EVLA
Racks Bins and Modules PDR
What will be covered?

- Vertex room layout
- Vertex room LO/IF rack/bin/module designs
- CEB LO/IF rack/bin/module designs
- Digitizer/IF DTS rack/bin/module designs
- Antenna MCB rack design
- Vertex room fiber optic patch panel
Considerations

- Top Priority – minimize self generated RFI
- Cooling
- Ease of maintenance
- Cost
- Connectors
RFI

• Shielding of racks/bins and modules
  – New packaging design for high speed digital
  – Improved shielding of IF/LO electronics
  – Filtering of power and control signals
  – Use of honeycomb filter materials
  – Use of fiber optics
• Shielding of vertex room
  – New feed cone
  – Modifications to walls and floor
  – Door gaskets
  – Cable penetrations
  – HVAC penetrations
  – L-band feed penetrating floor
• Use of honeycomb filter materials
• Use of solid extruded heatsinks
• Flomerics Flotherm software
  – Modeling of airflow in racks and modules
  – Identifies potential hot spots
• Tradeoffs between RFI integrity and easy access
• Blind mate connectors on LO/IF modules
• No blind mate connectors on
  – Digitizer/IF DTS
  – MCB routers/switches
Cost

• Use of extrusions where possible
• New blind mate connectors on modules
  – Existing VLA connectors very expensive or obsolete
• Reuse of some hardware
  – Bins
  – CEB racks
Connectors

• Blind Mate
  – Coax: OSP (same as VLBA and ALMA)
  – Data/Power: D-SUB or military style
    • D-SUB is current default (ALMA and ATNF)
    • Other styles still being researched

• Others connectors
  – As required