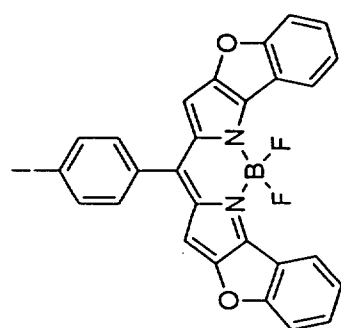
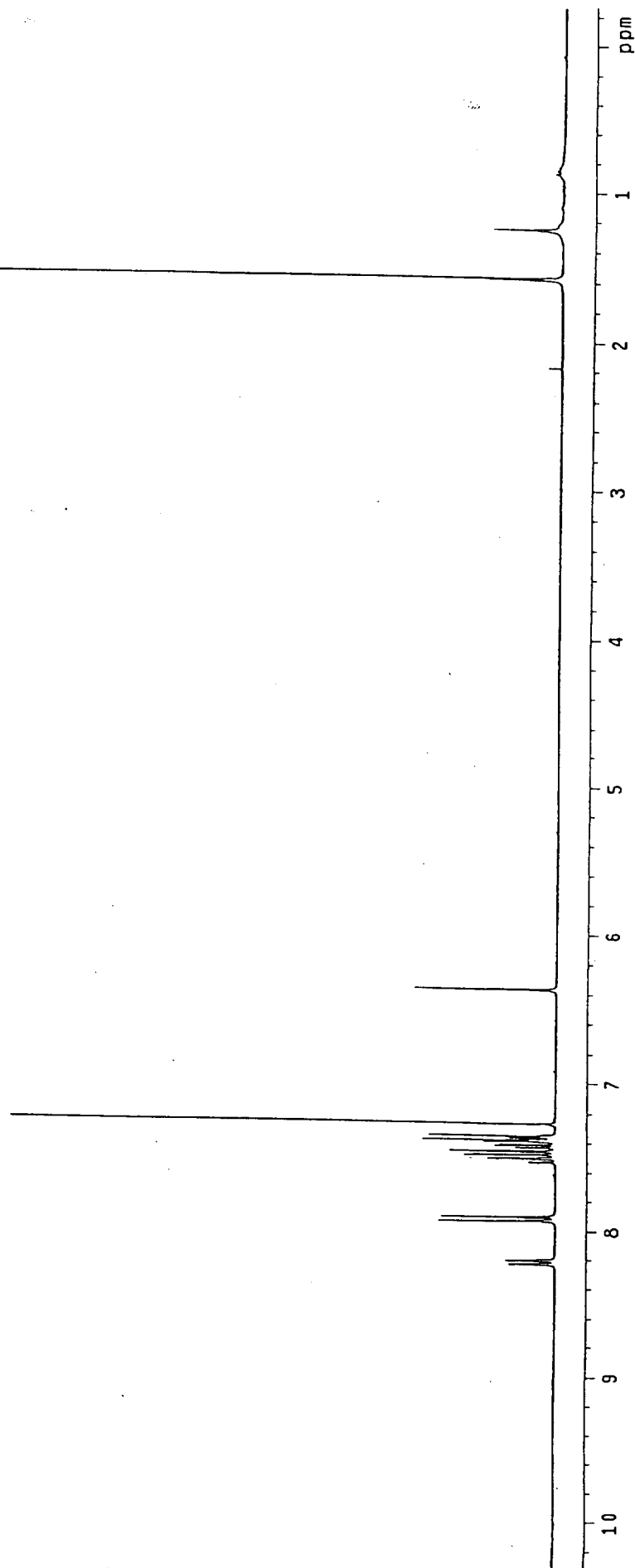


S2



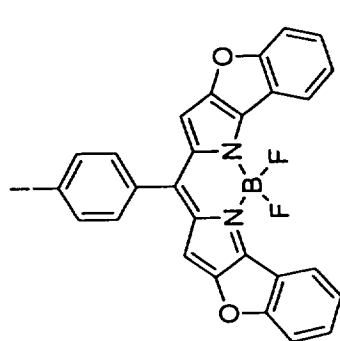
3f
¹H NMR



S3

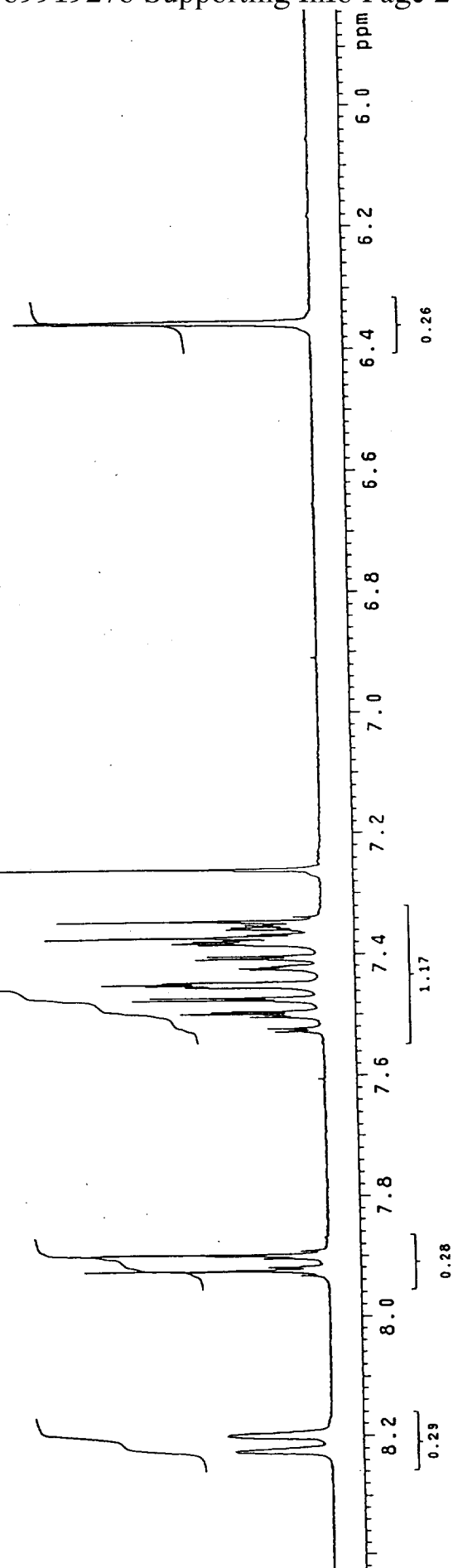
STANDARD 1H OBSERVE

Solvent: cdcl3
 Ambient temperature
 File: JCII49A-H
 UNITYplus-300 "unityp300"
 PULSE SEQUENCE
 Relax. delay arrayed
 1st pulse arrayed
 2nd pulse 46.7 degrees
 Acq. time 3.744 sec
 Width 4000.0 Hz
 Arrayed repetitions
 OBSERVE H1. 299.9579359 MHZ
 DATA PROCESSING
 FT size 32768
 Total time 1 minute

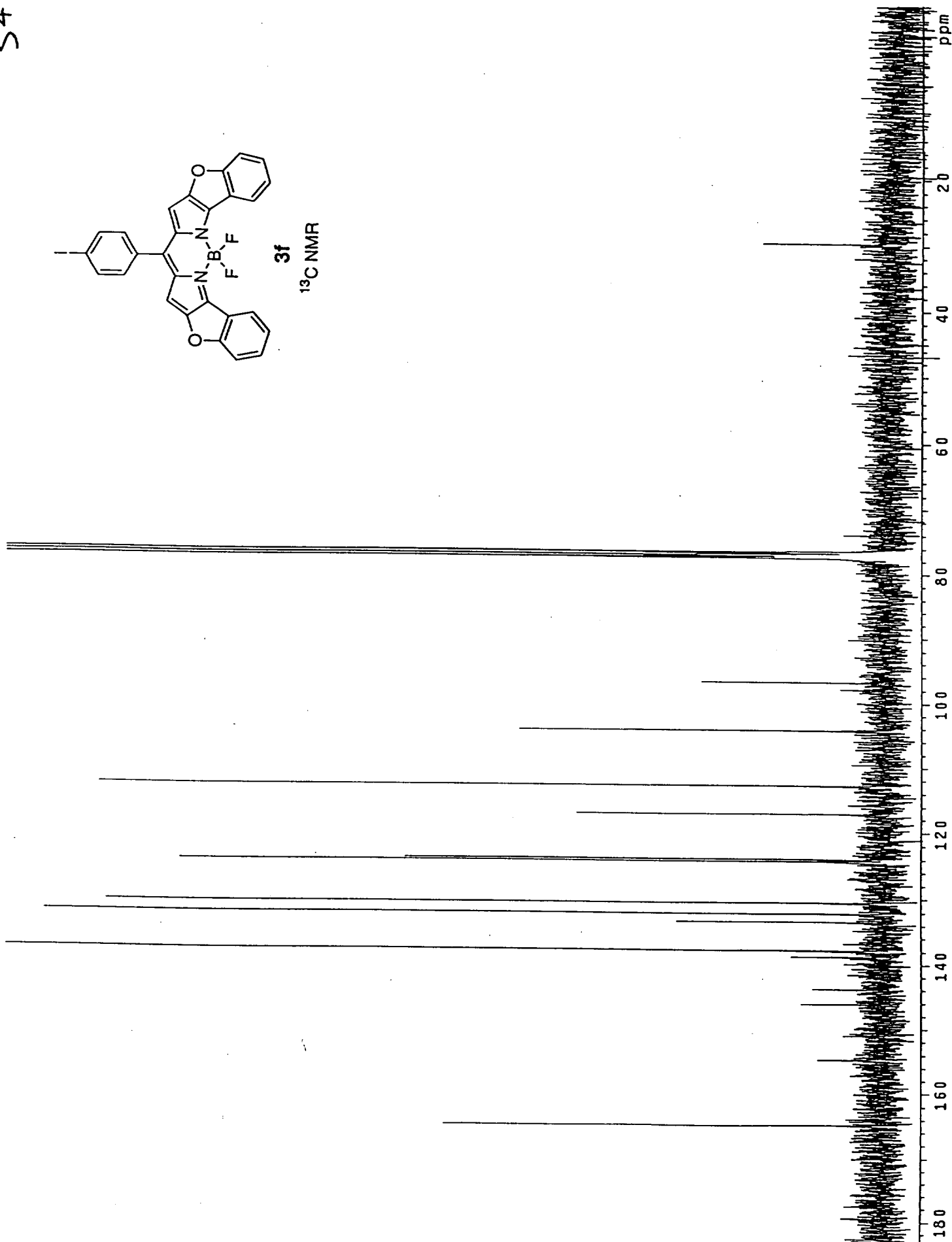
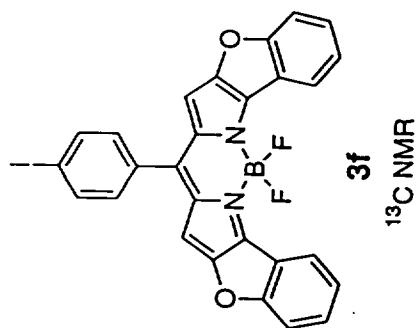


3f

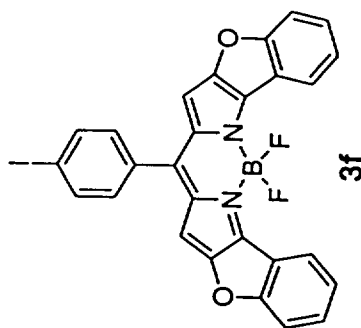
¹H NMR (aromatic region)



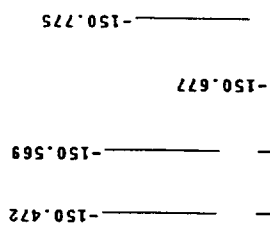
S4



S5



3f
¹⁹F NMR



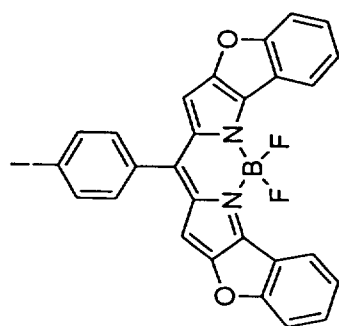
-149.4 -149.6 -149.8 -150.0 -150.2 -150.4 -150.6 -150.8 -151.0 -151.2 -151.4 -151.6 -151.8 -152.0 ppm

56

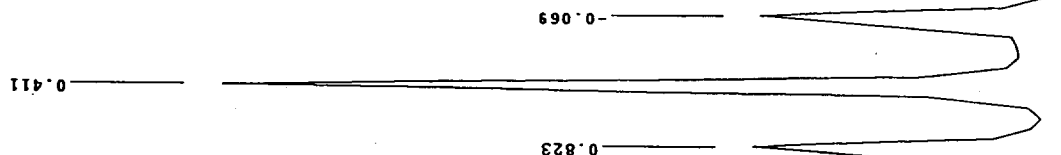
JcII49A-B

expi stdbil

SAMPLE		DEC. & VT	
date	11-30-98	dfrq	not used
solvent	CdCl3	dn	H1
file		dpwr	not used
ACQUISITION		dof	170.2
sfrq	64.184	dm	yyy
tn	0.201	dmm	n
at	7232	dms	9900
np	18018.0	dres	1.0
sv	9900	homo	n
fb	512	PROCESSING	
bs	55	wtfile	
tpwr	10.0	proc	ft
pw	0	fn	not used
di	0	math	i
tor	128	werr	
nt	128	wexp	
ct		wbs	
alock	not used	wnt	
gain	FLAGS		
l1	n		
ln	n		
dp	nn		
hs			
DISPLAY			
sp	-492.8		
wp	822.8		
vs	5880		
sc	0		
vc	250		
h2mm	2.06		
ls	500.00		
rfl	10859.2		
rfp	0		
th	20		
ins	1.000		
al	cdc	ph	



3f
11B NMR



5 4 3 2 1 0 -1 -2 -3 -4 -5 -6 -7 ppm

57

STANDARD 1H OBSERVE

Solvent: acetone
Ambient temperature
VXR-300S "vvr300"

PULSE SEQUENCE

Relax. delay arrayed
1st pulse arrayed
2nd pulse 31.5 degrees
Acq. time 3.744 sec
Width 5999.7 Hz

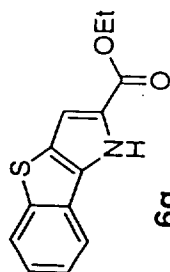
Arrayed repetitions

OBSERVE H1 299.9158422 MHZ

DATA PROCESSING

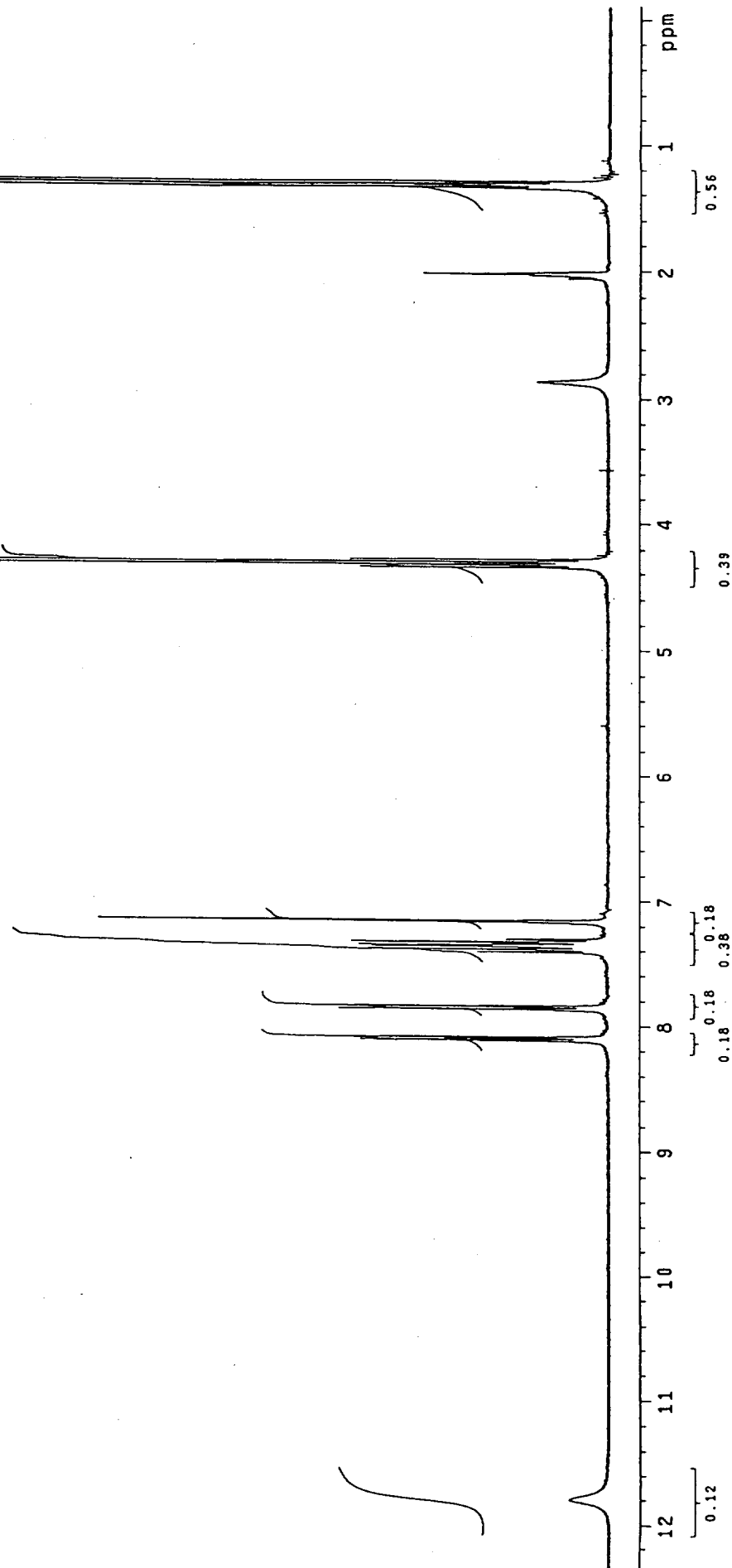
FT size 65536

Total time 1 minute



6g

¹H NMR



S8

¹³C OBSERVE

Solvent: acetone
 Ambient temperature
 VXR-300S "Vxr300"

PULSE SEQUENCE

Relax. delay arrayed
 1st pulse arrayed
 2nd pulse 62.4 degrees
 Acq. time 1.815 sec
 Width 16501.7 Hz

Arrayed repetitions

OBSERVE C13, 75.4138217 MHz
 DECOUPLE H1, 299.9169128 MHz

High power 60
 continuously on

WALTZ-16 modulated

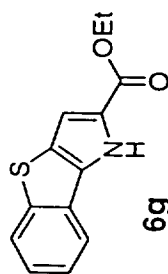
Single precision data

DATA PROCESSING

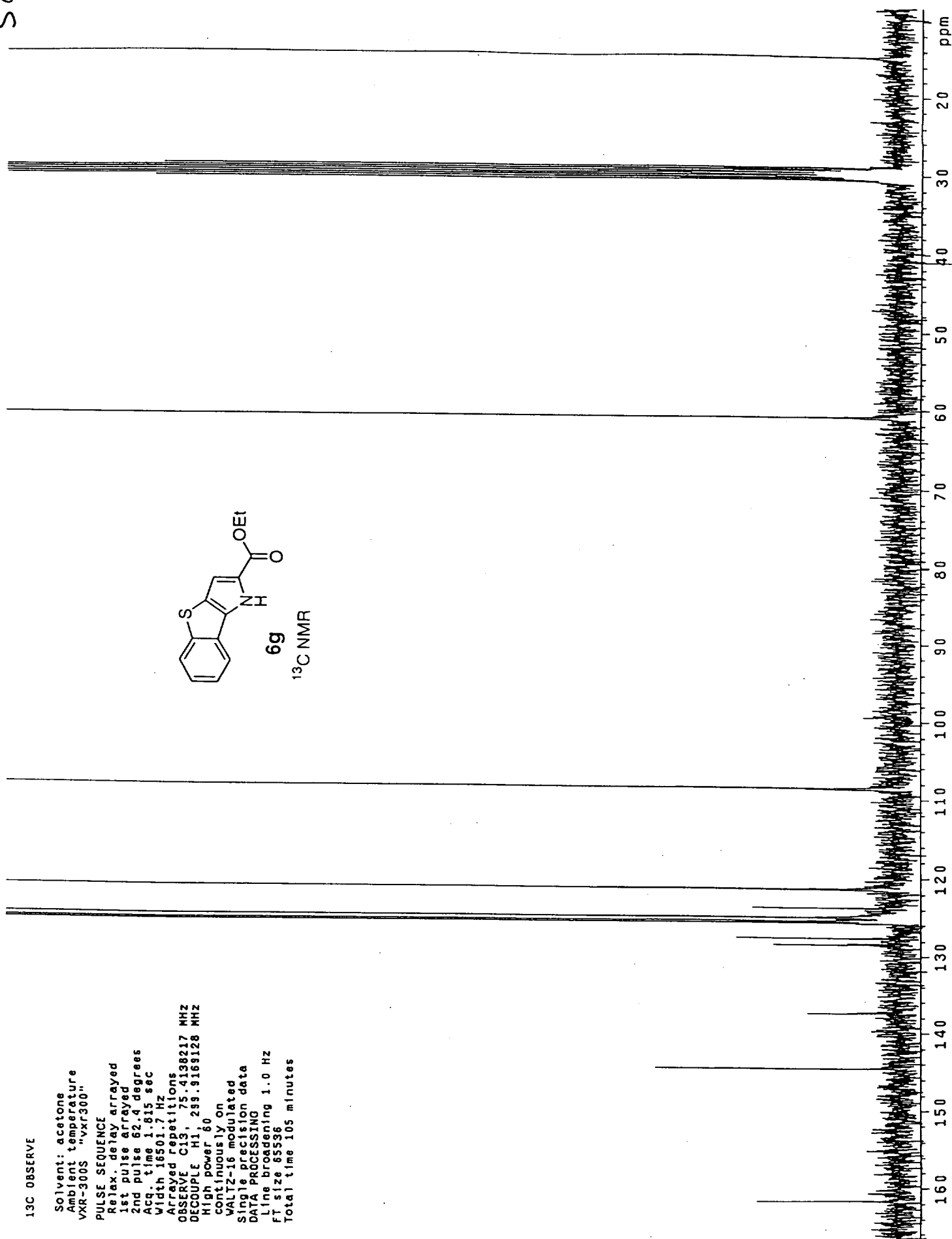
Line broadening 1.0 Hz

FT size 65536

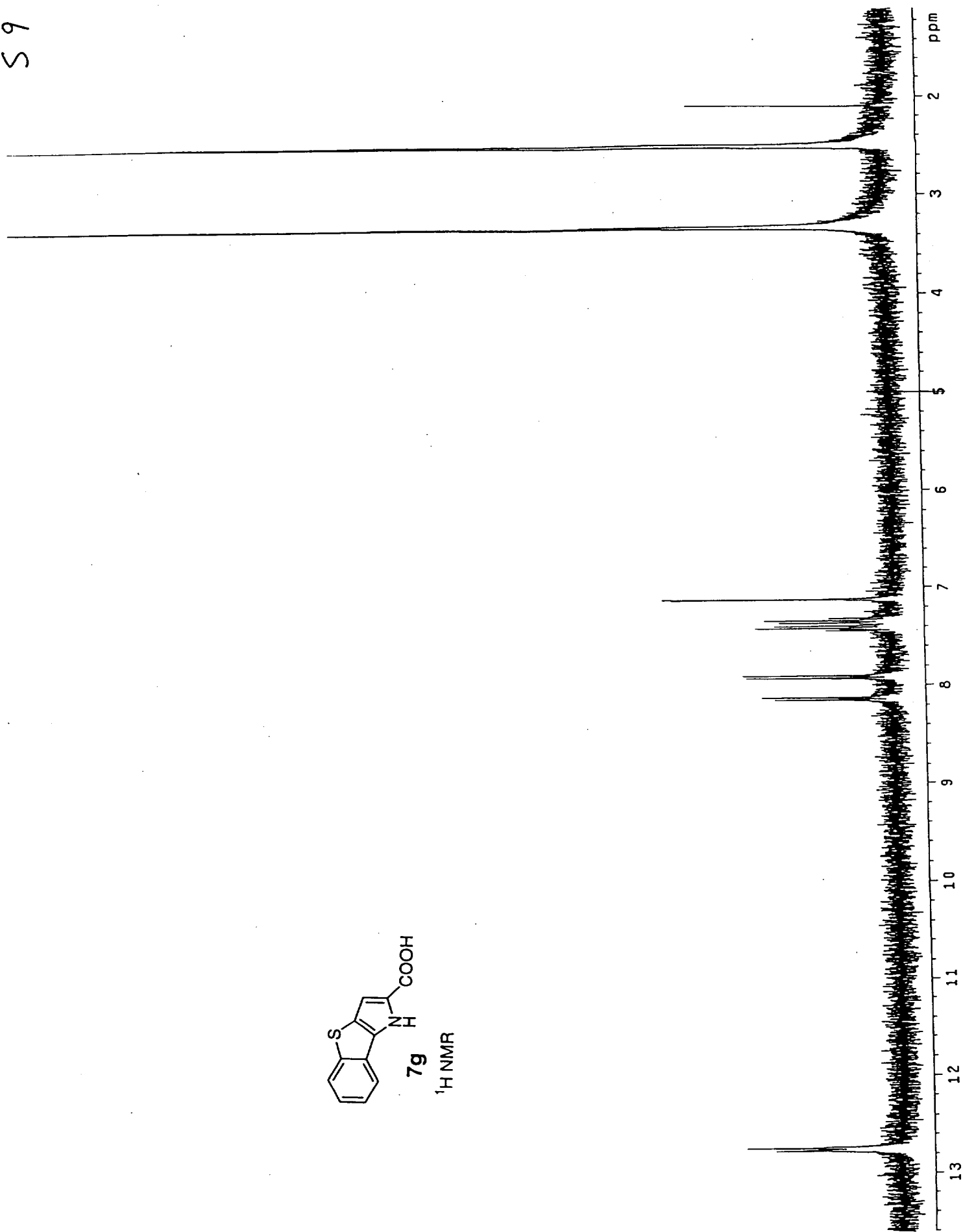
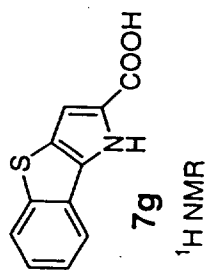
Total time 105 minutes

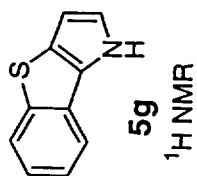


6g

¹³C NMR

S9





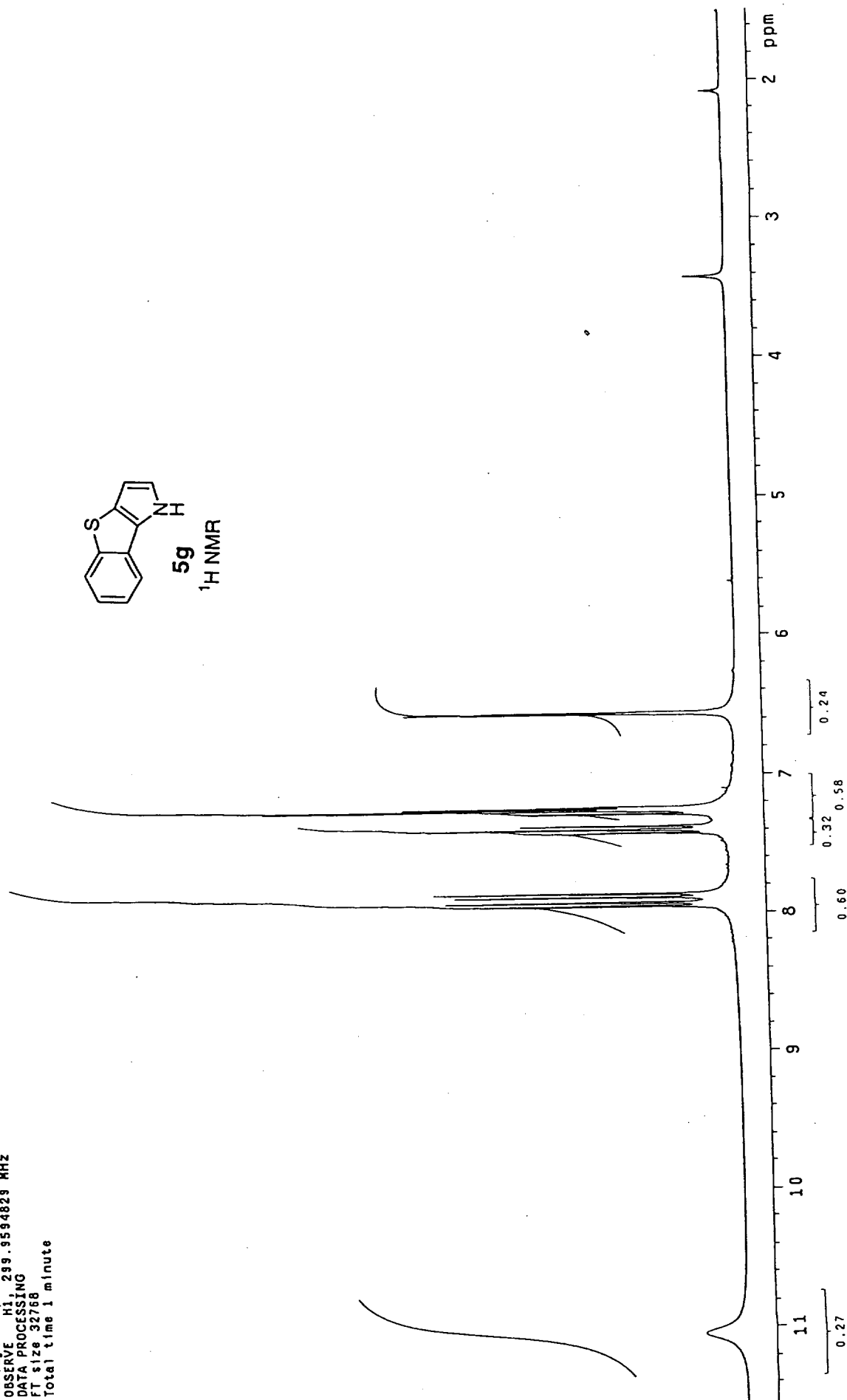
OBSERVE

solvent: acetone
 temperature
 115-300 "untyp300"

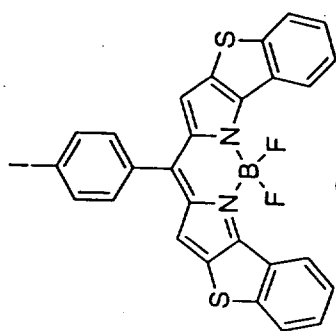
SEQUENCE

1st pulse arrayed
 2nd pulse arrayed
 Acq. time 3.744 sec
 Width 4000.0 Hz

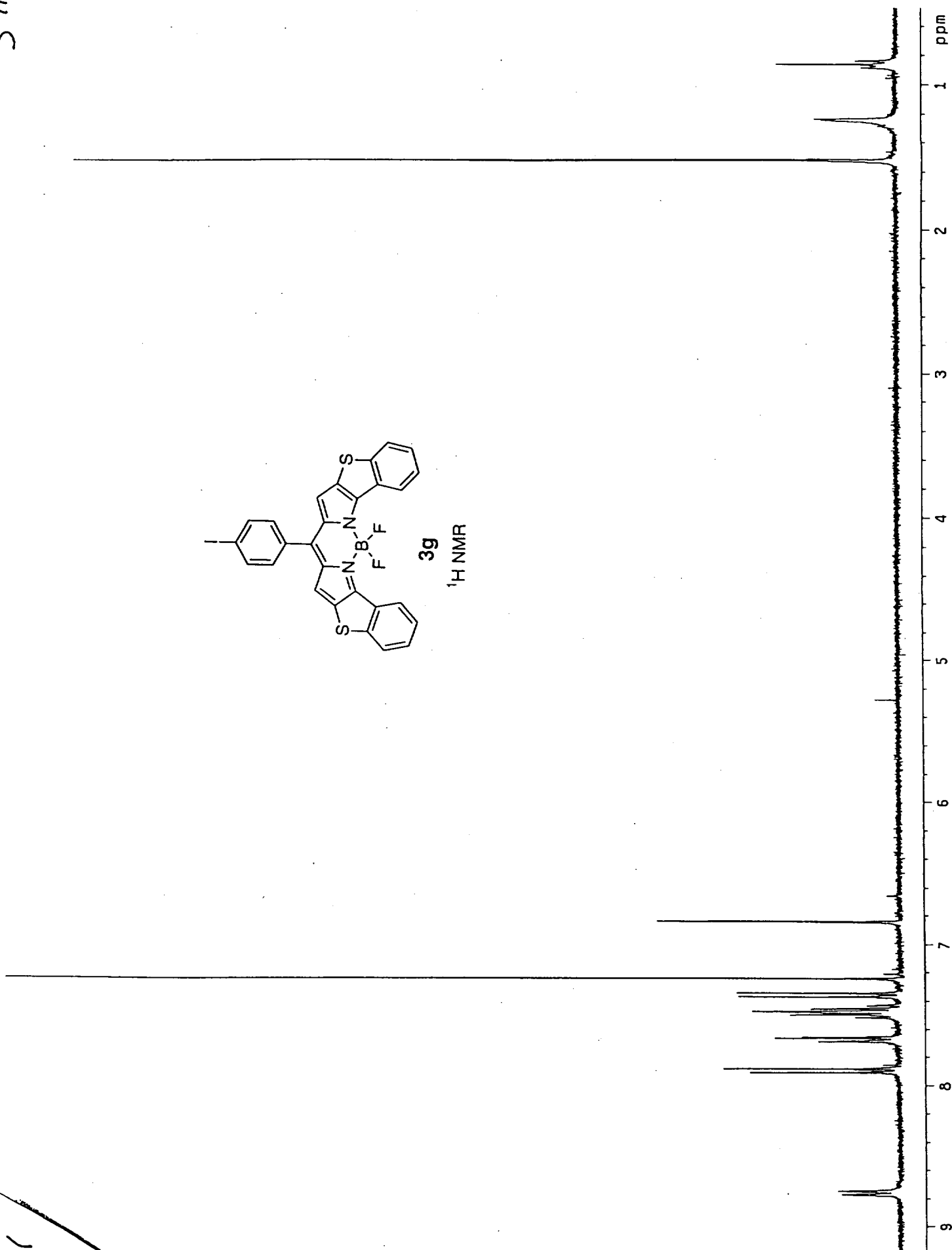
Arrayed repetitions
 OBSERVE H1, 299.9594823 MHz
 DATA PROCESSING
 FT size 32768
 Total time 1 minute



S''



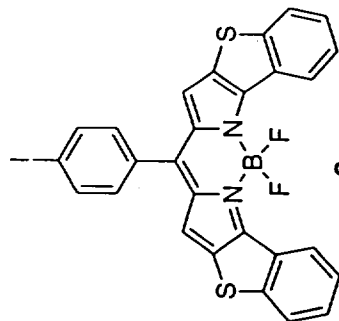
3g
¹H NMR



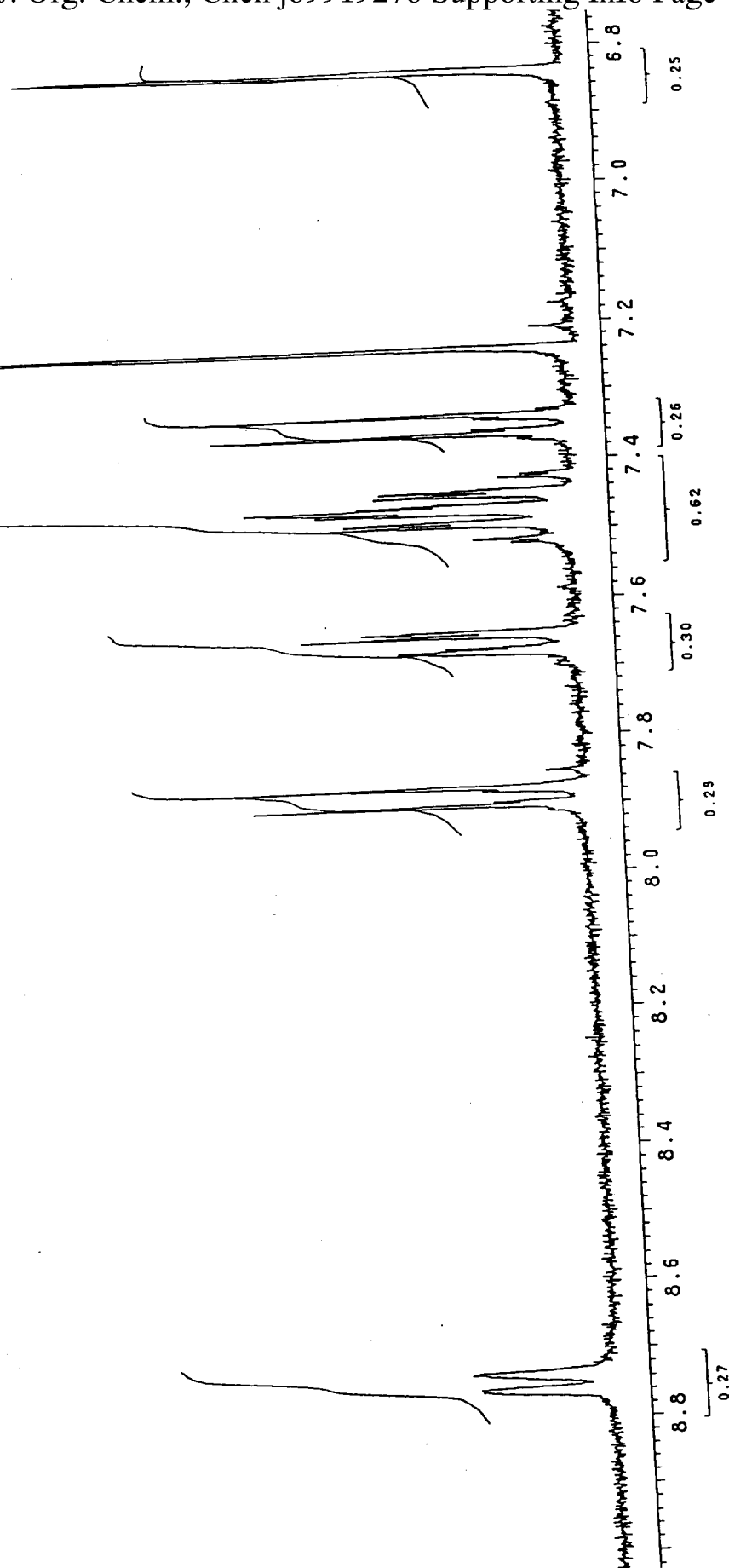
S12

STANDARD 1H OBSERVE

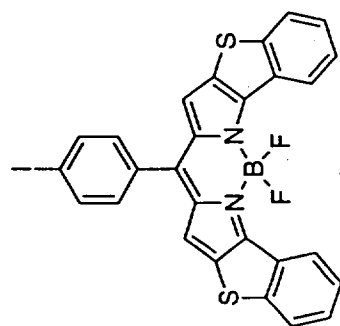
Solvent: cdcl3
 Ambient temperature
 VXR-300S "vxt300"
 PULSE SEQUENCE
 Relax. delay arrayed
 1st pulse arrayed
 2nd pulse 31.5 degrees
 Acq. time 3.744 sec
 Width 4000.0 Hz
 Arrayed repetitions
 OBSERVE H1, 299.9142856 MHz
 DATA PROCESSING
 FT size 32768
 Total time 1 minute



¹H NMR (aromatic region)



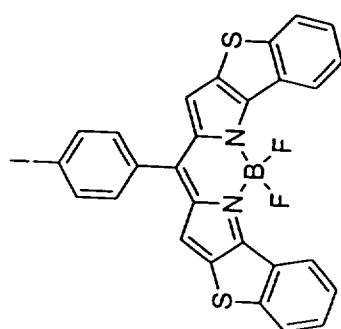
S13



3g
¹³C NMR



S14

**3g**¹³C NMR (aromatic region)¹³C OBSERVESolvent: cdcl₃

Ambient temperature

VXR-300S "vxf300"

PULSE SEQUENCE

Relax. delay arrayed

1st pulse arrayed

2nd pulse 62.4 degrees

Acq. time 1.815 sec

Width 16501.7 Hz

Arrayed repetitions

OBSERVE C13, 75.4135034 MHz

DECOUPLE H1, 299.3133562 MHz

high power 60

continuously on

WALTZ-16 modulated

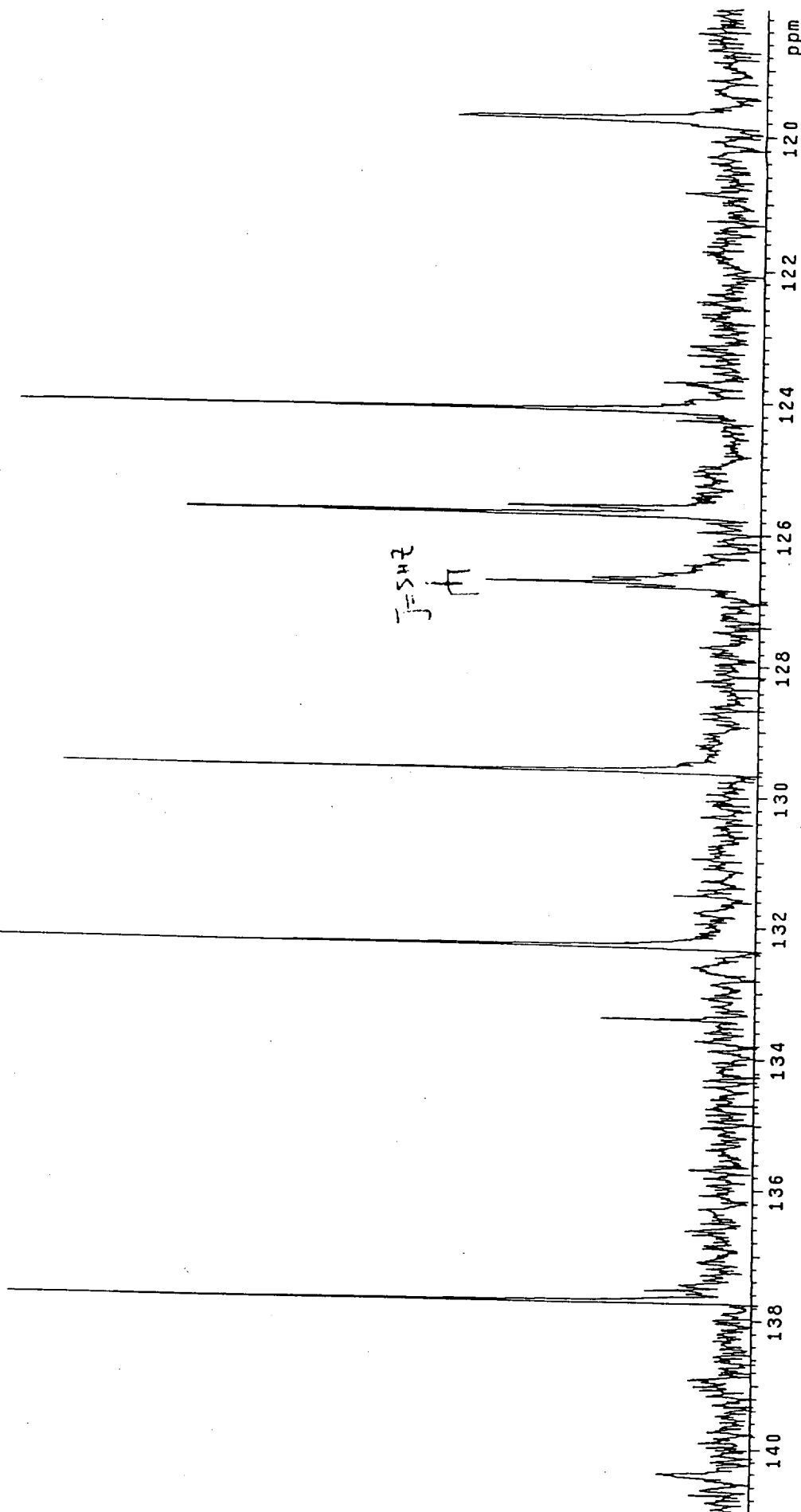
Single precision data

DATA PROCESSING

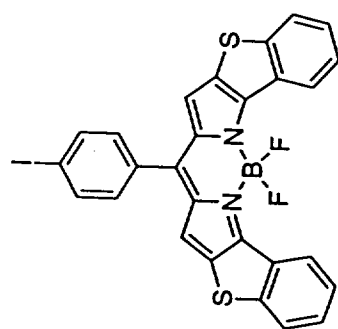
Line broadening 1.0 Hz

FT size 65536

Total time 9.1 hours



S15

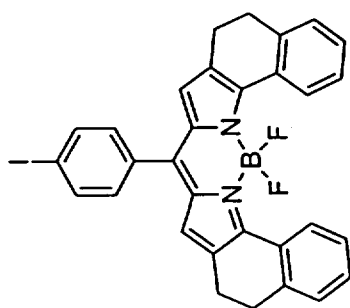


3g
¹⁹F NMR

-146.839
-146.947
-147.055
-147.163

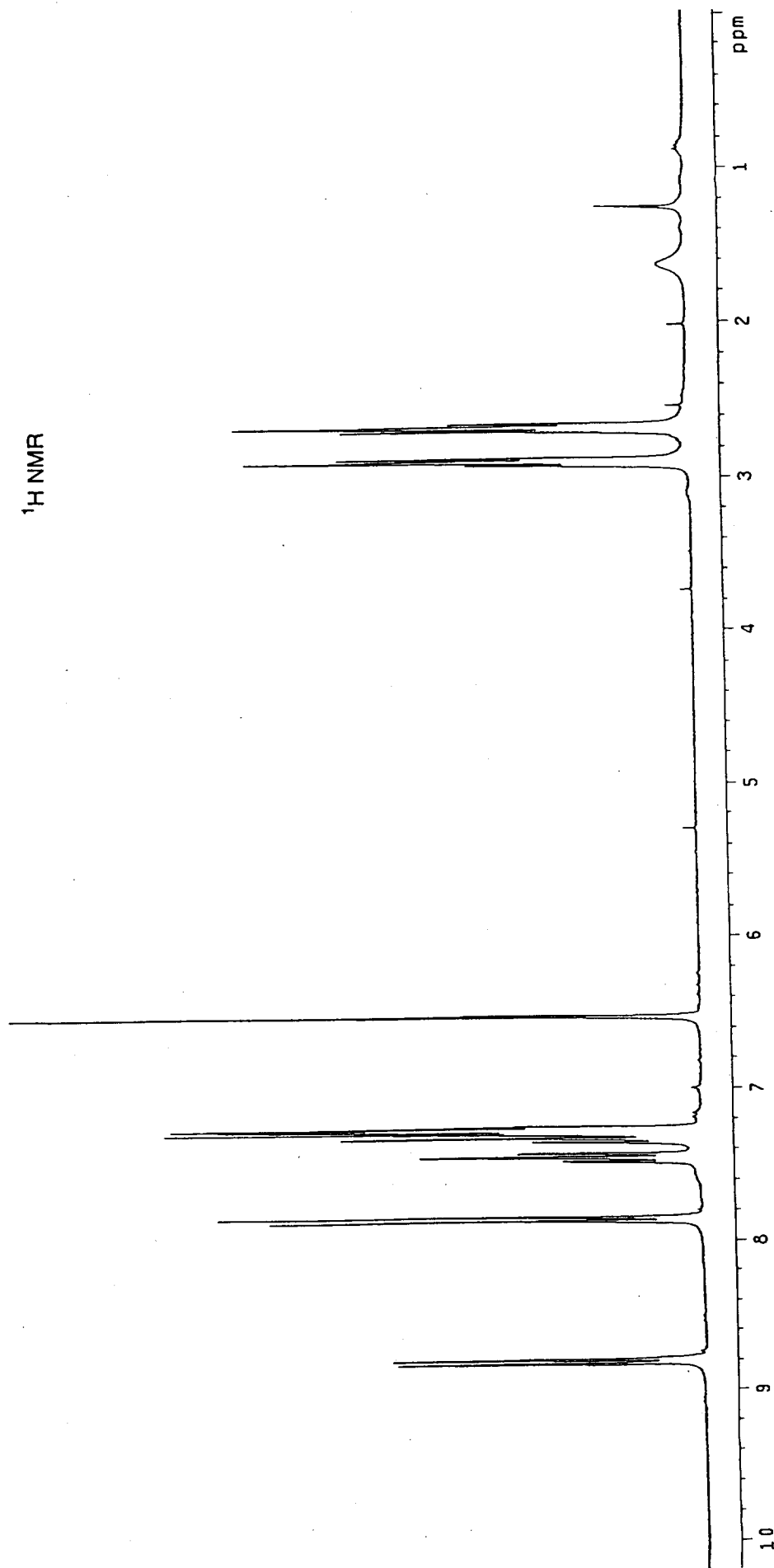
-146.0 -146.2 -146.4 -146.6 -146.8 -147.0 -147.2 -147.4 -147.6 -147.8 ppm

S16



4h

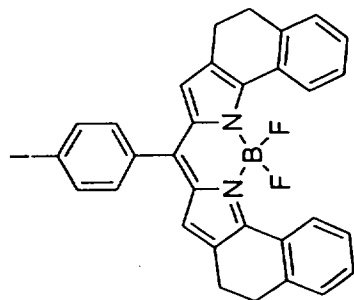
¹H NMR



S17

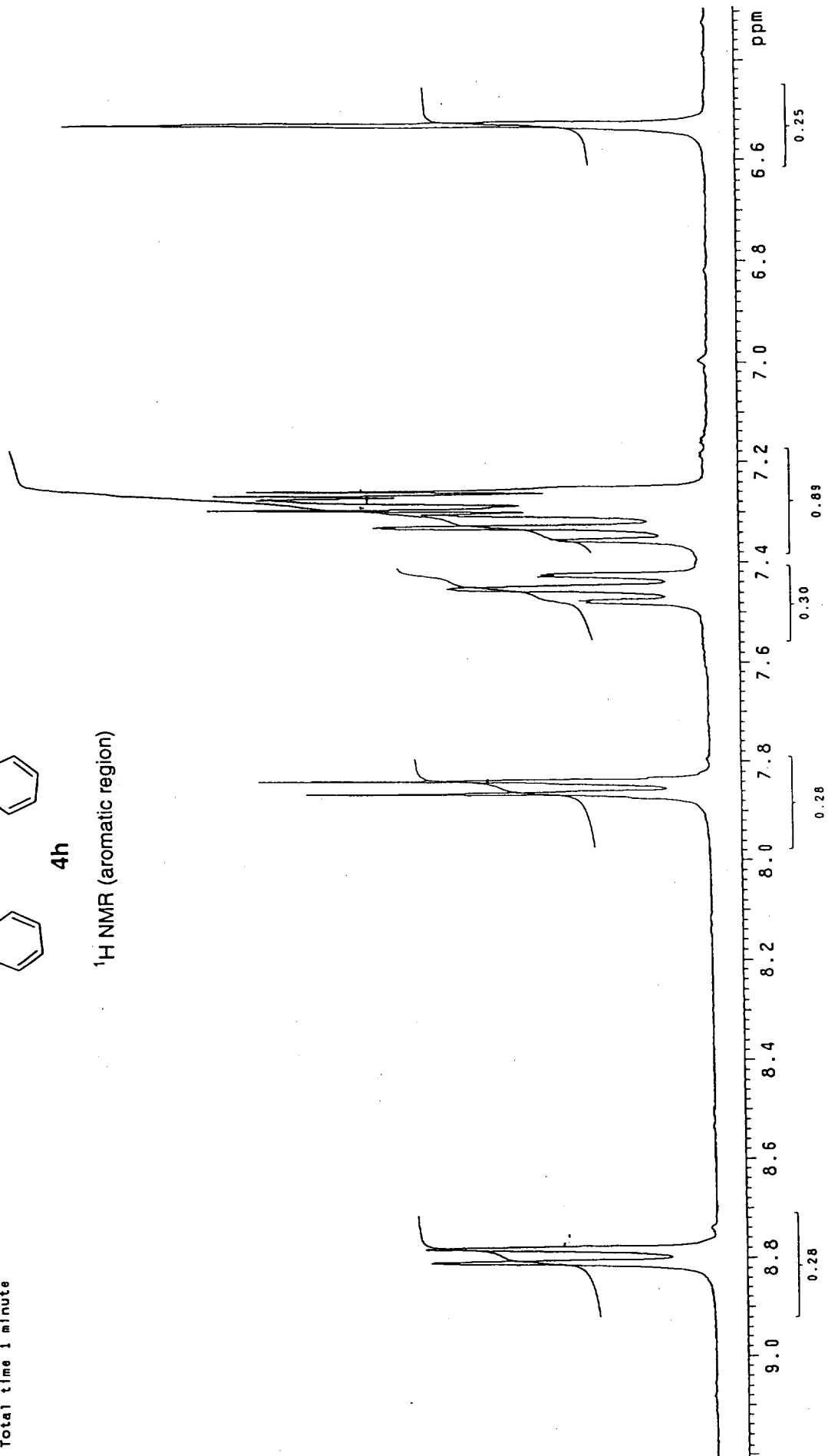
STANDARD 1H OBSERVE

Solvent: cdcl3
 Ambient temperature
 File: JCI156A-H
 UNITYplus-300 "unity300"
 PULSE SEQUENCE
 Relax. delay arrayed
 1st pulse arrayed
 2nd pulse 46.7 degrees
 Acq. time 3.744 sec
 Width 4000.0 Hz
 Arrayed repetitions
 OBSERVE H1, 299.3579354 MHz
 DATA PROCESSING
 FT size 32788
 Total time 1 minute

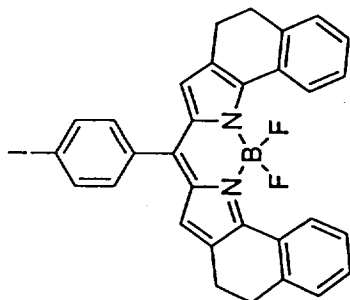


4h

¹H NMR (aromatic region)

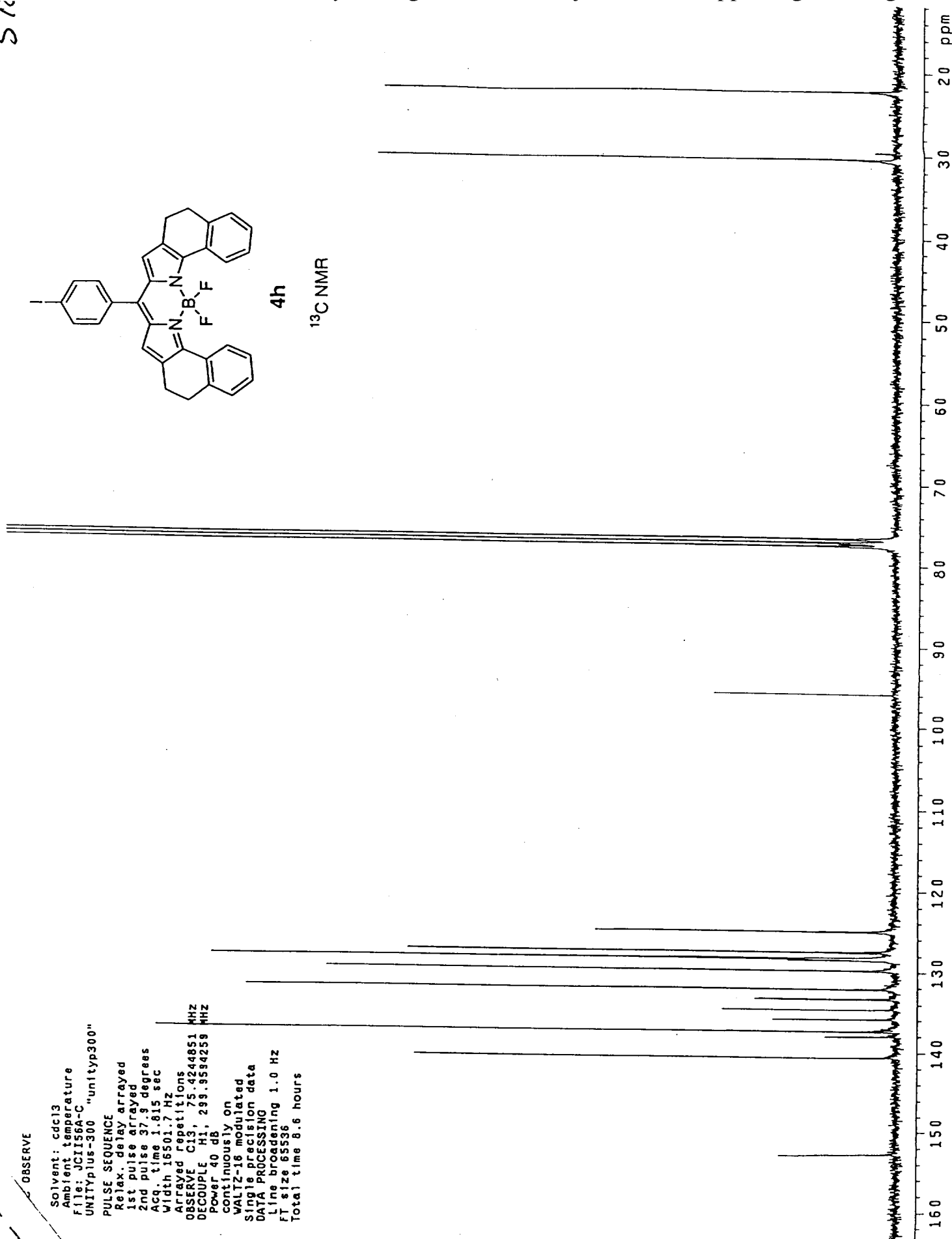


511



4h

¹³C NMR

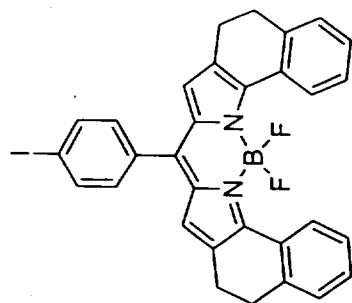


OBSERVE

Solvent: cdcl3
Ambient temperature
File: JCII156A-C
UNITYplus-300 "unity300"
PULSE SEQUENCE
Relax. delay arrayed
1st pulse arrayed
2nd pulse 37.9 degrees
Acq. time 1.815 sec
Width 15501.7 Hz
Arrayed repetitions
OBSERVE C13, 75.4244851 MHz
DECOUPLE H1, 293.9594259 MHz
Power 40 dB
continuously on
WALTZ-16 modulated
Single precision data
DATA PROCESSING
Line broadening 1.0 Hz
FT size 65536
Total time 8.6 hours

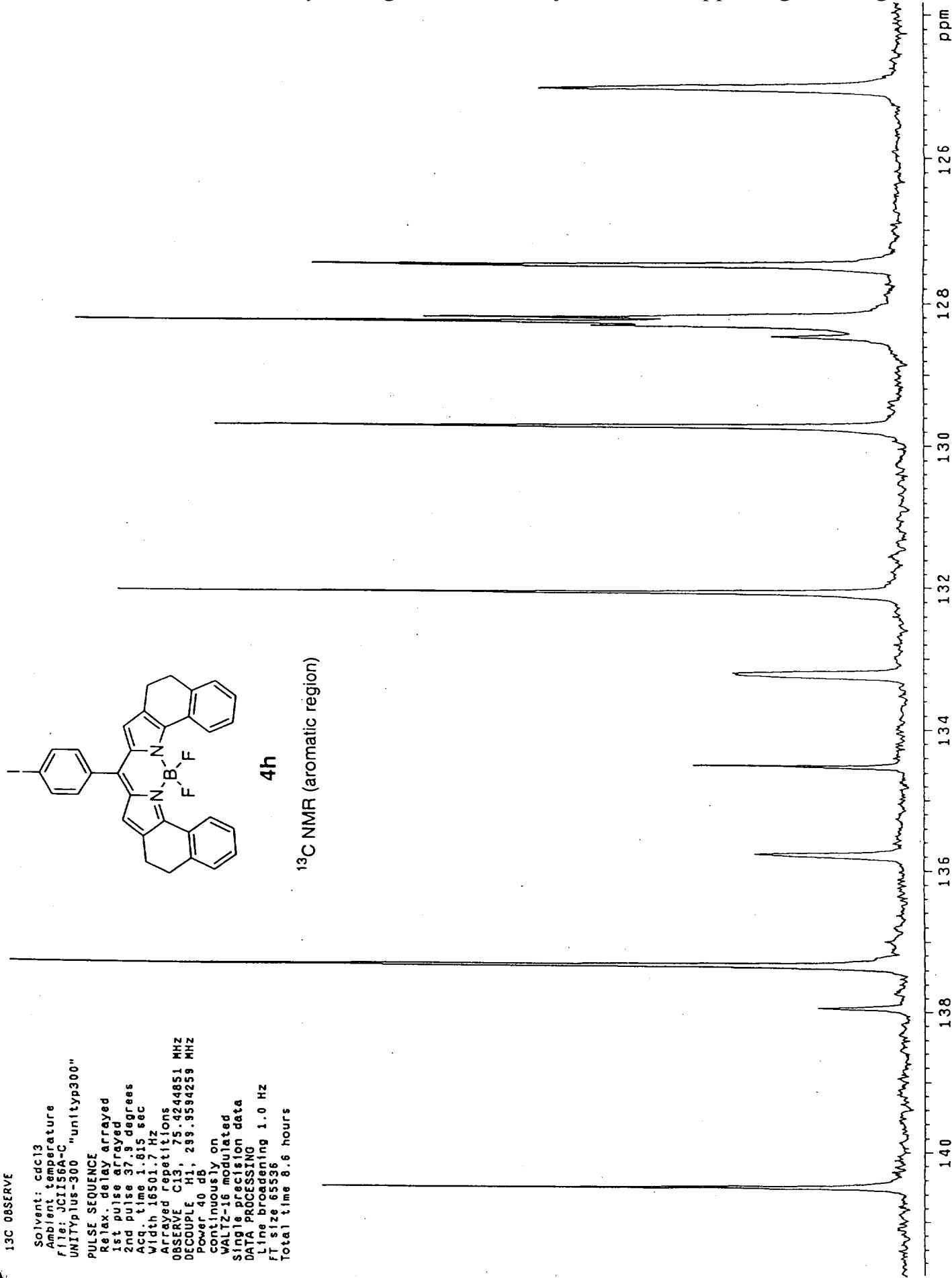
S19

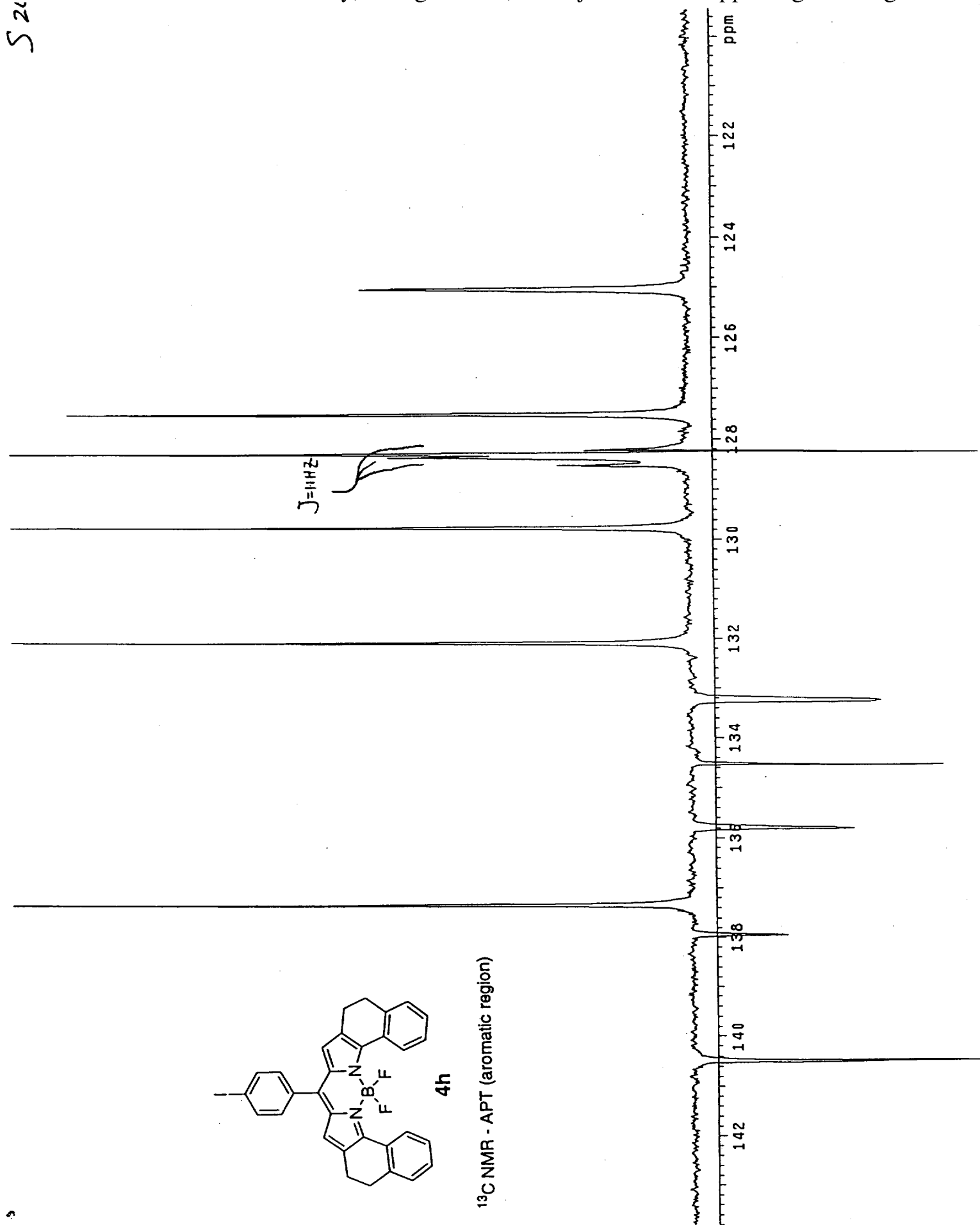
13C OBSERVE
Solvent: cdcl3
Ambient temperature
File: JC1156A-C
UNITYplus-300 "unityp300"
PULSE SEQUENCE
Relax. delay arrayed
1st pulse arrayed
2nd pulse 37.9 degrees
Acq. time 1.815 sec
Width 16501.7 Hz
Arrayed repetitions
OBSERVE C13, 75.4244851 MHz
DECOUPLE H1, 238.9594259 MHz
Power 40 dB
continuously on
WALTZ-16 modulated
Single precision data
DATA PROCESSING
Line broadening 1.0 Hz
FT size 65536
Total time 8.6 hours



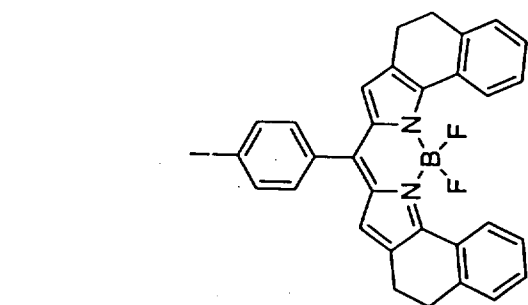
4h

¹³C NMR (aromatic region)



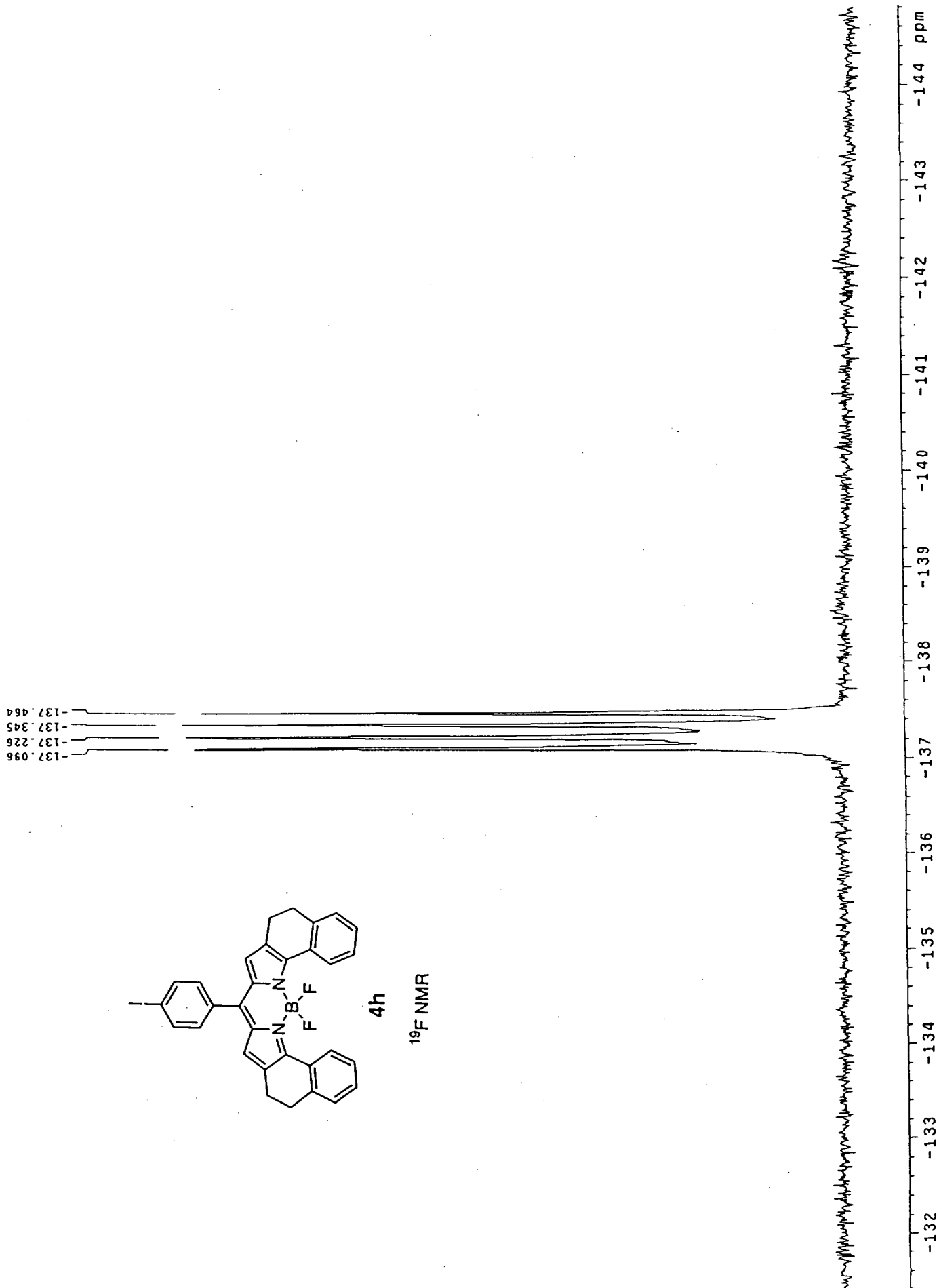


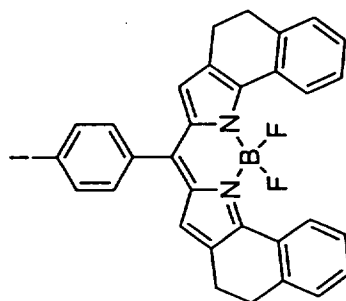
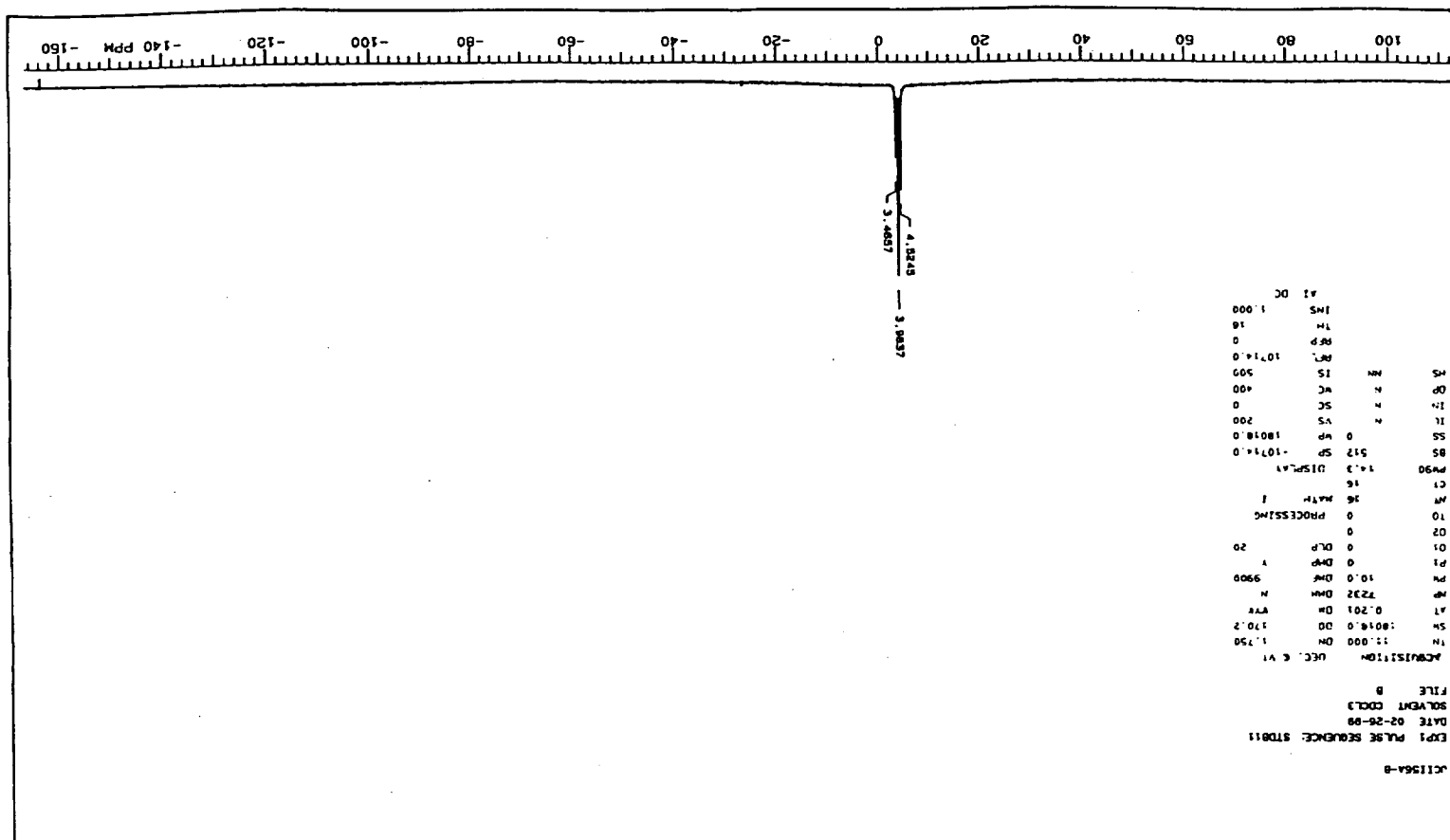
S24



4h

^{19}F NMR

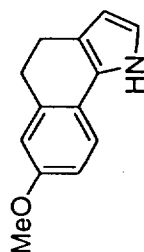




4h

¹¹B NMR

S 23



8i

¹H NMR

NDARD 1H OBSERVE

Solvent: cdcl3
Ambient temperature
P1: 1.500 "unityp900"

PULSE SEQUENCE

Relax. delay arrayed

1st pulse arrayed

2nd pulse 60.0 degrees

Acq. time 3.744 sec

Width 4000.0 Hz

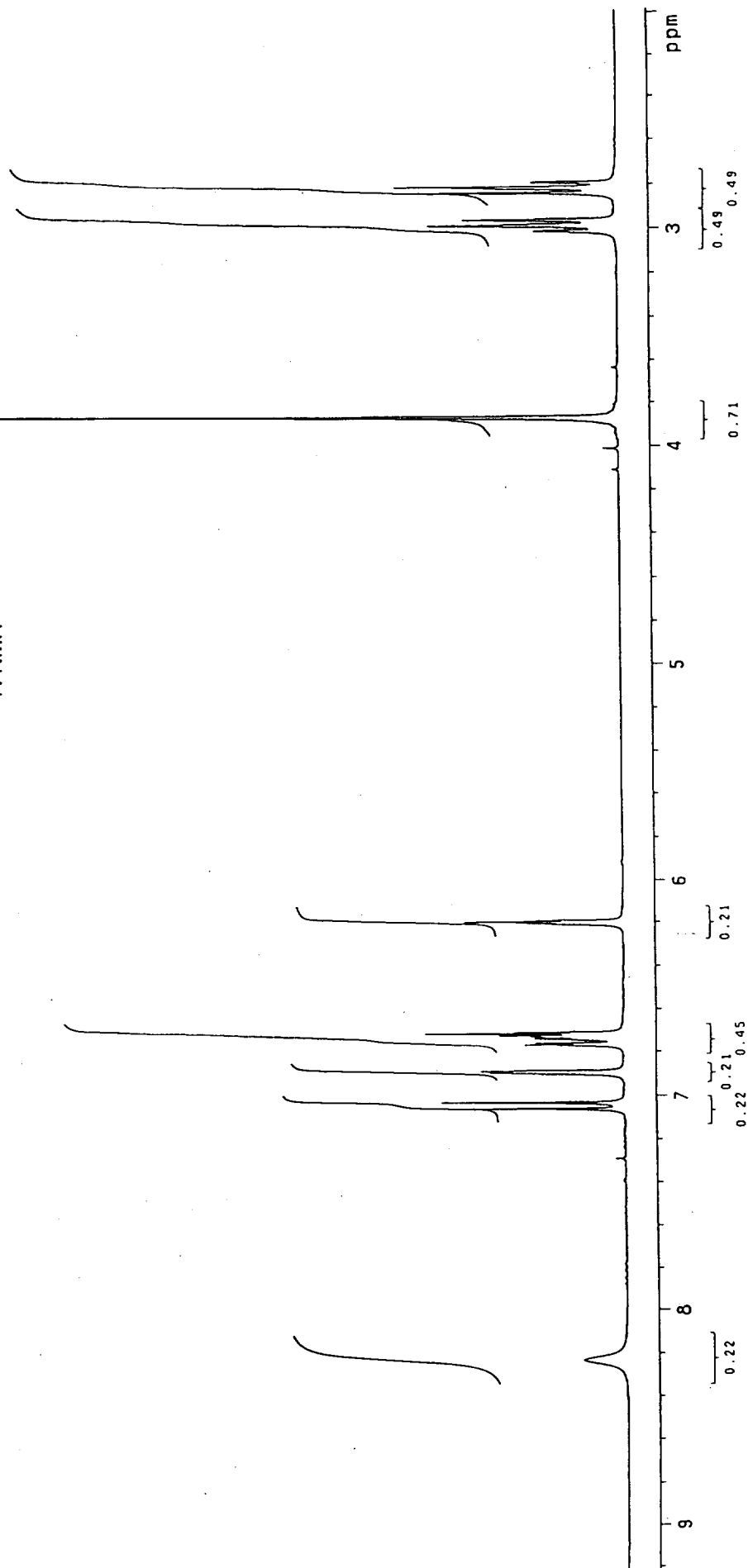
Arrayed repetitions

OBSERVE H1: 299.9579261 MHz

DATA PROCESSING

F1 size 32788

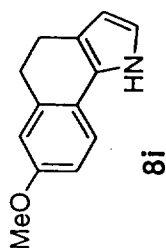
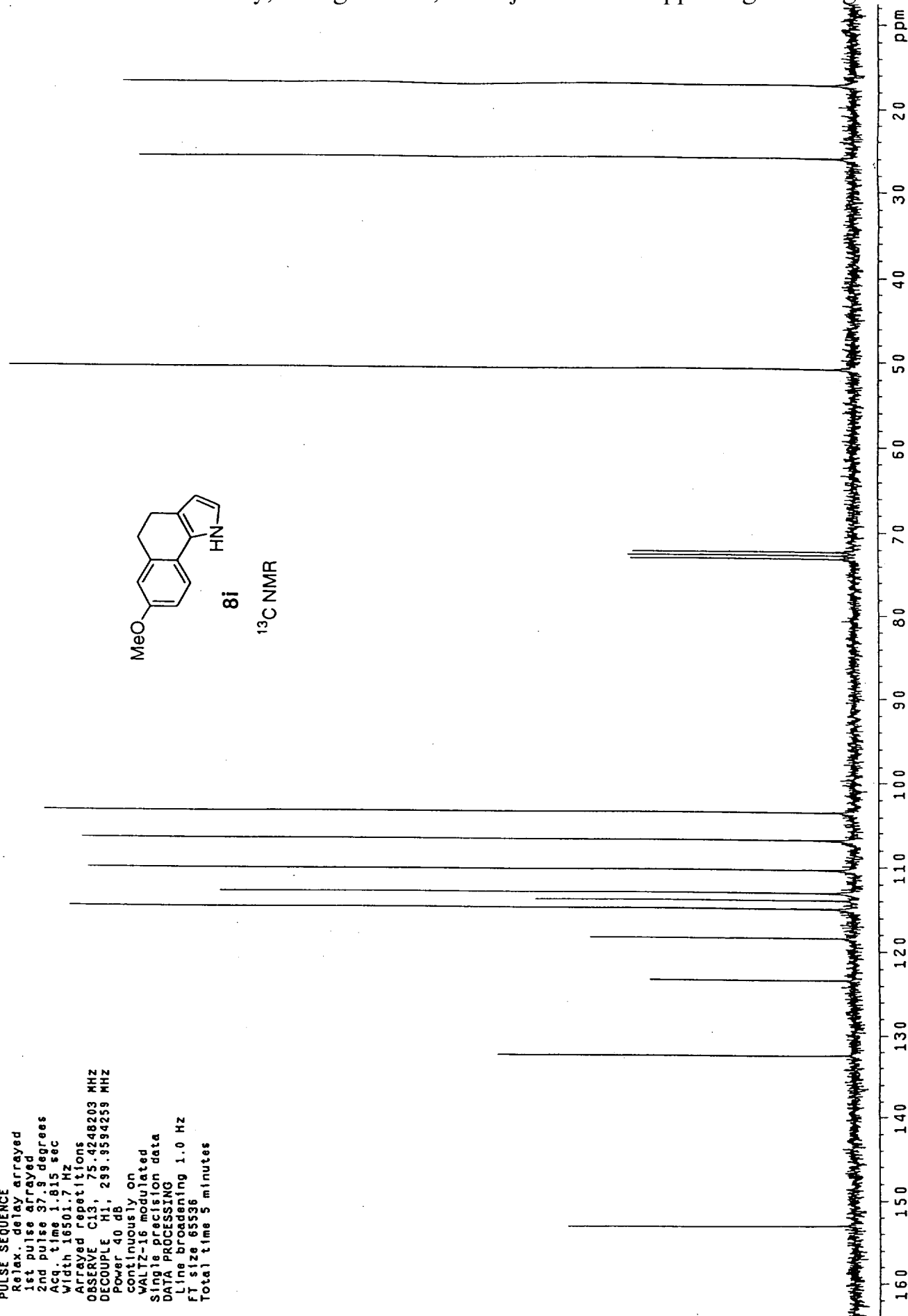
Total time 1 minute



S24

¹³C OBSERVE

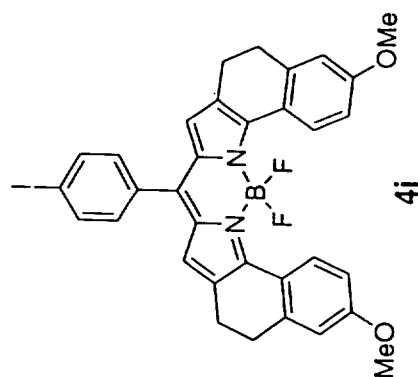
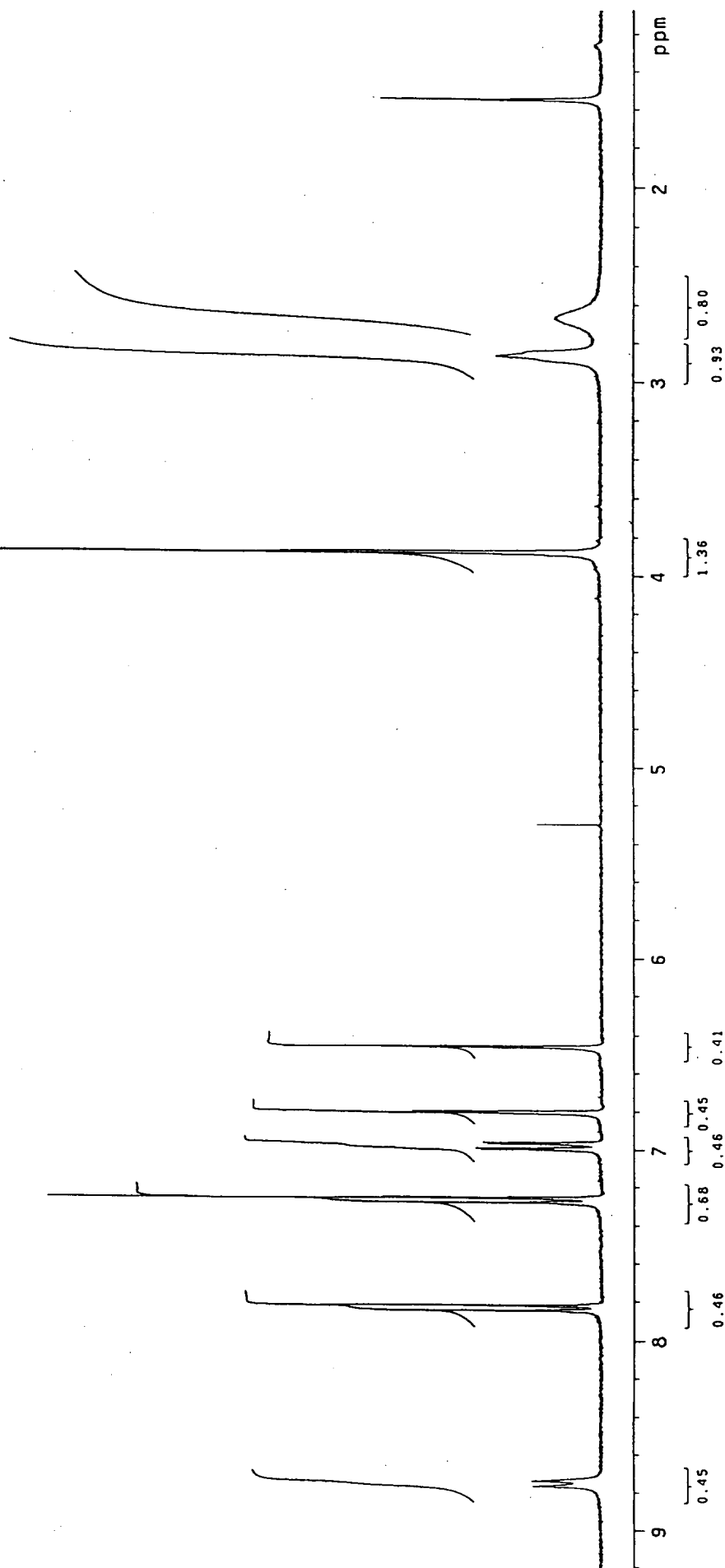
Solvent: cdcl3
 Ambient temperature
 UNITYplus-300 "unityp300"
 PULSE SEQUENCE
 Relax. delay arrayed
 1st pulse arrayed
 2nd pulse 37.8 degrees
 Acq. time 1.815 sec
 Width 16501.7 Hz
 Arrayed repetitions
 OBSERVE G13, 75.4248203 MHz
 DECOUPLE H1, 299.8594259 MHz
 Power 40 dB
 continuously on
 VALT2-16 modulated
 Single precision data
 DATA PROCESSING
 Line broadening 1.0 Hz
 FT size 65536
 Total time 5 minutes

¹³C NMR

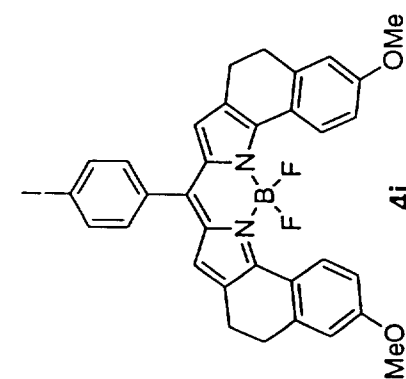
S25

STANDARD 1H OBSERVE

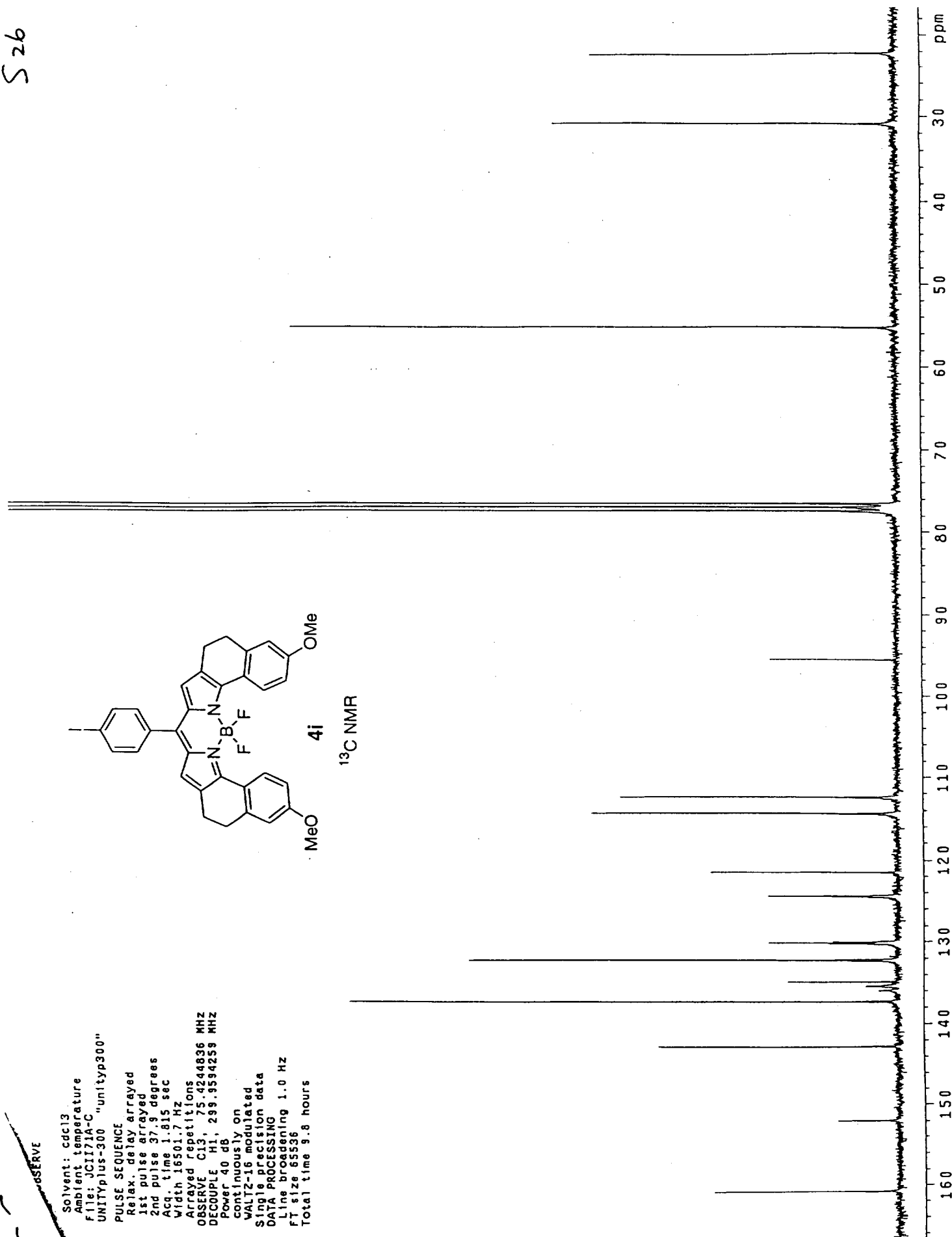
Solvent: cdcl3
Ambient temperature
File: JCII71A-H
UNITplus-300 "unityp300"
PULSE SEQUENCE
Relax, delay arrayed
1st pulse arrayed
2nd pulse 60.0 degrees
Acq. time 3.744 sec
Width 4000.0 Hz
Arrayed repetitions
OBSERVE H1, 299.9579356 MHz
DATA PROCESSING
FT size 32768
Total time 1 minute

¹H NMR

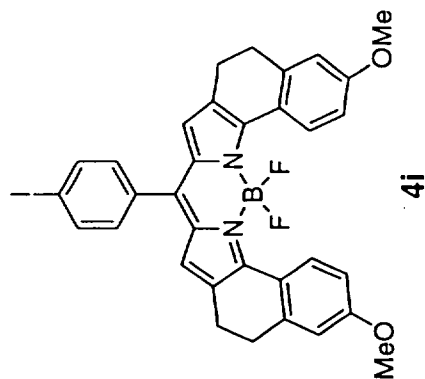
S26

¹³C NMR

Solvent: cdcl3
 Ambient temperature
 File: JC1171A-C
 UNITYplus-300 "unityp300"
 PULSE SEQUENCE
 Relax. delay arrayed
 1st pulse arrayed
 2nd pulse 37.9 degrees
 Acq. time 1.815 sec
 Width 16501.7 Hz
 Arrayed repetitions
 OBSERVE C13, 75.4244836 MHz
 DECOUPLE H1, 239.9594259 MHz
 Power 40 dB
 continuously on
 WALTZ-16 modulated
 Single precision data
 DATA PROCESSING
 Line broadening 1.0 Hz
 FT size 65536
 Total time 9.8 hours



S27

¹³C NMR (aromatic region)¹³C OBSERVE

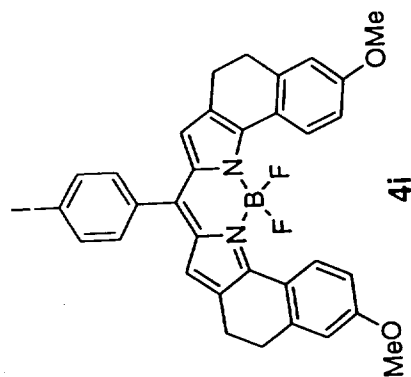
Solvent: cdc13
 Ambient temperature
 File: JCII71A-C
 UNITYplus-300 "unityp300"
 PULSE SEQUENCE
 Relax delay arrayed
 1st pulse arrayed
 2nd pulse 37.9 degrees
 Acq. time 1.815 sec
 Width 16501.7 Hz
 Arrayed repetitions
 OBSERVE C13, 75.4244836 MHz
 DECOUPLE H1, 299.9594259 MHz
 Power 40 dB
 continuously on
 WALTZ-16 modulated
 Single precision data
 DATA PROCESSING
 Line broadening 1.0 Hz
 FT size 65536
 Total time 9.8 hours

J=11.5 Hz



160 150 140 130 120 110 100 ppm

S28



4j

¹⁹F NMR

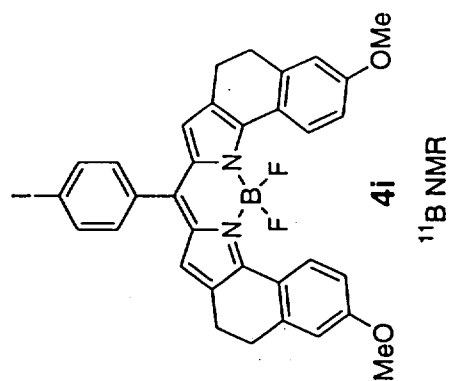
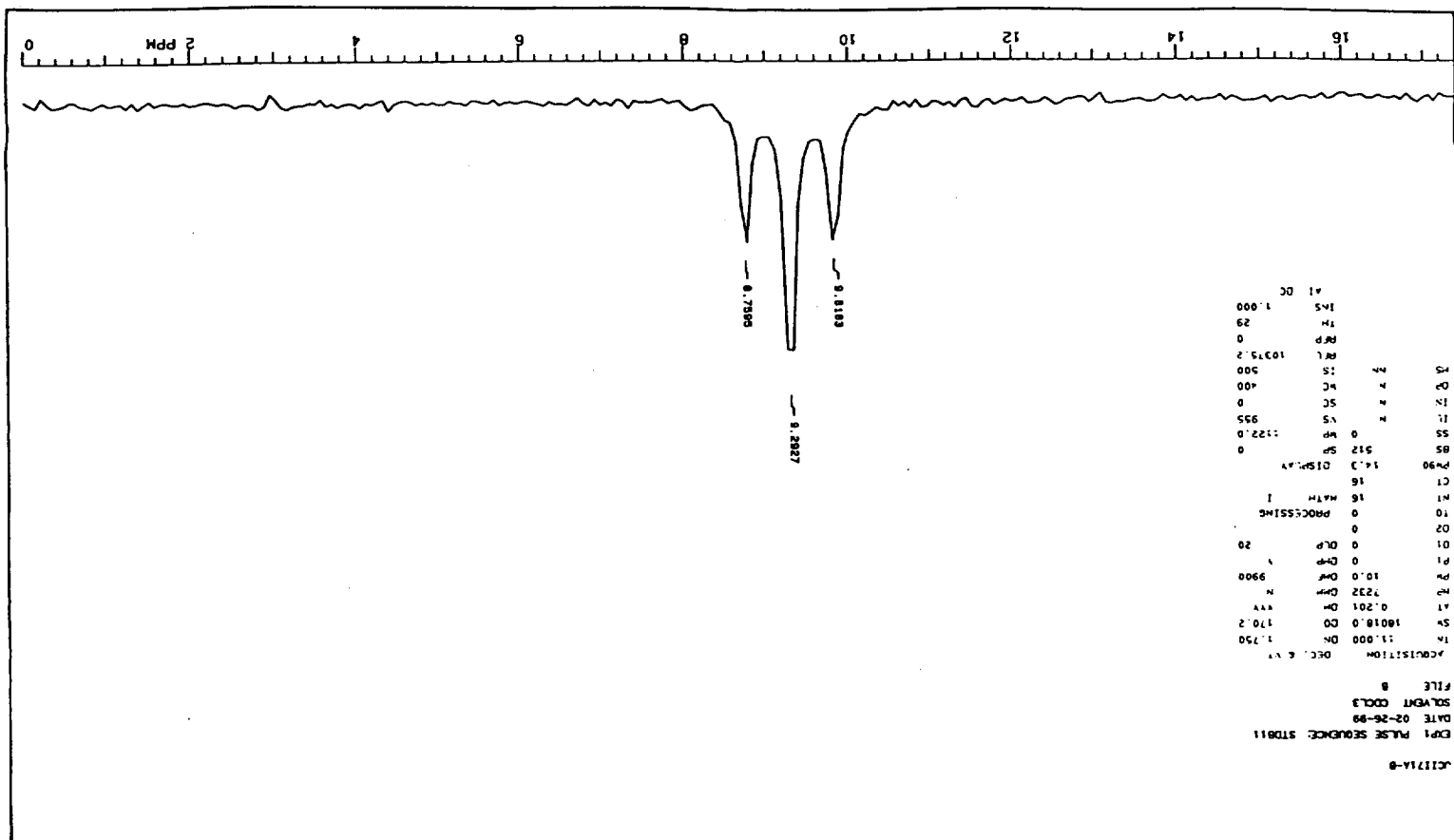
Chlong Chen sample JC II 71 A
F19 referenced to external CFCl3

exp4 s2pu1

SAMPLE		DEC. & VT	
date	Aug 10 99	dfrq	470.267
solvent	acetone	dn	F19
file	exp	dpwr	46
ACQUISITION		ddr	-14842.8
sfrq	470.267	dm	n
tn	F19	dm	9100
at	0.631	daf	1.0
np	27648	dseq	25.0
tw	21893.8	dres	100
fb	12000	homo	DEC2
bs	100	temp	499.858
tpwr	50	dfrq2	H1
dl	18.0	dn2	20
tof	-15125.4	dpwr2	0
nt	32	ddr2	0
ct	32	dm2	n
clock	40	daf2	10000
gain	40	dseq2	1.0
FLAGS		dres2	n
l1	n	homo2	1.0
l2	n	homo2	n
dp	nn	vrfile	ft
hs	nn	proc	not used
DISPLAY		fn	f
sp	-66882.9	math	
vp	4232.4	werr	
vs	1226	wexp	wft
sc	0	wbs	wft
vc	250	wnt	
hzmm	17.17		
ls	500.00		
rfl	75886.1		
rfp	0		
th	80		
ins	1.000		
al	cdc		
ph			

-137.419
-137.493
-137.567
-137.638

ppm
-134
-135
-136
-137
-138
-139
-140
-141

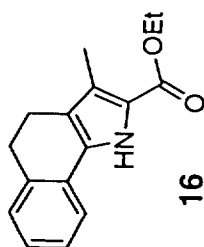
¹¹B NMR

4i

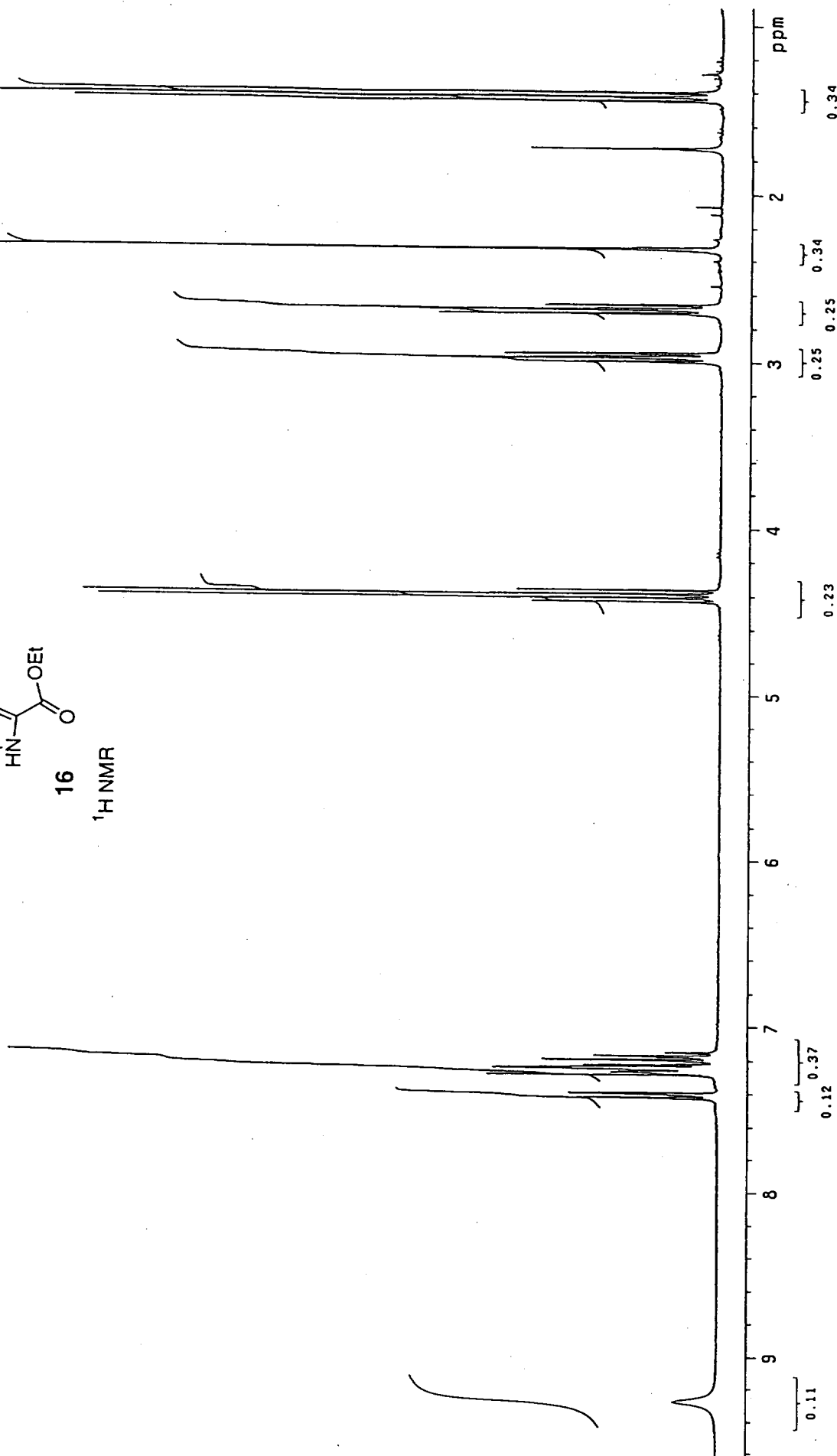
S31

STANDARD 1H OBSERVE

Solvent: cdcl3
 Ambient temperature
 UNITYplus-300 "unity300"
 PULSE SEQUENCE
 Relax. delay arrayed
 1st pulse arrayed
 2nd pulse 63.6 degrees
 Acq. time 3.744 sec
 Width 4000.0 Hz
 Arrayed repetitions
 OBSERVE H1: 299.3579261 MHz
 DATA PROCESSING
 FT size 32768
 Total time 1 minute



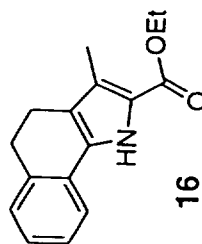
¹H NMR



S3

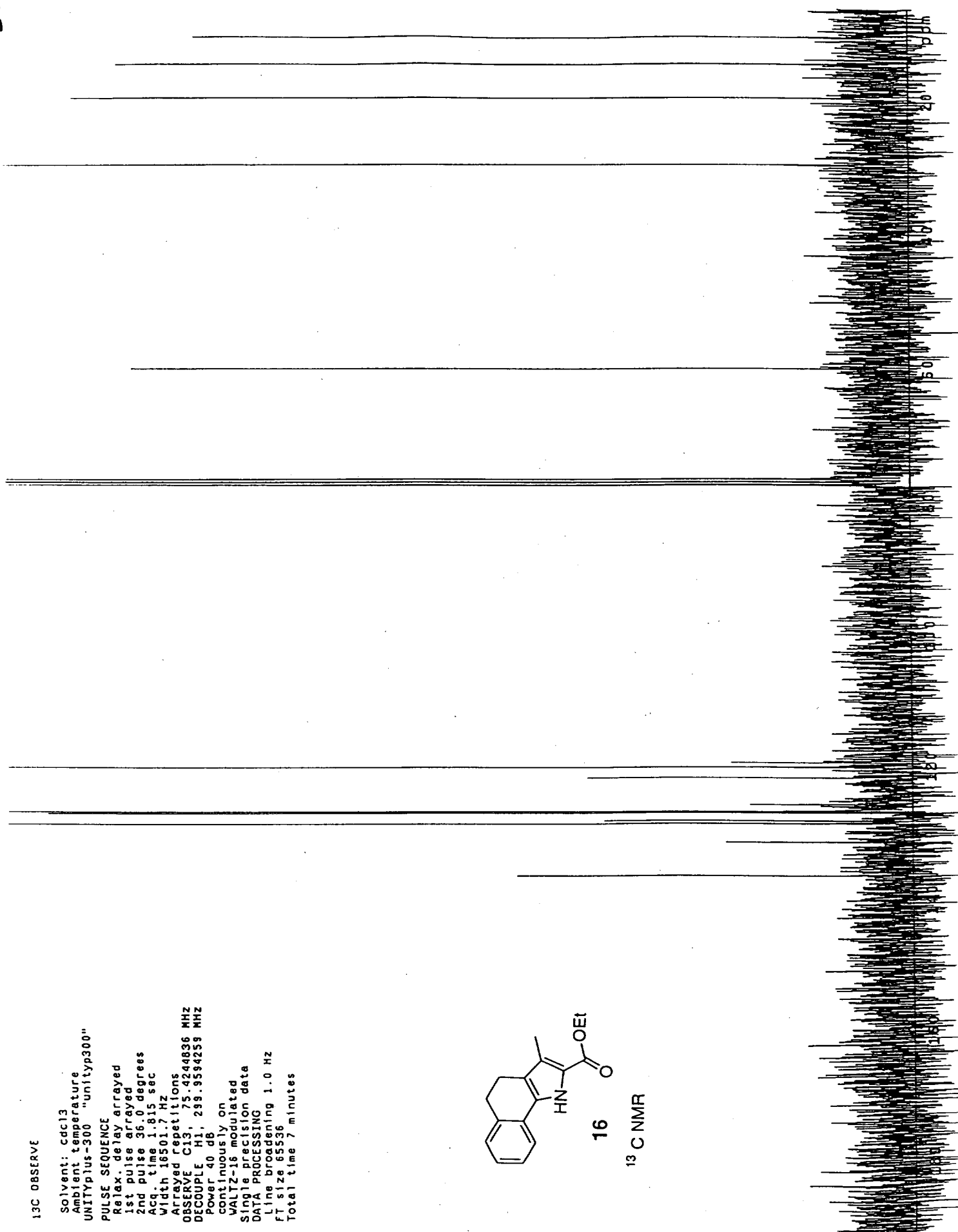
13C OBSERVE

Solvent: cdcl3
 Ambient temperature
 UNITYplus-300 "unity300"
 PULSE SEQUENCE
 Relax. delay arrayed
 1st pulse arrayed
 2nd pulse 36.0 degrees
 Acq. time 1.815 sec
 Width 16501.7 Hz
 Arrayed repetitions
 OBSERVE C13, 75.4244836 MHz
 DECOUPLE H1, 299.9594259 MHz
 Power 40 dB
 continuously on
 WALTZ-16 modulated
 Single precision data
 DATA PROCESSING
 Line broadening 1.0 Hz
 FT size 65536
 Total time 7 minutes



16

¹³C NMR



S3

AD 1H OBSERVE

nt: acetone

nt temperature

us-300 "unityp300"

SEQUENCE

delay arrayed

2nd pulse arrayed

Acq. time 63.6 degrees

width 3.744 sec

width 4000.0 Hz

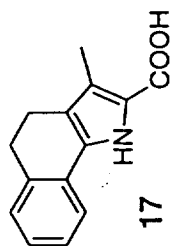
Arrayed repetitions

OBSERVE H1 298.9594829 MHz

DATA PROCESSING

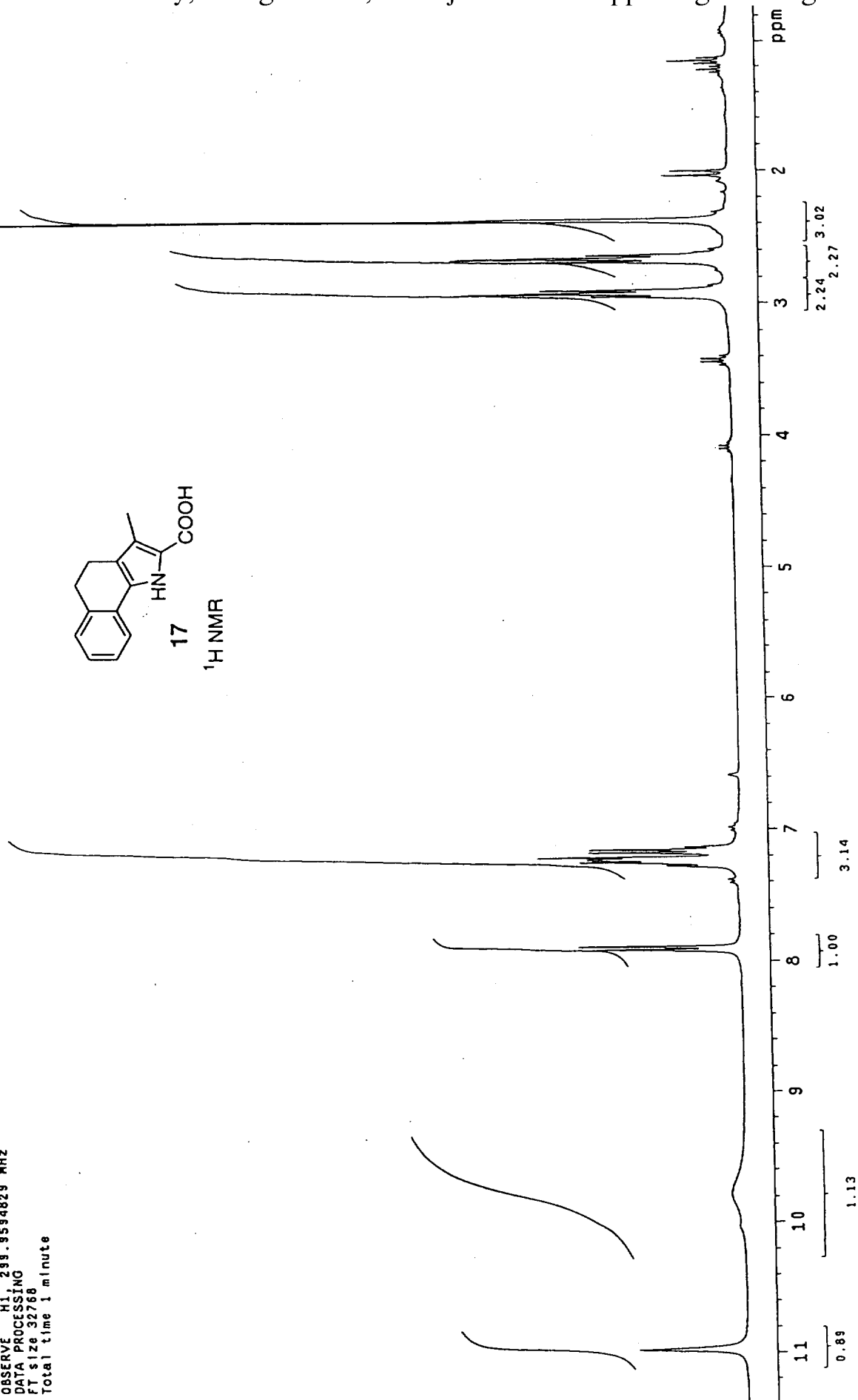
FT size 32768

Total time 1 minute



17

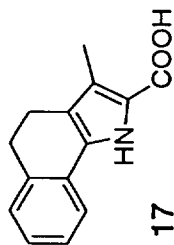
¹H NMR



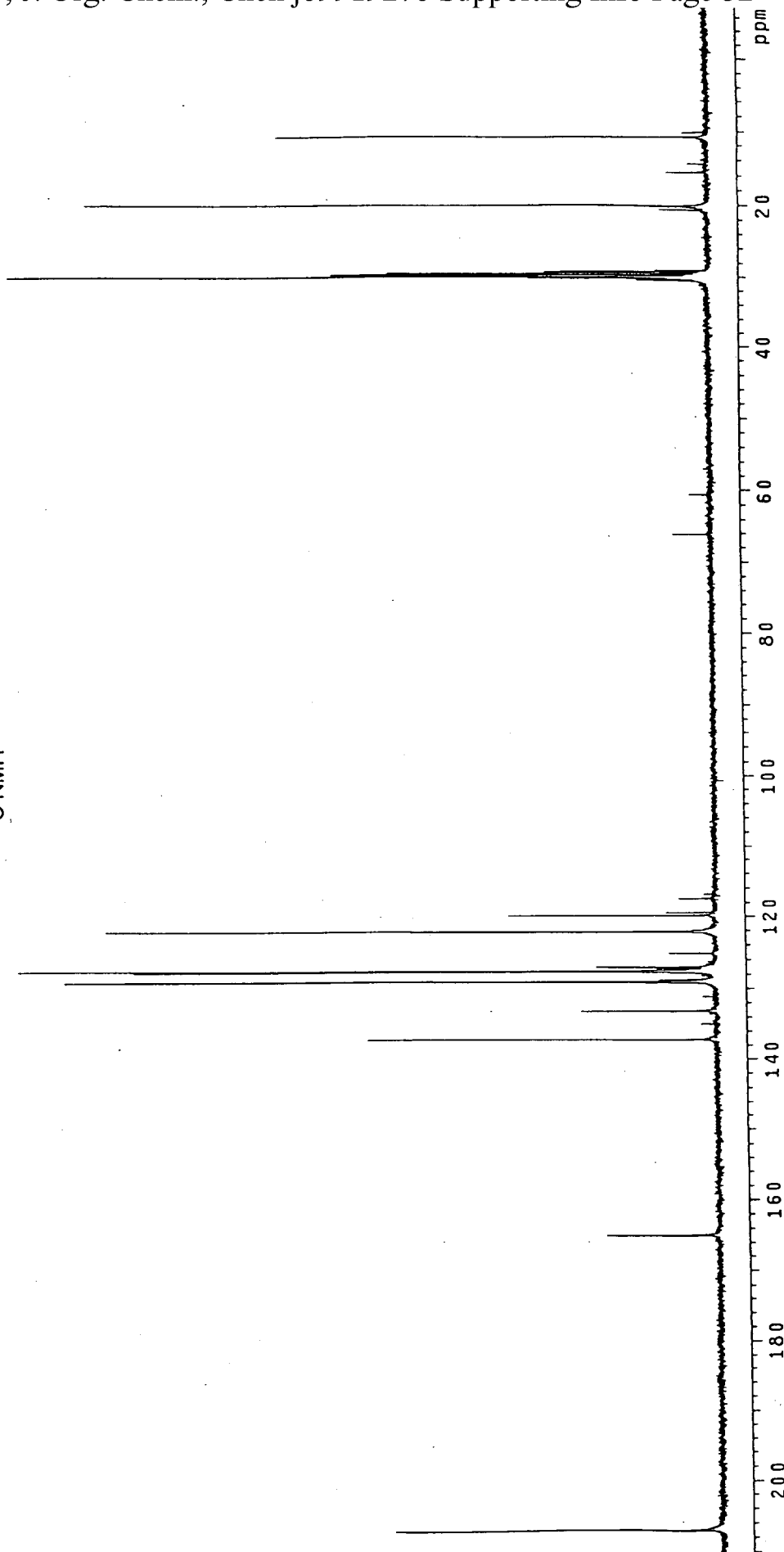
S 33

13C OBSERVE

Solvent: acetone
 Ambient temperature
 UNITYplus-300 "unityp300"
 PULSE SEQUENCE
 Relax. delay arrayed
 1st pulse arrayed
 2nd pulse 36.0 degrees
 Acq. time 1.815 sec
 Width 16501.7 Hz
 Arrayed repetitions
 OBSERVE C13, 75.4248191 MHz
 DECOUPLE H1, 299.9609827 MHz
 Power 40 dB
 continuously on
 WALTZ-16 modulated
 Single precision data
 DATA PROCESSING
 Line broadening 1.0 Hz
 FT size 65536
 Total time 17 minutes



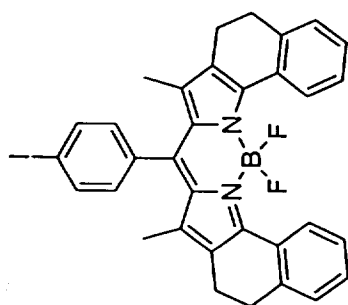
13C NMR



S34

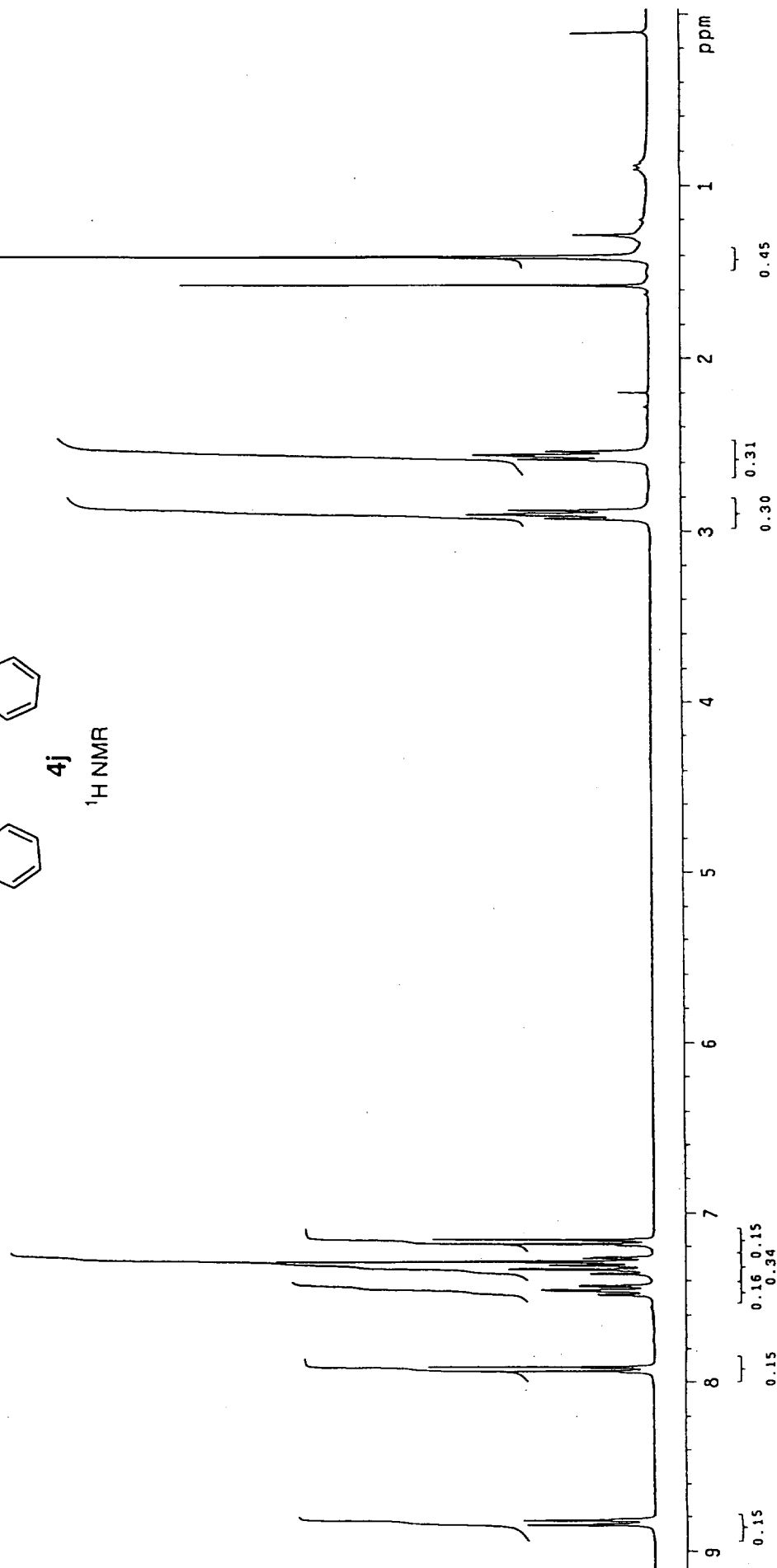
STANDARD 1H OBSERVE

Solvent: cdcl3
 Ambient temperature
 UNITYplus-300 "unityp300"
 PULSE SEQUENCE
 Relax. delay arrayed
 1st pulse arrayed
 2nd pulse 63.6 degrees
 Acq. time 3.744 sec
 Width 4000.0 Hz
 Arrayed repetitions
 OBSERVE H1 299.9579261 MHz
 DATA PROCESSING
 F1 size 32768
 Total time 1 minute

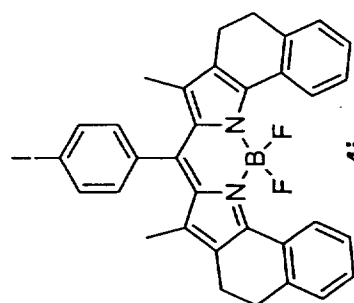


4j

¹H NMR

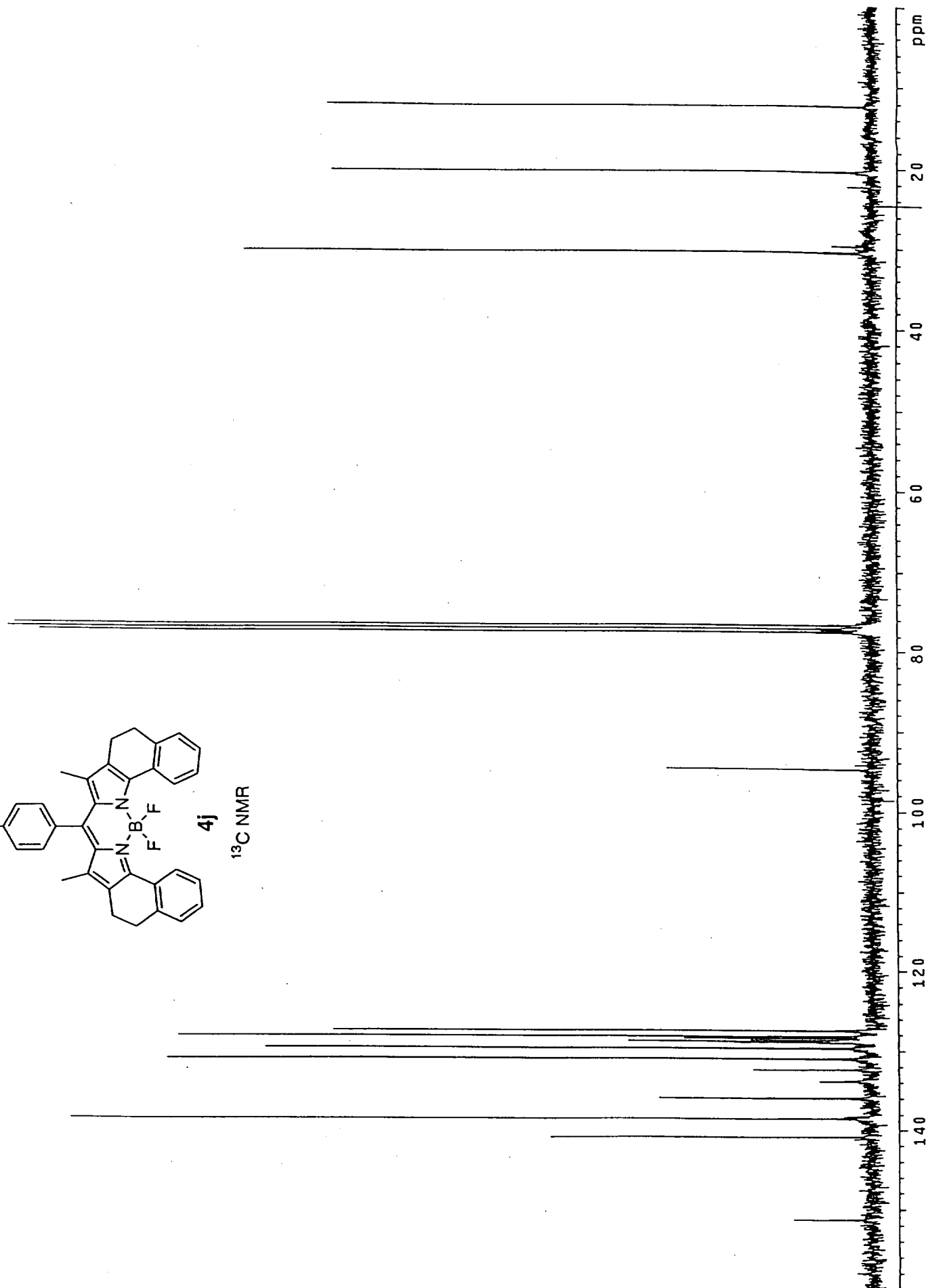


S35

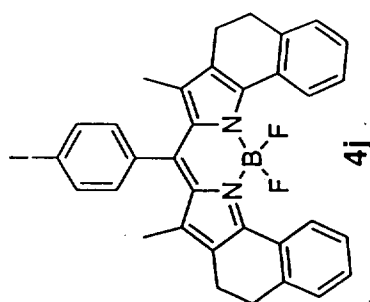


4j

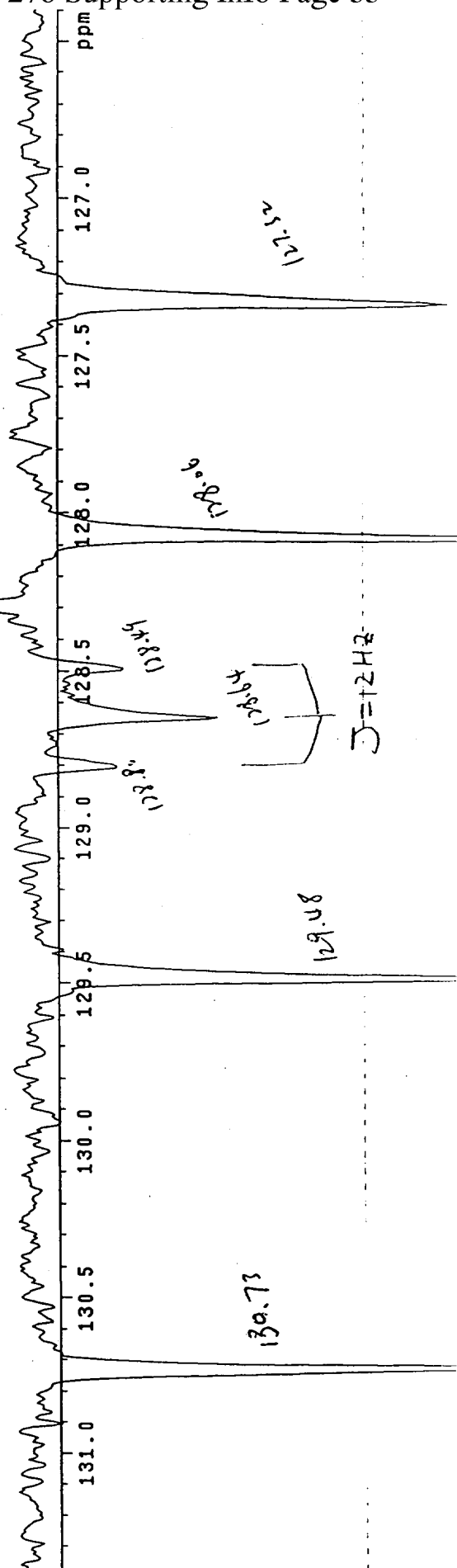
^{13}C NMR



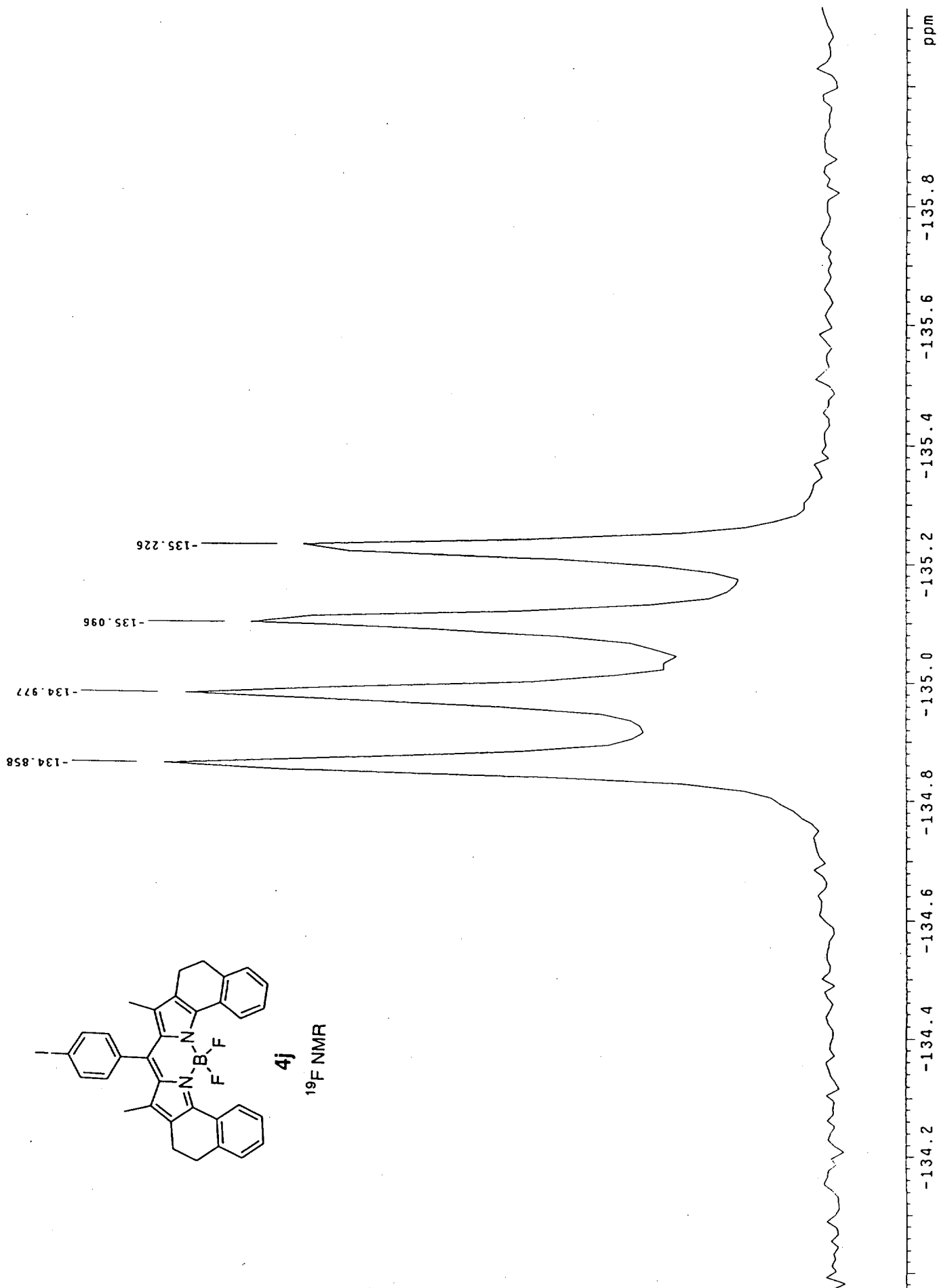
S36



¹³C NMR-APT (aromatic region)



S37



S 38

B-11 STANDARD
BORON TRIFLUORIDE ETHERATE
360 PW DETERMINATION

Pulse Sequence: s2pul

Solvent: cdcl3

Ambient temperature

User: lthai

File: long

UNITYplus-300 "nmrsun2"

PULSE SEQUENCE

Pulse 62.9 degrees

Acq. time 0.08 sec

Width 6544.5 Hz

128 repetitions

OBSERVE F77, 64.1842042 MHz

DECOUPLE H1, 200.0569916 MHz

Power 30 dB

continuously on

noise modulated

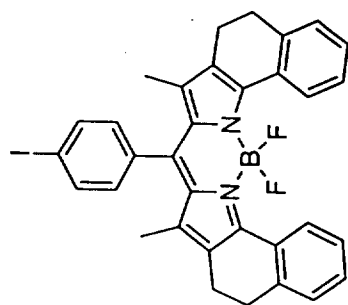
Single precision data

DATA PROCESSING

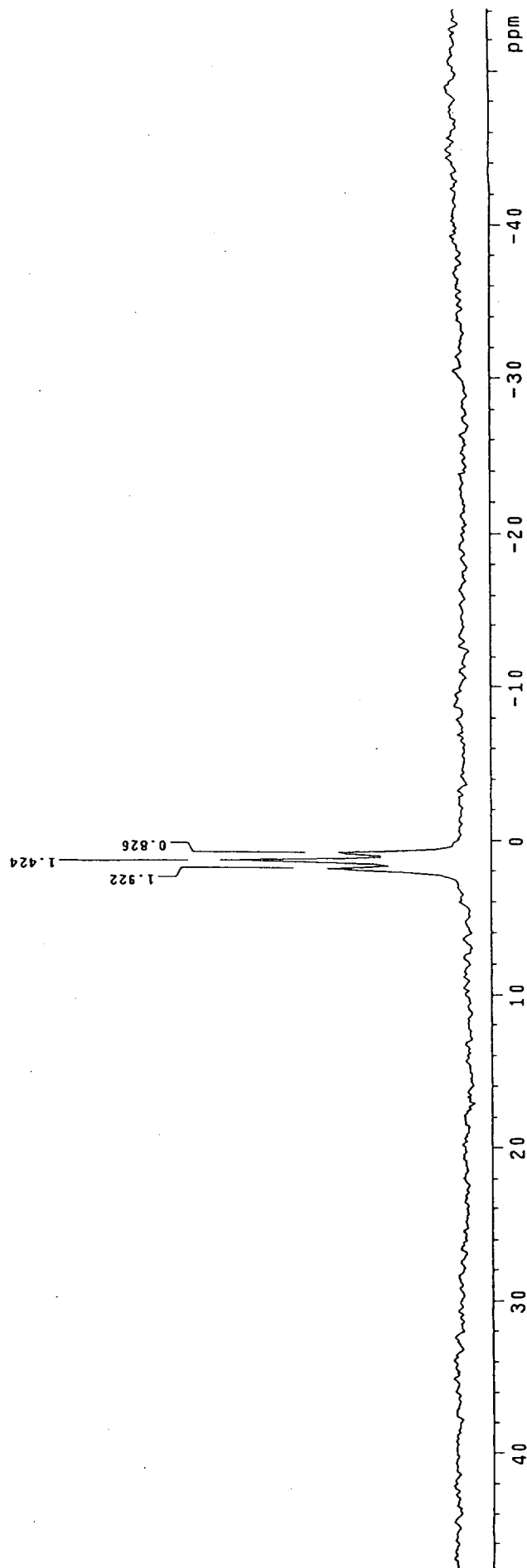
Line broadening 10.0 Hz

FT size 2048

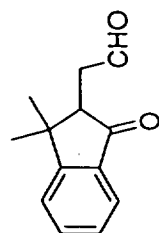
Total time 0 min, 13 sec



4j

¹¹B NMR

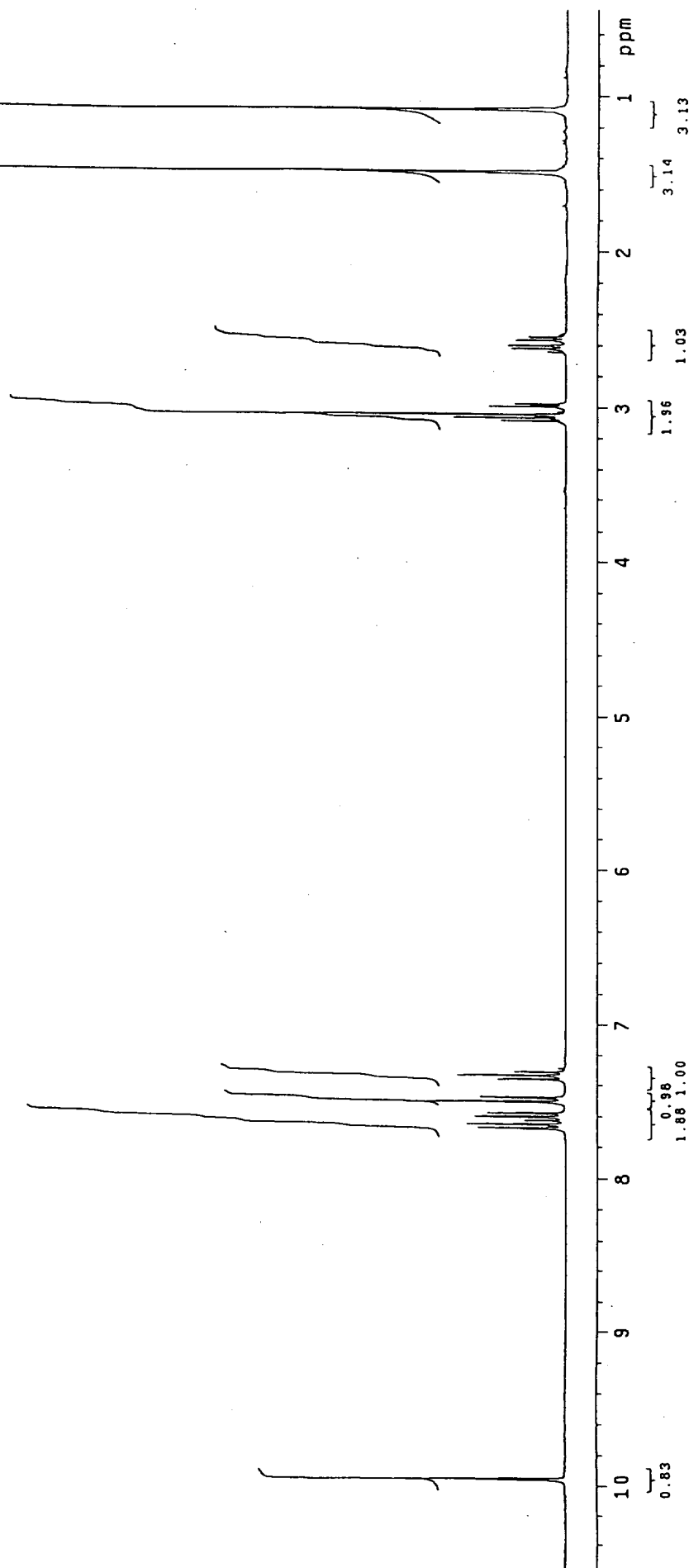
S3



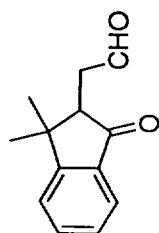
12
¹H NMR

STANDARD 1H OBSERVE

Solvent: cdcl3
Ambient temperature
UNITYplus-300 "untyp300"
PULSE SEQUENCE
Relax. delay arrayed
1st pulse arrayed
2nd pulse 60.0 degrees
Acq. time 3.744 sec
Width 4000.0 Hz
Arrayed repetitions
OBSERVE H1, 299.9579261 MHz
DATA PROCESSING
FT size 32768
Total time 1 minute



S4

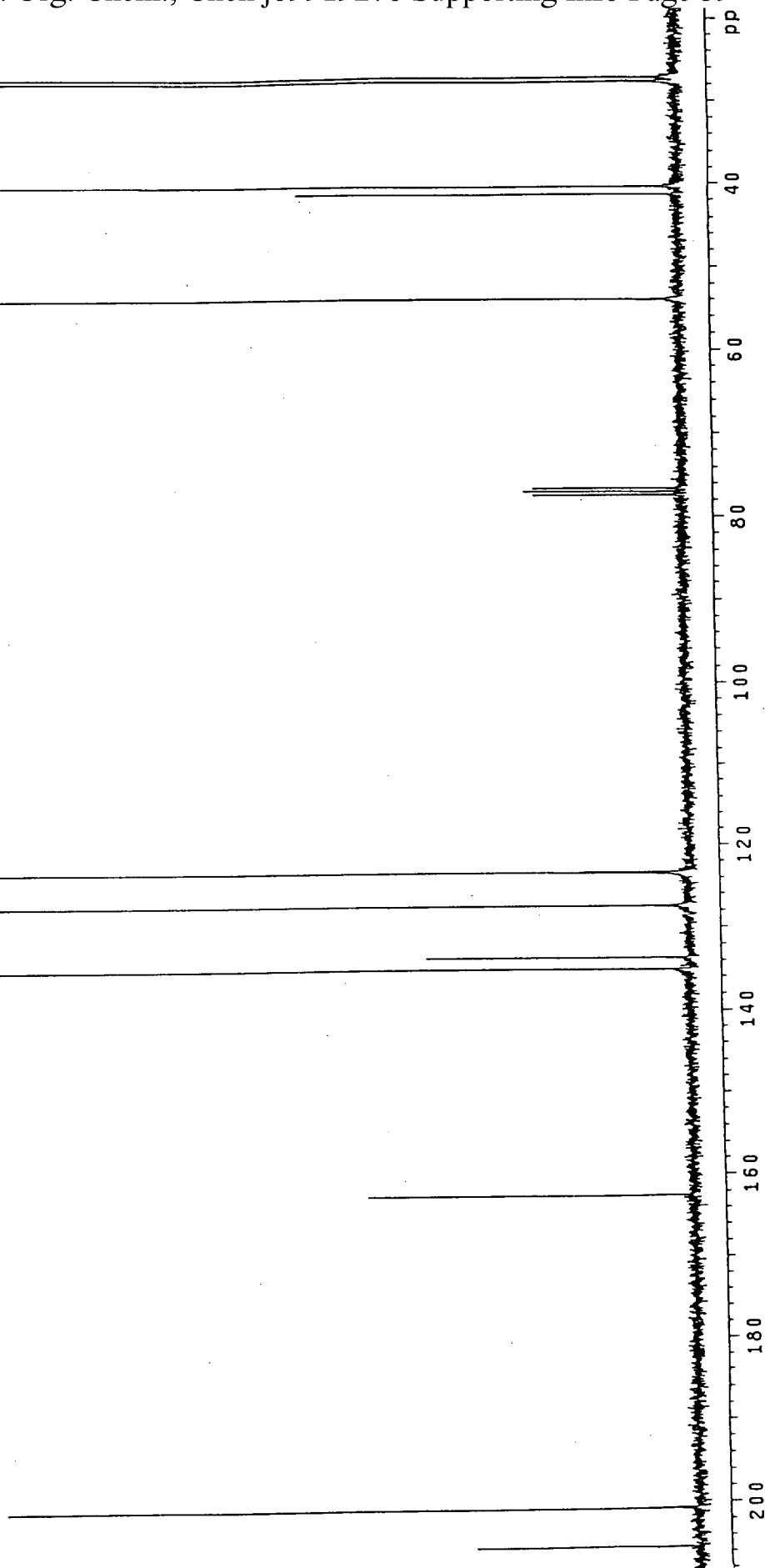


12

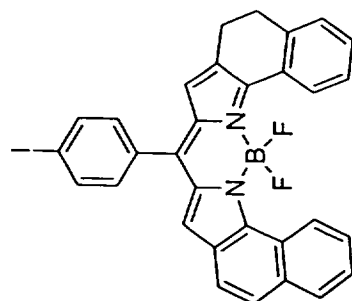
¹³C NMR

¹³C OBSERVE

Solvent: cdcl3
 Ambient temperature
 UNITYplus-300 "unityp300"
 PULSE SEQUENCE
 Relax. delay arrayed
 1st pulse arrayed
 2nd pulse 37.9 degrees
 Acq. time 1.815 sec
 Width 16501.7 Hz
 Arrayed repetitions
 OBSERVE C13, 75.4244967 MHz
 DECOUPLE H1, 299.9594259 MHz
 Power 40 dB
 continuously on
 WALTZ-16 modulated
 Single precision data
 DATA PROCESSING
 Line broadening 1.0 Hz
 FT size 65536
 Total time 3 minutes



S41



18
¹H NMR

STANDARD 1H OBSERVE

Solvent: cdcl3
Ambient temperature
UNITYplus-300 "unity300"
PULSE SEQUENCE
Relax. delay arrayed
1st pulse arrayed
2nd pulse 63.6 degrees
Acq. time 3.744 sec
Width 4000.0 Hz
Arrayed repetitions
OBSERVE H1: 239.9579261 MHz
DATA PROCESSING
FT size 32768
Total time 2 minutes

