Cisco 3202 4.9-GHz Wireless Mobile Interface Card

The Federal Communications Commission (FCC) in the United States has allocated 50 MHz of licensed bandwidth in the 4.9-GHz frequency band for public safety applications. The Cisco® 3202 Wireless Mobile Interface Card (WMIC) for the Cisco 3200 Series Rugged Integrated Services Routers (ISR) provides integrated, wireless WAN or LAN capabilities in the licensed 4.9-GHz frequency band. Designed in the same ruggedized, compact PC/104-Plus form factor as the other Cisco 3200 Series interface cards, the 4.9-GHz WMIC provides licensed, broadband communications between first responder vehicles and outdoor wireless infrastructure supporting 4.9-GHz technology. The Cisco 3202 WMIC can also create a wireless hotspot in and around a mobile network, allowing public safety officials to roam from their vehicles while remaining connected to mission-critical applications.

As part of the Cisco 3200 Series, the Cisco 3202 WMIC offers:

- Licensed broadband wireless access for public safety agencies in the United States
- The ability to be configured as an access point, root bridge, nonroot bridge, or workgroup bridge client
- A rugged design suitable for vehicular or embedded outdoor networks

The Cisco 3200 Series Rugged ISR provides public safety, homeland security, and transportation organizations with a mobile networking platform that extends the edge of the IP network out to mobile workforces in vehicles, trains, or airplanes. The Cisco 3200 Series routers create a network in motion, enabling multiple devices in and around a vehicle to be connected to the main network as the vehicle roams between wireless WAN networks. Standards-based Mobile IP is used for seamless roaming across the different types of wireless networks and technologies.

With a Cisco 3200 Series router, public safety organizations can create a highly secure IP network in the vehicle to transmit voice, video, and data communications between a remote workforce and headquarters. Improving communications through multiple applications empowers the remote workforce with information and tools that traditionally were accessible only from within the boundaries of an office building.

Refer to Cisco 3200 Series Rugged ISR data sheets for more details about networking solutions using the Cisco 3200 Series routers http://www.cisco.com/en/US/products/hw/routers/ps272/products_data_sheets_list.html.

Figure 1 shows the Cisco 3202 WMIC.

Figure 1. Cisco 3202 Wireless Mobile Interface Card

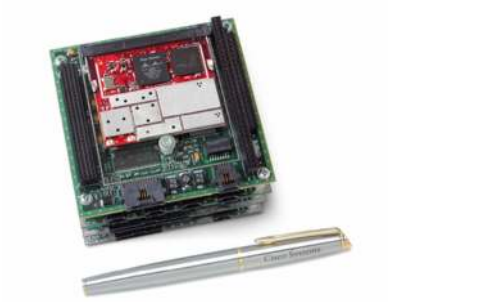

Table 1 lists the features and benefits of the Cisco 3202 WMIC.

Table 1. Features and Benefits of the Cisco 3202 WMIC

Feature	Benefit
Integration with Cisco 3200 Series Rugged Integrated Services Routers	• Eliminates the need for external 4.9-GHz LAN or WAN devices • Simplifies hardware and power design for in-vehicle networks • Combines Layer 2 and Layer 3 wireless networking with 802.11a/b/g, 4.9 GHz, and other wireless backhaul connectivity
Rugged, Compact Form Factor	• Built with industrial-grade components in the PC/104-Plus architecture • Meets MIL-STD-810F and SAE standards • Suitable for both vehicular and embedded, outdoor network deployments
Configurable as an Access Point, Bridge, or Workgroup Bridge	• Flexible configuration modes supporting root bridge, nonroot bridge, or access point • Configurable as a workgroup bridge providing interoperability with the Cisco 1522 and 1524 Outdoor Mesh Access Points • Bridge modes allow for point-to-point, or point-to-multipoint communications between one or more sites
High Power Mask for All Power Output Levels	• Minimizes co-channel interference • Compliant with FCC Docket #00-32 on 4.9 GHz ruling

Table 2 lists part numbers for the Cisco 3202 WMIC, and Table 3 provides product specifications.

Table 2. Cisco 3202 WMIC Part Numbers

The Cisco 3202 WMIC is available as part of a Cisco 3200 Series product bundle or as a spare mobile interface card. The card is also available preassembled with thermal plates. For additional information, refer to the Cisco 3200 Series ordering brochure: http://www.cisco.com/en/US/prod/collateral/routers/ps272/prod_brochure0900aecd803fabbf.html

Part Number	Description
C3202WMIC-A49-K9=	Cisco 3202 4.9-GHz WMIC supporting root bridge, nonroot bridge, access point, or workgroup bridge applications for operation in North America
C3202WMIC-TPA49K9=	Cisco 3202 4.9-GHz WMIC with thermal plates, configurable to support bridge, access point, or workgroup bridge applications for operation in North America. Thermal plates enable integration into the Cisco 3200 Series Rugged Enclosures.

Table 3. Product Specifications for the Cisco 3202 WMIC

Feature	Specification
Standards Specifications	Compliant with the FCC's WT Docket #00-32 ruling
Frequency Band	4.94 to 4.99 GHz
Network Architecture Types	Deployable in many public safety applications: • In vehicles, for broadband wireless WAN or LAN connectivity • As a licensed 4.9-GHz bridge for backhaul or point-to-point/point-to-multipoint communications • As an access point deployed as a vehicle hotspot or stationary outdoor access point for on-demand highly secure coverage in public safety
Media Access Protocol	Carrier-Sense Multiple Access with Collision Avoidance (CSMA/CA)
Modulation and Data Rates	Orthogonal frequency divisional multiplexing (OFDM): • 20-MHz channel: • BPSK: 6 and 9 Mbps • QPSK: 12 and 18 Mbps • 16-QAM: 24 and 27 Mbps • 64-QAM: 48 and 54 Mbps • 10-MHz channel: • BPSK: 3 and 4.5 Mbps • QPSK: 6 and 9 Mbps • 16-QAM: 12 and 18 Mbps • 64-QAM: 24 and 27 Mbps • 5-MHz channel: • BPSK: 1.5 and 2.25 Mbps • QPSK: 3 and 4.5 Mbps • 16-QAM: 6 and 9 Mbps • 64-QAM: 12 and 13.5 Mbps • BPSK: Biphase shift keying • QPSK: Quadrature phase shift keying • QAM: Quadrature amplitude modulation
Operating Channels	10 5-MHz channels or 5 10-MHz channels or 2 20-MHz channels
Receive Sensitivity	• 20-MHz channel: ◦ 6, 9, and 12 Mbps: -85 dBm ◦ 18 Mbps: -82 dBm ◦ 24 Mbps: -79 dBm ◦ 36 Mbps: -76 dBm ◦ 48 Mbps: -71 dBm ◦ 54 Mbps: -69 dBm • 10-MHz channel: ◦ 3, 4.5, 6, and 9 Mbps: -87 dBm ◦ 12 Mbps: -82 dBm ◦ 18 Mbps: -79 dBm ◦ 24 Mbps: -74 dBm ◦ 27 Mbps: -72 dBm • 5-MHz channel: ◦ 1.5, 2.25, and 3 Mbps: -89 dBm ◦ 4.5 Mbps: -85 dBm ◦ 6 Mbps: -82 dBm ◦ 9 Mbps: -79 dBm ◦ 12 Mbps: -74 dBm ◦ 13.5 Mbps: -72 dBm
Transmit Power (for 5-, 10-, and 20-MHz Channels)	• Maximum transmit power: 16 dBm • Maximum antenna gain: 17 dBi • Maximum equivalent isotropically radiated power (EIRP): 33 dBm
Maximum Range	Outdoor: • 5-MHz channel: 4.875 miles (7.485 km) at 3 Mbps • 10-MHz channel: 3.869 miles (6.226 km) at 9 Mbps

Feature	Specification
Compliance	Licensed operation in compliance with FCC's WT Docket #00-32 ruling
Simple Network Management Protocol (SNMP) Compliance	MIB I and MIB II
Antennas	Outdoor antennas: • Mars Sector (60; 90; 120º) ◦ Gain (17; 16; 15 dBi) ◦ 500 x 80 x 80 mm (19.7 x 3.2 x 3.2 in.) • Mars Omni (7.5 dBi) ◦ 420 x 32 mm (16.5 x 1.3 in.) • Mars Patch (21 dBi) ◦ 305 x 305 x 15 mm (12 x 12 x 0.6 in.) Vehicular antennas: • Mobile Omni (5 dBi) ◦ Length: 250 mm (9.8 in.) ◦ Width: 80 mm (3.2 in.) ◦ Height: 100 mm (3.9 in.)
Encryption Key Length	128-bit
VLAN Support	Allows segmentation of up to 16 user groups, creating increased system flexibility by allowing differentiation of LAN policies and services, such as security and quality of service (QoS), for different users
QoS Support	Prioritization of traffic for different application requirements to improve the user's experience with voice and video
Security	Cisco Wireless Security Suite, including: • Authentication ◦ 802.1X support, including Cisco LEAP, Projected Extensible Authentication Protocol (PEAP), Extensible Authentication Protocol Transport Layer Security (EAP-TLS) (Root-AP and Client), EAP Tunneled TLS (EAP-TTLS), EAP Subscriber Information Module (EAP-SIM), and EAP Flexible Authentication via Secure Tunneling (EAP-FAST) • Encryption ◦ 802.11i/Wi-Fi Protected Access WPA v2 Advanced Encryption Standard-Counter Mode with Cipher Block Chaining Message authentication code protocol (AES-CCMP); 128-bit key length ◦ Temporal Key Integrity Protocol (TKIP) encryption enhancements: key hashing (per-packet keying), message integrity check (MIC), and broadcast key rotation via WPA TKIP ◦ Support for static and dynamic IEEE 802.11 Wired Equivalent Privacy (WEP) keys of 40 and 128 bits
Status Indicators	Signals for 4 status indicators (ETH, RF, INSTALL, and STATUS) to provide information concerning association status, operation, error or warning, firmware upgrade, configuration, network or modem, and radio status
Automatic Configuration Support	BOOTP and Dynamic Host Configuration Protocol (DHCP)
Remote Configuration Support	Telnet, HTTP, FTP, Trivial File Transfer Protocol (TFTP), and SNMP
Local Configuration	Direct console port
Dimensions	• C3202WMIC-A49-K9 • 3.8 x 0.9 x 3.5 in. (W x H x D) • Height dimension includes component side height, board height, and the shroud height on the solder side • C3202WMIC-TPA49K9 • 4.5 x 0.9 x 3.7 in (W x H x D) • Dimensions include thermal plates
Weight	• C3202WMIC-A49-K9 • 0.21 lb (0.094 kg) • C3202WMIC-TPA49K9 • 0.52 lb (0.238 kg)
Enclosure and Accessories	A list of enclosures and accessories is available at: http://www.cisco.com/en/US/products/hw/routers/ps272/products_data_sheet0900aecd8028e3a7.html

Feature	Specification
Environmental	• Operating temperature:* -40 to +74ºC (when used in the Cisco 3200 Series Rugged Enclosure) • Operating altitude: 15,000 ft • Nonoperating temperature: -40 to +85ºC • Nonoperating altitude: 40,000 ft *Maximum operating ambient temperature may vary, depending on the enclosure and the thermal solution used.
Typical Power Consumption	5W
Warranty	90 days
Wi-Fi Certification	

Ordering Information

The Cisco 3202 WMIC for the Cisco 3200 Series Rugged ISRs provides integrated 4.9-GHz wireless WAN or LAN capabilities. Ordering information for the Cisco 3202 WMIC can be found at the following address http://www.cisco.com/en/US/prod/collateral/routers/ps272/prod_brochure0900aecd803fabbf.html.

Service and Support

Cisco offers a wide range of service programs to accelerate customer success. These innovative service programs are delivered through a unique combination of people, processes, tools, and partners, resulting in high levels of customer satisfaction. Cisco services help you protect your network investment, optimize network operations, and prepare your network for new applications to extend network intelligence and the power of your business. For more information about Cisco services, refer to Cisco Technical Support Services or Cisco Advanced Services.

For More Information

For more information about Cisco 3200 Series Rugged ISRs, visit http://www.cisco.com/go/3200 or contact your local Cisco account representative.

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