

**Remarkable Phosphine-Effect on the Intramolecular Aldol Reactions of
Unsaturated 1,5-Diketones: Highly Regioselective Synthesis of Cross-
Conjugated Dienones**

Reema K. Thalji[†] and William R. Roush^{*‡}

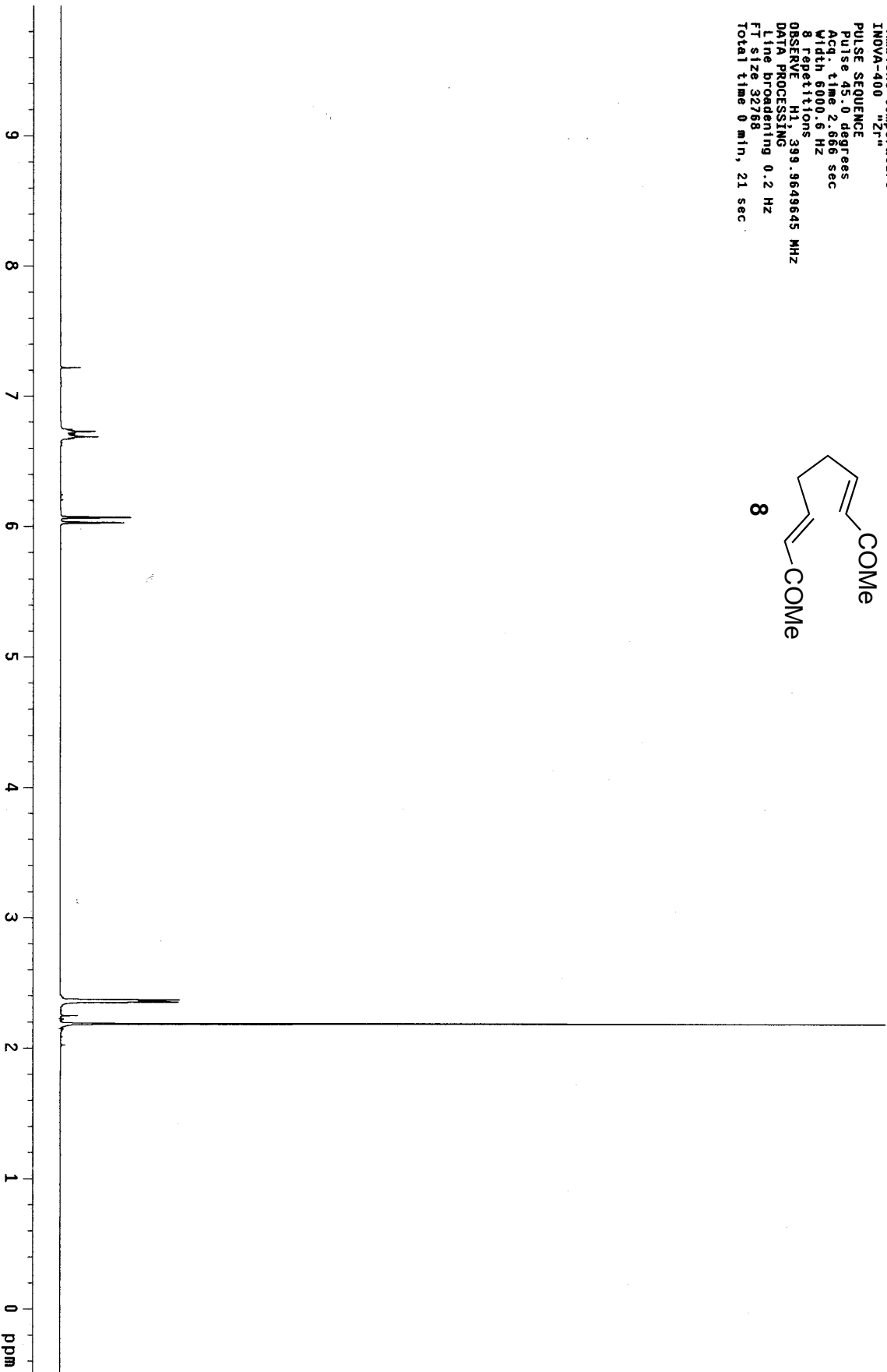
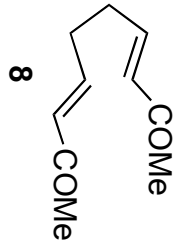
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Supporting Information—Part II
Copies of ¹H NMR Spectra

PKT-1-15a
Pulse Sequence: s2pu1
Solvent: CDCl3
Ambient temperature
INOVA-400 "Zr"
PULSE SEQUENCE
Pulse 45.0 degrees
Acq. time 2.666 sec
Width 6000.6 Hz
8 repetitions
OBSERVE H1, 399.9649645 MHz
DATA PROCESSING
Line broadening 0.2 Hz
FT size 32768
Total time 0 min, 21 sec



rkt-i-62a

Pulse Sequence: szpu1

Solvent: CDCl3

Ambient temperature

File: rkt-i-62a

INOVA-500 "K"

PULSE SEQUENCE

Relax. delay 1.000 sec

Pulse 49.0 degrees

Acq. time 2.500 sec

Width 8000.0 Hz

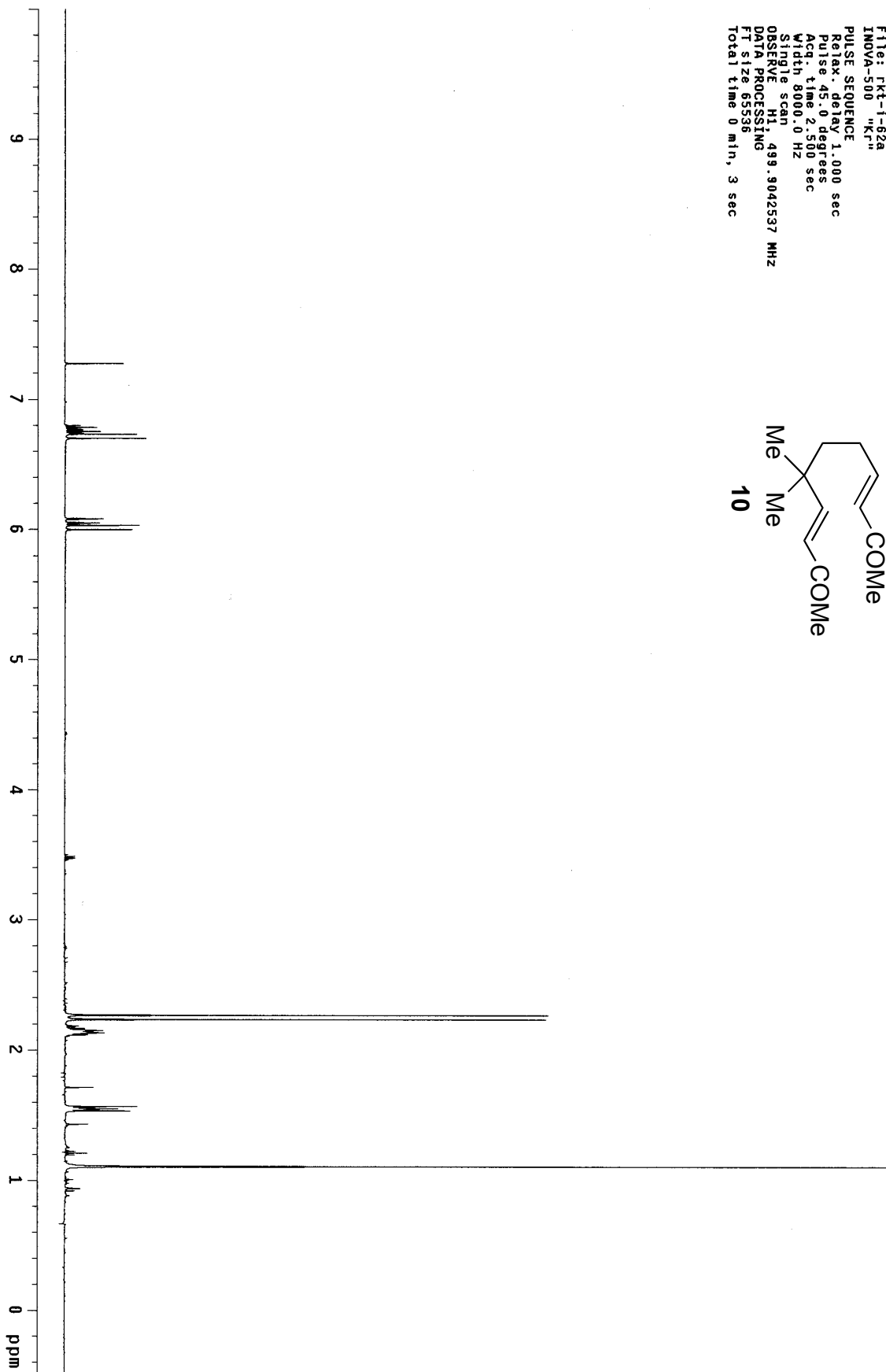
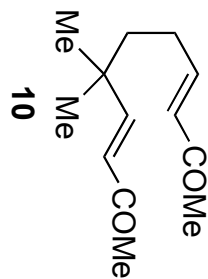
Single scan

OBSERVE H1, 499.9042537 MHz

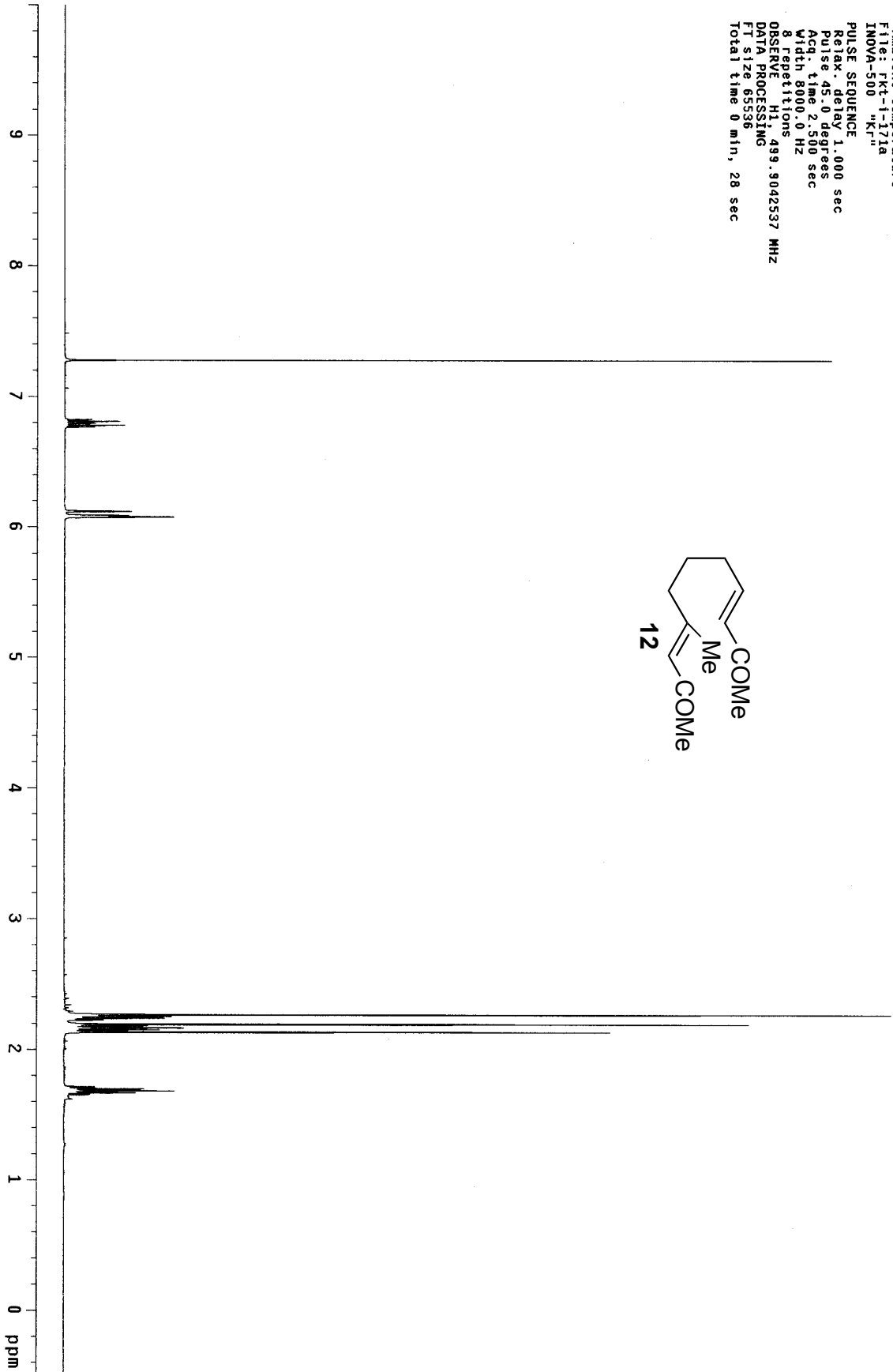
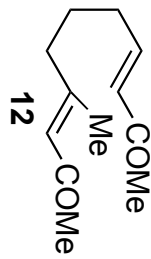
DATA PROCESSING

FI size 65536

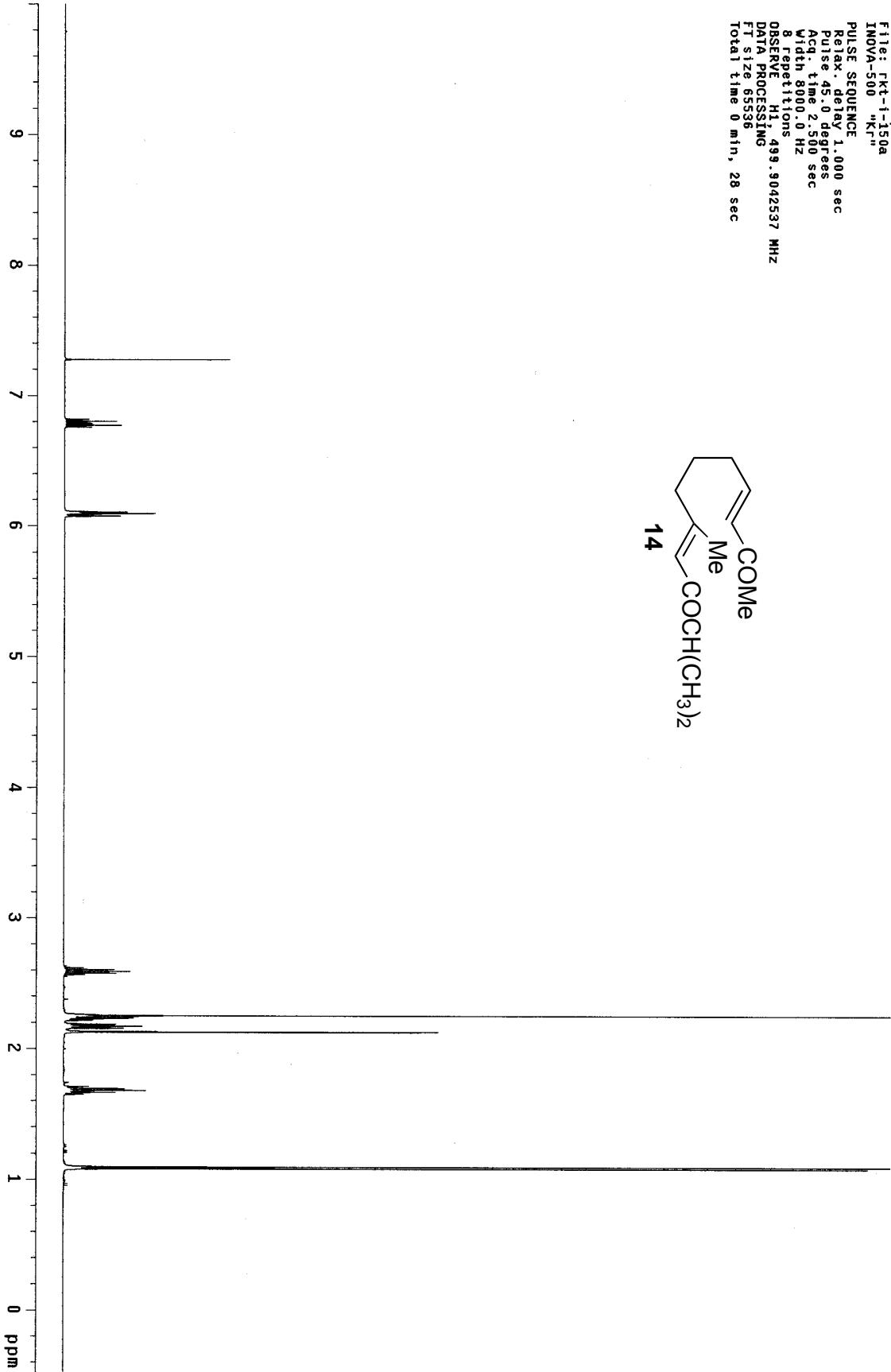
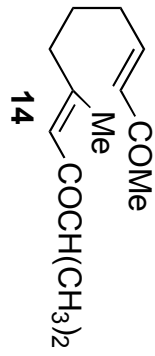
Total time 0 min, 3 sec



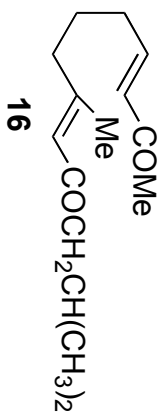
FKt-1-171a
Pulse Sequence: szpu1
Solvent: CDCl3
Ambient temperature
File: FKt-1-171a
INOVA-500 "Kr"
PULSE SEQUENCE
Relax . delay 1.000 sec
Pulse 45.0 degrees
Acq. time 2.500 sec
Width 8000.0 Hz
8 repetitions
OBSERVE HI 499.9042537 MHz
DATA PROCESSING
FT size 65536
Total time 0 min, 28 sec



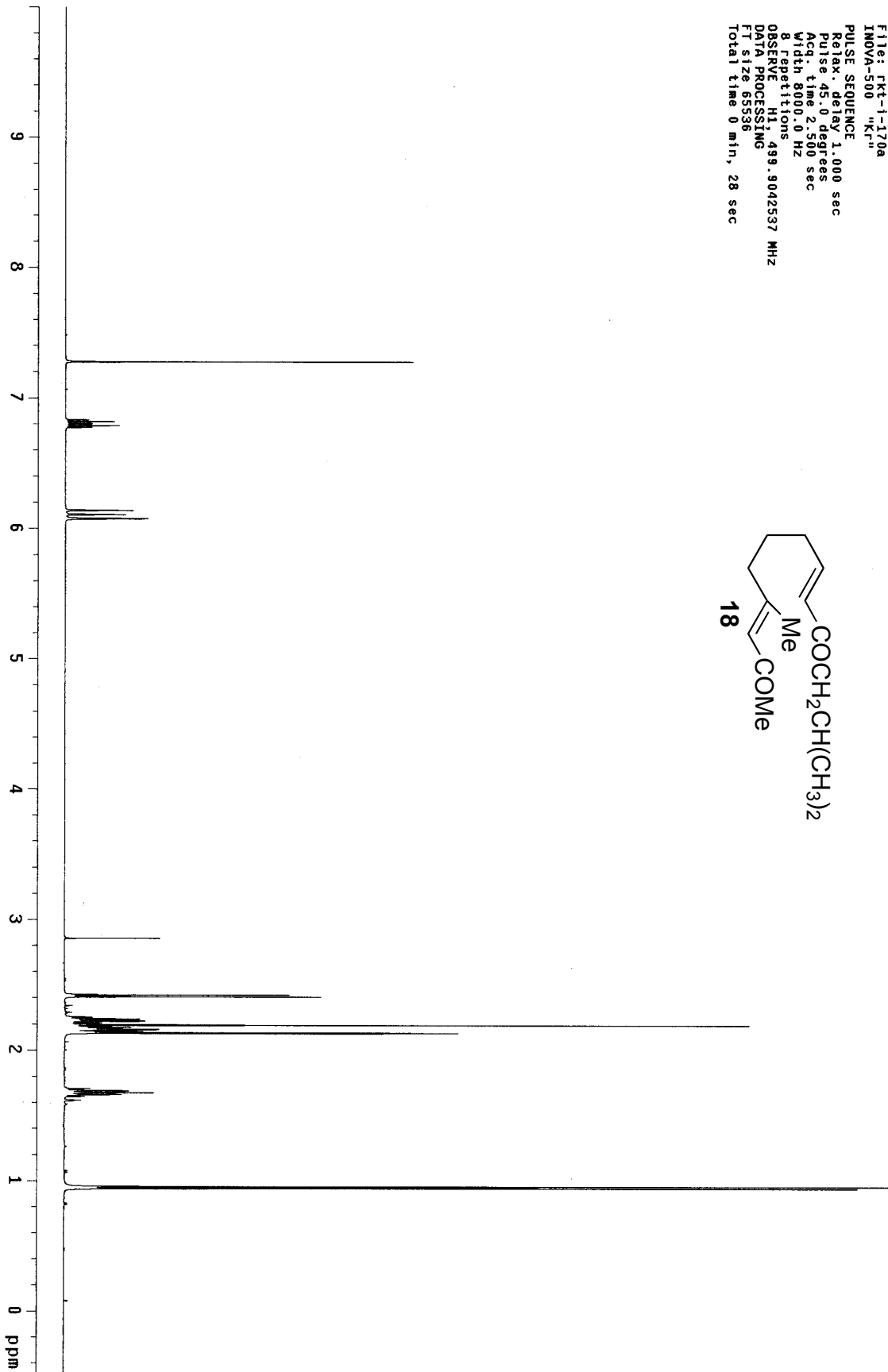
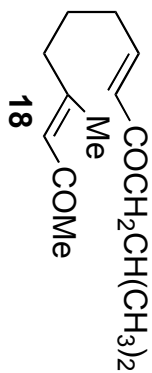
Rkt-I-150a
Pulse Sequence: s2pul1
Solvent: CDCl3
Ambient temperature
File: Rkt-I-150a
INOVA-500 "Kf"
PULSE SEQUENCE
Relax. delay: 1.000 sec
Pulse: 45.0 degrees
Acq. time: 2.500 sec
Width: 8000.0 Hz
8 repetitions
OBSERVE: H1, 499.9042537 MHz
DATA PROCESSING
F1 size: 65536
Total time: 0 min, 28 sec



rkt-i-159a
Pulse Sequence: szpul
Solvent: CDCl3
Ambient temperature
File: rkt-i-159a
INOVA-500 Krf
PULSE SEQUENCE
Relax. delay 1.000 sec
Pulse 45.0 degrees
Acq. time 2.500 sec
Width 8000.0 Hz
8 Repetitions
OBSERVE H1, 499.9042537 MHz
DATA PROCESSING
F1 size 65536
Total time 0 min, 28 sec



Rkt-i-170a
Pulse Sequence: s2pu1
Solvent: CDCl3
Ambient temperature
File: Rkt-i-170a
INOVA-500 "K-"
PULSE SEQUENCE
Relax. delay 1.000 sec
Pulse 45.0 degrees
Acq. time 2.500 sec
Width 8000.0 Hz
8 repetitions
OBSERVE H1 499.9042537 MHz
DATA PROCESSING
FT size 65536
Total time 0 min, 28 sec



FKt-1-182b

Pulse Sequence: s2pu1

Solvent: CDCl3
Ambient temperature

File: FKt-1-182b

INOVA-500

"Kf"

PULSE SEQUENCE

Relax: delay 1.000 sec

Pulse: 45.0 degrees

Acq. time 2.500 sec

Width 8000.0 Hz

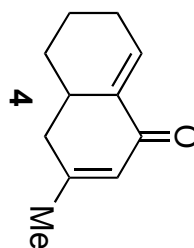
8 repetitions

OBSERVE HI: 499.9042537 MHz

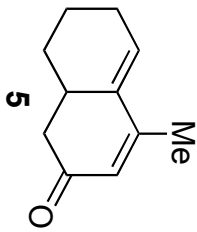
DATA PROCESSING

FT size 85536

Total time 0 min, 28 sec

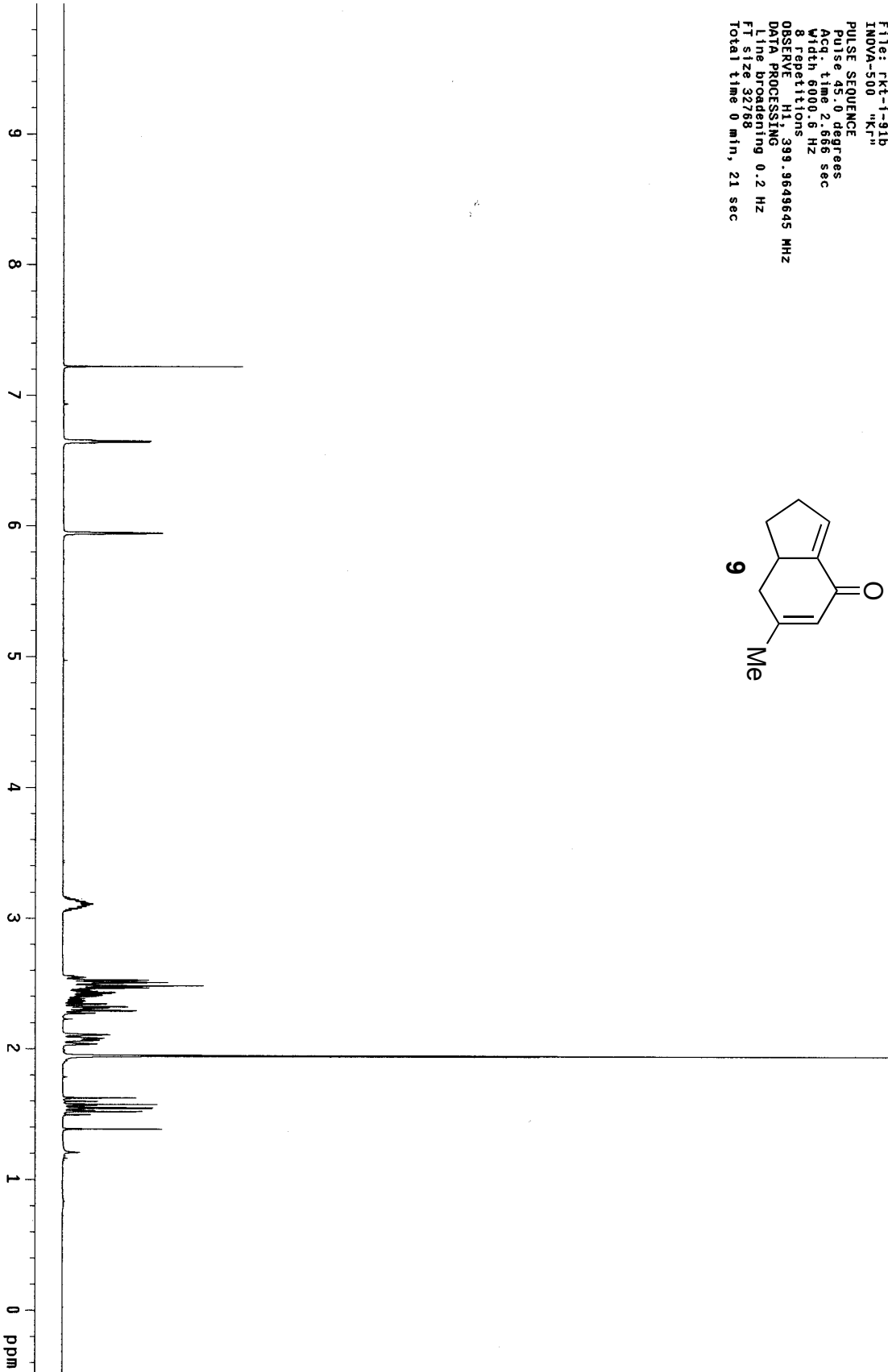
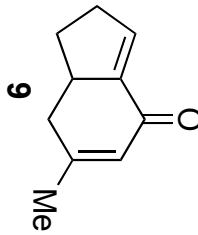


PKt-i-232c
Pulse Sequence: s2pu1
Solvent: CDCl3
Ambient temperature
File: PKt-i-231c
INOVA-500 "Kf"
PULSE SEQUENCE
Relax. delay 1.000 sec
Pulse 45.0 degrees
Acq. time 2.500 sec
Width 8000.0 Hz
8 repetitions
OBSERVE H1, 499.9042537 MHz
DATA PROCESSING
FT size 65536
Total time 0 min, 28 sec

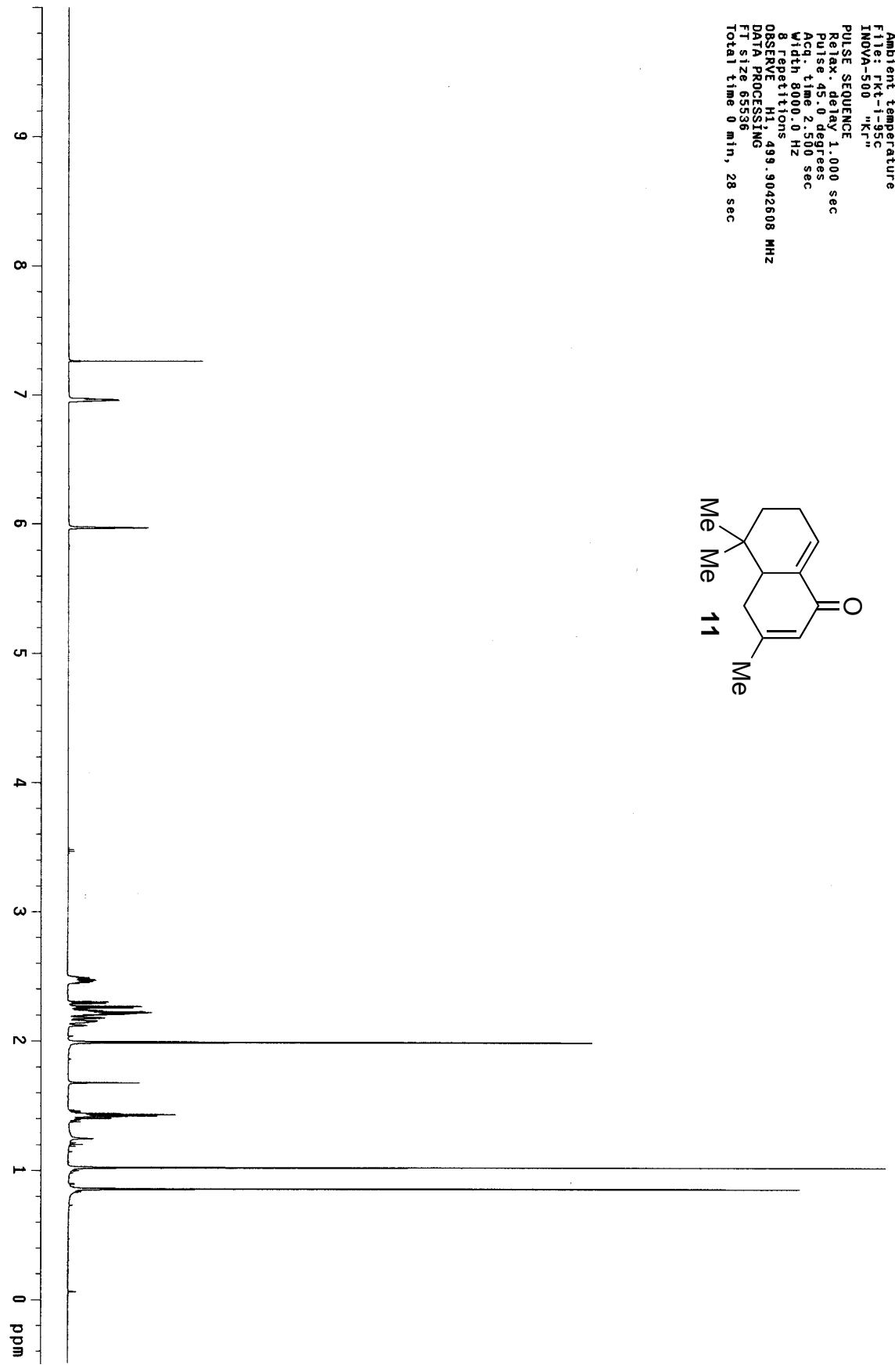
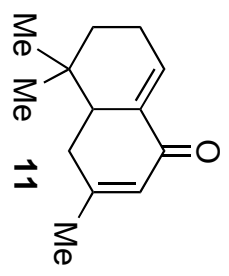


rkt-1-91b

Pulse Sequence: s2pu1
Solvent: CDCl3
Ambient temperature
File: rkt-1-91b
INOVA-500 "K-"
PULSE SEQUENCE
Pulse: 45.0 degrees
Acq. time: 2.666 sec
Width: 6000.6 Hz
8 repetitions
OBSERVE: H1, 399.9649645 MHz
DATA PROCESSING
Line broadening: 0.2 Hz
FT size: 32768
Total time: 0 min, 21 sec



rkt-1-95c
Pulse Sequence: s2pu1
Solvent: CDCl3
Ambient temperature
File: rkt-1-95c
INOVA-500 "K"
PULSE SEQUENCE
Relax. delay: 1.000 sec
Pulse: 45.0 degrees
Acq. time: 2.500 sec
Width: 8000.0 Hz
8 repetitions
OBSERVE: H1, 499.9042608 MHz
DATA PROCESSING
FT size: 65536
Total time: 0 min, 28 sec



rkt-1-212c

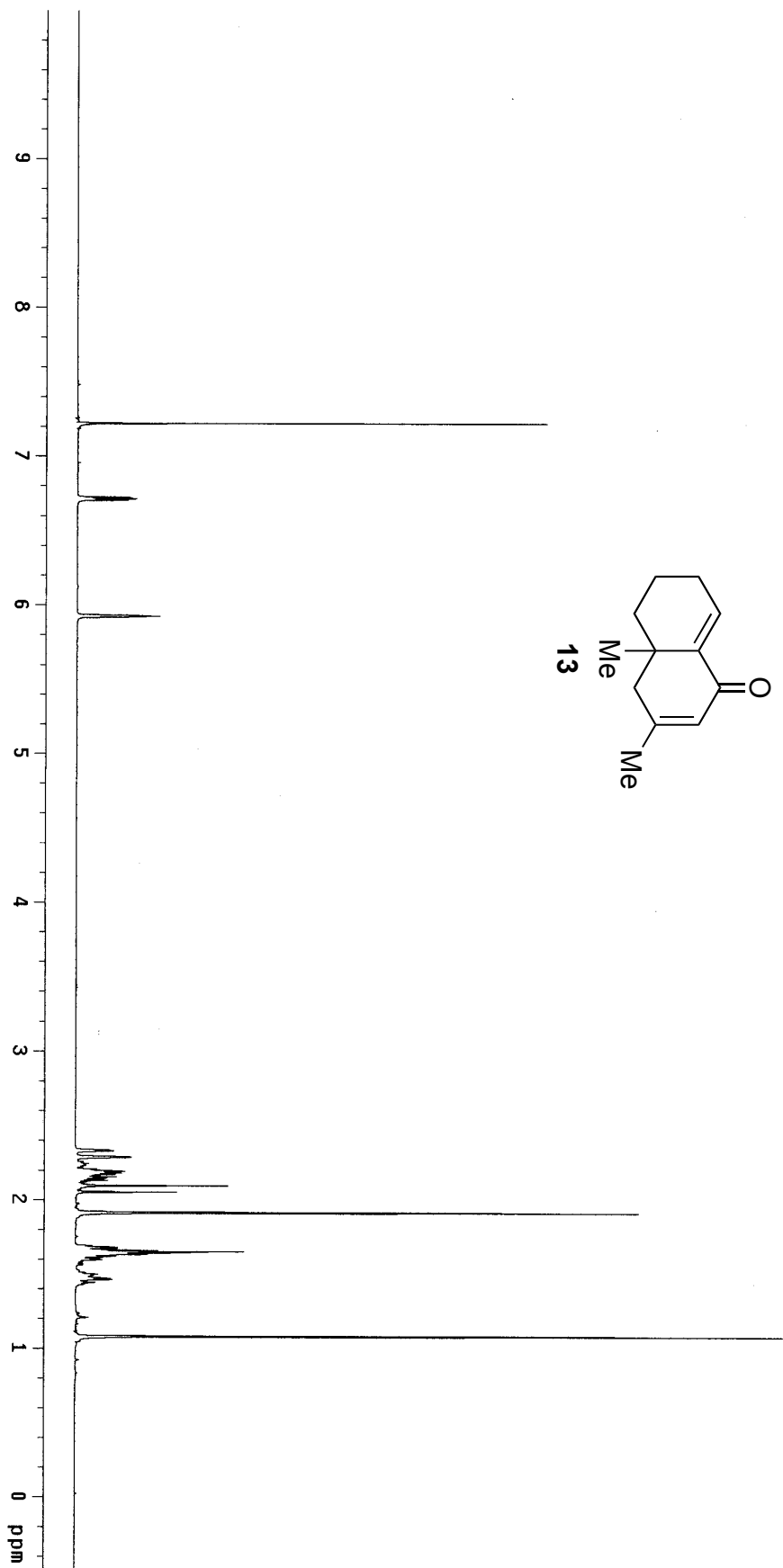
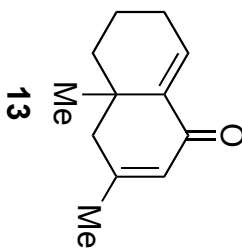
Pulse Sequence: szpu1

Solvent: CDCl3
Ambient temperature
File: rkt-1-212c
INOVA-500 "K"

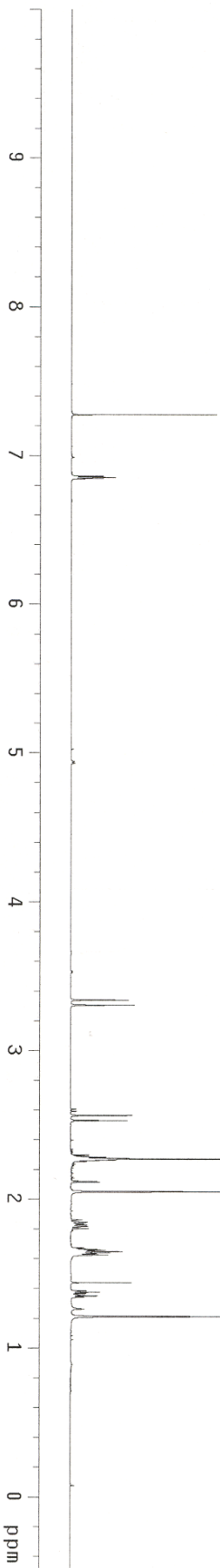
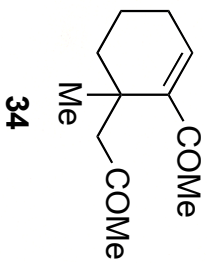
PULSE SEQUENCE

Pulse 45.0 degrees
Acq. time 2.566 sec
Widh 6000.0 Hz
R Freq 149.6 MHz

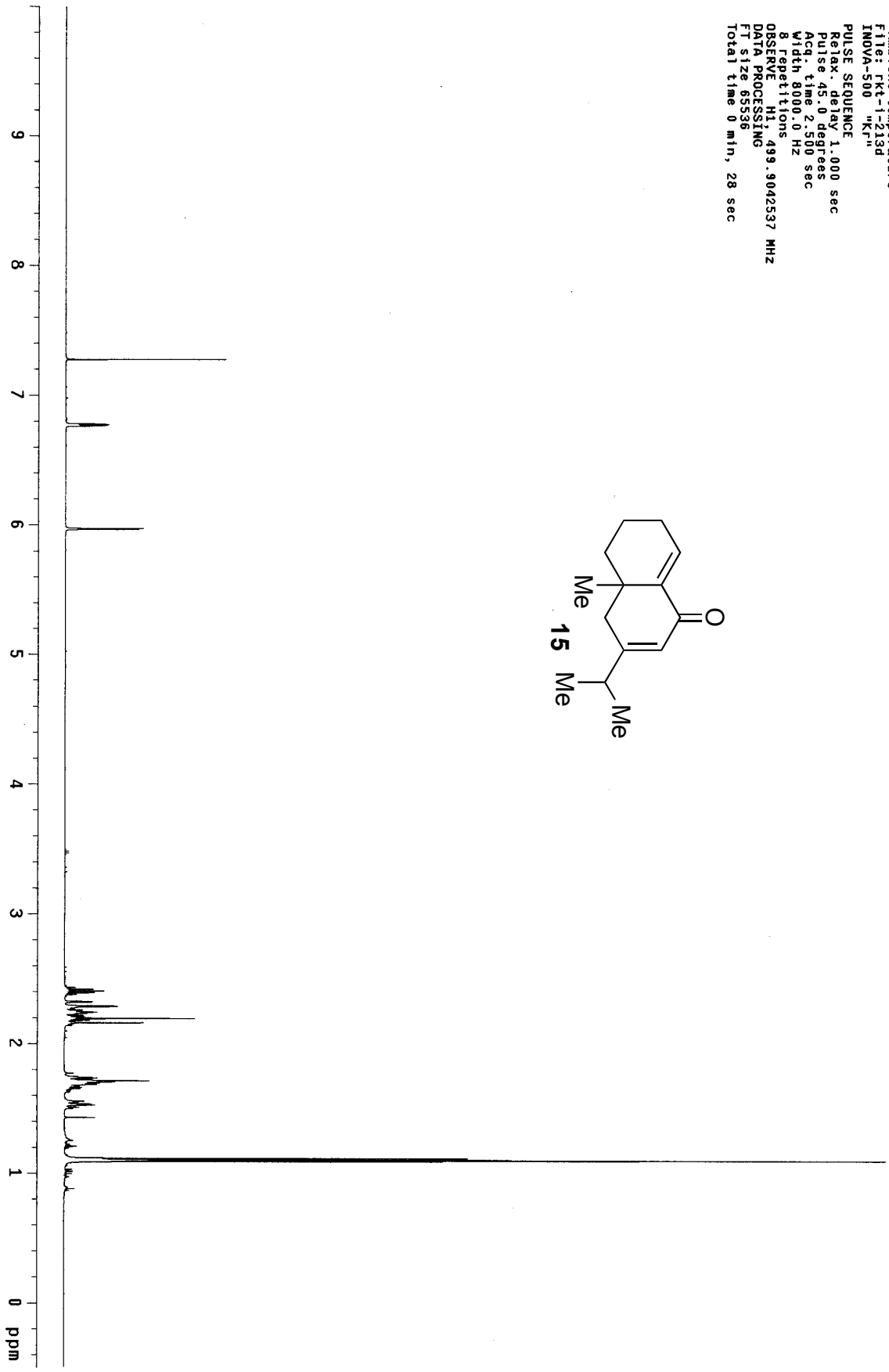
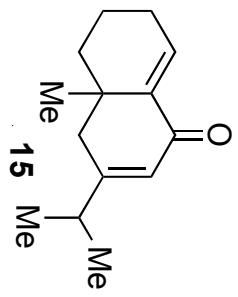
OBSERVED F1 F2 399.9649645 MHz
DATA PROCESSING
Line broadening 0.2 Hz
F1 size 32768
Total time 0 min, 21 sec



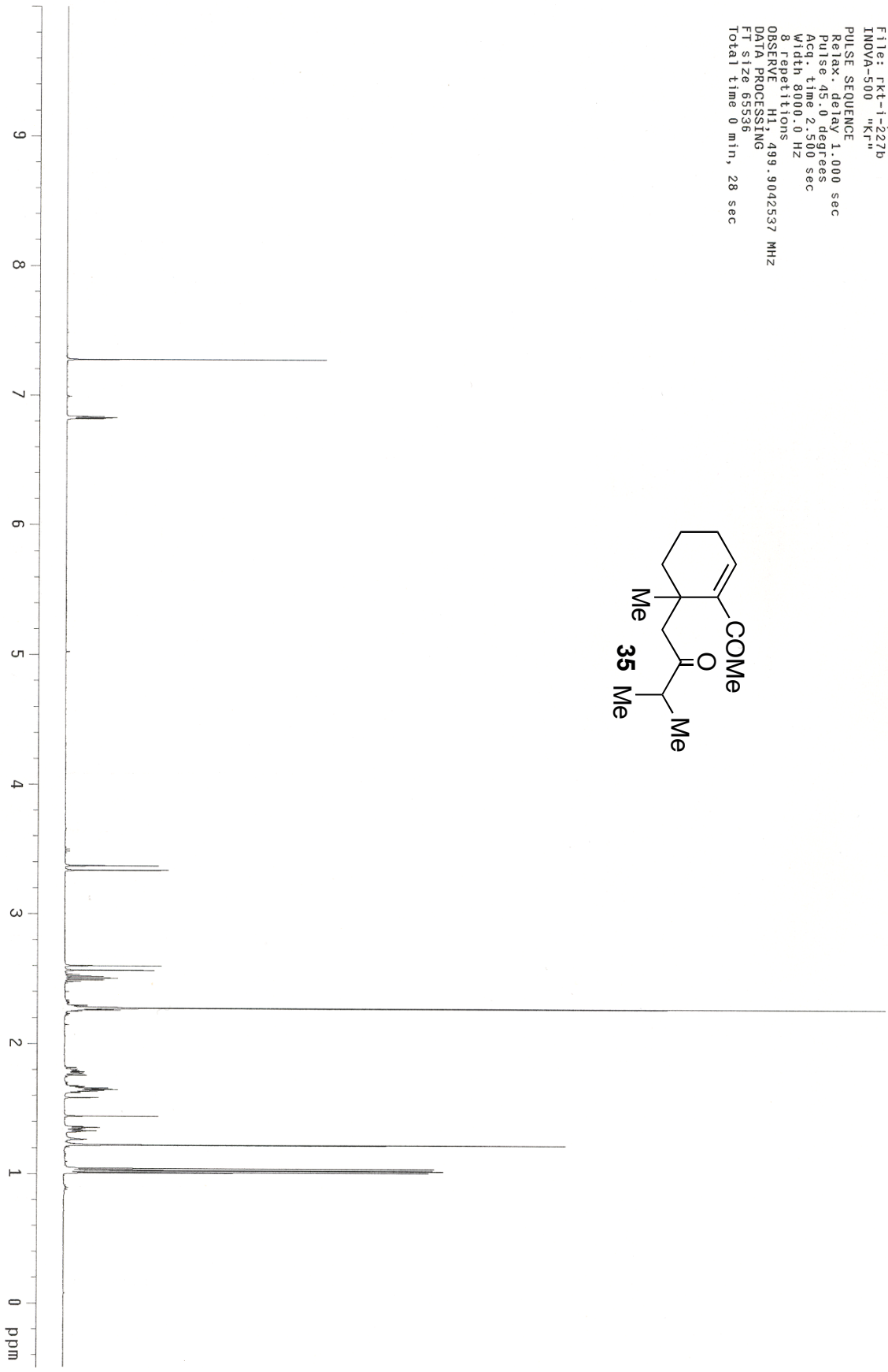
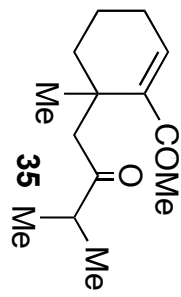
Rkt-i-230b
Pulse Sequence: s2pu1
Solvent: CDCl3
Ambient temperature
File: Rkt-i-230b
INOVA-500 "K"
PULSE SEQUENCE
Relax: delay 1.000 sec
Pulse: 43.0 degrees
Acq. time: 2.500 sec
Width: 8000.0 Hz
8 repetitions
OBSERVE H1: 499.9042537 MHz
DATA PROCESSING
FT size: 65536
Total time: 0 min, 28 sec



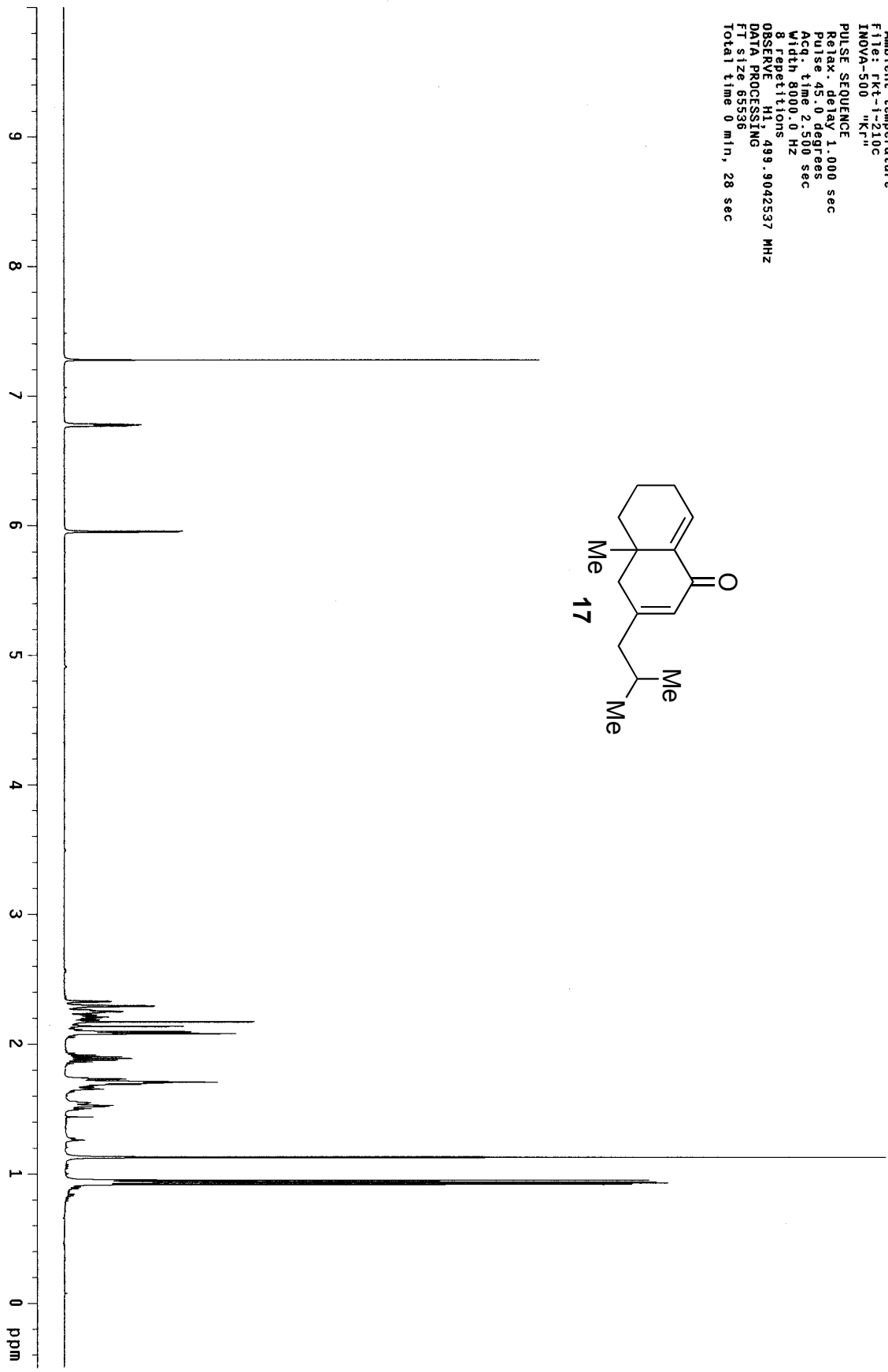
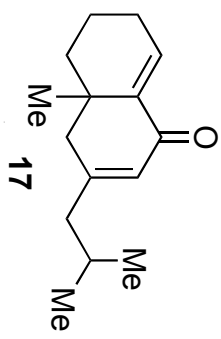
Rkt-1-213d
Pulse Sequence: s2pu1
Solvent: CDCl3
Ambient temperature
File: Rkt-1-213d
INOVA-500 "R-"
PULSE SEQUENCE
Relax. delay: 1.000 sec
Pulse: 45.0 degrees
Acq. time: 2.500 sec
Width: 8000.0 Hz
8 repetitions
OBSERVE H1, 499.9042537 MHz
DATA PROCESSING
FT size 65536
Total time 0 min, 28 sec



Rkt-i-227b
Pulse Sequence: s2pu1
Solvent: CDCl3
Ambient temperature
File: Rkt-i-227b
INOVA-500 "K"
PULSE SEQUENCE
Relax: delay 1.000 sec
Pulse: 45.0 degrees
Acq: time 2.500 sec
Width: 8000.0 Hz
8 repetitions
OBSERVE H1, 499.9042537 MHz
DATA PROCESSING
F1 size 65536
Total time 0 min, 28 sec



rkt-1-210c
Pulse Sequence: s2pu1
Solvent: CDCl3
Ambient temperature
File: rkt-1-210c
INOVA-500 "K"r"
PULSE SEQUENCE
Relax delay: 1.000 sec
Pulse: 45.0 degrees
Acq time: 2.500 sec
Width: 8000.0 Hz
8 repetitions
OBSERVE: H1, 499.9042537 MHz
DATA PROCESSING
F1 size: 65936
Total time: 0 min, 28 sec



rkt-i-228b

Pulse Sequence: s2pu1

Solvent: CDCl3

Ambient temperature

File: rkt-i-228b

INOVA-500 "Kf"

PULSE SEQUENCE

Relax. delay 1.000 sec

Pulse 45.0 degrees

Acq. time 2.500 sec

Width 8000.0 Hz

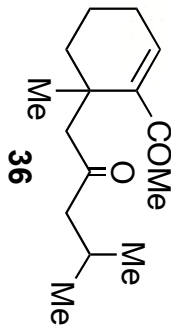
8 repetitions

OBSERVE H1, 499.9042537 MHz

DATA PROCESSING

FI size 65536

Total time 0 min, 28 sec



FKt-1-203b

Pulse Sequence: s2pu1

Solvent: CDCl3

Ambient temperature

File: FKt-1-203b

INDVA-500 "Kf"

PULSE SEQUENCE

Relax: delay 1.000 sec

Pulse: 43.0 degrees

Acq: time 2.500 sec

Width 8000.0 Hz

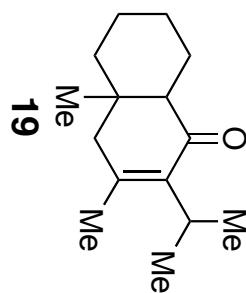
8 repetitions

OBSERVE H1: 499.9042537 MHz

DATA PROCESSING

FT size 65536

Total time 0 min, 28 sec



rkt-1-224c

Pulse Sequence: s2pu1

Solvent: CDCl3

Ambient temperature

File: rkt-1-224c

INDVA-500 "K"

PULSE SEQUENCE

Pulse 45 0 degrees

Acq. time 2.666 sec

Width 6000.6 Hz

8 Repetitions

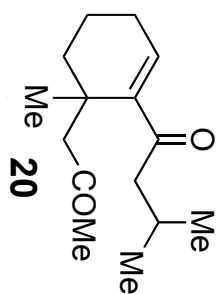
OBSERVED F1 399.9649645 MHz

DATA PROCESSING

Line broadening 0.2 Hz

FT size 32768

Total time 0 min, 21 sec



FKt-1-229b

Pulse Sequence: s2pu1

Solvent: CDCl3

Ambient temperature

File: FKt-1-229b

INOVA-500 "K"

PULSE SEQUENCE

Relax. delay 1.000 sec

Pulse 45.0 degrees

Acq. time 2.500 sec

Width 8000.0 Hz

8 repetitions

OBSERVE HI, 499.9042537 MHZ

DATA PROCESSING

FT size 65536

Total time 0 min, 28 sec

