cnReach™ N550 220 MHz Radio

QUICK LOOK:

- **Licensed 220 MHz (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**

cnMaestro READY

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.

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Radio Specifications

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

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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)
MSK -2W	-117	7.4	-115	14	-108	24
QSPK-5W	-112	13	-111	22	-108	49
8SPK-5W	-106	19	-105	24	-101	73
16 QAM-5W	-103	24	-101	24	-98	97
32 QAM-5W	-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)
MSK -2W	-116	7	-1107	24
QSPK-5W	-104	13	-104	49
8SPK-5W	-98	19	-98	73
16 QAM-5W	-95	24	-92	97
32 QAM-5W	-91	24	-89	97

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

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

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Hardware Specifications

Ethernet Interfaces	2 x RJ-45 10/100BaseT, Full Duplex, rate auto negotiated (802.3 compliant)
Serial Interfaces	2 x RJ-45 RS-232/422/485, up to 230.4 kbps
Analog/Digital I/O (optional)	8 pins for analog input/output and digital input/output
RF / Antenna	TNC RF connectors (1 or 2 depending on single or dual-radio configuration)
Input Power	10–32VDC with reverse polarity protection
Power Consumption (12VDC average)	2W Tx Output / Highest Modulation

	Active (50% duty cycle)	Idle
Single Radio Configuration (mA)	523	224

I/O Expander (mA)	293mA
Dimensions	168 mm x 88 mm x 47 mm (6.625 x 3.45 x 1.835in)
Weight	Single Radio Configuration: 0.70 kg (1.54 lbs) Dual Radio Configuration: 0.73 kg (1.61 lbs)
DIN Rail Mount	Optional
Operating Temperature	-40°C to 75°C (-40°F to 167°F)
Humidity	95% operating humidity @ 60°C non-condensing
HAZLOC	UL-Approved to Class 1 / Div 2

Ordering Information

N550 220 MHz Single	NB-N550210B-US
N550 220 MHz Single with IO	NB-N550211B-US
N550 220 MHz Dual	NB-N550220B-US
N550 220 MHz Dual with IO	NB-N550221B-US
N500 IO Expander	NB-N550001A-US

About Cambium

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 deliver connectivity that just works.

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