EVLA Siting Logistics

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The following discussion will examine the site challenges associated with testing a 15 meter (or to a lesser extent, 12m).

The EVLA site has been discussed as a strong candidate for these tests.

Involvement of the NRAO in the DVA1 project is presently being negotiated.
Siting Concerns

• Antenna Fabrication Building
• Antenna Pads / Interconnections
• Existing Key Subsystems
• Available Technical Support
• Safety
• Visitor-friendly Location
Antenna Fabrication Building

• Dish cannot be manufactured in the open air
  – Dish mold (heavy) requires a concrete floor
  – Controlled air temperature required
    • Safe mold storage temperature is 5 °C to 35 °C, with minimal fluctuation
    • Resin infusion may occur between 15 °C and 35 °C
  – Clean environment required

• Space required to manufacture a 15m X 18m dish\(^1\)
  – 55m L X 22m H X 10m ceiling apex, TBC
  – 19m L X 10m H opening
  – Fully outfitted
    • Lights, floor, HVAC, ventilation, work and storage, ...

Antenna Fabrication Building

• Cost to provide a suitable building could be significant (~ $500K)

• Existing EVLA structures
  – Do not fulfill basic requirements
  – Are unavailable due to EVLA construction schedule

• Is a building capable of housing full production necessary at this time?

Antenna Pads / Interconnections

• Seventy-two available EVLA pads
  – 12 Core SMF cable
    • 2 ethernet, 2 LO, 1 Data Transmission, 7 spares
  – 208 Vac 3 Ø, 60 Hz, 160 A/Ø
  – Antenna may occupy different locations

• One available ALMA Test Facility pad
  – SM Corning Freedom 12 fibers
  – 208 Vac 3 phase, 60 Hz, 250 A/Ø & 400 Vac 3 Ø, 200 A/Ø
  – Does not allow for multiple DVA1 locations
  – Requires limited re-work

• DVA1 will require a metal frame adapter regardless of pad type
EVLA Pad Fiber Interface

Pad Box – houses 12 terminated fibers

Each Antenna travels with its own umbilical cord.
Existing Key Subsystems

• Slots are available in WIDAR correlator for data receiver cards.
• LO signals are available at all pads.
• Monitor and Control System may be expanded to accommodate DVA1.
Available Support

- Machine shop
- Cryogenics group
- HVAC expertise
- Heavy lifting equipment & operators
- Additional local expertise
Safety

• EVLA Safety Officer present on site
• Established safety procedures
• Safety equipment available
Visitor-friendly Location

- NRAO Guest House along with ample hotel rooms in Socorro
- Restaurants and shopping in area
- Tourist venues in the immediate area
- Daily scheduled shuttles to/from the site