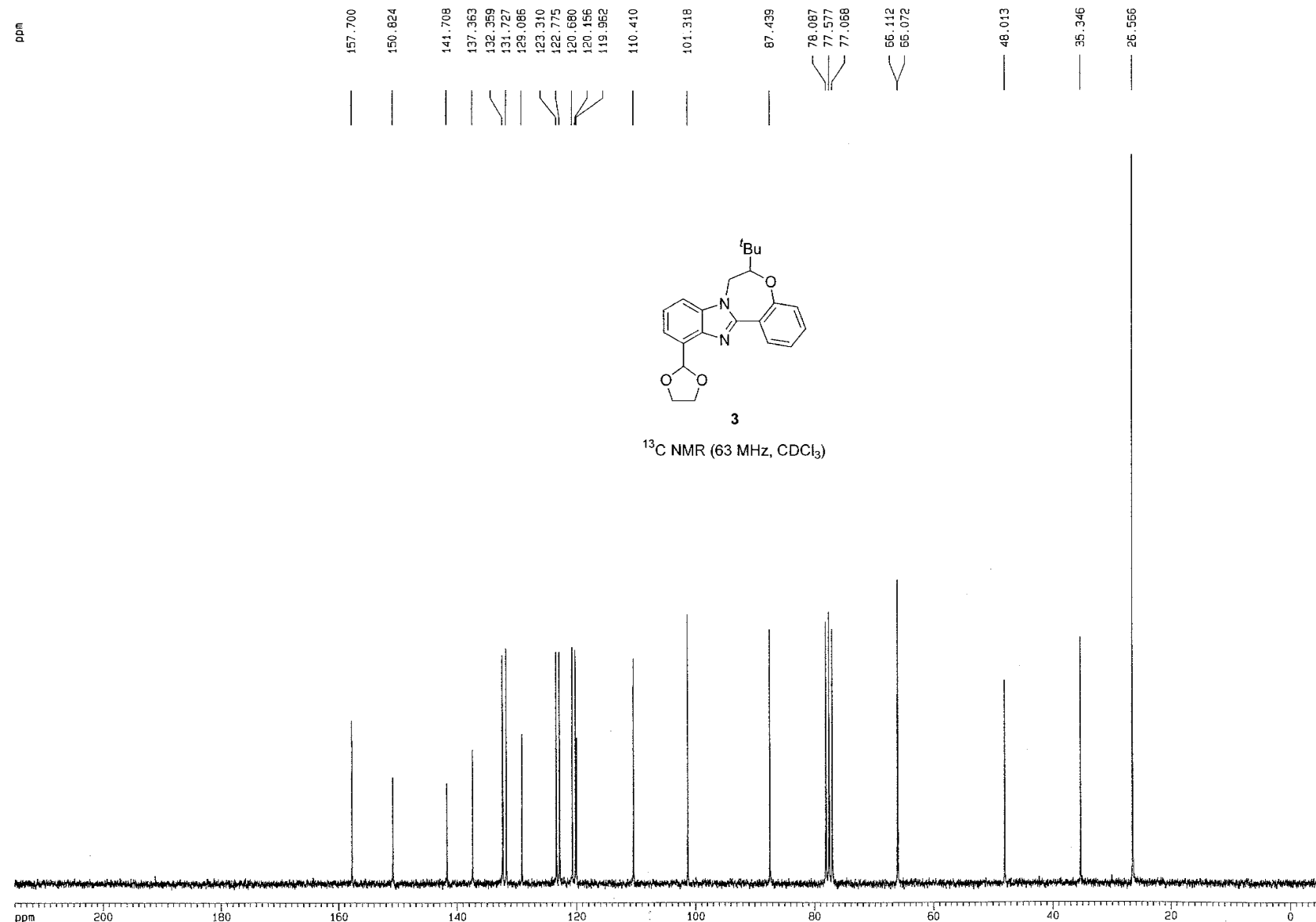
Current Data Parameters
NAME Nov06-2002
EXPNO 10
PROCNO 1

F2 - Acquisition Parameters
Date_ 20021105
Time 18.36
INSTRUM spect
PROBHD 5 mm QNP 1H/
PULPROG zg30
TD 16384
SOLVENT CDCl3
NS 16
DS 2
SWH 5175.983 Hz
FIDRES 0.315817 Hz
AQ 1.5827444 sec
RG 90.5
DW 96.600 usec
DE 6.00 usec
TE 300.0 K
D1 1.00000000 sec

===== CHANNEL f1 =====
NUC1 1H
P1 7.20 usec
PL1 -4.00 dB
SF01 250.1315447 MHz

F2 - Processing parameters
SI 32768
SF 250.1300191 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 34.00 cm
FIP 4.800 ppm
F1 1200.62 Hz
F2 3.500 ppm
F2 900.47 Hz
PQCM 0.03529 ppm/cm
HZCM 8.82812 Hz/cm



Current Data Parameters
NAME Nov06-2002
EXPNO 20
PROCNO 1

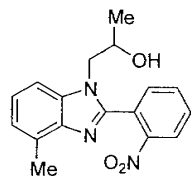
F2 - Acquisition Parameters
Date_ 20021106
Time 19.21
INSTRUM spect
PROBHD 5 mm QNP 1H/
PULPROG zgpg30
TD 65536
SOLVENT CDCl_3
NS 350
DS 2
SWH 15723.271 Hz
FIDRES 0.239918 Hz
AQ 2.0840948 sec
RG 13004
DM 31.800 usec
DE 30.00 usec
TE 300.0 K
D1 2.0000000 sec
d11 0.0300000 sec
d12 0.0002000 sec

===== CHANNEL f1 =====
NUC1 ^{13}C
P1 8.00 usec
PL1 0.00 dB
SF01 62.9021320 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 ^1H
PCPD2 80.00 usec
PL2 -4.00 dB
PL12 16.00 dB
PL13 17.00 dB
SF02 250.1310005 MHz

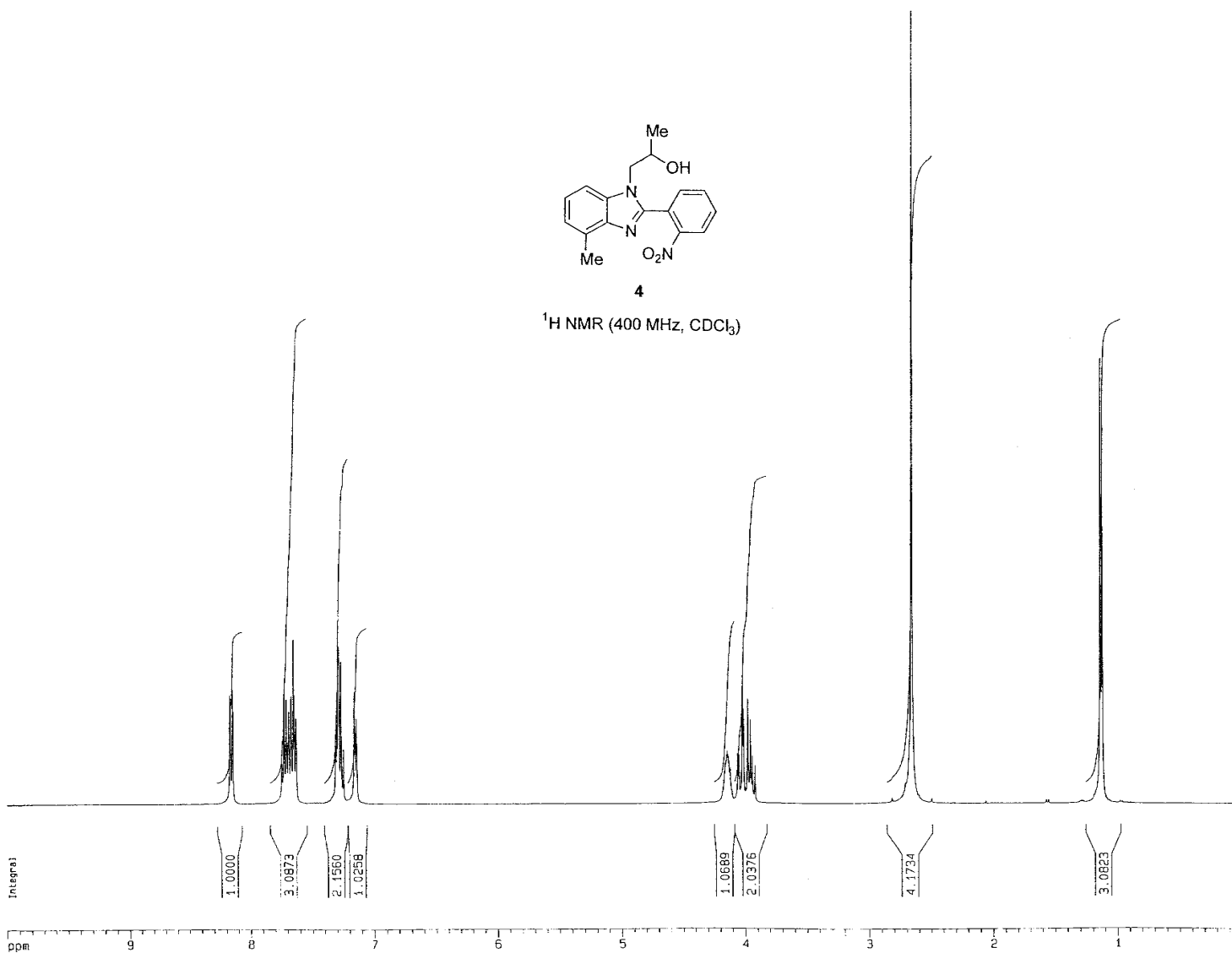
F2 - Processing parameters
SI 32768
SF 62.8952140 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

1D NMR plot parameters
CX 34.00 cm
F1P 215.000 ppm
F1 13522.47 Hz
F2P -5.000 ppm
F2 -314.48 Hz
PPHOM 6.47059 ppa/cm
HZCM 405.96902 Hz/cm



4

¹H NMR (400 MHz, CDCl₃)



Current Data Parameters
NAME Mar02-2003
EXPNO 10
PROCNO 1

F2 - Acquisition Parameters
Date_ 20030302
Time 17.55
INSTRUM spect
PROBHD 5 mm 8B0 BB-1
PULPROG zg30
TO 32768
SOLVENT CDCl3
NS 16
DS 2
SWH 8278.146 Hz
FIDRES 0.252629 Hz
AQ 1.9792372 sec
RG 90.5
DW 60.400 usec
DE 6.00 usec
TE 300.0 K
D1 1.00000000 sec

===== CHANNEL f1 =====
NUC1 1H
P1 7.50 usec
PL1 -6.00 dB
SF01 400.1324710 MHz

F2 - Processing parameters
SI 32768
SF 400.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 30.00 cm
F1P 10.000 ppm
F1 4001.30 Hz
F2P 0.000 ppm
F2 0.00 Hz
PPMCM 0.33333 ppm/cm
HZCM 133.37666 Hz/cm

Current Data Parameters

NAME Mar02-2003
EXPNO 10
PROCNO 1

F2 - Acquisition Parameters

Date_ 20030302
Time 17.55
INSTRUM spect
PROBHD 5 mm BBO BB-1
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 16
DS 2
SWH 8278.146 Hz
FIDRES 0.252629 Hz
AQ 1.9792372 sec
RG 90.5
DW 60.400 usec
DE 6.00 usec
TE 300.0 K
D1 1.00000000 sec

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

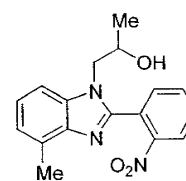
NUC1 1H
P1 7.50 usec
PL1 -6.00 dB
SF01 400.1324710 MHz

F2 - Processing parameters

SI 32768
SF 400.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

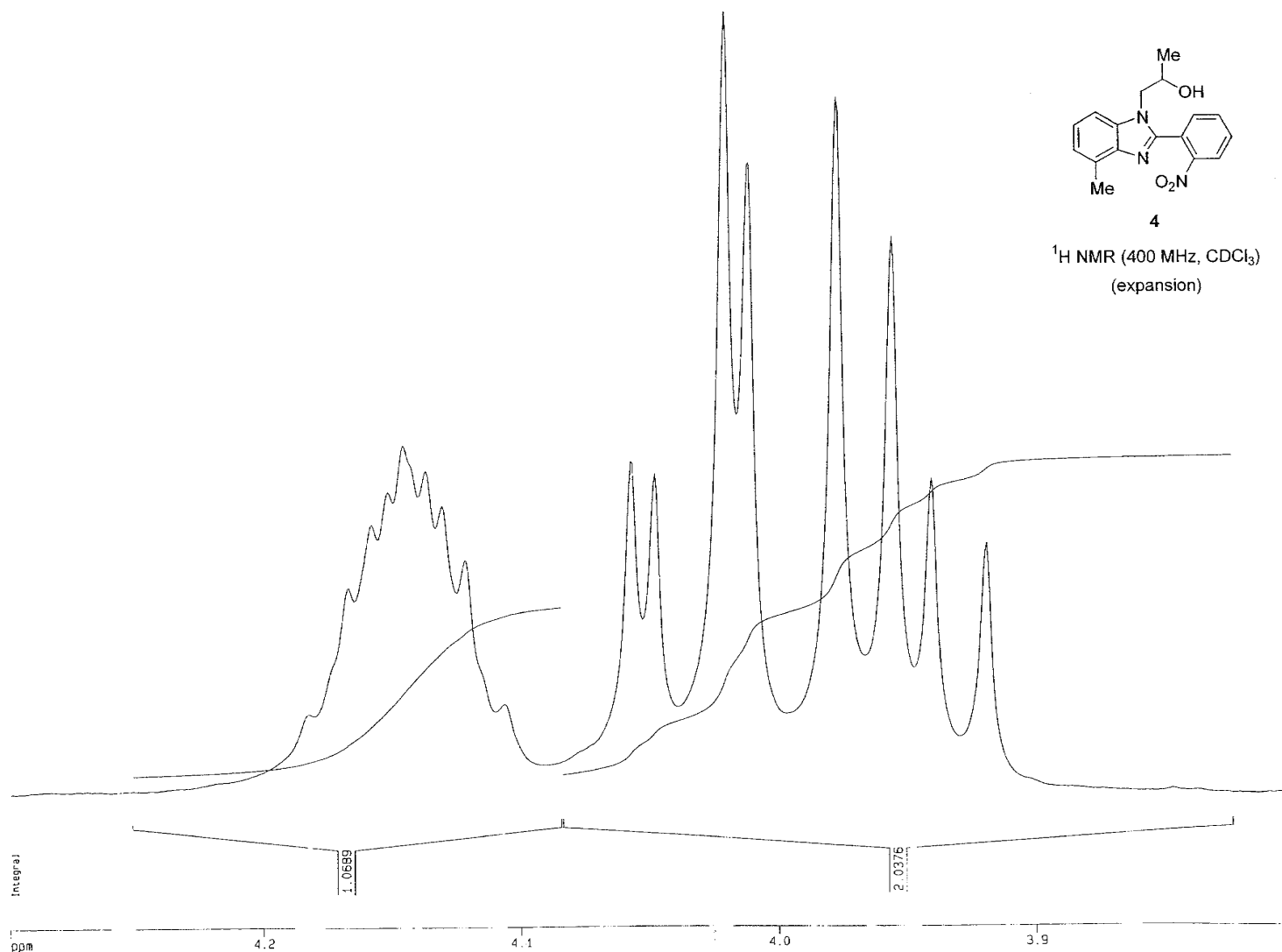
1D NMR plot parameters

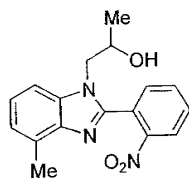
CX 30.00 cm
F1P 4.300 ppm
F1 1720.56 Hz
F2P 3.800 ppm
F2 1520.49 Hz
PPMCM 0.01667 ppm/cm
HZCM 6.66884 Hz/cm



4

¹H NMR (400 MHz, CDCl₃)
(expansion)





4

^1H NMR (400 MHz, CDCl_3)
(expansion)

Current Data Parameters

NAME Mar02-2003
EXPNO 10
PROCNO 1

F2 - Acquisition Parameters

Date_ 20030302
Time 17.55
INSTRUM spect
PROBHD 5 mm BBO BB-1
PULPROG zg30
TD 32768
SOLVENT CDCl_3
NS 16
DS 2
SWH 8278.146 Hz
FIDRES 0.252629 Hz
AQ 1.9792372 sec
RG 90.5
DW 60.400 usec
DE 6.00 usec
TE 300.0 K
D1 1.00000000 sec

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

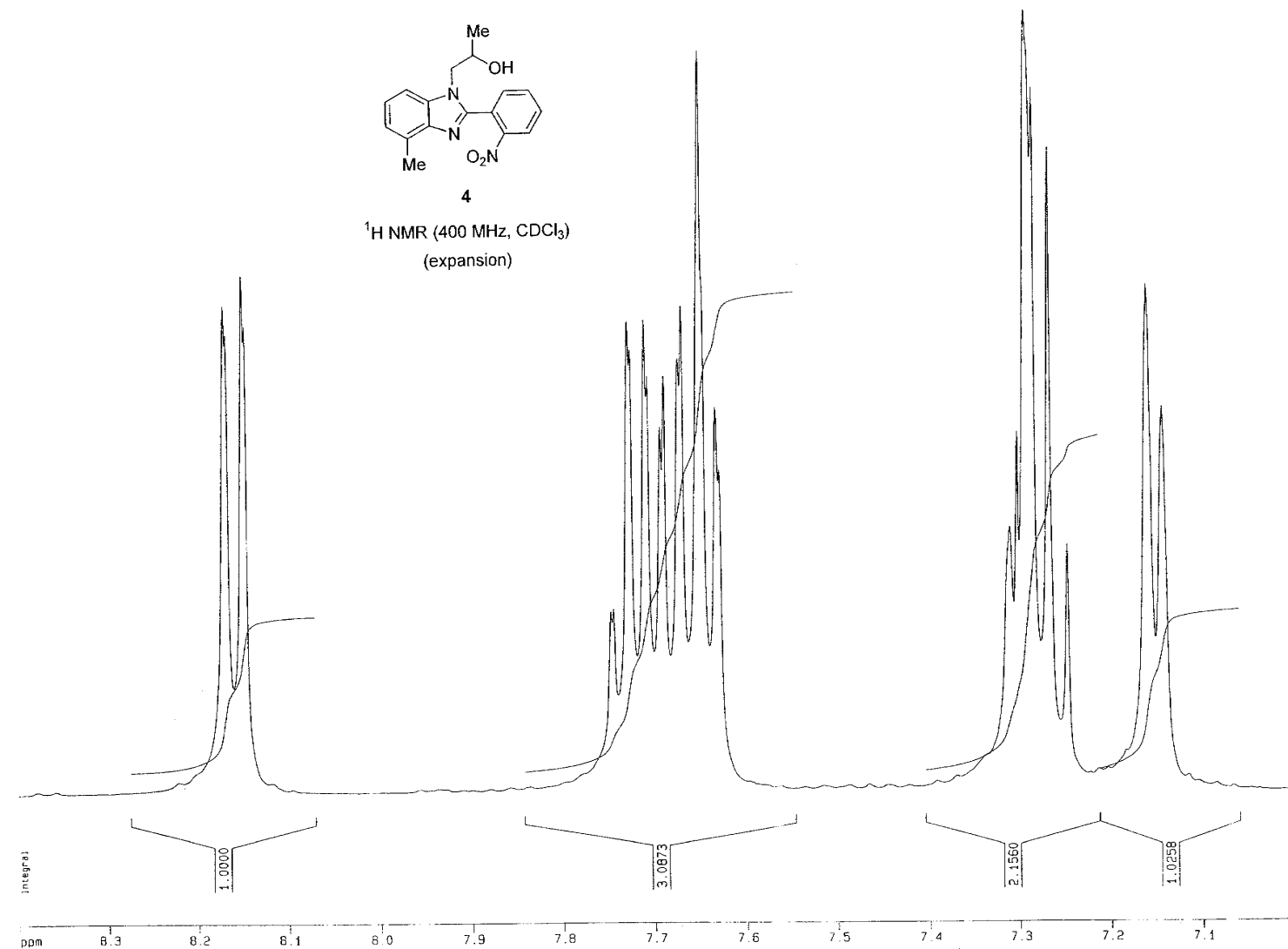
NUC1 ^1H
P1 7.50 usec
PL1 -6.00 dB
SF01 400.1324710 MHz

F2 - Processing parameters

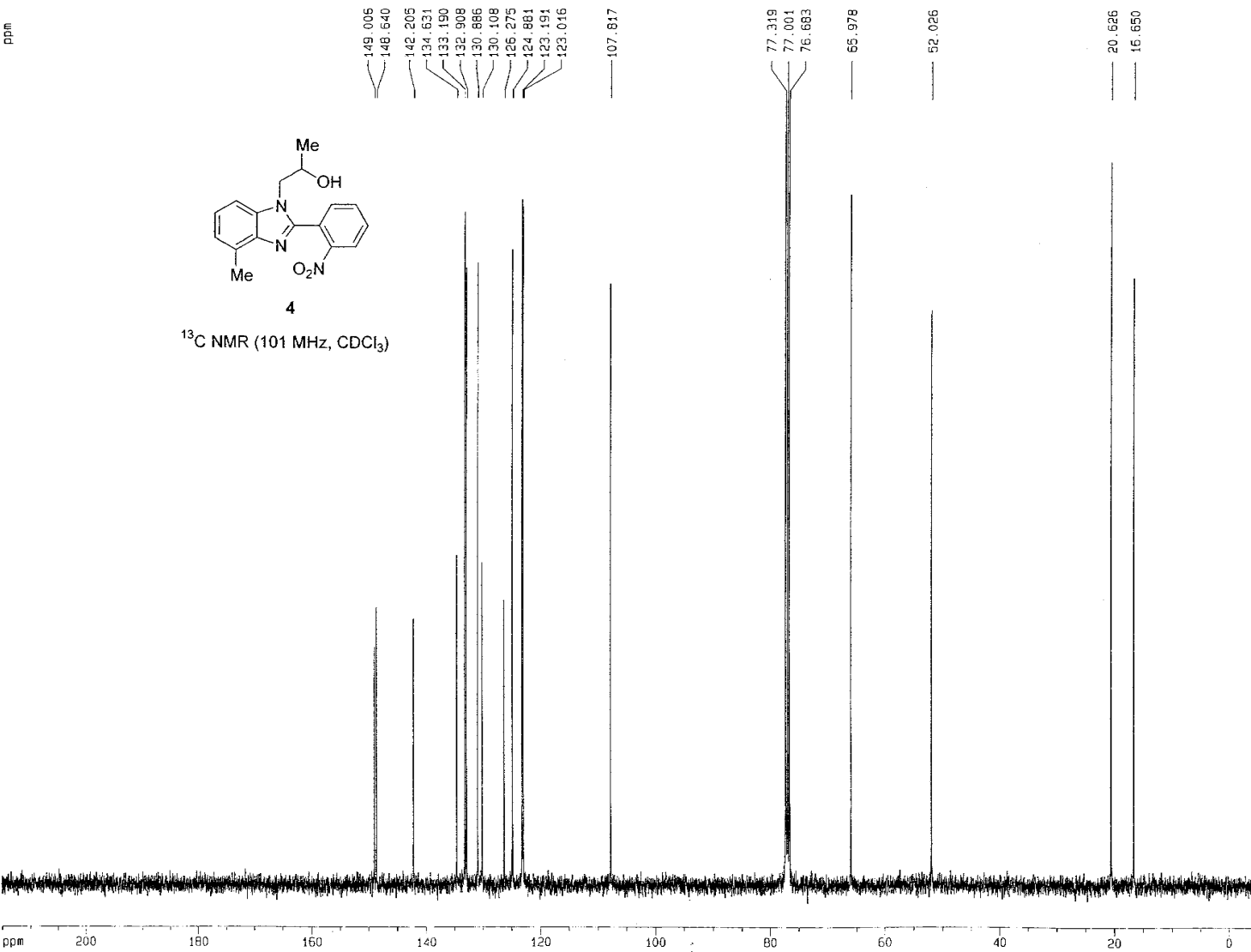
SI 32768
SF 400.1300000 MHz
WOW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters

CX 30.00 cm
F1P 8.400 ppm
F1 3361.09 Hz
F2P 7.000 ppm
F2 2800.91 Hz
PPMCM 0.04667 ppm/cm
HZCM 18.67273 Hz/cm



ppm



Current Data Parameters
NAME Mar02-2003
EXPNO 11
PROCNO 1

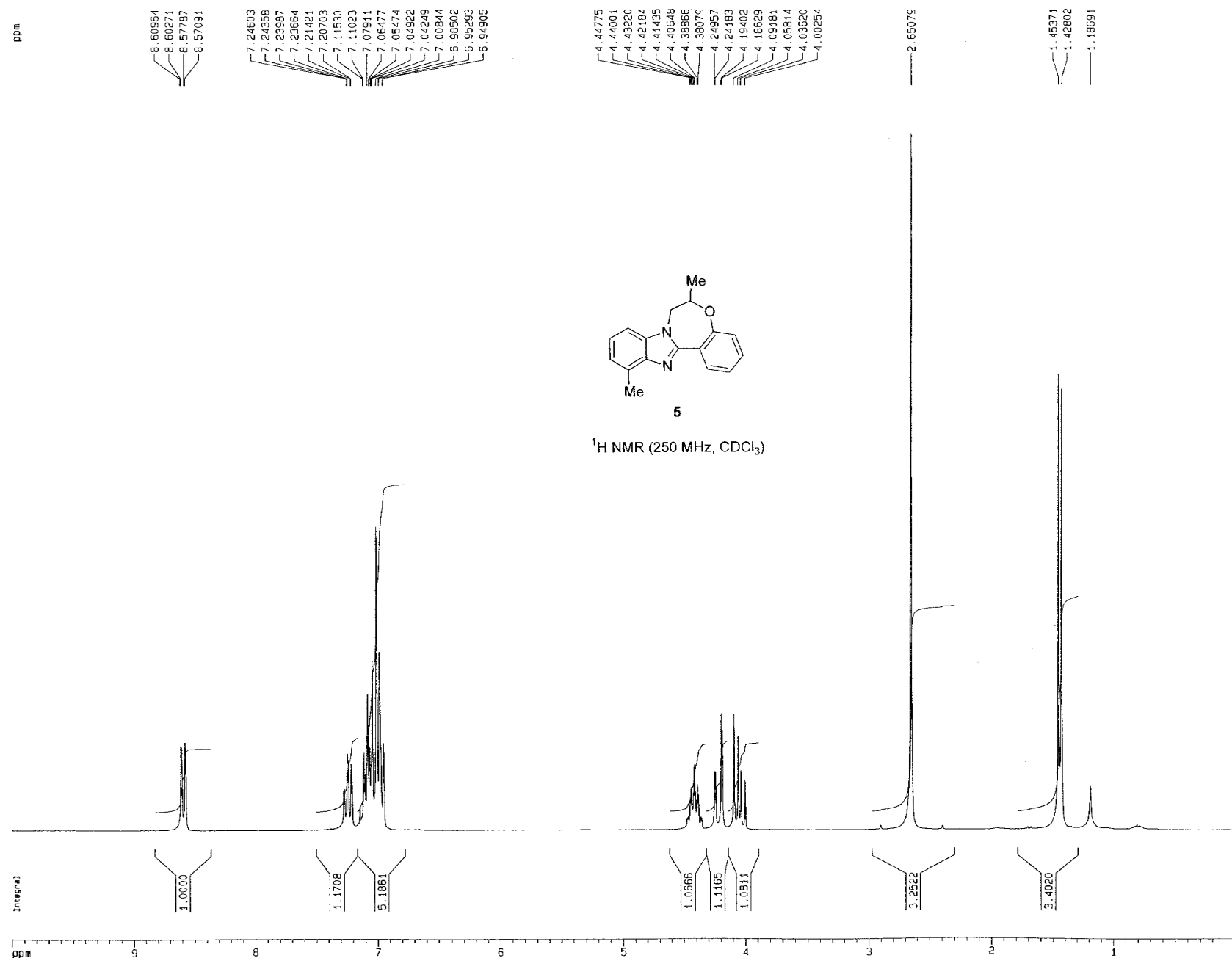
F2 - Acquisition Parameters
Date_ 20030302
Time 18.39
INSTRUM spect
PROBHD 5 mm BBO BB-1
PULPROG zgpg30
TO 65536
SOLVENT CDCl3
NS 700
DS 4
SWH 25125.629 Hz
FIDRES 0.383387 Hz
AQ 1.3042164 sec
RG 16384
DW 19.900 usec
DE 6.00 usec
TE 300.0 K
D1 2.00000000 sec
d11 0.03000000 sec
d12 0.00002000 sec

===== CHANNEL f1 =====
NUC1 13C
P1 5.90 usec
PL1 -6.00 dB
SFO1 100.6237959 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 -6.00 dB
PL12 15.80 dB
PL13 15.80 dB
SFO2 400.1316005 MHz

F2 - Processing parameters
SI 32768
SF 100.6127778 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

1D NMR plot parameters
CX 30.00 cm
F1P 215.000 ppm
F1 21631.75 Hz
F2P -5.000 ppm
F2 -503.06 Hz
PPMCM 7.33333 ppm/cm
HZCM 737.82703 Hz/cm



Current Data Parameters
NAME Jan13-2003
EXPNO 20
PROCNO 1

F2 - Acquisition Parameters
Date_ 20030113
Time 17.50
INSTRUM spect
PROBHD 5 mm QNP 1H/
PULPROG zg30
TD 16384
SOLVENT CDCl3
NS 16
DS 2
SWH 5175.983 Hz
FIDRES 0.315917 Hz
AQ 1.5827444 sec
RG 90.5
DW 95.600 usec
DE 6.00 usec
TE 300.0 K
D1 1.00000000 sec

===== CHANNEL f1 =====
NUC1 1H
P1 7.20 usec
PL1 -4.00 dB
SF01 250.1315447 MHz

F2 - Processing parameters
SI 32768
SF 250.1300366 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 34.00 cm
F1P 10.000 ppm
F1 2501.30 Hz
F2P 0.000 ppm
F2 0.00 Hz
PPMCM 0.29412 ppm/cm
HZCM 73.56766 Hz/cm

ppm

4.47329
4.46556
4.44775
4.44001
4.43220
4.42184
4.41435
4.40649
4.38866
4.38079
4.36299
4.35516

4.24957
4.24183

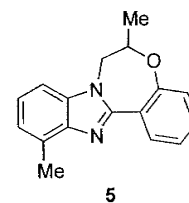
4.19402
4.18629

4.09181

4.05814

4.03620

4.00254



^1H NMR (250 MHz, CDCl_3)
(expansion)

Current Data Parameters
NAME Jan13-2003
EXPNO 20
PROCNO 1

F2 - Acquisition Parameters
Date_ 20030113
Time 17.50
INSTRUM spect
PROBHD 5 mm QNP 1H/
PULPROG zg30
TD 16384
SOLVENT CDCl_3
NS 16
DS 2
SWH 5175.983 Hz
FIDRES 0.315917 Hz
AQ 1.5827444 sec
RG 90.5
DW 95.600 usec
DE 6.00 usec
TE 300.0 K
D1 1.00000000 sec

===== CHANNEL f1 =====
NUC1 ^1H
P1 7.20 usec
PL1 -4.00 dB
SFO1 250.1315447 MHz

F2 - Processing parameters
SI 32768
SF 250.1300356 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

10 NMR plot parameters
CX 34.00 cm
F1P 4.600 ppm
F1 1150.60 Hz
F2P 3.800 ppm
F2 950.49 Hz
PPMCM 0.02353 ppm/cm
HZCM 5.88541 Hz/cm

Integral

1.0642

1.1165

1.0811

ppm

4.5

4.4

4.3

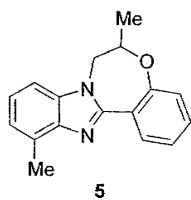
4.2

4.1

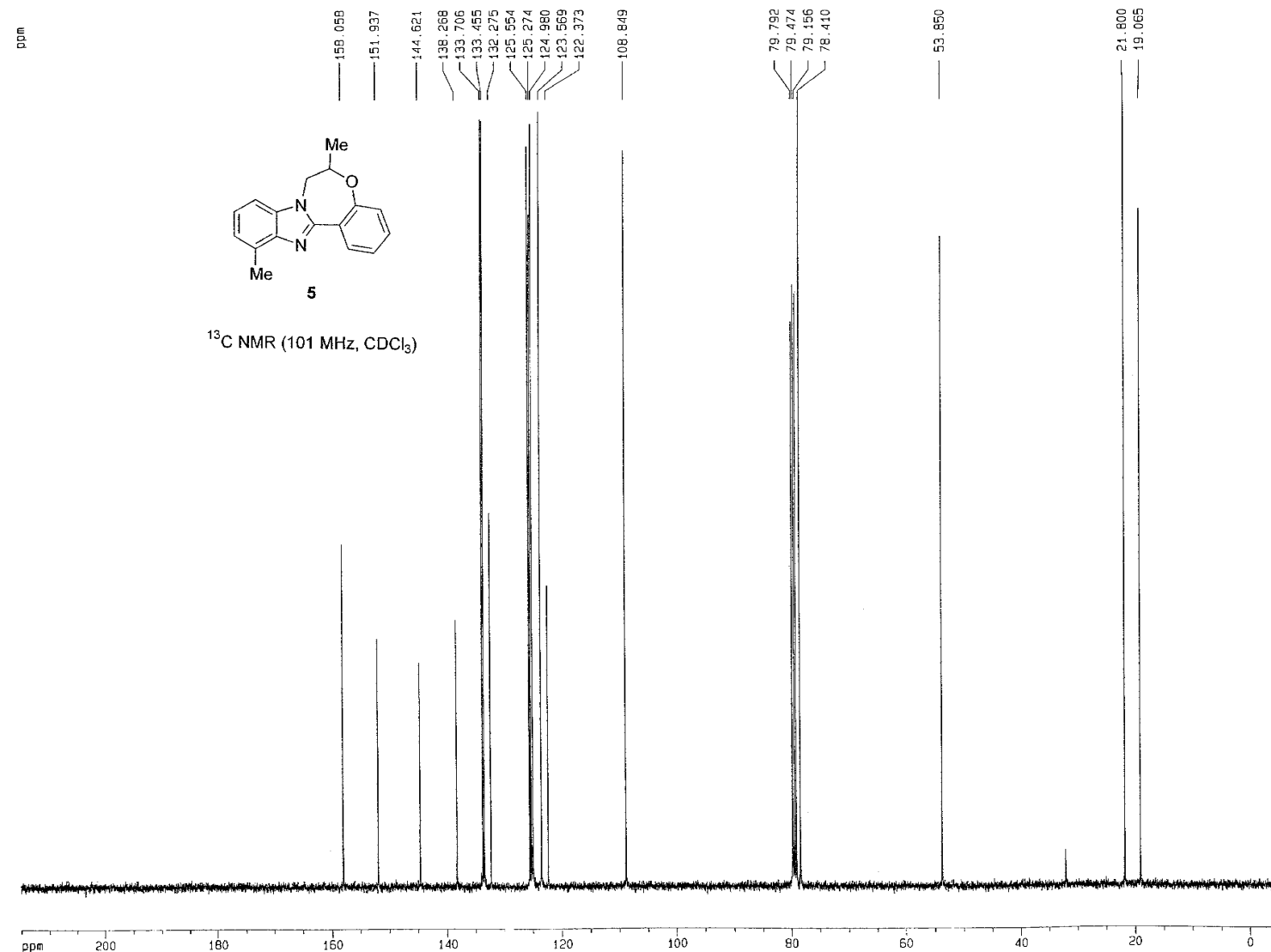
4.0

3.9

DCM



^{13}C NMR (101 MHz, CDCl_3)



Current Data Parameters
NAME Jan13-2003
EXPNO 21
PROCNO 1

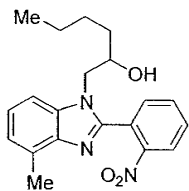
F2 - Acquisition Parameters
Date_ 20030113
Time 16.48
INSTRUM spect
PROBHD 5 mm BBO BB-1
PULPROG zgpg30
TD 65536
SOLVENT CDCl_3
NS 600
DS 2
SWH 25125.629 Hz
FIDRES 0.383387 Hz
AQ 1.3042164 sec
RG 4095
DW 19.900 usec
DE 6.00 usec
TE 300.0 K
D1 2.00000000 sec
d11 0.03000000 sec
d12 0.00002000 sec

===== CHANNEL f1 =====
NUC1 ^{13}C
P1 5.90 usec
PL1 -5.00 dB
SF01 100.6237959 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 ^1H
PCPD2 80.00 usec
PL2 -5.00 dB
PL12 15.80 dB
PL13 15.80 dB
SF02 400.1316005 MHz

F2 - Processing parameters
SI 32768
SF 100.6125342 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

1D NMR plot parameters
CX 30.00 cm
F1P 215.000 ppm
F1 21631.70 Hz
F2P -5.000 ppm
F2 -503.06 Hz
PPMCM 7.33333 ppm/cm
HZCM 737.82526 Hz/cm



6

^1H NMR (400 MHz, CDCl_3)

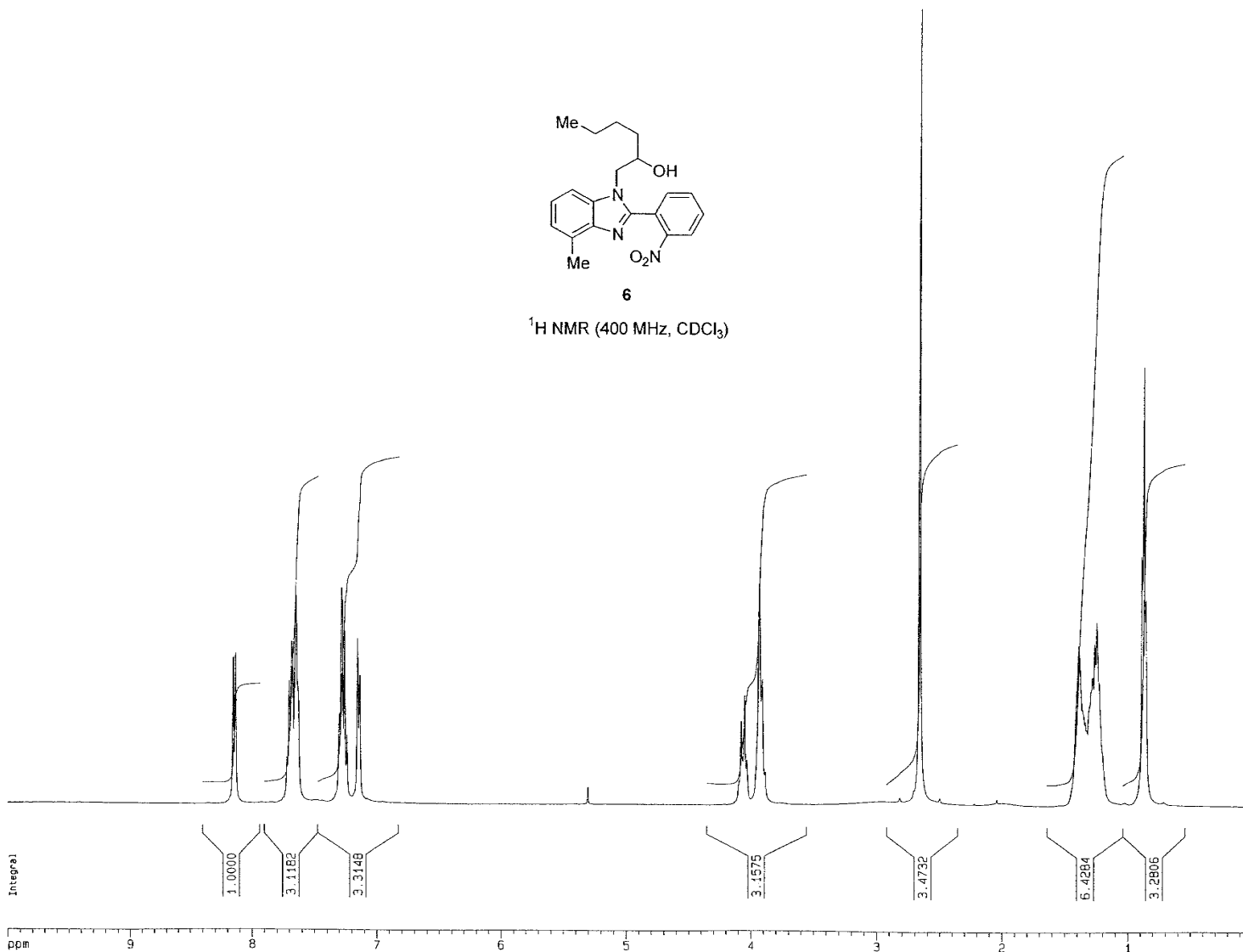
Current Data Parameters
NAME Jan13-2003
EXPNO 10
PROCNO 1

F2 - Acquisition Parameters
Date_ 20030113
Time 15.56
INSTRUM spect
PROBHD 5 mm BBO BB-1
PULPROG zg30
TD 32768
SOLVENT CDCl_3
NS 16
DS 2
SWH 8278.146 Hz
FIDRES 0.252629 Hz
AQ 1.9792372 sec
RG 40.3
DW 60.400 usec
DE 6.00 usec
TE 300.0 K
D1 1.00000000 sec

===== CHANNEL f1 =====
NUC1 ^1H
P1 7.50 usec
PL1 -6.00 dB
SF01 400.1324710 MHz

F2 - Processing parameters
SI 32768
SF 400.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 30.00 cm
F1P 10.000 ppm
F1 4001.30 Hz
F2P 0.000 ppm
F2 0.00 Hz
PPMCM 0.33333 ppm/cm
HZCM 133.37666 Hz/cm



Current Data Parameters

NAME Jan13-2003
EXPNO 10
PROCNO 1

F2 - Acquisition Parameters

Date_ 20030113
Time 15.56
INSTRUM spect
PROBHD 5 mm BBO BB-1
PULPROG zg30
TO 32768
SOLVENT CDCl3
NS 16
DS 2
SWH 8278.145 Hz
FIDRES 0.252629 Hz
AQ 1.9792372 sec
RG 40.3
DW 60.400 usec
DE 6.00 usec
TE 300.0 K
D1 1.00000000 sec

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

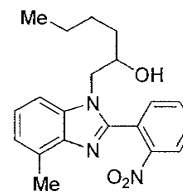
NUC1 1H
P1 7.50 usec
PL1 -6.00 dB
SF01 400.1324710 MHz

F2 - Processing parameters

SI 32768
SF 400.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

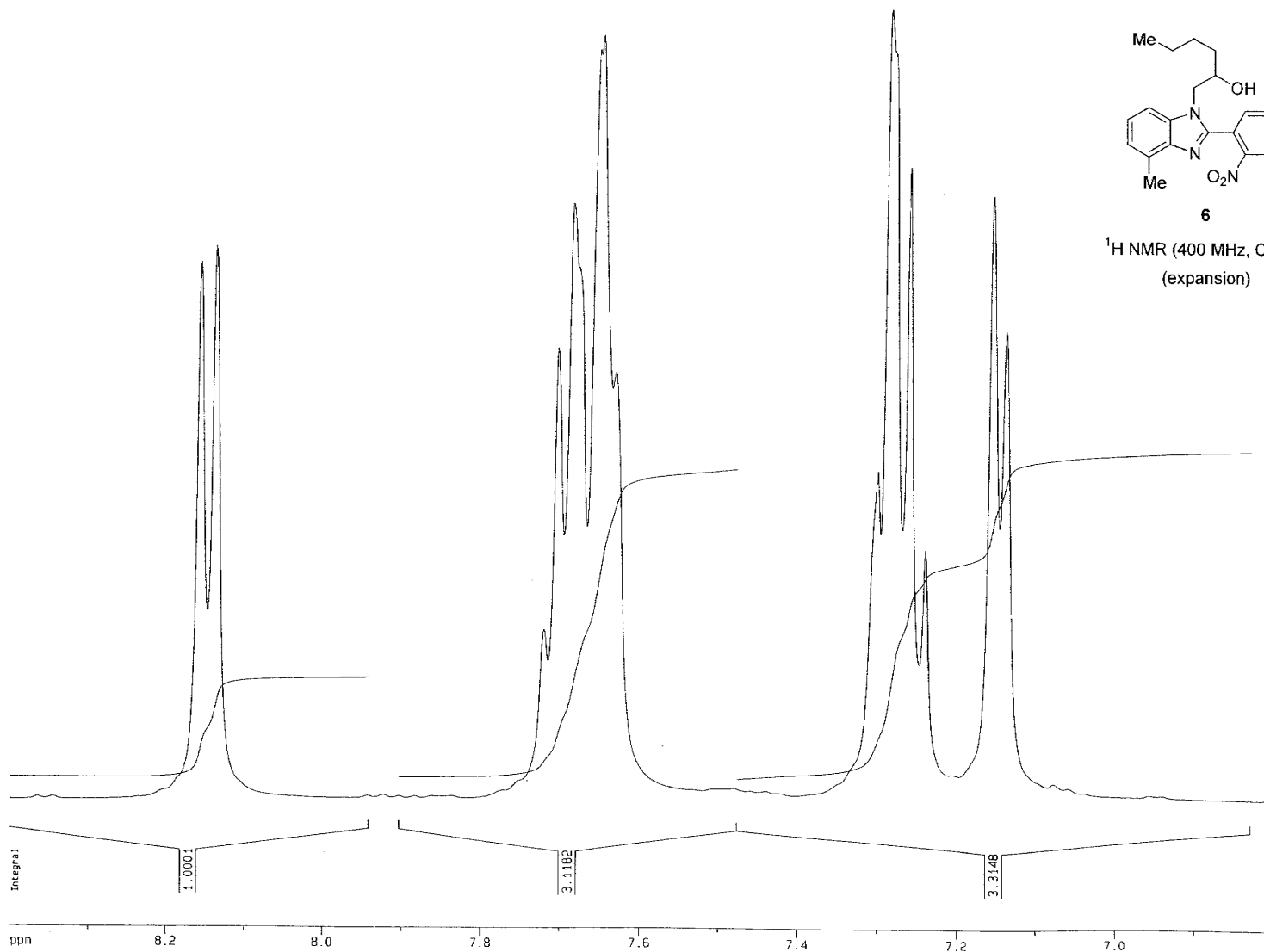
1D NMR plot parameters

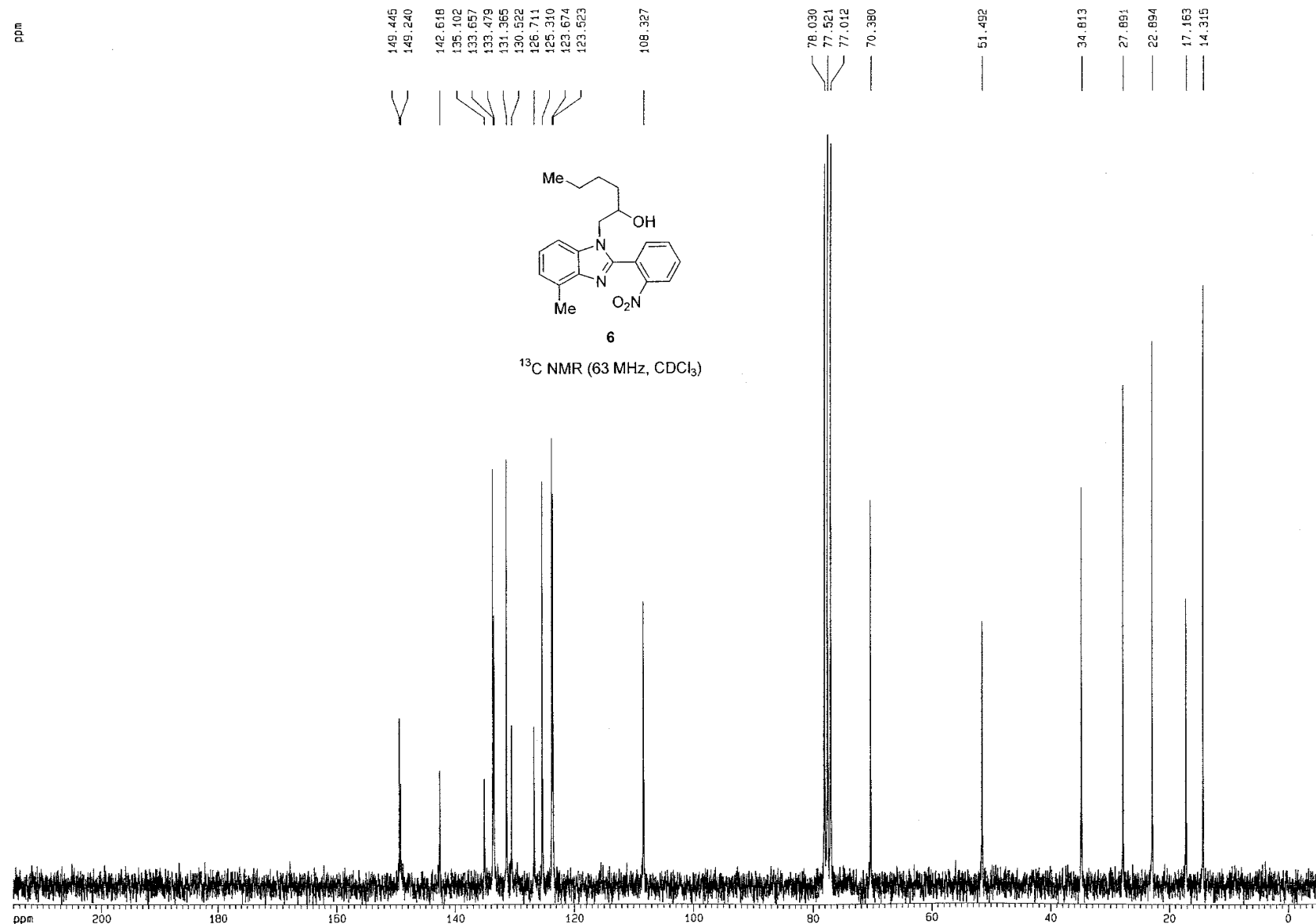
CX 30.00 cm
F1P 8.400 ppm
F1 3361.09 Hz
F2P 6.800 ppm
F2 2720.88 Hz
PPMCM 0.05333 ppm/cm
HZCM 21.34026 Hz/cm



6

¹H NMR (400 MHz, CDCl₃)
(expansion)





Current Data Parameters
NAME Jan13-2003
EXPNO 11
PROCNO 1

F2 - Acquisition Parameters
Date_ 20030113
Time 14.57
INSTRUM spect
PROBHD 5 mm QNP 1H/
PULPROG zgpg30
TD 65536
SOLVENT CDCl₃
NS 300
DS 2
SWH 15723.274 Hz
FIDRES 0.239918 Hz
AQ 2.0840948 sec
RG 16384
DW 31.600 usec
DE 30.00 usec
TE 300.0 K
D1 2.00000000 sec
d11 0.03000000 sec
d12 0.0002000 sec

***** CHANNEL f1 *****
NUC1 13C
P1 8.00 usec
PL1 0.00 dB
SFO1 62.9021320 MHz

***** CHANNEL f2 *****
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 -4.00 dB
PL12 16.00 dB
PL13 17.00 dB
SFO2 250.1310005 MHz

F2 - Processing parameters
SI 32768
SF 62.8952140 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

10 NMR plot parameters
CX 34.00 cm
F1P 215.000 ppm
F1 13522.47 Hz
F2P -5.000 ppm
F2 -314.48 Hz
PPMCM 6.47059 ppm/cm
HZCM 405.95902 Hz/cm

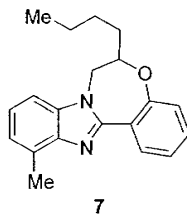
ppm

8.65326
8.64643
8.62148
8.61457

7.24838
7.24519
7.24156
7.11904
7.11386
7.09002
7.08688
7.08245
7.06490
7.05873
7.05337
7.03537
7.01145
6.99981
6.98412
6.96748
6.96298

4.20705
4.20104
4.18900
4.18225
4.15248
4.13581
4.12921
4.11916
4.07103
4.03428
4.01542
3.97897

2.67141
1.81304
1.79708
1.77559
1.74122
1.62273
1.60683
1.58485
1.57355
1.56574
1.54006
1.53008
1.52045
1.41739
1.39487
1.37680
1.34845
1.32038
1.29248
1.26625
0.90625
0.87838
0.84928



¹H NMR (250 MHz, CDCl₃)

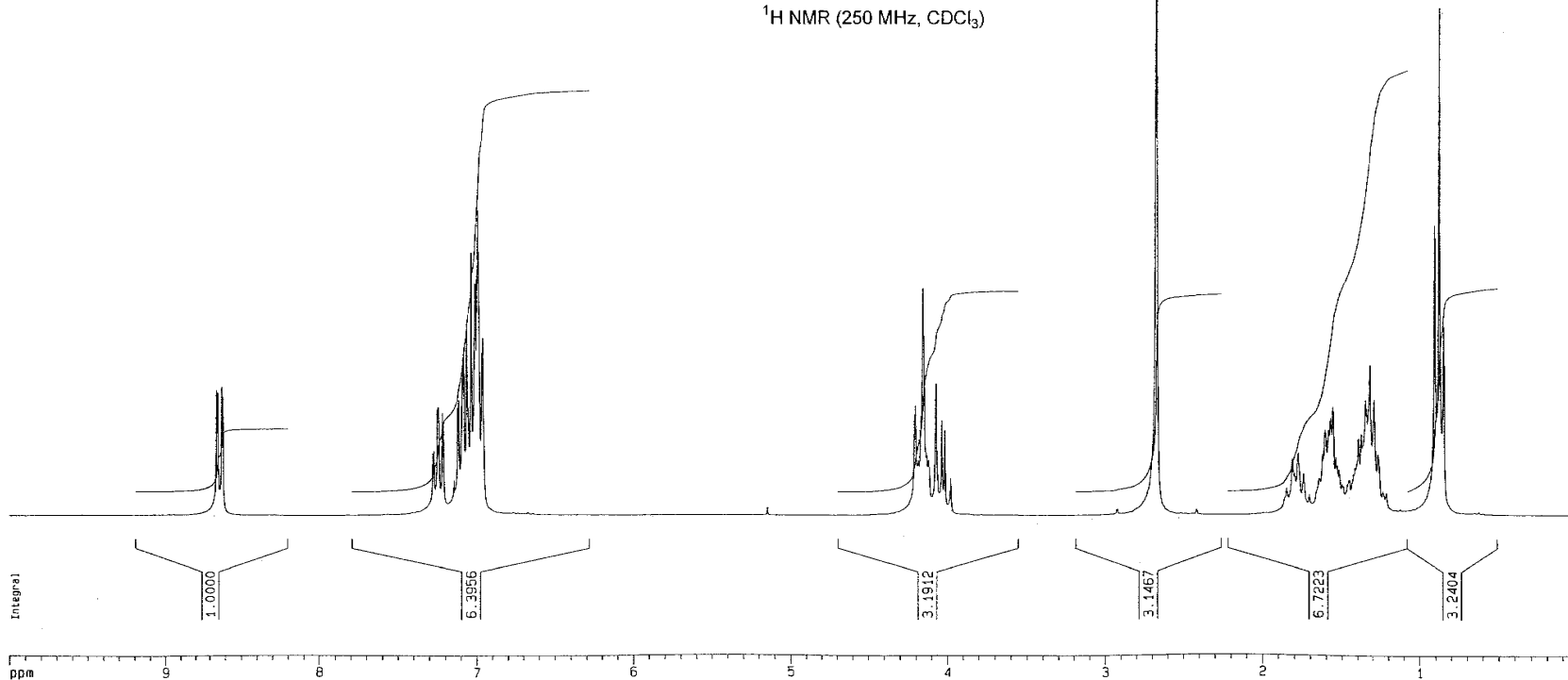
Current Data Parameters
NAME Jan19-2003
EXPNO 10
PROCNO 1

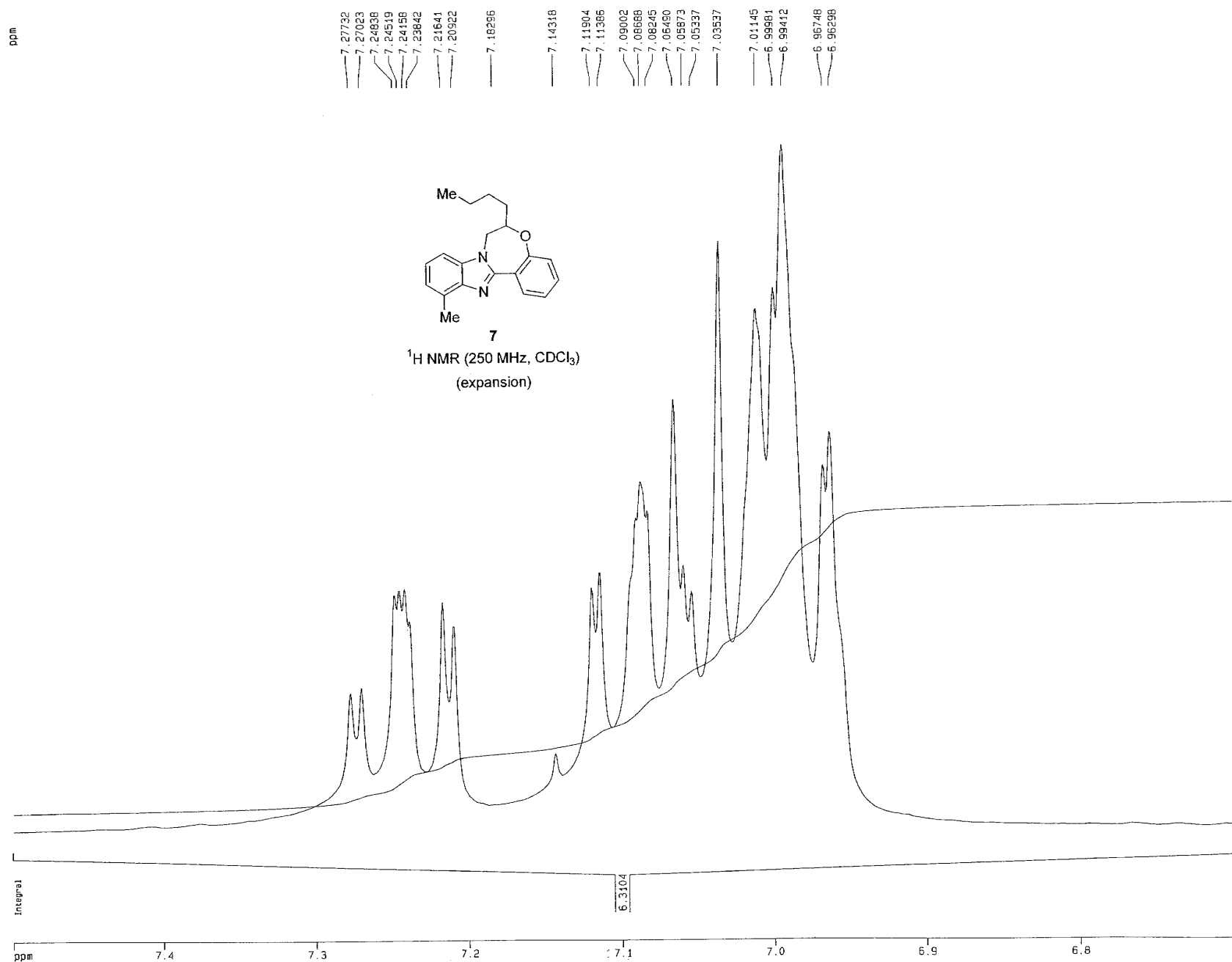
F2 - Acquisition Parameters
Date_ 20030119
Time 17.46
INSTRUM spect
PROBHD 5 mm QNP 1H/
PULPROG zg30
TD 16384
SOLVENT CDCl3
NS 16
DS 2
SWH 5175.983 Hz
FIDRES 0.315917 Hz
AQ 1.5827444 sec
RG 64
DM 96.600 usec
DE 6.00 usec
TE 300.0 K
D1 1.00000000 sec

***** CHANNEL f1 *****
NUC1 1H
P1 7.20 usec
PL1 -4.00 dB
SF01 250.1315447 MHz

F2 - Processing parameters
SI 32768
SF 250.1300366 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 34.00 cm
F1P 10.000 ppm
F1 2501.30 Hz
F2P 0.000 ppm
F2 0.00 Hz
PPMCH 0.29412 ppm/cm
HZCM 73.56766 Hz/cm





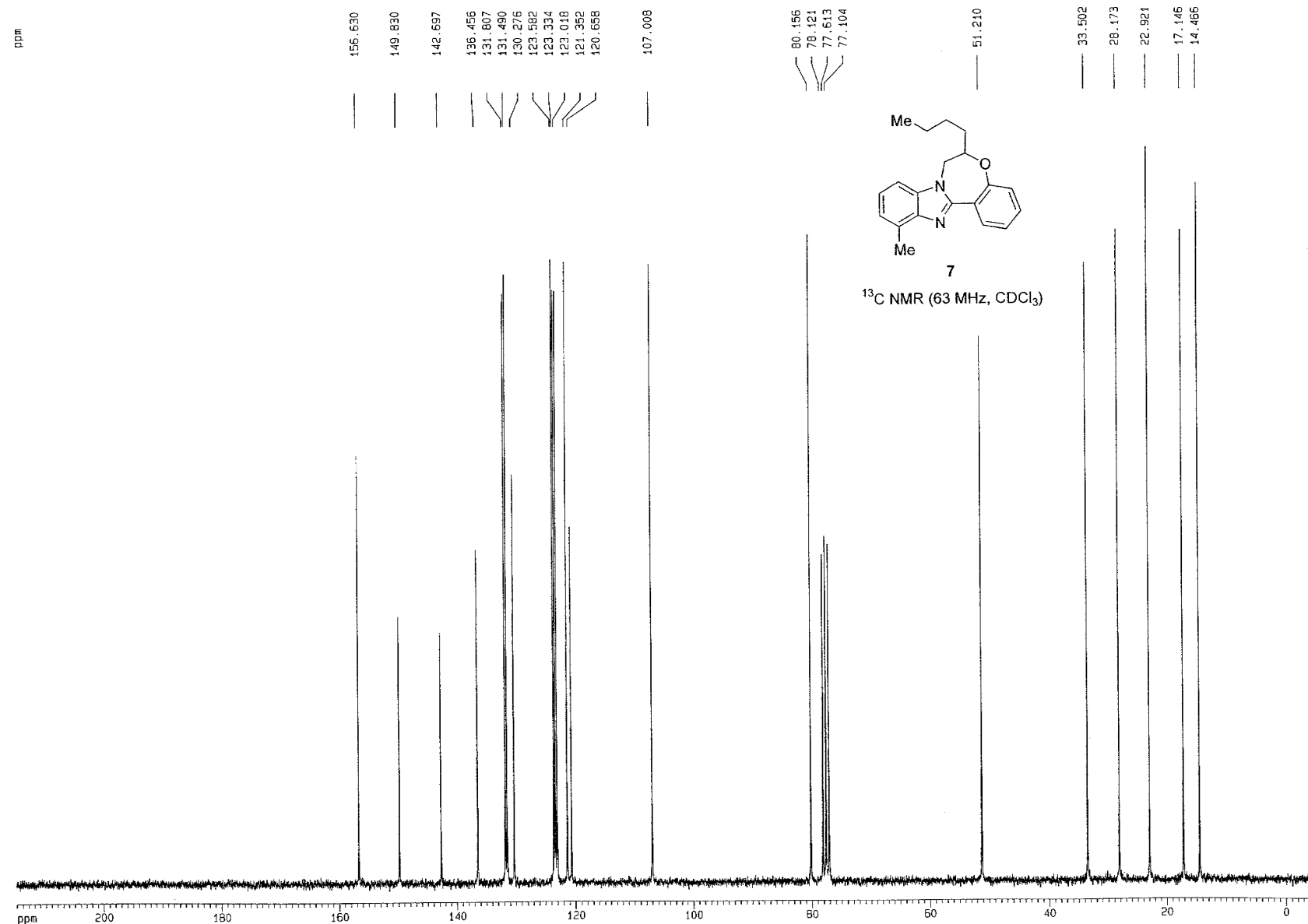
Current Data Parameters
NAME Jan19-2003
EXPNO 10
PROCNO 1

F2 - Acquisition Parameters
Date_ 20030119
Time 17.46
INSTRUM spect
PROBHD 5 mm GNP 1H/
PULPROG zg30
TD 16384
SOLVENT CDCl3
NS 16
DS 2
SWH 5175.883 Hz
FIDRES 0.315917 Hz
AQ 1.5827444 sec
RG 64
OH 96.600 usec
DE 6.00 usec
TE 300.0 K
D1 1.00000000 sec

***** CHANNEL f1 *****
NUC1 1H
P1 7.20 usec
PL1 -4.00 dB
SFO1 250.1315447 MHz

F2 - Processing parameters
SI 32768
SF 250.1300366 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 34.00 cm
F1P 7.500 ppm
F1 1875.98 Hz
F2P 6.700 ppm
F2 1675.87 Hz
PPMCM 0.02353 ppm/cm
HZCM 5.88541 Hz/cm



Current Data Parameters
NAME Jan19-2003
EXPNO 11
PROCNO 1

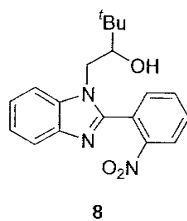
F2 - Acquisition Parameters
Date_ 20030119
Time 18.32
INSTRUM spect
PROBHD 5 mm QNP 1H/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 600
DS 2
SWH 15723.271 Hz
FIDRES 0.239918 Hz
AQ 2.0840948 sec
RG 14596.5
DH 31.800 usec
DE 30.00 usec
TE 300.0 K
O1 2.00000000 sec
d11 0.03000000 sec
d12 0.00002000 sec

===== CHANNEL f1 =====
NUC1 13C
P1 8.00 usec
PL1 0.00 dB
SF01 62.9021320 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 -4.00 dB
PL12 16.00 dB
PL13 17.00 dB
SF02 250.1310005 MHz

F2 - Processing parameters
SI 32768
SF 62.8952140 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

1D NMR plot parameters
CX 34.00 cm
F1P 215.000 ppm
F1 13522.47 Hz
F2P -5.000 ppm
F2 -314.48 Hz
PPMCM 6.47059 ppm/cm
HZCM 406.95902 Hz/cm



¹H NMR (400 MHz, CDCl₃)

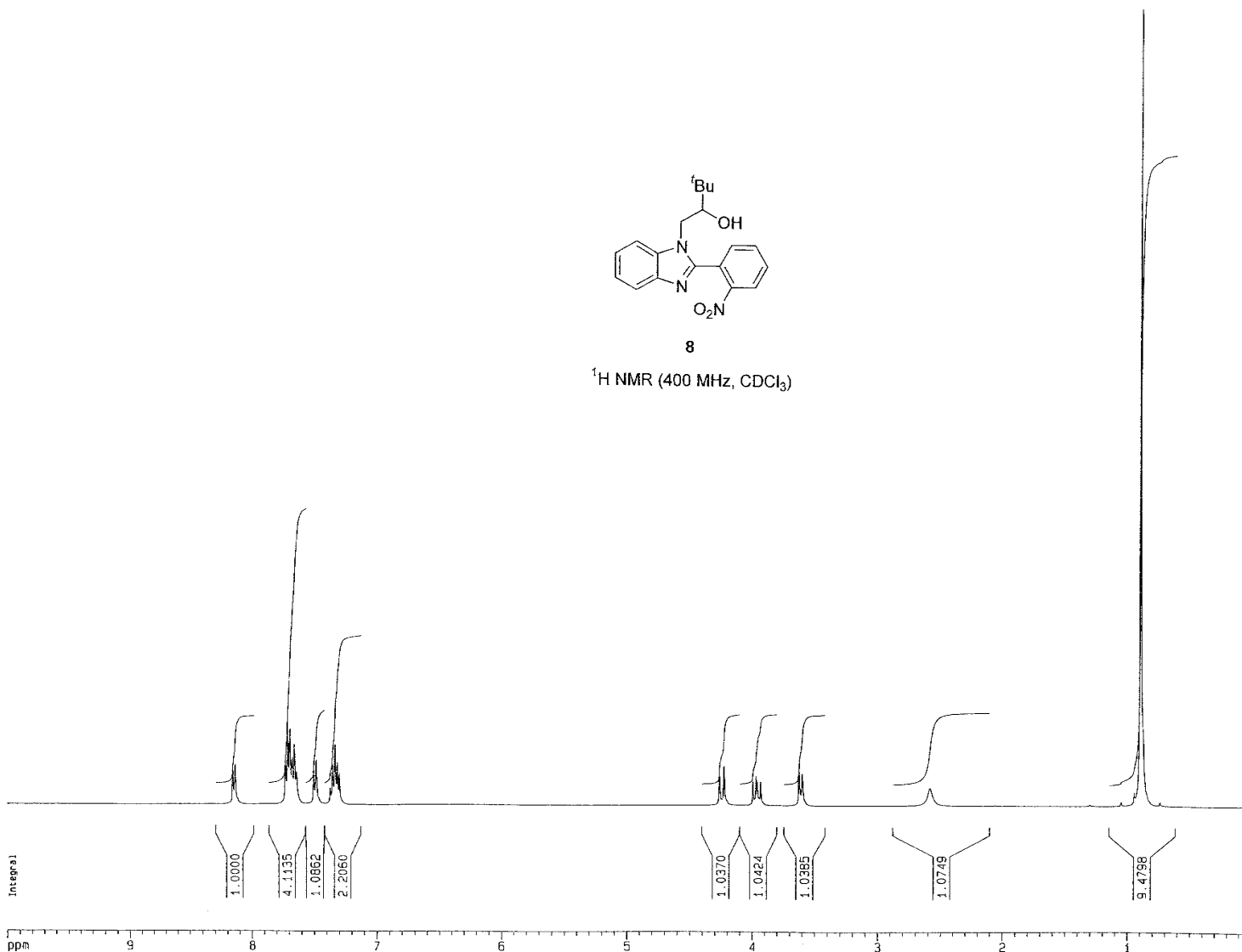
Current Data Parameters
 NAME Feb22-2003
 EXPNO 20
 PROCNO 1

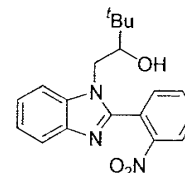
F2 - Acquisition Parameters
 Date_ 20030222
 Time 20.15
 INSTRUM spect
 PROBHD 5 mm BBO BB-1
 PULPROG zg30
 TD 32768
 SOLVENT CDCl₃
 NS 16
 DS 2
 SMH 8278.146 Hz
 FIDRES 0.252629 Hz
 AQ 1.9792372 sec
 RG 90.5
 DW 60.400 usec
 DE 6.00 usec
 TE 300.0 K
 D1 1.00000000 sec

===== CHANNEL f1 =====
 NUC1 1H
 P1 7.50 usec
 PL1 -6.00 dB
 SFO1 400.1324710 MHz

F2 - Processing parameters
 SI 32768
 SF 400.1300000 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

1D NMR plot parameters
 CX 30.00 cm
 F1P 10.000 ppm
 F1 4001.30 Hz
 F2P 0.000 ppm
 F2 0.00 Hz
 PPMCM 0.33333 ppm/cm
 HZCM 133.37666 Hz/cm





8
¹H NMR (400 MHz, CDCl₃)
 (expansion)

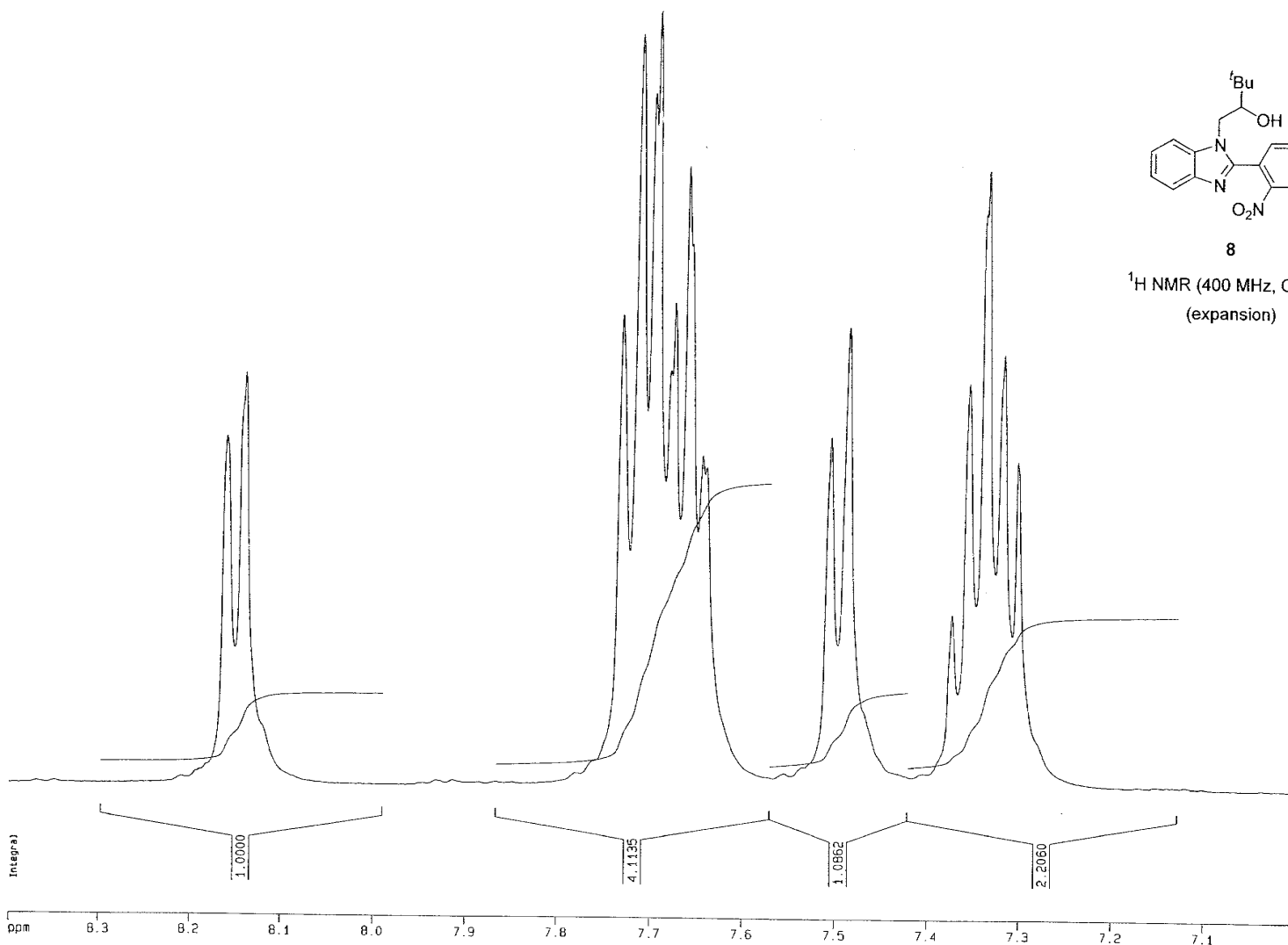
Current Data Parameters
 NAME Feb22-2003
 EXPNO 20
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20030222
 Time 20.15
 INSTRUM spect
 PROBHD 5 mm BB-1
 PULPROG zg30
 TD 32768
 SOLVENT CDCl3
 NS 16
 DS 2
 SWH 8278.146 Hz
 FIDRES 0.252629 Hz
 AQ 1.9792372 sec
 RG 90.5
 DW 60.400 usec
 DE 6.00 usec
 TE 300.0 K
 D1 1.00000000 sec

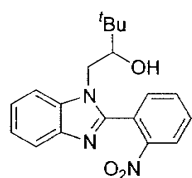
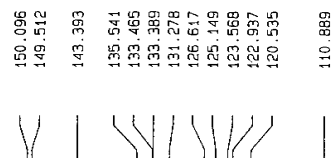
===== CHANNEL f1 =====
 NUC1 1H
 P1 7.50 usec
 PL1 -6.00 dB
 SF01 400.1324710 MHz

F2 - Processing parameters
 SI 32768
 SF 400.1300000 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

1D NMR plot parameters
 CX 30.00 cm
 F1P 8.400 ppm
 F1 3361.09 Hz
 F2P 7.000 ppm
 F2 2800.91 Hz
 PPMCM 0.04667 ppm/cm
 HZCM 18.67273 Hz/cm



ppm


 ^{13}C NMR (63 MHz, CDCl_3)

Current Data Parameters
NAME Feb22-2003
EXPNO 31
PROCNO 1

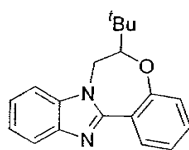
F2 - Acquisition Parameters
Date_ 20030222
Time 17.05
INSTRUM spect
PROBHD 5 mm QNP 1H/
PULPROG zgpg30
TD 65536
SOLVENT CDCl_3
NS 600
DS 4
SWH 15723.271 Hz
FIDRES 0.239918 Hz
AQ 2.0840948 sec
RG 16384
DM 31.800 usec
DE 30.00 usec
TE 300.0 K
D1 2.00000000 sec
d11 0.03000000 sec
d12 0.00002000 sec

===== CHANNEL f1 =====
NUC1 ^{13}C
P1 8.00 usec
PL1 0.00 dB
SF01 62.9021320 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 ^1H
PCPD2 90.00 usec
PL2 -4.00 dB
PL12 16.00 dB
PL13 17.00 dB
SF02 250.1310005 MHz

F2 - Processing parameters
SI 32768
SF 62.8952140 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

1D NMR plot parameters
CX 34.00 cm
F1P 215.000 ppm
F1 13522.47 Hz
F2P -5.000 ppm
F2 -314.48 Hz
PPHMC 5.47059 ppm/cm
HZCM 405.96902 Hz/cm



9

¹H NMR (400 MHz, CDCl₃)

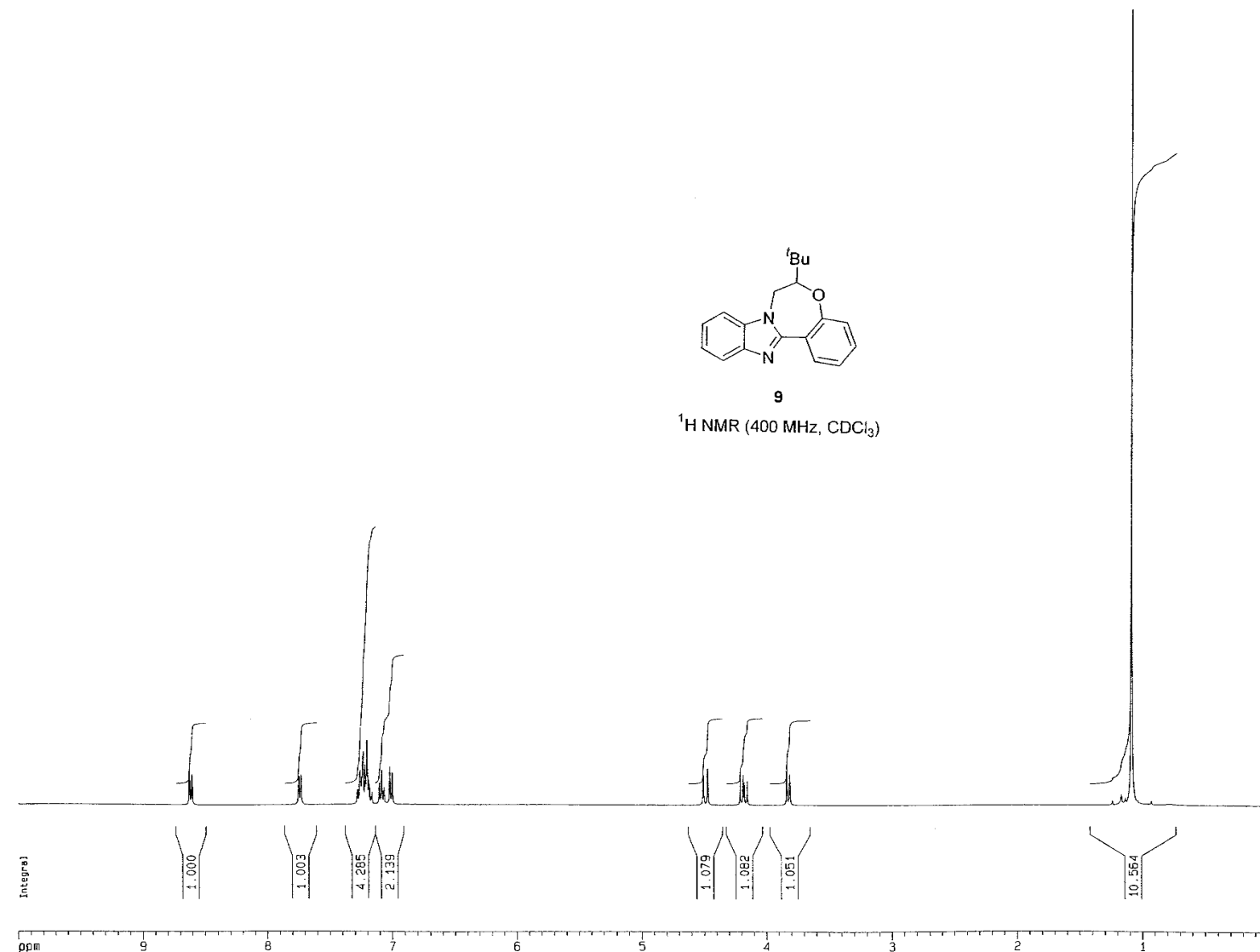
Current Data Parameters
NAME Nov06-2002
EXPNO 10
PROCNO 1

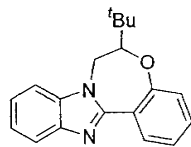
F2 - Acquisition Parameters
Date_ 20021106
Time 17.53
INSTRUM spect
PROBHD 5 mm BBO BB-1
PULPROG zg30
TO 32768
SOLVENT CDCl3
NS 16
DS 2
SWH 8278.146 Hz
FIDRES 0.252629 Hz
AQ 1.9792372 sec
RG 90.5
DW 60.400 usec
DE 6.00 usec
TE 300.0 K
D1 1.0000000 sec

===== CHANNEL f1 =====
NUC1 1H
P1 7.50 usec
PL1 -6.00 dB
SFO1 400.1324710 MHz

F2 - Processing parameters
SI 32768
SF 400.1300551 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 30.00 cm
F1P 10.000 ppm
F1 4001.30 Hz
F2P 0.000 ppm
F2 0.00 Hz
PPMCM 0.33333 ppm/cm
HZCM 133.37669 Hz/cm





9
¹H NMR (400 MHz, CDCl₃)
 (expansion)

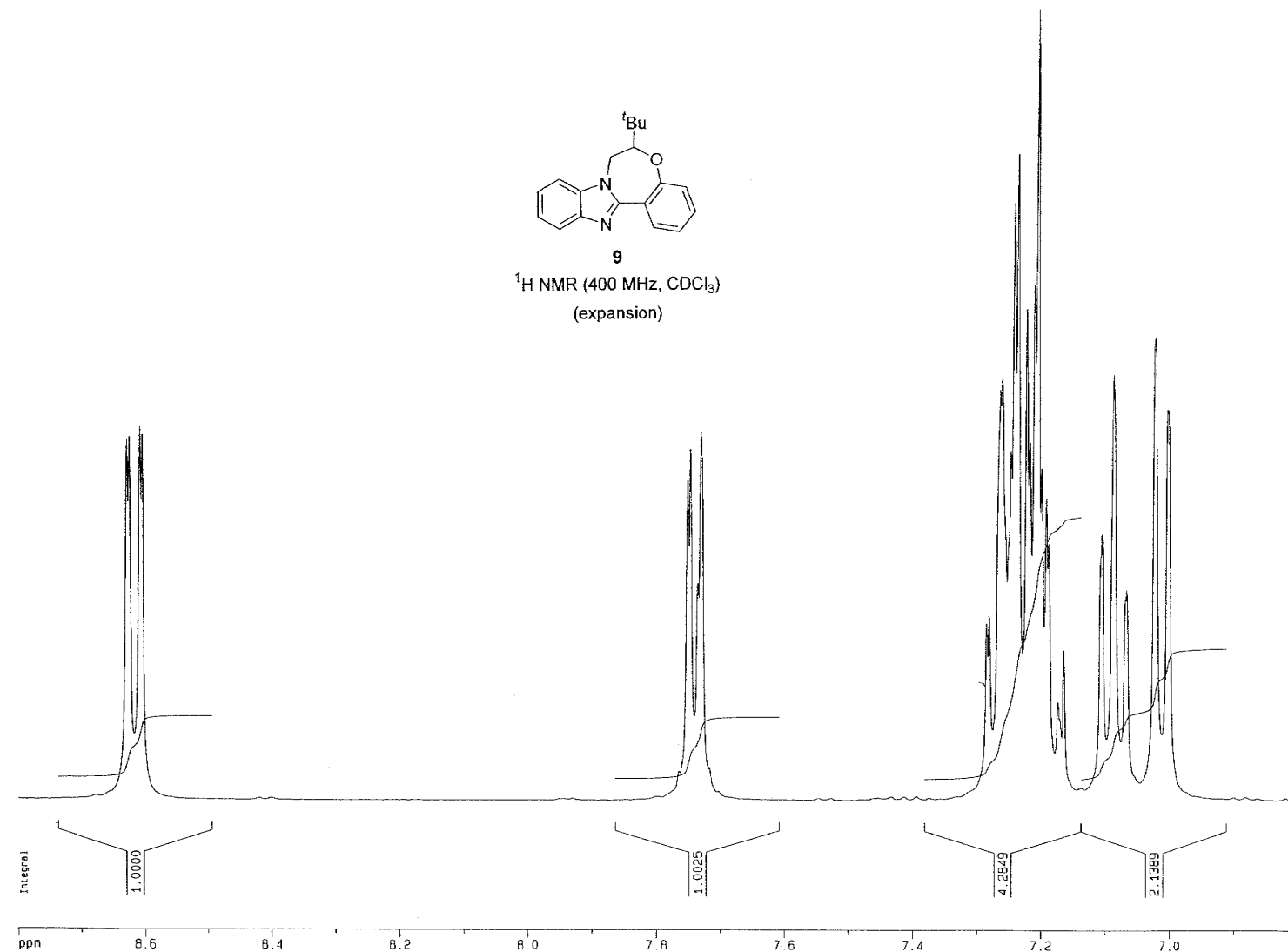
Current Data Parameters
 NAME Nov06-2002
 EXPNO 10
 PROCNO 1

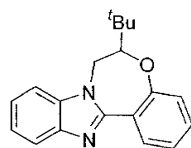
F2 - Acquisition Parameters
 Date_ 20021106
 Time 17.53
 INSTRUM spect
 PROBHD 5 mm BBO 88-1
 PULPROG zg30
 TD 32768
 SOLVENT CDCl₃
 NS 16
 DS 2
 SWH 8278.146 Hz
 FIDRES 0.252629 Hz
 AQ 1.9792372 sec
 RG 90.5
 DW 60.400 usec
 DE 6.00 usec
 TE 300.0 K
 D1 1.00000000 sec

===== CHANNEL f1 =====
 NUC1 1H
 P1 7.50 usec
 PL1 -6.00 dB
 SF01 400.1324710 MHz

F2 - Processing parameters
 SI 32768
 SF 400.1300551 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

1D NMR plot parameters
 CX 30.00 cm
 F1P 8.800 ppm
 F1 3521.14 Hz
 F2P 6.800 ppm
 F2 2720.88 Hz
 PPMCM 0.06667 ppm/cm
 HZCM 26.67534 Hz/cm





9
¹H NMR (400 MHz, CDCl₃)
 (expansion)

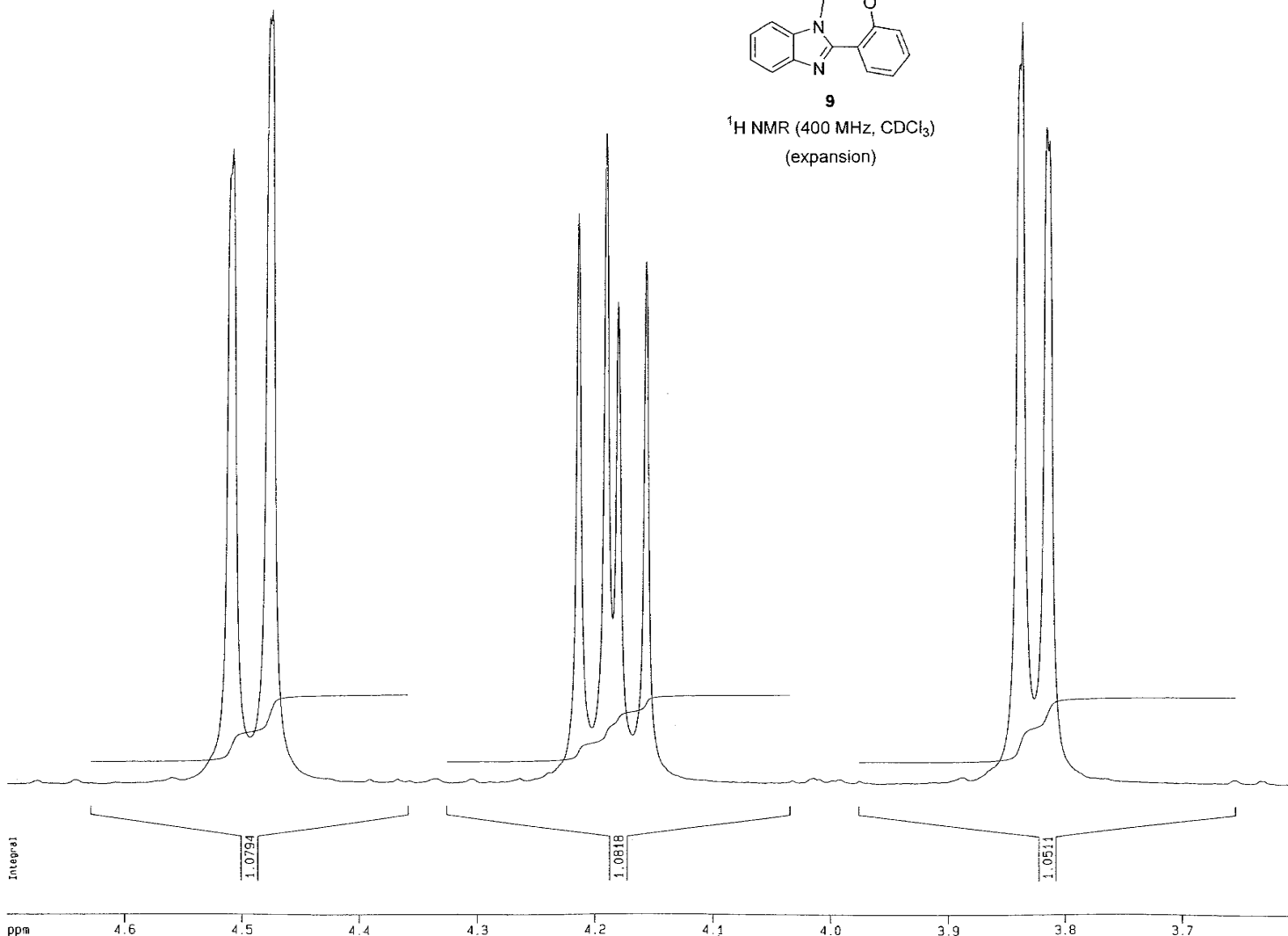
Current Data Parameters
 NAME Nov06-2002
 EXPNO 10
 PROCNO 1

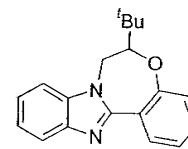
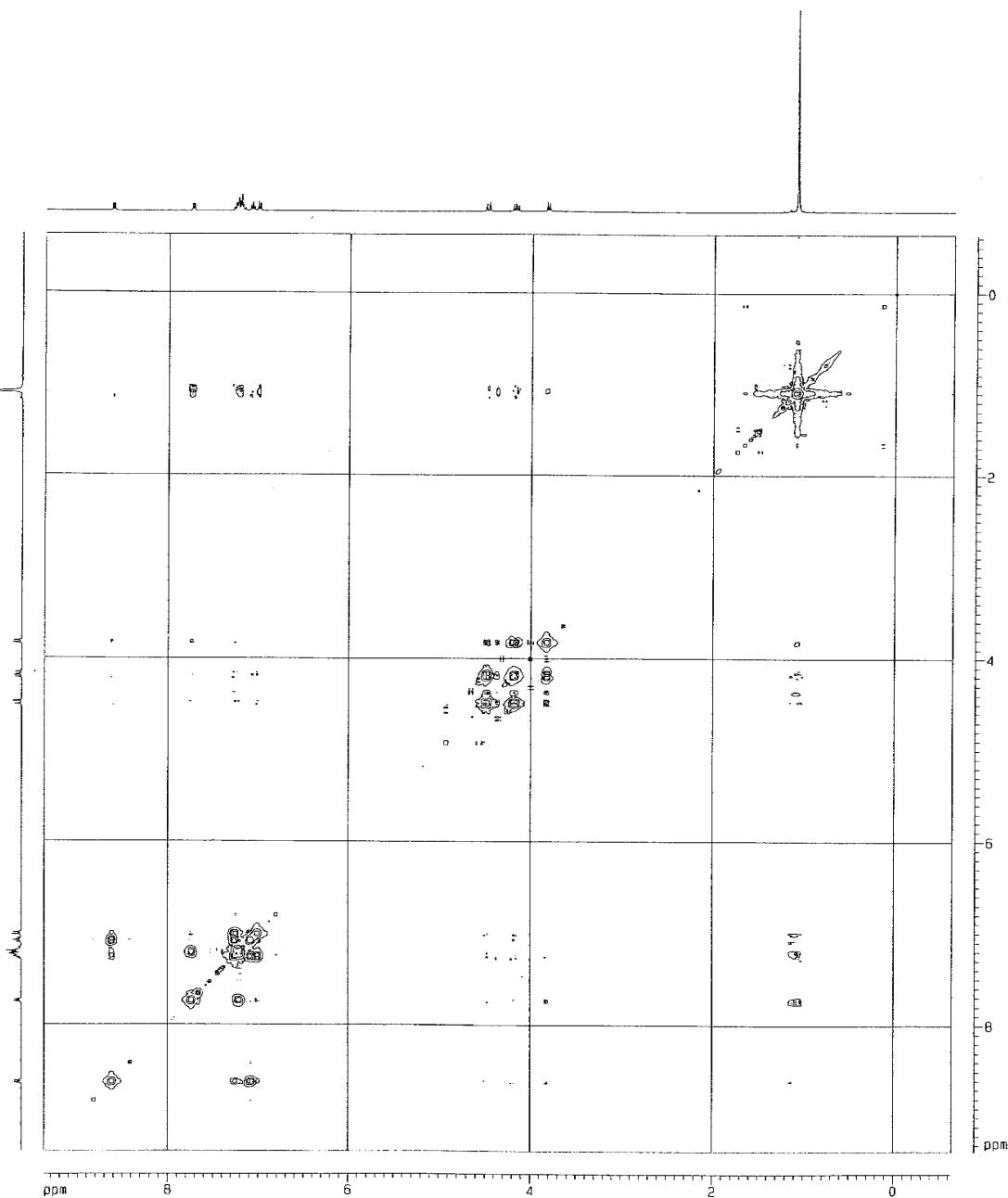
F2 - Acquisition Parameters
 Date_ 20021106
 Time 17.53
 INSTRUM spect
 PROBHD 5 mm BBO BB-1
 PULPROG zg30
 TD 32768
 SOLVENT CDCl₃
 NS 16
 DS 2
 SWH 8278.146 Hz
 FIDRES 0.252629 Hz
 AQ 1.9792372 sec
 RG 90.5
 DW 60.400 usec
 DE 6.00 usec
 TE 300.0 K
 D1 1.00000000 sec

===== CHANNEL f1 =====
 NUC1 1H
 P1 7.50 usec
 PL1 -6.00 dB
 SF01 400.1324710 MHz

F2 - Processing parameters
 SI 32768
 SF 400.1300551 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

1D NMR plot parameters
 CX 30.00 cm
 F1P 4.700 ppm
 F1 1880.61 Hz
 F2P 3.600 ppm
 F2 1440.47 Hz
 PPMCM 0.03667 ppm/cm
 HZCM 14.67143 Hz/cm





9

^1H - ^1H COSY NMR (400 MHz, CDCl_3)

Current Data Parameters
NAME Nov06-2002
EXPNO 12
PROCNO 1

F2 - Acquisition Parameters
Date_ 20021105
Time 18.00
INSTRUM spect
PROBHD 5 mm BBO BB-1
PULPROG cosy90
TD 2048
SOLVENT CDCl_3
NS 4
DS 4
SWH 4006.410 Hz
FIDRES 1.956255 Hz
AQ 0.2556404 sec
RG 32
DW 124.800 usec
DE 6.00 usec
TE 300.0 K
d0 0.0000300 sec
D1 1.99139798 sec
IN0 0.00024960 sec

===== CHANNEL f1 =====
NUC1 ^1H
P1 7.50 usec
PL1 -6.00 dB
SF01 400.1318059 MHz

F1 - Acquisition parameters
ND0 1
TD 256
SF01 400.1318 MHz
FIDRES 15.650040 Hz
SW 10.013 ppm

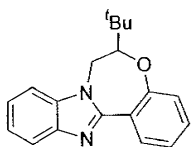
F2 - Processing parameters
SI 1024
SF 400.1300551 MHz
WDW SINE
SSB 0
LB 0.00 Hz
GB 0
PC 1.40

F1 - Processing parameters
SI 1024
MC2 GF
SF 400.1300551 MHz
WDW SINE
SSB 0
LB 0.00 Hz
GB 0

2D NMR plot parameters
CX2 20.00 cm
CX1 20.00 cm
F2PL0 9.374 ppm
F2L0 3750.77 Hz
F2PHI -0.639 ppm
F2HI -255.62 Hz
F1PL0 9.374 ppm
F1L0 3750.77 Hz
F1PHI -0.639 ppm
F1HI -255.62 Hz
F2PPMCM 0.50054 ppm/cm
F2HZCM 200.31953 Hz/cm
F1PPMCM 0.50054 ppm/cm
F1HZCM 200.31953 Hz/cm

ppm

157.350
 150.053
 142.802
 136.530
 131.309
 131.280
 122.994
 122.704
 122.630
 120.419
 119.688
 119.533
 109.142
 86.963
 77.367
 77.049
 76.731
 47.544
 34.935
 26.134



9

 ^{13}C NMR (101 MHz, CDCl_3)

Current Data Parameters

NAME Nov06-2002
 EXPNO 13
 PROCNO 1

F2 - Acquisition Parameters

Date_ 20021106
 Time 19.42
 INSTRUM spect
 PROBHD 5 mm BBO BB-1
 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl_3
 NS 1024
 DS 4
 SWH 25125.629 Hz
 FIDRES 0.383387 Hz
 AQ 1.3042164 sec
 RG 3251
 DW 19.900 usec
 DE 6.00 usec
 TE 300.0 K
 D1 2.00000000 sec
 d11 0.03000000 sec
 d12 0.00002000 sec

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

NUC1 ^{13}C
 P1 5.90 usec
 PL1 -6.00 dB
 SF01 100.6237959 MHz

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

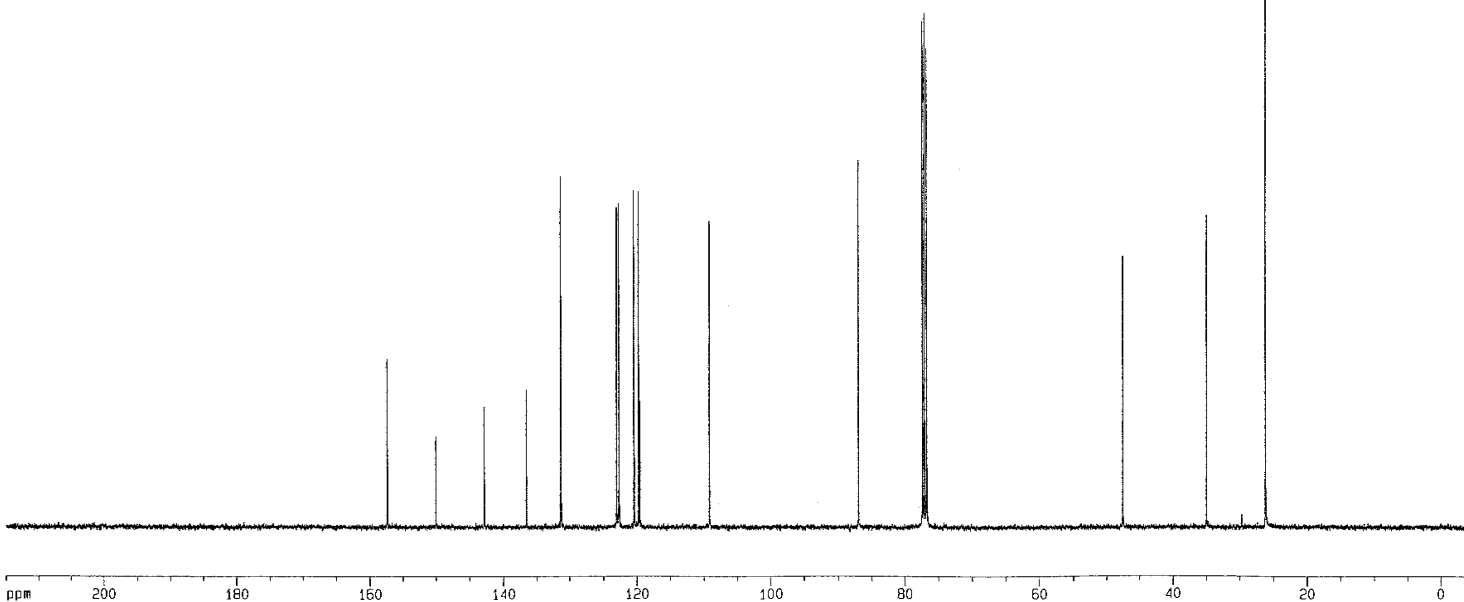
CPDPRG2 waltz16
 NUC2 ^1H
 PCPD2 80.00 usec
 PL2 -6.00 dB
 PL12 15.80 dB
 PL13 15.80 dB
 SF02 400.1316005 MHz

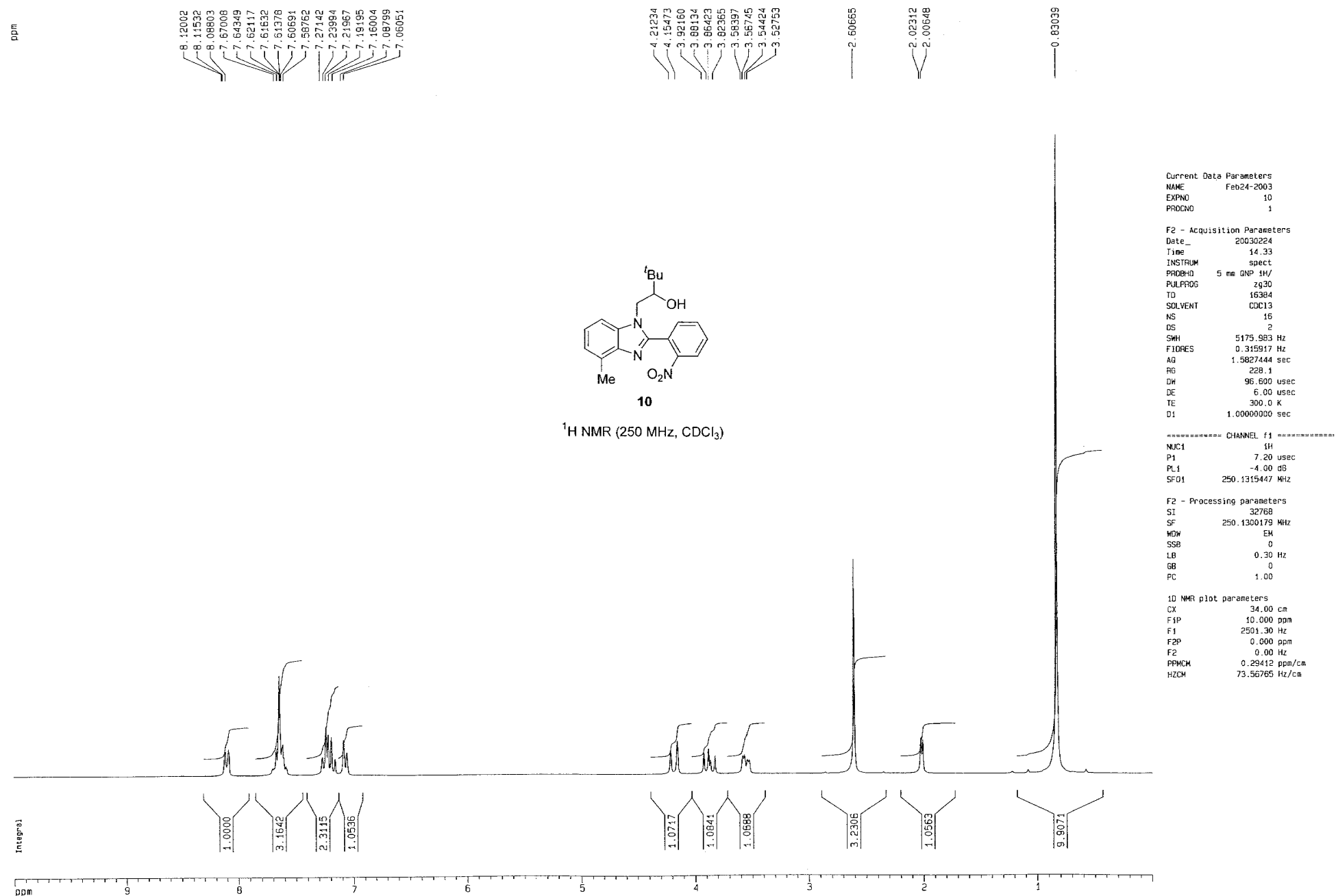
F2 - Processing parameters

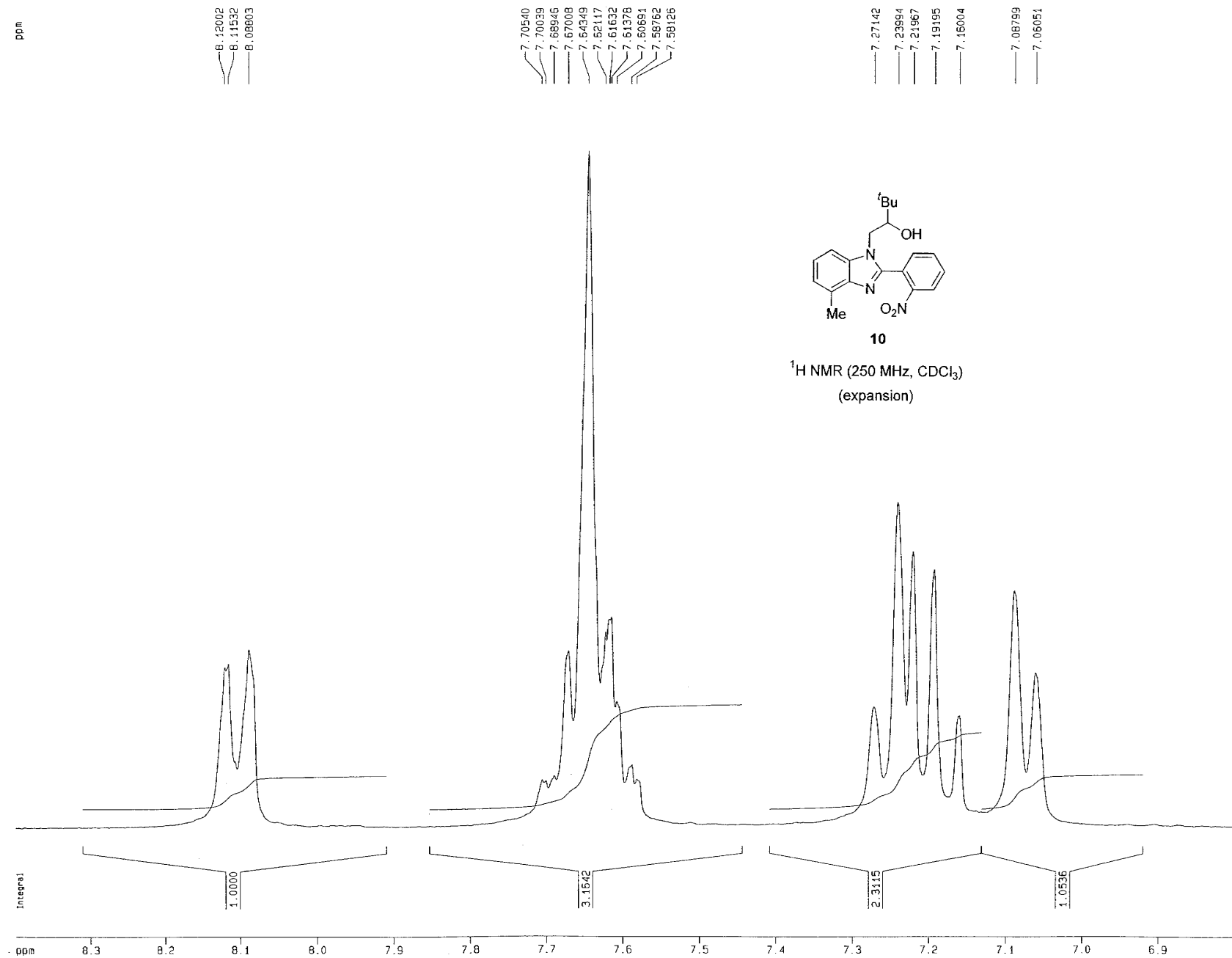
SI 32768
 SF 100.6127723 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40

1D NMR plot parameters

CX 30.00 cm
 F1P 215.000 ppm
 F1 21531.75 Hz
 F2P -5.000 ppm
 F2 -503.06 Hz
 PPMCM 7.33333 ppm/cm
 HZCM 737.82697 Hz/cm







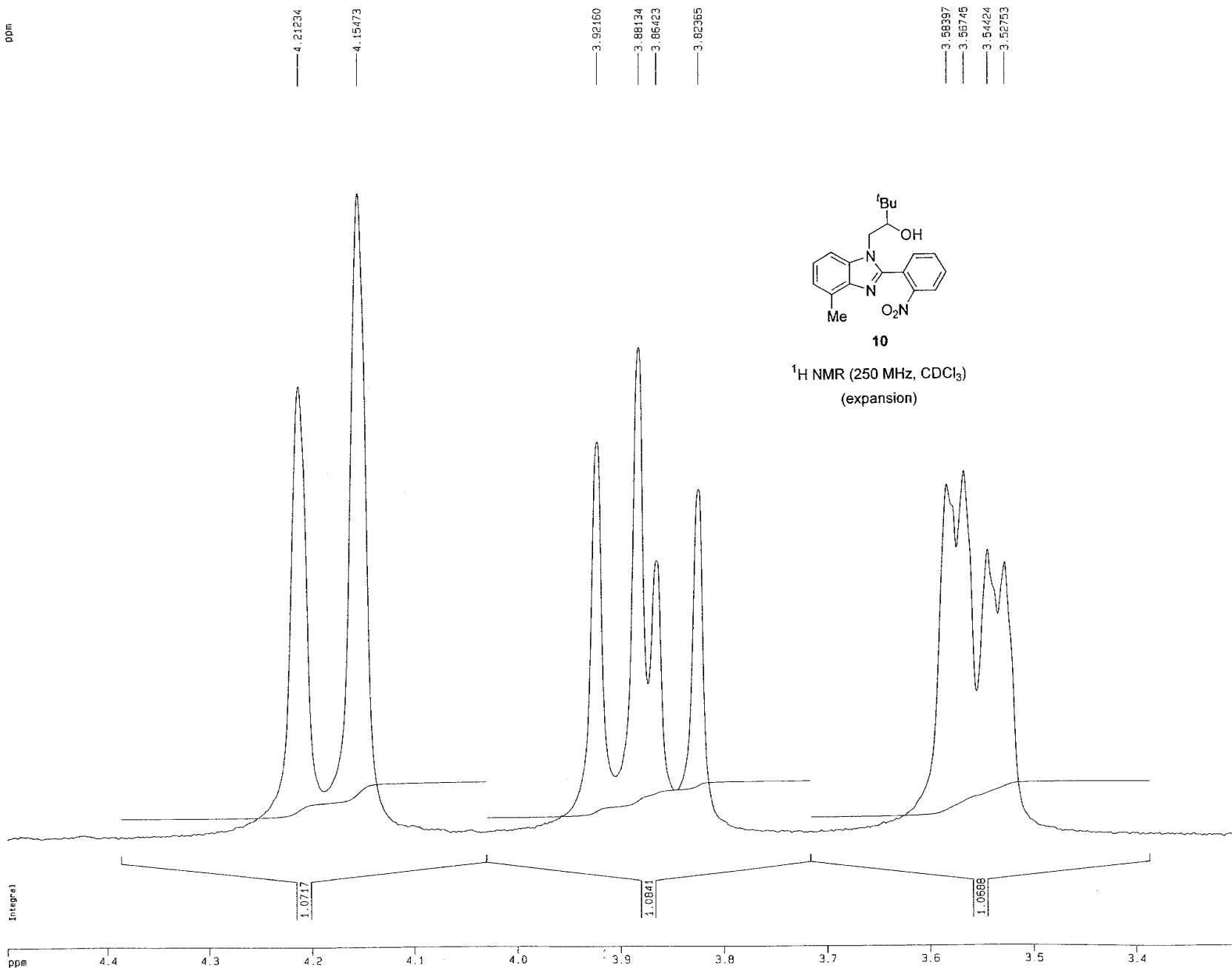
Current Data Parameters
 NAME Feb24-2003
 EXPNO 10
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20030224
 Time 14.33
 INSTRUM spect
 PROBHD 5 mm QNP 1H/
 PULPROG zg30
 TD 16384
 SOLVENT CDCl3
 NS 16
 DS 2
 SWH 5175.983 Hz
 FIDRES 0.315917 Hz
 AQ 1.5827444 sec
 RG 228.1
 DM 96.600 usec
 DE 6.00 usec
 TE 300.0 K
 D1 1.00000000 sec

----- CHANNEL f1 -----
 NUC1 1H
 P1 7.20 usec
 PL1 -4.00 dB
 SF01 250.1315447 MHz

F2 - Processing parameters
 SI 32768
 SF 250.1300179 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

1D NMR plot parameters
 CX 34.00 cm
 F1P 8.400 ppm
 F1 2101.09 Hz
 F2P 6.800 ppm
 F2 1700.88 Hz
 PPBPM 0.04705 ppm/cm
 HZCM 11.77082 Hz/cm



Current Data Parameters
 NAME Feb24-2003
 EXPNO 10
 PROCNO 1

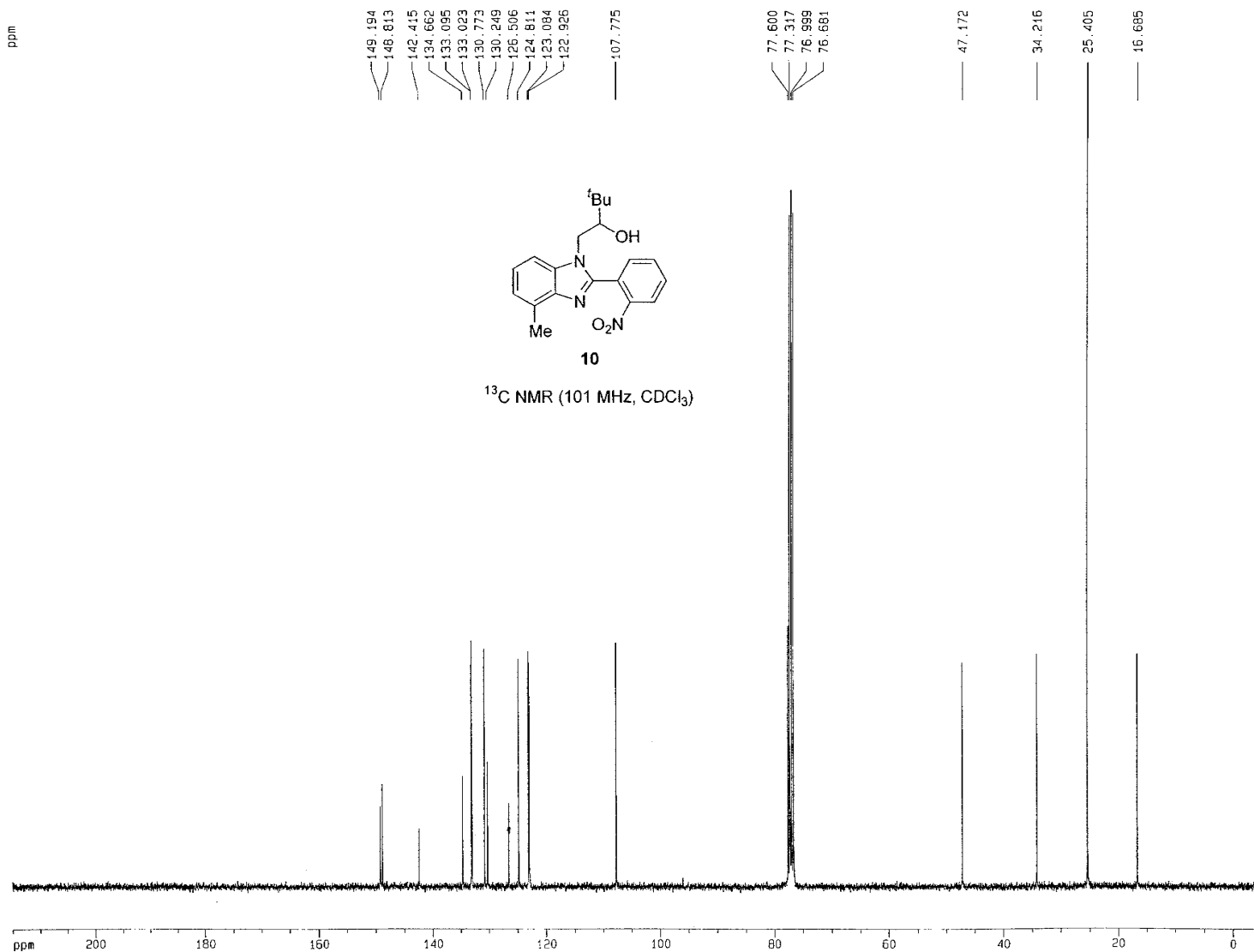
F2 - Acquisition Parameters
 Date_ 20030224
 Time 14.33
 INSTRUM spect
 PROBHD 5 mm QNP 1H/
 PULPROG zg30
 TO 16384
 SOLVENT CDCl3
 NS 16
 DS 2
 SWH 5175.983 Hz
 FIDRES 0.315917 Hz
 AQ 1.5827444 sec
 RG 229.1
 DW 96.600 usec
 DE 6.00 usec
 TE 300.0 K
 D1 1.0000000 sec

***** CHANNEL f1 *****
 NUC1 1H
 P1 7.20 usec
 PL1 -4.00 dB
 SF01 250.1315447 MHz

F2 - Processing parameters
 SI 32768
 SF 250.1300179 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

10 NMR plot parameters
 CX 34.00 cm
 F1P 4.500 ppm
 F1 1125.59 Hz
 F2P 3.300 ppm
 F2 825.43 Hz
 PPMCM 0.03529 ppm/cm
 HZCM 8.82812 Hz/cm

ppm



Current Data Parameters
 NAME Feb25-2003
 EXPND 10
 PROCND 1

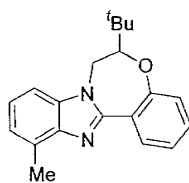
F2 - Acquisition Parameters
 Date_ 20030225
 Time 19.50
 INSTRUM spect
 PROBHD 5 mm BBO BB-1
 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl3
 NS 2000
 DS 4
 SWH 25125.629 Hz
 FIDRES 0.383387 Hz
 AQ 1.3042164 sec
 RG 10321.3
 DW 19.900 usec
 DE 6.00 usec
 TE 300.0 K
 D1 2.00000000 sec
 d11 0.03000000 sec
 d12 0.00002000 sec

===== CHANNEL f1 =====
 NUC1 13C
 P1 5.90 usec
 PL1 -6.00 dB
 SF01 100.6237959 MHz

===== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 80.00 usec
 PL2 -6.00 dB
 PL12 15.80 dB
 PL13 15.80 dB
 SF02 400.1316005 MHz

F2 - Processing parameters
 SI 32768
 SF 100.6127748 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40

1D NMR plot parameters
 CX 30.00 cm
 F1P 215.000 ppm
 F1 21631.75 Hz
 F2P -5.000 ppm
 F2 -503.06 Hz
 PPMCM 7.33333 ppm/cm
 HZCM 737.62703 Hz/cm



11

^1H NMR (400 MHz, CDCl_3)

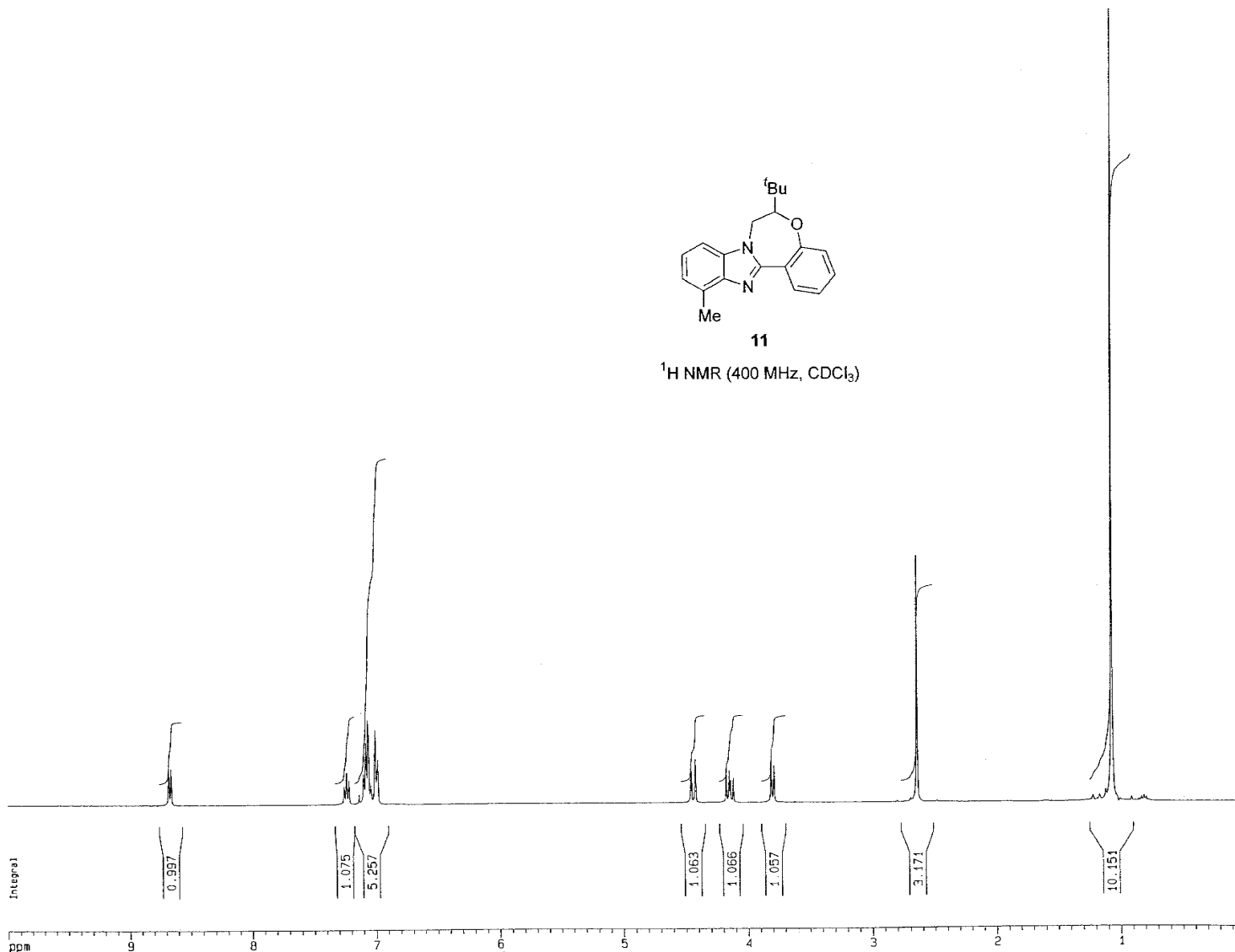
Current Data Parameters
NAME Nov07-2002
EXPNO 20
PROCNO 1

F2 - Acquisition Parameters
Date_ 20021107
Time 19.00
INSTRUM spect
PROBHD 5 mm BBO BB-1
PULPROG zg30
TD 32768
SOLVENT CDCl_3
NS 16
DS 2
SWH 8278.146 Hz
FIDRES 0.252629 Hz
AQ 1.9792372 sec
RG 40.3
DW 60.400 usec
DE 6.00 usec
TE 300.0 K
D1 1.0000000 sec

===== CHANNEL f1 =====
NUC1 ^1H
P1 7.50 usec
PL1 -6.00 dB
SFO1 400.1324710 MHz

F2 - Processing parameters
SI 32768
SF 400.1300653 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 30.00 cm
F1P 10.000 ppm
F1 4001.30 Hz
F2P 0.000 ppm
F2 0.00 Hz
PPMCM 0.33333 ppm/cm
HZCM 133.37669 Hz/cm



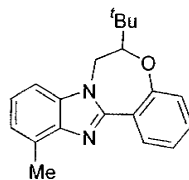
Current Data Parameters
 NAME Nov07-2002
 EXPNO 20
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20021107
 Time 19.00
 INSTRUM spect
 PROBHD 5 mm BBO BB-1
 PULPROG zg30
 TD 32768
 SOLVENT CDCl3
 NS 16
 DS 2
 SWH 8278.146 Hz
 FIDRES 0.252629 Hz
 AQ 1.9792372 sec
 RG 40.3
 DW 60.400 usec
 DE 6.00 usec
 TE 300.0 K
 D1 1.0000000 sec

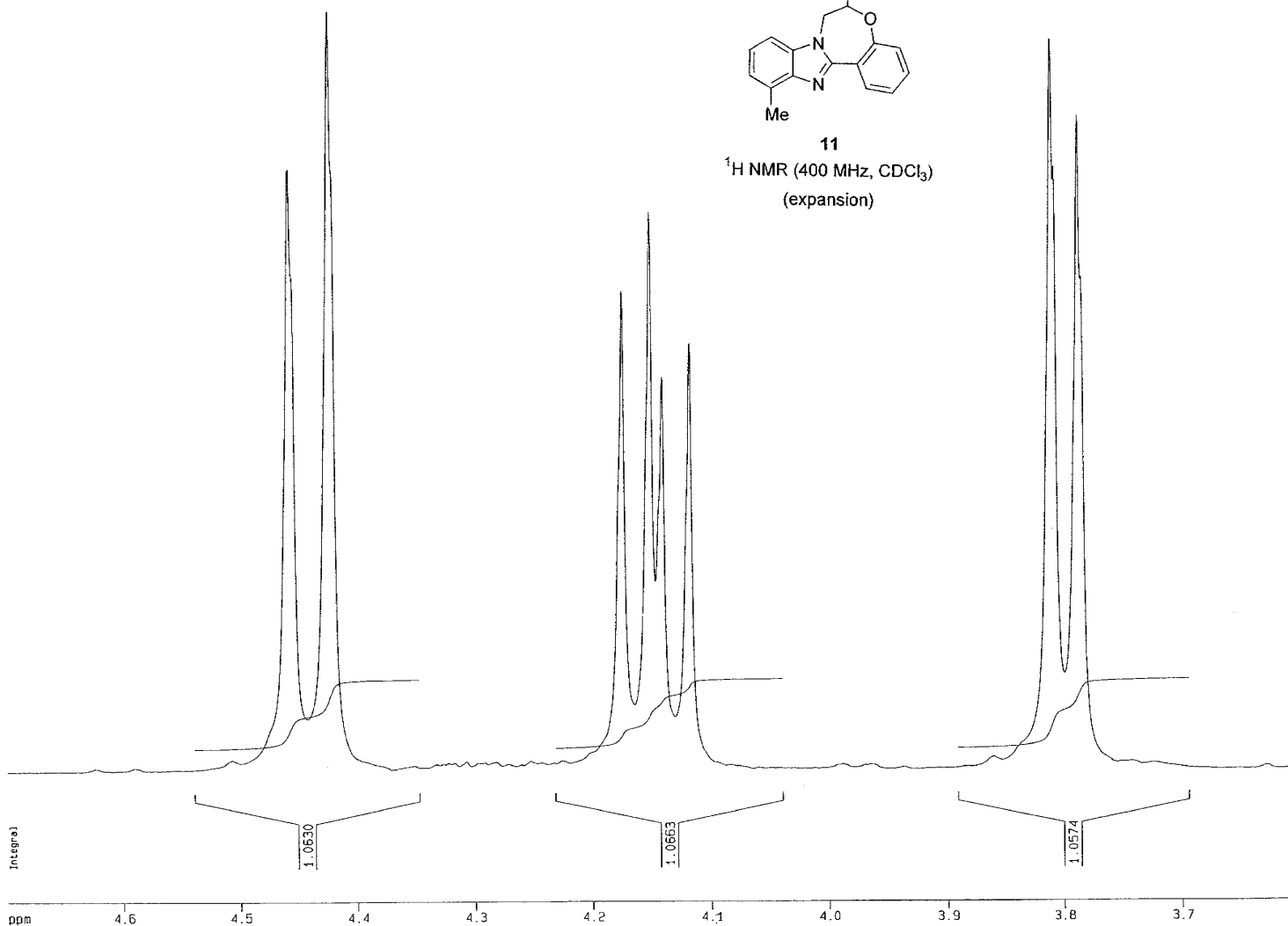
===== CHANNEL f1 =====
 NUC1 1H
 P1 7.50 usec
 PL1 -6.00 dB
 SF01 400.1324710 MHz

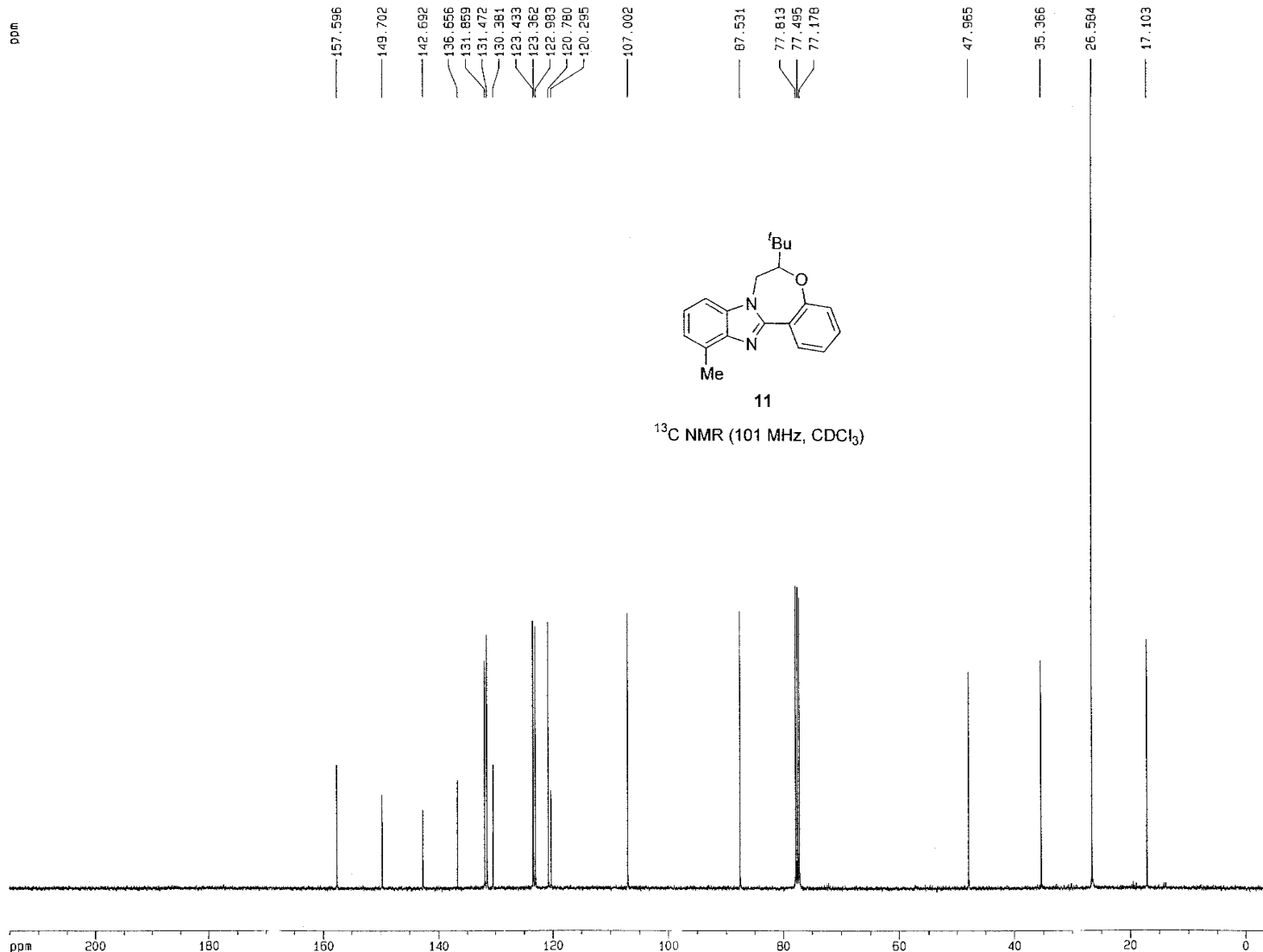
F2 - Processing parameters
 SI 32768
 SF 400.1300653 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

1D NMR plot parameters
 CX 30.00 cm
 F1P 4.700 ppm
 F1 1880.61 Hz
 F2P 3.600 ppm
 F2 1440.47 Hz
 PPMCM 0.03667 ppm/cm
 HZCM 14.67143 Hz/cm



11
¹H NMR (400 MHz, CDCl₃)
 (expansion)





Current Data Parameters
 NAME Nov07-2002
 EXPNO 21
 PROCNO 1

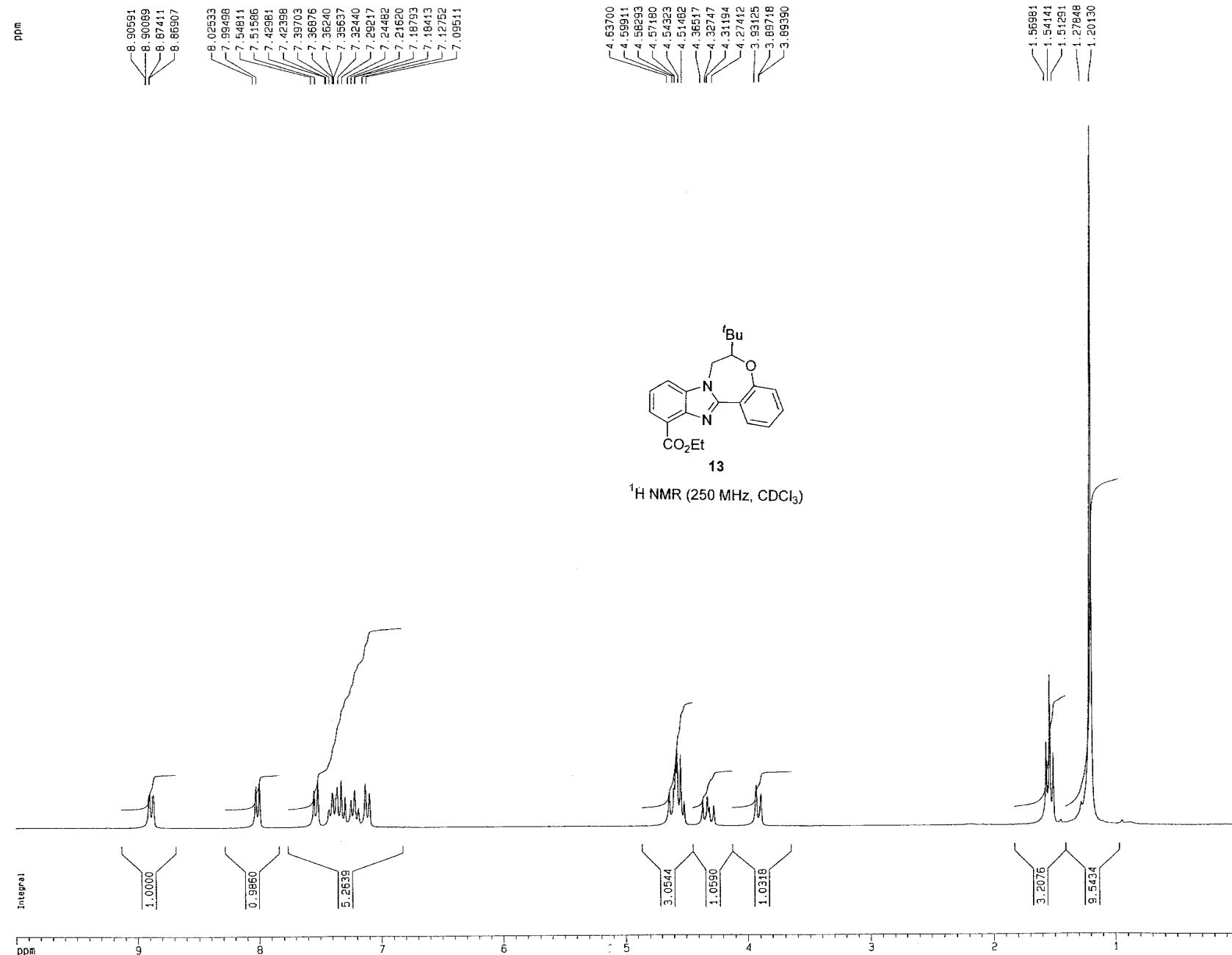
F2 - Acquisition Parameters
 Date_ 20021107
 Time 19.48
 INSTRUM spect
 PROBHD 5 mm BBO BB-1
 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl3
 NS 750
 DS 4
 SWH 25125.629 Hz
 FIDRES 0.383387 Hz
 AQ 1.3042164 sec
 RG 16384
 DW 19.900 usec
 DE 6.00 usec
 TE 300.0 K
 D1 2.00000000 sec
 d11 0.03000000 sec
 d12 0.00002000 sec

===== CHANNEL f1 =====
 NUC1 13C
 P1 5.90 usec
 PL1 -6.00 dB
 SF01 100.6237959 MHz

===== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 80.00 usec
 PL2 -6.00 dB
 PL12 15.80 dB
 PL13 15.80 dB
 SF02 400.1316005 MHz

F2 - Processing parameters
 SI 32768
 SF 100.6127290 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40

1D NMR plot parameters
 CX 30.00 cm
 F1P 215.000 ppm
 F1 21631.74 Hz
 F2P -5.000 ppm
 F2 -503.06 Hz
 PPWCM 7.33333 ppm/cm
 HZCM 737.82672 Hz/cm



Current Data Parameters
NAME Nov09-2002
EXPNO 11
PROCNO 1

F2 - Acquisition Parameters
Date_ 20021109
Time 13.39
INSTRUM spect
PROBHD 5 mm GNP 1H/
PULPROG zg30
TD 16384
SOLVENT CDCl3
NS 128
DS 0
SWH 5175.983 Hz
FIDRES 0.315917 Hz
AQ 1.5827444 sec
RG 143.7
DM 95.600 usec
DE 5.00 usec
TE 300.0 K
D1 2.00000000 sec

***** CHANNEL f1 *****
NUC1 1H
P1 7.20 usec
PL1 -4.00 dB
SF01 250.1315447 MHz

F2 - Processing parameters
SI 32768
SF 250.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

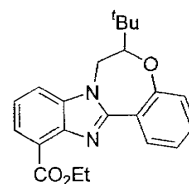
1D NMR plot parameters
CX 34.00 cm
F1P 10.000 ppm
F1 2501.30 Hz
F2P 0.000 ppm
F2 0.00 Hz
PPMCM 0.29412 ppm/cm
HZCM 73.58765 Hz/cm

ppm

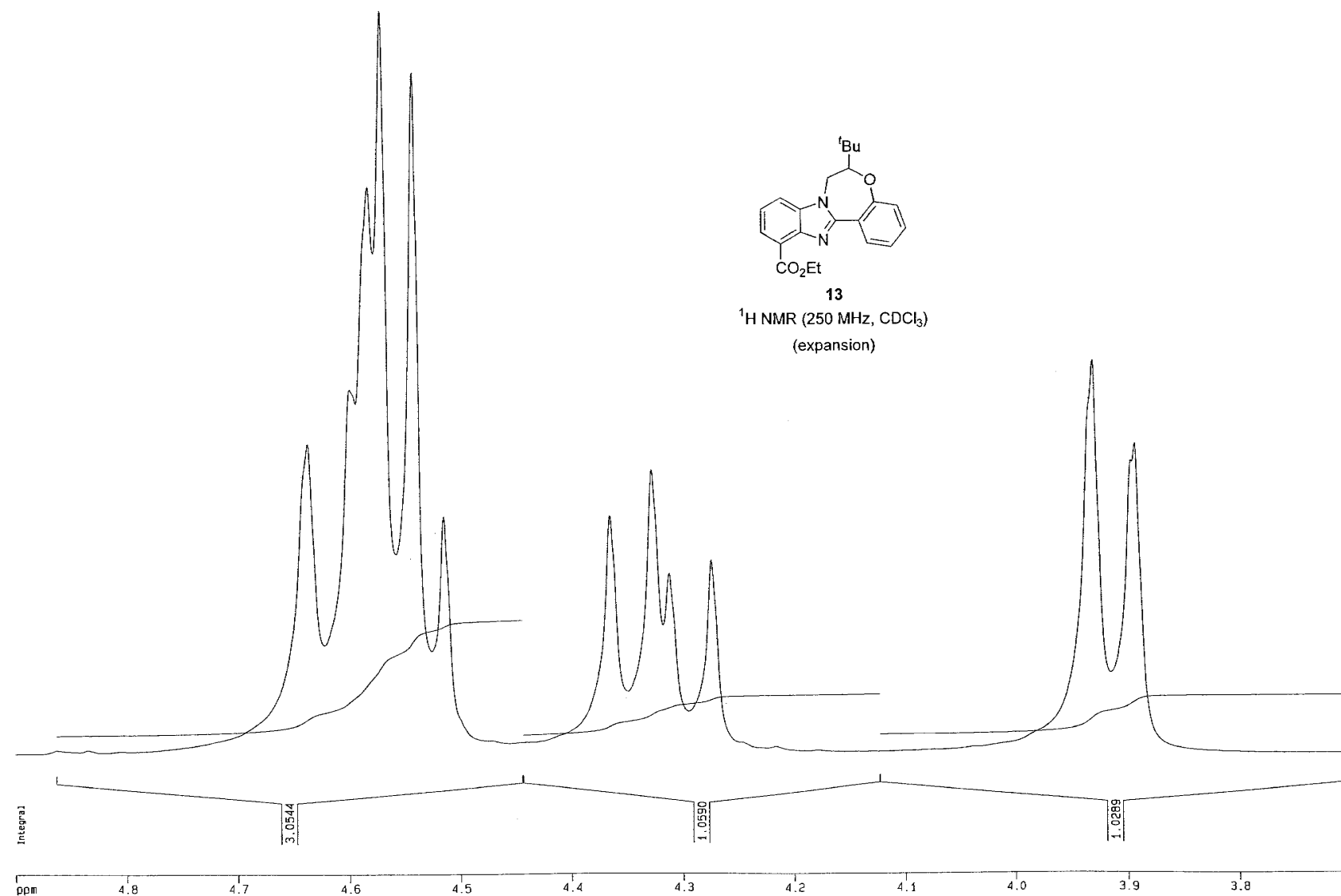
— 4.63700
— 4.59911
— 4.58293
— 4.57180
— 4.54323
— 4.51482

— 4.36517
— 4.32747
— 4.31194
— 4.27412
— 4.24688

— 3.93125
— 3.89718
— 3.89390



13
 ^1H NMR (250 MHz, CDCl_3)
(expansion)



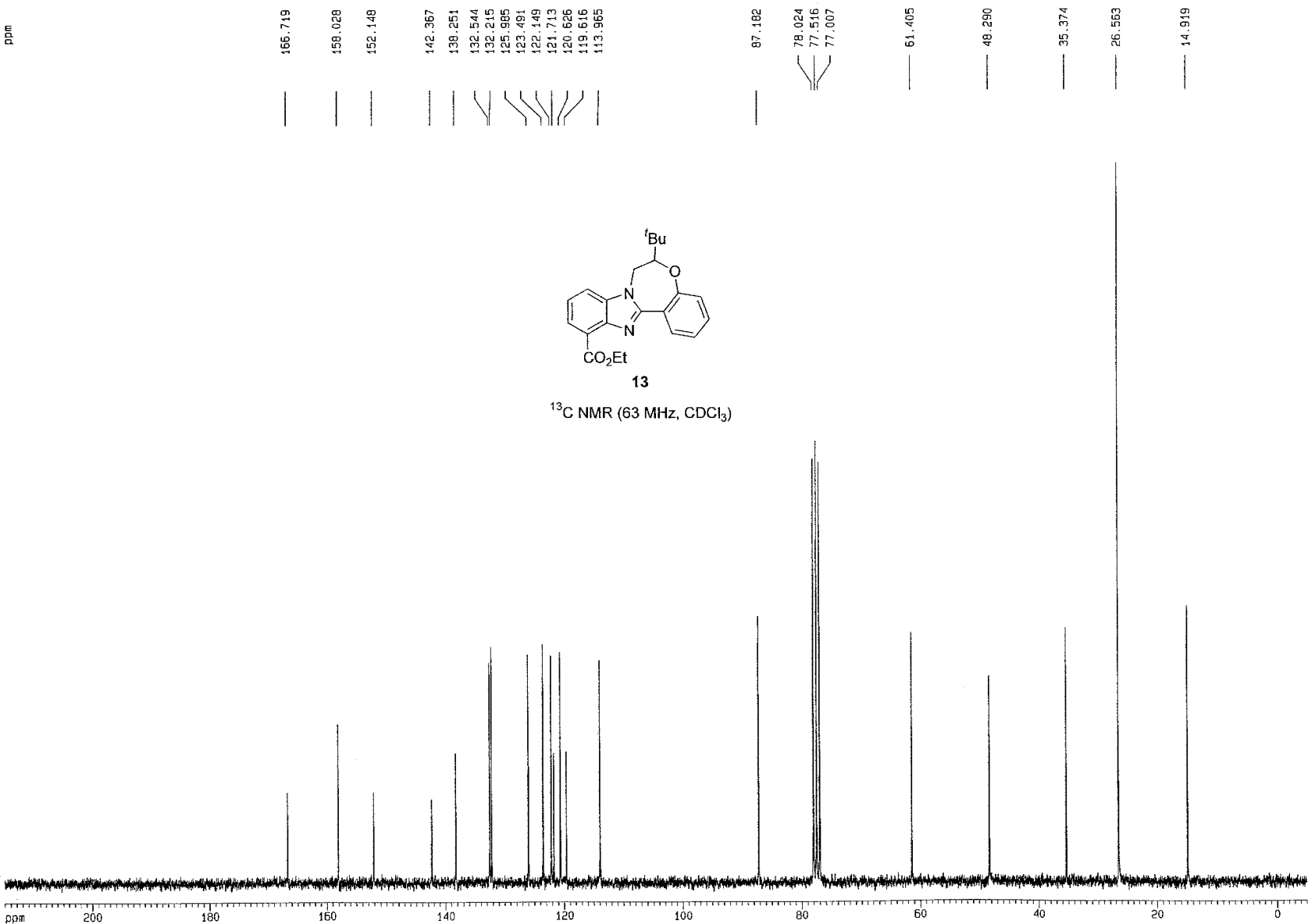
Current Data Parameters
NAME Nov09-2002
EXPNO 11
PROCNO 1

F2 - Acquisition Parameters
Date_ 20021109
Time 13.39
INSTRUM spect
PROBHD 5 mm GNP 1H/
PULPROG zg30
TD 16384
SOLVENT CDCl_3
NS 128
DS 0
SWH 5175.983 Hz
FIDRES 0.315917 Hz
AQ 1.5827444 sec
RG 143.7
DW 95.600 usec
DE 6.00 usec
TE 300.0 K
D1 2.0000000 sec

***** CHANNEL f1 *****
NUC1 1H
P1 7.20 usec
PL1 -4.00 dB
SF01 250.1315447 MHz

F2 - Processing parameters
SI 32768
SF 250.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 34.00 cm
F1P 4.900 ppm
F1 1225.64 Hz
F2P 3.700 ppm
F2 925.48 Hz
PPMCM 0.03529 ppm/cm
HZCM 8.82812 Hz/cm



Current Data Parameters
 NAME Nov09-2002
 EXPNO 12
 PROCNO 1

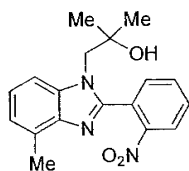
F2 - Acquisition Parameters
 Date_ 20021109
 Time 14.20
 INSTRUM spect
 PROBHD 5 mm QNP 1H/
 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl3
 NS 500
 DS 2
 SSB 15723.271 Hz
 FIDRES 0.239918 Hz
 AQ 2.0840948 sec
 RG 11585.2
 DM 31.800 usec
 DE 30.00 usec
 TE 300.0 K
 D1 2.00000000 sec
 d11 0.03000000 sec
 d12 0.00002000 sec

===== CHANNEL f1 =====
 NUC1 13C
 P1 8.00 usec
 PL1 0.00 dB
 SF01 62.9021320 MHz

===== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 1H
 PCDP2 80.00 usec
 PL2 -4.00 dB
 PL12 15.00 dB
 PL13 17.00 dB
 SF02 250.1310005 MHz

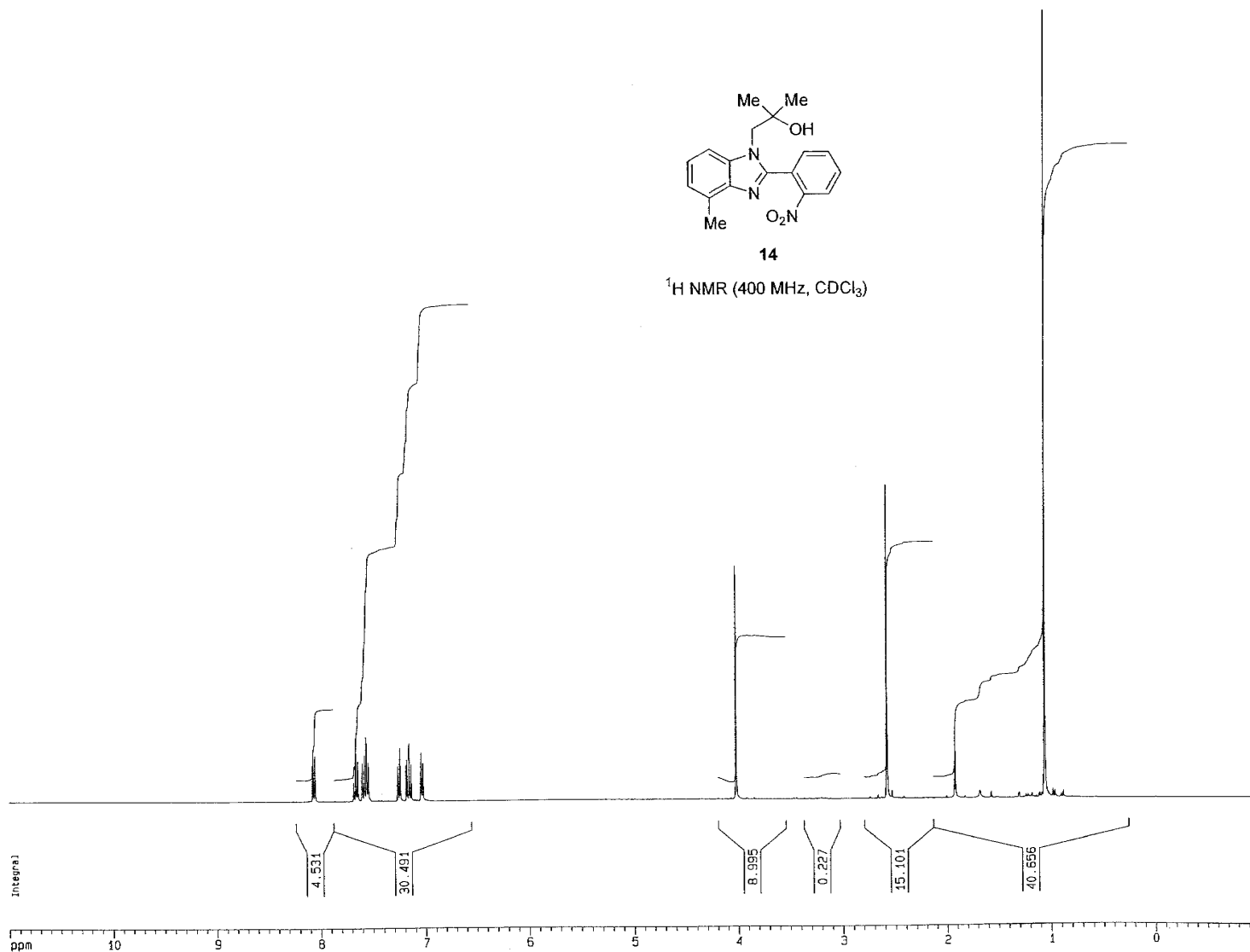
F2 - Processing parameters
 SI 32768
 SF 62.8952140 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40

1D NMR plot parameters
 CX 34.00 cm
 F1P 215.000 ppm
 F1 13522.47 Hz
 F2P -5.000 ppm
 F2 -314.48 Hz
 PPMM 6.47059 ppm/cm
 HZCM 406.96902 Hz/cm



14

¹H NMR (400 MHz, CDCl₃)



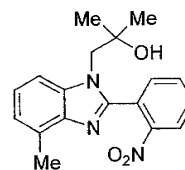
Current Data Parameters
NAME Jul16-2003
EXPNO 10
PROCNO 1

F2 - Acquisition Parameters
Date_ 20030716
Time 23.57
INSTRUM spect
PROBHD 5 mm BBO BB-
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 16
DS 2
SWH 8278.146 Hz
FIDRES 0.252629 Hz
AQ 1.9792372 sec
RG 90.5
DW 60.400 usec
DE 6.00 usec
TE 300.0 K
D1 1.00000000 sec

===== CHANNEL f1 =====
NUC1 1H
P1 7.50 usec
PL1 -6.00 dB
SFO1 400.1324710 MHz

F2 - Processing parameters
SI 32768
SF 400.1300392 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 30.00 cm
F1P 11.000 ppm
F1 4401.43 Hz
F2P -1.000 ppm
F2 -400.13 Hz
PPMCM 0.40000 ppm/cm
HZCM 160.05202 Hz/cm



14

^1H NMR (400 MHz, CDCl_3)
(expansion)

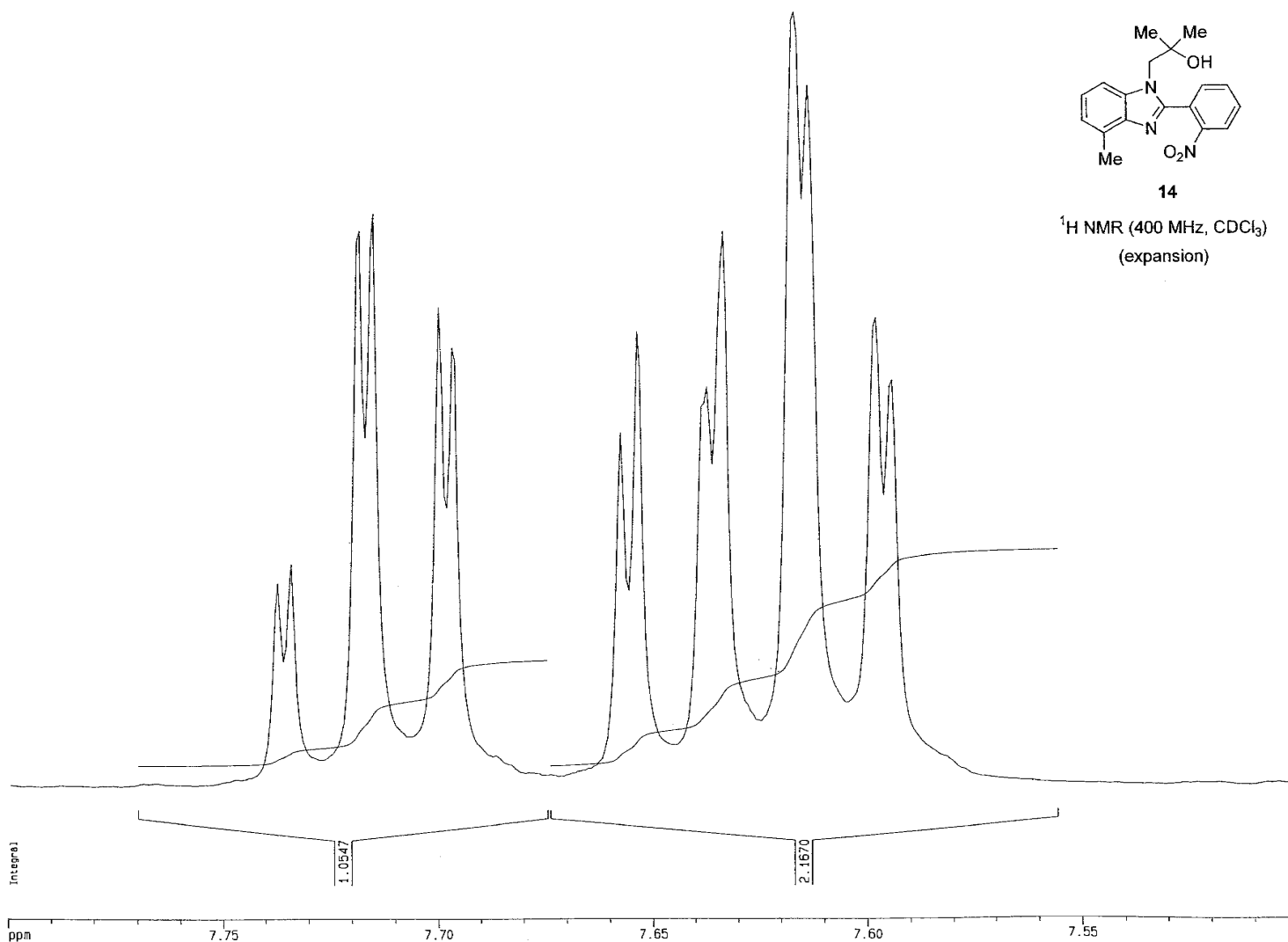
Current Data Parameters
NAME Jul16-2003
EXPNO 10
PROCNO 1

F2 - Acquisition Parameters
Date_ 20030716
Time 23.57
INSTRUM spect
PROBHD 5 mm BBO BB-
PULPROG zg30
TD 32768
SOLVENT CDCl_3
NS 16
DS 2
SWH 8278.146 Hz
FIDRES 0.252629 Hz
AQ 1.9792372 sec
RG 90.5
DW 60.400 usec
DE 6.00 usec
TE 300.0 K
D1 1.0000000 sec

===== CHANNEL f1 =====
NUC1 ^1H
P1 7.50 usec
PL1 -6.00 dB
SFO1 400.1324710 MHz

F2 - Processing parameters
SI 32768
SF 400.1300171 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 30.00 cm
F1P 7.800 ppm
F1 3121.01 Hz
F2P 7.500 ppm
F2 3000.97 Hz
PPMCM 0.01000 ppm/cm
HZCM 4.00130 Hz/cm



ppm

149.071
148.821
142.310
135.680
133.129
132.764
130.665
130.165
127.137
124.990
123.151
122.901

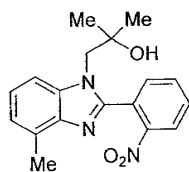
108.707

77.317
76.999
76.681
71.992

55.071

27.686

16.671



14

¹³C NMR (101 MHz, CDCl₃)

Current Data Parameters
NAME Jul16-2003
EXPNO 11
PROCNO 1

F2 - Acquisition Parameters
Date_ 20030717
Time 6.40
INSTRUM spect
PROBHD 5 mm BBO 8B-
PULPRDG zgpg30
TD 65536
SOLVENT CDCl3
NS 7200
DS 4
SWH 25125.629 Hz
FIDRES 0.383387 Hz
AQ 1.3042164 sec
RG 8192
DW 19.900 usec
DE 6.00 usec
TE 300.0 K
D1 2.00000000 sec
d11 0.03000000 sec
d12 0.00002000 sec

===== CHANNEL f1 =====
NUC1 ¹³C
P1 5.90 usec
PL1 -6.00 dB
SFO1 100.6237858 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 ¹H
PCPD2 80.00 usec
PL2 -6.00 dB
PL12 15.80 dB
PL13 15.80 dB
SFO2 400.1316005 MHz

F2 - Processing parameters
SI 32768
SF 100.6127725 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

1D NMR plot parameters
CX 30.00 cm
F1P 215.000 ppm
F1 21631.75 Hz
F2P -5.000 ppm
F2 -503.06 Hz
PPWCM 7.33333 ppm/cm
HZCM 737.82697 Hz/cm

ppm 200 180 160 140 120 100 80 60 40 20 0