

# ePMP™ Force 300 Series

## QUICK LOOK:

- **Broad selection of high-performance subscriber modules for point-to-point and point-to-multipoint fixed wireless broadband applications**
- **Up to 600 Mbps capacity and up to 80 MHz channels leveraging proven protocols on 802.11ac Wave 2 technology**
- **Compatible with 3000 Series Access Points for MU-MIMO performance and with backward compatibility to 1000/2000 Access Points for ease of migration**
- **3-year hardware warranty**



Service providers face ever-increasing demand for capacity in a limited amount of spectrum. The Force 300 series of subscriber modules (SM) meets this demand, offering high performance and low latency across both point-to-multipoint and point-to-point deployments.

**Force 300 SM series offers a wide range of antenna options, and they all feature the following differentiating features:**

- Up to 600 Mbps capacity and latencies as low as 2 ms when using ePTP technology
- Proven air interface on top of 802.11ac Wave 2 technology
- Interoperability with the ePMP 3000, which uses MU-MIMO to achieve 1.2 Gbps per sector by transmitting to 2 Force 300 SMs simultaneously
- Interoperability with ePMP 3000L and ePMP 3000 MicroPOP and backward compatibility with the ePMP 2000 and ePMP 1000
- Integrated always-on spectrum analyzer for assessing the noise floor across a wide swath of 5 GHz spectrum
- Multiple levels of QoS (Quality of Service) for voice, video, and data applications supporting a wide variety of service packages for both residential and enterprise users
- Security features meeting the requirements of enterprise, industrial, government, and service provider users
- Management by Cambium Networks cnMaestro™ network management system for easy provisioning, monitoring, and upgrades
- Network planning with LINKPlanner and cnHeat
- 3-year hardware warranty and support
- Power over Ethernet (PoE) injector and pole mount hardware included with each SM



## ePMP™ Force 300 Series

### Spectrum

Specifications in this table apply to all models, except where noted.

**Available Models** Force 300-16, Force 300-19, Force 300-19R, Force 300-25, Force 300 CSM

**Channel Width MHz** 20 | 40 | 80  
**300-19R:** 5 | 10 | 20 | 40 | 80

**Proprietary Physical Layer** Air Interface on top of 802.11ac Wave 2 technology (2x2 MIMO/OFDM)

**Channel Spacing** Configurable in 5 MHz increments

**Frequency Range** Wide band operation 4910–6080 MHz (Note: Allowable frequencies and bands are dictated by individual country regulations.)

**MAC Layer (Media Access Control)** Cambium proprietary

**Ethernet Interfaced** 10/100/1000 BaseT, compatible with Cambium PoE & standard PoE pinouts

**Protocols Used** IPv4/IPv6 (Dual Stack), UDP, TCP, ICMP, SNMPv2c, NTP, STP, IGMP, SSH

**Network Management** IPv4/IPv6, HTTPs, SNMPv2c, SSH, Cambium Networks cnMaestro™

**VLAN** 802.1Q with 802.1p priority

### Performance

	<b>Force 300-16</b>	<b>Force 300-19</b>	<b>Force 300-19R</b>	<b>Force 300-25</b>	<b>Force 300 CSM</b>
<b>ARQ</b>	Yes	Yes	Yes	Yes	Yes
<b>Nominal Receive Sensitivity (w/FEC) @20 MHz Channel</b>	MCS 0 = -89 dBm to MCS 8 (256 QAM-3/4) = -66 dBm (per chain)	MCS 0 = -89 dBm to MCS 8 (256 QAM-3/4) = -68 dBm (per chain)	MCS 0 = -89 dBm to MCS 8 (256 QAM-3/4) = -68 dBm (per chain)	MCS 0 = -87 dBm to MCS 8 (256 QAM-3/4) = -63 dBm (per chain)	MCS 0 = -89 dBm to MCS 8 (256 QAM-3/4) = -66 dBm (per chain)
<b>Nominal Receive Sensitivity (w/FEC) @40 MHz Channel</b>	MCS 0 = -87 dBm to MCS 9 (256 QAM-5/6) = -64 dBm (per chain)	MCS 0 = -87 dBm to MCS 9 (256 QAM-5/6) = -66 dBm (per chain)	MCS 0 = -87 dBm to MCS 9 (256 QAM-5/6) = -66 dBm (per chain)	MCS 0 = -85 dBm to MCS 9 (256 QAM-5/6) = -59 dBm (per chain)	MCS 0 = -87 dBm to MCS 9 (256 QAM-5/6) = -64 dBm (per chain)
<b>Nominal Receive Sensitivity (w/FEC) @80 MHz Channel</b>	MCS0 = -84 dBm to MCS9 (256 QAM-5/6) = -59 dBm (per chain)	MCS 0 = -84 dBm to MCS 9 (256 QAM-5/6) = -61 dBm (per chain)	MCS 0 = -84 dBm to MCS 9 (256 QAM-5/6) = -61 dBm (per chain)	MCS 0 = -82 dBm to MCS 9 (256 QAM-5/6) = -56 dBm (per chain)	MCS 0 = -84 dBm to MCS 9 (256 QAM-5/6) = -59 dBm (per chain)
<b>Modulation Levels (Adaptive)</b>	MCS 0 (BPSK) to MCS 9 (256 QAM-5/6)	MCS 0 (BPSK) to MCS 9 (256 QAM-5/6)	MCS 0 (BPSK) to MCS 9 (256 QAM-5/6)	MCS 0 (BPSK) to MCS 9 (256 QAM-5/6)	MCS 0 (BPSK) to MCS 9 (256 QAM-5/6)
<b>Transmit Power Range</b>	0 to +29 dBm (combined, to regional EIRP limit) (1 dB interval)	0 to +28 dBm (combined, to regional EIRP limit) (1 dB interval)	0 to +28 dBm (combined, to regional EIRP limit) (1 dB interval)	0 to +27 dBm (combined, to regional EIRP limit) (1 dB interval)	0 to +29 dBm (combined, to regional EIRP limit) (1 dB interval)
<b>QoS (Quality of Service)</b>	3 level priority (Voice, High, Low) with packet classification by DSCP, COS, VLAN ID, IP & MAC Address, Broadcast, Multicast and Station Priority, MIR/CIR support	3 level priority (Voice, High, Low) with packet classification by DSCP, COS, VLAN ID, IP & MAC Address, Broadcast, Multicast and Station Priority, MIR/CIR support	3 level priority (Voice, High, Low) with packet classification by DSCP, COS, VLAN ID, IP & MAC Address, Broadcast, Multicast and Station Priority, MIR/CIR support	3 level priority (Voice, High, Low) with packet classification by DSCP, COS, VLAN ID, IP & MAC Address, Broadcast, Multicast and Station Priority, MIR/CIR support	3 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™ Force 300 Series

Physical					
	Force 300-16	Force 300-19	Force 300-19R	Force 300-25	Force 300 CSM
<b>Surge Suppression*</b>	1 joule integrated	1 joule integrated	1 joule integrated	1 joule integrated	1 joule integrated
<b>Environmental</b>	IP55	IP55	IP67 & IP68	IP55	IP67 & IP68
<b>Temperature</b>	-30°C to 60°C (-22°F to 140°F)	-30°C to 60°C (-22°F to 140°F)	-30°C to 60°C (-22°F to 140°F)	-30°C to 60°C (-22°F to 140°F)	-30°C to 60°C (-22°F to 140°F)
<b>Weight</b>	0.50 kg (1.1 lb) Includes mounting bracket	1.45 kg (3.2 lb) Includes mounting bracket	1.45 kg (3.2 lb) Includes mounting bracket	2.4 kg (5.3 lb) Includes mounting bracket	0.5 kg (1.1 lb) Includes mounting bracket
<b>Wind Survival</b>	180 km/hour (112 mi/hour)	180 km/hour (112 mi/hour)	180 km/hour (112 mi/hour)	180 km/hour (112 mi/hour)	180 km/hour (112 mi/hour)
<b>Dimensions (Diameter x Depth)</b>	12.4 x 25.1 x 11.9 cm (4.9 x 9.9 x 4.7 in) with mounting bracket attached	27.8 x 27.8 x 4.5 cm (10.9 x 10.9 x 1.8 in) with mounting bracket attached	27.8 x 27.8 x 4.5 cm (10.9 x 10.9 x 1.8 in) with mounting bracket attached	47 x 31 cm (18.5 x 12.2 in) with mounting bracket attached	84 x 223 x 32 mm (3.3 x 8.8 x 1.3 in) without brackets
<b>Pole Diameter Range</b>	1–1.6 in (2.5–4.1 cm) with included clamp; up to 2.25 in (5.7 cm) with larger clamp	1–1.6 in (2.5–4.1 cm) with included clamp; up to 2.25 in (5.7 cm) with larger clamp	1–1.6 in (2.5–4.1 cm) with included clamp; up to 2.25 in (5.7 cm) with larger clamp	2.5–3 in (6.4–7.6 cm) with included clamp	2.5–3 in (6.4–7.6 cm) with included clamp
<b>Power Consumption</b>	12W (Up to 15 W in extreme cold temperatures when heater is activated.)	12W (Up to 15 W in extreme cold temperatures when heater is activated.)	12W (Up to 15 W in extreme cold temperatures when heater is activated.)	12W (Up to 15 W in extreme cold temperatures when heater is activated.)	12W (Up to 15 W in extreme cold temperatures when heater is activated.)
<b>Input Voltage</b>	30V Passive PoE (14–30V DC input)	30V Passive PoE (14–30V DC input)	30V Passive PoE (14–30V DC input)	30V Passive PoE (14–30V DC input)	30V Passive PoE (14–30V DC input)

**Note:** 14V minimum must be maintained at radio connector under all conditions including long cable lengths.

\*Optional 30 V Surge Suppressor Available: Part # C000000L065A

### Security

**Encryption** All models: 128-bit AES (CCMP mode)

### Certifications

**FCCID** Z8H-89FT0016\*\* Z8H89FT0048 Z8H89FT0048 Z8H89FT0017 Z8H-89FT0047

**FCC Regulatory Part #** C058910P112A C058900P801A C058900P901A C058910P102A C058910C122A

**ETSI Regulatory Part #** C050910P011A C050900P804A C050900P904A C050910P001A C050910C221A

**Industry Canada Cert** 109W-0016\*\* 109W-0048 109W-0048 109W-0017 109W-0047

**CE** EN 301 893 V2.1.1 (5.4 GHz), EN 302 502 V2.1.1 (5.8 GHz) EN 301 893 V2.1.1 (5.4 GHz), EN 302 502 V2.1.1 (5.8 GHz) EN 301 893 V2.1.1 (5.4 GHz), EN 302 502 V2.1.1 (5.8 GHz) EN 301 893 V2.1.1 (5.4 GHz), EN 302 502 V2.1.1 (5.8 GHz) EN 301 893 V2.1.1 (5.4 GHz), EN 302 502 V2.1.1 (5.8 GHz)

## ePMP™ Force 300 Series

Antenna Specifications					
	Force 300-16	Force 300-19	Force 300-19R	Force 300-25	Force 300 CSM
<b>Frequency Range</b>	4910–6080 MHz	4910–6080 MHz	4910–6080 MHz	4910–6080 MHz	4910–6080 MHz
<b>Antenna Type</b>	Panel	Panel	Panel	Dish	Connectorized
<b>Peak Gain</b>	16 dBi	19 dBi	19 dBi	25 dBi	n/a
<b>3 dB Beamwidth Azimuth</b>	15°	14.5°	14.5°	6° to 10°	n/a
<b>3 dB Beamwidth Elevation</b>	30°	12.5°	12.5°	6° to 10°	n/a
<b>Front-to-Back Isolation</b>	n/a	n/a	n/a	25 dB	n/a
<b>Cross Polarization</b>	n/a	n/a	n/a	25 dB	n/a
<b>Connectors</b>	n/a	n/a	n/a	n/a	2 x 50 ohm, RP-SMA (Reverse Polarity SMA) Compatible with RF-Elements TwistPort™ Adaptor



Force 300-16



Force 300-19



Force 300-19R



Force 300-25

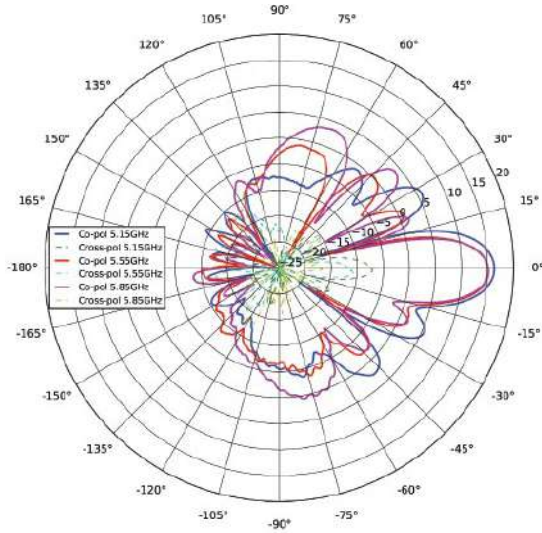


Force 300 CSM

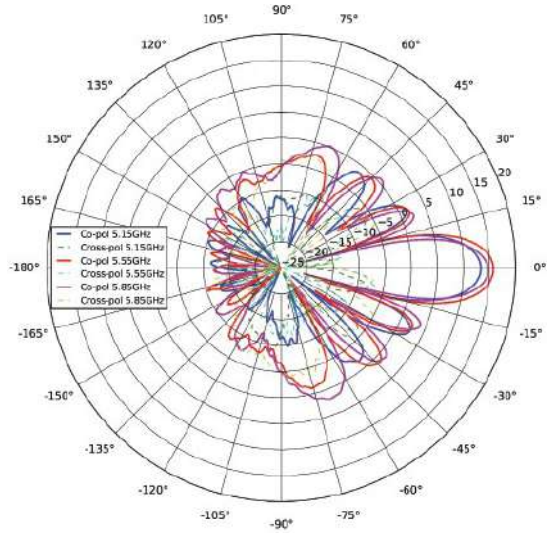
# ePMP™ Force 300 Series

## Force 300-16 Antenna Patterns

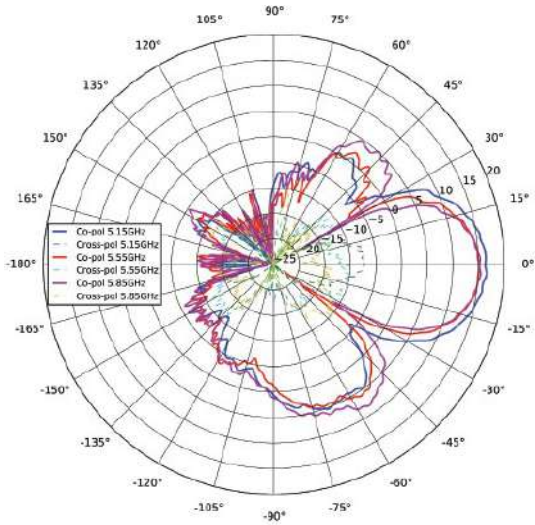
Azimuth, Horizontal



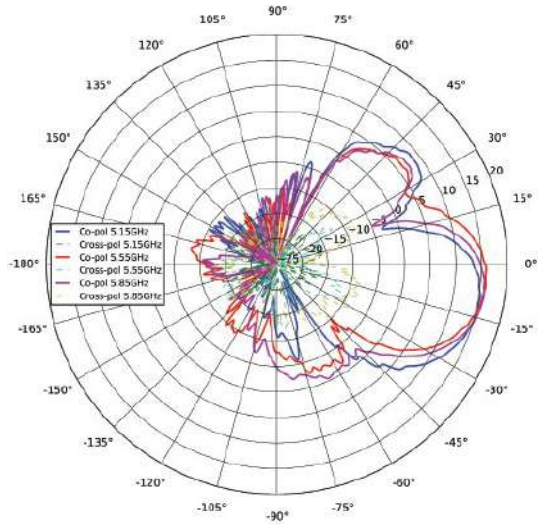
Azimuth, Vertical



Elevation, Horizontal



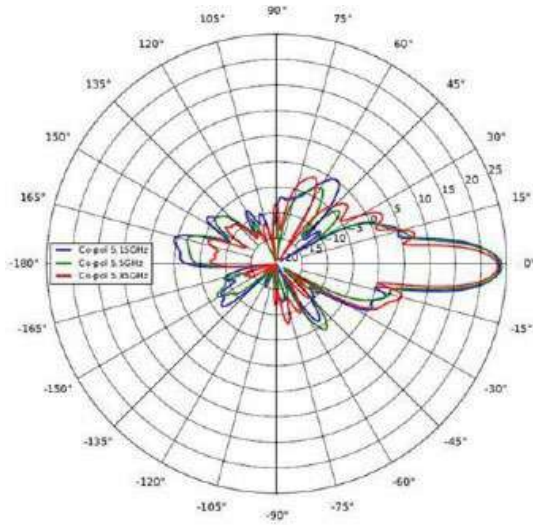
Elevation, Vertical



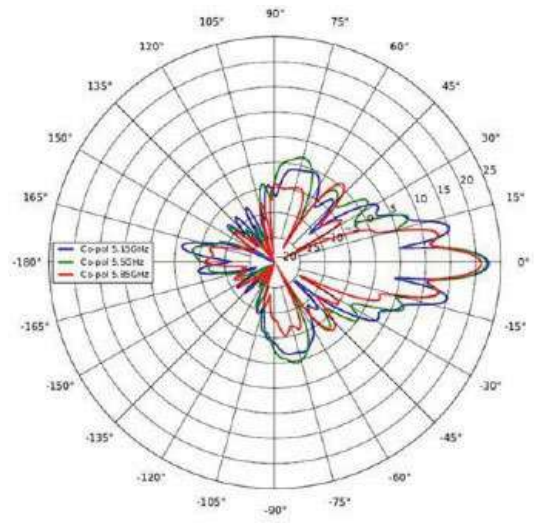
# ePMP™ Force 300 Series

## Force 300-25 Antenna Patterns

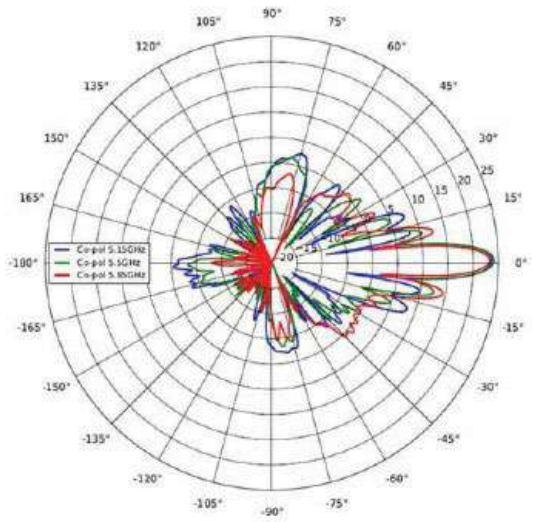
Azimuth, Horizontal



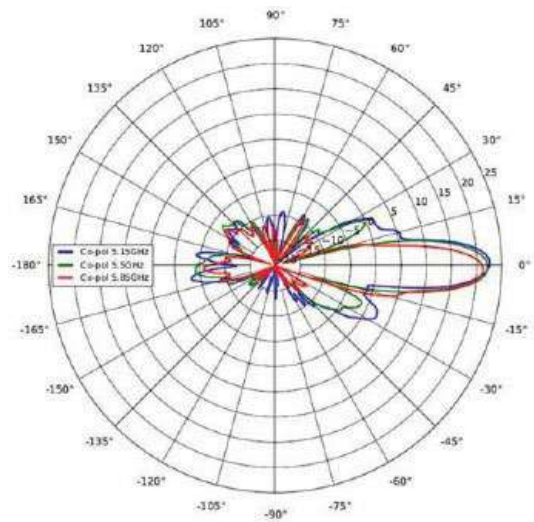
Azimuth, Vertical



Elevation, Horizontal



Elevation, Vertical





## ePMP™ Force 300 Series

### 5 GHz Force 300-16 Ordering Information

<b>C050910C011A</b>	5 GHz Force 300-16 Radio (ROW) (no cord)
<b>C050910C111A</b>	5 GHz Force 300-16 Radio (ROW) (US cord)
<b>C050910C114A</b>	5 GHz Force 300-16 Radio (IC) (Canada/US cord)
<b>C050910C211A</b>	5 GHz Force 300-16 Radio (ROW) (EU cord)
<b>C050910C213A</b>	5 GHz Force 300-16 Radio (EU) (EU cord)
<b>C050910C311A</b>	5 GHz Force 300-16 Radio (ROW) (UK cord)
<b>C050910C313A</b>	5 GHz Force 300-16 Radio (EU) (UK cord)
<b>C050910C411A</b>	5 GHz Force 300-16 Radio (ROW) (India cord)
<b>C050910C412A</b>	5 GHz Force 300-16 Radio (India) (India cord)
<b>C050910C511A</b>	5 GHz Force 300-16 Radio (ROW) (China cord)
<b>C050910C611A</b>	5 GHz Force 300-16 Radio (ROW) (Brazil cord)
<b>C050910C711A</b>	5 GHz Force 300-16 Radio (ROW) (Argentina cord)
<b>C050910C811A</b>	5 GHz Force 300-16 Radio (ROW) (ANZ cord)
<b>C050910C911A</b>	5 GHz Force 300-16 Radio (ROW) (South Africa cord)
<b>C050910CZ11A</b>	5 GHz Force 300-16 Radio (ROW) (No PSU)
<b>C058910C112A</b>	5 GHz Force 300-16 Radio (FCC) (US cord)

### 5 GHz Force 300-19 Ordering Information

<b>C050900C801A</b>	5 GHz Force 300-19 SM (IC) (Canada/US cord)
<b>C050900C802A</b>	5 GHz Force 300-19 SM (EU) (EU cord)
<b>C050900C803A</b>	5 GHz Force 300-19 SM (EU) (UK cord)
<b>C050900C804A</b>	5 GHz Force 300-19 SM (ROW) (no cord)
<b>C050900C805A</b>	5 GHz Force 300-19 SM (ROW) (US cord)
<b>C050900C806A</b>	5 GHz Force 300-19 SM (ROW) (EU cord)
<b>C050900C807A</b>	5 GHz Force 300-19 SM (ROW) (UK cord)
<b>C050900C808A</b>	5 GHz Force 300-19 SM (ROW) (India cord)
<b>C050900C809A</b>	5 GHz Force 300-19 SM (India) (India cord)
<b>C050900C810A</b>	5 GHz Force 300-19 SM (ROW) (China cord)
<b>C050900C811A</b>	5 GHz Force 300-19 SM (ROW) (Brazil cord)
<b>C050900C812A</b>	5 GHz Force 300-19 SM (ROW) (Argentina cord)
<b>C050900C813A</b>	5 GHz Force 300-19 SM (ROW) (ANZ cord)
<b>C050900C814A</b>	5 GHz Force 300-19 SM (ROW) (South Africa cord)
<b>C050900C815A</b>	5 GHz Force 300-19 SM (ROW) (No PSU)
<b>C058900C801A</b>	5 GHz Force 300-19 SM (FCC) (US cord)

### 5 GHz Force 300-19R Ordering Information

<b>C050900C901A</b>	5 GHz Force 300-19R SM (IC) (Canada/US cord)
<b>C050900C902A</b>	5 GHz Force 300-19R SM (EU) (EU cord)
<b>C050900C903A</b>	5 GHz Force 300-19R SM (EU) (UK cord)
<b>C050900C904A</b>	5 GHz Force 300-19R SM (ROW) (no cord)
<b>C050900C905A</b>	5 GHz Force 300-19R SM (ROW) (US cord)
<b>C050900C906A</b>	5 GHz Force 300-19R SM (ROW) (EU cord)
<b>C050900C907A</b>	5 GHz Force 300-19R SM (ROW) (UK cord)
<b>C050900C908A</b>	5 GHz Force 300-19R SM (ROW) (India cord)
<b>C050900C909A</b>	5 GHz Force 300-19R SM (India) (India cord)
<b>C050900C910A</b>	5 GHz Force 300-19R SM (ROW) (China cord)
<b>C050900C911A</b>	5 GHz Force 300-19R SM (ROW) (Brazil cord)
<b>C050900C912A</b>	5 GHz Force 300-19R SM (ROW) (Argentina cord)
<b>C050900C913A</b>	5 GHz Force 300-19R SM (ROW) (ANZ cord)
<b>C050900C914A</b>	5 GHz Force 300-19R SM (ROW) (South Africa cord)
<b>C050900C915A</b>	5 GHz Force 300-19R SM (ROW) (No PSU)
<b>C058900C901A</b>	5 GHz Force 300-19R SM (FCC) (US cord)

## ePMP™ Force 300 Series

### 5 GHz Force 300-25 Ordering Information

<b>C050910M001A</b>	5 GHz Force 300-25 High Gain Radio 4-Pack packaging, priced per radio (ROW) (no cord)
<b>C050910M101A</b>	5 GHz Force 300-25 High Gain Radio 4-Pack packaging, priced per radio (ROW) (US cord)
<b>C050910M104A</b>	5 GHz Force 300-25 High Gain Radio 4-Pack packaging, priced per radio (IC) (Canada/US cord)
<b>C050910M201A</b>	5 GHz Force 300-25 High Gain Radio 4-Pack packaging, priced per radio (ROW) (EU cord)
<b>C050910M203A</b>	5 GHz Force 300-25 High Gain Radio 4-Pack packaging, priced per radio (EU) (EU cord)
<b>C050910M301A</b>	5 GHz Force 300-25 High Gain Radio 4-Pack packaging, priced per radio (ROW) (UK cord)
<b>C050910M303A</b>	5 GHz Force 300-25 High Gain Radio 4-Pack packaging, priced per radio (EU) (UK cord)
<b>C050910M401A</b>	5 GHz Force 300-25 High Gain Radio 4-Pack packaging, priced per radio (ROW) (India cord)
<b>C050910M501A</b>	5 GHz Force 300-25 High Gain Radio 4-Pack packaging, priced per radio (ROW) (China cord)
<b>C050910M601A</b>	5 GHz Force 300-25 High Gain Radio 4-Pack packaging, priced per radio (ROW) (Brazil cord)
<b>C050910M701A</b>	5 GHz Force 300-25 High Gain Radio 4-Pack packaging, priced per radio (ROW) (Argentina cord)
<b>C050910M801A</b>	5 GHz Force 300-25 High Gain Radio 4-Pack packaging, priced per radio (ROW) (ANZ cord)
<b>C050910M901A</b>	5 GHz Force 300-25 High Gain Radio 4-Pack packaging, priced per radio (ROW) (South Africa cord)
<b>C050910MZ01A</b>	5 GHz Force 300-25 High Gain Radio 4-Pack packaging, priced per radio (ROW) (No PSU)
<b>C058910M102A</b>	5 GHz Force 300-25 High Gain Radio 4-Pack packaging, priced per radio (FCC) (US cord)
<b>C050910C001A</b>	5 GHz Force 300-25 High Gain Radio (ROW) (no cord)
<b>C050910C101A</b>	5 GHz Force 300-25 High Gain Radio (ROW) (US cord)
<b>C050910C104A</b>	5 GHz Force 300-25 High Gain Radio (IC) (Canada/US cord)
<b>C050910C201A</b>	5 GHz Force 300-25 High Gain Radio (ROW) (EU cord)
<b>C050910C203A</b>	5 GHz Force 300-25 High Gain Radio (EU) (EU cord)
<b>C050910C301A</b>	5 GHz Force 300-25 High Gain Radio (ROW) (UK cord)
<b>C050910C303A</b>	5 GHz Force 300-25 High Gain Radio (EU) (UK cord)
<b>C050910C401A</b>	5 GHz Force 300-25 High Gain Radio (ROW) (India cord)
<b>C050910C501A</b>	5 GHz Force 300-25 High Gain Radio (ROW) (China cord)
<b>C050910C601A</b>	5 GHz Force 300-25 High Gain Radio (ROW) (Brazil cord)
<b>C050910C701A</b>	5 GHz Force 300-25 High Gain Radio (ROW) (Argentina cord)
<b>C050910C801A</b>	5 GHz Force 300-25 High Gain Radio (ROW) (ANZ cord)
<b>C050910C901A</b>	5 GHz Force 300-25 High Gain Radio (ROW) (South Africa cord)
<b>C050910CZ01A</b>	5 GHz Force 300-25 High Gain Radio (ROW) (No PSU)
<b>C058910C102A</b>	5 GHz Force 300-25 High Gain Radio (FCC) (US cord)



## ePMP™ Force 300 Series

### 5 GHz Force 300 CSM Ordering Information

<b>C050910C021A</b>	5 GHz Force 300 CSM Radio (ROW) (no cord)
<b>C050910C121A</b>	5 GHz Force 300 CSM Radio (ROW) (US cord)
<b>C050910C124A</b>	5 GHz Force 300 CSM Radio (IC) (Canada/US cord)
<b>C050910C221A</b>	5 GHz Force 300 CSM Radio (ROW) (EU cord)
<b>C050910C223A</b>	5 GHz Force 300 CSM Radio (EU) (EU cord)
<b>C050910C321A</b>	5 GHz Force 300 CSM Radio (ROW) (UK cord)
<b>C050910C323A</b>	5 GHz Force 300 CSM Radio (EU) (UK cord)
<b>C050910C421A</b>	5 GHz Force 300 CSM Radio (ROW) (India cord)
<b>C050910C422A</b>	5 GHz Force 300 CSM Radio (India) (India Cord)
<b>C050910C521A</b>	5 GHz Force 300 CSM Radio (ROW) (China cord)
<b>C050910C621A</b>	5 GHz Force 300 CSM Radio (ROW) (Brazil cord)
<b>C050910C721A</b>	5 GHz Force 300 CSM Radio (ROW) (Argentina cord)
<b>C050910C821A</b>	5 GHz Force 300 CSM Radio (ROW) (ANZ cord)
<b>C050910C921A</b>	5 GHz Force 300 CSM Radio (ROW) (South Africa cord)
<b>C050910CZ21A</b>	5 GHz Force 300 CSM Radio (ROW) (No PSU)
<b>C058910C122A</b>	5 GHz Force 300 CSM Radio (FCC) (US cord)
<b>C050900S005A</b>	License Key Force 300 upgrade to AP – 12 SMs Maximum  <b>Note:</b> Force 300 CSM can be converted to an Access Point by applying the above license key. A maximum of 12 SMs can be connected in this way. The Force 300 CSM does not support GPS Synchronization. Refer to ePMP 3000L or ePMP 3000 for full-featured Access Point.

### 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.