Product Brochure

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.

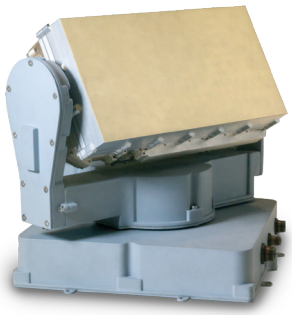
BlackRay 72Ka provides spectrum-efficient IP connectivity, adaptive in real time to varying link conditions. Network implementation (PAMA, DAMA) is straightforward. The terminal is powered by the GLT1000 (commercial grade) or MLT1000 (ruggedized military grade) modem, which can be installed in any gateway/teleport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



BlackRay 72Ka

Technical Specifications

Mechanical

Panel Size:
8.93 (w) x 4.48 (h) inches
(22.7 x 11.4 cm)
Frequencies Tx:
27.5–31GHz
Frequencies Rx:
17.8–21.2GHz
Tx Gain:
31.5dB
EIRP:
37.5dBW
Elevation: 0–90 deg.
Operational Elevation:
<80 deg.
Azimuth:
360 deg. continuous
Tracking Accuracy: 0.2 deg.
Data Rates:
Up to 2Mbps
(depends on link budget)

Modulations: BPSK, QPSK, 8PSK 16QAM
Spread Spectrum:
Spreading factor 1 – 16
SNR:
–12 to +13dB
Coding:
27 LDPC codes. Rates ¼, 1/3, 2/5, ½, 2/3, ¾, 5/6, 8/9
Typical Eb/No for BER=10-8
0.8dB (BPSK ½ LDPC 12k block length)

Size

Dimensions:
swept volume: 11.8 (d) x 9.5 (h) inches (30 x 24 cm)
Weight:
<5Kg
Antenna:
<11.02 lbs. (<5Kg)

Environment

Temperature:
–30 to +50 deg.
Vibrations: Mil Std 810G

Power & Interface

Voltage:
28VDC
Power Consumption:
<60Watt
Data (IP):
Ethernet 10/100 Base-T

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