

# M900S Series™

## 900 MHz

### NLOS Broadband Wireless System



The M900S Series point-to-multipoint wireless broadband platform utilizes the advantages of the 900 MHz license-exempt spectrum and delivers up to 3 Mbps to the subscriber. Ideal for non-line-of-sight (NLOS) deployment, this fully integrated outdoor system includes internal dual polarized antennas as well as connectors for optional external antennas.

### Product Highlights

#### • 900 MHz NON-LINE-OF-SIGHT PERFORMANCE

The M900S Series was designed for deployment in areas where foliage and other obstructions obscure line-of-sight between the access point (AP) and subscriber unit (SU). The system offers excellent receiver sensitivity and best-in-class overall system gain for outstanding non-line-of-sight (NLOS) range. The subscriber can expect typical NLOS performance of up to 6 miles or beyond\*. Use of external antennas increases range and fade margin even farther. In addition, Spread Spectrum modulation promotes resistance to multipath fading. Combining state-of-the-art SMARTPolling™ with Spread Spectrum modulation results in maximum cell performance.

#### • ANTENNA FLEXIBILITY

The M900S AP and SU each include an integrated 10 dBi dual polarized patch antenna as well as a connector for optional external antennas. The lower cost M915S-SU-EXT features only a connector for an external antenna. External antenna options include omni antennas for the AP and yagi-style antennas for both the AP and SU. The auto-sensing feature on the M900S SU allows the firmware to choose the antenna with the strongest signal, or the user can manually select either the internal or external antenna.

#### • CHANNEL FLEXIBILITY

The system is configured with four channels, each 6 MHz apart. The user can redefine channels by selecting frequencies in single MHz increments. The SU scans all channels until it associates with a properly configured AP. This allows redundancy of APs as well as a simple and quick method to switch channels on an entire sector.

#### • INTERFERENCE MITIGATION

The M900S Series offers powerful resistance to interference with the Automatic Repeat Request (ARQ) feature which automatically retransmits packets to mask RF errors to higher layer protocols. In addition, the system includes interference mitigation tools such as software selectable dual polarity antennas, automatic SU power leveling, and threshold control.

#### • MANAGEMENT FEATURES

The system offers remote and local management via Telnet, SNMP and HTTP via browser. Powerful tools such as site survey and upstream/downstream CIR/MIR controls allow operators total control and flexibility in managing their network.

\* Non-line-of-sight range and throughput may vary due to antenna height, leaf density, moisture content, and other environmental factors.

- New Low-cost EXT-model SU
- Superb NLOS Performance
- Up to 3 Mbps
- Robust interference rejection (ARQ)

# M900S Series™ Specifications

COMPATIBILITY / RANGE CHART			
Part Number	Model Type	Antenna	Range / Fade Margin
M900S-AP	Access Point w/ integrated & external antennas	Internal, 10 dBi, External	Up to 6 miles NLOS* / 10 dBi
M900S-SU	Subscriber Unit w/ integrated & external antennas	Internal, 10 dBi, External	Up to 20 miles LOS / 18 dBi
M915S-SU-EXT	Subscriber Unit Connectorized	External only	Depends on external antenna selection

\* Non-line-of-sight performance may vary due to antenna height, leaf density, moisture content, and other environmental factors.

RADIO PARAMETERS	
Frequency of Operation	902 - 928 MHz
Channels	4 non-overlapping, software selectable
Channel Spacing	6 MHz, software selectable
RF Power Output	M900S AP & SU: +26 dBm Max Setting, -4 dBm Min Setting M915S-SU-EXT: +26 dBm Max Setting, 0 dBm Min Setting
Modulation Format	Direct Sequence Spread Spectrum (DSSS)
Certification / Compliance	FCC Part 15.247
Receiver Sensitivity (BER 10-6)	-90 dBm typical

DATA AND OPERATIONAL PARAMETERS	
Access Method	TDD with SMARTPolling™
User Data Throughput	3 Mbps
Upstream/Downstream Throughput	Dynamic, automatically adjusts to suit demand
Bandwidth Control	CIR and MIR upstream/downstream control by AP
Maximum Number SUs per AP	126
Auto Repeat Request	Continuous ARQ with Selective Repeat
Security	proprietary authentication method, based on MAC address and alphanumeric base ID; over-the-air data scrambling.
Configuration & Management	Telnet, SNMP, TFTP, HTTP

ANTENNA PARAMETERS	
Internal Antennas	M900S AP & SU: Integrated 10 dBi 60° X 60° patch dual polarized (HPOL/VPOL)
External Antenna Connection	Reverse Polarity SMA (RP-SMA)
Omni Antenna** (Optional)	8.5 dBi 360° X 10° (VPOL) - Comtelco Part # BS915XL7** (Requires N-SMA RP adapter)
Yagi Antenna*** (Optional)	15 dBi 30° X 30° (VPOL or HPOL) - Cushcraft part # PC9013N*** (Requires N-SMA RP adapter)

POWER PARAMETERS	
Power Method	Power-over-Ethernet (PoE Injector JBox included)
Voltage Input	24 VDC
Standard Power Supply	120VAC to 24VDC
PoE Cat-5 Max Cable Length	300 feet on 24 AWG STP Cat-5 cable

PHYSICAL AND ENVIRONMENTAL	
Ethernet Interface	RJ45, 10/100BaseT, auto sense, auto negotiate
Antenna Connector	SMA reverse polarity
Reset Button	Resets unit to factory default settings
Radio Enclosure	M900S AP & SU: All-weather, powder coated, cast aluminum with polycarbonate radome M915S-SU-EXT: All-weather ABS
Temperature Range	-40° to 60° C (-40° to 140° F)
Radio Weight	M900S AP & SU: 4 lbs. M915S-SU-EXT: 1.5 lbs.
Radio Dimensions	12.5" x 8" x 2.75" (AP), 15" x 7.4" x 6.1" (SU)
Mounting Hardware	M900S AP & SU: Mounts to pole or wall (2 V-mounting brackets, 4 threaded rods, 4 lock washers and 8 kepnuts) M915S-SU-EXT: Mounts to pole or wall (L-mounting brackets, U-bolt, nuts, hex-head bolt, kepnut and lock washer)
User Interfaces	RJ45 (shielded)

Features and specifications are typical and subject to change without notice.

\*\* Available from Comtelco ([www.comtelcoantennas.com](http://www.comtelcoantennas.com)) and Comtelco distributors

\*\*\* Available from Cushcraft ([www.cushcraft.com](http://www.cushcraft.com)) and Cushcraft distributors

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