

# RAYSAT ER6000-A

## Versatile Dual-Band Airborne Satellite Antenna



### REVOLUTIONIZING IN-FLIGHT SATELLITE COMMUNICATIONS

The RaySat ER6000-A is a high capacity satellite antenna with advanced network features that revolutionize In-Flight Connectivity. It is an innovative, two-way antenna system that can be switched between Ka and Ku bands during flight, and can operate in either band as required. This solution enables aeronautical real-time broadband satellite communications for video, voice and data.

The antenna maximizes throughput by using high-efficiency waveguide panel technology. Its low profile and light weight also ensure easy and safe mounting on aircraft. Its multiple onboard tracking sensors enable accurate tracking, short initial acquisition and instantaneous re-acquisition.

The rugged antenna structure is particularly suited for operation in challenging environments, making it the best choice for reliable, continuous, in-flight broadband communications.

### INNOVATIVE DUAL-BAND DESIGN

The ER6000-A has been uniquely designed as an integrated dual-band (Ka and Ku) antenna system. Ideal for seamless transition between regional (Ka) and transatlantic (Ku) coverage, the system allows easy and quick electronic switching between frequency bands, without requiring any disassembly or component replacement.

The ER6000-A enables maximum Ka/Ku band satellite network data rates, and provides a superior antenna system performance in transmission and reception. The antenna system leverages Wavestream's proven pointing and tracking technology. It maximizes satellite footprint usage, resulting in network operational cost reduction.

### HIGHEST BUILD STANDARDS

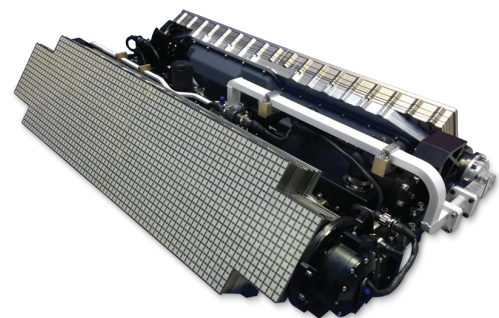
ER6000-A complies with ARINC 791 specifications and the RTCA/DO-160G environmental specification.

It is capable of operating at altitudes of 16,800 meters (55,000 feet), in a wide external temperature range between -55°C to +70°.

The ER 6000-A design is based on the proven military grade tri-band antenna ensuring the highest standards. The antenna is fully compliant with stringent FCC and ETSI regulatory standards.

### BENEFITS

- Unique dual band (Ka/Ku) capability
- Superior antenna system transmission/reception performance and efficiency
- Compliant with ARINC-791 and RTCA/DO-160G
- Compliant with stringent FCC and ETSI regulatory standards
- Easily integrated with third party modems
- Part of Wavestream's Ku/Ka full aeronautical SATCOM solution
- Vers Field-proven pointing and tracking technology atil
- Designed to assure continuous gate-to-gate operation



## FULLY INTEGRATED SOLUTION

The ER6000-A is powered and controlled by Wavestream's Ka/Ku aircraft networking data unit (KANDU), which is seamlessly integrated within our complete in-flight terminal.

Wavestream's full terminal solution also includes its unified management system, the SkyEdge II-c Taurus modem manager (MODMAN), and its Wavestream AeroStream® Ka/Ku radio frequency unit (KRFU) that has already been deployed in hundreds of commercial aviation platforms.

## TECHNICAL SPECIFICATIONS

### MECHANICAL

#### Dimensions (Diameter/Height):

37.7 (d) x 9.4 (h) inches  
(95.7 x 23.8 cm)

#### Weight (antenna, KANDU and KRFU):

137.5 lbs. (62.5 Kg),  
antenna only 94.4 lbs. (42.9 Kg)

### ELECTRICAL

#### Receive Frequency [GHz]:

**Ku-Band:** 10.70 – 12.75 GHz  
**Ka-Band:** 17.80 – 20.20 GHz

#### Transmit Frequency [GHz]:

**Ku-Band:** 13.75 – 14.50 GHz  
**Ka-Band:** 29.25 – 30.00 GHz

#### Polarization Rx/Tx

#### Selectable via A791 AMIP:

**Ku-Band:** Linear VP/HP  
**Ka-Band:** Circular LHCP/RHCP

#### Receive G/T (at 30° elevation)\*:

**Ku-Band:**  
12.4 dB/K @ 12.75 GHz  
(cruise level)

**Ka-Band:**  
15.4 dB/K @ 20.2 GHz  
(cruise level)

#### Transmit EIRP [dBW]\*:

**Ku-Band:** 45.8 dBW @ 14.5 GHz  
**Ka-Band:** 48.7 dBW @ 30 GHz

#### Transmit Antenna Patterns:

**Ku-Band:** FCC 25.209  
**Ka-Band:** FCC 25.209

#### EIRP Spectral Density:

**Ku-Band:**  
FCC part 25.222 and 25.227  
ETSI EN 302 186

**Ka-Band:**  
FCC Part 25.138,  
ETSI EN 303 978

#### Cross Polarization

#### Discrimination:

**Ku-Band:** >25 dB  
**Ka-Band:** >21 dB

#### IF Input (Tx):

950-1700 MHz, TNC 50Ω

#### IF Input (Rx):

950-2150 MHz, TNC 50Ω

#### Antenna to Modman Interface for configuration, control and monitoring:

Ethernet 10/100BaseT  
supporting ARINC A791 AMIP

#### Antenna to Inertial Reference Unit (IRU):

Supporting ARINC A429

#### Power Consumption

(antenna only): 240W (average)

### ANTENNA PERFORMANCE

#### Azimuth (Az) Range:

360° continuous

#### Elevation (El) Range:

0° to 90° (up to 80° with full performance)

#### Az/El Velocity; Acceleration:

>30°/sec; >50°/Sec<sup>2</sup>

#### Tracking Accuracy: <0.2°

### ELECTRICAL INTERFACES

#### DC Power:

115 VAC (360 Hz to 800 Hz)

### ENVIRONMENTAL

#### Operating Temperature:

-55°C to +70°C external

#### Altitude:

16,800 meters (55,000 Feet)

#### Environmental Compatibility:

RTCA/DO-160G

\*Excluding radome loss. EIRP includes 0.6 dB / 1.65 dB (Ku/Ka) coupling loss.

## ABOUT WAVESTREAM

Wavestream sets the standard in the design and manufacture of next generation high power solid state amplifiers. Wavestream's Family of Ka, Ku and X-band Solid State Power Amplifiers (SSPAs), Block Upconverters (BUCs) and transceivers provide systems integrators with field-proven, high performance solutions designed for ground mobile and fixed, gateway and airborne satellite communication systems worldwide.

These items are subject to the Export Administration Regulations (EAR), 15 C.F.R. Parts 730-774, and may not be exported or transferred to any non-U.S. person, except as authorized by the U. S. Department of Commerce.

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