

Chiral Indoline Synthesis Via Enantioselective Copper-Catalyzed Alkene Hydroamination/Cyclization

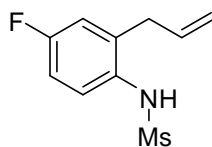
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The State University of New York, Buffalo, NY 14260, schemler@buffalo.edu

Supporting Information II**Table of Contents**

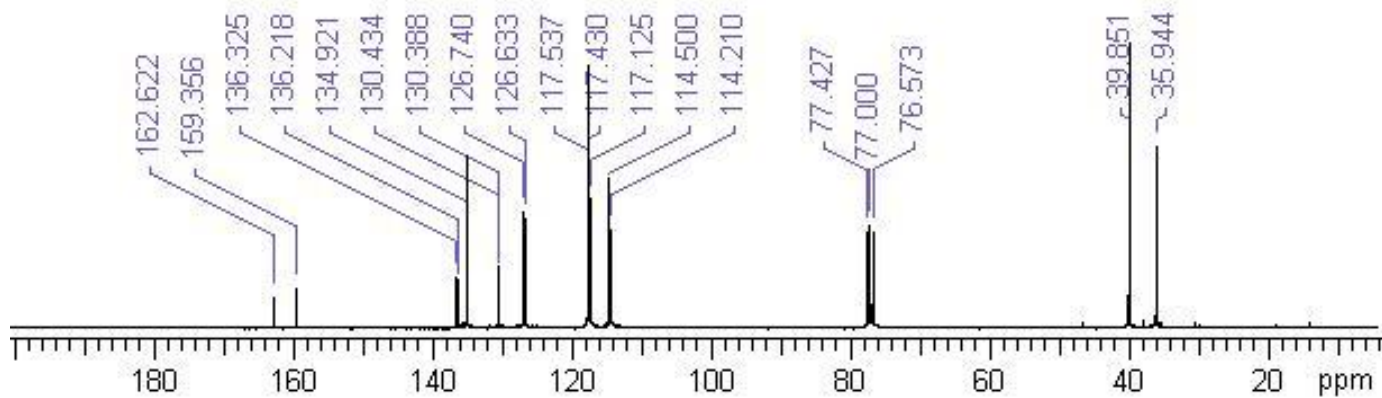
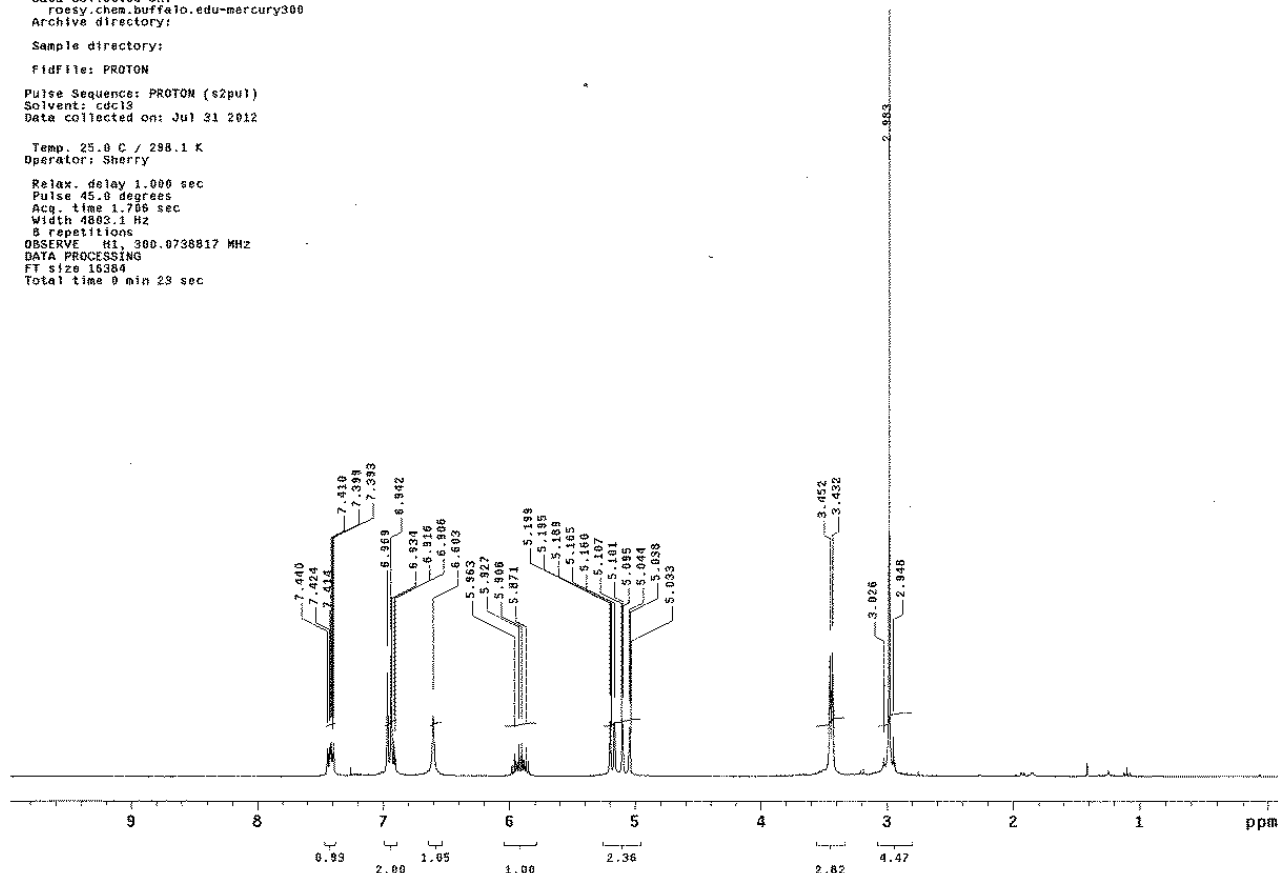
¹H and ¹³C NMR Spectra

S-2



1d

blt2-rxn484pg199pure1
 Sample Name:
 Data Collected on:
 roesy.chem.buffalo.edu-mercury300
 Archive directory:
 Sample directory:
 FidFile: PROTON
 Pulse Sequence: PROTON (s2pu1)
 Solvent: cdc13
 Data collected on: Jul 31 2012
 Temp. 25.0 C / 298.1 K
 Operator: Sherry
 Relax. delay 1.000 sec
 Pulse 45.0 degrees
 Acq. time 1.700 sec
 Width 4600.1 Hz
 8 repetitions
 OBSERVE H1, 300.0738017 MHz
 DATA PROCESSING
 FT size 15364
 Total time 9 min 29 sec



yp

12.0

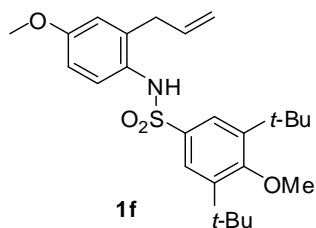
cr

92.07

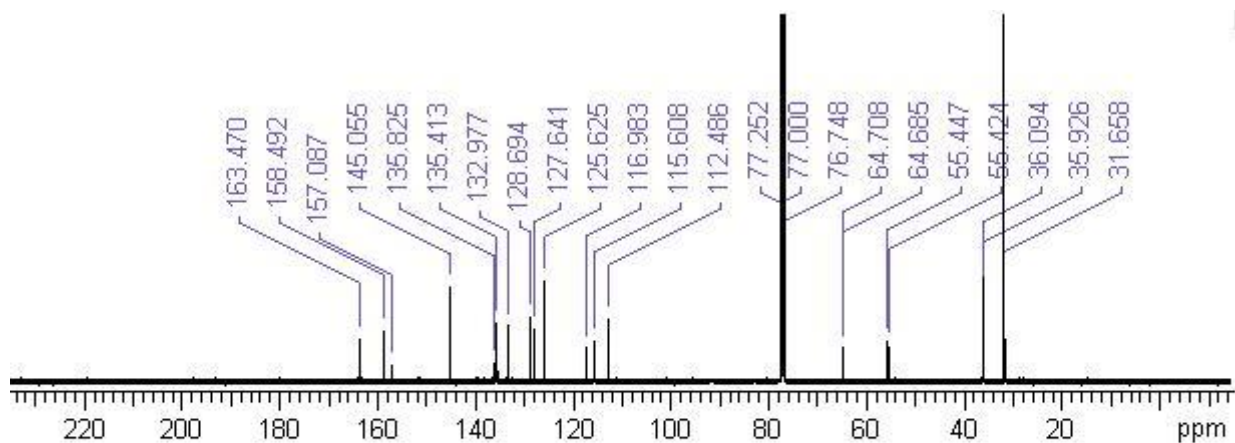
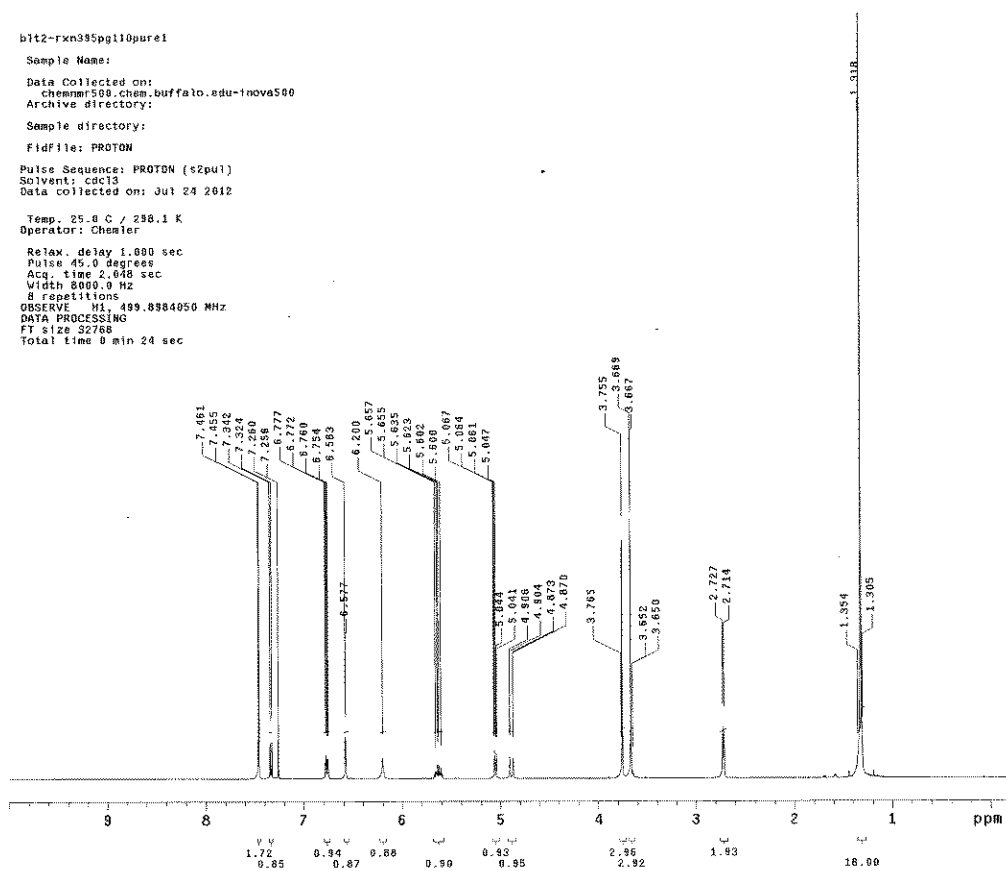
vs

123.2

delta



blt2-rxn395pg110pure1
 Sample Name:
 Data Collected on:
 chemmr500.chem.buffalo.edu-inova500
 Archive directory:
 Sample directory:
 Fidfile: PROTON
 Pulse Sequence: PROTON (s2pul)
 Solvent: ccd3
 Data collected on: Jul 24 2012
 Temp: 25.8 C / 298.1 K
 Operator: Chemler
 Relax. delay 1.000 sec
 Pulse 45.0 degrees
 Acq. time 2.048 sec
 Width 8000.0 Hz
 8 repetitions
 OBSERVE M1, 499.8984050 MHz
 DATA PROCESSING
 FT size 32768
 Total time 0 min 24 sec

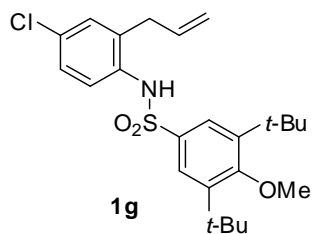


vp
12.0

cf
32.99

vs
1338.2

delta



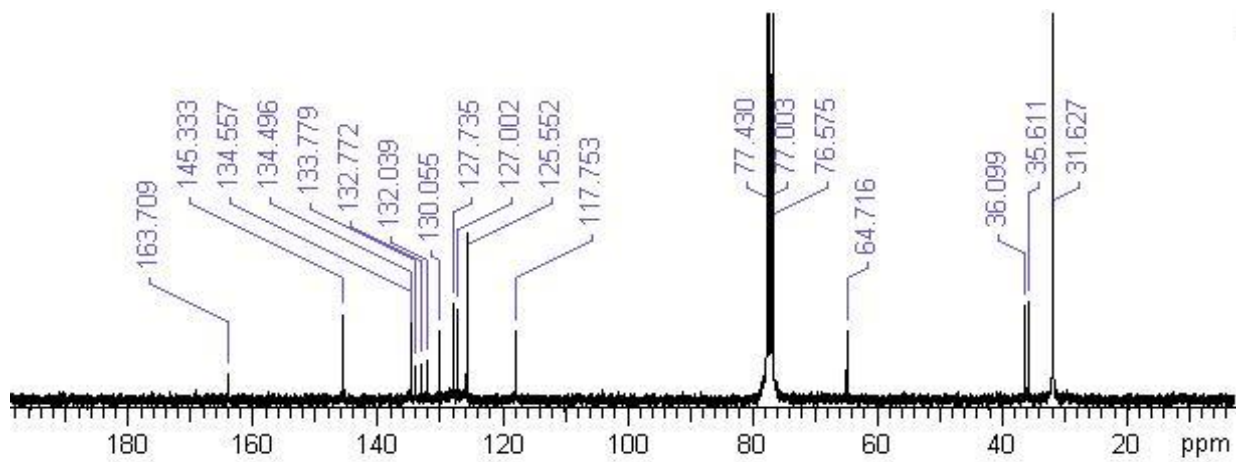
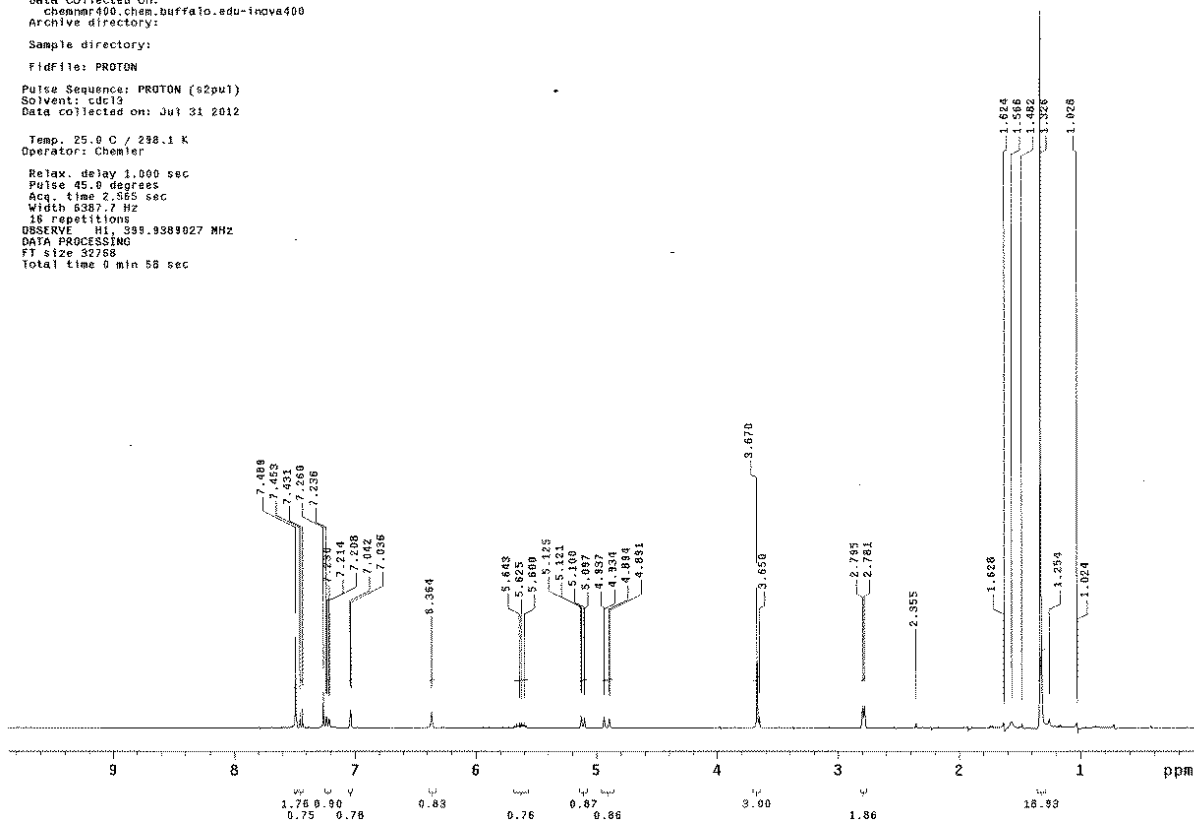
blt2-rxn-p-cl-arylsubstrate

Sample Name:
DC-173
Data Collected on:
chemner400.chem.buffalo.edu-inova400
Archive directory:
Sample directory:
Fidfile: PROTON

Pulse Sequence: PROTON (s2pu1)
Solvent: cdcl3
Data collected on: Jul 31 2012

Temp. 25.0 C / 298.1 K
Operator: Chemler

Relax. delay 1.000 sec
Pulse 45.0 degrees
Acq. time 2.365 sec
Width 6367.7 Hz
18 repetitions
OSSERVE H1: 399.9389027 MHz
DATA PROCESSING
F1 size 32768
Total time 0 min 58 sec



vp

0

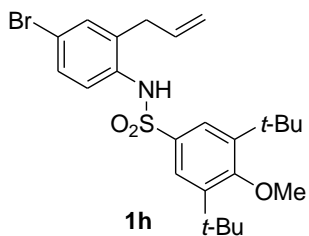
cr

181.39

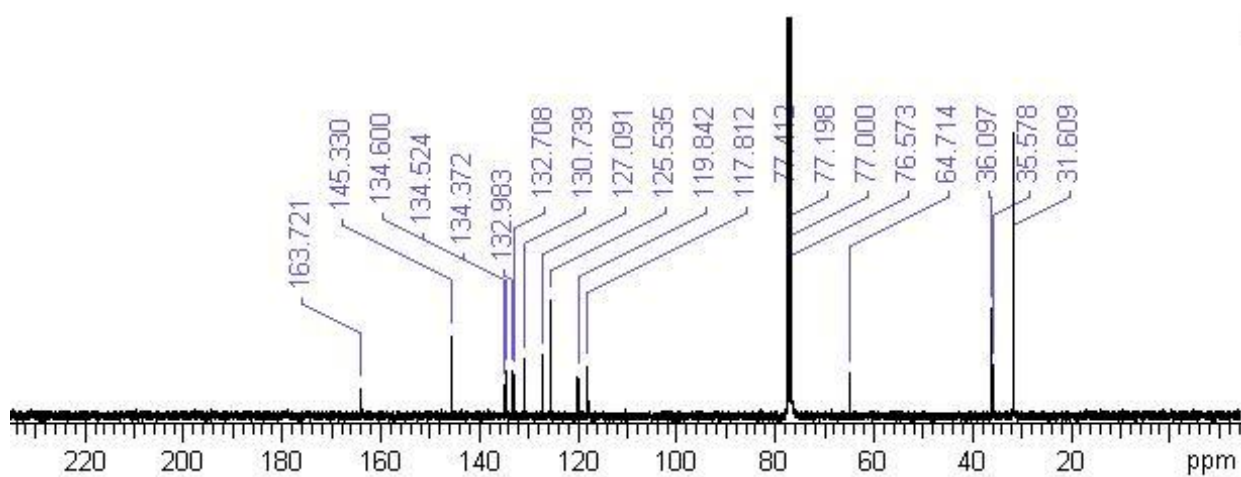
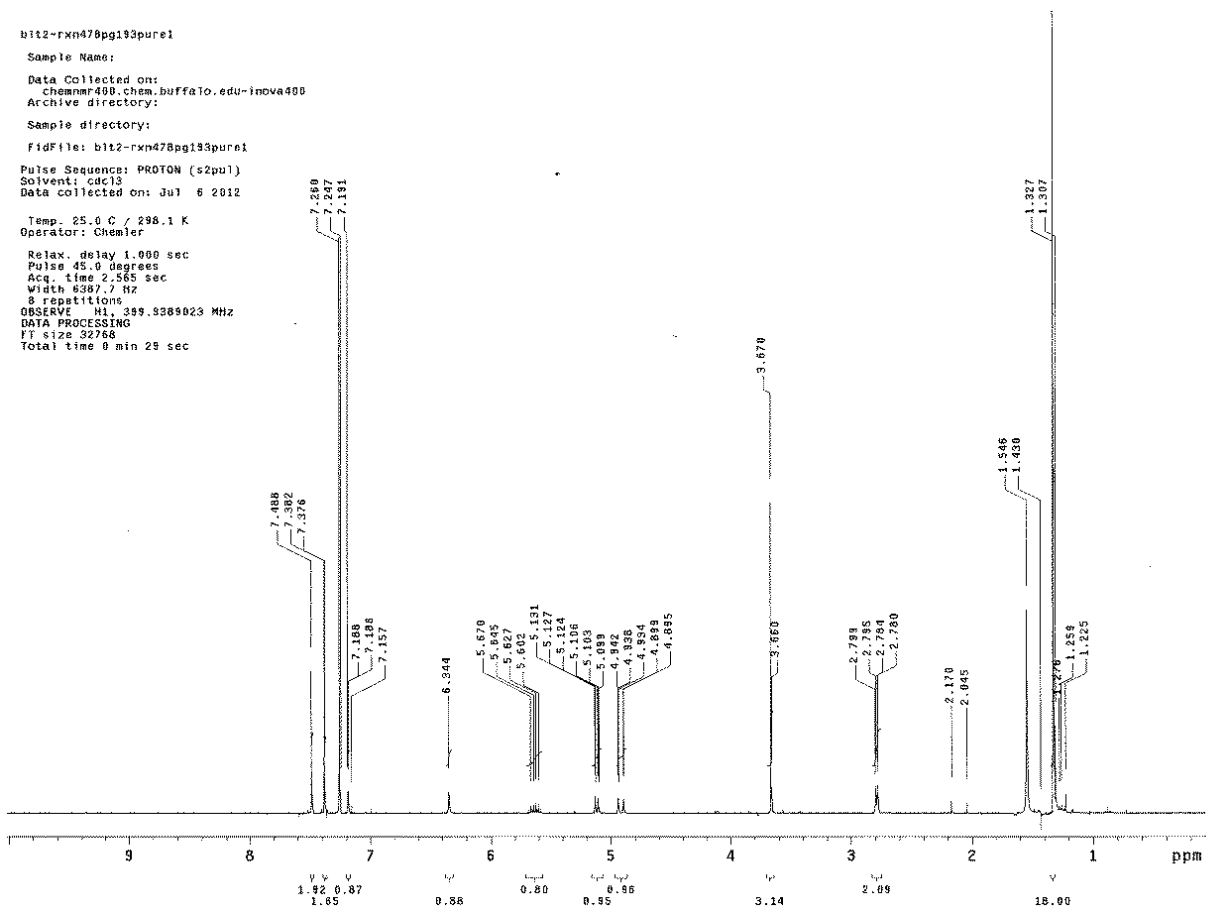
vs

1464.2

delta



blt2-rxn478pg133pure1
 Sample Name:
 Data Collected on:
 chemnar400.chem.buffalo.edu-inova400
 Archive directory:
 Sample directory:
 FidFile: blt2-rxn478pg133pure1
 Pulse Sequence: PROTON (s2pu1)
 Solvent: cdcl3
 Data collected on: Jul 6 2012
 Temp. 25.0 C / 298.1 K
 Operator: Chemler
 Relax. delay 1.000 sec
 Pulse 45.0 degrees
 Acq. time 2.565 sec
 Width 8387.7 Hz
 8 repetitions
 OBSERVE H1, 399.9389023 MHz
 DATA PROCESSING
 FT size 92768
 Total time 0 min 29 sec



vp

0

cr

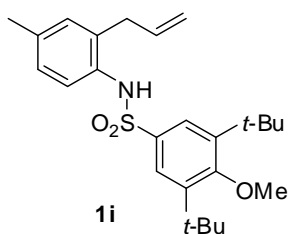
80.16

vs

1138.0

delta

7.14



bit2-rxn468pg184pure1

Sample Name:

Data Collected on:
chemnmr400.chem.buffalo.edu-inova400

Archive directory:

Sample directory:

Fidfile: bit2-rxn468pg184pure1

Pulse Sequence: PROTON (s2pul)

Solvent: cdcl3

Data collected on: Jul 9 2012

Temp. 25.0 C / 298.1 K

Operator: Chemler

Relax. delay 1.000 sec

Pulse 45.0 degrees

Acq. time 2.585 sec

Width 6387.7 Hz

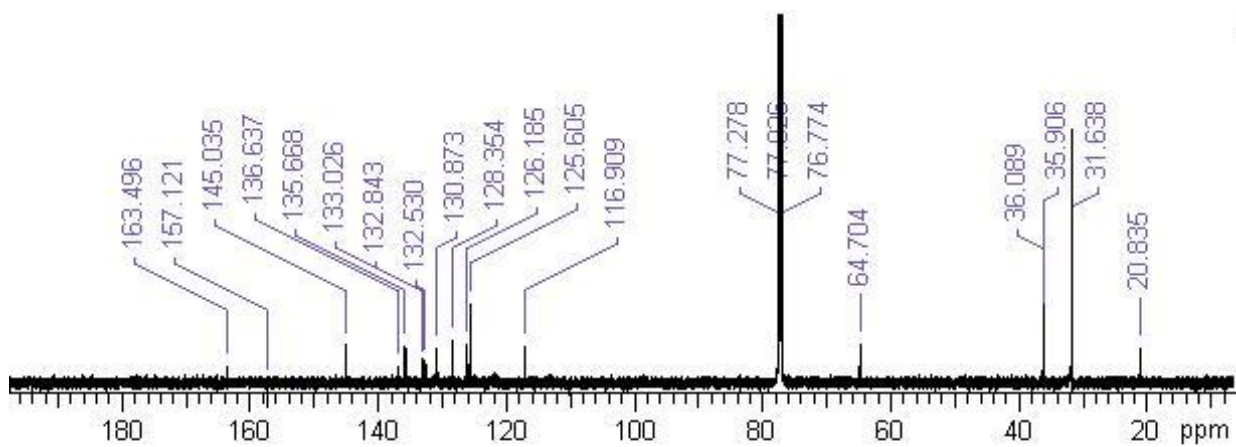
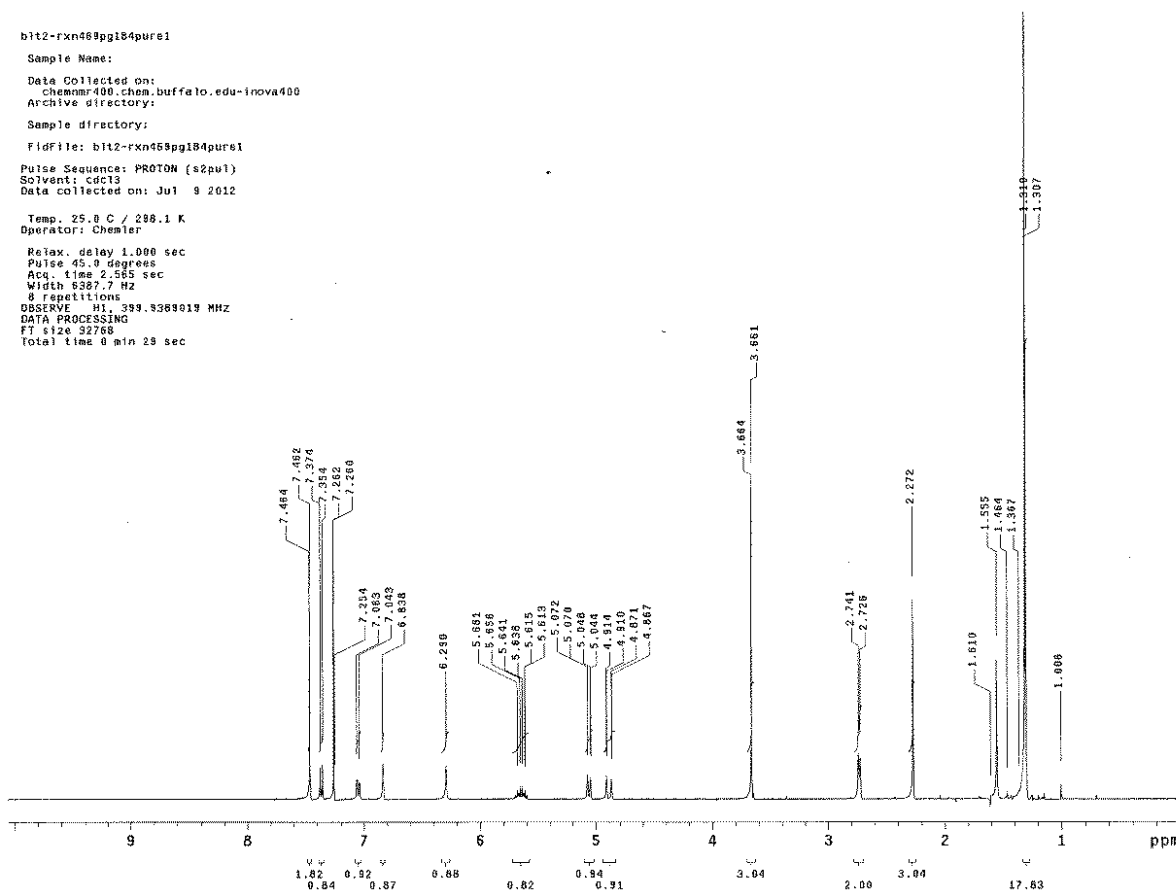
8 repetitions

OBSERVE H1, 399.8369819 MHz

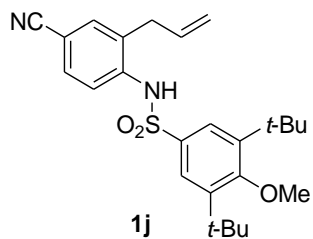
DATA PROCESSING

FT size 52768

Total time 0 min 29 sec

vp
12.0cf
149.64vs
3754.8

delta



blt2-rxn446pg161pure2

Sample Name:

Data Collected on:
F0esy.chem.buffalo.edu-mercury300

Archive directory:

Sample directory:

FidFile: blt2-rxn446pg161p2

Pulse Sequence: PROTON (s2pul)

Solvent: cdcl3

Data collected on: Aug 1 2012

Temp: 25.0 C / 298.1 K

Operator: Sherry

Relax. delay 2.000 sec

Pulse 45.0 degrees

Acq. time 1.766 sec

Width 4800.1 Hz

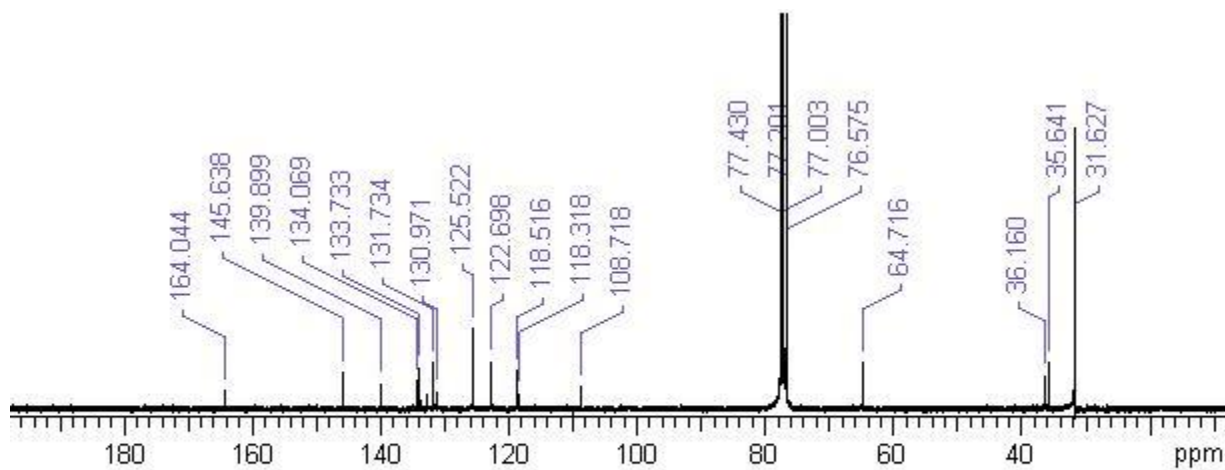
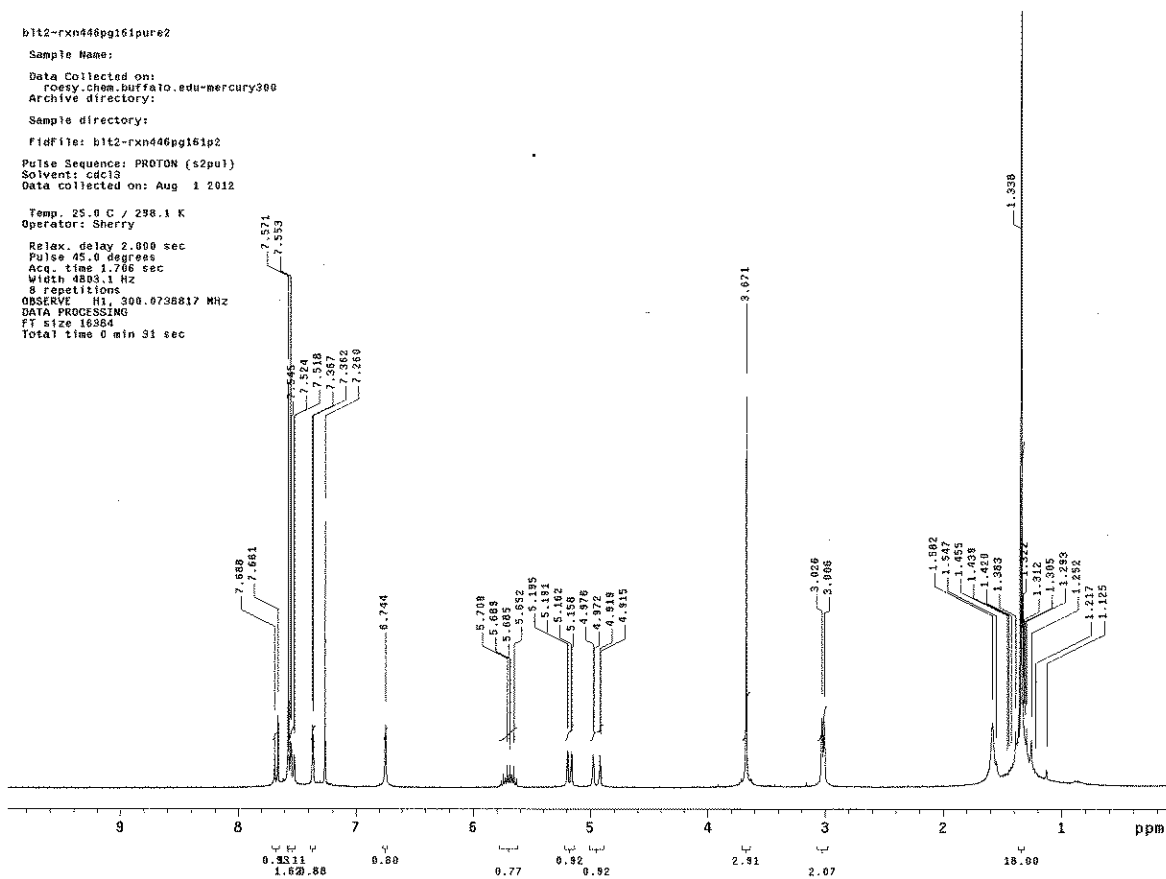
8 repetitions

OBSERVE H1, 300.0738817 MHz

DATA PROCESSING

FT size 16384

Total time 0 min 31 sec



vp

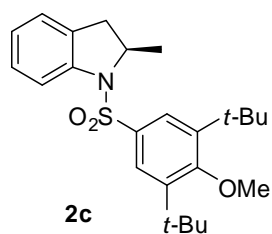
cr

vs

delta

197.50

666.0



blt2-rxn464pg179pure1

Sample Name:

Data Collected on:
chemmr400.chem.buffalo.edu-inova400

Archive directory:

Sample directory:

Fidfile: blt2-rxn464pg179pure1

Pulse Sequence: PROTON (s2pul)
Solvent: cdcl3

Data collected on: Jul 17 2012

Temp. 25.0 C / 298.1 K
Operator: Chemler

Relax. delay 1.000 sec

Pulse 45.0 degree

Acq. time 2.565 sec

Width 6367.7 Hz

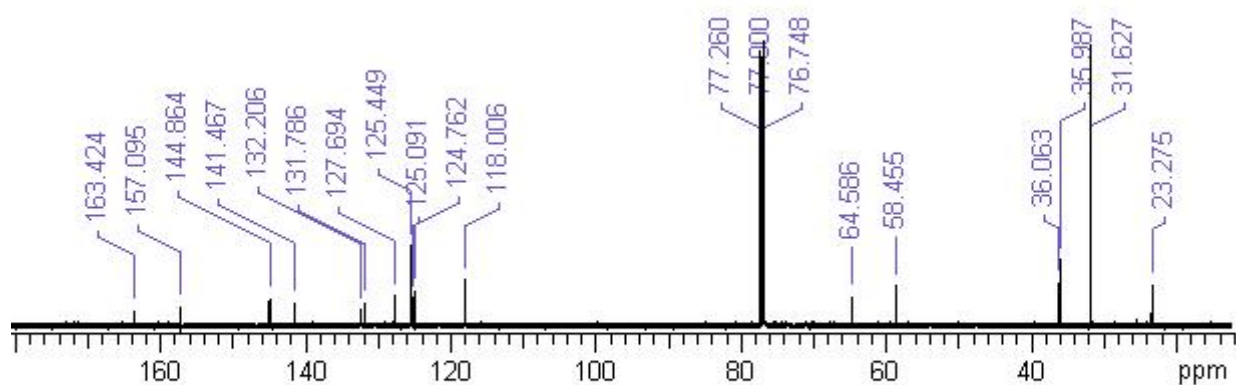
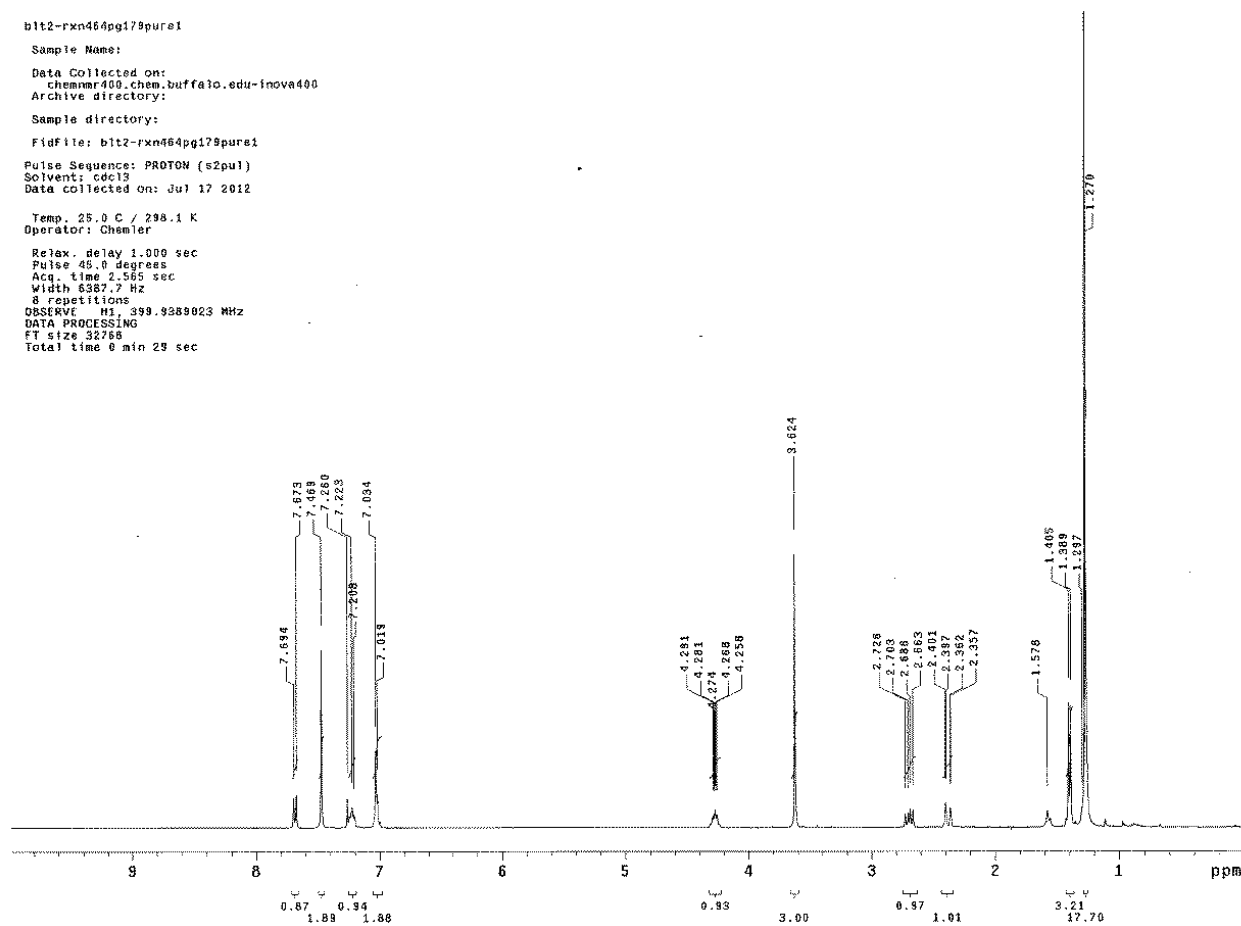
8 repetitions

OBSERVE M1, 399.9289023 MHz

DATA PROCESSING

FT size 32766

Total time 0 min 29 sec



vp

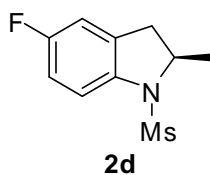
0

th

5.3

vs

767.3



blt2-rxn488pg203pure1

Sample Name:

Date Collected on:
chemnar400.chem.buffalo.edu-inova400

Archive directory:

Sample directory:

FidFile: blt2-rxn488pg203pure1

Pulse Sequence: PROTON (s2cp1)

Solvent: cdcl3

Data collected on: Jul 20 2012

Temp. 25.0 C / 298.1 K

Operator: Chemler

Relax. delay 1.000 sec

Pulse 45.0 degrees

Acq. time 2.365 sec

Width 6987.7 Hz

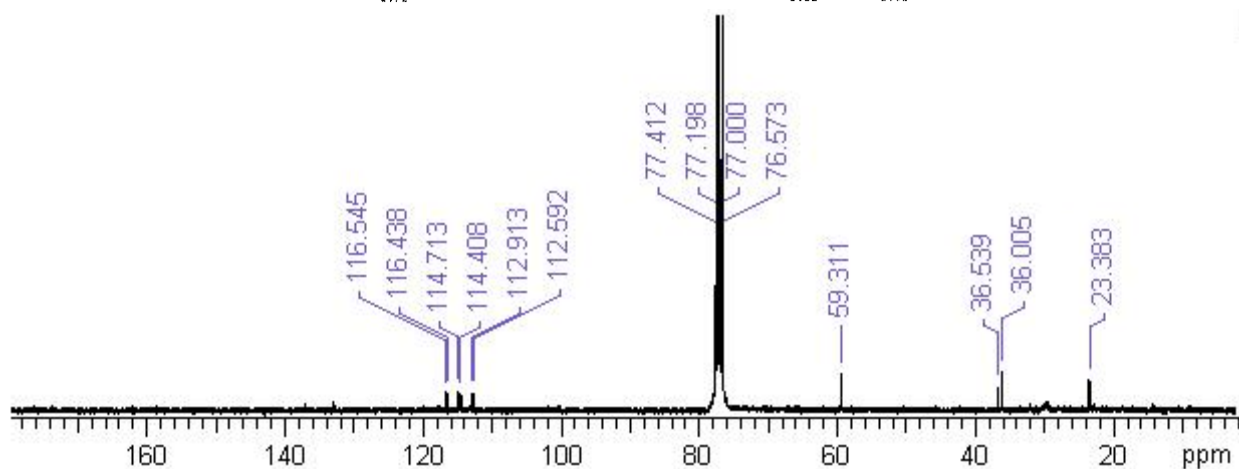
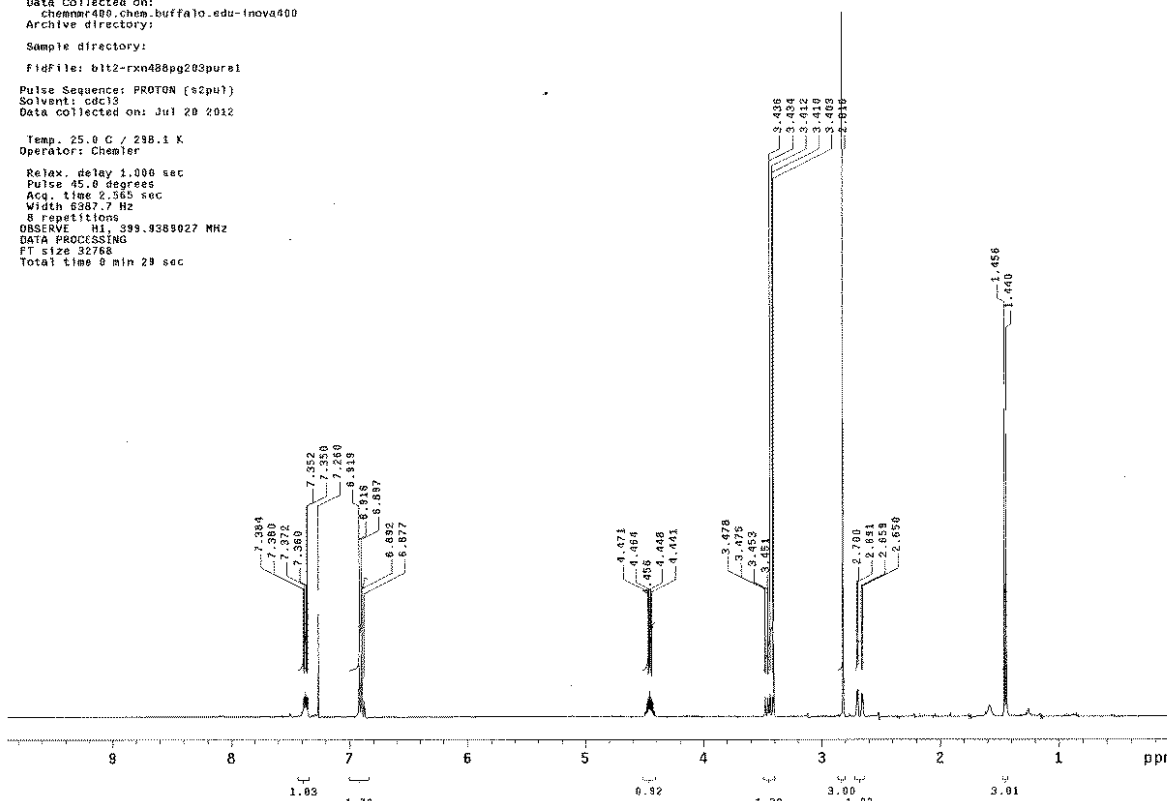
8 repetitions

OBSERVE F1: 399.9389027 MHz

DATA PROCESSING

FT size 32768

Total time 8 min 29 sec



vp

0

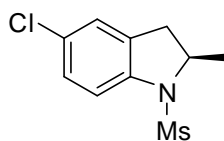
cr

126.99

vs

1044.4

delta



blt2-rxn486pg201prep2byhplc

Sample Name:
DC-165pure
Data Collected on:
chemm500.chem.buffalo.edu-inova500
Archive directory:

Sample directory:

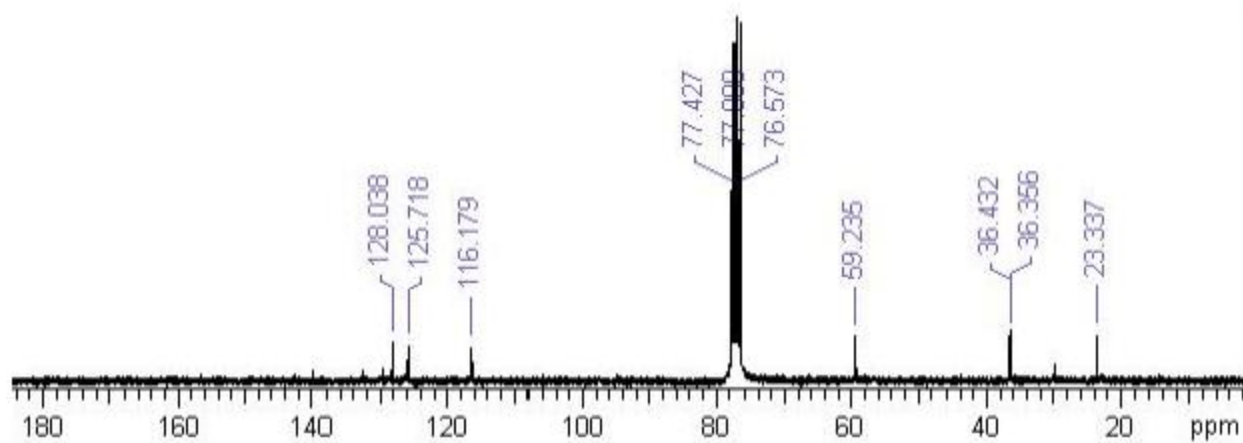
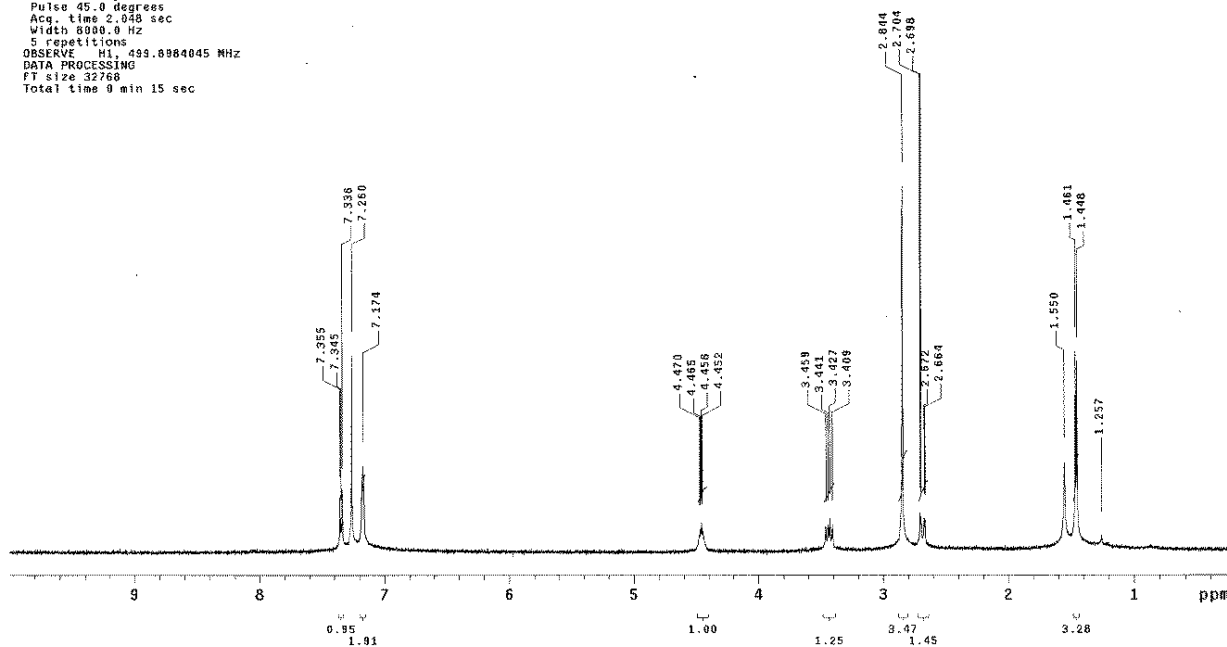
Fidfile: PROTON

Pulse Sequence: PROTON (s2pu1)
Solvent: cdcl3
Data collected on: Jul 25 2012

Temp. 25.0 C / 298.1 K
Operator: Chemler

Relax. delay 1.000 sec
Pulse 45.0 degrees
Acq. time 2.048 sec
Width 8000.0 Hz

repetitions
OBSERVE H1, 499.8984045 MHz
DATA PROCESSING
FT size 32768
Total time 9 min 15 sec



vp

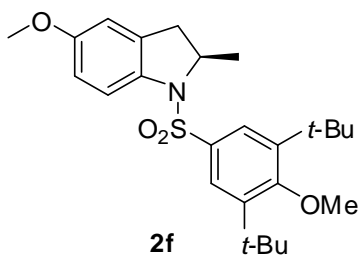
cr

vs

delta

136.34

922.3



blt2-rxn425pg144prep

Sample Name:

Data Collected on:
chemarr400.chem.buffalo.edu-inova400

Archive directory:

Sample directory:

FidFile: blt2-rxn425pg144prep

Pulse Sequence: PROTON (s2pul)

Solvent: cdcl3

Data collected on: Aug 2 2012

Temp. 25.0 C / 298.1 K

Operator: Chemler

Relax. delay 1.000 sec

Pulse 45.0 degrees

Acq. time 2.585 sec

Width 8387.7 Hz

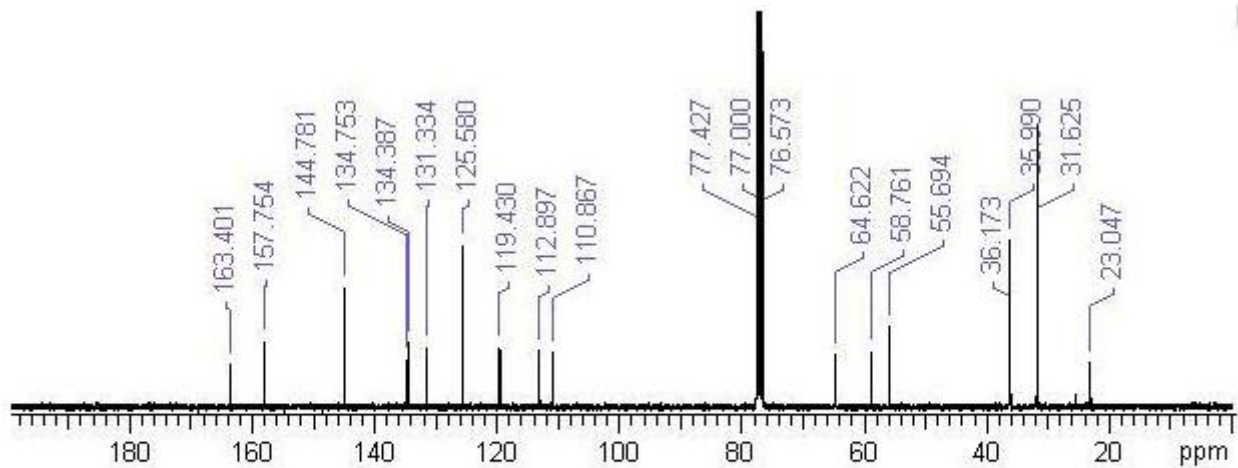
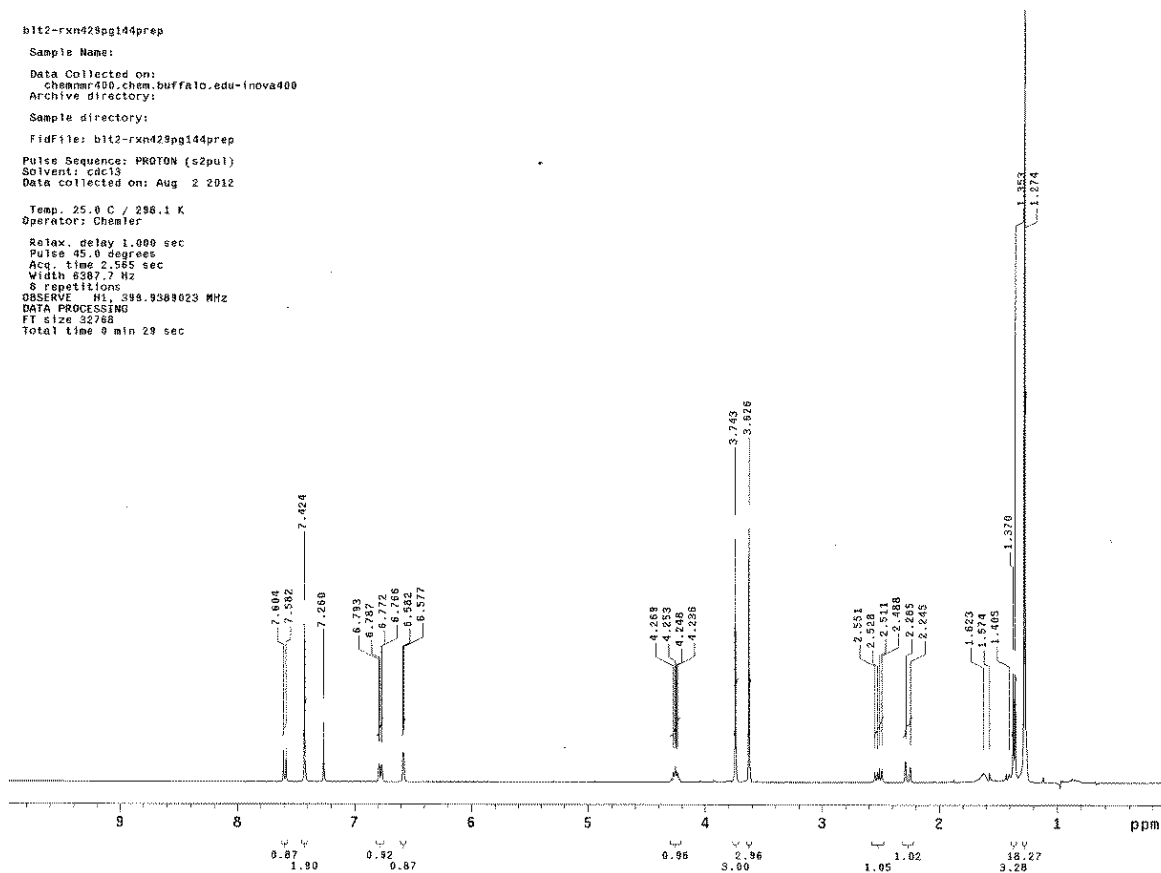
8 repetitions

OBSERVE H1, 398.9389023 MHz

DATA PROCESSING

F1 size 32780

Total time 0 min 29 sec



vp

0

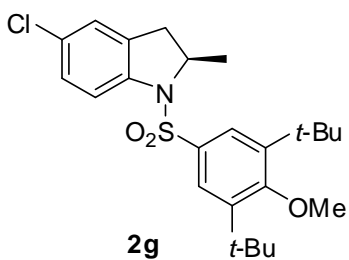
cr

79.86

vs

798.1

delta



bit2-rxn380pg85prep

Sample Name:

Data Collected on:
chemmer400,chem.buffalo.edu-inova400

Archive directory:

Sample directory:

FidFile: bit2-rxn380pg85prep

Pulse Sequence: PROTON (s2pul)

Solvent: cdcl3

Data collected on: Feb 3 2012

Temp. 25.0 C / 298.1 K

Operator: Chemler

Relax. delay 2.000 sec

Pulse 45.0 degrees

Acq. time 2.565 sec

Width 6387.7 Hz

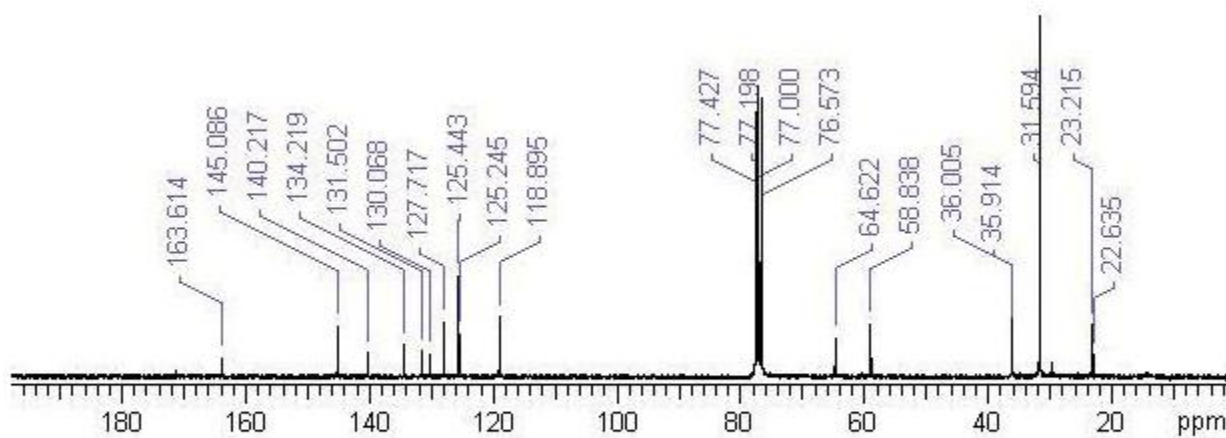
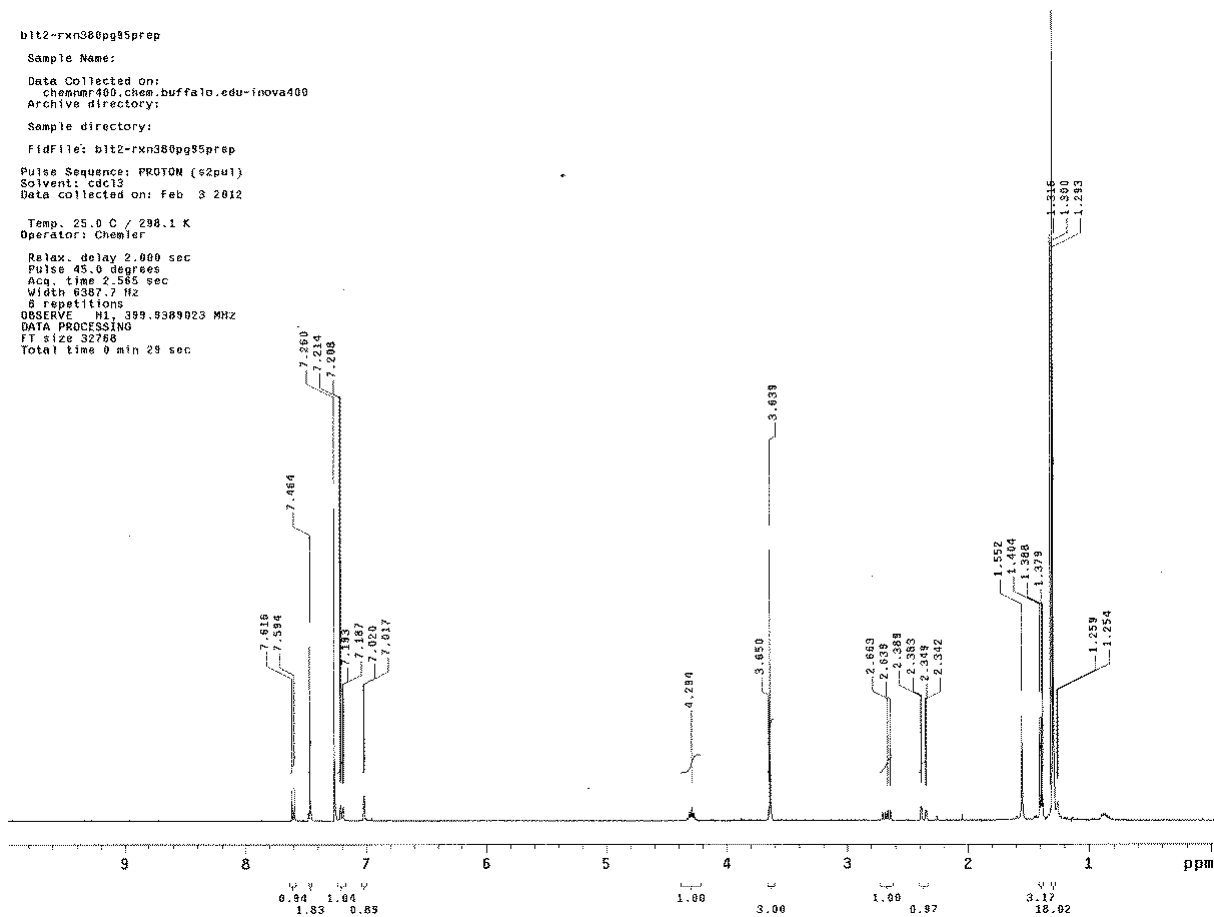
6 repetitions

OBSERVE N1, 399.9389023 MHz

DATA PROCESSING

FT size 32768

Total time 0 min 29 sec.



vp

0

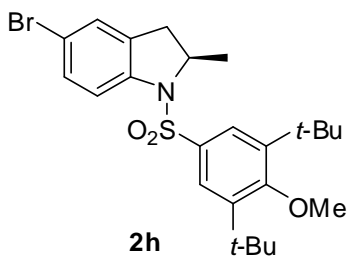
cr

150.93

vs

425.3

delta



blt2-rxn481pg196pure

Sample Name:

Data Collected on:
chemmr400.chem.buffalo.edu-inova400

Archive directory:

Sample directory:

FidFile: blt2-rxn481pg196pure1

Pulse Sequence: PROTON (s2pu1)

Solvent: cdcl3

Data collected on: Jul 17 2012

Temp. 25.0 C / 298.1 K

Operator: Chemier

Relax. delay 1.000 sec

Pulse 45.0 degrees

Acq. time 2.585 sec

Width 6387.7 Hz

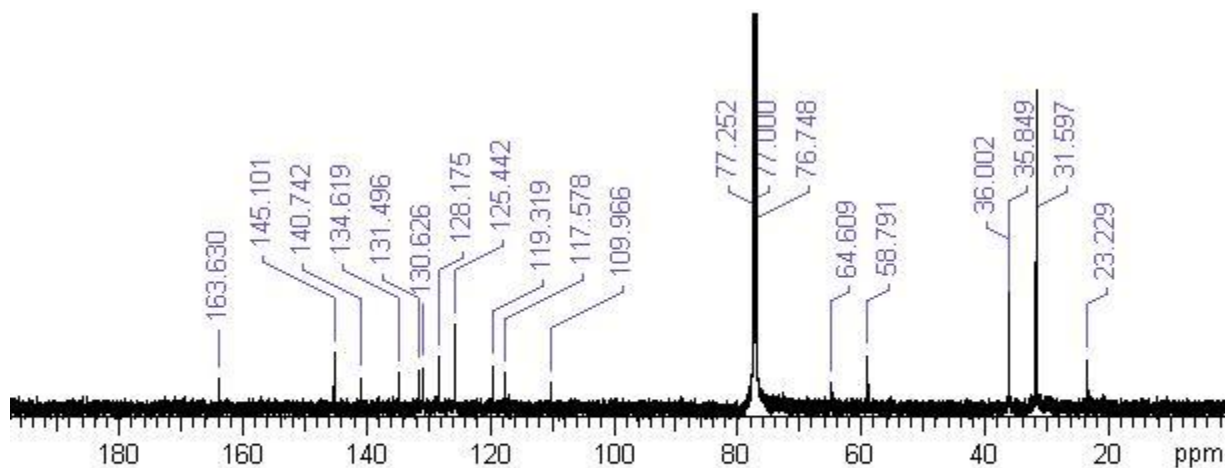
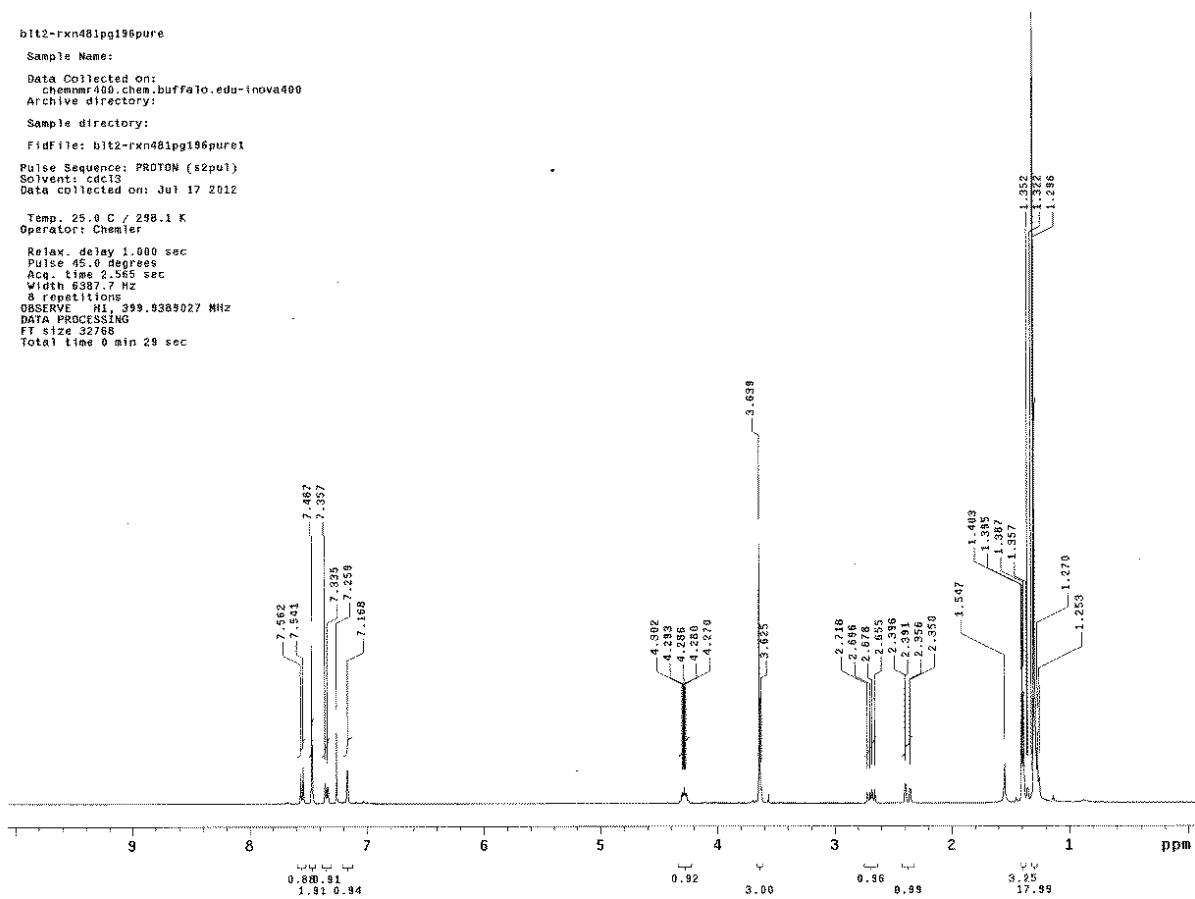
8 repetitions

OBSERVE HI, 399.9389027 MHz

DATA PROCESSING

FT size 32768

Total time 0 min 28 sec



vp

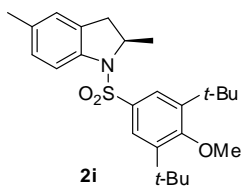
cr

vs

delta

32.06

5490.6



blt2-rxn473pg188prep

Sample Name:
DC-151_f70-on
Data Collected on:
chemnmr500.chem.buffalo.edu-inova500
Archive directory:

Sample directory:

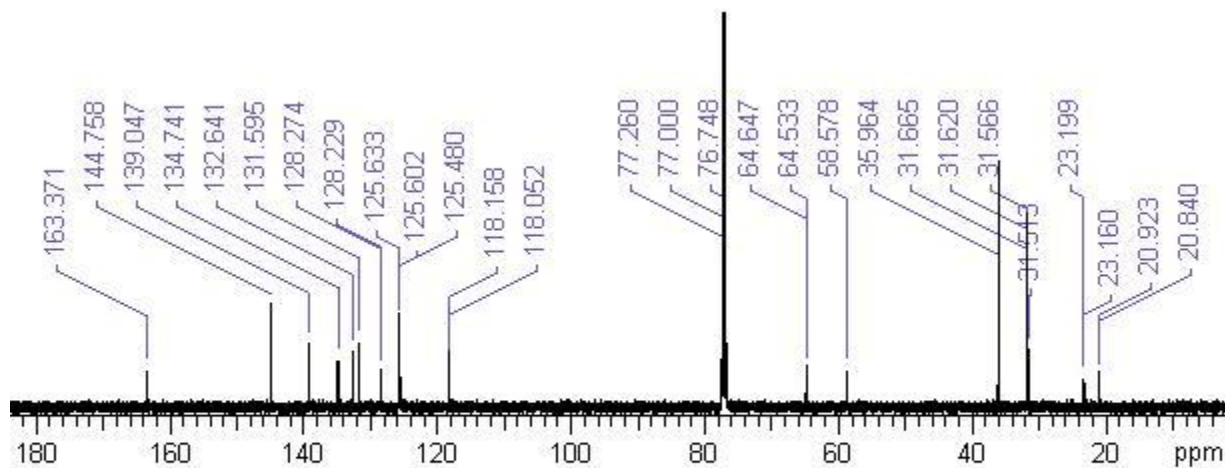
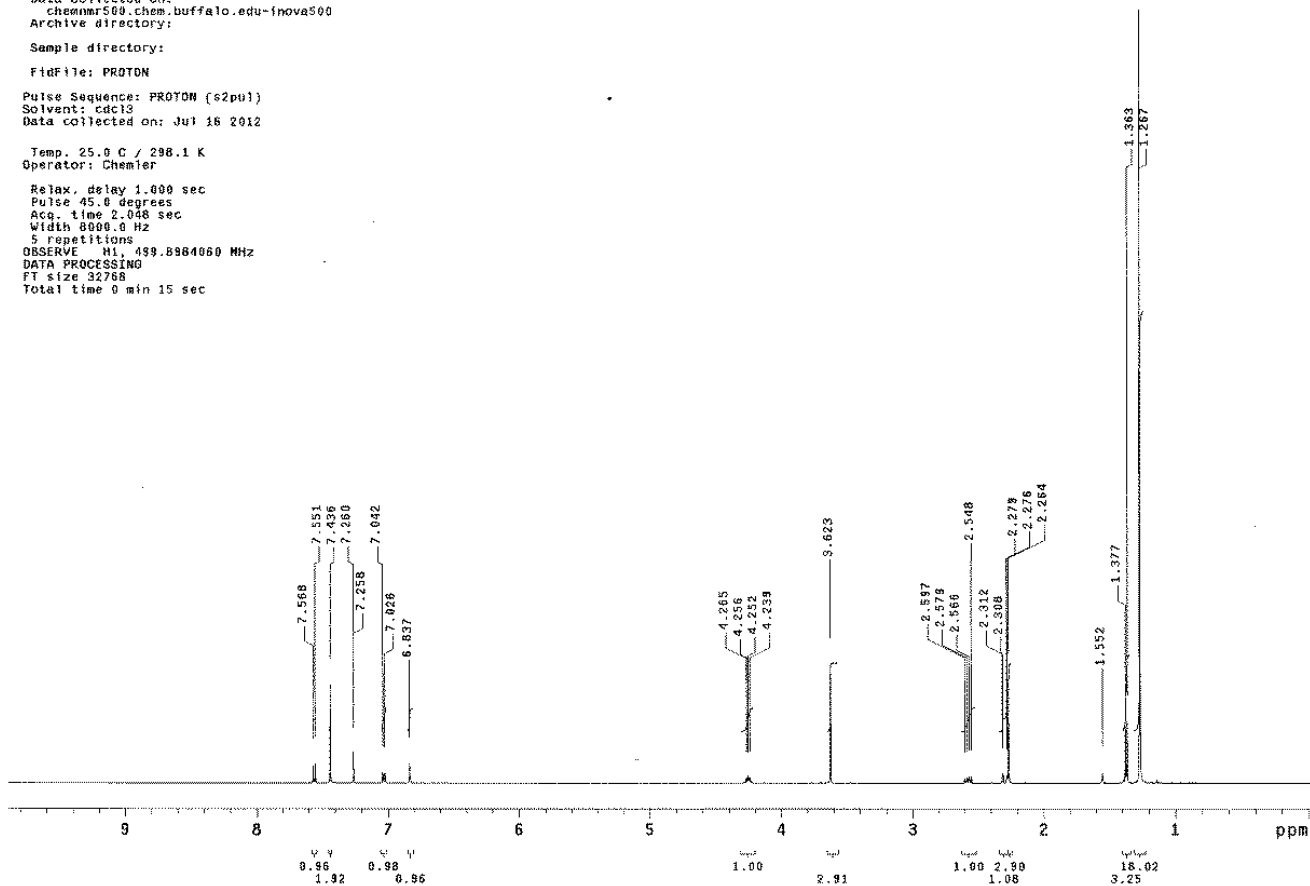
FidFile: PROTON

Pulse Sequence: PROTON (s2pu1)
Solvent: cdcl3
Data collected on: Jul 16 2012

Temp. 25.0 C / 298.1 K
Operator: Chemier

Relax. delay 1.000 sec
Pulse 45.0 degrees
Acq. time 2.048 sec
Width 8000.0 Hz
5 repetitions

OBSERVE H1, 499.8964060 MHz
DATA PROCESSING
F1 size 32768
Total time 0 min 15 sec



vp

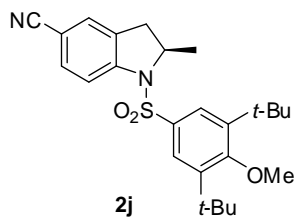
cr

vs

delta

79.39

3658.6



blt2-rxn470pg185prep

Sample Name:

Data Collected on:

chemmr400.chem.buffalo.edu-inova400

Archive directory:

Sample directory:

Fidfile: blt2-rxn470pg185prep1

Pulse Sequence: PROTON (s2pu1)

Solvent: cdcl3

Data collected on: Jul 30 2012

Temp. 25.0 C / 298.1 K

Operator: Chemler

Relax. delay 1.000 sec

Pulse 45.0 degrees

Acq. time 2.565 sec

Width 6387.7 Hz

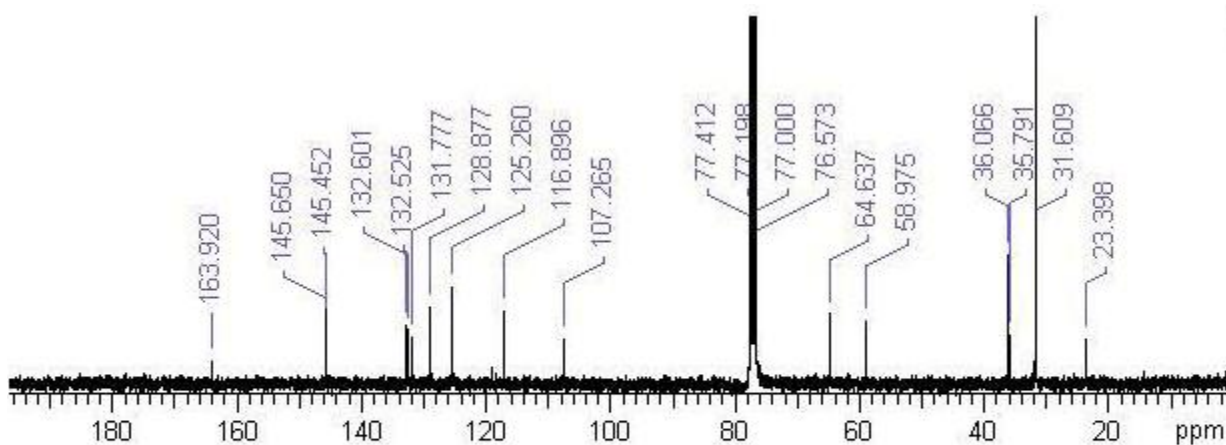
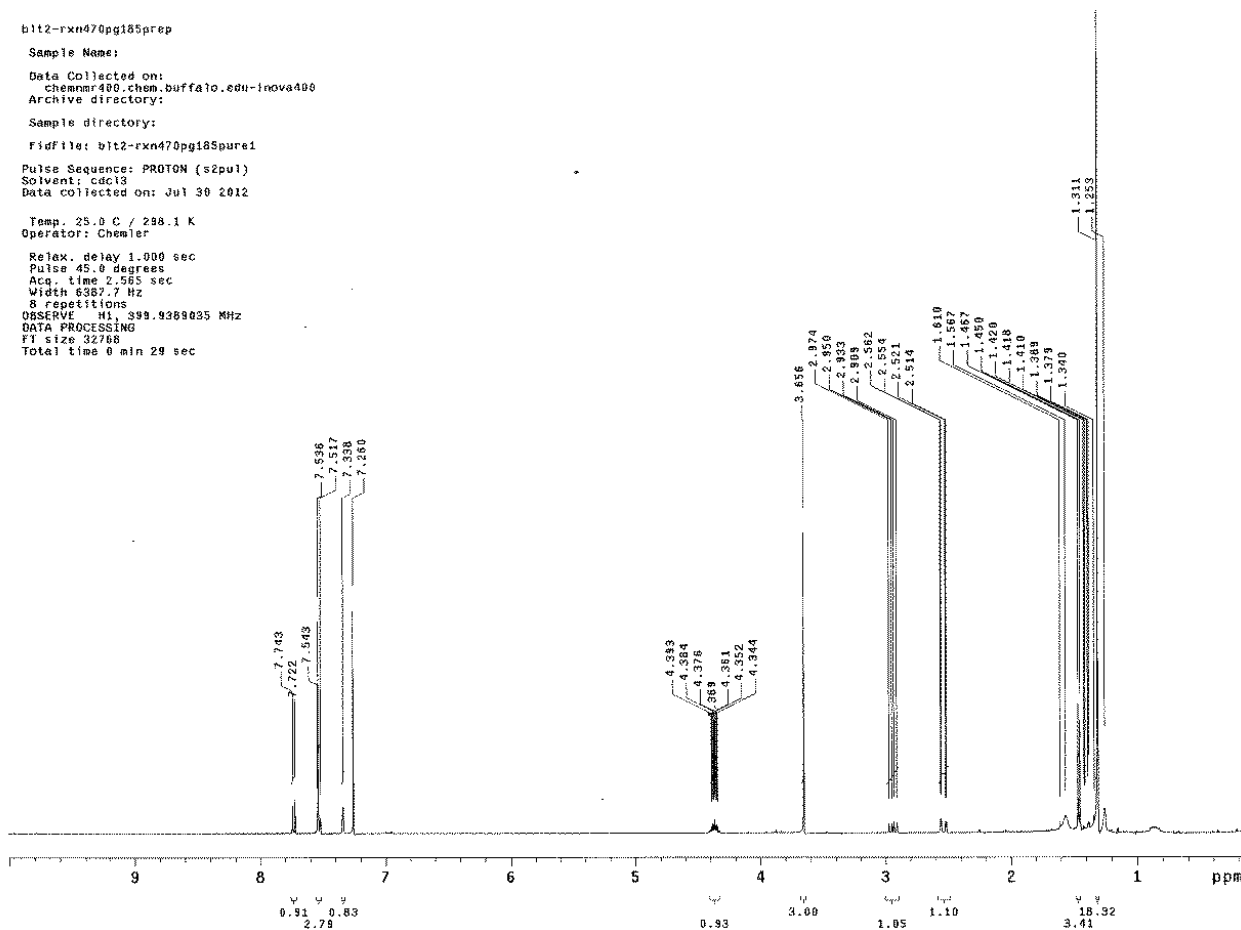
8 repetitions

OBSERVE Wt. 399.9389035 MHz

DATA PROCESSING

FI size 32768

Total time 0 min 29 sec



vp

12.0

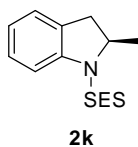
cr

81.18

vs

1892.2

delta



blt2-rxn490pg205prep4

Sample Name:

Data Collected on:
chemmr400.chem.buffalo.edu-inova400

Archive directory:

Sample directory:

FidFile: blt2-rxn490pg205prep

Pulse Sequence: PROTON (s2pu1)

Solvent: cdc13

Data collected on: Jul 27 2012

Temp. 25.0 C / 298.1 K

Operator: Chemier

Relax. delay 1.000 sec

Pulse 45.0 degrees

Acq. time 2.585 sec

Width 6387.7 Hz

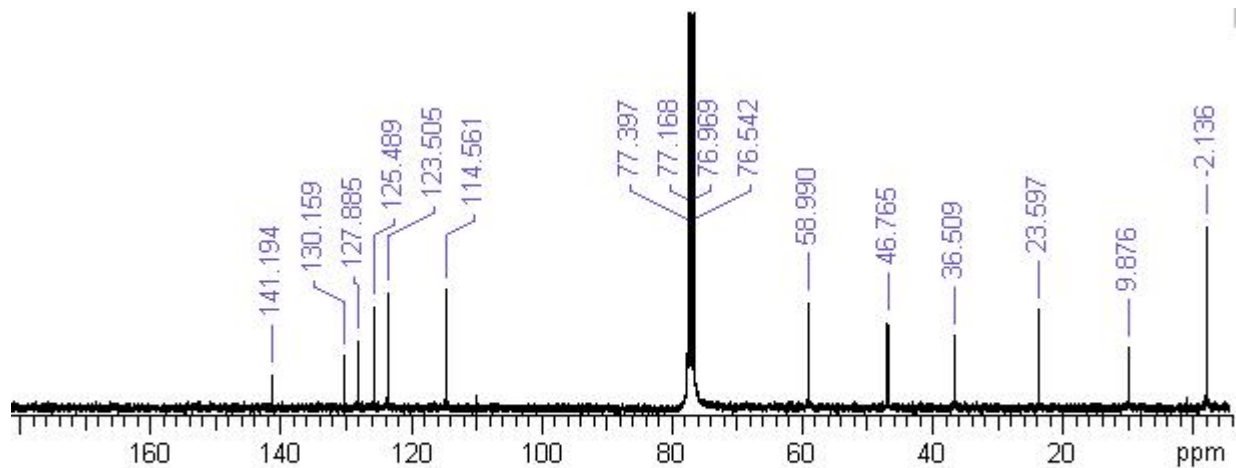
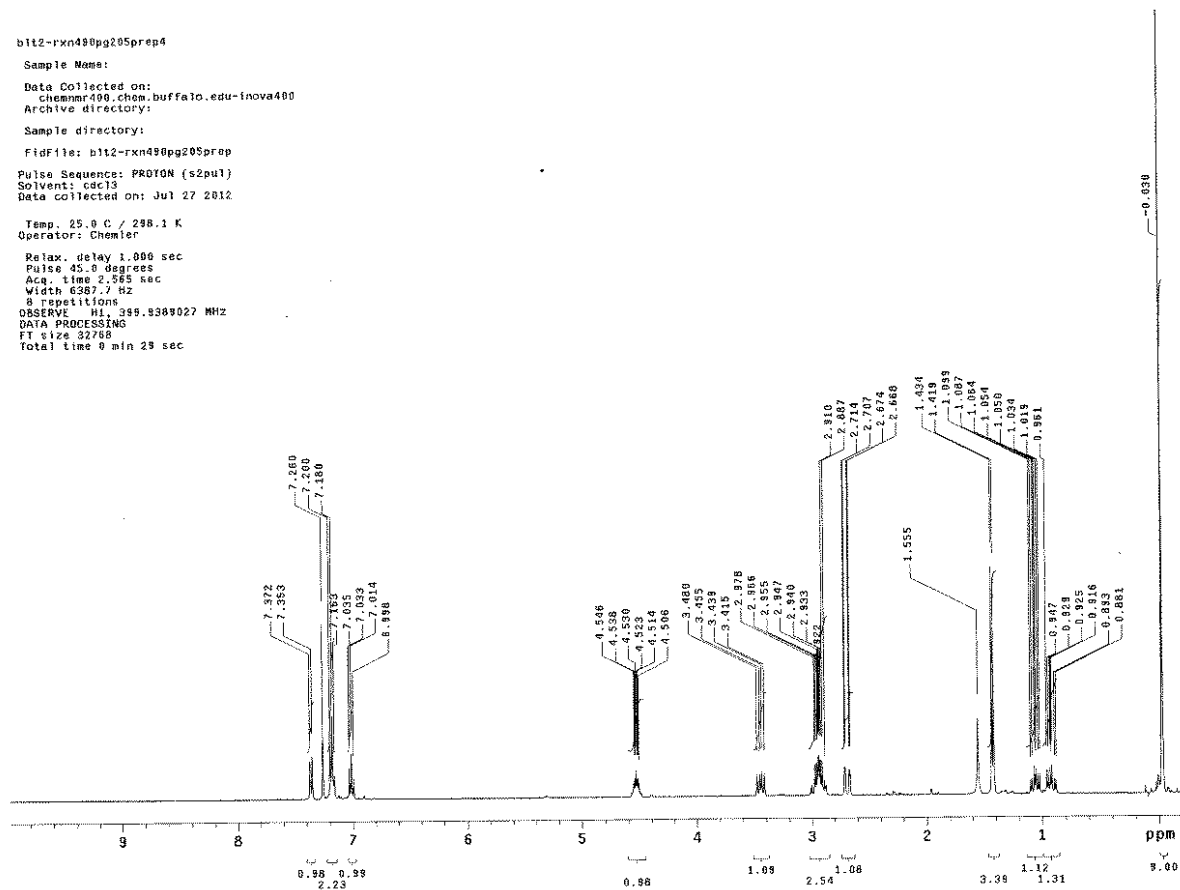
8 repetitions

OBSERVE H1, 399.9389027 MHz

DATA PROCESSING

FT size 32768

Total time 0 min 25 sec



vp

D

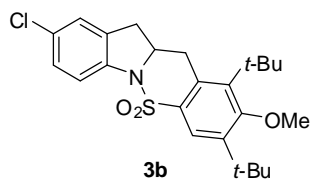
cr

81.69

vs

1093.2

delta



bit2-rxn379pg94prepclean

Sample Name:
DC-173
Data Collected on:
chemmr400.chem.buffalo.edu-inova400
Archive directory:

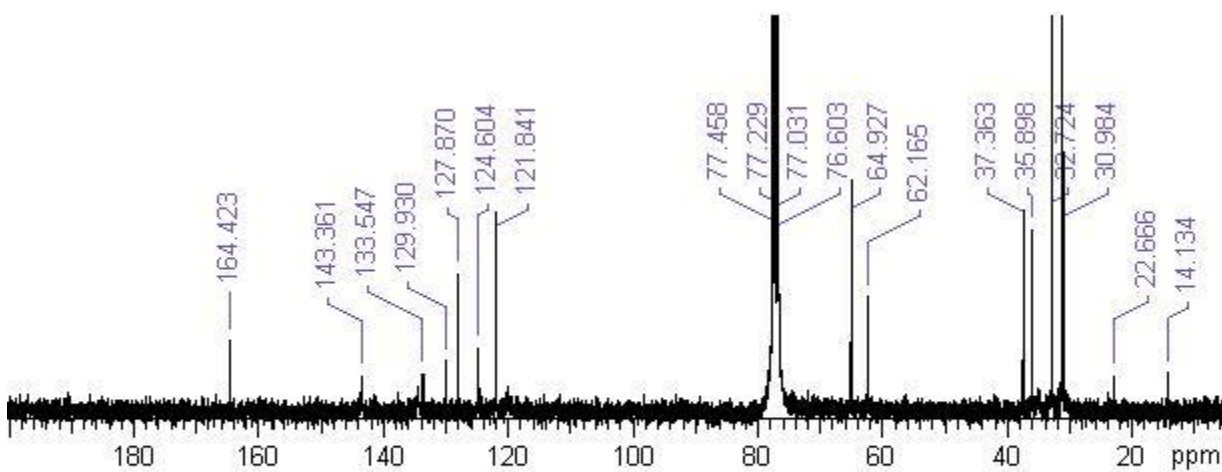
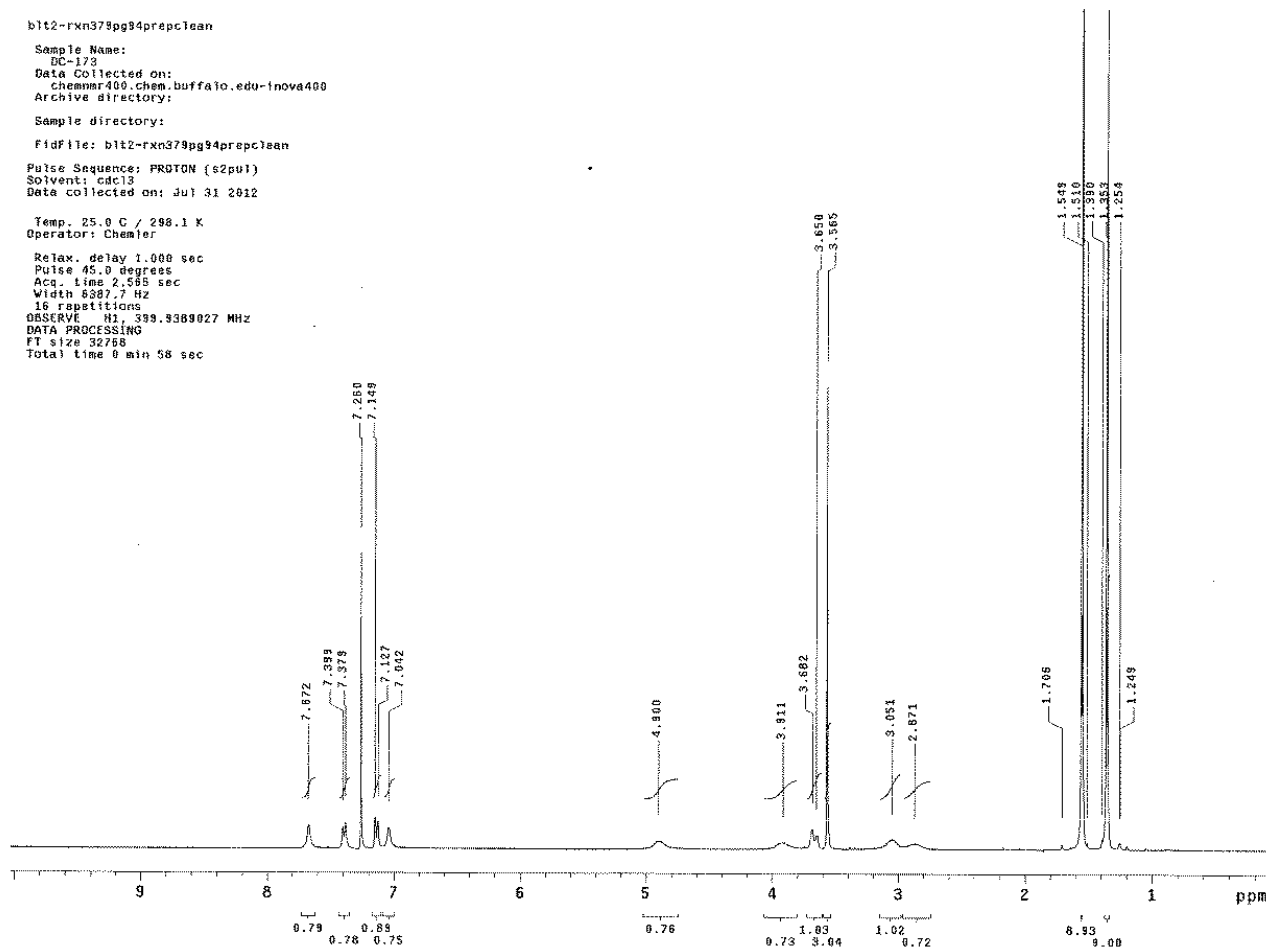
Sample directory:

Fidfile: bit2-rxn379pg94prepclean

Pulse Sequence: PROTON (s2pu1)
Solvent: cdcl3
Data collected on: Jul 31 2012

Temp. 25.0 C / 298.1 K
Operator: Chemler

Relax. delay 1.000 sec
Pulse 45.0 degrees
Acq. time 2.585 sec
Width 6387.7 Hz
16 repetitions
OBSERVE H1, 399.9389027 MHz
DATA PROCESSING
FT size 32768
Total time 0 min 58 sec



vp

cr

vs

delta

30.71

3367.2