MINUTES OF THE 132nd MEETING OF THE ENERGY CALIBRATION WORKING GROUP

held at CERN on July 7th, 1997

Status of the energy files for 93/94/95(G.Wilkinson)

Guy reported on the work performed by Peter Renton, M.Koratzinos and himself (plus M.Hildreth for the RF part) on the production and cross checks for the energy files.

The comparison of three different analysis is satisfactory both from the comparison of the average values but also for the effects observes when varying a wide variety of parameters.

The file /afs/cern.ch/delphi/tasks/scan95/summary/variation.txt contains the result of such studies and will be used to evaluate the error matrix. More than 95% of planned comparisons have been carried out and only a marginal disagreement is observed between Mike and Guy when checking the effect of applying the Horizontal corrector correction.

Still outstanding is the study of the comparison of the model with the BOF-EOF measurements.

Detailed studies have been carried out (in particular by Mike) on understanding the differences between the 'Warsaw' files and the present ones. The differences - which are not negligible- are understood in terms of two main changes between the Warsaw model and the present one.

At the time of Warsaw most of the rise during the fill was attributed to the 'train' effect: we know now that the temperature plays a major role as well. The Hor. corrector correction was applying differently for 95 and not applied at all for 93. These two changes explain most of the variation (see attached detailed list by Mike)

All of the experiments have provided Guy with the detailed list of changes in average values and RMS. for each energy point between Warsaw and now, after applying the experiment run selection and lumi weighting. There are occasionally some noticeable difference (0.2 MeV E beam) for some experiment which is being looked into.

From the exercise to provide reliable pre-scan energy as well it was discovered that:

1) There is the need of having detailed energies for each fill also for the pre-scan periods given that the early part of the year the geological changes can reach 20 MeV

2) Mike is using a BOM file which is not the latest (with all of the runs and a slightly modified selection list for the used BOMs). Joerg maintains that the two files should have similar accuracy and Mike is going to verify that this is the case by checking the difference in central values and spread when using one or the other.

It was agreed that by the end of the week Guy will try to provide the EW community with a technical error matrix. The error matrix will be evaluated using criteria similar to the ones defined for Warsaw and using the observed variations as input. Due to the fact that in the next two weeks not all of the people involved are available no serious cross check/discussion on this error matrix will be possible. In this respect this error matrix -if released- cannot be considered final, but rather a tool for setting up the fitting machinery. The matrix will be 7x7 (i.e. including the peak data of 1994).

For the summer conf. the aim is to deliver one 7x7 matrix to each of the experiment and a combined one to the EWWG. Eventually the full 28x28 matrix will be provided for the final e-weak fit after all of the experiments will have published the cross section results.

Aleph checks(P.Bright-Thomas)

Paul presented the Aleph cross checks done to understand the differences between Warsaw and now. He showed that some of the disagreement comes from the different way of treating the data within Aleph, while the overall trend agrees with what is observed by everybody else.

He reminded the community of the necessity to add the observed energy scatter to the measured energy spread in order to correctly estimate the bias on the cross section determination (typically 12-13 MeV added in quadrature to 55 MeV which is significant when comparing with the error on the E-spread determination of 1.1, 1.3 MeV for 93, 95 respectively)

Checks on the Train-Temperature effects: error due factorization in the model (E.Bravin)

Enrico generated a set of realistic field readings of NMR 4 and NMR8 using recorded parasitic currents from the 96 run and Database information relating the change of state of the machine, magnet information (using the hall probe readings to define the magnetic state) and the temperature readings for the magnet housing the two NMRs. He used the Bfield drift model as determined by the ISR test bench. He did this for all of the 93 and 95 scan fills. He then applied to these 'virtual' datasets the same recipes used by Mike & Guy to define the field rise model and studied the dependance of the model on the assumption of factorisation between T and train corrections and the systematic effect caused by choosing a temperature coeff for the NMR 4 and NMR8 in 1995 which might not apply - for whatever reason- to the 93 dataset. He used the difference between the true rise (generated) and the modelled one as an estimation of systematic bias. Apart from an offset which might be due to the fact that the dataset is generated assuming that the magnet starts drifting as soon as it reaches the final field (and Enrico starts filling the histogram to be used for the modelling at that time) while the check on the rise difference is done only for the physics period, the biases due to the assumption of factorisation seem to be well within the statistical precision of the checks (0.2-0.3 MeV).

It was pointed out that Enrico's exercise did not check at all the effect related to the ring temperatures, but only those related to NMR48.

LEP1.5 energies.

It has been pointed out that the community needs LEP 1.5 energies. TC agrees to collect information from Joerg and Mike Hildreth to be published shortly as a ECAL note to be used for reference.

NEWS for 1997 (B.Dehning)

NMR user friendly readout and monitoring ready (Enrico Bravin)

New improved Radiation protection scheme being implemented this week.

Most likely E-pol studies will be carried out using a dedicated 60/60 optics this year.

The cooling startegy will be improved this year: the feedback mechanism will be similar to the one used in 1995 but the starting chilled water temperature will be set dependning on the beam energy and beam intensity.

There is most likely time for a new temperature experiment at the end of this week during the LEP cold check-out. The request was to have 45 GeV,with std Bending Modulation at the beginning and not to abrupt tricks to force temperature changes (no switching off of quads, no change of 10 Degrees of the chilled water)

Scriba:Tiziano Camporesi