Technical specs of the 2005 beam development run.

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1 Description

During the 2005 beam development run we ran with 3 (three) different setups. They will be called setup0, setup1 and setup2 respectively. In addition to that, setup2 (with NaI calorimeter) had two different subsets which will be called setup2_1 and setup2_2.

2 Setup0

Setup0 is the simplest of three. It consists of 2 plastic beam detectors: B0 and degrader/target, and two sets of wire chambers in between. B0 is a BC-412 2X20X30 mm^3 plastic. Degrader/target is a 15X100X100 mm^3 BC type plastic. The separation between the two counters is 2630±30 mm. Both sets of wire chambers are mounted on a rigid support which preserves the mutual position of two chambers. The first set is positioned 1581 mm downstream of the B0 back face and 470±30 mm in front of the degrader/target. Each set of chambers is 104±4 mm wide with a separation between the centers of the two sets of 442±4 mm. The assignment of the ADC/TDC channels is the following:

Name	ADC ch.	TDC ch.
Target wide	0	0
B1 wide	1	1
B2 wide	2	2
Target	3	0
B1	4	1
B2	5	2
rf		3

where B1 and B2 are signal of two PMTs reading B0 counter. The effective run numbers are 60104-60141.

3 Setup1

Setup1 is an extension of setup0. A Quadrupole triplet is inserted between the B0 counter and the wire chambers. The first set of wire chambers is lifted away from the beam. The degrader/target detector is replaced by an actual degrader and a separate target. The dimensions of the degrader are 5X100X100 mm^3 of standard BC type plastic. The target is a 15X100X100 mm^3 generic BC plastic. The separation between the back of the B0 counter and the front of the degrader is 3515 mm and target is located 10 mm behind the degrader.The assignment of the ADC/TDC channels is the following:

Name	ADC ch.	TDC ch.
Target wide	0	1
Degrader	12	0
Target	13	1
B1	14	2
B2	15	3

The effective run numbers are 60369-60400.

4 Setup2

Setup2 presents the final modification of the apparatus. Detectors B0 through degrader remain unchanged. the target is replaced by a faster one which is

a 50 mm long 40 mm diameter cylinder made of BC-422Q plastic. It is positioned 7 mm behind the degrader. In addition to that a NaI calorimeter is implemented. The calorimeter opening face is covered by a 10X100X100 mm^3 standard plastic called counter6. Counter6 is placed 15 mm in front of the crystal face. The NaI crystal itself was re-positioned twice.

4.1 Setup2_1

For this subset of the data the front of counter6 is 510 mm away from the target front face at a 40° angle with the detector central z-axis. The effective run numbers are 60469-60473.

4.2 Setup2_2

For this last subset of the data the front of the counter6 is 360 mm away from the target front face at a 47° angle with the detector central z-axis. The effective run numbers are 60506-60509. Perhaps runs 60538, 60558-6560 belong to this category as well. For both subsets The assignment of the ADC/TDC channels is the following:

Name	ADC ch.	TDC ch.
NaI wide	0	5
Counter6 wide	1	4
Target wide	2	1
Degrader	12	0
Target	13	1
B1	14	2
B2	15	3

5 Further

All subsequent modifications are to be documented later. For example starting from run60562 NaI is included in the trigger. This, perhaps, is the start of the valid runs with the digitizer. Starting from run 60570 the target is replaced by 2004 UNIZURI target. Digitizer is still running?