Dish Pedestal Shielded Compartment Concept

11 Nov 2015
Penticton BC Canada
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Agenda

• 14h30 – 14h45: Concept work thus far (All)
• 14h45 – 15h30: Open Discussion (All)
• 15h30 – 15h50: Physical interfaces (DS, SaDT)
• 15h50 – 16h10: Physical interfaces (DS, PAF)
• 16h10 – 16h30: Physical interfaces (DS, SPFRx)
• 16h30 – 16h50: Physical interfaces (DS, LMC)
Reason for the PSC work group

• De-risking
  – Sub-element interface hotspot (mechanical, thermal, lightning, RFI)
  – Slow project progress
• Interface information gathering and definition
  – Internal (between sub-elements)
  – SaDT (external)
• Extract Meerkat lessons learnt
  – Some applied in Concept A
• Going forward: Dish Structure
PSC work group outputs

Interface Requirements – Mechanical (space, access, mounting, connectors, penetrations) and Thermal (heat loads from Power budget)

Mechanical Concept Drawing

Thermal Analysis

Concept A (Mechanical and Thermal)

Meerkat Lessons Learnt

PSC Guidelines Document

Database of EMI filter, fans etc (as used on Meerkat)
Concept A: Mechanical

- No penetration details shown
- No DS Servo Drives shown

**Size** – pedestal envelope based on latest from DS (at the time)

**Space – non-shielded part contains yoke access ladder, DSH-INFRA interface panels (power, fibre)**

**Space – how big can we make the shielded compartment?**

**Cooling – raised shielded compartment floor**

**Cooling outlet** – size & (rough) location as per Meerkat

**Cooling inlet** – total area and fans as per Meerkat, different location

**Access – 720mm 19” cabinet (600m tray depth + cable/connector clearance)**

**Access – need to get arm (small head?) to back of 19” cabinet**

**Access – need to get past here (between 19” cabinet and PSC wall)**

**Access – door opening outward**
Concept A: Thermal Analysis I

Cooling inlets – Meerkat locations

Better airflow
Concept A: Thermal Analysis II

- Analysis done inside shielded compartment only.
- 40degC ambient outside air assumed.

Trapped hot air – aggravated by swirling from unit fans against back wall? Separation / channel between cold (left) and hot (right)?

SPF Controller – 51degC (no fan). Effect on neighbours? Next to patch panel?

DDBH Node – 52degC (50CFM not enough for 375W). Effect on neighbours? Next to patch panel?
QUESTIONS / DISCUSSION

- Meerkat ventilation – humidity/corrosion/equipment life issues?
- Temperature range / rate of change issues – SaDT SAT and RX?
- Fans - Dust ingress? Staged integration.
- RFI during maintenance?
- Pedestal door that opens outward?
- DS Servo Systems – what will it look like?
- UPS ventilation/environmental requirements (batteries)?