Science & Technology Facilities Council

Cooling Demonstration Engineering Summary

CM40 – Rome

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29th October 2014

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Schedule

- Start de-commissioning Step IV – 1st June

- Arrival of the amplifier – 31st August 2016
- Arrival of the PRY – 29th March 2016
- Arrival of the Cavities – 26th April 2016

- End of de-commissioning – 22nd July 2016
- Installation of the waveguides – 10th August 2016
- Installation of the base plates – 14th December 2016
- Installation of the RF – 17th February 2017
- Installation of the south side – 3rd Jan 2017
- Installation of the north side – 1st Feb 2017
- Construction complete – 24th March 2017

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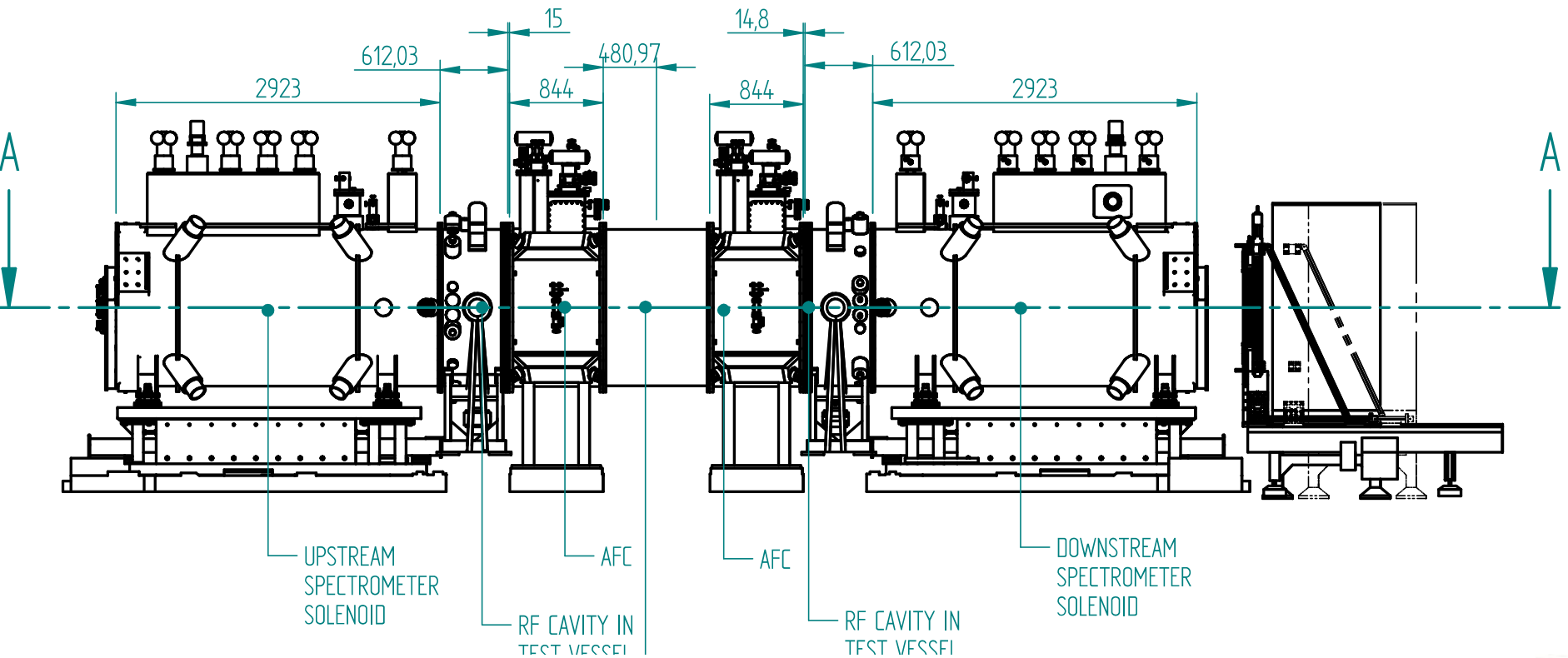
Block Diagram



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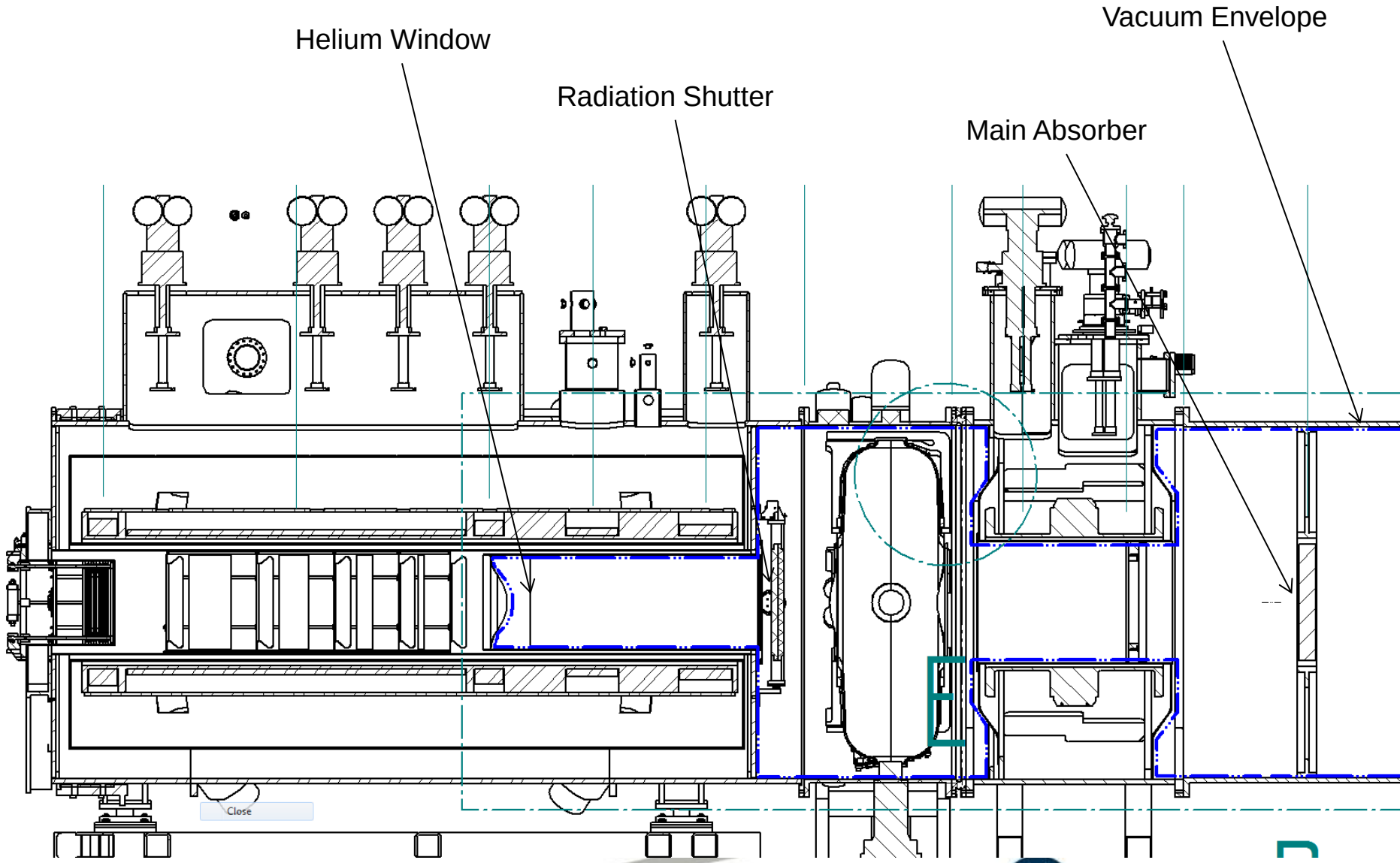
Block Diagram



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RF Cavities and Absorbers

- Absorbers
  - – Main Absorber thickness – 65mm
  - – Supported in a vacuum chamber
  - – Length of chamber is under investigation
  - – Diameter could be smaller than shown in the drawing
    - •Reducing vacuum volume
  - – Solid connection to Focus Coil
  - – Single rolling platform for FC – A – FC

possible ~ 2 mm tolerance

– Investigations for mounting off of the cavity be looked into

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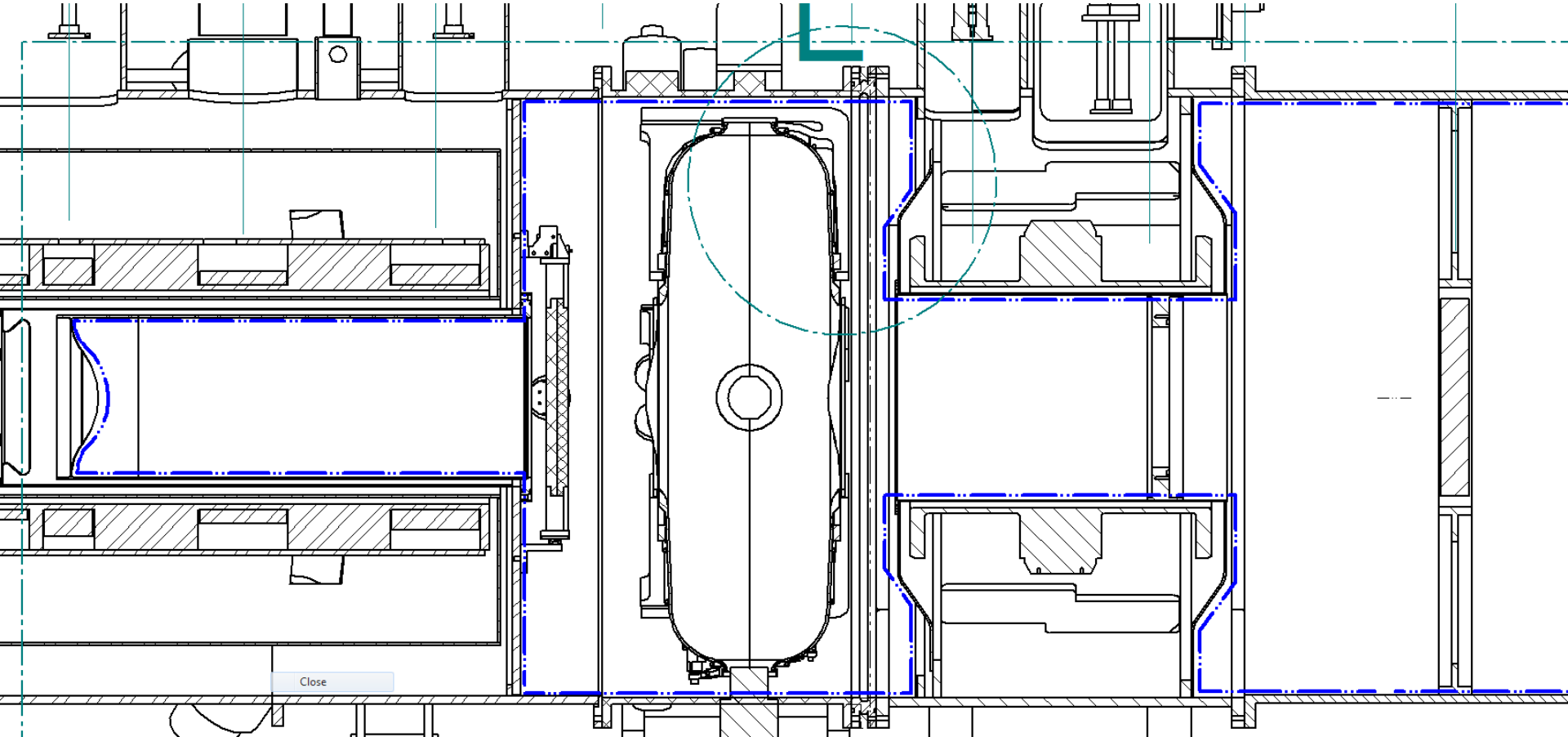
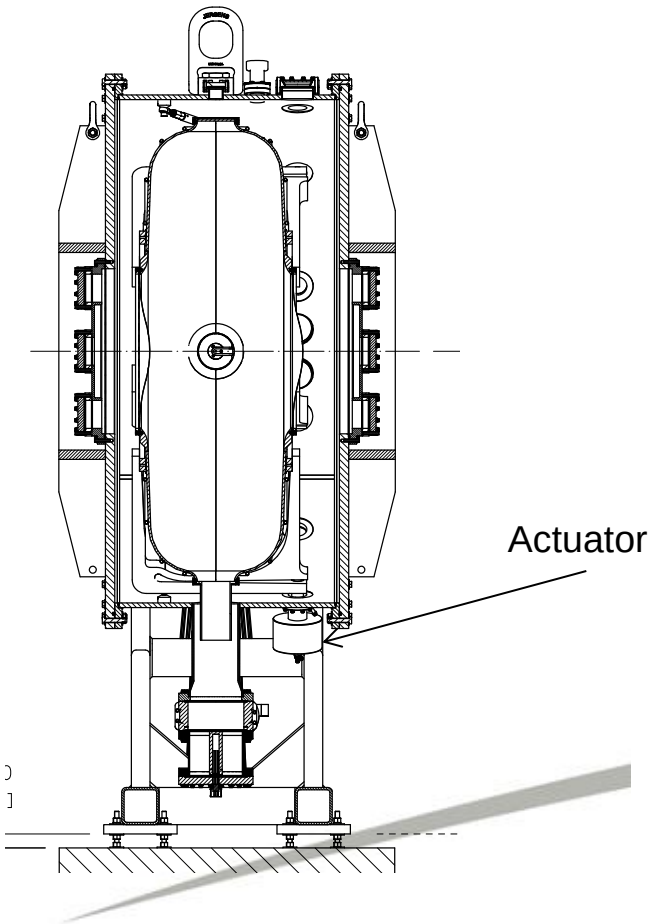
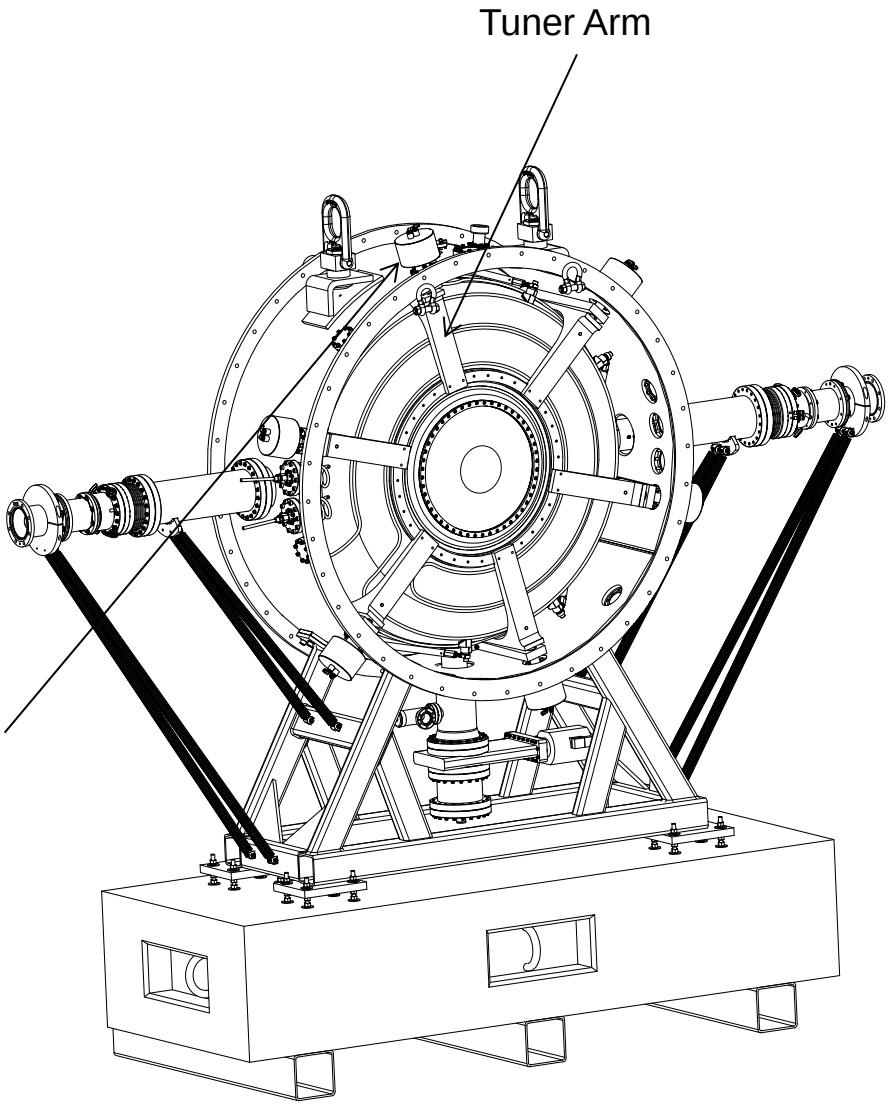


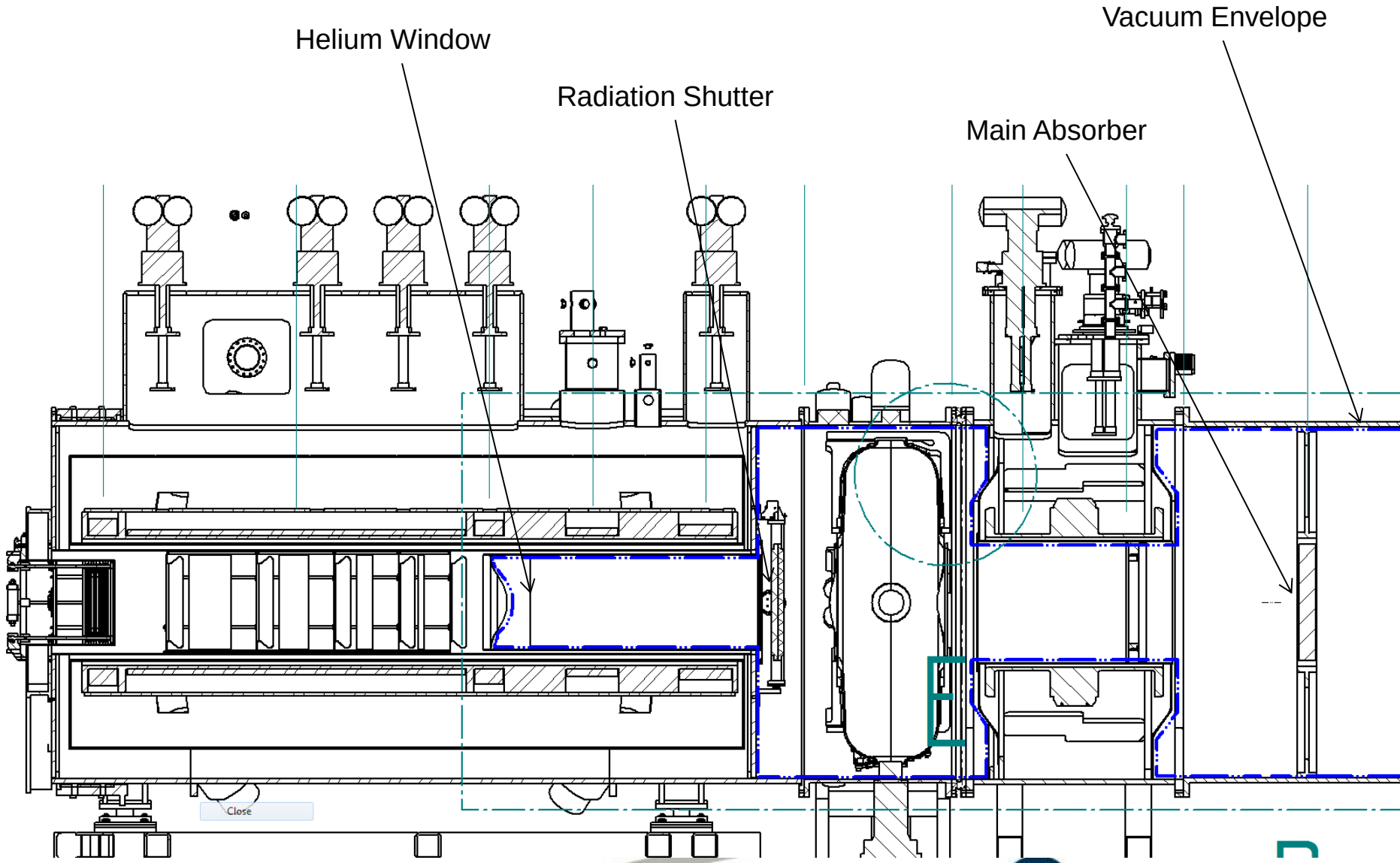
RF Cavities and Absorbers

- **Cavity and Chamber**
  - **Will be very similar to the single cavity test chamber**
  - **Reduced number of ports**
  - **Current design is 612mm flange face to flange face**
  - **Widows can be mounted in either direction but must match**
    - **Dish pointing in the same direction**
  - **Vacuum port at the bottom of the vessel**





Vacuum Boundary



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Cooling Demonstration

- Possibilities
  - Spectrometer Solenoid can stay in place
  - South and North PRY sections around the Solenoid
  - North and South upstream Tracker cryostats and fibres stay
  - *Re-arrangement of 2 pairs of cooling lines and compressor to keep the Solenoid cold????*
  - FC – A – FC single rolling platform

- PRY support structures
- PRY Walls – penetrations for the waveguides
- Vacuum envelope
- Power and instrumentation services
- South mezzanine – support legs may need changing for example
- X-ray shielding (may not be needed any more)
- Clean room space for cavity build-up
- Transportation frames / devices