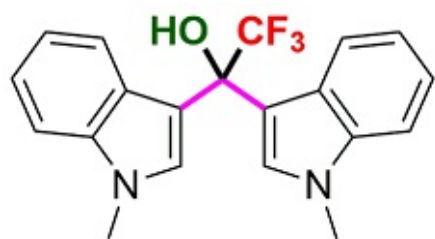


Supplementary Information

Copies of NMR Spectra

¹H NMR (400 MHz, acetone-d₆)



3aa

7.439
7.419
7.358
7.337
7.101
7.081
7.063
6.849
6.829
6.811

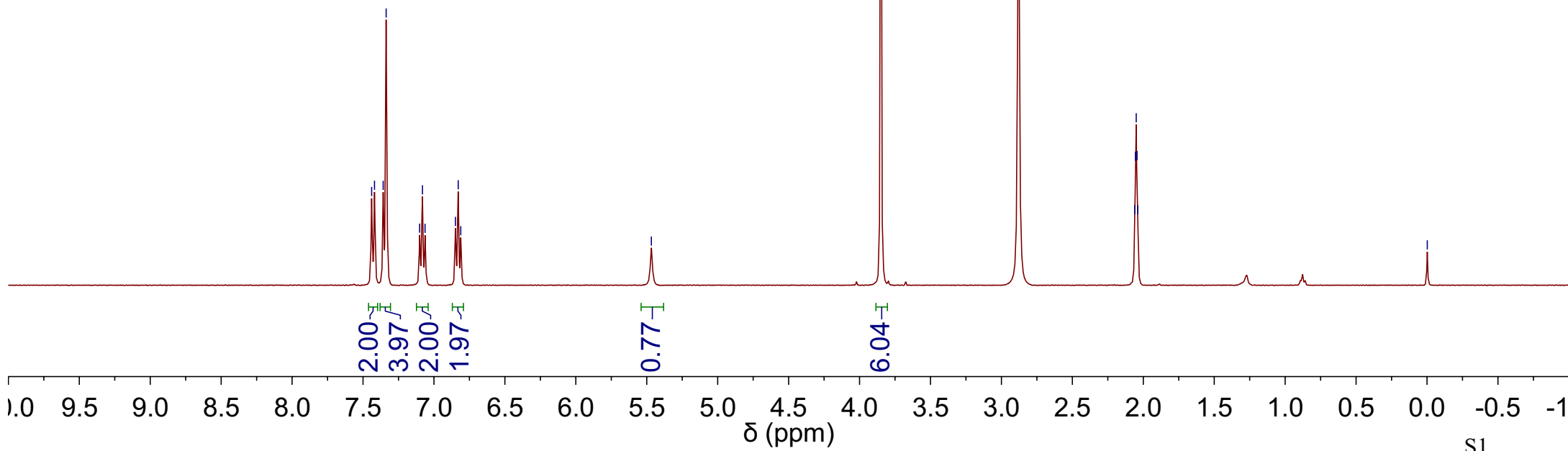
5.468

3.850

2.880

2.061
2.055
2.050
2.044
2.039

-0.002



¹³C NMR (126 MHz, acetone-d₆)



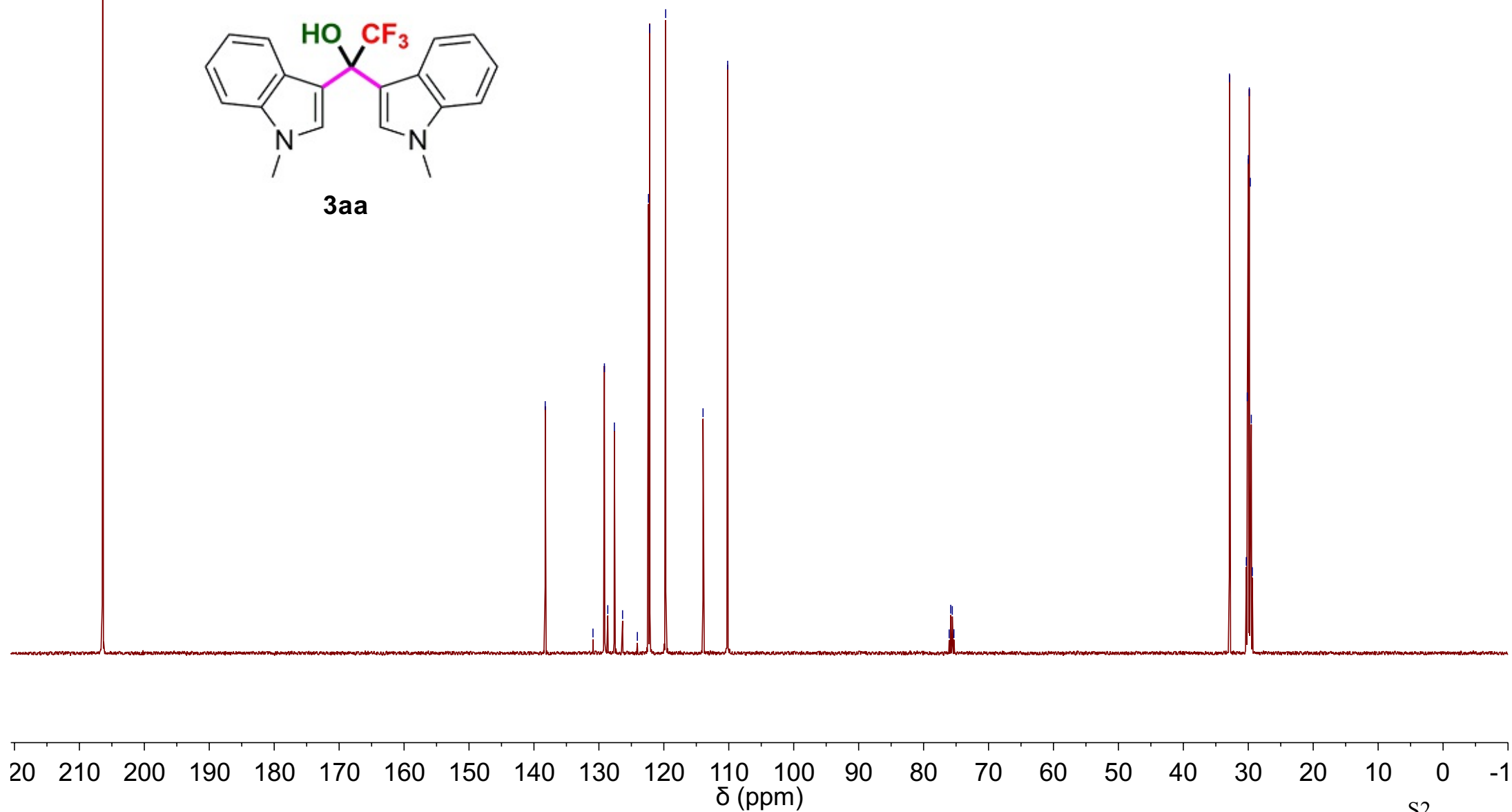
3aa

206.42

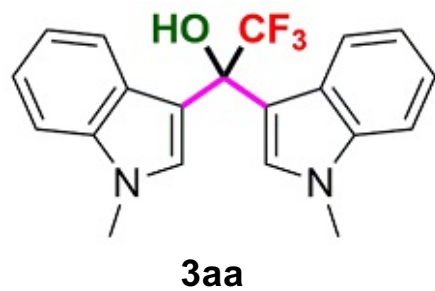
138.27
130.91
129.15
128.63
127.62
126.35
124.08
122.36
122.17
119.72
113.96
110.17

76.06
75.82
75.58
75.33

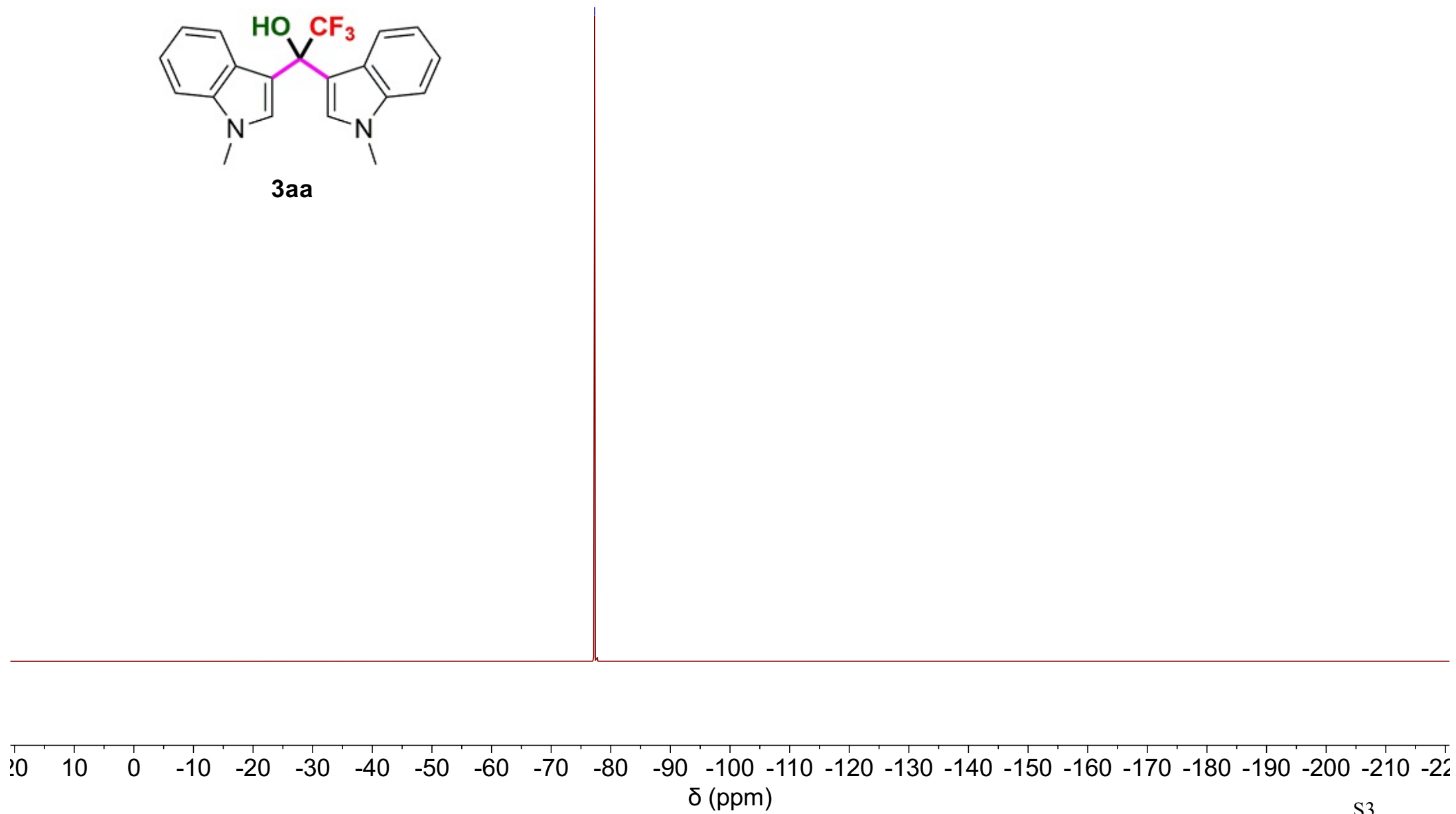
32.90
30.30
30.15
29.99
29.84
29.69
29.53
29.38



^{19}F NMR (471 MHz, acetone- d_6)

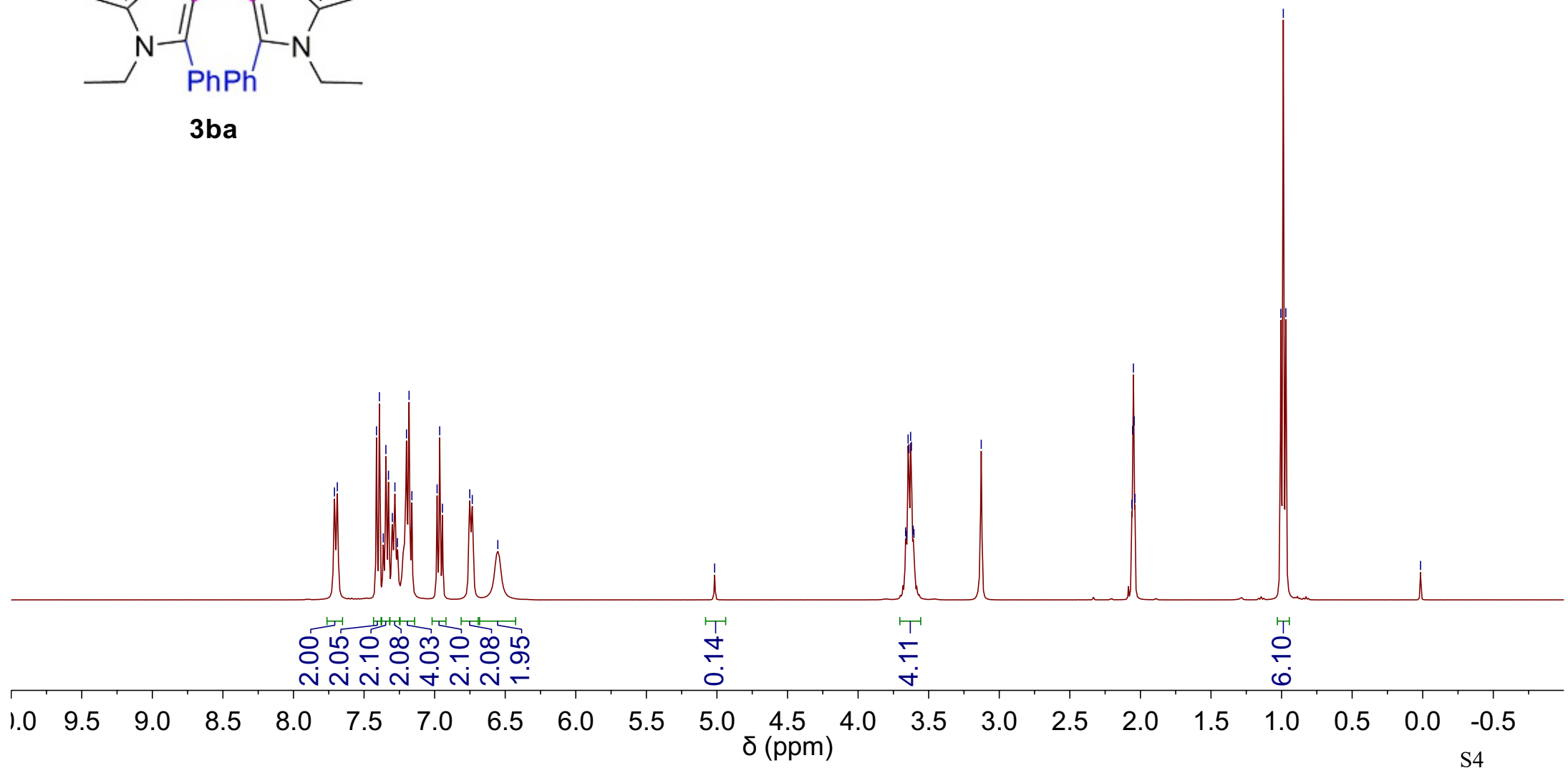
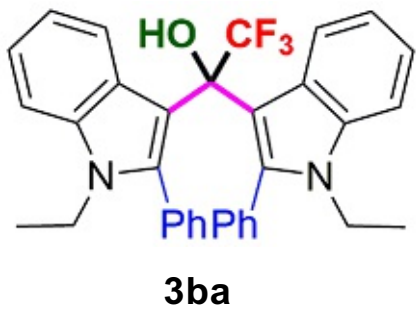


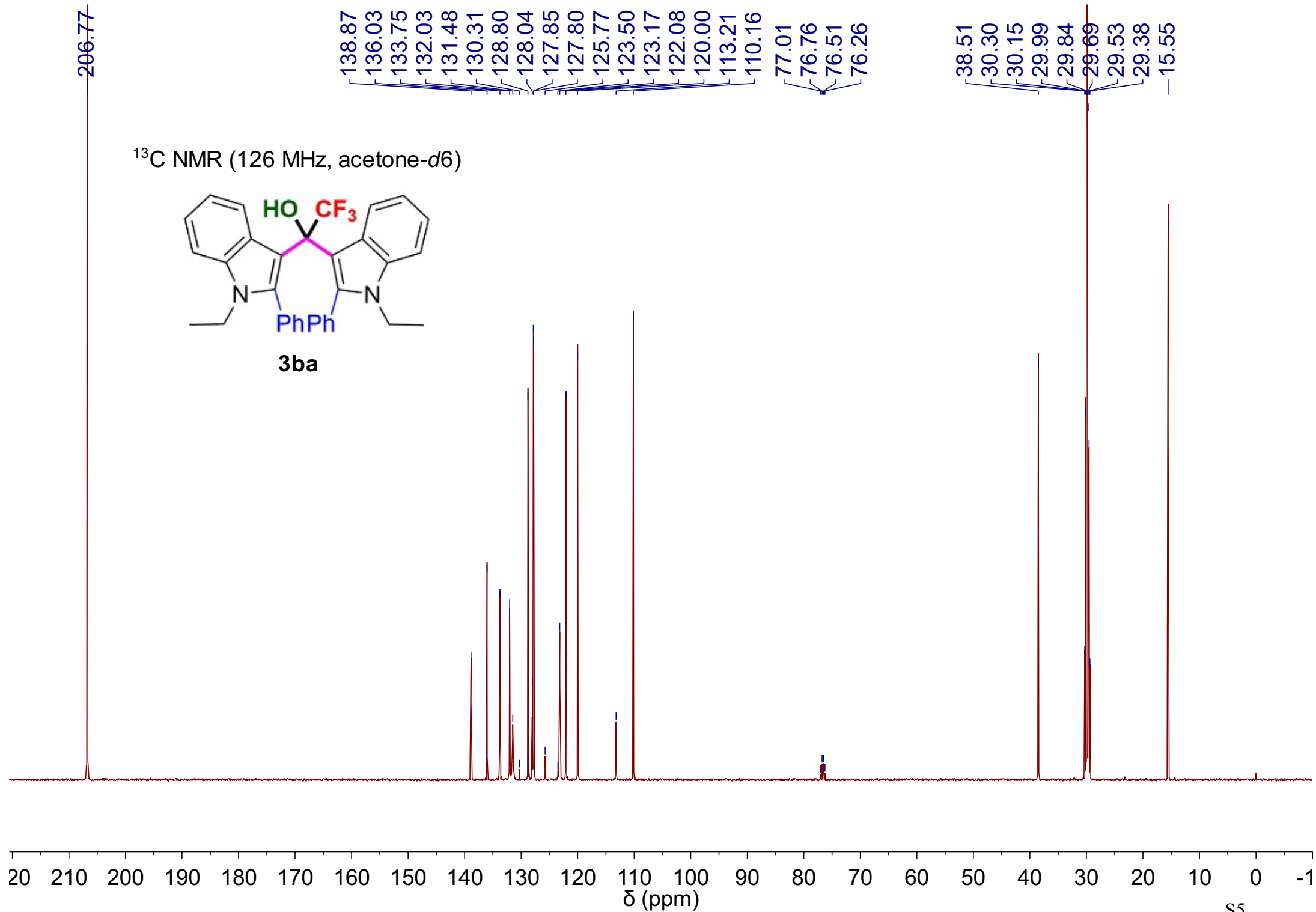
--77.31



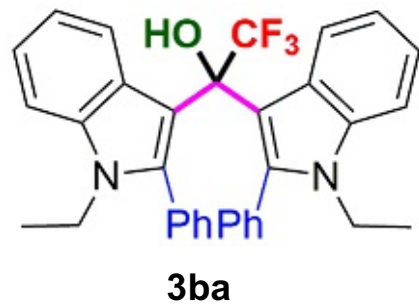
7.710 7.689 7.412 7.391 7.364 7.345 7.327 7.300 7.281 7.264 7.199 7.181 7.161 6.983 6.964 6.945 6.751 6.733 6.552 5.017 3.664 3.657 3.646 3.640 3.628 3.622 3.610 3.605 ~3.128 2.060 2.055 2.050 2.044 2.039 1.005 0.988 0.970 -0.015

¹H NMR (400 MHz, acetone-d₆)

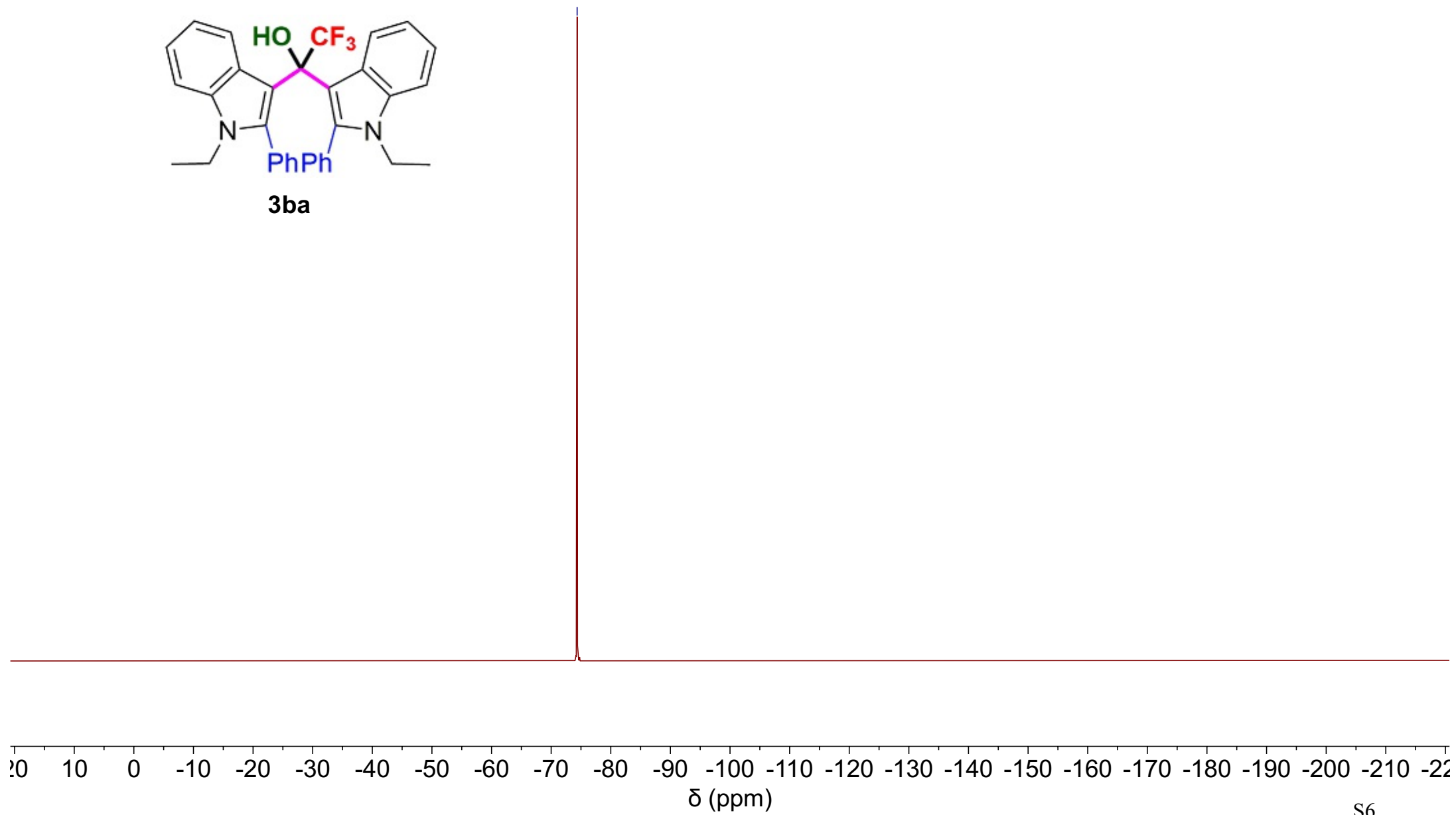




^{19}F NMR (471 MHz, acetone- d_6)



--74.35



7.354
7.247
7.227
7.202
6.948
6.927

-3.801

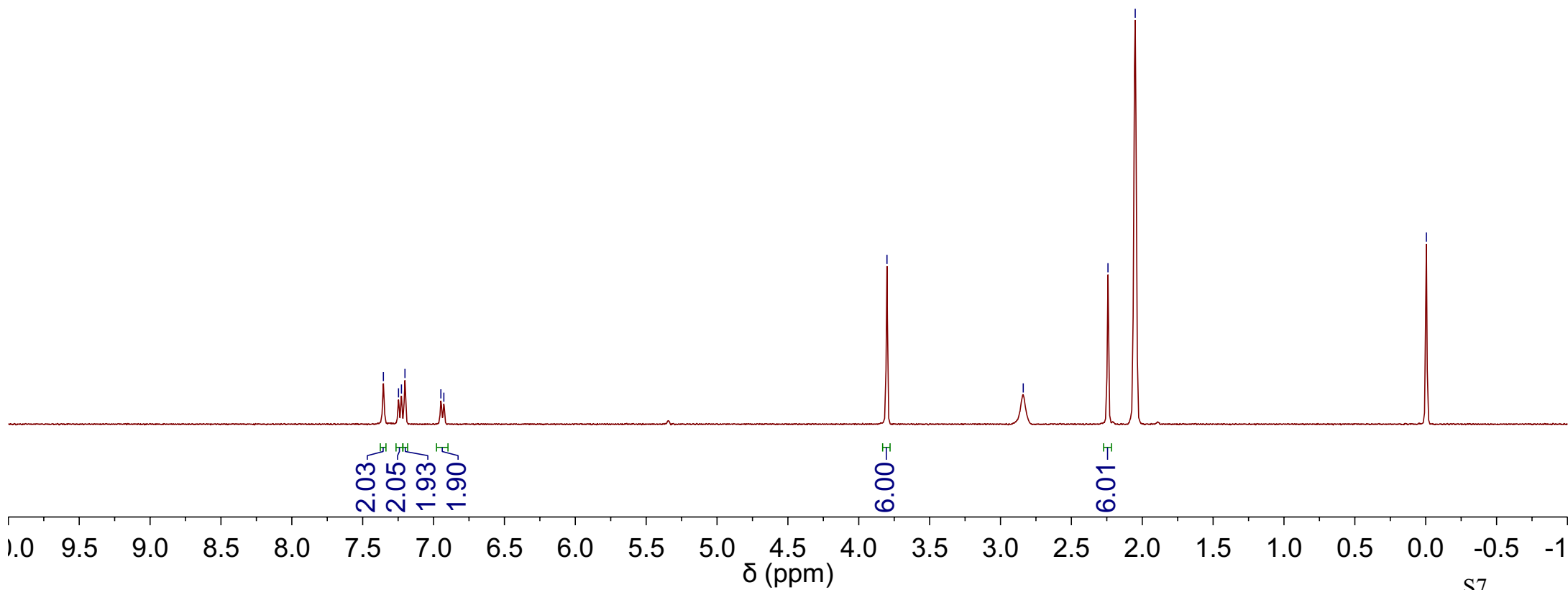
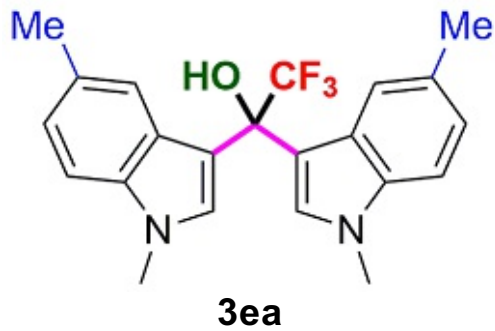
-2.840

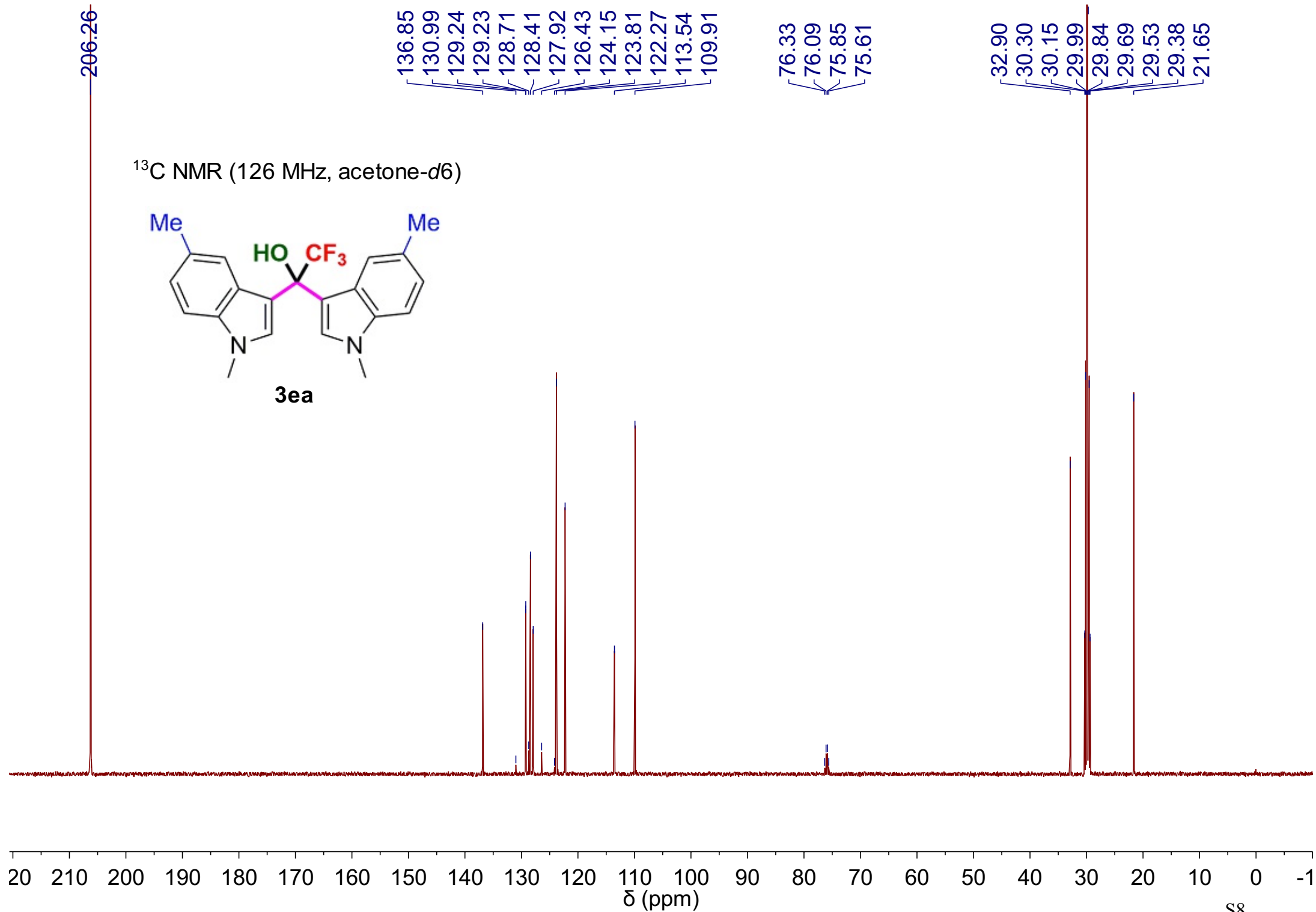
-2.242

-2.050

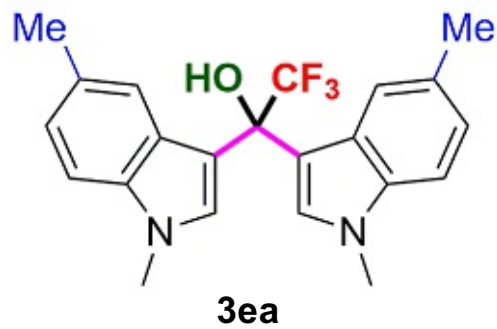
-0.005

¹H NMR (400 MHz, acetone-*d*₆)

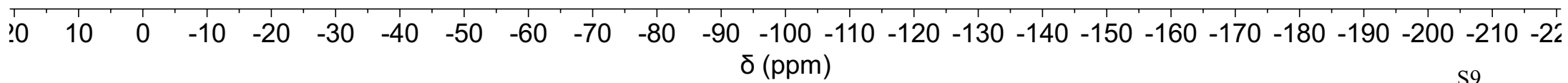




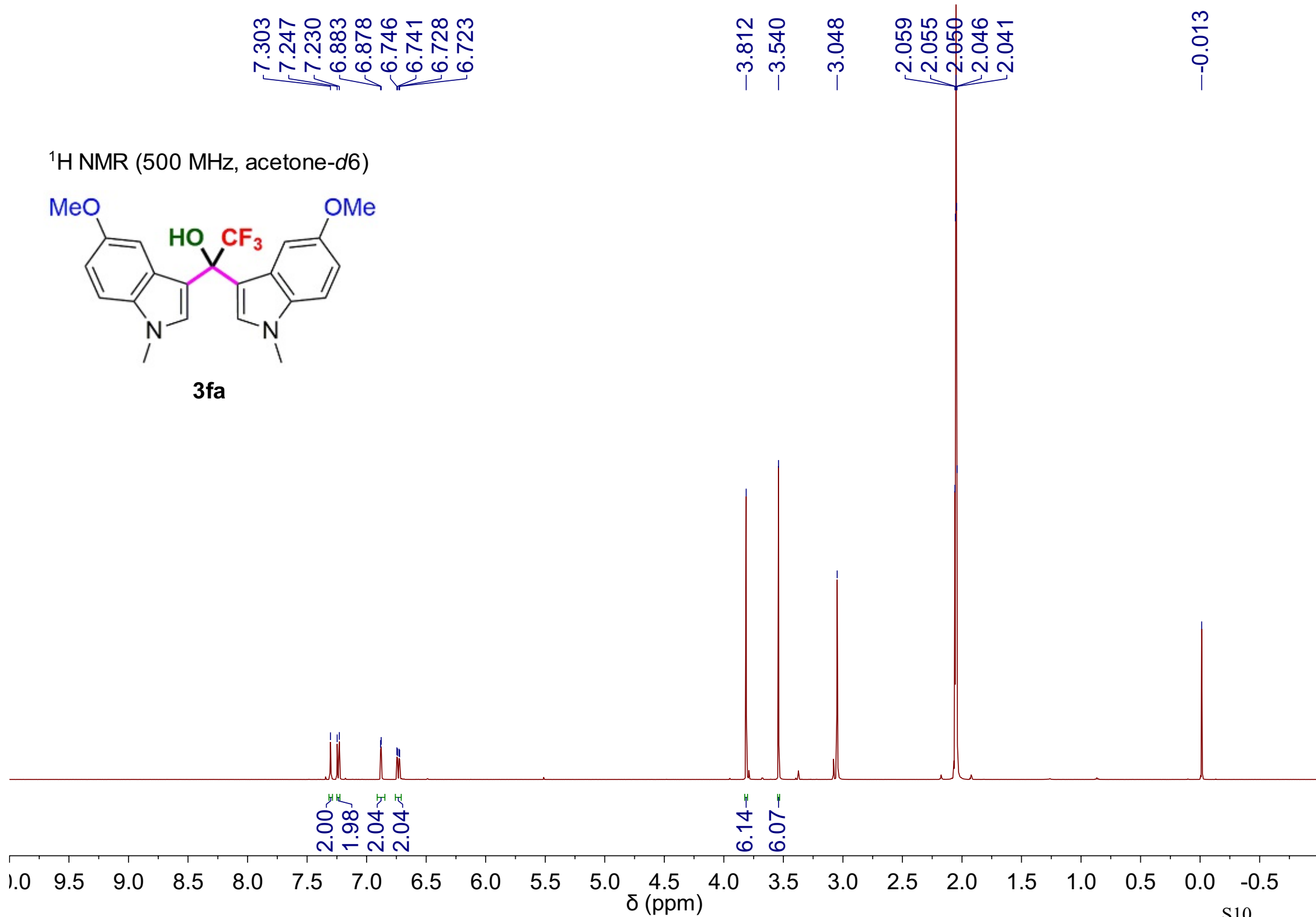
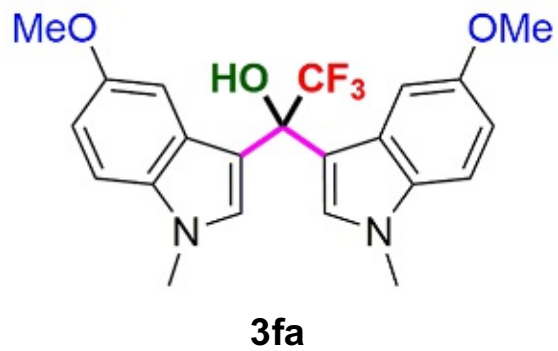
^{19}F NMR (471 MHz, acetone- d_6)

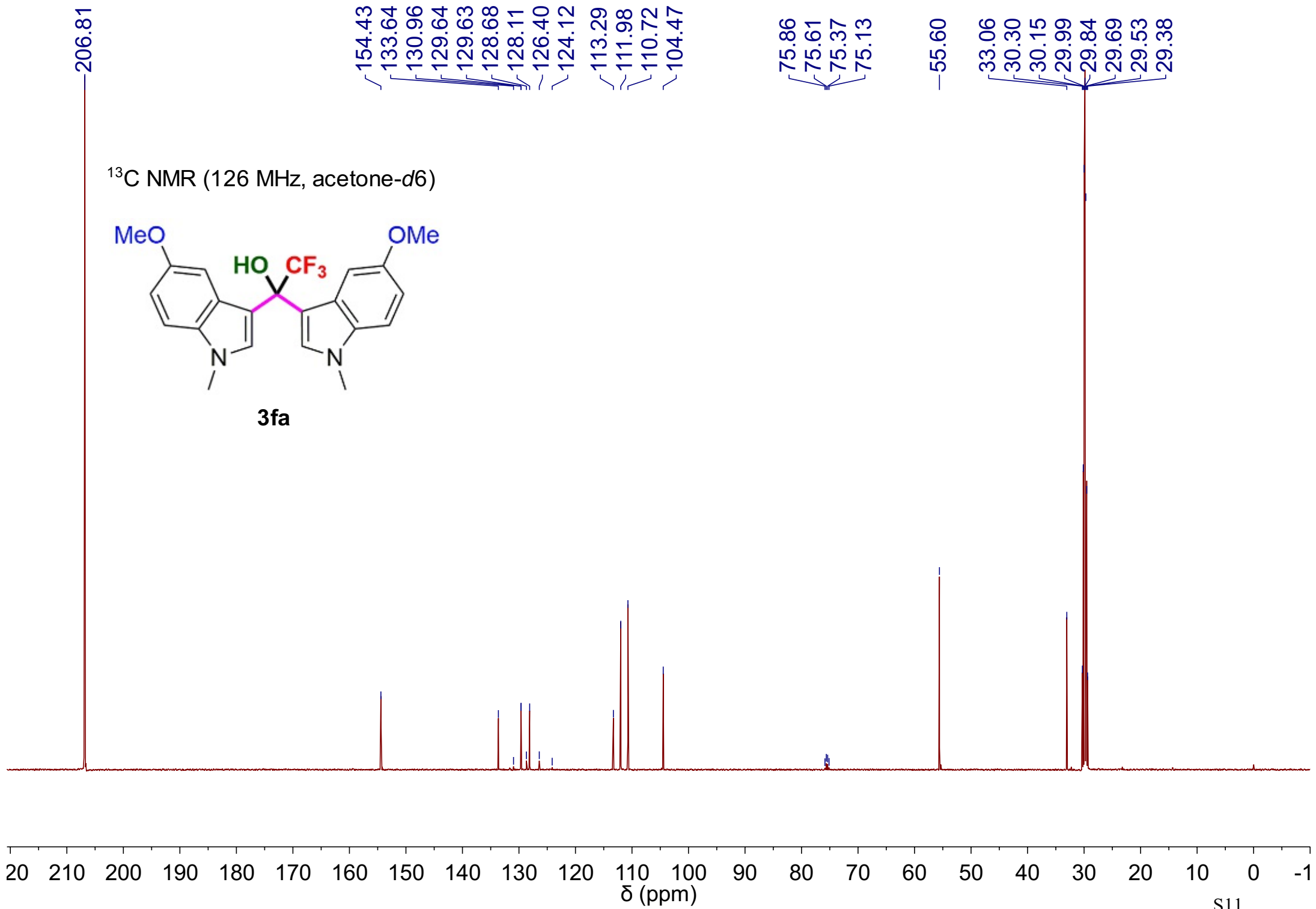


--77.31

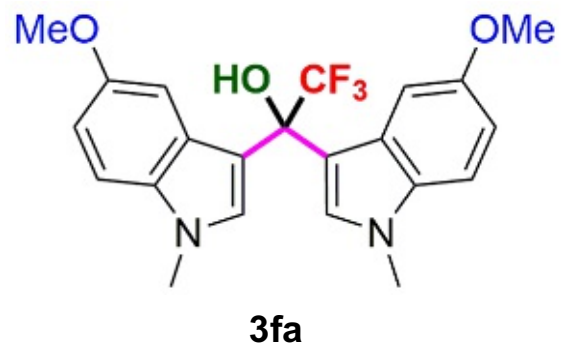


¹H NMR (500 MHz, acetone-*d*₆)

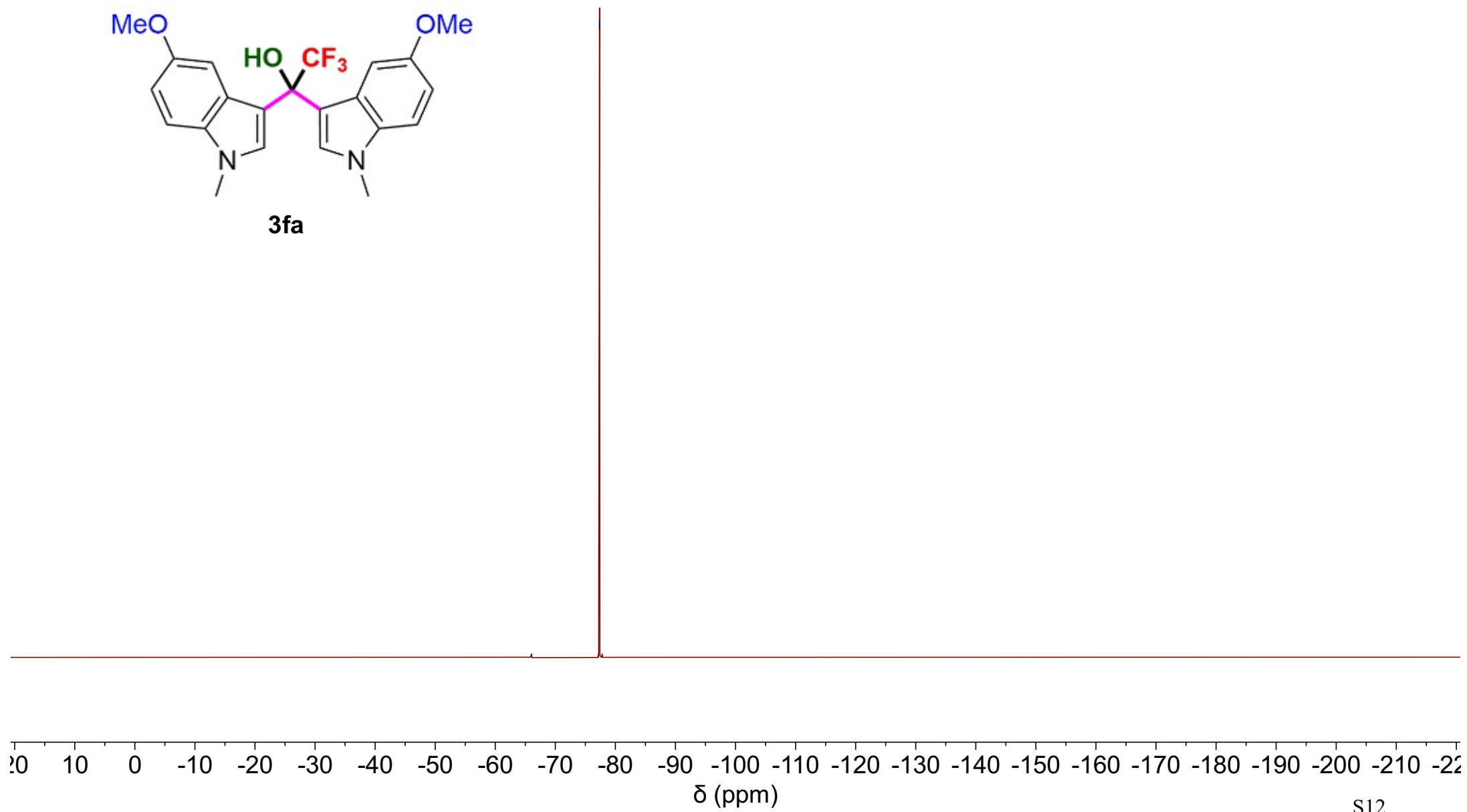




^{19}F NMR (471 MHz, acetone- d_6)



--77.36



7.286
7.266
7.231
7.132
6.677
6.657

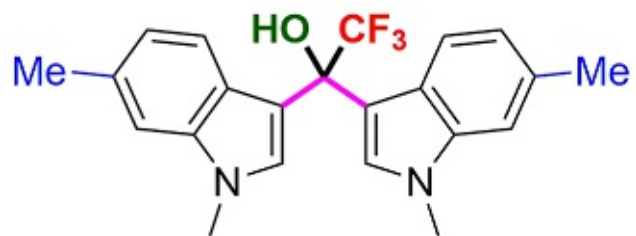
-5.342

-3.803

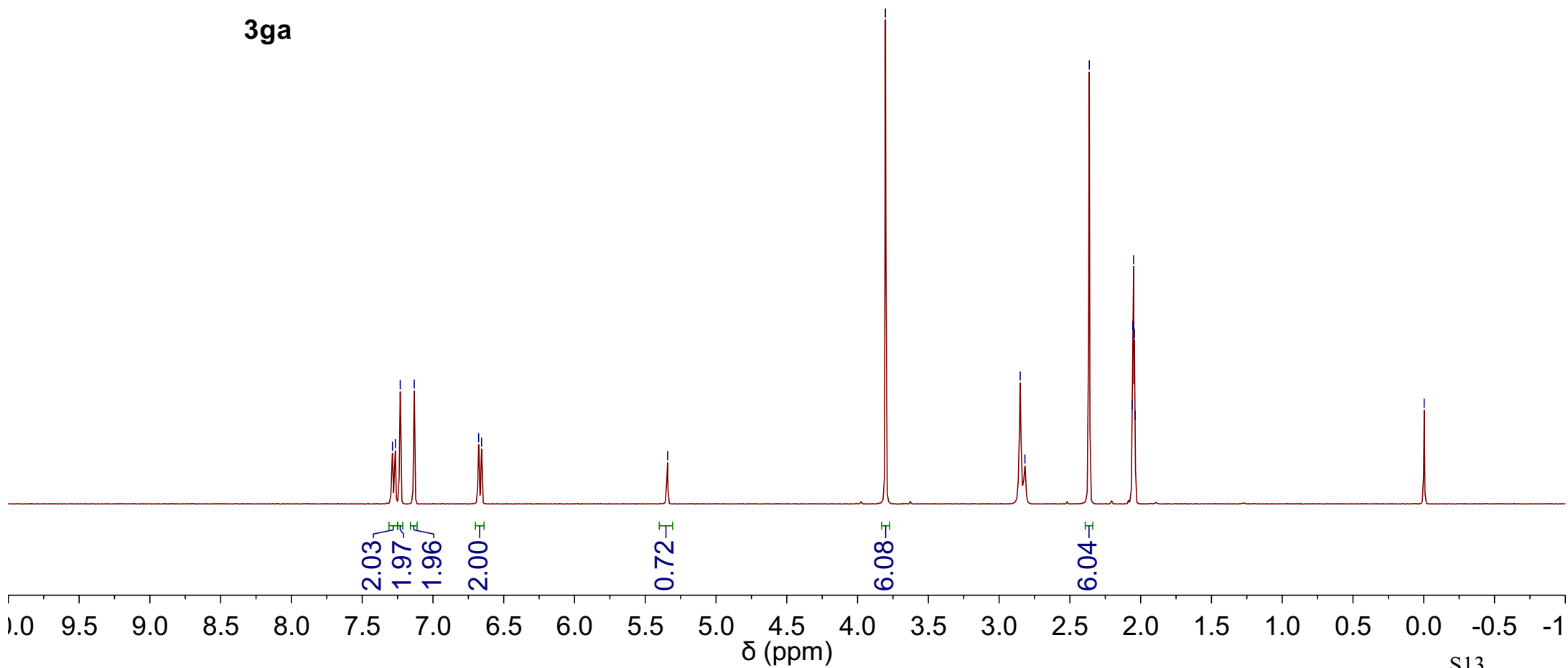
2.851
2.818
2.363
2.061
2.055
2.050
2.044
2.039

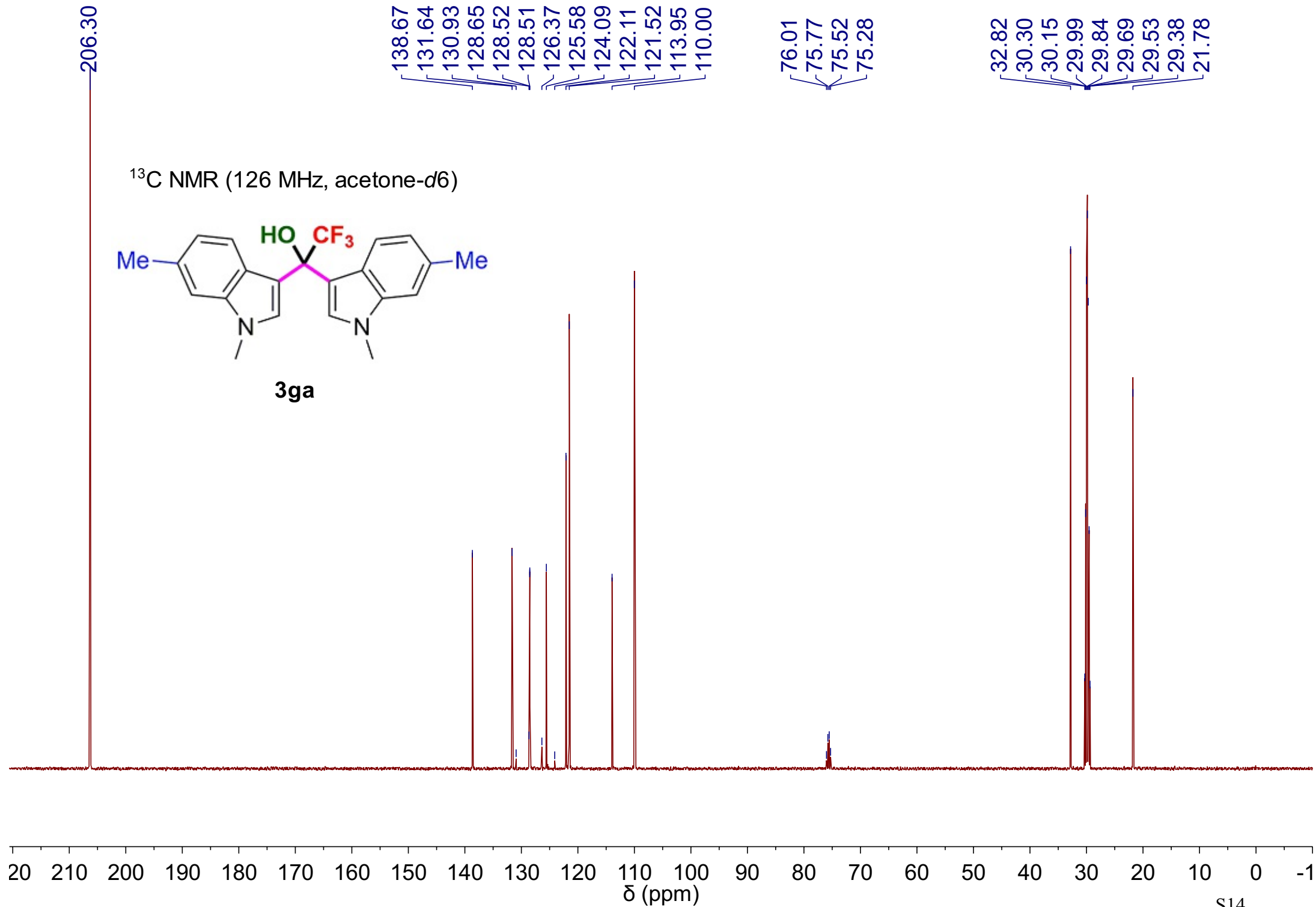
-0.003

¹H NMR (400 MHz, acetone-*d*₆)

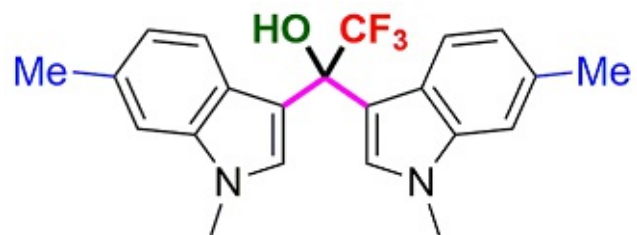


3ga



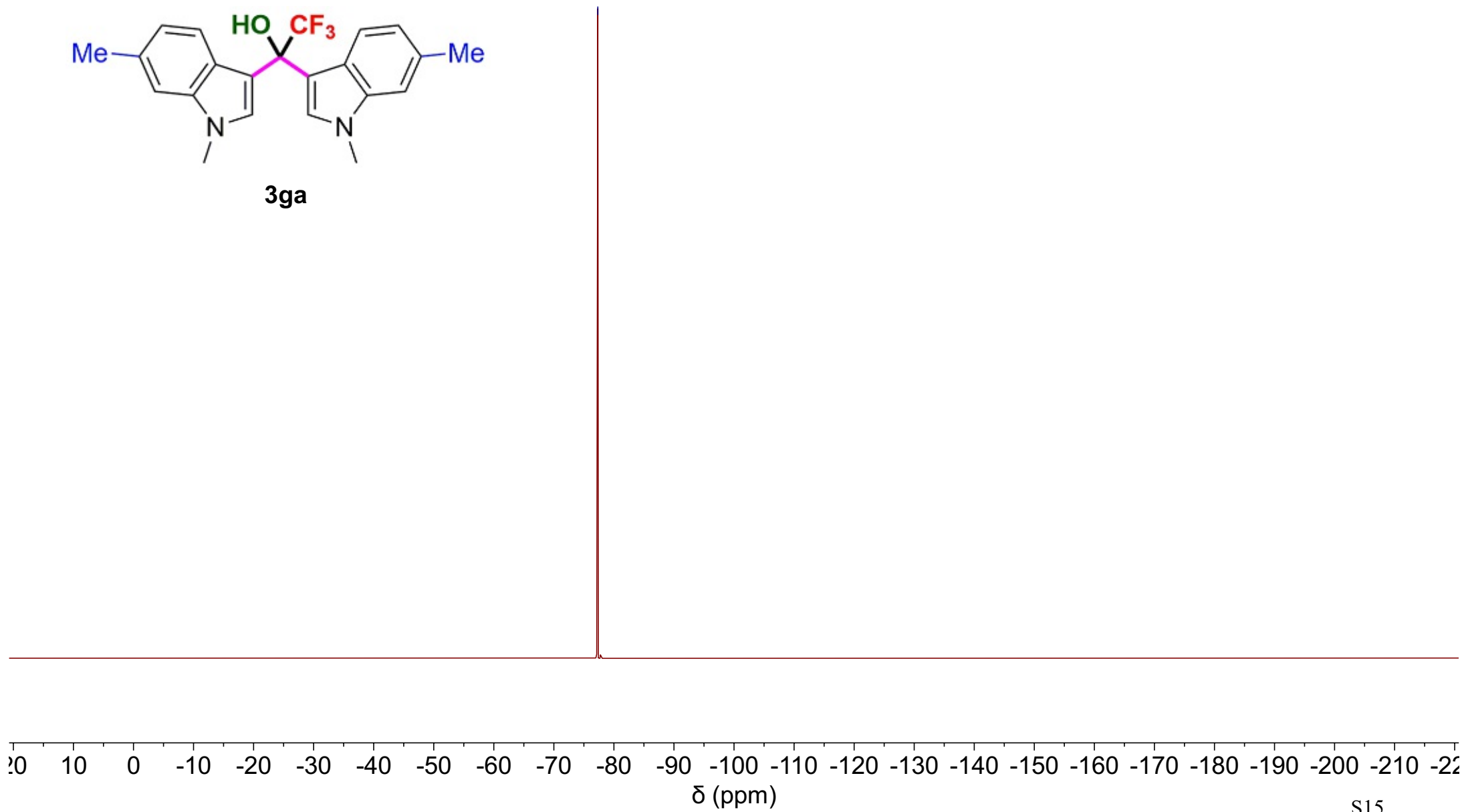


^{19}F NMR (471 MHz, acetone- d_6)

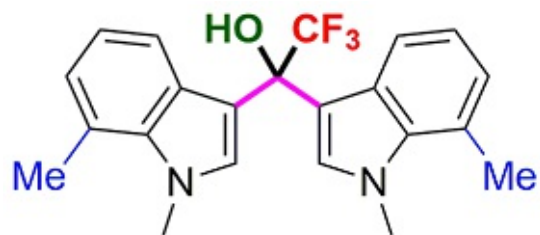


3ga

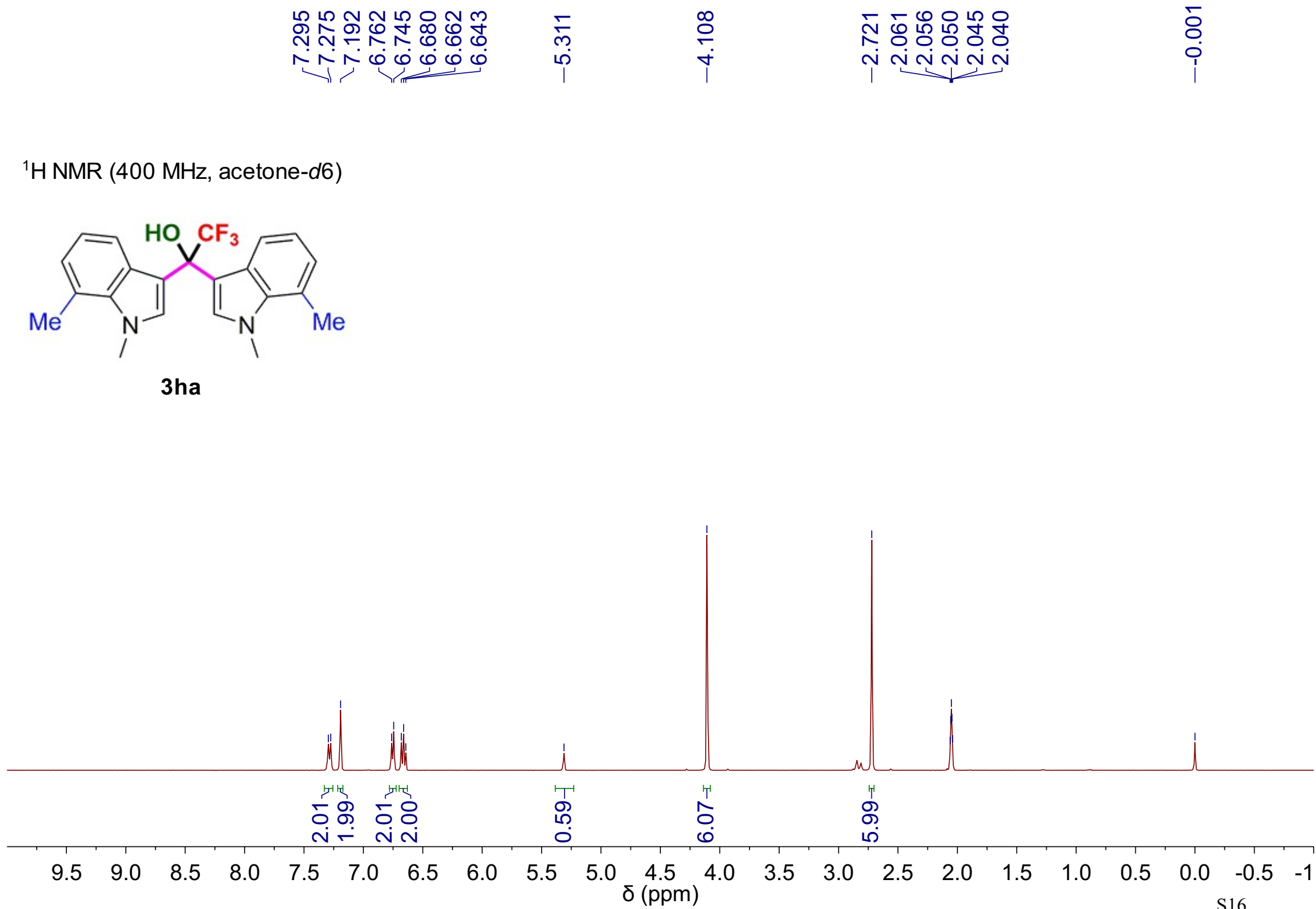
--77.32



¹H NMR (400 MHz, acetone-d₆)



3ha



-206.30

136.92
130.89
130.71
130.70
128.76
128.61
126.33
124.75
124.05
121.88
120.61
119.88
113.41

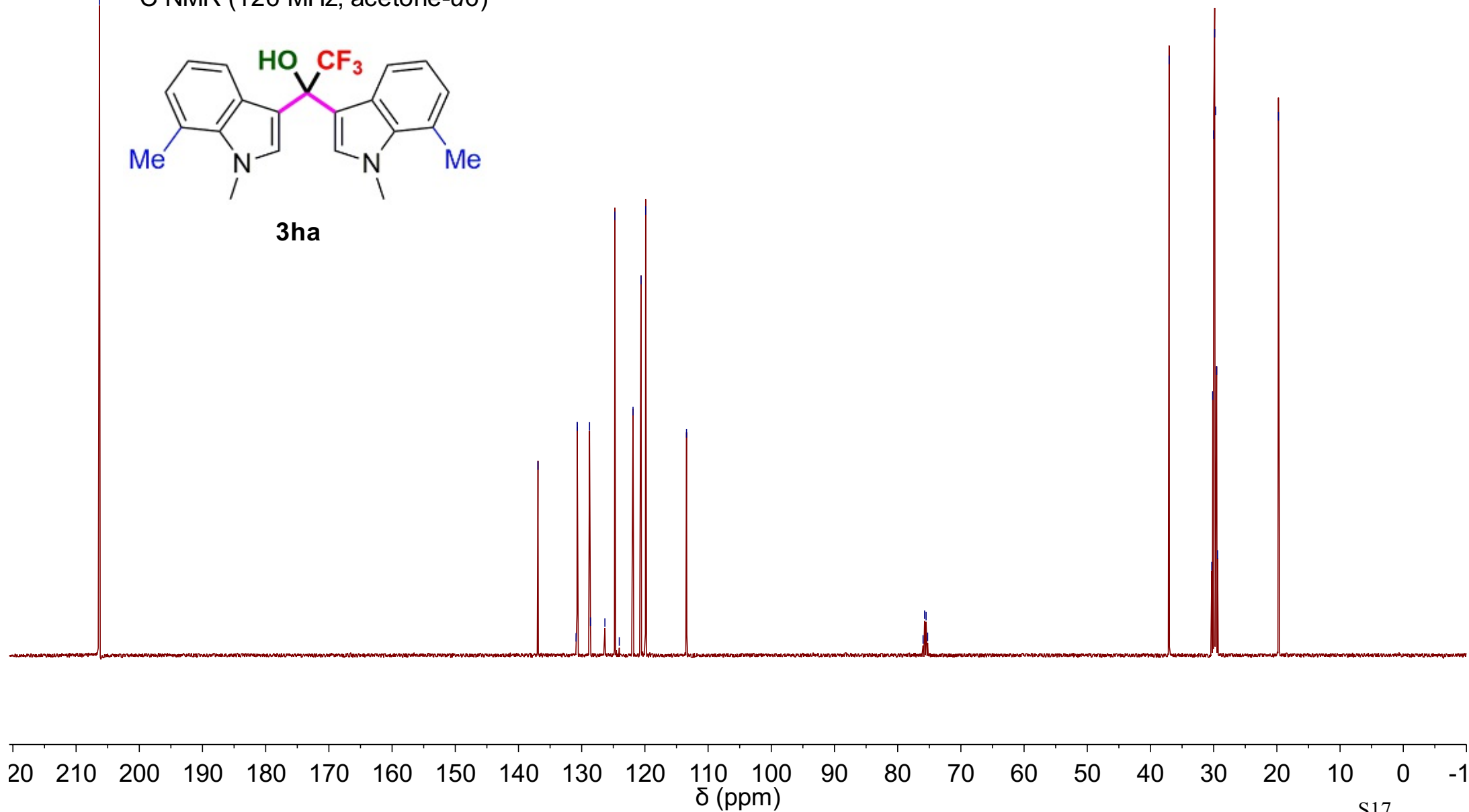
75.99
75.74
75.50
75.26

37.05
30.30
30.15
29.99
29.84
29.69
29.53
29.38
-19.75

¹³C NMR (126 MHz, acetone-*d*₆)



3ha

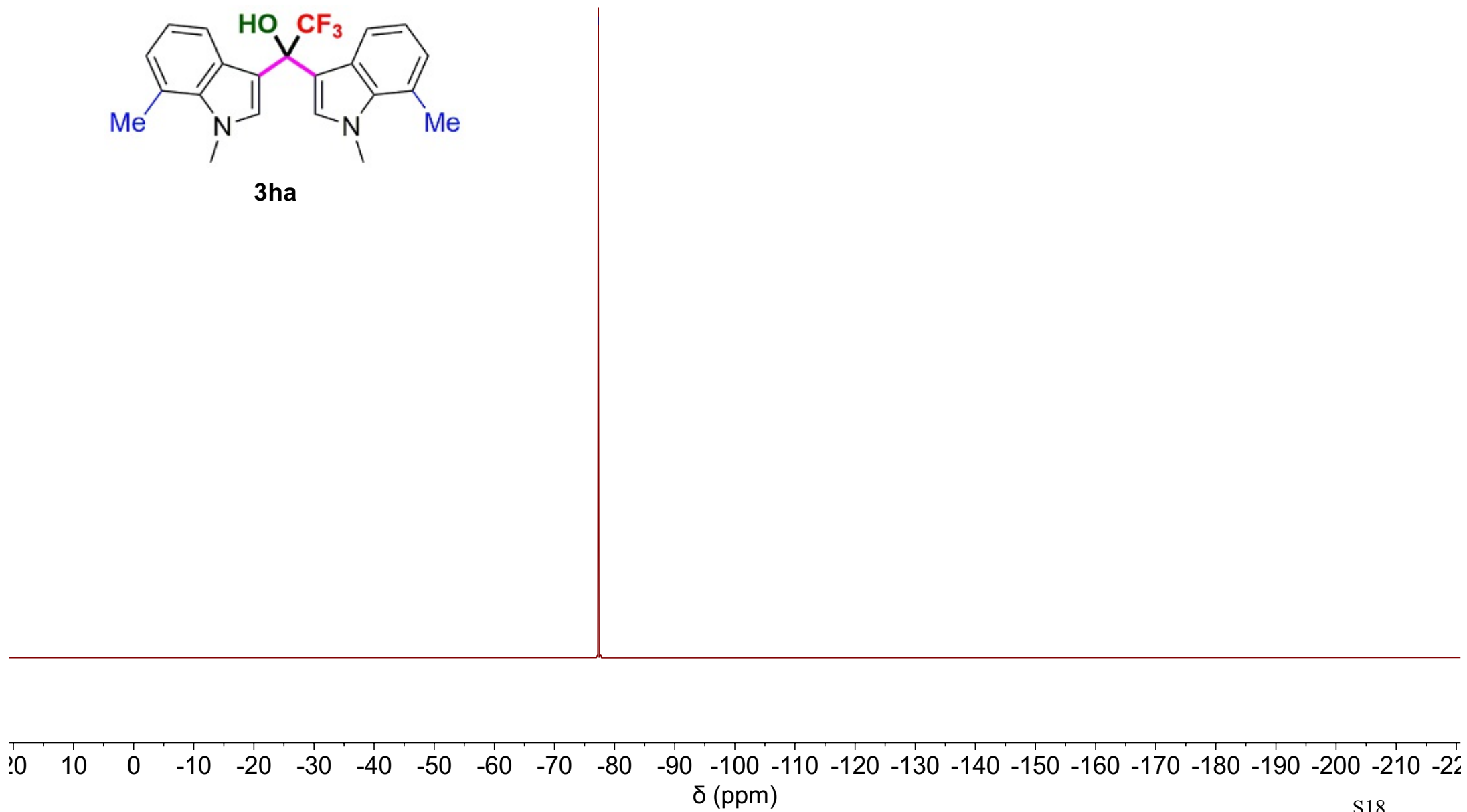


^{19}F NMR (471 MHz, acetone- d_6)

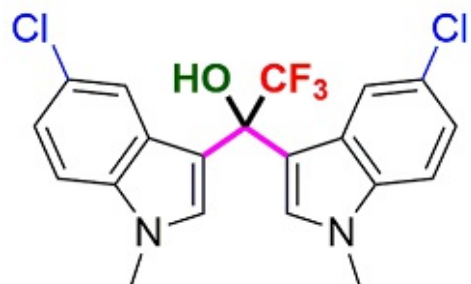


3ha

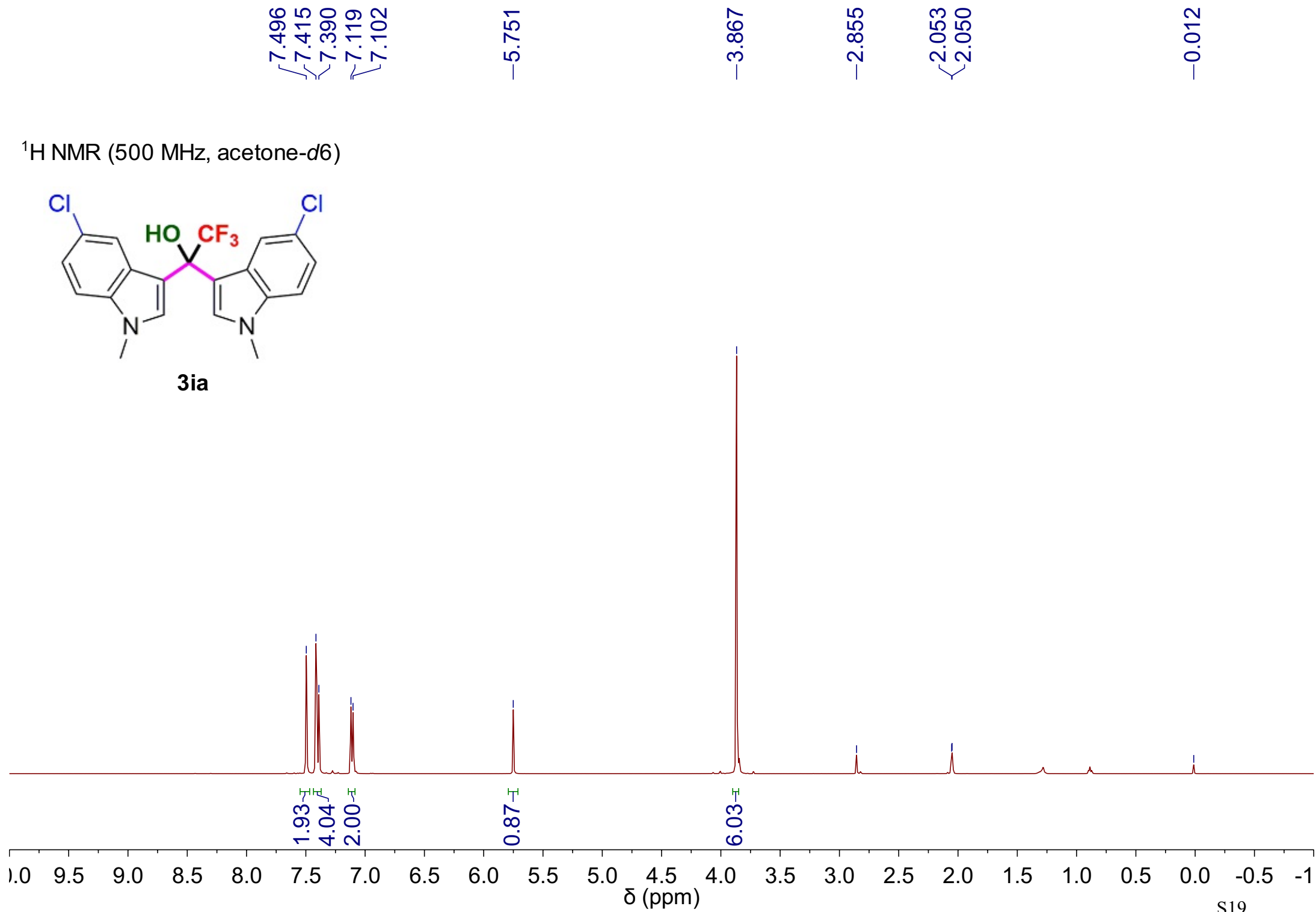
--77.27

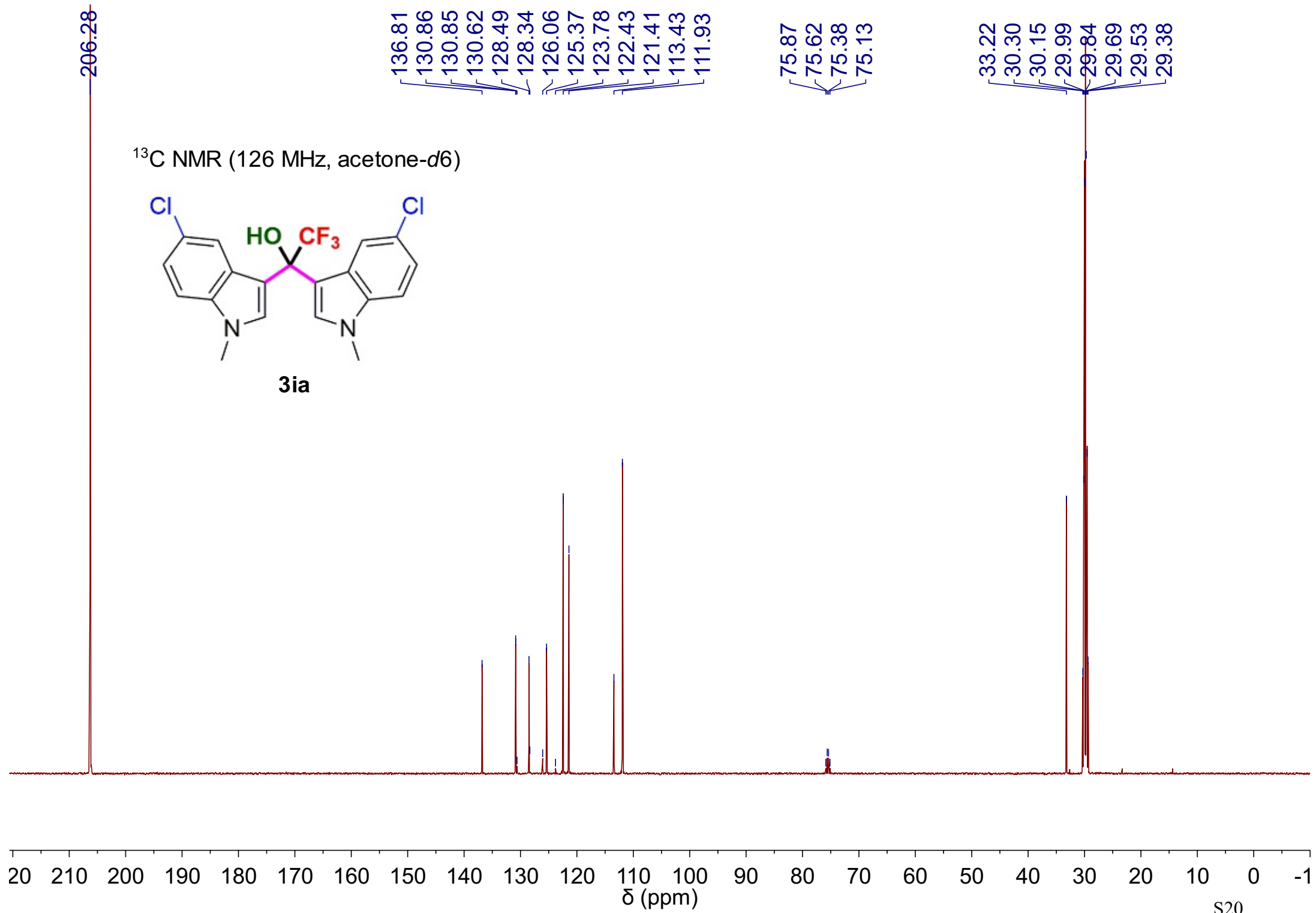


^1H NMR (500 MHz, acetone- d_6)

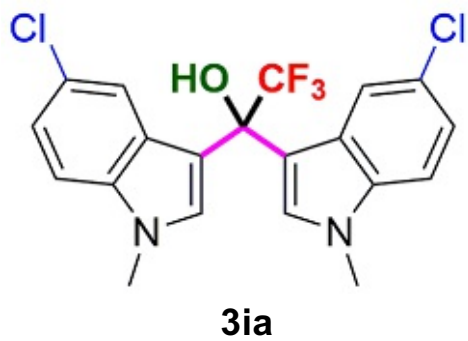


3ia

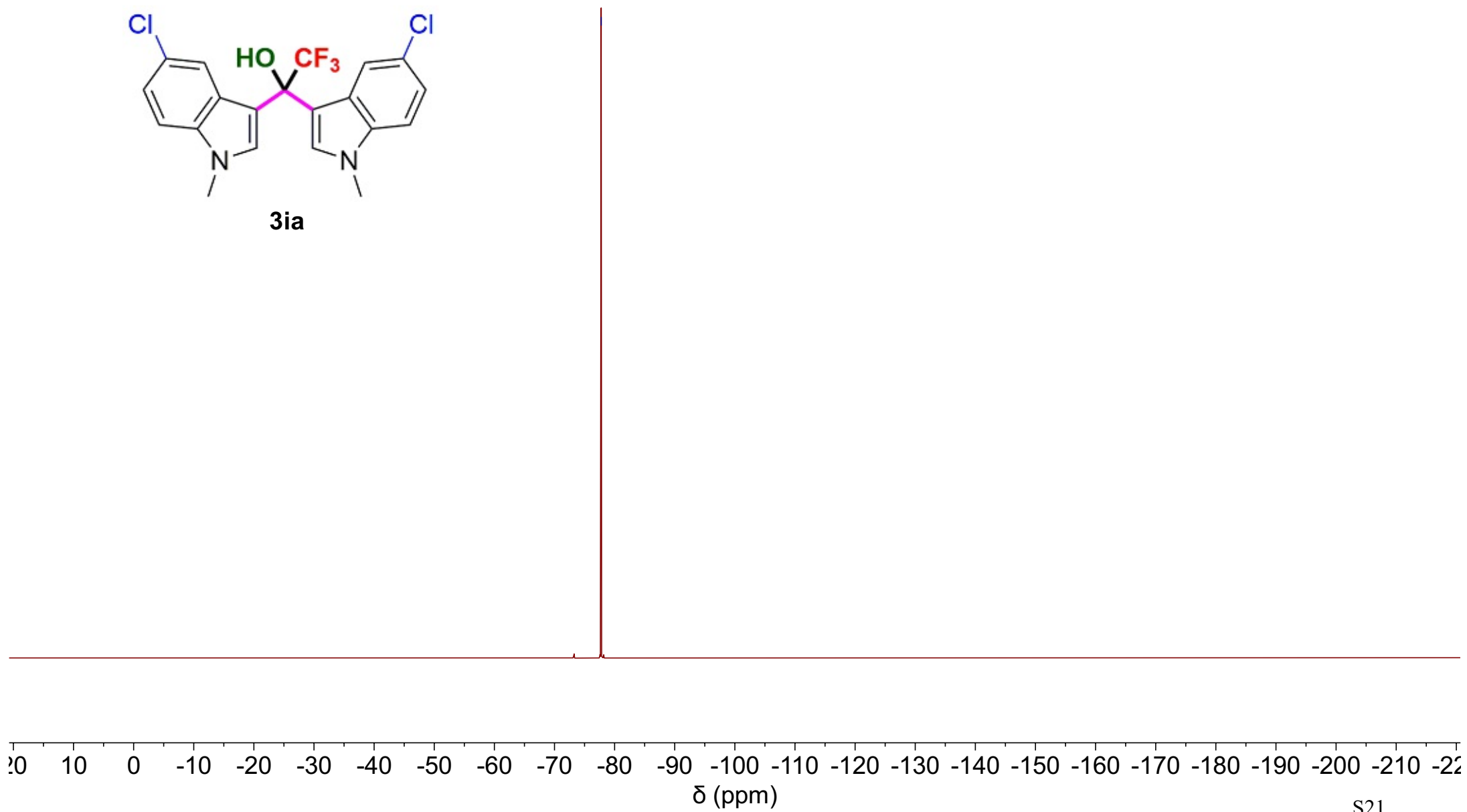




^{19}F NMR (471 MHz, acetone- d_6)



---77.77



7.667
7.664
7.386
7.365
7.250
7.245
7.228
7.223

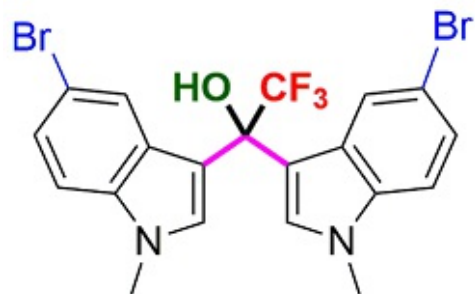
5.783

3.871

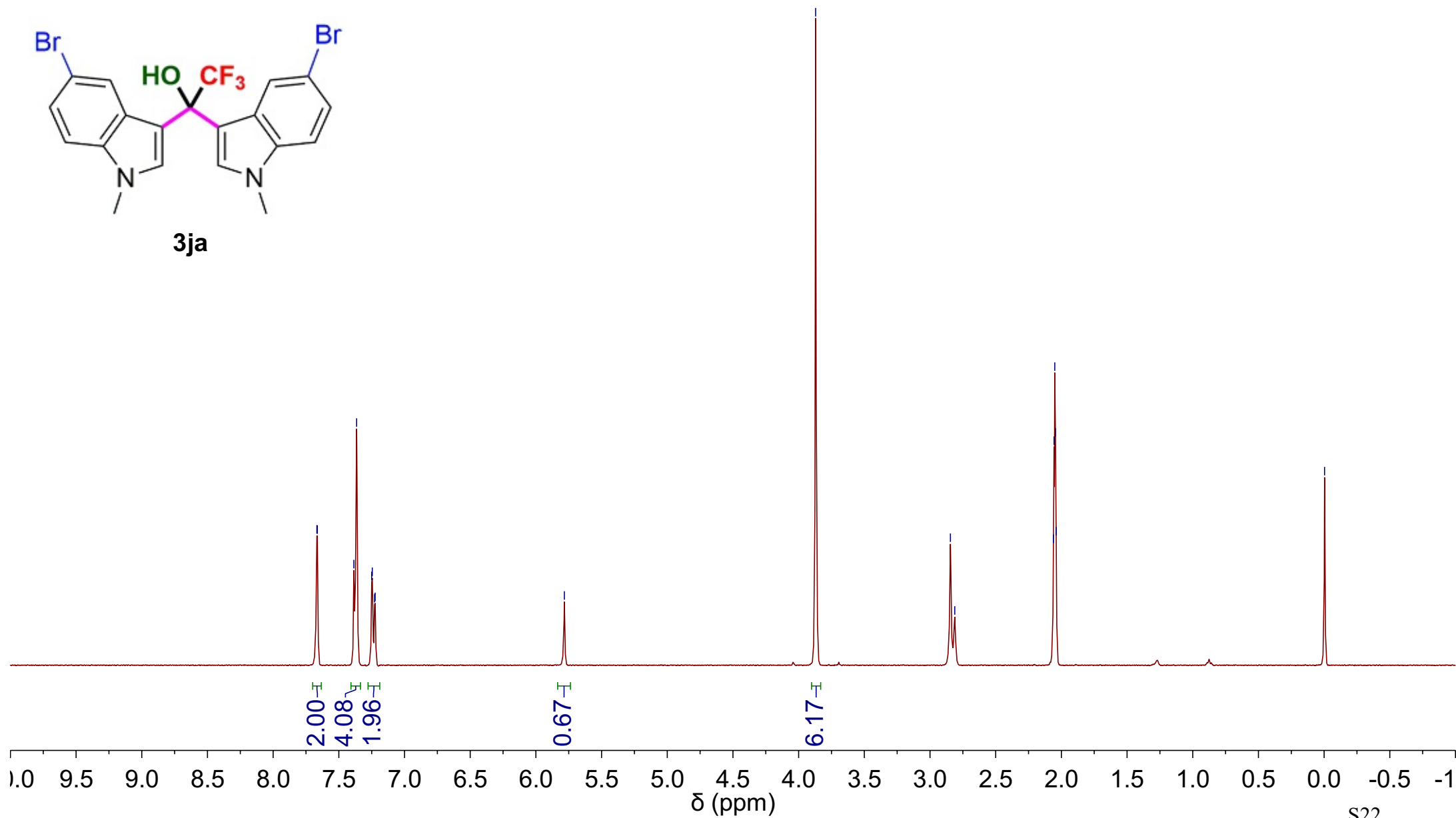
2.845
2.812
2.061
2.056
2.050
2.045
2.040

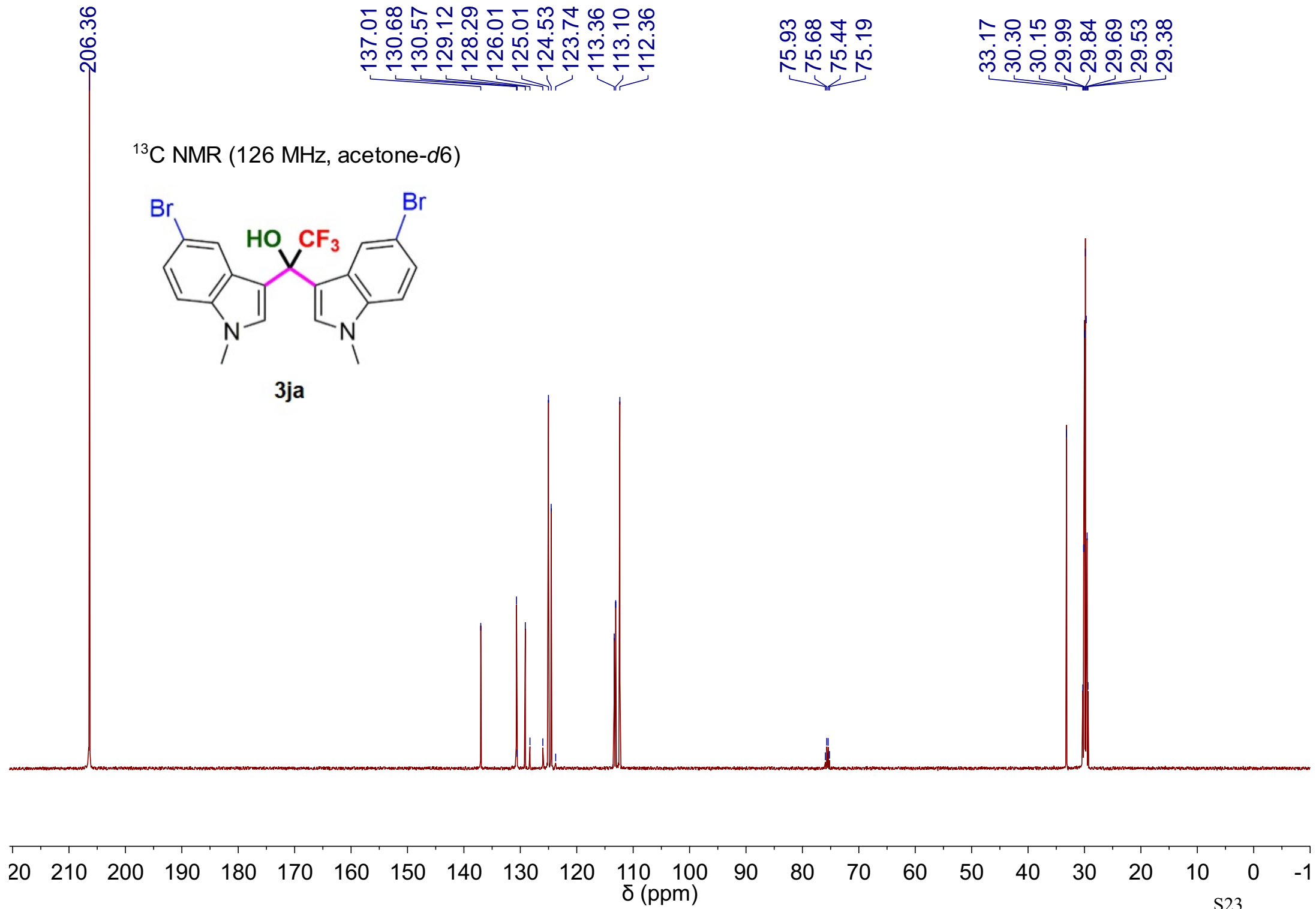
0.003

¹H NMR (400 MHz, acetone-*d*₆)

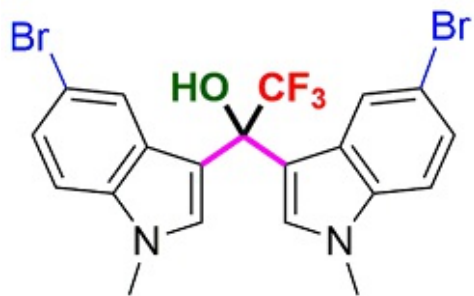


3ja



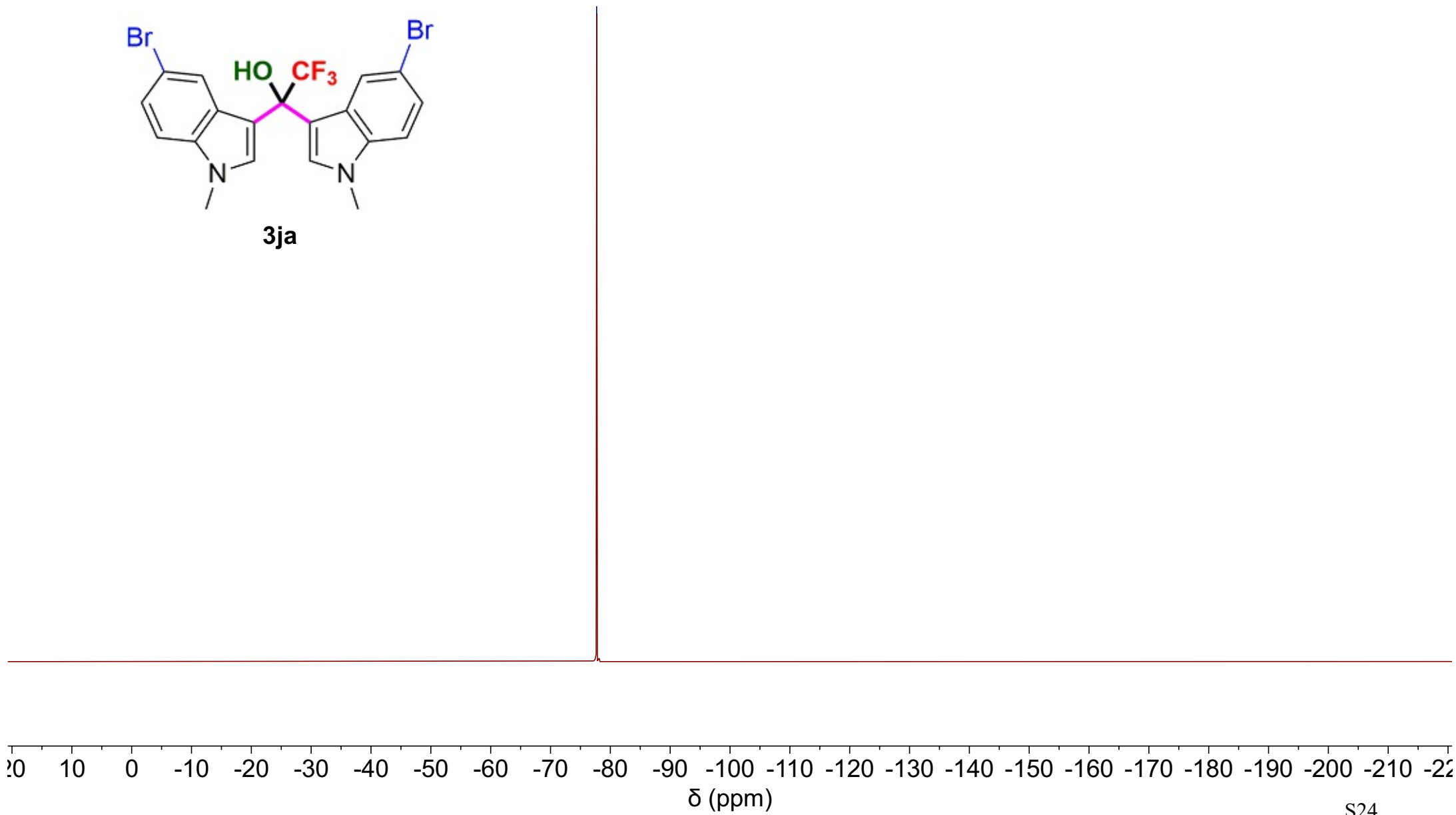


^{19}F NMR (471 MHz, acetone- d_6)



3ja

---77.71



7.922
7.419
7.402
7.291
7.276
7.259

5.773
5.621

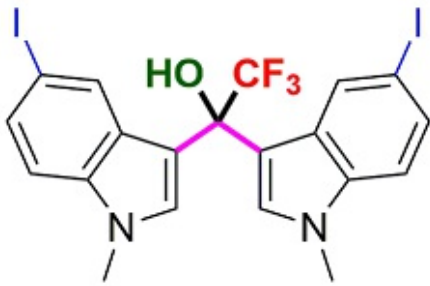
3.852

2.845

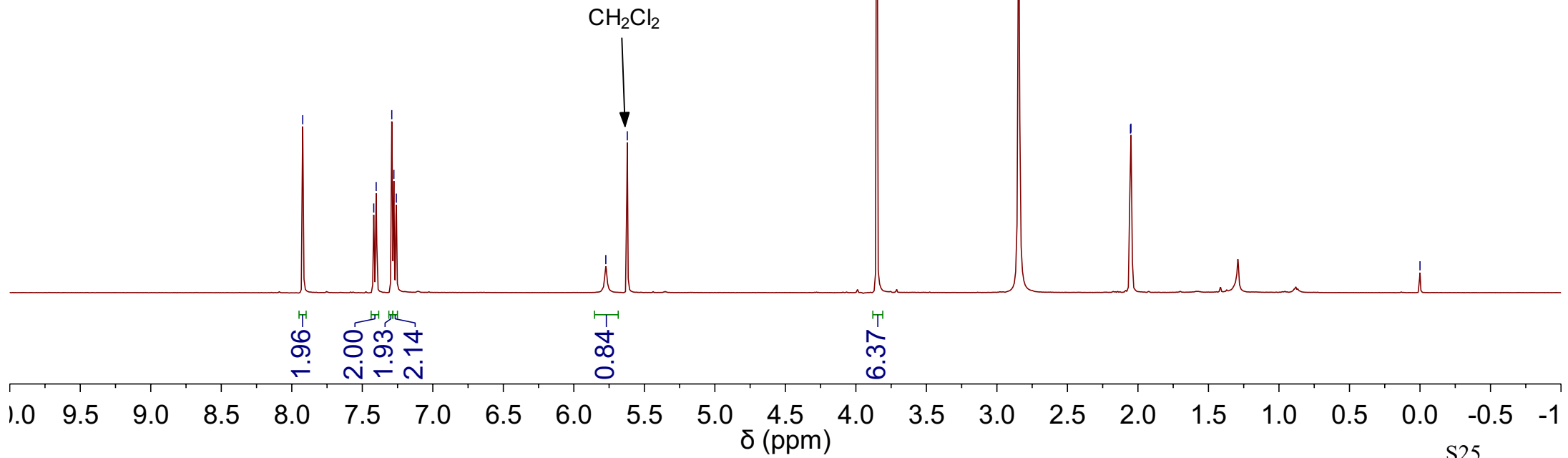
2.053
2.050

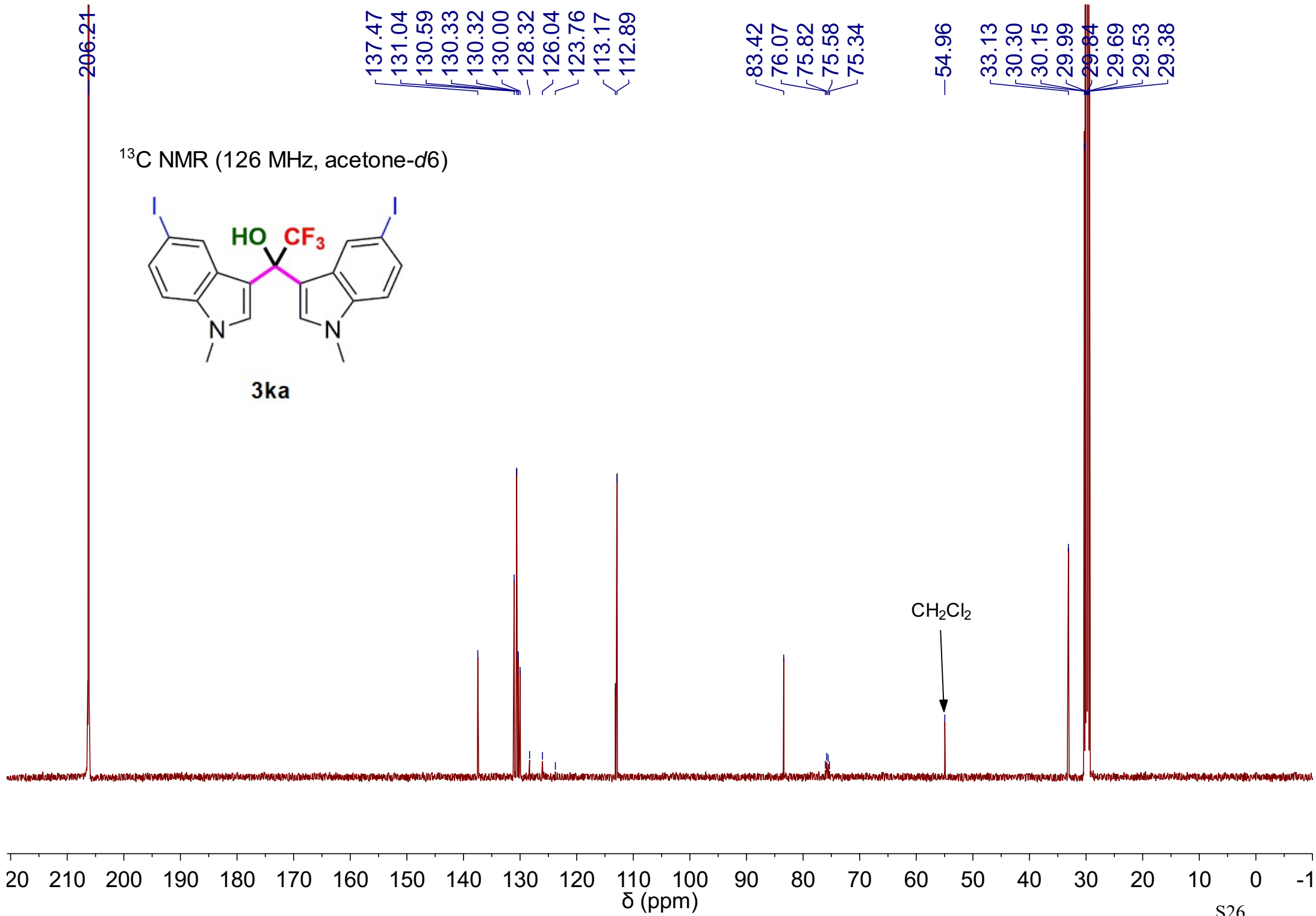
0.000

¹H NMR (500 MHz, acetone-*d*₆)

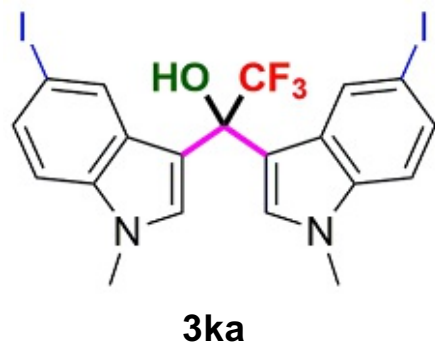


3ka

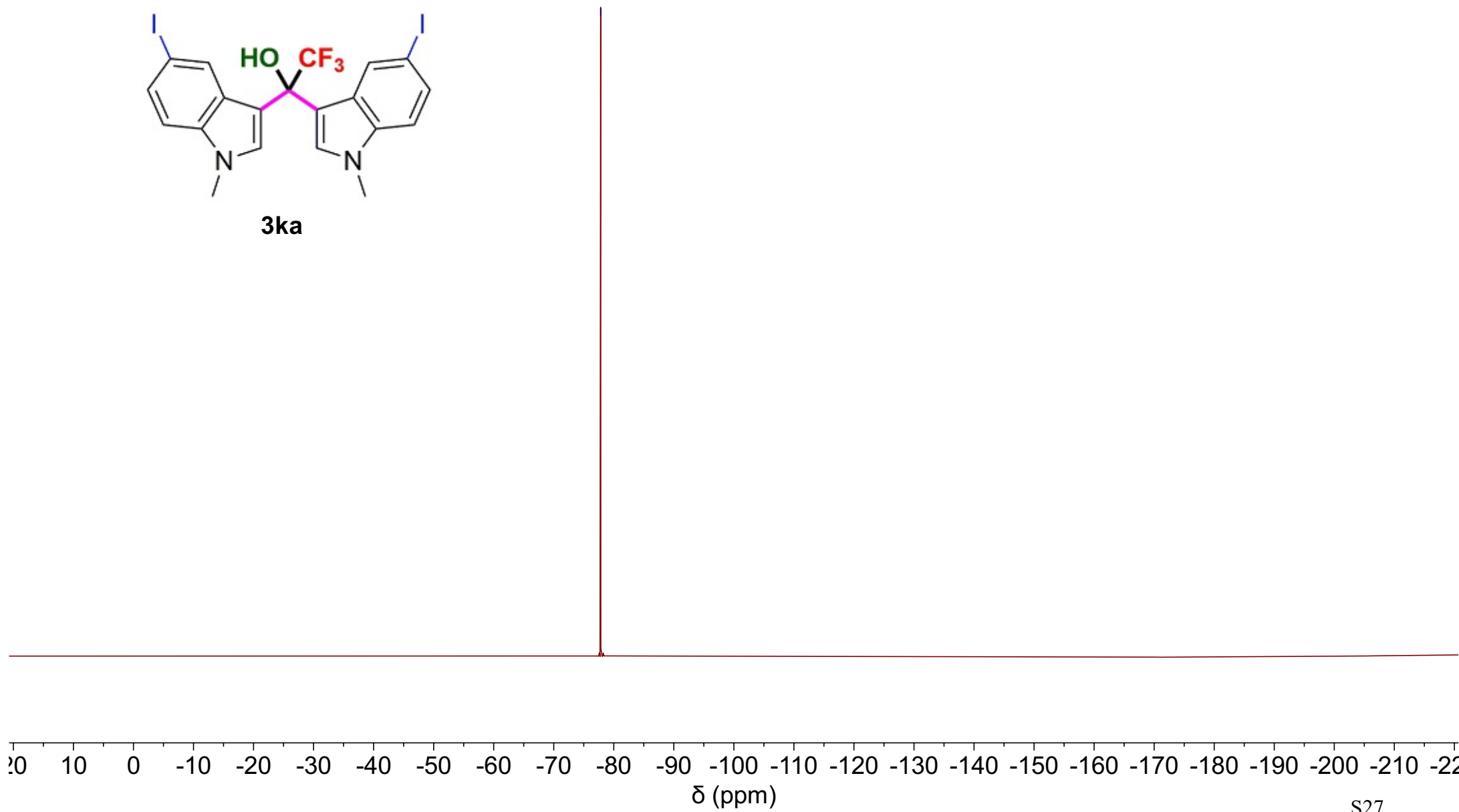


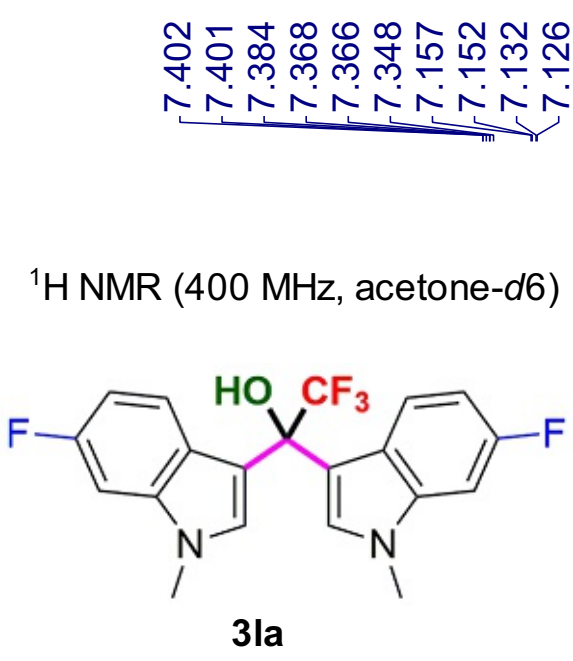


^{19}F NMR (471 MHz, acetone- d_6)



---77.81



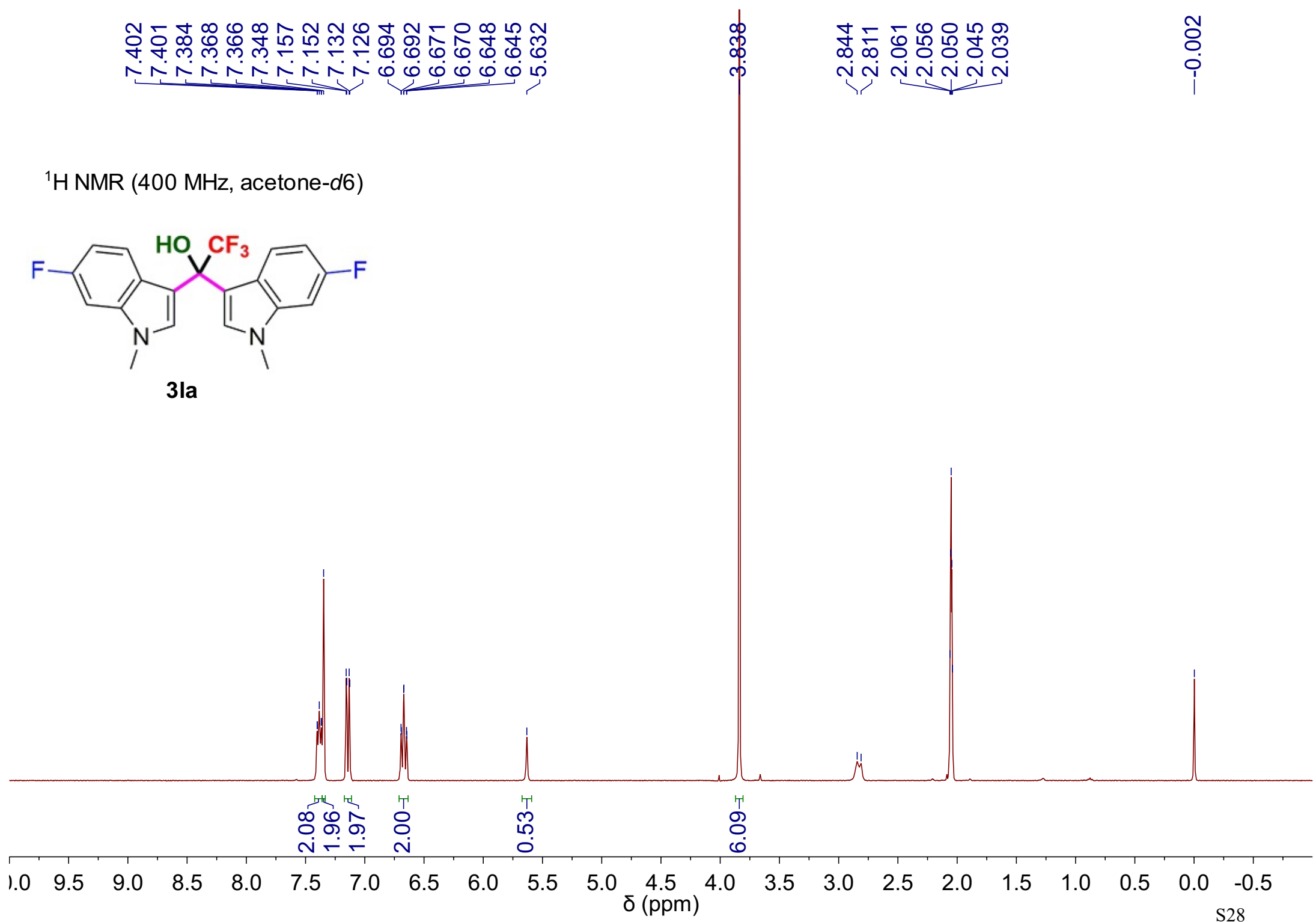


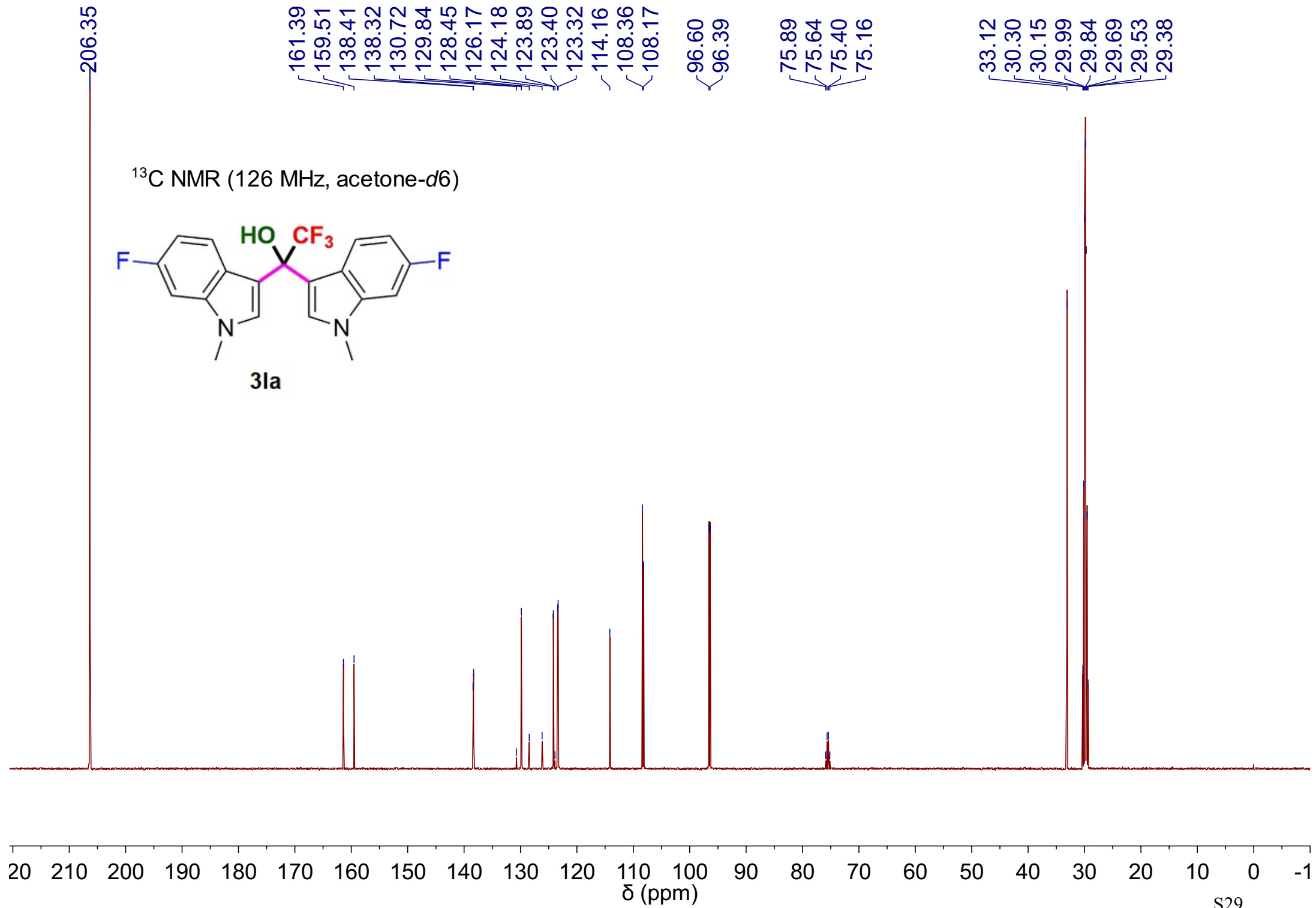
7.402
7.401
7.384
7.368
7.366
7.348
7.157
7.152
7.132
7.126
6.694
6.692
6.671
6.670
6.648
6.645
5.632

3.838

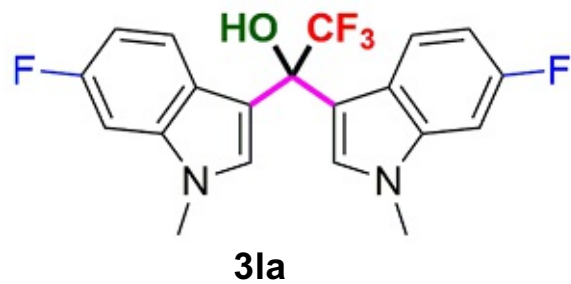
2.844
2.811
2.061
2.056
2.050
2.045
2.039

-0.002



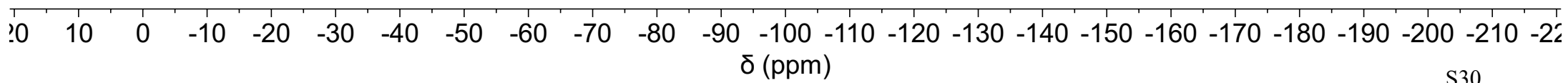


^{19}F NMR (471 MHz, acetone- d_6)

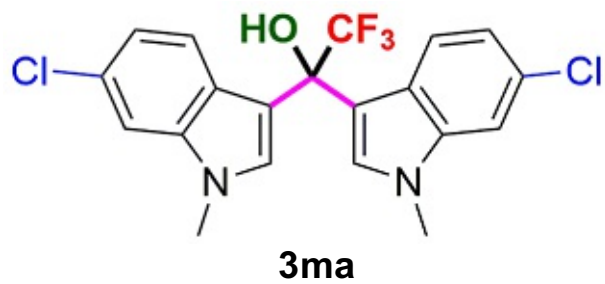


--77.58

--122.54



¹H NMR (400 MHz, acetone-*d*₆)



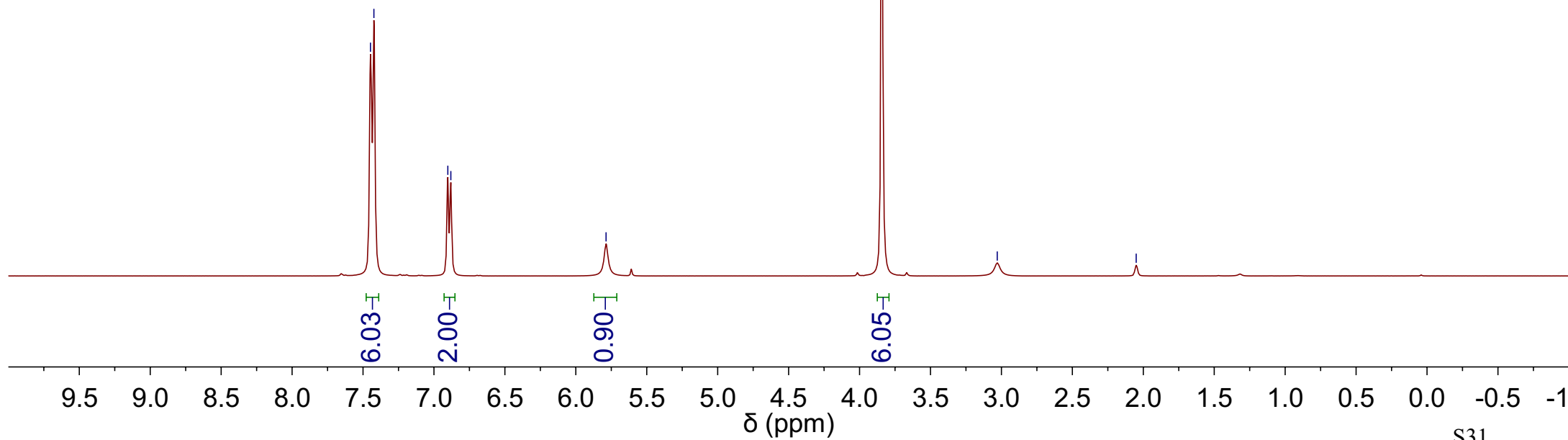
7.447
7.423
6.902
6.881

5.787

3.844

3.030

2.050



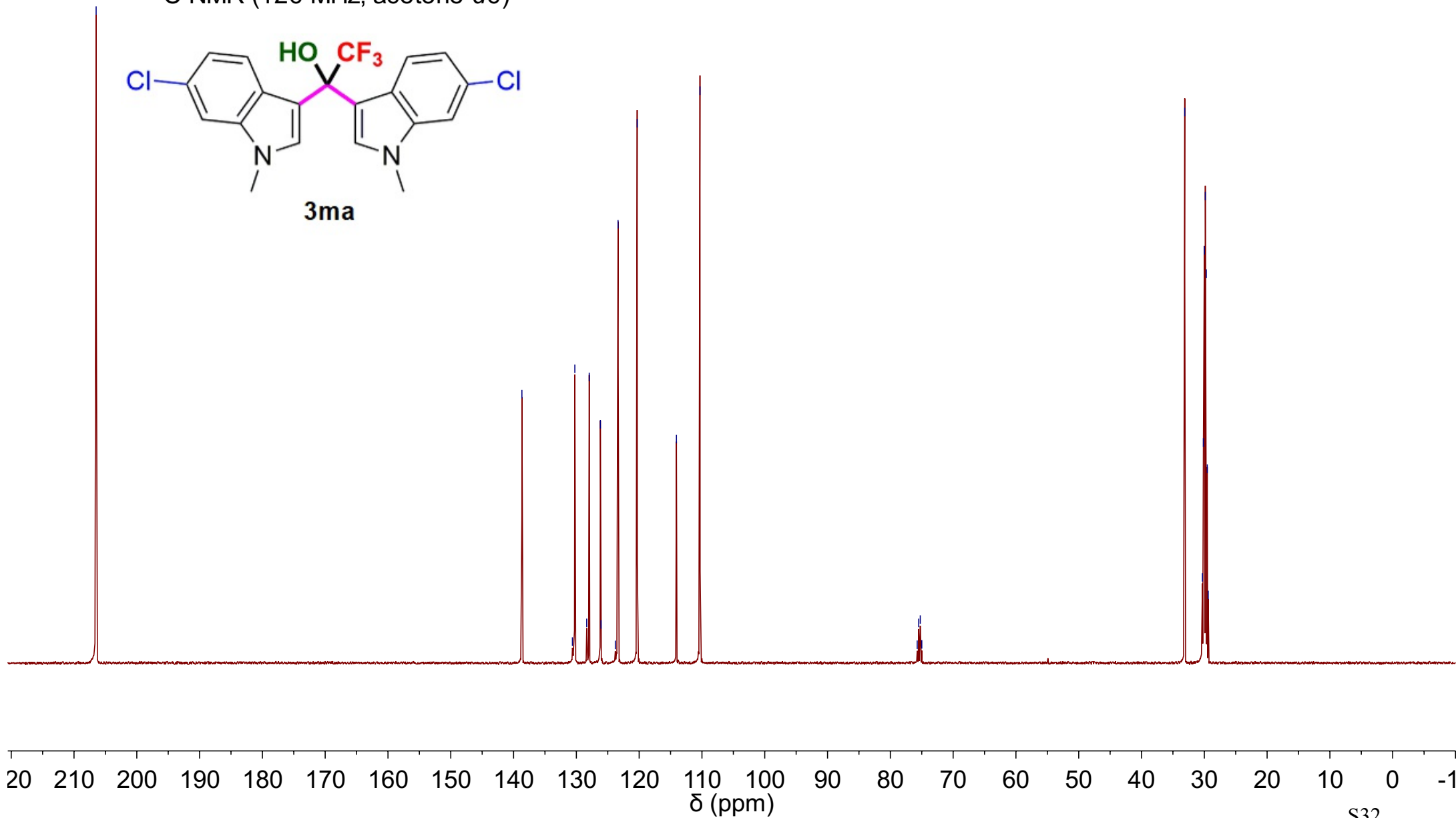
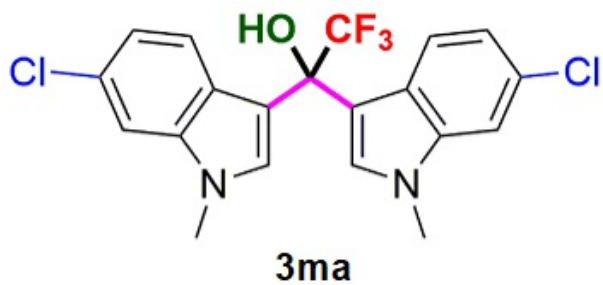
-206.48

138.67
130.63
130.24
128.35
127.95
126.18
126.07
123.80
123.36
120.31
114.07
110.31

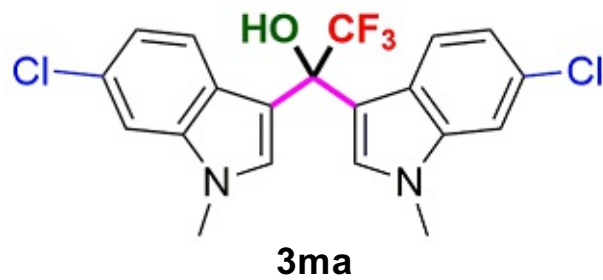
75.72
75.48
75.23
74.99

33.11
30.30
30.15
29.99
29.84
29.69
29.53
29.38

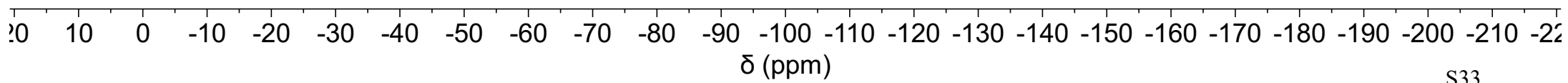
¹³C NMR (126 MHz, acetone-d₆)



^{19}F NMR (471 MHz, acetone- d_6)



--77.53



7.590
7.586
7.369
7.320
7.298
6.989
6.984
6.967
6.963

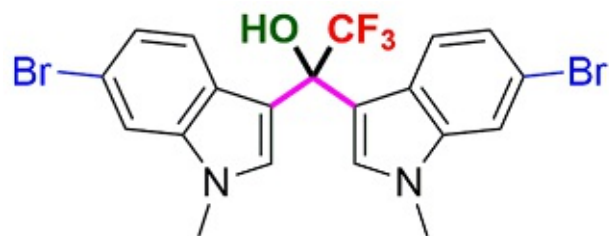
5.700

3.873

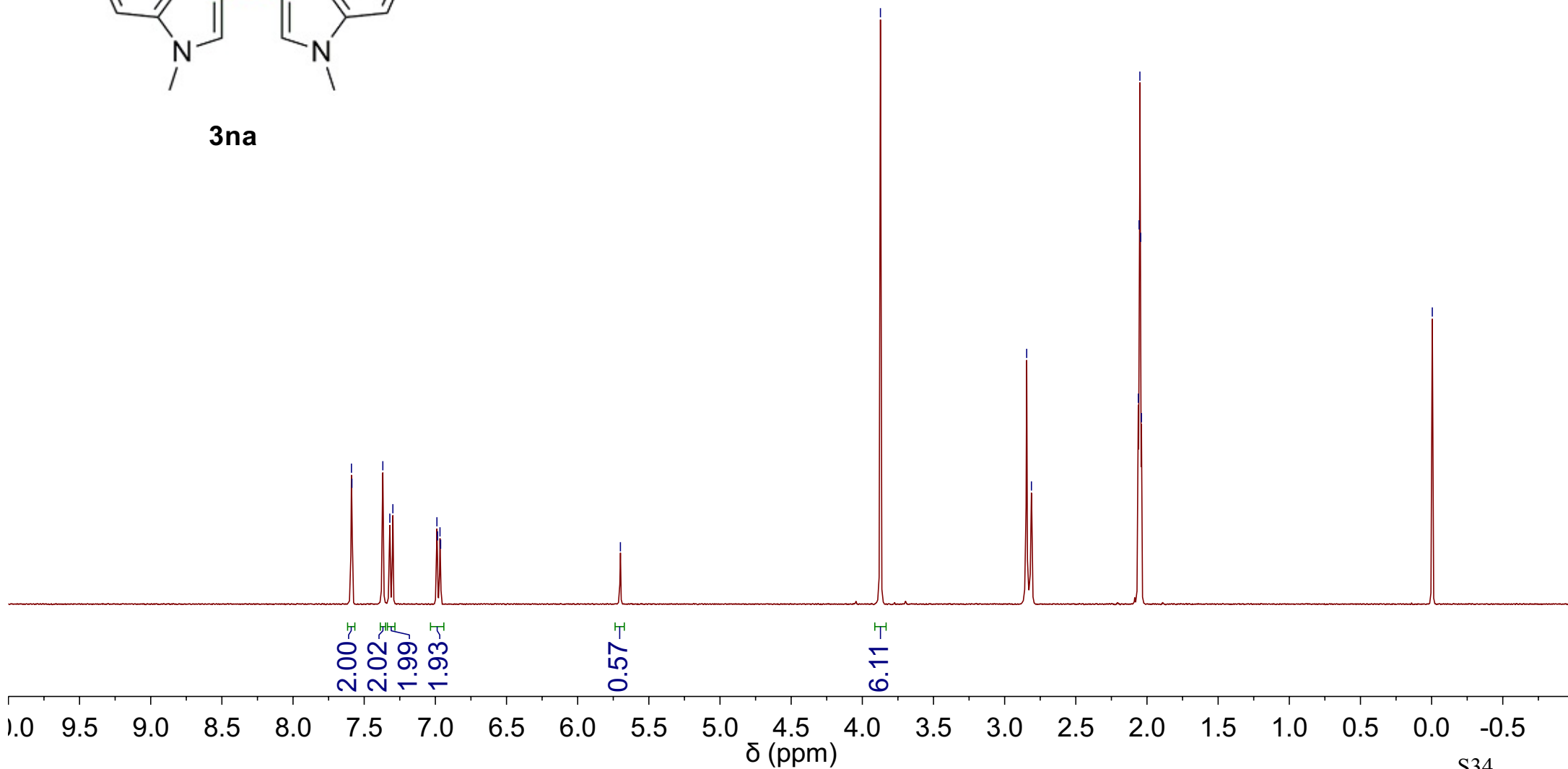
2.845
2.812
2.061
2.055
2.050
2.044
2.039

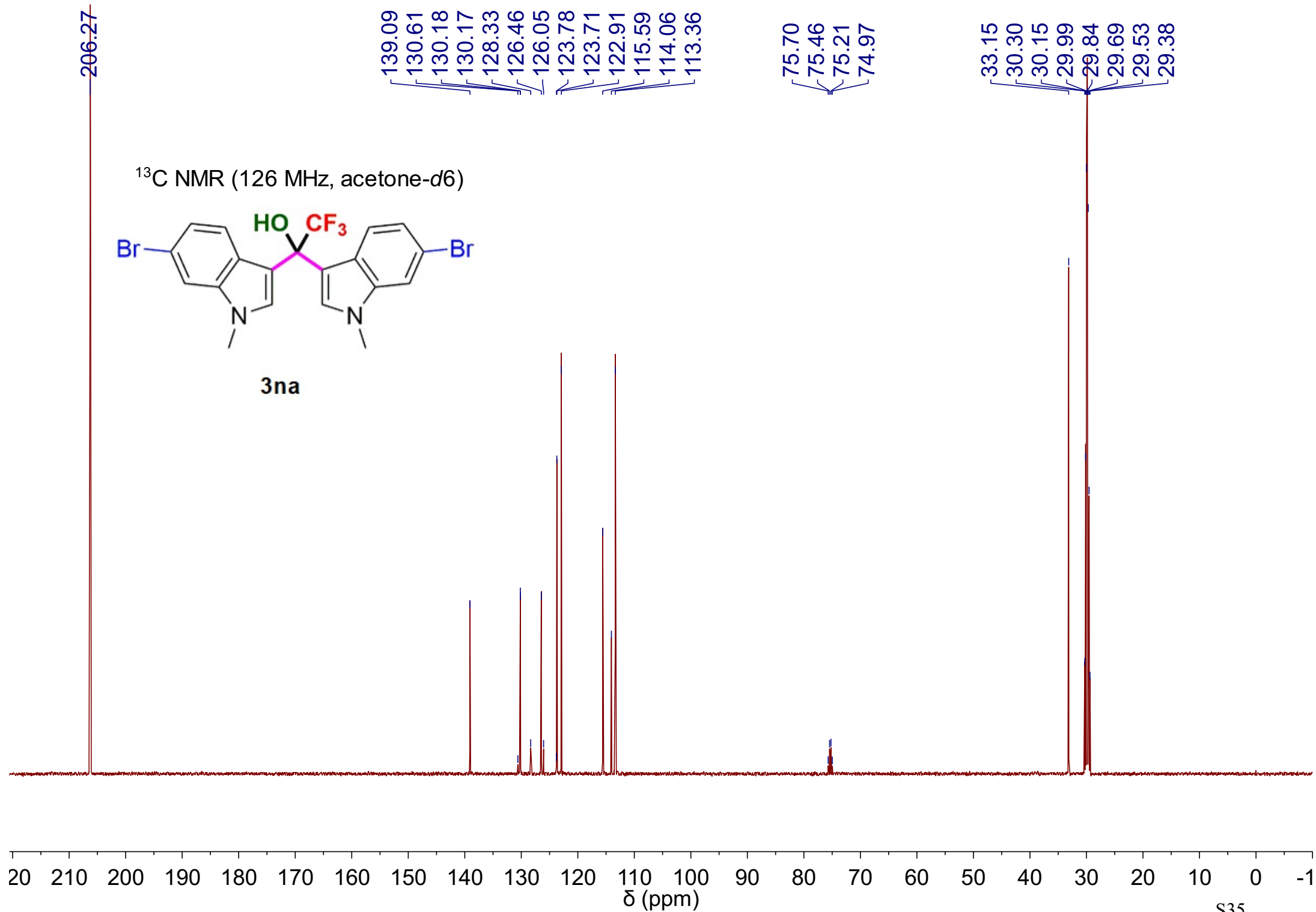
-0.005

¹H NMR (400 MHz, acetone-*d*₆)



3na



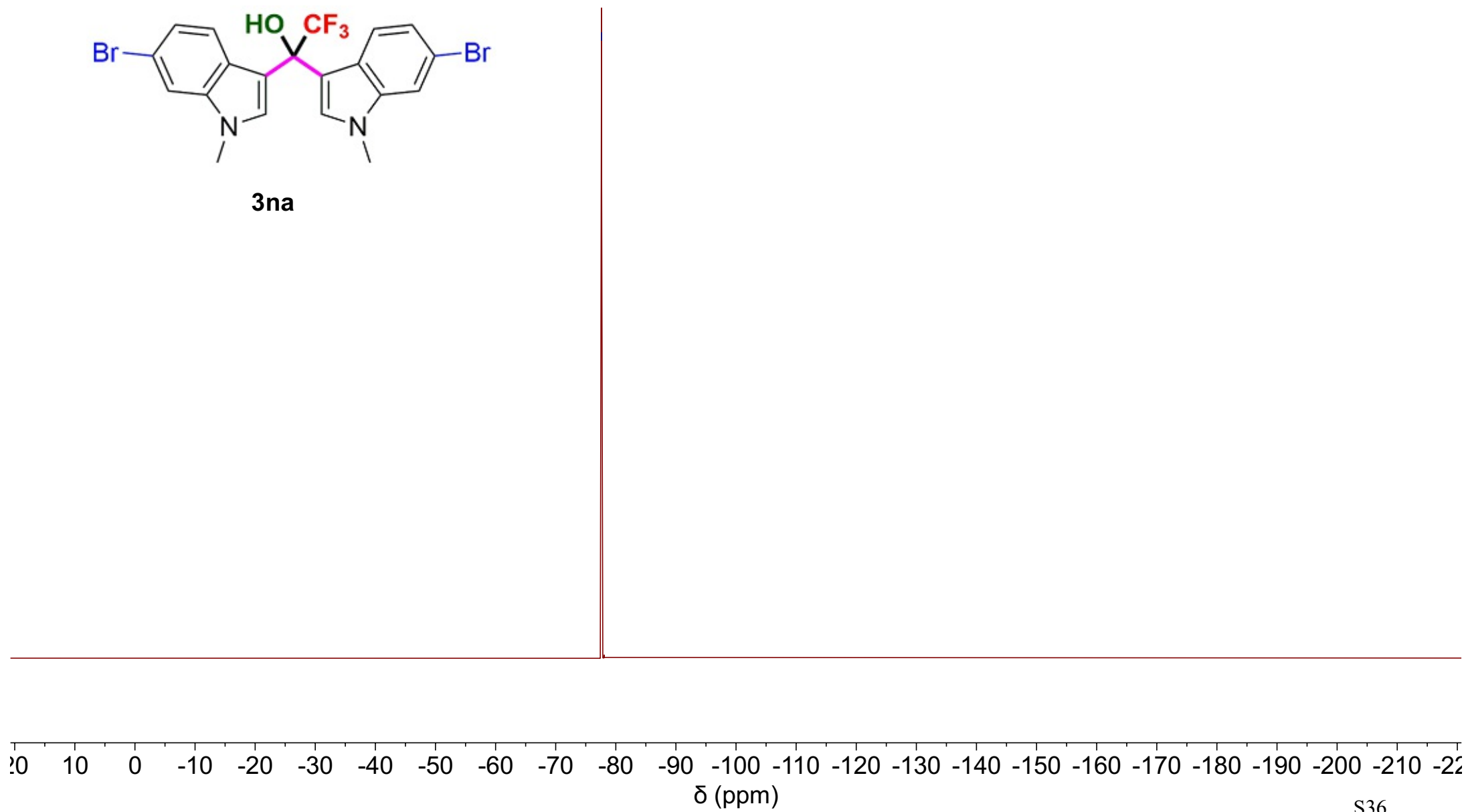


^{19}F NMR (471 MHz, acetone- d_6)

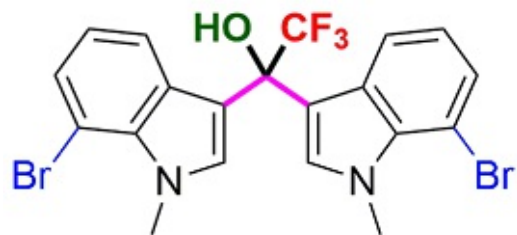


3na

---77.63



¹H NMR (400 MHz, acetone-*d*₆)



3oa

7.459
7.439
7.388
7.267
7.249
6.743
6.724
6.704

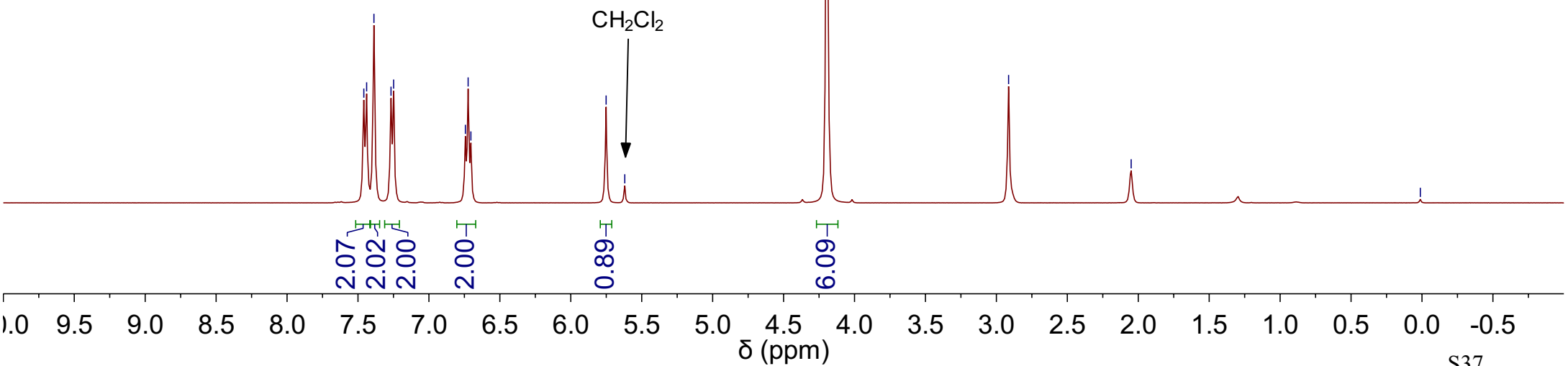
5.751
5.619

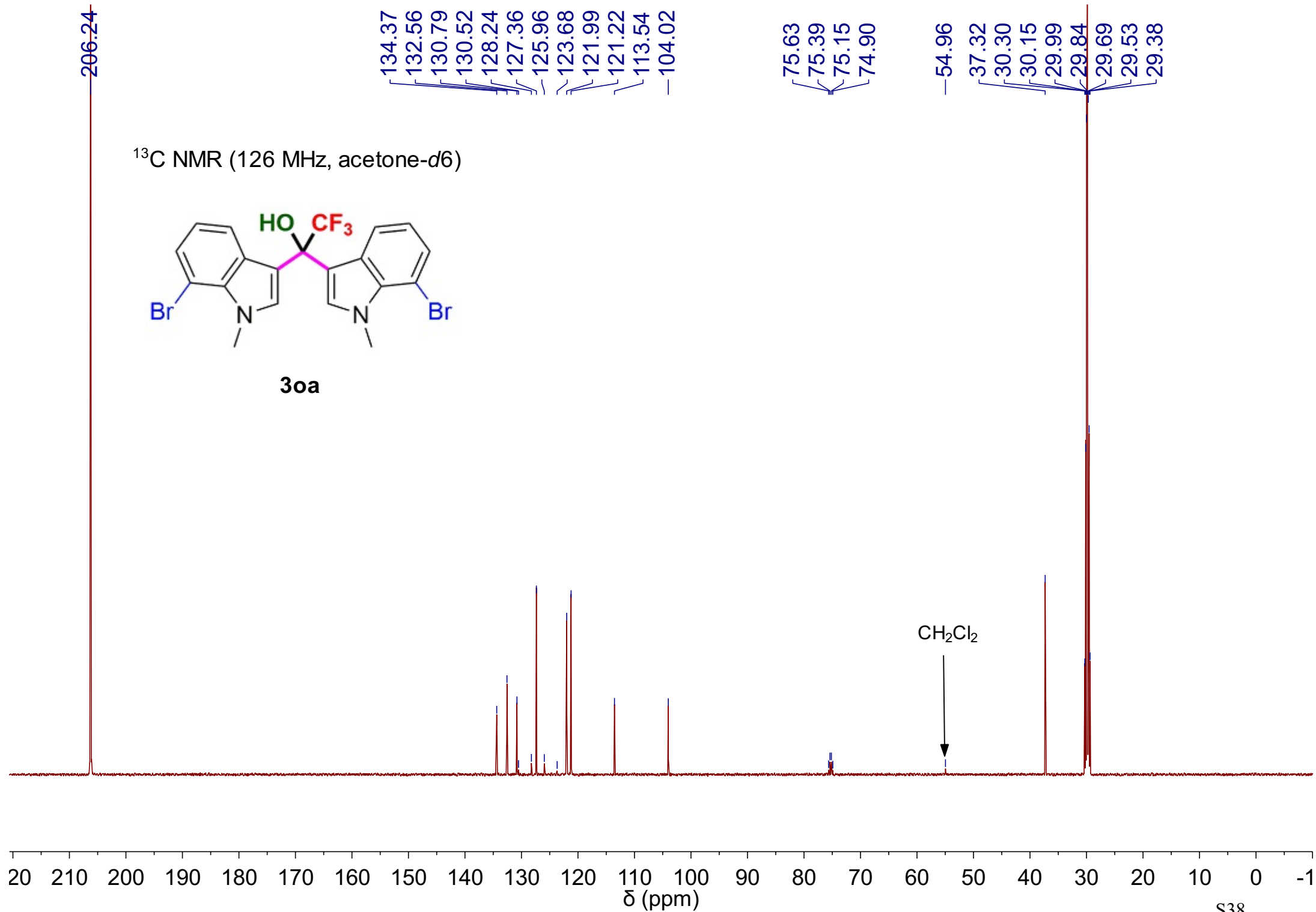
4.194

2.914

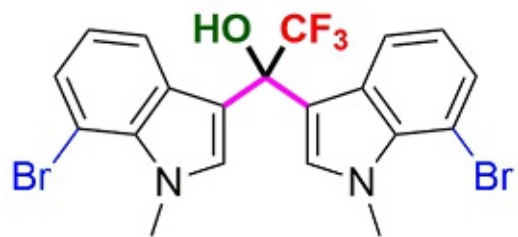
2.050

0.012



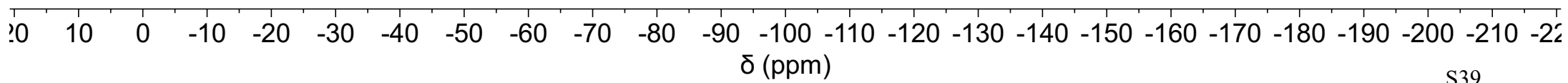


^{19}F NMR (471 MHz, acetone- d_6)



30a

---77.65



8.059
7.590
7.511
7.507
7.489
7.486
7.441
7.419

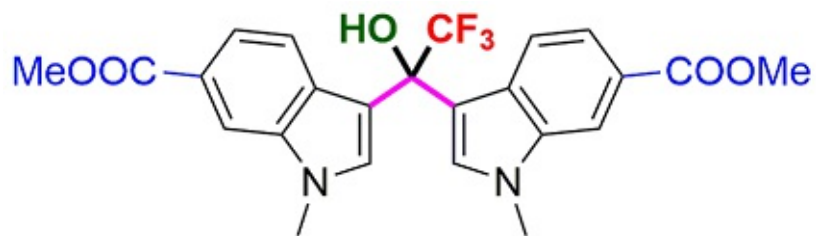
3.956
3.838

3.098

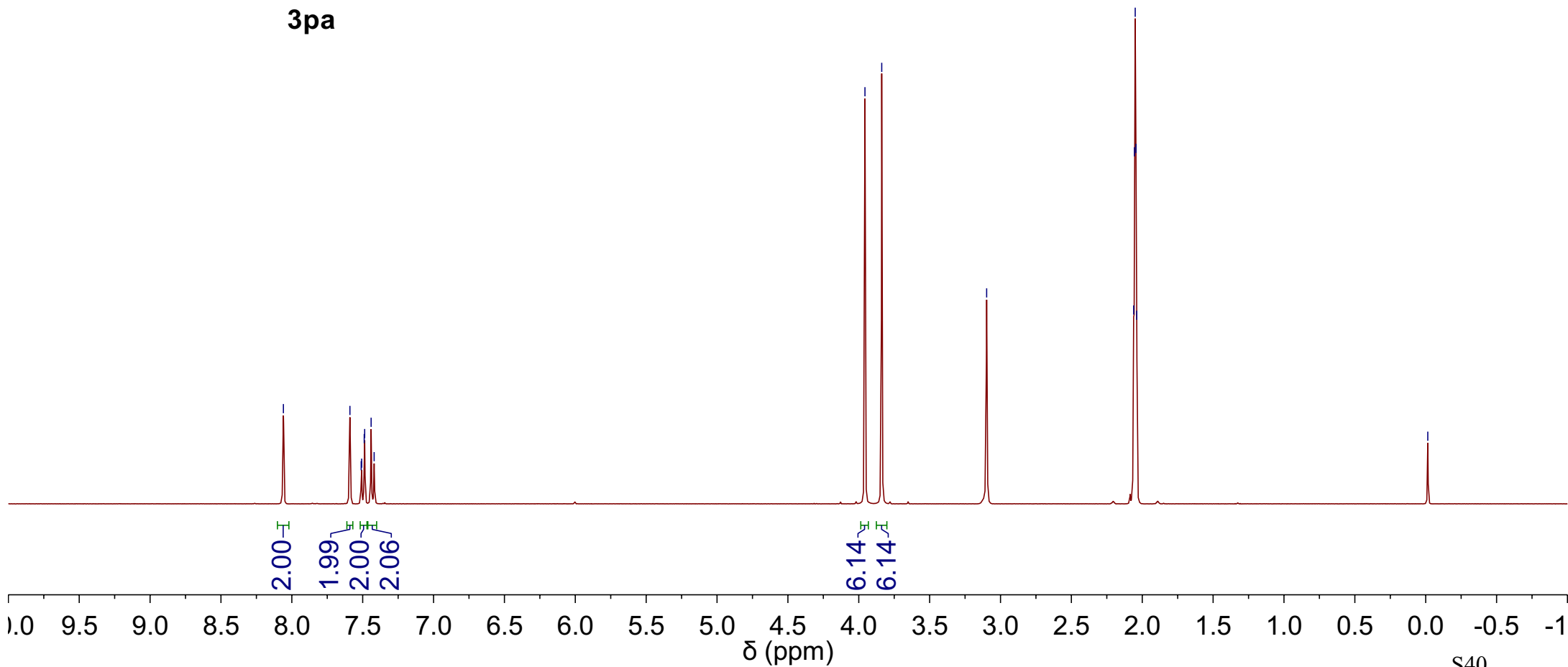
2.060
2.055
2.050
2.044
2.039

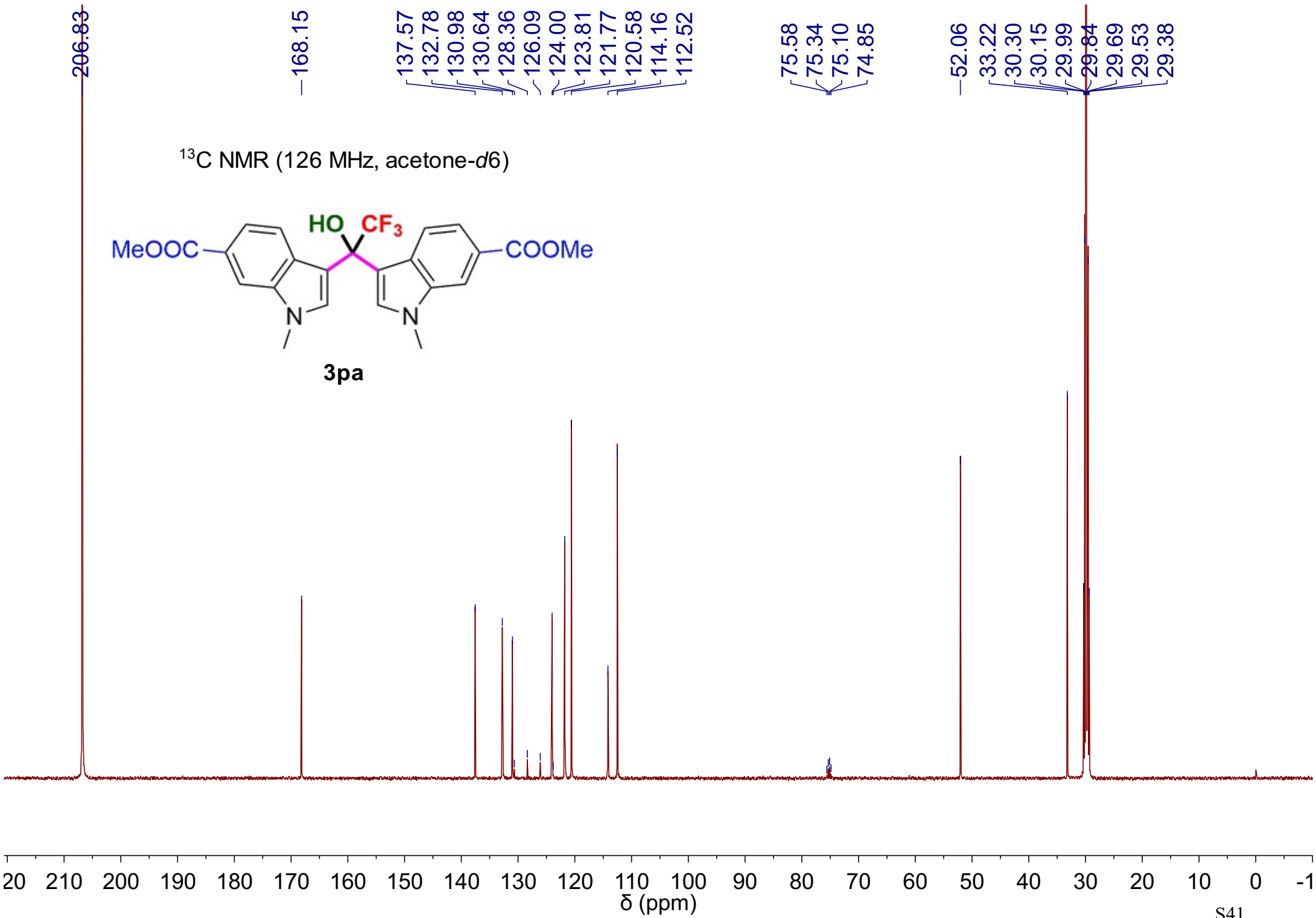
-0.015

¹H NMR (400 MHz, acetone-*d*₆)

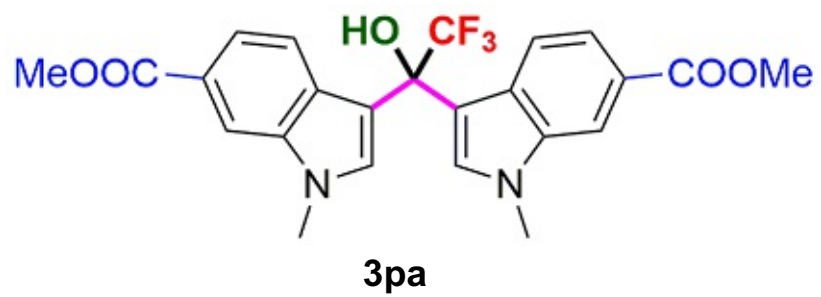


3pa

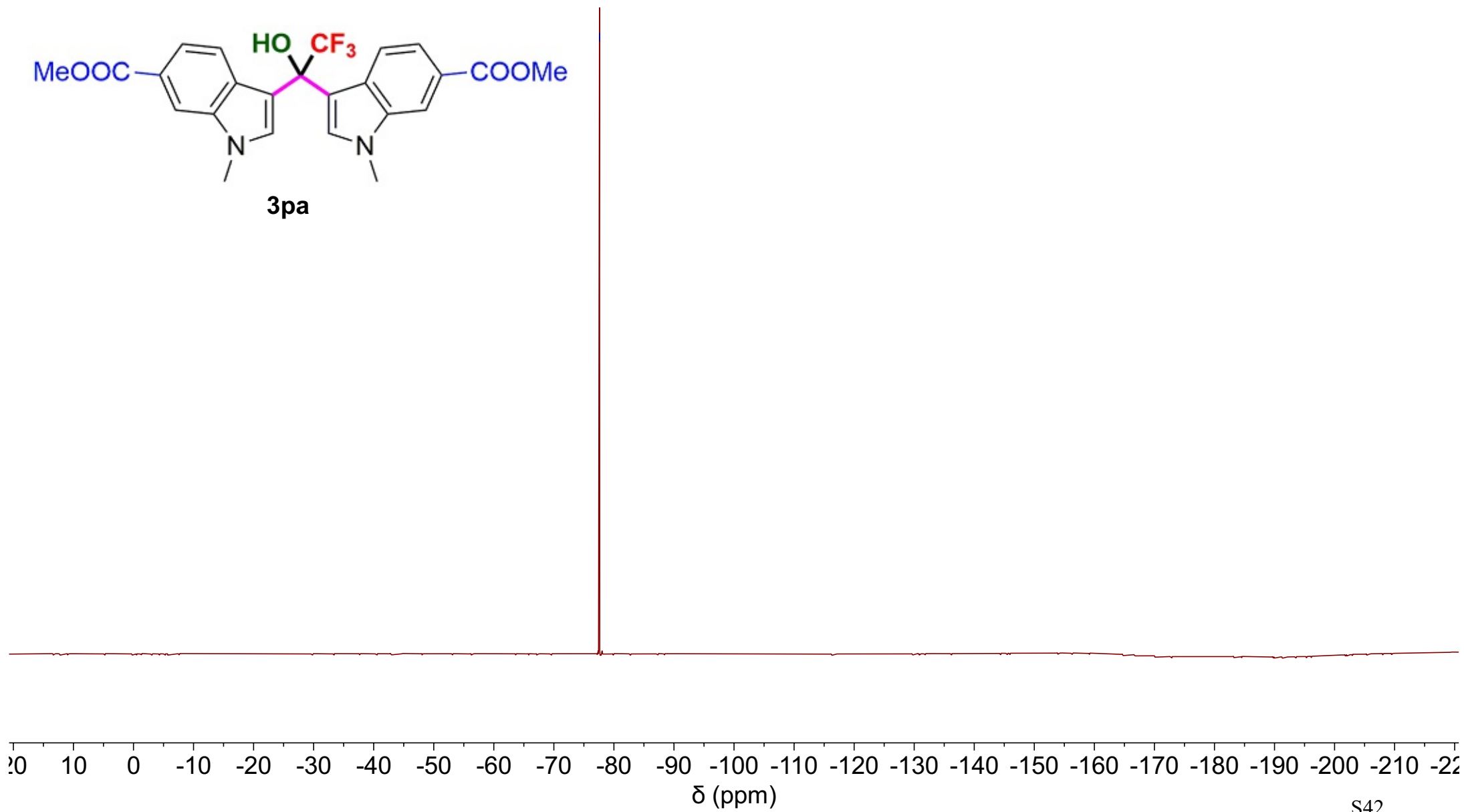




^{19}F NMR (471 MHz, acetone- d_6)



---77.60



7.412
7.393
7.073
7.056
7.039
6.826
6.807
6.790

-5.466

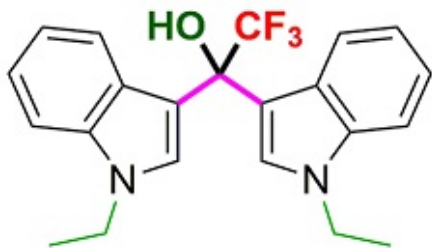
4.309
4.293
4.275
4.258

-2.839

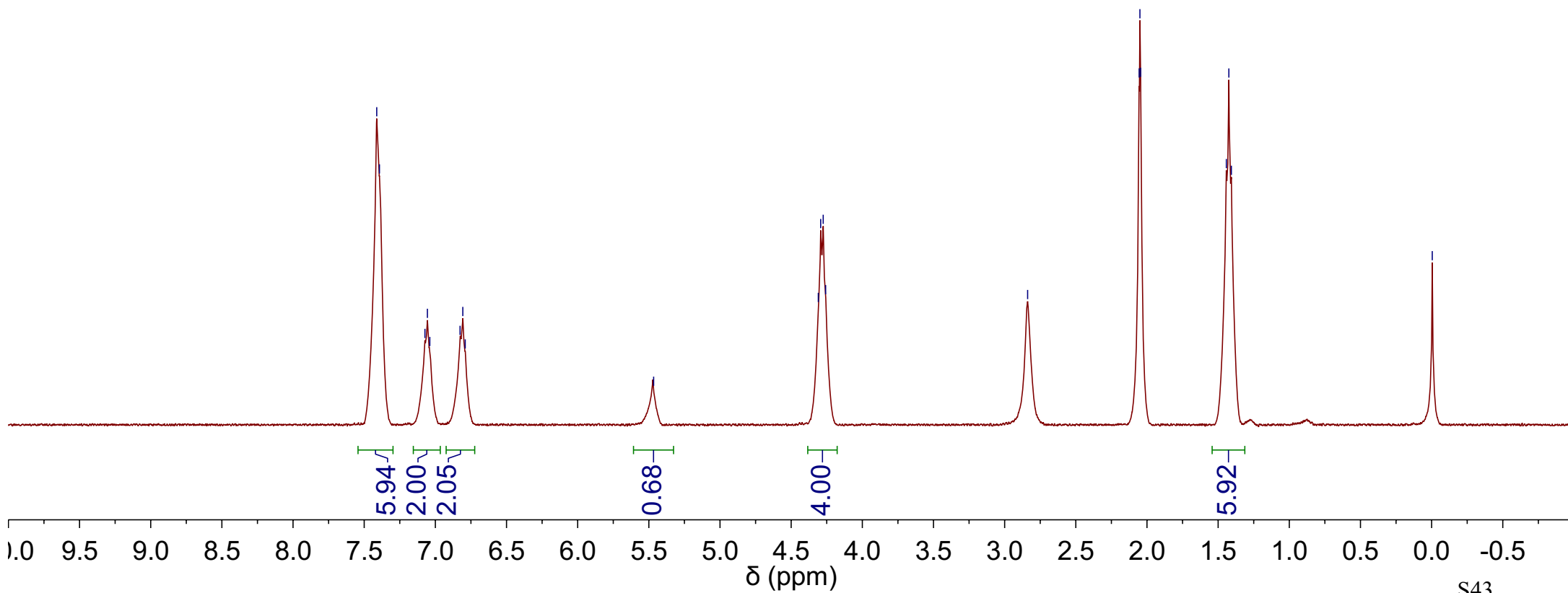
2.055
2.050
2.044
1.442
1.425
1.407

-0.004

¹H NMR (400 MHz, acetone-*d*₆)



3qa



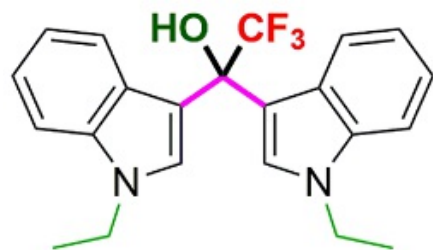
-206.29

137.25
130.93
128.65
127.82
127.61
127.60
126.37
124.09
122.48
122.07
119.65
114.13
110.24

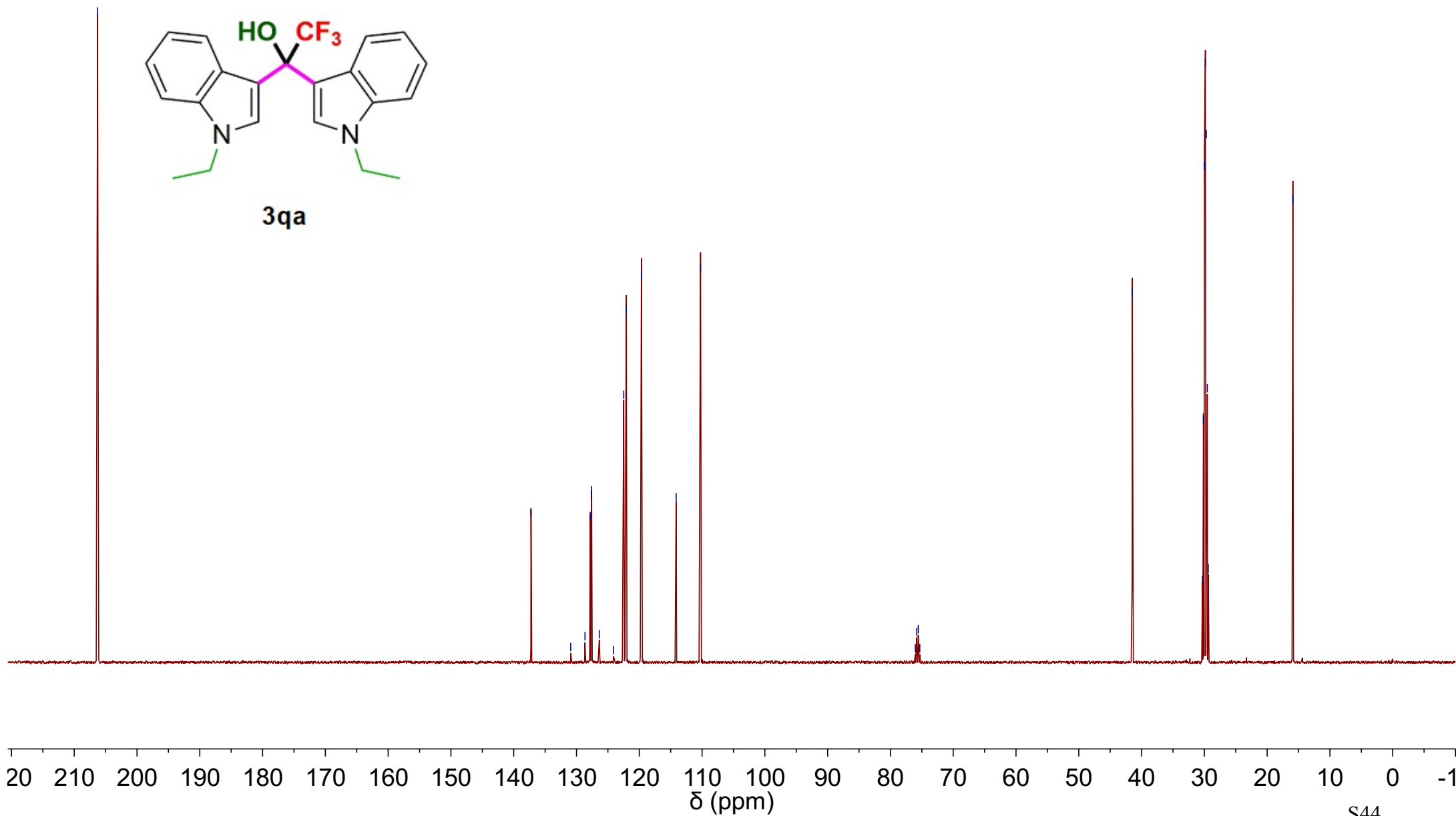
76.04
75.80
75.56
75.32

41.48
30.30
30.15
29.99
29.84
29.69
29.53
29.38
-15.90

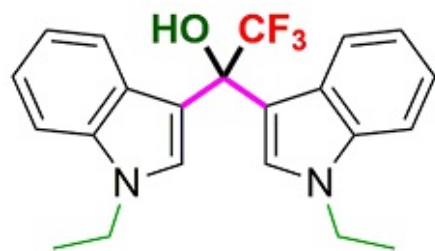
¹³C NMR (126 MHz, acetone-d₆)



3qa

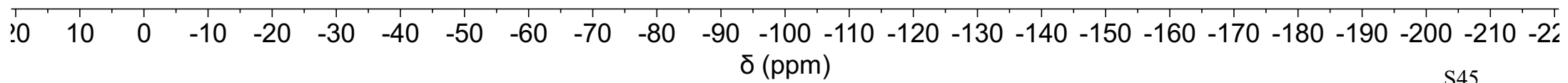


^{19}F NMR (471 MHz, acetone- d_6)



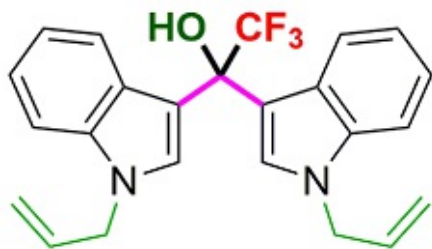
3qa

---77.30

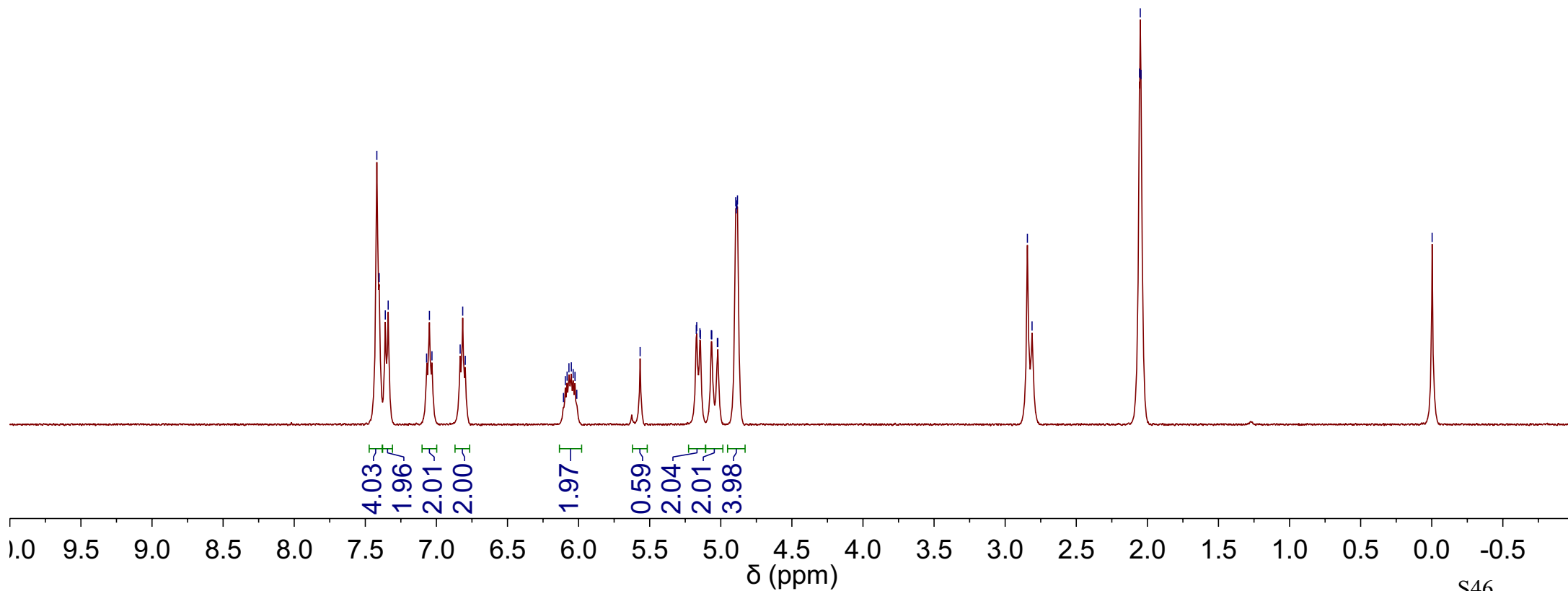


7.419
7.402
7.360
7.339
7.069
7.049
7.031
6.833
6.815
6.797
6.106
6.094
6.081
6.068
6.051
6.038
6.025
6.013
5.567
5.172
5.169
5.147
5.143
5.067
5.063
5.024
5.021
4.895
4.891
4.886
4.883
2.844
2.811
2.055
2.050
2.045
-0.003

¹H NMR (400 MHz, acetone-*d*₆)



3ra



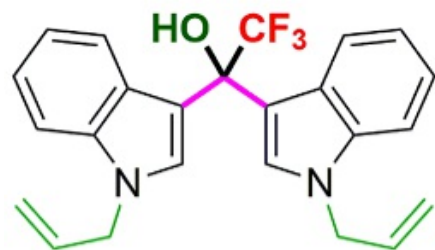
-206.30

137.64
135.04
130.85
128.57
128.29
128.28
127.73
126.29
124.01
122.36
122.22
119.82
116.92
114.33
110.62

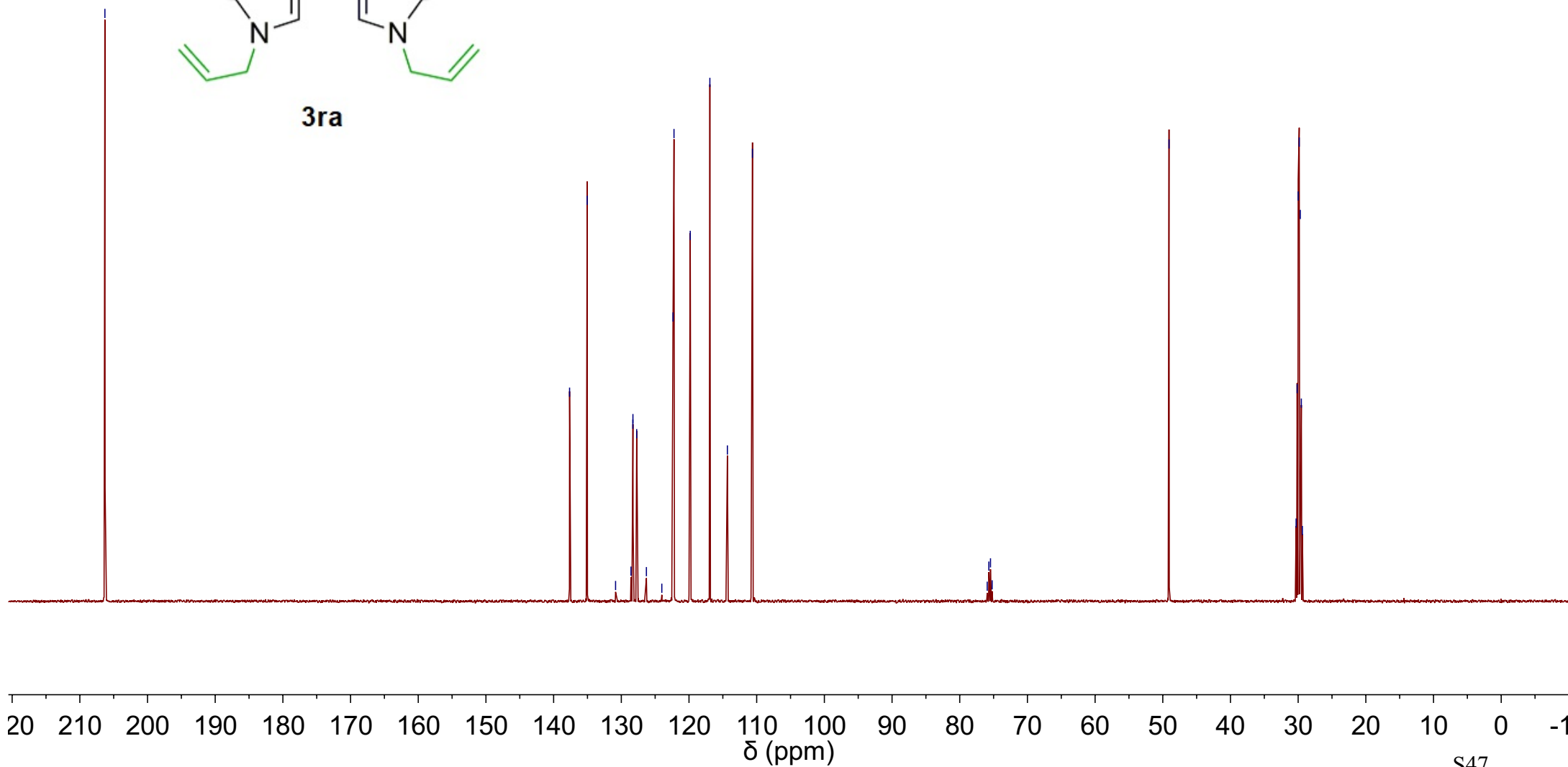
75.94
75.70
75.46
75.21

-49.08
30.30
30.15
29.99
29.84
29.69
29.53
29.38

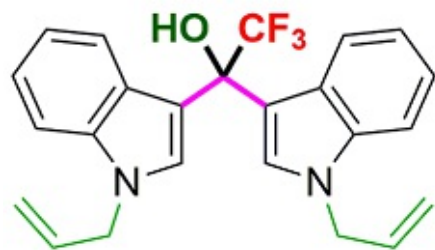
^{13}C NMR (126 MHz, acetone- d_6)



3ra

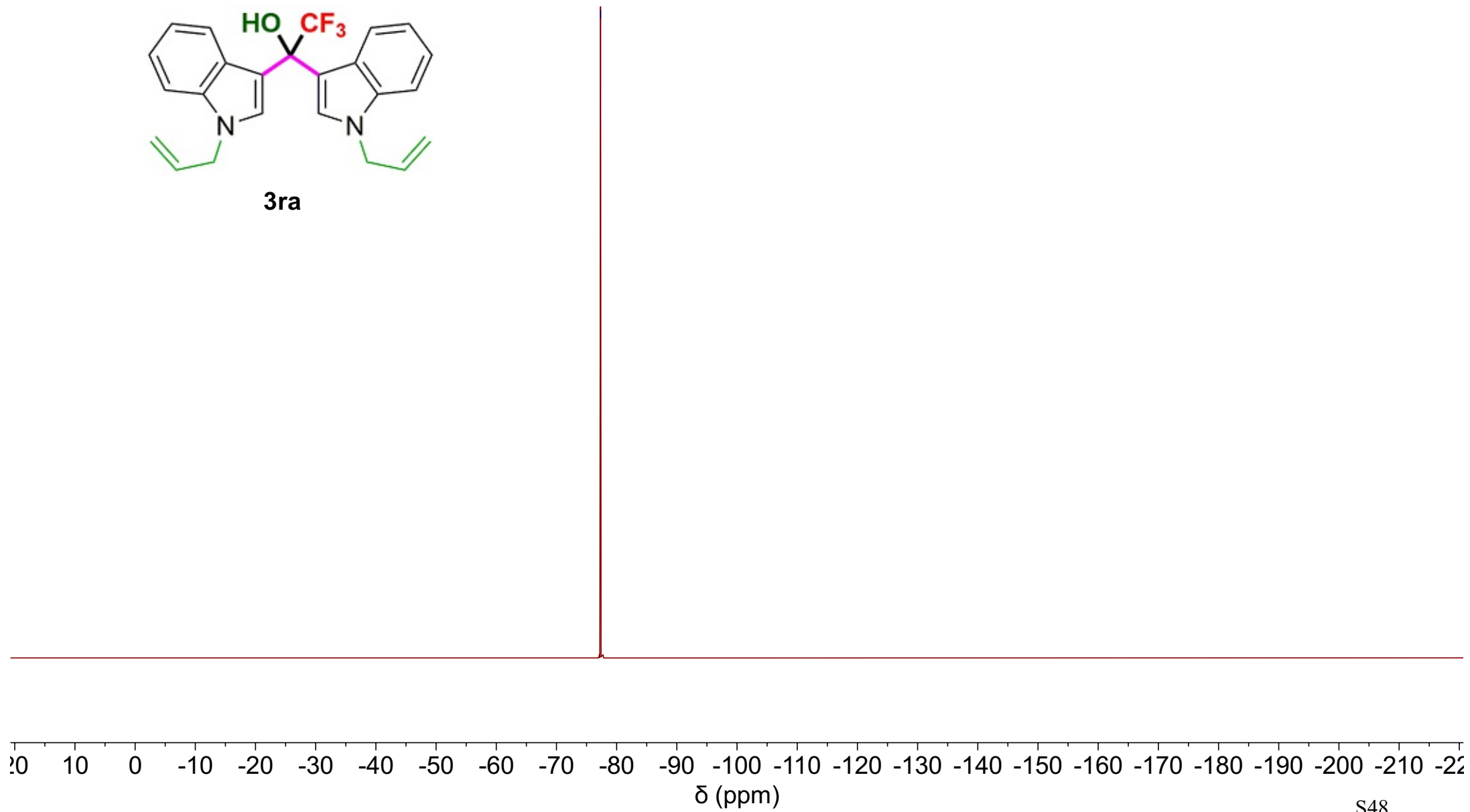


^{19}F NMR (471 MHz, acetone- d_6)



3ra

--77.33



7.517
7.488
7.468
7.452
7.432
7.133
7.115
7.097
6.882
6.863
6.845

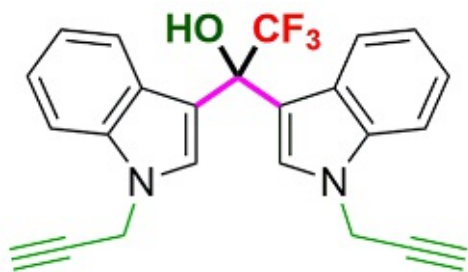
-5.667

5.130
5.125

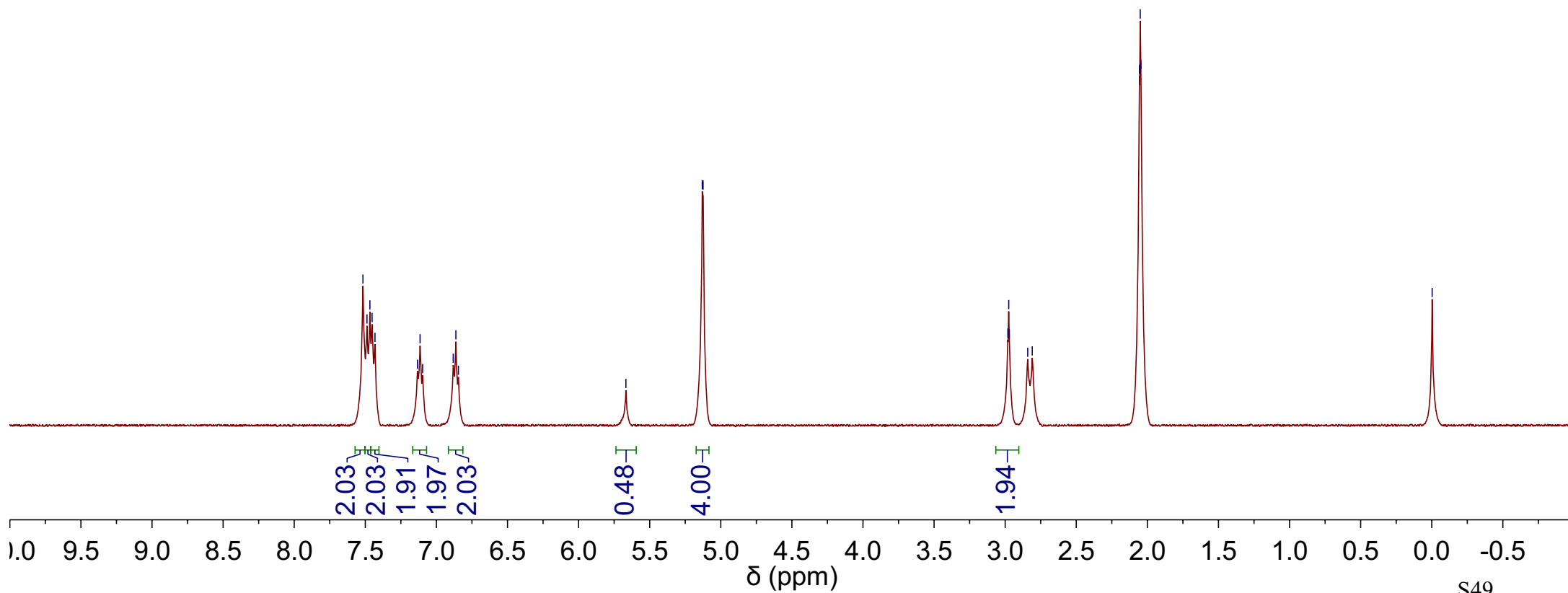
2.981
2.975
2.971
2.841
2.810
2.055
2.050
2.045

-0.003

¹H NMR (400 MHz, acetone-*d*₆)



3sa



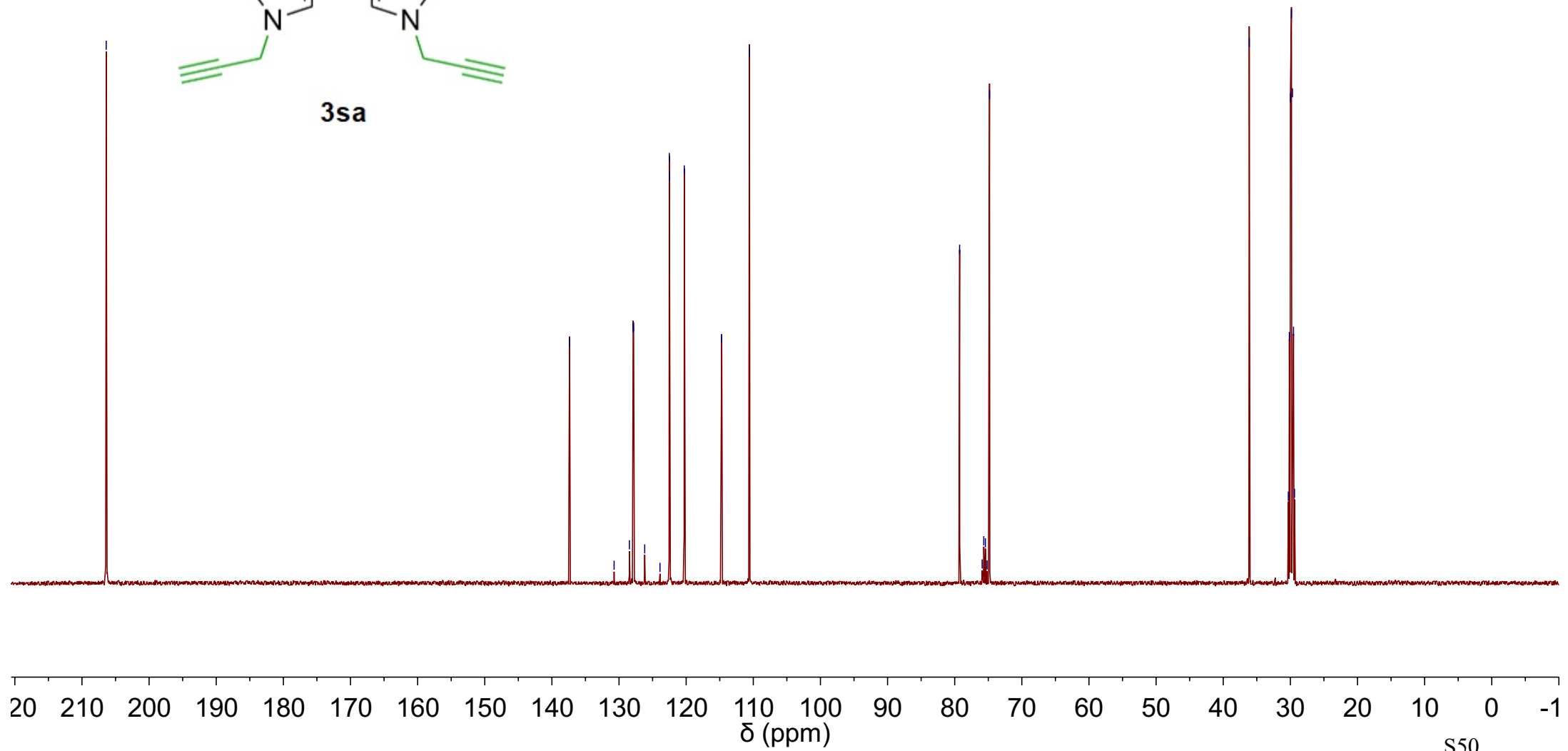
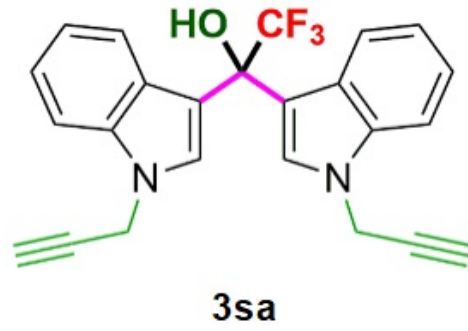
-206.39

137.37
130.73
128.45
127.90
127.83
126.18
123.90
122.51
122.46
120.28
114.71
110.58

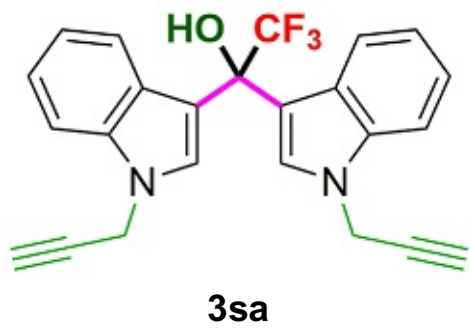
79.27
75.91
75.67
75.43
75.18
74.81

36.12
30.30
30.15
29.99
29.84
29.69
29.53
29.38

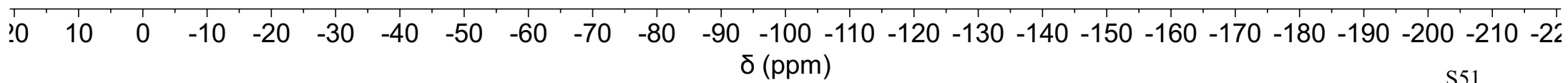
^{13}C NMR (126 MHz, acetone- d_6)



^{19}F NMR (471 MHz, acetone- d_6)



--77.39



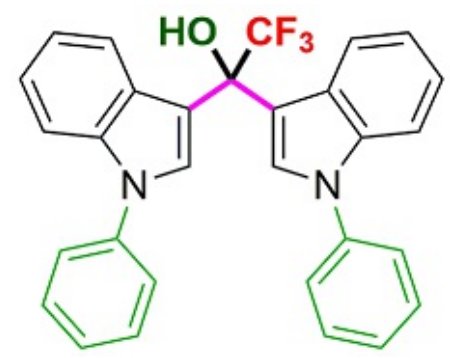
7.692
7.661
7.641
7.618
7.610
7.540
7.520
7.450
7.445
7.442
7.439
7.431
7.429
7.164
7.146
7.126
6.993
6.974
6.956

-2.846

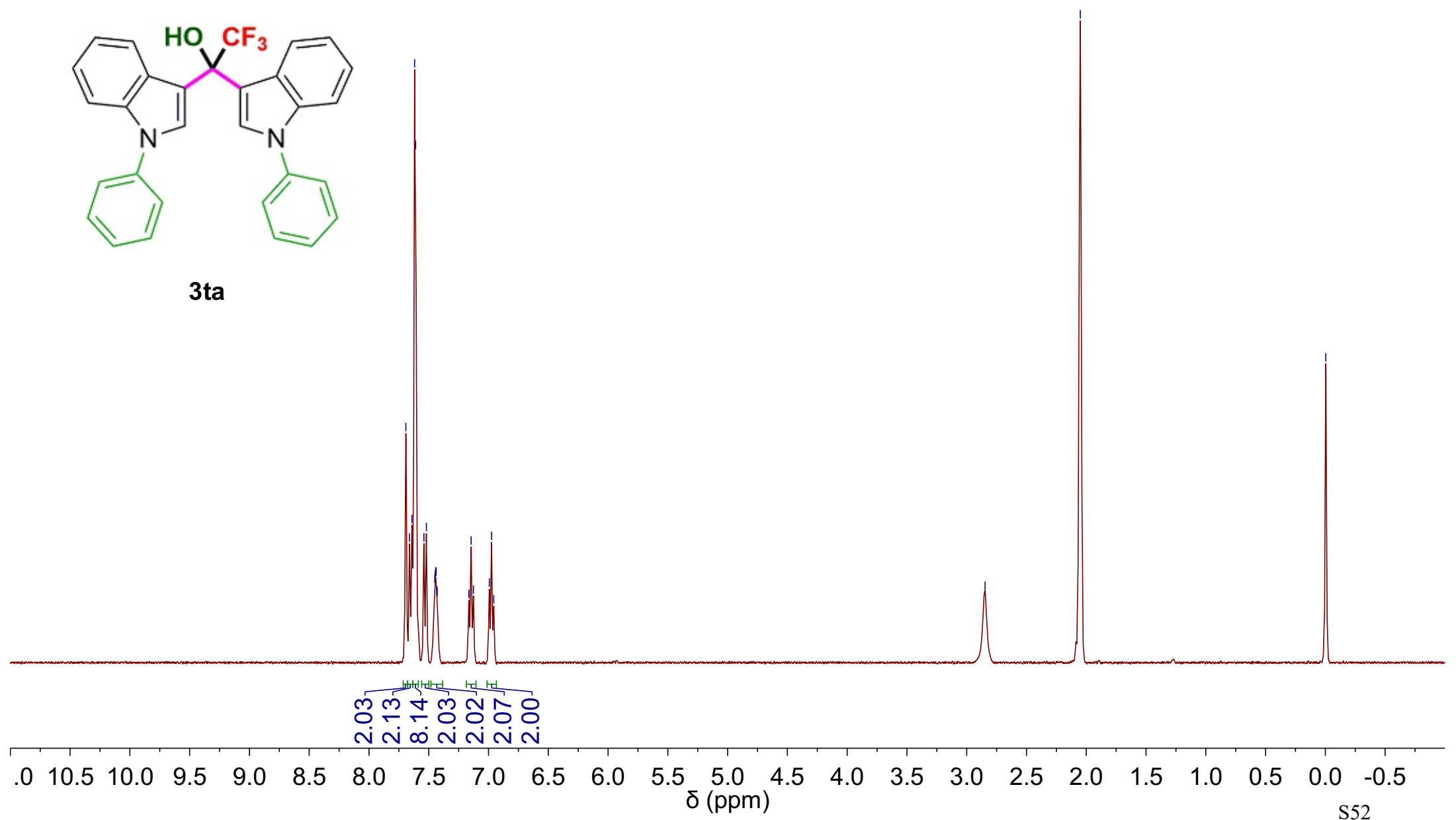
-2.050

-0.004

¹H NMR (400 MHz, acetone-*d*₆)



3ta



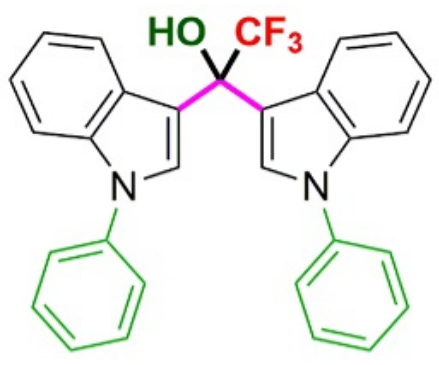
-206.24

140.15
137.32
130.70
128.45
128.38
128.07
127.70
126.17
125.22
123.90
123.41
122.83
121.12
116.47
111.21

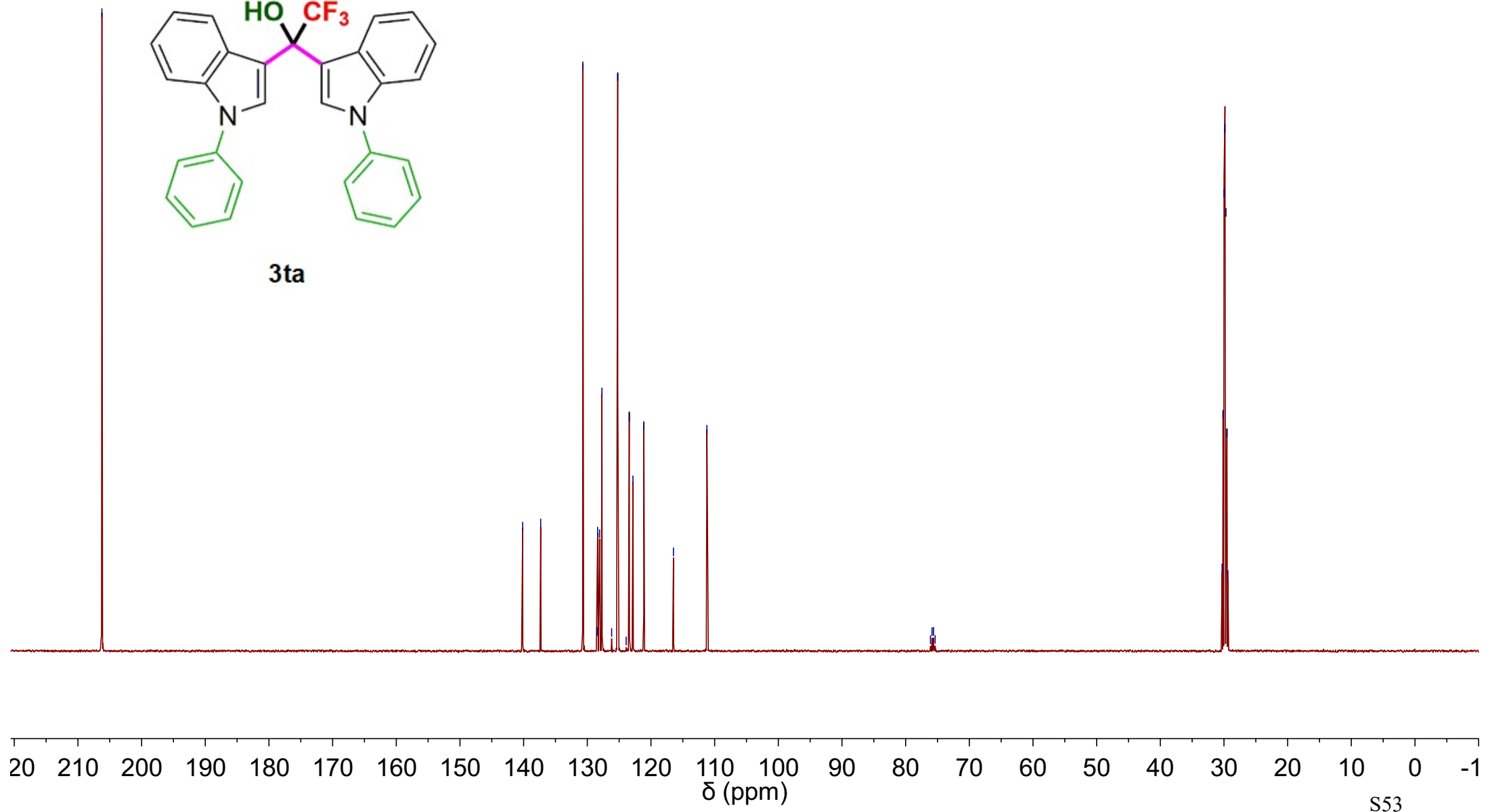
76.10
75.86
75.61
75.37

30.30
30.15
29.99
29.84
29.69
29.53
29.38

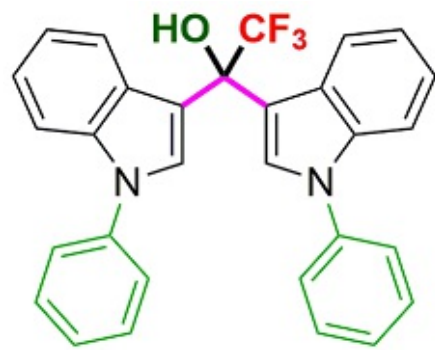
¹³C NMR (126 MHz, acetone-d₆)



3ta

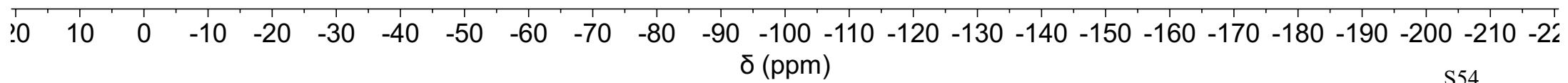


^{19}F NMR (471 MHz, acetone- d_6)



3ta

--77.21

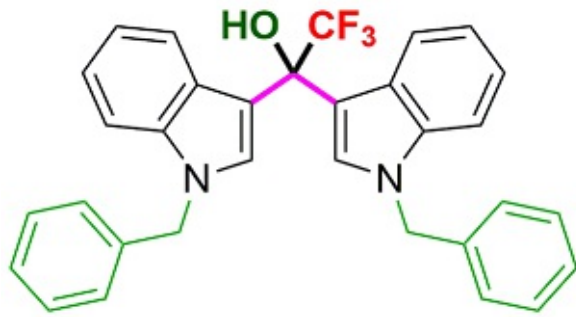


7.598
7.445
7.424
7.343
7.323
7.314
7.295
7.273
7.255
7.237
7.208
7.190
7.033
7.013
6.994
6.846
6.826
6.808
~5.653
~5.510

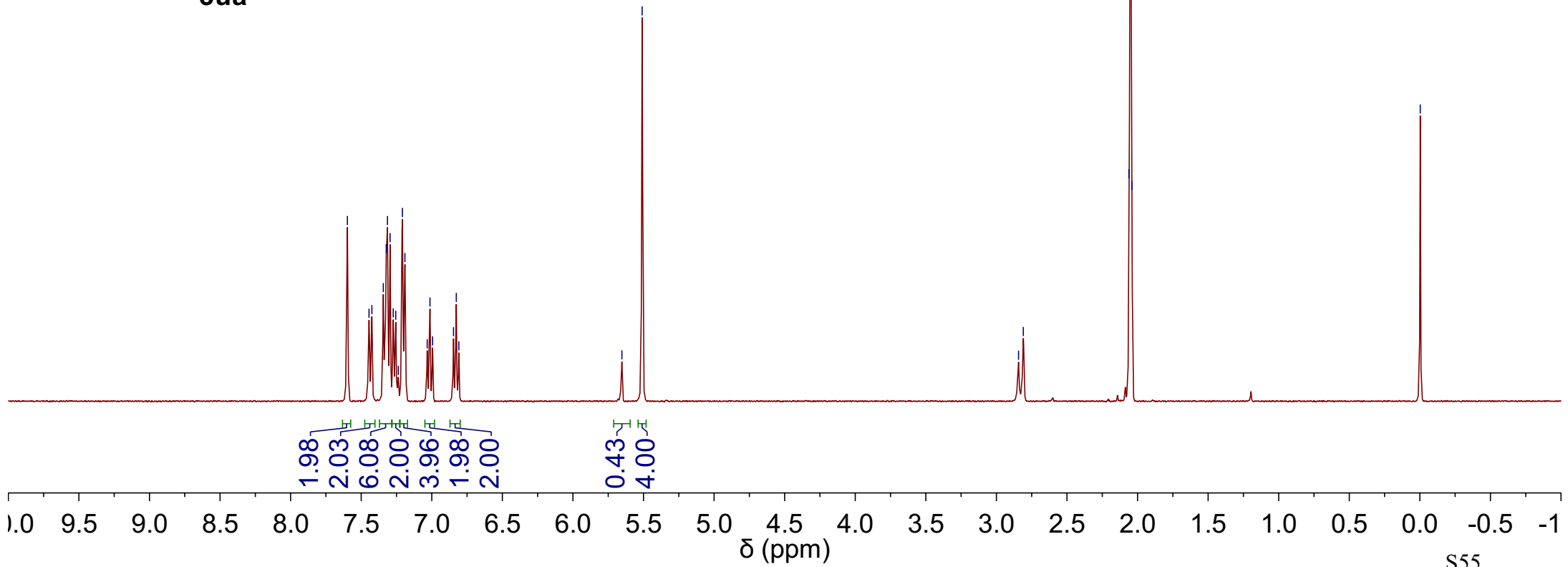
2.843
2.809
2.061
2.056
2.050
2.045
2.040

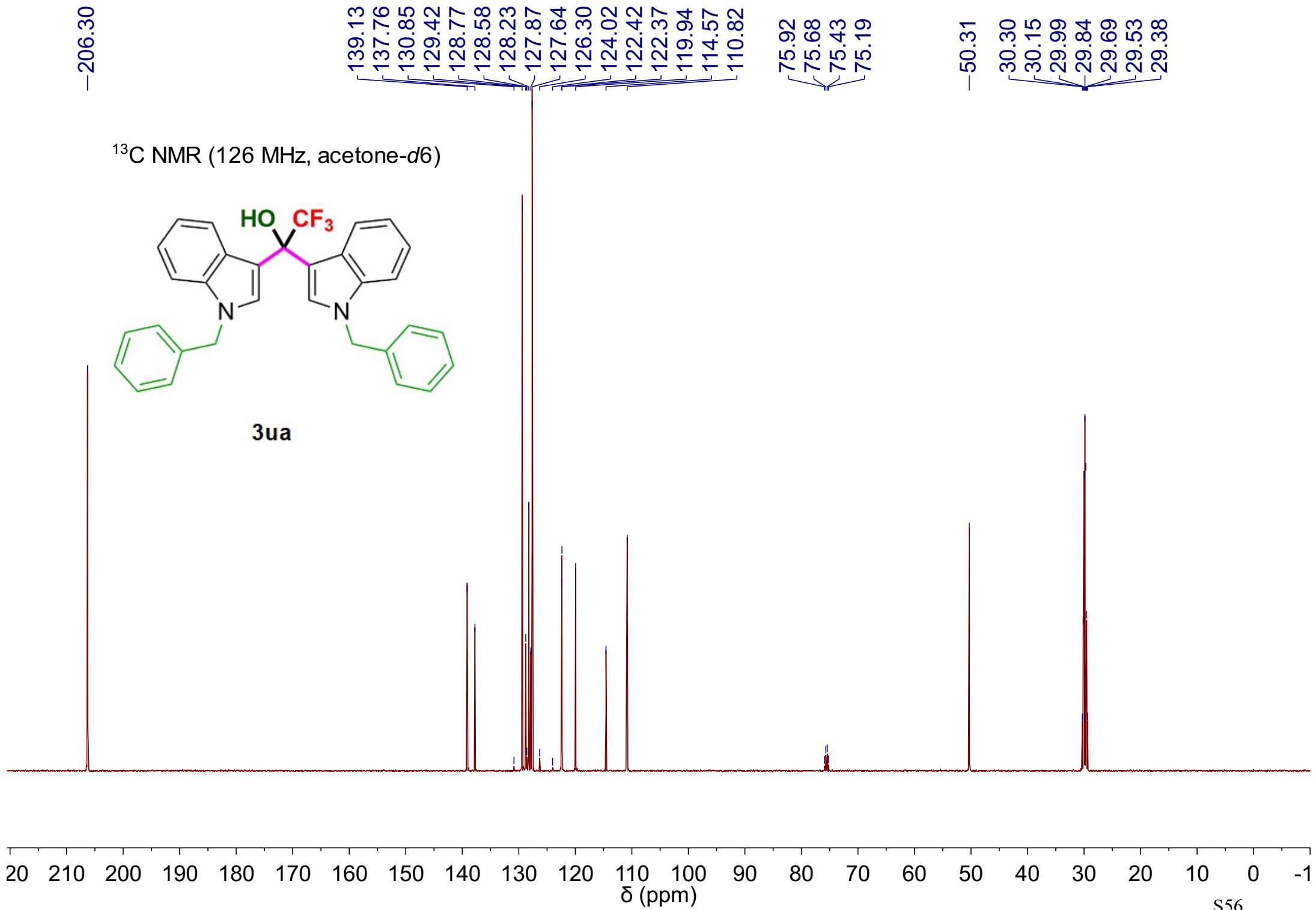
—0.003

¹H NMR (400 MHz, acetone-d₆)

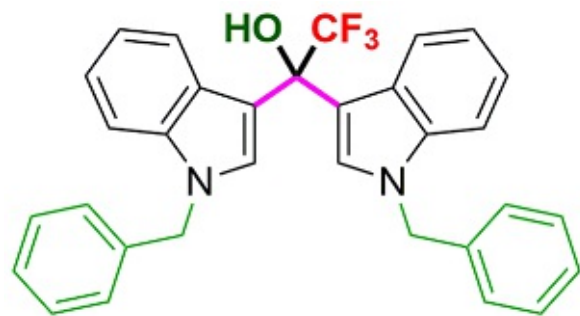


3ua



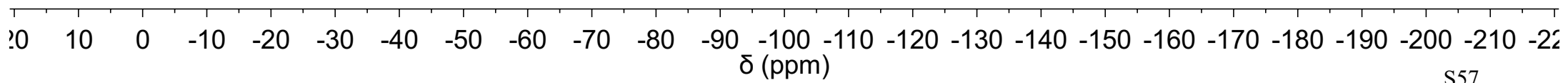


^{19}F NMR (471 MHz, acetone- d_6)



3ua

--77.24

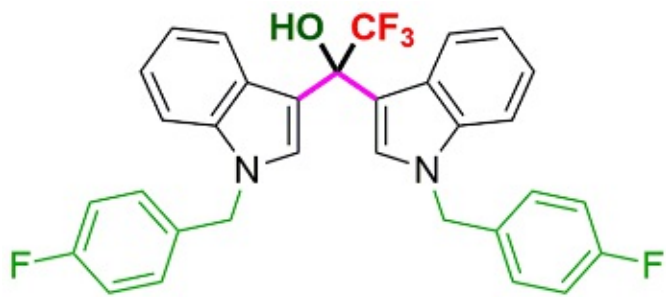


7.593
7.427
7.408
7.355
7.335
7.266
7.255
7.249
7.236
7.101
7.079
7.063
7.057
7.045
7.025
7.007
6.858
6.839
6.821
5.655
5.506

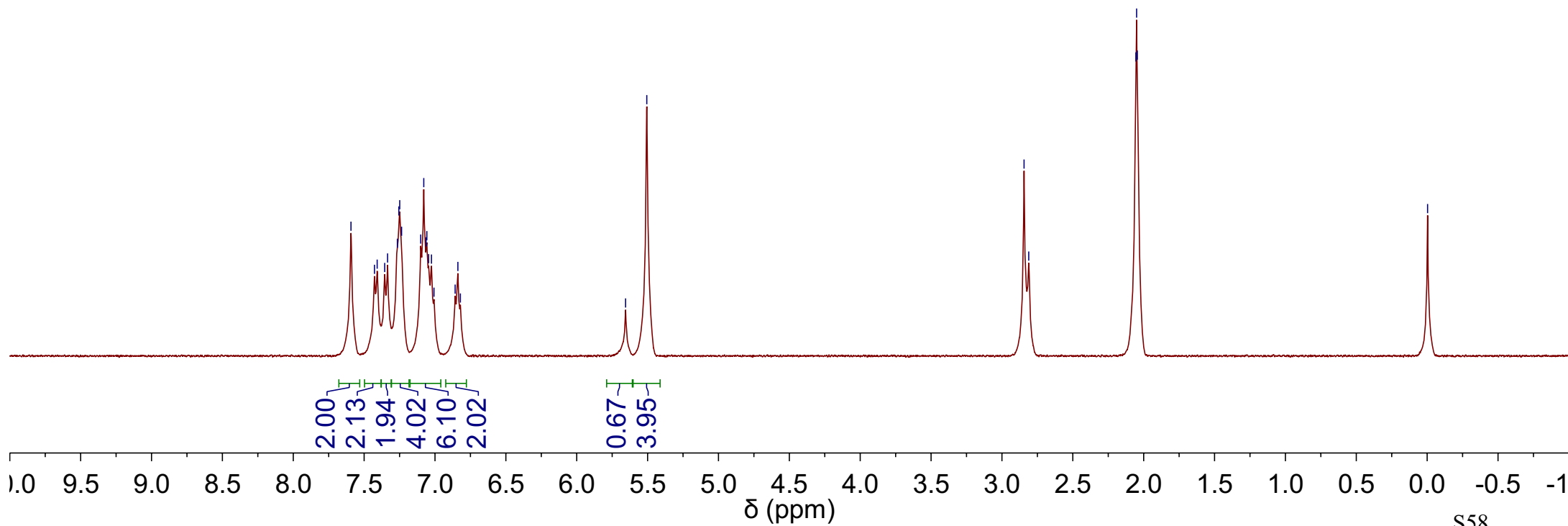
2.844
2.811
2.055
2.050
2.045

-0.003

¹H NMR (400 MHz, acetone-d₆)



3va



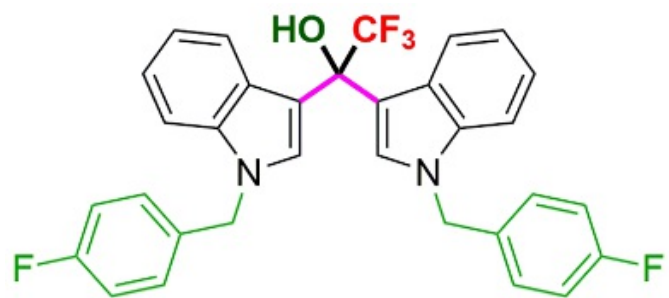
206.35

163.93
162.00
137.66
135.25
135.23
130.83
129.70
129.63
128.66
128.56
127.91
126.28
124.00
122.48
122.44
120.05
116.20
116.02
114.71
110.81

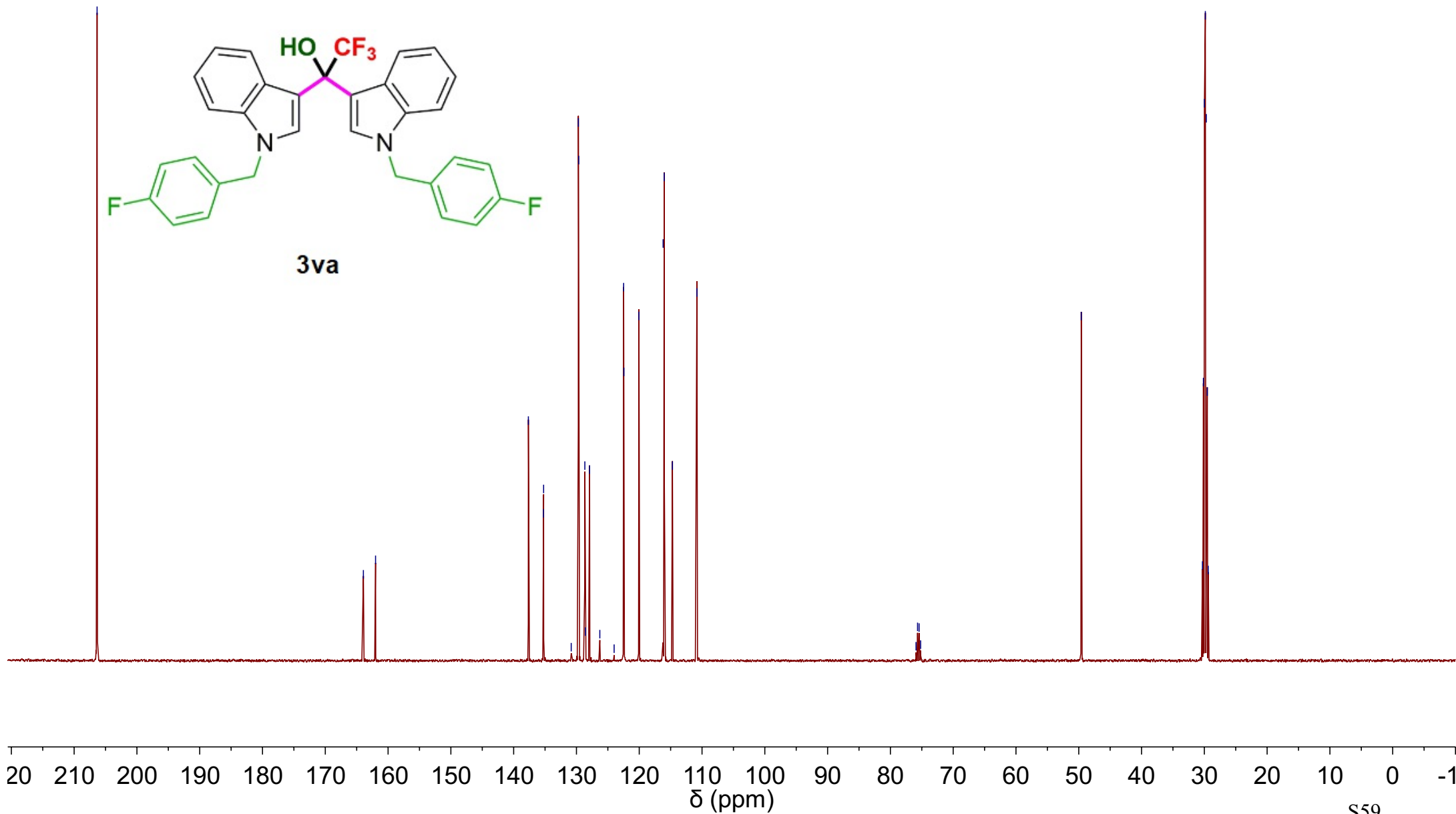
75.92
75.67
75.43
75.19

49.60
30.30
30.15
29.99
29.84
29.69
29.53
29.38

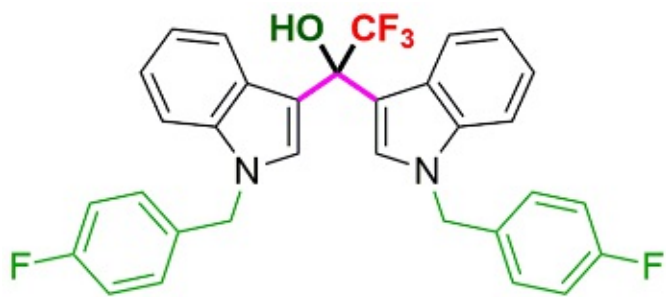
¹³C NMR (126 MHz, acetone-d₆)



3va



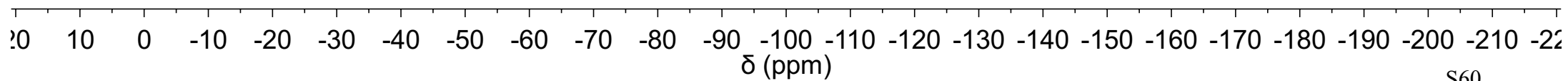
^{19}F NMR (471 MHz, acetone- d_6)



3va

--77.27

116.53
116.55
116.56
116.57



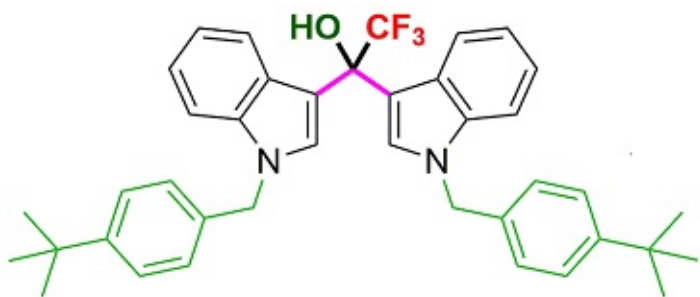
7.590
7.445
7.425
7.368
7.360
7.347
7.339
7.143
7.122
7.041
7.021
7.003
6.845
6.826
6.808
5.630
5.463

2.840
2.806
2.060
2.055
2.050
2.045

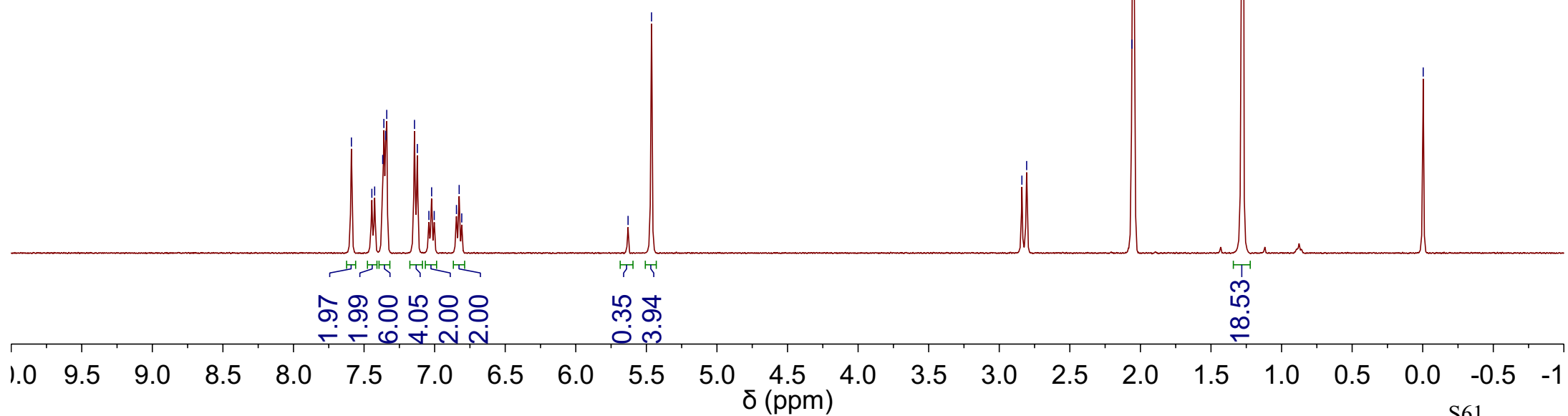
1.276

-0.003

¹H NMR (400 MHz, acetone-d₆)



3wa



-206.27

-150.97

-137.74

-136.11

-130.86

-128.75

-128.58

-127.84

-127.41

-126.24

-124.02

-122.44

-122.30

-119.87

-114.50

-110.81

-75.93

-75.69

-75.44

-75.20

-49.97

-34.96

-31.62

-30.30

-30.15

-29.99

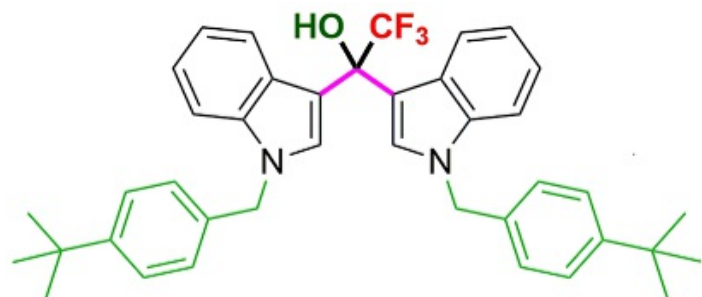
-29.84

-29.69

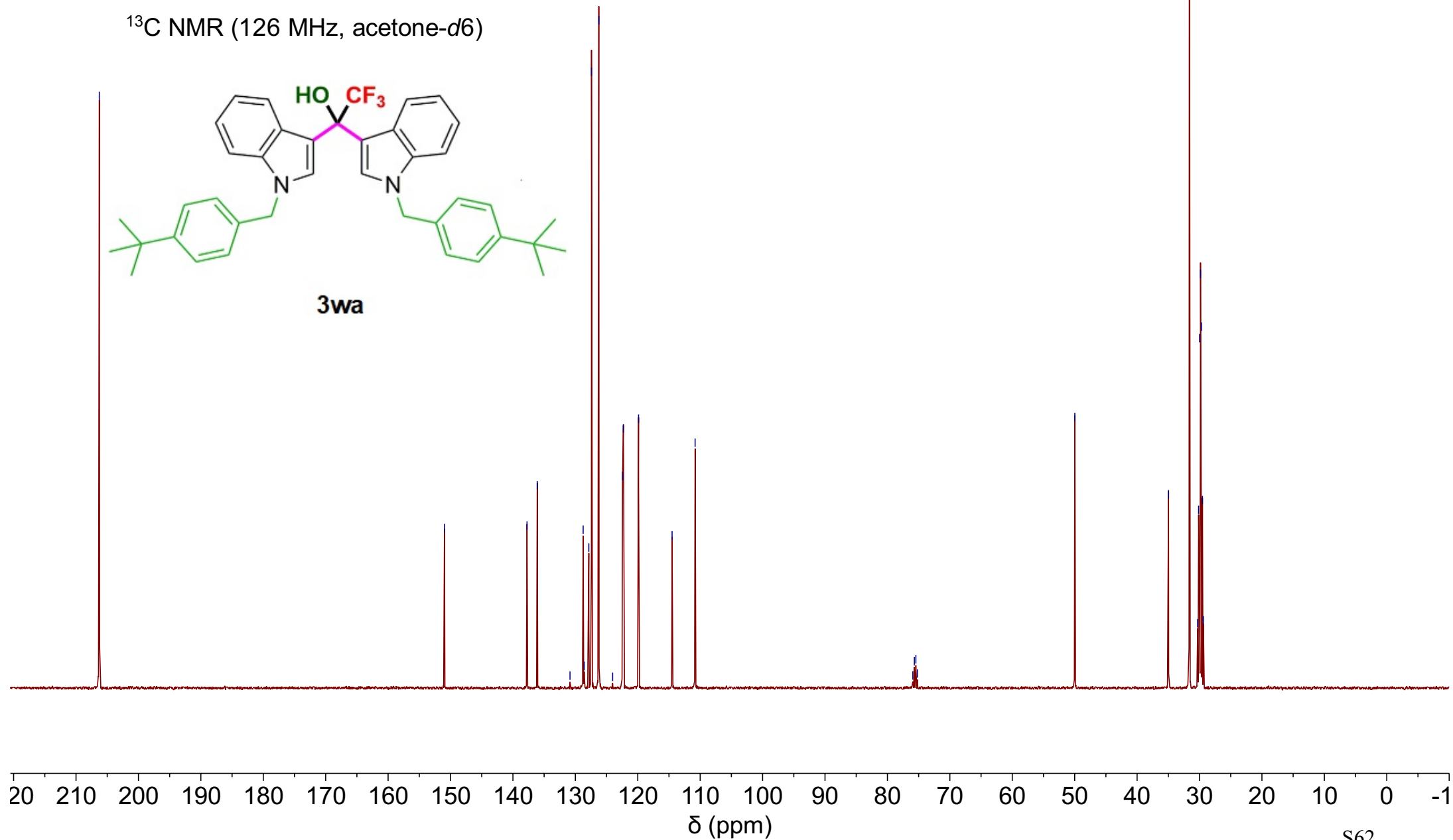
-29.53

-29.38

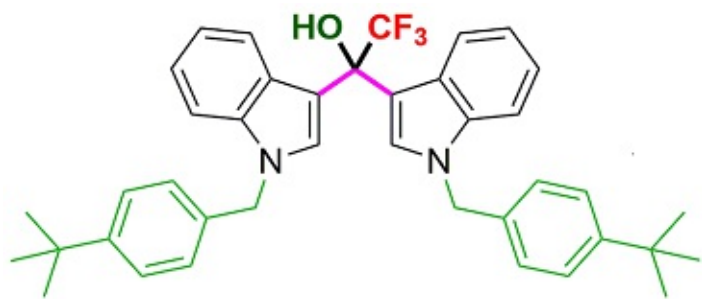
¹³C NMR (126 MHz, acetone-*d*₆)



3wa

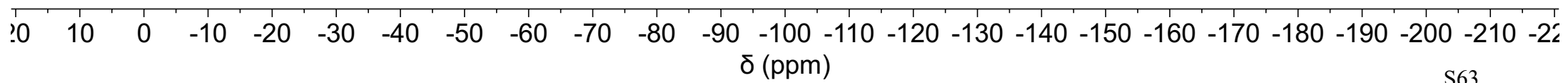


^{19}F NMR (471 MHz, acetone-*d*6)

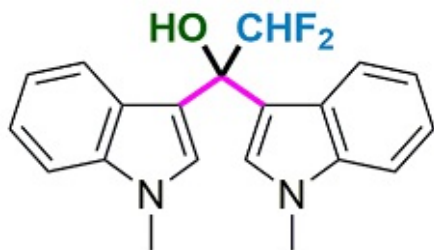


3wa

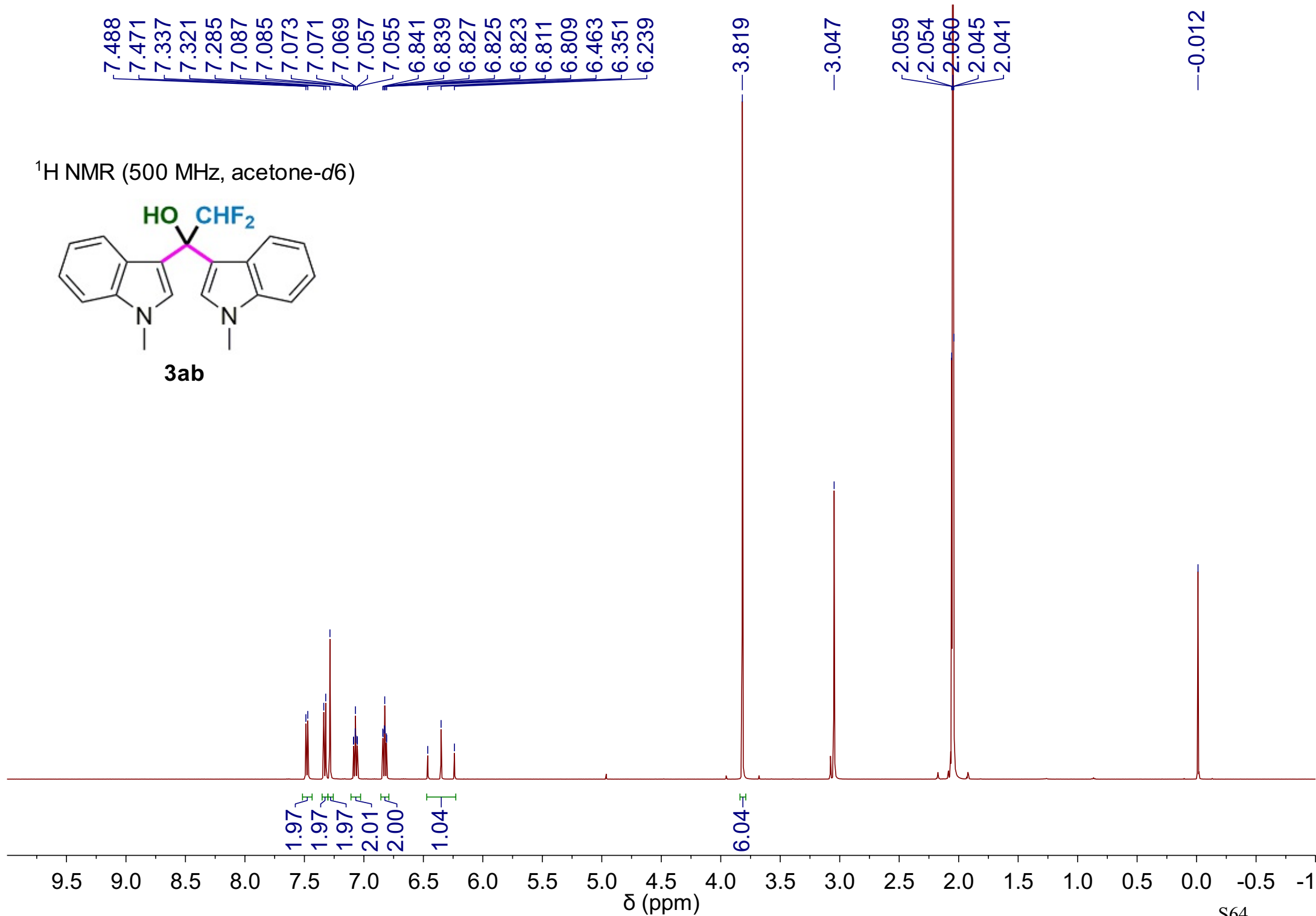
---77.14

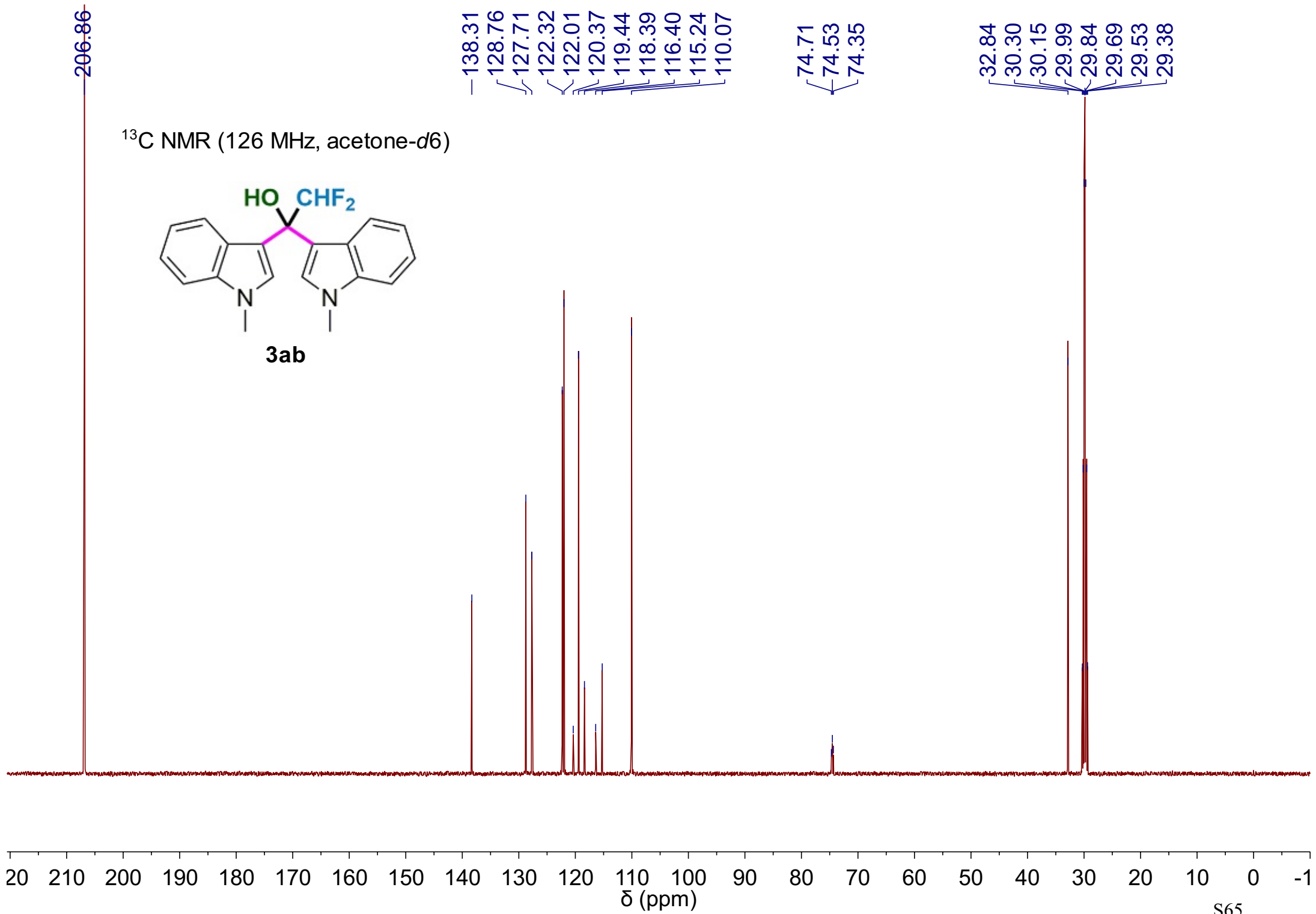


¹H NMR (500 MHz, acetone-*d*₆)



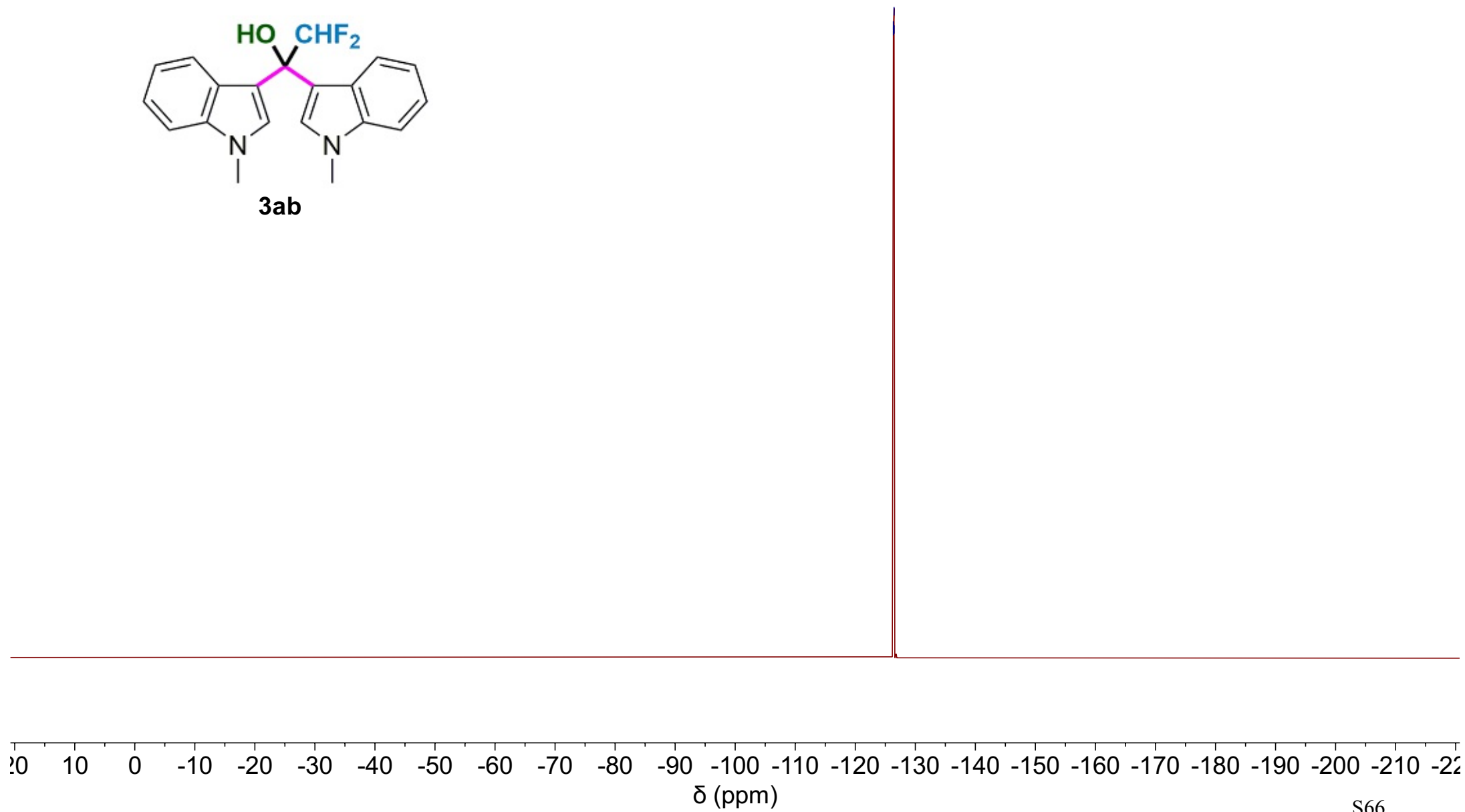
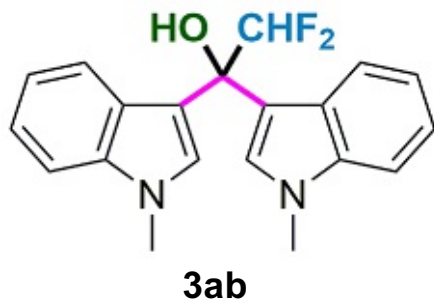
3ab





-126.34
-126.35
-126.46
-126.47

^{19}F NMR (471 MHz, acetone-*d*6)



7.691
7.687
7.355
7.337
7.320
7.221
7.217
7.203
7.199
6.448
6.336
6.224

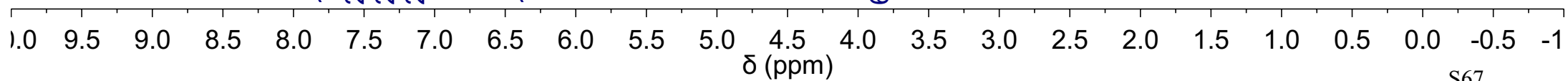
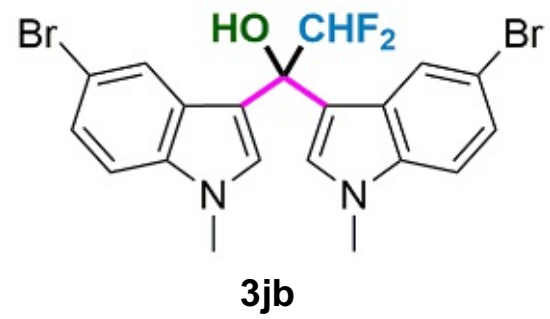
3.839

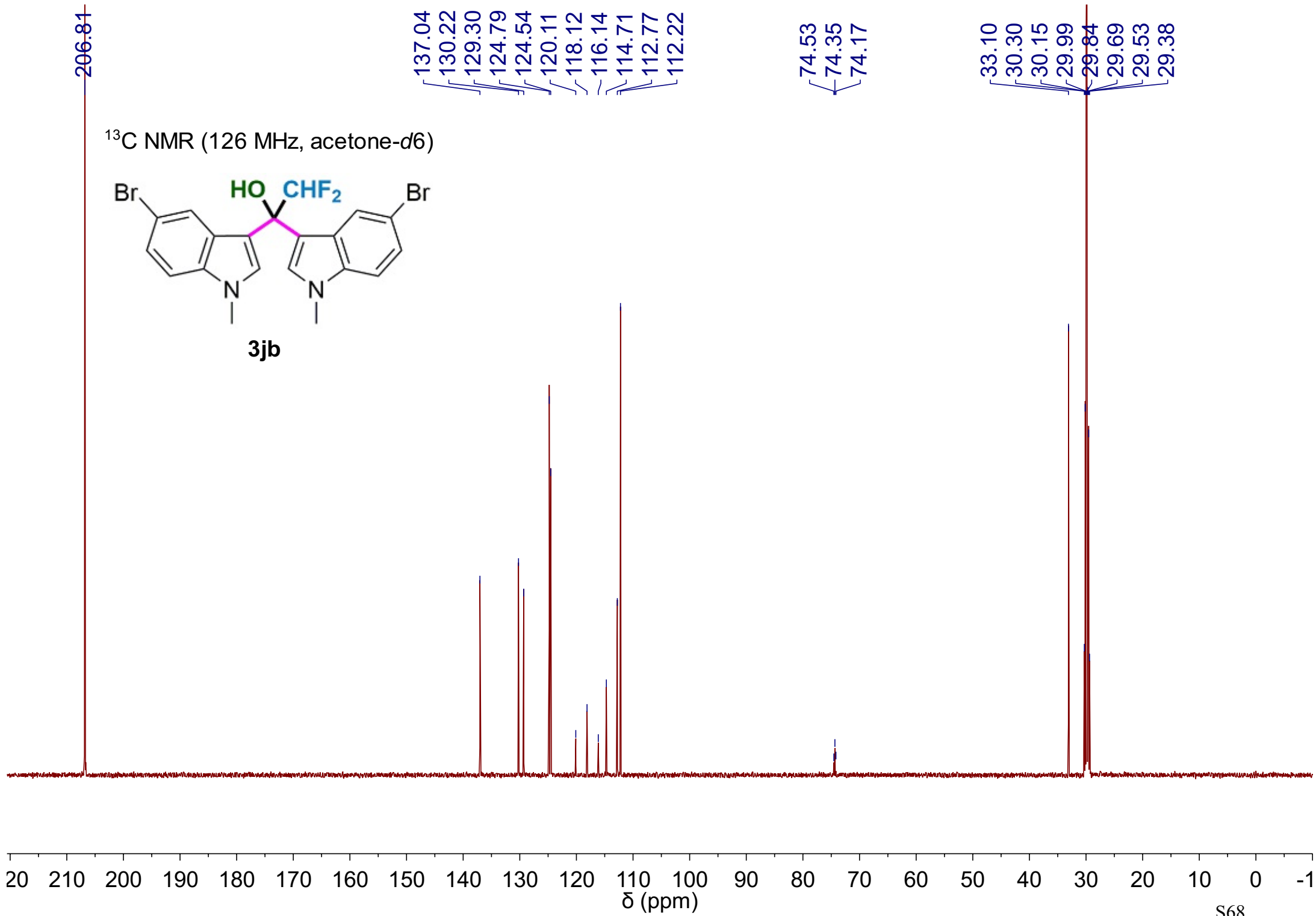
3.046

2.059
2.055
2.050
2.046
2.042

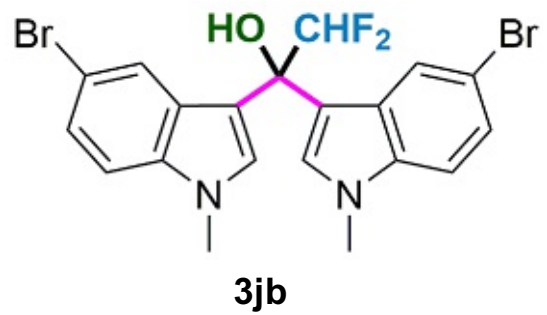
-0.013

¹H NMR (500 MHz, acetone-d₆)

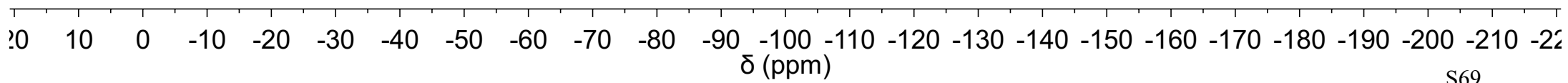




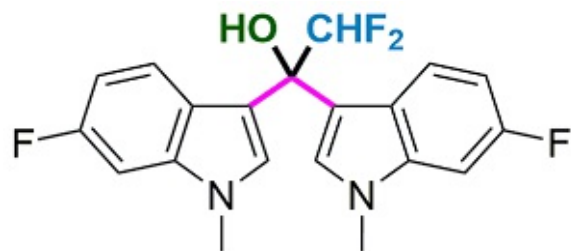
¹⁹F NMR (471 MHz, acetone-*d*₆)



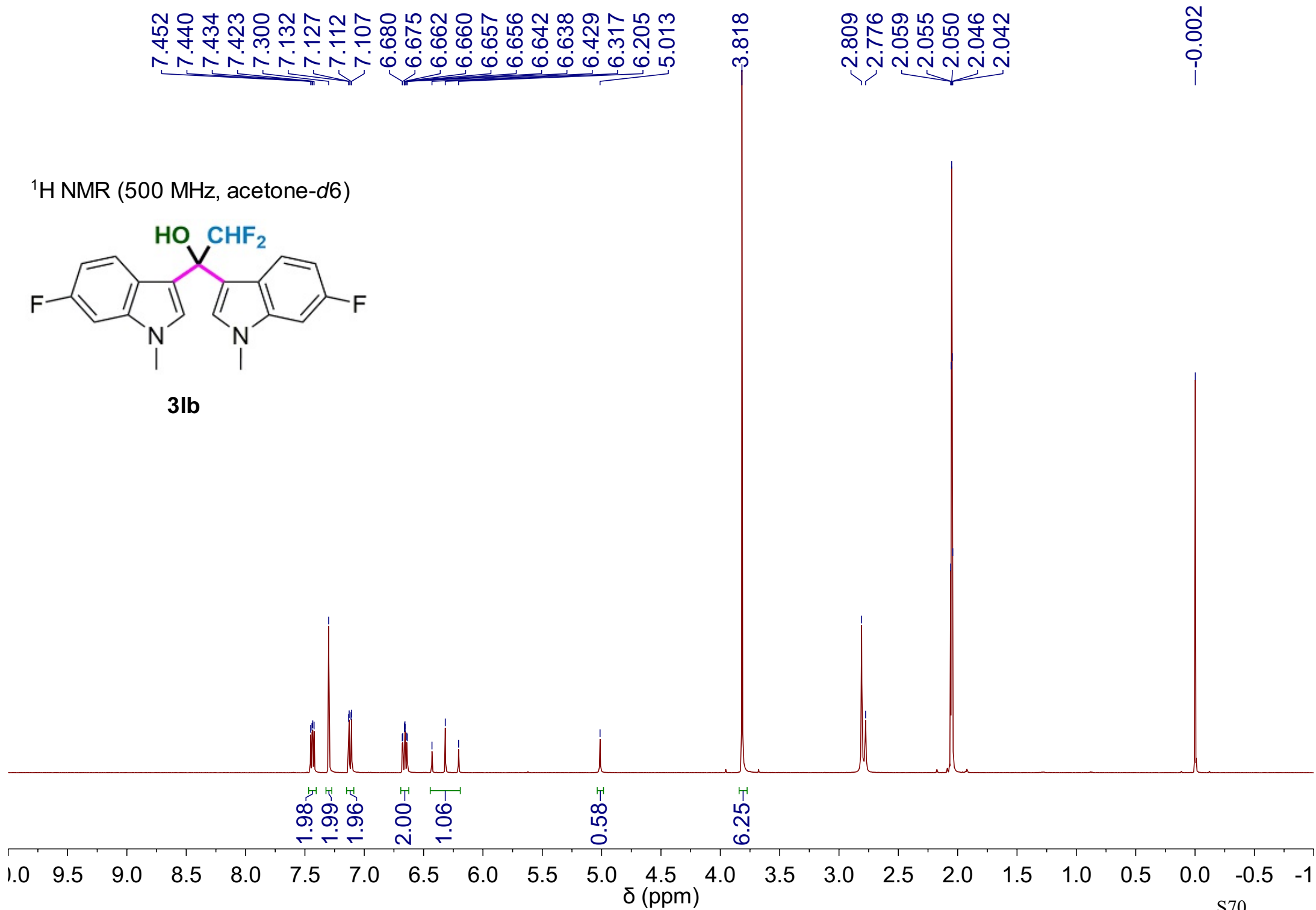
-126.55
-126.67

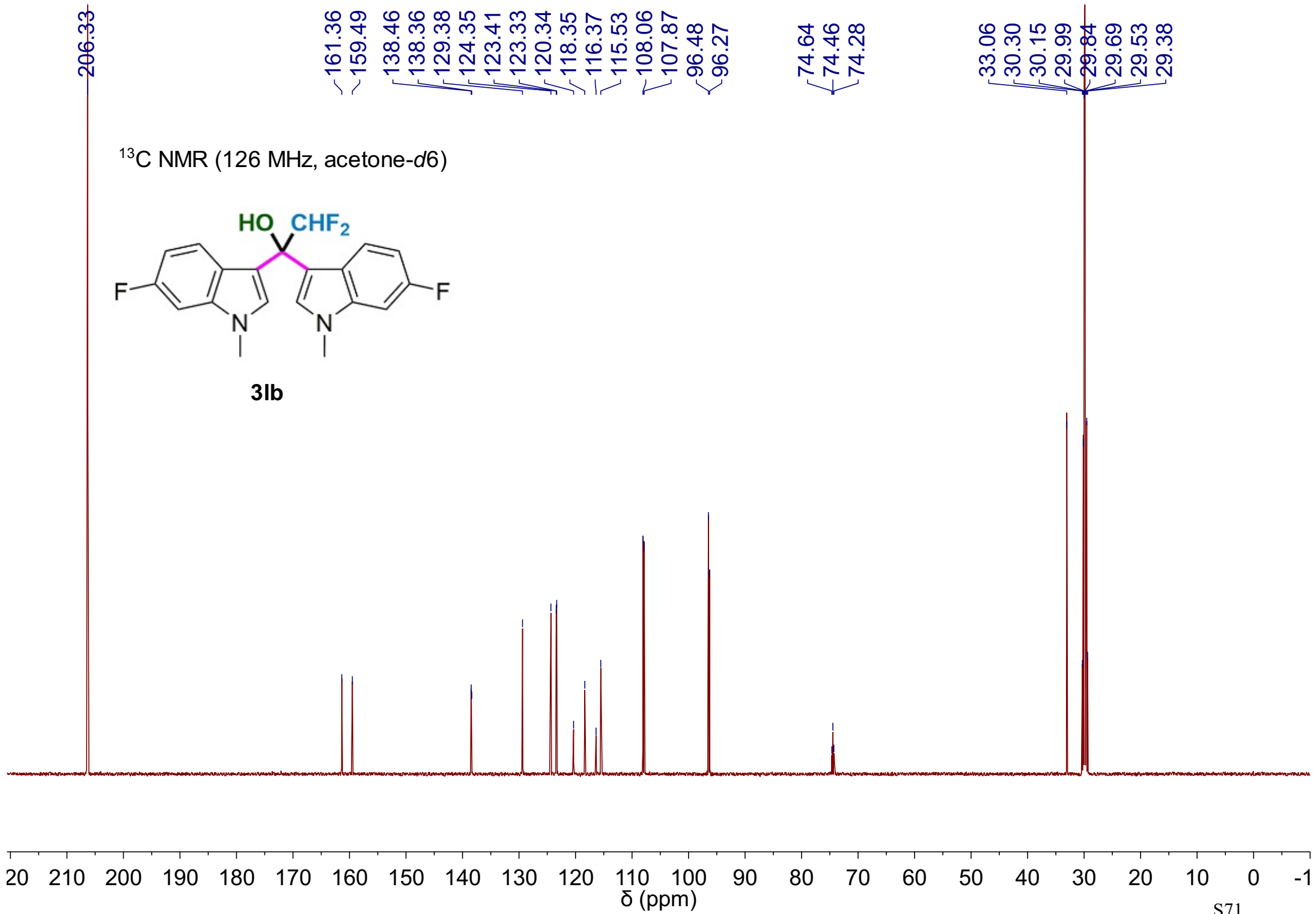


¹H NMR (500 MHz, acetone-*d*6)

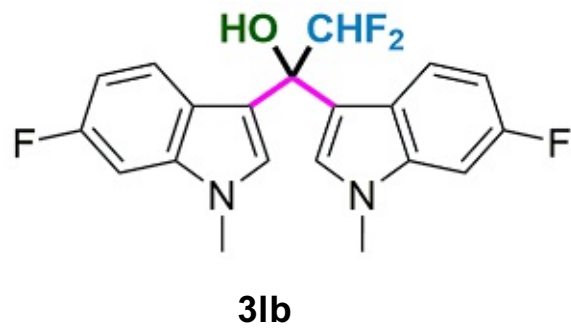


3b

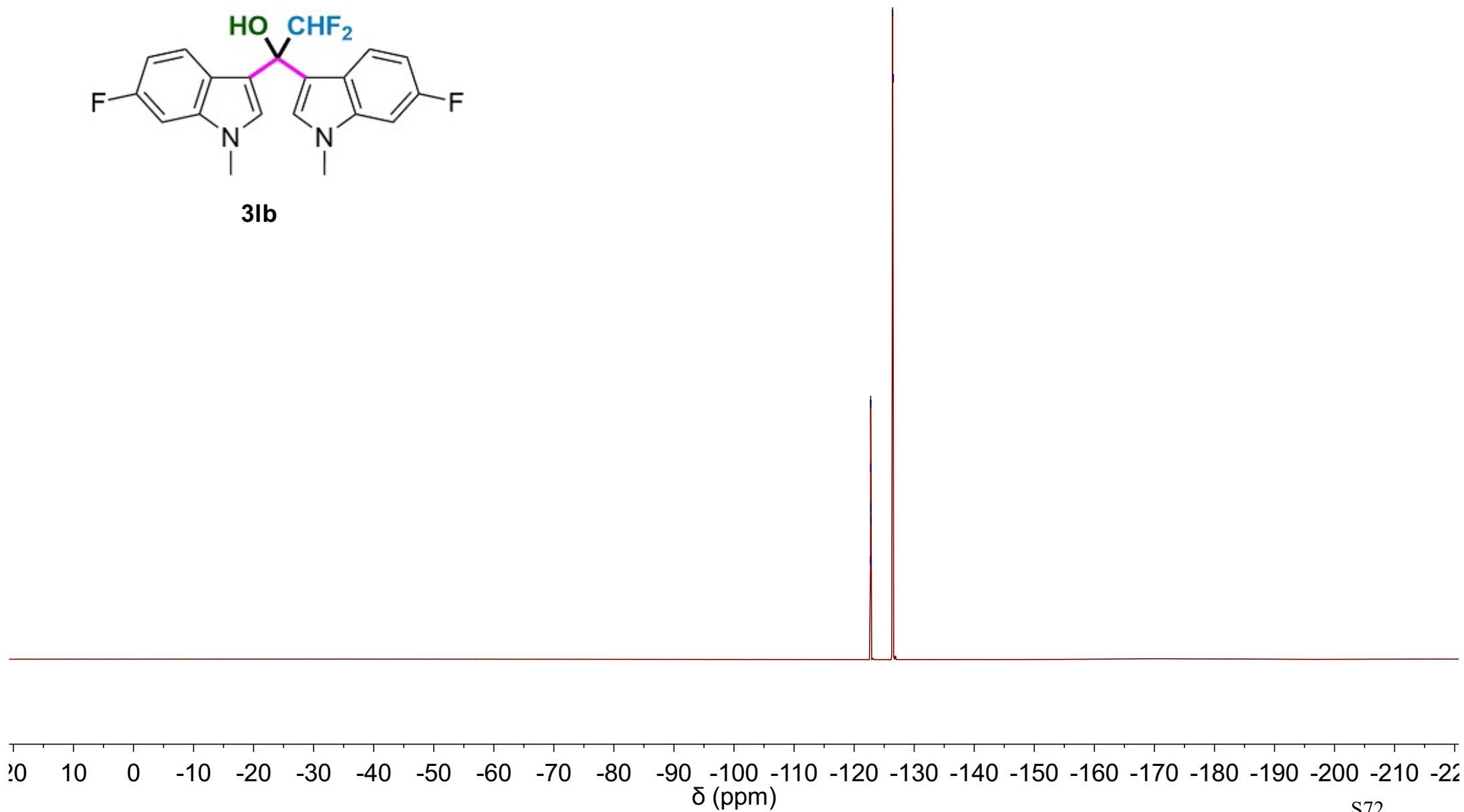




^{19}F NMR (471 MHz, acetone- d_6)



122.73
122.75
122.75
122.77
122.77
122.79
126.42
126.53

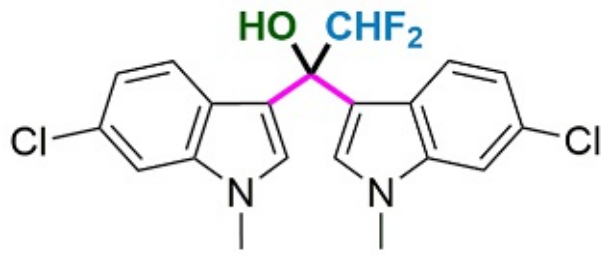


7.462
7.458
7.453
7.445
7.441
7.436
7.424
7.420
7.353
6.874
6.873
6.871
6.867
6.860
6.857
6.854
6.850
6.462
6.458
6.350
6.346
6.238
6.234
5.116
3.833
3.830

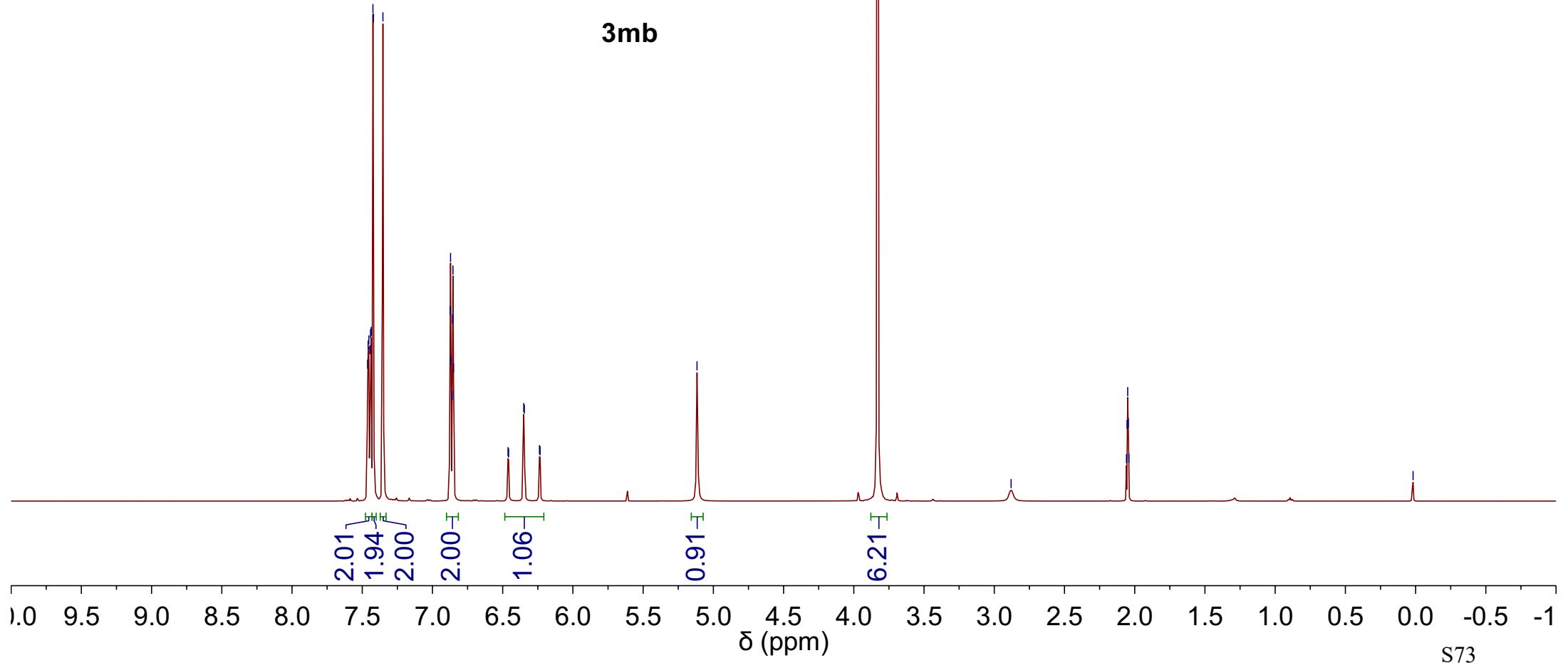
-2.880
2.059
2.054
2.050
2.046
2.041

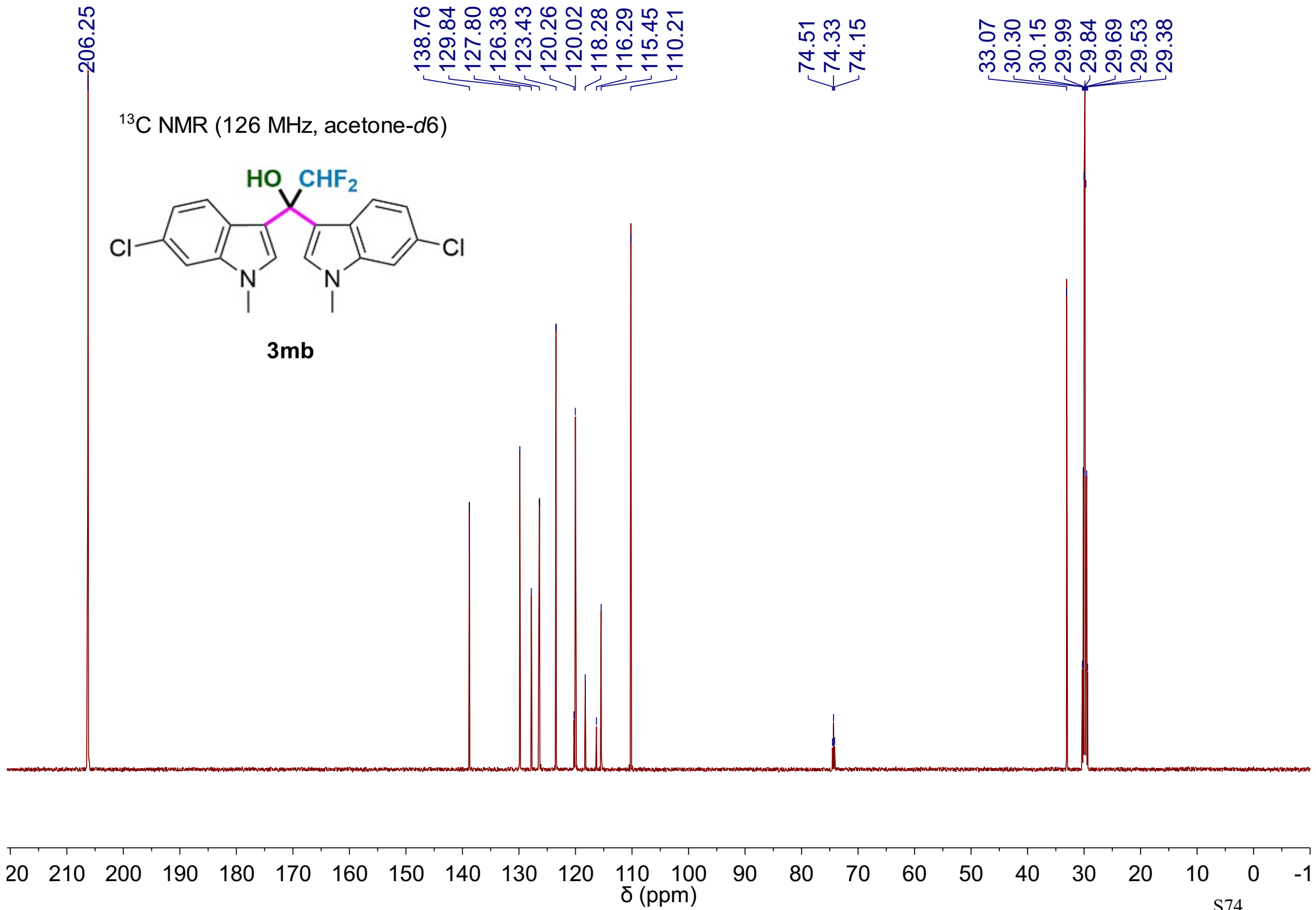
-0.018

¹H NMR (500 MHz, acetone-d₆)

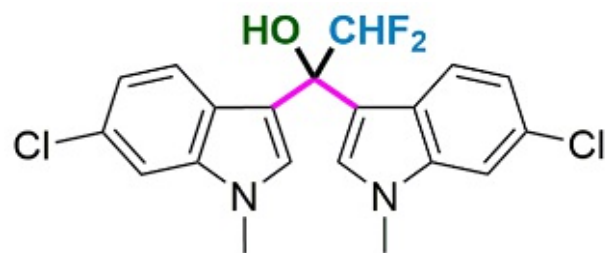


3mb



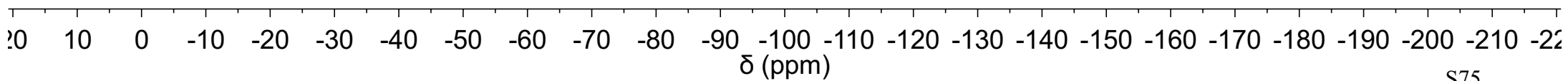


^{19}F NMR (471 MHz, acetone- d_6)

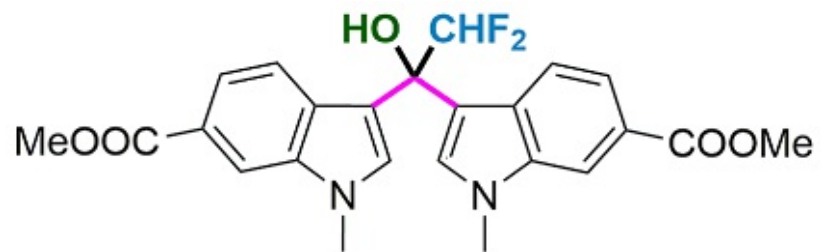


3mb

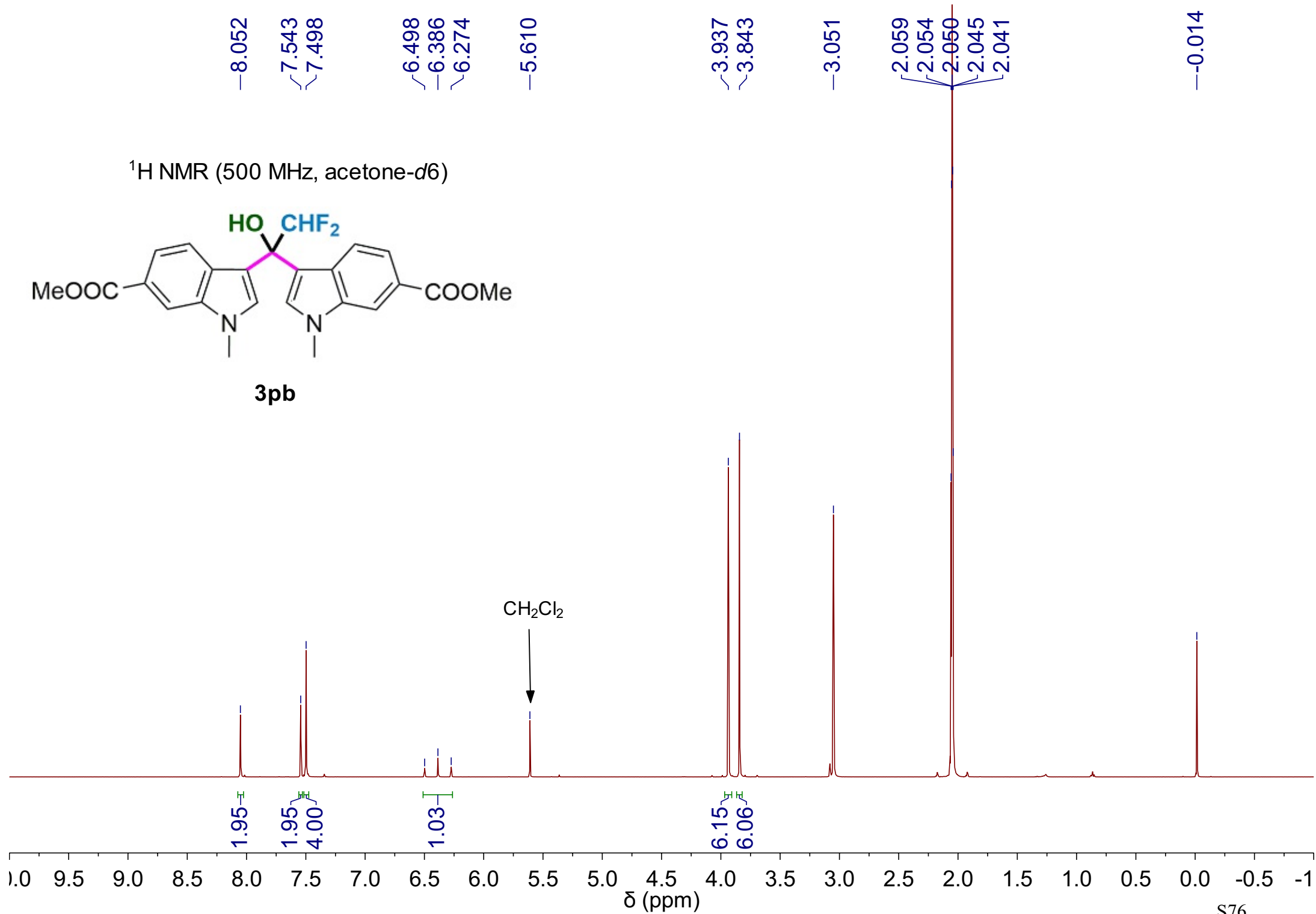
-126.44
-126.49
-126.56
-126.61

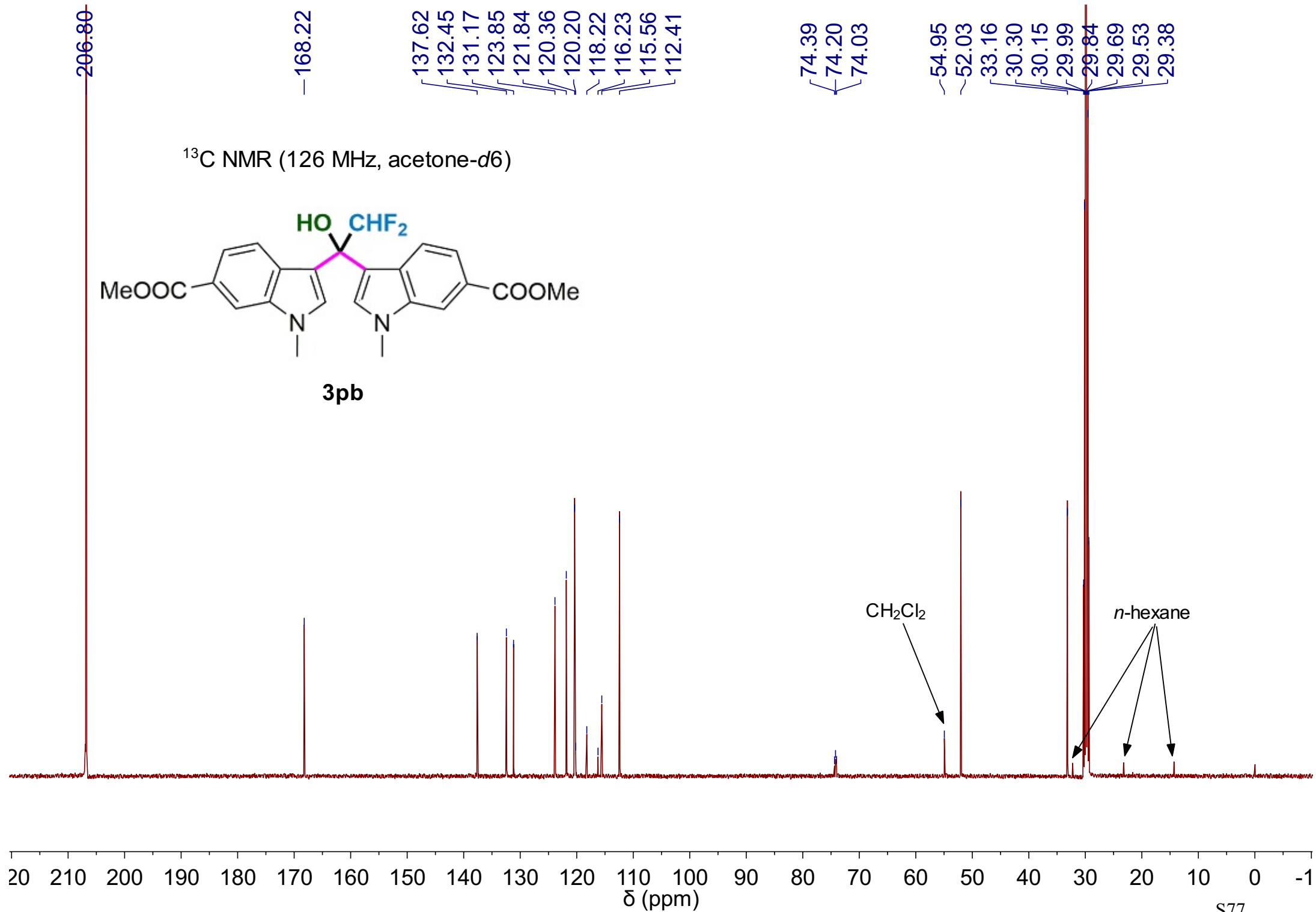


¹H NMR (500 MHz, acetone-*d*₆)

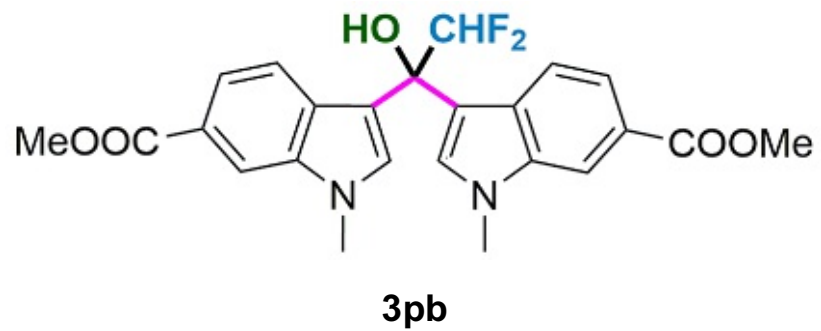


3pb

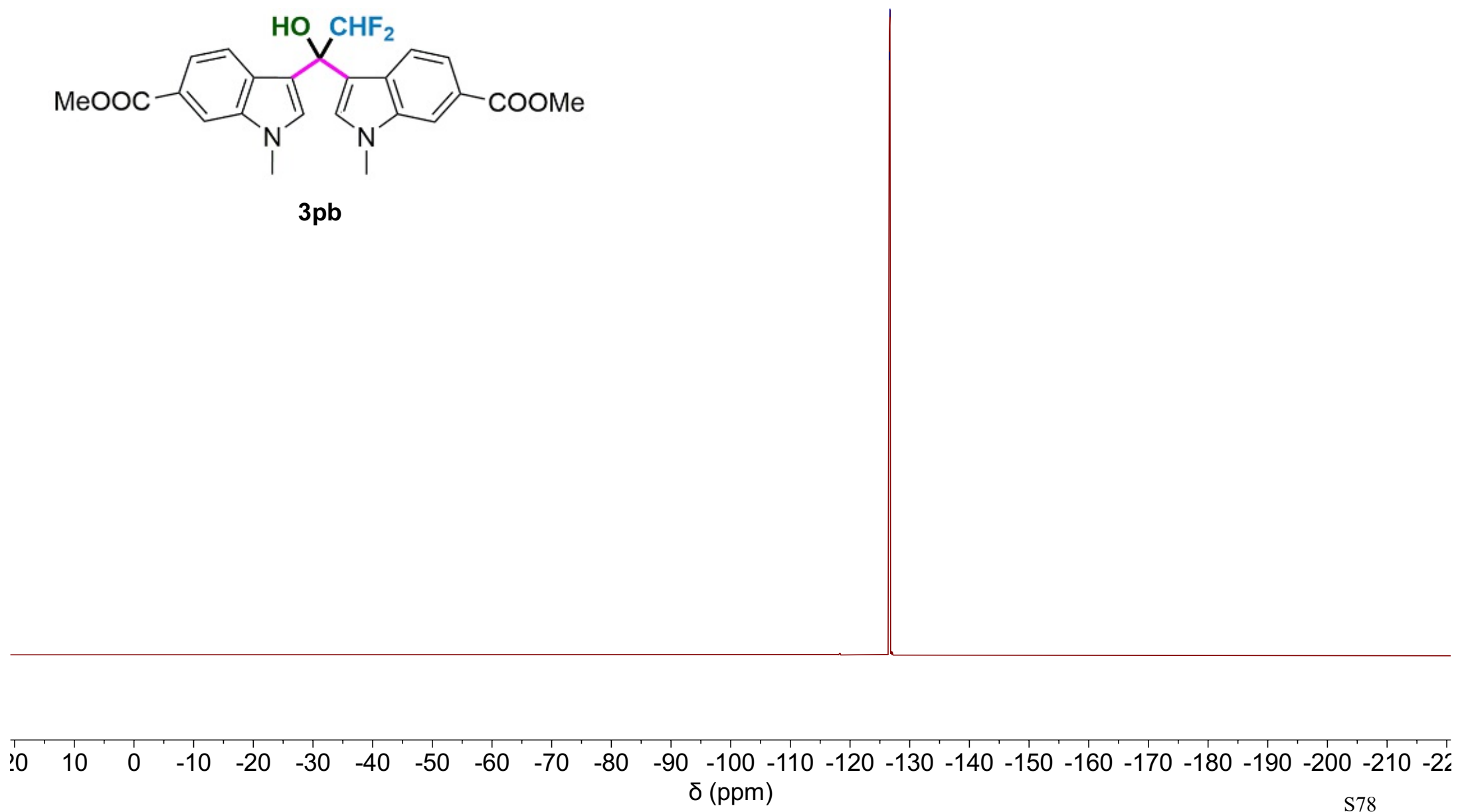


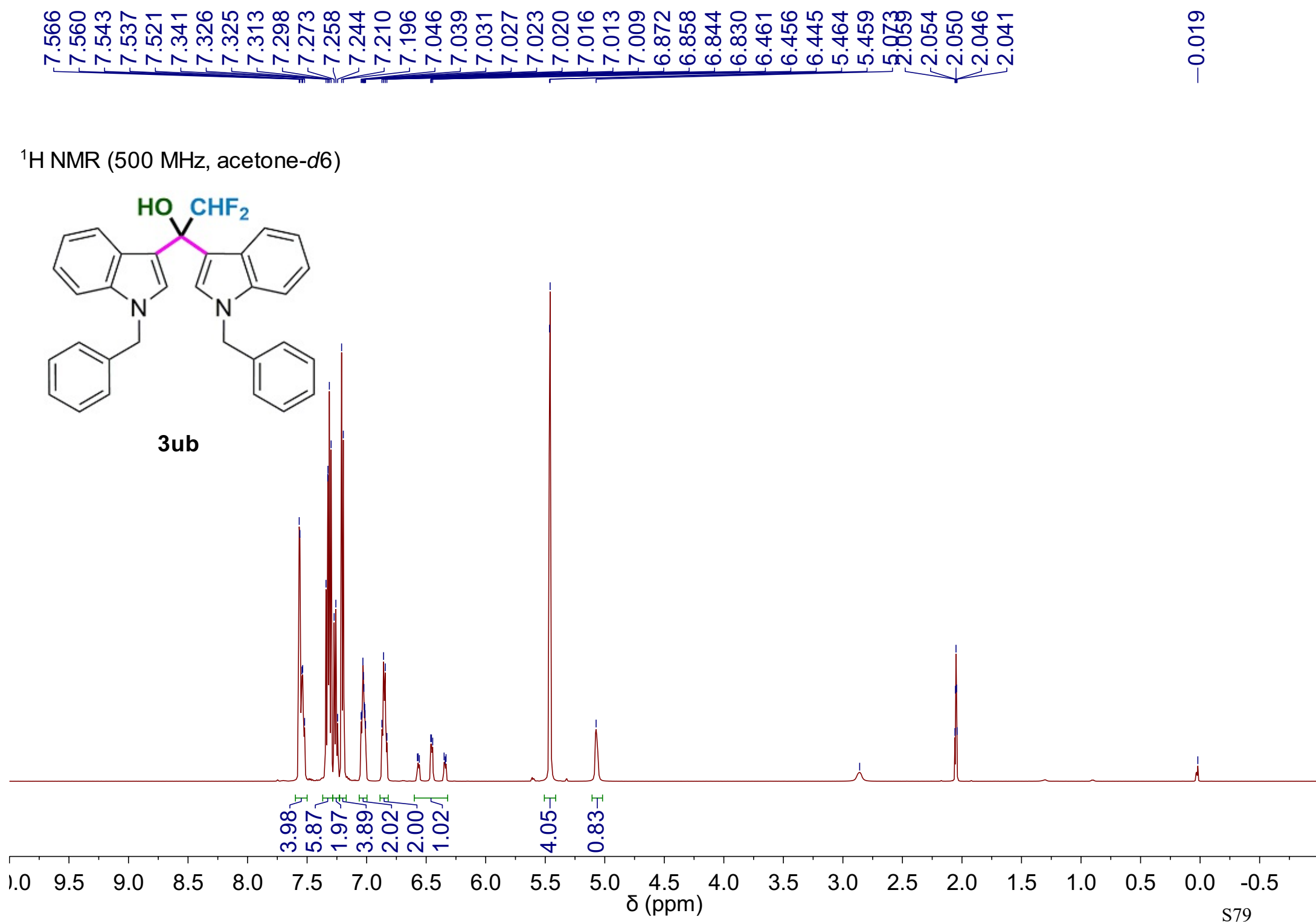


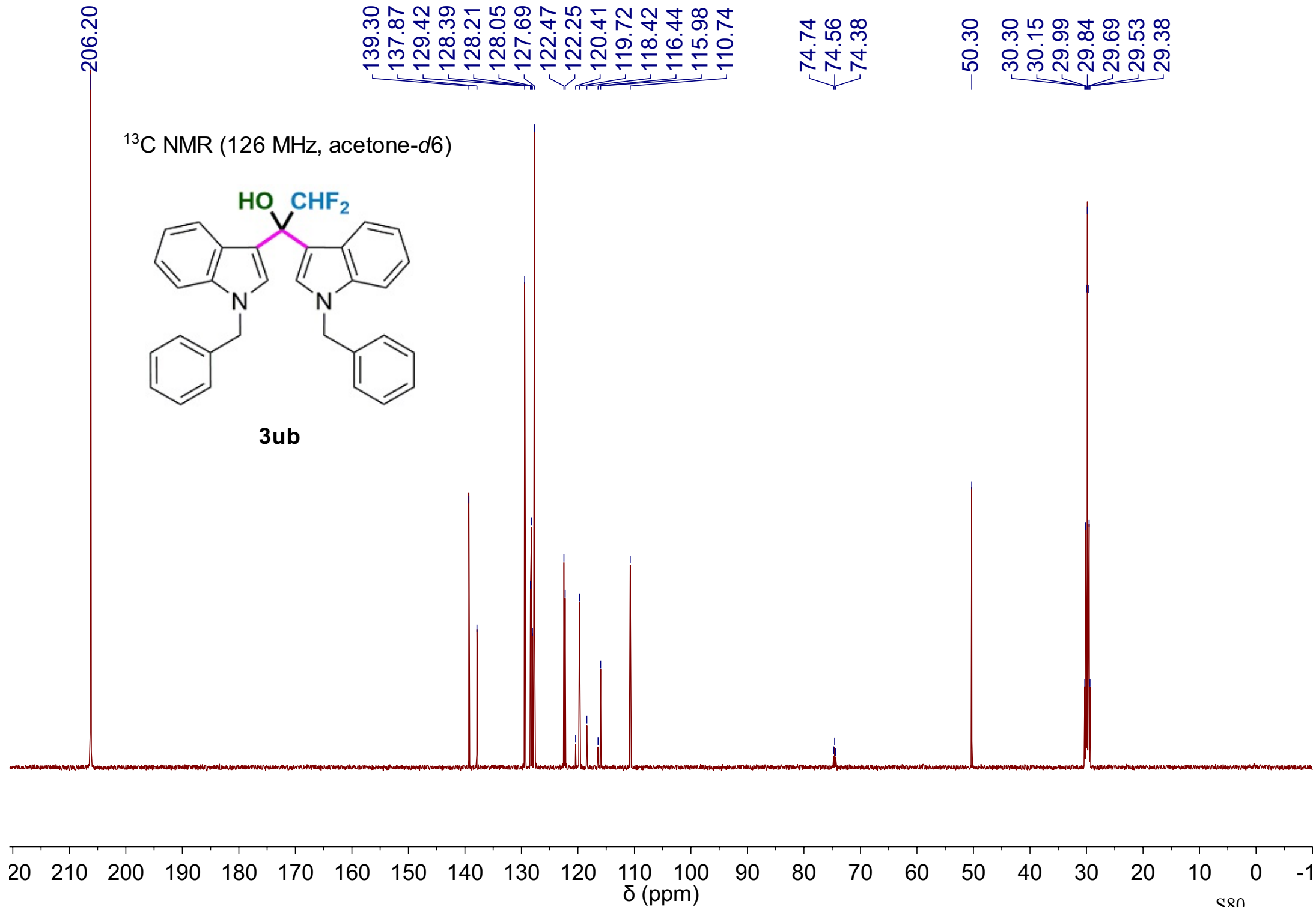
^{19}F NMR (471 MHz, acetone- d_6)



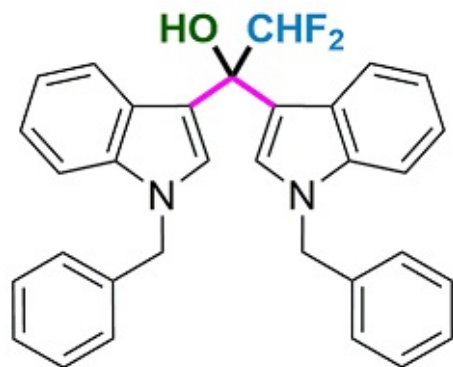
-126.58
-126.70





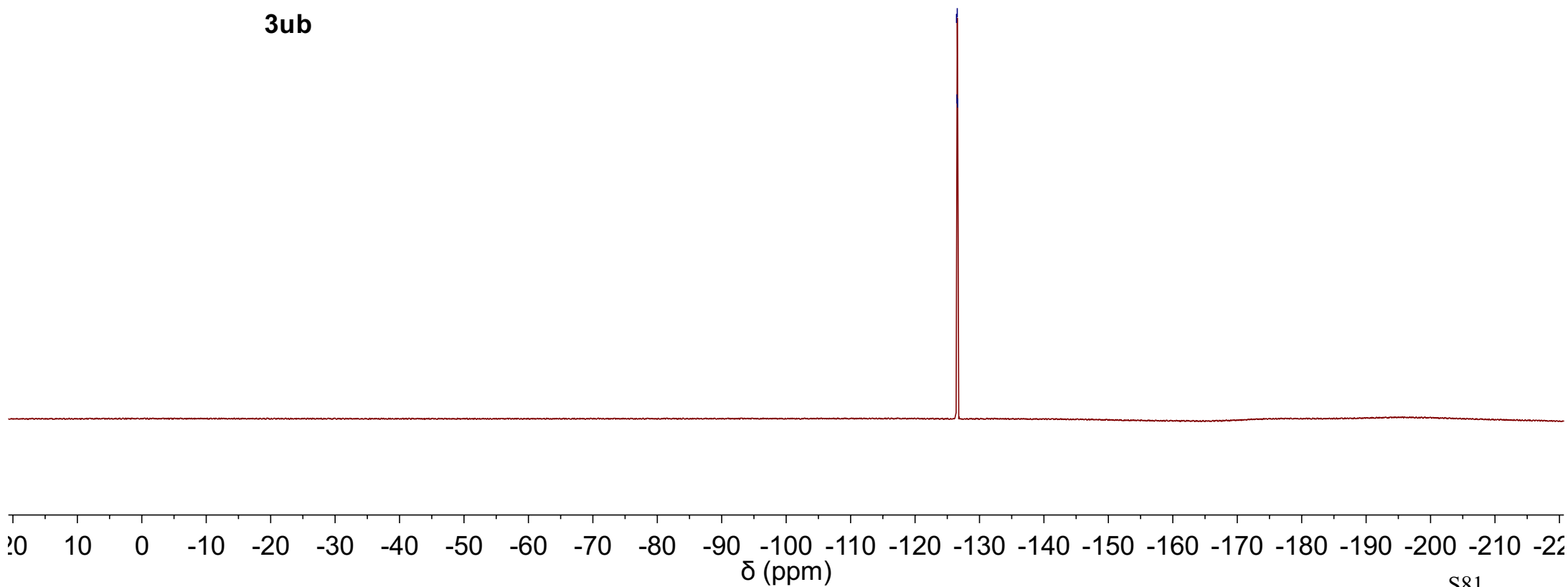


^{19}F NMR (471 MHz, acetone- d_6)



3ub

-126.43
-126.50
-126.55
-126.62



7.447
7.430
7.366
7.334
7.317
7.075
7.073
7.059
7.044
7.043
6.827
6.826
6.812
6.810
6.797
6.796

3.839

3.047

2.059

2.055

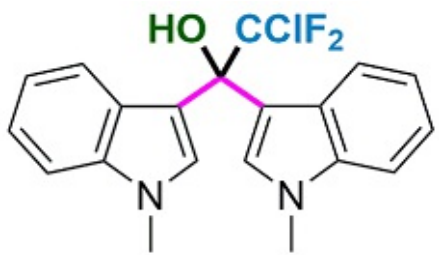
2.050

2.046

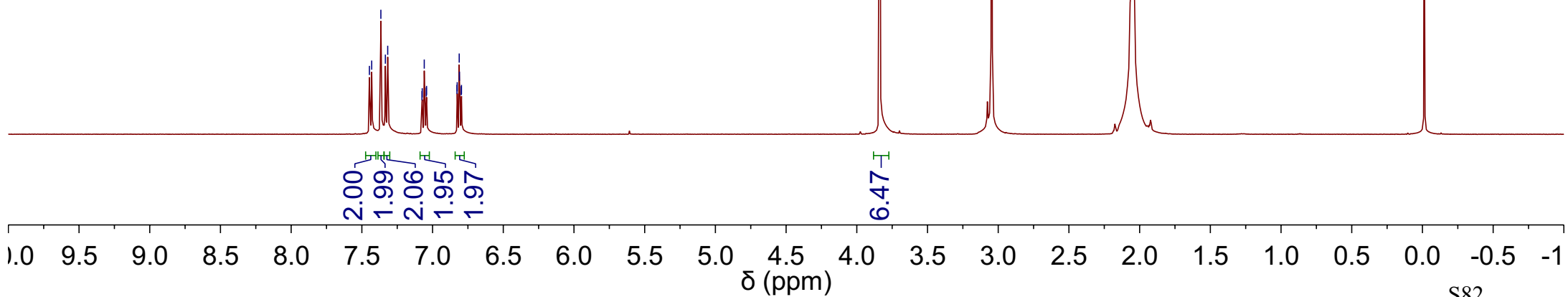
2.042

-0.012

¹H NMR (500 MHz, acetone-*d*₆)

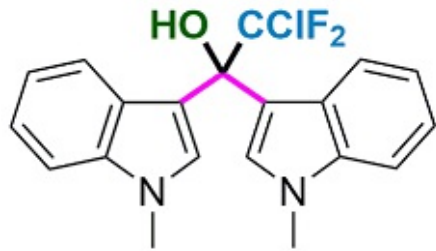


3ac



206.79

¹³C NMR (126 MHz, acetone-*d*₆)

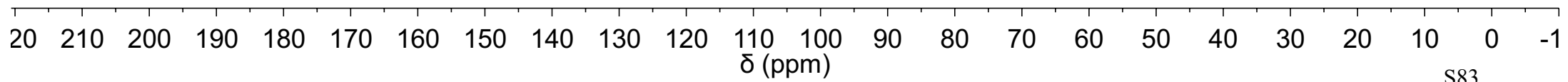


3ac

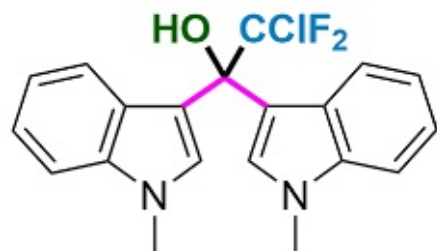
138.09
136.35
133.94
131.53
129.44
129.42
129.40
127.82
122.49
122.04
119.63
114.40
110.08

79.89
79.68
79.47

32.93
30.30
30.15
29.99
29.84
29.69
29.53
29.38

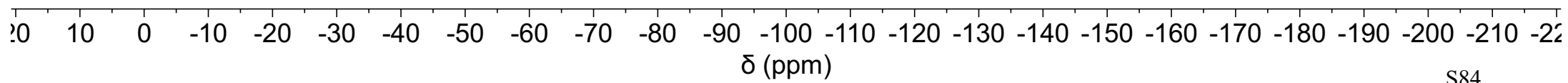


^{19}F NMR (471 MHz, acetone- d_6)



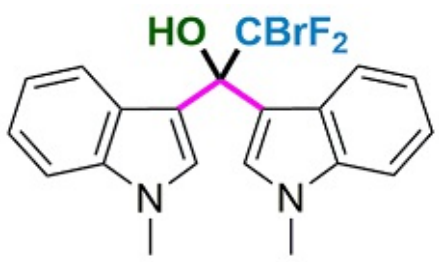
3ac

---60.42



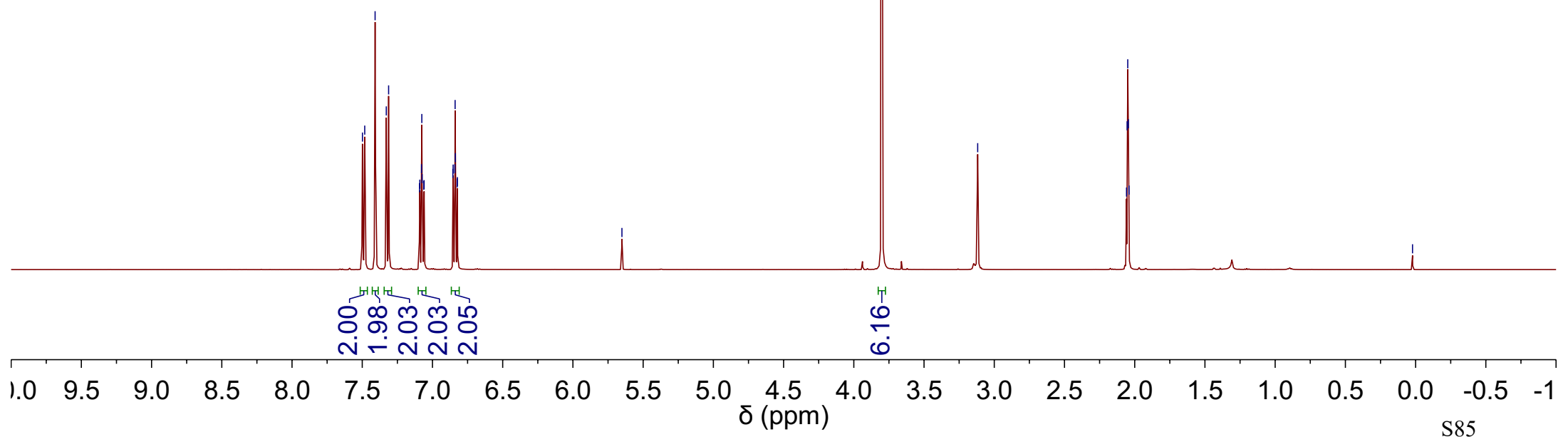
7.499
7.482
7.409
7.329
7.312
7.092
7.090
7.078
7.076
7.074
7.062
7.059
6.855
6.853
6.841
6.839
6.837
6.825
6.823
-5.651

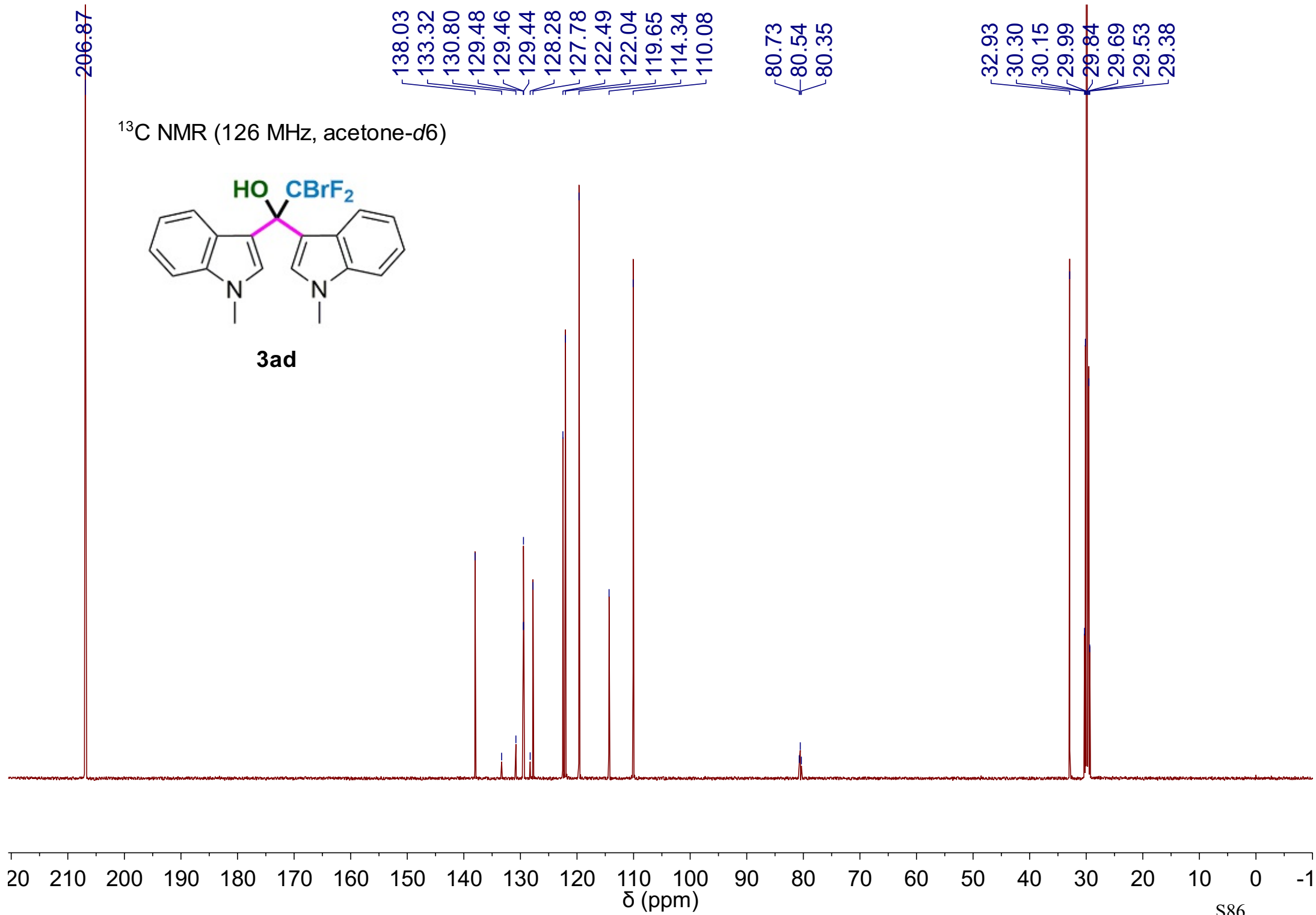
¹H NMR (500 MHz, acetone-*d*₆)



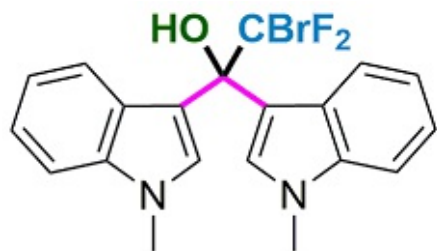
3ad

3.802
-3.118
2.058
2.054
2.050
2.045
2.041
-0.022



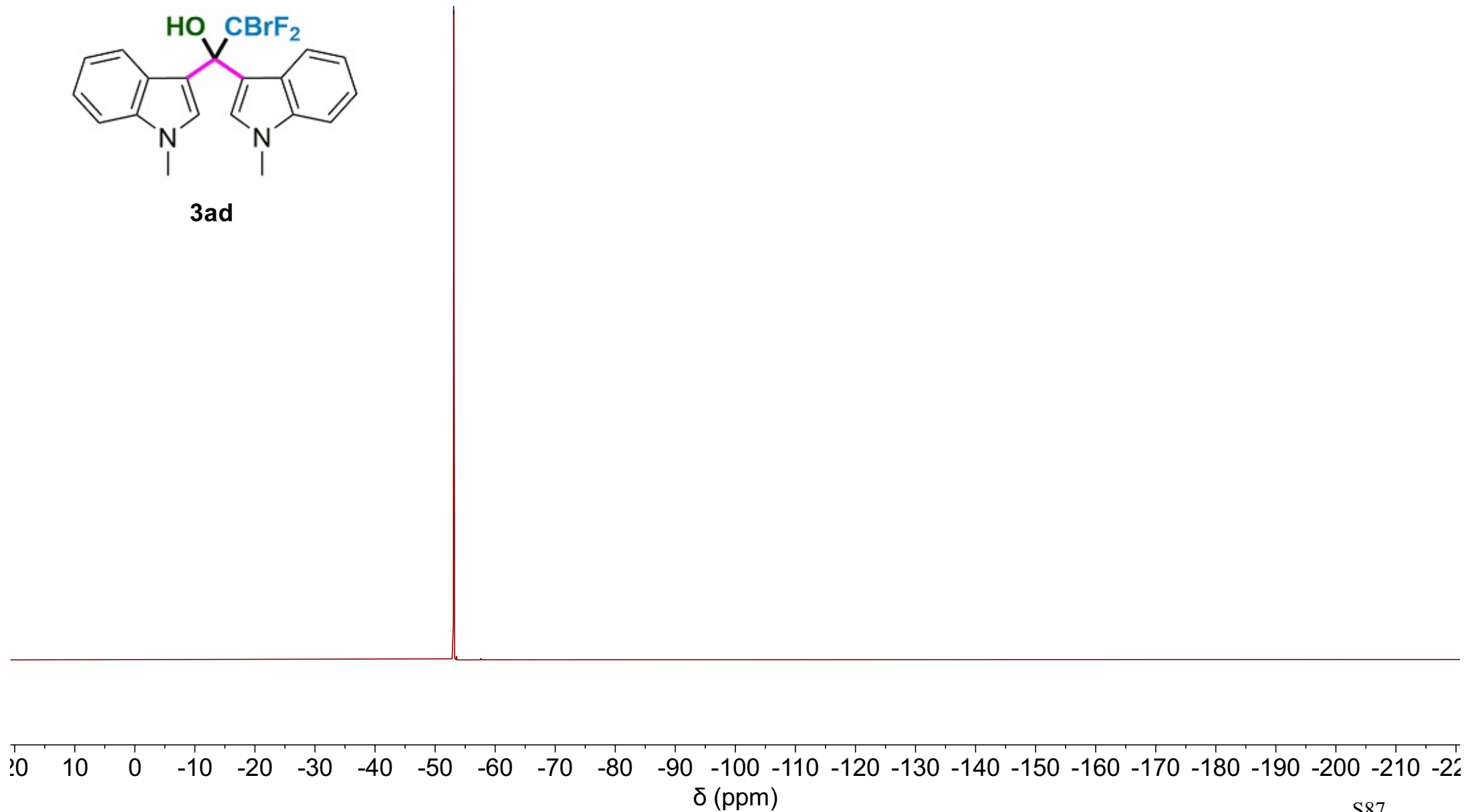


^{19}F NMR (471 MHz, acetone- d_6)



3ad

---53.09



7.465
7.436
7.420
7.327
7.310
7.066
7.064
7.050
7.036
7.034
6.813
6.812
6.797
6.783
6.781

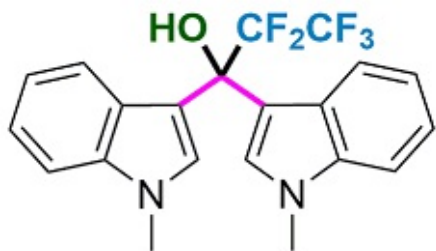
3.840

3.092

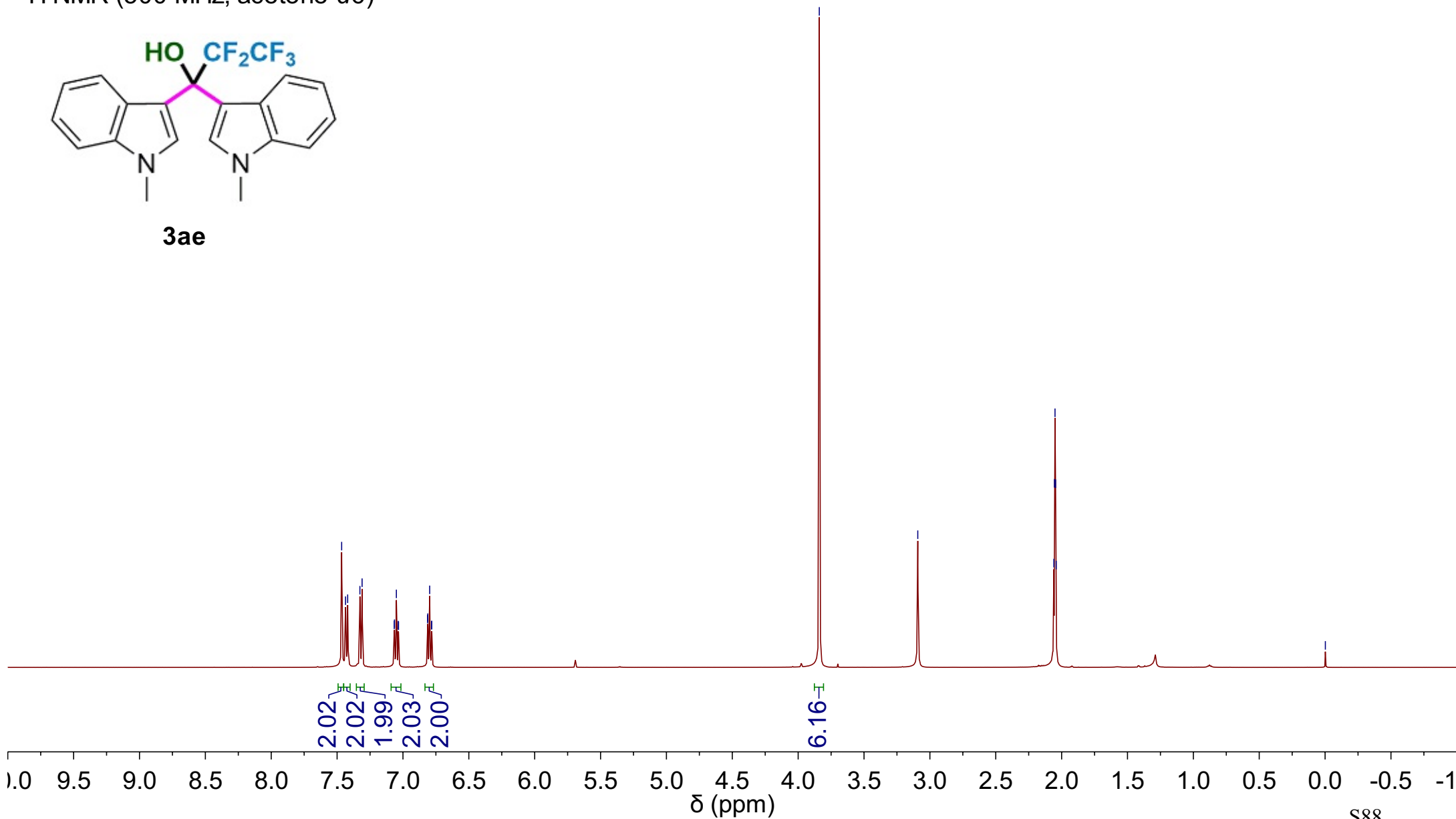
2.059
2.055
2.050
2.046
2.041

0.002

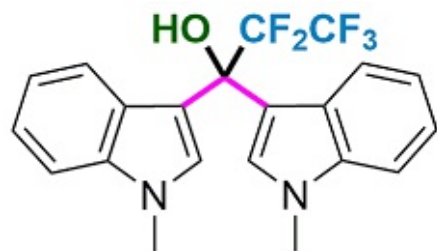
¹H NMR (500 MHz, acetone-*d*₆)



3ae



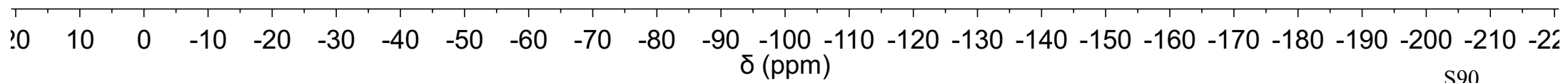
^{19}F NMR (471 MHz, acetone- d_6)



3ae

--77.64

--117.58



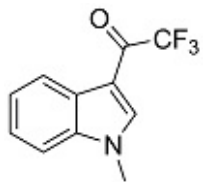
8.423
8.418
8.415
8.413
8.406
8.401
8.398
8.394
7.914
7.911
7.411
7.406
7.404
7.402
7.396
7.394
7.387
7.385
7.260

-3.917

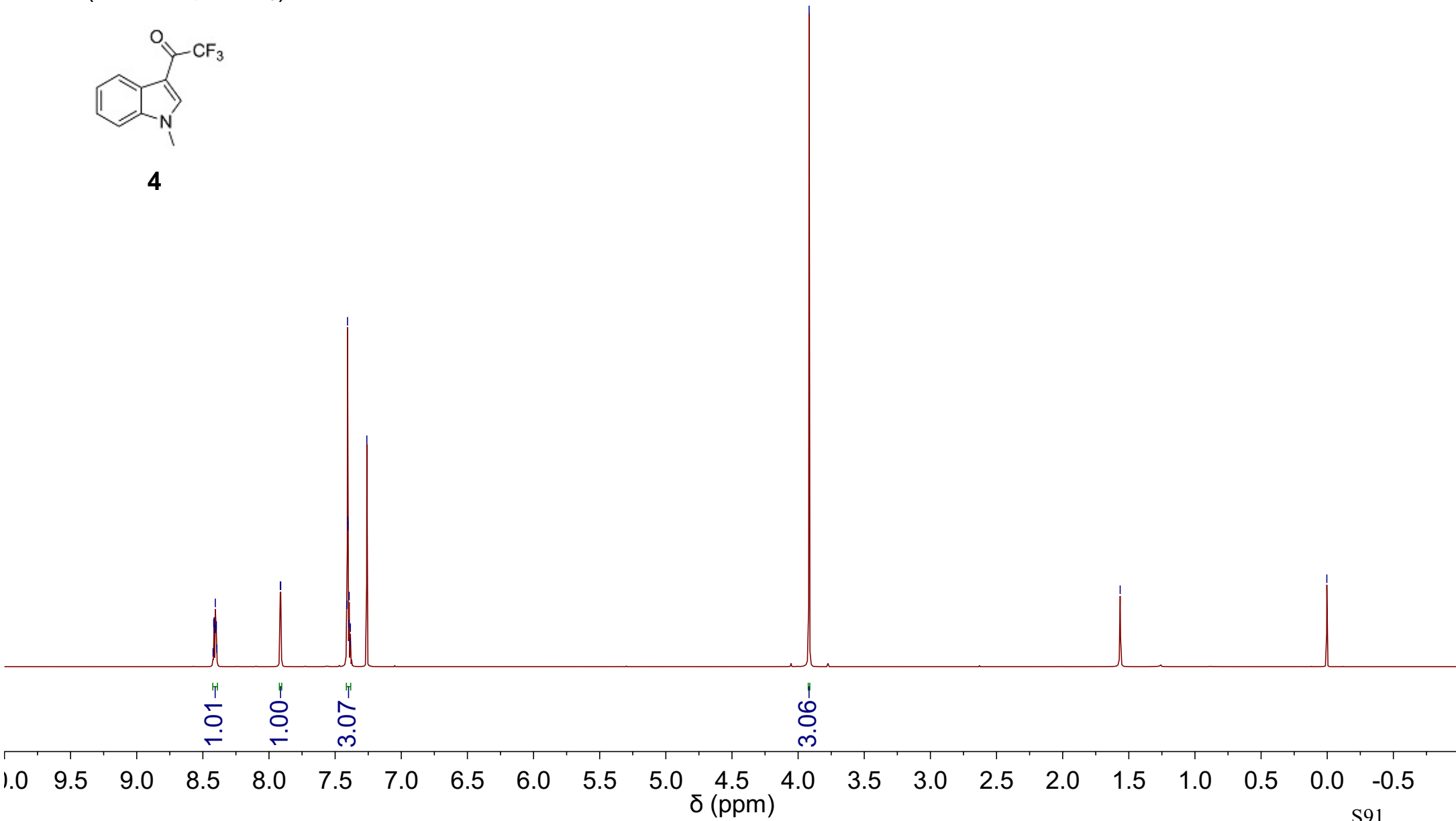
-1.565

-0.003

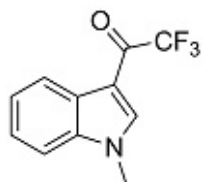
^1H NMR (500 MHz, CDCl_3)



4



¹³C NMR (126 MHz, CDCl₃)



4

175.25
174.98
174.70
174.42

138.46
138.43
138.39
138.35
137.47
127.09
124.77
124.13
122.77
120.69
118.38
116.06
113.75
110.23
109.60

77.41
77.16
76.91

-34.15

-0.13

