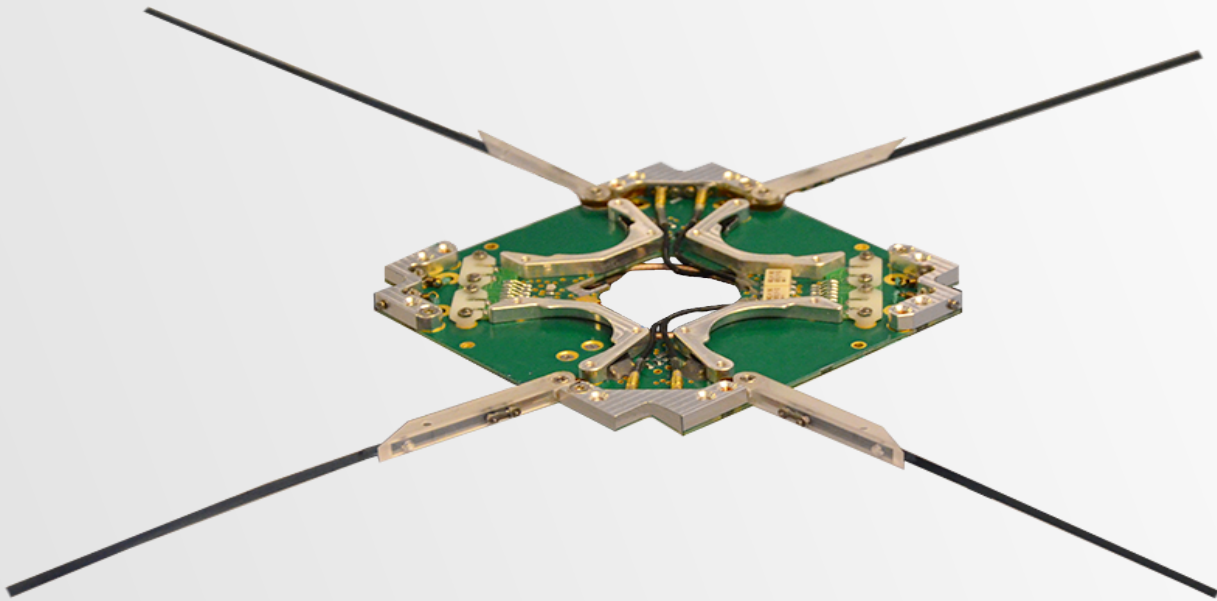


Antenna Systems

Flight heritage since 2010



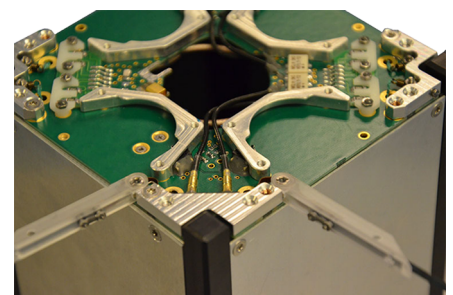
300+
units
delivered

DESCRIPTION

The ISIS deployable antenna system contains up to four tape antennas of up to 55 cm length, supporting a wide range of frequencies in both VHF and UHF bands. This system provides a CubeSat with the optimal transmission quality and system reliability for a minimum space. The top face of the antenna system can accommodate a two solar cell solar panel and it can be customized for accommodating sensors or other systems to protrude to the exterior, e.g. camera apertures. The antenna is compatible with a range of standardized CubeSat structures. For custom made structures, which adhere to the CubeSat standard mechanical envelope, mounting is also possible.

FEATURES

- Various RF antenna configurations for UHF/VHF communications
- Precise tuning to specific CubeSat configuration
- Circular or linear polarization
- Automated sequential deployment
- Individual antenna element deployment
- Dual redundant deployment system
- Software safe/arm implementation
- Safety watchdog
- Extensive telemetry availability: deployment feedback, antenna temperature, etc.
- Multiple mounting positions



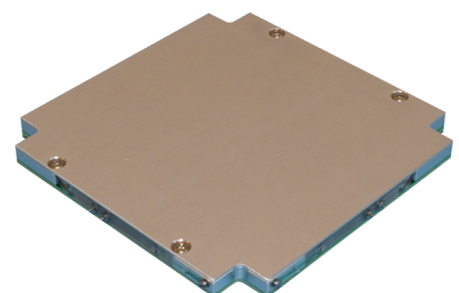
ISIS Antenna system

QUALIFICATION AND ACCEPTANCE TESTING

Test	QT	AT
Functional (including deployment)	✓	✓
Vibration	✓	-
Mechanical Shock	✓	-
Thermal Cycling	✓	✓
Thermal Vacuum	✓	-

*QT is performed on the design/qualification model

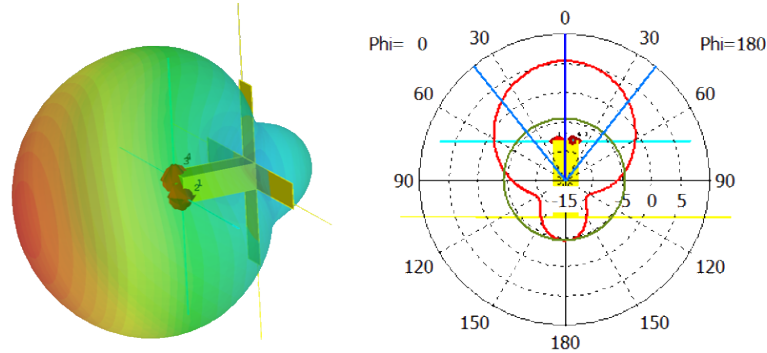
*AT is performed on the unit to be shipped



Antenna system with lid

PERFORMANCE

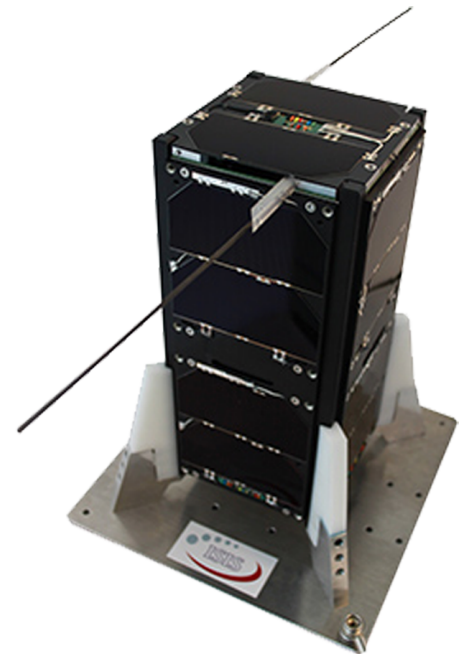
- Antenna main beam gain:
 - UHF: 0 dBi
 - VHF: 0 dBi
- Max RF Power: 2W
- Bandwidth:
 - UHF: >50 Mhz (-10db bandwidth)
 - VHF: >10 Mhz (-10db bandwidth)
- Antenna element deployment duration: <3s at 15°C



Radiation pattern simulation

PRODUCT PROPERTIES

- Mass: 77-85g (depends on configuration)
- Envelope stowed (l x w x h): 98x98x7mm³
- Antenna length
 - UHF: 17cm average
 - VHF: 55cm average
- 30mm diameter through-hole for pass-through of payload or other interfaces (not available for turnstile configuration)
- Power consumption
 - Nominal: < 40 mW
 - During deployment: < 2W
- Interfaces:
 - Electrical: Miniature 9 pin OMNETICS connector
 - Power: 3.3V or 5V
 - Data: I2C
 - RF input/output: MMCX and SSMCX, female 50 ohm
- Qualified operational temperature range: -20°C to +60°C



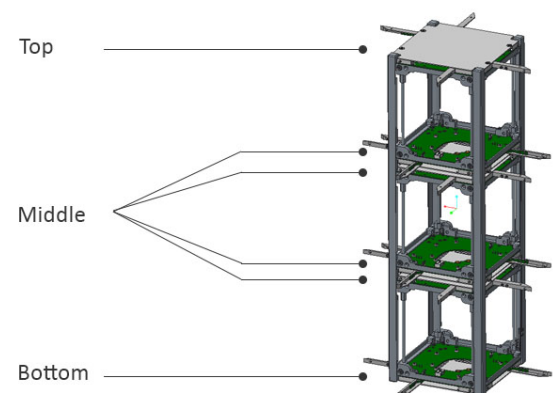
Antenna mounted on CubeSat

CONFIGURATIONS

- RF Antenna configurations
 - Single/multiple monopoles (UHF and/or VHF)
 - Single/dual dipoles (UHF and/or VHF)
 - Combination of monopole and dipole
 - UHF or VHF turnstile
- Supply voltage 3.3V or 5V
- RF Harness length and connector type and orientation (MMCX, MCX, SMA)
- Top lid accommodation (solar panel, through hole, mounting points, sensors etc.)
- Customization and simulation on request

DELIVERABLES

- Hardware: antenna, RF harness, refurbishment kit for flight preparation
- Documentation: user manual, test and build reports
- Services: fine tuning, functional and thermal testing



Antenna position configuration

