

Requirements for BCAL, ECAL, & FCAL calibrations

KLF conditions

- Low trigger rate 10^{-4} smaller than GlueX (Moskov – 13/03/2024)
- Low energy π^0 , mostly below 1 GeV/c?

KLF π^0 mass resolution requirements:
“range of below 20 MeV/c²” (Moskov – 13/03/2024)

BCAL energy calibrations

- Tracks to determine BCAL position
- Pi^0 for software gains (2000 evio files w/ GlueX trigger & running conditions)
- Pi^0 for software non-linear gain correction (20000 evio files w/ GlueX trigger & running conditions)

eg <https://halldweb.jlab.org/primexd/bcal-cal/2023-01/3/>

=> With photon beam calibration done weekly
=> With Kaon beam calibration possible [?] per month

ECAL energy calibrations

- Compton process (not possible for KLF)
- Pi^0 for software gains (? evio files w/ GlueX trigger & running conditions)
- Pi^0 for software non-linear gain correction (? evio files w/ GlueX trigger & running conditions)
- LED for calib. Stability (CCAL)

=> With photon beam calibration done [?]

=> With Kaon beam calibration possible [?] per month

FCAL energy calibrations

- Pi^0 for software gains (2000 evio files w/ GlueX trigger & running conditions)
- Pi^0 for software non-linear gain correction (20000 evio files w/ GlueX trigger & running conditions)
- LED for calib. stability (TBD)
eg <https://halldweb.jlab.org/primexd/fcal-cal/2023-01/2/>

=> With photon beam calibration can done daily if needed

=> With Kaon beam calibration possible [?] per month

Requirements for BCAL, ECAL, & FCAL energy calibration

With un-tagged photon-beam (100 nA & 1×10^{-4} RL), 6 to 8 days is needed at the beginning of the run period + 2 to 4 days at the end of the run period

- Timing calibration requirements
 - Equivalent of 8 hours running with 100 nA electron beam and 1×10^{-4} radiator
 - Requirements driven by:
 - TOF calibration, particularly the regions farther from the beamline
 - CDC individual channel calibration (gain and timing)
 - For calorimeters, data required for gain calibration is enough for timing calibration