DRAFT SANE target field OFF Commissioning

October 25, 2008

STRAIGHT-THRUS

SEM Calibration (Asaturyan, Tadevosyan, Wood, Bosted)

HMS			target	slow raster	fast raster	I_0
collimator	θ_e	P_0		diameter	xy	
large (pion)	16º	1.485 GeV/c	C or tailpiece (0.011" Al)	2 cm	1x1 mm	100 nA

1. Check analog signals, adjust amplification.

2. Verify synchronization with raster

3. Check gate timing/width

4. Event mode (300 nA, fast raster off, slow raster on)

   - Take runs in event mode (adjust gate width if ADC overflows)
   - Calibrate raster current vs sem position $\rightarrow$ gain

5. Static mode (was not tested in beam before)

   - Compare display information with scaler values
   - Test functionality by moving beam and changing raster diameters
   - Measure average beam position, compare to BPMs

Beam Energy Measurement (MCC, Jones, Shift leader)

1. Use the Arc as a Dichromat to obtain the beam energy (MCC can do this for you, give them a warning a few hours before you want this done).

Low Luminosity BETA/HMS Checks (NSU, Temple, NCAT, BigCal, Yerevan)

HMS			target	slow raster diameter	fast raster xy	I_0
collimator	θ_e	P_0				
large (pion)	16º	1.485 GeV/c	C or tailpiece (0.011" Al)	2 cm	1x1 mm	200 nA

1. Check channels, rates with thin Al, 200 nA

2. Current can be increased if desired to 1μA with SR, FR rasters ON.

TARGET FIELD OFF (Production target insert)

Check vertical position of target with beam (Kalantarians, Mulholland, Maxwell, Day)

HMS			target	slow raster diameter	fast raster xy	I_0
collimator	θ_e	P_0				
large (pion)	16º	1.485 GeV/c	W cross-hairs, hole	2 cm	1x1 mm	200 nA

1. Inform MCC that the target will be moved slightly

2. Monitor rates and adjust vertical positions of the target stick.

3. Plot SR raw and calibrated x vs y ADC to image the cross-hairs

4. Compare plot with previous RSS result for target centered, hclog entry 45825, 1/25/02
   http://hallcweb.jlab.org/hclog/0201_archive/020121203424.html
   and later hclog entries 45834, 45839 for more examples.

Determine optimal slow raster size (Bosted, ...)

HMS			target	slow raster diameter	fast raster xy	I_0
collimator	θ_e	P_0				
large (pion)	16º	1.485 GeV/c	Cross-hairs, C disk	varies	1x1 mm	200 nA

1. Inform MCC that we will be adjusting the SLOW raster size several times.

2. In electronics room adjust slow raster radius, starting at 0.7 cm and going to 1.3 cm in 0.1 cm steps. MCC wants to know the *diameter* of the slow raster.

3. For each raster setting, record run and monitor rates.

4. Find raster size at which rates begin to increase.