



## THE VMT-1220HE IS THE ONLY SATCOM TERMINAL THAT PROVIDES BROADBAND NETWORK ACCESS FOR HELICOPTERS.

The ViaSat® VMT-1220 Helicopter-Mount Terminal (VMT-1220HE) provides two-way Ku-band broadband Satcom to helicopters while hovering or in flight. The VMT-1220HE series supports channel speeds of up to 5 Mbps to the helicopter and up to 325 kbps from the helicopter.

The VMT-1220HE features a small antenna and intelligent burst control technology that makes it the only commercially-available broadband system to overcome satellite signal blockage challenges associated with rotary-wing aircraft and deliver on-the-move communications at broadband speeds to helicopters. For the first time while in flight, the system enables the use of VoIP, Microsoft® Office applications, Command Post of the Future (CPOF), AFATDS/Effects Management Tool (AFATDS/EFT), All Source Analysis System (ASAS) Light, and Maneuver Control System (MCS).

Based on field-proven and certified ArcLight® technology, this small aperture terminal operates within FCC and ITU regulatory guidelines for adjacent satellite interference. The waveform is robust against intermittent blockage, allowing applications to run without interruption.

Part of the ViaSat ArcLight-based family of COTM systems, VMT-1220HE-equipped helicopter can seamlessly co-exist with other ground and aircraft terminals on the same network. ArcLight technology and equipment has been granted interoperability certification by the U.S. Department of Defense (DoD) Joint Interoperability Test Command (JITC).

### ON-THE-MOVE BROADBAND

#### Intelligent Design for Helicopter Requirements

- Burst transmission control to overcome intermittent signal blockage by rotor blades
- Small aperture antenna
- Operates from aircraft or ground power

#### FCC/ITU-compliant On All Satellites

- Reliable Ku-band communication, overcoming adjacent satellite interference issues, enabled by spread spectrum waveform
- Increased network efficiency through mobile terminal burst transmission
- Optimized capacity enabled by closed loop power control and advanced network management

#### Secure Broadband IP Network Access

- Up to 5 Mbps effective forward channel rate (into the helicopter)
- Up to 325 kbps effective return channel burst rate (from the helicopter)
- Protected user IP traffic (HAIP® Type 1 or FIPS 140-2)

#### Bandwidth Efficiency

- Low-overhead shared IP network media access
- Reduced bandwidth cost with frequency reuse overlaying forward and return links simultaneously in same bandwidth

#### Service Options

- Shared hub service through ViaSat or a ViaSat partner (including fixed pricing per terminal options)
- Organic capability can be provided with purchased hub and user-supplied transponder bandwidth

This broadband IP access satisfies many customer needs — including command and control, emergency response, situational awareness, emergency restoral communications, web access, client-server applications, and voice, video and data communications — all while in flight.

The VMT-1220HE can be provided as Satcom-only, or as a complete terminal — just bring your user equipment: laptop computers, telephones, VoIP phones, or any IP-based equipment.

The complete terminal includes all necessary equipment for powering the unit from the helicopter's electrical source and can also be operated from ground power.

Optionally, the terminal can provide HAIPE Type 1 and/or FIPS 140-2 certified encryption on all user traffic, a router/switch to supply 10/100BaseT Ethernet and RJ-11 phone line connections and a TCP/HTTP accelerator, to ensure that applications using TCP/IP achieve maximum speed over the satellite link. Other configurations can provide 802.11 or Type 1 secure 802.11 capabilities as well. The terminal is designed for simple operation on a helicopter and seamless plug-and-play connectivity to any public or private IP network, such as the public Internet, NIPRNET, SIPRNET, and/or CENTRIXS.

## SPECIFICATIONS

### OPERATING FREQUENCIES

**Transmit:** 14.0 – 14.5 GHz  
**Receive:** 10.95 – 12.75 GHz

### MODULATION AND FEC

**Forward Link Rx:** (O)/QPSK spreading, BPSK data  
**Return Link Tx:** GMSK spreading, BPSK data  
**Spread Factors:**  $4 \leq k \leq 150$  (Ret Tx);  $1 \leq k \leq 23$  (FW Rx)  
**FEC:** R=1/3 Turbo  
**Min. Req. Eb/No:** 1.7 dB (FW Rx); 2.25 (Ret Tx) to achieve Quasi-Error Free (QEF)  
**Multiple Access:** TDM (FW Rx); CRMA spread ALOHA (Ret Tx)  
**Freq. Reuse:** Paired Carrier Multiple Access (PCMA)

### TRANSMISSION RATES

**Return Link Tx:** 32, 64, 128, 256, 512 Kbps burst rates  
**Forward Link Rx:** 500 Kbps to 5 Mbps

### RF/TRACKING PERFORMANCE

**EIRP:** 44 dBW minimum  
**G/T:** 11.2 dB/K minimum  
**Polarization:** Selectable horizontal/vertical linear polarization  
**Coverage:** 360° azimuth; minus 5° to 105° elevation  
**Tracking:** 525°/sec min; 1800°/sec<sup>2</sup> min

### BASEBAND INTERFACES

**Data:** 10/100BaseT Ethernet

### OPTIONAL FEATURES

**Encryption:** Type 1 HAIPE (KG-250) and/or FIPS 140-2 (128, 192 or 256 bit AES)  
**Acceleration:** TCP/HTTP Performance Enhancing Proxy  
**Telephony:** VoIP or POTS phone connections  
**Router:** Cisco Systems router/switch  
**Video Compression:** NTSC or PAL; MPEG-4 Part 10 (H.264) real-time streaming compression  
**Wireless:** 802.11 or secure 802.11

### POWER

**Input:** 28 Volts DC, <800 W

### ENVIRONMENTAL AND PHYSICAL

**Operating Temp:** -32° to 49° C (top-side equipment); 5° to 35° C (in-aircraft equipment)  
**Aircraft Ops:** Hovering and in full flight  
**Weight:** 25 lbs (in-aircraft equipment including ACU, modem); 80 lbs (top-side equipment including antenna, radome, RFEU, INU)  
**Size:** Modem: 1/2 ATR; Antenna: 18" parabolic

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