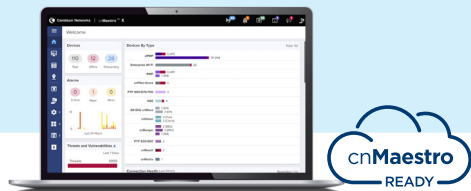


# ePMP™ 4500 Series Access Points

## QUICK LOOK:

- **High-performance, scalable and reliable access points for fixed wireless broadband**
- **ePMP 4500 features MU-MIMO and up to 4 Gbps in performance**
- **Low TCO with three-year hardware warranty**
- **Interoperable with all Force 400 and Force 300 Subscriber Modules\***



**Cambium Networks' ePMP product line** has set the standard for high performance, scalability and reliability in harsh interference environments, all at a compelling price. ePMP 4500 access points (AP) interoperate with Force 400 Subscriber modules and support backward compatibility to Force 300 Subscriber modules\*. A sophisticated scheduling and QoS engine combined with TDD synchronization allows ePMP 4500 APs to deliver consistently high-quality service plans to a large number of end users.

All ePMP 4500 Access point series are managed with cnMaestro™, and networks can be planned with LINKPlanner. Both are available from Cambium Networks at no charge.

### ePMP 4500

The ePMP 4500 delivers up to 4 Gbps and supports up to 120 subscriber modules. Featuring 8x8 MU-MIMO, the 5 GHz ePMP 4500 can transmit to four Force 400 SM's at the same time. This effectively quadruples the capacity of 2x2 systems and in the process, increases link budgets by 6 dB with

downlink beamforming. The ePMP 4500 has an integrated 90° 8x8 MU-MIMO sector antenna. With TDD synchronization, ePMP 4500 networks can scale to thousands of end users leveraging a small number of channels.

### ePMP 4500C

The ePMP 4500C features the same radio as ePMP 4500, but without the integrated antenna, allowing the end user to install their own sectored antennas or horns.

### ePMP 4500L

The ePMP 4500L 2x2 MIMO access point is connectorized with two RP-SMA for use with Cambium Networks 90°/120° degree sector antenna. This unit is also compatible with RF Elements Twistport™ adaptor for ePMP. Featuring the latest 1024QAM and 80 MHz channel bandwidth technology, this access points delivers performance above 1 Gbps.

*\*Force 300 backward compatibility to be supported in future firmware release*

## ePMP™ 4500 Series Access Points

Spectrum and Interface			
	ePMP 4500	ePMP 4500C	ePMP 4500L
<b>Channel Width</b>	20   40   80 MHz	20   40   80 MHz	20   40   80 MHz
<b>Proprietary Physical Layer</b>	8x8 MU-MIMO/OFDMA based on 802.11ax underlying technology	8x8 MU-MIMO/OFDMA based on 802.11ax underlying technology	2x2 MIMO/OFDMA based on 802.11ax underlying technology
<b>Channel Spacing</b>	Configurable in 5 MHz increments	Configurable in 5 MHz increments	Configurable in 5 MHz increments
<b>Frequency Range</b>	Wide Band Operation 4910–6135 MHz	Wide Band Operation 4910–6135 MHz	Wide Band Operation 4910–6135 MHz
(Note: Allowable frequencies and bands are dictated by individual country regulations)			
MAC Layer (Media Access Control)			
	Cambium Proprietary	Cambium Proprietary	Cambium Proprietary
<b>Ethernet Interfaced</b>	100/1000 BaseT, rate auto negotiated, 802.3bt compliant & Aux SFP+ port	100/1000 BaseT, rate auto negotiated, 802.3bt compliant & Aux SFP+ port	100/1000 BaseT, rate auto negotiated, 802.3at compliant & Aux SFP+ port
<b>Supported Powering Methods</b>	56V 30W PoE (included), standard 802.3bt PoE Supply, or cnMatrix Tower Switch, or wired DC input	56V 30W PoE (included), standard 802.3bt PoE Supply, or cnMatrix Tower Switch, or wired DC input	5 V 30W PoE (included), standard 802.3at PoE Supply, or cnMatrix Tower Switch
<b>Protocols Used</b>	IPv4/IPV6, UDP, TCP, IP, ICMP, SNMPv2c, HTTPs, STP, SSH, IGMP Snooping	IPv4/IPV6, UDP, TCP, IP, ICMP, SNMPv2c, HTTPs, STP, SSH, IGMP Snooping	IPv4/IPV6, UDP, TCP, IP, ICMP, SNMPv2c, HTTPs, STP, SSH, IGMP Snooping
Network Management			
	HTTPS, SNMPv2c, SSH	HTTPS, SNMPv2c, SSH	HTTPS, SNMPv2c, SSH
<b>VLAN</b>	802.1Q with 802.1p priority	802.1Q with 802.1p priority	802.1Q with 802.1p priority
Performance			
	ePMP 4500	ePMP 4500C	ePMP 4500L
<b>Subscribers per Sector</b>	Up to 120	Up to 120	Up to 120
<b>ARQ</b>	Yes	Yes	Yes
<b>Nominal Receive Sensitivity (w/FEC) @20 MHz Channel</b>	MCS 0 = -91 dBm to MCS 11 (1024 QAM-5/6) = -62 dBm (per chain)	MCS 0 = -91 dBm to MCS 11 (1024 QAM-5/6) = -62 dBm (per chain)	MCS 0 = -93 dBm to MCS 11 (1024 QAM-5/6) = -63 dBm (per chain)
<b>Nominal Receive Sensitivity (w/FEC) @40 MHz Channel</b>	MCS 0 = -88 dBm to MCS 11 (1024 QAM-5/6) = -59 dBm (per chain)	MCS 0 = -88 dBm to MCS 11 (1024 QAM-5/6) = -59 dBm (per chain)	MCS 0 = -90 dBm to MCS 11 (1024 QAM-5/6) = -60 dBm (per chain)
<b>Nominal Receive Sensitivity (w/FEC) @80 MHz Channel</b>	MCS 0 = -85 dBm to MCS 11 (1024 QAM-5/6) = -57dBm (per chain)	MCS 0 = -85 dBm to MCS 11 (1024 QAM-5/6) = -57dBm (per chain)	MCS 0 = -87 dBm to MCS 11 (1024 QAM-5/6) = -57dBm (per chain)
<b>Modulation Levels (Adaptive)</b>	MCS 0 (BPSK) to MCS 11 (1024 QAM-5/6)	MCS 0 (BPSK) to MCS 11 (1024 QAM-5/6)	MCS 0 (BPSK) to MCS 11 (1024 QAM-5/6)
<b>GPS Synchronization</b>	Yes, via Internal GPS or Cambium Sync	Yes, via Internal GPS or Cambium Sync	Yes, via Internal GPS
<b>QoS (Quality of Service)</b>	Three level priority (Voice, High, Low) with packet classification by DSCP, COS, VLAN ID, IP & MAC Address, Broadcast, Multicast and Station Priority	Three level priority (Voice, High, Low) with packet classification by DSCP, COS, VLAN ID, IP & MAC Address, Broadcast, Multicast and Station Priority	Three level priority (Voice, High, Low) with packet classification by DSCP, COS, VLAN ID, IP & MAC Address, Broadcast, Multicast and Station Priority, MIR/CIR support

## ePMP™ 4500 Series Access Points

Performance cont'd			
	ePMP 4500	ePMP 4500C	ePMP 4500L
<b>Transmit Power Range</b>	0 to +34 dBm (combined, to regional EIRP limit) (1 dB interval)	0 to +33 dBm (combined, to regional EIRP limit) (1 dB interval)	0 to +28 dBm (combined, to regional EIRP limit) (1 dB interval)
<b>Antenna</b>	Integrated 8x8 MU-MIMO 90° Sector 17 dBi gain	N/A	90°/120° 2x2 Sector Antenna (C050900D021B)

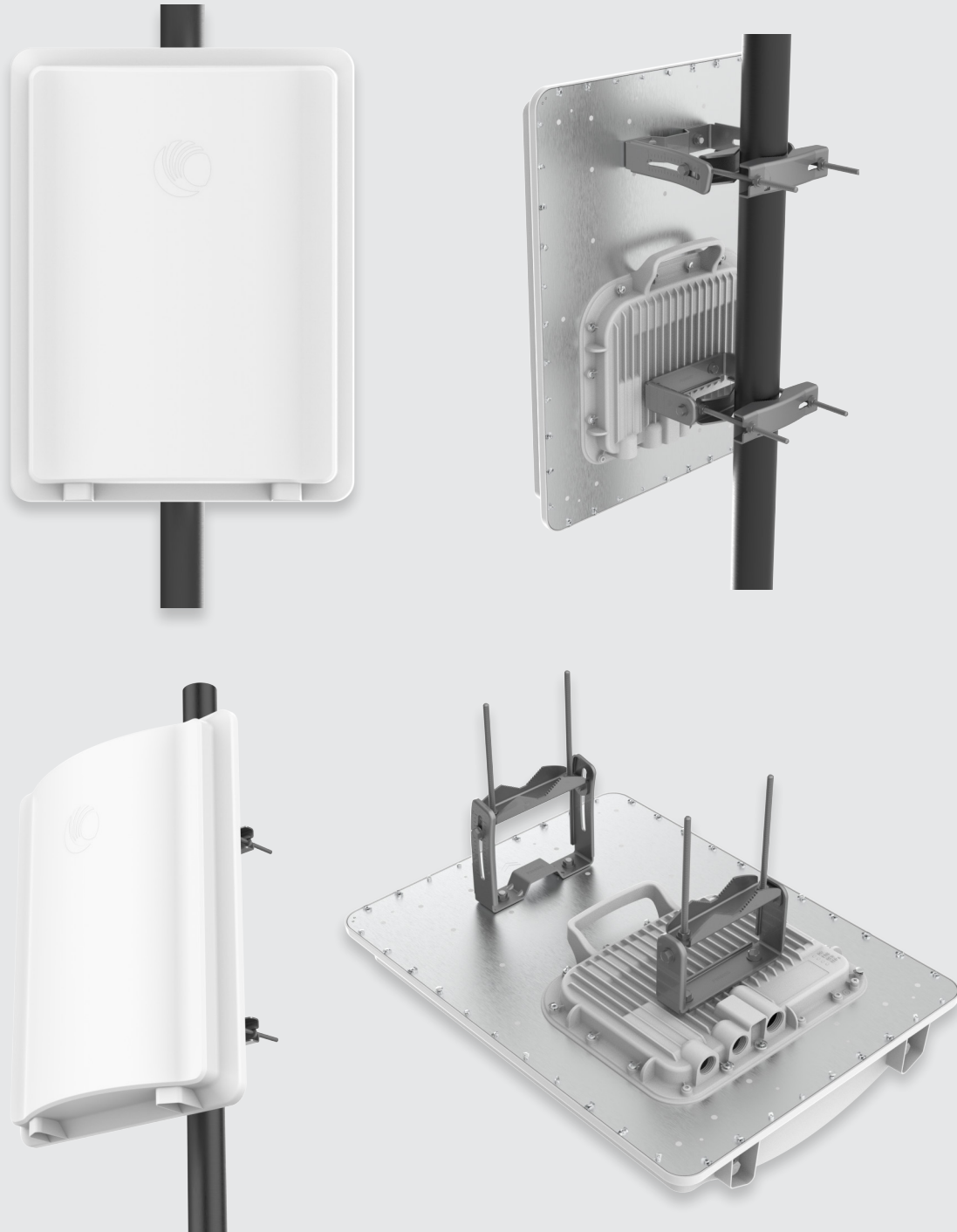
Physical			
	ePMP 4500	ePMP 4500C	ePMP 4500L
<b>Surge Suppression*</b>	1 Joule Integrated	1 Joule Integrated	1 Joule Integrated
<b>Environmental</b>	IP67	IP67	IP67
<b>Temperature</b>	-30°C to 55°C (-22°F to 131°F)	-30°C to 55°C (-22°F to 131°F)	-30°C to 55°C (-22°F to 131°F)
<b>Weight</b>	14.66 kg (32.32 lbs) with clamp	TBD kg (TBD lbs) with clamp	1.3 kg (2.9 lbs)
<b>Dimensions (H x W x D)</b>	643 x 487 x 157 mm (25.3 x 19.2 x 6.2 in)	356 x 284 x 74 mm (14.0 x 11.2 x 2.9 in)	256 x 125 x 47 mm (10.1 x 4.9 x 1.9 in)
<b>Power Consumption</b>	32W Maximum	32W Maximum	28W Maximum
<b>Input Voltage</b>	44V to 59V	44V to 59V	44V to 59V
<b>Sector Antenna Connection</b>	Integrated 90° Sector	8 x 50 ohm, RP (Reverse Polarity) SMA	2 x 50 ohm, RP (Reverse Polarity) SMA <i>Also compatible with RF Elements Twistport™ Adaptor for ePMP</i>
<b>GPS Antenna Connection</b>	1 x 50 ohm, SMA; Integrated GPS Antenna	1 x 50 ohm, SMA; external GPS External GPS Puck included in packaging	1 x 50 ohm, SMA; external GPS External GPS Puck included in packaging

Security	
<b>Encryption</b>	All models: 128-bit AES (CCMP mode)

Certifications			
	ePMP 4500	ePMP 4500C	ePMP 4500L
<b>FCCID</b>	Z8H89FT0065	Z8H89FT0065	Z8H89FT0062
<b>Industry Canada Cert</b>	109W-0065	109W-0065	109W-0062
<b>CE</b>	See Cambium Website for Declaration of Conformity	See Cambium Website for Declaration of Conformity	See Cambium Website for Declaration of Conformity

## ePMP™ 4500 Series Access Points

### ePMP 4500



## ePMP™ 4500 Series Access Points

### ePMP 4500C



## ePMP™ 4500 Series Access Points

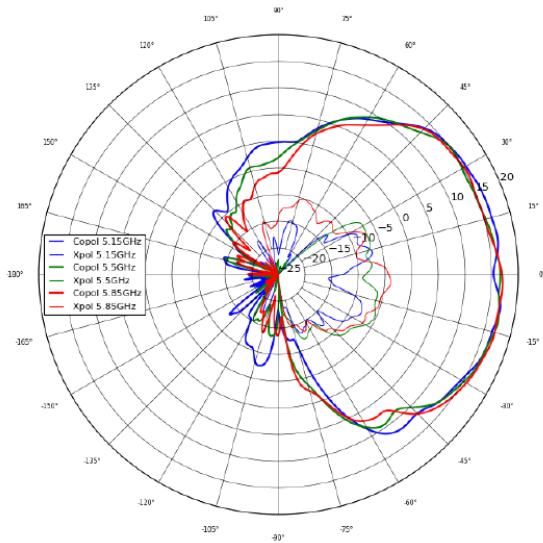
### ePMP 4500L



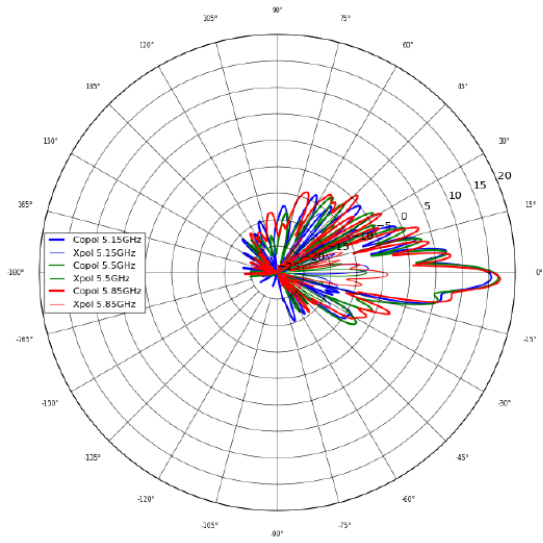
# ePMP™ 4500 Series Access Points

## Antenna Patterns

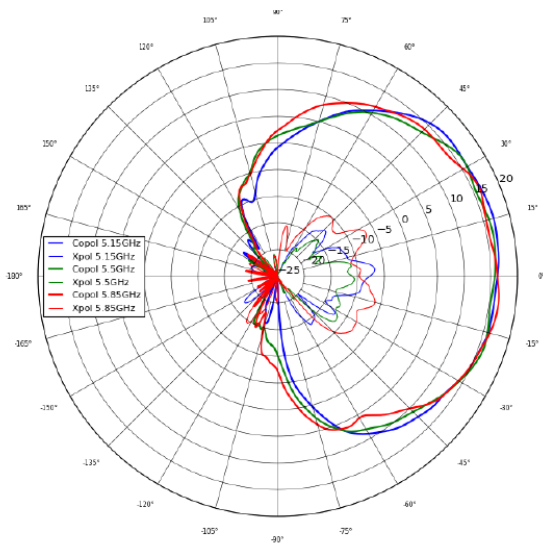
CH 0 Vertical Polarization, Horizontal



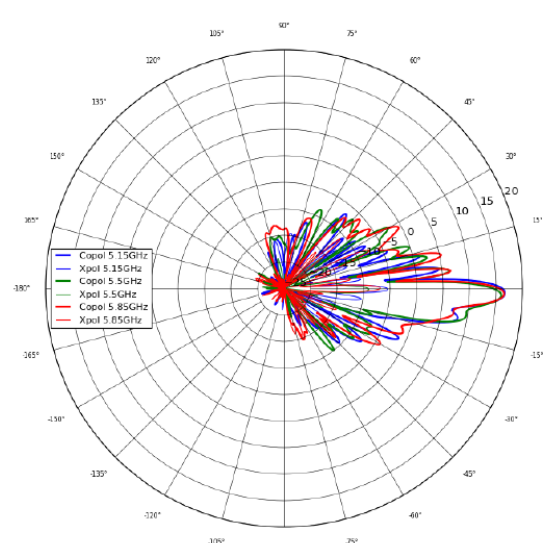
CH 0 Vertical Polarization, Elevation



CH 1 Vertical Polarization, Horizontal



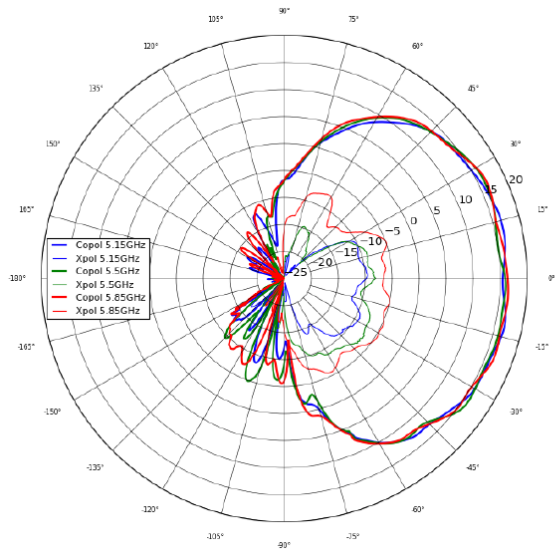
CH 1 Vertical Polarization, Elevation



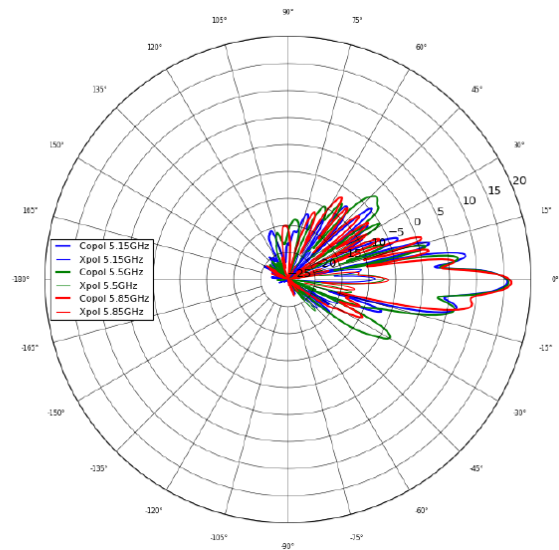
# ePMP™ 4500 Series Access Points

## Antenna Patterns

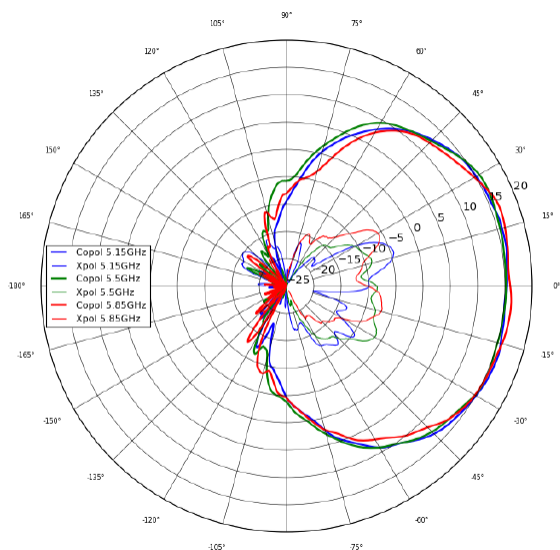
CH 2 Vertical Polarization, Horizontal



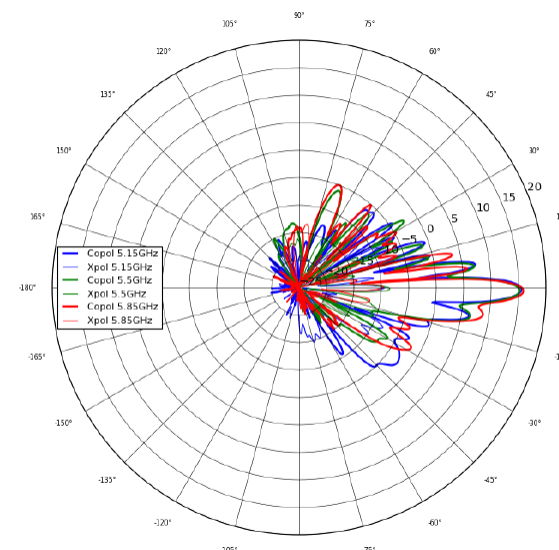
CH 2 Vertical Polarization, Elevation



CH 3 Vertical Polarization, Horizontal



CH 3 Vertical Polarization, Elevation

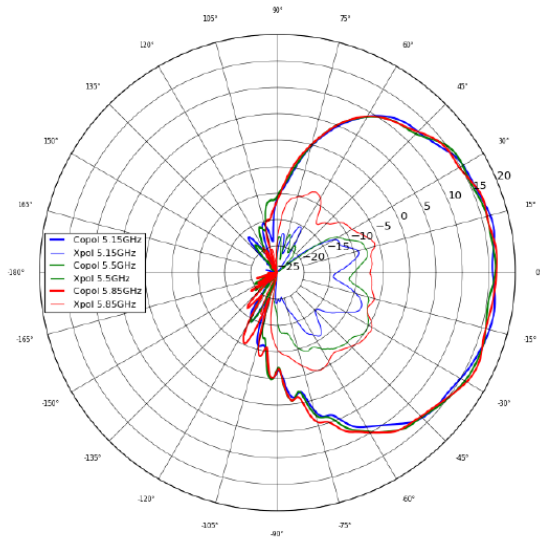




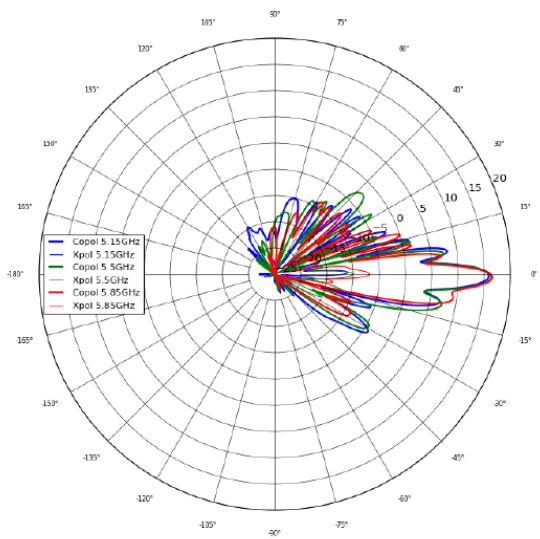
# ePMP™ 4500 Series Access Points

## Antenna Patterns

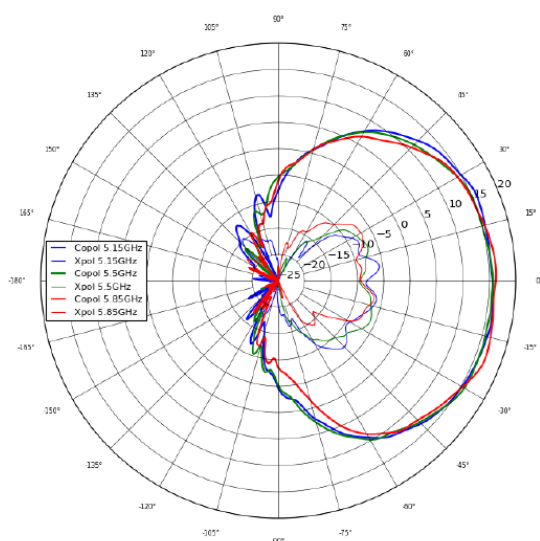
CH 4 Vertical Polarization, Horizontal



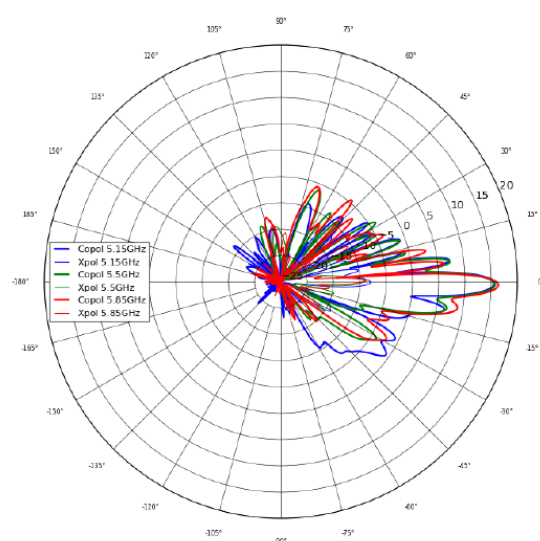
CH 4 Vertical Polarization, Elevation



CH 5 Vertical Polarization, Horizontal



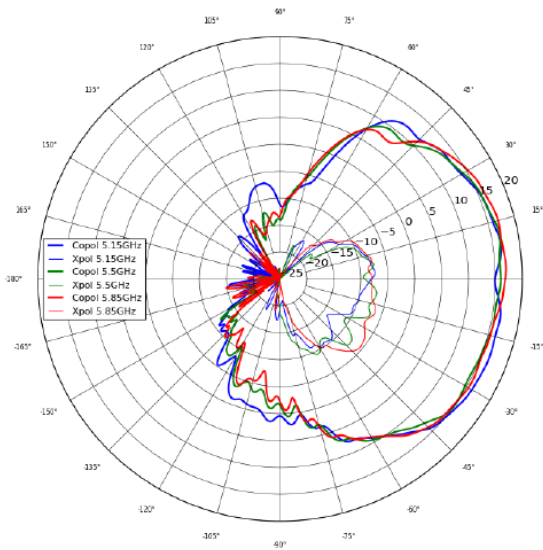
CH 5 Vertical Polarization, Elevation



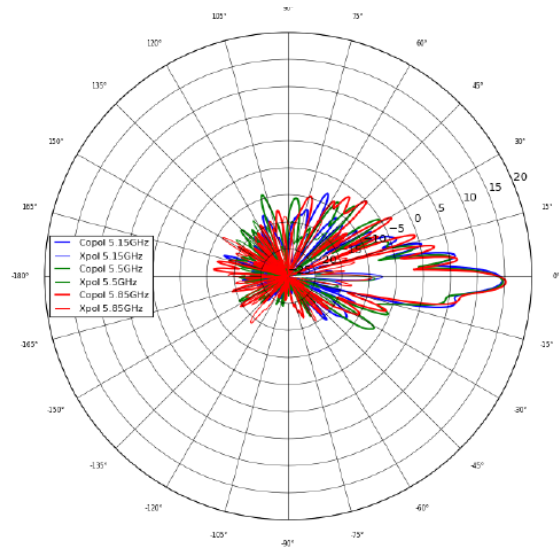
# ePMP™ 4500 Series Access Points

## Antenna Patterns

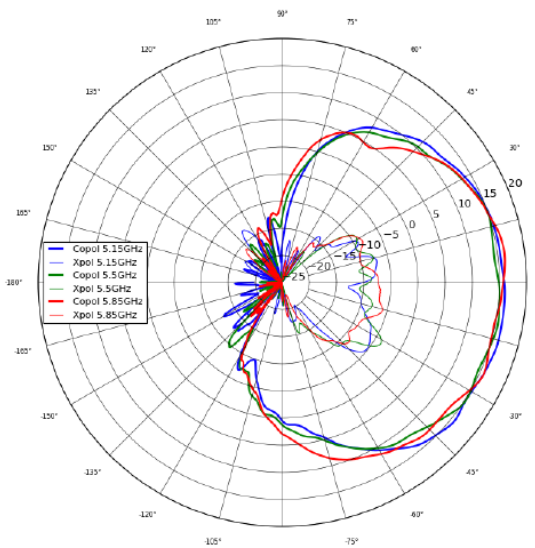
CH 6 Vertical Polarization, Horizontal



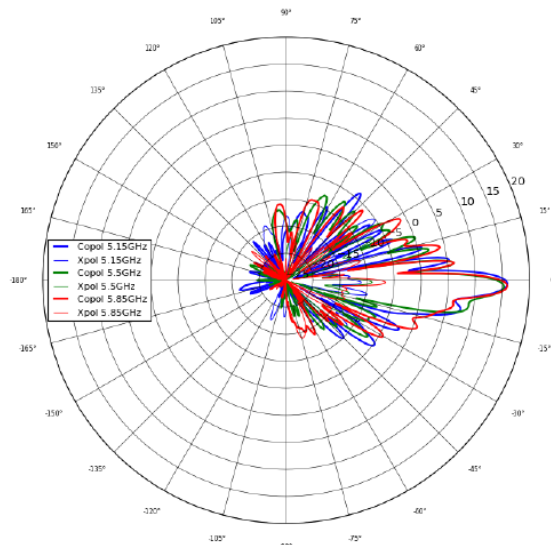
CH 6 Vertical Polarization, Elevation



CH 7 Vertical Polarization, Horizontal



CH 7 Vertical Polarization, Elevation



## ePMP™ 4500 Series Access Points

### ePMP 4500 Ordering Information

<b>C050940A021A</b>	ePMP 4500 5 GHz 8x8 Access Point Radio (ROW) (no cord)
<b>C050940A121A</b>	ePMP 4500 5 GHz 8x8 Access Point Radio (ROW) (US cord)
<b>C058940A124A</b>	ePMP 4500 5 GHz 8x8 Access Point Radio (IC) (Canada/US cord)
<b>C050940A221A</b>	ePMP 4500 5 GHz 8x8 Access Point Radio (ROW) (EU cord)
<b>C050940A223A</b>	ePMP 4500 5 GHz 8x8 Access Point Radio (EU) (EU cord)
<b>C050940A321A</b>	ePMP 4500 5 GHz 8x8 Access Point Radio (ROW) (UK cord)
<b>C050940A323A</b>	ePMP 4500 5 GHz 8x8 Access Point Radio (EU) (UK cord)
<b>C050940A421A</b>	ePMP 4500 5 GHz 8x8 Access Point Radio (ROW) (India cord)
<b>C050940A425A</b>	ePMP 4500 5 GHz 8x8 Access Point Radio (India) (India Cord)
<b>C050940A521A</b>	ePMP 4500 5 GHz 8x8 Access Point Radio (ROW) (China cord)
<b>C050940A621A</b>	ePMP 4500 5 GHz 8x8 Access Point Radio (ROW) (Brazil cord)
<b>C050940A721A</b>	ePMP 4500 5 GHz 8x8 Access Point Radio (ROW) (Argentina cord)
<b>C050940A821A</b>	ePMP 4500 5 GHz 8x8 Access Point Radio (ROW) (ANZ cord)
<b>C050940A921A</b>	ePMP 4500 5 GHz 8x8 Access Point Radio (ROW) (South Africa cord)
<b>C050940AZ21A</b>	ePMP 4500 5 GHz 8x8 Access Point Radio (ROW) (No PSU)
<b>C058940A122A</b>	ePMP 4500 5 GHz 8x8 Access Point Radio (FCC) (US cord)
<b>C050940A226A</b>	ePMP 4500 5 GHz 8x8 Access Point Radio (Indonesia) (EU Cord)

### ePMP 4500C Ordering Information

<b>C050940A011A</b>	ePMP 4500C 5 GHz Access Point Radio (ROW) (no cord)
<b>C050940A111A</b>	ePMP 4500C 5 GHz Access Point Radio (ROW) (US cord)
<b>C058940A114A</b>	ePMP 4500C 5 GHz Access Point Radio (IC) (Canada/US cord)
<b>C050940A211A</b>	ePMP 4500C 5 GHz Access Point Radio (ROW) (EU cord)
<b>C050940A213A</b>	ePMP 4500C 5 GHz Access Point Radio (EU) (EU cord)
<b>C050940A311A</b>	ePMP 4500C 5 GHz Access Point Radio (ROW) (UK cord)
<b>C050940A313A</b>	ePMP 4500C 5 GHz Access Point Radio (EU) (UK cord)
<b>C050940A411A</b>	ePMP 4500C 5 GHz Access Point Radio (ROW) (India cord)
<b>C050940A415A</b>	ePMP 4500C 5 GHz Access Point Radio (India) (India Cord)
<b>C050940A511A</b>	ePMP 4500C 5 GHz Access Point Radio (ROW) (China cord)
<b>C050940A611A</b>	ePMP 4500C 5 GHz Access Point Radio (ROW) (Brazil cord)
<b>C050940A711A</b>	ePMP 4500C 5 GHz Access Point Radio (ROW) (Argentina cord)
<b>C050940A811A</b>	ePMP 4500C 5 GHz Access Point Radio (ROW) (ANZ cord)
<b>C050940A911A</b>	ePMP 4500C 5 GHz Access Point Radio (ROW) (South Africa cord)
<b>C050940AZ11A</b>	ePMP 4500C 5 GHz Access Point Radio (ROW) (No PSU)
<b>C058940A112A</b>	ePMP 4500C 5 GHz Access Point Radio (FCC) (US cord)
<b>C050940A216A</b>	ePMP 4500C 5 GHz Access Point Radio (Indonesia) (EU Cord)

## Bridge-in-a-Box Outdoor Wireless Ethernet Bridge

### ePMP 4500L Ordering Information

<b>C050940A061A</b>	ePMP 4500L 5 GHz 2x2 Access Point Radio (ROW) (no cord)
<b>C050940A161A</b>	ePMP 4500L 5 GHz 2x2 Access Point Radio (ROW) (US cord)
<b>C058940A164A</b>	ePMP 4500L 5 GHz 2x2 Access Point Radio (IC) (Canada/US cord)
<b>C050940A261A</b>	ePMP 4500L 5 GHz 2x2 Access Point Radio (ROW) (EU cord)
<b>C050940A263A</b>	ePMP 4500L 5 GHz 2x2 Access Point Radio (EU) (EU cord)
<b>C050940A361A</b>	ePMP 4500L 5 GHz 2x2 Access Point Radio (ROW) (UK cord)
<b>C050940A363A</b>	ePMP 4500L 5 GHz 2x2 Access Point Radio (EU) (UK cord)
<b>C050940A461A</b>	ePMP 4500L 5 GHz 2x2 Access Point Radio (ROW) (India cord)
<b>C050940A465A</b>	ePMP 4500L 5 GHz 2x2 Access Point Radio (India) (India Cord)
<b>C050940A561A</b>	ePMP 4500L 5 GHz 2x2 Access Point Radio (ROW) (China cord)
<b>C050940A661A</b>	ePMP 4500L 5 GHz 2x2 Access Point Radio (ROW) (Brazil cord)
<b>C050940A761A</b>	ePMP 4500L 5 GHz 2x2 Access Point Radio (ROW) (Argentina cord)
<b>C050940A861A</b>	ePMP 4500L 5 GHz 2x2 Access Point Radio (ROW) (ANZ cord)
<b>C050940A961A</b>	ePMP 4500L 5 GHz 2x2 Access Point Radio (ROW) (South Africa cord)
<b>C050940AZ61A</b>	ePMP 4500L 5 GHz 2x2 Access Point Radio (ROW) (No PSU)
<b>C058940A162A</b>	ePMP 4500L 5 GHz 2x2 Access Point Radio (FCC) (US cord)
<b>C050940A266A</b>	ePMP 4500L 5 GHz 2x2 Access Point Radio (Indonesia) (EU Cord)

### About Cambium Networks

Cambium Networks empowers millions of people with wireless connectivity worldwide. Its wireless portfolio is used by commercial and government network operators as well as broadband service providers to connect people, places and things. With a single network architecture spanning fixed wireless and Wi-Fi, Cambium Networks enables operators to achieve maximum performance with minimal spectrum. End-to-end cloud management transforms networks into dynamic environments that evolve to meet changing needs with minimal physical human intervention. Cambium Networks empowers a growing ecosystem of partners who design and deliver gigabit wireless solutions that just work.