

# VETA Transmitter – Compact (VT-C)

**COBHAM**

The most important thing we build is trust.

## Applications

- High-Security Surveillance Applications
- Helicopter links
- UAV/UGV Applications
- Mobile and Portable AV Applications

## Key System Features

- C-OFDM Modulation (\*400 or 2K Carriers)
- Bandwidths from \*1.25 MHz to 8 MHz
- Output Frequency: 0.9 to 7.2 GHz (In-Bands)
- Built-in MPEG-2/4 Encoder
- Low End to End System Latency (down to ~44 ms)
- Weights only 0.28 pounds!
- Rugged Compact Design
- Secure – ABS / \*AES 128/256 Encryption
- Companion Miniature, High-Efficiency 2W PA
- Companion VETA Receivers with Diversity Reception

\* Note: Optional



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GMS' Very Efficient Transmission Apparatus (VETA) Product Line 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.

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 400ms or more. The VETA Transmitters & Receivers employ internal MPEG-2 or MPEG-4 (User Selectable) Encoders and Decoders with specially designed 'low-delay' coding technology, which provides an end to end latency down to 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 VT-C is a VETA Transmitter that has been designed to be as compact and lightweight as possible with 6.25 cubic inches of volume and only 0.28 pounds of weight, making the VT-C perfect for Small Unmanned Aerial Vehicle (UAV) applications. A companion compact, high-efficiency Power Amplifier is also available to boost the 100-200 mW output power of the VT-C up to 2W! Its small size and low DC power consumption (<6 W) make it an ideal candidate for hand-held or covert applications that must be operated from a battery.

The VT-C accepts a composite or S-Video input, analog stereo audio inputs and a RS232 user data input. The video is compressed according to MPEG 2 or MPEG-4 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. Security of transmission is ensured by the use of Standard ABS encryption or, for greater security, the optional AES 128 or 256 bit scrambling algorithms. The transport stream is sent for FEC pre-processing and C-OFDM modulation. The modulated signal is amplified and output through a SMA-F connector.

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## Specifications:

### Video Encoding

Video Input: Composite or S-Video  
Standards: NTSC (with and without pedestal) or PAL  
Compression Standard: MPEG-2 or MPEG-4  
Chrominance Profile: 4:2:0  
Line Standard: 525 and 625  
Horizontal Resolution: 704, 528, 480, 352 pixels  
Vertical Resolution: 576(625 line) and 480(525 line)  
Systems Latency end to end delay: ~44ms  
Video Frequency Response: 10Hz to 4MHz +/- 1.0dB  
Connector: Lemo 5pin0B, input impedance 75Ω

### Audio Encoding

Analogue Audio Inputs:  
Dual, Line Level or Mic Level, Single Ended, Clip Level 12dBm  
Bits Per Sample: 12 or 8  
Sampling Frequency: 32 KHz, 16 KHz or 8 KHz  
Audio Frequency response: 20 Hz to 15 kHz +/- 1.0dB  
Mic bias: 2 V  
Connection via breakout cable

### RS232 Data Input

Baud Rate: Up to 115 kbaud.

### Security Option

The VT-C comes standard with ABS scrambling and can optionally be provided with Advanced Encryption System (AES) 128/256 for protecting the signal in sensitive applications

### COFDM RF Output

Output Frequency: 0.34 to 7.2 GHz (In-Bands)  
Bandwidth: Selectable 6, 7, 8 MHz (1.25 MHz, 2.5 MHz Optional)  
RF Output Power: Programmable up to 200 or 100 mW (Band Dependant)  
(Optional VEPA PA boosts PWR to 2W)  
Frequency stability: +/- 10ppm, -10° to +70°C  
Output Impedance: 50Ω, unconditionally stable, open and short protected  
Connector: SMA-F

### Modulation

Modulation Type: COFDM 2K: QPSK or 16QAM  
FEC: 1/2, 2/3, 3/4, 5/6, 7/8  
Guard Intervals: 1/32, 1/16, 1/8, 1/4  
Optional Narrow Band (1.25 & 2.5MHz BW)  
Modulation Type: COFDM 400: QPSK or 16QAM  
FEC: 1/3, 2/3  
Guard Intervals: 1/16, 1/8

### Physical

Dimensions: 2.5" wide x 2.5" long x 1" high  
63.5 mm wide x 63.5 mm long x 25.4 mm high  
Weight: 0.28 lbs (127 grams)

### Environmental

Operational Temperature: -20 to 70 deg C  
Humidity: Up to 95% non-condensing

### DC Power

DC Voltage Range: 7-16 V  
Reverse Polarity Protection up to 30 V  
Power Consumption depending on Output Power: 5 to 6 Watts

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## Control

**Local** – Easy to use local control and status panel allows up to 8 user-defined operating modes covering most programmable parameters including center frequency, 4 power settings, Encryption ON/OFF, status of Video in and Output Power Level.

## Connectors

Lemo 5 Pin OB: Composite Video, Audio  
16 pin 3500 series: S-Video, RS232 Data, RS232 Control, General Purpose I/O  
Lemo 4 Pin OB: DC Power

**Remote** – VT-C can be controlled through its RS-232 control port via an optional MS Windows-based control application.

