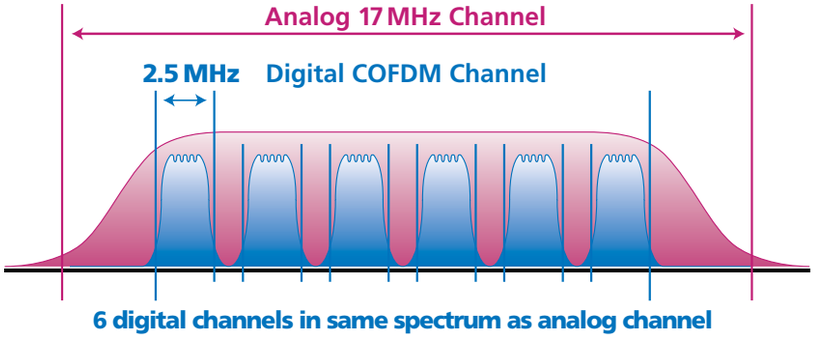
Palladium COFDM Digital Video Products



Cobham Surveillance, DTC Products has built upon its successful Paladium narrowband COFDM digital video system with the introduction of the Palladium II series. The Palladium II series has a more compact transmitter and a major new feature, three different bandwidth operating modes. Besides the narrow band mode (2.5MHz) that is standard on the Palladium series, the Palladium II series will operate in a wideband mode that is in compliance with the DVB-T standard, can be configured for 6, 7, or 8MHz channel bandwidth and utilizes 2000 carriers. This assures the Palladium II will be interoperable with other manufacturers DVB-T compliant COFDM video systems. In addition an ultra narrow band mode has been added that occupies just 1.25MHz of bandwidth. This mode will support full resolution video at a reduced frame rate (15FPS). The ultra narrowband mode provides a substantial increase in range for difficult non line of sight or long distance links.

The Palladium line has specifically been developed for worldwide customers in the law enforcement and military markets, and for the manufacturers of Unmanned Ground Vehicles and Unmanned Aerial Vehicles who support their missions.

Digital technology has made rapid advancements in key areas over the past few years. Notably the size, weight, power consumption and cost have dropped by about 30% per year. DTC now offers digital systems that represent good value to users and are a better fit for operational requirements than analog systems.

The next two pages of this brochure discuss the benefits of Palladium technology and provide an overview of how it works. The balance of the brochure illustrates key products that have been developed for our customers. DTC is committed to working with our customers on developing products that meet specific needs, and we invite you to discuss your requirements with us.

The Benefits of Digital Transmission:

The migration from analog microwave systems to digital transmission offers several key benefits to users:

Better Performance:

By using digital modulation and compression techniques, digital microwave provides superior performance in non-line of sight and high multipath applications. Unmanned Ground Vehicles operating in buildings or urban environments, as well as low flying Unmanned Aerial Vehicles, will be able to transmit dramatically clearer video with less break up to remote receive stations. Covert surveillance cameras no longer need to have a clear line of sight to the receive location to have good picture quality. Unlike analog, digital video picture quality is noise free regardless of distance.

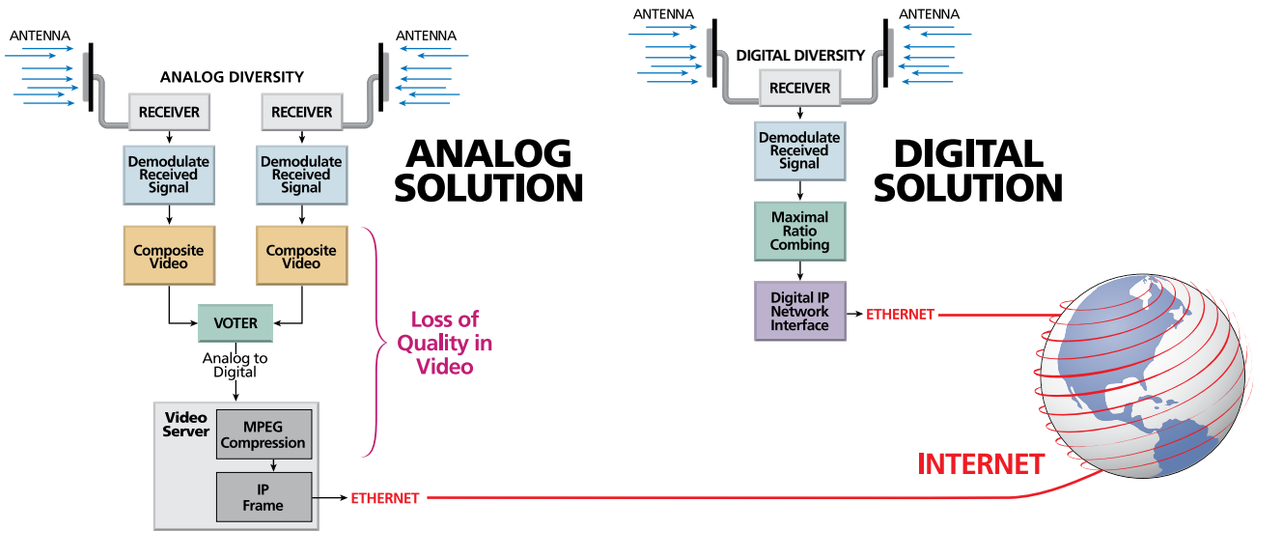
Efficient Spectrum Utilization:

Digital video systems operate in a fraction of the spectrum utilized by typical analog transmitters, typically offering 7 or more digital video streams in the spectrum previously used to transmit a single analog channel. DTC's Palladium Series supports 1.25 MHz and 2.5 MHz channels in the narrowband configuration. This compares to 17 MHz for a typical analog channel. In addition, digital channels can be located adjacent to each other without a guard band. Analog systems tend to bleed over their allotted spectrum, requiring several Megahertz of separation between channel edges at a minimum.

As regulatory agencies worldwide reallocate spectrum, it's clear that digital transmission enables more users to co-locate channels in an increasingly crowded RF spectrum.

Secure Transmission Using Encryption:

Digital transmission enables the secure transmission of video by using AES 128 bit encryption (AES 256 optional), at no penalty to the user in terms of latency or performance. Analog systems don't offer this capability as a standard feature. Analog "cut and rotate" encryption modules are expensive, often doubling the price of a system, and not nearly as effective in securing the video data stream. In addition, they add to the size of both the transmitter and the receiver. Digital offers true encryption at no additional size



or cost. In the case of the Palladium Receiver, AES encryption can be carried over the IP network, if the receiver is equipped with the video over IP option.

Set up for Internet Access:

Many of our customers are looking at how to access their video from anywhere at any time over the internet. Digital transmission makes it easier to send data over the internet, avoiding the need for a separate analog to digital transition. The Palladium receivers have been designed to offer internet connectivity by means of an optional IP multicast Ethernet network interface, accessed via a convenient RJ45 connection. This option provides high resolution full frame rate video in an IP multicast protocol.

How Does Palladium Technology Work?

The basic video source used in Palladium products is your current inventory of cameras and lenses with an NTSC or PAL composite video output. Cobham Surviellance has designed the Palladium series to make use of many common connectors, user interfaces and mounting patterns found on its analog products, helping to minimize your investment in transitioning to Palladium digital.

It's helpful to think of the transmitter and receiver in three distinct steps:

The first step is the conversion of your analog camera's output to a digital data stream. The digital signal is then compressed We've chosen to use the MPEG-2 standard for wideband and narrowband modes & the MPEG-4 standard for the ultra narrowband mode since MPEG-4 supports non standard frame rates.

The next step is to optionally encrypt the data using AES, and then modulate the data and prepare it for RF transmission. COFDM utilizes significant redundancy, producing excellent results in high-multipath environments.

The COFDM multiplexing process assures that the data is distributed across the carriers (interleaving) and forward error correction information is inserted. This process minimizes the amount of data that will be lost during a multipath fade and maximizes the system's ability to restore lost data (error correction). On the receive end the data is restored in proper order (demultiplexed), the data is examined for any errors and if necessary error correction takes place. The COFDM multiplexing process has to be implemented with high speed digital signal processing to minimize latency.

The narrow band implementation of COFDM digital video has several advantages over the current DVB-T wideband implementation. DVB-T utilizes 2000 carriers and typically occupies a 7MHz wide channel. A second advantage is a greater range due to the narrower IF bandwidth in the Palladium receiver when operated in the narrowband modes. Palladium also utilizes the latest FPGA (Field Programmable Gate Array) technology which insures minimum component count and board size.