TABLAS DE ENERGIA vs RIGIDEZ MAGNETICA PARA He^3

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RESUMEN

Tables of He^3 nuclei energies (keV) versus magnetic field strength times orbit radius have been prepared in the range 50 to 1050 kgauss.cm.

No contando con información reciente [1] relativa al comportamiento de He^3 en campos magnéticos y siendo posible actualmente conseguir este gas en cantidades suficientes para emplear sus núcleos como proyectiles en aceleradores, se pensó en la conveniencia de preparar tablas de energía vs rigidez magnética (E vs $B\rho$), variando la rigidez magnética entre 50 y 1050 kilogauss centímetros.

Se usó la fórmula que se transcribe a continuación, misma que H. Enge [2] empleó para determinar valores semejantes en protones, deuterones, tritones y alfas.

$$E = M_o c^2 \left\{ \left[1 + \left(\frac{ze\,B\rho}{M_o c} \right)^2 \right]^{\frac{1}{2}} - 1 \right\} \quad .$$

Desarrollando en series de potencias de $(B\rho)^2$ y dividiendo la ecuación entre $10^{11}e$, con objeto de tener los valores en keV, resulta:

$$E = 10^{-11} \left[\frac{FZ^2}{2M} (B\rho)^2 - \frac{F^3 Z^4}{8M^3 c^2} (B\rho)^4 + \frac{F^5 Z^6}{16 M^5 c^4} (B\rho)^6 - \frac{5 F^7 Z^8}{128 M^7 c^6} (B\rho)^8 + \cdots \right]$$

Para obtener la carga específica se sustituye a e/M_0 por F/M

$F = 9625.19$ uem equiv^{-1}

$M = 3.015880$ uam (masa de He^3)

$c = 2.997929 \times 10^{10}$ cm/seg.

Reemplazando estas constantes en la expresión anterior:

$$E_{He^3} = 6.400911 \times 10^{-2} (B\rho)^2 - 7.294956 \times 10^{-10} (B\rho)^4 +$$

$$+ 1.703959 \times 10^{-17} (B\rho)^6 - 4.854896 \times 10^{-25} (B\rho)^8 + \cdots$$

A continuación se presentan las tablas mencionadas en las que se han ordenado los resultados por columna; la primera contiene los valores de $B\rho$ a intervalos de 1 kilogauss centímetro; la segunda muestra la energía calculada en keV y las diferencias de éstas con las subsiguientes aparecen en la tercera.

REFERENCIAS

1. G.J. Nijgh, A.H. Wapstra y R. Van Lieshout. Nuclear Spectroscopy Tables. North Holland Publishing Company. 1959.
2. H.A. Enge. Table of Charged Particle Energies vs Magnetic Field. Strength vs Orbit Radius. A.S. John Griegs Boktrykkeri. Bergen, Noruega 1954.

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Bρ kgauss·cm	E keV	ΔE keV	Bρ kgauss·cm	E keV	ΔE keV
50	160.02	6.46	100	640.02	12.66
51	166.48	6.60	101	652.88	12.89
52	173.08	6.72	102	665.87	13.12
53	179.80	6.84	103	678.99	13.25
54	186.64	6.96	104	692.24	13.37
55	193.62	7.11	105	705.61	13.50
56	200.73	7.23	106	719.11	13.63
57	207.96	7.36	107	732.74	13.76
58	215.32	7.49	108	746.50	13.89
59	222.81	7.61	109	760.39	14.01
60	230.42	7.75	110	774.40	14.15
61	238.17	7.87	111	788.55	14.27
62	246.04	8.00	112	802.82	14.39
63	254.04	8.15	113	817.21	14.53
64	262.17	8.26	114	831.74	14.65
65	270.43	8.38	115	846.39	14.78
66	278.81	8.51	116	861.17	14.91
67	287.32	8.64	117	876.08	15.04
68	295.96	8.77	118	891.12	15.17
69	304.73	8.90	119	906.29	15.29
70	313.63	9.02	120	921.58	15.42
71	322.65	9.15	121	937.00	15.55
72	331.80	9.26	122	952.55	15.68
73	341.08	9.41	123	968.23	15.80
74	350.49	9.54	124	984.03	15.93
75	360.03	9.66	125	999.96	16.06
76	369.69	9.79	126	1016.02	16.19
77	379.48	9.92	127	1032.21	16.32
78	389.40	10.05	128	1048.53	16.44
79	399.45	10.18	129	1064.97	16.58
80	409.63	10.30	130	1081.55	16.70
81	419.93	10.43	131	1098.25	16.82
82	430.36	10.56	132	1115.07	16.96
83	440.92	10.69	133	1132.03	17.08
84	451.61	10.82	134	1149.11	17.21
85	462.43	10.94	135	1166.32	17.34
86	473.37	11.07	136	1183.66	17.47
87	434.44	11.20	137	1201.13	17.60
88	495.64	11.33	138	1218.73	17.72
89	506.97	11.46	139	1236.45	17.85
90	518.43	11.59	140	1254.30	17.98
91	530.01	11.71	141	1272.28	18.10
92	541.72	11.84	142	1290.38	18.24
93	553.56	11.97	143	1308.62	18.36
94	565.53	12.09	144	1326.98	18.49
95	577.62	12.23	145	1345.47	18.62
96	589.85	12.35	146	1364.09	18.74
97	602.20	12.48	147	1382.83	18.88
98	614.68	12.60	148	1401.71	19.00
99	627.28	12.74	149	1420.71	19.13
100	640.02	12.86	150	1439.84	19.25

Bρ kgauss·cm	E keV	ΔE keV	Bρ kgauss·cm	E keV	ΔE keV
151	1459.09	19.39	201	2564.64	25.77
152	1478.48	19.51	202	2610.61	25.90
153	1497.99	19.64	203	2636.51	26.03
154	1517.63	19.77	204	2662.54	26.16
155	1537.40	19.89	205	2688.70	26.28
156	1557.29	20.03	206	2714.98	26.41
157	1577.32	20.15	207	2741.39	26.54
158	1597.47	20.28	208	2767.93	26.66
159	1617.75	20.41	209	2794.59	26.79
160	1638.16	20.53	210	2821.38	26.93
161	1658.69	20.66	211	2848.31	27.04
162	1679.35	20.79	212	2875.35	27.18
163	1700.14	20.92	213	2902.53	27.30
164	1721.06	21.05	214	2929.83	27.43
165	1742.11	21.17	215	2957.26	27.56
166	1763.28	21.30	216	2984.82	27.69
167	1784.58	21.43	217	3012.51	27.81
168	1806.01	21.56	218	3040.32	27.94
169	1827.57	21.68	219	3068.26	28.07
170	1849.25	21.82	220	3096.33	28.20
171	1871.07	21.94	221	3124.53	28.33
172	1893.01	22.07	222	3152.86	28.45
173	1915.08	22.19	223	3181.31	28.58
174	1937.27	22.33	224	3209.89	28.70
175	1959.60	22.45	225	3238.59	28.84
176	1982.05	22.56	226	3267.43	28.96
177	2004.63	22.70	227	3296.39	29.09
178	2027.33	22.84	228	3325.48	29.22
179	2050.17	22.96	229	3354.70	29.34
180	2073.13	23.09	230	3384.04	29.48
181	2096.22	23.22	231	3413.52	29.60
182	2119.44	23.34	232	3443.12	29.72
183	2142.78	23.46	233	3472.84	29.86
184	2166.26	23.60	234	3502.70	29.98
185	2189.86	23.73	235	3532.68	30.11
186	2213.59	23.85	236	3562.79	30.24
187	2237.44	23.99	237	3593.03	30.36
188	2261.43	24.11	238	3623.39	30.50
189	2285.54	24.24	239	3653.89	30.62
190	2309.78	24.37	240	3684.51	30.75
191	2334.15	24.49	241	3715.26	30.87
192	2358.64	24.62	242	3746.13	31.00
193	2383.26	24.75	243	3777.13	31.13
194	2408.01	24.88	244	3808.26	31.26
195	2432.89	25.01	245	3839.52	31.39
196	2457.90	25.13	246	3870.91	31.51
197	2483.03	25.26	247	3902.42	31.64
198	2508.29	25.39	248	3934.06	31.77
199	2533.68	25.52	249	3965.83	31.89
200	2559.20	25.64	250	3997.72	32.03

Bρ kgauss·cm	E keV	ΔE keV	Bρ kgauss·cm	E keV	ΔE keV
251	4029.75	32.15	301	5793.31	38.52
252	4061.90	32.27	302	5831.83	38.65
253	4094.17	32.41	303	5870.48	38.77
254	4126.58	32.53	304	5909.25	38.90
255	4159.11	32.66	305	5948.15	39.03
256	4191.77	32.79	306	5987.18	39.15
257	4224.56	32.92	307	6026.33	39.28
258	4257.48	33.04	308	6065.61	39.41
259	4290.52	33.17	309	6105.02	39.53
260	4323.69	33.29	310	6144.55	39.67
261	4356.98	33.43	311	6184.22	39.79
262	4390.41	33.55	312	6224.01	39.91
263	4423.96	33.68	313	6263.92	40.05
264	4457.64	33.81	314	6303.97	40.17
265	4491.45	33.93	315	6344.14	40.30
266	4525.38	34.06	316	6384.44	40.42
267	4559.44	34.19	317	6424.86	40.55
268	4593.63	34.32	318	6465.41	40.68
269	4627.95	34.44	319	6506.09	40.81
270	4662.39	34.58	320	6546.90	40.94
271	4696.97	34.69	321	6587.84	41.06
272	4731.66	34.83	322	6628.90	41.19
273	4766.49	34.95	323	6670.09	41.31
274	4801.44	35.06	324	6711.40	41.44
275	4836.52	35.21	325	6752.84	41.57
276	4871.73	35.34	326	6794.41	41.70
277	4907.07	35.46	327	6836.11	41.82
278	4942.53	35.59	328	6877.93	41.95
279	4978.12	35.72	329	6919.88	42.08
280	5013.84	35.84	330	6961.96	42.21
281	5049.68	35.98	331	7004.17	42.33
282	5085.66	36.10	332	7046.50	42.46
283	5121.76	36.22	333	7088.96	42.59
284	5157.98	36.36	334	7131.55	42.71
285	5194.34	36.48	335	7174.26	42.84
286	5230.82	36.61	336	7217.10	42.97
287	5267.43	36.73	337	7260.07	43.09
288	5304.16	36.87	338	7303.16	43.22
289	5341.03	36.99	339	7346.38	43.35
290	5378.02	37.11	340	7389.73	43.48
291	5415.13	37.25	341	7433.21	43.60
292	5452.38	37.37	342	7476.81	43.73
293	5489.75	37.50	343	7520.54	43.65
294	5527.25	37.63	344	7564.39	43.99
295	5564.88	37.75	345	7608.38	44.11
296	5602.63	37.89	346	7652.49	44.24
297	5640.52	38.00	347	7696.73	44.36
298	5678.52	38.14	348	7741.09	44.49
299	5716.66	38.26	349	7785.58	44.62
300	5754.92	38.39	350	7830.20	44.75

Bρ kgauss · cm	E keV	ΔE keV	Bρ kgauss · cm	E keV	ΔE keV
351	7874.95	44.87	401	10273.94	51.21
352	7919.82	45.00	402	10325.15	51.34
353	7964.82	45.12	403	10376.49	51.46
354	8009.94	45.26	404	10427.95	51.59
355	8055.20	45.38	405	10479.54	51.72
356	8100.58	45.50	406	10531.26	51.85
357	8146.08	45.64	407	10583.11	51.97
358	8191.72	45.76	408	10635.08	52.09
359	8237.48	45.89	409	10687.17	52.23
360	8283.37	46.01	410	10739.40	52.35
361	8329.38	46.14	411	10791.75	52.48
362	8375.52	46.27	412	10844.23	52.60
363	8421.79	46.39	413	10896.83	52.73
364	8468.18	46.53	414	10949.56	52.86
365	8514.71	46.65	415	11002.42	52.98
366	8561.36	46.77	416	11055.40	53.11
367	8608.13	46.90	417	11108.51	53.24
368	8655.03	47.03	418	11161.75	53.36
369	8702.06	47.16	419	11215.11	53.49
370	8749.22	47.28	420	11268.60	53.62
371	8796.50	47.41	421	11322.22	53.74
372	8843.91	47.54	422	11375.96	53.87
373	8891.45	47.66	423	11429.83	53.99
374	8939.11	47.79	424	11483.82	54.13
375	8986.90	47.92	425	11537.95	54.24
376	9034.82	48.04	426	11592.19	54.38
377	9082.86	48.17	427	11646.57	54.50
378	9131.03	48.30	428	11701.07	54.63
379	9179.33	48.43	429	11755.70	54.75
380	9227.76	48.55	430	11810.45	54.88
381	9276.31	48.67	431	11865.33	55.01
382	9324.98	48.81	432	11920.34	55.13
383	9373.79	48.93	433	11975.47	55.26
384	9422.72	49.06	434	12030.73	55.39
385	9471.78	49.18	435	12086.12	55.51
386	9520.96	49.31	436	12141.63	55.64
387	9570.27	49.44	437	12197.27	55.77
388	9619.71	49.57	438	12253.04	55.89
389	9669.28	49.69	439	12308.93	56.02
390	9718.97	49.82	440	12364.95	56.14
391	9768.79	49.94	441	12421.09	56.27
392	9818.73	50.07	442	12477.36	56.40
393	9868.80	50.20	443	12533.76	56.52
394	9919.06	50.33	444	12590.28	56.65
395	9969.33	50.45	445	12646.93	56.78
396	10019.78	50.58	446	12703.71	56.90
397	10070.36	50.70	447	12760.61	57.03
398	10121.06	50.83	448	12817.64	57.15
399	10171.89	50.96	449	12874.79	57.28
400	10222.85	51.09	450	12932.07	57.41

Bρ kgauss·cm	E keV	ΔE keV	Bρ kgauss·cm	E keV	ΔE keV
451	12969.48	57.53	501	16020.66	63.84
452	13047.01	57.66	502	16084.50	63.96
453	13104.67	57.79	503	16148.46	64.09
454	13162.46	57.91	504	16212.55	64.21
455	13220.37	58.04	505	16276.76	64.34
456	13278.41	58.16	506	16341.10	64.47
457	13336.57	58.30	507	16405.57	64.59
458	13394.87	58.41	508	16470.16	64.71
459	13453.28	58.55	509	16534.87	64.85
460	13511.83	58.67	510	16599.72	64.97
461	13570.50	58.79	511	16664.69	65.09
462	13629.29	58.92	512	16729.78	65.22
463	13688.21	59.05	513	16795.00	65.25
464	13747.26	59.18	514	16860.35	65.47
465	13806.44	59.30	515	16925.82	65.60
466	13865.74	59.42	516	16991.42	65.72
467	13925.16	59.56	517	17057.14	65.85
468	13984.72	59.67	518	17122.99	65.97
469	14044.39	59.81	519	17188.96	66.10
470	14104.20	59.93	520	17255.06	66.23
471	14164.13	60.06	521	17321.29	66.35
472	14224.19	60.18	522	17387.64	66.48
473	14284.37	60.31	523	17454.12	66.60
474	14344.68	60.43	524	17520.72	66.73
475	14405.11	60.57	525	17587.45	66.85
476	14465.68	60.68	526	17654.30	66.98
477	14526.36	60.82	527	17721.28	67.11
478	14587.18	60.94	528	17788.39	67.23
479	14648.12	61.06	529	17855.62	67.36
480	14709.18	61.19	530	17922.98	67.48
481	14770.37	61.32	531	17990.46	67.61
482	14831.69	61.45	532	18058.07	67.73
483	14893.14	61.57	533	18125.80	67.86
484	14954.71	61.69	534	18193.66	67.98
485	15016.40	61.82	535	18261.64	68.11
486	15078.22	61.95	536	18329.75	68.24
487	15140.17	62.07	537	18397.99	68.36
488	15202.24	62.20	538	18466.35	68.49
489	15264.44	62.33	539	18534.84	68.61
490	15326.77	62.45	540	18603.45	68.74
491	15389.22	62.58	541	18672.19	68.86
492	15451.80	62.70	542	18741.05	68.99
493	15514.50	62.83	543	18810.04	69.11
494	15577.33	62.96	544	18879.15	69.24
495	15640.29	63.08	545	18948.39	69.37
496	15703.37	63.20	546	19017.76	69.49
497	15766.57	63.34	547	19087.25	69.62
498	15829.91	63.46	548	19156.87	69.74
499	15893.37	63.58	549	19226.61	69.86
500	15956.95	63.71	550	19296.47	70.00

Bρ kgauss·cm	E keV	ΔE keV	Bρ kgauss·cm	E keV	ΔE keV
551	19366.47	70.11	601	23025.78	76.38
552	19436.58	70.25	602	23106.16	76.50
553	19506.83	70.37	603	23178.66	76.63
554	19577.20	70.49	604	23255.29	76.75
555	19647.65	70.62	605	23332.04	76.87
556	19718.31	70.74	606	23408.91	77.00
557	19789.05	70.87	607	23486.91	77.13
558	19859.92	71.00	608	23563.04	77.25
559	19930.92	71.12	609	23640.29	77.37
560	20000.04	71.25	610	23711.66	77.50
561	20073.29	71.37	611	23795.16	77.63
562	20144.66	71.49	612	23872.79	77.75
563	20211.15	71.63	613	23950.54	77.87
564	20287.78	71.74	614	24028.41	78.00
565	20359.52	71.88	615	24106.41	78.11
566	20431.40	71.99	616	24186.52	78.25
567	20503.39	72.13	617	24266.77	78.38
568	20575.52	72.25	618	24341.15	78.49
569	20647.77	72.37	619	24419.64	78.63
570	20720.14	72.50	620	24498.27	78.74
571	20794.64	72.62	621	24577.01	78.88
572	20865.26	72.75	622	24655.89	78.99
573	20938.01	72.87	623	24734.88	79.13
574	21010.88	73.00	624	24814.01	79.24
575	21083.88	73.13	625	24893.25	79.37
576	21157.01	73.25	626	24972.62	79.50
577	21230.26	73.37	627	25052.12	79.62
578	21303.63	73.50	628	25131.74	79.74
579	21377.13	73.63	629	25211.48	79.87
580	21450.76	73.75	630	25291.35	80.00
581	21524.51	73.88	631	25371.35	80.12
582	21598.39	74.00	632	25451.47	80.24
583	21672.39	74.12	633	25531.71	80.37
584	21746.51	74.25	634	25612.08	80.49
585	21820.76	74.38	635	25692.57	80.62
586	21895.14	74.50	636	25773.19	80.74
587	21969.64	74.63	637	25853.93	80.87
588	22044.27	74.75	638	25934.80	80.99
589	22119.02	74.87	639	26015.79	81.11
590	22193.89	75.01	640	26096.90	81.24
591	22268.90	75.12	641	26178.14	81.37
592	22344.02	75.25	642	26259.51	81.49
593	22419.27	75.38	643	26341.00	81.61
594	22494.65	75.50	644	26422.61	81.74
595	22570.15	75.63	645	26504.35	81.86
596	22645.78	75.75	646	26586.21	81.99
597	22721.53	75.87	647	26668.20	82.11
598	22797.40	76.01	648	26750.31	82.23
599	22873.41	76.12	649	26832.54	82.36
600	22949.53	76.25	650	26914.90	82.49

Bρ kgauss·cm	E keV	ΔE keV	Bρ kgauss·cm	E keV	ΔE keV
651	26997.39	82.61	701	31279.99	80.61
652	27080.00	82.73	702	31368.80	80.94
653	27162.73	82.86	703	31457.74	81.06
654	27245.59	82.98	704	31546.80	81.19
655	27328.57	83.11	705	31635.99	81.31
656	27411.68	83.23	706	31725.30	81.42
657	27494.91	83.35	707	31814.72	81.56
658	27578.26	83.48	708	31904.28	81.68
659	27661.74	83.61	709	31993.96	81.81
660	27745.35	83.72	710	32083.77	81.93
661	27829.07	83.86	711	32173.70	82.05
662	27912.93	83.97	712	32263.75	82.18
663	27996.90	84.10	713	32353.93	82.30
664	28081.00	84.23	714	32444.23	82.42
665	28165.23	84.35	715	32534.65	82.55
666	28249.58	84.47	716	32625.20	82.67
667	28334.05	84.60	717	32715.87	82.79
668	28418.65	84.72	718	32806.66	82.92
669	28503.37	84.85	719	32897.58	83.04
670	28588.22	84.97	720	32988.62	83.17
671	28673.19	85.08	721	33079.79	83.29
672	28758.27	85.22	722	33171.08	83.41
673	28843.49	85.35	723	33262.49	83.54
674	28928.84	85.46	724	33354.03	83.66
675	29014.30	85.59	725	33445.69	83.78
676	29099.89	85.72	726	33537.47	83.91
677	29185.61	85.84	727	33629.38	84.03
678	29271.45	85.96	728	33721.41	84.15
679	29357.41	86.09	729	33813.56	84.28
680	29443.50	86.21	730	33905.84	84.40
681	29529.71	86.34	731	33998.24	84.52
682	29616.05	86.46	732	34090.76	84.64
683	29702.51	86.58	733	34183.40	84.77
684	29789.09	86.71	734	34276.17	84.89
685	29875.80	86.83	735	34369.07	85.02
686	29962.63	86.96	736	34462.09	85.14
687	30049.59	87.08	737	34555.23	85.26
688	30136.67	87.20	738	34648.50	85.38
689	30223.87	87.33	739	34741.88	85.52
690	30311.20	87.45	740	34835.40	85.63
691	30398.65	87.56	741	34929.03	85.76
692	30486.23	87.70	742	35022.79	85.88
693	30573.93	87.82	743	35116.67	86.01
694	30661.75	87.95	744	35210.68	86.13
695	30749.70	88.07	745	35304.81	86.25
696	30837.77	88.20	746	35399.06	86.37
697	30925.97	88.32	747	35493.43	86.50
698	31014.29	88.44	748	35587.93	86.62
699	31102.73	88.57	749	35682.55	86.75
700	31191.30	88.69	750	35777.30	86.87

Bρ kgauss·cm	E keV	ΔE keV	Bρ kgauss·cm	E keV	ΔE keV
751	35872.17	94.99	F01	40772.43	101.14
752	35967.16	95.11	F02	40873.57	101.26
753	36062.27	95.23	F03	40974.63	101.38
754	36157.50	95.37	F04	41076.21	101.51
755	36252.87	95.48	F05	41177.72	101.63
756	36346.35	95.61	F06	41279.35	101.75
757	36443.96	95.73	F07	41381.10	101.87
758	36539.69	95.85	F08	41482.97	102.00
759	36635.54	95.98	F09	41584.97	102.12
760	36731.52	96.10	F10	41686.09	102.23
761	36827.62	96.22	F11	41789.32	102.36
762	36923.84	96.35	F12	41891.68	102.49
763	37020.19	96.47	F13	41994.17	102.60
764	37116.66	96.59	F14	42096.77	102.73
765	37213.25	96.72	F15	42199.50	102.86
766	37309.97	96.84	F16	42302.36	102.97
767	37406.81	96.96	F17	42405.33	103.10
768	37503.77	97.08	F18	42508.43	103.22
769	37600.85	97.21	F19	42611.65	103.34
770	37698.06	97.32	F20	42714.99	103.46
771	37795.38	97.40	F21	42818.45	103.59
772	37892.84	97.57	F22	42922.04	103.71
773	37990.41	97.70	F23	43025.75	103.83
774	38086.11	97.83	F24	43129.58	103.95
775	38185.94	97.94	F25	43233.53	104.08
776	38283.88	98.07	F26	43337.61	104.20
777	38381.95	98.19	F27	43441.81	104.32
778	38480.14	98.32	F28	43546.15	104.44
779	38578.46	98.44	F29	43650.57	104.57
780	38677.90	98.56	F30	43755.14	104.69
781	38775.46	98.68	F31	43859.82	104.81
782	38874.14	98.81	F32	43964.63	104.93
783	38972.95	98.93	F33	44069.56	105.06
784	39071.88	99.04	F34	44174.63	105.17
785	39170.92	99.17	F35	44279.79	105.30
786	39270.09	99.30	F36	44385.09	105.42
787	39369.39	99.42	F37	44490.51	105.55
788	39468.81	99.54	F38	44596.06	105.66
789	39568.35	99.67	F39	44701.72	105.78
790	39668.02	99.79	F40	44807.50	105.91
791	39767.81	99.91	F41	44913.41	106.03
792	39867.72	100.03	F42	45019.44	106.15
793	39967.75	100.16	F43	45125.59	106.28
794	40067.91	100.28	F44	45231.87	106.40
795	40168.19	100.40	F45	45338.27	106.52
796	40268.59	100.53	F46	45444.79	106.64
797	40369.12	100.64	F47	45551.43	106.76
798	40469.76	100.76	F48	45658.19	106.88
799	40570.52	100.90	F49	45765.07	107.01
800	40671.42	101.01	F50	45872.06	107.13

Bρ kgauss·cm	E keV	ΔE keV	Bρ kgauss·cm	E keV	ΔE keV
851	45979.21	107.25	901	51490.61	113.33
852	46086.46	107.37	902	51604.14	113.46
853	46193.83	107.50	903	51717.60	113.57
854	46301.33	107.62	904	51831.17	113.70
855	46408.95	107.74	905	51944.87	113.80
856	46516.69	107.85	906	52058.67	113.94
857	46624.54	107.98	907	52172.61	114.06
858	46732.52	108.10	908	52286.67	114.18
859	46840.62	108.23	909	52400.85	114.30
860	46948.85	108.35	910	52515.15	114.41
861	47057.20	108.47	911	52629.56	114.54
862	47165.67	108.59	912	52744.10	114.67
863	47274.26	108.71	913	52858.77	114.78
864	47382.97	108.83	914	52973.55	114.91
865	47491.80	108.96	915	53088.46	115.02
866	47600.76	109.08	916	53203.48	115.15
867	47709.84	109.20	917	53318.63	115.27
868	47819.04	109.32	918	53433.90	115.39
869	47928.36	109.45	919	53549.29	115.51
870	48037.81	109.55	920	53664.80	115.62
871	48147.36	109.69	921	53780.42	115.75
872	48257.05	109.81	922	53896.17	115.88
873	48366.86	109.93	923	54012.05	115.99
874	48476.79	110.06	924	54128.04	116.11
875	48586.85	110.17	925	54244.15	116.24
876	48697.02	110.30	926	54360.39	116.35
877	48807.32	110.40	927	54476.74	116.48
878	48917.72	110.54	928	54593.22	116.60
879	49028.26	110.66	929	54709.82	116.71
880	49138.92	110.79	930	54826.53	116.84
881	49249.71	110.90	931	54943.37	116.97
882	49360.61	111.02	932	55060.34	117.08
883	49471.63	111.14	933	55177.42	117.19
884	49582.77	111.27	934	55294.61	117.33
885	49694.04	111.39	935	55411.94	117.44
886	49805.43	111.51	936	55529.38	117.57
887	49916.94	111.63	937	55646.95	117.68
888	50028.57	111.76	938	55764.63	117.80
889	50140.33	111.86	939	55882.43	117.93
890	50252.19	112.00	940	56000.36	118.05
891	50364.19	112.12	941	56118.41	118.16
892	50476.31	112.24	942	56236.57	118.29
893	50588.55	112.36	943	56354.86	118.41
894	50700.91	112.48	944	56473.27	118.53
895	50813.39	112.59	945	56591.80	118.64
896	50925.98	112.73	946	56710.44	118.78
897	51038.71	112.85	947	56829.22	118.89
898	51151.56	112.96	948	56948.11	119.01
899	51264.52	113.09	949	57067.12	119.13
900	51377.61	113.20	950	57186.25	119.25

Bρ kgauss·cm	E keV	ΔE keV	Bρ kgauss·cm	E keV	ΔE keV
951	57305.50	119.38	1001	6342[illegible]4	12[illegible]7
952	57424.80	119.48	1002	6354[illegible]1	12[illegible]0
953	57544.36	119.62	1003	6367[illegible]1	12[illegible]1
954	57663.98	119.74	1004	6379[illegible]2	12[illegible]4
955	57783.72	119.86	1005	6392[illegible]6	12[illegible]6
956	57903.58	119.96	1006	6404[illegible]2	12[illegible]7
957	58023.54	120.10	1007	6417[illegible]9	12[illegible]1
958	58143.64	120.24	1008	6429[illegible]0	12[illegible]1
959	58263.86	120.33	1009	6442[illegible]1	12[illegible]3
960	58384.19	120.46	1010	6455[illegible]4	12[illegible]6
961	58504.65	120.58	1011	6468[illegible]0	12[illegible]7
962	58625.23	120.70	1012	6481[illegible]7	12[illegible]0
963	58745.93	120.81	1013	6493[illegible]7	12[illegible]1
964	58866.74	120.94	1014	6506[illegible]0	12[illegible]4
965	58987.68	121.06	1015	6519[illegible]2	12[illegible]4
966	59108.74	121.17	1016	6532[illegible]6	12[illegible]8
967	59229.91	121.30	1017	6544[illegible]4	12[illegible]0
968	59351.21	121.43	1018	6557[illegible]4	12[illegible]0
969	59472.64	121.53	1019	6570[illegible]4	12[illegible]4
970	59594.17	121.66	1020	6582[illegible]8	12[illegible]4
971	59715.83	121.76	1021	6595[illegible]2	12[illegible]8
972	59837.61	121.96	1022	6607[illegible]0	12[illegible]8
973	59959.51	122.02	1023	6620[illegible]8	13[illegible]1
974	60081.53	122.14	1024	6633[illegible]9	13[illegible]3
975	60203.67	122.27	1025	6646[illegible]2	13[illegible]5
976	60325.94	122.37	1026	6658[illegible]7	13[illegible]6
977	60448.31	122.54	1027	6671[illegible]3	13[illegible]9
978	60570.81	122.62	1028	6684[illegible]2	13[illegible]0
979	60693.44	122.73	1029	6697[illegible]2	13[illegible]3
980	60816.17	122.86	1030	6710[illegible]5	13[illegible]5
981	60939.03	122.99	1031	6723[illegible]0	13[illegible]5
982	61062.02	123.09	1032	6736[illegible]5	13[illegible]9
983	61185.11	123.23	1033	6749[illegible]4	13[illegible]0
984	61308.34	123.33	1034	6762[illegible]0	13[illegible]2
985	61431.67	123.46	1035	6775[illegible]6	13[illegible]4
986	61555.13	123.59	1036	6788[illegible]0	13[illegible]6
987	61678.72	123.69	1037	6801[illegible]6	13[illegible]7
988	61802.41	123.83	1038	6814[illegible]3	13[illegible]1
989	61926.24	123.94	1039	6827[illegible]4	13[illegible]1
990	62050.18	124.05	1040	6840[illegible]7	13[illegible]4
991	62174.23	124.19	1041	6853[illegible]9	13[illegible]5
992	62298.42	124.30	1042	6866[illegible]4	13[illegible]8
993	62422.72	124.42	1043	6879[illegible]2	13[illegible]8
994	62547.14	124.54	1044	6892[illegible]0	13[illegible]1
995	62671.68	124.65	1045	6905[illegible]1	13[illegible]4
996	62796.33	124.79	1046	6918[illegible]5	13[illegible]4
997	62921.12	124.90	1047	6931[illegible]9	13[illegible]8
998	63046.02	125.01	1048	6944[illegible]7	13[illegible]8
999	63171.03	125.14	1049	6957[illegible]5	13[illegible]1
1000	63296.17	125.27	1050	6970[illegible]6	13[illegible]2