450b Retro
Point-to-Point Link / Subscriber Module

QUICK LOOK:

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

- Ultra-wide band radios: 4.9 GHz to 5.925 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.
- 3.5 mm audio jack allows direct connection of headphones without any adapters.
- New System on a Chip (SoC) enhances Packet Processing Power more than 4x that of the 450 SM.
- Form factor allows the use of existing Offset Reflector dishes.
450b Retro Point-to-Point Link / Subscriber Module

<table>
<thead>
<tr>
<th>Product</th>
<th>RoW</th>
<th>FCC</th>
<th>ISED</th>
<th>EU</th>
<th>No Encryption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model Numbers</td>
<td>C050045B101A</td>
<td>C050045B102A</td>
<td>C050045B103A</td>
<td>C050045B104A</td>
<td>C050045B105A</td>
</tr>
</tbody>
</table>

**Spectrum**

<table>
<thead>
<tr>
<th>Spectrum</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Channel Spacing</td>
<td>Configurable on 2.5 MHz increments</td>
</tr>
<tr>
<td>Frequency Range</td>
<td>4900 - 5925 MHz</td>
</tr>
<tr>
<td>Channel Width</td>
<td>5 MHz, 10 MHz, 15 MHz, 20 MHz, 30 MHz or 40 MHz</td>
</tr>
</tbody>
</table>

**Specifications**

**Interface**

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

**Security**

<table>
<thead>
<tr>
<th>Security</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Encryption</td>
<td>FIPS-197 128-bit AES, 256-bit AES (Requires Optional License for attached Access Point)</td>
</tr>
</tbody>
</table>
# 450b Retro Point-to-Point Link / Subscriber Module

## Performance

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PPS</strong></td>
<td>50,000</td>
<td></td>
</tr>
<tr>
<td><strong>ARQ</strong></td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

### Modulation Levels (Adaptive)

<table>
<thead>
<tr>
<th>Modulation Levels</th>
<th>QC5</th>
<th>Signal to Noise Required (SNR, in dB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2x</td>
<td>QPSK</td>
<td>10</td>
</tr>
<tr>
<td>4x</td>
<td>16QAM</td>
<td>17</td>
</tr>
<tr>
<td>6x</td>
<td>64QAM</td>
<td>24</td>
</tr>
<tr>
<td>8x</td>
<td>256QAM</td>
<td>32</td>
</tr>
</tbody>
</table>

### Ultimate Sensitivity

-94 dBm

### Maximum Deployment Range

Up to 40 miles (64 km) in PMP mode, up to 124 miles (200 km) 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

## Physical

### Integrated Antenna Gain

9 dBi

### Azimuth (3 dB rolloff)

45°

### Elevation (3 dB rolloff)

45°

### VSWR (MAX)

2:1

### Antenna Accessories

Optional Offset Reflector dish: HK2022A - 4-pack -- Enables total gain of 24 dBi

### 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

### Environmental

IP55

### Temperature / Humidity

-40°C to 60°C (-40°F to 140°F), 0-95% non-condensing

### Weight

0.4 kg (1 lb) (includes mounting bracket)

### Wind Survival

200 kph (124 mph)

### Dimensions (HxWxD)

28.6 cm x 8.9 cm x 8.9 cm (11.25 in x 3.5 in x 3.5 in)

### Pole Diameter Range (w/ included mount)

1 in to 3 in pole diameter

### Power Consumption

9 W typical, 12 W peak

### Input Voltage

24-30 VDC, Canopy-style PoE
450b Retro Point-to-Point Link / Subscriber Module

Link Budget

- **Transmit Power Range**: 57 dB dynamic range (to EIRP limit by region) (1 dB step)
- **Maximum Transmit Power**: +27 dBm (MIMO, combined V+H) (+22 dBm @ 256QAM)
- **Power Control**: ATPC (Automatic Transmit Power Control) at system level, all Subscribers implement ATPC

Certifications

- **ISED Canada**: 109W-0042
- **FCC ID**: Z8H89FT0042
  
  EN 301 893 v2.1.1
  
  EN 302 502 v2.1.1

450b Retro Antenna Patterns

Azimuth

Elevation
450b Retro Point-to-Point Link / Subscriber Module

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.

cambiumnetworks.com