

Supporting Information

Preparation of 3-Hydroxyquinolines From Direct Oxidation of Dihydroquinolinium Salts

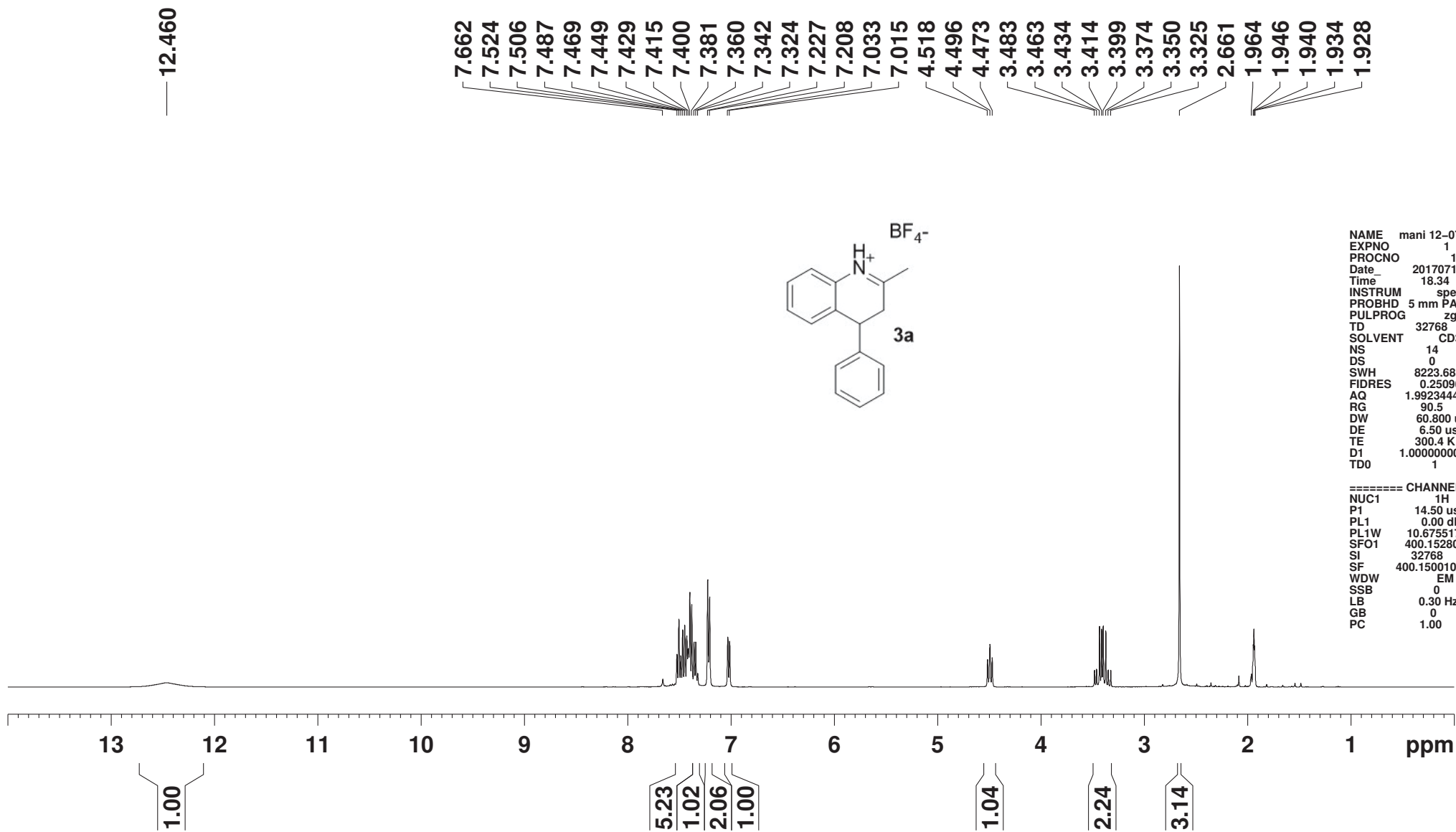
Mani Ramanathan, Jing Wan and Shih-Tzung Liu*

Department of Chemistry, National Taiwan University, Taipei 106, Taiwan

Contents:

Copies of ^1H and ^{13}C NMR Spectra-----S1-S66

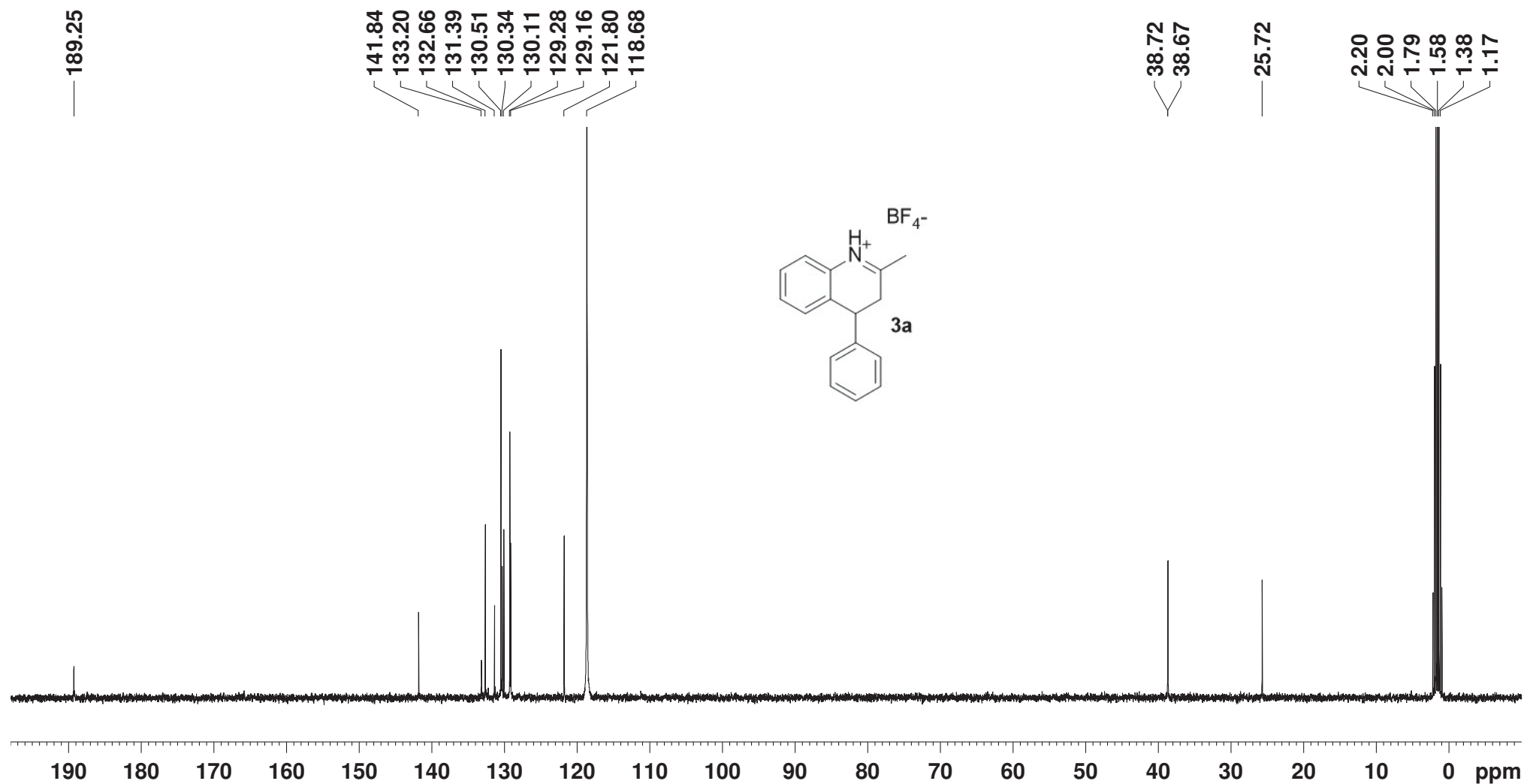
Phdiazonium salt, Dry Styrene, Dry MeCN, 80deg, 2h, ether washed pale yellow solid



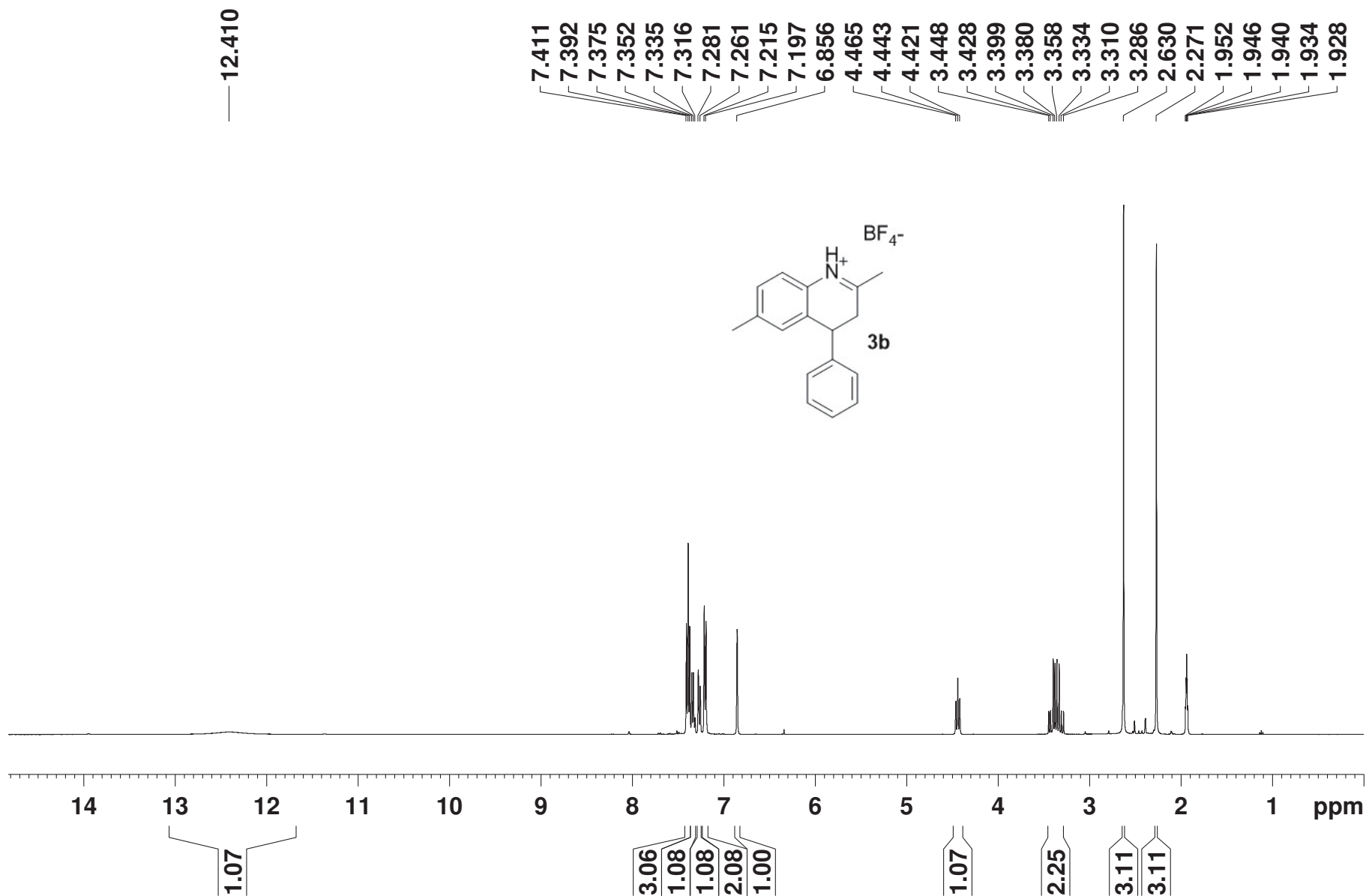
NAME mani 12-07-2
 EXPNO 1
 PROCNO 1
 Date_ 20170712
 Time 18.34
 INSTRUM spect
 PROBHD 5 mm PABB
 PULPROG zg30
 TD 32768
 SOLVENT CD3CN
 NS 14
 DS 0
 SWH 8223.685 H
 FIDRES 0.250967
 AQ 1.9923444 se
 RG 90.5
 DW 60.800 usec
 DE 6.50 usec
 TE 300.4 K
 D1 1.00000000 se
 TD0 1

===== CHANNEL f1
 NUC1 1H
 P1 14.50 usec
 PL1 0.00 dB
 PL1W 10.67551708
 SFO1 400.1528010
 SI 32768
 SF 400.1500104 M
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

Phdiazonium salt, Dry Styrene, Dry MeCN, 80deg, 2h, ether washed pale yellow solid

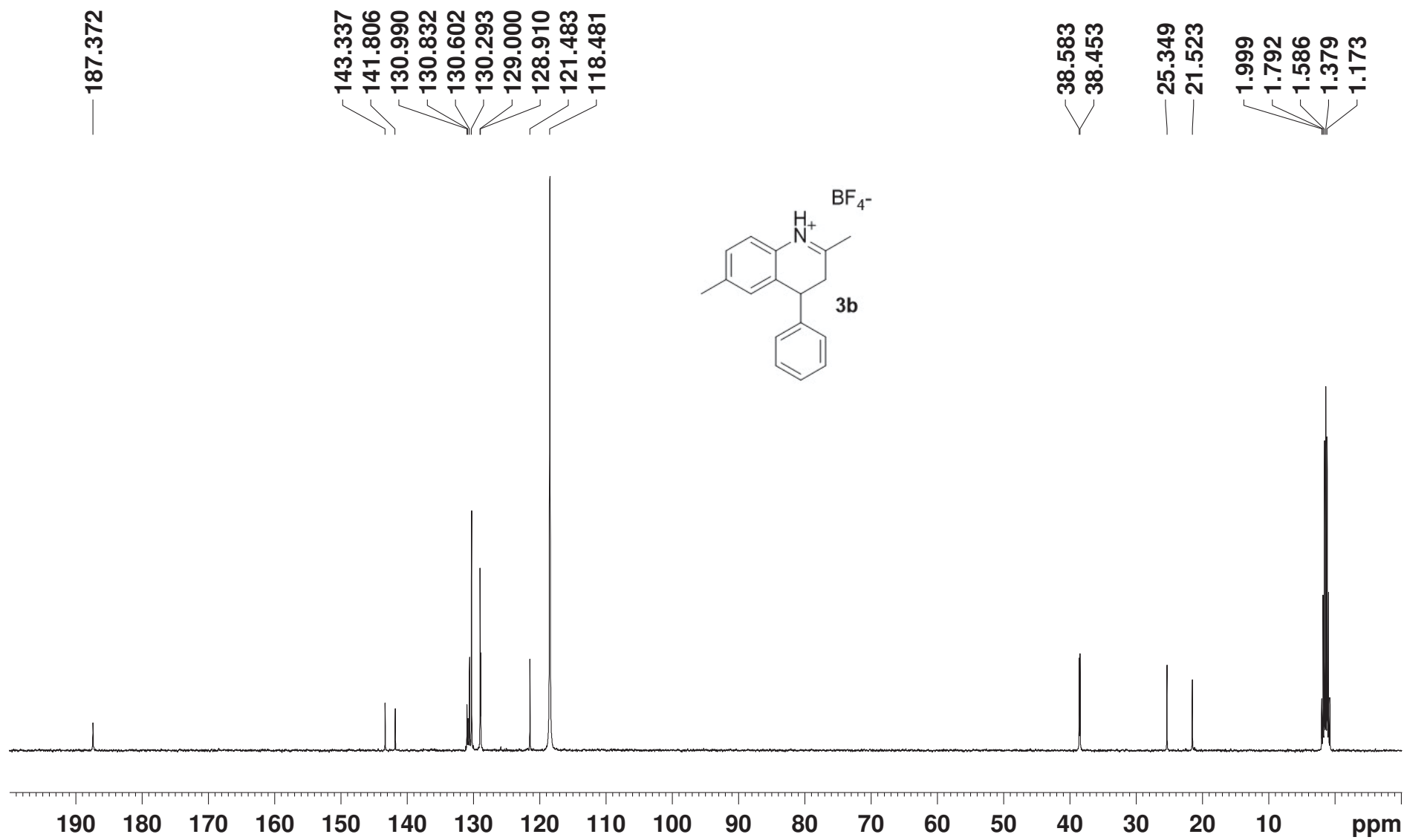


4-MePhdiazonium salt, dry MeCN, styrene, 80deg, 2h, pale yellow solid



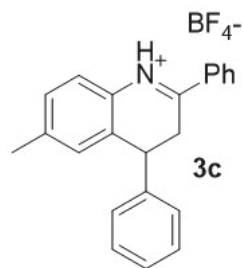
NAME mani 02-10-201
EXPNO 5
PROCNO 1
Date_ 20171002
Time 22.18 h
INSTRUM spect
PROBHD Z108618.0411
PULPROG zg30
TD 32768
SOLVENT CD3CN
NS 30
DS 0
SWH 8802.817 Hz
FIDRES 0.537281 Hz
AQ 1.8612725 sec
RG 62.98
DW 56.800 usec
DE 14.47 usec
TE 299.0 K
D1 1.0000000 sec
TD0 1
SFO1 400.1328009 MHz
NUC1 1H
P1 15.50 usec
SI 131072
SF 400.1300112 MHz
WDW EM
SSB 0
LB 0.00 Hz
GB 0
PC 1.00

4-MePhdiazonium salt, dry MeCN, styrene, 80deg, 2h, pale yellow solid

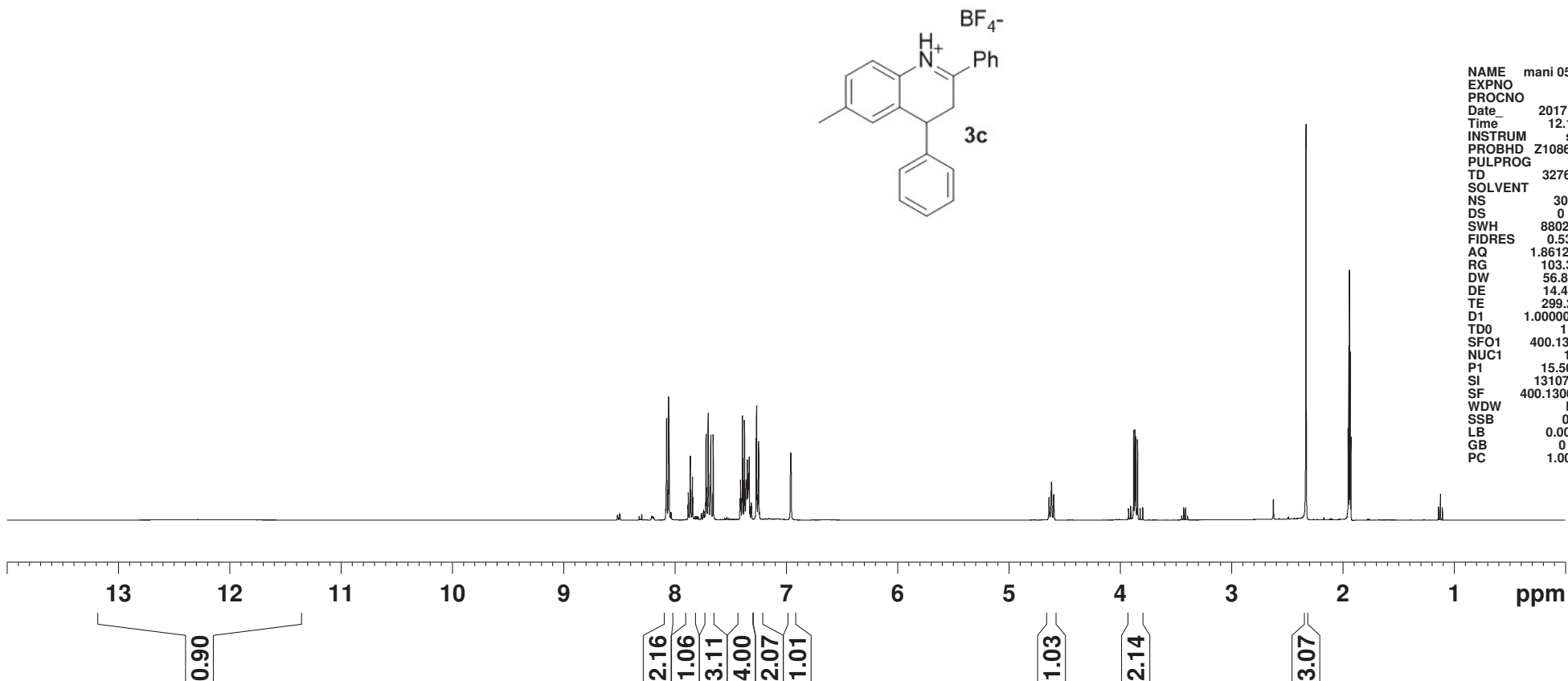


4-MePhdiazonium salt, dry PhCN, styrene, 80deg, 2h, bright yellow solid

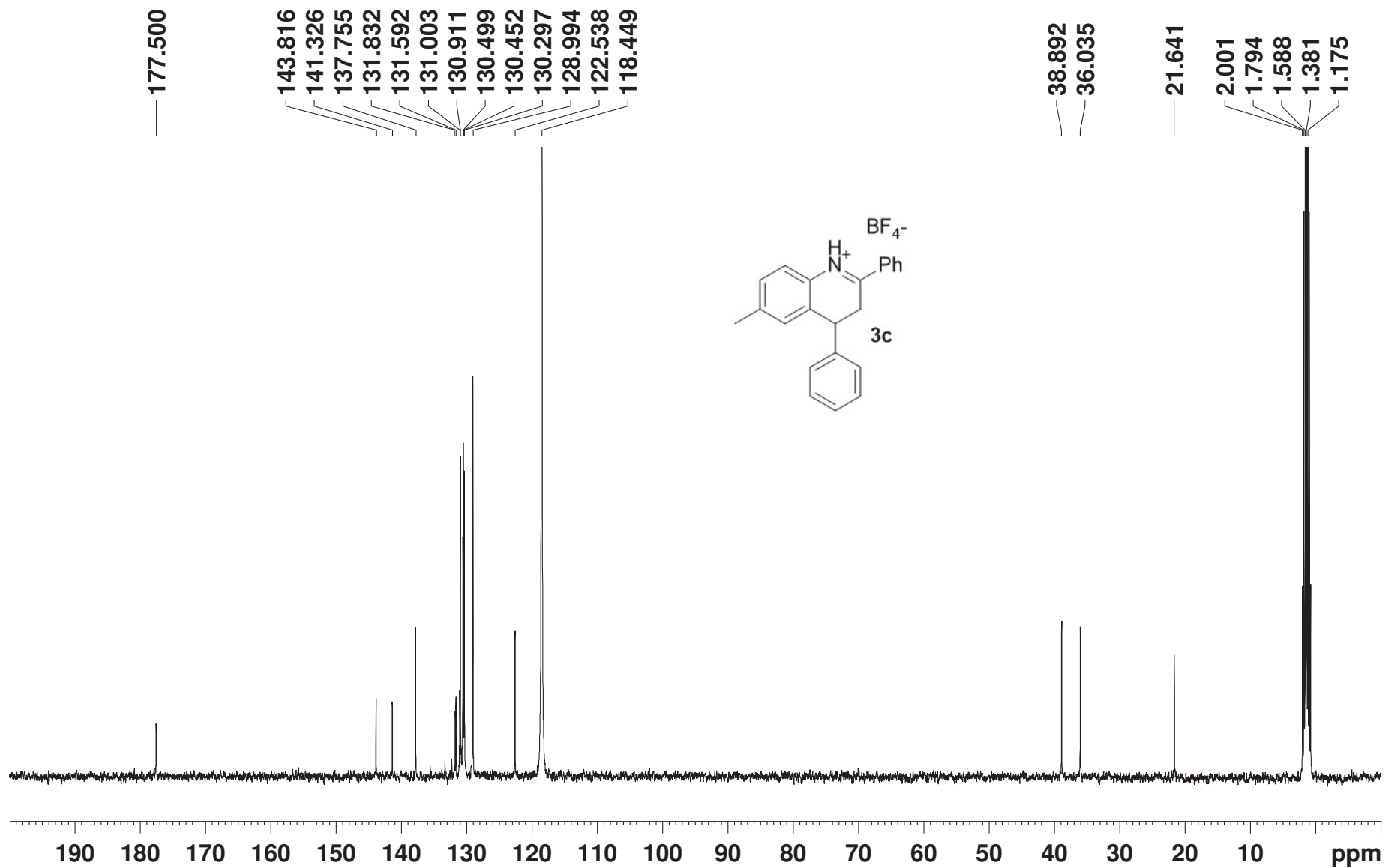
8.078
8.075
8.073
8.062
8.057
8.053
7.880
7.866
7.862
7.858
7.846
7.843
7.840
7.721
7.716
7.702
7.700
7.686
7.680
7.678
7.657
7.415
7.412
7.399
7.394
7.390
7.379
7.376
7.363
7.360
7.358
7.354
7.351
7.347
7.342
7.339
7.333
7.271
7.267
7.262
7.253
7.250
4.639
4.618
4.597
3.879
3.867
3.860
3.844
2.331
1.952
1.946
1.939
1.933
1.927



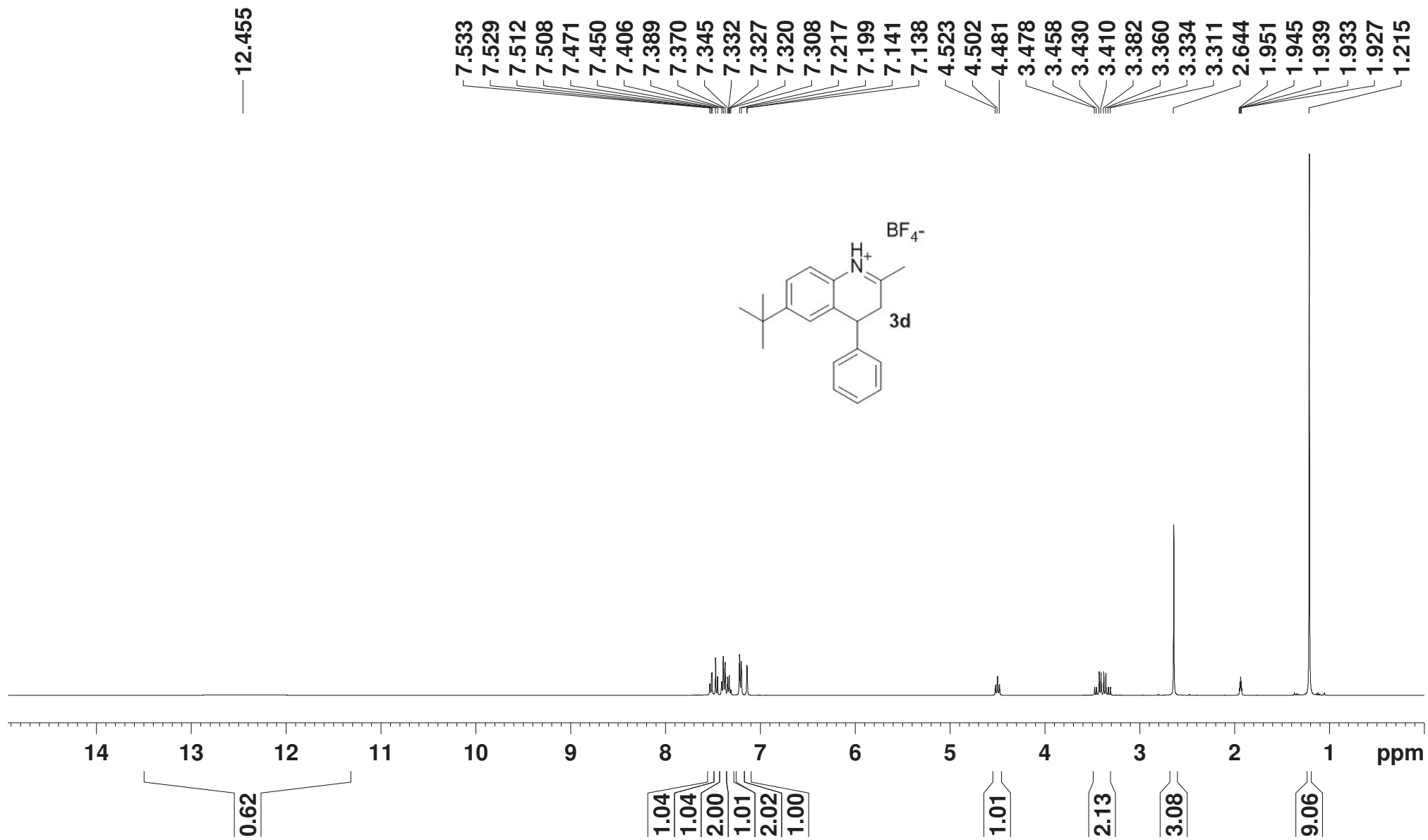
NAME mani 05-10-2f
EXPNO 1
PROCNO 1
Date_ 20171005
Time 12.11 h
INSTRUM spect
PROBHD Z108618_041
PULPROG zg30
TD 32768
SOLVENT CD3CN
NS 30
DS 0
SWH 8802.817 Hz
FIDRES 0.537281 Hz
AQ 1.8612725 sec
RG 103.36
DW 56.800 usec
DE 14.47 usec
TE 299.2 K
D1 1.0000000 sec
TD0 1
SFO1 400.1328009 MHz
NUC1 1H
P1 15.50 usec
SI 131072
SF 400.1300115 MHz
WDW EM
SSB 0
LB 0.00 Hz
GB 0
PC 1.00



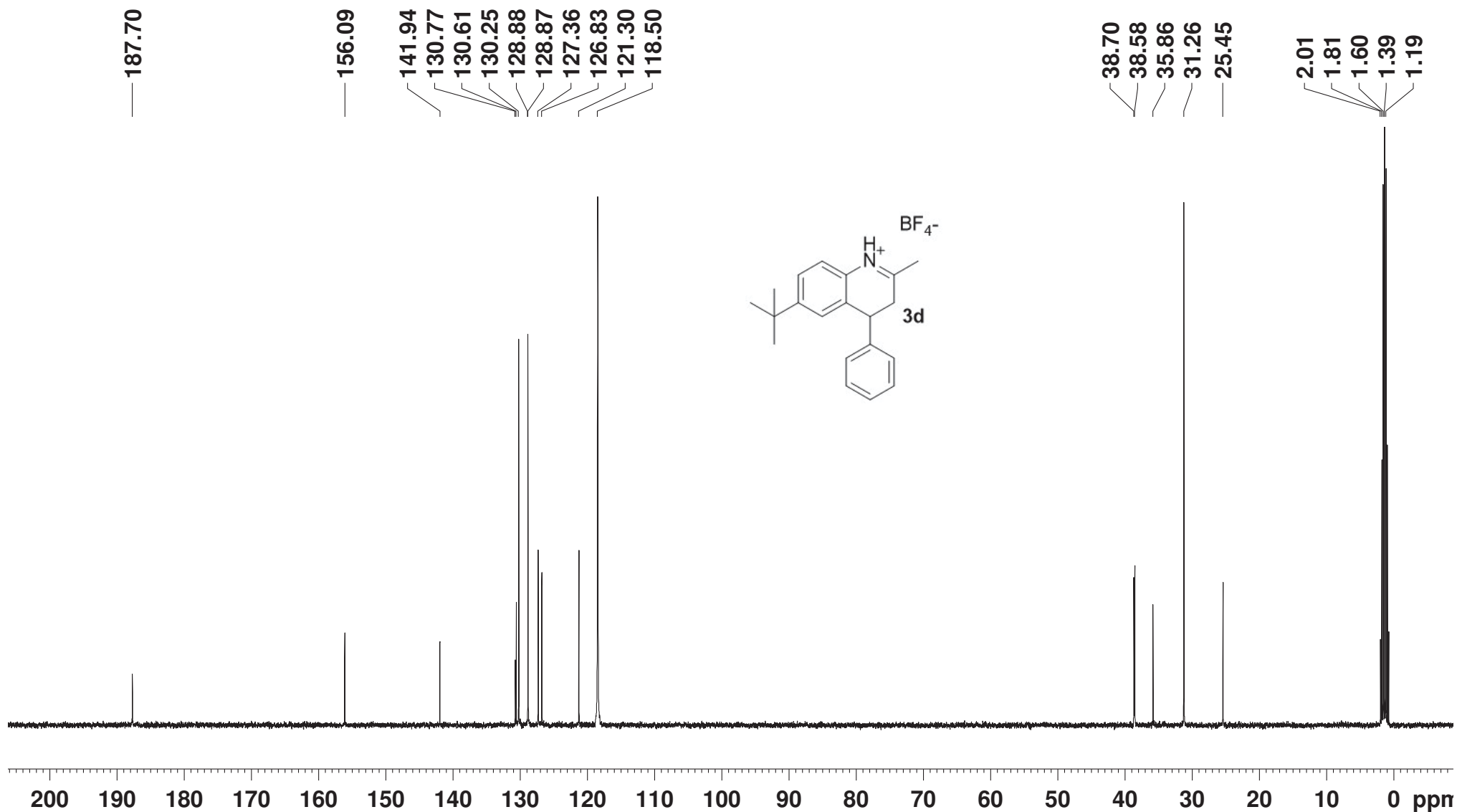
4-MePhdiazonium salt, dry PhCN, styrene, 80deg, 2h, bright yellow solid



4-tBuPhdiazonium salt , Styrene, Dry MeCN, 80deg, 2h, pale yellow solid

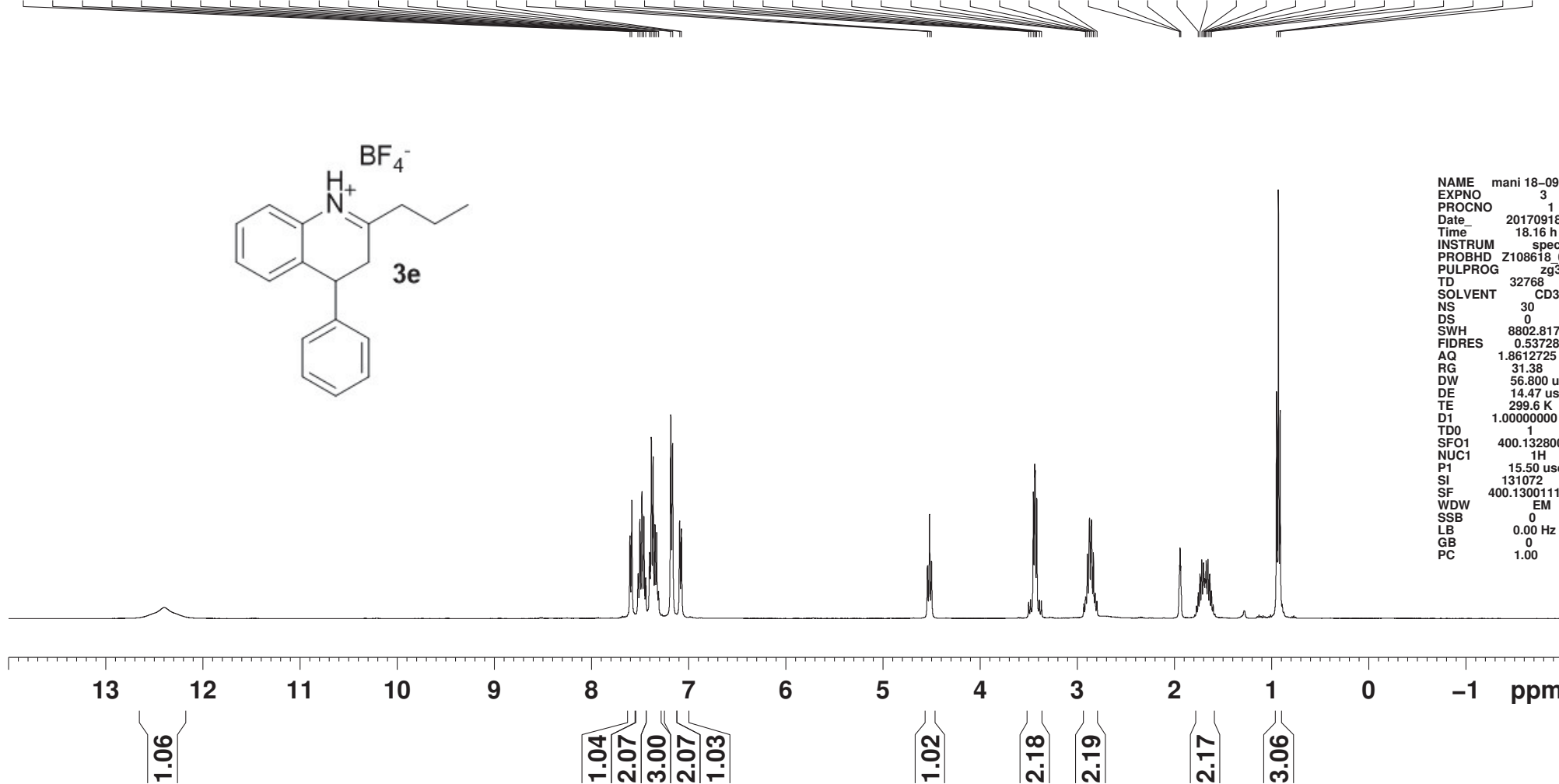
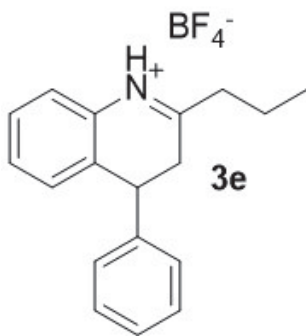


4-tBuPhdiazonium salt , Styrene, Dry MeCN, 80deg, 2h, pale yellow solid



Phdiazonium salt, styrene, Dry BuCN, 80deg, 2h, bright yellow solid

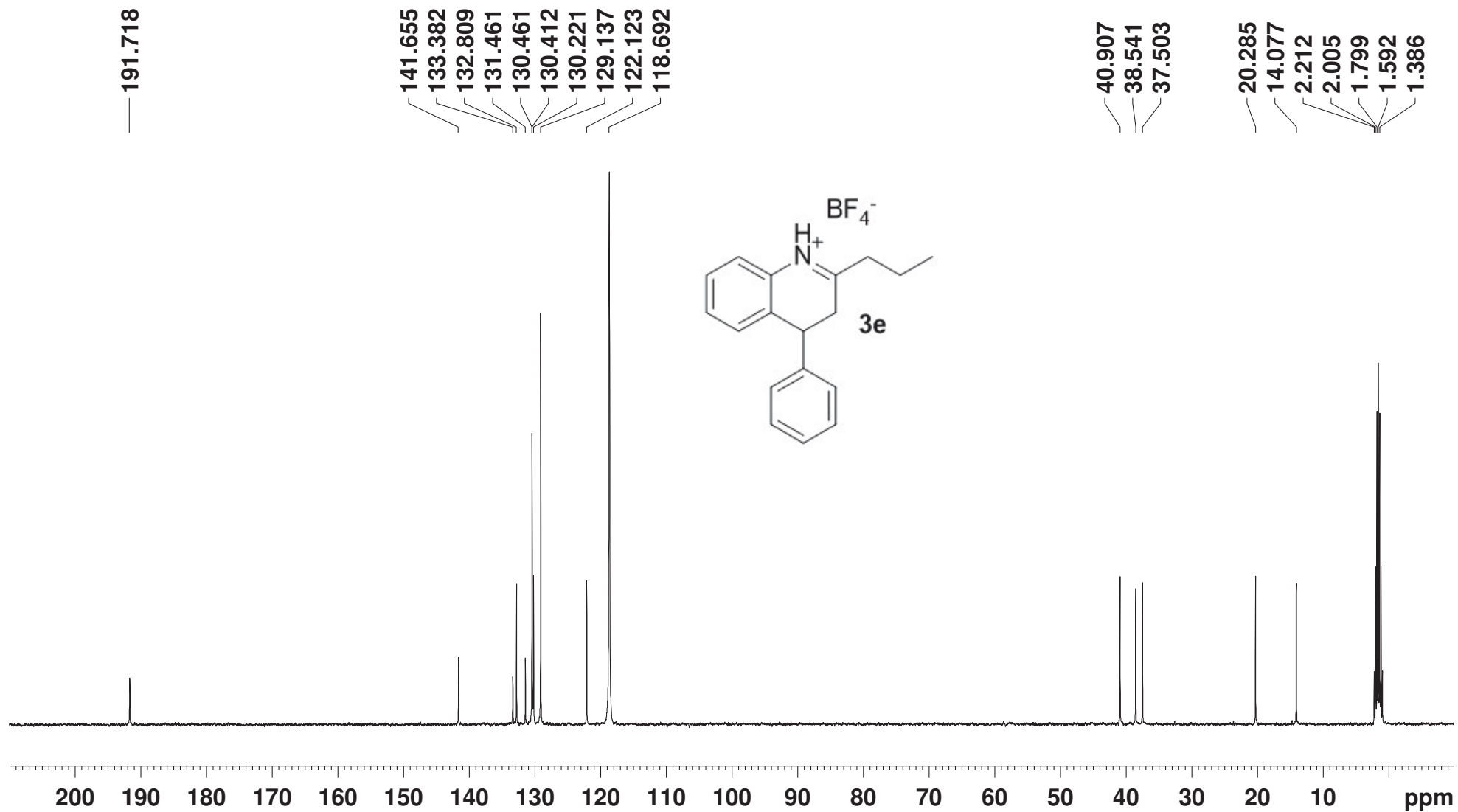
7.603 7.584 7.519 7.501 7.480 7.460 7.442 7.401 7.383 7.365 7.345 7.327 7.309 7.183 7.165 7.092 7.074 4.540 4.520 4.499 3.498 3.479 3.450 3.437 3.432 3.416 3.389 3.368 2.914 2.910 2.895 2.872 2.853 2.832 2.815 2.797 1.946 1.940 1.934 1.753 1.736 1.717 1.699 1.690 1.680 1.672 1.653 1.635 1.617 0.947 0.928 0.910



```

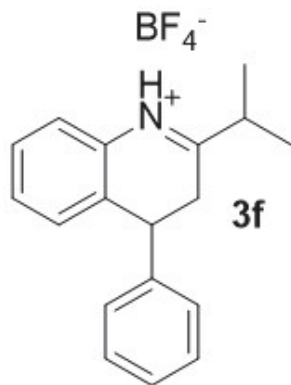
NAME mani 18-09
EXPNO 3
PROCNO 1
Date_ 20170918
Time 18.16 h
INSTRUM spec
PROBHD Z108618.1
PULPROG zg3
TD 32768
SOLVENT CD3
NS 30
DS 0
SWH 8802.817
FIDRES 0.53728
AQ 1.8612725
RG 31.38
DW 56.800 u
DE 14.47 us
TE 299.6 K
D1 1.0000000
TD0 1
SFO1 400.132800
NUC1 1H
P1 15.50 us
SI 131072
SF 400.1300111
WDW EM
SSB 0
LB 0.00 Hz
GB 0
PC 1.00
    
```

Phdiazonium salt, styrene, Dry BuCN, 80deg, 2h, bright yellow solid



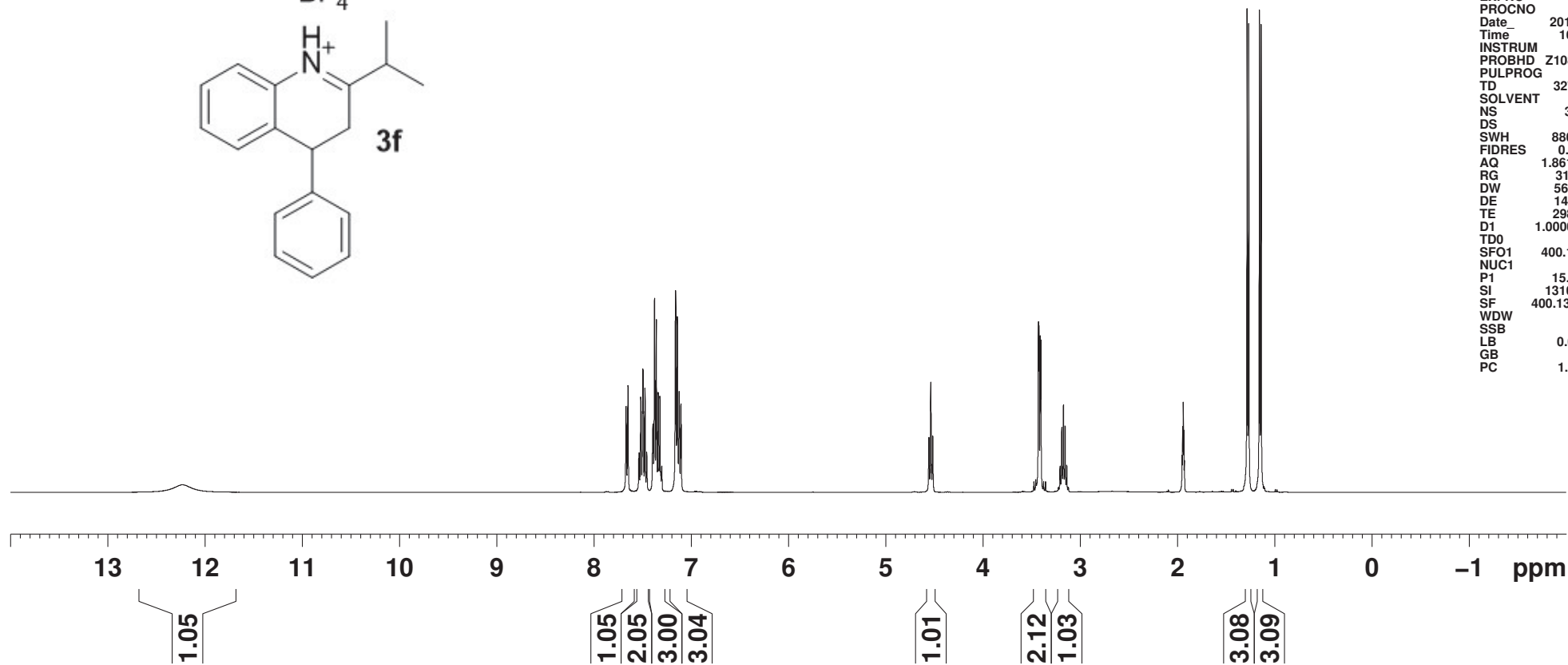
Phdiazonium salt, styrene, Dry tBuCN, 80deg, 2h, yellow solid

7.672 7.669 7.651 7.539 7.537 7.520 7.518 7.502 7.497 7.493 7.478 7.475 7.459 7.395 7.378 7.359 7.340 7.327 7.322 7.314 7.304 7.161 7.143 7.125 7.106 4.556 4.536 4.517 3.477 3.457 3.430 3.424 3.410 3.404 3.377 3.357 3.207 3.190 3.172 3.156 3.138 1.952 1.946 1.940 1.934 1.928 1.284 1.267 1.157 1.140

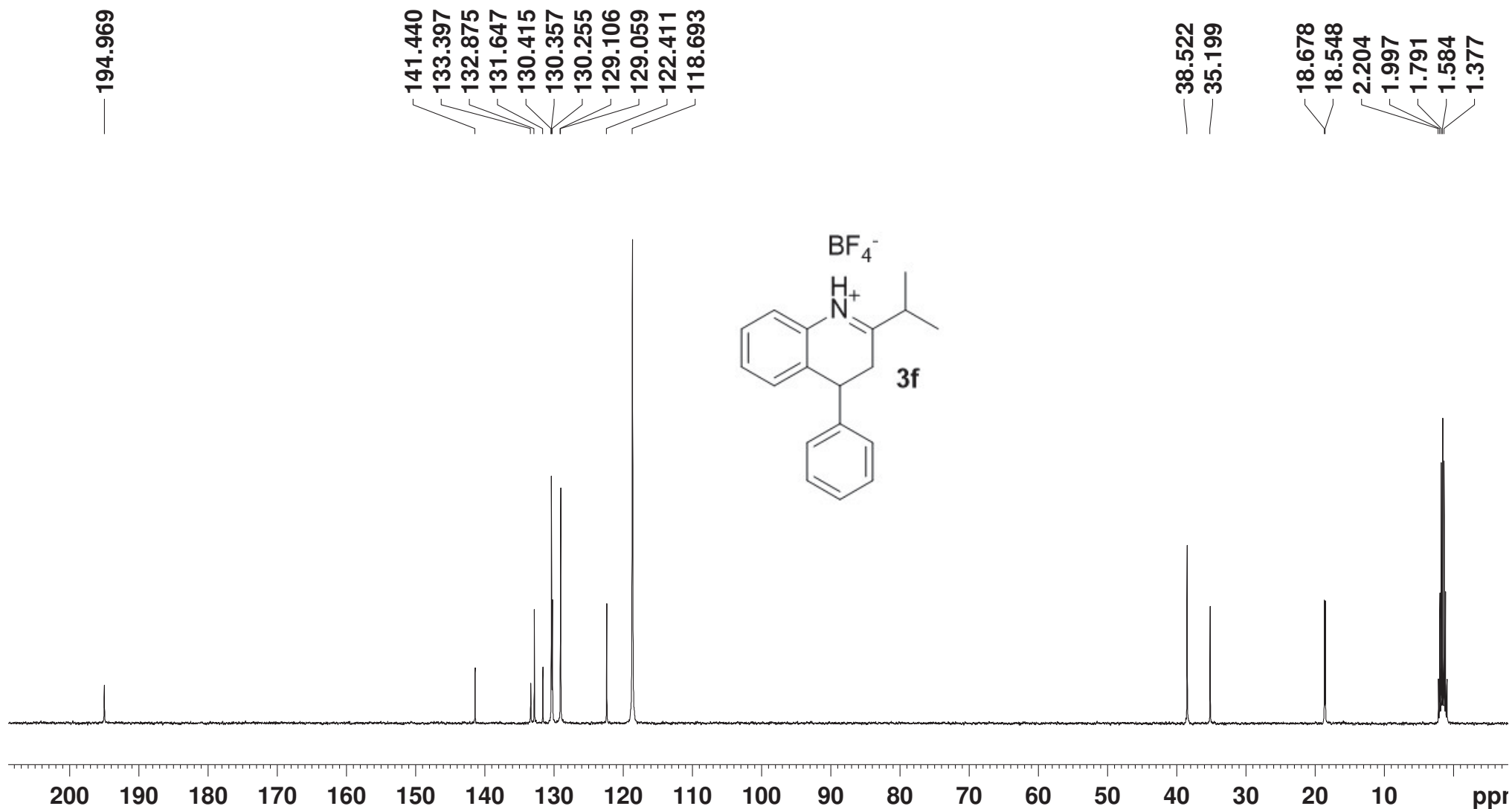


```

NAME  mani 21-09-2
EXPNO  1
PROCNO  1
Date_  20170921
Time    16.09 h
INSTRUM  spect
PROBHD  Z108618_04
PULPROG  zg30
TD       32768
SOLVENT  CD3CN
NS       30
DS       0
SWH      8802.817 H
FIDRES   0.537281 H
AQ       1.8612725 se
RG       31.38
DW       56.800 usec
DE       14.47 usec
TE       298.9 K
D1       1.0000000 se
TD0      1
SFO1     400.1328009
NUC1     1H
P1       15.50 usec
SI       131072
SF       400.1300109 M
WDW      EM
SSB      0
LB       0.00 Hz
GB       0
PC       1.00
    
```



Phdiazonium salt, styrene, Dry tBuCN, 80deg, 2h, yellow solid

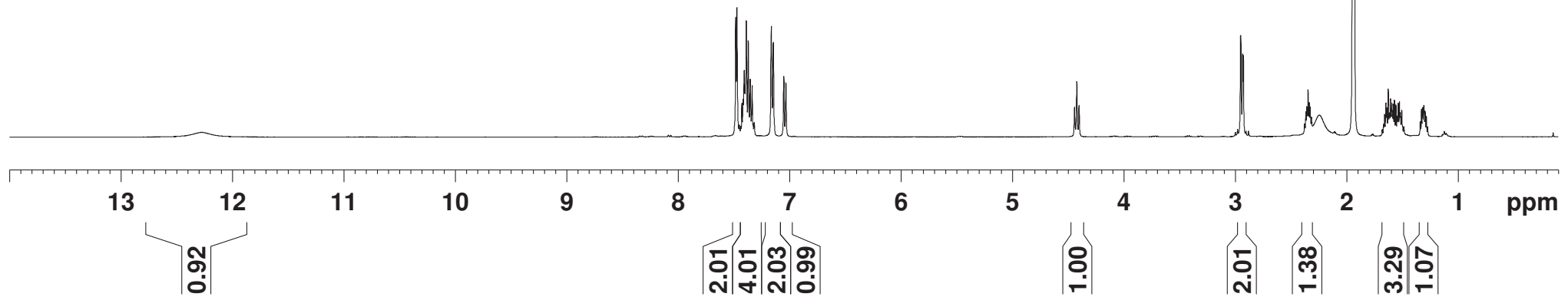
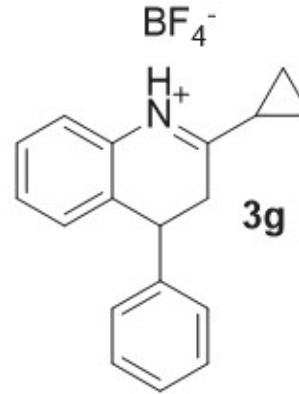


Phdiazol, Sty, Dry CypCN, 80deg, 2h, ether washed bright yellow solid

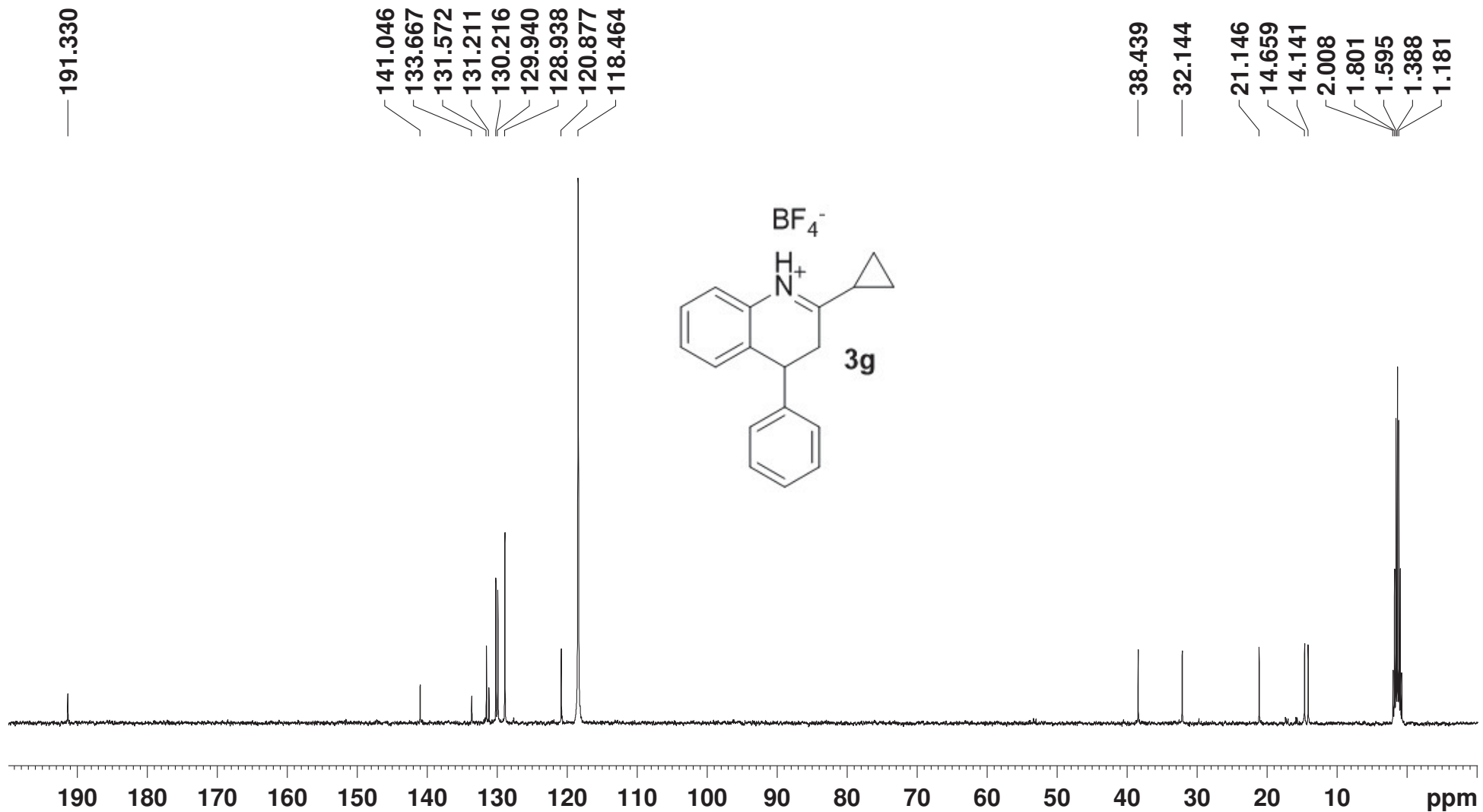


NAME mani 22-08-2018
EXPNO 2
PROCNO 1
Date 20180822
Time 14.47
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 32768
SOLVENT CD3CN
NS 37
DS 0
SWH 8223.685 Hz
FIDRES 0.250967 Hz
AQ 1.9923444 sec
RG 144
DW 60.800 usec
DE 6.50 usec
TE 299.2 K
D1 1.00000000 sec
TD0 1

----- CHANNEL f1 -----
NUC1 1H
P1 14.50 usec
PL1 0.00 dB
PL1W 10.67551708 W
SFO1 400.1528010 MHz
SI 32768
SF 400.1500106 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

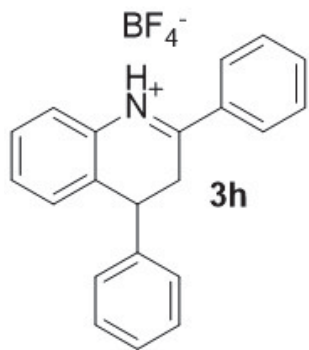


Phdiazonium salt, dry cyclopropyl nitrile styrene, 80deg, 2h, bright yellow solid

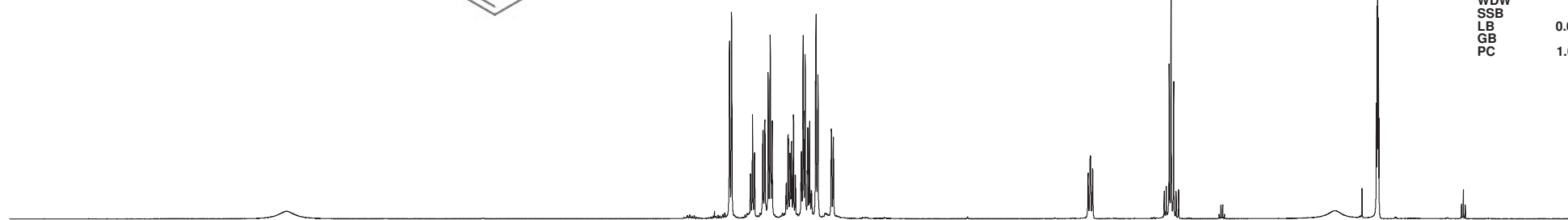


Phdiazonium salt, styrene, Dry PhCN, 80deg, 2h, orange solid

8.109
8.106
8.092
8.088
8.085
7.889
7.870
7.792
7.788
7.772
7.769
7.741
7.736
7.722
7.720
7.705
7.701
7.551
7.547
7.532
7.528
7.519
7.516
7.500
7.497
7.424
7.407
7.402
7.391
7.388
7.366
7.363
7.359
7.345
7.288
7.284
7.279
7.267
7.138
7.119
4.695
4.674
4.652
3.924
3.905
3.881
1.952
1.946
1.940
1.934
1.928



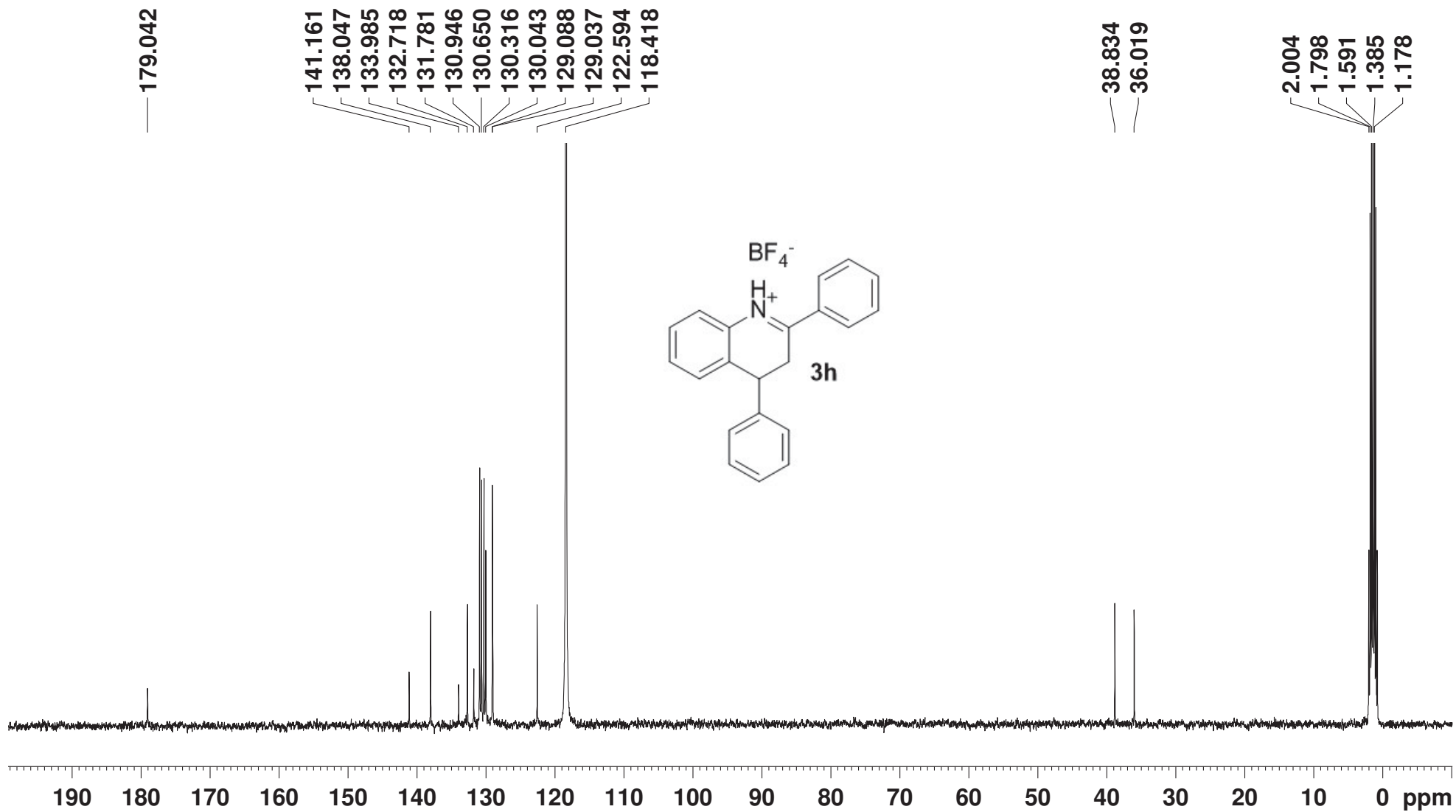
NAME mani 18-09-2017
EXPNO 1
PROCNO 1
Date_ 20170918
Time 17.39 h
INSTRUM spect
PROBHD Z108618_0411 (
PULPROG zg30
TD 32768
SOLVENT CD3CN
NS 30
DS 0
SWH 8802.817 Hz
FIDRES 0.537281 Hz
AQ 1.8612725 sec
RG 118.08
DW 56.800 usec
DE 14.47 usec
TE 299.5 K
D1 1.00000000 sec
TD0 1
SFO1 400.1328009 MH
NUC1 1H
P1 15.50 usec
SI 131072
SF 400.1300113 MHz
WDW EM
SSB 0
LB 0.00 Hz
GB 0
PC 1.00



14 13 12 11 10 9 8 7 6 5 4 3 2 1 ppm

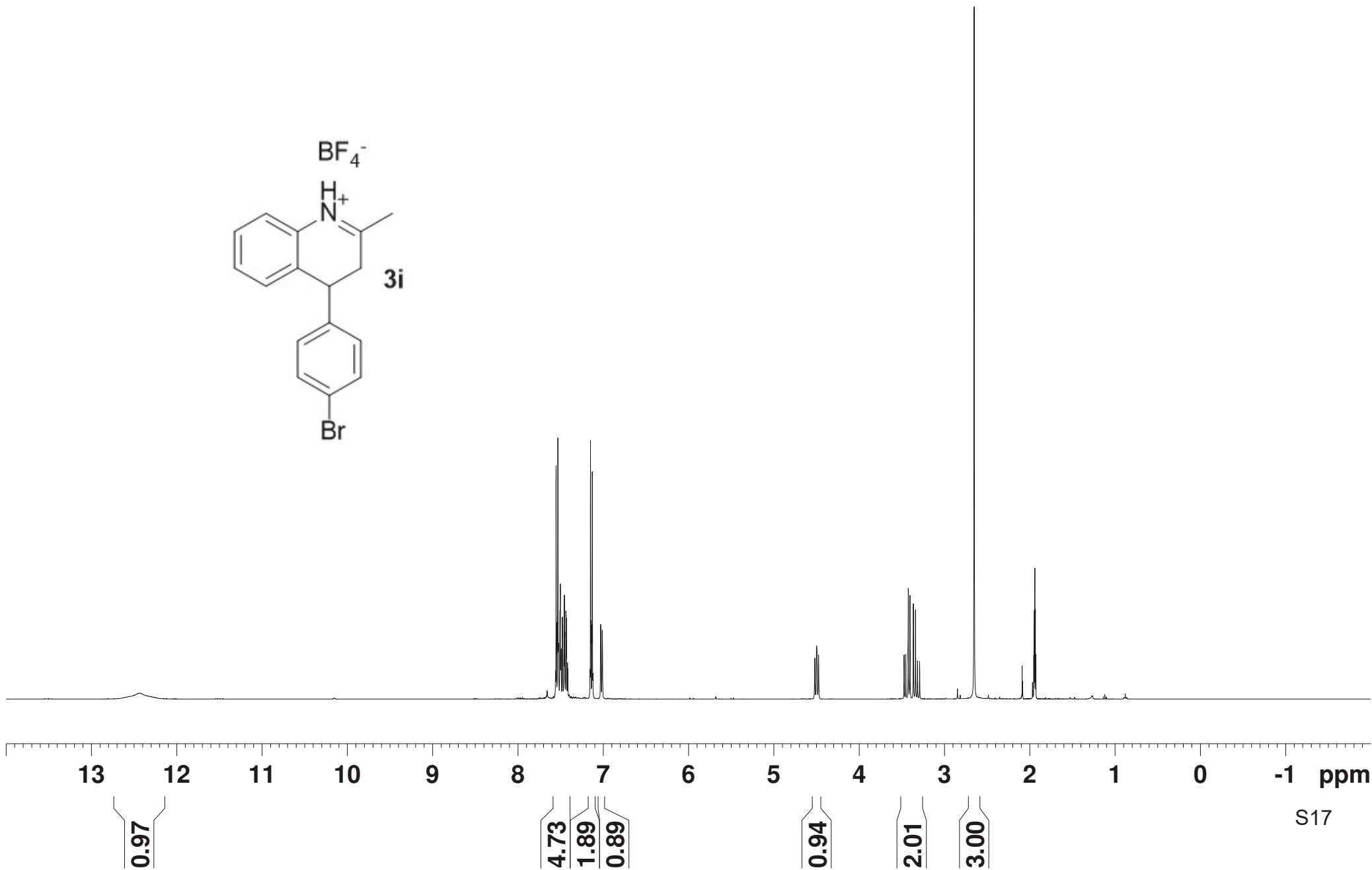
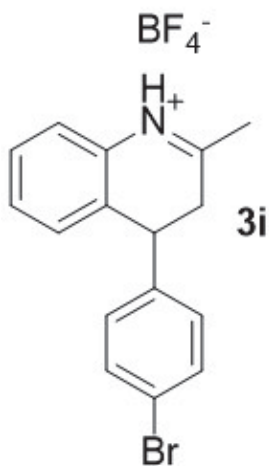
1.07
2.04
1.06
1.07
2.05
2.12
3.00
2.00
1.03
1.03
2.17

Phdiazonium salt, styrene, Dry PhCN, 80deg, 2h, orange solid

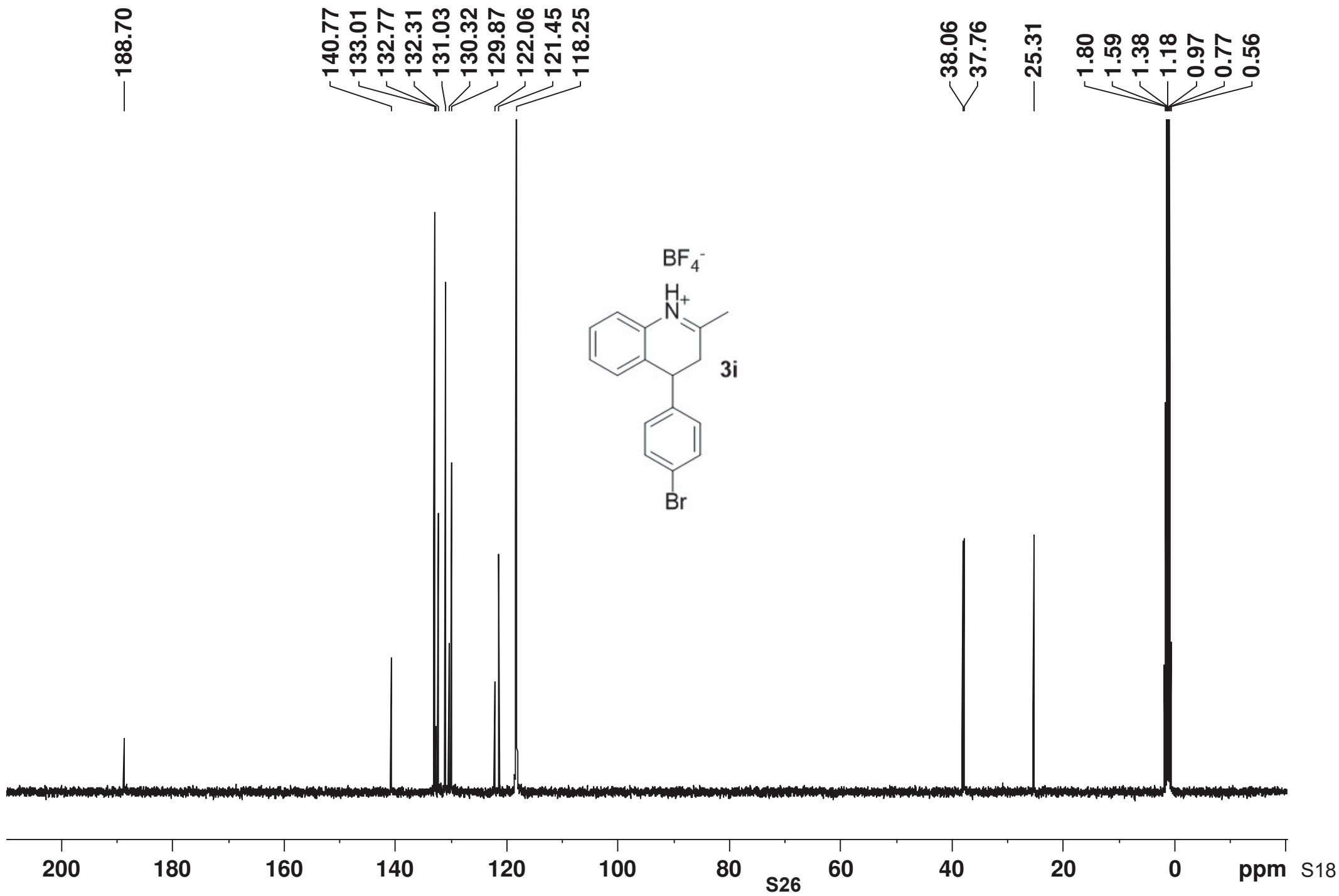


Benzenediazonium salt + 4-Bromostyrene with MeCN, 80deg 2hr

12.436
7.553
7.548
7.537
7.532
7.522
7.507
7.503
7.497
7.494
7.478
7.476
7.475
7.460
7.456
7.451
7.437
7.433
7.419
7.415
7.155
7.149
7.144
7.133
7.128
7.030
7.014
7.011
4.520
4.498
4.475
3.472
3.453
3.424
3.404
3.364
3.339
3.315
3.290
2.652
1.952
1.946
1.940
1.934
1.928

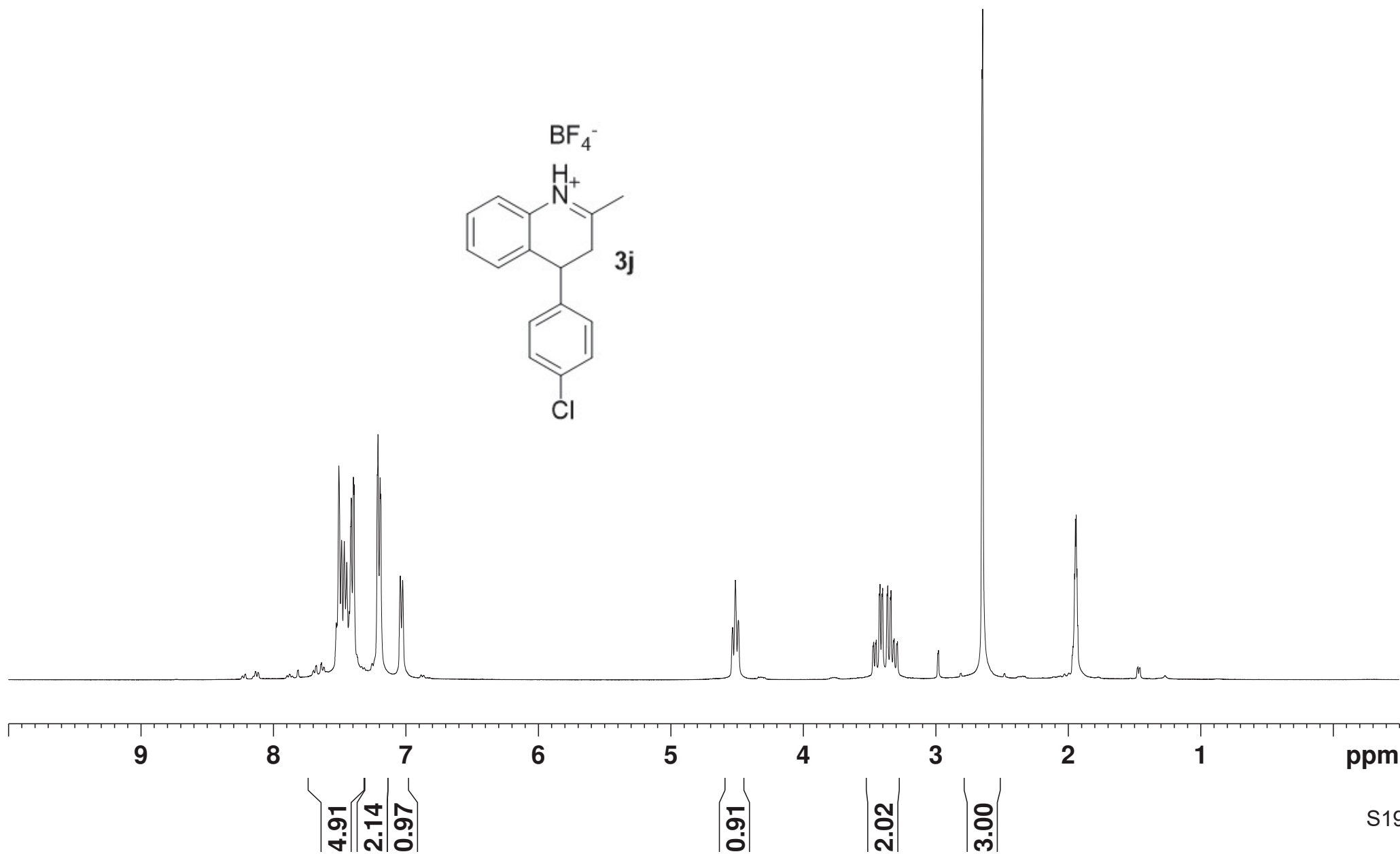
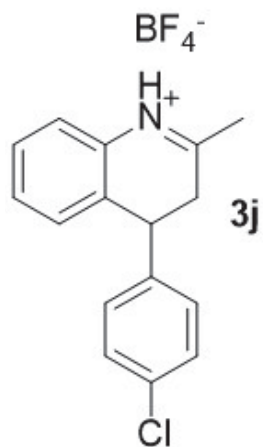


Benzenediazonium salt + 4-Bromostyrene with MeCN, 80deg 2hr

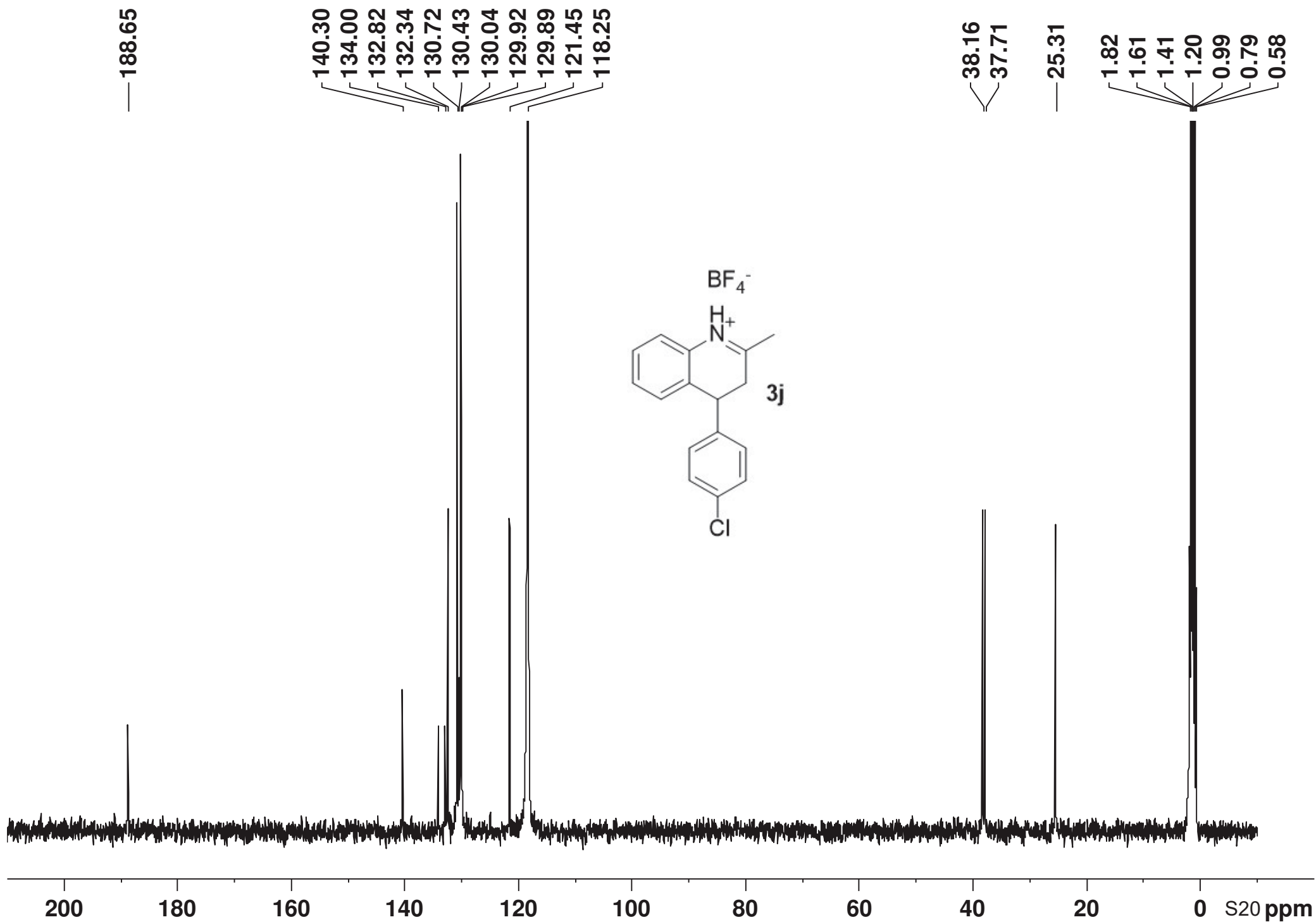


Benzenediazonium salt, 4-Chlorostyrene with MeCN, 80deg, 2 hours, white solid

7.505
7.485
7.464
7.446
7.427
7.412
7.396
7.390
7.215
7.210
7.194
7.189
7.042
7.024
4.534
4.513
4.491
3.475
3.469
3.456
3.450
3.427
3.421
3.407
3.402
3.368
3.363
3.343
3.338
3.320
3.314
3.295
3.290
2.646
1.952
1.945
1.939
1.933
1.927



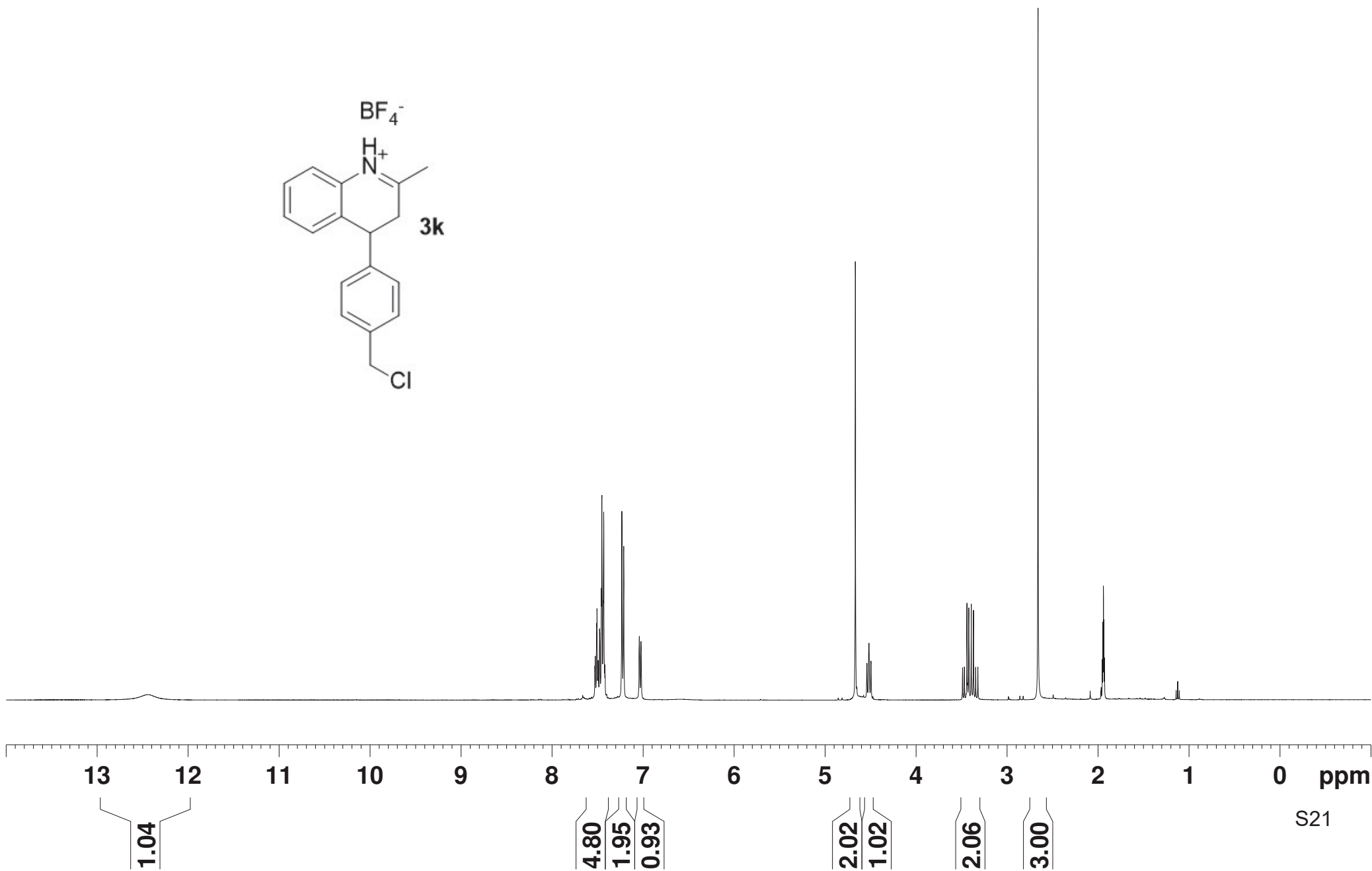
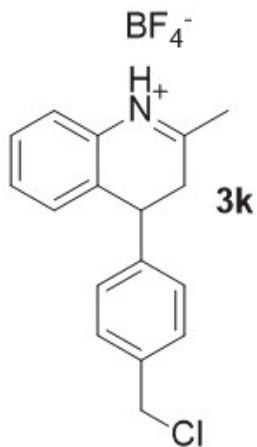
Benzenediazonium salt, 4-Chlorostyrene with MeCN, 80deg, 2 hours, white solid



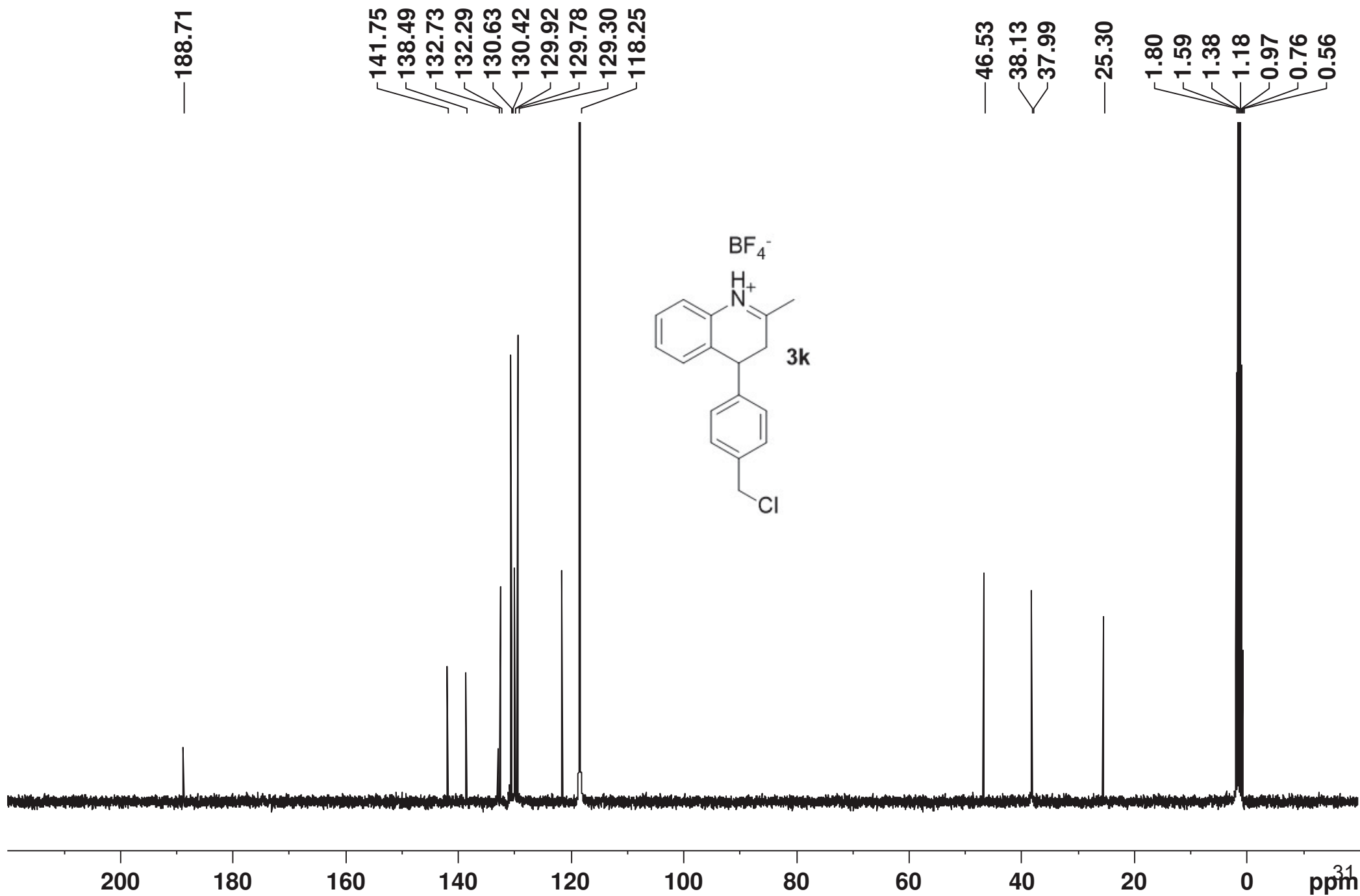
Benzenediazonium salt + 4-vinylbenzyl chloride with MeCN, 80deg 2hr

12.445

7.529 7.524 7.509 7.506 7.496 7.492 7.477 7.474 7.458 7.452 7.439 7.432 7.421 7.417 7.233 7.212 7.041 7.023 4.666 4.539 4.517 4.495 3.488 3.468 3.439 3.420 3.393 3.368 3.344 3.320 2.659 1.952 1.946 1.940 1.934 1.927

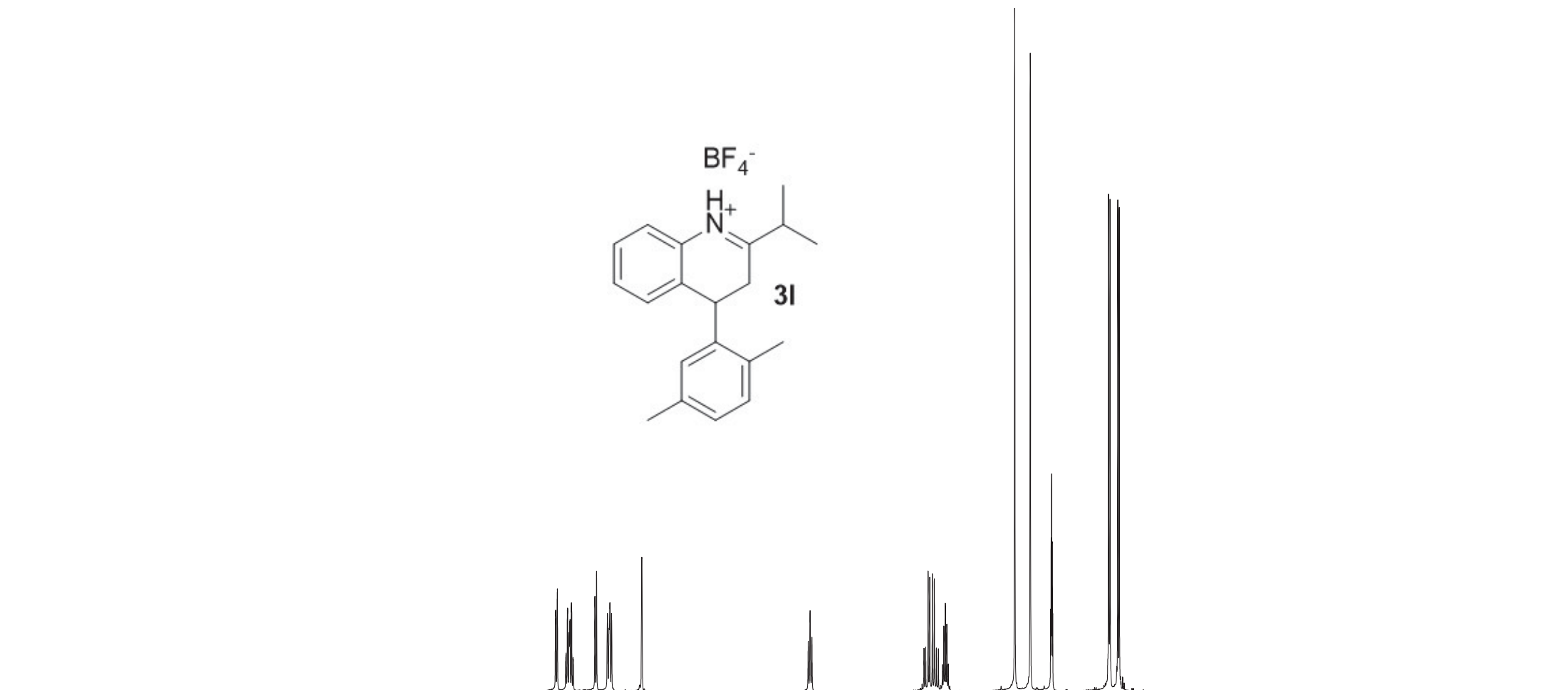
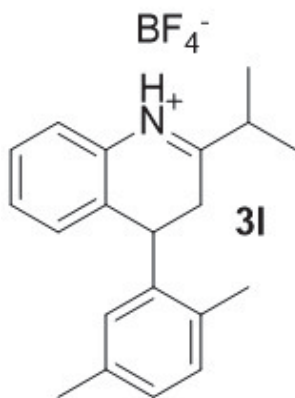


Benzenediazonium salt + 4-vinylbenzyl chloride with MeCN, 80deg 2hr



Benzenediazonium salt, 2,5-dimethylstyrene with Isopropyl nitrile, 80deg, 2 hours, white so

12.035
7.644
7.625
7.526
7.510
7.507
7.491
7.488
7.483
7.479
7.464
7.460
7.445
7.442
7.194
7.174
7.049
7.029
7.021
7.002
6.654
4.740
4.719
4.698
3.408
3.389
3.361
3.342
3.313
3.290
3.266
3.243
3.214
3.197
3.180
3.163
3.146
3.129
3.112
2.365
2.186
1.952
1.946
1.940
1.934
1.928
1.286
1.269
1.179
1.162



13 12 11 10 9 8 7 6 5 4 3 2 1 0 -1 -2 -3 ppm

0.51

0.92

1.83

0.88

1.75

0.81

0.94

2.09

0.99

2.98

2.86

3.08

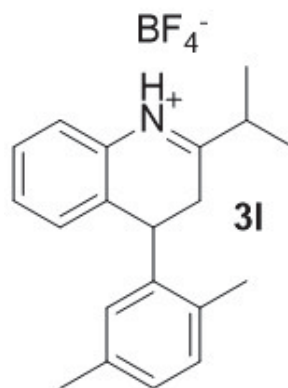
3.01

Benzenediazonium salt, 2,5-dimethylstyrene with Isopropyl nitrile, 80deg, 2 hours, white solid

— 194.75

138.60
137.26
134.10
133.38
132.54
131.90
131.61
129.68
129.25
128.45
121.98
118.26

38.24
34.28
33.67
20.88
19.11
18.45
18.02
1.83
1.63
1.42
1.22
1.01
0.80
0.60

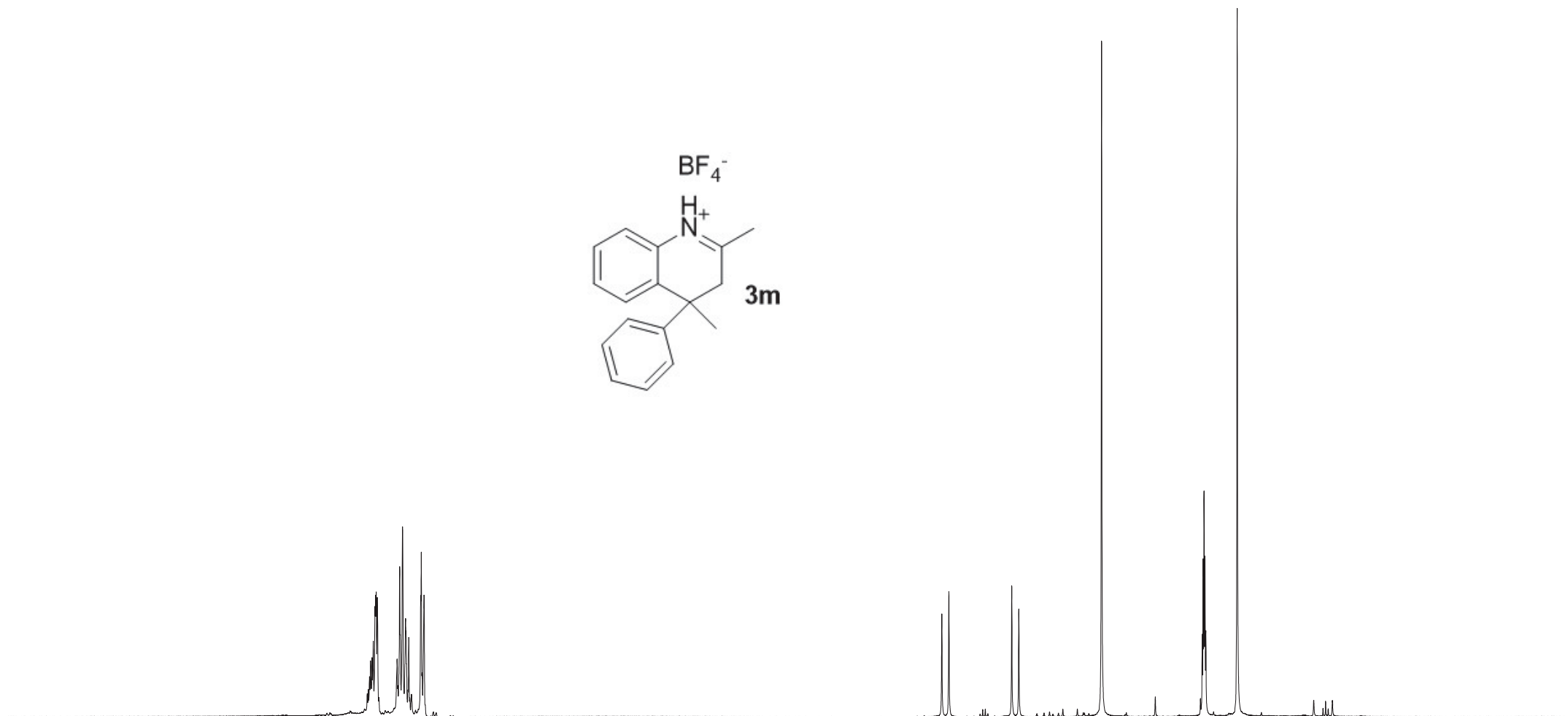
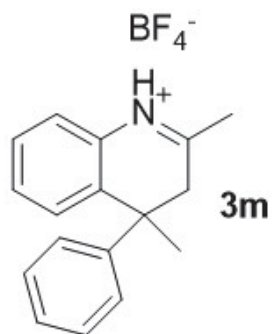


200 180 160 140 120 100 80 60 40 20 0 S24 ppm

Benzenediazonium salt, alpha-methylstyrene, 80deg, 2 hours, white solid

7.551
7.541
7.533
7.521
7.518
7.513
7.506
7.372
7.355
7.351
7.336
7.315
7.312
7.294
7.213
7.210
7.204
7.191

3.705
3.658
3.234
3.187
2.630
1.952
1.946
1.940
1.934
1.928
1.717



3.03
4.01
1.87

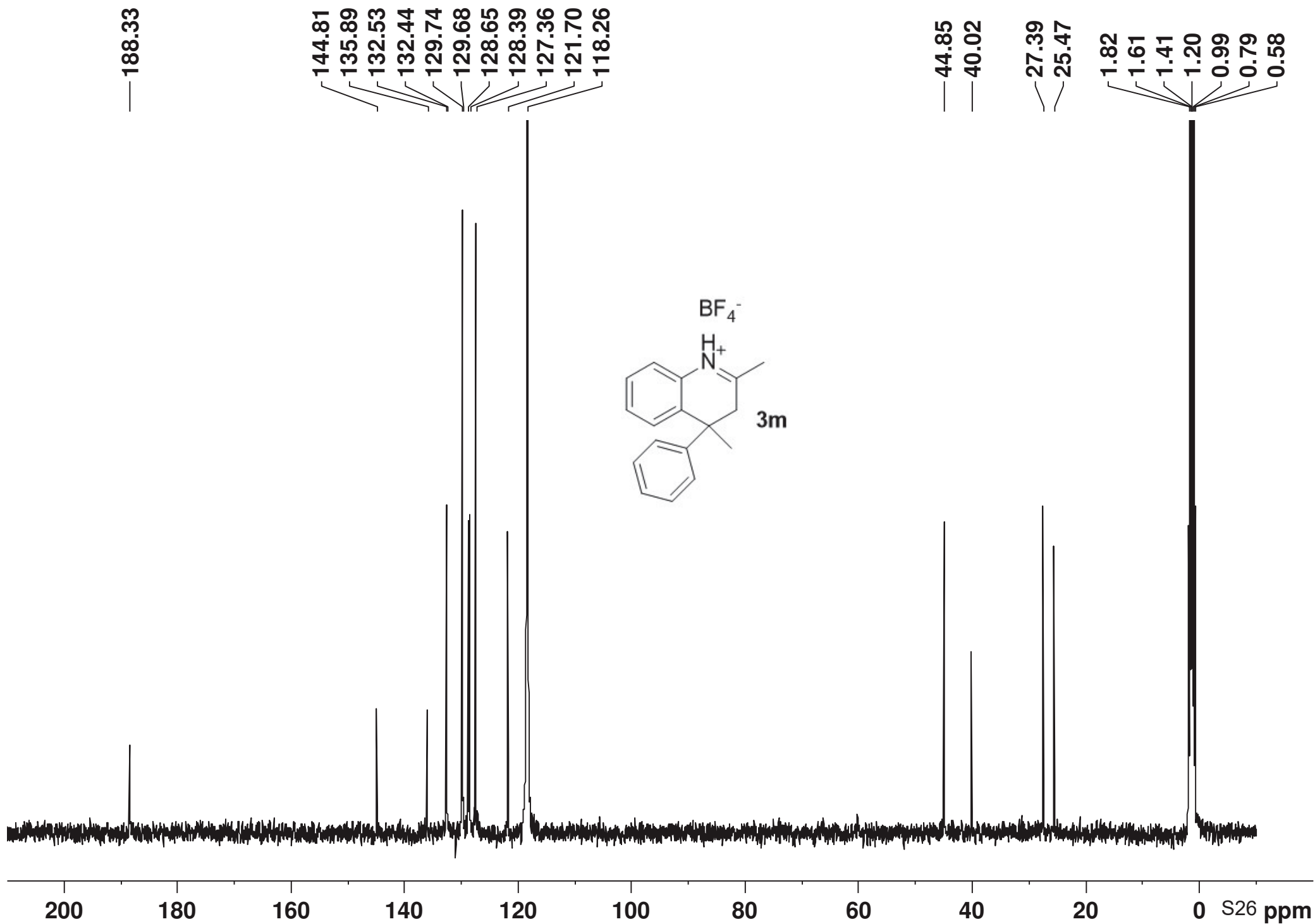
0.96

0.95

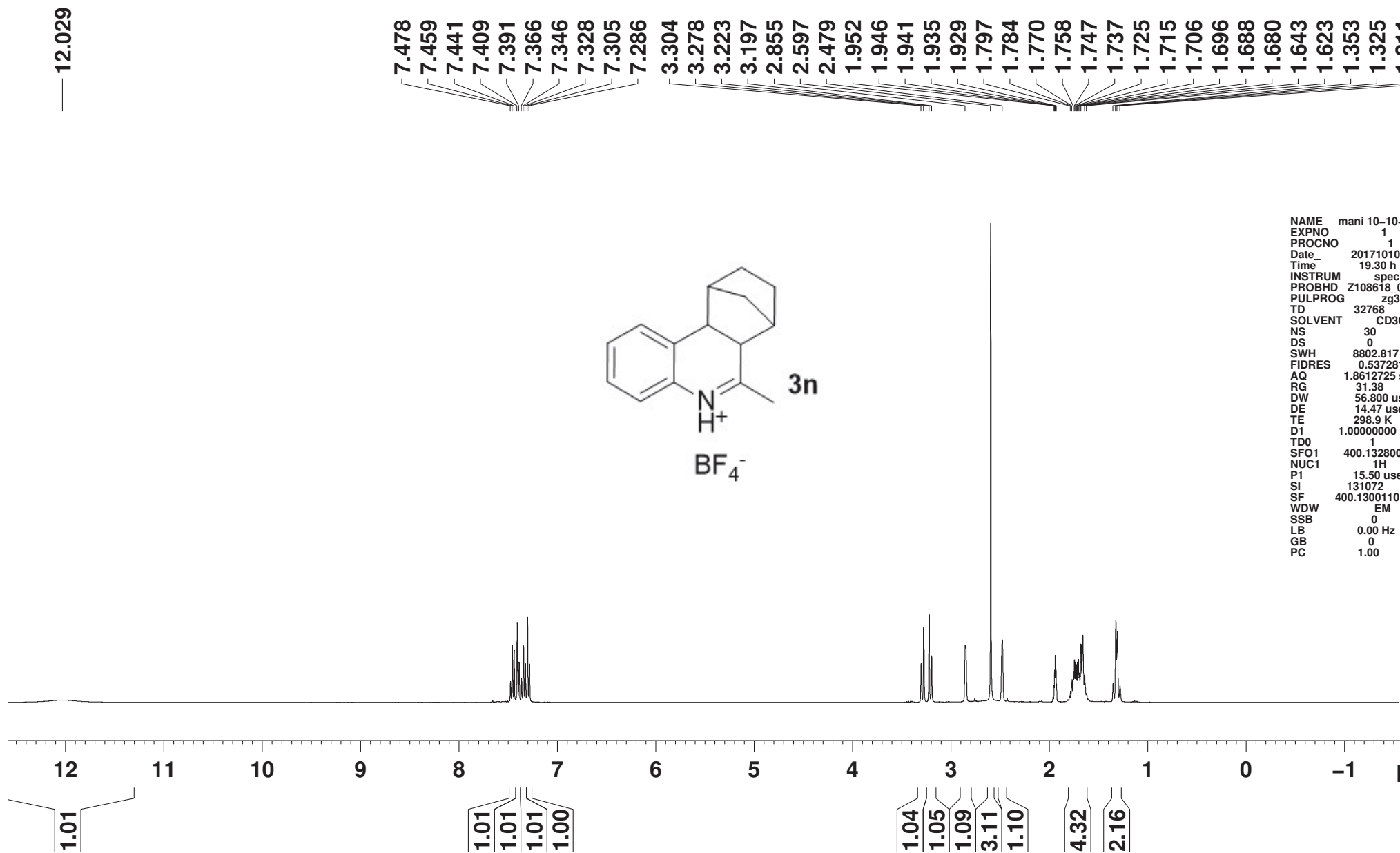
2.91

3.00

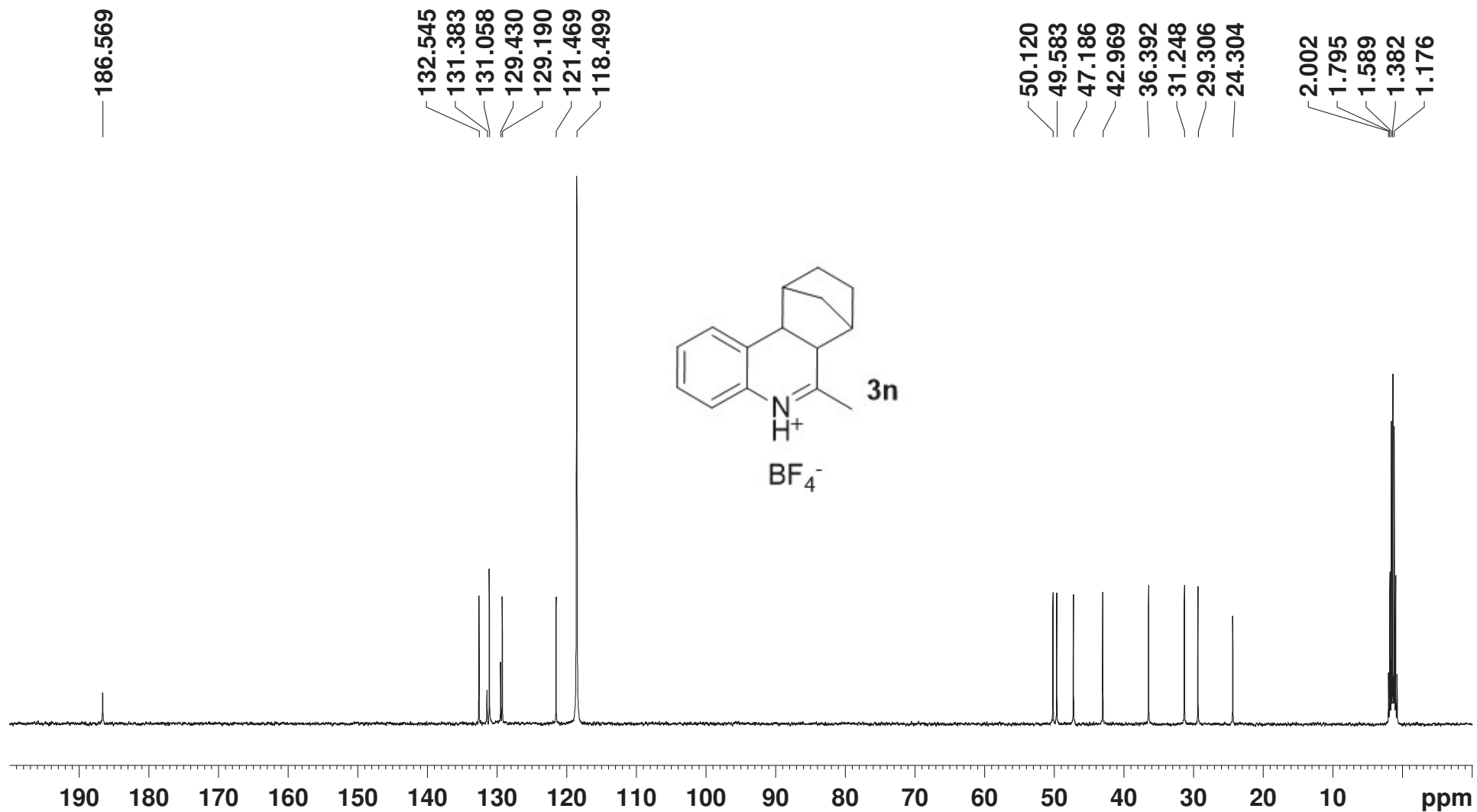
Benzenediazonium salt, alpha-methylstyrene, 80deg, 2 hours, white solid



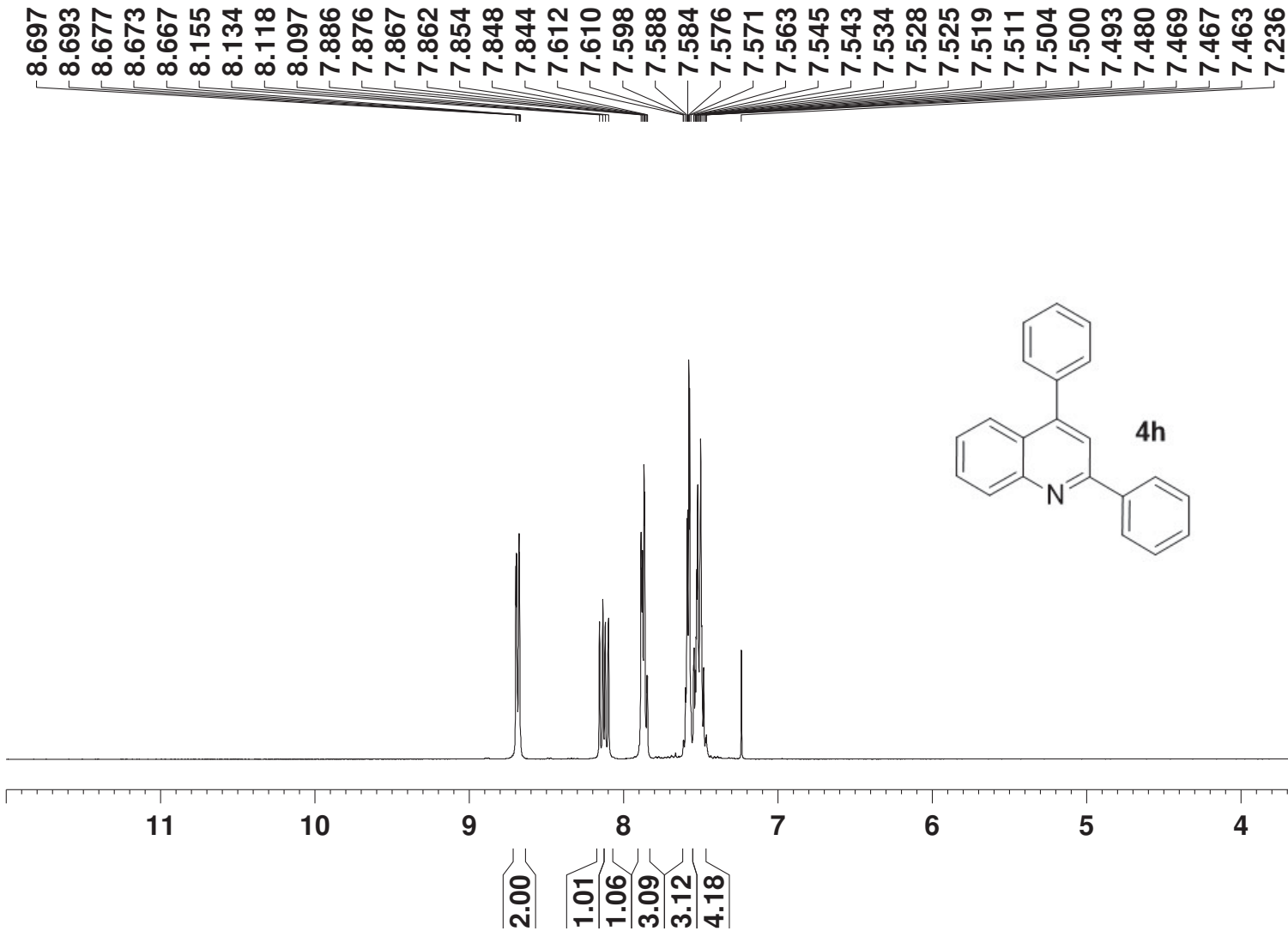
Phdiazonium salt, dry MeCN, norborylne, 80deg, 2h, pale yellow solid



Phdiazonium salt, dry MeCN, norborylne, 80deg, 2h, pale yellow solid

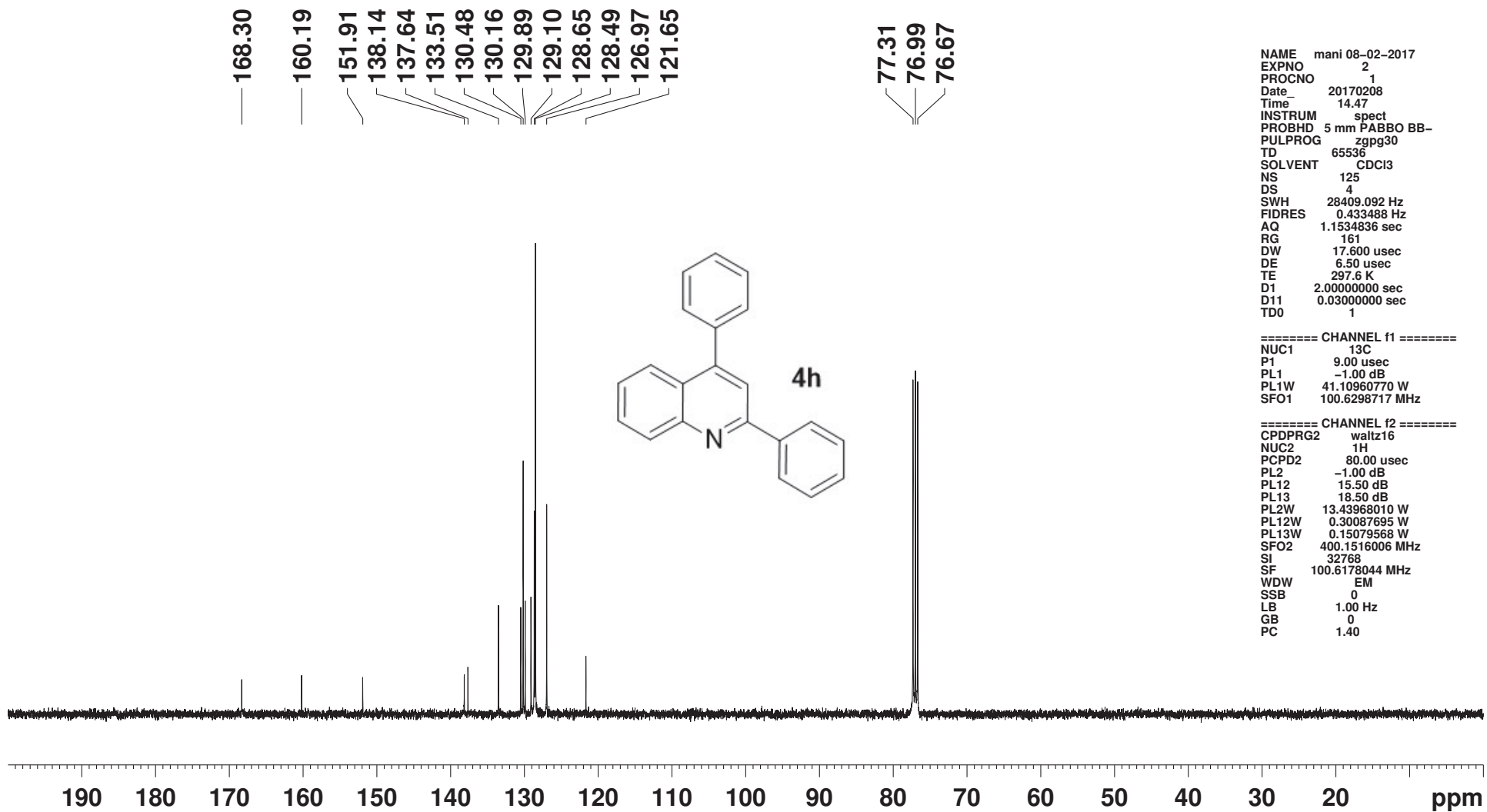


Phdiazonium salt, Dry benzonitrile, 110deg, 3h, purified



NAME mani 17-05
EXPNO 5
PROCNO 1
Date_ 20170511
Time 21.20
INSTRUM spec
PROBHD 5 mm PAL
PULPROG zg'
TD 32768
SOLVENT CDC
NS 30
DS 0
SWH 8223.682
FIDRES 0.25096
AQ 1.9923444
RG 144
DW 60.800 u
DE 6.50 us
TE 299.9 K
D1 1.0000000
TD0 1

===== CHANNEL
NUC1 1H
P1 12.65 us
PL1 -1.00 dl
PL1W 13.439680
SFO1 400.15280
SI 32768
SF 400.150020
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



```

NAME man1 08-02-2017
EXPNO 2
PROCNO 1
Date_ 20170208
Time 14.47
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 125
DS 4
SWH 28409.092 Hz
FIDRES 0.433488 Hz
AQ 1.1534836 sec
RG 161
DW 17.600 usec
DE 6.50 usec
TE 297.6 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

```

```

===== CHANNEL f1 =====
NUC1 13C
P1 9.00 usec
PL1 -1.00 dB
PL1W 41.10960770 W
SFO1 100.6298717 MHz

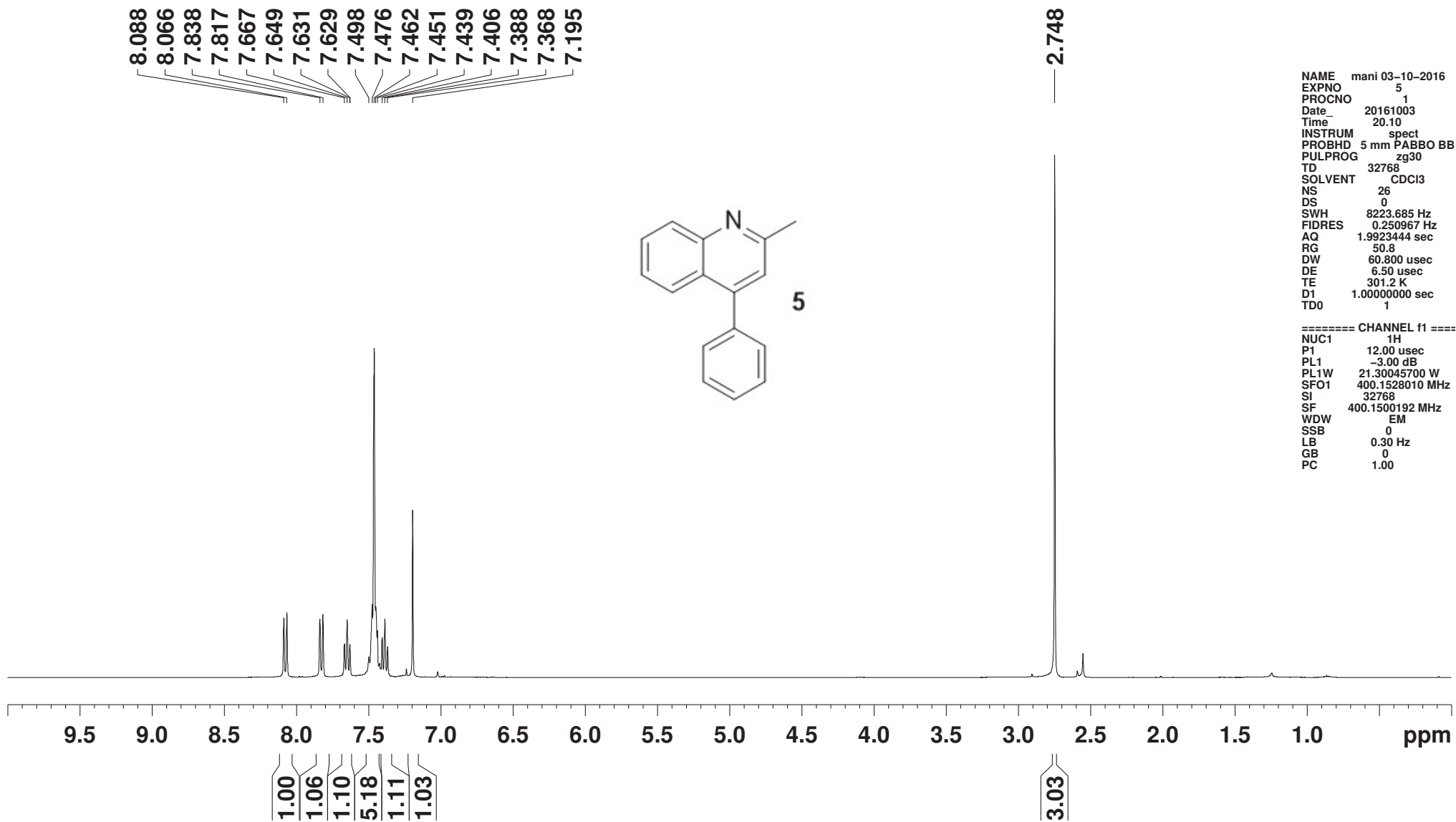
```

```

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 -1.00 dB
PL12 15.50 dB
PL13 18.50 dB
PL2W 13.43968010 W
PL12W 0.30087695 W
PL13W 0.15079568 W
SFO2 400.1516006 MHz
SI 32768
SF 100.6178044 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

```

Ph diazonium salt, phenyl acetylene, dry MeCN, sealed tube, 120deg, 3h, purified major spot



Ph diazonium salt, phenyl acetylene, dry MeCN, sealed tube, 120deg, 3h, purified major spot

158.38
148.43
148.33
138.07
129.40
129.20
128.95
128.42
128.22
125.63
125.54
125.00
122.11

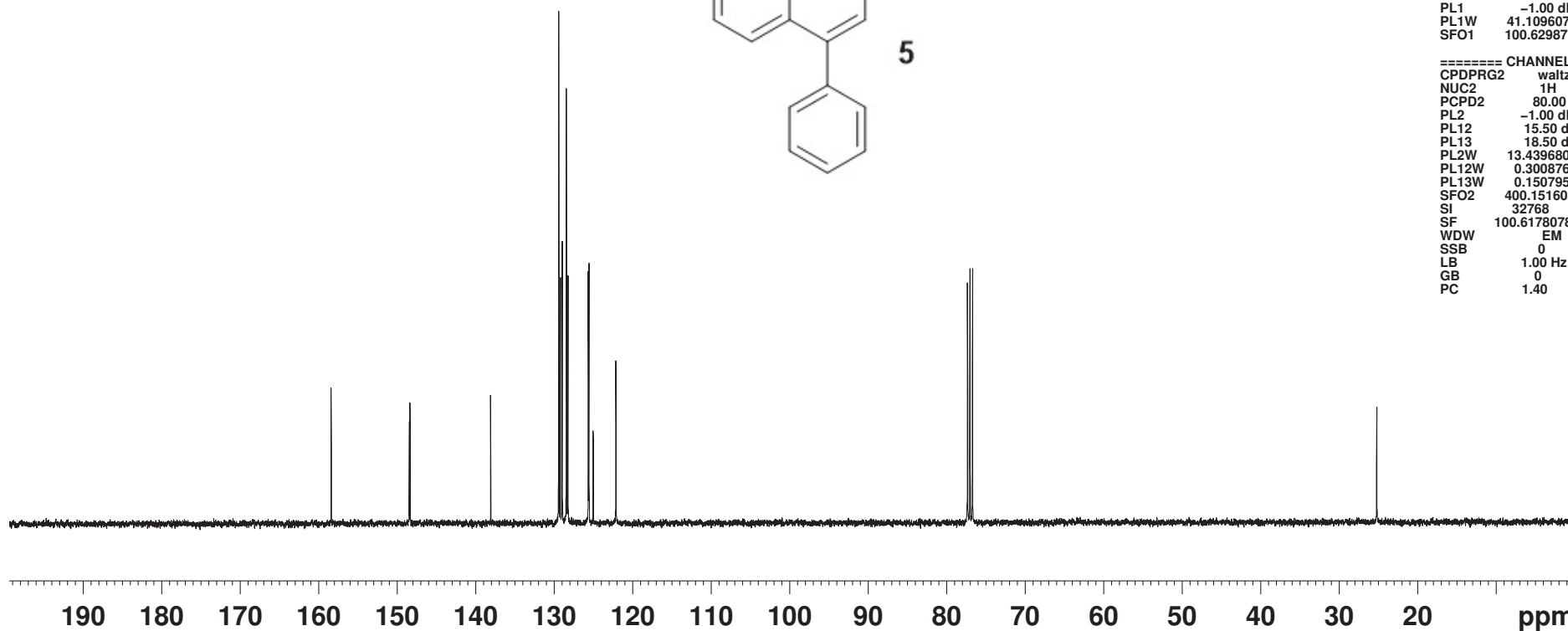
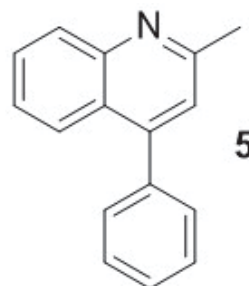
77.33
77.01
76.69

25.25

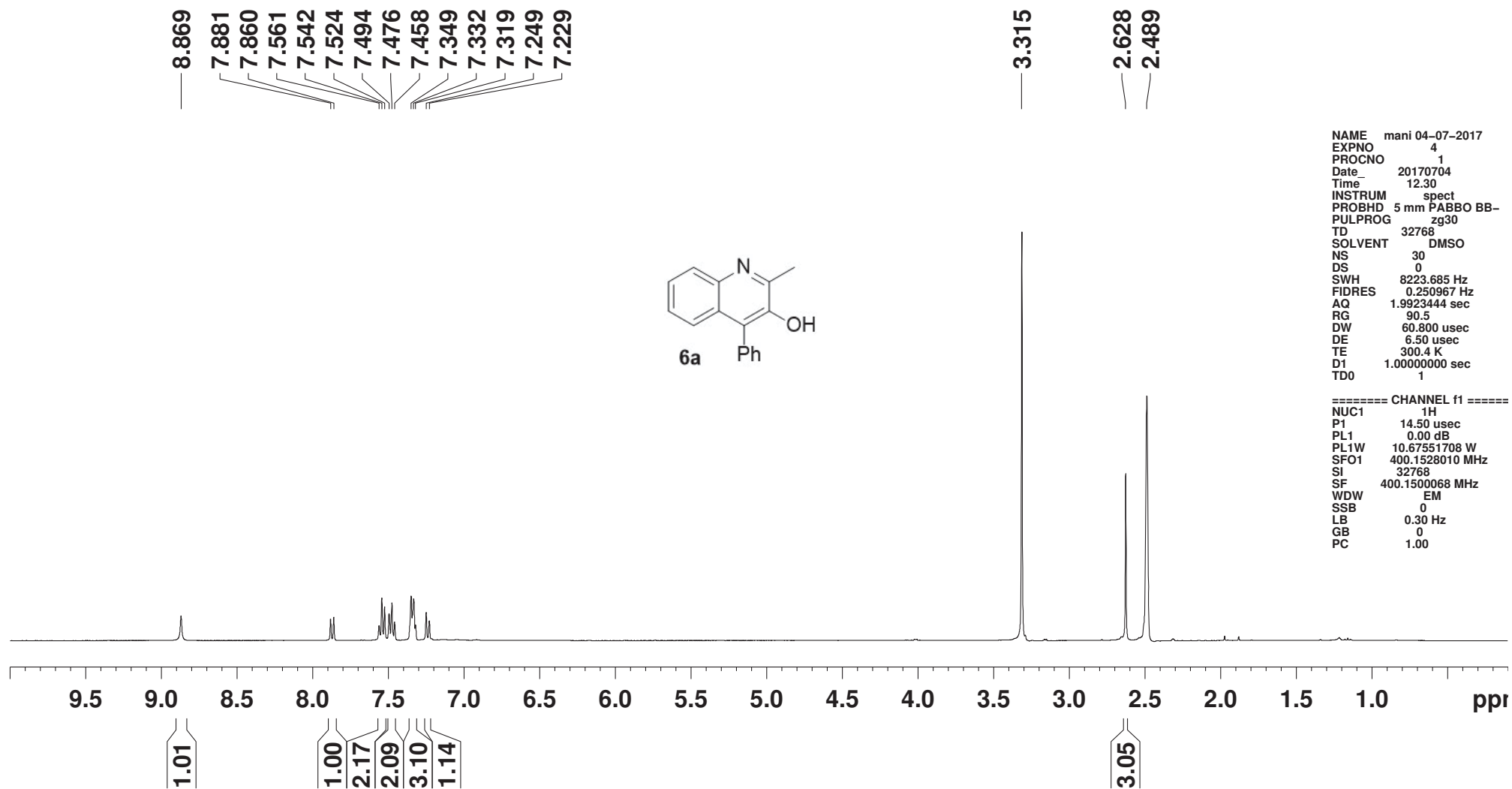
NAME mani 03-10-2016
EXPNO 6
PROCNO 1
Date_ 20161003
Time 20.15
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 100
DS 4
SWH 28409.092 Hz
FIDRES 0.433488 Hz
AQ 1.1534836 sec
RG 322
DW 17.600 usec
DE 6.50 usec
TE 301.4 K
D1 2.00000000 sec
D11 0.03000000 sec
TDO 1

===== CHANNEL f1 =====
NUC1 13C
P1 9.00 usec
PL1 -1.00 dB
PL1W 41.10960770 W
SFO1 100.6298717 MHz

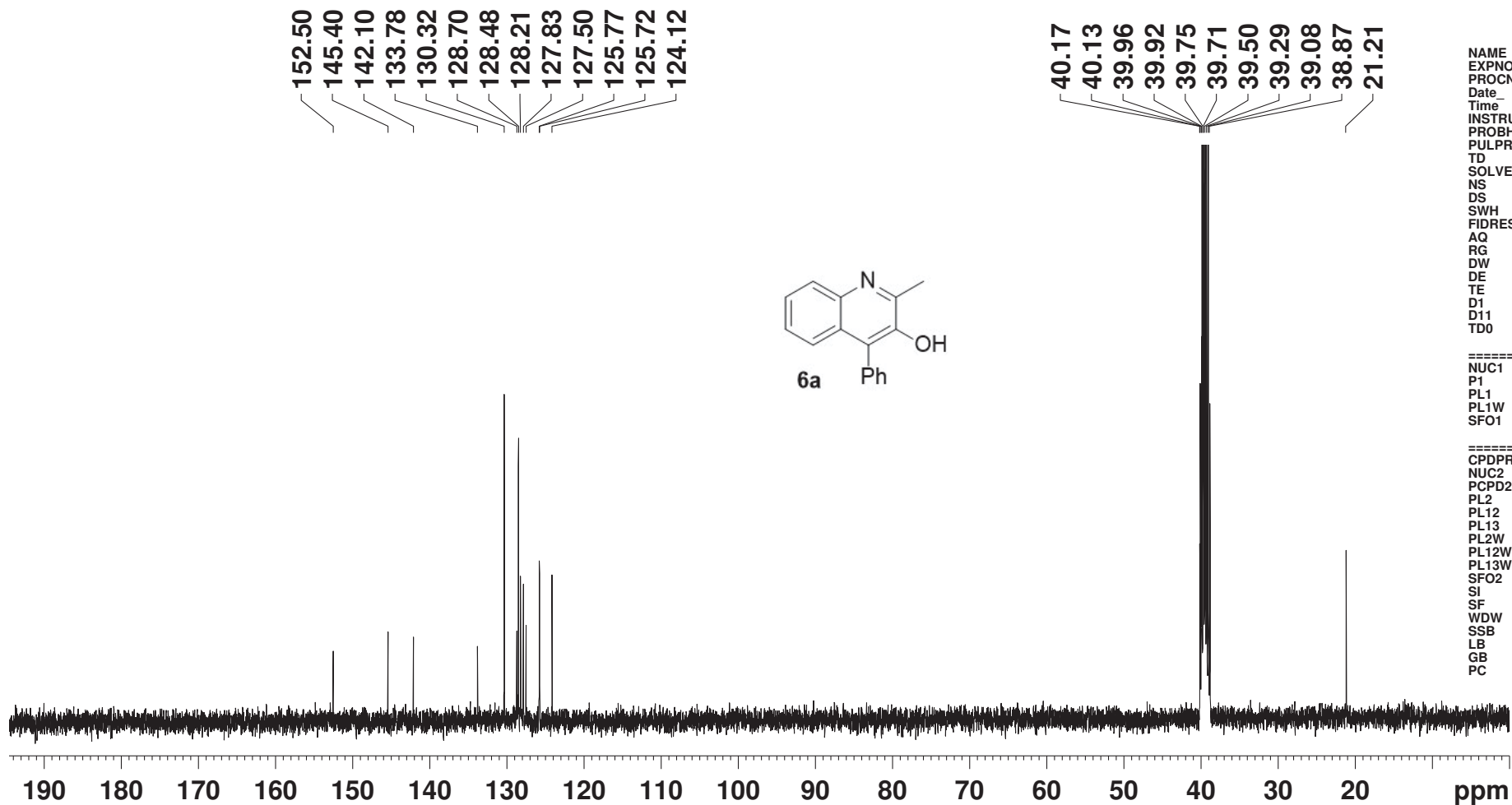
===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 -1.00 dB
PL12 15.50 dB
PL13 18.50 dB
PL2W 13.43968010 W
PL12W 0.30087695 W
PL13W 0.15079568 W
SFO2 400.1516006 MHz
SI 32768
SF 100.6178078 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40



Phdiazonium salt, Dry MeCN, Styrene, 80deg, 2h, aq.wkp-rt, 48h-purified bottom spot



Phdiazonium salt, Dry MeCN, Styrene, 80deg, 2h, aq.wkp-rt, 48h-purified bottom spot



NAME mani 04-07-2017
EXPNO 5
PROCNO 1
Date_ 20170704
Time 12.40
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 65536
SOLVENT DMSO
NS 355
DS 4
SWH 28409.092 Hz
FIDRES 0.433488 Hz
AQ 1.1534836 sec
RG 256
DW 17.600 usec
DE 6.50 usec
TE 301.2 K
D1 2.0000000 sec
D11 0.0300000 sec
TD0 1

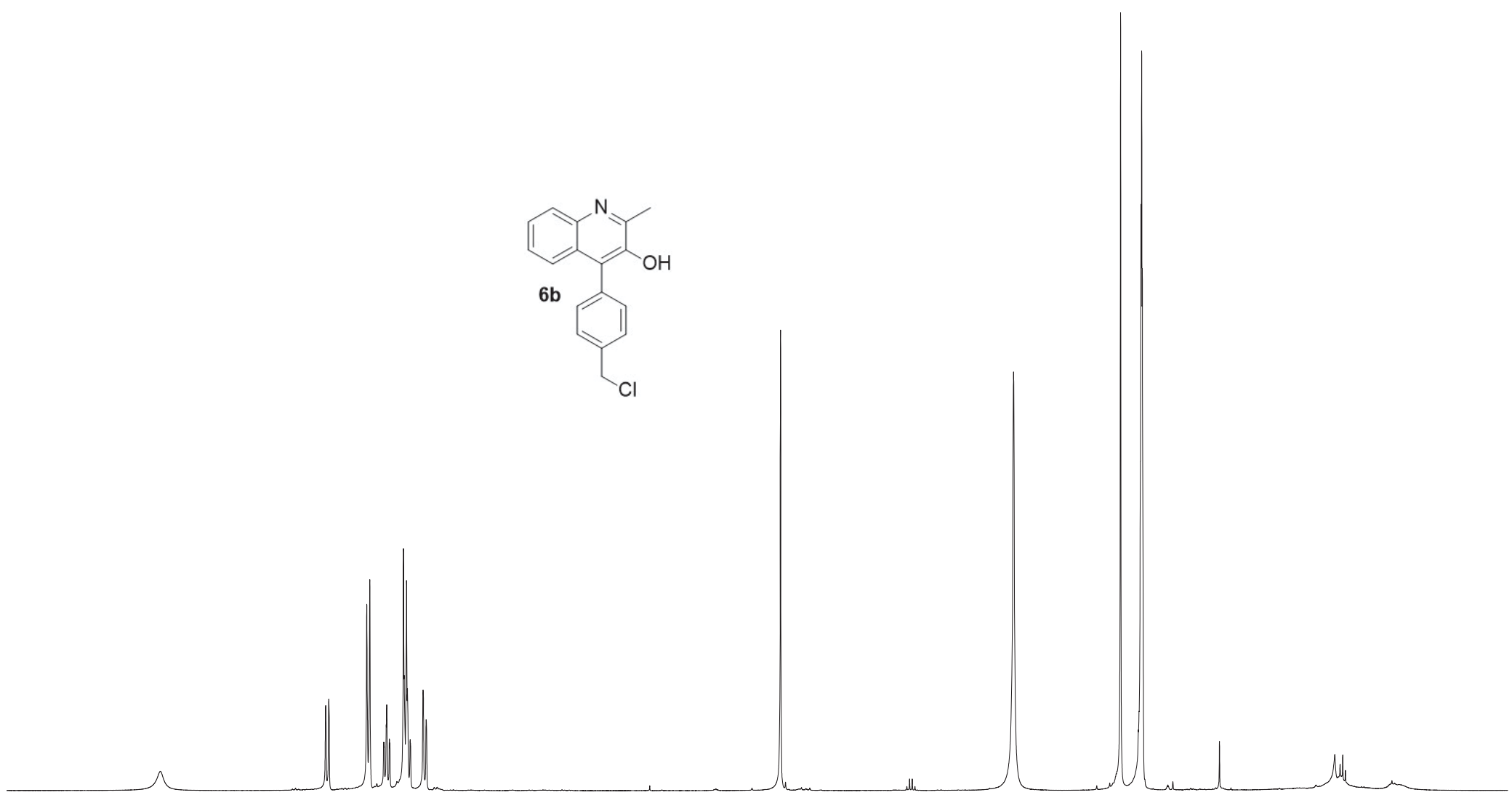
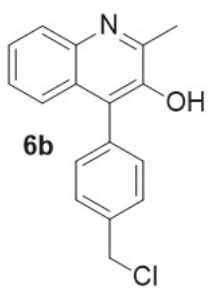
===== CHANNEL f1 =====
NUC1 13C
P1 9.00 usec
PL1 -1.00 dB
PL1W 41.10960770 W
SFO1 100.6298717 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 -1.00 dB
PL12 15.50 dB
PL13 18.50 dB
PL2W 13.43968010 W
PL12W 0.30087695 W
PL13W 0.15079568 W
SFO2 400.1516006 MHz
SI 32768
SF 100.6178491 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

8.977
7.885
7.864
7.613
7.593
7.502
7.499
7.485
7.481
7.464
7.461
7.371
7.366
7.351
7.344
7.326
7.241
7.221

4.878

3.337
2.629
2.512
2.507
2.494
2.490
2.486



9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 ppm

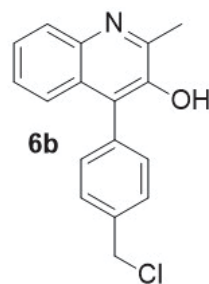
0.92
1.05
2.17
1.18
3.27
1.09

2.13

3.00

152.56
145.48
142.08
137.11
133.90
130.68
128.99
128.25
128.19
127.38
125.84
124.02

46.00
40.12
39.92
39.71
39.50
39.29
39.08
38.87
21.25



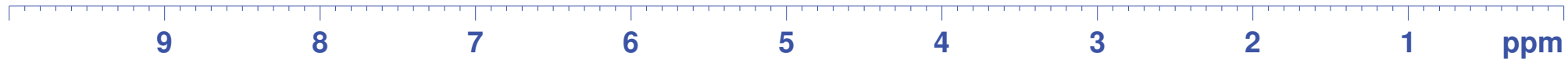
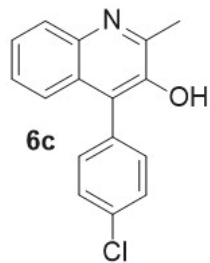
180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 47 ppm

S36

7.878
7.857
7.604
7.583
7.496
7.479
7.461
7.458
7.380
7.375
7.359
7.352
7.334
7.236
7.216

3.333

2.613
2.494
2.490
2.486

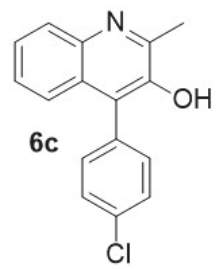


0.96
1.97
1.04
3.12
1.03

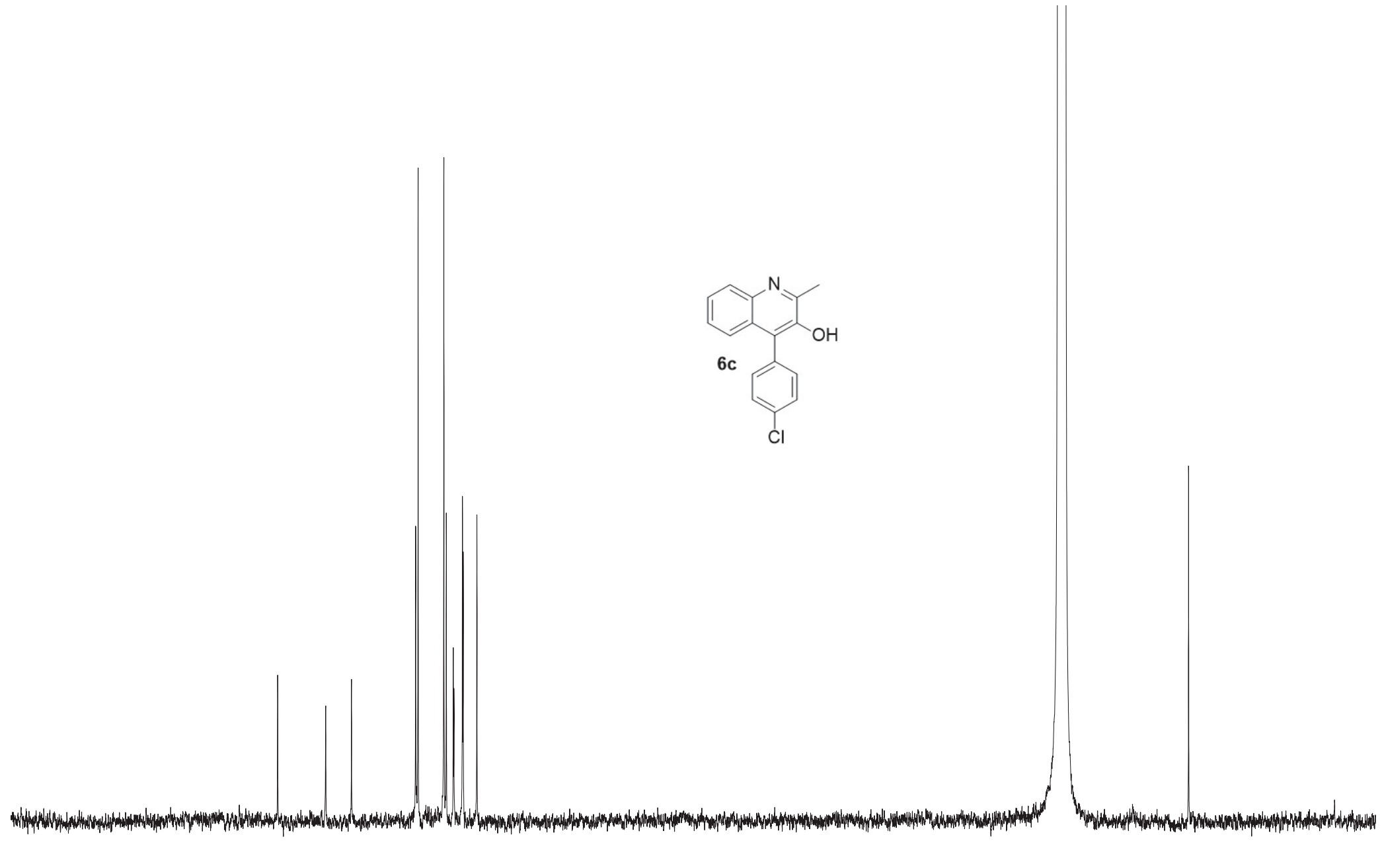
3.00

152.61
145.68
141.96
132.71
132.36
128.64
128.29
127.28
127.19
125.96
125.85
123.88

21.24

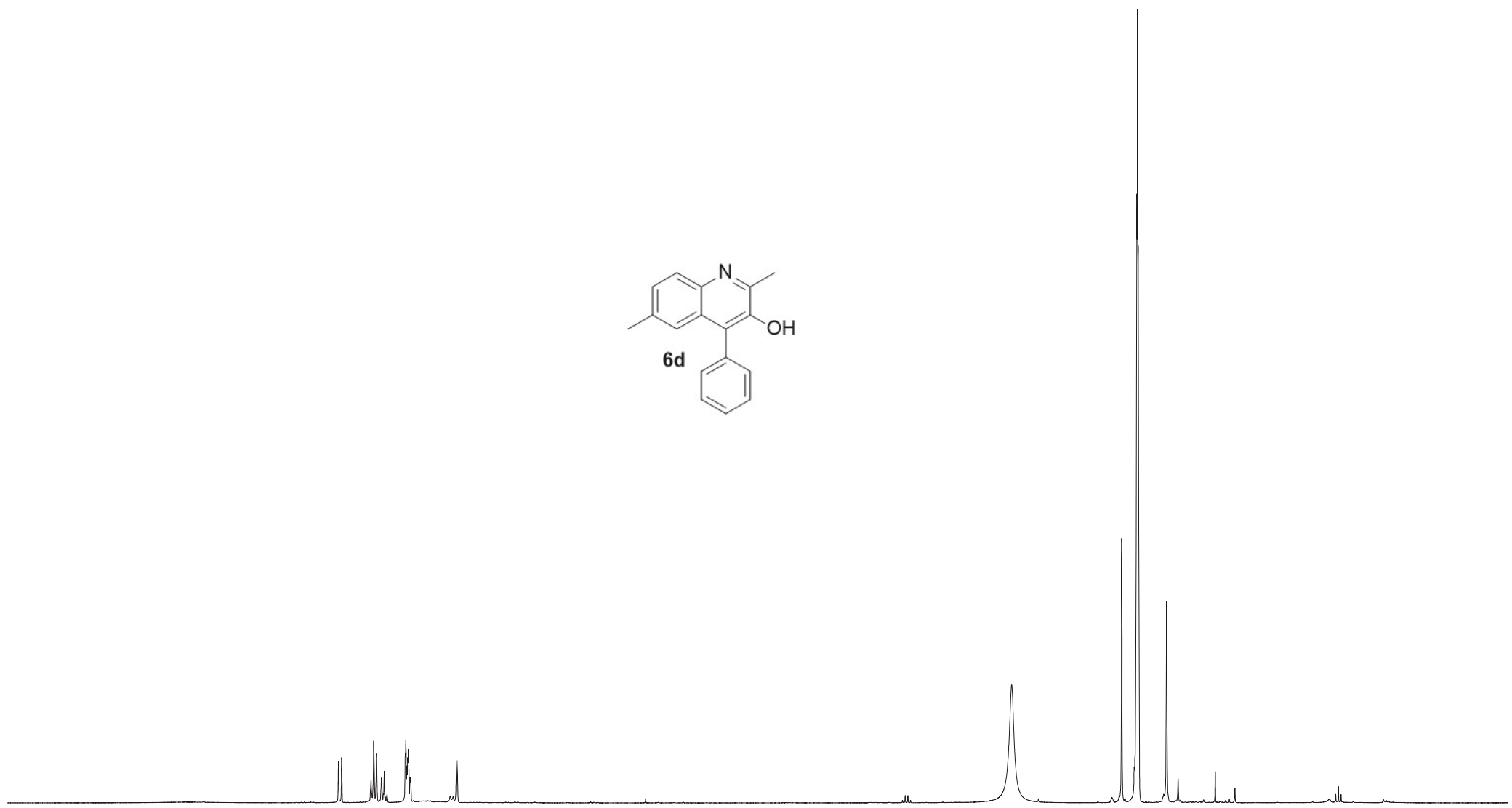
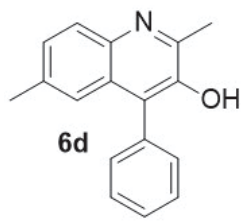


180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ppm



8.783
7.773
7.752
7.557
7.540
7.521
7.489
7.470
7.331
7.327
7.321
7.315
7.310
7.299
7.295
6.991

3.322
2.595
2.494
2.490
2.486
2.298



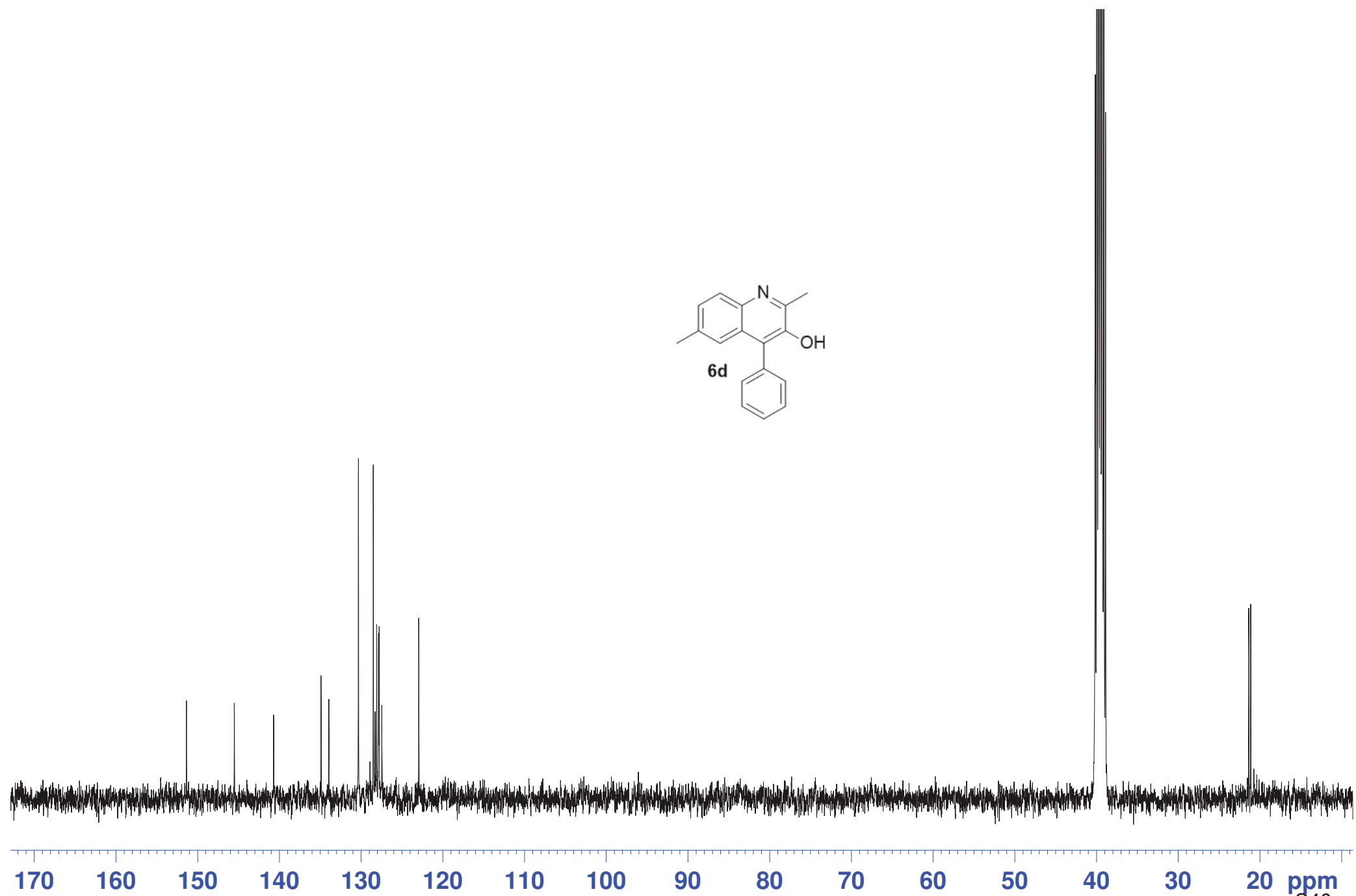
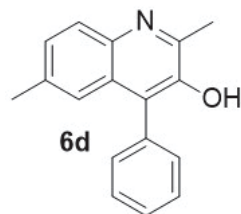
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 ppm

0.78
0.98
2.07
1.02
3.01
0.95

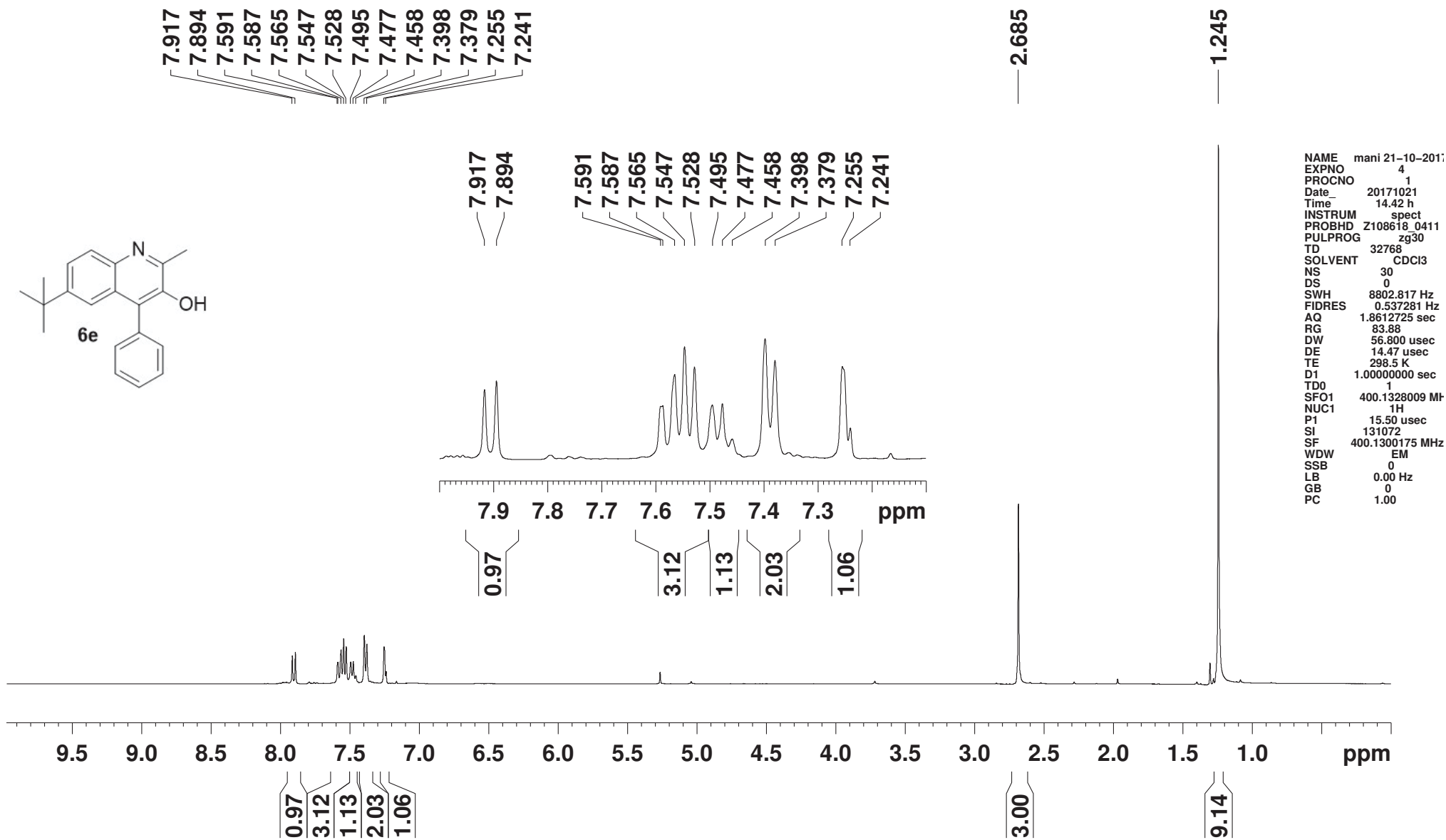
2.88
3.00

151.37
145.51
140.70
134.89
133.94
130.32
128.50
128.28
128.08
127.86
127.79
127.45
122.93

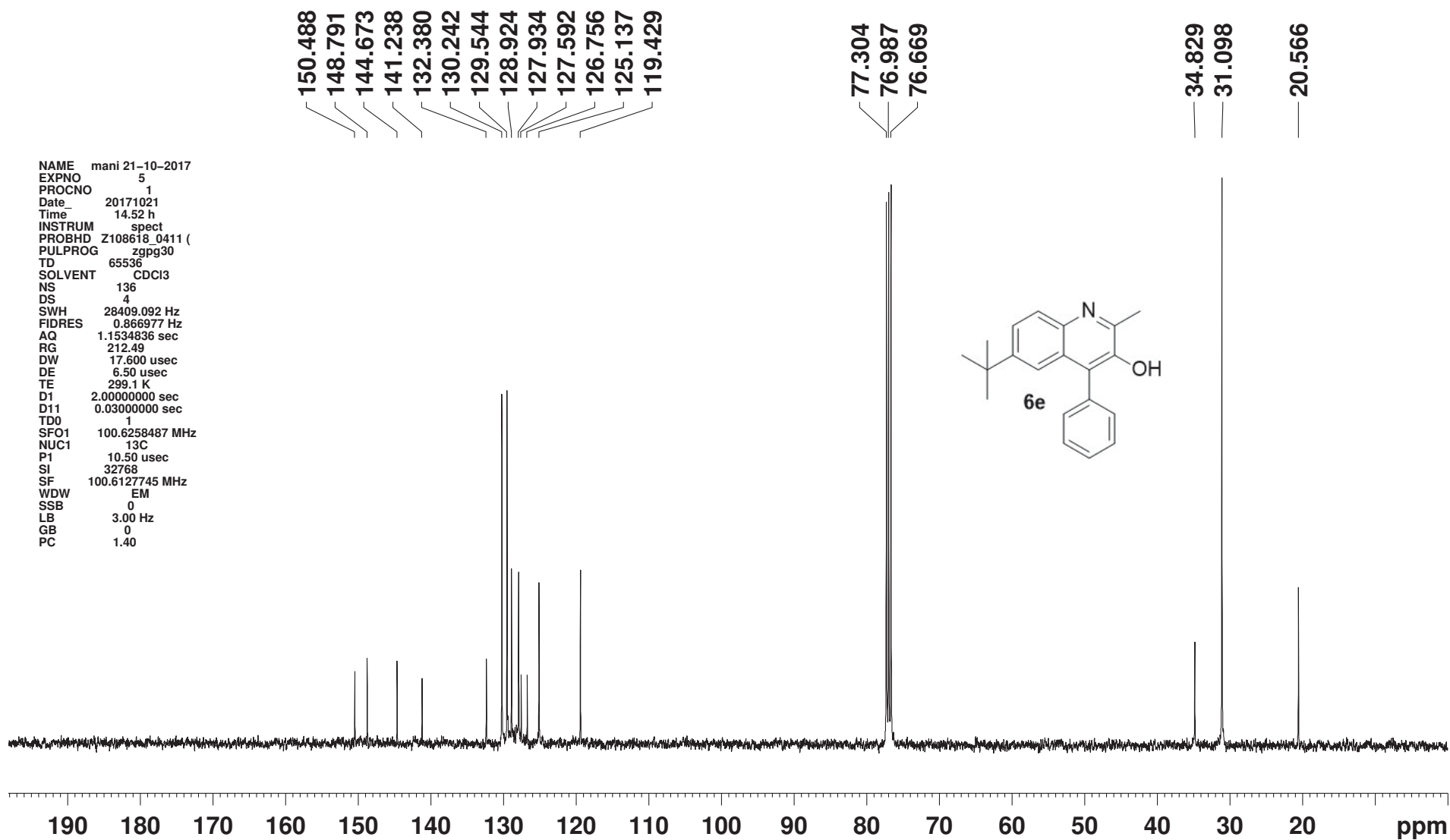
21.34
21.10



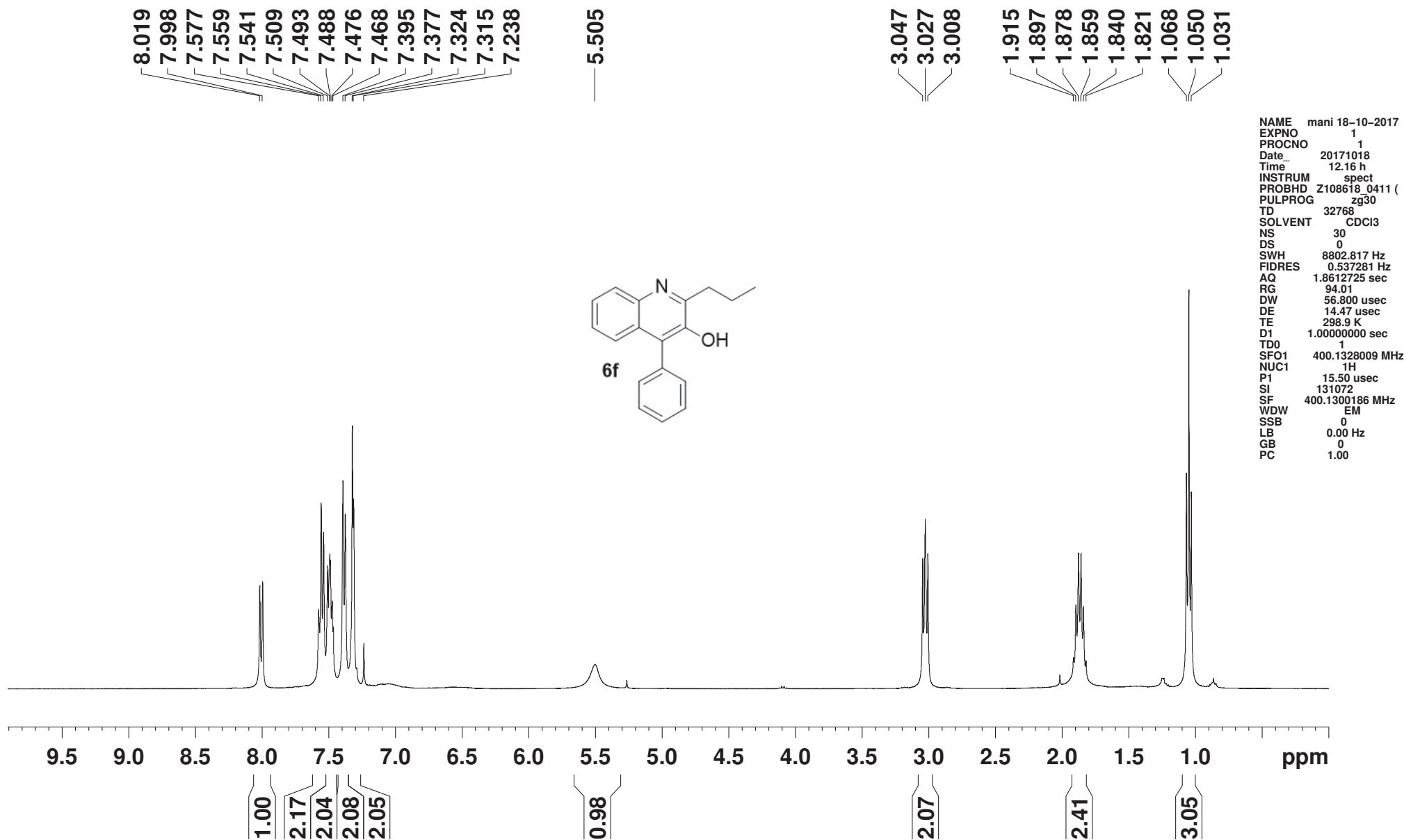
4-tBuPhdiazonium salt, dry MeCN, Styrene, 80deg, 2h, Aq.wkp 2 days rt



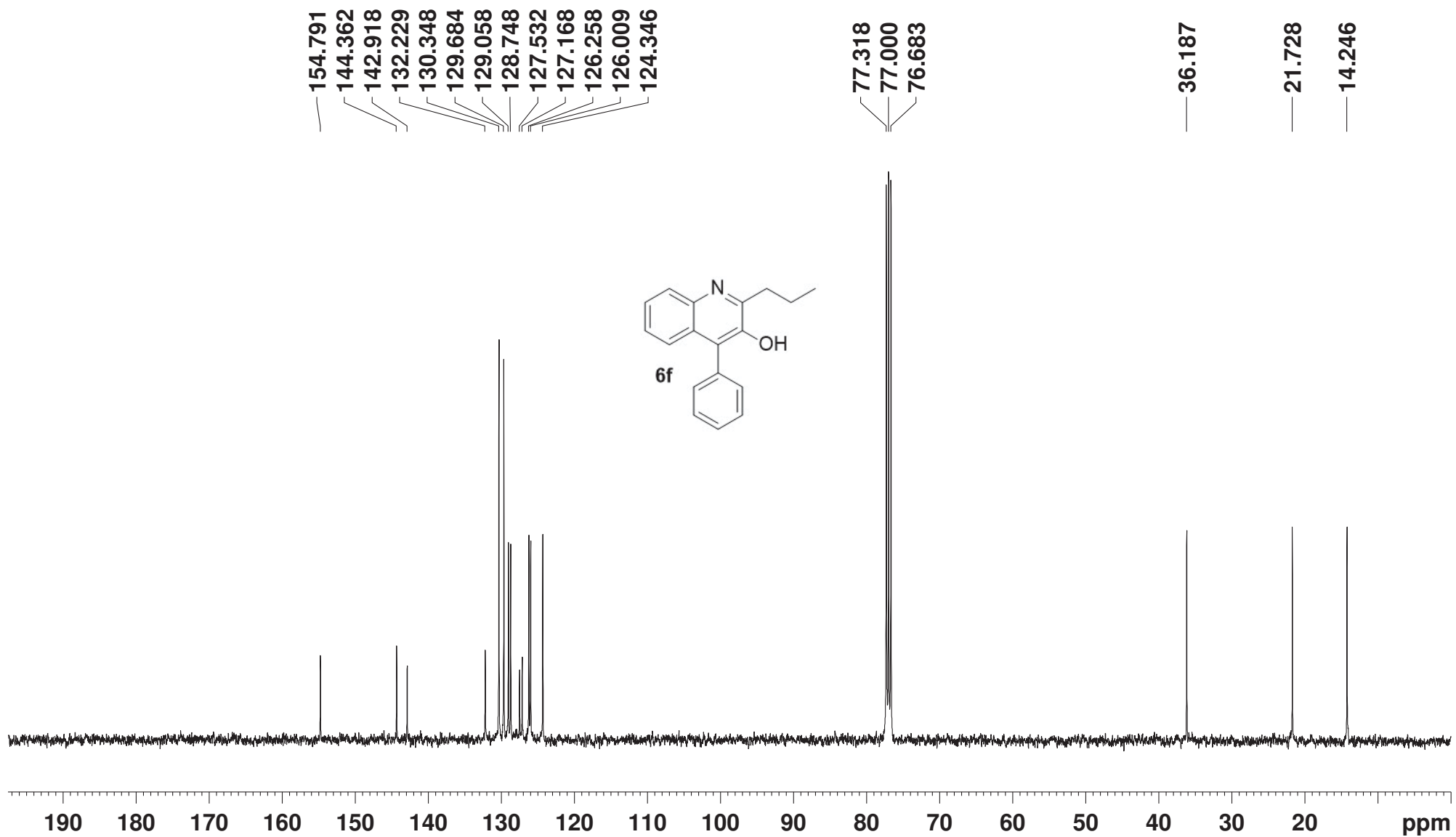
4-tBuPhdiazonium salt, dry MeCN, Styrene, 80deg, 2h, Aq.wkp 2 days rt



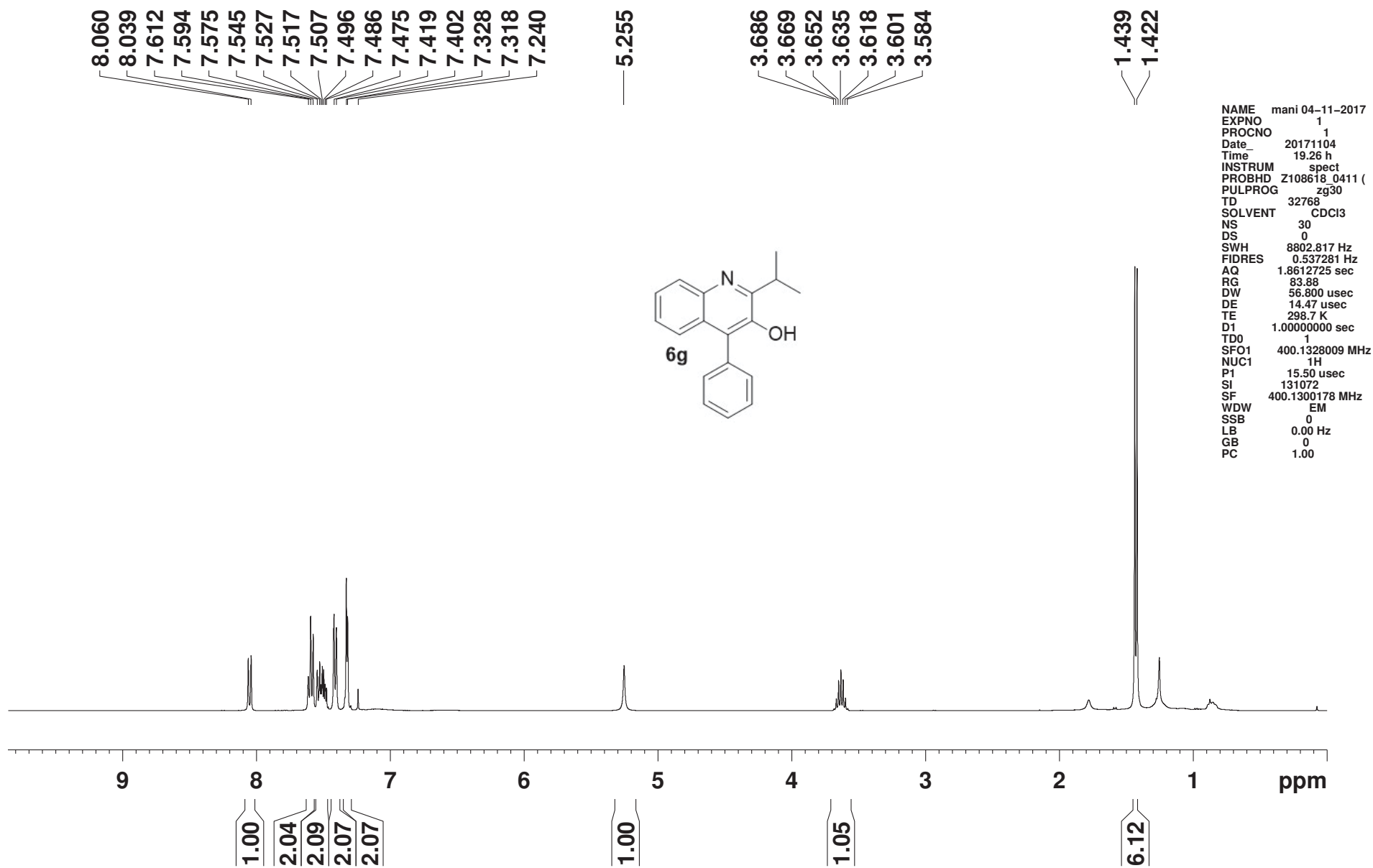
Phdiazonium salt, dry BuCN, Styrene, 80deg, 2h, Aq.wkp 3 days rt



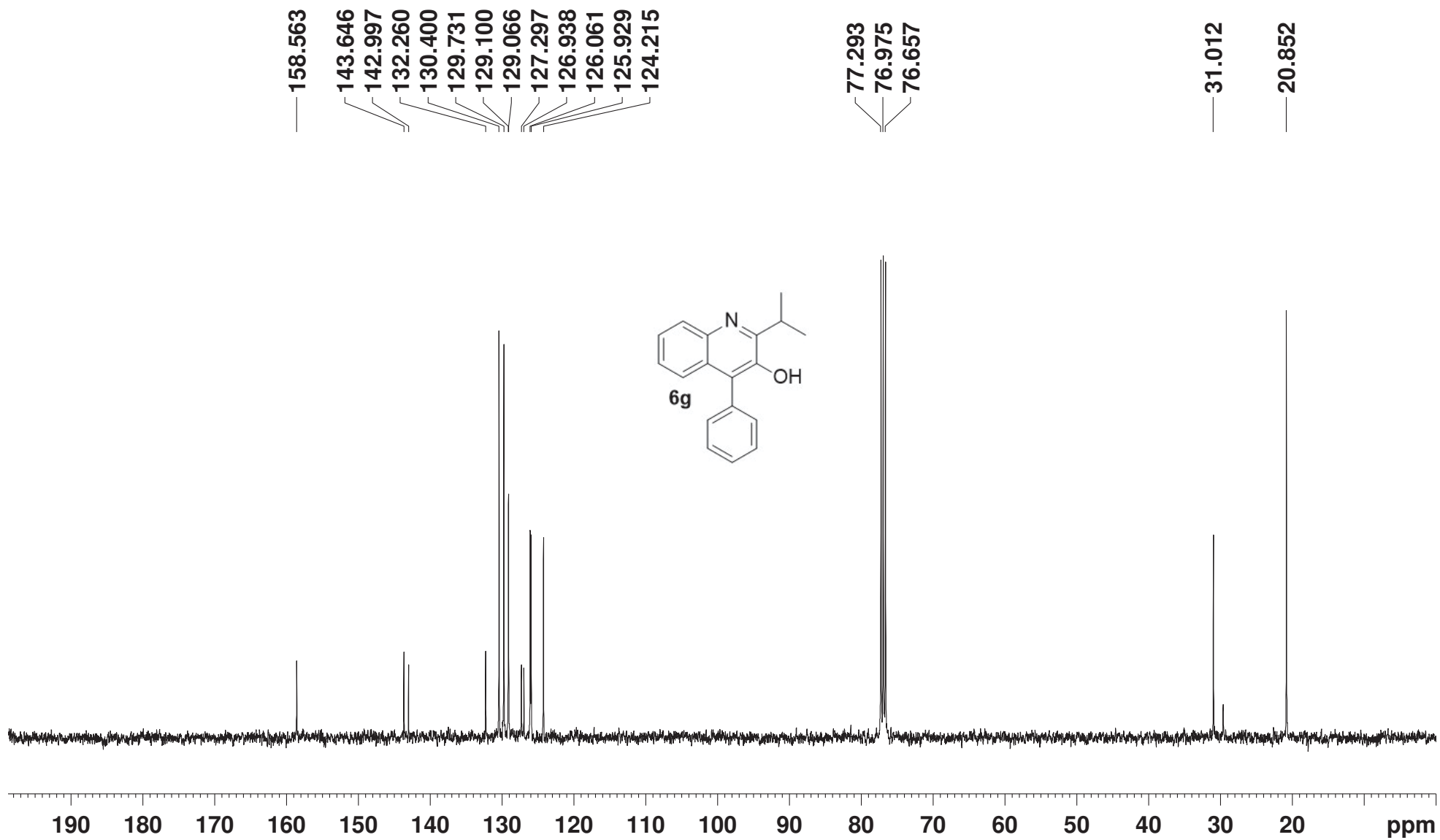
Phdiazonium salt, dry BuCN, Styrene, 80deg, 2h, Aq.wkp 3 days rt



Phdiazonium salt, dry iBuCN, Styrene, 80deg, 2h, aq.wkp, rt, 3days



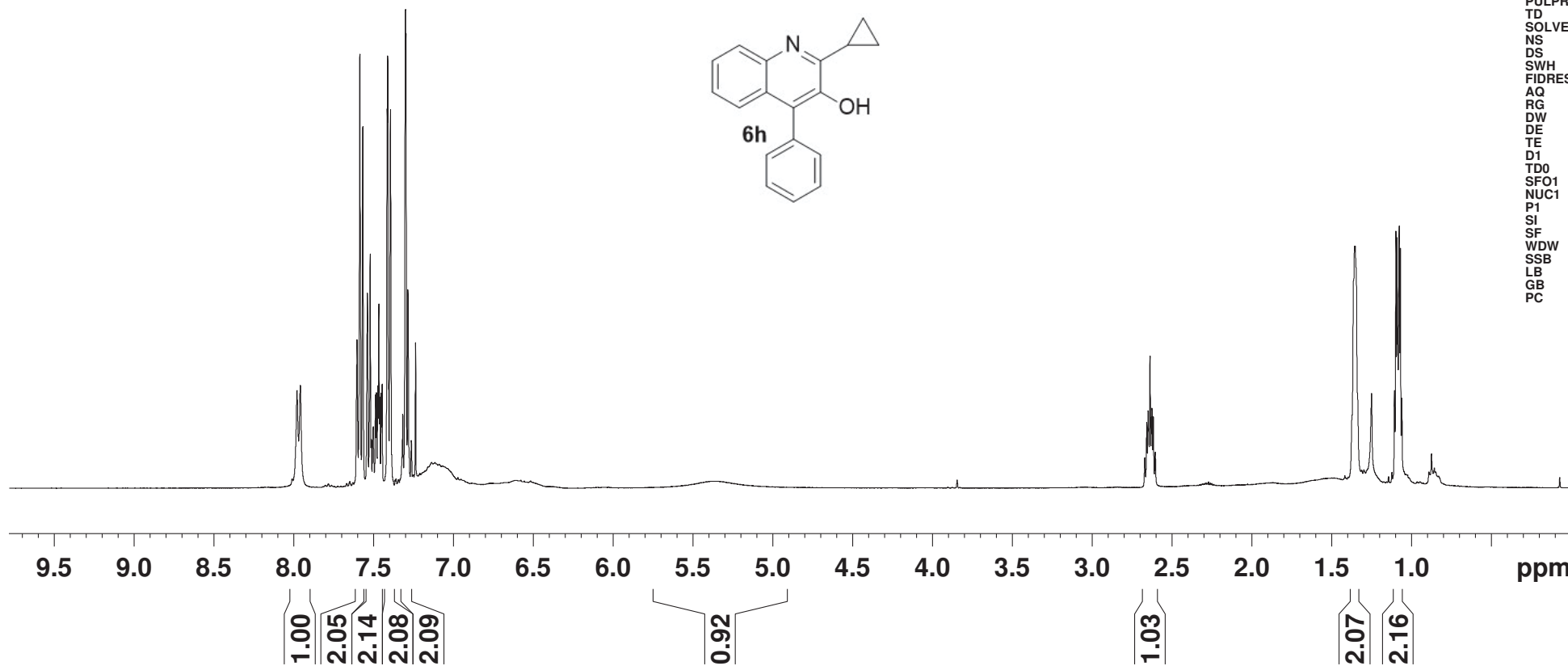
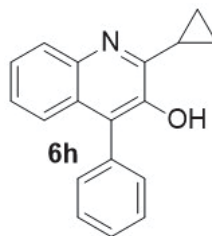
Phdiazonium salt, dry iBuCN, Styrene, 80deg, 2h, aq.wkp, rt, 3days



nitrazolium salt, dry cycCN, styrene, 00deg, 211, aq.wkr, 10, 3days

7.960
7.605
7.588
7.569
7.540
7.522
7.515
7.504
7.489
7.483
7.475
7.468
7.462
7.453
7.447
7.416
7.413
7.396
7.319
7.302
7.299
7.286
7.265
7.238
5.359

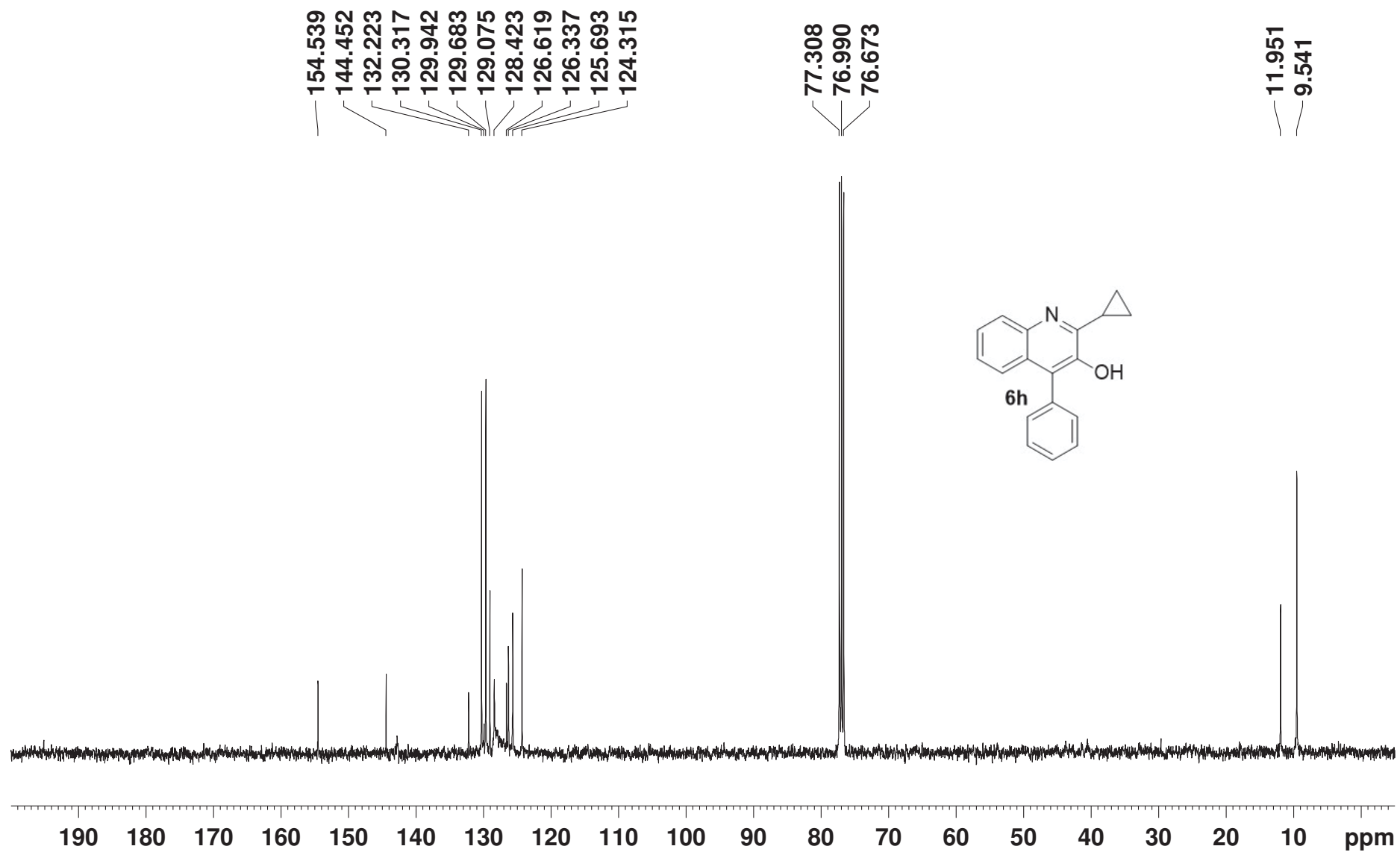
2.671
2.659
2.650
2.638
2.626
2.618
2.605
1.363
1.357
1.353
1.251
1.106
1.098
1.091
1.077
1.070
1.061



```

NAME mani 07-
EXPNO 2
PROCNO
Date_ 201711
Time 11.35
INSTRUM sp
PROBHD Z10861
PULPROG z
TD 32768
SOLVENT CI
NS 30
DS 0
SWH 8802.8
FIDRES 0.537
AQ 1.86127
RG 103.36
DW 56.800
DE 14.47
TE 298.9
D1 1.000000
TD0 1
SFO1 400.132
NUC1 1H
P1 15.50
SI 131072
SF 400.13001
WDW EM
SSB 0
LB 0.00
GB 0
PC 1.00
    
```


Pyridazolinium salt, dry cycCN, styrene, 80deg, Zn, aq.wkp, rt, 5days

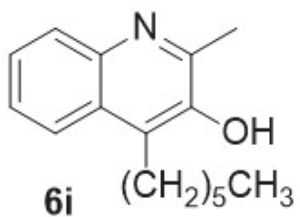


Phdiazonium salt, dry MeCN, 1-octene, 80deg, 2h, aq.wkp, rt, 3days

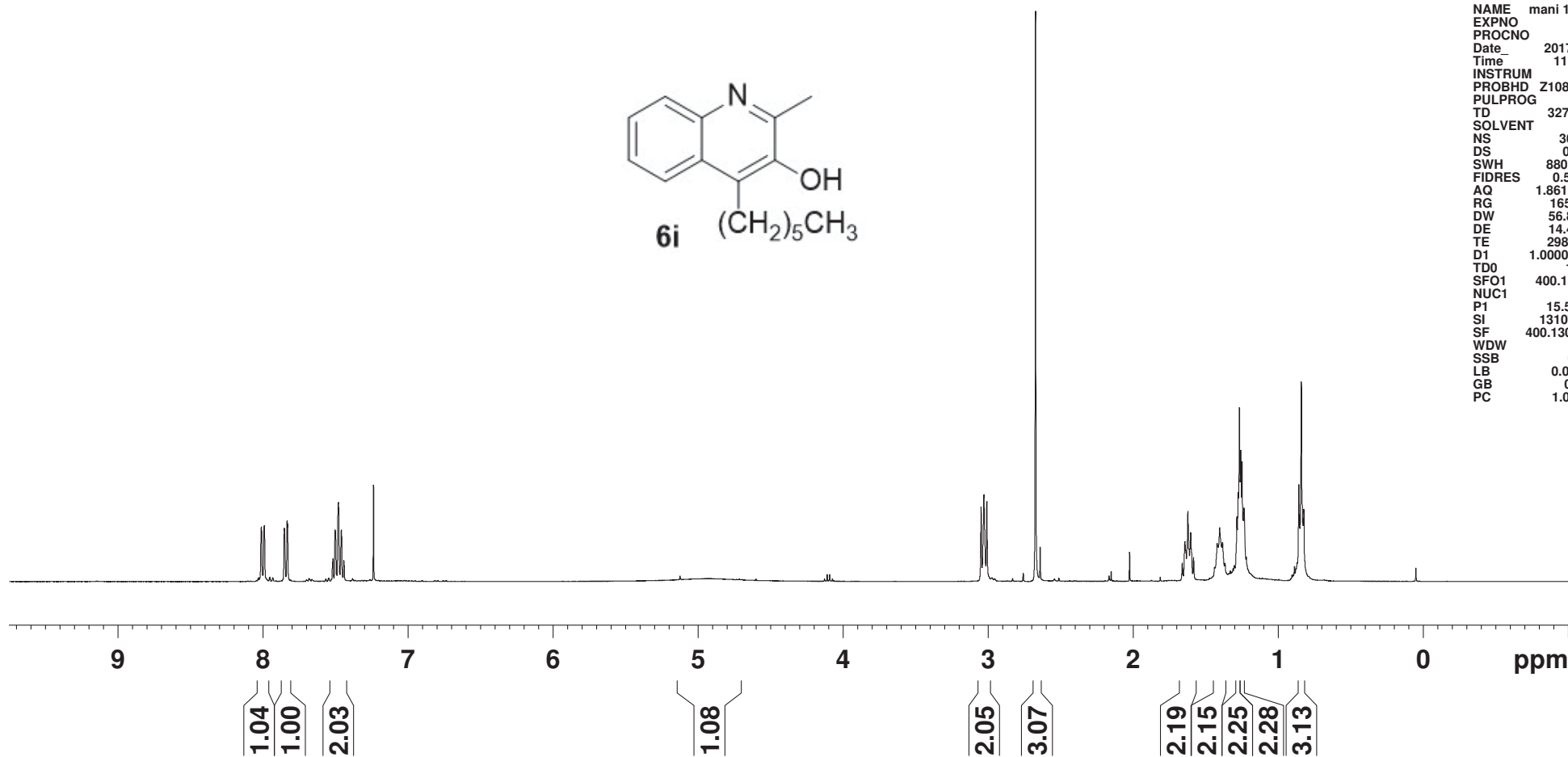
8.012
7.992
7.855
7.835
7.832
7.519
7.504
7.502
7.481
7.461
7.445
7.239

4.942

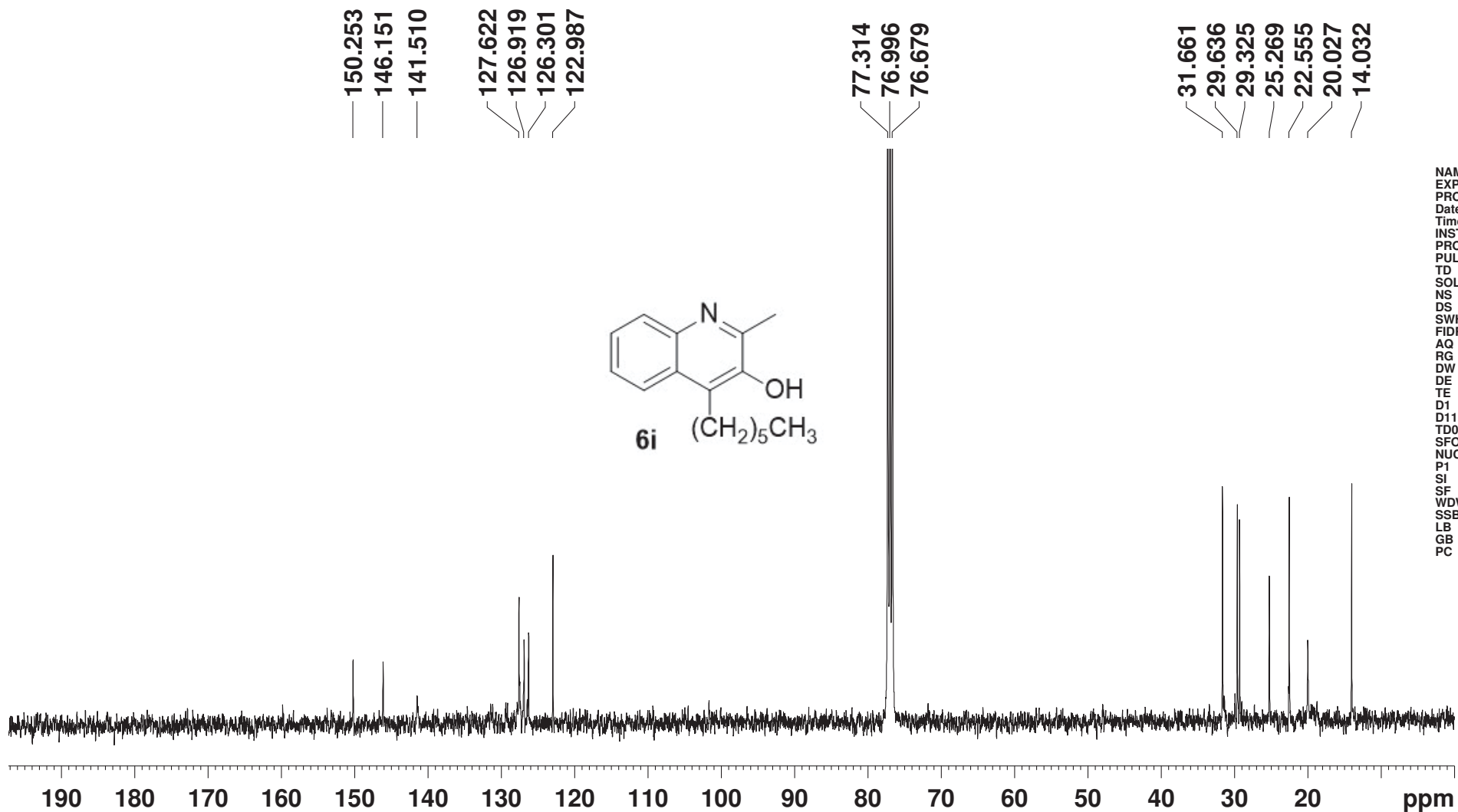
3.049
3.029
3.009
2.674
1.661
1.643
1.623
1.615
1.604
1.583
1.439
1.421
1.404
1.385
1.367
1.285
1.276
1.267
1.258
1.250
1.243
1.236
0.858
0.841



NAME mani 13-11-2017
EXPNO 2
PROCNO 1
Date_ 20171113
Time 11.12 h
INSTRUM spect
PROBHD Z108618.0411 ()
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 30
DS 0
SWH 8802.817 Hz
FIDRES 0.537281 Hz
AQ 1.8612725 sec
RG 165.3
DW 56.800 usec
DE 14.47 usec
TE 296.7 K
D1 1.0000000 sec
TD0 1
SFO1 400.1328009 MHz
NUC1 1H
P1 15.50 usec
SI 131072
SF 400.1300181 MHz
WDW EM
SSB 0
LB 0.00 Hz
GB 0
PC 1.00

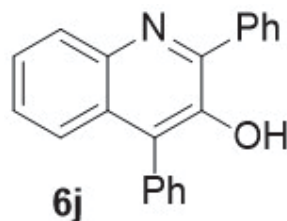
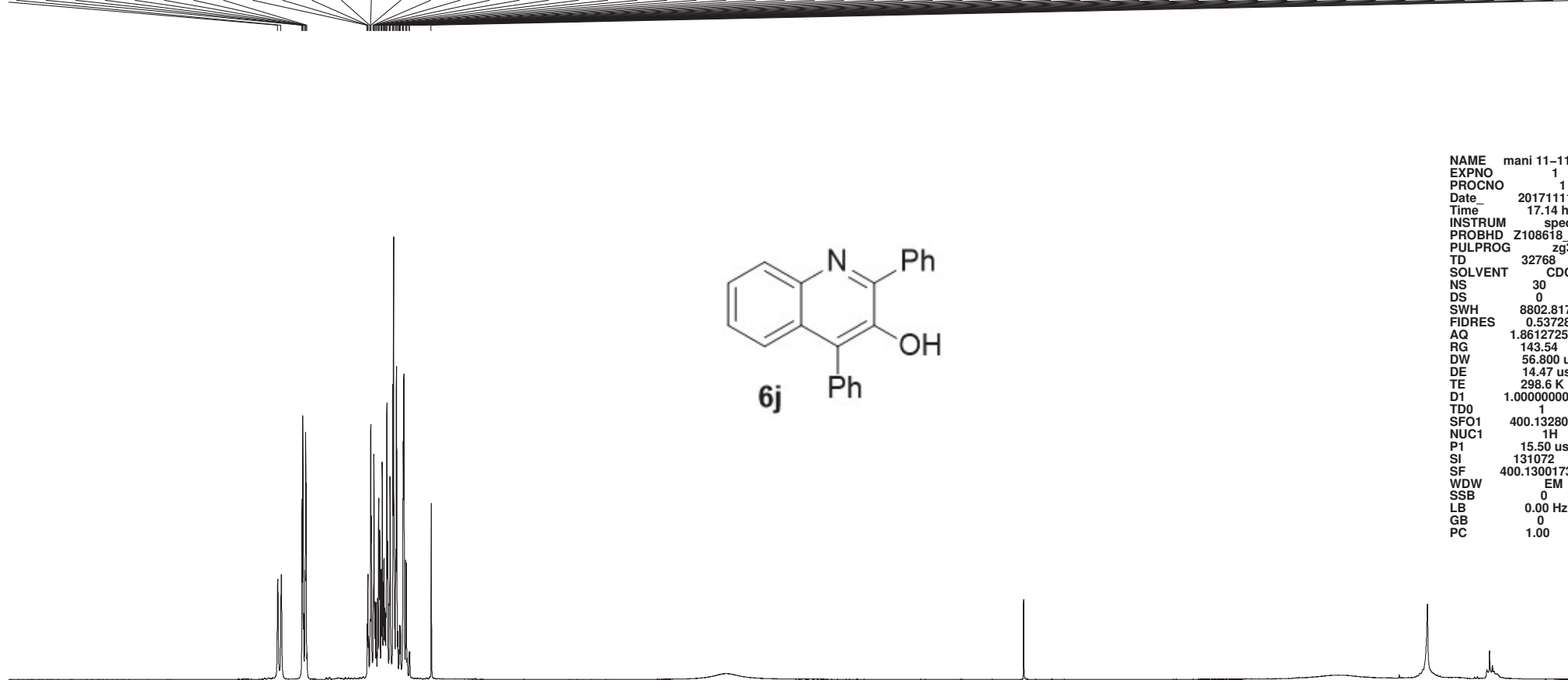


Phdiazonium salt, dry MeCN, 1-octene, 80deg, 2h, aq.wkp, rt, 3days



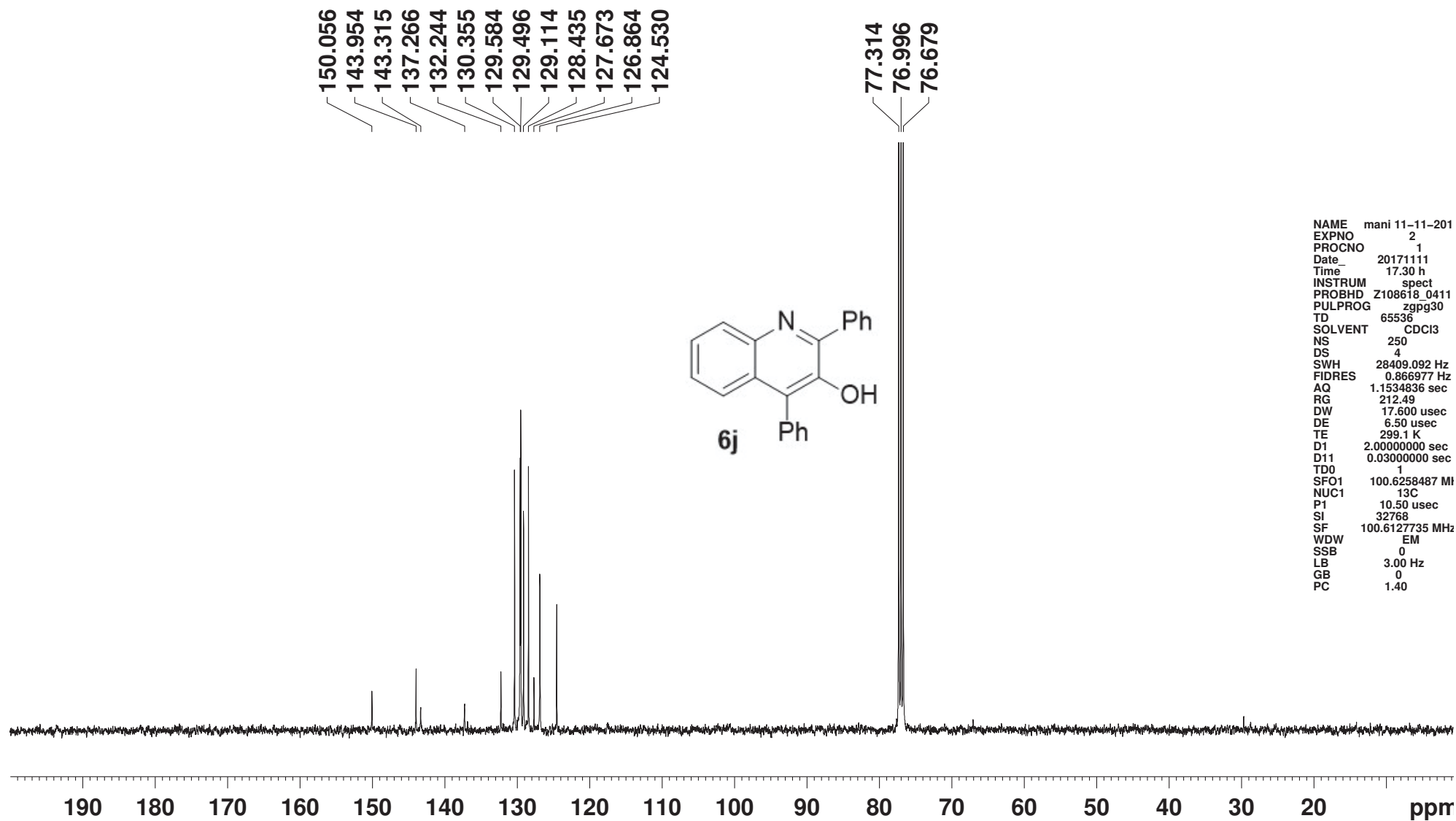
Phdiazonium salt, dry PhCN, Styrene, 80deg, 2h, aq.wkp, rt, 3days bottom spot

8.144
8.019
8.015
8.010
8.001
7.997
7.995
7.989
7.626
7.623
7.619
7.610
7.606
7.602
7.590
7.587
7.582
7.579
7.573
7.564
7.558
7.555
7.552
7.543
7.537
7.530
7.526
7.522
7.518
7.514
7.508
7.505
7.493
7.490
7.484
7.472
7.468
7.465
7.455
7.451
7.443
7.435
7.432
7.428
7.426
7.412
7.410
7.407
7.395
7.392
7.385
7.373
7.371



NAME mani 11-11-
EXPNO 1
PROCNO 1
Date_ 20171111
Time 17.14 h
INSTRUM spect
PROBHD Z108618_0
PULPROG zg3i
TD 32768
SOLVENT CDCl
NS 30
DS 0
SWH 8802.817
FIDRES 0.537281
AQ 1.8612725 s
RG 143.54
DW 56.800 usec
DE 14.47 usec
TE 298.6 K
D1 1.0000000 s
TD0 1
SFO1 400.132800
NUC1 1H
P1 15.50 usec
SI 131072
SF 400.1300173
WDW EM
SSB 0
LB 0.00 Hz
GB 0
PC 1.00

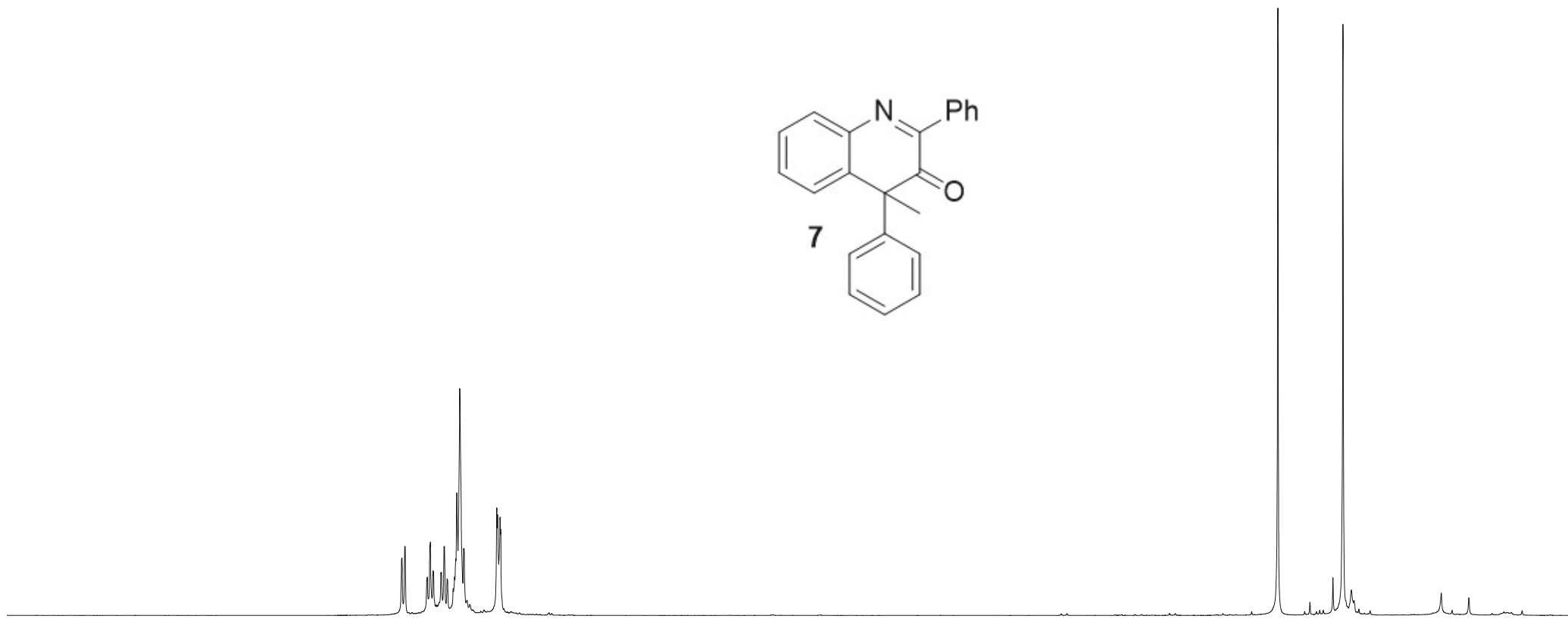
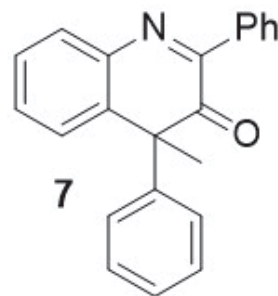
Phdiazonium salt, dry PhCN, Styrene, 80deg, 2h, aq.wkp, rt, 3days bottom spot



7.609
7.592
7.590
7.458
7.455
7.439
7.436
7.421
7.417
7.372
7.369
7.353
7.351
7.334
7.332
7.289
7.282
7.276
7.258
7.234
7.231
7.033
7.027
7.013
7.009

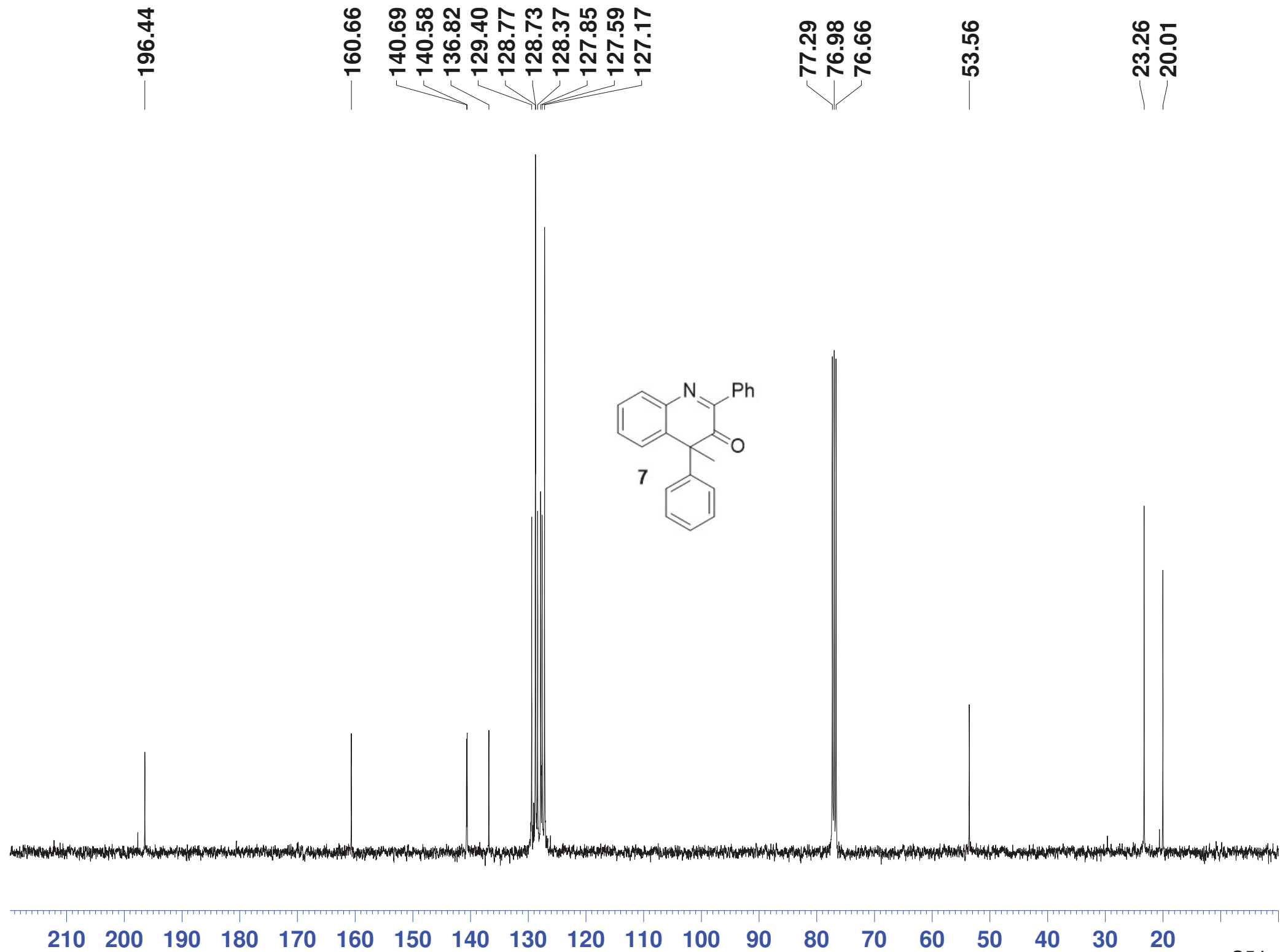
2.284

1.888

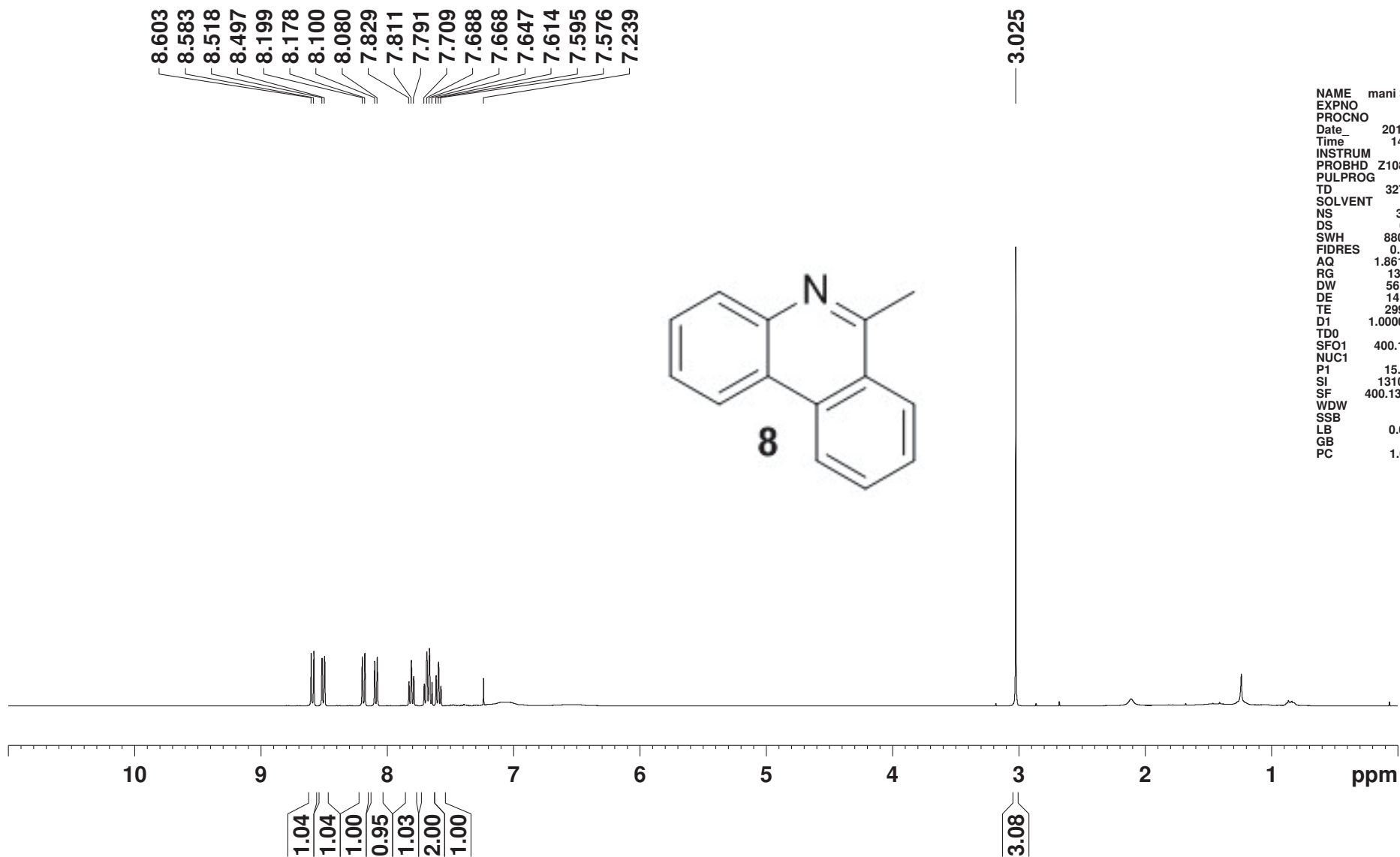


0.93
1.21
1.19
4.36
2.01

2.91
3.00

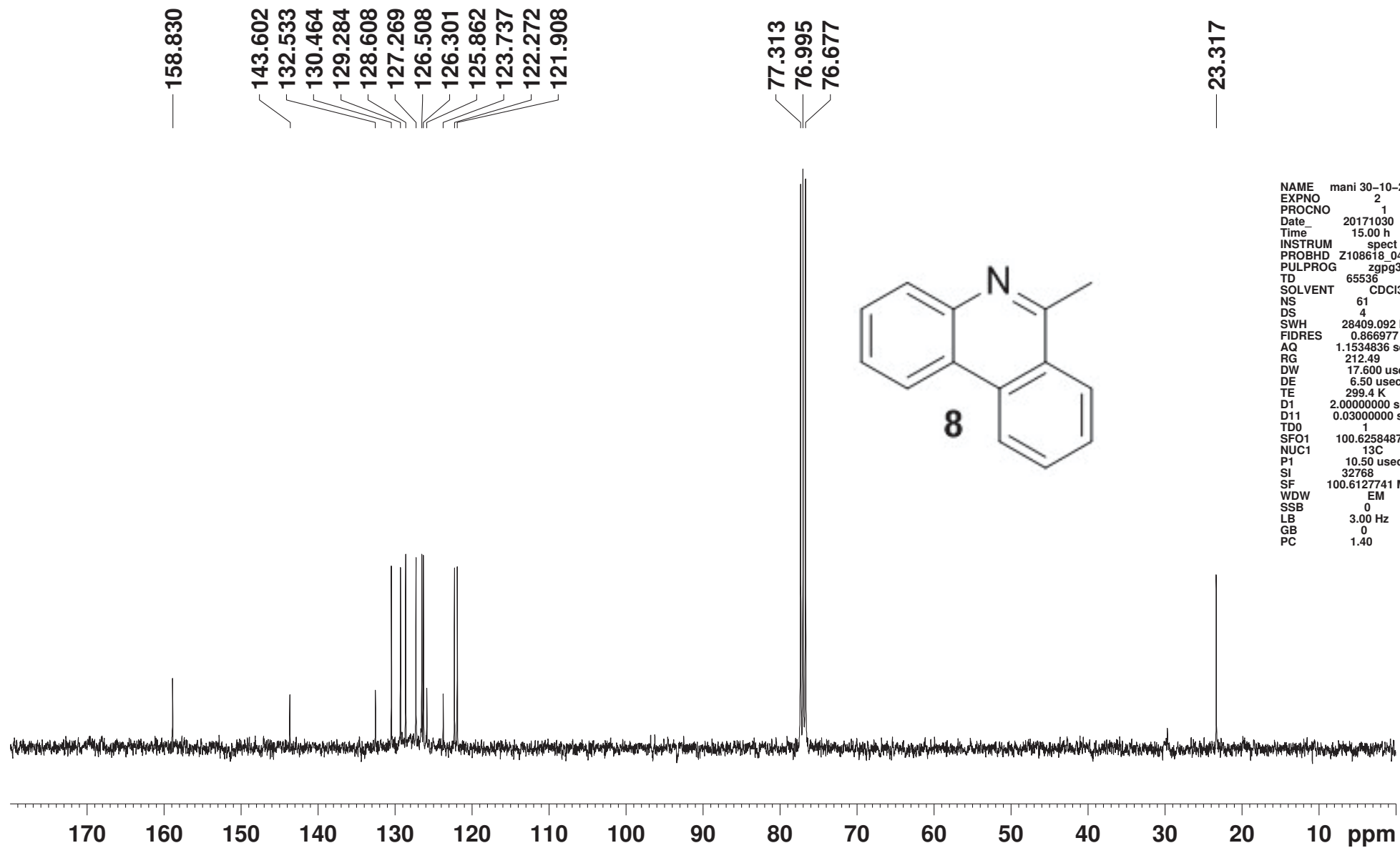


Z-Pn Pndiazonium salt, dry MeCN, styrene, 80deg, Zn, purified

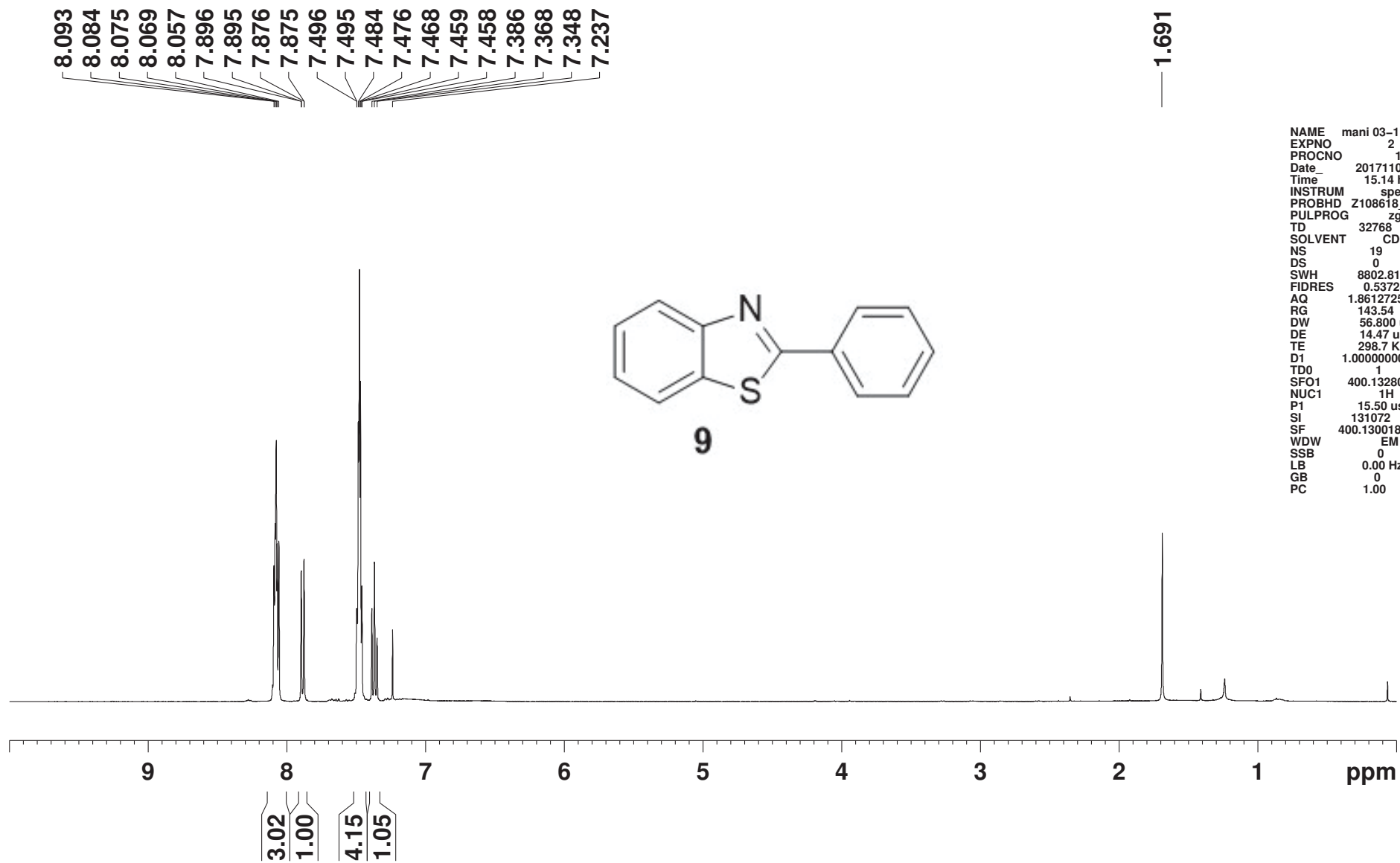


NAME mani 30-10-2017
EXPNO 1
PROCNO 1
Date_ 20171030
Time 14.55 h
INSTRUM spect
PROBHD Z108618_0411 (
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 30
DS 0
SWH 8802.817 Hz
FIDRES 0.537281 Hz
AQ 1.8612725 sec
RG 133.5
DW 56.800 usec
DE 14.47 usec
TE 299.1 K
D1 1.00000000 sec
TD0 1
SFO1 400.1328009 MHz
NUC1 1H
P1 15.50 usec
SI 131072
SF 400.1300180 MHz
WDB EM
SSB 0
LB 0.00 Hz
GB 0
PC 1.00

2-Ph Phdiazonium salt, dry MeCN, Styrene, 80deg, 2h, purified

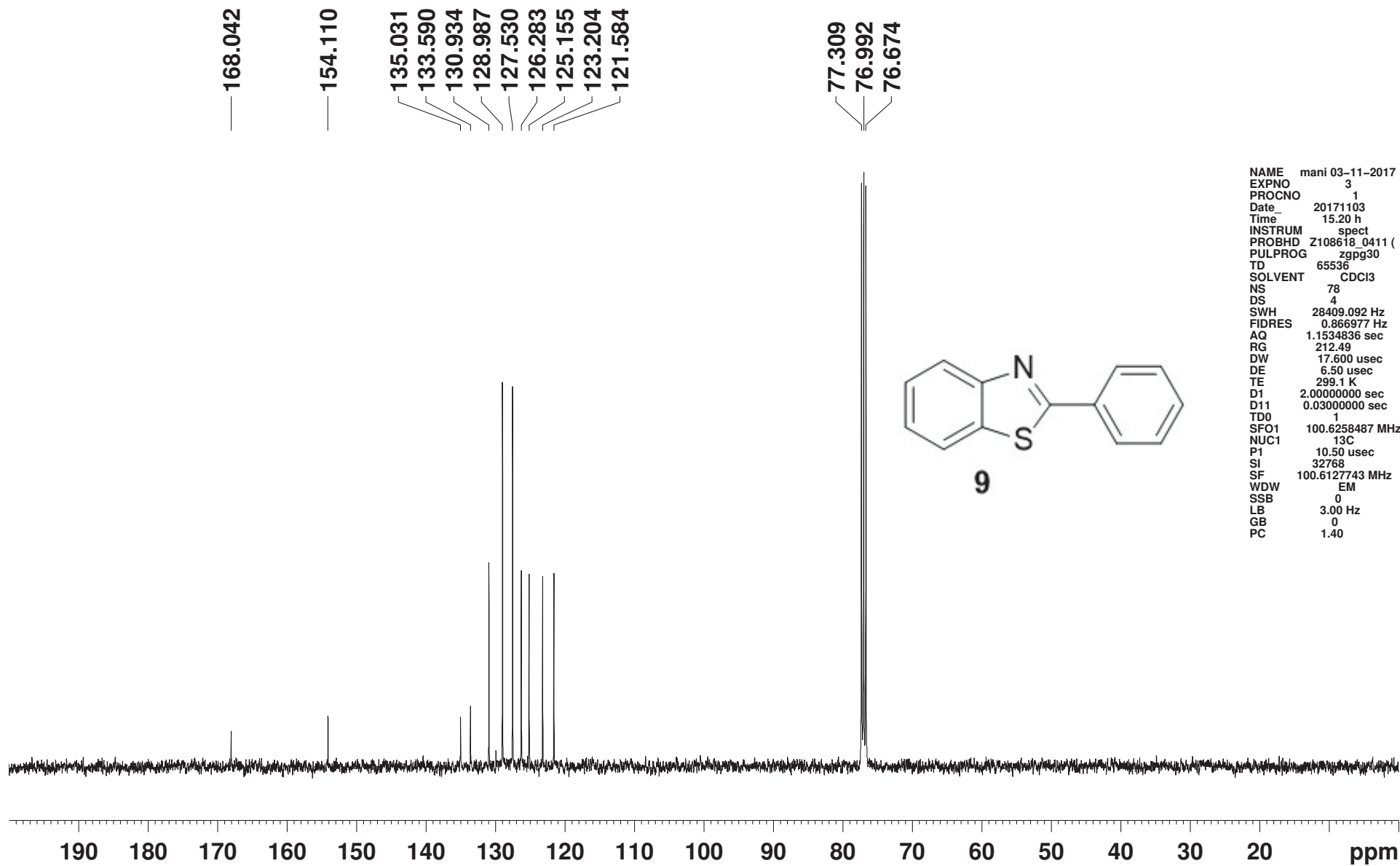


2-SMePhdiazonium salt, dry PhCN, Styrene, 80deg, 2h, purified



NAME mani 03-11-2017
EXPNO 2
PROCNO 1
Date_ 20171103
Time 15.14 h
INSTRUM spect
PROBHD Z108618_0411 (
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 19
DS 0
SWH 8802.817 Hz
FIDRES 0.537281 Hz
AQ 1.8612725 sec
RG 143.54
DW 56.600 usec
DE 14.47 usec
TE 298.7 K
D1 1.00000000 sec
TD0 1
SFO1 400.1328009 MHz
NUC1 1H
P1 15.50 usec
SI 131072
SF 400.1300189 MHz
WDW EM
SSB 0
LB 0.00 Hz
GB 0
PC 1.00

2-SMePhdiazonium salt, dry PhCN, Styrene, 80deg, 2h, purified

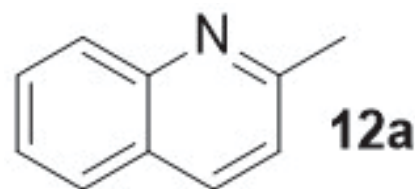


NAME mani 03-11-2017
EXPNO 3
PROCNO 1
Date_ 20171103
Time 15.20 h
INSTRUM spect
PROBHD Z108618_0411 (
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 78
DS 4
SWH 28409.092 Hz
FIDRES 0.866977 Hz
AQ 1.1534836 sec
RG 212.49
DW 17.600 usec
DE 6.50 usec
TE 299.1 K
D1 2.0000000 sec
D11 0.03000000 sec
TD0 1
SFO1 100.6258487 MHz
NUC1 13C
P1 10.50 usec
SI 32768
SF 100.6127743 MHz
WDW EM
SSB 0
LB 3.00 Hz
GB 0
PC 1.40

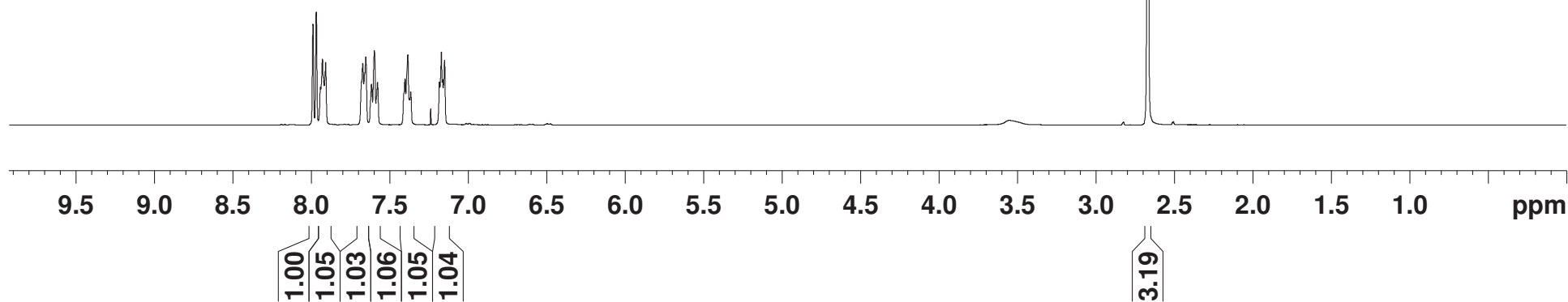
2-methyl quinoline, purified brown viscous oil

7.989
7.968
7.942
7.928
7.908
7.672
7.652
7.616
7.598
7.596
7.577
7.409
7.403
7.384
7.372
7.366
7.238
7.183
7.170
7.163
7.150

2.666



NAME mani 01-06-2018
EXPNO 1
PROCNO 1
Date_ 20180601
Time 13.16 h
INSTRUM spect
PROBHD Z108618_0411 (
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 16
DS 0
SWH 8802.817 Hz
FIDRES 0.537281 Hz
AQ 1.8612725 sec
RG 31.38
DW 56.800 usec
DE 14.47 usec
TE 299.3 K
D1 1.00000000 sec
TD0 1
SFO1 400.1328009 MHz
NUC1 1H
P1 15.50 usec
SI 131072
SF 400.1300186 MHz
WDW EM
SSB 0
LB 0.00 Hz
GB 0
PC 1.00



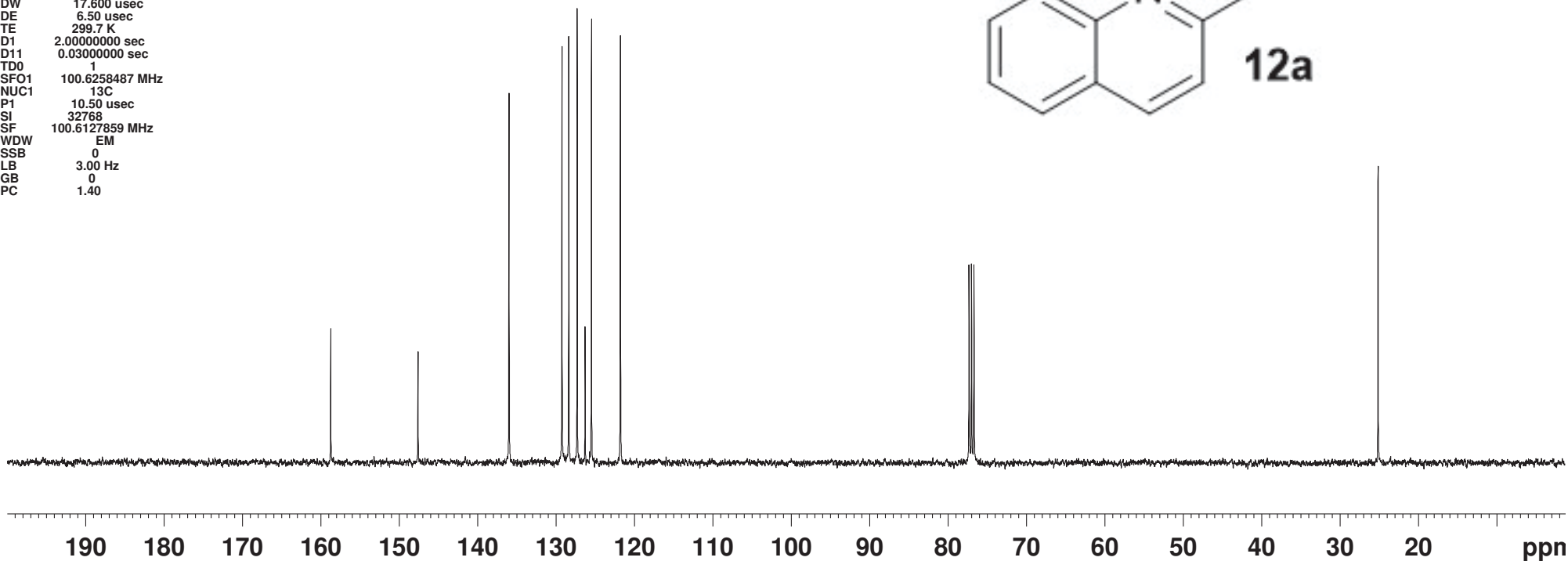
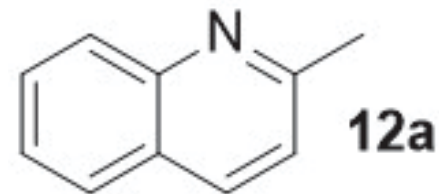
2-methyl quinoline, purified brown viscous oil

NAME mani 01-06-2018
EXPNO 2
PROCNO 1
Date 20180601
Time 13.21 h
INSTRUM spect
PROBHD Z108618_0411 (
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 62
DS 4
SWH 28409.092 Hz
FIDRES 0.866977 Hz
AQ 1.1534836 sec
RG 212.49
DW 17.600 usec
DE 6.50 usec
TE 299.7 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1
SFO1 100.6258487 MHz
NUC1 13C
P1 10.50 usec
SI 32768
SF 100.6127859 MHz
WDW EM
SSB 0
LB 3.00 Hz
GB 0
PC 1.40

158.738
147.607
135.994
129.238
128.373
127.295
126.285
125.477
121.781

77.310
76.992
76.674

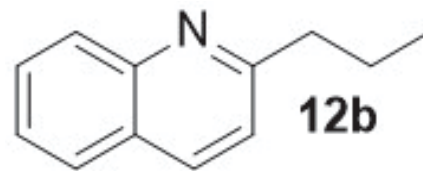
25.126



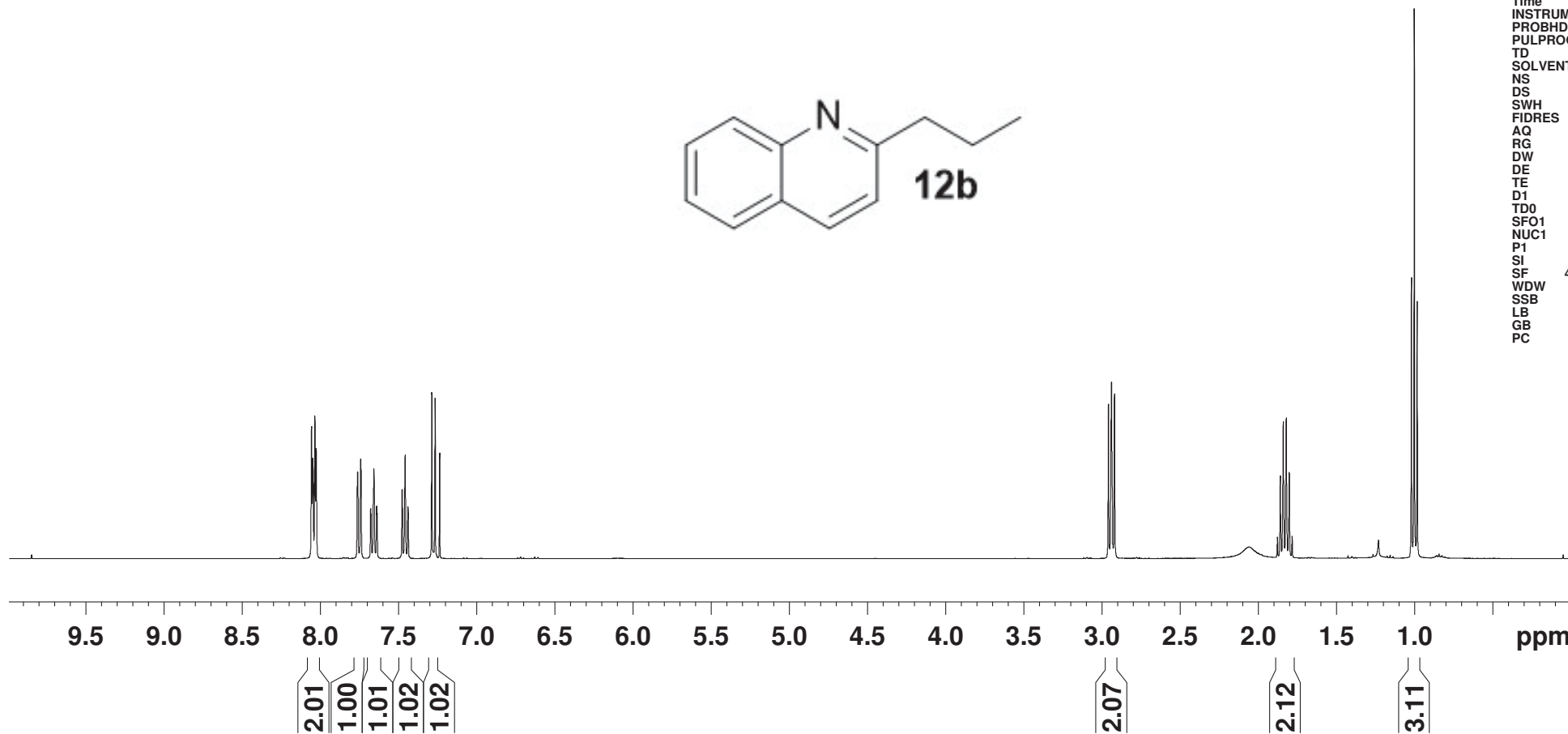
2-butylquinoline, pale yellow oil

8.058
8.050
8.037
8.028
7.764
7.743
7.680
7.676
7.662
7.659
7.641
7.638
7.479
7.459
7.441
7.288
7.267
7.238

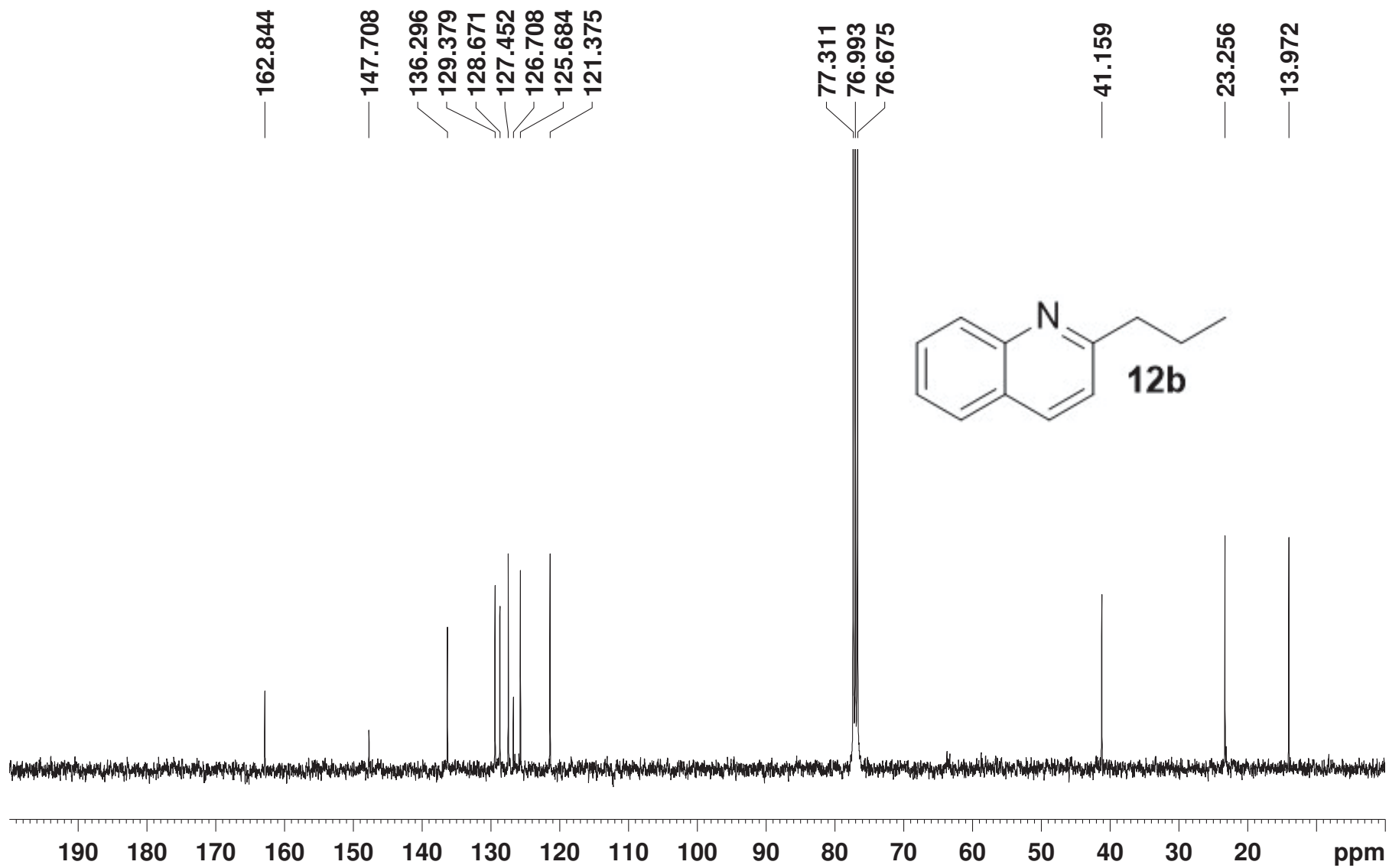
2.959
2.940
2.920
1.878
1.860
1.841
1.822
1.803
1.784
1.021
1.002
0.984



NAME mani 14-12-
EXPNO 1
PROCNO 1
Date_ 20171214
Time_ 14.50 h
INSTRUM spect
PROBHD Z108618_0
PULPROG zg3i
TD 32768
SOLVENT CDCl
NS 30
DS 0
SWH 8802.817
FIDRES 0.537281
AQ 1.8612725 s
RG 188.2
DW 56.800 usec
DE 14.47 usec
TE 299.0 K
D1 1.0000000 s
TD0 1
SFO1 400.132800
NUC1 1H
P1 15.50 usec
SI 131072
SF 400.1300184
WDW EM
SSB 0
LB 0.00 Hz
GB 0
PC 1.00



2-butylquinoline, pale yellow oil

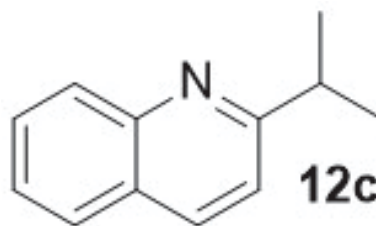


2-isopropyl quinoline, pale yellow oil, purified

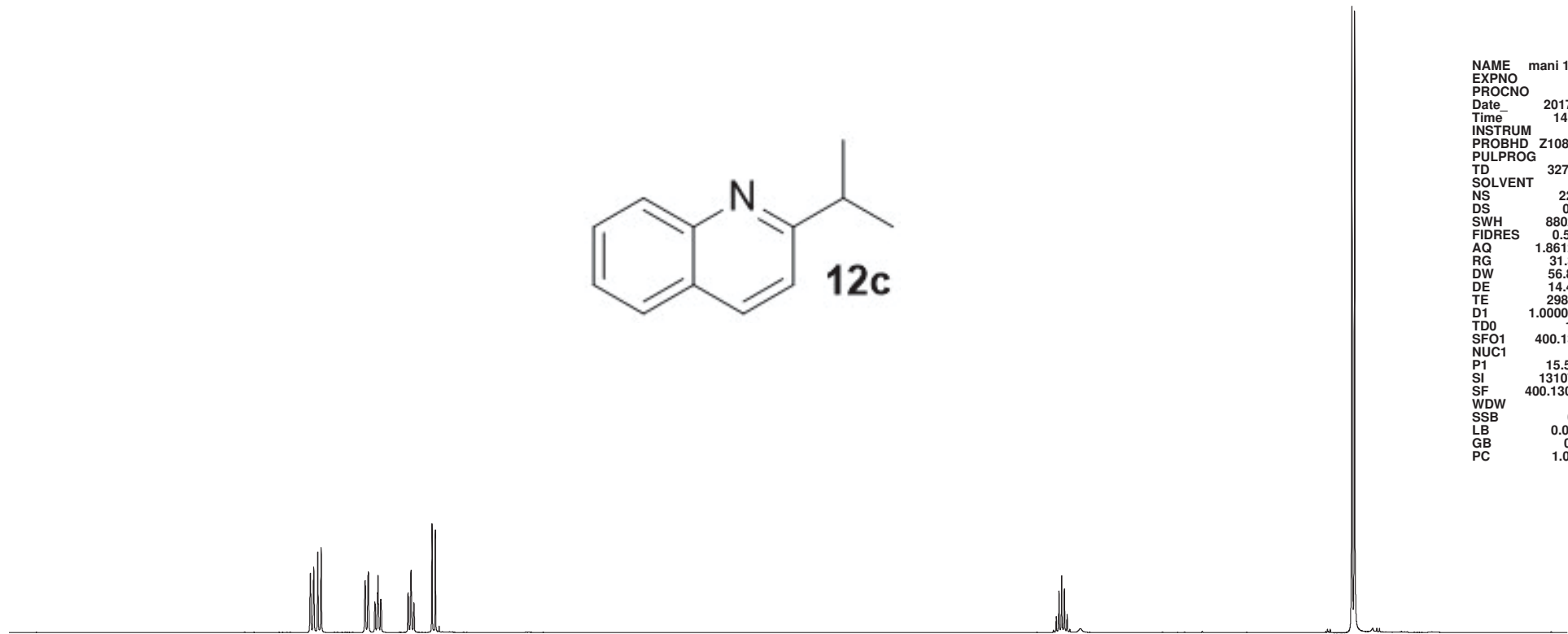
8.067
8.046
8.019
7.998
7.715
7.695
7.654
7.650
7.636
7.633
7.630
7.615
7.612
7.440
7.421
7.403
7.286
7.265

3.298
3.281
3.263
3.246
3.229
3.211
3.194

1.384
1.367



NAME mani 1-12-2017
EXPNO 1
PROCNO 1
Date_ 20171201
Time_ 14.05 h
INSTRUM spect
PROBHD Z108618_0411 (
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 22
DS 0
SWH 8802.817 Hz
FIDRES 0.537281 Hz
AQ 1.8612725 sec
RG 31.38
DW 56.800 usec
DE 14.47 usec
TE 298.5 K
D1 1.00000000 sec
TD0 1
SFO1 400.1328009 MHz
NUC1 1H
P1 15.50 usec
SI 131072
SF 400.1300178 MHz
WDW EM
SSB 0
LB 0.00 Hz
GB 0
PC 1.00



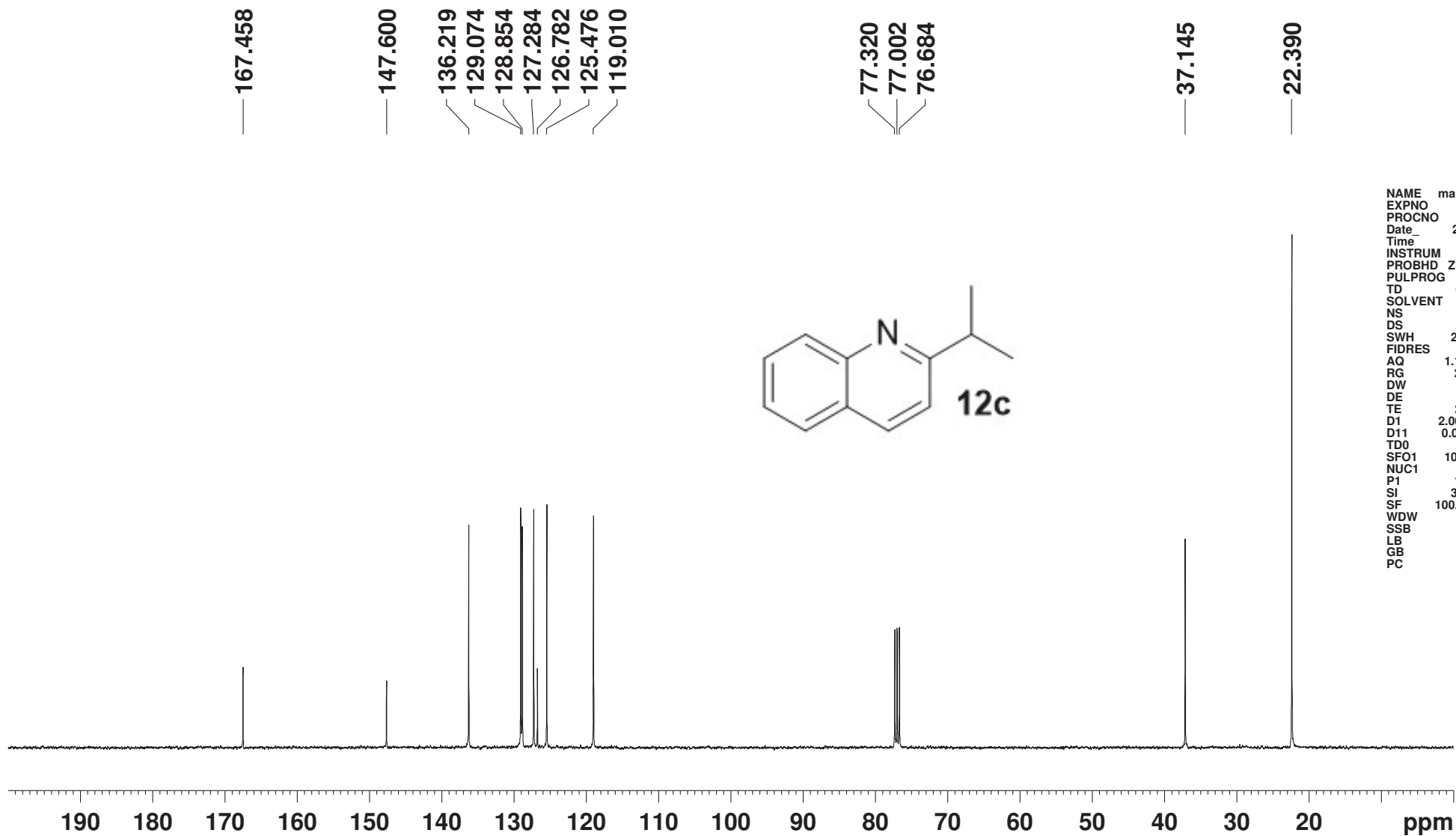
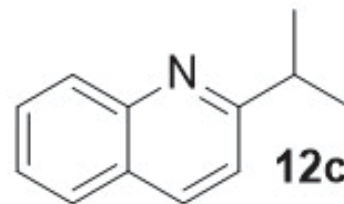
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 ppm

1.00
1.04
1.03
1.04
1.03
1.05

1.04

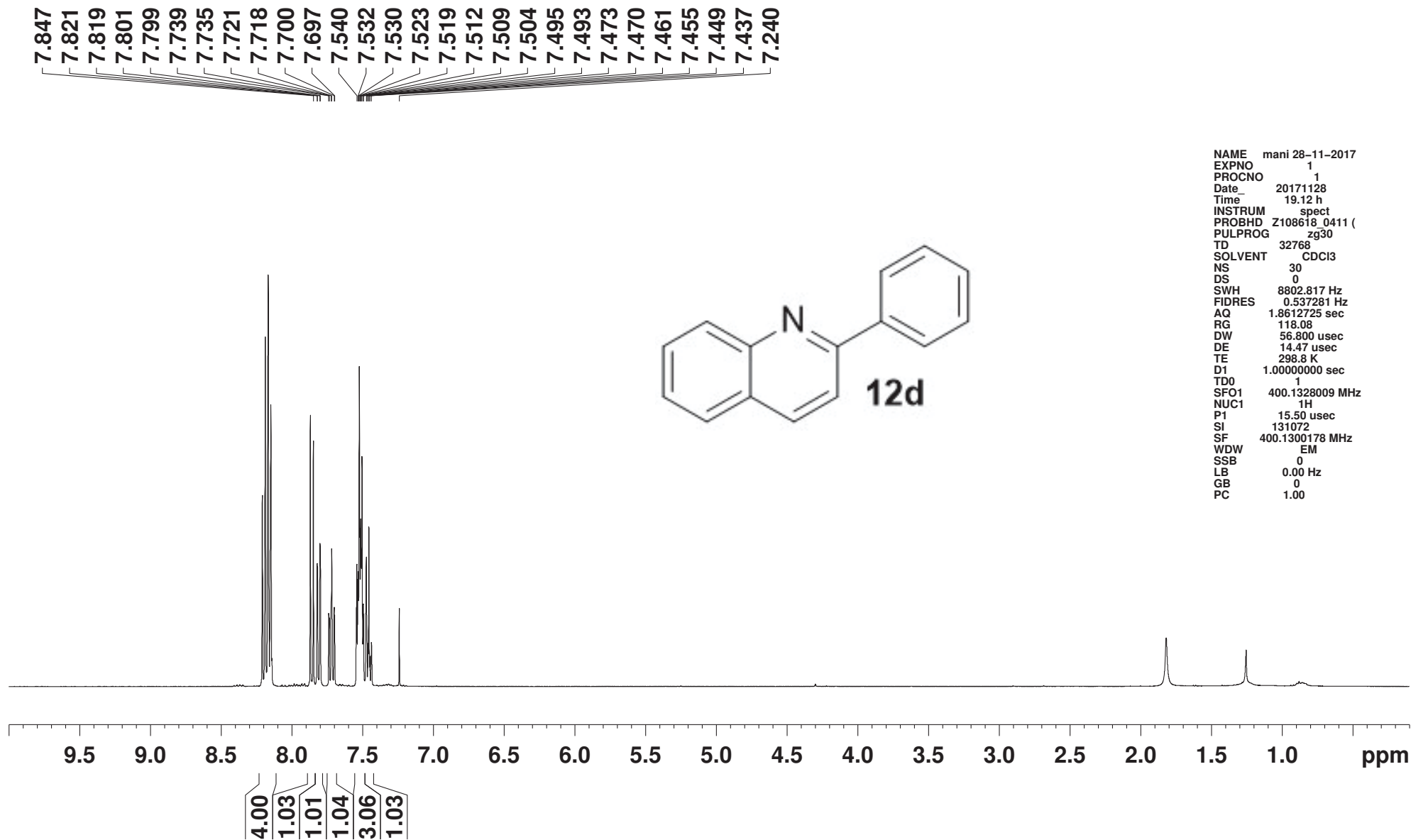
3.15
3.16

2-isopropyl quinoline, pale yellow oil, purified



NAME mani 1-12-
EXPNO 2
PROCNO 1
Date_ 2017120
Time 14.11 h
INSTRUM spect
PROBHD Z108618
PULPROG zgpg
TD 65536
SOLVENT CDCl
NS 79
DS 4
SWH 28409.09
FIDRES 0.86697
AQ 1.1534836
RG 212.49
DW 17.600 u
DE 6.50 us
TE 299.1 K
D1 2.0000000
D11 0.0300000
TD0 1
SFO1 100.62584
NUC1 13C
P1 10.50 us
SI 32768
SF 100.612785
WDW EM
SSB 0
LB 3.00 Hz
GB 0
PC 1.40

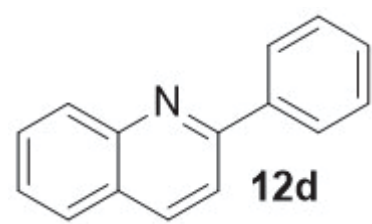
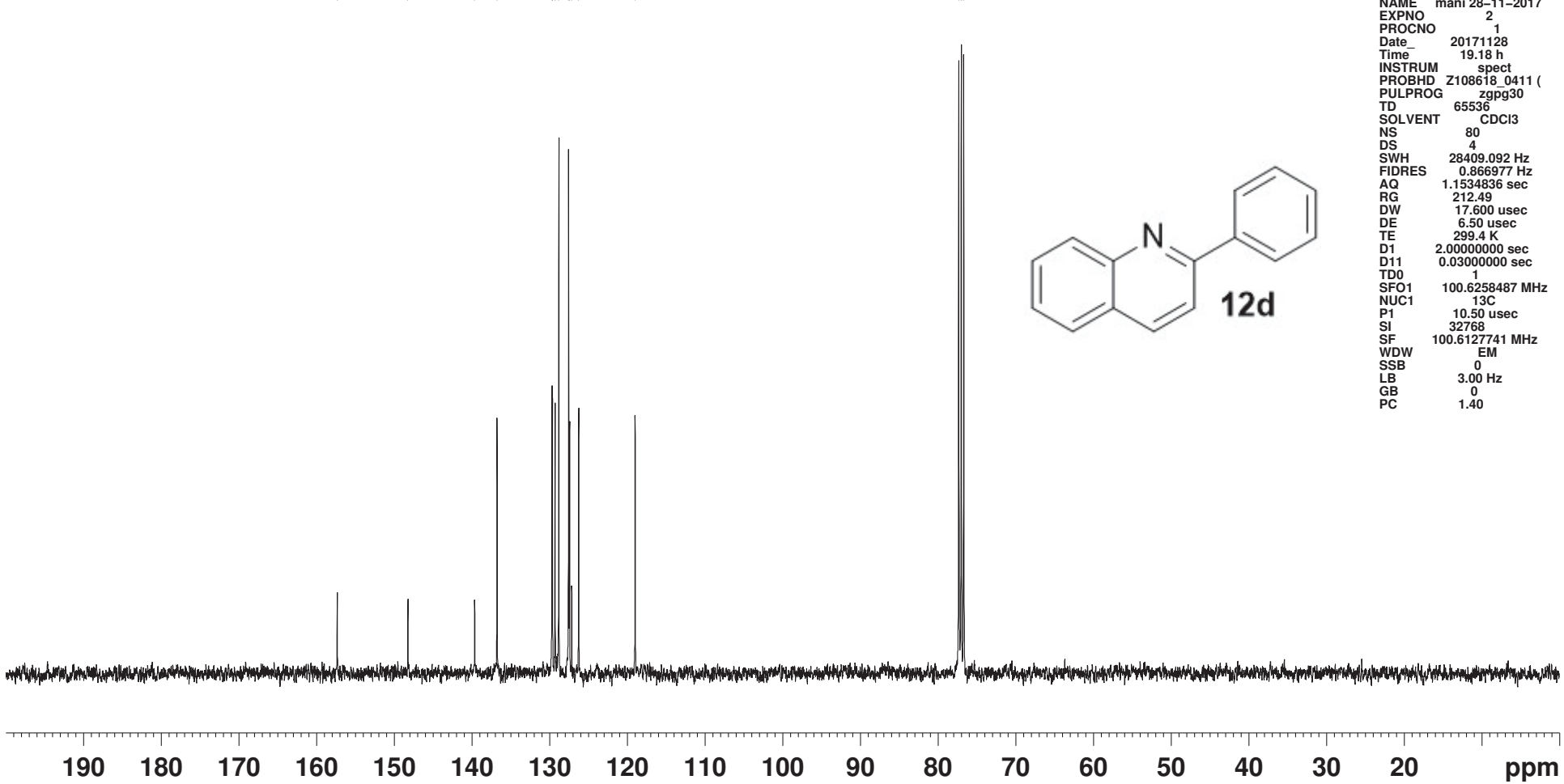
2-phenyl quinoline, purified off-white solid



2-phenyl quinoline, purified off-white solid

157.343
148.244
139.647
136.762
129.694
129.639
129.298
128.815
127.558
127.432
127.159
126.258
118.990

77.326
77.008
76.691



NAME mani 28-11-2017
EXPNO 2
PROCNO 1
Date_ 20171128
Time 19.18 h
INSTRUM spect
PROBHD Z108618_0411 (
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 80
DS 4
SWH 28409.092 Hz
FIDRES 0.866977 Hz
AQ 1.1534836 sec
RG 212.49
DW 17.600 usec
DE 6.50 usec
TE 299.4 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1
SFO1 100.6258487 MHz
NUC1 13C
P1 10.50 usec
SI 32768
SF 100.6127741 MHz
WDW EM
SSB 0
LB 3.00 Hz
GB 0
PC 1.40