

## 磁場測定試験成績書

御 得 意 先 高エネルギー加速器研究機構 殿

品 名 収束電磁石

型 名 S2S-Q1 型

電 源 出 力 200V 2500A

製 造 番 号 4664-01

備 品 番 号 —

試 験 場 所 高エネルギー加速器研究機構 殿

2013 年 3 月 19 日

(株)NECトーキン

承 認	検 認	担 当
		佐藤

試験結果

製造番号 4664-01

No.	検査項目	仕様値		検査結果	
1	直流抵抗	20°C時	60.8 mΩ	温度 28.5 °C 60.9 mΩ 20°C換算 R20°C = 58.9 mΩ	
2	インダクタンス	LCRメーターにて	通電前	120 Hz	23.3 mH
				1 KHz	11.8 mH
			通電後	120 Hz	mH
				1 KHz	mH
3	絶縁抵抗	電磁石配管組上げ時 1. 主コイル - 鉄心間 2. 鉄心 - ヘッダー間 3. 主コイル - ヘッダー間 DC1000Vメガー通電前、測定		3月5日 15.1°C 32% >2000 MΩ >2000 MΩ >2000 MΩ 3月6日 13.6°C 35% >2000 MΩ >2000 MΩ >2000 MΩ	
4	水圧テスト	圧力を3.0MPaにて測定 測定開始 3月7日 9時 測定終了 3月7日 17時30分		水温 11°C 圧力 3.0Mpa 水漏れ 無 14°C 3.0Mpa 無	
5	通電テスト	1. 電流値 500 2000 2500 A 2. 圧力損失 1.0 MPa		Fig-1	
6	ウォーターハンマーテスト	1.35Mpa通水時、漏水無き事 1. I NバルブをShut-Open 20回 2. OUTバルブをShut-Open 20回		良 良	
7	電流電圧特性	電流値 0~ 2500 A		Fig-2	

No.	検査項目	仕様値	検査結果
8	水圧流量特性	0~1.55MPa、0.1MPa毎 (IN、OUT差圧)	Fig-1
9	磁場勾配	電流 DC 2,500 A 磁場勾配 — T/m	8.7 T/m
10	励磁特性	電流値 0 ~ 2500A 100A毎測定 測定位置 X= 77.5 Y=0 Z= 440	Fig-3
11	X方向磁場分布	下記電流値にて約5mm間隔測定 500 2000 2500 A 測定位置 Y=0 Z= 440	Fig-4
12	Y方向磁場分布	下記電流値にて約5mm間隔測定 500 2000 2500 A 測定位置 X=0 Z= 440	Fig-5
13	Z方向磁場分布	下記電流値にて約10mm間隔測定 500 2000 2500 A 測定位置 Y=0 X= 77.5	Fig-6
14	極性	<p>極性は端末側から見て以下の通りとする</p>	良否

Fig-1

電磁石通電テスト

S2S-Q1 型電磁石

(直流抵抗 R20= 58.9 mΩ)

DC電流値(A)	500	2000	2500
DC電圧値(V) Total	30.1	125.5	159.8
水圧 IN(MPa)	1.4	1.45	1.45
水圧 OUT(MPa)	0.4	0.45	0.45
圧力損失(MPa)	1.0	1.0	1.0
流量(L/min)	321	323	325
水温 IN(°C)	25	30.5	32
水温 OUT(°C)	26	41	49
室温(°C)	19.1	19.6	19.6
コイル平均動作温度(°C)	25.6	36.6	41.7
コイル温度上昇(°C)	0.6	6.1	9.7

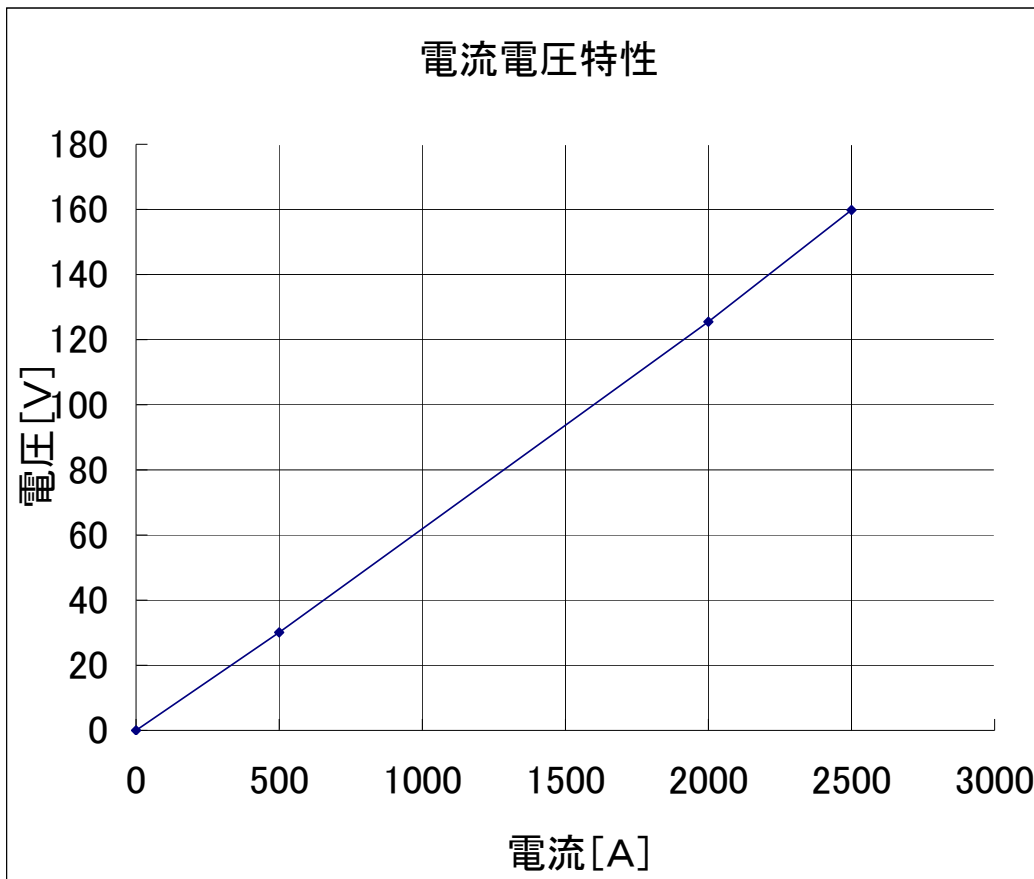


Fig-2

### 電磁石通水テスト

S2S-Q1

型電磁石

タービン測定

製造番号 4664-01

水圧 IN(MPa)	0.45	0.55	0.67	0.78	0.89	1.00	1.10	1.22	1.33	1.45	1.55
水圧 OUT(MPa)	0.35	0.35	0.37	0.38	0.39	0.40	0.40	0.42	0.43	0.45	0.45
圧力損失(MPa)	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10
流量 (L/min)	78.0	124.0	161.0	191.0	217.0	239.0	259.0	281.0	302.0	321.0	339.0

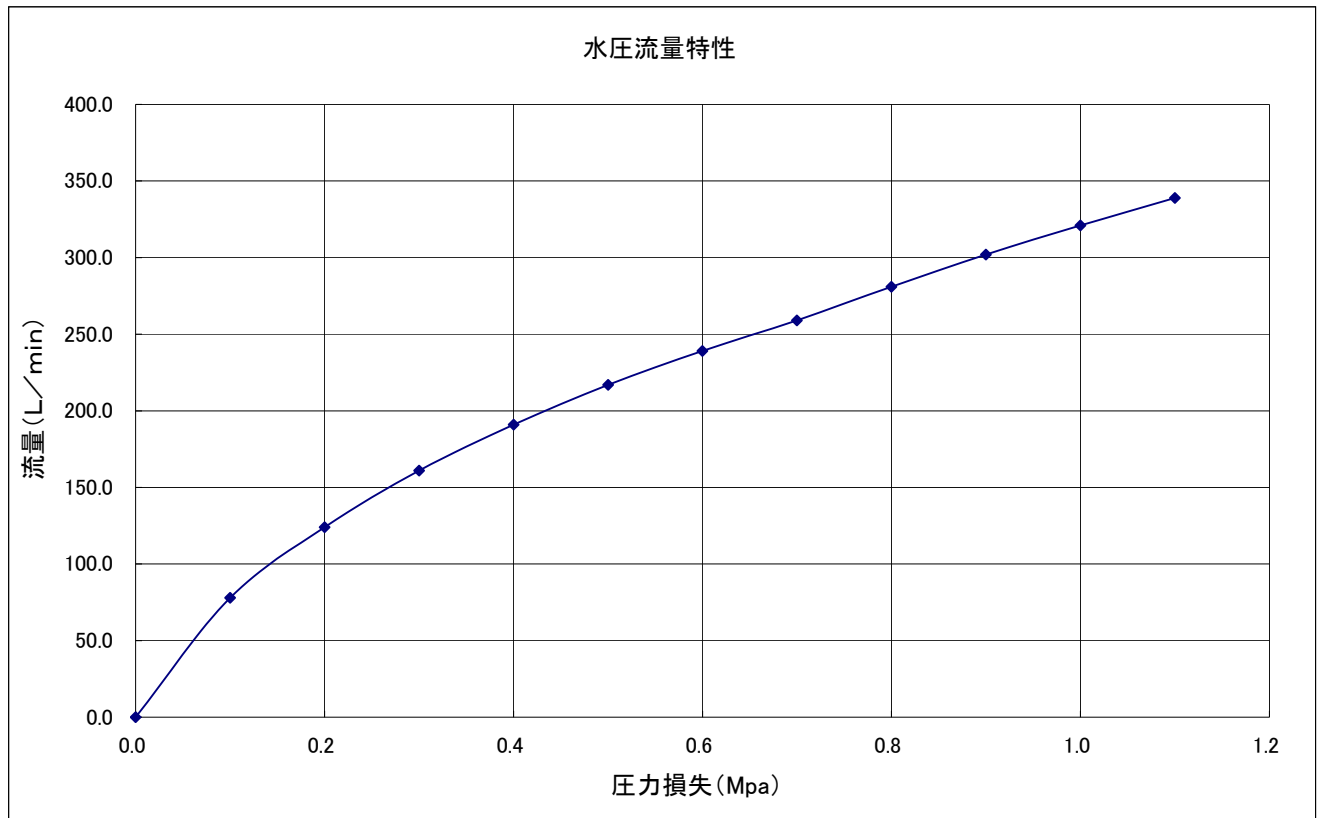
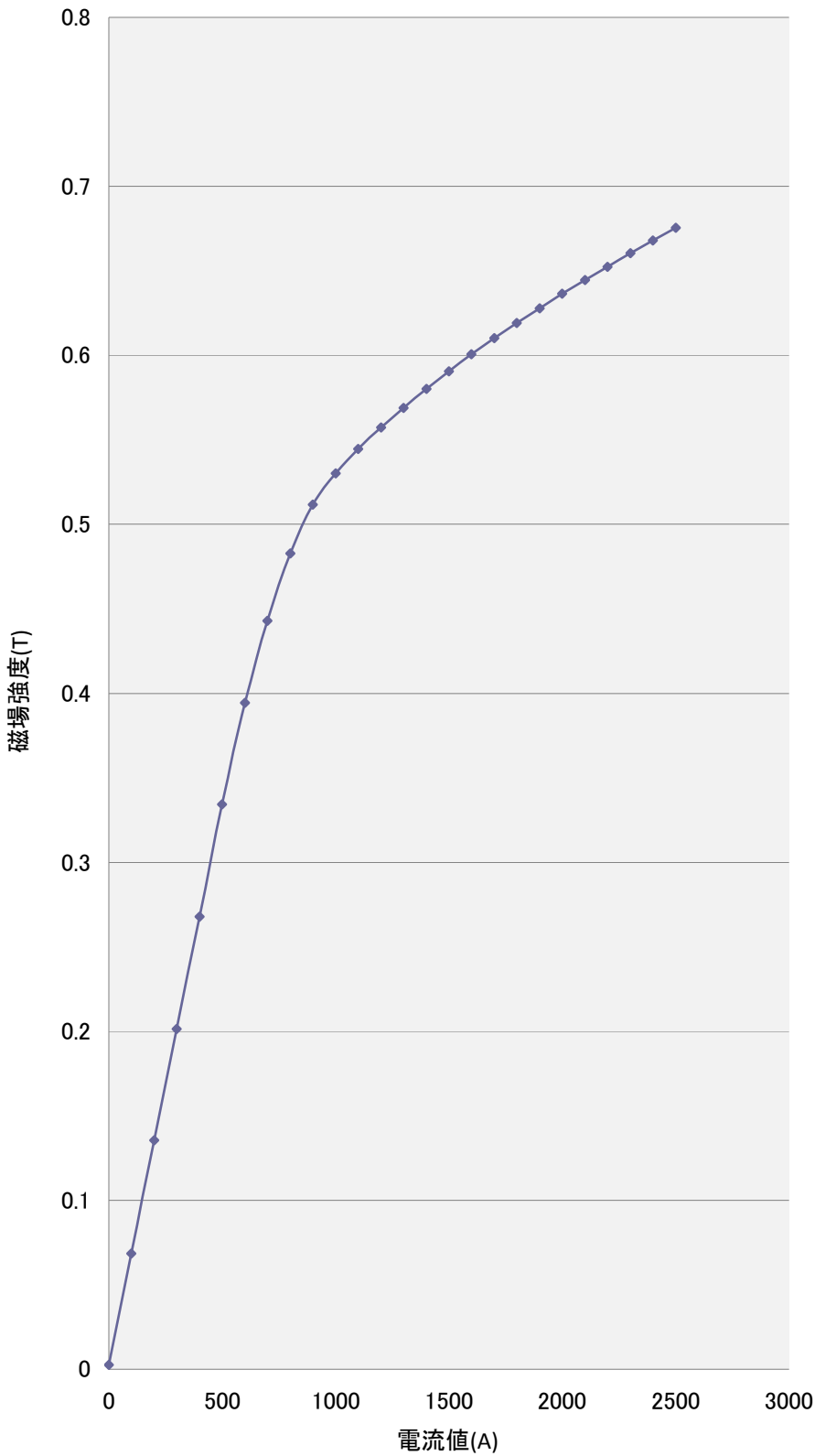


Fig-3

### 励磁特性

測定位置(mm) X=77.5 Y=0 Z=440



電流[A]	磁場Ty[T]
2500	0.6755
2400	0.668
2300	0.6604
2200	0.6525
2100	0.6446
2000	0.6364
1900	0.6279
1800	0.619
1700	0.6101
1600	0.6006
1500	0.5905
1400	0.5801
1300	0.569
1200	0.5572
1100	0.5445
1000	0.5301
900	0.5118
800	0.4828
700	0.4428
600	0.3945
500	0.3342
400	0.2679
300	0.2015
200	0.1354
100	0.0685
0	0.0025

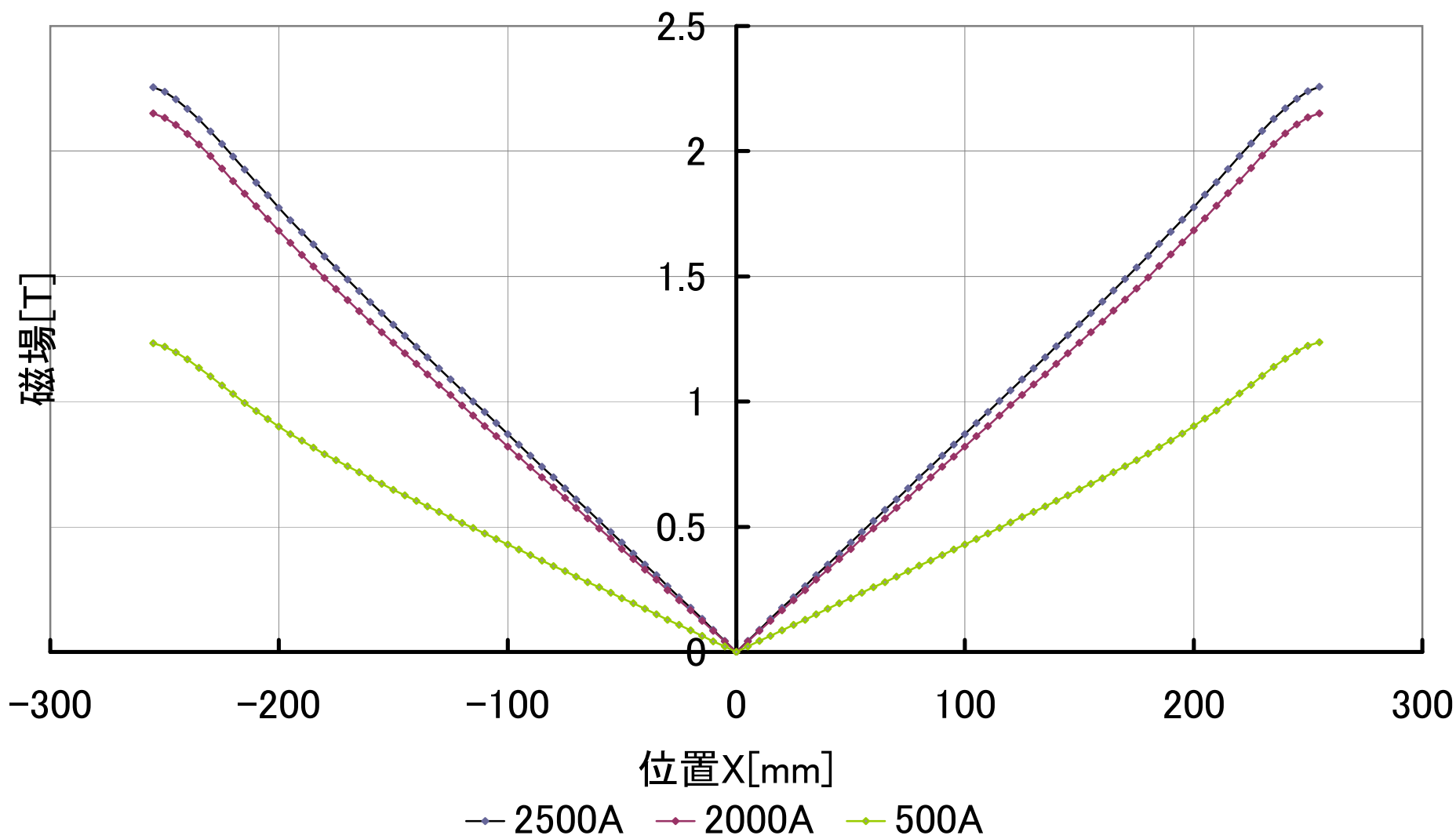
励磁特性

2013年3月15日 15時26分11秒

電磁石電流[A]	位置X[mm]	位置Y[mm]	位置Z[mm]	ホール電E	ホール電E	ホール電E	磁場Tx[T]	磁場Ty[T]	磁場Tz[T]	電磁石電流[V]
2500	77.5	0	440	0.008447	-0.58404	0.014902	0.0035	0.6755	0.013	10.0245
2400	77.5	0	440	0.008432	-0.57752	0.014849	0.0034	0.668	0.013	9.6223
2300	77.5	0	440	0.008485	-0.57091	0.014667	0.0035	0.6604	0.0128	9.2233
2200	77.5	0	440	0.008529	-0.56404	0.014497	0.0036	0.6525	0.0126	8.8164
2100	77.5	0	440	0.008575	-0.55717	0.0144	0.0036	0.6446	0.0125	8.4177
2000	77.5	0	440	0.008551	-0.55004	0.014319	0.0036	0.6364	0.0124	8.0209
1900	77.5	0	440	0.008568	-0.54264	0.014232	0.0036	0.6279	0.0123	7.6176
1800	77.5	0	440	0.008604	-0.53493	0.014096	0.0037	0.619	0.0121	7.213
1700	77.5	0	440	0.008675	-0.52715	0.01392	0.0037	0.6101	0.0119	6.8193
1600	77.5	0	440	0.008691	-0.51895	0.013813	0.0038	0.6006	0.0118	6.42
1500	77.5	0	440	0.008707	-0.51014	0.013622	0.0038	0.5905	0.0116	6.0135
1400	77.5	0	440	0.008696	-0.50109	0.013451	0.0038	0.5801	0.0114	5.6163
1300	77.5	0	440	0.008658	-0.49143	0.013302	0.0037	0.569	0.0112	5.2149
1200	77.5	0	440	0.008593	-0.48117	0.013112	0.0036	0.5572	0.011	4.8144
1100	77.5	0	440	0.008546	-0.47011	0.012901	0.0036	0.5445	0.0107	4.4148
1000	77.5	0	440	0.008453	-0.45757	0.012669	0.0035	0.5301	0.0105	4.015
900	77.5	0	440	0.008341	-0.44167	0.012356	0.0033	0.5118	0.0101	3.6137
800	77.5	0	440	0.008175	-0.41649	0.011855	0.0031	0.4828	0.0095	3.212
700	77.5	0	440	0.007981	-0.38167	0.011165	0.0029	0.4428	0.0088	2.8131
600	77.5	0	440	0.00774	-0.33965	0.010346	0.0026	0.3945	0.0078	2.4122
500	77.5	0	440	0.007471	-0.28723	0.009297	0.0023	0.3342	0.0066	2.0121
400	77.5	0	440	0.007117	-0.22955	0.008186	0.0019	0.2679	0.0053	1.6093
300	77.5	0	440	0.006749	-0.17178	0.007039	0.0015	0.2015	0.004	1.2092
200	77.5	0	440	0.006409	-0.11423	0.005937	0.0011	0.1354	0.0027	0.8097
100	77.5	0	440	0.006068	-0.05606	0.004793	0.0007	0.0685	0.0014	0.4058
0	77.5	0	440	0.005776	0.001357	0.003669	0.0003	0.0025	0.0001	0

Fig4

X方向磁場 Y = 0[mm] Z = 440[mm]





X方向磁場 Y=0 Z=440mm

2500A

2000A

500A

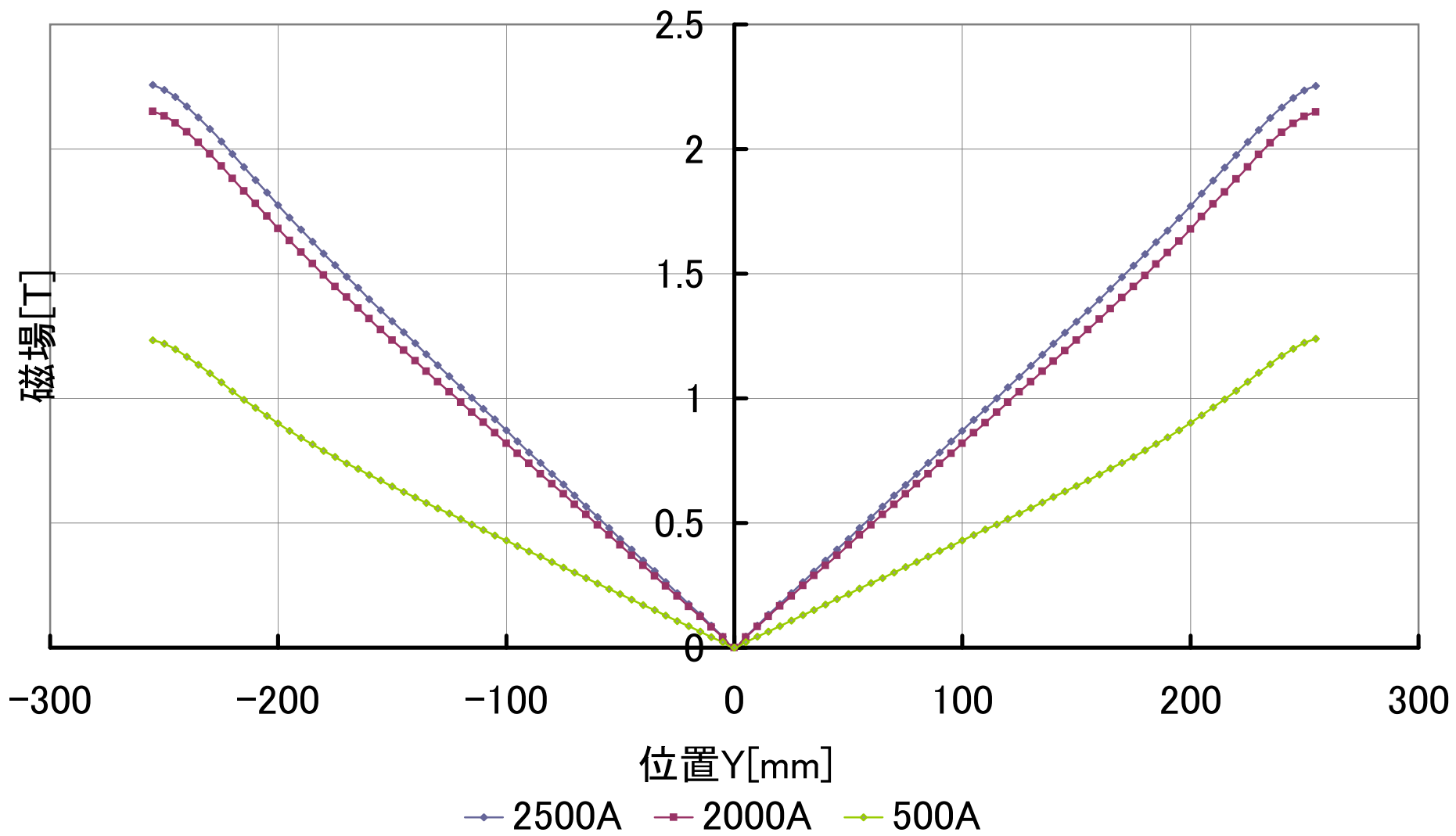
位置X[mm]	磁場By[T]	位置X[mm]	磁場By[T]	位置X[mm]	磁場By[T]
255	2.257143718	255	2.151668468	255	1.237254936
250	2.23842386	250	2.13464314	250	1.222923436
245	2.208990944	245	2.106910631	245	1.200077849
240	2.171669168	240	2.07066343	240	1.170918138
235	2.128552675	235	2.028510493	235	1.13801446
230	2.081310035	230	1.982244837	230	1.102999687
225	2.031539243	225	1.933550595	225	1.067267078
220	1.980632402	220	1.883478914	220	1.031937332
215	1.928969029	215	1.83293422	215	0.99745522
210	1.877332313	210	1.782394401	210	0.964170178
205	1.826359024	205	1.732557489	205	0.932212854
200	1.775806035	200	1.683265775	200	0.901759257
195	1.726127311	195	1.635045841	195	0.872458447
190	1.677091803	190	1.587593087	190	0.844383854
185	1.629042666	185	1.541091512	185	0.817413077
180	1.581748517	180	1.495285305	180	0.791422712
175	1.535234385	175	1.450627391	175	0.766302715
170	1.489158968	170	1.406470099	170	0.741840498
165	1.44347379	165	1.362936072	165	0.717940715
160	1.398399111	160	1.3197567	160	0.694596028
155	1.353593357	155	1.277250051	155	0.671605999
150	1.308958743	150	1.234951655	150	0.648965741
145	1.264837969	145	1.19289816	145	0.626472431
140	1.220546554	140	1.151015779	140	0.604239714
135	1.176695807	135	1.109532647	135	0.582150234
130	1.132835511	130	1.068055268	130	0.560167395
125	1.088978322	125	1.02661209	125	0.538298496
120	1.045347199	120	0.985370361	120	0.516510495
115	1.001664813	115	0.944189747	115	0.494794907
110	0.958166948	110	0.903098407	110	0.473122337
105	0.914561808	105	0.861871462	105	0.451520881
100	0.871088867	100	0.820926898	100	0.42996003
95	0.827618521	95	0.779894406	95	0.408403089
90	0.784014111	90	0.738852226	90	0.386854992
85	0.740600472	85	0.697887165	85	0.365343721
80	0.697161502	80	0.656870778	80	0.343832743
75	0.653683622	75	0.615933839	75	0.322380581
70	0.610207069	70	0.5750103	70	0.30088955
65	0.566874852	65	0.53407205	65	0.279414599
60	0.523414401	60	0.493081171	60	0.257941072
55	0.479966181	55	0.452185355	55	0.236540995
50	0.436669381	50	0.411288084	50	0.215076352
45	0.393212386	45	0.370407618	45	0.193625297
40	0.349782087	40	0.329432752	40	0.172113336
35	0.306379526	35	0.288453761	35	0.150630815
30	0.262910681	30	0.247487711	30	0.129197288
25	0.219404678	25	0.206529609	25	0.107726715
20	0.175957971	20	0.165553772	20	0.086319314
15	0.132350632	15	0.124492921	15	0.064811105
10	0.088646348	10	0.083296368	10	0.04325441
5	0.044732094	5	0.042016381	5	0.021726303
0	0.000270809	0	0.000088355	0	0.000119089
-5	0.044453986	-5	0.04184391	-5	0.021495527
-10	0.088505421	-10	0.083271014	-10	0.043082784
-15	0.132242463	-15	0.124518372	-15	0.064613663
-20	0.175795418	-20	0.165566346	-20	0.086155493
-25	0.21931791	-25	0.206542547	-25	0.107628145
-30	0.262789208	-30	0.247521223	-30	0.12912114
-35	0.306146964	-35	0.288452391	-35	0.150510916

-40	0.349614837	-40	0.329366515	-40	0.172012027
-45	0.393051066	-45	0.370285736	-45	0.193466738
-50	0.436469193	-50	0.411137877	-50	0.214882377
-55	0.479828905	-55	0.45211476	-55	0.236324901
-60	0.523252245	-60	0.492968497	-60	0.257786994
-65	0.566689245	-65	0.533934711	-65	0.279261295
-70	0.61006039	-70	0.574818059	-70	0.300756403
-75	0.653384094	-75	0.615722266	-75	0.322224682
-80	0.696776242	-80	0.656718187	-80	0.343714973
-85	0.740209859	-85	0.697690979	-85	0.36519675
-90	0.783779062	-90	0.738668617	-90	0.386689579
-95	0.827127011	-95	0.77964016	-95	0.408195876
-100	0.870573696	-100	0.820621311	-100	0.429700963
-105	0.914121435	-105	0.861638902	-105	0.451250106
-110	0.957660113	-110	0.90268802	-110	0.472871339
-115	1.001243412	-115	0.943723292	-115	0.494459652
-120	1.044780839	-120	0.984859484	-120	0.516124928
-125	1.088302687	-125	1.026194089	-125	0.537834223
-130	1.132127591	-130	1.067490103	-130	0.55963027
-135	1.175965812	-135	1.108829279	-135	0.58150086
-140	1.219796615	-140	1.150462847	-140	0.603551001
-145	1.263811243	-145	1.19210509	-145	0.62571723
-150	1.308123095	-150	1.234145083	-150	0.648098415
-155	1.352551372	-155	1.276260599	-155	0.670751907
-160	1.39732594	-160	1.318851662	-160	0.693774296
-165	1.442278144	-165	1.361946025	-165	0.717128851
-170	1.487862021	-170	1.405437091	-170	0.740947515
-175	1.533686769	-175	1.449326029	-175	0.765297414
-180	1.580301617	-180	1.494054438	-180	0.790348291
-185	1.627668883	-185	1.539670996	-185	0.816234505
-190	1.675556308	-190	1.586126567	-190	0.84311104
-195	1.724500562	-195	1.633224732	-195	0.871034116
-200	1.773914445	-200	1.681489942	-200	0.900177123
-205	1.824383865	-205	1.73068988	-205	0.93058512
-210	1.875418744	-210	1.780627849	-210	0.962288623
-215	1.926823599	-215	1.830998599	-215	0.995383986
-220	1.978292312	-220	1.881361228	-220	1.029734363
-225	2.029239178	-225	1.931313302	-225	1.064840134
-230	2.078834783	-230	1.980109831	-230	1.100276253
-235	2.126310972	-235	2.026312137	-235	1.135129152
-240	2.16964539	-240	2.068555678	-240	1.167934657
-245	2.207060747	-245	2.104707729	-245	1.196800088
-250	2.236440001	-250	2.132637863	-250	1.219542523
-255	2.255702864	-255	2.150252508	-255	1.233938801

位置X[mm] 磁場By[T] 位置X[mm] 磁場By[T] 位置X[mm] 磁場By[T]  
2500A 2000A 500A  
X方向磁場 Y=0 Z=440mm

Fig5

Y方向磁場 X = 0[mm] Z = 440[mm]



Y方向磁場 X=0 Z=440

2500A

2000A

500A

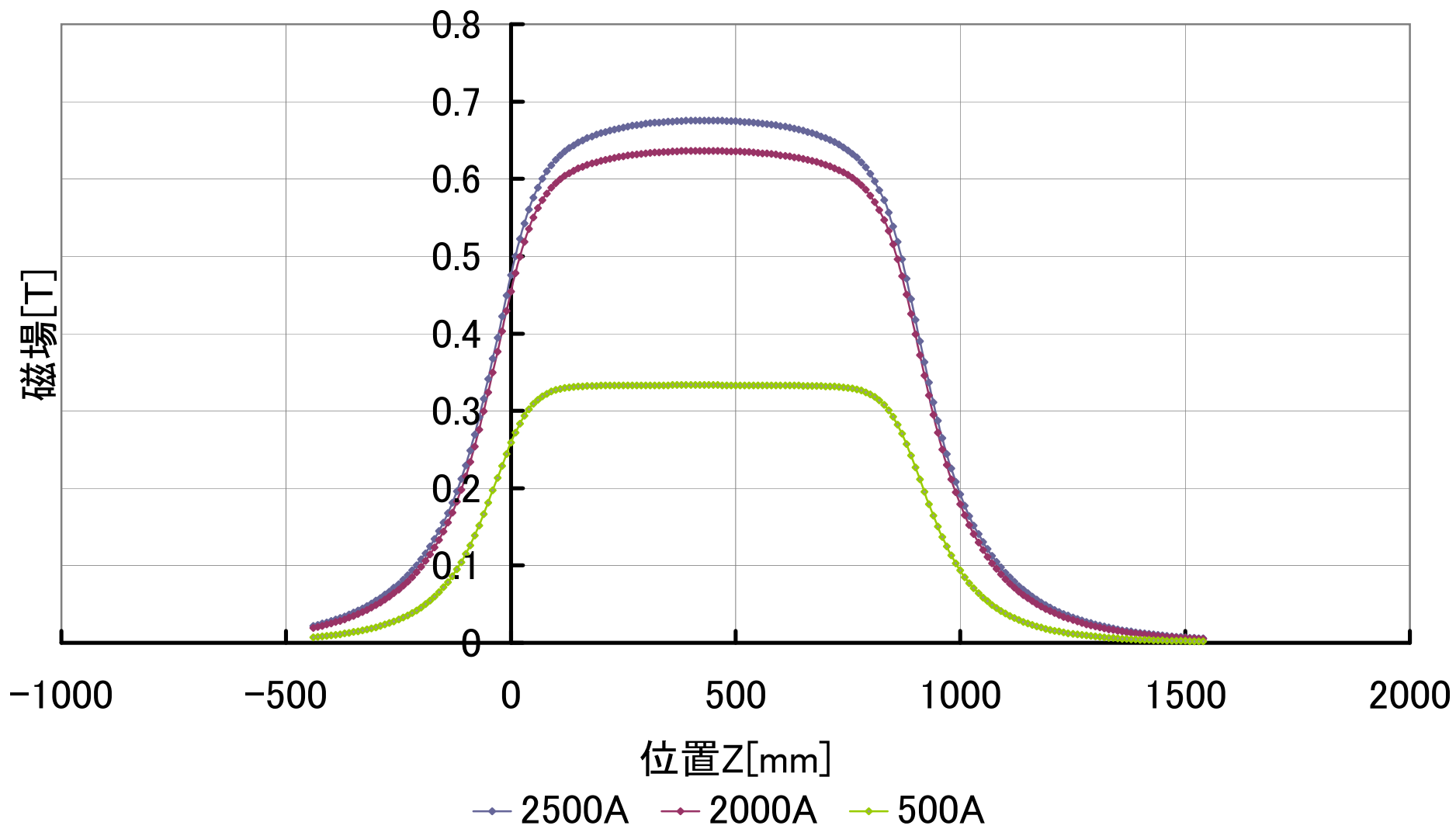
位置Y[mm]	磁場Bx[T]	位置Y[mm]	磁場Bx[T]	位置Y[mm]	磁場Bx[T]
255	2.253797222	255	2.1483843	255	1.238083314
250	2.234185869	250	2.130625034	250	1.222747272
245	2.204633651	245	2.102298689	245	1.199085327
240	2.166962128	240	2.066620882	240	1.169719564
235	2.123602774	235	2.024409812	235	1.136593607
230	2.076392377	230	1.977950826	230	1.101612958
225	2.027257241	225	1.928660726	225	1.065851335
220	1.975923714	220	1.878840896	220	1.03055402
215	1.924717691	215	1.828305024	215	0.996058057
210	1.872832239	210	1.778410789	210	0.962897089
205	1.822233379	205	1.728847904	205	0.931133342
200	1.771691528	200	1.679330783	200	0.900621102
195	1.722339586	195	1.631503235	195	0.871482397
190	1.673469108	190	1.58390953	190	0.843780513
185	1.625653764	185	1.537596123	185	0.816937074
180	1.578918508	180	1.492737641	180	0.791202001
175	1.531758608	175	1.44761651	175	0.766045442
170	1.485754855	170	1.403814404	170	0.741775836
165	1.440571313	165	1.360186202	165	0.717893158
160	1.395823234	160	1.317478612	160	0.694483192
155	1.350750901	155	1.275480705	155	0.671414032
150	1.306587031	150	1.232773353	150	0.648823773
145	1.262746978	145	1.191099056	145	0.626541982
140	1.218072598	140	1.149191418	140	0.60407234
135	1.174295041	135	1.108218434	135	0.582250739
130	1.131270588	130	1.066363842	130	0.560109438
125	1.087094565	125	1.025295851	125	0.538228031
120	1.043691421	120	0.984463249	120	0.516478371
115	1.000547474	115	0.942793919	115	0.49479457
110	0.956533147	110	0.901802828	110	0.473190301
105	0.913039178	105	0.861141736	105	0.451634422
100	0.869867802	100	0.820002043	100	0.430080875
95	0.826389462	95	0.779088935	95	0.40858692
90	0.78300351	90	0.738151155	90	0.387028163
85	0.740147595	85	0.697274464	85	0.365591106
80	0.696686116	80	0.656411474	80	0.344114087
75	0.652794259	75	0.615583299	75	0.322987656
70	0.609697228	70	0.575150614	70	0.30163216
65	0.566424684	65	0.53374994	65	0.279791262
60	0.522670535	60	0.492887659	60	0.25859456
55	0.47964247	55	0.452505169	55	0.236909931
50	0.436516985	50	0.411149472	50	0.215472618
45	0.392709249	45	0.370182533	45	0.194392093
40	0.349180748	40	0.329395384	40	0.172587234
35	0.306171471	35	0.289034235	35	0.151353121
30	0.262478377	30	0.248057672	30	0.129688257
25	0.21905796	25	0.206709528	25	0.10851412
20	0.175508322	20	0.166034662	20	0.086665342
15	0.132532288	15	0.125085016	15	0.06507926
10	0.088736066	10	0.083902057	10	0.043619315
5	0.045008578	5	0.042527135	5	0.022078385
0	0.000278275	0	0.000721373	0	0.00048454
-5	0.04451695	-5	0.041572347	-5	0.021142095
-10	0.088449255	-10	0.082922447	-10	0.042773945
-15	0.132053422	-15	0.123807543	-15	0.064038971

-20	0.175536093	-20	0.164926104	-20	0.085474349
-25	0.219781496	-25	0.206089772	-25	0.106839643
-30	0.263229795	-30	0.246764732	-30	0.128365849
-35	0.306544286	-35	0.287833316	-35	0.149911055
-40	0.34952085	-40	0.329365324	-40	0.171222908
-45	0.393336917	-45	0.37010868	-45	0.192786528
-50	0.436744118	-50	0.410706803	-50	0.214428985
-55	0.47960672	-55	0.451759623	-55	0.235646274
-60	0.523549112	-60	0.492966002	-60	0.257404141
-65	0.566508675	-65	0.533226677	-65	0.278804032
-70	0.610157112	-70	0.574757434	-70	0.300267841
-75	0.654153418	-75	0.61576068	-75	0.321692281
-80	0.697325861	-80	0.656487809	-80	0.343159502
-85	0.740374095	-85	0.697627167	-85	0.364648327
-90	0.783914292	-90	0.738368244	-90	0.386126415
-95	0.827956436	-95	0.779318564	-95	0.407628616
-100	0.871421987	-100	0.819997318	-100	0.429168613
-105	0.914859989	-105	0.861562541	-105	0.450687878
-110	0.958353742	-110	0.902709089	-110	0.472406801
-115	1.001757331	-115	0.943653584	-115	0.49392451
-120	1.045068192	-120	0.984299945	-120	0.515567165
-125	1.088914853	-125	1.026026502	-125	0.537258788
-130	1.132731993	-130	1.067127199	-130	0.559072875
-135	1.17601606	-135	1.108368928	-135	0.580969579
-140	1.220531677	-140	1.150339245	-140	0.602977499
-145	1.264518764	-145	1.192138921	-145	0.625147711
-150	1.308376882	-150	1.233871183	-150	0.647587276
-155	1.3532678	-155	1.275835788	-155	0.670187872
-160	1.398164782	-160	1.318901785	-160	0.69298069
-165	1.443086877	-165	1.361644347	-165	0.716331675
-170	1.48869869	-170	1.404827826	-170	0.739958232
-175	1.534644521	-175	1.448618684	-175	0.764395808
-180	1.581310298	-180	1.493756828	-180	0.789415304
-185	1.628172746	-185	1.539191619	-185	0.815621887
-190	1.6768251	-190	1.586006632	-190	0.842163796
-195	1.725548009	-195	1.632968346	-195	0.870093365
-200	1.774826885	-200	1.681421041	-200	0.899422981
-205	1.824972293	-205	1.7302806	-205	0.929904878
-210	1.876294845	-210	1.78040575	-210	0.961732131
-215	1.927299523	-215	1.830538129	-215	0.994405259
-220	1.97919331	-220	1.880938743	-220	1.02897036
-225	2.029449234	-225	1.93094697	-225	1.064206978
-230	2.079660062	-230	1.979703631	-230	1.099557138
-235	2.126540996	-235	2.025529142	-235	1.134393237
-240	2.1706031	-240	2.068411568	-240	1.16696527
-245	2.207979548	-245	2.104843344	-245	1.1959545
-250	2.237727653	-250	2.132263724	-250	1.218961266
-255	2.257101881	-255	2.150302121	-255	1.233826294

位置Y[mm]	磁場Bx[T]	位置Y[mm]	磁場Bx[T]	位置Y[mm]	磁場Bx[T]
2500A		2000A		500A	
Y方向磁場	X=0 Z=440				

Fig6

Z方向引き抜き X = 77.5[mm] Y = 0[mm]



Z方向引き抜き		X=77.5 Y=0mm			
2500A		2000A		500A	
位置Z[mm]	磁場By[T]	位置Z[mm]	磁場By[T]	位置Z[mm]	磁場By[T]
1540	0.00568	1540	0.005049	1540	0.001784
1530	0.006005	1530	0.005324	1530	0.001891
1520	0.006348	1520	0.005638	1520	0.001993
1510	0.006734	1510	0.005968	1510	0.002126
1500	0.007133	1500	0.006305	1500	0.00225
1490	0.007536	1490	0.006675	1490	0.00238
1480	0.007997	1480	0.007067	1480	0.002543
1470	0.008468	1470	0.007489	1470	0.002697
1460	0.008983	1460	0.007955	1460	0.002866
1450	0.009525	1450	0.00844	1450	0.003036
1440	0.010095	1440	0.008937	1440	0.003238
1430	0.010708	1430	0.00948	1430	0.003452
1420	0.011368	1420	0.010067	1420	0.003651
1410	0.012084	1410	0.010695	1410	0.003927
1400	0.012821	1400	0.011361	1400	0.004169
1390	0.013609	1390	0.012073	1390	0.00445
1380	0.014465	1380	0.012824	1380	0.004751
1370	0.015382	1370	0.013641	1370	0.005077
1360	0.016372	1360	0.014502	1360	0.005399
1350	0.017394	1350	0.015421	1350	0.005794
1340	0.018518	1340	0.016432	1340	0.006202
1330	0.01971	1330	0.017501	1330	0.006632
1320	0.020984	1320	0.018625	1320	0.007099
1310	0.022353	1310	0.019861	1310	0.007598
1300	0.023809	1300	0.021167	1300	0.008146
1290	0.025391	1290	0.022563	1290	0.008739
1280	0.027057	1280	0.024068	1280	0.009375
1270	0.028866	1270	0.025695	1270	0.010077
1260	0.030783	1260	0.027419	1260	0.010836
1250	0.032866	1250	0.029284	1250	0.011643
1240	0.03506	1240	0.031303	1240	0.012521
1230	0.037458	1230	0.03344	1230	0.013481
1220	0.039996	1220	0.035754	1220	0.014534
1210	0.04272	1210	0.038236	1210	0.01566
1200	0.04566	1200	0.040892	1200	0.016908
1190	0.04883	1190	0.043776	1190	0.018263
1180	0.052214	1180	0.046871	1180	0.019714
1170	0.055842	1170	0.050216	1170	0.021335
1160	0.059778	1160	0.053836	1160	0.023081
1150	0.064	1150	0.057722	1150	0.025022
1140	0.068567	1140	0.061928	1140	0.027131
1130	0.073469	1130	0.066485	1130	0.029437
1120	0.078795	1120	0.071403	1120	0.031969
1110	0.084514	1110	0.076726	1110	0.034775
1100	0.090711	1100	0.082534	1100	0.037846
1090	0.097416	1090	0.088829	1090	0.041244
1080	0.104684	1080	0.095668	1080	0.044974
1070	0.112575	1070	0.103127	1070	0.049106
1060	0.121157	1060	0.111263	1060	0.053689
1050	0.130507	1050	0.120147	1050	0.058722
1040	0.140679	1040	0.129867	1040	0.064331
1030	0.151837	1030	0.140527	1030	0.07055
1020	0.164005	1020	0.152229	1020	0.077425
1010	0.177316	1010	0.165066	1010	0.085085
1000	0.191912	1000	0.179171	1000	0.093531
990	0.207895	990	0.194613	990	0.10287
980	0.225326	980	0.211557	980	0.113165
970	0.244353	970	0.230028	970	0.124452
960	0.265019	960	0.250144	960	0.136786
950	0.287318	950	0.271863	950	0.150114
940	0.311198	940	0.295158	940	0.164387
930	0.336535	930	0.319829	930	0.179484
920	0.363008	920	0.345628	920	0.195163
910	0.39026	910	0.372163	910	0.21113
900	0.417746	900	0.3989	900	0.227062
890	0.44491	890	0.425229	890	0.24249

880	0.471097	880	0.450573	880	0.257058
870	0.495784	870	0.474332	870	0.270361
860	0.51847	860	0.496073	860	0.282174
850	0.538779	850	0.51547	850	0.292368
840	0.556732	840	0.532434	840	0.300919
830	0.572312	830	0.547051	830	0.307918
820	0.585643	820	0.559438	820	0.313546
810	0.596927	810	0.569832	810	0.317976
800	0.606479	800	0.578561	800	0.321434
790	0.614643	790	0.58583	790	0.324092
780	0.621559	780	0.591947	780	0.326123
770	0.627479	770	0.597078	770	0.327643
760	0.632555	760	0.601442	760	0.32882
750	0.636992	750	0.605217	750	0.329715
740	0.640934	740	0.608492	740	0.330378
730	0.644398	730	0.611382	730	0.330911
720	0.647481	720	0.613923	720	0.331292
710	0.650252	710	0.616193	710	0.331645
700	0.652802	700	0.618211	700	0.331849
690	0.655063	690	0.620029	690	0.332046
680	0.657118	680	0.621706	680	0.332214
670	0.658993	670	0.623156	670	0.332331
660	0.660723	660	0.624539	660	0.332415
650	0.66227	650	0.625798	650	0.33248
640	0.663702	640	0.626935	640	0.332573
630	0.664985	630	0.627975	630	0.332585
620	0.6662	620	0.628913	620	0.332651
610	0.667311	610	0.629805	610	0.332674
600	0.668314	600	0.630578	600	0.332732
590	0.669252	590	0.631326	590	0.332778
580	0.67009	580	0.632005	580	0.332809
570	0.670885	570	0.632622	570	0.332864
560	0.671586	560	0.633201	560	0.332905
550	0.672202	550	0.633737	550	0.332949
540	0.672734	540	0.634188	540	0.333005
530	0.673261	530	0.634576	530	0.333024
520	0.673705	520	0.634911	520	0.33305
510	0.674114	510	0.635206	510	0.33308
500	0.674378	500	0.635419	500	0.333113
490	0.674669	490	0.635621	490	0.333136
480	0.674882	480	0.635808	480	0.333168
470	0.675071	470	0.635935	470	0.33317
460	0.675161	460	0.636083	460	0.333176
450	0.675264	450	0.636124	450	0.333176
440	0.675354	440	0.63618	440	0.333214
430	0.675348	430	0.636199	430	0.333193
420	0.675352	420	0.636218	420	0.333223
410	0.675337	410	0.636172	410	0.333228
400	0.675216	400	0.636124	400	0.333225
390	0.675071	390	0.636042	390	0.333253
380	0.674908	380	0.63588	380	0.333229
370	0.674615	370	0.635675	370	0.333226
360	0.674308	360	0.635452	360	0.333185
350	0.67397	350	0.635114	350	0.333132
340	0.673562	340	0.634785	340	0.333115
330	0.673055	330	0.634387	330	0.333092
320	0.672492	320	0.633933	320	0.333075
310	0.671889	310	0.633473	310	0.333054
300	0.671188	300	0.632905	300	0.333022
290	0.670406	290	0.632306	290	0.332994
280	0.669533	280	0.631614	280	0.332977
270	0.668619	270	0.630849	270	0.332934
260	0.667631	260	0.630057	260	0.332912
250	0.666498	250	0.629168	250	0.332849
240	0.665273	240	0.628186	240	0.332826
230	0.663924	230	0.627152	230	0.332767
220	0.662421	220	0.625951	220	0.332715
210	0.660775	210	0.624664	210	0.33264
200	0.659034	200	0.623223	200	0.332561



190	0.657094	190	0.621648	190	0.332429
180	0.654924	180	0.619931	180	0.332257
170	0.652537	170	0.617982	170	0.332028
160	0.649866	160	0.615824	160	0.331773
150	0.64691	150	0.613397	150	0.331398
140	0.643508	140	0.610638	140	0.330934
130	0.639738	130	0.607473	130	0.330313
120	0.635385	120	0.603776	120	0.329462
110	0.630391	110	0.59949	110	0.328323
100	0.624522	100	0.594374	100	0.326824
90	0.617699	90	0.588344	90	0.324831
80	0.609648	80	0.581164	80	0.322238
70	0.600123	70	0.572501	70	0.318861
60	0.588875	60	0.562193	60	0.314492
50	0.575686	50	0.549996	50	0.308987
40	0.560288	40	0.535528	40	0.302116
30	0.542536	30	0.518741	30	0.293703
20	0.522348	20	0.499538	20	0.283664
10	0.499886	10	0.478002	10	0.271984
0	0.475406	0	0.45441	0	0.2588
-10	0.449355	-10	0.429199	-10	0.244381
-20	0.42227	-20	0.402937	-20	0.229004
-30	0.394833	-30	0.376265	-30	0.213126
-40	0.367611	-40	0.349787	-40	0.197143
-50	0.34109	-50	0.323941	-50	0.181421
-60	0.315718	-60	0.299199	-60	0.166288
-70	0.291771	-70	0.27582	-70	0.151942
-80	0.269383	-80	0.253996	-80	0.138519
-90	0.248639	-90	0.233795	-90	0.126107
-100	0.229538	-100	0.215217	-100	0.114727
-110	0.211997	-110	0.198197	-110	0.104343
-120	0.195947	-120	0.182641	-120	0.094927
-130	0.18126	-130	0.168446	-130	0.086375
-140	0.167825	-140	0.155498	-140	0.078665
-150	0.155551	-150	0.143696	-150	0.071702
-160	0.144309	-160	0.132926	-160	0.065422
-170	0.133999	-170	0.123115	-170	0.059752
-180	0.12456	-180	0.114124	-180	0.054634
-190	0.115847	-190	0.105882	-190	0.050017
-200	0.107863	-200	0.098312	-200	0.04583
-210	0.10048	-210	0.091373	-210	0.042026
-220	0.093688	-220	0.084979	-220	0.038596
-230	0.087369	-230	0.079086	-230	0.035482
-240	0.081537	-240	0.073664	-240	0.032651
-250	0.076116	-250	0.068637	-250	0.03007
-260	0.071082	-260	0.064006	-260	0.027716
-270	0.066435	-270	0.059704	-270	0.025587
-280	0.062104	-280	0.05573	-280	0.023633
-290	0.058065	-290	0.052031	-290	0.021839
-300	0.054332	-300	0.048604	-300	0.020204
-310	0.050831	-310	0.045412	-310	0.018702
-320	0.047579	-320	0.042456	-320	0.017327
-330	0.044529	-330	0.039691	-330	0.016076
-340	0.041715	-340	0.037148	-340	0.01492
-350	0.039085	-350	0.034751	-350	0.013851
-360	0.036597	-360	0.032537	-360	0.012867
-370	0.03431	-370	0.030474	-370	0.01197
-380	0.032159	-380	0.028535	-380	0.011131
-390	0.030145	-390	0.026736	-390	0.010349
-400	0.028277	-400	0.025067	-400	0.009652
-410	0.026541	-410	0.023499	-410	0.008981
-420	0.024891	-420	0.022041	-420	0.008382
-430	0.023344	-430	0.020669	-430	0.007803
-440	0.021936	-440	0.019397	-440	0.007301
-450	0.02061	-450	0.018201	-450	0.00682

位置Z[mm] 磁場By[T] 位置Z[mm] 磁場By[T] 位置Z[mm] 磁場By[T]  
2500A 2000A 500A  
Z方向引き抜き X=77.5 Y=0mm