

BI rad-tol optical-links (BRATOL) meeting

02/09/2022

Attendees

SY-BI: Manoel Barros Marin, Andrea Boccardi, Thibaut Lefevre, Christos Zanamtzas

EP-ESE : Sophie Baron, Leonardo Macron, Jan Troska

Minutes and actions

Confirmation/summary of the BI strategy

- The specs of the VTRx fulfill the requirements of the SPS and the LHC ionization chamber BLM consolidation project, both in terms of radiation tolerance and link rate. The VTRx is the chosen optical transceiver for the links in the systems to be deployed
 - For the SPS the chosen option is the rework of existing components
 - For the LHC a new production of 3000 VTRx is required
- The VTTx is the baseline choice for the LHC ring BPM consolidation: the COTS option is being investigated given the uncertainty on the GBLD operability @10Gbps.
- The silicon photonics option is for the BPM project only to be considered if the GBLD with the new masks/production cannot operate at 10Gbps AND no suitable COTS will be identified in this year test campaign carried out by BI with R2E
 - Jan asked details on the test, and learned that for the BPMs (and the BLMs in the LHC based on ionization chambers) the required level of TID and flux are most likely more than 2 orders of magnitude lower than the target level for the VTXx.
 - This might change the cost and the effort required for the qualification, as well as the failure probability of any of the TOSAs
 - Thibaut pointed out that nevertheless for BI would be interesting to qualify for higher flux and TID the components in view of potential use in other systems (i.e. BGI in the SPS)
 - The expected levels in all the BI systems is nevertheless most probably lower than the target one -> **action @Manoel: provide a table reporting the expected level of TID and flux (and type of field) for BLM, BPM and BGI in SPS and LHC. The table should also include the expected number of VTXx required per system to evaluate the cost/benefit**
- BI consider the extra ~130k required to acquire enough GBLD to cover also the BPM needs a necessary investment to keep the VTTx option open, and therefore supports and provided the codes to start the acquisition of 2 batches of wafers
- BI consider the risk of starting the procurement for the TOSA for the BPM system too high at the moment, and would start the process only after the qualification @10Gbps of the GBLD production
- The procurement of the ROSA for the BLM can be started this year

News from the TOSA qualification

- TOSAs from 3 different companies were tested: the one performing best is from CBO

- CBO is the cheapest of the 3, with an expected price of 25 USD per piece for an order of 10k TOSAs
- CBO is producing outside member states, but this is also true for the other 2 companies that have replied to the MS, and a MS proved that there are no companies in the member states area fulfilling the requirements
 - To be verified with Purchasing. -> **action @BI to check who the purchasing officer taking care of this will be?**
- Given the expected cost of total volume of the production, whether the BPM are in or out, the procedure will not require Finance Committee approval and therefore splitting the order in 2 would not be seen as 'saucissonage' (TBC)
 - It is to be discussed with Purchasing if they agree on an IT for the acquisition of 3000 TOSAs for the BLMs potentially followed by an acquisition of an additional 6000 for the BPM few months later
 - The double process will mean potentially double qualification
 - Is it worth requalifying for the BPM given the very low radiation they will be exposed to in the LHC?
 - Is the splitting, given the fact that the quantity for the BLM is significantly lower than 10k lead to a significant increase in price?
 - Is the delay of ~1y required for the qualification of the GBLD a serious risk for the acquisition of TOSAs given that all the 3 companies actually qualified for the levels required in the LHC?
 - -> **Action @BI: verify strategy with Purchasing while checking the previous point**
- The VTTx PCB is being designed by ESE and prototyping should happen soon
 - Manoel asked to obtain a few samples to equip on the board Selim designed and produced for the qualification of the connectivity between the ADC and the VTTx, ESE agreed to max 8 (limited by TOSA availability)

Organisation of future meetings on BI Rad-Tol Optical Links

- The meetings will be chaired by Andrea -> **@Andrea: create an INDICO meeting series in the SY structure and add the link to the meeting invitations. Sophie, Jan and Francois should be given access**
- The departure of Leonardo made the selection of a Origin (Quest?) urgent in order not to stop the project -> **@Jan: Origin request has been made for next round of recruitment at November committee. Will also be translated to Origin/Quest request for March round preemptively.**
- Jan and Sophie mentioned that they were given no priority for the tests on the BRATOL component -> **@Manoel: investigate with Salvatore if the request was received and if the priority could be increased given the status of Leonardo's contract – this is not necessary since doing the test in September is basically excluded already. Sources are currently being replaced and the test takes two weeks to do.**