



# 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).

Gilat'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.

Gilat'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 Gilat, 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:

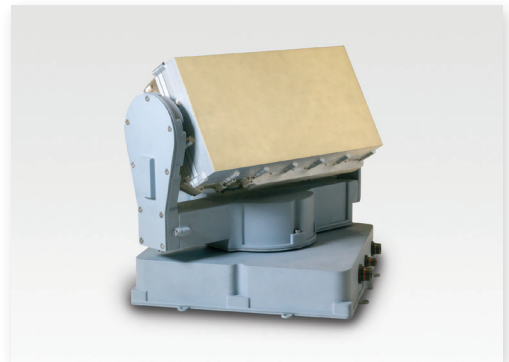
- Flat-array, low-profile tracking antenna
- High-performance satellite modem
- Power-efficient BUC/SSPA

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 Gilat, 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



## Main Technical Specifications - BlackRay 72Ka

General	
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
Polarization	Circular
Tx Gain	31.5dB
EIRP	35.5dBW
G/T	6dB/K
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 <sup>-8</sup>	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	Antenna: <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



[www.gilat.com](http://www.gilat.com) | [info@gilat.com](mailto:info@gilat.com) | Gilat Satellite Networks



2017-02-23-FINAL