

countersnew.dat (10/2/08 based on Yang's Single magnet focal\_plane\_designn.xls  
 toasca file: single\_row\_long\_q\_narrow\_return\_yoke.op3

190 counters: from Eg=3.0 to 11.7 GeV for E\_beam=12.0 GeV  
 below Eg=9.0 GeV: 50% sampling of 60 MeV bites

coordinates: (xcen,zcen) for z=photon beam line, y=vertical up, x=away from spectrometer  
 origin at crystal position (goniometer)  
 scen=position on focal plane (zero at position (-678.410;0;3842.163mm))  
 rotation in xz plane by -9.71355 deg. wrt. x axis

Ctr	Eg_hi	Eg_low	xcen(mm)	zcen(mm)	scen(mm)	width(mm)	theta(deg)	width	190
1	11.70	11.67	-684.16	3875.78	34.1	47.02	42.5	47	1
2	11.67	11.64	-695.43	3941.61	100.9	43.21	40.4	44	1
3	11.64	11.61	-706.24	4004.75	164.9	39.89	38.6	40	1
4	11.61	11.58	-716.66	4065.63	226.7	37.24	37.0	38	1
5	11.58	11.55	-726.76	4124.62	286.6	34.87	35.6	35	1
6	11.55	11.52	-736.56	4181.89	344.7	32.84	34.4	33	1
7	11.52	11.49	-746.11	4237.67	401.3	31.04	33.2	31	1
8	11.49	11.46	-755.43	4292.11	456.5	29.46	32.2	30	1
9	11.46	11.43	-764.53	4345.30	510.4	28.00	31.2	28	1
10	11.43	11.40	-773.45	4397.39	563.3	26.78	30.3	27	1
11	11.40	11.37	-782.21	4448.54	615.2	25.64	29.5	26	1
12	11.37	11.34	-790.80	4498.74	666.1	24.55	28.8	25	1
13	11.34	11.31	-799.25	4548.10	716.2	23.66	28.1	24	1
14	11.31	11.28	-807.57	4596.71	765.5	22.75	27.4	23	1
15	11.28	11.25	-815.76	4644.57	814.1	21.96	26.8	22	2
16	11.25	11.22	-823.85	4691.82	862.0	21.28	26.2	22	
17	11.22	11.19	-831.83	4738.45	909.3	20.54	25.7	21	1
18	11.19	11.16	-839.71	4784.47	956.0	19.95	25.2	20	2
19	11.16	11.13	-847.51	4830.01	1002.2	19.38	24.7	20	
20	11.13	11.10	-855.21	4875.02	1047.9	18.78	24.2	19	2
21	11.10	11.07	-862.83	4919.50	1093.0	18.28	23.8	19	
22	11.07	11.04	-870.37	4963.57	1137.7	17.81	23.4	18	2
23	11.04	11.01	-877.84	5007.24	1182.0	17.38	23.0	18	
24	11.01	10.98	-885.26	5050.54	1226.0	16.95	22.6	17	2
25	10.98	10.95	-892.60	5093.42	1269.5	16.53	22.3	17	
26	10.95	10.92	-899.87	5135.91	1312.6	16.15	21.9	16	3
27	10.92	10.89	-907.08	5178.05	1355.3	15.79	21.6	16	
28	10.89	10.86	-914.25	5219.92	1397.8	15.49	21.3	16	
29	10.86	10.83	-921.36	5261.45	1439.9	15.12	21.0	15	4
30	10.83	10.80	-928.41	5302.63	1481.7	14.81	20.7	15	
31	10.80	10.77	-935.41	5343.53	1523.2	14.53	20.4	15	
32	10.77	10.74	-942.37	5384.21	1564.5	14.28	20.2	15	
33	10.74	10.71	-949.29	5424.63	1605.5	13.99	19.9	14	4
34	10.71	10.68	-956.16	5464.78	1646.2	13.74	19.6	14	
35	10.68	10.65	-962.99	5504.65	1686.7	13.47	19.4	14	
36	10.65	10.62	-969.77	5544.27	1726.9	13.25	19.2	14	
37	10.62	10.59	-976.53	5583.73	1766.9	13.06	19.0	13	5
38	10.59	10.56	-983.25	5623.03	1806.8	12.85	18.8	13	
39	10.56	10.53	-989.94	5662.09	1846.4	12.62	18.5	13	
40	10.53	10.50	-996.58	5700.88	1885.8	12.40	18.3	13	
41	10.50	10.47	-1003.19	5739.48	1924.9	12.24	18.1	13	

42	10.47	10.44	-1009.77	5777.92	1963.9	12.04	17.9	12	6
43	10.44	10.41	-1016.31	5816.17	2002.7	11.88	17.8	12	
44	10.41	10.38	-1022.84	5854.27	2041.4	11.71	17.6	12	
45	10.38	10.35	-1029.32	5892.14	2079.8	11.51	17.4	12	
46	10.35	10.32	-1035.78	5929.89	2118.1	11.41	17.2	12	
47	10.32	10.29	-1042.23	5967.59	2156.3	11.27	17.1	12	
48	10.29	10.26	-1048.66	6005.14	2194.4	11.11	16.9	11	7
49	10.26	10.23	-1055.06	6042.52	2232.4	10.96	16.8	11	
50	10.23	10.20	-1061.42	6079.66	2270.0	10.77	16.6	11	
51	10.20	10.17	-1067.75	6116.64	2307.6	10.67	16.5	11	
52	10.17	10.14	-1074.07	6153.56	2345.0	10.56	16.3	11	
53	10.14	10.11	-1080.37	6190.35	2382.3	10.41	16.2	11	
54	10.11	10.08	-1086.64	6227.00	2419.5	10.30	16.0	11	
55	10.08	10.05	-1092.89	6263.52	2456.6	10.18	15.9	10	10
56	10.05	10.02	-1099.11	6299.89	2493.5	10.05	15.8	10	
57	10.02	9.99	-1105.32	6336.11	2530.2	9.94	15.7	10	
58	9.99	9.96	-1111.50	6372.27	2566.9	9.85	15.5	10	
59	9.96	9.93	-1117.68	6408.37	2603.5	9.76	15.4	10	
60	9.93	9.90	-1123.85	6444.36	2640.1	9.64	15.3	10	
61	9.90	9.87	-1129.99	6480.24	2676.4	9.55	15.2	10	
62	9.87	9.84	-1136.11	6516.02	2712.7	9.45	15.1	10	
63	9.84	9.81	-1142.21	6551.62	2748.9	9.32	14.9	10	
64	9.81	9.78	-1148.27	6587.08	2784.8	9.23	14.8	10	
65	9.78	9.75	-1154.34	6622.49	2820.8	9.17	14.7	9	13
66	9.75	9.72	-1160.39	6657.87	2856.7	9.09	14.6	9	
67	9.72	9.69	-1166.43	6693.16	2892.5	9.00	14.5	9	
68	9.69	9.66	-1172.46	6728.37	2928.2	8.92	14.4	9	
69	9.66	9.63	-1178.47	6763.49	2963.8	8.83	14.3	9	
70	9.63	9.60	-1184.47	6798.54	2999.4	8.77	14.2	9	
71	9.60	9.57	-1190.46	6833.54	3034.9	8.69	14.1	9	
72	9.57	9.54	-1196.43	6868.41	3070.3	8.60	14.0	9	
73	9.54	9.51	-1202.38	6903.13	3105.5	8.50	13.9	9	
74	9.51	9.48	-1208.30	6937.74	3140.6	8.43	13.9	9	
75	9.48	9.45	-1214.22	6972.31	3175.7	8.38	13.8	9	
76	9.45	9.42	-1220.13	7006.87	3210.7	8.33	13.7	9	
77	9.42	9.39	-1226.04	7041.40	3245.8	8.26	13.6	9	
78	9.39	9.36	-1231.94	7075.82	3280.7	8.17	13.5	8	16
79	9.36	9.33	-1237.81	7110.14	3315.5	8.12	13.4	8	
80	9.33	9.30	-1243.68	7144.45	3350.3	8.07	13.4	8	
81	9.30	9.27	-1249.55	7178.70	3385.1	8.00	13.3	8	
82	9.27	9.24	-1255.38	7212.80	3419.7	7.91	13.2	8	
83	9.24	9.21	-1261.21	7246.83	3454.2	7.87	13.1	8	
84	9.21	9.18	-1267.03	7280.86	3488.7	7.83	13.1	8	
85	9.18	9.15	-1272.86	7314.88	3523.2	7.77	13.0	8	
86	9.15	9.12	-1278.66	7348.80	3557.6	7.70	12.9	8	
87	9.12	9.09	-1284.45	7382.58	3591.9	7.62	12.8	8	
88	9.09	9.06	-1290.22	7416.29	3626.1	7.59	12.8	8	
89	9.06	9.03	-1296.00	7450.05	3660.4	7.57	12.7	8	
90	9.03	9.00	-1301.77	7483.81	3694.6	7.50	12.6	8	
91	8.97	8.94	-1313.27	7550.98	3762.8	7.39	12.5	8	
92	8.91	8.88	-1324.72	7617.86	3830.6	7.29	12.4	8	
93	8.85	8.82	-1336.17	7684.76	3898.5	7.23	12.3	8	

94	8.79	8.76	-1347.58	7751.42	3966.1	7.10	12.1	7	12
95	8.73	8.70	-1358.93	7817.73	4033.4	7.02	12.0	7	
96	8.67	8.64	-1370.26	7883.89	4100.5	6.95	11.9	7	
97	8.61	8.58	-1381.56	7949.93	4167.5	6.85	11.8	7	
98	8.55	8.52	-1392.84	8015.81	4234.4	6.80	11.7	7	
99	8.49	8.46	-1404.09	8081.52	4301.0	6.71	11.6	7	
100	8.43	8.40	-1415.33	8147.18	4367.6	6.64	11.5	7	
101	8.37	8.34	-1426.53	8212.62	4434.0	6.56	11.4	7	
102	8.31	8.28	-1437.68	8277.77	4500.1	6.48	11.3	7	
103	8.25	8.22	-1448.81	8342.78	4566.1	6.43	11.2	7	
104	8.19	8.16	-1459.95	8407.85	4632.1	6.36	11.1	7	
105	8.13	8.10	-1471.06	8472.76	4697.9	6.31	11.0	7	
106	8.07	8.04	-1482.13	8537.45	4763.6	6.22	10.9	6	23
107	8.01	7.98	-1493.18	8601.97	4829.0	6.18	10.9	6	
108	7.95	7.92	-1504.22	8666.47	4894.5	6.12	10.8	6	
109	7.89	7.86	-1515.23	8730.83	4959.8	6.07	10.7	6	
110	7.83	7.80	-1526.26	8795.22	5025.1	6.03	10.6	6	
111	7.77	7.74	-1537.24	8859.39	5090.2	5.94	10.5	6	
112	7.71	7.68	-1548.17	8923.23	5155.0	5.90	10.5	6	
113	7.65	7.62	-1559.12	8987.23	5219.9	5.87	10.4	6	
114	7.59	7.56	-1570.06	9051.14	5284.7	5.81	10.3	6	
115	7.53	7.50	-1580.97	9114.87	5349.4	5.75	10.2	6	
116	7.47	7.44	-1591.86	9178.44	5413.9	5.71	10.2	6	
117	7.41	7.38	-1602.73	9241.99	5478.4	5.66	10.1	6	
118	7.35	7.32	-1613.60	9305.44	5542.7	5.62	10.1	6	
119	7.29	7.26	-1624.44	9368.80	5607.0	5.58	10.0	6	
120	7.23	7.20	-1635.29	9432.18	5671.3	5.54	9.9	6	
121	7.17	7.14	-1646.09	9495.25	5735.3	5.47	9.9	6	
122	7.11	7.08	-1656.87	9558.25	5799.2	5.46	9.8	6	
123	7.05	7.02	-1667.68	9621.42	5863.3	5.43	9.7	6	
124	6.99	6.96	-1678.46	9684.36	5927.2	5.37	9.7	6	
125	6.93	6.90	-1689.21	9747.15	5990.9	5.34	9.6	6	
126	6.87	6.84	-1699.96	9809.99	6054.6	5.30	9.6	6	
127	6.81	6.78	-1710.70	9872.70	6118.2	5.27	9.5	6	
128	6.75	6.72	-1721.44	9935.47	6181.9	5.24	9.5	6	
129	6.69	6.66	-1732.15	9998.04	6245.4	5.18	9.4	5	43
130	6.63	6.60	-1742.83	10060.45	6308.7	5.15	9.4	5	
131	6.57	6.54	-1753.52	10122.89	6372.1	5.14	9.3	5	
132	6.51	6.48	-1764.23	10185.42	6435.5	5.10	9.3	5	
133	6.45	6.42	-1774.89	10247.71	6498.7	5.05	9.2	5	
134	6.39	6.36	-1785.53	10309.87	6561.8	5.03	9.2	5	
135	6.33	6.30	-1796.19	10372.16	6625.0	5.01	9.1	5	
136	6.27	6.24	-1806.83	10434.31	6688.0	4.97	9.1	5	
137	6.21	6.18	-1817.47	10496.46	6751.1	4.95	9.0	5	
138	6.15	6.12	-1828.10	10558.58	6814.1	4.92	9.0	5	
139	6.09	6.06	-1838.72	10620.63	6877.1	4.89	8.9	5	
140	6.03	6.00	-1849.32	10682.51	6939.8	4.86	8.9	5	
141	5.97	5.94	-1859.91	10744.41	7002.6	4.83	8.8	5	
142	5.91	5.88	-1870.51	10806.29	7065.4	4.80	8.8	5	
143	5.85	5.82	-1881.07	10868.04	7128.1	4.78	8.8	5	
144	5.79	5.76	-1891.64	10929.76	7190.7	4.76	8.7	5	
145	5.73	5.70	-1902.24	10991.67	7253.5	4.74	8.7	5	

146	5.67	5.64	-1912.80	11053.38	7316.1	4.70	8.6	5
147	5.61	5.58	-1923.34	11114.95	7378.6	4.67	8.6	5
148	5.55	5.52	-1933.89	11176.61	7441.1	4.66	8.6	5
149	5.49	5.46	-1944.44	11238.20	7503.6	4.62	8.5	5
150	5.43	5.40	-1954.97	11299.73	7566.0	4.61	8.5	5
151	5.37	5.34	-1965.50	11361.22	7628.4	4.59	8.4	5
152	5.31	5.28	-1976.03	11422.75	7690.8	4.57	8.4	5
153	5.25	5.22	-1986.55	11484.21	7753.2	4.54	8.4	5
154	5.19	5.16	-1997.08	11545.71	7815.6	4.52	8.3	5
155	5.13	5.10	-2007.58	11607.08	7877.9	4.50	8.3	5
156	5.07	5.04	-2018.09	11668.45	7940.1	4.48	8.3	5
157	5.01	4.98	-2028.59	11729.82	8002.4	4.45	8.2	5
158	4.95	4.92	-2039.11	11791.25	8064.7	4.46	8.2	5
159	4.89	4.86	-2049.62	11852.65	8127.0	4.42	8.2	5
160	4.83	4.80	-2060.12	11913.98	8189.2	4.40	8.1	5
161	4.77	4.74	-2070.59	11975.18	8251.3	4.37	8.1	5
162	4.71	4.68	-2081.07	12036.39	8313.4	4.38	8.1	5
163	4.65	4.62	-2091.57	12097.72	8375.6	4.35	8.0	5
164	4.59	4.56	-2102.06	12159.03	8437.8	4.33	8.0	5
165	4.53	4.50	-2112.56	12220.34	8500.0	4.32	8.0	5
166	4.47	4.44	-2123.06	12281.67	8562.3	4.31	7.9	5
167	4.41	4.38	-2133.56	12343.05	8624.5	4.30	7.9	5
168	4.35	4.32	-2144.09	12404.54	8686.9	4.28	7.9	5
169	4.29	4.26	-2154.60	12465.96	8749.2	4.25	7.8	5
170	4.23	4.20	-2165.11	12527.33	8811.5	4.25	7.8	5
171	4.17	4.14	-2175.63	12588.82	8873.9	4.24	7.8	5
172	4.11	4.08	-2186.18	12650.42	8936.4	4.22	7.8	5
173	4.05	4.02	-2196.71	12711.95	8998.8	4.21	7.7	5
174	3.99	3.96	-2207.28	12773.71	9061.5	4.22	7.7	5
175	3.93	3.90	-2217.90	12835.74	9124.4	4.21	7.7	5
176	3.87	3.84	-2228.52	12897.78	9187.3	4.19	7.7	4
177	3.81	3.78	-2239.15	12959.87	9250.3	4.19	7.6	4
178	3.75	3.72	-2249.80	13022.12	9313.5	4.19	7.6	4
179	3.69	3.66	-2260.50	13084.63	9376.9	4.19	7.6	4
180	3.63	3.60	-2271.25	13147.39	9440.6	4.18	7.5	4
181	3.57	3.54	-2282.03	13210.37	9504.5	4.19	7.5	4
182	3.51	3.48	-2292.84	13273.53	9568.5	4.18	7.5	4
183	3.45	3.42	-2303.68	13336.85	9632.8	4.18	7.5	4
184	3.39	3.36	-2314.63	13400.82	9697.7	4.22	7.4	4
185	3.33	3.30	-2325.66	13465.28	9763.1	4.22	7.4	4
186	3.27	3.24	-2336.74	13530.02	9828.8	4.22	7.4	4
187	3.21	3.18	-2347.90	13595.17	9894.9	4.23	7.3	4
188	3.15	3.12	-2359.13	13660.78	9961.4	4.25	7.3	4
189	3.09	3.06	-2370.46	13726.96	10028.6	4.28	7.3	4
190	3.03	3.00	-2381.92	13793.92	10096.5	4.31	7.2	4