

## **Draft: Minutes of ML-SCRF Technology Meeting (090624)**

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### **Date & Time:**

13:00-14:15 GMT, June 24, 2009, via WebEx.

### **Participants:**

C. Ginsburg, S. Aderhold, Y. Yamamoto, H. Hayano, C. Pagani, N. Ohuchi, T. Peterson, S. Fukuda, C. Adolphsen, N. Walker, M. Ross, J. Carwardine, W. Bialowons, N. Toge, E. Elsen, R. Kephart, R. Rimmer, A. Yamamoto, J. Kerby, T. Shidara

Presentation files are available at the following Indico site;

<http://ilcagenda.linearcollider.org/conferenceDisplay.py?confId=3682>

### **1) Report from Project Mangers (A. Yamamoto, N. Walker, M. Ross)**

- Nick reported on the AD&I meeting, the summary report of which is available in the ILC EDMS as D\*879845. Everyone is strongly encouraged to read this if you have not already. The overall goal is of course to update the baseline design, and create the TDR. For that purpose the meeting focused on the description of SB2009 that had been distributed in advance, and then in particular on the interfaces of the technical description / potential modifications to the CFS effort and setting up the mechanisms to get the technical information needed to the CFS crew. Many of the inputs will be realized through appointed contact people (in the report) and a rolling program of webex meetings that have already started. In addition there will be a central region integration face to face meeting at SLAC at the end of July. The important aspect from the CFS effort is to make estimates on how changes in design change the cost of the machine.
- From the cavity side, the long and short of it is that a task force has been formed with representatives from each lab to gather cavity performance data, and present it in a more consistent manner than is currently done in preparation for determining the production yield & gradient. (Discussion under ‘Topics’, below).
- Marc and Nick mentioned a hot topic at the moment is the availability of the machine, particularly for a single tunnel solution. There is a newly formed task force that has met twice now. Also, the risk register must be updated as part of this exercise. In response to a question from Bob Kephart, Marc and Nick reminded us that the risk register is a list of issues requiring R&D; for instance, gradient or electron cloud. These risks are then broken out, and used by the GDE to guide the R&D program.
- The 2<sup>nd</sup> AD&I meeting is proposed at the end of November, to be confirmed. The 2<sup>nd</sup> AAP review is January 6-8, 2010.
- Akira showed the PM SB2009 Proposal slide from the Executive Committee. Today’s meeting will focus on the cavity discussion. The RF discussion may come up in the group leaders report, but will be the focus of the next month’s ML webex meeting. Akira then introduced the cavity database task force, and the approved personnel to do the work at each lab. The industrialization plans across regions were noted, including the proposal of Bob Kephart for alternative industrialization plans. Bob clarified that his proposal was not the baseline for the US effort, which has to be the standard process on the 2012 timescale, but that we do want to start working on hydro-forming and alternative processes should the timescale go longer due to the potential cost savings. Given the need to develop a new cost estimate in 3 years, the PM view is that we must advance on the baseline process, however R&D in alternatives is possible.
- Akira briefly noted the TTC summary of Hans Weise, from the recent meeting at Orsay. The last bullet noted the cavity database effort. The previous bullet noted possible field emission studies, but was not discussed at any length.

### **2) Report from Group Leaders**

- Rongli—no report (on vacation)
- Hayano—no new report on cavity integration. The high pressure safety application for 9 cell cavity assemblies for crvomodules at KEK is in the final stages of approval. and may occur in the next month or

During July the modifications to cryomodule A will start. Also, KEK has started the heat load measurement of the cryomodule with the 5K shield, and later in the year the cryomodule will be cooled down without the 5K shield for comparison.

- Tom Peterson—Tom showed one slide, from Jefferson Lab, on cryogenic plant efficiency. What the plots show are the improvements that Jefferson Lab has made in the performance of existing plants, and how those improvements approach the nominal lines. In the ILC RDR the plants assumed were on the nominal lines already at 4K, but at 2K we were actually realistic, maybe slightly optimistic (based on LHC experience). Tom wants to emphasize that in the RDR we have already assumed state of the art in the cryogenic plants, on the nominal lines.
- Shigeki—though there has not been a webex meeting recently, a short comment on HLRF status. For KEK, the 2<sup>nd</sup> supplementary budget of JFY2008 was approved. The 3<sup>rd</sup> modulator and a multi beam klystron for STF-2 were ordered. As for the modulator contraction, a new company has participated. We are preparing for the bidding to buy parts of the waveguide (power distribution) system for STF-2 since we have the supplementary budget of JFY2009 additionally. Last week Shigeki visited China and he was shown a Marx generator with 1 cell unit under testing. IHEP would like to continue R&D for new methods and look for collaboration. Chris Adolphsen notes that the Marx modulator with the Toshiba multi beam klystron was tested and 10 MW was achieved. Marc applauded this success. SLAC are in discussion w/ Fermilab to loan magnet cryostat to test prototype linac quadrupole.
- Marc notes that Shigeki and Chris have to provide input to Tom Himel for the simulation work on the availability.

### 3) Topics

- **Cavity Gradient and Yield re-evaluation**

Camille presented her slides, posted on the website. She noted the question of where the database resides... it should be possible for Fermilab to upload to DESY, but we need to check w/ DESY on the level of support needed and possible...can JLab and Cornell do this as well? She also thanked Zach Conway for providing the Cornell data through her Excel sheet very quickly, and the efforts to enter KEK data in the DESY database recently.

Akira has a comment on pg 7. He notes we start with a 3 year time frame, as before this it was not so standard...but later we may look at subsets of time period to show progress. Also, previously Rongli has correctly noted that as opposed to only the 'first process' result, we would like to have a 2<sup>nd</sup> test result to be consistent with the actual current definition of 'production yield'. There is agreement on this, but we propose this discussion occur after FALC.

Marc notes that the timing of the 'plot' proposed by Camille is associated w/ FALC, in reality it is because the FALC meeting is used to generate a new version of the R&D plan, and what is important is having the new plots for the R&D plan. W/ respect to the R&D plan, both Marc and Akira note we will need to review the cavity production numbers, and the definitions used in the R&D plan. This will be important work in the next month. The practical deadline for the FALC slides, and the R&D plan revision, is July 10. Bob Kephart asked if there is a worry that 4 years later there is only 1 qualified vendor...it was noted that the plot shown to FALC would include data from 2 vendors, and maybe one of those vendors would have cavities processed in both Europe and the US. The remainder of the vendors is a work in progress. Jim Kerby confirmed that the input to FALC would be 2 slides...one showing a preliminary plot, from an incomplete data set, as an example of the type of plots to be generated; the second will show the plan from the cavity database group leading up to ALCPG, where a more complete discussion will occur.

Bob Rimmer says that past JLab experience showed real difficulties to get the data into the DESY database from JLab due to differences in the way data is taken and stored; the spreadsheet may be achievable however. Eckhard Elsen thinks it would be nice to use the DESY database and is supportive in general and notes the synergy, but notes that Dieter Gall is retiring soon and cannot comment on future DESY support at this time.

- **Update of TDP R&D Plan (release 4)**

Release 4 will be issued in mid-July. As Marc mentioned earlier w/ Marc we need to review the Process and Production Yield definitions given in release 3 on page 9.

arrive at the end of October. Fermilab cavities will be discussed in mid-July during Akira's visit. The cavities are expected to arrive by the end of this year.

#### **4) Further Plans and Meetings**

The upcoming ML-SCRF webex meetings are scheduled for July 22, Aug 19, Sept 16, Oct 14, Nov 11, Dec 9.

SRF09: Sept 21-25 in Berlin

ALCPG09: Sept 29 – Oct 2/3 in Albuquerque

AD&I 2: tentatively scheduled for late November

AAP Review #2: Jan. 6-8, 2010 (Oxford?)

GDE meeting (China): probably in March, 2010

TTC (FNAL): probably in April, 2010

IPAC (Kyoto): 24 – 28 May, 2010

--Given the proximity of the SRF09 and ALCPG meetings, and at least from Fermilab (and assumed from DESY) the attendance of technical personnel would be at SRF09. Jim Kerby proposed that the main technical meeting would be SRF09, with a summary talk and a database talk given at ALCPG09. The rest of the ALCPG09 ML meeting then would focus on cryomodules, RF, and related efforts. People are of course welcome to attend both, but for those who have to make a choice this may help focus the meetings in each place. An evening or side meeting at SRF09 could be used to discuss the database and review the cavity summary slides in advance. Comments welcome.

#### **5) Next SCRF Meeting Schedule**

- Next ML-SCRF WebEx meeting: July 22, 13:00- GMT, focusing on HLRF Issues. (Chris & Shigeki agreed)