Minutes of the 161st Energy Calibration Meeting held on 14 August 1998

1 Scheduling of remaining MD time

There are 5 days left to allocate to energy calibration MD. However, although all the NMR's are still working at physics energy, only about 4 of the probes will lock below 50 GeV. The heads (coils) need to be replaced before any further polarsation MD. This will be done in the stop during week 36.

The highest priority MD is then to make a dedicated attempt at 60 GeV, to find out definitively if it can be made to work. In a compromise between having a fresh crew trying 60 GeV, and making sure that this fill is useful for the analyis we agreed that the next MD in week 36 after changing the probes should be:

- Two point fill with a point at 45 GeV and a point at 60 GeV (1×24 hours, 60/60 optics, solenoids off, in week 36 with fresh NMR's)

We have a very small number of multipoint fills so far this year (one 3-point fill and one 2-point fill). This is partly because in the limited time available there have been conflicts between trying to get a 60 GeV point and trying to get many points in a fill. The remaining MD's should be:

- Two more fills with at least 4 points (or even 5 points if 60 GeV works) (2×24 hours, 60/60 optics, solenoids off, one day in week 36 and one day in week 39)
- One cross check of physics optics at 45 and 50 GeV (102/90 optics - does not need to be during a dedicated MD week - maybe 16 hours?)
- One long fill at a single energy (102/90, solenoids on, 24 hours - to cross check the modelling of the dipole rise. The exact conditions for this fill need to be specified, eg. bend modulation at the beginning? temperature variations?)

It is preferred NOT to merge the last two MD's so as to have two additional cross checks of the energy scale with physics optics.

2 RF data for 1998

Mike Hildreth has made a first pass over the RF data from 1998. The copper RF was not properly logged before 2 June, and is being recovered from private logging. The Qs measurement is very difficult at high energy. It does not allow a precise cross check of the model, but does still allow "strange" fills to be identified. The sawtooth data look OK. Corrections to the centre-of-mass energy at each IP are around 10 MeV as before. The largest boost is at DELPHI (70 MeV).

In addition, a full simulation of the RF system has now been carried out using MAD. Some misalignments are implemented in this cross check. The agreement between MAD and the standalone RF model is at the 1 MeV level.

3 Average beam energy in 1998

Guy Wilkinson has also run on the 1998 data. The code in the official area has been brought up to date with private changes that Guy has gradually accumulated. The corrected data for NMR's in the early part of the year (when the standard data base table was implemented with insufficient precision) has been extracted from the new fix-up table in data base to make new DST's. Also, the RF frequency has been patched in the database and new DST's have been made. The average fill length in 1998 has been 4 hours. There are a few fills with strange initial bending currents (as in 1997). The initial energies calculated using last years NMR calibration have an rms spread of 15 MeV. The dipole rise is small, as expected with bending modulation performed routinely at the start of each fill.

There are only two fills with polarisation calibration data in the database (from 14 June - a 3 point fill with 60/60 and 18 June - a 1 point fill with 102/90 optics). The fill from about 15 July with 2 points is missing.

4 Other news

Guy Wilkinson will give a presentation on the energy calibration at the next LEPC (15 Sept). The emphasis should be on the final analysis of 1997 data, the status of the 1998 analysis and the status of the phase 1 spectrometer.

Those at the meeting agreed that we should try to publish the 1997 analysis as soon as possible. The draft that was prepared for the Vancouver conference needs a bit of polishing. Please send comments to Pippa Wells by 26 August.

An appendix has been prepared for the 93-95 paper, as suggested by the referee, giving the explicit changes to the energy for 1993 for each change in the modelling. This paper should be published soon.

5 Next meeting

The next meeting will be on Friday 4 September at 15:00 in the Pavillon.

Pippa Wells, 17 August 1998