



High Performance UHF Antenna for Nanosats and CubeSats



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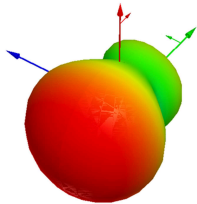
A high performance UHF antenna subsystem that enables today's university experiments to expand into operational missions. Space Micro's innovation is a small, low power, circularly polarized, radiation hardened planar antenna and necessary diplexer that is ideal for space

Two Design Solutions:

Wrapped Helical Antenna (WHA)

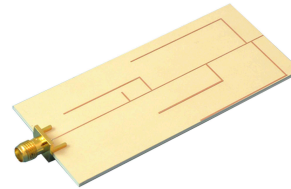


Prototype

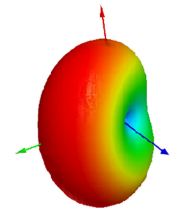


3D Radiation Pattern

Quasi-Log Periodic Dipole Array Antenna (QLPDA)



Prototype

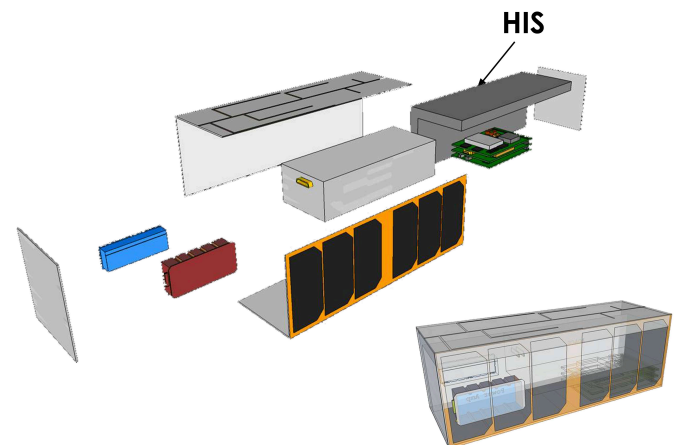
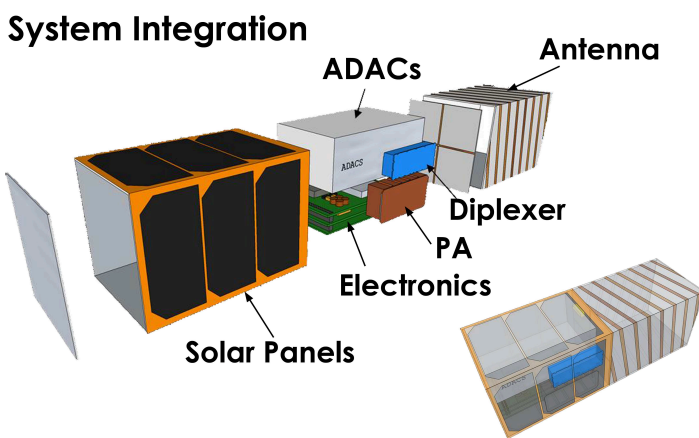


3D Radiation Pattern

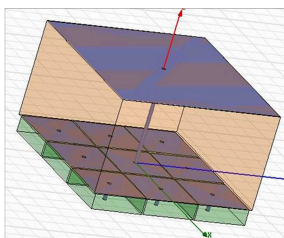
- Gain: 4-5 dB
- Frequency: 350-450 MHz
- Axial ratio: below 3 dB
- A wideband high impedance surface (HIS)
- Path to miniaturization well documented and parameters required to meet the 310 MHz
- Provides standardized payload bay
- Use of stub loading or meandered lines productized

- Provides space for solar panels – still planar, low drag design!
- Downlink: 361.4MHz - 382.4MHz
- Uplink: 319MHz - 329.23MHz

System Integration



High Impedance Surface (HIS)



- HIS studied using Metamaterial method
- HIS required for both antennas for high gain and wide matching bands
- HIS used Ferrite material to enhance bandwidth



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