16th Summary of Meeting for S1-Global module design, Cryomodule and Cryogenics (20090707)

Date: 2009/07/07

Time: 22:00-23:30 (Japan Time)

Attendant: Jim Kerby, Tom Peterson, Don Mitchell, Tug Arkan, Carlo Pagani, Paolo Pierini, Serena Barbanotti, Tetsuo Shidara, Hirotaka Nakai, Hitoshi Hayano, Norihito Ohuchi

All presentations are unloaded in the INDICO site:

http://ilcagenda.linearcollider.org/conferenceDisplay.py?confid=3707

Agenda

1. Updated construction status of Module-C (Paolo Pierini)
2. S1-G assembly schedule (Norihito Ohuchi)
3. Module-C component list (Norihito Ohuchi)
4. 1.3 GHz FNAL dressed cavity (Don Mitchell)

Discussion

(1) Updated construction status of Module-C (Paolo)

・The final wielding of the gas return pipe will be completed on tomorrow or the day after tomorrow.

・The machining of the gas return pipe will be finished before KEK people coming to Zanon.

C: KEK peoples will arrive at Milano on 26th July, and the next day move to Zanon with the INFN staff. The working days are scheduled from 27th to 30th .

・For the vacuum vessel, the big flange and the vessel are in the final welding stage.

・The thermal shields are almost completed, and now they are being cleaned. The cooling finned pipes are prepared for assembly on the shields.

・Now, there is no problem for assembling the thermal sensors, strain gauges and WPMs by KEK peoples.

C: The WPMs have been sent to Zanon by DHL yesterday.

C: Zanon received WPMs today, and they confirmed the materials.

C: During assembling these sensors on the GRP, the big meeting on the XFEL cavity will be held in DESY. The cavity people will visit Zanon, but they will not intermit the work at Zanon.

(2) S1-G assembly schedule (Norihito)

・From the report by Paolo, construction of Module-C components is on schedule, and then the scheduled completion date of Oct. 15 is the important target day.

C: The module-C components will be transported to Japan by ship, and the transportation to KEK will be in one month. They will be reached until the end of November.

・Modification of Module-A is scheduled from October to December 2009.

・Two KEK cavities have been tested three times in the vertical cryostat, and the vertical tests of the following three cavities will be completed in the middle of November. Four cavities will be sent to MHI for jacketing in December. The work in the clean room will be performed in January 2010. The assembly of Module-A is scheduled from February to March.

・In the proposed MOU for S1-G, the arrival of DESY and FNAL cavities are in November and December, respectively, and then the cavity-assembly in the clean room will start in February after completing the KEK work. The assembly of Module-C is scheduled for two months from middle of February.

・The cryomodule installation into the STF tunnel will start in April.

C: The delivery of the FNAL cavities will be discussed in detail with the FNAL people and Akira in FNAL and the other people via the Webex video conference in the next week. The scheduled date will be Thursday morning in Japan time.

Q: How did the #5 and #6 KEK cavities go in the vertical tests?

A: The #5 cavity reached 27 MV/m, and the #6 had some trouble in the EP process and reached around 20 MV/m. The #5 can be used for S1-G, but the #6 can not be used.

C: In case that FNAL cavities arrive at November same as DESY cavities, a couple of weeks will be saved because of the conflict of the clean room works.

(3) Module-C component list (Norihito)

position is assembled. However, for the blade tuner, the sensor is not necessary because the tuner performance is already well studied and it is completely reproducible. →The position sensor for the blade tuner is deleted in the list.

C: The temperature measurement of Piezo components is important.

C: The temperature sensors (Cernox) are prepared by KEK, and they will be attached to the Piezo components in KEK.

・The HOM couplers are intercepted to the 2K helium line with copper braids. These thermal intercepts for HOM coupler are sent to KEK.

・ Feedthrouh flange and RF/monitor/motor cables:

a. Cables to motor and tuner are included in the cavity packages.
b. Concerning for the connectors of the cables, the talk between FNAL and KEK is necessary.
c. Drawings of the feedthrough flange will be sent to KEK.

・ Magnetic shield:

a. The shield designs between FNAL and DESY are completely different.
b. It was talked that the shields for the beam pipe between FNAL and DESY cavities would be prepared by FNAL in TILC09, but the designs are different and modification of FNAL shield is problem.
c. We need the design work for this magnetic shield, and we should talk this with Hans.

・ Beam pipes:

a. Don is now designing the three types of bellows. Between FNAL and DESY cavities, the FNAL is preparing the beam pipe.

・ We need the discussion with these detail components with drawings and with face to face including DESY people.

(4) 1.3 GHz FNAL dressed cavity (Don)

・ By the study of declining the blade tuner in order to assemble the tube of the KEK WPMs, the motor hits the 5K shield.

C: The tuner can not be rotated. When the piezo components are not located in the horizontal plane, the symmetry of the system is lost. The piezo motion is in the range of micro meter. The change of the system will have an incompatible with the present system.

C: The problem for the conflict between the KEK WPM tube and the motor of the blade tuner came about after updating the 3D-CAD of Module-A and Module-C.

・ FNAL prepares the components for dressing the cavities in S1-G as shown in the presentations.

a. 2 dressed cavities
b. HOM couplers, cables, heat sinks
c. 2 He supply pipe bellows
d. 2 inter-cavity bellows
e. Warm and cold couplers
f. Magnetic shielding
g. Blade tuners with motors
h. Seals
i. Cables
j. The hardware shown by drawing

・ Connectors and flanges for the cables are not included now. They are not compatible between KEK, FNAL and DESY.

・ Needle bearing is prepared by Zanon.

・ No talking about the main coupler external mounts, hardware and alignment tooling for installation. Need discussion.

・ Need more study for the magnetic shielding interface between the FNAL and DESY cavities.

・ Actual work for 2-phase He pipe cut-offs and welding the bellows into the system.

・ Heat sink straps for coupler shield

・ Gatevalves / 90 deg valves / bankoffs

Q by Hitoshi: Is the understanding right that the high voltage power supply and the

Next meeting date

Meeting Date: 21 July 2009 22:00 (Japan time), 8:00 (FNAL), 15:00 (INFN and DESY)

Discussion items

- Updated construction status of Module-C (Paolo Pierini)
- Others