

Hall A GMp Fall 2016 Runplan

May 10, 2016

General Notes:

1. With the DVCS calorimeter stand in place, the minimum right HRS angle is 48.75° .
2. With the DVCS calorimeter stand in place, the minimum left HRS angle is 21.25° .
3. The maximum angle for the left HRS is 45.5° due to the scattering chamber window.
4. During the summer, the right HRS quad is going to be moved to the left HRS to replace the problematic Q1 magnet. A new resistive quad, similar to the SOS quad, will be placed on the right HRS. Due to this fact, we need to retake optics data for both the left and right HRS.

1 Commissioning Plan

First Pass (2217 MeV): Total time = 3 days

- Optics, total time = 37 hours (driven by RHRS)
- ARC energy measurement, total time = 2 hours
- Target boiling study, total time = 12 hours (driven by LHRS)
- BCM calibration, total time = 2 hours

2 Third Pass Production (6417 MeV)

Total time = 3 days (1.5 PAC days)

Notes:

1. The total time assumes 50% uptime for both Hall A and the accelerator. Time for dummy and pointing runs is also included in the time estimate.
2. The rate estimates assume a 15-cm long LH2 target with $60 \mu\text{A}$ of beam current and a solid angle acceptance of 5 mSr.

Kinematic	HRS	P_{hrs} (GeV)	θ_{hrs} (deg)	Q^2 (GeV ²)	ϵ	Rate (Hz)	PAC Time (hours)	Events
K3-4	Left	-4.00	24.25	4.5	0.82	101 Hz	0.17	60k
K3-7	"	-2.70	37.0	7.0	0.60	3.66 Hz	3.0	40k
K3-8	"	-2.17	44.5	8.0	0.48	1.04 Hz	11.0	40k
K3-9	Right	-1.62	55.5	9.0	0.34	0.27 Hz	31	30k

3 Fourth Pass Production (8517 MeV)

Total time = 8 days (4 PAC days)

Notes:

1. The total time assumes 50% uptime for both Hall A and the accelerator. Time for dummy and pointing runs is also included in the time estimate.
2. The rate estimates assume a 15-cm long LH2 target with 60 μ A of beam current and a solid angle acceptance of 5 mSr.
3. We do have some data at $Q^2 = 11.9$ GeV² (L-HRS) and 12.6 GeV² (R-HRS) from the spring 2016 run period. The uncertainties will have to be evaluated to see how much more data, if any, we need in this region.

Kinematic	HRS	P_{hrs} (GeV)	θ_{hrs} (deg)	Q^2 (GeV ²)	ϵ	Rate (Hz)	PAC Time (hours)	Events
K4-9	Left	-3.72	30.9	9.0	0.65	1.59 Hz	7	40k
K4-10	"	-3.29	34.4	9.8	0.58	0.71 Hz	16	40k
K4-11	"	-2.65	40.85	11.0	0.47	0.21 Hz	53	40k
K4-12	Right	-2.08	48.75	12.1	0.36	0.071 Hz	84	21k