AF Satellite Communications Future Technologies

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2019 Beacon on Satellite Demonstration: 5 GHz capacity to ground station
- Low LPI/LPD – leverage high technology components, assess weather affects
- Game changer for backhaul connects, mitigating ground footprint, Host Nation Considerations, High Throughput Satellites
Component Technologies

- **High Power Amplifier**
  - Ka, Q, and X
  - Move from Travelling Wave Tube Amplifiers (TWTA) to Solid State (SSPA)
  - Critical Technology, GaN
  - Combiners
  - Build supplier base, new manufacturing processes
  - Efficiency improvement

- **Low Noise Amplifiers**
  - 40, 30, 20 GHz
    - Next generation WGS and AEHF satellites
  - 20 GHz SSPA

- **Digital Channelizers**
  - Fast A to D
  - Phased Array Support
  - Cost reduction
W-band SSPA

QuinStar Radial Combiner
14 W at 75 – 78 GHz
Thermal Management: Oscillating Heat Pipe

ThermAvant
Enterprise Technologies

• Digital Intermediate Frequency
  – Antenna Remoting
  – Broad Spectrum
  – Unclassified operation
  – Commercial footprint
  – Antenna resiliency

• Future Protected Tactical Waveform
  – Move to 274 Mbps
  – Possible growth path
  – Retain low impact Cyber Security footprint