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Subject: FW: LISTA
Date: 12 August 2011 16:43:42 GMT+02:00
To: Tatsuo Kawamoto <Tatsuo.Kawamoto@cern.ch>, Ludovico Pontecorvo <ludovico.pontecorvo@cern.ch>, Marzio Nessi <Marzio.Nessi@cern.ch>

Dear All,

Please find attached a non exhaustive list of what one should discuss and decide about the design of the SW. Some points are trivial as the answer is straightforward but for some others a careful analysis of advantages and disadvantages would be essential.

- 1) Accessibility and maintenance of chambers
- 2) Space and easy insertion of services
- 3) Robustness of the structure as it has to carry more than 25000 kg. This implies that the spokes attached to the HUB or ring (see below point 10) must have a good rigidity and therefore the innermost chamber could have a limited access space.
- 4) Related to point 3, the chamber could be small and could be extract from the structure (EEL5 moving chamber) to intervene as it will be the hottest chamber. Moreover, the size of the chamber could be limited to the size of the CSC that are installed today (good for conical HUB – see point 11). The drawbacks are enough flexibility for services and how it can be read by the alignment system that, today, stops above CSC chambers (see point 12)
- 5) Related to the previous point is the easy placement of chambers and a good range of adjustments to get the “theoretical position” after mounting all chambers (i.e. deformed mechanical structure) so that one does not have to rely on precise pre-calculated chamber positioning and strict mechanical assembly tolerances of the structure
- 6) The previous point also means that the chamber should be grabbed correctly to be easily and safely inserted in the structure
- 7) Good accessibility for the adjustable chamber supports (this means that the adjustments must be outside of the chamber and fixed to the structure)
- 8) Stress free chamber (kinematic mounts placed as TGC and/or MDT chambers => chamber corners. I don't see any better solution)
- 9) Same (close to) common chamber mechanical frame for any design of chamber. This implies only one design for the assembly and the positioning of the chamber despite the different options (TGC +MDT, MICROMEGA, etc)
- 10) HUB in copper included in the SW and fixed to it as today or possibility to be changed it in the future (i.e. ring around the HUB and, therefore smaller radial size of the chamber – acceptance?)
- 11) Dimension of the copper HUB (horizontal axis) sufficient for shielding in the future or to be revised in shape and dimensions. Circular shape or conical as it now? Circular shape easy to be change (see point 10)
- 12) Conical part of the HUB (vertical axis) bigger (polyethylene to be added?) – therefore special chamber in that region. Straight shape instead of a conical one? Smaller chamber in that region (today the CSC zone) than in the other places of the SW. Any possibility to make a chamber having the same or close performances as the others?
- 13) Regarding point 12, the special chamber should be read (today, the bar stops above CSC chamber and their position is uncertain)
- 14) New JD or re-use of the old one or portions of it
- 15) Importance of the second co-ordinate (the chamber must not be tilted by more than 2 mrad)
- 16) Alignments (bigger or same Bcam on both chambers and bars) – if bigger, the annular space in Z direction between small and big chambers for azimuthal alignment lines greater than 54 mm
- 17) Thickness of the chambers (also related to what said in point 16) as the JD/SW must occupy the same space between End Cap LAr and the ECT
- 18) Easy placement of chambers and a good range of adjustments to get the “theoretical position”
- 19) Placement of chambers without turning the mechanical structure

Have a nice weekend

Sincerely - Giancarlo