

# Fluorenes and Styrenes by Au(I)-Catalyzed Annulation of Enynes and Alkynes

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## I. General Information

Unless otherwise noted, all reagents were obtained commercially and used without further purification. HPLC grade dichloromethane (CH<sub>2</sub>Cl<sub>2</sub>), ACS grade pentane, ACS grade hexanes, ACS grade toluene, ACS grade ethyl acetate and ACS grade diethyl ether were obtained from Fischer Scientific. The catalyst, (2,4-(*t*-Bu)<sub>2</sub>C<sub>6</sub>H<sub>3</sub>O)<sub>3</sub>PAuCl, was prepared according to the method of Sawamura.<sup>1</sup> TLC analysis of reaction mixtures was performed on Merck silica gel 60 F254 TLC plates using I<sub>2</sub> stain and UV light to visualize the reaction components. Column chromatography was carried out on ICN SiliTech 32-63 D 60 Å silica gel.

<sup>1</sup>H and <sup>13</sup>C NMR spectra were recorded with Bruker AV-300, AVQ-400, AVB-400, DRX-500, and AV-500 spectrometers referenced to chloroform, unless otherwise noted. Product ratios were determined by <sup>1</sup>H NMR unless otherwise noted. Mass spectral data were obtained via the Micro-Mass/Analytical Facility operated by the College of Chemistry, University of California, Berkeley.

## II. Mechanistic Experiments

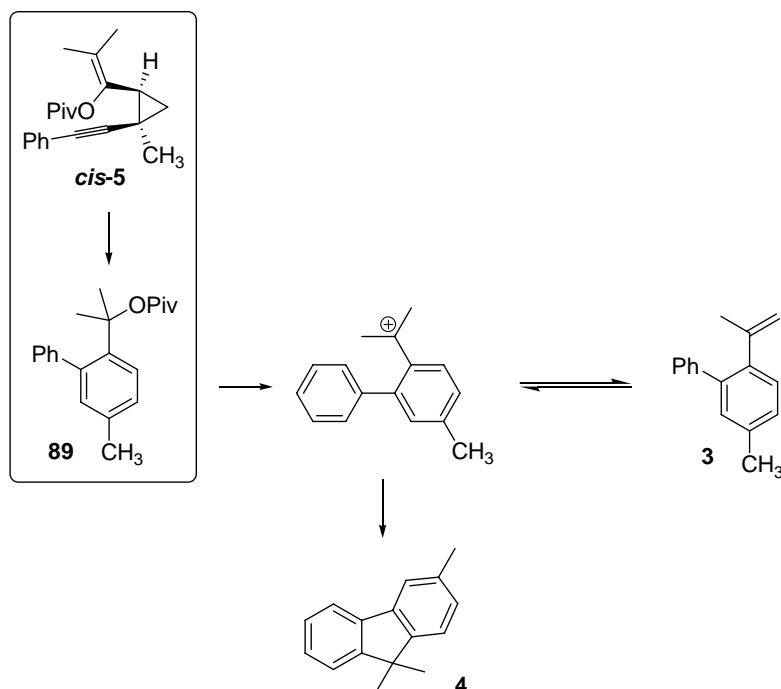
The mechanism by which styrene and fluorene products arise from the *cis*-cyclopropanes was investigated through a number of experiments. In particular, three questions were addressed. Are there any isolable intermediates *en route* to styrene and fluorene products from the cyclopropanes? Are all steps in the syntheses of the styrenes and fluorenes necessarily gold-catalyzed? Might the formation of the styrenes and fluorenes be reversible; might one form more rapidly than the other and then isomerize under the reaction condition? For these investigations *cis*-cyclopropane **cis-5** was used as the model substrate, involving the formation of styrene **3** or fluorene **4**.

### Isolation and Reactivity of Arene Intermediate **89**

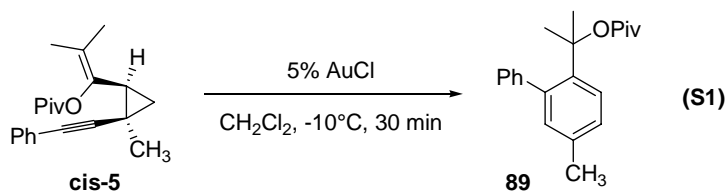
**Isolation:** The following experiments permitted the identification of arene **89** as a possible intermediate in the transformation of **cis-5** to styrene **3** and fluorene **4**.

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<sup>1</sup> Ochida, A.; Ito, H.; Sawamura, M. *J. Am. Chem. Soc.* **2006**, *128*, 16486.

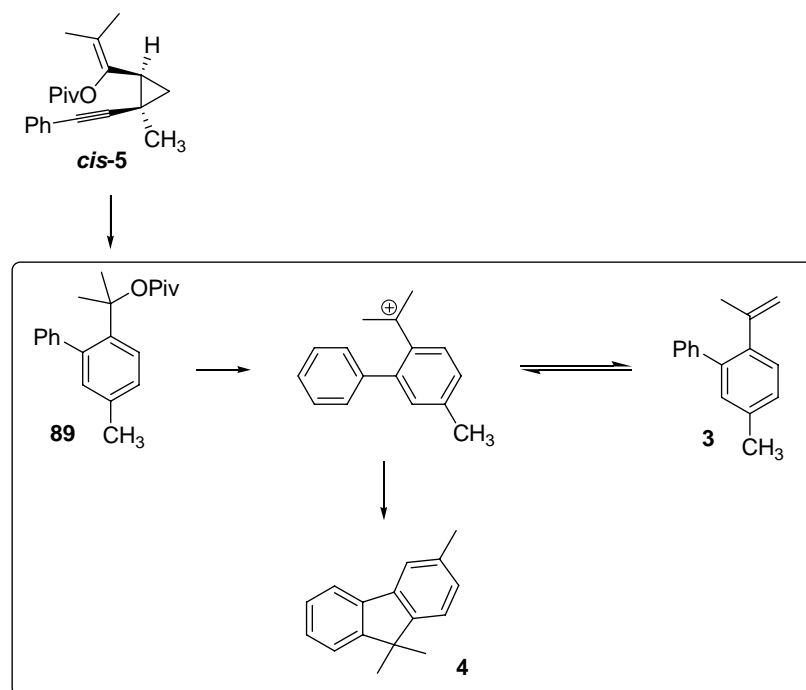


By treating the *cis*-cyclopropane (*cis*-**5**) with 5% AuCl at -10 °C and quenching the reaction after 30 min, a low yield of arene **89** was obtained (equation S1, see experimental procedure below). Treatment of *cis*-**5** with 5% AgOTf at -10 °C, in the absence of Au(I) produced no reaction over the course of 16 h. Treatment of *cis*-**5** with 10% TfOH at -10 °C also produced no reaction within 45 min, and no further reaction was observed overnight at room temperature.



A stirred suspension of AuCl (0.05 equiv) in CH<sub>2</sub>Cl<sub>2</sub> (0.2 M based on cyclopropane) was cooled to -10 °C. A solution of cyclopropane *cis*-**5** in CH<sub>2</sub>Cl<sub>2</sub> (0.2 M based on cyclopropane) was added to the catalyst mixture, and the resulting solution was stirred at -10 °C for 30 min, at which point TLC indicated complete consumption of starting material. The reaction mixture was filtered through silica and washed with excess Et<sub>2</sub>O, and **89** was isolated in 20% yield following silica column chromatography (5% Et<sub>2</sub>O in hexanes). A mixture of fluorene **4** and styrene **3** (3.8:1) was also isolated in 52% yield. <sup>1</sup>H NMR (CDCl<sub>3</sub>, 400 MHz) δ 7.32 (m, 6 H), 7.12 (dd, 1 H, *J* = 8.0, 1.2 Hz), 6.87 (d, 1 H, *J* = 1.2 Hz), 5.04 (s, 1 H), 2.31 (s, 3 H), 1.48 (s, 6 H), 1.13 (s, 9 H); <sup>13</sup>C NMR (CDCl<sub>3</sub>, 100 MHz) δ 176.8, 144.0, 140.1, 139.1, 135.5, 132.8, 129.4, 128.1, 127.4, 126.7, 125.4, 82.1, 39.0, 30.4, 27.0, 20.7; HRMS (FAB) Calcd. for [C<sub>21</sub>H<sub>26</sub>O<sub>2</sub>] 310.1933, Found 310.1927.

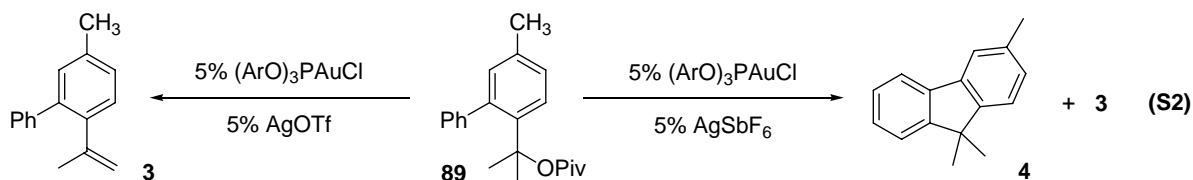
**Reactivity:** The following experiments were designed to test whether arene **89** was an intermediate *en route* to **3** and **4** and whether those transformations were necessarily catalyzed by gold.



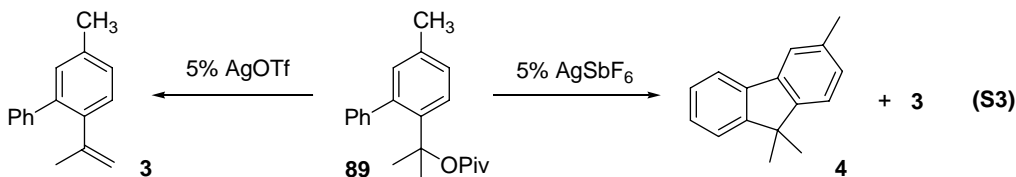
Arene **89** was subjected to the standard reaction conditions for styrene synthesis (5% (ArO)<sub>3</sub>PAuCl, AgOTf), and the product yield and distribution were evaluated by <sup>1</sup>H NMR against an internal standard. After 10 min, there was 98% conversion to styrene **3**. No further reaction was observed at extended timepoints.

Arene **89** was then subjected to the standard reaction conditions for fluorene synthesis (5% (ArO)<sub>3</sub>PAuCl, AgSbF<sub>6</sub>), and the product yield and distribution were evaluated by <sup>1</sup>H NMR against an internal standard. After 10 min, 55% conversion to fluorene **4** and 40% conversion to styrene **3** was observed. After 45 min, at -10 °C, no further change was observed (equation S2).

Arene **89** was re-subjected to the fluorene conditions, except that the reaction was run at room temperature. After 15 min, 66% conversion to fluorene **4** and 34% conversion to styrene **3** was observed. After 30 min, 69% conversion to **4** and 31% conversion to **3** was observed. After 6 h, there was 79% conversion to **4** and 21% conversion to **3** and after 9 h, 91% conversion to **4** and 9% conversion to **3** was observed (equation S2).



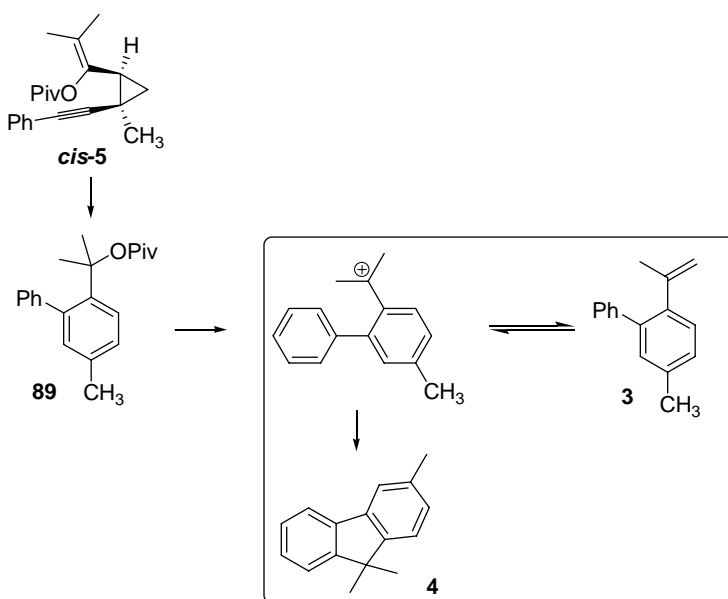
Reactions were performed on arene **89** using only silver salts to test whether gold was necessary for the transformations to styrenes and fluorenes. Arene **89** was reacted with 5% AgOTf, the silver salt used for styrene synthesis. After 15 min, there was 10% conversion to styrene **3** and 88% of the starting material remained. After 12 h, 87% conversion to styrene **3** was observed (equation S3). The arene **89** was then reacted with 5% AgSbF<sub>6</sub>, the silver salt for fluorene synthesis. After 15 min, 53% conversion to fluorene **4** and 42% conversion to styrene **3** was observed. No further conversion was observed at extended reaction times (equation S3).



The chemoselectivities achievable in this reaction by simply switching the counterion of the gold catalyst is remarkable and represents a further example of the ability of counterions to effect selectivity in catalysis.<sup>2,3</sup>

### Stability of Styrene and Fluorene Products

Experiments were performed in order to test whether the formation of the styrene and/or fluorene products was reversible under the reaction conditions.

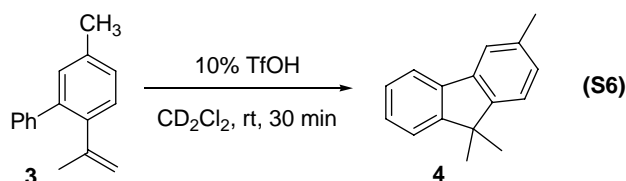
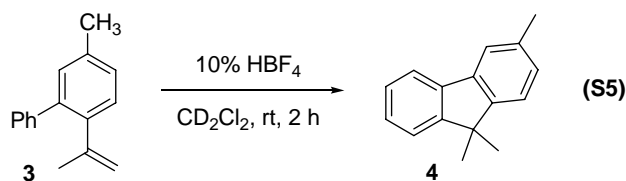


<sup>2</sup> For a review of counterion effects in catalysis see: Fagnou, K.; Lautens, M. *Angew. Chem. Int. Ed.* **2002**, *41*, 26.

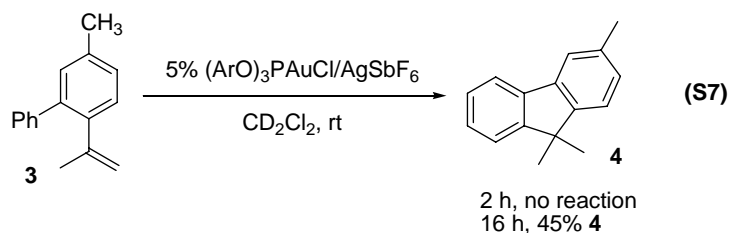
<sup>3</sup> For various counterion effects in gold catalysis see the following; Reactivity effects: (a) Kang, J.-E.; Kim, H.-B.; Lee, J.-W.; Shin, S. *Org. Lett.* **2006**, *8*, 3537. Regioselectivity effects: (b) Zhang, Z.; Liu, C.; Kinder, R. E.; Han, X.; Qian, H.; Widenhoefer, R. A. *J. Am. Chem. Soc.* **2006**, *128*, 9066. (c) Lian, J.-J.; Chen, P.-C.; Lin, Y.-P.; Ting, H.-C.; Liu, R.-S. *J. Am. Chem. Soc.* **2006**, *128*, 11372. Enantioselectivity effects: (d) LaLonde, R. L.; Sherry, B. D.; Kang, E. J.; Toste, F. D. *J. Am. Chem. Soc.* **2007**, *129*, 2452. (e) Hamilton, G. L.; Kang, E. J.; Mba, M.; Toste, F. D. *Science* **2007**, *317*, 496.

These experiments will address the possibility that elimination (E1) proceeds more rapidly than annulation (SN1) under the reaction conditions, and therefore that formation of styrene **3** precedes formation of fluorene **4** under the conditions for fluorene synthesis. Although both products would arise from a common intermediate, these experiments address questions of reversibility and relative rates of product formation.

In order to test whether a catalytic amount of acid would catalyze the formation of fluorene from styrene, styrene **3** was treated with 10% HBF<sub>4</sub>. By <sup>1</sup>H NMR, quantitative conversion to fluorene **4** was observed at 2 h (equation S5). A 9:1 mixture of styrene **3** to fluorene **4** was then treated with 10% TfOH, and the reaction was monitored by <sup>1</sup>H NMR. At 30 min, there was quantitative conversion to fluorene, such that only **4** was observed (equation S6).



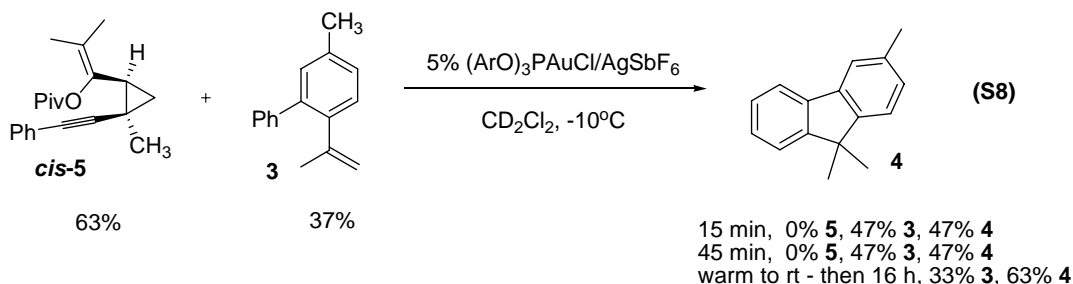
The preceding experiments established that styrene **3** can isomerize to fluorene **4** under acidic conditions. The same tests were performed in the presence of the gold catalyst. Styrene **3** was subjected to the standard reaction conditions for fluorene synthesis (5% (ArO)<sub>3</sub>PAuCl, AgSbF<sub>6</sub>), and the product yield and distribution were evaluated by <sup>1</sup>H NMR against an internal standard. No reaction was observed in 2 h, but after 16 h there was 45% conversion to fluorene **4** (equation S7).



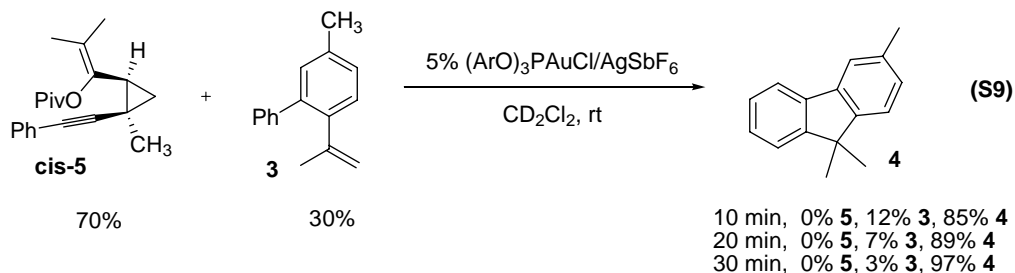
Since pivalic acid is liberated during the reaction conditions the preceding experiment does not absolutely reproduce the reaction conditions. The following experiments were devised to test whether styrene was converted to fluorene under the actual reaction conditions. The results suggest that the rate of isomerization of styrene to fluorene is highly dependent upon the reaction temperature.

A 63:37 mixture of *cis*-**5** and **3** was subjected to the standard reaction conditions for fluorene synthesis (5% (ArO)<sub>3</sub>PAuCl, AgSbF<sub>6</sub>) at -10 °C, and the product yield and distribution were

evaluated by  $^1\text{H}$ NMR against an internal standard. After 15 min, *cis-5* was completely consumed, and 47% **3** and 47% **4** were observed.<sup>4</sup> After 45 min, no further reaction had occurred. The reaction mixture was warmed to room temperature and left overnight. After 16 h, 33% **3** and 63% **4** were observed, indicating slow conversion of **3** to **4** at room temperature. The overnight experiment was repeated at  $-10^\circ\text{C}$ , and no isomerization of **3** was observed (equation S8).



The experiment was repeated at room temperature with the same catalyst system. After 10 min, *cis-5* was completely consumed, and 12% **3** and 85% **4** were observed.<sup>4</sup> After 20 min, there was 7% **3** and 89% **4**, while after 30 min, 3% **3** and 97% **4** were observed (equation S9).



These experiments imply that at room temperature, two pathways operate for fluorene formation: direct  $\text{S}_{\text{N}}1$  reaction from arene **89** and acid-catalyzed isomerization of styrene to fluorene. The isomerization pathway appears particularly relevant at room temperature, and may explain the higher fluorene yields attained in some cases at room temperature compared with the reaction run at  $-10^\circ\text{C}$ .

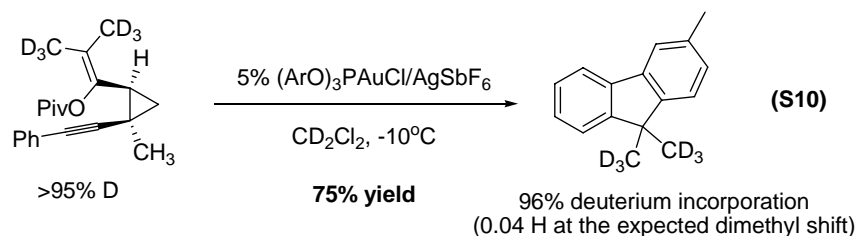
## Labeling Experiment

In order to test the amount of fluorene that was arising through styrene, the following labeling experiments were performed. The results imply that little fluorene arises from styrene at either  $-10^\circ\text{C}$  or room temperature, although the styrene isomerization pathway is more active at elevated temperatures.

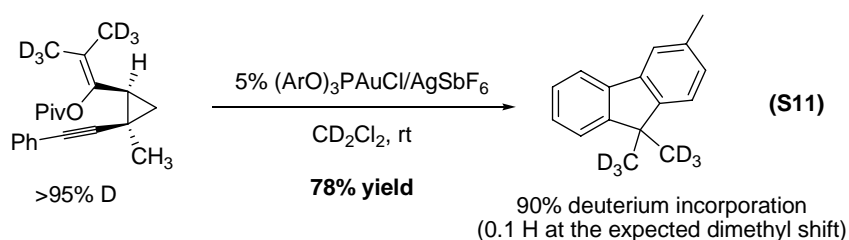
The deuterated *cis*-cyclopropane ( $d^6$ -*cis-5*) was prepared from  $d^6$ -acetone and was subjected to the standard reaction conditions for fluorene synthesis (5%  $(\text{ArO})_3\text{PAuCl}$ ,  $\text{AgSbF}_6$ ) at  $-10^\circ\text{C}$ .

<sup>4</sup> 100% represents the sum total of *cis-5* and **3** that constituted the starting material.

The fluorene product was isolated in 75% yield and was determined to have retained 96% of the deuterium label (equation S10).



The experiment was repeated at room temperature, and the expected fluorene product was isolated in 78% yield. Increased scrambling of the deuterium label was observed: 90% deuterium incorporation remained (equation S11).



## Summary

Given the data presented above, the following conclusions may be drawn regarding the transformation of *cis*-cyclopropane **cis-5** into styrene **3** and fluorene **4**:

- Arene **89** is a plausible intermediate *en route* to styrene and fluorene products from the cyclopropanes.
- Simply changing the counterion dramatically alters the ratio of **3**:**4** obtained either from *cis-5* or **89** under otherwise identical reaction conditions. Experiments with **89** demonstrate that even when AgX is used without additional gold, the product selectivity is still altered.
- Although the cycloisomerization of *cis-5* to **89** is Au-catalyzed, the subsequent elimination/annulation steps may be catalyzed by other Brønsted and Lewis acids.
- It is likely that two pathways for the synthesis of **4** are operative: direct SN1 reaction from **89** and isomerization of some initially formed **3**. Although the latter pathway is probably not the major one under the reaction conditions, it may be more relevant to reactions run at elevated temperatures.
- The fluorene:styrene ratio and the rate of isomerization of styrene to fluorene are apparently highly sensitive to the precise Brønsted acid present *in situ*.

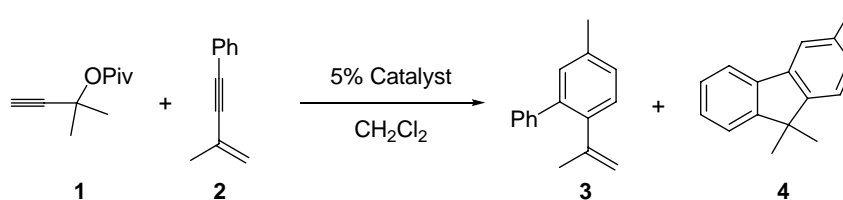


### III. Optimization Data

Following our initial result (entry 1, below), extensive efforts were devoted to optimizing the one-pot synthesis of fluorene **4** from **1** and **2**. In contrast to the results obtained in the two-pot synthesis of styrene **3**, poor conversion and yield were observed when AgOTf was used. Initial reactions on NMR scale were promising, as switching the catalyst counterion provided a dramatic increase in selectivity for **4** over **3** (entries 2-3). In all cases, significant quantities of cyclopropane *trans*-**5** were also present.

Upon scale up of the reaction, decreased yields were obtained, and lower temperatures proved optimal (entries 5-8). Additionally, significant quantities of complex decomposition products were inseparable from *trans*-**5** upon column chromatography, and although lower temperatures did not eliminate the presence of these contaminants, the crude reaction mixtures were far cleaner by NMR when the reaction was run at low temperature. It is noteworthy that although a BINAP-derived catalyst performed similarly to monophosphine and monophosphite gold complexes, use of dppm(AuCl)<sub>2</sub> resulted in a dramatically altered product distribution under otherwise identical conditions.

In the end, the highest isolated yield of fluorene **4** obtained from the one-pot reaction (52%) compared unfavorably to that obtained for the two-pot synthesis (61%). Additionally, no one-pot conditions were identified to compare with the two-pot synthesis of styrene **3**, which proceeded in 71% yield over two steps. Attempts to develop a one-pot styrene synthesis of *n*-pentyl-substituted enyne **58** maximally resulted in 25% yield of styrene **60** by NMR.

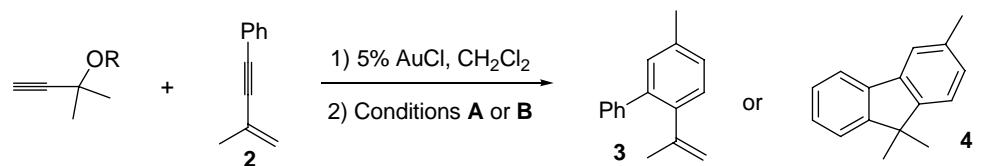


entry	catalyst	Piv:Enyne	T	3	4
1 <sup>a</sup>	PPh <sub>3</sub> AuNTf <sub>2</sub>	1.5:1	23 °C	21%	23%
2 <sup>a</sup>	PPh <sub>3</sub> AuCl/AgSbF <sub>6</sub>	2:1	23 °C	0%	52%
3 <sup>a</sup>	PPh <sub>3</sub> AuCl/AgOTf	1.5:1	23 °C	15%	10%
4 <sup>a</sup>	PPh <sub>3</sub> AuOBz	1.5:1	23 °C	0%	0% <sup>c</sup>
5 <sup>b</sup>	PPh <sub>3</sub> AuCl/AgSbF <sub>6</sub>	1.5:1	-10 °C <sup>d</sup>	0%	49%
6 <sup>b</sup>	PPh <sub>3</sub> AuCl/AgSbF <sub>6</sub>	1.5:1	-20 °C	0%	45%
7 <sup>b</sup>	BINAP(AuCl) <sub>2</sub> /AgSbF <sub>6</sub>	1.5:1	-10 °C	5%	47%
8 <sup>b</sup>	dppm(AuCl) <sub>2</sub> /AgSbF <sub>6</sub>	1.5:1	-10 °C	24%	32%
9 <sup>b</sup>	(ArO) <sub>3</sub> PAuCl/AgSbF <sub>6</sub>	1.5:1	-10 °C	0%	52%
10	AgSbF <sub>6</sub>	1.5:1	23 °C	0%	0% <sup>e</sup>

a) Yields determined by NMR. b) Isolated yields. c) No reaction observed. d) Decreased temperature resulted in slightly higher isolated yield and cleaner crude reaction mixtures. e) Slow conversion of **1** to the corresponding allene and subsequent hydrolysis of the pivalate ester was observed.

Optimization of the carbene precursor showed that the pivalate ester provided the best selectivity in differentiating between the styrene and fluorene pathways (see table below). The

acetate and benzoate esters were particularly poor for forming fluorene products, providing mixtures of **3** and **4** under fluorene conditions (B conditions). The success of the propargyl pivaloate ester substrates in gold chemistry is well precedented<sup>5</sup> and has previously been attributed to the greater stability of pivalate esters to hydrolysis. In this chemistry, the origin of the enhanced selectivity with pivalate esters is unclear. However, we expect that the nature of the conjugate acid ( $pK_A$ , sterics) produced during the reaction has an effect on the product selectivity.



entry	propargyl ester	cp yield <sup>a</sup>	conditions A <sup>b</sup>	yield <sup>c</sup>	conditions B <sup>b</sup>	yield <sup>c</sup>
1	R = Piv <b>1</b>	<b>5</b> 80%		89%		76%
2	Bz <b>67</b>	<b>68</b> 82%	<b>3</b>	79%	<b>4</b>	19% (+ 53% <b>3</b> )
3	Ac <b>69</b>	<b>70</b> 60%		81%		57% (+ 32% <b>3</b> )

<sup>a</sup> Isolated yields of *cis*-cyclopropane. Reactions run with 3:1 ratio of propargyl ester:**2** <sup>b</sup> A: 5% AgOTf, 5% (ArO)<sub>3</sub>PAuCl, CH<sub>2</sub>Cl<sub>2</sub>. B: 5% AgSbF<sub>6</sub>, 5% (ArO)<sub>3</sub>PAuCl, CH<sub>2</sub>Cl<sub>2</sub>. <sup>c</sup> Isolated yields

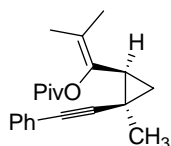
## IV. Cyclopropanes

### General procedure for the synthesis of 1-alkynyl-2-vinyl-cyclopropanes from enynes and propargyl esters:

A solution of the appropriate enyne (1 equiv) and propargyl ester (3 equiv) in CH<sub>2</sub>Cl<sub>2</sub> (0.2 M based on enyne) was added to an externally cooled 1 dram vial containing a stirred suspension of AuCl (0.05 equiv) in CH<sub>2</sub>Cl<sub>2</sub> (0.2 M based on enyne) at -25 °C. The resulting mixture (0.1 M based on enyne) was carefully maintained at -25 °C, and the reaction monitored by TLC. Upon consumption of the enyne (15 – 60 min), the reaction mixture was filtered through a silica plug and washed with excess Et<sub>2</sub>O. The resulting solution was concentrated under vacuum and purified by silica column chromatography (hexanes/Et<sub>2</sub>O).

### Compound 5

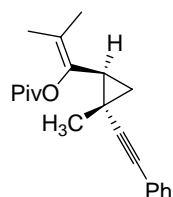
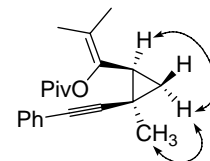
Enyne **2** and propargyl ester **1** were reacted according to the general procedure. The reaction was quenched after 20 min, and *cis*-**5** was isolated as a clear oil in 79% yield following silica column chromatography (2% Et<sub>2</sub>O in hexanes). Cyclopropane *trans*-**5** was also isolated in 5% yield.



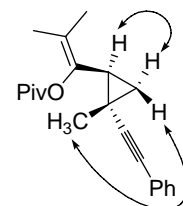
Cyclopropane *cis*-**5**: <sup>1</sup>H NMR (CDCl<sub>3</sub>, 500 MHz) δ 7.35 (d, *J* = 8.0 Hz), 7.27 (m, 3 H), 1.98 (t, 1 H, *J* = 8.0 Hz), 1.85 (s, 3 H), 1.65 (s, 3 H), 1.42 (s, 3 H), 1.28 (s, 9 H), 1.07 (dd, 1 H, *J* = 6.5, 4.5 Hz), 0.99 (dd, 1 H, *J* = 8.5, 4.5 Hz); <sup>13</sup>C NMR

<sup>5</sup> (a) Shi, X.; Gorin, D. J.; Toste, F. D. *J. Am. Chem. Soc.* **2005**, *127*, 5802. (b) Johansson, M. J.; Gorin, D. J.; Staben, S. T.; Toste, F. D. *J. Am. Chem. Soc.* **2005**, *127*, 18002.

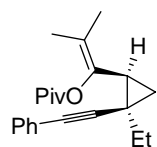
(CDCl<sub>3</sub>, 100 MHz)  $\delta$  176.9, 139.1, 131.6, 128.2, 127.4, 14.2, 122.8, 93.1, 78.6, 39.0, 28.4, 27.3, 24.5, 21.4, 19.1, 17.6, 16.3; HRMS (FAB) Calcd. for [C<sub>21</sub>H<sub>26</sub>O<sub>2</sub>] 310.1933, Found 310.1934. Important observed <sup>1</sup>H nOe correlations are indicated below:



Cyclopropane **trans-5**: <sup>1</sup>H NMR (CDCl<sub>3</sub>, 400 MHz)  $\delta$  7.36 (m, 2 H), 7.25 (m, 3 H), 2.29 (t, 1 H, *J* = 7.5 Hz), 1.85 (s, 3 H), 1.61 (s, 3 H), 1.27 (m, 13 H), 0.71 (dd, 1 H, *J* = 6.5, 5.0 Hz); <sup>13</sup>C NMR (CDCl<sub>3</sub>, 125 MHz)  $\delta$  176.4, 137.9, 131.6, 128.1, 127.4, 123.8, 123.6, 95.5, 76.2, 38.9, 28.1, 27.3, 20.8, 19.6, 18.9, 17.5, 14.4; HRMS (FAB) Calcd. for [C<sub>21</sub>H<sub>26</sub>O<sub>2</sub>] 310.1933, Found 310.1928. Important observed <sup>1</sup>H nOe correlations are indicated below:

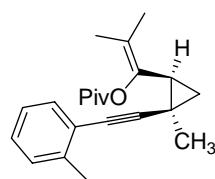


## Compound 7

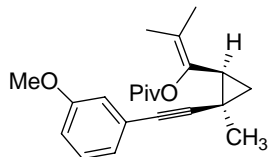


Enyne **6** and propargyl ester **1** were reacted according to the general procedure at -25 °C. The reaction was quenched after 30 min, and cyclopropane **7** was isolated as a clear oil in 94% yield following silica column chromatography (2% Et<sub>2</sub>O in hexanes). <sup>1</sup>H NMR (CDCl<sub>3</sub>, 400 MHz):  $\delta$  7.41-7.38 (m, 2H), 7.34-7.27 (m, 3H), 2.02 (m, 1H), 1.89 (s, 3H), 1.68 (d, 3H, *J* = 1.2 Hz), 1.57 (q, 2H, *J* = 7.4 Hz), 1.33 (s, 9H), 1.19 (t, 3H, *J* = 7.4 Hz), 1.10 (dd, 1H, *J* = 6.4, 4.6 Hz), 1.02 (dd, 1H, *J* = 8.9, 4.6 Hz); <sup>13</sup>C NMR (CDCl<sub>3</sub>, 100 MHz):  $\delta$  177.0, 139.3, 131.7, 128.3, 127.5, 124.5, 122.6, 92.0, 79.9, 39.1, 31.9, 27.5, 22.6, 20.6, 19.2, 17.9, 12.1. HRMS (EI) Calcd. for [C<sub>22</sub>H<sub>28</sub>O<sub>2</sub>] 324.2089, Found 324.2083.

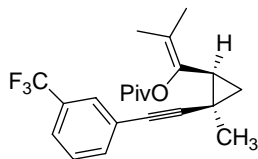
## Compound 11



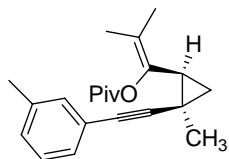
Enyne **10** and propargyl ester **1** were reacted according to the general procedure. The reaction was quenched after 60 min, and cyclopropane **11** was isolated as a clear oil in 83% yield following silica column chromatography (2% Et<sub>2</sub>O in hexanes). <sup>1</sup>H NMR (CDCl<sub>3</sub>, 400 MHz)  $\delta$  7.37 (d, 1 H, *J* = 7.6 Hz), 7.18 (m, 3 H), 2.41 (s, 3 H), 2.03 (t, 1 H, *J* = 8 Hz), 1.87 (s, 3 H), 1.48 (s, 3 H), 1.39 (s, 3 H), 1.32 (s, 9 H), 1.11 (dd, 1 H, *J* = 6.4, 4.8 Hz), 1.01 (dd, 1 H, *J* = 8.8, 4.8 Hz); <sup>13</sup>C NMR (CDCl<sub>3</sub>, 100 MHz)  $\delta$  176.9, 139.9, 139.1, 131.8, 129.2, 127.3, 125.4, 123.9, 122.8, 97.0, 77.6, 39.0, 28.6, 27.3, 24.6, 21.6, 20.5, 19.0, 17.6, 16.7; HRMS (FAB) Calcd. for [C<sub>22</sub>H<sub>28</sub>O<sub>2</sub>] 324.2089, Found 324.2085.

**Compound 15**

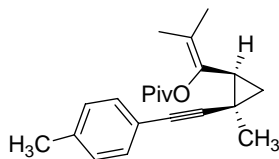
Enyne **14** and propargyl ester **1** were reacted according to the general procedure. The reaction was quenched after 30 min, and cyclopropane **15** was isolated as a clear oil in 82% yield following silica column chromatography (5% Et<sub>2</sub>O in hexanes). <sup>1</sup>H NMR (CDCl<sub>3</sub>, 500 MHz) δ 7.18 (t, 1 H, *J* = 7.5 Hz), 6.93 (d, 1 H, *J* = 7.5 Hz), 6.88 (s, 1 H), 6.81 (d, 1 H, *J* = 8.0 Hz), 3.78 (s, 3 H), 1.97 (t, 1 H, *J* = 7.5 Hz), 1.84 (s, 3 H), 1.64 (s, 3 H), 1.42 (s, 3 H), 1.28 (s, 9 H), 1.11 (dd, 1 H, *J* = 5.5, 5.5 Hz), 1.01 (dd, 1 H, *J* = 9.0, 4.5 Hz); <sup>13</sup>C NMR (CDCl<sub>3</sub>, 125 MHz) δ 176.8, 159.2, 139.0, 129.1, 125.1, 124.0, 122.7, 116.4, 113.9, 92.9, 78.5, 55.1, 38.9, 28.3, 27.3, 24.3, 21.3, 19.1, 17.6, 16.1; HRMS (FAB) Calcd. for [C<sub>22</sub>H<sub>28</sub>O<sub>3</sub>] 340.2038, Found 340.2045.

**Compound 19**

Enyne **18** and propargyl ester **1** were reacted according to the general procedure. The reaction was quenched after 50 min, and cyclopropane **19** was isolated as a clear oil in 72% yield following silica column chromatography (2% Et<sub>2</sub>O in hexanes). <sup>1</sup>H NMR (CDCl<sub>3</sub>, 400 MHz) δ 7.63 (s, 1 H), 7.52 (m, 2 H), 7.43 (t, 1 H, *J* = 7.6 Hz), 2.04 (t, 1 H, *J* = 8.0 Hz), 1.88 (s, 3 H), 1.68 (s, 3 H), 1.46 (s, 3 H), 1.32 (s, 9 H), 1.28 (dd, 1 H, *J* = 6.4, 4.8 Hz), 1.06 (dd, 1 H, *J* = 8.8, 4.8 Hz); <sup>13</sup>C NMR (CDCl<sub>3</sub>, 100 MHz) δ 176.8, 139.0, 134.4, 131.0 (q, *J* = 32 Hz), 128.7, 128.4 (q, *J* = 4 Hz), 125.1, 123.9 (q, *J* = 16 Hz), 123.8 (q, *J* = 260 Hz), 123.0, 95.1, 39.0, 28.6, 27.3, 24.1, 21.5, 19.1, 17.6, 16.1; HRMS (FAB) Calcd. for [C<sub>22</sub>H<sub>25</sub>O<sub>2</sub>F<sub>3</sub>] 378.1807, Found 378.1812.

**Compound 23**

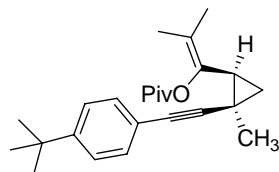
Enyne **22** and propargyl ester **1** were reacted according to the general procedure. The reaction was quenched after 50 min, and cyclopropane **23** was isolated as a clear oil in 75% yield following silica column chromatography (2% Et<sub>2</sub>O in hexanes). <sup>1</sup>H NMR (CDCl<sub>3</sub>, 400 MHz) δ 7.25 (m, 3 H), 7.16 (m, 1 H), 2.41 (s, 3 H), 2.07 (t, 1 H, *J* = 8.0 Hz), 1.94 (s, 3 H), 1.74 (s, 3 H), 1.51 (s, 3 H), 1.38 (s, 9 H), 1.15 (dd, 1 H, *J* = 6.4, 4.8 Hz), 1.08 (dd, 1 H, *J* = 9.0, 4.8 Hz); <sup>13</sup>C NMR (CDCl<sub>3</sub>, 125 MHz) δ 176.9, 139.1, 137.7, 132.1, 128.5, 128.2, 128.0, 123.9, 122.7, 92.6, 78.7, 38.9, 28.3, 27.2, 24.4, 21.3, 21.2, 19.1, 17.6, 16.2; HRMS (FAB) Calcd. for [C<sub>22</sub>H<sub>28</sub>O<sub>2</sub>] 324.2089, Found 324.2083.

**Compound 27**

Enyne **26** and propargyl ester **1** were reacted according to the general procedure at -25 °C. The reaction was quenched after 75 min, and cyclopropane **27** was isolated as a clear oil in 41% yield following silica column chromatography (2% Et<sub>2</sub>O in hexanes). <sup>1</sup>H NMR (CDCl<sub>3</sub>, 400 MHz): δ 7.20 (d, 1H, *J* = 8.0 Hz), 7.05 (d, 1H, *J* = 8.0 Hz), 2.31 (s, 3H), 1.94 (m, 1H), 1.82 (s, 3H), 1.61 (s, 3H), 1.39 (s, 3H), 1.25 (s, 9H), 1.03 (dd, 1H, *J* = 6.4, 4.7 Hz),

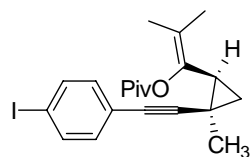
0.95 (dd, 1H,  $J = 8.9, 4.6$  Hz);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 100 MHz):  $\delta$  177.1, 139.4, 137.5, 131.6, 129.1, 122.9, 121.3, 92.4, 78.8, 39.2, 28.5, 27.5, 24.7, 21.6, 19.3, 17.8, 16.5. HRMS (EI) Calcd. for  $[\text{C}_{22}\text{H}_{28}\text{O}_2]$  324.2089, Found 324.2079.

### Compound 31



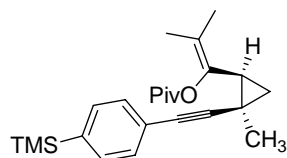
Enyne **30** and propargyl ester **1** were reacted according to the general procedure at  $-25$  °C. The reaction was quenched after 30 min, and cyclopropane **31** was isolated as a clear oil in 62% yield following silica column chromatography (2%  $\text{Et}_2\text{O}$  in hexanes).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 400 MHz):  $\delta$  7.35-7.30 (m, 4H), 2.00 (m, 1H), 1.88 (s, 3H), 1.68 (s, 3H), 1.46 (s, 3H), 1.34 (s, 9H), 1.32 (s, 9H), 1.08 (m, 1H), 1.01 (dd, 1H,  $J = 8.9, 4.5$  Hz);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 100 MHz):  $\delta$  177.1, 150.7, 139.4, 131.4, 125.3, 122.9, 121.4, 92.4, 78.8, 39.2, 34.9, 31.4, 28.5, 27.5, 24.7, 21.5, 19.3, 17.8, 16.5. HRMS (EI) Calcd. for  $[\text{C}_{25}\text{H}_{34}\text{O}_2]$  366.2558, Found 366.2561.

### Compound 35



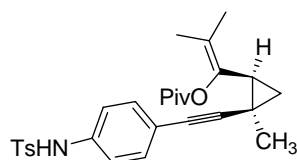
Enyne **34** and propargyl ester **1** were reacted according to the general procedure. The reaction was quenched after 40 min, and cyclopropane **35** was isolated as a clear oil in 79% yield following silica column chromatography (2%  $\text{Et}_2\text{O}$  in hexanes).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 500 MHz)  $\delta$  7.59 (d, 2 H,  $J = 8.0$  Hz), 7.05 (d, 2 H,  $J = 8.0$  Hz), 1.98 (t, 1 H,  $J = 7.5$  Hz), 1.84 (s, 3 H), 1.62 (s, 3 H), 1.40 (s, 3 H), 1.27 (s, 9 H), 1.05 (dd, 1 H,  $J = 6.0, 4.5$  Hz), 0.99 (dd, 1 H,  $J = 9.0, 4.5$  Hz);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 125 MHz)  $\delta$  176.7, 138.9, 137.2, 133.0, 123.6, 122.8, 94.7, 92.9, 77.7, 38.9, 28.4, 27.2, 24.2, 21.4, 19.0, 17.6, 16.1; HRMS (FAB) Calcd. for  $[\text{C}_{21}\text{H}_{25}\text{O}_2\text{I}]$  436.0899, Found 436.0895.

### Compound 39



Enyne **38** and propargyl ester **1** were reacted according to the general procedure. The reaction was quenched after 40 min, and cyclopropane **39** was isolated as a clear oil in 79% yield following silica column chromatography (2%  $\text{Et}_2\text{O}$  in hexanes).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 400 MHz)  $\delta$  7.46 (d, 2 H,  $J = 8.0$  Hz), 7.35 (d, 2 H,  $J = 8.0$  Hz), 2.01 (t, 1 H,  $J = 8.0$  Hz), 1.88 (s, 3 H), 1.68 (s, 3 H), 1.46 (s, 3 H), 1.32 (s, 9 H), 1.15 (dd, 1 H,  $J = 6.4, 4.8$  Hz), 1.08 (dd, 1 H,  $J = 8.8, 4.8$  Hz), 0.29 (s, 9 H);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 100 MHz)  $\delta$  176.9, 139.8, 139.1, 133.1, 130.7, 124.6, 122.8, 93.5, 78.7, 39.0, 28.5, 27.3, 24.4, 21.4, 19.1, 17.6, 16.4, -1.2; HRMS (FAB) Calcd. for  $[\text{C}_{24}\text{H}_{34}\text{O}_2\text{Si}]$  282.2328, Found 282.2335.

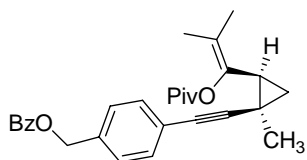
### Compound 43



Enyne **42** and propargyl ester **1** were reacted according to the general procedure at  $-10$  °C with 10%  $\text{AuCl}$ . The reaction was quenched after 30 min, and cyclopropane **43** was isolated as a clear oil in 87% yield following silica column chromatography (20%  $\text{EtOAc}$  in hexanes).

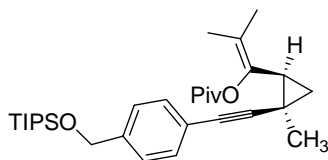
$^1\text{H}$  NMR ( $\text{CDCl}_3$ , 400 MHz)  $\delta$  7.64 (d, 2H,  $J$  = 8.1 Hz), 7.19 (d, 2H,  $J$  = 8.1 Hz), 7.15 (d, 2H,  $J$  = 8.3 Hz), 6.97 (d, 2H,  $J$  = 8.4 Hz), 2.35 (s, 3H), 1.92 (m, 1H), 1.78 (s, 3H), 1.58 (s, 3H), 1.35 (s, 3H), 1.23 (s, 9H), 1.10-0.98 (m, 1H), 0.94 (dd, 1H,  $J$  = 8.9, 4.6 Hz);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 100 MHz)  $\delta$  177.1, 171.5, 144.2, 139.2, 136.1, 132.7, 129.9, 127.4, 123.0, 121.0, 39.1, 28.5, 27.5, 27.2, 24.6, 21.7, 21.5, 21.3, 19.3, 17.8, 16.3, 14.4. HRMS (EI) Calcd. for  $[\text{C}_{28}\text{H}_{33}\text{NO}_4\text{S}]$  479.2130, Found 479.2130.

### Compound 47



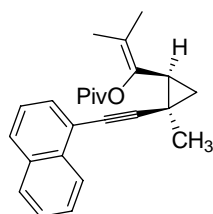
Enyne **42** and propargyl ester **1** were reacted according to the general procedure. The reaction was quenched after 60 min, and cyclopropane **47** was isolated as a clear oil in 73% yield following silica column chromatography (5%  $\text{Et}_2\text{O}$  in hexanes).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 400 MHz)  $\delta$  8.11 (d, 2 H,  $J$  = 8.0 Hz), 7.61 (t, 1 H,  $J$  = 7.6 Hz), 7.49 (t, 2 H,  $J$  = 7.6 Hz), 7.39 (s, 4 H), 2.02 (t, 1 H,  $J$  = 7.6 Hz), 1.88 (s, 3 H), 1.67 (s, 3 H), 1.46 (s, 3 H), 1.32 (s, 9 H), 1.10 (dd, 1 H,  $J$  = 6.4, 4.8 Hz), 1.03 (dd, 1 H,  $J$  = 8.8, 4.8 Hz);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 100 MHz)  $\delta$  176.9, 166.4, 139.1, 135.2, 133.1, 131.8, 131.7, 130.1, 129.7, 128.4, 128.0, 124.2, 122.8, 93.7, 78.3, 66.4, 39.0, 28.5, 27.3, 24.4, 21.4, 19.1, 17.6, 16.3; HRMS (EI) Calcd.  $[\text{C}_{29}\text{H}_{32}\text{O}_4]$  444.2301, Found 444.2294.

### Compound 51



Enyne **50** and propargyl ester **1** were reacted according to the general procedure. The reaction was quenched after 60 min, and cyclopropane **51** was isolated as a clear oil in 74% yield following silica column chromatography (5%  $\text{Et}_2\text{O}$  in hexanes).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 400 MHz)  $\delta$  7.32 (m, 4 H), 2.01 (t, 1 H,  $J$  = 7.6 Hz), 1.89 (s, 3 H), 1.68 (s, 3 H), 1.46 (s, 3 H), 1.32 (s, 9 H), 1.22 (m, 3 H), 1.25 (d, 18 H,  $J$  = 6.4 Hz), 1.10 (m, 1 H), 1.03 (dd, 1 H,  $J$  = 8.8, 4.8 Hz);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 100 MHz)  $\delta$  176.9, 141.0, 139.2, 131.4, 125.5, 122.7, 122.5, 92.5, 78.7, 64.8, 39.0, 28.4, 27.3, 24.5, 21.4, 19.1, 18.1, 17.6, 16.3, 12.0; HRMS (EI) Calcd. for  $[\text{C}_{31}\text{H}_{48}\text{O}_3\text{Si}]$  496.3373, Found 496.3366.

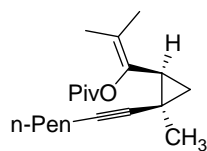
### Compound 55



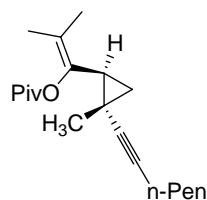
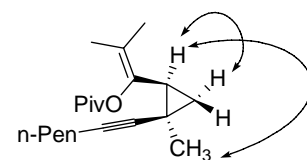
Enyne **54** and propargyl ester **1** were reacted according to the general procedure at  $-25\text{ }^\circ\text{C}$ . The reaction was quenched after 60 min, and cyclopropane **55** was isolated as a clear oil in 77% yield following silica column chromatography (2%  $\text{Et}_2\text{O}$  in hexanes).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 400 MHz):  $\delta$  8.29 (d, 1H,  $J$  = 7.0 Hz), 7.80 (m, 1H), 7.74 (d, 1H,  $J$  = 8.2 Hz), 7.58 (d, 1H,  $J$  = 7.1 Hz), 7.49 (m, 2H), 7.38 (t, 1H,  $J$  = 7.7 Hz), 2.06 (m, 1H), 1.86 (s, 3H), 1.69 (s, 3H), 1.51 (s, 3H), 1.28 (s, 9H), 1.19 (m, 1H), 1.08 (dd, 1H,  $J$  = 8.9, 4.7 Hz);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 100 MHz):  $\delta$  177.1, 139.4, 133.6, 133.4, 130.1, 128.3, 127.9, 126.7, 126.6, 126.4, 125.4, 123.4, 122.0, 98.2, 39.2, 28.9, 27.5, 24.7, 22.0, 19.3, 17.9, 17.0. HRMS (EI) Calcd. for  $[\text{C}_{25}\text{H}_{28}\text{O}_2]$  360.2089, Found 360.2085.

## Compound 59

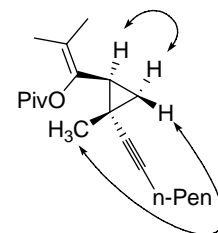
Enyne **58** and propargyl ester **1** were reacted according to the general procedure. The reaction was quenched after 20 min, and *cis*-**59** was isolated as a clear oil in 50% yield following silica column chromatography (2% Et<sub>2</sub>O in hexanes). Cyclopropane *trans*-**59** was also isolated as a clear oil in 12% yield.



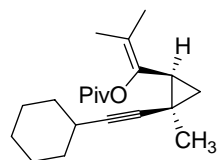
Cyclopropane *cis*-**59**: <sup>1</sup>H NMR (C<sub>6</sub>D<sub>6</sub>, 500 MHz) δ 2.00 (t, 1 H, *J* = 7.0 Hz), 1.82 (t, 1 H, *J* = 8.0 Hz), 1.72 (s, 3 H), 1.66 (s, 3 H), 1.32 (m, 2 H), 1.23 (s, 9 H), 1.19 (s, 3 H), 1.3-1.1 (m, 6 H), 1.05 (dd, 1 H, *J* = 6.0, 4.5 Hz), 0.82 (t, 3 H, *J* = 7.0 Hz), 0.64 (q, 1 H, *J* = 4.5 Hz); <sup>13</sup>C NMR (CDCl<sub>3</sub>, 125 MHz) δ 176.8, 139.4, 122.1, 82.6, 78.5, 38.9, 30.7, 28.7, 27.6, 27.2, 24.8, 22.2, 20.8, 19.0, 18.7, 17.5, 15.8, 13.9; HRMS (FAB) Calcd. for [C<sub>20</sub>H<sub>31</sub>O<sub>2</sub>] 303.2324, Found 303.2313.



Cyclopropane *trans*-**59**: <sup>1</sup>H NMR (CDCl<sub>3</sub>, 400 MHz) δ 2.15 (t, 2 H, *J* = 7.2 Hz), 2.12 (m, 1 H), 1.89 (s, 3 H), 1.62 (s, 3 H), 1.48 (m, 2 H), 1.38 (m, 6 H), 1.30 (s, 9 H), 1.19 (s, 3 H), 1.12 (dd, 1 H, *J* = 5.2, 4.4 Hz), 0.93 (t, 3 H, *J* = 7.2 Hz), 0.59 (dd, 1 H, *J* = 6.4, 4.4 Hz); <sup>13</sup>C NMR (CDCl<sub>3</sub>, 100 MHz) δ 176.5, 138.4, 123.1, 85.8, 76.2, 38.9, 31.0, 28.8, 27.7, 27.3, 22.6, 22.2, 20.4, 20.1, 18.9, 18.7, 17.5, 14.0; HRMS (FAB) Calcd. for [C<sub>20</sub>H<sub>31</sub>O<sub>2</sub>] 303.2324, Found 303.2317. Important observed <sup>1</sup>H nOe correlations are indicated below:

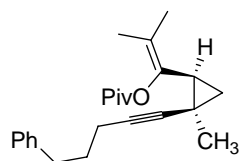


## Compound 62



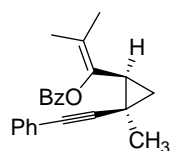
Enyne **61** and propargyl ester **1** were reacted according to the general procedure at -10 °C. The reaction was quenched after 30 min, and cyclopropane **62** was isolated as a clear oil in 74% yield following silica column chromatography (2% Et<sub>2</sub>O in hexanes). <sup>1</sup>H NMR (CDCl<sub>3</sub>, 400 MHz) δ 2.35 (m, 1H), 1.83-1.76 (m, 1H), 1.78 (s, 3H), 1.65-1.61 (m, 4H), 1.58 (s, 3H), 1.41-1.31 (m, 6H), 1.27 (s, 3H), 1.25 (s, 9H), 0.88-0.79 (m, 2H); <sup>13</sup>C NMR (CDCl<sub>3</sub>, 100 MHz) δ 177.0, 139.6, 122.4, 82.5, 82.9, 39.1, 33.0, 28.9, 28.1, 27.5, 26.3, 24.9, 24.4, 21.2, 19.2, 17.7, 16.2. HRMS (EI) Calcd. for [C<sub>21</sub>H<sub>32</sub>O<sub>2</sub>] 316.2402, Found 316.2401.

### Compound 65



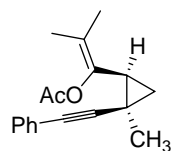
Enyne **64** and propargyl ester **1** were reacted according to the general procedure. The reaction was quenched after 60 min, and cyclopropane **65** was isolated as a clear oil in 58% yield following silica column chromatography (2% Et<sub>2</sub>O in hexanes). <sup>1</sup>H NMR (CDCl<sub>3</sub>, 500 MHz) δ 7.28 (d, 2 H, *J* = 8.0 Hz), 7.18 (m, 3 H), 2.70 (t, 2 H, *J* = 8.0 Hz), 2.14 (t, 2 H, *J* = 6.5 Hz), 1.84 (m, 1 H), 1.82 (s, 3 H), 1.74 (pentet, 2 H, *J* = 7.0 Hz), 1.60 (s, 3 H), 1.33 (s, 3 H), 1.27 (s, 9 H), 0.91 (t, 1 H, *J* = 5 Hz), 0.86 (dd, 1 H, *J* = 8.0, 4.5 Hz); <sup>13</sup>C NMR (CDCl<sub>3</sub>, 125 MHz) δ 176.7, 141.8, 139.4, 128.5, 128.2, 125.7, 122.3, 83.4, 77.9, 38.9, 34.3, 30.5, 27.7, 27.2, 24.9, 20.8, 19.0, 18.0, 17.6, 15.9; HRMS (EI) Calcd. for [C<sub>24</sub>H<sub>32</sub>O<sub>2</sub>] 352.2402, Found 352.2406.

### Compound 68



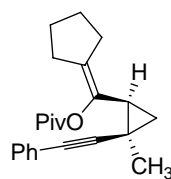
Enyne **2** and propargyl ester **67** were reacted according to the general procedure at -25 °C. The reaction was quenched after 30 min, and cyclopropane **68** was isolated as a clear oil in 82% yield following silica column chromatography (2% Et<sub>2</sub>O in hexanes). <sup>1</sup>H NMR (CDCl<sub>3</sub>, 400 MHz): δ 8.09 (d, 2H, *J* = 7.2 Hz), 7.54 (t, 1H, *J* = 7.4 Hz), 7.41-7.34 (m, 4H), 7.30-7.24 (m, 3H), 2.08 (m, 1H), 1.91 (s, 3H), 1.70 (s, 3H), 1.44 (s, 3H), 1.12 (dd, 1H, *J* = 6.3, 4.8 Hz), 1.00 (dd, 1H, *J* = 8.9, 4.8 Hz); <sup>13</sup>C NMR (CDCl<sub>3</sub>, 100 MHz): δ 165.1, 139.4, 133.3, 131.8, 130.2, 130.0, 128.6, 128.4, 127.6, 124.3, 123.6, 93.2, 79.0, 28.7, 24.7, 21.8, 19.3, 18.2, 16.6. HRMS (EI) Calcd. for [C<sub>23</sub>H<sub>22</sub>O<sub>2</sub>] 330.1619, Found 330.1614.

### Compound 70



Enyne **2** and propargyl ester **69** were reacted according to the general procedure at -10 °C. The reaction was quenched after 15 min, and cyclopropane **70** was isolated as a clear oil in 60% yield following silica column chromatography (2% Et<sub>2</sub>O in hexanes). <sup>1</sup>H NMR (CDCl<sub>3</sub>, 400 MHz): δ 7.38-7.36 (m, 2H), 7.33-7.29 (m, 3H), 2.01 (m, 1H), 1.89 (s, 3H), 1.71 (s, 3H), 1.47 (s, 3H), 1.12 (dd, 1H, *J* = 6.3, 4.7 Hz), 1.04 (dd, 1H, *J* = 9.0, 4.7 Hz); <sup>13</sup>C NMR (CDCl<sub>3</sub>, 100 MHz): δ 169.7, 139.3, 131.7, 128.3, 127.6, 124.2, 123.4, 93.0, 78.9, 28.5, 24.6, 21.5, 20.8, 19.2, 18.0, 16.7. HRMS (EI) Calcd. for [C<sub>18</sub>H<sub>20</sub>O<sub>2</sub>] 268.1463, Found 268.1463.

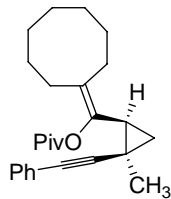
### Compound 72



Enyne **2** and propargyl ester **71** were reacted according to the general procedure at -5 °C. The reaction was quenched after 20 min, and cyclopropane **72** was isolated as a clear oil in 80% yield following silica column chromatography (2% Et<sub>2</sub>O in hexanes). <sup>1</sup>H NMR (CDCl<sub>3</sub>, 500 MHz) δ 7.36 (d, 2 H, *J* = 7.5 Hz), 7.27 (m, 3 H), 2.5 (m, 1 H), 2.41 (m, 1 H), 2.31 (m, 1 H), 2.19 (m, 1 H), 1.94 (t, 1 H, *J* = 7.5 Hz), 1.8-1.6 (m, 4 H), 1.43 (s, 3 H), 1.27 (s, 9 H), 1.13 (t, 1 H, *J* = 5.0 Hz), 1.00 (dd, 1 H, *J* = 8.5, 5.0 Hz); <sup>13</sup>C NMR (CDCl<sub>3</sub>, 125 MHz) δ 177.0, 136.8, 134.1, 132.0, 128.5, 127.8, 124.6, 93.6, 79.0, 39.4, 30.0, 29.7, 29.6, 27.7, 27.4, 26.7, 25.2, 21.5, 15.9; HRMS (FAB) Calcd. for [C<sub>23</sub>H<sub>28</sub>O<sub>2</sub>] 336.2089, Found 336.2086.

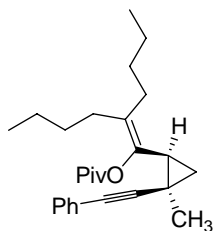


### Compound 76



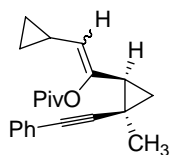
Enyne **2** and propargyl ester **75** were reacted according to the general procedure at  $-25\text{ }^{\circ}\text{C}$ . The reaction was quenched after 15 min, and cyclopropane **76** was isolated as a clear oil in 83% yield following silica column chromatography (2%  $\text{Et}_2\text{O}$  in hexanes).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 400 MHz):  $\delta$  7.39-7.36 (m, 2H), 7.32-7.28 (m, 3H), 2.38 (m, 2H), 2.24-2.10 (m, 2H), 2.03 (t, 1H,  $J = 7.7$  Hz), 1.77 (m, 2H), 1.69-1.52 (m, 6H), 1.51-1.45 (m, 2H), 1.46 (s, 3H), 1.32 (s, 9H), 1.13 (dd, 1H,  $J = 6.5, 4.7$  Hz), 1.06 (dd, 1H,  $J = 8.9, 4.7$  Hz);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 100 MHz):  $\delta$  177.0, 139.3, 131.9, 131.6, 128.2, 127.5, 124.4, 93.4, 78.9, 39.1, 30.4, 29.0, 28.8, 27.8, 27.5, 26.9, 25.8, 25.2, 24.7, 21.7, 16.0. HRMS (EI) Calcd. for  $[\text{C}_{26}\text{H}_{34}\text{O}_2\text{Li} (\text{M}^+ + \text{Li})]$  385.2718, Found 385.2726.

### Compound 80



Enyne **2** and propargyl ester **79** were reacted according to the general procedure at  $-10\text{ }^{\circ}\text{C}$ . The reaction was quenched after 50 min, and cyclopropane **80** was isolated as a clear oil in 59% yield following silica column chromatography (1%  $\text{Et}_2\text{O}$  in hexanes).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 500 MHz)  $\delta$  7.4-7.2 (m, 5 H), 2.24 (m, 1 H), 2.15 (m, 1 H), 1.95 (m, 3 H), 1.55-1.21 (m, 8 H), 1.42 (s, 3 H), 1.27 (s, 9 H), 1.04 (dd, 1 H,  $J = 6.5, 4.5$  Hz), 0.99 (dd, 1 H,  $J = 9.0, 4.5$  Hz), 0.93 (t, 3 H,  $J = 7.0$  Hz), 0.76 (t, 3 H,  $J = 7.0$  Hz);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 125 MHz)  $\delta$  176.9, 139.5, 131.5, 131.3, 128.0, 127.3, 124.1, 92.9, 78.9, 38.9, 30.5, 30.4, 30.2, 29.2, 28.3, 27.3, 24.4, 22.8, 21.2, 16.3, 14.1, 14.0; HRMS (FAB) Calcd. for  $[\text{C}_{27}\text{H}_{38}\text{O}_2]$  394.2872, Found 394.2876.

### Compound 84



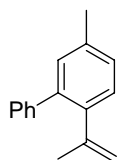
Enyne **2** and propargyl ester **83** were reacted according to the general procedure. The reaction was quenched after 50 min, and cyclopropane **84** was isolated as a clear oil in 79% yield following silica column chromatography (2%  $\text{Et}_2\text{O}$  in hexanes) as an inseparable 1.2:1 mixture of olefin isomers.  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 400 MHz)  $\delta$  The following resonances could be resolved for the major isomer: 2.16 (t, 1 H,  $J = 7.2$  Hz), 1.72 (m, 1 H), 1.58 (s, 3 H). The following resonances could be resolved for the minor isomer: 2.04 (t, 1 H,  $J = 7.6$  Hz), 1.83 (m, 1 H), 1.39 (s, 3 H). The following resonances could not be resolved: 7.5-7.2 (m, 10 H), 1.48 (s, 6 H), 1.31 (s, 18 H), 1.2-1.0 (m, 4 H), 0.8-0.5 (m, 8 H);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 100 MHz)  $\delta$  The following resonances could not be resolved: 177.0, 176.7, 140.3, 140.2, 131.6, 128.1, 127.4, 127.3, 126.5, 126.4, 124.3, 124.2, 93.2, 93.0, 78.8, 78.7, 39.0, 29.1, 28.6, 27.4, 27.3, 24.6, 24.4, 21.6, 21.4, 16.6, 16.3, 12.9, 12.5, 11.4, 11.3, 4.9, 4.3; HRMS (FAB) Calcd. for  $[\text{C}_{23}\text{H}_{28}\text{O}_2]$  336.2089, Found 336.2086.

## V. Styrenes

### General procedure for the synthesis of styrenes from 1-alkynyl-2-vinyl-cyclopropanes.

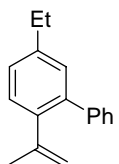
The gold catalyst was generated in a 1 dram vial with a threaded cap by addition of AgOTf (0.05 equiv), (2,4-(*t*-Bu)<sub>2</sub>C<sub>6</sub>H<sub>3</sub>O)<sub>3</sub>PAuCl (0.05 equiv), and CH<sub>2</sub>Cl<sub>2</sub> (0.2 M based cyclopropane). After stirring for 5 min, the catalyst mixture was cooled to -10 °C, and a solution of the cyclopropane (1 equiv.) in CH<sub>2</sub>Cl<sub>2</sub> (0.2 M) was added. The resulting mixture (0.1 M) was maintained at -10 °C. Analysis by TLC generally indicated complete consumption of starting material within minutes, and the reaction mixture was then filtered through a silica plug and washed with excess Et<sub>2</sub>O. The resulting solution was concentrated under vacuum and purified by column chromatography (pentane/toluene).

#### Compound 3



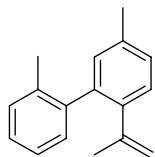
Cyclopropane *cis*-**5** was reacted according to the general procedure. The reaction was quenched after 15 min, and styrene **3** was isolated as a clear oil in 89% yield following silica column chromatography (pentane). <sup>1</sup>H NMR (CDCl<sub>3</sub>, 500 MHz) δ 7.45 (d, 2 H, *J* = 8.0 Hz), 7.38 (m, 3 H), 7.24 (d, 1 H, *J* = 8.5 Hz), 7.12 (s, 2 H), 5.04 (s, 1 H), 4.96 (s, 1 H), 2.38 (s, 3 H), 1.64 (s, 3 H); <sup>13</sup>C NMR (CDCl<sub>3</sub>, 125 MHz) δ 146.3, 142.1, 139.9, 139.5, 136.8, 130.8, 129.0, 128.8, 127.9, 127.8, 126.7, 115.9, 23.6, 21.0; HRMS (FAB) Calcd. for [C<sub>16</sub>H<sub>16</sub>] 208.1252, Found 208.1249.

#### Compound 8

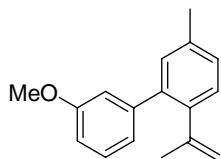


Cyclopropane **7** was reacted according to the general procedure. The reaction was quenched after 15 min, and styrene **8** was isolated as a clear oil in 81% yield following silica column chromatography (hexanes). <sup>1</sup>H NMR (CDCl<sub>3</sub>, 400 MHz): δ 7.41 (m, 2H), 7.37-7.28 (m, 3H), 7.24-7.21 (m, 2H), 7.13 (m, 2H), 5.03 (s, 1H), 4.96 (s, 1H), 2.67 (q, 2H, *J* = 7.6 Hz), 1.64 (s, 3H), 1.26 (t, 3H, *J* = 7.6 Hz); <sup>13</sup>C NMR (CDCl<sub>3</sub>, 100 MHz): δ 146.7, 143.4, 142.5, 140.4, 139.7, 129.9, 129.3, 129.1, 128.2, 126.9, 126.8, 116.2, 28.7, 23.8, 15.7. HRMS (EI) Calcd. for [C<sub>17</sub>H<sub>18</sub>] 222.1408, Found 222.1408.

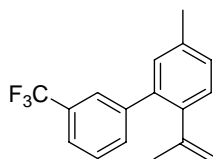
#### Compound 12



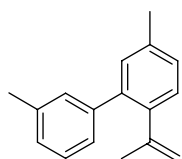
Cyclopropane **11** was reacted according to the general procedure. The reaction was quenched after 15 min, and styrene **12** was isolated as a clear oil in 72% yield following silica column chromatography (pentane). <sup>1</sup>H NMR (CDCl<sub>3</sub>, 500 MHz) δ 7.18 (m, 6 H), 6.99 (s, 1 H), 4.94 (s, 1 H), 4.82 (s, 1 H), 2.38 (s, 3 H), 2.14 (s, 3 H), 1.67 (s, 3 H); <sup>13</sup>C NMR (CDCl<sub>3</sub>, 125 MHz) δ 45.7, 141.9, 140.1, 139.3, 136.3, 135.7, 130.9, 129.9, 129.7, 128.4, 127.7, 127.0, 125.2, 115.4, 23.3, 21.0, 20.2; HRMS (FAB) Calcd. for [C<sub>17</sub>H<sub>18</sub>] 222.1409, Found 222.1406.

**Compound 16**

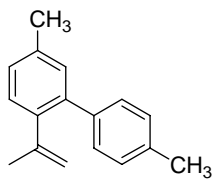
Cyclopropane **15** was reacted according to the general procedure. The reaction was quenched after 15 min, and styrene **16** was isolated as an inseparable mixture with the fluorene **17** as a yellow oil in 85% combined yield (31% **16**, 54% **17**) following silica column chromatography (2% Et<sub>2</sub>O in hexanes). The following resonances could be identified for **19**: <sup>1</sup>H NMR (CDCl<sub>3</sub>, 500 MHz) δ 7.28 (t, 1 H, *J* = 8.0 Hz), 7.21 (d, 1 H, *J* = 8.0 Hz), 7.15 (m, 2 H), 7.01 (m, 2 H), 6.89 (m, 1 H), 5.07 (s, 1 H), 5.0 (s, 1 H), 3.68 (s, 3 H), 2.37 (s, 3 H), 1.68 (s, 3 H); The following resonances could be identified for **19**: <sup>13</sup>C NMR (CDCl<sub>3</sub>, 125 MHz) δ 146.6, 143.5, 139.9, 139.3, 136.8, 130.7, 129.1, 129.0, 127.9, 121.4, 115.8, 114.4, 112.4, 55.2, 23.6, 21.0; HRMS (FAB) Calcd. for [C<sub>17</sub>H<sub>18</sub>O] 238.1358, Found 238.1358.

**Compound 20**

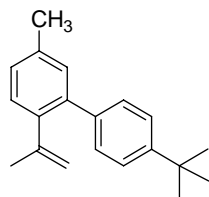
Cyclopropane **19** was reacted according to the general procedure. The reaction was quenched after 15 min, and styrene **20** was isolated as a clear oil in 93% yield following silica column chromatography (pentane). <sup>1</sup>H NMR (CDCl<sub>3</sub>, 500 MHz) δ 7.70 (s, 1 H), 7.61 (d, 1 H, *J* = 7.5 Hz), 7.57 (d, 1 H, *J* = 8.0 Hz), 7.48 (t, 1 H, *J* = 8.0 Hz), 7.22 (d, 1 H, *J* = 8.0 Hz), 7.17 (d, 1 H, *J* = 8.0 Hz), 7.13 (s, 1 H), 5.08 (s, 1 H), 4.95 (s, 1 H), 2.37 (s, 3 H), 1.66 (s, 3 H); <sup>13</sup>C NMR (CDCl<sub>3</sub>, 125 MHz) δ 145.6, 142.8, 140.0, 137.8, 137.1, 132.2, 130.6, 130.3 (q, *J* = 32 Hz), 129.2, 128.5, 128.4, 125.6 (q, *J* = 4 Hz), 123.4 (q, *J* = 4 Hz), 124.2 (q, *J* = 262 Hz), 116.7, 23.7, 21.0; HRMS (FAB) Calcd. for [C<sub>17</sub>H<sub>15</sub>F<sub>3</sub>] 276.1126, Found 276.1123.

**Compound 24**

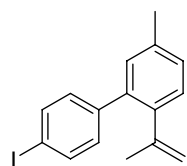
Cyclopropane **23** was reacted according to the general procedure. The reaction was quenched after 15 min, and styrene **24** was isolated as a clear oil in 60% yield following silica column chromatography (pentane). Fluorene **25** was also isolated in 19% yield (full characterization below). <sup>1</sup>H NMR (CDCl<sub>3</sub>, 500 MHz) δ 7.26 (m, 4 H), 7.14 (m, 3 H), 5.05 (s, 1 H), 4.98 (s, 1 H), 2.39 (s, 3 H), 2.14 (s, 3 H), 1.67 (s, 3 H); <sup>13</sup>C NMR (CDCl<sub>3</sub>, 125 MHz) δ 146.5, 142.0, 139.9, 139.5, 137.5, 136.8, 130.8, 129.5, 129.0, 127.8, 127.7, 127.4, 126.0, 115.8, 23.6, 21.3, 21.0; HRMS (FAB) Calcd. for [C<sub>17</sub>H<sub>18</sub>] 222.1409, Found 222.1407.

**Compound 28**

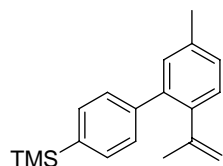
Cyclopropane **27** was reacted according to the general procedure. The reaction was quenched after 15 min, and styrene **28** was isolated as a clear oil in 58% yield following silica column chromatography (hexanes). <sup>1</sup>H NMR (CDCl<sub>3</sub>, 400 MHz): δ 7.29 (d, 2H, *J* = 8.0), 7.16 (m, 3H), 7.09 (m, 2H), 2.37 (s, 3H), 2.36 (s, 3H), 1.63 (s, 3H); <sup>13</sup>C NMR (CDCl<sub>3</sub>, 100 MHz): δ 146.9, 140.2, 139.6, 139.4, 137.0, 136.6, 131.1, 129.3, 127.8, 116.0, 23.8, 21.4, 21.3. HRMS (EI) Calcd. for [C<sub>17</sub>H<sub>18</sub>] 222.1408, Found 222.1409.

**Compound 32**

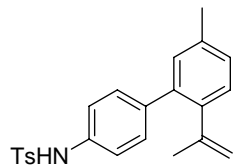
Cyclopropane **31** was reacted according to the general procedure. The reaction was quenched after 15 min, and styrene **32** was isolated as a clear oil in 86% yield following silica column chromatography (hexanes).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 400 MHz):  $\delta$  7.40-7.34 (m, 4H), 7.20 (d,  $J = 7.6$  Hz), 7.14-7.11 (m, 2H), 5.05 (s, 1H), 5.00 (s, 1H), 2.38 (s, 3H), 1.65 (s, 3H), 1.36 (s, 9H);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 100 MHz):  $\delta$  149.9, 147.0, 140.2, 139.6, 139.3, 137.0, 131.2, 129.3, 128.6, 127.8, 125.1, 115.9, 34.7, 31.6, 23.8, 21.3, 19.5. HRMS (EI) Calcd. for  $[\text{C}_{20}\text{H}_{24}]$  264.1878, Found 264.1877.

**Compound 36**

Cyclopropane **35** was reacted according to the general procedure. The reaction was quenched after 15 min, and styrene **36** was isolated as a clear oil in 83% yield following silica column chromatography (pentane).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 400 MHz)  $\delta$  7.73 (d, 2 H,  $J = 8.4$  Hz), 7.23 (m, 4 H), 7.12 (s, 1 H), 5.10 (s, 1 H), 4.99 (s, 1 H), 2.43 (s, 3 H), 1.72 (s, 3 H);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 100 MHz)  $\delta$  146.0, 141.7, 139.9, 138.2, 137.2, 137.1, 130.9, 130.6, 129.2, 128.3, 116.4, 92.6, 23.8, 21.1; HRMS (FAB) Calcd. for  $[\text{C}_{16}\text{H}_{15}\text{I}]$  334.0219, Found 334.0210.

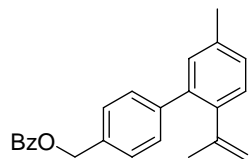
**Compound 40**

Cyclopropane **39** was reacted according to the general procedure. The reaction was quenched after 15 min, and styrene **40** was isolated as a yellow oil in 95% yield following silica column chromatography (5% toluene in pentane).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 400 MHz)  $\delta$  7.56 (d, 2 H,  $J = 8.0$  Hz), 7.46 (d, 2 H,  $J = 8.0$  Hz), 7.23 (m, 1 H), 7.18 (m, 2 H), 5.11 (s, 1 H), 5.03 (s, 1 H), 2.43 (s, 3 H), 1.71 (s, 3 H), 0.35 (s, 9 H);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 100 MHz)  $\delta$  146.5, 142.5, 140.0, 139.5, 138.6, 136.9, 133.1, 131.0, 129.2, 128.2, 127.9, 116.0, 23.7, 21.1, -1.0; HRMS (FAB) Calcd. for  $[\text{C}_{19}\text{H}_{24}\text{Si}]$  280.1647, Found 280.1644.

**Compound 44**

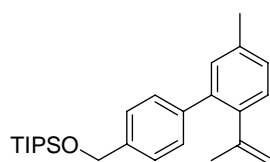
Cyclopropane **43** was reacted according to the general procedure. The reaction was quenched after 15 min, and styrene **44** was isolated as a white solid in 71% yield following silica column chromatography (20% EtOAc in hexanes).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 500 MHz)  $\delta$  7.69 (d, 2 H,  $J = 8.0$  Hz), 7.28 (d, 2 H,  $J = 8.5$  Hz), 7.22 (d, 2 H,  $J = 8.0$  Hz), 7.2-7.1 (m, 5 H), 5.00 (s, 1 H), 4.92 (s, 1 H), 2.38 (s, 3 H), 2.36 (s, 3 H), 1.56 (s, 3 H);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 100 MHz)  $\delta$  146.2, 143.9, 139.9, 139.4, 138.4, 137.0, 136.0, 135.3, 130.6, 129.8, 129.6, 129.2, 128.0, 127.4, 121.5, 116.2, 23.5, 21.6, 21.0; HRMS (FAB) Calcd. for  $[\text{C}_{23}\text{H}_{22}\text{NO}_2\text{S}]$  377.1450, Found 377.1448.

### Compound 48



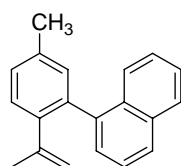
Cyclopropane **47** was reacted according to the general procedure. The reaction was quenched after 15 min, and styrene **48** was isolated as a clear oil in 89% yield following silica column chromatography (2% Et<sub>2</sub>O in hexanes). <sup>1</sup>H NMR (CDCl<sub>3</sub>, 400 MHz) δ 8.16 (d, 2 H, *J* = 8.0 Hz), 7.63 (t, 1 H, *J* = 7.2 Hz), 7.5 (m, 6 H), 7.3-7.1 (m, 3 H), 5.46 (s, 2 H), 5.10 (s, 1 H), 5.02 (s, 1 H), 2.43 (s, 3 H), 1.72 (s, 3 H); <sup>13</sup>C NMR (CDCl<sub>3</sub>, 125 MHz) δ 166.5, 146.2, 142.1, 139.9, 138.9, 136.9, 134.4, 133.0, 130.8, 130.1, 129.7, 129.1, 129.0, 128.4, 128.0, 127.8, 116.1, 66.5, 23.7, 21.0; HRMS (EI) Calcd. for [C<sub>24</sub>H<sub>22</sub>O<sub>2</sub>] 342.1620, Found 342.1620.

### Compound 52



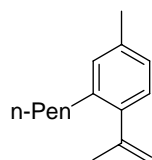
Cyclopropane **51** was reacted according to the general procedure. The reaction was quenched after 15 min, and styrene **52** was isolated as a clear oil in 64% yield following silica column chromatography (1% Et<sub>2</sub>O in hexanes). <sup>1</sup>H NMR (CDCl<sub>3</sub>, 400 MHz) δ 7.43 (d, 2 H, *J* = 8.4 Hz), 7.38 (d, 2 H, *J* = 8.4 Hz), 7.23 (d, 1 H, *J* = 8.0 Hz), 7.15 (m, 2 H), 5.08 (s, 1 H), 5.01 (s, 1 H), 4.92 (s, 2 H), 2.42 (s, 3 H), 1.69 (s, 3 H), 1.24 (m, 3 H), 1.20 (d, 18 H, *J* = 5.6 Hz); <sup>13</sup>C NMR (CDCl<sub>3</sub>, 100 MHz) δ 146.6, 140.6, 140.2, 140.0, 139.4, 136.8, 131.0, 129.1, 128.7, 127.7, 125.4, 115.9, 65.0, 23.6, 21.1, 18.1, 12.1; HRMS (EI) Calcd. for [C<sub>26</sub>H<sub>38</sub>OSi] 394.2692, Found 394.2687.

### Compound 56

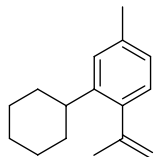


Cyclopropane **55** was reacted according to the general procedure. The reaction was quenched after 15 min, and styrene **56** was isolated as a white solid in 69% yield following silica column chromatography (pentane). Fluorene **57** was also isolated in 7% yield (full characterization below). <sup>1</sup>H NMR (CDCl<sub>3</sub>, 400 MHz): δ 7.86 (dd, 2H, *J* = 16.8, 8.2 Hz), 7.65 (d, 1H, *J* = 8.4 Hz), 7.50-7.46 (m, 2H), 7.41-7.37 (m, 2H), 7.32 (d, 1H, *J* = 7.8 Hz), 7.23 (d, 1H, *J* = 7.8 Hz), 7.14 (s, 1H), 4.82 (s, 2H), 2.41 (s, 3H), 1.55 (s, 3H); <sup>13</sup>C NMR (CDCl<sub>3</sub>, 100 MHz): δ 145.8, 141.3, 140.2, 138.2, 136.5, 133.7, 132.4, 132.1, 128.7, 128.4, 128.2, 127.5, 127.4, 126.8, 125.9, 125.8, 125.3, 115.8, 23.8, 21.3. HRMS (EI) Calcd. for [C<sub>20</sub>H<sub>18</sub>] 258.1408, Found 258.1408.

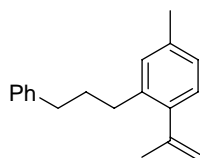
### Compound 60



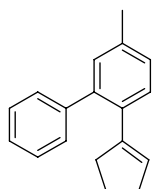
Cyclopropane *cis*-**59** was reacted according to the general procedure. The reaction was quenched after 15 min, and styrene **60** was isolated as a clear oil in 65% yield following silica column chromatography (pentane). <sup>1</sup>H NMR (CDCl<sub>3</sub>, 500 MHz) δ 6.97 (m, 3 H), 5.16 (s, 1 H), 4.92 (s, 1 H), 2.57 (t, 2 H, *J* = 8.0 Hz), 2.32 (s, 3 H), 2.02 (s, 3 H), 1.55 (m, 2 H), 1.33 (m, 4 H), 0.89 (t, 3 H, *J* = 7.0 Hz); <sup>13</sup>C NMR (CDCl<sub>3</sub>, 125 MHz) δ 145.6, 140.7, 139.3, 136.2, 129.7, 128.0, 126.1, 114.5, 32.9, 32.0, 31.5, 25.3, 22.5, 21.1, 14.0; HRMS (FAB) Calcd. for [C<sub>15</sub>H<sub>22</sub>] 202.1722, Found 202.1726.

**Compound 63**

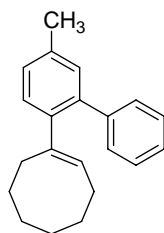
Cyclopropane **62** was reacted according to the general procedure. The reaction was quenched after 15 min, and styrene **63** was isolated as a clear oil in 53% yield following silica column chromatography (hexanes).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 400 MHz)  $\delta$  7.12 (s, 1 H), 7.01 (m, 2 H), 5.20 (s, 1 H), 4.84 (s, 1 H), 2.77 (m, 1 H), 2.38 (s, 3 H), 2.07 (s, 3 H), 1.83 (m, 5 H), 1.42 (m, 5 H);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 100 MHz)  $\delta$  146.0, 144.5, 140.3, 136.4, 128.0, 126.9, 126.1, 114.6, 40.3, 34.9, 27.1, 26.3, 25.9, 21.3; HRMS (FAB) Calcd. [ $\text{C}_{16}\text{H}_{22}$ ] 214.1722, Found 214.1724.

**Compound 66**

Cyclopropane **65** was reacted according to the general procedure. The reaction was quenched after 15 min, and styrene **66** was isolated as a clear oil in 66% yield following silica column chromatography (1%  $\text{Et}_2\text{O}$  in hexanes).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 400 MHz)  $\delta$  7.28 (m, 2 H), 7.19 (m, 3 H), 6.99 (m, 3 H), 5.15 (s, 1 H), 4.82 (s, 1 H), 2.67 (m, 4 H), 2.33 (s, 3 H), 2.02 (s, 3 H), 1.92 (m, 2 H);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 100 MHz)  $\delta$  145.5, 142.4, 140.8, 138.7, 136.3, 129.8, 128.4, 128.2, 128.1, 126.3, 125.7, 114.7, 36.0, 33.3, 32.7, 25.2, 21.1; HRMS (EI) Calcd. for [ $\text{C}_{19}\text{H}_{22}$ ] 250.1722, Found 250.1722.

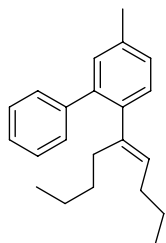
**Compound 73**

Cyclopropane **72** was reacted according to the general procedure. The reaction was quenched after 15 min, and styrene **73** was isolated as a clear oil in 89% yield following silica column chromatography (5% toluene in pentane).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 400 MHz)  $\delta$  7.40 (m, 6 H), 7.18 (d, 2 H,  $J = 6.4$  Hz), 5.63 (s, 1 H), 2.44 (s, 3 H), 2.39 (m, 2 H), 2.22 (m, 2 H), 1.83 (quintet, 2 H,  $J = 7.2$  Hz);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 100 MHz)  $\delta$  144.1, 142.7, 140.2, 136.6, 134.7, 131.0, 129.6, 129.0, 128.9, 127.9, 127.8, 126.7, 35.7, 33.2, 24.2, 21.2; HRMS (FAB) Calcd. for [ $\text{C}_{18}\text{H}_{18}$ ] 234.1409, Found 234.1405.

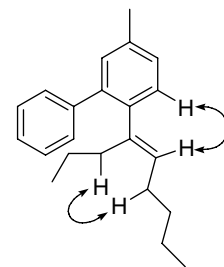
**Compound 77**

Cyclopropane **76** was reacted according to the general procedure. The reaction was quenched after 15 min, and styrene **77** was isolated as a white solid in 91% yield following silica column chromatography (hexanes).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 400 MHz):  $\delta$  7.45 (m, 2H), 7.34 (m, 2H), 7.30-7.26 (m, 1H), 7.15-7.09 (m, 3H), 5.72 (t, 1H,  $J = \text{Hz}$ ), 2.38 (s, 3H), 2.19 (m, 2H), 1.92 (m, 2H), 1.54 (m, 2H), 1.51-1.43 (m, 4H), 1.28-1.19 (m, 2H);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 100 MHz):  $\delta$  142.8, 142.5, 141.0, 139.4, 136.6, 131.0, 130.4, 130.3, 129.2, 128.1, 127.8, 126.8, 30.2, 28.4, 27.1, 26.8, 26.6, 21.3. HRMS (EI) Calcd. for [ $\text{C}_{21}\text{H}_{24}$ ] 276.1878, Found 276.1878.

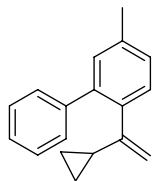
## Compound 81



Cyclopropane **80** was reacted according to the general procedure. The reaction was quenched after 15 min, and styrene **81** was isolated as a clear oil in 77% yield (8.3:1 (E:Z) mixture of olefin isomers) following silica column chromatography (5% toluene in pentane).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 500 MHz)  $\delta$  The following resonances could be resolved for the major isomer: 7.43 (m, 2 H), 7.33 (m, 4 H), 7.15 (m, 2 H), 5.45 (t, 1 H,  $J = 7.0$  Hz), 2.40 (s, 3 H), 2.08 (q, 2 H,  $J = 7.0$  Hz), 1.83 (t, 2 H,  $J = 7.0$  Hz), 1.43 (t, 2 H,  $J = 7.0$  Hz), 1.10 (m, 4 H), 0.95 (t, 3 H,  $J = 7.5$  Hz), 0.75 (t, 3 H,  $J = 7.0$  Hz);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 125 MHz)  $\delta$  The following resonances could be resolved for the major isomer: 142.2, 141.6, 140.7, 139.5, 136.1, 131.1, 130.7, 130.2, 129.0, 127.8, 127.6, 126.5, 30.5, 30.4, 30.3, 22.8, 22.6, 21.0, 13.9, 13.8; HRMS (FAB) Calcd. for  $[\text{C}_{22}\text{H}_{28}]$  292.2191, Found 292.2201. Important observed  $^1\text{H}$  nOe correlations for the major olefin isomer are indicated below:



## Compound 85



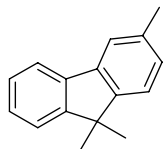
Cyclopropane **84** was reacted according to the general procedure at room temperature. The reaction was quenched after 100 min, and styrene **85** was isolated as a clear oil in 72% yield following silica column chromatography (5% toluene in pentane). Fluorene **x** was also isolated in 16% yield.  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 500 MHz)  $\delta$  7.69 (d, 2 H,  $J = 7.5$  Hz), 7.43 (m, 2 H), 7.32 (m, 1 H), 7.16 (m, 3 H), 4.88 (s, 1 H), 4.87 (s, 1 H), 2.44 (s, 3 H), 1.19 (m, 1 H), 0.49 (m, 2 H), 0.37 (m, 2 H);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 100 MHz)  $\delta$  151.9, 142.3, 139.8, 139.2, 136.9, 130.9, 129.6, 129.4, 127.8, 127.7, 126.6, 111.2, 21.1 17.0, 7.8; HRMS (FAB) Calcd. for  $[\text{C}_{18}\text{H}_{18}]$  234.1409, Found 234.1407.

## VI. Fluorenes

### General procedure for the synthesis of fluorenes from 1-alkynyl-2-vinyl-cyclopropanes.

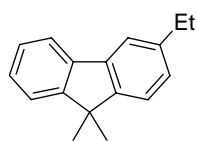
The gold catalyst was generated in a 1 dram vial with a threaded cap by addition of  $\text{AgSbF}_6$  (0.05 equiv),  $((2,4\text{-}(t\text{-Bu})_2\text{C}_6\text{H}_3)\text{O})_3\text{PAuCl}$  (0.05 equiv.), and  $\text{CH}_2\text{Cl}_2$  (0.2 M based cyclopropane). After stirring for 5 min, a solution of the cyclopropane (1 equiv) in  $\text{CH}_2\text{Cl}_2$  (0.2 M) was added. The resulting mixture (0.1 M) was maintained at room temperature unless otherwise noted. Analysis by TLC generally indicated complete consumption of starting material within minutes, and the reaction mixture was then filtered through a silica plug and washed with excess  $\text{Et}_2\text{O}$ . The resulting solution was concentrated under vacuum and purified by column chromatography (pentane/toluene).

### Compound 4



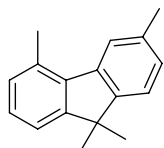
Cyclopropane **cis-5** was reacted according to the general procedure at  $-10\text{ }^{\circ}\text{C}$ . The reaction was quenched after 20 min, and fluorene **4** was isolated as a clear oil in 76% yield following silica column chromatography (5% toluene in pentane).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 500 MHz)  $\delta$  7.22 (d, 1 H,  $J = 6.5$  Hz), 7.57 (s, 1 H), 7.44 (d, 1 H,  $J = 6.5$  Hz), 7.33 (m, 3 H), 7.15 (d, 1 H,  $J = 7.5$  Hz), 2.46 (s, 3 H), 1.49 (s, 6 H);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 125 MHz)  $\delta$  153.9, 150.1, 139.3, 139.2, 136.5, 128.0, 127.0, 126.8, 122.5, 122.2, 120.5, 119.8, 46.4, 27.2, 21.5; HRMS (FAB) Calcd. for  $[\text{C}_{16}\text{H}_{16}]$  208.1252, Found 208.1252.

### Compound 9



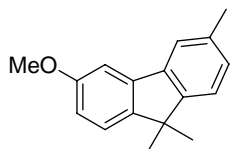
Cyclopropane **7** was reacted according to the general procedure at room temperature. The reaction was quenched after 15 min, and fluorene **9** was isolated as a clear oil in 79% yield following silica column chromatography (5% toluene in pentane). Styrene **8** was also isolated in 9% yield.  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 400 MHz):  $\delta$  7.71-7.69 (m, 1H), 7.55 (s, 1H), 7.41-7.40 (m, 1H), 7.34-7.26 (m, 3H), 7.14 (d, 1H,  $J = 7.6$  Hz), 2.72 (q, 2H,  $J = 7.6$  Hz), 1.46 (s, 6H), 1.29 (t, 3H,  $J = 7.6$  Hz);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 100 MHz):  $\delta$  154.2, 151.3, 143.3, 139.5, 127.3, 127.2, 127.1, 122.8, 122.6, 120.1, 119.6, 46.7, 29.2, 27.4, 16.1. HRMS (EI) Calcd. for  $[\text{C}_{17}\text{H}_{18}]$  222.1408, Found 222.1409.

### Compound 13



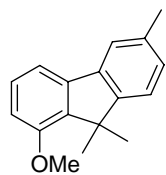
Cyclopropane **11** was reacted according to the general procedure at  $-10\text{ }^{\circ}\text{C}$ . The reaction was quenched after 20 min, and fluorene **13** was isolated as a white solid in 66% yield following silica column chromatography (5% toluene in pentane).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 400 MHz)  $\delta$  7.75 (s, 1 H), 7.41 (d, 1 H,  $J = 7.6$  Hz), 7.35 (d, 1 H,  $J = 7.6$  Hz), 7.28 (t, 1 H,  $J = 7.2$  Hz), 7.21 (d, 1 H,  $J = 7.6$  Hz), 7.17 (d, 1 H,  $J = 7.2$  Hz); 2.79 (s, 3 H), 2.53 (s, 3 H), 1.53 (s, 6 H);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 125 MHz)  $\delta$  154.5, 151.3, 140.4, 137.2, 136.4, 133.2, 129.2, 127.4, 126.8, 124.0, 122.2, 120.1, 46.0, 27.6, 21.8, 21.2; HRMS (FAB) Calcd. for  $[\text{C}_{17}\text{H}_{18}]$  222.1409, Found 222.1406.

### Compound 17



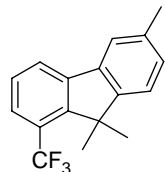
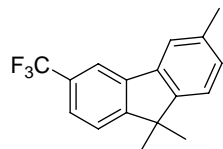
Cyclopropane **15** was reacted according to the general procedure at  $-10\text{ }^{\circ}\text{C}$ . The reaction was quenched after 20 min, and fluorene **17** was isolated as a clear oil in 75% yield following silica column chromatography (2%  $\text{Et}_2\text{O}$  in hexanes).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 400 MHz)  $\delta$  7.58 (s, 1 H), 7.37 (d, 2 H,  $J = 8.0$  Hz), 7.30 (s, 1 H), 7.19 (d, 1 H,  $J = 7.6$  Hz), 6.92 (dd, 1 H,  $J = 8.0, 2.8$  Hz), 3.94 (s, 3 H), 2.50 (s, 3 H), 1.51 (s, 6 H);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 125 MHz)  $\delta$  159.2, 151.7, 146.3, 140.5, 139.1, 136.5, 128.2, 123.1, 122.3, 120.5, 113.2, 104.9, 55.5, 45.9, 27.3, 21.5; HRMS (FAB) Calcd. for  $[\text{C}_{17}\text{H}_{18}\text{O}]$  238.1358, Found 238.1351. The regioisomer was assigned based on the coupling constants of the aromatic protons.





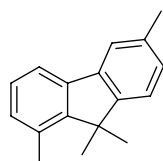
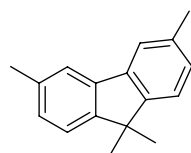
The minor regioisomer could also be isolated by silica column chromatography (2% Et<sub>2</sub>O in hexanes). <sup>1</sup>H NMR (CDCl<sub>3</sub>, 500 MHz) δ 7.53 (s, 1 H), 7.33 (m, 3 H), 7.15 (d, 1 H, *J* = 7.5 Hz), 6.82 (d, 1 H, *J* = 8.5 Hz), 3.93 (s, 3 H), 2.45 (s, 3 H), 1.57 (s, 6 H); <sup>13</sup>C NMR (CDCl<sub>3</sub>, 125 MHz) δ 156.7, 151.7, 141.0, 139.6, 139.2, 136.3, 128.3, 128.1, 121.9, 120.6, 112.4, 109.4, 55.1, 47.3, 24.5, 21.4; HRMS (FAB) Calcd. for [C<sub>17</sub>H<sub>18</sub>O] 238.1358, Found 238.1355. The regioisomer was assigned based on the coupling constants of the aromatic protons.

### Compound 21



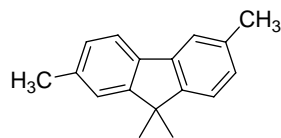
Cyclopropane **19** was reacted according to the general procedure at -10 °C. The reaction was quenched after 20 min, and fluorene **21** was isolated as a mixture with styrene **20** (2.5:1 styrene:fluorene) in 87% combined yield following silica column chromatography (5% toluene in pentane). The fluorene was formed as a 1:1 mixture of regioisomers. In order to obtain analytically pure **21** for characterization purposes, the product mixture was subjected to the oxidative cleavage conditions of Shing<sup>6</sup> to functionalize the styrene **20**. Pure fluorene was thus obtained as a 1:1 mixture of regioisomers. <sup>1</sup>H NMR (CDCl<sub>3</sub>, 400 MHz) δ The following resonances could not be assigned to either isomer: 7.97 (d, 1 H, *J* = 5.6 Hz), 7.95 (d, 1 H, *J* = 7.2 Hz), 7.65-7.45 (m, 6 H), 7.38 (m, 2 H), 7.24 (m, 2 H), 2.50 (s, 6 H), 1.63 (s, 9 H), 1.53 (s, 3 H); <sup>13</sup>C NMR (CDCl<sub>3</sub>, 100 MHz) δ The following resonances could not be assigned to either isomer: 157.5, 152.0, 150.9, 150.2, 142.2, 140.0, 138.0, 137.1, 136.8, 129.3, 129.1, 127.4, 127.1, 126.8, 126.1, 125.2 (q, *J* = 6 Hz), 124.0 (q, *J* = 4 Hz), 123.4, 122.9, 122.5, 122.1, 121.0, 120.2, 116.8 (q, *J* = 3 Hz), 48.9, 46.8, 27.0, 26.1, 26.0, 21.5, 21.4; HRMS (FAB) Calcd. for [C<sub>17</sub>H<sub>15</sub>F<sub>3</sub>] 276.1126, Found 276.1121.

### Compound 25

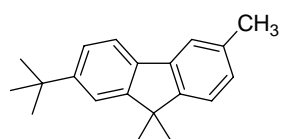


Cyclopropane **23** was reacted according to the general procedure at -10 °C. The reaction was quenched after 20 min, and fluorene **25** was isolated as a 1.6:1 mixture of regioisomers (meso:not) in 85% yield following silica column chromatography (5% toluene in pentane). <sup>1</sup>H NMR (CDCl<sub>3</sub>, 500 MHz) δ The following resonances could be resolved for the major (meso) isomer: 7.55 (m, 2 H), 7.33 (m, 2 H), 7.16 (m, 2 H), 2.47 (s, 6 H), 1.49 (s, 6 H). The following resonances could be resolved for the minor isomer: 7.59 (d, 1 H, *J* = 7.5 Hz), 7.55 (m, 1 H), 7.33 (m, 1 H), 7.26 (t, 1 H, *J* = 7.5 Hz), 7.16 (m, 1 H), 7.08 (d, 1 H, *J* = 7.5 Hz), 2.70 (s, 3 H), 2.47 (s, 3 H), 1.60 (s, 6 H); <sup>13</sup>C NMR (CDCl<sub>3</sub>, 125 MHz) δ The following resonances could be resolved for the major (meso) isomer: 151.2, 139.3, 136.5, 127.9, 122.2, 120.5, 46.1. The following resonances could be resolved for the minor isomer: 151.5, 150.4, 139.8, 139.1, 134.1, 129.7, 128.1, 127.0, 121.9, 120.3, 117.5, 114.5, 47.6. The following resonances could not be resolved: 27.3, 24.5, 21.5, 19.0; HRMS (FAB) Calcd. for [C<sub>17</sub>H<sub>18</sub>] 222.1409, Found 222.1409.

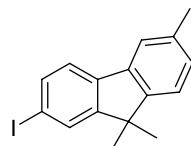
<sup>6</sup> Shing, T. K. M.; Tam, E. K. W.; Tai, V. W.-F.; Chung, I. H. F.; Jiang Q. *Chem. Eur. J.* **1996**, *2*, 50.

**Compound 29**

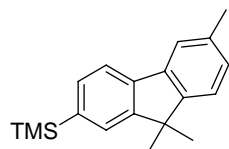
Cyclopropane **27** was reacted according to the general procedure at room temperature. The reaction was quenched after 15 min, and fluorene **29** was isolated as a clear oil in 76% yield following silica column chromatography (5% toluene in pentane).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 400 MHz):  $\delta$  7.57 (d, 1H,  $J = 7.7$  Hz), 7.49 (s, 1H), 7.29 (d, 1H,  $J = 7.6$  Hz), 7.22 (s, 1H), 7.12 (d, 1H,  $J = 7.7$  Hz), 7.09 (d, 1H,  $J = 7.6$  Hz), 2.42 (s, 6H), 1.44 (s, 6H);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 125 MHz):  $\delta$  154.4, 150.9, 139.6, 137.2, 136.8, 136.7, 127.9, 127.8, 123.5, 122.4, 120.5, 119.8, 46.5, 27.5, 22.0, 21.7. HRMS (EI) Calcd. for  $[\text{C}_{17}\text{H}_{18}]$  222.1408, Found 222.1412.

**Compound 33**

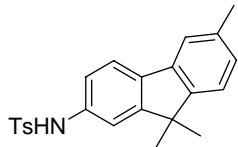
Cyclopropane **31** was reacted according to the general procedure at room temperature. The reaction was quenched after 15 min, and fluorene **33** was isolated as a clear oil in 93% yield following silica column chromatography (5% toluene in pentane).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 400 MHz):  $\delta$  7.61 (d, 1H,  $J = 8.0$  Hz), 7.50 (s, 1H), 7.43 (s, 1H), 7.36 (d, 1H,  $J = 8.0$  Hz), 7.30 (d, 1H,  $J = 7.6$  Hz), 7.09 (d, 1H,  $J = 7.6$  Hz), 2.43 (s, 3H), 1.47 (s, 6H), 1.38 (s, 9H);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 100 MHz):  $\delta$  154.0, 151.3, 150.7, 139.6, 136.8, 136.6, 127.8, 125.1, 124.2, 122.4, 120.6, 119.5, 46.7, 35.2, 31.9, 27.6, 21.7. HRMS (EI) Calcd. for  $[\text{C}_{20}\text{H}_{24}]$  264.1878, Found 264.1876.

**Compound 37**

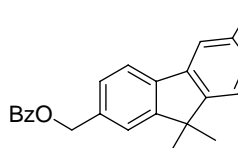
Cyclopropane **35** was reacted according to the general procedure at room temperature. The reaction was quenched after 20 min, and fluorene **37** was isolated as a clear oil in 63% yield following silica column chromatography (5% toluene in pentane). Styrene **36** was also isolated in 17% yield.  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 500 MHz)  $\delta$  7.75 (s, 1 H), 7.65 (d, 1 H,  $J = 8.0$  Hz), 7.51 (s, 1 H), 7.44 (d, 1 H,  $J = 8.0$  Hz), 7.31 (d, 1 H,  $J = 7.5$  Hz), 7.17 (d, 1 H,  $J = 8.0$  Hz), 2.44 (s, 3 H), 1.45 (s, 6 H);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 125 MHz)  $\delta$  156.2, 150.2, 138.8, 138.3, 136.8, 135.9, 132.0, 128.7, 122.3, 121.6, 120.6, 92.3, 46.7, 27.0, 21.5; HRMS (FAB) Calcd. for  $[\text{C}_{16}\text{H}_{15}\text{I}]$  334.0219, Found 334.0219.

**Compound 41**

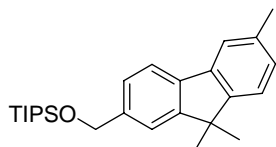
Cyclopropane **39** was reacted according to the general procedure at room temperature. The reaction was quenched after 20 min, and fluorene **41** was isolated as a clear oil in 59% yield following silica column chromatography (5% toluene in pentane). The desilylated fluorene **4** was isolated in 14% yield.  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 500 MHz)  $\delta$  7.69 (d, 1 H,  $J = 7.5$  Hz), 7.55 (s, 2 H), 7.49 (d, 1 H,  $J = 7.0$  Hz), 7.32 (d, 1 H,  $J = 8.0$  Hz), 7.14 (d, 1 H,  $J = 8.0$  Hz), 2.44 (s, 3 H), 1.46 (s, 6 H), 0.32 (s, 9 H);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 125 MHz)  $\delta$  153.1, 151.0, 140.1, 139.1, 139.0, 136.5, 132.0, 128.2, 127.2, 122.2, 120.7, 119.2, 46.4, 27.2, 21.5, -0.9; HRMS (FAB) Calcd. for  $[\text{C}_{19}\text{H}_{24}\text{Si}]$  280.1647, Found 280.1650.

**Compound 45**

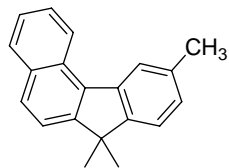
Cyclopropane **43** was reacted according to the general procedure at  $-10\text{ }^{\circ}\text{C}$ . The reaction was quenched after 20 min, and fluorene **45** was isolated as a white solid in 60% yield following silica column chromatography (10% EtOAc in hexanes).  $^1\text{H NMR}$  ( $\text{CDCl}_3$ , 400 MHz)  $\delta$  7.64 (d, 1H,  $J = 8.2$  Hz), 7.48 (d, 1H,  $J = 8.1$ ), 7.24-7.22 (m, 1H), 7.16-7.12 (m, 3H), 7.03 (d, 1H,  $J = 8.3$  Hz), 6.80 (s, 1H), 6.58 (broad s, 1H), 2.38 (s, 3H), 2.29 (s, 3H), 1.36 (s, 6H);  $^{13}\text{C NMR}$  ( $\text{CDCl}_3$ , 100 MHz)  $\delta$  144.2, 143.6, 141.5, 139.1, 136.2, 136.0, 135.6, 132.9, 130.7, 129.9, 128.5, 127.5, 126.1, 121.3, 74.0, 32.8, 21.8, 20.8. HRMS (EI) Calcd. for  $[\text{C}_{23}\text{H}_{24}\text{NO}_2\text{S}]$  378.1527, Found 378.1537.

**Compound 49**

Cyclopropane **47** was reacted according to the general procedure at  $-10\text{ }^{\circ}\text{C}$ . The reaction was quenched after 20 min, and fluorene **49** was isolated as a clear oil in 71% yield following silica column chromatography (2%  $\text{Et}_2\text{O}$  in hexanes).  $^1\text{H NMR}$  ( $\text{CDCl}_3$ , 500 MHz)  $\delta$  8.13 (d, 2 H,  $J = 7.0$  Hz), 7.73 (d, 1 H,  $J = 8.0$  Hz), 7.59 (m, 2 H), 7.52 (s, 1 H), 7.45 (m, 3 H), 7.35 (d, 1 H,  $J = 7.5$  Hz), 7.17 (d, 1 H,  $J = 8.0$  Hz), 2.47 (s, 3 H), 1.51 (s, 6 H);  $^{13}\text{C NMR}$  ( $\text{CDCl}_3$ , 125 MHz)  $\delta$  167.0, 154.8, 151.5, 139.9, 139.3, 137.1, 135.2, 133.5, 130.7, 130.2, 128.8, 128.7, 127.8, 123.2, 122.8, 121.2, 120.4, 67.6, 47.0, 27.7, 22.0; HRMS (EI) Calcd. for  $[\text{C}_{24}\text{H}_{22}\text{O}_2]$  342.1620, Found 342.1617.

**Compound 53**

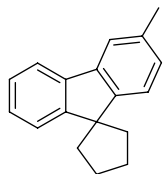
Cyclopropane **51** was reacted according to the general procedure at  $-10\text{ }^{\circ}\text{C}$ . The reaction was quenched after 20 min, and fluorene **53** was isolated as a clear oil in 90% yield following silica column chromatography (1%  $\text{Et}_2\text{O}$  in hexanes).  $^1\text{H NMR}$  ( $\text{CDCl}_3$ , 500 MHz)  $\delta$  7.68 (d, 2 H,  $J = 7.5$  Hz), 7.56 (s, 1 H), 7.47 (s, 1 H), 7.34 (d, 2 H,  $J = 7.5$  Hz), 7.14 (d, 1 H,  $J = 8.0$  Hz), 2.47 (s, 3 H), 1.53 (s, 6 H), 1.24 (m, 3 H), 1.15 (d, 18 H,  $J = 5.6$  Hz);  $^{13}\text{C NMR}$  ( $\text{CDCl}_3$ , 100 MHz)  $\delta$  154.1, 151.0, 140.9, 139.4, 138.0, 136.5, 127.8, 124.6, 122.3, 120.5, 120.3, 119.6, 65.5, 46.4, 27.3, 23.4, 21.6, 18.1, 12.2; HRMS (EI) Calcd. for  $[\text{C}_{26}\text{H}_{38}\text{OSi}]$  394.2692, Found 394.2689.

**Compound 57**

Cyclopropane **55** was reacted according to the general procedure at room temperature. The reaction was quenched after 15 min, and fluorene **57** was isolated as white solid in 79% yield following silica column chromatography (5% toluene in pentane).  $^1\text{H NMR}$  ( $\text{CDCl}_3$ , 400 MHz):  $\delta$  8.76 (d, 1H,  $J = 8.4$  Hz), 8.16 (s, 1H), 7.94 (d, 1H,  $J = 8.1$  Hz), 7.84 (d, 1H,  $J = 8.3$  Hz), 7.66-7.59 (m, 2H), 7.51 (m, 1H), 7.42 (d, 1H,  $J = 7.6$  Hz), 7.18 (d, 1H,  $J = 7.4$  Hz), 2.54 (s, 3H), 1.52 (s, 6H);  $^{13}\text{C NMR}$  ( $\text{CDCl}_3$ , 100 MHz):  $\delta$  152.7, 151.9, 140.5, 136.6, 133.6, 133.3, 129.7, 129.2,

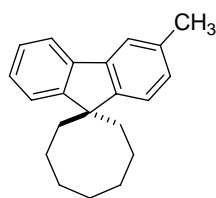
128.2, 127.1, 126.5, 124.9, 124.0, 123.9, 122.1, 120.9, 46.3, 26.8, 21.9. HRMS (EI) Calcd. for  $[C_{20}H_{18}]$  258.1408, Found 258.1409.

### Compound 74



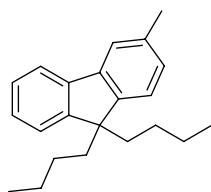
Cyclopropane **72** was reacted according to the general procedure at room temperature. The reaction was quenched after 20 min, and fluorene **74** was isolated as a white solid in 63% yield following silica column chromatography (5% toluene in pentane). Styrene **73** was also isolated in 24% yield.  $^1H$  NMR ( $CDCl_3$ , 400 MHz)  $\delta$  7.74 (d, 1 H,  $J = 6.4$  Hz), 7.58 (s, 1 H), 7.48 (d, 1 H,  $J = 6.8$  Hz), 7.36 (m, 3 H), 7.17 (d, 1 H,  $J = 7.2$  Hz), 2.50 (s, 3 H), 2.15 (m, 8 H);  $^{13}C$  NMR ( $CDCl_3$ , 100 MHz)  $\delta$  154.6, 151.4, 139.7, 139.6, 136.3, 128.3, 127.3, 126.7, 122.9, 122.6, 120.2, 119.5, 57.4, 40.0, 26.9, 21.5; HRMS (FAB) Calcd. for  $[C_{18}H_{18}]$  234.1409, Found 234.1405.

### Compound 78



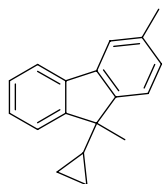
Cyclopropane **76** was reacted according to the general procedure at room temperature. The reaction was quenched after 15 min, and fluorene **78** was isolated as a white solid in 66% yield following silica column chromatography (5% toluene in pentane). Styrene **77** was also isolated in 21% yield.  $^1H$  NMR ( $CDCl_3$ , 400 MHz):  $\delta$  7.68 (d, 1H,  $J = 7.2$  Hz), 7.54-7.52 (m, 2H), 7.43 (d, 1H,  $J = 7.7$  Hz), 7.31 (dt, 1H,  $J = 7.3, 1.2$  Hz), 7.26 (dd, 1H,  $J = 7.3, 1.2$  Hz), 7.09 (d, 1H,  $J = 7.7$  Hz), 2.42 (s, 3H), 1.92 (m, 8H), 1.85 (m, 6H);  $^{13}C$  NMR ( $CDCl_3$ , 100 MHz):  $\delta$  154.5, 151.3, 139.6, 139.4, 136.6, 128.0, 127.0, 126.9, 124.1, 123.9, 120.7, 120.0, 53.3, 34.2, 29.4, 26.4, 25.3, 21.6. HRMS (EI) Calcd. for  $[C_{21}H_{24}]$  276.1878, Found 276.1876.

### Compound 82



Cyclopropane **80** was reacted according to the general procedure at room temperature. The reaction was quenched after 20 min, and fluorene **82** was isolated as a clear oil in 84% yield following silica column chromatography (5% toluene in pentane).  $^1H$  NMR ( $CDCl_3$ , 500 MHz)  $\delta$  7.68 (d, 1 H,  $J = 7.0$  Hz), 7.53 (s, 1 H), 7.31 (m, 3 H), 7.22 (d, 1 H,  $J = 7.5$  Hz), 7.12 (d, 1 H,  $J = 8.0$  Hz), 2.57 (s, 3 H), 1.94 (dd, 4 H,  $J = 9.5, 7.5$  Hz), 1.97 (sextet, 4 H,  $J = 7.5$  Hz), 0.68 (t, 6 H,  $J = 7.5$  Hz), 0.62 (m, 4 H);  $^{13}C$  NMR ( $CDCl_3$ , 100 MHz)  $\delta$  151.0, 147.7, 141.2, 141.1, 136.2, 127.9, 126.8, 126.6, 122.8, 122.5, 120.2, 119.4, 54.5, 40.2, 25.9, 23.1, 21.5, 13.8; HRMS (FAB) Calcd. for  $[C_{22}H_{28}]$  292.2191, Found 292.2196.

### Compound 86

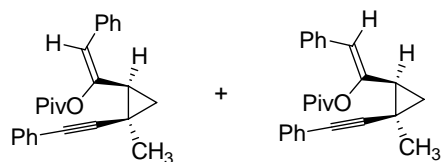


Cyclopropane **84** was reacted according to the general procedure at room temperature. The reaction was quenched after 20 min, and fluorene **86** was isolated as a clear oil in 84% yield following silica column chromatography (5% toluene in pentane).  $^1H$  NMR ( $CDCl_3$ , 400 MHz)  $\delta$  7.74 (d, 1 H,  $J = 7.2$  Hz), 7.59 (s, 1 H), 7.47 (d, 1 H,  $J = 7.2$  Hz), 7.35 (m, 3 H), 7.16 (d, 1 H,  $J = 7.6$  Hz), 2.50 (s, 3 H), 1.45 (s, 3 H), 1.18 (m, 1 H), 0.43 (m, 2 H), 0.28 (m, 2 H);  $^{13}C$  NMR ( $CDCl_3$ , 100 MHz)  $\delta$

152.5, 149.2, 140.0, 139.8, 136.7, 127.9, 127.0, 126.9, 123.4, 123.2, 120.5, 119.8, 49.0, 22.6, 21.6, 20.3, 1.12, 1.04; HRMS (FAB) Calcd. for  $[C_{18}H_{18}]$  234.1409, Found 234.1408.

## VII. Experimental procedures for reactions with aryl propargyl esters **90** and **94**

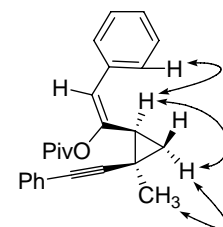
### Compound **91**



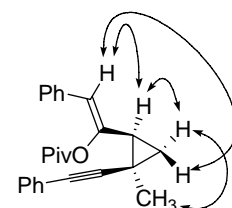
Enyne **2** and propargyl ester **90** were reacted according to the general procedure at  $-5\text{ }^{\circ}\text{C}$ . The reaction was quenched after 30 min, and cyclopropane **91** was isolated as a clear oil in 91% yield (1:2 (E:Z) mixture of olefin isomers) following silica column chromatography (2%  $\text{Et}_2\text{O}$  in hexanes). The

olefin isomers were used as a mixture in the subsequent steps, although they could be separated chromatographically for characterization purposes.

(*E*)-ISOMER:  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 500 MHz)  $\delta$  7.42 (d, 2 H,  $J = 7.5$  Hz), 7.34 (m, 4 H), 7.25 (m, 4 H), 6.46 (s, 1 H), 2.16 (t, 1 H,  $J = 7.5$  Hz), 1.48 (s, 3 H), 1.29 (s, 9 H), 1.17 (t, 1 H,  $J = 5.5$  Hz), 1.06 (dd, 1 H,  $J = 8.5, 5.0$  Hz);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 125 MHz)  $\delta$  176.9, 147.0, 134.7, 131.7, 128.9, 128.1, 128.9, 127.5, 126.9, 123.8, 120.9, 91.9, 79.2, 39.0, 29.1, 27.2, 24.4, 21.7, 16.9; HRMS (FAB) Calcd. for  $[C_{25}H_{26}O_2]$  358.1933, Found 358.1930. Important observed  $^1\text{H}$  nOe correlations are indicated below:

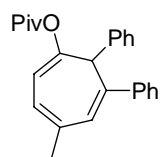


(*Z*)-ISOMER:  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 500 MHz)  $\delta$  7.40 (d, 2 H,  $J = 7.5$  Hz), 7.28 (m, 4 H), 7.22 (m, 4 H), 6.18 (s, 1 H), 2.17 (t, 1 H,  $J = 7.5$  Hz), 1.44 (s, 3 H), 1.33 (t, 1 H,  $J = 6.0$  Hz), 1.30 (s, 9 H), 1.16 (dd, 1 H,  $J = 8.5, 5.0$  Hz);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 125 MHz)  $\delta$  176.2, 147.4, 134.3, 131.5, 128.6, 138.1, 127.4, 127.0, 123.8, 117.8, 92.3, 79.2, 39.0, 30.6, 27.1, 24.7, 22.1, 16.1; HRMS (FAB) Calcd. for  $[C_{25}H_{26}O_2]$  358.1933, Found 358.1941.



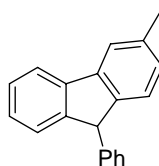
### Compounds **92** and **93**

Cyclopropane **91** was reacted according to the general procedure for fluorene synthesis at room temperature. The reaction was quenched after 60 min, and two products were isolated following silica column chromatography (2%  $\text{Et}_2\text{O}$ :hexanes). Fluorene **93** was isolated as a white solid in 20% yield, while cycloheptatriene **92**, was isolated in 79% yield.



Cycloheptatriene **92**:  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 500 MHz)  $\delta$  7.53 (d, 2 H,  $J = 7.5$  Hz), 7.4-7.1 (m, 8 H), 6.56 (s, 1 H), 6.10 (d, 1 H,  $J = 6.5$  Hz), 5.92 (d, 1 H,  $J = 6.5$  Hz), 4.85 (s, 1 H), 1.90 (s, 3 H), 1.24 (s, 9 H);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 125 MHz)  $\delta$  176.5, 142.8, 142.7, 138.9, 137.3, 135.8, 128.5, 128.1, 127.5, 127.4, 127.1, 126.6, 126.3, 121.7, 113.9, 51.2, 38.8, 27.0, 24.3; HRMS (FAB) Calcd. for  $[\text{C}_{25}\text{H}_{26}\text{O}_2]$

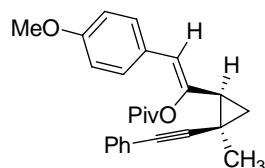
358.1933, Found 358.1930.



The spectral data for fluorene **93** matched those reported in the literature<sup>7</sup>:  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 300 MHz)  $\delta$  7.76 (d, 1 H,  $J = 7.8$  Hz), 7.61 (s, 1 H), 7.4-7.2 (m, 7 H), 7.07 (m, 3 H), 5.0 (s, 1 H), 2.45 (s, 3 H);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 100 MHz)  $\delta$  148.3, 145.2, 141.9, 141.2, 141.1, 137.0, 128.7, 128.3, 127.3, 127.2, 126.8, 125.3, 125.0, 120.5, 119.8, 54.1, 21.6; HRMS (FAB) Calcd. for  $[\text{C}_{20}\text{H}_{16}\text{O}]$  256.1252,

Found 256.1248.

### Compound 95

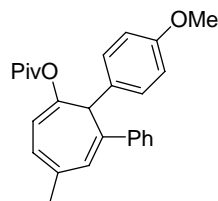


Enyne **2** and propargyl ester **94** were reacted according to the general procedure at  $-5$  °C. The reaction was quenched after 50 min, and cyclopropane **95** was isolated as a clear oil in 63% yield as a single olefin isomer following silica column chromatography (5% EtOAc in hexanes).

$^1\text{H}$  NMR ( $\text{CDCl}_3$ , 500 MHz)  $\delta$  7.37 (d, 2 H,  $J = 8.0$  Hz), 7.32 (m, 2 H), 7.24 (m, 3 H), 6.84 (d, 2 H,  $J = 8.0$  Hz), 6.13 (s, 1 H), 3.81 (s, 3 H), 2.09 (t, 1 H,  $J = 7.5$  Hz), 1.45 (s, 3 H), 1.33 (s, 9 H), 1.31 (m, 1 H), 1.15 (dd, 1 H,  $J = 8.0, 5.0$  Hz);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 125 MHz)  $\delta$  176.7, 159.0, 146.4, 132.0, 130.2, 128.5, 127.9, 127.4, 124.3, 117.8, 114.0, 93.0, 79.6, 55.6, 39.5, 31.1, 27.6, 25.1, 22.6, 16.4; HRMS (FAB) Calcd. for  $[\text{C}_{26}\text{H}_{28}\text{O}_3]$  388.2038, Found 388.2034.

### Compounds 96 and 97

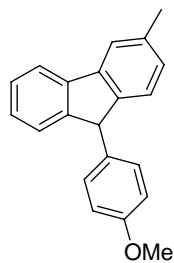
Cyclopropane **95** was reacted according to the general procedure for fluorene synthesis at room temperature. The reaction was quenched after 40 min, and two products were isolated following silica column chromatography (2% Et<sub>2</sub>O in hexanes). Fluorene **97** was isolated as a white solid in 69% yield, while cycloheptatriene **96** was isolated in 23% yield.



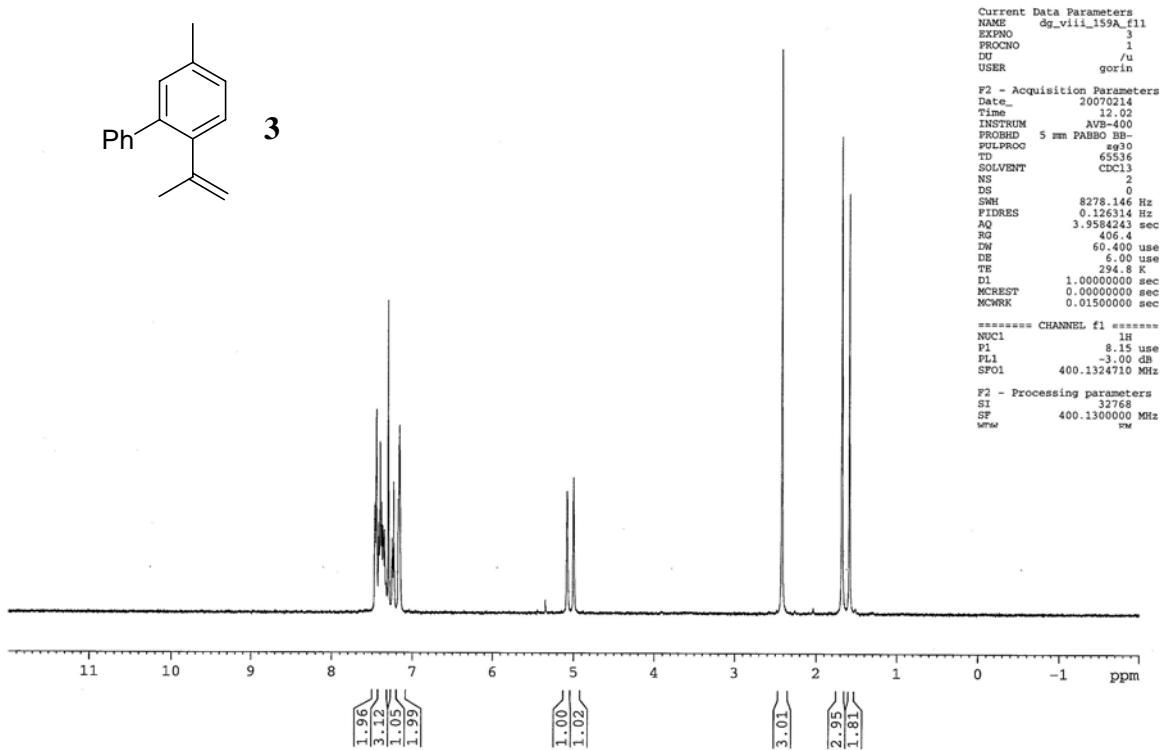
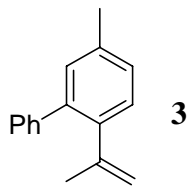
Cycloheptatriene **96**:  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 500 MHz)  $\delta$  7.51 (d, 2 H,  $J = 7.5$  Hz), 7.4-7.2 (m, 5 H), 6.72 (d, 2 H,  $J = 8.5$  Hz), 6.53 (s, 1 H), 6.06 (d, 1 H,  $J = 7.0$  Hz), 5.92 (d, 1 H,  $J = 7.0$  Hz), 4.77 (s, 1 H), 3.76 (s, 3 H), 1.91 (s, 3 H), 1.23 (s, 9 H);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 125 MHz)  $\delta$  176.6, 158.0, 143.0, 142.8, 137.2, 136.1, 130.8, 128.5, 128.0, 127.6, 127.5, 127.1, 121.6, 113.7, 112.8, 55.1, 50.6, 38.8, 27.0, 24.4; HRMS (EI) Calcd. for  $[\text{C}_{26}\text{H}_{28}\text{O}_3]$  388.2038, Found

388.2035.

<sup>7</sup> Bordwell, F. G.; Bausch, M. J. *J. Am. Chem. Soc.* **1986**, *108*, 1979.



Fluorene **97**:  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 500 MHz)  $\delta$  7.78 (d, 1 H,  $J = 7.5$  Hz), 7.63 (s, 1 H), 7.38 (t, 1 H,  $J = 7.5$  Hz), 7.31 (d, 1 H,  $J = 7.0$  Hz), 7.26 (m, 1 H), 7.20 (d, 1 H,  $J = 7.5$  Hz), 7.09 (s, 1 H,  $J = 8.0$  Hz), 7.02 (d, 2 H,  $J = 8.5$  Hz), 6.81 (d, 2 H,  $J = 8.5$  Hz), 4.98 (s, 1 H), 3.78 (s, 3 H), 2.49 (s, 3 H);  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 125 MHz)  $\delta$  158.4, 148.6, 145.4, 141.0, 140.9, 136.9, 133.8, 129.2, 128.2, 127.2, 127.1, 125.2, 124.9, 120.4, 119.7, 114.0, 55.2, 53.3, 21.5; HRMS (EI) Calcd. for  $[\text{C}_{21}\text{H}_{18}\text{O}]$  286.1358, Found 286.1358.



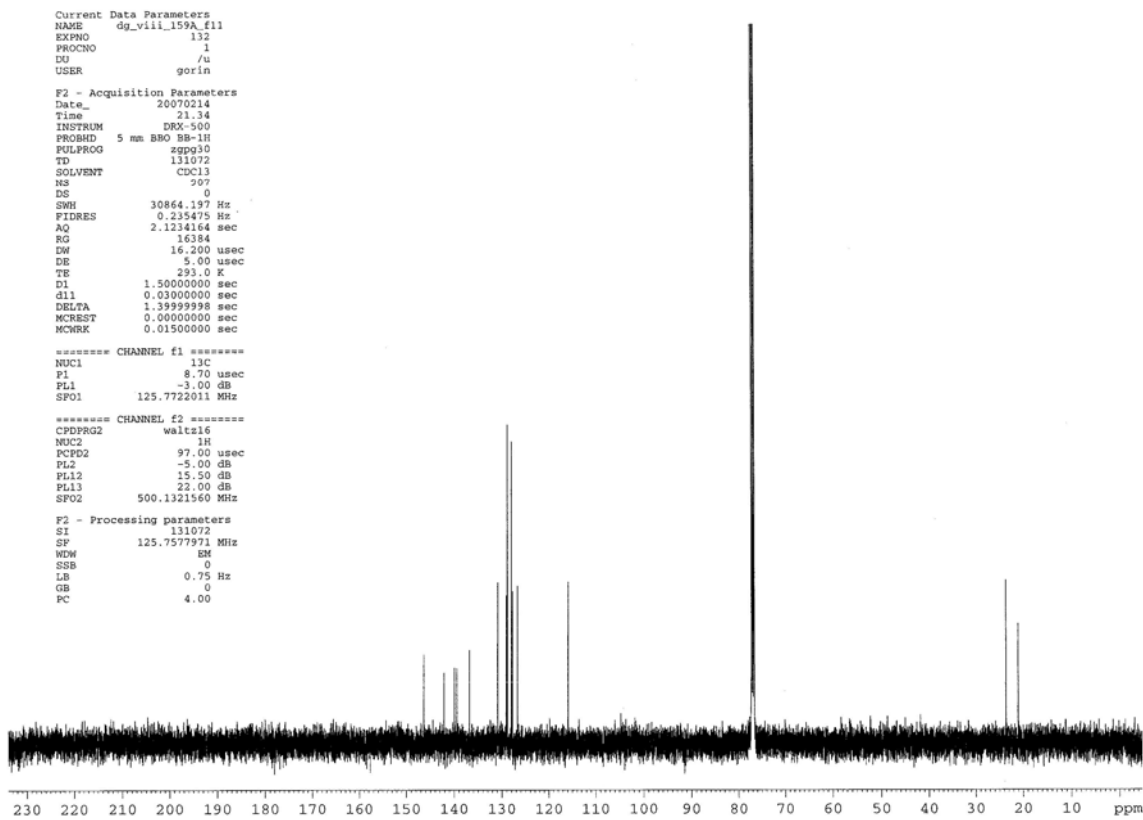
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EXPNO    3
PROCNO   1
DU       /u
USER     gorin

F2 - Acquisition Parameters
Date_    20070214
Time     12.02
INSTRUM  AVB-400
PROBHD   5 mm PABBO BB-
PULPROG  zg30
TD       65536
SOLVENT  CDCl3
NS       2
DS       0
SWH      8278.146 Hz
FIDRES   0.126314 Hz
AQ       3.9584243 sec
RG       406.4
DW       60.400 usec
DE       6.00 usec
TE       294.8 K
D1       1.0000000 sec
MCREST   0.0000000 sec
MCWRK    0.0150000 sec

===== CHANNEL f1 =====
NUC1     1H
P1       8.15 usec
PL1      -3.00 dB
SFO1     400.1324710 MHz

F2 - Processing parameters
SI       400.1300000 MHz
SF       400.1300000 MHz
  
```



```

Current Data Parameters
NAME      dg_viii_159A_f11
EXPNO    132
PROCNO   1
DU       /u
USER     gorin

F2 - Acquisition Parameters
Date_    20070214
Time     21.34
INSTRUM  DRX-500
PROBHD   5 mm BBO BB-1H
PULPROG  zgpg30
TD       131072
SOLVENT  CDCl3
NS       997
DS       0
SWH      30864.197 Hz
FIDRES   0.233475 Hz
AQ       2.1234164 sec
RG       16384
DW       16.200 usec
DE       5.00 usec
TE       293.0 K
D1       1.5000000 sec
d11      0.0300000 sec
DELTA    1.3999998 sec
MCREST   0.0000000 sec
MCWRK    0.0150000 sec

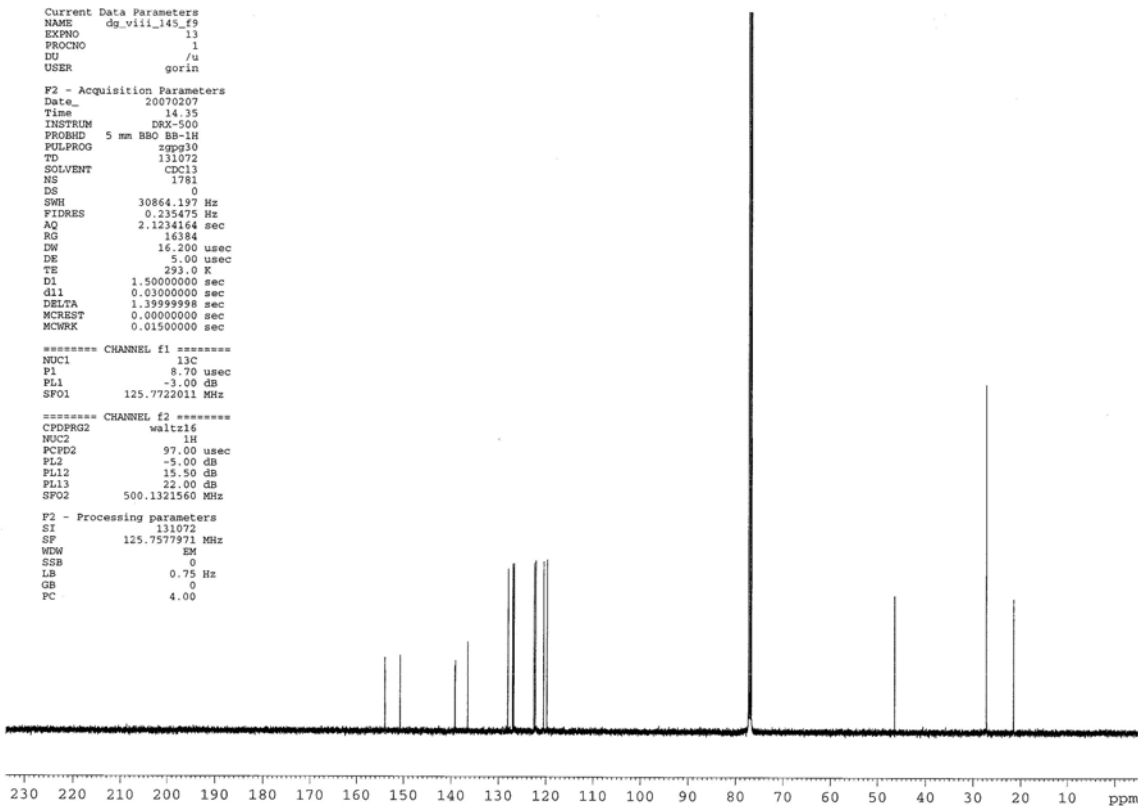
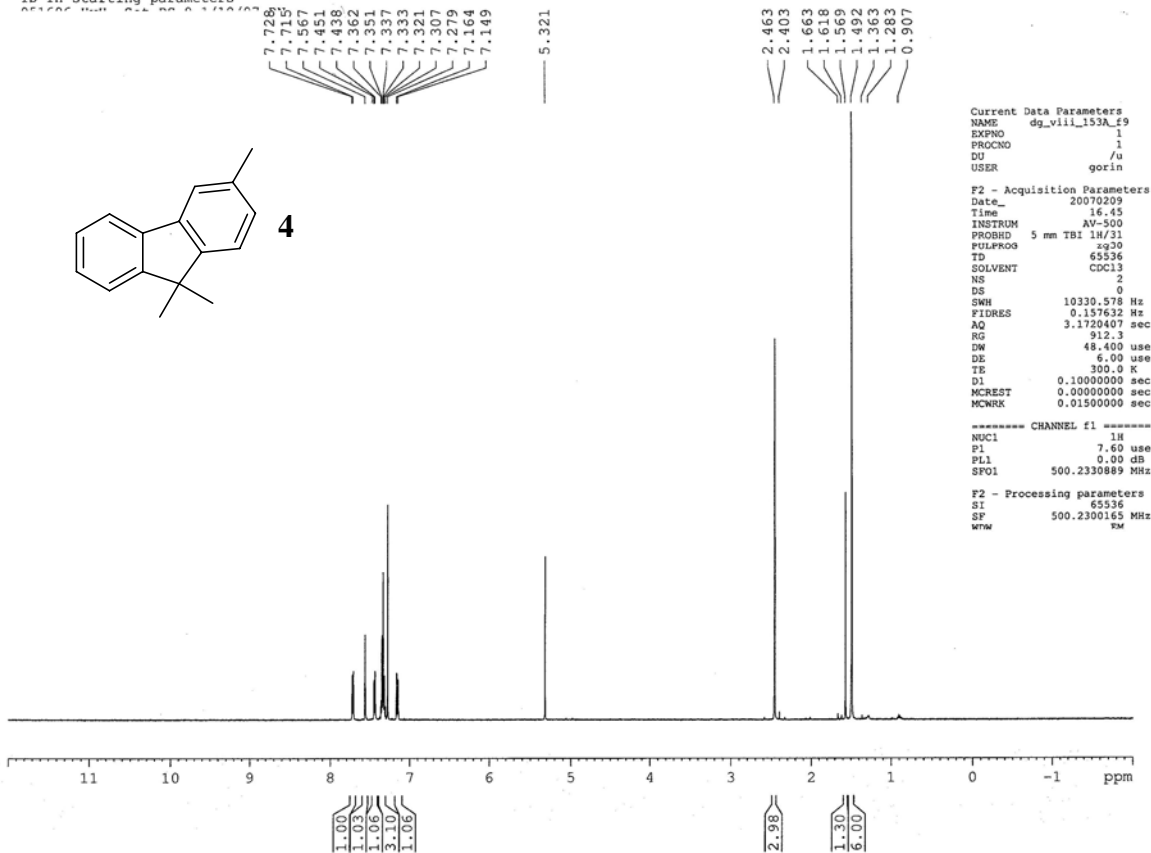
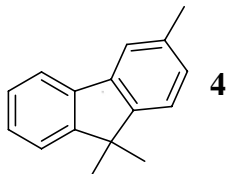
===== CHANNEL f1 =====
NUC1     13C
P1       8.70 usec
PL1      -3.00 dB
SFO1     125.7722011 MHz

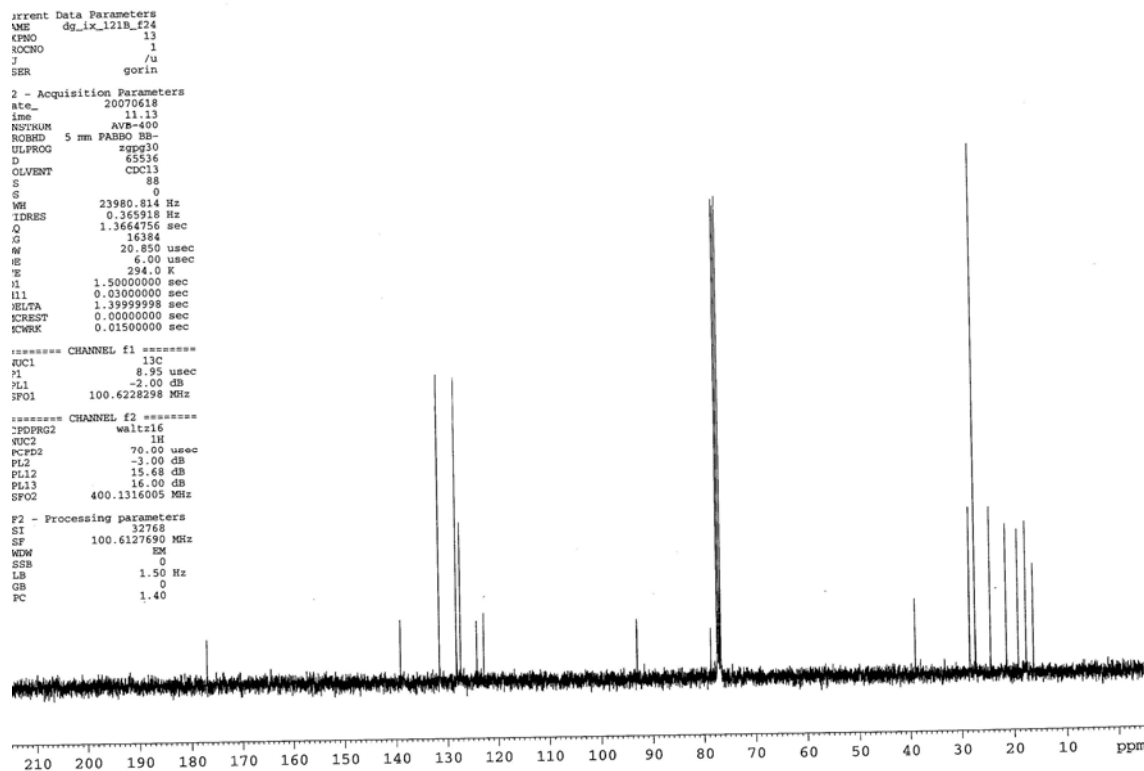
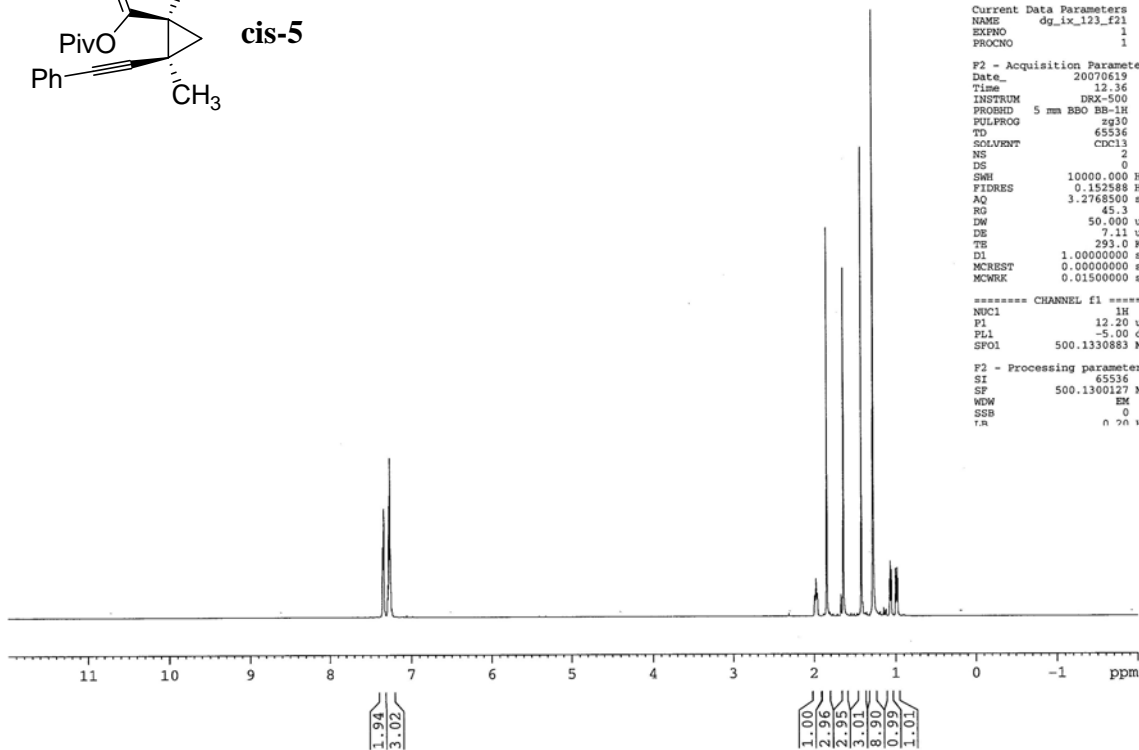
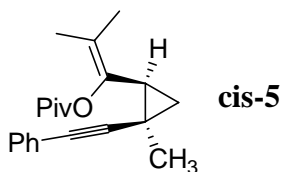
===== CHANNEL f2 =====
CPDPRG2  waltz16
NUC2     1H
PCPD2    97.00 usec
PL2      -5.00 dB
PL12     15.50 dB
PL13     22.00 dB
SFO2     500.1321560 MHz

F2 - Processing parameters
SI       131072
SF       125.7577971 MHz
WDW      EM
SSB      0
LB       0.75 Hz
GB       0
PC       4.00
  
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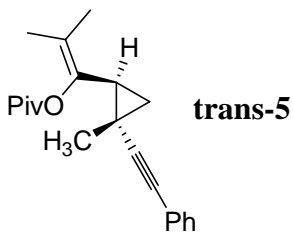


AV-500 new TBI(HXP) probe  
1D 1H starting parameters

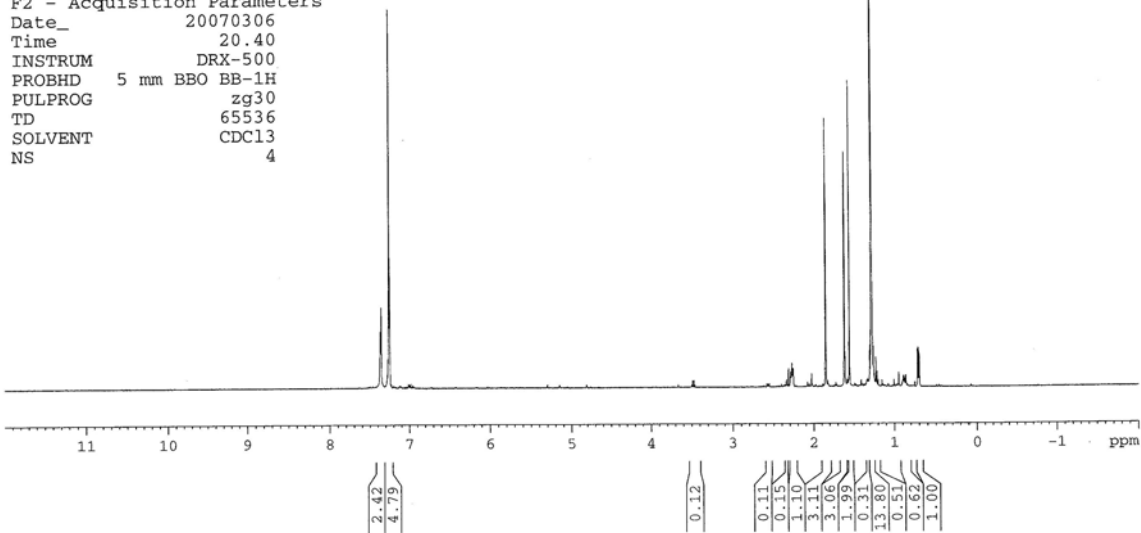




Current Data Parameters  
 NAME dg\_viii\_181c2\_f14  
 EXPNO 1  
 PROCNO 1  
 DU /u  
 USER gorin



F2 - Acquisition Parameters  
 Date\_ 20070306  
 Time 20.40  
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 PROBHD 5 mm BBO BB-1H  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 4



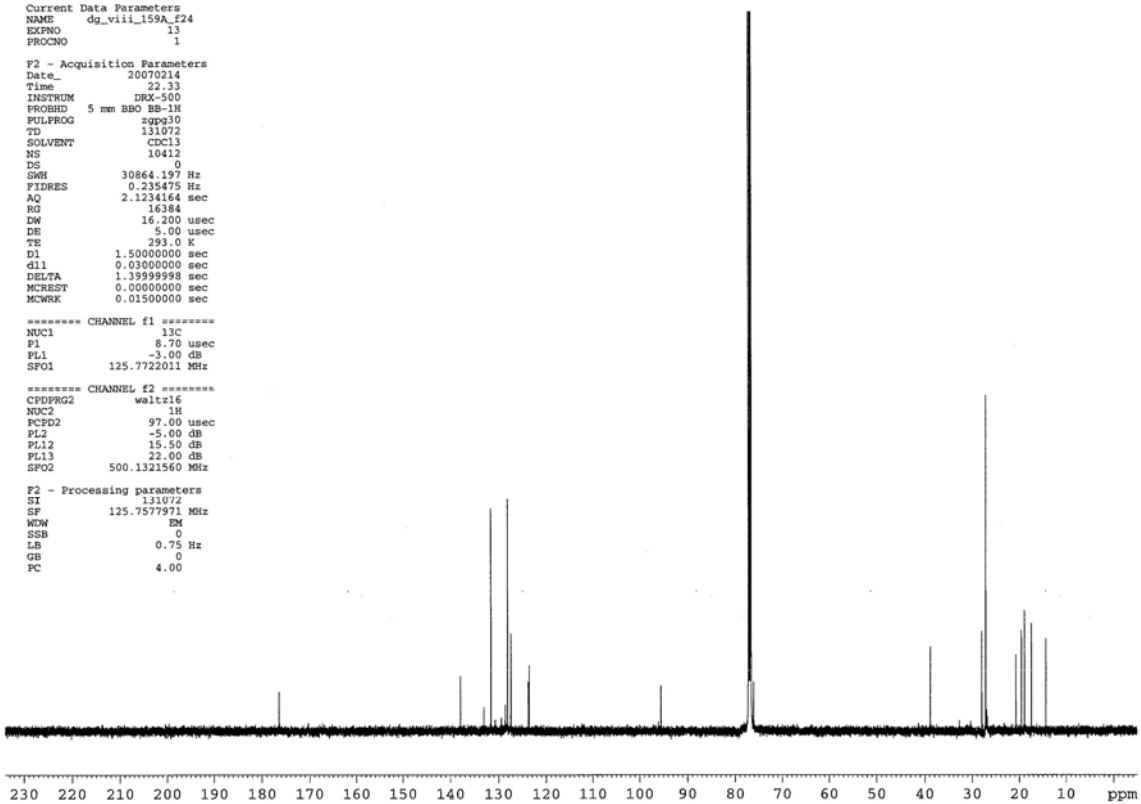
Current Data Parameters  
 NAME dg\_viii\_159A\_f24  
 EXPNO 13  
 PROCNO 1

F2 - Acquisition Parameters  
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 Time 22.33  
 INSTRUM DRX-500  
 PROBHD 5 mm BBO BB-1H  
 PULPROG zgpg30  
 TD 131072  
 SOLVENT CDCl3  
 NS 10412  
 DS 0  
 SWH 30864.197 Hz  
 FIDRES 0.235475 Hz  
 AQ 2.1234164 sec  
 RG 16384  
 DW 16.200 usec  
 DE 5.00 usec  
 TE 293.0 K  
 D1 1.5000000 sec  
 d11 0.0300000 sec  
 DELTA 1.3999998 sec  
 MCREST 0.0000000 sec  
 MCWVK 0.0150000 sec

\*\*\*\*\* CHANNEL f1 \*\*\*\*\*  
 NUC1 13C  
 P1 8.70 usec  
 PL1 -3.00 dB  
 SFO1 125.7722011 MHz

\*\*\*\*\* CHANNEL f2 \*\*\*\*\*  
 CPDPRG2 waltz16  
 NUC2 1H  
 PCPD2 97.00 usec  
 PL2 -5.00 dB  
 PL12 15.50 dB  
 PL13 22.00 dB  
 SFO2 500.1321560 MHz

F2 - Processing parameters  
 SI 131072  
 SF 125.7577971 MHz  
 WDW EM  
 SSB 0  
 LB 0.75 Hz  
 GB 0  
 FC 4.00



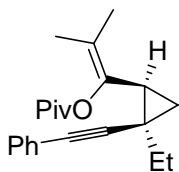
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Current Data Parameters
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NAME      IW13034P9-15_H
EXPNO     1
PROCNO    1

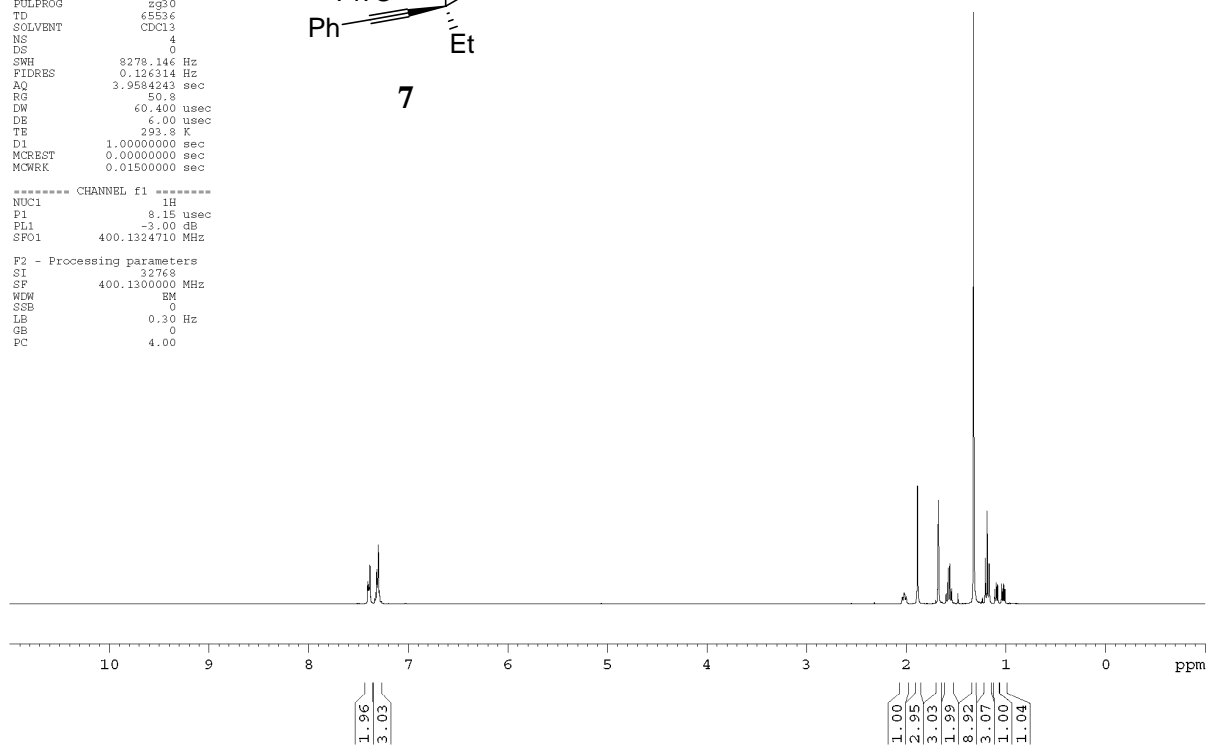
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Date_     20070814
Time      18.58
INSTRUM   AVB-400
PROBHD    5 mm PABBO BB-
PULPROG   zg30
TD         65536
SOLVENT   CDCl3
NS         4
DS         0
SWH        8278.146 Hz
FIDRES     0.126314 Hz
AQ         3.0584243 sec
RG         50.8
DW         60.400 usec
DE         6.00 usec
TE         293.2 K
D1         1.0000000 sec
MCREST    0.0000000 sec
MCWRK     0.0150000 sec

===== CHANNEL f1 =====
NUC1       1H
P1         8.15 usec
PL1        -3.00 dB
SFO1       400.1324710 MHz

F2 - Processing parameters
SI         32768
SF         400.1300000 MHz
WDW        EM
SSB        0
LB         0.30 Hz
GB         0
PC         4.00
    
```



7



AVB-400 ZBO Carbon Starting parameters 6/11/03 RN

```

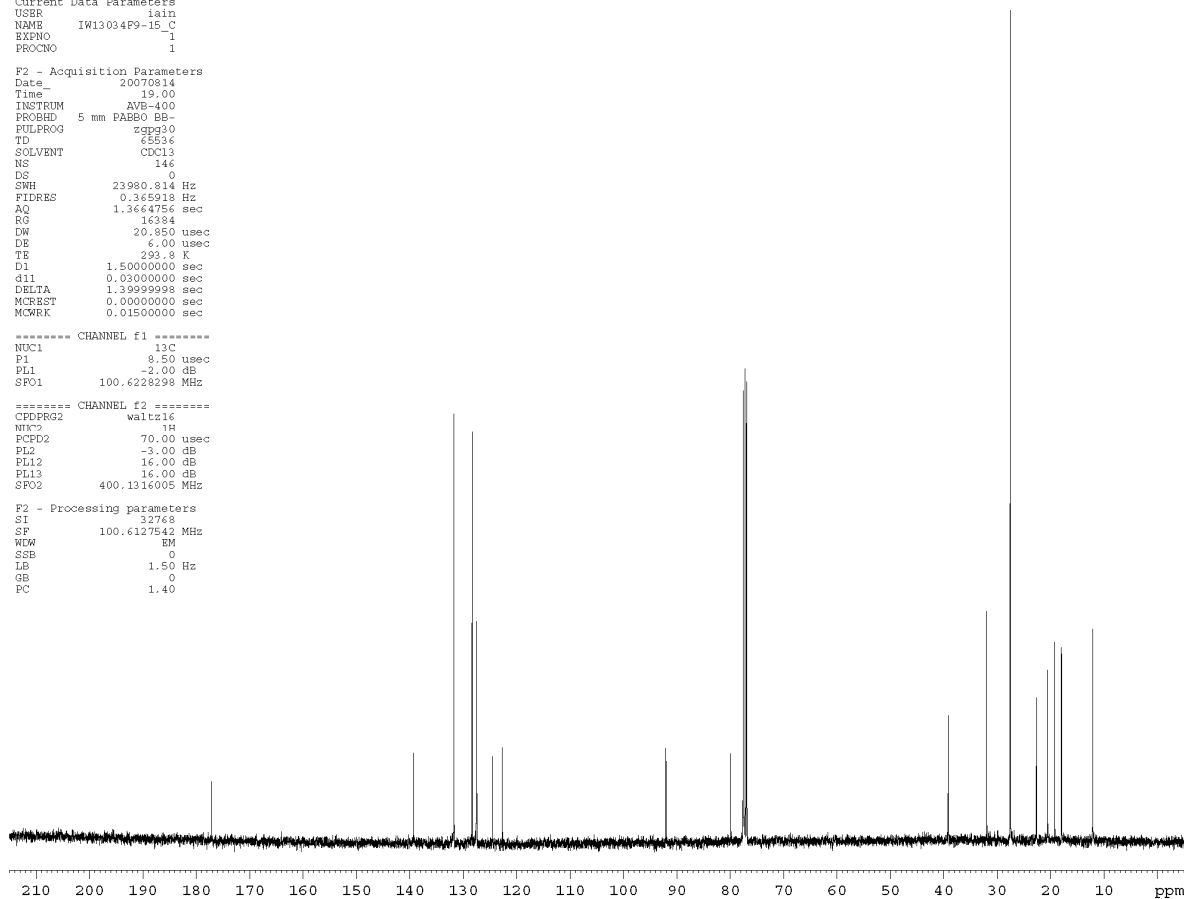
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USER      iain
NAME      IW13034P9-15_C
EXPNO     1
PROCNO    1

F2 - Acquisition Parameters
Date_     20070814
Time      19.00
INSTRUM   AVB-400
PROBHD    5 mm PABBO BB-
PULPROG   zg30
TD         65536
SOLVENT   CDCl3
NS         146
DS         0
SWH        23980.814 Hz
FIDRES     0.365918 Hz
AQ         1.3664756 sec
RG         16384
DW         20.850 usec
DE         6.00 usec
TE         293.2 K
D1         1.5000000 sec
d11        0.0300000 sec
DELTA     1.3999999 sec
MCREST    0.0000000 sec
MCWRK     0.0150000 sec

===== CHANNEL f1 =====
NUC1       13C
P1         8.50 usec
PL1        -2.00 dB
SFO1       100.6228298 MHz

===== CHANNEL f2 =====
CPDPRG2   waltr16
NUC2       1H
PCPD2     70.00 usec
PL2        -3.00 dB
PL12       16.00 dB
PL13       16.00 dB
SFO2       400.1316005 MHz

F2 - Processing parameters
SI         32768
SF         100.6127542 MHz
WDW        EM
SSB        0
LB         1.50 Hz
GB         0
PC         1.40
    
```



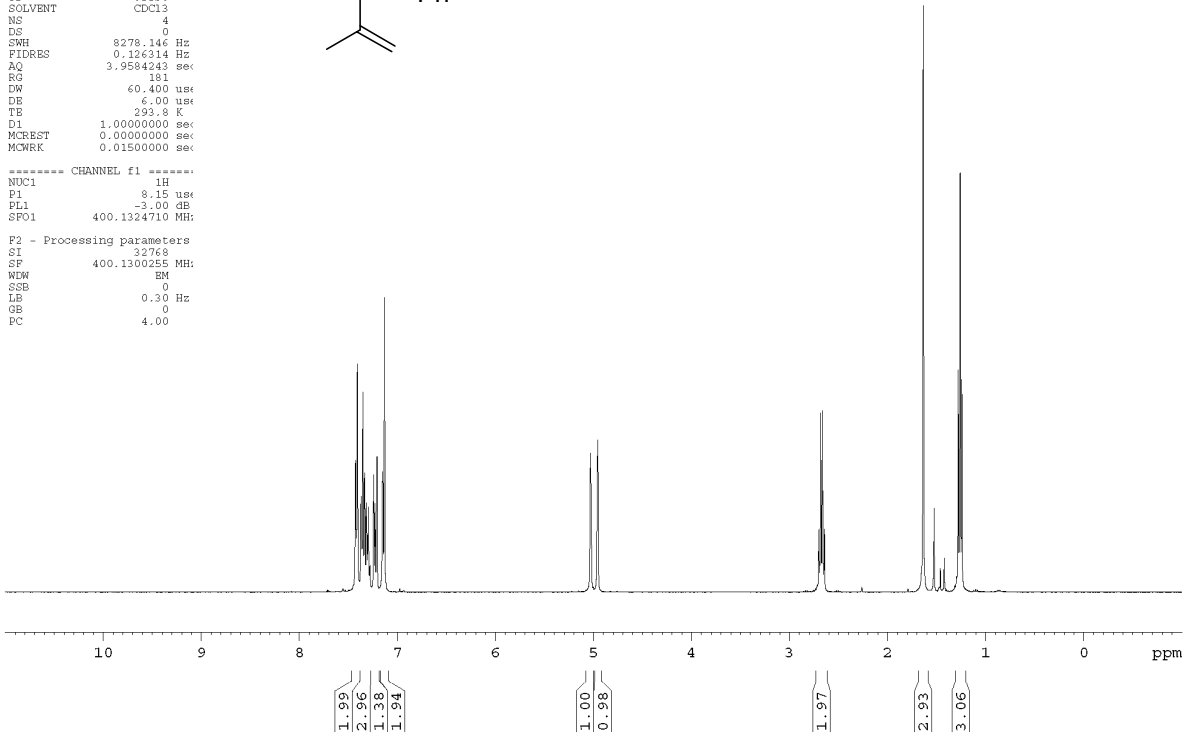
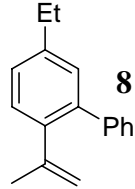
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Current Data Parameters
USER      iain
NAME      IW130040P3-5_H
EXPNO     1
PROCNO    1

F2 - Acquisition Parameters
Date_     20070816
Time      17.07
INSTRUM   AVB-400
PROBHD    5 mm PABBO BB-
PULPROG   zgpg30
TD         65536
SOLVENT   CDCl3
NS         4
DS         0
SWH        8278.146 Hz
FIDRES     0.126314 Hz
AQ         3.9584243 sec
RG         181
DW         60.400 usec
DE         6.00 usec
TE         293.8 K
D1         1.00000000 sec
MCREST    0.00000000 sec
MCWRK     0.01500000 sec

===== CHANNEL f1 =====
NUC1      1H
P1        8.15 usec
PL1       -3.00 dB
SFO1      400.1324710 MHz

F2 - Processing parameters
SI         32768
SF         400.1300255 MHz
WDW        EM
SSB        0
LB         0.30 Hz
GB         0
PC         4.00
    
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AVB-400 ZBO Carbon Starting parameters 6/11/03 RN

```

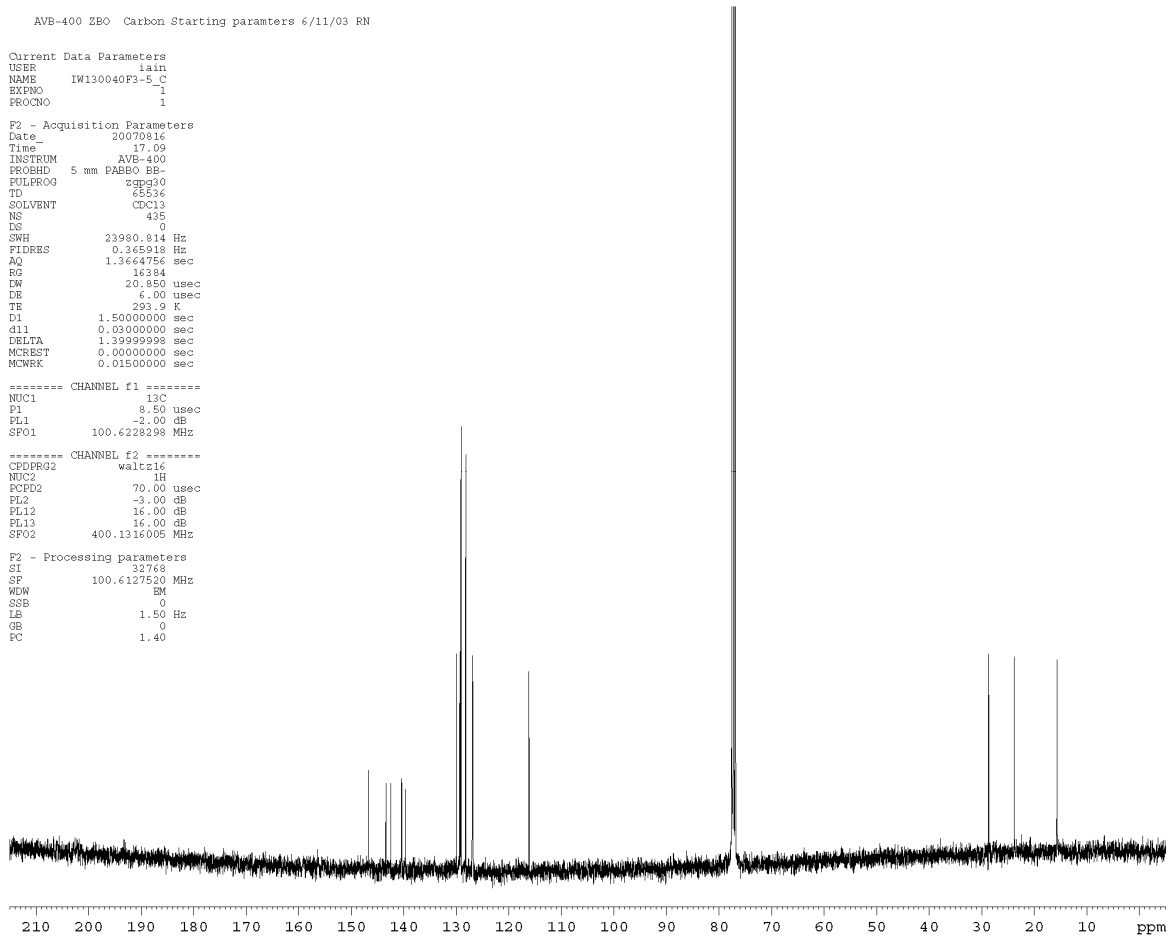
Current Data Parameters
USER      iain
NAME      IW130040P3-5_C
EXPNO     1
PROCNO    1

F2 - Acquisition Parameters
Date_     20070816
Time      17.08
INSTRUM   AVB-400
PROBHD    5 mm PABBO BB-
PULPROG   zgpg30
TD         65536
SOLVENT   CDCl3
NS         435
DS         0
SWH        23980.814 Hz
FIDRES     0.365918 Hz
AQ         1.3664756 sec
RG         16384
DW         20.850 usec
DE         6.00 usec
TE         293.9 K
D1         1.50000000 sec
d11       0.03000000 sec
DELTA     1.39390098 sec
MCREST    0.00000000 sec
MCWRK     0.01500000 sec

===== CHANNEL f1 =====
NUC1      13C
P1        8.50 usec
PL1       -2.00 dB
SFO1      100.6228298 MHz

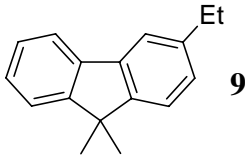
===== CHANNEL f2 =====
CPDPRG2   waltz16
NUC2      1H
PCPD2     70.00 usec
PL2       -3.00 dB
PL12      16.00 dB
PL13      16.00 dB
SFO2      400.1316005 MHz

F2 - Processing parameters
SI         32768
SF         100.6127500 MHz
WDW        EM
SSB        0
LB         1.50 Hz
GB         0
PC         1.40
    
```



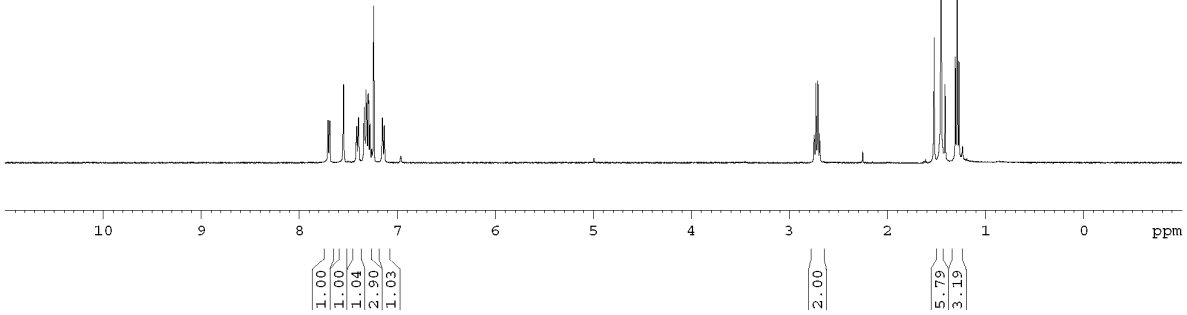
Current Data Parameters  
 USER iain  
 NAME IW13042F7-8\_H2  
 EXTNO 1  
 PROCNO 1

F2 - Acquisition Parameters  
 Date 20070817  
 Time 12.23  
 INSTRUM AVB-400  
 PROBEHD 5 mm PABBO BB-  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 4  
 DS 0  
 SWH 8278.146 Hz  
 FIDRES 0.126314 Hz  
 AQ 3.9584243 sec  
 RG 322.5  
 DW 60.400 usec  
 DE 6.00 usec  
 TE 294.1 K  
 D1 1.00000000 sec  
 MCREST 0.00000000 sec  
 MCWRR 0.01500000 sec



----- CHANNEL f1 -----  
 NUC1 1H  
 P1 8.15 usec  
 PL1 -3.00 dB  
 SFO1 400.1324710 MHz

F2 - Processing parameters  
 SI 32768  
 SF 400.1300255 MHz  
 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 4.00



AVB-400 ZBO Carbon Starting parameters 6/11/03 RN

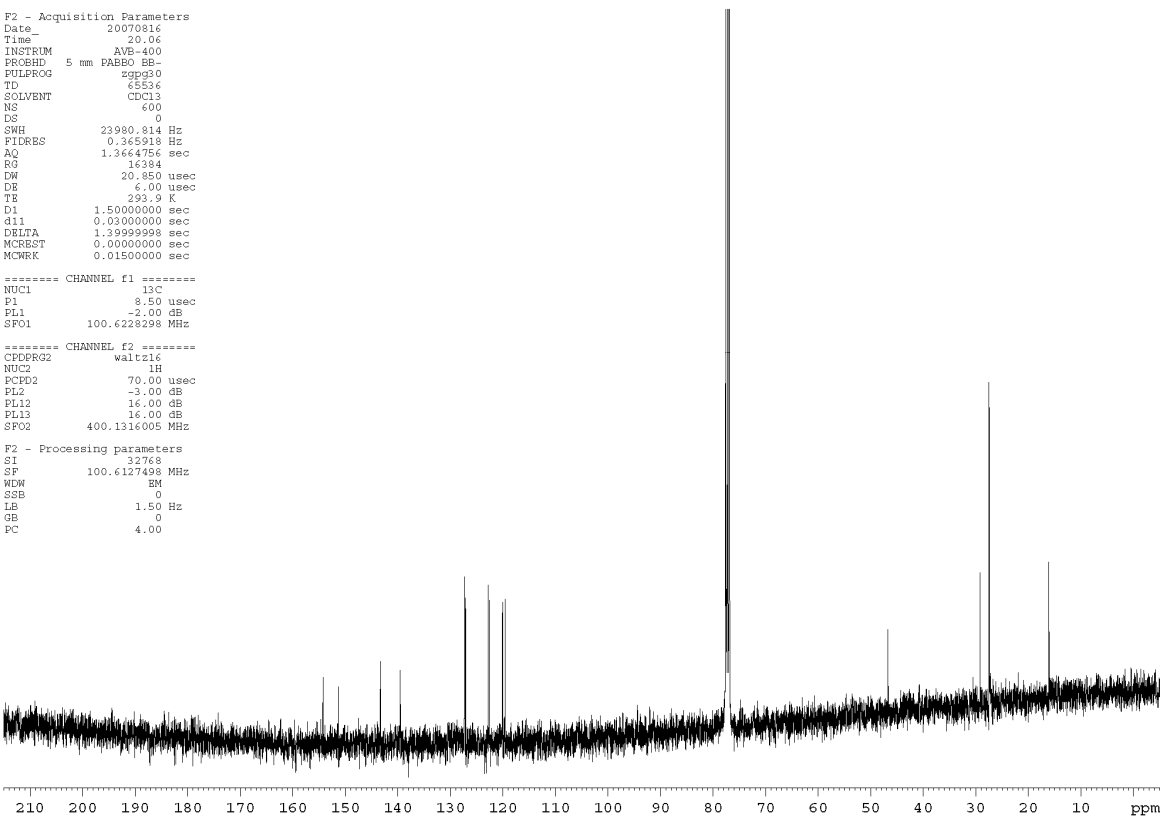
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 NAME IW13042F7-8\_C  
 EXTNO 1  
 PROCNO 1

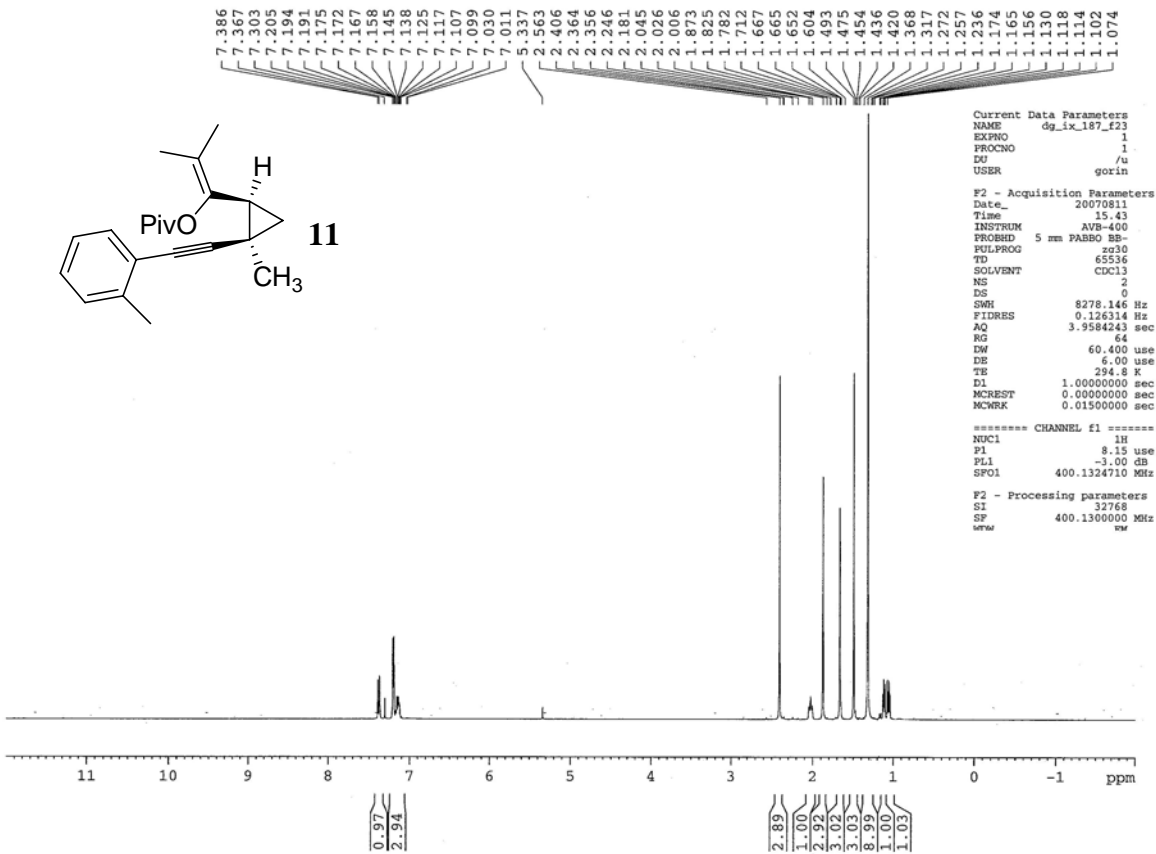
F2 - Acquisition Parameters  
 Date 20070816  
 Time 20.06  
 INSTRUM AVB-400  
 PROBEHD 5 mm PABBO BB-  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 600  
 DS 0  
 SWH 23980.814 Hz  
 FIDRES 0.365918 Hz  
 AQ 1.3664756 sec  
 RG 16384  
 DW 20.850 usec  
 DE 6.00 usec  
 TE 293.9 K  
 D1 1.50000000 sec  
 d11 0.03000000 sec  
 DELTA 1.39999998 sec  
 MCREST 0.00000000 sec  
 MCWRR 0.01500000 sec

----- CHANNEL f1 -----  
 NUC1 13C  
 P1 8.50 usec  
 PL1 -2.00 dB  
 SFO1 100.6228298 MHz

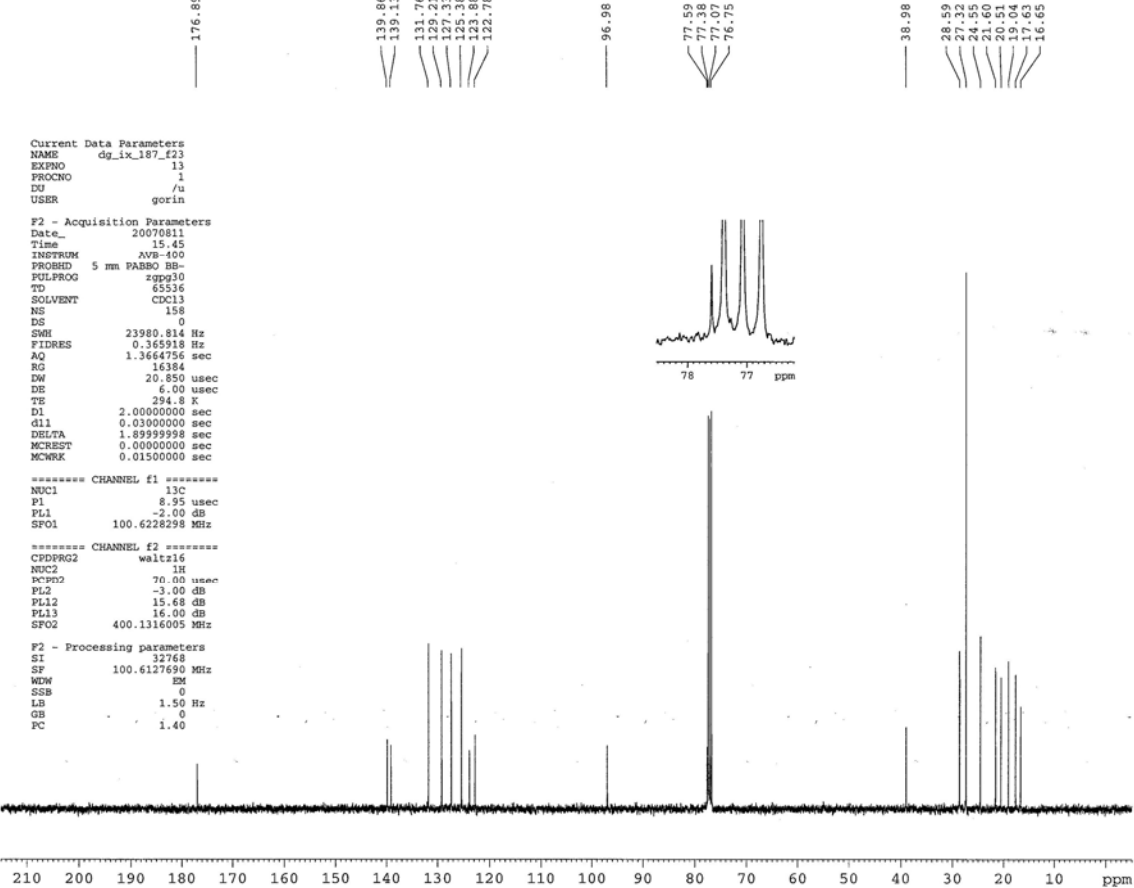
----- CHANNEL f2 -----  
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 NUC2 1H  
 PCPD2 70.00 usec  
 PL2 -3.00 dB  
 PL12 16.00 dB  
 PL13 16.00 dB  
 SFO2 400.1316005 MHz

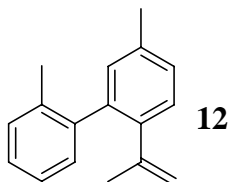
F2 - Processing parameters  
 SI 32768  
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 SSB 0  
 LB 1.50 Hz  
 GB 0  
 PC 4.00





AVB-400 ZBO Carbon Starting parameters 6/11/03 RN



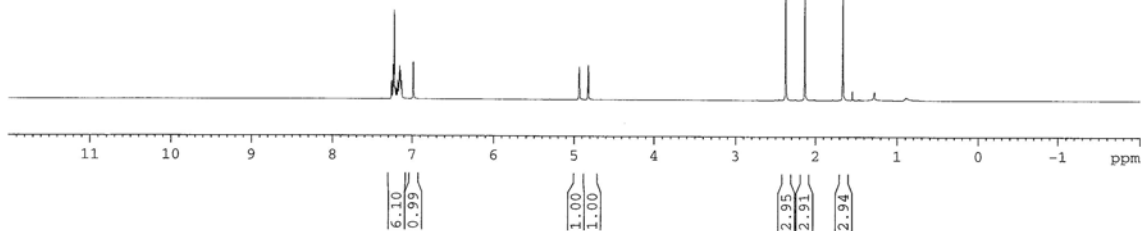


Current Data Parameters

NAME dg\_ix\_193  
EXPNO 1  
PROCNO 1  
DU /u  
USER gorin

F2 - Acquisition Parameters

Date\_ 20070814  
Time 15.44  
INSTRUM DRX-500  
PROBHD 5 mm BBO BB-1H  
PULPROG zg30  
TD 65536  
SOLVENT CDC13  
NS 2  
DS 0  
SWH 10000.000 Hz  
FIDRES 0.152588 Hz  
AQ 3.2768500 sec  
RG 161.3



13C DRX-500 5mm ZBBO probe  
starting parameters with zgpg30 (waltz16)  
uses ns\*LG0  
012504 HvH

Current Data Parameters  
NAME dg\_ix\_193  
EXPNO 13  
PROCNO 1  
DU /u  
USER gorin

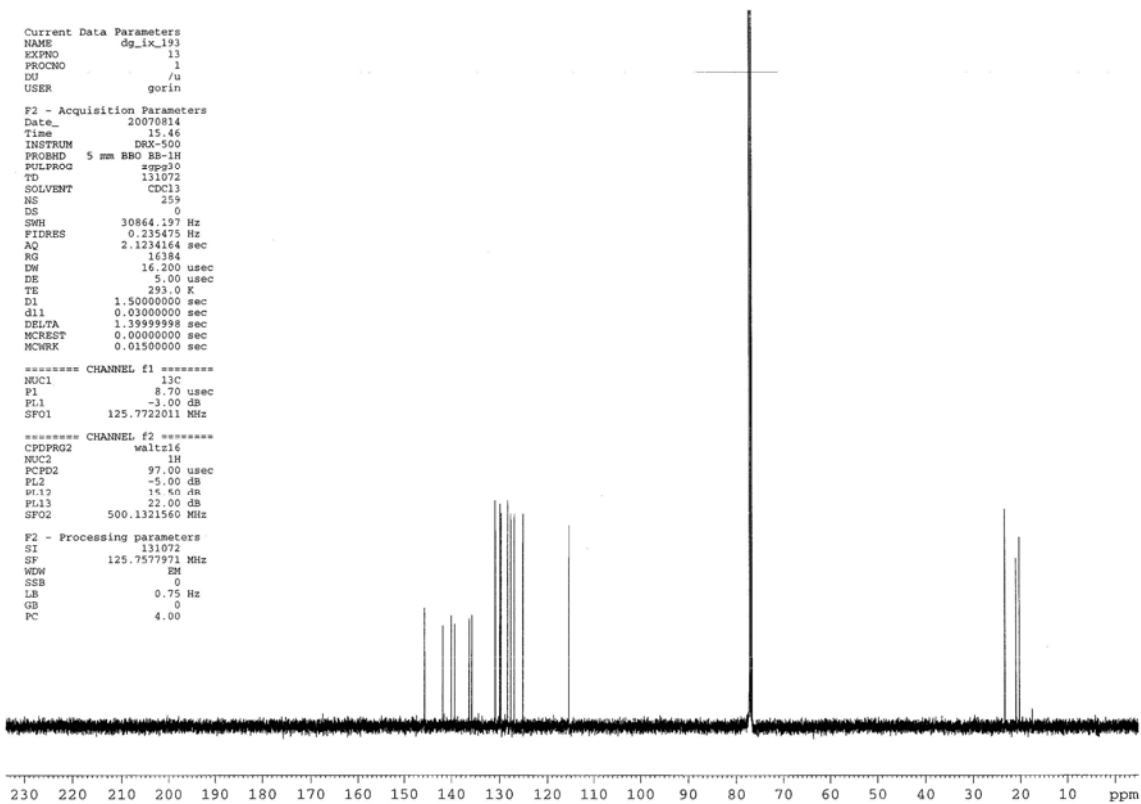
F2 - Acquisition Parameters

Date\_ 20070814  
Time 15.46  
INSTRUM DRX-500  
PROBHD 5 mm BBO BB-1H  
PULPROG zgpg30  
TD 131072  
SOLVENT CDC13  
NS 259  
DS 0  
SWH 30864.197 Hz  
FIDRES 0.235475 Hz  
AQ 2.1234164 sec  
RG 16384  
DW 16.200 usec  
DE 5.00 usec  
TE 293.0 K  
D1 1.50000000 sec  
d11 0.03000000 sec  
DELTA 1.39999998 sec  
MCREST 0.00000000 sec  
MCWRK 0.01500000 sec

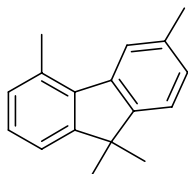
\*\*\*\*\* CHANNEL f1 \*\*\*\*\*  
NUC1 13C  
P1 8.70 usec  
PL1 -3.00 dB  
SFO1 125.7722011 MHz

\*\*\*\*\* CHANNEL f2 \*\*\*\*\*  
CPDPRG2 waltz16  
NUC2 1H  
PCPD2 97.00 usec  
PL2 -5.00 dB  
PL12 15.60 dB  
PL13 22.00 dB  
SFO2 500.1321560 MHz

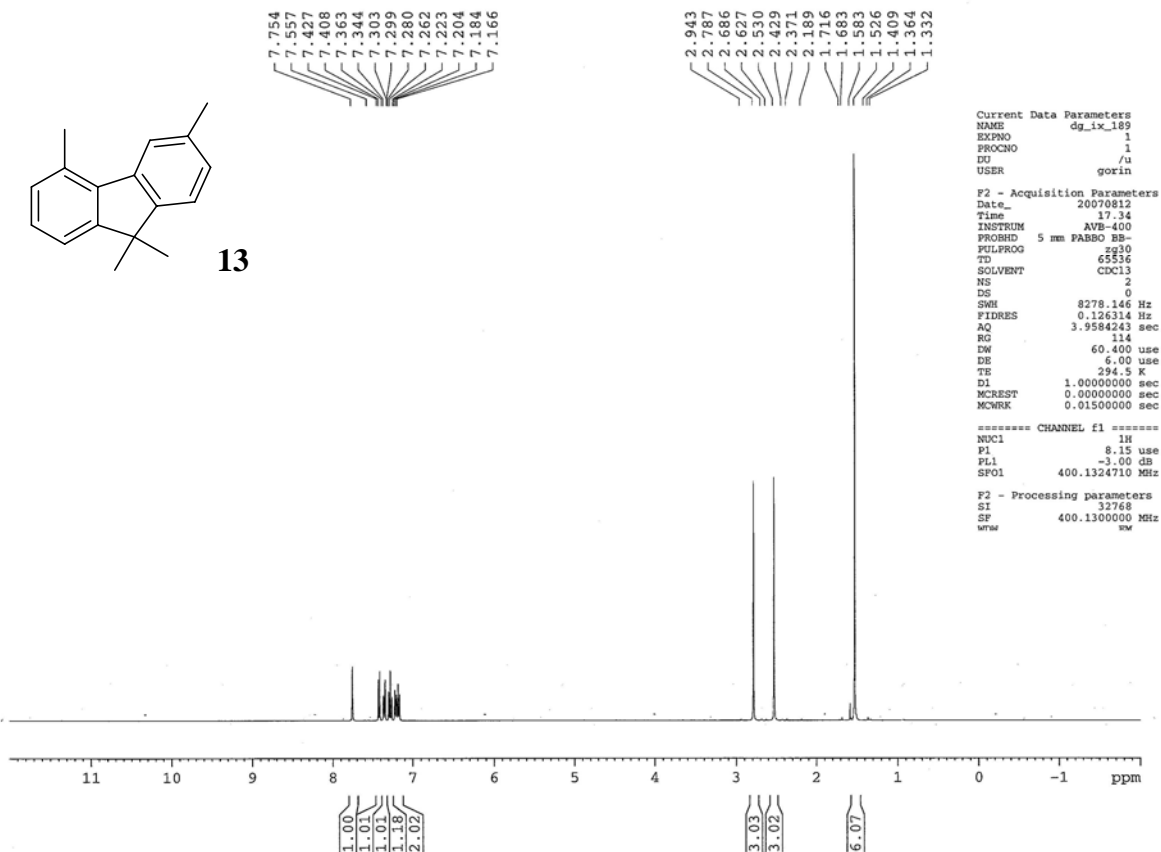
F2 - Processing parameters  
SI 131072  
SF 125.7577971 MHz  
WDW EM  
SSB 0  
LB 0.75 Hz  
GB 0  
PC 4.00



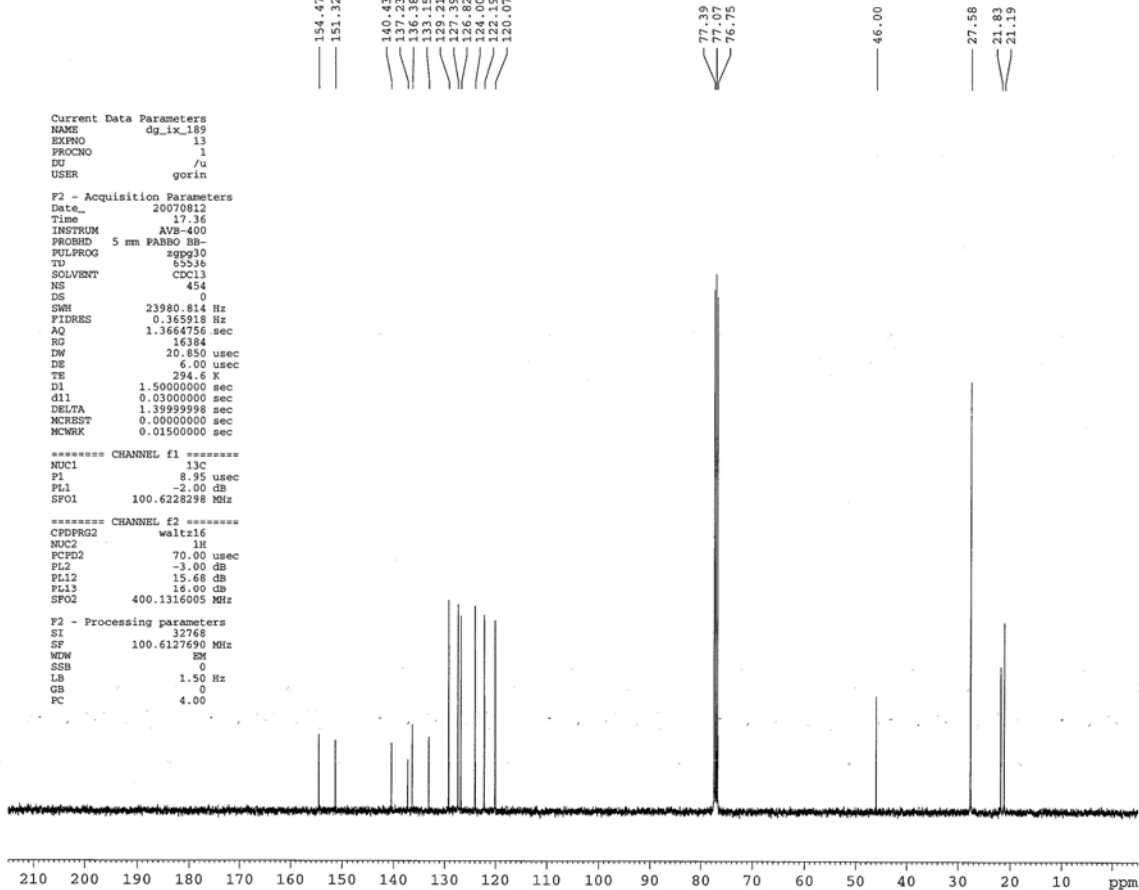


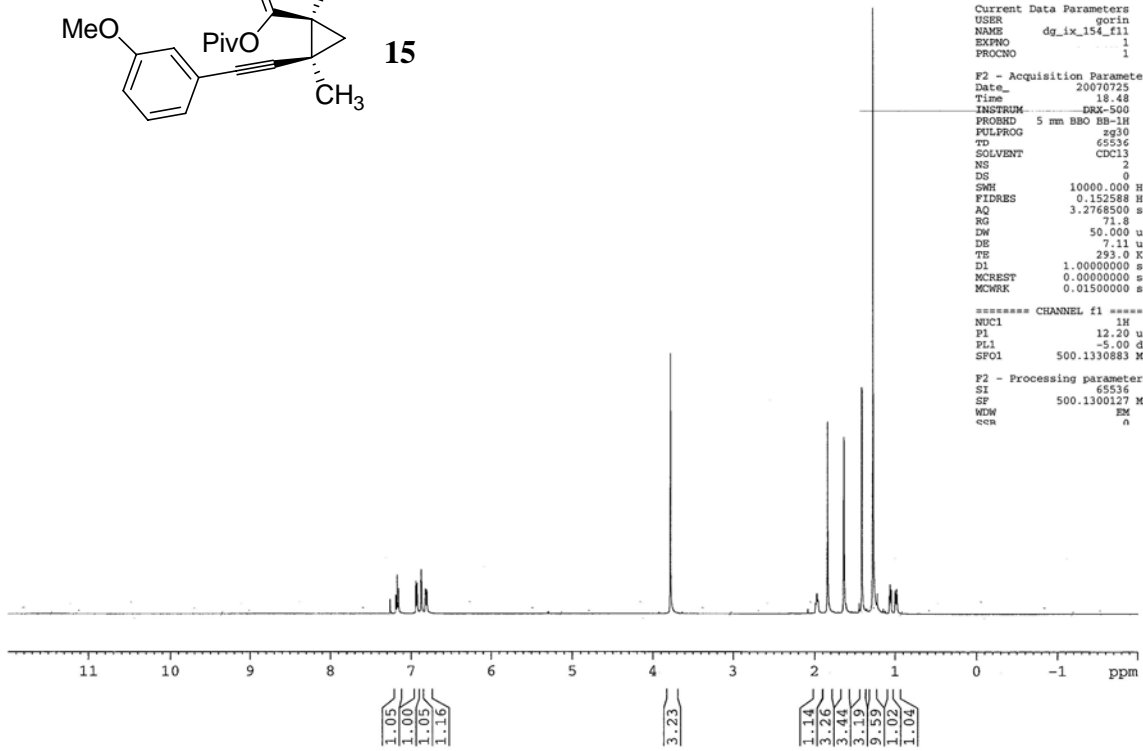
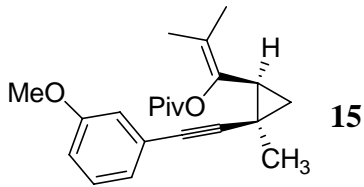


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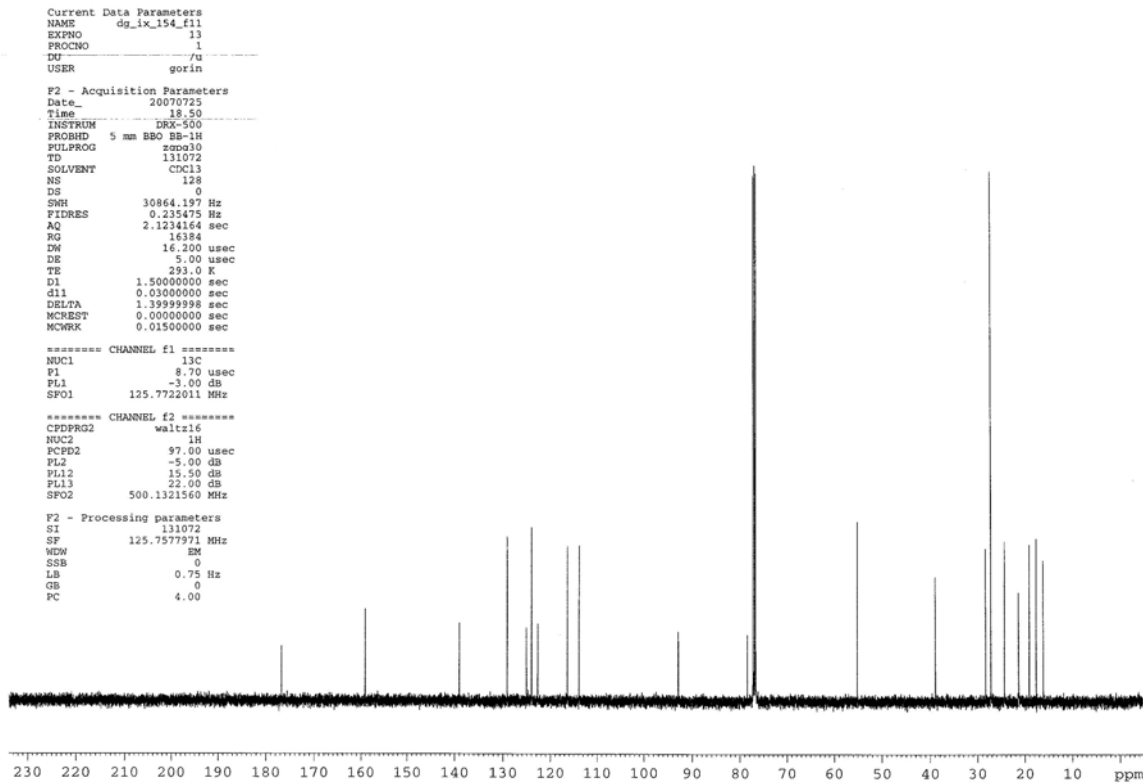


AVB-400 ZBO Carbon Starting parameters 6/11/03 RN



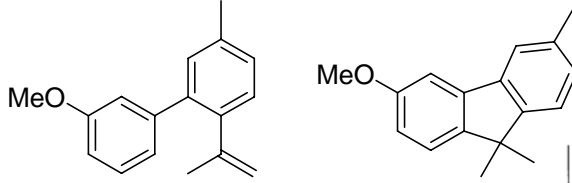


13C DRX-500 5mm ZBBO probe  
 starting parameters with zgpg30  
 uses ns\*td0  
 012504 HVH



1H starting parameters (zg30)  
DRX-500 zBBO probe  
080804 HvH

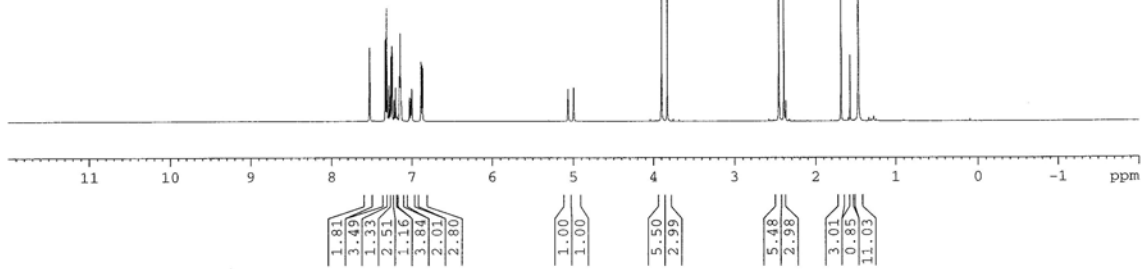
S43



16 and 17

Current Data Parameters  
NAME dg\_xi\_160\_f36  
EXPNO 1  
PROCNO 1  
DU /u  
USER gorin

F2 - Acquisition Parameters  
Date\_ 20070730  
Time 16.32  
INSTRUM DRX-500  
PROBHD 5 mm BBO BB-1H  
PULPROG zg30  
TD 65536  
SOLVENT CDCl3  
NS 2  
DS 0  
SWH 10000.000 Hz  
FIDRES 0.152588 Hz  
AQ 3.2768500 sec  
RG 161.3  
DW 50.000 usec  
DE 7.11 usec



13C DRX-500 5mm zBBO probe  
starting parameters with zgpg30 (waltz16)  
uses ns\*cd0  
012504 HvH

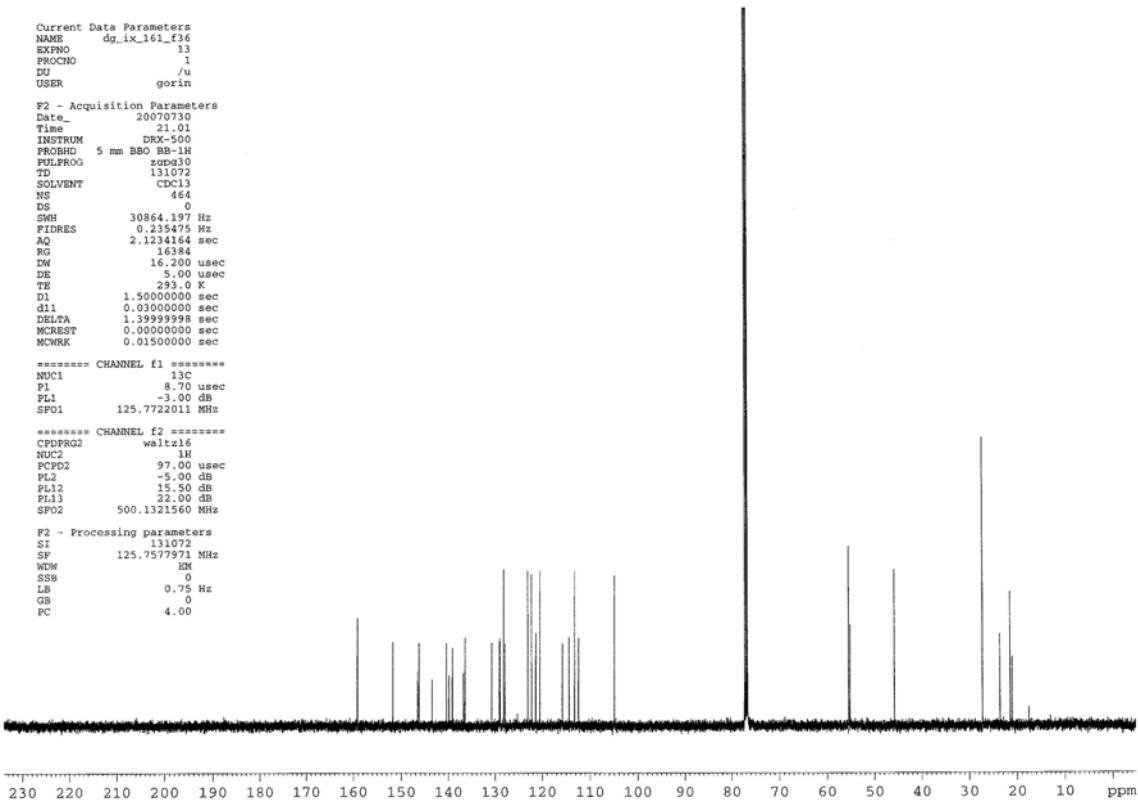
Current Data Parameters  
NAME dg\_ix\_161\_f36  
EXPNO 13  
PROCNO 1  
DU /u  
USER gorin

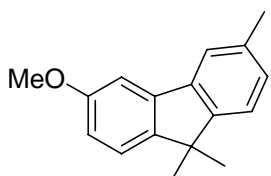
F2 - Acquisition Parameters  
Date\_ 20070730  
Time 21.01  
INSTRUM DRX-500  
PROBHD 5 mm BBO BB-1H  
PULPROG zgpg30  
TD 131072  
SOLVENT CDCl3  
NS 464  
DS 0  
SWH 30864.197 Hz  
FIDRES 0.235475 Hz  
AQ 2.1234164 sec  
RG 16384  
DW 16.200 usec  
DE 5.00 usec  
TE 293.0 K  
D1 1.50000000 sec  
d11 0.03000000 sec  
DELTA 1.39999998 sec  
MCREST 0.00000000 sec  
MCWRK 0.01500000 sec

\*\*\*\*\* CHANNEL f1 \*\*\*\*\*  
NUC1 13C  
P1 8.70 usec  
PL1 -3.00 dB  
SFO1 125.7722011 MHz

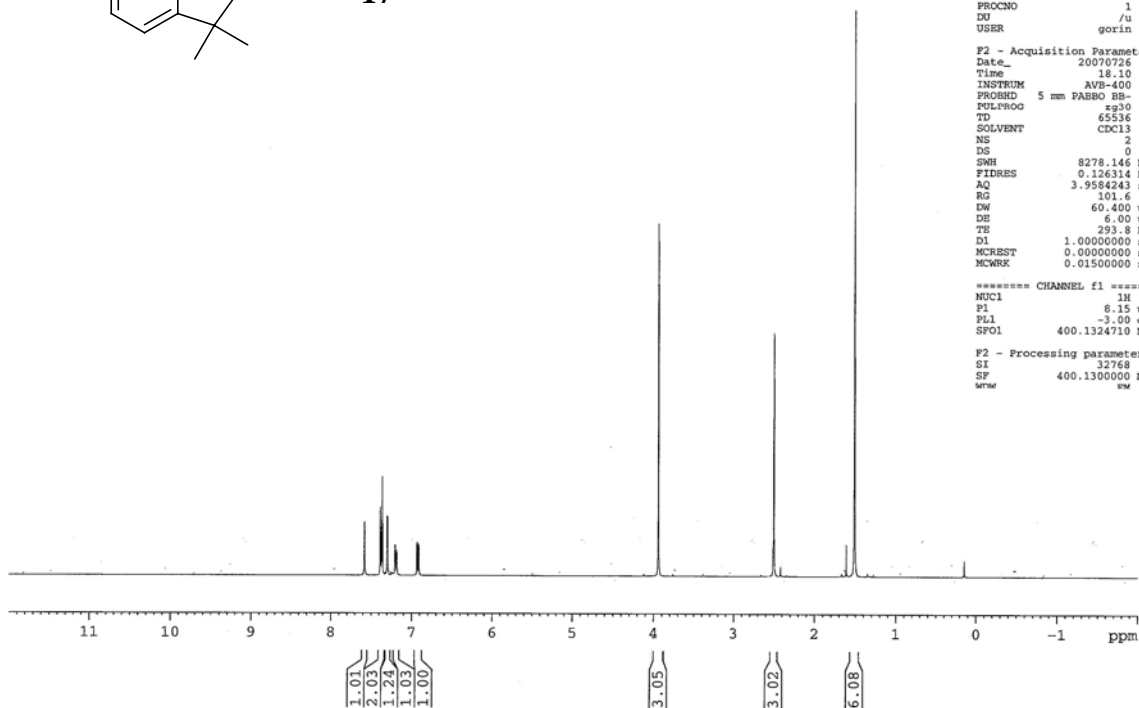
\*\*\*\*\* CHANNEL f2 \*\*\*\*\*  
CPDPRG2 waltz16  
NUC2 1H  
PCPD2 97.00 usec  
PL2 -5.00 dB  
PL12 15.50 dB  
PL13 22.00 dB  
SFO2 500.1321560 MHz

F2 - Processing parameters  
SI 131072  
SF 125.7577971 MHz  
NHW EM  
SSB 0  
LB 0.75 Hz  
GB 0  
PC 4.00





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```

Current Data Parameters
NAME      dg_ix_155
EXPNO     1
PROCNO    1
DU        /u
USER      gorin

F2 - Acquisition Parameters
Date_     20070726
Time      18.10
INSTRUM   AVB-400
PROBHD    5 mm PABBO BB-
PULPROG   zg30
TD        65536
SOLVENT   CDCl3
NS        2
DS        0
SWH       8278.146 Hz
FIDRES    0.126314 Hz
AQ        3.9584243 sec
RG        101.6
DM        60.400 use
DE        6.00 use
TE        293.8 K
D1        1.0000000 sec
MCREST    0.0000000 sec
MCWREK    0.0150000 sec

===== CHANNEL f1 =====
NUC1      1H
P1        8.15 use
PL1       -3.00 dB
SFO1      400.1324710 MHz

F2 - Processing parameters
SI        132768
SF        400.1300000 MHz
WDW
    
```

13C DRX-500 5mm ZBBO probe  
starting parameters with zgpg30 (waltz16)  
uses ns\*gd0  
012504 RVH

```

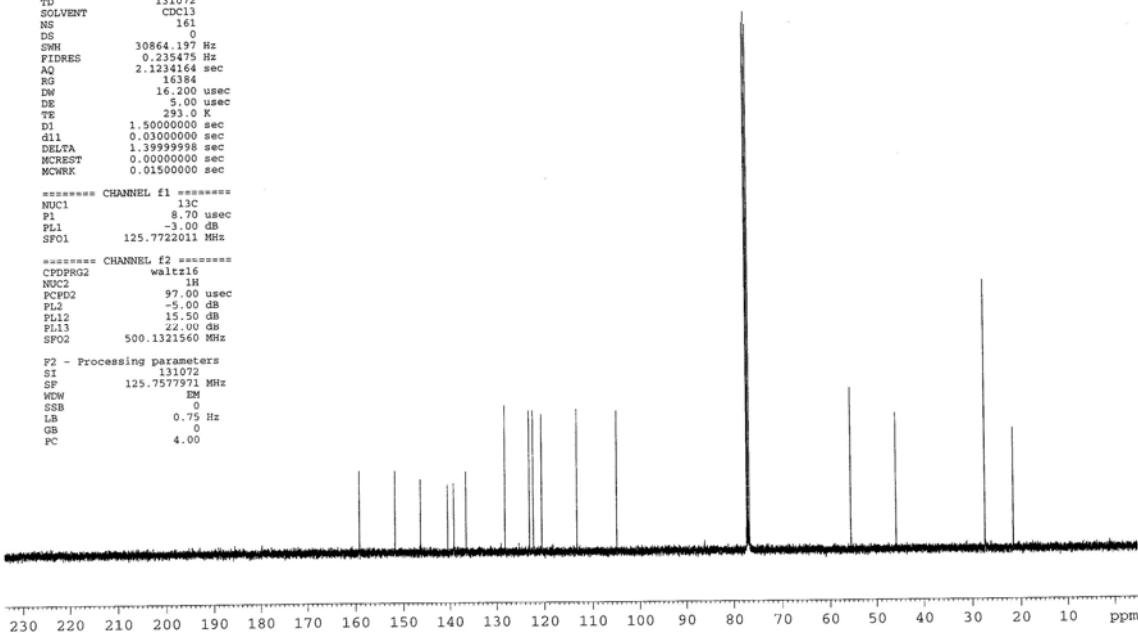
Current Data Parameters
NAME      dg_ix_155
EXPNO     13
PROCNO    1
DU        /u
USER      gorin

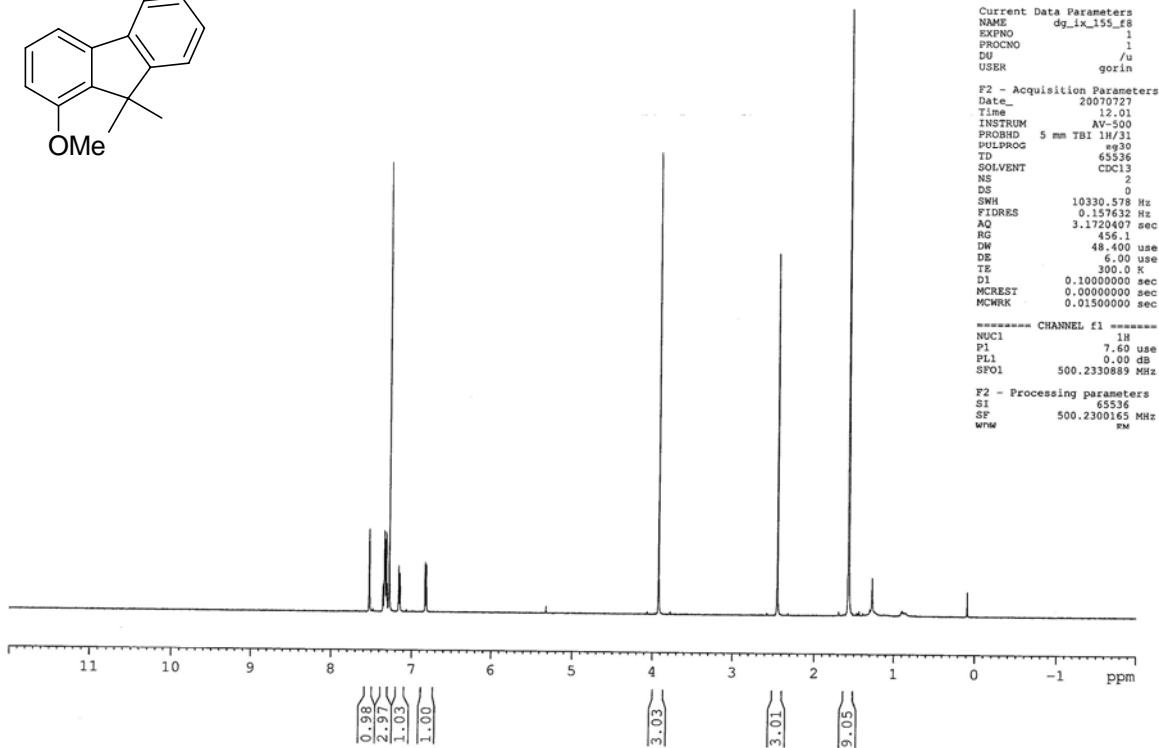
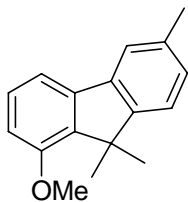
F2 - Acquisition Parameters
Date_     20070726
Time      20.13
INSTRUM   DRX-500
PROBHD    5 mm BBO BB-1H
PULPROG   zgpg30
TD        131072
SOLVENT   cnc13
NS        161
DS        0
SWH       30864.197 Hz
FIDRES    0.235475 Hz
AQ        2.1234164 sec
RG        18384
DM        16.200 usec
DE        5.00 usec
TE        293.0 K
D1        1.5000000 sec
d11       0.0300000 sec
DELTA     1.39999998 sec
MCREST    0.0000000 sec
MCWREK    0.0150000 sec

===== CHANNEL f1 =====
NUC1      13C
P1        8.70 usec
PL1       -3.00 dB
SFO1      125.7722011 MHz

===== CHANNEL f2 =====
CPDPRG2   waltz16
NUC2      1H
PCPD2     97.00 usec
PL2       -5.00 dB
PL12      15.50 dB
PL13      22.00 dB
SFO2      500.1321560 MHz

F2 - Processing parameters
SI        131072
SF        125.7577971 MHz
WDW       EM
SSB       0
LB        0.75 Hz
GB        0
PC        4.00
    
```





```

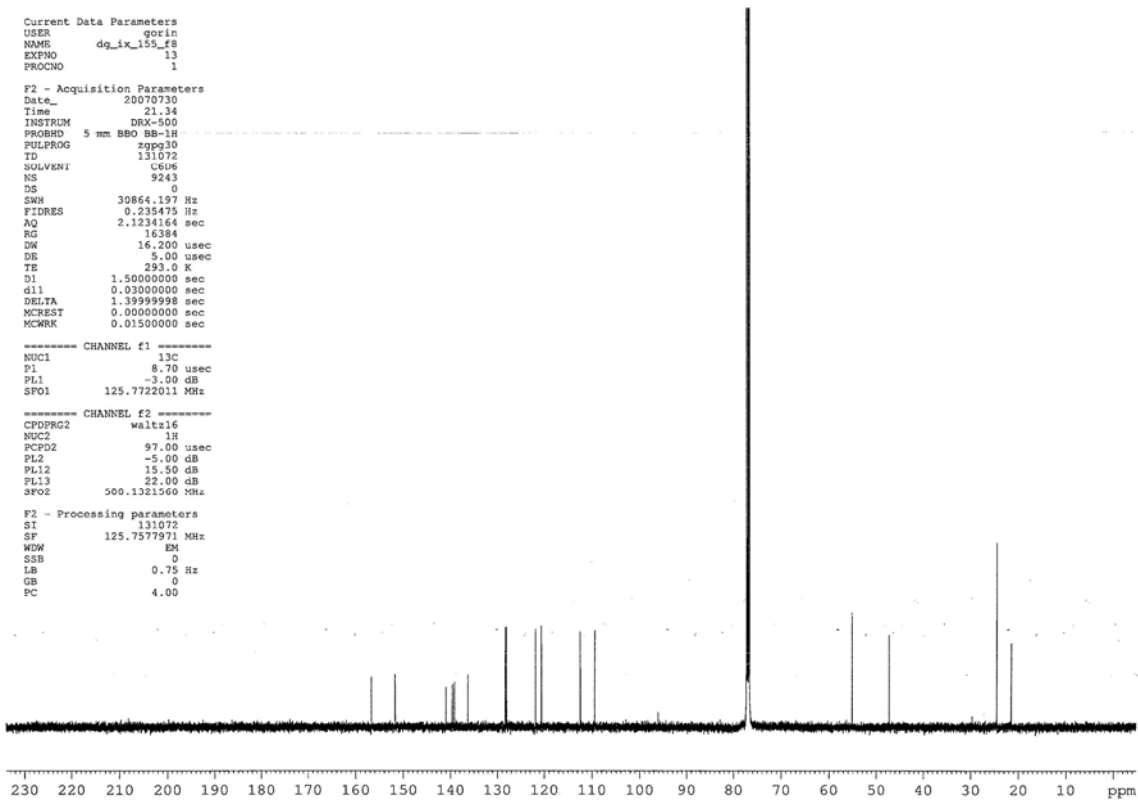
Current Data Parameters
NAME      dg_ix_155_f8
EXPNO    1
PROCNO   1
DG       /u
USER     gorin

F2 - Acquisition Parameters
Date_    20070727
Time     12.01
INSTRUM  AV-500
PROBHD   5 mm TBI 1H/31
PULPROG  zg30
TD       65536
SOLVENT  CDCl3
NS       2
DS       0
SWH      10330.578 Hz
FIDRES   0.157632 Hz
AQ       3.1720407 sec
RG       456.1
DM       48.400 usec
DE       6.00 usec
TE       300.0 K
D1       0.1000000 sec
MCREST   0.0000000 sec
MCWRK    0.01500000 sec

----- CHANNEL f1 -----
NUC1     1H
P1       7.60 usec
PL1      0.00 dB
SFO1     500.2330889 MHz

F2 - Processing parameters
SI       65536
SF       500.2300165 MHz
WDW      RM
    
```

13C DRX-500 5mm ZBBO probe  
 starting parameters with zgpg30 (waltz16)  
 uses ns\*td0  
 012504 HvM



```

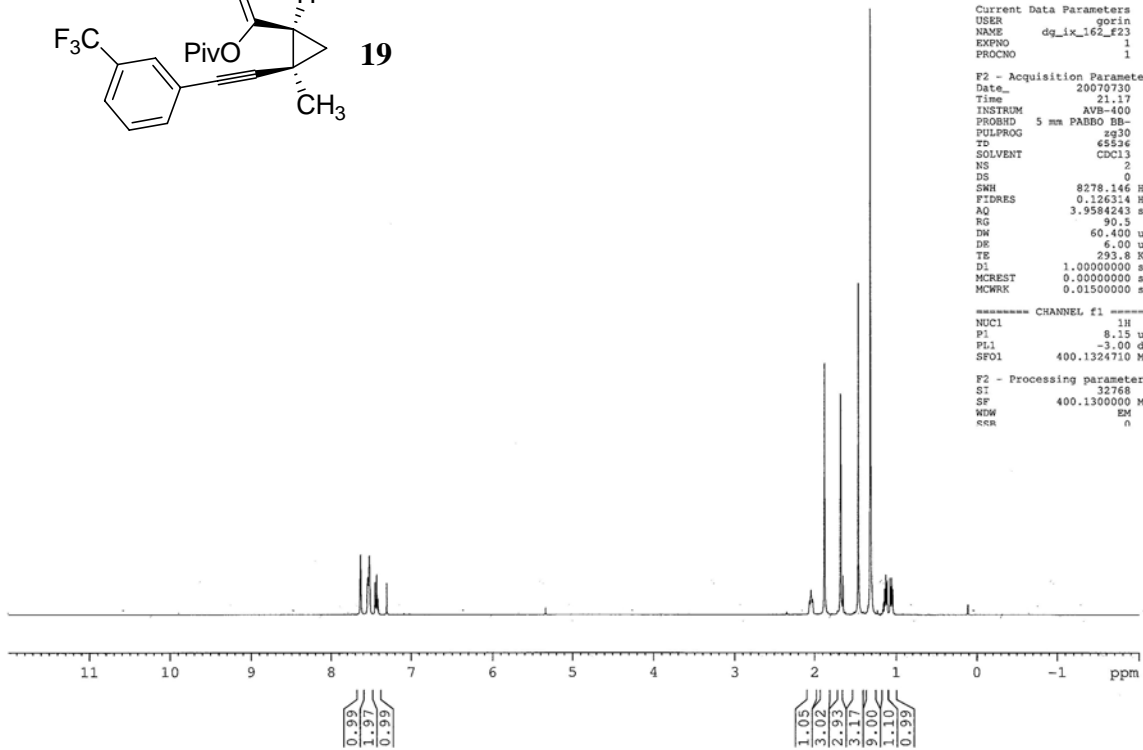
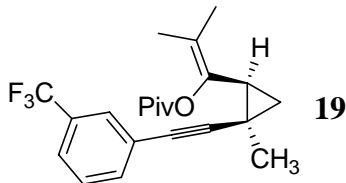
Current Data Parameters
USER     gorin
NAME     dg_ix_155_f8
EXPNO   13
PROCNO  1

F2 - Acquisition Parameters
Date_    20070730
Time     21.34
INSTRUM  DRX-500
PROBHD   5 mm BBO BB-2H
PULPROG  zgpg30
TD       131072
SOLVENT  CDCl3
NS       9243
DS       0
SWH      30864.197 Hz
FIDRES   0.235475 Hz
AQ       2.1234164 sec
RG       16384
DM       16.200 usec
DE       5.00 usec
TE       293.0 K
D1       1.5000000 sec
d11      0.0300000 sec
DELTA    1.3999999 sec
MCREST   0.0000000 sec
MCWRK    0.01500000 sec

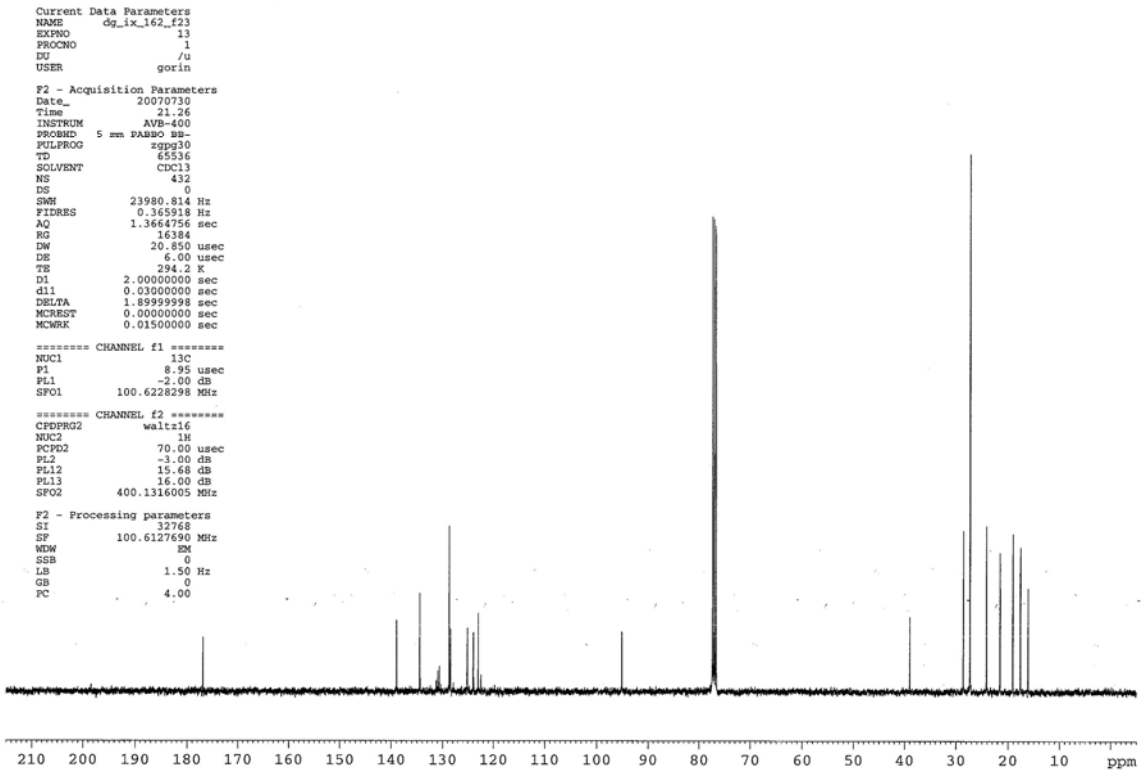
----- CHANNEL f1 -----
NUC1     13C
P1       8.70 usec
PL1      -3.00 dB
SFO1     125.7722011 MHz

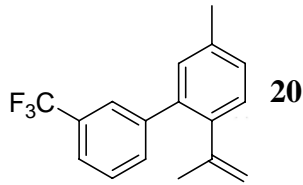
----- CHANNEL f2 -----
CPDPRG2  waltz16
NUC2     1H
PCPD2    97.00 usec
PL2      -5.00 dB
PL12     15.50 dB
PL13     22.00 dB
SFO2     500.1321560 MHz

F2 - Processing parameters
SI       131072
SF       125.7577971 MHz
WDW      EM
SSB      0
LB       0.75 Hz
GB       0
PC       4.00
    
```



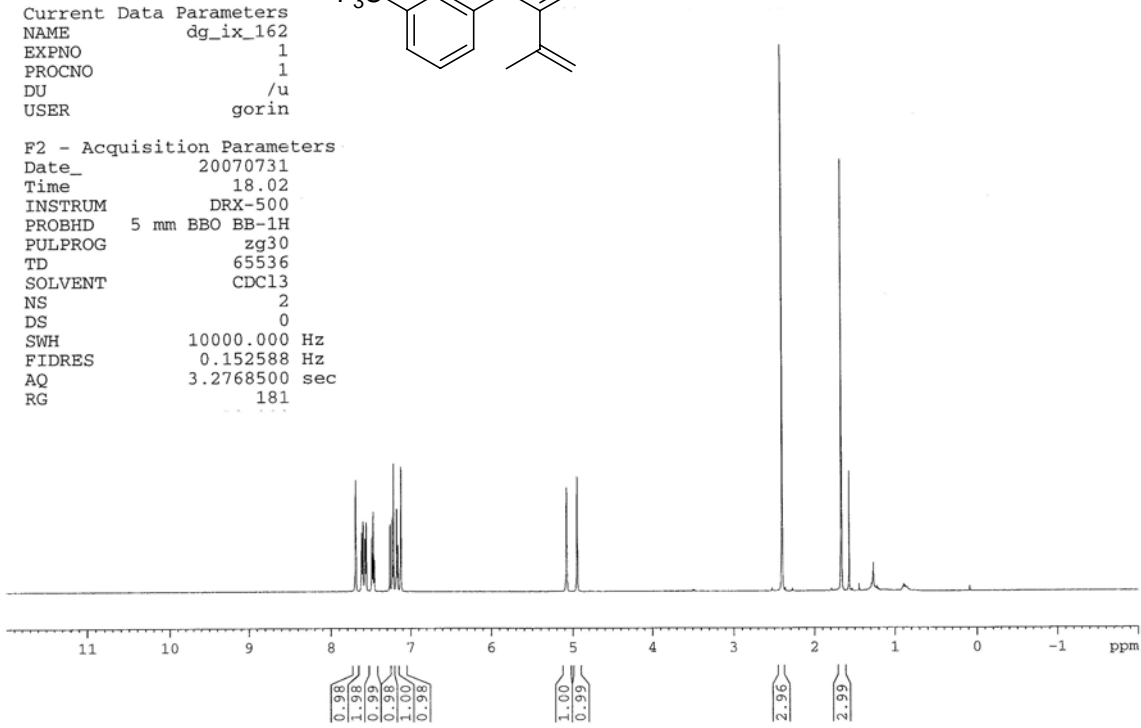
AVB-400 ZBO Carbon Starting parameters 6/11/03 RN





Current Data Parameters  
NAME dg\_ix\_162  
EXPNO 1  
PROCNO 1  
DU /u  
USER gorin

F2 - Acquisition Parameters  
Date\_ 20070731  
Time 18.02  
INSTRUM DRX-500  
PROBHD 5 mm BBO BB-1H  
PULPROG zg30  
TD 65536  
SOLVENT CDCl3  
NS 2  
DS 0  
SWH 10000.000 Hz  
FIDRES 0.152588 Hz  
AQ 3.2768500 sec  
RG 181



13C DRX-500 5mm ZBBO probe  
starting parameters with zgpg30 (waltz16)  
uses ns\*td0  
012504 HvH

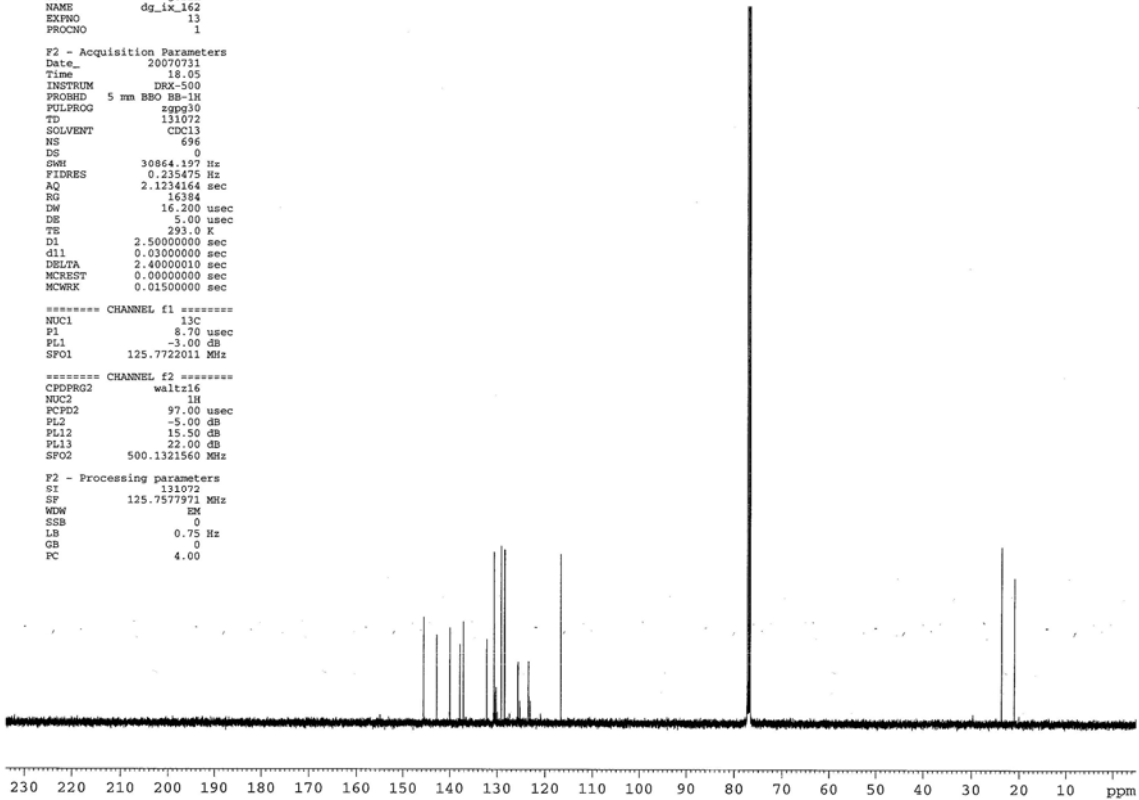
Current Data Parameters  
USER gorin  
NAME dg\_ix\_162  
EXPNO 13  
PROCNO 1

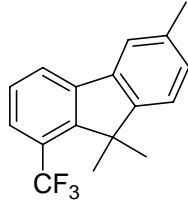
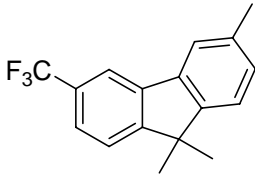
F2 - Acquisition Parameters  
Date\_ 20070731  
Time 18.05  
INSTRUM DRX-500  
PROBHD 5 mm BBO BB-1H  
PULPROG zgpg30  
TD 131072  
SOLVENT CDCl3  
NS 696  
DS 0  
SWH 30864.197 Hz  
FIDRES 0.235475 Hz  
AQ 2.1234164 sec  
RG 16384  
DW 16.200 usec  
DE 5.00 usec  
TE 293.0 K  
D1 2.5000000 sec  
d11 0.0300000 sec  
DELTA 2.4000010 sec  
MCRET 0.0000000 sec  
MCRK 0.0150000 sec

\*\*\*\*\* CHANNEL f1 \*\*\*\*\*  
NUC1 13C  
P1 8.70 usec  
PL1 -3.00 dB  
SFO1 125.772011 MHz

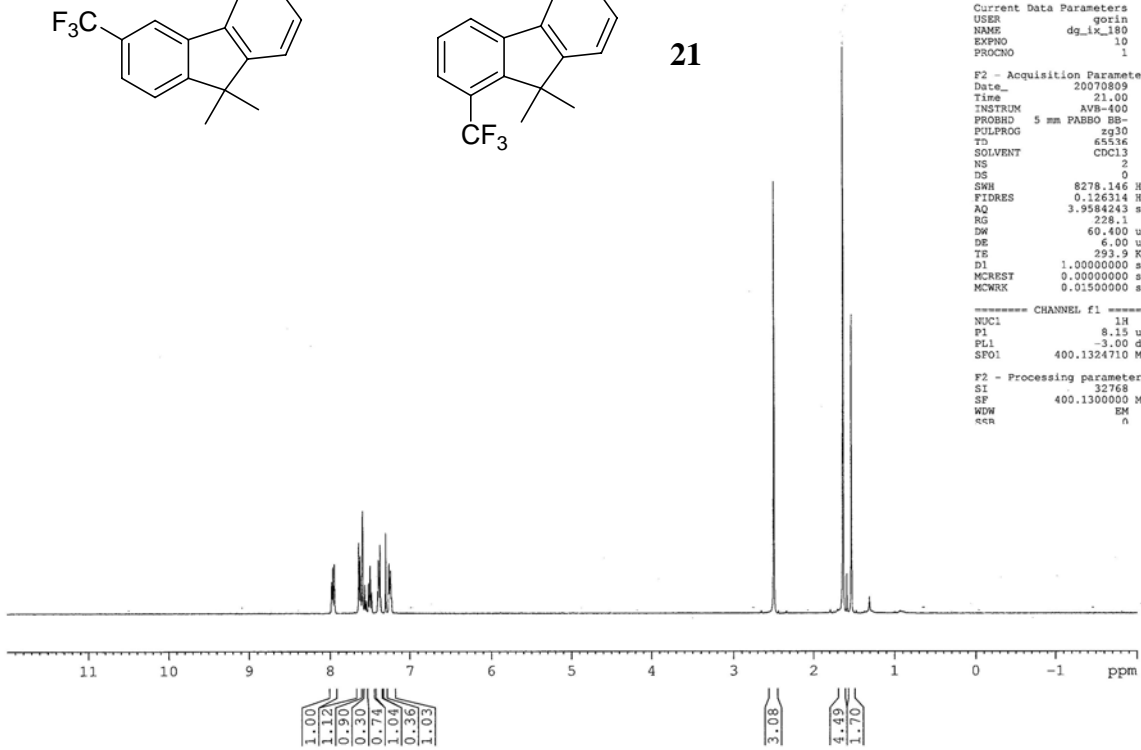
\*\*\*\*\* CHANNEL f2 \*\*\*\*\*  
CHOPRO2 waltz16  
NUC2 1H  
PCPD2 97.00 usec  
PL2 -5.00 dB  
PL12 15.50 dB  
PL13 22.00 dB  
SFO2 500.1321560 MHz

F2 - Processing parameters  
SI 131072  
SF 125.7577971 MHz  
WDW EM  
SSB 0  
LB 0.75 Hz  
GB 0  
PC 4.00





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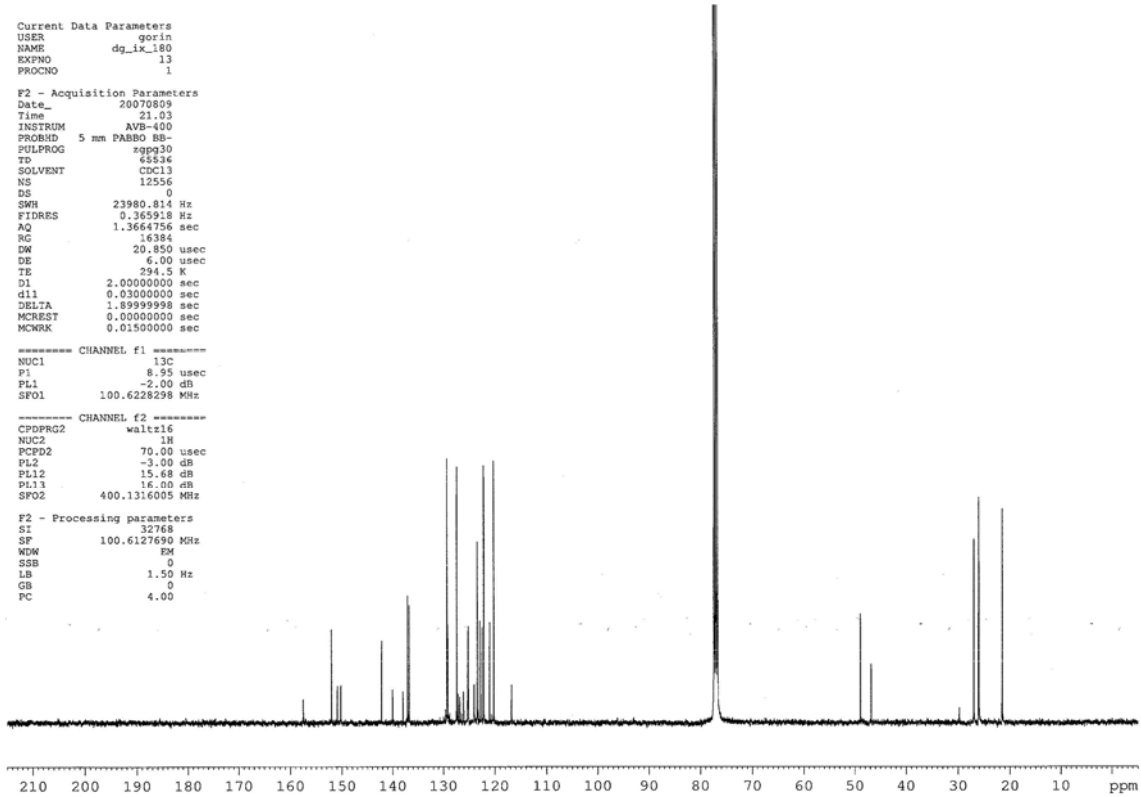
```

Current Data Parameters
USER      gorin
NAME      dg_ix_180
EXPNO     10
PROCNO    1

F2 - Acquisition Parameters
Date_     20070809
Time      21.00
INSTRUM   AVB-400
PROBHD    5 mm PABBO BB-
PULPROG   zg30
TD         65536
SOLVENT   CDCl3
NS         2
DS         0
SWH        8278.146 Hz
FIDRES     0.126314 Hz
AQ         3.9584243 sec
RG         228.1
DW         60.400 usec
DE         6.00 usec
TE         293.9 K
D1         1.00000000 sec
MCREST    0.00000000 sec
MCWRK     0.01500000 sec

----- CHANNEL f1 -----
NUC1       1H
P1         8.15 usec
PL1        -3.00 dB
SFO1       400.1324710 MHz

F2 - Processing parameters
SI         32768
SF         400.1300000 MHz
WDW        EM
GB         0
PC         4.00
    
```



```

Current Data Parameters
USER      gorin
NAME      dg_ix_180
EXPNO     13
PROCNO    1

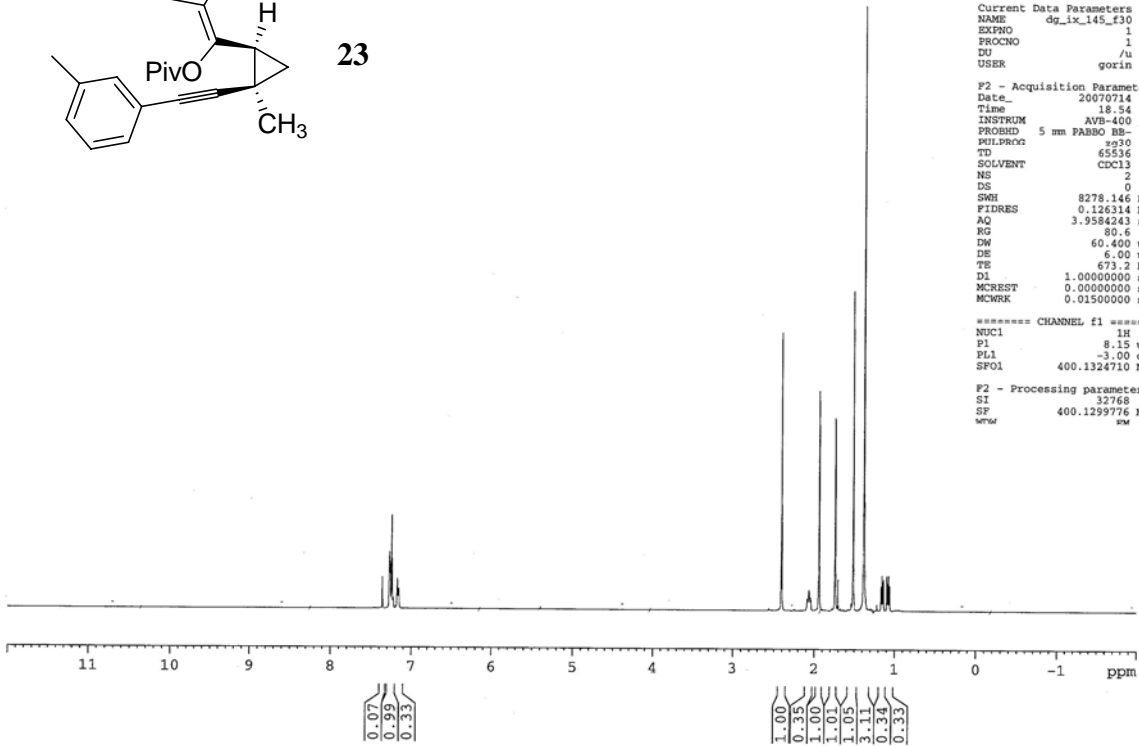
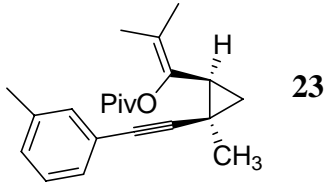
F2 - Acquisition Parameters
Date_     20070809
Time      21.03
INSTRUM   AVB-400
PROBHD    5 mm PABBO BB-
PULPROG   zgpg30
TD         65536
SOLVENT   CDCl3
NS         12556
DS         0
SWH        23980.814 Hz
FIDRES     0.365918 Hz
AQ         1.3664756 sec
RG         16384
DW         20.850 usec
DE         6.00 usec
TE         294.3 K
D1         2.00000000 sec
d11        0.03000000 sec
DELTA      1.89999998 sec
MCREST    0.00000000 sec
MCWRK     0.01500000 sec

----- CHANNEL f1 -----
NUC1       13C
P1         8.95 usec
PL1        -2.00 dB
SFO1       100.6228298 MHz

----- CHANNEL f2 -----
CPDPRG2   waltz16
NUC2       1H
PCPD2     70.00 usec
PL2        -3.00 dB
PL12       15.68 dB
PL13       16.00 dB
SFO2       400.1316005 MHz

F2 - Processing parameters
SI         32768
SF         100.6127690 MHz
WDW        EM
SSB        0
LB         1.50 Hz
GB         0
PC         4.00
    
```





```
Current Data Parameters
NAME dg_ix_145_f30
EXPNO 1
PROCNO 1
DU /u
USER gorin

F2 - Acquisition Parameters
Date_ 20070714
Time 18.54
INSTRUM AVB-400
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 2
DS 0
SWH 8278.146 Hz
FIDRES 0.126314 Hz
AQ 3.9584243 sec
RG 80.6
DW 60.400 usec
DE 6.00 usec
TE 673.2 K
D1 1.0000000 sec
MCREST 0.0000000 sec
MCWRK 0.0150000 sec

***** CHANNEL f1 *****
NUC1 1H
P1 8.15 usec
PL1 -3.00 dB
SFO1 400.1324710 MHz

F2 - Processing parameters
SI 32768
SF 400.1299776 MHz
WDW EM
```

13C DRX-500 5mm ZBBO probe  
starting parameters with zgpg30  
uses nrt40  
012504 HvH

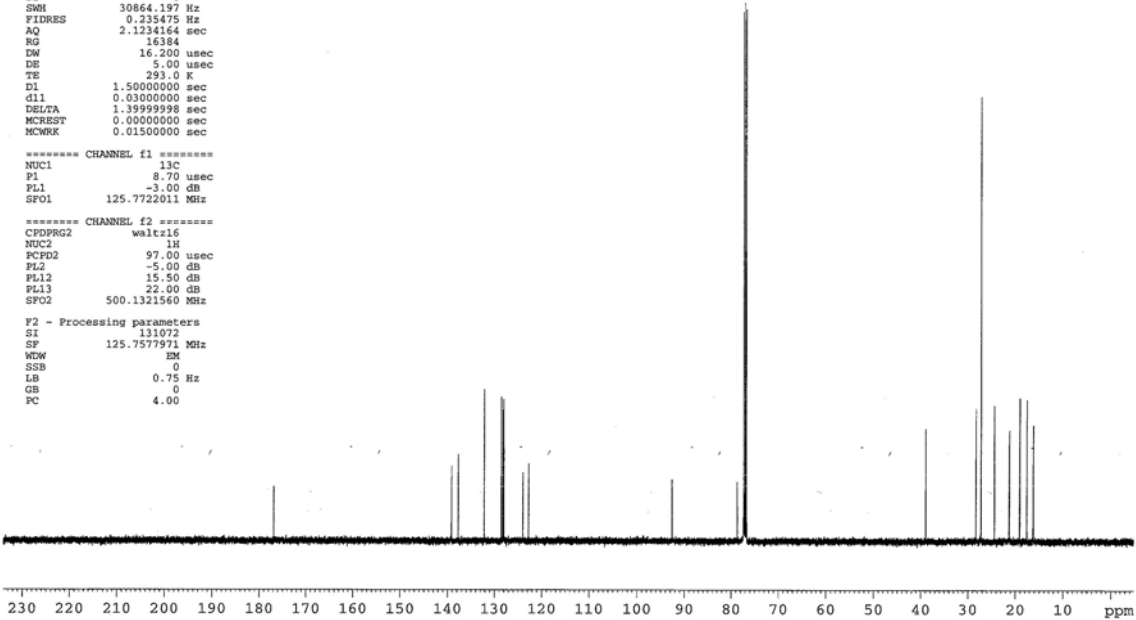
```
Current Data Parameters
USER gorin
NAME dg_ix_145_f30
EXPNO 13
PROCNO 1

F2 - Acquisition Parameters
Date_ 20070716
Time 15.08
INSTRUM DRX-500
PROBHD 5 mm BBO BB-1H
PULPROG zgpg30
TD 131072
SOLVENT CDCl3
NS 350
DS 0
SWH 30864.197 Hz
FIDRES 0.235475 Hz
AQ 2.1234164 sec
RG 16384
DW 16.200 usec
DE 5.00 usec
TE 293.0 K
D1 1.5000000 sec
d11 0.0300000 sec
DELTA 1.3999998 sec
MCREST 0.0000000 sec
MCWRK 0.0150000 sec

***** CHANNEL f1 *****
NUC1 13C
P1 8.70 usec
PL1 -3.00 dB
SFO1 125.7722011 MHz

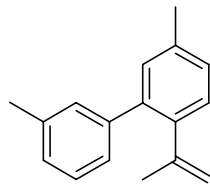
***** CHANNEL f2 *****
CPDPRG2 waltz16
NUC2 1H
PCPD2 97.00 usec
PL2 -5.00 dB
PL12 15.50 dB
PL13 22.00 dB
SFO2 500.1321560 MHz

F2 - Processing parameters
SI 131072
SF 125.7577971 MHz
WDW EM
SSB 0
LB 0.75 Hz
GB 0
PC 4.00
```



1H starting parameters (zg30)  
DRX-500 zBBO probe  
080804 HvH

S50

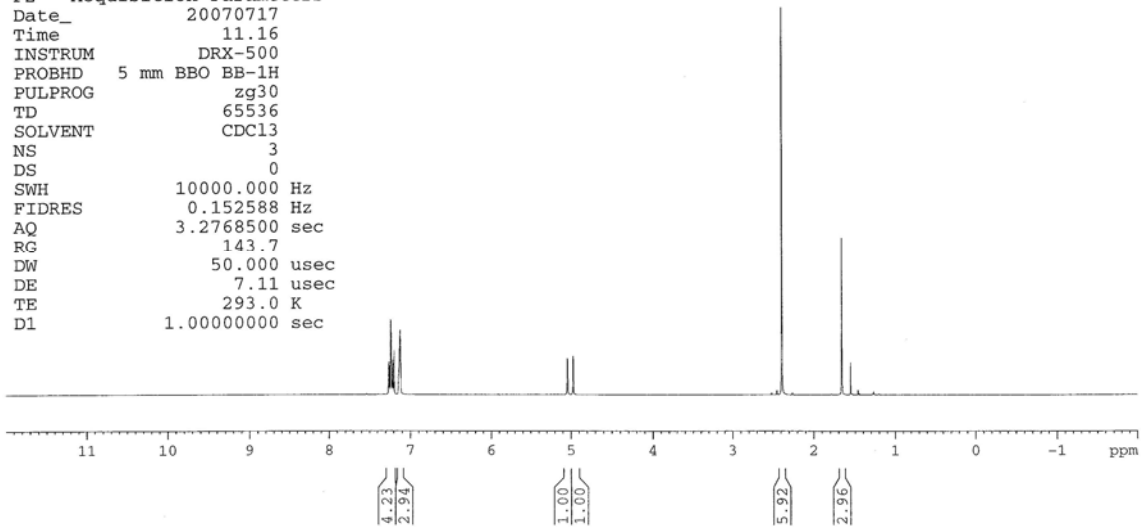


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Current Data Parameters  
NAME dg\_ix\_149\_f9  
EXPNO 1  
PROCNO 1  
DU /u  
USER gorin

F2 - Acquisition Parameters

Date\_ 20070717  
Time 11.16  
INSTRUM DRX-500  
PROBHD 5 mm BBO BB-1H  
PULPROG zg30  
TD 65536  
SOLVENT CDCl3  
NS 3  
DS 0  
SWH 10000.000 Hz  
FIDRES 0.152588 Hz  
AQ 3.2768500 sec  
RG 143.7  
DW 50.000 usec  
DE 7.11 usec  
TE 293.0 K  
D1 1.00000000 sec



13C DRX-500 5mm ZBBO probe  
starting parameters with zgpg30 (waltz16)  
uses ns\*td0  
012504 HvH

Current Data Parameters  
NAME dg\_ix\_149\_f9  
EXPNO 13  
PROCNO 1  
DU /u  
USER gorin

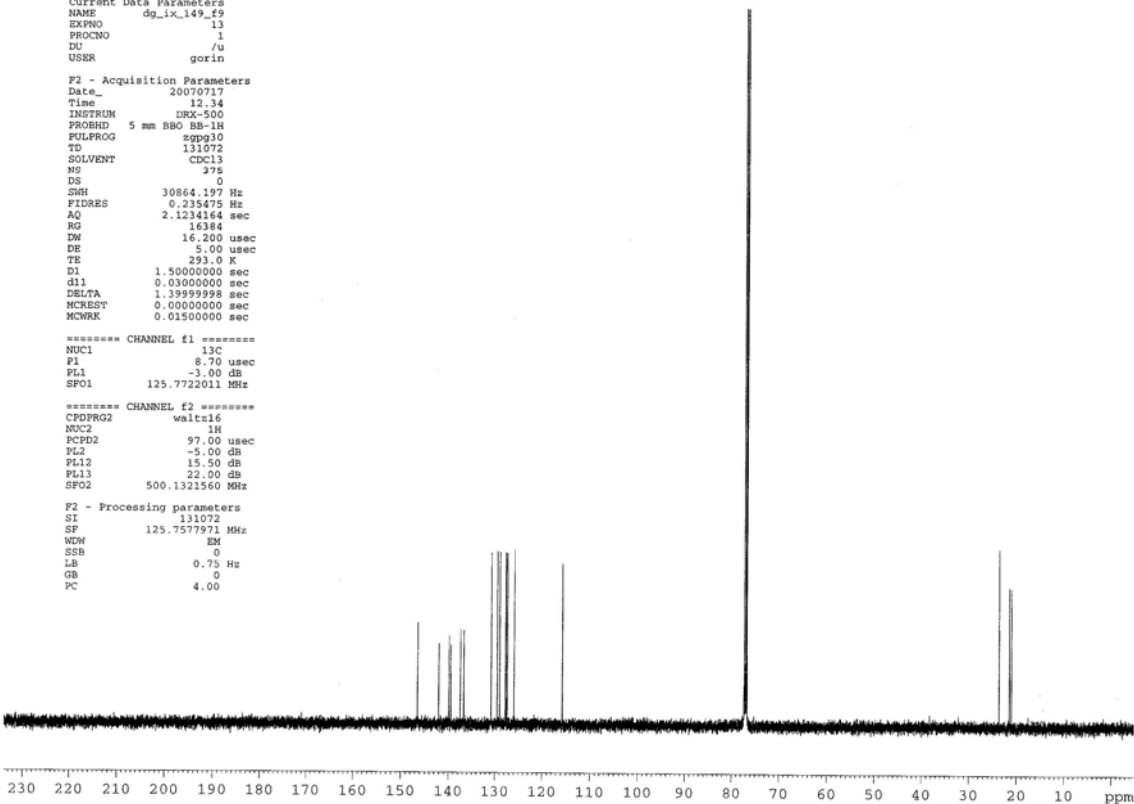
F2 - Acquisition Parameters

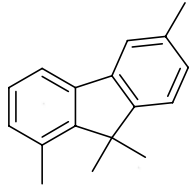
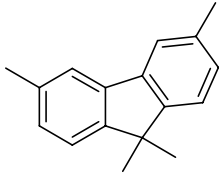
Date\_ 20070717  
Time 12.34  
INSTRUM DRX-500  
PROBHD 5 mm BBO BB-1H  
PULPROG zgpg30  
TD 131072  
SOLVENT CDCl3  
NS 295  
DS 0  
SWH 30864.197 Hz  
FIDRES 0.235475 Hz  
AQ 2.1234164 sec  
RG 16384  
DW 16.200 usec  
DE 5.00 usec  
TE 293.0 K  
D1 1.50000000 sec  
d11 0.03000000 sec  
DELTA 1.39999998 sec  
MCREST 0.00000000 sec  
MCWAK 0.01500000 sec

\*\*\*\*\* CHANNEL f1 \*\*\*\*\*  
NUC1 13C  
P1 8.70 usec  
PL1 -3.00 dB  
SFO1 125.7722011 MHz

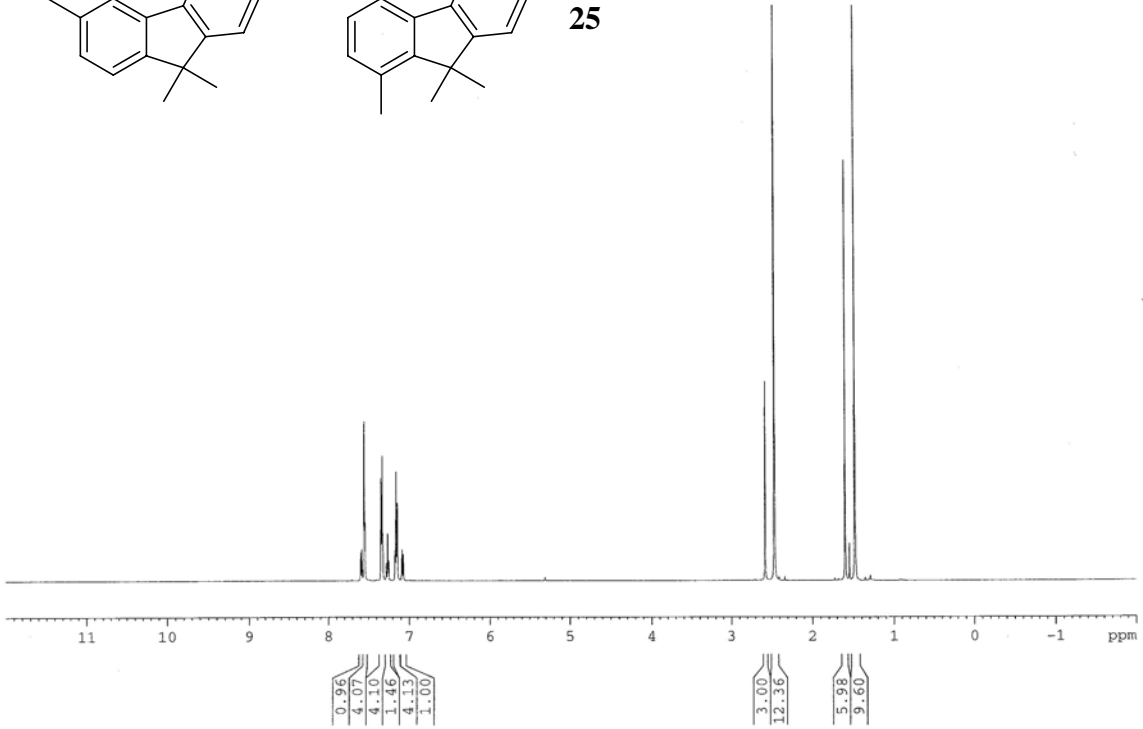
\*\*\*\*\* CHANNEL f2 \*\*\*\*\*  
CPDPRG2 waltz16  
NUC2 1H  
PCPD2 97.00 usec  
PL2 -5.00 dB  
PL12 15.50 dB  
PL13 22.00 dB  
SFO2 500.1321560 MHz

F2 - Processing parameters  
SI 131072  
SF 125.7577971 MHz  
WDW EM  
SSB 0  
LB 0.75 Hz  
GB 0  
PC 4.00





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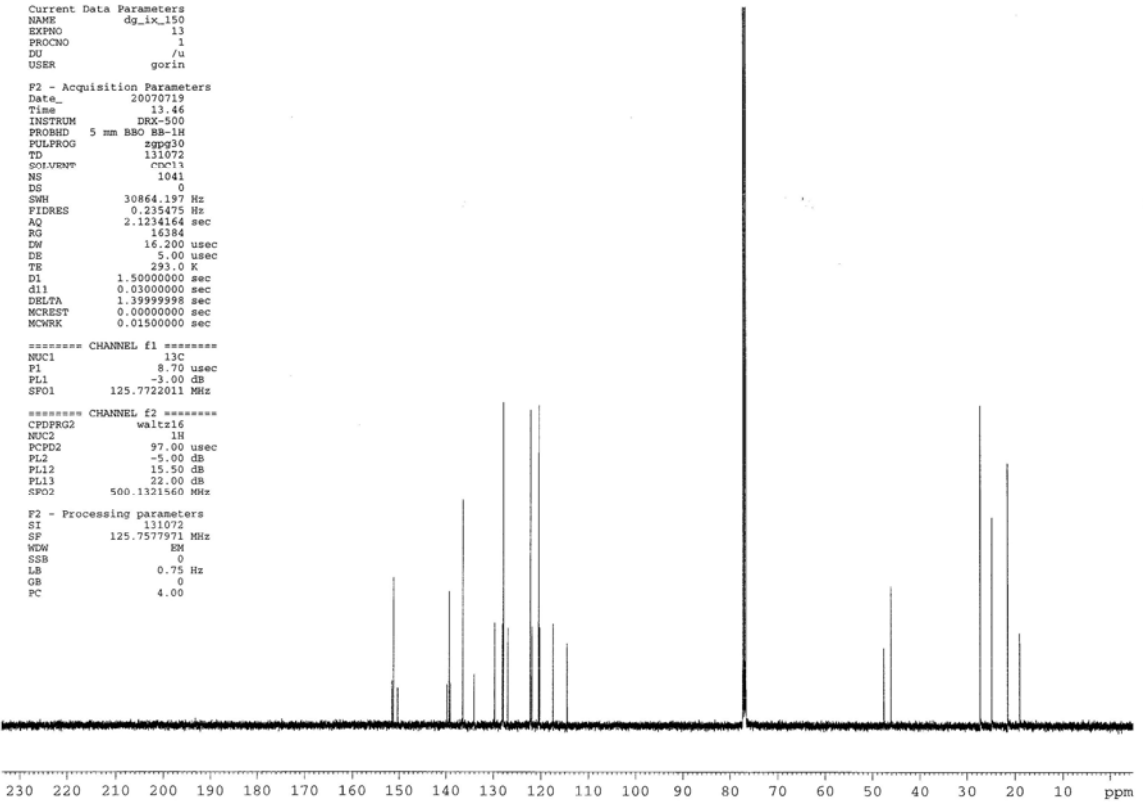
13C DRX-500 5mm ZBBO probe  
starting parameters with zgpg30 (waltz16)  
uses nutz40  
012504 HvH

Current Data Parameters  
NAME dg\_ix\_150  
EXPNO 13  
PROCNO 1  
DJ /u  
USER gorin  
F2 - Acquisition Parameters  
Date\_ 20070719  
Time 13.46  
INSTRUM DRX-500  
PROBHD 5 mm BBO BB-1H  
PULPROG zgpg30  
TD 131072  
SOLVENT cnc1  
NS 1041  
DS 0  
SWH 30864.197 Hz  
FIDRES 0.235475 Hz  
AQ 2.1234164 sec  
RG 16384  
DW 16.200 usec  
DE 5.00 usec  
TE 293.0 K  
D1 1.5000000 sec  
d11 0.0300000 sec  
DELTA 1.39999998 sec  
MCKEST 0.0000000 sec  
MCMRK 0.01500000 sec

\*\*\*\*\* CHANNEL f1 \*\*\*\*\*  
NUC1 13C  
P1 8.70 usec  
PL1 -3.00 dB  
SFO1 125.7722011 MHz

\*\*\*\*\* CHANNEL f2 \*\*\*\*\*  
CPDPRG2 waltz16  
NUC2 1H  
PCPD2 97.00 usec  
PL2 -5.00 dB  
PL12 15.50 dB  
PL13 22.00 dB  
SFO2 500.1321560 MHz

F2 - Processing parameters  
SI 131072  
SF 125.7577971 MHz  
WDW EM  
SSB 0  
LB 0.75 Hz  
GB 0  
PC 4.00



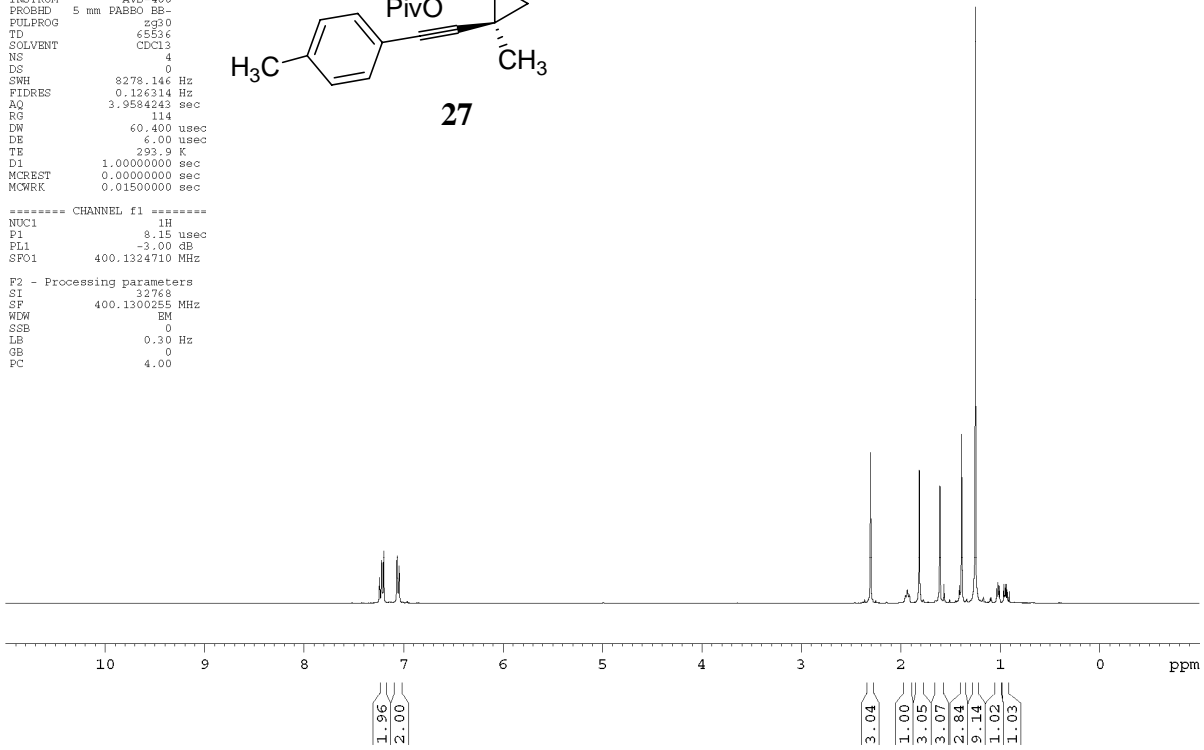
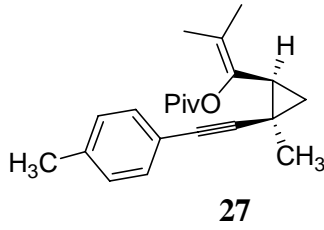
```

Current Data Parameters
NAME      IW13044F11-17_H
EXPNO    1
PROCNO   1
DU       /u
USER     iain

F2 - Acquisition Parameters
Date_    20070817
Time     14.34
INSTRUM  AVB-400
PROBHD   5 mm PABBO BB-
PULPROG  zg30
TD       65536
SOLVENT  CDCl3
NS       4
DS       0
SWH      8278.146 Hz
FIDRES   0.126314 Hz
AQ       3.9584243 sec
RG       114
DW       60.400 usec
DE       6.00 usec
TE       293.9 K
D1       1.0000000 sec
MCREST   0.0000000 sec
MCWRK    0.0150000 sec

***** CHANNEL f1 *****
NUC1     1H
P1       8.15 usec
PL1      -3.00 dB
SFO1     400.1324710 MHz

F2 - Processing parameters
SI       32768
SF       400.1300258 MHz
WDW      EM
SSB      0
LB       0.30 Hz
GB       0
PC       4.00
    
```



AVB-400 ZBO Carbon Starting parameters 6/11/03 RN

```

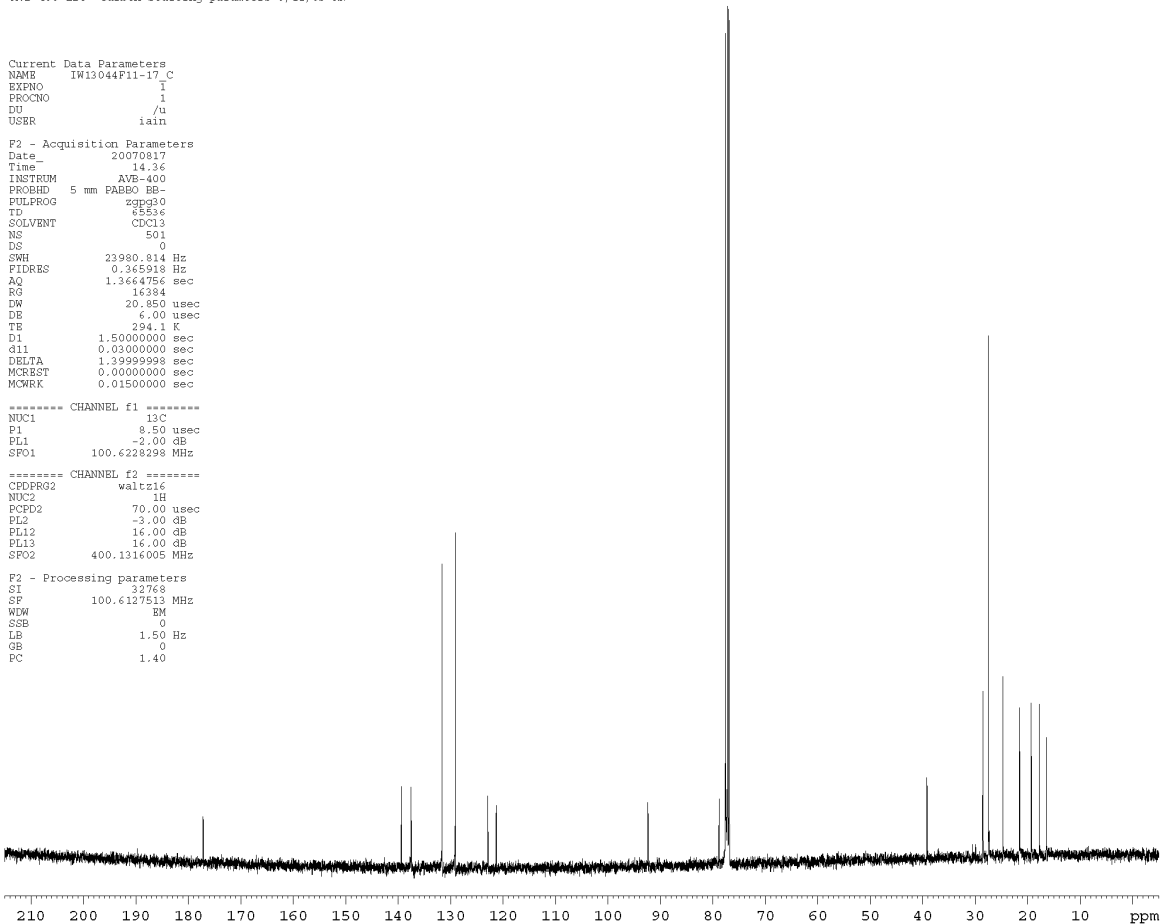
Current Data Parameters
NAME      IW13044F11-17_C
EXPNO    1
PROCNO   1
DU       /u
USER     iain

F2 - Acquisition Parameters
Date_    20070817
Time     14.34
INSTRUM  AVB-400
PROBHD   5 mm PABBO BB-
PULPROG  zgpg30
TD       65536
SOLVENT  CDCl3
NS       501
DS       0
SWH      23980.814 Hz
FIDRES   0.365918 Hz
AQ       1.3644756 sec
RG       16384
DW       20.850 usec
DE       6.00 usec
TE       294.1 K
D1       1.5000000 sec
d11      0.0300000 sec
DELTA    1.3999999 sec
MCREST   0.0000000 sec
MCWRK    0.0150000 sec

***** CHANNEL f1 *****
NUC1     13C
P1       8.50 usec
PL1      -2.00 dB
SFO1     100.6228298 MHz

***** CHANNEL f2 *****
CPDPRG2  waltz16
NUC2     1H
PCPD2    70.00 usec
PL2      -3.00 dB
PL12     16.00 dB
PL13     16.00 dB
SFO2     400.1316005 MHz

F2 - Processing parameters
SI       32768
SF       100.6127513 MHz
WDW      EM
SSB      0
LB       1.50 Hz
GB       0
PC       1.40
    
```



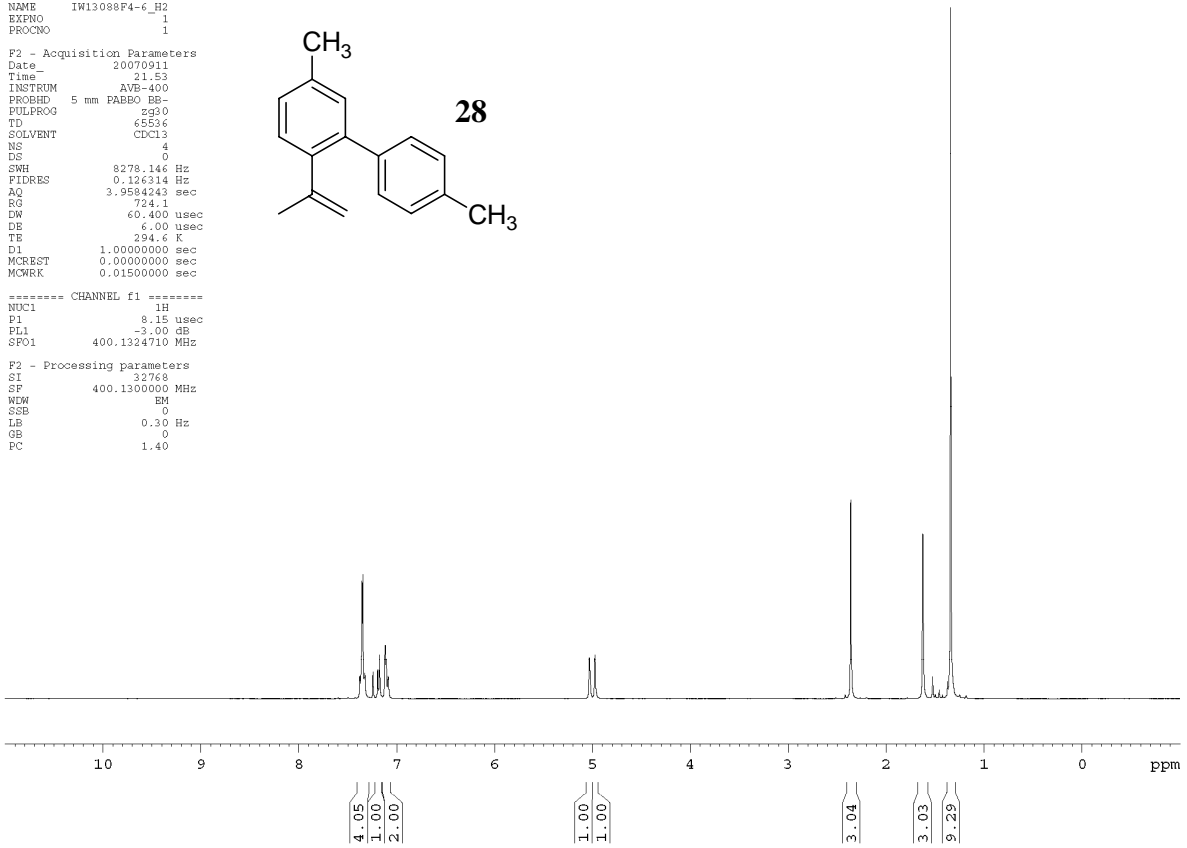
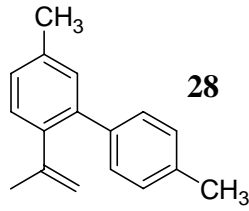
```

Current Data Parameters
USER      ialn
NAME      IW13088F4-6_H2
EXPNO     1
PROCNO    1

F2 - Acquisition Parameters
Date_     20070911
Time      21.53
INSTRUM   AVB-400
PROBHD    5 mm PABBO BB-
PULPROG   zg30
TD         65536
SOLVENT   CDCl3
NS         4
DS         0
SWH        8278.146 Hz
FIDRES     0.126314 Hz
AQ         3.9584243 sec
RG         724.1
DW         60.400 usec
DE         6.00 usec
TE         294.6 K
D1         1.0000000 sec
MCREST    0.0000000 sec
MCWRK     0.0150000 sec

***** CHANNEL f1 *****
NUC1      1H
P1         8.15 usec
PL1        -3.00 dB
SFO1      400.1324710 MHz

F2 - Processing parameters
SI         32768
SF         400.1300000 MHz
WDW        EM
SSB        0
LB         0.30 Hz
GB         0
PC         1.40
    
```



AVB-400 ZBO Carbon Starting parameters 6/11/03 RN

```

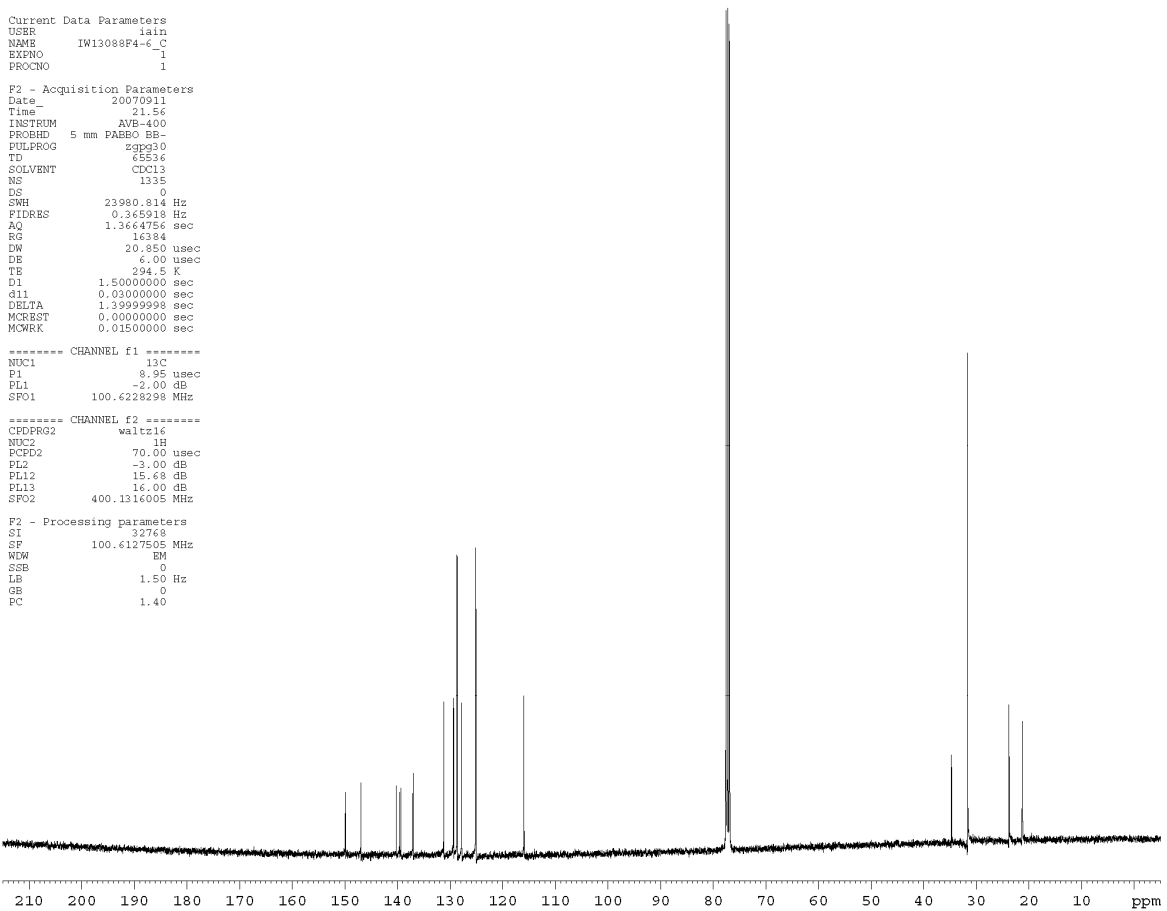
Current Data Parameters
USER      ialn
NAME      IW13088F4-6_C
EXPNO     1
PROCNO    1

F2 - Acquisition Parameters
Date_     20070911
Time      21.54
INSTRUM   AVB-400
PROBHD    5 mm PABBO BB-
PULPROG   zgpg30
TD         65536
SOLVENT   CDCl3
NS         1335
DS         0
SWH        23980.814 Hz
FIDRES     0.365918 Hz
AQ         1.3664756 sec
RG         16384
DW         20.850 usec
DE         6.00 usec
TE         294.5 K
D1         1.5000000 sec
d11        0.0300000 sec
DELTA     1.39999999 sec
MCREST    0.0000000 sec
MCWRK     0.0150000 sec

***** CHANNEL f1 *****
NUC1      13C
P1         8.95 usec
PL1        -2.00 dB
SFO1      100.6228238 MHz

***** CHANNEL f2 *****
CPDPRG2   waltz16
NUC2      1H
PCPD2     70.00 usec
PL2        -3.00 dB
PL12       15.68 dB
PL13       16.00 dB
SFO2      400.1316005 MHz

F2 - Processing parameters
SI         32768
SF         100.6127505 MHz
WDW        EM
SSB        0
LB         1.50 Hz
GB         0
PC         1.40
    
```



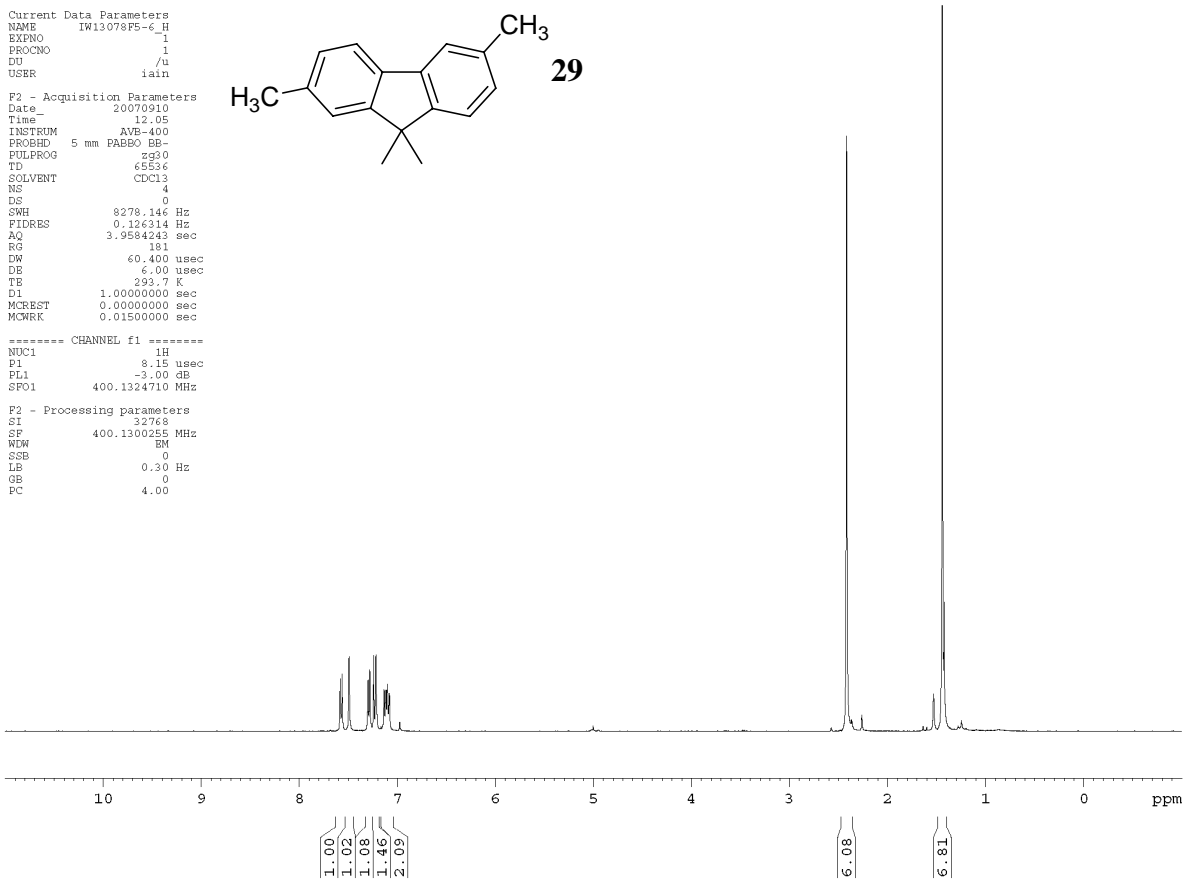
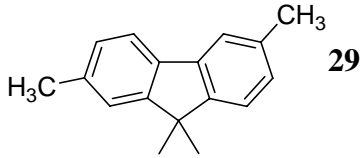
```

Current Data Parameters
NAME      IW13078F5-6_H
EXPNO    1
PROCNO   1
DU       /u
USER     iain

F2 - Acquisition Parameters
Date_    20070910
Time     12.05
INSTRUM  AVB-400
PROBHD   5 mm PABBO BB-
PULPROG  zg30
TD       65536
SOLVENT  CDCl3
NS       4
DS       0
SWH      8278.146 Hz
FIDRES   0.126314 Hz
AQ       3.9584243 sec
RG       181
DW       60.400 usec
DE       6.00 usec
TE       293.7 K
D1       1.0000000 sec
MCREST   0.0000000 sec
MCWRK    0.0150000 sec

----- CHANNEL f1 -----
NUC1     1H
P1       8.15 usec
PL1      -3.00 dB
SFO1     400.1324710 MHz

F2 - Processing parameters
SI       32768
SF       400.1300255 MHz
WDW      EM
SSB      0
LB       0.30 Hz
GB       0
PC       4.00
    
```



AV-500 new TBIp probe  
1D 13C[1H] on BB-channel  
051606 RevH

```

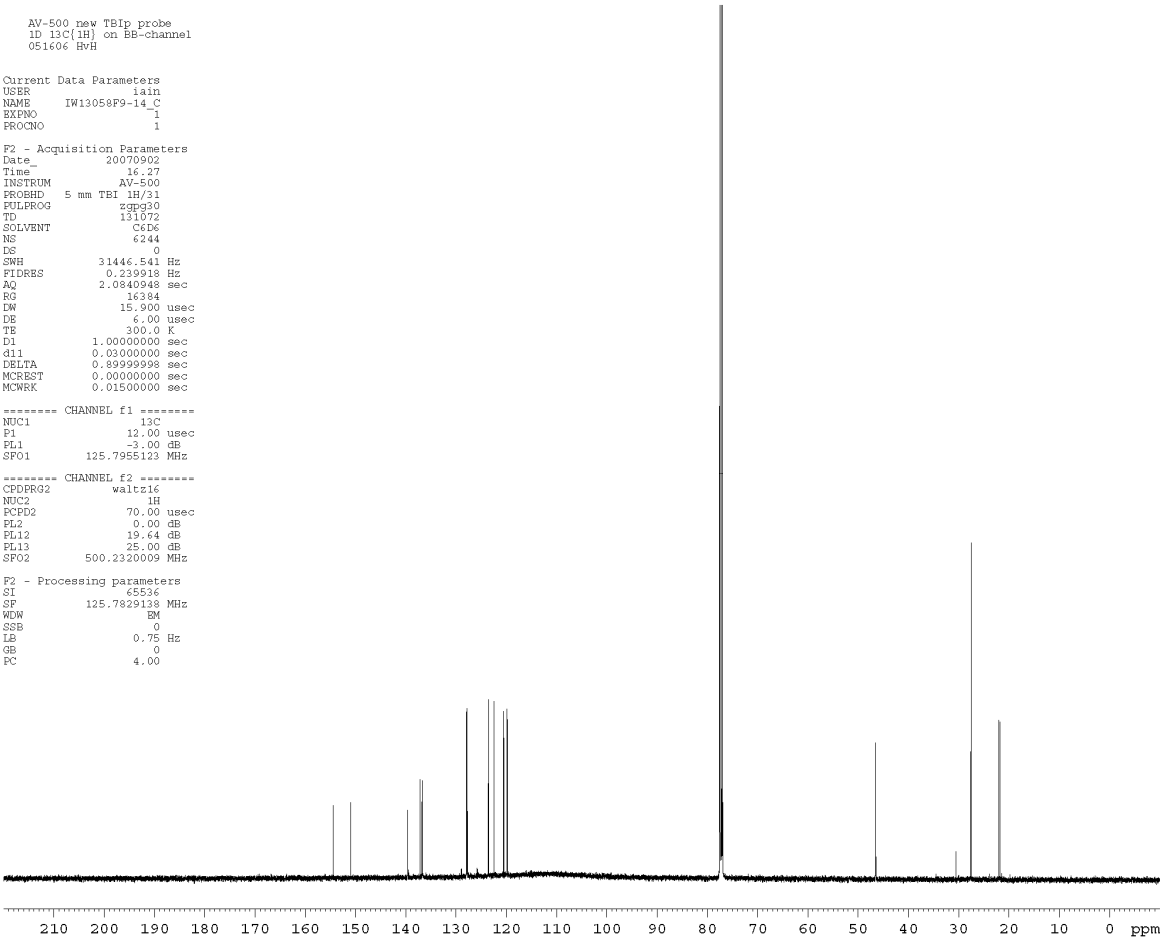
Current Data Parameters
USER     iain
NAME     IW13058F9-14_C
EXPNO    1
PROCNO   1

F2 - Acquisition Parameters
Date_    20070902
Time     16.27
INSTRUM  AV-500
PROBHD   5 mm TBI 1H/31
PULPROG  zgpg30
TD       131072
SOLVENT  CDCl3
NS       0
DS       0
SWH      31446.541 Hz
FIDRES   0.239918 Hz
AQ       2.0840948 sec
RG       16394
DW       15.900 usec
DE       6.00 usec
TE       300.0 K
D1       1.0000000 sec
d11      0.0300000 sec
DELTA    0.8999999 sec
MCREST   0.0000000 sec
MCWRK    0.0150000 sec

----- CHANNEL f1 -----
NUC1     13C
P1       12.00 usec
PL1      3.00 dB
SFO1     125.7955123 MHz

----- CHANNEL f2 -----
CPDPRG02 waltz16
NUC2     1H
PCPD2    70.00 usec
PL2      0.00 dB
PL12     19.64 dB
PL13     25.00 dB
SFO2     500.2320009 MHz

F2 - Processing parameters
SI       65536
SF       125.7829138 MHz
WDW      EM
SSB      0
LB       0.75 Hz
GB       0
PC       4.00
    
```



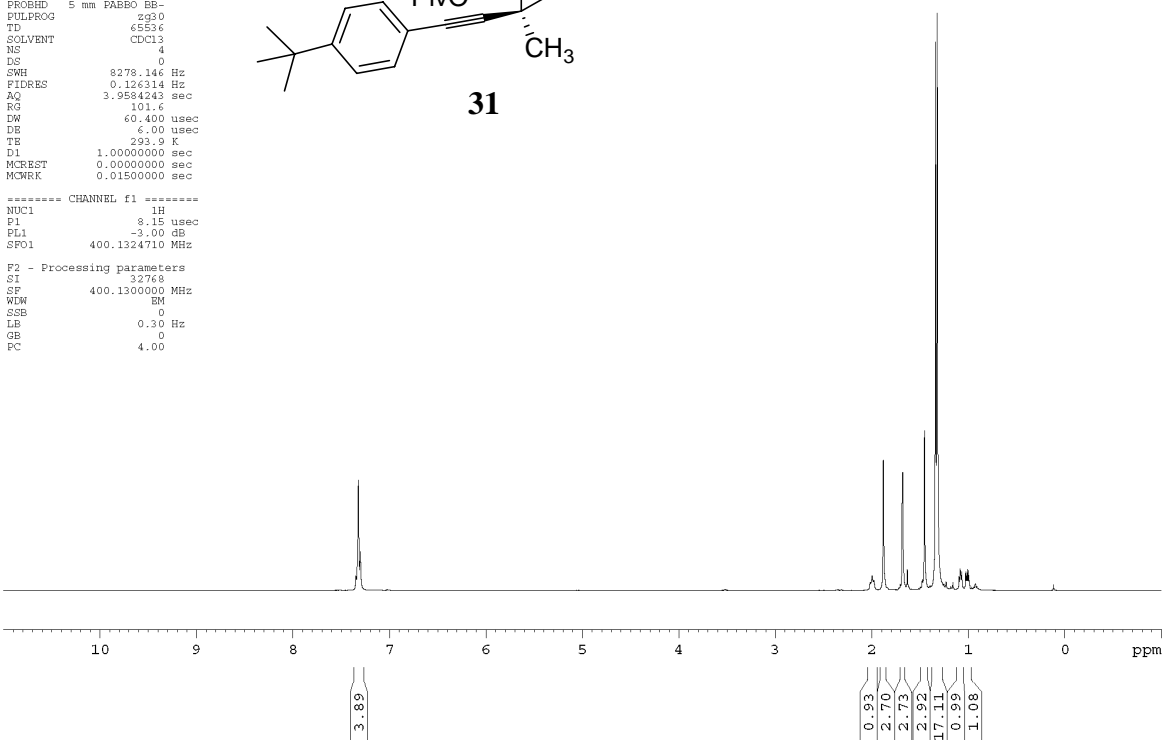
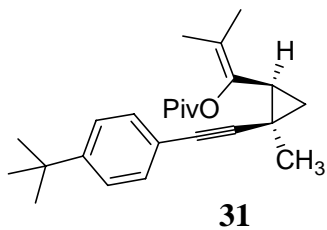
```

Current Data Parameters
NAME      IW13080P9-15_H2
EXPNO     1
PROCNO    1
DU        /u
USER      iain

F2 - Acquisition Parameters
Date_     20070910
Time      21.50
INSTRUM   AVB-400
PROBHD    5 mm PABBO BB-
PULPROG   zg30
TD         65536
SOLVENT   CDCl3
NS         4
DS         0
SWH        8278.146 Hz
FIDRES     0.126314 Hz
AQ         3.9584243 sec
RG         101.6
DW         60.400 usec
DE         6.00 usec
TE         293.9 K
DL         1.0000000 sec
MCREST    0.0000000 sec
MCKR      0.0150000 sec

===== CHANNEL f1 =====
NUC1      1H
P1        9.15 usec
PL1       -3.00 dB
SFO1     400.1324710 MHz

F2 - Processing parameters
SI        32768
SF        400.1300000 MHz
WDW       EM
SSB       0
LB        0.30 Hz
GB        0
PC        4.00
    
```



AVB-400 ZBO Carbon Starting parameters 6/11/03 RN

```

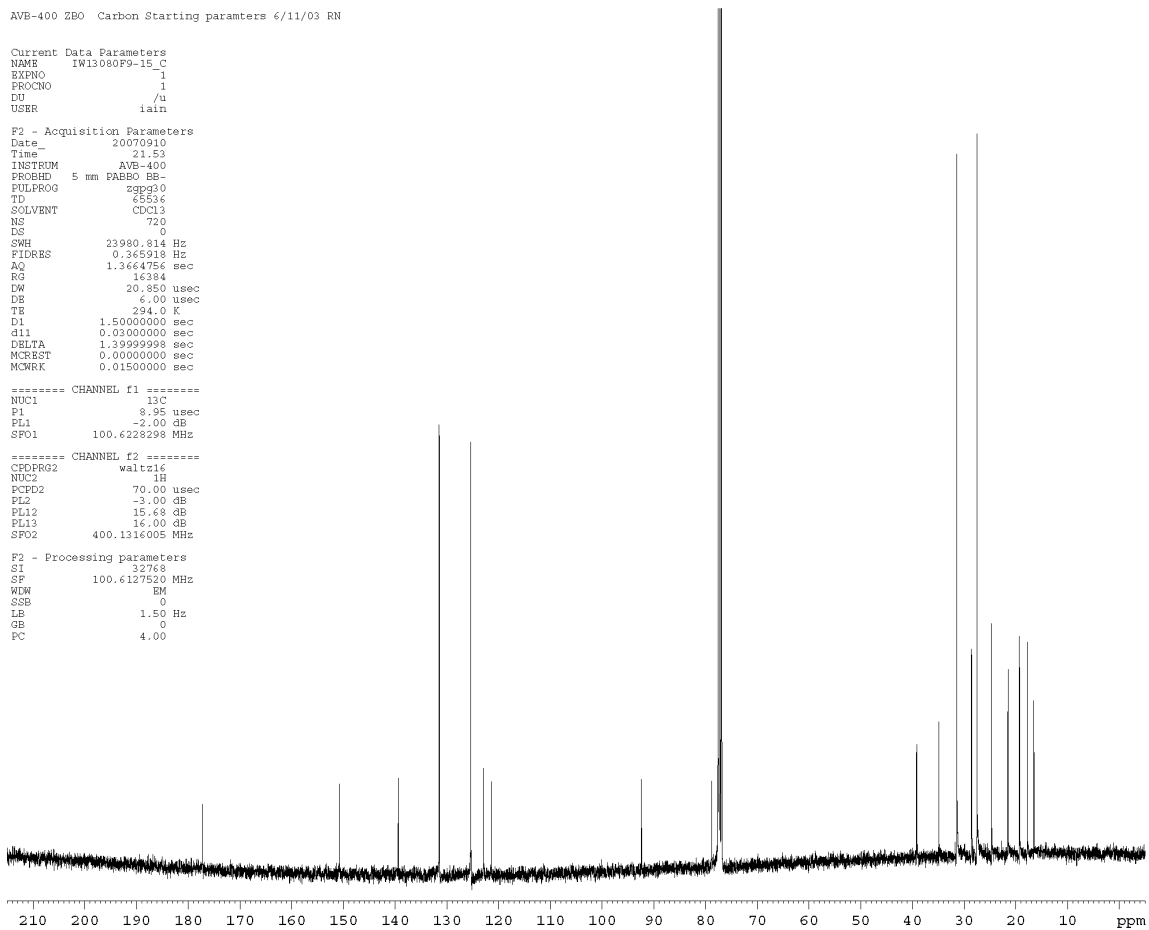
Current Data Parameters
NAME      IW13080P9-15_C
EXPNO     1
PROCNO    1
DU        /u
USER      iain

F2 - Acquisition Parameters
Date_     20070910
Time      21.53
INSTRUM   AVB-400
PROBHD    5 mm PABBO BB-
PULPROG   zgpg30
TD         65536
SOLVENT   CDCl3
NS         720
DS         0
SWH        23980.814 Hz
FIDRES     0.365918 Hz
AQ         1.3664756 sec
RG         16384
DW         20.850 usec
DE         6.00 usec
TE         294.0 K
DL         1.5000000 sec
G11        0.0200000 sec
DELTA     1.39999998 sec
MCREST    0.0000000 sec
MCKR      0.0150000 sec

===== CHANNEL f1 =====
NUC1      13C
P1        8.95 usec
PL1       -2.00 dB
SFO1     100.6228298 MHz

===== CHANNEL f2 =====
CPDPRG2   waltz16
NUC2      1H
PCPD2     70.00 usec
PL2       -3.00 dB
PL12      15.68 dB
PL13      16.00 dB
SFO2     400.1316005 MHz

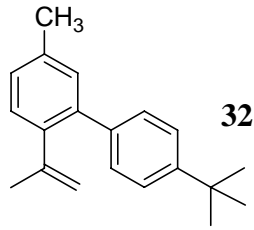
F2 - Processing parameters
SI        32768
SF        100.6127520 MHz
WDW       EM
SSB       0
LB        1.50 Hz
GB        0
PC        4.00
    
```



```

Current Data Parameters
USER      iain
NAME      IM13088F4-6_H2
EXPNO     1
PROCNO    1

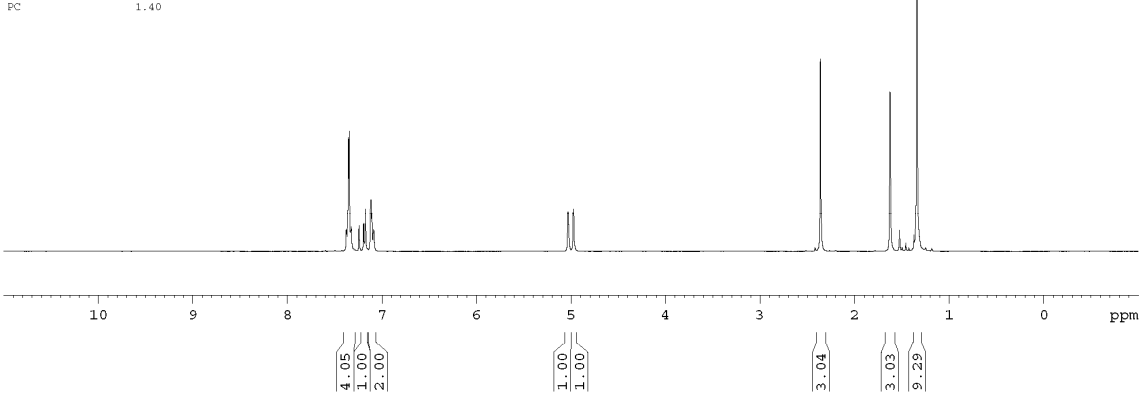
F2 - Acquisition Parameters
Date_     20070911
Time      21:53
INSTRUM   AVB-400
PROBHD    5 mm F4BBO BB-
PULPROG   zg30
TD         65536
SOLVENT   CDCl3
NS         4
DS         0
SWH        8278.146 Hz
FIDRES     0.126314 Hz
AQ         3.9584243 sec
RG         724.1
DW         60.400 usec
DE         6.00 usec
TE         294.6 K
D1         1.00000000 sec
MCREST    0.00000000 sec
MCWRK     0.01500000 sec
    
```



```

===== CHANNEL f1 =====
NUC1      1H
P1        8.15 usec
PL1       -3.00 dB
SFO1      400.1324710 MHz

F2 - Processing parameters
SI        32768
SF        400.1300000 MHz
WDW       EM
SSB       0
LB        0.30 Hz
GB        0
PC        1.40
    
```



AVB-400 ZBO Carbon Starting parameters 6/11/03 RN

```

Current Data Parameters
USER      iain
NAME      IM13088F4-6_C
EXPNO     1
PROCNO    1

F2 - Acquisition Parameters
Date_     20070911
Time      21:56
INSTRUM   AVB-400
PROBHD    5 mm F4BBO BB-
PULPROG   zgpg30
TD         65536
SOLVENT   CDCl3
NS         1335
DS         0
SWH        23980.814 Hz
FIDRES     0.365918 Hz
AQ         1.3664756 sec
RG         16384
DW         20.850 usec
DE         6.00 usec
TE         294.5 K
D1         1.50000000 sec
d11        0.03000000 sec
DELTA     1.39999998 sec
MCREST    0.00000000 sec
MCWRK     0.01500000 sec
    
```

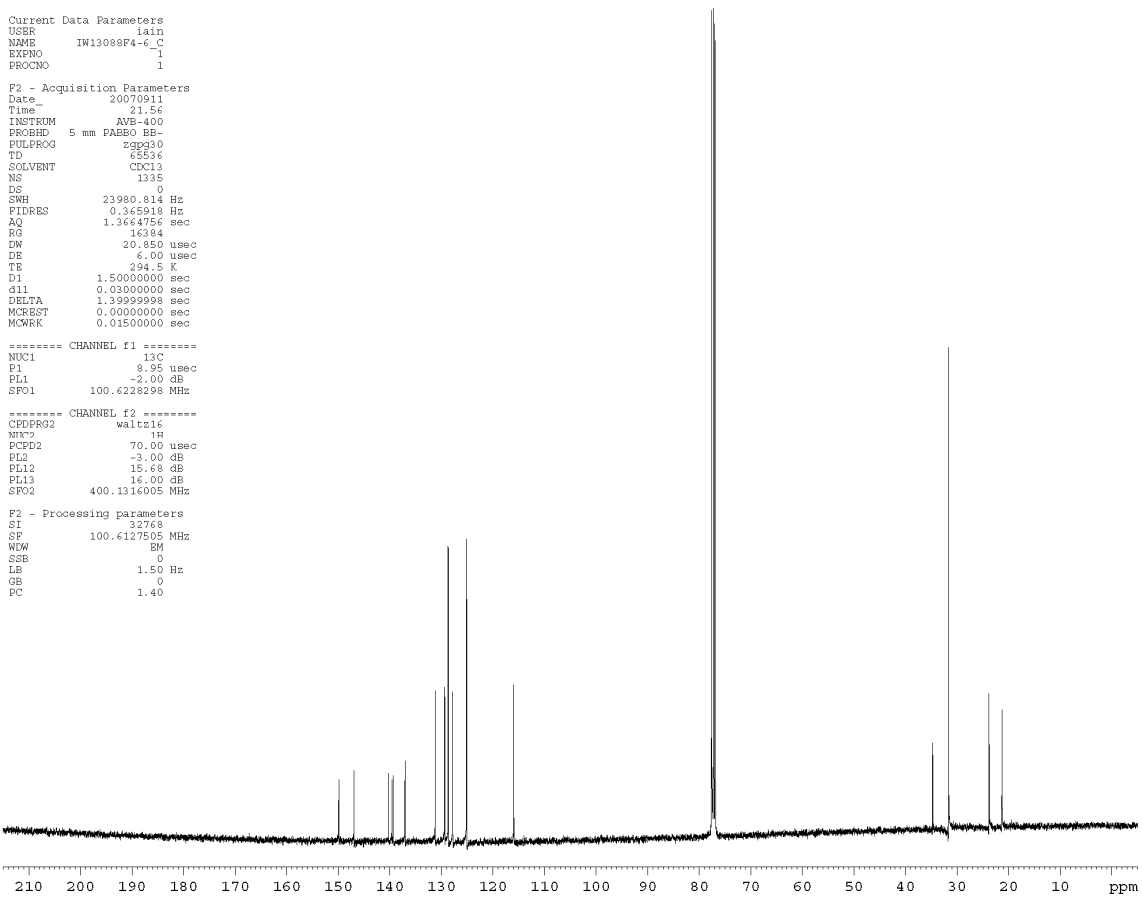
```

===== CHANNEL f1 =====
NUC1      13C
P1        9.95 usec
PL1       -2.00 dB
SFO1      100.6228298 MHz

===== CHANNEL f2 =====
CPDPRG2   waltz16
MXP2      1H
PCPD2     70.00 usec
PL2       -3.00 dB
PL12      15.68 dB
PL13      16.00 dB
SFO2      400.1316005 MHz
    
```

```

F2 - Processing parameters
SI        32768
SF        100.6127505 MHz
WDW       EM
SSB       0
LB        1.50 Hz
GB        0
PC        1.40
    
```





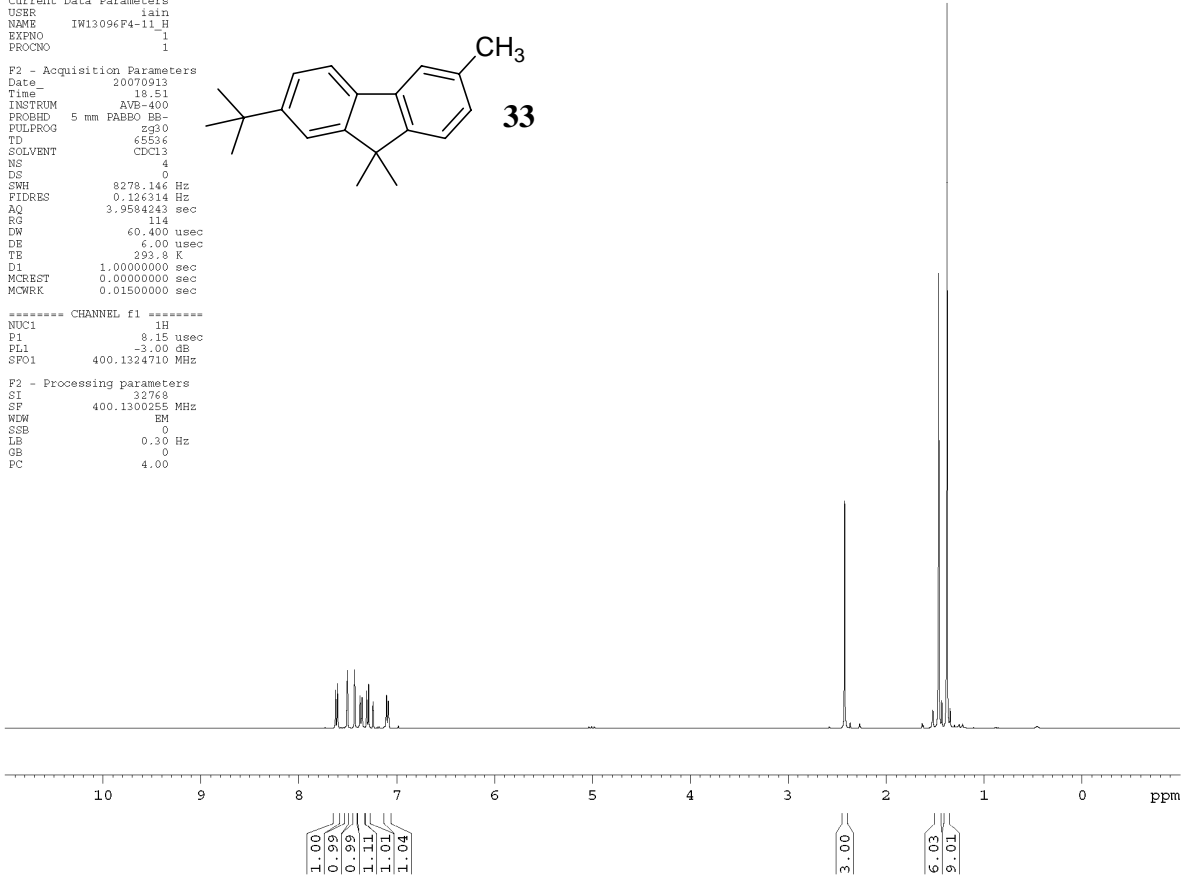
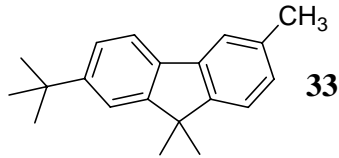
```

Current Data Parameters
USER      iain
NAME      IW13096F4-11_H
EXPNO     1
PROCNO    1
PROCNO    1

F2 - Acquisition Parameters
Date_     20070913
Time      18.51
INSTRUM   AVB-400
PROBHD    5 mm PABBO BB-
PULPROG   zgpg30
TD         65536
SOLVENT   CDCl3
NS         4
DS         0
SWH        8278.146 Hz
FIDRES     0.126314 Hz
AQ         3.9584243 sec
RG         114
DW         60.400 usec
DE         6.00 usec
TE         293.8 K
D1         1.00000000 sec
MCREST    0.00000000 sec
MCWRK     0.01500000 sec

===== CHANNEL f1 =====
NUC1       1H
P1         8.15 usec
PL1        -3.00 dB
SFO1       400.1324710 MHz

F2 - Processing parameters
SI         32768
SF         400.1300255 MHz
WDW        EM
SSB        0
LB         0.30 Hz
GB         0
PC         4.00
    
```



AVB-400 ZBO Carbon Starting parameters 6/11/03 RN

```

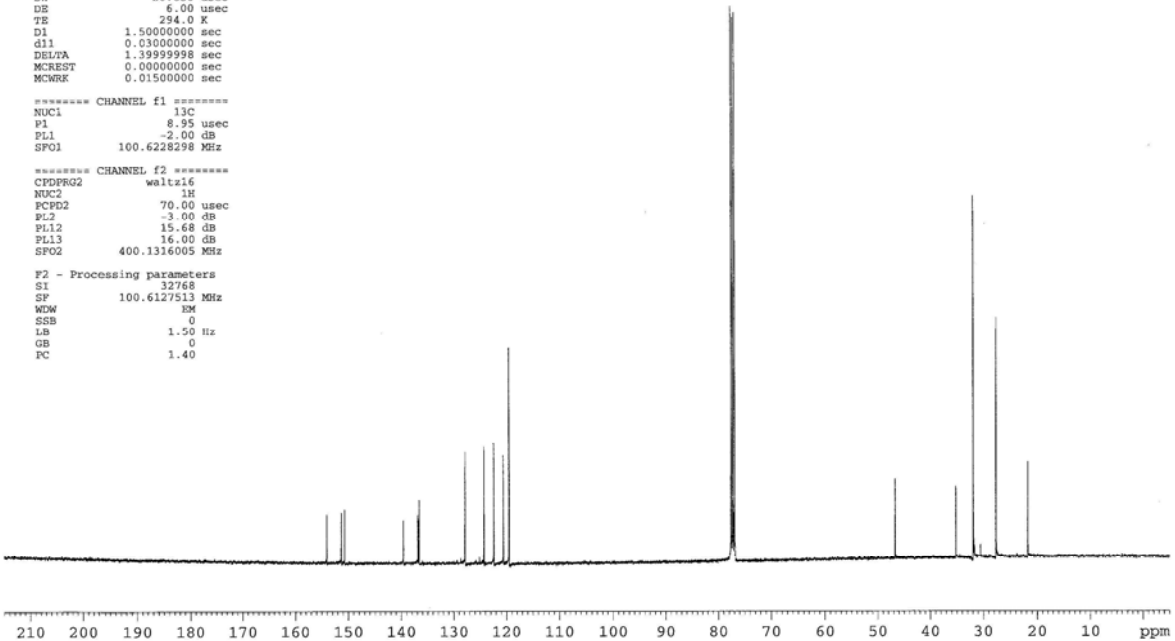
Current Data Parameters
NAME      IW13096F4-11_C
EXPNO     1
PROCNO    1
DU        /u
USER      iain

F2 - Acquisition Parameters
Date_     20070913
Time      21.04
INSTRUM   AVB-400
PROBHD    5 mm PABBO BB-
PULPROG   zgpg30
TD         65536
SOLVENT   CDCl3
NS         2192
DS         0
SWH        23986.814 Hz
FIDRES     0.365918 Hz
AQ         1.3664756 sec
RG         16384
DW         20.850 usec
DE         6.00 usec
TE         294.0 K
D1         1.50000000 sec
d11       0.03000000 sec
DELTA     1.39999998 sec
MCREST    0.00000000 sec
MCWRK     0.01500000 sec

===== CHANNEL f1 =====
NUC1       13C
P1         8.95 usec
PL1        -2.00 dB
SFO1       100.6228298 MHz

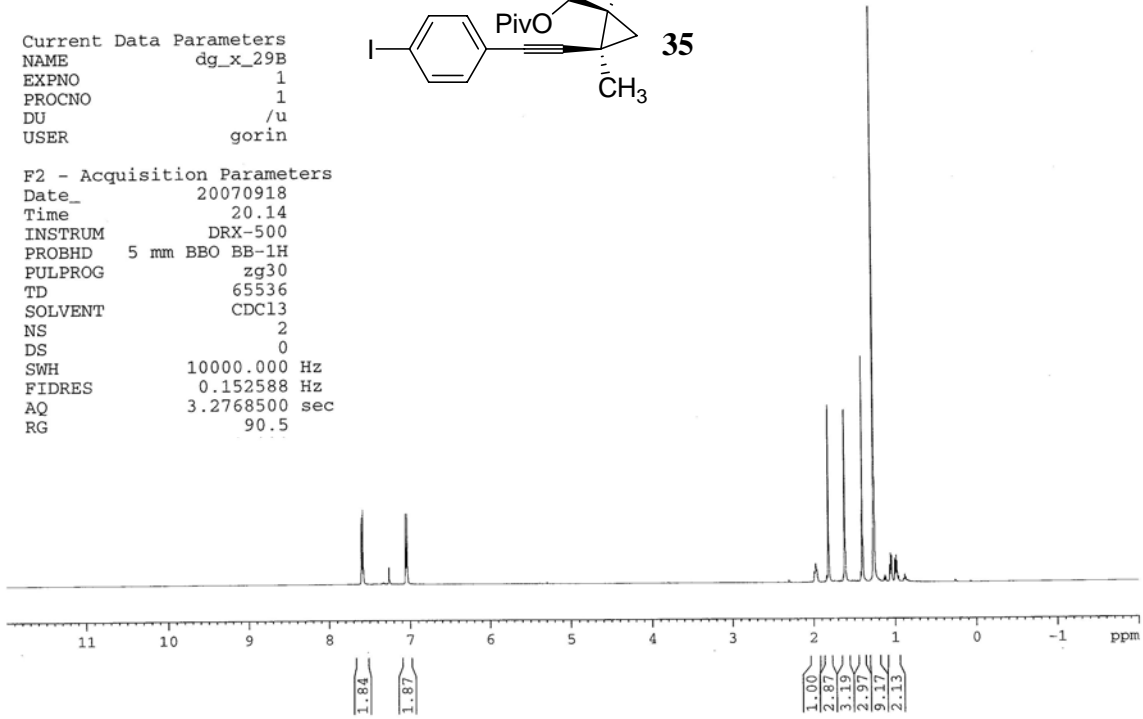
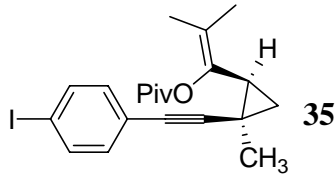
===== CHANNEL f2 =====
CPDPRG2   waltz16
NUC2       1H
PCPD2     70.00 usec
PL2        -3.00 dB
PL12       15.68 dB
PL13       16.00 dB
SFO2       400.1316005 MHz

F2 - Processing parameters
SI         32768
SF         100.6127513 MHz
WDW        EM
SSB        0
LB         1.50 Hz
GB         0
PC         1.40
    
```



Current Data Parameters  
NAME dg\_x\_29B  
EXPNO 1  
PROCNO 1  
DU /u  
USER gorin

F2 - Acquisition Parameters  
Date\_ 20070918  
Time 20.14  
INSTRUM DRX-500  
PROBHD 5 mm BBO BB-1H  
PULPROG zg30  
TD 65536  
SOLVENT CDCl3  
NS 2  
DS 0  
SWH 10000.000 Hz  
FIDRES 0.152588 Hz  
AQ 3.2768500 sec  
RG 90.5



13C DRX-500 5mm ZBBO probe  
starting parameters with zgpg30  
uses ns1d0  
012504 HvH

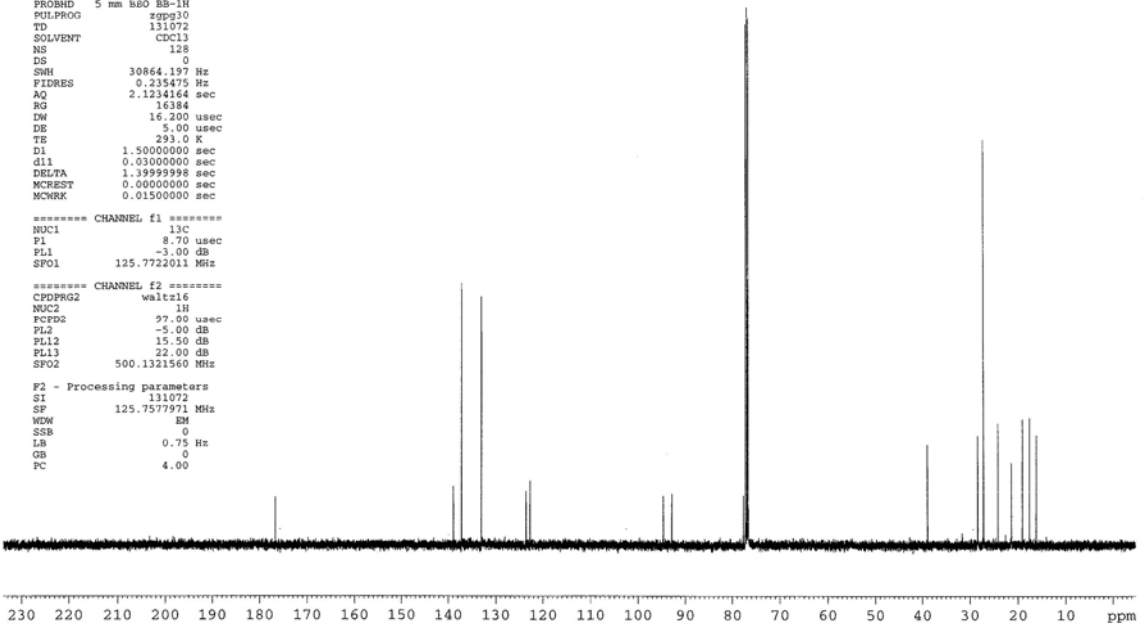
Current Data Parameters  
NAME dg\_x\_29B  
EXPNO 13  
PROCNO 1  
DU /u  
USER gorin

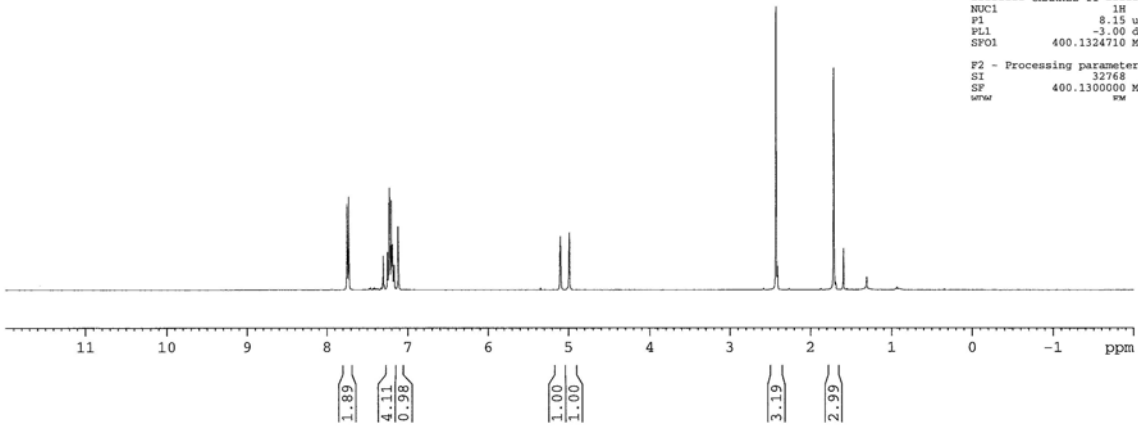
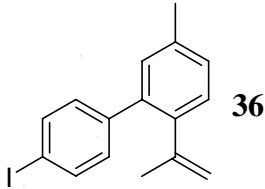
F2 - Acquisition Parameters  
Date\_ 20070918  
Time 20.16  
INSTRUM DRX-500  
PROBHD 5 mm bBO BB-1H  
PULPROG zgpg30  
TD 131072  
SOLVENT CDCl3  
NS 128  
DS 0  
SWH 30864.197 Hz  
FIDRES 0.235475 Hz  
AQ 2.1234164 sec  
RG 16384  
DM 16.200 usec  
DE 5.00 usec  
TE 293.0 K  
D1 1.50000000 sec  
d11 0.03000000 sec  
DELTA 1.39999998 sec  
MCREST 0.00000000 sec  
MCMRK 0.01500000 sec

\*\*\*\*\* CHANNEL f1 \*\*\*\*\*  
NUC1 13C  
P1 8.70 usec  
PL1 -3.00 dB  
SFO1 125.772011 MHz

\*\*\*\*\* CHANNEL f2 \*\*\*\*\*  
CPDPRG2 waltz16  
NUC2 1H  
PCPD2 97.00 usec  
PL2 -5.00 dB  
PL12 15.50 dB  
PL13 22.00 dB  
SFO2 500.1321560 MHz

F2 - Processing parameters  
SI 131072  
SF 125.7577971 MHz  
WDW EM  
SSB 0  
LB 0.75 Hz  
GB 0  
PC 4.00





```

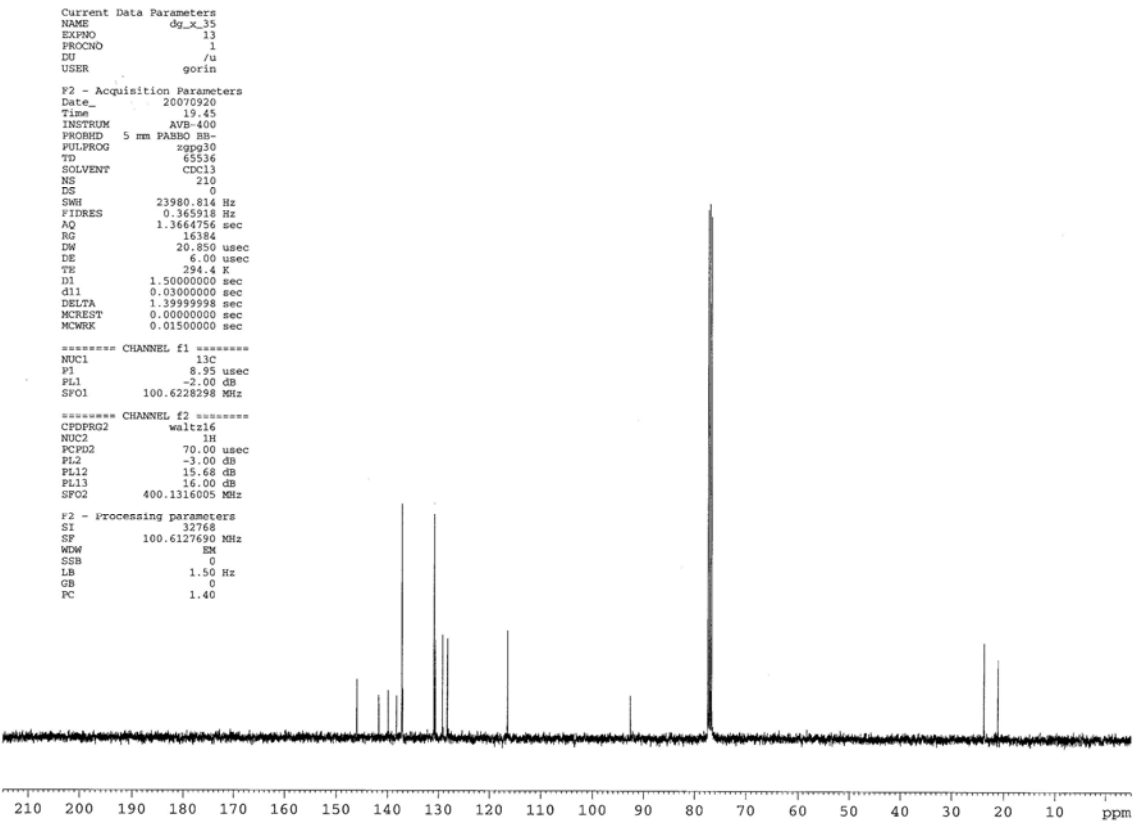
Current Data Parameters
NAME      dg_x_35
EXPNO    1
PROCNO   1
F2       /u
USER     gorin

F2 - Acquisition Parameters
Date_    20070920
Time     19.41
INSTRUM  AVB-400
PROBHD   5 mm PABBO BB-
PULPROG  zg30
TD       65536
SOLVENT  CDCl3
NS       2
DS       0
SWH      8278.146 Hz
FIDRES   0.126314 Hz
AQ       3.9584243 sec
RG       181
DW       60.400 usec
DE       6.00 usec
TE       294.4 K
D1       1.00000000 sec
MCREST   0.00000000 sec
MCWRK    0.01500000 sec

===== CHANNEL f1 =====
NUC1     1H
P1       8.15 usec
PL1      -3.00 dB
SFO1     400.1324710 MHz

F2 - Processing parameters
SI       32768
SF       400.1300000 MHz
SFWW
    
```

AVB-400 ZBO Carbon Starting parameters 6/11/03 RN



```

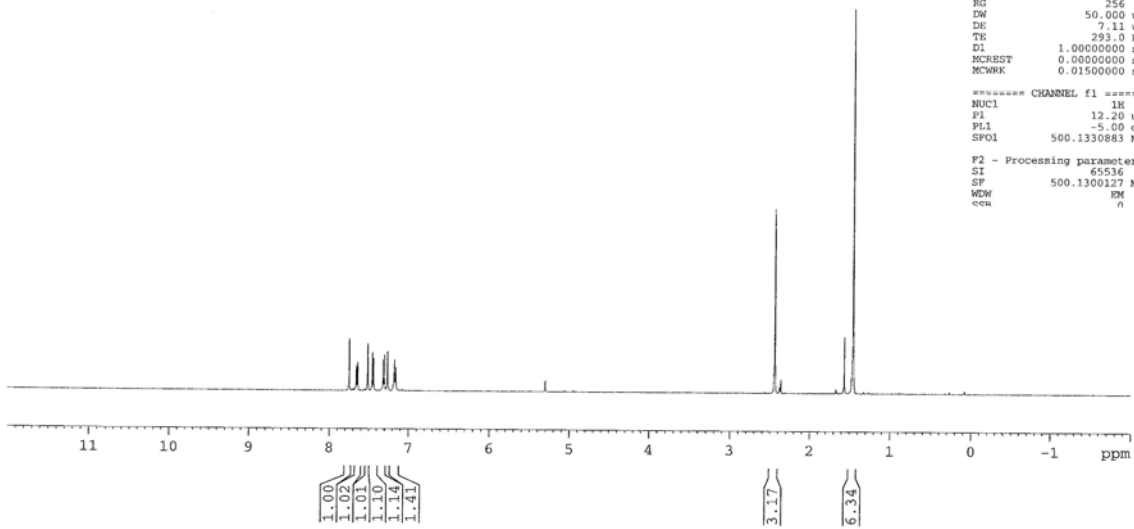
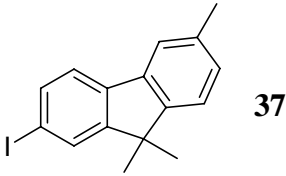
Current Data Parameters
NAME      dg_x_35
EXPNO    13
PROCNO   1
F2       /u
USER     gorin

F2 - Acquisition Parameters
Date_    20070920
Time     19.45
INSTRUM  AVB-400
PROBHD   5 mm PABBO BB-
PULPROG  zgpg30
TD       65536
SOLVENT  CDCl3
NS       210
DS       0
SWH      23980.814 Hz
FIDRES   0.365918 Hz
AQ       1.3664756 sec
RG       15384
DW       20.850 usec
DE       6.00 usec
TE       294.4 K
D1       1.50000000 sec
d11      0.03000000 sec
DELTA    1.39999998 sec
MCREST   0.00000000 sec
MCWRK    0.01500000 sec

===== CHANNEL f1 =====
NUC1     13C
P1       8.95 usec
PL1      -2.00 dB
SFO1     100.6228298 MHz

===== CHANNEL f2 =====
CPDPRG2  waltz16
NUC2     1H
PCPD2    70.00 usec
PL2      -3.00 dB
PL12     15.68 dB
PL13     16.00 dB
SFO2     400.1316005 MHz

F2 - Processing parameters
SI       32768
SF       100.6127690 MHz
WDW      EM
SSB      0
LB       1.50 Hz
GB       0
PC       1.40
    
```



```

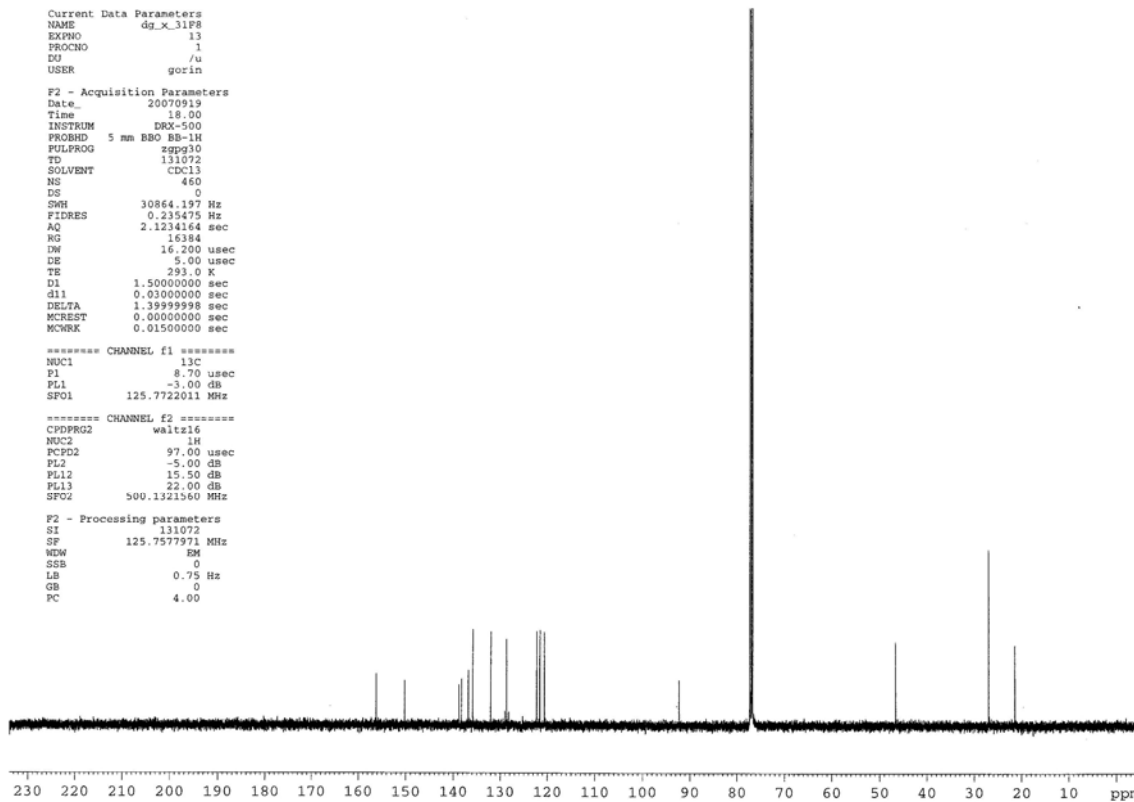
Current Data Parameters
USER          gorin
NAME          dg_x_31P8
EXPNO         1
PROCNO        1

F2 - Acquisition Parameters
Date_         20070919
Time          16.58
INSTRUM       DRX-500
PROBHD        5 mm BBO BB-1H
PULPROG       zg30
TD            65536
SOLVENT       CDCl3
NS            2
DS            0
SWH           10000.000 Hz
FIDRES        0.152588 Hz
AQ            3.2768500 sec
RG            256
DW            50.000 usec
DE            7.11 usec
TE            293.0 K
D1            1.00000000 sec
MCREST        0.00000000 sec
MCWRK         0.01500000 sec

===== CHANNEL f1 =====
NUC1          1H
P1            12.20 usec
PL1           -5.00 dB
SFO1          500.1330883 MHz

F2 - Processing parameters
SI            65536
SF            500.1300127 MHz
WDW           EM
SSB           0
LB            0.75 Hz
GB            0
PC            4.00
  
```

13C DRX-500 5mm ZBBO probe  
 starting parameters with zgpg30 (waltz16)  
 uses ns \*t40  
 012504 HvH



```

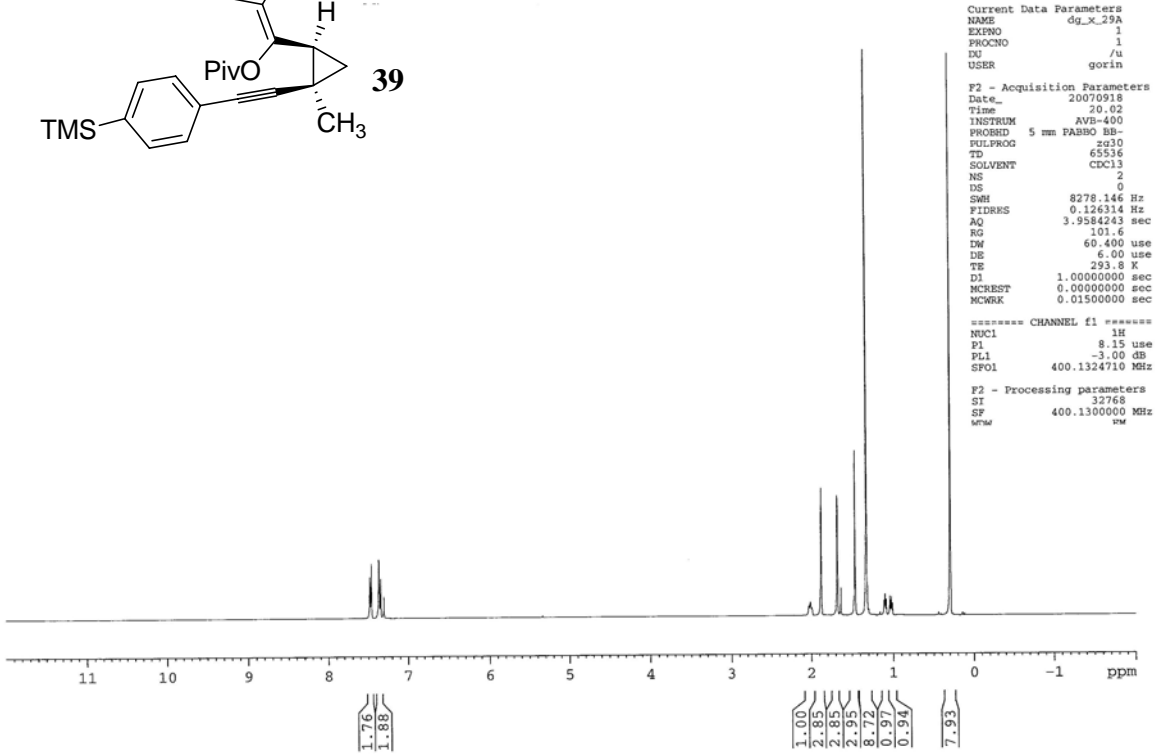
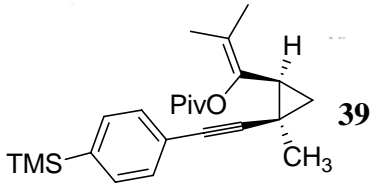
Current Data Parameters
NAME          dg_x_31P8
EXPNO         13
PROCNO        1
DU            /u
USER          gorin

F2 - Acquisition Parameters
Date_         20070919
Time          18.00
INSTRUM       DRX-500
PROBHD        5 mm BBO BB-1H
PULPROG       zgpg30
TD            131072
SOLVENT       CDCl3
NS            460
DS            0
SWH           30864.197 Hz
FIDRES        0.235475 Hz
AQ            2.1234164 sec
RG            16384
DW            16.200 usec
DE            5.00 usec
TE            293.0 K
D1            1.50000000 sec
d11           0.03000000 sec
DELTA         1.39999998 sec
MCREST        0.00000000 sec
MCWRK         0.01500000 sec

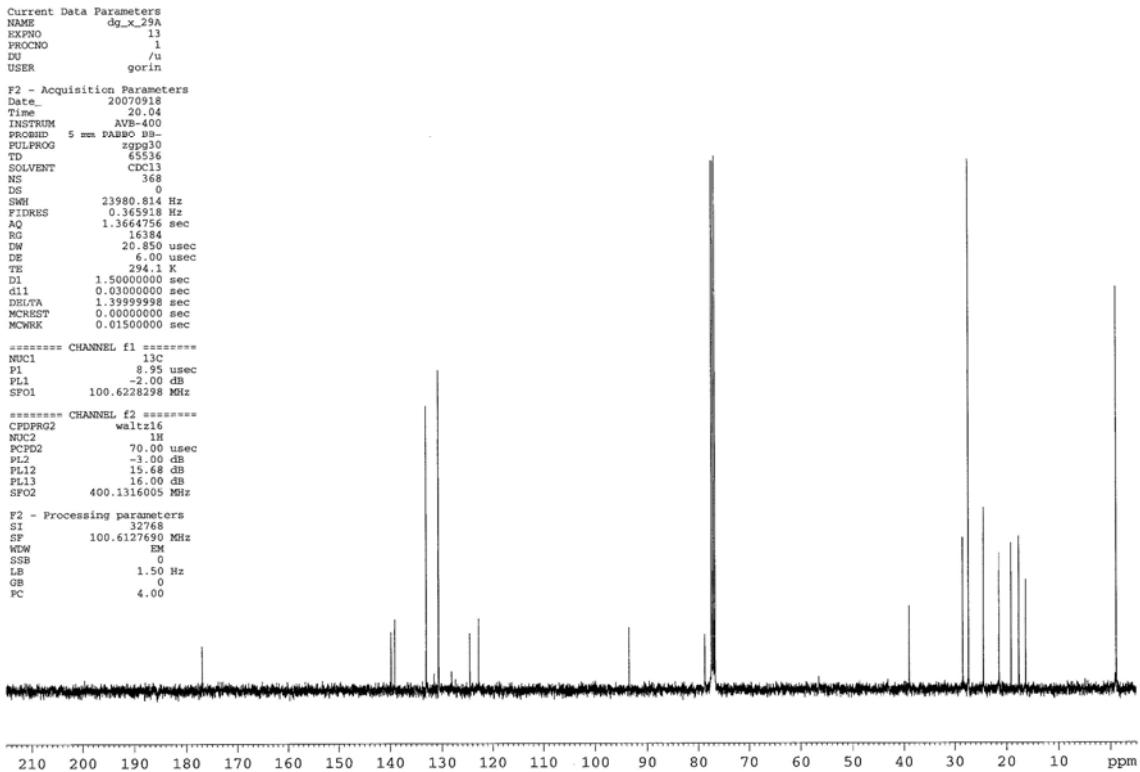
===== CHANNEL f1 =====
NUC1          13C
P1            8.70 usec
PL1           -3.00 dB
SFO1          125.7722011 MHz

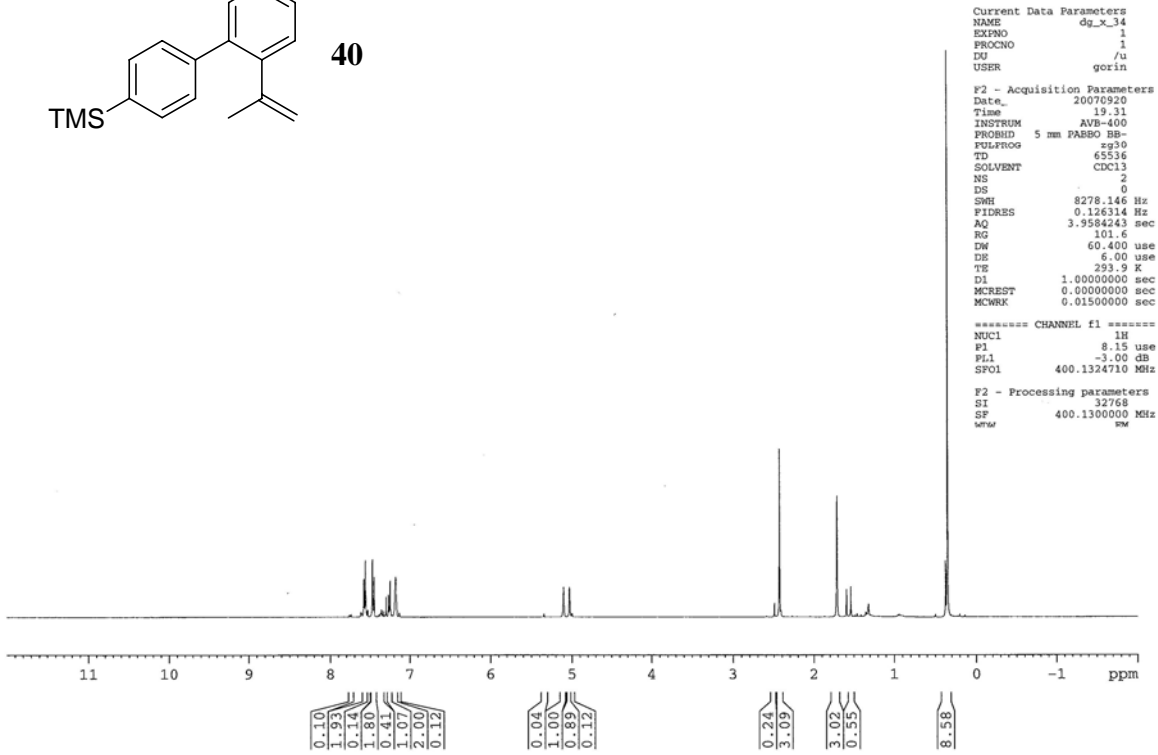
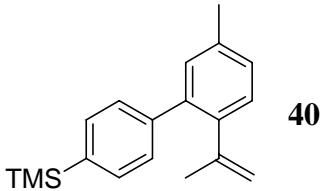
===== CHANNEL f2 =====
CPDPRG2       waltz16
NUC2          1H
PCPD2         97.00 usec
PL2           -5.00 dB
PL12          15.50 dB
PL13          22.00 dB
SFO2          500.1321560 MHz

F2 - Processing parameters
SI            131072
SF            125.7577971 MHz
WDW           EM
SSB           0
LB            0.75 Hz
GB            0
PC            4.00
  
```



AVB-400 ZBO Carbon Starting parameters 6/11/03 RN





```

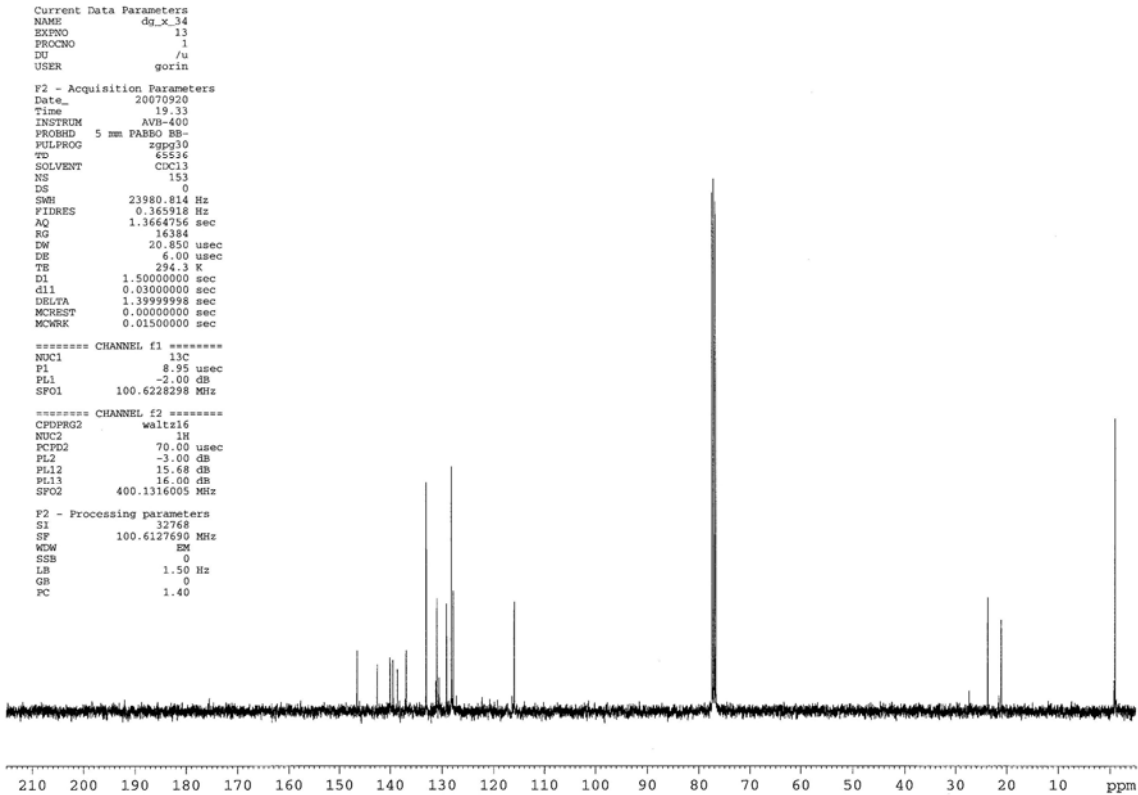
Current Data Parameters
NAME      dg_x_34
EXPNO    1
PROCNO   1
DU       /u
USER     gorin

F2 - Acquisition Parameters
Date_    20070920
Time     19.31
INSTRUM  AVB-400
PROBHD   5 mm PABBO BB-
PULPROG  zgpg30
TD       65536
SOLVENT  CDCl3
NS       2
DS       0
SMH      8278.146 Hz
FIDRES   0.126314 Hz
AQ       3.9584243 sec
RG       101.6
DW       60.400 usec
DE       6.00 usec
TE       293.9 K
D1       1.0000000 sec
MCREST   0.0000000 sec
MCWRK    0.0150000 sec

===== CHANNEL f1 =====
NUC1     1H
P1       8.15 usec
PL1     -3.00 dB
SFO1    400.1324710 MHz

F2 - Processing parameters
SI       32768
SF       400.1300000 MHz
  
```

AVB-400 ZBO Carbon Starting parameters 6/11/03 RN



```

Current Data Parameters
NAME      dg_x_34
EXPNO    13
PROCNO   1
DU       /u
USER     gorin

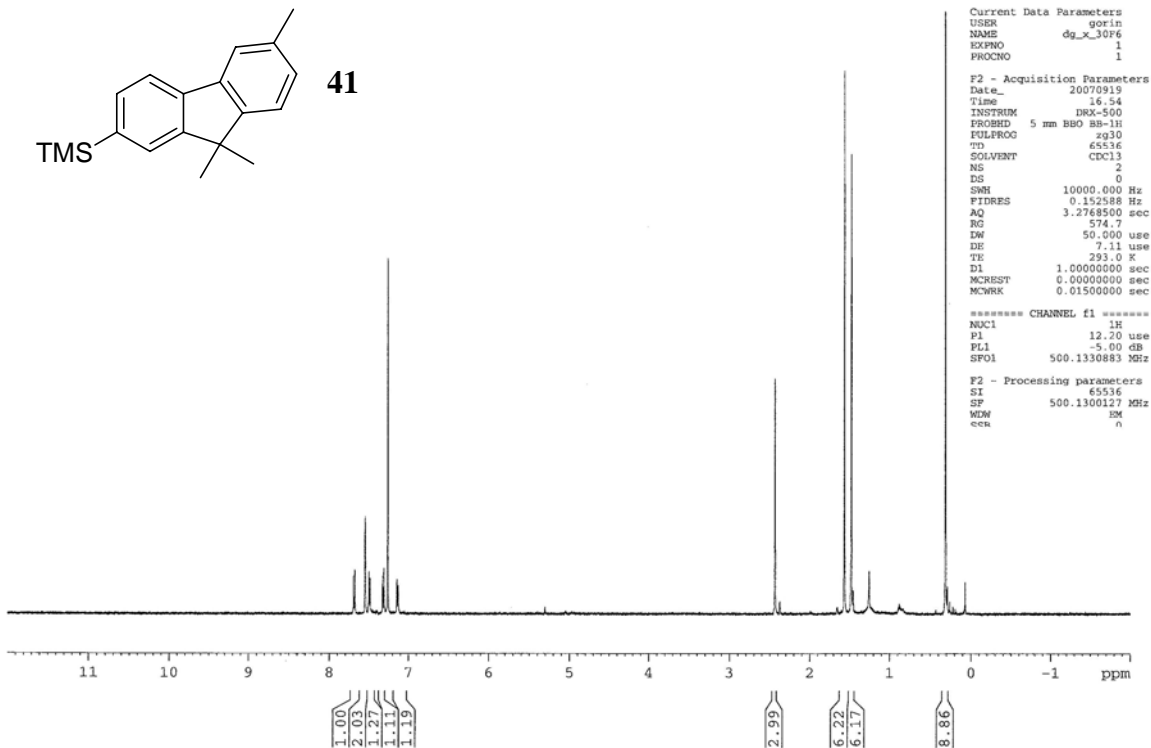
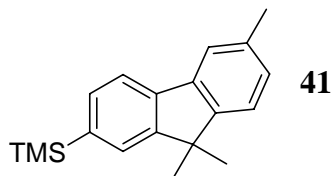
F2 - Acquisition Parameters
Date_    20070920
Time     19.33
INSTRUM  AVB-400
PROBHD   5 mm PABBO BB-
PULPROG  zgpg30
TD       65536
SOLVENT  CDCl3
NS       153
DS       0
SMH      23980.814 Hz
FIDRES   0.365918 Hz
AQ       1.3664756 sec
RG       16384
DW       20.850 usec
DE       6.00 usec
TE       294.3 K
D1       1.5000000 sec
d11      0.0300000 sec
DELTA    1.3999999 sec
MCREST   0.0000000 sec
MCWRK    0.0150000 sec

===== CHANNEL f1 =====
NUC1     13C
P1       8.95 usec
PL1     -3.00 dB
SFO1    100.6228298 MHz

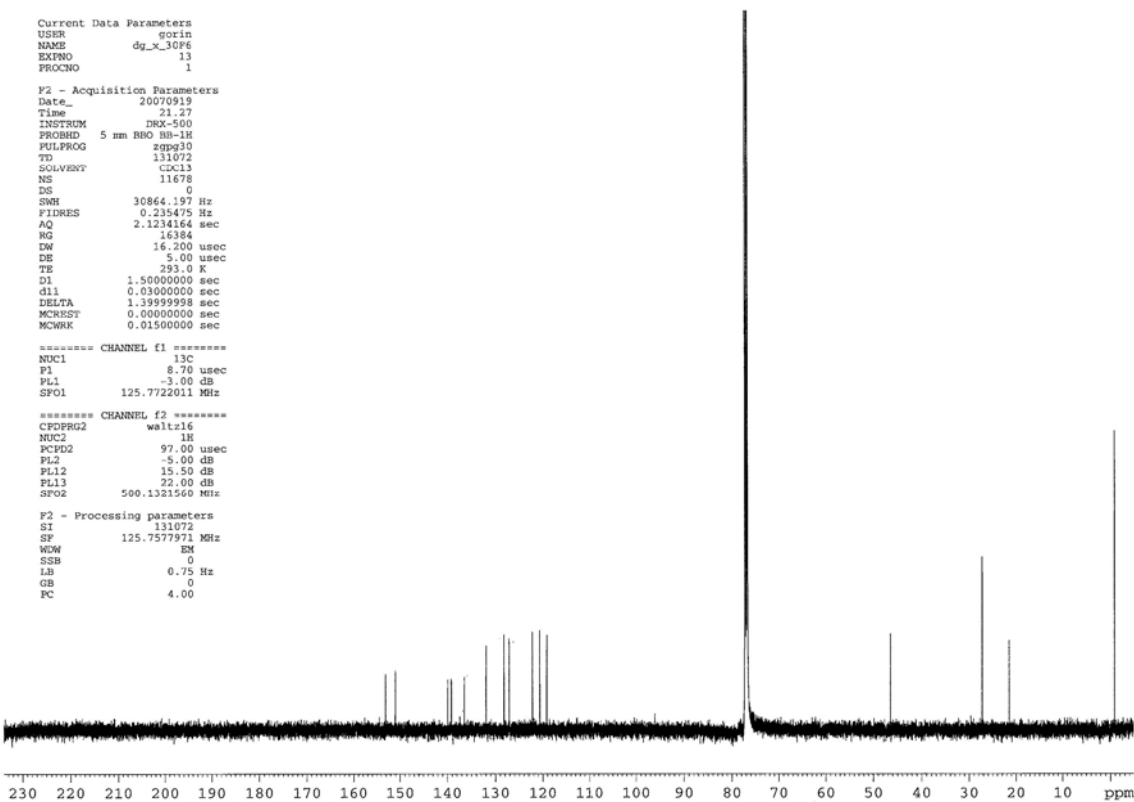
===== CHANNEL f2 =====
CPDPRG2  waltz16
NUC2     1H
PCPD2    70.00 usec
PL2     -3.00 dB
PL12    15.68 dB
PL13    16.00 dB
SFO2    400.1316005 MHz

F2 - Processing parameters
SI       32768
SF       100.6127690 MHz
WDW      EM
SSB      0
LB       1.50 Hz
GB       0
PC       1.40
  
```

1H starting parameters (zg30)  
DRX-500 zBBO probe  
020004 0001



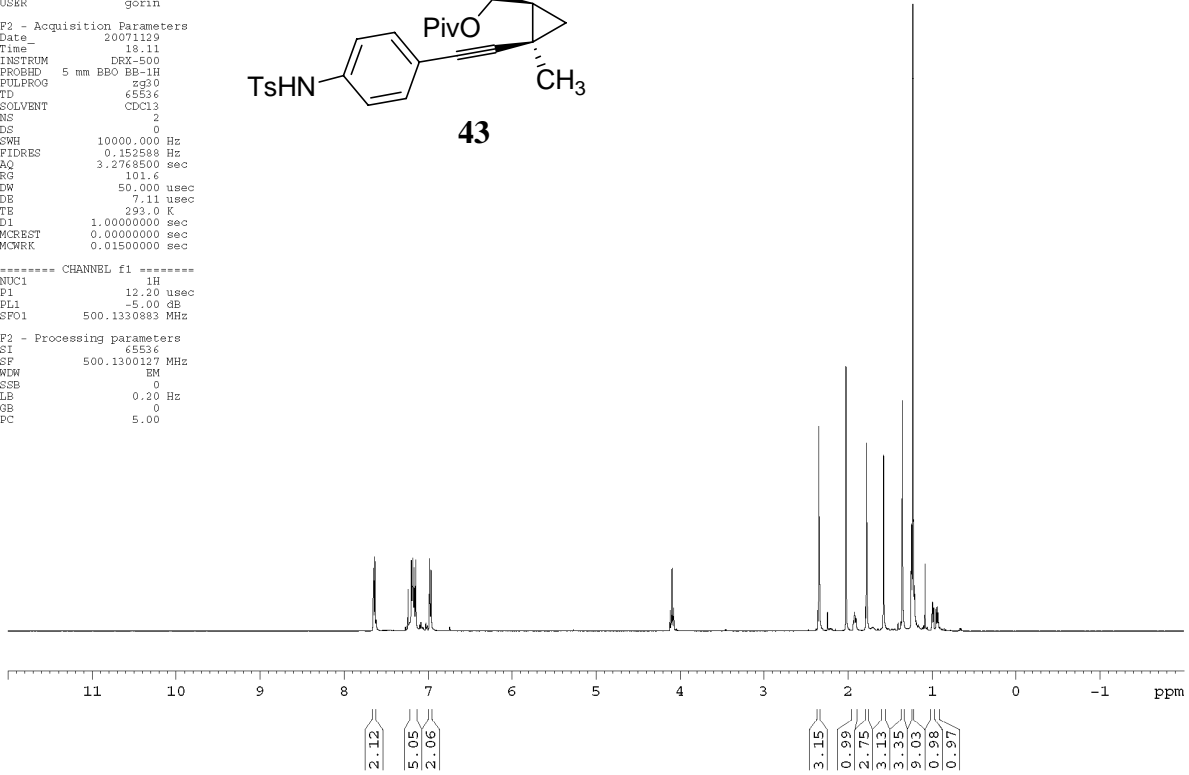
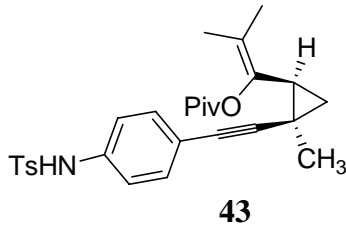
13C DRX-500 5mm ZBBO probe  
starting parameters with zgpg30 (waltz16)  
uses n2td0  
012504 0001



1H starting parameters (zg30)  
DRX-500 zBBO probe  
080804 HvH

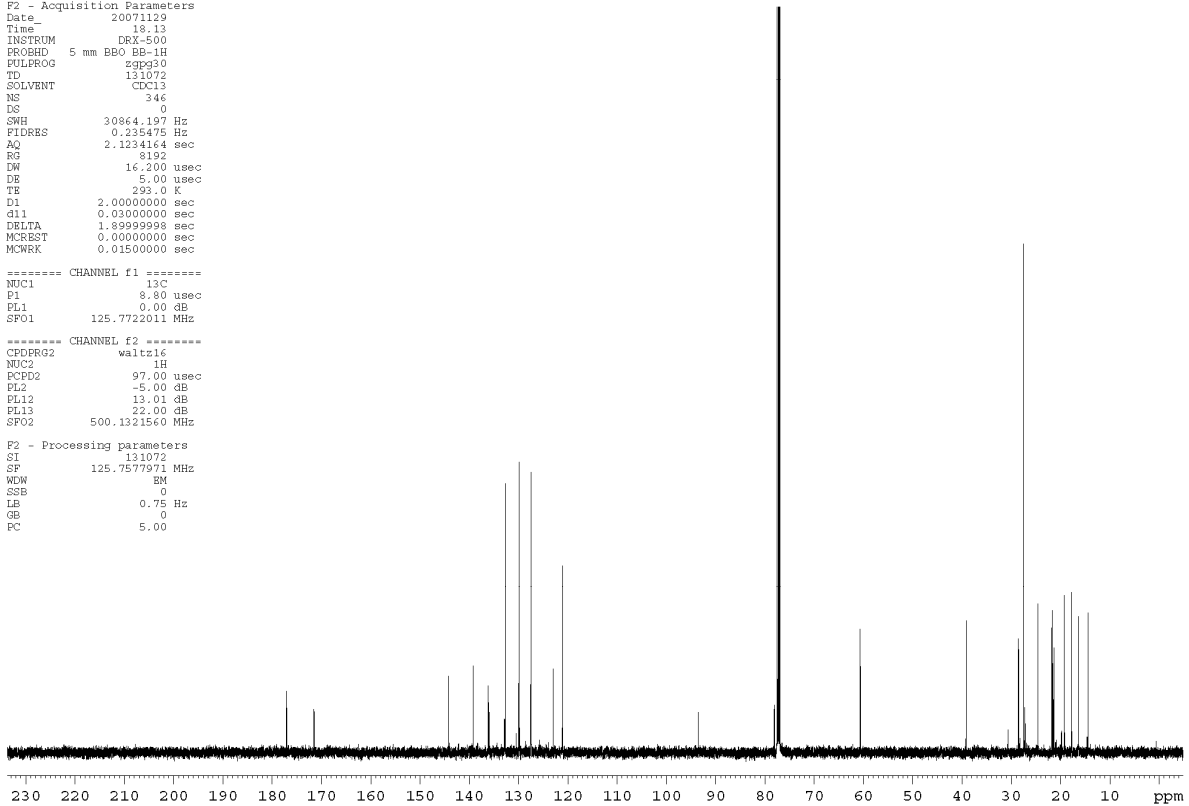
S64

Current Data Parameters  
NAME IW19080F30  
EXPNO 1  
PROCNO 1  
DU /u  
USER gorin  
F2 - Acquisition Parameters  
Date 20071129  
Time 18.11  
INSTRUM DRX-500  
PROBHD 5 mm BBO BB-1H  
PULPROG zg30  
TD 65536  
SOLVENT CDCl3  
NS 2  
DS 0  
SWH 10000.000 Hz  
FIDRES 0.152588 Hz  
AQ 3.2768500 sec  
RG 101.6  
DW 50.000 usec  
DE 7.11 usec  
TE 293.0 K  
D1 1.00000000 sec  
MCREST 0.00000000 sec  
MCWRK 0.01500000 sec  
----- CHANNEL f1 -----  
NUC1 1H  
P1 12.20 usec  
PL1 -5.00 dB  
SFO1 500.1330883 MHz  
F2 - Processing parameters  
SI 65536  
SF 500.1300127 MHz  
WDW EM  
SSB 0  
LB 0.20 Hz  
GB 0  
PC 5.00

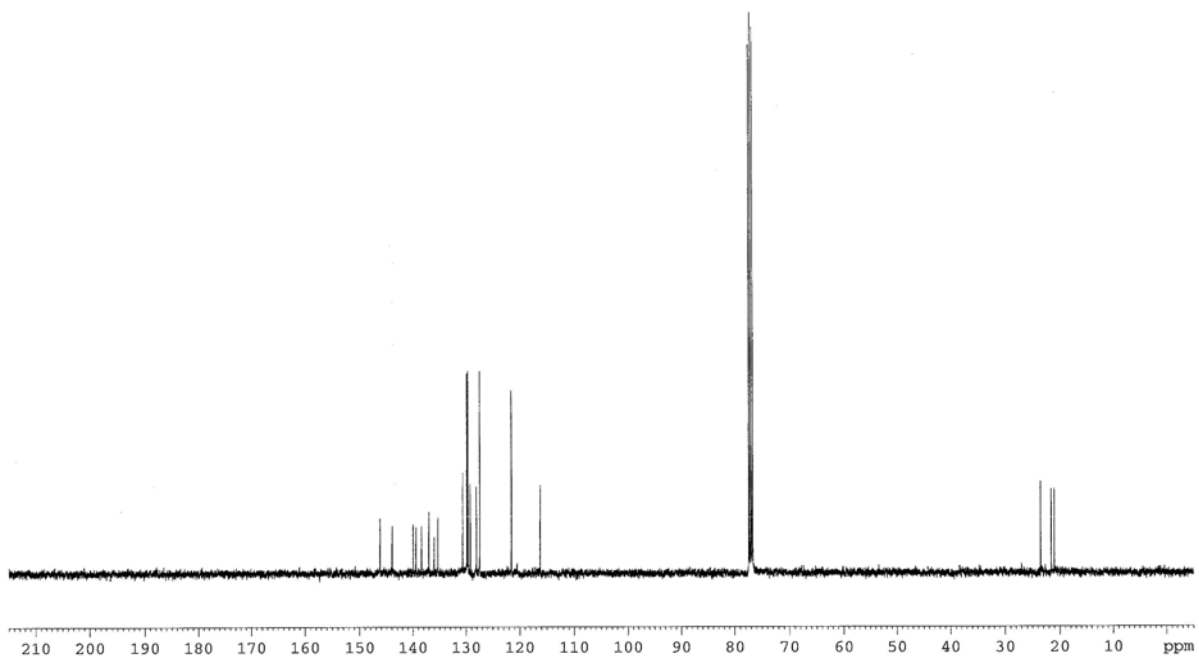
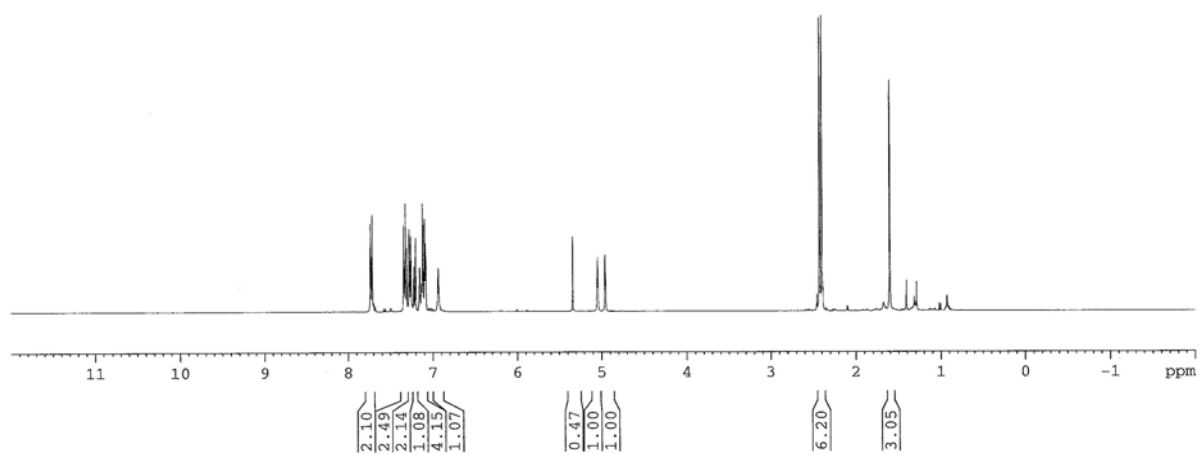
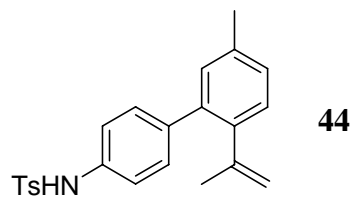


DRX-500 5mm ZBO probe 13C starting parameters. Rev 10/15/07 RN  
With CPD proton decoupling. Use ns\*td0 scans

Current Data Parameters  
NAME IW19080F30  
EXPNO 13  
PROCNO 1  
DU /u  
USER gorin  
F2 - Acquisition Parameters  
Date 20071129  
Time 18.13  
INSTRUM DRX-500  
PROBHD 5 mm BBO BB-1H  
PULPROG zgpg30  
TD 131072  
SOLVENT CDCl3  
NS 346  
DS 0  
SWH 30864.197 Hz  
FIDRES 0.228475 Hz  
AQ 2.1234164 sec  
RG 8192  
DW 16.200 usec  
DE 5.00 usec  
TE 293.0 K  
D1 2.00000000 sec  
d11 0.03000000 sec  
DELTA 1.89999998 sec  
MCREST 0.00000000 sec  
MCWRK 0.01500000 sec  
----- CHANNEL f1 -----  
NUC1 13C  
P1 8.80 usec  
PL1 0.00 dB  
SFO1 125.7722011 MHz  
----- CHANNEL f2 -----  
CPDPRG2 waltz16  
NUC2 1H  
PCPD2 97.00 usec  
PL2 -5.00 dB  
PL12 13.01 dB  
PL13 22.00 dB  
SFO2 500.1321560 MHz  
F2 - Processing parameters  
SI 131072  
SF 125.7577971 MHz  
WDW EM  
SSB 0  
LB 0.75 Hz  
GB 0  
PC 5.00



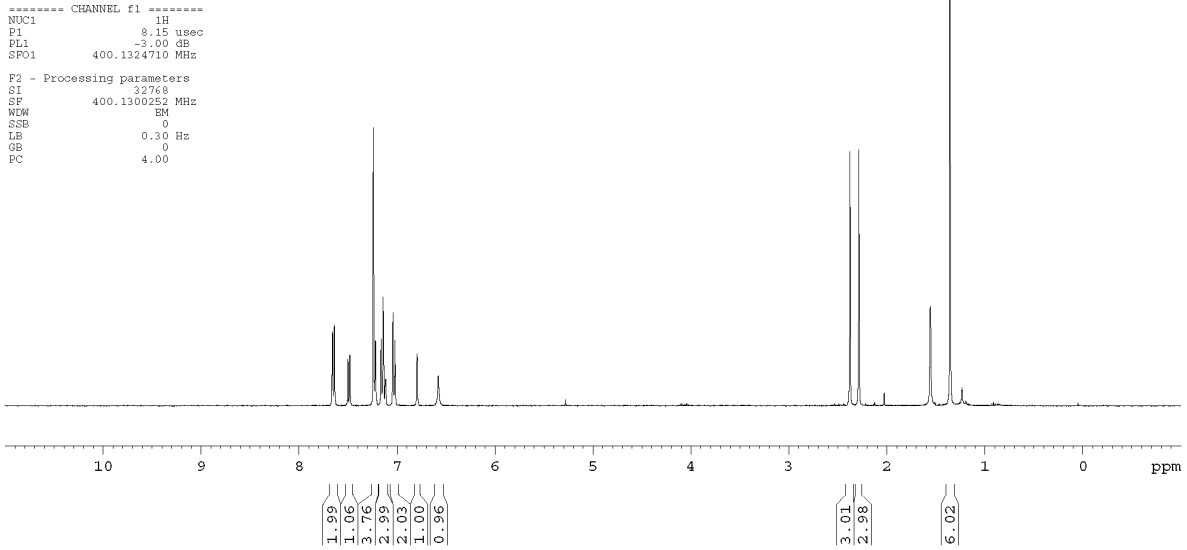
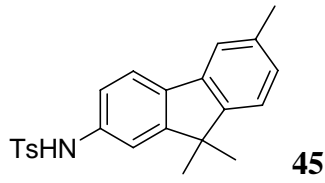




```

Current Data Parameters
USER      iain
NAME      IW14086F29-33_H2
EXPNO     1
PROCNO    1

F2 - Acquisition Parameters
Date_     20071204
Time      21.50
INSTRUM   AVB-400
PROBHD    5 mm PABBO BB-
PULPROG   zg30
TD         65536
SOLVENT   CDCl3
NS         4
DS         0
SWH       8278.146 Hz
FIDRES    0.126314 Hz
AQ         3.9584243 sec
RG         382
DW         60.400 usec
DE         6.00 usec
TE         294.5 K
D1         1.00000000 sec
MCREST    0.00000000 sec
MCWRK     0.01500000 sec
    
```



AVB-400 ZBO Carbon Starting parameters 6/11/03 RN

```

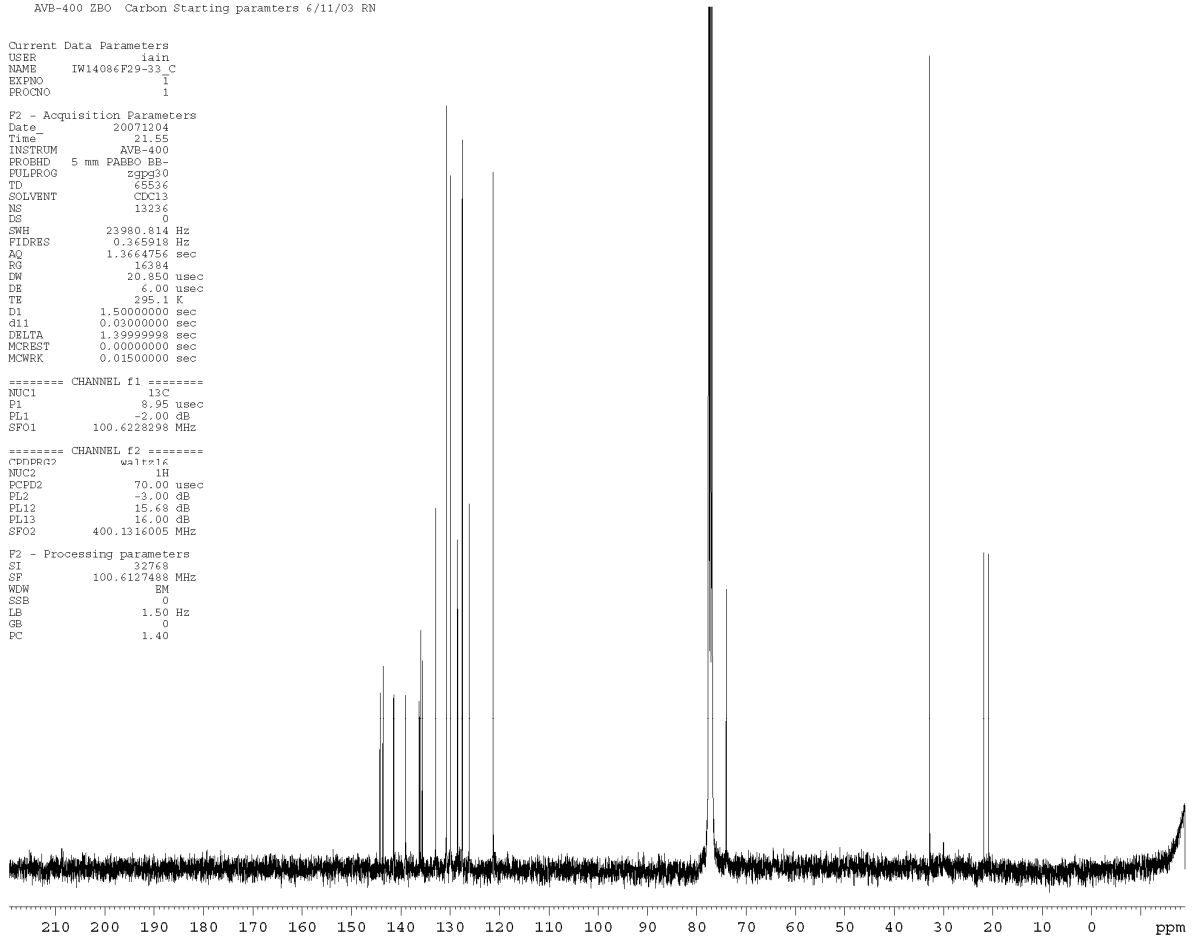
Current Data Parameters
USER      iain
NAME      IW14086F29-33_C
EXPNO     1
PROCNO    1

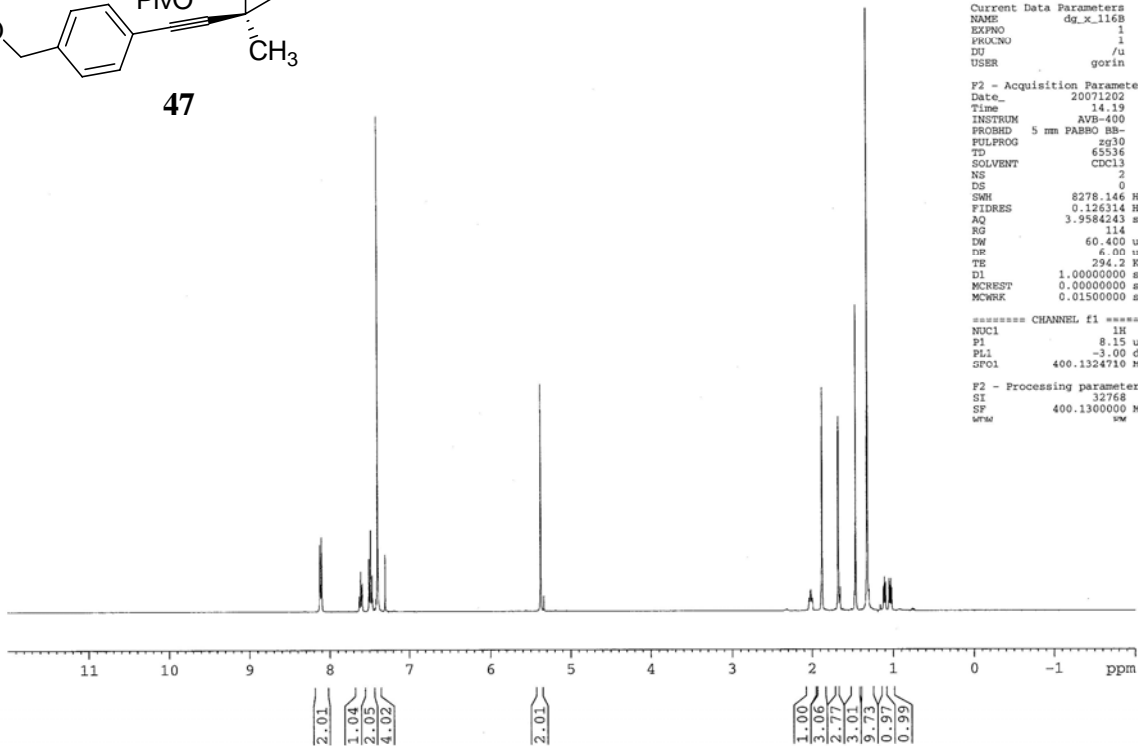
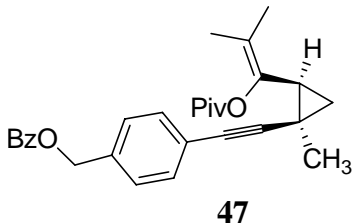
F2 - Acquisition Parameters
Date_     20071204
Time      21.55
INSTRUM   AVB-400
PROBHD    5 mm PABBO BB-
PULPROG   zgpg30
TD         65536
SOLVENT   CDCl3
NS         13236
DS         0
SWH       23980.814 Hz
FIDRES    0.365918 Hz
AQ         1.3664756 sec
RG         16384
DW         20.850 usec
DE         6.00 usec
TE         295.1 K
D1         1.50000000 sec
g11        0.03000000 sec
DELTA     1.39999998 sec
MCREST    0.00000000 sec
MCNRK     0.01500000 sec

===== CHANNEL f1 =====
NUC1      13C
P1        8.95 usec
PL1       -2.00 dB
SFO1     100.6228298 MHz

===== CHANNEL f2 =====
CPDPRG2   waltz16
NUC2      1H
PCPD2     70.00 usec
PL2       -3.00 dB
PL12      15.68 dB
EL13      16.00 dB
SFO2     400.1316005 MHz

F2 - Processing parameters
SI         32768
SF         100.6127488 MHz
WDW        EM
SSB        0
LB         1.50 Hz
GB         0
PC         1.40
    
```





```

Current Data Parameters
NAME      dg_x_116B
EXPNO     1
PROCNO    1
DU        /u
USER      gorin

F2 - Acquisition Parameters
Date_     20071202
Time      14.19
INSTRUM   AVB-400
PROBHD    5 mm F4BBO BB-
PULPROG   zg30
TD         65536
SOLVENT   CDCl3
NS         2
DS         0
SWH        8278.146 Hz
FIDRES     0.126314 Hz
AQ         3.9584243 sec
RG         114
DW         60.400 usec
DE         6.00 usec
TE         294.2 K
D1         1.00000000 sec
MCREST    0.00000000 sec
MCWRRK    0.01500000 sec

===== CHANNEL f1 =====
NUC1      1H
P1        8.15 usec
PL1       -3.00 dB
SFO1      400.1324710 MHz

F2 - Processing parameters
SI         32768
SF         400.1300000 MHz
WDW
    
```

```

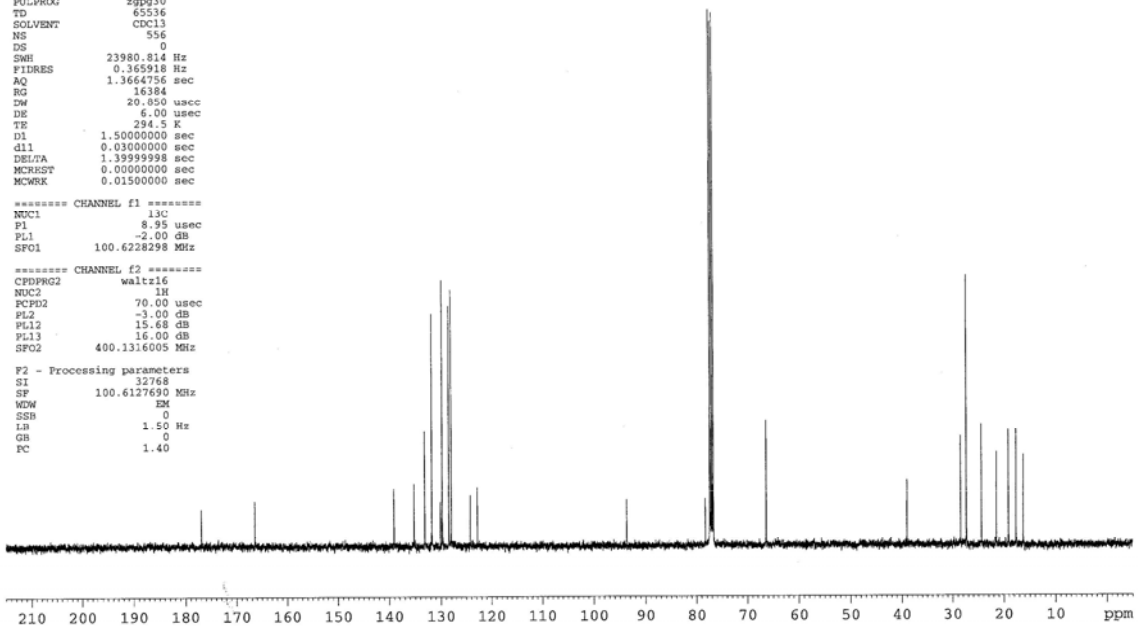
Current Data Parameters
NAME      dg_x_116B
EXPNO     13
PROCNO    1
DU        /u
USER      gorin

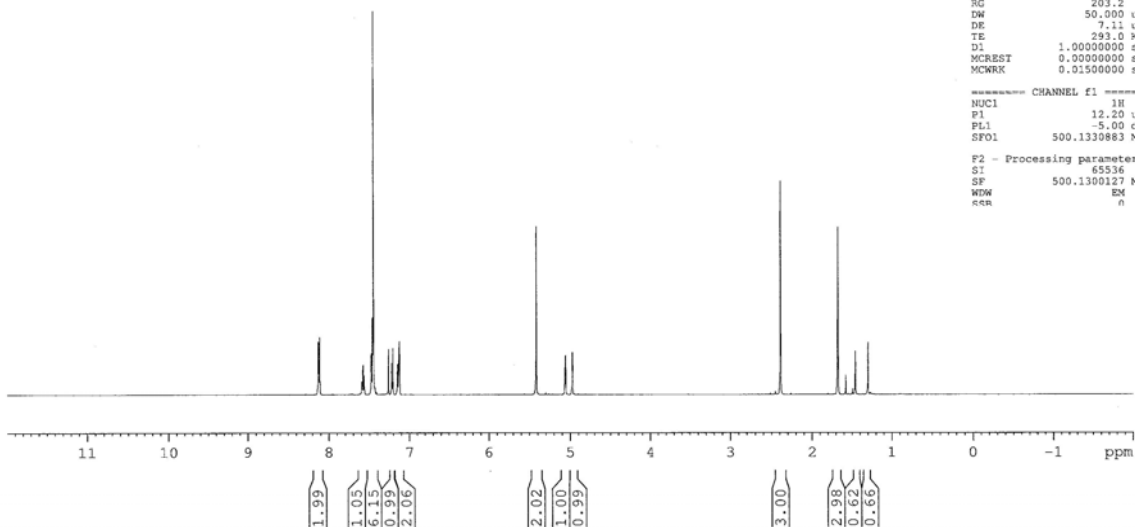
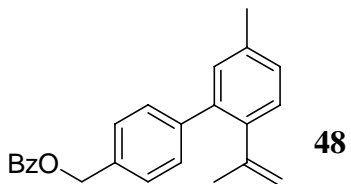
F2 - Acquisition Parameters
Date_     20071202
Time      14.21
INSTRUM   AVB-400
PROBHD    5 mm PASSO BA-
PULPROG   zgpg30
TD         65536
SOLVENT   CDCl3
NS         556
DS         0
SWH        23980.814 Hz
FIDRES     0.365918 Hz
AQ         1.3664756 sec
RG         16384
DW         20.850 usec
DE         6.00 usec
TE         294.5 K
D1         1.50000000 sec
d11        0.03000000 sec
DELTA     1.39999998 sec
MCREST    0.00000000 sec
MCWRRK    0.01500000 sec

===== CHANNEL f1 =====
NUC1      13C
P1        8.95 usec
PL1       -2.00 dB
SFO1      100.6228298 MHz

===== CHANNEL f2 =====
CPDPRG2   waltz16
NUC2      1H
PCPD2     70.00 usec
PL2       -3.00 dB
PL12      15.68 dB
PL13      16.00 dB
SFO2      400.1316005 MHz

F2 - Processing parameters
SI         32768
SF         100.6127690 MHz
WDW        EM
SSB        0
LB         1.50 Hz
GB         0
PC         1.40
    
```





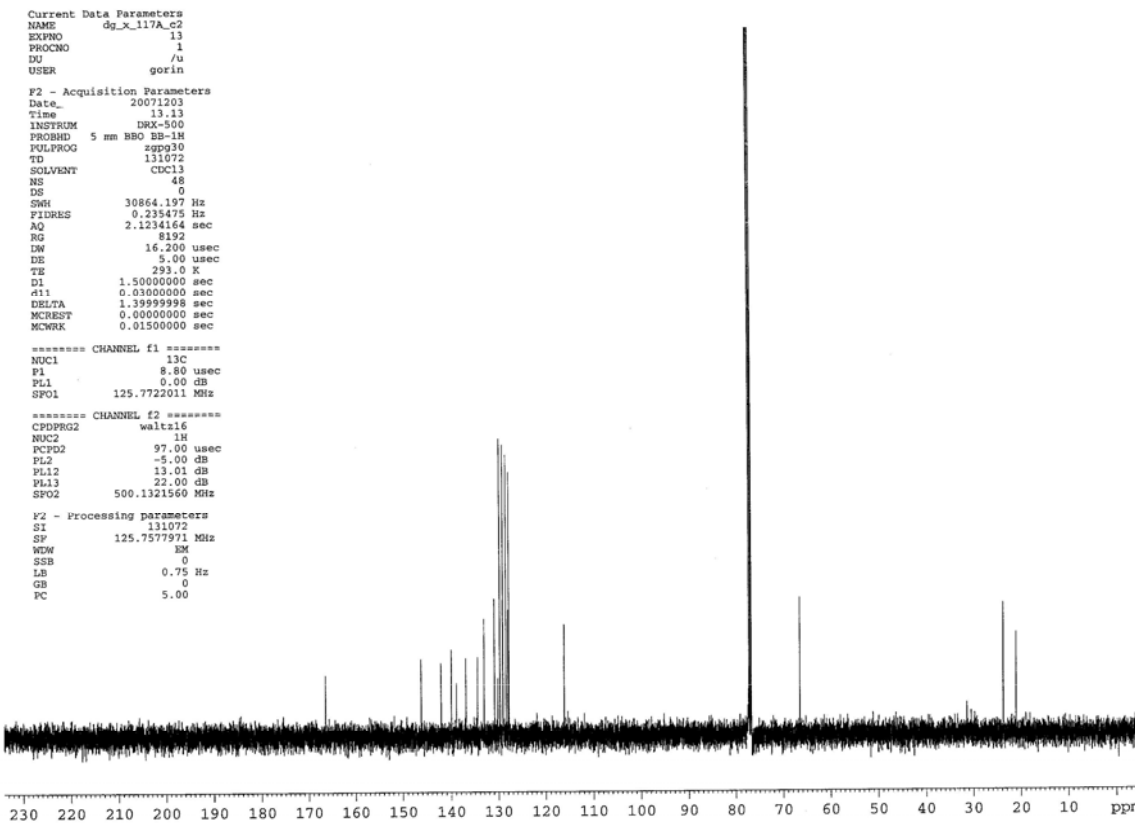
```

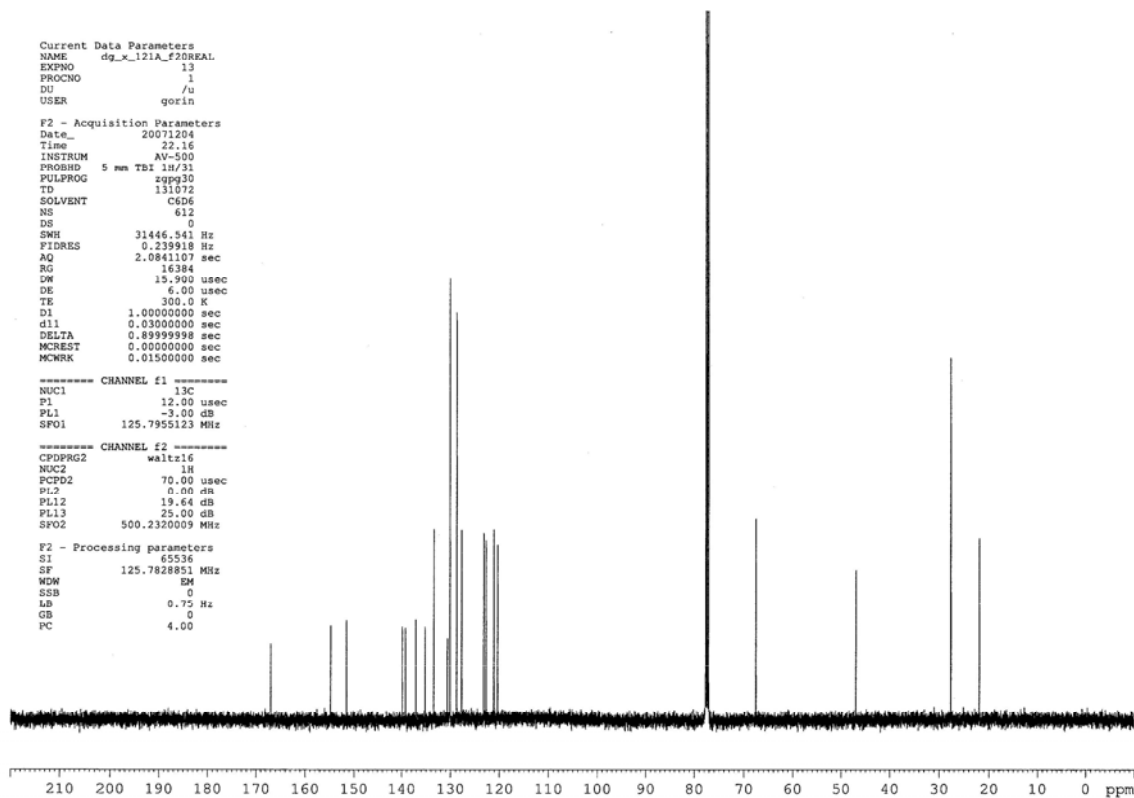
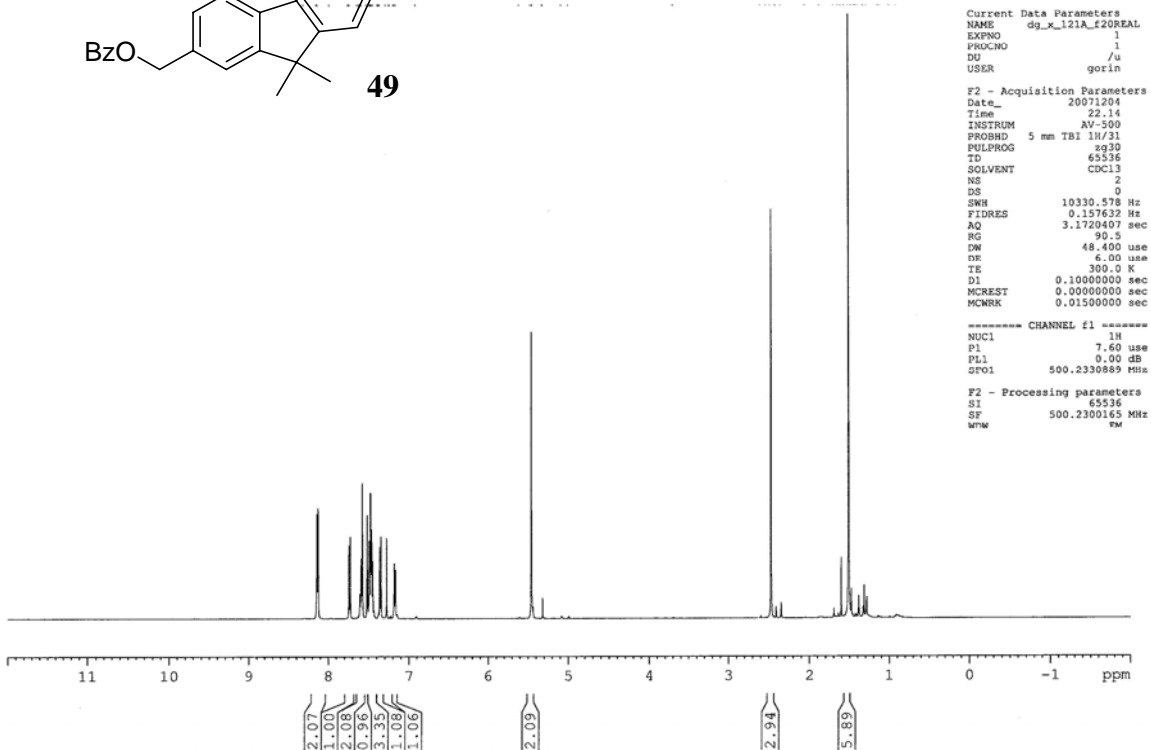
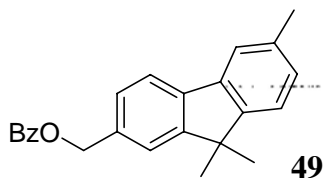
Current Data Parameters
USER          gorin
NAME          dg_x_117A_c2
EXPNO        1
PROCNO       1

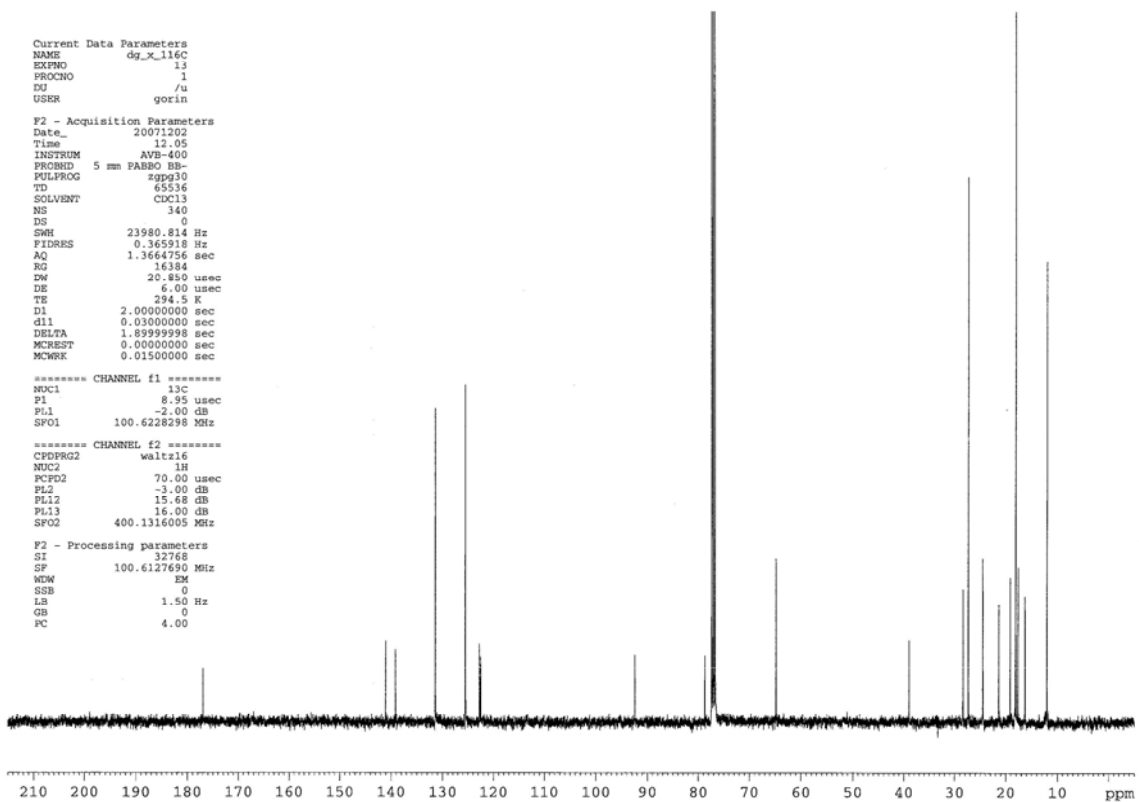
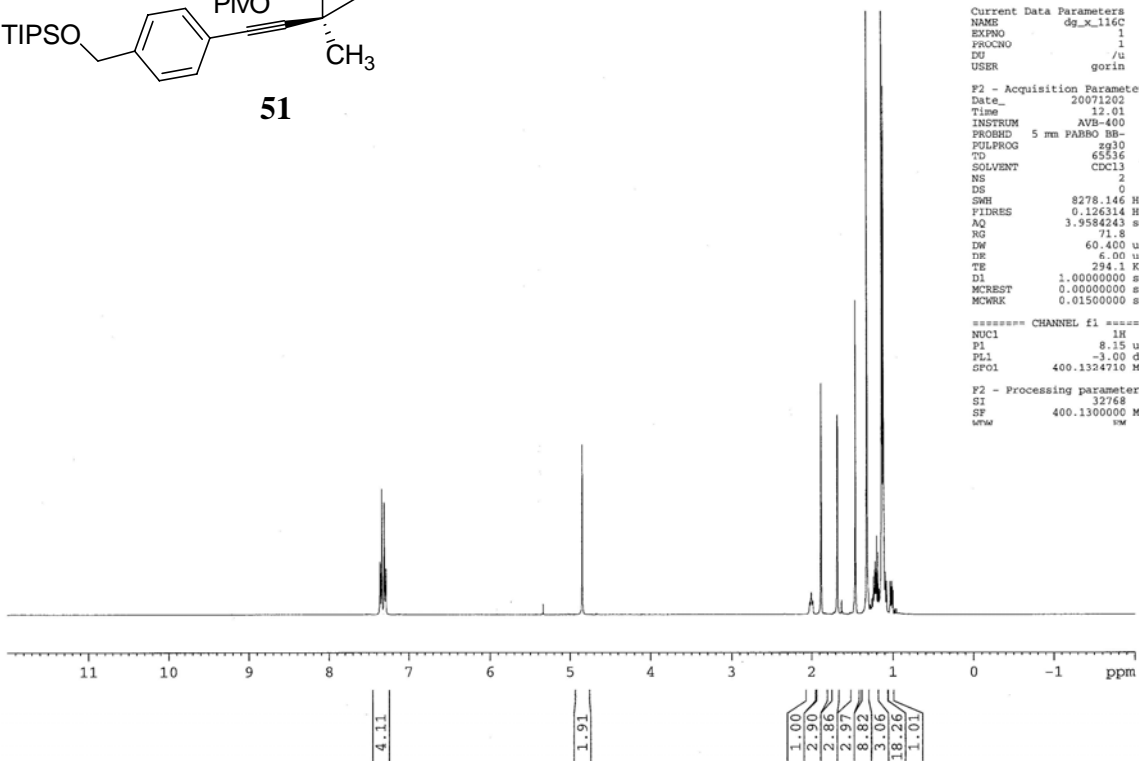
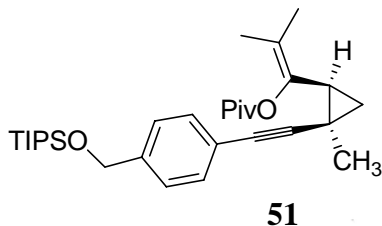
F2 - Acquisition Parameters
Date_        20071203
Time         13.12
INSTRUM      DRX-500
PROBHD       5 mm BBO BB-1H
PULPROG      zg30
TD           65536
SOLVENT      CDCl3
NS           2
DS           0
SWH          10000.000 Hz
FIDRES       0.152588 Hz
AQ           3.2768500 sec
RG           203.2
DM           50.900 use
DE           7.11 use
TE           293.0 K
D1           1.0000000 sec
MCREST       0.0000000 sec
MCWRK        0.0150000 sec

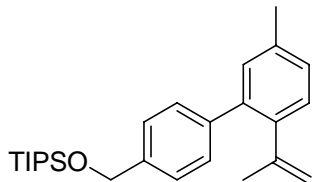
===== CHANNEL f1 =====
NUC1          1H
P1            12.20 use
PL1           -5.00 dB
SFO1          500.1330883 MHz

F2 - Processing parameters
SI            65536
SF            500.1300127 MHz
WDW           EM
SSB           0
GB            0
PC            5.00
    
```

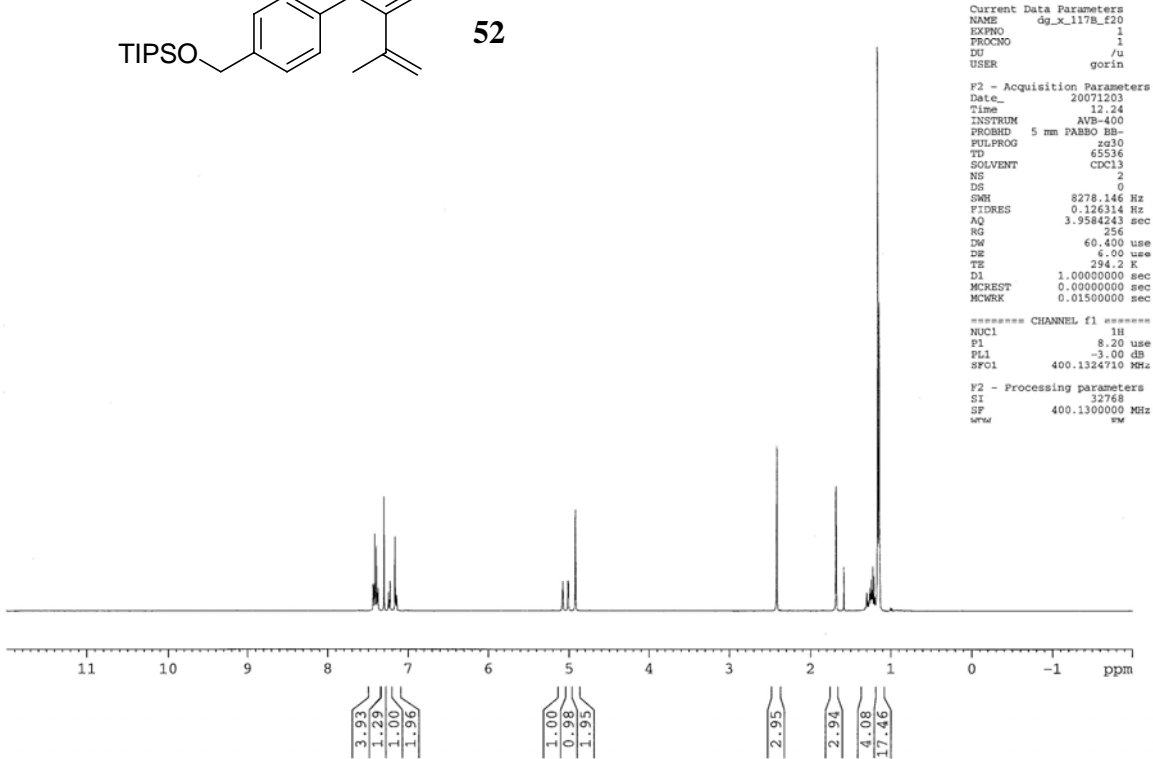








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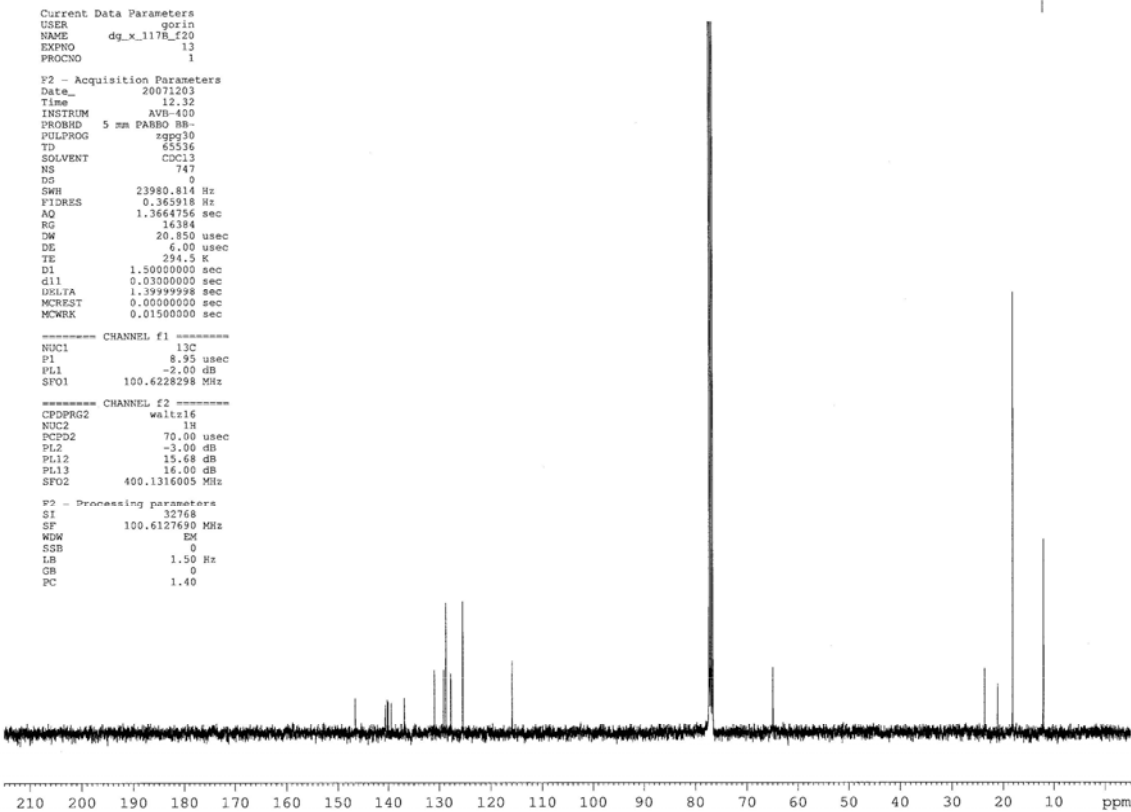


```
Current Data Parameters
NAME      dg_x_117B_f20
EXPNO    1
PROCNO   1
DI       /u
USER     gorin

F2 - Acquisition Parameters
Date_    20071203
Time     12.24
INSTRUM  AVB-400
PROBHD   5 mm PABBO BB-
PULPROG  zg30
TD       65536
SOLVENT  CDCl3
NS       2
DS       0
SWH      8278.146 Hz
FIDRES   0.126314 Hz
AQ       3.9584243 sec
RG       256
DW       60.400 usec
DE       6.00 usec
TE       294.2 K
D1       1.00000000 sec
MCREST   0.00000000 sec
MCWRK    0.01500000 sec

===== CHANNEL f1 =====
NUC1     1H
P1       8.20 usec
PL1     -3.00 dB
SFO1    400.1324710 MHz

F2 - Processing parameters
SI       32768
SF       400.1300000 MHz
WDW      EM
SSB      0
LB       1.50 Hz
GB       0
PC       1.40
```



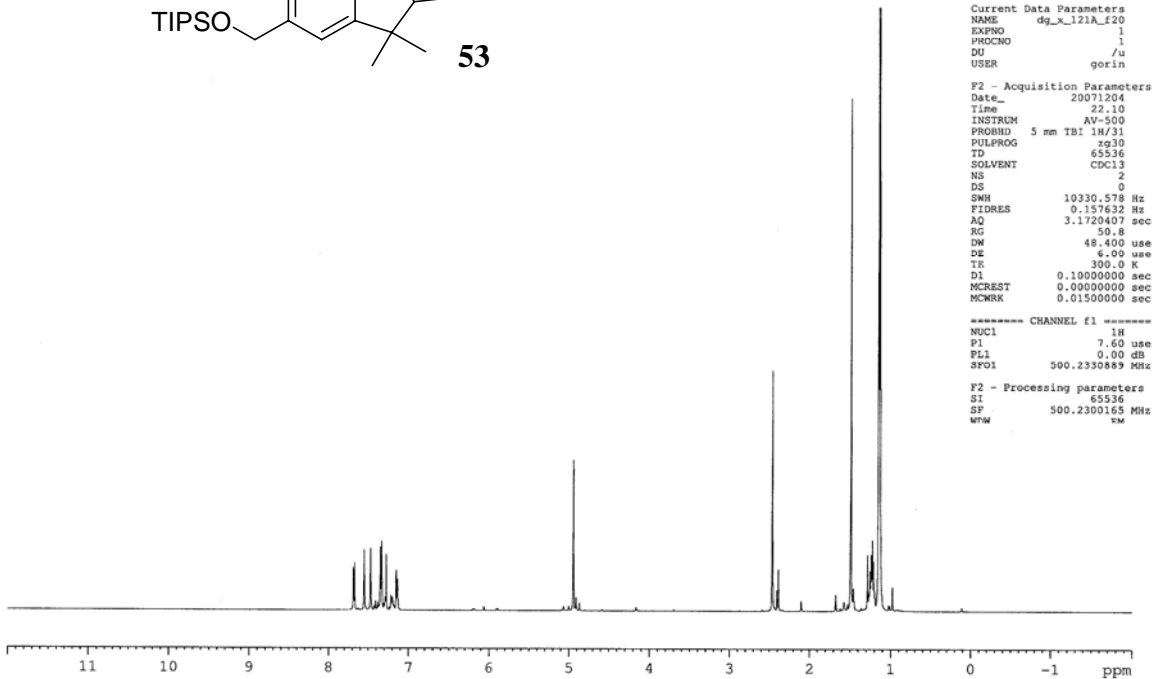
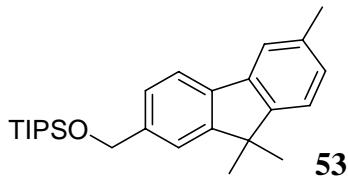
```
Current Data Parameters
USER     gorin
NAME     dg_x_117B_f20
EXPNO    13
PROCNO   1

F2 - Acquisition Parameters
Date_    20071203
Time     12.32
INSTRUM  AVB-400
PROBHD   5 mm PABBO BB-
PULPROG  zgpg30
TD       65536
SOLVENT  CDCl3
NS       747
DS       0
SWH      23980.814 Hz
FIDRES   0.365918 Hz
AQ       1.3664756 sec
RG       16384
DW       20.850 usec
DE       6.00 usec
TE       294.5 K
D1       1.50000000 sec
d11      0.03000000 sec
USLTA    1.39999998 sec
MCREST   0.00000000 sec
MCWRK    0.01500000 sec

===== CHANNEL f1 =====
NUC1     13C
P1       8.95 usec
PL1     -2.00 dB
SFO1    100.6228298 MHz

===== CHANNEL f2 =====
CPDPRG2  waltz16
NUC2     1H
PCPD2    70.00 usec
PL2     -3.00 dB
PL12    15.68 dB
PL13    16.00 dB
SFO2    400.1316005 MHz

F2 - Processing parameters
SI       32768
SF       100.6127690 MHz
WDW      EM
SSB      0
LB       1.50 Hz
GB       0
PC       1.40
```



```

Current Data Parameters
NAME      dg_x_121A_f20
EXPNO     1
PROCNO    1
DU        /u
USER      gorin

F2 - Acquisition Parameters
Date_     20071204
Time      22.10
INSTRUM   AV-500
PROBHD    5 mm TBI 1H/31
PULPROG   zg30
TD         65536
SOLVENT   CDCl3
NS         2
DS         0
SWH        10330.578 Hz
FIDRES     0.157632 Hz
AQ         3.1720407 sec
RG         50.8
DW         48.400 usec
DE         6.00 usec
TE         300.0 K
D1         0.10000000 sec
MCREST    0.00000000 sec
MCWRK     0.01500000 sec

----- CHANNEL f1 -----
NUC1       1H
P1         7.60 usec
PL1        0.00 dB
SFO1       500.2330889 MHz

F2 - Processing parameters
SI         65536
SF         500.2300165 MHz
WDW        RM
    
```

```

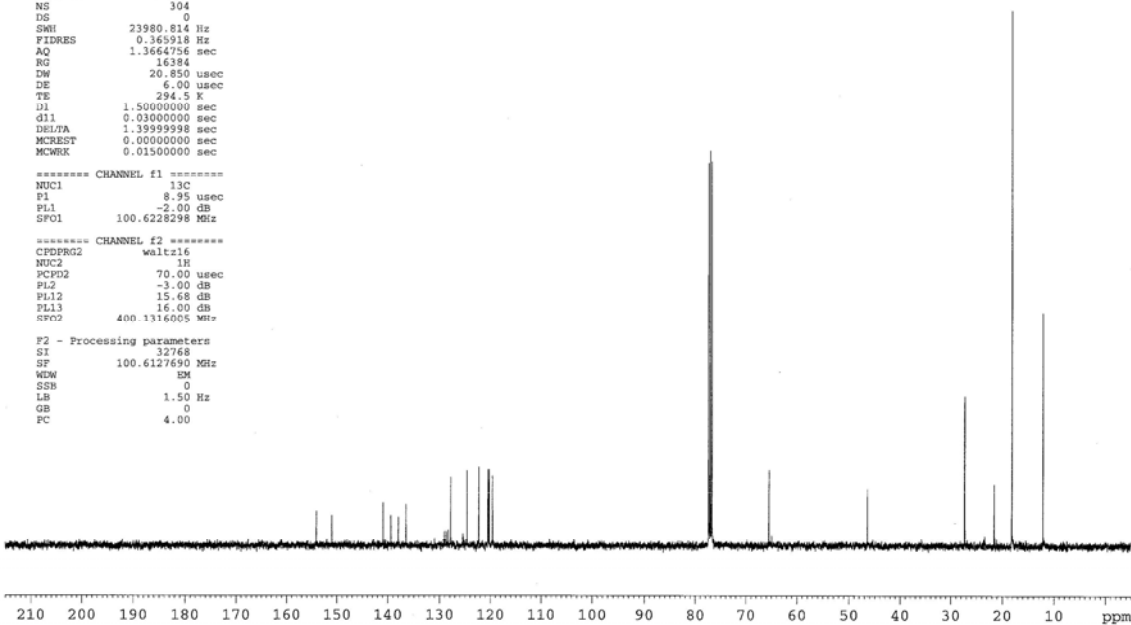
Current Data Parameters
NAME      dg_x_121B
EXPNO     13
PROCNO    1
TE        /u
USER      gorin

F2 - Acquisition Parameters
Date_     20071205
Time      11.02
INSTRUM   AVB-400
PROBHD    5 mm PABBO BB-
PULPROG   zgpg30
TD         65536
SOLVENT   CDCl3
NS         304
DS         0
SWH        23980.814 Hz
FIDRES     0.365918 Hz
AQ         1.3664756 sec
RG         16384
DW         20.850 usec
DE         6.00 usec
TE         294.5 K
D1         1.50000000 sec
d11        0.03000000 sec
DELTA     1.39999998 sec
MCREST    0.00000000 sec
MCWRK     0.01500000 sec

----- CHANNEL f1 -----
NUC1       13C
P1         8.95 usec
PL1        -2.00 dB
SFO1       100.6228298 MHz

----- CHANNEL f2 -----
CPDPRG2   waltz16
NUC2       1H
PCPD2     70.00 usec
PL2        -3.00 dB
PL12       15.68 dB
PL13       16.00 dB
SFO2       400.1316005 MHz

F2 - Processing parameters
SI         32768
SF         100.6127690 MHz
WDW        EM
SFB        0
LB         1.50 Hz
GB         0
PC         4.00
    
```





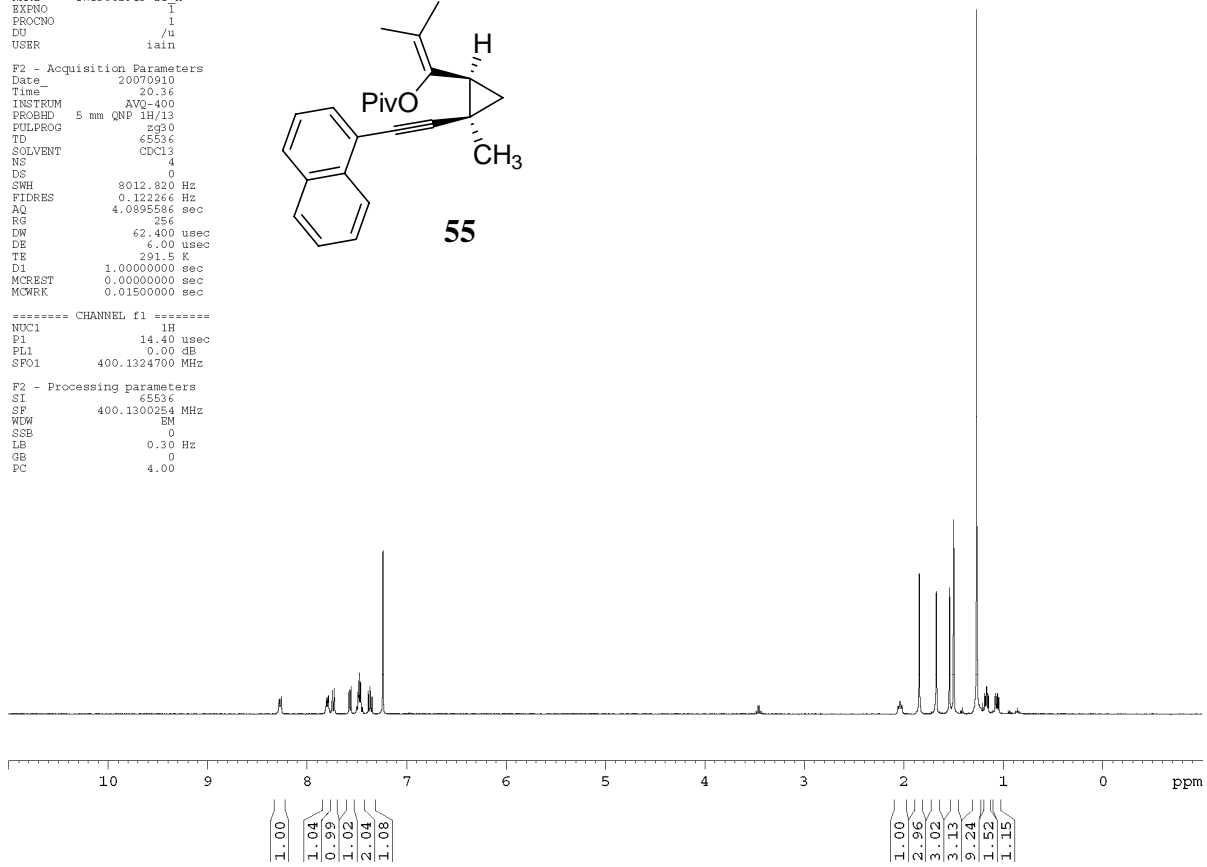
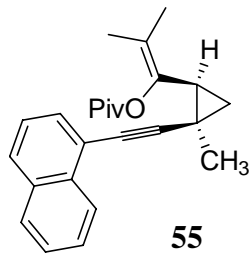
```

Current Data Parameters
NAME      IW13082P13-21_H
EXPNO     1
PROCNO    1
DU        /u
USER      iain

F2 - Acquisition Parameters
Date      20070910
Time      20.36
INSTRUM   AVQ-400
PROBHD    5 mm QNP 1H/13
PULPROG   zg30
TD         65536
SOLVENT   CDCl3
NS         4
DS         0
SWH        8012.820 Hz
FIDRES     0.122266 Hz
AQ         4.0895586 sec
RG         256
DW         62.400 usec
DE         6.00 usec
TE         291.5 K
D1         1.0000000 sec
MCREST     0.0000000 sec
MCWRK     0.0150000 sec

===== CHANNEL f1 =====
NUC1       1H
P1         14.40 usec
PL1        0.00 dB
SFO1       400.1324700 MHz

F2 - Processing parameters
SI         65536
SF         400.1300254 MHz
WDW        EM
SSB        0
LB         0.30 Hz
GB         0
PC         4.00
    
```



AVB-400 Z80 Carbon Starting parameters 6/11/03 RN

```

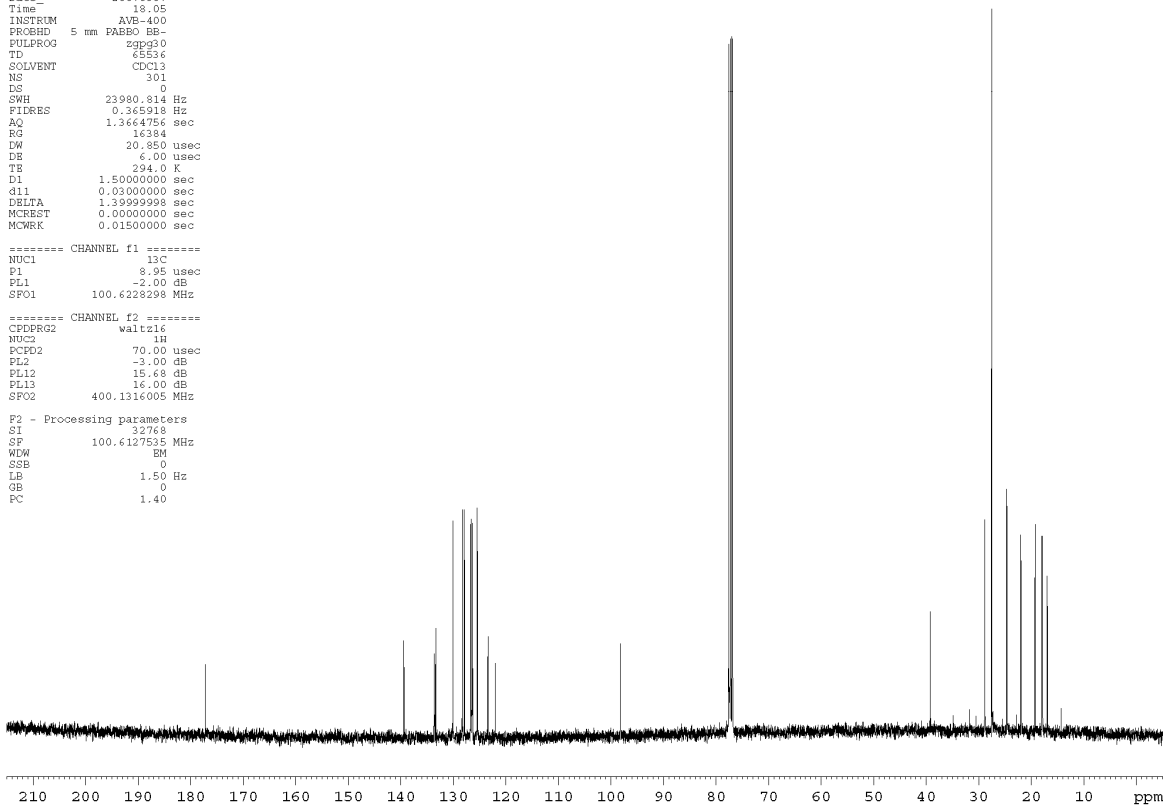
Current Data Parameters
USER      iain
NAME      IW13072F12-13_C
EXPNO     1
PROCNO    1

F2 - Acquisition Parameters
Date      20070907
Time      18.05
INSTRUM   AVB-400
PROBHD    5 mm PABBO BB-
PULPROG   zgpg30
TD         65536
SOLVENT   CDCl3
NS         301
DS         0
SWH        23980.914 Hz
FIDRES     0.365918 Hz
AQ         1.3664756 sec
RG         16384
DW         20.850 usec
DE         6.00 usec
TE         294.0 K
D1         1.5000000 sec
d11        0.0300000 sec
DELTA      1.3999999 sec
MCREST     0.0000000 sec
MCWRK     0.0150000 sec

===== CHANNEL f1 =====
NUC1       13C
P1         8.95 usec
PL1        -2.00 dB
SFO1       100.6228298 MHz

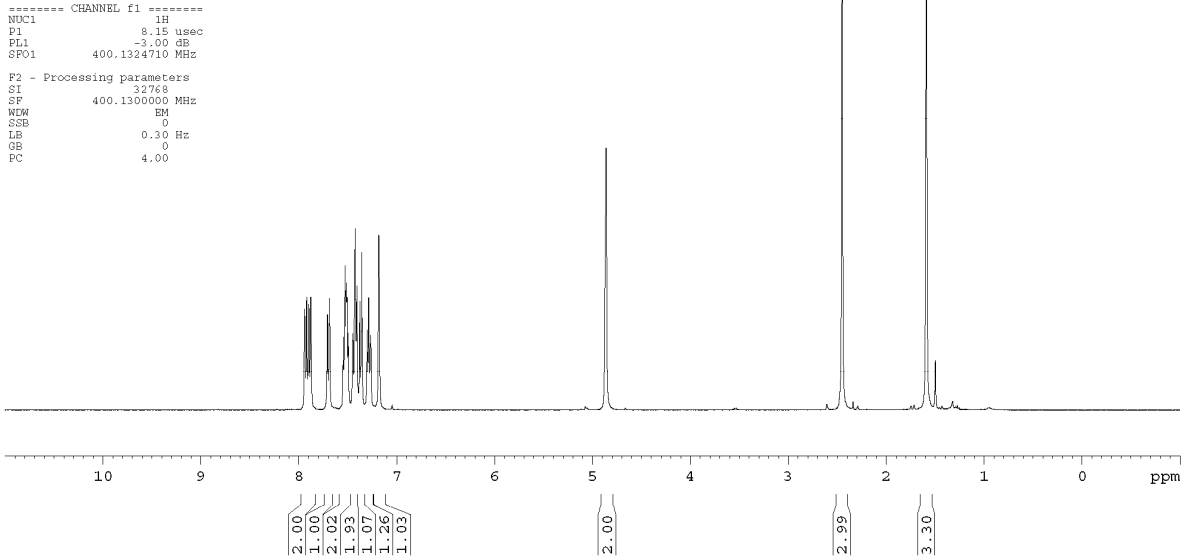
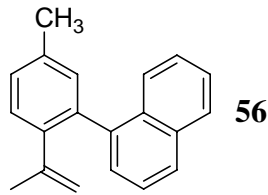
===== CHANNEL f2 =====
CPDPRG2   waltz16
NUC2       1H
PCPD2     70.00 usec
PL2        -3.00 dB
PL12       15.68 dB
PL13       16.00 dB
SFO2       400.1316005 MHz

F2 - Processing parameters
SI         32768
SF         100.6127535 MHz
WDW        EM
SSB        0
LB         1.50 Hz
GB         0
PC         1.40
    
```



```
Current Data Parameters
USER      iain
NAME      IW13086FS-7_H
EXPNO     1
PROCNO    1

F2 - Acquisition Parameters
Date_     20070911
Time      18.58
INSTRUM   AVB-400
PROBHD    5 mm PABBO BB-
PULPROG   zg30
TD         65536
SOLVENT   CDCl3
NS         4
DS         0
SWH        8278.146 Hz
FIDRES     0.126314 Hz
AQ         3.9584243 sec
RG         128
DW         60.400 usec
DE         6.00 usec
TE         293.8 K
D1         1.0000000 sec
MCREST    0.0000000 sec
MCWRK     0.0150000 sec
```



AVB-400 ZBO Carbon Starting parameters 6/11/03 RN

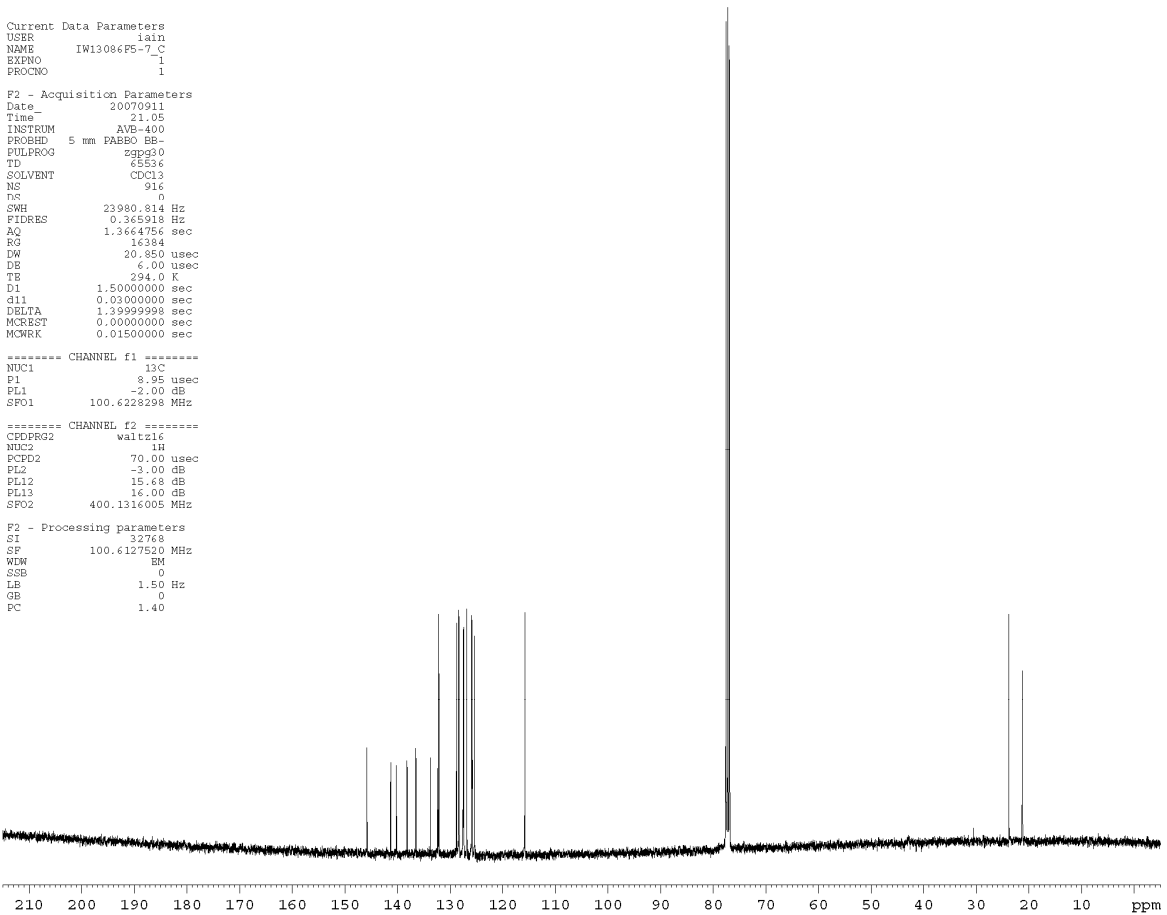
```
Current Data Parameters
USER      iain
NAME      IW13086FS-7_C
EXPNO     1
PROCNO    1

F2 - Acquisition Parameters
Date_     20070911
Time      21.05
INSTRUM   AVB-400
PROBHD    5 mm PABBO BB-
PULPROG   zgpg30
TD         65536
SOLVENT   CDCl3
NS         916
DS         0
SWH        23980.814 Hz
FIDRES     0.365918 Hz
AQ         1.3664756 sec
RG         16384
DW         20.850 usec
DE         6.00 usec
TE         294.0 K
D1         1.5000000 sec
d11        0.0300000 sec
DELTA     1.39999998 sec
MCREST    0.0000000 sec
MCWRK     0.0150000 sec
```

```
***** CHANNEL f1 *****
NUC1      13C
P1         8.95 usec
PL1        -2.00 dB
SFO1      100.6228298 MHz

***** CHANNEL f2 *****
CPDPRG2   waltz16
NUC2       1H
PCPD2     70.00 usec
PL2        -3.00 dB
PL12       15.68 dB
PL13       16.00 dB
SFO2      400.1316005 MHz

F2 - Processing parameters
SI         32768
SF         100.6127520 MHz
WDW        EM
SSB        0
LB         1.50 Hz
GB         0
PC         1.40
```



```

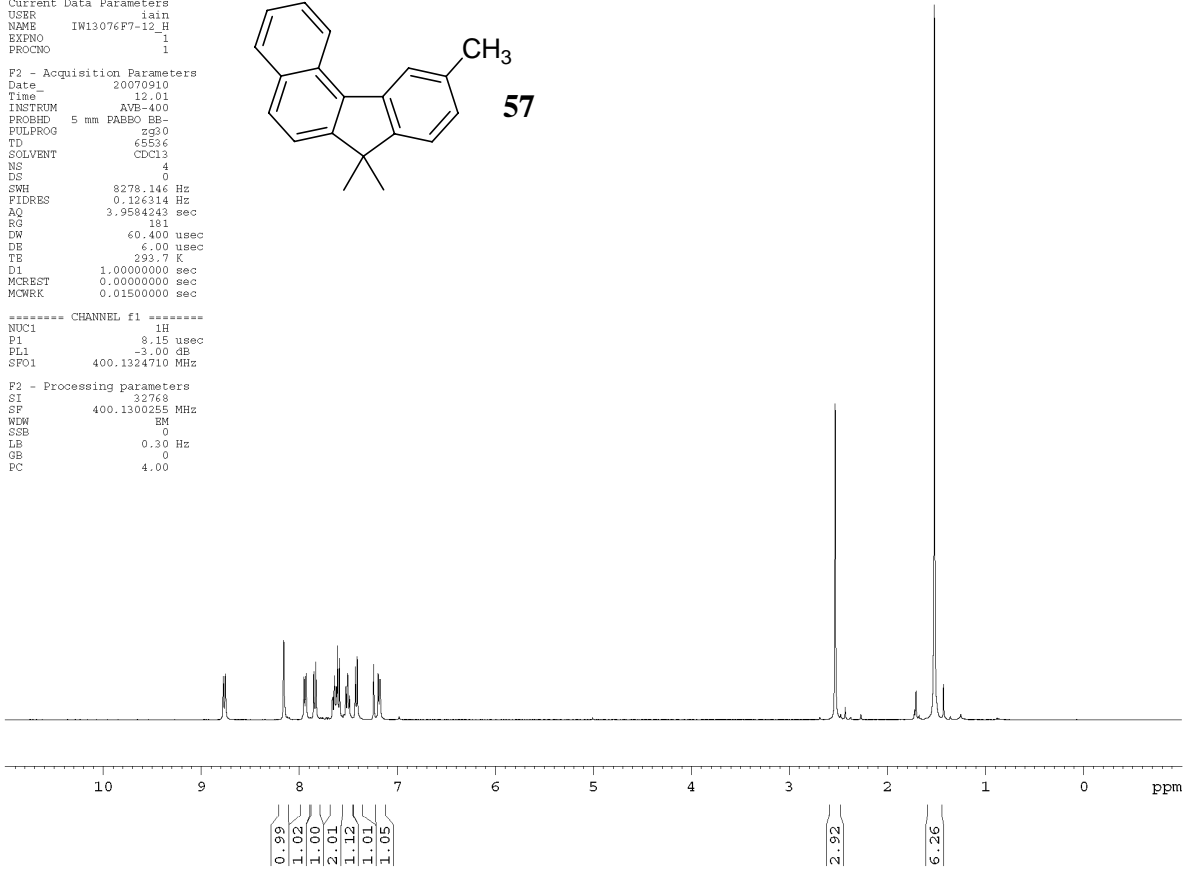
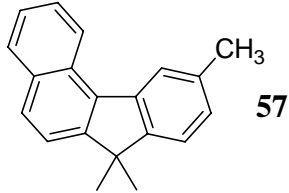
Current Data Parameters
USER      iain
NAME      IW13076F7-12_H
EXPNO     1
PROCNO    1

F2 - Acquisition Parameters
Date_     20070910
Time      12.01
INSTRUM   AVB-400
PROBHD    5 mm PABBO BB-
PULPROG   zg30
TD         65536
SOLVENT   CDCl3
NS         4
DS         0
SWH        8278.146 Hz
FIDRES     0.126314 Hz
AQ         3.9584243 sec
RG         181
DW         60.400 usec
DE         6.00 usec
TE         293.7 K
D1         1.00000000 sec
MCRET     0.00000000 sec
MCWRK     0.01500000 sec

----- CHANNEL f1 -----
NUC1      1H
P1         8.15 usec
PL1        -3.00 dB
SFO1      400.1324710 MHz

F2 - Processing parameters
SI         32768
SF         400.1300255 MHz
WDW        EM
SSB         0
LB         0.30 Hz
GB         0
PC         4.00

```



Iain Watson 13C-NMR AVB-400(CDCl3)

```

Current Data Parameters
USER      iain
NAME      IW13076F7-12_C
EXPNO     1
PROCNO    1

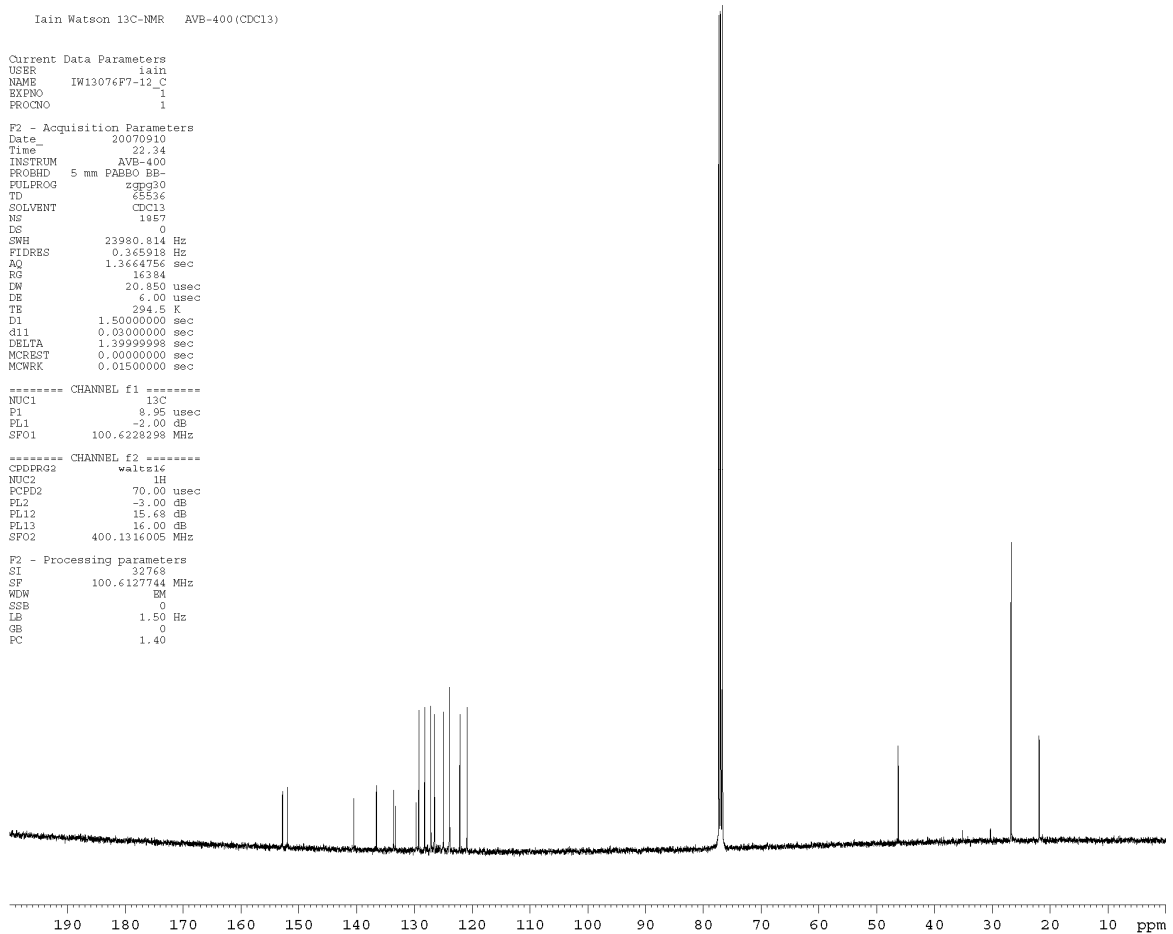
F2 - Acquisition Parameters
Date_     20070910
Time      22.34
INSTRUM   AVB-400
PROBHD    5 mm PABBO BB-
PULPROG   zgpg30
TD         65536
SOLVENT   CDCl3
NS         1857
DS         0
SWH        23980.814 Hz
FIDRES     0.365918 Hz
AQ         1.3664756 sec
RG         16394
DW         20.850 usec
DE         6.00 usec
TE         294.5 K
D1         1.50000000 sec
DELTA     0.03000000 sec
MCRET     1.39999998 sec
MCWRK     0.00000000 sec
MCWRK     0.01500000 sec

----- CHANNEL f1 -----
NUC1      13C
P1         8.95 usec
PL1        -2.00 dB
SFO1      100.6228298 MHz

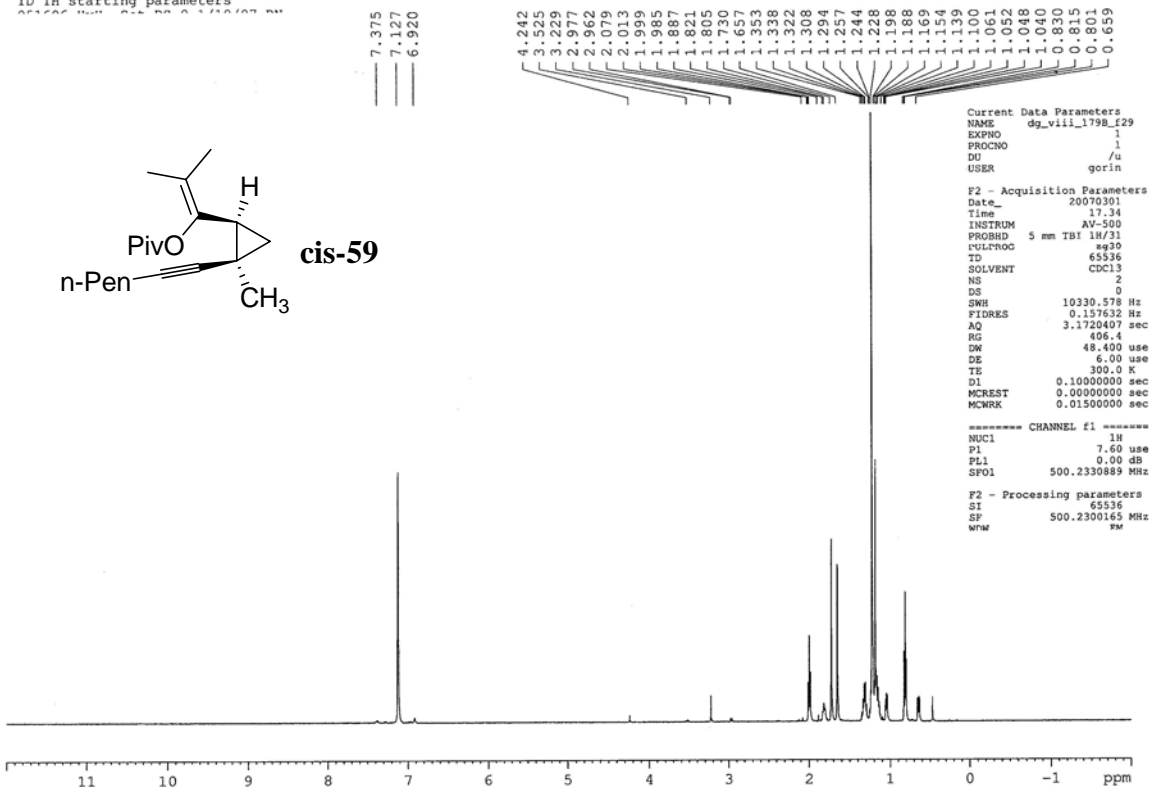
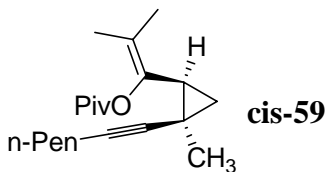
----- CHANNEL f2 -----
CPDPRG23  waltz16
NUC2      1H
PCPD2     70.00 usec
PL2        -2.00 dB
PL12       15.68 dB
PL13       16.00 dB
SFO2      400.1316005 MHz

F2 - Processing parameters
SI         32768
SF         100.6127744 MHz
WDW        EM
SSB         0
LB         1.50 Hz
GB         0
PC         1.40

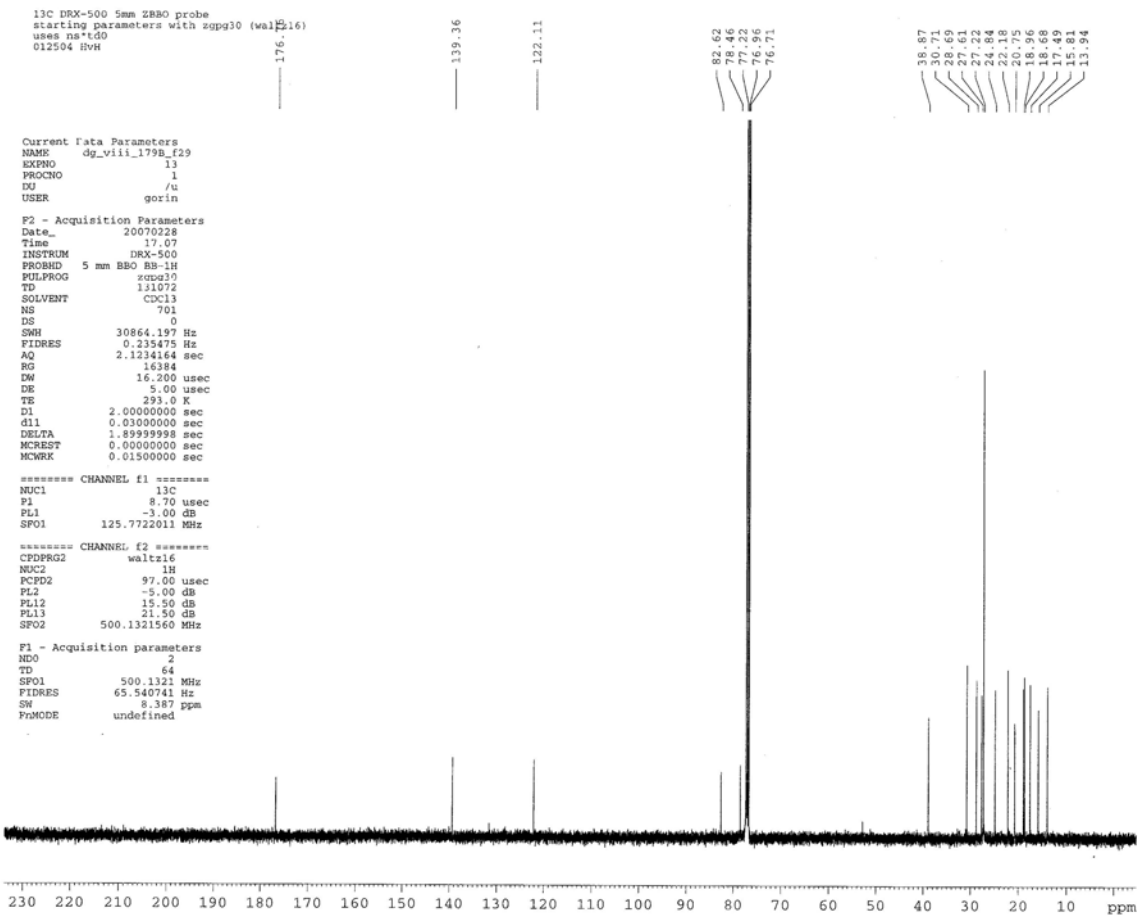
```

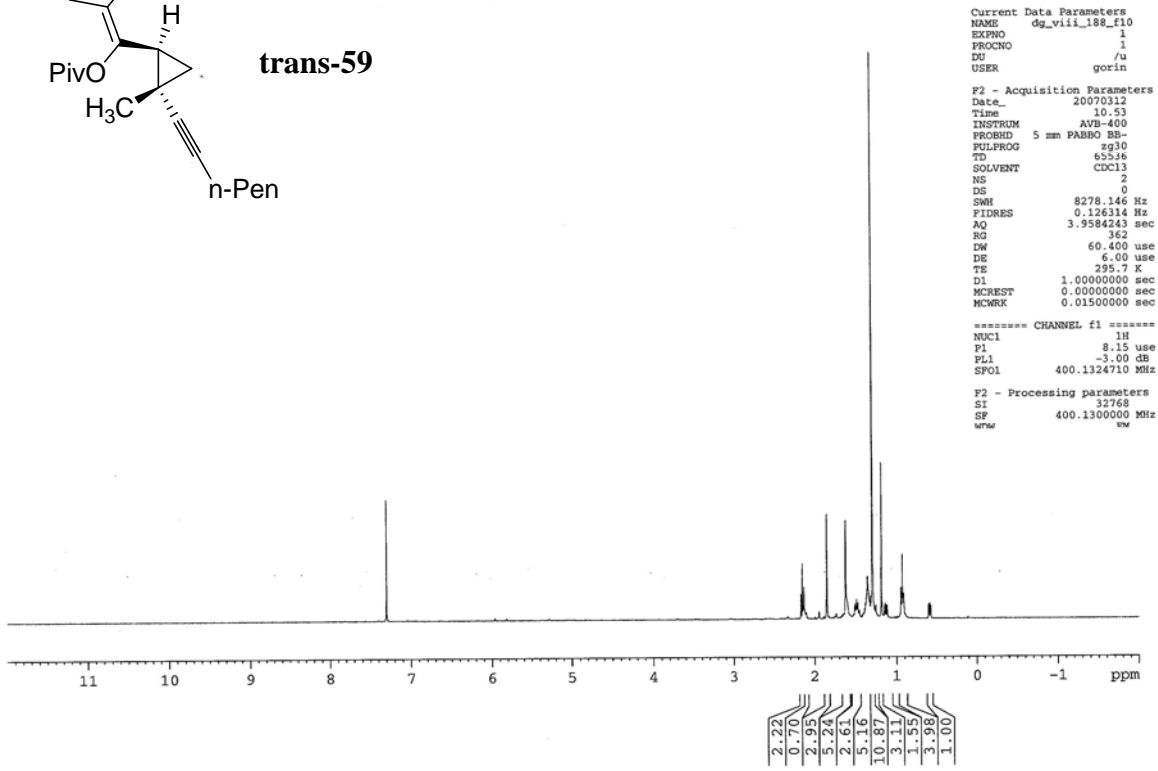
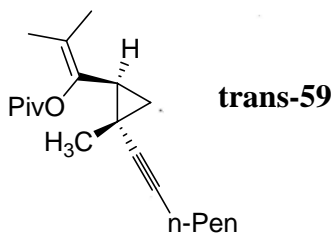


AV-500 new TBI(HXP) probe  
1D 1H starting parameters



13C DRX-500 5mm ZBBO probe  
starting parameters with zgpg30 (walt16)  
uses ns\*td0  
012504 HvH





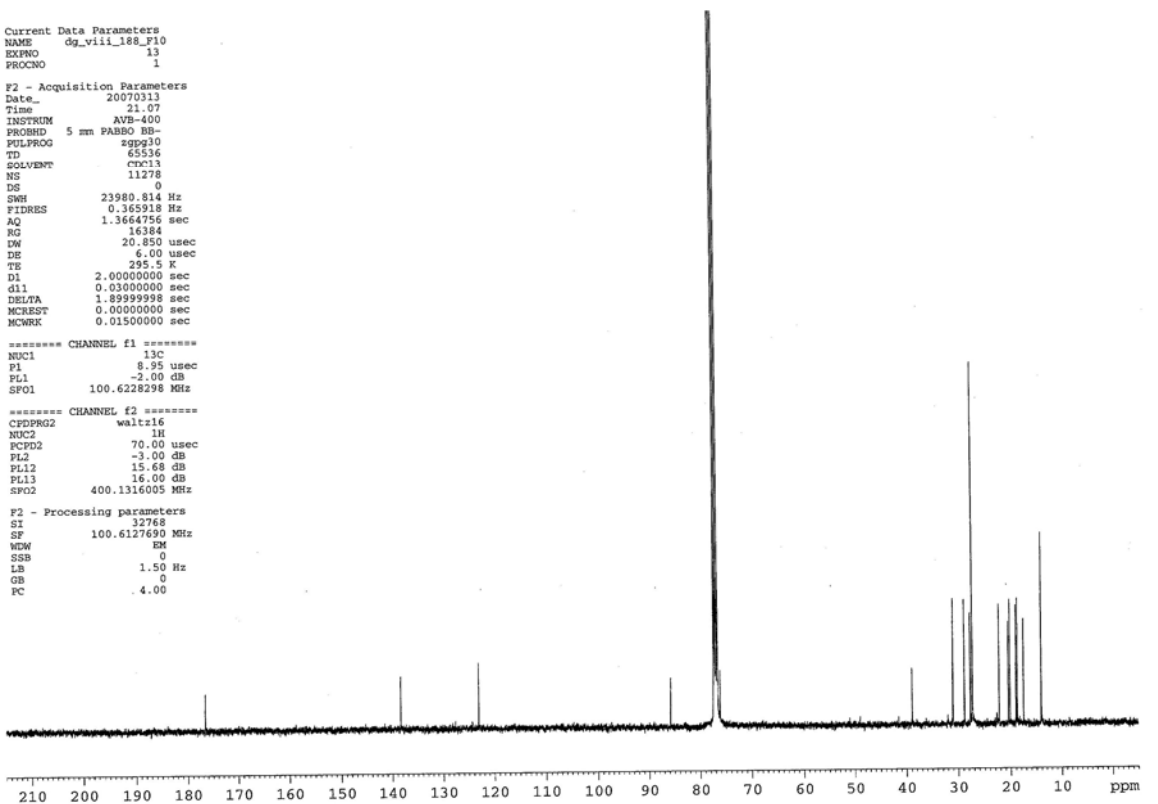
```

Current Data Parameters
NAME      dg_viii_188_f10
EXPNO     1
PROCNO    1
DU         /u
USER      gorin

F2 - Acquisition Parameters
Date_     20070312
Time      10.53
INSTRUM   AVB-400
PROBHD    5 mm PABBO BB-
PULPROG   zg30
TD         65536
SOLVENT   CDC13
NS         2
DS         0
SWH        8278.146 Hz
FIDRES     0.126314 Hz
AQ         3.9584243 sec
RG         362
DW         60.400 usec
DE         6.00 usec
TE         295.7 K
D1         1.00000000 sec
MCREST    0.00000000 sec
MCWRK     0.01500000 sec

===== CHANNEL f1 =====
NUC1      1H
P1        8.15 usec
PL1       -3.00 dB
SFO1      400.1324710 MHz

F2 - Processing parameters
SI         32768
SF         400.1300000 MHz
WDW
    
```



```

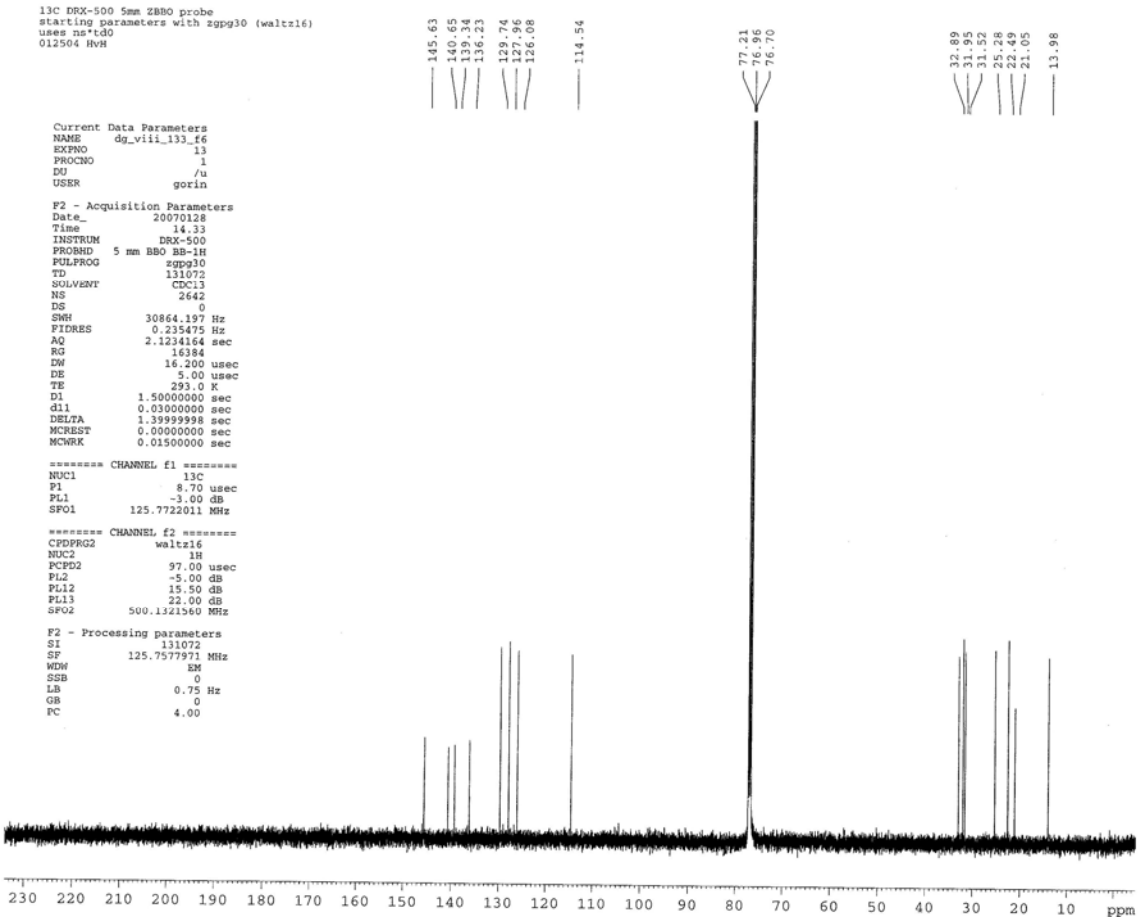
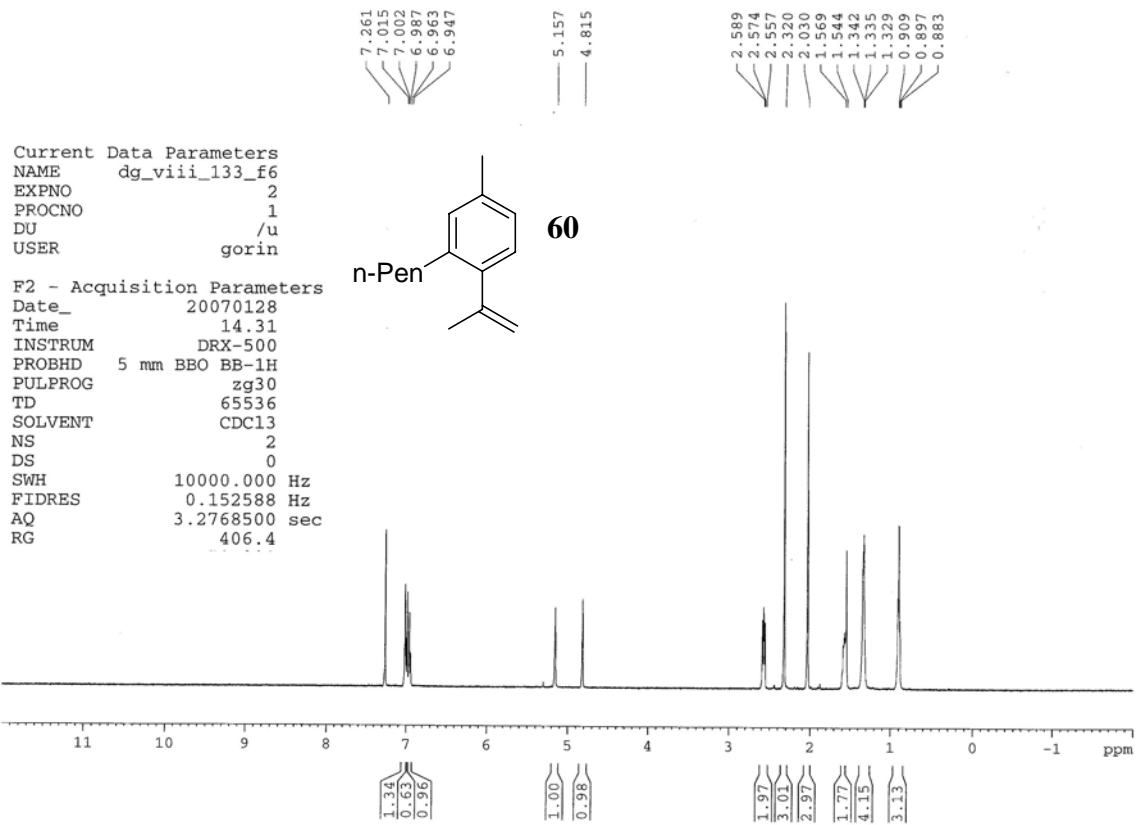
Current Data Parameters
NAME      dg_viii_188_f10
EXPNO     13
PROCNO    1

F2 - Acquisition Parameters
Date_     20070312
Time      21.07
INSTRUM   AVB-400
PROBHD    5 mm PABBO BB-
PULPROG   zgpg30
TD         65536
SOLVENT   CDC13
NS         11278
DS         0
SWH        23980.814 Hz
FIDRES     0.365918 Hz
AQ         1.3664756 sec
RG         16384
DW         20.850 usec
DE         6.00 usec
TE         295.5 K
D1         2.00000000 sec
d11       0.03000000 sec
DELTA     1.89999998 sec
MCREST    0.00000000 sec
MCWRK     0.01500000 sec

===== CHANNEL f1 =====
NUC1      13C
P1        8.95 usec
PL1       -2.00 dB
SFO1      100.6228298 MHz

===== CHANNEL f2 =====
CFDPRG2   waltz16
NUC2      1H
PCPD2     70.00 usec
PL2       -3.00 dB
PL12      15.68 dB
PL13      16.00 dB
SFO2      400.1316005 MHz

F2 - Processing parameters
SI         32768
SF         100.6127690 MHz
WDW        EM
SSB        0
LB         1.50 Hz
GB         0
PC         4.00
    
```



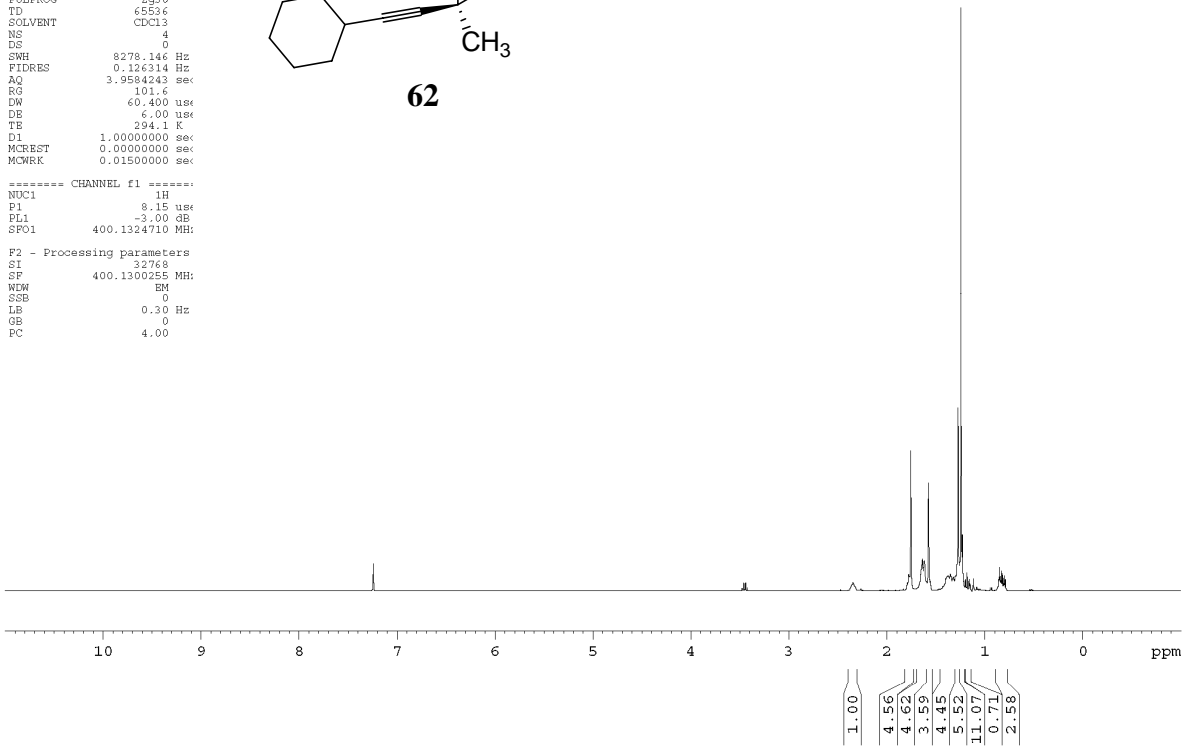
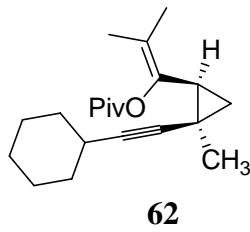
```

Current Data Parameters
USER          iain
NAME         IW14078F9-14_H
EXPNO        1
PROCNO       1

F2 - Acquisition Parameters:
Date_        20071129
Time_        16.43
INSTRUM      AVB-400
PROBHD       5 mm PABBO BB-
PULPROG      zg30
TD           65536
SOLVENT      CDCl3
NS           4
DS           0
SWH          8278.146 Hz
FIDRES       0.126314 Hz
AQ           3.9584243 sec
RG           101.6
DW           60.400 usec
DE           6.00 usec
TE           294.1 K
D1           1.00000000 sec
MCREST       0.00000000 sec
MCWRK        0.01500000 sec

***** CHANNEL f1 *****
NUC1         1H
P1           8.15 usec
PL1          -3.00 dB
SFO1         400.1324710 MHz

F2 - Processing parameters
SI           32768
SF           400.1300255 MHz
WDW          EM
SSB          0
LB           0.30 Hz
GB           0
PC           4.00
    
```



DRX-500 5mm ZBO probe 13C starting parameters. Rev 10/15/07 RN  
With CPD proton decoupling. Use ns\*td0 scans

```

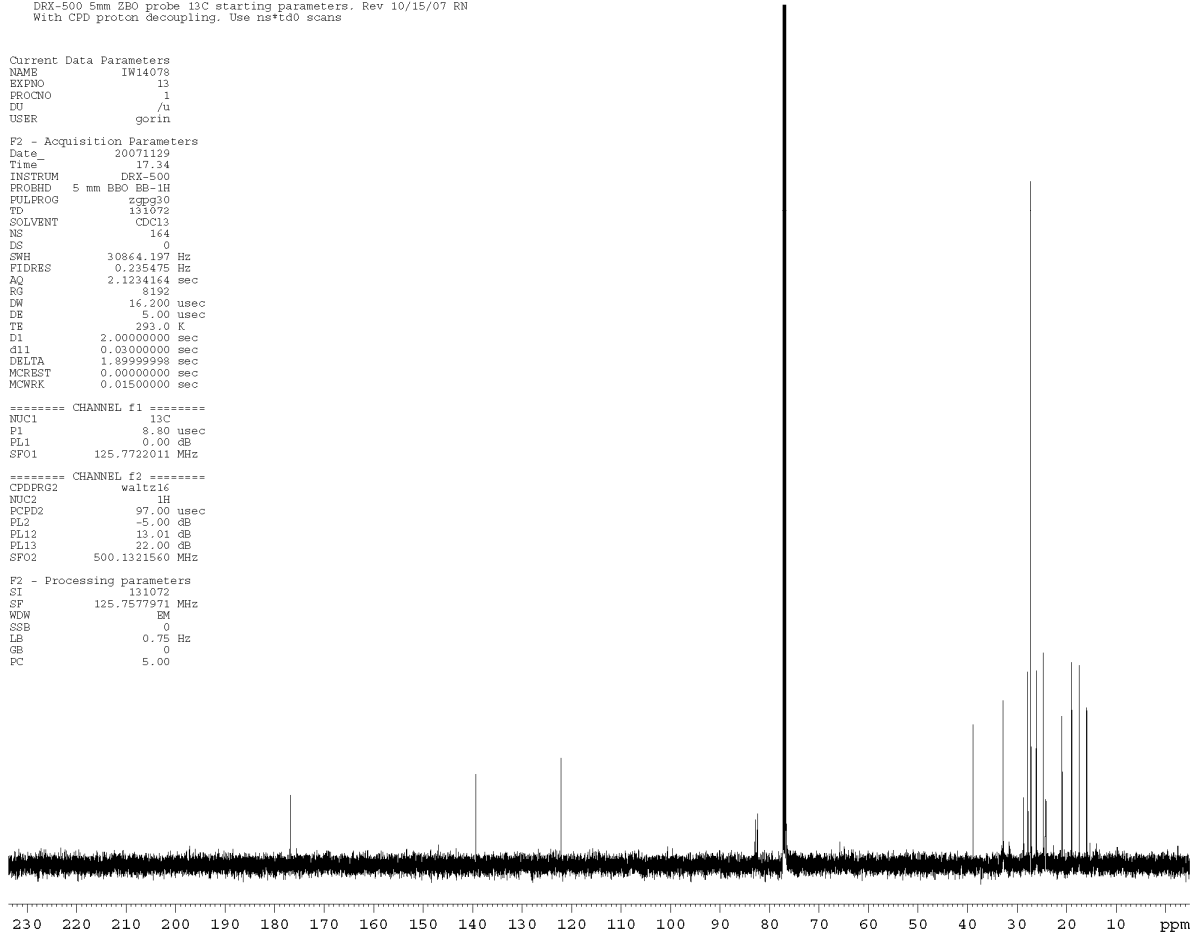
Current Data Parameters
NAME         IW14078
EXPNO        13
PROCNO       1
F1           /a
USER         gorin

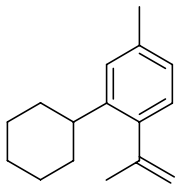
F2 - Acquisition Parameters:
Date_        20071129
Time_        17.34
INSTRUM      DRX-500
PROBHD       5 mm BBO BB-1H
PULPROG      zgpg30
TD           131072
SOLVENT      CDCl3
NS           164
DS           0
SWH          30864.197 Hz
FIDRES       0.225475 Hz
AQ           2.1234164 sec
RG           8192
DW           16.200 usec
DE           5.00 usec
TE           293.0 K
D1           2.00000000 sec
d11          0.03000000 sec
DELTA        1.89999998 sec
MCREST       0.00000000 sec
MCWRK        0.01500000 sec

***** CHANNEL f1 *****
NUC1         13C
P1           8.80 usec
PL1          0.00 dB
SFO1         125.7722011 MHz

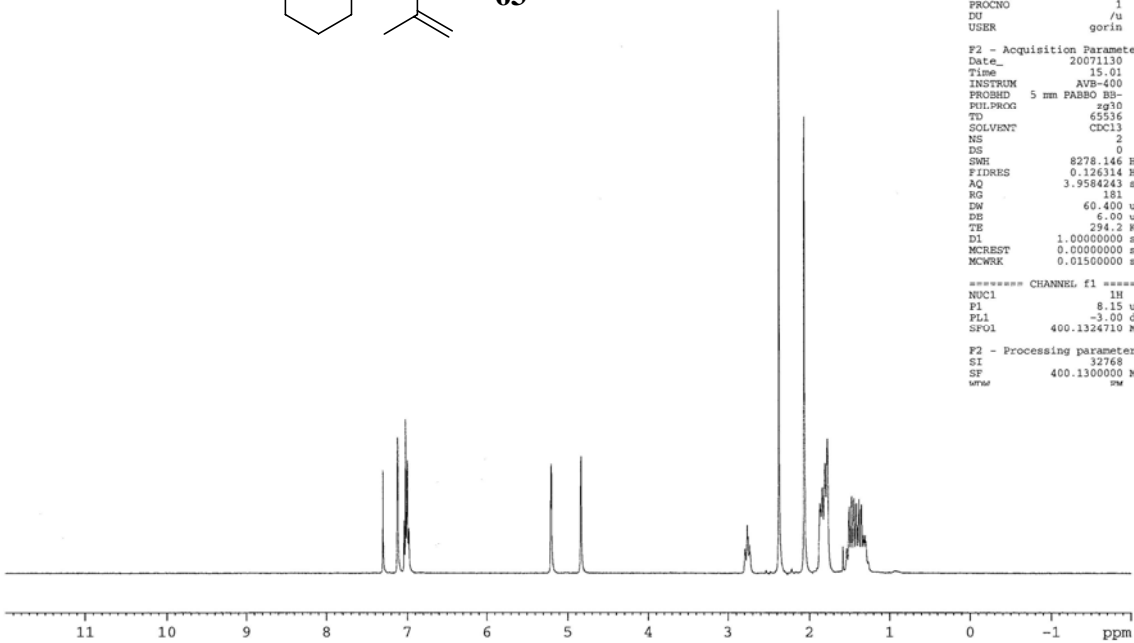
***** CHANNEL f2 *****
CPDPRG2      waltz16
NUC2         1H
PCPD2        97.00 usec
PL2          -5.00 dB
PL12         13.01 dB
PL13         22.00 dB
SFO2         500.1321560 MHz

F2 - Processing parameters
SI           131072
SF           125.7577971 MHz
WDW          EM
SSB          0
LB           0.75 Hz
GB           0
PC           5.00
    
```





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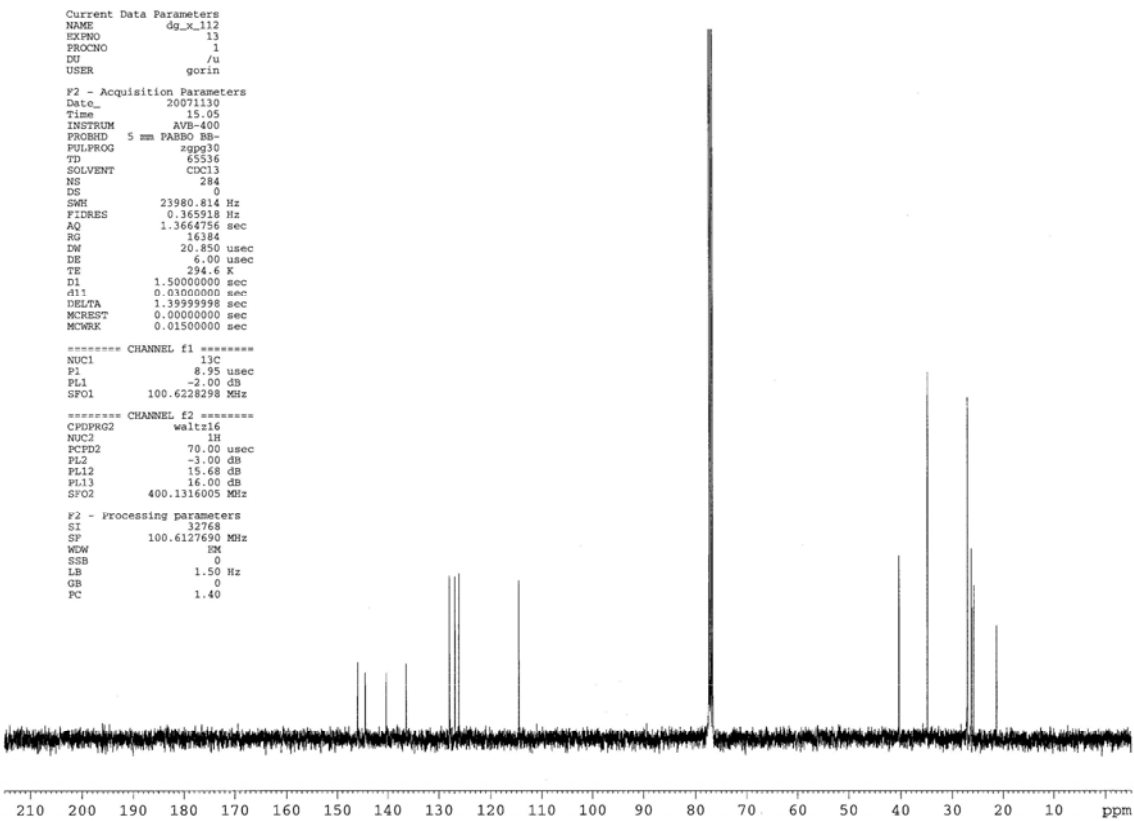
```

Current Data Parameters
NAME      dg_x_112
EXPNO     1
PROCNO    1
DU        /u
USER      gorin

F2 - Acquisition Parameters
Date_     20071130
Time      15.01
INSTRUM   AVB-400
PROBHD    5 mm PABBO BB-
PULPROG   zg30
TD         65536
SOLVENT   CDCl3
NS         2
DS         0
SWH        8278.146 Hz
FIDRES     0.126314 Hz
AQ         3.9584243 sec
RG         181
DW         60.400 usec
DE         6.00 usec
TE         294.2 K
D1         1.00000000 sec
MCREST     0.00000000 sec
MCWRK     0.01500000 sec

***** CHANNEL f1 *****
NUC1       1H
P1         8.15 usec
PL1        -3.00 dB
SFO1       400.1324710 MHz

F2 - Processing Parameters
SI         32768
SF         400.1300000 MHz
  
```



```

Current Data Parameters
NAME      dg_x_112
EXPNO     13
PROCNO    1
DU        /u
USER      gorin

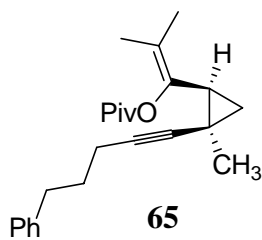
F2 - Acquisition Parameters
Date_     20071130
Time      15.05
INSTRUM   AVB-400
PROBHD    5 mm PABBO BB-
PULPROG   zgpg30
TD         65536
SOLVENT   CDCl3
NS         284
DS         0
SWH        23980.814 Hz
FIDRES     0.365918 Hz
AQ         1.3664756 sec
RG         16384
DW         20.850 usec
DE         6.00 usec
TE         294.6 K
D1         1.50000000 sec
d11        0.03000000 sec
DELTA      1.35999998 sec
MCREST     0.00000000 sec
MCWRK     0.01500000 sec

***** CHANNEL f1 *****
NUC1       13C
P1         8.95 usec
PL1        -2.00 dB
SFO1       100.6228298 MHz

***** CHANNEL f2 *****
CPDPRG2   waltz16
NUC2       1H
PCPD2     70.00 usec
PL2        -3.00 dB
PL12       15.68 dB
PL13       16.00 dB
SFO2       400.1316005 MHz

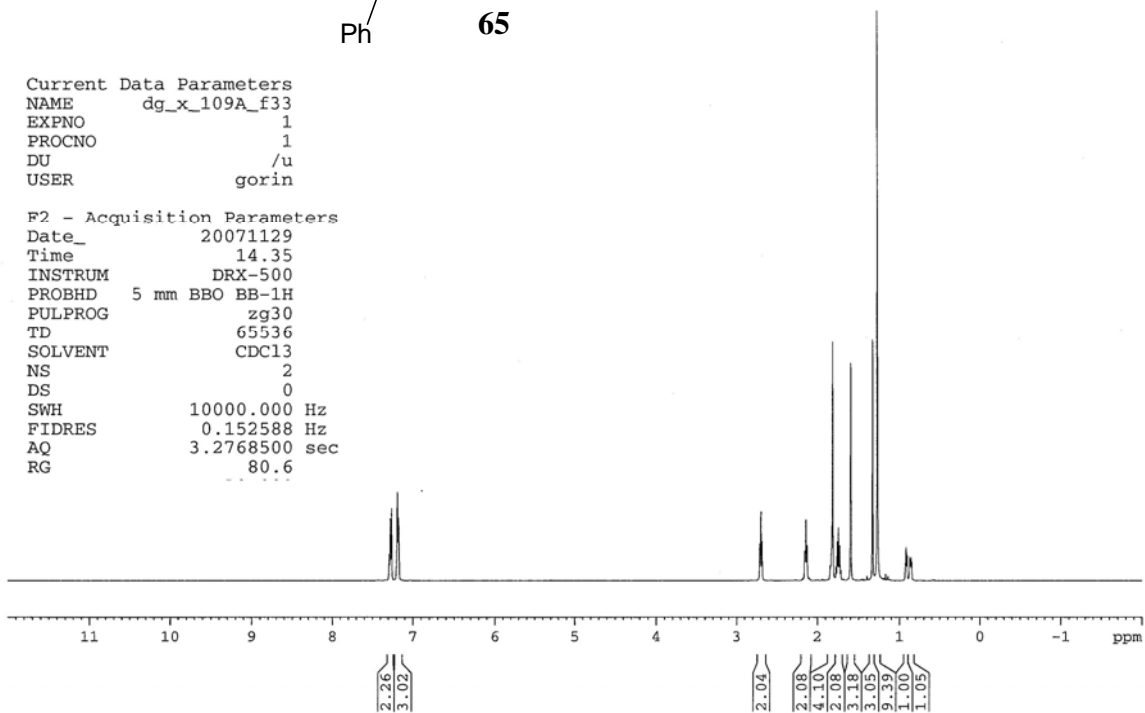
F2 - Processing Parameters
SI         32768
SF         100.6127690 MHz
WDW        EM
SSB        0
LB         1.50 Hz
GB         0
PC         1.40
  
```





Current Data Parameters  
 NAME dg\_x\_109A\_f33  
 EXPNO 1  
 PROCNO 1  
 DU /u  
 USER gorin

F2 - Acquisition Parameters  
 Date\_ 20071129  
 Time 14.35  
 INSTRUM DRX-500  
 PROBHD 5 mm BBO BB-1H  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 2  
 DS 0  
 SWH 10000.000 Hz  
 FIDRES 0.152588 Hz  
 AQ 3.2768500 sec  
 RG 80.6



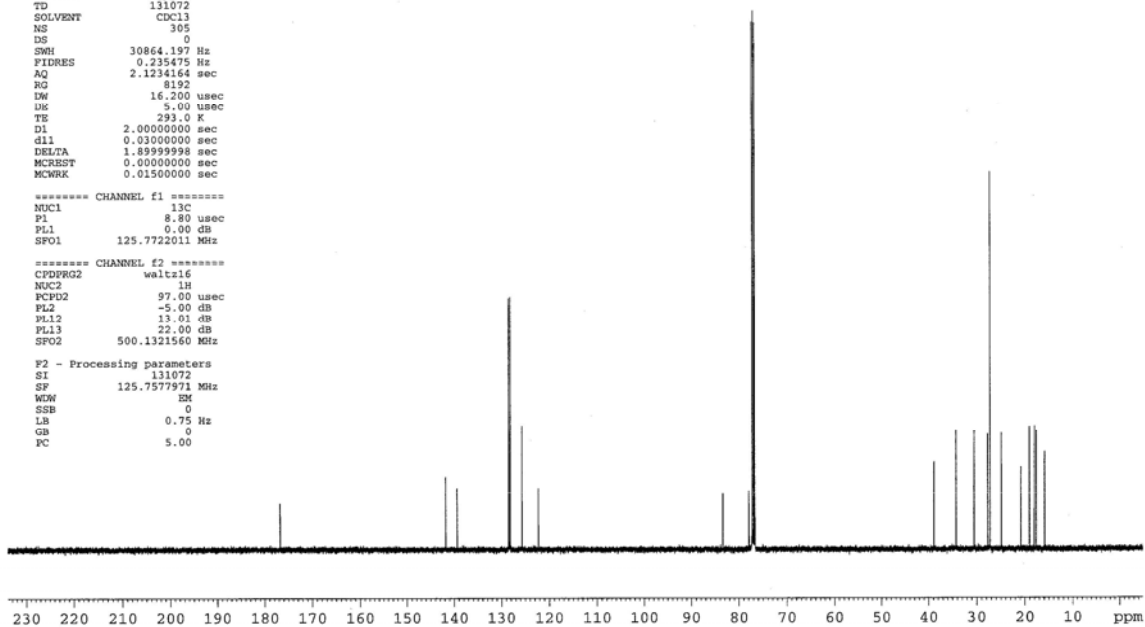
Current Data Parameters  
 NAME dg\_x\_109A\_f33  
 EXPNO 13  
 PROCNO 1  
 DU /u  
 USER gorin

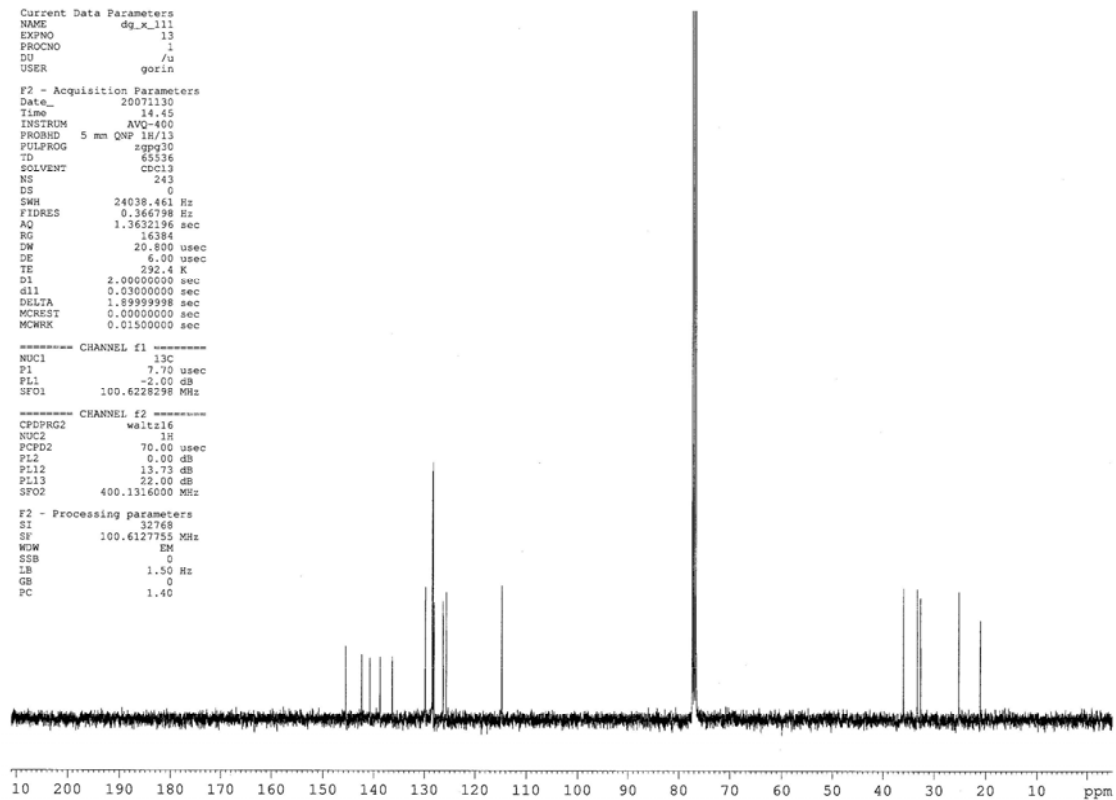
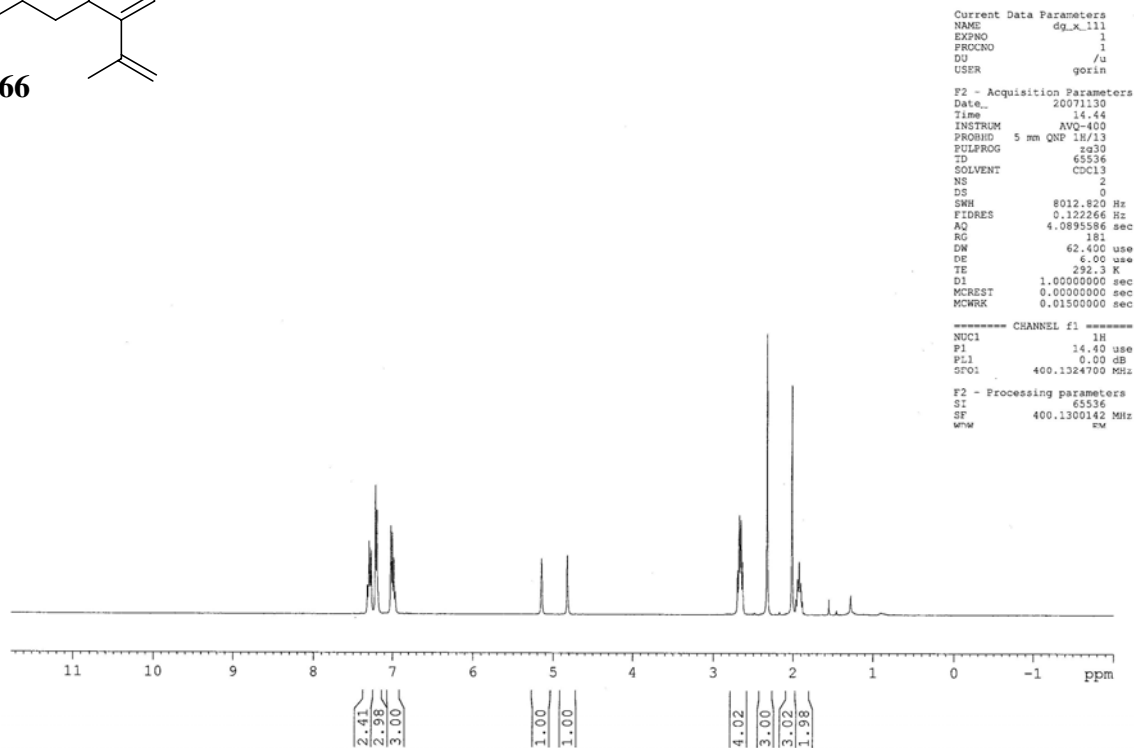
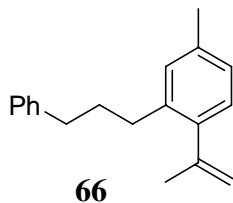
F2 - Acquisition Parameters  
 Date\_ 20071129  
 Time 14.38  
 INSTRUM DRX-500  
 PROBHD 5 mm BBO BB-1H  
 PULPROG zgpg30  
 TD 131072  
 SOLVENT CDCl3  
 NS 305  
 DS 0  
 SWH 30864.197 Hz  
 FIDRES 0.235475 Hz  
 AQ 2.1234164 sec  
 RG 8192  
 DW 16.200 usec  
 DE 5.00 usec  
 TE 293.0 K  
 D1 2.00000000 sec  
 d11 0.03000000 sec  
 DELTA 1.89999998 sec  
 MCREST 0.00000000 sec  
 MCWRK 0.01500000 sec

\*\*\*\*\* CHANNEL f1 \*\*\*\*\*  
 NUC1 13C  
 P1 8.80 usec  
 PL1 0.00 dB  
 SFO1 125.7722011 MHz

\*\*\*\*\* CHANNEL f2 \*\*\*\*\*  
 CPDPRG2 waltz16  
 NUC2 1H  
 FCFD2 97.00 usec  
 PL2 -5.00 dB  
 PL12 13.01 dB  
 PL13 22.00 dB  
 SFO2 500.1321560 MHz

F2 - Processing parameters  
 SI 131072  
 SF 125.7577971 MHz  
 WDW EM  
 SSB 0  
 LB 0.75 Hz  
 GB 0  
 PC 5.00





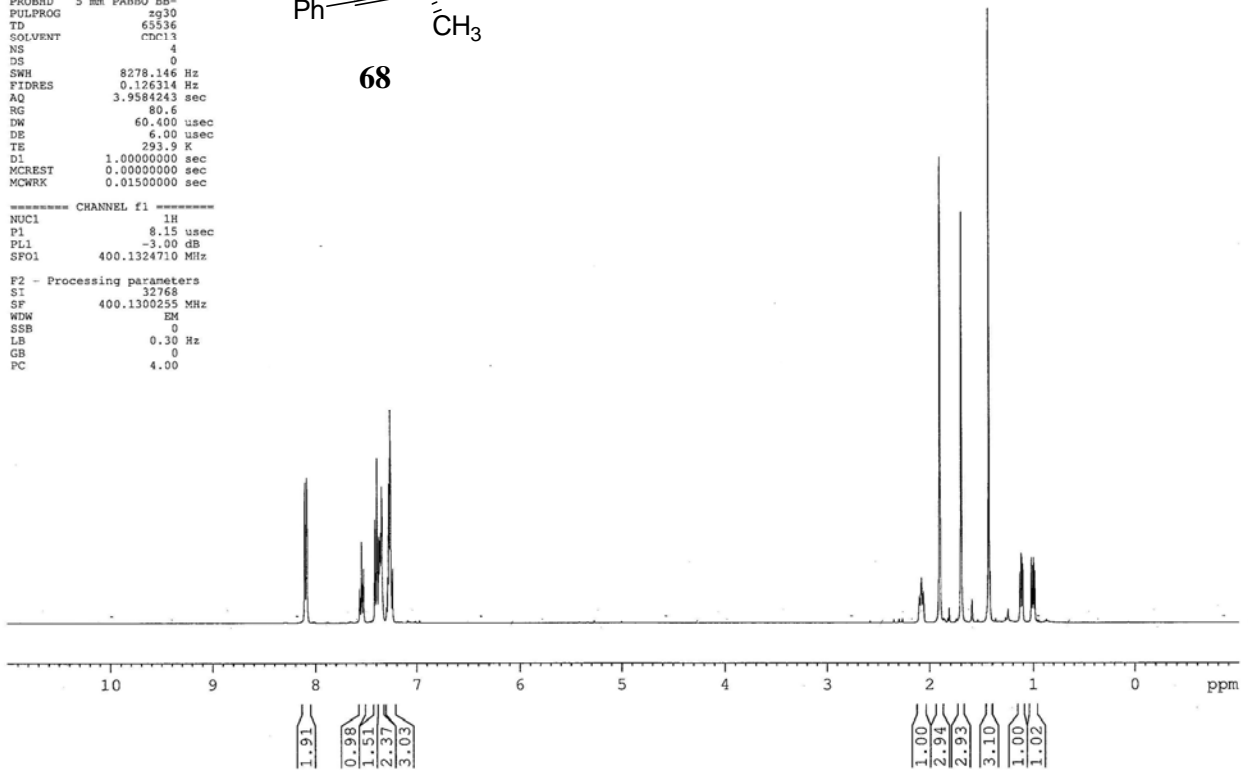
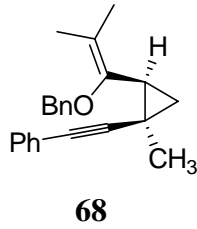
```

Current Data Parameters
USER      iain
NAME      IW12182F23-32
EXPNO     1
PROCNO    1

F2 - Acquisition Parameters
Date_     20070725
Time      21.43
INSTRUM   AVB-400
PROBHD    5 mm PABBO BB-
PULPROG   zg30
TD         65536
SOLVENT   cdcl3
NS         4
DS         0
SWH       8278.146 Hz
FIDRES    0.126314 Hz
AQ         3.9584243 sec
RG         80.6
DW         60.400 usec
DE         6.00 usec
TE         293.9 K
D1         1.00000000 sec
MCREST    0.00000000 sec
MCRWK     0.01500000 sec

----- CHANNEL f1 -----
NUC1       1H
P1         8.15 usec
PL1        -3.00 dB
SFO1       400.1324710 MHz

F2 - Processing parameters
SI         32768
SF         400.1300255 MHz
WDW        EM
SSB        0
LB         0.30 Hz
GB         0
PC         4.00
    
```



AVB-400 ZBO Carbon Starting parameters 6/11/03 RN

```

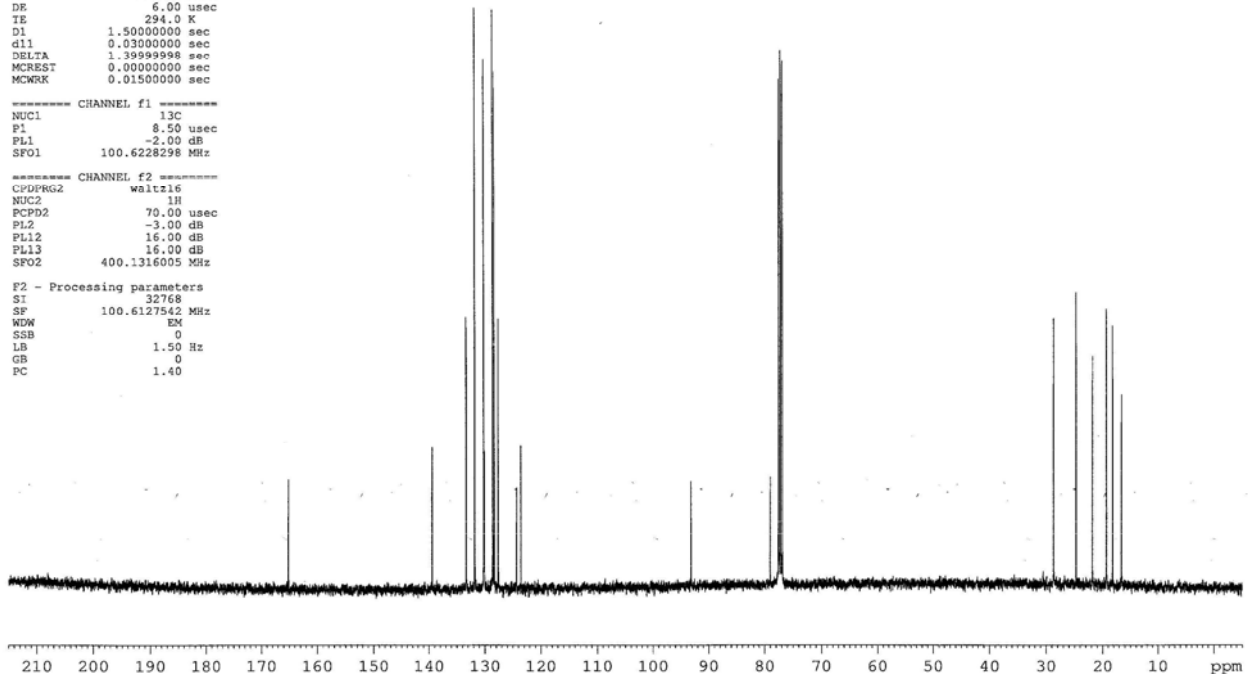
Current Data Parameters
USER      iain
NAME      IW12182F23-32_C
EXPNO     1
PROCNO    1

F2 - Acquisition Parameters
Date_     20070725
Time      21.56
INSTRUM   AVB-400
PROBHD    5 mm PABBO BB-
PULPROG   zgpg30
TD         65536
SOLVENT   CDCl3
NS         429
DS         0
SWH       23980.814 Hz
FIDRES    0.365918 Hz
AQ         1.3664756 sec
RG         16384
DW         20.850 usec
DE         6.00 usec
TE         294.0 K
D1         1.50000000 sec
d11        0.03000000 sec
DELTA     1.39999998 sec
MCREST    0.00000000 sec
MCRWK     0.01500000 sec

----- CHANNEL f1 -----
NUC1       13C
P1         8.50 usec
PL1        -2.00 dB
SFO1       100.6228298 MHz

----- CHANNEL f2 -----
CPDPRG2   waltz16
NUC2       1H
PCPD2     70.00 usec
PL2        -3.00 dB
PL12       16.00 dB
PL13       16.00 dB
SFO2       400.1316005 MHz

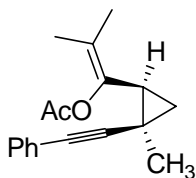
F2 - Processing parameters
SI         32768
SF         100.6127542 MHz
WDW        EM
SSB        0
LB         1.50 Hz
GB         0
PC         1.40
    
```



```

Current Data Parameters
USER      iain
NAME      IW12190F29-40_H
EXPNO     1
PROCNO    1

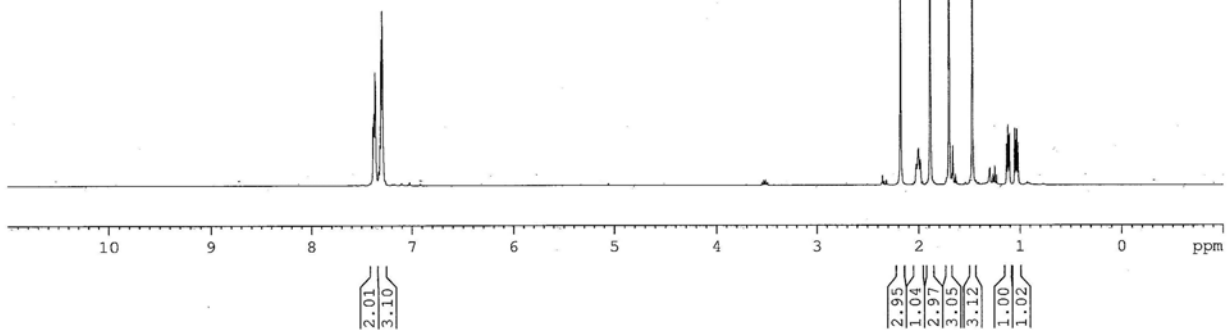
F2 - Acquisition Parameters
Date_     20070730
Time      19.14
INSTRUM   AVB-400
PROBHD    5 mm PABBO BB-
PULPROG   zg30
TD         65536
SOLVENT   CDCl3
NS         4
DS         0
SWH        8278.146 Hz
FIDRES     0.126314 Hz
AQ         3.9584243 sec
RG         80.6
DW         60.400 usec
DE         6.00 usec
TE         293.7 K
D1         1.00000000 sec
MCREST    0.00000000 sec
MCWRK     0.01500000 sec
    
```



```

----- CHANNEL f1 -----
NUC1      1H
P1         8.15 usec
PL1        -3.00 dB
SFO1      400.1324710 MHz

F2 - Processing parameters
SI         32768
SF         400.1300000 MHz
WDW        EM
SSB        0
LB         0.30 Hz
GB         0
PC         4.00
    
```



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```

Current Data Parameters
NAME      IW12190F29-40_C
EXPNO     1
PROCNO    1
DU        /u
USER      iain

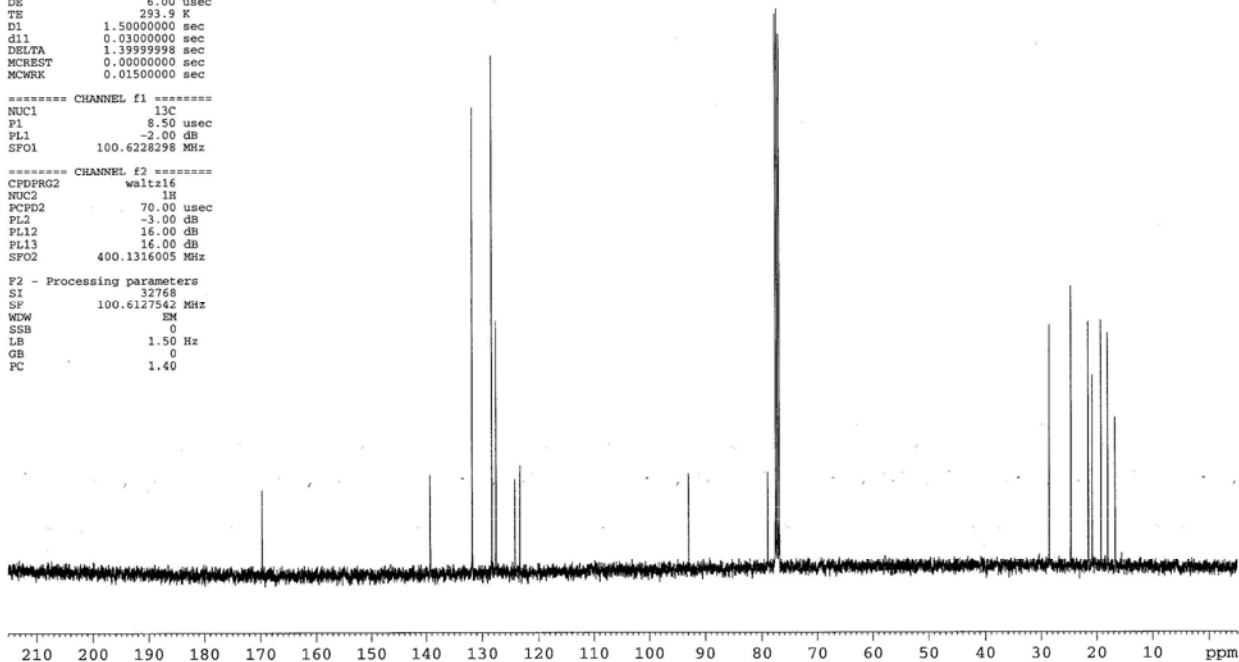
F2 - Acquisition Parameters
Date_     20070731
Time      14.52
INSTRUM   AVB-400
PROBHD    5 mm PABBO BB-
PULPROG   zgpg30
TD         65536
SOLVENT   CDCl3
NS         175
DS         0
SWH        23980.814 Hz
FIDRES     0.365918 Hz
AQ         1.3664756 sec
RG         16384
DW         20.850 usec
DE         6.00 usec
TE         293.9 K
D1         1.50000000 sec
d11        0.03000000 sec
DELTA     1.39999998 sec
MCREST    0.00000000 sec
MCWRK     0.01500000 sec
    
```

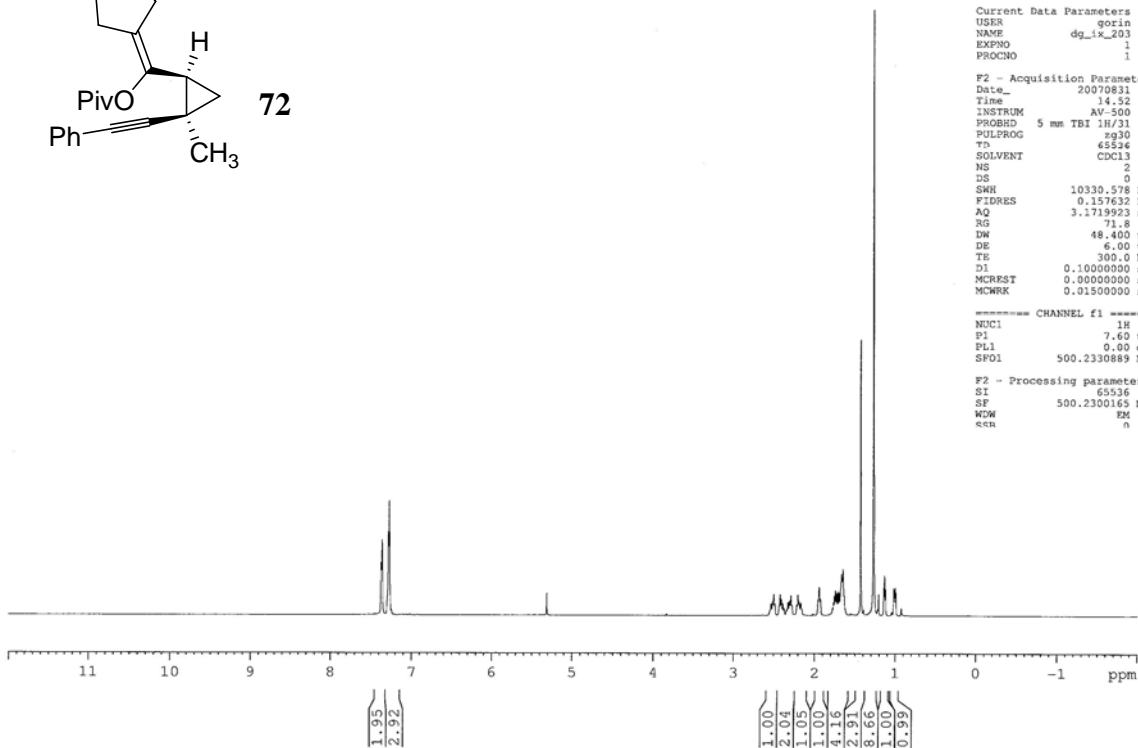
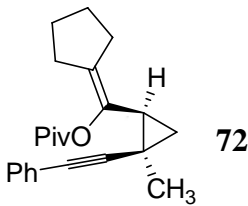
```

----- CHANNEL f1 -----
NUC1      13C
P1         8.50 usec
PL1        -2.00 dB
SFO1      100.6228298 MHz

----- CHANNEL f2 -----
CPDPRG2   waltz16
NUC2      1H
PCPD2     70.00 usec
PL2        -3.00 dB
PL12       16.00 dB
PL13       16.00 dB
SFO2      400.1316005 MHz

F2 - Processing parameters
SI         32768
SF         100.6127842 MHz
WDW        EM
SSB        0
LB         1.50 Hz
GB         0
PC         1.40
    
```





```

Current Data Parameters
USER          gorin
NAME          dg_ix_203
EXPNO        1
PROCNO       1

F2 - Acquisition Parameters
Date_        20070831
Time         14.52
INSTRUM      AV-500
PROBHD       5 mm TBI 1H/31
PULPROG      zg30
TD           65526
SOLVENT      CDCl3
NS           2
DS           0
SWH          10330.578 Hz
FIDRES       0.157632 Hz
AQ           3.1719923 sec
RG           71.8
DW           48.400 usec
DE           6.00 usec
TE           300.0 K
D1           0.10000000 sec
MCREST       0.00000000 sec
MCWRK        0.01500000 sec

----- CHANNEL f1 -----
NUC1          1H
P1            7.60 usec
PL1           0.00 dB
SFO1          500.2330889 MHz

F2 - Processing parameters
SI            65536
SF            500.2300165 MHz
WDW           EM
GB            n
  
```

AV-500 new TBlp probe  
1D 13C(1H) on BB-channel  
051606 HVH

```

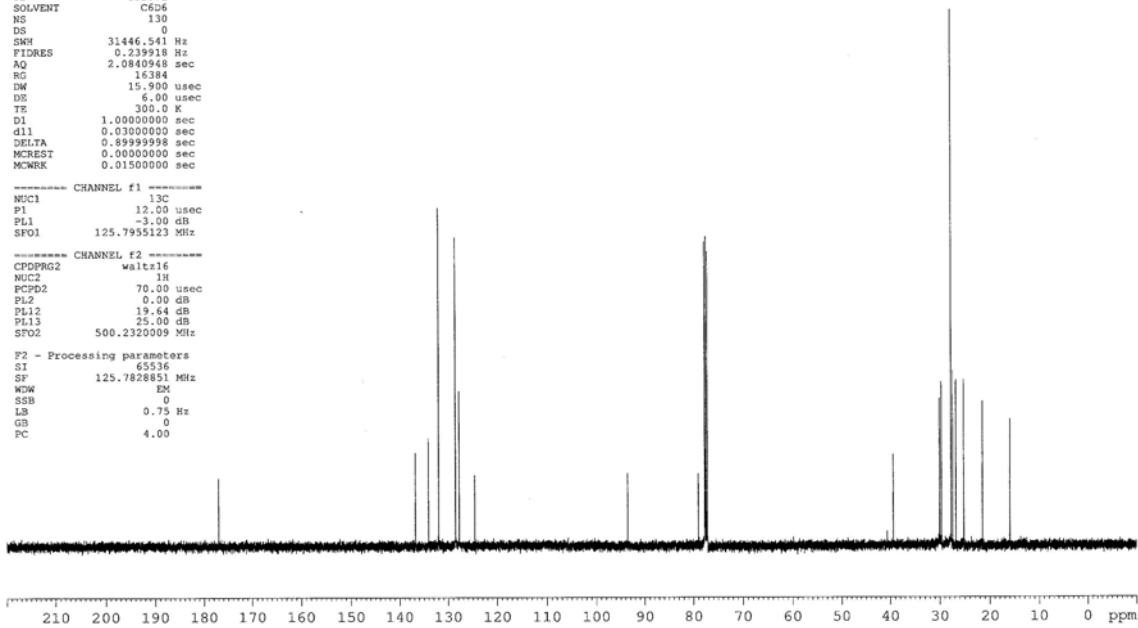
Current Data Parameters
USER          gorin
NAME          dg_ix_203
EXPNO        13
PROCNO       1

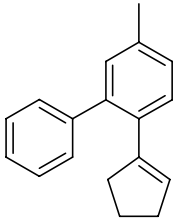
F2 - Acquisition Parameters
Date_        20070831
Time         14.53
INSTRUM      AV-500
PROBHD       5 mm TBI 1H/31
PULPROG      zgpg30
TD           131072
SOLVENT      CDCl3
NS           130
DS           0
SWH          31446.541 Hz
FIDRES       0.239818 Hz
AQ           2.0840948 sec
RG           16384
DW           15.900 usec
DE           6.00 usec
TE           300.0 K
D1           1.00000000 sec
d11          0.03000000 sec
DELTA        0.89999998 sec
MCREST       0.00000000 sec
MCWRK        0.01500000 sec

----- CHANNEL f1 -----
NUC1          13C
P1            12.00 usec
PL1           -3.00 dB
SFO1          125.7955123 MHz

----- CHANNEL f2 -----
CPDPRG2      waltz16
NUC2          1H
PCPD2        70.00 usec
PL2           0.00 dB
PL12         19.64 dB
PL13         25.00 dB
SFO2          500.2320009 MHz

F2 - Processing parameters
SI            65536
SF            125.7828851 MHz
WDW           EM
SSB           0
LB            0.75 Hz
GB            0
PC            4.00
  
```





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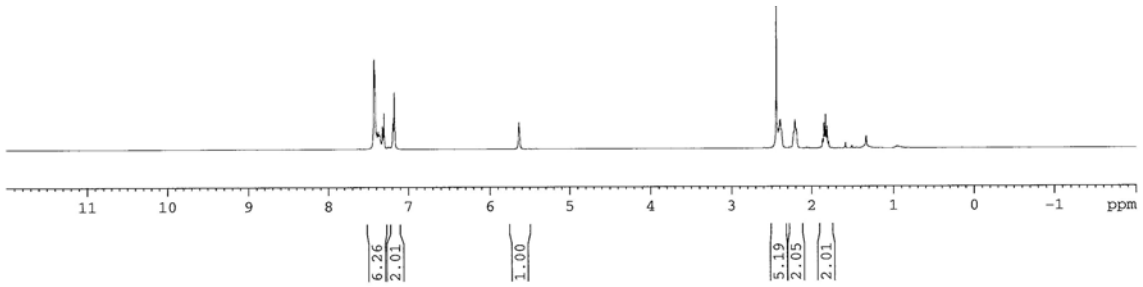
```

Current Data Parameters
NAME      dg_ix_205
EXPNO     1
PROCNO    1
DU        /u
USER      gorin

F2 - Acquisition Parameters
Date_     20070901
Time      16.33
INSTRUM   AVB-400
PROBHD    5 mm PABBO BB-
PULPROG   zg30
TD         65536
SOLVENT   CDCl3
NS         2
DS         0
SWH        8278.146 Hz
FIDRES     0.126314 Hz
AQ         3.9584243 sec
RG         128
INW        60.400 usec
DE         6.00 usec
TE         293.2 K
D1         1.00000000 sec
MCREST     0.00000000 sec
MCMRKR     0.01500000 sec

===== CHANNEL f1 =====
NUC1       1H
P1         8.15 usec
PL1        -1.00 dB
SFO1       400.1324710 MHz

F2 - Processing Parameters
SI         32768
SF         400.1300000 MHz
  
```



AVB-400 ZBO Carbon Starting parameters 6/11/03 RN

```

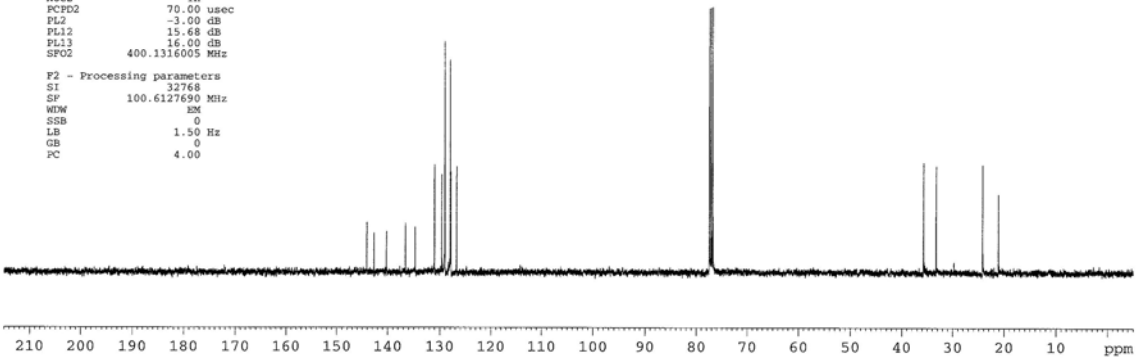
Current Data Parameters
NAME      dg_ix_205
EXPNO     13
PROCNO    1
DU        /u
USER      gorin

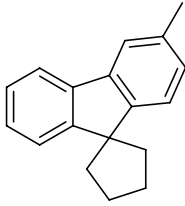
F2 - Acquisition Parameters
Date_     20070901
Time      16.37
INSTRUM   AVB-400
PROBHD    5 mm PABBO BB-
PULPROG   zgpg30
TD         65536
SOLVENT   CDCl3
NS         171
DS         0
SWH        23980.814 Hz
FIDRES     0.365918 Hz
AQ         1.3664756 sec
RG         16384
INW        20.850 usec
DE         6.00 usec
TE         294.2 K
D1         1.50000000 sec
d11        0.03000000 sec
DELTA      1.39999998 sec
MCREST     0.00000000 sec
MCMRKR     0.01500000 sec

===== CHANNEL f1 =====
NUC1       13C
P1         8.95 usec
PL1        -2.00 dB
SFO1       100.6228298 MHz

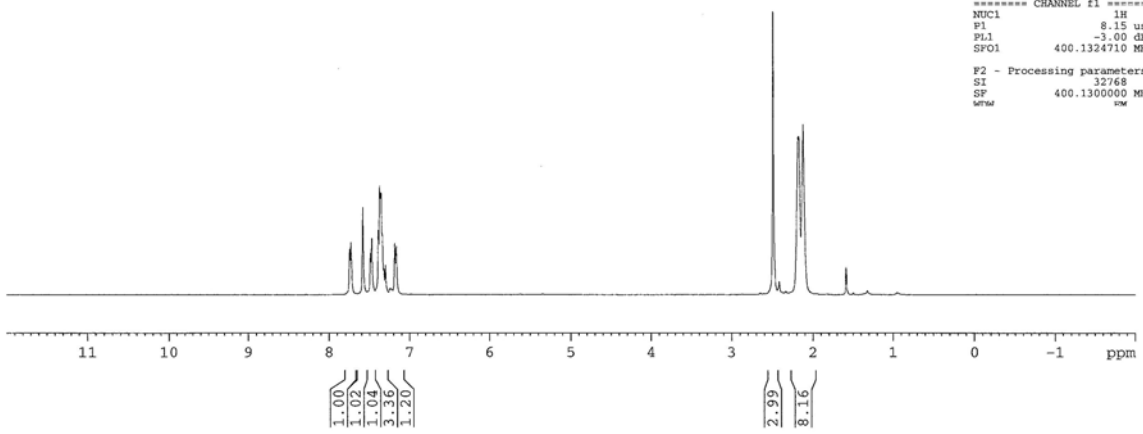
===== CHANNEL f2 =====
CPDPRG2   waltz16
NUC2       1H
PCPDZ     70.00 usec
PL2        -3.00 dB
PL12       15.68 dB
PL13       16.00 dB
SFO2       400.1316005 MHz

F2 - Processing parameters
SI         32768
SF         100.6127690 MHz
WDW        EM
SSB        0
LB         1.50 Hz
GB         0
PC         4.00
  
```





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```

Current Data Parameters
NAME dg_ix_207_f9
EXPNO 1
PROCNO 1
DU /u
USER gorin

F2 - Acquisition Parameters
Date_ 20070903
Time 15.06
INSTRUM AVB-400
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDC13
NS 2
DS 0
SWH 9278.146 Hz
FIDRES 0.126314 Hz
AQ 3.9584243 sec
RG 128
DM 60.400 usec
DE 6.00 usec
TE 293.9 K
D1 1.00000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

===== CHANNEL f1 =====
NUC1 1H
P1 8.15 usec
PL1 -3.00 dB
SFO1 400.1324710 MHz

F2 - Processing parameters
SI 32768
SF 400.1300000 MHz
WDW
    
```

AVB-400 ZBO Carbon Starting parameters

```

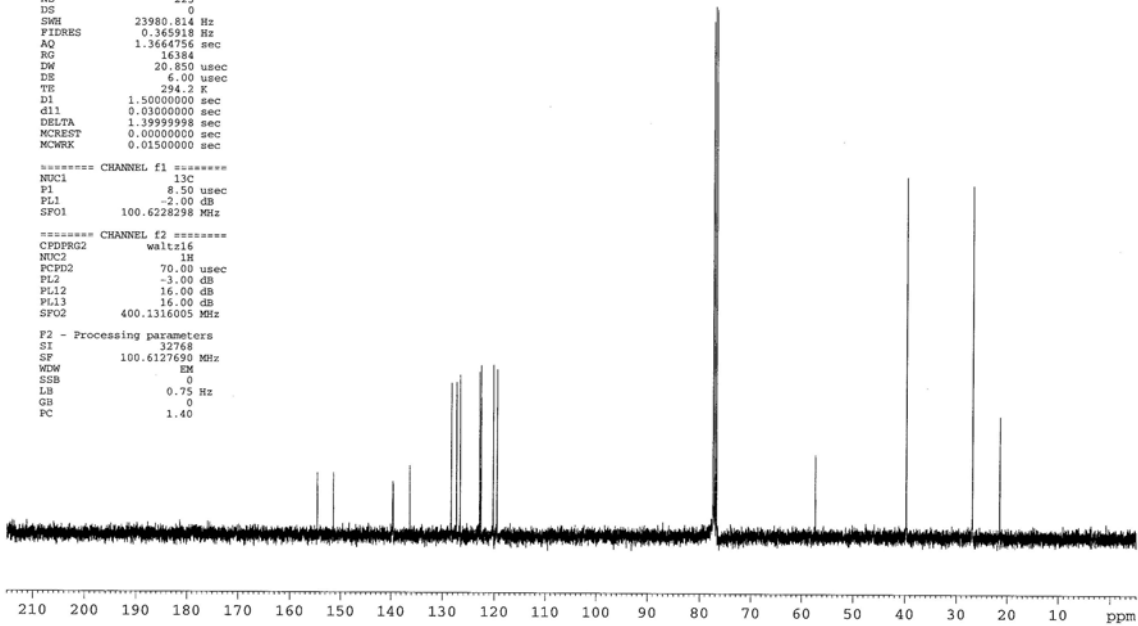
Current Data Parameters
NAME dg_ix_207_f9
EXPNO 13
PROCNO 1
DU /u
USER gorin

F2 - Acquisition Parameters
Date_ 20070903
Time 15.09
INSTRUM AVB-400
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 65536
SOLVENT CDC13
NS 223
DS 0
SWH 23980.814 Hz
FIDRES 0.365918 Hz
AQ 1.3664756 sec
RG 16384
DM 20.850 usec
DE 6.00 usec
TE 294.2 K
D1 1.50000000 sec
d11 0.03000000 sec
DELTA 1.39999998 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

===== CHANNEL f1 =====
NUC1 13C
P1 8.50 usec
PL1 -2.00 dB
SFO1 100.6228298 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 70.00 usec
PL2 -3.00 dB
PL12 16.00 dB
PL13 16.00 dB
SFO2 400.1316005 MHz

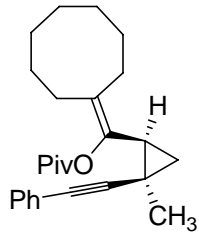
F2 - Processing parameters
SI 32768
SF 100.6127690 MHz
WDW EM
SSB 0
LB 0.75 Hz
GB 0
PC 1.40
    
```



```

Current Data Parameters
NAME      IW13108F16-20_H
EXPNO     1
PROCNO    1
DU        /u
USER      iain

F2 - Acquisition Parameters
Date_     20070918
Time      17.01
INSTRUM   AVB-400
PROBHD    5 mm PABBO BB-
PULPROG   zg30
TD         65536
SOLVENT   CDCl3
NS         4
DS         0
SWH       8278.146 Hz
FIDRES    0.126314 Hz
AQ         3.9584243 sec
RG         35.9
DW         60.400 usec
DE         6.00 usec
TE         293.7 K
D1         1.00000000 sec
MCREST    0.00000000 sec
MCWRK     0.01500000 sec
    
```

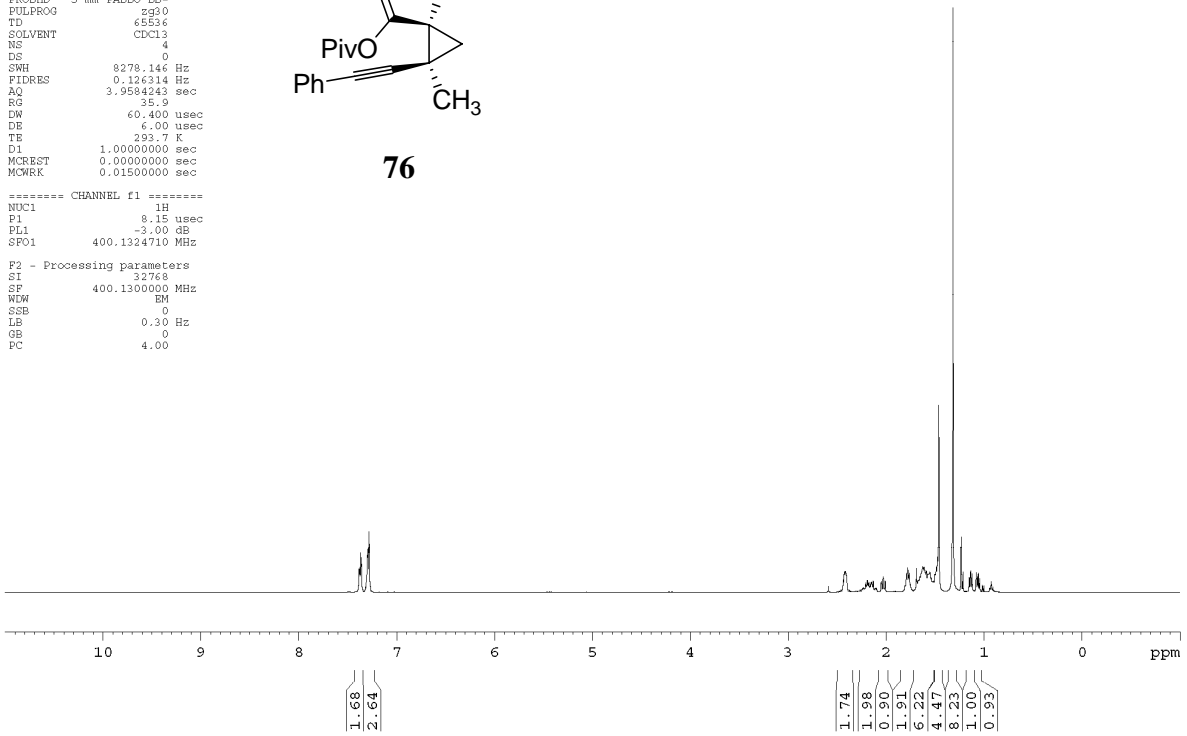


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```

===== CHANNEL f1 =====
NUC1      1H
P1        8.15 usec
PL1       -3.00 dB
SFO1     400.1324710 MHz

F2 - Processing parameters
SI        32768
SF        400.1300000 MHz
WDW       EM
SSB       0
LB        0.30 Hz
GB        0
PC        4.00
    
```



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```

Current Data Parameters
NAME      IW13108F16-20_C
EXPNO     1
PROCNO    1
DU        /u
USER      iain

F2 - Acquisition Parameters
Date_     20070918
Time      17.02
INSTRUM   AVB-400
PROBHD    5 mm PABBO BB-
PULPROG   zgpg30
TD         65536
SOLVENT   CDCl3
NS         111
DS         0
SWH       23980.814 Hz
FIDRES    0.365918 Hz
AQ         1.3644756 sec
RG         16384
DW         20.850 usec
DE         6.00 usec
TE         293.9 K
D1         1.50000000 sec
d11       0.03000000 sec
DELTA     1.39999998 sec
MCREST    0.00000000 sec
MCWRK     0.01500000 sec
    
```

```

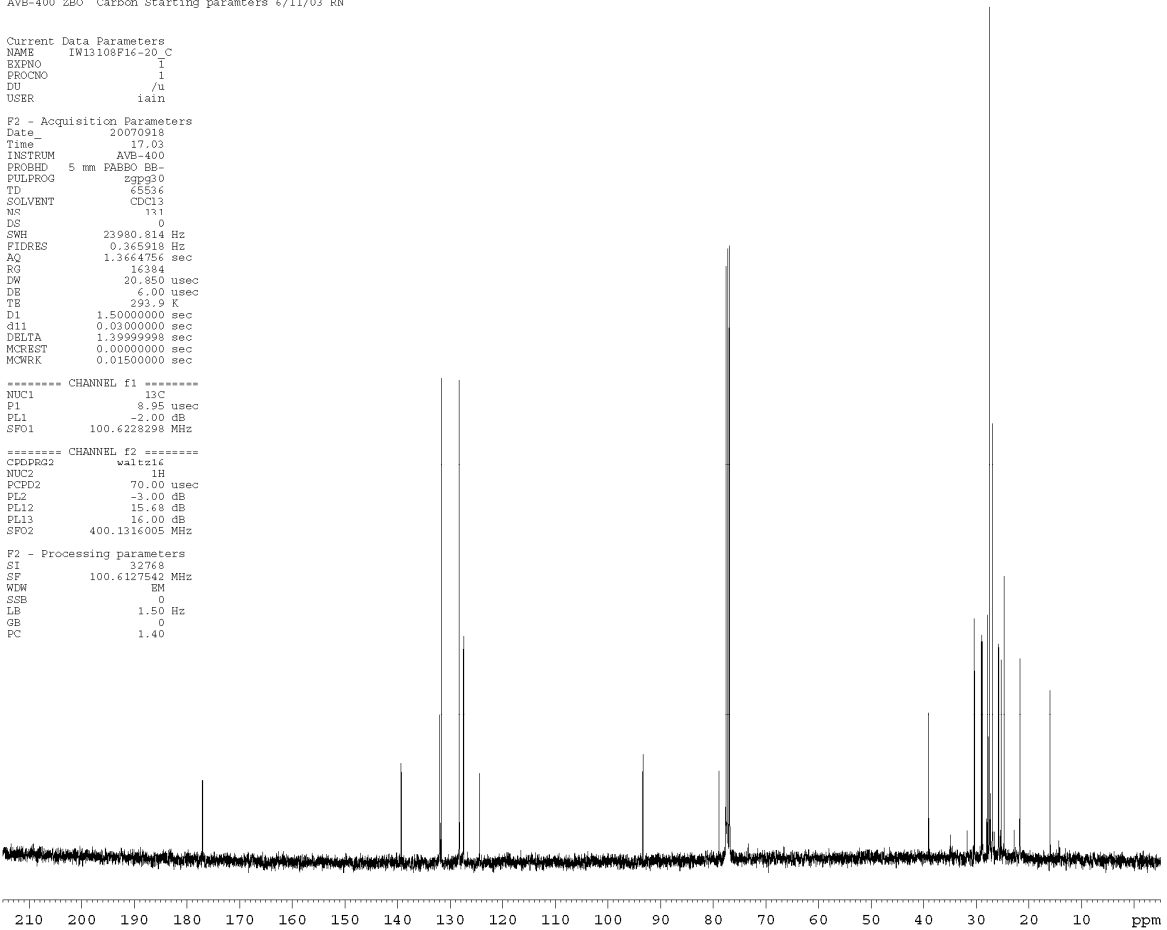
===== CHANNEL f1 =====
NUC1      13C
P1        8.95 usec
PL1       -2.00 dB
SFO1     100.6228298 MHz
    
```

```

===== CHANNEL f2 =====
CPDPRG2   waltz16
NUC2      1H
PCPD2     70.00 usec
PL2       -3.00 dB
PL12      15.68 dB
PL13      16.00 dB
SFO2     400.1316005 MHz
    
```

```

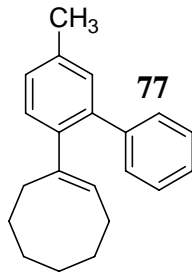
F2 - Processing parameters
SI        32768
SF        100.6127542 MHz
WDW       EM
SSB       0
LB        1.50 Hz
GB        0
PC        1.40
    
```





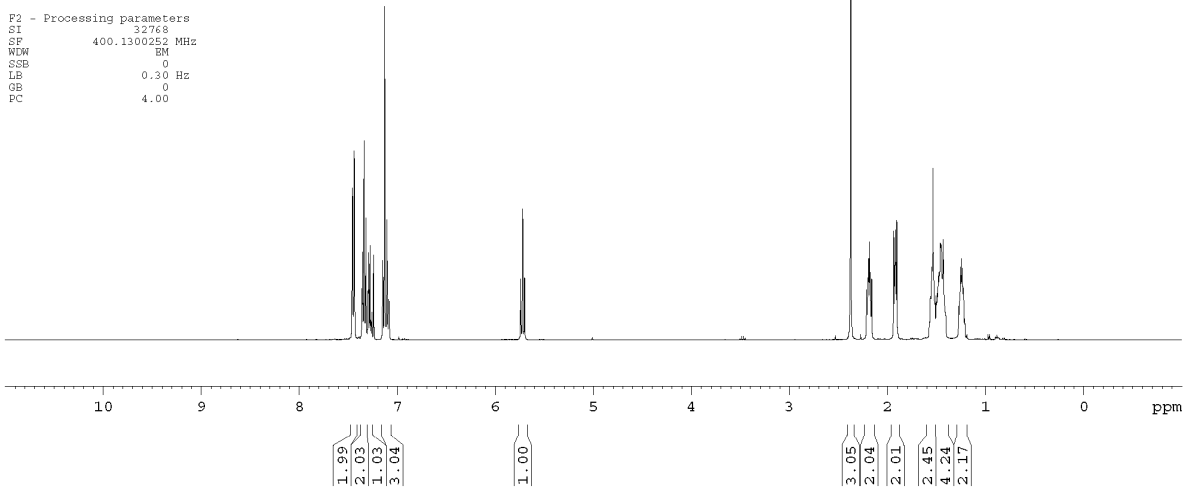
Current Data Parameters  
 NAME IW13110F2-5\_H2  
 EXPNO 1  
 PROCNO 1  
 DU /u  
 USER iain

F2 - Acquisition Parameters  
 Date\_ 20070919  
 Time 17.03  
 INSTRUM AVB-400  
 PROBHD 5 mm PABBO BB-  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 4  
 DS 0  
 SWH 8278.146 Hz  
 FIDRES 0.126314 Hz  
 AQ 3.9584243 sec  
 RG 90.5  
 DW 60.400 usec  
 DE 6.00 usec  
 TE 293.8 K  
 D1 1.0000000 sec  
 MCREST 0.0000000 sec  
 MCWRK 0.01500000 sec



----- CHANNEL f1 -----  
 NUC1 1H  
 P1 8.15 usec  
 PL1 -3.00 dB  
 SFO1 400.1324710 MHz

F2 - Processing parameters  
 SI 32768  
 SF 400.1300252 MHz  
 WDW EM  
 SSB 0  
 LB 0.30 Hz  
 GB 0  
 PC 4.00



AVB-400 ZBO Carbon Starting parameters 6/11/03 RN

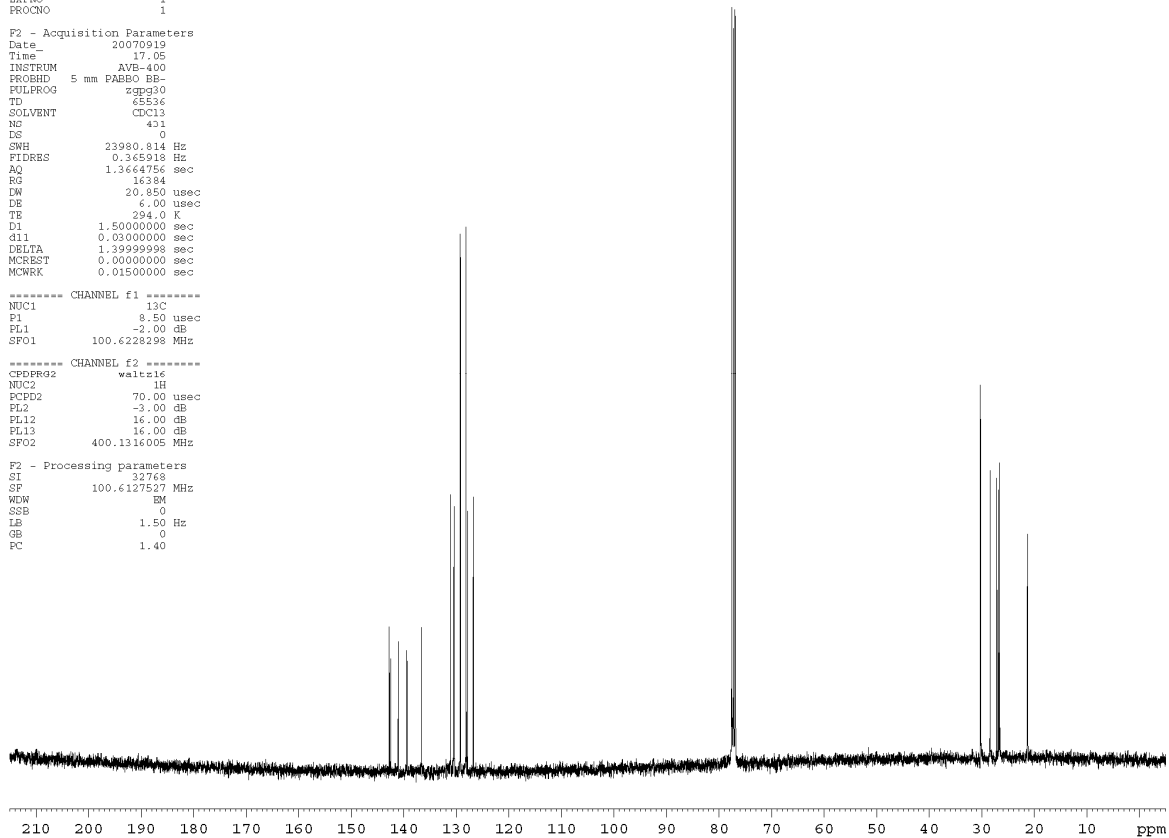
Current Data Parameters  
 USER iain  
 NAME IW13110F2-5\_C  
 EXPNO 1  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20070919  
 Time 17.05  
 INSTRUM AVB-400  
 PROBHD 5 mm PABBO BB-  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 431  
 DS 0  
 SWH 23980.814 Hz  
 FIDRES 0.365918 Hz  
 AQ 1.3664756 sec  
 RG 16394  
 DW 20.850 usec  
 DE 6.00 usec  
 TE 294.0 K  
 D1 1.5000000 sec  
 d11 0.0300000 sec  
 DELTA 1.39999998 sec  
 MCREST 0.0000000 sec  
 MCWRK 0.01500000 sec

----- CHANNEL f1 -----  
 NUC1 13C  
 P1 8.50 usec  
 PL1 -2.00 dB  
 SFO1 100.6228298 MHz

----- CHANNEL f2 -----  
 CPDPR2 waltz16  
 NUC2 1H  
 PCPD2 70.00 usec  
 PL2 -3.00 dB  
 PL12 16.00 dB  
 PL13 16.00 dB  
 SFO2 400.1316005 MHz

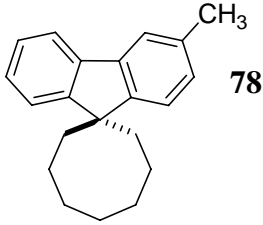
F2 - Processing parameters  
 SI 32768  
 SF 100.6127527 MHz  
 WDW EM  
 SSB 0  
 LB 1.50 Hz  
 GB 0  
 PC 1.40



```

Current Data Parameters
USER      iain
NAME      IW13112P7-11_H
EXPNO     1
PROCNO    1

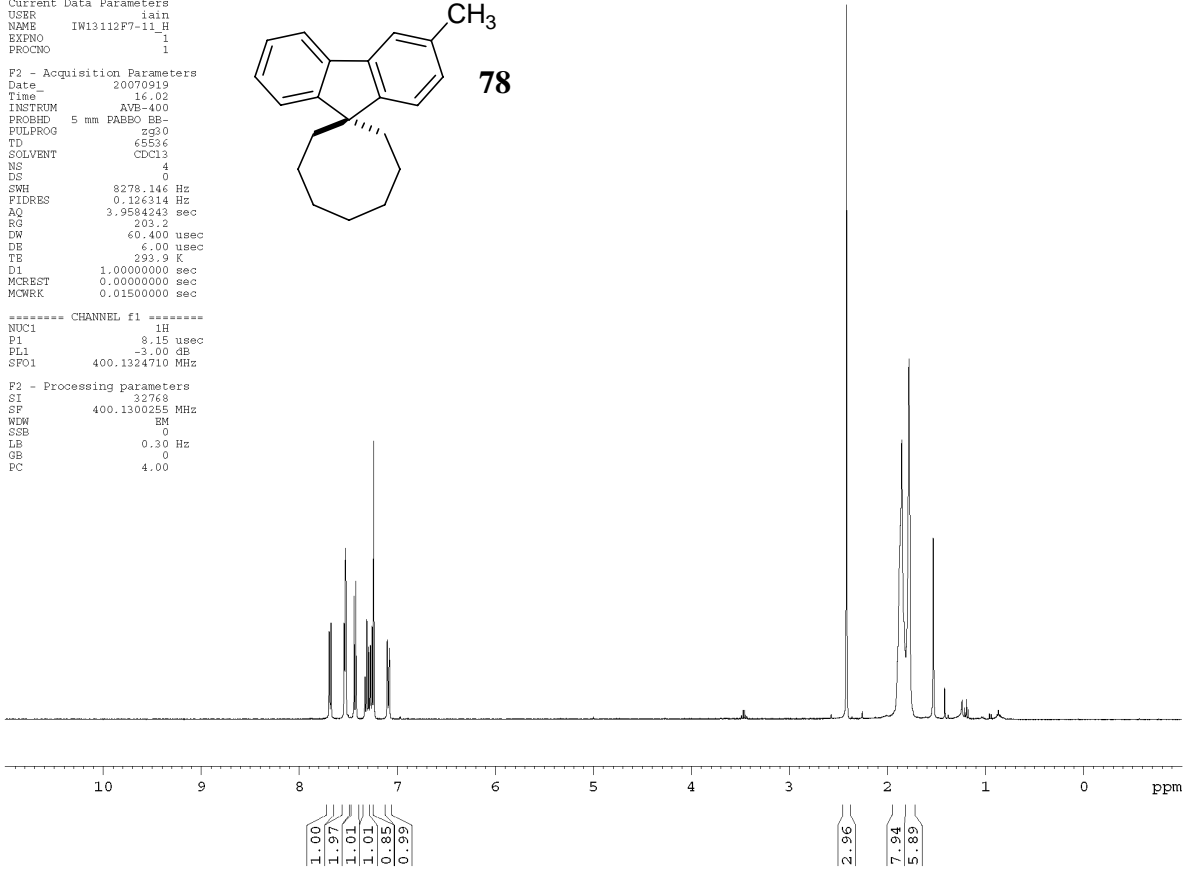
F2 - Acquisition Parameters
Date_     20070919
Time      16.02
INSTRUM   AVB-400
PROBHD    5 mm PABBO BB-
PULPROG   zg30
TD         65536
SOLVENT   CDCl3
NS         4
DS         0
SWH        8278.146 Hz
FIDRES     0.126314 Hz
AQ         3.9584243 sec
RG         203.2
DW         60.400 usec
DE         6.00 usec
TE         293.9 K
D1         1.00000000 sec
MCREST    0.00000000 sec
MCWRK     0.01500000 sec
    
```



```

----- CHANNEL f1 -----
NUC1      1H
P1         8.15 usec
PL1        -3.00 dB
SFO1      400.1324710 MHz

F2 - Processing parameters
SI         32768
SF         400.1300255 MHz
WDW        EM
SSB        0
LB         0.30 Hz
GB         0
PC         4.00
    
```



AVB-400 ZBO Carbon Starting parameters 6/11/03 RN

```

Current Data Parameters
USER      iain
NAME      IW13112P7-11_C
EXPNO     1
PROCNO    1

F2 - Acquisition Parameters
Date_     20070923
Time      16.03
INSTRUM   AVB-400
PROBHD    5 mm PABBO BB-
PULPROG   zgpg30
TD         65536
SOLVENT   CDCl3
NS         3281
DS         0
SWH        23980.814 Hz
FIDRES     0.365918 Hz
AQ         1.3664756 sec
RG         16384
DW         20.850 usec
DE         6.00 usec
TE         294.0 K
D1         1.50000000 sec
d11        0.03000000 sec
DELTA     1.39999998 sec
MCREST    0.00000000 sec
MCWRK     0.01500000 sec
    
```

```

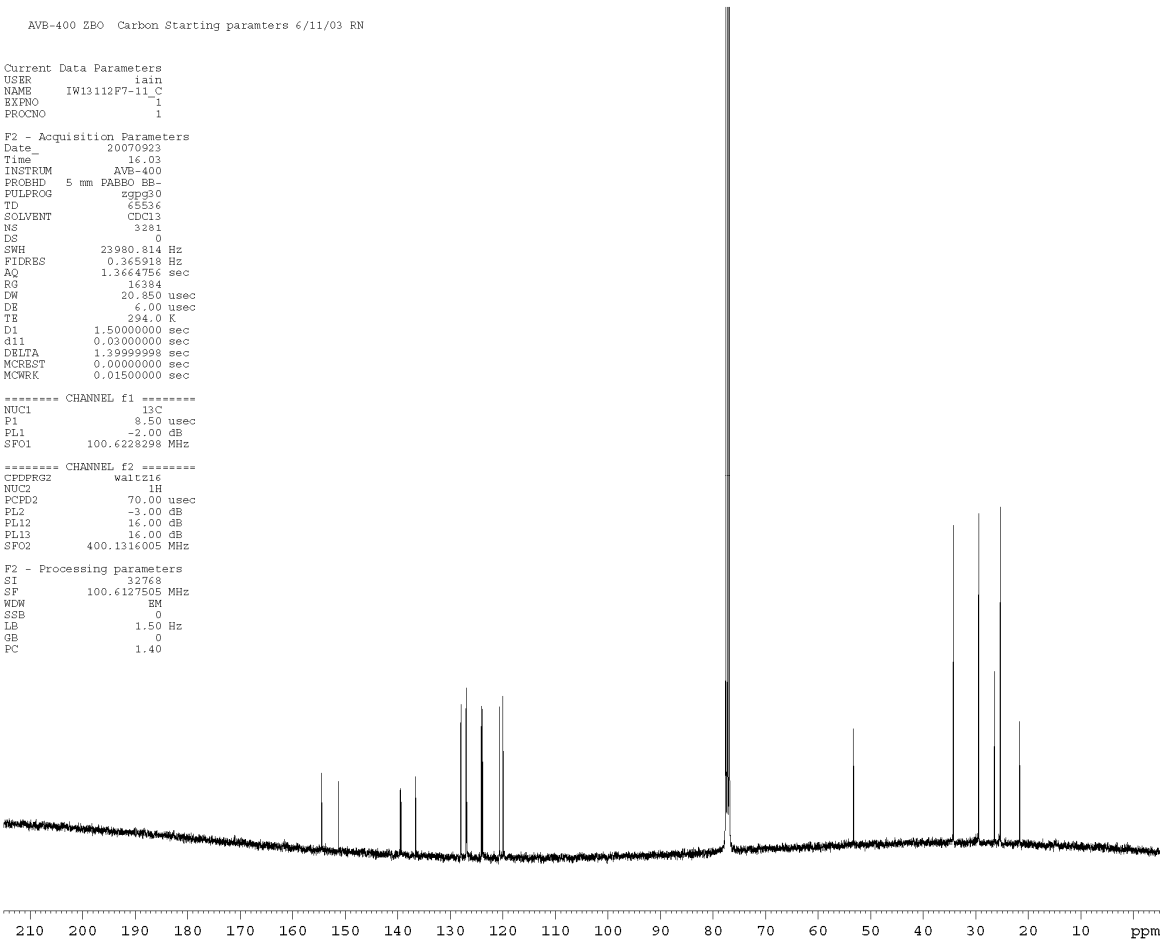
----- CHANNEL f1 -----
NUC1      13C
P1         8.50 usec
PL1        -2.00 dB
SFO1      100.6228298 MHz
    
```

```

----- CHANNEL f2 -----
CPDPRG2   waltz16
NUC2      1H
PCPD2     70.00 usec
PL2        -3.00 dB
PL12       16.00 dB
PL13       16.00 dB
SFO2      400.1316005 MHz
    
```

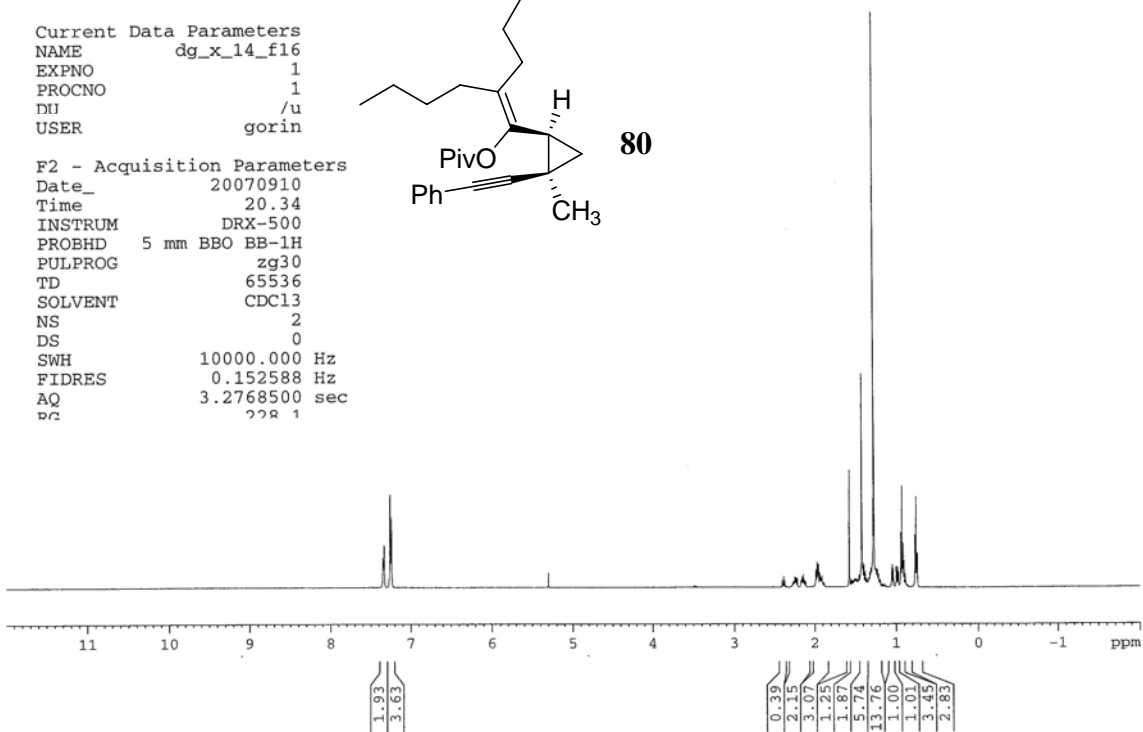
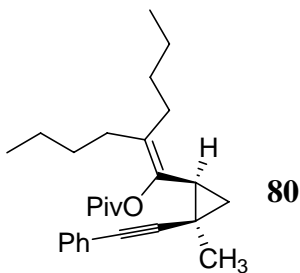
```

F2 - Processing parameters
SI         32768
SF         100.6127505 MHz
WDW        EM
SSB        0
LB         1.50 Hz
GB         0
PC         1.40
    
```



Current Data Parameters  
 NAME dg\_x\_14\_f16  
 EXPNO 1  
 PROCNO 1  
 DU /u  
 USER gorin

F2 - Acquisition Parameters  
 Date\_ 20070910  
 Time 20.34  
 INSTRUM DRX-500  
 PROBHD 5 mm BBO BB-1H  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 2  
 DS 0  
 SWH 10000.000 Hz  
 FIDRES 0.152588 Hz  
 AQ 3.2768500 sec  
 PC 228 1



13C DRX-500 5mm ZBBO probe  
 starting parameters with zgpg30  
 uses ns\*td0  
 012504 hvh

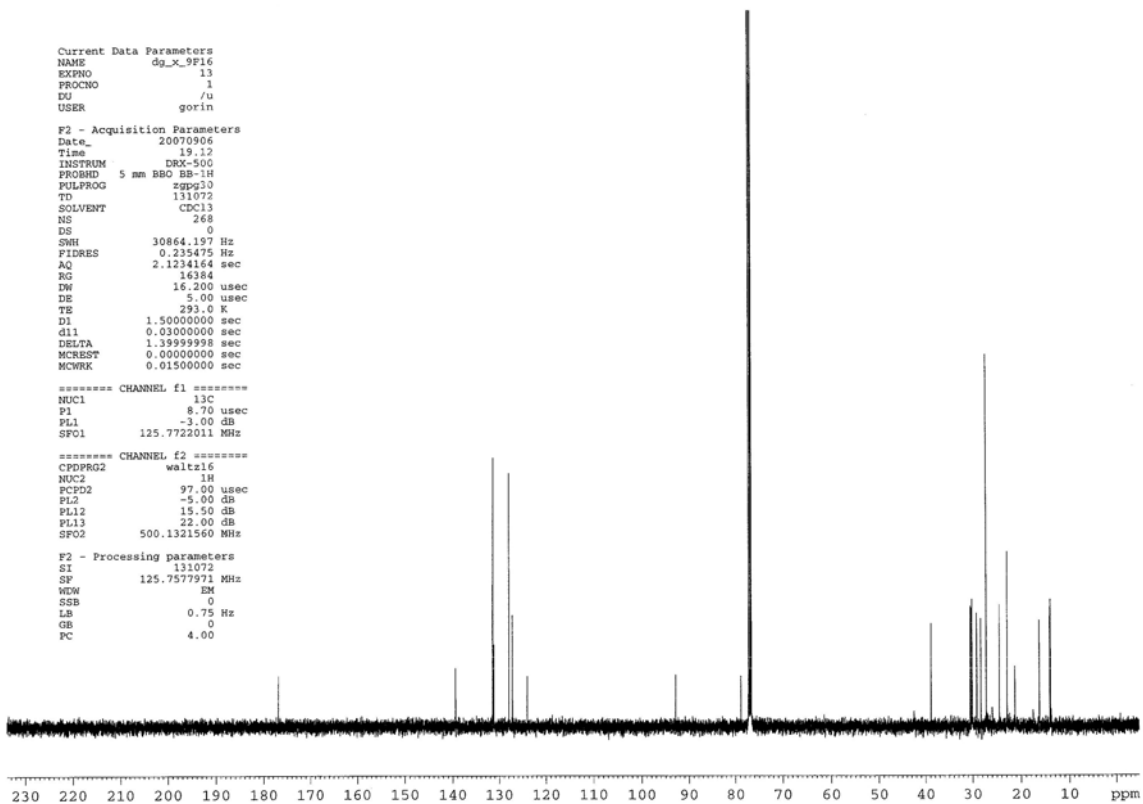
Current Data Parameters  
 NAME dg\_x\_9F16  
 EXPNO 13  
 PROCNO 1  
 DU /u  
 USER gorin

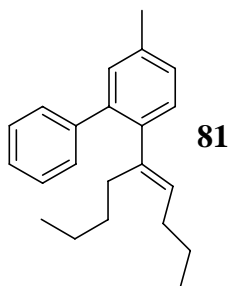
F2 - Acquisition Parameters  
 Date\_ 20070906  
 Time 19.12  
 INSTRUM DRX-500  
 PROBHD 5 mm BBO BB-1H  
 PULPROG zgpg30  
 TD 131072  
 SOLVENT CDCl3  
 NS 268  
 DS 0  
 SWH 30864.197 Hz  
 FIDRES 0.235475 Hz  
 AQ 2.1234164 sec  
 RG 16384  
 DW 16.200 usec  
 DE 5.00 usec  
 TE 293.0 K  
 D1 1.50000000 sec  
 d11 0.03000000 sec  
 DELTA 1.39999998 sec  
 MCREST 0.00000000 sec  
 MCWRR 0.01500000 sec

\*\*\*\*\* CHANNEL f1 \*\*\*\*\*  
 NUCL1 13C  
 P1 8.70 usec  
 PL1 -3.00 dB  
 SF01 125.7722011 MHz

\*\*\*\*\* CHANNEL f2 \*\*\*\*\*  
 CPDPRG2 waltz16  
 NUC2 1H  
 PCPD2 97.00 usec  
 PL2 -5.00 dB  
 PL12 15.50 dB  
 PL13 22.00 dB  
 SFO2 500.1321560 MHz

F2 - Processing parameters  
 SI 131072  
 SF 125.7577971 MHz  
 WEW EM  
 SSB 0  
 LB 0.75 Hz  
 GB 0  
 PC 4.00



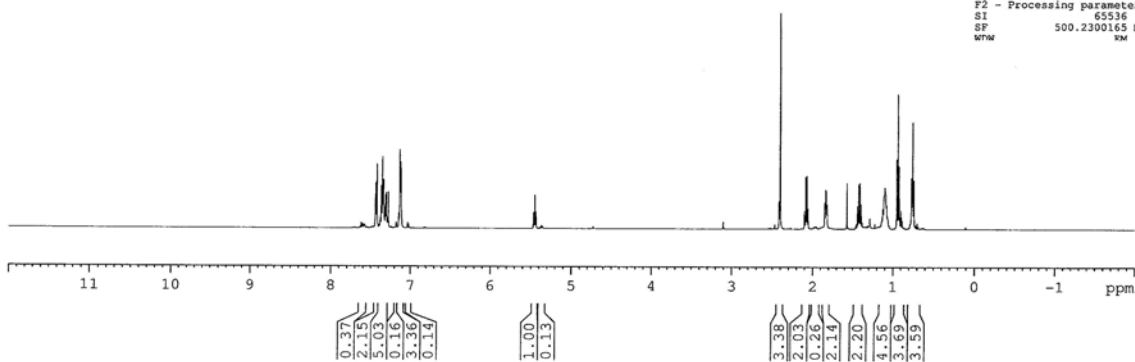


Current Data Parameters  
NAME dg\_x\_16  
EXPNO 2  
PROCNO 1  
DU /u  
USER gorin

F2 - Acquisition Parameters  
Date\_ 20070911  
Time 20.16  
INSTRUM AV-500  
PROBHD 5 mm TBI 1H/31  
PULPROG zg30  
TD 65536  
SOLVENT CDCl3  
NS 2  
DS 0  
SWH 10330.578 Hz  
FIDRES 0.157632 Hz  
AQ 3.1720407 sec  
RG 71.8  
DW 48.400 usec  
DE 6.00 usec  
TE 300.0 K  
D1 0.10000000 sec  
MCREST 0.00000000 sec  
MCWRK 0.01500000 sec

----- CHANNEL f1 -----  
NUC1 1H  
P1 7.60 usec  
PL1 0.90 dB  
SFO1 500.2330889 MHz

F2 - Processing parameters  
SI 65536  
SF 500.2300165 MHz  
WDW EM



13C DRX-500 5mm ZBBO probe  
starting parameters with zgpg30 (waltz16)  
uses ns\*td0  
012504 hvd

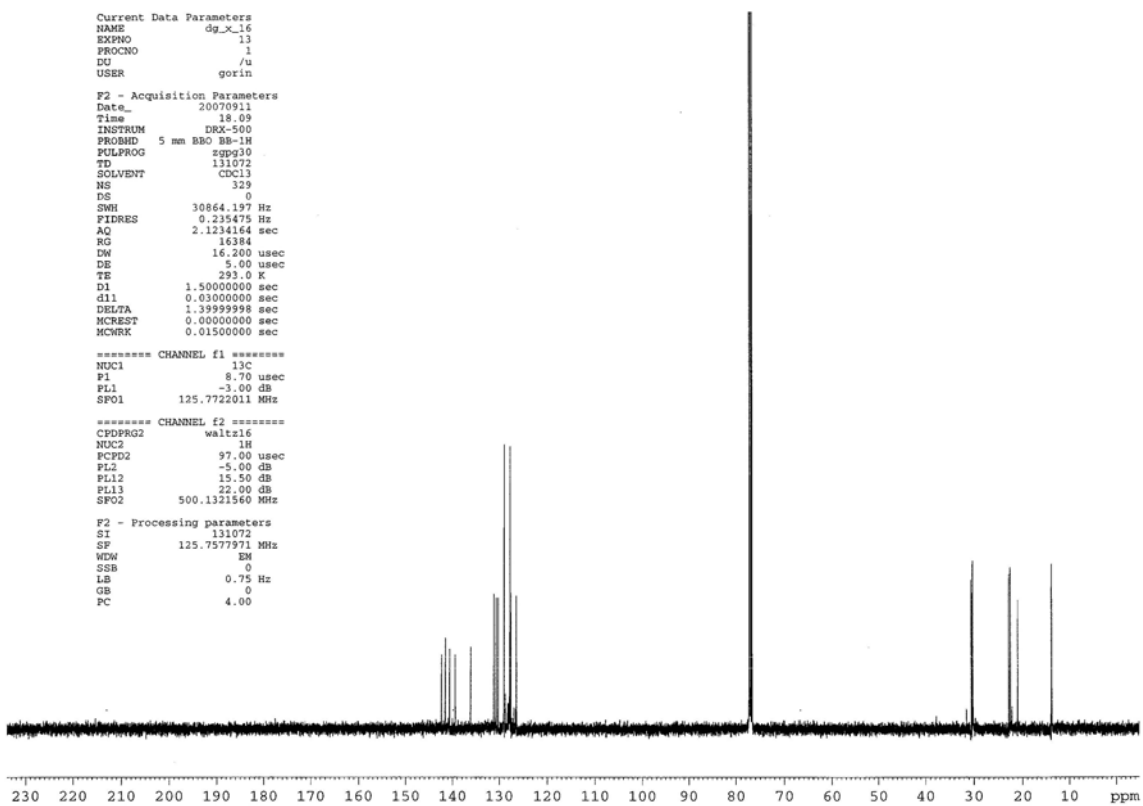
Current Data Parameters  
NAME dg\_x\_16  
EXPNO 13  
PROCNO 1  
DU /u  
USER gorin

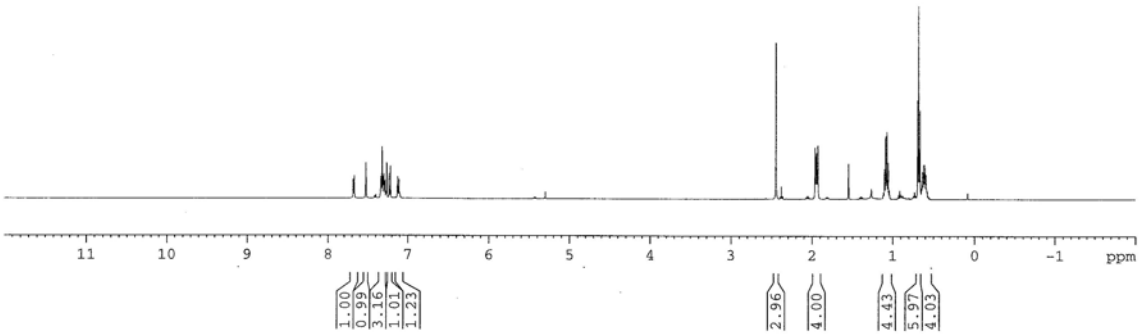
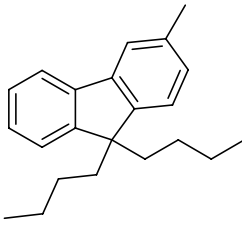
F2 - Acquisition Parameters  
Date\_ 20070911  
Time 18.09  
INSTRUM DRX-500  
PROBHD 5 mm BBO BB-1H  
PULPROG zgpg30  
TD 131072  
SOLVENT CDCl3  
NS 329  
DS 0  
SWH 30864.197 Hz  
FIDRES 0.235475 Hz  
AQ 2.134164 sec  
RG 16384  
DW 16.200 usec  
DE 5.00 usec  
TE 293.0 K  
D1 1.50000000 sec  
d11 0.03000000 sec  
DELTA 1.39999998 sec  
MCREST 0.00000000 sec  
MCWRK 0.01500000 sec

----- CHANNEL f1 -----  
NUC1 13C  
P1 8.70 usec  
PL1 -3.00 dB  
SFO1 125.7722011 MHz

----- CHANNEL f2 -----  
CPDPRG2 waltz16  
NUC2 1H  
PCPD2 97.00 usec  
PL2 -5.00 dB  
PL12 15.50 dB  
PL13 22.00 dB  
SFO2 500.1321560 MHz

F2 - Processing parameters  
SI 131072  
SF 125.7577971 MHz  
WDW EM  
SSB 0  
LB 0.75 Hz  
GB 0  
PC 4.00





13C DRX-500 5mm ZBBO probe  
starting parameters with zgpg30 (waltz16)  
uses ns\*td0  
012504 HvH

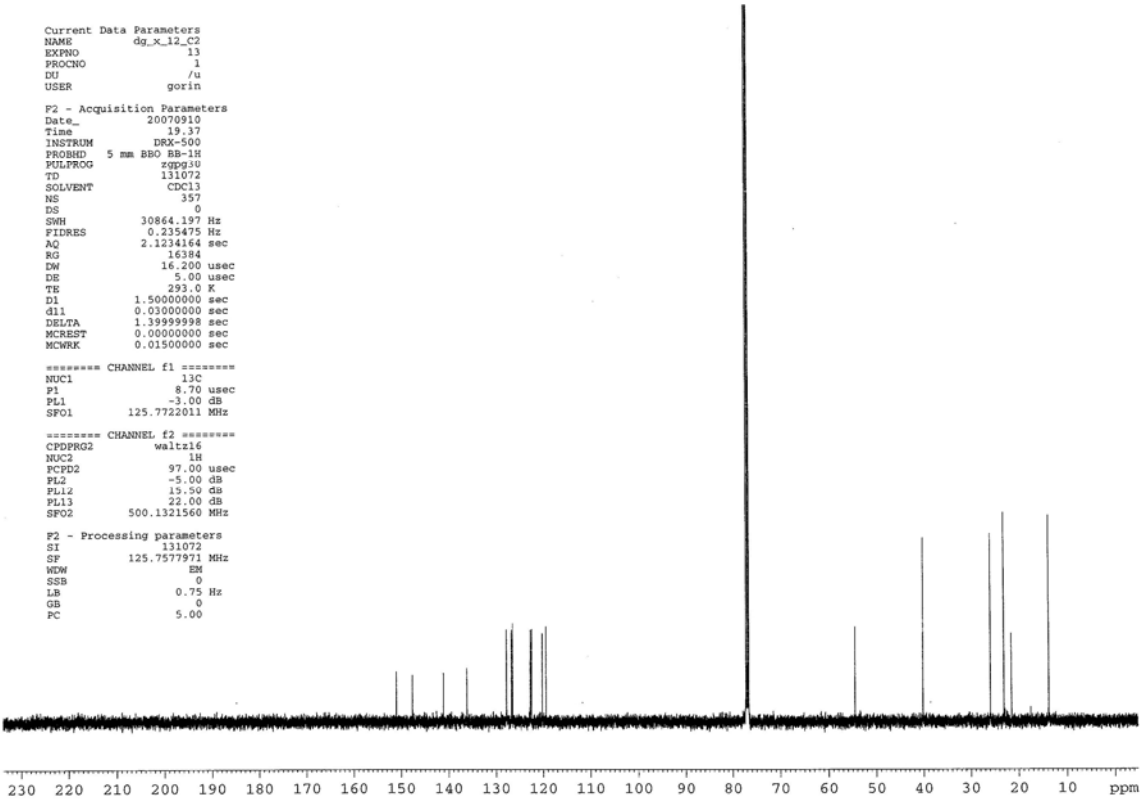
Current Data Parameters  
NAME dg\_x\_12\_C2  
EXPNO 13  
PROCNO 1  
DU /u  
USER gorin

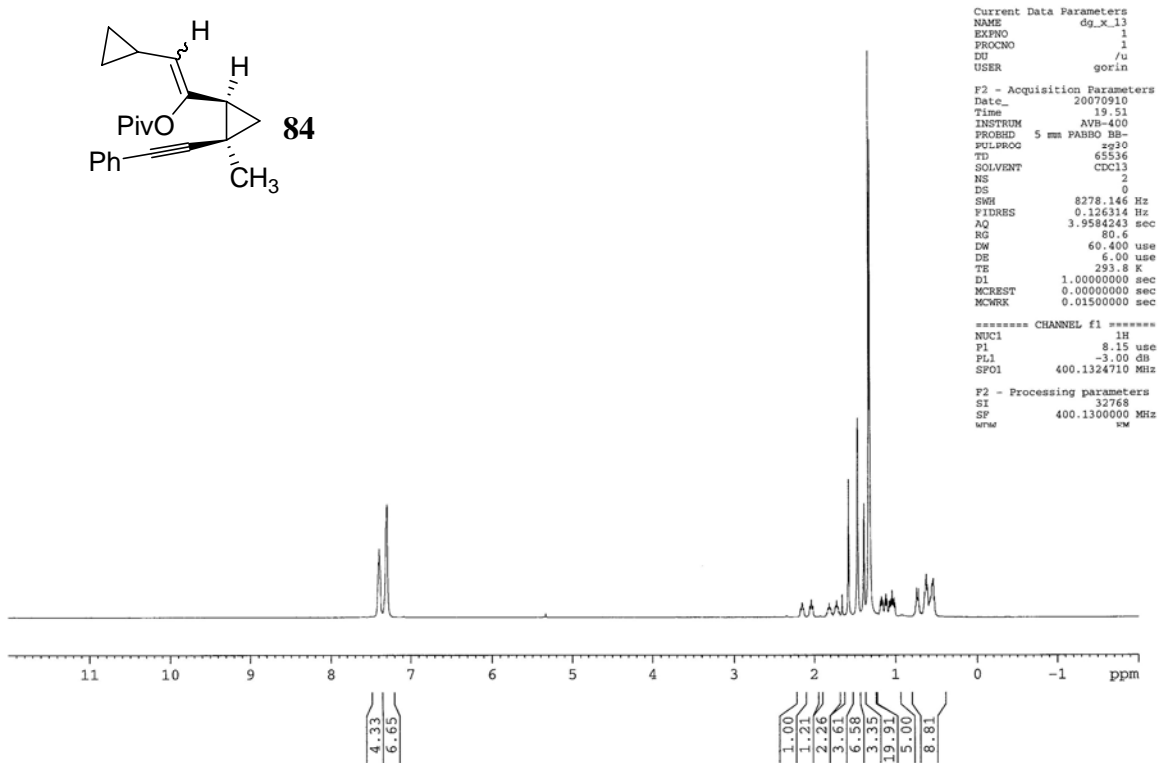
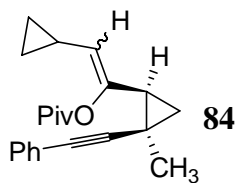
F2 - Acquisition Parameters  
Date\_ 20070910  
Time 19:37  
INSTRUM DRX-500  
PROBHD 5 mm BBO BB-1H  
PULPROG zgpg30  
TD 131072  
SOLVENT CDCl3  
NS 357  
DS 0  
SWH 30864.197 Hz  
FIDRES 0.235475 Hz  
AQ 2.1234164 sec  
RG 16384  
DW 16.200 usec  
DE 5.00 usec  
TE 293.0 K  
D1 1.50000000 sec  
d11 0.03000000 sec  
DELTA 1.39999998 sec  
MCREST 0.00000000 sec  
MCWRK 0.01500000 sec

\*\*\*\*\* CHANNEL f1 \*\*\*\*\*  
NUC1 13C  
P1 8.70 usec  
PL1 -3.00 dB  
SFO1 125.7722011 MHz

\*\*\*\*\* CHANNEL f2 \*\*\*\*\*  
CPDPRG2 waltz16  
NUC2 1H  
PCPD2 97.00 usec  
PL2 -5.00 dB  
PL12 15.50 dB  
PL13 22.00 dB  
SFO2 500.1321560 MHz

F2 - Processing parameters  
SI 131072  
SF 125.7577971 MHz  
WDW EM  
SSB 0  
LB 0.75 Hz  
GB 0  
PC 5.00



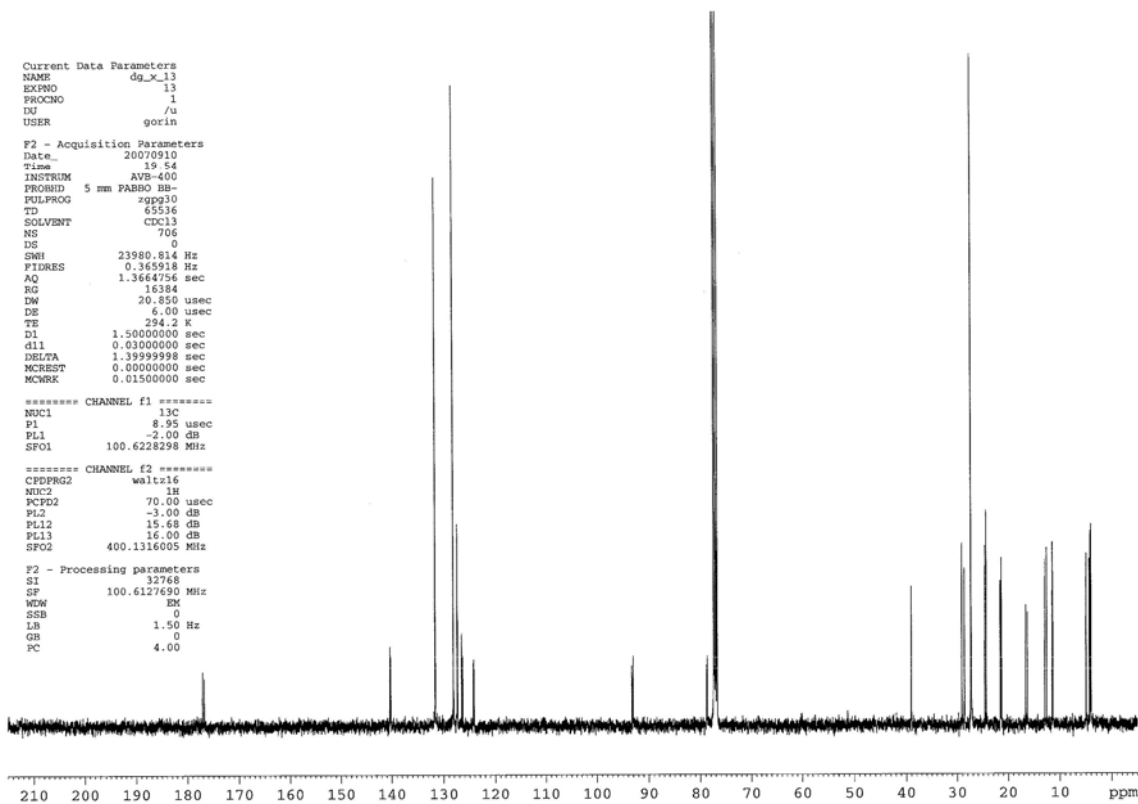


Current Data Parameters  
 NAME dg\_x13  
 EXPNO 1  
 PROCNO 1  
 DU /u  
 USER gorin

F2 - Acquisition Parameters  
 Date\_ 20070910  
 Time 19.51  
 INSTRUM AVB-400  
 PROBEID 5 mm PABBO BB-  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 2  
 DS 0  
 SWH 8278.146 Hz  
 FIDRES 0.126114 Hz  
 AQ 3.9584243 sec  
 RG 80.6  
 DW 60.400 usec  
 DE 6.00 usec  
 TE 293.8 K  
 D1 1.0000000 sec  
 MCREST 0.0000000 sec  
 MCWRK 0.01500000 sec

===== CHANNEL f1 =====  
 NUC1 1H  
 P1 8.15 usec  
 PL1 -3.00 dB  
 SFO1 400.1324710 MHz

F2 - Processing Parameters  
 SI 32768  
 SF 400.1300000 MHz  
 WTMW km



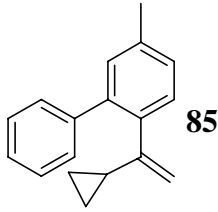
Current Data Parameters  
 NAME dg\_x13  
 EXPNO 1  
 PROCNO 1  
 DU /u  
 USER gorin

F2 - Acquisition Parameters  
 Date\_ 20070910  
 Time 19.54  
 INSTRUM AVB-400  
 PROBEID 5 mm PABBO BB-  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 706  
 DS 0  
 SWH 23980.814 Hz  
 FIDRES 0.365918 Hz  
 AQ 1.3664756 sec  
 RG 16384  
 DW 20.850 usec  
 DE 6.00 usec  
 TE 294.2 K  
 D1 1.5000000 sec  
 d11 0.0300000 sec  
 DELTA 1.3999999 sec  
 MCREST 0.0000000 sec  
 MCWRK 0.01500000 sec

===== CHANNEL f1 =====  
 NUC1 13C  
 P1 8.95 usec  
 PL1 -2.00 dB  
 SFO1 100.6228298 MHz

===== CHANNEL f2 =====  
 CFDPFG2 waltz16  
 NUC2 1H  
 PCPD2 70.00 usec  
 PL2 -3.00 dB  
 PL12 15.68 dB  
 PL13 16.00 dB  
 SFO2 400.1316005 MHz

F2 - Processing parameters  
 SI 32768  
 SF 100.6127690 MHz  
 MW 0  
 SSB 0  
 LB 1.50 Hz  
 GB 0  
 PC 4.00



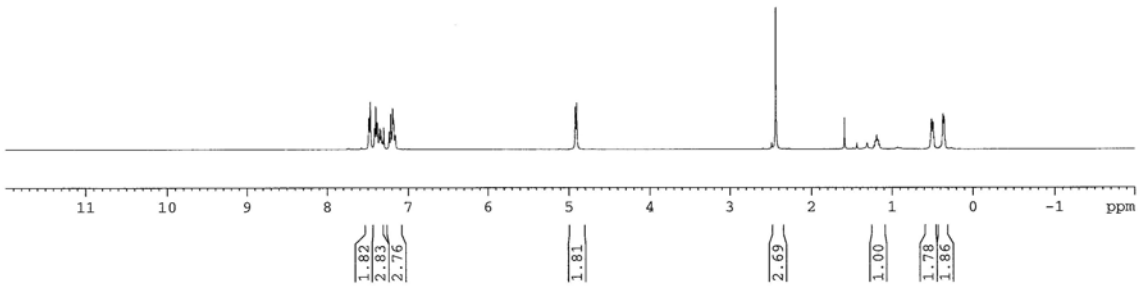
```

Current Data Parameters
NAME      dg_x15_f5
EXPNO     2
PROCNO    1
DU        /u
USER      gorin

F2 - Acquisition Parameters
Date_     20070911
Time      20.04
INSTRUM   AVB-400
PROBHD    5 mm PABBO BP-
PULPROG   zg30
TD         65536
SOLVENT   CDCl3
NS         2
DS         0
SWH        8278.146 Hz
FIDRES     0.126314 Hz
AQ         3.9584243 sec
RG         203.2
DW         60.400 usec
DE         6.00 usec
TE         294.1 K
D1         1.00000000 sec
MCREST    0.00000000 sec
MCMRKR    0.01500000 sec

===== CHANNEL f1 =====
NUC1       1H
P1         8.15 usec
PL1        -3.00 dB
SFO1       400.1324710 MHz

F2 - Processing Parameters
SI         32768
SF         400.1300000 MHz
WDW        RM
    
```



AVB-400 ZBO Carbon Starting parameters 6/11/03 RN

```

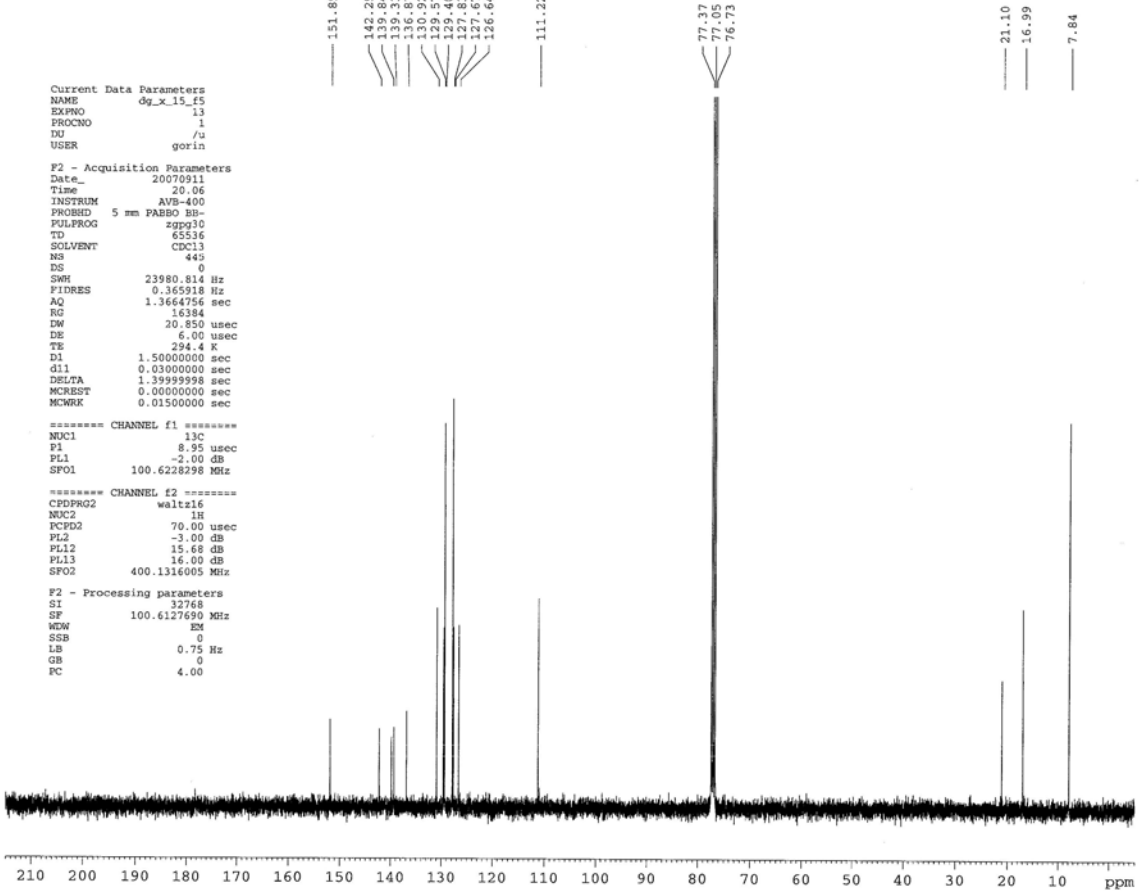
Current Data Parameters
NAME      dg_x15_f5
EXPNO     13
PROCNO    1
DU        /u
USER      gorin

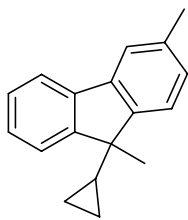
F2 - Acquisition Parameters
Date_     20070911
Time      20.06
INSTRUM   AVB-400
PROBHD    5 mm PABBO BP-
PULPROG   zgpg30
TD         65536
SOLVENT   CDCl3
NS         445
DS         0
SWH        23980.814 Hz
FIDRES     0.365918 Hz
AQ         1.3664756 sec
RG         16384
DW         20.850 usec
DE         6.00 usec
TE         294.4 K
D1         1.50000000 sec
d11        0.03000000 sec
DELTA     1.39999998 sec
MCREST    0.00000000 sec
MCMRKR    0.01500000 sec

===== CHANNEL f1 =====
NUC1       13C
P1         8.95 usec
PL1        -2.00 dB
SFO1       100.6228298 MHz

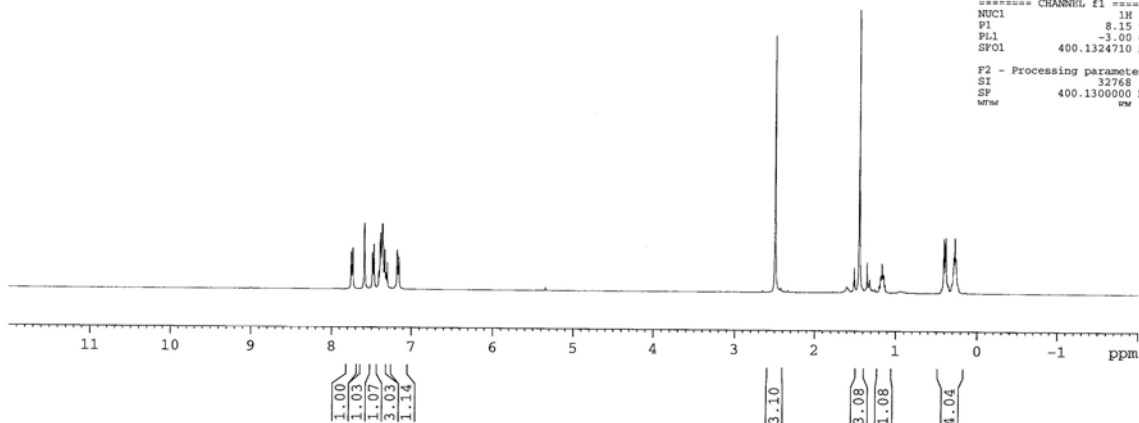
===== CHANNEL f2 =====
CPDPRG2    waltz16
NUC2       1H
PCPD2      70.00 usec
PL2        -3.00 dB
PL12       15.68 dB
PL13       16.00 dB
SFO2       400.1316005 MHz

F2 - Processing parameters
SI         32768
SF         100.6127690 MHz
NEW        RM
SSB        0
LB         0.75 Hz
GB         0
PC         4.00
    
```





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```

Current Data Parameters
NAME      dg_x_11
EXPNO    1
PROCNO   1
F2       /u
USER     gorin

F2 - Acquisition Parameters
Date_    20070910
Time     14.05
INSTRUM  AVB-400
PROBHD   5 mm PABBO BB-
PULPROG  zg30
TD       65536
SOLVENT  CDCl3
NS       2
DS       0
SWH      8278.146 Hz
FIDRES   0.126314 Hz
AQ       3.9584243 sec
RG       161.3
DW       60.400 usec
DE       6.00 usec
TE       293.8 K
d1       1.0000000 sec
MCREST   0.0000000 sec
MCWRK    0.0150000 sec

===== CHANNEL f1 =====
NUC1     1H
P1       8.15 usec
PL1      -3.00 dB
SFO1     400.1324710 MHz

F2 - Processing parameters
SI       32768
SF       400.1300000 MHz
WWTW     40000
    
```

AVB-400 ZBO Carbon Starting parameters 6/11/03 RN

```

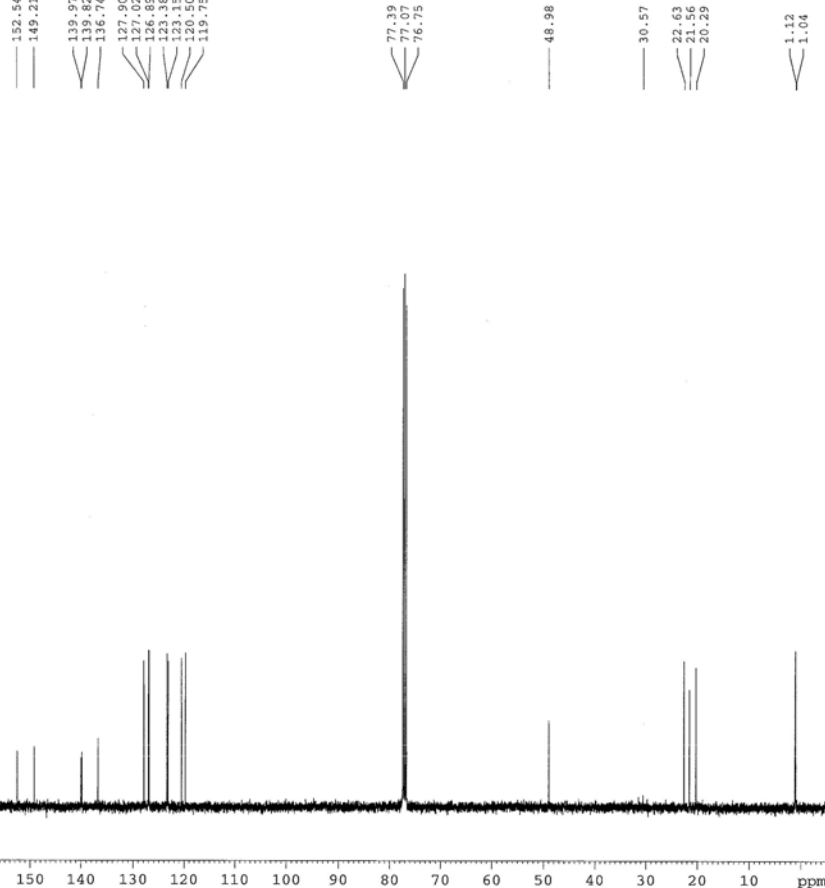
Current Data Parameters
NAME      dg_x_11
EXPNO    13
PROCNO   1
F2       /u
USER     gorin

F2 - Acquisition Parameters
Date_    20070910
Time     14.11
INSTRUM  AVB-400
PROBHD   5 mm PABBO BB-
PULPROG  zgpg30
TD       65536
SOLVENT  CDCl3
NS       346
DS       0
SWH      23980.814 Hz
FIDRES   0.365518 Hz
AQ       1.3664756 sec
RG       16384
DW       20.850 usec
DE       6.00 usec
TE       294.0 K
d1       1.5000000 sec
d11      0.0300000 sec
DELTA    1.3989998 sec
MCREST   0.0000000 sec
MCWRK    0.0150000 sec

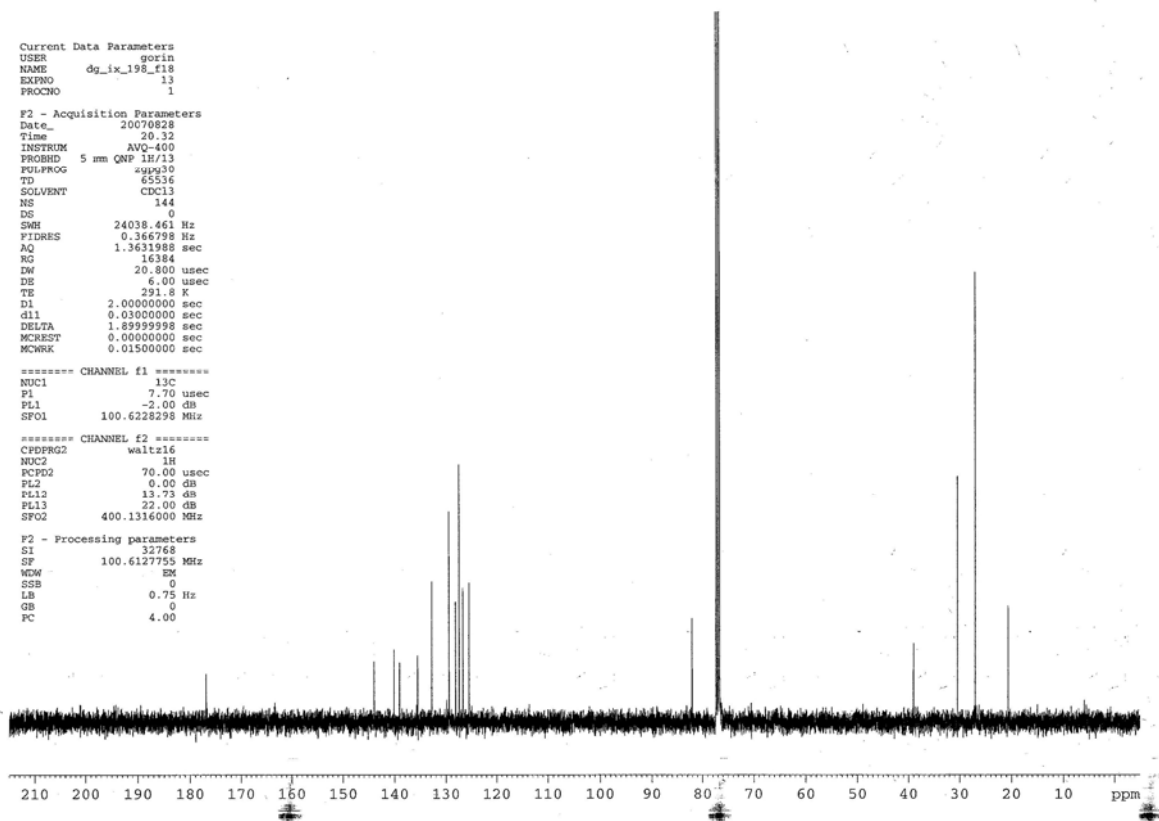
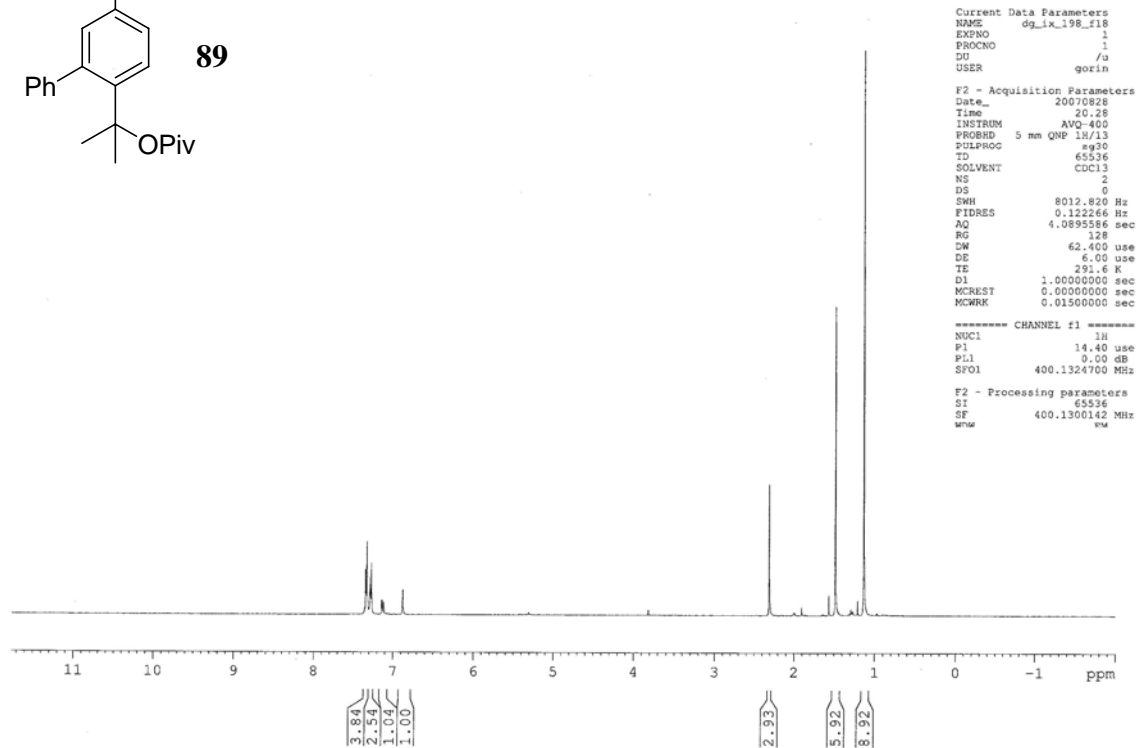
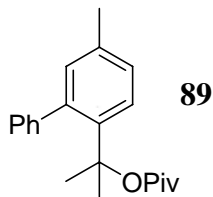
===== CHANNEL f1 =====
NUC1     13C
P1       8.95 usec
PL1      -2.00 dB
SFO1     100.6228298 MHz

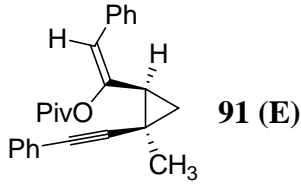
===== CHANNEL f2 =====
CPDPRG2  waltz16
NUC2     1H
P2       70.00 usec
PL2      -3.00 dB
PL12     15.68 dB
PL13     16.00 dB
SFO2     400.1316005 MHz

F2 - Processing parameters
SI       32768
SF       100.6127690 MHz
WWTW     80000
SBB      0
LB       0.75 Hz
GB       0
PC       1.40
    
```



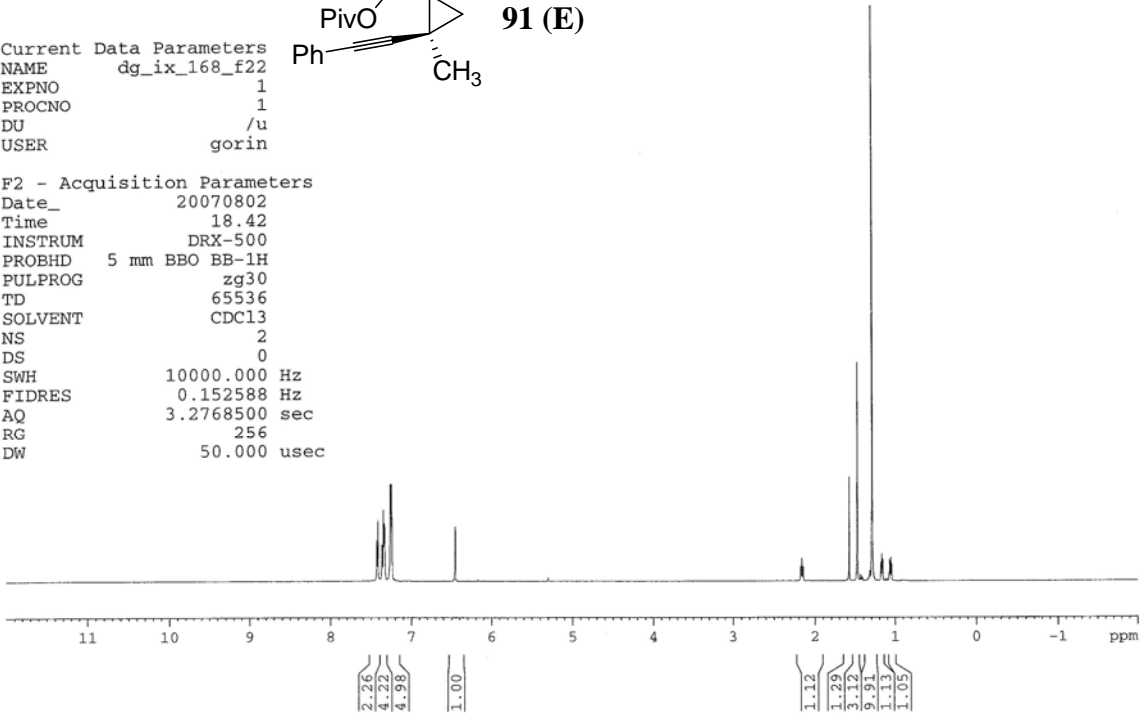






Current Data Parameters  
NAME dg\_ix\_168\_f22  
EXPNO 1  
PROCNO 1  
DU /u  
USER gorin

F2 - Acquisition Parameters  
Date\_ 20070802  
Time 18.42  
INSTRUM DRX-500  
PROBHD 5 mm BBO BB-1H  
PULPROG zg30  
TD 65536  
SOLVENT CDCl3  
NS 2  
DS 0  
SWH 10000.000 Hz  
FIDRES 0.152588 Hz  
AQ 3.2768500 sec  
RG 256  
DW 50.000 usec



13C DRX-500 5mm zBBO probe  
starting parameters with zgpg30  
uses ns\*td0  
012504 HvH

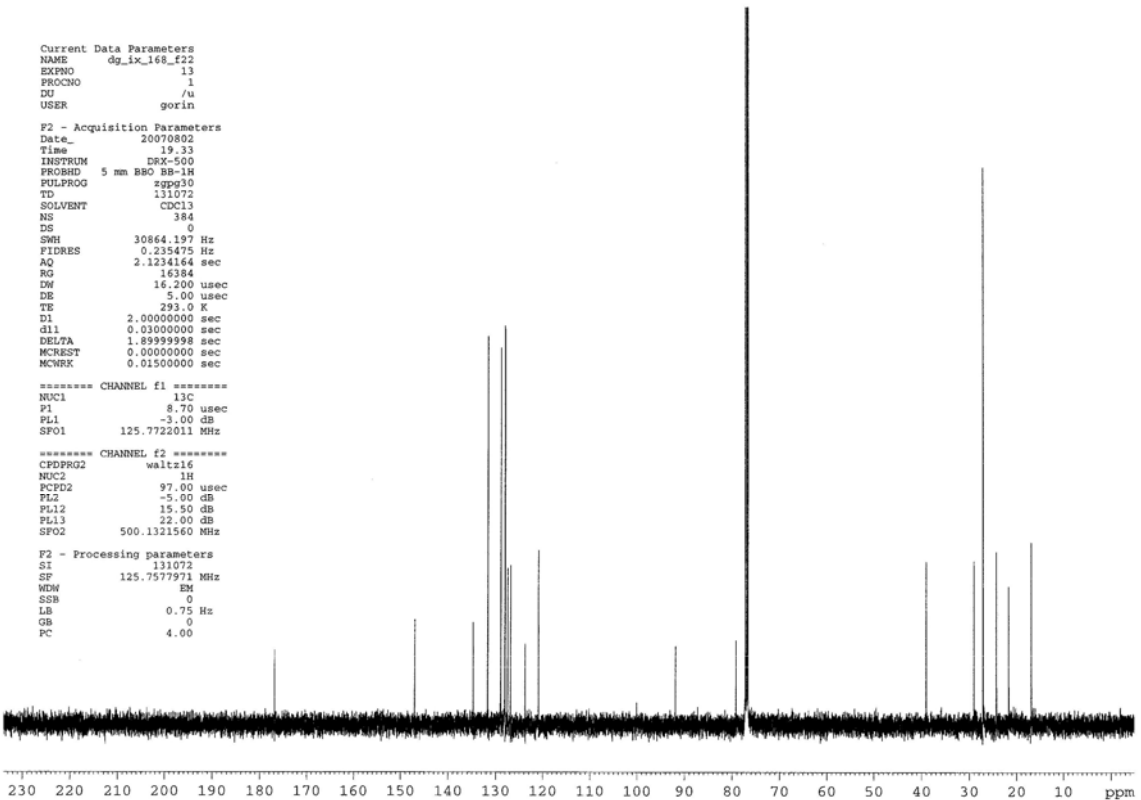
Current Data Parameters  
NAME dg\_ix\_168\_f22  
EXPNO 13  
PROCNO 1  
DU /u  
USER gorin

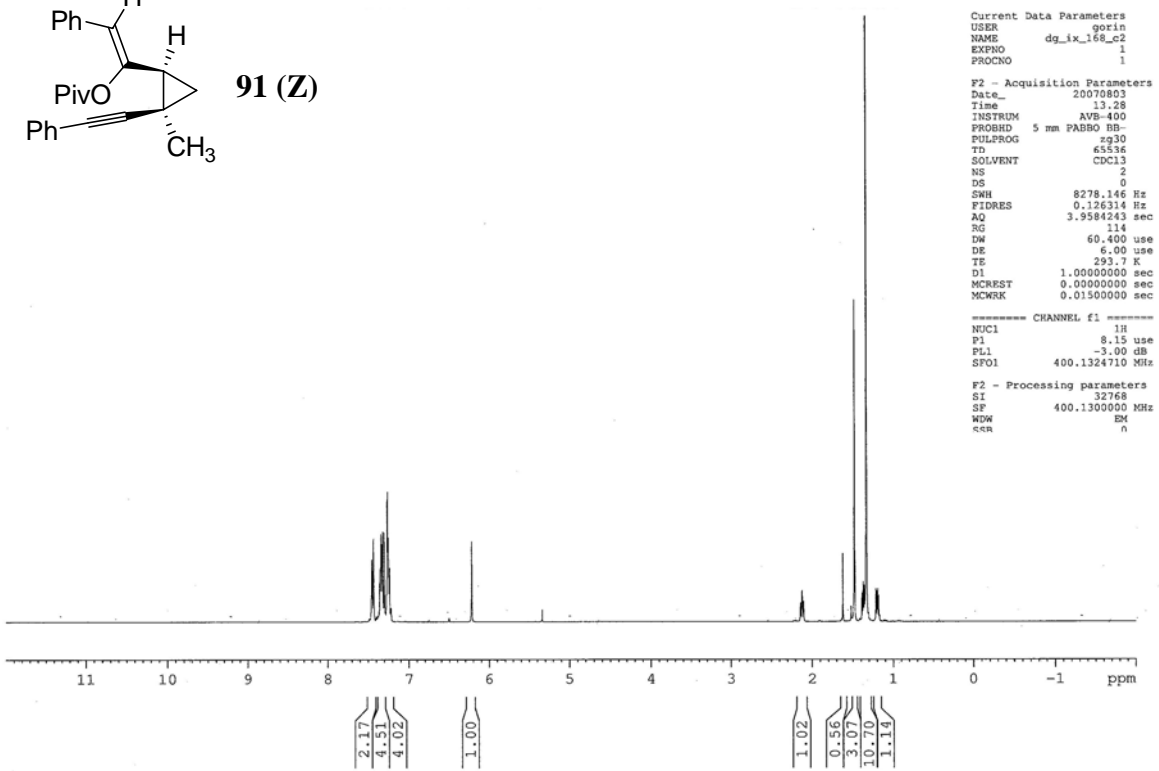
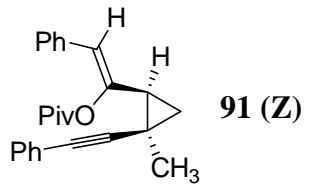
F2 - Acquisition Parameters  
Date\_ 20070802  
Time 19.33  
INSTRUM DRX-500  
PROBHD 5 mm BBO BB-1H  
PULPROG zgpg30  
TD 131072  
SOLVENT CDCl3  
NS 384  
DS 0  
SWH 30864.197 Hz  
FIDRES 0.235475 Hz  
AQ 2.1234164 sec  
RG 16384  
DW 16.200 usec  
DE 5.00 usec  
TE 293.0 K  
D1 2.00000000 sec  
d11 0.03000000 sec  
DELTA 1.89999998 sec  
MCWRES 0.00000000 sec  
MCNRX 0.01500000 sec

===== CHANNEL f1 =====  
NUC1 13C  
P1 8.70 usec  
PL1 -3.00 dB  
SFO1 125.7722011 MHz

===== CHANNEL f2 =====  
CPDPRG2 waltz16  
NUC2 1H  
PCPD2 97.00 usec  
PL2 -5.00 dB  
PL12 15.50 dB  
PL13 22.00 dB  
SFO2 500.1321560 MHz

F2 - Processing parameters  
SI 131072  
SF 125.7577971 MHz  
WDW EM  
SSB 0  
LB 0.75 Hz  
GB 0  
PC 4.00





```

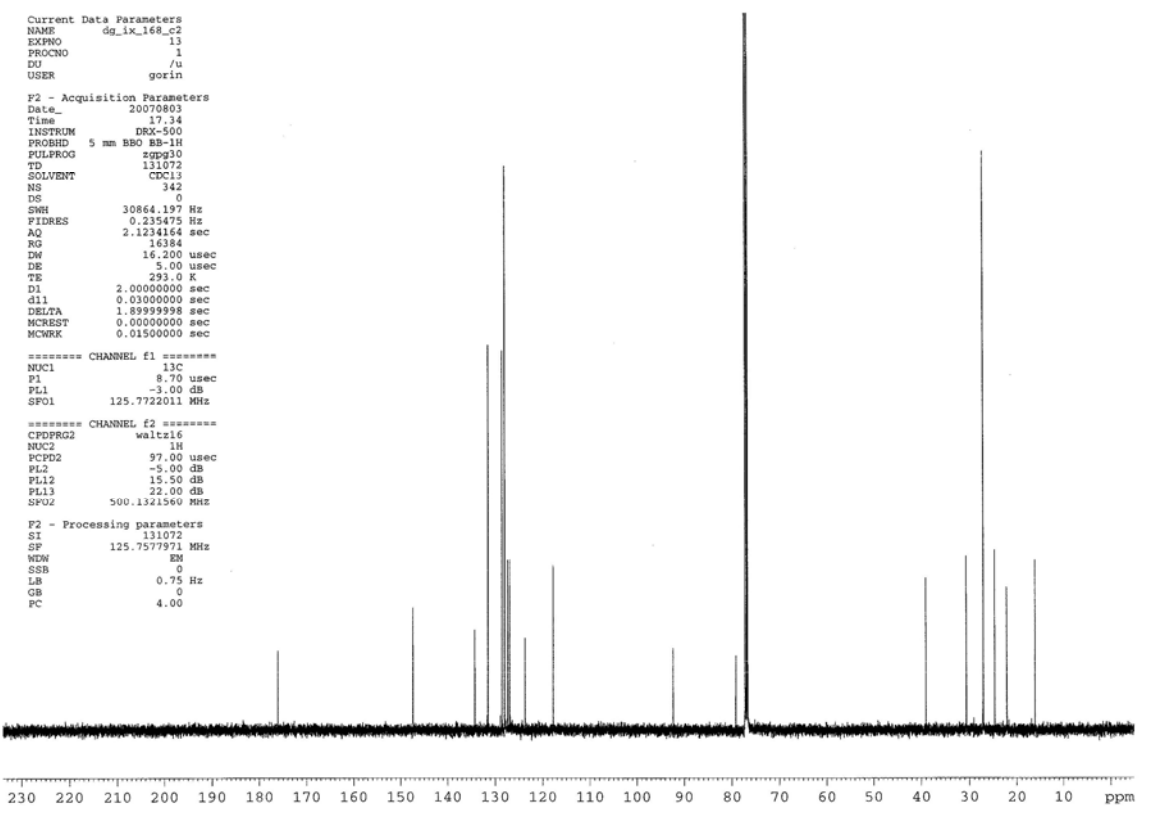
Current Data Parameters
USER          gorin
NAME          dg_ix_168_c2
EXPNO        1
PROCNO       1

F2 - Acquisition Parameters
Date_        20070803
Time         13.28
INSTRUM      AVB-400
PROBHD       5 mm PABBO BB-
PULPROG      zg30
TD           65536
SOLVENT      CDCl3
NS           2
DS           0
SWH          8278.146 Hz
FIDRES       0.126514 Hz
AQ           3.9584243 sec
RG           114
DW           60.400 usec
DE           6.00 usec
TE           293.7 K
D1           1.00000000 sec
MCREST       0.00000000 sec
MCWRK        0.01500000 sec

===== CHANNEL f1 =====
NUC1          1H
P1            8.15 usec
PL1           -3.00 dB
SFO1          400.1324710 MHz

F2 - Processing parameters
SI            32768
SF            400.1300000 MHz
WDW           EM
SSB           0
  
```

13C DRX-500 5mm ZBBO probe  
 starting parameters with zgpg30  
 uses n2\*cg0  
 012504 HVH



```

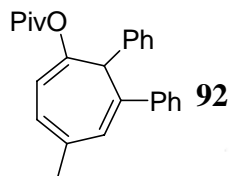
Current Data Parameters
NAME          dg_ix_168_c2
EXPNO        13
PROCNO       1
DU           /u
USER          gorin

F2 - Acquisition Parameters
Date_        20070803
Time         17.34
INSTRUM      DRX-500
PROBHD       5 mm BBO BB-1H
PULPROG      zgpg30
TD           131072
SOLVENT      CDCl3
NS           342
DS           0
SWH          30864.197 Hz
FIDRES       0.235475 Hz
AQ           2.1234164 sec
RG           16384
DW           16.200 usec
DE           5.00 usec
TE           293.0 K
D1           2.00000000 sec
d11          0.03000000 sec
DELTA        1.89999998 sec
MCREST       0.00000000 sec
MCWRK        0.01500000 sec

===== CHANNEL f1 =====
NUC1          13C
P1            8.70 usec
PL1           -3.00 dB
SFO1          125.7722011 MHz

===== CHANNEL f2 =====
CPDPRG2      waltz16
NUC2          1H
PCPD2        97.00 usec
PL2           -5.00 dB
PL12         15.50 dB
PL13         22.00 dB
SFO2          500.1321560 MHz

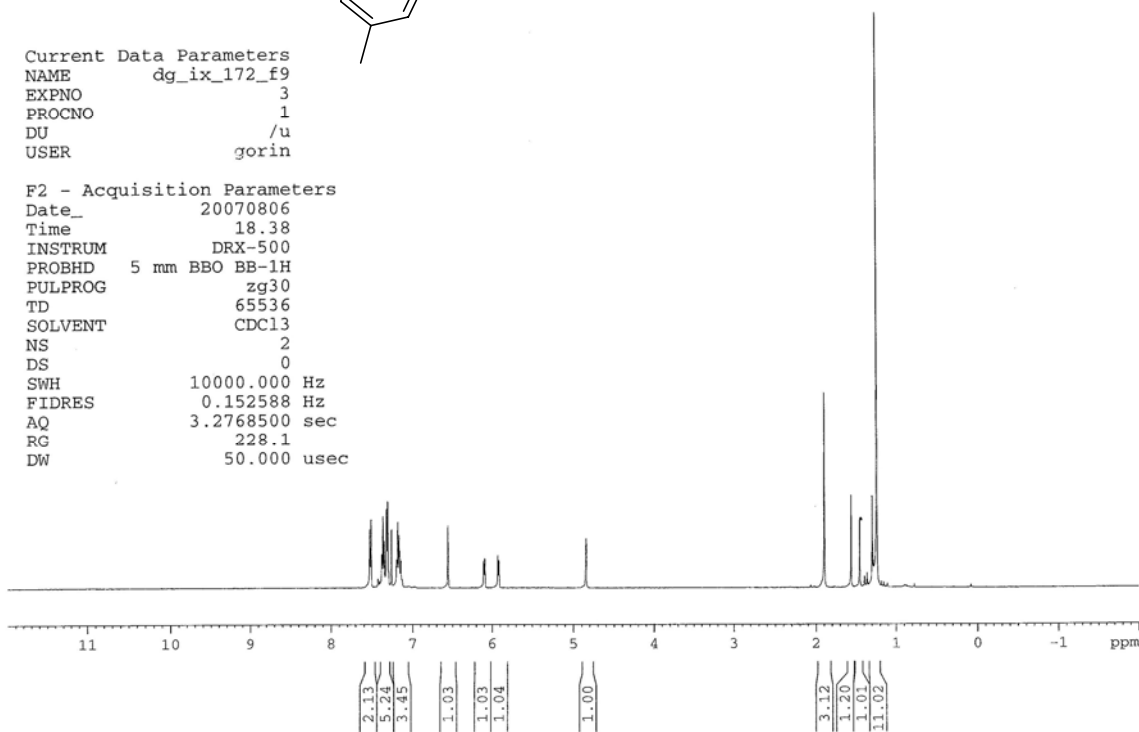
F2 - Processing parameters
SI            131072
SF            125.7577971 MHz
WDW           EM
SSB           0
LB            0.75 Hz
GB            0
PC            4.00
  
```



Current Data Parameters  
NAME dg\_ix\_172\_f9  
EXPNO 3  
PROCNO 1  
DU /u  
USER gorin

F2 - Acquisition Parameters

Date\_ 20070806  
Time 18.38  
INSTRUM DRX-500  
PROBHD 5 mm BBO BB-1H  
PULPROG zg30  
TD 65536  
SOLVENT CDC13  
NS 2  
DS 0  
SWH 10000.000 Hz  
FIDRES 0.152588 Hz  
AQ 3.2768500 sec  
RG 228.1  
RC 50.000 usec



13C DRX-500 5mm ZBBO probe  
starting parameters with zgpg30 (waltz16)  
uses ns\*td0  
012504 HvH

Current Data Parameters  
NAME dg\_ix\_172\_f9  
EXPNO 13  
PROCNO 1  
DU /u  
USER gorin

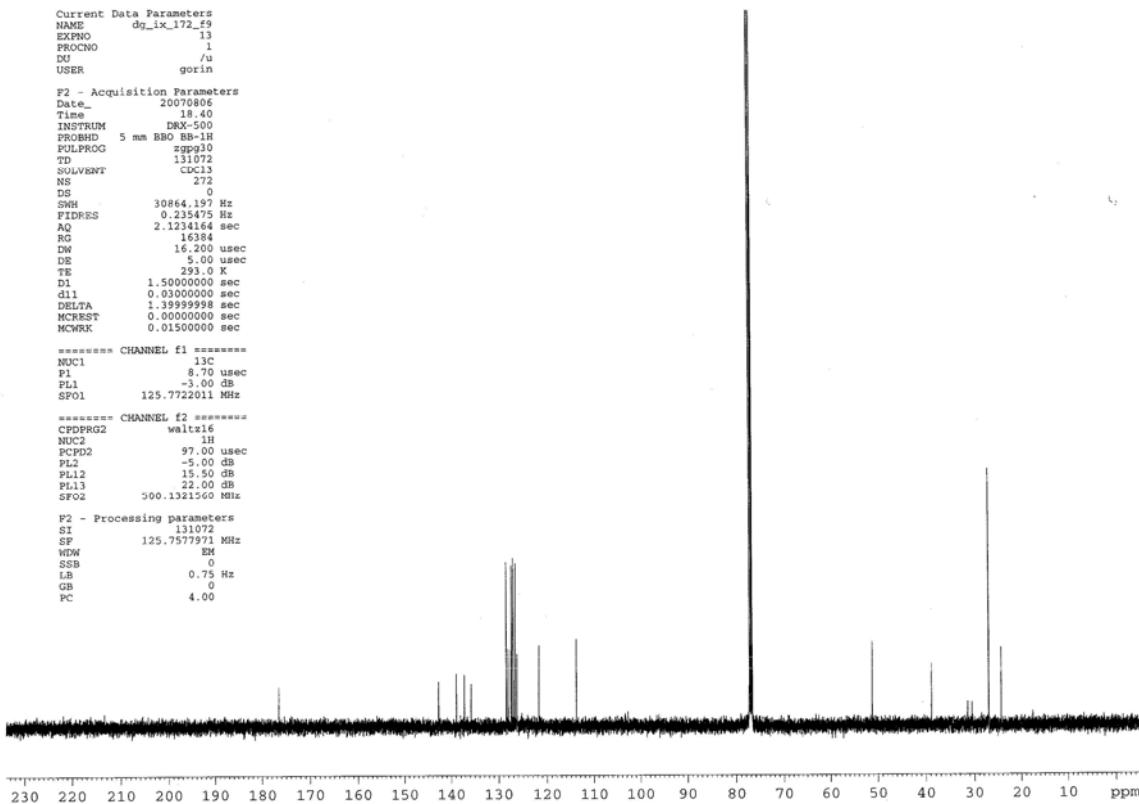
F2 - Acquisition Parameters

Date\_ 20070806  
Time 18.40  
INSTRUM DRX-500  
PROBHD 5 mm BBO BB-1H  
PULPROG zgpg30  
TD 131072  
SOLVENT CDC13  
NS 272  
DS 0  
SWH 30864.197 Hz  
FIDRES 0.234475 Hz  
AQ 2.1234164 sec  
RG 16384  
DW 16.300 usec  
DE 5.00 usec  
TE 293.0 K  
D1 1.5000000 sec  
d11 0.0300000 sec  
DELTA 1.3999998 sec  
MCREST 0.0000000 sec  
MCWXX 0.0150000 sec

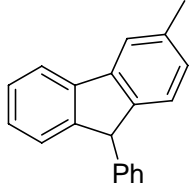
\*\*\*\*\* CHANNEL f1 \*\*\*\*\*  
NUC1 13C  
P1 8.70 usec  
PL1 -3.00 dB  
SFO1 125.7722011 MHz

\*\*\*\*\* CHANNEL f2 \*\*\*\*\*  
CFDPRG2 waltz16  
NUC2 1H  
PCPD2 97.00 usec  
PL2 -5.00 dB  
PL12 15.50 dB  
PL13 22.00 dB  
SFO2 500.1321560 MHz

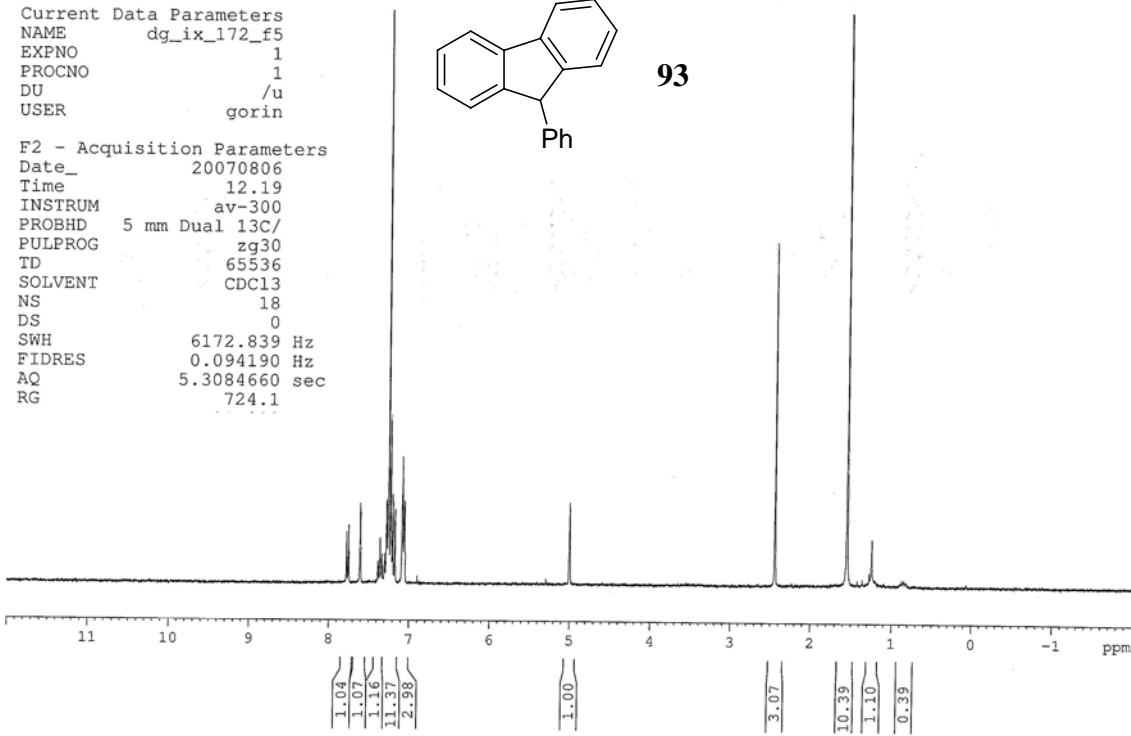
F2 - Processing parameters  
SI 131072  
SF 125.7577971 MHz  
WDW EM  
SSB 0  
LB 0.75 Hz  
GB 0  
PC 4.00



Current Data Parameters  
 NAME dg\_ix\_172\_f5  
 EXPNO 1  
 PROCNO 1  
 DU /u  
 USER gorin



F2 - Acquisition Parameters  
 Date\_ 20070806  
 Time 12.19  
 INSTRUM av-300  
 PROBH D 5 mm Dual 13C/  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDC13  
 NS 18  
 DS 0  
 SWH 6172.839 Hz  
 FIDRES 0.094190 Hz  
 AQ 5.3084660 sec  
 RG 724.1



AVB-400 Z80 Carbon Starting parameters 6/11/03 RN

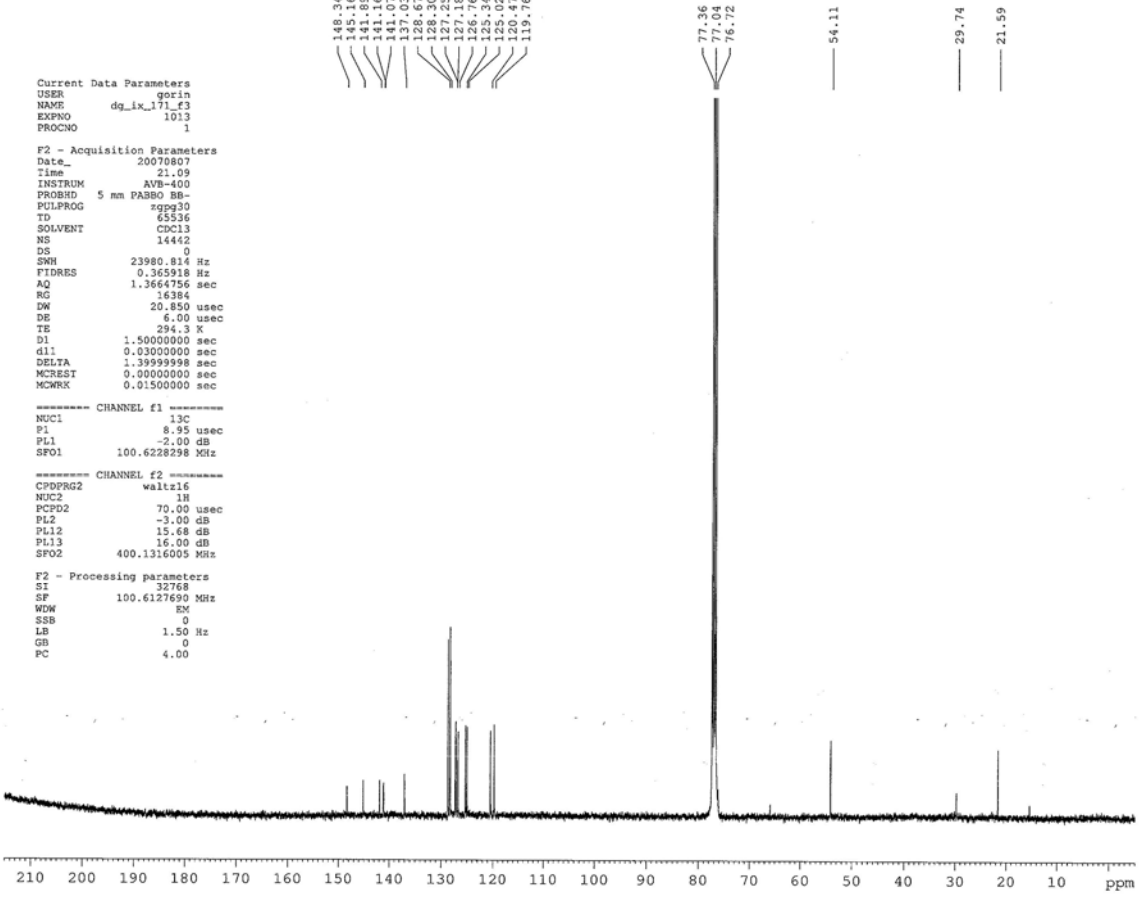
Current Data Parameters  
 USER gorin  
 NAME dg\_ix\_171\_f3  
 EXPNO 1013  
 PROCNO 1

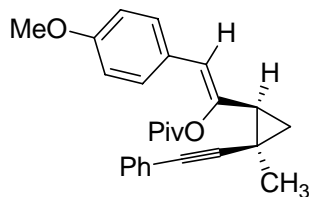
F2 - Acquisition Parameters  
 Date\_ 20070807  
 Time 21.09  
 INSTRUM AVB-400  
 PROBH D 5 mm PABBO BB-  
 PULPROG zgpg30  
 TD 65536  
 SOLVENT CDC13  
 NS 14442  
 DS 0  
 SWH 23980.814 Hz  
 FIDRES 0.365918 Hz  
 AQ 1.3664756 sec  
 RG 16384  
 DW 20.850 usec  
 DE 6.00 usec  
 TE 294.3 K  
 D1 1.50000000 sec  
 d11 0.03000000 sec  
 DELTA 1.39999998 sec  
 MCREST 0.00000000 sec  
 MCWRK 0.01500000 sec

----- CHANNEL f1 -----  
 NUC1 13C  
 P1 8.95 usec  
 PL1 -2.00 dB  
 SFO1 100.6228298 MHz

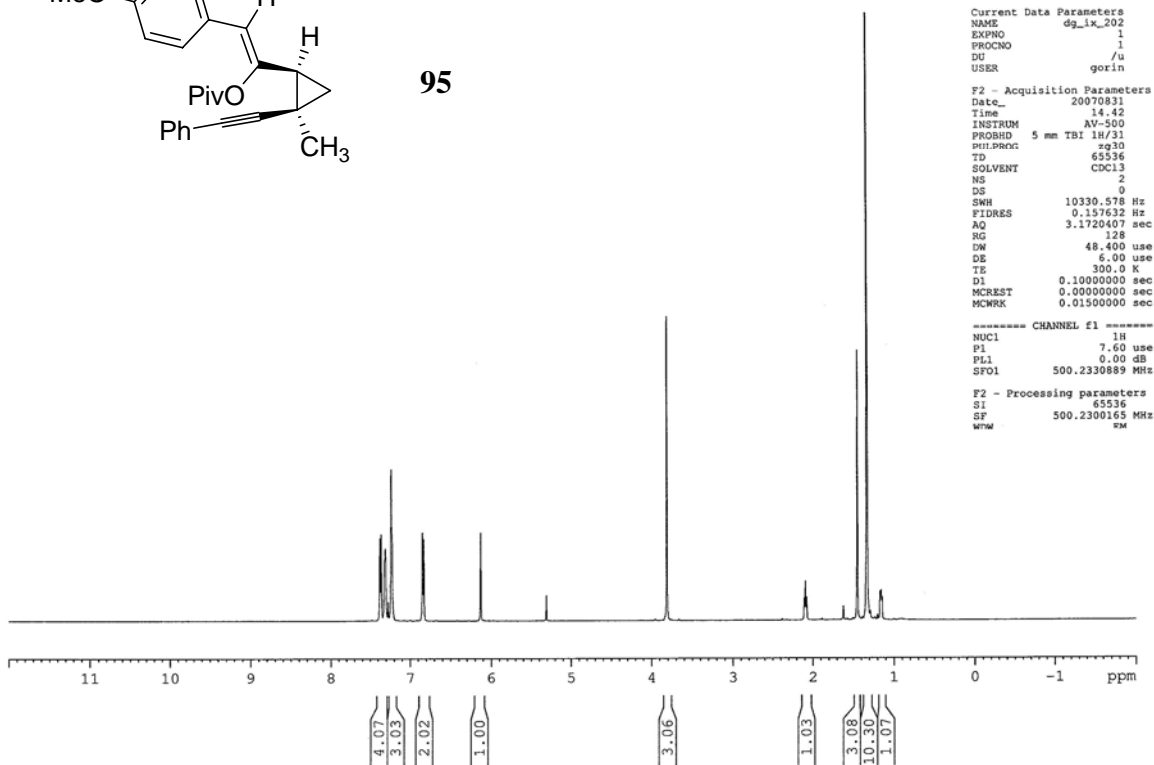
----- CHANNEL f2 -----  
 CPDPRG2 waltz16  
 NUC2 1H  
 PCPD2 70.00 usec  
 PL2 -3.00 dB  
 PL12 15.68 dB  
 PL13 16.00 dB  
 SFO2 400.1316005 MHz

F2 - Processing parameters  
 SI 32768  
 SF 100.6127690 MHz  
 WD W  
 SSB 0  
 LB 1.50 Hz  
 GB 0  
 PC 4.00





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Current Data Parameters  
 NAME dg\_ix\_202  
 EXPNO 1  
 PROCNO 1  
 DG /u  
 USER gorin

F2 - Acquisition Parameters  
 Date\_ 20070831  
 Time 14.42  
 INSTRUM AV-500  
 PROBRD 5 mm TBI 1H/31  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 2  
 DS 0  
 SWH 10330.578 Hz  
 FIDRES 0.157632 Hz  
 AQ 3.1720407 sec  
 RG 128  
 DW 48.400 usec  
 DE 6.00 usec  
 TE 300.0 K  
 D1 0.1000000 sec  
 MCREST 0.0000000 sec  
 MCWRK 0.0150000 sec

----- CHANNEL f1 -----  
 NUC1 1H  
 P1 7.60 usec  
 PL1 0.00 dB  
 SFO1 500.2330889 MHz

F2 - Processing parameters  
 SI 65536  
 SF 500.2330165 MHz  
 WDW EM  
 SSB 0  
 LB 0.75 Hz  
 GB 0  
 PC 4.00

AV-500 new TBIP probe  
 1D 13C(1H) on BB-channel  
 051606 RVH

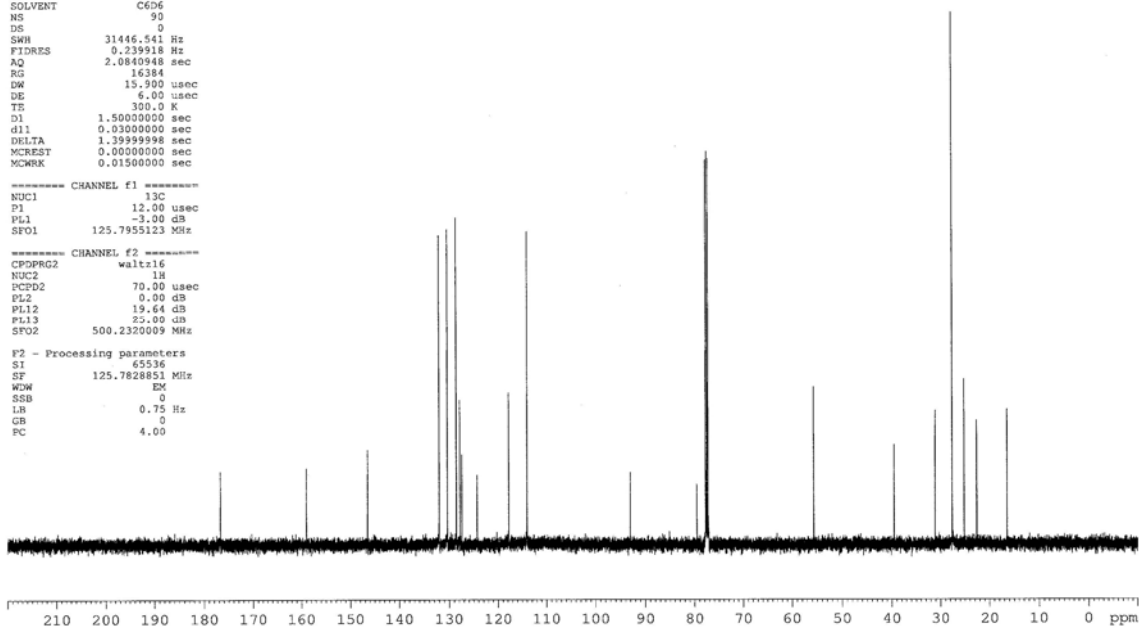
Current Data Parameters  
 USER gorin  
 NAME dg\_ix\_202  
 EXPNO 13  
 PROCNO 1

F2 - Acquisition Parameters  
 Date\_ 20070831  
 Time 14.44  
 INSTRUM AV-500  
 PROBRD 5 mm TBI 1H/31  
 PULPROG zgpg30  
 TD 131072  
 SOLVENT CDCl3  
 NS 90  
 DS 0  
 SWH 31446.441 Hz  
 FIDRES 0.239918 Hz  
 AQ 2.0840948 sec  
 RG 16384  
 DW 15.900 usec  
 DE 6.00 usec  
 TE 300.0 K  
 D1 1.5000000 sec  
 d11 0.0300000 sec  
 DELTA 1.3999998 sec  
 MCREST 0.0000000 sec  
 MCWRK 0.0150000 sec

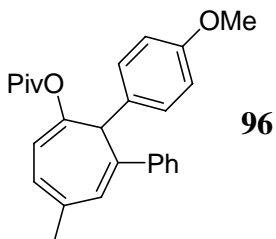
----- CHANNEL f1 -----  
 NUC1 13C  
 P1 12.00 usec  
 PL1 -3.00 dB  
 SFO1 125.7955123 MHz

----- CHANNEL f2 -----  
 CPDPRG2 waltz16  
 NUC2 1H  
 PCPD2 70.00 usec  
 PL2 0.00 dB  
 PL12 19.64 dB  
 PL13 25.00 dB  
 SFO2 500.2320009 MHz

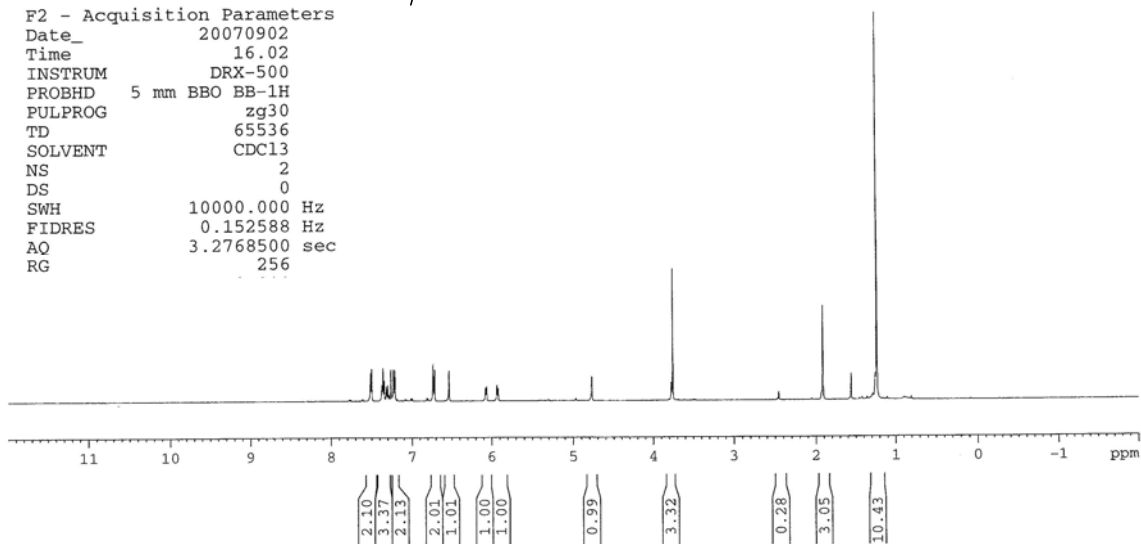
F2 - Processing parameters  
 SI 65536  
 SF 125.7828951 MHz  
 WDW EM  
 SSB 0  
 LB 0.75 Hz  
 GB 0  
 PC 4.00



Current Data Parameters  
 NAME dg\_ix\_204\_f11  
 EXPNO 1  
 PROCNO 1  
 DU /u  
 USER gorin



F2 - Acquisition Parameters  
 Date\_ 20070902  
 Time 16.02  
 INSTRUM DRX-500  
 PROBHD 5 mm BBO BB-1H  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 2  
 DS 0  
 SWH 10000.000 Hz  
 FIDRES 0.152588 Hz  
 AQ 3.2768500 sec  
 RG 256



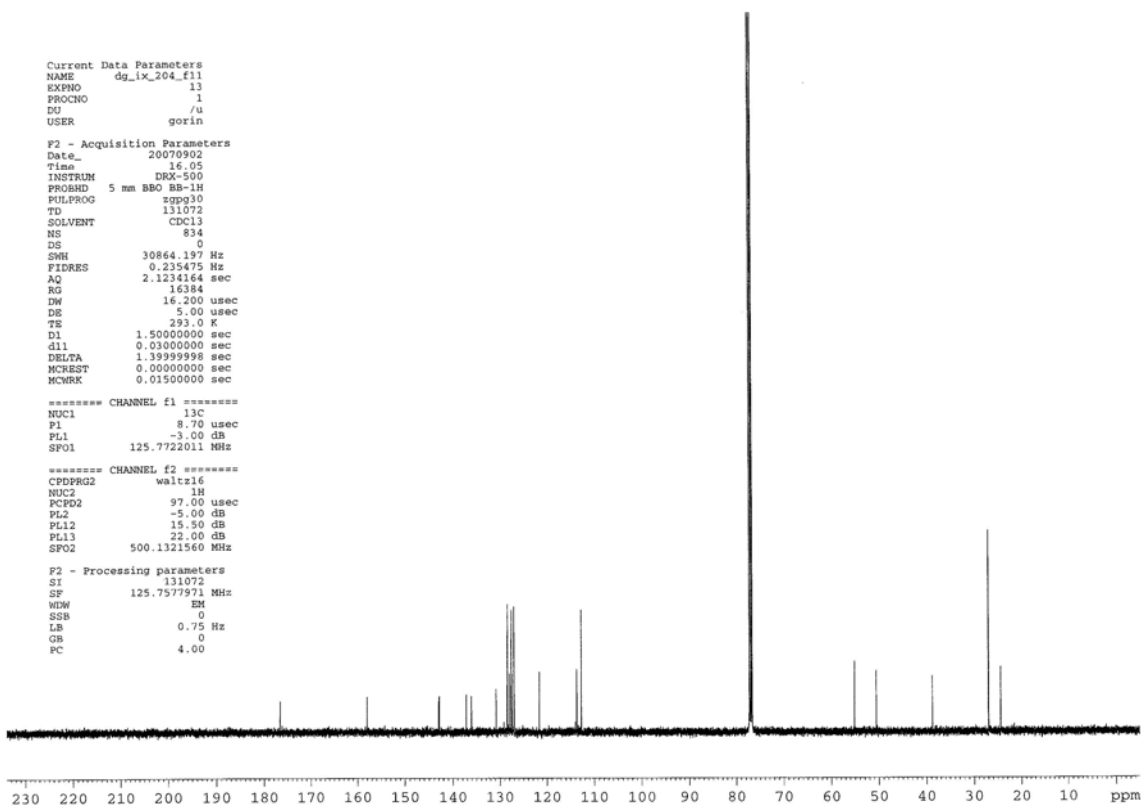
Current Data Parameters  
 NAME dg\_ix\_204\_f11  
 EXPNO 13  
 PROCNO 1  
 DU /u  
 USER gorin

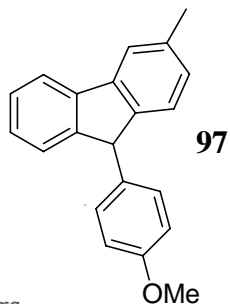
F2 - Acquisition Parameters  
 Date\_ 20070902  
 Time 16.05  
 INSTRUM DRX-500  
 PROBHD 5 mm BBO BB-1H  
 PULPROG zgpg30  
 TD 131072  
 SOLVENT CDCl3  
 NS 834  
 DS 0  
 SWH 30864.197 Hz  
 FIDRES 0.235475 Hz  
 AQ 2.1234164 sec  
 RG 16384  
 DW 16.200 usec  
 DE 5.00 usec  
 TE 293.0 K  
 D1 1.50000000 sec  
 d11 0.03000000 sec  
 DELTA 1.39999998 sec  
 MCREST 0.00000000 sec  
 MCWRRK 0.01500000 sec

\*\*\*\*\* CHANNEL f1 \*\*\*\*\*  
 NUC1 13C  
 P1 8.70 usec  
 PL1 -3.00 dB  
 SFO1 125.7722011 MHz

\*\*\*\*\* CHANNEL f2 \*\*\*\*\*  
 CPDPRG2 waltz16  
 NUC2 1H  
 PCPD2 97.00 usec  
 PL2 -5.00 dB  
 PL12 15.50 dB  
 PL13 22.00 dB  
 SFO2 500.1321560 MHz

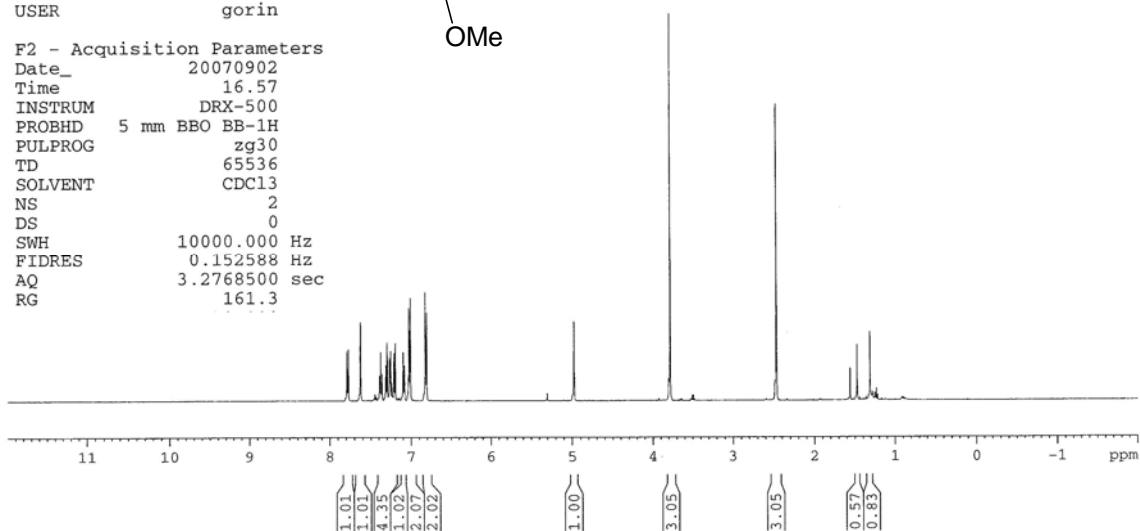
F2 - Processing parameters  
 SI 131072  
 SF 125.7577971 MHz  
 WDW EM  
 SSB 0  
 LB 0.75 Hz  
 GB 0  
 PC 4.00





Current Data Parameters  
 NAME dg\_ix\_204\_f8  
 EXPNO 1  
 PROCNO 1  
 DU /u  
 USER gorin

F2 - Acquisition Parameters  
 Date\_ 20070902  
 Time 16.57  
 INSTRUM DRX-500  
 PROBHD 5 mm BBO BB-1H  
 PULPROG zg30  
 TD 65536  
 SOLVENT CDCl3  
 NS 2  
 DS 0  
 SWH 10000.000 Hz  
 FIDRES 0.152588 Hz  
 AQ 3.2768500 sec  
 RG 161.3



Current Data Parameters  
 NAME dg\_ix\_204\_f8  
 EXPNO 13  
 PROCNO 1  
 DU /u  
 USER gorin

F2 - Acquisition Parameters  
 Date\_ 20070902  
 Time 16.59  
 INSTRUM DRX-500  
 PROBHD 5 mm BBO BB-1H  
 PULPROG zgpg30  
 TD 131072  
 SOLVENT CDCl3  
 NS 387  
 DS 0  
 SWH 30864.197 Hz  
 FIDRES 0.235475 Hz  
 AQ 2.1234164 sec  
 RG 16384  
 DM 16.200 usec  
 DE 5.00 usec  
 TE 293.0 K  
 D1 1.50000000 sec  
 d11 0.03000000 sec  
 DELTA 1.39999998 sec  
 MCREST 0.00000000 sec  
 MCWRK 0.01500000 sec

\*\*\*\*\* CHANNEL f1 \*\*\*\*\*  
 NUC1 13c  
 P1 8.70 usec  
 PL1 -3.00 dB  
 SFO1 125.7722011 MHz

\*\*\*\*\* CHANNEL f2 \*\*\*\*\*  
 CPDPRG2 waltz16  
 NUC2 1H  
 PCPD2 97.00 usec  
 PL2 -5.00 dB  
 PL12 15.50 dB  
 PL13 22.00 dB  
 SFO2 500.1321560 MHz

F2 - Processing parameters  
 SI 131072  
 SF 125.7577971 MHz  
 HDW EM  
 SSB 0  
 LB 0.75 Hz  
 GB 0  
 FC 4.00

