

Hall A BCM Calibration Procedure (1 hr)

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Hall A Shifter Directions

1. Give MCC a copy of this procedure
2. Stop beam and move the target to the Home position (no target in beam path)
3. DAQ Configuration: GMN1
 - ps1=0, ps2=-1, ps3=-1, ps4=-1, ps5=5, ps6=0, ps7=-1, ps8=-1
 - BBCAL threshold: -40 mV (disc. 1 and 2)
4. Fast Raster: 2x2 (in Hall units)
5. Ask the MCC operator to show they can stably reach the maximum desired current (30 μ A)
6. Bring up the xscaler GUI and verify reasonable scaler rates on the Unser and BCMs
 - On a-onl@aonl1: `./beam/scripts/start_xscaler_gui`. Click on the BCM tab at the top of the GUI
 - Typical beam-off rates: Unser = 775–790 kHz, u1 = 107 Hz, unew = 0 Hz, d1 = 1106 Hz, d3 = 0 Hz, d10 = 0 Hz, dnew = 96 Hz
7. When MCC calls to tell you they are ready:
 - Start a CODA run
 - Make sure the DAQ keeps running during the procedure, or until the operator calls to say they are finished
8. Make a HALOG post with the following information
 - Title: BCM Calibration Run [run-number] (fill in the run number)
 - DAQ configuration and BBCAL threshold
 - Target position (with screenshot)
 - Screenshot of beam current vs time (EPICS variable IBC1H04CRCUR2)
 - Periodically update the HALOG post with relevant details
 - e.g., DAQ problems or significant beam-off time (more than ~5 mins), etc
9. Email the HALOG post to D. Flay (flay@jlab.org)
10. Reset the BBCAL threshold to production settings and prepare to take production data

MCC Directions

1. A LivePlot of the Hall A current vs time would be greatly appreciated
2. Call Hall A to let them know you are about to start delivering beam for the calibration program
3. Deliver current to the Hall in 1.5-minute intervals
 - If you get a trip, 45 seconds is long enough
 - If there is a trip too close to the start of beam-on interval, then restart the 1.5-minute clock
 - Approximate currents are OK. The Hall A Unser will determine the true beam current
 - The beam-off periods are just as important as the beam-on periods
 - In units of μA :

0, 1, 0, 1, 0, 1, 0, 3, 0, 3, 0, 3, 0, 5, 0, 5, 0, 5,

0, 10, 0, 10, 0, 10, 0, 20, 0, 20, 0, 20, 0, 30, 0, 30, 0, 30, 0

4. Let Hall A know when you are finished. Thank you!