G9b-FROST Run plan

- Startup of commissioning: March 11, 5 days
- 3 pass (3.056 GeV) circularly polarized beam March 16 - April 19
- 4 pass beam April 20 – May 2 (continue at 3 pass?)
- 5 pass (5.056 GeV) beam May 3 – May 24
- 2 pass, 1.645 GeV May 25 – June 7 (Qweak comm.)
- 5 pass (5.562 GeV) June 8 – July 22

Startup and commissioning

- Initial beam tuneup.
  - Take everything out of the beam line: radiators, collimator, converter, TAC, photon profiler.
  - All beam halo counters must be on.
  - DCHV must be OFF.
  - HV on TOF, ST, EC must be ON.
  - Verify with MCC that they have set up machine fast shutdown interlock from the tagger magnet.
  - Let MCC establish beam in the Hall and tune it on the tagger dump.
  - Ask MCC to set up digitizer on the tagger dump viewer to monitor electron beam position on the dump. Have strip-chart running for that.
  - Set the beam current to 5 nA.
  - Harp scans at 2C21 and 2C24. Have width better than 150 μm in both X and Y. The difference in the size between 2C21 and 2c24 should be under 50 μm. Shoulder-to-peak ratio better than 10^{-4} on the tagger harp.
- Put radiator "1" (10^{-4} r.l.) in.
  - Ramp up pair spectrometer magnet and put 10^{-2} r.l converter in.
  - Plateau PS counters
  - Do photon harp scan with no collimation and 6.4 mm collimator.
  - Center beam on the collimator using rates in the start counter and rates in the pair spectrometer with and without collimation. Use the larger collimator (6.4 mm) for alignment. Do a horizontal scan of the collimator position. After it is centered horizontally, do a vertical scan with MCC steering the beam vertically. If it turns out that when beam is centered on the collimator but off-center on the target, we would need to adjust the height of the collimator box using its supporting screws.
  - Insert 2 mm instrumented collimator and recheck its alignment.
  - Bring up collimator GUI, turn on HV.
  - Plateau tagger HV.
  - Calibrate the SLM.
  - Make sure MCC gives us control of the attenuator and adjust the beam charge asymmetry to 0.
  - Perform a Moller run.
  - Have all CLAS detectors ready.
  - Turn DCHV ON.
  - Check that the L2 segment collectors are working.

  - Start DAQ and make sure that we have data coming from all detectors.
  - Check all on-line histograms. Pay special attention to the TOF decoupled paddles (at back angles). Establish a reference histogram set for monitoring.
  - Check trigger rates.
  - In fast reconstruction, check that we see three targets: the main one (5-cm long butanol) located at the nominal CLAS center, ^{12}C about 6 cm downstream of the CLAS center, and CH_2 about 16 cm downstream of the CLAS center.
  - Using fast fate reconstruction verify X and Y positions of the beam on target.
- Take out radiator and move Goni in.
  - Scan X and Y on the Goni to set initial positions of the radiator ladder.
  - Do diamond alignment.
  - Setup E-scalers gating with ST. Perform delay scan.
  - Check that the TESC bank is filled correctly.
  - Check EPICS 2s bank.
- Take Goni out and put radiator "4" in.
- Take normalization run with radiator "4"
- Put radiator "1" in.
  - Choose beam intensity. Some factors to consider include:
  - Trigger rate. Live time >80%
  - Tagger rate. Singles rate of T-counters <4 MHz.
  - DC occupancy <2%.
  - Take some data with unpolarized butanol with and without holding field.
  - Ramp down torus
  - Take B=0 data with 3 sector trigger for DC alignment.
- Polarize target
- Start production running.