

Supporting information

Direct Electrochemical α -Cyanation of *N*-Protected Cyclic Amines

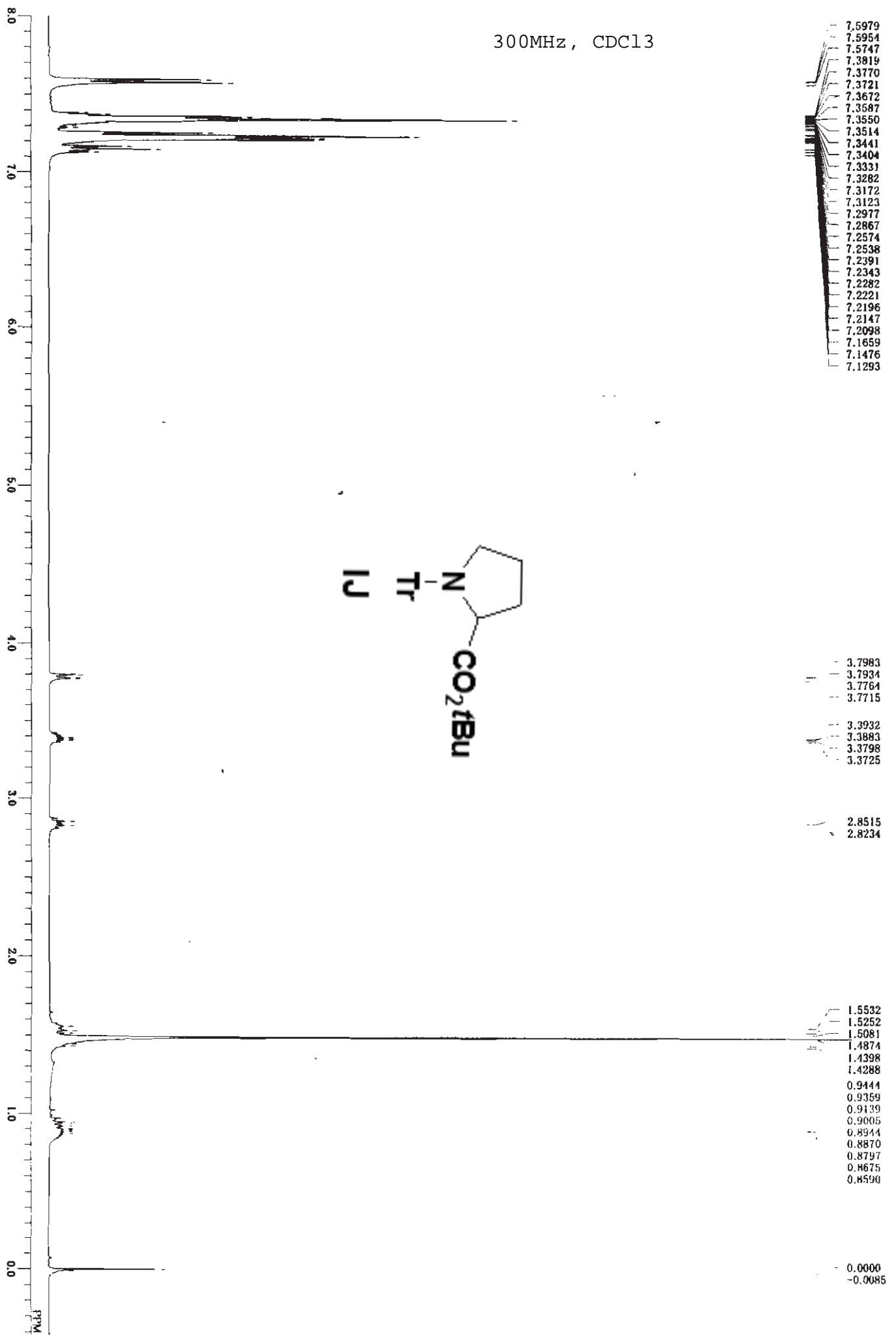
Samuel Shikuku Libendi, Yosuke Demizu and Osamu Onomura*
Graduate School of Biomedical Sciences, Nagasaki University, 1-14 Bunkyo-machi, Nagasaki
852-8521, Japan.

Fax: +81 95 819 2476; Tel: +81 95 819 2429; E-mail: onomura@nagasaki-u.ac.jp.

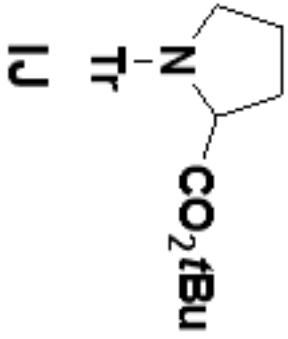
Index Contents:

NMR charts.....2-37

300MHz, CDCl3



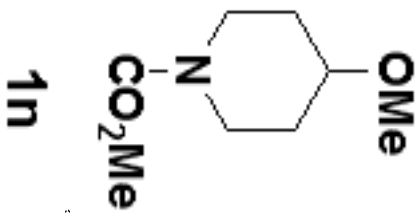
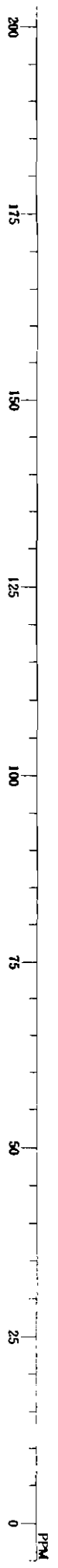
100MHz, CDCl₃



- 175.9570
- 145.1174
- 129.2447
- 127.6311
- 126.0422
- 79.9473
- 77.3128
- 77.0000
- 76.6789
- 63.5972
- 49.9803
- 31.1109
- 28.0484
- 24.2613



100MHz, CDCl3



155.9104

77.3211
77.0000
76.6789
75.6087

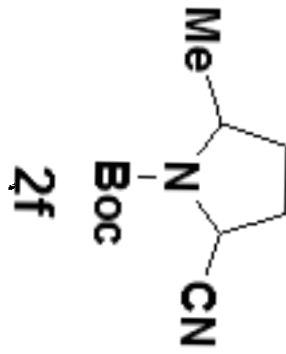
55.6361
52.5160

41.1219

30.4276

400MHz, CDCl3

7.3026



4.4816

4.0936

3.9874

2.2841

2.1950

2.1828

1.9315

1.7338

1.5105

1.5032

1.3727

1.3348

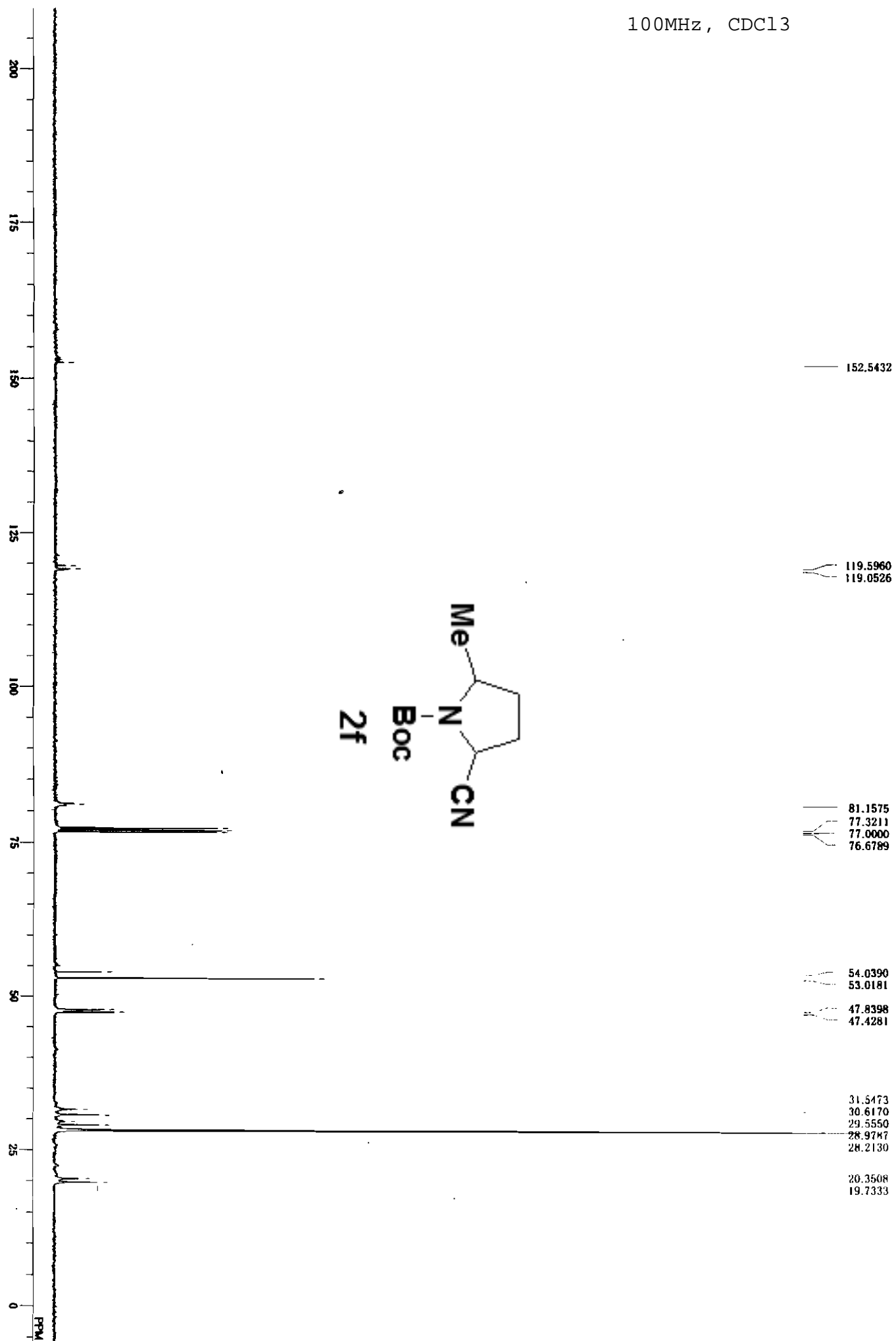
1.3190

1.2568

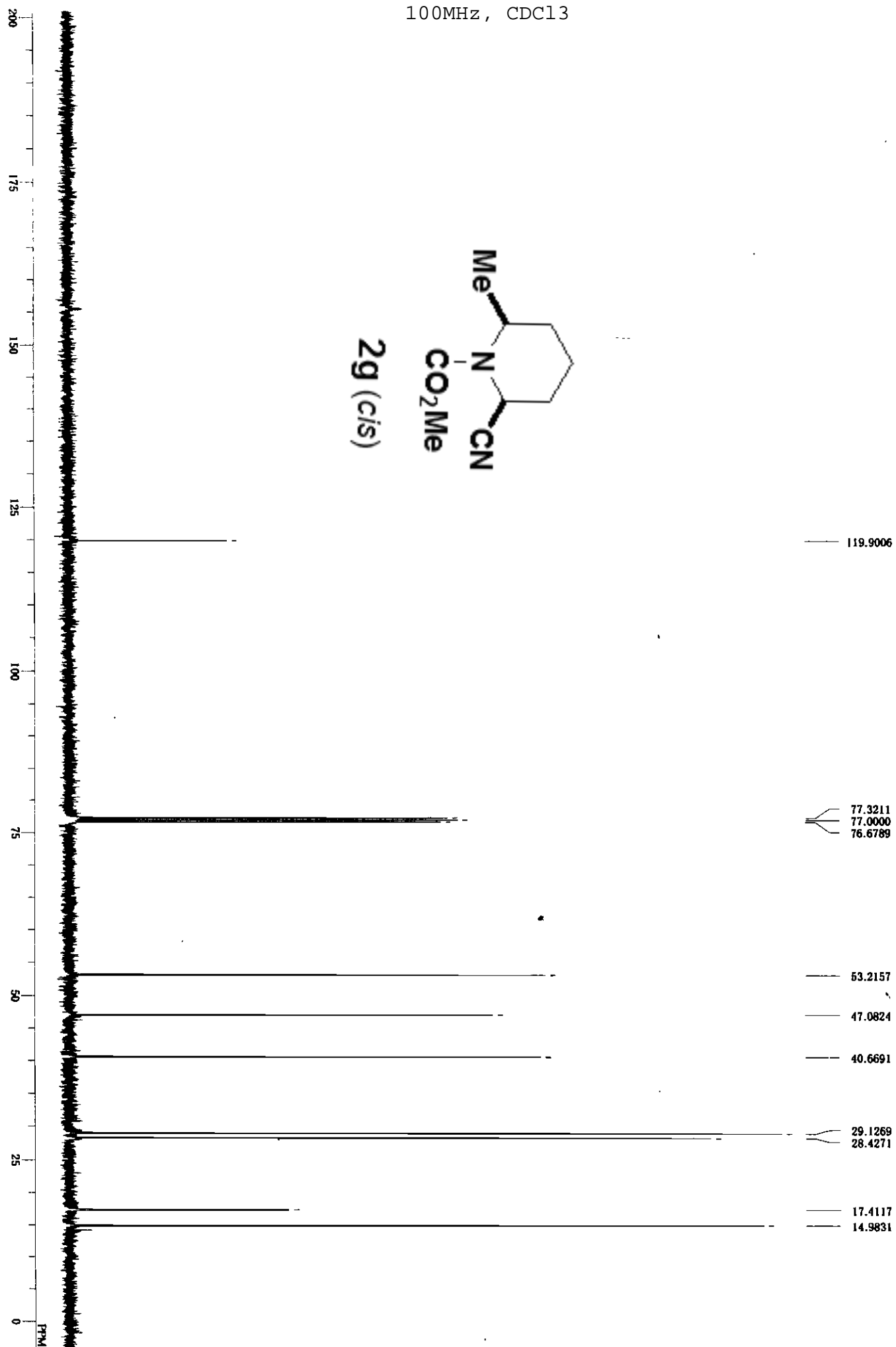
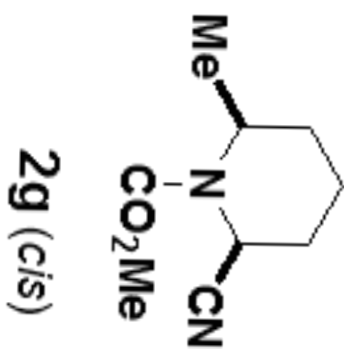
1.1701

0.0000

100MHz, CDCl3



100MHz, CDCl3



400MHz, CDCl3



7.2843

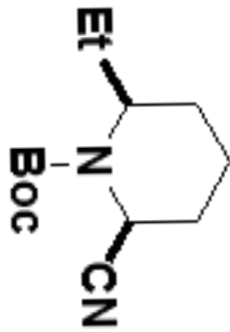
5.1746

4.1131

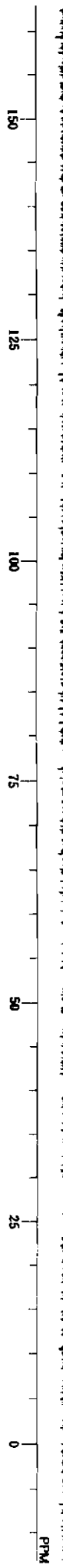
2.0120
1.9779
1.8949
1.8619
1.7546
1.7424
1.7094
1.6948
1.6814
1.5703
1.5008
1.4886
1.4532

0.9566
0.9383
0.9200

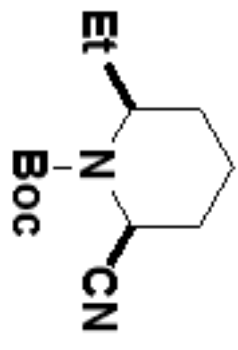
2h (c/s)



100MHz, CDC13



2h (cis)



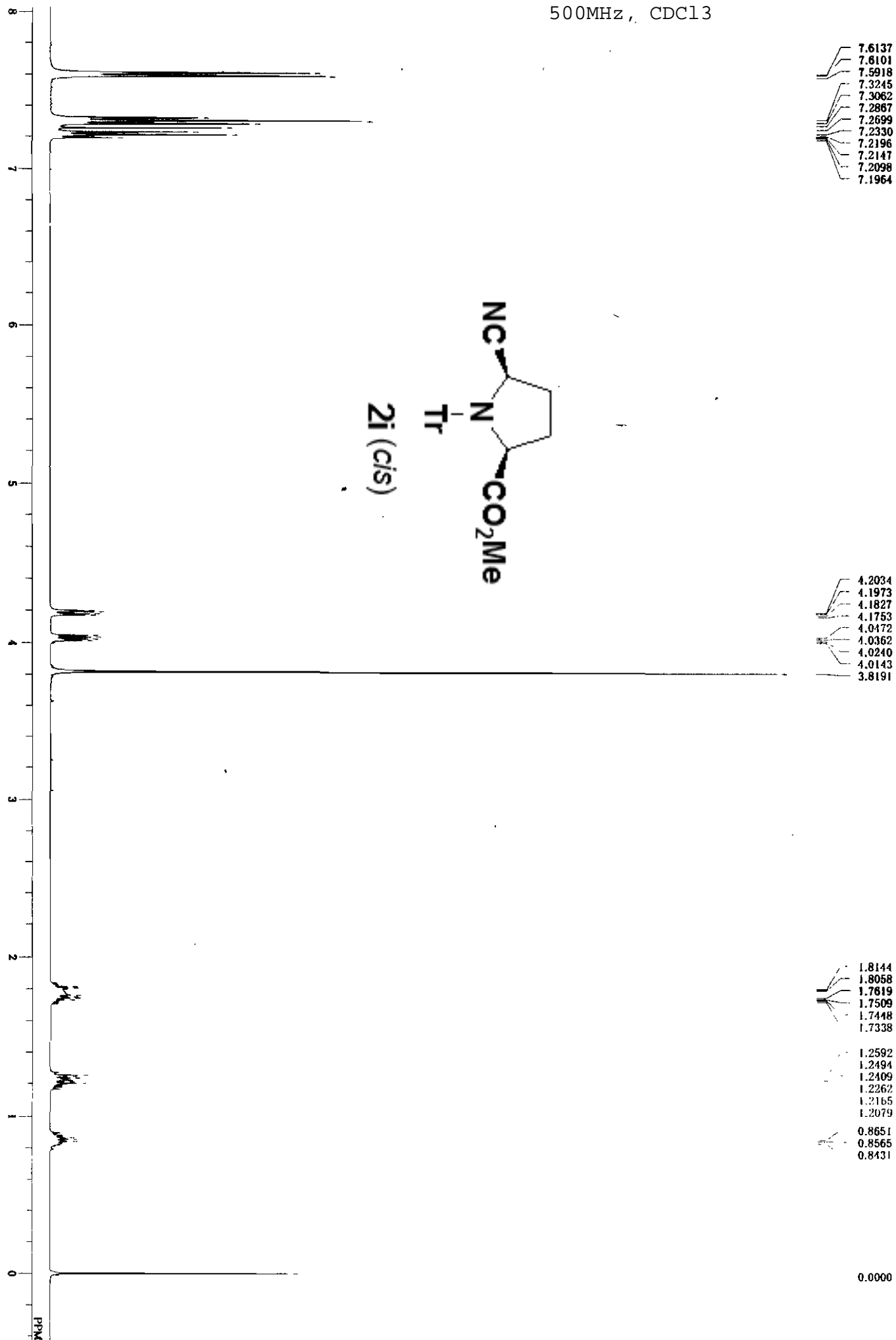
154.5366
154.3791

119.8841

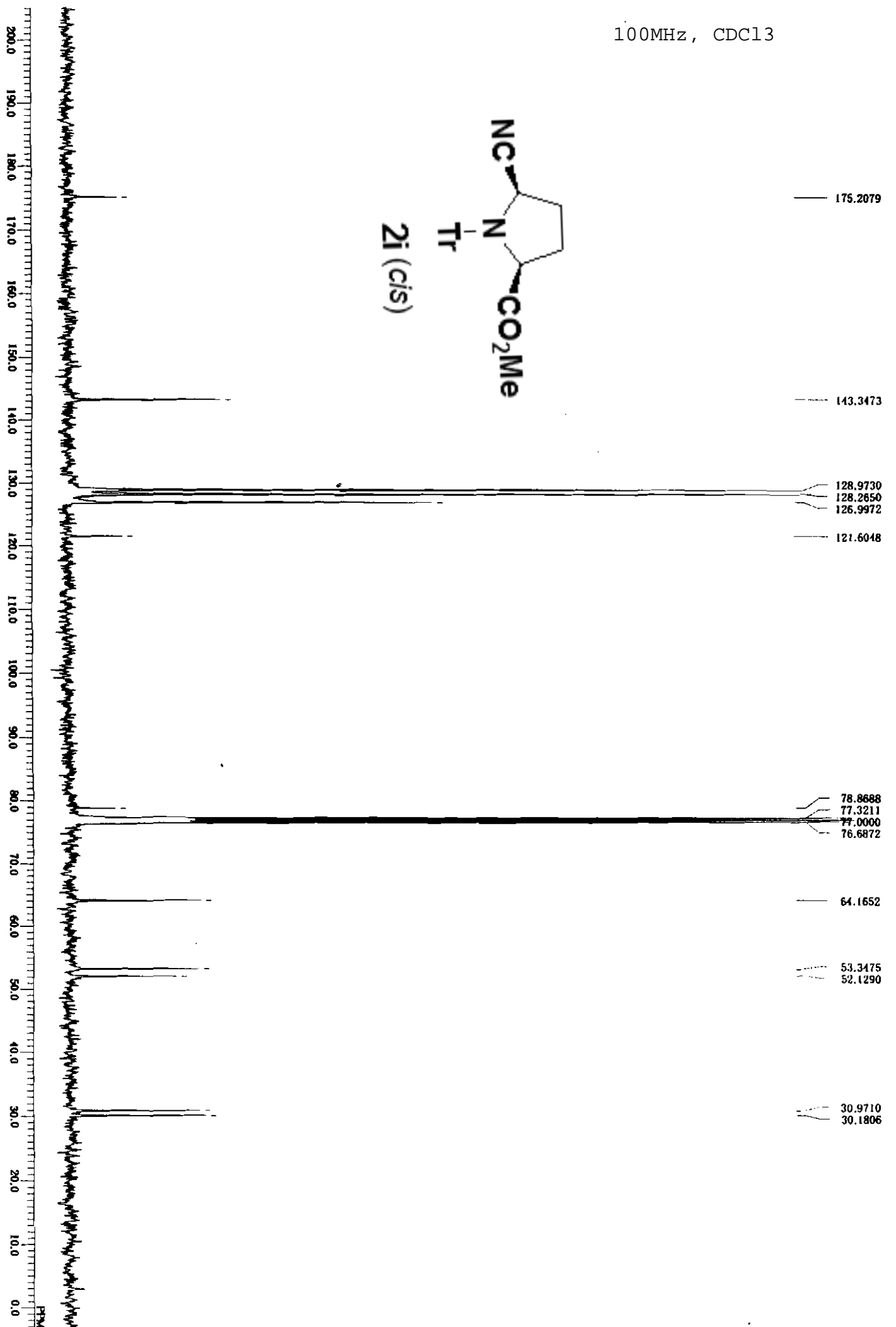
81.1410
77.3128
77.0000
76.8600
76.6789

52.7135
52.6230
52.5489
52.4666
40.7514
40.6773
40.5127
40.4139
40.3727
40.3151
40.2081
40.1751
40.0763
28.8140
28.7070
28.5506
28.4188
28.3694
28.1801
27.0934
26.8052
26.6241
24.5248
24.3025
24.0802
15.3289
15.1971
11.4512
11.3360

500MHz, CDCl3

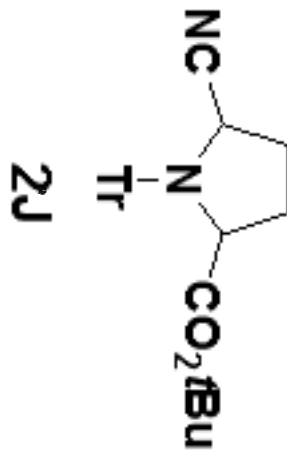


100MHz, CDCl3



400MHz, CDCl3

7.6296
7.6101
7.4429
7.4246
7.3172
7.2989
7.2794
7.2574
7.2440
7.2257
7.2086
7.1891



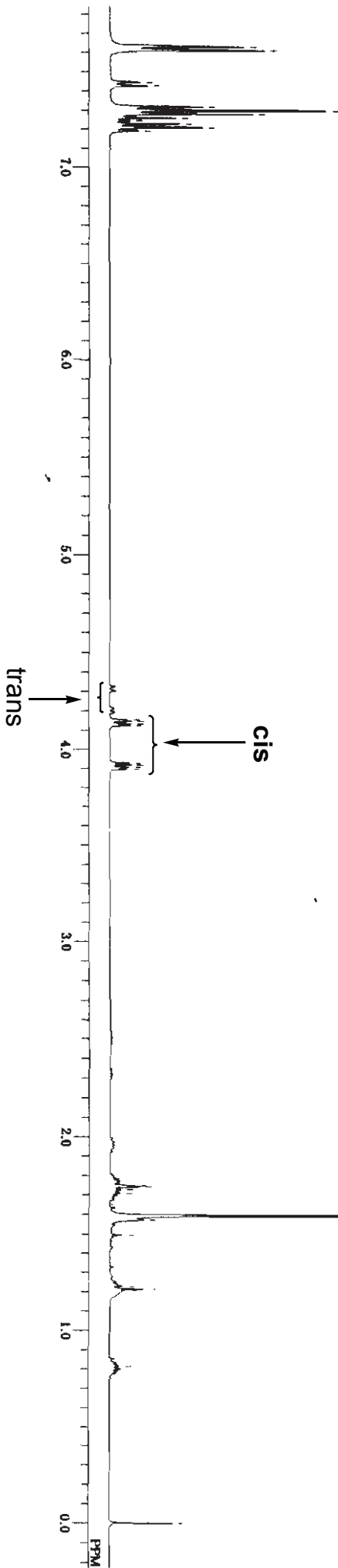
4.1534
4.1473
4.1326
4.1241
3.9289
3.9179
3.9057
3.8959

1.7460
1.7411
1.7265
1.7082
1.5911
1.5703
1.4935

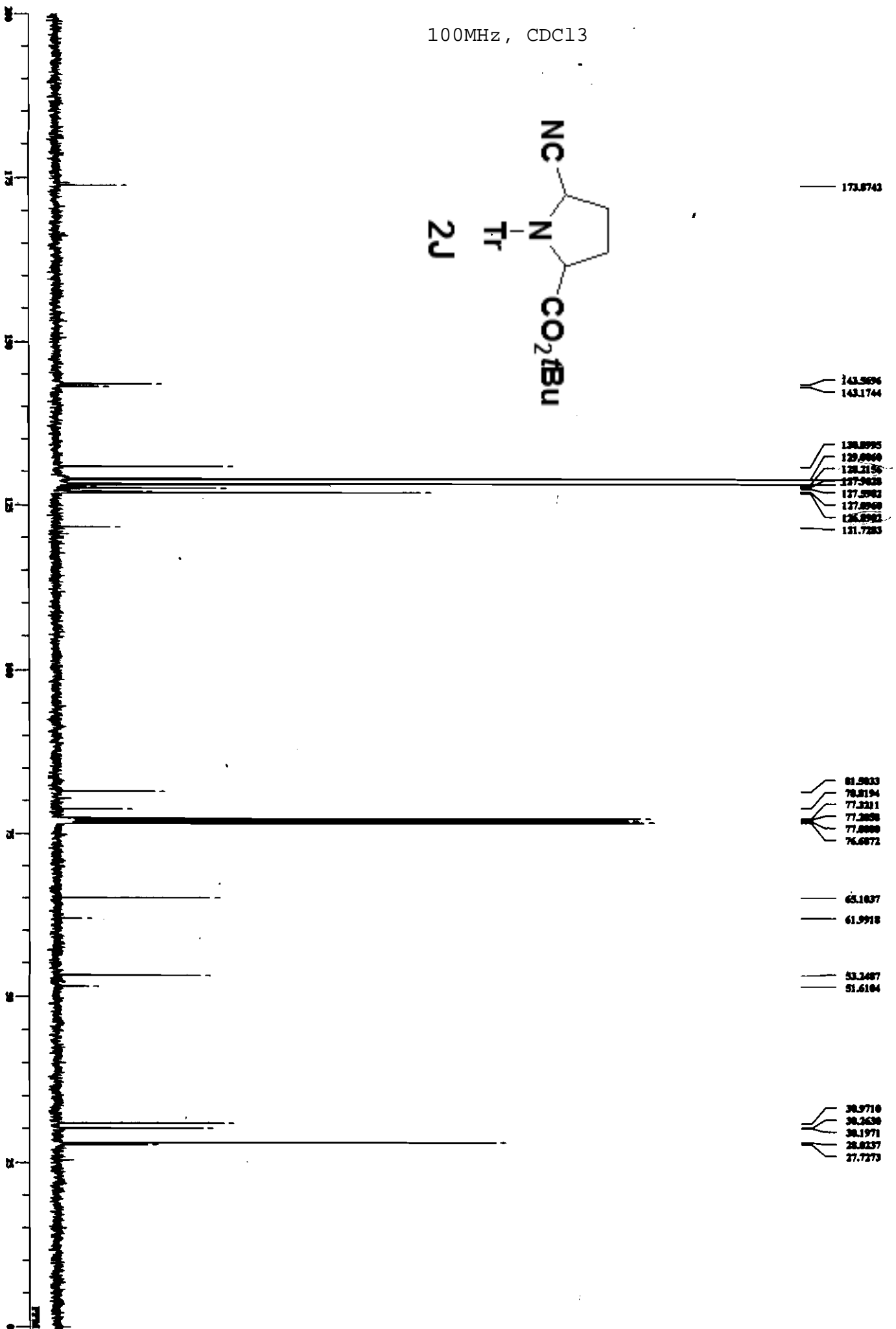
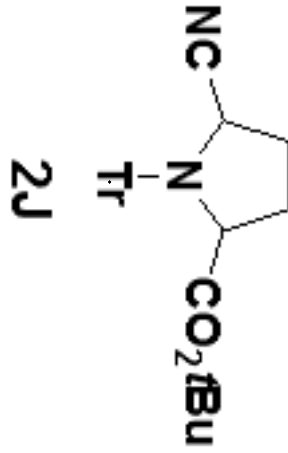
1.2299
1.2153
1.2104

0.8126
0.7980

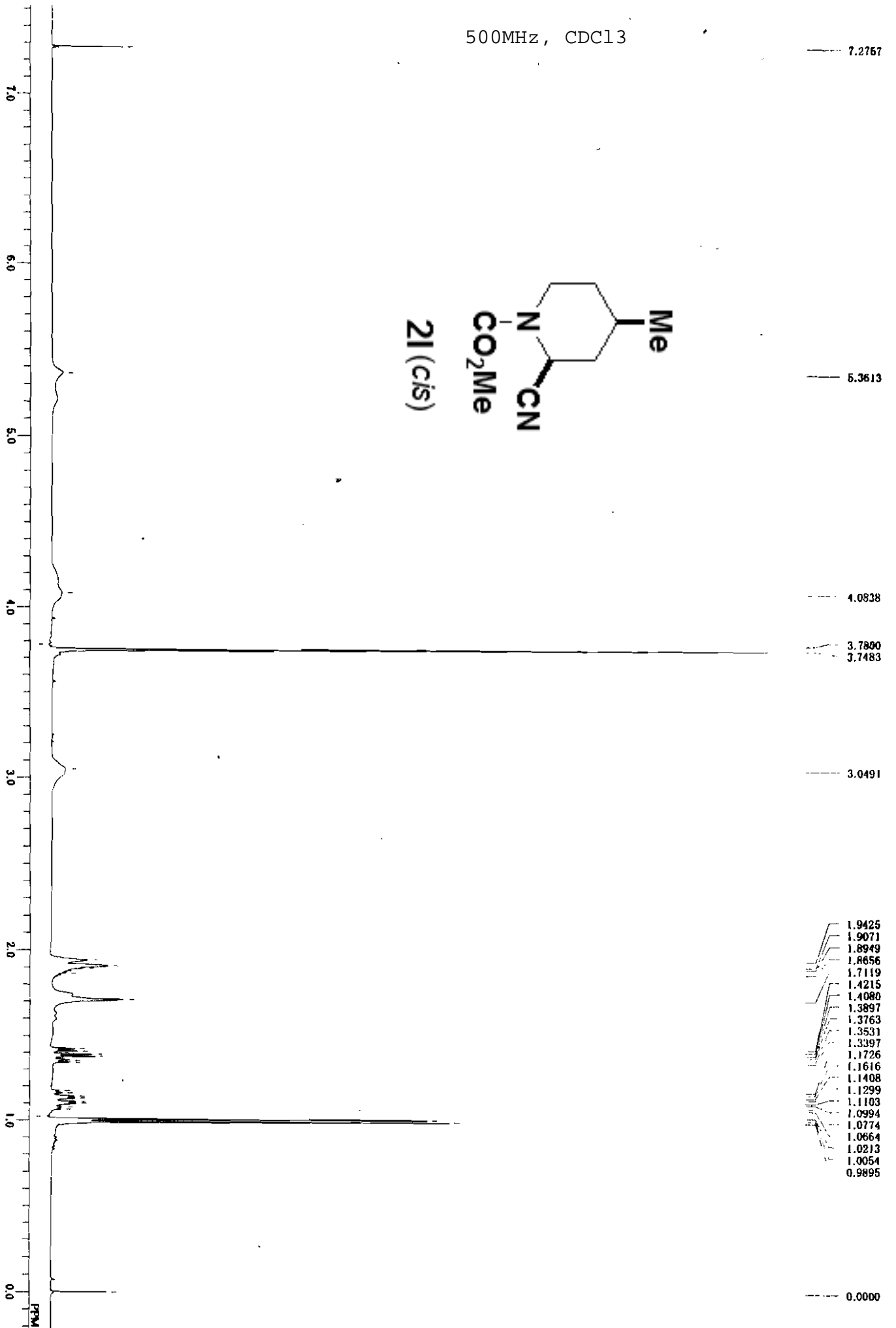
0.0000



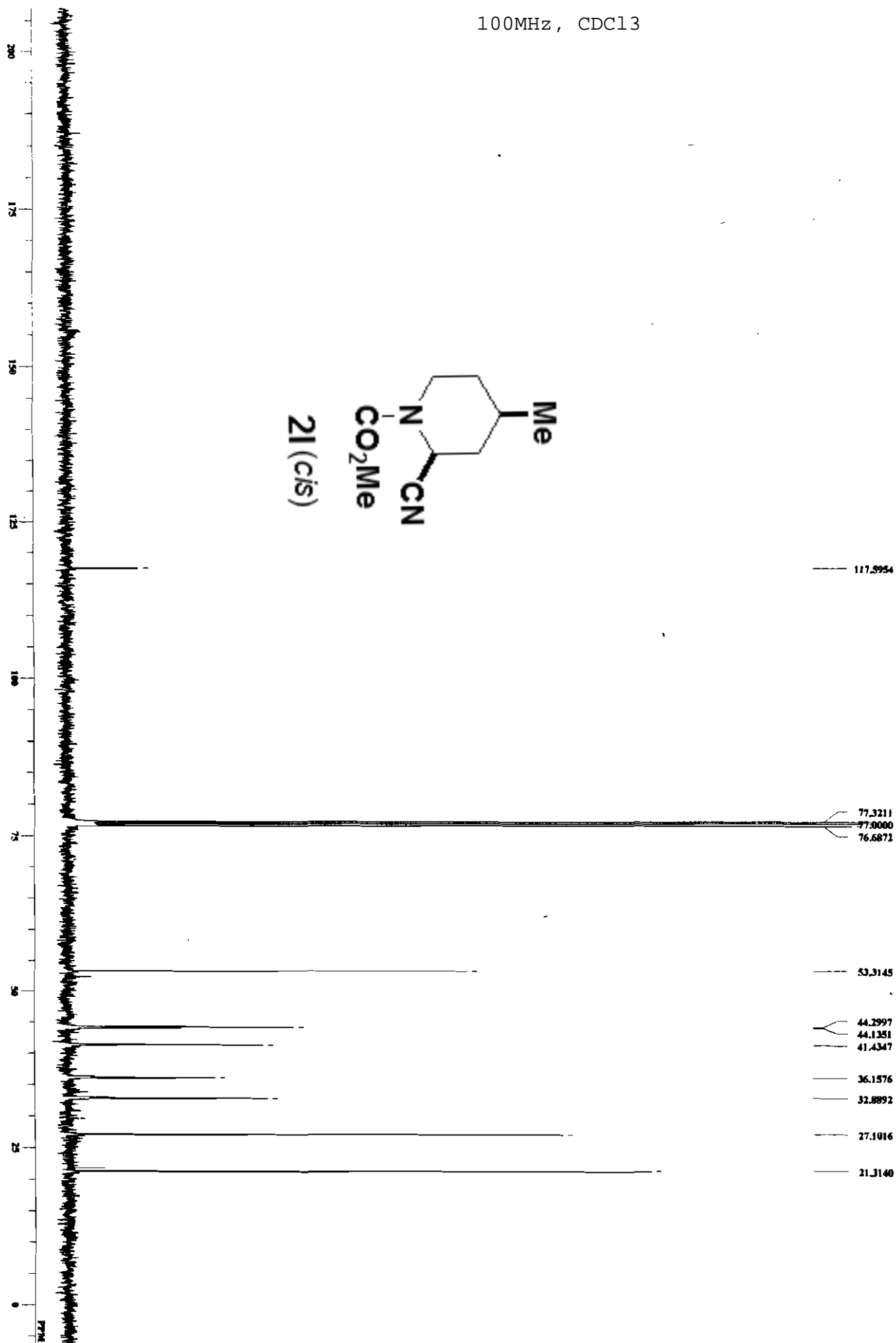
100MHz, CDCl3



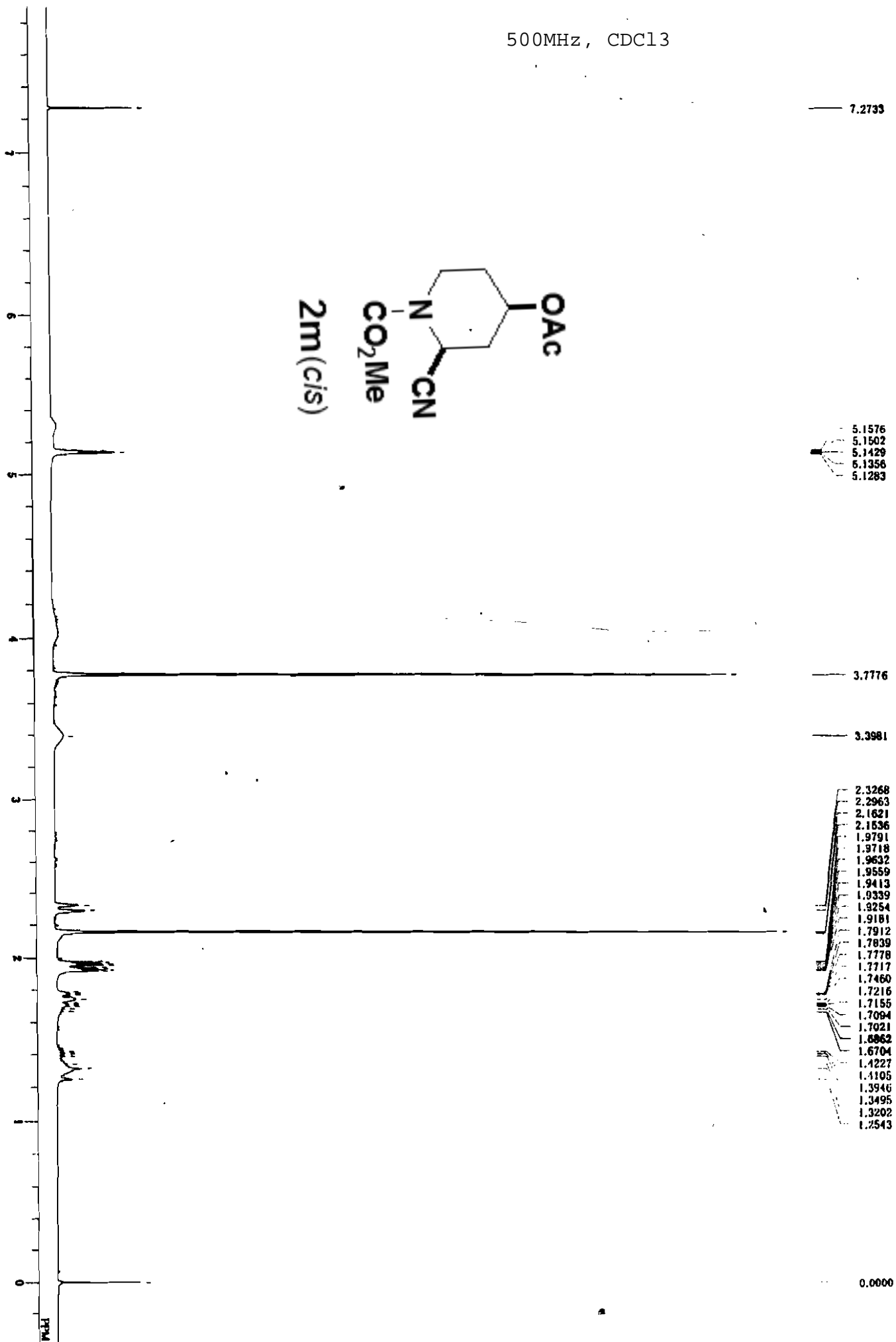
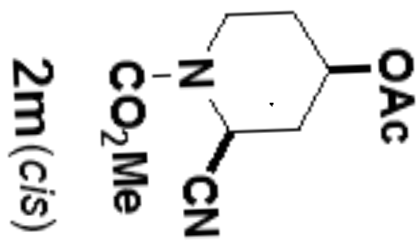
500MHz, CDCl₃



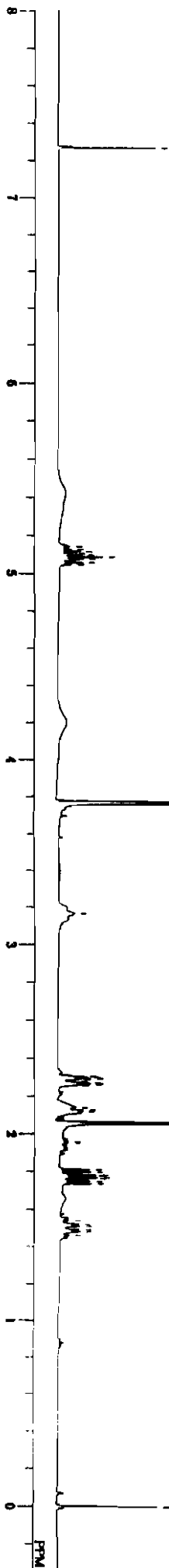
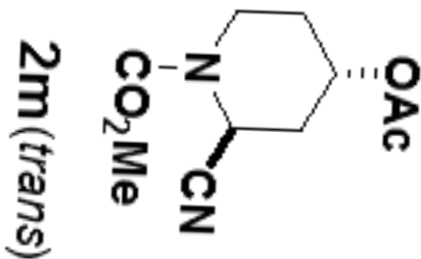
100MHz, CDCl3



500MHz, CDCl₃



500MHz, CDCl3



7.2721

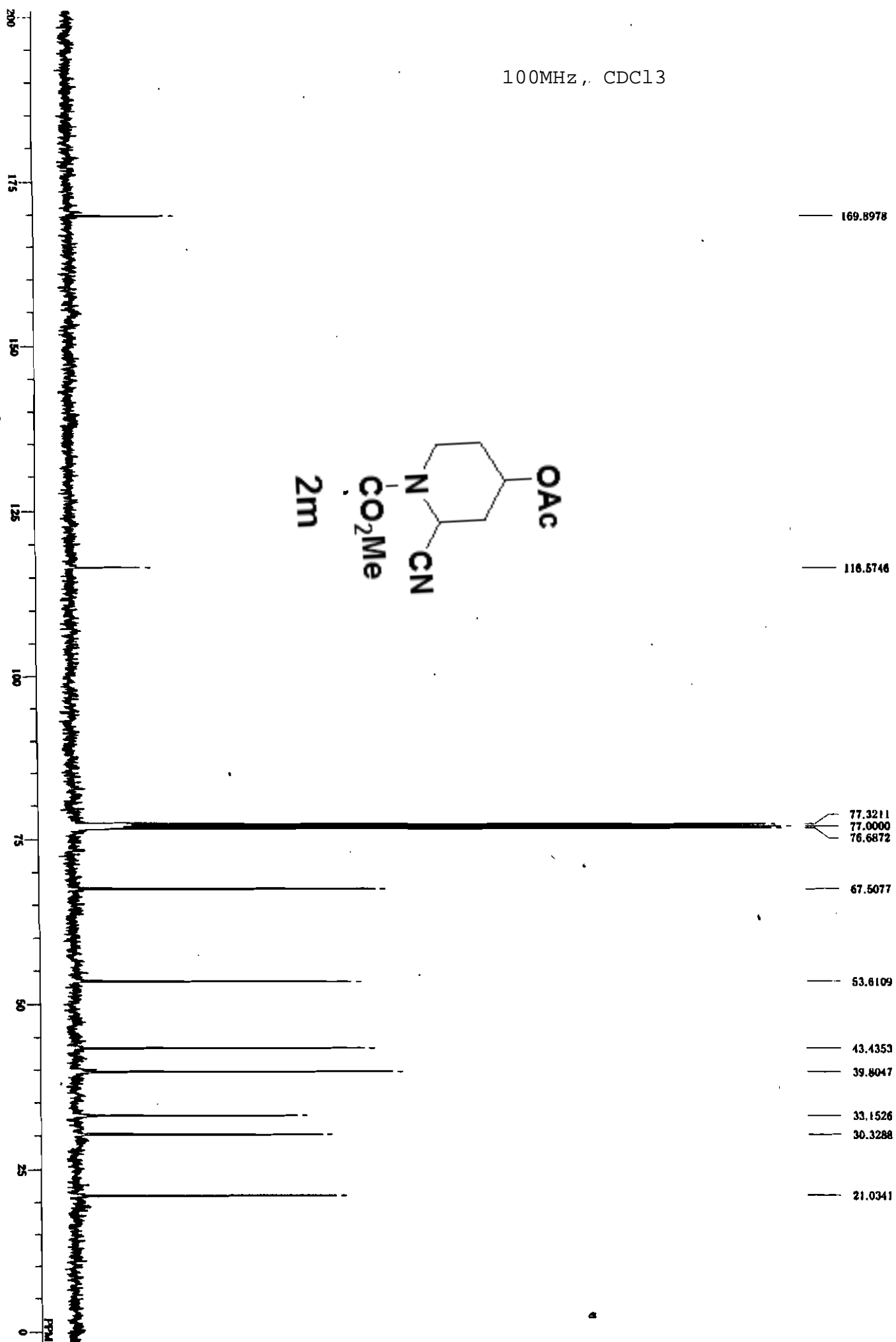
5.1429
5.1271
5.1161
5.1051
5.0990
5.0880
5.0770
5.0687
5.0477

3.7764
3.7690

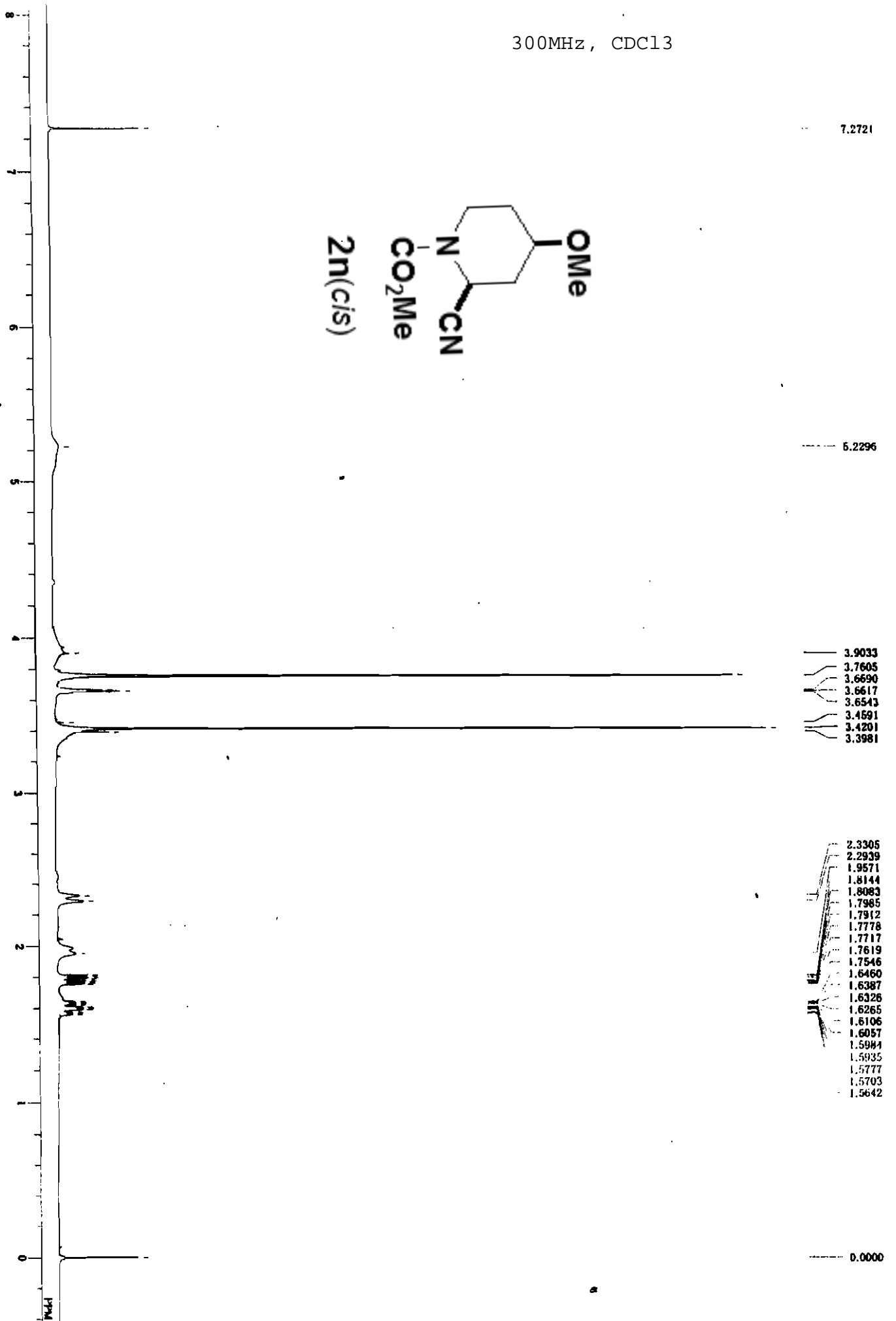
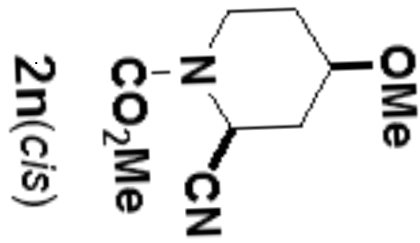
3.1699
2.3061
2.3012
2.2951
2.2902
2.2792
2.2731
2.2683
2.2622
2.2573
2.1414
2.1379
2.1206
2.0620
1.9632
1.9559
1.8144
1.8009
1.7851
1.7828
1.7717
1.7680
1.7521
1.7387
1.5410
1.5215
1.5093
1.4922
1.4800
1.4605

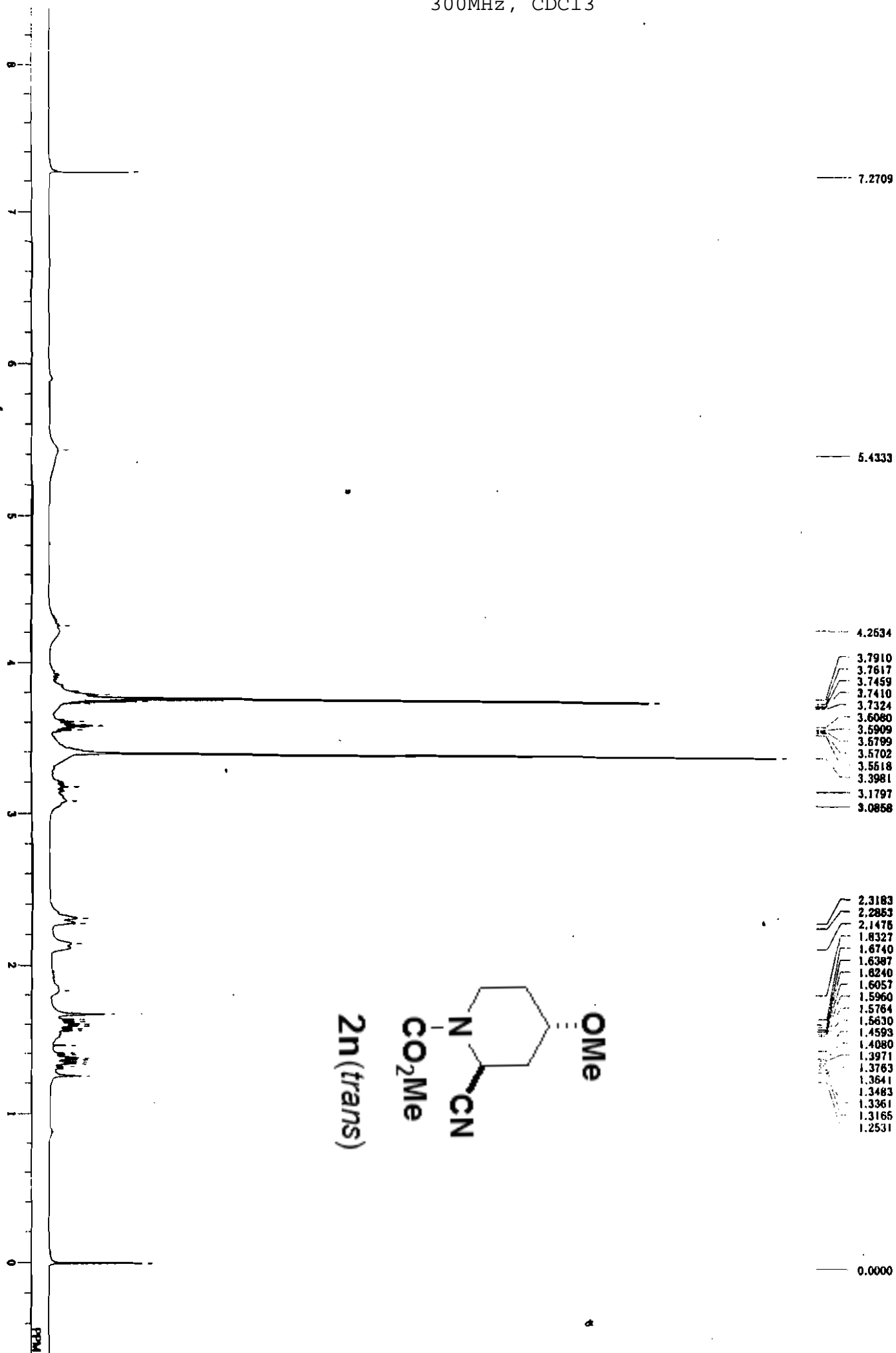
0.0000

100MHz, CDCl3

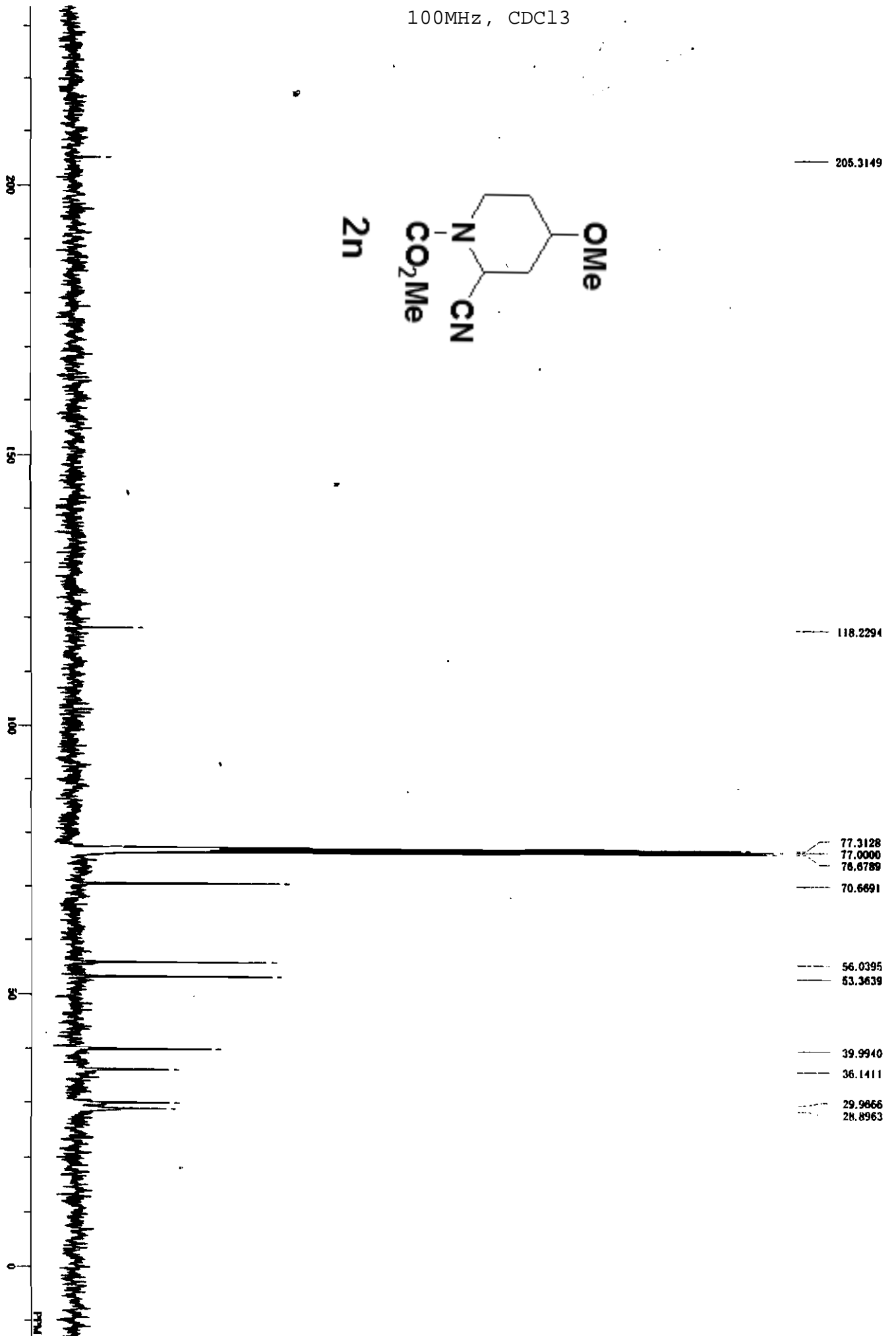
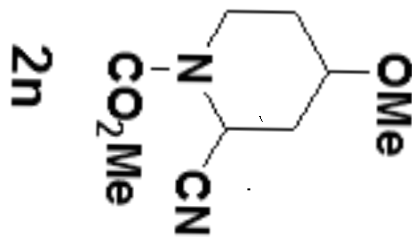


300MHz, CDCl3

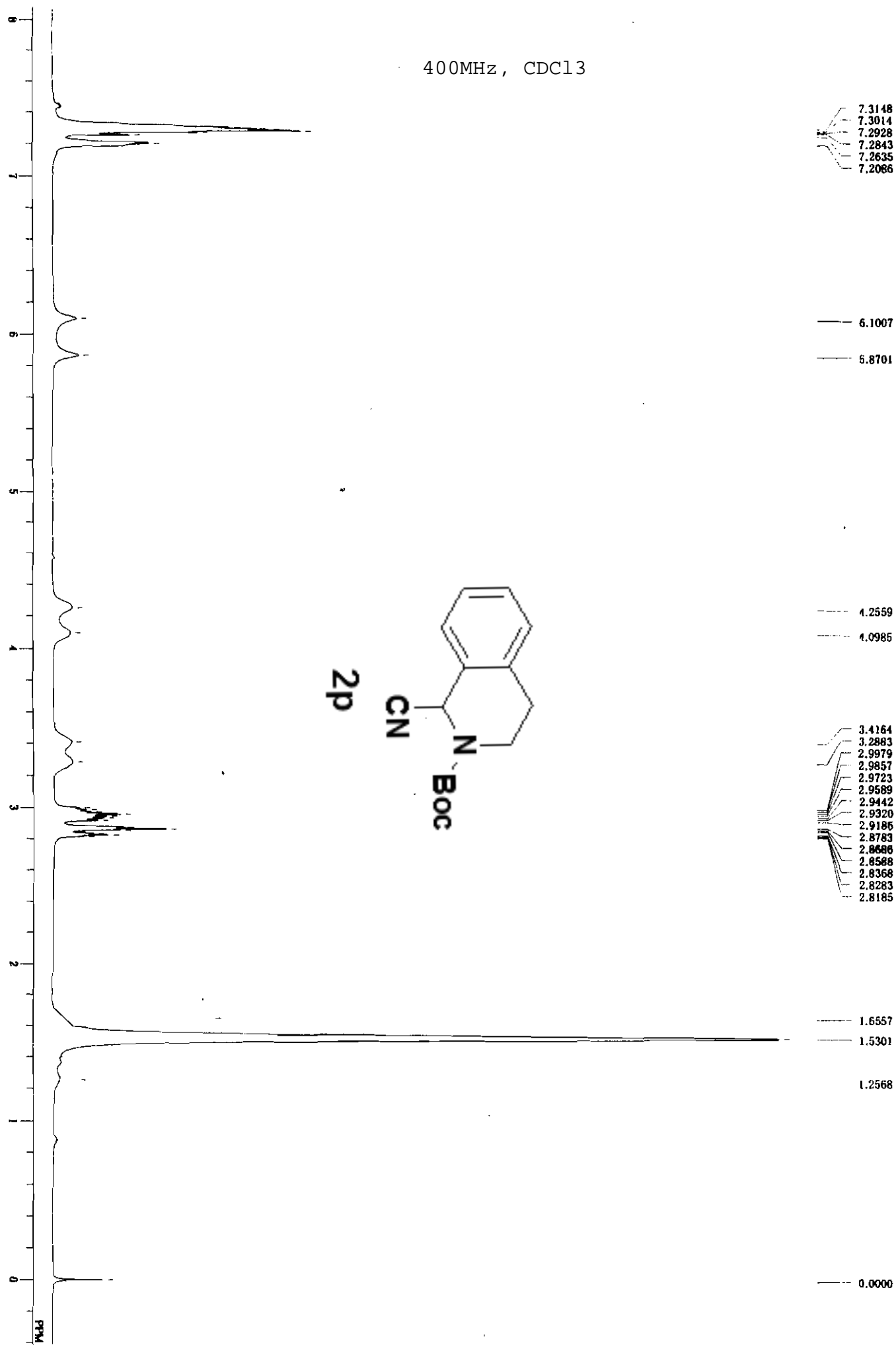




100MHz, CDCl3

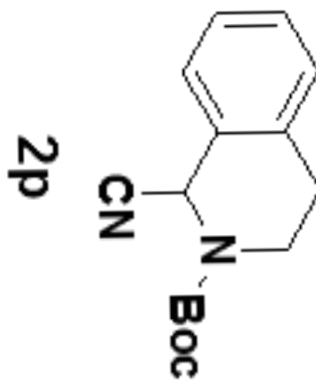


400MHz, CDCl₃



100MHz, CDCl3

150
125
100
75
50
25
0
PPM



129.4505
129.4011
129.3784
128.7425
127.1454
127.0795

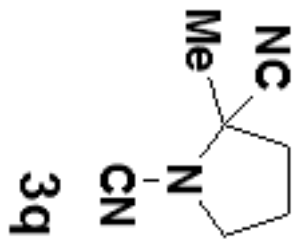
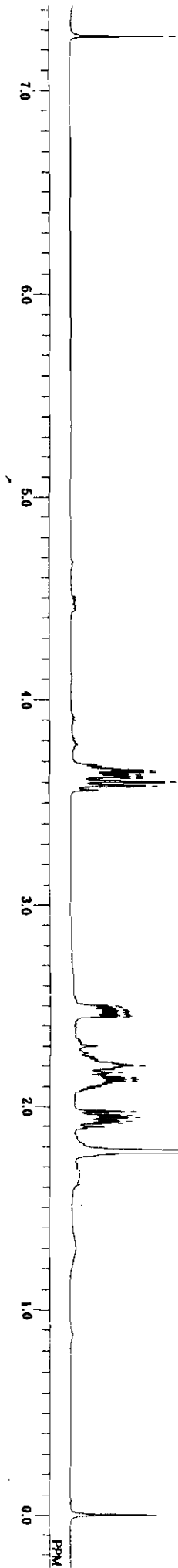
118.1964

77.3211
77.2056
77.0000
76.6789

28.2542
28.0978
28.0484

400MHz, CDCl3

7.2696

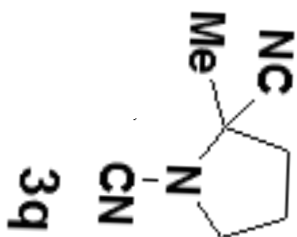
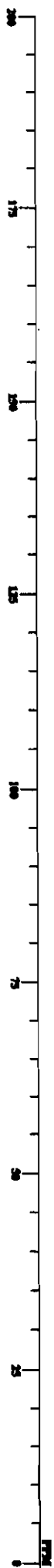


- 3.6617
- 3.6519
- 3.6397
- 3.6299
- 3.6238
- 3.6043
- 3.6836

- 2.5001
- 2.4928
- 2.4830
- 2.4757
- 2.4684
- 2.4598
- 2.4513
- 2.4440
- 2.2024
- 2.1682
- 2.1438
- 2.1340
- 2.1255
- 1.9779
- 1.9596
- 1.9461
- 1.9278
- 1.9193
- 1.7790

0.0000

100MHz, CDCl3



119.2831

112.7846

77.3128

77.0000

76.6789

59.5384

58.5648

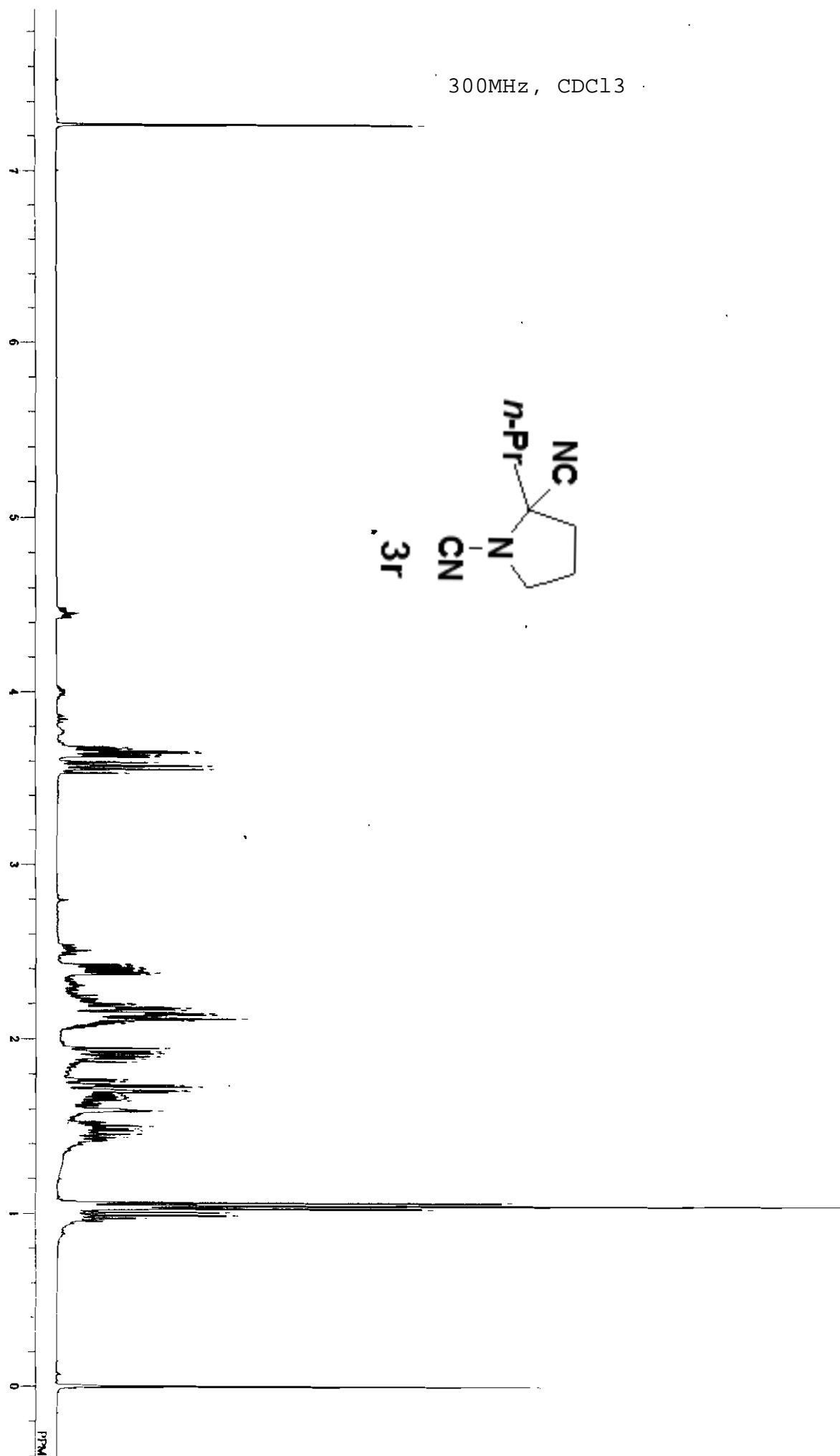
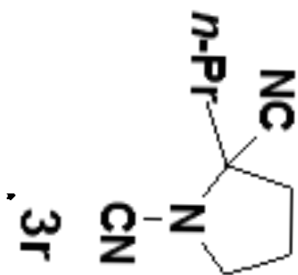
39.1625

23.7344

23.5286

300MHz, CDCl3

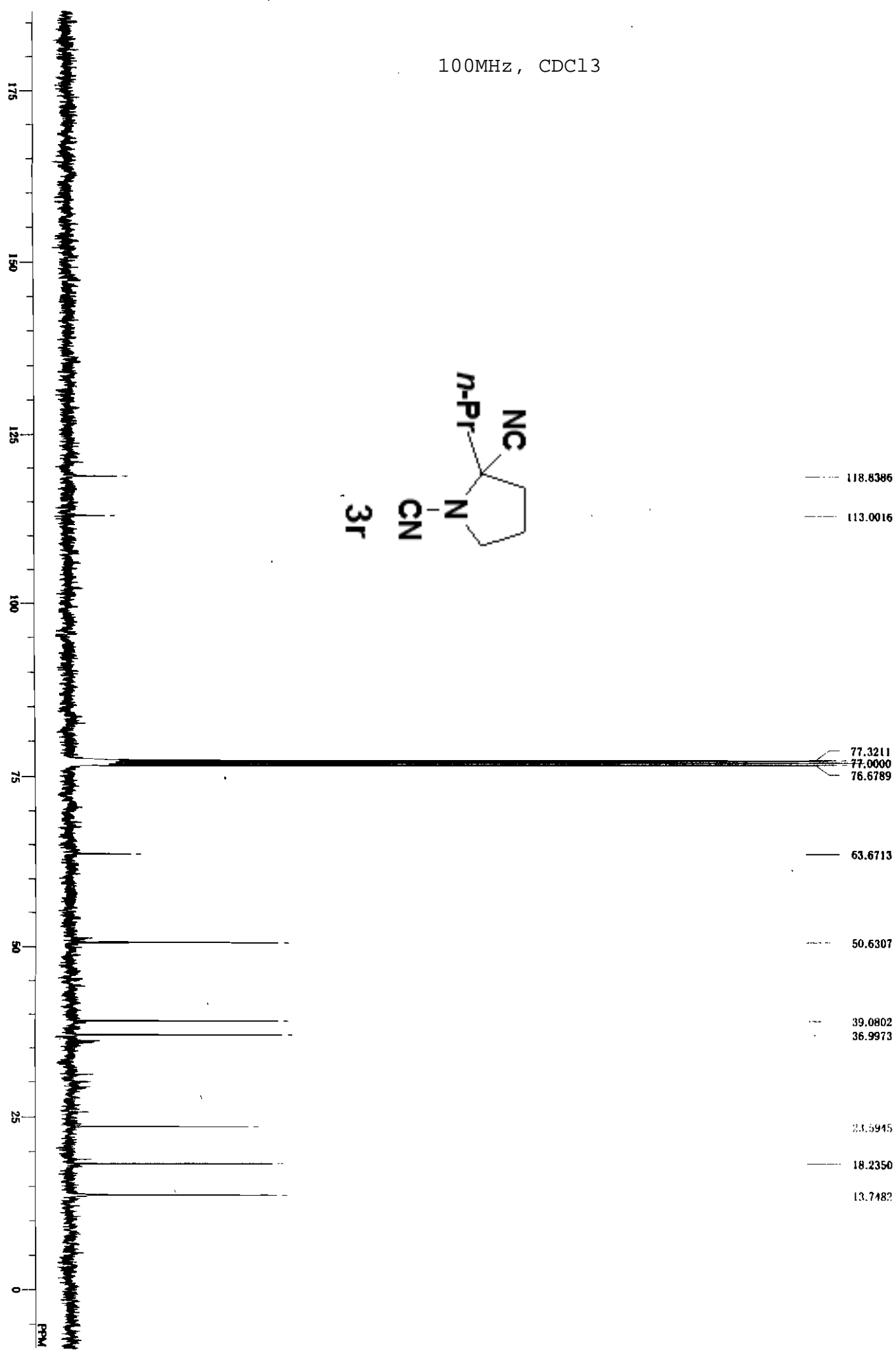
7.2648



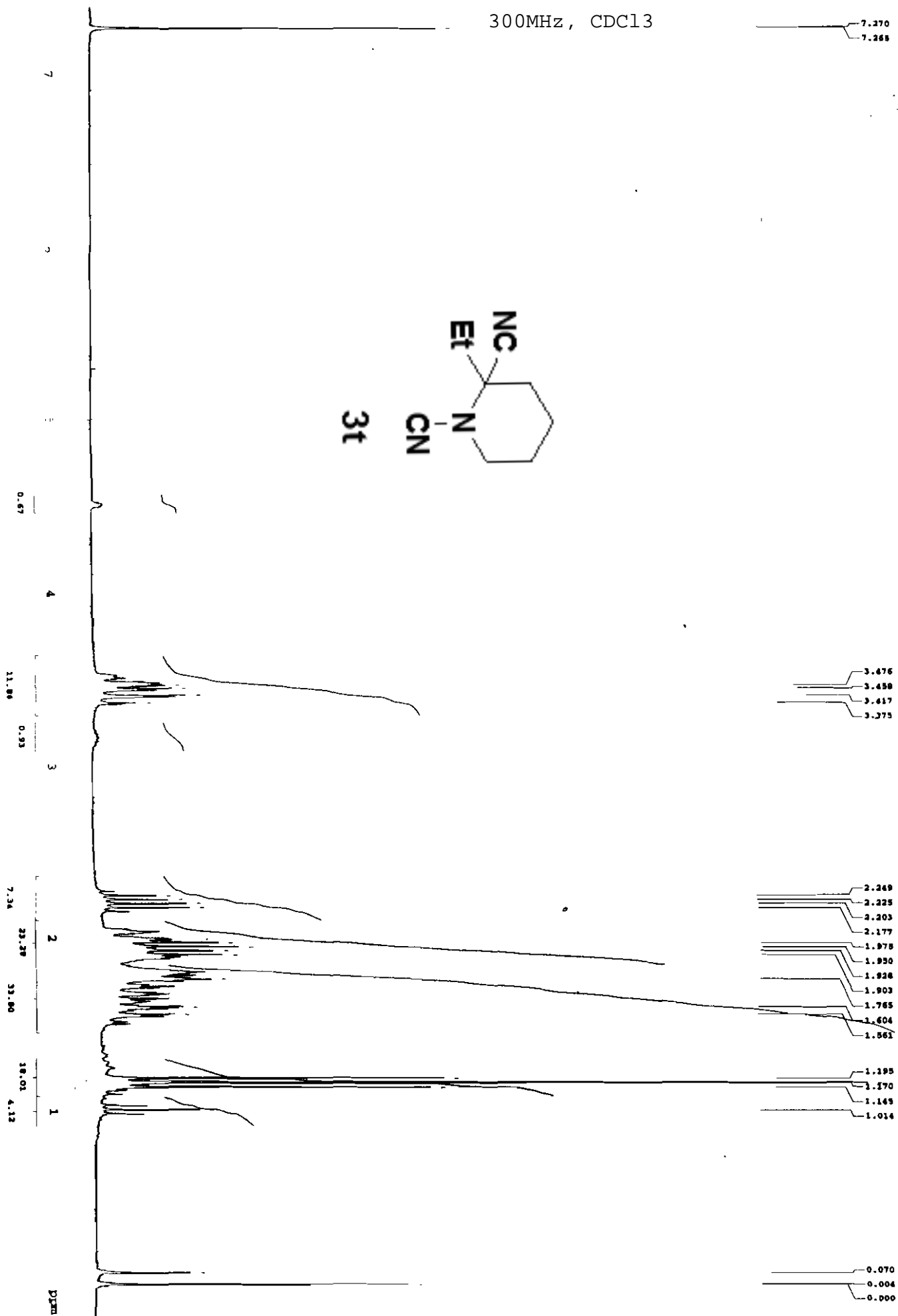
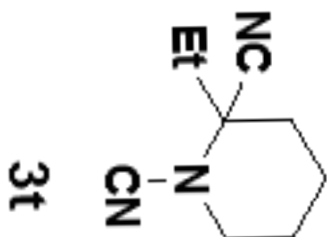
Chemical Shift (ppm)
3.6800
3.6702
3.6568
3.6482
3.6348
3.6263
3.5933
3.5726
3.5543
3.5311
2.4269
2.4196
2.4098
2.4025
2.3939
2.3866
2.3781
2.3695
2.1999
2.1950
2.1792
2.1682
2.1475
2.1377
2.1255
2.1157
2.1084
2.0987
2.0913
1.9486
1.9303
1.9217
1.9169
1.9034
1.8985
1.8888
1.8717
1.7717
1.7607
1.7399
1.7302
1.7082
1.7033
1.6899
1.6789
1.6692
1.6606
1.6509
1.5923
1.5044
1.4861
1.4752
1.4556
1.4373
1.0627
1.0144
1.0261
1.0078
0.9895
0.9749

0.0000

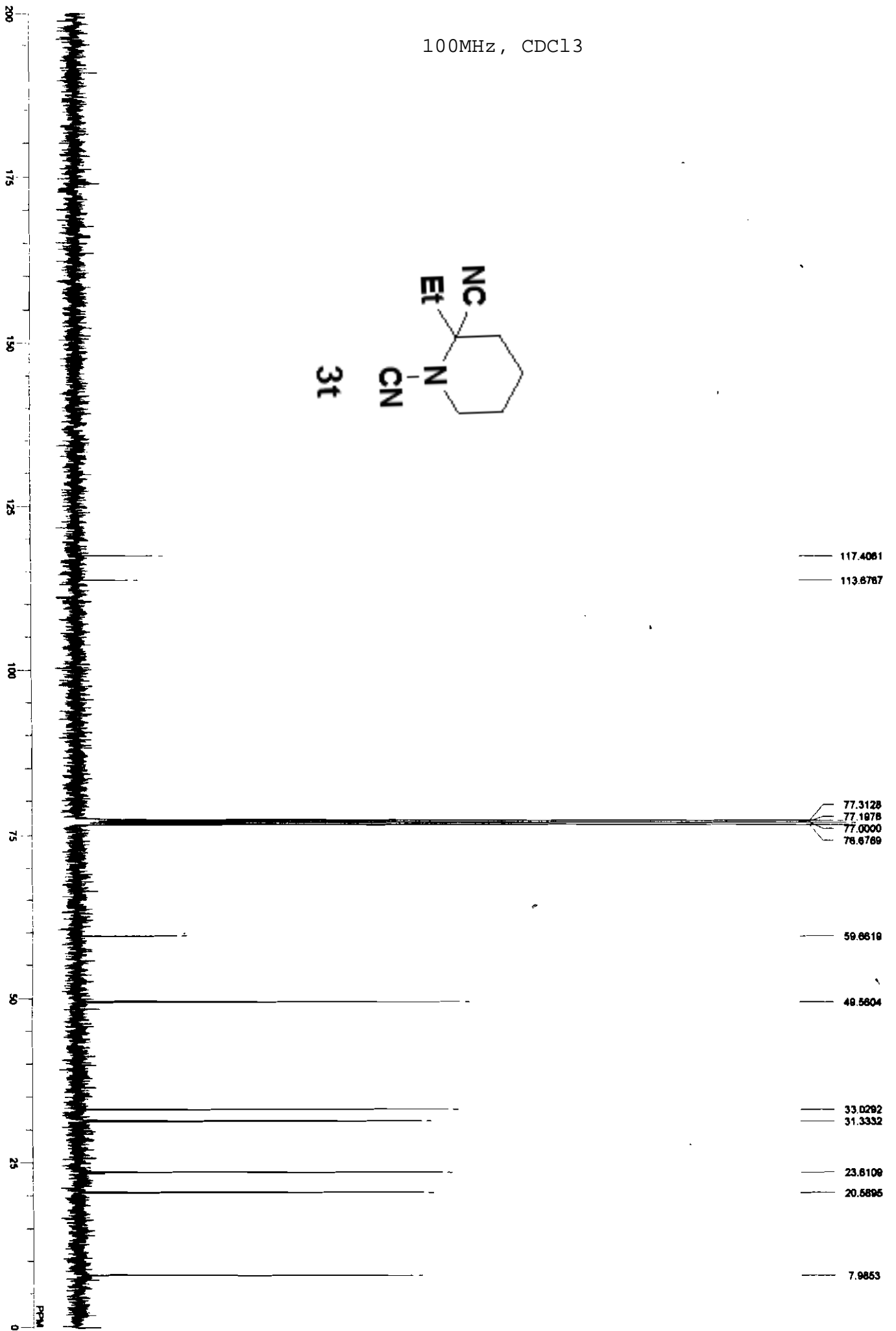
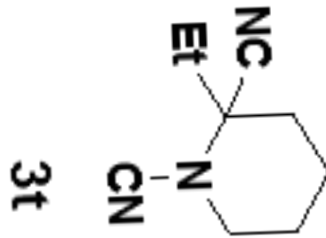
100MHz, CDCl3



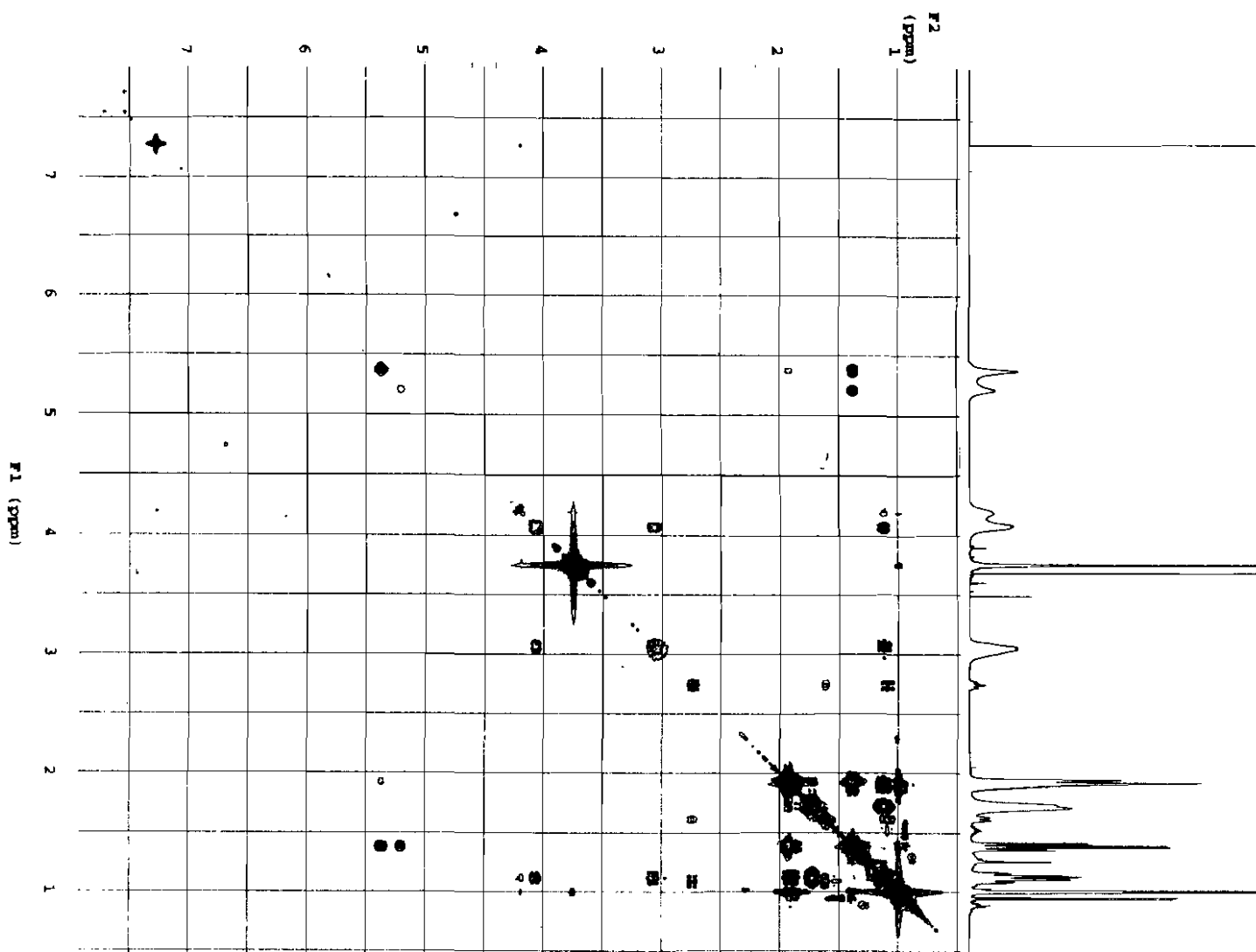
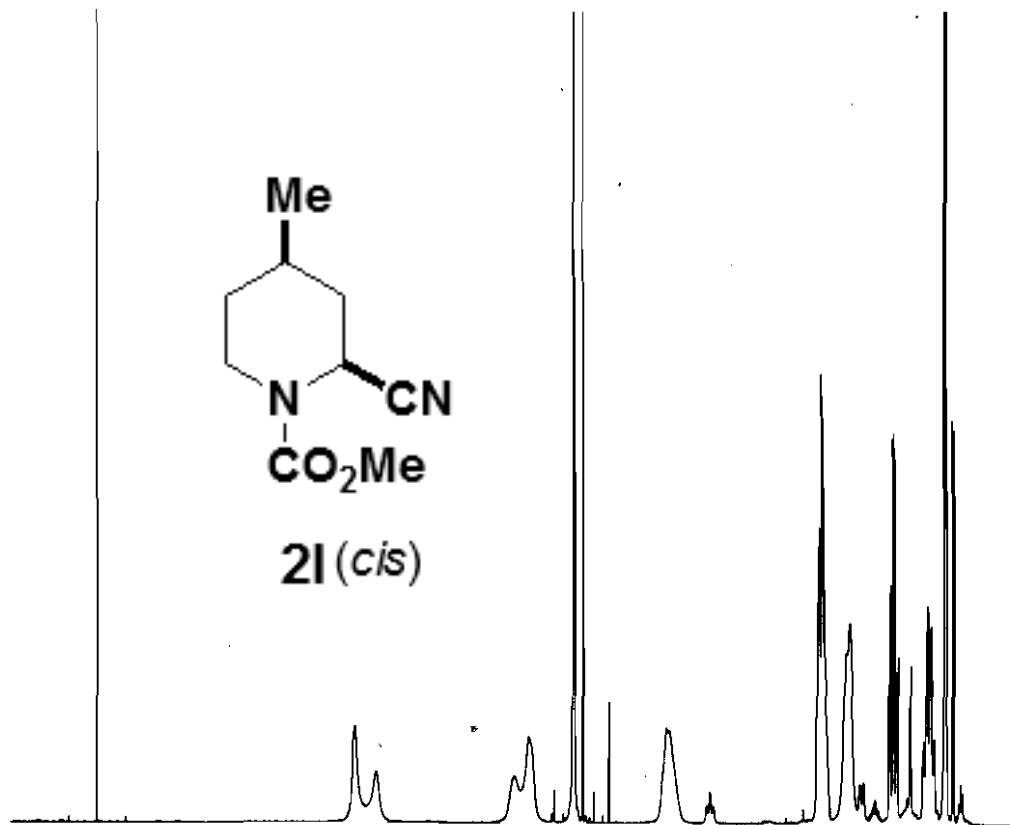
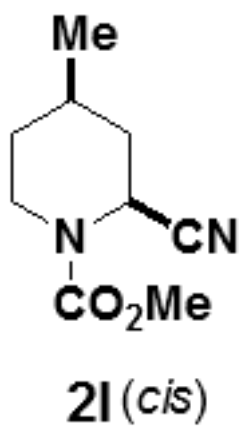
300MHz, CDCl3



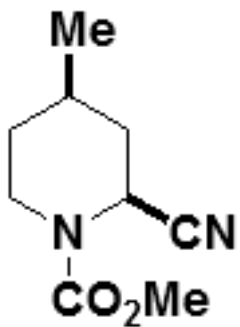
100MHz, CDCl3



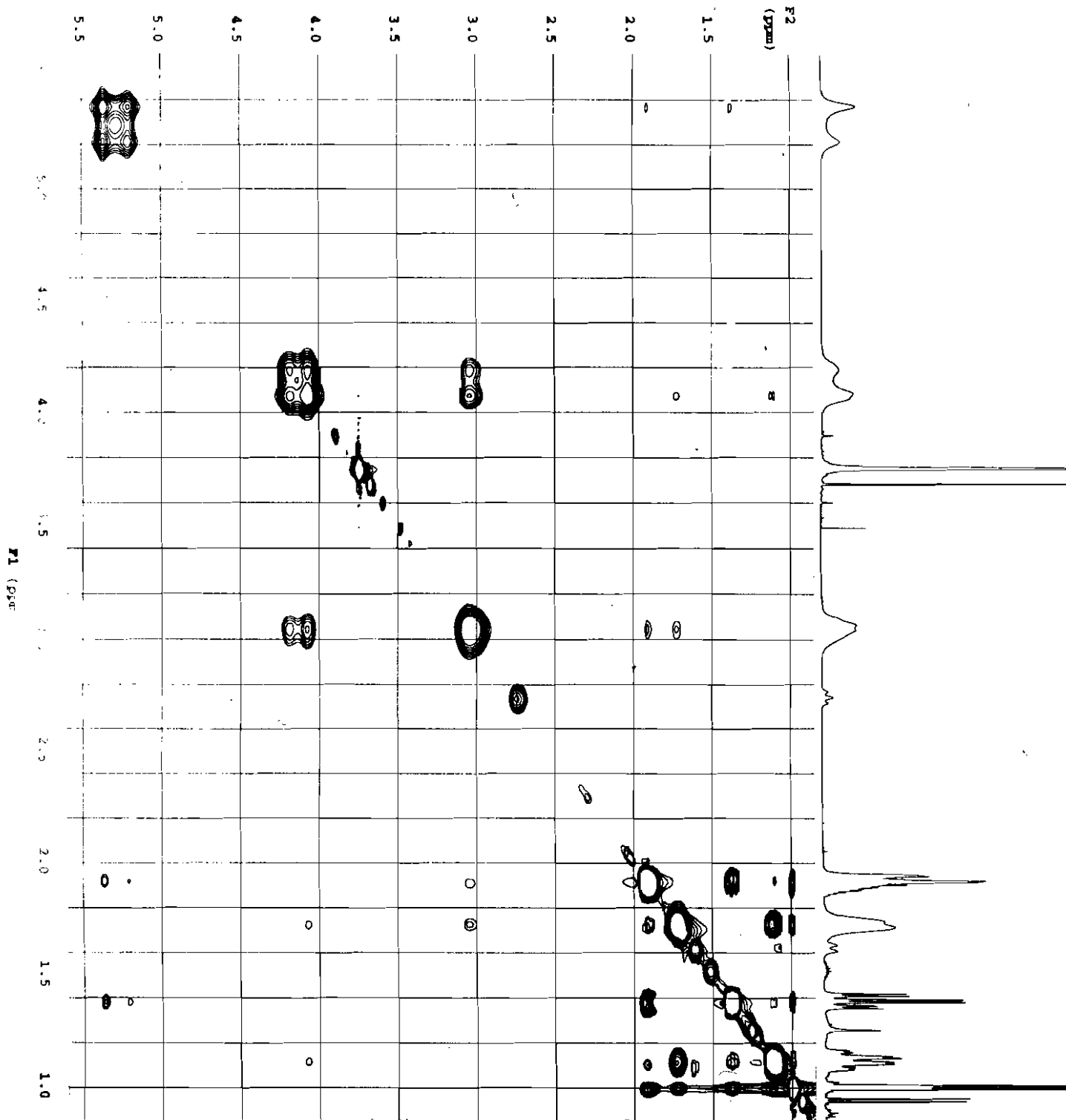
500MHz, CDCl₃



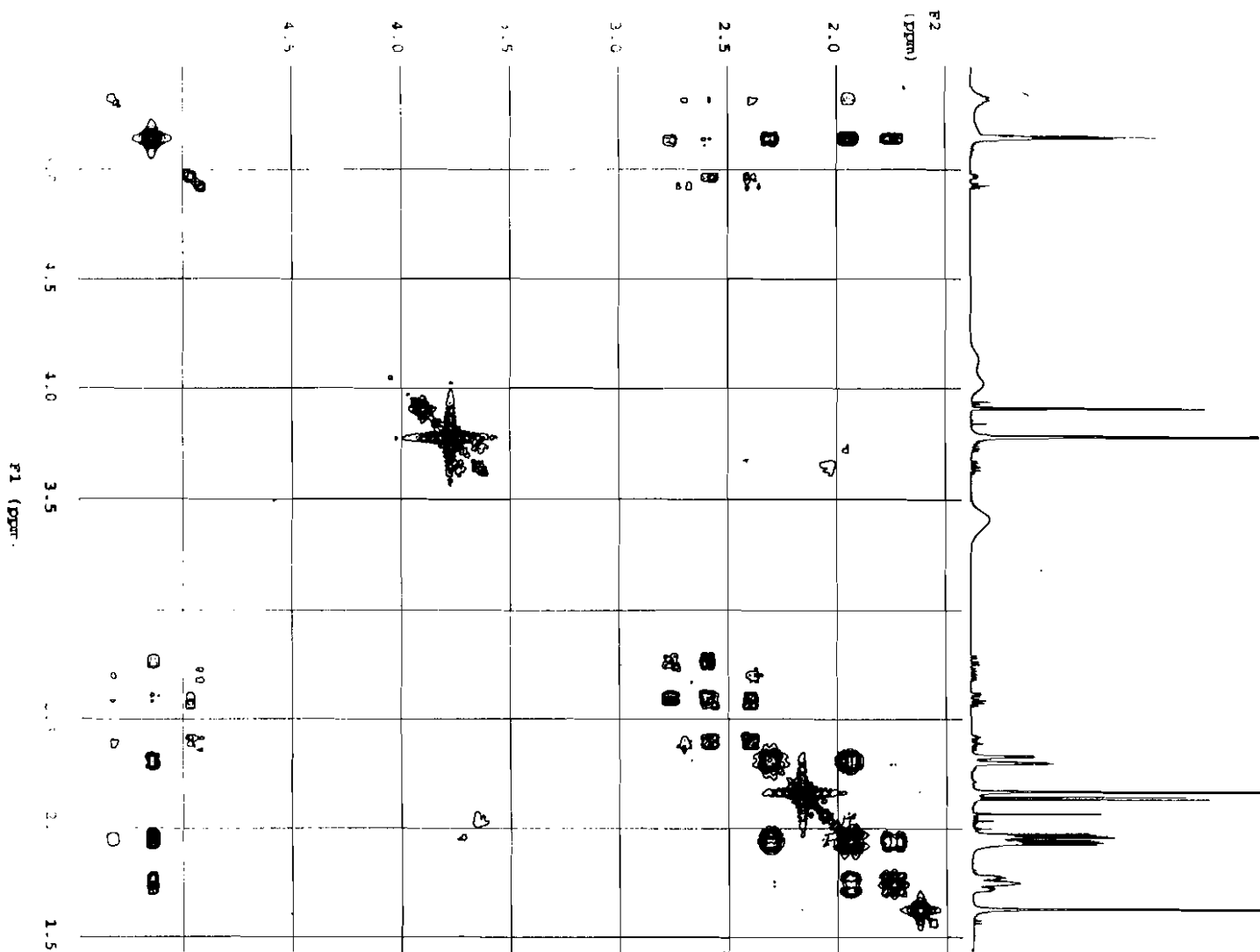
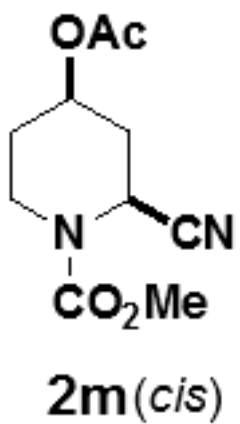
500MHz, CDCl₃



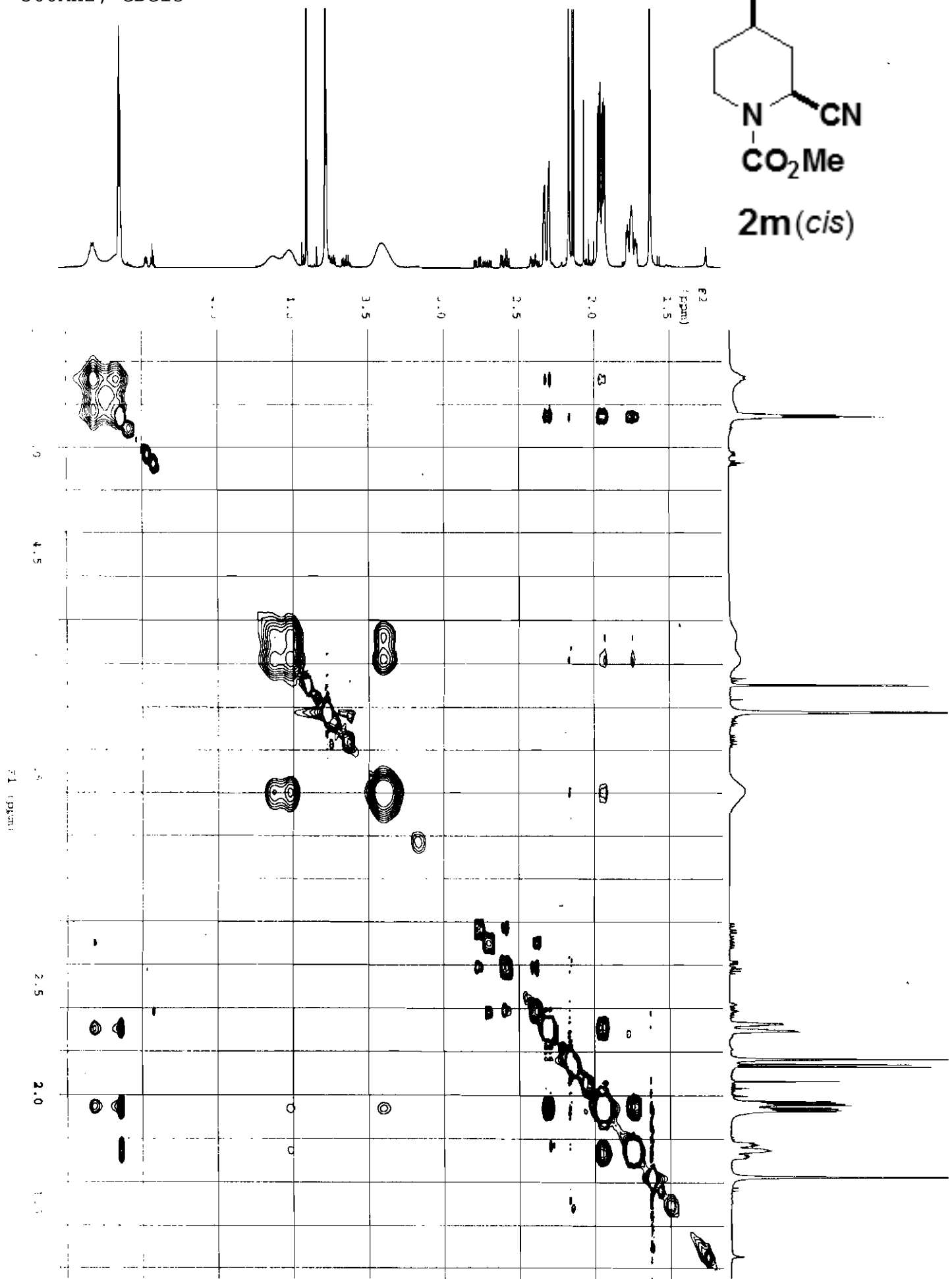
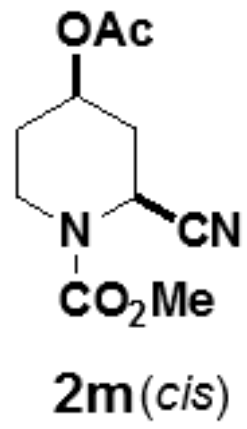
21 (*cis*)



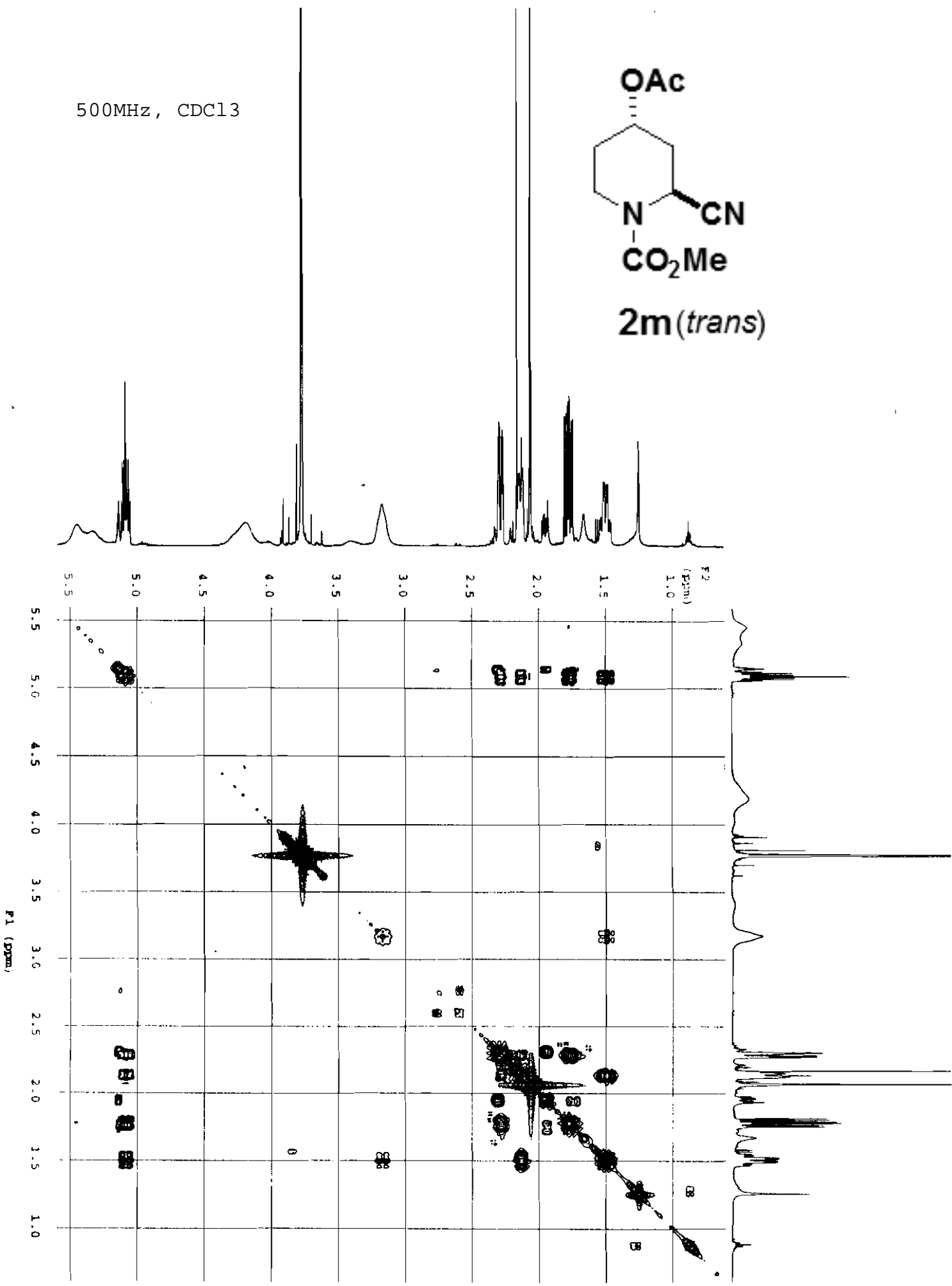
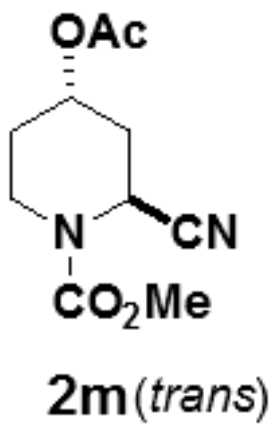
500MHz, CDCl3



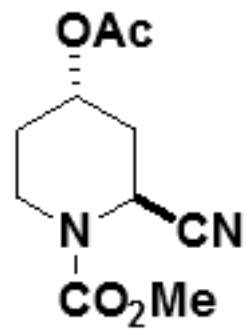
500MHz, CDCl3



500MHz, CDCl3



500MHz, CDCl₃



2m(*trans*)

