

## Minutes

### EN/MME Meeting for HL-LHC CRAB CAVITIES

Monday, 21th September 2015

Room 376/1-020

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Scope: regular meeting for the HL-LHC CRAB CAVITIES (WP4) Project at EN/MME

Attendees: Kurt Artoos, Said Atieh, Rama, Calaga, Ofelia Capatina, Teddy Capelli, Federico Carra, Luca Dassa, Konrad Eiler, Eugenie Gallay, Marco Garlasche, Laurene Giordanino, Norbert Kuder, Carlo Zanoni

#### Update USLARP:

- CERN will open a parallel line for the production of one of the two cavity concepts
- CERN will reorganize the plan towards SPS accordingly to these last decisions. More info to come in the future
- Procurement of material asap

#### Helium tank proto:

- Second tube under production. Ready in a few days, with possible delays (note: actual expected finish date is Thursday the 15<sup>th</sup>)

Eugenie presented a summary of the sensors and their preparation.

- Strain-gages and pt100 tested at 473 K (welding) and 77 K (thermal shock test). The test is aimed at both sensor themselves and the glue
- The sensors apparent strain vs temperature has been extrapolated
- Eugenie suggested to re-test the screws with Molykote after a thermal cycle has been applied, in order to understand if it can have an effect on the performance

As the plates are ready, the installation of the first sensors can start from the beginning of this week. The instrumented screws will be mounted together with the normal ones.

#### Materials:

Konrad summarized the discussions and investigations on the niobium with large grains. It appears the reason for the large grains is a lack of recrystallization. Probably due to a lack of

cold work and the bulky shape of the raw material. Also, the sample is a disk that may not represent the grain size along the length of the raw material bar. That would explain the difference with the beam port (i.e. material more recrystallized). It must be verified if a sample of the material after the corrective thermal-cycle has been received.

### **Cavities:**

Norbert and Carlo presented their combined estimations on the effect of reducing the cavity thickness around the welds. It appears the stress performance remains unaltered even with such a reduction (to 2.8 mm).

### **Vacuum Vessel:**

Teddy swiftly showed his last draft of the cryomodule. This last configuration allows the integration from top of the dressed cavities with support system, top plate of the vessel and shields. After a short discussion it has been preferred to have openings (with relevant enclosures) on one of the sides. However, these openings are not meant for integration.

### **Actions**

- Evaluate which cavity concept can be fabricated more swiftly → Marco, Said
- Procurement of material for CERN cavities → Stefanie
- Verify the history of samples received for the beam ports → Nacho, Konrad
- Begin sensor installation in the proto tank in coordination with the assembly → Eugenie
- Follow 2nd tube fabrication → Marco
- Finalize the new draft of the vacuum vessel → Teddy

Next meeting: Monday the 12<sup>th</sup> of October in room 376/1-020.

*Minutes taken by Carlo.*