

VETA High-Power Transmitter (VHPT)

COBHAM

The most important thing we build is trust.

Applications

- Helicopter Links
- UAV/UGV Applications
- High-Security Surveillance Applications
- Repeater Transmitter
- Mobile and Portable AV Applications

Key System Features

- 10 - 15W Linearized Output Power
- Robust Link Performance with COFDM (Optional 400 or 2K Carriers)
- Bandwidths 6, 7, 8 MHz standard, 1.25 MHz, 2.5 MHz optional
- Small, Rugged Enclosure
- Secure – Optional 128/256-bit Encryption (AES)
- Output Frequency: 1.7 to 5.0 GHz (In-Bands)
- Low System Latency (down to ~44mS)
- Built-in MPEG- 2/4 Encoder
- User Data Optional
- 12 VDC or 28 VDC Optional
- Companion VETA Receivers with Diversity Reception



GMS' VETA High-Power Transmitter (VHPT) is a new addition to the Very Efficient Transmission Apparatus (VETA) Product Line. The VHPT provides several key features that enable high-quality and low-latency wireless Audio/Video (A/V) transmission for the most demanding short or long distance point to point or point to multipoint transmission applications. VETA uses a robust Digital modulation system known as Coded Orthogonal Frequency Division Multiplexed (COFDM) that provides a robust link that is immune to multipath interference and provides crisp, clear pictures in the most difficult of terrains!

The VETA product line supports optional 1.25 MHz or 2.5 MHz RF bandwidth with 400 carriers that allow a large quantity of simultaneous A/V links to operate in the same frequency band. Additionally, the standard DVB-T 2K carriers with bandwidths of 6, 7, or 8 MHz may be user selected. These higher bandwidths provide greater throughput that allow the system to transfer the highest quality Video.

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One of the biggest problems encountered in the transition from Analog to Digital A/V systems has been the inherent Digital coding/decoding delays that in some digital systems are 400 ms or more. The VHPT link employ internal MPEG-2 or MPEG-4 Part-2(Optional, User Selectable) Encoders and Decoders with specially designed 'Low-Delay' coding technology, which provides an end to end latency down to approximately 44 ms *without* the introduction of any further MPEG encoding artifacts. This ensures that the picture you see is what is happening *now* - crucial for applications such as Sports Coverage, Surveillance, and Law Enforcement, where personnel are reacting to Real-Time Events.

The VHPT accepts a composite or S-Video Input, Analog Stereo Audio Inputs (with MIC Bias) and a RS232 User Data Input. There is also an option to accept SDI Video. The Video is compressed according to MPEG-2 or MPEG-4 Part-2 (Optional) specifications. The Audio is sampled and compressed. The Audio, Video and Data packet streams are multiplexed with basic service data to indicate the service name. The stream can be scrambled with a simple fixed key scrambling system (ABS standard) to give basic protection in sensitive applications. Additional security is accomplished with the optional AES scrambling system. The transport stream is sent for FEC preprocessing and COFDM modulation. The modulated signal is amplified and output through a N-F connector.

The VHPT control Scheme uses a Configuration Group or Set of Presets that completely define the operating mode of the VHPT. This includes 99% of the controllable parameters in the transmitter including frequency, RF power level, all modulation parameters and all encoding parameters plus optional features like encryption. These set-up groups are configured via simple to use M.S. Windows applications usually by technical leads. GMS' receivers have a similar control scheme. This approach allows pre-configuration of the link such that all you need to do is set-up the TX and RX to the same configuration group number and the link is properly set-up. This control approach provides system-level ease of operation.

There is an optional Remote Control Unit (RCU) available so the operator can conveniently access all features of the M2HPT while you are in the cockpit or other remote location.

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Specifications:

COFDM RF Output

Output Frequency: 1.7 to 5.0 GHz (In-Bands)
Bandwidth: Selectable 6, 7, 8 MHz
(1.25 MHz, 2.5 MHz Optional)
RF Output Power: Up to 15 W (Model Dependant)

Video Encoding

Video Input: Composite or S-Video
Standards: NTSC (with and without pedestal) or PAL
SDI Option Available
Compression Standard: MPEG-2 or MPEG-4 Part 2²
Chrominance Profile: 4:2:0 or 4:2:2
Line Standard: 525 and 625
Horizontal Resolution: 704 pixels
Vertical Resolution: 576(625 line), and 480(525 line)
Systems Latency¹ end to end delay: down to ~ 44 mS

Audio Encoding

Analogue Audio Inputs:
Dual, Line-Level or Mic-Level, Single-Ended, Clip Level 12 dBm
User Selectable MPEG or NICAM encoding

RS232 Control Port

Baud Rate: Up to 115 k baud.

Security Option

The VHPT can optionally be provided with Advanced Encryption System (AES) 128/256 for protecting the signal in sensitive applications.

Modulation

Modulation Type: COFDM w/QPSK or 16QAM
FEC: 1/2, 2/3, 3/4,
Guard Intervals²: 1/32, 1/16, 1/8, 1/4
Spurious: 52 dBc
COFDM Carriers: 400 (optional) or 2k Carriers
COFDM MER: Better Than 23 dB

User Data Option

Data Rate: Selectable, Up to 38.4 kBaud
User Data PID: Selectable

Physical

Dimensions: 8.0" (W) x 10.25" (D) x 2.08" (H)
20.32 cm x 26.04 cm x 5.28 cm
Weight: 8.45 lbs (3.83 kgs)

Connectors

RF Output: N-F
Video Composite/ S-Video: BNC-F
Audio: p/o PT02E-12-10P, J7
Control: p/o PT02E-12-10P, J6
DC Power: PT02E-12-4P, J8

Environmental:

Operational Temperature: -10 to 70 deg C
Humidity: Up to 100% non-condensing

DC Power

DC Voltage Range³: 24 - 32 V @ 5 Amps (opt)
9 - 15 V @ 10 Amps (opt)

Control

VHPT can be controlled through its RS-232 control port via an optional MS Windows-based control application.

The screenshot shows a Windows-based control application for the COBHAM transmitter. The interface features a top navigation bar with the COBHAM logo and buttons for 'Disable All', 'Enable All', 'Get', and 'Set'. Below this, there are two columns of configuration options, each with a checkbox and a dropdown menu. The left column includes settings for Modulation (IF Output, FEC, Guard Interval, Mode, Freq, Scrambling, Encryption Key), Video (Input, Locked status, Encoder ON/OFF), and Software Version. The right column includes settings for Option Card Type, FPGA Version, Serial Number, License Code, Unit Name, Unit Address (0001-9999), Configuration Number (0-9), Restore Default Build, Sleep Mode, Data On/Off, and Input Data Baudrate. A bottom section contains Chaining Input, Chaining Status, Chain Number, and Video Bitrate (Kbit/s).

¹ Modulation mode and decoder dependant

² May be limited in certain mode

³ Model dependant