Minutes Engineering meeting October 23th

Main points:

Presentation for cooling outside ITS by CERN ST/CV.
Presented where 3 standard systems which are currently being employed for the different detectors.
1.2 phase cooling using a fluor carbon
2.mono phase cooling, under-pressure system
3.mono phase over pressure system

Also presented was a system to check the leak tightness of the system, the presented method could also give us a possibility to verify the leak tightness of the system in case of small leaks.

In the near future a test space will become available where the cooling system can be tested taking into account the height differences in the ALICE experiment.

Miguel.Santos@cern.ch will be our contact persone with the ST / CV group for the work on the cooling outside the ITS.

Status corrosion work
A status rapport is available from Jarl Buskop (jarlb@nikhef.nl)
There now is an good overview of the problem, the further discussion awaits a meeting with a manufacture of the tubes, at which we want to verify the possibilities of our wishes,and the costs involved.

Space envelope ITS / FMD
Currently there are several proposals for improvements to minimize the space envelope problems between the ITS and the FMD. Most of which entail a modification of the pixel support cone.
Main obstacle is the unknown factor in the space which needs to be reserved for the air-cooling of the SDD. The further discussion requires that installation scenario of the ITS is presented so that involved people get a better understanding of the boundary conditions.
The technical coordinator requested the definition of the space envelope before the end of this year.

Status cooling simulations
The CFD simulations require more work to get to a workable model. For the SSD the cooling tubes will be replaced with a cold surface of about the size of the hybrides, this to reduce the number of nodes in the model. Some information was exchanged with the SDD group to set up the model for the SDD layers.

Discussion air cooling SDD
To get a first idee about the space which needs to be reserved for the air cooling an estimate was presented based on a air speed of ¼ m/s and a heat transfer coefficient between 5 and 20 W/m^2K.
As the assumptions which have to be made are very disputable no further conclusions where drawn.

Open points

Beam pipe support and protection.
The next discussion requires more detailed input about the limitations implied by the bellows.
The protection of the beam pipe with a polyimde coating or wrapping needs to be confirmed from both sides.

Alignment
The requirements of monitoring the ITS position relative to a reference (TPC) need to be reviewed.
The requirements for the monitoring of the deformation of the ITS have to be defined.

Connectors
Extra time in the next engineering meeting needs to be devoted to this topic as we have to many open ends at that point.

Service support front side
Status of the requirements for this support from PMD and the connection to the baby frame.

Planning cooling
A planning for the completion of the cooling of the ITS needs to be completed at the next ITS engineering meeting.

Control cooling
The specific requirements of each sub detector have to be defined.

Cones
The support of the pig-tails needs to integrated in the design of the SSD cone and the connection between the SSD cone and the other cones need further detailing.