

BLACKRAY 72KA

Smallest SATCOM Systems for UAS



SATELLITE COMMUNICATIONS FOR UAS PAYLOAD DATA

Tactical unmanned aircraft systems (UAS) are often capable of long endurance time while carrying significant payload weight. Satellite communications fully exploit tactical UAS capabilities, supporting intelligence, surveillance and reconnaissance (ISR) missions beyond line of sight (BLoS).

Wavestream's BlackRay 72Ka UAS terminal utilizes commercial and military geostationary satellite capacity in Ka band to provide full-duplex satellite communication, linking the UAS to its ground control station. The forward link provides command and control capabilities, while the return link transfers sensor data.

Wavestream's BlackRay 72Ka airborne SATCOM terminal is a highly integrated system comprising of the smallest size, weight and power (SWaP). It includes best-of-breed technologies, all developed and manufactured by Wavestream, which can be tailored to the customer's needs.

HIGH-THROUGHPUT DATA BLOS

BlackRay 72Ka enables high throughput communication, even to the smallest UASs.

Main subassemblies are:

- Flat-array, low-profile tracking antenna
- High-performance satellite modem
- Power-efficient BUC/SSPA

The system can transmit over 2Mbps from the UAS for any IP-based voice, video or data BLoS application.

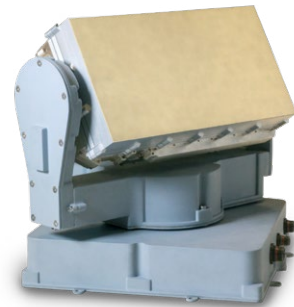
BlackRay 72Ka provides spectrum-efficient IP connectivity, adaptive in real time to varying link conditions. Network implementation (PAMA, DAMA) is straightforward. The terminal is powered by the GLT1000 (commercial grade) or MLT1000 (ruggedized military grade) modem, which can be installed in any gateway/teleport infrastructure or transportable hub.

AFFORDABLE, CUSTOMIZED SOLUTIONS

All critical technology building blocks are developed, manufactured, and integrated by Wavestream, providing high end-to-end performance and great design flexibility. Customized solutions are designed to customer specifications in short design cycles and at affordable prices.

BENEFITS

- Affordable satellite communications for UAS sensor data
- Enables BLoS operation
- High throughput
- Built-in antenna controller
- Ruggedized, lightweight terminal
- Ka-band operation



TECHNICAL SPECIFICATIONS

Panel Size:

8.93 (w) x 4.48 (h) inches
(22.7 x 11.4 cm)

Frequencies Tx:

29-31 GHz

Frequencies Rx:

19.2-21.2 GHz

Tx Gain:

31.5dB

EIRP:

35.5dBW

Elevation:

0-90 deg.

Operational Elevation:

<80 deg.

Azimuth:

360 deg. continuous

Tracking Accuracy:

0.2 deg.

Data Rates:

Over 2Mbps
(depends on link budget)

Modulations:

BPSK, QPSK, 8PSK

Spread Spectrum:

Spreading factor 1 - 16

SNR:

-12 to +13dB

Coding:

27 LDPC codes. Rates 1/4, 1/3, 2/5,

1/2, 2/3, 3/4, 5/6, 8/9

Typical Eb/No for BER=10⁻⁸

0.8dB (BPSK 1/2 LDPC 12k block

length)

SIZE

Dimensions:

swept volume: 11.8 (d) x 9.5 (h)
inches (30 x 24 cm)

Weight:

<11.02 lbs. (<5Kg)

ENVIRONMENT

Temperature:

-30 to +50 deg.

Vibrations:

Mil Std 810G

POWER & INTERFACE

Voltage:

28VDC

Consumption:

<60W

Data (IP):

Ethernet 10/100 Base-T

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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