**DSC HCal Questions – 11/15/2024**

1. Services
   1. Cables
      1. Low Voltage - How many cables come from the HCal?
      2. High Voltage - How many cables come from the HCal?
      3. Readout / Data - How many cables come from the HCal?
      4. Cooling estimate - More questions below, quick estimate on needs?
      5. Gas lines (dry air/nitrogen or something else)?
      6. FEBs / electronics – Do we still fit in the envelope?
      7. Cable Reference

A screenshot of a computer

Description automatically generated with medium confidence

* 1. Cooling
     1. Heat Dissipation – Total heat dissipated by the detector.
        1. Sensors
        2. FEBs
        3. RDOs
     2. Heat Stability – Changes in heat dissipation over time.
        1. Activity
        2. Radiation damage
        3. Temperature
     3. Pressure Drop – Drop in pressure across the detector
     4. Temperature – Desired operating temperature.
     5. Tolerance – Allowable deviation from the desired temperature.
     6. Gradient – Allowable difference in temperature across the detector.
     7. Stability – Allowable deviation from the desired temperature over time.
     8. Segmentation – The number of detector components there are that require cooling, we can determine the number of parallel or series lines, manifolding, etc.
     9. Leak mitigation – Air, negative pressure water, non-conductive fluid, etc.
     10. Cooling Reference

None

1. Support
   1. Serviceability
   2. Cut out for magnet chimney
2. Detector
   1. Envelope
      1. 1822.5 mm Inner radius, 2682.5 mm Outer radius, 0 mm pos Z (Hadron side), 6392.5 mm total length
      2. Reference

Diagram

Description automatically generated