



# AP-7131-GR

The industry's first FIPS 140-2 Level2 Validated 802.11n Adaptive services access point



## FEATURES

### Unmatched Security for Federal and Government agencies

FIPS 140-2 Level2 Validated; CC with US Government Wireless LAN Access System Protection Profile\*

### Unmatched RF performance

Conducted transmit power of 27.7dBm and superior receive sensitivity provide best in class range, coverage and application performance, even in harsh RF conditions

### 802.11n support with 3X3 MIMO

Delivers maximum wireless network throughput to support virtually any government application, including voice and video

### The re-defined access point: a true wired network replacement

The AP-7131-GR is the industry's first 802.11a/b/g/n Adaptive Services Access Point that delivers the performance, coverage, reliability and security required to enable the truly wireless agency. The band-unlocked dual-radio design provides simultaneous support for three major networking functions: high-speed wireless data, voice and video services for client access, self-healing mesh networking and Wireless Intrusion Prevention System (IPS) sensor functionality for around the clock protection of the network. The fully DFS compliant 802.11n Draft 2.0 AP-7131-GR offers speeds of up to 600 Mbps per Access Point — six times the bandwidth of an 802.11a/g access point. The Adaptive Services AP architecture allows the device to offer two modes of operation, without changing the firmware — either as a stand-alone access point or as a wireless switch adopted access point for centralized management. Self-configuration in an 802.3af environment

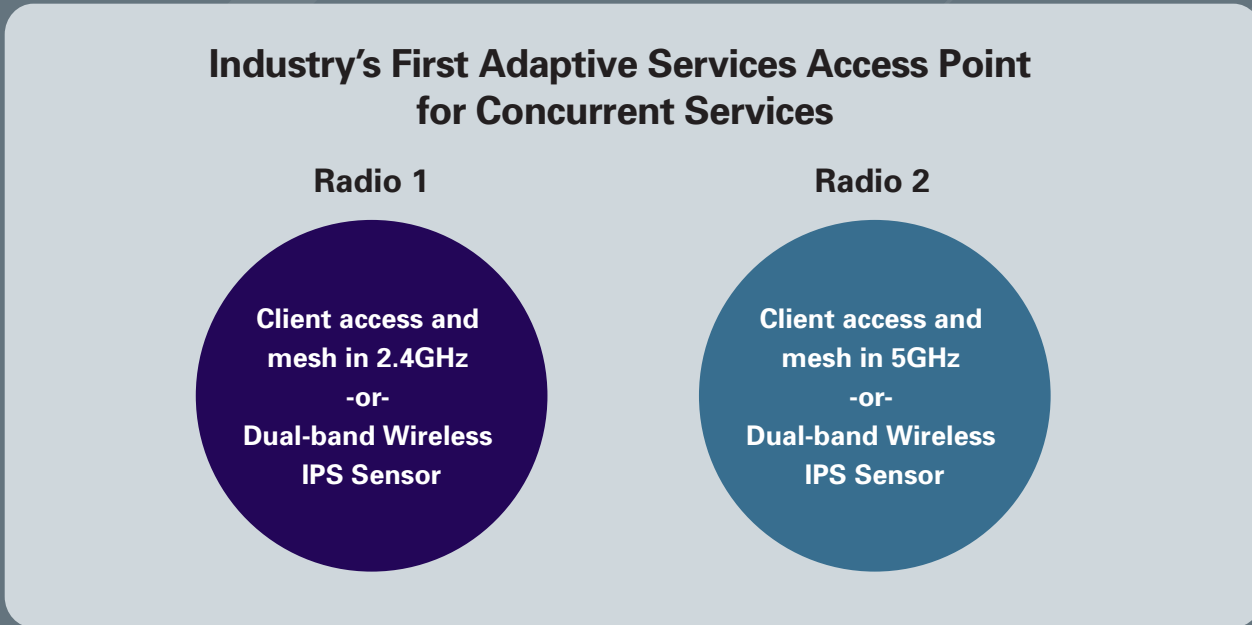
further simplifies deployment. The ability to power both radios over 802.3af eliminates the need to upgrade the existing Power-over-Ethernet (PoE) infrastructure. And the elegant industrial design with an optional snap-on antenna façade enables agency wide deployment — from the warehouse to the carpeted office space. Packed with features, the AP-7131-GR offers the gap-free security and unmatched reliability you need to deploy a highly successful mobility solution at a low total cost of ownership (TCO).

### Security Credentials

The AP-7131-GR provides unmatched security for Federal and Government agencies made possible by the following security credentials:

- FIPS 140-2 Level2 Validated
- CC with US Government Wireless LAN Access System Protection Profile, in process

Figure 1: Motorola AP-7131-GR with Band-Unlocked Radios



With two band-unlocked radios integrated into a single access point, wireless traffic can be segmented as needed between two radios to ensure performance levels for wireless access and backhaul, and any of these radios can provide around-the-clock dedicated dual-band sensing. The need to purchase, power and manage dedicated sensors is eliminated — an estimated savings of \$300-\$400 per sensor — providing the highest level of security for the wireless LAN at the lowest possible cost.

**Band-unlocked dual band design**

The ability to dedicate multiple radios to multiple functions increases security without increasing costs; band-unlocked radios enable 24x7 dual band Wireless IPS sensing on both 2.4GHz and 5GHz with concurrent 802.11a/b/g/n client access and mesh

**Gap-free dedicated 24x7 sensing via triple methodology rogue AP detection: on-channel, mobile unit and dedicated radio dual-band scanning**

Around the clock network protection through instant rogue detection

**Standalone access point: wired and wireless 'Network in a box' for Government Agencies**

As a standalone access point, the AP-7131-GR provides small to medium-sized agencies and branch offices with a consolidated wired and wireless networking infrastructure, all in a single device. The integrated router, gateway, firewall, DHCP and AAA Radius servers, IPSec VPN, hot-spot gateway and Power-over-Ethernet (PoE) simplify and reduce the costs associated with networking by eliminating the need to purchase and manage multiple pieces of equipment.

**Centrally managed Access Point: Adaptive AP Mode**

The AP-7131-GR is designed to cost-effectively meet the needs of large, distributed agencies by converging the functionality of a thick access point and thin access port into a single device. Adaptive mode enables the deployment of a fully featured intelligent access point that can be centrally configured and managed via a Motorola wireless switch in either the headquarters or a network operations center (NOC). All traffic between the adaptive access points and the wireless switch

is secured through an encrypted tunnel. And in the event of a WAN, distribution or core network failure, this fully independent configuration offers a Remote Site Survivability (RSS) feature that enables the delivery of secure uninterrupted wireless service in the remote location, offering unparalleled network resiliency.

**Gap-free security**

In addition to the FIPS 140-2 Level2 validation and CC in-process security credentials, to achieve true gap-free security you need gap-free rogue detection, requiring dedicated dual-band sensing of 2.4GHz and 5GHz wireless LANs — typically provided by a standalone sensor. The AP-7131-GR is the first a/b/g/n access point to offer multiple concurrent services on a single platform — around-the-clock dedicated dual-band sensing as well as the ability to carry wireless traffic — eliminating the need for separate devices. Integrated Wireless IPS sensor firmware enables the configuration of one radio for 24x7 rogue detection and termination, while a second radio can be dedicated to wireless traffic. As a result, government agencies can now deploy the most

robust Wireless IPS solution available at a lower cost — the need and cost to purchase, deploy and manage dedicated sensor hardware is eliminated.

In addition, stateful firewall, encryption and authentication support key standards-based security protocols that ensure government-level protection for the wired and wireless network infrastructure. This powerful feature set enables security to be administered by either local, non-technical staff or remote IT professionals at your headquarters.

**Mesh: cost-effective networking for challenging locations**

Mesh functionality enables the cost-effective wireless extension of the agency network to areas where Ethernet or fiber cabling is cost-prohibitive or otherwise impractical. Mesh functionality includes multi-node, multi-link networks as well as simple point-to-point bridging to connect two wired networks. Self-healing mesh ensures continuity of service in the event of a wired or wireless network failure. The self-forming highly resilient, VLAN and WMM QoS-aware mesh technology enables agencies to wirelessly extend reliable high-performance voice, data and video services to workers in remote and outdoor locations.

**End-to-end solution: from 802.11n network design to everyday support**

Motorola provides full life-cycle support for your 802.11n mobility deployment, from network design to day-to-day support. Motorola’s RF Management suite provides a comprehensive planning tool that enables the easy creation of a well-designed

802.11n wireless LAN, eliminating the high cost associated with an iterative trial-and-error approach and multiple site surveys. Motorola Professional Services offer expertise to assist with assessment through implementation of your mobility solution. Once your Motorola mobility solution is deployed, our responsive Customer Services keep your solution up and running, with maximum uptime — reducing your total cost of ownership.

**Government-class manageability — and a rapid return on investment (ROI)**

You can count on this multi-function multi-purpose device to deliver a rapid return on investment. The AP-7131-GR can be deployed as a standalone or centrally managed device to provide wireless voice, data and video services, mesh backhaul and Wireless IPS sensor functionality, all in one device. This built-in flexibility simplifies the mobility architecture — there is less equipment to purchase and manage, reducing your capital and operational expenditures. Special features, such as spectrum analysis, allow you to easily and remotely manage distributed networks. And with Motorola’s RF Management Suite (RFMS), you enjoy unified management of all your AP-7131-GR access points, enabling simplified, cost-effective planning, deployment and monitoring of large AP-7131-GR networks.

For more information on how your agency can benefit from the AP-7131-GR, please visit us on the web at [www.motorola.com/ap-7131-gr](http://www.motorola.com/ap-7131-gr) or access our global contact directory at [www.motorola.com/enterprisemobility/contactus](http://www.motorola.com/enterprisemobility/contactus)

**Spectrum Analysis**

The ability to place a remote AP-7131-GR in Spectrum Analysis mode allows remote identification of local RF interference, enabling remote troubleshooting and issue resolution from the Network Operation Center (NOC) or other centralized location

**Adaptive AP: extending the agency**

Enables centralized management of mesh access points at remote sites including automatic firmware upgrades; provides site survivability for remote locations with 802.11a/b/g/n networks for unparalleled resiliency

**802.3af dual-radio support**

Standard Power-over-Ethernet (PoE) provides power for both radios; intelligent power management enables self-configuration based on available power; eliminates the need to upgrade the PoE infrastructure

**Integrated Router, DHCP server, Stateful Packet Inspection Firewall, AAA server, NAT, and Hotspot Gateway**

Eliminates need to purchase and manage additional equipment; simplifies provisioning of network services and public access

# AP-7131-GR Specifications

802.11n Draft 2.0 Capabilities	
<ul style="list-style-type: none"> <li>• 3X3 MIMO with 2 Spatial Streams</li> <li>• 20 MHz and 40 MHz Channels</li> <li>• 300 Mbps Data Rates per Radio</li> <li>• Packet Aggregation (AMSDU, AMPDU)</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced Interframe Spacing</li> <li>• 802.11 DFS</li> <li>• MIMO Power Save (Static and Dynamic)</li> </ul>
Performance Characteristics	
Dimensions :	5.50 in. L x 8.00 in. W x 1.5 in. H 13.97 cm L x 20.32 cm W x 3.81 cm H
Weight:	2.67 lbs/1.21 kg
Housing:	Metal, plenum-rated housing (UL2043)
Available mounting:	No additional hardware required to mount

Configurations:	Above drop ceiling, under ceiling or on wall
LEDs:	6 top mounted LEDs, 1 bottom mounted LED, with multiple modes indicating 802.11a/g/n activity, power, Ethernet adoption, Wireless IPS and errors
Uplink:	2 ports (GE1, GE2) Auto-sensing 10/100/1000 Base-T Ethernet; 802.3af on GE1 LAN port
Antenna connectors:	RP-SMA
Console port:	RJ45 Console Port
User Environment	
Operating Temperature:	-4°F to 122°F/-20°C to 50°C
Storage Temperature:	-40°F to 158°F/-40°C to 70°C
Operating humidity:	5 to 95% RH non-condensing

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# AP-7131-GR Specifications (continued)

Operating altitude:	8000 ft./2438 m @ 82°F/28°C
Storage altitude:	15000 ft./4572 m @ 53°F/12°C
Electrostatic discharge:	15kV air, 8kV contact
<b>Power Specifications</b>	
Operating voltage:	36-57VDC
Operating current:	Not to exceed 600mA @ 48VDC
Integrated PoE support:	802.3af support for dual radios, 802.3at (draft)
<b>Networking Specifications</b>	
Layer 2 and Layer 3:	Layer 3 routing, 802.1q, DynDNS, DHCP server/client and PPPoE
Security:	Stateful Firewall, IP filtering, NAT, 802.1x, 802.11i, WPA2, Triple-Methodology Rogue Detection: 24x7 dual-band WIPS sensing, MU-assisted, on-board IDS and secure guest access (HotSpot)
Quality of Service (QoS):	WMM, WMM-UAPSD, 802.1p, Diffserv and TOS
<b>Radio Specifications</b>	
Wireless medium:	Direct Sequence Spread Spectrum (DSSS), Orthogonal Frequency Division Multiplexing (OFDM) and Spatial multiplexing (MIMO)
Network standards:	IEEE 802.11a/b/g/n (Draft 2.0), 802.11d and 802.11i WPA2, WMM and WMM-UAPSD
Data rates supported:	802.11b/g: 1,2,5,5.11,6,9,12,18,24,36,48, and 54Mbps 802.11a: 6,9,12,18,24,36,48, and 54Mbps 802.11n: MCS 0-15 up to 300Mbps
Operating channels:	All channels from 4920 MHz to 5825 MHz Chan 1-13 (2412-2472 MHz) Chan 14 (2484 MHz) Japan only Actual operating frequencies depend on regulatory rules and certification agency
Maximum available transmit power setting:	23dBm (dependent on regulatory rules and certification agency)
Transmit power adjustment:	1dB increments
Antenna configuration:	3x3 MIMO (transmit/receive on all three antennas)

Operating bands:		
<b>FCC</b>	<b>EU</b>	<b>Japan</b>
2.412 to 2.462 GHz	2.412 to 2.472 GHz	2.412 to 2.484GHz
5.150 to 5.250 (UNII -1)	5.150 to 5.250 GHz	4.900 to 5.000 GHz
5.250 to 5.350 (UNII -2)	5.250 to 5.350 GHz	5.150 to 5.250 GHz (W52)
5.470 to 5.725 (UNII -3)	5.470 to 5.725 GHz	5.250 to 5.350 GHz (W53)
5.725 to 5.850 (ISM)	(Country Specific)	5.470 to 5.725 GHz (W56)
<b>Regulatory</b>		
Product safety certifications:	UL / cUL 60950-1, IEC / EN60950-1, UL2043, RoHS	
Radio approvals:	FCC (USA), Industry Canada, CE (Europe), TELEC (Japan), China, Korea, Australia	
<b>Part Numbers</b>		
AP-7131N-44040-FGR	FIPS 140-2 Level 2 certified Dual Radio 802.11a/b/g Adaptive Services Access Point (US only)	
AP-7131N-44040-FWW	FIPS 140-2 Level 2 certified Dual Radio 802.11a/b/g Adaptive Services Access Point (worldwide, not for US)	
AP-7131N-44040-FIL	FIPS 140-2 Level 2 certified Dual Radio 802.11a/b/g Adaptive Services Access Point (Israel)	
AP-7131N-66040-FGR	FIPS 140-2 Level 2 certified Dual Radio 802.11n Adaptive Services Access Point (US only)	
AP-7131N-66040-FWW	FIPS 140-2 Level 2 certified Dual Radio 802.11n Adaptive Services Access Point (worldwide, not for US)	
AP-7131N-66040-FIL	FIPS 140-2 Level 2 certified Dual Radio 802.11n Adaptive Services Access Point (Israel)	
50-14000-247R	AP-7131-GR Power Supply	
AP-PSBIAS-1P3-AFR	Single Port High Power 802.3at (Draft) Power Injector	
ML-2452-PTAZM3X3-1*	Façade with 6 element antenna Module	
ML-2452-APA2-01*	Indoor Dipole 3dBi Antenna	
ML-2452-PTA3M3-036*	3 Port MIMO Antenna	
ML-5299-BYGA15-012*	Yagi 4.9-5.8GHz Antenna	

\* For additional details on antennas refer to the: Enterprise Wireless LAN Antenna Guide.

## Mesh networking

Allows wireless extension of existing wired or wireless networks in remote or outdoor locations

## 802.11i, WPA2 and IPSec encryption

End-to-end government-class wired and wireless security

## Wi-Fi Multimedia (WMM™), Quality of Service (QoS) and voice prioritization

Superior performance for demanding mission critical applications, including voice and video

## MU Rate Limiting

Allows client-based control of bandwidth, preventing any single user from impacting network availability

## WAN and LAN Ethernet ports

Single device solution for both wired and wireless networking

## Java™ web-based graphical user interface TLS 1.0; SNMPv3; command line interface (CLI)

Flexible management options; easy-to-use "anytime, anywhere" management

## Integrated VPN

Cost-effective secure site-to-site communications

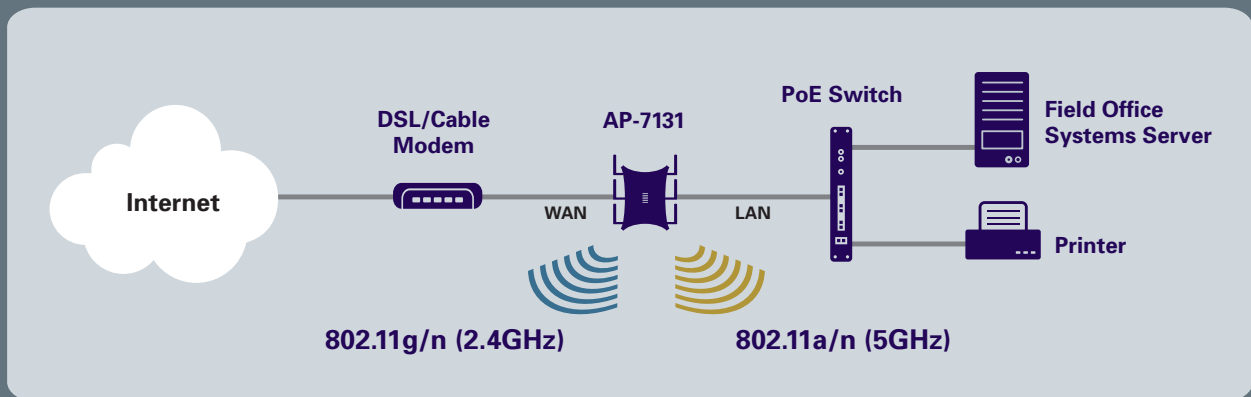
## DFS compliance

Increased throughput through greater channel availability in the 5 GHz bands

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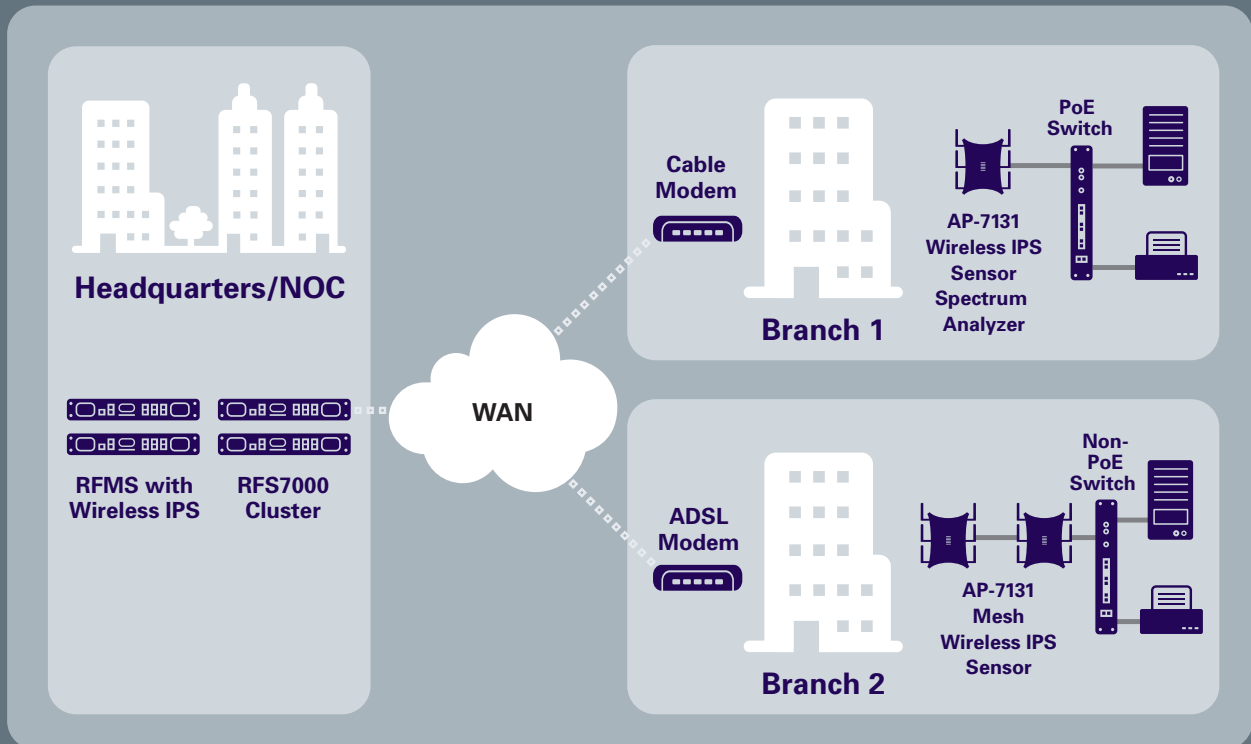


Figure 2: AP-7131-GR for the Small/Medium Government Agencies



The diagram above illustrates the AP-7131-GR in action in small and medium-size government agencies, able to provide wireless connectivity for all clients (including .11n).

Figure 3: AP-7131-GR for the Distributed Government Agency



The versatile AP-7131-GR also plays a crucial role in large distributed government agencies. When deployed in Adaptive AP Mode, this fully featured intelligent access point that can be centrally configured and managed via a Motorola wireless switch in either corporate headquarters or a network operations center (NOC). Yet in the event of a WAN, distribution or core network failure, the Remote Site Survivability (RSS) feature enables the AP-7131-GR to revert to standalone mode, ensuring the delivery of secure uninterrupted wireless service in remote locations, providing unparalleled network resiliency.

**SPECIFICATION SHEET**

AP-7131-GR

The industry's first FIPS 140-2 Level2 Validated 802.11n Adaptive services access point

**AP-7131-GR MODELS**



AP-7131-GR  
Dual Radio



AP-7131-GR Dual Radio  
(shown without façade)

# AP-7131-GR Specifications (continued)

Receiver Sensitivity: Operating Band 2.4GHz		
Operating Modes	Data Rate	AP-7131-GR Radios 1 and 2*
802.11b	1 Mb/s	-96
	2 Mb/s	-94
	5.5 Mb/s	-93
	11 Mb/s	-90
802.11g	6 Mb/s	-94
	9 Mb/s	-94
	12 Mb/s	-95
	18 Mb/s	-94
	24 Mb/s	-90
	36 Mb/s	-87
	48 Mb/s	-83
	54 Mb/s	-82
802.11n Draft 2.0 (HT20)	MCS0	-95
	MCS1	-93
	MCS2	-91
	MCS3	-87
	MCS4	-85
	MCS5	-81
	MCS6	-79
	MCS7	-78
	MCS8	-94
	MCS9	-91
	MCS10	-88
	MCS11	-85
	MCS12	-82
	MCS13	-79
	MCS14	-77
MCS15	-75	
802.11n Draft 2.0 (HT40)	MCS0	-90
	MCS1	-89
	MCS2	-87
	MCS3	-84
	MCS4	-82
	MCS5	-78
	MCS6	-76
	MCS7	-75
	MCS8	-87
	MCS9	-87
	MCS10	-85
	MCS11	-83
	MCS12	-80
	MCS13	-75
	MCS14	-74
MCS15	-72	

Receiver Sensitivity: Operating Band 5GHz		
Operating Modes	Data Rate	AP-7131-GR Radios 1 and 2*
802.11a	6 Mb/s	-93
	9 Mb/s	-93
	12 Mb/s	-93
	18 Mb/s	-92
	24 Mb/s	-89
	36 Mb/s	-86
802.11n Draft 2.0 (HT20)	48 Mb/s	-82
	54 Mb/s	-80
802.11n Draft 2.0 (HT40)	MCS0	-93
	MCS1	-92
	MCS2	-90
	MCS3	-86
	MCS4	-83
	MCS5	-79
	MCS6	-78
	MCS7	-76
	MCS8	-92
	MCS9	-90
	MCS10	-87
	MCS11	-84
	MCS12	-81
	MCS13	-77
	MCS14	-75
MCS15	-73	
802.11n Draft 2.0 (HT40)	MCS0	-90
	MCS1	-89
	MCS2	-86
	MCS3	-83
	MCS4	-80
	MCS5	-76
	MCS6	-74
	MCS7	-73
	MCS8	-89
	MCS9	-86
	MCS10	-84
	MCS11	-81
	MCS12	-78
	MCS13	-74
	MCS14	-72
MCS15	-71	

\*Typical Receive Sensitivity (dBm)



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