



We Connect The World



## WCS-02NH

IEEE802.11abgn 2.4GHz/5GHz 2T2R Dual Radio  
Wireless Outdoor Mesh Bridge / AP for Wireless  
Coverage Network (Output power: 23dBm,  
4 N-type connectors)

IEEE802.11abgn 2T2R MIMO

Dual Band 2.4GHz/5GHz

Multiple Radio

High Power W/Transmit Power Control

Multiple Hop/Mesh

Keep 110Mbps till 10th hop

MeshViewPro™ NMS

PheeNet WCS-02NH delivers high-performance Wireless Mesh Network with high capacity. WCS-02NH consists of 2 independent 802.11abgn 2.4GHz/5GHz radios for flexible Wireless Mesh deployment.

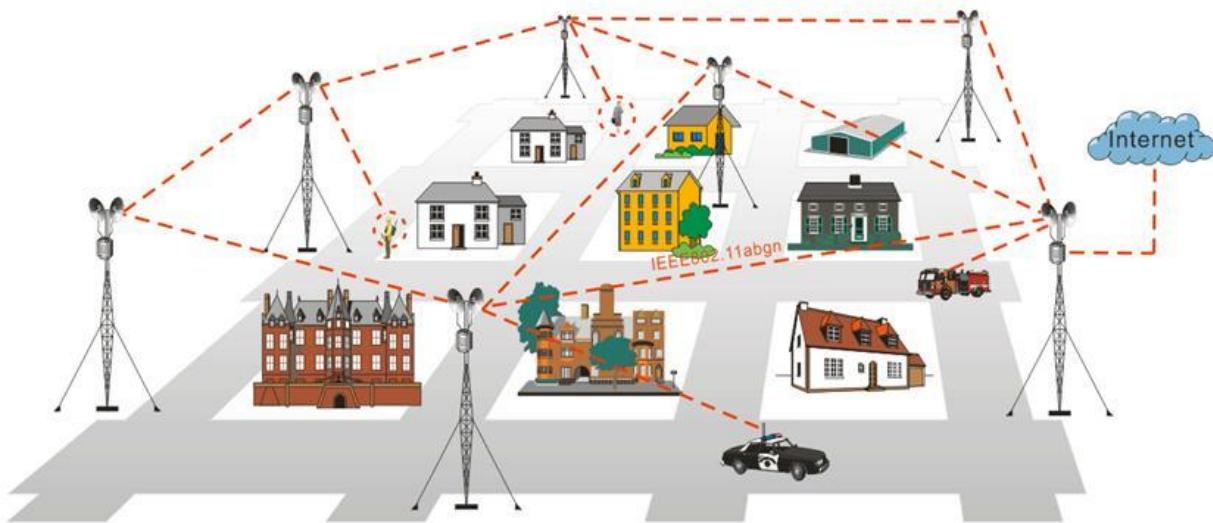
Each radio is capable of providing a maximum output power 23dBm and 300Mbps data rate. Each radio may be configured to operate as a Wifi Access Point (AP) or as a PTP (Point-to-Point) or PTMP (Point to Multiple Point) or full Mesh. A dual-radio architecture separates client access and mesh backbone data while optimizing radio resources for both types of traffic to ensure high throughput and low latency. Integrated with Intelligent Mesh OS, it automatically optimizes traffic routes between each Wireless Mesh node and creates a truly adaptive mesh infrastructure.

The mesh infrastructure adjusts dynamically to traffic levels and RF signal strength to ensure high availability and optimal performance across multiple hops network; it allows Wifi clients to move between Wireless Mesh in less than 50 milliseconds, maintaining a seamless connection for latency-sensitivity applications, such as video and voice.

PheeNet Wireless Mesh allows WISP, System Integrator, Industrial Enterprises and Municipalities to establish reliable network connectivity almost anywhere. Intelligent Mesh delivers scalable, reliable networking services, and a multi-radio architecture delivers massive capacity. With PheeNet Wireless Mesh, high quality Wifi Coverage, HD-quality video surveillance, and High-Speed Roaming for In-Vehicle Mobility are easier to be implemented.

## Application

### Wireless Coverage / Mesh Network by IEEE802.11abgn for Surveillance and Wifi Access



## Feature

Low Latency and High throughput over Multiple Wireless hops

- Dynamic Expansion Wireless Hot Zones
- Reliable performance when deploying multiple nodes in bridged or routed environments
- Bandwidth control module at subscriber level
- IEEE802.1q Tag VLAN
- IEEE802.1p VLAN Priority Based QoS

### Bridge

- Layer 2 Switching Learning Technology
- Store and Forward
- DHCP Server / Client
- Multicast / Broadcast Storm Limitation
- IEEE802.1q Tag VLAN
- IEEE802.1p VLAN Priority Based QoS
- Q-in-Q VLAN

### Router Mode

- TCP/IP (IPv4)
- Static Route / Dynamic Route
- RIP (Routing Information Protocol) V1 & V2
- DHCP Server / Client
- NAT (Network Address Translation)

### Comprehensive Security Features

- IEEE802.1x EAP-MD5 / EAP-TLS / EAP-TTLS
- WPA / WPA2 PSK / EAP with TKIP / CCMP AES based Encryption
- Proprietary security algorithm for Mesh / Mobility
- 64/128/152 bits Dynamic WEP keys
- Hide ESSID
- MAC address filtering
- NAT

### Dynamic WAN Interface Configuration

- Flexible assignments of any wired or wireless interfaces as WAN links to adapt to different network topologies
- Bandwidth aggregation by logically combining multiple RF links to achieve super trunk mode for high bandwidth deployments
- Smart traffic load balancing across multiple RF links
- Configurable Transmit-only and Receive-only mode per RF interface
- Flexible wireless network distribution system

### Advanced Features

- Wireless Bandwidth Limitation
- Intelligent Wireless Traffic Control
- Intelligent Abnormal Reports
- Against Co-band Interference
- Proprietary TDD-like duplexing schema

### Harsh outdoor environment to keep operation

- Certified IP68 sturdy water-tight housing
- Built-in automatic thermal sensor and regulator module to facilitate deployment in cold regions

### System Management

- HTTP(s) WEB GUI
- Telnet
- SSH
- Console(optional interface)
- CLI commands
- SNMP v1 / v2, standard / private MIBs
- Syslog
- Layer 2 iCloud Management Utility
- Management VLAN Tag
- NTP Client
- Firmware upgrade / downgrade via FTP / WEB / SNMP / Layer 2 / Batch process
- Dual Images
- Dual Configuration files / Factory Default
- Ping Watchdog
- Multiple Level Management

### Simple Installation and Deployment

- Software Alignment / Deployment Tools
- Access Points Site Survey

## Specification

Performance	
Wireless to Wire	TCP: Up to 180Mbps for one radio to Ethernet Up to 320Mbps for multiple radios to Ethernet UDP: Up to 240Mbps for one radio to Ethernet Up to 350Mbps for multiple radios to Ethernet PPS: >= 20000@short packet for one radio to Ethernet >=28000@short packet for multiple radios to Ethernet Latency:<5ms
Multiple Hopping	2 hops: up to 160Mbps 3 hops: up to 150Mbps 4 hops: up to 140Mbps Up to 10 hops with more than 120Mbps throughput Configuration Max. Hop Counts (default 20hops) PPS: >=20000@short packet at multiple hops Latency: <10ms
RF / Wireless	
Number of Radio Interfaces	Dual 2x2 MIMO radios
Standard	IEEE802.11a, IEEE802.11b, IEEE802.11g, IEEE802.11n, IEEE802.3at
Frequency Range	USA: 2.400 ~ 2.483GHz, 5.15~5.35GHz, 5.5~5.7GHz, 5.725~5.825GHz Europe: 2.400 ~ 2.483GHz, 5.15~5.35GHz, 5.47~5.725GHz Japan: 2.400 ~ 2.497GHz, 5.15~5.35GHz, 5.47~5.725GHz China: 2.400 ~ 2.483GHz, 5.725~5.85GHz
Modulation	OFDM
Security	64/128/152-bit WEP WPA/WPA2 PSK/EAP with TKIP/CCMP AES based Encryption IEEE802.1x EAP-MD5/EAP-TLS/EAP-TTLS Hide SSID MAC Address ACL
Receive Sensitivity	IEEE802.11a: -82dBm@6M, 1Rx -95/-91dBm@6M, 2Rx -65dBm@54M, 1Rx -79/-75dBm@54M, 2Rx  IEEE802.11b: -82dBm@1M, 1Rx -92/-88dBm@1M, 2Rx -76dBm@11M, 1Rx -92/-88dBm@11M, 2Rx  IEEE802.11g: -82dBm@6M, 1Rx -95/-91dBm@6M, 2Rx

	<p>-65dBm@54M, 1Rx -80/-76dBm@54M, 2Rx</p> <p>IEEE802.11a/n HT20: -82dBm@MCS0, 1Rx -95/-91dBm@MCS0, 2Rx -64dBm@MCS7, 1Rx -77/-73dBm@MCS7, 2Rx</p> <p>IEEE802.11a/n HT40: -79dBm@MCS0, 1Rx -91/-87dBm@MCS0, 2Rx -61dBm@MCS7, 1Rx -74/-69dBm@MCS7, 2Rx</p> <p>IEEE802.11g/n HT20: -82dBm@MCS0, 1Rx -95/-91dBm@MCS0, 2Rx -64dBm@MCS7, 1Rx -77/-73dBm@MCS7, 2Rx</p> <p>IEEE802.11g/n HT40: -79dBm@MCS0, 1Rx -92/-88dBm@MCS0, 2Rx -61dBm@MCS7, 1Rx -74/-70dBm@MCS7, 2Rx</p>
Output Power	<p>IEEE802.11a: 24dBm@6M(all) 21dBm@54M(all)</p> <p>IEEE802.11b: 24dBm@1M(all) 24dBm@11M(all)</p> <p>IEEE802.11g: 25dBm@6M(all) 22dBm@54M(all)</p> <p>IEEE802.11a/n HT20: 24dBm@MCS0/8(all) 18dBm@MCS7/15(5180MHz) 17dBm@MCS7/15(5825MHz)</p> <p>IEEE802.11a/n HT40: 22dBm@MCS0/8(all) 17dBm@MCS7/15(5190MHz) 16dBm@MCS7/15(5795MHz)</p> <p>IEEE802.11g/n HT20: 25dBm@MCS0/8(all) 21dBm@MCS7/15(all)</p>

	IEEE802.11g/n HT40: 24dBm@MCS0/8(all) 20dBm@MCS7/15(all) 16dBm@MCS7/15(all)
Operating Mode	Access Point Wireless Station Access Point (WDS Support) Wireless Station (WDS Support) MESH Mode
Features	IEEE802.11h DFS WMM QoS Channel / TX Power / Data Rate / Max Distance Adjustable Multiple SSID / VLAN tags mapping (up to 16 x SSIDs for each radio) Wireless Site Survey Node Information Current Connected Node Limitation Client User Isolation Wireless Bandwidth Limitation
Management	HTTP(s) WEB GUI Telnet SSH Console (optional interface) CLI commands SNMP V2C/V3, standard / private MIBs Syslog Management VLAN tag NTP Client Firmware upgrade / downgrade Dual Images Dual Configuration Files / Factory Default Multiple Level Management
<b>Hardware</b>	
Processor	Atheros AR7161 (680MHz)
RF Chipset	Atheros AR9220 based mini PCI module x 2
Switch	Atheros AR8035 / Atheros AR8021
Flash	16MB
SDRAM	128MB
Antenna Connector	Four Ntype- female arranged in two pairs to support 802.11n 2x2 MIMO operation
Ethernet	1 x 10/100/1000Mbps Ethernet with IEEE802.3at POE Ethernet Link Speed Configurable
Environment	Operating Temperature: -20°C ~ 70°C Storage Temperature: -30°C ~ 85°C Humidity: 100%(non condensing)
Power Supply	48V 1A POE Support Giga Ethernet Link
Power Consumption	21.5W
Waterproof	IP67 rated
Mounting	Pole mount & Wall mount

Dimension	220 x 220 x 70 mm
Weight	2.0KG (3.7KG mount kit included)
Certificate	FCC, CE

## **PheeNet Technology Corp.**

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