vizmo EL-2201 High Power Mini PCI Radio Module User Manual

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vizmo EL-2201 High Power Mini PCI Radio Module

Product Information

Product Name	EL-2201
Description	1×1 IEEE 802.11 b/g High Power Mini PCI Radio Module
Operating Frequency	902 MHz to 928 MHz
Chipset	Atheros AR5414A-001
Security	WPA, WPA2, 802.11i with AES-CCM & TKIP Encryption, 802.1x, 64/128/152bit WEP
Data Rates	6Mbps, 9Mbps, 12Mbps, 24Mbps, 36Mbps, 48Mbps, 54Mbps
Channel Bandwidth	5 MHz/10 MHz/20 MHz Compliant
RoHS Compliance	Yes
Operating System Support	Linux Open WRT and Ath5K driver
Interface	PCI 32-bit, 33 MHz, mini PCI Form Factor
Operating Voltage	3.3V
RF Antenna Connector	SINGLE MMCX, VERTICAL
Mechanical Dimensions (Assembled condition)	(L) 59.6 mm x (W) 65 mm x (H) 8 mm
Weight of the Module without ESD Bag	41 g
Weight of the Module with ESD Bag	43 g

Product Usage Instructions

To use the EL-2201 IEEE 802.11 b/g High Power Mini PCI Radio Module, follow these instructions:

1. Make sure the module is properly connected to the host device. The module uses a PCI 32-bit, 33 MHz interface and requires a 3.3V operating voltage.
2. Attach the RF antenna to the SINGLE MMCX, VERTICAL antenna connector on the module.
3. Ensure that your operating system supports the module. The EL-2201 is compatible with Linux Open WRT and requires the Ath5K driver.
4. Configure the module's security settings according to your requirements. The module supports WPA, WPA2, 802.11i with AES-CCM & TKIP Encryption, 802.1x, and 64/128/152bit WEP.
5. Set the desired data rate and channel bandwidth for your application. The module supports data rates of 6Mbps, 9Mbps, 12Mbps, 24Mbps, 36Mbps, 48Mbps, and 54Mbps, as well as channel bandwidths of 5 MHz, 10 MHz, and 20 MHz.
6. Ensure that the module is installed in a well-ventilated area with a minimum distance of 20 cm between the radiator and your body to comply with FCC radiation exposure limits.

For any further assistance or customization options, please refer to the EL-2201 User Manual.

EL-2201
1×1 IEEE 802.11 b/g High Power Mini PCI Radio Module

- EL-2201 is an IEEE 802.11b/g 902 MHz to 928 MHz Radio Module built over Vizmonet's innovative Built-to-CustomizeTM platform engineered for carrier class long range high data capacity applications.
- With superior TX power efficient RF design, the product supports high TX Power offering best-in class EVM performance at higher modulation schemes. This facilitates to achieve long range without compromising data throughput.
- With well-engineered RX Design, EL-2201 offers ultra-low receive sensitivity to achieve long range.
- Backed by military grade technology, the product is ideal for deployment in harsh outdoor environment and available with plenty of options for customization to enable easy integration into OEM systems.

FEATURES

- IEEE 802.11b/g standards compliant operating in the frequency range 902 MHz to 928 MHz
- High TX Power of up to +29 dBm for lower data rates
- Atheros AR5414A-001 Chipset
- Mini PCI Type IIIA form factor – 59.6mm(W)x64mm(L)
- Support for Customization for OEM integration
- Operating Temperature range (-20 deg C to +70 deg C)

TECHNICAL SPECIFICATION

RADIO MODULE – GENERAL INFO	
Chipset Info	Atheros AR5414A-001
Operating Frequency	902 MHz to 928 MHz
Security	WPA,WPA2, 802.11i with AES-CCM & TKIP Encryption, 802.1x, 64/128/152bit WEP
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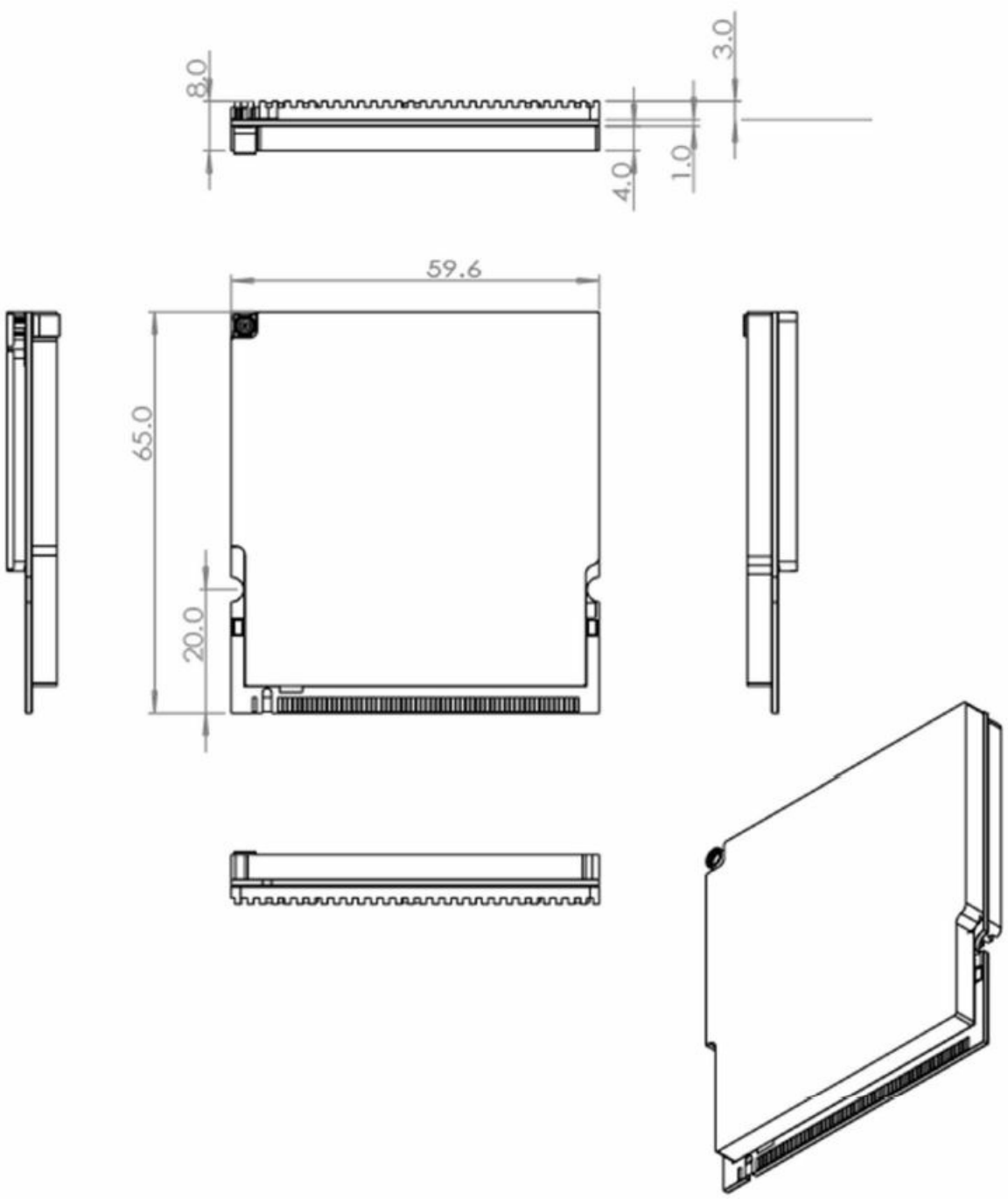
Channel Bandwidth	5 MHz/10 MHz/20 MHz
RoHS Compliance	Compliant
Operating System Support	Linux Open WRT and Ath5K driver
INTERFACE SPECIFICATIONS	
Interface	PCI 32-bit,33 MHz, mini PCI Form Factor
Operating Voltage	3.3V
RF Antenna connector	SINGLE MMCX, VERTICAL
PHYSICAL SPECIFICATIONS	

Mechanical Dimension (Assembled condition)	(L) 59.6 mm x (W) 65 mm x (H)8 mm
Weight of the module without ESD Bag	41 g
Weight of the Module with ESD Bag	43 g
CUSTOM FEATURES	
MAC ID	74-E2-77-00 series
PCI Sub Vendor ID	168C
PCI Sub Device ID	120C
TX Power offset	10 dB
Frequency offset	1520 MHz
Labels	MAC Label x1 pc on the Radio Module Model Label x pc with dual barcode on the ESD bag
REGULATORY INFORMATION	
FCC PART15 C	FCC ID: O9P-EL2201
PACKAGING INFORMATION	
100 units per Carton Box	520 mm (L) x 240 mm (W) x 133 mm (H)
ORDERING INFORMATION	
EL-2201	Mini PCI Radio Module, 1×1 IEEE 802.11 b/g, 902 MHz, 30 dBm

Channel Mapping – 902 MHz to 928 MHz

BASE BAND OP FREQ (MHz)	CH BW (MHz)	STANDARD (MHz)	(11b/g)
2427	907	5/10	11g
2432	912	5/10/20	11b/g
2437	917	5/10/20	11b/g
2442	922	5/10	11g

MECHANICAL DIMENSIONS



Dimensions in MM

FCC STATEMENT

Federal Communications Commission Interference Statement (FCC ID: O9P-EL2201)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. this device must accept any interference received, including interference that may cause undesired operation.

FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance 20 cm between the radiator & your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

This device is intended only for OEM integrators under the following conditions

- The antenna must be installed such that 20 cm is maintained between the antenna and users, and.
- The transmitter module should not be used co-located with any other transmitter or antenna.

IMPORTANT NOTE

In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID cannot be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

End Product Labeling
The final end product must be labeled in a visible area with the following: "Contains FCC ID: O9P-EL2201"

Antenna Installation: It is installer's responsibility to ensure that when using the authorized antennae in the United States (or where FCC rules apply); only those antennae certified with the product are used. The use of any antenna other than those certified with the product is expressly forbidden in accordance to FCC rules CFR47. The

installer should configure the output power level of antennas, according to country regulations and per antenna type. Professional installation is required of equipment with connectors to ensure compliance with health and safety issues.
WARNING: This device has been tested with a MMCX connector and antenna as listed in the table below. When integrated into the OEM products, these fixed antennae require professional installation, preventing end users from replacing them with non-compliant antennae.

Antenna Information

902 MHz to 928 MHz	Trade name ELPRO
	Type: External type (Omni directional)
	Model name EL-SG900
	Max. Gain : 6 dBd

OEM Installation

This module is intended for OEM installations only. The OEM integrator is responsible for ensuring that the end-user has no manual instructions to install, remove or modify the module. When the module is used in OEM system, final host product should be tested to ensure compliance with Part 15 Subpart B and the product must use a physical label stating “Contains Transmitter Module FCC ID: O9P-EL2001” or shall use e-labelling.

Documents / Resources

	vizmo EL-2201 High Power Mini PCI Radio Module [pdf] User Manual O9P-EL2201, O9PEL2201, el2201, EL-2201, High Power Mini PCI Radio Module, EL-2201 High Power Mini PCI Radio Module, Mini PCI Radio Module, PCI Radio Module, Radio Module, Module