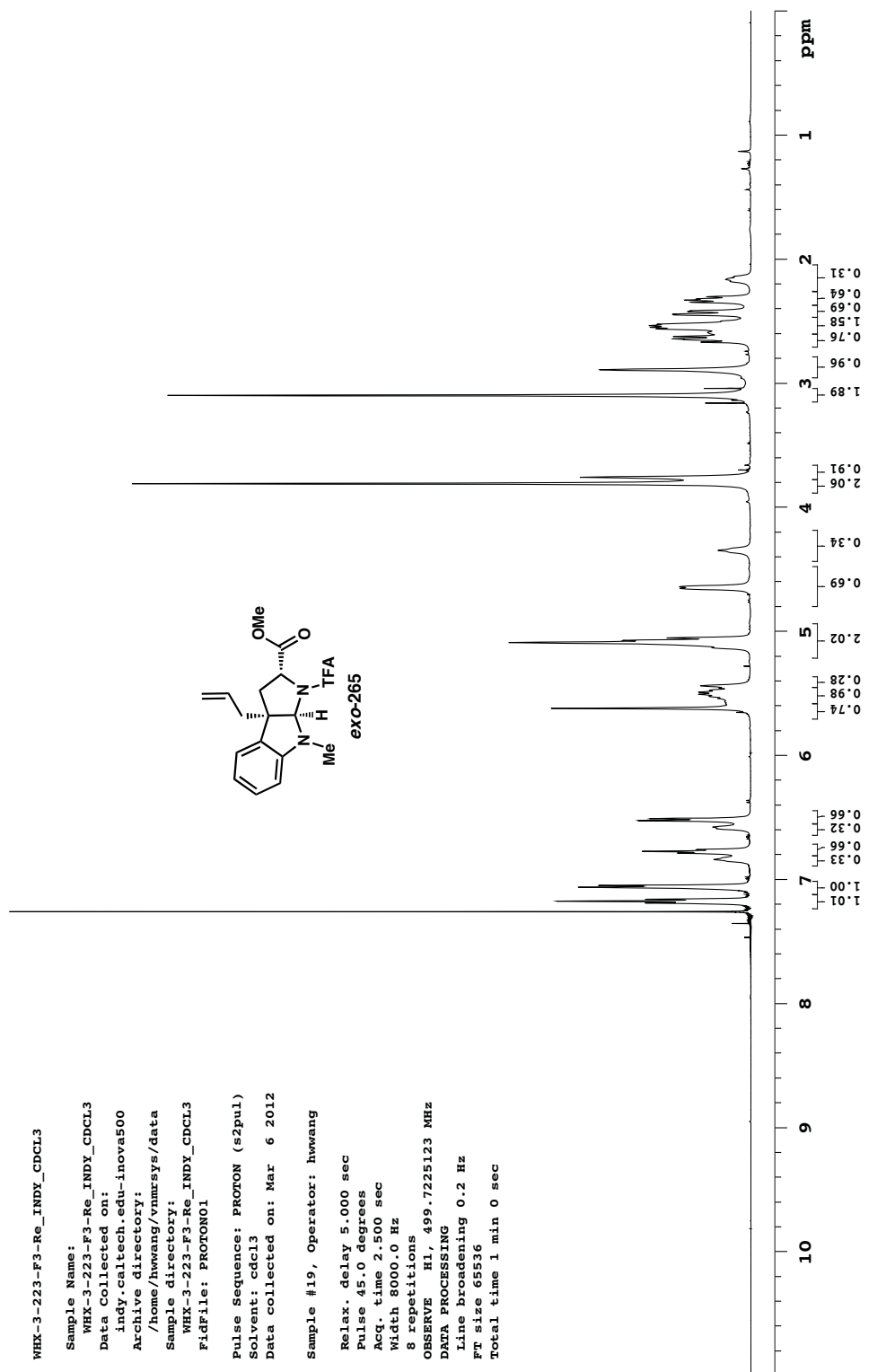
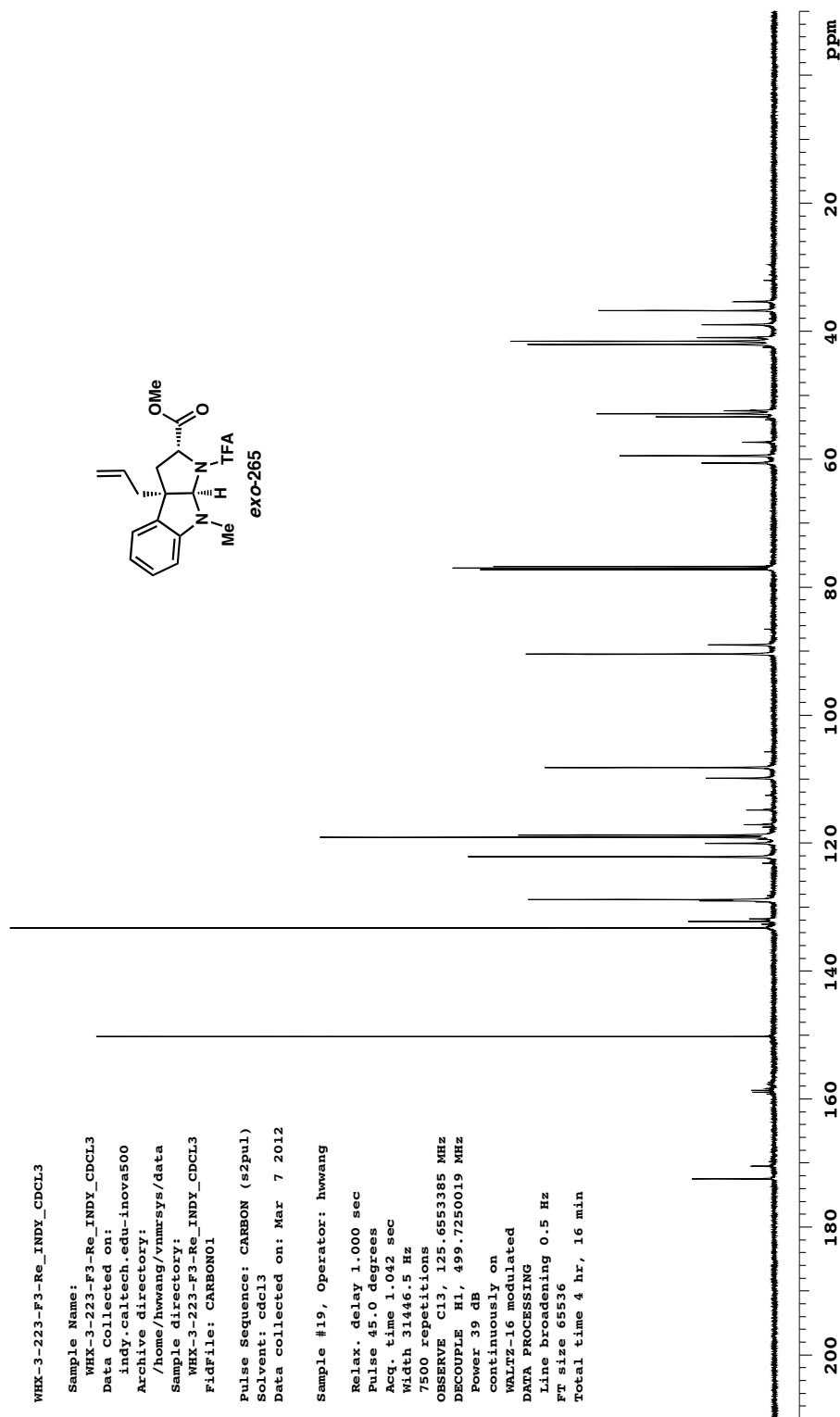
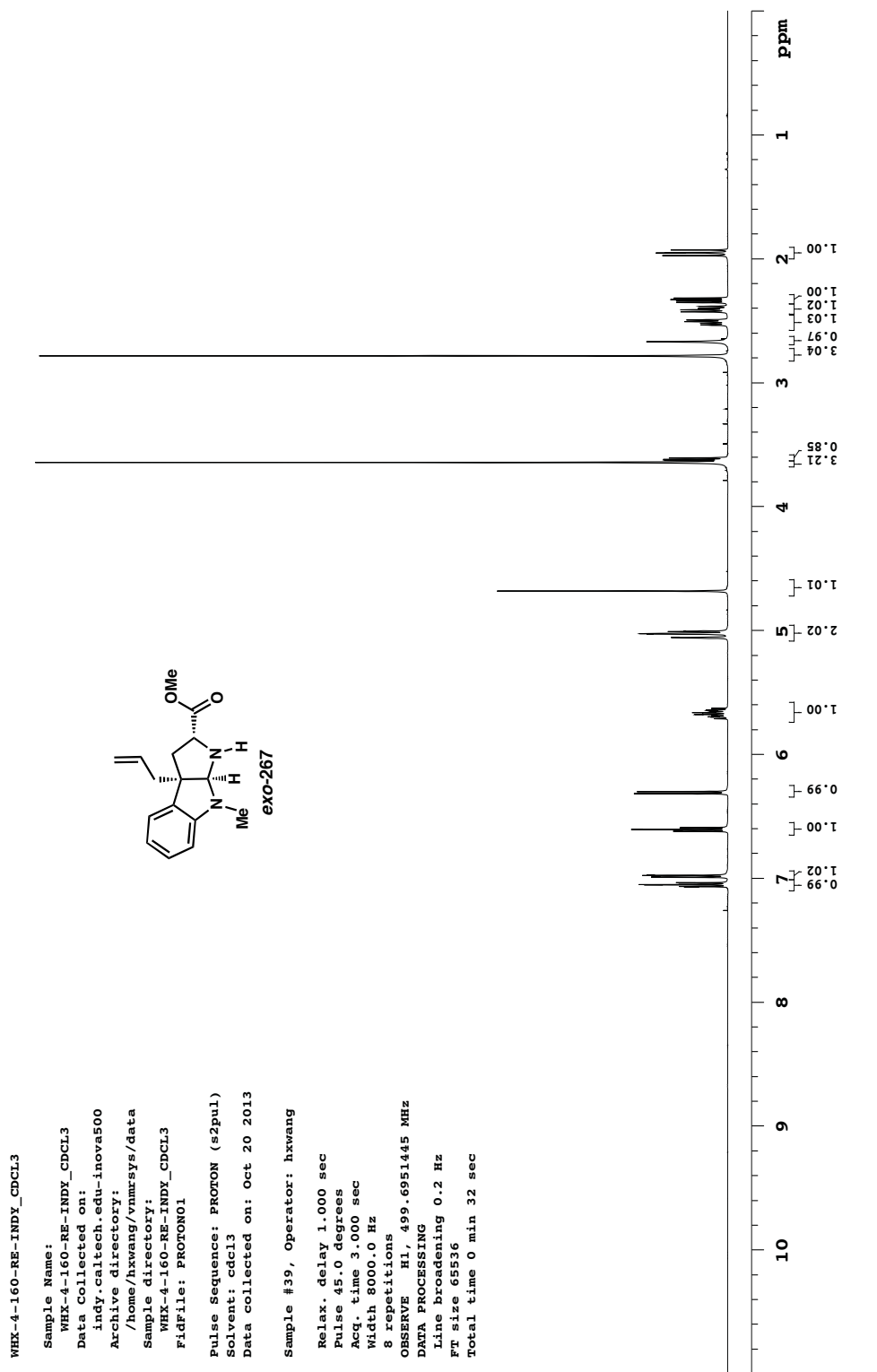


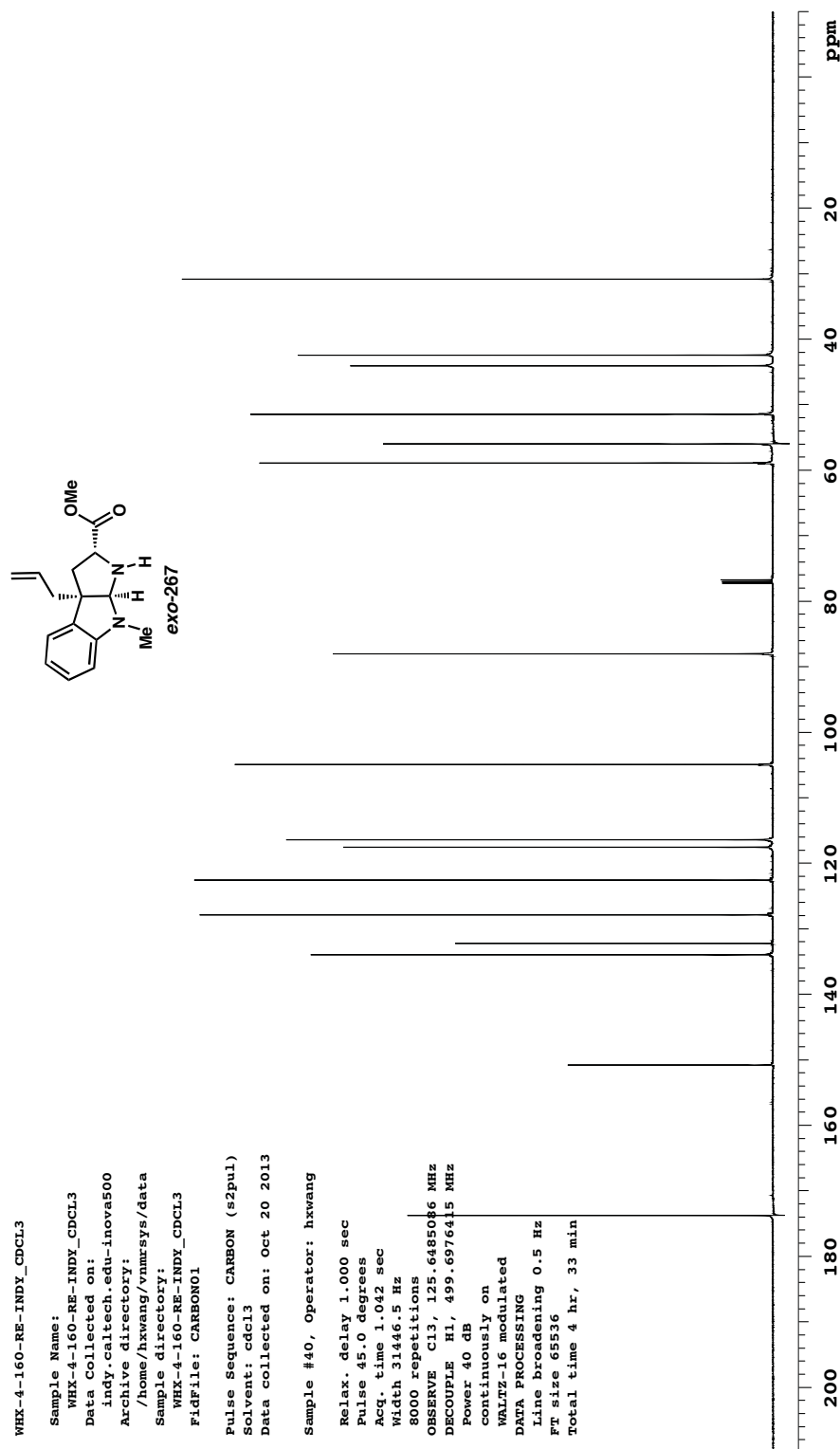
Appendix 2

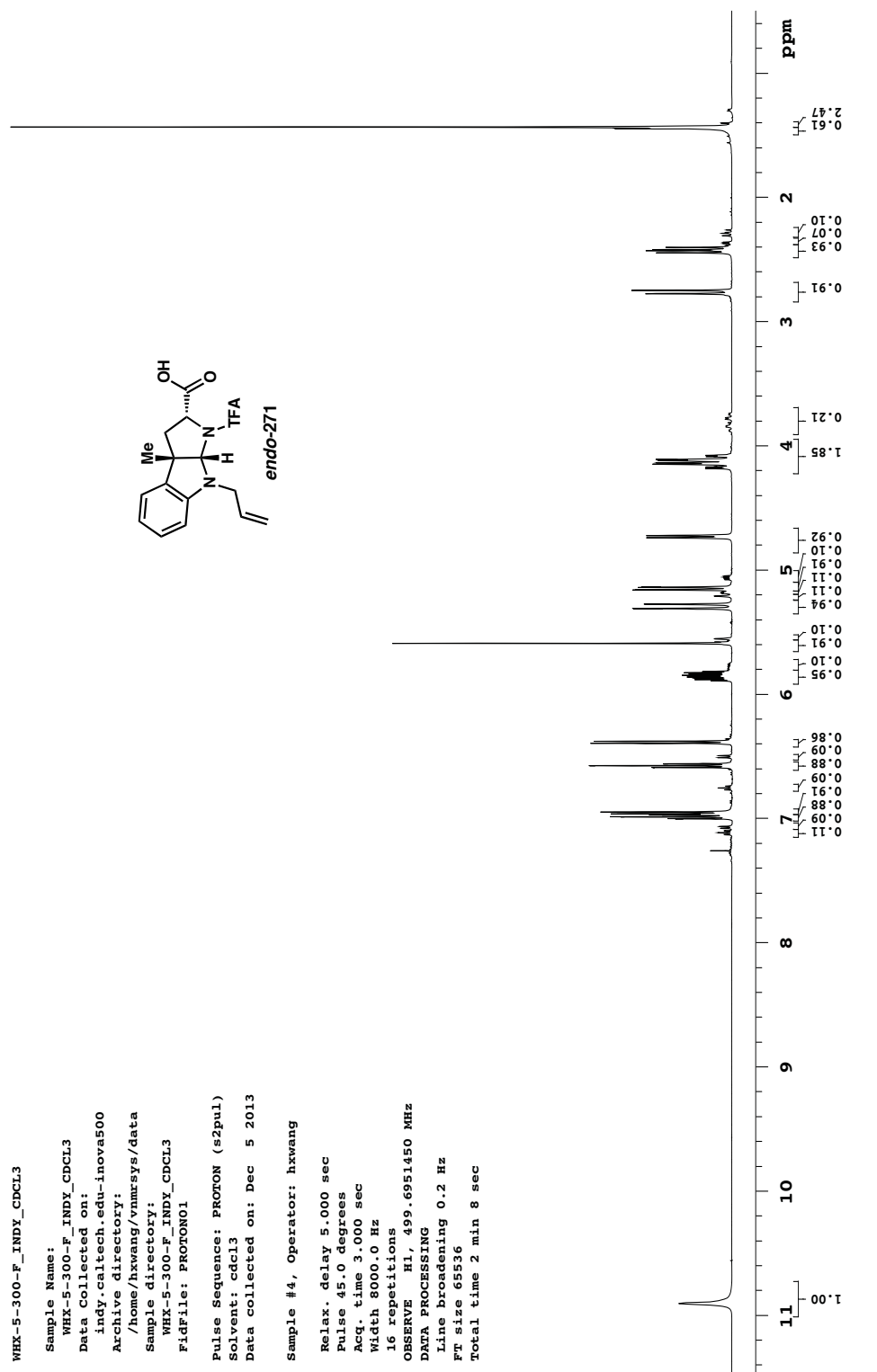
*Spectra Relevant to Chapter 3:
Enantioselective Total Synthesis of (+)-Nocardioazines A and B*

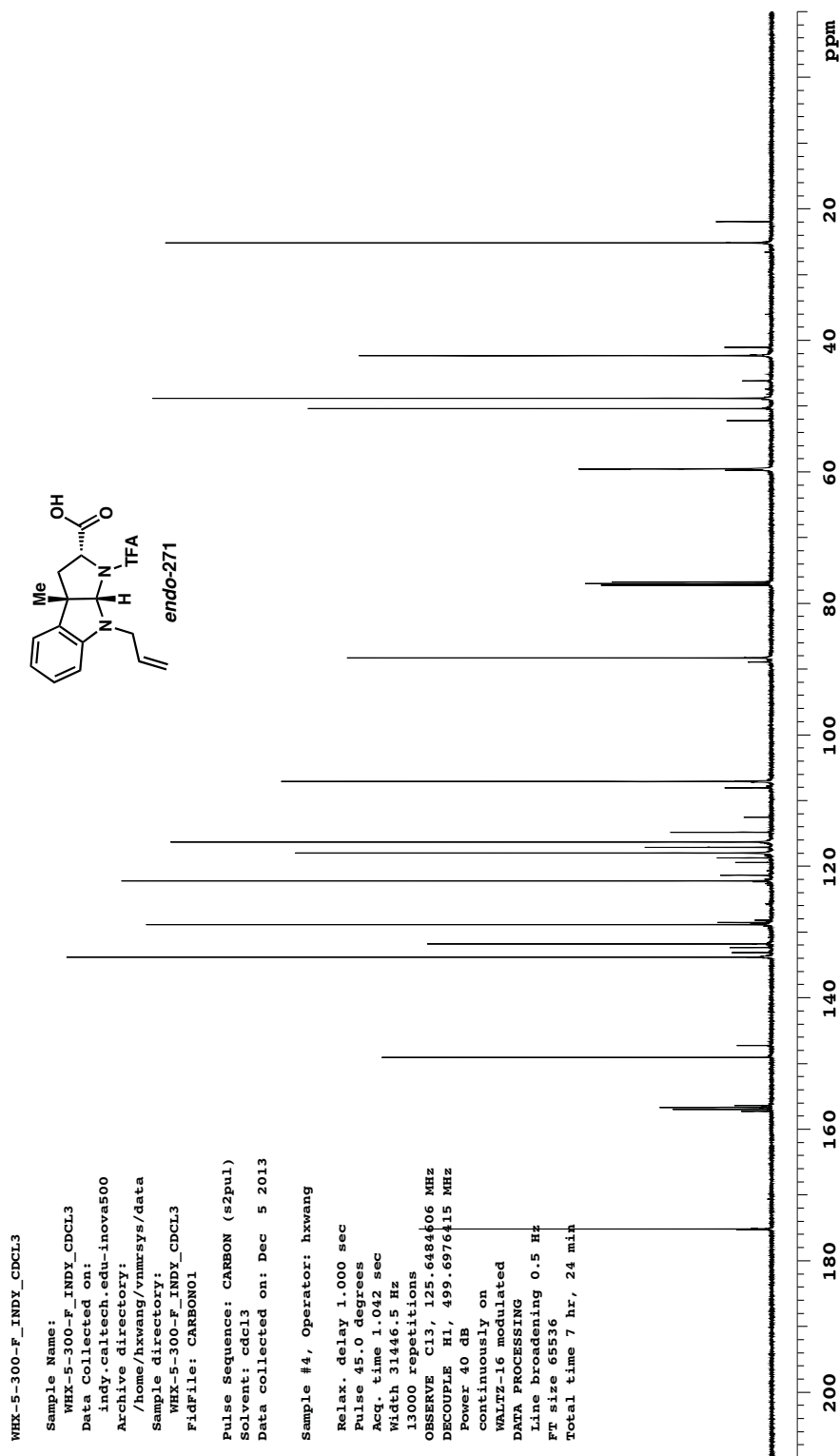


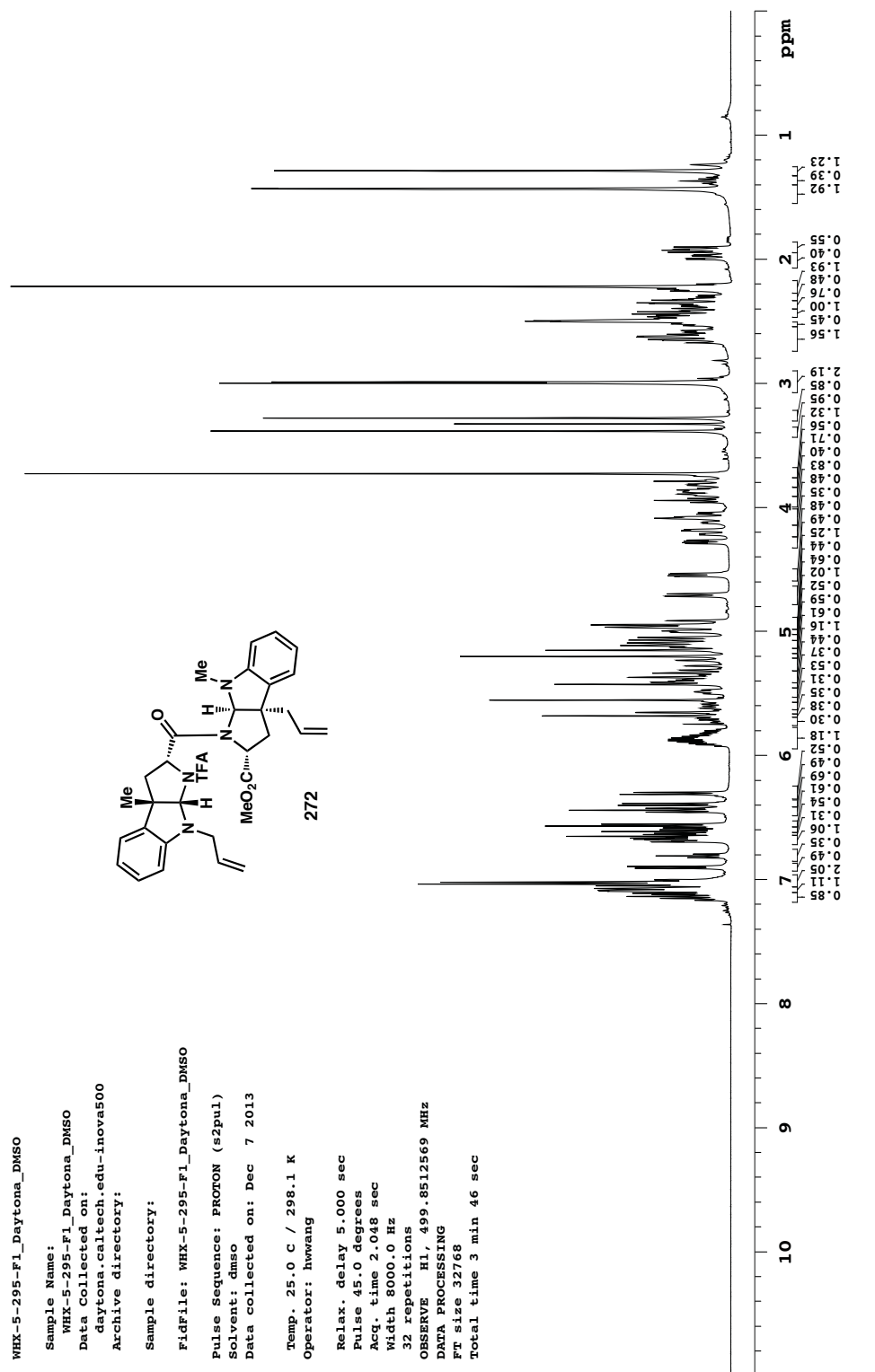


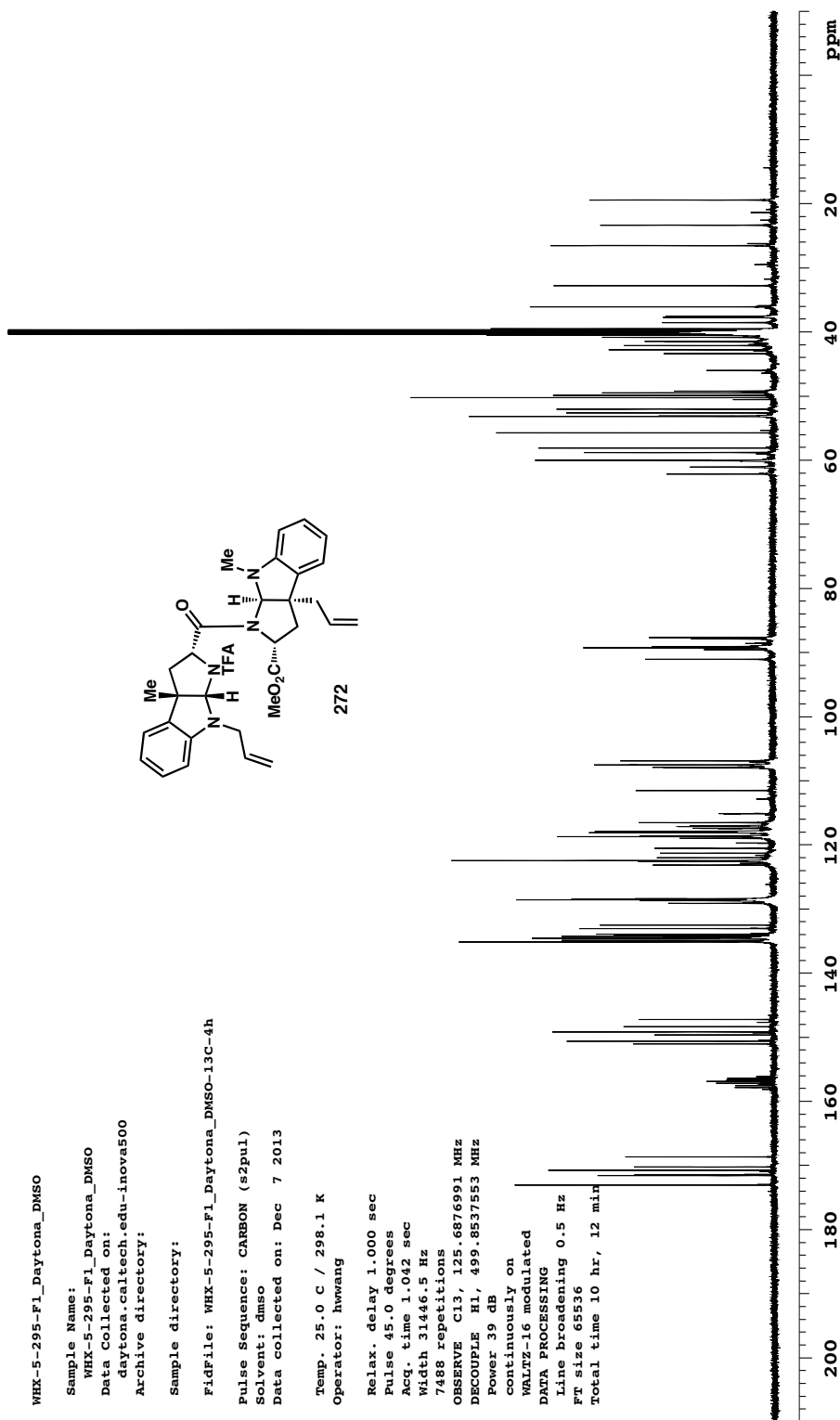


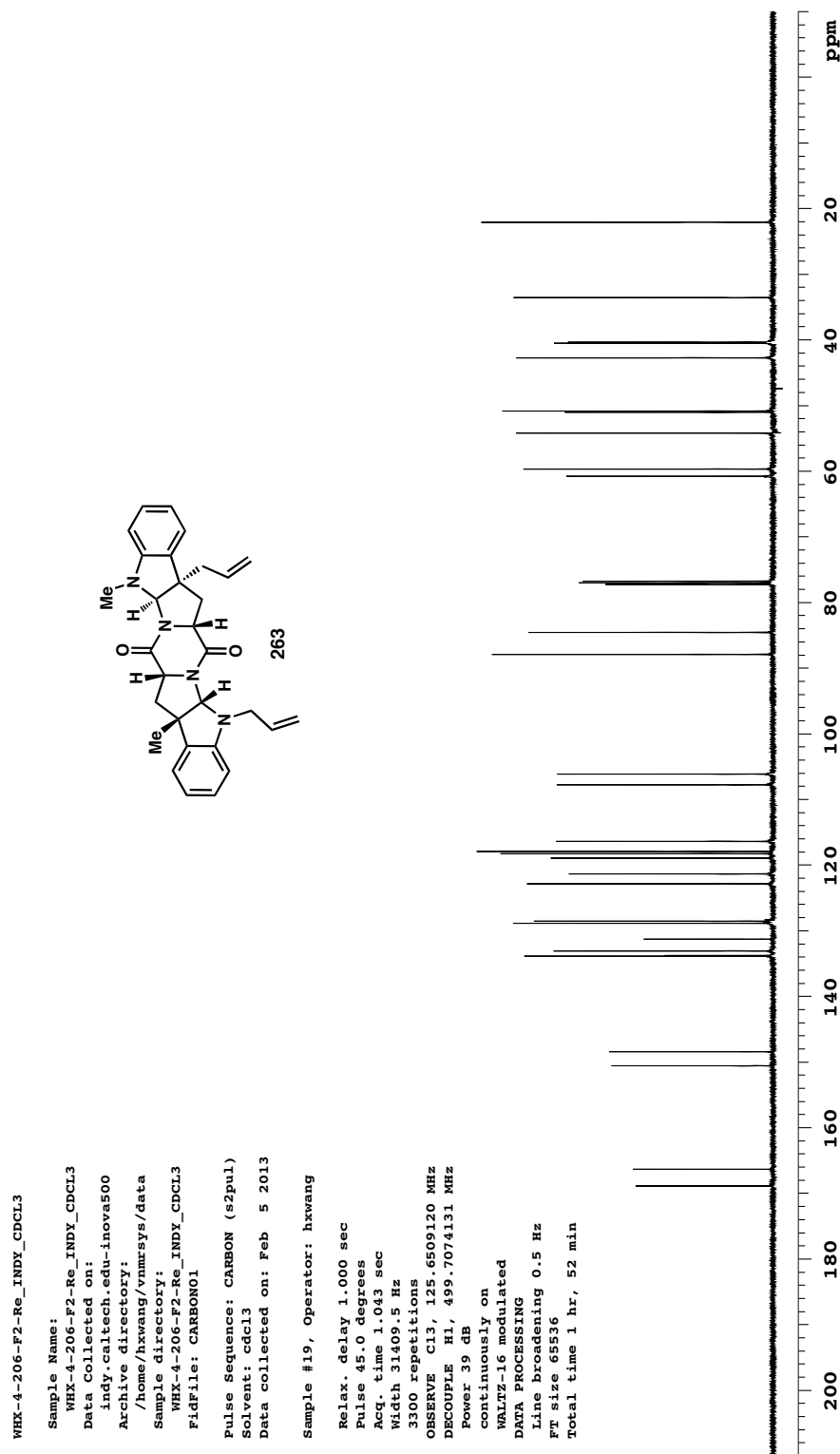


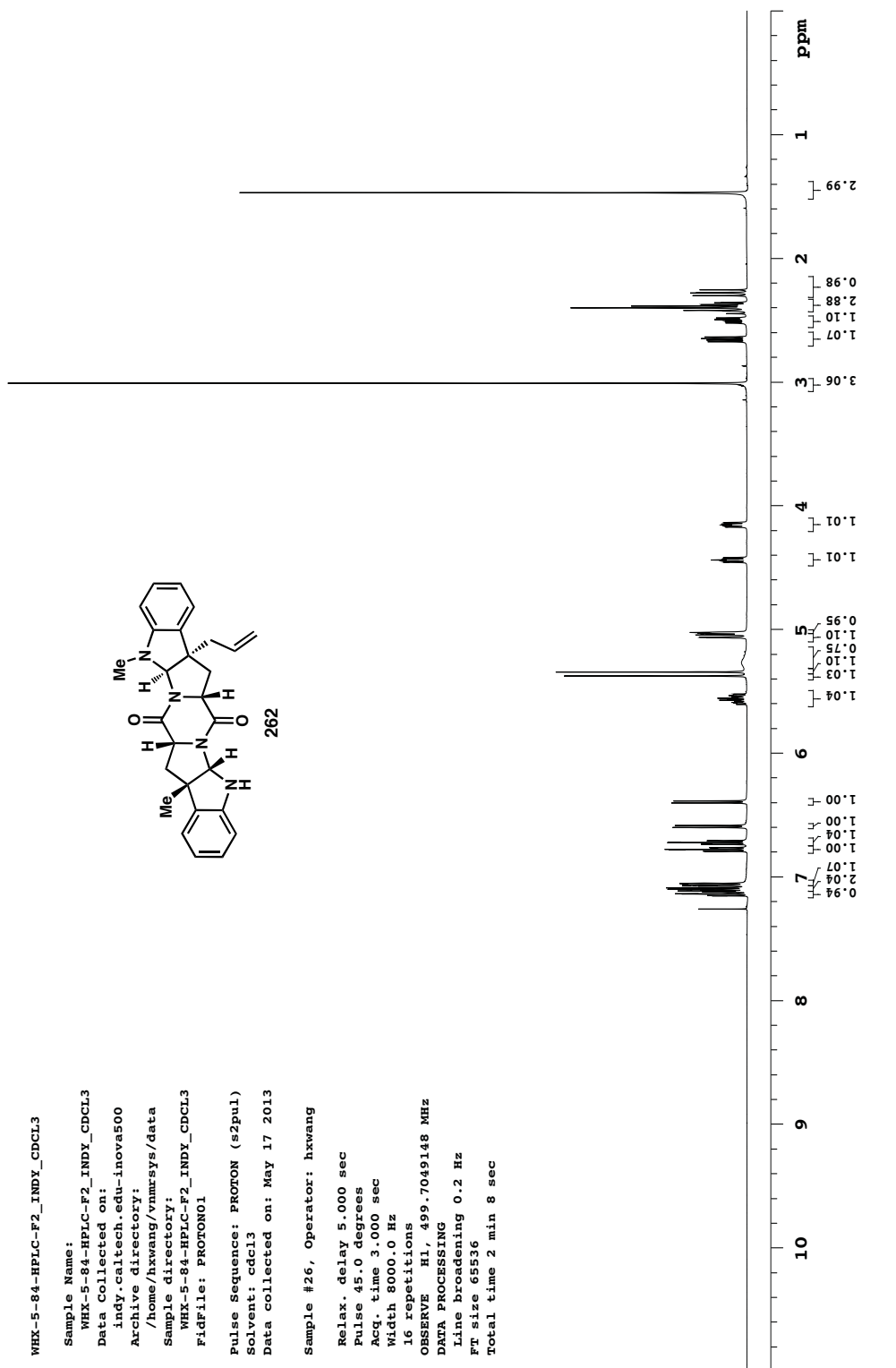












WHX-5-84-HPLC-F2_INDY_CDCL3

Sample Name:

WHX-5-84-HPLC-F2_INDY_CDCL3
Data Collected on:
indy.caltech.edu-inova500
Archive directory:
/home/hxwang/vnmrsys/data
Sample directory:
WHX-5-84-HPLC-F2_INDY_CDCL3
FidFile: CARBON01

Pulse Sequence: CARBON (s2pul)
Solvent: cdcl3
Data collected on: May 17 2013

Sample #26, Operator: hxwang

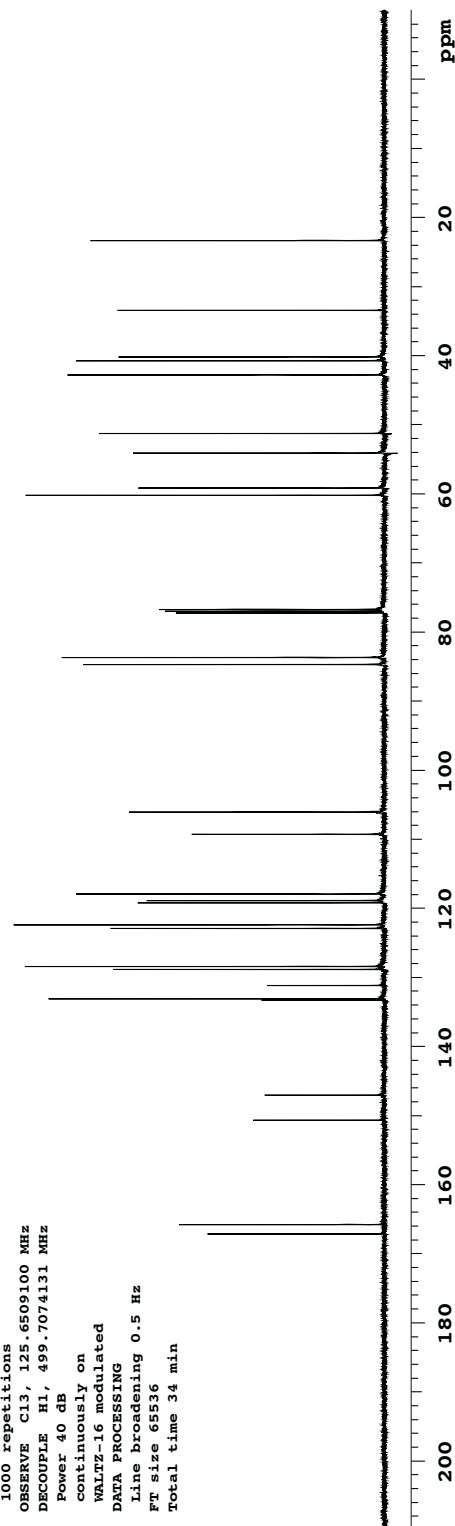
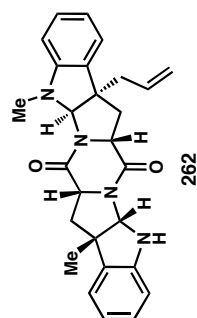
Relax. delay 1.000 sec
Pulse 45.0 degrees
Acq. time 1.042 sec
Width 31446.5 Hz
1000 repetitions

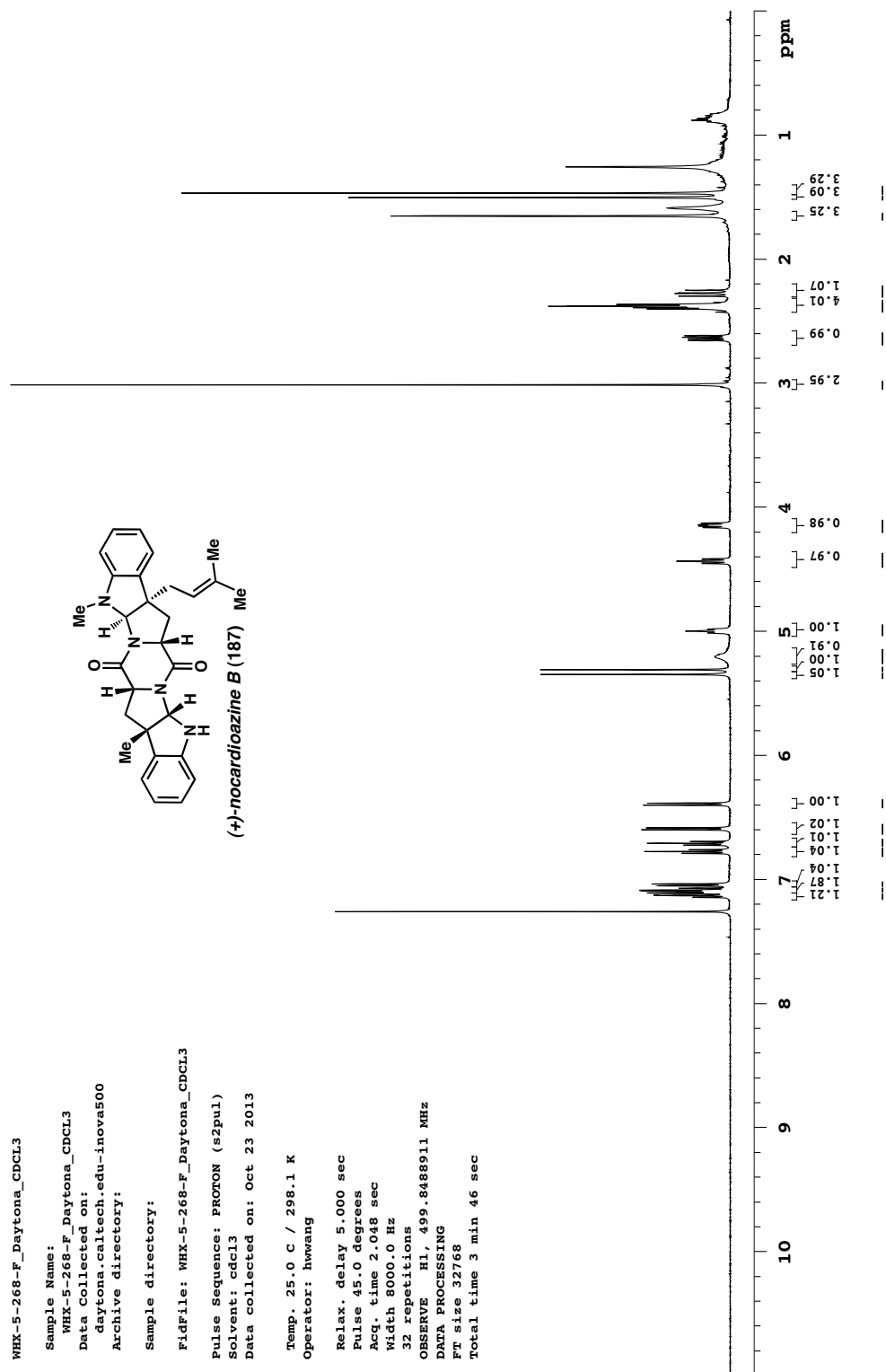
OBSERVE C13, 125.6509100 MHz
DECOUPLE H1, 499.7074131 MHz
Power 40 dB

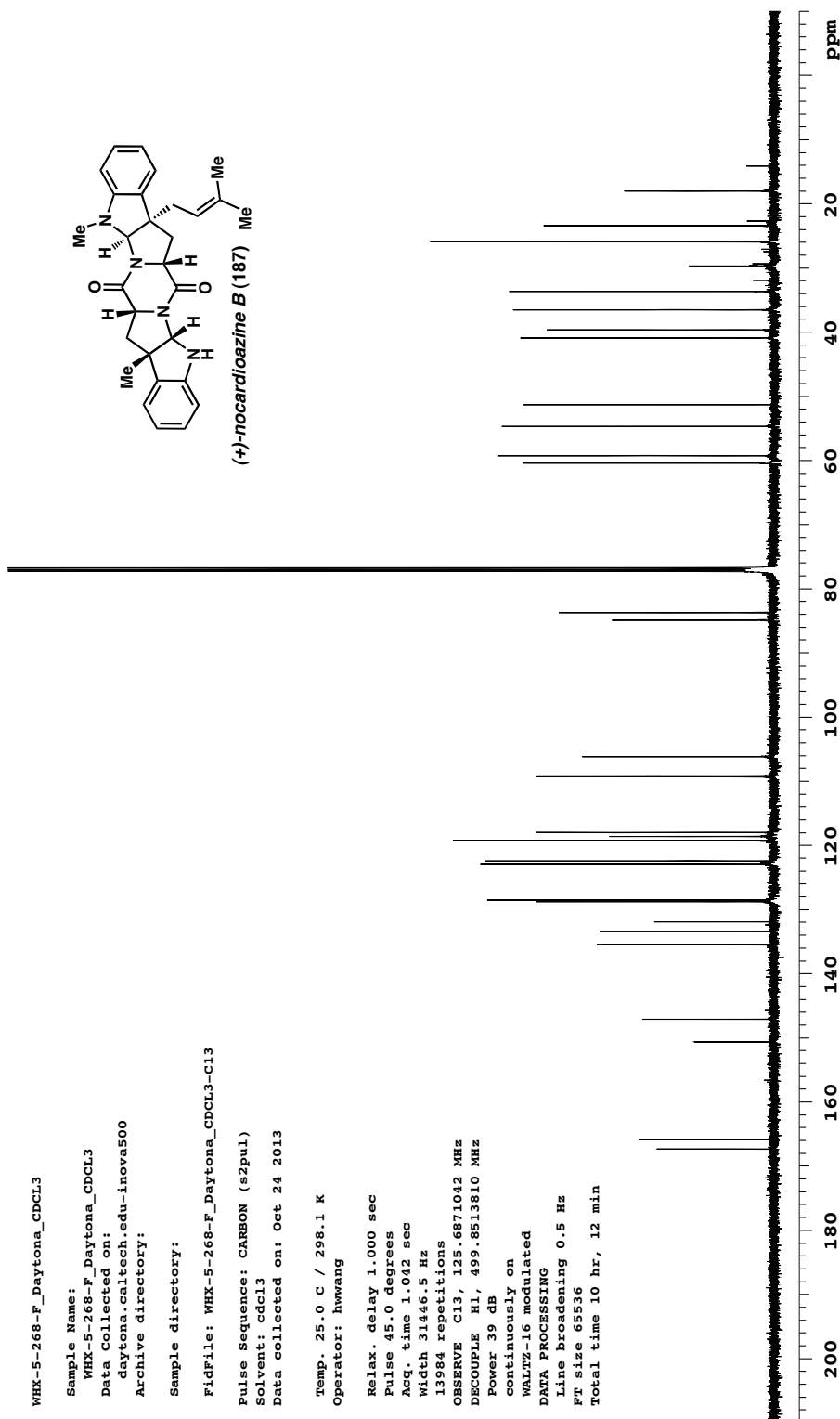
continuously on
WALTZ-16 modulated

DATA PROCESSING

Line broadening 0.5 Hz
FT size 65536
Total time 34 min







WHX-4-270-Re-F_INDY_CDCL3

Sample Name:

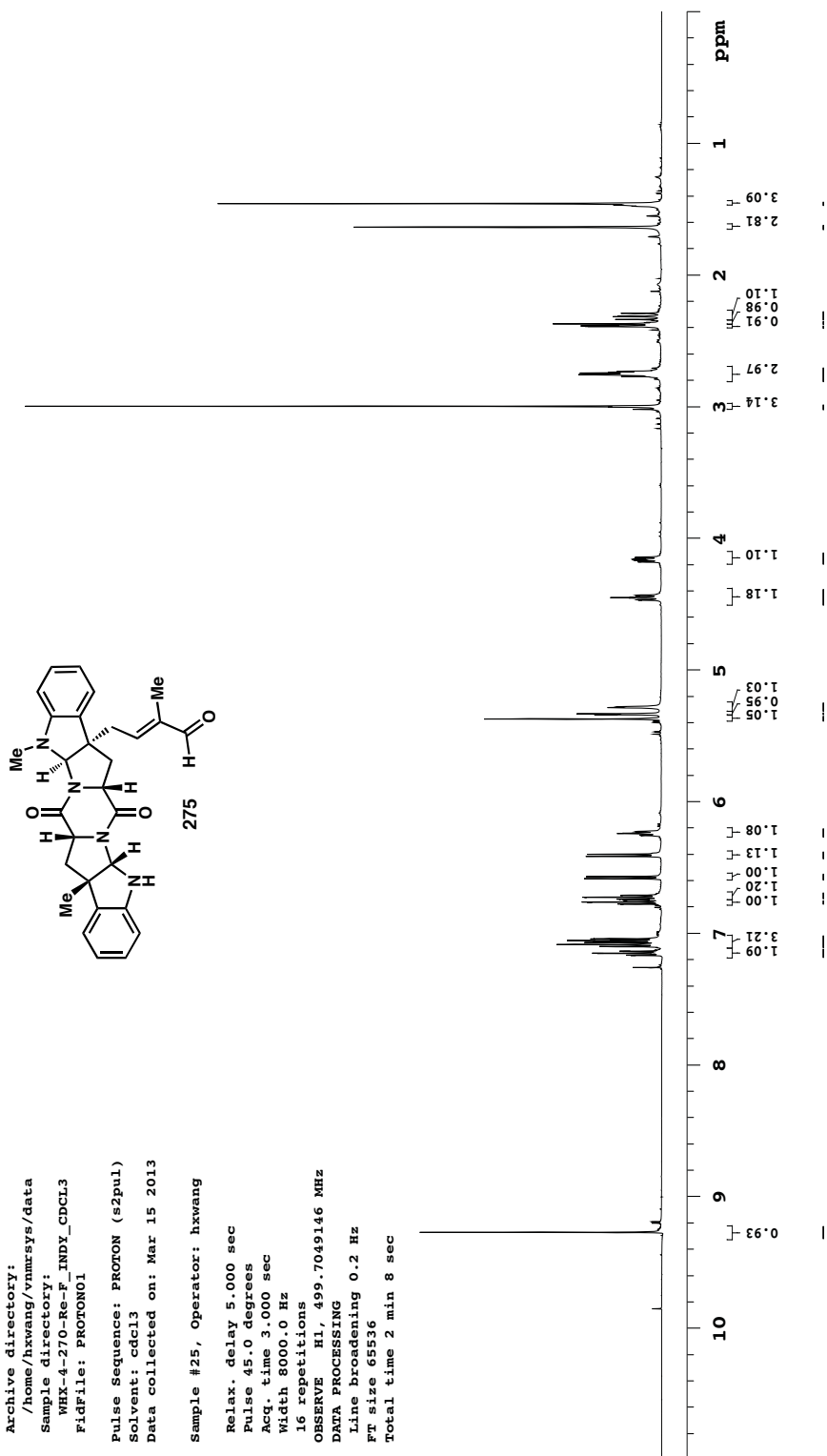
WHX-4-270-Re-F_INDY_CDCL3
Data Collected on:
indy.caltech.edu-inova500
Archive directory:
/home/hxwang/vnmrsys/data
Sample directory:
WHX-4-270-Re-F_INDY_CDCL3
FidFile: PROTON01

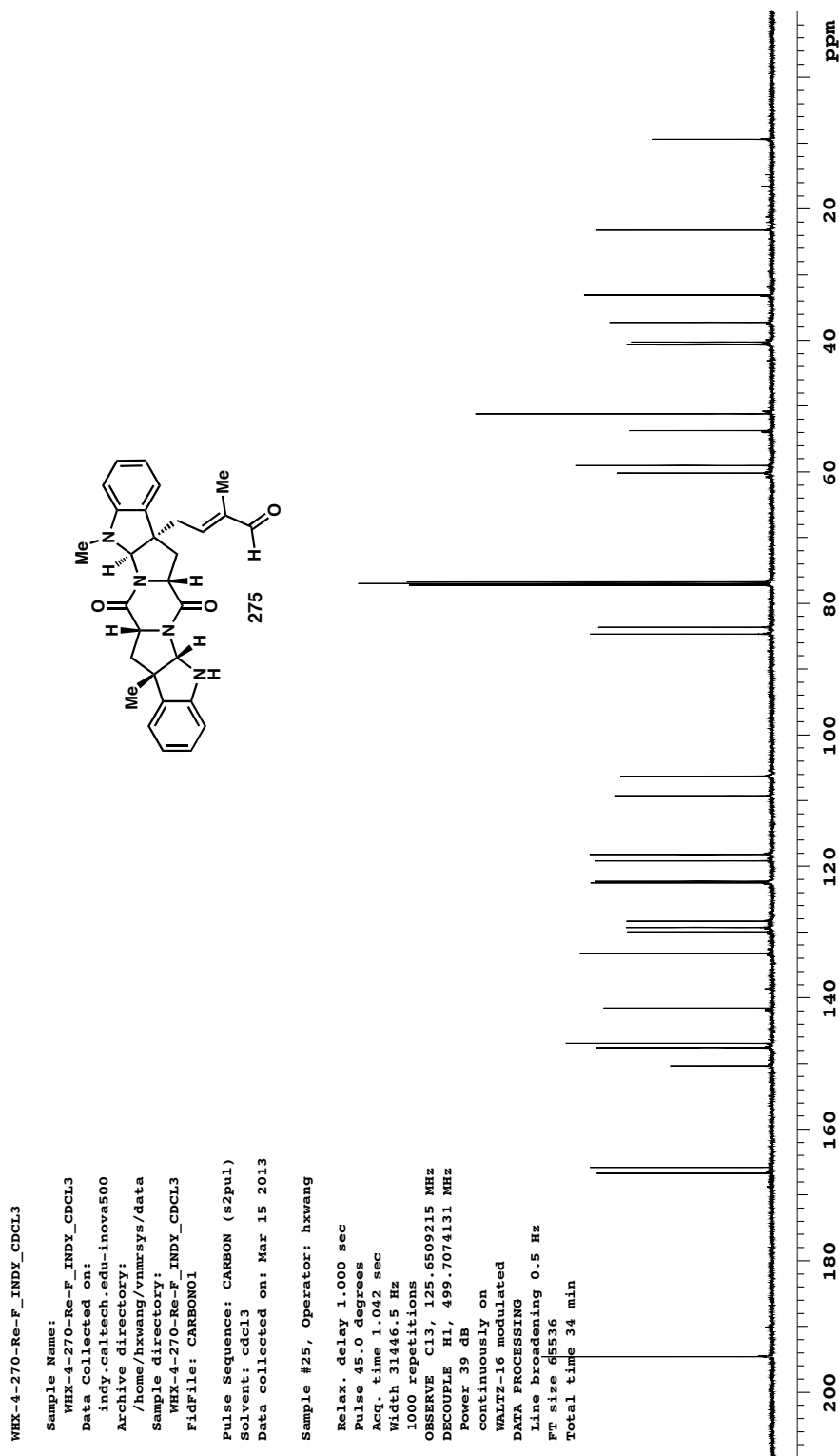
Pulse Sequence: PROTON (s2pul)
Solvent: cdcl3
Data collected on: Mar 15 2013

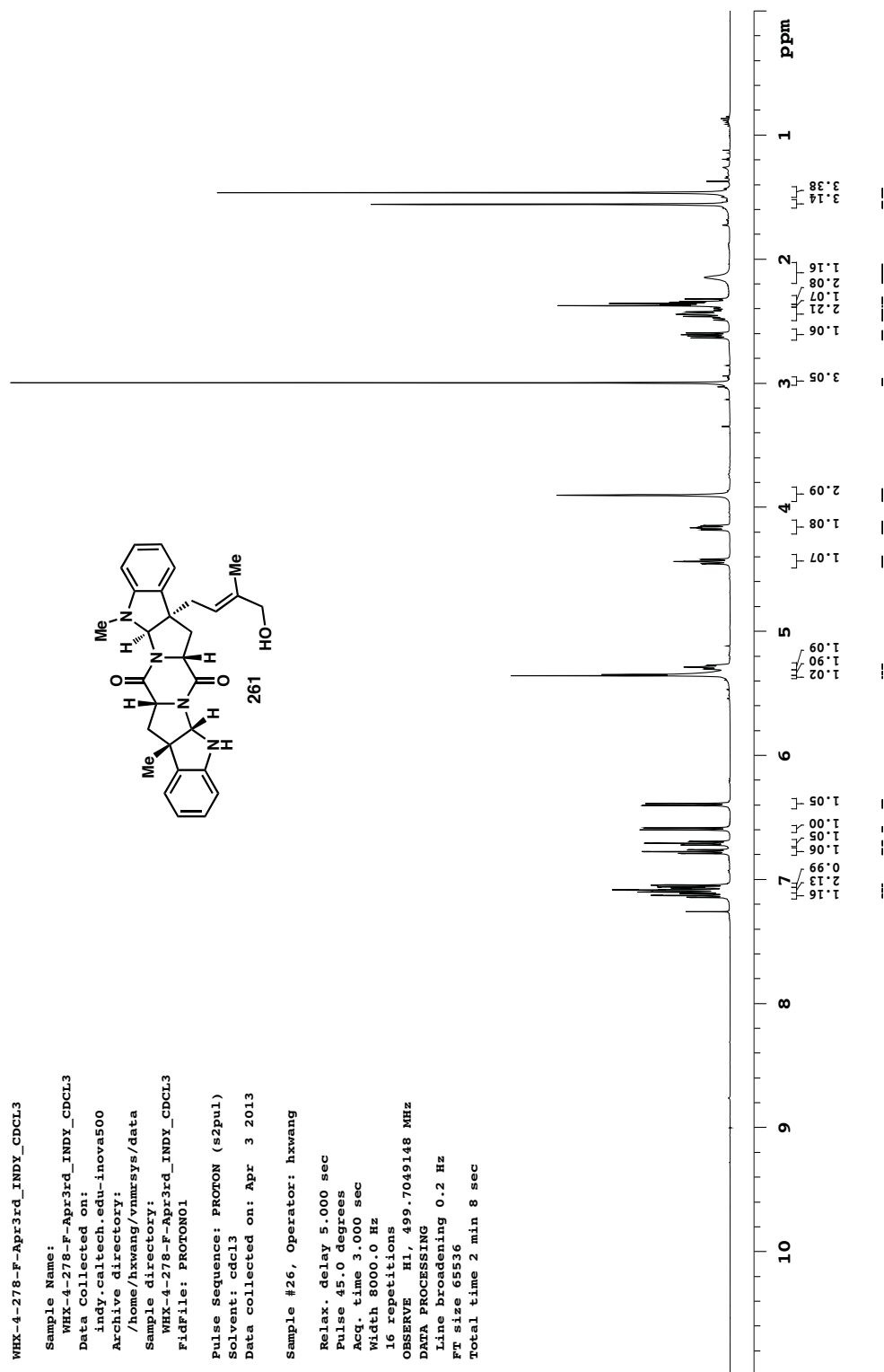
Sample #25, Operator: hxwang

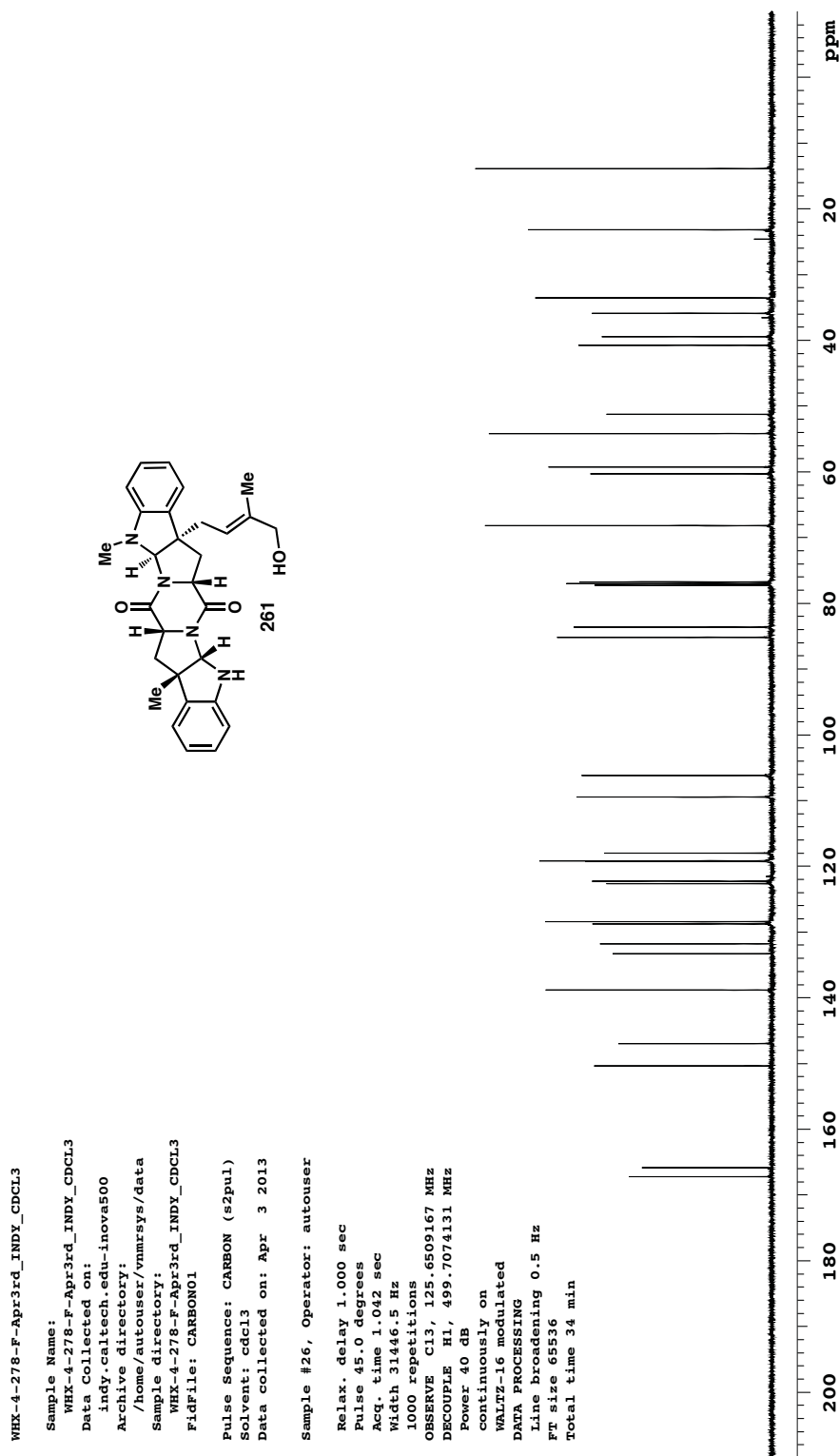
Relax. delay 5.000 sec
Pulse 45.0 degrees
Acq. time 3.000 sec
Width 8000.0 Hz
16 repetitions

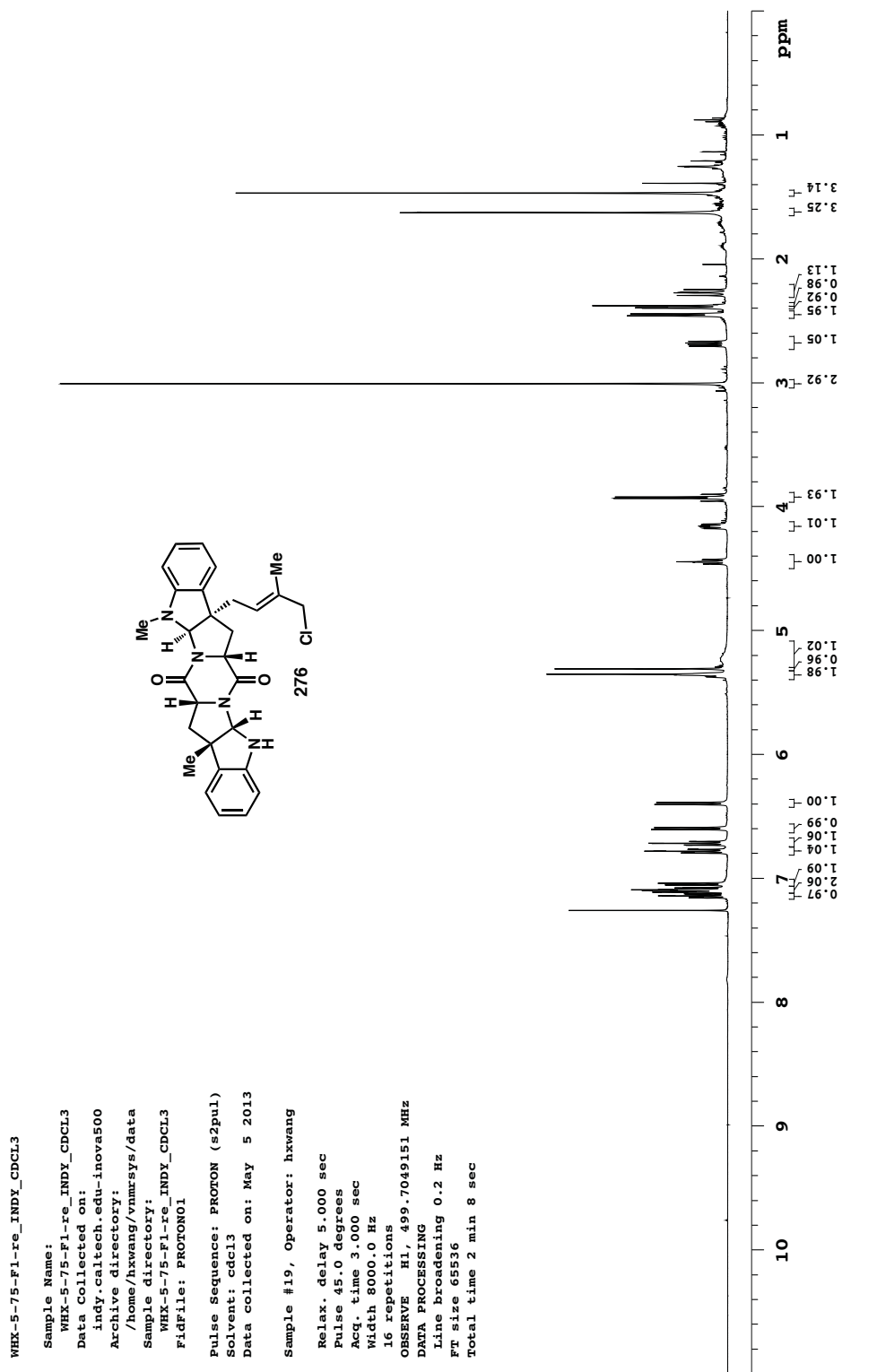
OBSERVE H1, 499.7049146 MHz
DATA PROCESSING
Line broadening 0.2 Hz
FT size 65536
Total time 2 min 8 sec

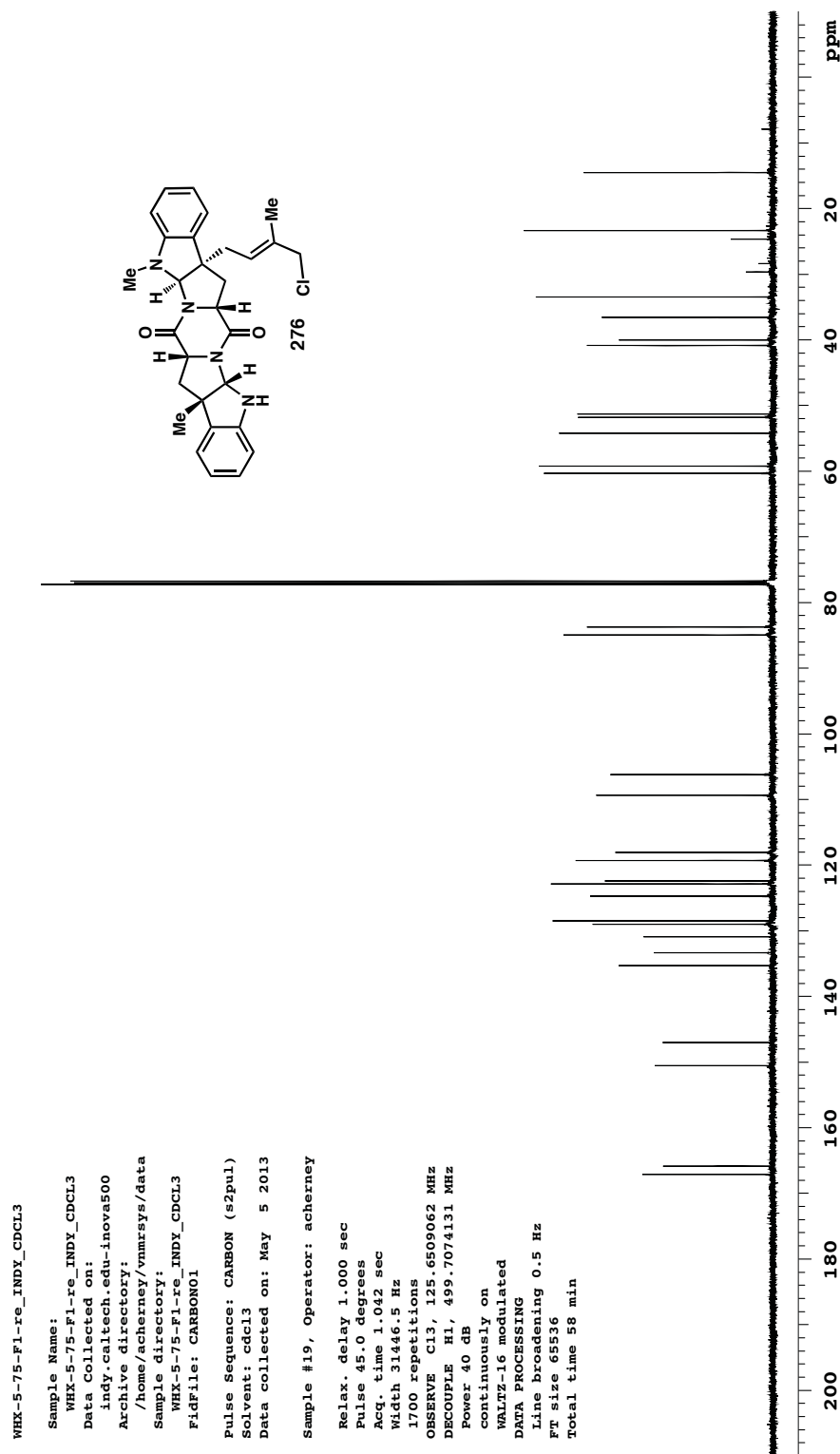


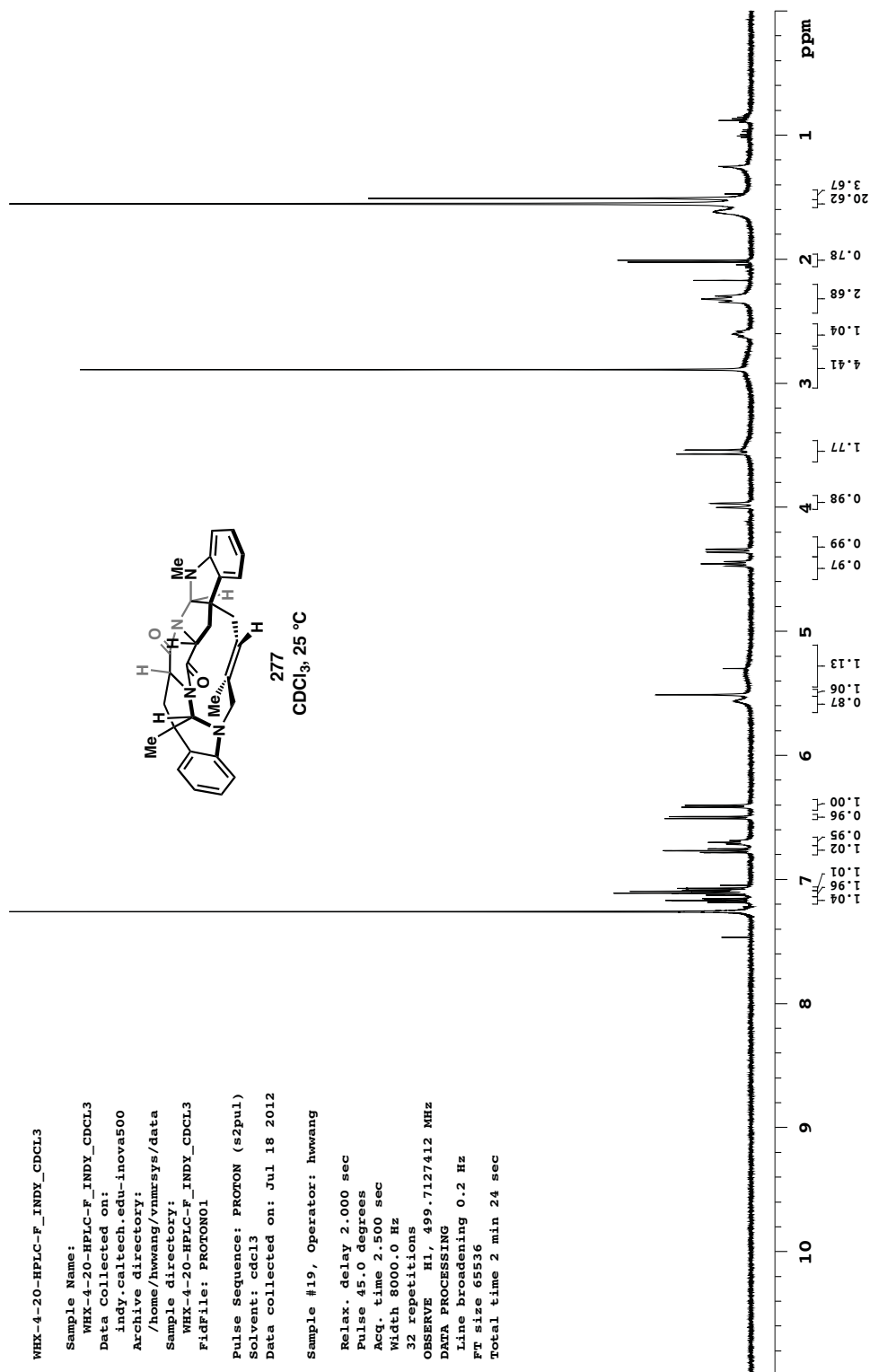












WHX-4-52-HPLC-F-Daytona-AccN-70C

Sample Name:

WHX-4-52-HPLC-F-Daytona-AccN-70C

Data Collected on:

daytona.caltech.edu-inova500

Archive directory:

Sample directory:

FidFile: WHX-4-52-HPLC-F-Daytona-AccN-rt

Pulse Sequence: PROTON (s2pul)

Solvent: cd3cn

Data collected on: Aug 23 2012

Temp. 25.0 C / 298.1 K

Operator: hwwang

Relax. delay 1.000 sec

Pulse 45.0 degrees

Acq. time 2.048 sec

Width 8000.0 Hz

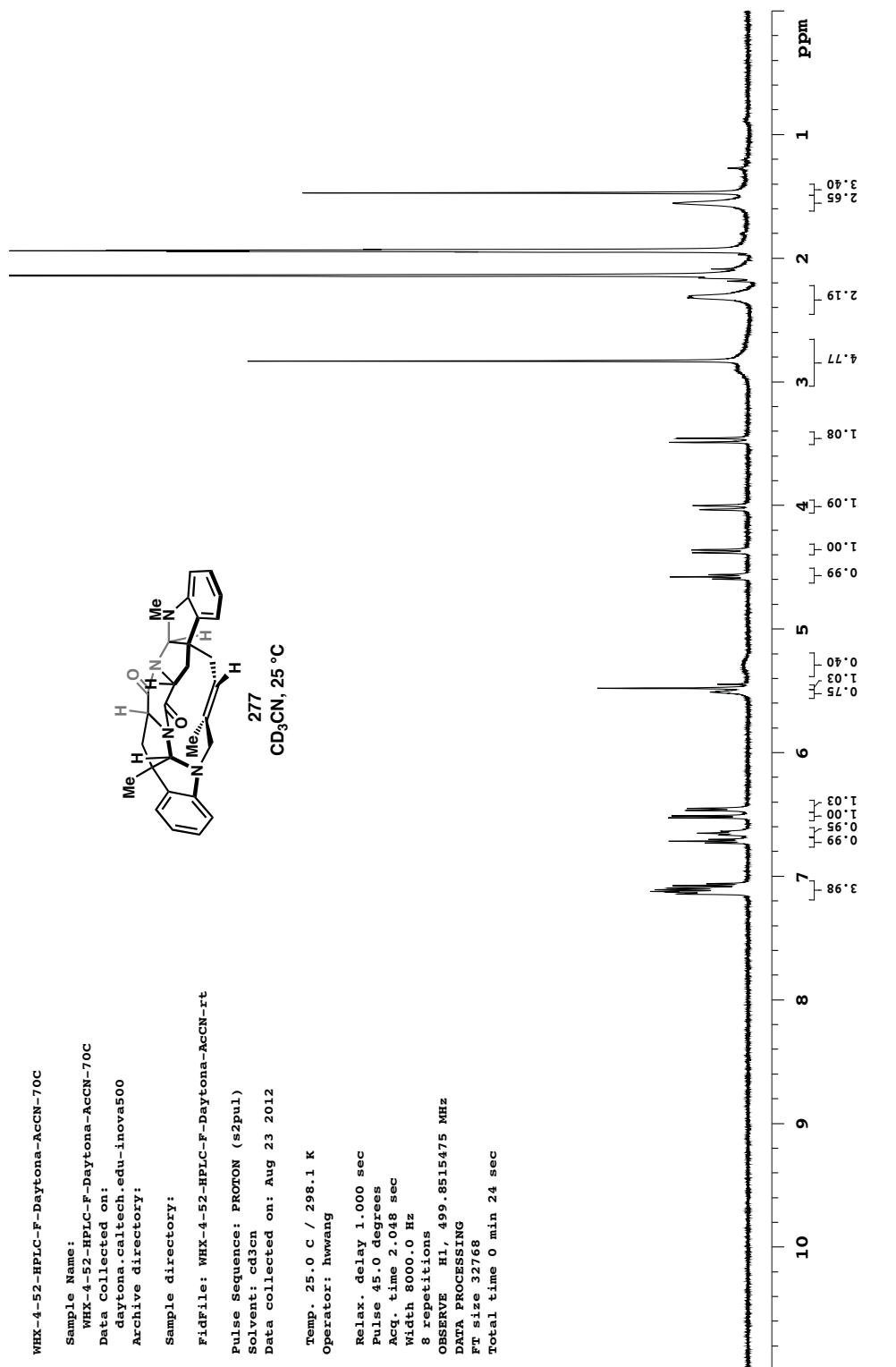
8 repetitions

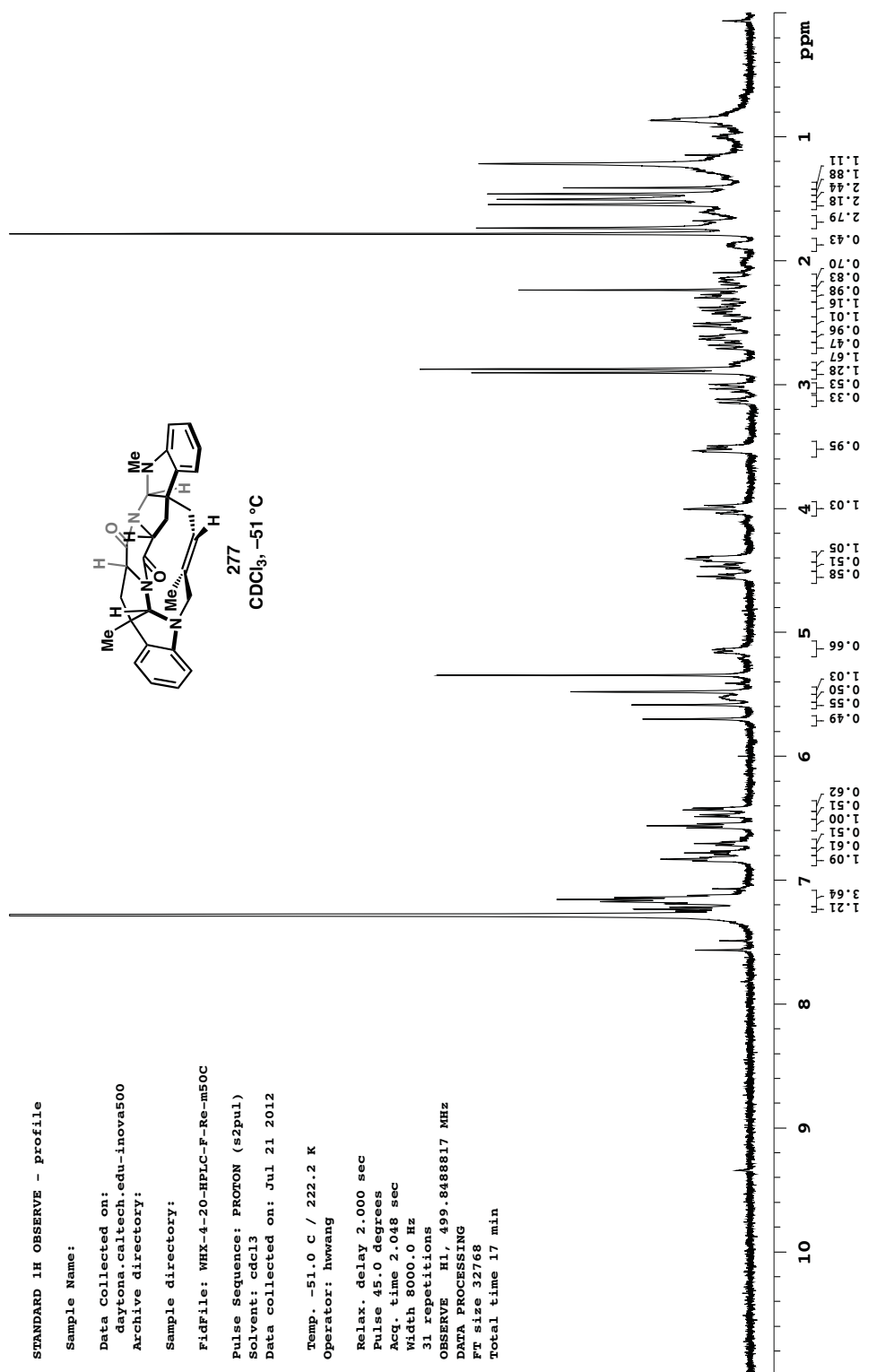
OBSERVE H1, 499.8515475 MHz

DATA PROCESSING

FT size 32768

Total time 0 min 24 sec





STANDARD 1H OBSERVE - profile

Sample Name:

Data Collected on:
daytona.caltech.edu-inova500
Archive directory:

Sample directory:

FidFile: WHX-5-119-re-70C

Pulse Sequence: PROTON (s2pul)

Solvent: acetone

Data collected on: Oct 22 2013

Temp. 70.0 C / 343.1 K

Operator: hwwang

Relax. delay 1.000 sec

Pulse 45.0 degrees

Acq. time 2.048 sec

Width 8000.0 Hz

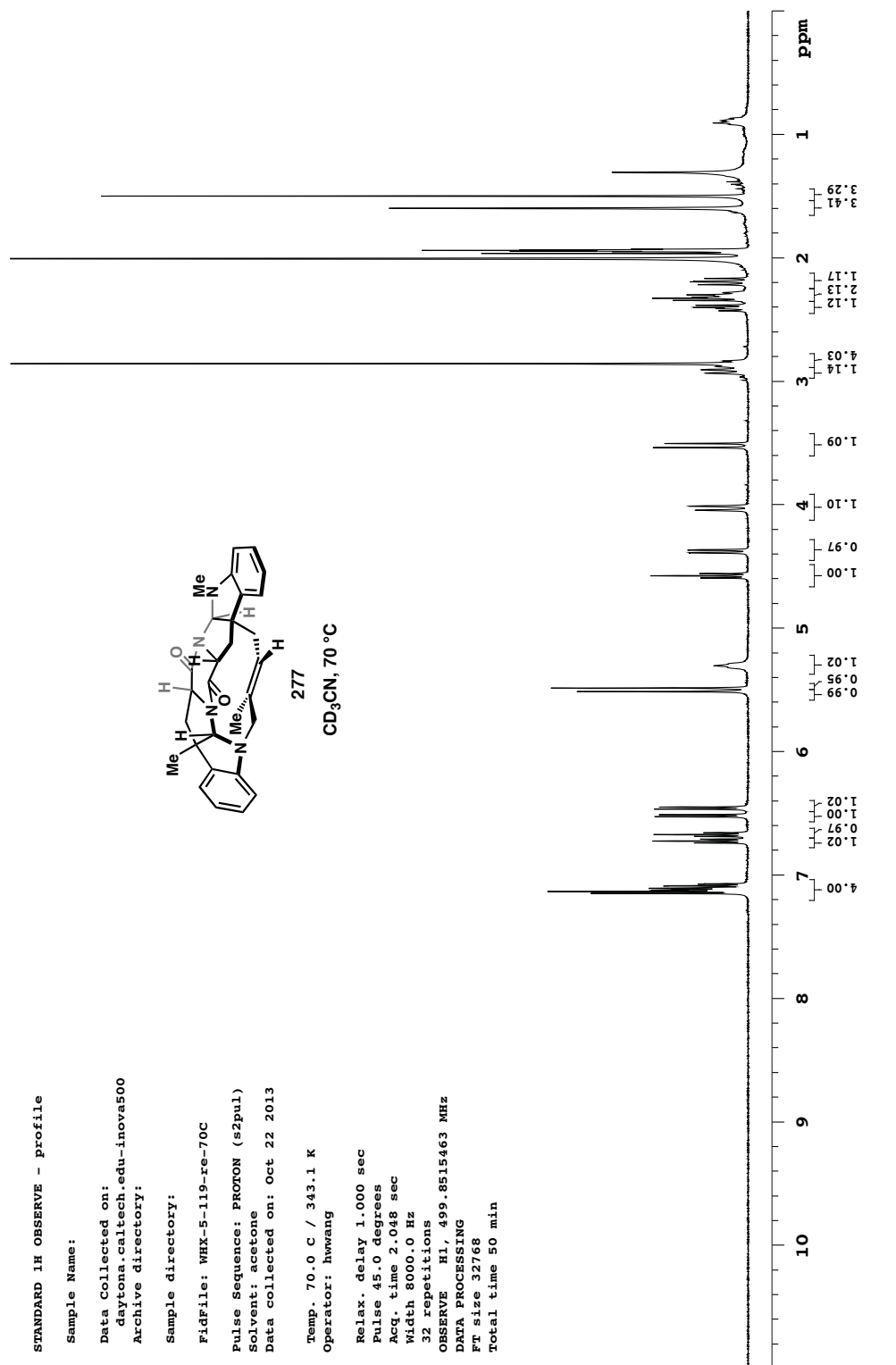
32 repetitions

OBSERVE H1, 499.8515463 MHz

DATA PROCESSING

FT size 32768

Total time 50 min



WHX-4-20-HPLC-F_INDY_CDCL3

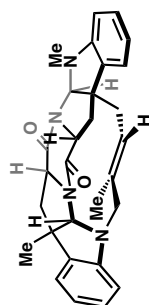
Sample Name:

WHX-4-20-HPLC-F_INDY_CDCL3
Data Collected on:
indy.caltech.edu-inova500
Archive directory:
/home/hwang/vnmrsys/data
Sample directory:
WHX-4-20-HPLC-F_INDY_CDCL3
FidFile: CARBONO1

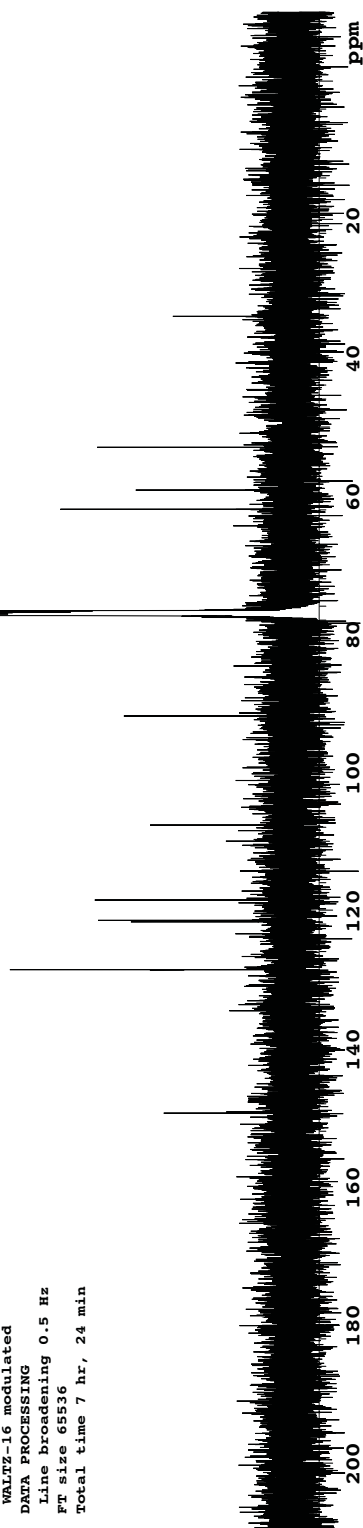
Pulse Sequence: CARBON (s2pul)
Solvent: cdcl3
Data collected on: Jul 18 2012

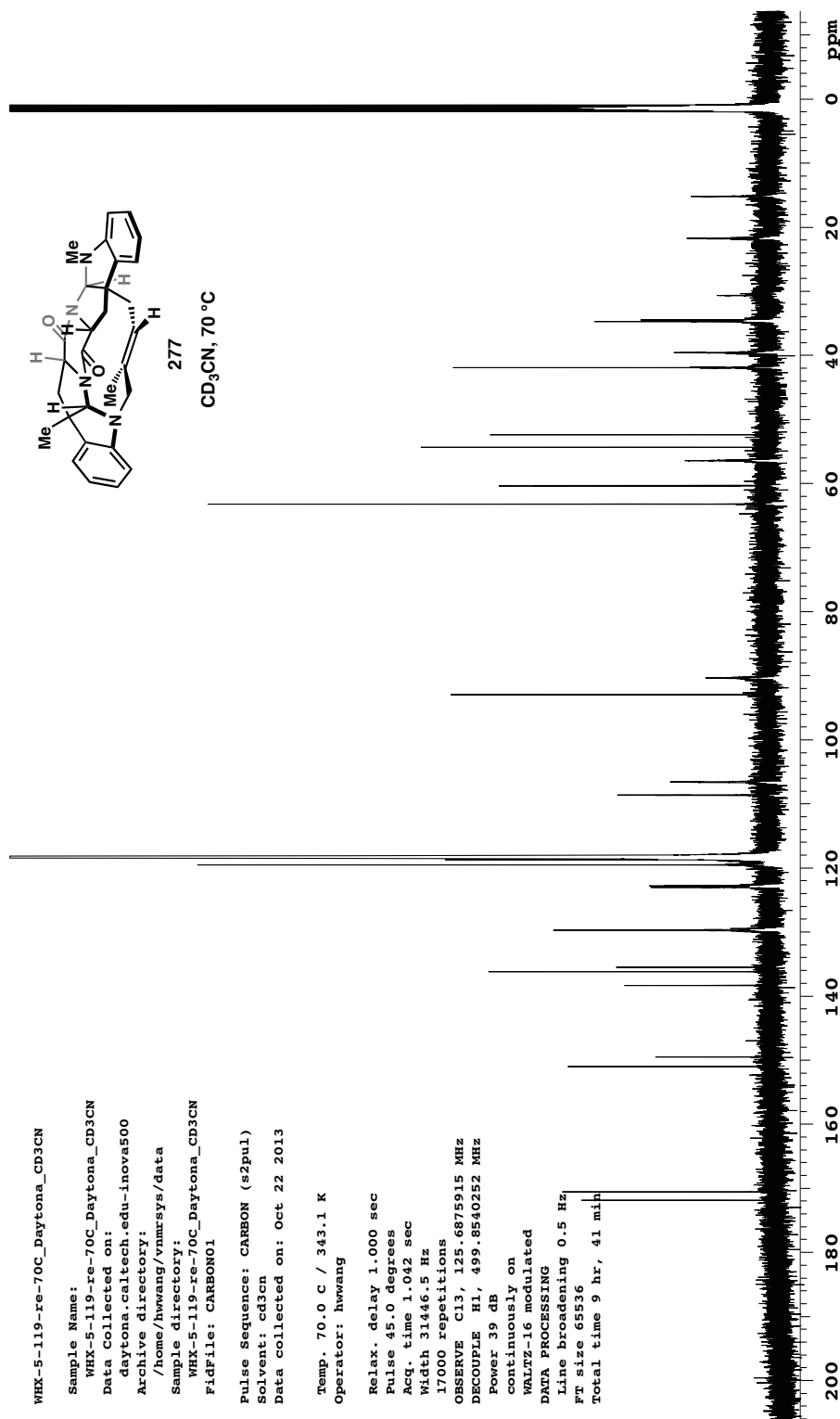
Sample #19, Operator: hwang

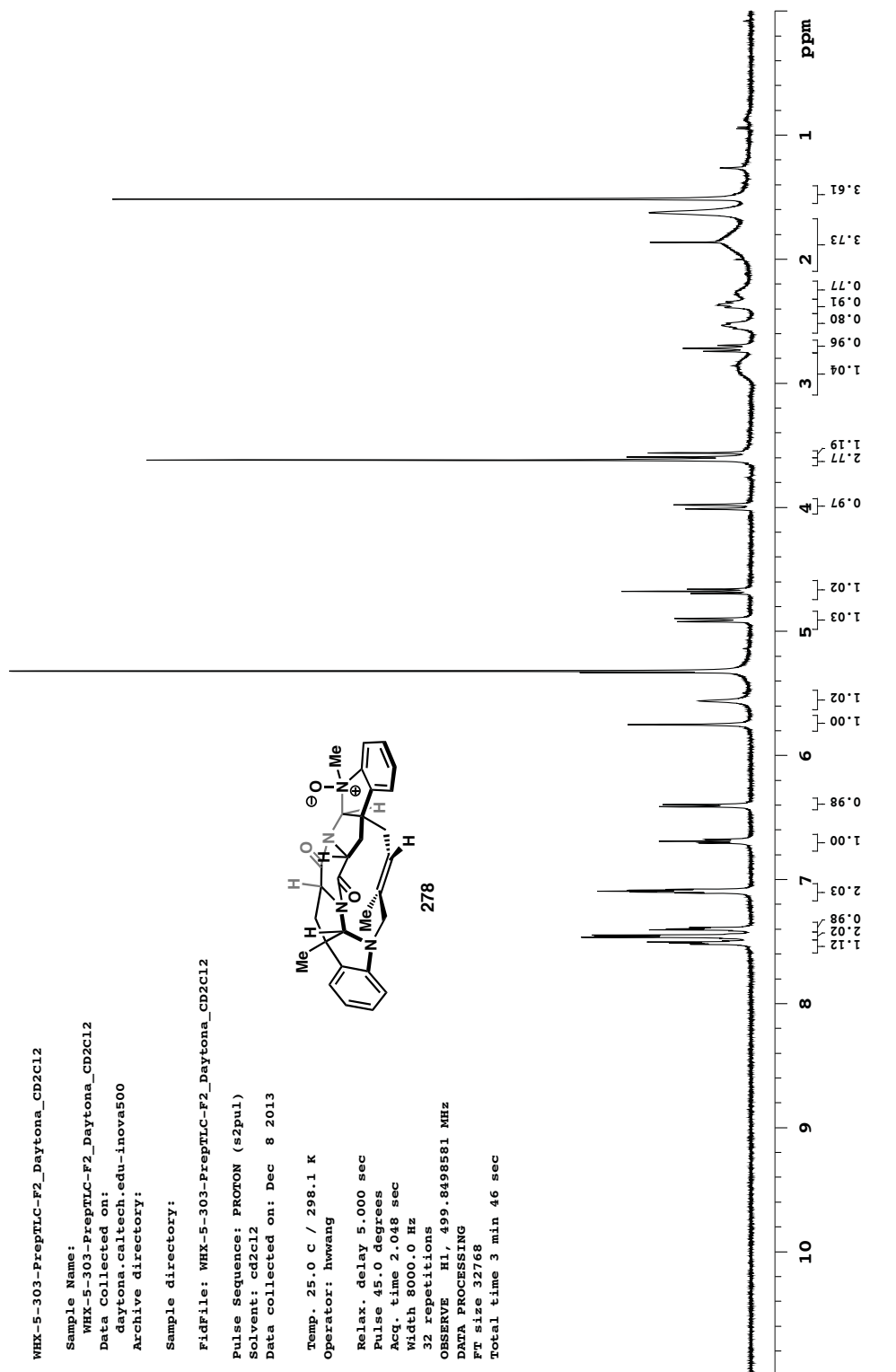
Relax. delay 1.000 sec
Pulse 45.0 degrees
Acq. time 1.042 sec
Width 31446.5 Hz
13000 repetitions
OBSERVE C13, 125.6528680 MHz
DECOUPLE H1, 499.7152303 MHz
Power 39 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 0.5 Hz
FT size 65536
Total time 7 hr, 24 min



277
CDCl₃, 25 °C







WHX-5-303-PrepTLC-F2_Daytona_CD2Cl2

Sample Name:

WHX-5-303-PrepTLC-F2_Daytona_CD2Cl2

Data Collected on:

daytona.caltech.edu-inova500

Archive directory:

Sample directory:

FidFile: WHX-5-303-PrepTLC-F2_Daytona_CD2Cl2-12h

Pulse Sequence: CARBON (s2pul)

Solvent: cd2cl2

Data collected on: Dec 8 2013

Temp. 25.0 C / 298.1 K

Operator: hwwang

Relax. delay 1.000 sec

Pulse 45.0 degrees

Acq. time 1.042 sec

Width 31446.5 Hz

21000 repetitions

OBSERVE C13, 125.6872690 MHz

DECOUPLE H1, 499.8523407 MHz

Power 39 dB

continuously on

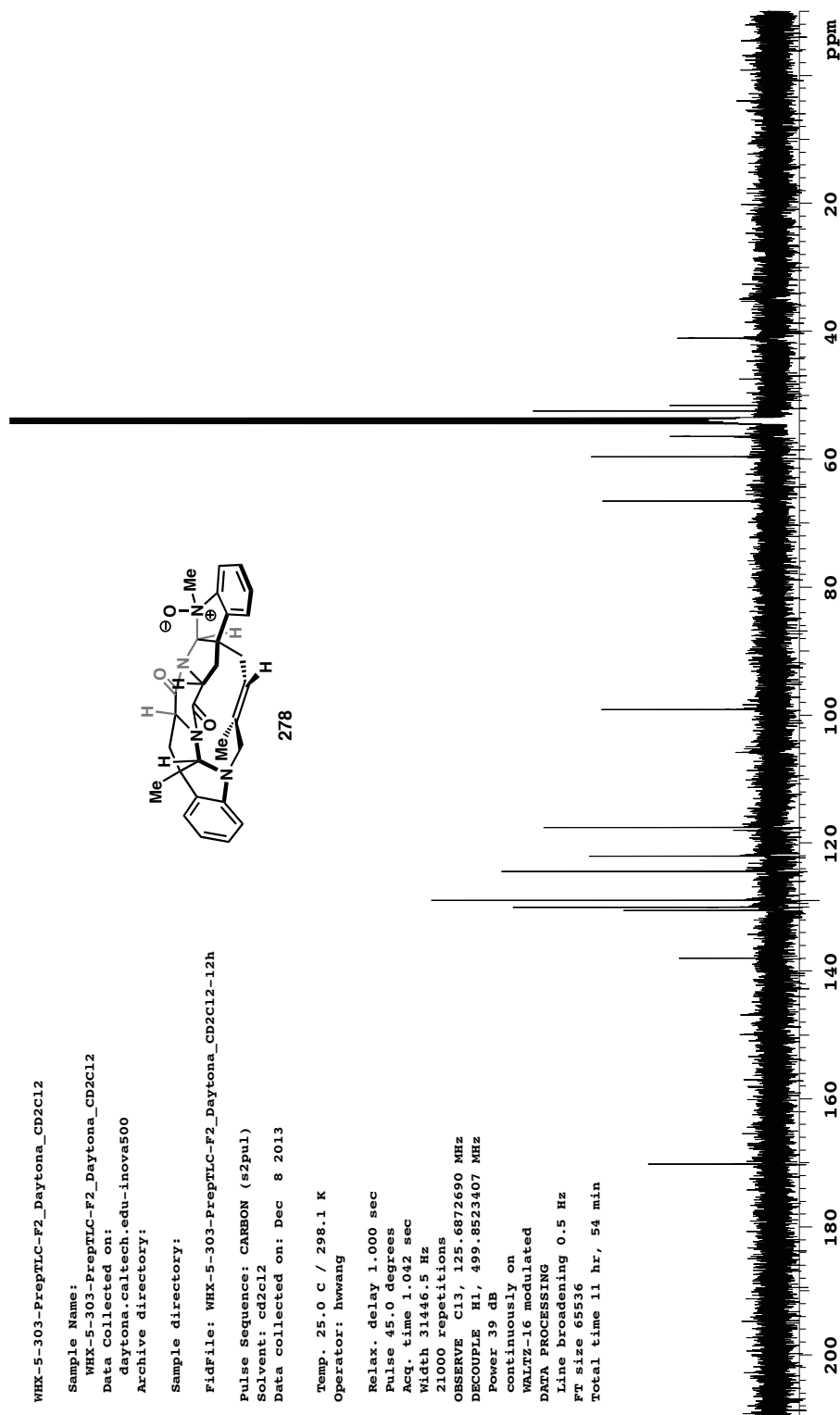
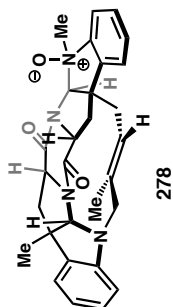
MALTZ-16 modulated

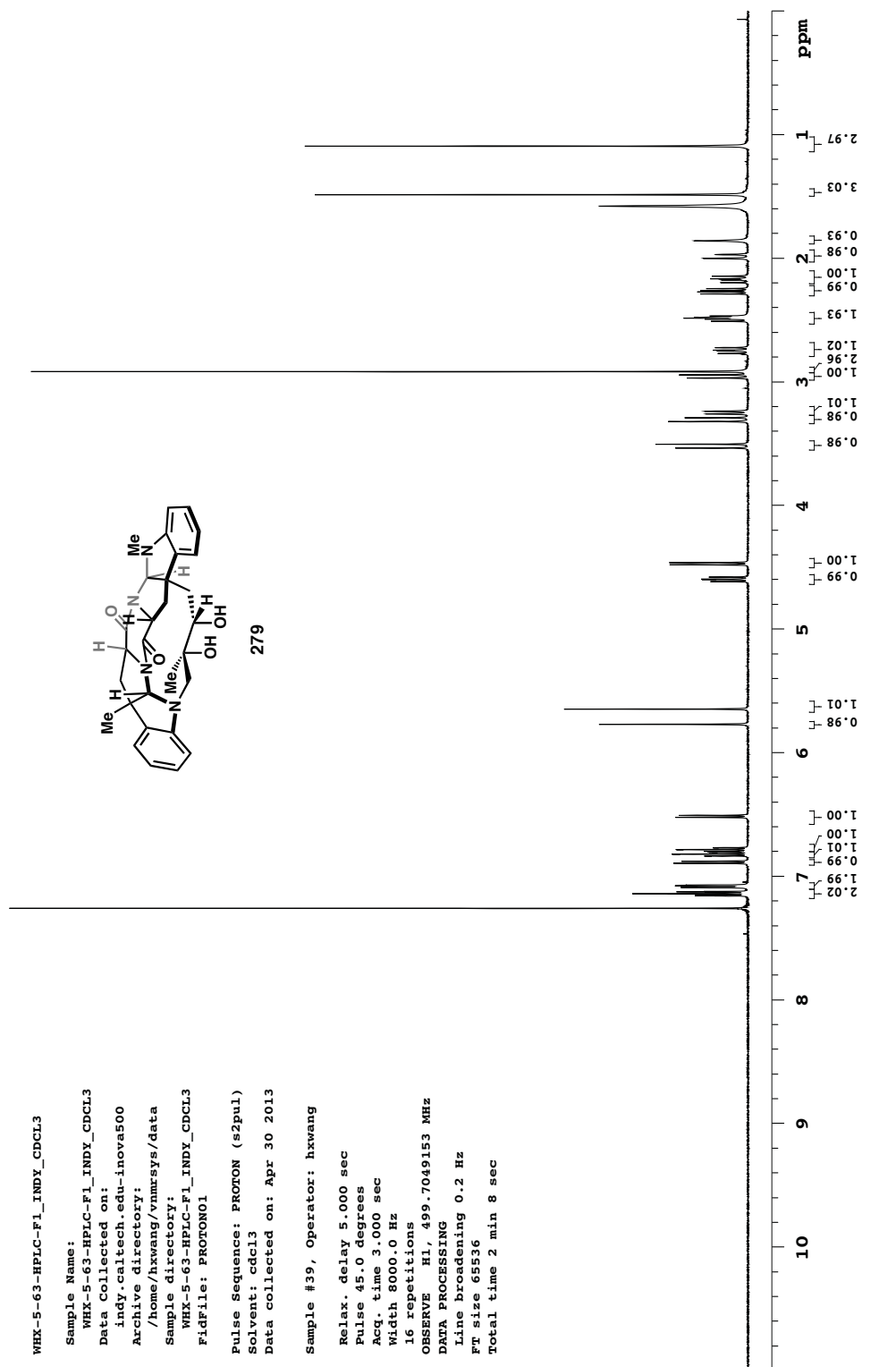
DATA PROCESSING

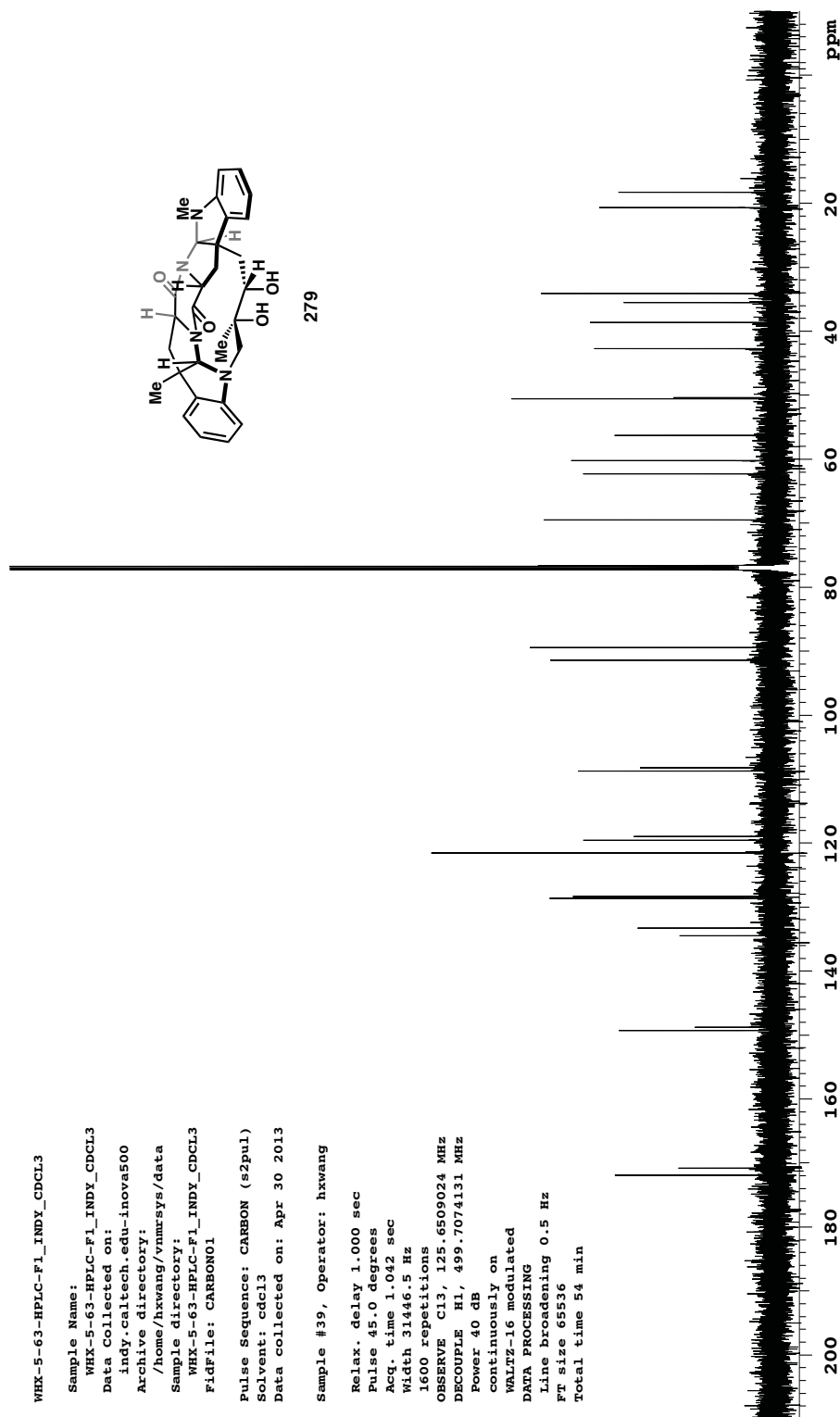
Line broadening 0.5 Hz

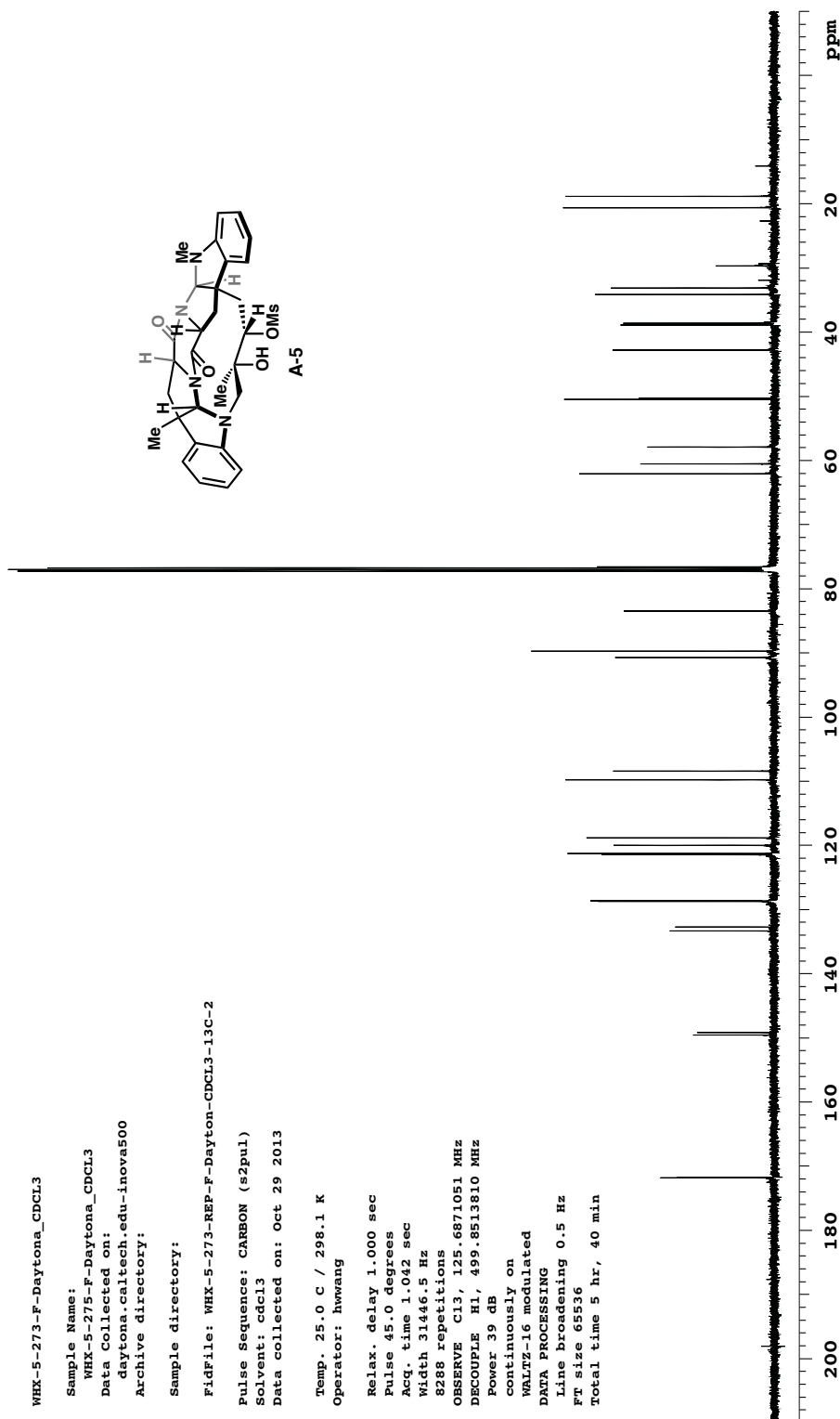
FT size 65536

Total time 11 hr, 54 min









WHX-5-280-HPLC-F-Daytona_CDCL3

Sample Name:

WHX-5-280-HPLC-F-Daytona_CDCL3
Data Collected on:
daytona.caltech.edu-inova500
Archive directory:

Sample directory:

FidFile: WHX-5-280-HPLC-F-Daytona-CDCL3

Pulse Sequence: PROTON (s2pul)

Solvent: cdcl3

Data collected on: Nov 13 2013

Temp. 25.0 C / 298.1 K

Operator: hwwang

Relax. delay 2.000 sec

Pulse 45.0 degrees

Acq. time 2.048 sec

Width 8000.0 Hz

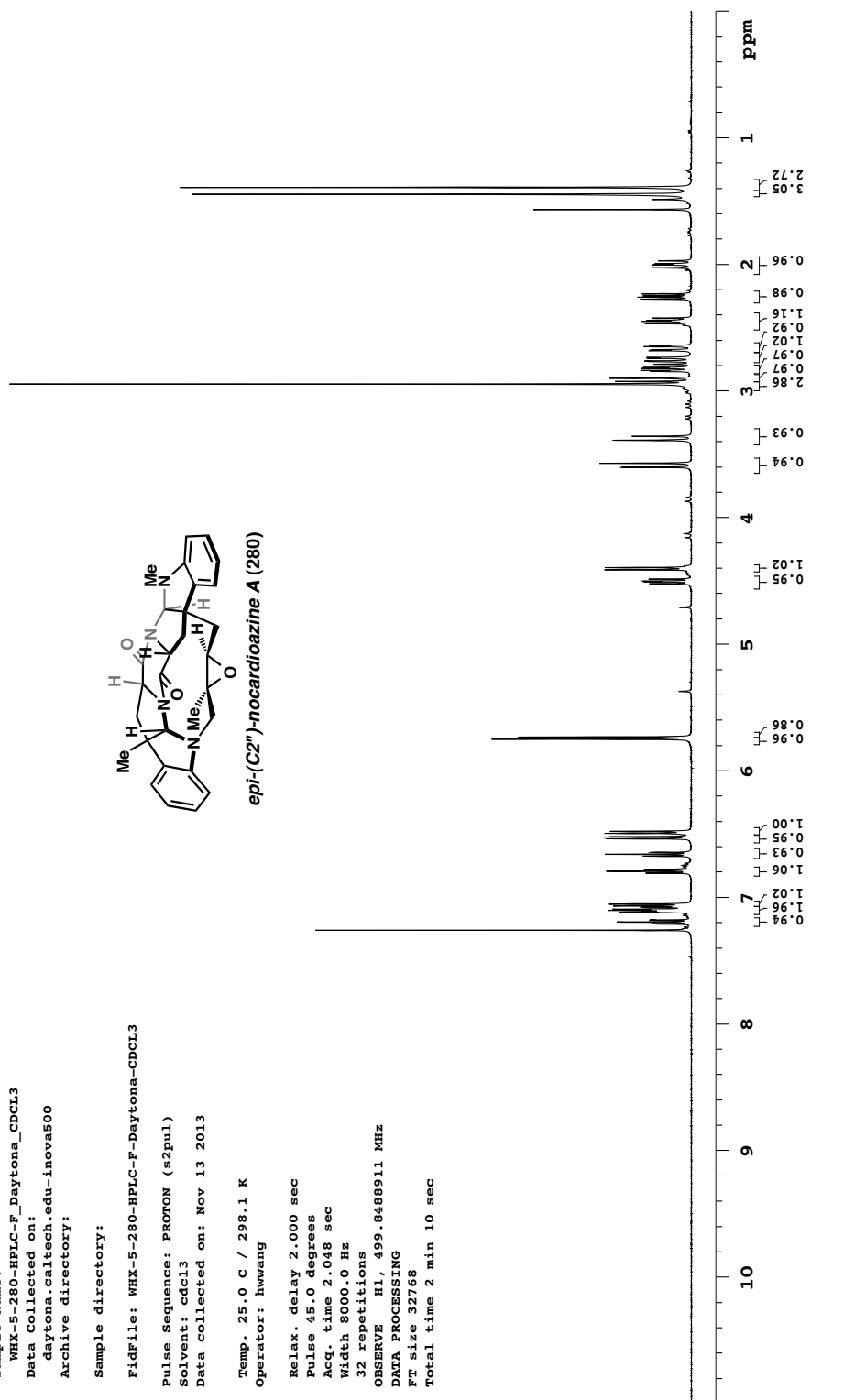
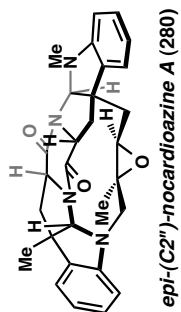
32 repetitions

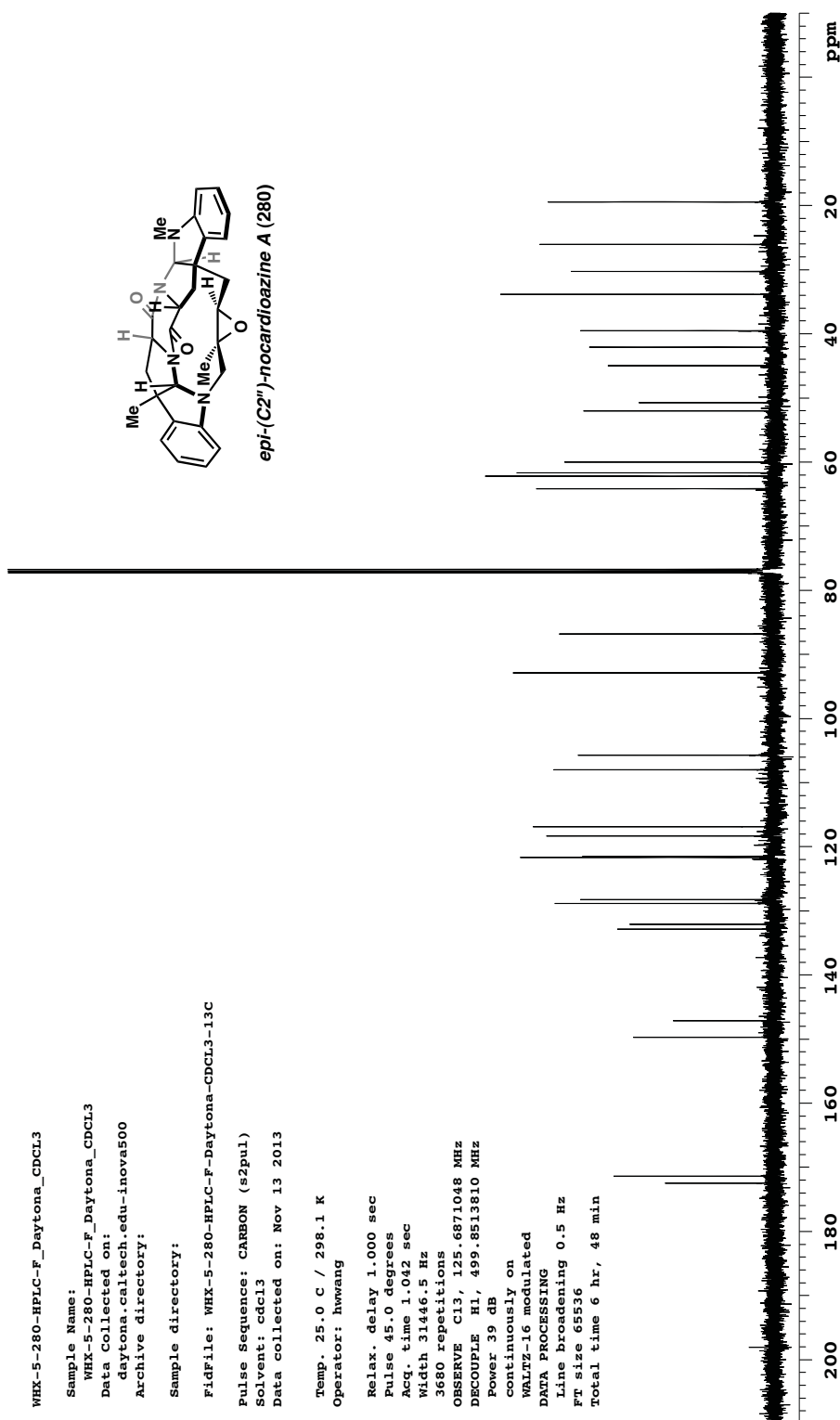
OBSERVE H1, 499.8488911 MHz

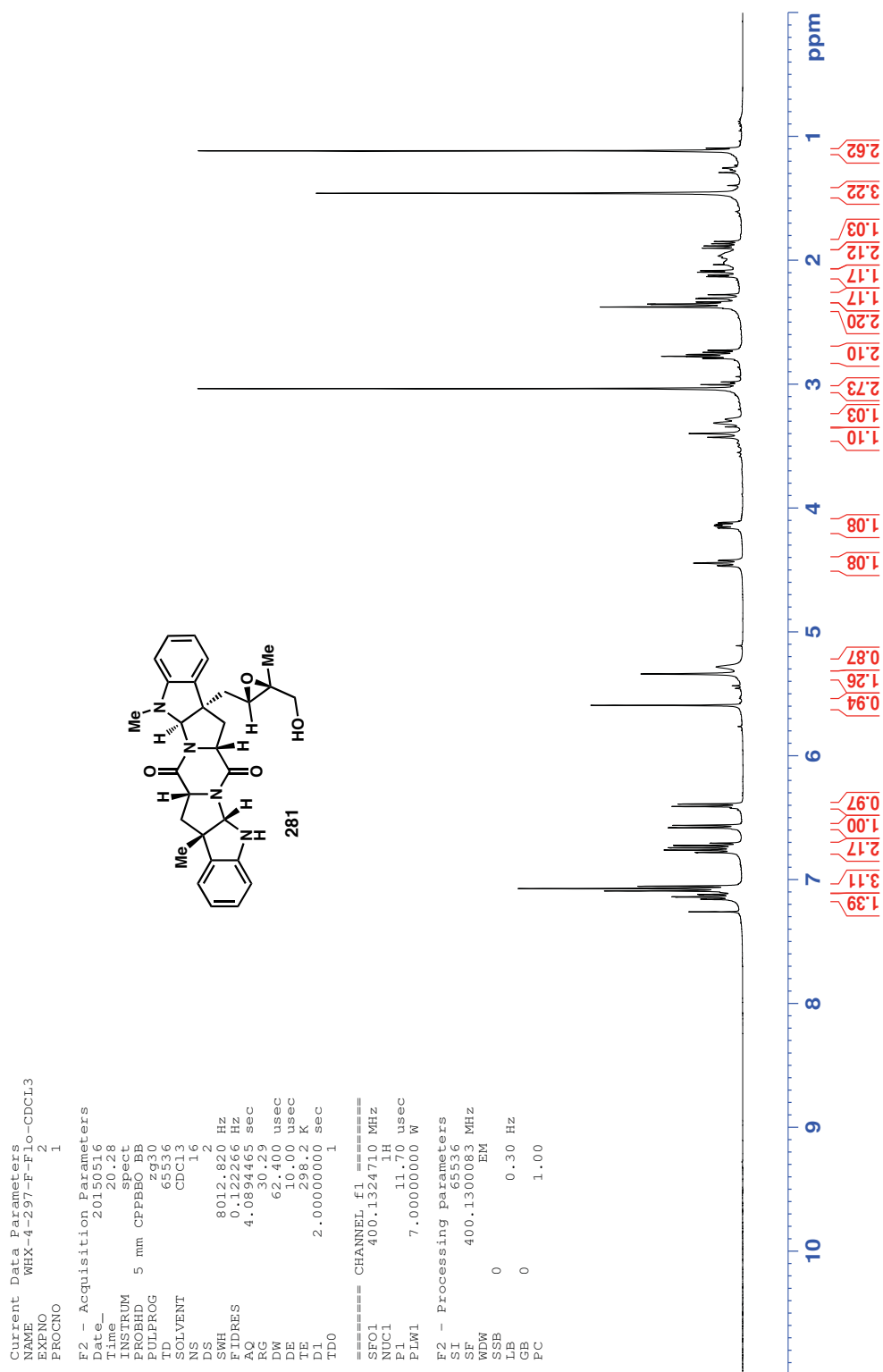
DATA PROCESSING

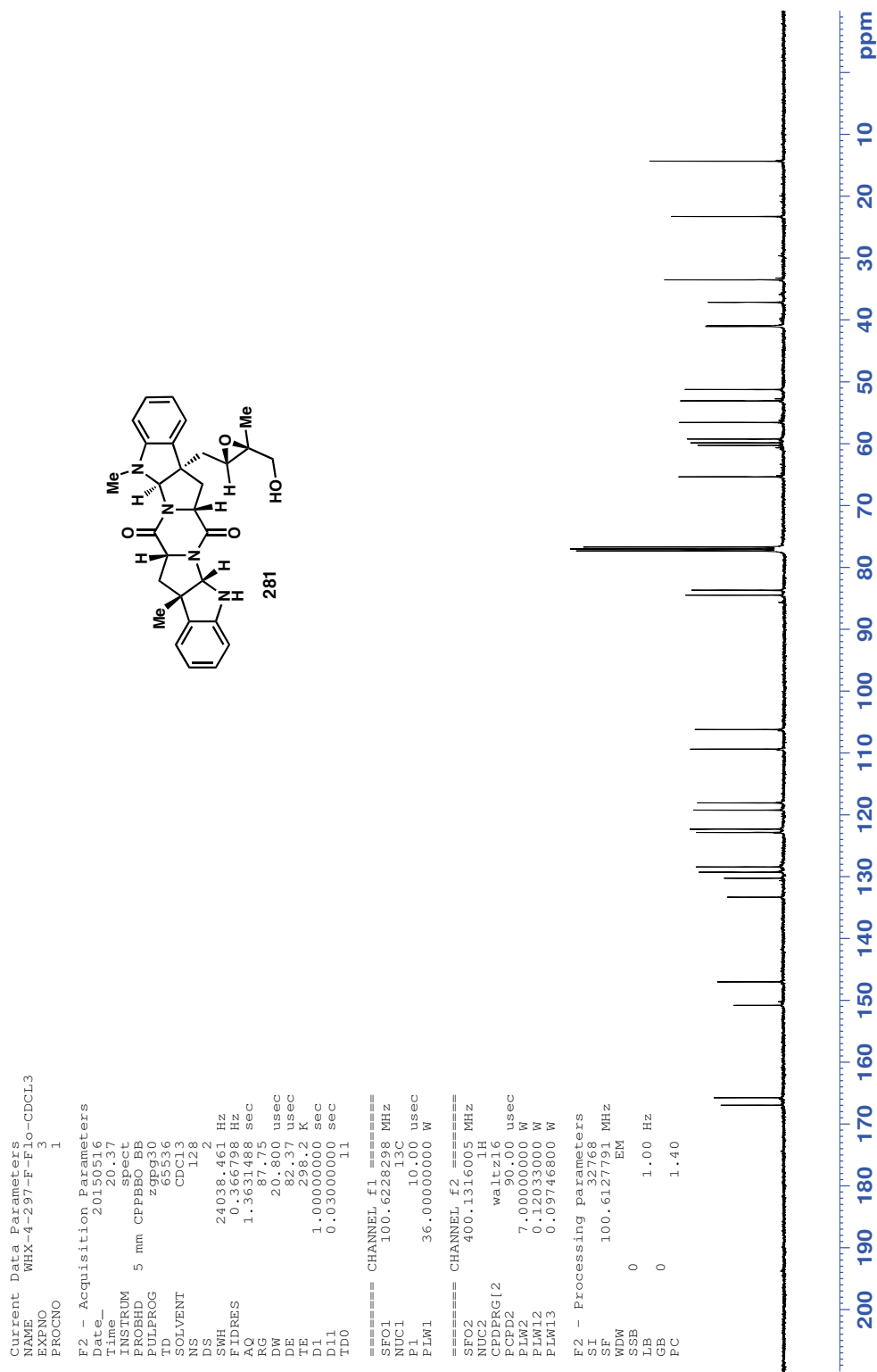
FT size 32768

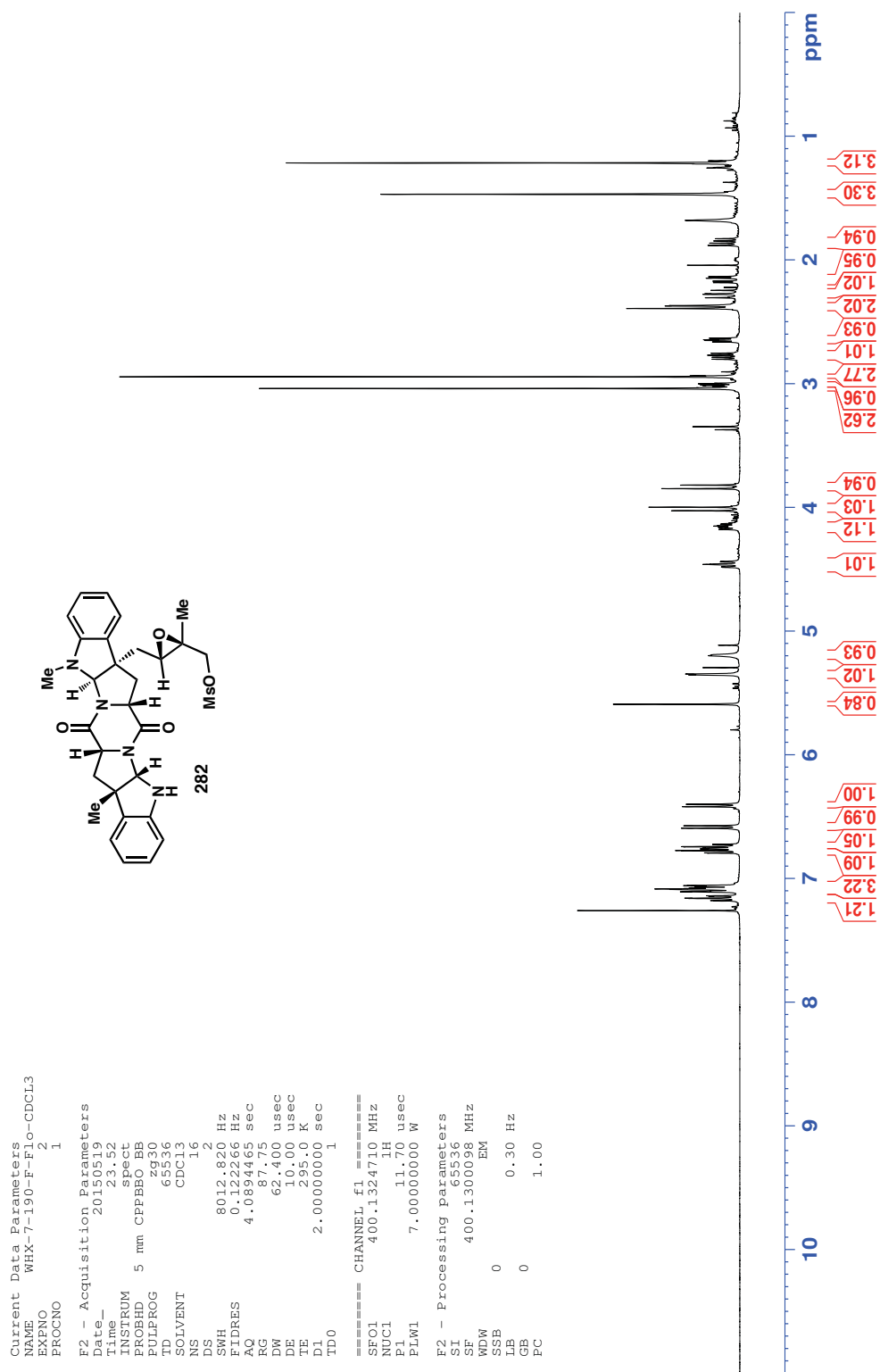
Total time 2 min 10 sec

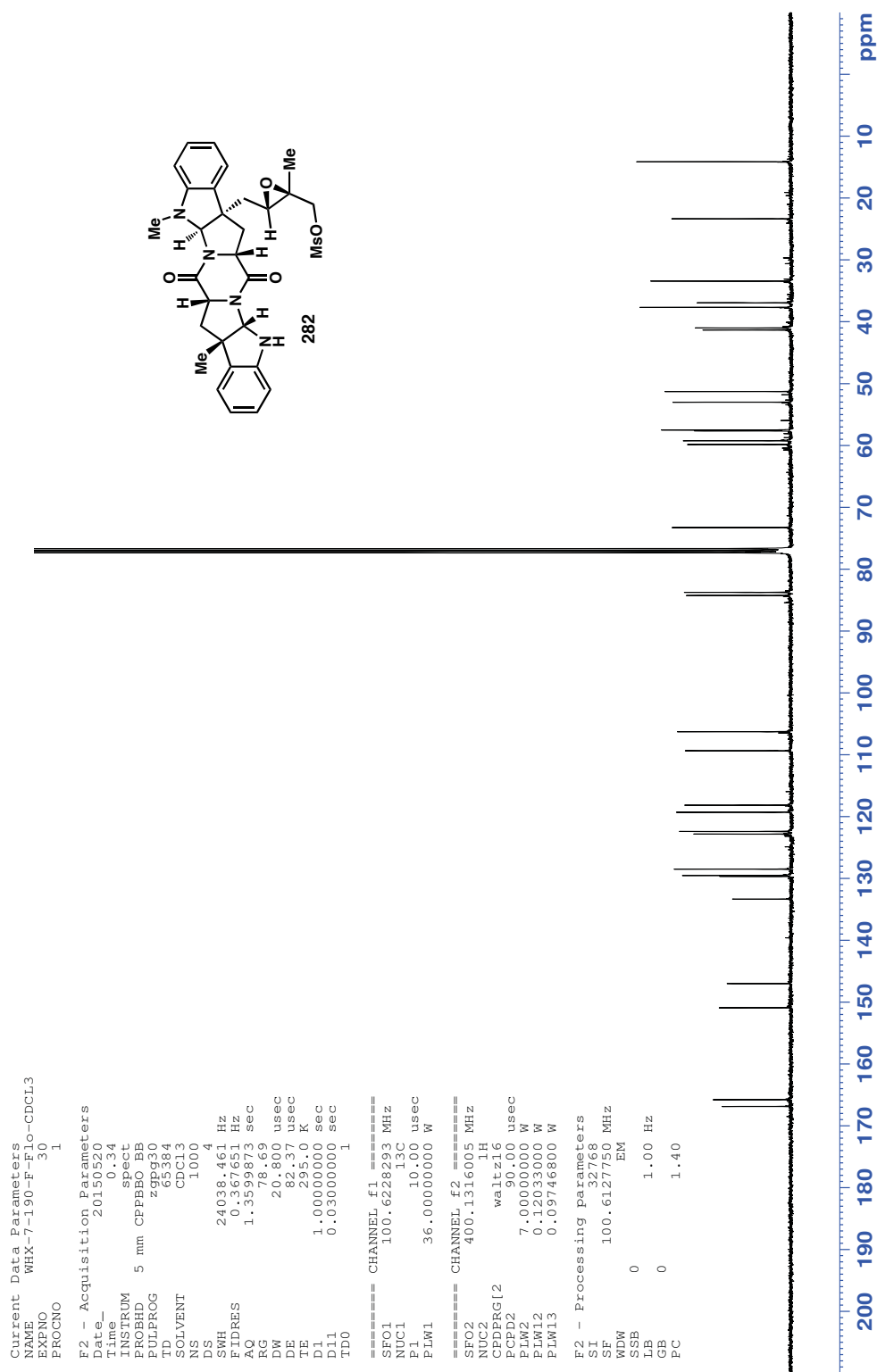












WHX-5-201-F-Characterize_INDY_CDCL3

Sample Name:

WHX-5-201-F-Characterize_INDY_CDCL3

Data Collected on:

indy.caltech.edu-inova500

Archive directory:

/home/hxwang/vnmrsys/data

Sample directory:

WHX-5-201-F-Characterize_INDY_CDCL3

FidFile: PROTON01

Pulse Sequence: PROTON (s2pul)

Solvent: cdcl3

Data collected on: Aug 24 2013

Sample #6, Operator: hxwang

Relax. delay 5.000 sec

Pulse 45.0 degrees

Acq. time 3.000 sec

Width 8000.0 Hz

16 repetitions

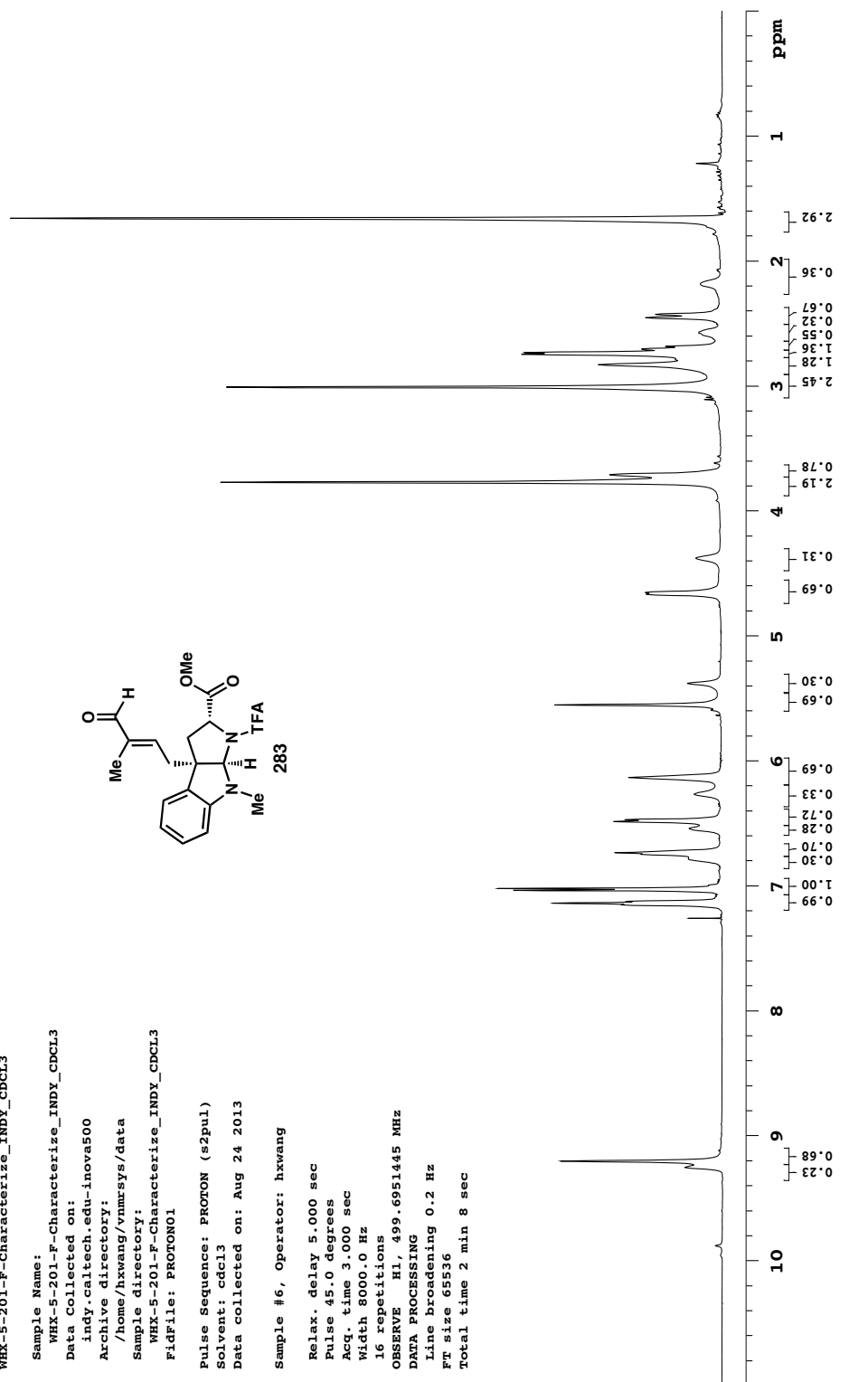
OBSERVE H1, 499.6951445 MHz

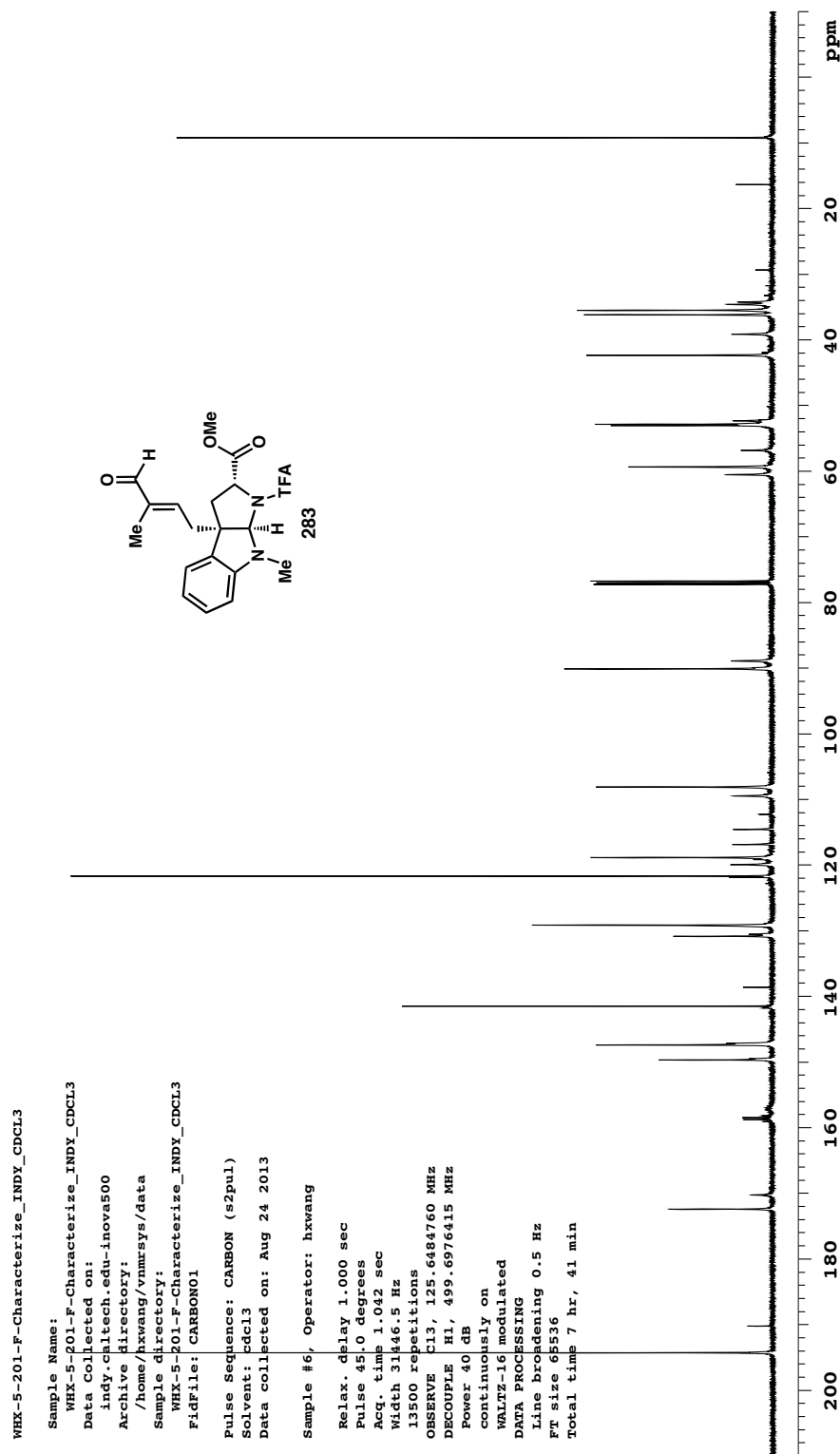
DATA PROCESSING

Line broadening 0.2 Hz

FT size 65536

Total time 2 min 8 sec





WHX-5-170-F-Characterization-INDY_CDCL3

Sample Name:

WHX-5-170-F-Characterization-INDY_CDCL3
Data Collected on:
indy.caltech.edu-inova500
Archive directory:
/home/hxwang/vnmrsys/data

Sample directory:

WHX-5-170-F-Characterization-INDY_CDCL3
FidFile: PROTON01

Pulse Sequence: PROTON (s2pul)

Solvent: cdcl3
Data collected on: Aug 6 2013

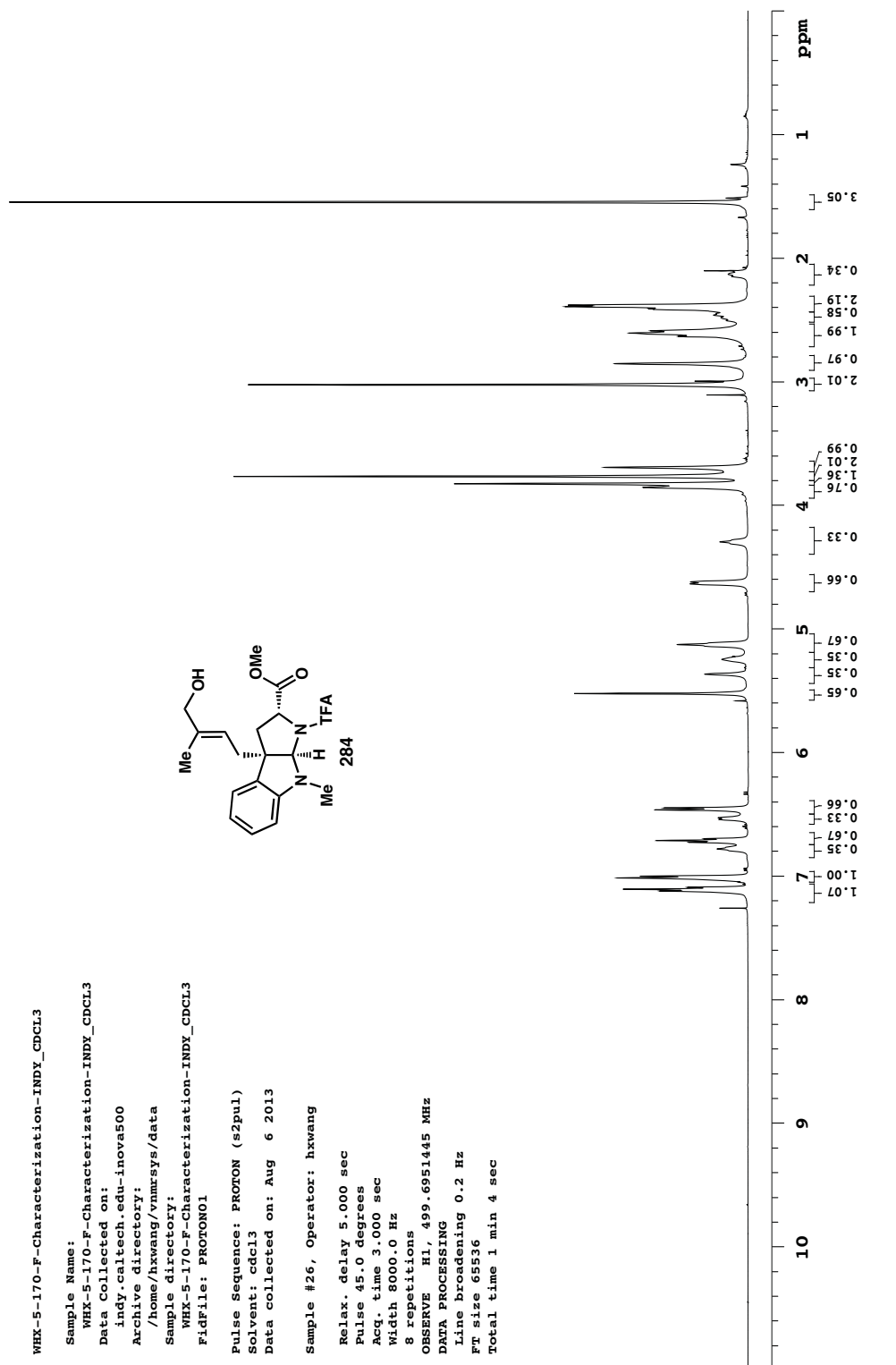
Sample #26, Operator: hxwang

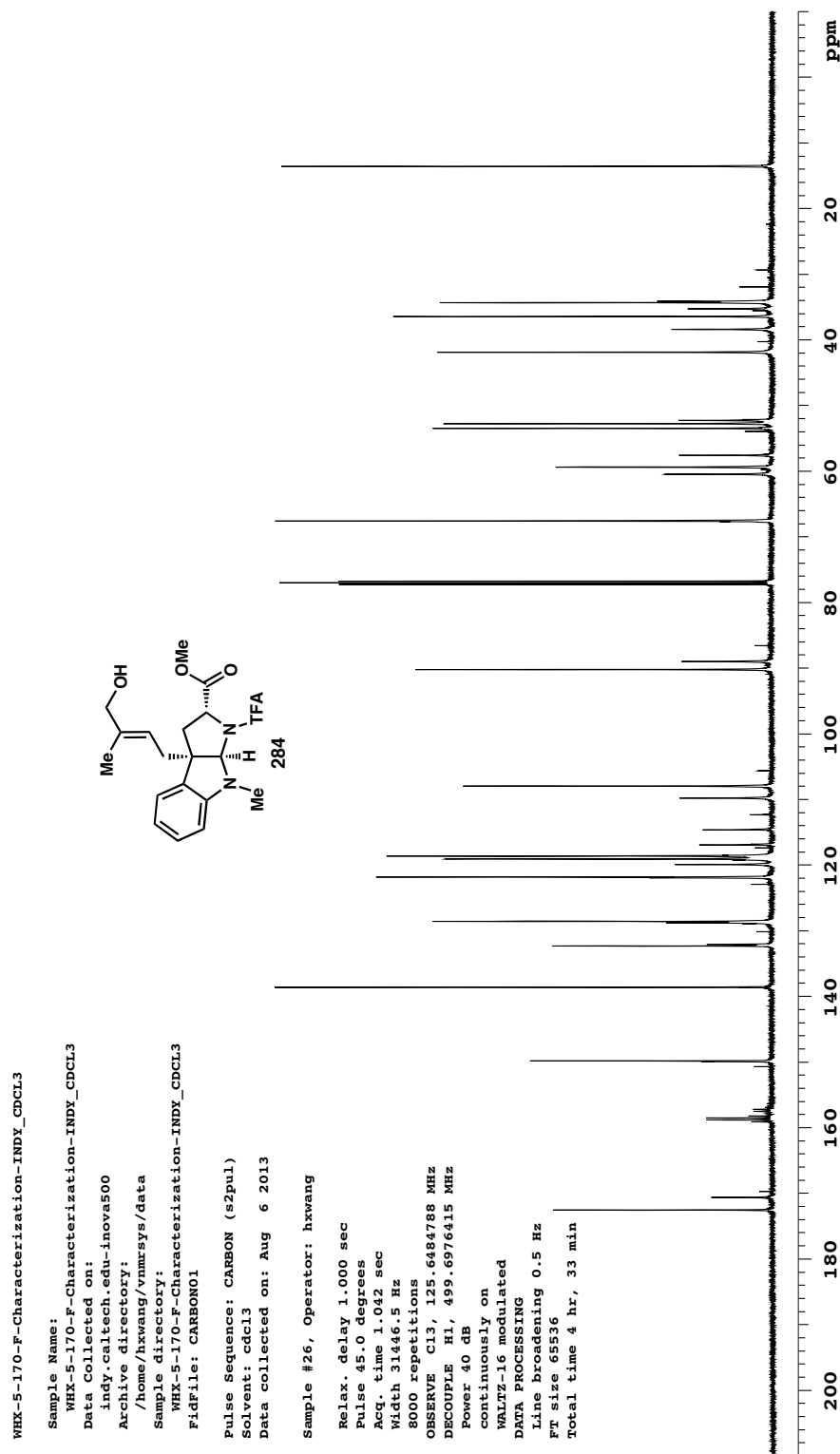
Relax. delay 5.000 sec
Pulse 45.0 degrees
Acq. time 3.000 sec
Width 8000.0 Hz
8 repetitions

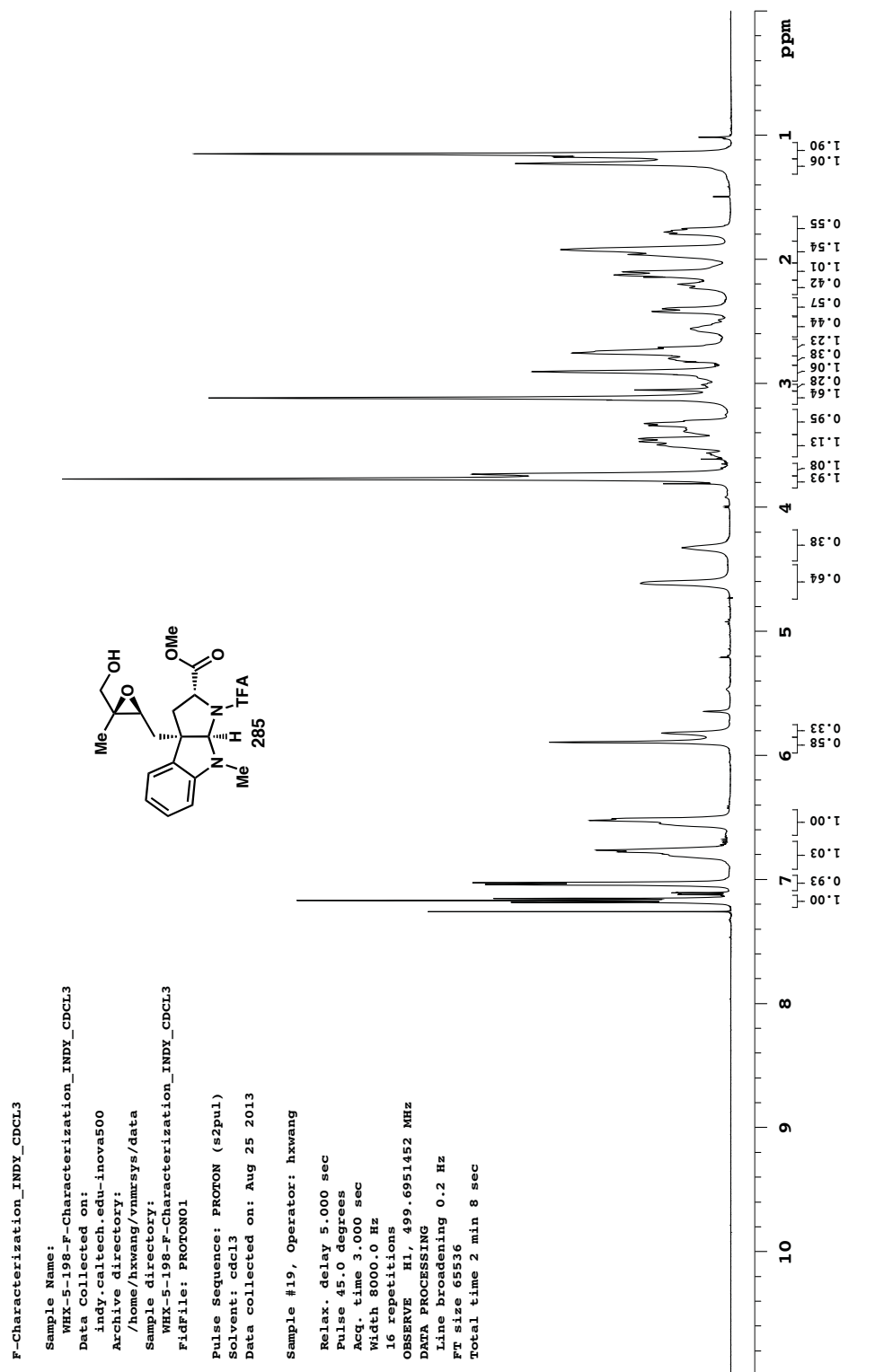
OBSERVE H1, 499.6951445 MHz

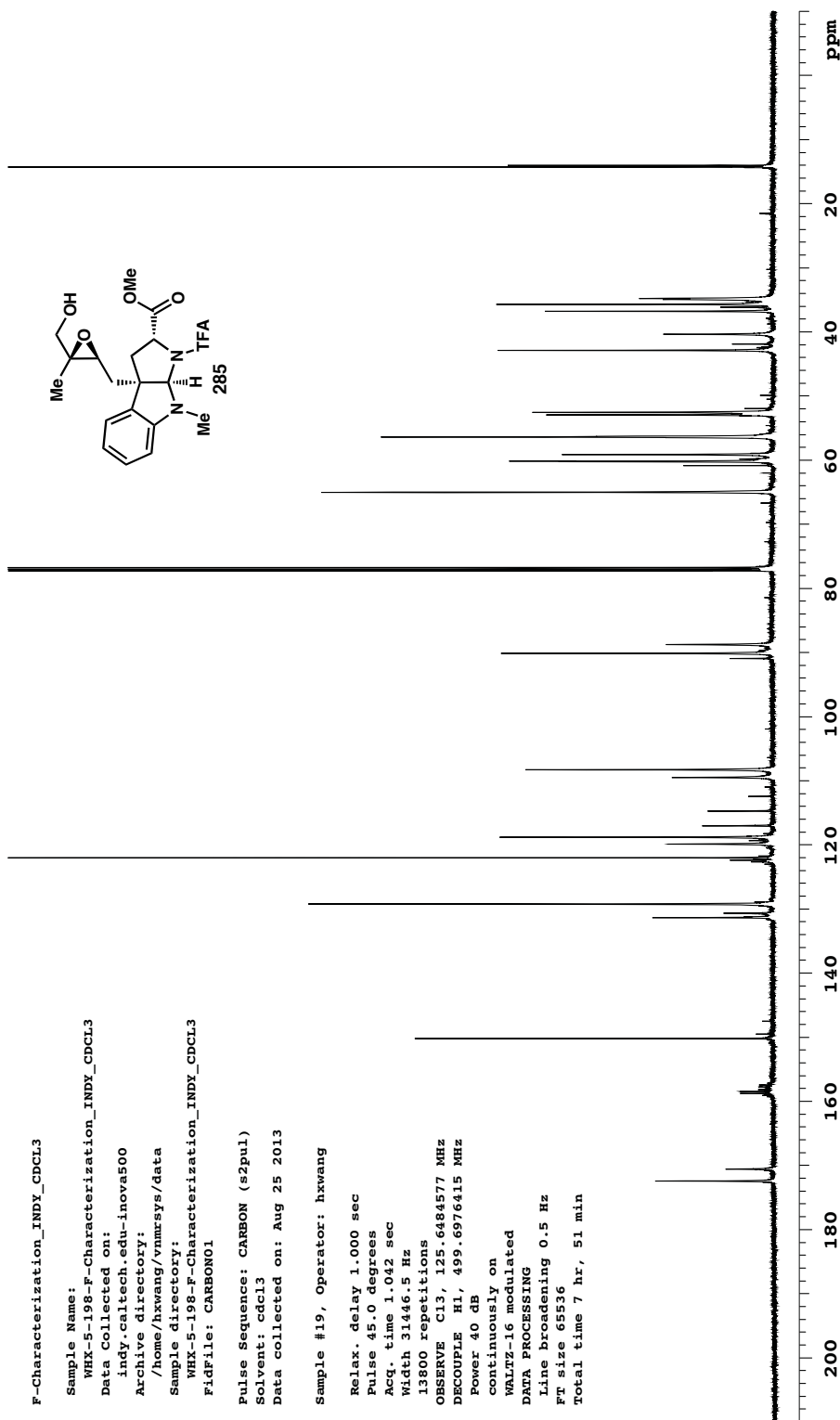
DATA PROCESSING

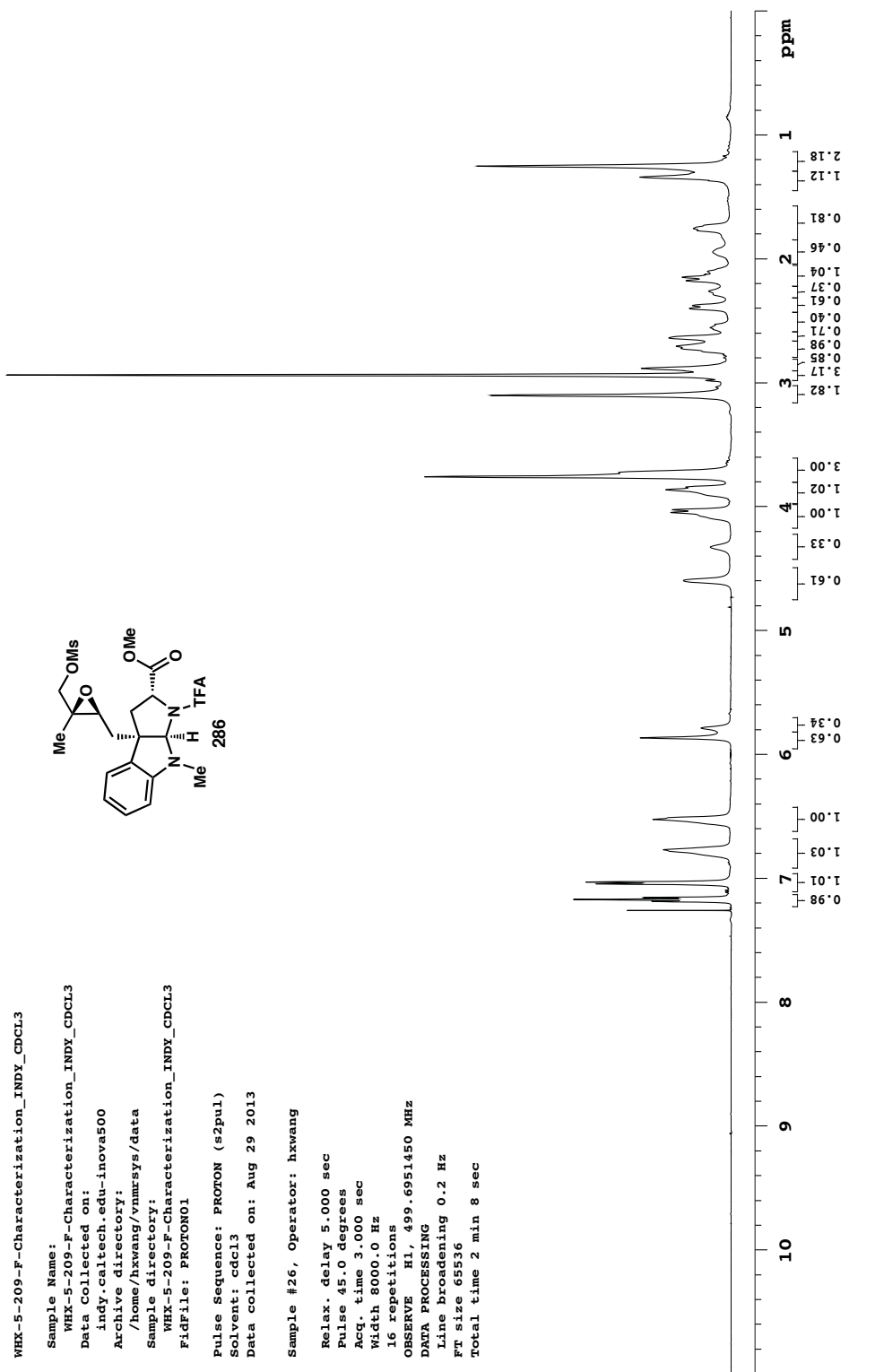
Line broadening 0.2 Hz
FT size 65536
Total time 1 min 4 sec

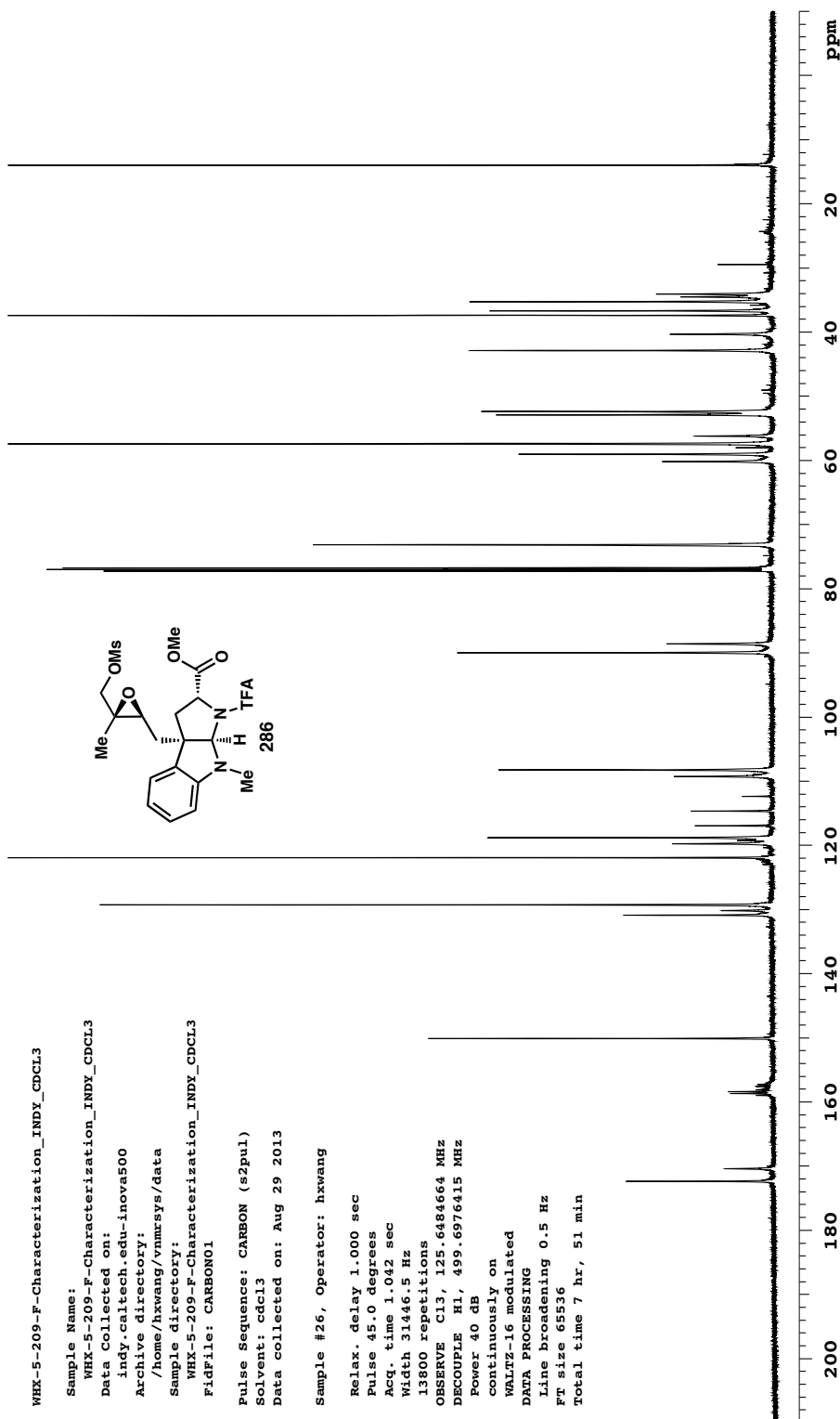












WHX-5-179-F-Characterization INDY CDCL3

Sample Name:

WHX-5-179-F-Characterization_INDY_CDCL3
 Data Collected on:
 indy.caltech.edu-inova500
 Archive directory:
 /home/hxwang/vnmrsys/data

Sample directory:

WHX-5-179-F-Characterization_INDY_CDCL3
 FidFile: PROTON01

Pulse Sequence: PROTON (s2pul)

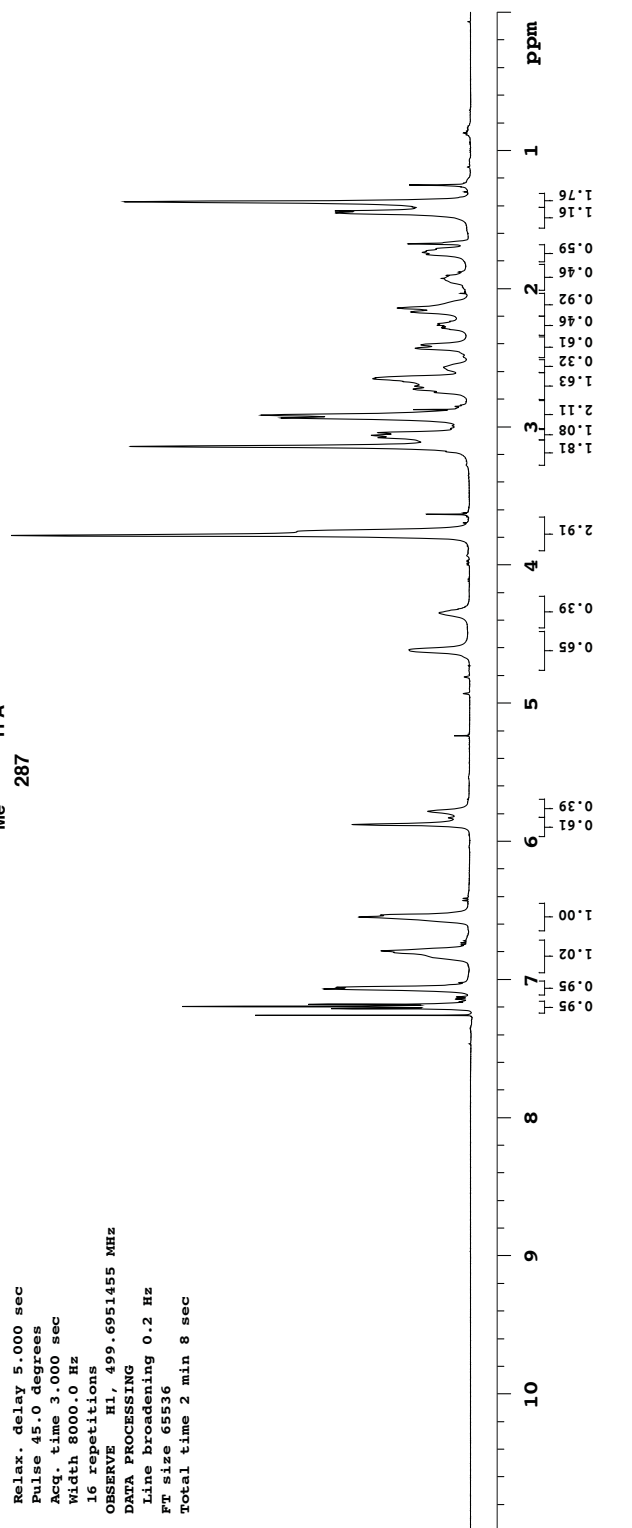
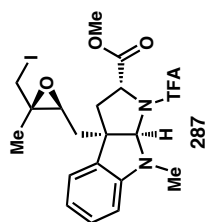
Solvent: cdcl3
 Data collected on: Aug 8 2013

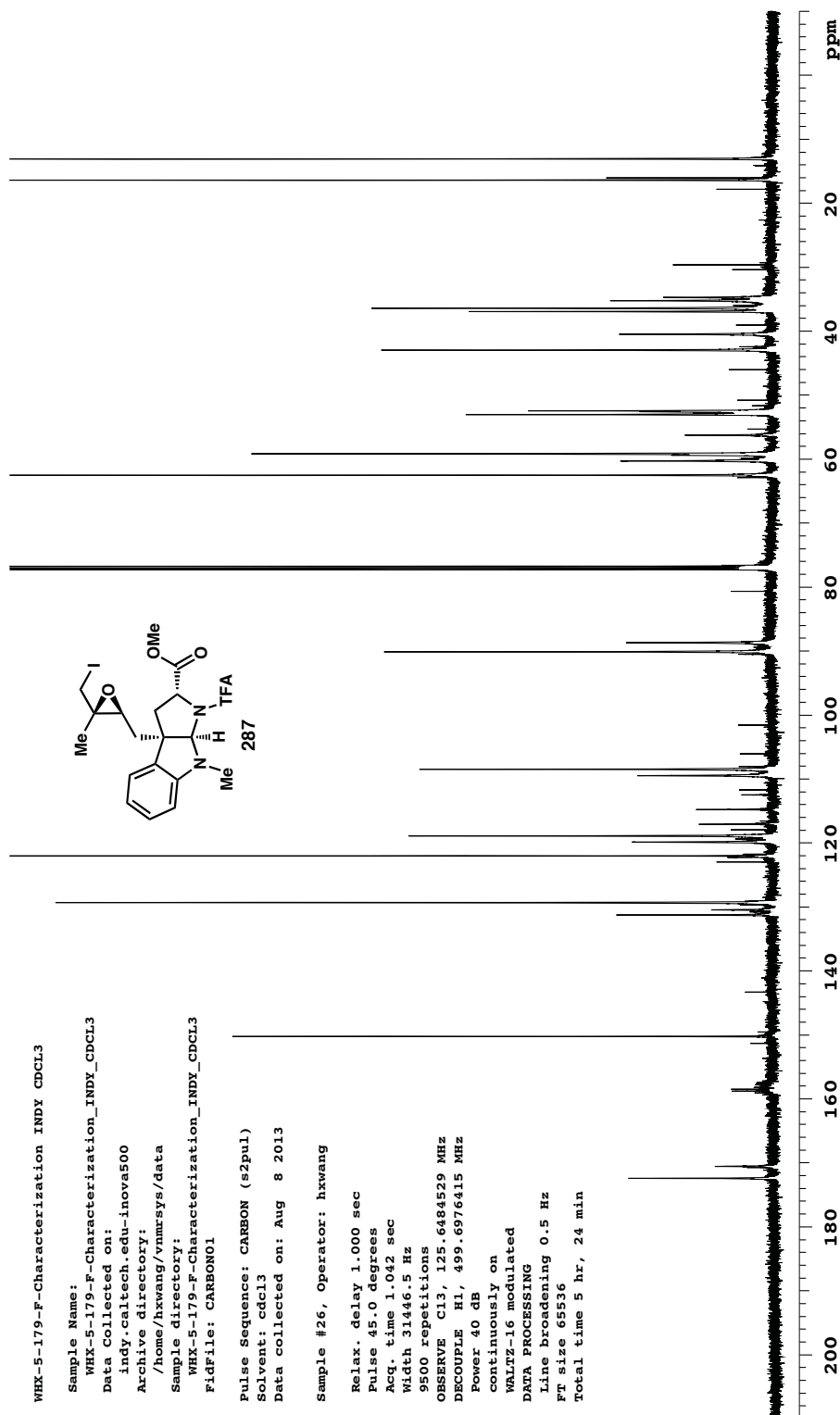
Sample #26, Operator: hxwang

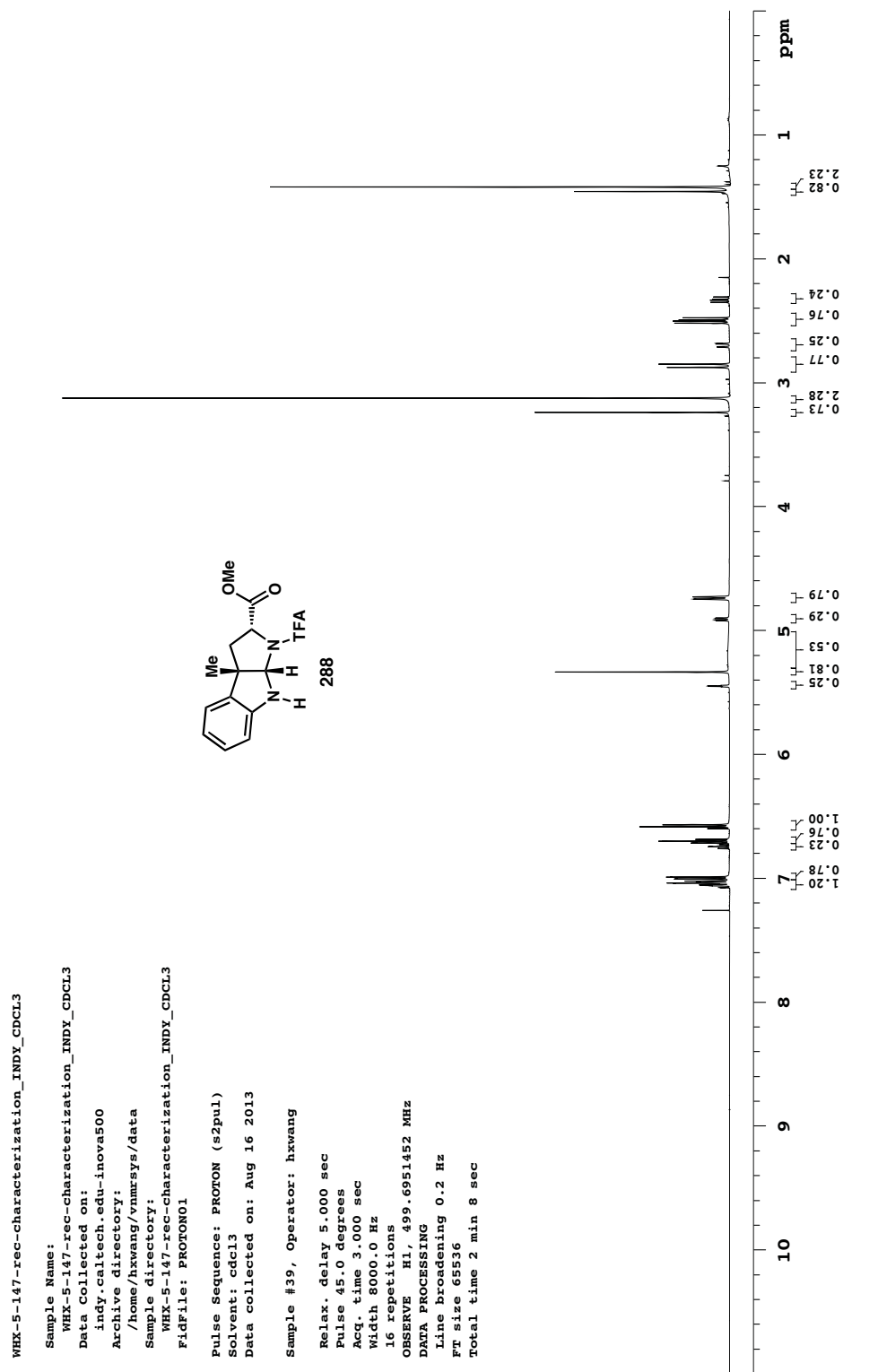
Relax. delay 5.000 sec
 Pulse 45.0 degrees
 Acq. time 3.000 sec
 Width 8000.0 Hz
 16 repetitions

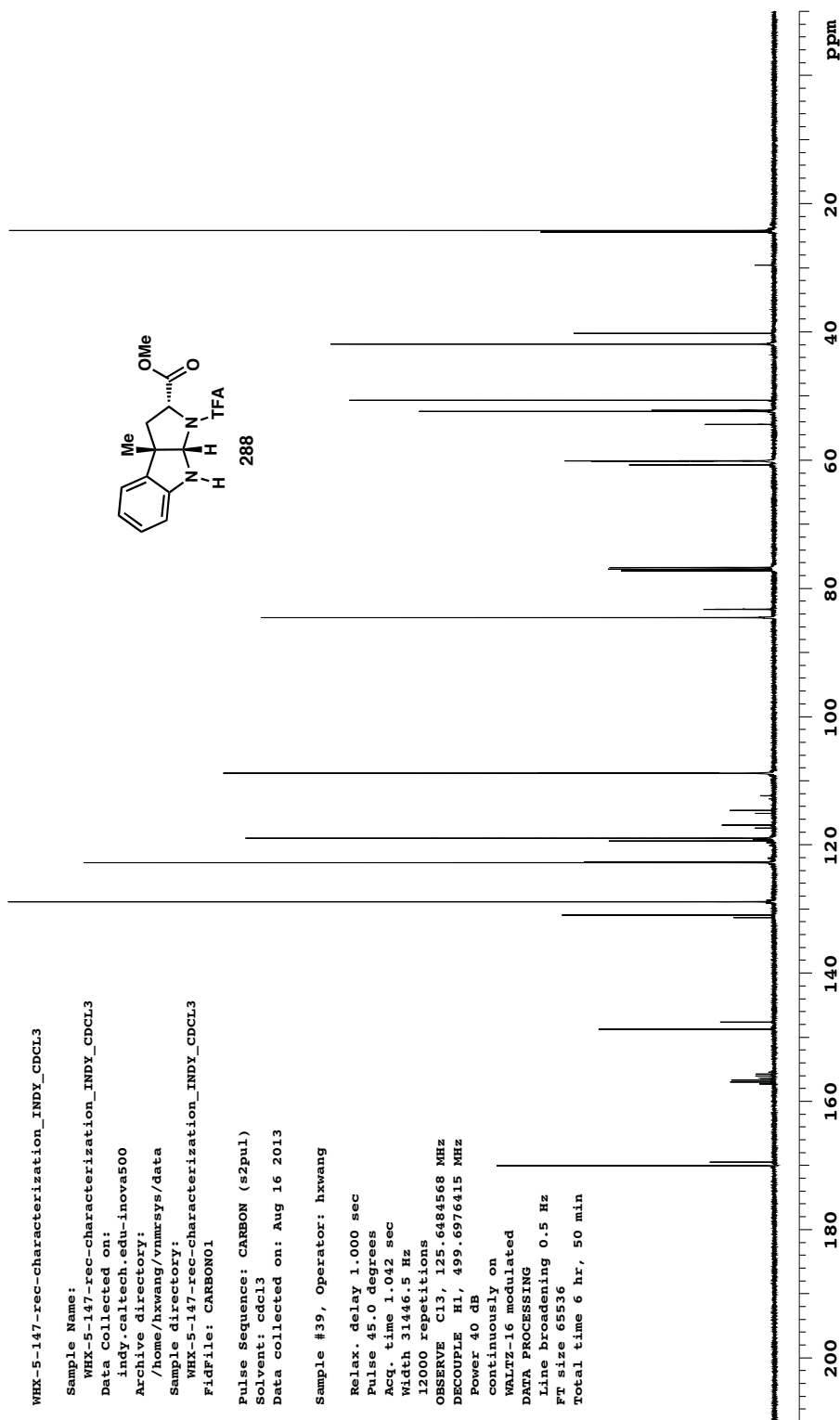
OBSERVE H1, 499.6951455 MHz

DATA PROCESSING
 Line broadening 0.2 Hz
 FT size 65536
 Total time 2 min 8 sec









WHX-5-243-F-Repurified_INDY_CDCL3

Sample Name:

WHX-5-243-F-Repurified_INDY_CDCL3
Data Collected on:
indy.caltech.edu-inova500
Archive directory:
/home/hxwang/vnmrsys/data
Sample directory:
WHX-5-243-F-Repurified_INDY_CDCL3
FidFile: PROTON01

Pulse Sequence: PROTON (s2pul)

Solvent: cdcl3
Data collected on: Oct 11 2013

Sample #45, Operator: hxwang

Relax. delay 5.000 sec

Pulse 45.0 degrees

Acq. time 3.000 sec

Width 8000.0 Hz

16 repetitions

OBSERVE H1, 499.6951455 MHz

DATA PROCESSING

Line broadening 0.2 Hz

FT size 65536

Total time 2 min 8 sec

