

GMW Associates

Model 5201 Projected Field Electromagnet Field Map Data

This file contains magnetic field map data for the GMW Model 5201 Projected Field Electromagnet. To view the data file you will need Microsoft Excel 97 or newer version to open up the data file Model_5201_map_data.xls, which can be downloaded at :

http://www.gmw.com/electromagnets/Miniature/5201/documents/Model_5201_map_data.xls

Within the Excel Workbook there are six Worksheets for a total of eight graphs and one data table containing the sample data: 1) Bx vs X at Y=0mm, 2) Bx vs X at Y=20mm, 3) Bx vs Y at X=0mm, 4) Bx vs. Z at X=Y=0 mm, 5) By vs X at Y=0mm, 6) By vs X at Y=20mm, 7) Bz vs X at Y=0mm, 8) Bz vs X at Y=20mm. The data table contains Bx, By, Bz field component data for the Model 5201 Projected field electromagnet operated at 18A and mapped in the quadrant X=0 to +20mm, Y=0 to +20mm, Z=0 to +15mm. The Model 5201 is symmetric about the X and Y axis so this data will closely apply to the other three quadrants for Z>0. The graphs represent samples of the total data collected. Data taken by Yuqiang Quin, December 4, 2003, if you have questions please contact him at yuqiang@gmw.com.

Figure 1. Model 5201 Projected Field Electromagnet



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Model 5201 Map Data Intro ver. 4.20.07 a

GMW ASSOCIATES
5201 Electromagnet Field Map
Bx vs X (Y=0mm, Y=20mm)

Model: 5201
Serial No: 4

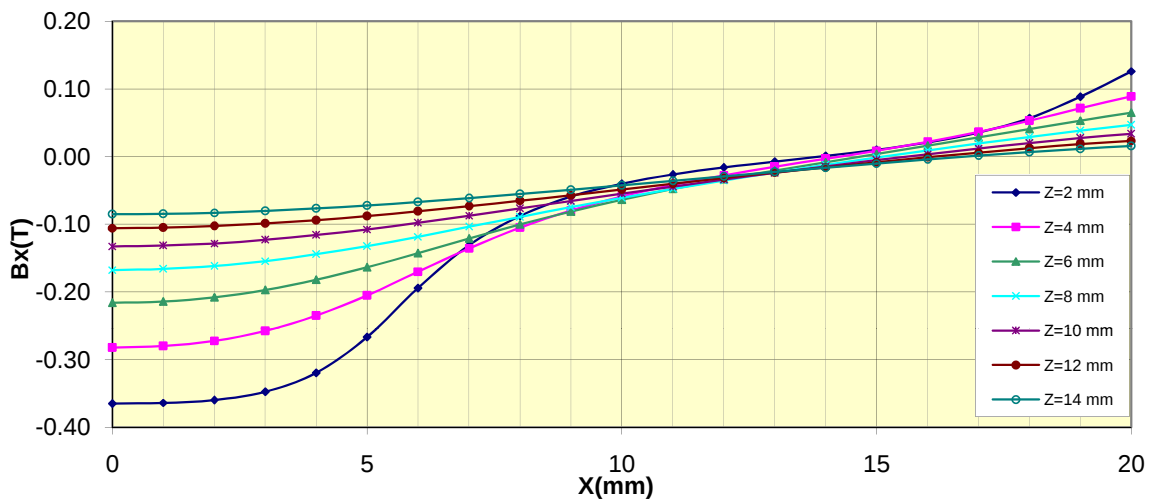
Engr: Y.Q.
Date: 12/4/2003
Page: 1 of 1

Axis convention: x-axis: across pole
y-axis: parallel with pole gap
z-axis: vertical
axis origin(X=Y=Z=0mm) at surface center of the magnet

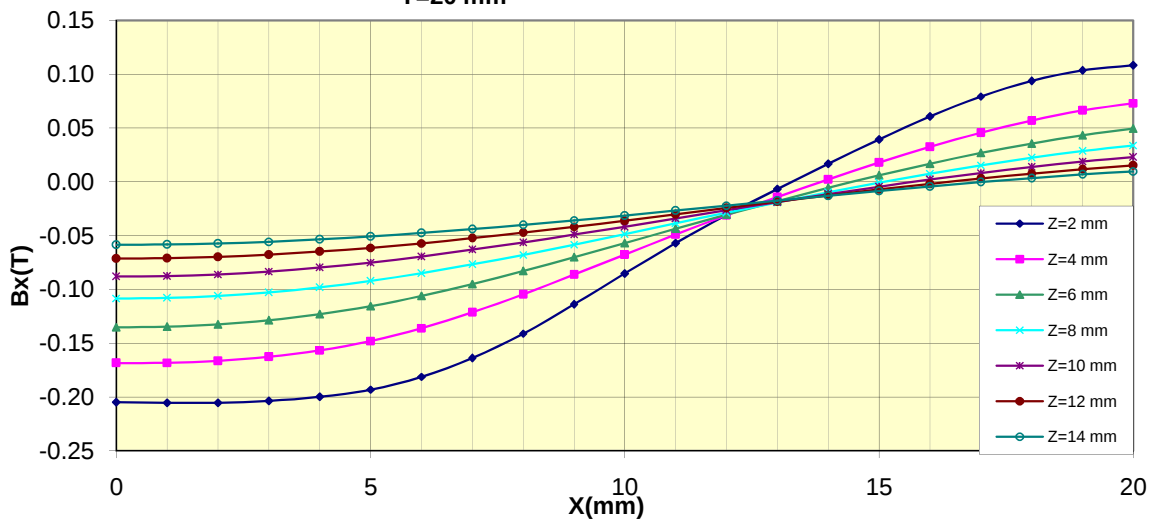
Note 1: Tested at I=18A, Temp=18 Deg C

Note 2: Test area: x=0-20mm, y=0-20mm, z=0-15mm

Y=0 mm



Y=20 mm



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5201 Electromagnet Field Map
Bx vs Y (X=0mm), Bx vs Z (X=Y=0mm)

Model: 5201
Serial No: 4

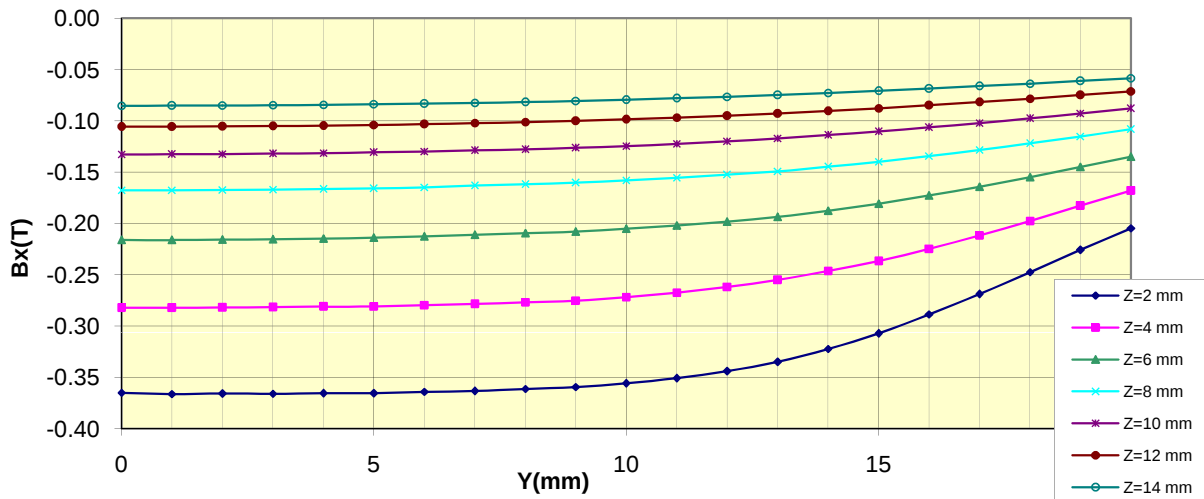
Engr: Y.Q.
Date: 12/4/2003
Page: 1 of 1

Axis convention: x-axis: across pole
y-axis: parallel with pole gap
z-axis: vertical
axis origin(X=Y=Z=0mm) at surface center of the magnet

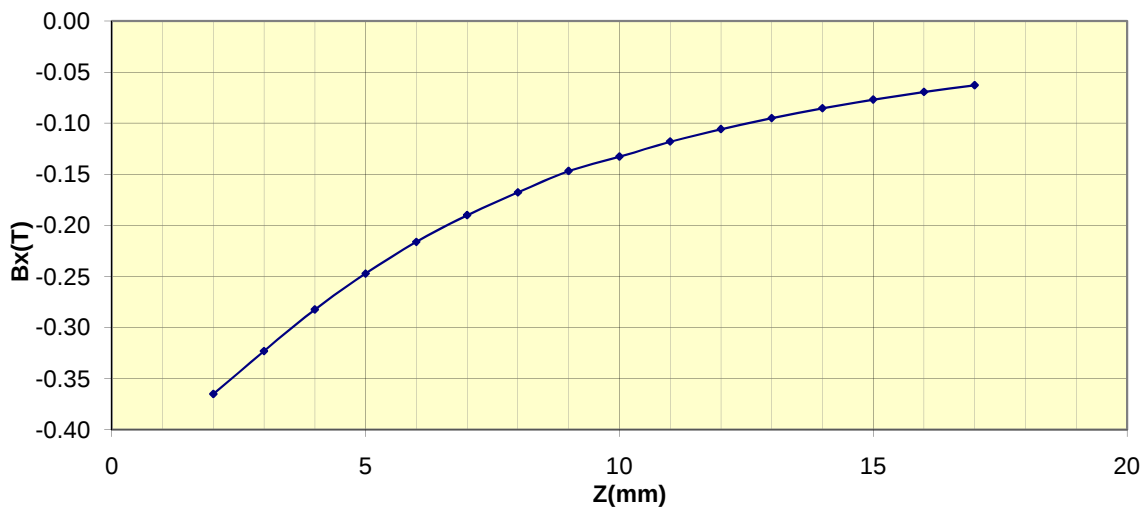
Note 1: Tested at I=18A, Temp=18 Deg C

Note 2: Test area: x=0-20mm, y=0-20mm, z=0-15mm

Bx vs. Y (X=0 mm)



Bx vs. Z (X=Y=0 mm)



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5201 Electromagnet Field Map
By vs X

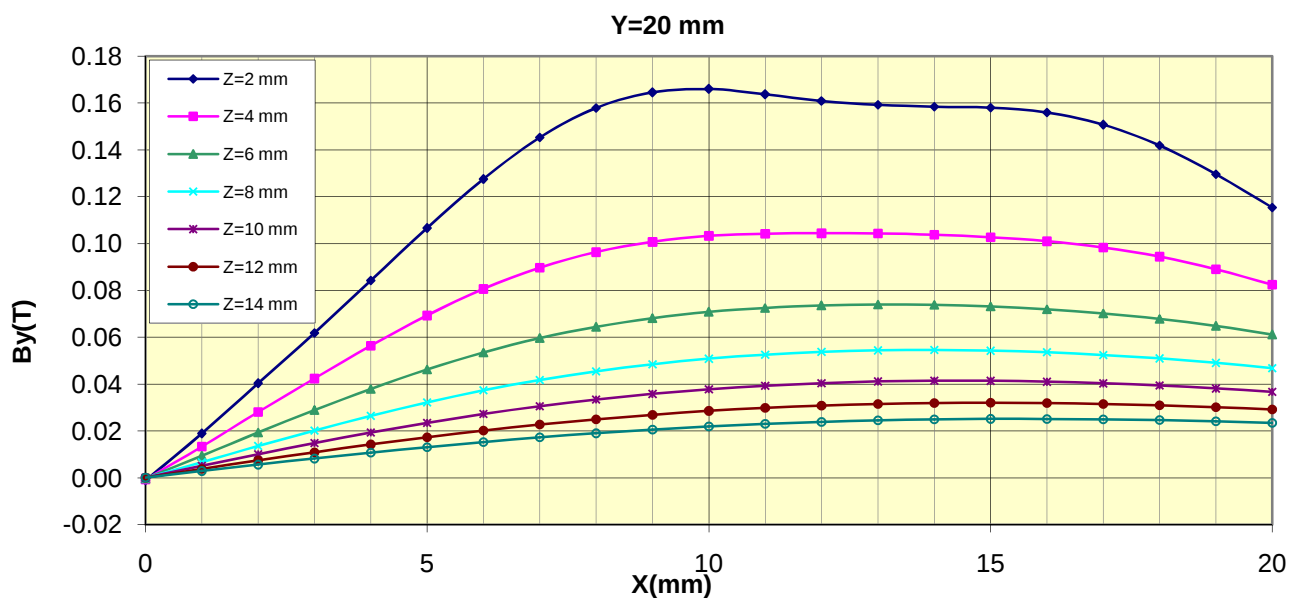
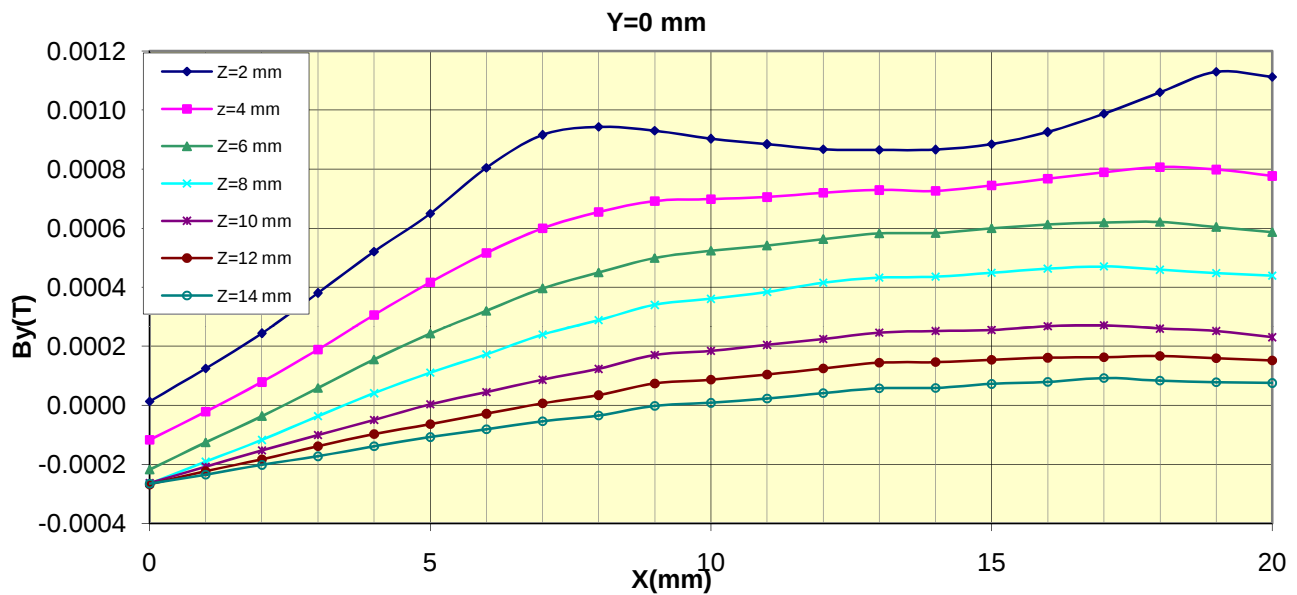
Model: 5201
Serial No: 4

Engr: Y.Q.
Date: 12/4/2003
Page: 1 of 1

Axis convention: x-axis: across pole
y-axis: parallel with pole gap
z-axis: vertical
axis origin(X=Y=Z=0mm) at surface center of the magnet

Note 1: Tested at I=18A, Temp=18 Deg C

Note 2: Test area: x=0-20mm, y=0-20mm, z=0-15mm



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5201 Electromagnet Field Map
Bz vs X

Model: 5201
Serial No: 4

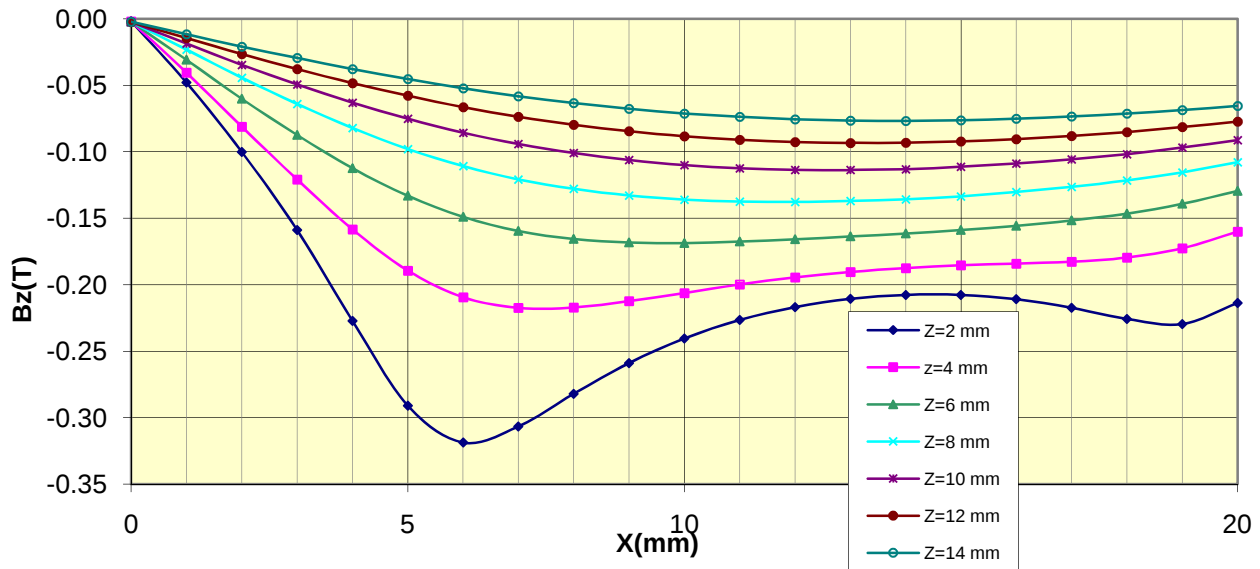
Engr: Y.Q.
Date: 12/4/2003
Page: 1 of 1

Axis convention: x-axis: across pole
y-axis: parallel with pole gap
z-axis: vertical
axis origin(X=Y=Z=0mm) at surface center of the magnet

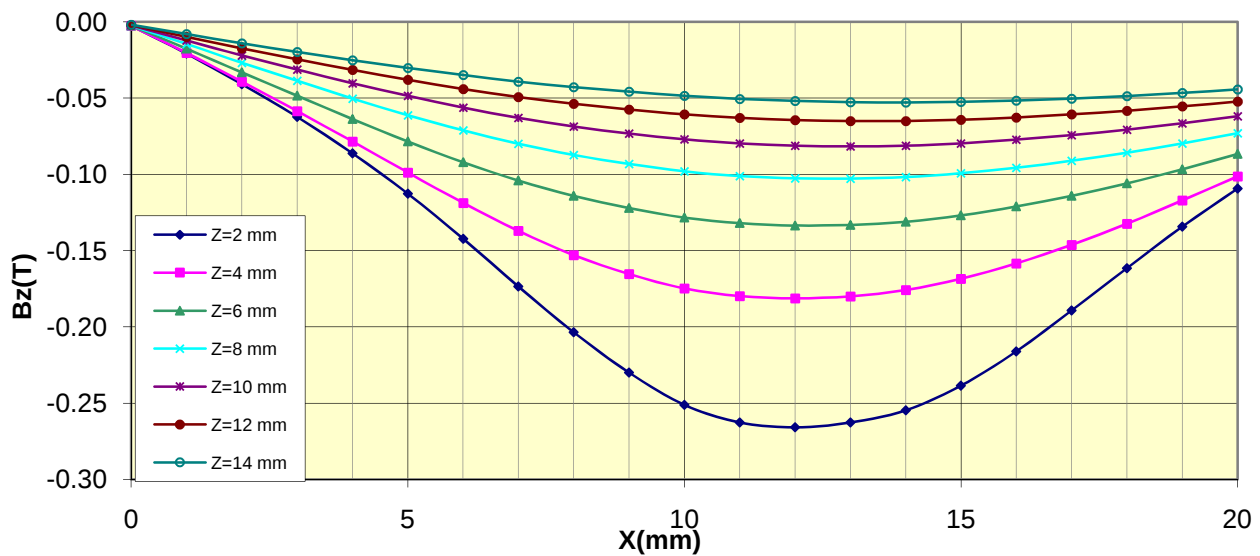
Note 1: Tested at I=18A, Temp=18 Deg C

Note 2: Test area: x=0-20mm, y=0-20mm, z=0-15mm

Y=0 mm



Y=20 mm



XYZ FIELD MAPPING DATA TABLE

Test Engineer: YQ

Date: Thu, Dec 04, 2003

Magnet Model: 5201

Magnet Serial No:0004

Test Projected field magnet.

mapper axis

x-axis: across pole

z-axis: vertical

y-axis: parallel with pole gap

Test at 2mm above pole face. Z=0mm is 2mm above pole face.

Test area: x=0-20mm, y=0-20mm, z=0-15mm

Tested at I=18A, Temp=18 Deg C

Step	POSITION			FIELD				POWER SUPPLY		Time
	X	Z	Y	Bx	Bz	By	Bt	PS V	PS I	
1	0	0	0	-3.65E-01	-1.60E-03	1.30E-05	3.65E-01	17.606	18.026	9:44:52 AM
2	1	0	0	-3.64E-01	-4.80E-02	1.25E-04	3.67E-01	17.586	18.026	9:45:01 AM
3	2	0	0	-3.60E-01	-1.00E-01	2.44E-04	3.73E-01	17.635	18.026	9:45:09 AM
4	3	0	0	-3.48E-01	-1.59E-01	3.80E-04	3.82E-01	17.576	18.026	9:45:17 AM
5	4	0	0	-3.20E-01	-2.27E-01	5.21E-04	3.92E-01	17.616	18.036	9:45:25 AM
6	5	0	0	-2.67E-01	-2.91E-01	6.49E-04	3.95E-01	0	0	9:45:33 AM
7	6	0	0	-1.95E-01	-3.19E-01	8.04E-04	3.73E-01	17.596	18.036	9:45:41 AM
8	7	0	0	-1.31E-01	-3.07E-01	9.16E-04	3.34E-01	17.616	18.026	9:45:49 AM
9	8	0	0	-8.77E-02	-2.82E-01	9.43E-04	2.96E-01	17.616	18.036	9:45:58 AM
10	9	0	0	-5.93E-02	-2.59E-01	9.30E-04	2.66E-01	17.606	18.036	9:46:06 AM
11	10	0	0	-4.02E-02	-2.41E-01	9.03E-04	2.44E-01	17.616	18.036	9:46:14 AM
12	11	0	0	-2.67E-02	-2.27E-01	8.84E-04	2.28E-01	17.606	18.036	9:46:23 AM
13	12	0	0	-1.63E-02	-2.17E-01	8.67E-04	2.17E-01	17.596	18.036	9:46:31 AM
14	13	0	0	-7.55E-03	-2.11E-01	8.65E-04	2.11E-01	17.586	18.026	9:46:40 AM
15	14	0	0	8.17E-04	-2.08E-01	8.66E-04	2.08E-01	17.596	18.036	9:46:49 AM
16	15	0	0	9.71E-03	-2.08E-01	8.85E-04	2.08E-01	17.606	18.036	9:46:58 AM
17	16	0	0	2.06E-02	-2.11E-01	9.25E-04	2.12E-01	17.616	18.026	9:47:06 AM
18	17	0	0	3.53E-02	-2.17E-01	9.88E-04	2.20E-01	17.625	18.026	9:47:14 AM
19	18	0	0	5.66E-02	-2.26E-01	1.06E-03	2.33E-01	17.635	18.026	9:47:23 AM
20	19	0	0	8.84E-02	-2.30E-01	1.13E-03	2.46E-01	17.616	18.036	9:47:31 AM
21	20	0	0	1.26E-01	-2.14E-01	1.11E-03	2.48E-01	17.616	18.026	9:47:40 AM
22	20	0	1	1.27E-01	-2.15E-01	1.67E-03	2.49E-01	17.616	18.036	9:47:48 AM
23	19	0	1	9.07E-02	-2.31E-01	1.68E-03	2.48E-01	17.596	18.026	9:47:56 AM
24	18	0	1	5.80E-02	-2.27E-01	1.60E-03	2.34E-01	17.616	18.026	9:48:05 AM
25	17	0	1	3.63E-02	-2.18E-01	1.50E-03	2.21E-01	17.625	18.026	9:48:13 AM
26	16	0	1	2.11E-02	-2.12E-01	1.43E-03	2.13E-01	17.625	18.026	9:48:21 AM
27	15	0	1	1.02E-02	-2.08E-01	1.37E-03	2.08E-01	17.596	18.036	9:48:30 AM
28	14	0	1	1.35E-03	-2.08E-01	1.33E-03	2.08E-01	17.616	18.036	9:48:39 AM
29	13	0	1	-6.94E-03	-2.11E-01	1.31E-03	2.11E-01	17.635	18.026	9:48:47 AM
30	12	0	1	-1.55E-02	-2.17E-01	1.31E-03	2.17E-01	17.616	18.026	9:48:56 AM
31	11	0	1	-2.57E-02	-2.26E-01	1.31E-03	2.28E-01	17.616	18.036	9:49:04 AM
32	10	0	1	-3.90E-02	-2.40E-01	1.31E-03	2.44E-01	17.625	18.026	9:49:13 AM
33	9	0	1	-5.75E-02	-2.58E-01	1.32E-03	2.65E-01	17.635	18.026	9:49:21 AM
34	8	0	1	-8.52E-02	-2.82E-01	1.31E-03	2.94E-01	17.606	18.036	9:49:30 AM
35	7	0	1	-1.27E-01	-3.07E-01	1.26E-03	3.32E-01	17.616	18.026	9:49:38 AM
36	6	0	1	-1.91E-01	-3.22E-01	1.13E-03	3.74E-01	17.625	18.026	9:49:46 AM
37	5	0	1	-2.65E-01	-2.96E-01	9.38E-04	3.97E-01	17.625	18.036	9:49:54 AM
38	4	0	1	-3.19E-01	-2.33E-01	7.72E-04	3.95E-01	17.606	18.036	9:50:02 AM
39	3	0	1	-3.49E-01	-1.63E-01	5.91E-04	3.85E-01	17.606	18.036	9:50:10 AM
40	2	0	1	-3.61E-01	-1.04E-01	4.01E-04	3.76E-01	17.616	18.026	9:50:19 AM
41	1	0	1	-3.66E-01	-5.03E-02	2.06E-04	3.69E-01	17.596	18.026	9:50:27 AM
42	0	0	1	-3.66E-01	-1.67E-03	7.73E-06	3.66E-01	17.616	18.036	9:50:36 AM
43	0	0	2	-3.66E-01	-1.50E-03	-1.46E-05	3.66E-01	17.606	18.036	9:50:45 AM
44	1	0	2	-3.65E-01	-4.80E-02	2.54E-04	3.68E-01	17.606	18.036	9:50:53 AM
45	2	0	2	-3.61E-01	-1.00E-01	5.28E-04	3.74E-01	17.625	18.026	9:51:01 AM
46	3	0	2	-3.49E-01	-1.59E-01	7.91E-04	3.84E-01	17.645	18.026	9:51:10 AM
47	4	0	2	-3.21E-01	-2.29E-01	1.03E-03	3.94E-01	17.606	18.026	9:51:18 AM
48	5	0	2	-2.68E-01	-2.93E-01	1.23E-03	3.97E-01	17.645	18.026	9:51:26 AM
49	6	0	2	-1.94E-01	-3.21E-01	1.45E-03	3.75E-01	17.616	18.036	9:51:34 AM
50	7	0	2	-1.30E-01	-3.08E-01	1.62E-03	3.35E-01	17.616	18.036	9:51:42 AM
51	8	0	2	-8.71E-02	-2.83E-01	1.69E-03	2.96E-01	17.645	18.026	9:51:50 AM
52	9	0	2	-5.88E-02	-2.60E-01	1.73E-03	2.66E-01	17.606	18.036	9:51:59 AM
53	10	0	2	-3.98E-02	-2.41E-01	1.73E-03	2.44E-01	17.606	18.036	9:52:07 AM
54	11	0	2	-2.63E-02	-2.27E-01	1.74E-03	2.29E-01	17.625	18.036	9:52:16 AM
55	12	0	2	-1.60E-02	-2.17E-01	1.75E-03	2.18E-01	17.645	18.026	9:52:24 AM
56	13	0	2	-7.39E-03	-2.11E-01	1.78E-03	2.11E-01	17.616	18.036	9:52:33 AM
57	14	0	2	9.07E-04	-2.08E-01	1.80E-03	2.08E-01	17.616	18.036	9:52:42 AM
58	15	0	2	9.79E-03	-2.08E-01	1.85E-03	2.08E-01	17.606	18.036	9:52:50 AM

Z for Bx vs Z

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