

19th Summary of Meeting for S1-Global module design, Cryomodule and Cryogenics (20090825)

Date: 2009/08/25

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

Attendant: Jim Kerby, Tom Peterson, Paolo Pierini, Serena Barbanotti, Hans Weise, Eiji Kako, Hirotaka Nakai, Hitoshi Hayano, Tetsuo Shidara, Yasuchika Yamamoto, Norihito Ohuchi

All presentations are unloaded in the INDICO site:

<http://ilcagenda.linearcollider.org/conferenceDisplay.py?confid=4109>

Agenda

1. Schedule of KEK cavity construction (Eiji Kako)
2. Schedule and targets of visiting FNAL/DESY (Eiji Kako/Norihito Ohuchi)
3. Checking the component list with FNAL solid model (Norihito Ohuchi)

Discussion

(1) Schedule of KEK cavity construction (Eiji Kako)

- KEK restarted the cavity work for S1-G from 24th August after the summer shutdown, and the cavity work will continue until the end of November. EP2 is the final preparation of cavity in the schedule table.
- After the final vertical test, the cavities are transported to Mitsubishi Heavy Industry, MHI, for assembling the helium jacket. Five cavities are candidates, and four cavities will be selected among them.
- RF and structure designs of input couplers have been started from June, and the fabrication has started from 24th August.
- Processing of first two couplers will start in November, and processing of the other two will start in December. The work will complete in December.
- The assembly work of FNAL and DESY cavities in the clean room will start in January, and these cavities will be hanged under the GRP in the 2nd week of February. The assembly of KEK cavities will start in February.
- The cryomodule assembly of Module C out of the clean room will start in February.
- The cool-down of S1-G cryomodule is scheduled to start in beginning of June, and perform low-power RF measurement and thermal measurement in June and July. In August, the system will be warmed up to room temperature, and in September, the cryomodule is scheduled to be cooled down again. The high power test will continue until the end of December.

C: It was reported that the #6~8 of KEK cavities had some problem. Do you take care of it?

Q: We, KEK, have to solve this problem, but in the summer shut-down, KEK did not have any tests. From 24th August, the test started again.

C: During KEK people visiting FNAL, we will discuss these test results. In the Module-C schedule, the assembly work of FNAL and DESY cavities in the clean room will start in January. FNAL cavities will be shipped to KEK in December. The delivery time of FNAL cavities should be checked.

C: In the present schedule, KEK will receive the FNAL cavities in December. We will confirm the shipping schedule during KEK people visiting FNAL.

(2) Schedule and targets of visiting FNAL/DESY (Eiji Kako/Norihito Ohuchi)

- List of cavity works in STF was shown by the Excel file.
- KEK people would like to discuss the procedures and confirm the tools in detail for cavity works while visiting FNAL and DESY.

C: Axel Matheisen and Wolf-Dietrich from DESY will discuss the issues in the list at 18th September when KEK peoples will visit DESY.

C: Jim will communicate the issues with Harry and Tug by E-mail for discussion in FNAL.

C: DESY will make three E-XFEL cryomodules before the S1-G module assembly. It will be very useful for KEK personnel to participate in the assembly. We will discuss this issue during visiting DESY by KEK.

- Concerning the cryomodule assembly, the following items would be confirmed:
 1. Completion of the component list of DESY cavities and confirmation of the S1-G module construction schedule between DESY and KEK. Sizes and numbers of the components would be checked by DESY and KEK.

2. Preparation of the assembly procedures of cavities/module, tooling and alignment method.

3. Schedule and procedure of actual work (module assembly).

C: During KEK visiting DESY, Kay Jensch and Axel Matheisen will discuss the module assembly. Questions and open issues should be sent to DESY before the meeting by e-mail, and the personnel in DESY will prepare the discussion. We can continue the discussion during the SRF workshop.

C: The help of assembling FNAL input couplers is open issue, and we will discuss the issue during the SRF workshop.

C: For assembly and alignment tools, KEK should show the requirement precisely to DESY. It would be considered which and when DESY personnel would be efficient for visiting KEK and helping the assembly work.

C: At present, DESY has a number of cavities of the gradient of 30 MV/m. In principle, DESY can make two cavities right now. The adding HOM couplers and input couplers to the cavities will be carried out after re-commissioning the DESY clean room with some modification. The clean room will be ready in the beginning of October, and then two cavities can be shipped in November. Nevertheless, DESY likes to select two cavities as late as possible. In October, the vertical tests of two cavities will have been completed, and by the end of this year, a dozen of cavities will have been vertical-tested.

C: Another issue is availability of RF main couplers. We will check the conditioning of two couplers in Orsay. Conditioning of two couplers is now going on. The couplers will be ready in October. DESY can send two cavities in November.

(3) Checking the component list with FNAL solid model (Norihito Ohuchi)

- By the solid model by Don Mitchell, the component list of FNAL cavities was checked.
- There were some interference between the magnetic shielding and the KEK gate valve, and the magnetic shielding plates between the FNAL and DESY cavities. In the final design of cavity packages, the lengths of these shield plates would be optimized.

- The slot length of FNAL cavities and the distance of the support shapes were confirmed. The exact information was confirmed by the e-mail communication after the meeting:

Distance between input couplers for Module-C = 1384.15 mm @ room temp.

Distance between shapes supporting the cavities = 1385.6 mm @ room temp.

The drawing should be based on the room temperature, and in KEK 3D-CAD data, the distance of 1383.6 mm at cold was left, and it was improved to 1384.15 mm at warm.

- The magnetic shield plate has an interference with the input coupler components, and there exist some missing components like seals of flanges and bolts in the FNAL solid modeling.

- The supporting components of input coupler and vacuum pipe are not included in the solid model by Don. These components would be included into the FNAL delivery list.

C: Originally the components are not intended to be, but we should talk about them at ALC.

- The latest JT file of the S1-G cryomodule is uploaded the following directory:

- http://www-mec.kek.jp/norio/ilc_cryo/

- File: S1_Assembly_090902.jt

Next meeting date

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