
Actiontec

802DRN

Dual-Band Concurrent

802.11a/b/g/n 3x3 MIMO Dual-Radio

PCIe Wireless Module

User Guide

1. Description:

Actiontec 802DRN is a Dual PCIe, Dual-Band Concurrent 3x3 wireless local area network (WLAN) module designed to support high throughput data rates for both legacy 802.11b/g/n 2.4GHz and next generation 802.11 a/n 5GHz WLAN devices, simultaneously over a single set of dual-band external antennas.

The 802DRN provides the freedom of wireless connectivity with the performance, security, and manageability that businesses and consumers desire, in a single compact Dual PCIe module designed for maximum efficiency of space, power, and cost. A firmware-based architecture is capable of supporting software upgrades to meet evolving industry standards.

The 802DRN is complemented by drivers and networking tools for various embedded operating systems (e.g. Linux). Extensive technical documentation on integration issues such as antenna design, customizing drivers, and management software can be provided on request.

2. Features:

- IEEE 802.11 b/g/n standards compliant in 2.4GHz
- IEEE 802.11 a/n standards compliant in 5GHz
- Direct Sequence Spread Spectrum (DSSS), Orthogonal Frequency Division Multiplexing (OFDM), and Multiple Input, Multiple Output (MIMO) baseband modulation (3x3)
- Dual-Band Concurrent 2.5GHz and 5GHz operation using a single set of external Dual-Band antennas
- Support for 20MHz and 40MHz channel widths, with 20/40 MHz coexistence
- Short guard interval for both 20MHz and 40MHz operation (Tx/Rx)
- Ultra-high data rate up to 450 Mbps (40MHz, 400ns GI)
- Auto fallback data rate under noisy environment
- Supports WEP (64-bit/128-bit), 802.1x, and WPA/WPA2
- Flexible for design and antenna placement
- Low power consumption & Automatic power management to reduce power use
- Independent Tx Power Control on a per channel
- Automatic Tx Gain adjustment during temperature variations

3. Applications:

- Home and/or office wireless networking
- Wireless multimedia
- Wireless extension of existing wired network

4. Product Specifications:

Form Factor	Dual PCIe v1.1 (custom)
Reference Clock	40 MHz +/- 10 ppm
WLAN Standards	IEEE 802.11b/g/n (2.4GHz) and 802.11a/n (5GHz)
Antenna Connector	IPEX
Medium Access Protocol	CSMA/CA (Collision Avoidance) with ACK
Frequency Band	2.4~2.5 GHz and 4.9~5.825 GHz
Number of Channels	2.4 GHz: up to 14 Channels depending on region; 5 GHz: up to 28 Channels, depending on region
Modulation	DSSS, OFDM, MIMO
Supported 802.11 Data Rates	54, 48, 36, 24, 18, 12, 9, 6, 11, 5.5, 2, 1 Mbps
Maximum PHY Rates (2.4GHz)	20 MHz: 130, 117, 104, 78, 52, 39, 26, 13 Mbps 40 MHz: 300, 270, 243, 216, 162, 108, 81, 54, 27 Mbps
Maximum PHY Rates (5GHz)	20 MHz: 21.7, 43.3, 65, 86.7, 130, 173.3, 195, 216.7 Mbps 40 MHz: 45, 90, 135, 180, 270, 360, 405, 450 Mbps
Antenna	3x External, Dual Band
Voltage	3.3 VDC from host (power on waveform must be monotonic and Trise = 50us (Min.), 100 us (typ.), 100ms (max). There is no PCIe reset requirement at power-on.
Power Consumption	3A worst-case peak current.
Security	WEP (64-bit/128-bit), 802.1x WPA/WPA2 (TKIP, AES)
Operating System	Linux
Operation Environment	Temperature: 0 ~ 40 °C Humidity: 5~95% RH (non-condensing)
Storage Environment	Temperature: -10 ~ 70 °C Humidity: 95% RH (non-condensing)

Regulatory Statements for 802DRN

USA-Federal Communications Commission (FCC)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of 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. If not installed and used in accordance with the instructions, it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the 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.

Caution: Exposure to Radio Frequency Radiation.

To comply with FCC RF exposure compliance requirements, a separation distance of at least 20 cm must be maintained between the antenna of this device and all persons.

This device must not be co-located or operating in conjunction with any other antenna or transmitter.