

# WavePoint 5 GHz Broadband Module

Part of FreeWave's Comprehensive  
Wireless M2M Communications Solution

## Solution Highlights

WavePoint 5 GHz Broadband Module delivers connectivity using license-free radio spectrum in the 5 GHz ISM and U-NII bands

Over 200 Mbps with low latency to aggregate voice, video, and last mile infrastructure delivering industrial grade M2M/SCADA network connectivity

Self organizing, self healing network with relay, mesh, and redundant links

High security radio links with WPA2 and 128 bit AES

Well suited for high capacity backbone links

Over the Air software upgrades and management

Professional services available for network design, path studies, and on-site support

FreeWave's award-winning customer support services and 1-year warranty

The FreeWave Technologies' WavePoint™ 5 GHz Broadband Module is part of a comprehensive, industrial grade, wireless machine-to-machine (M2M) communications platform that delivers secure, high-speed wired and wireless communications.

WavePoint networks securely aggregate SCADA and M2M telemetry over a wireless broadband network, adding video surveillance, remote Wi-Fi access, and VoIP capabilities. This makes WavePoint very well suited for a broad range of applications in agriculture, utilities, government, industrial, surveillance, enterprise, public safety, and military.

## Fast, Flexible and Secure

The 5 GHz Broadband Module delivers high-speed, very secure, reliable and resilient communications to remote sites along with industry standard security and flexible link routing. It operates in the 5 GHz unlicensed ISM band with channels up to 20 MHz wide, and is capable of delivering over 200 Mbps with MIMO antennas.

The 5 GHz Broadband Module is an option for the WavePoint 10e base unit, which supports up to 4 Radio Modules internally. The module can be configured to use one, two or three antennas in SISO or MIMO (up to 3x3) modes, or with multiple radios used for back-to-back repeating modes for link extension over long ranges or around obstacles.

The 5 GHz band has substantial capacity with the availability of many non-overlapping radio channels and less radio interference than other bands. The U-NII band 3 (5.725 to 5.825 GHz) allows for high power emissions (up to 53 dBm EIRP), which makes 5 GHz very desirable for high bandwidth backbone connections over long or short ranges.

WavePoint offers a wide array of modulation schemes and data rates, with the flexibility to meet your application needs. Path studies are essential to calculate the expected data rates for any given wireless link.

Adaptive link management monitors the RF environment for sources of interference and for devices it does not know and adjusts the data rate and modulation to optimize link performance in order to retain reliable, scalable communications under changing conditions. The over-the-air radio link is secured with WPA/WPA2, TKIP using 128-bit AES, WPA2 Enterprise and 802.11i.

The 5 GHz Broadband Module is programmable for compliance with emission regulations in many countries. It supports panel SISO and MIMO antennas or high gain parabolic dish antennas for backhaul.



## WavePoint 5 GHz Broadband Module: Radio Specifications

Compatibility	Data Rates (max)	Transmit Power* (dBm, Maximum)	Receiver Sensitivity (dBm, Typical)
OFDM 20 MHz channel (5.18 to 5.825 GHz) 65 Mbps to 216 Mbps	MCS 0/8/16	28	≤ -89 dBm
	MCS 1/9/17	27	
	MCS 2/10/18	27	
	MCS 3/11/19	27	
	MCS 4/12/20	27	
	MCS 5/13/21	26	
	MCS 6/14/22	25	
	MCS 7/15/23	22	≤ -72 dBm

\*Tolerance on transmit power levels is +1/-2 dB

## WavePoint 5 GHz Broadband Module: Technical Specifications

### MODULE SPECIFICATIONS

Network Configurations	PTP, PMP, Fixed Point Mesh, Mobile Mesh
Frequency Band	5.15 to 5.825 GHz ITU ISM and U-NII bands
Modulation	OFDM: BPSK, QPSK, 16-QAM, 64-QAM With Adaptive Rate Modulation
Channel Size	20 MHz
Over-the-air Security	WPA, WPA2, WPA2-Enterprise, AES-128, 802.11i
Antenna Ports	Supports SISO and MIMO up to 3x3
Wireless Approvals	FCC Part 15.247

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For more information, visit [www.freewave.com](http://www.freewave.com)

Specifications are subject to change without notice.

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