Collimator Design Meetings

Minutes of the meeting 41 (02/09/2004)

Present: Assmann, Calatroni, Chiaveri, Mayer, Perret
Excused: Aberle, Bertarelli, Decorvet, Kershaw

Specification for IT:

1. **Status of the drawings:** the drawings are in the process of being updated and re-numbered, 5 copies each archived and labeled "FOR TENDER" ready by 22.09
2. **Specification draft**:Oliver was absent but progress has been made
3. **Contact to and advice from the purchasing section:** Enrico reported that T. Lagrange has been informed about the special aspect of the order.
4. Due to the extremely tight time scale it was decided to split the order for CFC in two parts.
   1) about 25 blocks are ordered to get the manufacturing process started with an option for the rest
   2) remaining quantity is ordered (November) for the remaining quantity.

   This allows:
   - a more detailed check of the quality
   - verification of the results of CFC behavior in SPS (hopefully)
   - taking into account the detailed discussion (and suggestions) with the firm in October
   - reduce the risk of ordering the total amount without knowing the results of the robustness test
5. **List of questions to be clarified for the manufacture of the CFC jaw-material** this list has been sent (Ma.) and answers, suggestions, additional questions are still awaited (all)

AOB:

Position of collimator in TT40 10 mm wrong in survey database! **Correct on Rogers drawing!!**

Alessandro's worries about CFC Tatsuno see comments above and list of questions

RF fingers: do we have motors and their control to move the jaws? URGENT **Oliver and Fabrice.** It is important to clarify this question immediately as it has to be taken into account in the design. If we do not have the control mechanism – we have to move the model differently (pneumatically ?)

Sergio's comment concerning the heat generated in the RF-fingers:
If one CuBe "comb" of 15 "fingers" is floating in vacuum (no thermal contacts with anything, just blackbody radiation) it will radiate only 10 W at 300 C, which will then be its equilibrium temperature.
We should from the design side pay attention to the **thermal anchoring** of the fingers!
Precise data are needed from the FLUKA side (heating by particle bombardment) as well as from the RF side (trapped modes, beam induced currents)

Sergio reported that after 10 bake-outs at 250°C some small dust (carbon) particles were found in the gap between the cooling support and the CFC. This is due to the differential expansion of the CFC and copper. It is not clear after how many bake-out's this happened. No intermediate check was carried out. However, a collimator will never undergo 10 bake-outs and the test was done more to verify the values of heat-transfer and robustness of the CFC and the springs.

It was decided to make a **complete list of all elements** – to be designed and ordered (**Roger**)

Supports are required beginning of 2006, the design will be split in 2 phases:

- Design of the bottom chassis, identical for all collimators (to be checked !!) to be installed in the tunnel
- Design of the upper part with electrical, water and positioning plug-in

A price estimate should be made in order to assess the cost for 100 collimators

Manfred will be absent for the next 5 meetings – Alessandro will replace him during his absence as chairman.
Manfred stated, AGAIN, the importance of the list below and the work which has to be done during his absence– otherwise the design parameters are not sufficiently defined and the production of the final drawings can NOT be assured for the required date.

Old items to be followed up:

Radiation load on springs, (and RF fingers ?)	#30	Vasilis
Divisional request for motors MS	#31	Oliver, Fabrice, Stefano
Heat transfer – final report	#31	Sergio
"plug-in" position control unit	#32	Roger, Fabrice
Water quick connection	#32	Manfred
One model is ordered (with flexible tube) one other model plug-in will be ordered week 37		
Drilling holes after phase one – grooves in tunnel floor	#33	Oliver
Designer for TCDI beginning of September	#33	Roger, TS-MME
Yacine is absent – work will start week 38.		
Contact fingers – model for tests top and side	#34	Sergio, Roger
Play between motor spindle and jaw	#34	Roger
Non-symmetric heating of vacuum flanges	#34	Vasilis, Oliver, Miguel
"Remote control" collimator exchange	#35	Keith, Roger
Radiation issues – heat evacuation, air duct, space, shielding	#35	Ralph
Electrical plug-in spec	#36	Oliver, Fabrice, Roger
Preparation of all raw-material list and order	#40	Oliver, Raymond
Electrical insulation of motor assembly from chassis	#40	Roger, Fabrice
RF fingers model: motors and control available **URGENT**	#41	Oliver, Fabrice