Survey space reservations around crab cavities

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Some few comments:

- Current alignment systems and methods in use, taking into consideration the radiation level.
- Only a space study not a space reservation
- Prepared by P. Fessia and C. Collazos Gonzalez (3D views shown by Paolo at Daresbury)

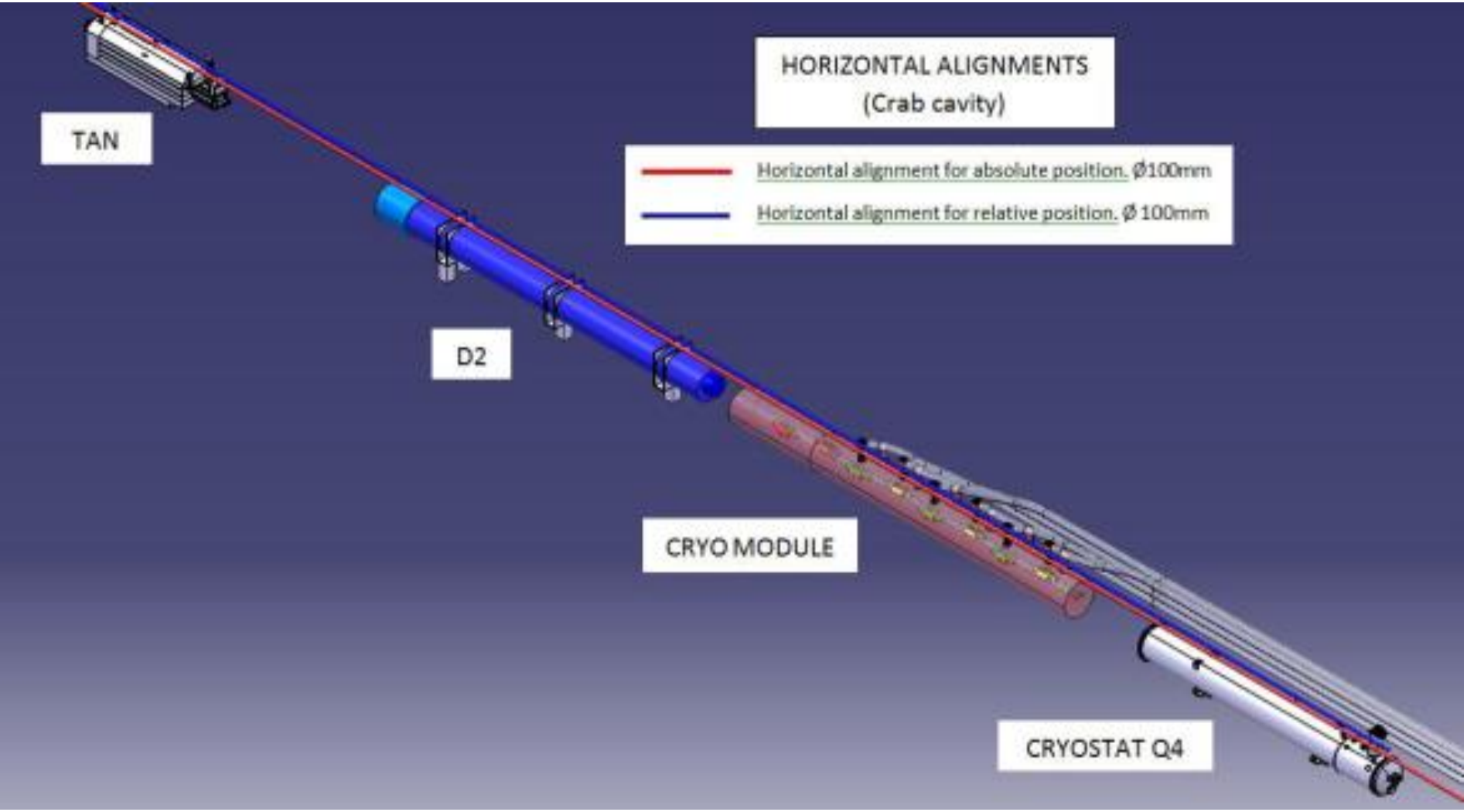
Integration of two types of alignment systems:

- For absolute positioning of the triplet w.r.t other elements of the LSS
  - Stretched wire in radial (Q1 → Q5) → installation of a permanent wire
  - Levelling in vertical → extension of HLS system as far as possible (Q5)

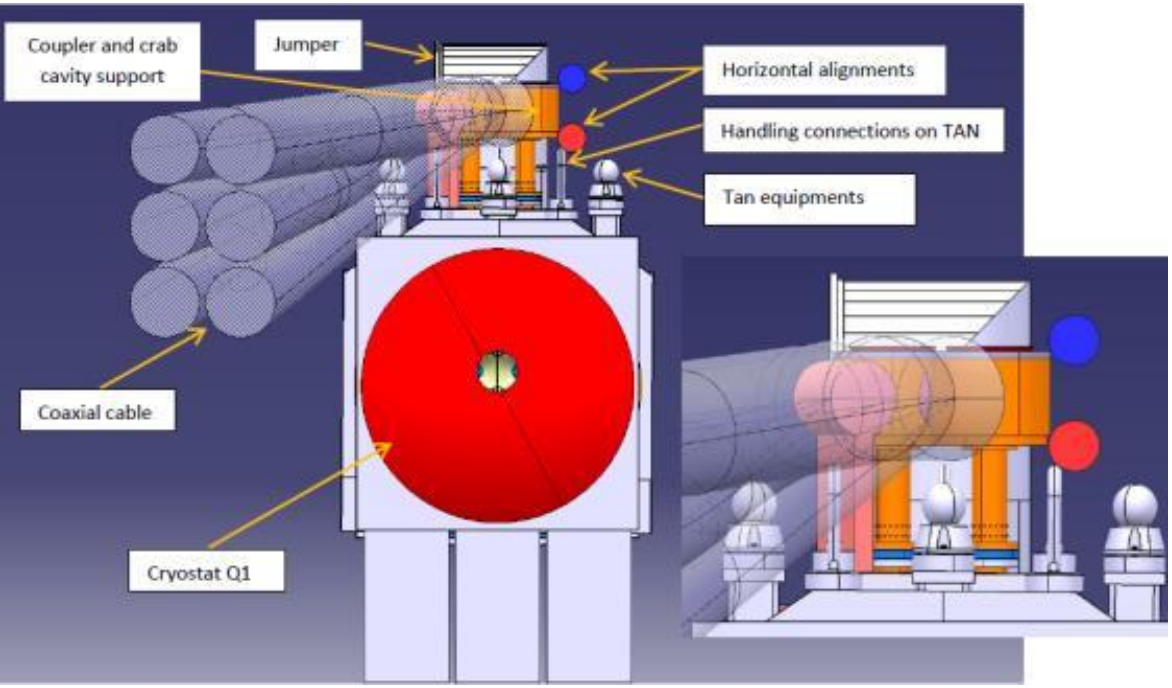
Integration of two types of alignment systems:

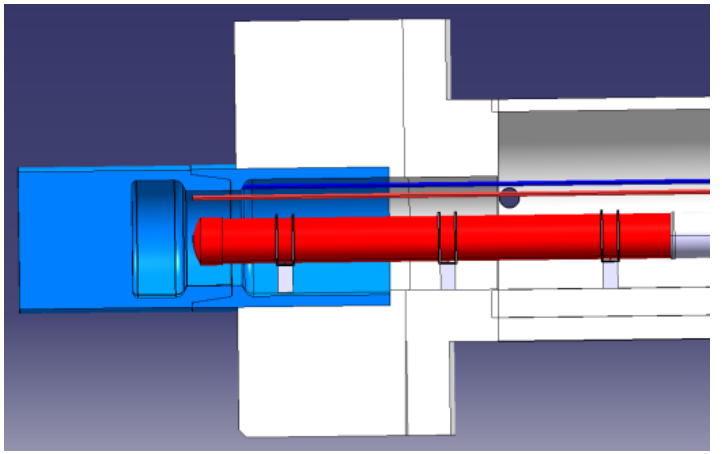
- For relative positioning of the quadrupoles inside a triplet
  - Wire Positioning System (WPS) in radial and vertical → extension of the stretched wire up to Q4
  - Hydrostatic Levelling System (HLS) in vertical (including roll) → extension up to Q5

Radial alignment (1)

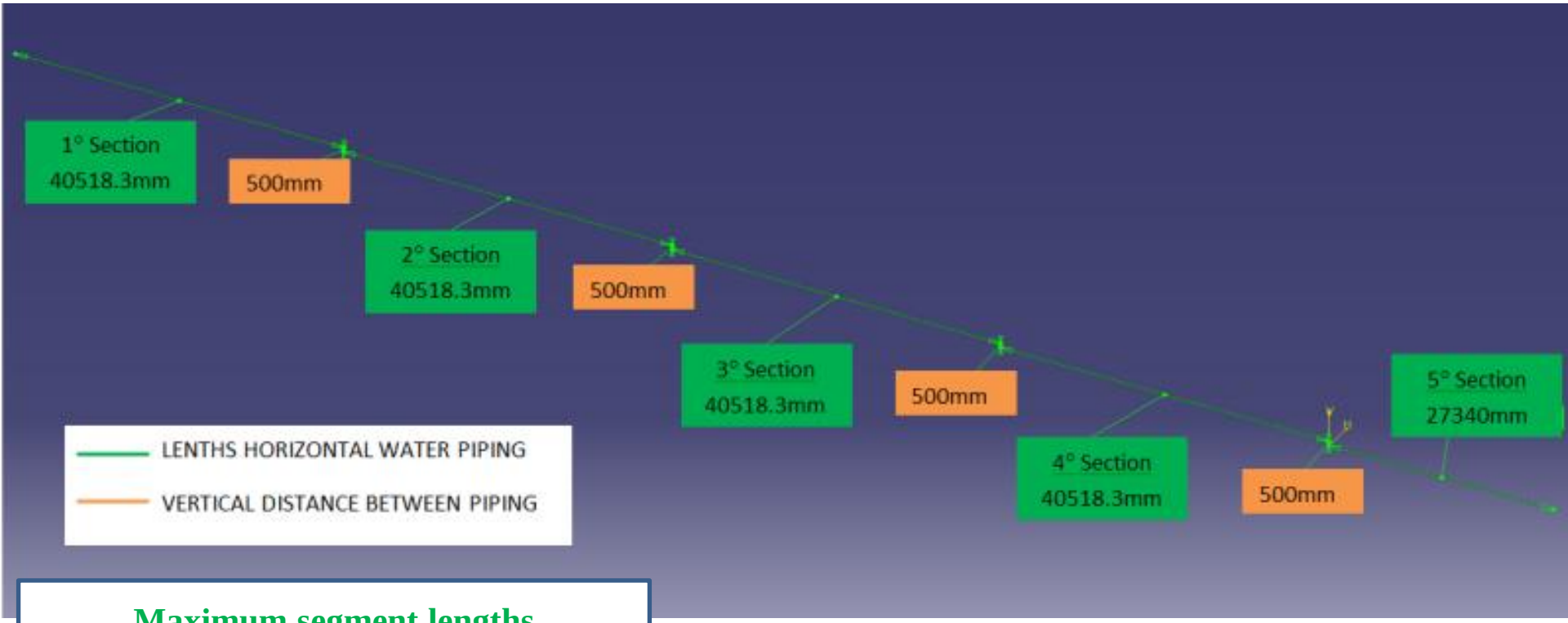


Radial alignment (2)



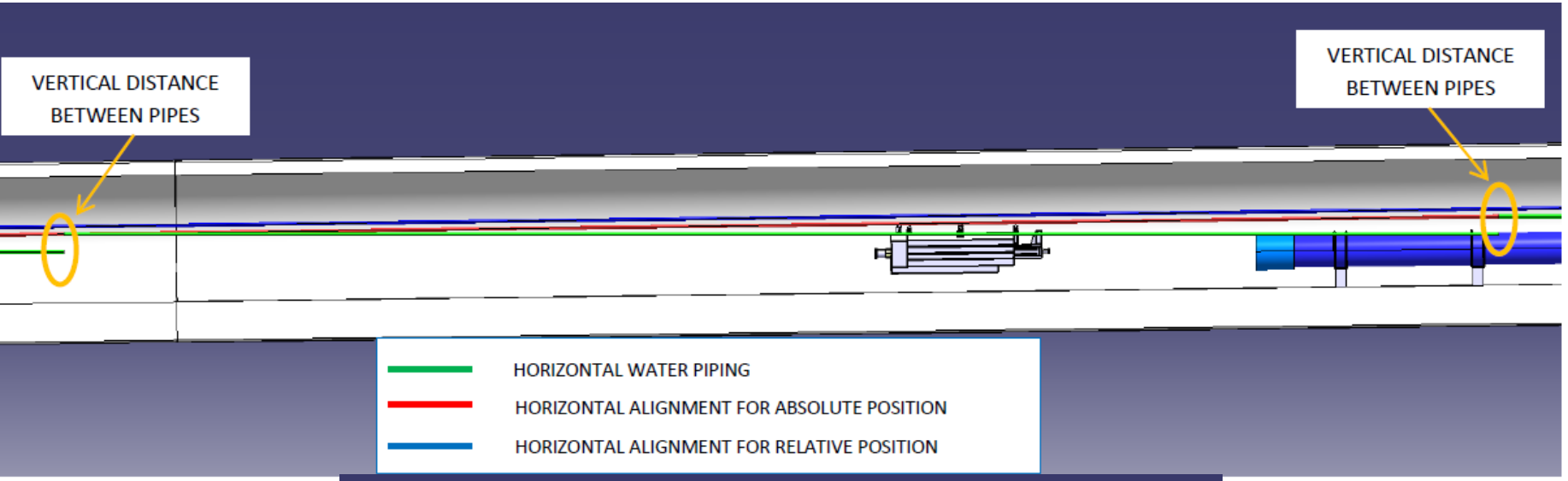


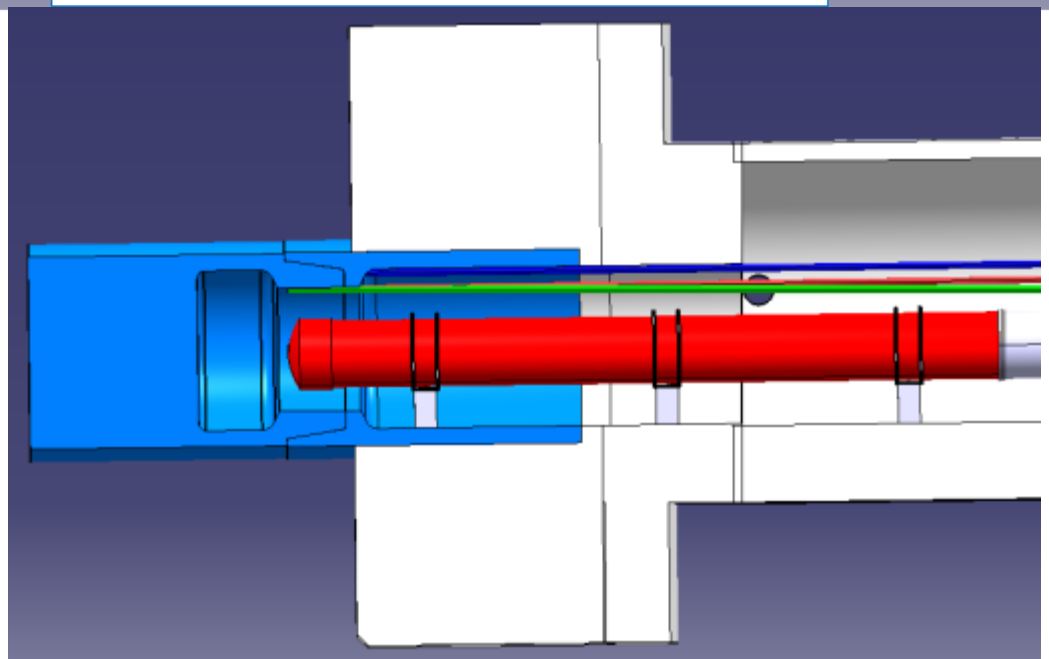
Vertical alignment from Q1 to Q5



Maximum segment lengths
Vertical distance at compensation points

Vertical alignment from Q1 to Q5





Next steps:

- Alignment systems are in front of the interconnect : their location will create a problem in term radiation exposure ➔ their location needs to be re-discussed.