

Planning for the 2007 Calice test beam at CERN

Fabrizio Salvatore, Erika Garutti,
Roman Poeschl

Basic work assumptions

- Rate this year likely to be **half of last year's rate**
 - Beam super-cycle = 34 sec
- **Expected DAQ rates** vary between low E beams and high E beams
 - **< 10 Hz at 6 GeV**, up to 70-80 Hz at high energies
- Definition of **low energy** runs:
 - **π runs < 20 GeV**
 - **e runs** which require low energy primary beam to H6 (< 60 GeV)
- Definition of **high energy** runs:
 - **π runs > 20 GeV** for which energy of primary beam to H6 can go up to 120 GeV

Priority list

- We identified **two class of priorities** for **energies** and **angles**:
 - **Priority I**
 - LE: 6, 10, 15, 20 GeV
 - HE: 20, 30, 50, 80 GeV
 - Angles: 0, 20, 30 deg
 - **Priority II**
 - LE: 8, 12, 18 GeV
 - HE: 25, 40, 60, 120 GeV
 - Angles: 10, 15 deg
- If more time available at one given angle, **high statistic has priority over more energy points**
- **Note: beam tuning has not been taken into account in the time estimate**

LE runs

- **LE1) – Combined physics package (Pr I)**
 - π , 1M evts, 6/10/15/20 GeV, 0 deg
 - π , 500k evts, 6/10/15/20 GeV, 20, 30 deg
 - Duration: ~5 days
 - Minimum required for combined physics run
- **LE2) – ECAL physics package (Pr I)**
 - e, 1M evts, 6/10/15(/20) GeV, 0 deg
 - Duration: ~1.5 days
 - Alignment; repeats last year's conditions
- **LE3) – PCB irradiation (Pr I)**
 - e, 1M evts, 10/50 GeV, 0 deg
 - Duration: ~1 day
 - Beam positioned on ASIC chip; position scanning

LE runs

- LE4a) – Combined physics package (Pr IIa)
 - π , 500k evts, 8/12/18 GeV, 0, 20, 30 deg
 - Duration: ~3 days
 - More energy points for data/MC comparison
- LE4b) – Combined physics package (Pr IIb)
 - π , 500k evts, 6/10/15/20 GeV, 10, 15 deg
 - Duration: ~2 days
 - Two more angular points (again for data/MC comparison)
- LE5) – Inter-alveolae package (Pr I)
 - e, 300k evts, 20/50 GeV, 0 deg
 - Duration: ~2 shifts
 - Beam crossing carbon fibre structure between two alveolae
- LE6) – HCAL em package (Pr I)
 - e, 300k evts, 6/10/15/20/30/40 GeV, 0 deg
 - Duration: ~1 day
 - ECAL has to be removed from beam line

HE runs

- **HE1) – Combined physics package (Pr I)**
 - π , 1M evts, 25/30/50/80 GeV, 0 deg
 - π , 500k evts, 25/30/50/80 GeV, 20, 30 deg
 - Duration: ~5 days
 - Minimum required for combined physics run
- **HE2) – Combined physics package (Pr II)**
 - π , 500k evts, 25/30/50/80 GeV, 10, 15 deg
 - Duration: ~2 days
 - Two more angular points (data/MC comparison)
- **HE3) – Hadronic package (Pr I)**
 - π , 1M evts, 25/30/50/80 GeV, 0 deg
 - Duration: ~1.5 days
 - ECAL has to be removed from beam line

Technical notes

- Pr I for LE and HE runs are ~10 days/each
 - Should not be a problem to do all marked as Pr I !!!!
- Installation of the new PCB
 - Fully equipped ECAL:
 - Install PCB in the first run period and remove it at the first machine day (11/07)
 - Roman/Marcel will be always available at CERN for installing/removing the PCB
- HCAL only packages
 - Should be planned at the end of each period to minimize time loss

Final remarks

- Need to wait for the beam schedule to plan how the various packages are going to be implemented
 - When is the LE beam going to be available ?
 - When is the HE beam going to be available ?
- Likely to have $\frac{1}{2}$ week with LE and $\frac{1}{2}$ week on HE
 - Plan which package to run according to beam energy
 - There will always be experts available during the run period to act on detectors, so it will be possible to move packages around even at the last minute, according to info coming from beam experts