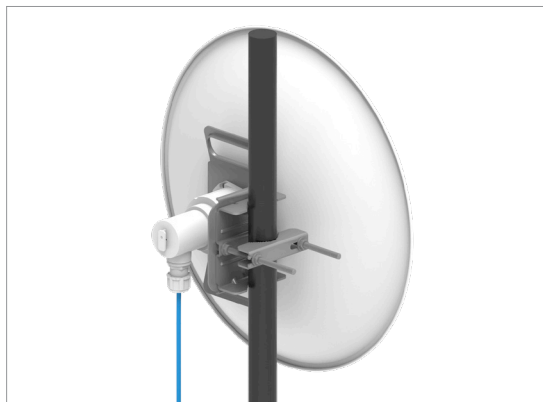


2 GHz and 3 GHz cnRanger Subscriber Modules

QUICK LOOK:

The cnRanger™ Fixed LTE wireless platform from Cambium Networks substantially increases range and coverage, while reducing the cost and complexity typically associated with LTE networks.

- **Category 4 Low Cost CPE in 2 GHz (Bands 38, 40 and 41)**
- **Category 6 High Gain CPE in both 2 GHz (Bands 38, 40 and 41) and 3 GHz (Bands 42, 43 and 48)**



KEY FEATURES

- LTE Optimized for Fixed Wireless Broadband
- High power transmitter provides enhanced uplink for 2 GHz 101 SM
- High Gain integrated parabolic dish for extended range on 201 SMs
- Reliable yet cost effective subscriber modules for cnRanger system
- Easy installation, with “Point and Go” configuration and provisioning

2 GHz and 3 GHz cnRanger Subscriber Modules

| Product | | | |
|----------------------|-----------------------|-----------------------|-----------------------|
| Model | 2 GHz cnRanger 101 SM | 2 GHz cnRanger 201 SM | 3 GHz cnRanger 201 SM |
| LTE UE Type | LTE Category 4 | LTE Category 6 | LTE Category 6 |
| Model Numbers | 2LTE-SM-101 | 2LTE-SM-201 | 3LTE-SM-201 |
| | 2LTE-SM-101-US | 2LTE-SM-201-US | 3LTE-SM-201-US |
| | 2LTE-SM-101-UK | 2LTE-SM-201-UK | 3LTE-SM-201-UK |
| | 2LTE-SM-101-EU | 2LTE-SM-201-EU | 3LTE-SM-201-EU |

| Spectrum | | | |
|------------------------|--|--|--|
| | 2 GHz 101 SM | 2 GHz 201 SM | 3 GHz 201 SM |
| Channel Spacing | 1 MHz as specified in the BBU | 1 MHz as specified in the BBU | 1 MHz as specified in the BBU |
| Frequency Range | LTE Band 38: 2570 - 2620 MHz LTE Band 40: 2300 - 2400 MHz LTE Band 41: 2496 - 2690 MHz | LTE Band 38: 2570 - 2620 MHz LTE Band 40: 2300 - 2400 MHz LTE Band 41: 2496 - 2690 MHz | LTE Band 42: 3400-3600 MHz LTE Band 43: 3600-3800 MHz LTE Band 48: 3550-3700 MHz |
| Channel Width | 5 MHz, 10 MHz, 15 MHz, 20 MHz | 5 MHz, 10 MHz, 15 MHz, 20 MHz | 5 MHz, 10 MHz, 15 MHz, 20 MHz |

Specifications

| Interface | |
|---|---|
| MAC (Media Access Control) Layer | TDD-LTE Advanced Release 10 |
| Protocols Used | IPv4, IPv6, UDP, TCP/IP, ICMP |
| Network Management | HTTP, HTTPS, SSH, Cambium Networks cnMaestro™ |
| MTU | 1516 bytes |

| Security | |
|-----------------------|--|
| Encryption | AES-128 and SNOW 3G |
| Authentication | SIM authentication via BBU, cnMaestro or Web GUI provisions BBU with SIM information |

2 GHz and 3 GHz cnRanger Subscriber Modules

Performance

HARQ Yes

Ultimate Sensitivity -98 dBm

MCS = Adaptive Modulation Levels, SNR = Signal to Noise Required, in dB

| MCS | SNR | MCS | SNR | MCS | SNR |
|--------|-----|---------|-----|---------|-----|
| 0-QPSK | 3 | 10-QPSK | 11 | 20-QPSK | 18 |
| 1-QPSK | 3 | 11-QPSK | 11 | 21-QPSK | 18 |
| 2-QPSK | 4 | 12-QPSK | 11 | 22-QPSK | 19 |
| 3-QPSK | 5 | 13-QPSK | 13 | 23-QPSK | 21 |
| 4-QPSK | 6 | 14-QPSK | 14 | 24-QPSK | 21 |
| 5-QPSK | 7 | 15-QPSK | 14 | 25-QPSK | 22 |
| 6-QPSK | 7 | 16-QPSK | 15 | 26-QPSK | 23 |
| 7-QPSK | 8 | 17-QPSK | 16 | 27-QPSK | 24 |
| 8-QPSK | 9 | 18-QPSK | 16 | 28-QPSK | 28 |
| 9-QPSK | 10 | 19-QPSK | 17 | | |

Physical

| | 2 GHz 101 SM | 2 GHz 201 SM | 3 GHz 201 SM |
|--|---|--|--|
| Surge Suppression | IEC/EN 61000-4-5, 4 kV @ (1.2/50us(8/20us), 10/700us) | IEC/EN 61000-4-5, 4kV @ (1.2/50us(8/20us), 10/700us) | IEC/EN 61000-4-5, 4kV @ (1.2/50us(8/20us), 10/700us) |
| Environmental | IP55 | IP67 | IP67 |
| Temperature / Humidity | -40°C to 55°C (-40°F to 131°F), 0-95% non-condensing | -40°C to 55°C (-40°F to 131°F), 0-95% non-condensing | -40°C to 55°C (-40°F to 131°F), 0-95% non-condensing |
| Weight | 2 kg (4.4 lbs) | 3.2 kg (7 lbs) | 3.2 kg (7 lbs) |
| Wind Survival | 190 kph (118 mph) | 200 kph (124 mph) | 200 kph (124 mph) |
| Dimensions (H x W x Depth) | 260 mm x 260 mm x 92 mm (10.2 in x 10.2 in x 3.6 in) | 450 mm dia x 300 mm (17.7 in. dia x 11.8 in.) | 450 mm dia x 300 mm (17.7 in. dia x 11.8 in.) |
| Pole Diameter Range (w/ included mount) | 38 mm to 76 mm (1.5 in to 3 in) | 38 mm to 76 mm (1.5 in to 3 in) | 38 mm to 76 mm (1.5 in to 3 in) |
| Power Consumption | 7.5 W max | 9 W max | 9 W max |
| Input Voltage | 30 V PoE | 30 V PoE | 30 V PoE |

Antenna

| | | | |
|-------------------------------------|-----------------------|-----------------------|-----------------------|
| Integrated Antenna Peak Gain | 15 dBi | 17.5 dBi | 21 dBi |
| 3 dB Beamwidth - Azimuth | 30° | 18° | 12° |
| 3 dB Beamwidth - Elevation | 30° | 16° | 12° |
| Polarization | Slant, +/- 45 Degrees | Slant, +/- 45 Degrees | Slant, +/- 45 Degrees |
| Front-To-Back Isolation | > 25 dB | > 30 dB | > 30 dB |
| Cross Polarization | > 23 dB | > 20 dB | > 20 dB |

2 GHz and 3 GHz cnRanger Subscriber Modules

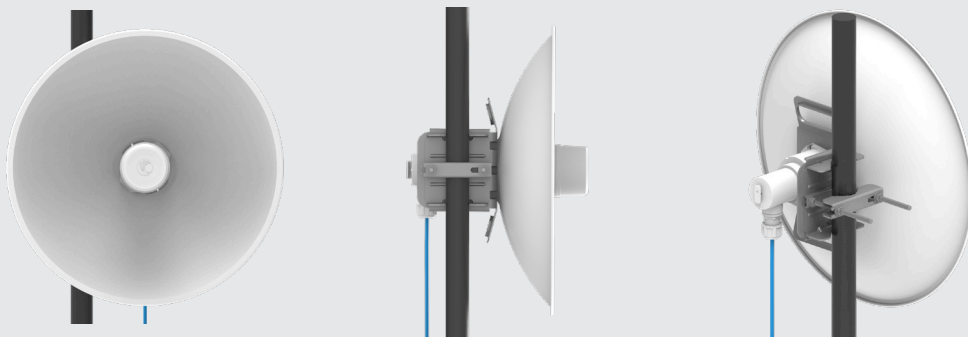
| Antenna | | | |
|---|---------------------|---------------------|---------------------|
| | 2 GHz 101 SM | 2 GHz 201 SM | 3 GHz 201 SM |
| Transmit Power Range (to EIRP limit by region) | 66 dB dynamic range | 66 dB dynamic range | 66 dB dynamic range |
| Maximum Transmit Power | 26 dBm | 26 dBm | 23 dBm |

| Certifications | | | |
|--------------------|--------------|-------------|-------------|
| ISED Canada | 109W-0053 | TBD | TBD |
| FCC ID | Z8H89FT0053 | Z8H89FT0064 | Z8H89FT0060 |
| ETSI | EN 302 326-2 | TBD | TBD |

2 GHz 101 SM

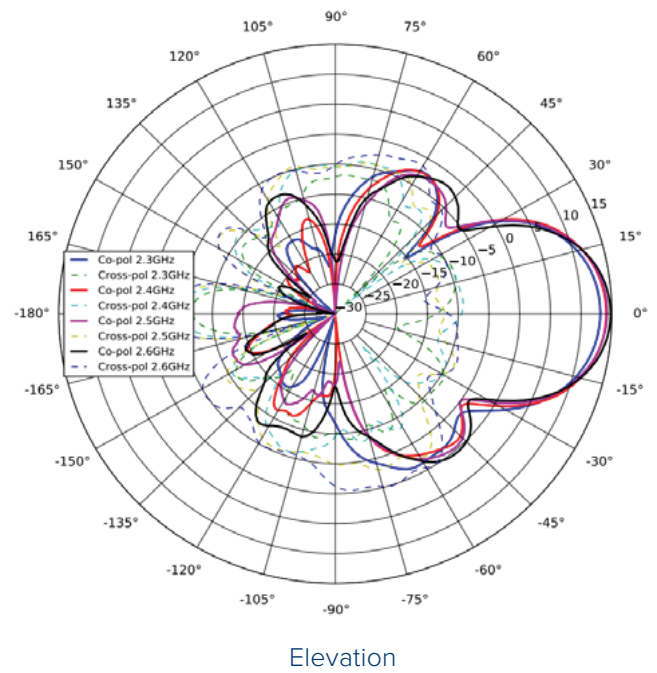
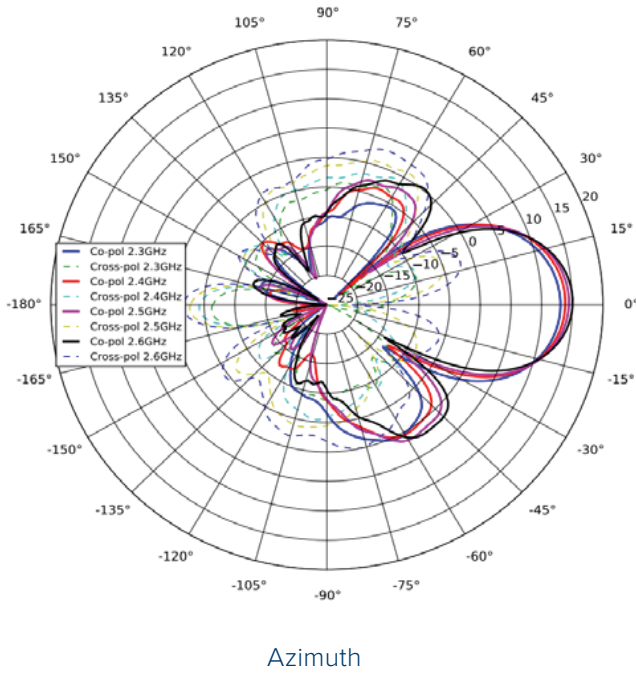


2 GHz and 3 GHz 201 SM

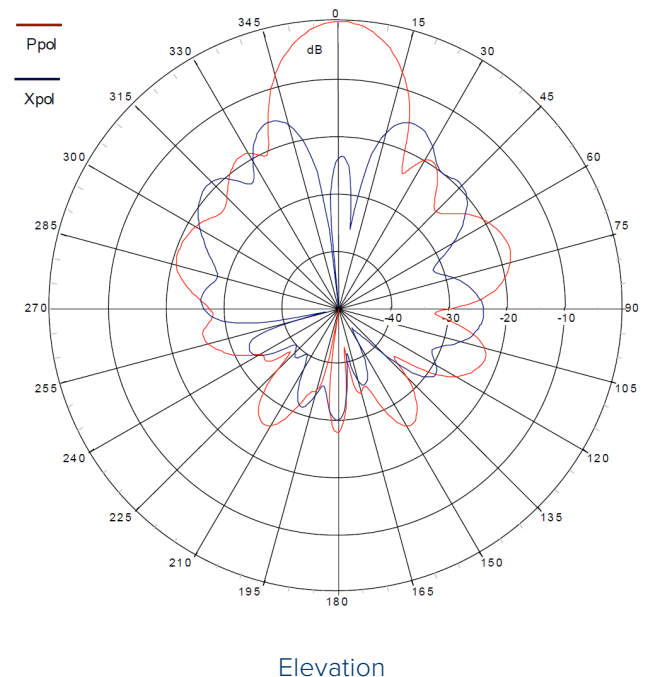
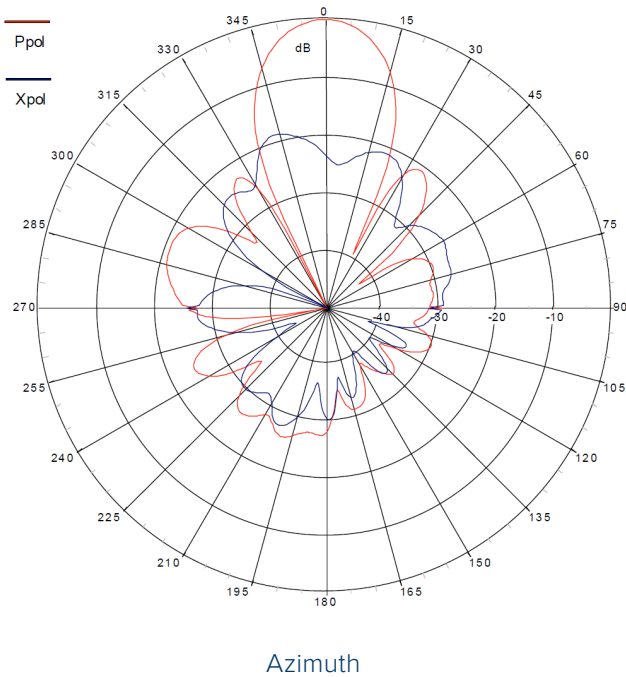


2 GHz and 3 GHz cnRanger Subscriber Modules

2 GHz 101 SM Antenna Patterns

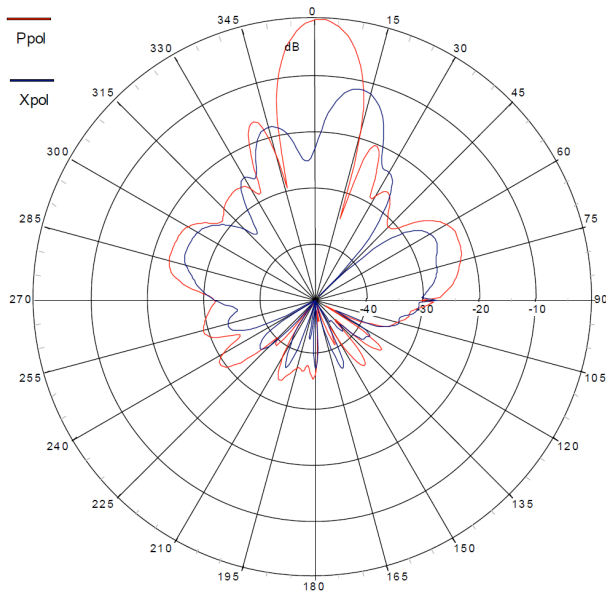


2 GHz 201 SM Antenna Patterns

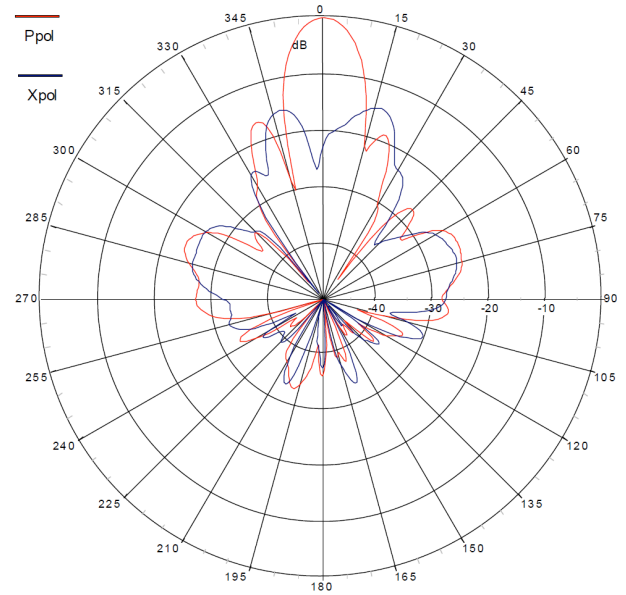


2 GHz and 3 GHz cnRanger Subscriber Modules

3 GHz 201 SM Antenna Patterns



Azimuth



Elevation

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.