

## Supporting Information

# **Cyclometallated platinum(II) complexes based on bidentate phosphines: Synthesis, structural properties and reactivity studies**

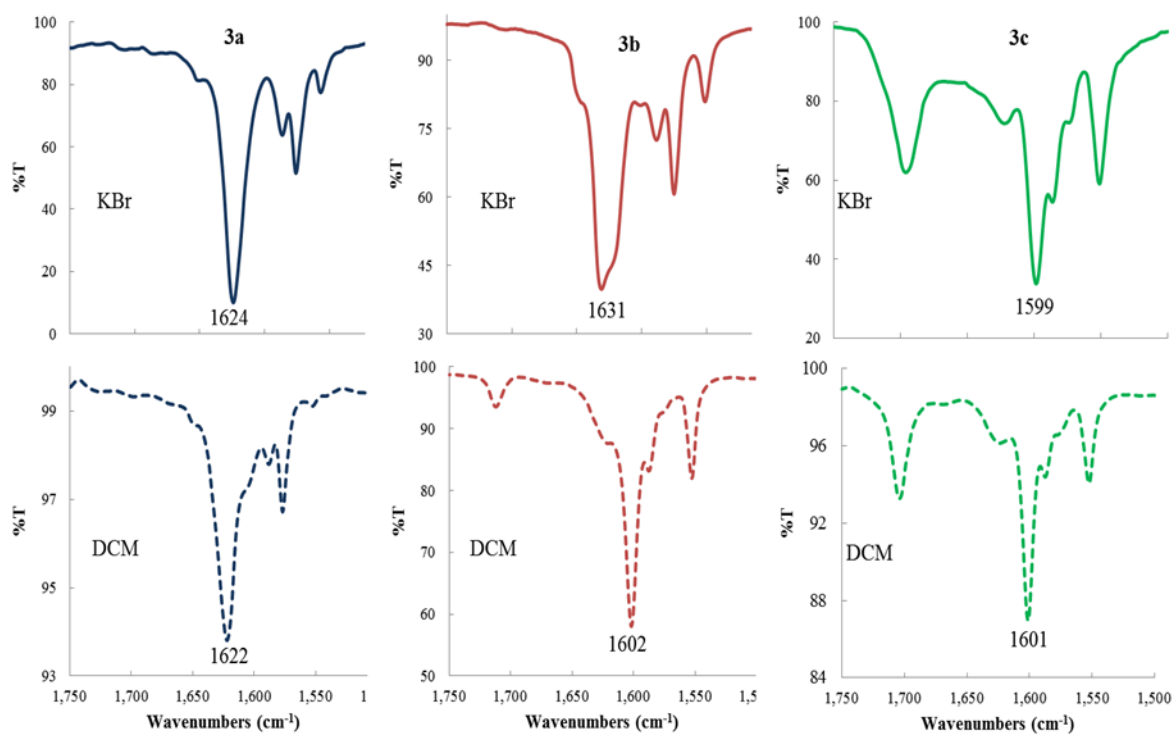
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**Figure S1.** IR spectra for the mononuclear complexes as KBr pellet and in DCM.

**Table S1.** Molar conductivities ( $\Omega^{-1} \cdot \text{cm}^2 \cdot \text{mol}^{-1}$ ) of mononuclear Pt(II) complexes with different bidentate phosphine in dichloromethane

Complex	Concentration (mM)	k (mS.cm <sup>-1</sup> )	$\Lambda_M$ ( $\Omega^{-1} \cdot \text{cm}^2 \cdot \text{mol}^{-1}$ )
<b>3a</b> (dppf-mono)	1.10	0.32	0.3
<b>3b</b> (dppe-mono)	1.14	66.1	58.0
<b>3c</b> (dppm-mono)	1.18	58.0	49.2
<b>2c</b> (dppm-di)	0.98	0.16	0.2
DCM		0.01	

**Table S2.** The relevant structural parameters for complexes containing dppf ligand

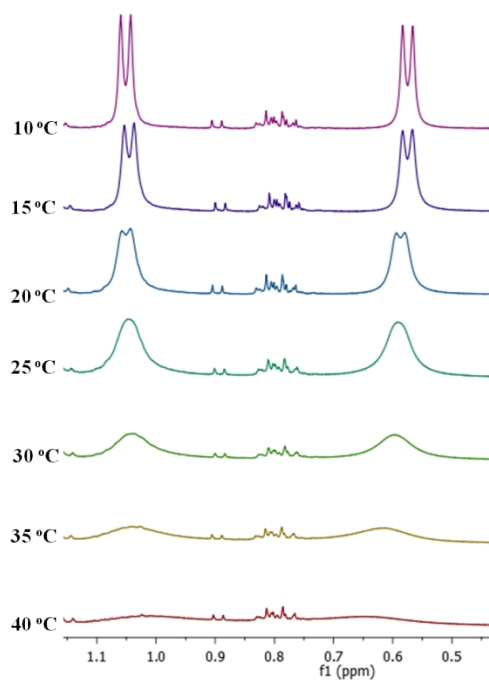
	<b>2a</b>	<b>3a</b>
$\tau$ ( $^{\circ}$ ) <sup>a</sup>	143.5	39.2
$\theta$ ( $^{\circ}$ ) <sup>b</sup>	0.2	0.2
$X_A \cdots Fe \cdots X_B$ ( $^{\circ}$ ) <sup>c</sup>	174.4	177.7
$P \cdots Fe \cdots P$ ( $^{\circ}$ )	154.6	62.4
$P \cdots P$ (Å)	6.84	3.50
$M-P$ (Å)	2.23, 2.23	2.23, 2.35
$Fe \cdots M$ (Å)	4.39	4.24

<sup>a</sup> The torsion angle CA-XA-XB-CB, where C is the carbon bonded to the P and X is the centroid.

<sup>b</sup> The dihedral angle between the two Cp rings. <sup>c</sup> Centroid-Fe-centroid

**Table S3.** Crystal data and structure refinement for complexes **2a**, **2c**, **3a** and **3b**.

	<b>2a</b>	<b>2c</b>	<b>3a</b>	<b>3b</b>
Empirical formula	C <sub>72</sub> H <sub>72</sub> Cl <sub>2</sub> FeN <sub>2</sub> P <sub>2</sub> Pt <sub>2</sub> + CH <sub>2</sub> Cl <sub>2</sub>	C <sub>63</sub> H <sub>66</sub> Cl <sub>2</sub> N <sub>2</sub> P <sub>2</sub> Pt <sub>2</sub>	C <sub>53</sub> H <sub>50</sub> ClFeNP <sub>2</sub> Pt	C <sub>48</sub> H <sub>52</sub> CINOP <sub>2</sub> Pt
<i>Mr</i> (g/mol)	1629.09	1374.20	1049.27	951.39
Crystal system	Orthorhombic	Monoclinic	monoclinic	Monoclinic
Space group	Ccca	P21/n	P21/c	P21/c
a (Å)	21.2184(18)	12.4432(5)	11.827(2)	9.8055(5)
b (Å)	37.581(3)	17.0241(7)	21.120(4)	39.311(2)
c (Å)	17.8803(14)	26.2651(11)	18.536(4)	11.2304(6)
α (°)	90	90	90	90
β (°)	90	96.9040(10)	103.533(3)	101.2840(10)
γ (°)	90	90	90	90
V (Å <sup>3</sup> )	14258(2)	5523.5(4)	4501.6(15)	4245.3(4)
Z	8	4	4	4
Reflections collected/ Unique	145930/10069	35293/13187	29083 / 10803	92919/11079
R(int)	0.0869	0.0438	0.0754	0.0647
Data/restraints/parameters	10069/0/379	13187/0/648	10803/42/552	110790/0/493
Final R indices [I>2σ(I)]	0.0362, 0.1015	0.0320, 0.0577	0.0477, 0.0850	0.0288, 0.0495
Largest diff. peak and hole (e.Å <sup>-3</sup> )	13.446, -1.065	0.888, -1.057	1.292, -0.764	0.494, -0.787

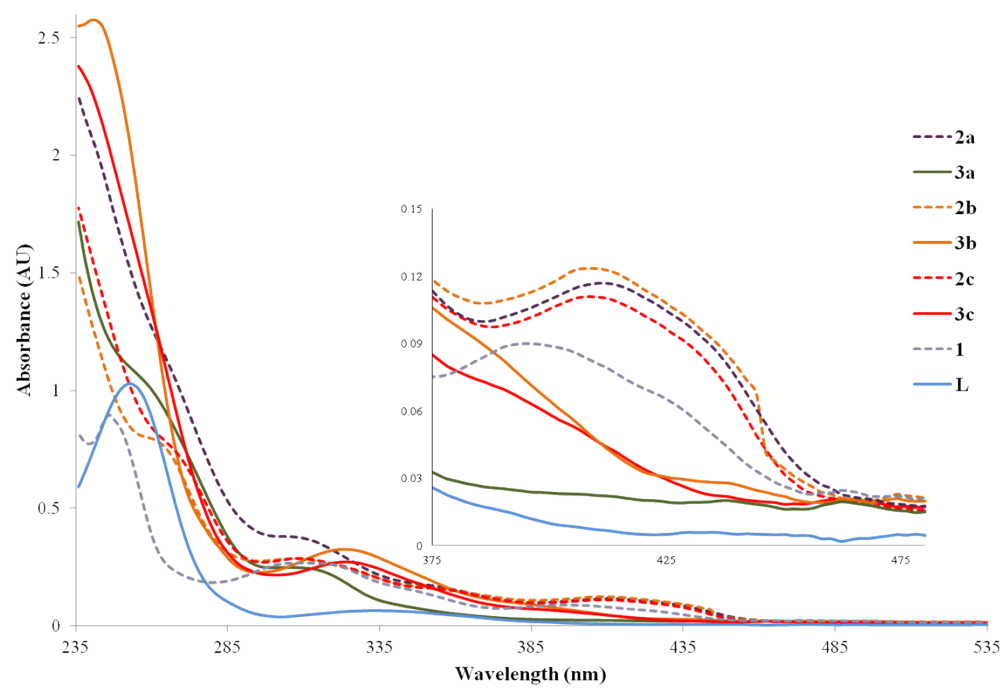


**Figure S2.** Variable-temperature <sup>1</sup>H NMR in *iso*-propyl methyl region of **3c** in CDCl<sub>3</sub>.

**Table S4.** cyclic voltammetry parameters in V for (dppf)PtL complexes

	$E^1_{pa}$	$E^1_{pc}$	$E^2_{pa}$	$E^2_{pc}$	$E^1_{1/2}$	$E^2_{1/2}$
dppf	0.487	0.433	1.10	0.980	0.460	1.04
<b>2a</b>	0.654	0.480			0.567	
<b>3a</b>	0.765	0.711	0.785	0.711	0.738	0.748





**Figure S3.** UV-Vis absorption spectra of the cyclometallated Pt complexes with bidentate phosphines, the dmsso precursor and the free ligand in  $\text{CH}_2\text{Cl}_2$  ( $10^{-4}$  M) at 298 K.

**Table S5.** Absorption data for complexes **1 – 3** and the free ligand in CH<sub>2</sub>Cl<sub>2</sub> (ca. 2 x 10<sup>-5</sup> M in Pt concentration) at 298 K.

complex	c (10 <sup>-5</sup> M)	λ <sub>max</sub> (nm)	A	ε (M <sup>-1</sup> .cm <sup>-1</sup> )
<b>L</b>	2.04	252	1.02731	50400
		340	0.0625149	3060
<b>1</b>	2.16	246	0.916192	42400
		320	0.26081	12100
		400	0.0888667	4110
<b>2a</b>	1.06	310	0.374105	35300
		412	0.116691	11000
<b>2b</b>	1.12	264	0.764676	68300
		310	0.284136	25400
		412	0.12279495	11000
<b>2c</b>	0.98	268	0.74023	75500
		310	0.286552	29200
		414	0.10879	11100
<b>3a</b>	2.02	258	1.03554	51300
		314	0.239301	11800
<b>3b</b>	2.28	242	2.57213	113000
		324	0.325564	14300
<b>3c</b>	2.36	324	0.272781	11600

**Table S6.** Excitation and emission data for Pt complexes

Complex	$\lambda_{\text{ex}}$ (nm)	$\lambda_{\text{em}}$ (nm)
<b>1</b>	334 <sub>max</sub> , 400	530 <sub>max</sub> , 568 ( $\lambda_{\text{ex}}$ 334)
<b>2b</b>	400 <sub>max</sub> , 298	434, 532 <sub>max</sub> , 568(sh)
<b>2c</b>	400	532 <sub>max</sub> , 572(sh)
<b>3b</b>	282	310 <sub>max</sub> , 568(sh)
<b>3c</b>	284	452 <sub>max</sub> , 490(sh), 564

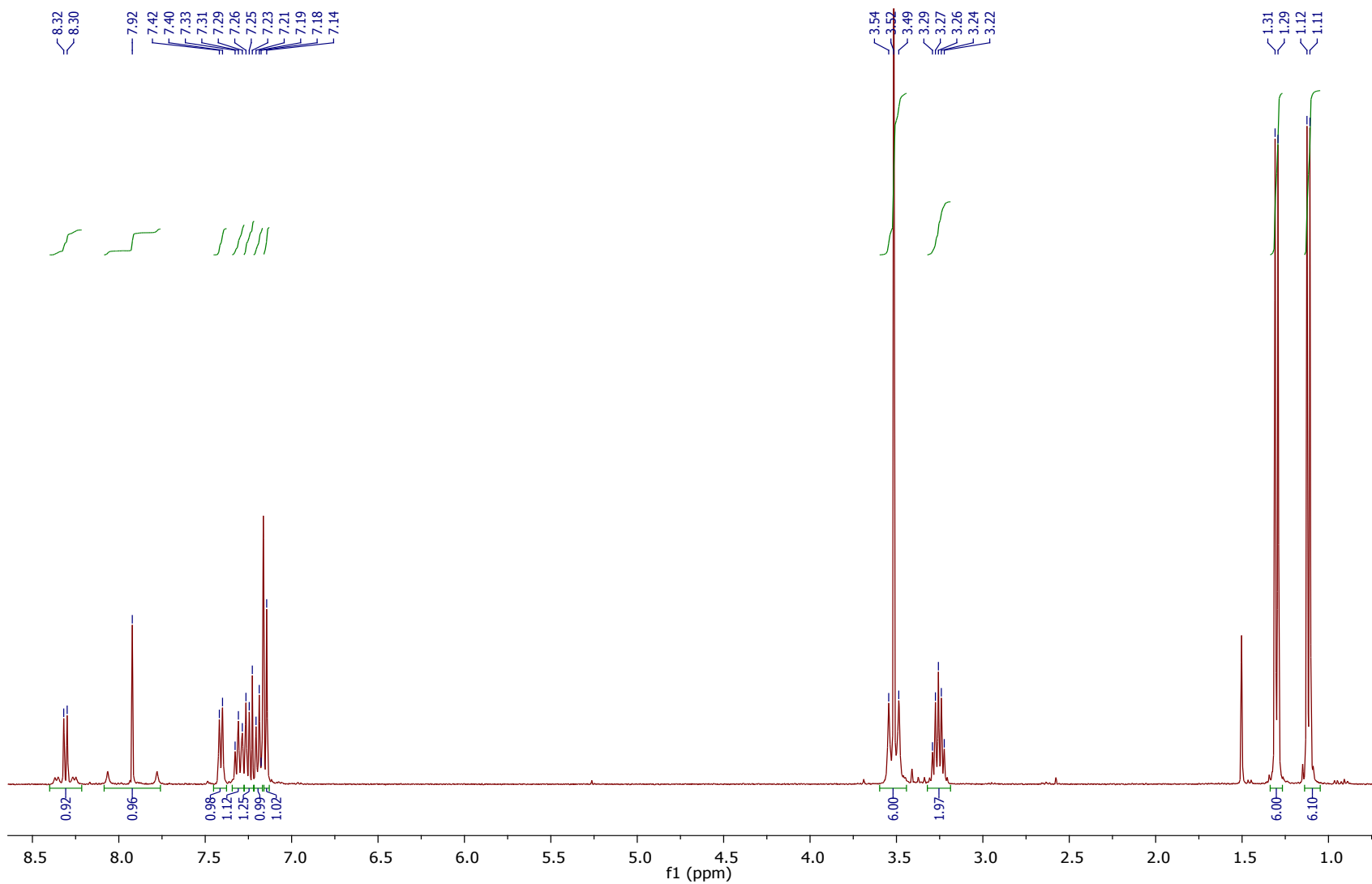


Figure S4.  $^1\text{H}$  NMR spectra of **1**

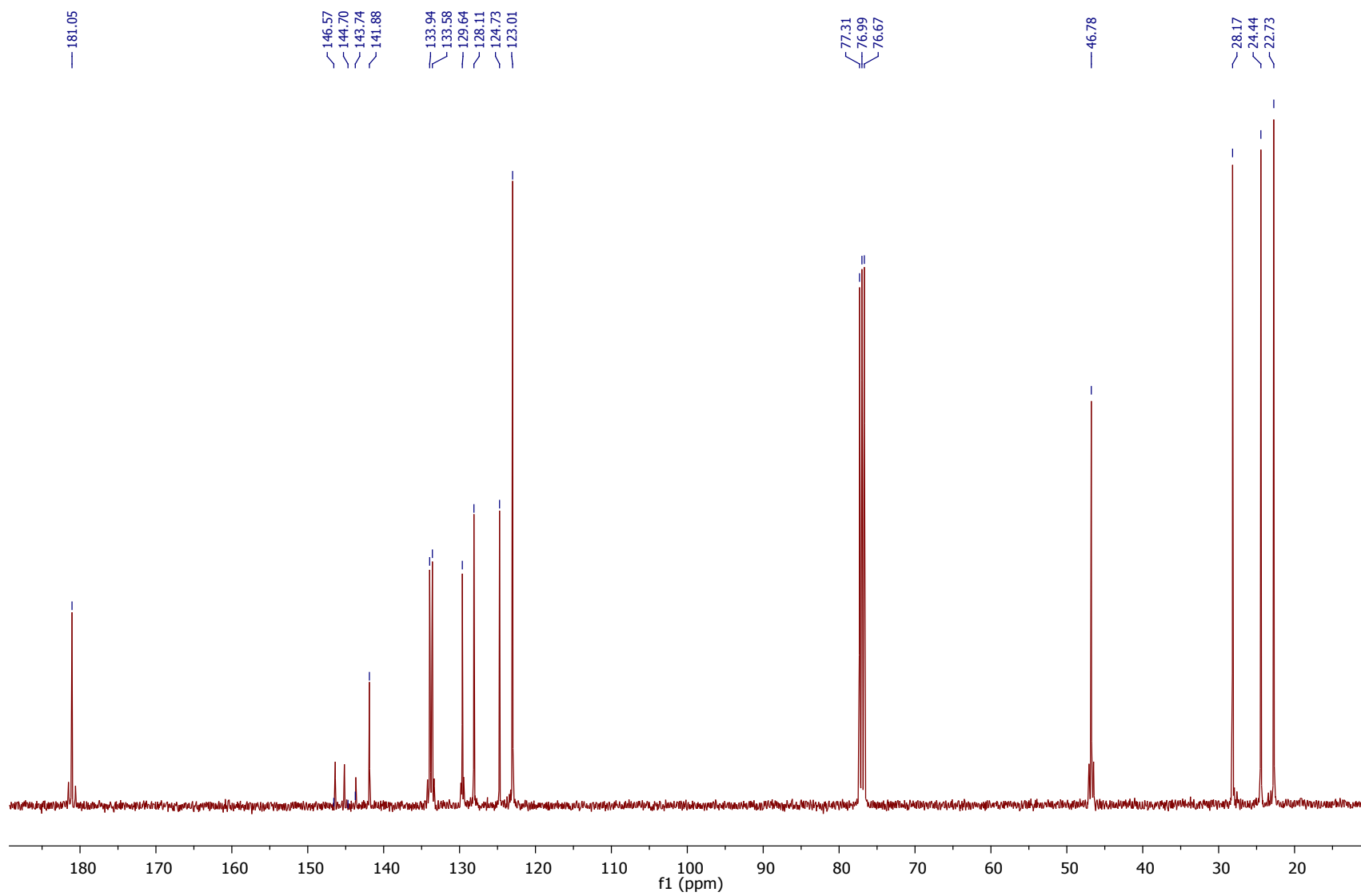


Figure S5.  $^{13}\text{C}$  NMR spectra of **1**

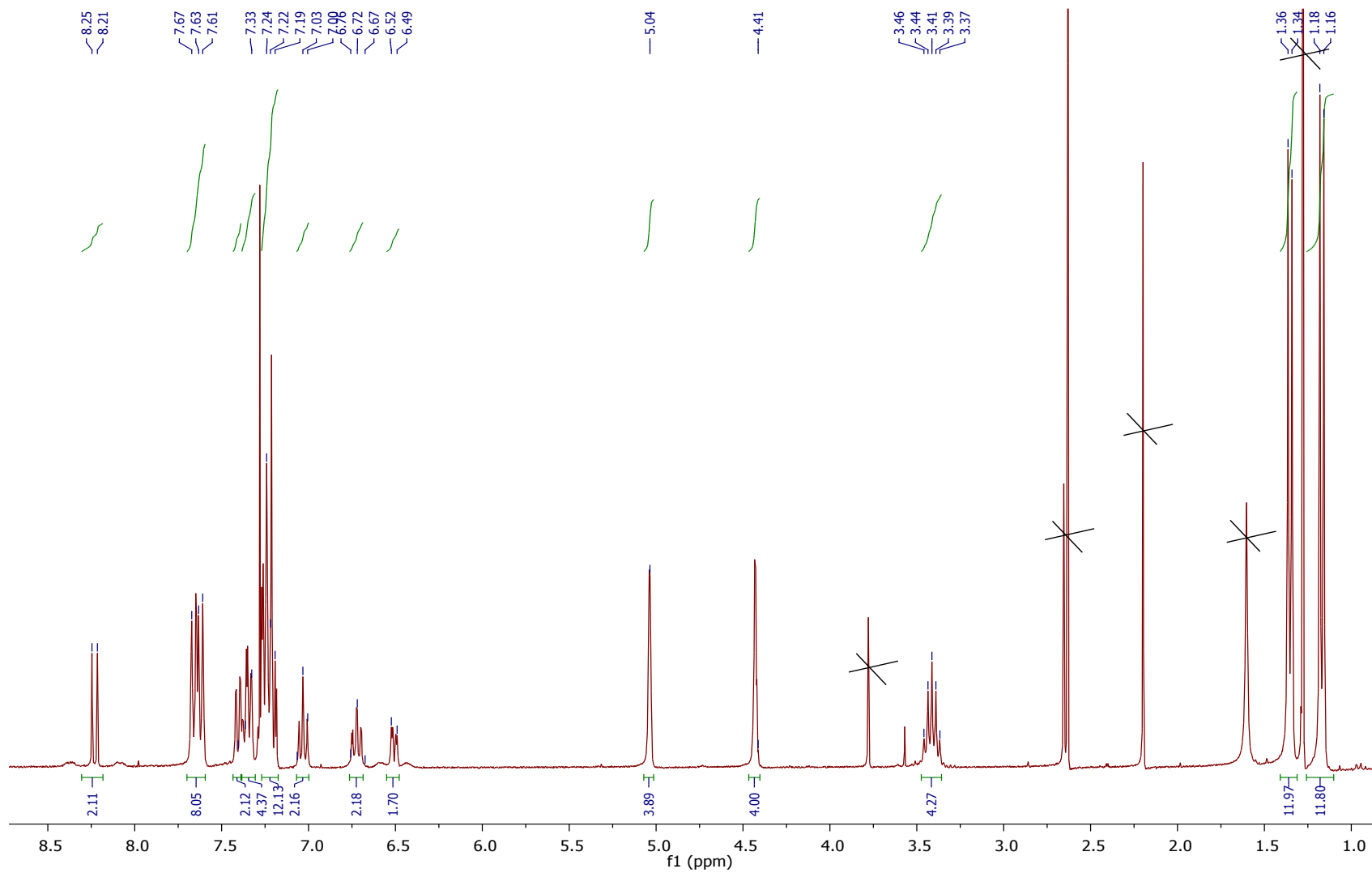
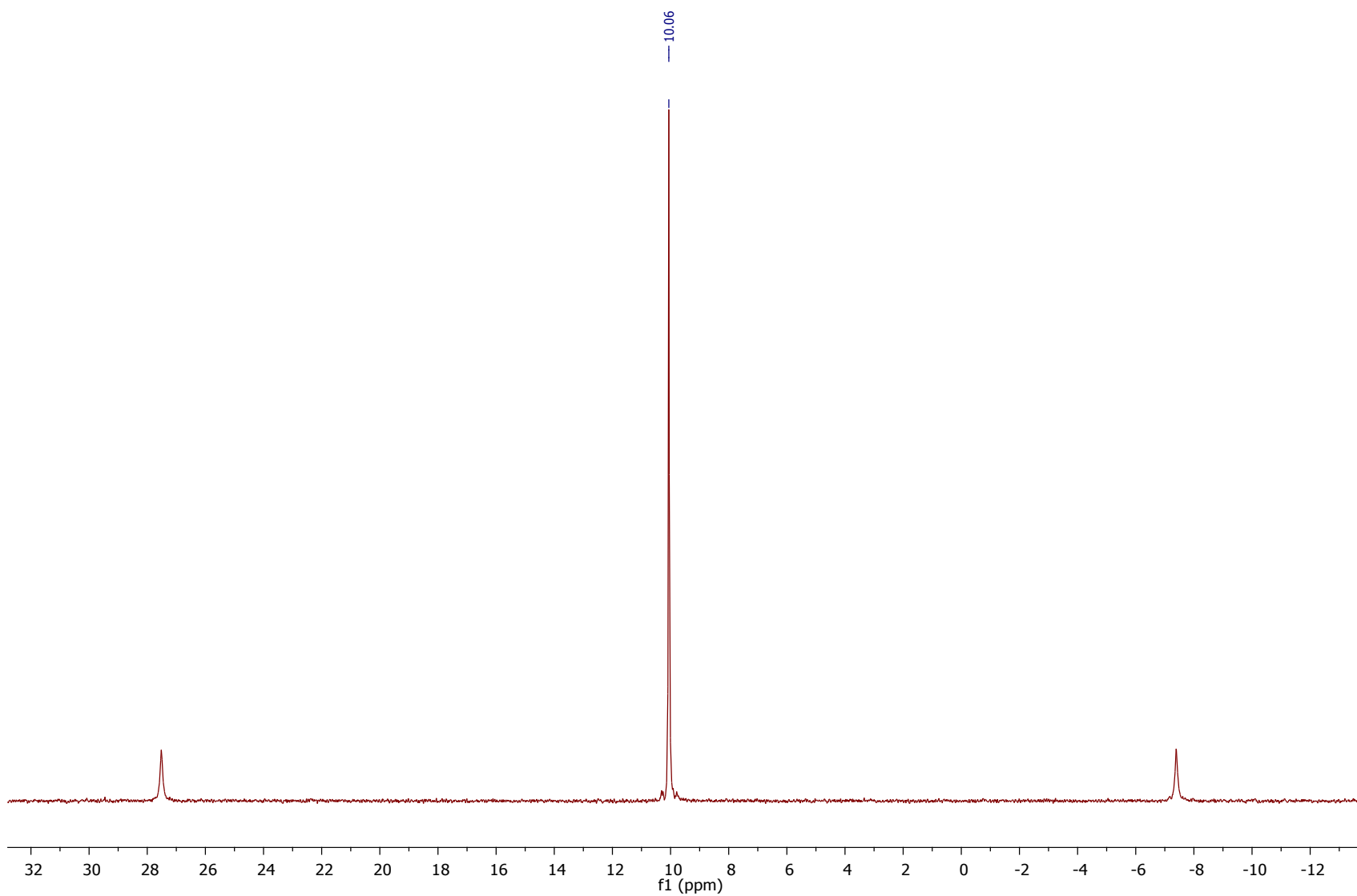
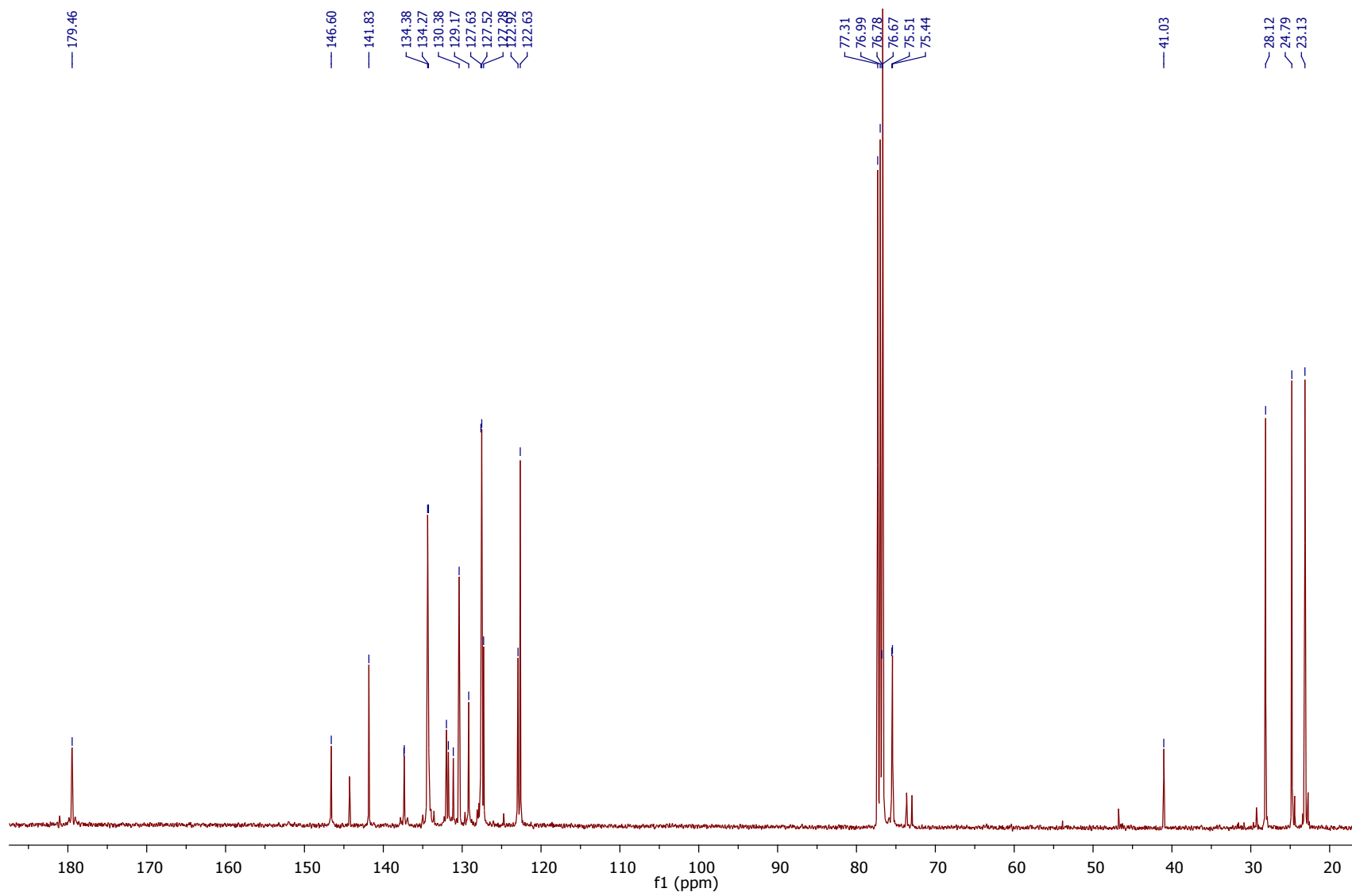


Figure S6.  $^1\text{H}$  NMR spectra of **2a**

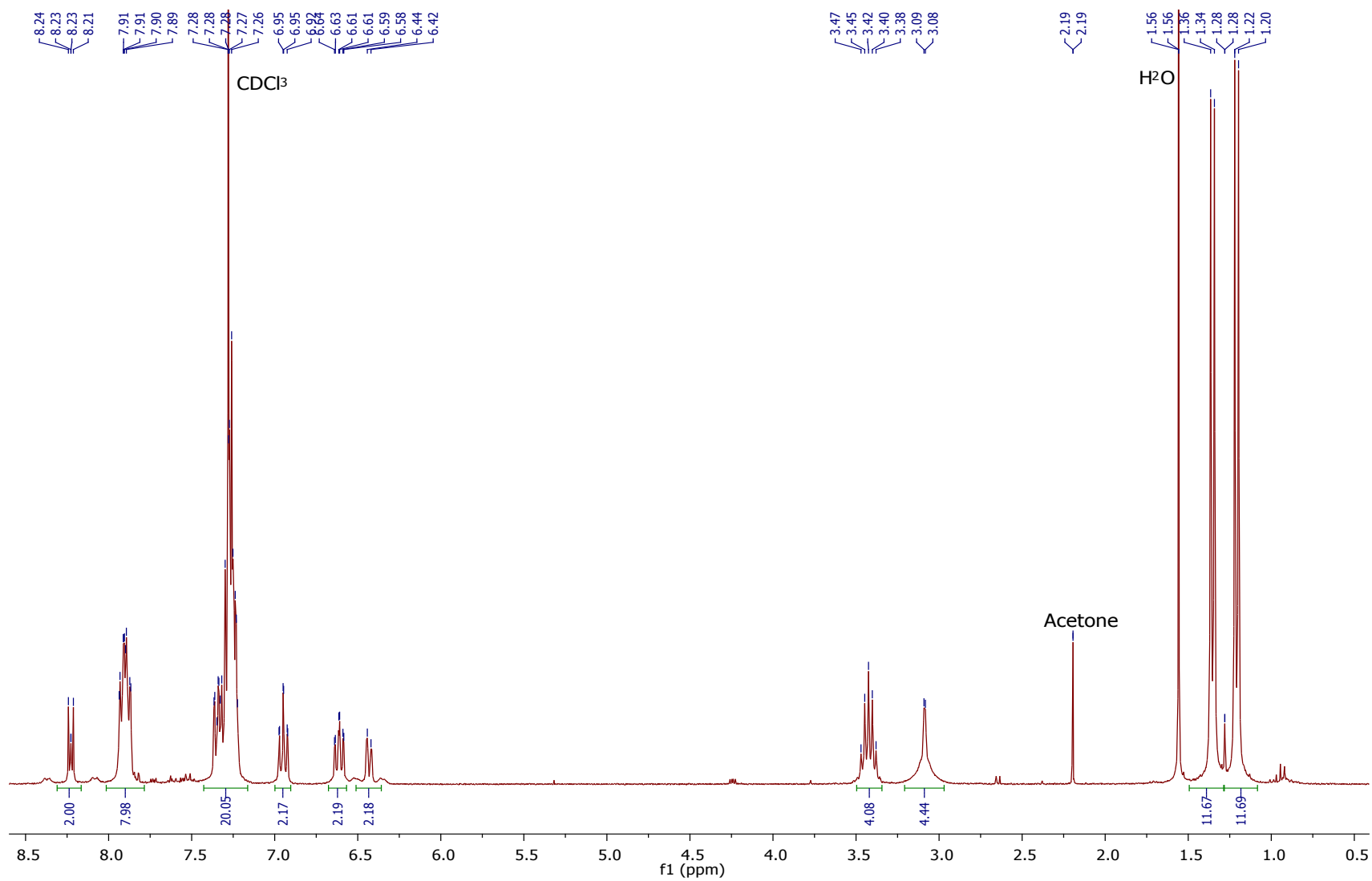


**Figure S7.**  $^{31}\text{P}$  NMR spectra of **2a**

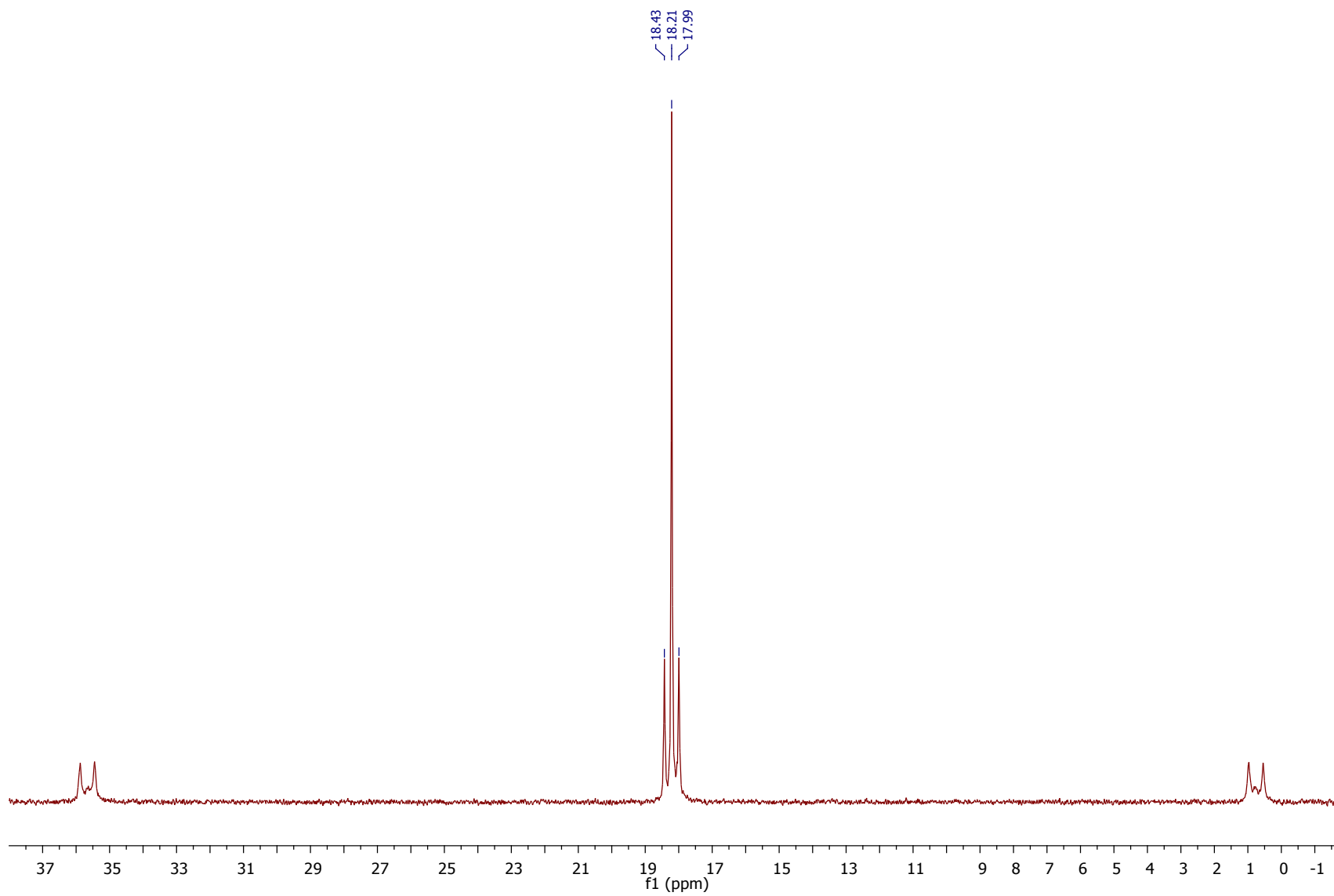


**Figure S8.**  $^{13}\text{C}$  NMR spectra of **2a**





**Figure S9.** <sup>1</sup>H NMR spectra of **2b**



**Figure S10.**  $^{31}\text{P}$  NMR spectra of **2b**

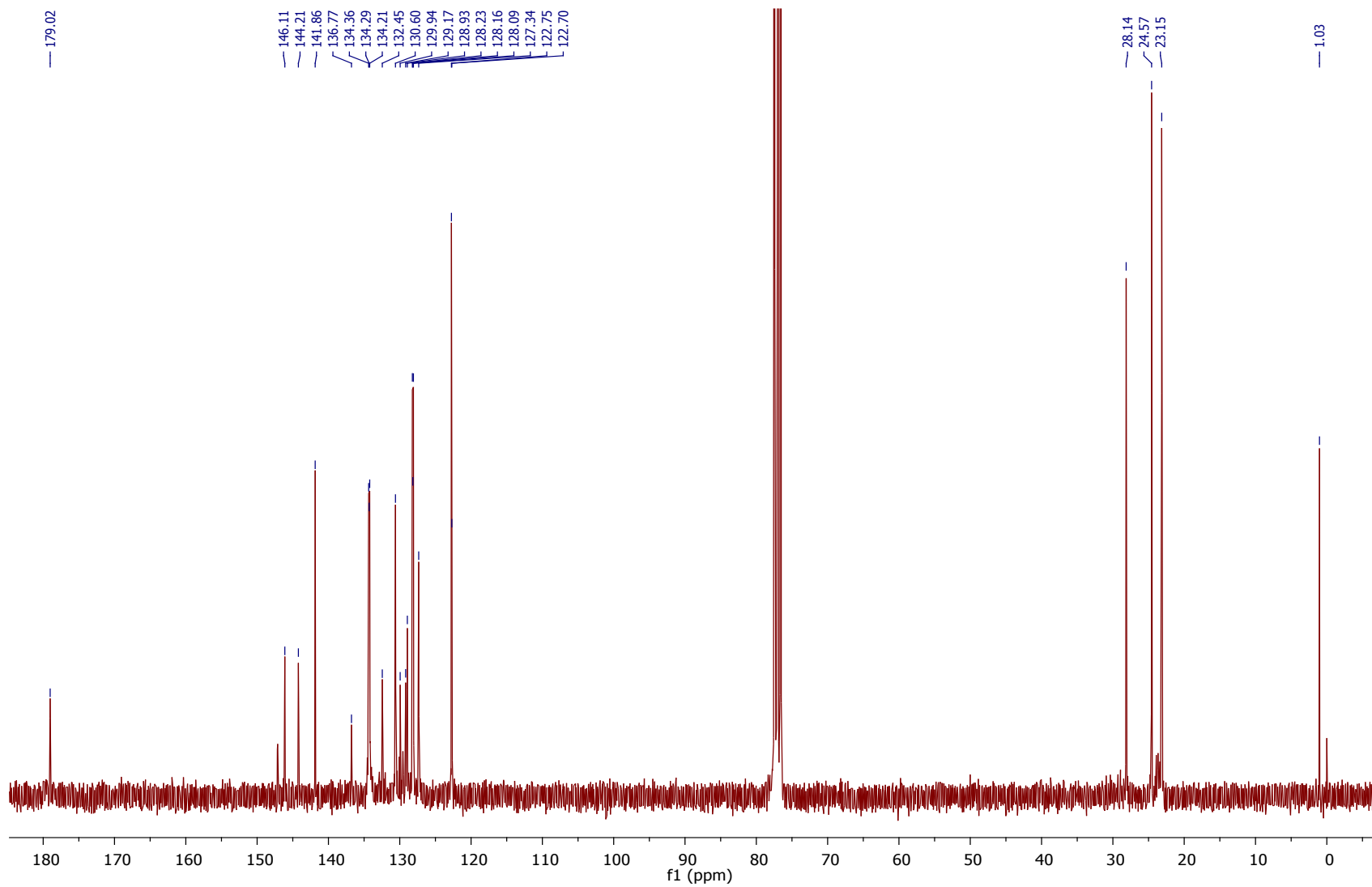
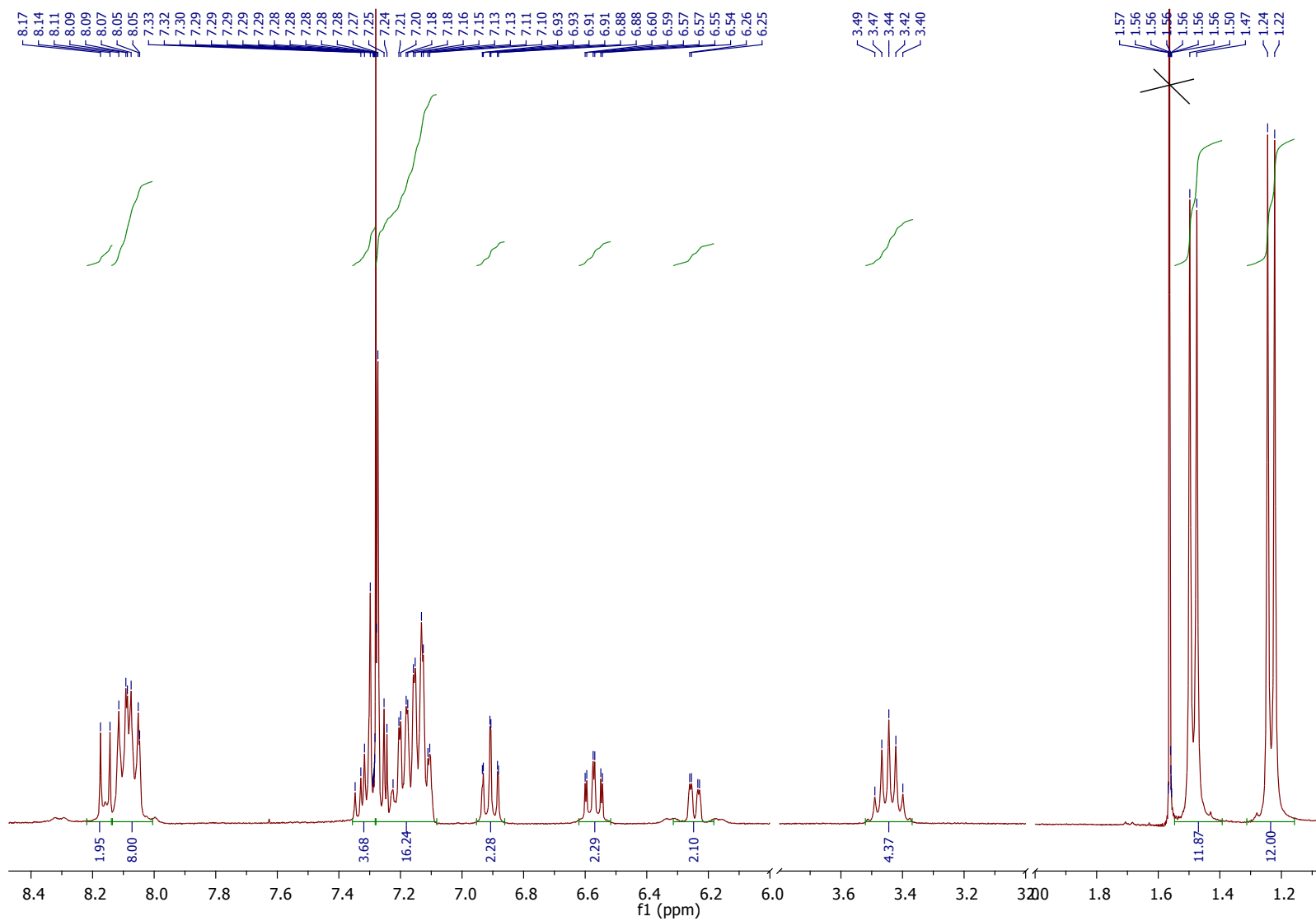
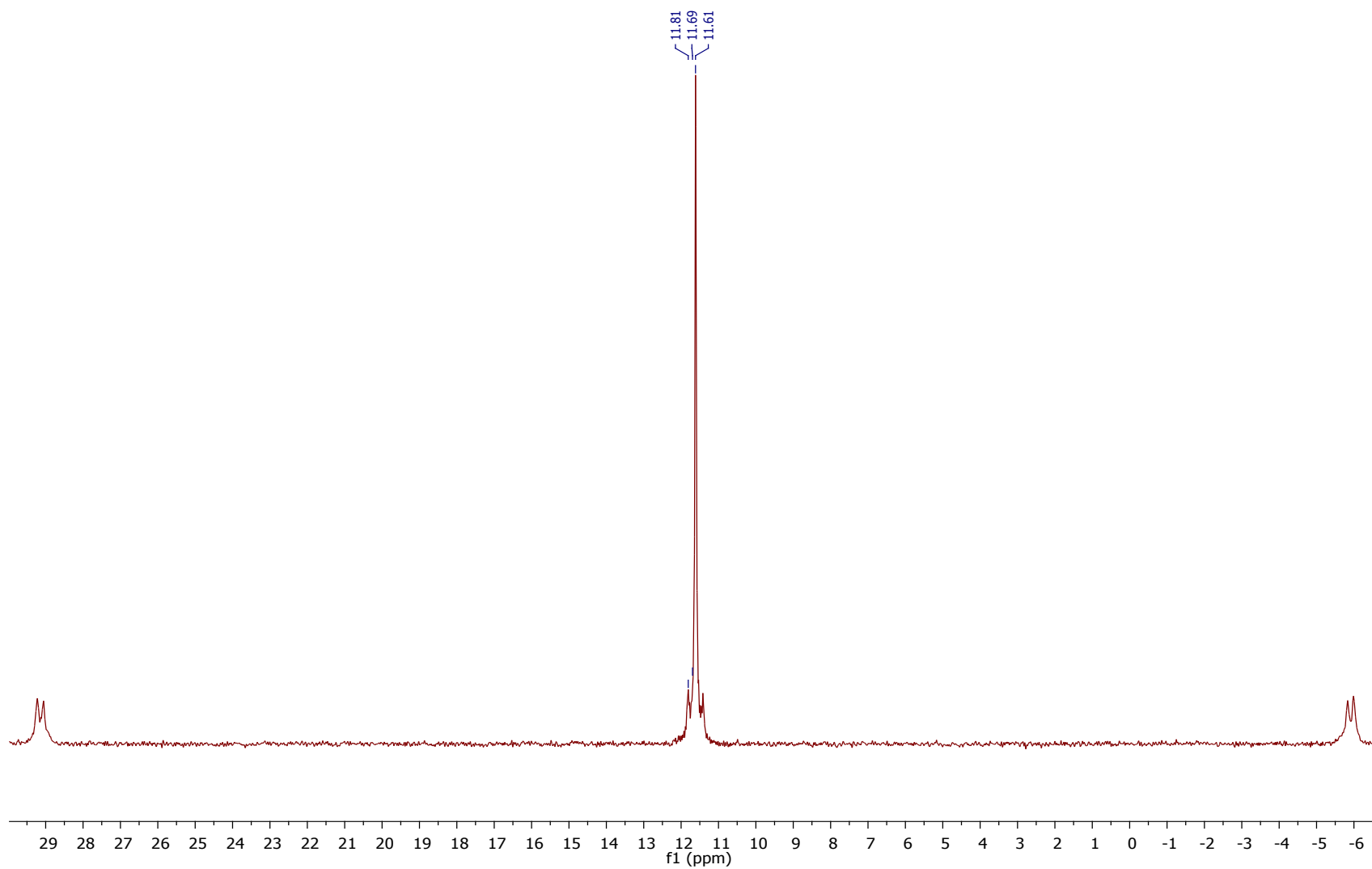


Figure S11.  $^{13}\text{C}$  NMR spectra of **2b**



**Figure S12.**  $^1\text{H}$  NMR spectra of **2c**



**Figure S13.**  $^{31}\text{P}$  NMR spectra of 2c

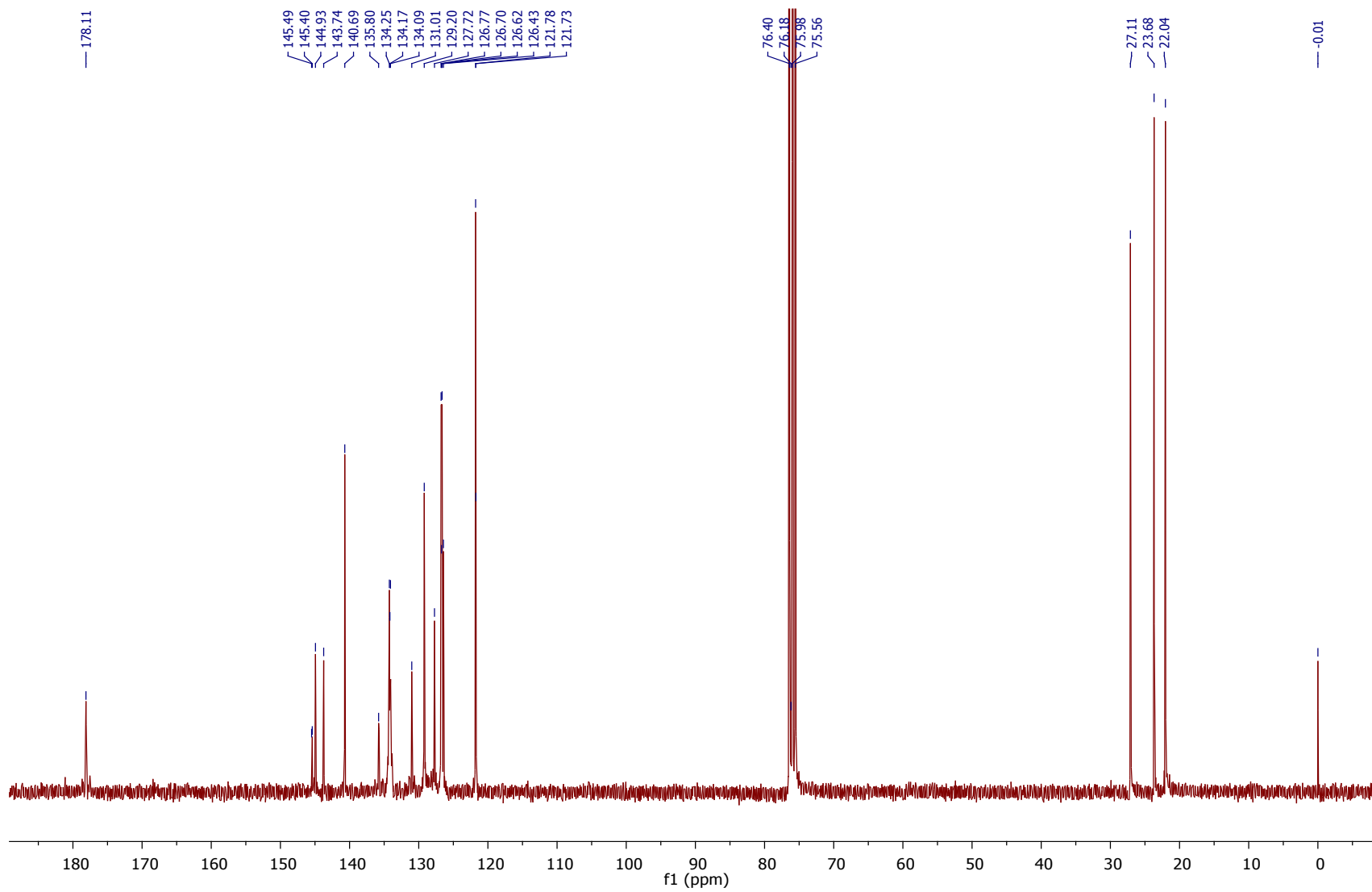
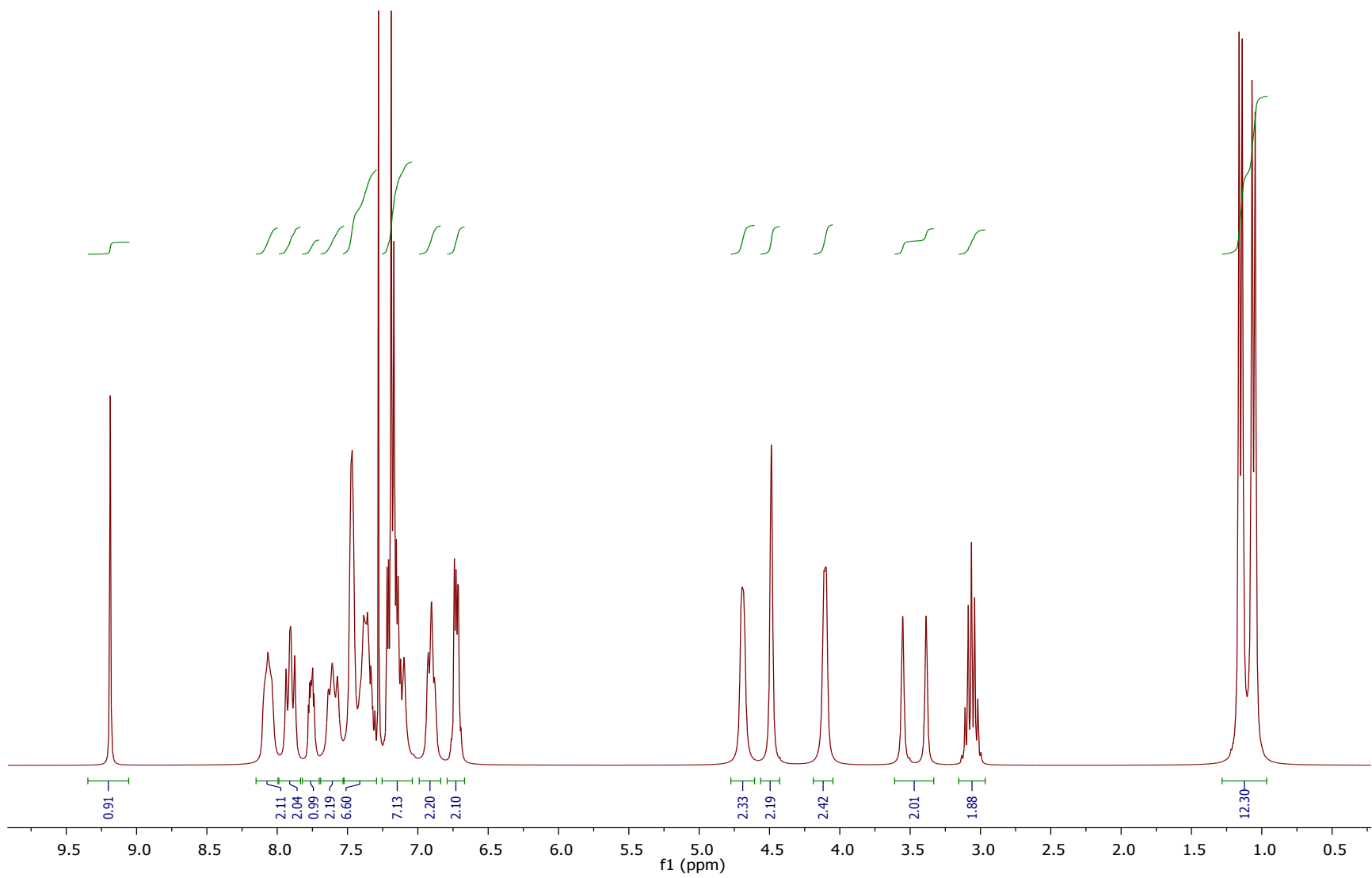
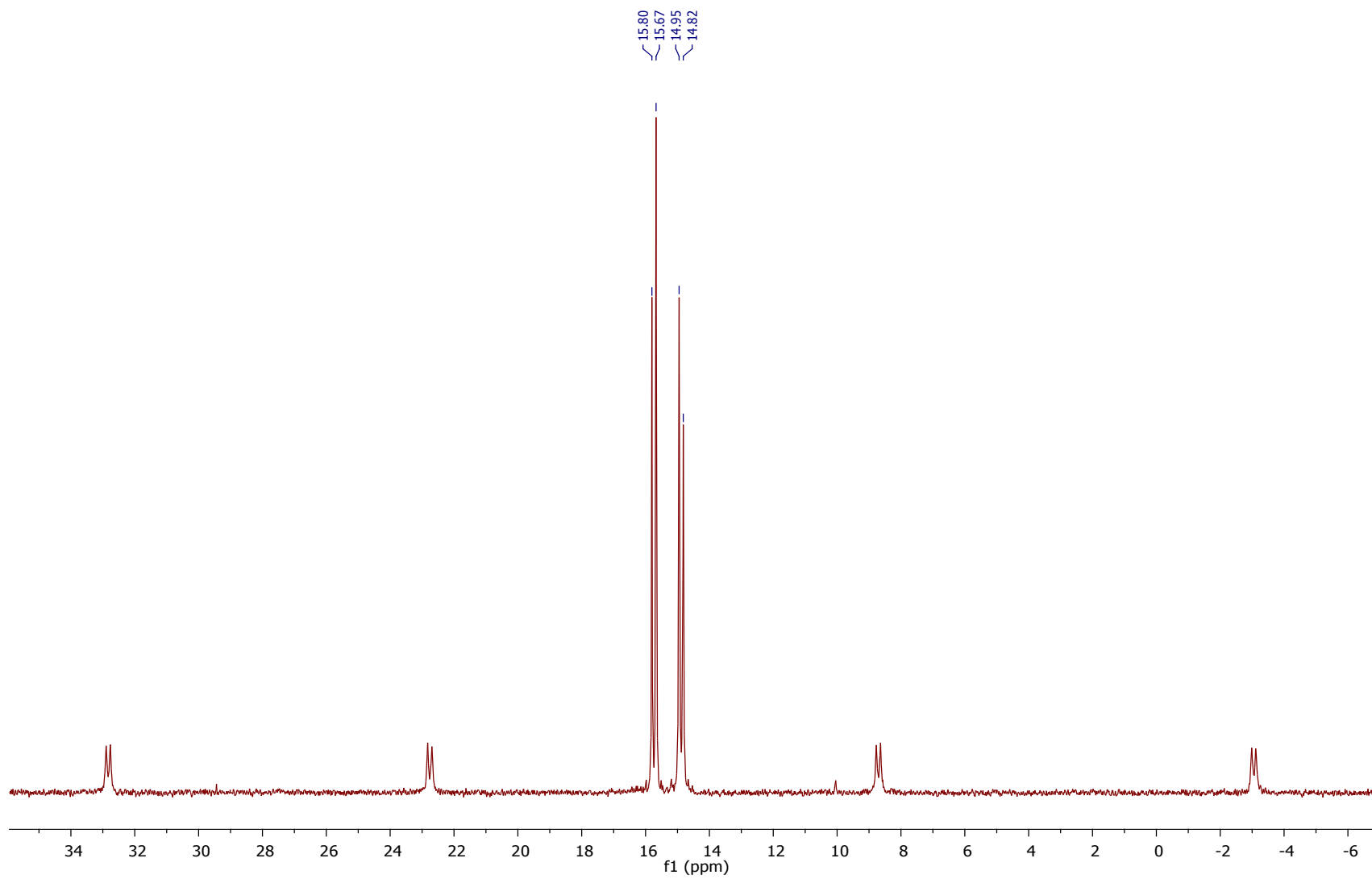


Figure S14.  $^{13}\text{C}$  NMR spectra of **2c**



**Figure S15.** <sup>1</sup>H NMR spectra of **3a**



**Figure S16.**  $^{31}\text{P}$  NMR spectra of **3a**



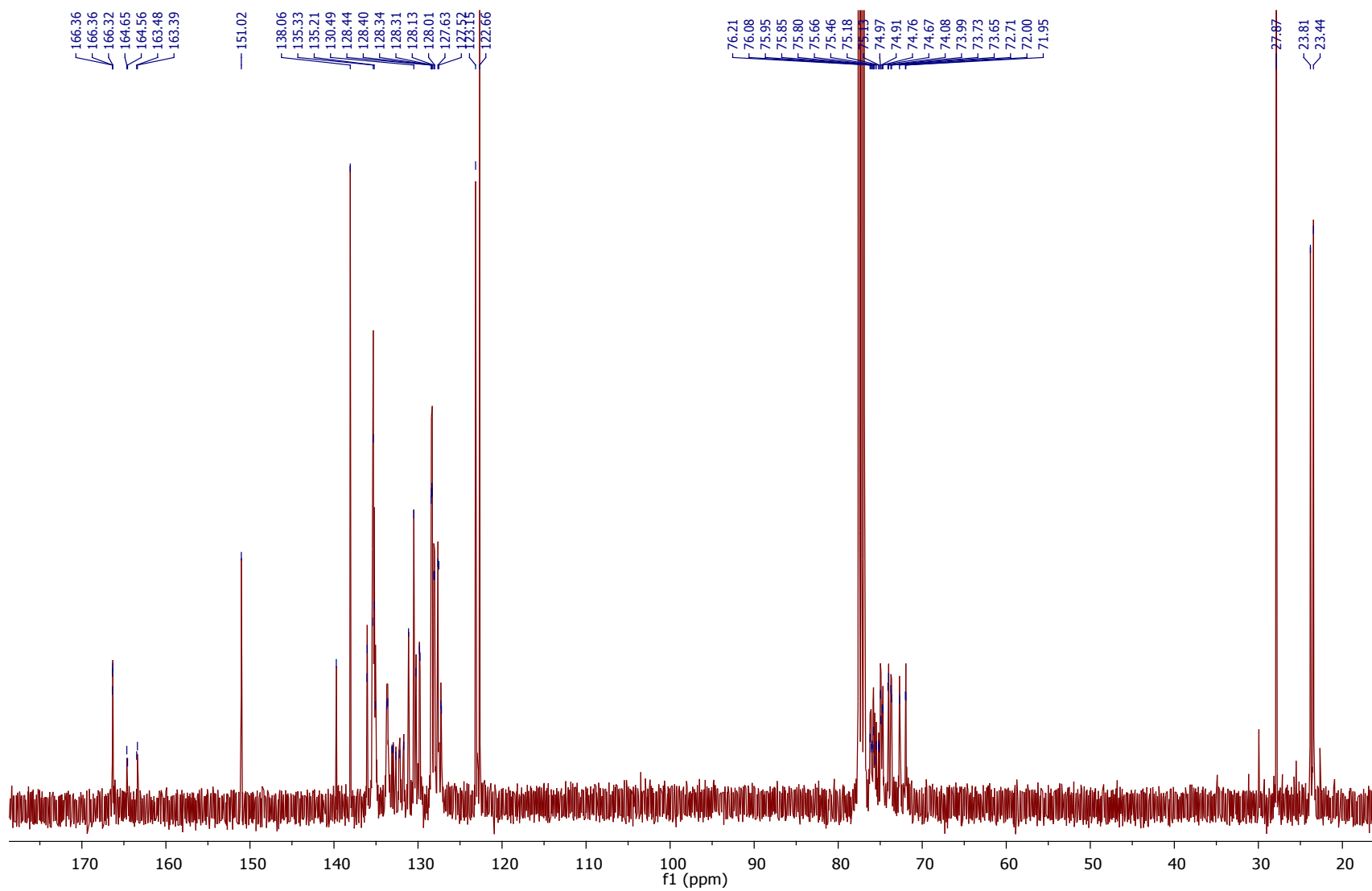


Figure S17. <sup>13</sup>C NMR spectra of **3a**

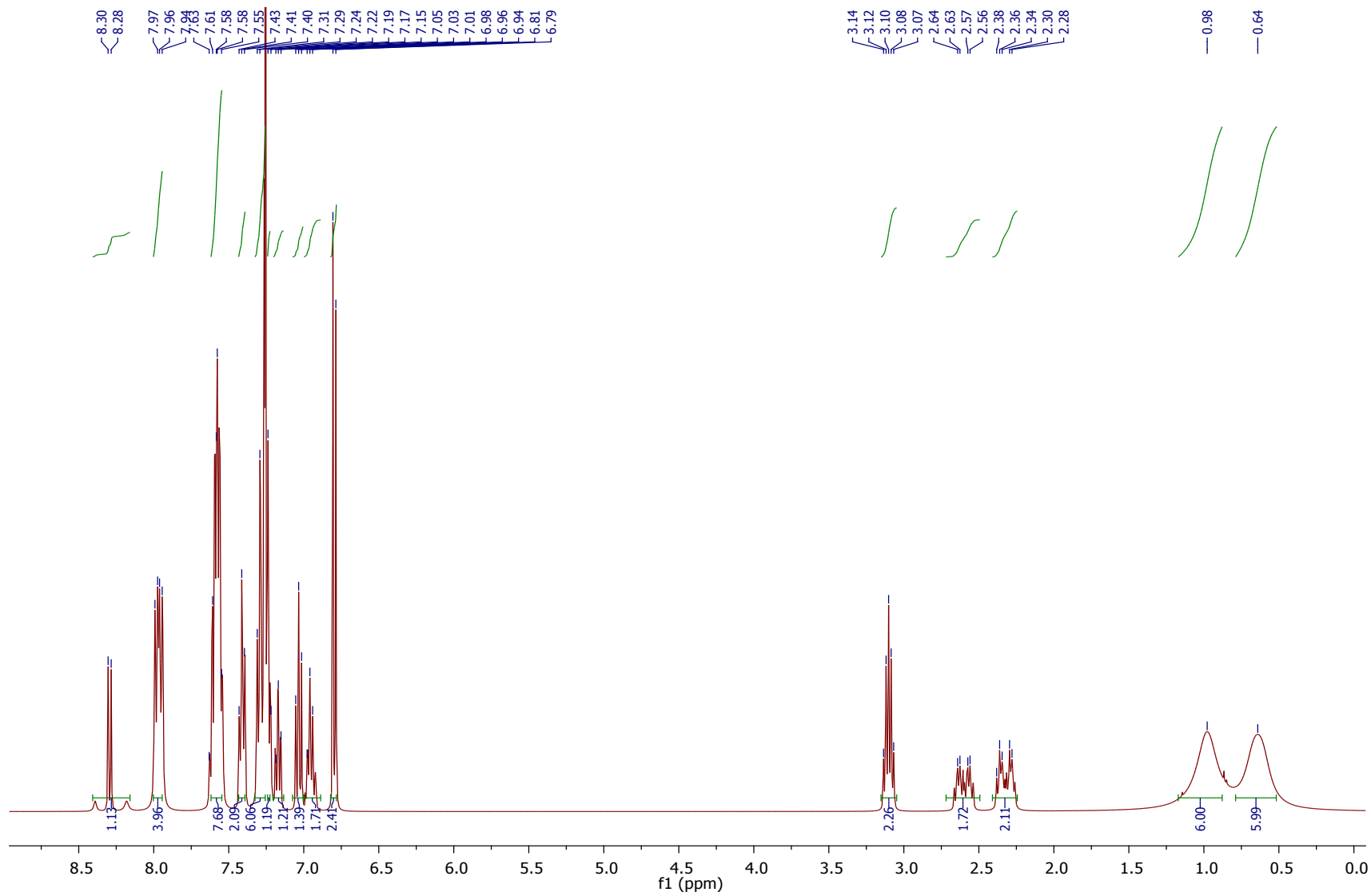
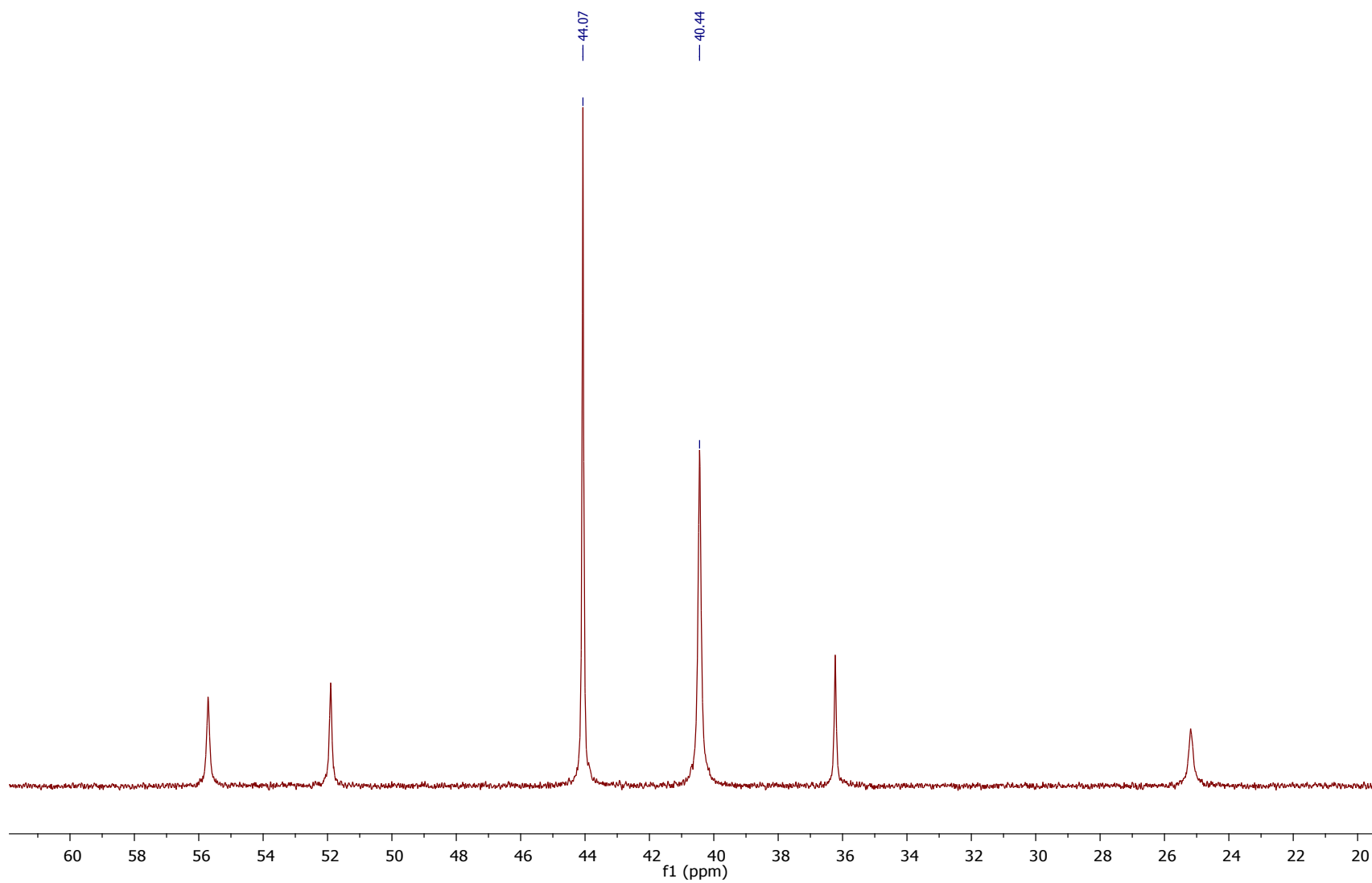


Figure S18. <sup>1</sup>H NMR spectra of **3b**



**Figure S19.**  $^{31}\text{P}$  NMR spectra of **3b**

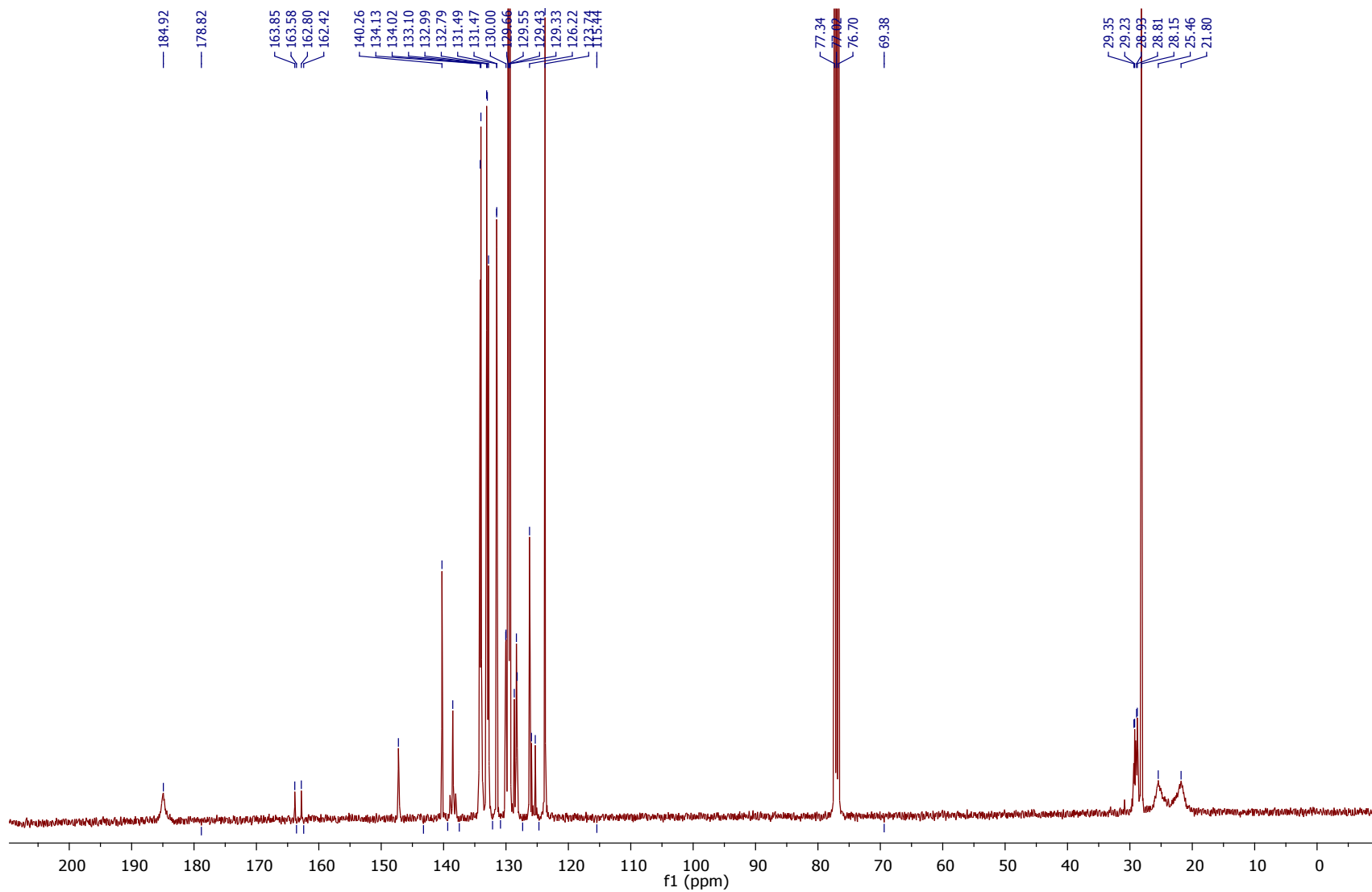


Figure S20.  $^{13}\text{C}$  NMR spectra of **3b**

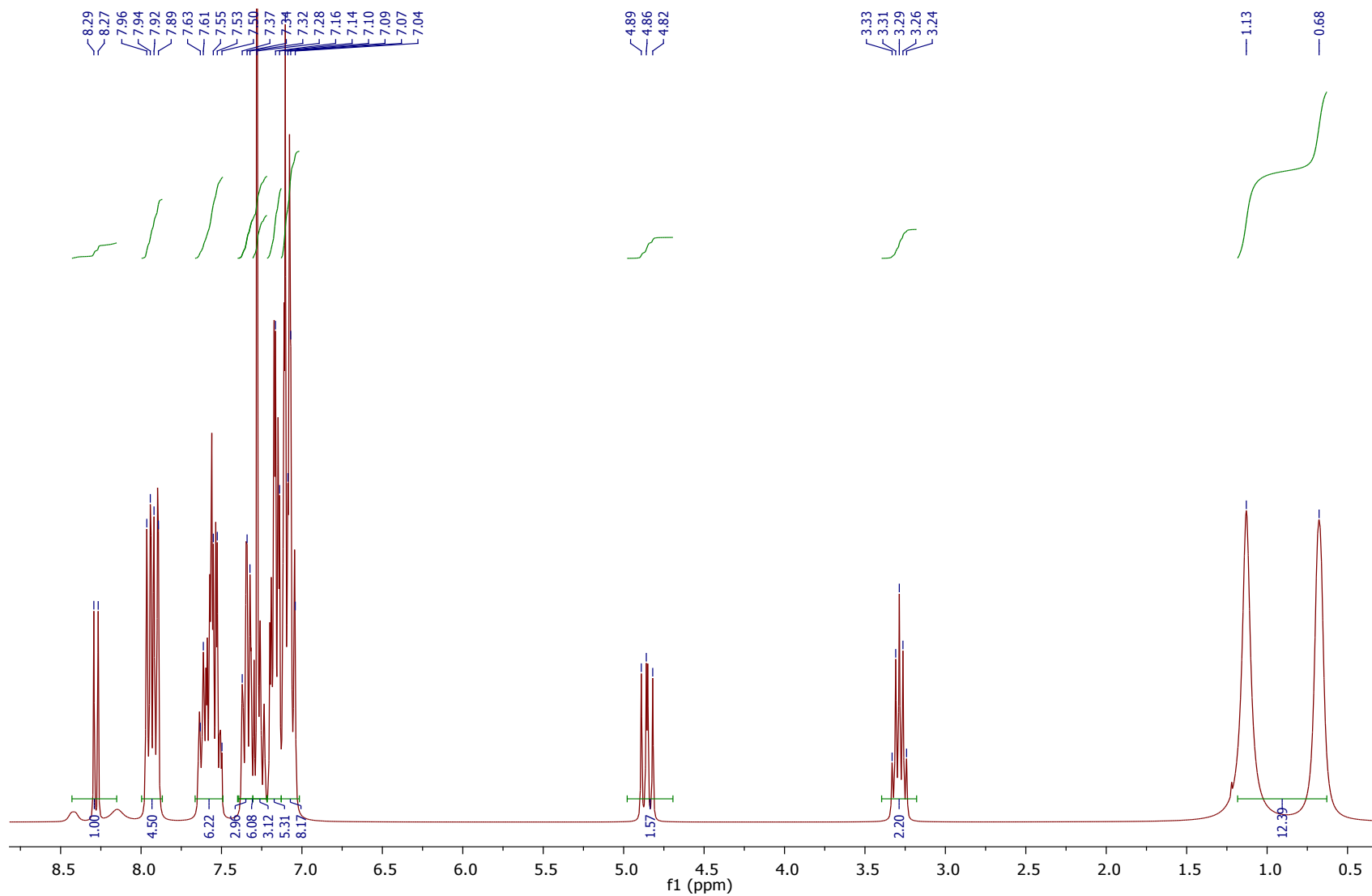
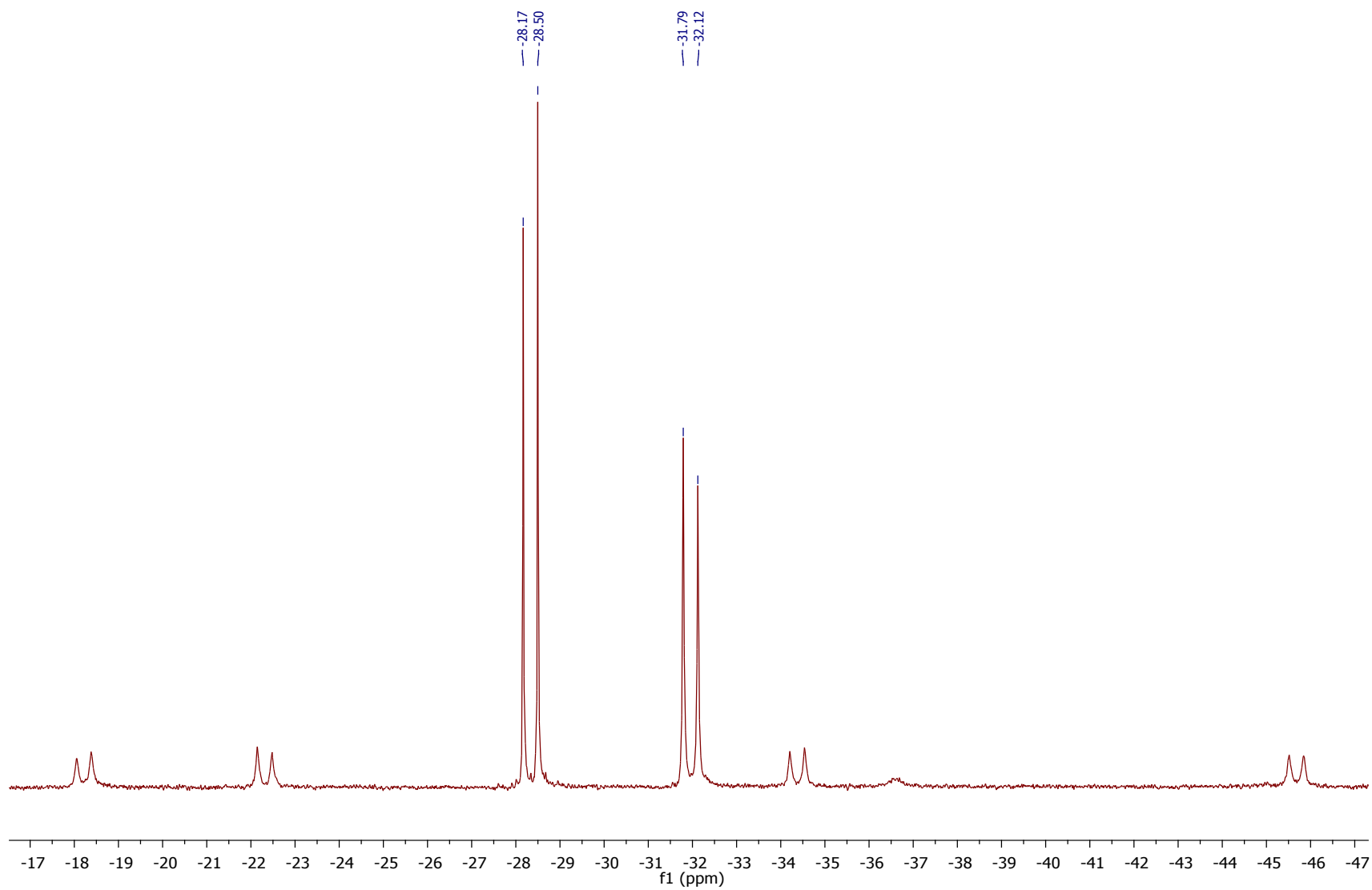


Figure S21. <sup>1</sup>H NMR spectra of 3c



**Figure S22.**  $^{31}\text{P}$  NMR spectra of **3c**

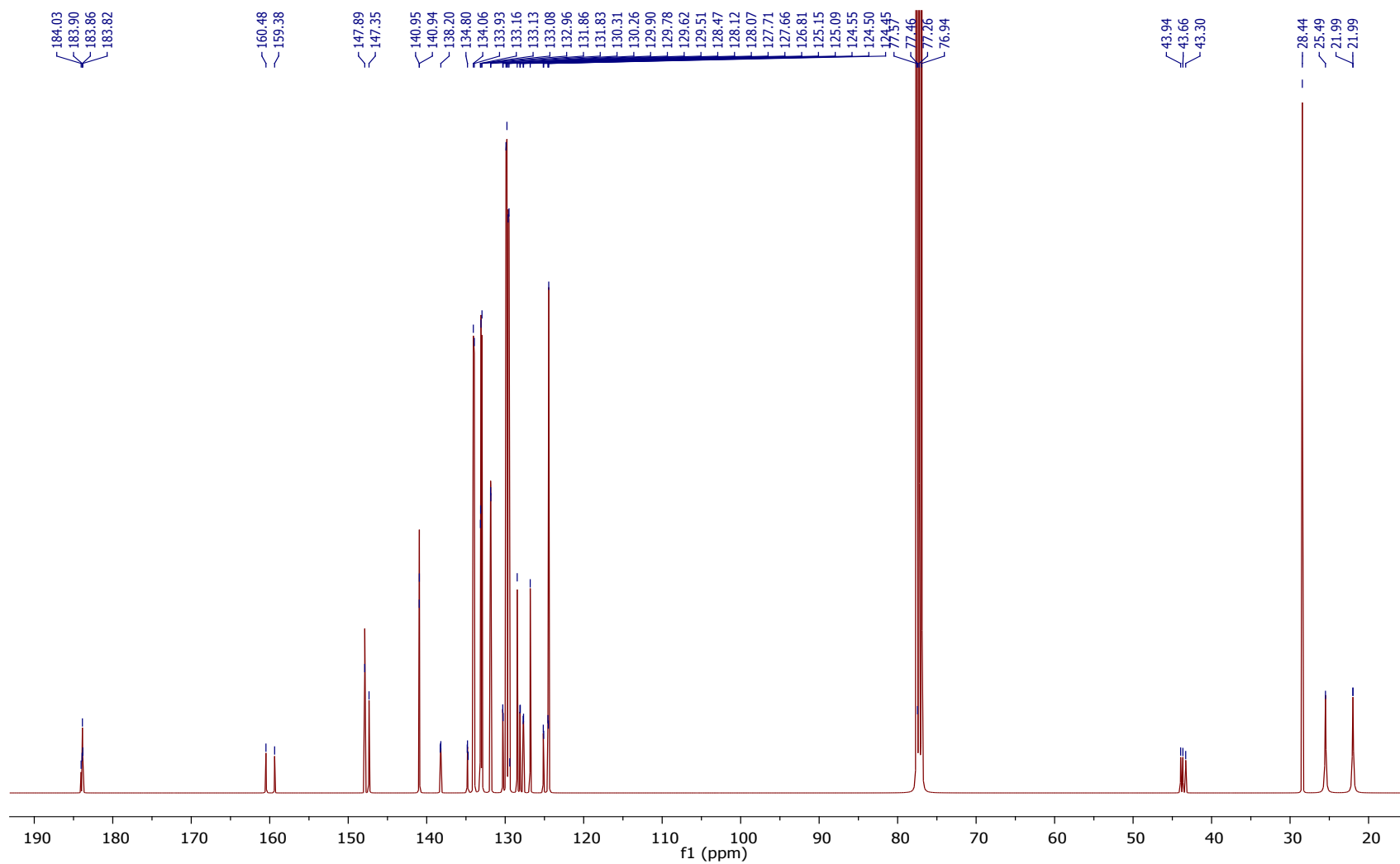


Figure S23.  $^{13}\text{C}$  NMR spectra of **3c**

**Table S7.** Cartesian Coordinates (in Å) of optimized structures.

**3aN-1**

Pt	-16.8489	16.97936	2.55736
Fe	-14.4333	17.59301	-1.0453
P	-17.606	17.49564	0.34193
P	-14.6384	15.88912	1.92454
Cl	-16.2936	16.52069	4.92884
C	-18.6926	17.74211	3.31858
C	-13.2768	17.77966	3.47
H	-14.1241	18.42553	3.24072
C	-16.0933	18.27139	-2.0625
H	-16.6493	17.68264	-2.78378
C	-19.0297	18.6355	0.11238
C	-17.9374	14.73277	-0.02195
H	-17.5085	14.65042	0.97791
C	-15.3116	19.17174	-0.06588
H	-15.1958	19.39162	0.99095
N	-17.7229	21.13034	4.39279
C	-12.541	16.83825	-1.47585
H	-11.7647	17.35871	-2.0286
C	-18.8254	19.97913	-0.23553
H	-17.8171	20.35173	-0.41079
C	-19.7781	16.85972	3.39835
H	-19.6828	15.83809	3.02681
C	-18.8362	19.04826	3.83337
C	-20.9969	17.26484	3.95207



H	-21.8291	16.56045	4.00002
C	-16.5773	21.95545	4.38304
C	-16.2569	22.73671	3.24071
C	-21.1479	18.57003	4.43867
H	-22.0984	18.89264	4.86511
C	-19.9144	20.84426	-0.37956
H	-19.742	21.8845	-0.65669
C	-17.1621	22.73244	2.01612
H	-17.5506	21.71291	1.88755
C	-17.696	19.96977	3.84213
H	-16.7799	19.57936	3.36296
C	-14.5036	19.67496	-1.12857
H	-13.6445	20.32905	-1.01442
C	-16.3078	18.29274	-0.63658
C	-21.4239	19.03811	0.17039
H	-22.4356	18.66476	0.33052
C	-13.5525	15.99461	-2.03436
H	-13.685	15.7641	-3.08729
C	-14.3921	15.5413	-0.97075
H	-15.2654	14.90583	-1.07823
C	-13.8955	16.09726	0.26575
C	-21.2147	20.37677	-0.17604
H	-22.0629	21.05192	-0.29115
C	-12.7438	16.90249	-0.06385
H	-12.1498	17.47449	0.64148
C	-20.34	18.1712	0.31541
H	-20.5192	17.13082	0.58259

C	-15.8192	22.06523	5.57601
C	-18.1273	16.00086	-0.59079
C	-19.0783	14.94632	-2.56151
H	-19.5329	15.03499	-3.54834
C	-18.8661	13.68442	-1.99568
H	-19.1502	12.78607	-2.54397
C	-14.9829	19.12016	-2.3556
H	-14.5469	19.27518	-3.33845
C	-18.3006	13.57932	-0.72288
H	-18.1469	12.60125	-0.26638
C	-18.7206	16.09976	-1.86129
H	-18.9166	17.07647	-2.30352
C	-13.2637	16.4557	3.00658
C	-14.6877	14.05868	2.12358
C	-20.0722	19.44889	4.38407
H	-20.158	20.46431	4.77262
C	-12.196	15.6163	3.35563
H	-12.1797	14.5791	3.02201
C	-15.5625	13.51776	3.08146
H	-16.1653	14.18512	3.69905
C	-11.1625	17.42589	4.59501
H	-10.3484	17.79842	5.2174
C	-12.2268	18.26496	4.2535
H	-12.2527	19.29535	4.6081
C	-15.14	23.58024	3.30926
H	-14.8741	24.18354	2.44168
C	-13.9847	11.8094	1.52845

H	-13.3671	11.14764	0.92101
C	-14.7083	22.91745	5.58718
H	-14.1073	22.99844	6.49333
C	-11.1526	16.1003	4.14993
H	-10.333	15.43622	4.42574
C	-16.1952	21.24625	6.80101
H	-17.2504	20.95933	6.67495
C	-13.8979	13.19304	1.34851
H	-13.2164	13.59458	0.59953
C	-14.3605	23.66703	4.46367
H	-13.4918	24.32654	4.48906
C	-15.6439	12.13434	3.25819
H	-16.3266	11.72691	4.00431
C	-14.8593	11.27814	2.48033
H	-14.9282	10.19837	2.61583
C	-16.0854	22.04148	8.11037
H	-16.4675	21.43855	8.94655
H	-16.6682	22.97193	8.06313
H	-15.044	22.30348	8.34576
C	-15.3709	19.9487	6.87553
H	-14.297	20.17674	6.95187
H	-15.526	19.31622	5.99202
H	-15.6574	19.36174	7.76036
C	-16.4531	23.11621	0.71167
H	-17.139	22.98475	-0.13709
H	-15.5667	22.49247	0.53207
H	-16.1373	24.16911	0.71106

C	-18.3761	23.64932	2.26252
H	-18.0456	24.68975	2.39963
H	-18.9264	23.34206	3.16162
H	-19.0675	23.61876	1.40795

**3aN-2**

Pt	-16.9573	17.19864	2.65097
Fe	-14.5742	17.79428	-0.96688
P	-17.7228	17.62047	0.42462
P	-14.7293	16.20629	2.05879
Cl	-16.4279	16.636	5.02454
C	-18.8466	17.85091	3.37903
C	-13.4062	18.29843	3.32722
H	-14.2863	18.87997	3.05704
C	-16.2346	18.4253	-2.00096
H	-16.7664	17.82247	-2.72754
C	-19.2052	18.66812	0.13313
C	-17.9713	14.83933	0.1724
H	-17.5871	14.82109	1.1933
C	-15.4948	19.35667	-0.00197
H	-15.4071	19.58562	1.05449
N	-16.9233	20.22092	3.70751
C	-12.6756	17.0505	-1.39883
H	-11.9146	17.55716	-1.98346
C	-19.0695	20.01123	-0.24823
H	-18.0815	20.43778	-0.40617
C	-19.858	16.88379	3.4267

H	-19.6542	15.87054	3.0814
C	-19.128	19.14347	3.88085
C	-21.1373	17.17761	3.91766
H	-21.9008	16.39859	3.9383
C	-16.1051	21.32592	4.04574
C	-15.9744	22.41816	3.15166
C	-21.4315	18.46508	4.37592
H	-22.4246	18.7105	4.75159
C	-20.2018	20.80615	-0.44991
H	-20.0818	21.84614	-0.75107
C	-16.8103	22.48772	1.88466
H	-17.1084	21.45938	1.64002
C	-18.1616	20.2328	4.04478
H	-18.5854	21.11814	4.54846
C	-14.6912	19.87587	-1.05925
H	-13.849	20.54977	-0.94038
C	-16.4625	18.44771	-0.57573
C	-21.6203	18.92948	0.10482
H	-22.6123	18.4998	0.2386
C	-13.6811	16.1685	-1.90743
H	-13.8226	15.89083	-2.9471
C	-14.4996	15.74828	-0.81364
H	-15.361	15.09263	-0.87998
C	-13.998	16.36726	0.3894
C	-21.4795	20.26875	-0.27537
H	-22.3615	20.88681	-0.4389
C	-12.8609	17.17083	0.01275

H	-12.2646	17.77993	0.68402
C	-20.492	18.13399	0.31064
H	-20.6187	17.09271	0.59902
C	-15.3618	21.2791	5.2554
C	-18.1616	16.07332	-0.46593
C	-18.9814	14.89964	-2.42886
H	-19.3826	14.92688	-3.44191
C	-18.7674	13.67085	-1.79281
H	-18.9928	12.74114	-2.3141
C	-15.1405	19.30036	-2.28828
H	-14.7001	19.46455	-3.26654
C	-18.2717	13.64256	-0.4868
H	-18.1135	12.69182	0.0211
C	-18.6901	16.09524	-1.76932
H	-18.8933	17.04216	-2.26683
C	-13.3724	16.91899	3.07123
C	-14.6531	14.38302	2.30978
C	-20.4264	19.42896	4.36371
H	-20.6311	20.42796	4.75329
C	-12.2777	16.16216	3.51181
H	-12.2502	15.08637	3.34783
C	-15.5743	13.77239	3.17774
H	-16.2838	14.38965	3.72856
C	-11.2276	18.1712	4.37434
H	-10.3888	18.65784	4.87156
C	-12.328	18.92482	3.95549
H	-12.359	19.99916	4.1309

C	-15.0889	23.45234	3.48627
H	-14.9824	24.30322	2.81399
C	-13.7203	12.19365	1.80478
H	-12.996	11.58382	1.26563
C	-14.4914	22.33917	5.5412
H	-13.9154	22.31852	6.46531
C	-11.2142	16.78759	4.16897
H	-10.3711	16.19045	4.51427
C	-15.5506	20.12561	6.22963
H	-15.8447	19.2446	5.64166
C	-13.7255	13.57957	1.62309
H	-13.0125	14.02958	0.9339
C	-14.3481	23.42026	4.66819
H	-13.6663	24.23576	4.90959
C	-15.5657	12.38559	3.35536
H	-16.2866	11.92737	4.03216
C	-14.6413	11.5923	2.6686
H	-14.6375	10.51162	2.8062
C	-16.6941	20.42667	7.21874
H	-16.8538	19.5679	7.88507
H	-17.6392	20.63056	6.69997
H	-16.4512	21.3031	7.83676
C	-14.2843	19.75106	7.01055
H	-13.9822	20.53965	7.71479
H	-13.4406	19.54747	6.34079
H	-14.4738	18.84327	7.59924
C	-16.0473	23.05318	0.67796

H	-16.6568	22.95916	-0.23131
H	-15.1039	22.51795	0.51141
H	-15.8144	24.11887	0.80733
C	-18.0999	23.29774	2.122
H	-17.8548	24.33499	2.39095
H	-18.6992	22.87276	2.93716
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**3bN**

Pt	-21.4899	35.70039	8.51353
Cl	-23.0073	35.64349	6.5528
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N	-22.8126	31.25511	8.46822
C	-22.9901	34.72349	9.70736
C	-23.681	35.47252	10.67206
H	-23.4701	36.53542	10.79419
C	-24.6364	34.88289	11.50983
H	-25.1596	35.4928	12.24806
C	-24.9096	33.51342	11.40066
H	-25.6486	33.04414	12.05129
C	-24.244	32.75838	10.441
H	-24.4574	31.69628	10.31994
C	-23.2928	33.34795	9.58102
C	-22.6788	32.53372	8.52475
H	-22.149	33.09916	7.74205
C	-22.2979	30.52204	7.3821



C	-23.2407	29.76238	6.63405
C	-22.7926	29.0224	5.53749
H	-23.5084	28.4535	4.94422
C	-21.4395	28.9968	5.18976
H	-21.105	28.41936	4.32715
C	-20.5184	29.69717	5.96569
H	-19.4598	29.64983	5.70636
C	-20.9142	30.46348	7.07268
C	-24.7125	29.80985	7.01451
H	-24.7404	30.03823	8.09058
C	-25.4471	28.48121	6.79441
H	-25.5513	28.24022	5.72714
H	-24.9236	27.64812	7.28343
H	-26.4605	28.54243	7.21496
C	-25.4363	30.95981	6.29006
H	-25.4436	30.78625	5.20397
H	-26.479	31.03245	6.63141
H	-24.946	31.9238	6.47729
C	-19.8471	31.14829	7.9182
H	-20.3396	31.60706	8.78533
C	-18.8257	30.1349	8.46513
H	-18.2592	29.65938	7.65223
H	-18.106	30.64241	9.12332
H	-19.3212	29.34282	9.04206
C	-19.1372	32.26872	7.14335
H	-19.8442	33.0364	6.80558
H	-18.3826	32.75613	7.77662

H	-18.6248	31.87369	6.2551
C	-19.6484	34.37675	11.44027
C	-20.7272	33.70646	12.05617
H	-21.7475	34.05741	11.90187
C	-20.4967	32.59208	12.86308
H	-21.343	32.07821	13.32758
C	-19.1923	32.12325	13.05713
H	-19.0158	31.24663	13.68045
C	-18.1148	32.78673	12.45512
H	-17.0936	32.43176	12.60534
C	-18.3394	33.90382	11.64456
H	-17.481	34.40236	11.19001
C	-20.4375	37.17699	11.53092
C	-19.9561	37.20136	12.84952
H	-19.3505	36.37745	13.22728
C	-20.2594	38.27786	13.68642
H	-19.8867	38.28639	14.71041
C	-21.0412	39.33711	13.21497
H	-21.2775	40.17415	13.87179
C	-21.5252	39.31749	11.90449
H	-22.1426	40.13604	11.53504
C	-21.2312	38.23804	11.06754
H	-21.6344	38.20739	10.054
C	-18.3504	36.33624	9.70186
H	-17.8853	35.44306	9.26249
H	-17.7111	36.68297	10.52506
C	-18.5085	37.43329	8.64449

H	-18.9452	38.33824	9.0908
H	-17.5339	37.72599	8.2313
C	-20.0813	38.46395	6.42904
C	-21.3591	39.02319	6.57682
H	-22.1134	38.49804	7.16314
C	-21.6723	40.23101	5.94704
H	-22.6696	40.6554	6.06096
C	-20.7158	40.88241	5.16438
H	-20.9626	41.82137	4.66912
C	-19.4428	40.32299	5.00653
H	-18.6956	40.82362	4.39043
C	-19.1256	39.11639	5.63264
H	-18.137	38.67852	5.49118
C	-18.7042	35.9449	6.10707
C	-17.3358	35.67674	6.26232
H	-16.7835	36.06062	7.11882
C	-16.6573	34.90757	5.31176
H	-15.5953	34.70187	5.4455
C	-17.335	34.40726	4.19792
H	-16.8042	33.80632	3.45936
C	-18.7003	34.67007	4.03887
H	-19.2375	34.27429	3.17743
C	-19.3843	35.42733	4.98984
H	-20.4546	35.60617	4.87727
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Pt	-21.5267	34.63841	9.10689

Cl	-23.9874	35.90205	8.65038
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P	-20.078	35.73777	7.34777
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C	-22.7208	33.79159	10.6489
C	-23.0509	34.34201	11.88899
H	-22.6111	35.28438	12.21373
C	-23.9654	33.70632	12.73996
H	-24.1971	34.15952	13.70517
C	-24.5813	32.5059	12.36667
H	-25.2943	32.02009	13.03261
C	-24.2829	31.9498	11.12662
H	-24.7663	31.02641	10.80239
C	-23.3628	32.58433	10.26754
C	-23.0981	32.0363	8.9619
H	-23.5697	31.08743	8.67529
C	-22.0169	32.04052	6.8806
C	-22.7757	32.38608	5.73778
C	-22.4483	31.76201	4.52667
H	-23.021	32.00331	3.63128
C	-21.4091	30.83231	4.44707
H	-21.1783	30.35376	3.49454
C	-20.6654	30.52003	5.58488
H	-19.8474	29.80296	5.51154
C	-20.9416	31.12342	6.81857
C	-23.9406	33.36039	5.84013
H	-23.7724	33.99399	6.72326

C	-25.2633	32.60374	6.0648
H	-25.4977	31.96414	5.2007
H	-25.2189	31.96363	6.9562
H	-26.0889	33.3164	6.2014
C	-24.0598	34.29391	4.62774
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H	-24.8415	35.04157	4.81855
H	-23.1204	34.83096	4.44239
C	-20.1268	30.78575	8.06042
H	-20.3098	31.58741	8.79014
C	-20.5945	29.46137	8.69034
H	-20.4266	28.62248	7.99932
H	-20.0354	29.25963	9.61554
H	-21.6648	29.48289	8.93609
C	-18.6133	30.75425	7.80105
H	-18.2665	31.69668	7.35891
H	-18.0804	30.59887	8.74981
H	-18.3288	29.93464	7.12603
C	-19.0663	34.66215	11.84704
C	-19.5726	33.42374	12.27073
H	-20.5208	33.06858	11.86865
C	-18.8656	32.64417	13.18986
H	-19.2747	31.68608	13.5106
C	-17.6367	33.08644	13.68693
H	-17.082	32.47595	14.39974
C	-17.1165	34.31093	13.2598
H	-16.1545	34.6593	13.63621

C	-17.8243	35.09644	12.34669
H	-17.3946	36.04462	12.02594
C	-20.744	37.06015	11.57724
C	-20.2033	37.53472	12.7838
H	-19.3521	37.03389	13.24369
C	-20.7625	38.64888	13.41447
H	-20.3373	39.00416	14.35342
C	-21.8645	39.29852	12.84909
H	-22.3	40.1667	13.3437
C	-22.4153	38.82049	11.6578
H	-23.2881	39.30593	11.22106
C	-21.8655	37.7023	11.0251
H	-22.34	37.29952	10.12547
C	-18.6527	36.49122	9.657
H	-17.8738	35.73207	9.50939
H	-18.2196	37.30603	10.25279
C	-19.1676	37.02829	8.32396
H	-19.8987	37.8328	8.48952
H	-18.3521	37.45808	7.72516
C	-20.7826	36.74188	5.97739
C	-22.0929	37.22738	6.10288
H	-22.7081	36.92884	6.9577
C	-22.6233	38.06458	5.11681
H	-23.6445	38.43234	5.22084
C	-21.8604	38.41436	4.00035
H	-22.281	39.06278	3.23119
C	-20.5567	37.92407	3.86772

H	-19.9571	38.18935	2.9966
C	-20.0167	37.093	4.8514
H	-19.0009	36.716	4.73632
C	-18.7591	34.77935	6.49596
C	-17.393	34.952	6.77296
H	-17.0614	35.65917	7.53034
C	-16.4251	34.23181	6.06602
H	-15.3701	34.38232	6.2968
C	-16.8079	33.33893	5.0628
H	-16.0527	32.78438	4.50502
C	-18.1657	33.15837	4.78185
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C	-19.1348	33.86311	5.49779
H	-20.1882	33.70273	5.26699

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Pt	-21.9719	35.53101	8.31085
Cl	-23.5003	35.37464	6.37873
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N	-22.9459	31.07095	8.51637
C	-23.3833	34.57001	9.58632
C	-24.0555	35.32512	10.55705
H	-23.9131	36.40561	10.60869
C	-24.9124	34.71417	11.48038
H	-25.4304	35.3242	12.22244
C	-25.0972	33.3256	11.45524

H	-25.7581	32.84604	12.17828
C	-24.4384	32.56412	10.49552
H	-24.5767	31.48357	10.44616
C	-23.5844	33.17134	9.55043
C	-22.9411	32.3579	8.5122
H	-22.4808	32.93008	7.69081
C	-22.3455	30.35941	7.45773
C	-23.1913	29.49873	6.70411
C	-22.6435	28.77547	5.64172
H	-23.2881	28.13146	5.04344
C	-21.2837	28.86482	5.3328
H	-20.8717	28.30012	4.49574
C	-20.4555	29.66855	6.1128
H	-19.3895	29.71511	5.88446
C	-20.9547	30.42496	7.18382
C	-24.6729	29.42251	7.03795
H	-24.7584	29.67539	8.10577
C	-25.2751	28.02612	6.83314
H	-25.3137	27.74788	5.77006
H	-24.6953	27.25785	7.36373
H	-26.3059	28.0036	7.21416
C	-25.4732	30.48238	6.25799
H	-25.4273	30.28452	5.17691
H	-26.5295	30.4674	6.56386
H	-25.0805	31.49231	6.43542
C	-19.9794	31.2418	8.02389
H	-20.5336	31.68522	8.86086



C	-18.8735	30.36193	8.63211
H	-18.2304	29.92819	7.8531
H	-18.2366	30.96371	9.29658
H	-19.2998	29.53724	9.21918
C	-19.368	32.39416	7.21304
H	-20.1405	33.08576	6.85413
H	-18.6571	32.9605	7.8317
H	-18.8198	32.02281	6.33574
C	-19.7624	34.4961	11.14466
C	-20.7315	33.8494	11.93175
H	-21.783	34.12053	11.83968
C	-20.3513	32.85018	12.82841
H	-21.1105	32.35461	13.43337
C	-19.0077	32.48124	12.94323
H	-18.7136	31.69551	13.63892
C	-18.0416	33.1193	12.16124
H	-16.9922	32.83743	12.24668
C	-18.4141	34.12477	11.26495
H	-17.6458	34.61672	10.66941
C	-20.5053	37.30809	11.03149
C	-19.7739	37.491	12.21603
H	-19.0981	36.71381	12.57166
C	-19.912	38.67472	12.94447
H	-19.3436	38.81039	13.86449
C	-20.7796	39.67813	12.5012
H	-20.8881	40.5975	13.07622
C	-21.5143	39.49684	11.32632

H	-22.1986	40.27109	10.9807
C	-21.3855	38.31215	10.59864
H	-21.9735	38.15977	9.69211
C	-18.9142	36.15997	8.82456
H	-18.3786	35.22083	8.63454
H	-18.1976	36.91874	9.16128
C	-19.7501	38.36724	7.0465
C	-20.8938	39.08937	6.67238
H	-21.8477	38.57335	6.55461
C	-20.8097	40.46548	6.44284
H	-21.7013	41.0189	6.14935
C	-19.5895	41.12794	6.59502
H	-19.5264	42.20241	6.42287
C	-18.4472	40.41193	6.96869
H	-17.493	40.92464	7.09084
C	-18.5242	39.03629	7.18928
H	-17.6243	38.49177	7.47579
C	-19.0308	35.78958	5.89033
C	-17.6369	35.62496	5.86251
H	-17.0178	35.96949	6.69216
C	-17.0305	34.99586	4.77259
H	-15.9491	34.8583	4.76101
C	-17.8091	34.53628	3.70487
H	-17.3333	34.04026	2.85817
C	-19.1964	34.70474	3.72668
H	-19.8071	34.33815	2.90088
C	-19.8106	35.32532	4.81805

H	-20.8972	35.42222	4.85509
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Pt	-21.8619	34.49158	9.09588
Cl	-24.1526	35.99527	8.52525
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P	-20.2363	35.61464	7.5104
N	-22.5508	32.52069	8.15402
C	-22.934	33.59168	10.66754
C	-23.1787	34.0956	11.946
H	-22.7565	35.05159	12.25666
C	-23.9836	33.38857	12.85144
H	-24.1495	33.7971	13.84956
C	-24.5743	32.17106	12.49035
H	-25.1992	31.63017	13.20082
C	-24.3618	31.66273	11.21204
H	-24.8259	30.72384	10.90446
C	-23.5465	32.36269	10.30074
C	-23.2957	31.84721	8.97862
H	-23.721	30.88156	8.67927
C	-22.1868	31.95729	6.89513
C	-22.8541	32.39376	5.72676
C	-22.4603	31.83846	4.50304
H	-22.966	32.14901	3.58864
C	-21.4351	30.89291	4.43354
H	-21.1437	30.47157	3.47056
C	-20.7816	30.48965	5.5969

H	-19.9761	29.75751	5.53373
C	-21.1336	31.01312	6.84813
C	-24.0065	33.3814	5.82025
H	-23.8553	33.98989	6.7243
C	-25.3429	32.63465	5.99146
H	-25.5614	32.0211	5.10457
H	-25.3265	31.97024	6.86599
H	-26.1641	33.35236	6.12724
C	-24.0829	34.34987	4.63287
H	-24.3632	33.84049	3.6993
H	-24.846	35.11343	4.83525
H	-23.1267	34.86533	4.47309
C	-20.4077	30.55768	8.10791
H	-20.6404	31.28187	8.90025
C	-20.9066	29.1758	8.56897
H	-20.6874	28.41152	7.80945
H	-20.409	28.87996	9.50379
H	-21.991	29.17109	8.74291
C	-18.8802	30.55059	7.9449
H	-18.5132	31.52549	7.59979
H	-18.406	30.32489	8.91081
H	-18.5487	29.78621	7.22793
C	-18.9775	35.04003	11.29138
C	-19.2081	33.78477	11.87655
H	-20.1716	33.29489	11.73216
C	-18.2077	33.16343	12.6275
H	-18.3983	32.19171	13.08363

C	-16.965	33.78224	12.78785
H	-16.1834	33.2946	13.37058
C	-16.7221	35.0242	12.1932
H	-15.7536	35.50935	12.31437
C	-17.7245	35.65587	11.45269
H	-17.526	36.63117	11.00692
C	-20.9765	37.16006	11.46234
C	-20.3082	37.60649	12.61309
H	-19.3669	37.15122	12.91885
C	-20.8548	38.63842	13.38181
H	-20.3302	38.97878	14.27495
C	-22.0677	39.22736	13.01062
H	-22.4917	40.03101	13.61311
C	-22.7429	38.77168	11.87344
H	-23.6994	39.21079	11.58872
C	-22.2073	37.73665	11.10457
H	-22.7601	37.34103	10.24817
C	-19.5952	36.68808	8.89637
H	-20.0953	37.66095	8.79273
H	-18.5132	36.87027	8.9246
C	-20.6265	36.79597	6.16066
C	-21.9489	37.25148	6.03786
H	-22.7204	36.87326	6.71568
C	-22.2711	38.18927	5.05172
H	-23.2998	38.5385	4.95882
C	-21.2861	38.67135	4.18641
H	-21.5429	39.39789	3.41532

C	-19.968	38.21607	4.3069
H	-19.1956	38.5866	3.63273
C	-19.6361	37.2822	5.28997
H	-18.6086	36.92754	5.37108
C	-18.8183	34.66723	6.84763
C	-17.5786	34.57111	7.50183
H	-17.4096	35.07113	8.45553
C	-16.5373	33.82656	6.93641
H	-15.5748	33.77085	7.44965
C	-16.725	33.16935	5.71695
H	-15.91	32.59907	5.26986
C	-17.9666	33.24017	5.07258
H	-18.1265	32.72088	4.12666
C	-19.0095	33.97662	5.63526
H	-19.9759	34.01323	5.12777