

11th Summary of Meeting for S1-Global module design, Cryomodule and Cryogenics (20090407)

Date: 2009/04/07

Time: 22:00-23:00 (Japan Time)

Attendant: Tom Peterson, Jim Kerby, Serena Barbanotti, Tetsuo Shidara, Hiroataka Nakai, Norihito Ohuchi

Agenda

1. Presentation of cryomodule for AAP-TILC09 (Norihito Ohuchi)
2. List of the components and the responsible institutes (Norihito Ohuchi)

Discussion

(1) Presentation of cryomodule for AAP-TILC09 (Norihito)

- The presentation of cryomodule for AAP-TILC09 was reviewed by the attendants.
- The important comments and information were given at meeting and by e-mails after this meeting. These comments are shown in the following:

Comments by Tom:

One additional point which you could add to slide 3 under "Tests and Measurements" is a line called "Dynamic heat load measurements at FLASH". Just to explain a bit more, beam dynamics people, RF people, and cryo people are all interested in gaining a better understanding of HOM losses, dark current, and other dynamic effects which can only be measured with beam somewhat like ILC beam. The attached file by Jacek Sekutowicz of DESY describes some tests last September which included estimates of heating to an HOM absorber cooled by their thermal shield. (I believe the thermal shield there is ~40 K since cooling comes from the HERA cryoplant, and that slide #3 labeling the heat sink as "two-phase tube" is just a mistake. It must be the thermal shield tube.) More extensive tests of a similar nature are planned for this coming September at FLASH. The results so far do not allow us to update dynamic heat load estimates in our heat load tables, parameters were still too different from ILC, and there were other difficulties, but measurements this coming September might provide some new information.

Comments by Jim:

Page2, instead of a space and then a semicolon after "ILC Cryomodule ;", I would just have a colon "ILC Cryomodule:".

Under FNAL, I would replace these 3 bullets with the following:

CM1 has been assembled, with cold test expected to start in the last quarter of 2009

CM2 will be completed by mid-2010 with installation and testing expected to start in the latter half of 2010

CM3 assembly is anticipated in the last quarter of 2010 with installation and test occurring after testing of CM2 is completed. (the years listed here are calendar years by the way, and I believe these dates are conservative based on my discussions with people)

Page 3, my only comment is to ask that you check w/ plans there are for CM1 testing at NML (from a thermal standpoint) with Tom Peterson. Given that it is a single cryomodule in a system, getting a direct measurement of heat loads will be difficult. However, I'm sure there will be some useful measurements taken. My only point is to ensure we are all on the same page as to what will be attempted at NML, that's all.

Page 4, Akira would know best of course, but is it clear the industrial model is 605 modules in each region? It seems to me this remains an open question. You might make the first line say something like "Assembly for 1815 modules (with some distribution among the 3 regions) for ML."

Page 5, for parallelism instead of listed "Asian institutes: IHEP and RRCAT", you might list IHEP and RRCAT: Participation in ...(whatever)

Page 6, under preparation of cavities, for FNAL:

FNAL: Twelve cavities are available and have been selected for dressing to meet the needs of both CM2 and S1 Global. Horizontal testing of the first dressed cavity is expected in May 2009, with testing of the full set expected by the end of the year.

Page 19, on the excel chart to the right do you mean to say "T.P. Model" instead of "T.M. Model" (2 places)? I would also spend some time describing in more detail the importance of each of the columns plotted, this is a very important plot.

Page 21, a technical comment that we can discuss more when I'm there, but the experiment is set up to look for a $\sim 1.4W$ change in the 2K heat load between the two tests. Seeing this number will depend on what the background is...for instance if the total heat load to the 2K system during the test (including end cans, etc) is 5W, I can believe seeing a 20% change is very possible. If it's 50 W, it will be much harder. Anyway, I'm curious what the expected background is and what the instrumentation and test plan is to see this difference.

Page 23, right now, FNAL has a schedule (that may be conservative, as I mentioned above) that shows CM1 cold testing occurring 10/2009 - 6/2010 and CM2 construction going from 1/2010 to 6/2010 (testing is then after CM1 is completed). So this should slip on your schedule.

(2) List of the components and the responsible institutes (Norihito)

Comments by Jim, for the FNAL part of the collaborative profile, I talked w/ Harry about your parts list that you showed in yesterday's Webex. We'll make a more complete list of what we think we are sending for discussion. For the moment it was assumed to be a fully dressed cavity, including tuner (but not drive electronics), power coupler and flange to flange along the beamline. So bellows and other things were not assumed. This does NOT mean they can't be included, just it wasn't the initial assumption. So it's good you made the list, we can talk more about it next week, and I'd suggest setting up a point to point phone call to discuss it next week.

Comments by Serena, the list will be checked with the INFN people on Wednesday.

Next meeting date

Meeting Date: 28 April 2009 22:00 (Japan time), 8:00 (FNAL), 15:00 (INFN and DESY)

Discussion items

- Progress of Module-A for S1-G (Norihito Ohuchi)
- Others