

***Draft*: Minutes of ML-SCRF Technology Meeting (090520)**

Date & Time:

13:00-14:20 GMT, May 20, 2009, via WebEx.

Participants:

R. Geng, H. Hayano, N. Ohuchi, T. Peterson, S. Fukuda, A. Yamamoto, M. Ross, J. Carwardine, J. Kerby, N. Toge, R. Kephart, R. Rimmer, T. Shidara, C. Ginsburg, W. Bialowons, E. Paterson, K. Yokoya

Presentation files are available at the following Indico site;

<http://ilcagenda.linearcollider.org/conferenceDisplay.py?confId=3593>

1) Report from Project Mangers (A. Yamamoto, M. Ross)

- Akira announced that Rongli Geng is replacing Lutz Lilje in the S0 coordination slot, as the Cavity (Process) Group Leader in ML-SCRF Technical Area. Many thanks to Lutz for his efforts on behalf of cavity development in the course of the past few years.

- AAP Report.

The AAP report was distributed with the announcement of this meeting. Marc showed Eckhard's report as presented. Beyond what is written on the slides, Marc noted that the last four reviews in of the overall program (AAP, PAC, ART, SRF) have all commented on the need to complete the cryomodule effort and keep priority on it. It's recommended that in the R&D phase plug compatibility is useful, but we need a quantitative method for evaluating the results (as score-card as it were), such that further design-unification effort can be made if necessary prepare for the production stage.

In the AAP report, it is noted that electron loading and X-ray intensities should be monitored, but Bob Kephart asked about the measurement of x-rays, as everyone does it differently. Marc mentioned that the TTC will address this in the upcoming meeting, and we will talk about the cavity performance cuts later in the meeting.

DESY AD&I meeting

Marc introduced the outline of the meeting, the strategy, and the focus of the DESY meeting. It is to be about content, not process, as much as possible. All seven items represent substantial changes to the baseline, and we expect to have considerable discussion on the pros and cons of each. We need to develop a plan for how to complete the evaluation, and the associated documentation for each, in a timely manner. It is hoped each presenter will address the changes, the risk table, and the timeline as outlined in Nick's charge letter previously distributed.

Just for everyone's information: SB2009 → "Strawman Baseline 2009"

Nobu asked if the statements (or discussion records) from the AAP report w/ regards to the SB2009 items are now available for our consideration.

June 11-12 there will be an ILC-CLIC meeting to work on further coordination with CLIC. The PMs will not be able to attend the ATF meeting at KEK then due to the schedule conflict.

2) Report from Group Leaders

Rongli Geng—no new report except trying to coordinate w/ the person in charge for the cavity at each institution for the next cavity coordination meeting on June 2.

Hitoshi Hayano—after TILC09, many holidays and limited progress. At KEK procurement of cavities for phase 2 is beginning, and preparation of the high pressure code paperwork is proceeding.

Norihito Ohuchi—yesterday during the S1 global webex meeting the schedule from Zanon was shown, Module C will be complete and ready for shipping in mid-October. The timing of Norihito's visit to Zanon for installation of instrumentation is being discussed (most likely in the end of July).

Tom Peterson—Tom won't be at DESY next week, but questions have come up with site variations and the impact on cryogenics. Tom will prepare a document with assumptions that went into the RDR, and will update it with additional costs for transfer lines as a function of distance from the plant, etc.

Shigeki Fukuda—after TILC09 there has not been a HLRF meeting and no new information on tests from SLAC or on the new configuration. Chris is absent today due to travel. Akira notes that ½ of the ML meeting at DESY is on the HLRF and asks that preparations be made in advance of the meeting. Shigeki asks that we make a plan as to how we will evaluate the various designs over the next year.

3) Preparation for DESY meeting / Cavity Yield Discussion

- Akira ran through his slides setting the background for discussion...Hassan's slides, DESY report, XFEL report, Marc Ross plot, JLab (Rongli's) report and plot..., all the different ways cavity yields are presented. Akira notes that for instance in Marc's plot some cavities have been dropped for various reasons, and as we go to making firm decisions we must have a consistent, accurate, and agreed upon method for reviewing the data.
- Bob asked about the drop in the DESY / Marc plot at 20 MV/m, and what is known about it. Without going into specifics, Marc notes that they can identify almost every cavity from the data, but as we get more cavities in the system this becomes more and more difficult. Also that we need to be moving to production yield, not process yield, to prepare for being most cost-effective in the production stage.
- What we said was by 2010 wanted a process yield of 50%, and by 2012 wanted a production yield of 90%. There are the specific definitions from the R&D plan on p28. Marc and Akira note in Hassan's plot tight loop cavity processing are included, and Rongli notes the labs did what was asked, and there were cavities that had known defects that were re-processed, in part proving that EP couldn't clear up pits.
- Slide 29-30 is a summary by Akira's on how the data has been used so far. Rongli mentions that all cavities at JLab are included, but maybe we don't know the processing total (including Ichiro). The DESY data have the problem that many cavities were processed with a different recipe. The timeline for revising and updating our goal, and how we should that, we discussed.
- Akira has discussed w/ Rongli how to proceed for a definition of the process yield, but has learned through the actual work that it is hard to establish this because resetting the surface is dependent on every single step. Though approaching a 'production yield', the quality of cavities from the vendors currently varies widely, and good vendors have a reasonable chance of success in one or two processing tries, while others still have more intrinsic difficulties. We need a scheme to increase our understanding, which starts with having an accurate picture of where we currently stand.
- Akira / Rongli have discussed how to proceed, and proposed that Camille be involved with this task as the task force leader in cooperation with a specific person in charge from each major institution, and everyone agrees. We remain in the situation where we need to maximize our understanding, suggesting R&D on a case by case basis as Rongli described, but we need to come up with a compact clear way to describe where we are today. These two will be at odds. For field emission (FE), we retreat the cavity with ultrasonic cleaning and HPR, this sometimes removes the FE limit (there is no extra EP cycle). It's not clear whether we can EP with the helium tank on....DESY might believe no, Cornell might believe yes. Bob notes we might set a standard 'reset' point, like tumbling, should a cavity fail.
- Camille notes we tried to make a database, but it failed in the past. So it does take a team, and people need to be available ILC management considers this a priority. Marc notes that he and Camille are familiar w/ DESY, and in the US most of the cavities will come through JLab/ FNAL. The Asian effort is probably only 10 cavities or so. We confirm that we need the specific person in charge at each lab to verify and report the data.
- The PMs are requested to report on the progress of this discussion at the EC meeting at CERN June 11.

4) Other business

Rongli asks for a clarification on what the goal of the DESY meeting is...Akira says that having an accurate description of our current cavity status will be critical to making the gradient decision / projection for 2012, and working through and setting up the personnel for the database at the DESY meeting are the critical points.

Jim notes in the review schedule presented, with the AAP in early January, and report writing in December, we are effectively excluding 4-5 months where the cavity testing would be expected to be most active. The reviews may drive us to a decision earlier than most of the technical data will be available.

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5) SCRF Meeting Schedule

- Next SCRF WebEx meeting: June 24, 13:00- GMT.
- TTC at LAL/Orsay, June 16-19.