Diamination of Conjugated Dienes and Trienes Catalyzed by *N*-Heterocyclic Carbene-Pd(0) Complexes

Liang Xu, Haifeng Du, and Yian Shi*

Department of Chemistry
Colorado State University
Fort Collins, CO 80523

Phone: 970-491-7424
Fax: 970-491-1801
Email: yian@lamar.colostate.edu

Supporting Information

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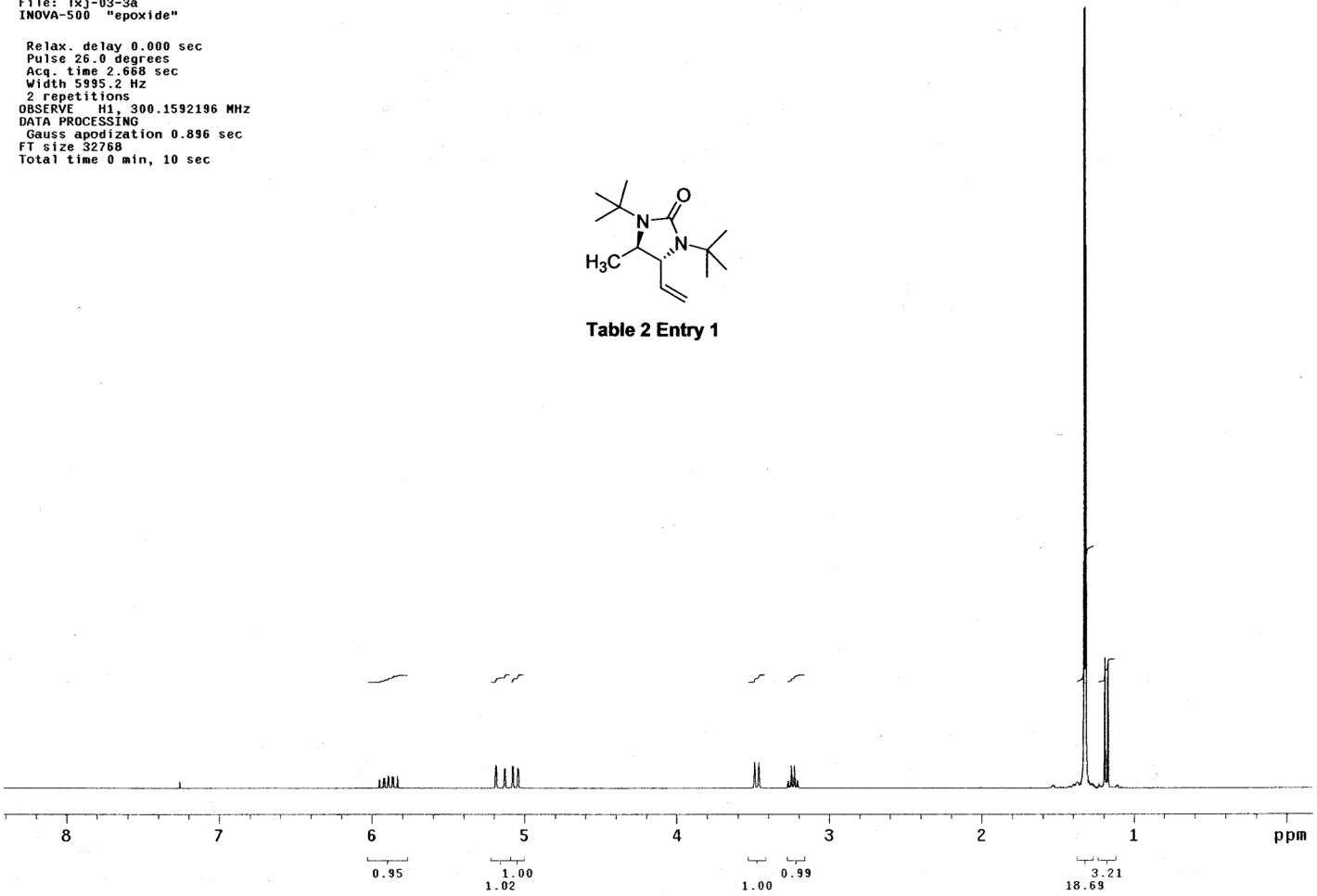
NMR spectra of diamination product S-2

STANDARD 1H OBSERVE

Pulse Sequence: s2pul
Solvent: CDCl3
Ambient temperature
File: lxj-03-3a
INOVA-500 "epoxide"

Relax. delay 0.000 sec
Pulse 26.0 degrees
Acq. time 2.668 sec
Width 5995.2 Hz
2 repetitions
OBSERVE H1, 300.1592196 MHz
DATA PROCESSING
Gauss apodization 0.896 sec
FT size 32768
Total time 0 min, 10 sec

Table 2 Entry 1



13C OBSERVE

Pulse Sequence: s2pul
Solvent: CDCl3
Ambient temperature
File: lxj-03-3aCNMR
INOVA-500 "epoxide"

Relax. delay 1.000 sec
Pulse 46.3 degrees
Acq. time 0.697 sec
Width 22935.8 Hz
80 repetitions
OBSERVE C13, 75.4750778 MHz
DECOUPLE H1, 300.1606799 MHz
Power 40 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 2.0 Hz
FT size 32768
Total time 473916 hr, 13 min, 52 sec

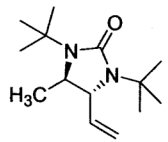
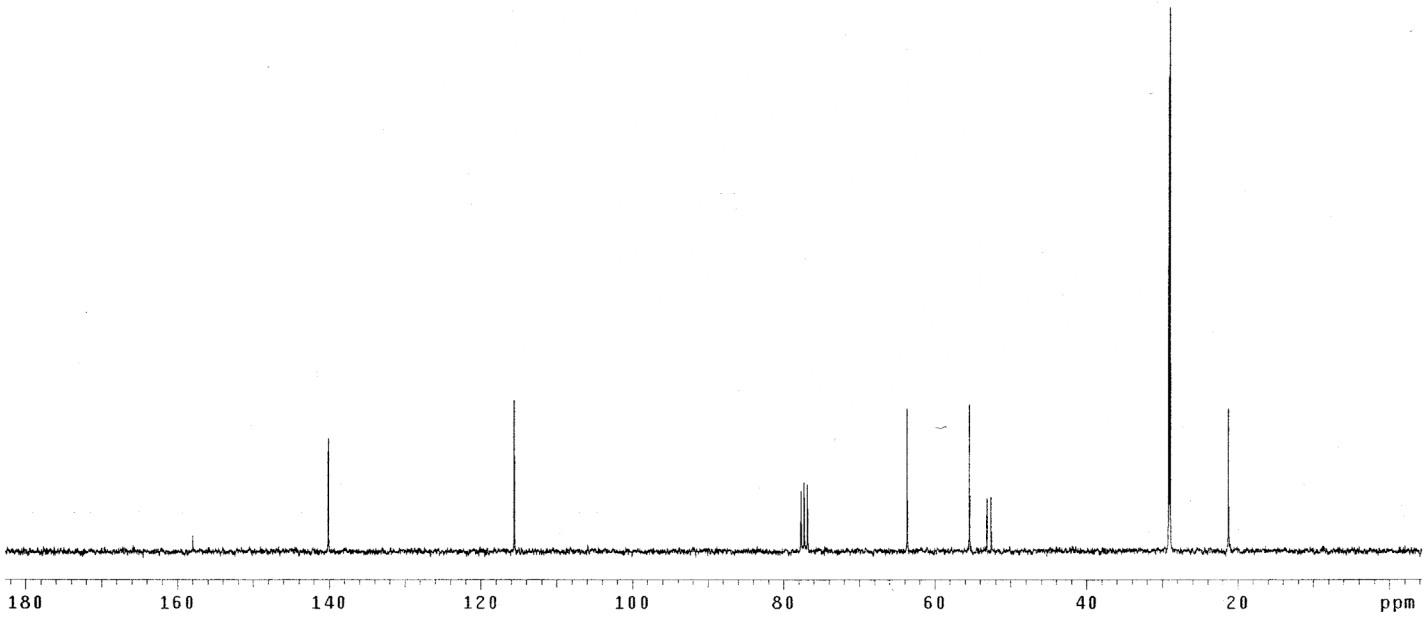


Table 2 Entry 1

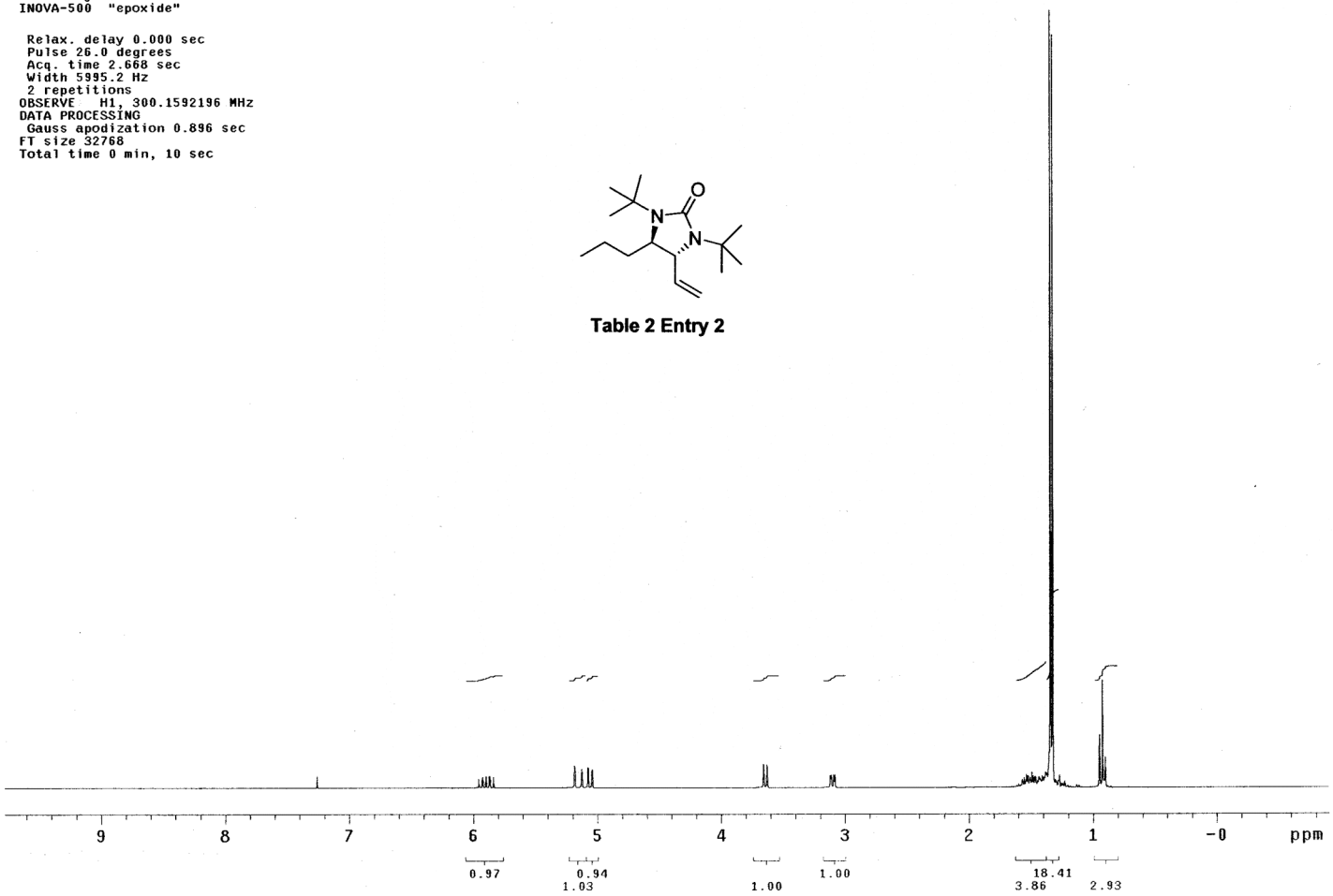


STANDARD 1H OBSERVE

Pulse Sequence: s2pul
Solvent: CDCl3
Ambient temperature
File: lxj-03-4a
INOVA-500 "epoxide"

Relax. delay 0.000 sec
Pulse 26.0 degrees
Acq. time 2.668 sec
Width 5995.2 Hz
2 repetitions
OBSERVE H1, 300.1592196 MHz
DATA PROCESSING
Gauss apodization 0.896 sec
FT size 32768
Total time 0 min, 10 sec

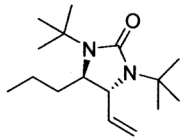
Table 2 Entry 2



13C OBSERVE

Pulse Sequence: s2pul
Solvent: CDCl3
Ambient temperature
File: lxj-03-4aCNMR
INOVA-500 "epoxide"

Relax. delay 1.000 sec
Pulse 46.3 degrees
Acq. time 0.697 sec
Width 22935.8 Hz
112 repetitions
OBSERVE C13, 75.4750778 MHz
DECOUPLE H1, 300.1606799 MHz
Power 40 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 2.0 Hz
FT size 32768
Total time 473916 hr, 13 min, 52 sec



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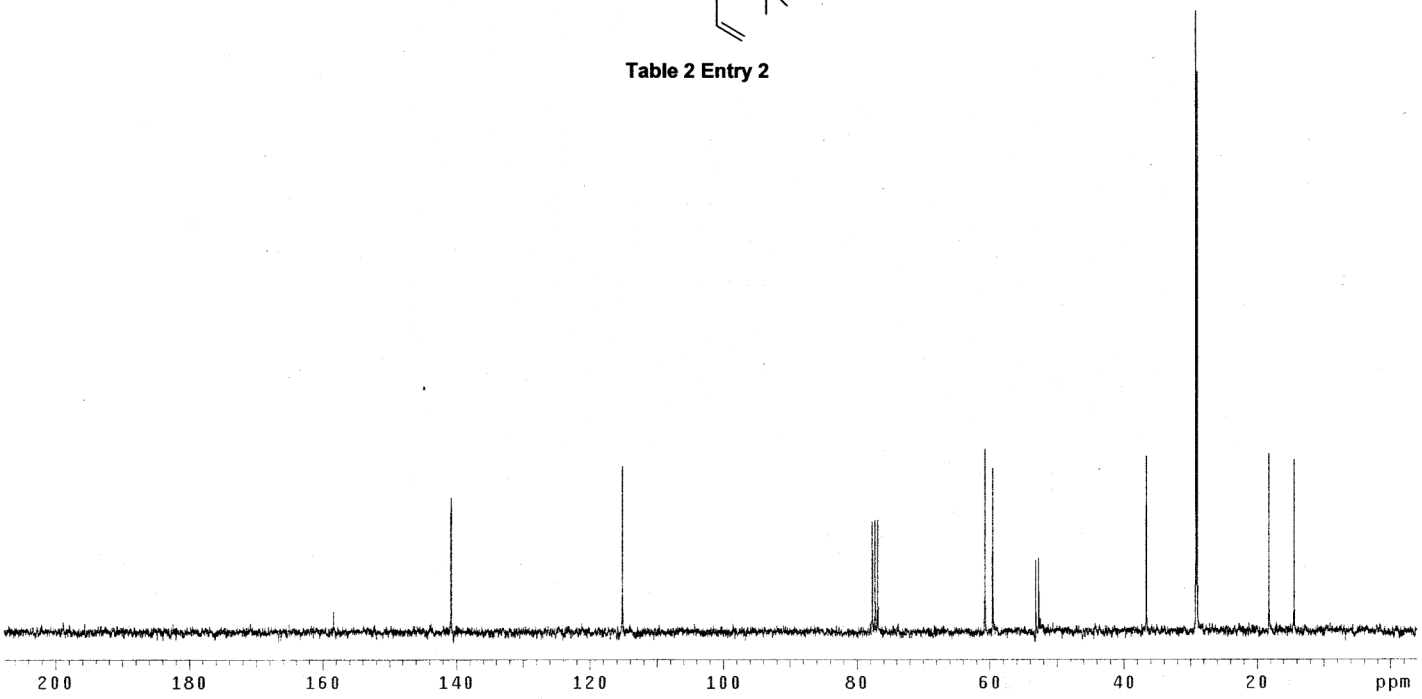
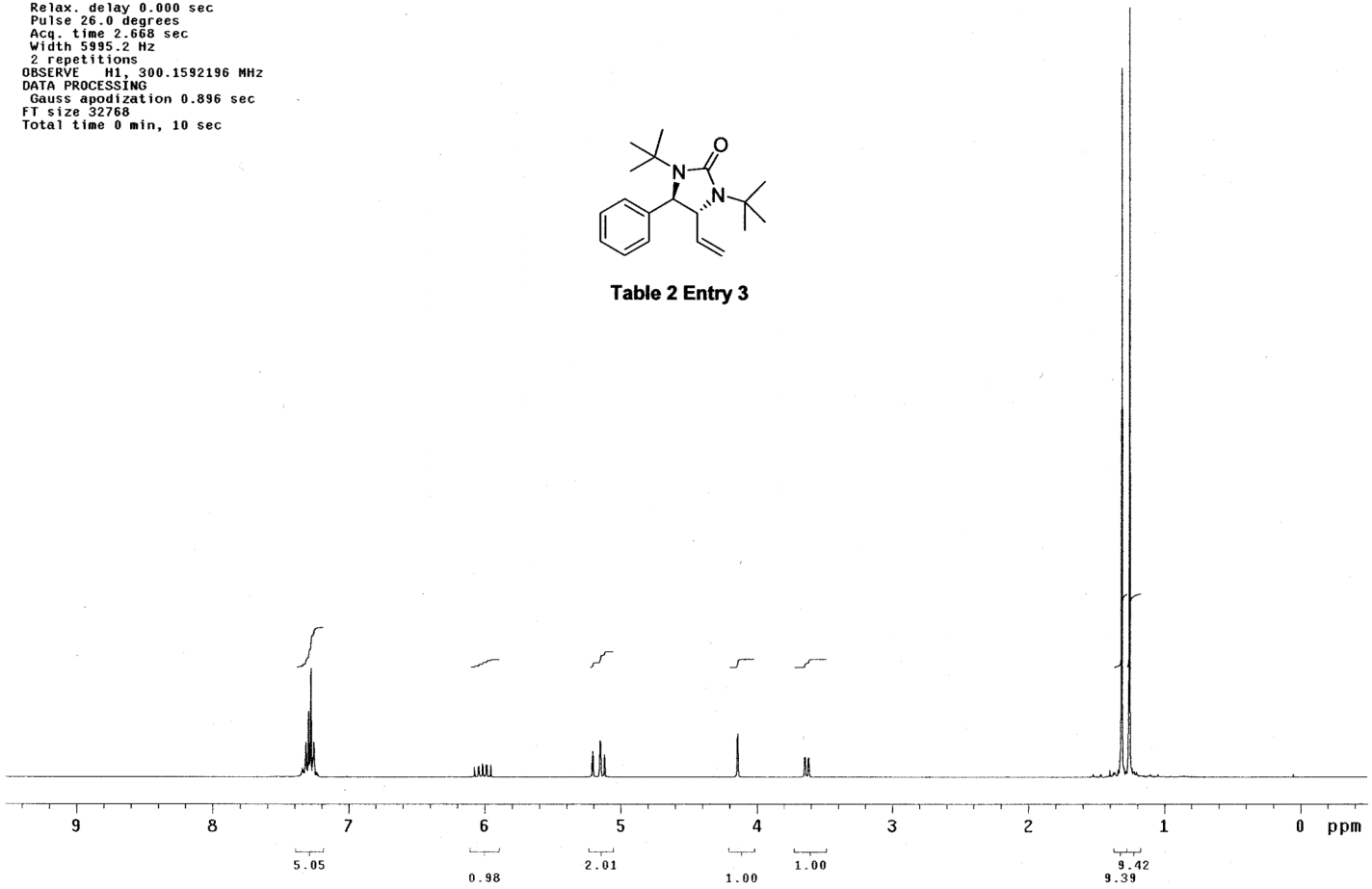


STANDARD 1H OBSERVE

Pulse Sequence: s2pul
Solvent: CDCl3
Ambient temperature
File: lxi-50-10a
INOVA-500 "epoxide"

Relax. delay 0.000 sec
Pulse 26.0 degrees
Acq. time 2.668 sec
Width 5995.2 Hz
2 repetitions
OBSERVE H1, 300.1592196 MHz
DATA PROCESSING
Gauss apodization 0.896 sec
FT size 32768
Total time 0 min, 10 sec

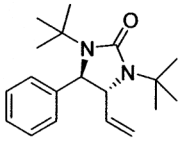
Table 2 Entry 3



13C OBSERVE

Pulse Sequence: s2pul
Solvent: CDCl3
Ambient temperature
File: lxi-50-10aCNMR
INOVA-500 "epoxide"

Relax. delay 1.000 sec
Pulse 46.3 degrees
Acq. time 0.697 sec
Width 22935.8 Hz
80 repetitions
OBSERVE C13, 75.4750778 MHz
DECOUPLE H1, 300.1606799 MHz
Power 40 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 2.0 Hz
FT size 32768
Total time 473916 hr, 13 min, 52 sec



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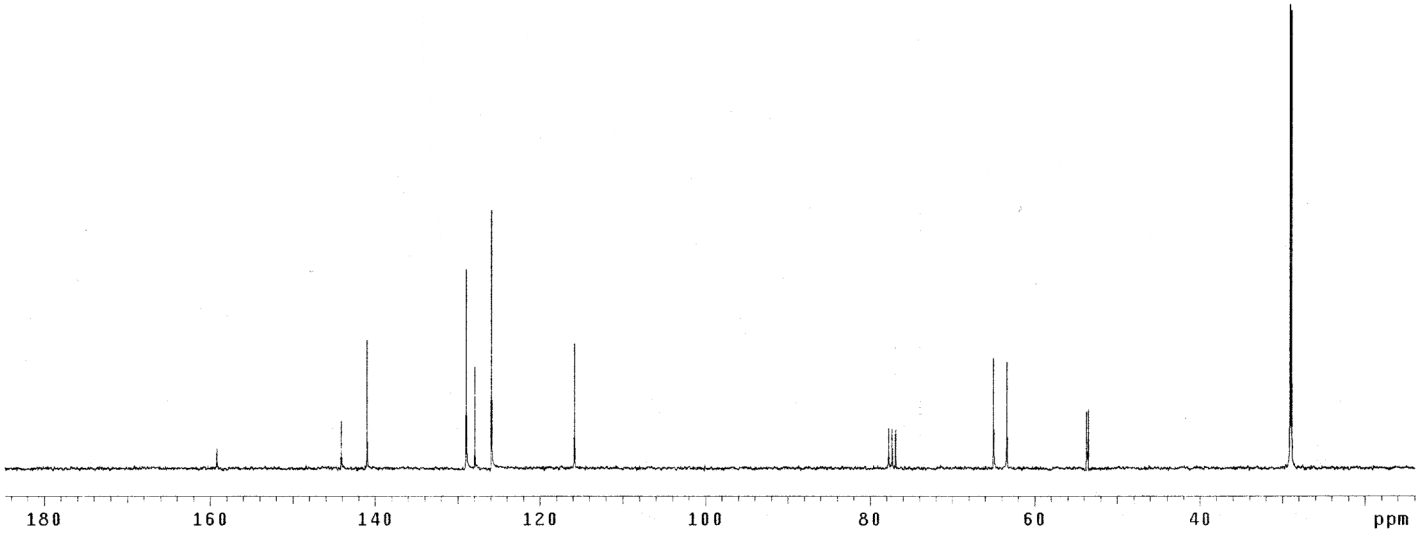

STANDARD 1H OBSERVE

Pulse Sequence: s2pul
Solvent: CDCl3
Ambient temperature
File: lxj-01-1a
INOVA-500 "epoxide"

Relax. delay 0.000 sec
Pulse 26.0 degrees
Acq. time 2.668 sec
Width 5995.2 Hz
2 repetitions
OBSERVE H1, 300.1592196 MHz
DATA PROCESSING
Gauss apodization 0.896 sec
FT size 32768
Total time 0 min, 10 sec

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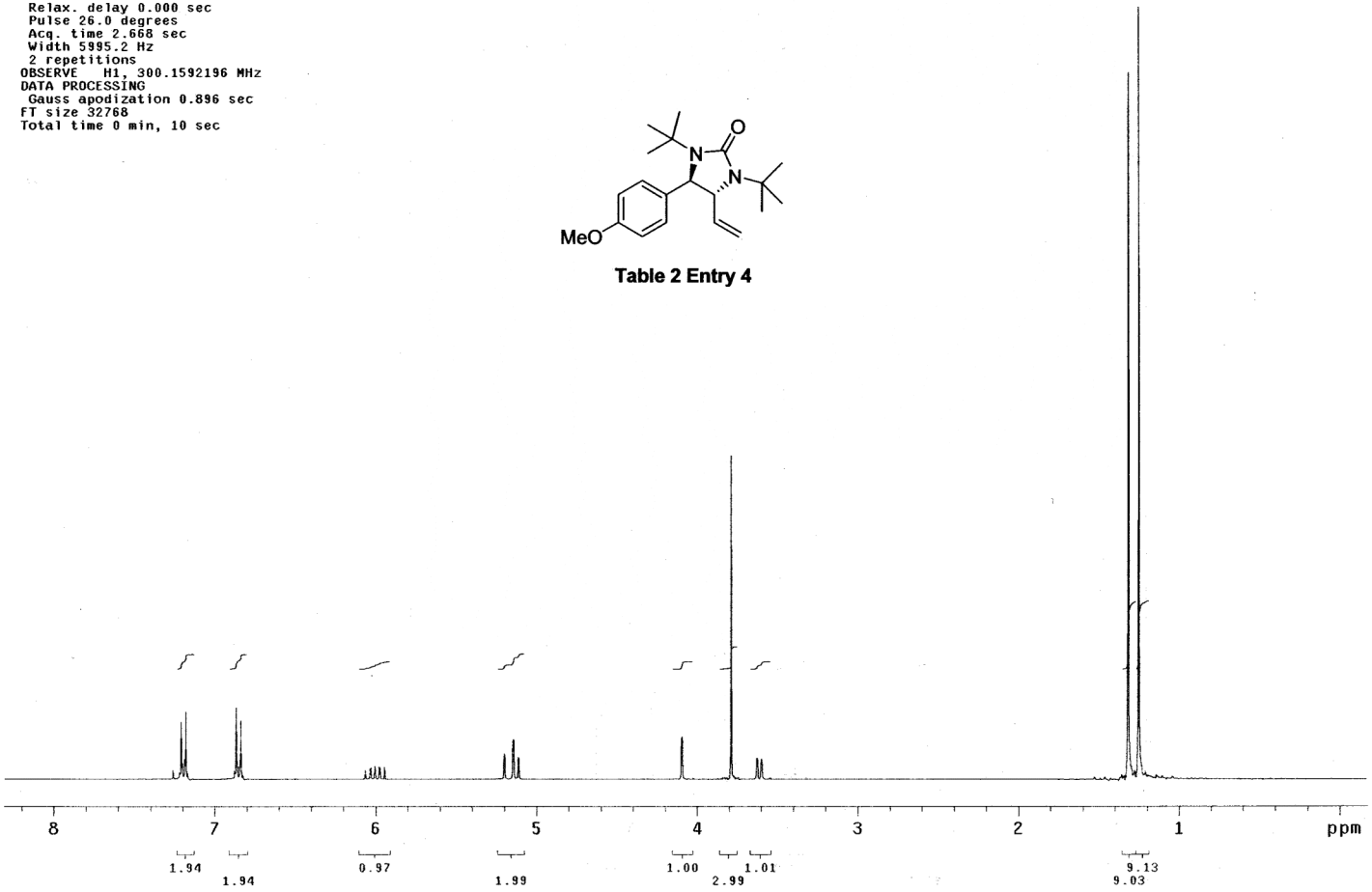
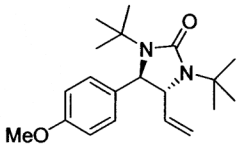


13C OBSERVE

Pulse Sequence: s2pul
Solvent: CDCl3
Ambient temperature
File: lxj-01-1aCNMR
INOVA-500 "epoxide"

Relax. delay 1.000 sec
Pulse 46.3 degrees
Acq. time 0.697 sec
Width 22935.8 Hz
80 repetitions
OBSERVE C13, 75.4750778 MHz
DECOUPLE H1, 300.1606799 MHz
Power 40 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 2.0 Hz
FT size 32768
Total time 473916 hr, 13 min, 52 sec



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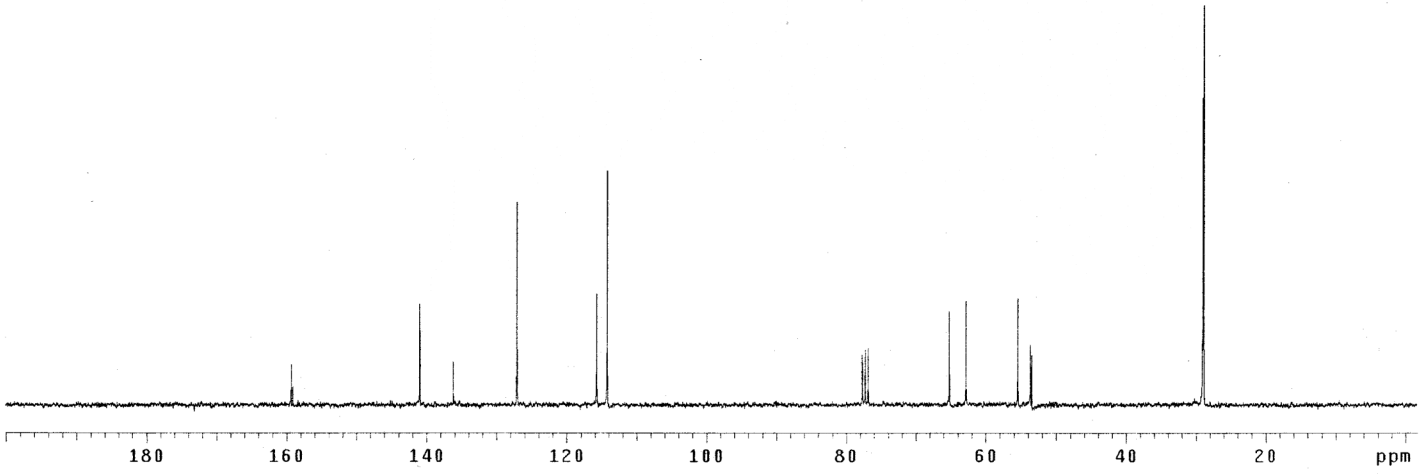
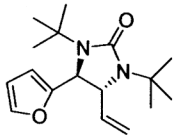


STANDARD 1H OBSERVE

Pulse Sequence: s2pul
Solvent: CDCl3
Ambient temperature
File: lxj-01-4a
INOVA-500 "epoxide"

Relax. delay 0.000 sec
Pulse 26.0 degrees
Acq. time 2.668 sec
Width 5995.2 Hz
2 repetitions
OBSERVE H1, 300.1592196 MHz
DATA PROCESSING
Gauss apodization 0.896 sec
FT size 32768
Total time 0 min, 10 sec



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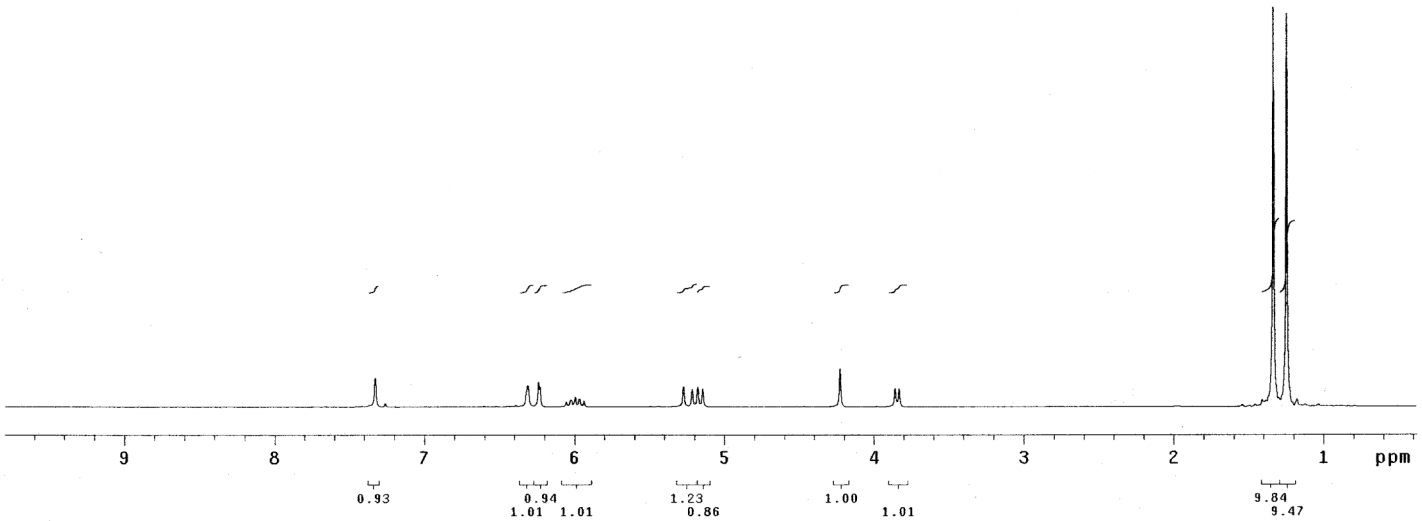
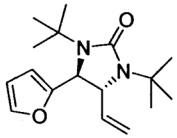


13C OBSERVE

Pulse Sequence: s2pul
Solvent: CDCl3
Ambient temperature
File: lxj--01-4aCNMR
INOVA-500 "epoxide"

Relax. delay 1.000 sec
Pulse 46.3 degrees
Acq. time 0.697 sec
Width 22935.8 Hz
144 repetitions
OBSERVE C13, 75.4750778 MHz
DECOUPLE H1, 300.1606799 MHz
Power 40 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 2.0 Hz
FT size 32768
Total time 473916 hr, 13 min, 52 sec



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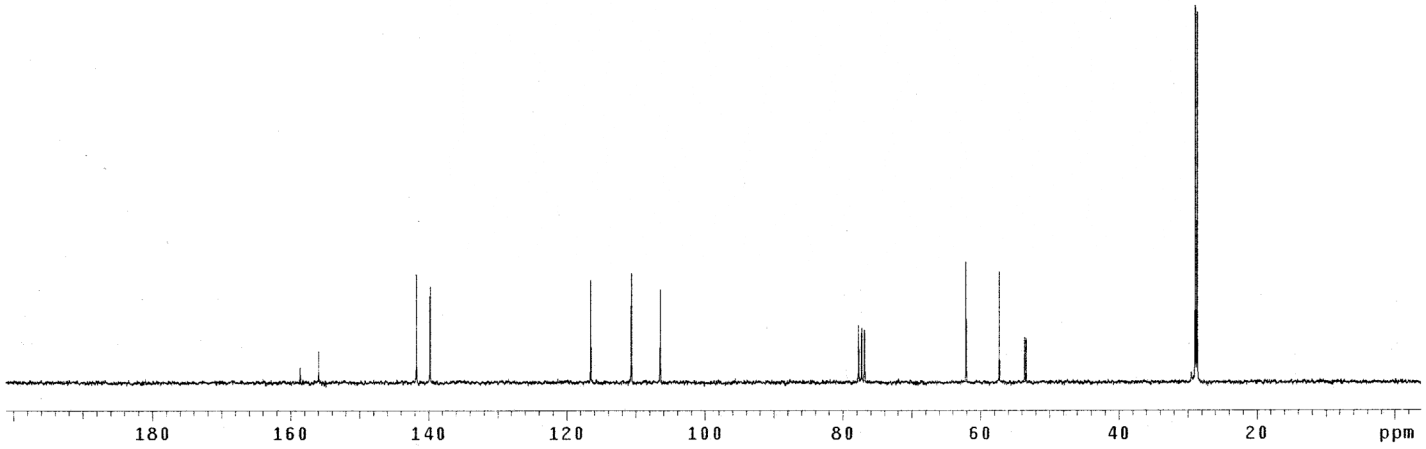
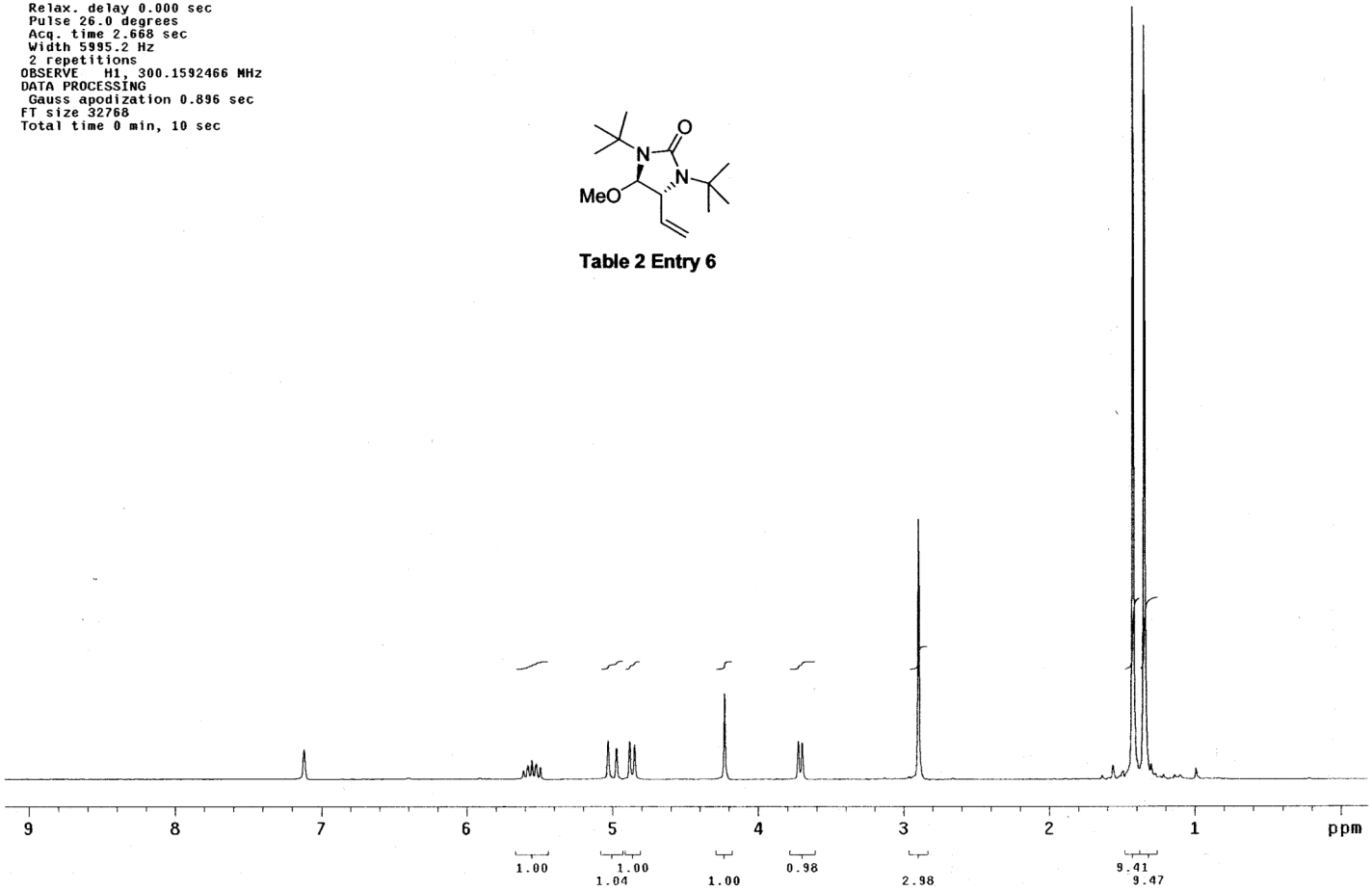


STANDARD 1H OBSERVE

Pulse Sequence: s2pul
Solvent: Benzene
Ambient temperature
File: lxj-04-9a
INOVA-500 "epoxide"

Relax. delay 0.000 sec
Pulse 26.0 degrees
Acq. time 2.668 sec
Width 5995.2 Hz
2 repetitions
OBSERVE H1, 300.1592466 MHz
DATA PROCESSING
Gauss apodization 0.896 sec
FT size 32768
Total time 0 min, 10 sec

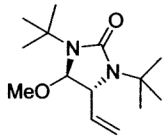
Table 2 Entry 6



13C OBSERVE

Pulse Sequence: s2pul
Solvent: Benzene
Ambient temperature
File: 1xj-04-9aCNMR
INOVA-500 "epoxide"

Relax. delay 1.000 sec
Pulse 46.3 degrees
Acq. time 0.697 sec
Width 22935.8 Hz
80 repetitions
OBSERVE C13, 75.4750846 MHz
DECOUPLE H1, 300.1607069 MHz
Power 40 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 2.0 Hz
FT size 32768
Total time 473916 hr, 13 min, 52 sec



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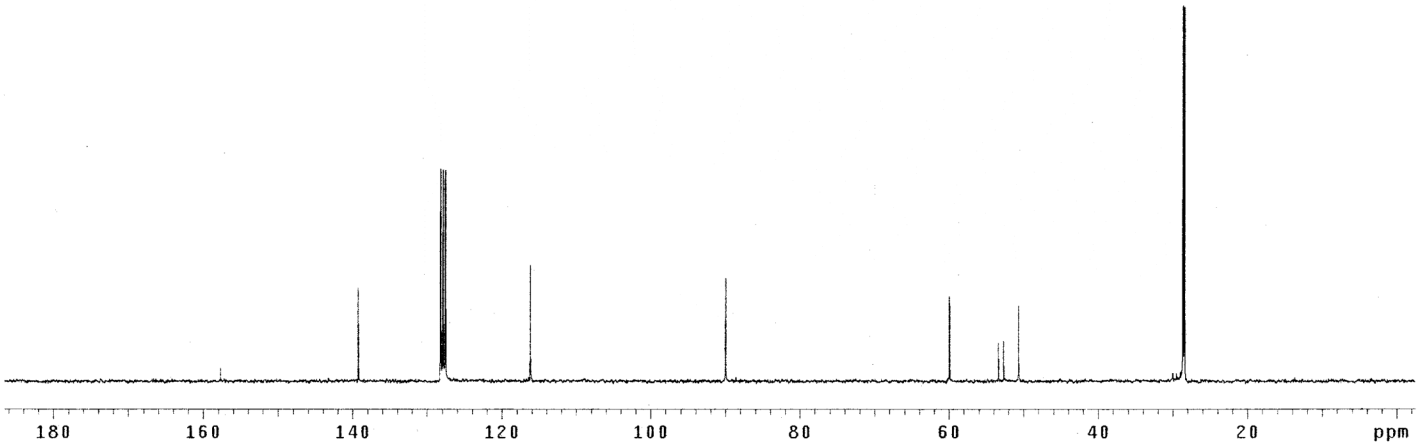
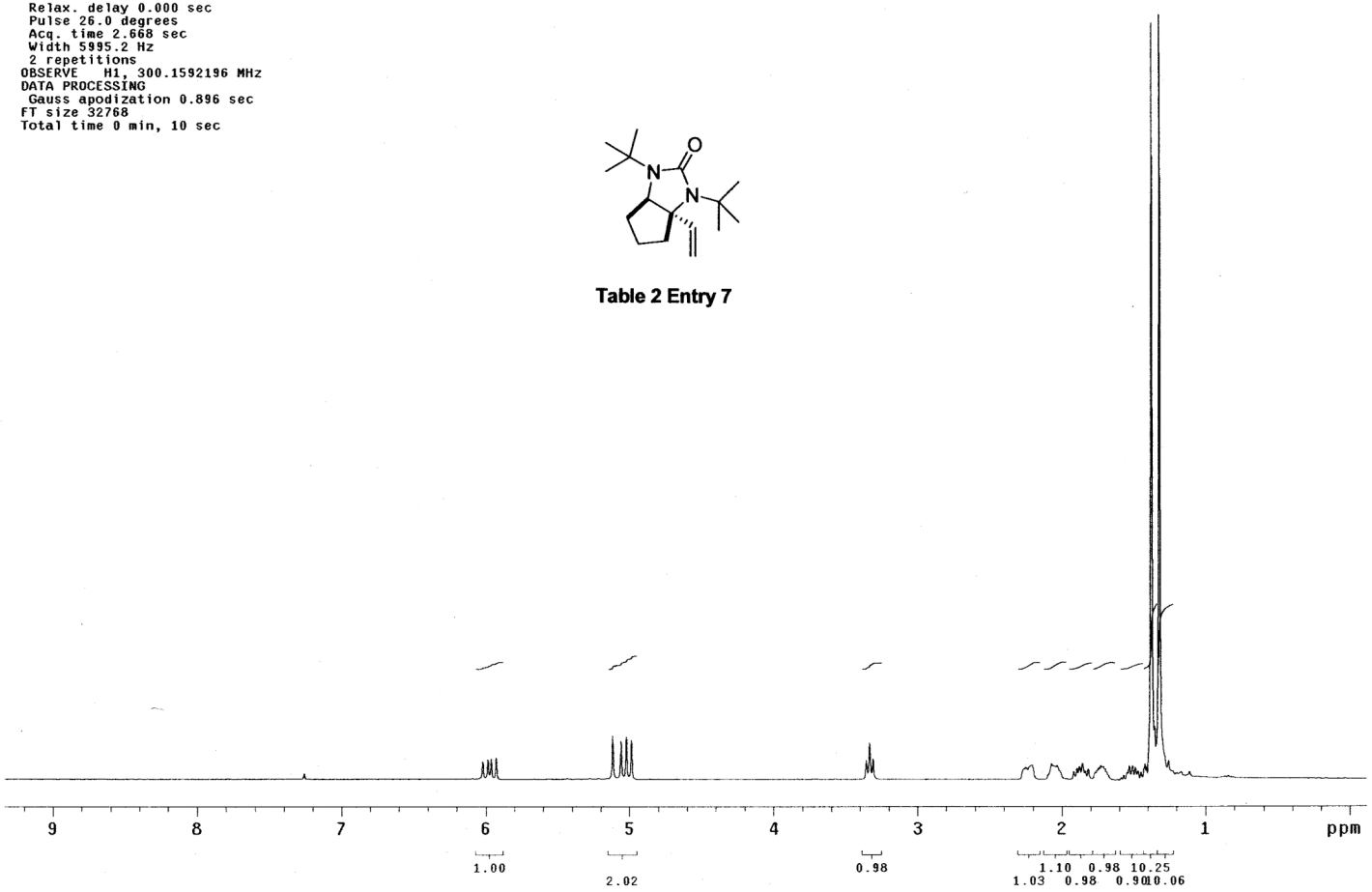


STANDARD 1H OBSERVE

Pulse Sequence: s2pul
Solvent: CDCl3
Ambient temperature
File: lxj-03-2a
INOVA-500 "epoxide"

Relax. delay 0.000 sec
Pulse 26.0 degrees
Acq. time 2.668 sec
Width 5995.2 Hz
2 repetitions
OBSERVE H1, 300.1592196 MHz
DATA PROCESSING
Gauss apodization 0.896 sec
FT size 32768
Total time 0 min, 10 sec

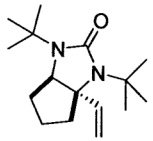
Table 2 Entry 7



13C OBSERVE

Pulse Sequence: s2pul
Solvent: CDCl3
Ambient temperature
File: lxj-03-2aCNM
INOVA-500 "epoxide"

Relax. delay 1.000 sec
Pulse 46.3 degrees
Acq. time 0.697 sec
Width 22935.8 Hz
128 repetitions
OBSERVE C13, 75.4750778 MHz
DECOUPLE H1, 300.1606799 MHz
Power 40 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 2.0 Hz
FT size 32768
Total time 473916 hr, 13 min, 52 sec



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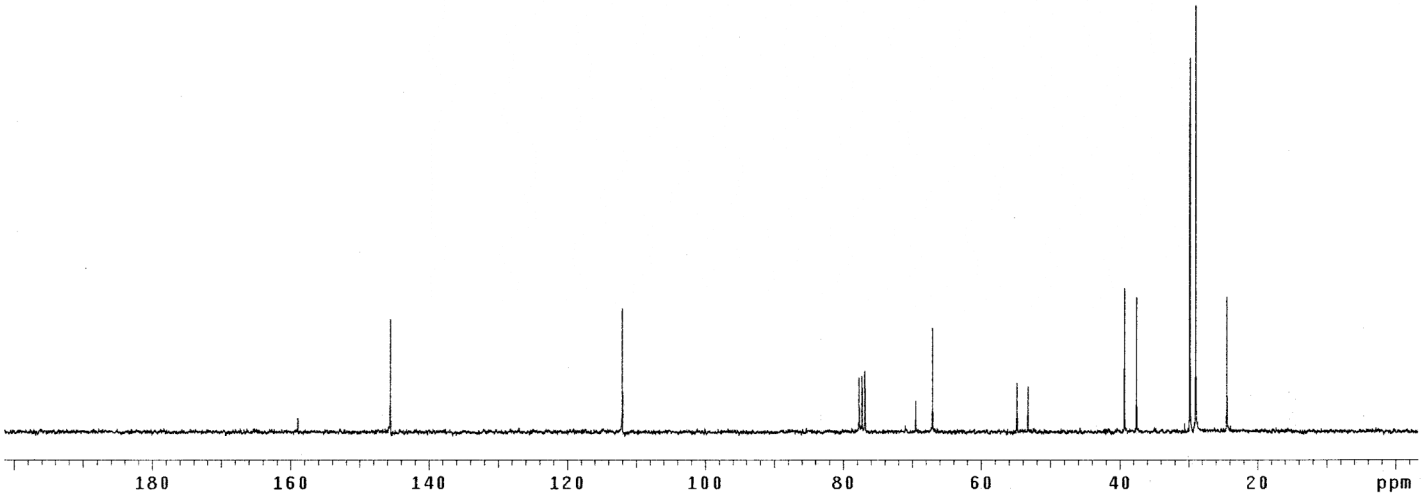
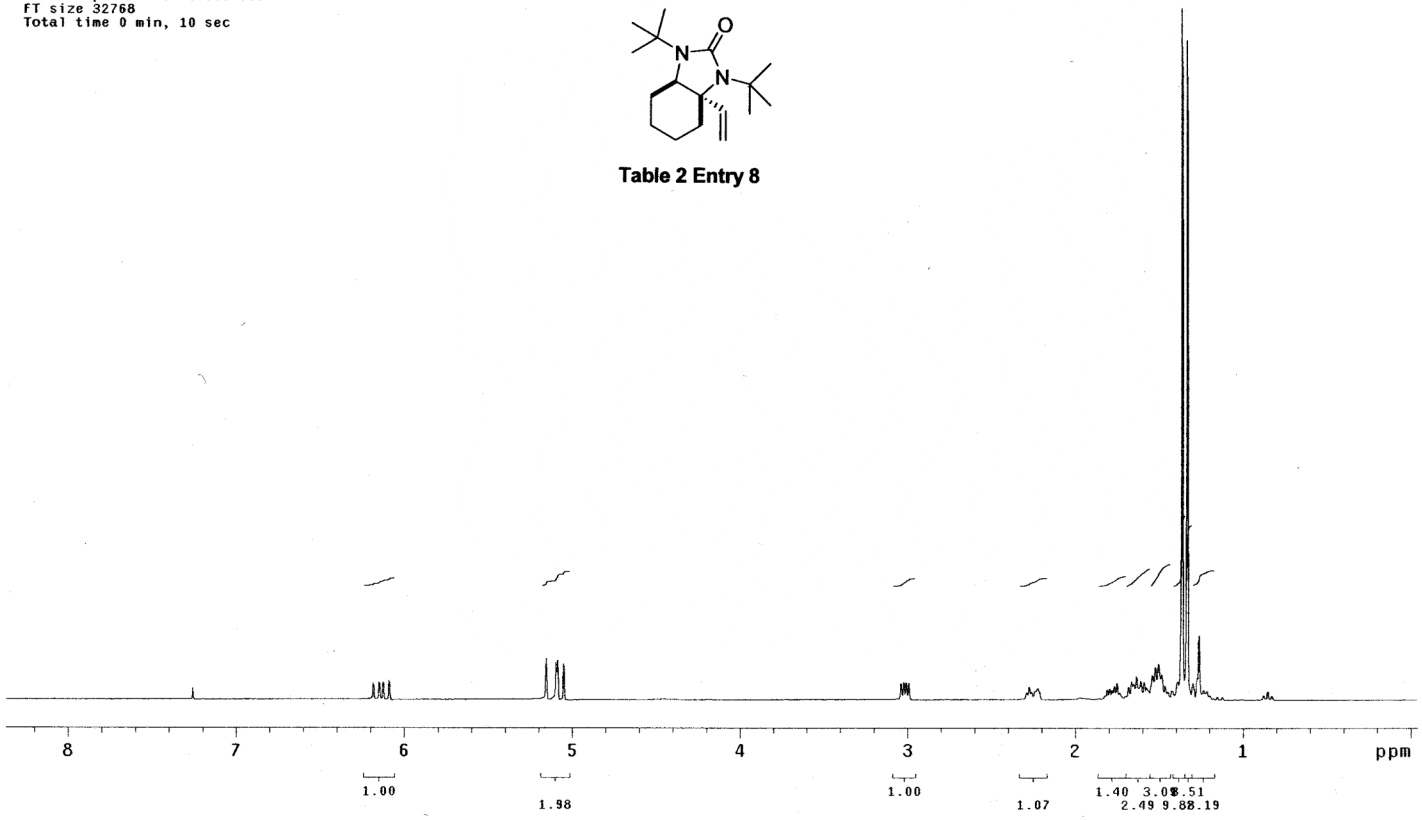


STANDARD 1H OBSERVE

Pulse Sequence: s2pul
Solvent: CDCl3
Ambient temperature
File: lxj-04-1b
INOVA-500 "epoxide"

Relax. delay 0.000 sec
Pulse 26.0 degrees
Acq. time 2.668 sec
Width 5995.2 Hz
2 repetitions
OBSERVE H1, 300.1592196 MHz
DATA PROCESSING
Gauss apodization 0.896 sec
FT size 32768
Total time 0 min, 10 sec

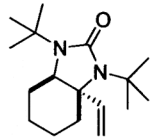
Table 2 Entry 8



13C OBSERVE

Pulse Sequence: s2pul
Solvent: CDCl3
Ambient temperature
File: lxj-04-1bCNMR
INOVA-500 "epoxide"

Relax. delay 1.000 sec
Pulse 46.3 degrees
Acq. time 0.697 sec
Width 22935.8 Hz
80 repetitions
OBSERVE C13, 75.4750778 MHz
DECOUPLE H1, 300.1606799 MHz
Power 40 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 2.0 Hz
FT size 32768
Total time 473916 hr, 13 min, 52 sec



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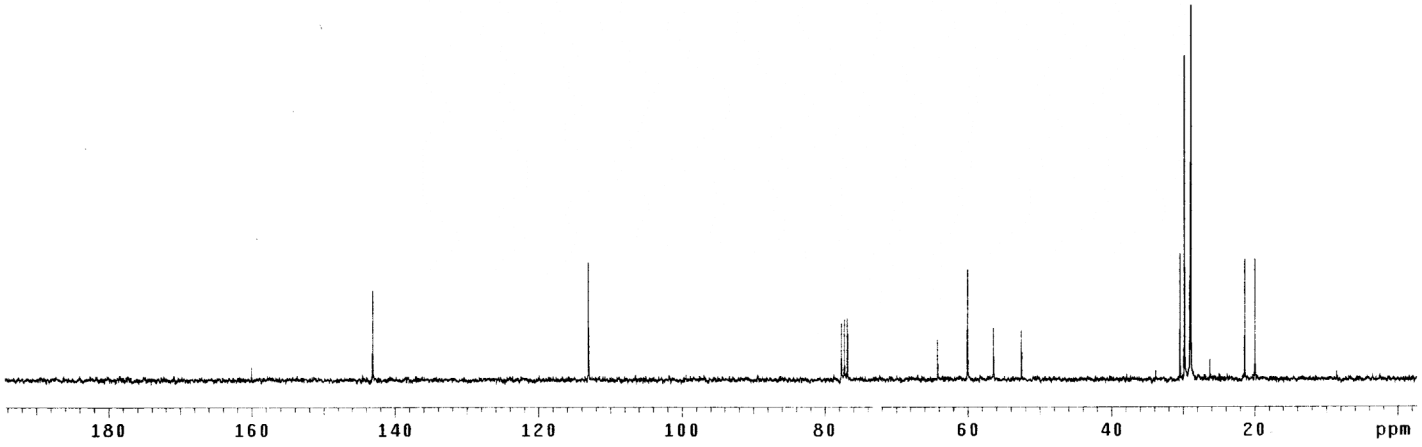

STANDARD 1H OBSERVE

Pulse Sequence: s2pul
Solvent: CDCl3
Ambient temperature
File: lxj-05-3
INOVA-500 "epoxide"

Relax. delay 0.000 sec
Pulse 26.0 degrees
Acq. time 2.668 sec
Width 5995.2 Hz
2 repetitions
OBSERVE H1, 300.1592196 MHz
DATA PROCESSING
Gauss apodization 0.896 sec
FT size 32768
Total time 0 min, 10 sec

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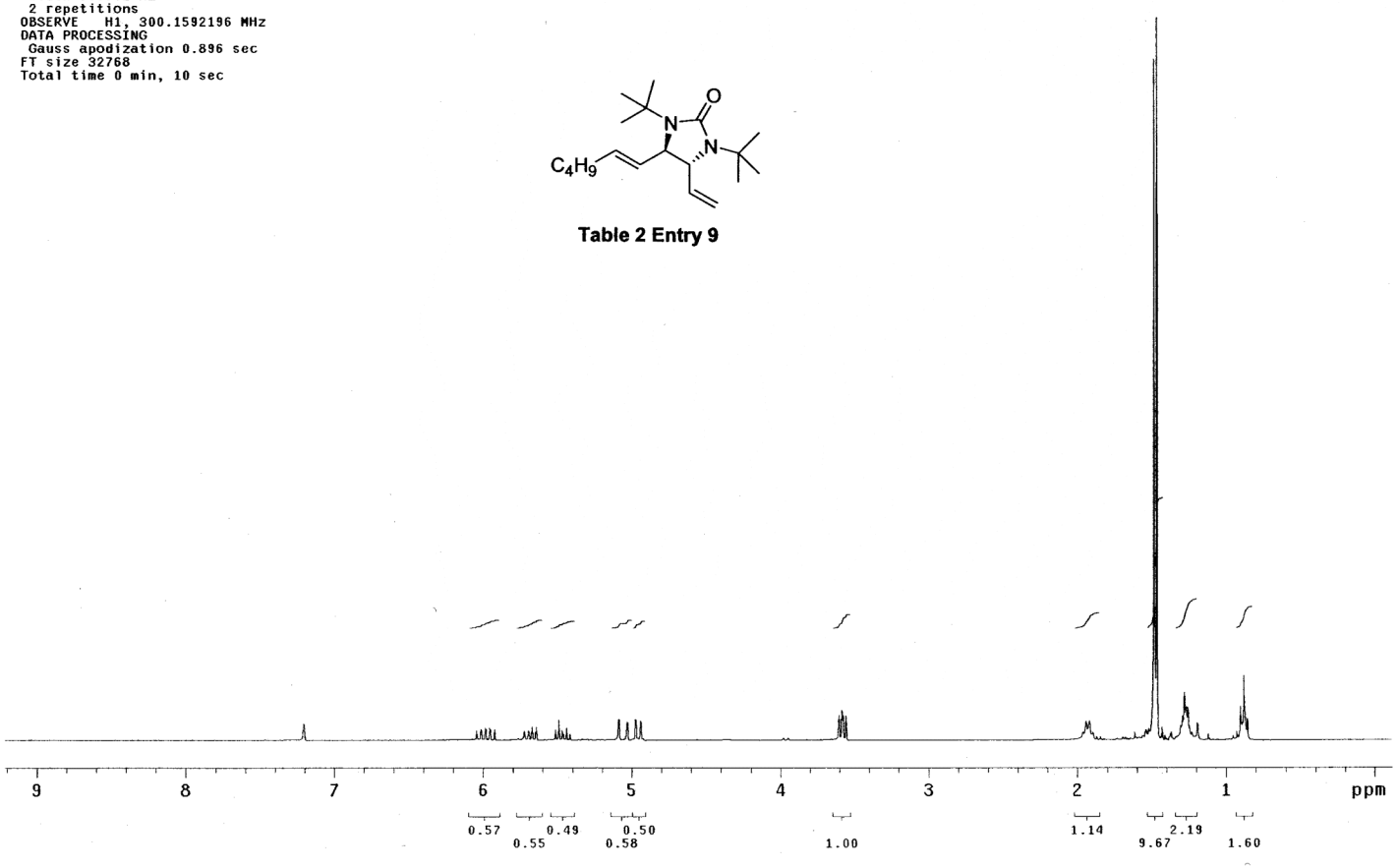
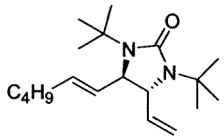


13C OBSERVE

Pulse Sequence: s2pul
Solvent: CDCl3
Ambient temperature
File: lxj-05-3aCNMR
INOVA-500 "epoxide"

Relax. delay 1.000 sec
Pulse 46.3 degrees
Acq. time 0.697 sec
Width 22935.8 Hz
32 repetitions
OBSERVE C13, 75.4750778 MHz
DECOUPLE H1, 300.1606799 MHz
Power 40 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 2.0 Hz
FT size 32768
Total time 473916 hr, 13 min, 52 sec



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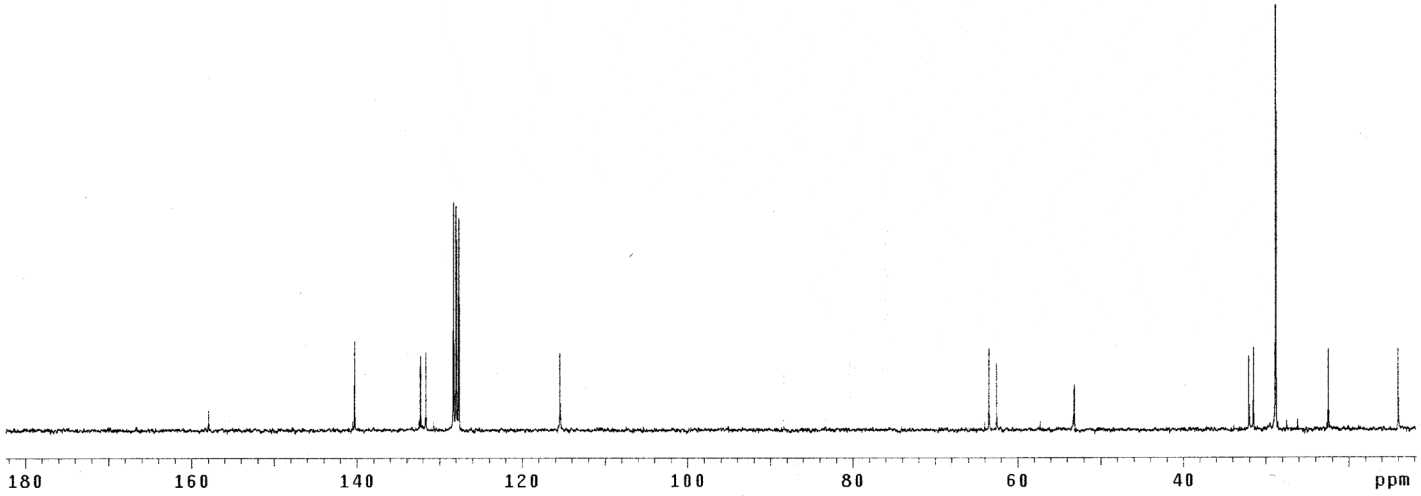
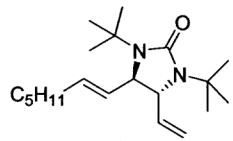


STANDARD 1H OBSERVE

Pulse Sequence: s2pul
Solvent: C_6D_6
Ambient temperature
File: lxj-05-2a
INOVA-500 "epoxide"

Relax. delay 0.000 sec
Pulse 26.0 degrees
Acq. time 2.668 sec
Width 5995.2 Hz
2 repetitions
OBSERVE H1, 300.1592196 MHz
DATA PROCESSING
Gauss apodization 0.896 sec
FT size 32768
Total time 0 min, 10 sec



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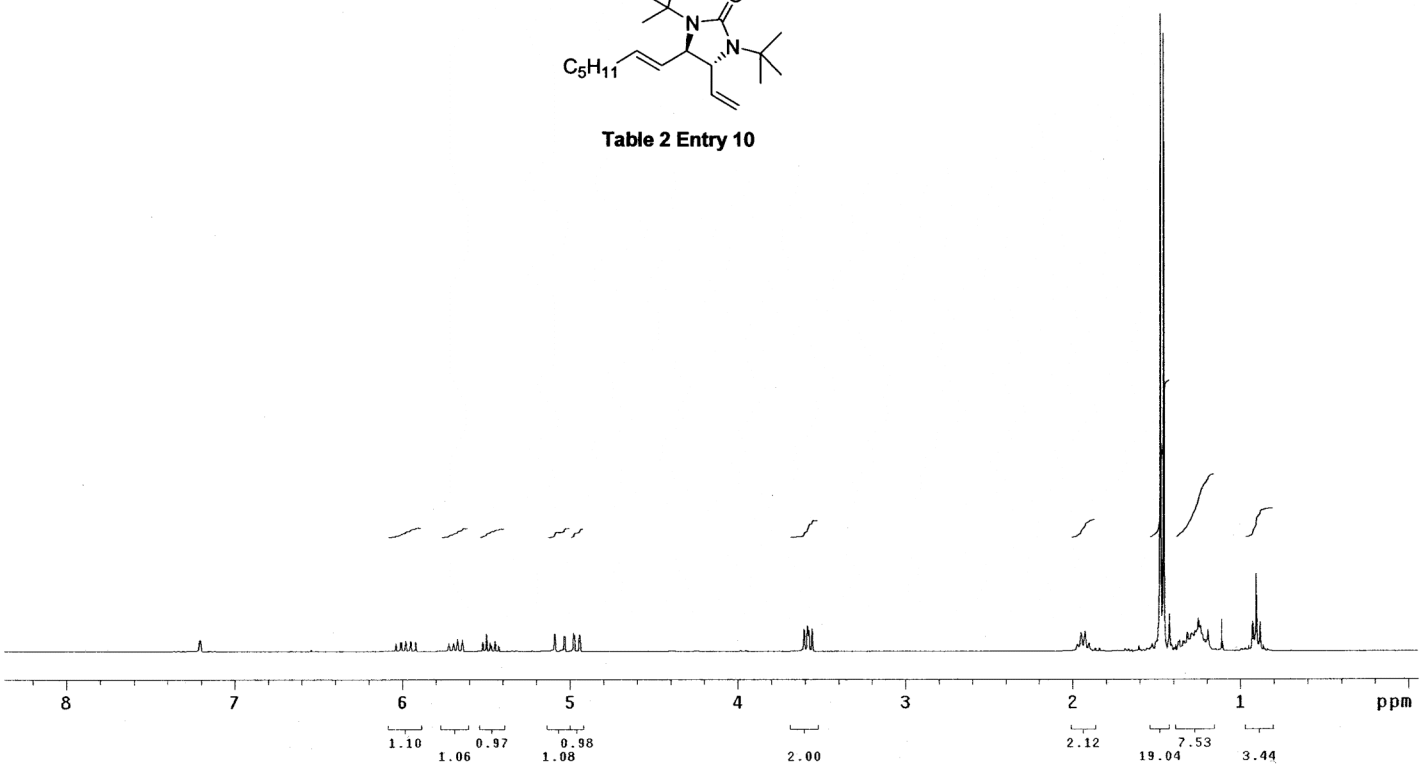
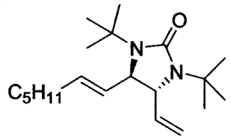
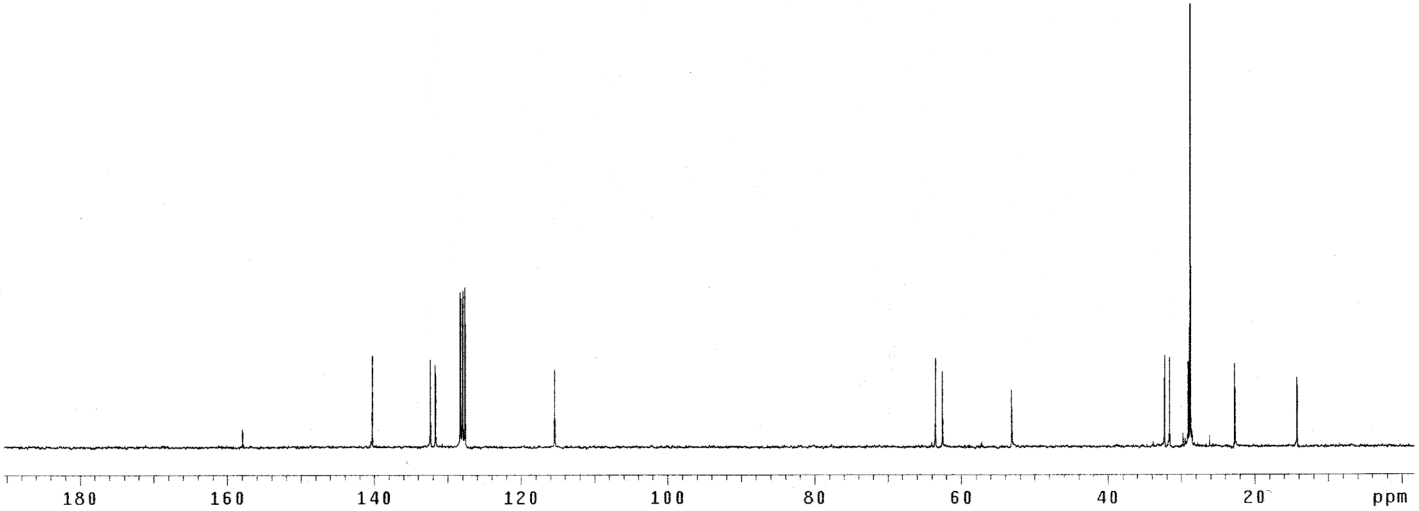


13C OBSERVE

Pulse Sequence: s2pul
Solvent: C_6D_6
Ambient temperature
File: lxj-05-2aCNMR
INOVA-500 "epoxide"

Relax. delay 1.000 sec
Pulse 46.3 degrees
Acq. time 0.697 sec
Width 22935.8 Hz
64 repetitions
OBSERVE C13, 75.4750778 MHz
DECOUPLE H1, 300.1606799 MHz
Power 40 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 2.0 Hz
FT size 32768
Total time 473916 hr, 13 min, 52 sec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