

## OPTIMIZE YOUR SPACE SEGMENT COST

**Maximize the capacity of your satellite networks.**

Slash bandwidth costs and increase the capacity of your satellite networks with the VPCMA-70 from ViaSat. This frequency-reuse appliance harnesses the power of ViaSat's patented Paired Carrier Multiple Access (PCMA) technology to cut satellite bandwidth needs by as much as fifty percent.

By simply adding the device to your satellite network, you can expand the capacity of transponders, free up bandwidth for more applications, and lower your network's operating costs. For example, while satellite space segment costs can vary greatly depending on location and usage, a network operator paying \$2,500 per MHz per month for 20MHz can save up to \$300,000 a year on bandwidth by using the VPCMA-70.

The VPCMA-70 boosts the capacity of your satellite transponder space by combining the uplink and downlink transmissions into the same bandwidth. While most satellite transmissions require separate frequencies to transmit and receive, this device enables two different signals to overlap in frequency, which increases the bandwidth available to the system. The appliance uses an adaptive self-interference cancellation technique to subtract your transmitted signal to recover the desired signal. The canceller works with all modulation and FEC techniques on "bent pipe", non-cross-strapped satellite networks to enhance the benefits of any advanced modulation techniques or turbo coding you may already use.

With a 1U form factor, the VPCMA-70 fits in a standard rack and interfaces with any digital satellite modem. The device cancels signals with bandwidths of 1 to 36 MHz.

**BUILT FOR BANDWIDTH-LIMITED NETWORKS****Overlap Satellite Signals for Bandwidth Savings**

- Cut satellite space segment costs
- Increase network capacity
- Free up bandwidth for new applications
- Lower the cost of satellite networking

**One Device for Multiple Network Applications**

- Star (Hub/Spoke; One-to-Many)
- FDMA Mesh (Single Satellite Hop; Many-to-Many)
- Hybrid Star-Mesh
- Single Channel Per Carrier (SCPC)
- Co-located multi-carrier
- Demand Assigned Multiple Access (DAMA) voice and data networks

**Broad Compatibility**

- Modem and waveform agnostic
- Works with all standard modulation types (Spread, BPSK, QPSK, 8-PSK, 16-ary, etc.)
- Coding-independent (works with Viterbi, Reed-Solomon, LDPC, Turbo, etc.)

**Feature-Rich for Powerful Performance**

- Programmable suppression bandwidth (1 to 36 MHz)
- 70 MHz IF (52 to 88 MHz)
- Use up/down converter for L-band interface
- 25 dB min self-interference suppression
- Compact form factor (1U 19 inch rack mount)
- Front panel and remote (Ethernet) interface

## SPECIFICATIONS

### WAVEFORM AND PERFORMANCE SPECIFICATION

<b>Compatibility</b>	Modem and waveform agnostic; Standard modulation types (Spread, BPSK, QPSK, 8-PSK, 16-ary, etc.); Coding-independent (works with Viterbi, Reed-Solomon, LDPC, Turbo, etc.)
<b>Frequency Range</b>	70 MHz (52 to 88 MHz)
<b>Frequency Tunability</b>	1 kHz steps
<b>Signal Bandwidth</b>	1-36 MHz
<b>Aquisition Time</b>	< 50 milliseconds
<b>Self-interference Suppression</b>	>25 dB
<b>Phase Noise Added</b>	<1 degree rms integrated to 20 MHz
<b>Receive IF Input Level</b>	-30 to +10 dBm
<b>Reference IF Input Level</b>	-35 to -5 dBm
<b>IF Output Level</b>	-35 to -5 dBm

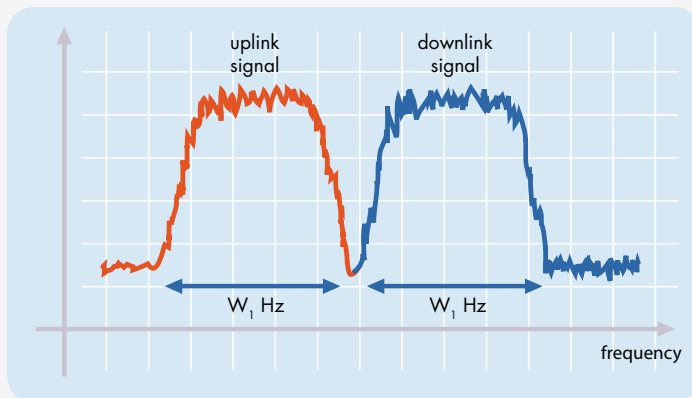
### CHANNEL CONDITIONS SUPPORTED

<b>Frequency Error</b>	up to $\pm 100$ kHz
<b>Channel Gain Change Rate</b>	up to 1 dB per second
<b>Round trip propagation time</b>	User selectable from 0 to 300 msec
<b>Adjacent Carrier Interference</b>	Suppression performance does not degrade in presence of adjacent channels
<b>Non-linear transponder operation</b>	May be operated in the non-linear region of transponder

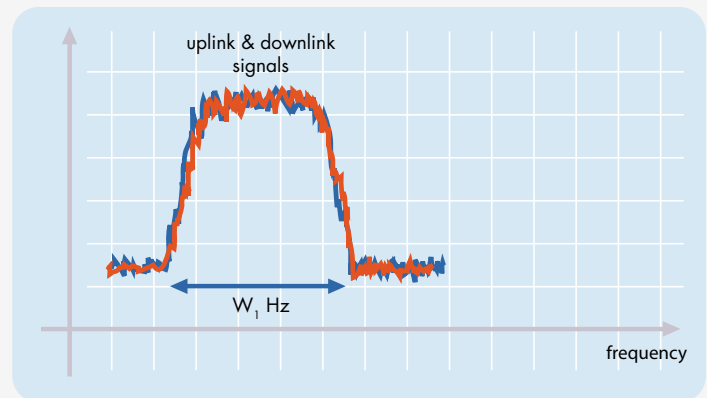
### HARDWARE

<b>Packaging</b>	1U 19 inch rack mountable
<b>Power</b>	90 to 264 V AC 50/60 Hz (auto-sense), 110 Watts
<b>Weight</b>	6.8 lbs (3.1 kg)
<b>Cooling</b>	Forced air
<b>Operational Temperature</b>	0 to 45 C
<b>Non-Operational Temperature</b>	-20 to 60 C
<b>Humidity</b>	10 to 95% noncondensing
<b>Altitude</b>	0 to 3050 meters operational; 0 to 12,200 meters non-operational
<b>Electro-Magnetic Compatibility</b>	Tested to EN 55022 and FCC Class A; power supply certified to FCC/CE
<b>Input and Output Connectors</b>	BNC Female 75 ohm unbalanced
<b>Management Interface</b>	Ethernet 10/100 Base-T; SNMP
<b>Built-In Diagnostics</b>	Included
<b>Redundancy</b>	Configurable for 1:1 redundancy

## OVERLAP TRANSMIT AND RECEIVE CHANNELS FOR BANDWIDTH SAVINGS



Typical satellite transmission with separate frequencies for uplink and downlink



Channels overlapped by VPCMA-70 to increase bandwidth capacity and cut bandwidth needs

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