

# Minutes of ML-SCRF Technology Meeting (100728)

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## **Date & Time:**

13:04-14:20 GMT, July 28, 2010, via Webex.

## **Participants:**

R. Geng, H. Hayano, N. Ohuchi, S. Fukuda, C. Nantista, A. Yamamoto, N. Walker, W. Bialowons, C. Pagani, S. Michizono, R. Kephart, T. Shidara

Presentation files are available at the following Indico site:

<http://ilcagenda.linearcollider.org/conferenceDisplay.py?confId=4725>

### **1) Report from Project Manager (Akira Yamamoto)**

Akira opened the meeting announcing that he would concentrate on the BAW-1 preparation issues this time after very brief report of the TDP R&D plan (Release 5). It has been almost ready and one can download the SCRF related part from the following page. Much update has been made and Akira appreciates everyone's check and comments by the end of this month.

<http://ilcagenda.linearcollider.org/getFile.py/access?contribId=0&resId=0&materialId=paper&confId=4725>

The 2<sup>nd</sup> announcement of the BAW-1 WS was sent to the ILC society (more than 2000 persons including physics people). The Indico page (<http://ilcagenda.linearcollider.org/conferenceDisplay.py?confId=4593>) of this BAW-1 WS was set and necessary information (including agenda, time table, accommodations, and so on) is available. Akira asked the conveners and group leaders to communicate with experts and to refine the agenda to be reported and discussed, and also to complete 'text' documents on the reports and discussions by the end of August, prior to the BAW-1 WS.

### **2) Reports from Group Leaders**

#### **● Cavity Gradient (Rongli Geng)**

No report for this meeting, but they had a regular webex meeting on July 20 and presentation files are available at the following page.

<http://ilcagenda.linearcollider.org/conferenceDisplay.py?confId=4706>

#### **● Cavity Integration (Hitoshi Hayano)**

Hitoshi reported on the S1-Global status to have been progressed as schedule. Low power tests on mechanical tuners, Piezo tuners and HOM couplers, and mechanical vibration measurements have been performed since last month, and results were presented at the last S1-Global webex meeting yesterday (<http://ilcagenda.linearcollider.org/conferenceDisplay.py?confId=4730>). The cryomodules are being warmed up this week because of summer shutdown of the cryogenics operation, and high power conditioning of couplers is scheduled next month, and re-cool-down of the S1-Global cryomodules will be restarted in September.

#### **● Cryomodule (Norihito Ohuchi)**

No report from Norihito since Hitoshi reported on the S1-Global status sufficiently.

#### **● HLRF (Shigeki Fukuda and Chris Nantista)**

No report from Shigeki.

Chris reported on the KCS test status at NLCTA. The big pipe assembly has had a vacuum leak in the vicinity of the pump-out spool. The spool has been removed for leak checking. The 4<sup>th</sup> section is received and ready to be connected. The CTO QC measurements looked good although many gauges were later noticed around the inner wall. The CTO's are being mounted for cold testing. The aluminum vacuum window adaptors have been tested and repeatedly broken down at ~300 kW under vacuum, but not with nitrogen. Upon inspection, a sharp point has been found and removed, and it waits retesting. There was a miscommunication between SLAC purchasing and the vendor concerning waveguide components and it revealed that the high power test may be delayed.

Chris also explained the future R&D plan and issues of KCS. In 2011, design and testing of a bend for the large circular waveguide, and high power transmission and resonant tests of CTO's will be performed by adding 70 m more WC1890 waveguide to assembly. In 2012, tests at full travelling wave power are scheduled by acquiring additional waveguide to construct a 160 m resonant ring.

### **3) BAW-1 Preparation Discussions**

- **DRFS design and R&D (Shigeki Fukuda)**

Shigeki presented the DRFS design and R&D plan. The current plan is to test 2-unit DRFS with 2 klystrons for S1-Global w/o Bouncer circuit. An usual RF source will be used till the end of November and new DEFS units will be installed and tested. There are follow up plans; Quantum beam project in 2012, and STF-2 in 2013. Tunnel layout for DRFS has been studied and a 5.7-m diameter layout with cryomodules installed on the floor has been proposed. Akira is interested in the 5.7-m layout which makes it easier for other regions to adopt this scheme.

- **KCS design and R&D (Christopher Nantista)**

Chris presented his preparation status at the group leaders' corner, so no other issues were presented. Akira commented that the large scale test of the KCS is not possible and we may need some efforts to have confidence on this scheme. Akira will visit SLAC next week and he will discuss this issue during his stay.

- **Requirements from LLRF on operational margin (Shinichiro Michizono)**

Shin pointed out the importance of the Pk-QI control and operational margin issues. Akira asked if the test at S1-Global is useful for these issues, but Shin replied that beam is necessary for these issues and tests at FLASH might be better.

- **Cavity gradient R&D and improvement strategy (Rongli Geng)**

Rongli reported on gradient program, gradient challenge, near term and long term R&D plans. Akira concerns the agenda of September 9, since there are lots of subjects to be discussed. Akira wondered who would present the European status, and this was deferred to the later discussion.

- **Cavity gradient data base and statistics/ Accelerator gradient (Akira Yamamoto)**

Akira commented on the homework to the database group; to study Q0 at the 31.5 MV/m operating gradient and to evaluate annual progress. Akira explained the cavity gradient specification; -5% reduction in cryomodule w/o beam and another -5% in beam operation. Shin worried the 10% overhead in RF margin.

Nick commented on two points. (1) PM part of the TDP R&D plan (Release 5) will be changed. (2) The 'goal' of the BAW-1 WS is to reach the consensus, and not to make review only nor to review new R&D plans.

Carlo also pointed out the importance of cost conscious mind in cavity R&D.

Akira appreciated these comments and he will prepare the BAW-1 agenda taking into account these.

#### 4) Further Plans and Meetings

Next ML-SCRF Webex meeting: August 25, 2010, 13:00- GMT

Main Linac BAW-1: September 7-10, 2010 (KEK)

<http://ilcagenda.linearcollider.org/conferenceDisplay.py?confId=4593>

LINAC10: September 13-17, 2010 (Tsukuba)

<http://linac10.j-parc.jp/>

LCWS / CLIC-ILC: October 18-22, 2010 (CERN)

<https://espace.cern.ch/LC2010/default.aspx>