PMP 450 Subscriber Module

VERTICAL MARKETS AND SOLUTIONS

WIRELESS SERVICE PROVIDERS (WISPs)

- Rural connectivity
- Municipal connectivity
- Remote office connectivity
- Primary or redundant connectivity

GOVERNMENT PUBLIC SAFETY SECTOR

- Data Connectivity and Video Surveillance for Public Safety
- Disaster Recovery for Public Service
- Data Network for Public Works

ENTERPRISES

- Video surveillance backhaul
- Device/site monitoring
- LAN extension
- Leased line replacement

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Introduction

The Cambium Networks PMP 450 is our industry-leading wireless access network platform. Our solution is ideal for industry verticals such as WISPs (Wireless Internet Service Providers), Enterprises and the Government Public Safety Sector. Designed for fixed outdoor applications, the PMP 450 platform is optimized for rate, reach, reliability and throughput. It features the most resilient and effective set of wireless broadband technologies in the marketplace.

Now available in most popular global bands, 2.4, 3.5, 3.65 and 5 GHz, the Cambium Networks Point-to-Multipoint (PMP) 450 Subscriber Module (SM) supports tiered service models. Software defined upgrades allow throughput from 4 Mbps to over 100 Mbps and as a result improve revenue optimization.

From the innovative GPS Synchronization options to interoperability with existing portfolio modules, the PMP 450 provides flexible deployment options that make it an excellent fit for high capacity, high reliability networks.

Main Differentiators

» **MAXIMIZED SPECTRAL EFFICIENCY IN DENSE SERVICES AREAS** is enabled by our innovative GPS Sync Technology in combination with long range and high density coverage. This allows for configuration of more subscribers utilizing fewer access points, while preserving quality of service in spectrum-constrained environments. By lowering installation costs and maintenance, GPS Sync reduces operating expenses and improves growth and profitability.

» **OPTIMAL TRIPLE PLAY BACKHAUL** empowered by effective Quality of Service (QoS) management allows providers to confidently offer triple play services – VoIP (Voice over IP), video and data. Providing customers with excellent service ensures their continued loyalty and transforms them into advocates, helping WISPs and enterprises expand their business.

» **CARRIER-GRADE RELIABLE HARDWARE** by Cambium Networks is constructed from high quality industrial components; it is outdoor-rated and rigorously tested to satisfy the most difficult environmental conditions. With 40-year MTBF, our equipment standards are unsurpassed in industries requiring fixed wireless broadband.

Powerful Features

The Cambium Networks PMP 450 platform is designed for growth. It allows service providers to efficiently and cost-effectively offer popular multi-media services that maximize their revenue - high-speed data and cloud access, video on demand, reliable fixed voice and VoIP. The PMP 450 solution provides reliable coverage across large service areas in urban, suburban, rural and remote locations.

2x2 MIMO-OFDM technology allows dual stream operation for most channel conditions, guaranteeing successful deployment of wireless networks in challenging environments.

Low latency of 3 - 5 ms effectively supports video and VoIP services. **Flexible channel widths** (from 5 to 40 MHz) allows users to select the most effective channel width for the current network environment. **256-QAM** modulation rate offers the unique ability to use the PMP 450 platform for services requiring fast and reliable transmission.

System performance is ensured by vigorous testing with a compatible set of radios, guaranteeing predictable link budget results. Cambium Networks specifications are consistent with real life conditions.

Specifications

PRODUCT					
MODEL NUMBERS (-005 THROUGH -008 ARE CONNECTORIZED)		4 Mbps	10 Mbps	20 Mbps	UNCAPPED
	5 GHz	C054045C001B C054045C005B	C054045C002B C054045C006B	C054045C003B C054045C007B	C054045C004B C054045C008B
	2.4 GHz	C024045C001A C024045C005A	C024045C002A C024045C006A	C024045C003A C024045C007A	C024045C004A C024045C008A
	3.3-3.6 GHz	C035045C001A C035045C005A	C035045C002A C035045C006A	C035045C003A C035045C007A	C035045C004A C035045C008A
	3.55-3.8 GHz	C036045C001A C036045C005A	C036045C002A C036045C006A	C036045C003A C036045C007A	C036045C004A C036045C008A

SPECTRUM		
FREQUENCY RANGE	5470 - 5875 MHz 2400 - 2483.5 MHz	3300 – 3600 MHz 3550 – 3800 MHz
CHANNEL WIDTH	5 MHz, 10 MHz, 15 MHz, 20 MHz, 30 MHz or 40 MHz	5 MHz, 7 MHz, 10 MHz, 15 MHz, 20 MHz, 30 MHz or 40 MHz
CHANNEL SPACING	Selectable on 2.5 MHz increments	Configurable to 50 KHz

INTERFACE	
MAC (MEDIA ACCESS CONTROL) LAYER	Cambium Networks proprietary
PHYSICAL LAYER	2x2 MIMO OFDM
ETHERNET INTERFACE	10/100/BaseT, half/full duplex, rate auto negotiated (802.3 compliant)
PROTOCOLS USED	IPv4, UDP, TCP, IP, ICMP, Telnet, SNMP, HTTP, FTP
NETWORK MANAGEMENT	HTTP, HTTPS, Telnet, FTP, SNMP v3
VLAN	802.1ad (DVLAN Q-inQ), 802.1Q with 802.1p priority, dynamic port VID

PERFORMANCE		
ARQ	YES	
MODULATION LEVELS (ADAPTIVE)	MODULATION	SIGNAL TO NOISE REQUIRED (SNR, in dB)
2X	QPSK	10
4X	16-QAM	17
6X	64-QAM	24
8X	256-QAM	32
MODULATION MODES (DYNAMIC)	Dual Payload (higher throughput) MIMO-8 or Single Payload (polarity diversity) MIMO-A	
MAXIMUM DEPLOYMENT RANGE	Up to 40 miles	
LATENCY	3 - 5 ms, typical	
GPS SYNCHRONIZATION	Yes, via Autosync (CMM3, CMM4, CMM5, uGPS, iGPS)	
QUALITY OF SERVICE	Diffserv QoS	

LINK BUDGET	
ANTENNA BEAM WIDTH	55° Azimuth, 55° Elevation (both polarizations)
ANTENNA GAIN	9 dBi H+V, Integrated Patch (5 GHz) 8 dBi Dual Slant, Integrated Patch (2.4 GHz, 3 GHz)
TRANSMIT POWER RANGE	-30 TO +22 dBm (combined, to EIRP limit by region) (1 dB interval) (+25 dBm FOR 3 GHz)
MAXIMUM TRANSMIT POWER	+22 dBm combined (+25 dBm combined for 3 GHz)
REFLECTOR GAIN	+16 dBi for 5 GHz, +12 dBi for 2.4 GHz and 3 GHz
CLIP GAIN	+8 dBi (with CLIP (Cassegrain Lens for Improved Performance), for 5 GHz only)

PHYSICAL	
ANTENNA CONNECTION	Integrated patch antenna, connectorized versions available
SURGE SUPPRESSION	IEC 61000-4-2 (ESD) 15kV (AIR), 8kV (contact) IEC 61000-4-4 (EFT) 40A (5/50 ns) IEC 61000-4-5 (LIGHTNING) 100A (8/20 µs)
MEAN TIME BETWEEN FAILURE	> 40 Years
ENVIRONMENTAL	IP55
TEMPERATURE	-40°C TO +60°C (-40°F TO 140°F), 0-95% non-condesnsing
WEIGHT	0.45 kg (1 lb.)
DIMENSIONS (HxWxD)	30 x 9 x 9 cm (11.75" x 3.4" x 3.4")
TYPICAL POWER CONSUMPTION	9 W (5 GHz AND 2.4 GHz), 12 W (3 GHz)
MAXIMUM POWER CONSUMPTION	12 W (5 GHz AND 2.4 GHz), 15 W (3 GHz)
INPUT VOLTAGE	20 TO 32 V
SECURITY	
ENCRYPTION	56-bit DES, FIPS-197 128-bit AES
CERTIFICATIONS	
INDUSTRY CANADA	109W-0001 (5.4, 5.8 GHz) 109W-0003 (2.4 GHz) 109W-0007 (3.5 GHZ) 109W-0009 (3.65 GHz)
FCC ID	Z8H89FT0001 (5.4, 5.8 GHz) Z8H89FT0003 (2.4 GHz) Z8H89FT0009 (3.65 GHz)
CE	EN 301 893 V1.7.1 (5.4 GHz) EN 302 502 V1.2.1 (5.8 GHz) EN 302 326-2 V1.2.2 (3 GHz) EN 302 326-3 V1.3.1 (3 GHz)