**QUESTIONS FROM CHAT  
2nd DECEMBER (from 02:30 pm to 04:45 pm, Italy time)**

[15:06] John Rathke: Are these all electron beam welds?

[15:07] Manish RRCAT: What is joint design of Myrrha cavites? Have you monitor Frequancy shift during Welding?

[15:10] vks RRCAT: Lhe tank is made of SS or Titanium?

[15:15] Manish RRCAT: what is weld shrinkage in phase -1 & phase -2? Both for AES 10 & AES 7

[15:16] vks RRCAT: Why 2 days for cooling is required?

[15:17] Gilles OLIVIER: For Myrrha cavities, it is a IJCLab design. The tank is made of titanium.

[15:17] Syed Moulali (RRCAT): Ar gas flowing through cavity during welding continuously

[15:17] vks RRCAT: Which was last weld location?

[15:19] Leonardo Ristori: We used argon flow through cavity for 10 spoke resonators successfully.

[15:22] Manish RRCAT: can we go thougth EBW route like 3.9 Ghz cavity & do final closing joint for TIG to minimise weld shrinakge & control Field flantness?

[15:22] Leonardo Ristori: Also we installed an infrared camera on one of the cavity ports to monitor temperature. It depends on how close some welds are to the cavity walls. In our case it was critical to actively cool and monitor temperature to save a lot of time.

[15:26] Prakash Potukuchi: Vinay Mishra can share his experience on the dressing of SSR1 in BARC.

[15:27] Syed Moulali (RRCAT): Is there any frequency shifty during cooling through Ar

[15:31] vks RRCAT: Is uniformity of cooling play any role?

[15:31] Vikas Jain RRCAT: What is the allowed frequency drift?

[15:38] vks RRCAT: MIP has been prepared in MS excel or MS access?

[15:39] Manish RRCAT: do you have HB650 MIP ?

[15:40] Matthew Luedke: We used excel to prepare the MIP

[15:41] Ellis, Mike (STFC,DL,AST): in answer to Thomas's question, we had somewhat similar QC plan, for every production step detailing processes, QC documentation applicable, approval steps etc

[15:59] Manish RRCAT: what is critical QC check done by CEA for elliptical cavity ?

[16:03] Thomas A. Digrazia: Manish RRCAT (Guest) We do not have a HB650 MIP yet, kickoff meeting with the vendor was held recently and we will be developing one shortly.

[16:04] vks RRCAT: How important the formed mid half cell's profile tolerance is? It may be noted that after final cavity tuning this tolerance will vanish away. Please comment.

[16:10] vks RRCAT: What is cavity geometry reference frame?

[16:20] Vincent Hennion: @Manish: most critical QC check is to deal with mechanical offsets regarding interfaces used by CEA for integration inside the cryomodule (tuner or He outlet tube)

[16:23] vks RRCAT: Templates for documentation have been prepared using MS excel or MS access?

[16:29] Thomas A. Digrazia: Ellis, Mike (STFC,DL,AST) , you mentioned in the presentation you estimate 11,500 documents to be shared. How many cavities does this cover?

[16:32] Ellis, Mike (STFC,DL,AST): this covers 88 cavities, 84 cavities + 4 spares in case of some not meeting gradient, performance or other integration requirement

[16:39] Jemila Adetunji: Ellis, Mike (STFC,DL,AST), Hi Mike. Great overview. Did STFC collaborate directly with the vendors on the development of the QC Plans? Also, regarding the various Acceptance levels (1, 2, 3), do all tests in one Acceptance Level have to be completed prior to moving to the next Acceptance Level?

[16:41] Ellis, Mike (STFC,DL,AST): Hi Jemila, thank you. At bid stage we did not, we provided a high level set of QC outline requirements and asked bidders to respond with their proposals. But after we had awarded the contract, we did work closely with our downselected manufacturer (1 company)

[16:42] Jemila Adetunji: Thank you, Mike.

[16:42] Ellis, Mike (STFC,DL,AST): our initial plan was to rigorously complete all AL1 tests and approve before allowing cavity to progress to AL2, and we did this for the pre-series. For the series cavities this was impractical and we relaxed this a little, but the vendor is still fully responsible for any deviation - so at their risk if any NCR identified when reviewing and approving.

[16:44] Jemila Adetunji: I see, this is understandable. Did you find any issues with some required tests not able to be met by the selected vendor? Also, regardless of the vendor not being able to complete all AL1 tests before progressing to AL2, they still have to complete all AL1 at some point, correct?

[16:45] Ellis, Mike (STFC,DL,AST): yes, all QC documents required, and Change Management process/principles applied in case of any changes

[16:46] Jemila Adetunji: Ok thank you

[16:54] Ellis, Mike (STFC,DL,AST): hi Jemila, to clarify, all tests must still be done in the correct order & sequence in general, but the transfer and approval of documents sometimes lagging behind cavity progress - this at vendor's risk

[16:55] Jemila Adetunji: Understood. I appreciate the clarification. It is helpful!