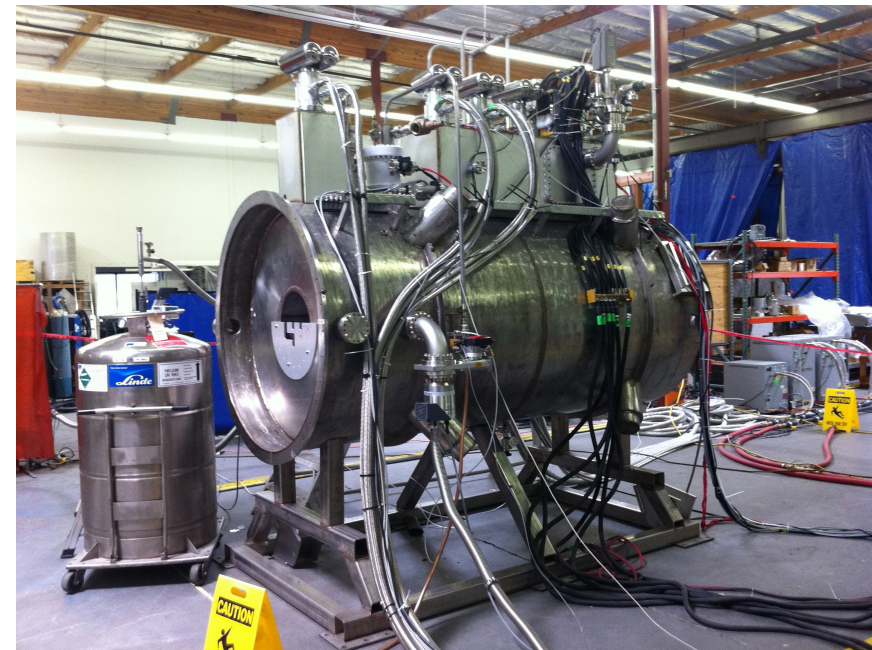
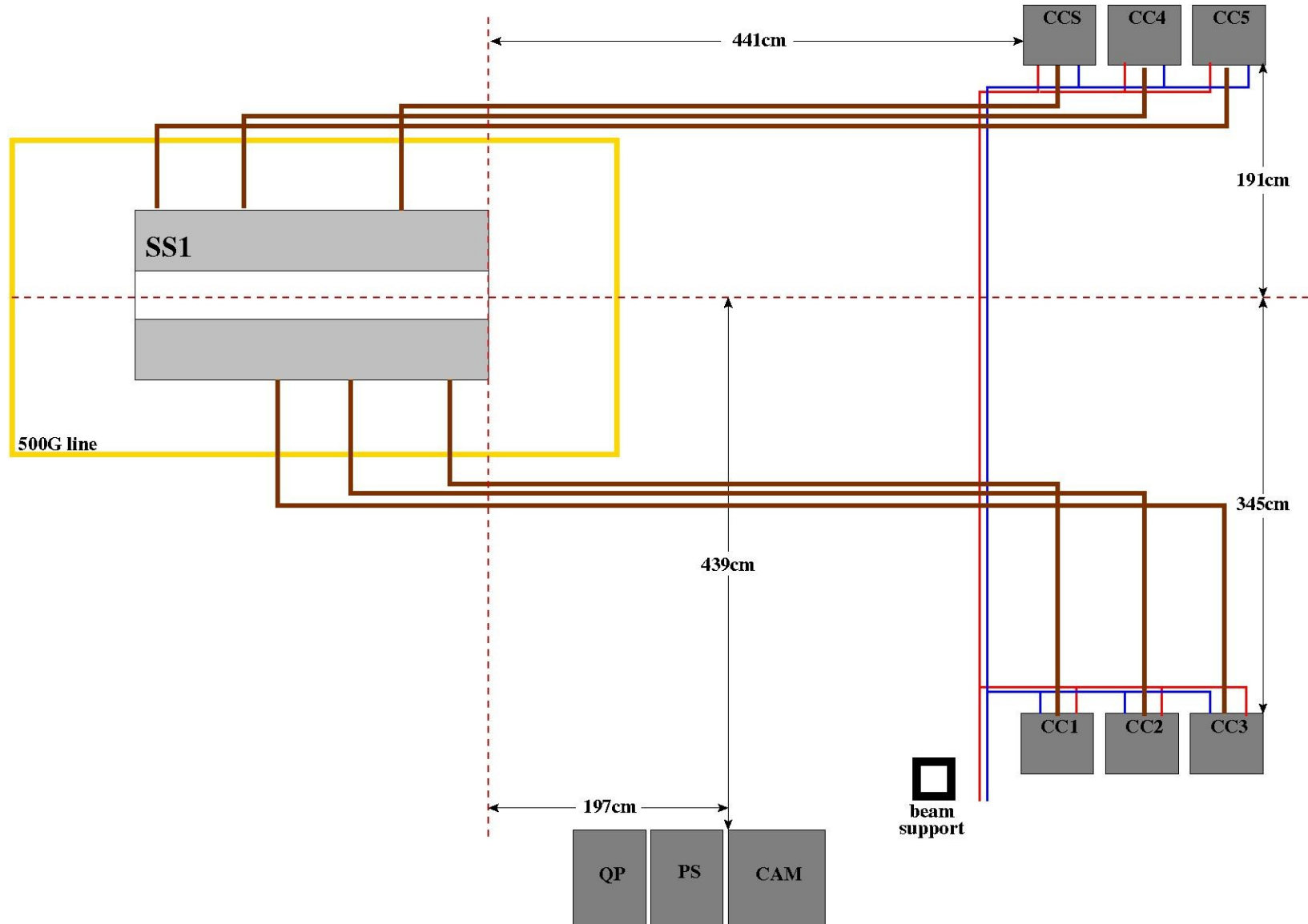


Spectrometer Solenoid 2 Fringe Field Measurements

Pierrick Hanlet, Maria Leonova
23 April 2013



- ***3-axis Hall probe – hand held***
 - ***x: beam axis***
 - ***y: horizontal***
 - ***z: vertical***
- ***coordinate origin at face of magnet***
- ***performed by Maria Leonova***
- ***solenoid and flip modes, 240MeV/c***
- ***beam axis at 150cm***
- ***only C&M rack closed***
- ***position/B errors: +-1cm/+-1G***



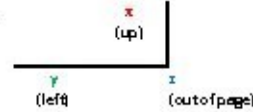
SS2 Solenoid Mode

B_x
 B_y
 B_z

Magnetic Measurements using gaussmeter and Hall probe

Solenoid-mode

coordinate system:



corresponding measurements are color-coded
 all measurements have units of G

space coordinates: shown in black
 next to the field measurements
 origin (0,0,0) is the center of
 the front edge of the magnet
 coordinates have units of cm

409	-3.9	-0.1	409	x	409	-2.5	-1.2	409	x
204	-7.2	-14.3	179	y	-333	8.4	5.8	-418	y
-90	1.0	0.1	-90	z	-90	0.7	0.0	-90	z
x	429	-18.0	x	429	-5.5	x	429	-5.5	x
y	222	-5.3	y	-370	4.0	y	-370	4.0	y
z	-90	2.0	z	-90	0.4	z	-90	0.4	z

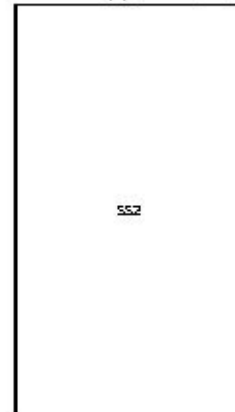
Notes:

measurements done about 12 cm from racks/compressors
 measurements done about 00 cm from the floor for the compressors
 measurements done about 80 cm from the floor for the racks

Errors on Measurements:

the probe was held by hand, thus the coordinate measurements
 are about +/- 1 cm
 and the field measurements are about +/- 1 G

Coord. origin (0,0,150) cm



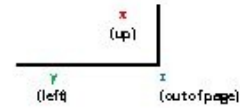
-2.5	3.5	0.3	289	-479	-70
-1.1	0.5	257	x		
1.1	10.5	-331	y		
1.1	-0.4	-70	z		
0.3	5.5	0.0	178	-479	-70
0.5	2.2	119	x		
11.9	10.5	-331	y		
19.1	-0.4	-70	z		
8.9	3.3	0.5	68	-479	-70
3.5	3.8	17	x		
10.4	10.0	-331	y		
3.0	-0.5	-70	z		
13.3	5.4	-0.7	-33	-479	-70
15.0	1.7	-2.3	-129	-479	-70
11.4	9.9	-100	x		
-1.3	-0.5	-331	y		
-0.2	0.0	-70	z		
15.8	-3.4	1.0	-203	-479	-70

B_x
 B_y
 B_z

Magnetic Measurements using gaussmeter and Hall probe

FFB-mode

coordinate system:



000	-4.1	CC5	-4.0	000	x
204	-4.2		-1.0	179	y
-90	0.2		0.0	-90	z
337	-4.1	CC4	-5.3	337	x
204	-4.5		-4.0	179	y
-90	0.5		0.8	-90	z
409	-3.7	SC	-7.1	409	x
204	-7.8		-13.5	179	y
-90	0.0		2.5	-90	z
x	429		-22.2		
y	222		-4.9		
z	-90		1.8		

corresponding measurements are color-coded
 all measurements have units of G

space coordinates: shown in black
 next to the field measurements
 origin (0,0,0) is the center of
 the front edge of the magnet
 coordinates have units of cm

073	-2.2		-2.1	073	x	
-333	3.2		4.2	-418	y	
-90	-0.4		-0.4	-90	z	
000	-2.7	CC1	-1.9	000	x	
-333	5.7		4.7	-418	y	
-90	0.8		-0.1	-90	z	
337	-2.8	CC2	-2.2	337	x	
-333	7.0		5.8	-418	y	
-90	0.3		-0.5	-90	z	
409	-2.2		-2.2	-1.3	409	x
-333	9.2		3.9	0.1	-418	y
-90	0.7		0.5	-0.3	-90	z

Notes:
 measurements done about 12 cm from radcs/compressors
 measurements done about 00 cm from the floor for the compressors
 measurements done about 80 cm from the floor for the radcs

Errors on Measurements:
 the probe was held by hand, thus the coordinate measurements
 are about +/- 1 cm
 and the field measurements are about +/- 1 G

Coord. origin (0,0) (0, 0, 150) cm

SS2

	x	y	z	x	y	z
	-2.2	2.7	1.0	289	-479	-70
	-1.7	-1.3	0.0	237	x	
	17.5	1.0	9.2	-331	y	
	1.0	1.2	1.0	-70	z	
	0.7	5.4	0.7	178	-479	-70
	1.1	2.5	118	x		
	9.2	9.8	-331	y		
	-4.1	3.1	-70	z		
	3.4	3.5	1.1	08	-479	-70
	0.0	-3.5	17	x		
	4.7	2.0	10.5	-331	y	
	19.0	-1.9	1.0	-70	z	
	3.1	-1.9	1.0	-70	z	
	14.0	5.4	0.0	-33	-479	-70
	10.1	1.7	-3.8	-129	-479	-70
	11.4	10.0	-100	x		
	-0.7	-0.0	-331	y		
	2.8	0.4	-70	z		
	14.3	-3.3	3.0	-203	-479	-70

- ***measurements performed***
- ***errors acceptable***
- ***need models for comparison***
 - ◆ ***will try 2D***
 - ◆ ***would like 3D to confirm R9 measurements***
- ***further measurements can be made in May when making field maps***