ePMP Force 300 Series

Force 300 Quick Look

- Broad selection of high-performance subscriber modules for PTP and PMP 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 Series 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 ePMP™ Force 300 series of subscriber modules (SM) meets this demand, offering high performance and low latency across both point-to-multipoint (PMP) and point-to-point (PTP) deployments.

Force 300 Series SMs offer a wide range of antenna options with 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 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 that meet 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
- Cambium 3-year hardware warranty and support
- Power over Ethernet (PoE) injector and pole mount hardware included

ePMP Force 300 Series

Spectrum*

Available Models	Force 300-16, 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

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

Performance

	Force 300-16	Force 300-19R	Force 300-25	Force 300 CSM
ARQ	Yes	Yes	Yes	Yes
Nominal Receive Sensitivity (w/FEC) @20 MHz Channel	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 = -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)
Nominal Receive Sensitivity (w/FEC) @40 MHz Channel	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 = -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)
Nominal Receive Sensitivity (w/FEC) @80 MHz Channel	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 = -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)
Modulation Levels (Adaptive)	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)
Transmit Power Range	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 +27 dBm (combined, to regional EIRP limit) (1 dB interval)	0 to +29 dBm (combined, to regional EIRP limit) (1 dB interval)
QoS (Quality of Service)	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

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Physical

	Force 300-16	Force 300-19R	Force 300-25	Force 300 CSM
Surge Suppression*	1 joule integrated	1 joule integrated	1 joule integrated	1 joule integrated
Environmental	IP55	IP67 & IP68	IP55	IP67 & IP68
Temperature	-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)
Weight	0.50 kg (1.1 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
Wind Survival	180 km/h (112 mi/h)	180 km/h (112 mi/h)	180 km/h (112 mi/h)	180 km/h (112 mi/h)
Dimensions (Diameter x Depth)	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	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
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	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
Power Consumption	12W (Up to 15W in extreme cold temperatures when heater is activated)	12W (Up to 15W in extreme cold temperatures when heater is activated)	12W (Up to 15W in extreme cold temperatures when heater is activated)	12W (Up to 15W in extreme cold temperatures when heater is activated)
Input Voltage	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)

*Optional 30 V Surge Suppressor Available: Part # C000000L065A

Security

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

Certifications

	Force 300-16	Force 300-19R	Force 300-25	Force 300 CSM
FCCID	Z8H-89FT0016	Z8H89FT0048	Z8H89FT0017	Z8H-89FT0047
FCC Regulatory Part #	C058910P112A	C058900P901A	C058910P102A	C058910C122A
ETSI Regulatory Part #	C050910P011A	C050900P904A	C050910P001A	C050910C221A
Industry Canada Cert	109W-0016	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)

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Antenna Specifications

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

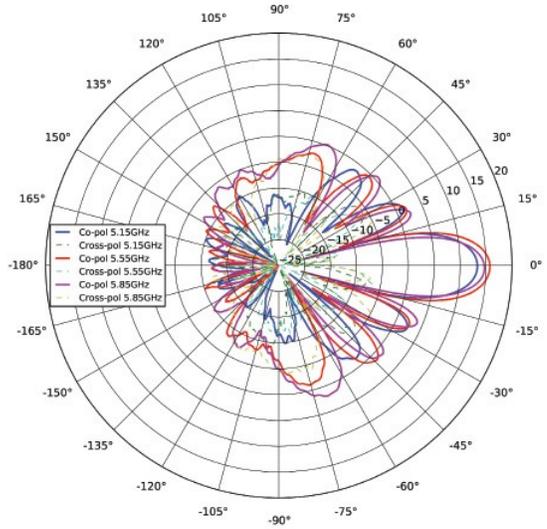Force 300-16

Force 300 CSM

Force 300-19R

Force 300-25

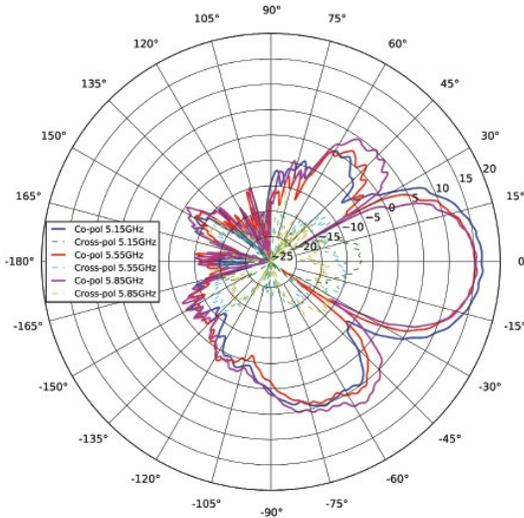# ePMP Force 300 Series

Force 300-16 Antenna Patterns
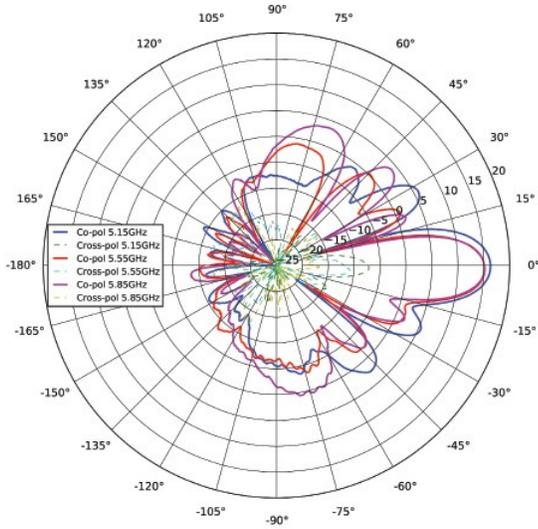
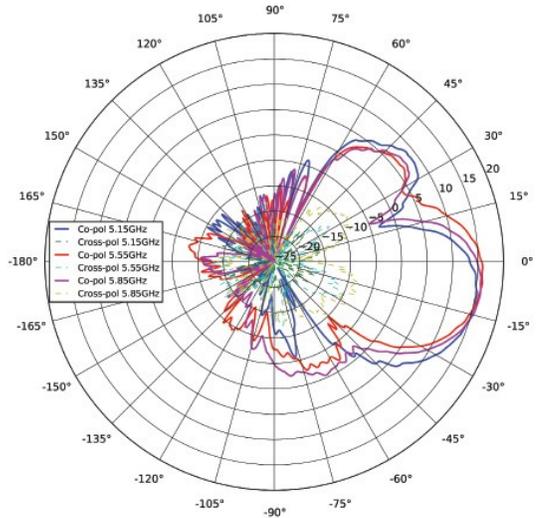### Azimuth, Horizontal

Azimuth, Vertical

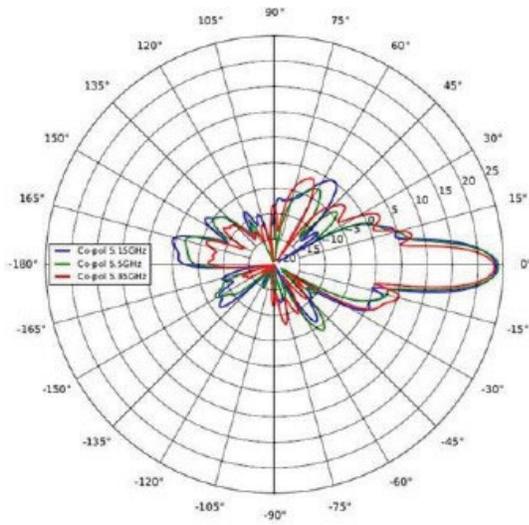### Elevation, Horizontal
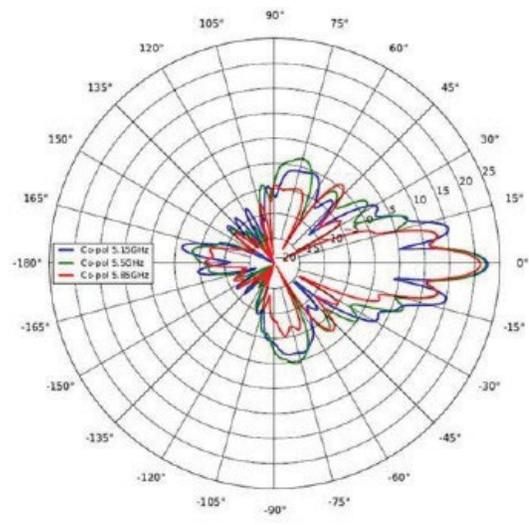

Elevation, Vertical

ePMP Force 300 Series

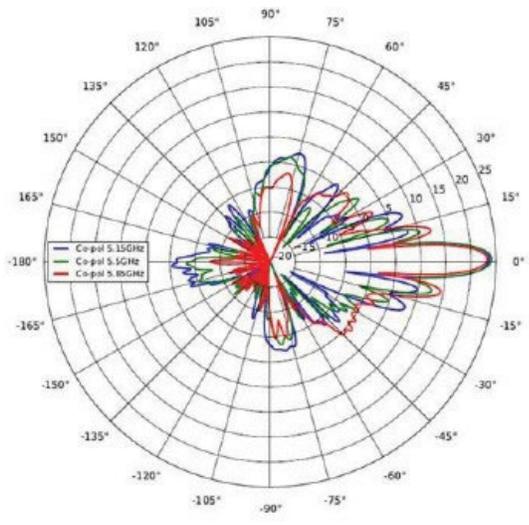## Force 300-25 Antenna Patterns

Azimuth, Horizontal

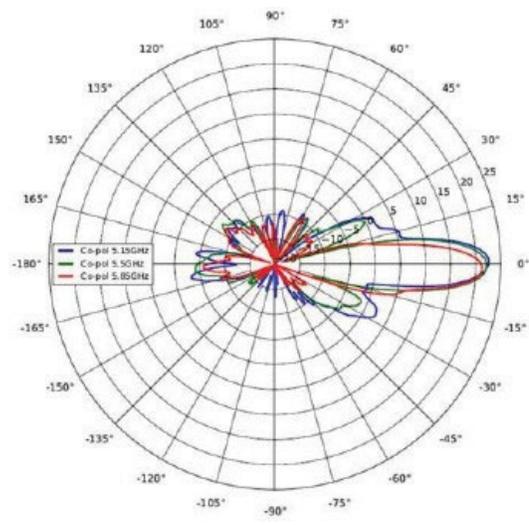### Azimuth, Vertical

Elevation, Horizontal

Elevation, Vertical

ePMP Force 300 Series

5 GHz Force 300-16 Ordering Information	
SKU	**Description**
C050910C011B	5 GHz Force 300-16 Radio (ROW) (no cord)
C050910C111B	5 GHz Force 300-16 Radio (ROW) (US cord)
C050910C114B	5 GHz Force 300-16 Radio (IC) (Canada/US cord)
C050910C211B	5 GHz Force 300-16 Radio (ROW) (EU cord)
C050910C213B	5 GHz Force 300-16 Radio (EU) (EU cord)
C050910C311B	5 GHz Force 300-16 Radio (ROW) (UK cord)
C050910C313B	5 GHz Force 300-16 Radio (EU) (UK cord)
C050910C411B	5 GHz Force 300-16 Radio (ROW) (India cord)
C050910C412B	5 GHz Force 300-16 Radio (India) (India cord)
C050910C511B	5 GHz Force 300-16 Radio (ROW) (China cord)
C050910C611B	5 GHz Force 300-16 Radio (ROW) (Brazil cord)
C050910C711B	5 GHz Force 300-16 Radio (ROW) (Argentina cord)
C050910C811B	5 GHz Force 300-16 Radio (ROW) (ANZ cord)
C050910C911B	5 GHz Force 300-16 Radio (ROW) (South Africa cord)
C058910C112B	5 GHz Force 300-16 Radio (FCC) (US cord)

Note: 5 GHz Force 300-19 is no longer available for new orders. Use Force 300-19R instead.

5 GHz Force 300-19R Ordering Information	
SKU	**Description**
C050900C901B	5 GHz Force 300-19R SM (IC) (Canada/US cord)
C050900C902B	5 GHz Force 300-19R SM (EU) (EU cord)
C050900C903B	5 GHz Force 300-19R SM (EU) (UK cord)
C050900C904B	5 GHz Force 300-19R SM (ROW) (no cord)
C050900C905B	5 GHz Force 300-19R SM (ROW) (US cord)
C050900C906B	5 GHz Force 300-19R SM (ROW) (EU cord)
C050900C907B	5 GHz Force 300-19R SM (ROW) (UK cord)
C050900C908B	5 GHz Force 300-19R SM (ROW) (India cord)
C050900C909B	5 GHz Force 300-19R SM (India) (India cord)
C050900C910B	5 GHz Force 300-19R SM (ROW) (China cord)
C050900C911B	5 GHz Force 300-19R SM (ROW) (Brazil cord)
C050900C912B	5 GHz Force 300-19R SM (ROW) (Argentina cord)
C050900C913B	5 GHz Force 300-19R SM (ROW) (ANZ cord)
C050900C914B	5 GHz Force 300-19R SM (ROW) (South Africa cord)
C058900C901B	5 GHz Force 300-19R SM (FCC) (US cord)

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5 GHz Force 300-25 Ordering Information	
SKU	Description
C050910M001C	5 GHz Force 300-25 High Gain Radio 4-Pack packaging, priced per radio (ROW) (no cord)
C050910M101B	5 GHz Force 300-25 High Gain Radio 4-Pack packaging, priced per radio (ROW) (US cord)
C050910M104A	5 GHz Force 300-25 High Gain Radio 4-Pack packaging, priced per radio (IC) (Canada/US cord)
C050910M201B	5 GHz Force 300-25 High Gain Radio 4-Pack packaging, priced per radio (ROW) (EU cord)
C050910M203B	5 GHz Force 300-25 High Gain Radio 4-Pack packaging, priced per radio (EU) (EU cord)
C050910M301B	5 GHz Force 300-25 High Gain Radio 4-Pack packaging, priced per radio (ROW) (UK cord)
C050910M303B	5 GHz Force 300-25 High Gain Radio 4-Pack packaging, priced per radio (EU) (UK cord)
C050910M401B	5 GHz Force 300-25 High Gain Radio 4-Pack packaging, priced per radio (ROW) (India cord)
C050910M501B	5 GHz Force 300-25 High Gain Radio 4-Pack packaging, priced per radio (ROW) (China cord)
C050910M601B	5 GHz Force 300-25 High Gain Radio 4-Pack packaging, priced per radio (ROW) (Brazil cord)
C050910M701B	5 GHz Force 300-25 High Gain Radio 4-Pack packaging, priced per radio (ROW) (Argentina cord)
C050910M801B	5 GHz Force 300-25 High Gain Radio 4-Pack packaging, priced per radio (ROW) (ANZ cord)
C050910M901B	5 GHz Force 300-25 High Gain Radio 4-Pack packaging, priced per radio (ROW) (South Africa cord)
C058910M102A	5 GHz Force 300-25 High Gain Radio 4-Pack packaging, priced per radio (FCC) (US cord)
C050910C001C	5 GHz Force 300-25 High Gain Radio (ROW) (no cord)
C050910C101B	5 GHz Force 300-25 High Gain Radio (ROW) (US cord)
C050910C104A	5 GHz Force 300-25 High Gain Radio (IC) (Canada/US cord)
C050910C201B	5 GHz Force 300-25 High Gain Radio (ROW) (EU cord)
C050910C203B	5 GHz Force 300-25 High Gain Radio (EU) (EU cord)
C050910C301B	5 GHz Force 300-25 High Gain Radio (ROW) (UK cord)
C050910C303B	5 GHz Force 300-25 High Gain Radio (EU) (UK cord)
C050910C401B	5 GHz Force 300-25 High Gain Radio (ROW) (India cord)
C050910C402B	5 GHz Force 300-25 High Gain Radio (India) (India cord)
C050910C501B	5 GHz Force 300-25 High Gain Radio (ROW) (China cord)
C050910C601B	5 GHz Force 300-25 High Gain Radio (ROW) (Brazil cord)
C050910C701B	5 GHz Force 300-25 High Gain Radio (ROW) (Argentina cord)
C050910C801B	5 GHz Force 300-25 High Gain Radio (ROW) (ANZ cord)
C050910C901B	5 GHz Force 300-25 High Gain Radio (ROW) (South Africa cord)
C058910C102A	5 GHz Force 300-25 High Gain Radio (FCC) (US cord)
C050910C701B	5 GHz Force 300-25 High Gain Radio (ROW) (Argentina cord)

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5 GHz Force 300 CSM Ordering Information*	
SKU	Description
C050910C124A	5 GHz Force 300 CSM Radio (IC) (Canada/US cord)
C058910C122A	5 GHz Force 300 CSM Radio (FCC) (US cord)
C050900S005A	License Key Force 300 upgrade to AP – 12 SMs maximum
	Note: 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.

*Only available for new orders in US and Canada. Refer to Force 300 CSM FSR for all other regions.

ABOUT CAMBIUM NETWORKS

Cambium Networks enables service providers, enterprises, industrial organizations, and governments to deliver exceptional digital experiences and device connectivity with compelling economics. Our ONE Network platform simplifies management of Cambium Networks' wired and wireless broadband and network edge technologies. Our customers can focus more resources on managing their business rather than the network. We make connectivity that just works.

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