Bruker BioSpin MRI

ParaVision 360 V3.6

Shim Calculation

- Protocol "T2star_map_MGE"

Table of Contents

1. Basic Shim Results

Status of shim calculation

Succeeded.

Table 1. Used Pixels

Used Field Values	4,790
Effective Volume	285.506ul

Table 2. Basic Shim Vector

Coil	Map Shim /%	New Shim /%	New Shim /A	Term	Unit
Z0	0.000	0.093	0.001	-582.4	Hz (Z0)
Z	-10.499	-5.380	-0.092	-123.7	Hz / cm**1 (Z)
Z2	0.000	5.154	0.258	184.3	Hz / cm**2 (Z2)
Z3	0.000	-0.324	-0.016	-1.3	Hz / cm**1 (Z)
X	2.782	2.753	0.047	67.5	Hz / cm**1 (X)
Y	-5.198	-7.591	-0.130	-184.0	Hz / cm**1 (Y)
ZX	0.000	0.338	0.017	13.0	Hz / cm**2 (XZ)
ZY	0.000	0.119	0.006	4.7	Hz / cm**2 (YZ)
2XY	0.000	-0.890	-0.044	-22.8	Hz / cm**2 (XY)
X2-Y2	0.000	1.139	0.057	27.3	Hz / cm**2 ((X2-Y2))

Table 3. Basic Shim Statistics

Property	Map	Basic Shim (est.)
Mean/Hz	-8.5	0.0
Standard Deviation /Hz	16.6	8.8
Min/Hz	-103.5	-107.9
Max/Hz	84.7	98.0
Absolute Dev./Hz	12.1	4.9
Outliers Low/High	37 / 12	79 / 72

Figure 1. Histogramm of measured Field Values

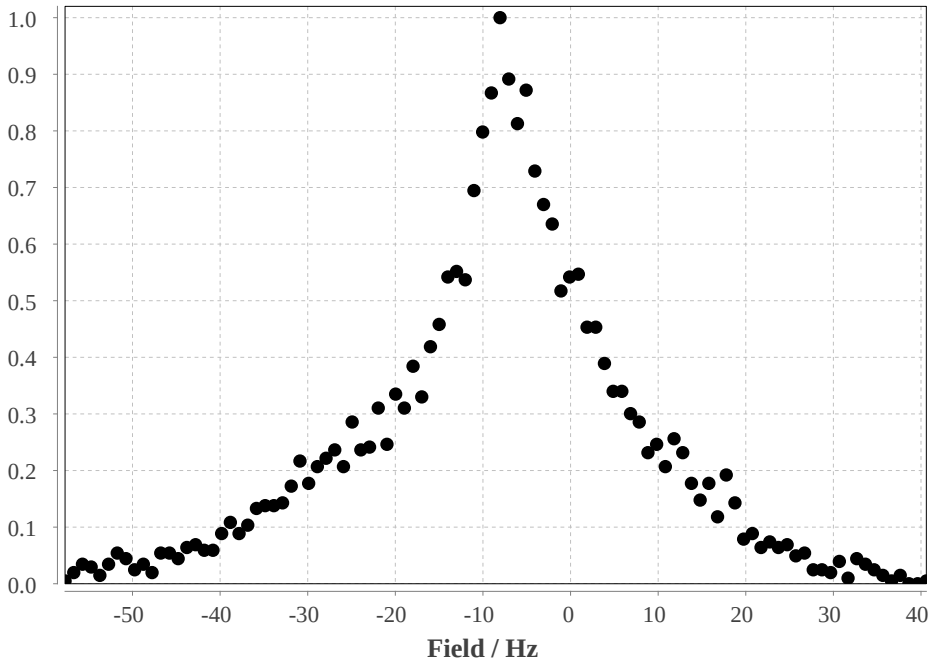
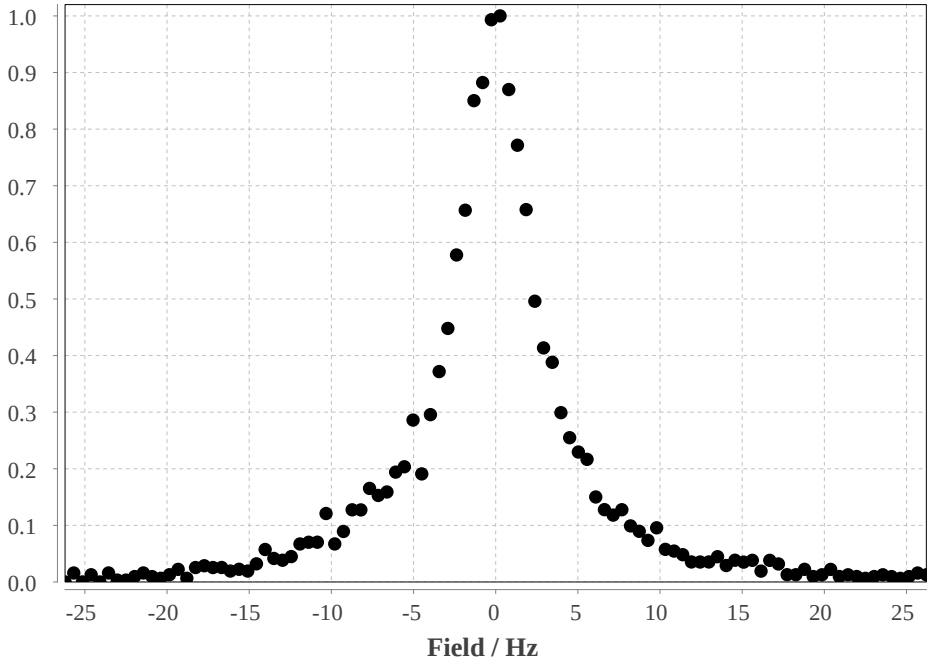


Figure 2. Histogramm of Predicted Field Values



2. Acquisition Information

Study Directory:

20240725_090212_std_PV360_3_6_94T_protocols_1_1

Table 4. Field Map

Property	Value
Expno	19
Procno	1
Scan Cradle position	0
Map Cradle position	0.002

Table 5. Basic Shim Area

Property	Value
Shape	Ellipsoid_In_GobjShape
Extent +1; 1st dir	10.175 mm
Extent +2; 2nd dir	5.798 mm
Extent +3; 3rd dir	9.451 mm
Margin +1; 1st dir	0 mm
Margin +2; 2nd dir	0 mm
Margin +3; 3rd dir	0 mm

3. System Information

Table 6. System Information

Electronic System	AVANCE NEO
Field Strength	9.404 T
Frequency	400.395 MHz

Table 7. Gradient Hardware Information

Gradient Coil	B-GA105S HP GRAD SYSTEM BC94/17 MAXWELL (BFR_W149640_0021)
Gradient Amplifier Type	BGA
Gradient Power Supplies	IECO_XPA

Shim chain identifier:

B-GA105S HP GRAD SYSTEM BC94/17 MAXWELL (BFR W149640/0021).222714468

Parameter that determine the shim chain identifier are marked with a (*).

Table 8. Shim Hardware Information

Shim Coil (*)	B-GA105S HP GRAD SYSTEM BC94/17 MAXWELL (BFR_W149640_0021)
Shim Power Supply	BSPS_8155
Total SPS ouptut channels (*)	8
Shim Unit Type (*)	GTCUBE
Max Shim Value / Hardware units (*)	131,070

Table 9. Shim Power Supply Output Channels

SPS Chan To Coil List (*)	SPS Chan To Coil Imax (*)	SPS Chan To Coil Umax (*)
Shim_Z2	5 A	16 V
Not Connected	5 A	16 V
Shim_YZ	5 A	16 V
Shim_XZ	5 A	16 V
Shim_X2_Y2	5 A	16 V
Shim_2XY	5 A	16 V
Shim_Z3	5 A	16 V
Not Connected	5 A	16 V

Table 10. Parameter that determine the shim chain identifier

Shim Checksum Component Names (*)	Shim Checksum Component Values (*)
GTCUBE	ShimUnit=7
shimMaxVal=131070	shimMaxVal=131070
nSPS=8	nSPS=8
Shim_Z2	SPS_ch2sh[0]=2
SPS_vmax[0]=16	SPS_vmax[0]=16
SPS_imax[0]=5000	SPS_imax[0]=5000
Shim_Invalid	SPS_ch2sh[1]=64
SPS_vmax[1]=16	SPS_vmax[1]=16
SPS_imax[1]=5000	SPS_imax[1]=5000
Shim_YZ	SPS_ch2sh[2]=8
SPS_vmax[2]=16	SPS_vmax[2]=16
SPS_imax[2]=5000	SPS_imax[2]=5000
Shim_XZ	SPS_ch2sh[3]=7
SPS_vmax[3]=16	SPS_vmax[3]=16
SPS_imax[3]=5000	SPS_imax[3]=5000
Shim_X2_Y2	SPS_ch2sh[4]=10
SPS_vmax[4]=16	SPS_vmax[4]=16
SPS_imax[4]=5000	SPS_imax[4]=5000
Shim_2XY	SPS_ch2sh[5]=9
SPS_vmax[5]=16	SPS_vmax[5]=16
SPS_imax[5]=5000	SPS_imax[5]=5000
Shim_Z3	SPS_ch2sh[6]=3
SPS_vmax[6]=16	SPS_vmax[6]=16
SPS_imax[6]=5000	SPS_imax[6]=5000
Shim_Invalid	SPS_ch2sh[7]=64
SPS_vmax[7]=16	SPS_vmax[7]=16
SPS_imax[7]=5000	SPS_imax[7]=5000
shimStatus=BFR_W149640_0021	shimStatus=BFR_W149640_0021
nGPS=3	nGPS=3

Shim Checksum Component Names (*)	Shim Checksum Component Values (*)
IECO_XPA	GPS_type[1]=15
GPS_imax[1]=150000	GPS_imax[1]=150000
IECO_XPA	GPS_type[2]=15
GPS_imax[2]=150000	GPS_imax[2]=150000
IECO_XPA	GPS_type[4]=15
GPS_imax[4]=150000	GPS_imax[4]=150000
gradientStatus=BFR_W149640_0021	gradientStatus=BFR_W149640_0021

Table 11. Shim Coil Properties

Coil Name	Coil Identifier	SPS Index	SPS Imax/A
Z0	Ch1: Spf17 FRED	0	1
Z	Ch2: Spf3 Gradient Z	0	1.705
Z2	Ch3: Spf4 SPS1,1 CoilPins=B1-B2 CoilId=1	1	5
Z3	Ch4: Spf9 SPS1,7 CoilPins=B4-B5 CoilId=6	1	5
X	Ch5: Spf1 Gradient X	0	1.713
Y	Ch6: Spf2 Gradient Y	0	1.713
ZX	Ch7: Spf5 SPS1,4 CoilPins=C4-C5 CoilId=2	1	5
ZY	Ch8: Spf6 SPS1,3 CoilPins=D1-D2 CoilId=3	1	5
2XY	Ch9: Spf7 SPS1,6 CoilPins=F1-F2 CoilId=4	1	5
X2-Y2	Ch10: Spf8 SPS1,5 CoilPins=E4-E5 CoilId=5	1	5

Table 12. Gradient Hardware Components

Gradient Power Supply (*)	IECO_XPA
Max Current (*)	150 A