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Z-11-67 IN CDCL₃

BRUKER

RLD.210
DATE 11-12-97

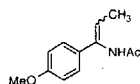
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SY 67.4100000
Q1 76300.000
SI 32768
ID 32768
SW 21739.130
HZ/PT 1.327

PW 8.4
RD 4.000
AQ 754
RG 1600
NS 3312
TE 293

FW 27200
Q2 5800.000
DP 11L BB

LB 0.0
GB 0.0
CX 40.00
CY 10.00
F1 200.011P
F2 0.16P
HZ/CM 452.786
PPM/CM 5.000
SR 65750.08

¹³C NMR (CDCl₃) of



1k

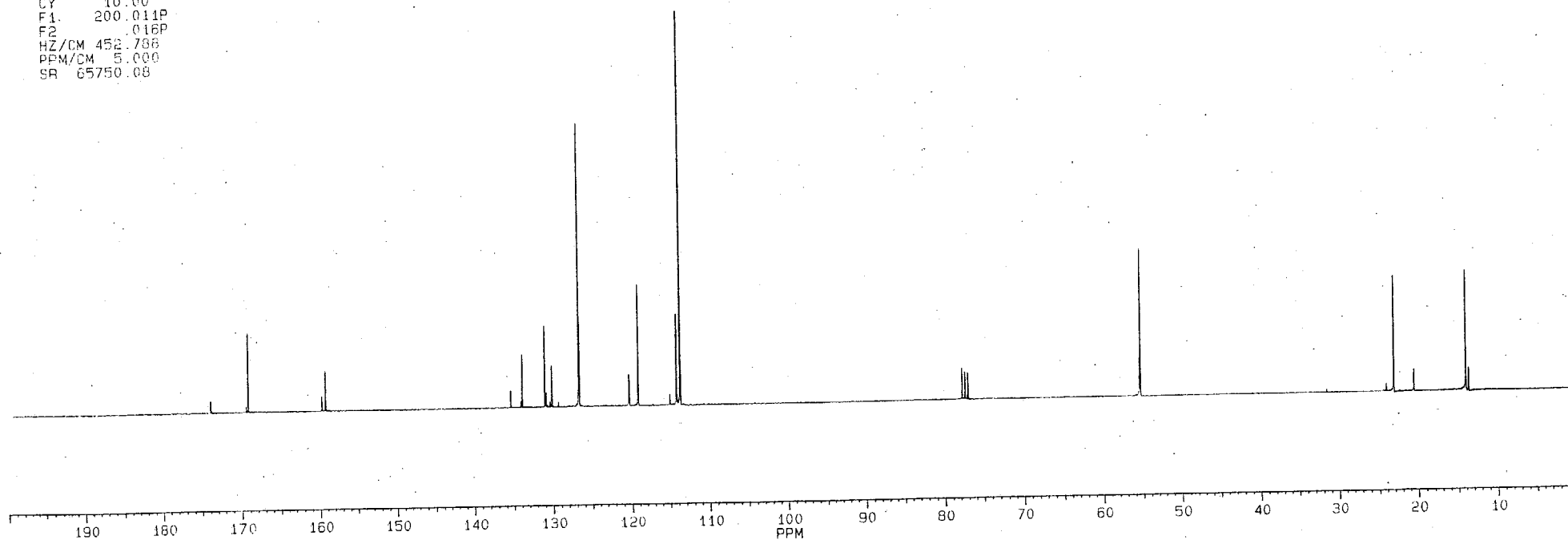
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119.131
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114.852
113.696

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77.029

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55.312

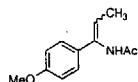
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159.131
155.131

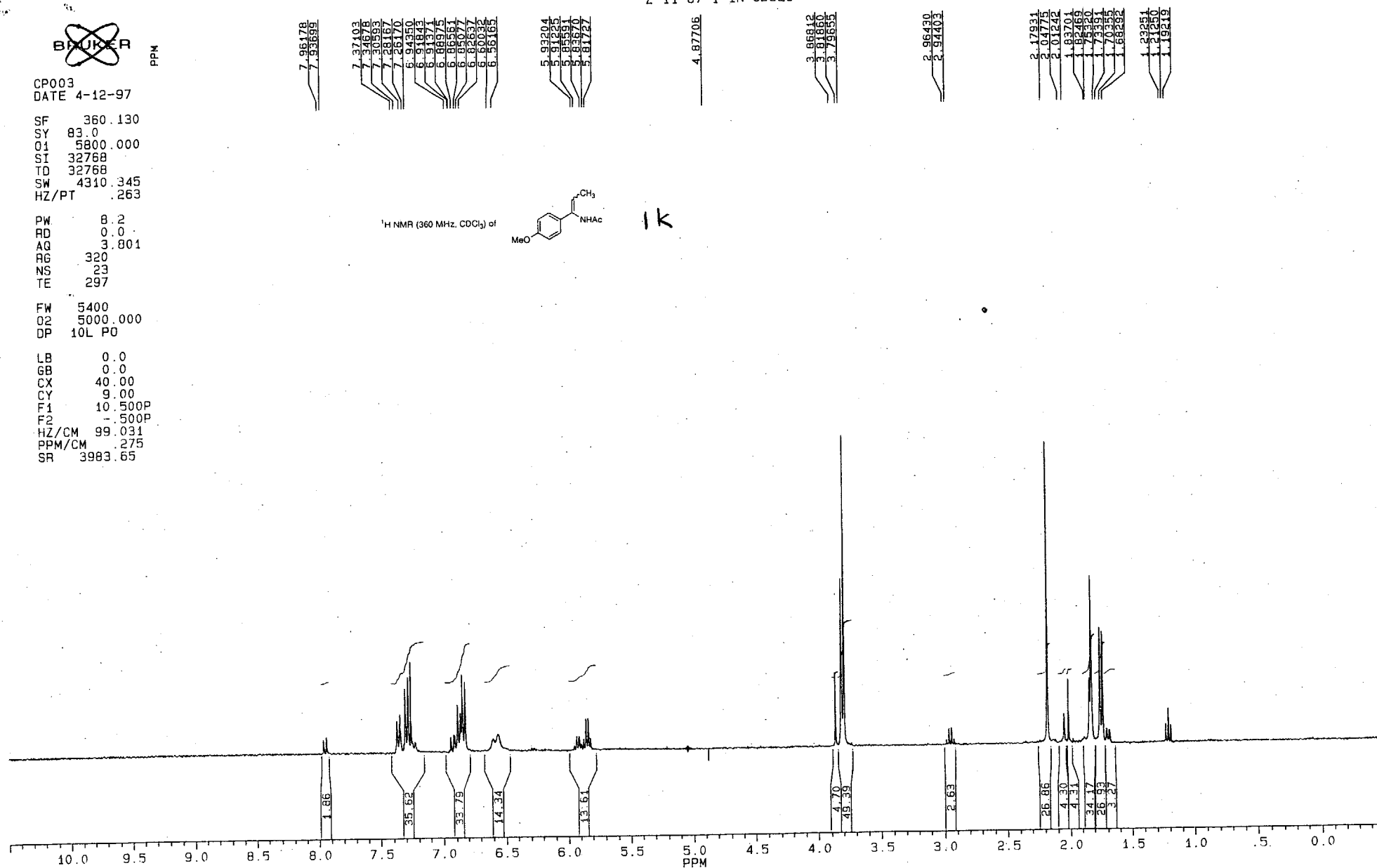


Z-11-67-1 IN CDCL₃

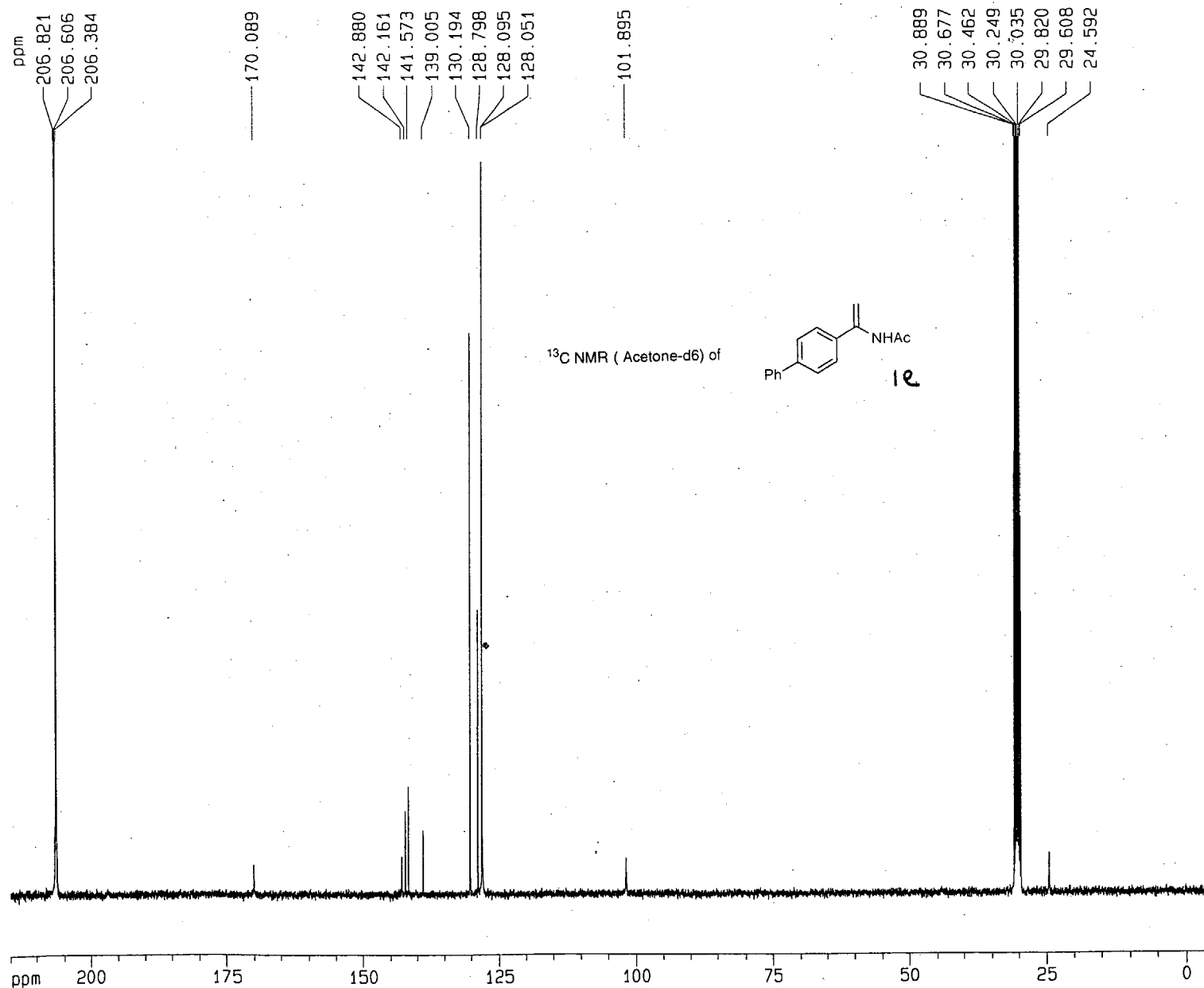

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SI 32768
TD 32768
SW 4310.345
HZ/PT .263PW 8.2
RD 0.0
AQ 3.801
RG 320
NS 23
TE 297FW 5400
Q2 5000.000
DP 10L P0LB 0.0
GB 0.0
CX 40.00
CY 9.00
F1 10.500P
F2 -.500P
HZ/CM 99.031
PPM/CM .275
SR 3983.65¹H NMR (360 MHz, CDCl₃) of

1k



Z-11-32



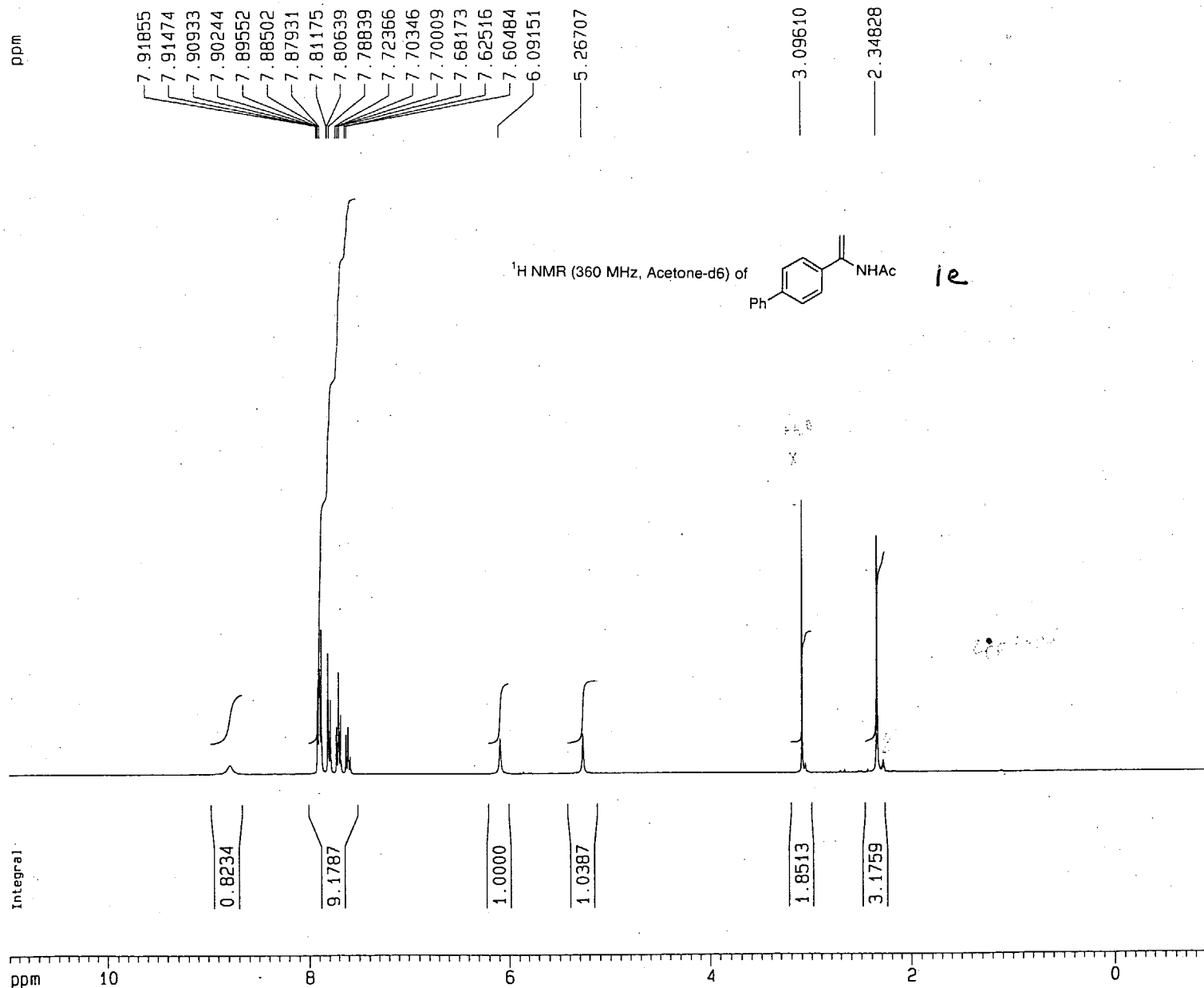
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 PROCNO 1

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 Time 18.04
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 PULPROG zgpg30
 TD 65536
 SOLVENT Aceton
 NS 2779
 DS 2
 SWH 29411.918 Hz
 FIDRES 0.448790 Hz
 AQ 1.1141620 sec
 RG 32768
 DW 17.000 usec
 DE 24.29 usec
 TE 300.0 K
 HL1 0 dB
 D1 2.00000000 sec
 CPDPRG waltz16
 P31 106.00 usec
 S4 31 dB
 D11 0.03000000 sec
 S2 31 dB
 P1 7.80 usec
 SF01 90.5642951 MHz
 NUCLEUS 13C

F2 - Processing parameters
 S1 32768
 SF 90.5561130 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40

1D NMR plot parameters
 CX 20.00 cm
 F1P 215.000 ppm
 F1 19469.57 Hz
 F2P -5.000 ppm
 F2 -452.78 Hz
 PPMCM 11.00000 ppm/cm
 HZCM 996.11725 Hz/cm

Z-11-32



Current Data Parameters
 NAME Mar17-98-Zhang
 EXPNO 20
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 980317
 Time 18.01
 INSTRUM spect
 PROBHD 5 mm GNP 1H
 PULPROG zg30
 TD 32768
 SOLVENT Aceton
 NS 16
 DS 2
 SWH 7462.726 Hz
 FIDRES 0.227744 Hz
 AQ 2.1955061 sec
 RG 1024
 DW 67.000 usec
 DE 95.71 usec
 TE 300.0 K
 HL1 0 dB
 D1 1.00000000 sec
 P1 12.60 usec
 SF01 360.1380667 MHz
 NUCLEUS 1H

F2 - Processing parameters
 SI 16384
 SF 360.1357693 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

1D NMR plot parameters
 CX 20.00 cm
 F1P 11.000 ppm
 F1 3961.49 Hz
 F2P -1.000 ppm
 F2 -360.14 Hz
 PPMCM 0.60000 ppm/cm
 HZCM 216.08147 Hz/cm



71168.001
DATE 10-12-97

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SY 67.4100000
O1 76300.000
S 32768
TJ 32768
SW 21739.150
HZ/PT 1.527

PW 8.4
RD 4.000
AO 75.4
RG 1200
NS 2750
TE 295

FW 27200
O2 5800.000
DP 11L P0

LB 0.0
GB 0.0
CX 40.00
CY 9.00
F1 200.011P
F2 0.015P
HZ CM 452.768
PPM/CM 5.000
SR 55750.08

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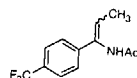
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133.366

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76.840
76.680
76.520

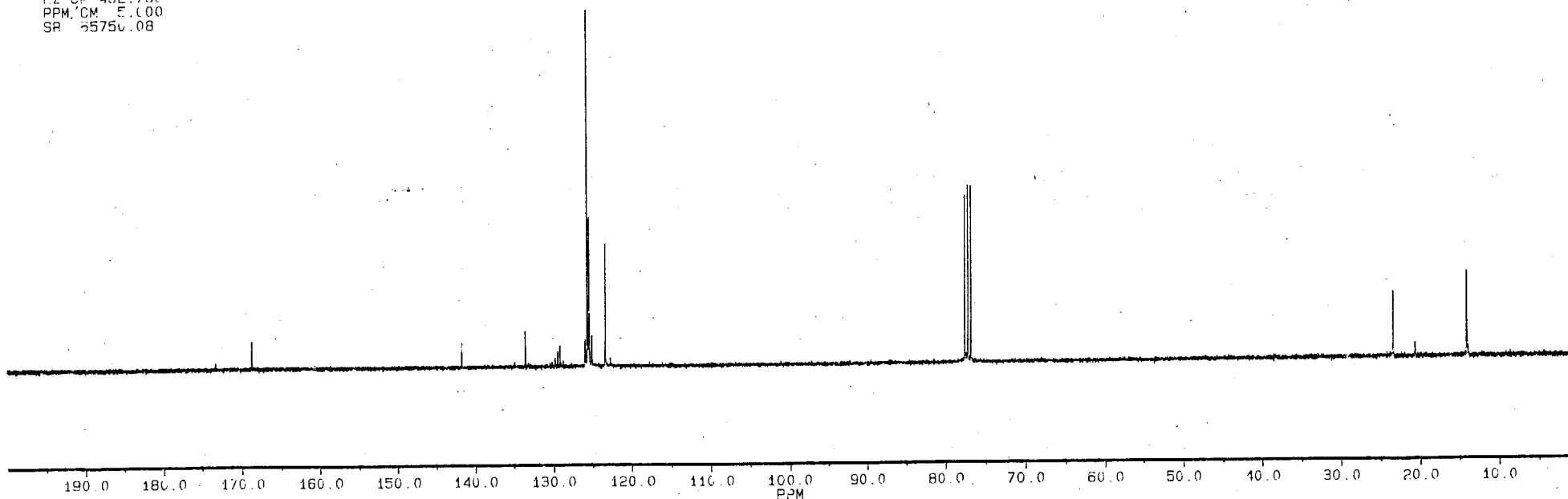
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23.322

55.050
14.925
8.468

¹³C NMR (CDCl₃) of



12



Z-11-68 IN CDCL₃
 PRANGE1.1205
 DATE 6-12-97

 SF 360.130
 SY 83.0
 O1 5800.000
 SI 32768
 TD 32768
 SW 4310.345
 HZ/PT .263

 PW 8.2
 RD 0.0
 AQ 3.801
 RG 80
 NS 115
 TE 297

 FW 5400
 O2 5000.000
 DP 10L P0

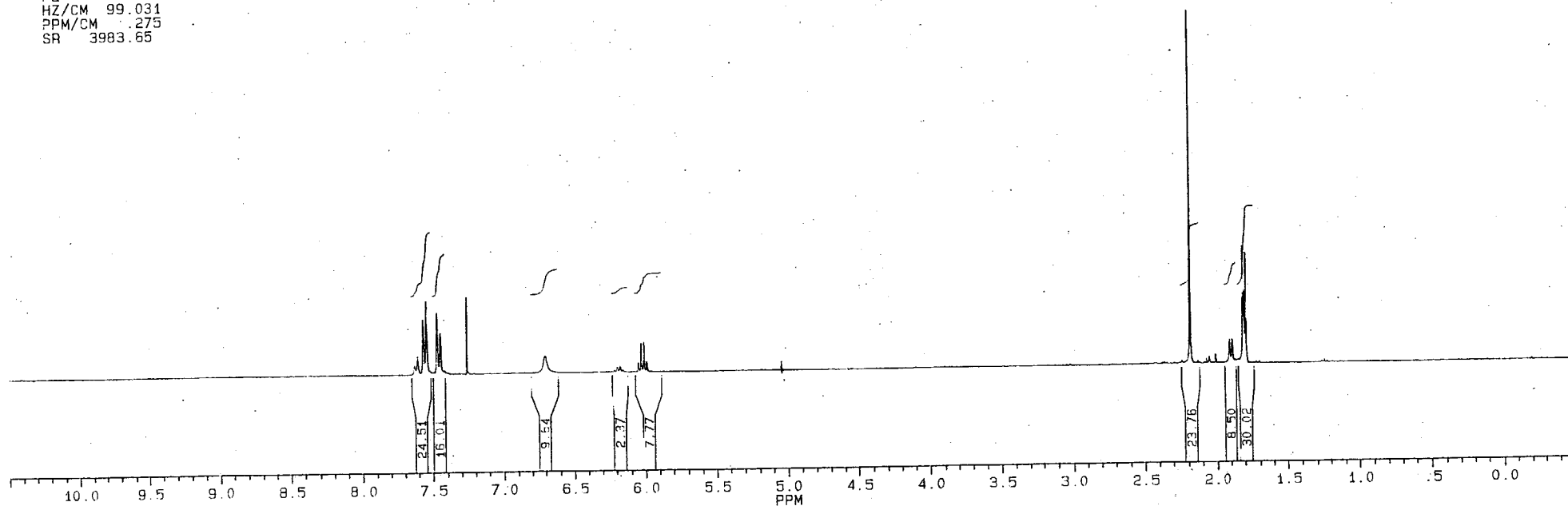
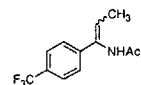
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 GB 0.0
 CX 40.00
 CY 9.00
 F1 10.500P
 F2 - .500P
 HZ/CM 99.031
 PPM/CM 275
 SR 3983.65

PPM

 7.60396
 7.55463
 7.54187
 7.48897
 7.44372
 7.26005

6.70227

 6.02713
 6.00766

 2.18494
 1.90702
 1.88616
 1.81050
 1.94201
 1.79108
¹H NMR (360 MHz, CDCl₃) of

Z-11-95 IN ACETONE

BRUKER

Z1195
DATE 29-12-97

SF 90.560
SY 57.4100000
Q1 76300.000
SI 32768
TD 32768
SW 21739.130
HZ/P 1.327

PW 4.0
RD 4.000
AQ 754
RG 1500
NS 1147
TE 293

FW 27200
Q2 7700.000
DP 11L P0

LB 0.0
GB 0.0
CZ 40.00
CY 7.00
F1 220.007P
F2 -4.983P
HZ/CM 509.378
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SR 65156.35

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123.727

118.132

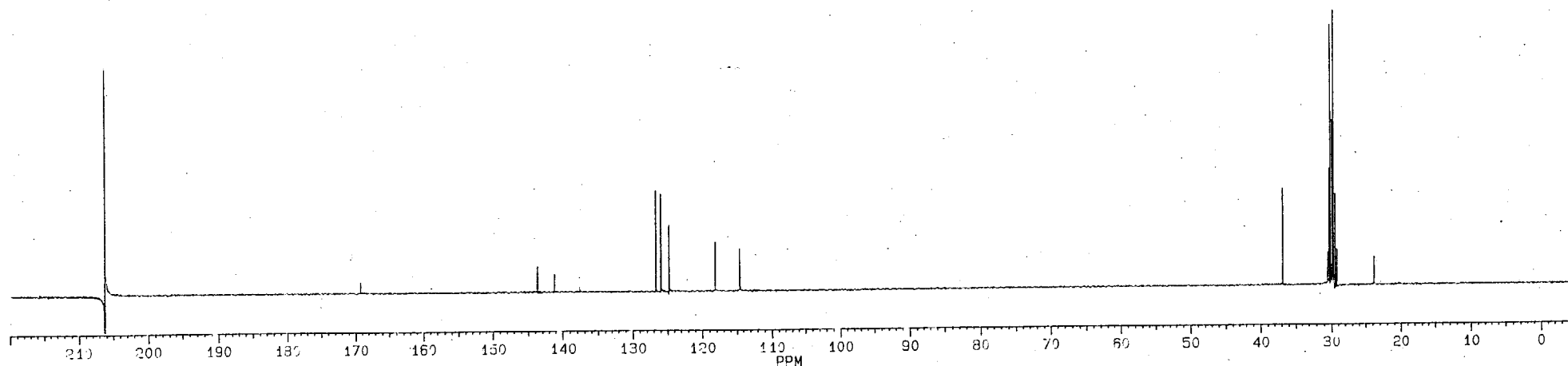
114.544

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¹³C NMR (Acetone-d6) of



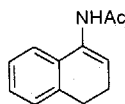
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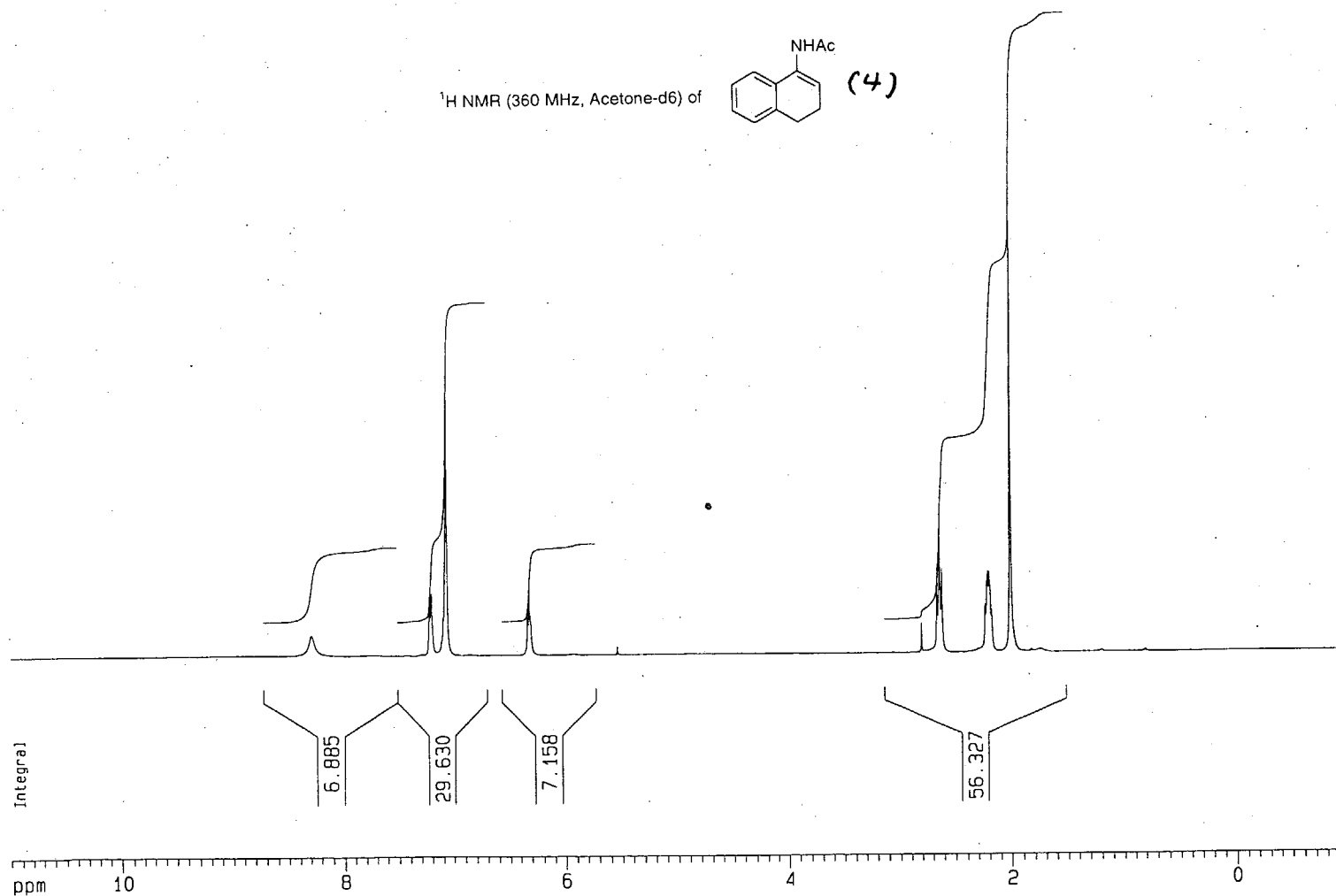
Z-12-20 Acetone-d6

Hz

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2600.07
2594.91
2562.49
2557.43
2547.81
2472.31
2467.22
2357.44
2281.15
2276.40
2271.75
2194.26
2131.23
1996.32
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998.40
958.29
950.58
942.63
885.92
877.83
805.01
797.11
792.24
784.78
723.81
714.25
711.89
709.67
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682.74
659.37
630.97
433.46
297.28
290.60
283.71

¹H NMR (360 MHz, Acetone-d6) of

(4)



Current Data Parameters
NAME Feb20-98-Zhang
EXPNO 30
PROCNO 1

F2 - Acquisition Parameters
Date_ 980220
Time 14.37
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PROBHD 5 mm QNP 1H
PULPROG zg30
TD 32768
SOLVENT Aceton
NS 16
DS 2
SWH 7462.726 Hz
FIDRES 0.227744 Hz
AQ 2.1955061 sec
RG 256
DW 67.000 usec
DE 95.71 usec
TE 300.0 K
HL1 0 dB
D1 1.00000000 sec
P1 12.60 usec
SF01 360.1380667 MHz
NUCLEUS 1H

F2 - Processing parameters
SI 16384
SF 360.1358804 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 20.00 cm
F1P 11.000 ppm
F1 3961.50 Hz
F2P -1.000 ppm
F2 -360.14 Hz
PPMCM 0.60000 ppm/cm
HZCM 216.08154 Hz/cm

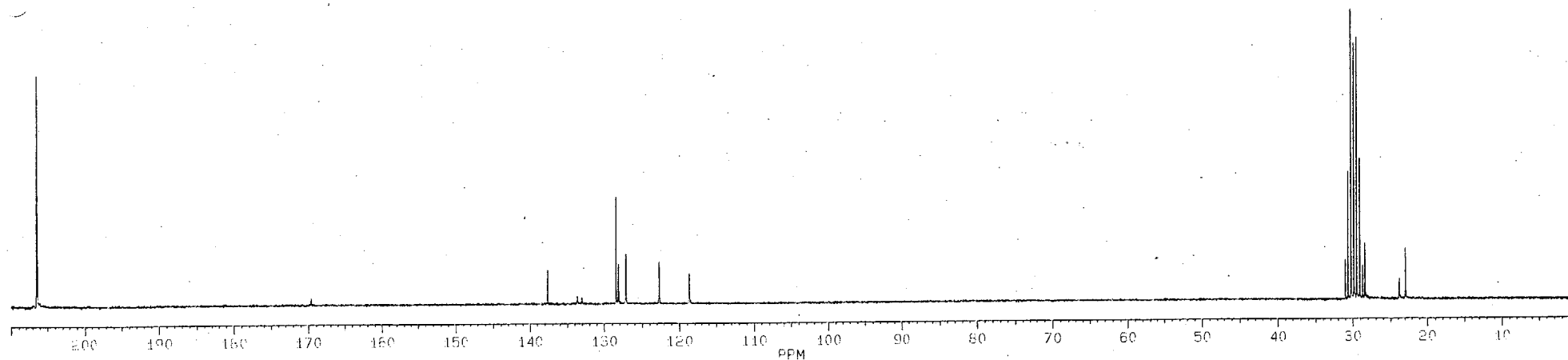
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SW 11904.762
HZ/PT 727PW 3.5
RD 2.000
AQ 1.376
RG 6400
NS 9558
TE 297FW 14900
O2 4300.000
DP 14H BBLB 0.0
GB 0.0
CX 40.00
CY 0.0
F1 210.001P
F2 0.020P
HZ/CM 263.904
PPM/CM 5.250
SR 53536.00137.604
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14.22
13.22
12.22
11.22
10.22
9.22
8.22
7.22
6.22
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4.22
3.22
2.22
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0.22¹³C NMR (Acetone-d6) of

(4)





PPM

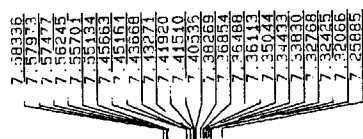
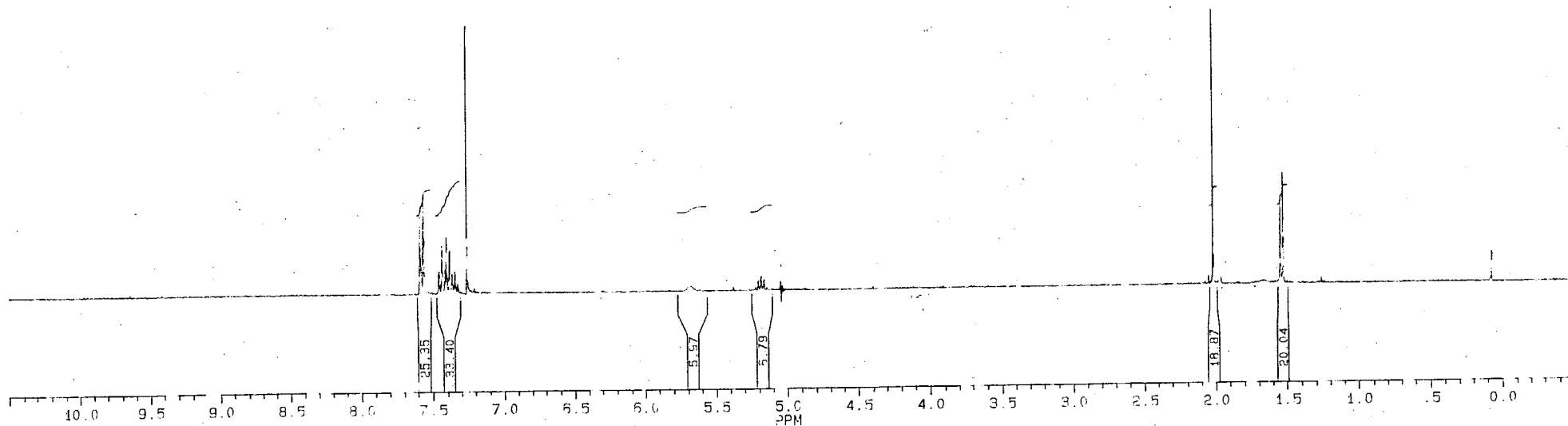
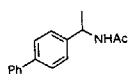
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 SI 32768
 TD 32768
 SW 4310.345
 HZ/PT .263

PW 8.2
 RD 0.0
 AQ 3.801
 RG 640
 NS 49
 TE 297

FW 5400
 O2 5000.000
 DP 10L P0

LB 0.0
 GB 0.0
 CX 40.00
 CY 7.00
 F1 10.500P
 F2 -5.000P
 HZ/CM 99.031
 PPM/CM .275
 SR 3984.17

Z-11-35 IN CDCL₃¹H NMR (360 MHz, CDCl₃) of

5.67402



2.04488
 2.01887
 1.95679

1.54319
 1.52402

1.25866

0.6824

Z-11-35 -4 CDCl₃

BRUKER

ZHU1135
DATE 30-12-97

SF 90.560
SY 67.4100000
OI 76300.000
SI 32768
TD 32768
SW 21739.150
HZ/PT 327

PW 3.4
RD 4.000
AQ 754
RG 1600
NS 1717
TE 293

FW 21200
O2 5800.000
DP 11. P0

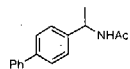
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GB 0.0
CX 40.00
CY 0.00
F1 200.000P
F2 0.005P
HZ/CM 452.788
PPM/CM 3.000
SR 65762.95

PPM

159.103

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127.999
127.049
126.622

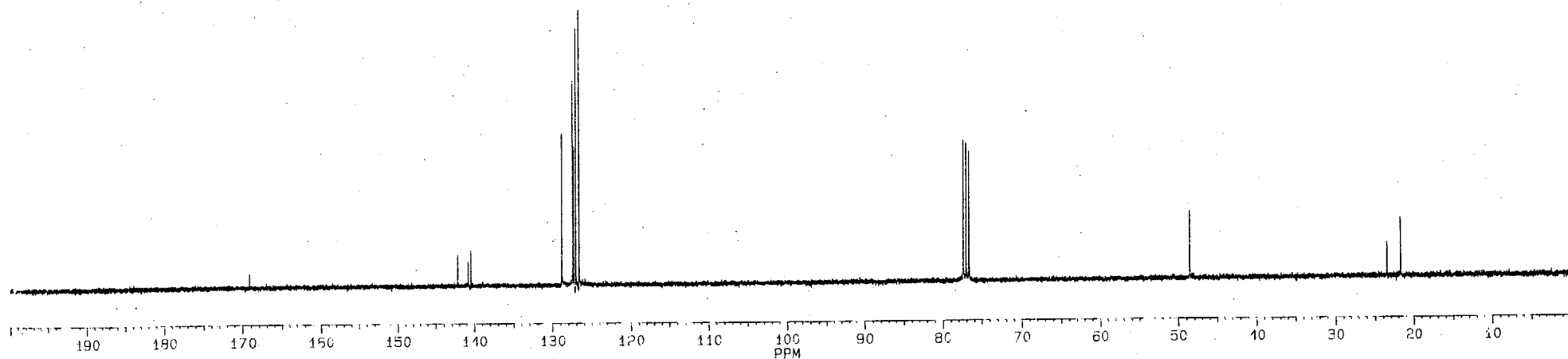
¹³C NMR (CDCl₃) of



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76.916

19.537

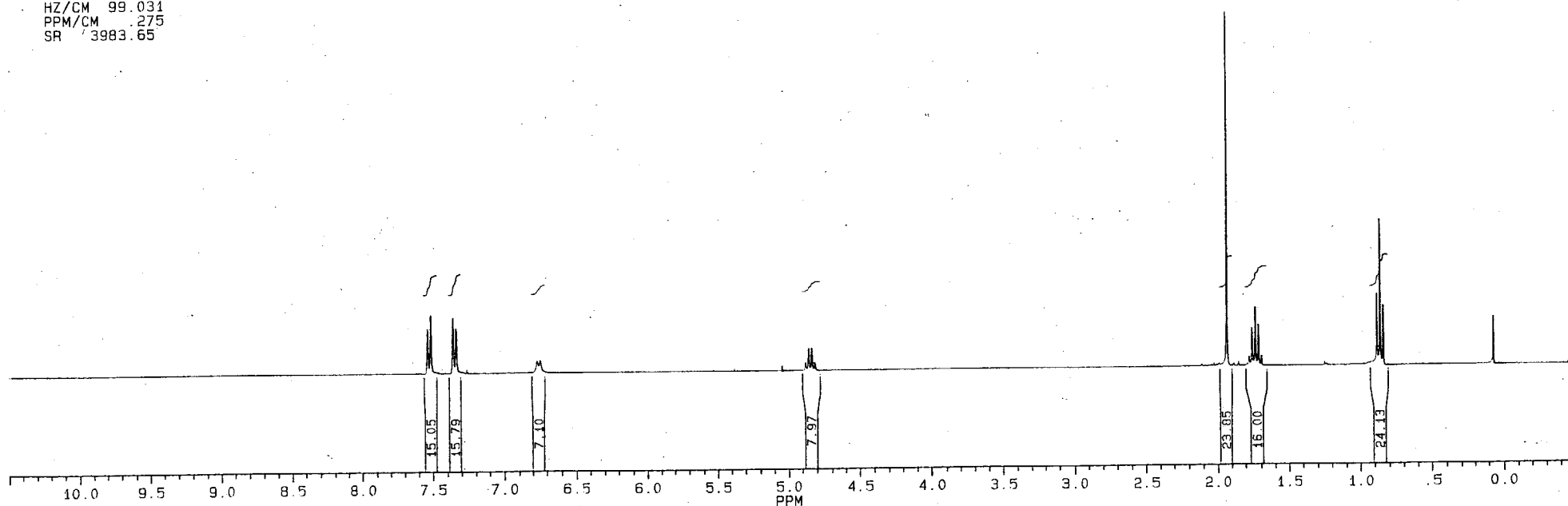
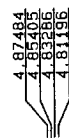
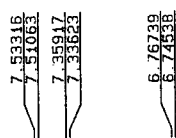
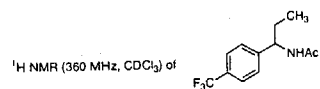
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21.697



Z-11-75 IN CDCL₃

BRUKER

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DATE 8-12-97SF 360.130
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SI 32768
TD 32768
SW 4310.345
HZ/PT 263PW 8.2
RD 0.0
AQ 3.801
RG 32
NS 18
TE 297FW 5400
Q2 5000.000
DP 10L P0LB 0.0
GB 0.0
CX 40.00
CY 9.00
F1 10.500P
F2 -5.000P
HZ/CM 99.031
PPM/CM 275
SR 3983.65

Z-11-75 IN CDCL₃

21175

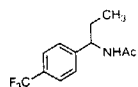
BRUKER

PPM

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DATE 8-12-97SF 90.560
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O1 76300.000
SI 32768
TD 32768
SW 21739.130
HZ/PT 1.327PW 8.4
RD 4.000
AQ 0.754
RG 1600
NS 326
TE 293FW 27200
O2 5800.000
DP 11L BBLB 0.0
GB 0.0
CX 40.00
CY 12.00
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F2 0.016P
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PPM/CM 5.000
SR 65766.94

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146.659

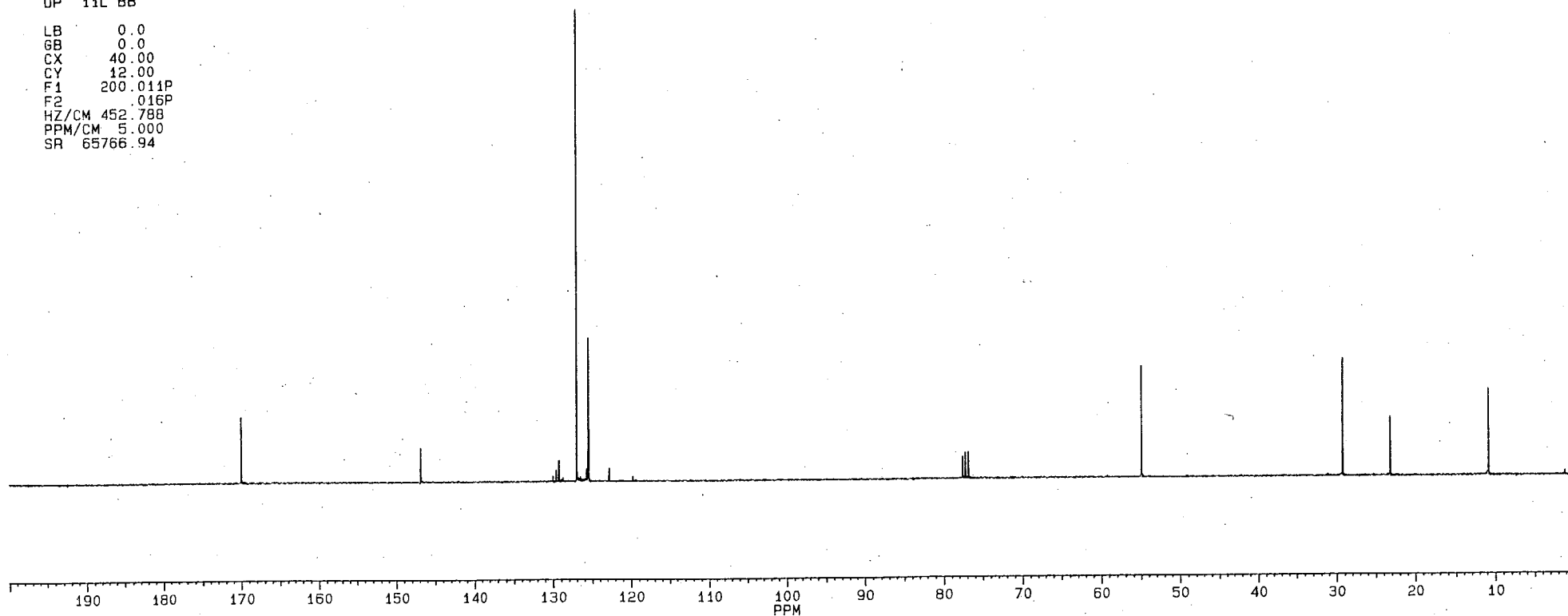
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128.132¹³C NMR (CDCl₃) of77.354
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76.648

54.746

31.062

22.675

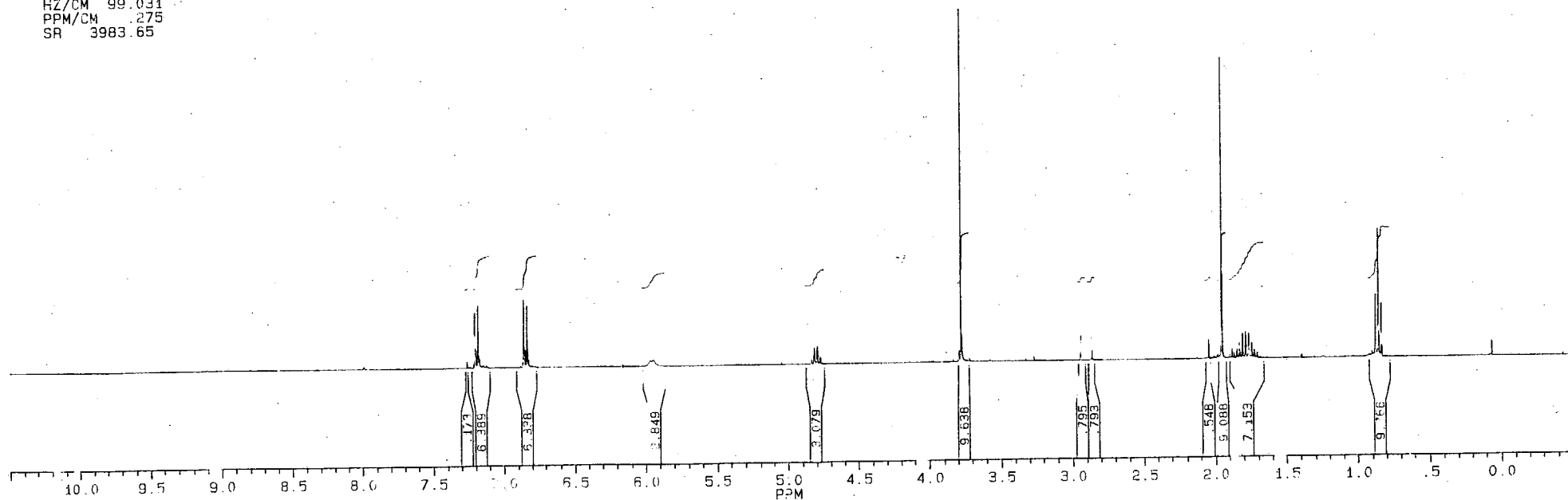
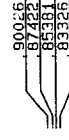
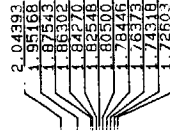
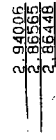
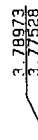
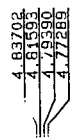
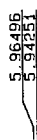
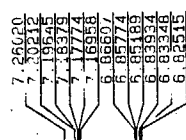
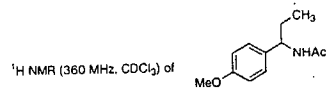
10.585



2-11-69 IN CDCL3

BRUKER

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OI 5800.000
SI 32768
TD 32768
SW 4310.345
HZ/PT .263PW 8.2
RD 0.0
AQ 3.801
RS 80
NS 36
TE 297FW 5400
O2 5000.000
DP 10L P0LB 0.0
GB 0.0
CY 40.00
CY 9.00
F1 10.500P
F2 -500P
HZ/CM 99.031
PPM/CM .275
SR 3983.65

Z-11-69 IN CDCL₃

BRUKER

PPM

SDR3.003
DATE 12-12-97SF 90.560
SY 67.4100000
O1 76300.000
SI 32768
TD 32768
SW 21739.130
HZ/PT 1.327PW 8.4
RD 4.000
AQ 754
RG 1600
NS 2878
TE 293FW 27200
O2 5800.000
DP 11L P0LB 0.0
GB 0.0
CX 40.00
CY 9.00
F1 200.011P
F2 0.16P
HZ/CM 452.788
PPM/CM 5.000
SR 65764.28¹³C NMR (CDCl₃) of