Space and Missile Systems Center

Space Fence Overview Briefing

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Building the Future of Military Space
Space Fence

Building the Future of Military Space
Space Fence – Sensor Site
(Inc1 – Kwajalein)

- **Space Fence**
  - Largest S-band Phased Array radar ever built
  - Nearly 1 million lines of code
  - Significant radar manufacturing effort
  - First Net-centric radar supporting space ops
  - Located on a remote island in the South Pacific
Space Fence – Sensor Site
(8 Sep 2016)

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Risk Management

• Risk Management works!
  – Major risks mitigated to date
    • Software Productivity, ULSD Fuel, JMS Interface, Radome Failure due to Wind
  – Receive Array Sensitivity
    • Pre-CDR analysis showed better than expected radar performance
    • Reducing the array size was an opportunity but also a significant risk
    • Joint mitigation activities using CDR prototype, MIT/LL simulator, Integrated Test Bed
      • $11M savings pushed into management reserve
• PM’s Tips for Successfully Risk Management
  – Hire a knowledgeable risk manager, find a good risk management plan
  – Keep the process simple: good tool, limit number of risks, short meetings
  – PM is risk management board chairman but Chief Engineer drives the train
  – If you’re spending a lot of time/energy on something look for the hidden risk
  – Share risks with your contractor, establish joint risks/opportunities
  – Highlight risk success stories to the entire team

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Space Fence Lessons Learned

- Acquisition Strategy: “You have to spend money to save money”
  - USAF invested $364M into the program prior to EMD phase
    - 3 SDR contracts (Requirement Trade Offs), 2 PDR contracts (Technical Maturity via prototyping)
    - Simplified Milestone B decision
    - 66% complete, 2-3% cost growth/1-2 months delay to IOC (mainly due to facility construction)

- CDR: “mature hardware/software design backed by test data on production-based hardware, TPMs show positive margin in the design and project the program will meet all program KPPs”
  - Make the CDR Milestone the focus of your entire team
    - Start tracking entry/exit criteria 6 months prior, update weekly, share with contractor
    - Work issues early, review draft CDRLs, drive documents to closure
    - Crush the details at the Design Walkthrough, no surprises at CDR

- Manufacturing: “Measure twice cut once”
  - Emphasize design maturity over production schedules
    - Perform low volume Proof of Design, Proof of Manufacturing runs
    - Eliminate ‘white wires’ before production start up
    - 15K LRUs (85-92% yields) completed on schedule

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