Minutes of the 205th Energy Calibration Meeting held on 26 January 2001

1 2000 energy file status

Guy Wilkinson announced that after much struggling, a complete technical energy file for 2000 now exists. The short fills and miniramps have caused many book keeping problems and difficulties with NMR synchronisation. The NMR calibration will now be improved, and RF corrections calculated by Mike Hildreth. A full preliminary file should be available within one and a half weeks.

2 Q_s vs V_{RF} status

Guy reported on behalf of Anke-Susanne Muller and Joerg Wenninger, who were unable to attend the meeting. Work is progressing on the 2000 analysis. Of particular importance is the issue of understanding the energy dependence of the voltage calibration factor. Joerg is applying the sawtooth model tuned up for the spectrometer studies for this purpose.

3 Flux loop

Pete Renton showed an updated plot of the flux loop results for 2000, including two measurements not included in previous analyses. The agreement with the NMR model is good, and the overall picture very consistent with previous years.

There was discussion about how the complete ensemble of flux loop data should be analysed for the final energy determination. Possible plots and figures of merit were suggested.

4 Status of sawtooth measurement for spectrometer analysis

Guy Wilkinson reminded the meeting that a significant discrepancy exists in the electron and positron results for the 2000 spectrometer measurement. One way to generate such a splitting is if the RF sawtooth at the spectrometer is incorrectly modelled. This observation had motivated dedicated sawtooth MDs at the end of the run, and much effort from Joerg Wenninger in developing and tuning a sawtooth model. Joerg now has various models available. These are naive (perfect system); vanilla (known misalignments and global voltage calibration); tuned (phase errors & local calibration fitted from comparison with the MDs); and time dependent tuned (accounts for BOM evolution seen in the run). The time dependent tuned model has been developed since the last meeting and is in principle the best available.

When these models are applied in turn to the spectrometer measurements, large changes in the electron/positron splitting are observed, showing indeed how delicate this observable is. Perversely the time dependent tuned model appears by chance to give almost identical results to the naive model, as the very significant new ingredients which are now included largely cancel out!

The anti-correlation in the electron and positron corrections makes the mean value of the 'spectrometer - NMR' residual very stable amongst the models.

Since the last meeting Mike Hildreth has overhauled the classical RF model and made a comparison with the appropriate Wenninger model. Good, but not perfect, agreement is seen. Joerg and Mike will work towards complete convergence.

It remains to recheck the sawtooth corrections for the 1999 data. Here however there are no MDs to check the phasing of the IPs. Furthermore all three measurements were made with a single particle type. Therefore the intrinsic error on on this data set will be larger than that on 2000.

5 MBI status

Giuseppe Mugnai and Bernd Dehning reported that preparation is well advanced for the re-mapping of the dipole magnet. Measurements will begin when the lab air conditioning is ready; this will be within a few weeks. Federico Roncarolo will arrive at CERN next week in order to work on this project.

6 Next meeting

Friday, 16 February 2001.

Guy Wilkinson, 26 January 2001.