

Collimator Design Meetings

Minutes of the meeting 38 (05/08/2004)

Present: Enrico Chiaveri, Keith Kershaw, Oliver Aberle, Stefano Redaelli, Roger Perret, M. Mayer

- Market survey - status ? list of answers (Oliver)
Oliver will send the list to Ma. so it can be added to the minutes
- **WHAT IS THE FINAL NUMBER OF COLLIMATORS TO BE INCLUDED IN THE IT?**
Still not clear!!! As we have to take into account the items to be installed outside of IR3 and IR7 and add the TCDI for 2 and 8!
ACTION: Oliver and Ralph

Tender:

- **List of potential suppliers - mechanics** mid August - list from Oliver
This list should be communicated to purchasing section – as they need some time to prepare the documents **ACTION Oliver.**
- **List of potential suppliers - carbon-carbon and or graphite**
It seem not quite clear whether we are going to use carbon-carbon or graphite, as the last measurements on carbon-carbon do not correspond to the data we received from the supplier. If the measurements are confirmed, graphite has better expansion and thermal behavior. More measurements are awaited. **ACTION: Oliver, Alessandro, Raymond date: end of August**
- **List of potential suppliers - motors ()**
A market survey has to be prepared as we need some 500 motors and the electronic to go with it - this will exceed the 750 k --> FC approval required. **Date: mid September Stefano and Fabrice**
- **Plug-in of radiation hard electrical contacts**
A list of all connection required must be established before we can start designing the plug in. This list should include the connections for the vacuum bake-out equipment. **Date: end September Fabrice, Ralph**
- **Geometry of RF fingers - model.**
In order to assess the different possibilities of the sliding contacts under vacuum Ma. proposed to build a model-vacuum-tank with a screwed + O-Ring cover to try out different configurations and carry out a life test.
We have to test 2 different contact finger configurations:
Contact fingers on the top, sliding over the surface of the 2 jaws (2x35mm)
Contact fingers at the end of the jaws – in contact to the adjacent vacuum chamber.

It is proposed to build 2 models.

The life test should run over 10.000 cycles – at least !

The top contact fingers need to be tested under vacuum for wear and scraping on the clean contact surface
The end contact fingers are – at the moment – 2 orders of magnitude away from the required electrical contact resistance. A new design will probably be necessary.
The option to fix the fingers directly onto the graphite (carbon-carbon) jaw will be studied.
ACTION: Sergio, Roger, Ludovic, date mid- August

SPS test:

- **Results from the bake-out #1**

According to Miguel, the tests look OK, slightly less good than anticipated, but acceptable, AT-VAC will send the results to Ma. for the next meeting. **ACTION: Manfred**

- **measurements, cabling, electronics for #2 where are we ?? (Stefano, Fabrice)**

a detailed schedule for the measurements of #2 has been prepared which should enable Stefano and Fabrice to carry out the measurements in 2 days (9/10-08) The experience of #1 should now pay off.

- **detailed list of installation scenario**

date of the "dry-run" 11/08 in building 252

- **Action in the tunnel (rails, water, air-ventilation) Oliver**

At the moment it is planned to install a cylindrical air-duct which can be removed "easily". This solution is a compromise but has many drawbacks (survey, magnet-installation, collimator-installation, accessibility) study continues.

AOB:

TCDI design: A designer (to be found) will start to work beginning of September with Yacine and under the supervision of Roger on the design of the TCDI.

Tender scenario for Novosibirsk:

The tender (mid September) will indicate the price in European industry. This is the bases of the discussion.

Mid September, a delegation will visit the facilities and establish a report about the feasibility of manufacturing of collimators at Novosibirsk. The main topics are the high precision machining, vacuum-brazing, electron beam welding, and high precision measuring device for the reference measurements before and after welding. Ma. proposed that a brazing specialist joins the expert team for this visit.

Additionally, the transport of a finished collimator with a precision of around 25 μm over a distance of 5000 km is somewhat problematic

It could as well be envisaged that only part of the components are manufactured in Novosibirsk (for financial reasons) and assembly and testing carried out somewhere closer to CERN.

Drawing numbering:

It was decided to use the prototype drawings for the tender, which requires changing the equipment code. The new numbering will be registered in CDD and the label will be changed to *DRAWING FOR TENDER*. This avoids confusion at the firms for the final order, as the numbers remain the same and only the label will have to be changed to *FOR PRODUCTION*. Ludovic will start this week. The drawings should be available beginning of September, at the same time as the specification (ACTION: Ludovic and Roger)