

## Supporting Information

### Versatile and sustainable alcoholysis of amides by reusable CeO<sub>2</sub> catalyst

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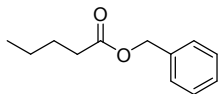
615-8520, Japan

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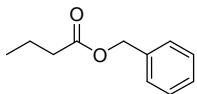
#### NMR and GC/MS analysis

<sup>1</sup>H and <sup>13</sup>C NMR spectra for esters of Table-2 and Table-3 were assigned and reproduced to the corresponding literature. <sup>1</sup>H and <sup>13</sup>C NMR spectra were recorded using at ambient temperature on JEOL-ECX 600 operating at 600.17 and 150.92 MHz, respectively with tetramethylsilane as an internal standard. All chemical shifts ( $\delta$ ) are reported in ppm and coupling constants ( $J$ ) in Hz. All chemical shifts are reported relative to tetramethylsilane and  $\alpha$ -solvent (CDCl<sub>3</sub>) peaks respectively. Abbreviations used in the NMR experiments: s, singlet; d, doublet; t, triplet; q, quartet; m, multiplet. GC-MS spectra was taken by SHIMADZU QP2010.

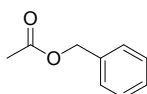
#### Pentanoic acid benzyl ester:<sup>1</sup>



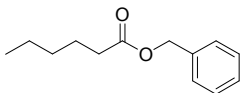
<sup>1</sup>H NMR (600.17 MHz, CDCl<sub>3</sub>, TMS):  $\delta$  7.37-7.33 (m, 4H), 7.32-7.29 (m, 1H), 5.10 (s, 2H), 2.35 (t,  $J$  = 7.56 Hz, 2H), 1.65-1.60 (m, 2H), 1.36-1.31 (m, 2H), 0.90 (t,  $J$  = 7.56 Hz, 3H); <sup>13</sup>C NMR (150.92 MHz, CDCl<sub>3</sub>)  $\delta$  173.67, 136.16, 128.54 (C $\times$ 2), 128.15 (C $\times$ 3), 66.05, 34.05, 27.01, 22.26, 13.71; GC-MS m/e 192.110.

**Butyric acid benzyl ester:<sup>2</sup>**

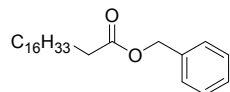
<sup>1</sup>H NMR (600.17 MHz, CDCl<sub>3</sub>, TMS): δ 7.35-7.34 (m, 4H), 7.32-7.30 (m, 1H), 5.11 (s, 2H), 2.33 (t, *J* = 7.56 Hz, 2H), 1.69-1.65 (m, 2H), 0.94 (t, *J* = 7.56 Hz, 3H); <sup>13</sup>C NMR (150.92 MHz, CDCl<sub>3</sub>) δ 173.51, 136.15, 128.54(C×2), 128.16 (C×3), 66.04, 36.19, 18.44, 13.67; GC-MS m/e 178.105.

**Acetic acid benzyl ester:<sup>3</sup>**

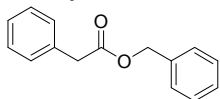
<sup>1</sup>H NMR (600.17 MHz, CDCl<sub>3</sub>, TMS): δ 7.35-7.34 (m, 4 H), 7.32-7.30 (m, 1H), 5.10 (s, 2H), 2.08 (s, 3H); <sup>13</sup>C NMR (150.92 MHz, CDCl<sub>3</sub>) δ 170.86, 135.95, 128.56 (C×2), 128.26 (C×3), 66.29, 20.99; GC-MS m/e 150.055.

**Hexanoic acid benzyl ester:<sup>4</sup>**

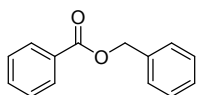
<sup>1</sup>H NMR (600.17 MHz, CDCl<sub>3</sub>, TMS): δ 7.38-7.35 (m, 4H), 7.34-7.31 (m, 1H), 5.12 (s, 2H), 2.35 (t, *J* = 7.56 Hz, 2H), 1.68-1.64 (m, 2H), 1.33-1.26 (m, 4H), 0.89 (t, *J* = 7.56 Hz, 3H); <sup>13</sup>C NMR (150.92 MHz, CDCl<sub>3</sub>) δ 173.65, 136.17, 128.53 (C×2), 128.16(C×3), 66.04, 34.28, 31.30, 24.64, 22.32, 13.90; GC-MS m/e 206.135.

**Octadecanoic acid benzyl ester:<sup>5</sup>**

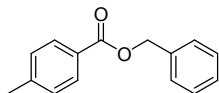
<sup>1</sup>H NMR (600.17 MHz, CDCl<sub>3</sub>, TMS): δ 7.36-7.34 (m, 4H), 7.32-7.31 (m, 1H), 2.34 (t, *J* = 7.56 Hz, 2H), 1.64-1.62 (m, 2H), 1.28-1.24 (m, 28H), 0.88 (t, *J* = 6.60 Hz, 3H); <sup>13</sup>C NMR (150.92 MHz, CDCl<sub>3</sub>) δ 173.67, 136.10, 128.50 (C×2), 128.12 128.32 (C×2), 66.01, 34.30, 31.91, 29.68(C×4), 29.65(C×2), 29.56, 29.43, 29.34, 29.23, 29.10, 24.93, 22.67, 14.10; GC-MS m/e 374.320.

**Phenyl-acetic acid benzyl ester:<sup>6</sup>**

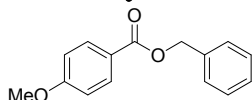
<sup>1</sup>H NMR (600.17 MHz, CDCl<sub>3</sub>, TMS): δ 7.35-7.25 (m, 10H), 5.12 (s, 2H), 3.66 (s, 2H); <sup>13</sup>C NMR (150.92 MHz, CDCl<sub>3</sub>) δ 171.36, 135.83, 133.87, 129.27 (C×2), 128.56 (C×2), 128.51 (C×2), 128.19, 128.10 (C×2), 127.10, 66.58, 41.31 ; GC-MS m/e 226.105.

**Benzoic acid benzyl ester:<sup>7</sup>**

<sup>1</sup>H NMR (600.17 MHz, CDCl<sub>3</sub>, TMS): δ 8.08 (d, *J* = 8.88 Hz, 2H), 7.55-7.53 (m, 1H), 7.45-7.41 (m, 4H), 7.39-7.37 (m, 2H), 7.35-7.33 (m, 1H), 5.35 (s, 2H); <sup>13</sup>C NMR (150.92 MHz, CDCl<sub>3</sub>) δ 166.40, 136.05, 133.01, 130.13, 129.69 (C×2), 128.58 (C×2), 128.36 (C×2), 128.23, 128.15 (C×2), 66.66; GC-MS m/e 212.090.

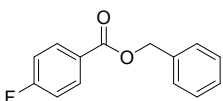
**4-Methyl-benzoic acid benzyl ester:<sup>8</sup>**

<sup>1</sup>H NMR (600.17 MHz, CDCl<sub>3</sub>, TMS): δ 7.96 (d, *J* = 8.28 Hz, 2H), 7.43 (d, *J* = 7.56 Hz, 2H), 7.36-7.34 (m, 2H), 7.33-7.29 (m, 1H), 7.20 (d, *J* = 6.84 Hz, 2H), 5.34 (s, 2H), 2.39 (s, 3H); <sup>13</sup>C NMR (150.92 MHz, CDCl<sub>3</sub>) δ 166.50, 143.71, 136.21, 129.74 (C×2), 129.09 (C×2), 129.01 (C×2), 128.57 (C×2), 128.17 (C×2), 128.12, 127.40, 66.50, 21.66; GC-MS m/e 226.105.

**4-Methoxy-benzoic acid benzyl ester:<sup>9</sup>**

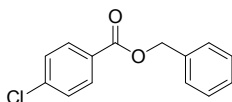
<sup>1</sup>H NMR (600.17 MHz, CDCl<sub>3</sub>, TMS): δ 8.03 (d, *J* = 8.88 Hz, 2H), 7.43 (d, *J* = 7.56 Hz, 2H), 7.38-7.36 (m, 2H), 7.33-7.32 (m, 1H), 6.90 (d, *J* = 8.88 Hz, 2H), 5.33 (s, 2H), 3.83 (s, 3H); <sup>13</sup>C NMR (150.92 MHz, CDCl<sub>3</sub>) δ 166.16, 163.42, 136.30, 131.73 (C×3), 128.55 (C×2), 128.12 (C×2), 128.08 (C×2), 122.53, 113.61 (C×2), 66.37, 55.39 ; GC-MS m/e 242.095.

#### 4-Fluoro-benzoic acid benzyl ester:<sup>10</sup>



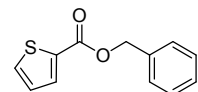
<sup>1</sup>H NMR (600.17 MHz, CDCl<sub>3</sub>, TMS): δ 8.09-8.07 (m, 2H), 7.44-7.42(m, 2H), 7.39-7.37 (m, 2H), 7.35-7.32(m, 1H), 7.10-7.07 (m, 2H), 5.34 (s, 2H); <sup>13</sup>C NMR (150.92 MHz, CDCl<sub>3</sub>) δ 165.82 (d, *J*= 252.88 Hz, 4-F-C), 165.45, 135.91, 132.26 (d, *J* = 10.11 Hz, *meta* to 4-F, C×2), 128.63 (C×2), 128.34, 128.23 (C×2), 126.37, 115.53 (d, *J* = 21.68 Hz, *ortho* to 4-F, C×2), 66.84; GC-MS m/e 230.070.

#### 4-Chloro-benzoic acid benzyl ester:<sup>11</sup>



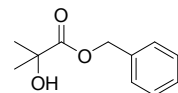
<sup>1</sup>H NMR (600.17 MHz, CDCl<sub>3</sub>, TMS): δ 7.99 (d, *J* = 8.88 Hz, 2H), 7.43 (d, *J* = 7.56 Hz, 2H), 7.39-7.37 (m, 4H), 7.35-7.33 (m, 1H), 5.34 (s, 2H); <sup>13</sup>C NMR (150.92 MHz, CDCl<sub>3</sub>) δ 165.53, 139.76, 136.36, 131.08 (C×2), 128.71 (C×2), 128.63 (C×2), 128.57, 128.35, 128.23 (C×2), 66.87; GC-MS m/e 246.045.

#### Thiophene-2-carboxylic acid benzyl ester:<sup>12</sup>

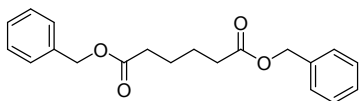


<sup>1</sup>H NMR (600.17 MHz, CDCl<sub>3</sub>, TMS): δ 7.83-7.82 (m, 1H), 7.53 (dd, *J* = 4.80, 1.38 Hz, 1H), 7.43 (dd, *J* = 4.80, 1.38 Hz, 2H), 7.37 (t, *J* = 6.90 Hz, 2H), 7.34 (t, *J* = 7.56 Hz, 1H), 7.08 (t, *J* = 4.80 Hz, 1H), 5.33 (s, 2H); <sup>13</sup>C NMR (150.92 MHz, CDCl<sub>3</sub>) δ 162.04, 135.82, 133.63, 133.50, 132.54, 128.57 (C×2), 128.27, 128.14 (C×2), 127.75, 66.70; GC-MS m/e 218.045.

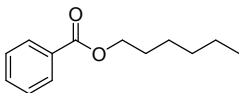
#### 2-Hydroxy-2-methyl-propionic acid benzyl ester:<sup>13</sup>



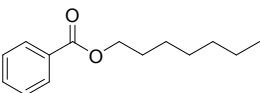
<sup>1</sup>H NMR (600.17 MHz, CDCl<sub>3</sub>, TMS): δ 7.37-7.34 (m, 5H), 5.19 (s, 2H), 3.16 (br s, 1H), 1.44 (s, 6H); <sup>13</sup>C NMR (150.92 MHz, CDCl<sub>3</sub>) δ 177.26, 135.41, 128.64 (C×2), 128.45 (C×2), 128.00, 72.09, 67.36, 27.16; GC-MS m/e 194.100.

**Hexanedioic acid dibenzyl ester:<sup>14</sup>**

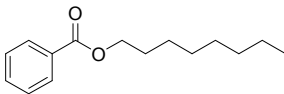
<sup>1</sup>H NMR (600.17 MHz, CDCl<sub>3</sub>, TMS): δ 7.35-7.32 (m, 10H), 5.10 (s, 4H), 2.37-2.35 (m, 4H), 1.68-1.67 (m, 4H); <sup>13</sup>C NMR (150.92 MHz, CDCl<sub>3</sub>) δ 173.09 (C×2), 135.99 (C×2), 128.56 (C×6), 128.20 (C×4), 66.19 (C×2), 33.86 (C×2), 24.33 (C×2); GC-MS m/e 326.150.

**Benzoic acid hexyl ester:<sup>15</sup>**

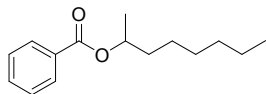
<sup>1</sup>H NMR (600.17 MHz, CDCl<sub>3</sub>, TMS): δ 8.04 (d, *J* = 8.22 Hz, 2H), 7.55 (t, *J* = 7.38 Hz, 1H), 7.43 (t, *J* = 7.56 Hz, 2H), 4.31 (t, *J* = 6.90 Hz, 2H), 1.77-1.75 (m, 2H), 1.45-1.43 (m, 2H), 1.35-1.33 (m, 4H), 0.90 (t, *J* = 6.90 Hz, 3H); <sup>13</sup>C NMR (150.92 MHz, CDCl<sub>3</sub>) δ 166.70, 132.78, 130.55, 129.54 (C×2), 128.31 (C×2), 65.14, 31.48, 28.71, 25.73, 22.57, 14.02; GC-MS m/e 206.135.

**Benzoic acid heptyl ester :<sup>16</sup>**

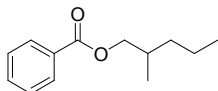
<sup>1</sup>H NMR (600.17 MHz, CDCl<sub>3</sub>, TMS): δ 8.04 (d, *J* = 8.22 Hz, 2H), 7.54 (t, *J* = 7.56 Hz, 1H), 7.43 (t, *J* = 7.56 Hz, 2H), 4.31 (t, *J* = 6.18 Hz, 2H), 1.79-1.74 (m, 2H), 1.45-1.41 (m, 2H), 1.36-1.25 (m, 6H), 0.88 (t, *J* = 6.90 Hz, 3H); <sup>13</sup>C NMR (150.92 MHz, CDCl<sub>3</sub>) δ 166.69, 132.78, 130.57, 129.54 (C×2), 128.32 (C×2), 65.14, 31.76, 28.99, 28.75, 26.03, 22.61, 14.08; GC-MS m/e 220.150.

**Benzoic acid octyl ester:<sup>17</sup>**

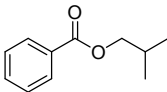
<sup>1</sup>H NMR (600.17 MHz, CDCl<sub>3</sub>, TMS): δ 8.04 (d, *J* = 8.28 Hz, 2H), 7.54 (t, *J* = 7.56 Hz, 1H), 7.43 (t, *J* = 7.56 Hz, 2H), 4.31 (t, *J* = 6.87 Hz, 2H), 1.77-1.74 (m, 2H), 1.45-1.42 (m, 2H), 1.35-1.27 (m, 8H), 0.89 (t, *J* = 7.56 Hz, 3H); <sup>13</sup>C NMR (150.92 MHz, CDCl<sub>3</sub>) δ 166.69, 132.78, 130.57, 129.54 (C×2), 128.32 (C×2), 65.15, 31.81, 29.28, 29.22, 28.75, 26.07, 22.66, 14.10; GC-MS m/e 234.165.

**Benzoic acid 1-methyl-heptyl ester:<sup>18</sup>**

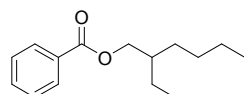
<sup>1</sup>H NMR (600.17 MHz, CDCl<sub>3</sub>, TMS): δ 8.04 (d, *J* = 7.56 Hz, 2H), 7.54 (t, *J* = 6.90 Hz, 1H), 7.43 (t, *J* = 7.56 Hz, 2H), 5.16-5.14 (m, 1H), 1.74-1.70 (m, 1H), 1.62-1.58 (m, 1H), 1.39-1.26 (m, 11H), 0.87 (t, *J* = 6.90 Hz, 3H); <sup>13</sup>C NMR (150.92 MHz, CDCl<sub>3</sub>) δ 166.23, 132.67, 130.94, 129.51 (C×2), 128.27 (C×2), 71.75, 36.08, 31.75, 29.18, 25.42, 22.60, 20.08, 14.07 ; GC-MS m/e 234.165.

**Benzoic acid 2-methyl-pentyl ester:<sup>19</sup>**

<sup>1</sup>H NMR (600.17 MHz, CDCl<sub>3</sub>, TMS): δ 8.04 (d, *J* = 8.22 Hz, 2H), 7.55 (t, *J* = 6.90 Hz, 1H), 7.44 (t, *J* = 8.22 Hz, 2H), 4.22-4.19 (m, 1H), 4.12-4.09 (m, 1H), 1.97-1.93 (m, 1H), 1.46-1.42 (m, 2H), 1.36-1.33 (m, 1H), 1.25-1.22 (m, 1H), 1.02 (d, *J* = 6.84 Hz, 3H), 0.92 (t, *J* = 4.58 Hz, 3H); <sup>13</sup>C NMR (150.92 MHz, CDCl<sub>3</sub>) δ 166.69, 132.80, 130.54, 129.53 (C×2), 128.34 (C×2), 69.87, 35.70, 32.46, 20.00, 17.00, 14.27; GC-MS m/e 206.135.

**Benzoic acid isobutyl ester:<sup>20</sup>**

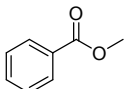
<sup>1</sup>H NMR (600.17 MHz, CDCl<sub>3</sub>, TMS): δ 8.05 (d, *J* = 7.52 Hz, 2H), 7.54 (t, *J* = 6.90 Hz, 1H), 7.42 (t, *J* = 7.56 Hz, 2H), 4.10 (d, *J* = 6.84 Hz, 2H), 2.09-2.07 (m, 1H), 1.01 (d, *J* = 6.18 Hz, 6H); <sup>13</sup>C NMR (150.92 MHz, CDCl<sub>3</sub>) δ 166.60, 132.81, 130.53, 129.54 (C×2), 128.33 (C×2), 70.99, 27.91, 19.20 (C×2); GC-MS m/e 178.100.

**Benzoic acid 2-ethyl-hexyl ester:<sup>20</sup>**

<sup>1</sup>H NMR (600.17 MHz, CDCl<sub>3</sub>, TMS): δ 8.04 (d, *J* = 7.56 Hz, 2H), 7.55 (t, *J* = 6.90 Hz, 1H), 7.43 (t, *J* = 7.56 Hz, 2H), 4.24-4.23 (m, 2H), 1.73-1.71 (m, 1H), 1.48-1.43 (m, 2H), 1.40-1.39 (m, 2H), 1.34-1.32 (m, 4), 0.95 (t, *J* = 7.56 Hz, 3H), 0.90 (t, *J* = 6.90 Hz, 3H); <sup>13</sup>C NMR (150.92 MHz, CDCl<sub>3</sub>) δ 166.76, 132.79, 130.59, 129.53 (C×2), 128.34 (C×2), 67.31, 38.95, 30.61, 29.01, 24.02,

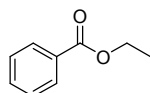
23.00, 14.06, 11.11; GC-MS m/e 234.165.

**Benzoic acid methyl ester:<sup>21</sup>**



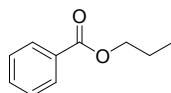
<sup>1</sup>H NMR (600.17 MHz, CDCl<sub>3</sub>, TMS): δ 8.03 (d, *J* = 6.90 Hz, 2H), 7.56-7.53 (m, 1H), 7.44-7.41 (m, 2H), 3.91 (s, 3H); <sup>13</sup>C NMR (150.92 MHz, CDCl<sub>3</sub>) δ 167.11, 132.91, 130.15, 129.57 (C×2), 128.35 (C×2), 52.09; GC-MS m/e 136.055.

**Benzoic acid ethyl ester:<sup>22</sup>**



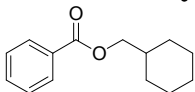
<sup>1</sup>H NMR (600.17 MHz, CDCl<sub>3</sub>, TMS): δ 8.04 (d, *J* = 6.84 Hz, 2H), 7.55-7.53 (m, 1H), 7.44-7.42 (m, 2H), 4.28 (t, *J* = 7.23 Hz, 2H), 1.39 (t, *J* = 7.18 Hz, 3H); <sup>13</sup>C NMR (150.92 MHz, CDCl<sub>3</sub>) δ 166.65, 132.81, 130.49, 129.53 (C×2), 128.30 (C×2), 60.95, 14.33; GC-MS m/e 150.070.

**Benzoic acid propyl ester:<sup>22</sup>**



<sup>1</sup>H NMR (600.17 MHz, CDCl<sub>3</sub>, TMS): δ 8.05 (d, *J* = 7.84 Hz, 2H), 7.55-7.53 (m, 1H), 7.44-7.42 (m, 2H), 4.28 (t, *J* = 7.23 Hz, 2H), 1.80-1.77 (m, 2H), 1.03 (t, *J* = 6.90 Hz, 3H); <sup>13</sup>C NMR (150.92 MHz, CDCl<sub>3</sub>) δ 166.69, 132.81, 130.53, 129.54 (C×2), 128.33 (C×2), 66.54, 22.12, 10.54; GC-MS m/e 212.095. GC-MS m/e 164.080.

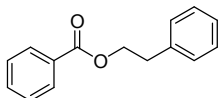
**Benzoic acid cyclohexylmethyl ester:<sup>23</sup>**



<sup>1</sup>H NMR (600.17 MHz, CDCl<sub>3</sub>, TMS): δ 8.05 (d, *J* = 6.90 Hz, 2H), 7.54 (t, *J* = 7.56 Hz, 1H), 7.43 (t, *J* = 7.56 Hz, 2H), 4.13 (d, *J* = 6.18 Hz, 2H), 1.84-1.81 (m, 2H), 1.78-1.74 (m, 3H), 1.70-1.68 (m, 1H), 1.30-1.25 (m, 2H), 1.22-1.18 (m, 1H), 1.10-1.05 (m, 2H); <sup>13</sup>C NMR (150.92 MHz, CDCl<sub>3</sub>) δ 166.66, 132.78, 130.57, 129.54 (C×2), 128.32 (C×2), 70.06, 37.29, 29.77 (C×2), 26.39, 25.73 (C×2);

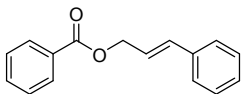
GC-MS m/e 218.135.

**Benzoic acid phenethyl ester:<sup>24</sup>**



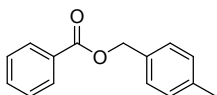
<sup>1</sup>H NMR (600.17 MHz, CDCl<sub>3</sub>, TMS): δ 8.01 (d, *J* = 7.56 Hz, 2H), 7.52 (t, *J* = 7.56 Hz, 1H), 7.41 (t, *J* = 7.56 Hz, 2H), 7.32-7.27 (m, 4H), 7.24-7.21 (m, 1H), 4.52 (t, *J* = 6.90 Hz, 2H), 3.06 (t, *J* = 6.90 Hz, 2H); <sup>13</sup>C NMR (150.92 MHz, CDCl<sub>3</sub>) δ 166.49, 137.90, 132.89, 130.28, 129.55 (C×2), 128.96 (C×2), 128.54 (C×2), 128.35 (C×2), 126.58, 65.46, 35.23; GC-MS m/e 226.100.

**Benzoic acid 3-phenyl-allyl ester:<sup>25</sup>**



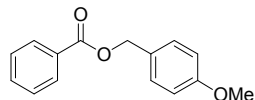
<sup>1</sup>H NMR (600.17 MHz, CDCl<sub>3</sub>, TMS): δ 8.08 (t, *J* = 7.56 Hz, 2H), 7.55 (t, *J* = 7.56 Hz, 1H), 7.45-7.40 (m, 4H), 7.33-7.31 (m, 2H), 7.27-7.25 (m, 1H), 6.73 (d, *J* = 15.84 Hz, 1H), 6.43-6.39 (m, 1H), 4.98 (d, *J* = 6.84 Hz, 2H); <sup>13</sup>C NMR (150.92 MHz, CDCl<sub>3</sub>) δ 166.39, 136.20, 134.26, 133.0, 132.14, 130.19, 129.66, 129.10, 128.61 (C×2), 128.37 (C×2), 128.09, 126.64, 123.24, 65.53; GC-MS m/e 238.100.

**Benzoic acid 4-methyl-benzyl ester:<sup>26</sup>**



<sup>1</sup>H NMR (600.17 MHz, CDCl<sub>3</sub>, TMS): δ 8.05 (d, *J* = 7.56 Hz, 2H), 7.53 (t, *J* = 7.56 Hz, 1H), 7.41 (t, *J* = 7.56 Hz, 2H), 7.33 (d, *J* = 8.22 Hz, 2H), 7.18 (d, *J* = 7.56 Hz, 2H), 5.32 (s, 2H), 2.35 (s, 3H); <sup>13</sup>C NMR (150.92 MHz, CDCl<sub>3</sub>) δ 166.46, 138.07, 133.04, 132.95, 130.22, 129.68 (C×2), 129.26 (C×2), 128.35 (C×2), 128.32 (C×2), 66.65, 21.20; GC-MS m/e 226.100.

**Benzoic acid 4-methoxy-benzyl ester:<sup>27</sup>**

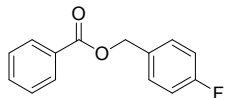


<sup>1</sup>H NMR (600.17 MHz, CDCl<sub>3</sub>, TMS): δ 8.05 (d, *J* = 6.90 Hz, 2H), 7.51 (t, *J* = 7.56 Hz, 1H), 7.42-7.37 (m, 4H), 6.91 (d, *J* = 8.22 Hz, 2H), 5.29 (s, 2H), 3.79 (s, 3H); <sup>13</sup>C NMR (150.92 MHz,



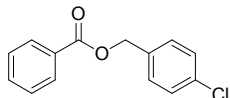
CDCl<sub>3</sub>)  $\delta$  166.48, 159.64, 132.92, 130.25, 130.06 (C $\times$ 2), 129.66 (C $\times$ 2), 128.32 (C $\times$ 2), 128.15, 113.96 (C $\times$ 2), 66.52, 55.25; GC-MS m/e 226.100.

**Benzoic acid 4-fluoro-benzyl ester:<sup>28</sup>**



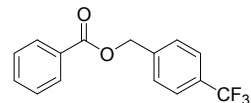
<sup>1</sup>H NMR (600.17 MHz, CDCl<sub>3</sub>, TMS):  $\delta$  8.06 (d,  $J$  = 8.28 Hz, 2H), 7.55 (t,  $J$  = 7.56 Hz, 1H), 7.44-7.42 (m, 4H), 7.06 (t,  $J$  = 8.28 Hz, 2H), 5.32 (s, 2H); <sup>13</sup>C NMR (150.92 MHz, CDCl<sub>3</sub>)  $\delta$  166.37, 162.66 (d,  $J$  = 247.08 Hz, 4-F-C), 133.11, 131.90, 130.20 (d,  $J$  = 8.68 Hz, *meta* to 4-F, C $\times$ 2), 130.0, 129.68 (C $\times$ 2), 128.40 (C $\times$ 2), 115.52 (d,  $J$  = 20.24 Hz, *ortho* to 4-F, C $\times$ 2), 65.98; GC-MS m/e 230.070.

**Benzoic acid 4-chloro-benzyl ester:<sup>29</sup>**



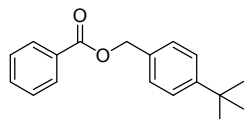
<sup>1</sup>H NMR (600.17 MHz, CDCl<sub>3</sub>, TMS):  $\delta$  8.06 (d,  $J$  = 8.28 Hz, 2H), 7.55 (t,  $J$  = 7.56 Hz, 1H), 7.43 (t,  $J$  = 7.56 Hz, 2H), 7.38-7.34 (m, 4H), 5.31 (s, 2H); <sup>13</sup>C NMR (150.92 MHz, CDCl<sub>3</sub>)  $\delta$  166.29, 134.55, 134.12, 133.16, 129.89, 129.67 (C $\times$ 2), 129.56 (C $\times$ 2), 128.78 (C $\times$ 2), 128.42 (C $\times$ 2), 65.85; GC-MS m/e 246.045.

**Benzoic acid 4-trifluoromethyl-benzyl ester:<sup>30</sup>**



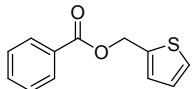
<sup>1</sup>H NMR (600.17 MHz, CDCl<sub>3</sub>, TMS):  $\delta$  8.07 (d,  $J$  = 6.84 Hz, 2H), 7.64 (d,  $J$  = 7.56 Hz, 2H), 7.57-7.55 (m, 3H), 7.44 (t,  $J$  = 7.56 Hz, 2H), 5.41 (s, 2H); <sup>13</sup>C NMR (150.92 MHz, CDCl<sub>3</sub>)  $\delta$  166.26, 140.11, 133.33, 130.77 (q,  $J$  = 33.23 Hz), 129.75 (C $\times$ 2), 128.52 (C $\times$ 2), 128.14 (C $\times$ 2), 125.63 (d,  $J$  = 4.33 Hz, C $\times$ 2), 124.97, 123.16 (d,  $J$  = 271.67 Hz, C $\times$ 2), 66.23; GC-MS m/e 280.075.

**Benzoic acid 4-*tert*-butyl-benzyl ester:<sup>31</sup>**



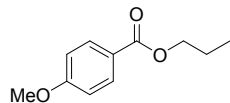
$^1\text{H}$  NMR (600.17 MHz,  $\text{CDCl}_3$ , TMS):  $\delta$  8.07 (d,  $J = 6.18$  Hz, 2H), 7.54 (t,  $J = 7.56$  Hz, 1H), 7.43-7.39 (m, 6H), 5.34 (s, 2H), 1.32 (s, 9H);  $^{13}\text{C}$  NMR (150.92 MHz,  $\text{CDCl}_3$ )  $\delta$  166.47, 151.27, 133.03, 132.95, 132.13, 129.68 (C $\times$ 2), 128.32 (C $\times$ 2), 128.10 (C $\times$ 2), 125.50 (C $\times$ 2), 65.54, 34.59, 31.05 (C $\times$ 3); GC-MS m/e 268.145.

#### Benzoic acid thiophen-2-yl methyl ester:<sup>32</sup>



$^1\text{H}$  NMR (600.17 MHz,  $\text{CDCl}_3$ , TMS):  $\delta$  8.05 (d,  $J = 6.90$  Hz, 2H), 7.53 (t,  $J = 7.56$  Hz, 1H), 7.40 (t,  $J = 7.56$  Hz, 2H), 7.31 (d,  $J = 4.8$  Hz, 1H), 7.16 (d,  $J = 3.4$  Hz, 1H), 6.99 (t,  $J = 3.4$  Hz, 1H), 5.50 (s, 2H);  $^{13}\text{C}$  NMR (150.92 MHz,  $\text{CDCl}_3$ )  $\delta$  166.22, 137.99, 133.08, 129.90, 129.72 (C $\times$ 2), 128.35 (C $\times$ 2), 128.18, 126.84, 126.82, 61.01; GC-MS m/e 218.045.

#### 4-Methoxy-benzoic acid propyl ester:<sup>33</sup>

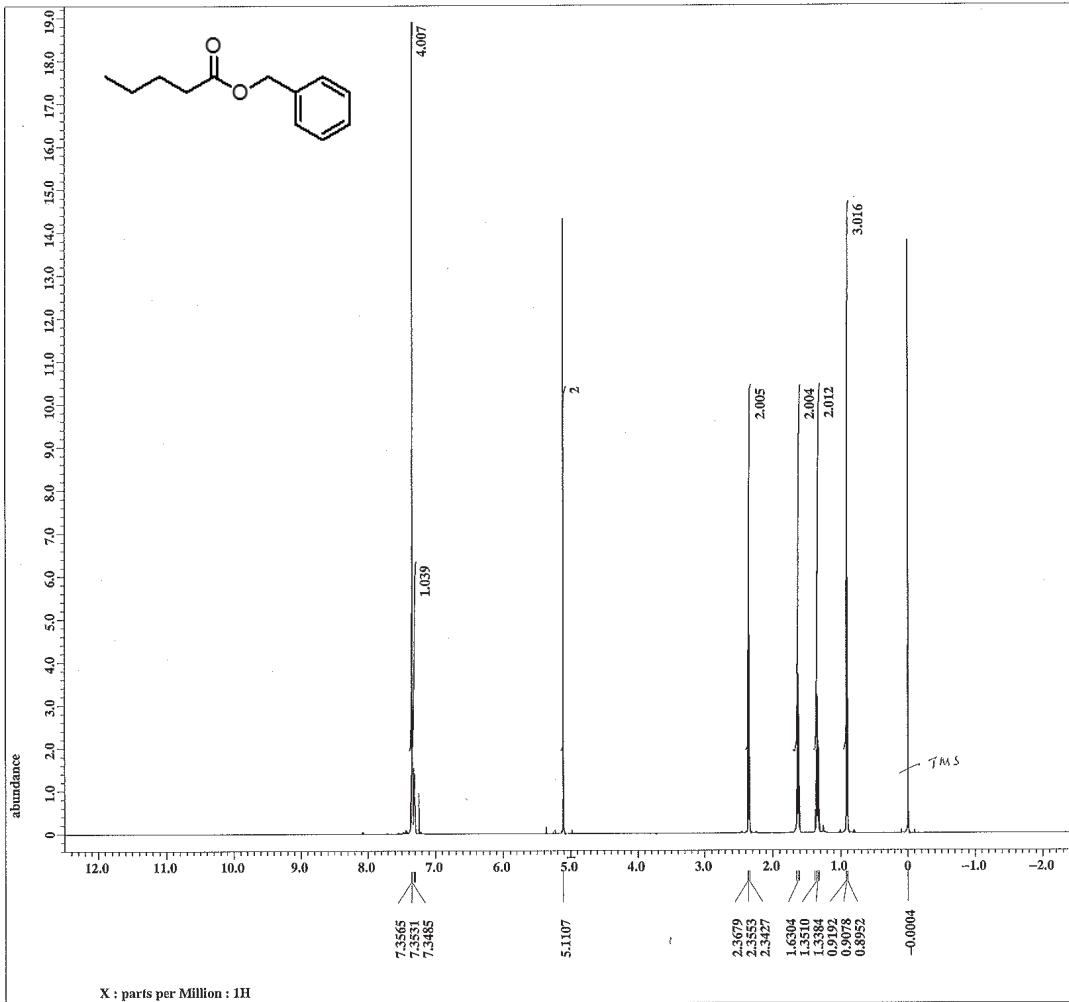


$^1\text{H}$  NMR (600.17 MHz,  $\text{CDCl}_3$ , TMS):  $\delta$  8.0 (d,  $J = 8.94$  Hz, 2H), 6.91 (d,  $J = 8.94$  Hz, 2H), 4.24 (t,  $J = 6.84$  Hz, 2H), 3.85 (s, 3H), 1.80-1.75 (m, 2H), 1.02 (t,  $J = 7.56$  Hz, 3H);  $^{13}\text{C}$  NMR (150.92 MHz,  $\text{CDCl}_3$ )  $\delta$  166.46, 163.25, 131.54 (C $\times$ 2), 122.97, 113.56 (C $\times$ 2), 66.24, 55.40, 22.18, 10.55; GC-MS m/e 194.095.

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**JEOL**

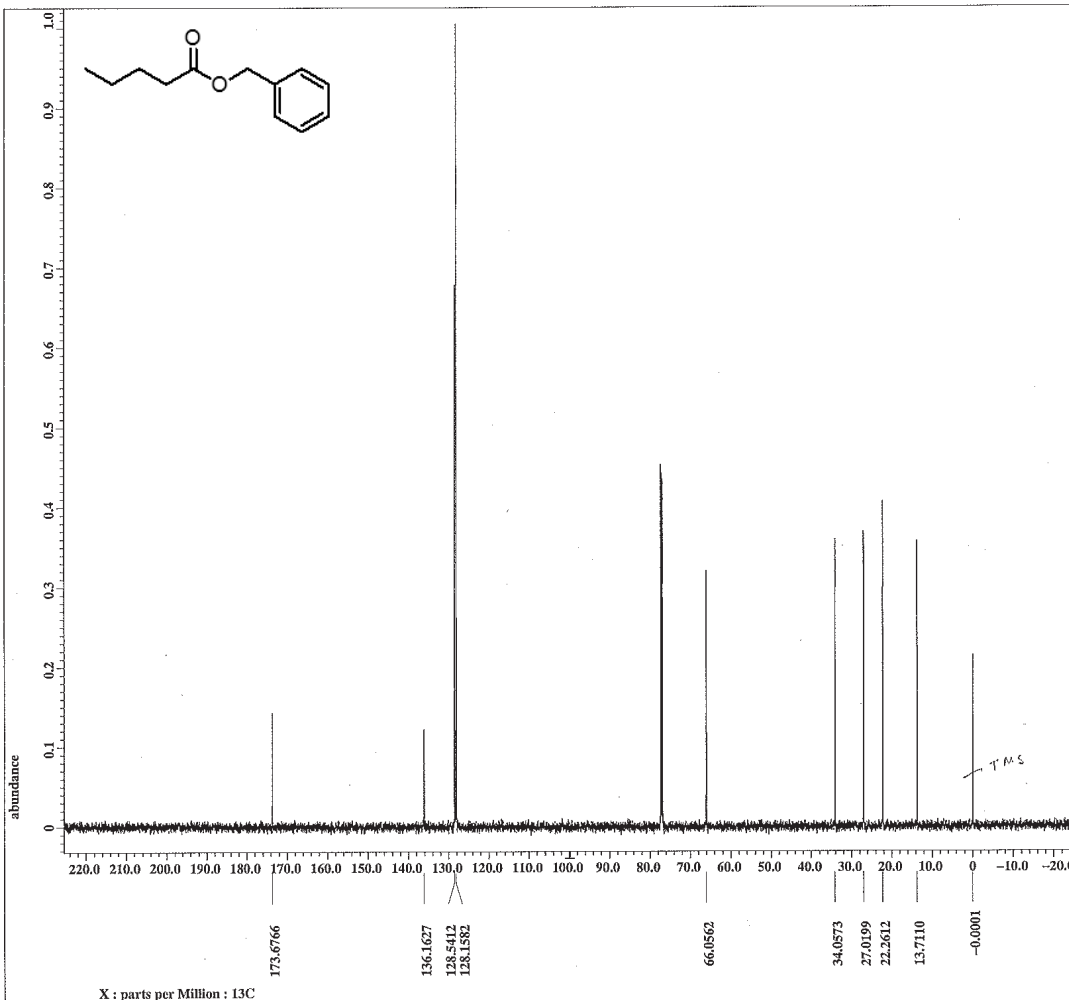
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Current_time  = 15-JUL-2014 14:06:35

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**JEOL**

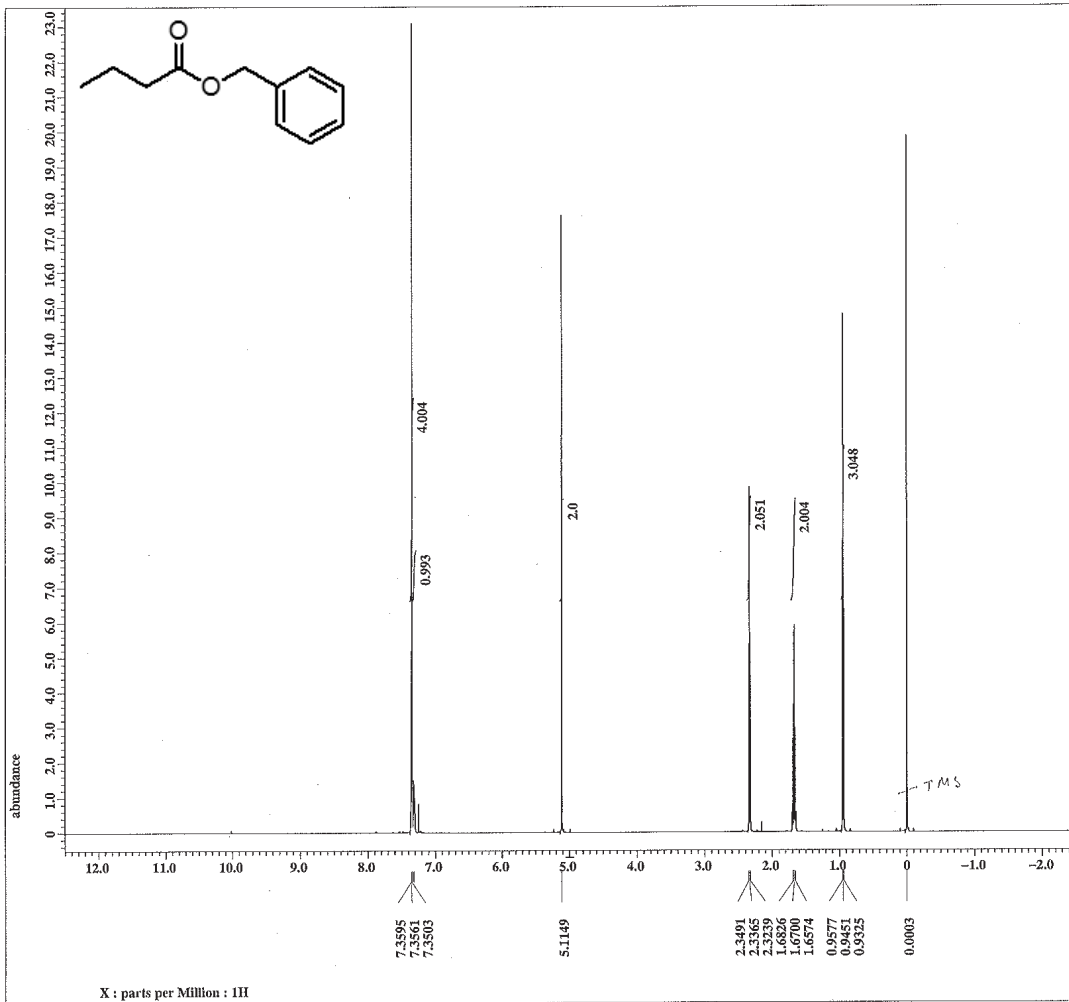
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Decoupling  = TRUE
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Noe         = TRUE
Noe_time    = 2 [s]
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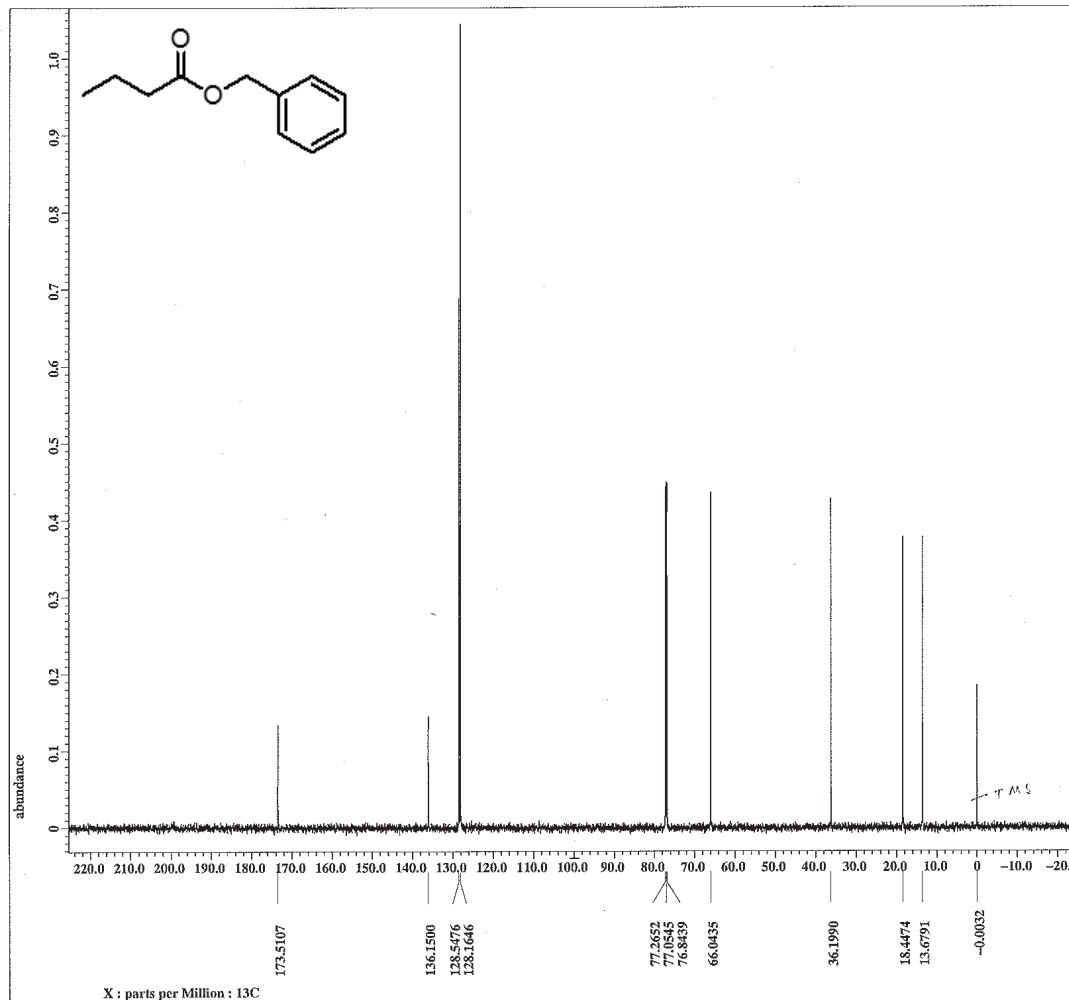
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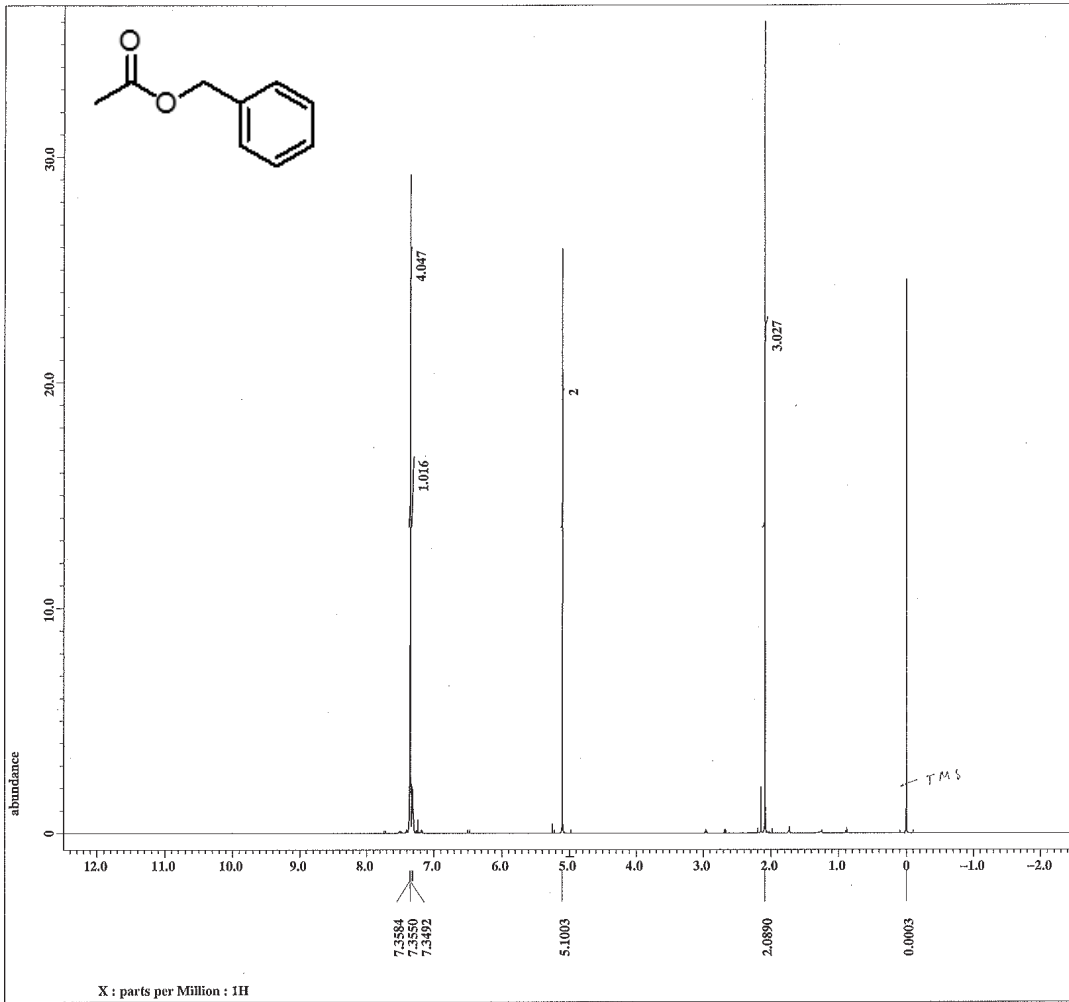
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X_angle      = 30[deg]
X_atn        = 7.5[db]
X_pulse      = 3.8[us]
Irr_atn_dec  = 19.391[db]
Irr_atn_noe  = 19.391[db]
Irr_noise    = WALTZ
Decoupling   = TRUE
Initial_wait = 1[s]
Noe          = TRUE
Noe_time     = 2[s]
Recvr_gain   = 50
Relaxation_delay = 2[s]
Repetition_time = 2.69206016[s]
Temp_get     = 21.8[dc]
  
```



**JEOL**

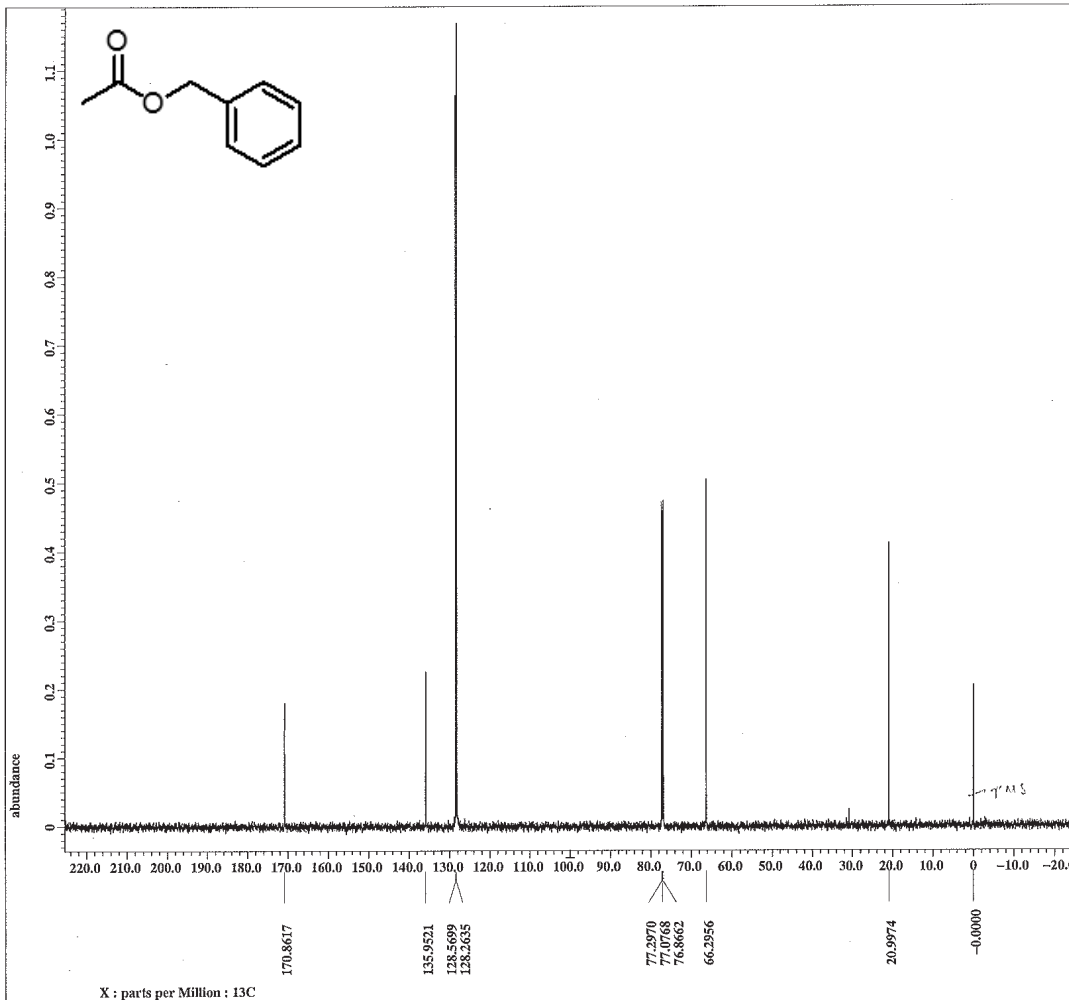
```

Filename      = Exp-AB-115-1-4-proton
Author       = delta
Experiment   = single_pulse.ex2
Sample_id    = Exp-AB-115-1-4-proton
Solvent      = CHLOROFORM-D
Creation_time = 16-JUN-2014 22:29:19
Revision_time = 16-JUN-2014 22:39:11
Current_time  = 16-JUN-2014 22:39:29

Content       = Exp-AB-115-1-4-proton
Data_format  = 1D COMPLEX
Dim_size     = 13107
Dim_title    = 1H
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928 [T] (600[M]
X_acq_duration = 1.4548992 [s]
X_domain      = 1H
X_freq       = 600.1723046 [MHz]
X_offset     = 5 [ppm]
X_points     = 16384
X_prescans   = 1
X_resolution = 0.68733284 [Hz]
X_sweep     = 11.26126126 [kHz]
Irr_domain   = 1H
Irr_freq     = 600.1723046 [MHz]
Irr_offset   = 5 [ppm]
Tri_domain   = 1H
Tri_freq     = 600.1723046 [MHz]
Tri_offset   = 5 [ppm]
Clipped     = FALSE
Mod_return   = 1
Scans       = 8
Total_scans = 8

X_90_width  = 13 [us]
X_acq_time  = 1.4548992 [s]
X_angle     = 45 [deg]
X_atn      = 3.6 [dB]
X_pulse     = 6.5 [us]
Irr_mode    = OFF
Tri_mode    = OFF
Dante_preset = FALSE
Initial_wait = 1 [s]
Recvr_gain  = 36
Relaxation_delay = 5 [s]
Repetition_time = 6.4548992 [s]
Temp_get    = 22.3 [dC]
  
```



**JEOL**

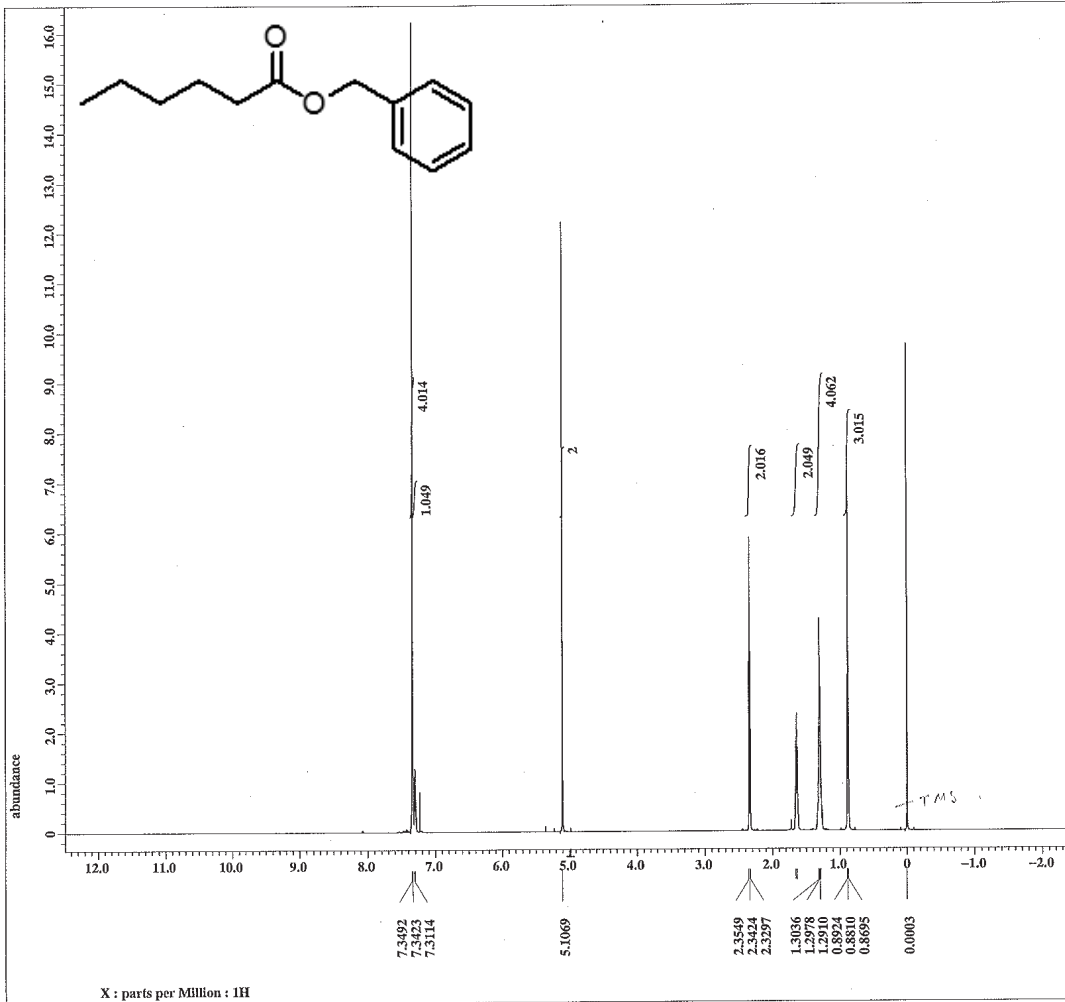
```

Filename      = Exp-AB-115-1-4-carbon
Author       = delta
Experiment   = single_pulse_dec
Sample_id    = Exp-AB-115-1-4-carbon
Solvent      = CHLOROFORM-D
Creation_time = 16-JUN-2014 22:21:15
Revision_time = 16-JUN-2014 22:29:20
Current_time  = 16-JUN-2014 22:29:26

Content       = Exp-AB-115-1-4-carbon
Data_format  = 1D COMPLEX
Dim_size     = 26214
Dim_title    = 13C
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928 [T] (600[M]
X_acq_duration = 0.69206016 [s]
X_domain      = 13C
X_freq       = 150.91343039 [MHz]
X_offset     = 100 [ppm]
X_points     = 32768
X_prescans   = 4
X_resolution = 1.44496109 [Hz]
X_sweep     = 47.34848485 [kHz]
Irr_domain   = 1H
Irr_freq     = 600.1723046 [MHz]
Irr_offset   = 5 [ppm]
Clipped     = FALSE
Mod_return   = 1
Scans       = 74
Total_scans = 74

X_90_width  = 11.4 [us]
X_acq_time  = 0.69206016 [s]
X_angle     = 30 [deg]
X_atn      = 7.5 [dB]
X_pulse     = 3.8 [us]
Irr_atn_dec = 19.391 [dB]
Irr_atn_noe = 19.391 [dB]
Irr_noise   = FALSE
Decoupling  = TRUE
Initial_wait = 1 [s]
Noe         = TRUE
Noe_time    = 2 [s]
Recvr_gain  = 50
Relaxation_delay = 2 [s]
Repetition_time = 2.69206016 [s]
Temp_get    = 23 [dC]
  
```



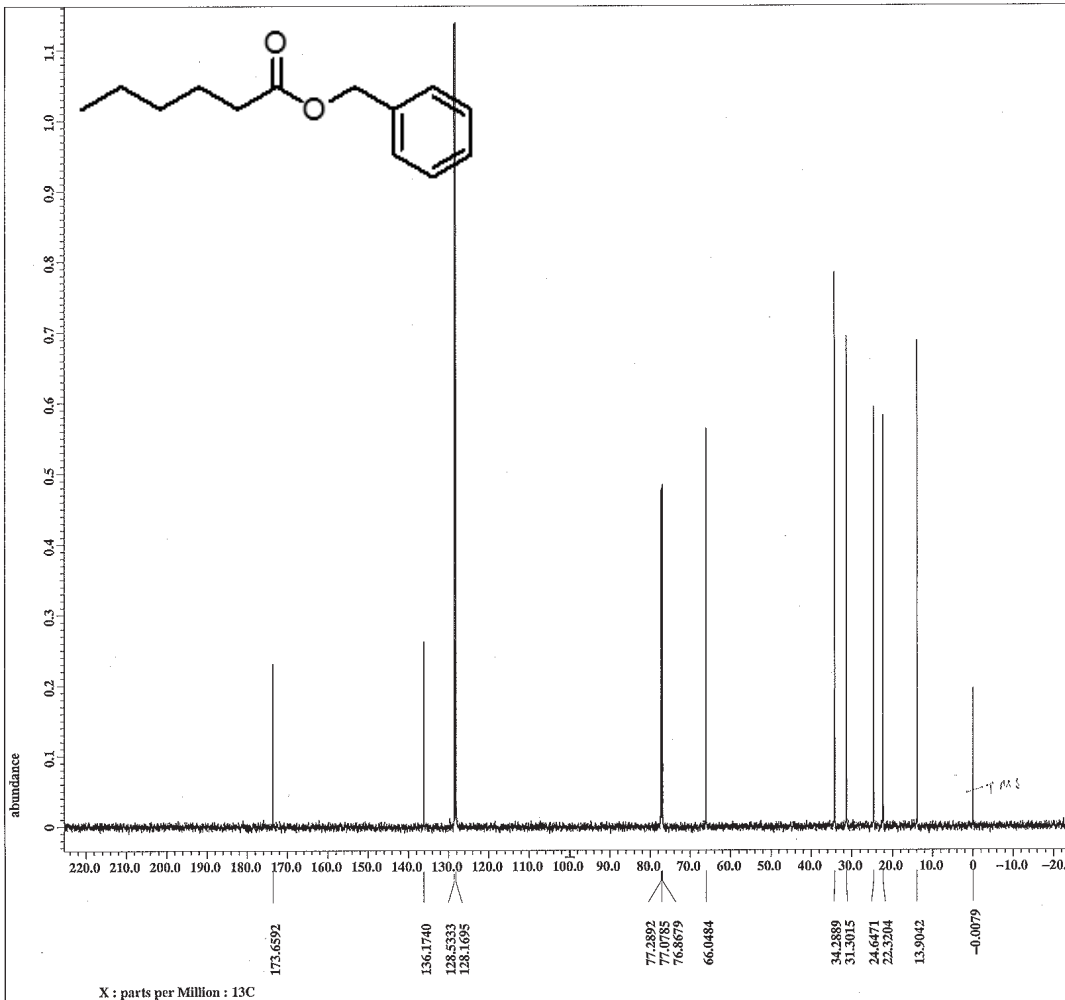
```

Filename      = Exp-hakin-184-4-proto
Author        = delta
Experiment    = single_pulse.ex2
Sample_id     = Exp-hakin-184-4-proto
Solvent       = CHLOROFORM-D
Creation_time = 9-JUN-2014 17:17:34
Revision_time = 9-JUN-2014 17:27:18
Current_time  = 9-JUN-2014 17:27:43

Content       = Exp-hakin-184-4-proto
Data_format  = 1D COMPLEX
Dim_size     = 13107
Dim_title    = 1H
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928[T] (600[M]
X_acq_duration = 1.4548992[s]
X_domain       = 1H
X_freq         = 600.1723046[MHz]
X_offset       = 9[ppm]
X_points      = 16384
X_procscans   = 1
X_resolution   = 0.68733284[Hz]
X_sweep        = 11.26126126[kHz]
Irr_domain     = 1H
Irr_freq       = 600.1723046[MHz]
Irr_offset     = 5[ppm]
Tri_domain     = 1H
Tri_freq       = 600.1723046[MHz]
Tri_offset     = 9[ppm]
Clipped       = FALSE
Mod_return     = 1
Scans         = 8
Total_scans   = 8

X_90_width    = 13[us]
X_acq_time    = 1.4548992[s]
X_angle       = 45[deg]
X_atn         = 3.6[dB]
X_pulse       = 5.5[us]
Irr_mode      = Off
Tri_mode      = Off
Dante_presat  = FALSE
Initial_wait  = 1[s]
Recvr_gain    = 30
Relaxation_delay = 5[s]
Repetition_time = 6.4548992[s]
Temp_get      = 22.7[degC]
  
```



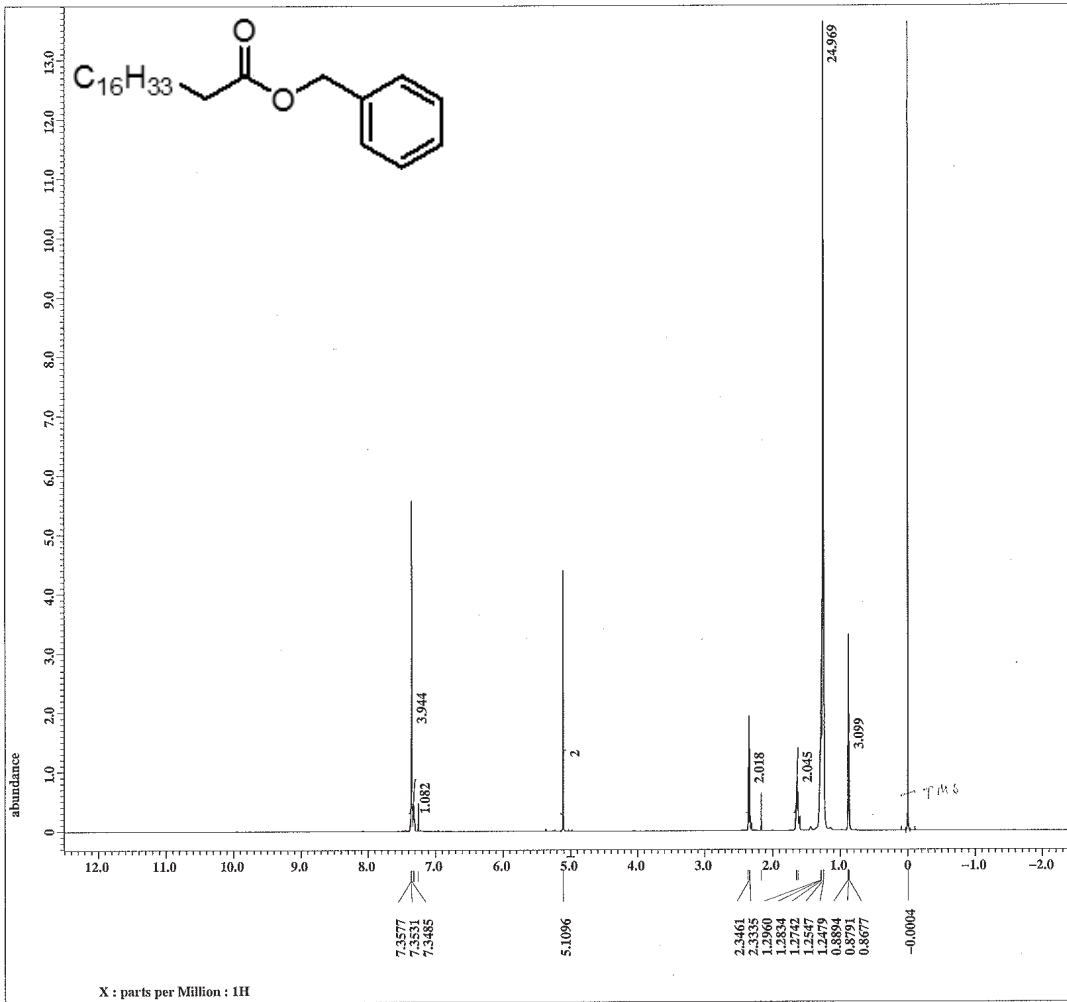
```

Filename      = Exp-hakin-184-4-carbo
Author        = delta
Experiment    = single_pulse_dec
Sample_id     = Exp-hakin-184-4-carbo
Solvent       = CHLOROFORM-D
Creation_time = 9-JUN-2014 17:21:50
Revision_time = 9-JUN-2014 17:30:24
Current_time  = 9-JUN-2014 17:30:38

Content       = Exp-hakin-184-4-carbo
Data_format  = 1D COMPLEX
Dim_size     = 26214
Dim_title    = 13C
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928[T] (600[M]
X_acq_duration = 0.69206016[s]
X_domain       = 13C
X_freq         = 150.91343039[MHz]
X_offset       = 100[ppm]
X_points      = 32768
X_procscans   = 4
X_resolution   = 1.44496109[Hz]
X_sweep        = 47.34848485[kHz]
Irr_domain     = 1H
Irr_freq       = 600.1723046[MHz]
Irr_offset     = 5[ppm]
Clipped       = FALSE
Mod_return     = 1
Scans         = 89
Total_scans   = 89

X_90_width    = 11.4[us]
X_acq_time    = 0.69206016[s]
X_angle       = 30[deg]
X_atn         = 7.5[dB]
X_pulse       = 3.8[us]
Irr_atn_dec   = 19.391[dB]
Irr_atn_noe   = 19.391[dB]
Irr_noise     = MAX
Decoupling    = TRUE
Initial_wait  = 1[s]
Noe           = TRUE
Noe_time      = 2[s]
Recvr_gain    = 50
Relaxation_delay = 2[s]
Repetition_time = 2.69206016[s]
Temp_get      = 23.3[degC]
  
```



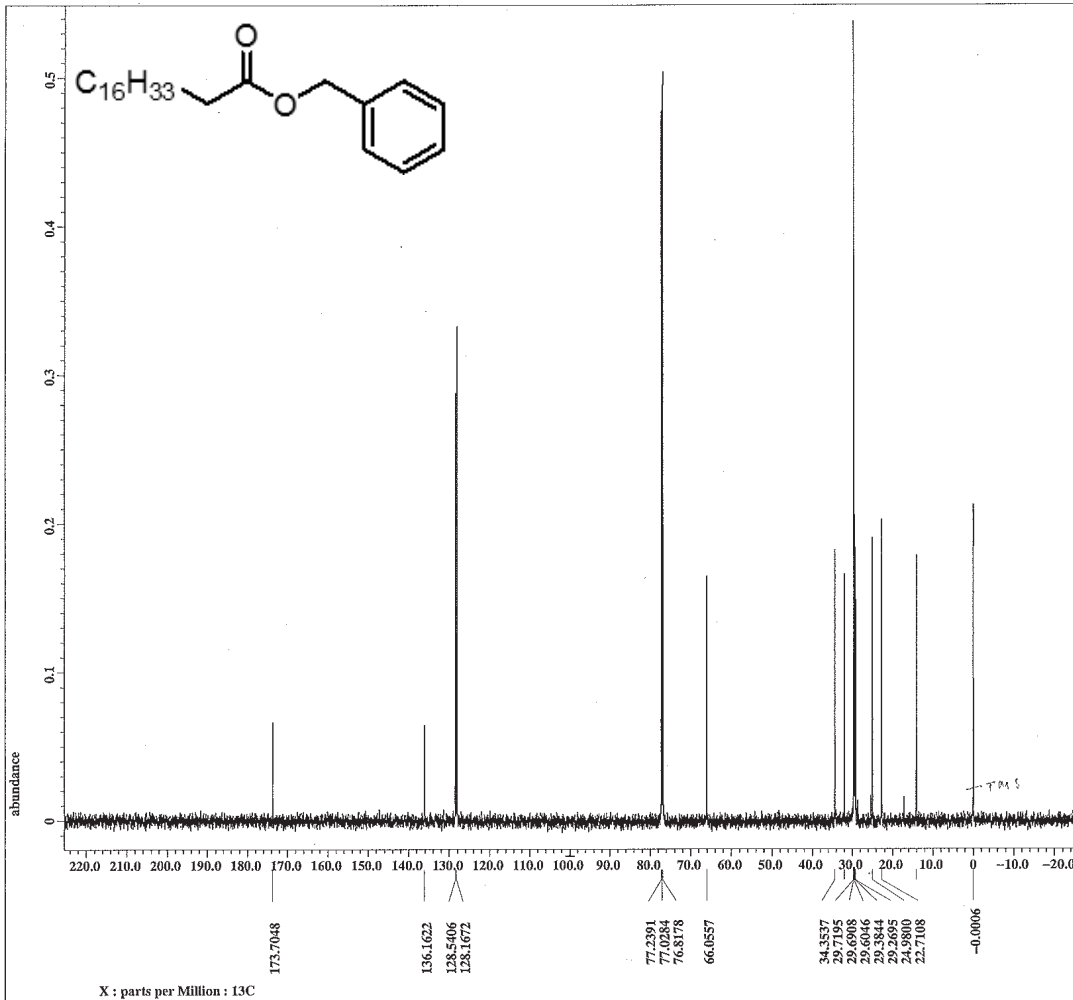
```

Filename      = Exp-hakim-315-3-proto
Author       = delta
Experiment   = single_pulse.ex2
Sample_id    = Exp-hakim-315-3-proto
Solvent      = CHLOROFORM-D
Creation_time = 16-JUN-2014 17:52:10
Revision_time = 16-JUN-2014 18:03:31
Current_time  = 16-JUN-2014 18:04:23

Content       = Exp-hakim-315-3-proto
Data_format  = 1D COMPLEX
Dim_size     = 13107
Dim_title    = 1H
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928[T] (600[M]
X_acq_duration = 1.4548992[s]
X_domain       = 1H
X_freq         = 600.1723046[MHz]
X_offset       = 5[ppm]
X_points       = 16384
X_prescans     = 1
X_resolution   = 0.68733284[Hz]
X_sweep        = 11.26126126[kHz]
Irr_domain     = 1H
Irr_freq       = 600.1723046[MHz]
Irr_offset     = 5[ppm]
Tri_domain     = 1H
Tri_freq       = 600.1723046[MHz]
Tri_offset     = 5[ppm]
Clipped        = FALSE
Mod_return     = 1
Scans          = 8
Total_scans    = 8

X_90_width    = 13[us]
X_acq_time    = 1.4548992[s]
X_angle       = 45[deg]
X_atn         = 3.6[db]
X_pulse       = 6.5[us]
Irr_mode      = Off
Tri_mode      = Off
Dante_preset  = FALSE
Initial_wait  = 1[s]
Recvr_gain    = 34
Relaxation_delay = 5[s]
Repetition_time = 6.4548992[s]
Temp_get      = 22.4[dc]
  
```



```

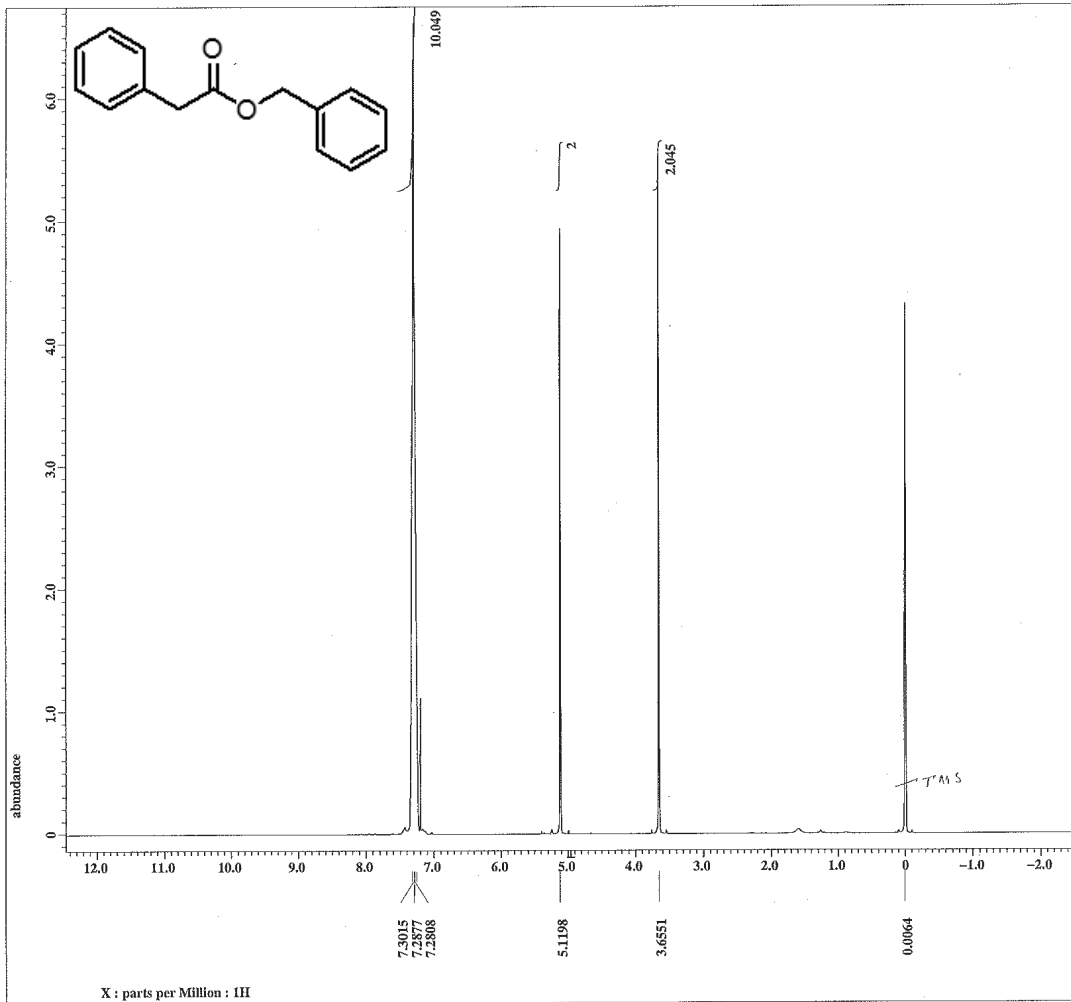
Filename      = Exp-hakim-315-3-carbo
Author       = delta
Experiment   = single_pulse_dec
Sample_id    = Exp-hakim-315-3-carbo
Solvent      = CHLOROFORM-D
Creation_time = 16-JUN-2014 17:58:38
Revision_time = 16-JUN-2014 18:06:36
Current_time  = 16-JUN-2014 18:06:43

Content       = Exp-hakim-315-3-carbo
Data_format  = 1D COMPLEX
Dim_size     = 26214
Dim_title    = 13C
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928[T] (600[M]
X_acq_duration = 0.69206016[s]
X_domain       = 13C
X_freq         = 150.91343039[MHz]
X_offset       = 100[ppm]
X_points       = 32768
X_prescans     = 4
X_resolution   = 1.44496109[Hz]
X_sweep        = 47.34848485[kHz]
Irr_domain     = 1H
Irr_freq       = 600.1723046[MHz]
Irr_offset     = 5[ppm]
Clipped        = FALSE
Mod_return     = 1
Scans          = 138
Total_scans    = 138

X_90_width    = 11.4[us]
X_acq_time    = 0.69206016[s]
X_angle       = 30[deg]
X_atn         = 7.5[db]
X_pulse       = 3.8[us]
Irr_atn_dec   = 19.391[db]
Irr_atn_noe   = 19.391[db]
Irr_noise     = WALTZ
Decoupling    = TRUE
Initial_wait  = 1[s]
Noe           = TRUE
Noe_time      = 2[s]
Recvr_gain    = 50
Relaxation_delay = 2[s]
Repetition_time = 2.69206016[s]
Temp_get      = 23.4[dc]
  
```





**JEOL**

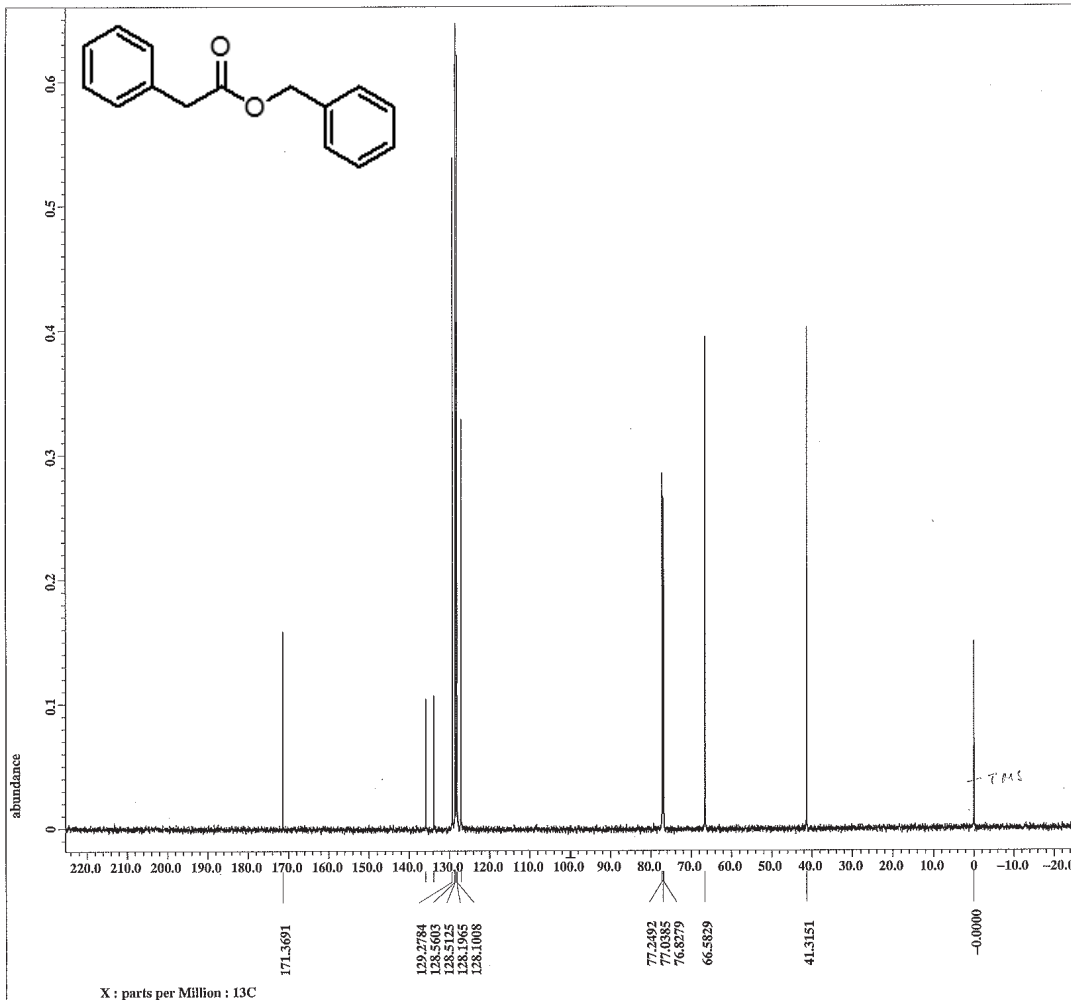
```

Filename      = Exp-hakim-115-2-prot
Author       = delta
Experiment   = single_pulse.ex2
Sample_id    = Exp-hakim-115-2-prot
Solvent      = CHLOROFORM-D
Creation_time = 10-JUN-2014 09:49:22
Revision_time = 10-JUN-2014 10:21:25
Current_time  = 10-JUN-2014 10:22:26

Content       = Exp-hakim-115-2-prot
Data_format  = 1D_COMPLEX
Dim_size     = 13107
Dim_title    = 1H
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928[T] (600[M
X_acq_duration = 1.4548992[s]
X_domain      = 1H
X_freq        = 600.1723046[MHz]
X_offset      = 5[ppm]
X_points      = 16384
X_prescans    = 1
X_resolution  = 0.69733284[Hz]
X_sweep       = 11.26126126[kHz]
Irr_domain    = 1H
Irr_freq      = 600.1723046[MHz]
Irr_offset    = 5[ppm]
Tri_domain    = 1H
Tri_freq      = 600.1723046[MHz]
Tri_offset    = 5[ppm]
Clipped       = FALSE
Mod_return    = 1
Scans         = 8
Total_scans   = 8

X_90_width   = 13[us]
X_acq_time    = 1.4548992[s]
X_angle       = 45[deg]
X_atn         = 3.6[dB]
X_pulse       = 6.5[us]
Irr_mode      = Off
Tri_mode      = Off
Dante_preset = FALSE
Initial_wait  = 1[s]
Recvr_gain    = 36
Relaxation_delay = 5[s]
Repetition_time = 6.4548992[s]
Temp_get      = 22.4[dc]
  
```



**JEOL**

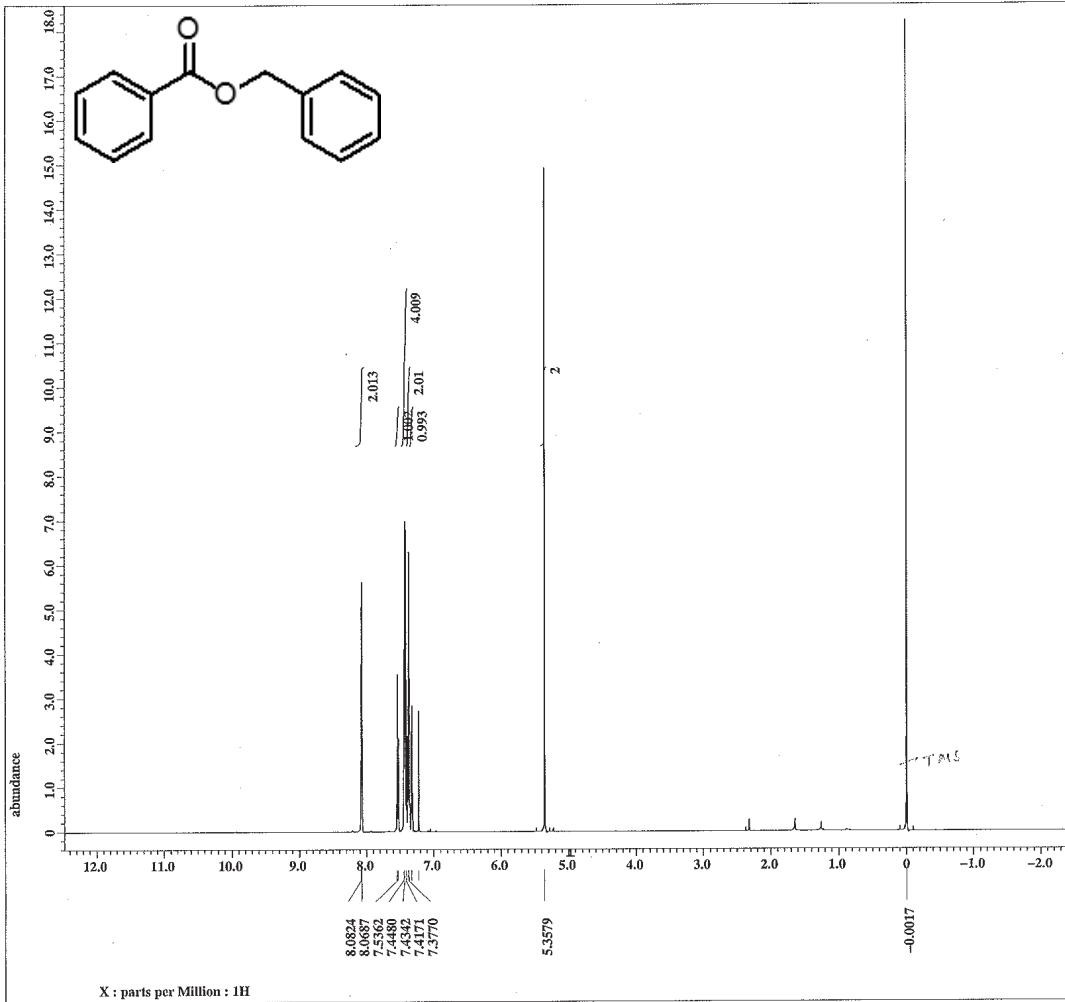
```

Filename      = Exp-hakim-115-2-carbo
Author       = delta
Experiment   = single_pulse_dec
Sample_id    = Exp-hakim-115-2-carbo
Solvent      = CHLOROFORM-D
Creation_time = 10-JUN-2014 10:09:50
Revision_time = 10-JUN-2014 10:26:44
Current_time  = 10-JUN-2014 10:26:55

Content       = Exp-hakim-115-2-carbo
Data_format  = 1D_COMPLEX
Dim_size     = 26214
Dim_title    = 13C
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928[T] (600[M
X_acq_duration = 0.69206016[s]
X_domain      = 13C
X_freq        = 150.91343039[MHz]
X_offset      = 100[ppm]
X_points      = 32768
X_prescans    = 4
X_resolution  = 1.44496109[Hz]
X_sweep       = 47.34848485[kHz]
Irr_domain    = 1H
Irr_freq      = 600.1723046[MHz]
Irr_offset    = 5[ppm]
Clipped       = FALSE
Mod_return    = 1
Scans         = 451
Total_scans   = 451

X_90_width   = 11.4[us]
X_acq_time    = 0.69206016[s]
X_angle       = 30[deg]
X_atn         = 7.5[dB]
X_pulse       = 3.8[us]
Irr_atn_dec   = 19.391[dB]
Irr_atn_noe   = 19.391[dB]
Irr_noise     = WALTZ
Decoupling    = TRUE
Initial_wait  = 1[s]
Noe           = TRUE
Noe_time      = 2[s]
Recvr_gain    = 50
Relaxation_delay = 2[s]
Repetition_time = 2.69206016[s]
Temp_get      = 23.1[dc]
  
```



**JEOL**

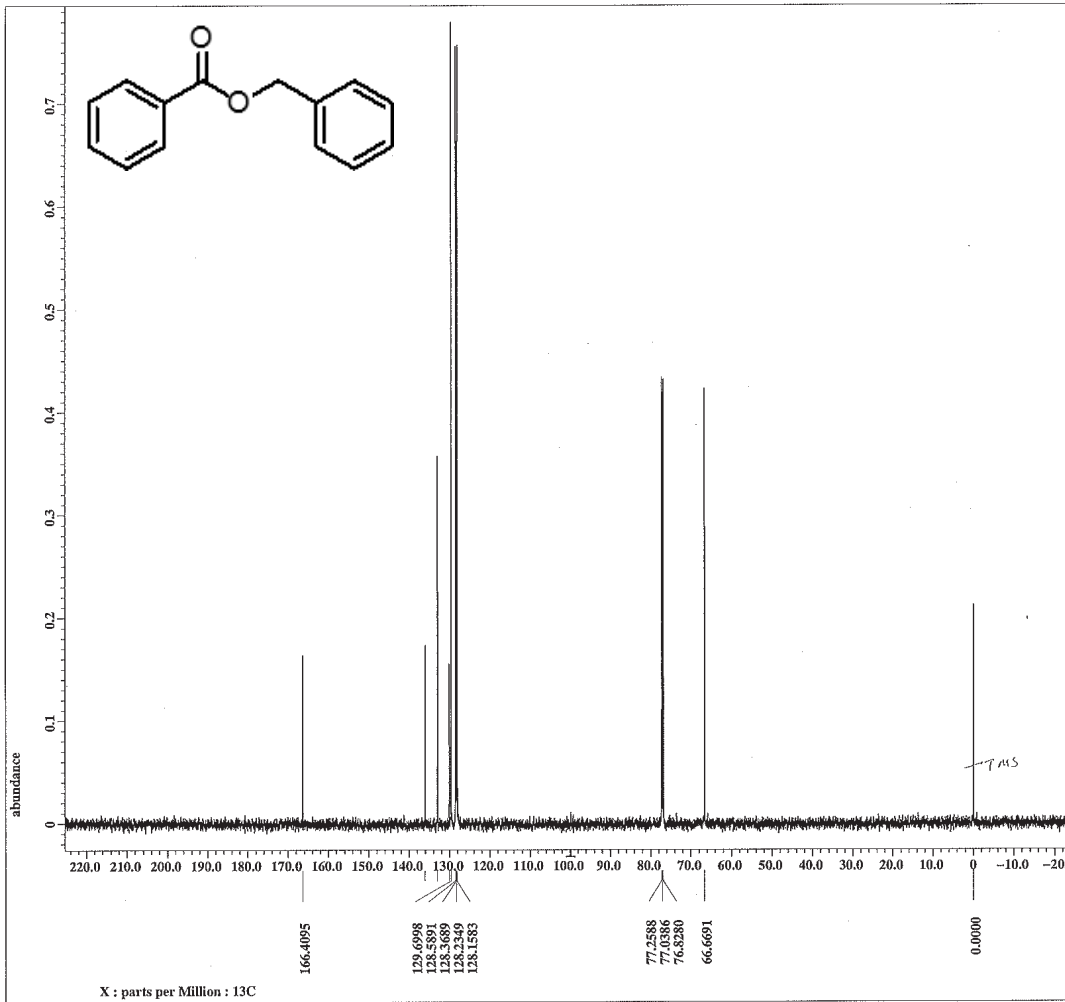
```

Filename      = Exp-hakim-115-5-proto
Author       = delta
Experiment   = single_pulse.ex2
Sample_id    = Exp-hakim-115-5-proto
Solvent      = CHLOROFORM-D
Creation_time = 9-JUN-2014 17:29:23
Revision_time = 9-JUN-2014 17:39:35
Current_time = 9-JUN-2014 17:39:39

Content       = Exp-hakim-115-5-proto
Data_format  = 1D COMPLEX
Dim_size     = 13107
Dim_title    =
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928[T] (600[M]
X_acq_duration = 1.4548992[s]
X_domain      = 1H
X_freq       = 600.1723046[MHz]
X_offset     = 9[ppm]
X_points     = 16384
X_procscans = 1
X_resolution = 0.68733284[Hz]
X_sweep      = 11.26126126[kHz]
Irr_domain   = 1H
Irr_freq     = 600.1723046[MHz]
Irr_offset   = 5[ppm]
Tri_domain   = 1H
Tri_freq     = 600.1723046[MHz]
Tri_offset   = 9[ppm]
Clipped      = FALSE
Mod_return   = 1
Scans        = 8
Total_scans  = 8

X_90_width   = 13[us]
X_acq_time   = 1.4548992[s]
X_angle      = 45[deg]
X_atn        = 3.6[db]
X_pulse      = 6.5[us]
Irr_mode     = Off
Tri_mode     = Off
Dante_preset = FALSE
Initial_wait = 1[s]
Recvr_gain   = 38
Relaxation_delay = 5[s]
Repetition_time = 6.4548992[s]
Temp_get     = 22.7[dc]
  
```



**JEOL**

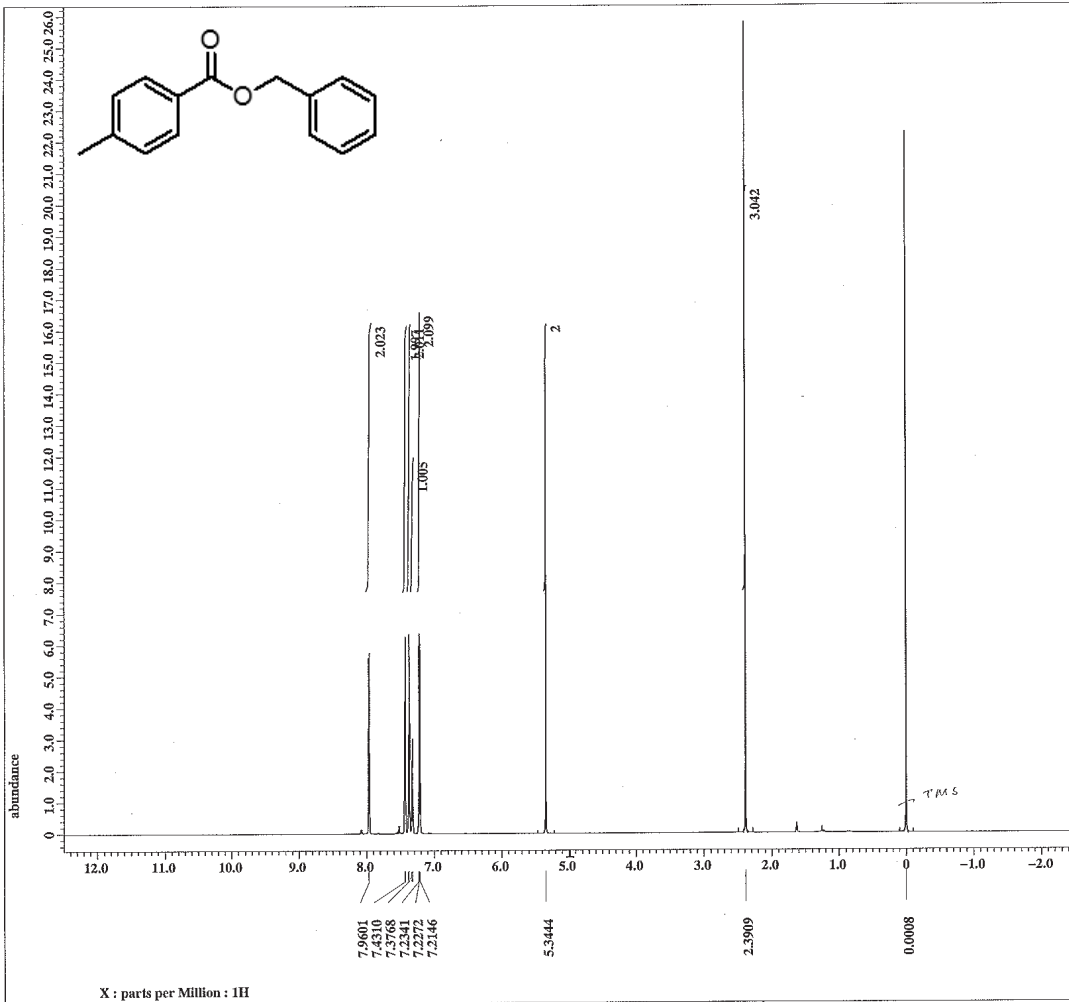
```

Filename      = Exp-hakim-115-5-carbo
Author       = delta
Experiment   = single_pulse_dec
Sample_id    = Exp-hakim-115-5-carbo
Solvent      = CHLOROFORM-D
Creation_time = 9-JUN-2014 17:33:40
Revision_time = 9-JUN-2014 17:42:57
Current_time = 9-JUN-2014 17:42:59

Content       = Exp-hakim-115-5-carbo
Data_format  = 1D COMPLEX
Dim_size     = 26214
Dim_title    = 13C
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928[T] (600[M]
X_acq_duration = 0.69206016[s]
X_domain      = 13C
X_freq       = 150.91343039[MHz]
X_offset     = 100[ppm]
X_points     = 32768
X_procscans = 4
X_resolution = 1.44496109[Hz]
X_sweep      = 47.34848485[kHz]
Irr_domain   = 1H
Irr_freq     = 600.1723046[MHz]
Irr_offset   = 5[ppm]
Clipped      = FALSE
Mod_return   = 1
Scans        = 90
Total_scans  = 90

X_90_width   = 11.4[us]
X_acq_time   = 0.69206016[s]
X_angle      = 30[deg]
X_atn        = 7.5[db]
X_pulse      = 3.0[us]
Irr_atn_dec  = 19.391[db]
Irr_atn_noe  = 19.391[db]
Irr_noise    = WALTZ
Decoupling   = TRUE
Initial_wait = 1[s]
Noe          = TRUE
Noe_time     = 2[s]
Recvr_gain   = 50
Relaxation_delay = 2[s]
Repetition_time = 2.69206016[s]
Temp_get     = 23.3[dc]
  
```



**JEOL**

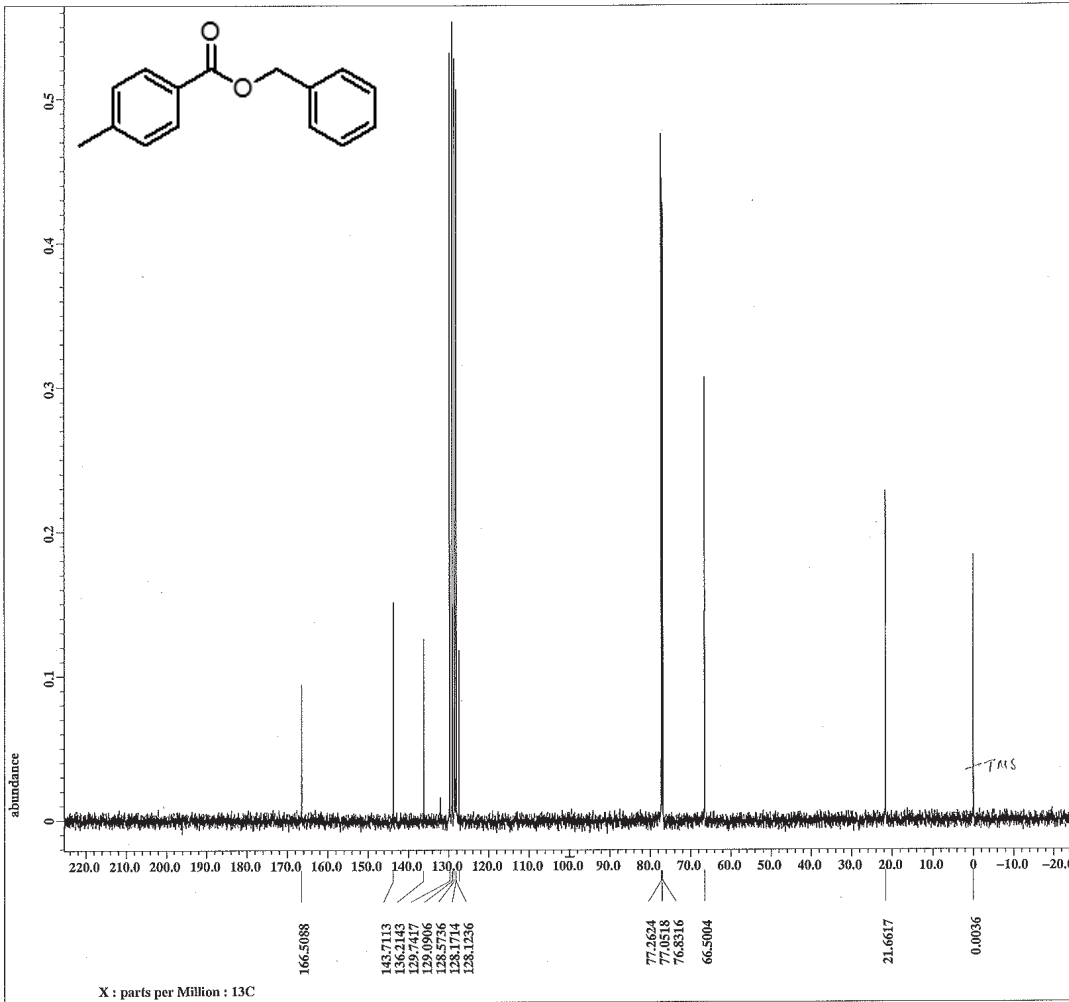
```

Filename      = Exp-hakim-115-9-proto
Author       = delta
Experiment   = single_pulse.ex2
Sample_id    = Exp-hakim-115-9-proto
Solvent      = CHLOROFORM-D
Creation_time = 9-JUN-2014 17:41:02
Revision_time = 9-JUN-2014 17:52:13
Current_time  = 9-JUN-2014 17:52:18

Content       = Exp-hakim-115-9-proto
Data_format  = 1D COMPLEX
Dim_size     = 13107
Dim_title    = 1H
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928 [T] (600[M]
X_acq_duration = 1.4548992 [s]
X_domain      = 1H
X_freq       = 600.1723046 [MHz]
X_offset     = 5 [ppm]
X_points     = 16384
X_prescans   = 1
X_resolution = 0.68733284 [Hz]
X_sweep     = 11.26126126 [kHz]
Irr_domain   = 1H
Irr_freq     = 600.1723046 [MHz]
Irr_offset   = 5 [ppm]
Tri_domain   = 1H
Tri_freq     = 600.1723046 [MHz]
Tri_offset   = 5 [ppm]
Clipped     = FALSE
Mod_return   = 1
Scans       = 8
Total_scans = 8

X_90_width  = 13 [us]
X_acq_time  = 1.4548992 [s]
X_angle     = 45 [deg]
X_atn      = 3.6 [dB]
X_pulse    = 6.5 [us]
Irr_mode   = Off
Tri_mode   = Off
Dante_presat = FALSE
Initial_wait = 1 [s]
Recvr_gain = 40
Relaxation_delay = 5 [s]
Repetition_time = 6.4548992 [s]
Temp_get    = 22.7 [dc]
  
```



**JEOL**

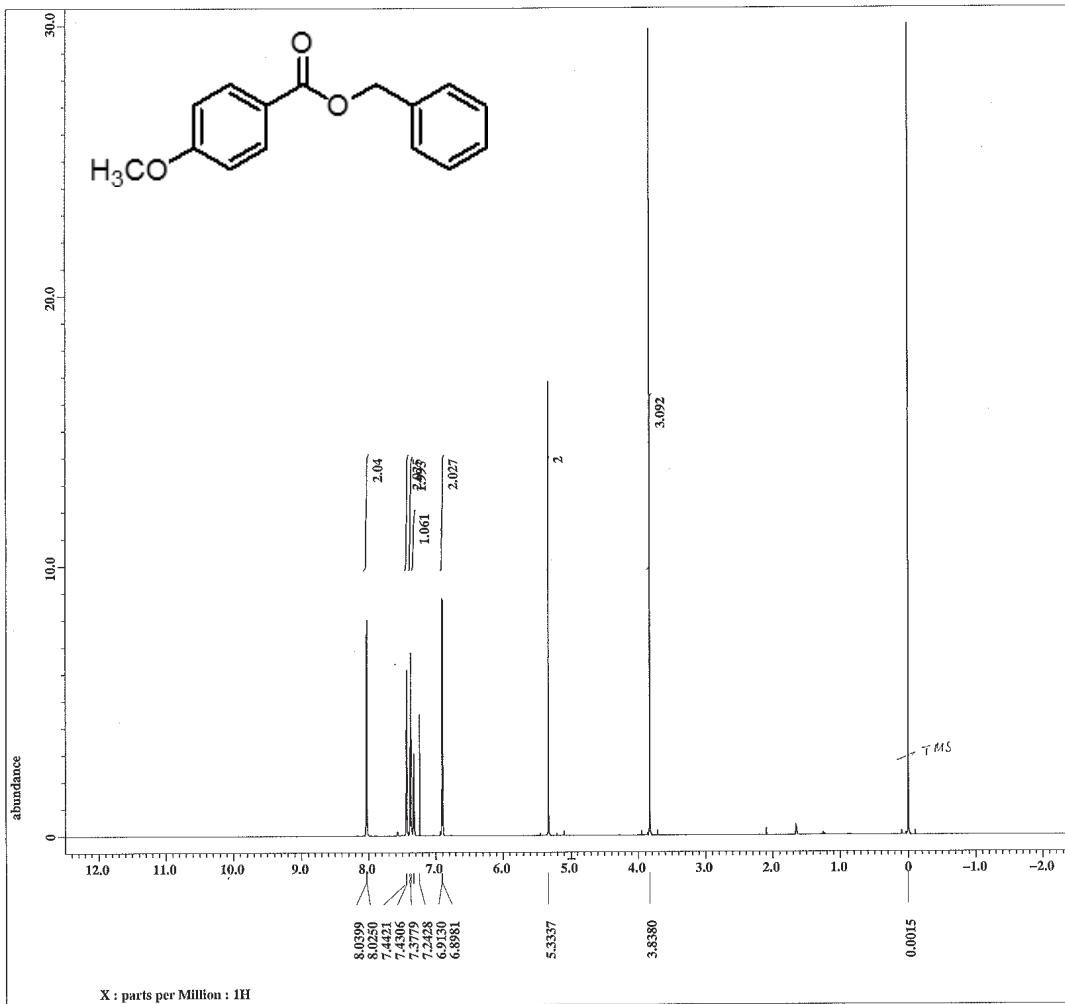
```

Filename      = Exp-hakim-115-9-carbo
Author       = delta
Experiment   = single_pulse_dec
Sample_id    = Exp-hakim-115-9-carbo
Solvent      = CHLOROFORM-D
Creation_time = 9-JUN-2014 17:46:13
Revision_time = 9-JUN-2014 17:55:06
Current_time  = 9-JUN-2014 17:55:08

Content       = Exp-hakim-115-9-carbo
Data_format  = 1D COMPLEX
Dim_size     = 26214
Dim_title    = 13C
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928 [T] (600[M]
X_acq_duration = 0.69206016 [s]
X_domain      = 13C
X_freq       = 150.91343039 [MHz]
X_offset     = 100 [ppm]
X_points     = 32768
X_prescans   = 4
X_resolution = 1.44496109 [Hz]
X_sweep     = 47.34848485 [kHz]
Irr_domain   = 1H
Irr_freq     = 600.1723046 [MHz]
Irr_offset   = 5 [ppm]
Clipped     = FALSE
Mod_return   = 1
Scans       = 110
Total_scans = 110

X_90_width  = 11.4 [us]
X_acq_time  = 0.69206016 [s]
X_angle     = 30 [deg]
X_atn      = 7.5 [dB]
X_pulse    = 3.8 [us]
Irr_atn_dec = 19.391 [dB]
Irr_atn_noe = 19.391 [dB]
Irr_noise  = WALTZ
Decoupling = TRUE
Initial_wait = 1 [s]
Noe        = TRUE
Noe_time   = 2 [s]
Recvr_gain = 50
Relaxation_delay = 2 [s]
Repetition_time = 2.69206016 [s]
Temp_get    = 23.4 [dc]
  
```

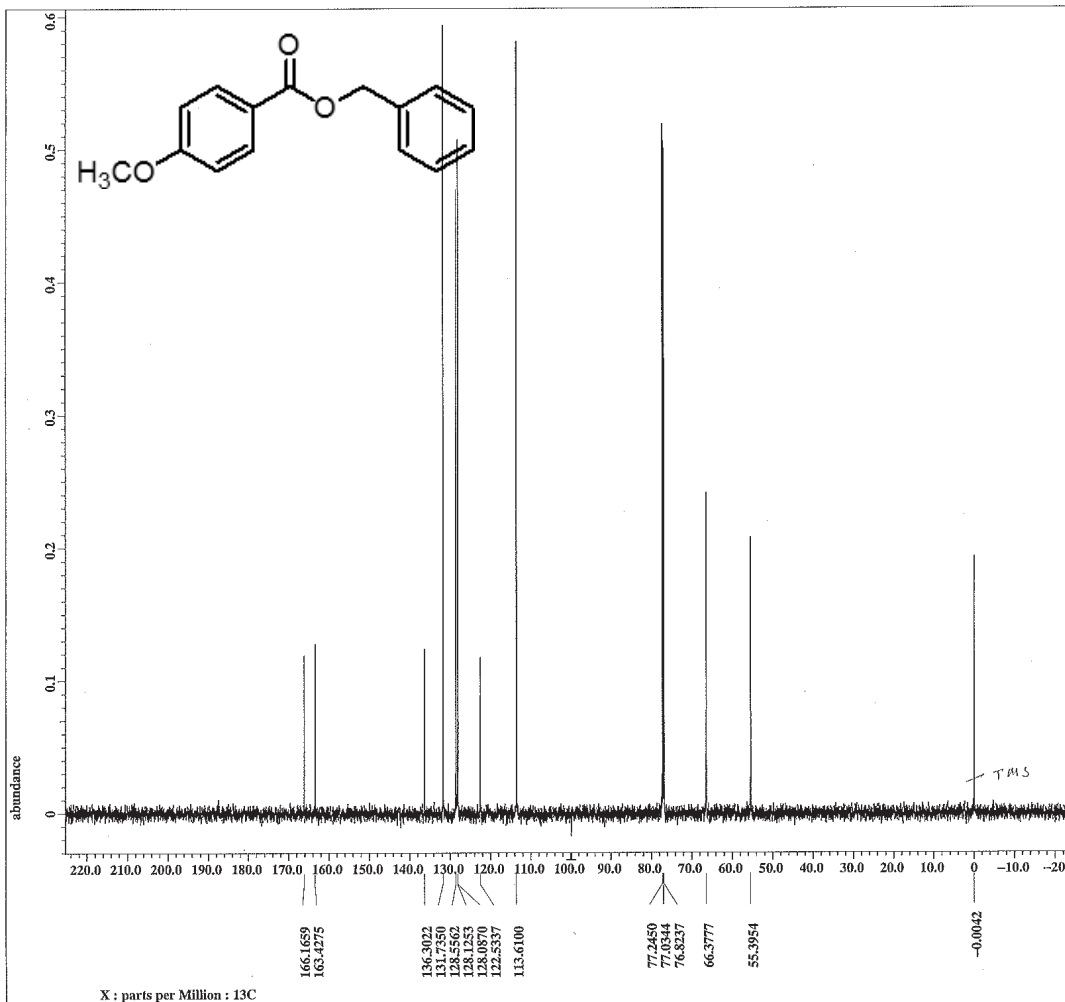


Filename = Exp-hakim-115-7-proto  
 Author = delta  
 Experiment = single\_pulse.ex2  
 Sample\_id = Exp-hakim-115-7-proto  
 Solvent = CHLOROFORM-D  
 Creation\_time = 9-JUN-2014 17:52:58  
 Revision\_time = 9-JUN-2014 18:02:02  
 Current\_time = 9-JUN-2014 18:02:10

Content = Exp-hakim-115-7-proto  
 Data\_format = 1D COMPLEX  
 Dim\_size = 13107  
 Dim\_title = 1H  
 Dim\_units = [ppm]  
 Dimensions = X  
 Site = ECA 600  
 Spectrometer = DELTA2\_NMR

Field\_strength = 14.09636928[T] (600[M]  
 X\_acq\_duration = 1.4548992[s]  
 X\_domain = 1H  
 X\_freq = 600.1723046[MHz]  
 X\_offset = 5[ppm]  
 X\_points = 16384  
 X\_prescans = 1  
 X\_resolution = 0.68733284[Hz]  
 X\_sweep = 11.26126126[kHz]  
 Irr\_domain = 1H  
 Irr\_freq = 600.1723046[MHz]  
 Irr\_offset = 5[ppm]  
 Tri\_domain = 1H  
 Tri\_freq = 600.1723046[MHz]  
 Tri\_offset = 5[ppm]  
 Clipped = FALSE  
 Mod\_return = 1  
 Scans = 8  
 Total\_scans = 8

X\_90\_width = 13[us]  
 X\_acq\_time = 1.4548992[s]  
 X\_angle = 45[deg]  
 X\_atn = 3.6[db]  
 X\_pulse = 6.5[us]  
 Irr\_mode = Off  
 Tri\_mode = Off  
 Dante\_presat = FALSE  
 Initial\_wait = 1[s]  
 Recv\_gain = 40  
 Relaxation\_delay = 5[s]  
 Repetition\_time = 6.4548992[s]  
 Temp\_get = 22.8[dC]

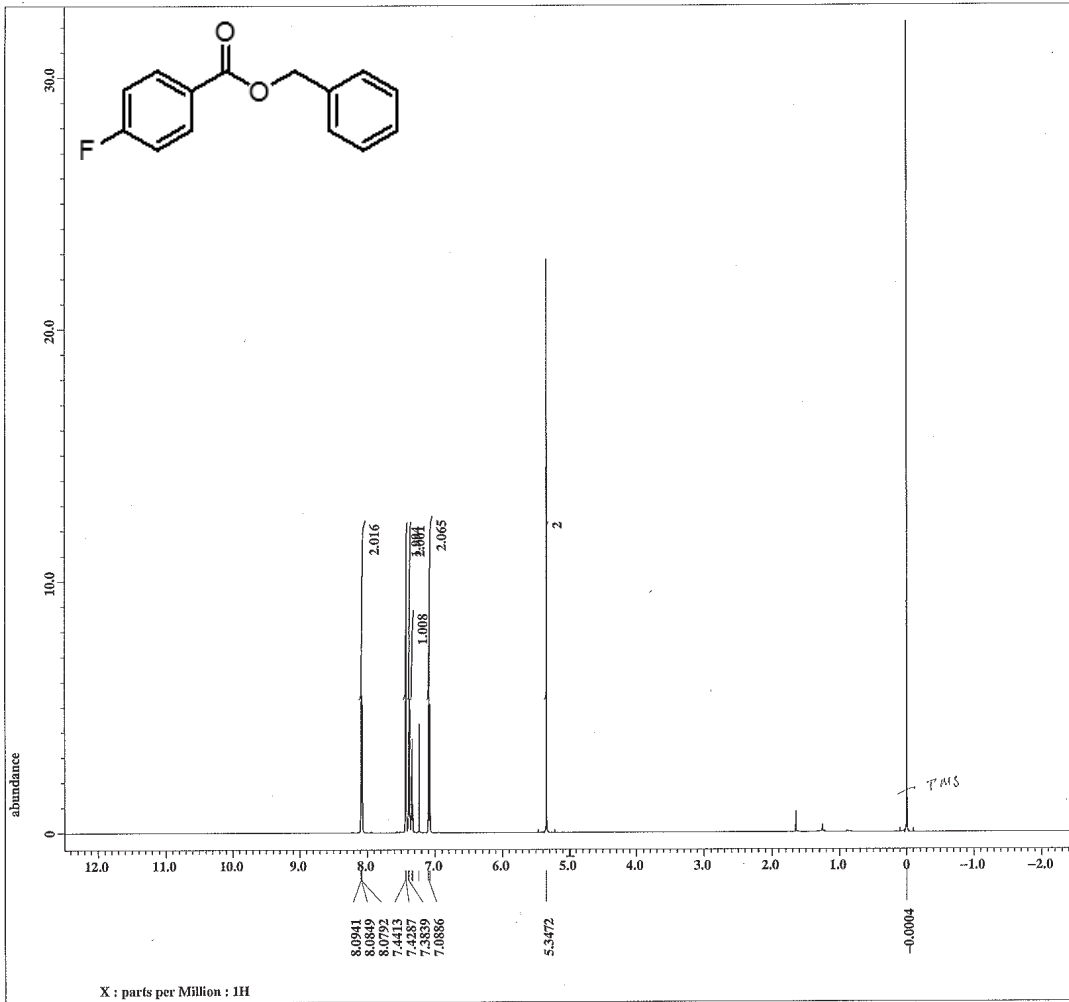


Filename = Exp-hakim-115-7-carbo  
 Author = delta  
 Experiment = single\_pulse\_dec  
 Sample\_id = Exp-hakim-115-7-carbo  
 Solvent = CHLOROFORM-D  
 Creation\_time = 9-JUN-2014 17:57:12  
 Revision\_time = 9-JUN-2014 18:03:58  
 Current\_time = 9-JUN-2014 18:04:01

Content = Exp-hakim-115-7-carbo  
 Data\_format = 1D COMPLEX  
 Dim\_size = 26214  
 Dim\_title = 13C  
 Dim\_units = [ppm]  
 Dimensions = X  
 Site = ECA 600  
 Spectrometer = DELTA2\_NMR

Field\_strength = 14.09636928[T] (600[M]  
 X\_acq\_duration = 0.69206016[s]  
 X\_domain = 13C  
 X\_freq = 150.91343039[MHz]  
 X\_offset = 100[ppm]  
 X\_points = 32768  
 X\_prescans = 4  
 X\_resolution = 1.44496109[Hz]  
 X\_sweep = 47.34848485[kHz]  
 Irr\_domain = 1H  
 Irr\_freq = 600.1723046[MHz]  
 Irr\_offset = 5[ppm]  
 Clipped = FALSE  
 Mod\_return = 1  
 Scans = 89  
 Total\_scans = 89

X\_90\_width = 11.4[us]  
 X\_acq\_time = 0.69206016[s]  
 X\_angle = 30[deg]  
 X\_atn = 7.5[db]  
 X\_pulse = 3.8[us]  
 Irr\_atn\_dec = 19.391[db]  
 Irr\_atn\_noe = 19.391[db]  
 Irr\_mode = WALTZ  
 Decoupling = TRUE  
 Initial\_wait = 1[s]  
 Noe = TRUE  
 Noe\_time = 2[s]  
 Recv\_gain = 50  
 Relaxation\_delay = 2[s]  
 Repetition\_time = 2.69206016[s]  
 Temp\_get = 23.4[dC]



**JEOL**

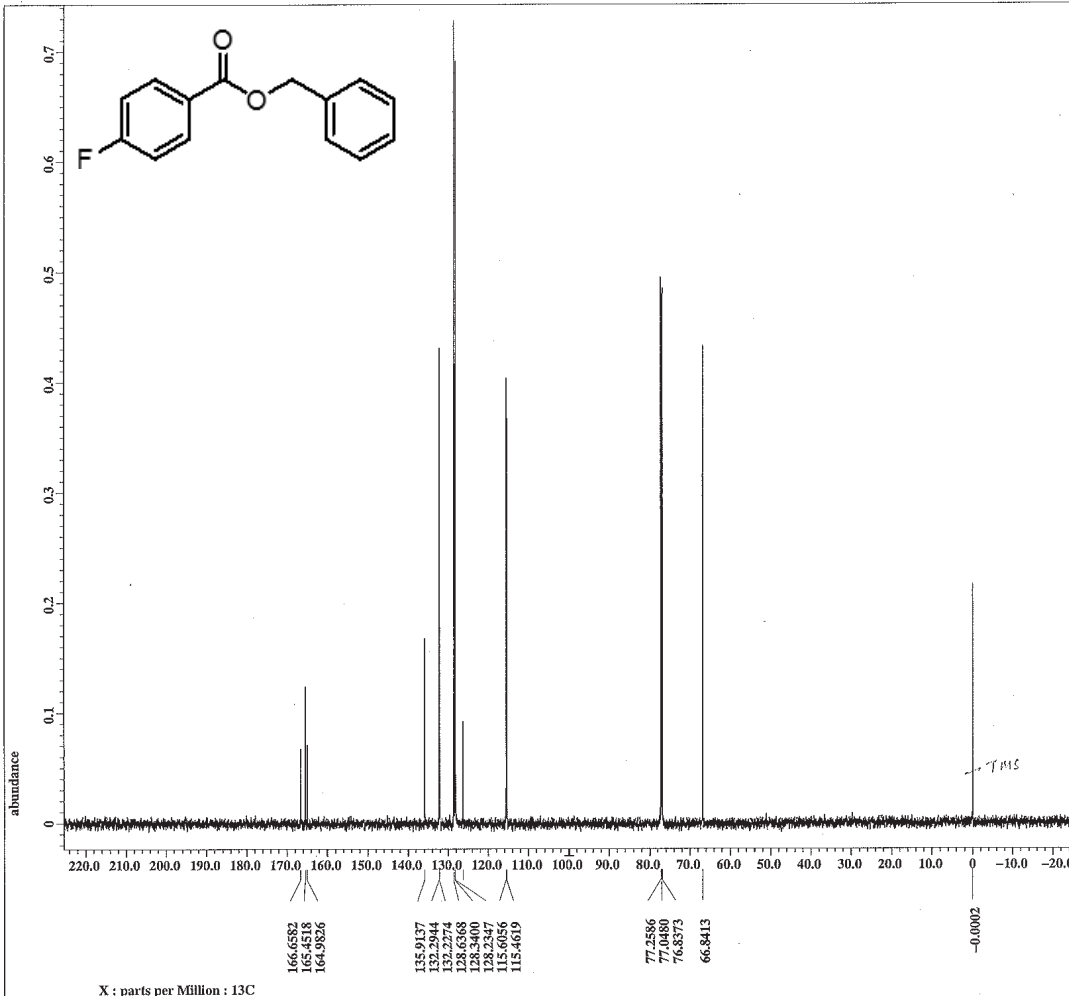
```

Filename      = Exp-hakim-115-4-proto
Author       = delta
Experiment   = single_pulse.ex2
Sample_id    = Exp-hakim-115-4-proto
Solvent      = CHLOROFORM-D
Creation_time = 10-JUN-2014 10:19:55
Revision_time = 10-JUN-2014 10:31:33
Current_time  = 10-JUN-2014 10:31:41

Content       = Exp-hakim-115-4-proto
Data_format  = 1D COMPLEX
Dim_size     = 13107
Dim_title    = 1H
Dim_units    = [ppm]
Dimensions   = 2
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928[T] (600[M]
X_acq_duration = 1.4548992[s]
X_domain       = 1H
X_freq         = 600.1723046[MHz]
X_offset       = 5[ppm]
X_points      = 16384
X_prescans    = 1
X_resolution   = 0.68733284[Hz]
X_sweep       = 11.26126126[kHz]
Irr_domain    = 1H
Irr_freq      = 600.1723046[MHz]
Irr_offset     = 5[ppm]
Tri_domain    = 1H
Tri_freq      = 600.1723046[MHz]
Tri_offset     = 5[ppm]
Clipped       = FALSE
Mod_return    = 1
Scans         = 8
Total_scans   = 8

X_90_width    = 13[us]
X_acq_time    = 1.4548992[s]
X_angle       = 45[deg]
X_atn         = 3.6[db]
X_pulse       = 6.5[us]
Irr_mode      = OFF
Tri_mode      = OFF
Dante_preset  = FALSE
Initial_wait  = 1[s]
Recvr_gain    = 40
Relaxation_delay = 5[s]
Repetition_time = 6.4548992[s]
Temp_get      = 22.4[dc]
  
```



**JEOL**

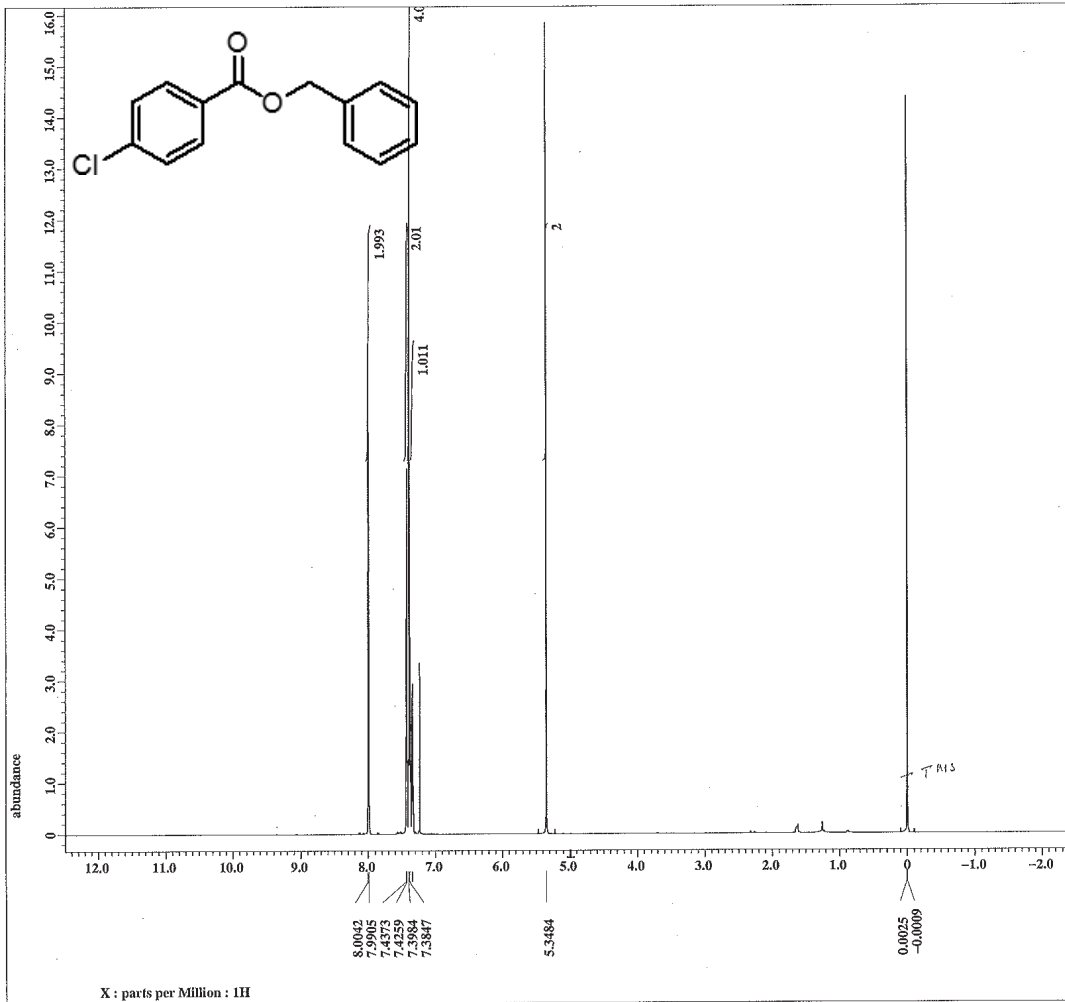
```

Filename      = Exp-hakim-115-4-carbo
Author       = delta
Experiment   = single_pulse_dec
Sample_id    = Exp-hakim-115-4-carbo
Solvent      = CHLOROFORM-D
Creation_time = 10-JUN-2014 10:25:47
Revision_time = 10-JUN-2014 10:34:37
Current_time  = 10-JUN-2014 10:34:55

Content       = Exp-hakim-115-4-carbo
Data_format  = 1D COMPLEX
Dim_size     = 26214
Dim_title    = 13C
Dim_units    = [ppm]
Dimensions   = 2
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928[T] (600[M]
X_acq_duration = 0.69206016[s]
X_domain       = 13C
X_freq         = 150.91343039[MHz]
X_offset       = 100[ppm]
X_points      = 32768
X_prescans    = 4
X_resolution   = 1.44496109[Hz]
X_sweep       = 47.34848485[kHz]
Irr_domain    = 1H
Irr_freq      = 600.1723046[MHz]
Irr_offset     = 5[ppm]
Clipped       = FALSE
Mod_return    = 1
Scans         = 125
Total_scans   = 125

X_90_width    = 11.4[us]
X_acq_time    = 0.69206016[s]
X_angle       = 30[deg]
X_atn         = 7.5[db]
X_pulse       = 3.8[us]
Irr_atn_dec   = 19.391[db]
Irr_atn_noe   = 19.391[db]
Irr_noise     = WALTZ
Decoupling    = TRIP
Initial_wait  = 1[s]
Noe           = TRUE
Noe_time      = 2[s]
Recvr_gain    = 50
Relaxation_delay = 2[s]
Repetition_time = 2.69206016[s]
Temp_get      = 23.1[dc]
  
```



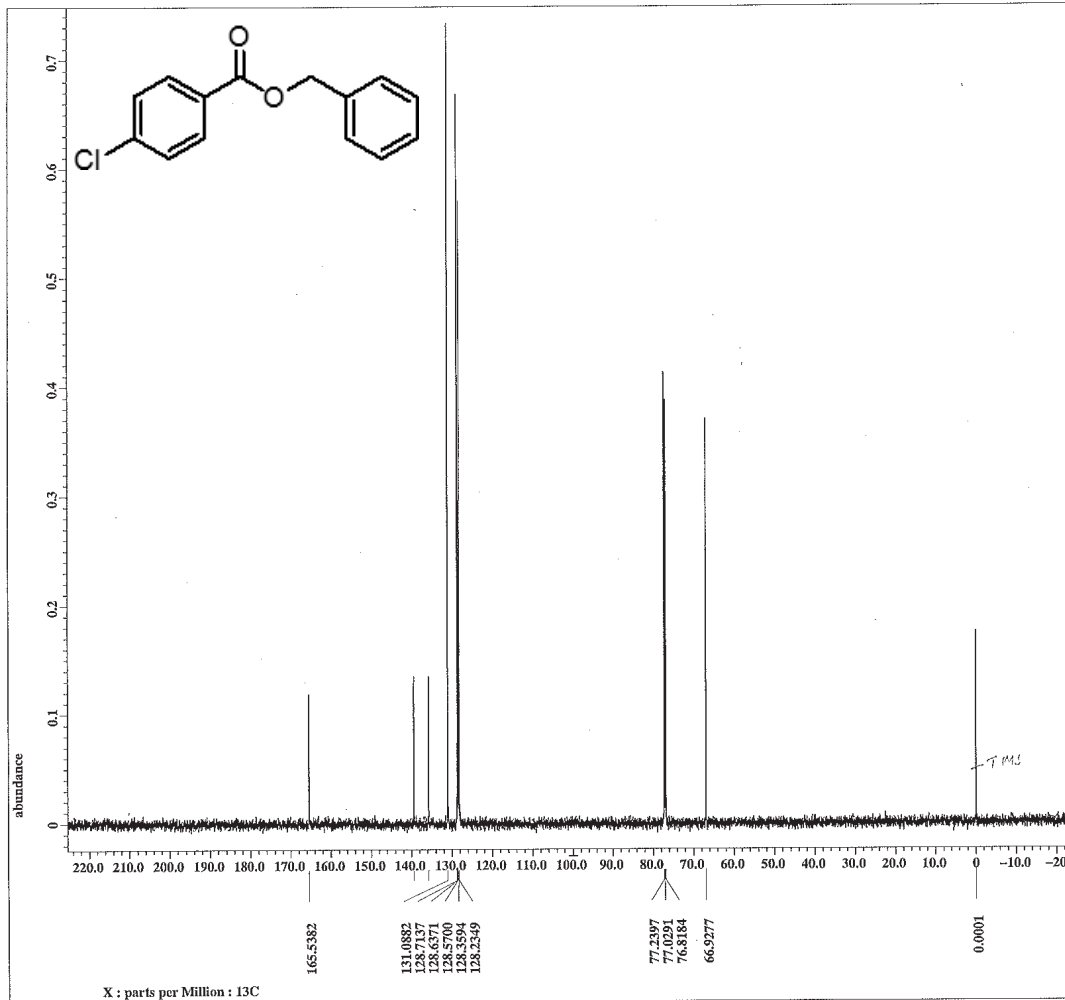
```

Filename      = Exp-hakim-173-10-prot
Author        = delta
Experiment    = single_pulse.ex2
Sample_id     = Exp-hakim-173-10-prot
Solvent       = CHLOROFORM-D
Creation_time = 10-JUN-2014 10:34:06
Revision_time = 10-JUN-2014 10:43:05
Current_time  = 10-JUN-2014 10:43:26

Content       = Exp-hakim-173-10-prot
Data_format  = 1D COMPLEX
Dim_size     = 13107
Dim_title    = 1H
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928[T] (600[M]
X_acq_duration = 1.4548992[s]
X_domain       = 1H
X_freq         = 600.1723046[MHz]
X_offset       = 5[ppm]
X_points       = 16384
X_prescans     = 1
X_resolution   = 0.68733284[Hz]
X_sweep        = 11.26126126[kHz]
Irr_domain     = 1H
Irr_freq       = 600.1723046[MHz]
Irr_offset     = 5[ppm]
Tri_domain     = 1H
Tri_freq       = 600.1723046[MHz]
Tri_offset     = 5[ppm]
Clipped        = FALSE
Mod_return     = 1
Scans          = 8
Total_scans    = 8

X_90_width    = 13[us]
X_acq_time    = 1.4548992[s]
X_angle       = 45[deg]
X_atn         = 3.6[dB]
X_pulse       = 6.5[us]
Irr_mode      = Off
Tri_mode      = Off
Dante_presat  = FALSE
Initial_wait  = 1[s]
Recovr_gain   = 40
Relaxation_delay = 5[s]
Repetition_time = 6.4548992[s]
Temp_get      = 22.5[dc]
  
```



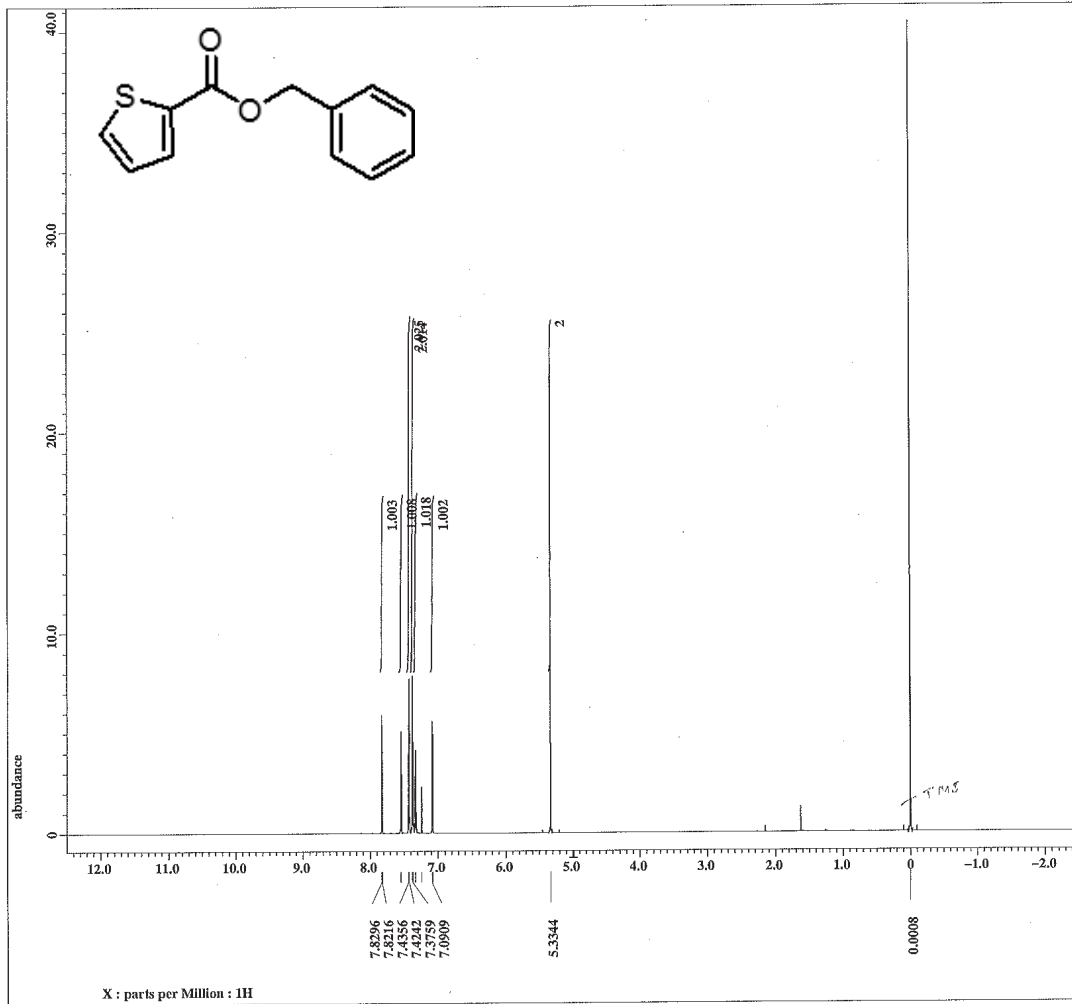
```

Filename      = Exp-hakim-173-10-carb
Author        = delta
Experiment    = single_pulse_dec
Sample_id     = Exp-hakim-173-10-carb
Solvent       = CHLOROFORM-D
Creation_time = 10-JUN-2014 10:39:37
Revision_time = 15-JUL-2014 11:31:35
Current_time  = 15-JUL-2014 11:32:55

Content       = Exp-hakim-173-10-carb
Data_format  = 1D COMPLEX
Dim_size     = 26214
Dim_title    = 13C
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928[T] (600[M]
X_acq_duration = 0.69206016[s]
X_domain       = 13C
X_freq         = 150.91343039[MHz]
X_offset       = 190[ppm]
X_points       = 32768
X_prescans     = 4
X_resolution   = 1.44496109[Hz]
X_sweep        = 47.34848485[kHz]
Irr_domain     = 1H
Irr_freq       = 600.1723046[MHz]
Irr_offset     = 5[ppm]
Clipped        = FALSE
Mod_return     = 1
Scans          = 117
Total_scans    = 117

X_90_width    = 11.4[us]
X_acq_time    = 0.69206016[s]
X_angle       = 30[deg]
X_atn         = 7.5[dB]
X_pulse       = 3.8[us]
Irr_atn_dec   = 19.391[dB]
Irr_atn_noc   = 19.391[dB]
Irr_noise     = WALTZ
Decoupling     = TRUE
Initial_wait  = 1[s]
Noe            = TRUE
Noe_time      = 2[s]
Recovr_gain   = 50
Relaxation_delay = 2[s]
Repetition_time = 2.69206016[s]
Temp_get      = 23.2[dc]
  
```



**JEOL**

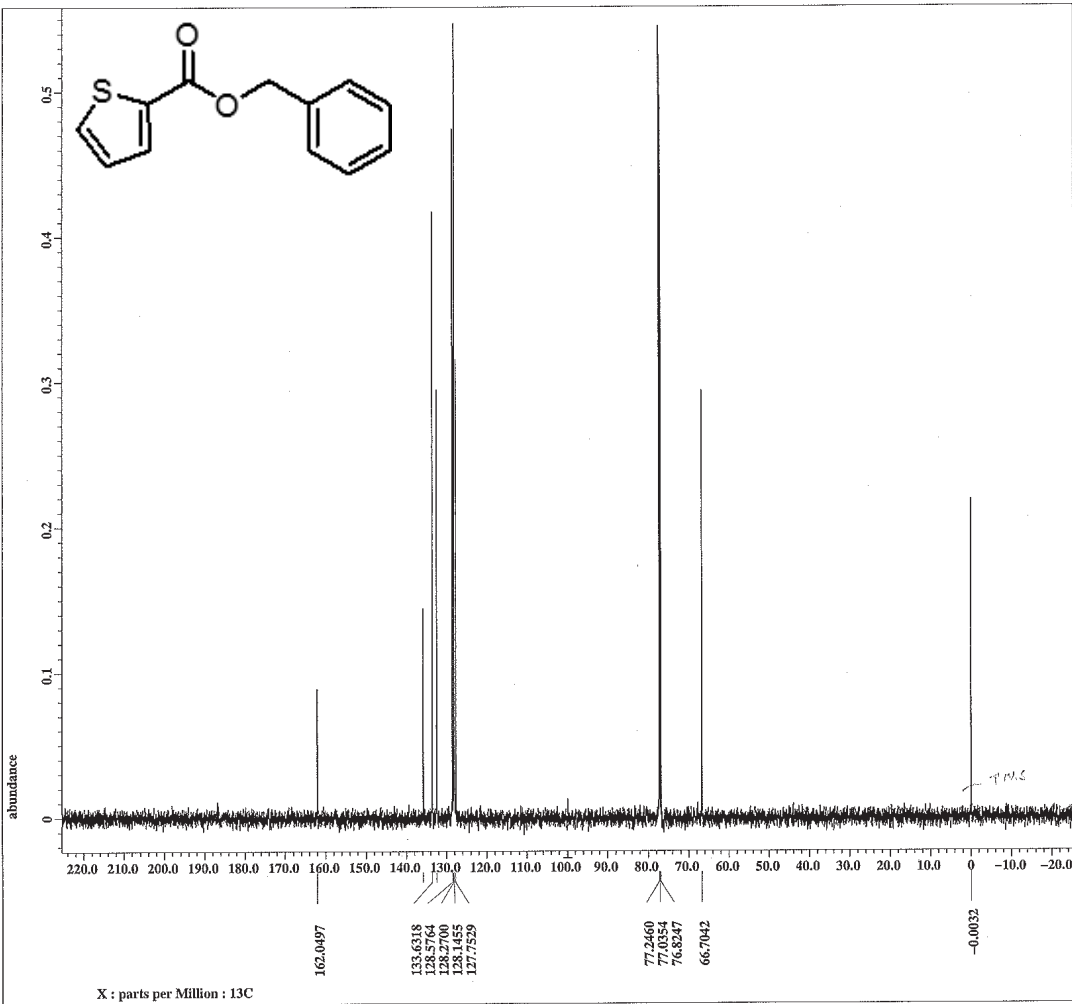
```

Filename      = Exp-hakim-115-8-proto
Author        = delta
Experiment    = single_pulse.exe2
Sample_id     = Exp-hakim-115-8-proto
Solvent       = CHLOROFORM-D
Creation_time = 10-JUN-2014 10:46:24
Revision_time = 10-JUN-2014 10:55:15
Current_time  = 10-JUN-2014 10:55:18

Content       = Exp-hakim-115-8-proto
Data_format  = 1D COMPLEX
Dim_size     = 13107
Dim_title    = 1H
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928[T] (600[M]
X_acq_duration = 1.4548992[s]
X_domain       = 1H
X_freq         = 600.1723046[MHz]
X_offset       = 5[ppm]
X_points       = 16384
X_prescans     = 1
X_resolution   = 0.68733284[Hz]
X_sweep        = 11.26126126[kHz]
Irr_domain     = 1H
Irr_freq       = 600.1723046[MHz]
Irr_offset     = 5[ppm]
Irr_domain     = 1H
Tri_freq       = 600.1723046[MHz]
Tri_offset     = 5[ppm]
Clipped        = FALSE
Mod_return     = 1
Scans          = 8
Total_scans    = 8

X_90_width    = 13[us]
X_acq_time     = 1.4548992[s]
X_angle        = 45[deg]
X_atn          = 3.6[db]
X_pulse        = 6.5[us]
Irr_mode       = Off
Tri_mode       = Off
Dante_presat   = FALSE
Initial_wait   = 1[s]
Recv_gain      = 40
Relaxation_delay = 5[s]
Repetition_time = 6.4548992[s]
Temp_get       = 22.6[dc]
  
```



**JEOL**

```

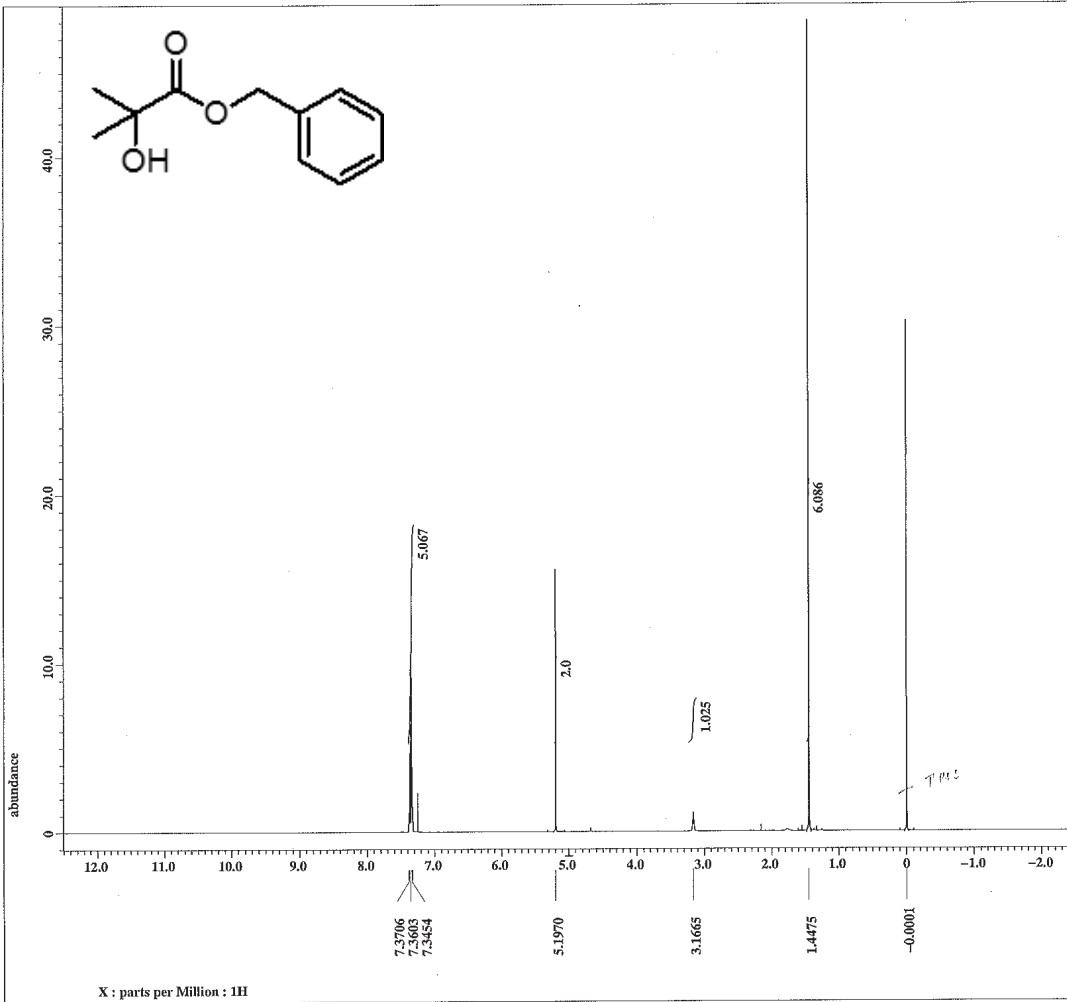
Filename      = Exp-hakim-115-8-carbo
Author        = delta
Experiment    = single_pulse_dec
Sample_id     = Exp-hakim-115-8-carbo
Solvent       = CHLOROFORM-D
Creation_time = 10-JUN-2014 10:50:23
Revision_time = 10-JUN-2014 10:59:17
Current_time  = 10-JUN-2014 10:59:23

Content       = Exp-hakim-115-8-carbo
Data_format  = 1D COMPLEX
Dim_size     = 26214
Dim_title    = 13C
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928[T] (600[M]
X_acq_duration = 0.69206016[s]
X_domain       = 13C
X_freq         = 150.91343039[MHz]
X_offset       = 100[ppm]
X_points       = 32768
X_prescans     = 4
X_resolution   = 1.44496109[Hz]
X_sweep        = 47.34848485[kHz]
Irr_domain     = 1H
Irr_freq       = 600.1723046[MHz]
Irr_offset     = 5[ppm]
Clipped        = FALSE
Mod_return     = 1
Scans          = 83
Total_scans    = 83

X_90_width    = 11.4[us]
X_acq_time     = 0.69206016[s]
X_angle        = 30[deg]
X_atn          = 7.5[db]
X_pulse        = 3.8[us]
Irr_atn_dec    = 19.391[db]
Irr_atn_noe    = 19.391[db]
Irr_atn_noe    = TRUE
Decoupling     = TRUE
Initial_wait   = 1[s]
Noe            = TRUE
Noe_time       = 2[s]
Recv_gain      = 50
Relaxation_delay = 2[s]
Repetition_time = 2.69206016[s]
Temp_get       = 23[dc]
  
```



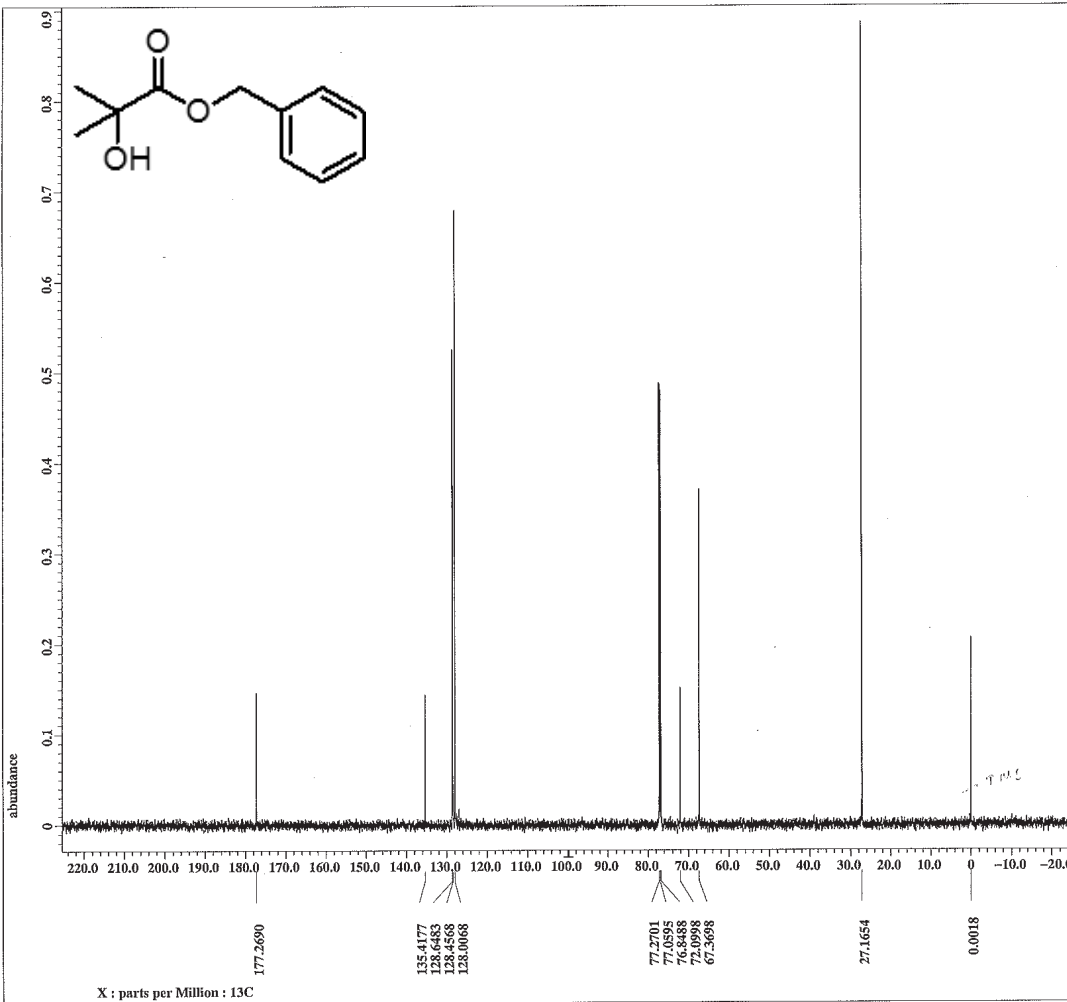


Filename = Exp-hakim-184-5-proto  
Author = delta  
Experiment = single\_pulse\_ex2  
Sample\_id = Exp-hakim-184-5-proto  
Solvent = CHLOROFORM-D  
Creation\_time = 10-JUN-2014 10:56:41  
Revision\_time = 10-JUN-2014 11:05:18  
Current\_time = 10-JUN-2014 11:05:30

Content = Exp-hakim-184-5-proto  
Data\_format = 1D COMPLEX  
Dim\_size = 13107  
Dim\_title = 1H  
Dim\_units = [ppm]  
Dimensions = X  
Site = ECA 600  
Spectrometer = DELTA2\_NMR

Field\_strength = 14.09636928 [T] (600 [M])  
X\_acq\_duration = 1.4548992 [s]  
X\_domain = 1H  
X\_freq = 600.1723046 [MHz]  
X\_offset = 5 [ppm]  
X\_points = 16384  
X\_prescans = 1  
X\_resolution = 0.68733284 [Hz]  
X\_sweep = 11.26126126 [kHz]  
Irr\_domain = 1H  
Irr\_freq = 600.1723046 [MHz]  
Irr\_offset = 5 [ppm]  
Tri\_domain = 1H  
Tri\_freq = 600.1723046 [MHz]  
Tri\_offset = 5 [ppm]  
Clipped = FALSE  
Mod\_return = 1  
Scans = 8  
Total\_scans = 8

X\_90\_width = 13 [us]  
X\_acq\_time = 1.4548992 [s]  
X\_angle = 45 [deg]  
X\_atn = 3.6 [dB]  
X\_pulse = 6.5 [us]  
Irr\_mode = Off  
Tri\_mode = Off  
Dante\_presat = FALSE  
Initial\_wait = 1 [s]  
Recv2\_gain = 36  
Relaxation\_delay = 5 [s]  
Repetition\_time = 6.4548992 [s]  
Temp\_get = 22.6 [dC]



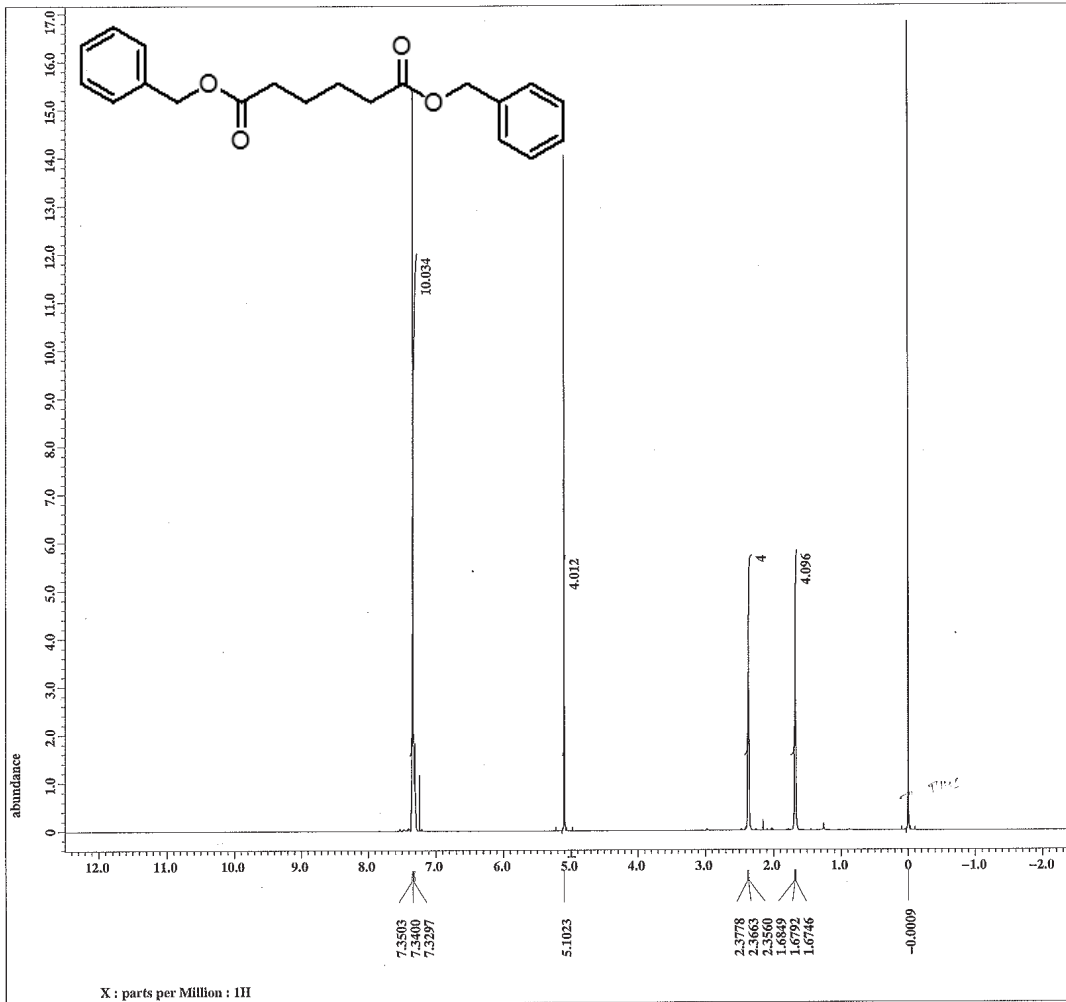
Filename = Exp-hakim-184-5-carbo  
Author = delta  
Experiment = single\_pulse\_dec  
Sample\_id = Exp-hakim-184-5-carbo  
Solvent = CHLOROFORM-D  
Creation\_time = 10-JUN-2014 11:00:56  
Revision\_time = 10-JUN-2014 11:09:46  
Current\_time = 10-JUN-2014 11:10:09

Content = Exp-hakim-184-5-carbo  
Data\_format = 1D COMPLEX  
Dim\_size = 26214  
Dim\_title = 13C  
Dim\_units = [ppm]  
Dimensions = X  
Site = ECA 600  
Spectrometer = DELTA2\_NMR

Field\_strength = 14.09636928 [T] (600 [M])  
X\_acq\_duration = 0.69206016 [s]  
X\_domain = 13C  
X\_freq = 150.91343039 [MHz]  
X\_offset = 100 [ppm]  
X\_points = 32768  
X\_prescans = 4  
X\_resolution = 1.44496109 [Hz]  
X\_sweep = 47.34848485 [kHz]  
Irr\_domain = 1H  
Irr\_freq = 600.1723046 [MHz]  
Irr\_offset = 5 [ppm]  
Clipped = FALSE  
Mod\_return = 1  
Scans = 89  
Total\_scans = 89

X\_90\_width = 11.4 [us]  
X\_acq\_time = 0.69206016 [s]  
X\_angle = 30 [deg]  
X\_atn = 7.8 [dB]  
X\_pulse = 3.8 [us]  
Irr\_atn\_dec = 19.391 [dB]  
Irr\_atn\_noe = 19.391 [dB]  
Irr\_noise = FALSE  
Decoupling = TRUE  
Initial\_wait = 1 [s]  
Noe = TRUE  
Noe\_time = 2 [s]  
Recv2\_gain = 50  
Relaxation\_delay = 2 [s]  
Repetition\_time = 2.69206016 [s]  
Temp\_get = 23.1 [dC]



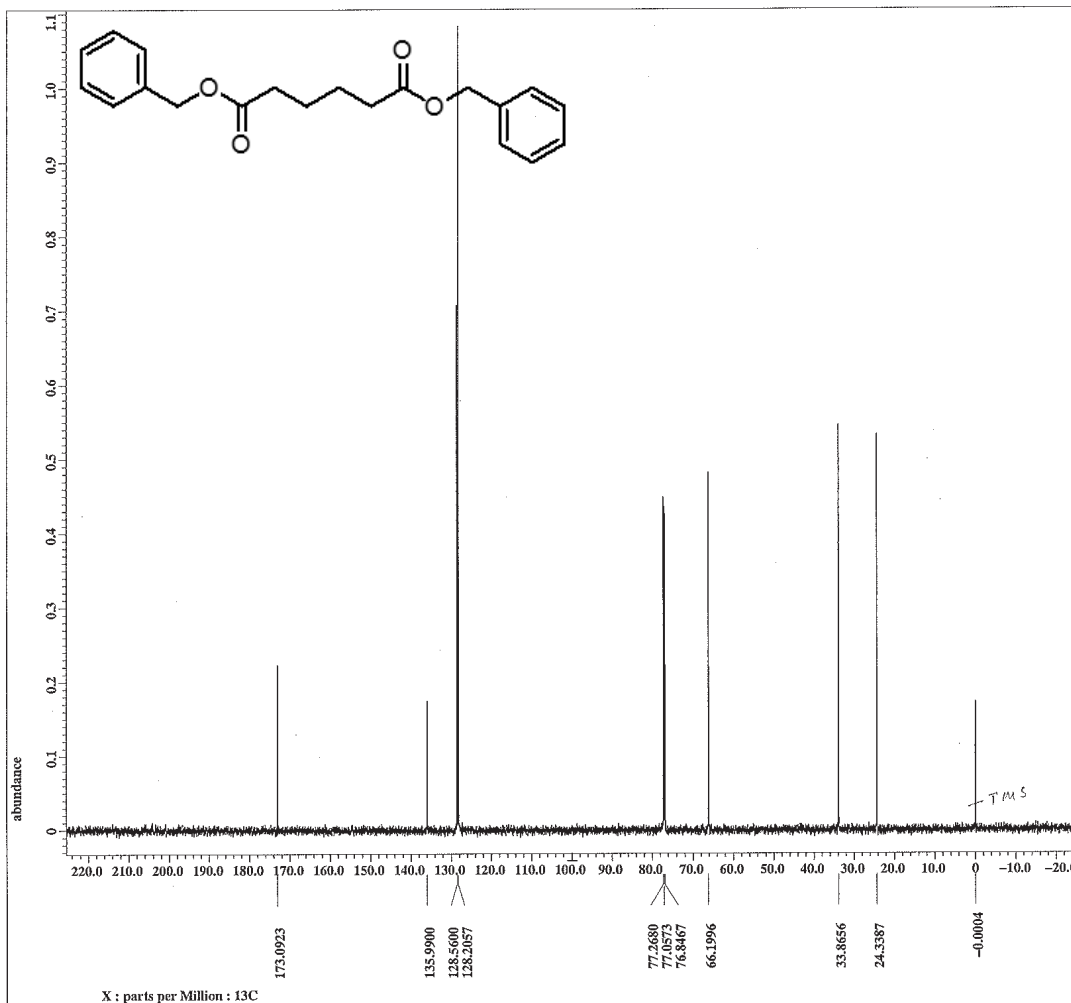


Filename = Exp-hakim-184-9-proto  
 Author = delta  
 Experiment = single\_pulse.ex2  
 Sample\_id = Exp-hakim-184-9-proto  
 Solvent = CHLOROFORM-D  
 Creation\_time = 10-JUN-2014 11:07:56  
 Revision\_time = 10-JUN-2014 11:16:53  
 Current\_time = 10-JUN-2014 11:16:57

Content = Exp-hakim-184-9-proto  
 Data\_format = 1D COMPLEX  
 Dim\_size = 13107  
 Dim\_title = 1H  
 Dim\_units = [ppm]  
 Dimensions = X  
 Site = ECA 600  
 Spectrometer = DELTA2\_NMR

Field\_strength = 14.09636928[T] (600[M]  
 X\_acq\_duration = 1.4548992[s]  
 X\_domain = 1H  
 X\_freq = 600.1723046[MHz]  
 X\_offset = 9[ppm]  
 X\_points = 16384  
 X\_prescans = 1  
 X\_resolution = 0.68733284[Hz]  
 X\_sweep = 11.26126126[kHz]  
 Irr\_domain = 1H  
 Irr\_freq = 600.1723046[MHz]  
 Irr\_offset = 5[ppm]  
 Tri\_domain = 1H  
 Tri\_freq = 600.1723046[MHz]  
 Tri\_offset = 9[ppm]  
 Clipped = FALSE  
 Mod\_return = 1  
 Scans = 8  
 Total\_scans = 8

X\_90\_width = 13[us]  
 X\_acq\_time = 1.4548992[s]  
 X\_angle = 45[deg]  
 X\_atn = 3.6[db]  
 X\_pulse = 5-5[us]  
 Irr\_mode = Off  
 Tri\_mode = Off  
 Dante\_preset = FALSE  
 Initial\_wait = 1[s]  
 Recvr\_gain = 36  
 Relaxation\_delay = 5[s]  
 Repetition\_time = 6.4548992[s]  
 Temp\_get = 22.6[degC]

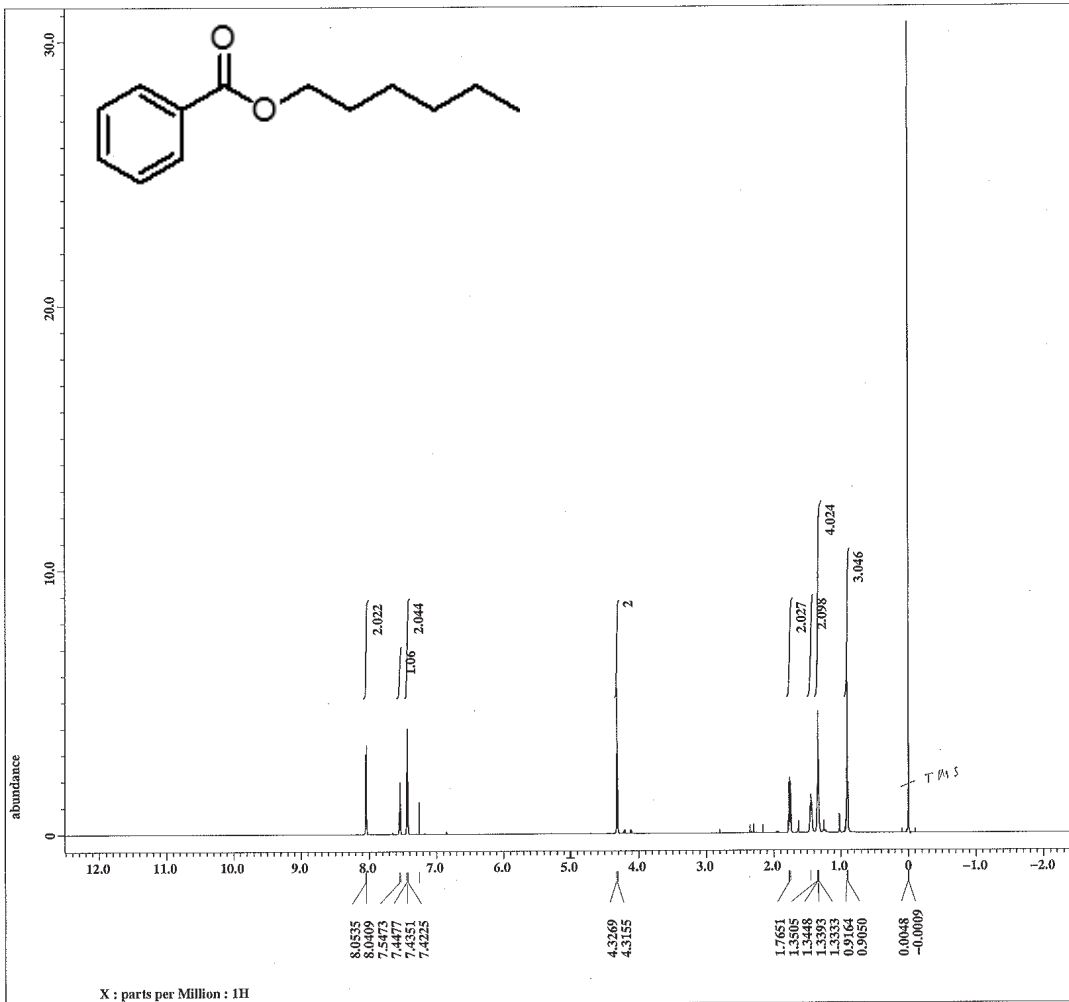


Filename = Exp-hakim-184-9-carbo  
 Author = delta  
 Experiment = single\_pulse\_dec  
 Sample\_id = Exp-hakim-184-9-carbo  
 Solvent = CHLOROFORM-D  
 Creation\_time = 10-JUN-2014 11:11:55  
 Revision\_time = 10-JUN-2014 11:21:43  
 Current\_time = 10-JUN-2014 11:21:52

Content = Exp-hakim-184-9-carbo  
 Data\_format = 1D COMPLEX  
 Dim\_size = 26214  
 Dim\_title = 13C  
 Dim\_units = [ppm]  
 Dimensions = X  
 Site = ECA 600  
 Spectrometer = DELTA2\_NMR

Field\_strength = 14.09636928[T] (600[M]  
 X\_acq\_duration = 0.69206016[s]  
 X\_domain = 13C  
 X\_freq = 150.91343039[MHz]  
 X\_offset = 100[ppm]  
 X\_points = 32768  
 X\_prescans = 4  
 X\_resolution = 1.44496109[Hz]  
 X\_sweep = 47.34848485[kHz]  
 Irr\_domain = 13H  
 Irr\_freq = 600.1723046[MHz]  
 Irr\_offset = 5[ppm]  
 Clipped = FALSE  
 Mod\_return = 1  
 Scans = 83  
 Total\_scans = 83

X\_90\_width = 11.4[us]  
 X\_acq\_time = 0.69206016[s]  
 X\_angle = 30[deg]  
 X\_atn = 7.5[db]  
 X\_pulse = 3.8[us]  
 Irr\_atn\_dec = 19.391[db]  
 Irr\_atn\_noe = 19.391[db]  
 Irr\_noise = WALTZ  
 Decoupling = TRUE  
 Initial\_wait = 1[s]  
 Noe = TRUE  
 Noe\_time = 2[s]  
 Recvr\_gain = 40  
 Relaxation\_delay = 2[s]  
 Repetition\_time = 2.69206016[s]  
 Temp\_get = 23.1[degC]



**JEOL**

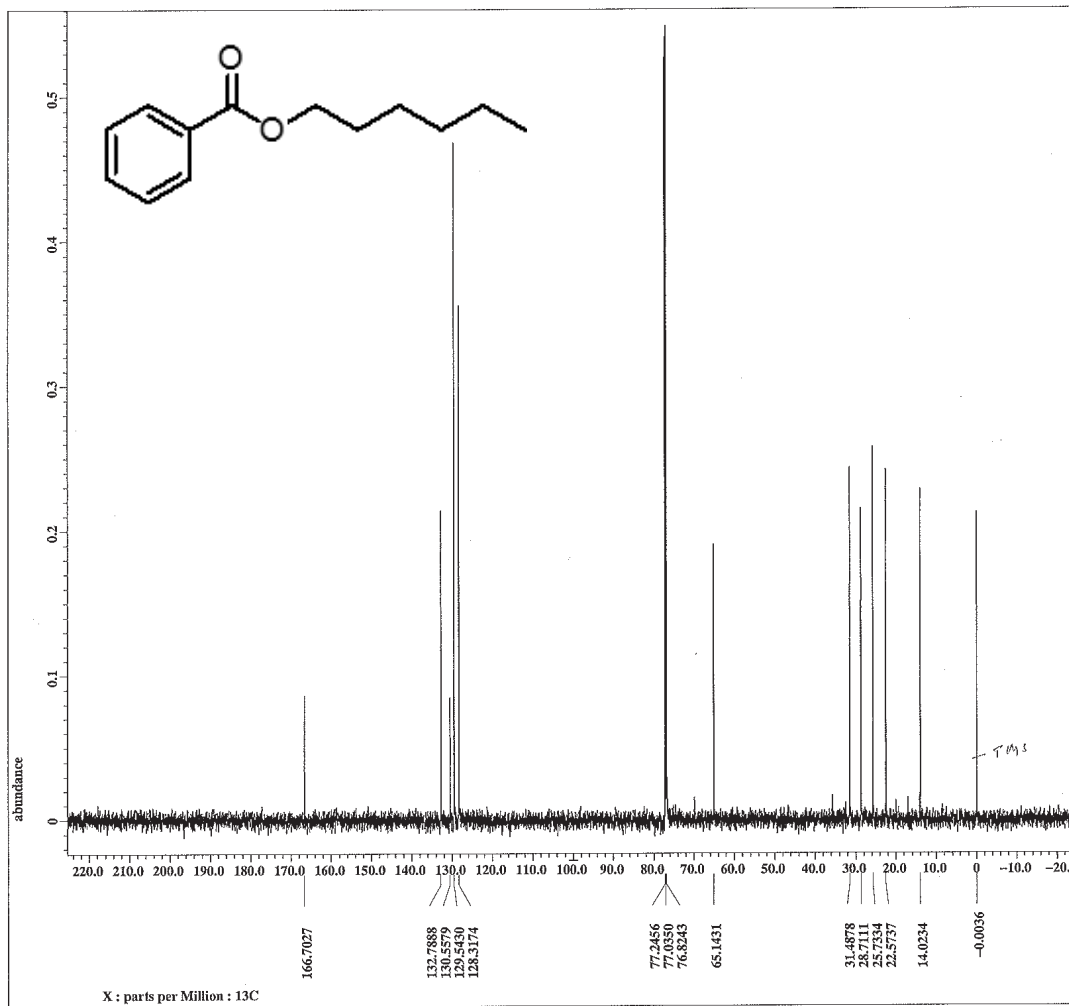
```

Filename      = Exp-hakim-115-23-prot
Author       = delta
Experiment   = single_pulse.ex2
Sample_id    = Exp-hakim-115-23-prot
Solvent      = CHLOROFORM-D
Creation_time = 10-JUN-2014 11:25:16
Revision_time = 10-JUN-2014 11:33:58
Current_time  = 10-JUN-2014 11:34:13

Content      = Exp-hakim-115-23-prot
Data_format  = 1D COMPLEX
Dim_size     = 13107
Dim_title    = 1H
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928 [T] (600 [M]
X_acq_duration = 1.4548992 [s]
X_domain      = 1H
X_freq        = 600.1723046 [MHz]
X_offset      = 5 [ppm]
X_points      = 16384
X_procscans  = 1
X_resolution  = 0.68733284 [Hz]
X_sweep      = 11.26126126 [kHz]
Irr_domain    = 1H
Irr_freq      = 600.1723046 [MHz]
Irr_offset    = 5 [ppm]
Tri_domain    = 1H
Tri_freq      = 600.1723046 [MHz]
Tri_offset    = 5 [ppm]
Clipped      = FALSE
Mod_return    = 1
Scans        = 8
Total_scans   = 8

X_90_width   = 13 [us]
X_acq_time    = 1.4548992 [s]
X_angle       = 45 [deg]
X_atn         = 3.6 [dB]
X_pulse       = 6.5 [us]
Irr_mode      = OFF
Tri_mode      = OFF
Dante_preset = FALSE
Initial_wait  = 1 [s]
Recvr_gain    = 38
Relaxation_delay = 5 [s]
Repetition_time = 6.4548992 [s]
Temp_get      = 22.7 [dC]
  
```



**JEOL**

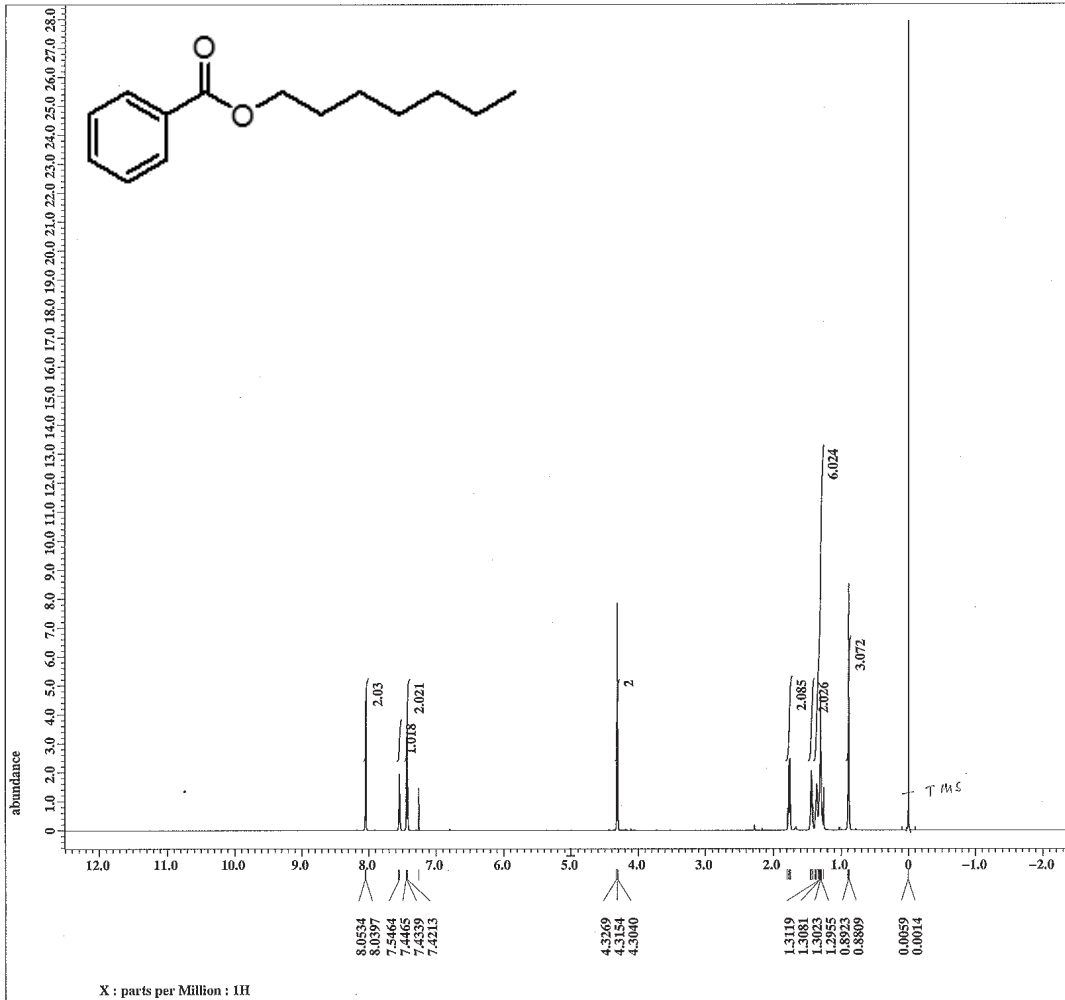
```

Filename      = Exp-hakim-115-23-carb
Author       = delta
Experiment   = single_pulse_dec
Sample_id    = Exp-hakim-115-23-carb
Solvent      = CHLOROFORM-D
Creation_time = 10-JUN-2014 11:28:51
Revision_time = 10-JUN-2014 11:38:40
Current_time  = 10-JUN-2014 11:38:47

Content      = Exp-hakim-115-23-carb
Data_format  = 1D COMPLEX
Dim_size     = 26214
Dim_title    = 13C
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928 [T] (600 [M]
X_acq_duration = 0.69206016 [s]
X_domain      = 13C
X_freq        = 150.91343039 [MHz]
X_offset      = 100 [ppm]
X_points      = 32768
X_procscans  = 4
X_resolution  = 1.44496109 [Hz]
X_sweep      = 47.34848485 [kHz]
Irr_domain    = 1H
Irr_freq      = 600.1723046 [MHz]
Irr_offset    = 5 [ppm]
Clipped      = FALSE
Mod_return    = 1
Scans        = 74
Total_scans   = 74

X_90_width   = 11.4 [us]
X_acq_time    = 0.69206016 [s]
X_angle       = 30 [deg]
X_atn         = 7.5 [dB]
X_pulse       = 3.8 [us]
Irr_atn_dec  = 19.391 [dB]
Irr_atn_noe  = 19.391 [dB]
Irr_noise    = TRUE
Decoupling   = TRUE
Initial_wait  = 1 [s]
Noe          = TRUE
Noe_time     = 2 [s]
Recvr_gain    = 50
Relaxation_delay = 2 [s]
Repetition_time = 2.69206016 [s]
Temp_get      = 23.1 [dC]
  
```



**JEOL**

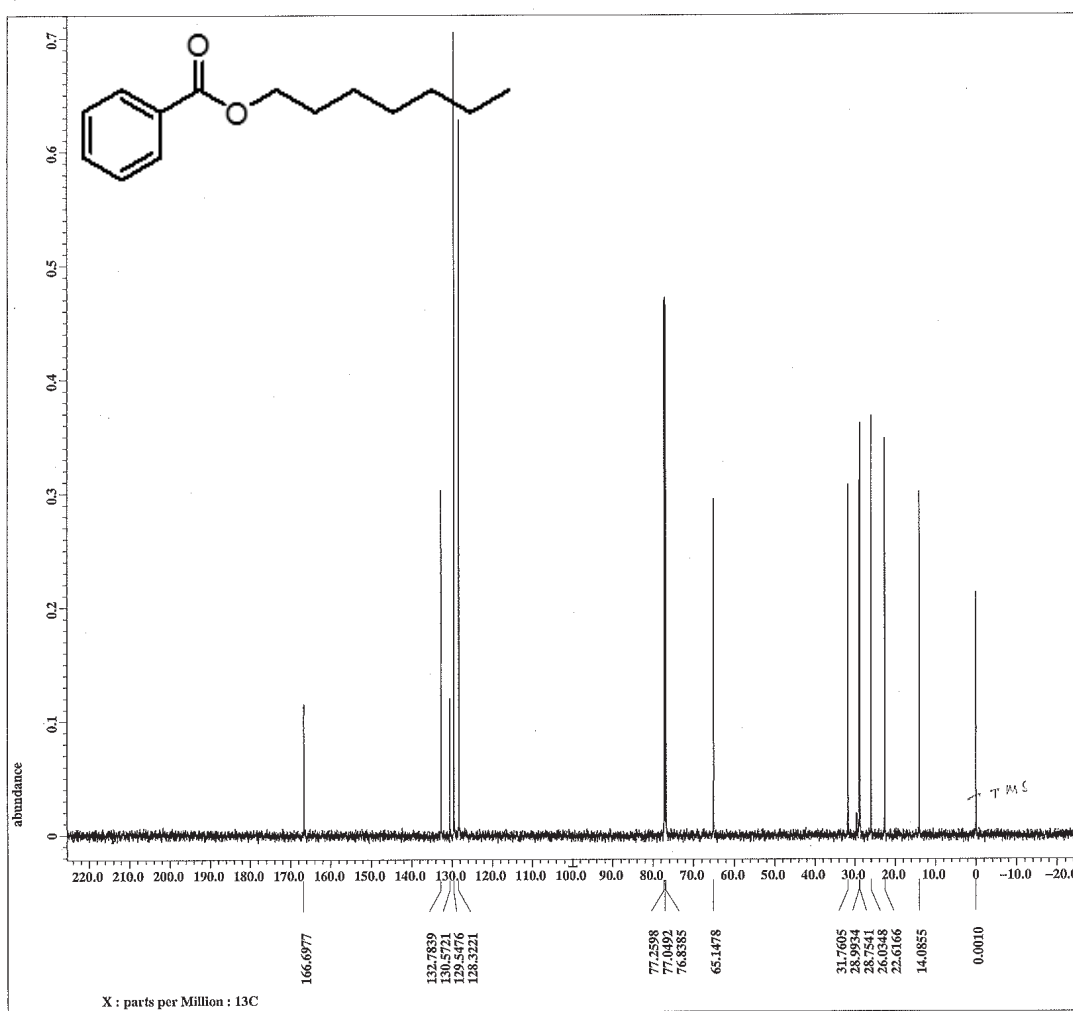
```

Filename      = Exp-hakim-184-2-proto
Author        = delta
Experiment    = single_pulse.ex2
Sample_id     = Exp-hakim-184-2-proto
Solvent       = CHLOROFORM-D
Creation_time = 10-JUN-2014 11:50:47
Revision_time = 10-JUN-2014 12:03:20
Current_time  = 10-JUN-2014 12:03:30

Content       = Exp-hakim-184-2-proto
Data_format   = 1D COMPLEX
Dim_size      = 13107
Dim_title     = 1H
Dim_units     = [ppm]
Dimensions    = X
Site          = ECA 600
Spectrometer  = DELTA2_NMR

Field_strength = 14.09636928[T] (600[M]
X_acq_duration = 1.4548992[s]
X_domain       = 1H
X_freq         = 600.1723046[MHz]
X_offset       = 5[ppm]
X_points       = 16384
X_prescans     = 1
X_resolution   = 0.68733284[Hz]
X_sweep        = 11.26126126[kHz]
Irr_domain     = 1H
Irr_freq       = 600.1723046[MHz]
Irr_offset     = 5[ppm]
Tri_domain     = 1H
Tri_freq       = 600.1723046[MHz]
Tri_offset     = 5[ppm]
Clipped        = FALSE
Mod_return     = 1
Scans          = 8
Total_scans    = 8

X_90_width    = 13[us]
X_acq_time     = 1.4548992[s]
X_angle        = 45[deg]
X_atn          = 3.6[dB]
X_pulse        = 6.5[us]
Irr_mode       = Off
Tri_mode       = Off
Dante_presat   = FALSE
Initial_wait   = 1[s]
Recvr_gain     = 36
Relaxation_delay = 5[s]
Repetition_time = 6.4548992[s]
Temp_get       = 22.7[dc]
  
```



**JEOL**

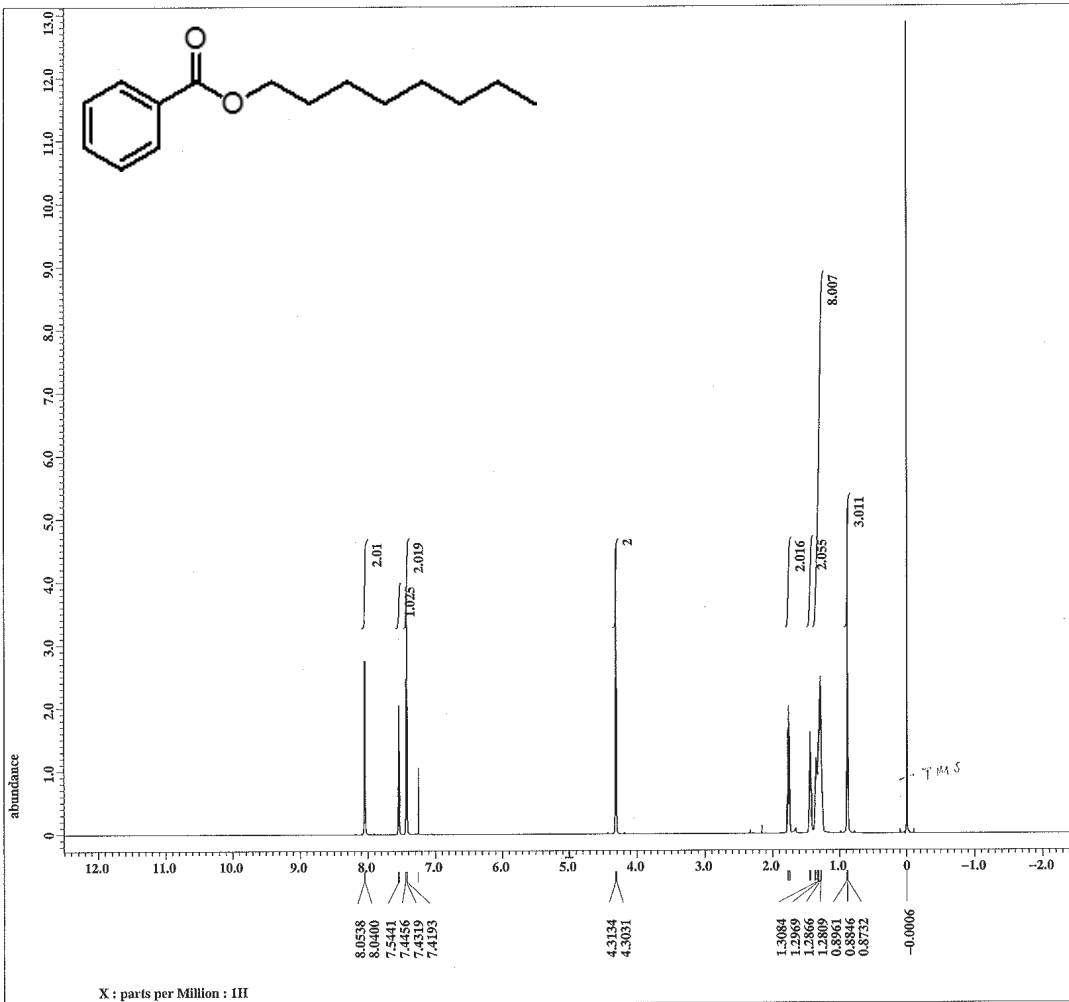
```

Filename      = Exp-hakim-184-2-carbo
Author        = delta
Experiment    = single_pulse_dec
Sample_id     = Exp-hakim-184-2-carbo
Solvent       = CHLOROFORM-D
Creation_time = 10-JUN-2014 11:57:46
Revision_time = 10-JUN-2014 12:05:08
Current_time  = 10-JUN-2014 12:05:36

Content       = Exp-hakim-184-2-carbo
Data_format   = 1D COMPLEX
Dim_size      = 26214
Dim_title     = 13C
Dim_units     = [ppm]
Dimensions    = X
Site          = ECA 600
Spectrometer  = DELTA2_NMR

Field_strength = 14.09636928[T] (600[M]
X_acq_duration = 0.69206016[s]
X_domain       = 13C
X_freq         = 150.91343039[MHz]
X_offset       = 100[ppm]
X_points       = 32768
X_prescans     = 4
X_resolution   = 1.44496109[Hz]
X_sweep        = 47.34848485[kHz]
Irr_domain     = 1H
Irr_freq       = 600.1723046[MHz]
Irr_offset     = 5[ppm]
Clipped        = FALSE
Mod_return     = 1
Scans          = 150
Total_scans    = 150

X_90_width    = 11.4[us]
X_acq_time     = 0.69206016[s]
X_angle        = 30[deg]
X_atn          = 7.5[dB]
X_pulse        = 3.8[us]
Irr_atn_dec    = 19.391[dB]
Irr_atn_noe    = 19.391[dB]
Irr_noise      = WALTZ
Decoupling     = TRUE
Initial_wait   = 1[s]
Noe            = TRUE
Noe_time       = 2[s]
Recvr_gain     = 50
Relaxation_delay = 2[s]
Repetition_time = 2.69206016[s]
Temp_get       = 23.2[dc]
  
```



**JEOL**

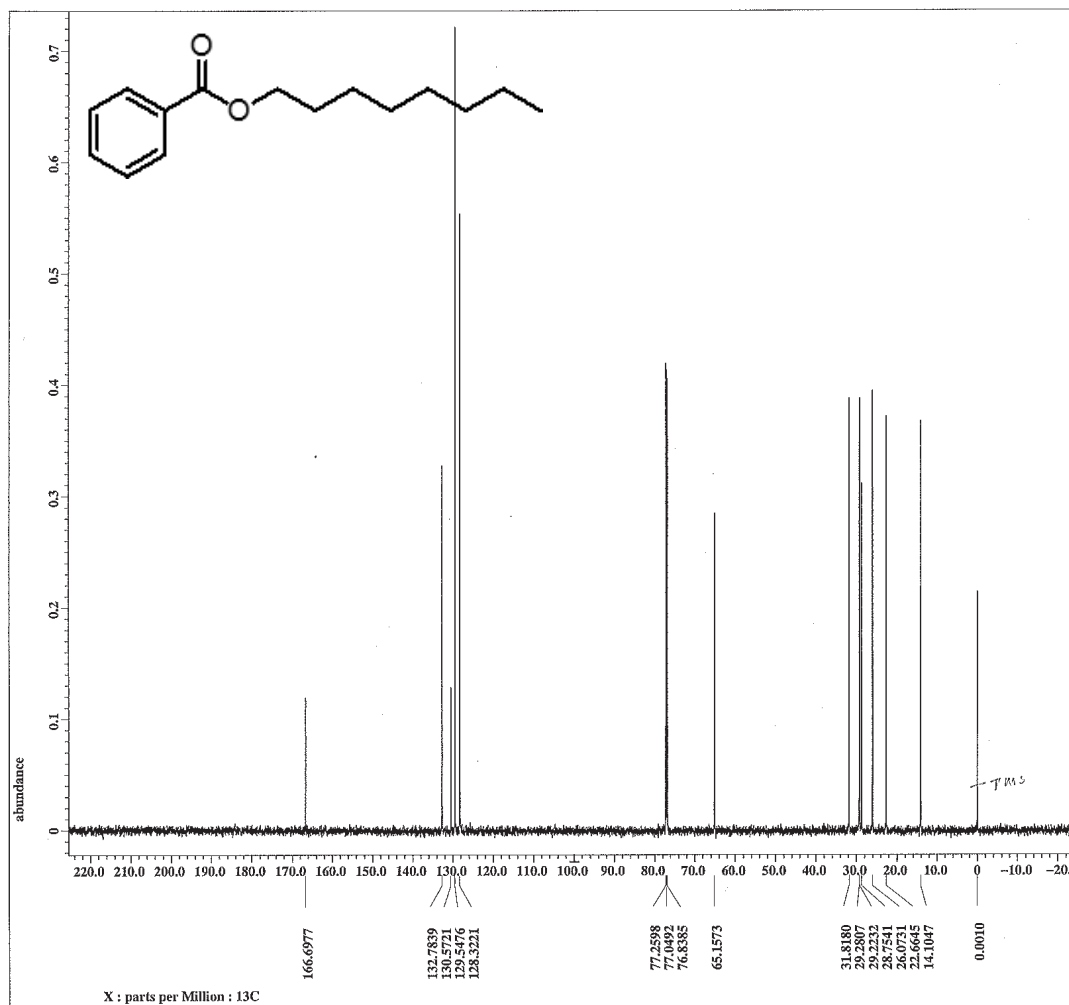
```

Filename      = Exp-hakim-115-16-prot
Author       = delta
Experiment   = single_pulse.ex2
Sample_id    = Exp-hakim-115-16-prot
Solvent      = CHLOROFORM-D
Creation_time = 10-JUN-2014 11:36:09
Revision_time = 10-JUN-2014 11:50:21
Current_time  = 10-JUN-2014 11:50:31

Content      = Exp-hakim-115-16-prot
Data_format  = 1D COMPLEX
Dim_size     = 13107
Dim_title    =
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928[T] (600[M]
X_acq_duration = 1.4548992[s]
X_domain      = 1H
X_freq       = 600.1723046[MHz]
X_offset     = 5[ppm]
X_points     = 16384
X_prescans   = 1
X_resolution = 0.68733284[Hz]
X_sweep      = 11.26126126[kHz]
Irr_domain   = 1H
Irr_freq     = 600.1723046[MHz]
Irr_offset   = 5[ppm]
Tri_domain   = 1H
Tri_freq     = 600.1723046[MHz]
Tri_offset   = 5[ppm]
Clipped      = FALSE
Mod_return   = 1
Scans        = 8
Total_scans  = 8

X_90_width   = 13[us]
X_acq_time   = 1.4548992[s]
X_angle      = 45[deg]
X_atn        = 3.6[db]
X_pulse      = 6.5[us]
Irr_mode     = Off
Tri_mode     = Off
Dante_preset = FALSE
Initial_wait = 1[s]
Recvr_gain   = 34
Relaxation_delay = 1[s]
Repetition_time = 6.4548992[s]
Temp_get     = 22.7[dc]
  
```



**JEOL**

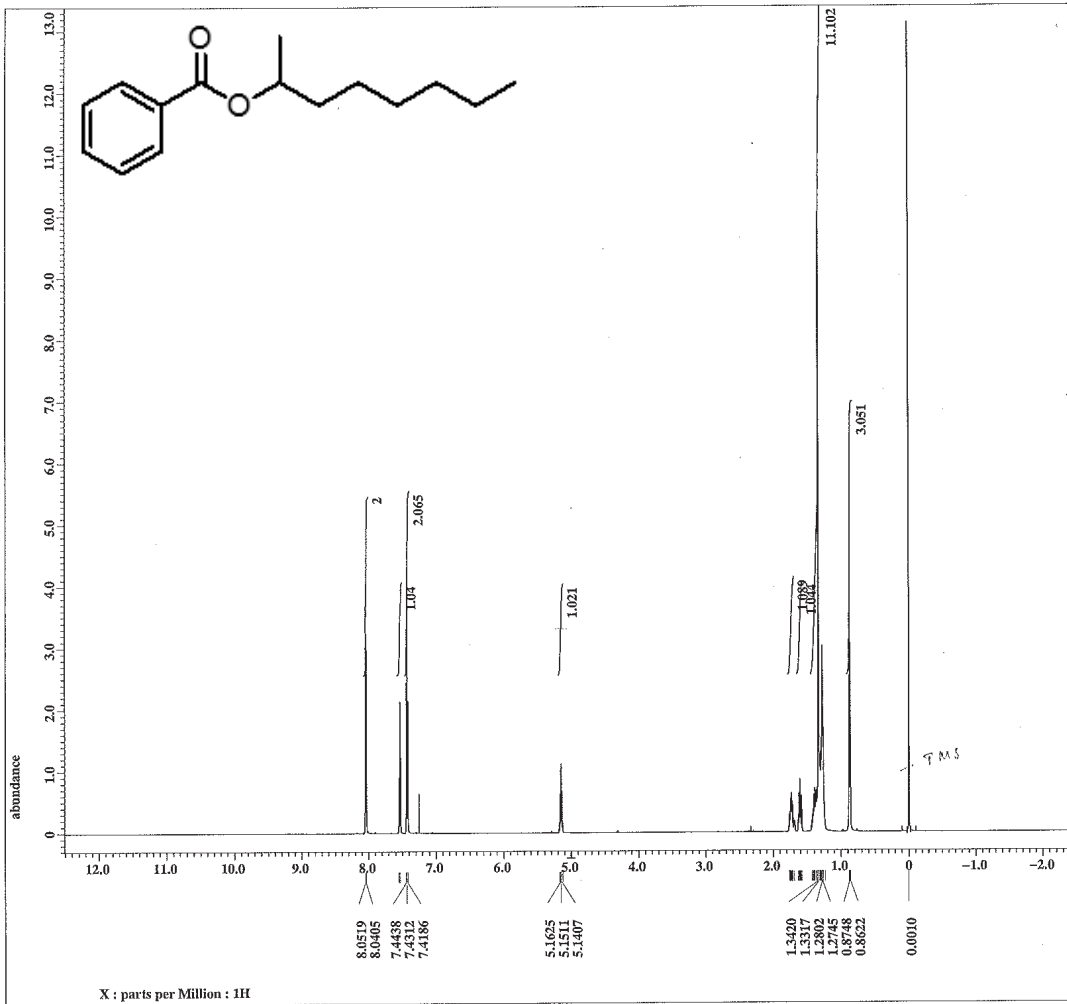
```

Filename      = Exp-hakim-115-16-carb
Author       = delta
Experiment   = single_pulse_dec
Sample_id    = Exp-hakim-115-16-carb
Solvent      = CHLOROFORM-D
Creation_time = 10-JUN-2014 11:44:43
Revision_time = 10-JUN-2014 11:53:13
Current_time  = 10-JUN-2014 11:53:19

Content      = Exp-hakim-115-16-carb
Data_format  = 1D COMPLEX
Dim_size     = 26214
Dim_title    = 13C
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928[T] (600[M]
X_acq_duration = 0.69206016[s]
X_domain      = 13C
X_freq       = 150.91343039[MHz]
X_offset     = 100[ppm]
X_points     = 32768
X_prescans   = 4
X_resolution = 1.44496109[Hz]
X_sweep      = 47.34848485[kHz]
Irr_domain   = 1H
Irr_freq     = 600.1723046[MHz]
Irr_offset   = 5[ppm]
Clipped      = FALSE
Mod_return   = 1
Scans        = 185
Total_scans  = 185

X_90_width   = 11.4[us]
X_acq_time   = 0.69206016[s]
X_angle      = 30[deg]
X_atn        = 7.5[db]
X_pulse      = 3.8[us]
Irr_atn_dec  = 19.391[db]
Irr_atn_noe  = 19.391[db]
Irr_noise    = TRUE
Decoupling   = TRUE
Initial_wait = 1[s]
Noe          = TRUE
Noe_time     = 2[s]
Recvr_gain   = 30
Relaxation_delay = 2[s]
Repetition_time = 2.69206016[s]
Temp_get     = 23.4[dc]
  
```



**JEOL**

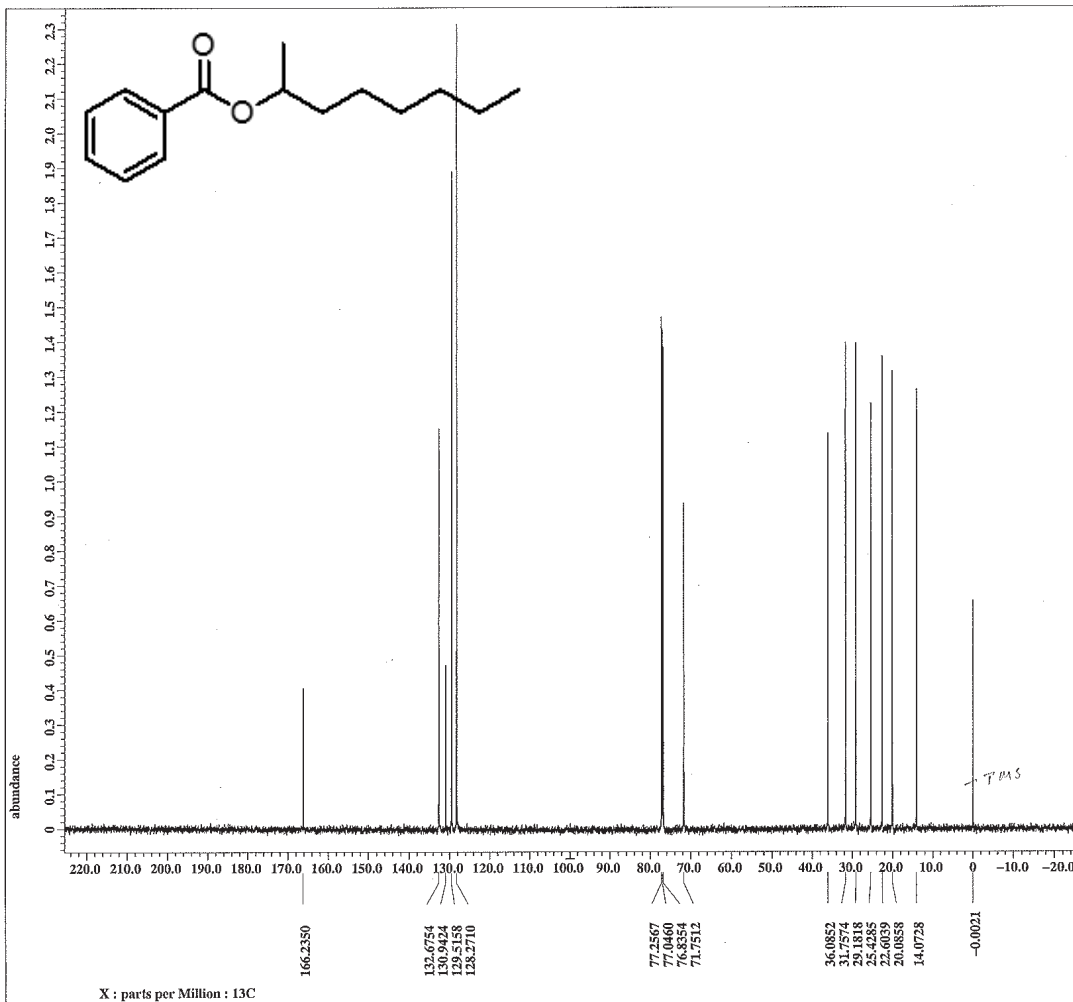
```

Filename      = Exp-hakim-115-17-prot
Author       = delta
Experiment   = single_pulse.ex2
Sample_id    = Exp-hakim-115-17-prot
Solvent      = CHLOROFORM-D
Creation_time = 24-JUN-2014 09:34:20
Revision_time = 24-JUN-2014 09:53:23
Current_time  = 24-JUN-2014 09:53:41

Content       = Exp-hakim-115-17-prot
Data_format  = 1D COMPLEX
Dim_size     = 13107
Dim_title    = 1H
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928[T] (600[M]
X_acq_duration = 1.4548992[s]
X_domain      = 1H
X_freq       = 600.1723046[MHz]
X_offset     = 5[ppm]
X_points     = 16394
X_prescans   = 1
X_resolution = 0.68733284[Hz]
X_sweep     = 11.26126126[kHz]
Irr_domain   = 1H
Irr_freq     = 600.1723046[MHz]
Irr_offset   = 5[ppm]
Tri_domain   = 1H
Tri_freq     = 600.1723046[MHz]
Tri_offset   = 5[ppm]
Clipped      = FALSE
Mod_return   = 1
Scans        = 8
Total_scans  = 8

X_90_width   = 13[us]
X_acq_time   = 1.4548992[s]
X_angle      = 45[deg]
X_atn        = 3.6[dB]
X_pulse     = 5[us]
Irr_mode     = Off
Tri_mode     = Off
Dante_preset = FALSE
Initial_wait = 1[s]
Recvr_gain   = 34
Relaxation_delay = 5[s]
Repetition_time = 6.4548992[s]
Temp_get     = 20.8[degC]
  
```



**JEOL**

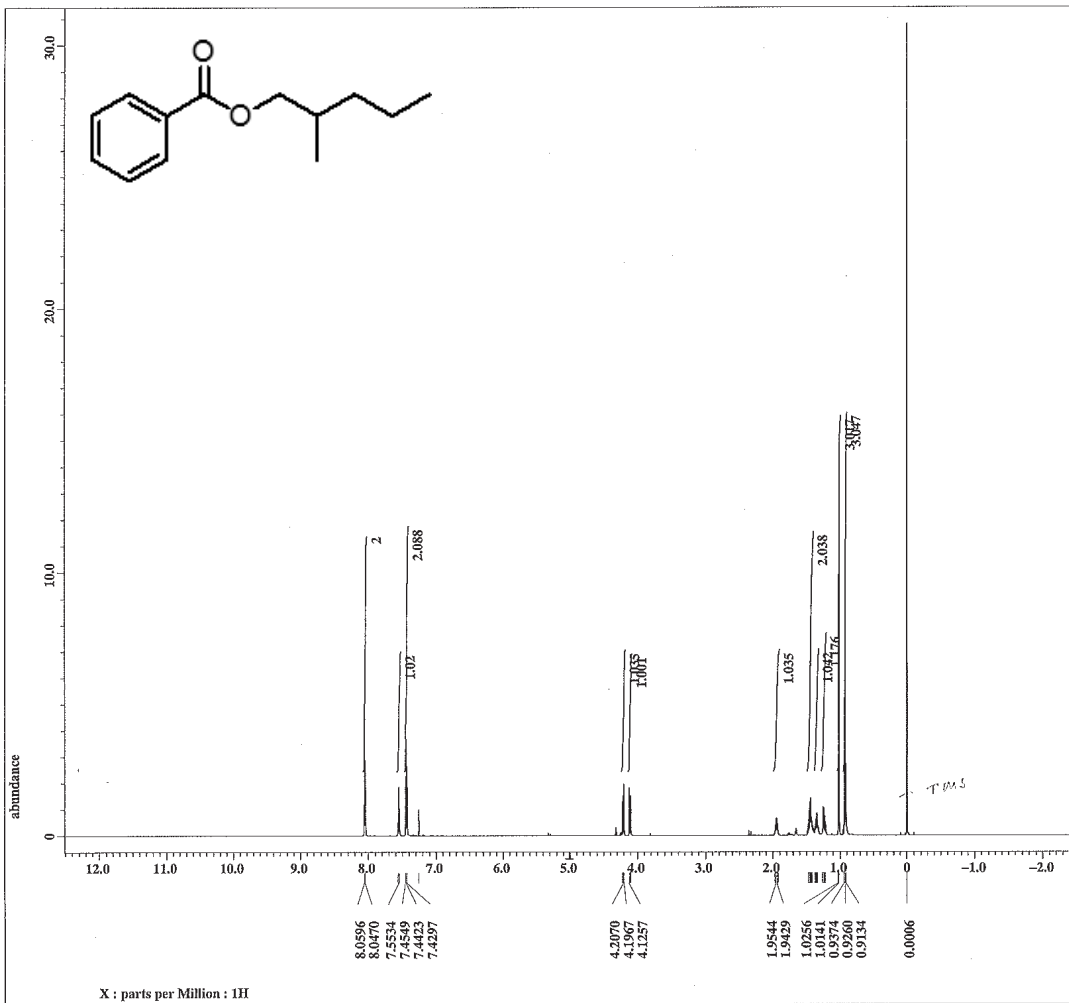
```

Filename      = Exp-hakim-115-17-carb
Author       = delta
Experiment   = single_pulse.dec
Sample_id    = Exp-hakim-115-17-carb
Solvent      = CHLOROFORM-D
Creation_time = 24-JUN-2014 09:47:15
Revision_time = 24-JUN-2014 09:56:52
Current_time  = 24-JUN-2014 09:57:17

Content       = Exp-hakim-115-17-carb
Data_format  = 1D COMPLEX
Dim_size     = 26214
Dim_title    = 13C
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928[T] (600[M]
X_acq_duration = 0.69206016[s]
X_domain      = 13C
X_freq       = 150.91343039[MHz]
X_offset     = 100[ppm]
X_points     = 32768
X_prescans   = 4
X_resolution = 1.44496109[Hz]
X_sweep     = 47.34848485[kHz]
Irr_domain   = 1H
Irr_freq     = 600.1723046[MHz]
Irr_offset   = 5[ppm]
Clipped      = FALSE
Mod_return   = 1
Scans        = 272
Total_scans  = 272

X_90_width   = 11.4[us]
X_acq_time   = 0.69206016[s]
X_angle      = 30[deg]
X_atn        = 7.5[dB]
X_pulse     = 3.8[us]
Irr_atn_dec  = 19.391[dB]
Irr_atn_noe  = 19.391[dB]
Irr_noise    = WALTZ
Decoupling   = TRUE
Initial_wait = 1[s]
Noe          = TRUE
Noe_time     = 2[s]
Recvr_gain   = 60
Relaxation_delay = 2[s]
Repetition_time = 2.69206016[s]
Temp_get     = 21.7[degC]
  
```



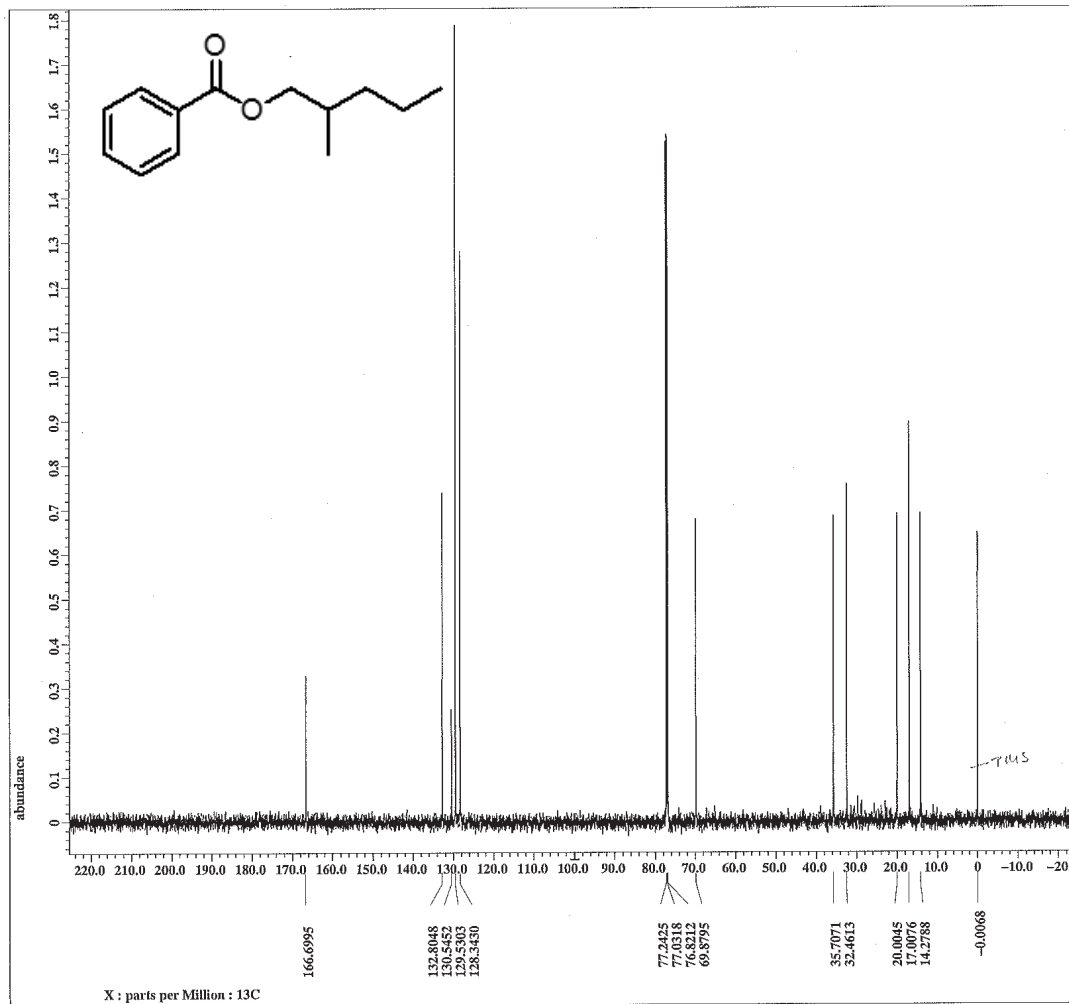
```

Filename      = Exp-hakim-115-24-prot
Author        = delta
Experiment    = single_pulse_ex2
Sample_id     = Exp-hakim-115-24-prot
Solvent       = CHLOROFORM-D
Creation_time = 24-JUN-2014 09:53:04
Revision_time = 24-JUN-2014 10:04:30
Current_time  = 24-JUN-2014 10:04:38

Content       = Exp-hakim-115-24-prot
Data_format  = 1D COMPLEX
Dim_size     = 13107
Dim_title    = 1H
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928[T] (600[M]
X_acq_duration = 1.4548992[s]
X_domain       = 1H
X_freq        = 600.1723046[MHz]
X_offset      = 5 [ppm]
X_points      = 16384
X_prescans    = 1
X_resolution  = 0.68733284 [Hz]
X_sweep       = 11.26126126 [kHz]
Irr_domain    = 1H
Irr_freq      = 600.1723046[MHz]
Irr_offset    = 5 [ppm]
Tri_domain    = 1H
Tri_freq      = 600.1723046[MHz]
Tri_offset    = 5 [ppm]
Clipped       = FALSE
Mod_return    = 1
Scans         = 8
Total_scans   = 8

X_90_width   = 13 [us]
X_acq_time   = 1.4548992[s]
X_angle      = 45 [deg]
X_atn        = 3.6 [dB]
X_pulse      = 6.5 [us]
Irr_mode     = Off
Tri_mode     = Off
Dante_preset = FALSE
Initial_wait = 1 [s]
Recvr_gain   = 36
Relaxation_delay = 5 [s]
Repetition_time = 6.4548992 [s]
Temp_get     = 21 [dC]
  
```



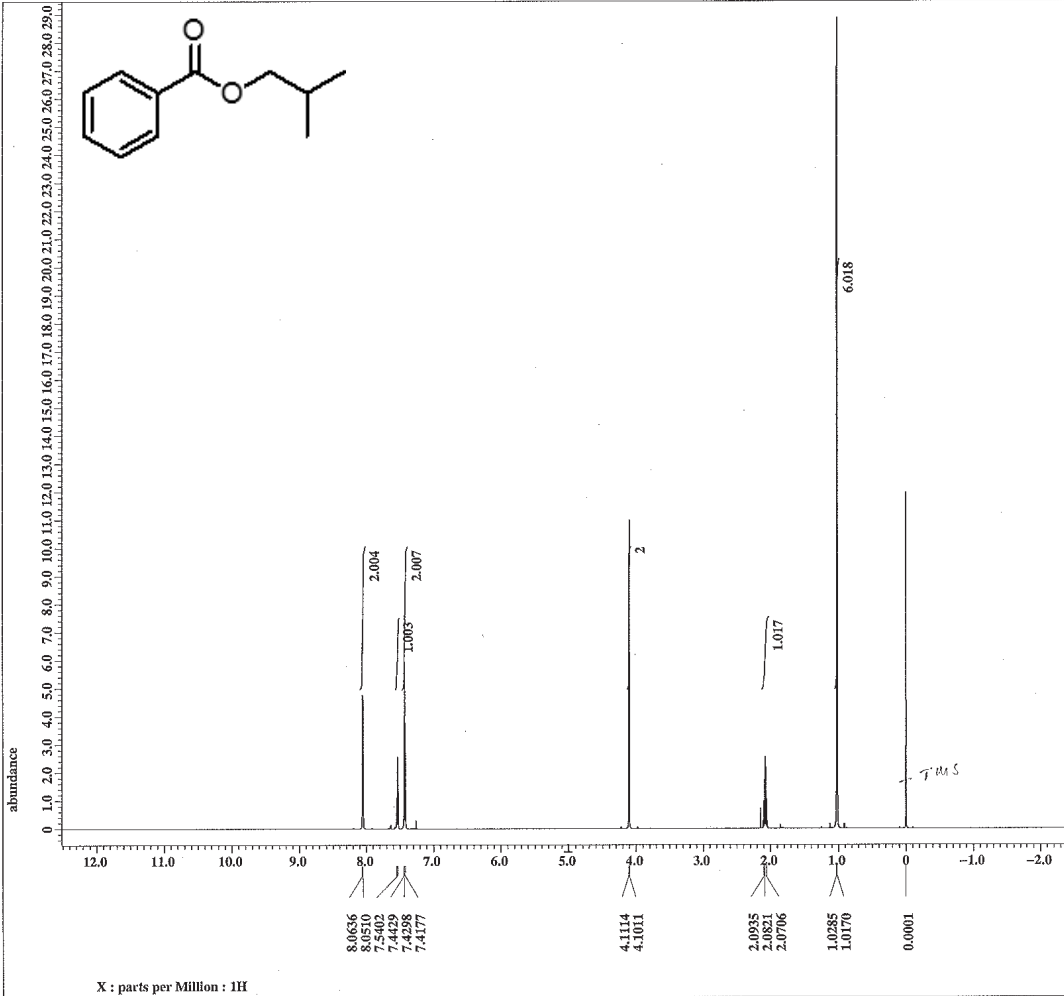
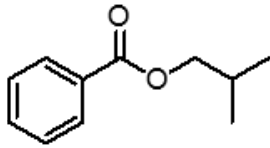
```

Filename      = Exp-hakim-115-24-carb
Author        = delta
Experiment    = single_pulse_dec
Sample_id     = Exp-hakim-115-24-carb
Solvent       = CHLOROFORM-D
Creation_time = 24-JUN-2014 09:58:14
Revision_time = 24-JUN-2014 10:06:09
Current_time  = 24-JUN-2014 10:06:19

Content       = Exp-hakim-115-24-carb
Data_format  = 1D COMPLEX
Dim_size     = 26214
Dim_title    = 13C
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928[T] (600[M]
X_acq_duration = 0.69206016[s]
X_domain       = 13C
X_freq        = 150.91343039 [MHz]
X_offset      = 100 [ppm]
X_points      = 32768
X_prescans    = 4
X_resolution  = 1.44496109 [Hz]
X_sweep       = 47.34848485 [kHz]
Irr_domain    = 1H
Irr_freq      = 600.1723046 [MHz]
Irr_offset    = 5 [ppm]
Clipped       = FALSE
Mod_return    = 1
Scans         = 99
Total_scans   = 99

X_90_width   = 11.4 [us]
X_acq_time   = 0.69206016[s]
X_angle      = 30 [deg]
X_atn        = 7.5 [dB]
X_pulse      = 3.8 [us]
Irr_atn_dec  = 19.391 [dB]
Irr_atn_noe  = 19.391 [dB]
Tri_noise    = NMRZ
Decoupling   = TRUE
Initial_wait = 1 [s]
Noe          = TRUE
Noe_time     = 2 [s]
Recvr_gain   = 50
Relaxation_delay = 2 [s]
Repetition_time = 2.69206016 [s]
Temp_get     = 21.5 [dC]
  
```



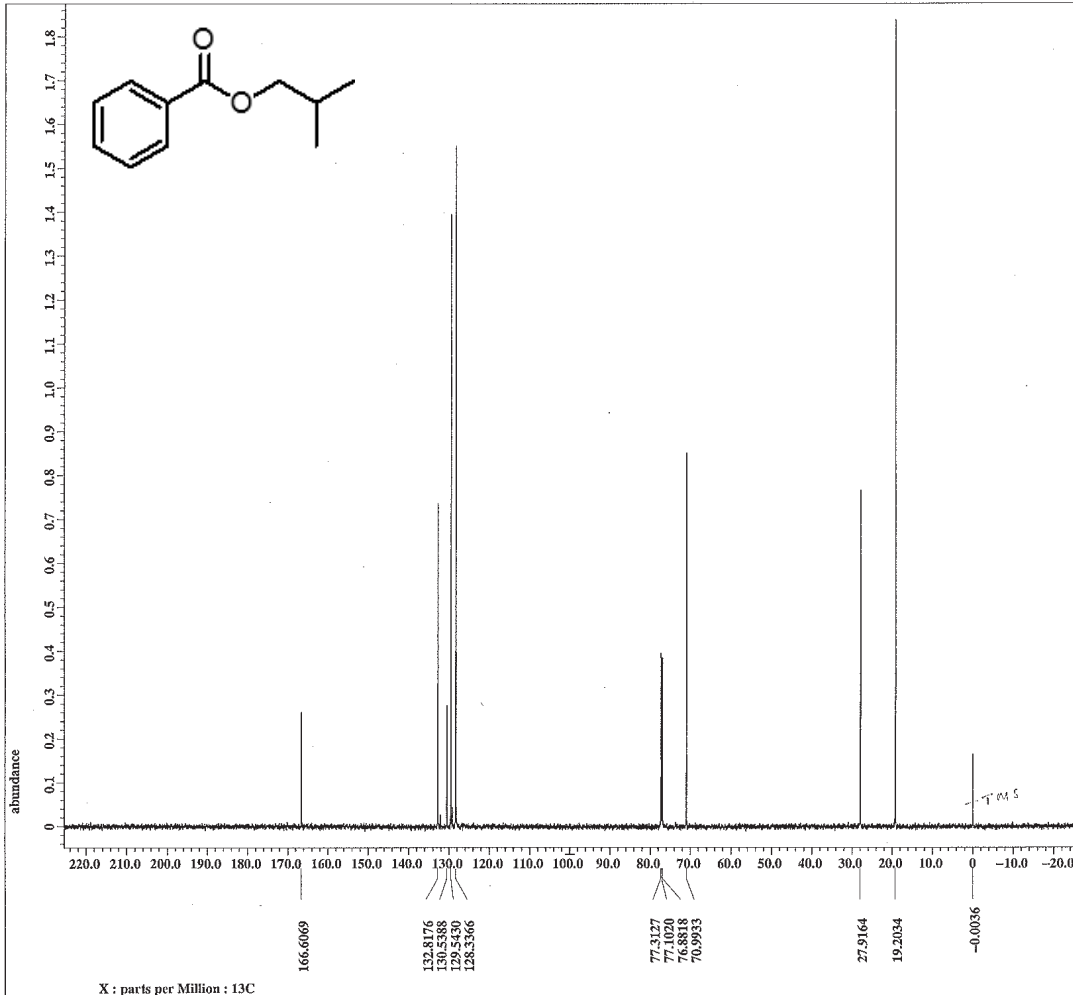
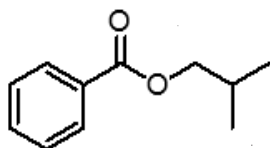
```

Filename      = Exp-hakim-315-1-proto
Author        = delta
Experiment    = single_pulse.ex2
Sample_id     = Exp-hakim-315-1-proto
Solvent       = CHLOROFORM-D
Creation_time = 17-JUN-2014 16:40:46
Revision_time = 17-JUN-2014 16:49:24
Current_time  = 17-JUN-2014 16:49:33

Content       = Exp-hakim-315-1-proto
Data_format  = 1D COMPLEX
Dim_size     = 13107
Dim_title    = 1H
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928[T] (600[M]
X_acq_duration = 1.4548992[s]
X_domain       = 1H
X_freq         = 600.1723046[MHz]
X_offset       = 5[ppm]
X_points       = 16384
X_prescans     = 1
X_resolution   = 0.68733284[Hz]
X_sweep        = 11.26126126[kHz]
Irr_domain     = 1H
Irr_freq       = 600.1723046[MHz]
Irr_offset     = 5[ppm]
Tri_domain     = 1H
Tri_freq       = 600.1723046[MHz]
Tri_offset     = 5[ppm]
Clipped        = FALSE
Mod_return     = 1
Scans          = 8
Total_scans    = 8

X_90_width    = 13[us]
X_acq_time    = 1.4548992[s]
X_angle       = 45[deg]
X_atn         = 3.6[db]
X_pulse       = 6.5[us]
Irr_mode      = Off
Tri_mode      = Off
Dante_preset  = FALSE
Initial_wait  = 1[s]
Recvr_gain    = 30
Relaxation_delay = 5[s]
Repetition_time = 6.4548992[s]
Temp_get      = 21[dc]
  
```



```

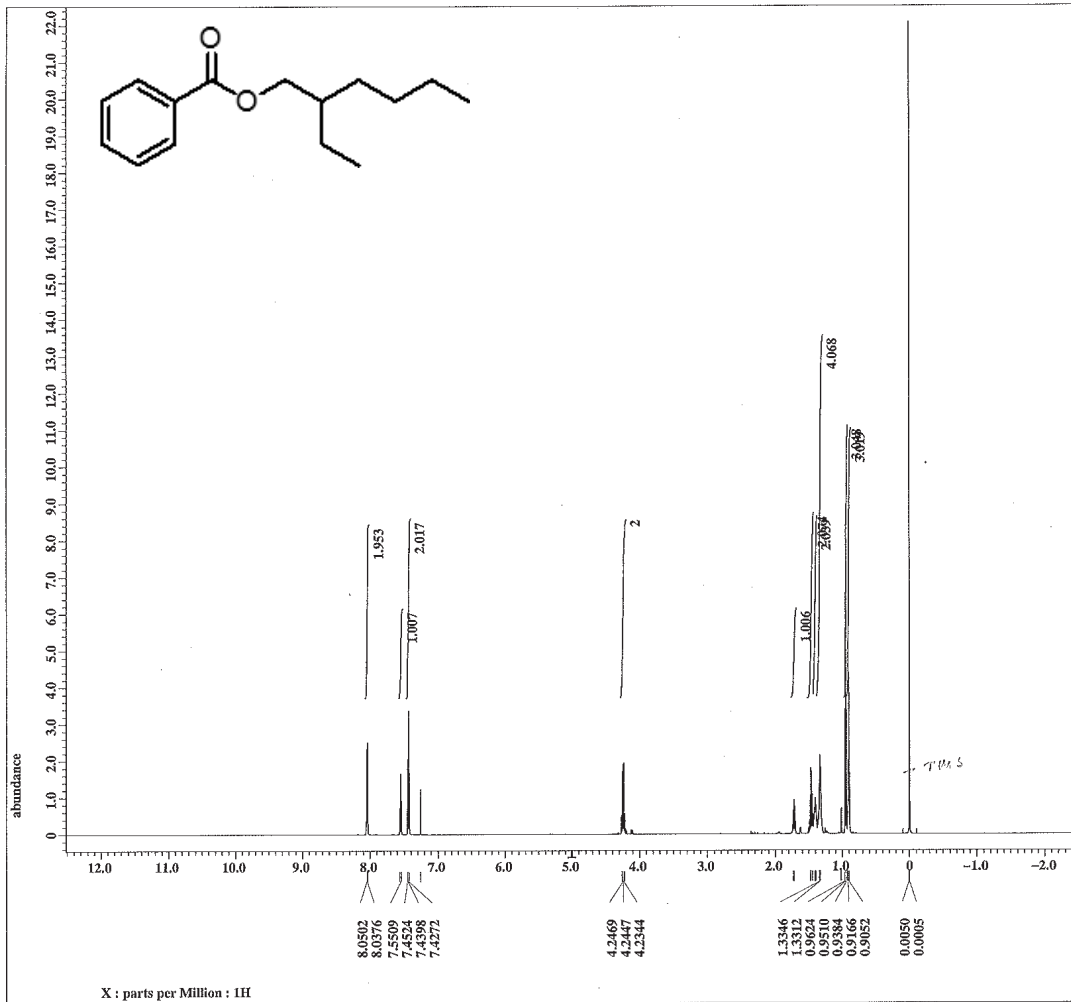
Filename      = Exp-hakim-315-1-carbo
Author        = delta
Experiment    = single_pulse.doc
Sample_id     = Exp-hakim-315-1-carbo
Solvent       = CHLOROFORM-D
Creation_time = 17-JUN-2014 16:44:39
Revision_time = 17-JUN-2014 16:52:27
Current_time  = 17-JUN-2014 16:52:36

Content       = Exp-hakim-315-1-carbo
Data_format  = 1D COMPLEX
Dim_size     = 26214
Dim_title    = 13C
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928[T] (600[M]
X_acq_duration = 0.69206016[s]
X_domain       = 13C
X_freq         = 150.91343039[MHz]
X_offset       = 100[ppm]
X_points       = 32768
X_prescans     = 4
X_resolution   = 1.44496109[Hz]
X_sweep        = 47.34848485[kHz]
Irr_domain     = 13C
Irr_freq       = 600.1723046[MHz]
Irr_offset     = 5[ppm]
Clipped        = FALSE
Mod_return     = 1
Scans          = 81
Total_scans    = 81

X_90_width    = 11.4[us]
X_acq_time    = 0.69206016[s]
X_angle       = 30[deg]
X_atn         = 7.5[db]
X_pulse       = 3.8[us]
Irr_atn_dec   = 19.391[db]
Irr_atn_noe   = 19.391[db]
Irr_noise     = WALTZ
Decoupling    = TRUE
Initial_wait  = 1[s]
Noe           = TRUE
Noe_time      = 2[s]
Recvr_gain    = 50
Relaxation_delay = 2[s]
Repetition_time = 2.69206016[s]
Temp_get      = 21.7[dc]
  
```





**JEOL**

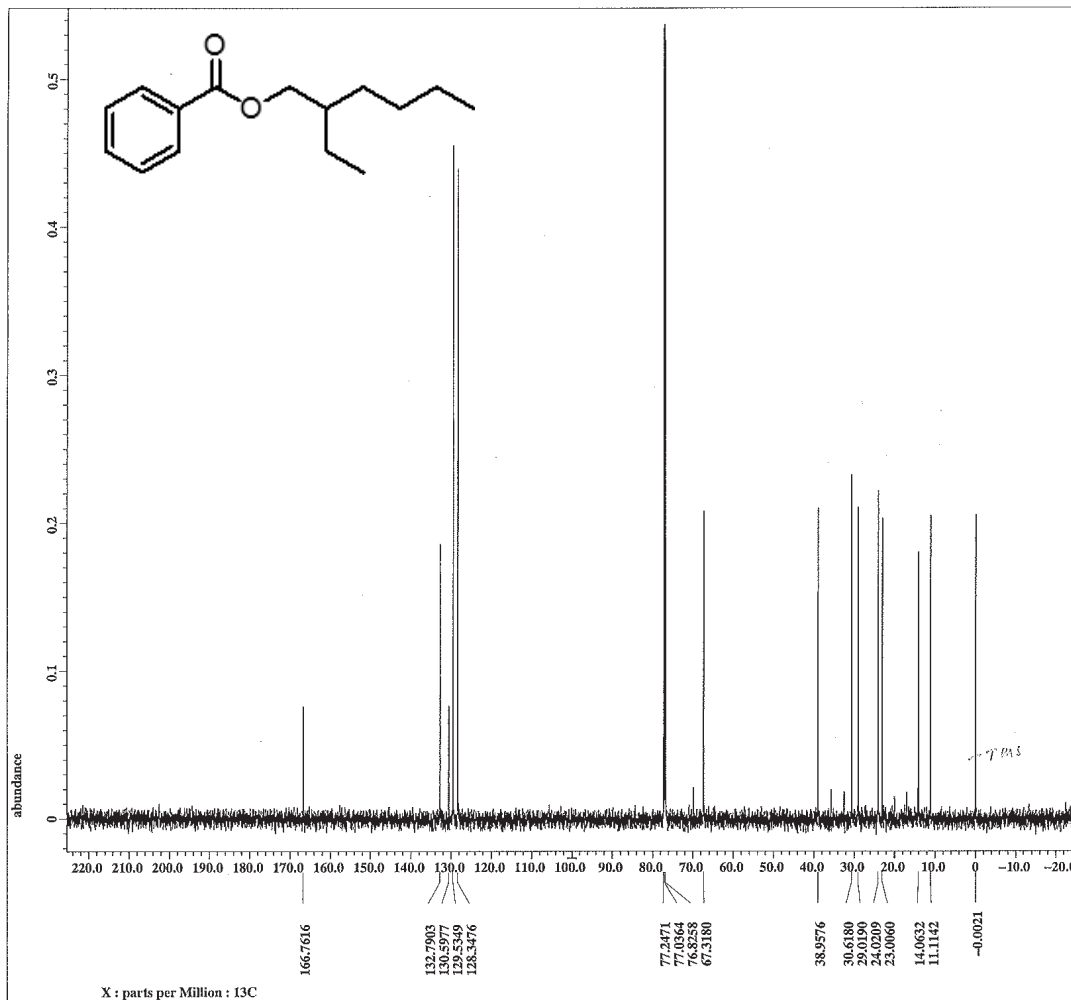
```

Filename      = Exp-hakim-115-25-prot
Author       = delta
Experiment   = single_pulse.ex2
Sample_id    = Exp-hakim-115-25-prot
Solvent      = CHLOROFORM-D
Creation_time = 11-JUN-2014 12:39:07
Revision_time = 11-JUN-2014 12:47:42
Current_time  = 11-JUN-2014 12:48:05

Content      = Exp-hakim-115-25-prot
Data_format  = 1D COMPLEX
Dim_size     = 13107
Dim_title    = 1H
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928 [T] (600[M]
X_acq_duration = 1.4548992 [s]
X_domain       = 1H
X_freq         = 600.1723046 [MHz]
X_offset       = 5 [ppm]
X_points       = 16384
X_prescans     = 1
X_resolution   = 0.68733284 [Hz]
X_sweep        = 11.26126126 [kHz]
Irr_domain     = 1H
Irr_freq       = 600.1723046 [MHz]
Irr_offset     = 5 [ppm]
Tri_domain     = 1H
Tri_freq       = 600.1723046 [MHz]
Tri_offset     = 5 [ppm]
Clipped       = FALSE
Mod_return     = 1
Scans         = 8
Total_scans    = 8

X_90_width    = 13 [us]
X_acq_time     = 1.4548992 [s]
X_angle        = 45 [deg]
X_atn          = 3.6 [dB]
X_pulse        = 6.5 [us]
Irr_mode       = Off
Tri_mode       = Off
Dante_preset  = FALSE
Initial_wait   = 1 [s]
Recvr_gain     = 36
Relaxation_delay = 5 [s]
Repetition_time = 6.4548992 [s]
Temp_get       = 22.7 [dC]
  
```



**JEOL**

```

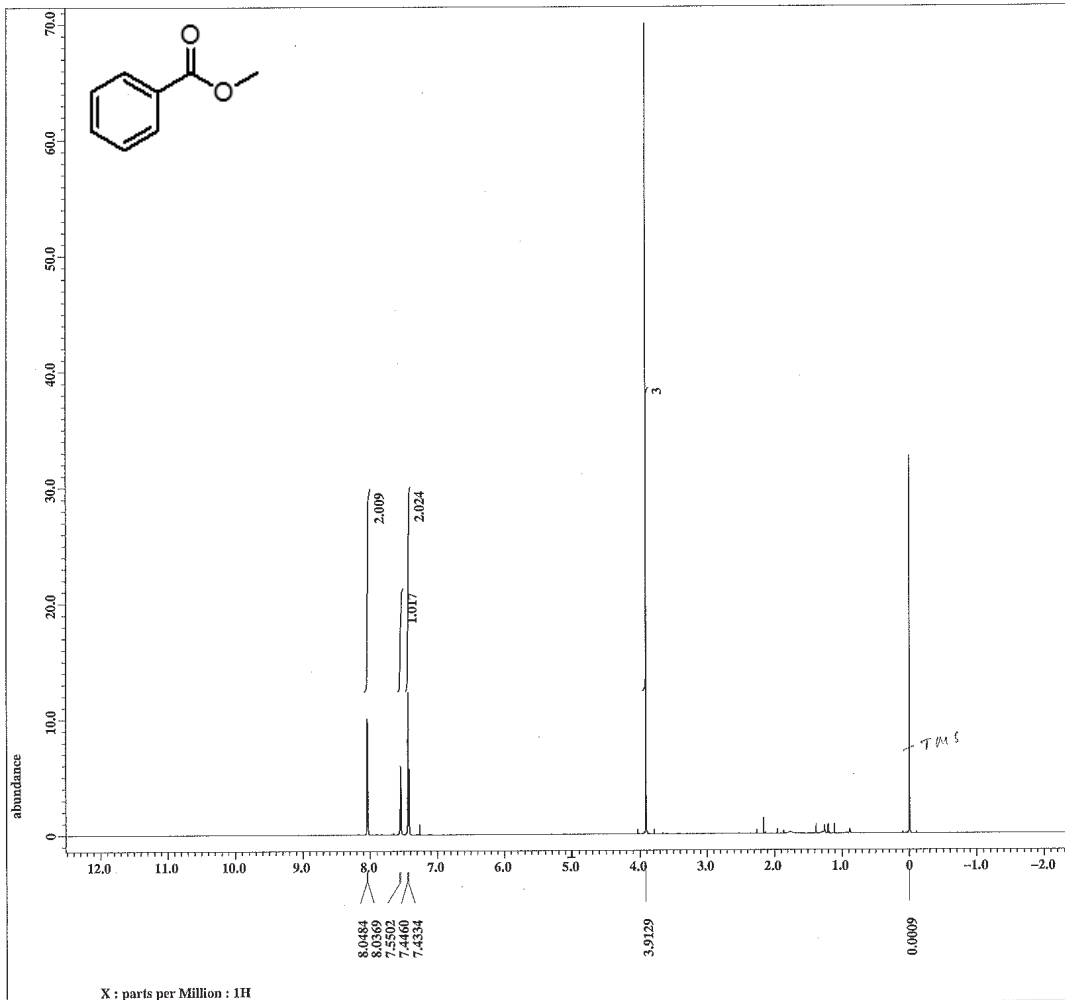
Filename      = Exp-hakim-115-25-carb
Author       = delta
Experiment   = single_pulse_dec
Sample_id    = Exp-hakim-115-25-carb
Solvent      = CHLOROFORM-D
Creation_time = 11-JUN-2014 12:42:45
Revision_time = 11-JUN-2014 12:51:19
Current_time  = 11-JUN-2014 12:51:24

Content      = Exp-hakim-115-25-carb
Data_format  = 1D COMPLEX
Dim_size     = 26214
Dim_title    = 13C
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928 [T] (600[M]
X_acq_duration = 0.69206016 [s]
X_domain       = 13C
X_freq         = 150.91343039 [MHz]
X_offset       = 100 [ppm]
X_points       = 32768
X_prescans     = 4
X_resolution   = 1.44496109 [Hz]
X_sweep        = 47.34848485 [kHz]
Irr_domain     = 1H
Irr_freq       = 600.1723046 [MHz]
Irr_offset     = 5 [ppm]
Clipped       = FALSE
Mod_return     = 1
Scans         = 75
Total_scans    = 75

X_90_width    = 11.4 [us]
X_acq_time     = 0.69206016 [s]
X_angle        = 30 [deg]
X_atn          = 7.5 [dB]
X_pulse        = 3.8 [us]
Irr_atn_dec   = 19.391 [dB]
Irr_atn_noe   = 19.391 [dB]
Irr_noise     = WALTZ
Decoupling     = TRUE
Initial_wait   = 1 [s]
Noe            = TRUE
Noe_time       = 2 [s]
Recvr_gain     = 50
Relaxation_delay = 2 [s]
Repetition_time = 2.69206016 [s]
Temp_get       = 23.2 [dC]
  
```





**JEOL**

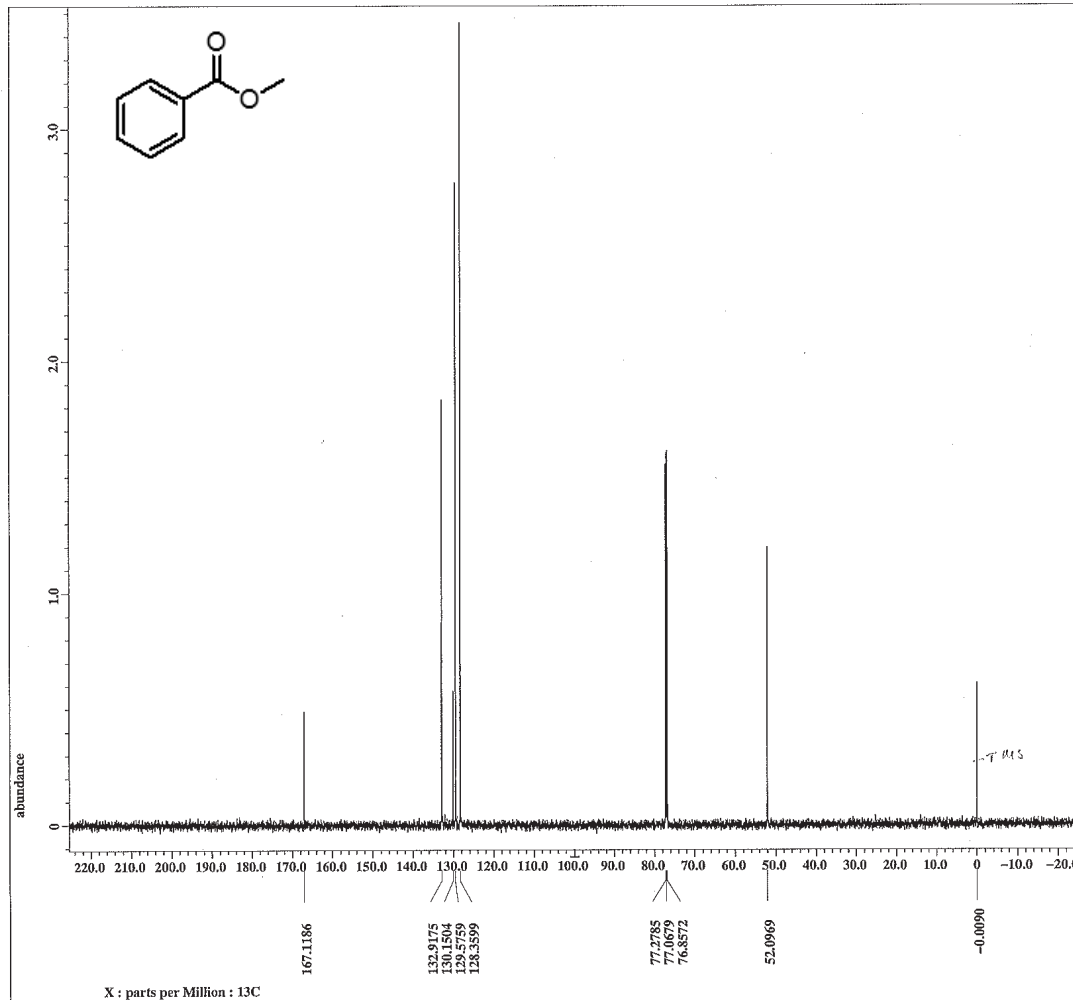
```

Filename      = Exp-AB-119-1a-proton-
Author        = delta
Experiment    = single_pulse.ex2
Sample_id     = Exp-AB-119-1a-proton
Solvent       = CHLOROFORM-D
Creation_time = 19-JUN-2014 10:15:15
Revision_time = 19-JUN-2014 10:23:58
Current_time  = 19-JUN-2014 10:24:05

Content       = Exp-AB-119-1a-proton
Data_format   = 1D COMPLEX
Dim_size      = 13107
Dim_title     = 1H
Dim_units     = [ppm]
Dimensions    = X
Site          = ECA 600
Spectrometer  = DELTA2_NMR

Field_strength = 14.09636928[T] (600[M]
X_acq_duration = 1.4548992[s]
X_domain       = 1H
X_freq         = 600.1723046[MHz]
X_offset       = 5[ppm]
X_points       = 16384
X_prescans     = 1
X_resolution   = 0.68733284[Hz]
X_sweep        = 11.26126126[kHz]
Irr_domain     = 1H
Irr_freq       = 600.1723046[MHz]
Irr_offset     = 5[ppm]
Tri_domain     = 1H
Tri_freq       = 600.1723046[MHz]
Tri_offset     = 5[ppm]
Clipped        = FALSE
Mod_return     = 1
Scans          = 8
Total_scans    = 8

X_90_width    = 13[us]
X_acq_time     = 1.4548992[s]
X_angle        = 45[deg]
X_atn          = 3.6[db]
X_pulse        = 6.5[us]
Irr_mode       = Off
Tri_mode       = Off
Dante_presat   = FALSE
Initial_wait   = 1[s]
Recvr_gain     = 40
Relaxation_delay = 5[s]
Repetition_time = 6.4548992[s]
Temp_get       = 20.8[dc]
  
```



**JEOL**

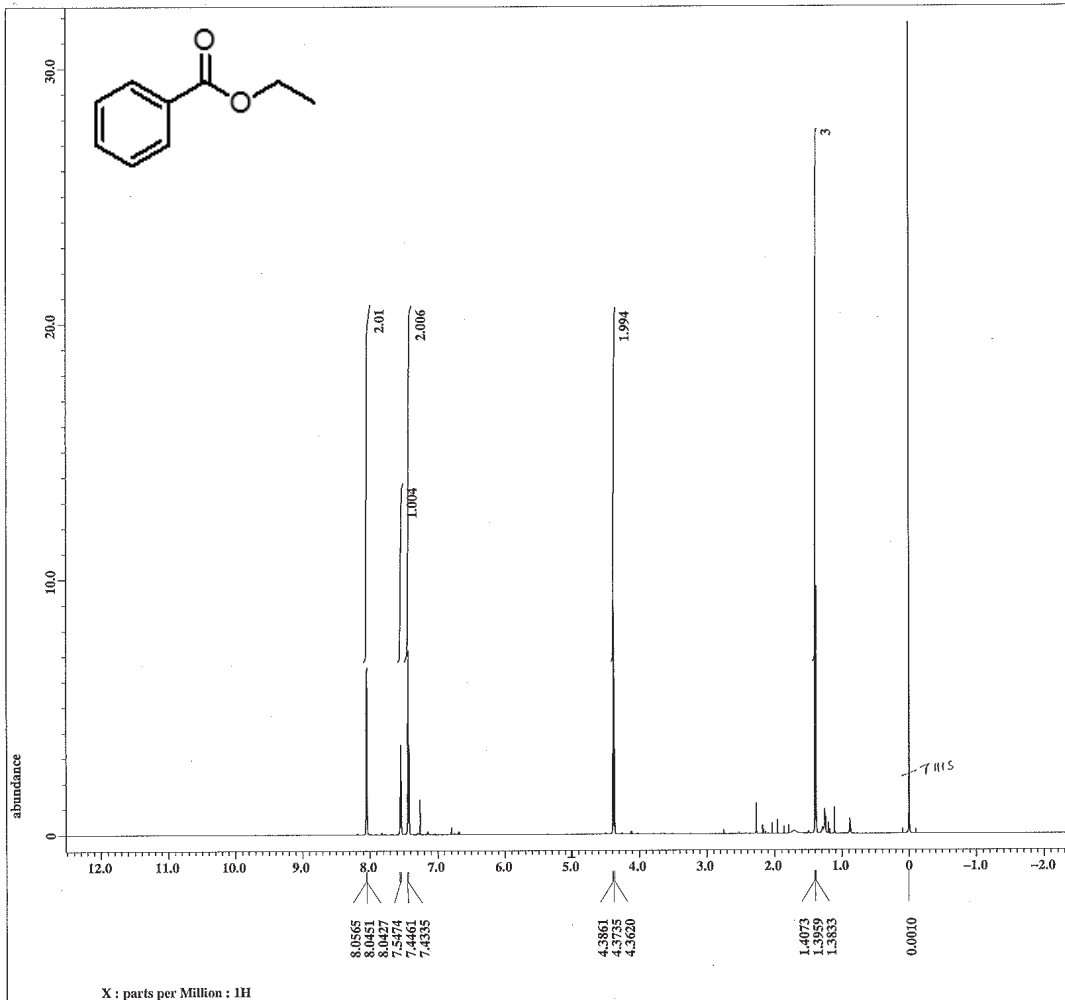
```

Filename      = Exp-AB-119-1a-carbon-
Author        = delta
Experiment    = single_pulse_dec
Sample_id     = Exp-AB-119-1a-carbon
Solvent       = CHLOROFORM-D
Creation_time = 19-JUN-2014 10:19:59
Revision_time = 19-JUN-2014 10:28:59
Current_time  = 19-JUN-2014 10:29:10

Content       = Exp-AB-119-1a-carbon
Data_format   = 1D COMPLEX
Dim_size      = 26214
Dim_title     = 13C
Dim_units     = [ppm]
Dimensions    = X
Site          = ECA 600
Spectrometer  = DELTA2_NMR

Field_strength = 14.09636928[T] (600[M]
X_acq_duration = 0.69206016[s]
X_domain       = 13C
X_freq         = 150.91343039[MHz]
X_offset       = 100[ppm]
X_points       = 32768
X_prescans     = 4
X_resolution   = 1.44496109[Hz]
X_sweep        = 47.34848485[kHz]
Irr_domain     = 1H
Irr_freq       = 600.1723046[MHz]
Irr_offset     = 5[ppm]
Clipped        = FALSE
Mod_return     = 1
Scans          = 74
Total_scans    = 74

X_90_width    = 11.4[us]
X_acq_time     = 0.69206016[s]
X_angle        = 30[deg]
X_atn          = 7.5[db]
X_pulse        = 3.8[us]
Irr_atn_dec    = 19.391[db]
Irr_atn_noe    = 19.391[db]
Irr_noise      = WALTZ16
Decoupling     = TRUE
Initial_wait   = 1[s]
Noe_time       = TRUE
Noe_time       = 2.5[s]
Recvr_gain     = 60
Relaxation_delay = 2.5[s]
Repetition_time = 3.19206016[s]
Temp_get       = 21.2[dc]
  
```



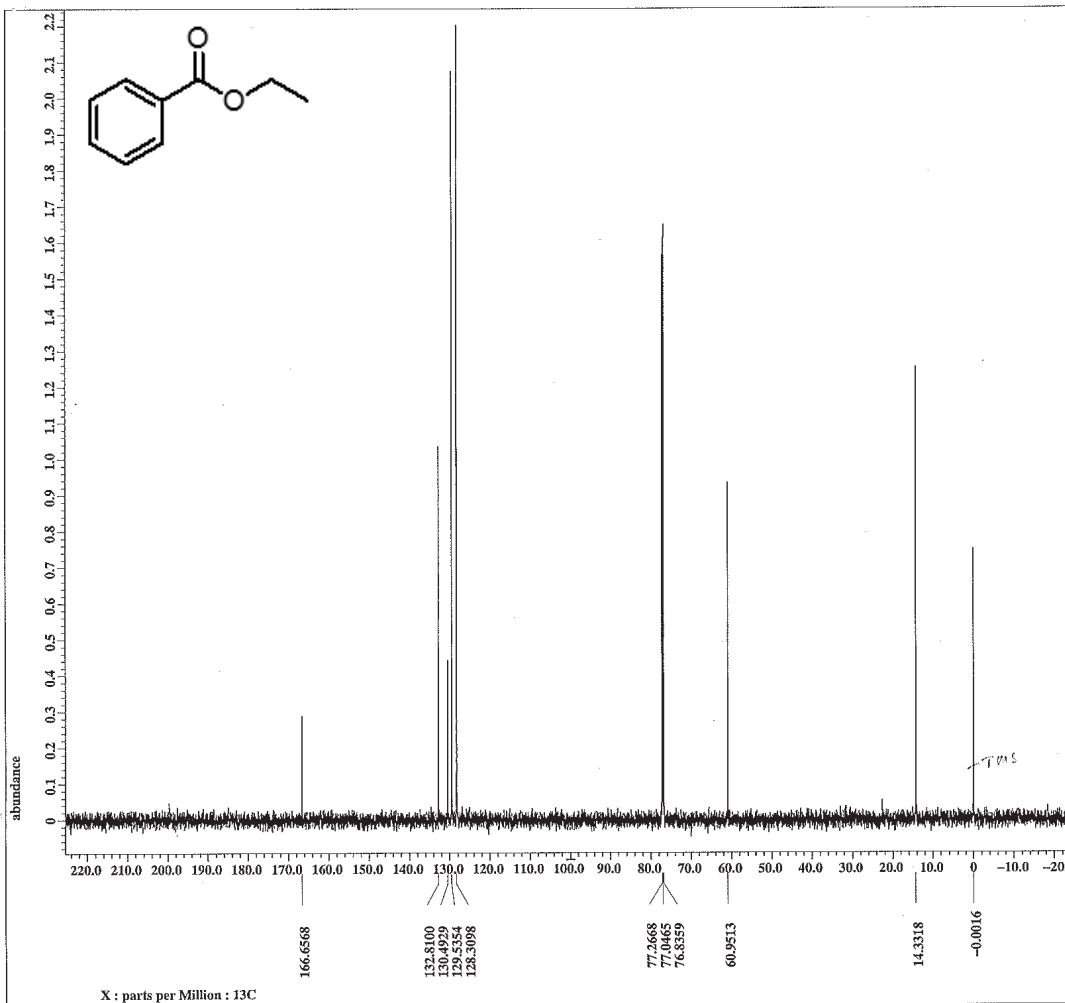
```

Filename      = Exp-AB-119-3a-proton-
Author        = delta
Experiment    = single_pulse_ex2
Sample_id     = Exp-AB-119-3a-proton
Solvent       = CHLOROFORM-D
Creation_time = 19-JUN-2014 10:26:12
Revision_time = 19-JUN-2014 10:35:49
Current_time  = 19-JUN-2014 10:35:53

Content       = Exp-AB-119-3a-proton
Data_format  = 1D COMPLEX
Dim_size     = 13107
Dim_title    = 1H
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928[T] (600[M]
X_acq_duration = 1.4548992[s]
X_domain       = 1H
X_freq        = 600.1723046[MHz]
X_offset      = 5[ppm]
X_points      = 16384
X_prescans    = 1
X_resolution  = 0.68733284[Hz]
X_sweep       = 11.26126126[kHz]
Irr_domain    = 1H
Irr_freq      = 600.1723046[MHz]
Irr_offset    = 5[ppm]
Tri_domain    = 1H
Tri_freq      = 600.1723046[MHz]
Tri_offset    = 5[ppm]
Clipped       = FALSE
Mod_return    = 1
Scans         = 8
Total_scans   = 8

X_90_width   = 13[us]
X_acq_time    = 1.4548992[s]
X_angle      = 45[deg]
X_atn        = 3.6[db]
X_pulse      = 6.5[us]
Irr_mode     = Off
Tri_mode     = Off
Dante_presat = FALSE
Initial_wait = 1[s]
Recvr_gain   = 40
Relaxation_delay = 5[s]
Repetition_time = 6.4548992[s]
Temp_get     = 20.9[dc]
  
```



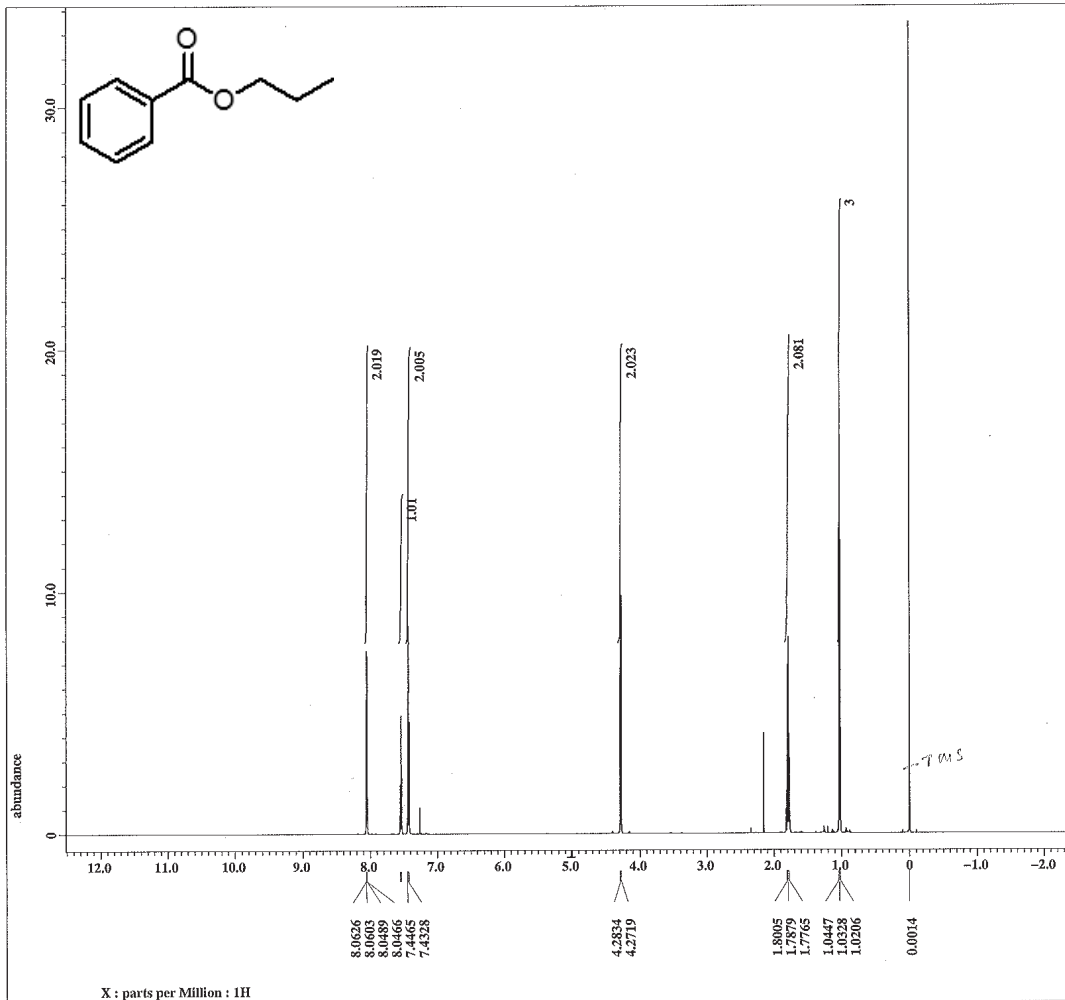
```

Filename      = Exp-AB-119-3a-carbon-
Author        = delta
Experiment    = single_pulse_dec
Sample_id     = Exp-AB-119-3a-carbon
Solvent       = CHLOROFORM-D
Creation_time = 19-JUN-2014 10:30:12
Revision_time = 19-JUN-2014 10:39:14
Current_time  = 19-JUN-2014 10:39:17

Content       = Exp-AB-119-3a-carbon
Data_format  = 1D COMPLEX
Dim_size     = 26214
Dim_title    = 13C
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928[T] (600[M]
X_acq_duration = 0.69206016[s]
X_domain       = 13C
X_freq        = 150.91343039[MHz]
X_offset      = 100[ppm]
X_points      = 32768
X_prescans    = 4
X_resolution  = 1.44496109[Hz]
X_sweep       = 47.34848485[kHz]
Irr_domain    = 1H
Irr_freq      = 600.1723046[MHz]
Irr_offset    = 5[ppm]
Clipped       = FALSE
Mod_return    = 1
Scans         = 60
Total_scans   = 60

X_90_width   = 11.4[us]
X_acq_time    = 0.69206016[s]
X_angle      = 30[deg]
X_atn        = 7.5[db]
X_pulse      = 3.8[us]
Irr_atn_dec  = 19.391[db]
Irr_atn_noe  = 19.391[db]
Irr_noise    = WALTZ16
Decoupling   = TRUE
Initial_wait = 1[s]
Noe          = TRUE
Noe_time     = 2.5[s]
Recvr_gain   = 60
Relaxation_delay = 2.5[s]
Repetition_time = 3.19206016[s]
Temp_get     = 21.3[dc]
  
```



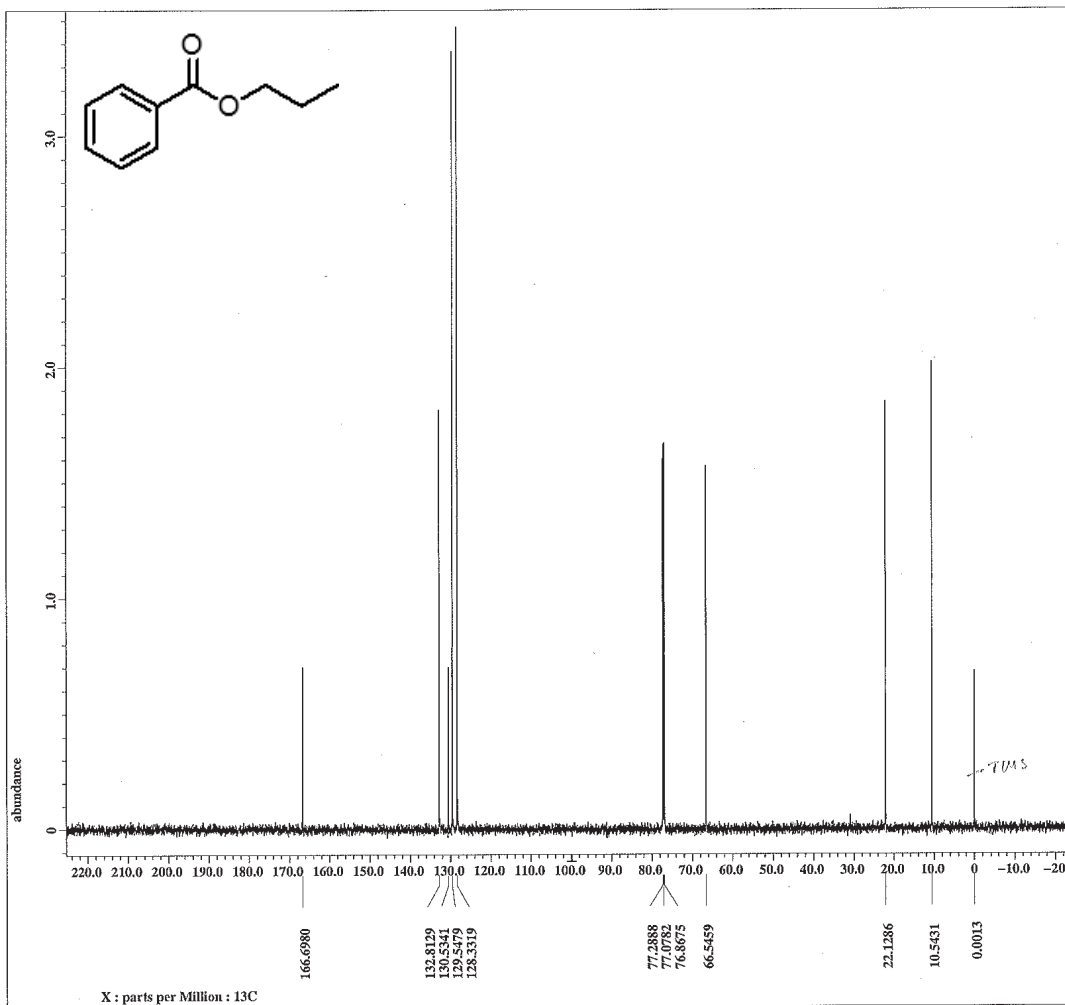
```

Filename      = Exp-AB-119-5a-proton-
Author        = delta
Experiment    = single_pulse.ex2
Sample_id     = Exp-AB-119-5a-proton
Solvent       = CHLOROFORM-D
Creation_time  = 19-JUN-2014 10:37:05
Revision_time = 19-JUN-2014 10:46:02
Current_time  = 19-JUN-2014 10:46:14

Content       = Exp-AB-119-5a-proton
Data_format   = 1D COMPLEX
Dim_size      = 13107
Dim_title     =
Dim_units     = [ppm]
Dimensions    = X
Site          = ECA 600
Spectrometer  = DELTA2_NMR

Field_strength = 14.09636928[T] (600[M]
X_acq_duration = 1.4548992[s]
X_domain       = 1H
X_freq         = 600.1723046[MHz]
X_offset       = 5[ppm]
X_points       = 16384
X_prescans     = 1
X_resolution   = 0.68733284[Hz]
X_sweep        = 11.26126126[kHz]
Irr_domain     = 1H
Irr_freq       = 600.1723046[MHz]
Irr_offset     = 5[ppm]
Tri_domain     = 1H
Tri_freq       = 600.1723046[MHz]
Tri_offset     = 5[ppm]
Clipped        = FALSE
Mod_return     = 1
Scans          = 8
Total_scans    = 8

X_90_width    = 13[us]
X_acq_time     = 1.4548992[s]
X_angle        = 45[deg]
X_atn          = 3.6[db]
X_pulse        = 6.5[us]
Irr_mode       = Off
Tri_mode       = Off
Dante_presat   = FALSE
Initial_wait   = 1[s]
Recvr_gain     = 36
Relaxation_delay = 5[s]
Repetition_time = 6.4548992[s]
Temp_get       = 21[dc]
  
```



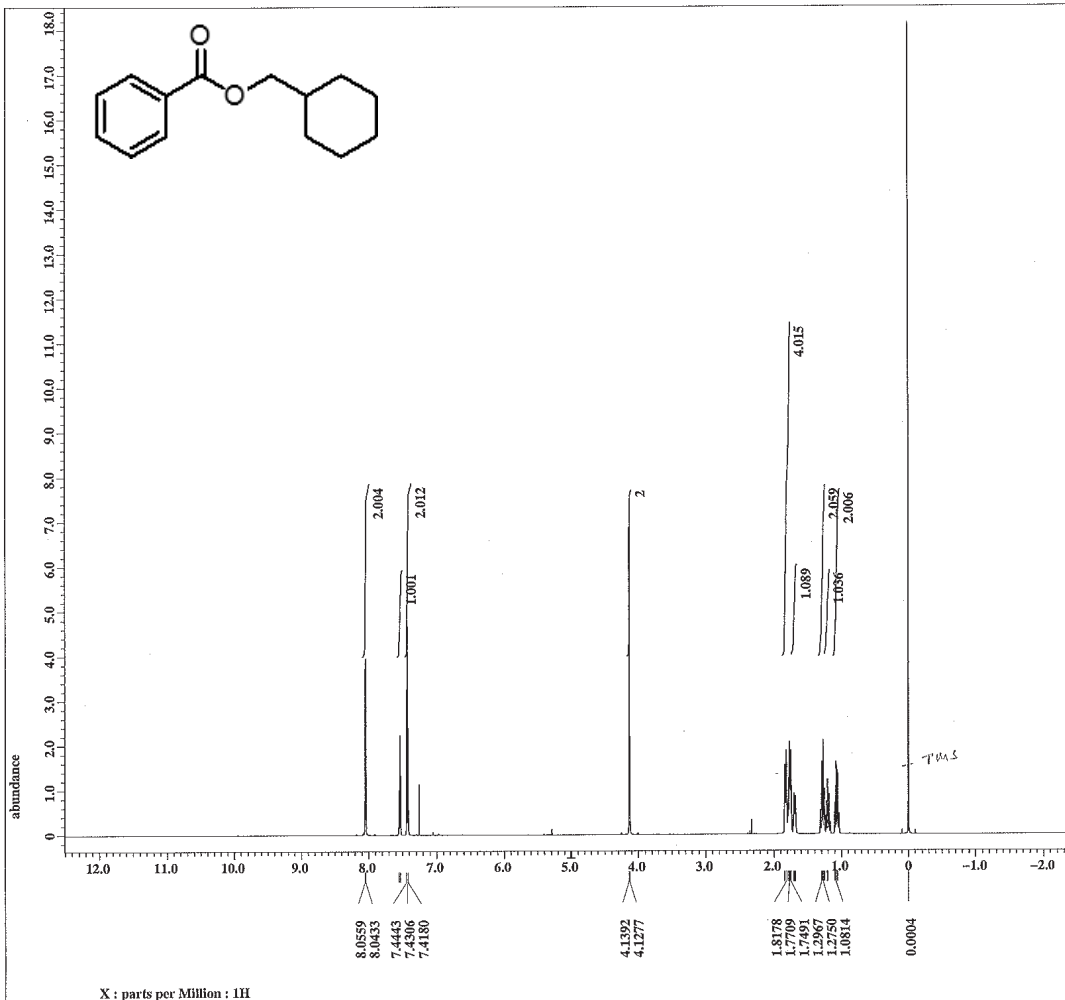
```

Filename      = Exp-AB-119-5a-carbon-
Author        = delta
Experiment    = single_pulse_dec
Sample_id     = Exp-AB-119-5a-carbon
Solvent       = CHLOROFORM-D
Creation_time  = 19-JUN-2014 10:41:16
Revision_time = 19-JUN-2014 10:48:44
Current_time  = 19-JUN-2014 10:48:48

Content       = Exp-AB-119-5a-carbon
Data_format   = 1D COMPLEX
Dim_size      = 26214
Dim_title     =
Dim_units     = [ppm]
Dimensions    = X
Site          = ECA 600
Spectrometer  = DELTA2_NMR

Field_strength = 14.09636928[T] (600[M]
X_acq_duration = 0.69206016[s]
X_domain       = 13C
X_freq         = 150.91343039[MHz]
X_offset       = 100[ppm]
X_points       = 32768
X_prescans     = 4
X_resolution   = 1.44496109[Hz]
X_sweep        = 17.34848485[kHz]
Irr_domain     = 1H
Irr_freq       = 600.1723046[MHz]
Irr_offset     = 5[ppm]
Clipped        = FALSE
Mod_return     = 1
Scans          = 63
Total_scans    = 63

X_90_width    = 11.4[us]
X_acq_time     = 0.69206016[s]
X_angle        = 30[deg]
X_atn          = 7.5[db]
X_pulse        = 3.8[us]
Irr_atn_dec   = 19.391[db]
Irr_atn_noe   = 19.391[db]
Irr_noise     = WALTZ
Decoupling     = TRUE
Initial_wait   = 1[s]
Noe            = TRUE
Noe_time       = 2.5[s]
Recvr_gain     = 60
Relaxation_delay = 2.5[s]
Repetition_time = 3.19206016[s]
Temp_get       = 21.4[dc]
  
```



**JEOL**

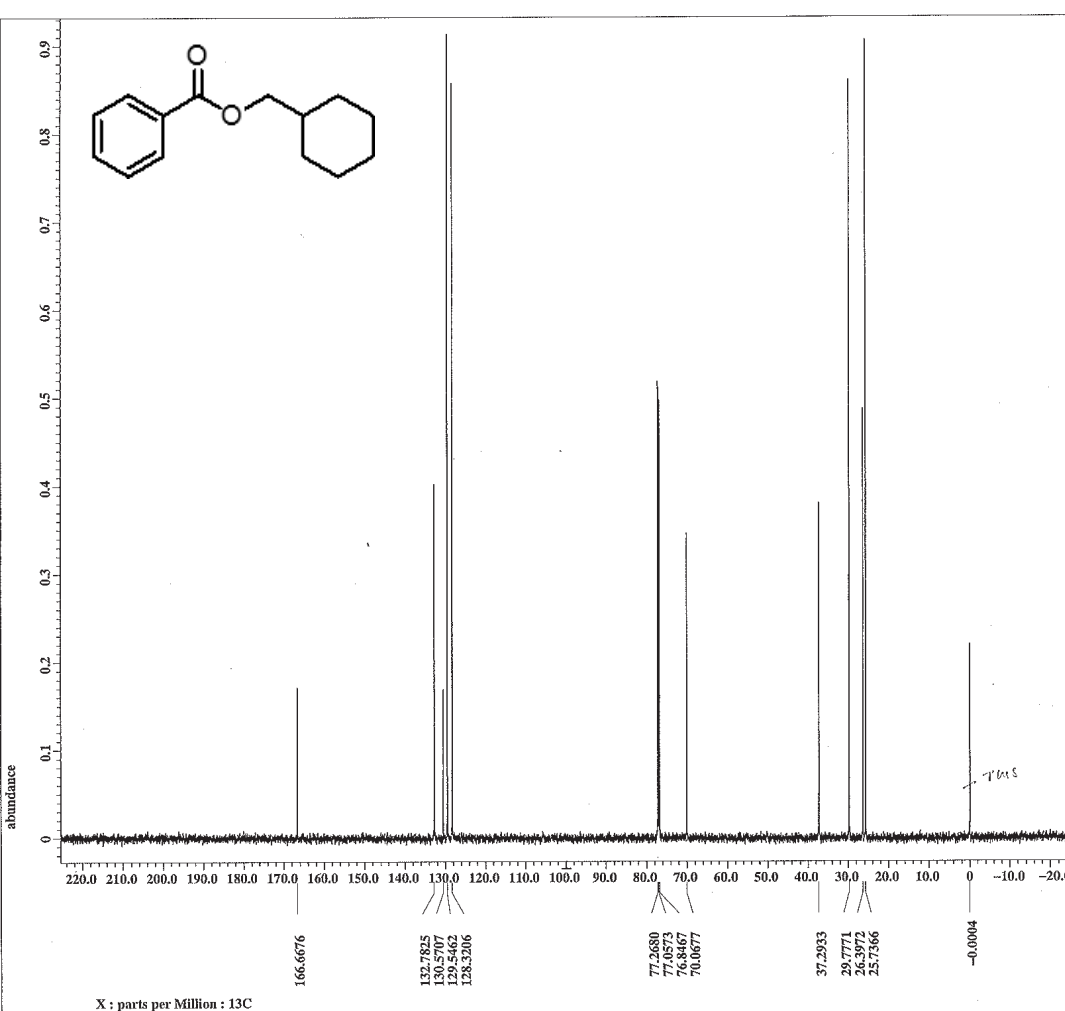
```

Filename      = Exp-hakim-115-22-prot
Author       = delta
Experiment   = single_pulse.ex2
Sample_id    = Exp-hakim-115-22-prot
Solvent      = CHLOROFORM-D
Creation_time = 11-JUN-2014 12:20:45
Revision_time = 11-JUN-2014 12:31:54
Current_time  = 11-JUN-2014 12:31:59

Content       = Exp-hakim-115-22-prot
Data_format  = 1D COMPLEX
Dim_size     = 13107
Dim_title    = 1H
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928[T] (600[M]
X_acq_duration = 1.4548992[s]
X_domain      = 1H
X_freq       = 600.1723046[MHz]
X_offset     = 5[ppm]
X_points     = 16384
X_prescans   = 1
X_resolution = 0.68733284[Hz]
X_sweep      = 11.26126126[kHz]
Irr_domain   = 1H
Irr_freq     = 600.1723046[MHz]
Irr_offset   = 5[ppm]
Irr_domain   = 1H
Tri_freq     = 600.1723046[MHz]
Tri_offset   = 5[ppm]
Tri_domain   = FALSE
Clipped      = FALSE
Mod_return   = 1
Scans        = 8
Total_scans  = 8

X_90_width   = 13[us]
X_acq_time   = 1.4548992[s]
X_angle      = 45[deg]
X_atn        = 3.6[db]
X_pulse      = 5.5[us]
Irr_mode     = Off
Tri_mode     = Off
Dante_preset = FALSE
Initial_wait = 1[s]
Recvr_gain   = 34
Relaxation_delay = 5[s]
Repetition_time = 6.4548992[s]
Temp_get     = 22.7[dc]
  
```



**JEOL**

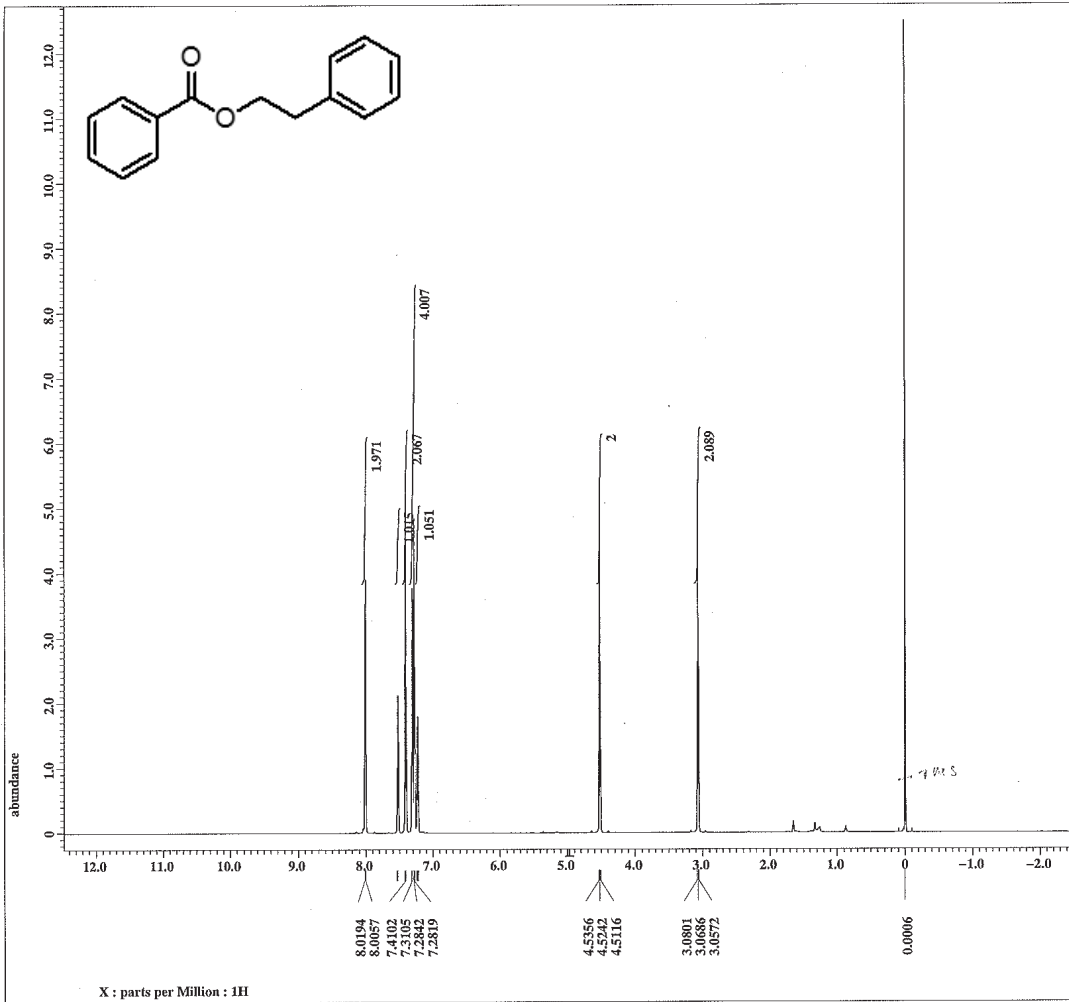
```

Filename      = Exp-hakim-115-22-carb
Author       = delta
Experiment   = single_pulse_dec
Sample_id    = Exp-hakim-115-22-carb
Solvent      = CHLOROFORM-D
Creation_time = 11-JUN-2014 12:26:02
Revision_time = 11-JUN-2014 12:34:36
Current_time  = 11-JUN-2014 12:34:42

Content       = Exp-hakim-115-22-carb
Data_format  = 1D COMPLEX
Dim_size     = 26214
Dim_title    = 13C
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928[T] (600[M]
X_acq_duration = 0.69206016[s]
X_domain      = 13C
X_freq       = 150.91343039[MHz]
X_offset     = 100[ppm]
X_points     = 32768
X_prescans   = 4
X_resolution = 1.44496109[Hz]
X_sweep      = 47.34848485[kHz]
Irr_domain   = 1H
Irr_freq     = 600.1723046[MHz]
Irr_offset   = 5[ppm]
Irr_domain   = FALSE
Clipped      = FALSE
Mod_return   = 1
Scans        = 112
Total_scans  = 112

X_90_width   = 11.4[us]
X_acq_time   = 0.69206016[s]
X_angle      = 30[deg]
X_atn        = 7.5[db]
X_pulse      = 3.8[us]
Irr_atn_dec  = 19.391[db]
Irr_atn_noe  = 19.391[db]
Irr_noise    = TRUE
Decoupling   = TRUE
Initial_wait = 1[s]
Noe_time     = TRUE
Noe_time     = 2[s]
Recvr_gain   = 30
Relaxation_delay = 2[s]
Repetition_time = 2.69206016[s]
Temp_get     = 23.2[dc]
  
```



**JEOL**

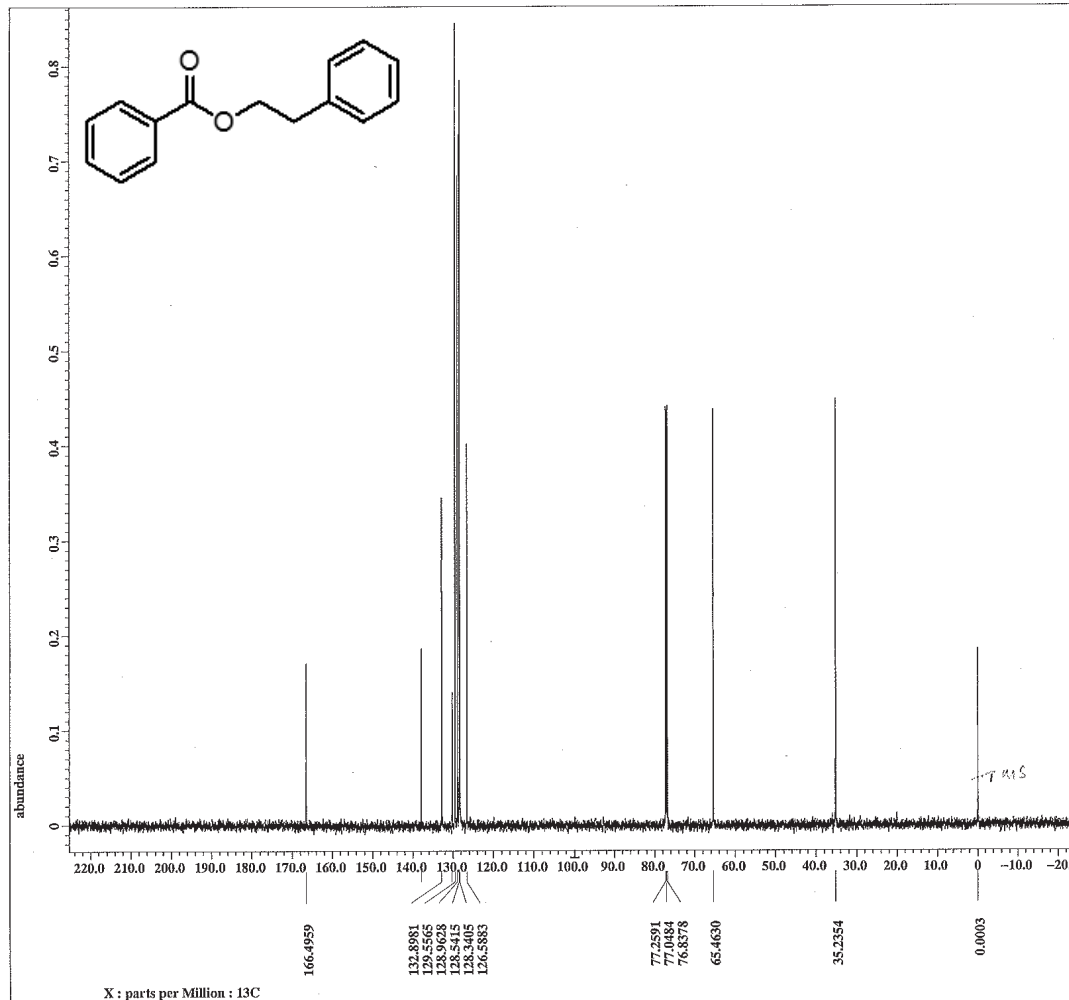
```

Filename      = Exp-hakim-115-18-prot
Author       = delta
Experiment   = single_pulse.ex2
Sample_id    = Exp-hakim-115-18-prot
Solvent      = CHLOROFORM-D
Creation_time = 11-JUN-2014 12:03:59
Revision_time = 11-JUN-2014 12:13:39
Current_time  = 11-JUN-2014 12:13:45

Content      = Exp-hakim-115-18-prot
Data_format  = 1D COMPLEX
Dim_size     = 13107
Dim_title    = 1H
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928[T] (600[M]
X_acq_duration = 1.4548992[s]
X_domain       = 1H
X_freq         = 600.1723046[MHz]
X_offset       = 5[ppm]
X_points       = 16384
X_prescans     = 1
X_resolution   = 0.68733284[Hz]
X_sweep        = 11.26126126[kHz]
Irr_domain     = 1H
Irr_freq       = 600.1723046[MHz]
Irr_offset     = 5[ppm]
Tri_domain     = 1H
Tri_freq       = 600.1723046[MHz]
Tri_offset     = 5[ppm]
Clipped       = FALSE
Mod_return     = 1
Scans         = 8
Total_scans    = 8

X_90_width    = 13[us]
X_acq_time     = 1.4548992[s]
X_angle        = 45[deg]
X_atn          = 3.6[db]
X_pulse        = 6.5[us]
Irr_mode       = Off
Tri_mode       = Off
Dante_preset  = FALSE
Initial_wait   = 1[s]
Recvr_gain     = 36
Relaxation_delay = 5[s]
Repetition_time = 6.4548992[s]
Temp_get       = 22.8[dc]
  
```



**JEOL**

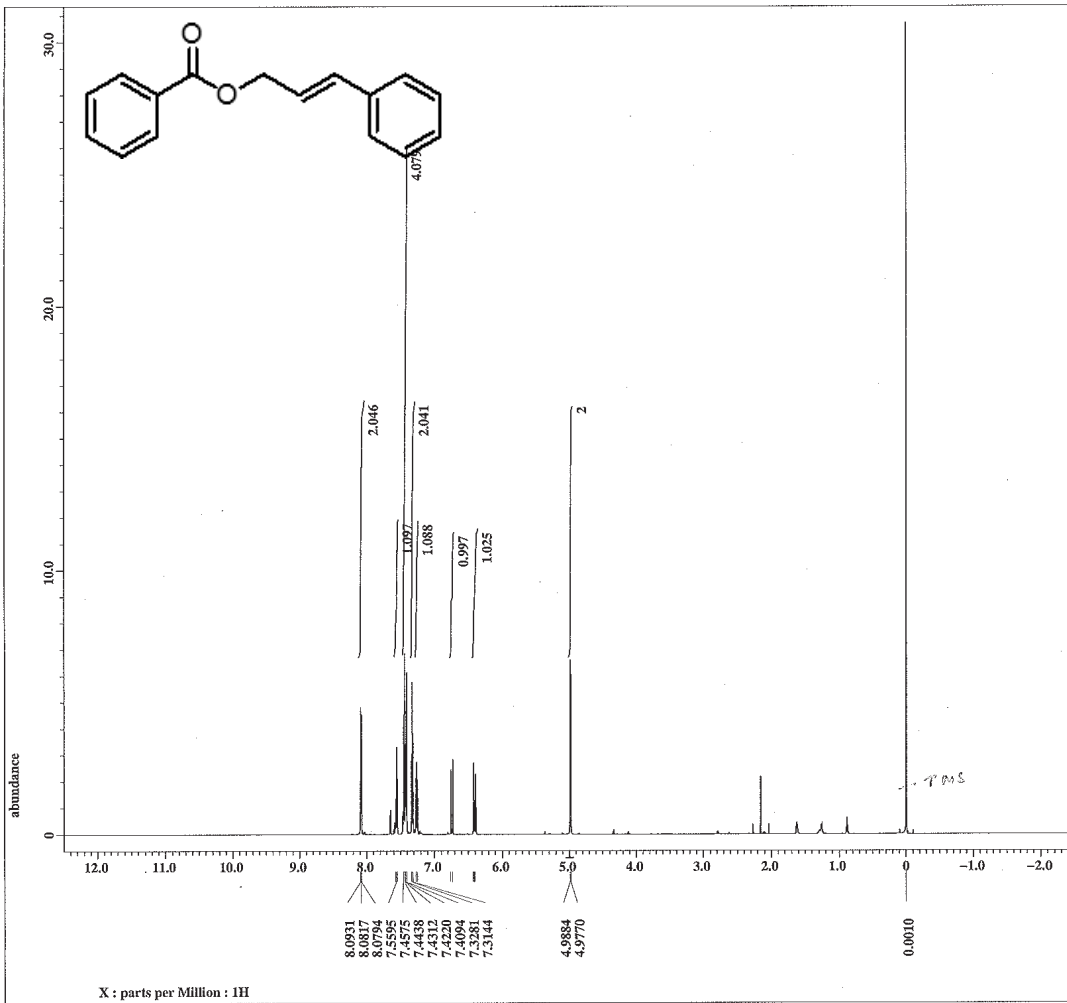
```

Filename      = Exp-hakim-115-18-carb
Author       = delta
Experiment   = single_pulse_dec
Sample_id    = Exp-hakim-115-18-carb
Solvent      = CHLOROFORM-D
Creation_time = 11-JUN-2014 12:02:15
Revision_time = 11-JUN-2014 12:09:35
Current_time  = 11-JUN-2014 12:09:39

Content      = Exp-hakim-115-18-carb
Data_format  = 1D COMPLEX
Dim_size     = 26214
Dim_title    = 13C
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928[T] (600[M]
X_acq_duration = 0.69206016[s]
X_domain       = 13C
X_freq         = 150.91343039[MHz]
X_offset       = 100[ppm]
X_points       = 32768
X_prescans     = 4
X_resolution   = 1.44496109[Hz]
X_sweep        = 47.34848485[kHz]
Irr_domain     = 1H
Irr_freq       = 600.1723046[MHz]
Irr_offset     = 5[ppm]
Clipped       = FALSE
Mod_return     = 1
Scans         = 95
Total_scans    = 95

X_90_width    = 11.4[us]
X_acq_time     = 0.69206016[s]
X_angle        = 30[deg]
X_atn          = 7.5[db]
X_pulse        = 3.8[us]
Irr_atn_dec    = 19.391[db]
Irr_atn_noe    = 19.391[db]
Irr_noise      = WALTZ
Decoupling     = TRUE
Initial_wait   = 1[s]
Noe            = TRUE
Noe_time       = 2[s]
Recvr_gain     = 30
Relaxation_delay = 2[s]
Repetition_time = 2.69206016[s]
Temp_get       = 23.1[dc]
  
```



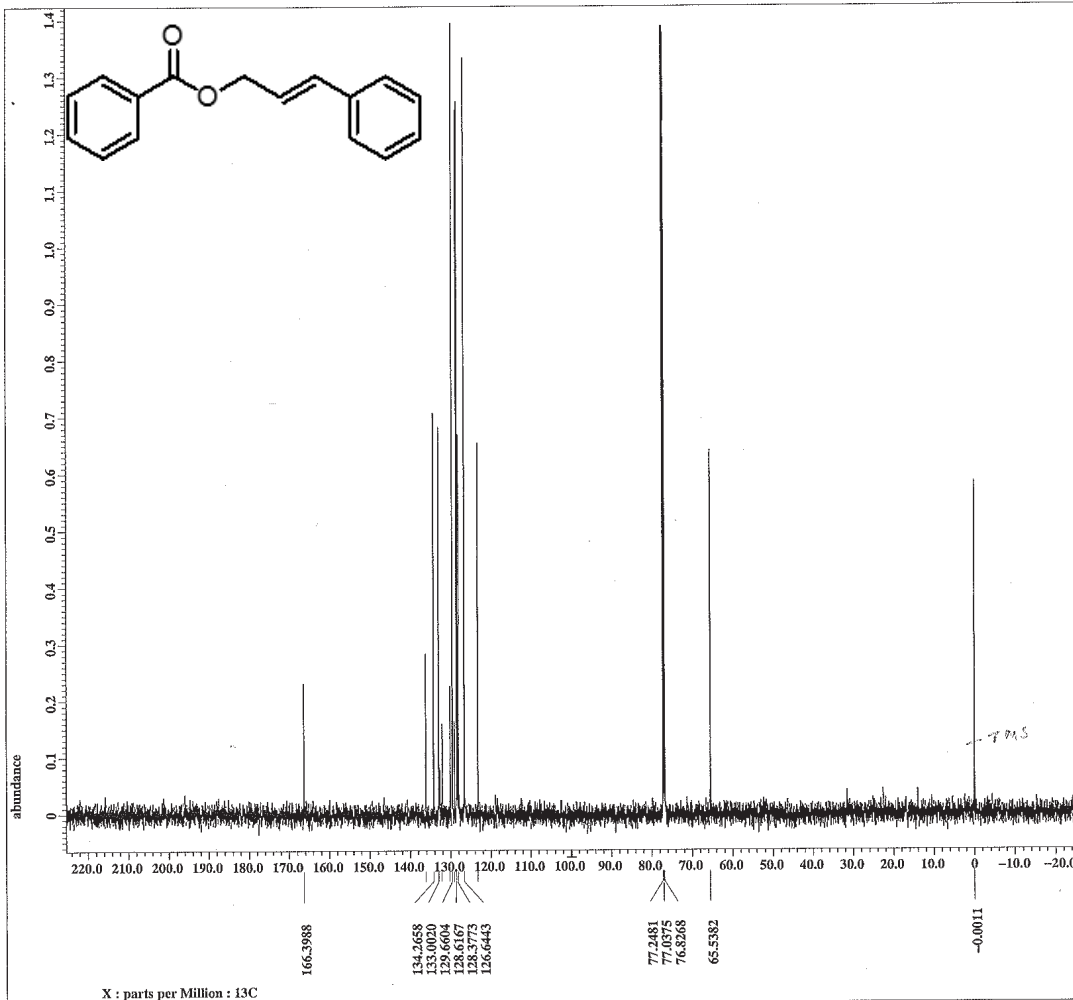
```

Filename      = Exp-hakim-315-2-proto
Author        = delta
Experiment    = single_pulse.ex2
Sample_id     = Exp-hakim-315-2-proto
Solvent       = CHLOROFORM-D
Creation_time = 19-JUN-2014 20:44:40
Revision_time = 19-JUN-2014 20:54:32
Current_time  = 19-JUN-2014 20:54:37

Content       = Exp-hakim-315-2-proto
Data_format  = 1D COMPLEX
Dim_size     = 13107
Dim_title    = 1H
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928 [T] (600 [M]
X_acq_duration = 1.4548992 [s]
X_domain       = 1H
X_freq        = 600.1723046 [MHz]
X_offset      = 5 [ppm]
X_points      = 16384
X_prescans    = 1
X_resolution  = 0.68733284 [Hz]
X_sweep       = 11.26126126 [kHz]
Srr_domain    = 1H
Irr_freq      = 600.1723046 [MHz]
Irr_offset    = 5 [ppm]
Tri_domain    = 1H
Tri_freq      = 600.1723046 [MHz]
Tri_offset    = 5 [ppm]
Clipped       = FALSE
Mod_return    = 1
Scans         = 8
Total_scans   = 8

X_90_width    = 13 [us]
X_acq_time    = 1.4548992 [s]
X_angle       = 45 [deg]
X_atn        = 3.6 [dB]
X_pulse      = 6.5 [us]
Irr_mode      = Off
Tri_mode      = Off
Dante_preset = FALSE
Initial_wait  = 1 [s]
Recvr_gain    = 42
Relaxation_delay = 5 [s]
Repetition_time = 6.4548992 [s]
Temp_get      = 20.8 [dC]
  
```



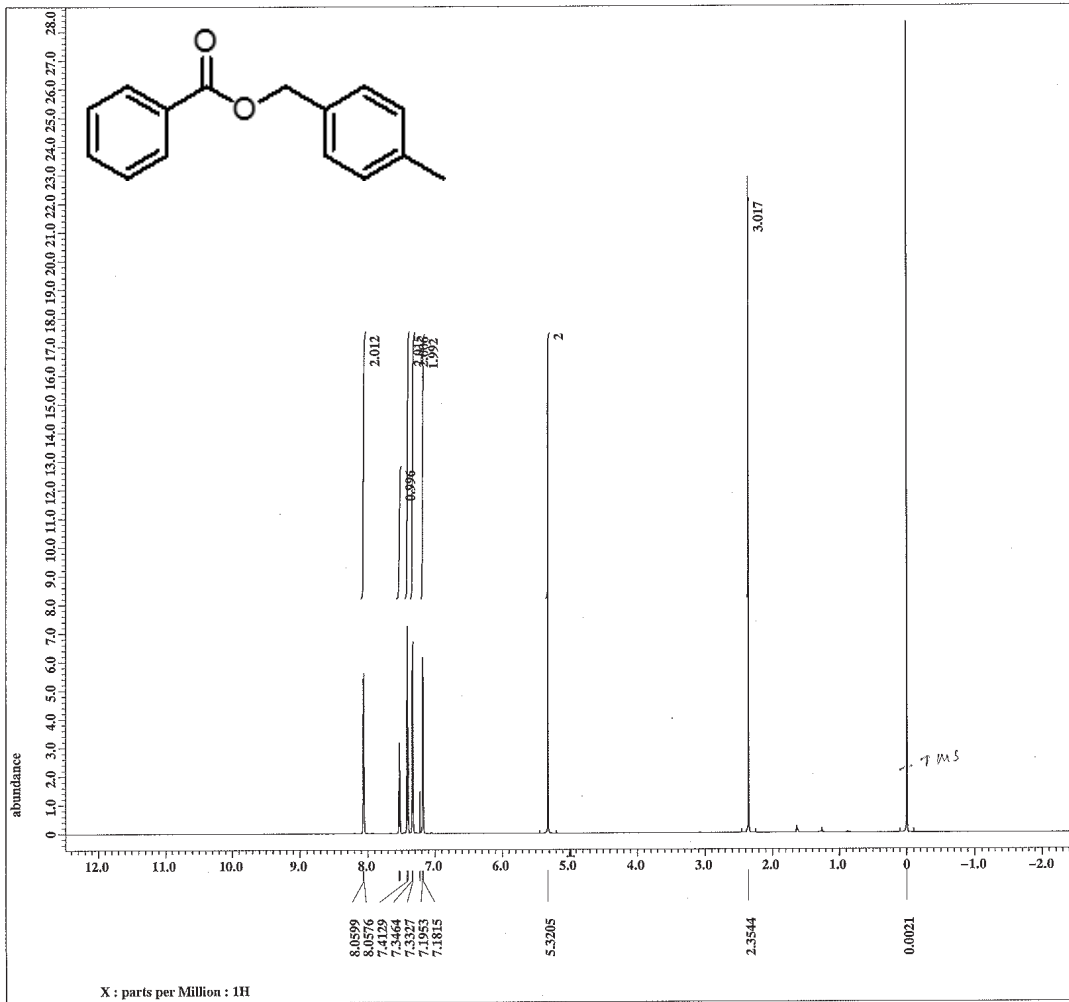
```

Filename      = Exp-hakim-315-2-carbo
Author        = delta
Experiment    = single_pulse.dec
Sample_id     = Exp-hakim-315-2-carbo
Solvent       = CHLOROFORM-D
Creation_time = 19-JUN-2014 20:48:55
Revision_time = 19-JUN-2014 20:58:17
Current_time  = 19-JUN-2014 20:58:50

Content       = Exp-hakim-315-2-carbo
Data_format  = 1D COMPLEX
Dim_size     = 26214
Dim_title    = 13C
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928 [T] (600 [M]
X_acq_duration = 0.69206016 [s]
X_domain       = 13C
X_freq        = 150.91343039 [MHz]
X_offset      = 100 [ppm]
X_points      = 32768
X_prescans    = 4
X_resolution  = 1.44496109 [Hz]
X_sweep       = 47.34848485 [kHz]
Srr_domain    = 1H
Irr_freq      = 600.1723046 [MHz]
Irr_offset    = 5 [ppm]
Clipped       = FALSE
Mod_return    = 1
Scans         = 79
Total_scans   = 79

X_90_width    = 11.4 [us]
X_acq_time    = 0.69206016 [s]
X_angle       = 30 [deg]
X_atn        = 7.5 [dB]
X_pulse      = 3.8 [us]
Irr_atn_dec  = 19.391 [dB]
Irr_atn_noe  = 19.391 [dB]
Irr_noise    = WALTZ
Decoupling    = TRUE
Initial_wait  = 1 [s]
Noe_time      = TRUE
Noe_time     = 2 [s]
Recvr_gain    = 60
Relaxation_delay = 2 [s]
Repetition_time = 2.69206016 [s]
Temp_get      = 21.5 [dC]
  
```



**JEOL**

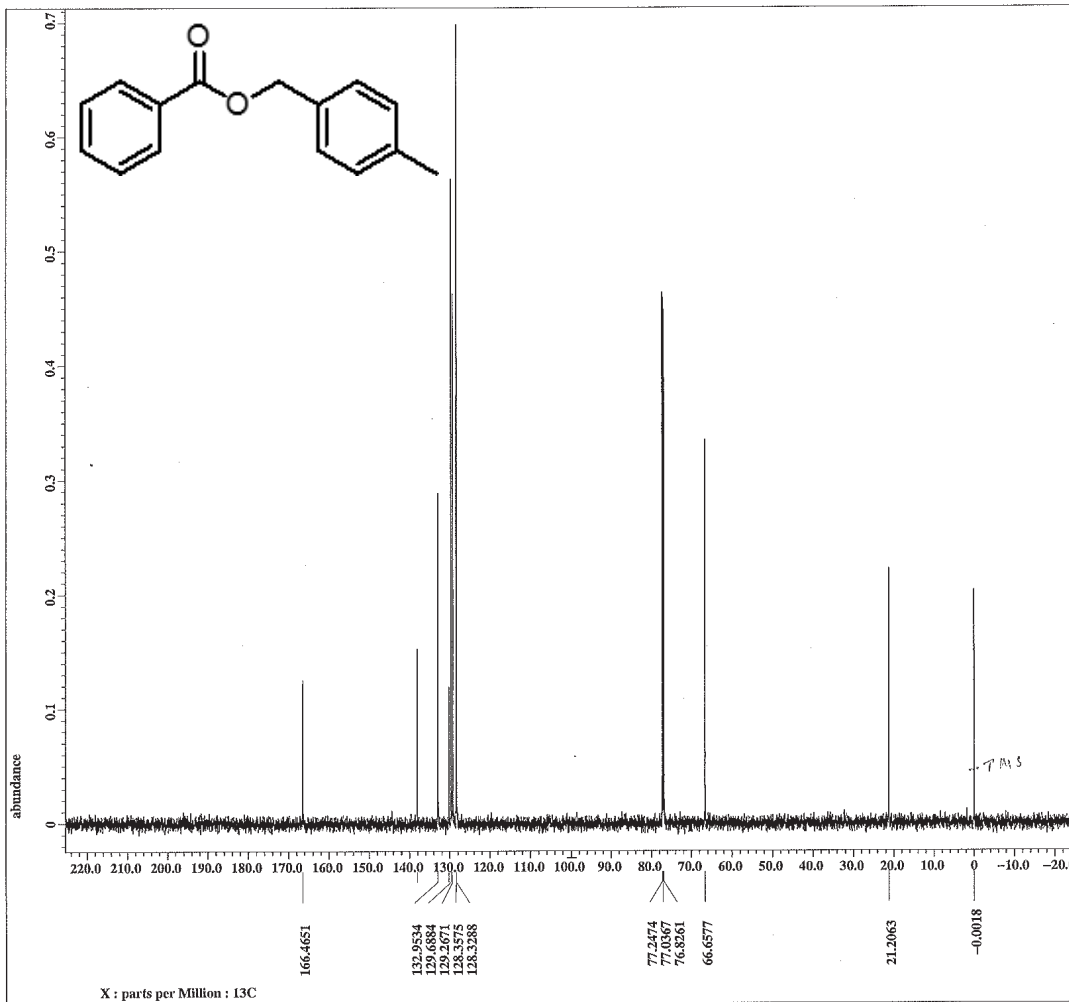
```

Filename      = Exp-hakim-115-20-prot
Author       = delta
Experiment   = single_pulse.ex2
Sample_id    = Exp-hakim-115-20-prot
Solvent      = CHLOROFORM-D
Creation_time = 11-JUN-2014 12:59:53
Revision_time = 11-JUN-2014 13:09:02
Current_time = 11-JUN-2014 13:09:08

Content       = Exp-hakim-115-20-prot
Data_format  = 1D COMPLEX
Dim_size     = 13107
Dim_title    = 1H
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928[T] (600[M]
X_acq_duration = 1.4548992[s]
X_domain      = 1H
X_freq       = 600.1723046[MHz]
X_offset     = 5[ppm]
X_points     = 16384
X_brescans   = 1
X_resolution = 0.68733284[Hz]
X_sweep      = 11.26126126[kHz]
Irr_domain   = 1H
Irr_freq     = 600.1723046[MHz]
Irr_offset   = 5[ppm]
Tri_domain   = 1H
Tri_freq     = 600.1723046[MHz]
Tri_offset   = 5[ppm]
Clipped      = FALSE
Mod_return   = 1
Scans        = 8
Total_scans  = 8

X_90_width   = 13[us]
X_acq_time   = 1.4548992[s]
X_angle      = 45[deg]
X_atn        = 3.6[db]
X_pulse      = 6.5[us]
Irr_mode     = Off
Tri_mode     = Off
Dante_presat = FALSE
Initial_wait = 1[s]
Recvr_gain   = 40
Relaxation_delay = 5[s]
Repetition_time = 6.4548992[s]
Temp_get     = 22.6[dc]
  
```



**JEOL**

```

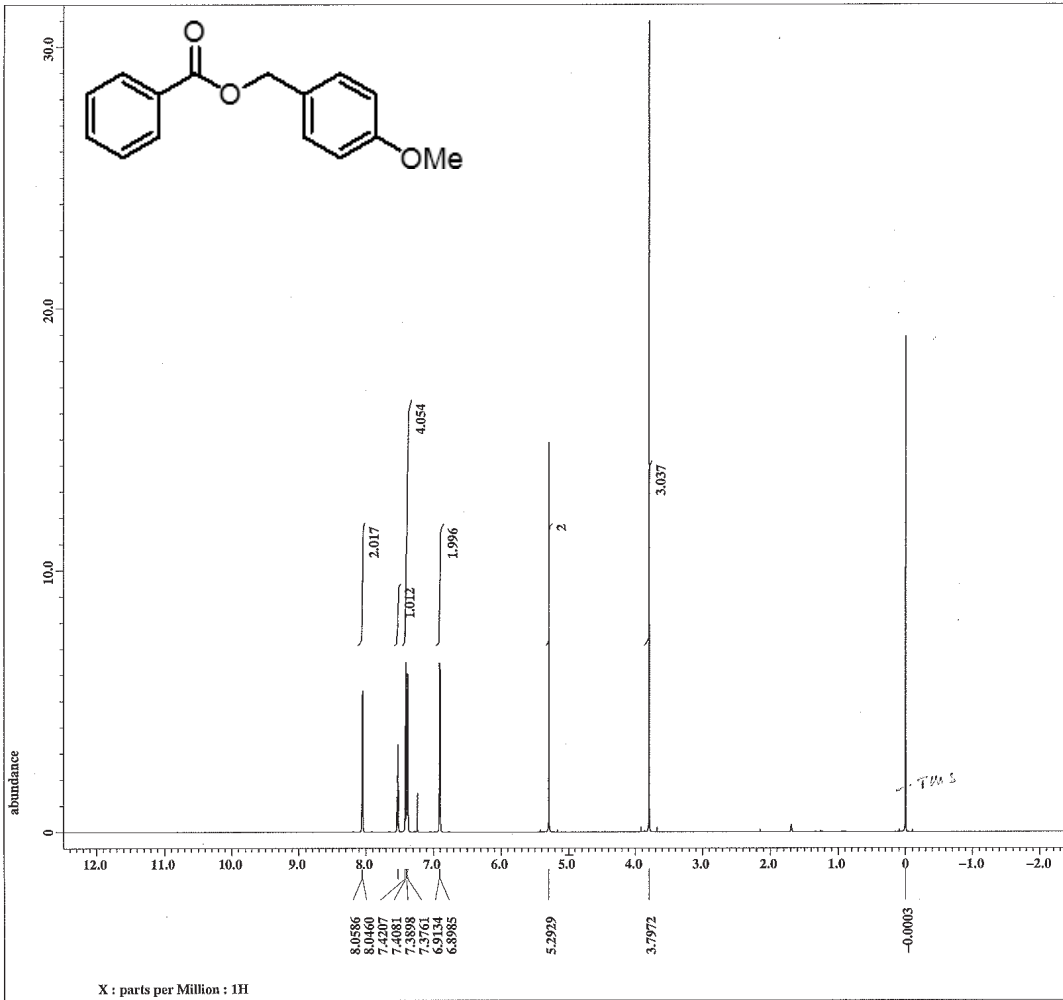
Filename      = Exp-hakim-115-20-carb
Author       = delta
Experiment   = single_pulse_dec
Sample_id    = Exp-hakim-115-20-carb
Solvent      = CHLOROFORM-D
Creation_time = 11-JUN-2014 13:03:31
Revision_time = 11-JUN-2014 13:12:05
Current_time = 11-JUN-2014 13:12:09

Content       = Exp-hakim-115-20-carb
Data_format  = 1D COMPLEX
Dim_size     = 26214
Dim_title    = 13C
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928[T] (600[M]
X_acq_duration = 0.69206016[s]
X_domain      = 13C
X_freq       = 150.91343039[MHz]
X_offset     = 100[ppm]
X_points     = 32768
X_brescans   = 4
X_resolution = 1.44496109[Hz]
X_sweep      = 47.34848485[kHz]
Irr_domain   = 1H
Irr_freq     = 600.1723046[MHz]
Irr_offset   = 5[ppm]
Clipped      = FALSE
Mod_return   = 1
Scans        = 75
Total_scans  = 75

X_90_width   = 11.4[us]
X_acq_time   = 0.69206016[s]
X_angle      = 30[deg]
X_atn        = 7.5[db]
X_pulse      = 3.8[us]
Irr_atn_dec  = 19.391[db]
Irr_atn_noc  = 19.391[db]
Irr_noise    = WALTZ
Decoupling   = TRUE
Initial_wait = 1[s]
Noe          = TRUE
Noe_time     = 2[s]
Recvr_gain   = 50
Relaxation_delay = 2[s]
Repetition_time = 2.69206016[s]
Temp_get     = 23.1[dc]
  
```





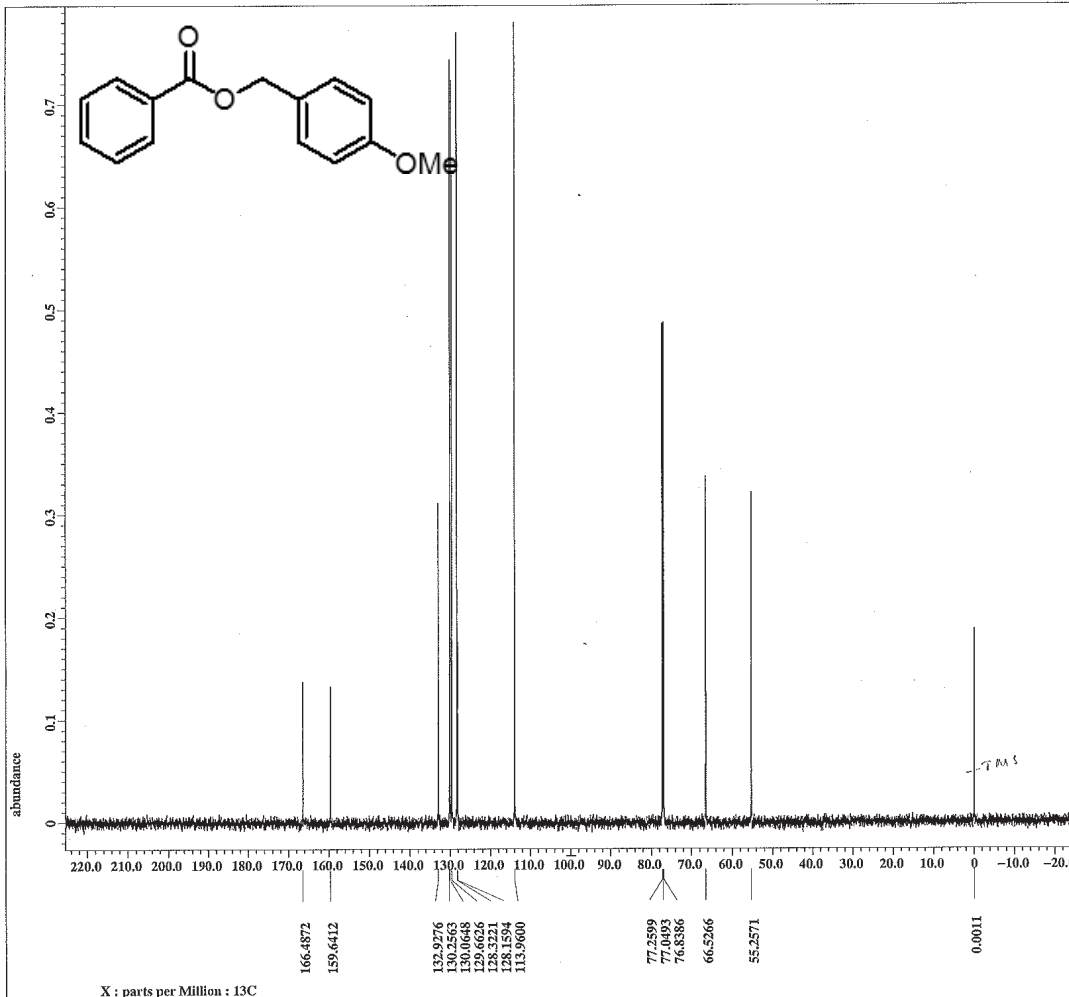
```

Filename      = Exp-hakim-115-21-prot
Author       = delta
Experiment   = single_pulse.ex2
Sample_id    = Exp-hakim-115-21-prot
Solvent      = CHLOROFORM-D
Creation_time = 12-JUN-2014 10:10:19
Revision_time = 12-JUN-2014 10:21:57
Current_time  = 12-JUN-2014 10:22:02

Content       = Exp-hakim-115-21-prot
Data_format  = 1D COMPLEX
Dim_size     = 13107
Dim_title    = 1H
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928 [T] (600[M]
X_acq_duration = 1.4548992 [s]
X_domain       = 1H
X_freq        = 600.1723046 [MHz]
X_offset      = 5 [ppm]
X_points      = 16384
X_prescans    = 1
X_resolution  = 0.68733284 [Hz]
X_sweep       = 11.26126126 [kHz]
Irr_domain    = 1H
Irr_freq      = 600.1723046 [MHz]
Irr_offset    = 5 [ppm]
Tri_domain    = 1H
Tri_freq      = 600.1723046 [MHz]
Tri_offset    = 5 [ppm]
Clipped       = FALSE
Mod_return    = 1
Scans         = 8
Total_scans   = 8

X_90_width    = 13 [us]
X_acq_time    = 1.4548992 [s]
X_angle       = 45 [deg]
X_atn         = 3.6 [dB]
X_pulse       = 6.5 [us]
Irr_mode      = OFF
Tri_mode      = OFF
Dante_prosart = FALSE
Initial_wait  = 1 [s]
Recvr_gain    = 38
Relaxation_delay = 5 [s]
Repetition_time = 6.4548992 [s]
Temp_get      = 22.7 [dC]
    
```



```

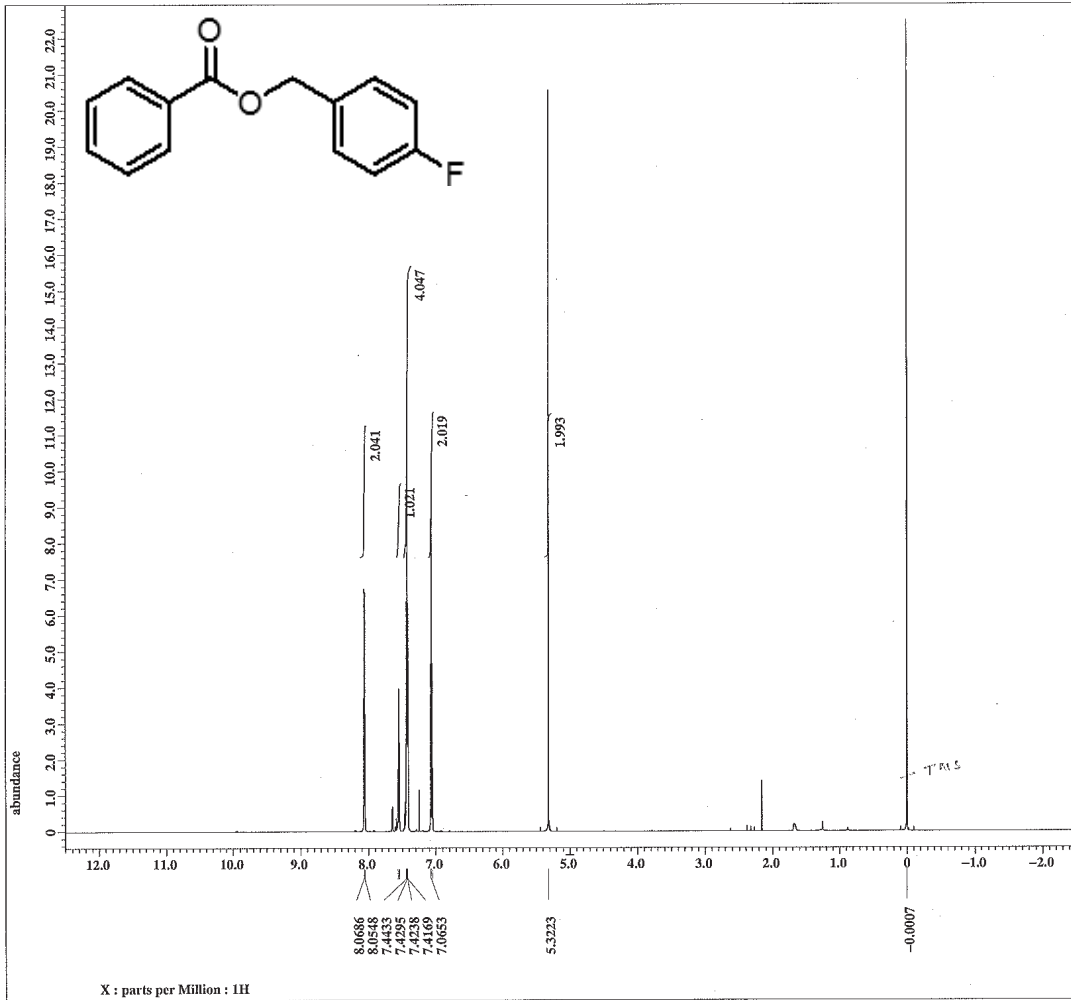
Filename      = Exp-hakim-115-2-carbo
Author       = delta
Experiment   = single_pulse.dec
Sample_id    = Exp-hakim-115-2-carbo
Solvent      = CHLOROFORM-D
Creation_time = 12-JUN-2014 10:07:57
Revision_time = 12-JUN-2014 10:16:42
Current_time  = 12-JUN-2014 10:16:47

Content       = Exp-hakim-115-2-carbo
Data_format  = 1D COMPLEX
Dim_size     = 26214
Dim_title    = 13C
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928 [T] (600[M]
X_acq_duration = 0.69206016 [s]
X_domain       = 13C
X_freq        = 150.91343039 [MHz]
X_offset      = 100 [ppm]
X_points      = 32768
X_prescans    = 4
X_resolution  = 1.44496109 [Hz]
X_sweep       = 47.34848485 [kHz]
Irr_domain    = 1H
Irr_freq      = 600.1723046 [MHz]
Irr_offset    = 5 [ppm]
Clipped       = FALSE
Mod_return    = 1
Scans         = 95
Total_scans   = 95

X_90_width    = 11.4 [us]
X_acq_time    = 0.69206016 [s]
X_angle       = 30 [deg]
X_atn         = 7.5 [dB]
X_pulse       = 3.8 [us]
Irr_atn_dec   = 19.391 [dB]
Irr_atn_noe   = 19.391 [dB]
Irr_noise     = WALTZ
Decoupling    = TRUE
Initial_wait  = 1 [s]
Noe           = TRUE
Noe_time      = 2 [s]
Recvr_gain    = 50
Relaxation_delay = 2 [s]
Repetition_time = 2.69206016 [s]
Temp_get      = 22.9 [dC]
    
```





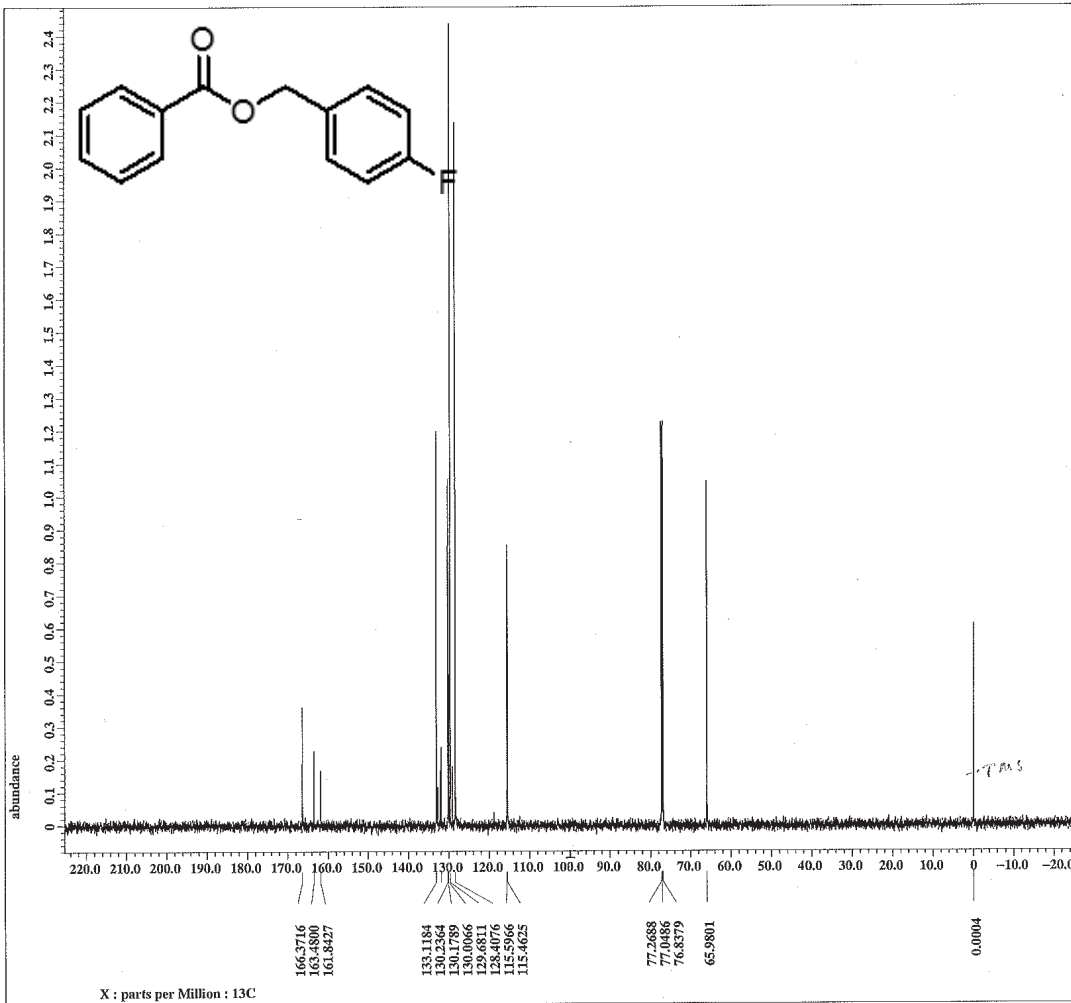
```

Filename      = Exp-AB-114-7-proton-6
Author       = delta
Experiment   = single_pulse_ex2
Sample_id    = Exp-AB-114-7-proton
Solvent      = CHLOROFORM-D
Creation_time = 19-JUN-2014 22:18:42
Revision_time = 12-JUL-2014 11:32:55
Current_time  = 12-JUL-2014 11:33:03

Content      = Exp-AB-114-7-proton
Data_format  = 1D COMPLEX
Dim_size     = 13107
Dim_title    = 1H
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928[T] (600[M]
X_acq_duration = 1.4548992[s]
X_domain      = 1H
X_freq        = 600.1723046[MHz]
X_offset      = 5[ppm]
X_points      = 16384
X_prescans    = 1
X_resolution  = 0.68733284[Hz]
X_sweep       = 11.26126126[kHz]
Irr_domain    = 1H
Irr_freq      = 600.1723046[MHz]
Irr_offset    = 5[ppm]
Tri_domain    = 1H
Tri_freq      = 600.1723046[MHz]
Tri_offset    = 5[ppm]
Clipped       = FALSE
Mod_return    = 1
Scans         = 8
Total_scans   = 8

X_90_width    = 13[us]
X_acq_time    = 1.4548992[s]
X_angle       = 45[deg]
X_atn         = 3.5[db]
X_pulse       = 6.5[us]
Irr_mode      = Off
Tri_mode      = Off
Dante_preset  = FALSE
Initial_wait  = 1[s]
Recvr_gain    = 40
Relaxation_delay = 5[s]
Repetition_time = 6.4548992[s]
Temp_get      = 21.1[dc]
  
```



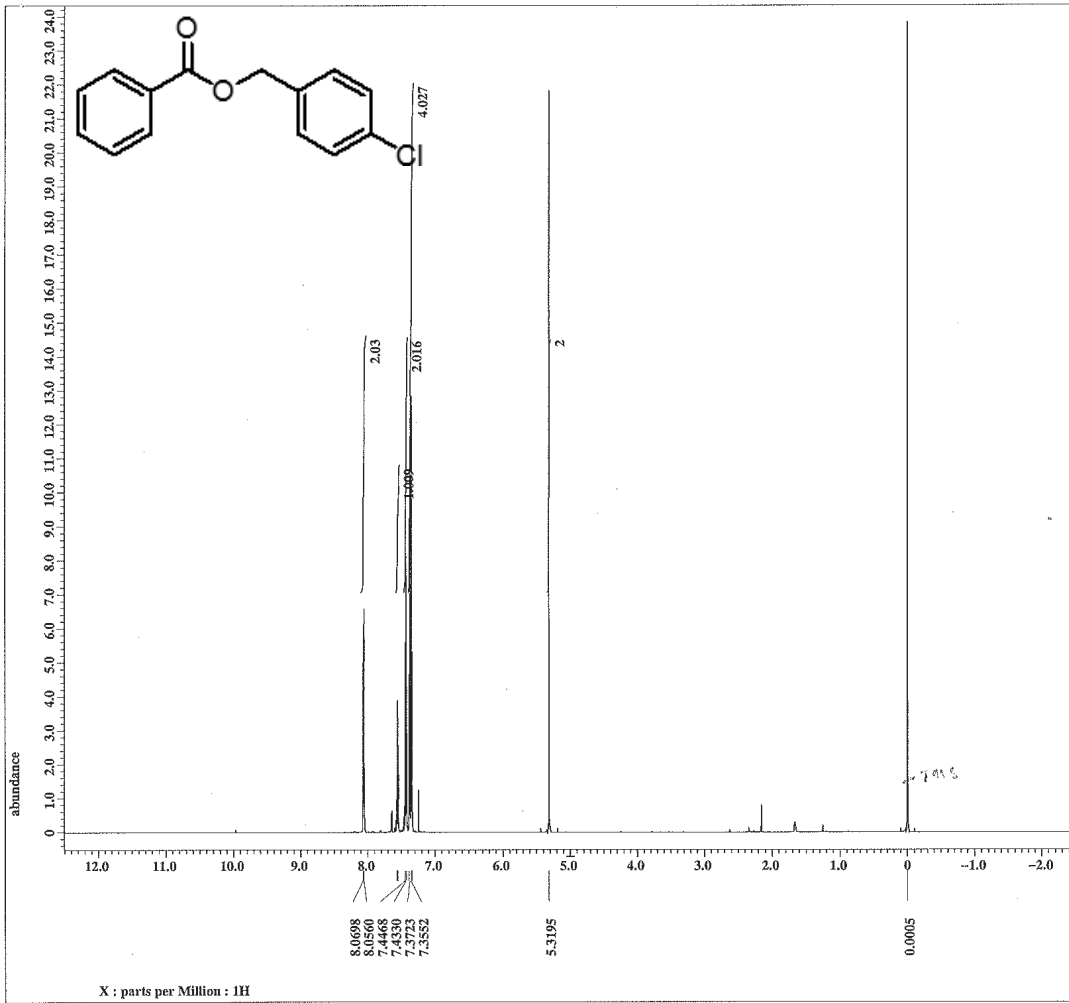
```

Filename      = Exp-AB-114-7-carbon-4
Author       = delta
Experiment   = single_pulse_dec
Sample_id    = Exp-AB-114-7-carbon
Solvent      = CHLOROFORM-D
Creation_time = 19-JUN-2014 22:24:21
Revision_time = 19-JUN-2014 22:34:41
Current_time  = 19-JUN-2014 22:37:12

Content      = Exp-AB-114-7-carbon
Data_format  = 1D COMPLEX
Dim_size     = 26214
Dim_title    = 13C
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928[T] (600[M]
X_acq_duration = 0.69206016[s]
X_domain      = 13C
X_freq        = 150.91343039[MHz]
X_offset      = 100[ppm]
X_points      = 32768
X_prescans    = 4
X_resolution  = 1.44496109[Hz]
X_sweep       = 47.34848465[kHz]
Irr_domain    = 1H
Irr_freq      = 600.1723046[MHz]
Irr_offset    = 5[ppm]
Clipped       = FALSE
Mod_return    = 1
Scans         = 110
Total_scans   = 110

X_90_width    = 11.4[us]
X_acq_time    = 0.69206016[s]
X_angle       = 30[deg]
X_atn         = 7.5[db]
X_pulse       = 3.8[us]
Irr_atn_dec   = 19.391[db]
Irr_atn_noe   = 19.391[db]
Irr_noise     = WALTZ
Decoupling    = TRUE
Initial_wait  = 1[s]
Noe           = TRUE
Noe_time      = 2[s]
Recvr_gain    = 60
Relaxation_delay = 2[s]
Repetition_time = 2.69206016[s]
Temp_get      = 21.3[dc]
  
```



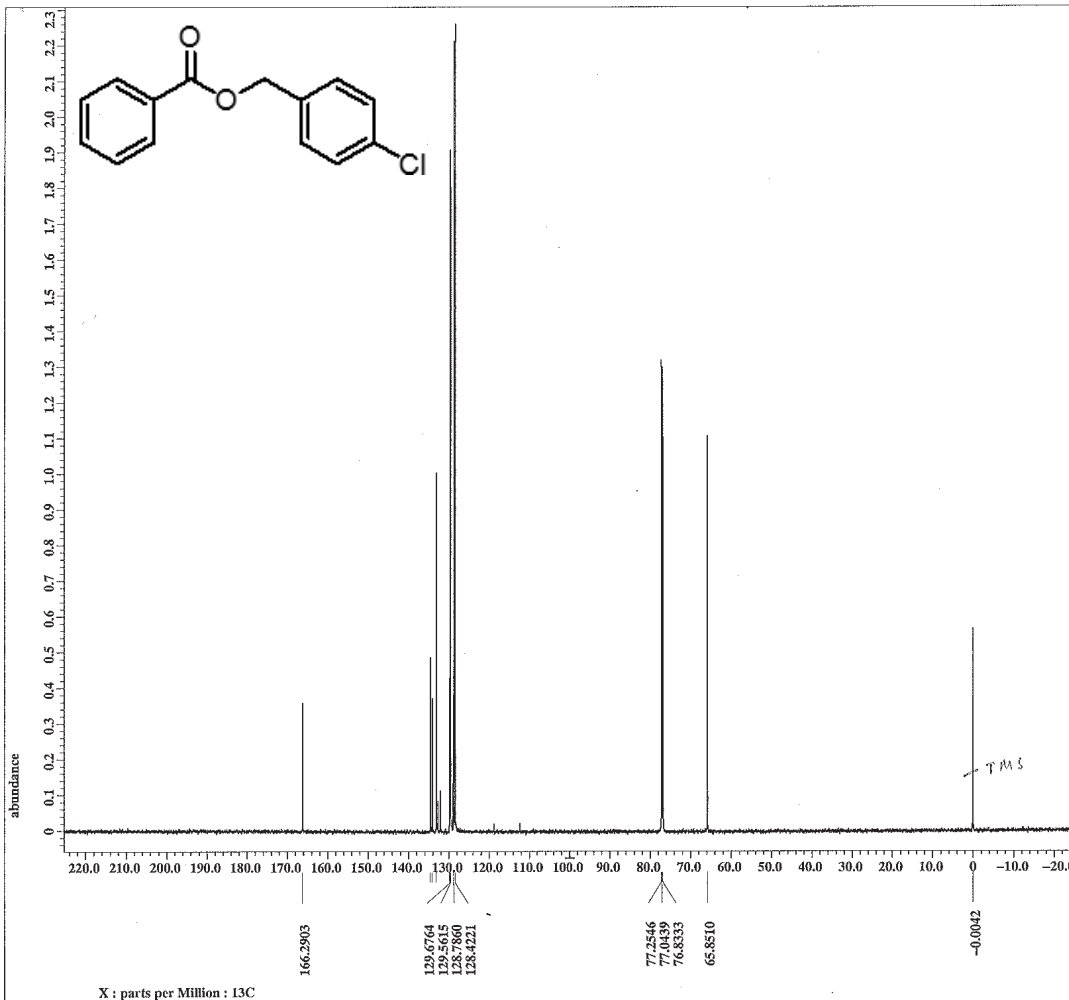
```

Filename      = Exp-AB-114-6-proton-5
Author       = delta
Experiment   = single_pulse.ex2
Sample_id    = Exp-AB-114-6-proton
Solvent      = CHLOROFORM-D
Creation_time = 19-JUN-2014 20:55:14
Revision_time = 19-JUN-2014 22:23:02
Current_time  = 19-JUN-2014 22:23:10

Content      = Exp-AB-114-6-proton
Data_format  = 1D COMPLEX
Dim_size     = 13107
Dim_title    = 1H
Dim_units    = [ppm]
Dimensions   = X
Site        = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928 [T] (600[M]
X_acq_duration = 1.4548992 [s]
X_domain       = 1H
X_freq         = 600.1723046 [MHz]
X_offset       = 5 [ppm]
X_points       = 16384
X_prescans     = 1
X_resolution   = 0.68733284 [Hz]
X_sweep        = 11.26126126 [kHz]
Irr_domain     = 1H
Irr_freq       = 600.1723046 [MHz]
Irr_offset     = 5 [ppm]
Tri_domain     = 1H
Tri_freq       = 600.1723046 [MHz]
Tri_offset     = 5 [ppm]
Clipped        = FALSE
Mod_return     = 1
Scans          = 8
Total_scans    = 8

X_90_width    = 13 [us]
X_acq_time     = 1.4548992 [s]
X_angle        = 45 [deg]
X_atn          = 3.5 [dB]
X_pulse        = 6.5 [us]
Irr_mode       = Off
Tri_mode       = Off
Dante_presat   = FALSE
Initial_wait   = 1 [s]
Recvr_gain     = 40
Relaxation_delay = 5 [s]
Repetition_time = 6.4548992 [s]
Temp_get       = 20.9 [dC]
  
```



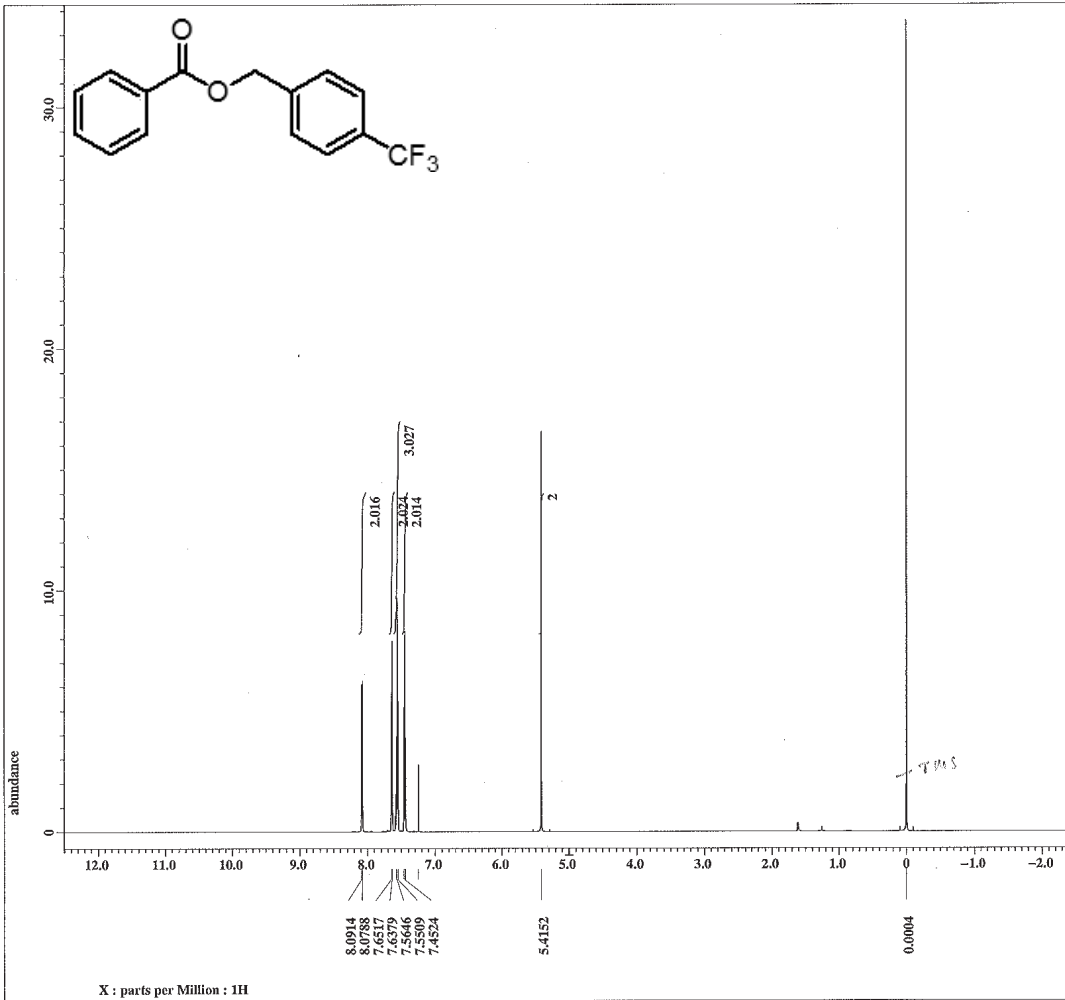
```

Filename      = Exp-AB-114-6-carbon-4
Author       = delta
Experiment   = single_pulse.dec
Sample_id    = Exp-AB-114-6-carbon
Solvent      = CHLOROFORM-D
Creation_time = 19-JUN-2014 21:40:49
Revision_time = 25-JUN-2014 17:38:57
Current_time  = 25-JUN-2014 17:39:24

Content      = Exp-AB-114-6-carbon
Data_format  = 1D COMPLEX
Dim_size     = 26214
Dim_title    = 13C
Dim_units    = [ppm]
Dimensions   = X
Site        = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928 [T] (600[M]
X_acq_duration = 0.69206016 [s]
X_domain       = 13C
X_freq         = 150.91343039 [MHz]
X_offset       = 100 [ppm]
X_points       = 32768
X_prescans     = 4
X_resolution   = 1.44496109 [Hz]
X_sweep        = 47.34848485 [kHz]
Irr_domain     = 13C
Irr_freq       = 600.1723046 [MHz]
Irr_offset     = 5 [ppm]
Clipped        = FALSE
Mod_return     = 1
Scans          = 1000
Total_scans    = 1000

X_90_width    = 11.4 [us]
X_acq_time     = 0.69206016 [s]
X_angle        = 30 [deg]
X_atn          = 7.5 [dB]
X_pulse        = 3.8 [us]
Irr_atn_dec   = 19.391 [dB]
Irr_atn_noe   = 19.391 [dB]
Irr_noise     = WALEX
Decoupling     = TRUE
Initial_wait   = 1 [s]
Noe            = TRUE
Noe_time       = 2 [s]
Recvr_gain     = 60
Relaxation_delay = 2 [s]
Repetition_time = 2.69206016 [s]
Temp_get       = 22 [dC]
  
```

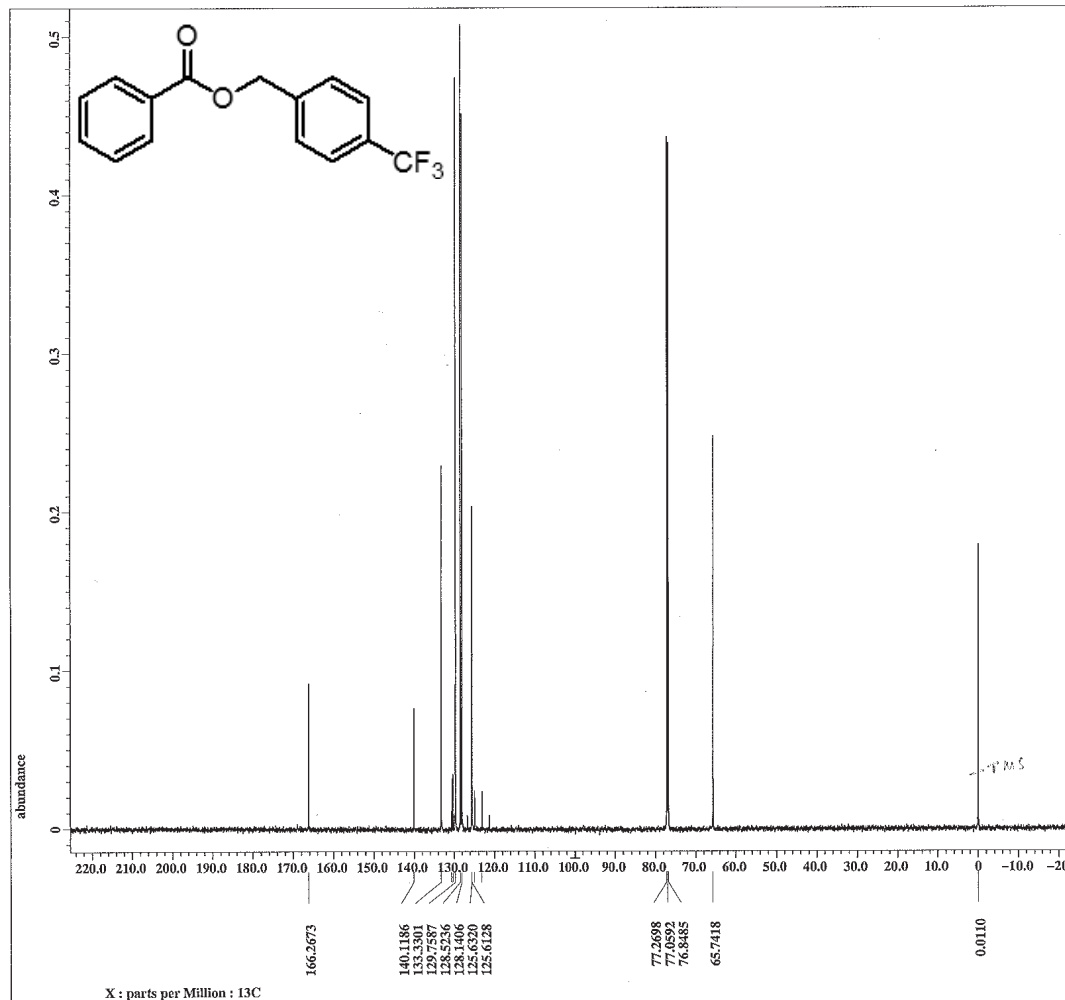


Filename = Exp-hakim-115-19-prot  
Author = delta  
Experiment = single\_pulse.exe2  
Sample\_id = Exp-hakim-115-19-prot  
Solvent = CHLOROFORM-D  
Creation\_time = 11-JUN-2014 13:10:08  
Revision\_time = 11-JUN-2014 13:18:02  
Current\_time = 11-JUN-2014 13:18:09

Content = Exp-hakim-115-19-prot  
Data\_format = 1D COMPLEX  
Dim\_size = 13107  
Dim\_title = 1H  
Dim\_units = [ppm]  
Dimensions = X  
Site = ECA 600  
Spectrometer = DELTA2\_NMR

Field\_strength = 14.09636928[T] (600[M]  
X\_acq\_duration = 1.4548992[s]  
X\_domain = 1H  
X\_freq = 600.1723046[MHz]  
X\_offset = 5[ppm]  
X\_points = 16384  
X\_prescans = 1  
X\_resolution = 0.68733284[Hz]  
X\_sweep = 11.26126126[kHz]  
Irr\_domain = 1H  
Irr\_freq = 600.1723046[MHz]  
Irr\_offset = 5[ppm]  
Tri\_domain = 1H  
Tri\_freq = 600.1723046[MHz]  
Tri\_offset = 5[ppm]  
Clipped = FALSE  
Mod\_return = 1  
Scans = 8  
Total\_scans = 8

X\_90\_width = 13[us]  
X\_acq\_time = 1.4548992[s]  
X\_angle = 45[deg]  
X\_atn = 3.6[db]  
X\_pulse = 6.5[us]  
Irr\_mode = Off  
Tri\_mode = Off  
Dnfc\_presat = FALSE  
Initial\_wait = 1[s]  
Recvr\_gain = 42  
Relaxation\_delay = 5[s]  
Repetition\_time = 6.4548992[s]  
Temp\_get = 22.6[dc]

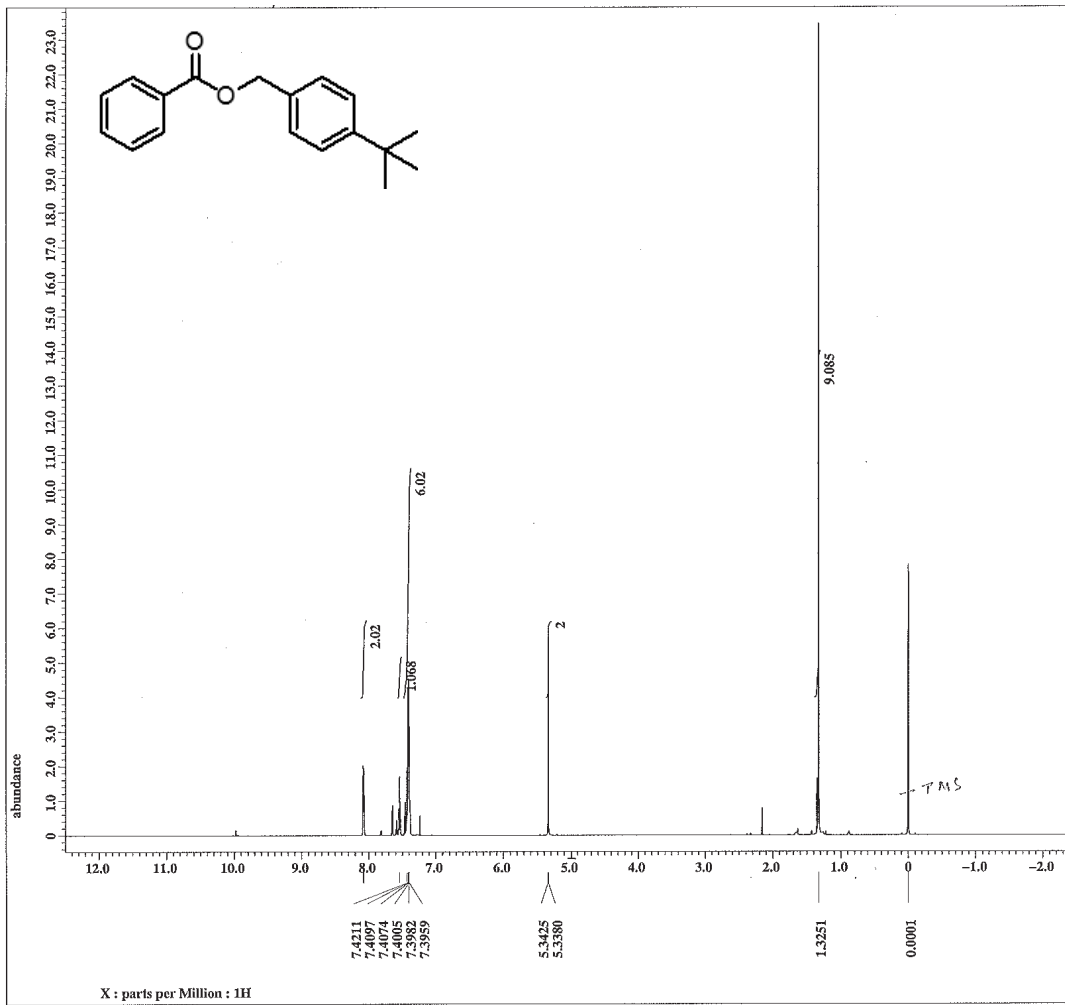


Filename = Exp-hakim-115-19-carb  
Author = delta  
Experiment = single\_pulse\_dec  
Sample\_id = Exp-hakim-115-19-carb  
Solvent = CHLOROFORM-D  
Creation\_time = 11-JUN-2014 13:59:17  
Revision\_time = 12-JUN-2014 10:05:52  
Current\_time = 12-JUN-2014 10:06:04

Content = Exp-hakim-115-19-carb  
Data\_format = 1D COMPLEX  
Dim\_size = 26214  
Dim\_title = 13C  
Dim\_units = [ppm]  
Dimensions = X  
Site = ECA 600  
Spectrometer = DELTA2\_NMR

Field\_strength = 14.09636928[T] (600[M]  
X\_acq\_duration = 0.69206016[s]  
X\_domain = 13C  
X\_freq = 150.91343039[MHz]  
X\_offset = 100[ppm]  
X\_points = 32768  
X\_prescans = 4  
X\_resolution = 1.44496109[Hz]  
X\_sweep = 47.34848485[kHz]  
Irr\_domain = 1H  
Irr\_freq = 600.1723046[MHz]  
Irr\_offset = 5[ppm]  
Clipped = FALSE  
Mod\_return = 1  
Scans = 1000  
Total\_scans = 1000

X\_90\_width = 11.4[us]  
X\_acq\_time = 0.69206016[s]  
X\_angle = 30[deg]  
X\_atn = 7.5[db]  
X\_pulse = 3.8[us]  
Irr\_atn\_dec = 19.391[db]  
Irr\_atn\_noe = 19.391[db]  
Irr\_noise = WALTZ  
Decoupling = TRUE  
Initial\_wait = 1[s]  
Noe = TRUE  
Noe\_time = 2[s]  
Recvr\_gain = 50  
Relaxation\_delay = 2[s]  
Repetition\_time = 2.69206016[s]  
Temp\_get = 23.5[dc]



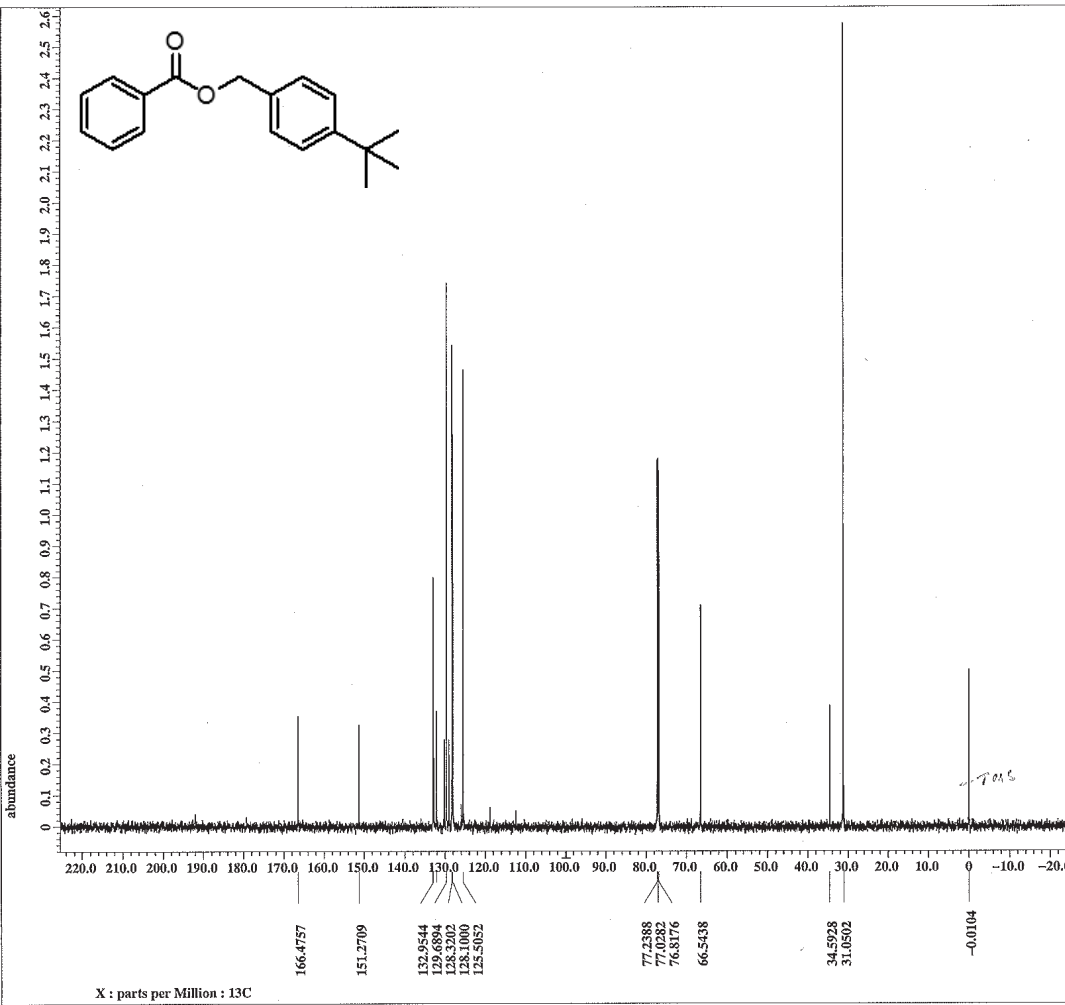
```

Filename      = Exp-AB-114-8-proton-1
Author       = delta
Experiment   = single_pulse.ex2
Sample_id    = Exp-AB-114-8-proton
Solvent      = CHLOROFORM-D
Creation_time = 19-JUN-2014 22:32:51
Revision_time = 19-JUN-2014 22:44:22
Current_time  = 19-JUN-2014 22:44:35

Content      = Exp-AB-114-8-proton
Data_format  = 1D COMPLEX
Dim_size     = 13107
Dim_title    = 1H
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928 [T] (600 [M]
X_acq_duration = 1.4548992 [s]
X_domain       = 1H
X_freq         = 600.1723046 [MHz]
X_offset       = 5 [ppm]
X_points       = 16384
X_prescans     = 1
X_resolution   = 0.68733284 [Hz]
X_sweep        = 11.26126126 [kHz]
Irr_domain     = 1H
Irr_freq       = 600.1723046 [MHz]
Irr_offset     = 5 [ppm]
Irr_domain     = 1H
Irr_freq       = 600.1723046 [MHz]
Irr_offset     = 5 [ppm]
Clipped        = FALSE
Mod_return     = 1
Scans          = 8
Total_scans    = 8

X_90_width    = 13 [us]
X_acq_time     = 1.4548992 [s]
X_angle        = 45 [deg]
X_atn          = 3.5 [dB]
X_pulse        = 6.5 [us]
Irr_mode       = Off
Tri_mode       = Off
Dante_presat   = FALSE
Initial_wait   = 1 [s]
Recvr_gain     = 36
Relaxation_delay = 5 [s]
Repetition_time = 6.4548992 [s]
Temp_get       = 20.9 [dC]
  
```



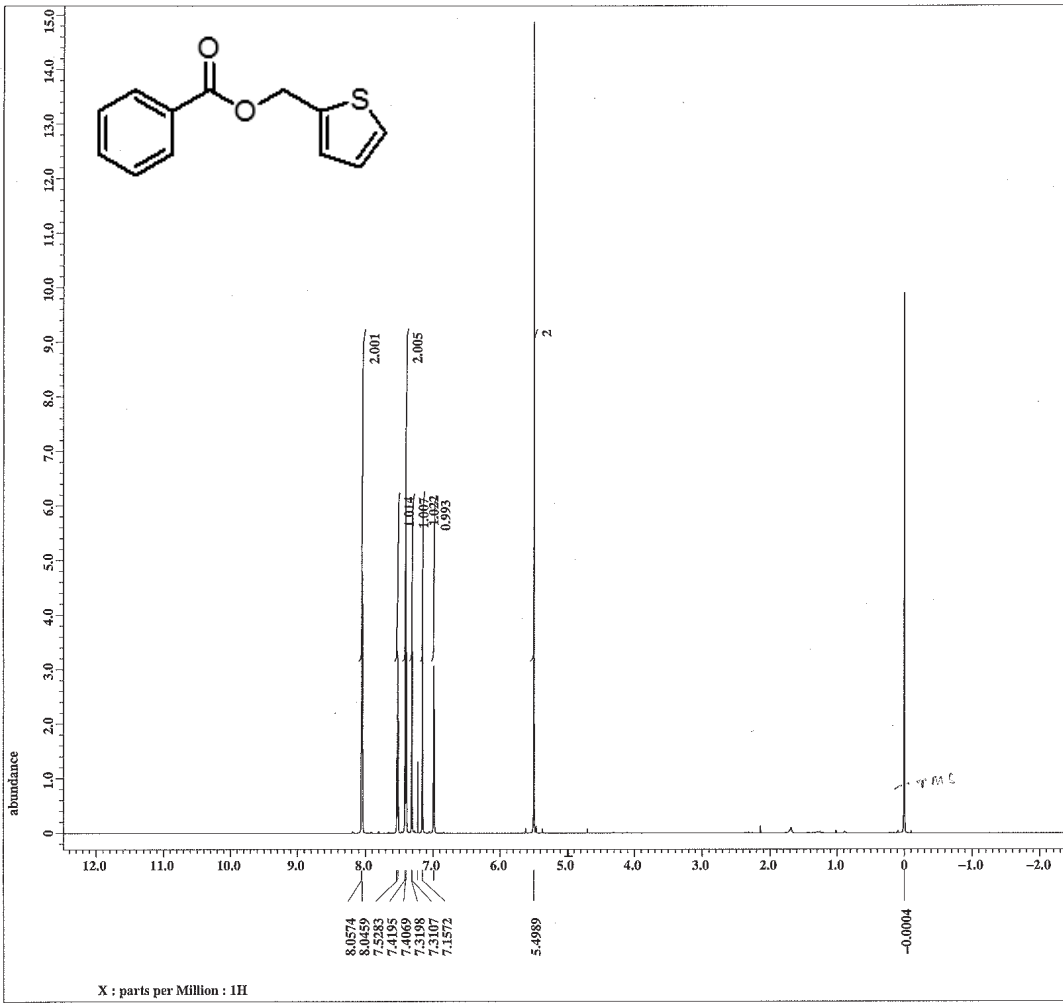
```

Filename      = Exp-AB-114-8-carbon-4
Author       = delta
Experiment   = single_pulse.doc
Sample_id    = Exp-AB-114-8-carbon
Solvent      = CHLOROFORM-D
Creation_time = 19-JUN-2014 22:38:31
Revision_time = 19-JUN-2014 22:47:28
Current_time  = 19-JUN-2014 22:47:35

Content      = Exp-AB-114-8-carbon
Data_format  = 1D COMPLEX
Dim_size     = 26214
Dim_title    = 13C
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928 [T] (600 [M]
X_acq_duration = 0.69206016 [s]
X_domain       = 13C
X_freq         = 150.91343039 [MHz]
X_offset       = 100 [ppm]
X_points       = 32768
X_prescans     = 4
X_resolution   = 1.44496109 [Hz]
X_sweep        = 47.34848485 [kHz]
Irr_domain     = 1H
Irr_freq       = 600.1723046 [MHz]
Irr_offset     = 5 [ppm]
Clipped        = FALSE
Mod_return     = 1
Scans          = 110
Total_scans    = 110

X_90_width    = 11.4 [us]
X_acq_time     = 0.69206016 [s]
X_angle        = 30 [deg]
X_atn          = 7.5 [dB]
X_pulse        = 3.8 [us]
Irr_atn_dec    = 19.391 [dB]
Irr_atn_noise = 19.391 [dB]
Irr_noise      = WALTZ
Decoupling     = TRUE
Initial_wait   = 1 [s]
Noe            = TRUE
Noe_time       = 2 [s]
Recvr_gain     = 60
Relaxation_delay = 2 [s]
Repetition_time = 2.69206016 [s]
Temp_get       = 21.6 [dC]
  
```



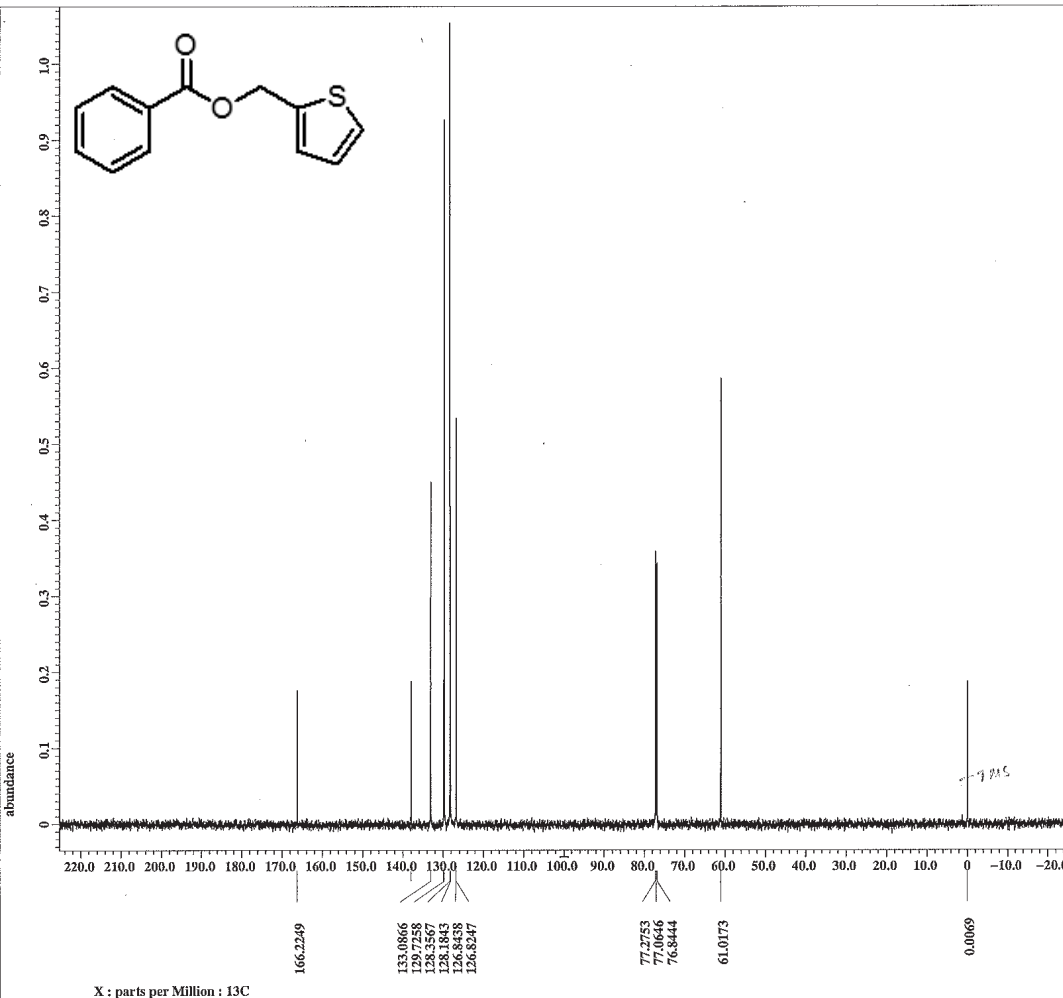
```

Filename      = Exp-hakim-115-29-prot
Author       = delta
Experiment   = single_pulse_ex2
Sample_id    = Exp-hakim-115-29-prot
Solvent      = CHLOROFORM-D
Creation_time = 11-JUN-2014 12:49:11
Revision_time = 11-JUN-2014 12:57:55
Current_time  = 11-JUN-2014 12:58:00

Content      = Exp-hakim-115-29-prot
Data_format  = 1D COMPLEX
Dim_size     = 13107
Dim_title    = 1H
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928 [T] (600 [M]
X_acq_duration = 1.4548992 [s]
X_domain       = 1H
X_freq         = 600.1723046 [MHz]
X_offset       = 5 [ppm]
X_points       = 16384
X_prescans     = 1
X_resolution   = 0.68733284 [Hz]
X_sweep        = 11.26126126 [kHz]
Irr_domain     = 1H
Irr_freq       = 600.1723046 [MHz]
Irr_offset     = 5 [ppm]
Tri_domain     = 1H
Tri_freq       = 600.1723046 [MHz]
Tri_offset     = 5 [ppm]
Clipped        = FALSE
Mod_return     = 1
Scans          = 8
Total_scans    = 8

X_90_width    = 13 [us]
X_acq_time     = 1.4548992 [s]
X_angle        = 45 [deg]
X_atn          = 3.6 [dB]
X_pulse        = 6.5 [us]
Irr_mode       = Off
Tri_mode       = Off
Dante_presat  = FALSE
Initial_wait   = 1 [s]
Recvr_gain     = 36
Relaxation_delay = 5 [s]
Repetition_time = 6.4548992 [s]
Temp_get       = 22.8 [dC]
  
```



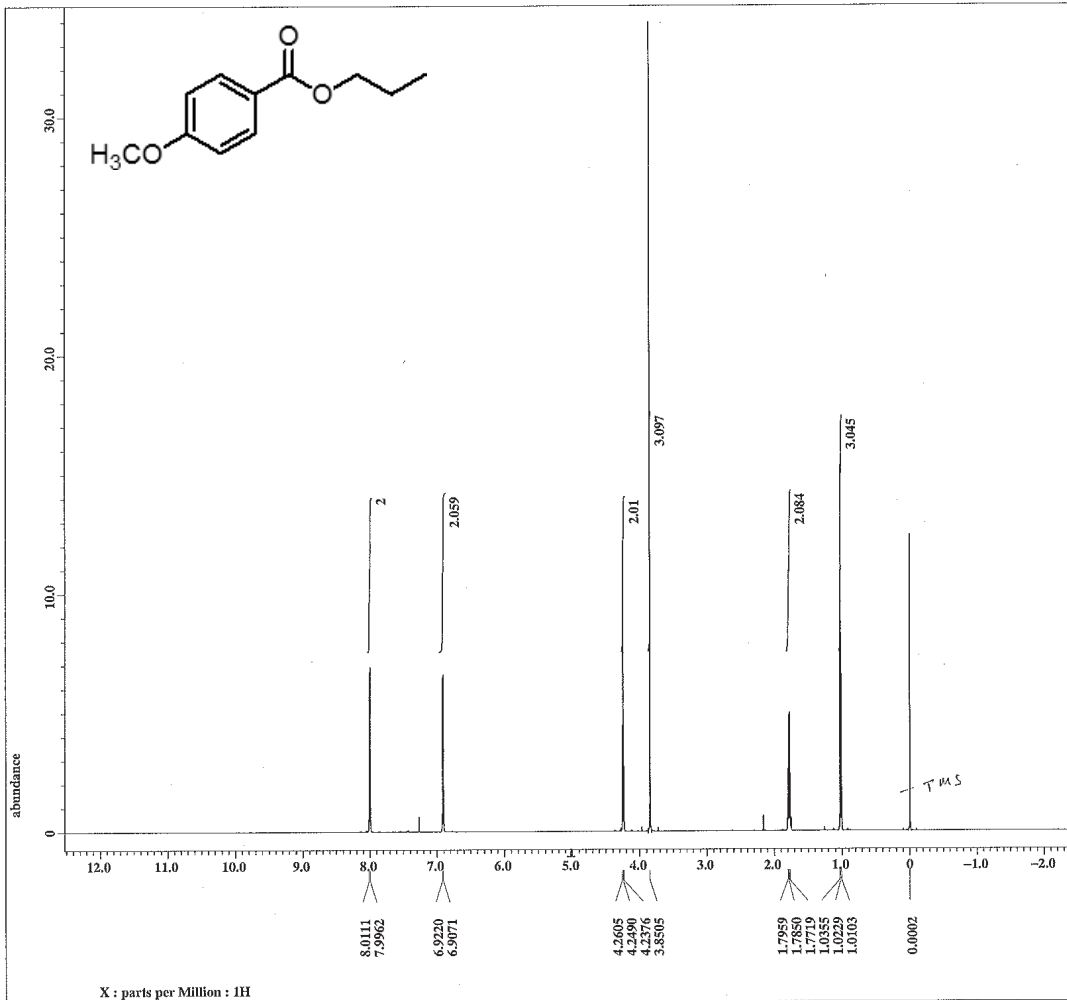
```

Filename      = Exp-hakim-115-29-carb
Author       = delta
Experiment   = single_pulse_dec
Sample_id    = Exp-hakim-115-29-carb
Solvent      = CHLOROFORM-D
Creation_time = 11-JUN-2014 12:52:51
Revision_time = 11-JUN-2014 13:01:18
Current_time  = 11-JUN-2014 13:01:24

Content      = Exp-hakim-115-29-carb
Data_format  = 1D COMPLEX
Dim_size     = 26214
Dim_title    = 13C
Dim_units    = [ppm]
Dimensions   = X
Site         = ECA 600
Spectrometer = DELTA2_NMR

Field_strength = 14.09636928 [T] (600 [M]
X_acq_duration = 0.69206016 [s]
X_domain       = 13C
X_freq         = 150.91343039 [MHz]
X_offset       = 100 [ppm]
X_points       = 32768
X_prescans     = 4
X_resolution   = 1.44496109 [Hz]
X_sweep        = 47.34848485 [kHz]
Irr_domain     = 1H
Irr_freq       = 600.1723046 [MHz]
Irr_offset     = 5 [ppm]
Clipped        = FALSE
Mod_return     = 1
Scans          = 76
Total_scans    = 76

X_90_width    = 11.4 [us]
X_acq_time     = 0.69206016 [s]
X_angle        = 30 [deg]
X_atn          = 7.5 [dB]
X_pulse        = 3.8 [us]
Irr_atn_dec   = 19.391 [dB]
Irr_atn_noc   = 19.391 [dB]
Irr_noise     = WALTZ
Decoupling     = TRUE
Initial_wait   = 1 [s]
Noe            = TRUE
Noe_time       = 2 [s]
Recvr_gain     = 50
Relaxation_delay = 2 [s]
Repetition_time = 2.69206016 [s]
Temp_get       = 23.2 [dC]
  
```

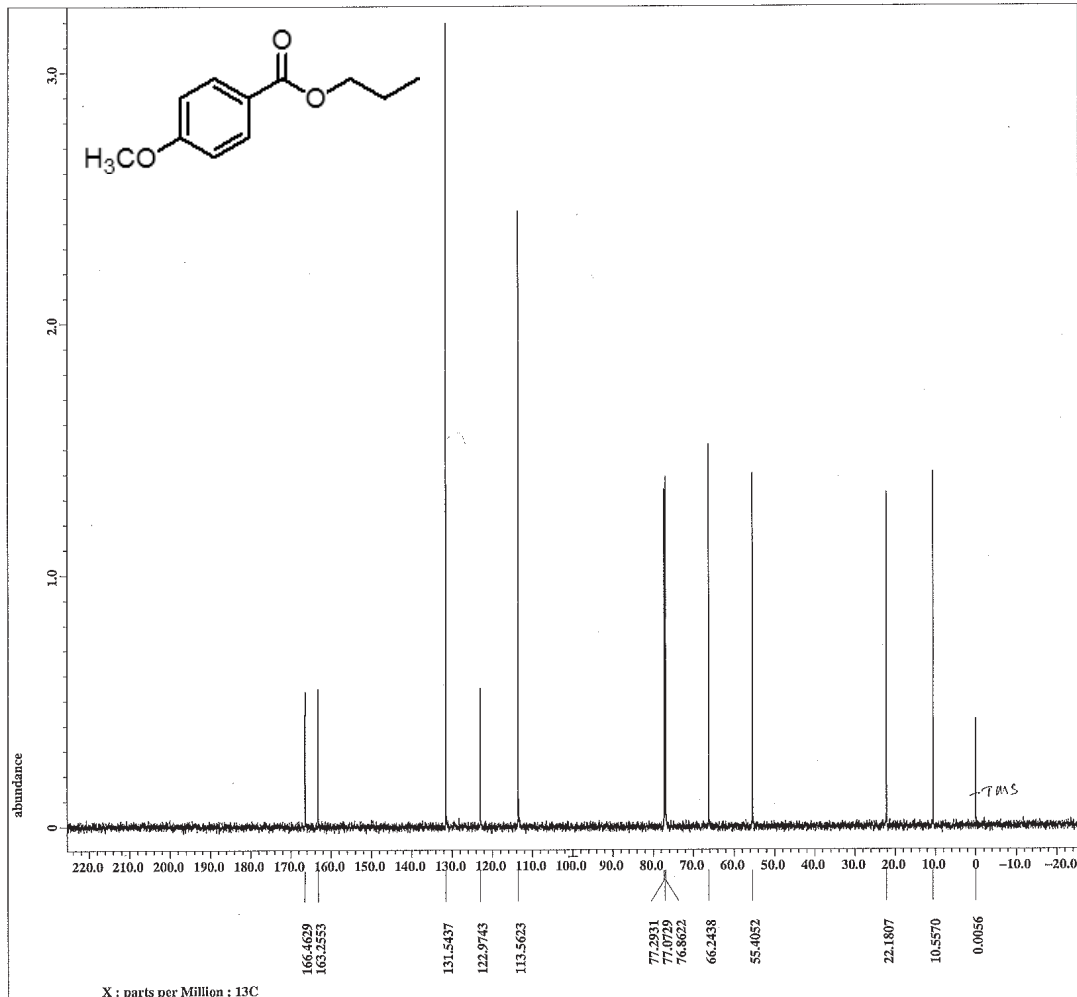


Filename = Exp-hakim-319-proton-  
 Author = delta  
 Experiment = single\_pulse\_ex2  
 Sample\_id = Exp-hakim-319-proton  
 Solvent = CHLOROFORM-D  
 Creation\_time = 7-JUL-2014 12:36:19  
 Revision\_time = 7-JUL-2014 12:47:11  
 Current\_time = 7-JUL-2014 12:47:19

Content = Exp-hakim-319-proton  
 Data\_format = 1D\_COMPLEX  
 Dim\_size = 13107  
 Dim\_title = 1H  
 Dim\_units = [ppm]  
 Dimensions = X  
 Site = ECA 600  
 Spectrometer = DELTA2\_NMR

Field\_strength = 14.09636928[T] (600[M]  
 X\_acq\_duration = 1.4548992[s]  
 X\_domain = 1H  
 X\_freq = 600.1723046[MHz]  
 X\_offset = 5[ppm]  
 X\_points = 16394  
 X\_prescans = 1  
 X\_resolution = 0.68733284[Hz]  
 X\_sweep = 11.26126126[kHz]  
 Irr\_domain = 1H  
 Irr\_freq = 600.1723046[MHz]  
 Irr\_offset = 5[ppm]  
 Tri\_domain = 1H  
 Tri\_freq = 600.1723046[MHz]  
 Tri\_offset = 5[ppm]  
 Clipped = FALSE  
 Mod\_return = 1  
 Scans = 8  
 Total\_scans = 8

X\_90\_width = 13[us]  
 X\_acq\_time = 1.4548992[s]  
 X\_angle = 45[deg]  
 X\_atn = 3.6[db]  
 X\_pulse = 6.5[us]  
 Irr\_mode = Off  
 Tri\_mode = Off  
 Dante\_preset = FALSE  
 Initial\_wait = 1[s]  
 Recvr\_gain = 16  
 Relaxation\_delay = 5[s]  
 Repetition\_time = 6.4548992[s]  
 Temp\_get = 21[dc]



Filename = Exp-hakim-319-carbon-  
 Author = delta  
 Experiment = single\_pulse\_dec  
 Sample\_id = Exp-hakim-319-carbon  
 Solvent = CHLOROFORM-D  
 Creation\_time = 7-JUL-2014 12:41:28  
 Revision\_time = 7-JUL-2014 12:50:26  
 Current\_time = 7-JUL-2014 12:51:10

Content = Exp-hakim-319-carbon  
 Data\_format = 1D\_COMPLEX  
 Dim\_size = 26214  
 Dim\_title = 13C  
 Dim\_units = [ppm]  
 Dimensions = X  
 Site = ECA 600  
 Spectrometer = DELTA2\_NMR

Field\_strength = 14.09636928[T] (600[M]  
 X\_acq\_duration = 0.69206016[s]  
 X\_domain = 13C  
 X\_freq = 150.91343039[MHz]  
 X\_offset = 100[ppm]  
 X\_points = 32768  
 X\_prescans = 4  
 X\_resolution = 1.44496109[Hz]  
 X\_sweep = 47.34848485[kHz]  
 Irr\_domain = 1H  
 Irr\_freq = 600.1723046[MHz]  
 Irr\_offset = 5[ppm]  
 Clipped = FALSE  
 Mod\_return = 1  
 Scans = 99  
 Total\_scans = 99

X\_90\_width = 11.4[us]  
 X\_acq\_time = 0.69206016[s]  
 X\_angle = 30[deg]  
 X\_atn = 7.5[db]  
 X\_pulse = 3.8[us]  
 Irr\_atn\_dec = 19.391[db]  
 Irr\_atn\_noe = 19.391[db]  
 Irr\_noise = WAIVE  
 Decoupling = TRUE  
 Initial\_wait = 1[s]  
 Noe = TRUE  
 Noe\_time = 2[s]  
 Recvr\_gain = 60  
 Relaxation\_delay = 2[s]  
 Repetition\_time = 2.69206016[s]  
 Temp\_get = 21.7[dc]