Verifying L1Cal Readiness

Our Colleagues will ask us the following questions when we ask to turn on the new L1Cal System

1. **Will the operation of L1Cal2b perturb data taking?**

2. **How do you know that data taken with the new trigger will not be worse than current data?**

Note: this does not address Installation issues

Issues & Plans

1. **Operations & Stability** — **run test system**
   - a. crashes/deadtime — meas. in test syst.
   - b. reliable downloading — use in test syst.
   - c. monitoring tools — software in place
   - d. param determination — software in place
   - e. unpacker/reco stable — data from test syst

2. **Trigger Quality** — **data & MC**
   - a. rates & efficiencies — pred w/ MC – verify w/ data
   - b. trigger definitions (L1,L2,L3) — in place well beforehand
     - filter coeff's, thresholds, and/or terms, trigger list

Note: all of these must be Documented

Testing Trigger Quality

Constraint: limited # of split signals

- **currently 16-EM + 16-H ⇒ cannot test Sliding Windows**

Possible Chain to Rate/Eff Estimates

1. **Define Triggers**
   - **trig-list, and/or, thresh, filt. coeff's**
2. **Using Splitter Data derive TT response**
   - **compare ADF Et(TT) output w/ Precision Readout ⇒ correct MC modeling of Et(TT)**
   - **probe pathological cases using TWG**
3. **MC models TAB Algorithms**
   - **sliding windows algorithm is deterministic**
   - **use standalone MC to look for algorithm pathologies**
4. **MC models And/Or terms & Trigger List ⇒ Rates & Eff's**
   - **need to test QCD MC vs. Data w/ Run IIa Trigger**

This is a Lot of Work

Make sure we have enough people (incl. outside L1Cal group)

- **test system running**
- **L1Cal IIb data → data stream**
- **download/calib/monitoring design & test**
- **TT data analysis**
- **MC analysis**
- **trigger determination: L1, L2, L3**

Start regular test system running as soon as possible

- **probably as soon as ADF v.2 is ready**
- **use as many split signals as possible**
- **write data to tape**

- **Note: this is all *in addition* to**
  - **hardware production & testing**
  - **preparation for installation**