

# cnReach™ N550 220 GHz Radio

## QUICK LOOK:

- **Licensed 220 GHz (217–222 MHz / FCC Part 80 and Part 90)**
- **Up to 5W transmit (37 dBm); (limited to 2W in 217 to 220 MHz per FCC)**
- **N550 adds higher performance with reduced headers, low overhead mode, QoS support and payload compression**
- **Point-to-point, Point-to-multipoint and Relay configurations in same hardware**



For outdoor critical infrastructure operations, cnReach transports process monitoring and control data from remote sensors or RTU/PLC's back to the operations center supporting real-time automated decision making and on-going analytics. Covering large geographic areas, hard to reach terrain and challenging spectrum environments, cnReach delivers reliable, secure connectivity to the petrochemical, electric utility, water/wastewater/stormwater and transportation industries. cnReach eases the migration to modern networks by combining legacy serial and analog/digital I/O with TCP/IP and Ethernet connectivity. Fully integrated into a 'single pane-of-glass' management platform (cnMaestro™), cnReach helps bridge the IT/OT sides of complex organizations. Combining cnReach's licensed and unlicensed narrow-band radios with Cambium Networks' broadband technologies, industrial organizations are delivering end-to-end Industrial Internet of Things solutions today.

- Secure communications with AES 128/256-bit encryption and password authentication.
- Highly reliable communications with access point synchronization and adaptive modulation.
- Extensive I/O capabilities easing the transition from serial to all-IP networks with multiple serial ports, Ethernet ports and analog/digital I/O built-in.
- Sophisticated network planning with LINKPlanner, a no-charge planning tool enabling network designers to predict both capacity and availability of networks crossing all of Cambium's technologies.
- Supported by cnMaestro™ software for monitoring the status of entire networks carrying traffic across sensors.
- Fully compatible and interoperable with N500 220 MHz radios.

## cnReach™ N550 220 GHz Radio

### Radio Specifications

<b>UL</b>	Approved
<b>FCC</b>	Z8H89FT0040
<b>Frequency Range</b>	217–222 MHz (FCC Part 90: 217–220 Mhz; FCC Part 90: 220–222 MHz; FCC Part 80: 217–218 and 219–220 MHz)
<b>Output Power</b>	Up to 5W (37 dBm); FCC Part 90: 217–220 MHz = 2W; FCC Part 90: 220–222 MHz up to 5W depending on channel size; FCC Part 80: 2W
<b>Step Size</b>	10mW starting at 100mW
<b>Modulations</b>	MSK / QPSK / 8PSK / 16QAM / 32QAM
<b>Capacity*</b>	7.4 kbps to 689 kbps UDP throughput (see tables below)
<b>Channel Bandwidths</b>	12.5 / 15 / 25 / 50 / 100 kHz (available regulations and license permitting)
<b>Range</b>	Up to 110 km / 70 miles
<b>Packet Handling</b>	Layer 2 bridge, Layer 3 static routes, VLAN support
<b>Error Correction</b>	Up to 32-bit CRC, Retransmit on error
<b>Data Encryption</b>	128/256-bit AES
<b>I/O and Serial Data Access</b>	Optional I/O allows seamless integration of Modbus RTU and Modbus TCP protocols

\*Capacities are over-the-air signalling rates. Usable throughput varies based on payload size, uplink/downlink ratio and protocol. UDP traffic is typically 55-60% of the over-the-air signalling rate.

### Management

Web-based Interface via HTTP/HTTPS
LINKPlanner integration (capacity and availability planning)
Remote Management via SNMP
cnMaestro™ integration
Support for configuration files, remote software upgrades
Built-in diagnostic tools via web interface such as RF Ping and RF Throughput

## cnReach™ N550 220 GHz Radio

**Receive Sensitivity (FCC Part 90 217–220 MHz)**

	12.5 KHz Channel		25 KHz Channel		50 KHz Channel	
	Rx Sensitivity (dBm)	Capacity* (kbps)	Rx Sensitivity (dBm)	Capacity* (kbps)	Rx Sensitivity (dBm)	Capacity* (kbps)
<b>MSK -2W</b>	-117	7.4	-115	14	-108	24
<b>QSPK-5W</b>	-112	13	-111	22	-108	49
<b>8SPK-5W</b>	-106	19	-105	24	-101	73
<b>16 QAM-5W</b>	-103	24	-101	24	-98	97
<b>32 QAM-5W</b>	-100	24	-97	49	-94	97

**Receive Sensitivity (FCC Part 90 220–220 MHz)**

	15 KHz Channel		50 KHz Channel	
	Rx Sensitivity (dBm)	Capacity* (kbps)	Rx Sensitivity (dBm)	Capacity* (kbps)
<b>MSK -2W</b>	-116	7	-1107	24
<b>QSPK-5W</b>	-104	13	-104	49
<b>8SPK-5W</b>	-98	19	-98	73
<b>16 QAM-5W</b>	-95	24	-92	97
<b>32 QAM-5W</b>	-91	24	-89	97

**Receive Sensitivity (FCC Part 80 217–218 MHz, 219–220 MHz)**

	100 KHz Channel	
	Rx Sensitivity (dBm)	Capacity* (kbps)
<b>MSK -2W</b>	-106	49
<b>QSPK-5W</b>	-106	97
<b>8SPK-5W</b>	-95	146
<b>16 QAM-5W</b>	-96	295
<b>32 QAM-5W</b>	-91	361

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### Hardware Specifications

<b>Ethernet Interfaces</b>	2 x RJ-45 10/100BaseT, Full Duplex, rate auto negotiated (802.3 compliant)	
<b>Serial Interfaces</b>	2 x RJ-45 RS-232/422/485, up to 230.4 kbps	
<b>Analog/Digital I/O (optional)</b>	8 pins for analog input/output and digital input/output	
<b>RF / Antenna</b>	TNC RF connectors (1 or 2 depending on single or dual-radio configuration)	
<b>Input Power</b>	10–32VDC with reverse polarity protection	
<b>Power Consumption (12VDC average)</b>	2W Tx Output / Highest Modulation	
	<b>Active (50% duty cycle)</b>	<b>Idle</b>
<b>Single Radio Configuration (mA)</b>	523	224
<b>I/O Expander (mA)</b>	293mA	
<b>Dimensions</b>	168 mm x 88 mm x 47 mm (6.625 x 3.45 x 1.835in)	
<b>Weight</b>	Single Radio Configuration: 0.70 kg (1.54 lbs) Dual Radio Configuration: 0.73 kg (1.61 lbs)	
<b>DIN Rail Mount</b>	Optional	
<b>Operating Temperature</b>	-40°C to 75°C (-40°F to 167°F)	
<b>Humidity</b>	95% operating humidity @ 60°C non-condensing	
<b>HAZLOC</b>	UL-Approved to Class 1 / Div 2	

### Ordering Information

<b>N550 220 GHz Single</b>	NB-N550210B-US
<b>N550 220 GHz Single with IO</b>	NB-N550211B-US
<b>N550 220 GHz Dual</b>	NB-N550220B-US
<b>N550 220 GHz Dual with IO</b>	NB-N550221B-US
<b>N500 IO Expander</b>	NB-N550001A-US

#### 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.