



ePMP™ Force 180 6.4GHz 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.

ePMP Force 180 is now available in a new model variant that offers the same benefits in the 5.9 to 6.4GHz. The new antenna offers 15dBi of gain in the 5.9 to 6.4 band as well as horizontal orientation to fight off interference. . 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.



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 business.

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	C060900C271A (RoW) (EU Power Cord)
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SPECTRUM

Channel Spacing	Configurable on 5 MHz increments
Frequency Range	5 GHz – 6.4GHz: 5920 – 6420 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

Antenna	Up to 30dBm (5950 – 6400)
Transmit Power Range	-17 to +30 dBm (combined, to regional EIRP limit) (1 dB interval)
Integrated Antenna Peak Gain	15 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)
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PARAMETER	SPECIFICATION
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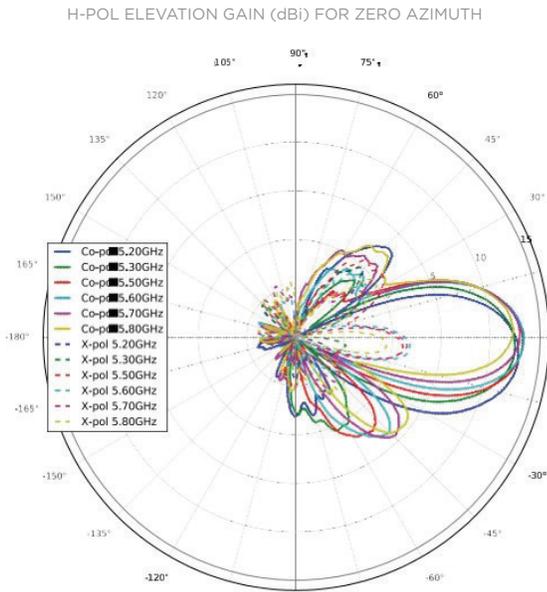
Frequency Range	5 GHz – 6.4GHz: 5920 – 6420 MHz (exact frequencies as allowed by local regulations)
Antenna Type	Integrated
Typical Gain	15 dBi
3db Beamwidth-Azimuth	15°
3db Beamwidth-Elevation	30°
Polarization(s)	Dual Linear, H/ V
Front-to-Back Isolation	>20 dB
Cross Polarization	15 dB

EPMP 5 GHZ FORCE 180 PART NUMBERS:

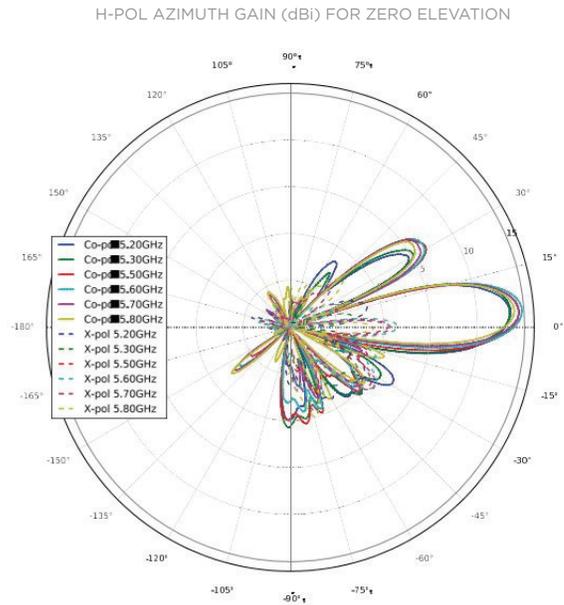
ORDERING PART NUMBER	DESCRIPTION	MODEL NUMBER FOR REGULATORY PURPOSES
C060900C271A	ePMP 5GHz Force 180 Integrated Radio (ROW) (EU power cord)	C060900C271A

SPECIFICATIONS

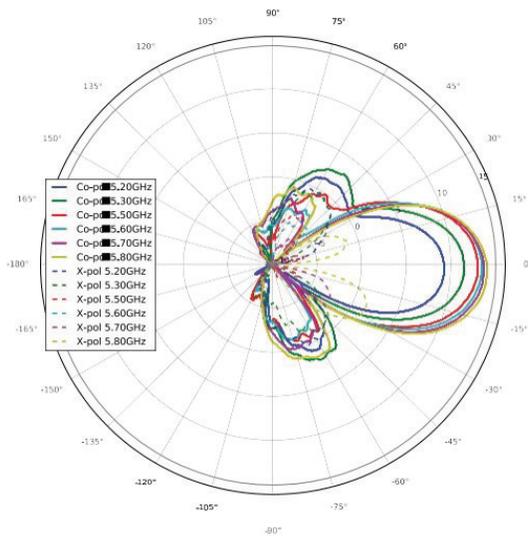
6.4 GHz ePMP Force 180 Integrated Antenna Azimuth Patterns



6.4 GHz ePMP Force 180 Integrated Antenna Elevation Patterns



V-POL ELEVATION GAIN (dBi) FOR ZERO AZIMUTH



V-POL AZIMUTH GAIN (dBi) FOR ZERO ELEVATION

