

Service Report

System Type	MR400
Console ID	SA000
Engineer	Don Frank
Date	10/3/22
Purchase Order	P0039093
Work Order	221003001



Company Name	Ferris State University
Address	800 Campus Drive
City	Big Rapids
State	MI
Zip	49307

Contact Name	Sky Pike
Phone	517-455-8202
E-Mail	skypike@ferris.edu

Problem Description

Lineshape does not meet spec. Needs 3D Gradient shimming.

Work Completed

Found that the upper barrel was not centered in magnet field. Re-centered upper barrel.
Performed 3D gradient shimming successfully.
Obtained lineshape spec after RT shimming.
Performed H1 and C13 performance specs, all passed.
Default shims and power level vales saved. New gradient map saved.

Parts Used:

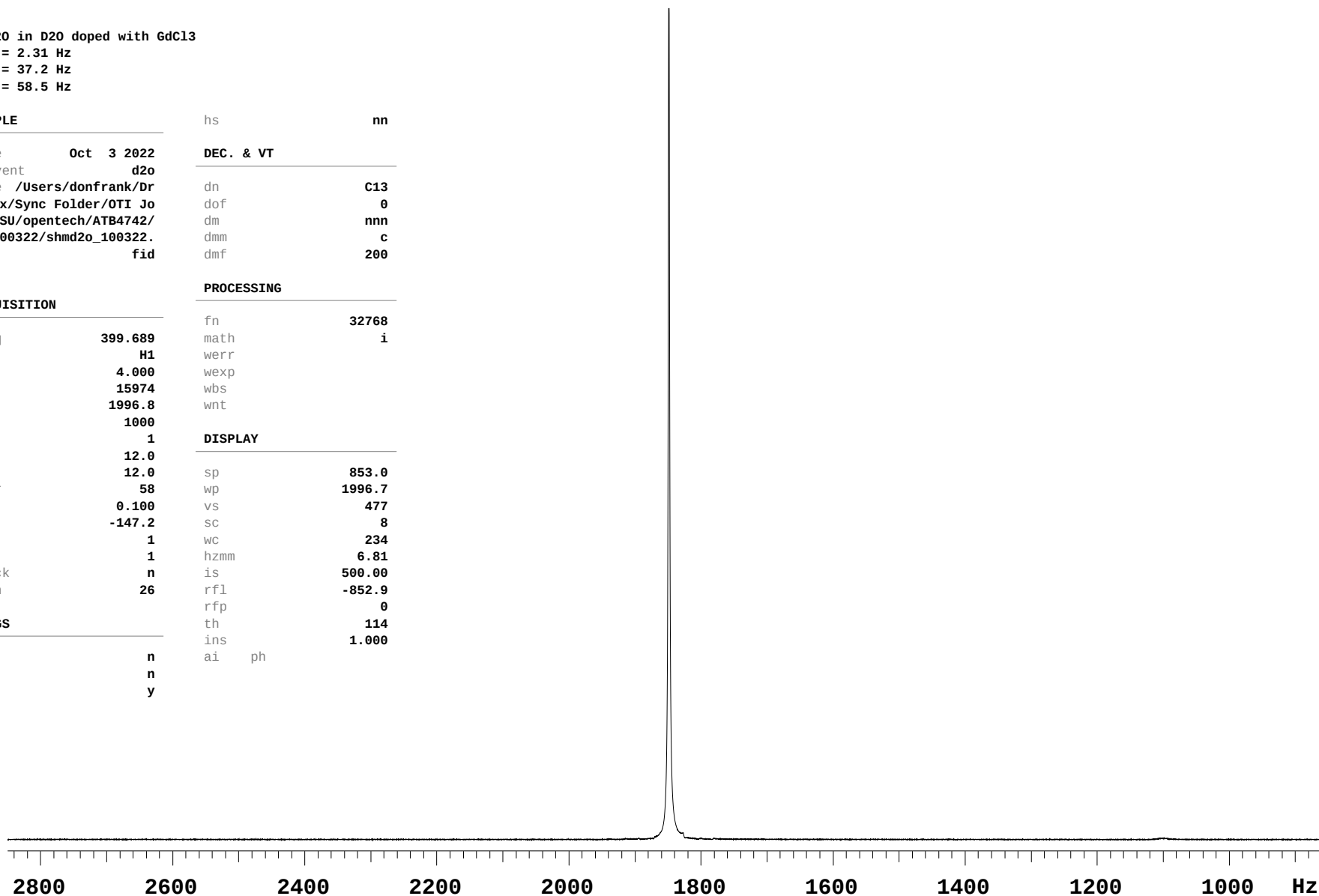
Description	Qty	Cost
Parts Cost	\$	-

Labor	\$ 2,700.00
Parts	\$ -
Travel	\$ 300.00
Sub Total	\$ 3,000.00
Tax	
Shipping	
Total	\$ 3,000.00

Sample Name		Pulse sequence	s2pu1	Temperature	21	Study owner	vnmr1
Date collected	2022-10-03	Solvent	d2o	Spectrometer	sclare-nmr.ferris.edu	vnmr1	vnmr1

1% H2O in D2O doped with GdCl3
50% = 2.31 Hz
.55% = 37.2 Hz
.11% = 58.5 Hz

SAMPLE		hs	nn
date	Oct 3 2022	DEC. & VT	
solvent	d2o		
file	/Users/donfrank/Dropbox/Sync Folder/OTI Jobs/FSU/opentech/ATB4742/PM_100322/shmd2o_100322.fid	dn	C13
		dof	0
		dm	nnn
		dmm	c
		dmf	200
ACQUISITION		PROCESSING	
sfrq	399.689	fn	32768
tn	H1	math	i
at	4.000	werr	
np	15974	wexp	
sw	1996.8	wbs	
fb	1000	wnt	
bs	1	DISPLAY	
pw	12.0	sp	853.0
pw	12.0	wp	1996.7
tpwr	58	vs	477
d1	0.100	sc	8
tof	-147.2	wc	234
nt	1	hzmm	6.81
ct	1	is	500.00
alock	n	rfl	-852.9
gain	26	rfp	0
FLAGS		th	114
il	n	ins	1.000
in	n	ai	ph
dp	y		



Sample Name
Date collected 2022-10-03

Pulse sequence s2pu1
Solvent acetone

Temperature 21
Spectrometer sclare-nmr.ferris.edu

Study owner vnmr1
vnmr400vnmr1

1H LINESHAPE

1% CHCl3 in Acetone-d6

50% = 0.23 Hz

.55% = 1.67 Hz

.11% = 2.36 Hz

SAMPLE

hs nn

date Oct 3 2022
solvent acetone
file /Users/donfrank/Dropbox/Sync Folder/OTI Jobs/FSU/opentech/ATB4742/PM_100322/h1lshp_100322.fid

DEC. & VT

dn C13
dof 0
dm nnn
dmm c
dmf 200

ACQUISITION

sfrq 399.692
tn H1
at 12.032
np 48052
sw 1996.8
fb 1000
bs 32
pw 12.0
pw 12.0
tpwr 58
d1 0
tof 1400.0
nt 1
ct 1
alock n
gain 26

PROCESSING

fn 131072
math i
werr
wexp
wbs
wnt

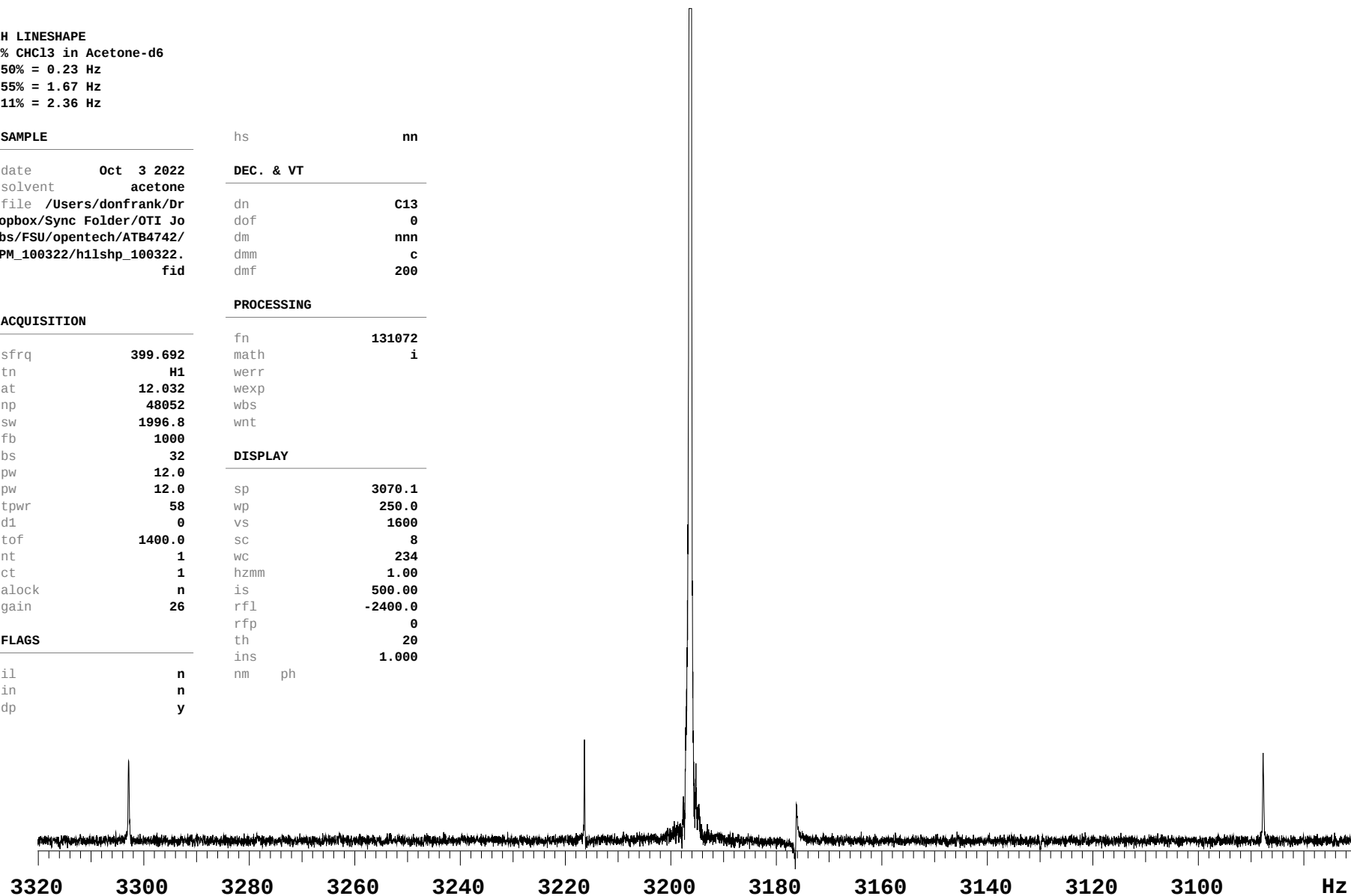
DISPLAY

sp 3070.1
wp 250.0
vs 1600
sc 8
wc 234
hzmm 1.00
is 500.00
rfl -2400.0
rfp 0
th 20
ins 1.000

FLAGS

il n
in n
dp y

nm ph



Sample Name
Date collected 2022-10-03

Pulse sequence s2pu1
Solvent acetone

Temperature 21
Spectrometer sclare-nmr.ferris.edu

Study owner vnmr1
vnmr1

1H LINESHAPE Non Spin
1% CHCl3 in Acetone-d6
50% = 0.54 Hz
.55% = 5.58 Hz
.11% = 7.05 Hz

SAMPLE

date Oct 3 2022
solvent acetone
file /Users/donfrank/Dropbox/Sync Folder/OTI Jobs/FSU/opentech/ATB4742/PM_100322/h1lshp_ns_100322.fid

ACQUISITION

sfrq 399.692
tn H1
at 12.032
np 48052
sw 1996.8
fb 1000
bs 32
pw 12.0
pw 12.0
tpwr 58
d1 0
tof 1400.0
nt 1
ct 1
alock n
gain 26

FLAGS

il n
in n
dp y

hs

nn

DEC. & VT

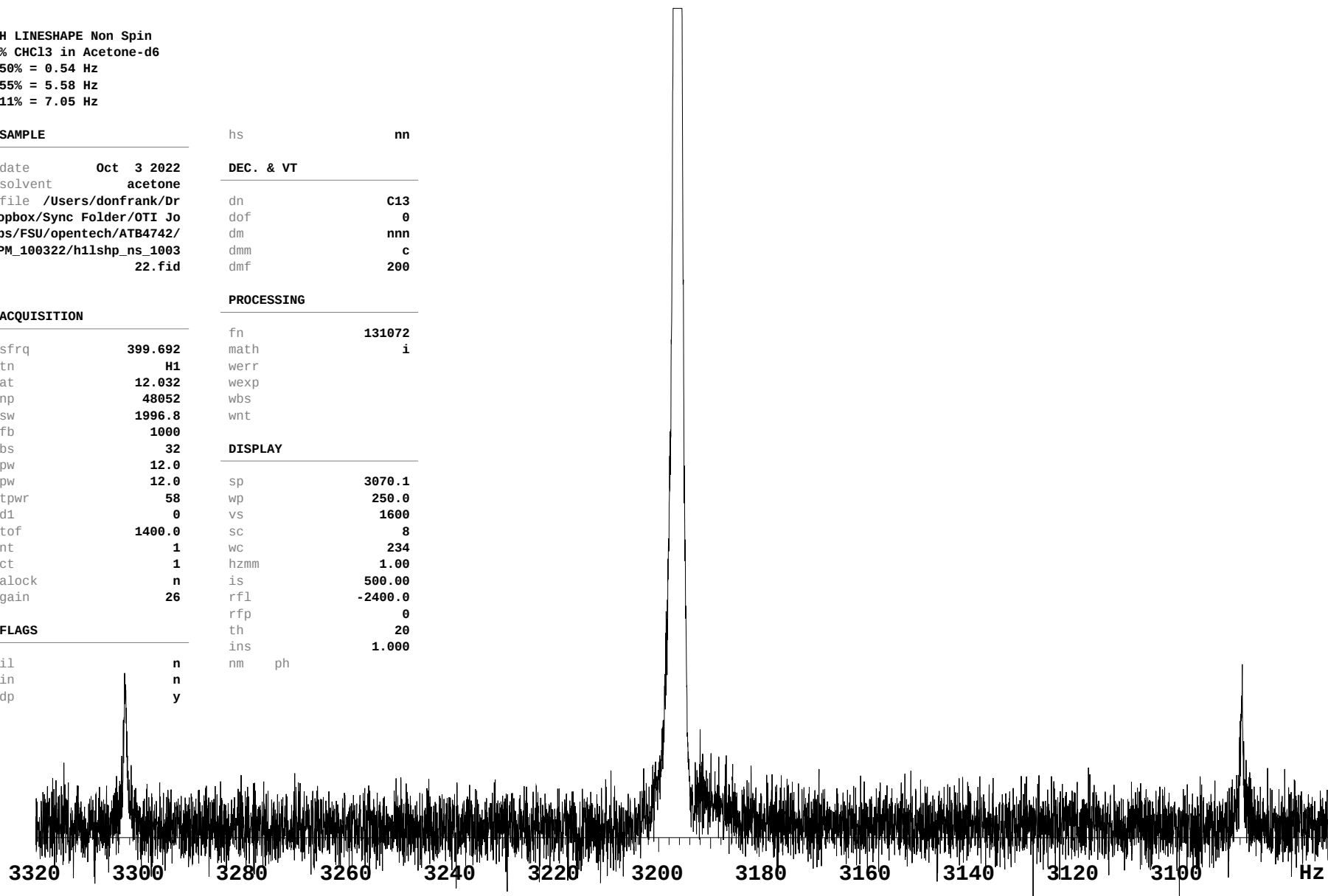
dn C13
dof 0
dm nnn
dmm c
dmf 200

PROCESSING

fn 131072
math i
werr
wexp
wbs
wnt

DISPLAY

sp 3070.1
wp 250.0
vs 1600
sc 8
wc 234
hzmm 1.00
is 500.00
rfl -2400.0
rfp 0
th 20
ins 1.000
nm ph



Sample Name		Pulse sequence	s2pu1	Temperature	21	Study owner	vnmr1
Date collected	2022-10-03	Solvent	d2o	Spectrometer	sclare-nmr.ferris.edu	vnmr1	400vnmr1

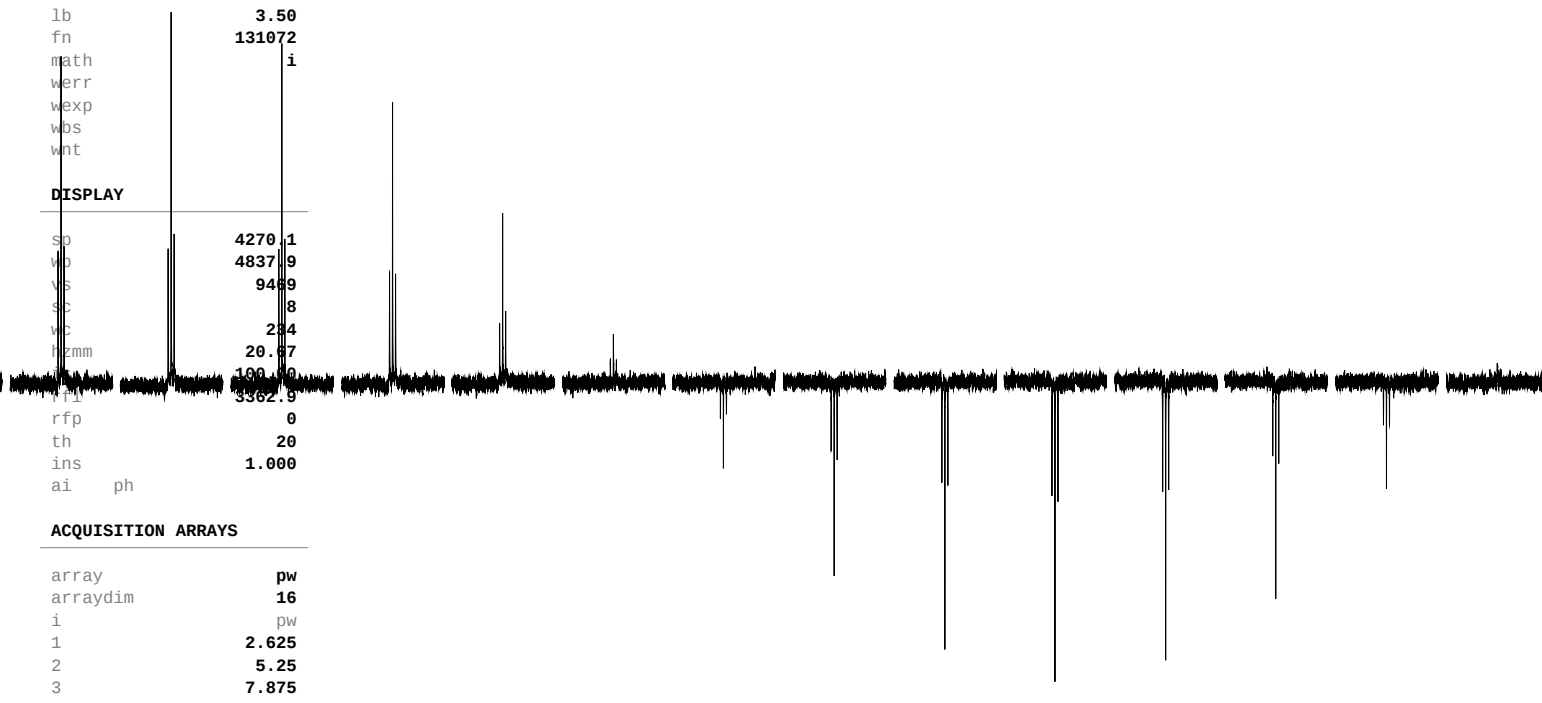
1% H2O in D2O doped with GdCl3
pw90 = 12us @ tpwr=58

SAMPLE		PROCESSING	
date	Oct 3 2022	fn	32768
solvent	d2o	math	i
file	/Users/donfrank/Dropbox/Sync Folder/OTI Jobs/FSU/opentech/ATB4742/PM_100322/h1pw90_100322.fid	werr	
		wexp	
		wos	
		wnt	
ACQUISITION		DISPLAY	
sfrq	399.689	sp	853.0
tn	H1	wd	1996.7
at	1.000	vs	169
np	3994	sc	8
sw	1996.8	wc	234
fb	1000	hzmm	6.81
		is	500.00
		rfl	-852.9
pw	arrayed	rtp	0
pw	arrayed	th	19
tpwr	58	ins	1.000
d1	1.000	ai	ph
tof	-147.2		
nt	1		
ct	1		
alock	n		
gain	26		
FLAGS		ACQUISITION ARRAYS	
il	n	array	pw
in	n	arraydim	16
dp	y	i	pw
hs	nn	1	3
		2	6
		3	9
		4	12
		5	15
		6	18
		7	21
		8	24
		9	27
		10	30
		11	33
		12	36
		13	39
		14	42
		15	45
		16	48
DEC. & VT			
dn	C13		
dof	0		
dm	nnn		
dmm	c		
dmf	200		

Sample Name		Pulse sequence	s2pul	Temperature	21	Study owner	vnmr1
Date collected	2022-10-03	Solvent	c6d6	Spectrometer	sclare-nmr.ferris.edu	vnmr1	400vnmr1

13C PW90
40% Dioxane in Benzene-d6
pw=10.5us tpwr=55

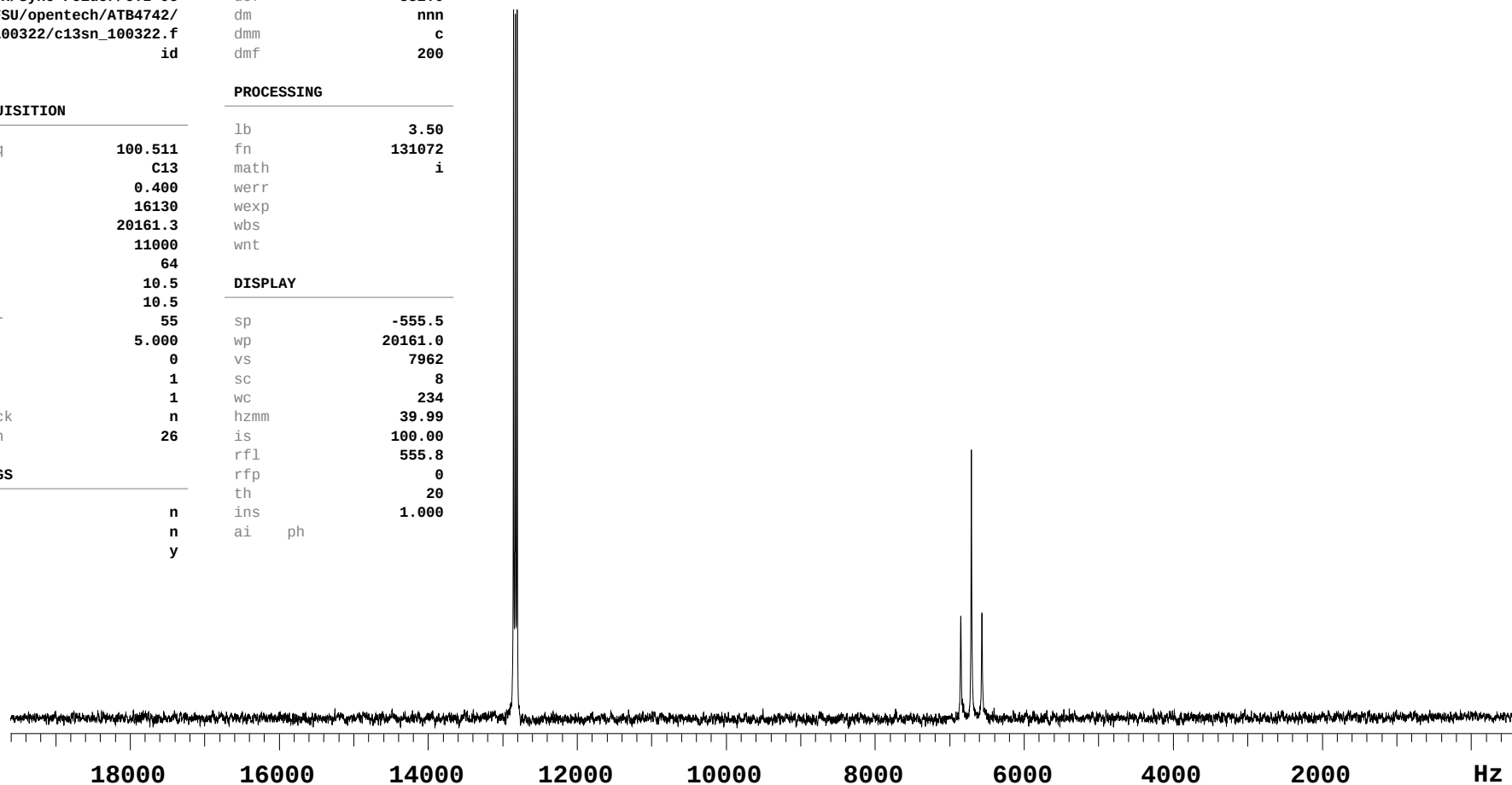
SAMPLE		PROCESSING	
date	Oct 3 2022	lb	3.50
solvent	c6d6	fn	131072
file	/Users/donfrank/Dropbox/Sync Folder/OTI Jobs/FSU/opentech/ATB4742/PM_100322/c13pw90_100322.fid	math	i
		werr	
		wexp	
		wos	
		wnt	
ACQUISITION		DISPLAY	
sfrq	100.508	sp	4270.1
tn	C13	wp	4837.9
at	0.400	vs	94.9
np	18130	sc	8
sw	20181.3	vc	234
fb	1.000	h2mm	20.87
bs	64	rfi	100.00
pw	arrayed	rfp	0
pw	arrayed	th	20
tpwr	55	ins	1.000
d1	5.000	ai	ph
tof	-2807.1		
nt	1		
ct	1		
alock	n		
gain	26		
FLAGS		ACQUISITION ARRAYS	
il	n	array	pw
in	n	arraydim	16
dp	y	i	pw
hs	nn	1	2.625
		2	5.25
		3	7.875
		4	10.5
		5	13.125
		6	15.75
		7	18.375
		8	21
		9	23.625
		10	26.25
		11	28.875
		12	31.5
		13	34.125
		14	36.75
		15	39.375
		16	42
DEC. & VT			
dn	H1		
dof	-552.0		
dm	nnn		
dmm	c		
dmf	200		



Sample Name		Pulse sequence	s2pu1	Temperature	21	Study owner	vnmr1
Date collected	2022-10-03	Solvent	c6d6	Spectrometer	sclare-nmr.ferris.edu	pmr400	vnmr1

¹³C SENSITIVITY
40% Dioxane in Benzene-d6
S/N 157:1

SAMPLE		hs	nn
date		DEC. & VT	
solvent		dn	H1
file		dof	-552.0
opbox/Sync Folder/OTI Jo		dm	nnn
bs/FSU/opentech/ATB4742/		dmm	c
PM_100322/c13sn_100322.f		dmf	200
id		PROCESSING	
ACQUISITION		lb	3.50
sfrq	100.511	fn	131072
tn	C13	math	i
at	0.400	werr	
np	16130	wexp	
sw	20161.3	wbs	
fb	11000	wnt	
bs	64	DISPLAY	
pw	10.5	sp	-555.5
pw	10.5	wp	20161.0
tpwr	55	vs	7962
d1	5.000	sc	8
tof	0	wc	234
nt	1	hzmm	39.99
ct	1	is	100.00
alock	n	rfl	555.8
gain	26	rfp	0
FLAGS		th	20
il	n	ins	1.000
in	n	ai	ph
dp	y		



Sample Name		Pulse sequence	s2pu1	Temperature	21	Study owner	vnmr1
Date collected	2022-10-03	Solvent	c6d6	Spectrometer	sclare-nmr.ferris.edu	pmr400	vnmr1

¹³C Gamah2

40% Dioxane in Benzene-d6

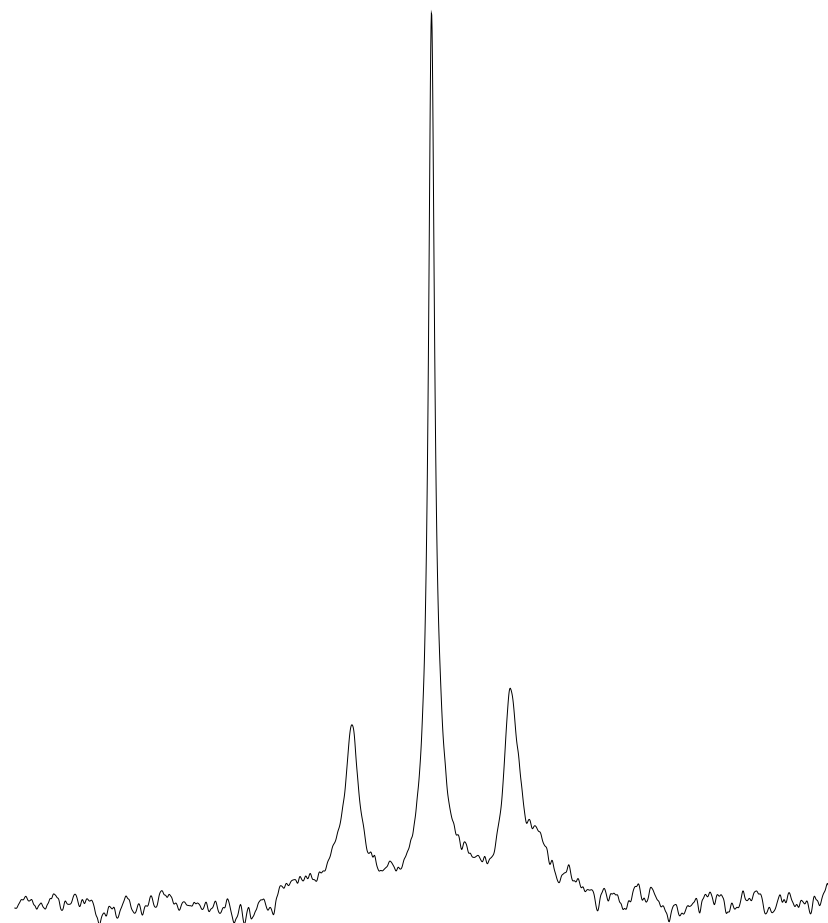
Gamma-H2 calculation

See J. Magnetic Resonance 7:442 (1972)

J0 = 142.00 Hz, dof[1] = -2190.00 Hz, dof[2] = 810.00 Hz
 Jr[1] = 74.00 Hz, Jr[2] = 74.00 Hz

Gamma-H2 = 2456.64 Hz
 90 degree pulse = 101.8 usec
 coalescence frequency = -690.00 Hz

SAMPLE		dof	arrayed
date	Oct 3 2022	dm	y
solvent	c6d6	dmm	c
file	/Users/donfrank/Dr	dmf	200
opbox/Sync Folder/OTI Jo		dpwr	42
bs/FSU/opentech/ATB4742/			
PM_100322/gamah2_100322.			
fid			
ACQUISITION		PROCESSING	
sfrq	100.511	lb	3.50
tn	C13	fn	131072
at	0.400	math	i
np	16130	werr	
sw	20161.3	wexp	
fb	11000	wbs	
bs	64	wnt	
pw	10.5	DISPLAY	
pw	10.5	sp	6339.5
tpwr	55	wp	751.9
d1	5.000	vs	18938
tof	0	sc	8
nt	1	wc	234
ct	1	hzmm	3.21
alock	n	is	100.00
gain	26	rfl	555.8
		rfp	0
		th	20
		ins	1.000
		ai	
FLAGS		ACQUISITION ARRAYS	
il	n	array	dof
in	n	arraydim	2
dp	y		dof
hs	nn		-2190
DEC. & VT			810
dn	H1		



Sample Name		Pulse sequence	s2pul	Temperature	21	Study owner	vnmr1
Date collected	2022-10-03	Solvent	c6d6	Spectrometer	sclare-nmr.ferris.edu	pmr400	vnmr1

Waltz Demo

40% Dioxane in Benzene-d6

Gamma-H2 calculation

See J. Magnetic Resonance 7:442 (1972)

J0 = 142.00 Hz, dof[1] = -2190.00 Hz, dof[2] = 810.00 Hz
Jr[1] = 74.00 Hz, Jr[2] = 74.00 Hz

Gamma-H2 = 2456.64 Hz
90 degree pulse = 101.8 usec
coalescence frequency = -690.00 Hz

