



→ 96th Test Wing

Spectrum Relocation Fund (SRF) – Eglin AFB

ITEA

Test Instrumentation
Workshop
Las Vegas, NV



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Outline



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- Overview
- Schedule
- AMT Airborne Segment Plan
- AMT Ground Segment Plan
- Frequency Control and Analysis
- RF Resource Management
- Remote Targets



Overview



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➤ Requirement:

- Vacate 1755-1780 MHz band in a timely manner
- Continue to support the mission effectively
- Use spectrum efficiently

➤ Impacts to our Airborne Segment

➤ Impacts to our Ground Receiving Segment

➤ Impacts to our Remote Target operations

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Geographic Impact



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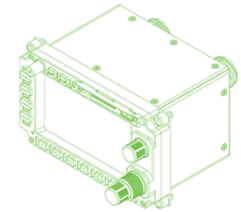
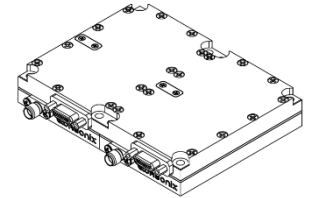


AMT Airborne Segment



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- Acquire/install Spectrum Efficient Airborne Transmitters (SEAT)
 - 23 aircraft will be modified
 - IDIQ Contract RFP - May 2017
- Procure network-based Cockpit Control Display Unit (CCDU)
 - Interface TM System components via Ethernet Interface Remote
- Interleave data and video (eliminate one Tx from current install)
- Use existing multi-band (L&S) antennas
- Approach:
 - Prototyping with a test aircraft - Flight test June 2017 timeframe
 - Risk reduction. Compare legacy TM with and without LDPC and STC in airborne and ground segments.
 - Fleet mods CY17-20 – congruent installs with planned fleet upgrades
 - Three aircraft have already been pre-wired with SRF cables.



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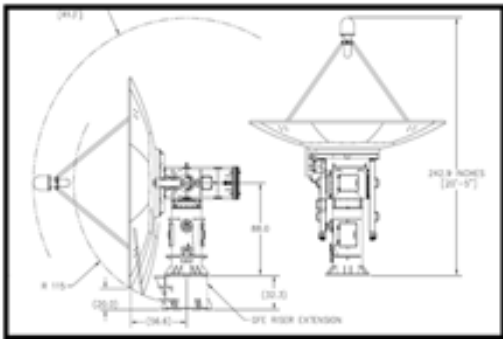


AMT Ground Segment



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- **Acquire/install Spectrum Efficient Ground Receivers (SEGR)**
 - Include STC and LDPC features (~200 units total)
 - Form 9 Contract award expected Aug 2017 (35 units with follow-on contracts in FY18&19)
 - TM Receiver upgrades also being considered
- **Upgrade antenna feeds/filters at all ground receiving sites**
 - Eglin Eastern sites will be upgraded by August 2020
 - Eglin Western sites will be upgraded by January 2025
- **Two ground TM systems are being acquired**
- **Expand C-band capability to meet Remote Target demand**
- **Assess TM towers health/suitability for SRF modifications**
- **Consolidate TM operations into one building**



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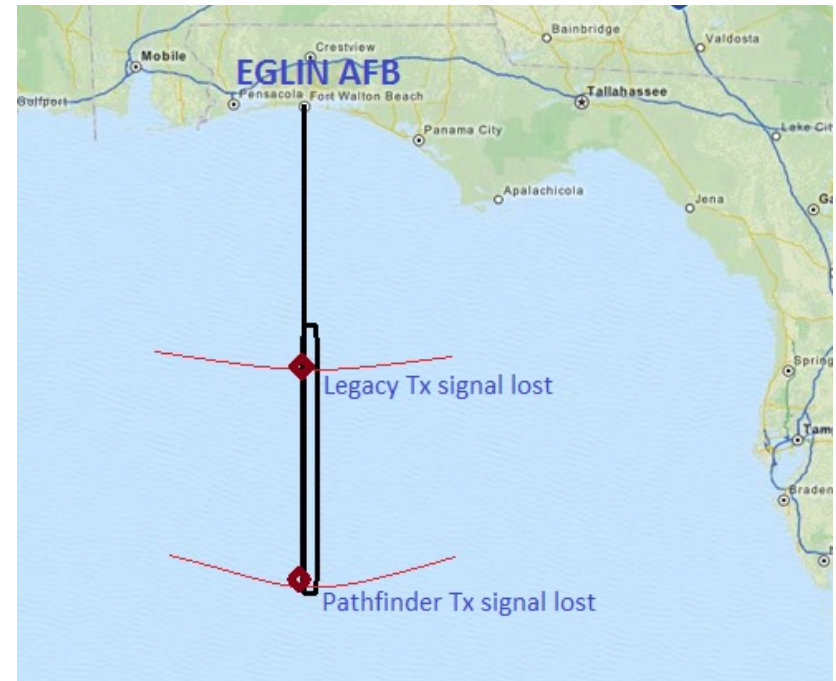


Technology Demonstration



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- Purpose: Flight test LDPC and STC technologies with pre-production SEATs & SEGRs. Evaluate performance gains and identify issues and problems.
- Status: First aircraft modified February 2017
 - Ground tests were conducted March 2017
- Tech demo flights in June 2017
- Aircraft transmits with both legacy TM Tx and Pathfinder Tx with LDPC and STC



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Frequency Control and Analysis (FCA)



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- FCA = Frequency Monitoring
 - Frequency Monitoring Draft CONOPs in work
 - End state will include a combination of Omni-directional antenna sites, Direction Finding sites, TM antenna monitoring sites, and mobile systems
 - Contracting action initiated to purchase Frequency Monitoring mobile station
 - Technical Requirements Document (TRD) being written
 - TM Site Monitor Prototype Development in work
 - Spectrum data will be recorded and archived

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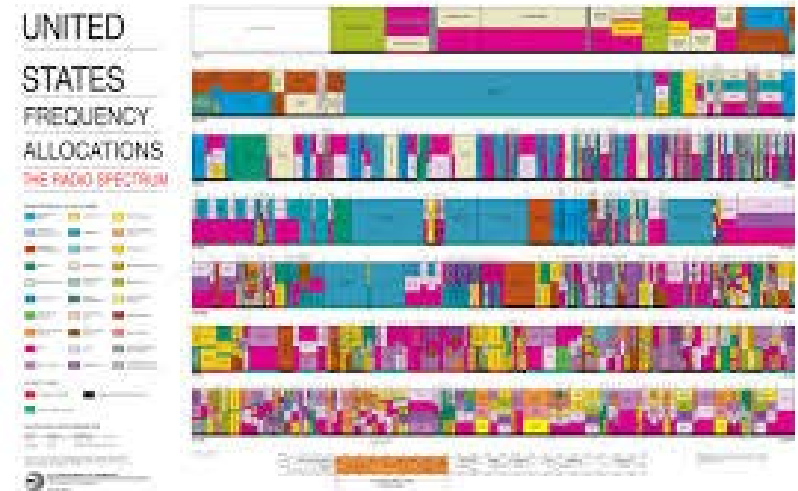


RF Resource Management



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- RF Resource Management = Frequency Scheduling
- Developing CONOPS and methodology for real-time frequency management
 - Scheduling software upgrades: CSE
 - Center Scheduling Enterprise is our main tool for mission & frequency scheduling
 - Deconfliction software upgrades: IFDS
 - Integrated Frequency Deconfliction System is used by Area Frequency Coordinators to deconflict frequencies.
 - Visualization tools and decision enablers



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Remote Targets and Robotics Video



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- Vacate 1755-1780 MHz and move to lower C-band (4400-4940 MHz)
 - Utilize C-band spectrum efficient transmitters and range receiving systems for video/data transmission
 - Replacing old/analog NTSC system with digital MPEG4 system.
 - Status: Evaluating transmitters from three vendors
 - COTS solution = Low technical & schedule risk



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Questions?

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