Memo on BDC operating condition for z=1&2 calibration

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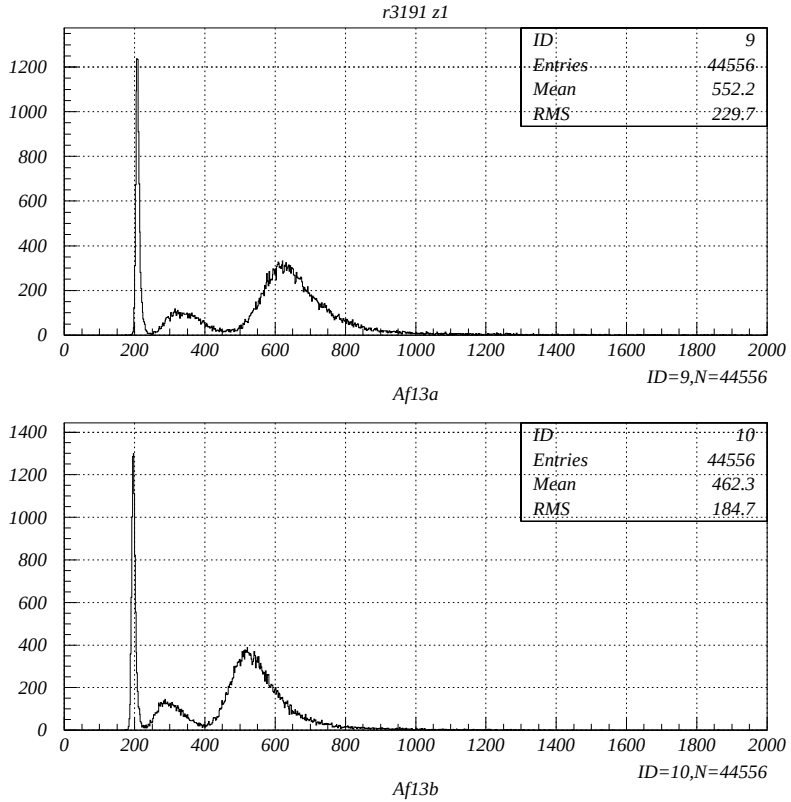
- BDC1, BDC2
  - gas : i-C_4H_{10} P= 150 torr
  - HV = 1.20 kV (estimated from bench test results using cosmic muons)
- data sample : run3191 2016.5.31 ~22:30
- PID
  - just using SF13a & SF13b (0.2mm-thick plastic)



- z=1 & z=2 are separated

- BDC efficiencies for z=1 & z=2
  - efficiency looks small since beam is shifted in X to west side (see next page)

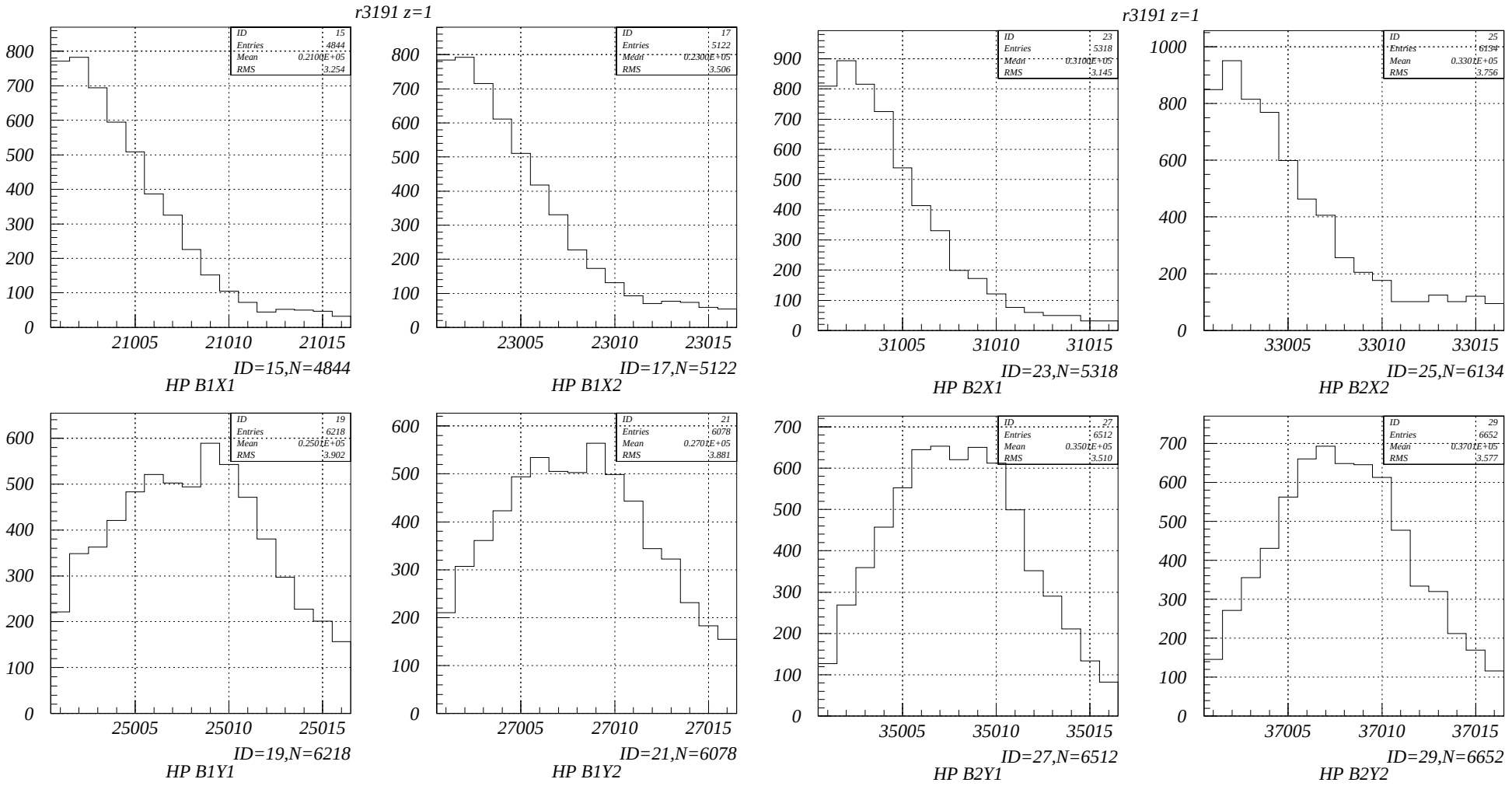
BDC efficiency for z=1

Name	: Sum(M)	M1	M2	M3	M4	M5+	MW1	MW2	MW3	MW4+	MC1	MC2	MC3	MC4+	:Tot/Ana : 44556 7049
B1X1	: 59.04	54.89	2.88	0.58	0.20	0.50	54.90	2.95	0.54	0.65	57.72	0.85	0.17	0.30	
B1X1P	: 63.30	59.34	2.61	0.47	0.16	0.72	59.36	2.61	0.48	0.85	61.87	0.78	0.31	0.34	
B1X2	: 59.44	55.37	2.84	0.43	0.11	0.70	55.38	2.84	0.41	0.81	58.11	0.79	0.14	0.40	
B1X2P	: 63.88	58.94	3.14	0.61	0.21	0.98	58.96	3.16	0.57	1.19	62.07	0.92	0.41	0.48	
B1Y1	: 71.20	65.50	3.77	0.68	0.27	0.98	65.51	3.82	0.64	1.23	68.88	1.40	0.54	0.38	
B1Y1P	: 71.56	66.96	3.05	0.54	0.11	0.89	66.97	3.04	0.54	1.01	69.83	1.04	0.34	0.35	
B1Y2	: 71.73	66.39	3.72	0.60	0.30	0.72	66.41	3.76	0.55	1.01	69.92	1.18	0.30	0.33	
B1Y2P	: 72.10	67.36	3.43	0.82	0.09	0.40	67.37	3.42	0.84	0.47	70.73	1.06	0.16	0.14	
B2X1	: 66.26	62.60	2.61	0.47	0.11	0.47	62.62	2.62	0.51	0.51	65.04	0.95	0.14	0.13	
B2X1P	: 70.97	66.58	2.57	0.54	0.30	0.99	66.59	2.55	0.54	1.29	68.95	1.05	0.57	0.41	
B2X2	: 66.53	61.90	2.62	0.51	0.13	1.38	61.91	2.64	0.50	1.49	64.45	0.96	0.31	0.81	
B2X2P	: 70.90	65.98	3.04	0.45	0.18	1.25	66.00	3.02	0.47	1.42	68.68	1.01	0.35	0.87	
B2Y1	: 76.88	71.85	3.26	0.54	0.23	0.99	71.87	3.26	0.54	1.21	74.98	1.01	0.41	0.48	
B2Y1P	: 76.79	71.51	3.35	0.44	0.21	1.28	71.58	3.32	0.43	1.46	74.41	1.22	0.38	0.78	
B2Y2	: 76.79	71.30	3.63	0.55	0.17	1.13	71.33	3.60	0.58	1.28	74.56	1.09	0.35	0.78	
B2Y2P	: 77.02	72.51	3.26	0.65	0.16	0.44	72.51	3.28	0.71	0.52	75.66	1.05	0.16	0.16	

BDC efficiency for z=2

Name	: Sum(M)	M1	M2	M3	M4	M5+	MW1	MW2	MW3	MW4+	MC1	MC2	MC3	MC4+	:Tot/Ana : 44556 25439
B1X1	: 66.59	56.92	5.54	1.55	0.55	2.03	56.92	5.59	1.56	2.52	62.19	2.68	0.66	1.05	
B1X1P	: 72.66	61.04	5.47	1.50	0.64	4.01	61.04	5.53	1.47	4.61	66.10	2.76	1.42	2.38	
B1X2	: 67.78	55.11	5.47	1.28	0.72	5.20	55.13	5.48	1.29	5.88	60.01	3.06	1.62	3.09	
B1X2P	: 73.53	60.38	5.96	1.61	0.73	4.85	60.39	5.99	1.62	5.54	65.74	3.28	1.86	2.65	
B1Y1	: 85.38	66.02	7.82	2.60	1.22	7.72	66.03	7.93	2.58	8.84	71.72	6.70	3.77	3.19	
B1Y1P	: 85.34	71.00	6.74	1.75	0.73	5.12	71.02	6.78	1.71	5.84	76.89	3.77	1.85	2.83	
B1Y2	: 86.05	72.18	7.24	1.95	0.71	3.97	72.19	7.28	1.93	4.65	78.41	3.88	1.25	2.50	
B1Y2P	: 86.06	73.69	7.66	2.13	0.71	1.87	73.70	7.70	2.13	2.52	80.61	3.82	0.72	0.91	
B2X1	: 75.08	64.39	6.03	1.53	0.53	2.60	64.40	6.08	1.58	3.02	70.07	2.84	0.91	1.26	
B2X1P	: 81.30	65.62	5.44	1.55	0.80	7.89	65.62	5.46	1.57	8.64	69.49	3.98	3.73	4.10	
B2X2	: 76.07	60.41	5.02	1.58	0.85	8.22	60.42	5.03	1.60	9.03	64.14	3.93	2.43	5.58	
B2X2P	: 81.25	65.22	6.24	1.77	0.89	7.14	65.22	6.27	1.77	7.98	70.36	3.64	2.56	4.68	
B2Y1	: 89.23	74.35	6.59	1.62	0.65	6.02	74.35	6.61	1.62	6.66	79.87	3.86	1.95	3.54	
B2Y1P	: 89.10	72.64	6.30	1.55	0.76	7.84	72.67	6.32	1.52	8.58	77.58	3.90	2.68	4.94	
B2Y2	: 89.04	73.37	6.76	1.58	0.74	6.59	73.38	6.77	1.60	7.29	78.78	3.61	2.03	4.61	
B2Y2P	: 89.38	76.92	7.88	2.11	0.59	1.89	76.92	7.92	2.25	2.29	84.23	3.66	0.54	0.96	

- BDC hit patterns for z=1 & z=2 : almost equivalent
  - x profile is almost the same as Z=50 runs



- Since trigger rate is quite low, it is difficult to take data at different BDC HV.
- By judging from efficiencies and hit patterns, HV of 1.20 kV seems to be enough for z=1 & z=2 track reference.
- at lower beam energy, same HV will be sufficient due to larger energy loss.