

CALCULATED FIELD DISTRIBUTIONS FOR THE NEW 41.5T 32MM BORE 33MW MAGNET

VRS# LB-214D Rev6

z [mm]	r = 0.0 [mm]			r = 32 / 4 = 8.0 [mm]			r = 32 / 2 = 16.0 [mm]		
	Bz/Bo [1]	dBz/(dzBo) [1/mm]	Bz*dBz/(dzBo^2) [1/mm]	Bz/Bo [1]	dBz/(dzBo) [1/mm]	Bz*dBz/(dzBo^2) [1/mm]	Bz/Bo [1]	dBz/(dzBo) [1/mm]	Bz*dBz/(dzBo^2) [1/mm]
0	1.00000E+00	2.568210E-12	2.568210E-12	1.000439E+00	3.081852E-12	3.083205E-12	1.001726E+00	-1.198498E-12	-1.200566E-12
1	9.999862E-01	2.760046E-05	2.760008E-05	1.000426E+00	2.697883E-05	2.699031E-05	1.001713E+00	2.500799E-05	2.505083E-05
2	9.999448E-01	5.523873E-05	5.523568E-05	1.000385E+00	5.399896E-05	5.401976E-05	1.001676E+00	5.005616E-05	5.014003E-05
3	9.998757E-01	8.295232E-05	8.294201E-05	1.000318E+00	8.110169E-05	8.112744E-05	1.001613E+00	7.518514E-05	7.530642E-05
4	9.997788E-01	1.107781E-04	1.107536E-04	1.000223E+00	1.083282E-04	1.083524E-04	1.001525E+00	1.004365E-04	1.005897E-04
5	9.996541E-01	1.387521E-04	1.387041E-04	1.000101E+00	1.357198E-04	1.357335E-04	1.001412E+00	1.258531E-04	1.260309E-04
6	9.995013E-01	1.669089E-04	1.668257E-04	9.999513E-01	1.633172E-04	1.633093E-04	1.001273E+00	1.514800E-04	1.516729E-04
7	9.993202E-01	1.952814E-04	1.951486E-04	9.997741E-01	1.911612E-04	1.911180E-04	1.001109E+00	1.773645E-04	1.775612E-04
8	9.991106E-01	2.238998E-04	2.237007E-04	9.995689E-01	2.192916E-04	2.191971E-04	1.000919E+00	2.035571E-04	2.037441E-04
9	9.988723E-01	2.527918E-04	2.525067E-04	9.993354E-01	2.477475E-04	2.475829E-04	1.000702E+00	2.301126E-04	2.302741E-04
10	9.986050E-01	2.819807E-04	2.815873E-04	9.990733E-01	2.765666E-04	2.763103E-04	1.000458E+00	2.570903E-04	2.572081E-04
20	9.942650E-01	5.905016E-04	5.871151E-04	9.947808E-01	5.897733E-04	5.866951E-04	9.964085E-01	5.696035E-04	5.675578E-04
30	9.868116E-01	8.918999E-04	8.801372E-04	8.987242E-01	8.905509E-04	8.939985E-04	9.884786E-01	1.008750E-03	9.971281E-04
40	9.766156E-01	1.144640E-03	1.117874E-03	9.770182E-01	1.135293E-03	1.109202E-03	9.781385E-01	1.090603E-03	1.066761E-03
50	9.637638E-01	1.440703E-03	1.388497E-03	9.643145E-01	1.423500E-03	1.372702E-03	9.659668E-01	1.368570E-03	1.321993E-03
60	9.474605E-01	1.837004E-03	1.740488E-03	9.481759E-01	1.822013E-03	1.727589E-03	9.503421E-01	1.775651E-03	1.687476E-03
70	9.267195E-01	2.323533E-03	2.153263E-03	9.275555E-01	2.315731E-03	2.147969E-03	9.301155E-01	2.283670E-03	2.124077E-03
80	9.008666E-01	2.842837E-03	2.561017E-03	9.016672E-01	2.862877E-03	2.581362E-03	9.043142E-01	2.911766E-03	2.633151E-03
90	8.702483E-01	3.250611E-03	2.828839E-03	8.707445E-01	3.278106E-03	2.854393E-03	8.720565E-01	3.363560E-03	2.933214E-03
100	8.363425E-01	3.520118E-03	2.944024E-03	8.367449E-01	3.514820E-03	2.941008E-03	8.378683E-01	3.429331E-03	2.873328E-03
200	5.309262E-01	2.643333E-03	1.403415E-03	5.310113E-01	2.630308E-03	1.396723E-03	5.312878E-01	2.570553E-03	1.365703E-03
300	2.960493E-01	1.626629E-03	4.815625E-04	2.959489E-01	1.624469E-03	4.807599E-04	2.956551E-01	1.618259E-03	4.784465E-04
400	1.640074E-01	9.664188E-04	1.584999E-04	1.638947E-01	9.657007E-04	1.582732E-04	1.635559E-01	9.634975E-04	1.575857E-04
500	9.494619E-02	4.813499E-04	4.570234E-05	9.489635E-02	4.809539E-04	4.564077E-05	9.474705E-02	4.797681E-04	4.545661E-05
600	5.907301E-02	2.627188E-04	1.551959E-05	5.904911E-02	2.625550E-04	1.550364E-05	5.897749E-02	2.620643E-04	1.545590E-05
700	3.885231E-02	1.534429E-04	5.961610E-06	3.883982E-02	1.533661E-04	5.956710E-06	3.880236E-02	1.531359E-04	5.942033E-06
800	2.673602E-02	9.460307E-05	2.529309E-06	2.672906E-02	9.456423E-05	2.527613E-06	2.670821E-02	9.444780E-05	2.522531E-06
900	1.910254E-02	6.104214E-05	1.166060E-06	1.909846E-02	6.102132E-05	1.165414E-06	1.908623E-02	6.095890E-05	1.163476E-06
1000	1.408482E-02	4.094608E-05	5.767183E-07	1.408232E-02	4.093435E-05	5.764507E-07	1.407482E-02	4.089919E-05	5.756488E-07
2000	1.811139E-03	2.704517E-06	4.898255E-09	1.811053E-03	2.704304E-06	4.897637E-09	1.810795E-03	2.703664E-06	4.895781E-09
3000	5.384569E-04	5.375862E-07	2.894670E-10	5.384454E-04	5.375671E-07	2.894506E-10	5.384111E-04	5.375101E-07	2.894014E-10
4000	2.273922E-04	1.704025E-07	3.874821E-11	2.273895E-04	1.703991E-07	3.874697E-11	2.273813E-04	1.703889E-07	3.874326E-11
5000	1.164758E-04	6.985005E-08	8.135843E-12	1.164750E-04	6.984915E-08	8.135677E-12	1.164723E-04	6.984647E-08	8.135178E-12
6000	6.742048E-05	3.369866E-08	2.271979E-12	6.742012E-05	3.369836E-08	2.271947E-12	6.741904E-05	3.369746E-08	2.271851E-12
7000	4.246296E-05	1.819394E-08	7.725685E-13	4.246280E-05	1.819382E-08	7.725606E-13	4.246230E-05	1.819346E-08	7.725361E-13
8000	2.844933E-05	1.066654E-08	3.034559E-13	2.844925E-05	1.066649E-08	3.034536E-13	2.844899E-05	1.066633E-08	3.034463E-13
9000	1.998205E-05	6.659752E-09	1.330755E-13	1.998201E-05	6.659721E-09	1.330746E-13	1.998186E-05	6.659649E-09	1.330722E-13
10000	1.456753E-05	4.369741E-09	6.365631E-14	1.456750E-05	4.369726E-09	6.365598E-14	1.456742E-05	4.369687E-09	6.365504E-14

r [mm]	z = 0.0 [mm]			z = 100.0 [mm]			z = 1000.0 [mm]		
	Bz/Bo [1]	dBz/(drBo) [1/mm]	Bz*dBz/(drBo^2) [1/mm]	Bz/Bo [1]	dBz/(drBo) [1/mm]	Bz*dBz/(drBo^2) [1/mm]	Bz/Bo [1]	dBz/(drBo) [1/mm]	Bz*dBz/(drBo^2) [1/mm]
0	1.00000E+00	0.00000E+00	0.00000E+00	8.363425E-01	0.00000E+00	0.00000E+00	1.408482E-02	0.00000E+00	0.00000E+00
1	1.000007E+00	-1.379471E-05	-1.379480E-05	8.363488E-01	-1.260109E-05	-1.053891E-05	1.408478E-02	7.816959E-08	1.101002E-09
2	1.000028E+00	-2.757519E-05	-2.757595E-05	8.363677E-01	-2.520358E-05	-2.107946E-05	1.408467E-02	1.563377E-07	2.201964E-09
3	1.000062E+00	-4.132714E-05	-4.132970E-05	8.363992E-01	-3.780591E-05	-3.162083E-05	1.408447E-02	2.345027E-07	3.302846E-09
4	1.000110E+00	-5.503606E-05	-5.504213E-05	8.364433E-01	-5.040032E-05	-4.215701E-05	1.408420E-02	3.126632E-07	4.403610E-09
5	1.000172E+00	-6.868724E-05	-6.869906E-05	8.365000E-01	-6.296910E-05	-5.267365E-05	1.408384E-02	3.908177E-07	5.504216E-09
6	1.000248E+00	-8.226565E-05	-8.228602E-05	8.365692E-01	-7.548006E-05	-6.314429E-05	1.408341E-02	4.689645E-07	6.604621E-09
7	1.000337E+00	-9.575593E-05	-9.578816E-05	8.366509E-01	-8.788087E-05	-7.352561E-05	1.408291E-02	5.471023E-07	7.704790E-09
8	1.000439E+00	-1.091423E-04	-1.091903E-04	8.367449E-01	-1.000921E-04	-8.375154E-05	1.408232E-02	6.252294E-07	8.804681E-09
9	1.000555E+00	-1.224088E-04	-1.224767E-04	8.368510E-01	-1.119987E-04	-9.372625E-05	1.408166E-02	7.033445E-07	9.904256E-09
10	1.000684E+00	-1.355390E-04	-1.356317E-04	8.369688E-01	-1.234405E-04	-1.033159E-04	1.408091E-02	7.814459E-07	1.100347E-08
11	1.000826E+00	-1.485163E-04	-1.486389E-04	8.370976E-01	-1.342016E-04	-1.123398E-04	1.408009E-02	8.595322E-07	1.210229E-08
12	1.000981E+00	-1.613240E-04	-1.614822E-04	8.372368E-01	-1.440017E-04	-1.205635E-04	1.407920E-02	9.376017E-07	1.320068E-08
13	1.001148E+00	-1.739453E-04	-1.741451E-04	8.373852E-01	-1.524935E-04	-1.276958E-04	1.407822E-02	1.015653E-06	1.429859E-08
14	1.001329E+00	-1.863639E-04	-1.866115E-04	8.375413E-01	-1.592745E-04	-1.333990E-04	1.407716E-02	1.093685E-06	1.539598E-08
15	1.001521E+00	-1.985636E-04	-1.988656E-04	8.377031E-01	-1.639277E-04	-1.373227E-04	1.407603E-02	1.171695E-06	1.649282E-08
16	1.001726E+00	-2.105290E-04	-2.108923E-04	8.378683E-01	-1.661082E-04	-1.391768E-04	1.407482E-02	1.249683E-06	1.758907E-08
1000	-7.269219E-03	-2.152643E-05	1.564803E-07	-6.963924E-03	-2.010354E-05	1.399995E-07	1.310891E-03	5.873719E-06	7.699804E-09
2000	-9.128312E-04	-1.370643E-06	1.251165E-09	-9.025955E-04	-1.345114E-06	1.214093E-09	-2.600930E-04	2.187155E-09	-5.688638E-13
3000	-2.701637E-04	-2.703653E-07	7.304289E-11	-2.688135E-04	-2.681151E-07	7.207297E-11	-1.613123E-04	-1.036336E-07	1.671738E-11
4000	-1.139158E-04	-8.547743E-08	9.737232E-12	-1.135955E-04	-8.507692E-08	9.664352E-12	-8.562915E-05	-5.181279E-08	4.436685E-12
5000	-5.830956E-05	-3.499692E-08	2.040655E-12	-5.820460E-05	-3.489195E-08	2.030872E-12	-4.862727E-05	-2.561858E-08	1.245762E-12
6000	-3.373894E-05	-1.687332E-08	5.692880E-13	-3.369677E-05	-1.683817E-08	5.673919E-13	-2.975279E-05	-1.362488E-08	4.053783E-13
7000	-2.124474E-05	-9.106437E-09	1.934639E-13	-2.122523E-05	-9.092500E-09	1.929904E-13	-1.937317E-05	-7.791461E-09	1.509453E-13
8000	-1.423146E-05	-5.337499E-09	7.596040E-14	-1.422145E-05	-5.331245E-09	7.581804E-14	-1.326225E-05	-4.739365E-09	6.285464E-14
9000	-9.994793E-06	-3.331946E-09	3.330211E-14	-9.989240E-06	-3.328861E-09	3.325279E-14	-9.453380E-06	-3.034163E-09	2.868310E-14
10000	-7.285986E-06	-2.185982E-09	1.592703E-14	-7.282707E-06	-2.184343E-09	1.590793E-14	-6.964767E-06	-2.026674E-09	1.411531E-14

r [mm]	z = 0 [mm]
3,117	B(total) = 100 G
6,713	B(total) = 10 G

Bz: vertical field component dBz/dz: vertical gradient of the vertical field component
 Bt: total field dBz/dr: horizontal gradient of the vertical field component
 Bo: peak field (estimate = 41.5003 T @ I =47.98 kA)