ePMP™ FORCE 180 INTEGRATED RADIO

The ePMP Force 180 is the second generation of ePMP Integrated Radio Modules. It has the exceptional reliability and quality that users have come to expect from the ePMP product line and adds some significant performance enhancements.

This radio comes in a small, sleek form factor but delivers high performance. The antenna gain is increased by 3 dB to 16 dBi which will provide a 40% increase in range. It comes equipped with a Gigabit Ethernet port so that nothing will limit this product in delivering the maximum throughput. The radio module is powered by PoE and the Ethernet port has the unique capability of being powered from a PoE injector that conforms to standard pinouts or from a PoE injector that conforms to Cambium pinouts. This makes it possible to upgrade existing radio locations to the Force 180 without changing the PoE injector. It also includes an adjustable mounting bracket that eases the task of installing and properly aligning the radio.

All the unique advantages of ePMP software such as eFortify™ and eCommand™ are available with the Force 180. eFortify enhances the performance of the ePMP 1000 in high noise environments. eCommand provides a suite of management features and tools to assist network operators in planning, provisioning and monitoring of their network. The ePMP Force 180 Integrated Radio is a compact and powerful platform that can operate as an Access Point, Subscriber Module or PTP radio.

MAIN DIFFERENTIATORS

GROWTH AND SCALABILITY The ePMP 1000 delivers high capacity and reliable connectivity right from the start. As a provider's business grows, it can expand its network while ensuring resiliency and increasing profitability.

QUALITY OF SERVICE (QOS) allows you to confidently offer triple play services – VoIP (Voice over IP), video and data. Providing your customers with excellent service quality ensures their continued loyalty and transforms them into advocates, helping WISPs and enterprises expand their

PROVEN RELIABILITY has created an unsurpassed connectivity standard in many industries that depend on fixed wireless broadband. Our products undergo rigorous testing and are made from high-quality components.

POWERFUL FEATURES

The Cambium Networks ePMP Force 180 delivers more than 200 Mbps of real user throughput. Using 2x2 MIMO-OFDM technologies, ePMP deployments achieve industry leading data rates.

The ePMP Force 180 Integrated Radio can be configured as a Subscriber Module, an unsynchronized Access Point or a Backhaul radio. This radio will function as a client to an ePMP GPS Synchronized Radio in either a Point-to-Multipoint (PMP) or Point-to-Point (PTP) deployment forming a GPS Synchronized solution.

Specifications

PRODUCT	
Model Number	MODEL NUMBERC058900P072A (US/FCC), C050900P071A (EU/ROW), (See below for a complete list of part numbers for ordering)
SPECTRUM	
Channel Spacing	Configurable on 5 MHz increments
Frequency Range	5 GHz: 4910 – 5970 MHz (exact frequencies as allowed by local regulations)
Channel Width	5 | 10 | 20 | 40 MHz
INTERFACE	
MAC (Media Access Control) Layer	Cambium Proprietary
Physical Layer	2x2 MIMO/OFDM
Ethernet Interfaced	10/100/1000BaseT, Compatible with Cambium PoE pinouts (V+ = 7 & 8, Return = 4 & 5) and Standard PoE pinouts (V+ = 4 & 5, Return = 7 & 8)
Protocols Used	IPv4, UDP, TCP, IP, ICMP, SNMPv2c, HTTPs, STP, SSH, IGMP Snooping
Network Management	HTTPs, SNMPv2c, SSH
VLAN	802.1Q with 802.1p priority
PERFORMANCE	
ARQ	Yes
Nominal Receive Sensitivity (w/FEC) @200MHz Channel	MCS0 = -93 dBm to MCS15 = -72 dBm (per branch)
Nominal Receive Sensitivity (w/FEC) @40MHz Channel	MCS0 = -90 dBm to MCS15 = -69 dBm (per branch)
Modulation Levels (Adaptive)	MCS0 (BPSK) to MCS15 (64QAM 5/6)
Quality of Service	Three level priority (Voice, High, Low) with packet classification by DSCP, COS, VLAN ID, IP & MAC Address, Broadcast, Multicast and Station Priority
LINK BUDGET	
Transmit Power Range	-17 to +30 dBm (combined, to regional EIRP limit) (1 dB interval)
Integrated Antenna Peak Gain	16 dBi
Maximum Transmit Power	30 dBm combined (subject to regional regulatory restrictions)
PHYSICAL	
Antenna Connection	Integrated Antenna
Surge Suppression	2 Joule Integrated
Environmental	IP55
Temperature	-30°C to +60°C (-22°F to +140°F)
Weight	0.50 kg (1.1 lb.) (includes mounting bracket)
Wind Survival	145 km/hour (90 mi/hour) with antenna
Dimensions (h x w x d)	12.4 x 25.1 x 11.9 cm (4.9 x 9.9 x 4.7 in) – with mounting bracket attached
Pole Diameter Range	1 – 1.6 in (2.5 – 4.1 cm) with included clamp ; up to 2.25 in (5.7 cm) with larger clamp
Power Consumption	10 W Maximum, 5 W Typical
Input Voltage	10 to 30 V

Specifications

SECURITY	
Encryption	128-bit AES (CCMP mode)
CERTIFICATIONS	
FCCID	Z8H89FT0015
Industry Canada Cert	109W-0015
CE	5 GHz: EN 302 502 v1.2.1 5 GHz: EN 301 893 v1.7.1
PARAMETER	**SPECIFICATION**
Frequency Range	4910 – 5970 MHz
Antenna Type	Integrated
Typical Gain	16 dBi
3db Beamwidth-Azimuth	15°
3db Beamwidth-Elevation	30°
Polarization(s)	Dual Linear, H/ V
Front-to-Back Isolation	>20 dB
Cross Polarization	15 dB

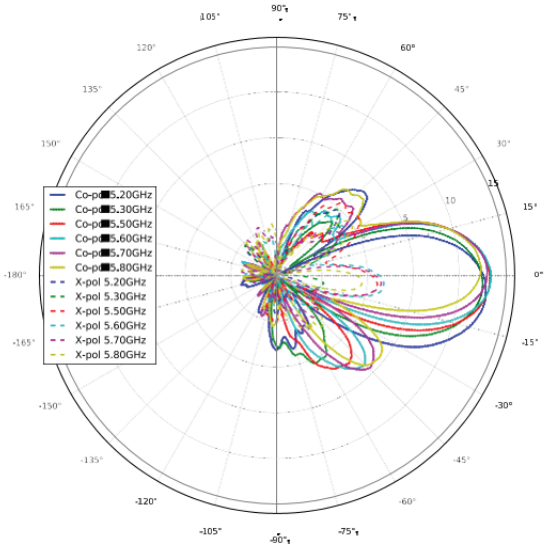
ePMP 5 GHz Force 180 Part Numbers:

ORDERING PART NUMBER	DESCRIPTION	MODEL NUMBER FOR REGULATORY PURPOSES
C050900C071A	ePMP 5GHz Force 180 Integrated Radio (ROW) (no cord)	C050900P071A
C050900C171A	ePMP 5GHz Force 180 Integrated Radio (ROW) (US cord)	C050900P071A
C050900C271A	ePMP 5GHz Force 180 Integrated Radio (ROW) (EU cord)	C050900P071A
C050900C471A	ePMP 5GHz Force 180 Integrated Radio (ROW) (India cord)	C050900P071A
C050900C571A	ePMP 5GHz Force 180 Integrated Radio (ROW) (China/ANZ cord)	C050900P071A
C050900C671A	ePMP 5GHz Force 180 Integrated Radio (ROW) (Brazil cord)	C050900P071A
C050900C073A	ePMP 5GHz Force 180 Integrated Radio (EU) (EU cord)	C050900P071A
C058900C072A	ePMP 5GHz Force 180 Integrated Radio (FCC) (US cord)	C058900P072A

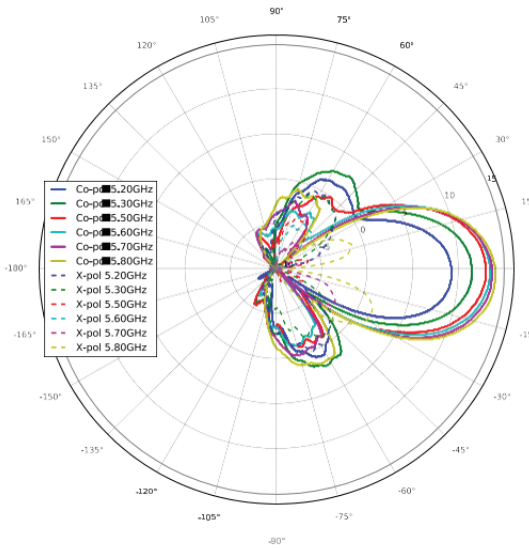
Specifications

5 GHz ePMP Force 180 Integrated Antenna Azimuth Patterns

H-POL ELEVATION GAIN (dBi) FOR ZERO AZIMUTH

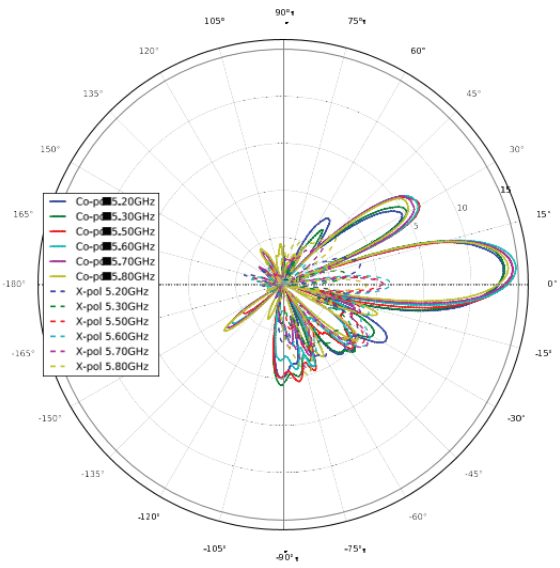


V-POL ELEVATION GAIN (dBi) FOR ZERO AZIMUTH



5 GHz ePMP Force 180 Integrated Antenna Elevation Patterns

H-POL AZIMUTH GAIN (dBi) FOR ZERO ELEVATION



V-POL AZIMUTH GAIN (dBi) FOR ZERO ELEVATION