



DVA-1 Dish Concept Risks and their Mitigation

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SKA Dishes Concept Design Review
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Quantifying Risk



- Events and their Consequences
- Probability of a negative event (1 to 5)
 - Likelihood (0 – 100%)
 - Technology Readiness (9 to 1)
- Consequences (1 to 5) and Impact on
 - Cost Increase (1% to > 20%)
 - Schedule Slippage (weeks to months)
 - Performance Impact (minor to major)
- Risk = P(Event) x Consequences

DVA1 Technology Risks



- Mount technology well understood
 - Large experience base.
 - Good modeling software
 - System dynamic modeling more difficult
- Composite technologies generally mature
 - Technology in wide spread use
 - Several dishes built.
 - 15m single piece offset reflector using a specific layup needs to be demonstrated.

Funding Risk



Item	Description
Risk ID: 1 Owner Response Probability Impact Status Mitigation	Funding request(s) or agreements negative or delayed Project Sponsor(s) Possibly, de-scope (to smaller diameter); restructure collaboration Possible Project delay of order a few months Formal agreements close to being finalized Monitor, provide information

Procurement Risk



Item	Description
<p>Risk ID: 2</p> <p>Owner</p> <p>Response</p> <p>Probability</p> <p>Impact</p> <p>Status</p> <p>Mitigation</p>	<p>Mold procurement and delivery a critical path item</p> <p>CART Team Lead, NRC Project Engineer</p> <p>Advance design activities impacting mold design</p> <p>Medium</p> <p>Schedule delay, some resource cost impact</p> <p>On track</p> <p>Monitor, pay cost premium to advance delivery</p>

Technical Risk



Item	Description
<p>Risk ID: 3</p> <p>Owner</p> <p>Response</p> <p>Probability</p> <p>Impact</p> <p>Status</p> <p>Mitigation</p>	<p>Mold design incorrect (perhaps due to springback)</p> <p>CART Team Lead, NRC Project Engineer</p> <p>Send mold back for re-work</p> <p>Low (springback being confirmed by simulation and validated by measurement)</p> <p>Schedule delay 3 months, cost ~\$300k</p> <p>On track</p> <p>Design review</p>

Design/Manufacturing Risk



Item	Description
Risk ID: 4 Owner Response Probability Impact Status Mitigation	Reflector performance poor (design or construction flaw) CART Team Lead Add material or make new reflector Low Schedule delay 3 months, cost ~\$200k On track Validation by measurement of simulation tools, conservative design, design reviews

Performance Risk



Item	Description
<p>Risk ID: 5</p> <p>Owner</p> <p>Response</p> <p>Probability</p> <p>Impact</p> <p>Status</p> <p>Mitigation</p>	<p>Pointing accuracy and stability</p> <p>US-TDP Sr. Mechanical Engineer and Project Engineer</p> <p>Improve model of antenna and add sensors</p> <p>Medium</p> <p>Schedule delay 3 months, cost ~\$50k</p> <p>On track</p> <p>Simulation and ensure mechanical and drive motion systems meet specification, conservative design, design reviews</p>

Unquantified Risks



- Will DVA-1 be an candidate SKA dish?
- Do we know that the SKA Dish requirements won't change?
- Can the dynamic range requirements be translated to antenna specification adequately?
- Can the interferometer test program meet the SKA requirements?