

TEST-DATA



SEL	SEI	SEF	SEX	DUL	DUX	BBO	BBI	QNP	QNI	QXI	TXO	TXD	TXI	TBI	TBO
													X		

Probehead No.	Z125493 / 1	EC	0.01	MHz	750	SB		WB	X
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Produktion	X	Sample Ø	1 mm		8 mm	
Repair			2.5 mm		10 mm	
Convert			3 mm		20 mm	
			5 mm	X	

Dual Flow Insert	
Probe-Body SB	
Probe-Body WB	

OPTIONS			
HT		ATM Acc.	X
LTA		
LTB		
Micro		
Z-Grad.	X	
XYZ-Grad.		
LEAKPRF		
BTO 2000		

Proposal as of 7/30/2019

nuc	90	pldbw	w
H	8.1	-13.62	23
C	11.9	-24.55	285
N	33	-23.6	229
D	515	-4.73	2.98

Nuc. / Freq. (MHz)		forw. Pulse		forw. CW	
1H	750.130	30	W		W
			W		W
X: 13C	188.620	450	W	5	W
X: 15N	76.039	450	W	5	W
X: D	115.150	90	W	5	W
			W		W
			W		W
			W		W
			W		W

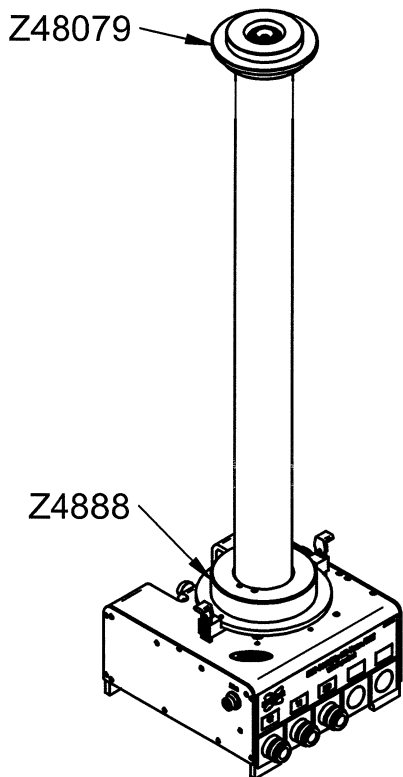
Date: Monday, 7. March 2011

Signature: JUA

Installation instruction SB in WB

Montageanweisung SB in WB

Operation Mode 1

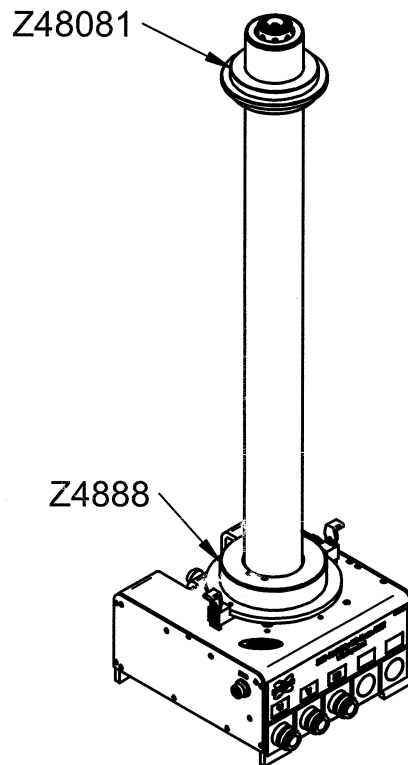


Boss/WB-Shimsystem with
WB-BST and SB-Probe

SB-Probe with mounting ring
Z4888 and center ring Z48079

Use only new, short
WB-Spinners

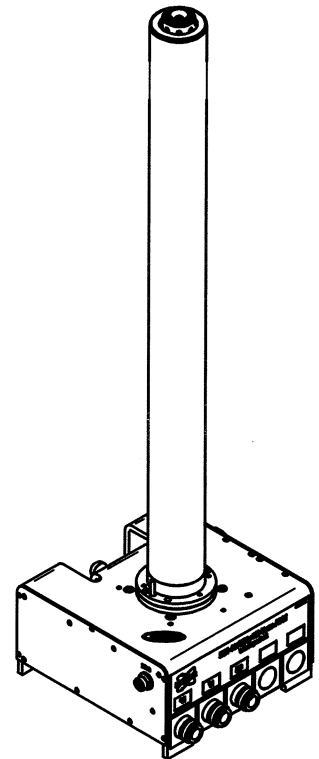
Operation Mode 2



Boss/WB-Shimsystem with
SB-BST and SB-Probe

SB-Probe with mounting ring
Z4888 and center ring Z48081

Operation Mode 3



Boss/WB-Shimsystem with
SB-Shimsystem Insert,
SB-BST and SB Probe

SB-Probe without mounting
and center ring



**AVANCE Spectrometers
Final Test Report**

System -750WB

Customer name:

Company Institution: Illinois State University

Street:

Town: Chicago

Country: USA

Phone No.:

Fax No.:

Contract No.:

Serial No.: H03128T2/0334

Coil No.: 123ABC

Dewar No.: 456XYZ

Remarks:

Widebore magnet fitted with UltraLock system and WB shim system

Date: 11.Oct.2012

Test performed by: RAWEI

Signature engineer:

A handwritten signature in black ink, appearing to read "Reel/IC", written over a horizontal line.

Test results approved by:

Signature:

Date:

Used software version

TOPSPIN Version 3.1

Version of ATP : atp9.1

Setup probes and standard experiments: fta7.4

Automatic run of experiments: hwt7.3

Magnet Information

Coil number: 123ABC

Dewar number: 456XYZ

Helium level:

Summary of achieved results

Probe: 5 mm PATXI 1H-13C/15N/D Z-GRD Z125493/0001

Probe order number: 10027162

Water suppression test

Sample: 2 mM Sucrose in 90% H₂O and D₂O (P/N: Z10246)

Hump= 30.6/60.5 Hz Resolution= 19% Sino= 407:1

1H water suppression gasflow: 400 l

Resolution test for 1H

Sample: 1% CHCl₃ in Acetone-d₆ (P/N: Z10903)

Resolution 0.89Hz, Hump= 6.6/12.4 Hz

P1= 8usec PLW1= 15.5W

NOTE: magnet with wide bore shim system and active field regulation "ultrastable"

Sensitivity test for 1H

Sample: 0,1% EB in CDCl₃ (P/N: Z10120)

Sino= 1562:1 (signal= 3 - 2 ppm noise= 6.63 - 4.63 ppm [2 ppm] noise range= 4.2 ppm)

Sino= 1787:1 (noise= 3.89 - 3.62 ppm [200 Hz])

P1= 8usec PLW1= 15.5W

Following experiments have been performed:

Preliminary determination 90 degree 1H high power transmitter pulse

P1= 10usec PLW1= 7W

Determination 90 degree 2H observe pulse for 2H-TX board

P1= 510usec PLW1= 3W

Z-Gradient profile experiment

Determination 90 degree 13C high power decoupling pulse

P3= 11usec PLW2= 320W

Determination 90 degree 15N high power decoupling pulse

P3= 42usec PLW2= 300W

Gradient recovery experiment

D16= 0.05sec D11= 0.03sec

Acceptance Documentation of additional tests and demonstrations

General tests

done

- QTP standard hardware tests
- HWT standard tests (ATP-program)
- Download check for all units done
- Cortab for most freq. used nuclei
- Helium level log file activated
- Software licenses installed and tested
- NMR_Save performed
- Image CD created (optional)
- safety/grounding requirements
- Receiver quad image adjustment
Gain: Phase:
Offset A: Offset B:

Additional tests

done

- Gradshim 1D_1H test
- Gradshim 3D_1H test (optional)
- Gradshim 1D_2H test (optional)
- BEST specification tests (optional)
- LC-NMR specification tests (optional)
- Wideline specification tests (optional)
- HR-MAS specification tests (optional)
- Microimaging final test (optional)
- Variable temperature self tune:

Used probe: 5 mm PATXI 1H-13C/15N/D Z-GRD Z125493/0001

Temperature: Max heater [%]: Airflow:
P: I: D:

Additional Remarks:

Software

done

- Icon-NMR customizing and function test
- Plot-Editor function test
- NMR-Guide function test

- FINAL TEST - System: 750WB OrderNo.: 10027162 Customer: BBIO Faellanden Engineer: RAWET
 P/N Console: H03128T2/0334 Shim system: WB original dataset: 125493_00011smh 2 1
 Probe: 5 mm PATXI 1H-13C/15N/D Z-GRD Z125493/0001 Sample depth: 20 Gas: nitrogen
 Resolution test for 1H; Sample: 0.3% CHCl3 in Acetone-d6 (P/N: Z10903)

Hump= 6.6/12.4 Hz
 P1= 8usec PLW1= 15.5W

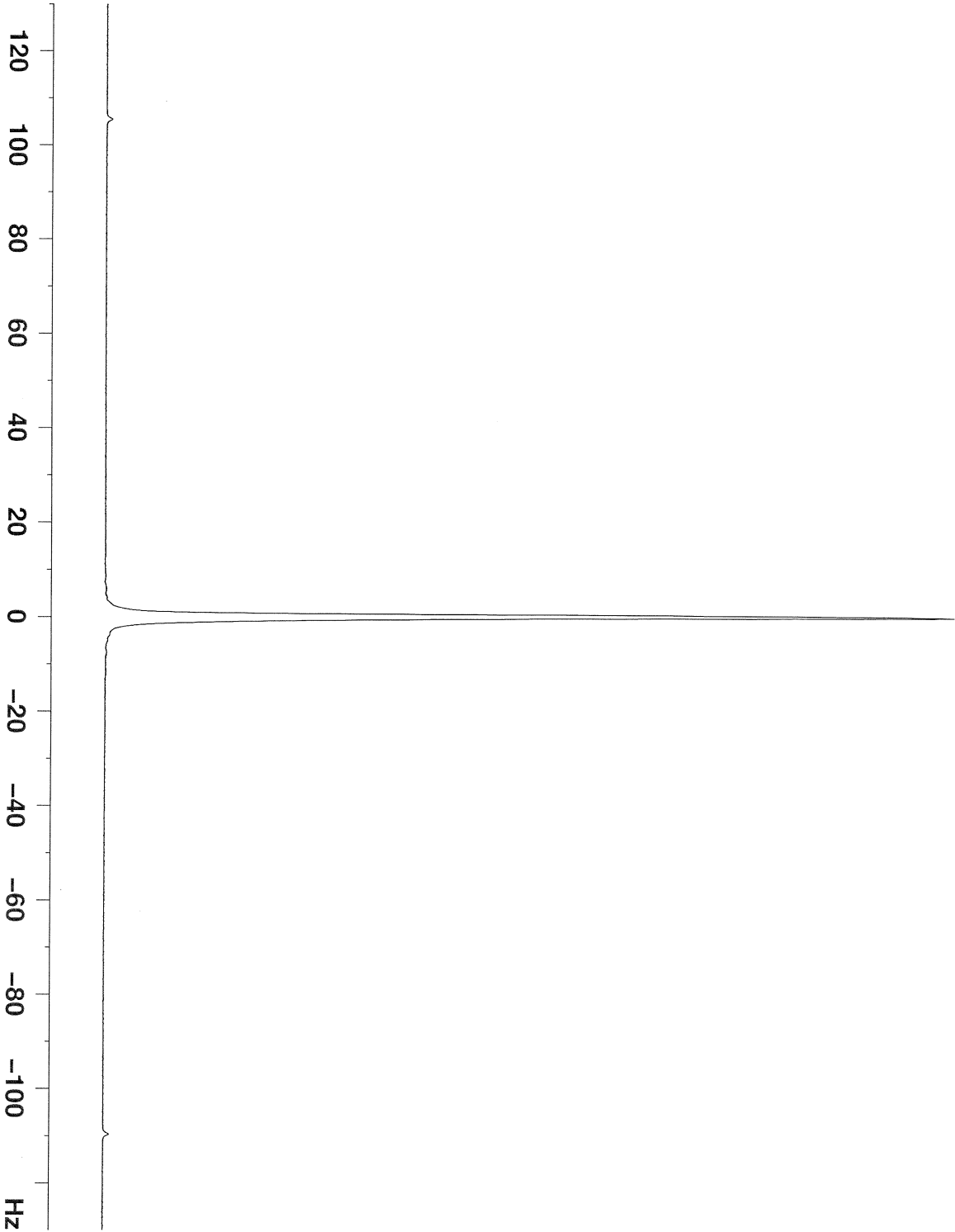


Current Data Parameters
 NAME 125493_00011smh
 EXPNO 100
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20121002
 Time 14.28
 INSTRUM spect
 PROBHD 5 mm PATXI 1H-
 PULPROG zg30
 TD 32768
 SOLVENT Acetone
 NS 1
 DS 0
 SWH 1000.000 Hz
 FIDRES 0.030518 Hz
 AQ 16.3840008 sec
 RG 32
 DW 500.000 usec
 DE 6.50 usec
 TE 298.7 K
 D1 1.000000000 sec
 TD0 1

==== CHANNEL f1 =====
 SFO1 750.2059266 MHz
 NUC1 1H
 P1 8.00 usec
 PLW1 15.50000000 W

F2 - Processing parameters
 SI 32768
 SF 750.2060248 MHz
 WDW EM
 SSB 0
 LB 0 Hz
 GB 0
 PC 4.00



- FINAL TEST - System: 750WB OrderNo.: 10027162 Customer: B BIO Faellanden Engineer: RAWEI
 P/N Console: H03128T2/0334 Shim system: WB Original dataset: 125493_0001ws 2 1
 Probe: 5 mm PATXI 1H-13C/15N/D 2-GRD Z125493/0001 Sample depth: 20 Gas: nitrogen
 Water suppression test; Sample: 2 mM Sucrose in 90% H2O and D2O (P/N: Z10246)

Hump= 30.6/60.5 Hz Resolution= 19% Sino= 407:1

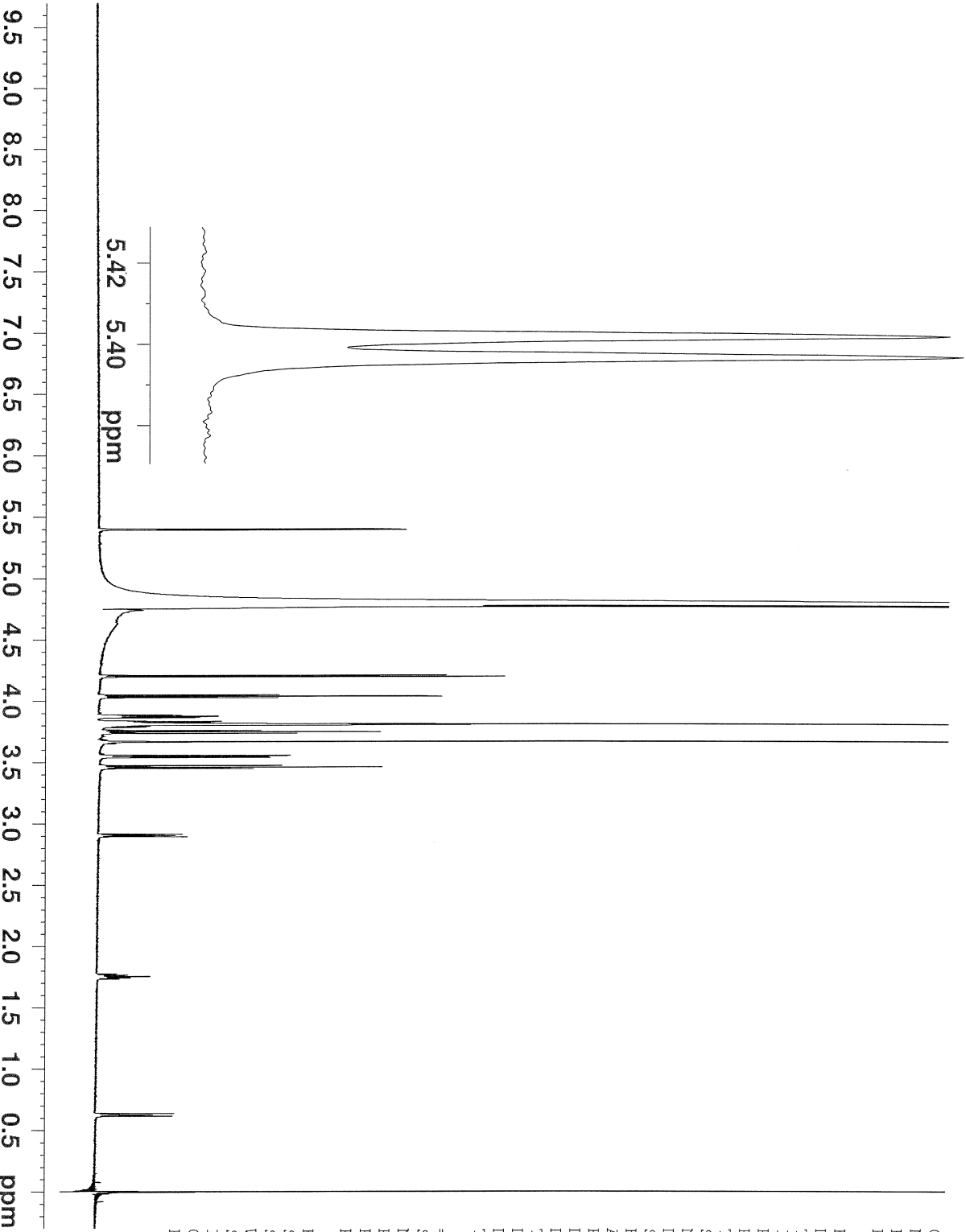


Current Data Parameters
 NAME 125493_0001ws
 EXPNO 100
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20121001
 Time 16.19
 INSTRUM spect
 PROBHD 5 mm PATXI 1H-
 PULPROG zgpgt
 TD 18026
 SOLVENT H2O+D2O
 NS 8
 DS 4
 SWH 9014.423 Hz
 FIDRES 0.500079 Hz
 AQ 0.9998421 sec
 RG 256
 DW 55.467 usec
 DE 6.50 usec
 TE 298.0 K
 D1 5.00000000 sec
 D12 0.00002000 sec
 TD0 1

==== CHANNEL f1 =====
 SF01 750.2035300 MHz
 NUC1 1H
 P1 8.00 usec
 PLW1 15.50000000 W
 PLW9 0.00005012 W

F2 - Processing parameters
 SI 65536
 SF 750.1999460 MHz
 WDW EM
 SSB 0
 LB 0 Hz
 GB 0
 PC 1.00



- FINAL TEST - System: 750WB OrderNo.: 10027162 Customer: B BIO Faellanden Engineer: RAWEL
 P/N Console: H03128T2/0334 Shim system: WB Original dataset: 125493_0001smh 3 1
 Probe: 5 mm PATXI 1H-13C/15N/D Z-GRD Z125493/0001 Sample depth: 20 Gas: nitrogen
 Sensitivity test for 1H; Sample: 0,1% EB in CDCl3 (P/N: Z10120)

Sino= 1562:1 (signal= 3 - 2 ppm noise= 6.63 - 4.63 ppm [2 ppm] noise range= 4.2 ppm)
 Sino= 1787:1 (noise= 3.89 - 3.62 ppm [200 Hz])
 P1= 8usec PLW1= 15.5W

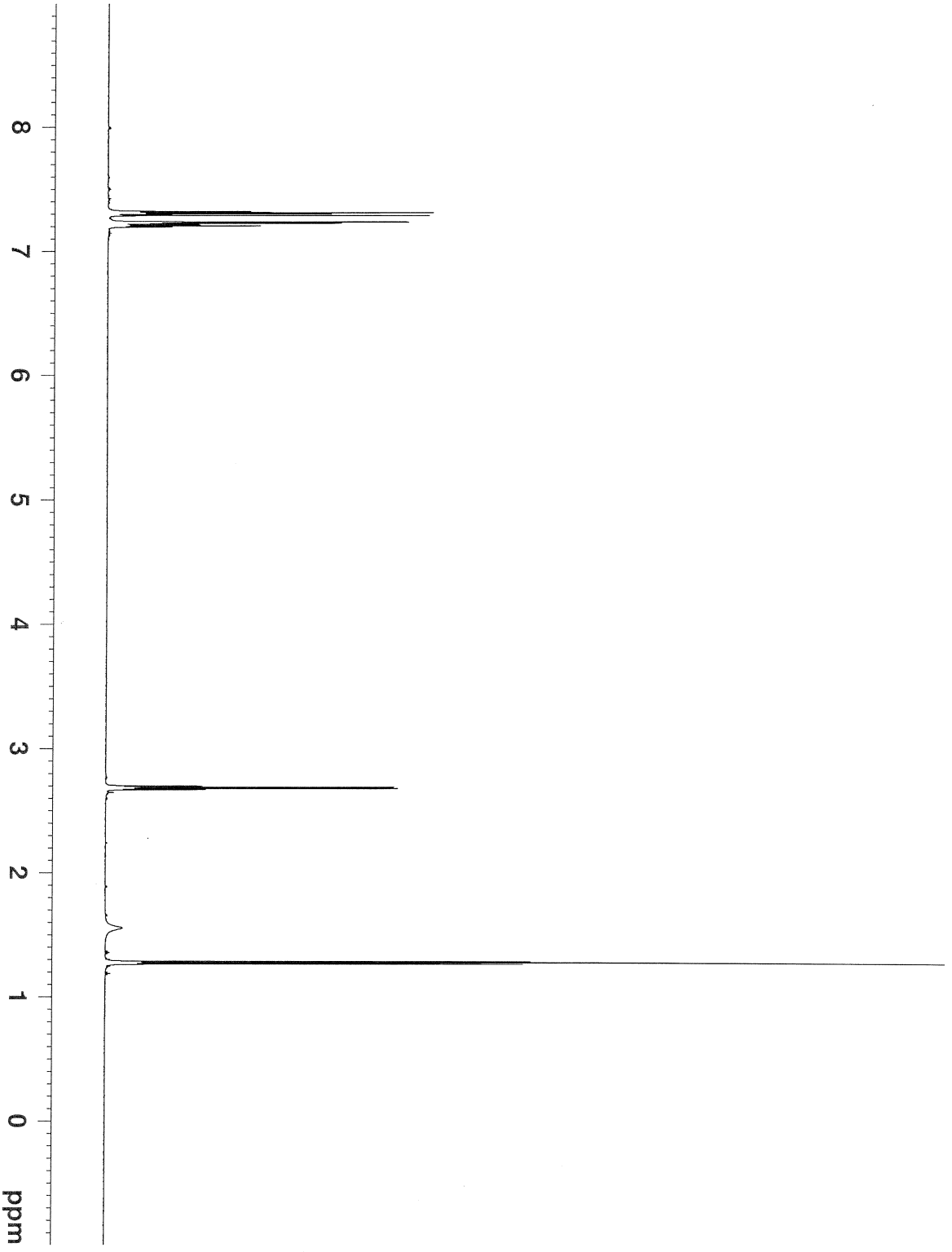


Current Data Parameters
 NAME 125493_0001smh
 EXPNO 100
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20121004
 Time 9.06
 INSTRUM spect
 PROBHD 5 mm PATXI 1H-
 PULPROG zg
 TD 65536
 SOLVENT CDCl3
 NS 1
 DS 0
 SWH 7500.000 Hz
 FIDRES 0.114441 Hz
 AQ 4.3690667 sec
 RG 32
 DW 66.667 usec
 DE 6.50 usec
 TE 298.0 K
 D1 5.00000000 sec
 TD0 1

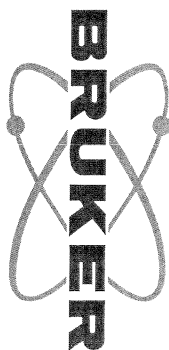
==== CHANNEL f1 =====
 SF01 750.2030008 MHz
 NUC1 1H
 P1 8.00 usec
 PLW1 15.50000000 W

F2 - Processing parameters
 SI 131072
 SF 750.2000000 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.00



- FINAL TEST - System: 750WB OrderNo.: 10027162 Customer: BBIO Faellanden Engineer: RAWFI
 P/N Console: H03128F2/0334 Shim system: WB original dataset: 125493_0001tppp 99 1
 Probe: 5 mm PATXI 1H-13C/15N/D Z-GRD Z125493/0001 Sample depth: 20 Gas: nitrogen
 Preliminary determination 90 degree 1H high power transmitter pulse; Sample: 2 mM Sucrose in 90% H2O and D2O (P/N: 210246)

P1= 10usec PLW1= 7W

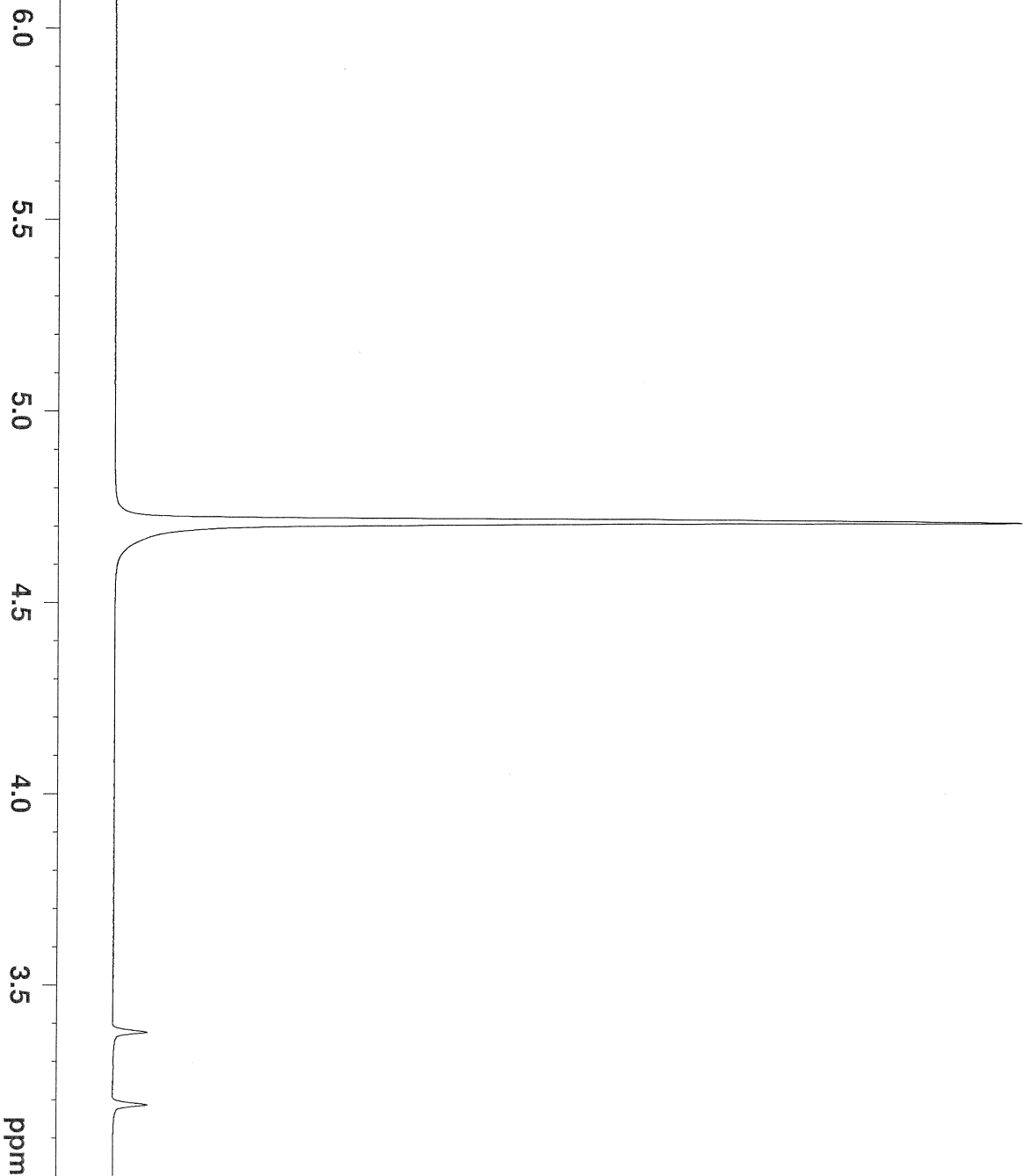


Current Data Parameters
 NAME 125493_0001tppp
 EXPNO 100
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20121001
 Time 11.58
 INSTRUM spect
 PROBHD 5 mm PATXI 1H-
 PULPROG zg
 TD 16384
 SOLVENT H2O+D2O
 NS 1
 DS 0
 SWH 7500.000 Hz
 FIDRES 0.457764 Hz
 AQ 1.0922667 sec
 RG 1
 DW 66.667 usec
 DE 6.50 usec
 TE 298.0 K
 D1 0.50000000 sec
 TD0 1

==== CHANNEL f1 =====
 SF01 750.2035259 MHz
 NUC1 1H
 P1 10.00 usec
 PLW1 7.00000000 W

F2 - Processing parameters
 SI 32768
 SF 750.2000000 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.00



- FINAL TEST - System: 750WB OrderNo.: 10027162 Customer: B BIO Faellanden Engineer: RAWEI
 P/N Console: H03128T2/0334 Shim system: WB original dataset: 125493_0001tpd 2.1
 Probe: 5 mm PATXI 1H-13C/15N/D Z-GRD Z125493/0001 Sample depth: 20 Gas: nitrogen
 Determination 90 degree 2H observe pulse for 2H-TX board; Sample: 2 mM Sucrose in 90% H2O and D2O (P/N: Z10246)
 P1= 510usec PLW1= 3W

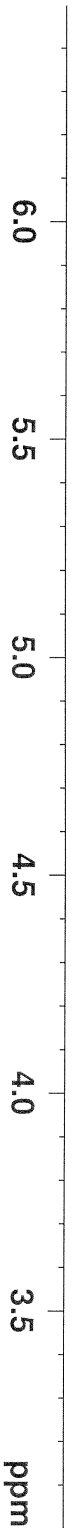


Current Data Parameters
 NAME 125493_0001tpd
 EXPNO 100
 PROCNO 1

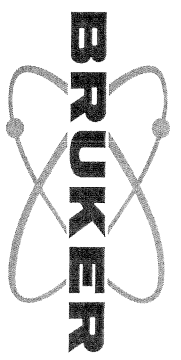
F2 - Acquisition Parameters
 Date_ 20121001
 Time 14.42
 INSTRUM spect
 PROBHD 5 mm PATXI 1H-
 PULPROG zg2h
 TD 4096
 SOLVENT H2O+D2O
 NS 1
 DS 0
 SWH 1151.543 Hz
 FIDRES 0.281138 Hz
 AQ 1.7784832 sec
 RG 1
 DW 434.200 usec
 DE 50.00 usec
 TE 298.0 K
 D1 5.00000000 sec
 D11 0.03000000 sec
 TD0 1

==== CHANNEL f1 =====
 SF01 115.1608092 MHz
 NUC1 2H
 P1 510.00 usec
 PLW1 3.00000000 W

F2 - Processing parameters
 SI 4096
 SF 115.1602680 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.00



- FINAL TEST - System: 750WB OrderNo.: 10027162 Customer: B BIO Faellanden Engineer: RAWEI
 P/N Console: H03128T2/0334 Shim system: WB Original dataset: 125493_00019zp 2 1
 Probe: 5 mm PATXI 1H-13C/15N/D Z-GRD Z125493/0001 Sample depth: 20 Gas: nitrogen
 Z-Gradient profile experiment; Sample: 2 mM Sucrose in 90% H2O and D2O (P/N: Z10246)



Current Data Parameters
 NAME 125493_00019zp
 EXPNO 100
 PROCNO 1

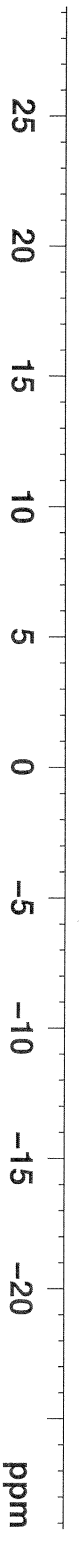
F2 - Acquisition Parameters

Date_ 20121001
 Time 16.23
 INSTRUM spect
 PROBHD 5 mm PATXI 1H-
 PULPROG imgcp1d
 TD 512
 SOLVENT H2O+D2O
 NS 1
 DS 0
 SWH 43859.648 Hz
 FIDRES 85.663376 Hz
 AQ 0.0058368 sec
 RG 2
 DW 11.400 usec
 DE 6.50 usec
 TE 298.0 K
 D1 0.05000000 sec
 D11 0.03000000 sec
 D15 0.00500000 sec
 D21 0.00025000 sec
 D27 0.00200000 sec

==== CHANNEL F1 =====
 SFO1 750.2035259 MHz
 NUC1 1H
 P0 2.00 usec
 PLW0 2.45661306 W
 PLW1 15.50000000 W

==== GRADIENT CHANNEL =====
 GPZ1 3.11 %
 GPZ2 -6.74 %

F2 - Processing parameters
 SI 128
 SF 750.2035259 MHz
 WDM no
 SSB 0
 LB 0 Hz
 GB 0
 PC 1.00



- FINAL TEST - System: 750WB OrderNo.: 10027162 Customer: B10 Faellanden Engineer: RAWET
 P/N Console: H03128T2/034 Shim system: WB Original dataset: 125493_0001puc 2 1
 Probe: 5 mm PATXI 1H-13C/15N/D 2-GRD Z125493/0001 Sample depth: 20 Gas: nitrogen
 Determination 90 degree 13C high power decoupling pulse: Sample: 0, 1M Urea 15N, 0, 1M CH3OH 13C in DMSO-d6 (P/N: 210263)

P3= 11usec PLW2= 320W



Current Data Parameters
 NAME 125493_0001puc
 EXPNO 100
 PROCNO 1

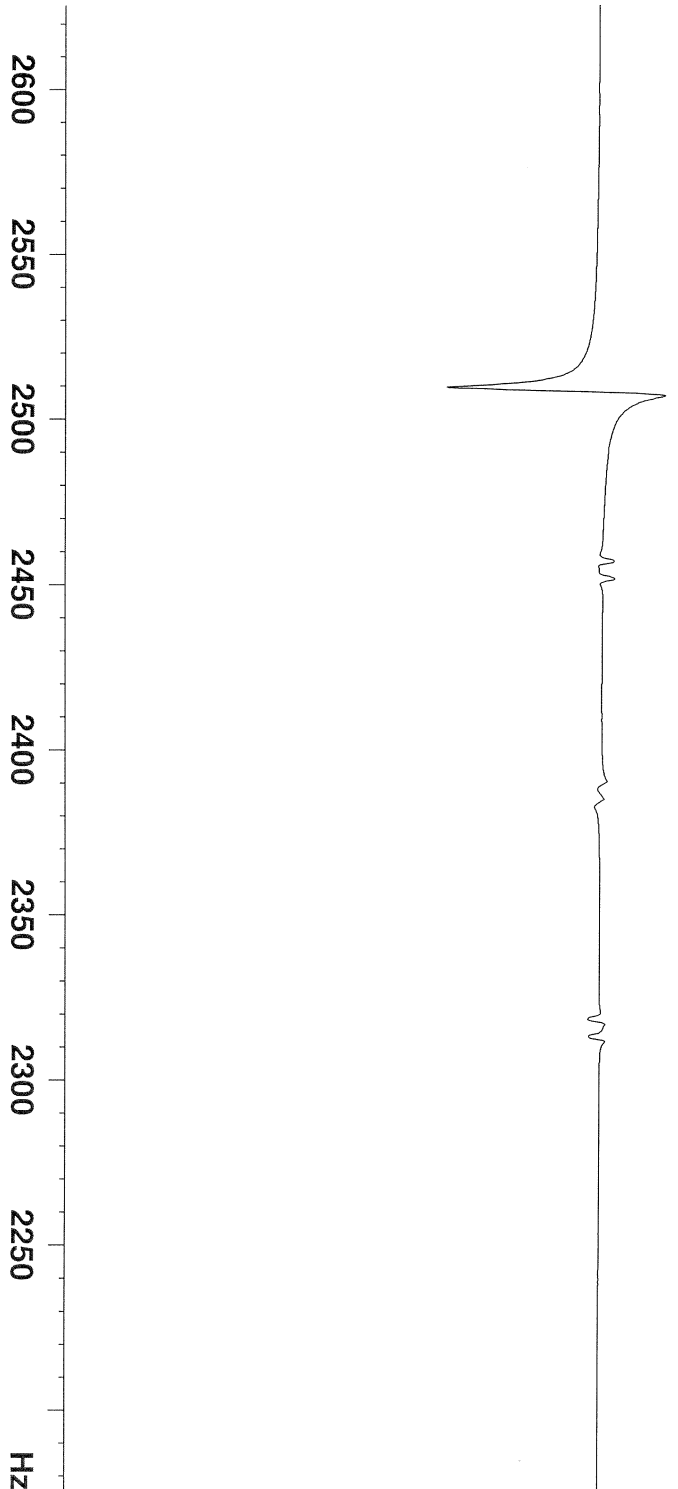
F2 - Acquisition Parameters
 Date_ 20121002
 Time 16.01
 INSTRUM spect
 PROBHD 5 mm PATXI 1H-
 PULPROG decp90
 TD 16384
 SOLVENT DMSO
 NS 1
 DS 0
 SWH 6009.615 Hz
 FIDRES 0.366798 Hz
 AQ 1.3631488 sec
 RG 64
 DW 83.200 usec
 DE 6.50 usec
 TE 298.0 K
 CNST2 139.0000000
 D1 5.0000000 sec
 D2 0.00359712 sec
 TD0 1

==== CHANNEL F1 =====
 SF01 750.2023774 MHz
 NUC1 1H
 P1 8.00 usec
 PLW1 15.50000000 W

==== CHANNEL F2 =====
 SF02 188.6472776 MHz
 NUC2 13C
 P3 11.00 usec
 PLW2 320.00000000 W

F1 - Acquisition parameters
 ID 256
 SF01 188.6513 MHz
 FIDRES 116.620888 Hz
 SW 158.255 ppm
 FMODE States-TPPI

F2 - Processing parameters
 SI 32768
 SF 750.2000000 MHz
 WDM EM
 SSB 0
 LB 0.60 Hz
 GB 0
 PC 1.40



- FINAL TEST - System: 750WB OrderNo.: 10027162 Customer: B BIO Faellanden Engineer: RAWET
 P/N Console: H03128T2/0334 Shim system: WB Original dataset: 125493_0001p1n 2 1
 Probe: 5 mm PATXI 1H-13C/15N/D Z-GRD Z125493/0001 Sample depth: 20 Gas: nitrogen
 Determination 90 degree 15N high power decoupling pulse; Sample: 0, 1M Urea 15N, 0, 1M CH3OH 13C in DMSO-d6 (P/N: 210263)

P3= 42usec PLW2= 300W



Current Data Parameters
 NAME 125493_0001p1n
 EXPNO 100
 PROCNO 1

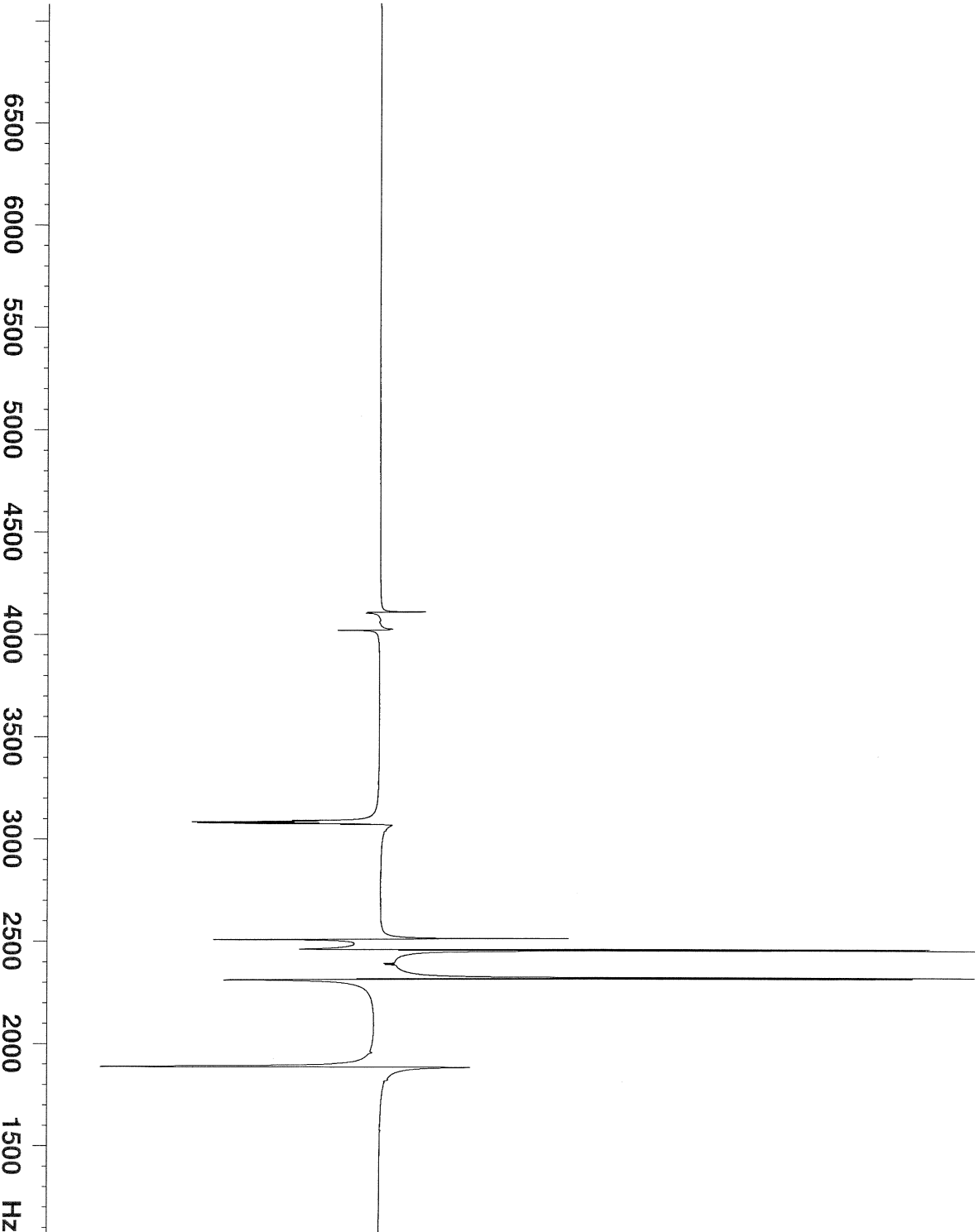
F2 - Acquisition Parameters
 Date_ 20121002
 Time 15.48
 INSTRUM spect
 PROBHD 5 mm PATXI 1H-
 PULPROG decp90
 TD 16384
 SOLVENT DMSO
 NS 1
 DS 0
 SWH 6009.615 Hz
 FIDRES 0.366798 Hz
 AQ 1.3631488 sec
 RG 64
 DW 83.200 usec
 DE 6.50 usec
 TE 298.0 K
 CNST2 88.5000000
 D1 5.0000000 sec
 D2 0.00564972 sec
 TD0 1

==== CHANNEL F1 =====
 SFO1 750.2040803 MHz
 NUC1 1H
 P1 8.00 usec
 PLW1 15.50000000 W

==== CHANNEL F2 =====
 SFO2 76.0228833 MHz
 NUC2 15N
 P3 42.00 usec
 PLW2 300.00000000 W

F1 - Acquisition parameters
 TD 256
 SFO1 188.6513 MHz
 FIDRES 116.620888 Hz
 SW 158.255 ppm
 FMODE States-TPPI

F2 - Processing parameters
 SI 32768
 SF 750.2000000 MHz
 WDM EM
 SSB 0
 LB 0.60 Hz
 GB 0
 PC 1.40



- FINAL TEST - System: 750WB OrderNo.: 10027162 Customer: BBIO Faellanden Engineer: RAWEI
 P/N Console: H03128r2/0334 Shim system: WB original dataset: 125493_0001grr 2 1
 Probe: 5 mm PATXI 1H-13C/15N/D 2-GRD Z125493/0001 Sample depth: 20 Gas: nitrogen
 Gradient recovery experiment; Sample: 0,1 mg GdCl3/ml D2O 1% H2O (P/N: Z10083)

D16= 0.05sec D11= 0.03sec



Current Data Parameters
 NAME 125493_0001grr
 EXPNO 100
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20121004
 Time 8.54
 INSTRUM spect
 PROBHD 5 mm PATXI 1H-
 PULPROG sysprempgp
 TD 16384
 SOLVENT D2O
 NS 1
 DS 0
 SWH 5000.000 Hz
 FIDRES 0.305176 Hz
 AQ 1.6384000 sec
 RG 32
 DW 100.000 usec
 DE 6.50 usec
 TE 298.0 K
 D1 1.00000000 sec
 D11 0.03000000 sec
 D16 0.05000000 sec

==== CHANNEL f1 =====
 SFO1 750.2032259 MHz
 NU01 1H
 P1 8.00 usec
 PLW1 15.50000000 W

==== GRADIENT CHANNEL =====
 GPNAM[1] RECT.1
 GPZ1 20.00 %
 P16 5000.00 usec

F2 - Processing parameters
 SI 32768
 SF 750.2000000 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.00



● Repair Declaration



Equipment Clearance Form for Service, Repair, Disposal or Transfer

Use this form, whenever a probe or other unit situated in a magnet room, or analytical instruments, might be exposed to hazardous substances by customers, when it is to be returned to Bruker.

Whenever a customer returns a system or its components to Bruker, e.g. for repair, upgrade, loan returns, exchange, etc., **the customer accepts the following obligation:**

It is the explicit responsibility of the customer to make sure that the returned products are absolutely free of any hazardous substances. In case of omission to do so, Bruker will hold the customer liable for any resulting injuries and/or damages, caused to employees of Bruker and/or other persons exposed to the hazardous substances, decontamination, security measures, etc. The customer is further liable for all other direct and/or indirect damages caused to Bruker by the hazardous substances.

I ACCEPT THIS OBLIGATION

The repair declaration, completed and signed by the **safety representative**, has to be attached to the returned product. The declaration must be attached to the delivery note on the package exterior. Any returned product without a properly completed and duly signed declaration cannot be repaired. If we think that there is a risk of damage because of a contaminated returned product, we must dispose the hazardous material at the expense of the customer.

The safety & repair declaration form may be signed by a Bruker service engineer if the system was never operated by the customer (e.g. prior to completion of the installation).

The customer/signatory confirms that the returned product is absolutely free of any hazardous substances (e.g. toxic, corrosive, explosive, biologically dangerous or radioactive).

PRODUCT PART NO.:	SERIAL NO.:
FAULT DESCRIPTION (reason for return) :	
DATE FAILURE OCCURRED:	SYSTEM ORDER NO./ DISPATCH NO.:
COMPANY/INSTITUTE:	SIGNATURE: DATE:
NAME:	
MAILING ADDRESS:	
CITY/POSTAL CODE/COUNTRY:	
EMAIL:	



Ticket number:
3000039452

REPAIR TICKET

P.O. #		S.O. #	
Customer: University of Illinois		Initiated:	
BRUKER Repair location:		Accessories:	
Received date: 7-Aug-2017	Ship to: Customer	Return to: Customer	Repair completed: 7-Aug-2017
Part/serial No: Z125493/00001	Description: PA TXI 750W4/S6 H-C/N-D-05 Z		
Service type:	Installation <input type="checkbox"/>	Repair <input checked="" type="checkbox"/>	Calibrate <input type="checkbox"/>
			Exchange <input type="checkbox"/>
			Estimate <input type="checkbox"/>
Payment:	Warranty <input type="checkbox"/>	Courtesy <input type="checkbox"/>	Contract <input checked="" type="checkbox"/>
			Invoice <input type="checkbox"/>
Description of fault: Z Gradient Open			
Material	Part no.	Price:	Price calculation
			Material total: \$ 0.00
			Labor: 3.0 Hrs. at \$ 325.00 / Hr. \$ 975.00
			NMR test
			Sub-total: \$ 975.00
			Discount:
			Net total:
Misc parts			Estimated cost:
Material costs:		\$ 0.00	Repair costs: \$ 975.00
Notes: Soldered broken gradient wire and applied epoxy to secure wire. Cleaned glass inserts and coils. Tuned and matched all channels			
Date: 7-Aug-2017	Signature : Albert		

Bruker BioSpin Corp.
15 Fortune Drive
Manning Park
Billerica, MA 01821

Tel. (978) 667-9580
Fax: (978)667-0985
Email: probes@Bruker.com
Web: www.Bruker.com



Ticket number:
3000041660

REPAIR TICKET

P.O. #		S.O. #	
Customer: Univ of Illinois		Initiated:	
BRUKER Repair location:		Accessories:	
Received date: 8-Sep-2017	Ship to: Customer	Return to: Customer	Repair completed: 19-Sep-2017
Part/serial No: Z125493/0001	Description: TXI 750W4/S6 H-C/N-D-05 Z		
Service type:	Installation <input type="checkbox"/>	Repair <input checked="" type="checkbox"/>	Calibrate <input type="checkbox"/>
			Exchange <input type="checkbox"/>
			Estimate <input type="checkbox"/>
Payment:		Warranty <input type="checkbox"/>	Courtesy <input type="checkbox"/>
			Contract <input checked="" type="checkbox"/>
			Invoice <input type="checkbox"/>
Description of fault: Lock Bursts from 15N channel			
Material	Part no.	Price:	Price calculation
			Material total: \$ 0.00
			Labor: 3.0 Hrs. at \$ 325.00 / Hr. \$ 975.00
			NMR test
			Sub-total: \$ 975.00
			Discount:
			Net total:
Misc parts			Estimated cost:
Material costs:		\$ 0.00	Repair costs: \$ 975.00
Notes: Replaced chip capacitors in 15N,2H circuit. Also optimized isolation between 2H,15N 13C and 1H. Removed and tested heater and thermocouple ok.. Passed system testing.			
Date:	19-Sep-2017	Signature : Albert	

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Sales Order Number	10034466	Sales Order Date	03/01/2011
Customer Number	201178	Transport	2-Day
Incoterms	DDP Chicago	Carrier	
Bill of Lading			

Item part of installaton of AVIII750WB Spectrometer			
Item	Qty	Material	Serials
10	1	PC ZD5463 P-MODUL SB->WB (DISTANZRINGE) 1401 Stock	