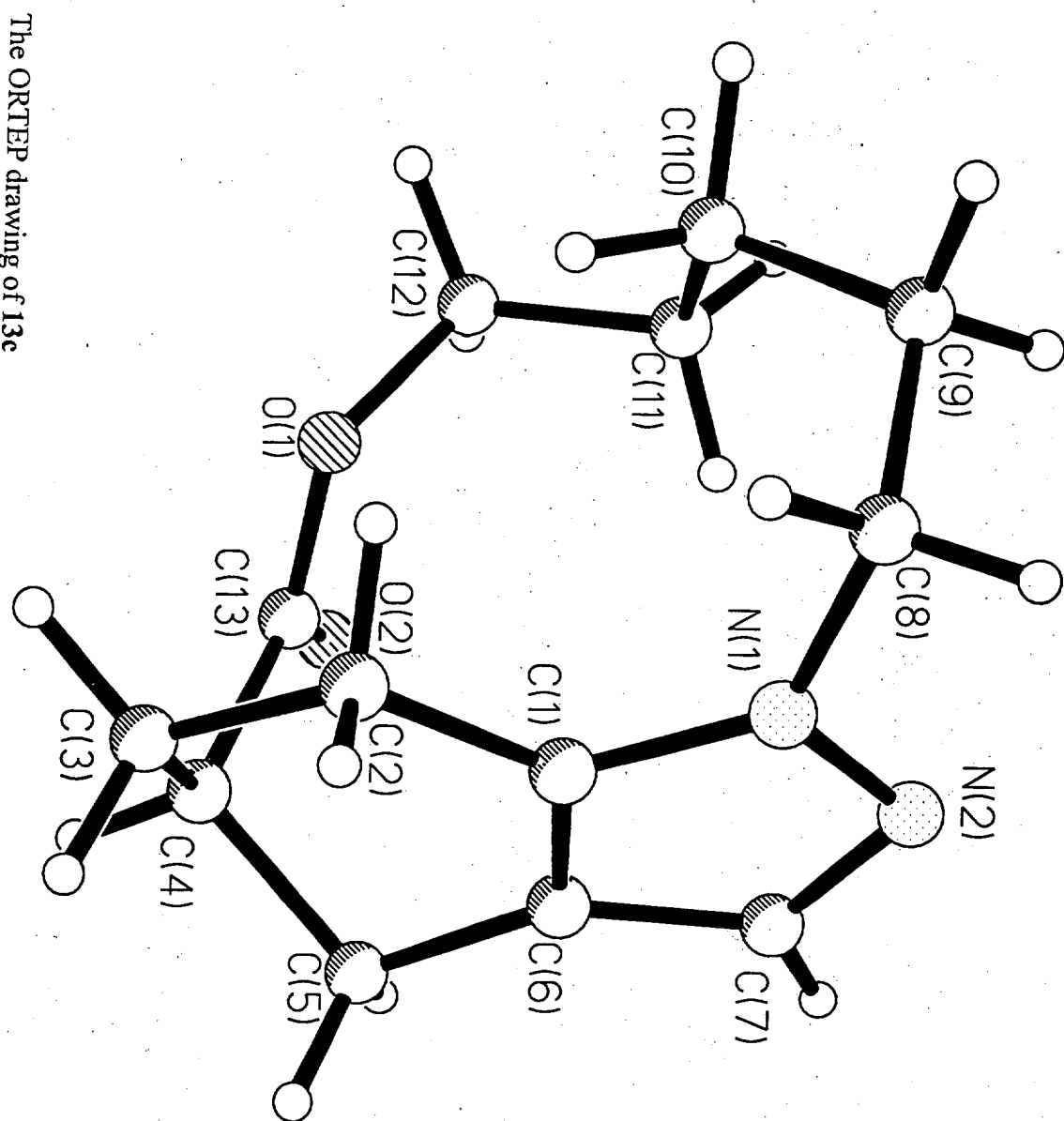
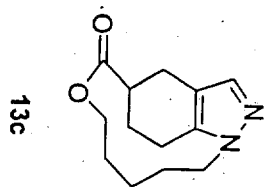
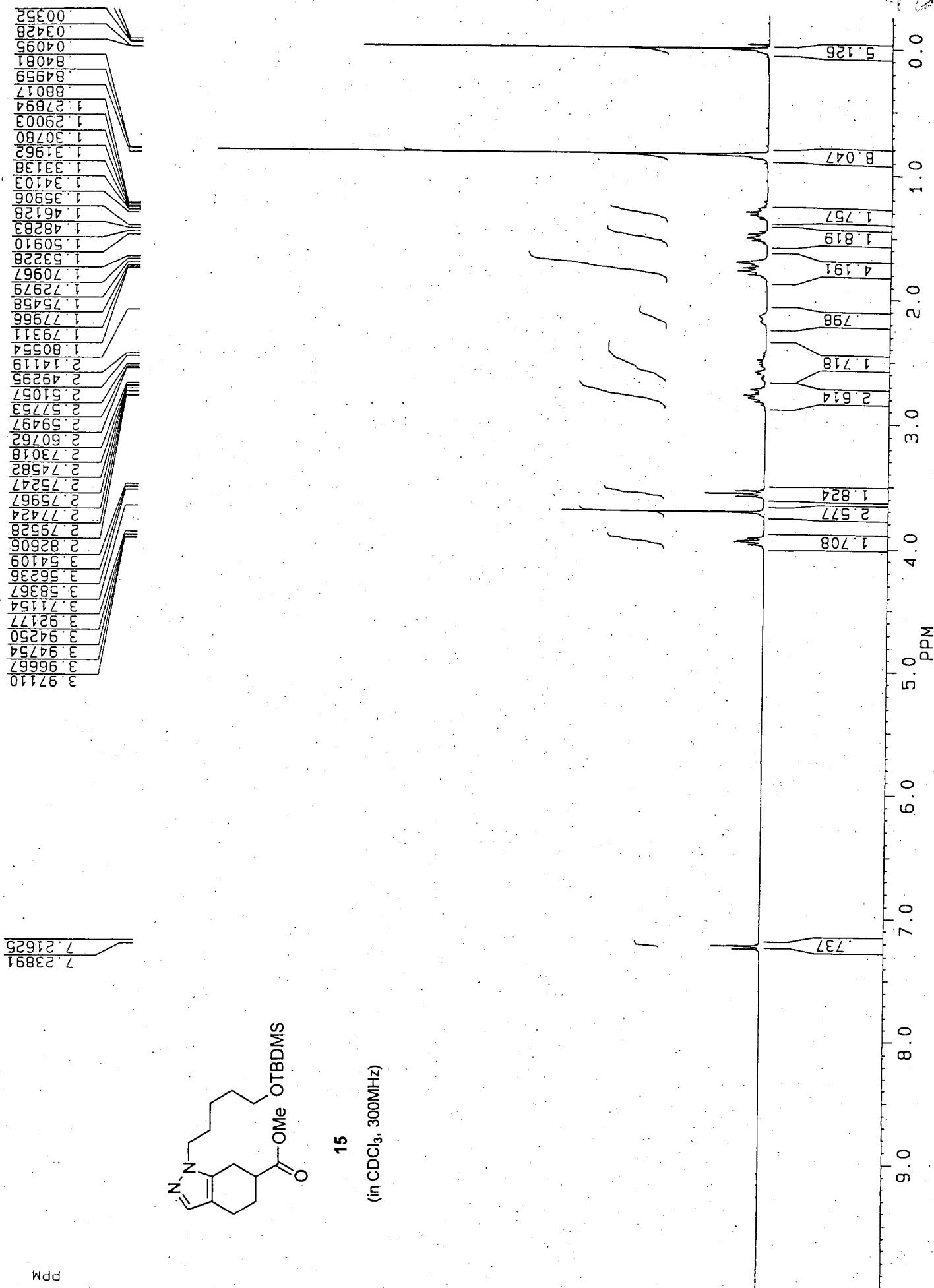




The ORTEP drawing of 13c



175.230

PPM

136.240
135.889

114.798

77.629
76.994
76.359

62.843

51.943

48.821

40.025

32.378

30.064

26.283

25.926

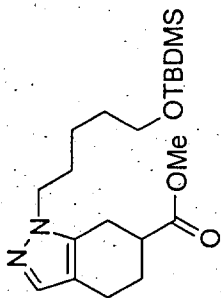
23.908

23.031

19.863

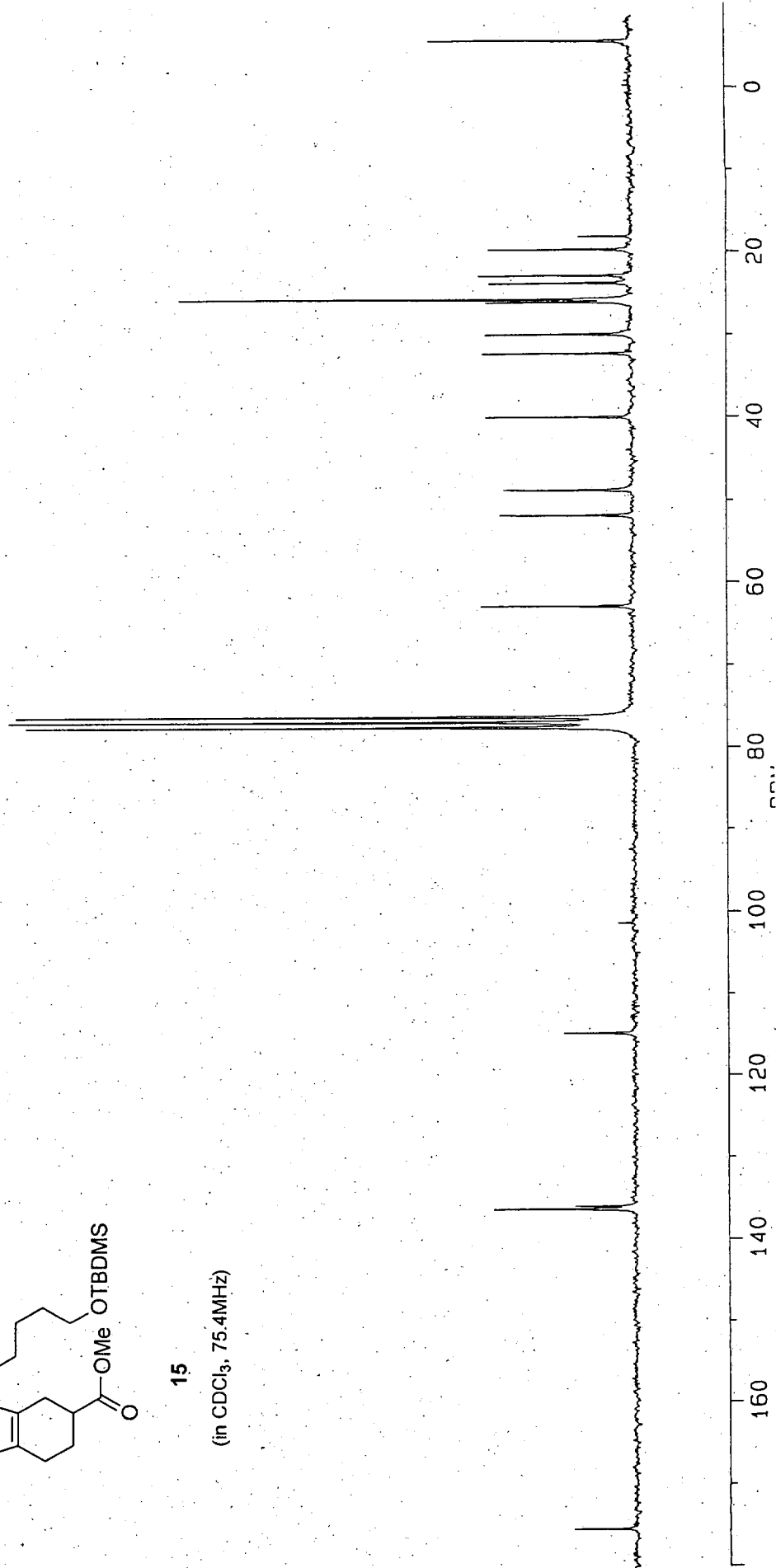
18.309

-5.326



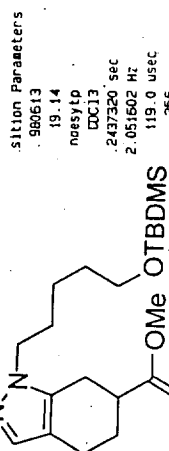
15

(in CDCl₃, 75.4MHz)



¹H-¹H NOESY spectrum of 15

Current Data Parameters
NAME MCY-154
EXPNO 3
PROCNO 1



15

(in CDCl₃, 400MHz)

SI
TD
NS
DS
IR0

F1 - Acquisition parameters

100
TD
SF01
FIDRES
SN

F2 - Processing parameters

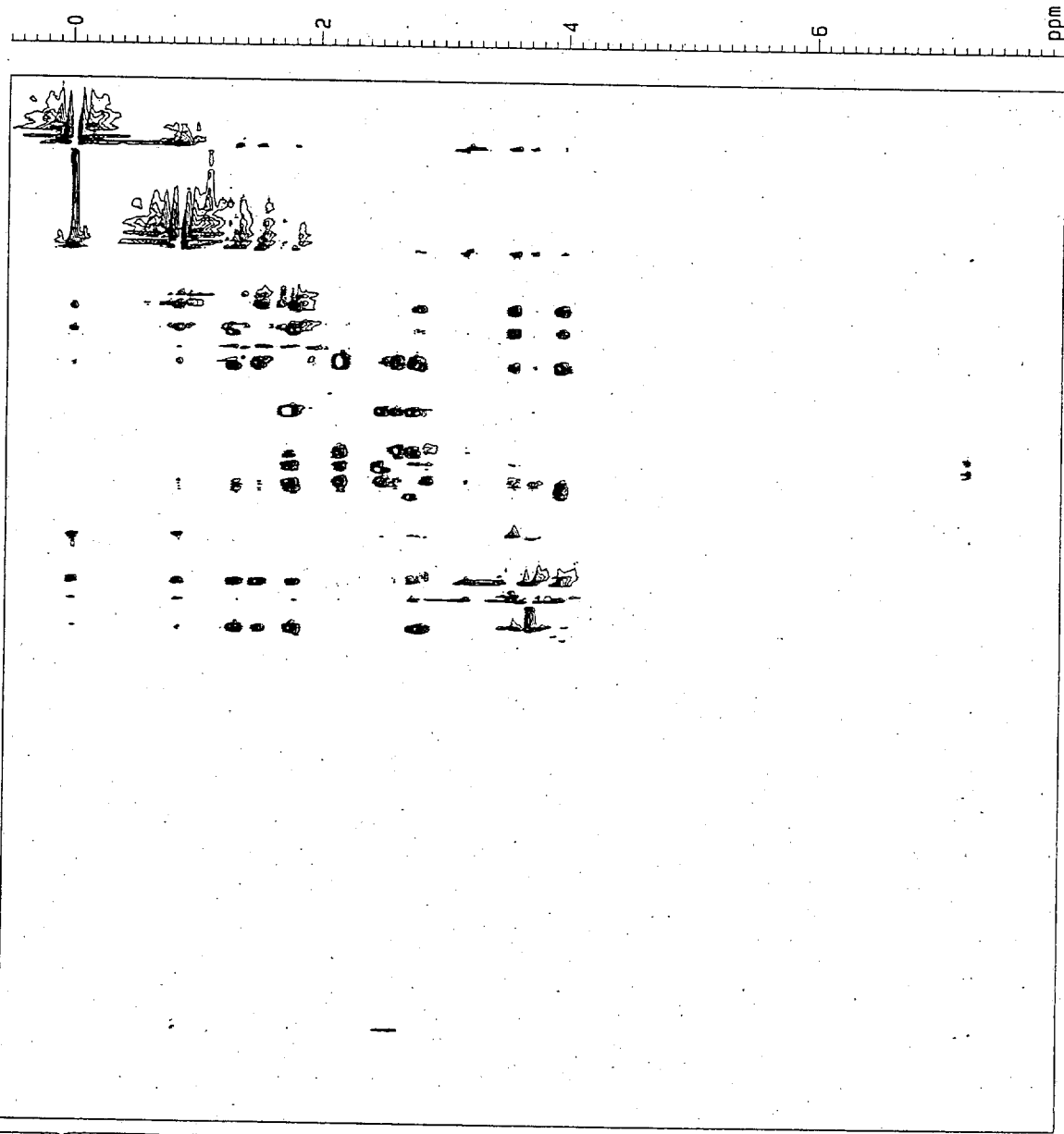
SI
SF
WDW
SSB
LB
GB
PC

F1 - Processing parameters

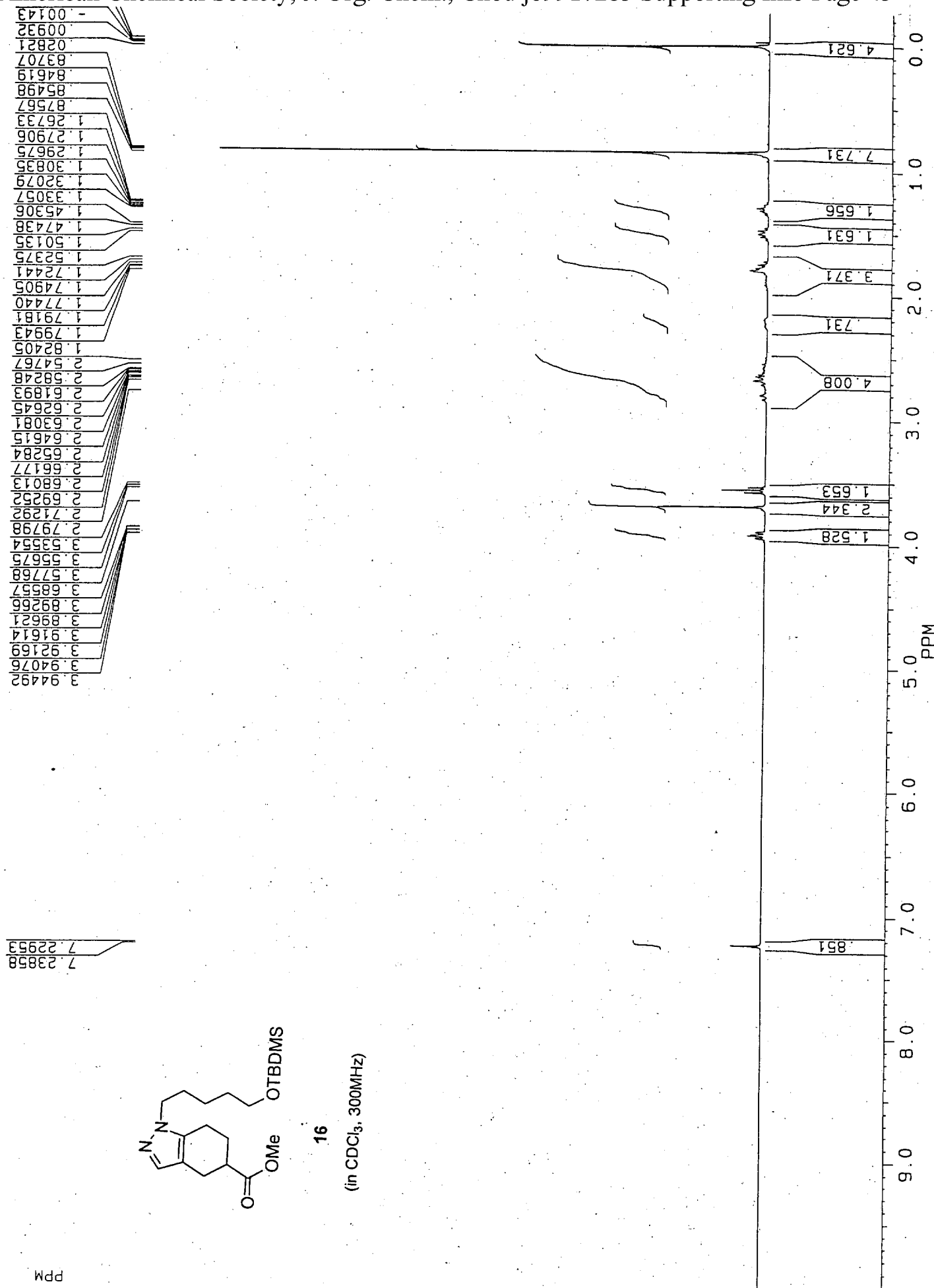
SI
MC2
SF
WDW
SSB
LB
GB

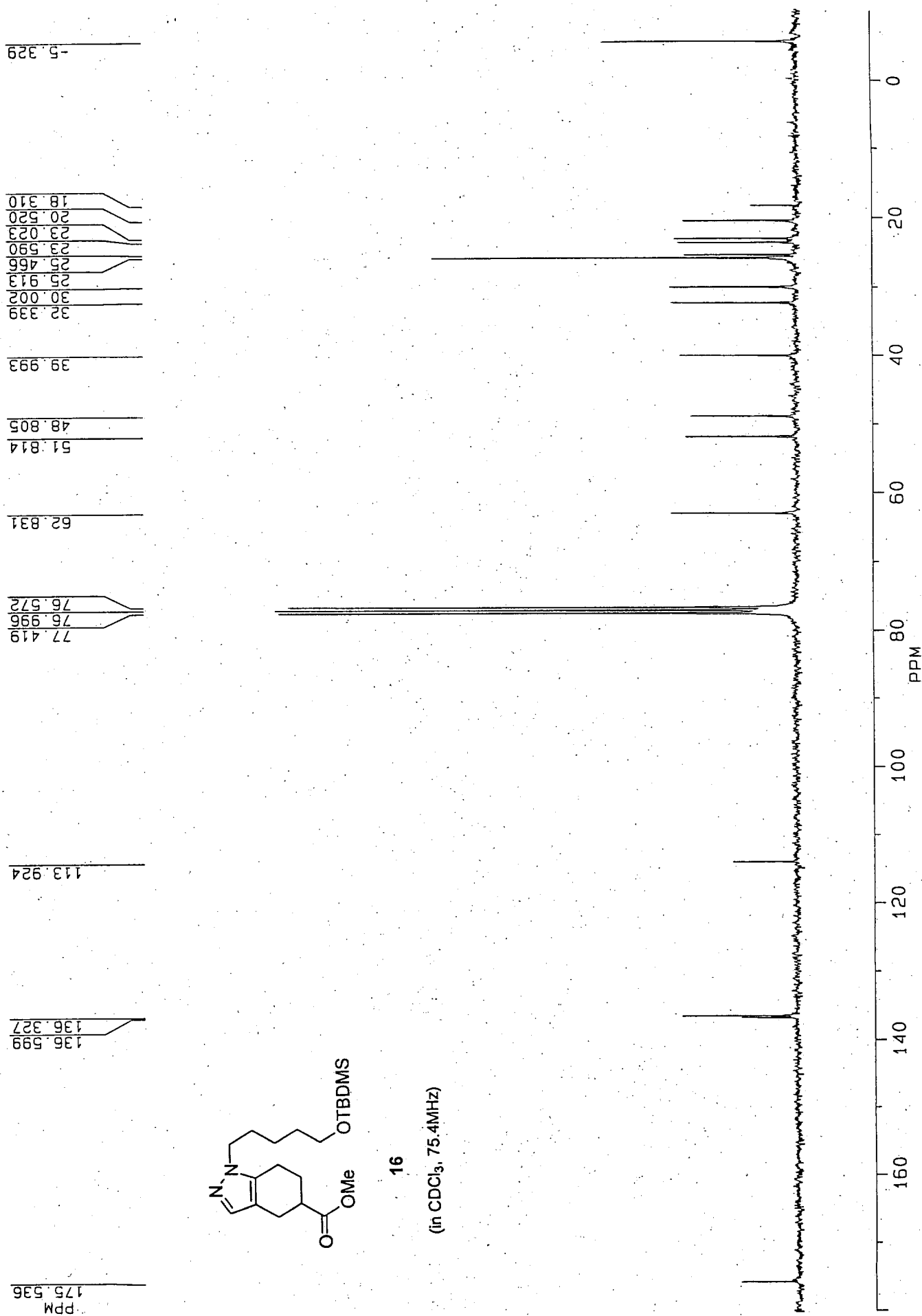
2D NMR plot parameters

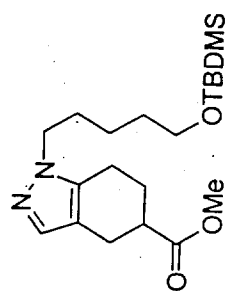
CH2
C*1
F2PLO
F2LO
F2PHI
F2HI
F1PLO
F1LO
F1PHI
F1HI
F2PACH
F2HLOW
F1PACH



ppm
0
2
4
6
8





¹H-¹H NOESY spectrum of 16

16

(in CDCl₃, 400MHz)

Data Parameters

 mcy-155
3
1

sition Parameters

 980610
22.23
noesyp
CDCl₃

 2437320 sec
2.051602 Hz
119.0 usec
128
1H
3 dB
8000000 spc
9.1 usec
8000000 sec
170.0 usec
400.1312862 MHz
4201.68 Hz
20.48
32
16
0.0001150 sec

F1 - Acquisition parameters

 100
2
443
400.1313 MHz
9.54275 Hz
10.961 cm

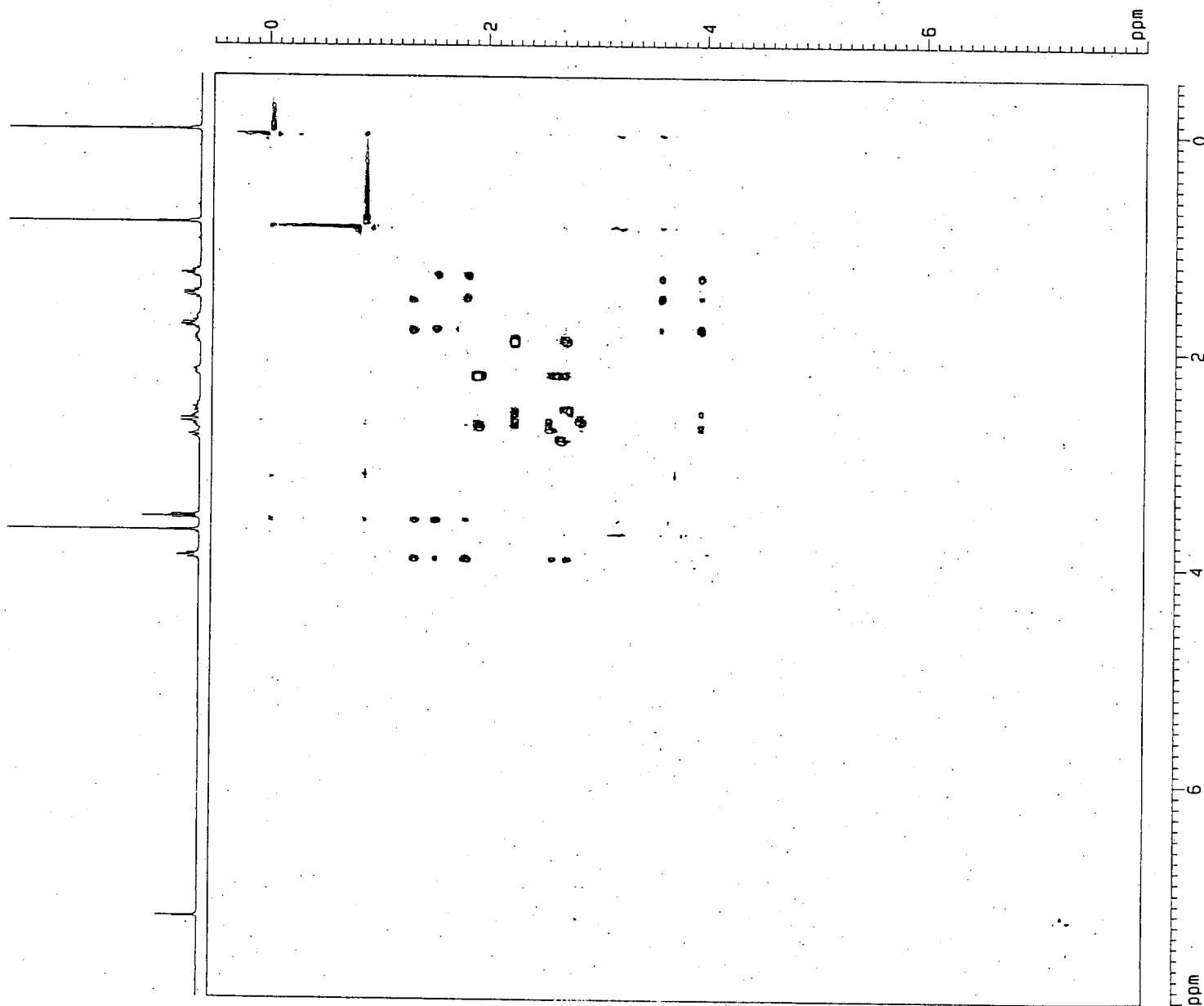
F2 - Processing parameters

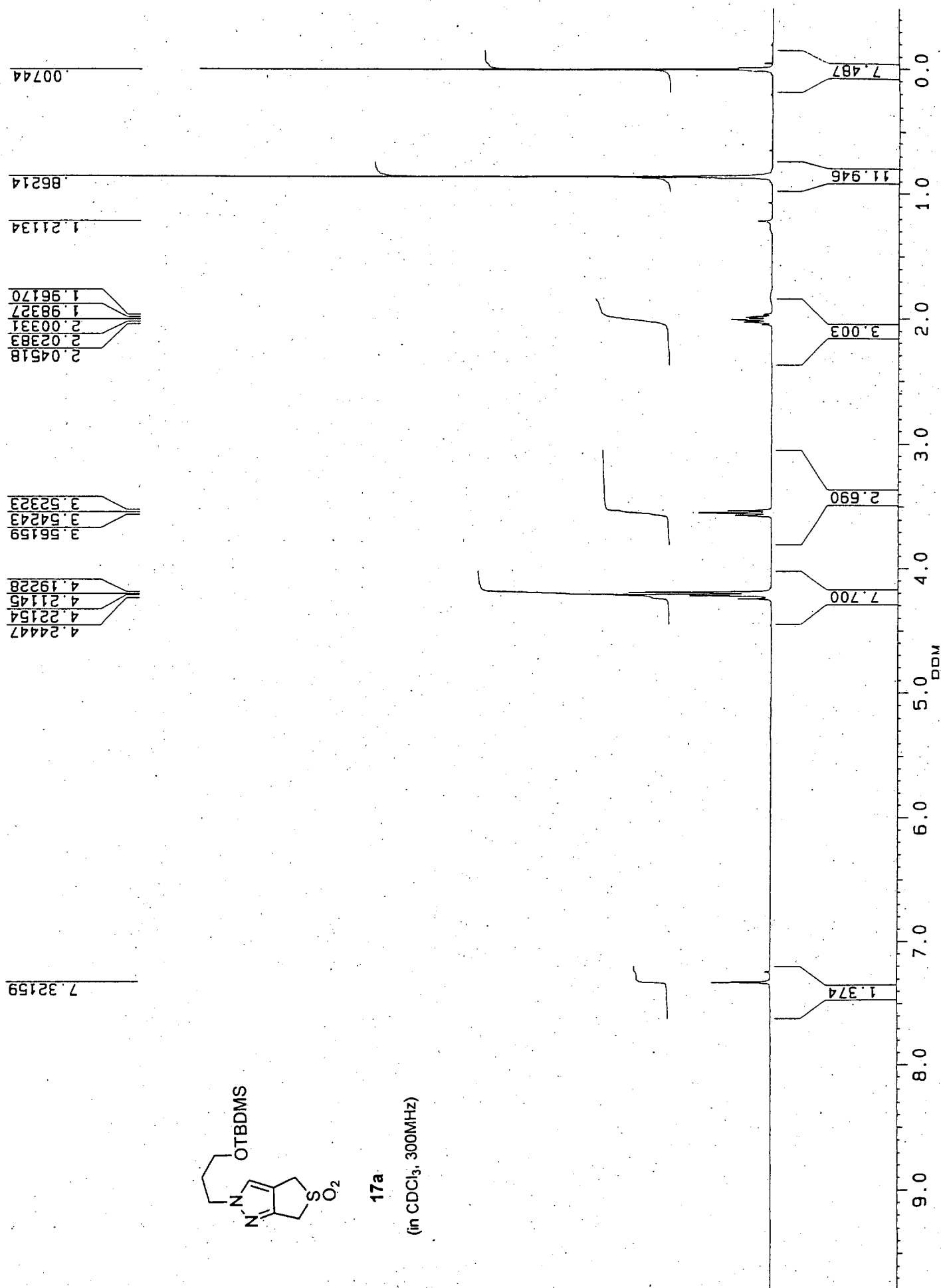
 S1
SF
WDW
SSB
LB
GB
PC
1824
303.132053 MHz
USINE
2
0.00 Hz
0
1.03

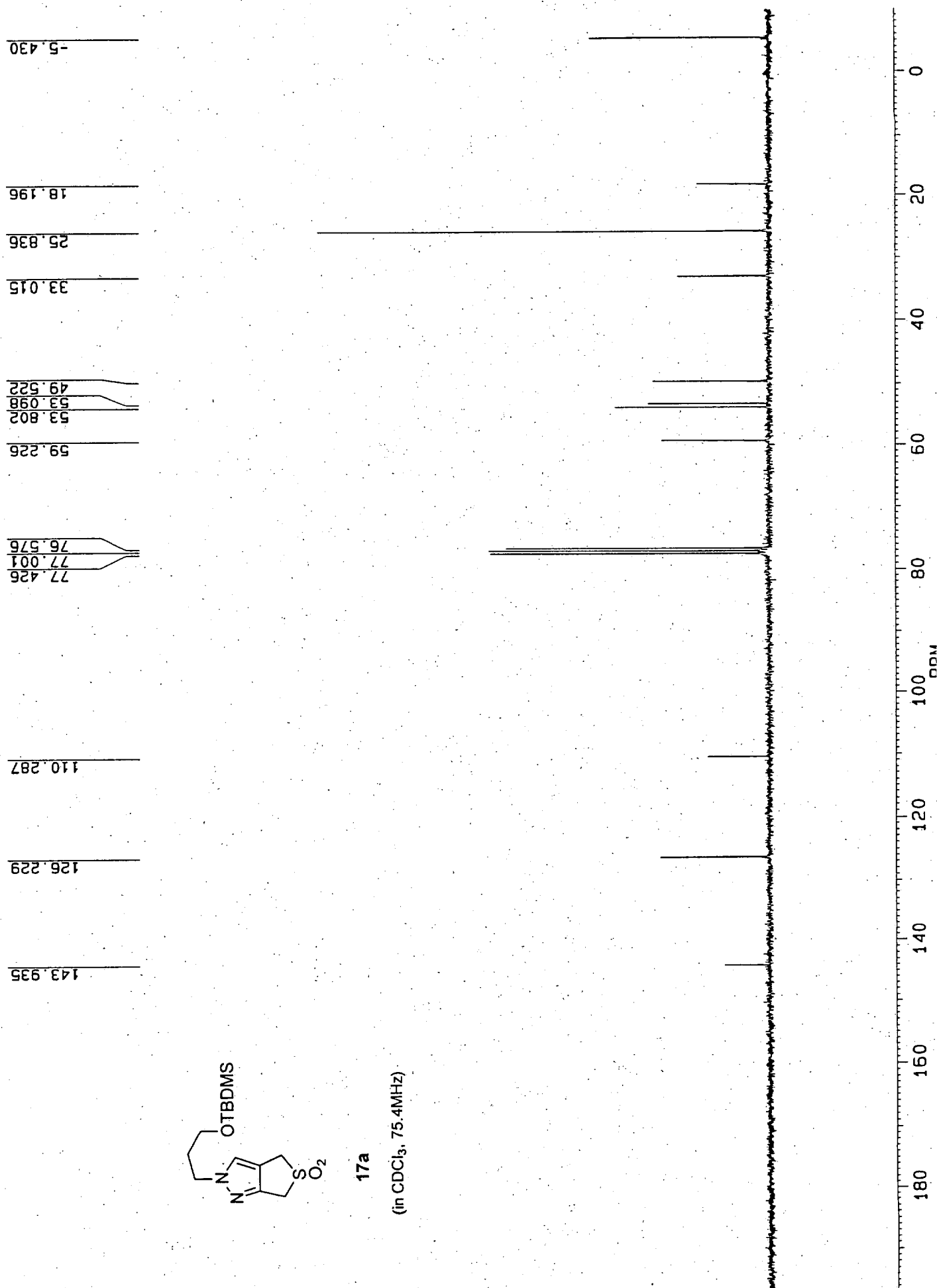
F1 - Processing parameters

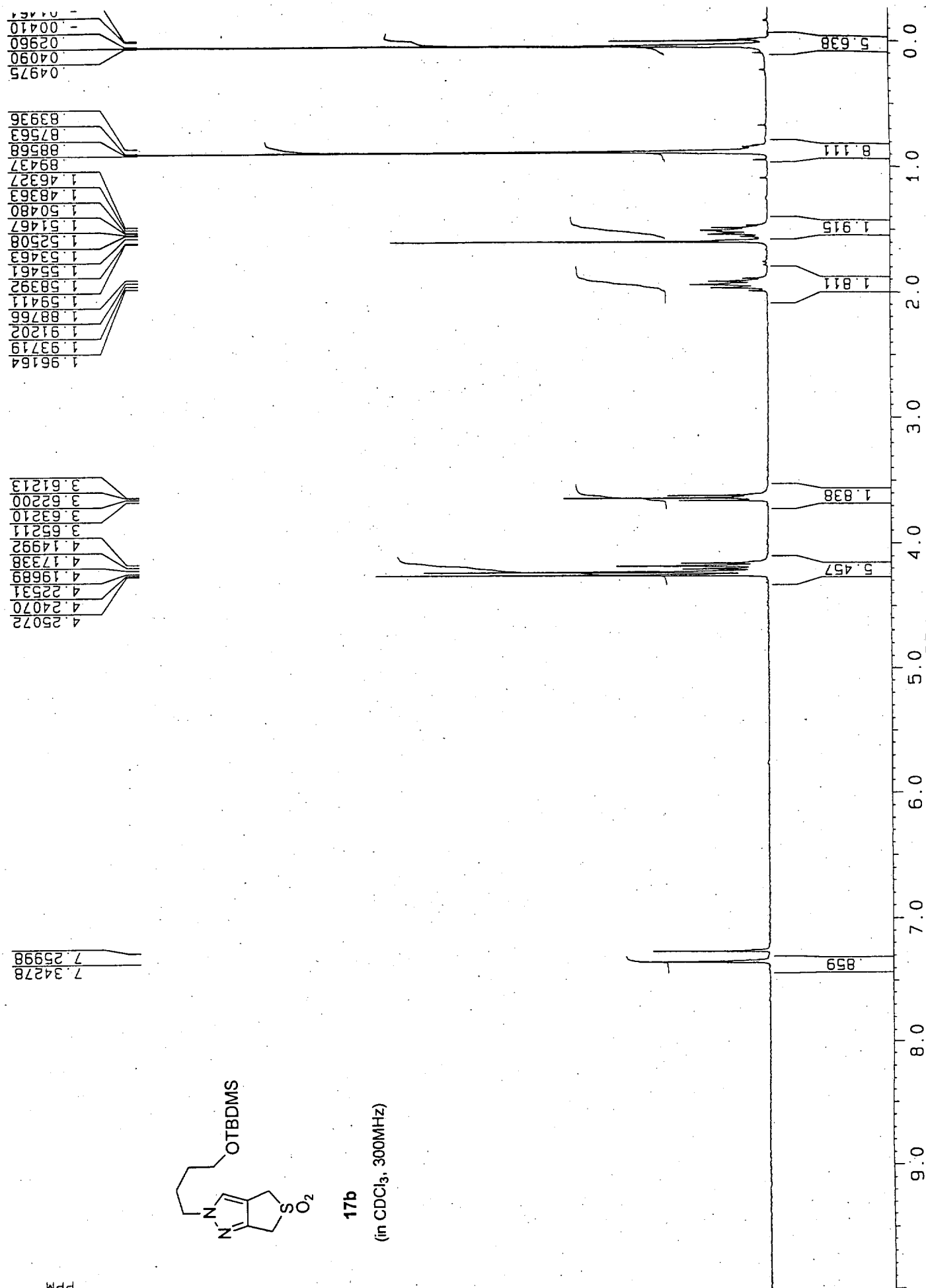
 S1
MC2
SF
WDW
SSB
LB
GB
512
TFPI
400.132055 MHz
USINE
2
0.00 Hz
0

2D INR plot parameters

 CX2
CY1
F2PL0
F2LO
F2PHI
F2HI
F1PL0
F1LO
F1PHI
F1HI
F2PPH2N
F2PLCN
F1PPH2N
15.00 cm
15.00 cm
8.005 ppm
3203.21 Hz
-0.506 ppm
-202.45 Hz
8.005 ppm
3203.02 Hz
-0.506 ppm
-202.64 Hz
0.5573 ppm/cm
22°-0.4395 Hz/c°
0.5573 ppm/cm






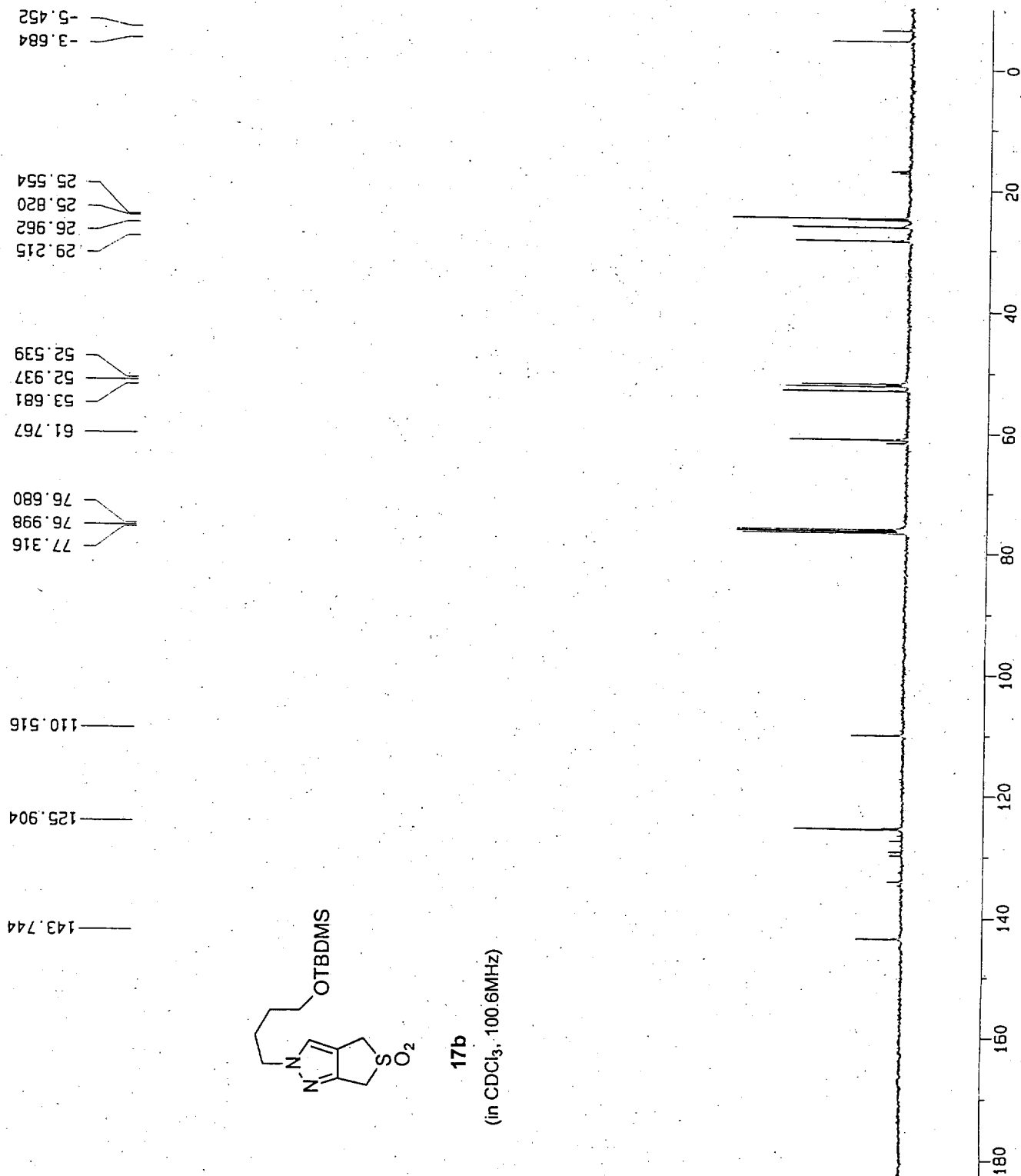


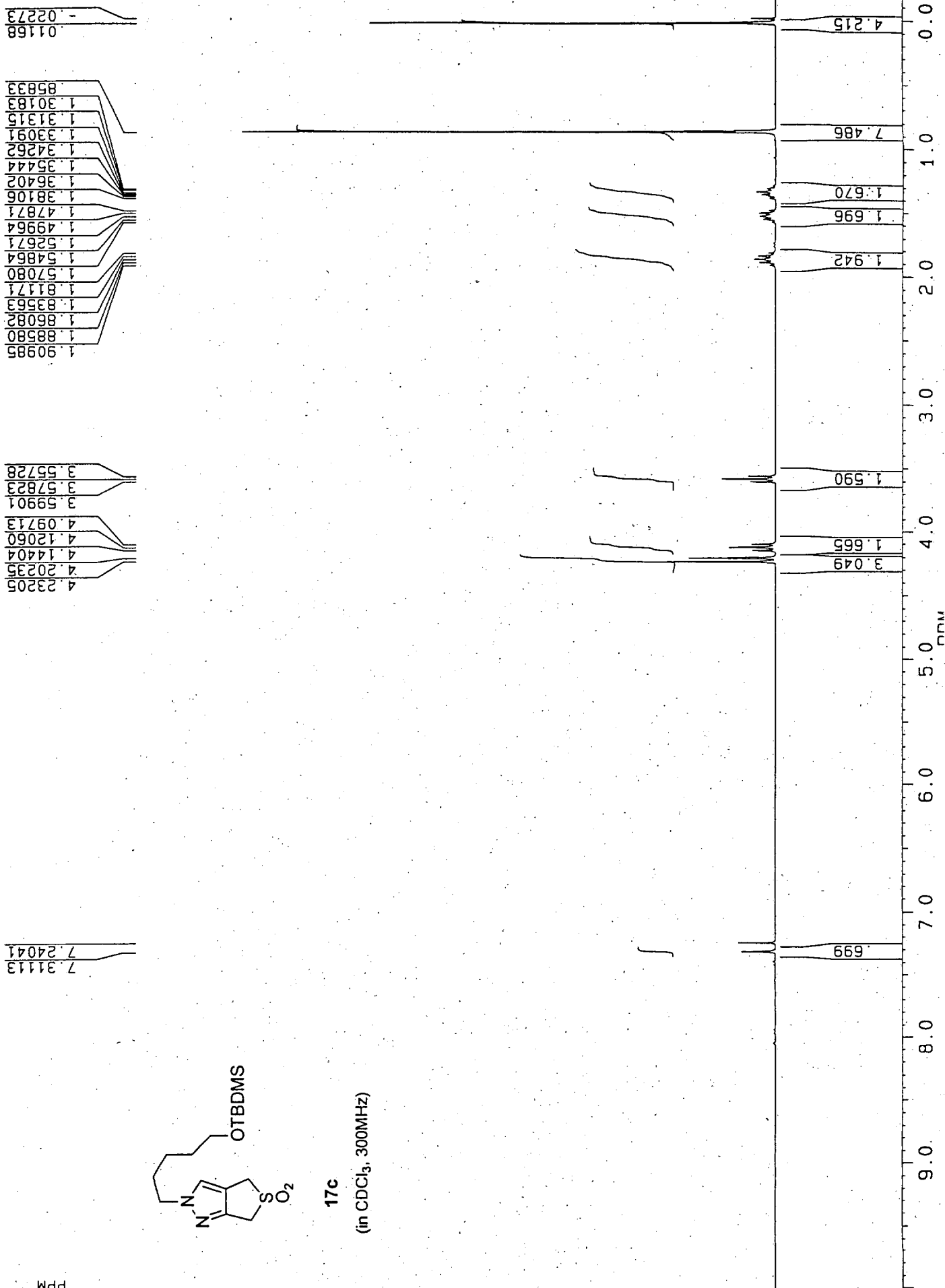
Current Data Parameters
 NAME tc1170
 EXPNO 4
 PROCNO 1

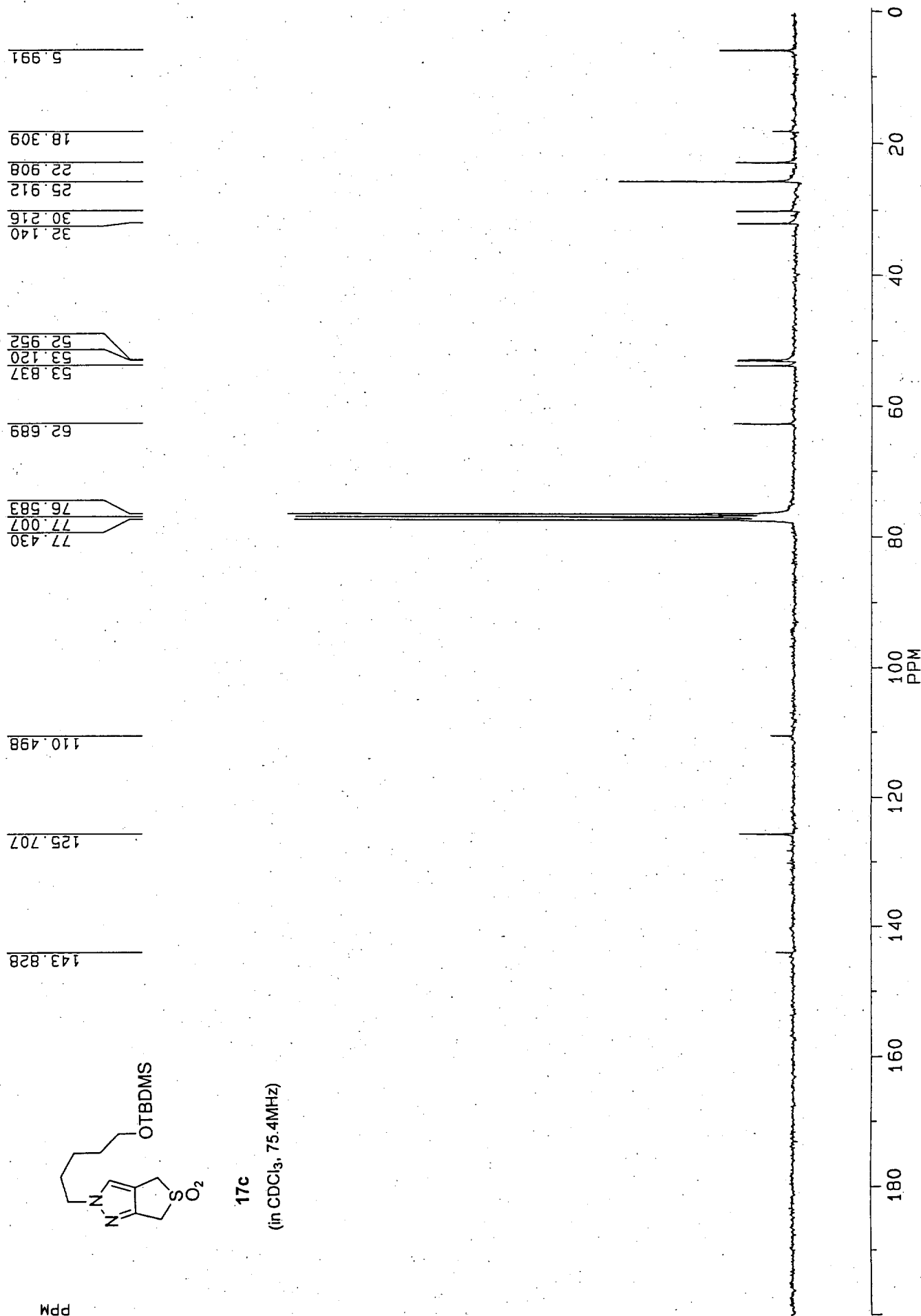
F2 - Acquisition Parameters
 Date 980303
 Time 17.49
 PULPROG zgpgdcrr
 SOLVENT CDC13
 A0 0.6681480 sec
 FIDRES 0.726609 Hz
 Dk 21.0 usec
 RG 32768
 NUCLEUS 13C
 D11 0.0300000 sec
 HL1 3 dB
 P31 100.0 usec
 S2 27 dB
 D1 2.4000001 sec
 TL0 21.00 dB
 P0 4.0 usec
 DE 26.3 usec
 SF01 100.6233349 MHz
 SWH 23809.52 Hz
 TD 32768
 NS 1038
 DS 2

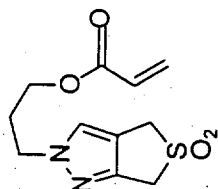
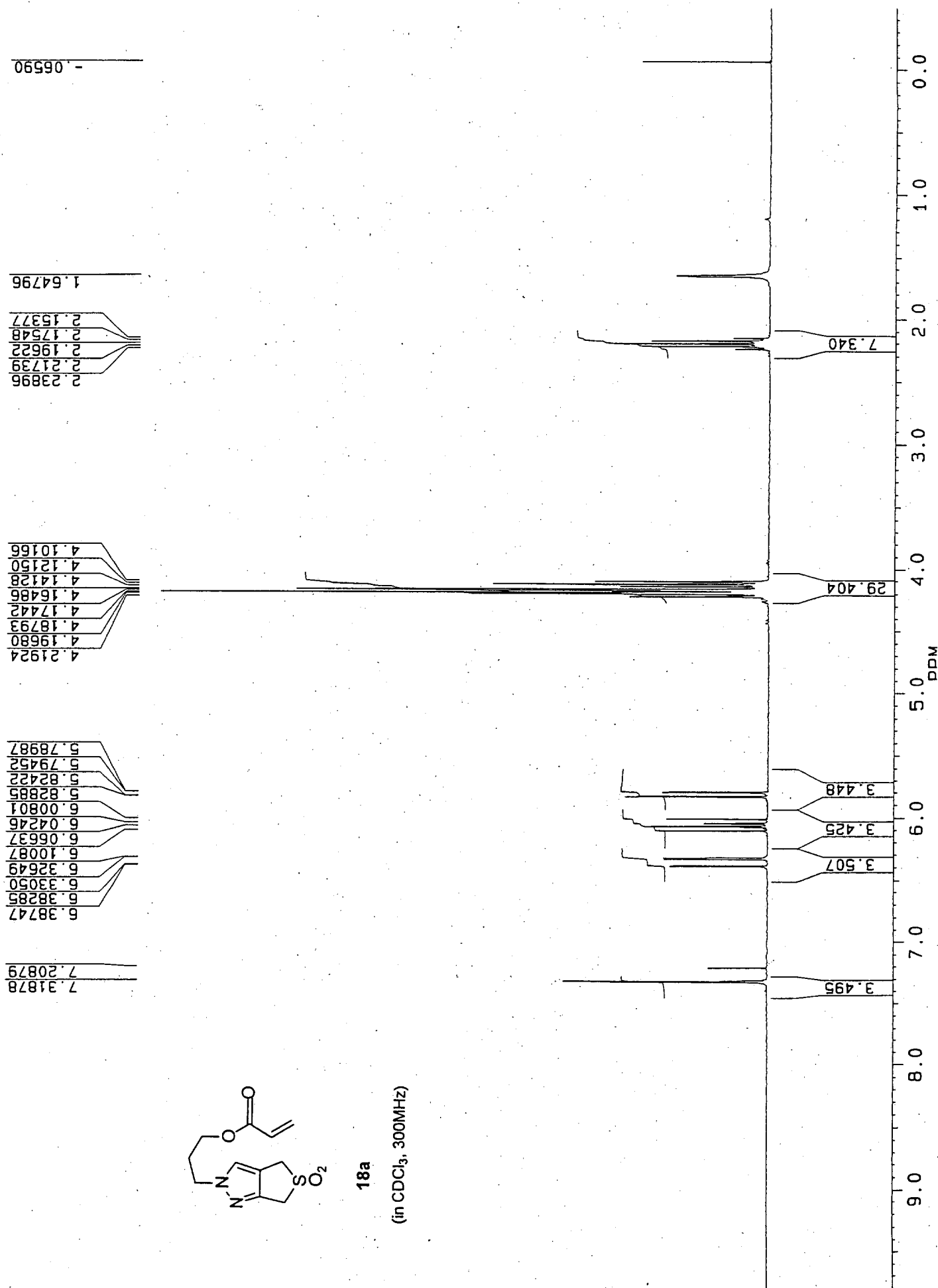
F2 - Processing parameters
 SI 32768
 SF 100.6127779 MHz
 NDM EM
 SSB 0
 LB 3.00 Hz
 GB 0
 PC 0.50

1D NMR plot parameters
 CX 22.00 cm
 F1P 200.000 ppm
 F1 20122.55 Hz
 F2P -10.000 ppm
 F2 -1006.13 Hz
 PPMCH 9.54545 ppm/cm
 HZCM 960.39471 Hz/cm









18a

(in CDCl₃, 300MHz)

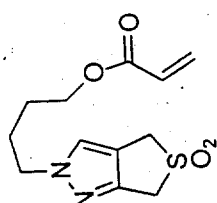
- 00001

2.02261
1.99894
1.98933
1.97447
1.96602
1.94841
1.92458
1.73952
1.71847
1.69703
1.68995
1.67926
1.66712
1.64524
1.60203

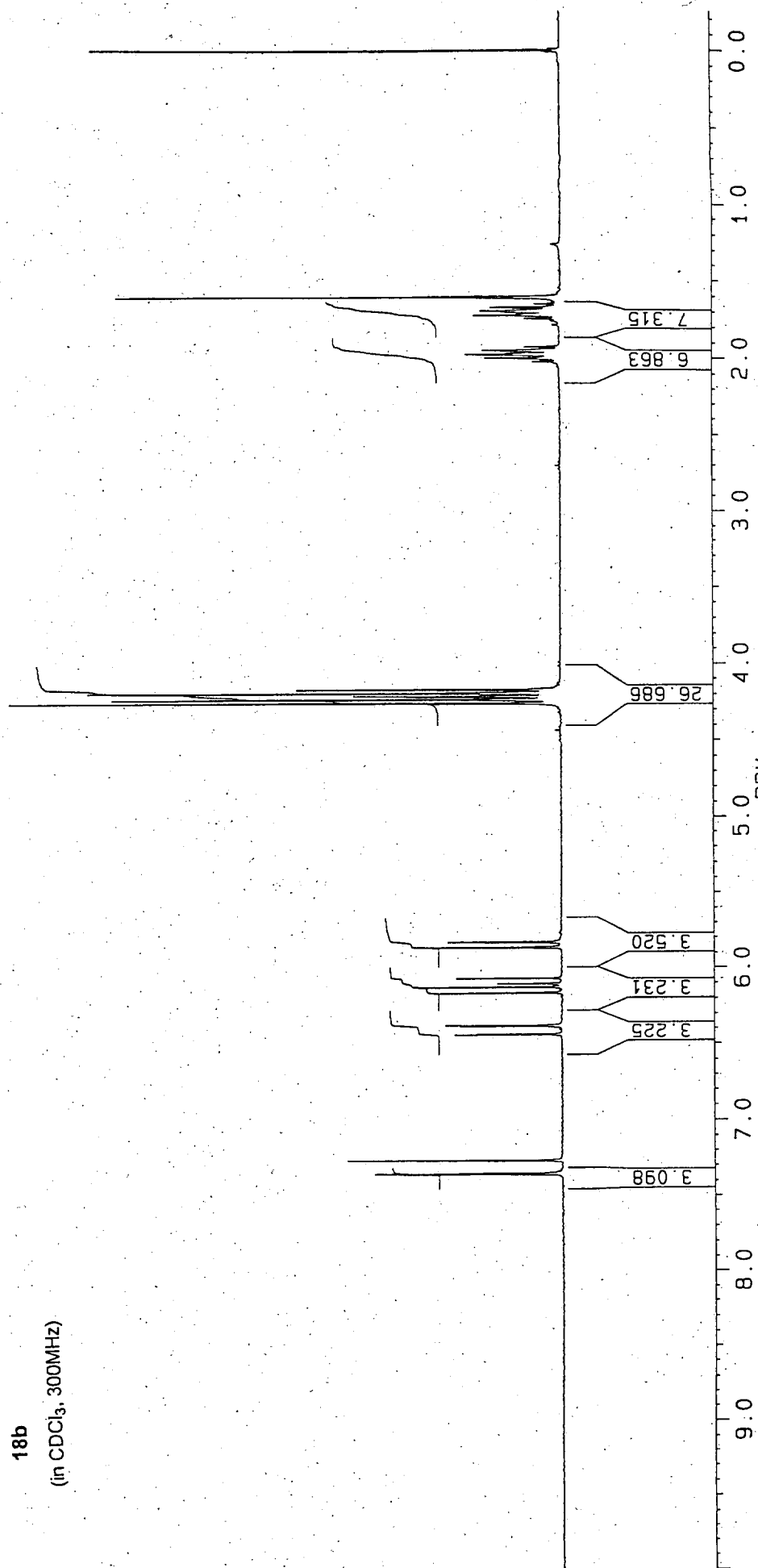
4.25617
4.23263
4.20982
4.18828
4.16624

6.43957
6.43534
6.38239
6.37647
6.15978
6.12484
6.10279
6.06790
5.86019
5.85591
5.82546
5.82092

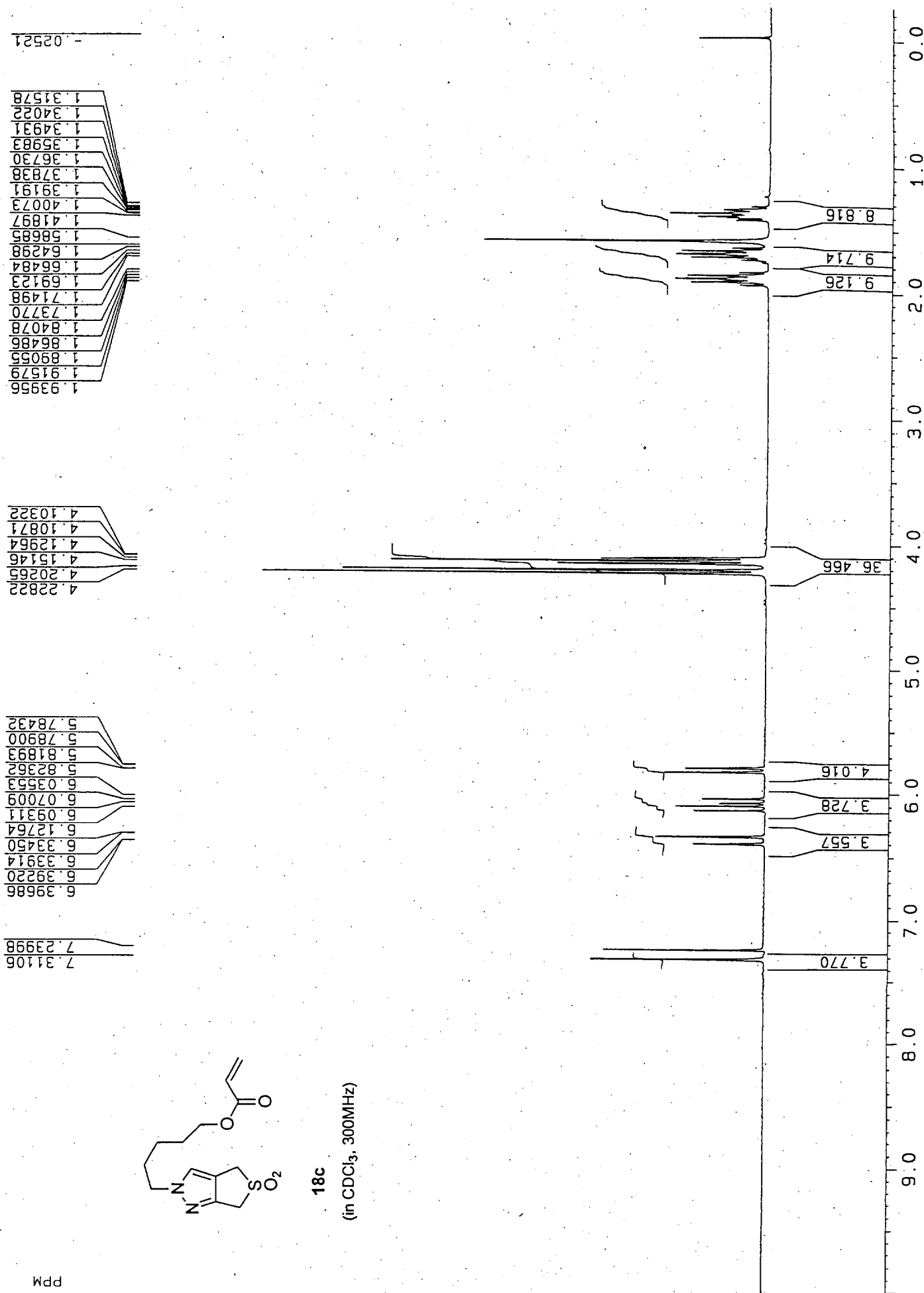
7.35422
7.26426

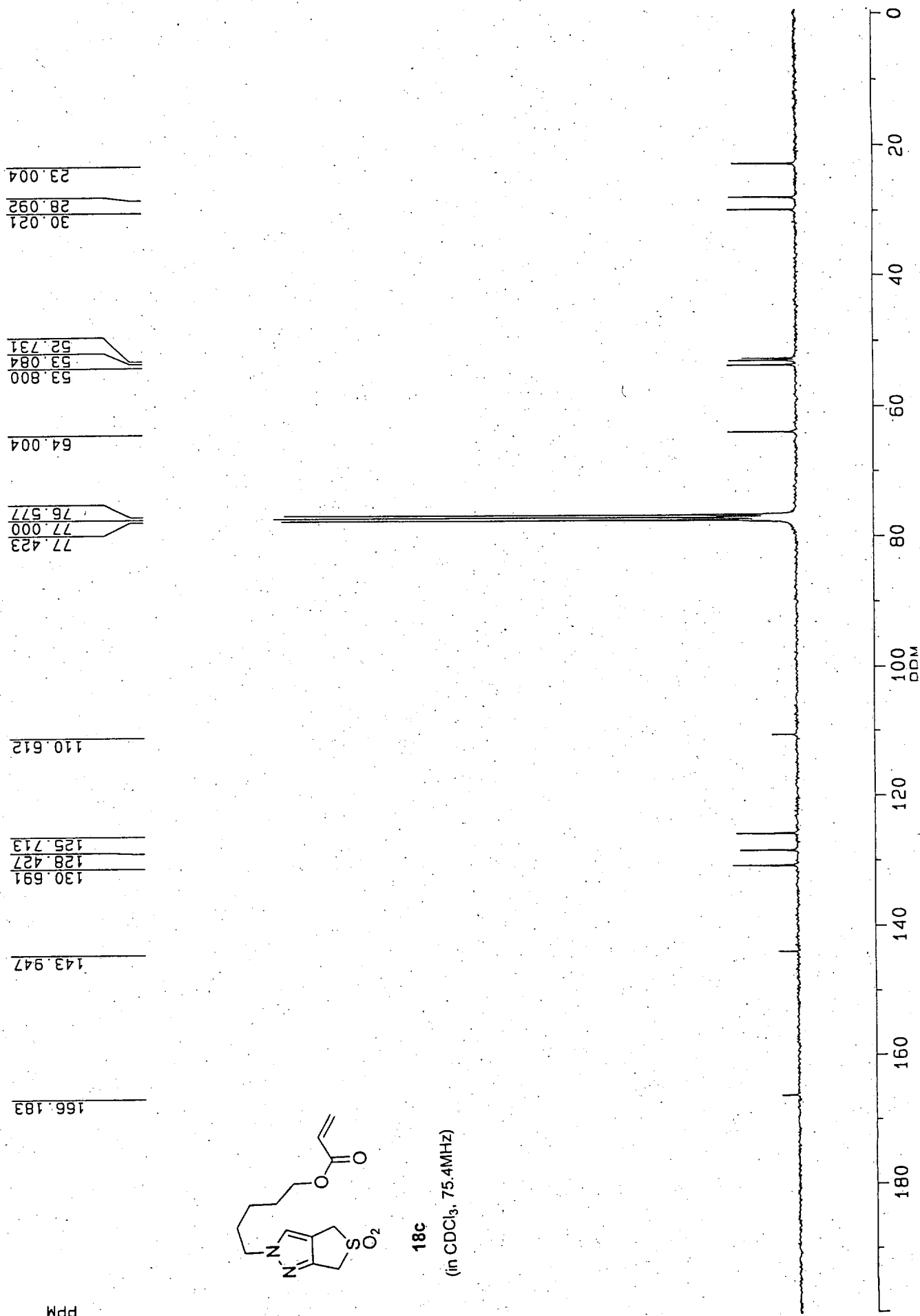


18b
(in CDCl₃, 300MHz)

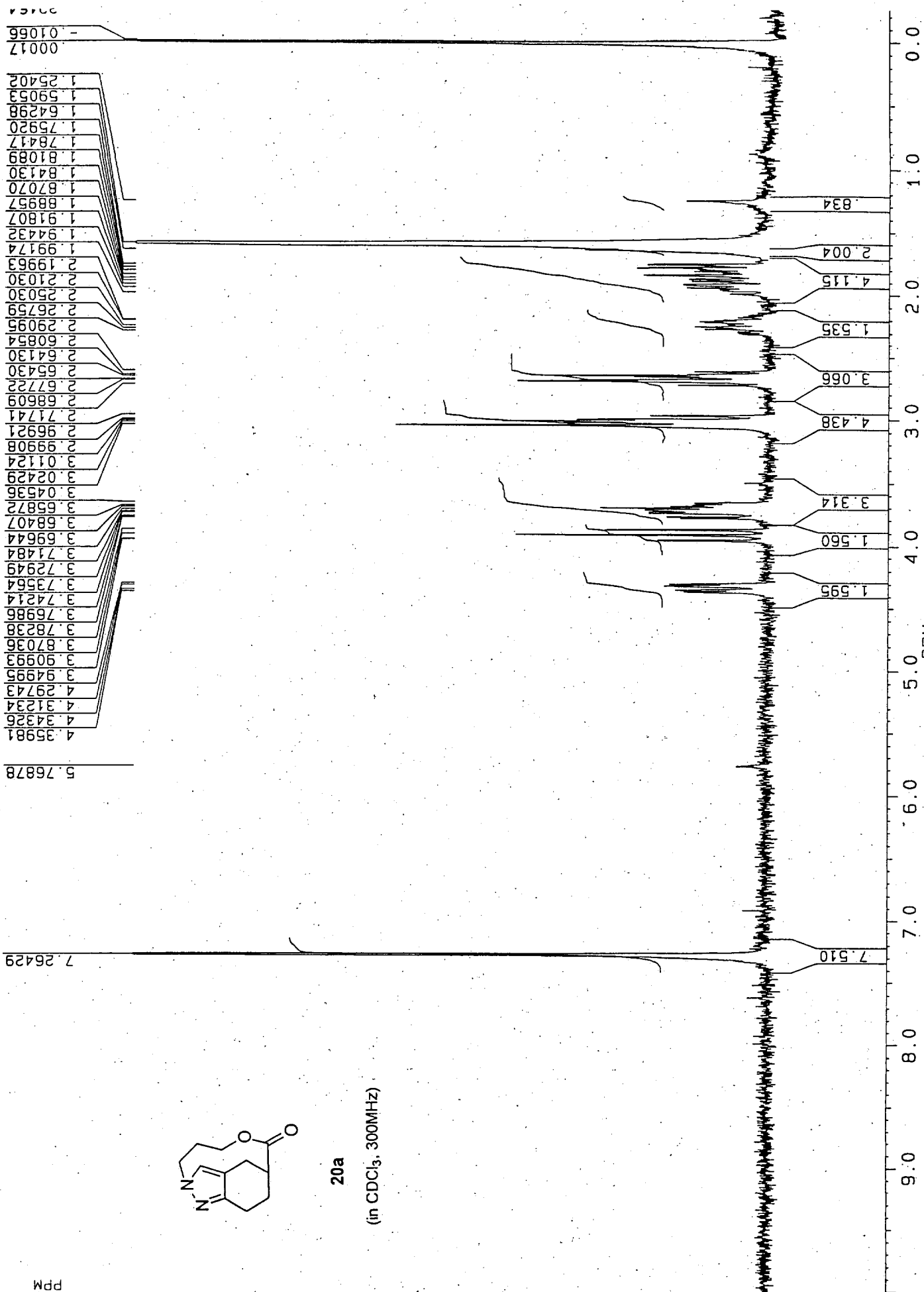


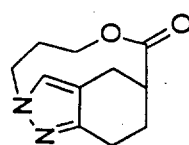
PPM



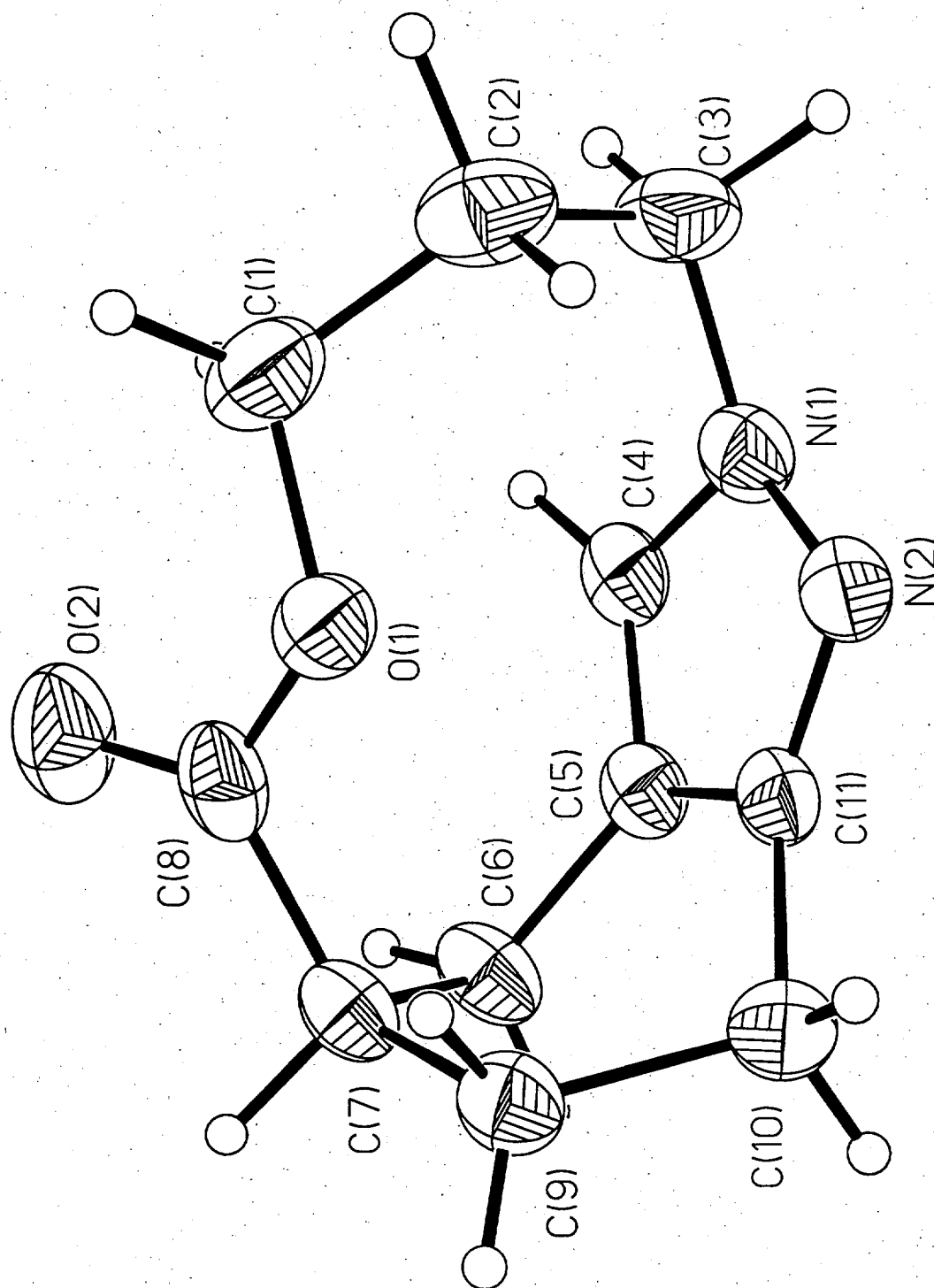


ppm

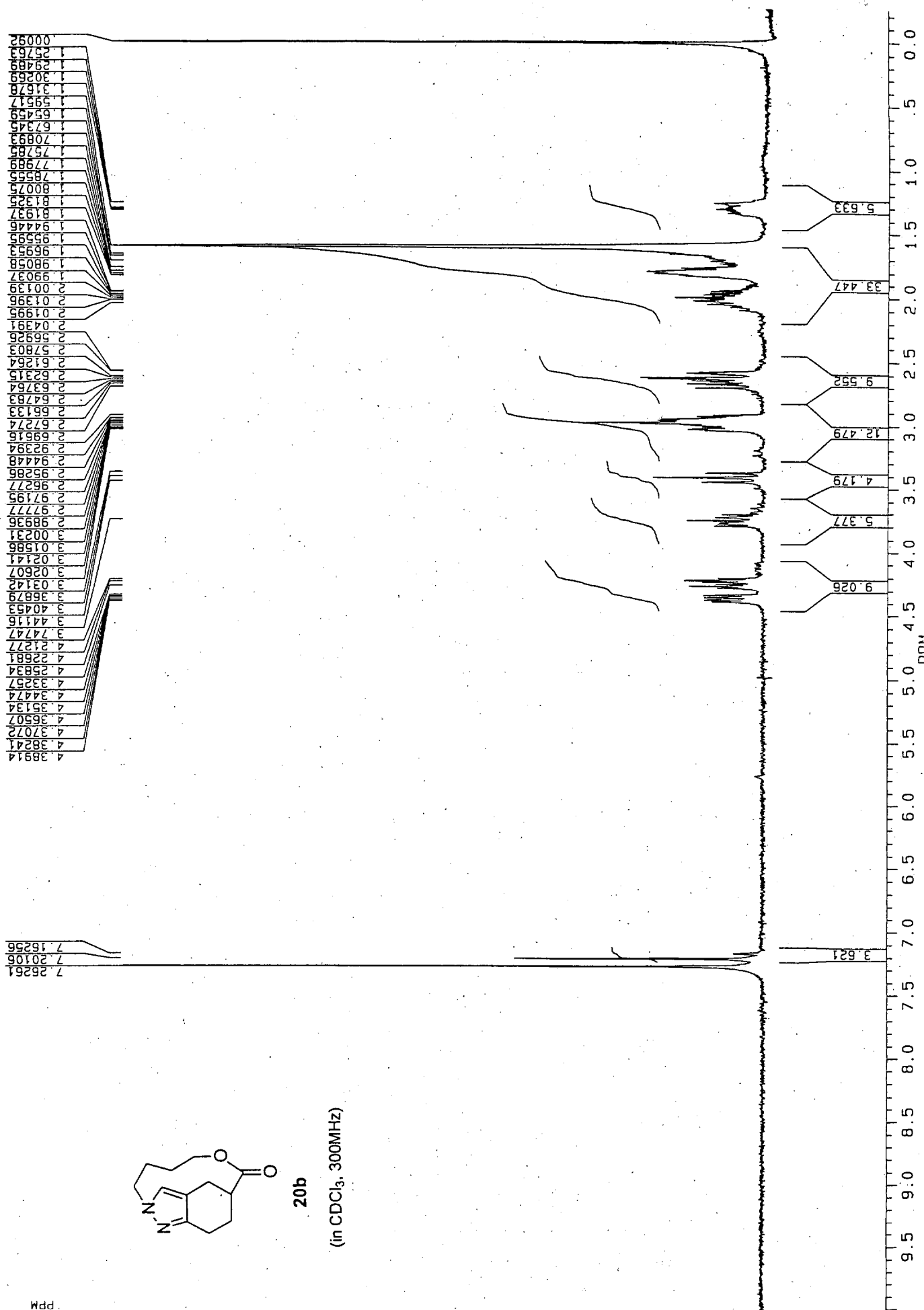


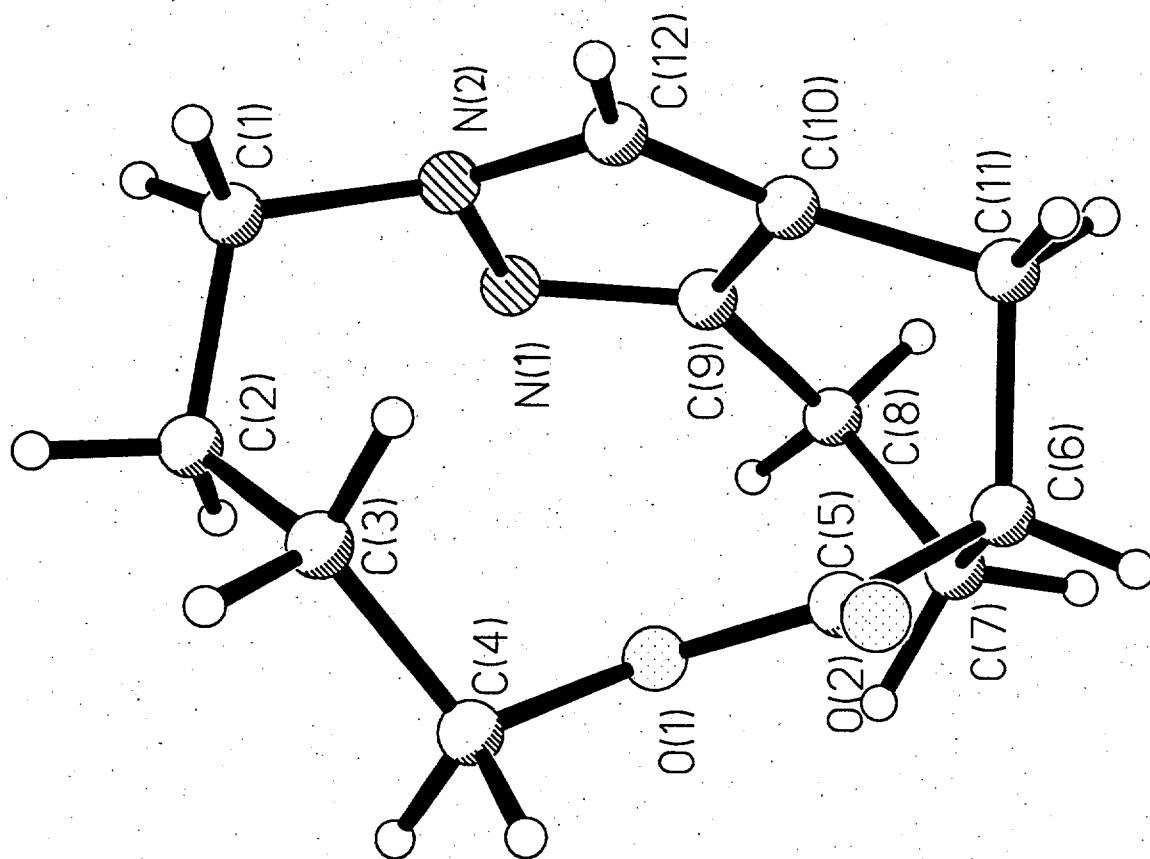
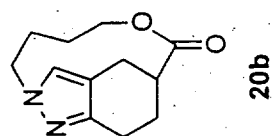


20a

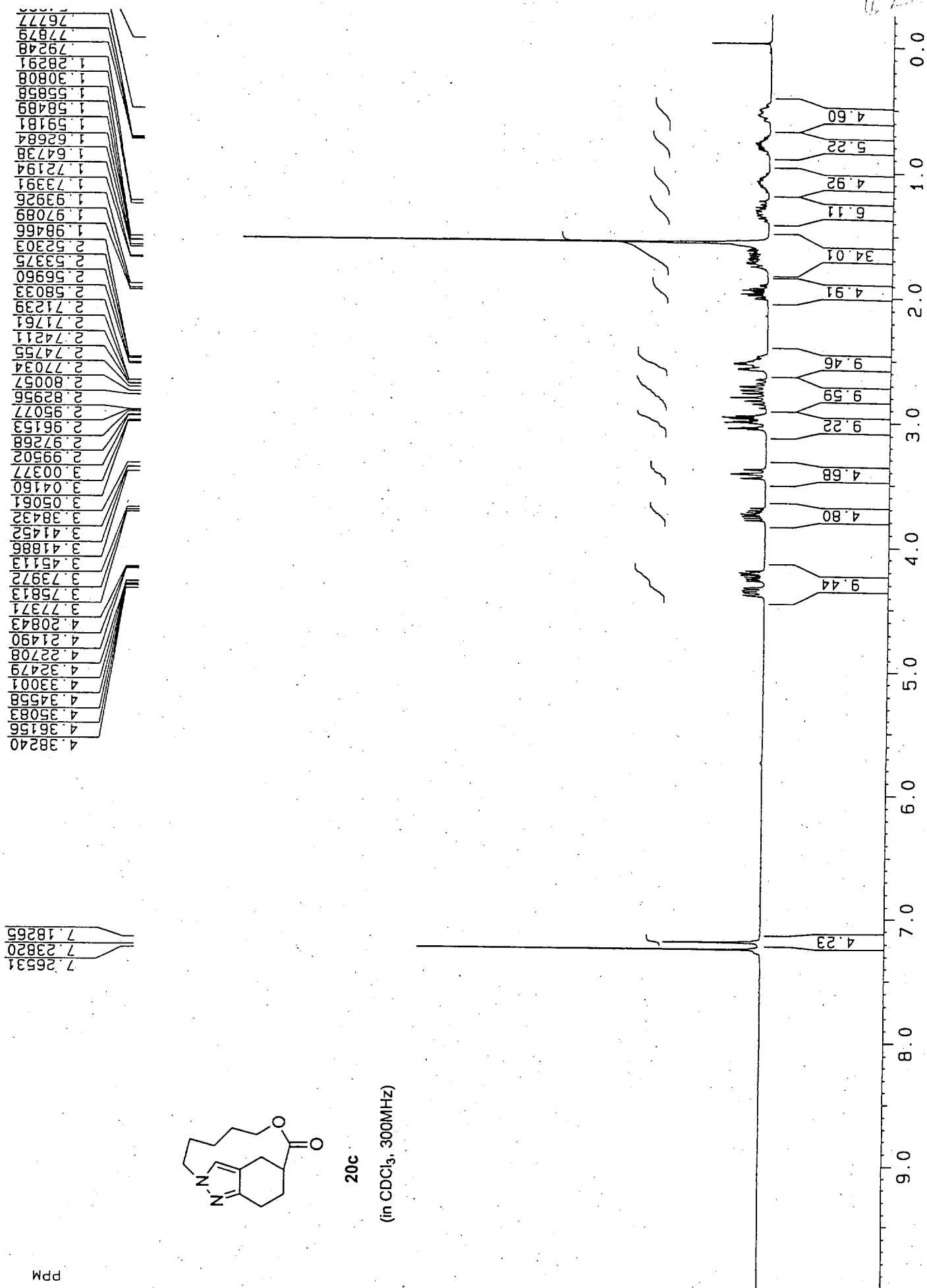


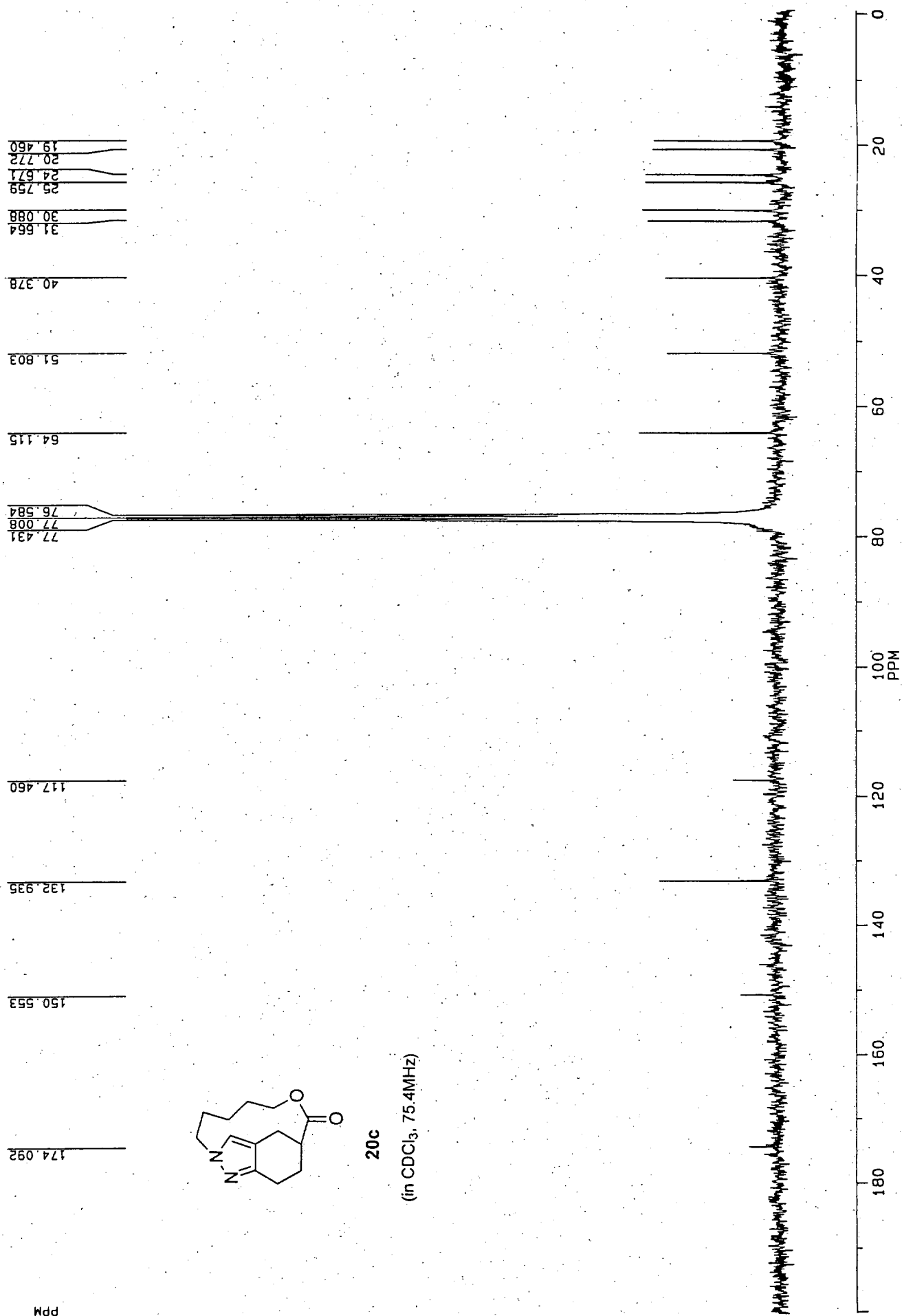
The ORTEP drawing of 20a

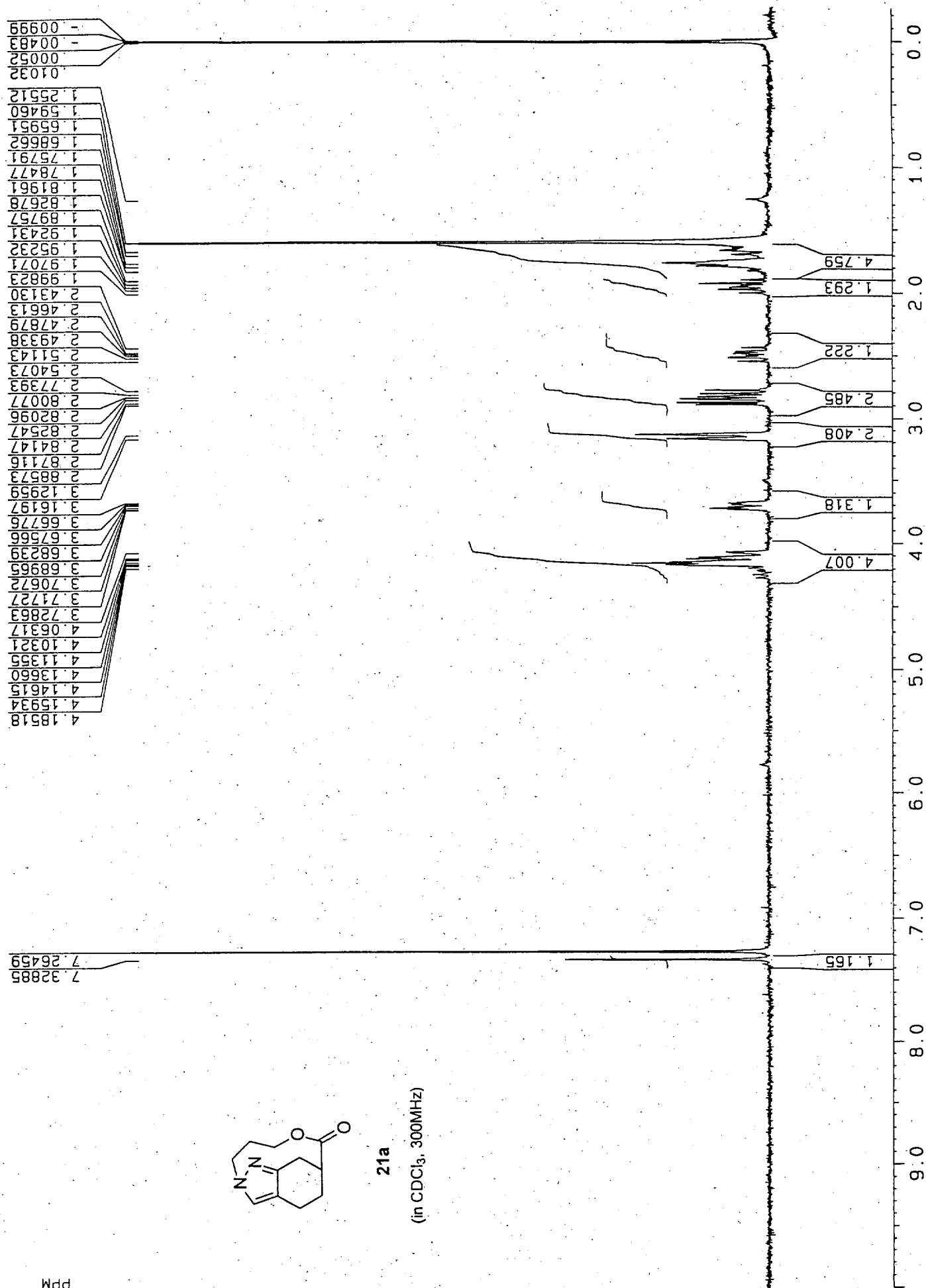


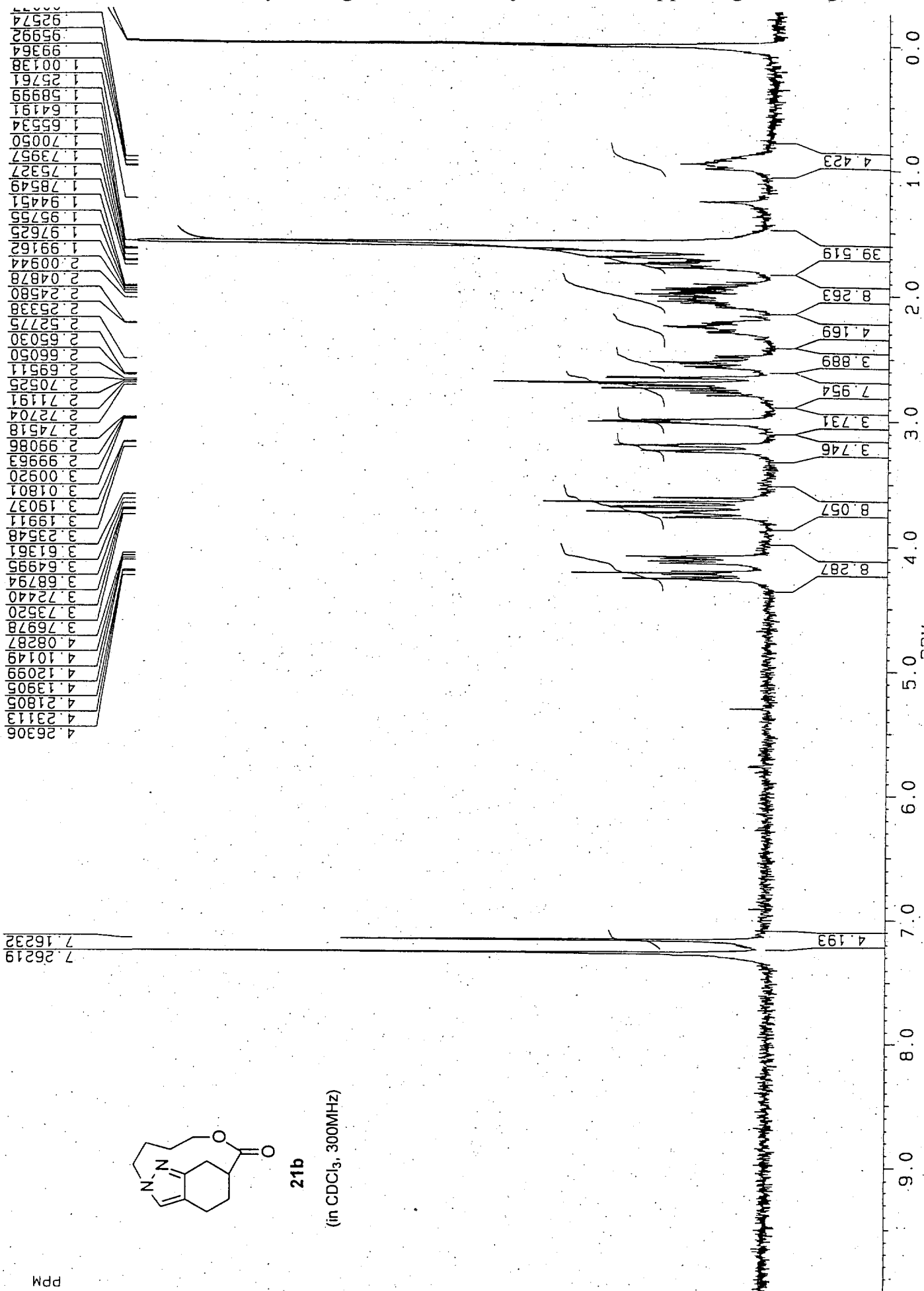


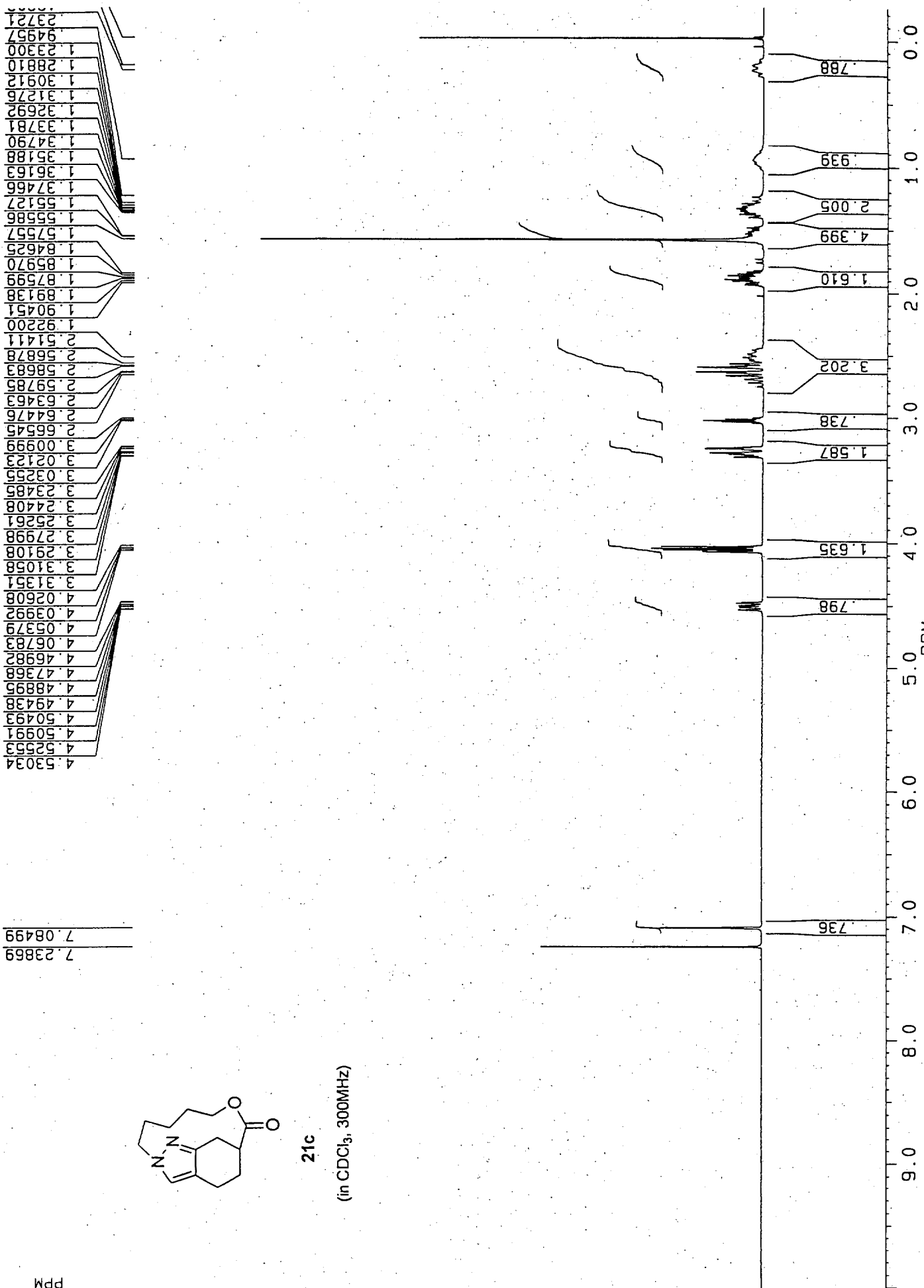
The ORTEP drawing of **20b**

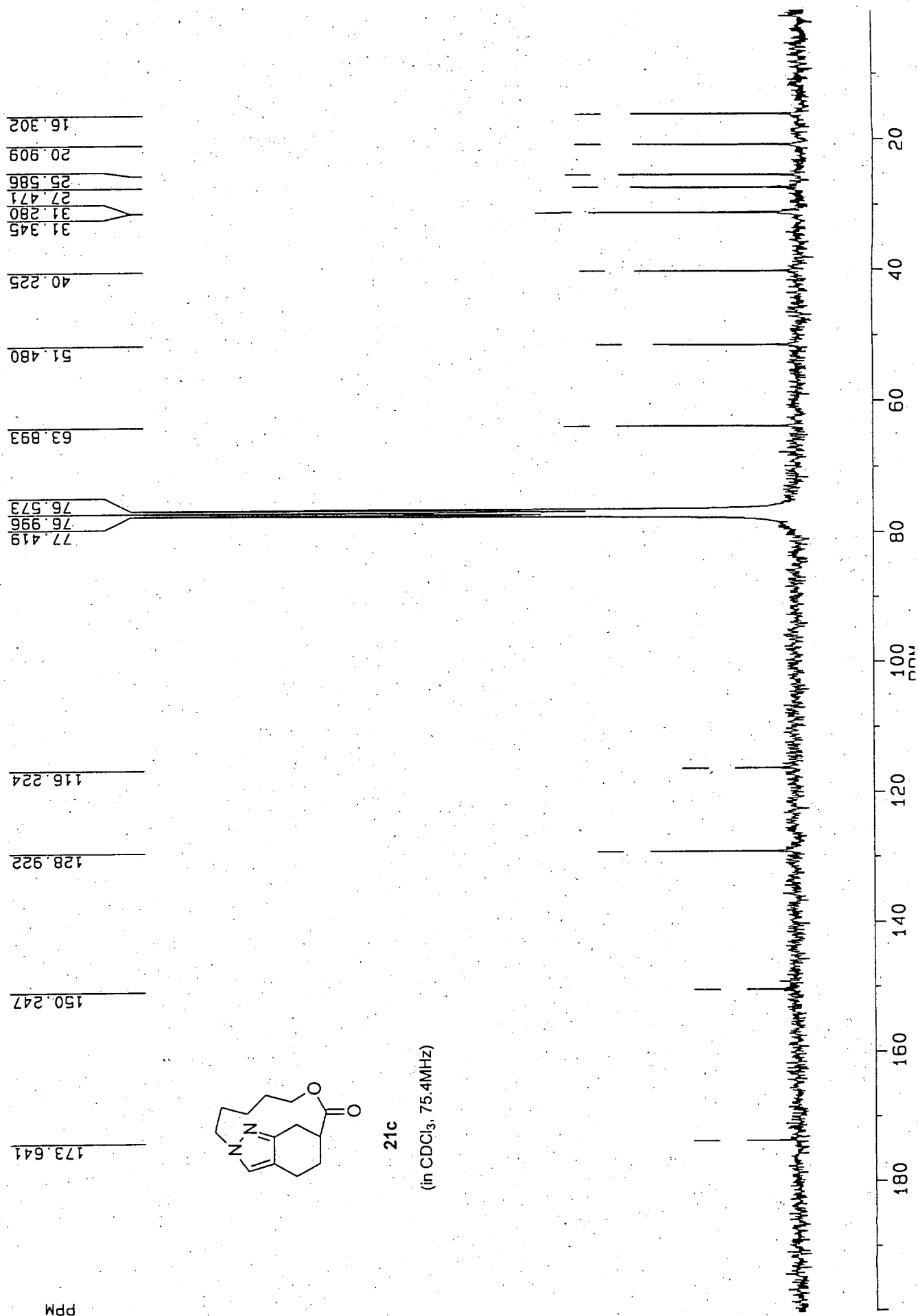


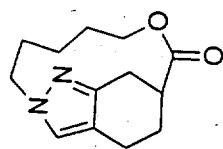




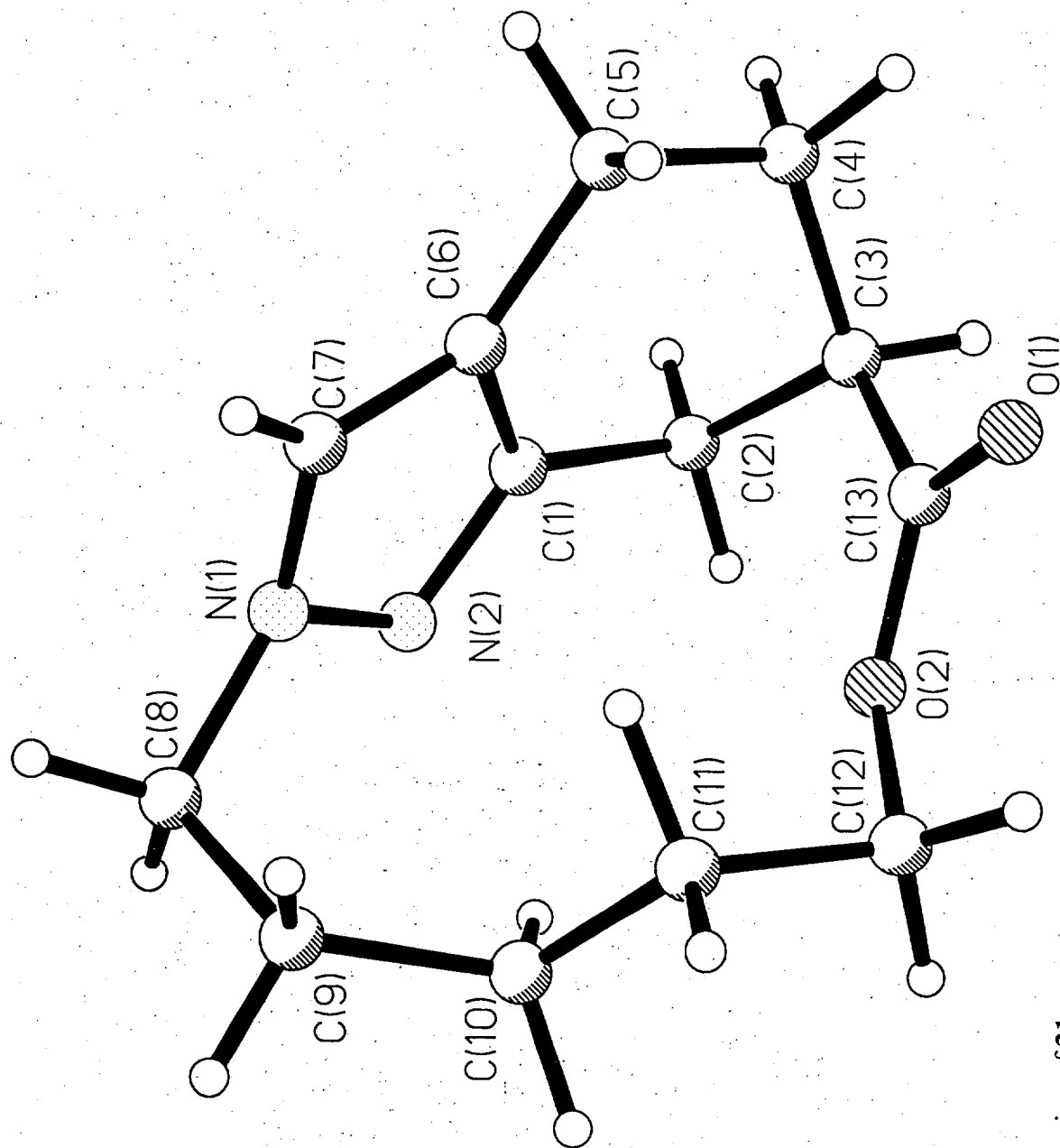




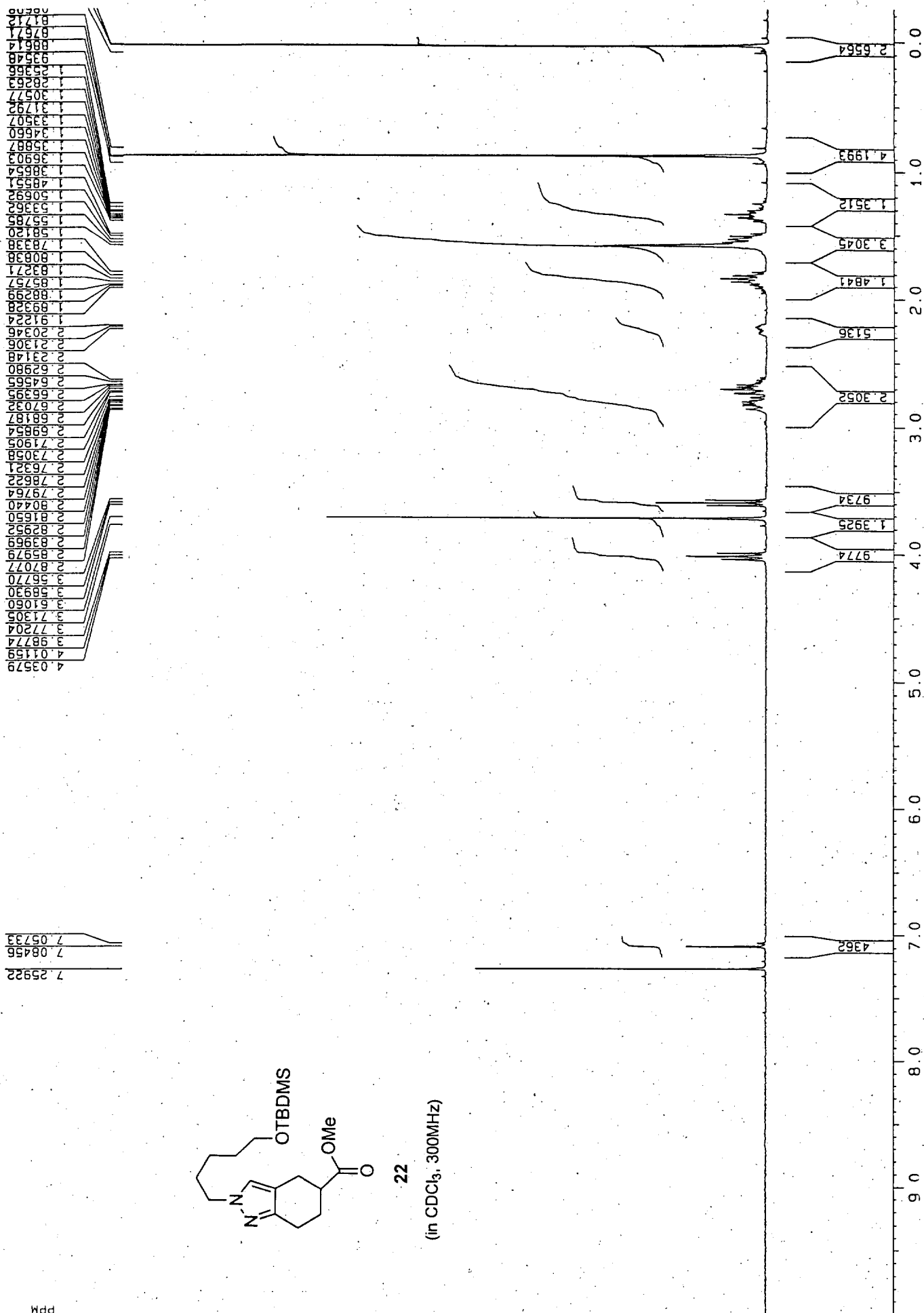


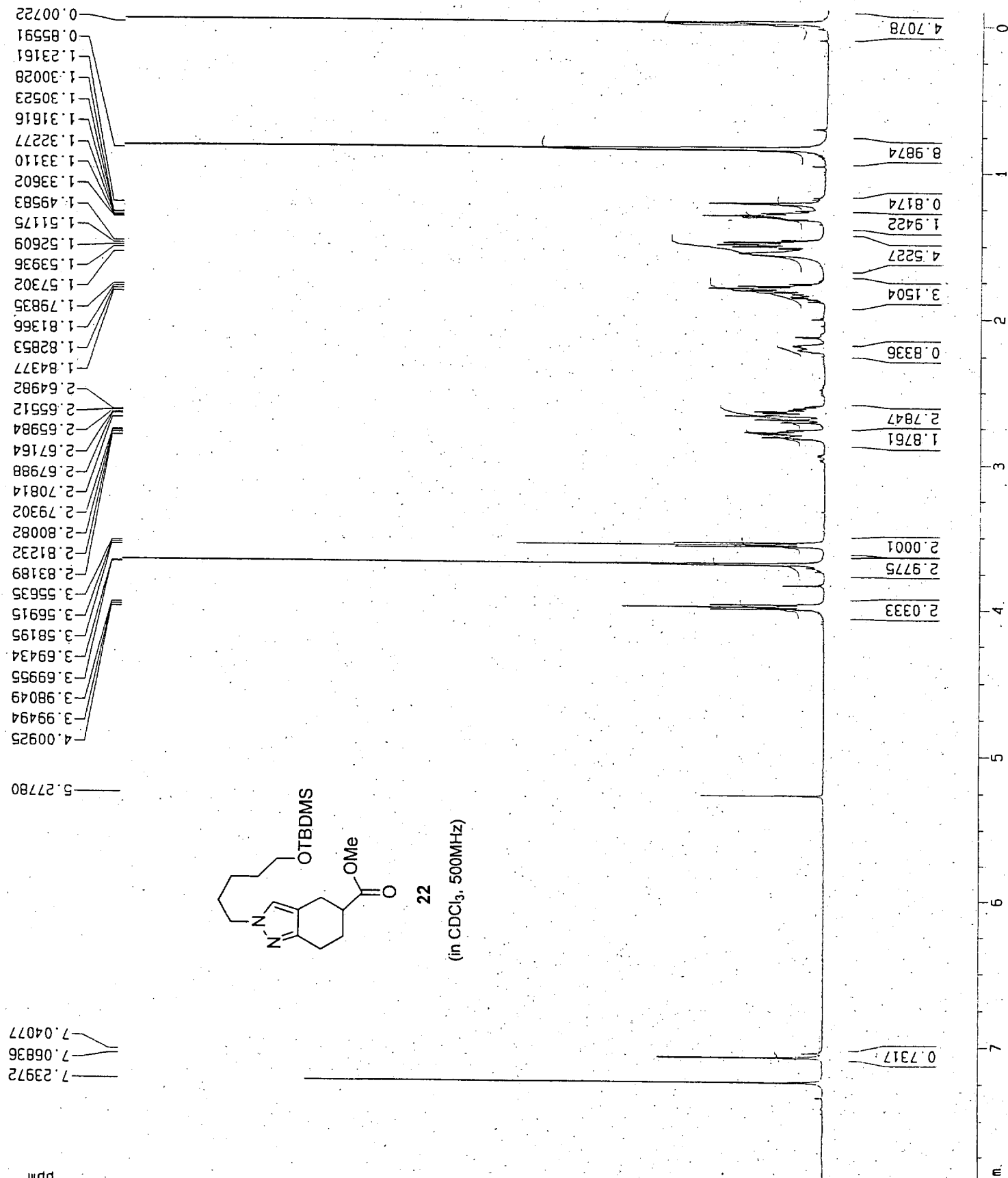


21c



The ORTEP drawing of 21c





Current Data Parameters
NAME lsc07019c
EXPNO 11
PROCNO 1

F2 - Acquisition Param
Date_ 990701
Time 4.05
spect

INSTRUM 5 mm TXI 1H/1
PROBHD
PULPROG zg

TD 16384
SOLVENT $CDCl_3$

NS 1E
DS 2

SWH 4990.02C
FIDRES 0.304567

AQ 1.6417265
RG 287.4

DW 100.20C
DE 6.5C

TE 300.0
D1 1.0000000C

P1 6.0C
DE 6.5C

SFO1 500.1321942
NUCLEUS off

F2 - Processing param
SI 3276E

SF 500.1300237
WDW no

SSB C
LB 0.0C

GB C
PC 1.0C

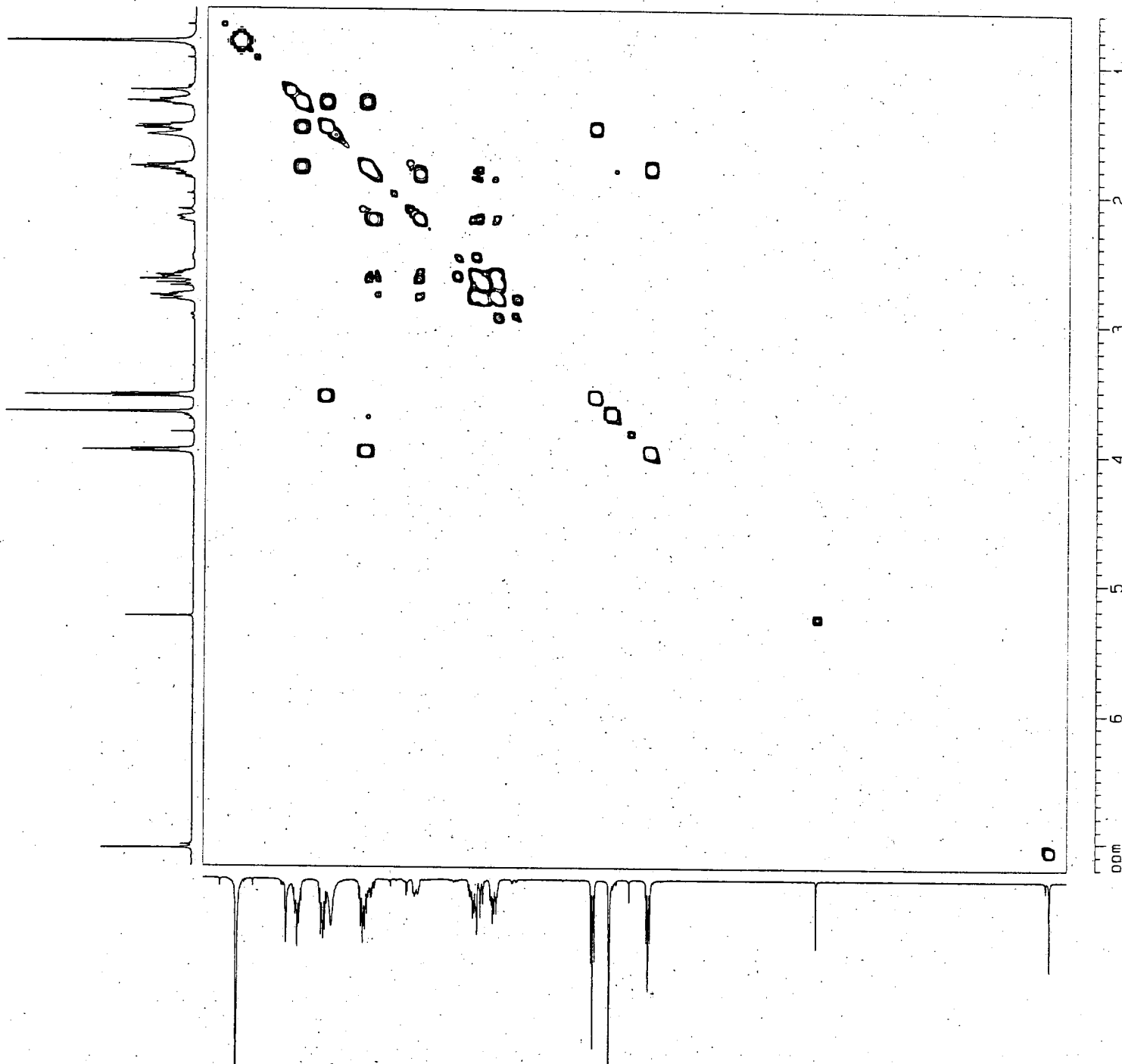
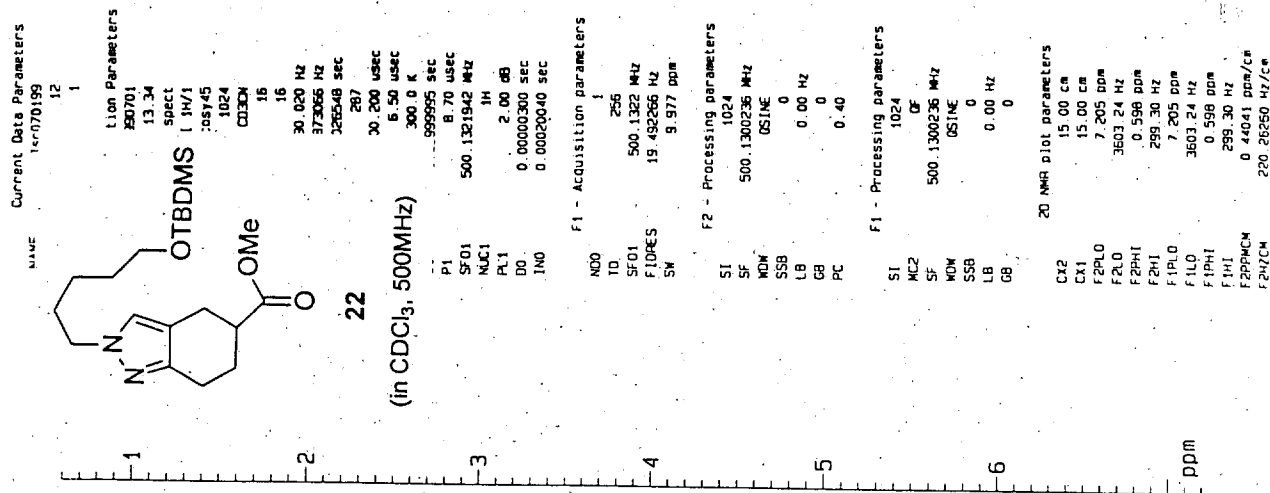
1D NMR plot parameters
CX 23.0C

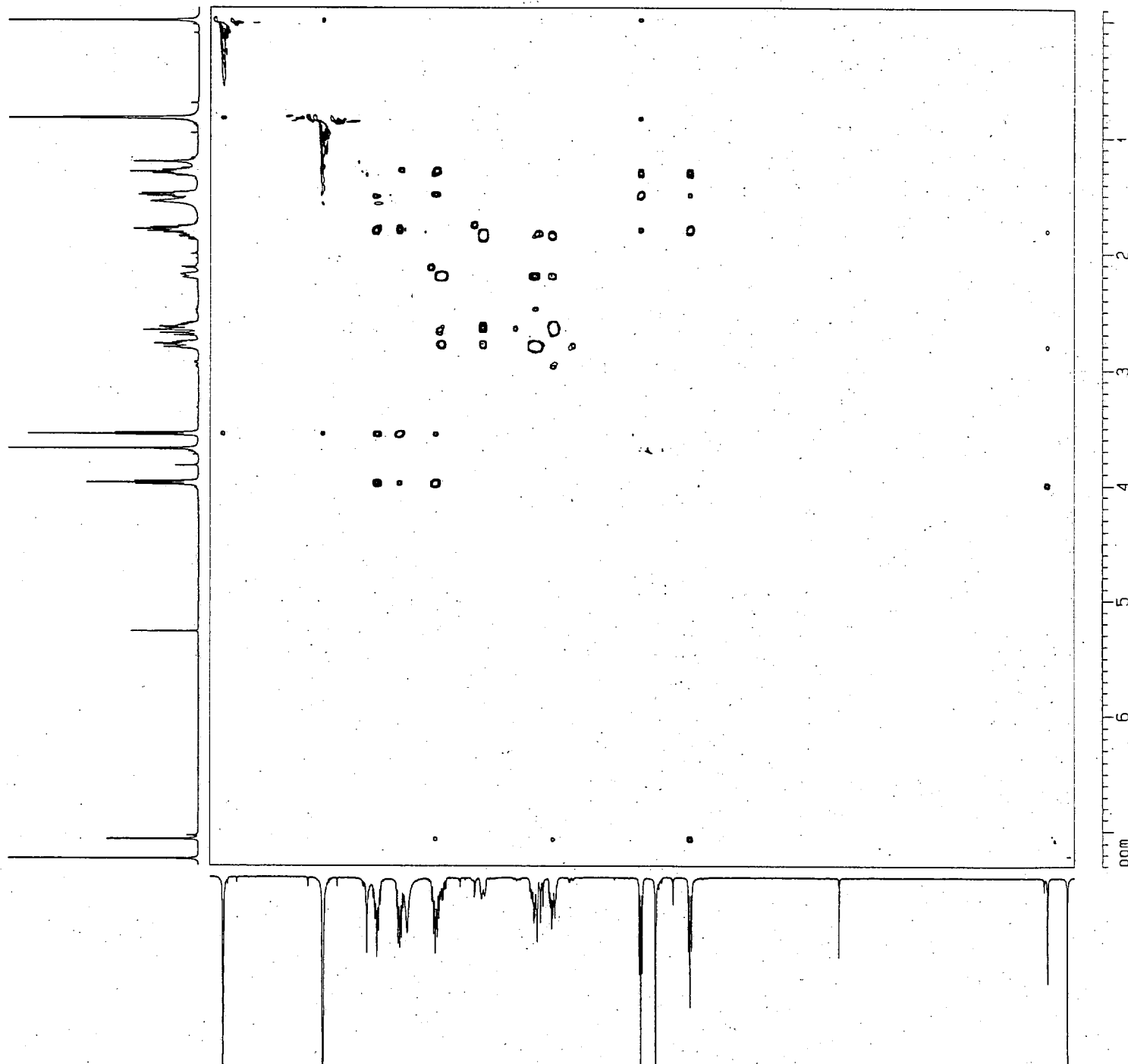
FJP 8.00C
F1 4001.04

F2P -0.10C
F2 -50.01

PPMCM 0.35217
HZCM 176.13277

¹H-¹H COSY spectrum of 22



¹H-¹H NOESY spectrum of 22

Data Parameters
sc070195 14 1

Acquisition Parameters

990701
20.06
spect

TX1 1H/1

noesyp

1024

CDCl₃

64

16

4950.020 Hz

4.873056 Hz

1.1026548 sec

512

100.200 usec

8.50 usec

300.0 K

1.2959595 sec

8.70 usec

500.1321942 MHz

1H

2.00 dB

0.0000300 sec

0.8000001 sec

0.00010020 sec

F1 - Acquisition parameters

2

359

500.1322 MHz

13.69777 Hz

9.977 ppm

SW

F2 - Processing parameters

1024

500.1300236 MHz

OSINE

2

0.00 Hz

0

0.40

F1 - Processing parameters

1024

1991

500.1300236 MHz

OSINE

2

0.00 Hz

0

2D NMR plot parameters

15.00 cm

15.00 cm

7.302 ppm

3651.97 Hz

-0.103 ppm

-51.56 Hz

7.302 ppm

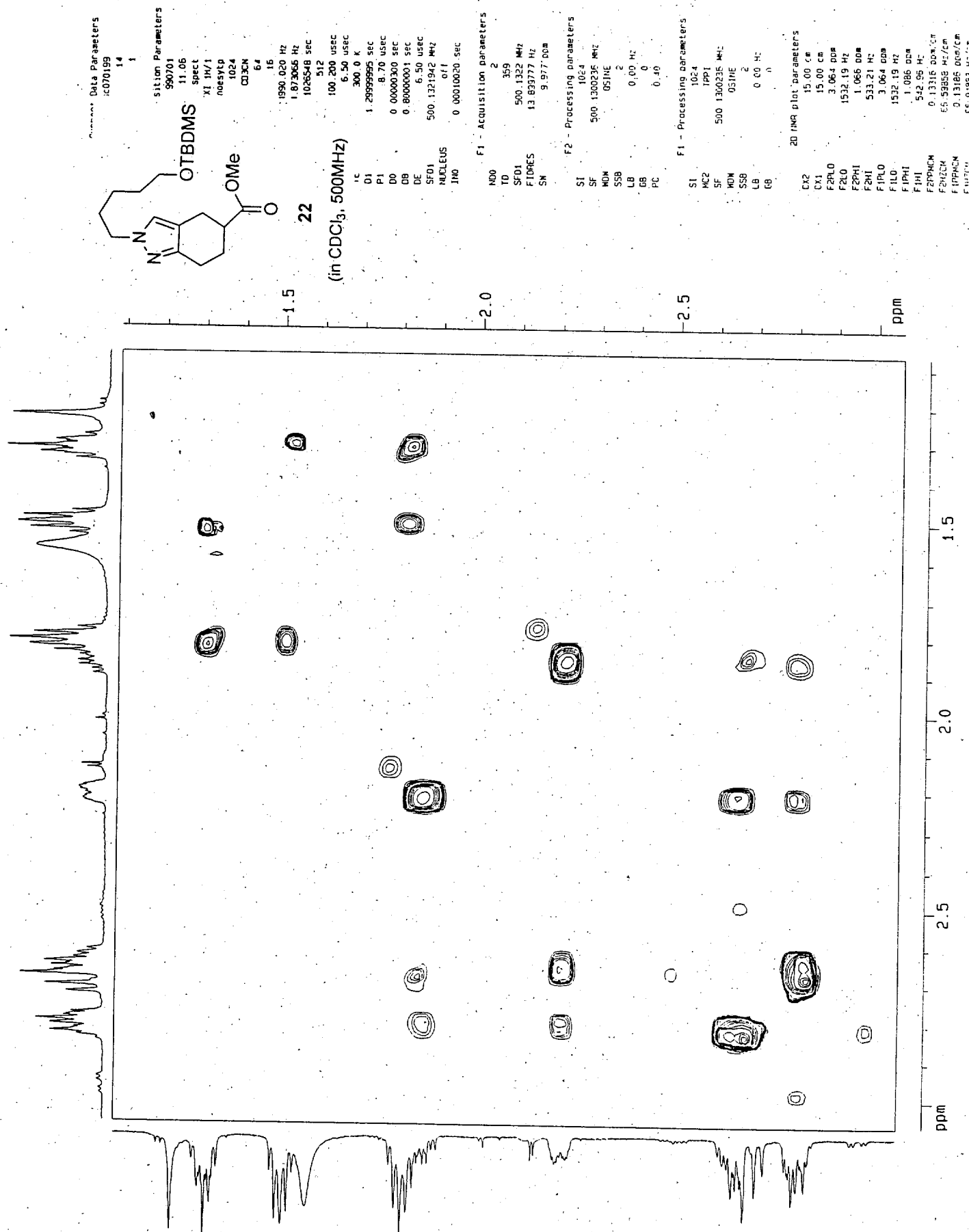
3651.97 Hz

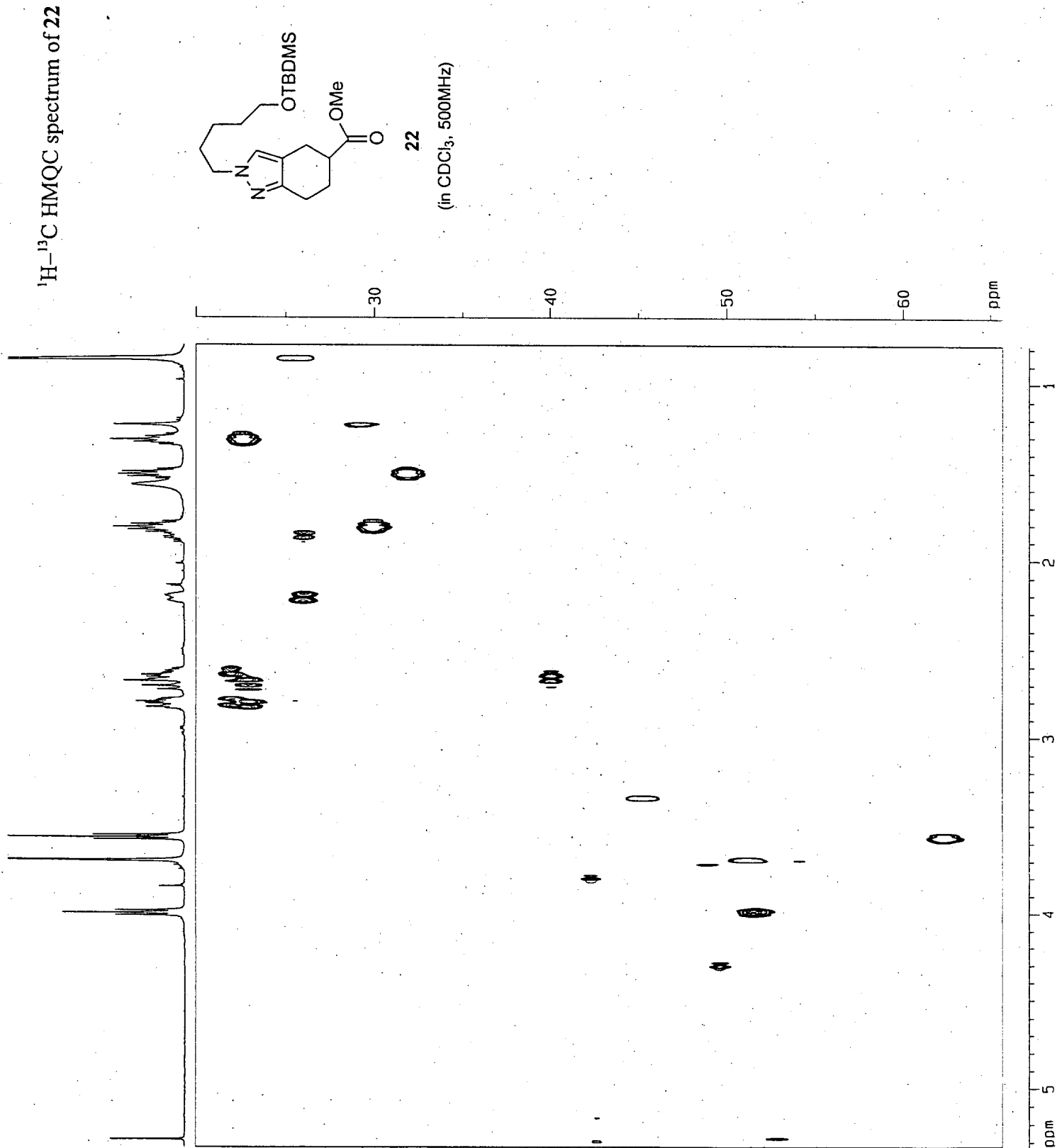
-0.103 ppm

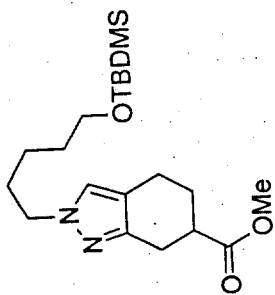
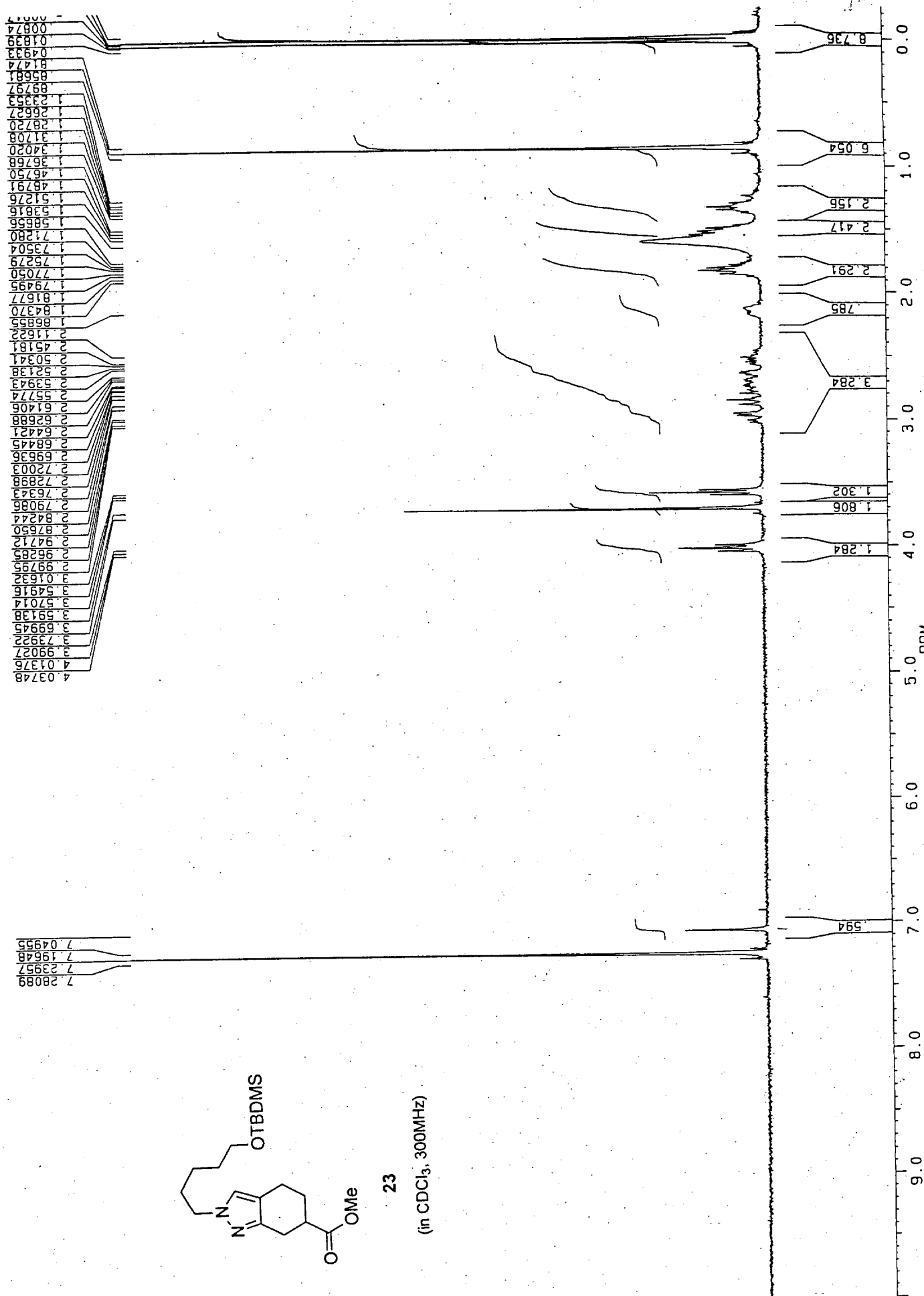
-51.56 Hz

0.49368 ppm/cm

246.90204 Hz/cm

The 1.1–3.0 ppm region in the ¹H–¹H NOESY spectrum of **22**





23

(in CDCl_3 , 300MHz)



¹H-¹H COSY spectrum of 23

PROCNO 1

Acquisition Parameters

990524

SPECT

XL 1H/1

COSY45

1024

CD3CN

16

16

990.020 Hz

.873066 Hz

1026548 sec

912.3

100.200 usec

6.50 usec

300.0 K

9999995 sec

9.30 usec

0000300 sec

6.50 usec

500.1321942 MHz

off

IN0

0.00020040 sec

F1 - Acquisition parameters

1

256

500.1322 MHz

19.492266 Hz

9.977 ppm

FIDRES

SW

SI

SF

WDW

SSB

LB

GB

PC

SI

SF

WDW

SSB

LB

GB

PC

SI

SF

WDW

SSB

LB

GB

PC

SI

SF

WDW

SSB

LB

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PC

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WDW

SSB

LB

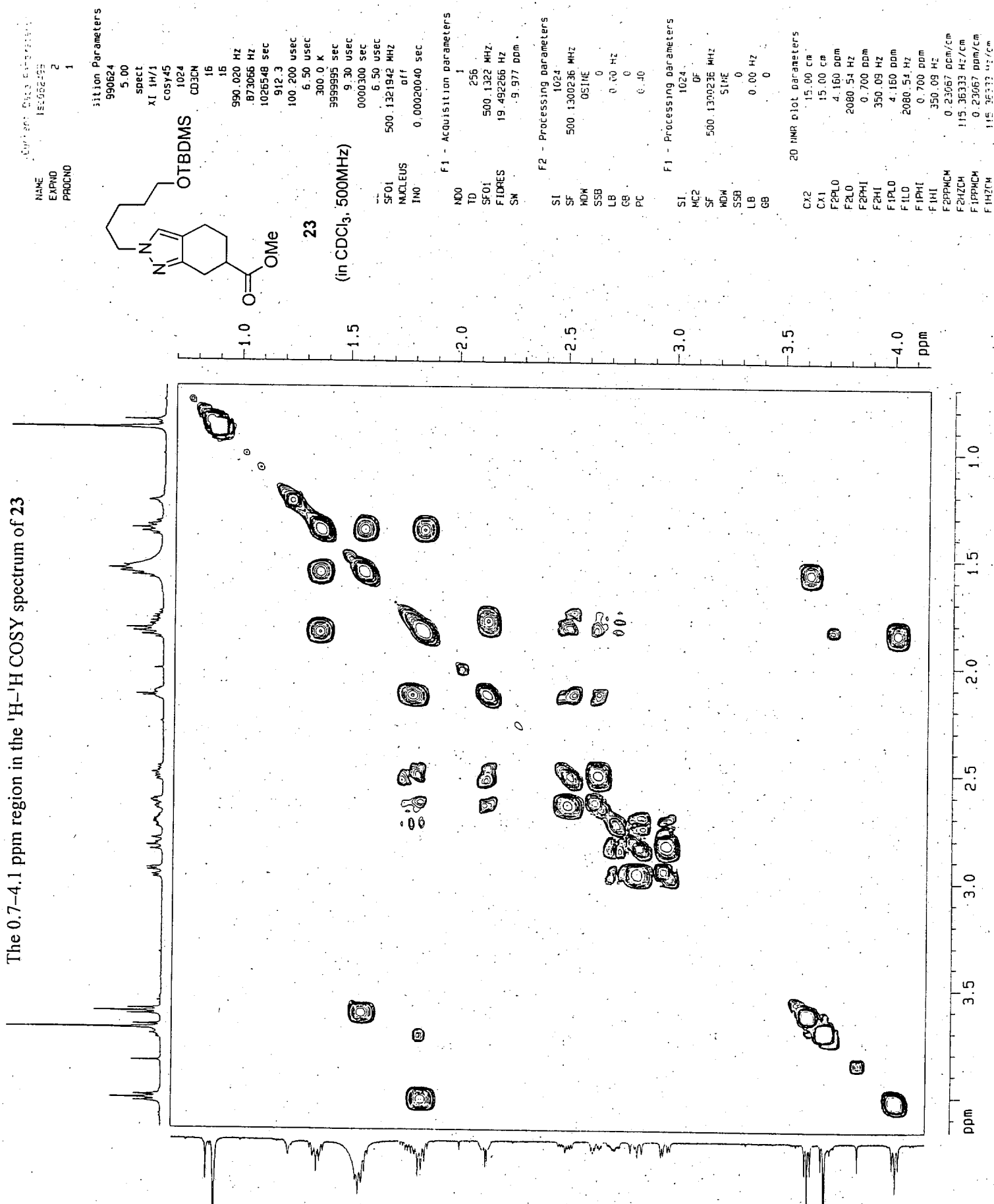
GB

PC

SI

SF

WDW

The 0.7–4.1 ppm region in the ¹H-¹H COSY spectrum of **23**

¹H-¹H NOESY spectrum of 23

Current Data Parameters
 NAME 15000000
 EXPRO 4
 PROCNO 1

F2 - Acquisition Parameters

Date 990624

Time 11.31

INSTR spect

PROB 1H/1

ASPT 3500

1024

1024

1024

1024

1024

1024

1024

1024

1024

1024

1024

1024

1024

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1024

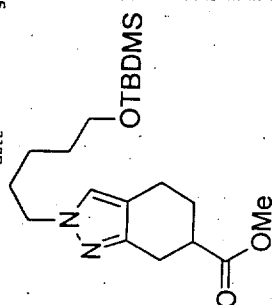
1024

1024

1024

1024

1024



23

(in CDCl₃, 500MHz)

DE SF01 500.1321942 MHz
 NUCLEUS off
 INO 0.00010020 sec

F1 - Acquisition parameters

NO0 2
 TO 384
 SF01 500.1322 MHz
 FIDRES 12.994843 Hz
 SM 9.977 Dm

F2 - Processing parameters

SI 1024
 SF 500.1300236 MHz
 MDW 0.5116
 SSB 2
 LB 0.00 Hz
 GB 0
 PC 0.40

F1 - Processing parameters

SI 1024
 NC2 1024
 SF 500.1300236 MHz
 MDW 0.5116
 SSB 2
 LB 0.00 Hz
 GB 0

2D NMR plot parameters

CX2 15.00 cm
 CX1 15.00 cm
 F2PL0 7.312 Dm
 F2L0 3656.85 Hz
 F2PHI 0.655 Dm
 F2H1 348.03 Hz
 F1PL0 7.310 Dm
 F1L0 3656.13 Hz
 F1PHI 0.654 Dm
 F1H1 347.32 Hz
 F2PNCM 0.44116 Dm/cm
 F2H2CM 220.58715 Hz/cm
 F1PP4CM 0.44105 Dm/cm