5 GHz 450b

Subscriber and Backhaul

QUICK LOOK:

Cambium Networks 450 platform increases performance with the addition of the 5 GHz 450b Subscriber and Backhaul Module.

- **Ultra-wide band radios: 4.9 GHz to 5.9 GHz**
- **Capable of up to 300 Mbps aggregate in a 40 MHz channel**
- **Can function as a Point-to-Point (PTP) link or as a Subscriber Module (SM)**



KEY FEATURES

- Gigabit Ethernet Interface provides the maximum transfer rates to the device
- Available in Mid-Gain (17 dBi), High-Gain (24 dBi) and Connectorized versions
- 3.5 mm audio jack allows direct connection of headphones for alignment without any adapters
- New System on a Chip (SoC) enhances Packet Processing Power more than 4x that of the 450 SM
- "No Encryption" models only required for countries with export control license requirements



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Model Numbers

	Global*	ROW	FCC	ISED	EU	No Encryption
Conectorized	–	C050045C041A	C050045C042A	C050045C043A	C050045C044A	C050045C045A
Mid-Gain (17 dBi)	C050045C011A	C050045B031A	C050045B032A	C050045B033A	C050045B034A	C050045B035A
High Gain (Radio Only)	C050045C012A	C050045B021A	C050045B022A	C050045B023A	C050045B024A	C050045B025A
4-Pack High Gain Assembly	N050045D002A	N050045D002A	N050045D002A	N050045D002A	N050045D002A	N050045D002A

*Global models are restricted to SM-only operation, and cannot function as PTP or Backhaul

Specifications

Spectrum

Channel Spacing	Configurable on 2.5 MHz increments
Frequency Range	4900 - 5925 MHz
Channel Width	5 MHz, 10 MHz, 15 MHz, 20 MHz, 30 MHz or 40 MHz

Interface

MAC (Media Access Control) Layer	Cambium Networks proprietary
Physical Layer	2x2 MIMO OFDM
Ethernet Interface	100/1000 BaseT, full duplex, rate auto negotiated, 802.3 compliant
Protocols Used	IPv4, IPv6, UDP, TCP/IP, ICMP, Telnet, SNMP, HTTP, FTP
Network Management	IPv4/IPv6 (dual stack), HTTP, HTTPS, Telnet, FTP, SNMPv2c and v3, Cambium Networks cnMaestro™
MTU	1700 bytes
VLAN	802.1ad (DVLAN Q-inQ), 802.1Q with 802.1p priority, dynamic port VID

Security

Encryption	FIPS-197 128-bit AES, 256-bit AES *(Requires Optional License for attached Access Point)*

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Performance

PPS	50,000
ARQ	Yes

Modulation Levels (Adaptive)	MCS	Signal to Noise Required (SNR, in dB)
2x	QPSK	10
4x	16QAM	17
6x	64QAM	24
8x	256QAM	32

Ultimate Sensitivity	-94 dBm
Maximum Deployment Range	Up to 64 km (40 miles) in PMP mode, up to 200 km (124 miles) in PTP mode
Latency	3 - 5 ms, typical
GPS Synchronization	Yes, synchronized by Access Point or via 3.5mm port using cnPulse (for PTP mode)
Quality of Service	Diffserve QoS

Antenna

	Mid-Gain (17 dBi)	High-Gain (24 dBi)
Integrated Antenna Peak Gain	17 dBi	24 dBi
3 dB Beamwidth - Azimuth	15°	7°
3 dB Beamwidth - Elevation	30°	7°
Polarization	Dual linear, H + V	Dual linear, H + V
Front-To-Back Isolation	> 20 dB	> 25 dB
Cross Polarization	15 dB	15 dB

Physical

	Connectorized	Mid-Gain (17 dBi)	High-Gain (24 dBi)
Antenna Accessories	n/a	n/a	Optional Radome: N000900L021A
Surge Suppression	EN 61000-4-5: 10x700 µs, 4 kV, EN 61000-4-2: ESD 30 kV contact / 30 kV air		
Mean Time Between Failure	> 40 Years	> 40 Years	> 40 Years
Environmental	IP67	IP55	IP55, Optional glands to enhance to IP67 (Part number N000000L135A)
Wind Survival	200 kph (124 mph)	200 kph (124 mph)	200 kph (124 mph)
Temperature / Humidity	-40°C to 60°C (-40°F to 140°F), 0–100% non-condensing		
Weight	0.9 kg (2 lbs.) including mounting bracket	0.6 kg (1.4 lb) including mounting bracket	3.1 kg (7 lb) including mounting bracket
Dimensions (HxWxD)	24 x 4 x 9 cm (9.5 x 1.5 x 3.5 in)	12.5 x 24.8 x 12 cm (4.9 x 9.8 x 4.7 in)	Diameter 45 cm x 28 cm (17.8 in x 11.2 in)
Pole Diameter Range (w/ included mount)	2.5 cm to 7.6 cm (1 in to 3 in)	2.5 cm to 7.6 cm (1 in to 3 in) ± 20 degrees mechanical tilt	2.5 cm to 7.6 cm (1 in to 3 in) ± 20 degrees mechanical tilt
Power Consumption	9 W typical, 12 W peak	9 W typical, 12 W peak	9 W typical, 12 W peak
Input Voltage	20–32 VDC	20–32 VDC	20–32 VDC

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Link Budget

Transmit Power Range	54 dB dynamic range (to EIRP limit by region) (1 dB step)
Maximum Transmit Power	+27 dBm (MIMO, combined V+H)
Power Control	ATPC (Automatic Transmit Power Control) at system level, all Subscribers implement ATPC

Certifications

	Connectorized	Mid-Gain (17 dBi)	High-Gain (24 dBi)
ISED Canada	109W-0032	109W-0032	109W-0042
FCC ID	Z8H89FT0032	Z8H89FT0032	Z8H89FT0042
ETSI	EN 301 893 v2.1.1 EN 302 502 v2.1.1	EN 301 893 v2.1.1 EN 302 502 v2.1.1	EN 301 893 v2.1.1 EN 302 502 v2.1.1



Connectorized



Mid-Gain 17 dBi

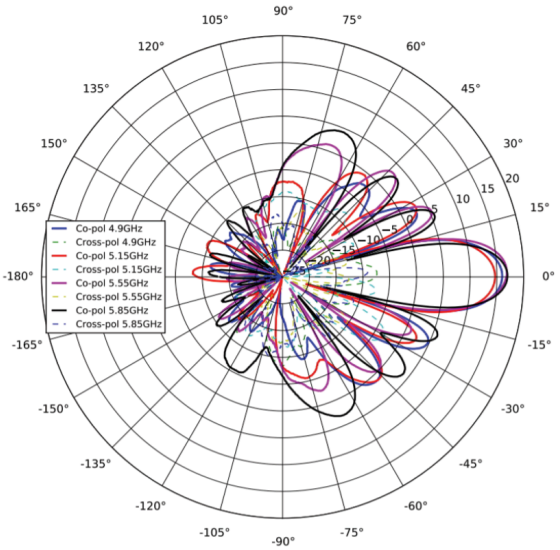


High-Gain 24 dBi

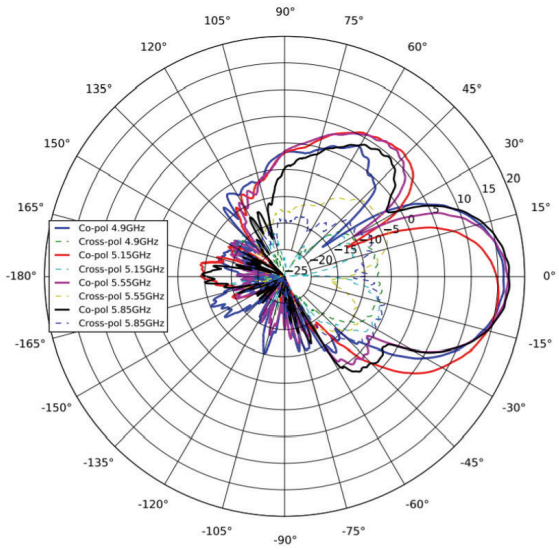
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5 GHz 450b Mid-Gain Antenna Patterns

Azimuth, Vertical

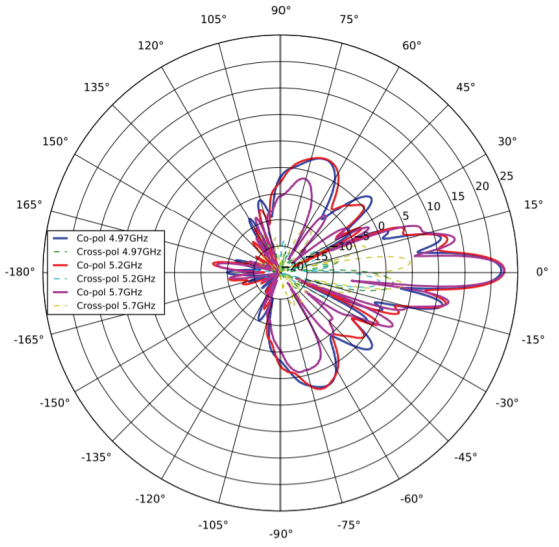


Elevation, Vertical

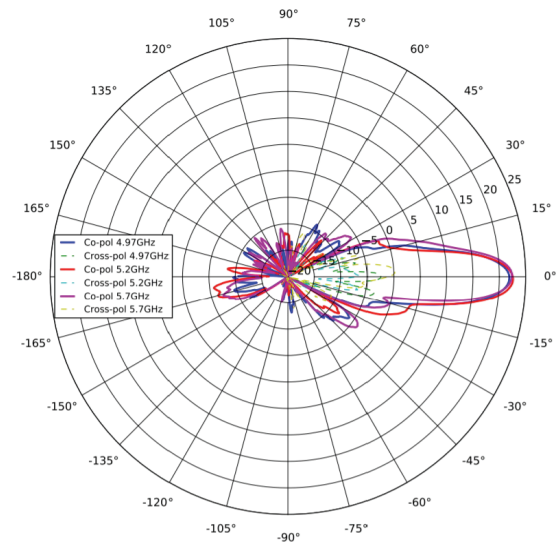


5 GHz 450b High-Gain Antenna Patterns

Azimuth, Vertical



Elevation, Vertical



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.

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