

Ultra-Wide Band, Broad Beam Space Antennas

BAE Systems has an established product line of ultra-wide band, broad beam antennas for use in space. The product line offers a range of performance that allows customers to match their available size and weight to desired RF capabilities. Our unique nested design permits customers to add bandwidth with no additional footprint.



10" Low band antenna

Overview

When electromagnetic spectrum dominance is key to a space mission, the BAE Systems space antennas are the reliable choice. Our line of passive antennas cover 150 MHz to 18 GHz in a variety of sizes. Possible applications of the antennas include wide band electronic support measures, electronic protection, electronic attack, threat avoidance, targeting, intelligence gathering and communications.

BAE Systems is capable of performing low-risk design customization by leveraging our TRL 9 baseline product with extensive on-orbit heritage. We have a proven track record of delivering on schedule and within budget to meet customer requirements. BAE Systems has unparalleled tightly coupled in-house capabilities to design, manufacture and test—from rapid prototyping to delivering fully space-qualified hardware.

The space antenna product line is based on a sinuous radiating element on a cavity-backed housing. The signal is fed through proprietary mode forming networks that provide flexibility on signal polarization, allowing users to feed dual linear or dual circular polarizations from a single aperture. The flat, compact form is readily adaptable to space-constrained satellite vehicles without the need for complicated deployment mechanisms. Any of these apertures—low band, high band or dual band—provide the added benefit of having a single-point phase center across the full frequency band.

Our Role

BAE Systems can build-to-print from our existing product line or perform design modifications to fit the particular needs of a customer, application or orbital regime. In addition to our world-class RF design capabilities, BAE Systems has a well-established heritage in thermal, structural, electrostatic discharge, radiation and micrometeoroid damage analyses for end-to-end design and analysis of space-qualified hardware.

BAE Systems possesses all the facilities needed to test space hardware, including anechoic chambers, thermal vacuum (TVAC) chambers, vibration facilities, high-power RF facilities and more. We also have the ability to perform multipactor testing, designed to suit specified frequency and power-handling spectra. Our antennas have been mounted in a variety of configurations on satellites including as stand-alone antennas, reflector antenna feeds, and wideband arrays.

Quick Facts

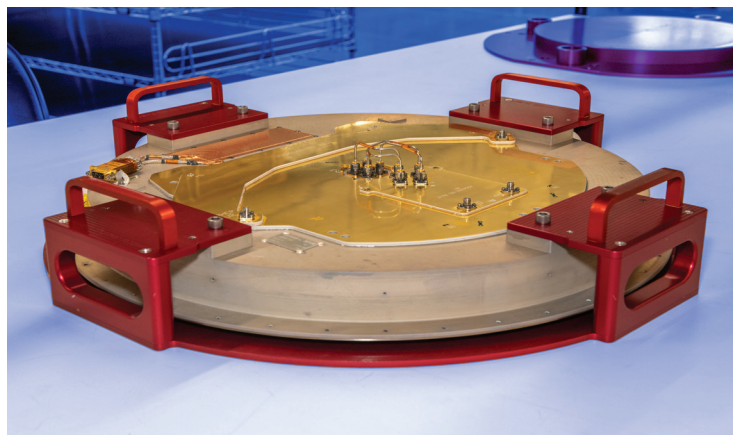
10" Low band antenna
Frequency: 150 MHz to 2 GHz
Coverage Pattern: Omnidirectional
Size: 10" diameter x 2" depth
Mass: 6.51 lb (2.95 kg)

16" Low band antenna
Frequency: 150 MHz to 2 GHz
Coverage Pattern: Omnidirectional
Size: 16" diameter x 2" depth
Mass: 12.34 lb (5.60 kg)
Feature: Improved low-end gain compared to 10" low band antenna

20" Low band antenna
Frequency: 150 MHz to 2 GHz
Coverage Pattern: Omnidirectional
Size: 20" diameter x 2" depth
Mass: 13.52 lb (6.13 kg)
Feature: Improved low-end gain compared to 16" low band antenna

High band antenna
Frequency: 2 GHz to 18 GHz
Coverage Pattern: Omnidirectional
Size: 2" diameter x 2" depth
Mass: 0.3 lb (0.14 kg)
Feature: Can be nested in any low band antenna to make nested dual band antenna

Nested dual band antenna
Frequency: 150 MHz to 18 GHz
Coverage Pattern: Omnidirectional
Size: 10", 16" or 20" diameter (determined by low band antenna type) x 2" depth
Mass: Driven by low band antenna



20" nested dual band antenna (back side, shown in handling fixture)