

Software Version	Intel® PROSet/Wireless WiFi Software 22.x and subsequent versions
Maximum Power Output	
(2400 - 2483.5 MHz) IEEE802.11 b/g/n/ax mode Bluetooth	20dBm EIRP max (100mW)
(2400 - 2483.5 MHz) BLE	10dBm EIRP max (10mW)
(5150 - 5725 MHz) IEEE802.11 a/n/ac/ax mode	23dBm EIRP max (200mW) The low band 5.15 - 5.35 GHz is for indoor use only
(5725 - 5875 MHz) IEEE802.11 a/n/ac/ax mode	13.98 dBm EIRP Max (25mW) For the standard EN 300 440, the device operating in 5.8 GHz is considered a category 2 receiver

This equipment complies with the essential requirements of the European Union directive 2014/53/EU.



Australia: Model AX210NGW



Brazil: Model AX210NGW

Singapore: Model AX210NGW



Argentina: Model AX210NGW



RAMATEL
C-25568

Pakistan: Model AX210NGW



APPROVED BY PTA: 9.1000/2020

Intel® Wi-Fi 6E AX210 (AX210D2W)

Due to the very small size of the AX210D2W, the marking has been placed in this user manual because the product label on the device is considered too small to be readable.

USA: Model AX210D2W

FCC ID: PD9AX210D2

Canada: Model AX210D2W

IC: 1000M-AX210D2

Japan: Model AX210D2W

- RF: 003-200255
- TEL: D200217003

5.2 GHz 帯高出力データ通信システム基地局又は陸上移動中継局と通信する場合を除く



R 003-200255

5.15-5.35 GHz: Indoor use only
(Except communicate to high power radio)

T D200217003

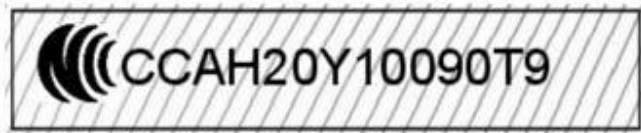
Korea: Model AX210D2W



R-C-INT-AX210D2W

1. 상호명: INTEL CORPORATION
- 2.기자재의 명칭 (모델명): 특정소출력 무선기기(무선랜을 포함한 무선접속시스템용 무선기기) AX210D2W
3. 제조시기: 2020/11
4. 제조자/제조국 : INTEL CORPORATION / China, Taiwan

Taiwan: Model AX210D2W



China: Model AX210D2W

TBD

Europe: Model AX210D2W

Software Version	Intel® PROSet/Wireless WiFi Software 22.x and subsequent versions
Maximum Power Output	
(2400 - 2483.5 MHz) IEEE802.11 b/g/n/ax mode Bluetooth	20dBm EIRP max (100mW)
(2400 - 2483.5 MHz) BLE	10dBm EIRP max (10mW)
(5150 - 5725 MHz) IEEE802.11 a/n/ac/ax mode	23dBm EIRP max (200mW) The low band 5.15 - 5.35 GHz is for indoor use only
(5725 - 5875 MHz) IEEE802.11 a/n/ac/ax mode	13.98 dBm EIRP Max (25mW) For the standard EN 300 440, the device operating in 5.8 GHz is considered

a category 2 receiver

This equipment complies with the essential requirements of the European Union directive 2014/53/EU.



Australia: Model AX210D2W



Brazil: Model AX210D2W

TBD

Singapore: Model AX210D2W



Argentina: Model AX210D2W

TBD

Pakistan: Model AX210D2W



APPROVED BY PTA: 9.1311/2020

Intel® Wi-Fi 6E AX211 (AX211NGW)

Due to the very small size of the AX211NGW, the marking has been placed in this user manual because the product label on the device is considered too small to be readable.

TBD

Intel® Wi-Fi 6E AX211 (AX211D2W)

Due to the very small size of the AX211D2W, the marking has been placed in this user manual because the product label on the device is considered too small to be readable.

TBD

Intel® Wi-Fi 6E AX211 (AX211D2WL)

Due to the very small size of the AX211D2WL, the marking has been placed in this user manual because the product label on the device is considered too small to be readable.

TBD

INFORMATION FOR OEMS and HOST INTEGRATORS

The guidelines described within this document are provided to OEM integrators installing Intel® wireless adapters in notebook and tablet PC host platforms. Adherence to these requirements is necessary to meet the conditions of compliance with FCC rules, including RF exposure. When all antenna type and placement guidelines described herein are fulfilled the Intel® wireless adapters may be incorporated into notebook and tablet PC host platforms with no further restrictions. If any of the guidelines described herein are not satisfied it may be necessary for the OEM or integrator to perform additional testing and/or obtain additional approval. The OEM or integrator is responsible to determine the required host regulatory testing and/or obtaining the required host approvals for compliance.

- Intel® wireless adapters are intended for OEMs and host integrators only.
- The Intel® wireless adapter FCC Grant of Authorization describes any limited conditions of modular approval.
- The Intel® wireless adapters must be operated with an access point that has been approved for the country of operation.
- Changes or modification to Intel® wireless adapters by OEMs, integrators or other third parties is not permitted. Any changes or modification to Intel® wireless adapters by OEMs, integrators or other third parties will void authorization to operate the adapter.

Antenna Type and Gains

Only antennas of the same type and with equal or less gains as 3dBi for the 2.4GHz band and 5dBi for the 5GHz band shall be used with the Intel® wireless adapters. Other types of antennas and/or higher gain antennas may require additional authorization for operation. For testing purposes the following dual band antenna that approximates closely the above limits was used:

Antenna Type	Antenna Location (Main/Aux)	2.4GHz Peak Gain in dBi*	5.2GHz Peak Gain in dBi*	5.5GHz Peak Gain in dBi*	5.7GHz Peak Gain in dBi*
PIFA	Main				
	Aux	3.24	3.73	4.77	4.77
	MIMO				

*All antenna gains include cable loss.

Band	Peak Gain (dBi)
6.2GHz 5925-6425MHz	4.83
6.5GHz 6425-6525MHz	4.30
6.6GHz 6525-6875MHz	5.37
7GHz 6875-725MHz	5.59

Antenna Placement Within the Host Platform

To ensure RF exposure compliance the antenna(s) used with the Intel® wireless adapters must be installed in notebook or tablet PC host platforms to provide a minimum separation distance from all persons, in all operating modes and orientations of the host platform, with strict adherence to the table below. The antenna separation distance applies to both horizontal and vertical orientation of the antenna when installed in the host system.

Regulatory Information

Intel® Centrino® Wireless-N 105	9 mm
Intel® Centrino® Wireless-N 130	8 mm
Intel® Centrino® Wireless-N 135	9 mm
Intel® Centrino® Wireless-N 1000*	20 mm
Intel® Centrino® Wireless-N 1030	8 mm
Intel® Centrino® Wireless-N 2200	9 mm
Intel® Centrino® Wireless-N 2230	6 mm
Intel® Centrino® Advanced-N 6200*	20 mm
Intel® Centrino® Advanced-N 6205	12 mm
Intel® Centrino® Advanced-N 6230	12 mm
Intel® Centrino® Advanced-N 6235	8 mm
Intel® Centrino® Ultimate-N 6300	13 mm
Intel® Dual Band Wireless-AC 7260	8 mm
Intel® Dual Band Wireless-N 7260	8 mm
Intel® Wireless-N 7260	8 mm
Intel® Dual Band Wireless-AC 3160	8 mm
Intel® Dual Band Wireless-AC 3165	8 mm
Intel® Dual Band Wireless-AC 7265	8 mm
Intel® Dual Band Wireless-N 7265	8 mm
Intel® Wireless-N 7265	8 mm
Intel® Dual Band Wireless-AC 8260	8 mm
Intel® Dual Band Wireless-AC 8265	8 mm
Intel® Wireless-AC 9260	14 mm
Intel® Wireless-AC 9461 (9161NGW)	19 mm
Intel® Wireless-AC 9461 (9161D2W)	12 mm
Intel® Wireless-AC 9462 (9162NGW)	14 mm
Intel® Wireless-AC 9462 (9162D2W)	15 mm
Intel® Wireless-AC 9560 (9560NGW)	18 mm
Intel® Wireless-AC 9560 (9560D2W)	15 mm
Intel® Wireless-AC 9560 (9560D2WL)	15 mm
Intel® Tri-Band Wireless-AC 17265	8 mm
Intel® Tri-Band Wireless-AC 18260	8 mm
Intel® Tri-Band Wireless-AC 18265	8 mm
Intel® Wireless Gigabit Sink W13100	8 mm
Intel® Wireless Gigabit 11000	8 mm
Intel® Wireless Gigabit Sink W13110VR	8 mm
Intel® Wireless Gigabit 11100VR	8 mm
Intel® Wi-Fi 6E AX101 (AX101NGW)	TBD
Intel® Wi-Fi 6E AX101 (AX101D2WL)	TBD
Intel® Wi-Fi 6 AX201 (AX201D2W)	12 mm
Intel® Wi-Fi 6 AX201 (AX201D2WL)	15 mm
Intel® Wi-Fi 6 AX201 (AX201NGW)	17 mm
Intel® Wi-Fi 6E AX203 (AX203NGW)	TBD
Intel® Wi-Fi 6E AX203 (AX203D2W)	TBD

Intel® Wi-Fi 6E AX210 (AX210NGW)	13 mm
Intel® Wi-Fi 6E AX210 (AX210D2W)	17 mm
Intel® Wi-Fi 6E AX211 (AX211NGW)	TBD
Intel® Wi-Fi 6E AX211 (AX211D2W)	TBD
Intel® Wi-Fi 6E AX210 (AX211D2WL)	TBD
* This wireless adapter may be installed in mobile devices only (requires > 20 cm antenna separation from the body of user).	

For WiFi/Bluetooth combination adapters it is recommended that a 5 cm separation distance between transmitting antennas be provided within the host system to maintain an adequate separation ratio for simultaneous WiFi and Bluetooth transmission. For less than 5 cm separation the separation ratio must be verified according to FCC publication KDB 447498 for the specific adapter.

Additional regulatory authorization process may be required if wishing to place the 60 GHz/802.11ad RFEM (antenna array) closer than 20 cm to the user.

Simultaneous Transmission of Intel® Wireless Adapters with Other Integrated or Plug-In Transmitters

Based upon FCC Knowledge Database publication number 616217, when there are multiple transmitting devices installed in a host device, an RF exposure transmitting assessment shall be performed to determine the necessary application and test requirements. OEM integrators must identify all possible combinations of simultaneous transmission configurations for all transmitters and antennas installed in the host system. This includes transmitters installed in the host as mobile devices (>20 cm separation from user) and portable devices (<20 cm separation from user). OEM integrators should consult the actual FCC KDB 616217 document for all details in making this assessment to determine if any additional requirements for testing or FCC approval is necessary.

Information To Be Supplied to the End User by the OEM or Integrator

The following regulatory and safety notices must be published in documentation supplied to the end user of the product or system incorporating the Intel® wireless adapter, in compliance with local regulations. Host system must be labeled with "Contains FCC ID: XXXXXXXX", FCC ID displayed on label.

The wireless adapter must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product. For country-specific approvals, see [Radio Approvals](#). Intel Corporation is not responsible for any radio or television interference caused by unauthorized modification of the devices included with the wireless adapter kit or the substitution or attachment of connecting cables and equipment other than that specified by Intel Corporation. The correction of interference caused by such unauthorized modification, substitution or attachment is the responsibility of the user. Intel Corporation and authorized resellers or distributors are not liable for any damage or violation of government regulations that may arise from the user failing to comply with these guidelines.

China:

模块通过型号核准并不代表嵌入或使用该模块的最终设备符合相关无线电管理技术规定或标准 最终设备厂商须对产品的技术特性是否符合无线电管理技术规定或标准负责

Local Restriction of 802.11a, 802.11b, 802.11g, 802.11n, and 802.11ad Radio Usage

The following statement on local restrictions must be published as part of the compliance documentation for all 802.11a, 802.11b, 802.11g, 802.11n, and 802.11ad products.

⚠ Caution: Due to the fact that the frequencies used by 802.11a, 802.11b, 802.11g, 802.11n, and 802.11ad wireless LAN devices may not yet be harmonized in all countries, 802.11a, 802.11b, 802.11g and 802.11n products are designed for use only in specific countries, and are not allowed to be operated in countries other than those of

designated use. As a user of these products, you are responsible for ensuring that the products are used only in the countries for which they were intended and for verifying that they are configured with the correct selection of frequency and channel for the country of use. Any deviation from permissible settings and restrictions in the country of use could be an infringement of national law and may be punished as such.

Statements of European Compliance

Each of the adapters listed below comply with the essential requirements of the European Union directive 2014/53/EU.

- Intel® Centrino® Wireless-N 100
- Intel® Centrino® Wireless-N 105
- Intel® Centrino® Wireless-N 130
- Intel® Centrino® Wireless-N 135
- Intel® Centrino® Wireless-N 1000
- Intel® Centrino® Wireless-N 1030
- Intel® Centrino® Wireless-N 2200
- Intel® Centrino® Wireless-N 2230
- Intel® Centrino® Advanced-N 6200
- Intel® Centrino® Advanced-N 6205
- Intel® Centrino® Advanced-N 6230
- Intel® Centrino® Advanced-N 6235
- Intel® Centrino® Ultimate-N 6300
- Intel® Dual Band Wireless-AC 7260
- Intel® Dual Band Wireless-N 7260
- Intel® Wireless-N 7260
- Intel® Dual Band Wireless-AC 3160
- Intel® Dual Band Wireless-AC 3165
- Intel® Dual Band Wireless-AC 7265
- Intel® Dual Band Wireless-N 7265
- Intel® Wireless-N 7265
- Intel® Dual Band Wireless-AC 8260
- Intel® Dual Band Wireless-AC 8265
- Intel® Wireless-AC 9260
- Intel® Wireless-AC 9560
- Intel® Tri-Band Wireless-AC 17265
- Intel® Tri-Band Wireless-AC 18260
- Intel® Tri-Band Wireless-AC 18265
- Intel® Wireless Gigabit Sink W13100
- Intel® Wireless Gigabit 11000
- Intel® Wireless Gigabit Sink W13110VR
- Intel® Wireless Gigabit 11100VR
- Intel® Wi-Fi 6 AX101
- Intel® Wi-Fi 6 AX200
- Intel® Wi-Fi 6 AX201
- Intel® Wi-Fi 6 AX203
- Intel® Wi-Fi 6E AX210
- Intel® Wi-Fi 6E AX211

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[Trademarks and Disclaimers](#)

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Specifications

This section provides specification information for the family of Intel® wireless adapters. The following list may not be all inclusive.

- [Intel® Centrino® Wireless-N 100](#)
- [Intel® Centrino® Wireless-N 105](#)
- [Intel® Centrino® Wireless-N 130](#)
- [Intel® Centrino® Wireless-N 135](#)
- [Intel® Centrino® Wireless-N 1000](#)
- [Intel® Centrino® Wireless-N 1030](#)
- [Intel® Centrino® Wireless-N 2200](#)
- [Intel® Centrino® Wireless-N 2230](#)
- [Intel® Centrino® Wireless-N + WiMAX 6150](#)
- [Intel® Centrino® Advanced-N 6200](#)
- [Intel® Centrino® Advanced-N 6205](#)
- [Intel® Centrino® Advanced-N 6230](#)
- [Intel® Centrino® Advanced-N 6235](#)
- [Intel® Centrino® Advanced-N + WiMAX 6250](#)
- [Intel® Centrino® Ultimate-N 6300](#)
- [Intel® Dual Band Wireless-AC 7260](#)
- [Intel® Dual Band Wireless-N 7260](#)
- [Intel® Wireless-N 7260](#)
- [Intel® Dual Band Wireless-AC 3160](#)
- [Intel® Dual Band Wireless-AC 3165](#)
- [Intel® Dual Band Wireless-AC 3168](#)
- [Intel® Dual Band Wireless-AC 7265](#)
- [Intel® Dual Band Wireless-N 7265](#)
- [Intel® Wireless-N 7265](#)
- [Intel® Dual Band Wireless-AC 8260](#)
- [Intel® Dual Band Wireless-AC 8265](#)
- [Intel® Wireless-AC 9260](#)
- [Intel® Wireless-AC 9461](#)
- [Intel® Wireless-AC 9462](#)
- [Intel® Wireless-AC 9560](#)
- [Intel® Tri-Band Wireless-AC 17265](#)
- [Intel® Tri-Band Wireless-AC 18260](#)
- [Intel® Tri-Band Wireless-AC 18265](#)
- [Intel® Wireless Gigabit Sink W13100](#)
- [Intel® Wireless Gigabit 11000](#)
- [Intel® Wireless Gigabit Sink W13110VR](#)
- [Intel® Wireless Gigabit 11100VR](#)
- [Intel® Wi-Fi 6 AX101](#)
- [Intel® Wi-Fi 6 AX200](#)
- [Intel® Wi-Fi 6 AX201](#)
- [Intel® Wi-Fi 6 AX203](#)
- [Intel® Wi-Fi 6E AX210](#)
- [Intel® Wi-Fi 6E AX211](#)

Intel® Centrino® Wireless-N 100, Intel® Centrino® Wireless-N 105, Intel® Centrino® Wireless-N 130 and Intel® Centrino® Wireless-N 135

Form Factor	PCI Express* Half-Mini Card
Dimensions	Half-Mini Card: Width 1.049 in x Length 1.18 in x Height 0.18 in (26.64 mm x 30 mm x 4.5 mm)

Specifications

Antenna Interface Connector	Hirose U.FL-R-SMT mates with cable connector U.FL-LP-066	
Antenna Diversity	On-board diversity	
Connector Interface	52-pin Mini Card edge connector	
Voltage	3.3 V	
Operating Temperature (Adapter Shield)	0 to +80 degrees Celsius	
Humidity	50% to 95% non-condensing (at temperatures of 25 °C to 35 °C)	
WiFi		
Frequency Modulation	2.4 GHz (802.11b/g/n)	
Frequency band	2.400 - 2.4835 GHz (dependent on country)	
Modulation	BPSK, QPSK, 16 QAM, 64 QAM	CCK, DQPSK, DBPSK
Wireless Medium	2.4 GHz ISM: Orthogonal Frequency Division Multiplexing (OFDM)	
Channels	All channels as defined by the relevant specification and country rules.	
IEEE 802.11n Data Rates	MIMO Configuration: 1X1 Tx/Rx: 150, 144, 135, 130, 120, 117, 115.5, 90, 86.667, 72.2, 65, 60, 57.8, 45, 43.3, 30, 28.9, 21.7, 15, 14.4, 7.2 Mbps	
IEEE 802.11g Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps	
IEEE 802.11b Data Rates	11, 5.5, 2, 1 Mbps	
Bluetooth Support	<ul style="list-style-type: none"> • Intel® Centrino® Wireless-N 100: None • Intel® Centrino® Wireless-N 105: None • Intel® Centrino® Wireless-N 130: Bluetooth 2.1, 2.1 + EDR, 3.0, 3.0+HS • Intel® Centrino® Wireless-N 135: Bluetooth 4.0 (Bluetooth Low-Energy and Bluetooth 3.0 +HS) 	
General		
Operating Systems	Windows* 7 (32-bit and 64-bit), Windows* 8 (32-bit and 64-bit), Windows* 8.1 (32-bit and 64-bit)	
Wi-Fi Alliance* certification	Wi-Fi* certification for 802.11b, 802.11g, 802.11n, WPA-Personal, WPA-Enterprise, WPA2-Personal, WPA2-Enterprise, WMM, WPS	
Cisco Compatible Extensions certification	Cisco Compatible Extensions, v4.0	
IEEE Feature Sets	IEEE 802.11b, 802.11g, 802.11n, 802.11e, 802.11i, 802.11d, 802.11h	
Architecture	Infrastructure or ad hoc (peer-to-peer) operating modes	
Security	WPA-Personal, WPA2-Personal, WPA-Enterprise, WPA2-Enterprise, AES-CCMP 128-bit, WEP 128-bit and 64-bit; 802.1X: EAP-SIM, LEAP, PEAP, TKIP, EAP-FAST, EAP-TLS, EAP-TTLS, EAP-AKA	
Product Safety	UL, C-UL, CB (IEC/EN 60950-1)	

Intel® Centrino® Wireless-N 1000

Form Factor	PCI Express* Mini Card and Half-Mini Card
SKUs	Intel® Centrino® Wireless-N 1000 - 1X2 MC/HMC

Dimensions	Mini Card: Width 2.0 in x Length 1.18 in x Height 0.18 in (50.80 mm x 30 mm x 4.5 mm) Half-Mini Card: Width 1.049 in x Length 1.18 in x Height 0.18 in (26.64 mm x 30 mm x 4.5 mm)
Antenna Interface Connector	Hirose U.FL-R-SMT mates with cable connector U.FL-LP-066
Antenna Diversity	On-board diversity
Connector Interface	52-pin Mini Card edge connector
Voltage	3.3 V
Operating Temperature (Adapter Shield)	0 to +80 degrees Celsius
Humidity	50% to 90% non-condensing (at temperatures of 25 °C to 35 °C)
WiFi	
Frequency Modulation	2.4 GHz (802.11b/g/n)
Frequency band	2.41-2.474 GHz (dependent on country)
Modulation	BPSK, QPSK, 16 QAM, 64 QAM, CCK, DQPSK, DBPSK
Wireless Medium	2.4 GHz ISM: Orthogonal Frequency Division Multiplexing (OFDM)
Channels	All channels as defined by the relevant specification and country rules.
IEEE 802.11n Data Rates	300, 270, 243, 240, 180, 150, 144, 135, 130, 120, 117, 115.5, 90, 86.667, 72.2, 65, 60, 57.8, 45, 43.3, 30, 28.9, 21.7, 15, 14.4, 7.2 Mbps
IEEE 802.11g Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps
IEEE 802.11b Data Rates	11, 5.5, 2, 1 Mbps
General	
Operating Systems	Microsoft Windows* XP (32 and 64 bit) and Windows Vista* (32 and 64 bit), Ubuntu Linux*
Wi-Fi Alliance* certification	Wi-Fi* certification for 802.11b, 802.11g, 802.11n, WPA-Personal, WPA-Enterprise, WPA2-Personal, WPA2-Enterprise, WMM, WPS
Cisco Compatible Extensions certification	Cisco Compatible Extensions, v4.0
WLAN Standard	IEEE 802.11g, 802.11b, 802.11n, 802.11d, 802.11e, 802.11i,
Architecture	Infrastructure or ad hoc (peer-to-peer) operating modes
Security	WPA-Personal, WPA2-Personal, WPA-Enterprise, WPA2-Enterprise, 802.1X: EAP-SIM, LEAP, PEAP, EAP-FAST, EAP-TLS, EAP-TTLS, EAP-AKA
Encryption	AES-CCMP 128-bit, WEP 128-bit and 64-bit, CKIP, TKIP
Product Safety	UL, C-UL, CB (IEC/EN 60950-1)

Intel® Centrino® Wireless-N 2200 and Intel® Centrino® Wireless-N 2230

Form Factor	PCI Express* Half-Mini Card
Dimensions	Half-Mini Card: Width 1.049 in x Length 1.18 in x Height 0.18 in (26.64 mm x 30 mm x 4.5 mm)
Antenna Interface Connector	Hirose U.FL-R-SMT mates with cable connector U.FL-LP-066
Antenna Diversity	On-board diversity

Connector Interface	52-pin Mini Card edge connector	
Voltage	3.3 V	
Operating Temperature (Adapter Shield)	0 to +80 degrees Celsius	
Humidity	50% to 95% non-condensing (at temperatures of 25 °C to 35 °C)	
WiFi		
Frequency Modulation	2.4 GHz (802.11b/g/n)	
Frequency band	2.400 - 2.4835 GHz (dependent on country)	
Modulation	BPSK, QPSK, 16 QAM, 64 QAM	CCK, DQPSK, DBPSK
Wireless Medium	2.4 GHz ISM: Orthogonal Frequency Division Multiplexing (OFDM)	
Channels	All channels as defined by the relevant specification and country rules.	
IEEE 802.11n Data Rates	MIMO Configuration: 2X2 Tx/Rx: 300, 150, 144, 135, 130, 120, 117, 115.5, 90, 86.667, 72.2, 65, 60, 57.8, 45, 43.3, 30, 28.9, 21.7, 15, 14.4, 7.2 Mbps	
IEEE 802.11g Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps	
IEEE 802.11b Data Rates	11, 5.5, 2, 1 Mbps	
Bluetooth Support	<ul style="list-style-type: none"> • Intel® Centrino® Wireless-N 2200: None • Intel® Centrino® Wireless-N 2230: Bluetooth 4.0 (Bluetooth Low-Energy and Bluetooth 3.0 +HS) 	
General		
Operating Systems	Windows* 7 (32-bit and 64-bit), Windows* 8 (32-bit and 64-bit), Windows* 8.1 (32-bit and 64-bit)	
Wi-Fi Alliance* certification	Wi-Fi* certification for 802.11b, 802.11g, 802.11n, WPA-Personal, WPA-Enterprise, WPA2-Personal, WPA2-Enterprise, WMM, WPS	
Cisco Compatible Extensions certification	Cisco Compatible Extensions, v4.0	
IEEE Feature Sets	IEEE 802.11b, 802.11g, 802.11n, 802.11e, 802.11i, 802.11d, 802.11h	
Architecture	Infrastructure or ad hoc (peer-to-peer) operating modes	
Security	WPA-Personal, WPA2-Personal, WPA-Enterprise, WPA2-Enterprise, AES-CCMP 128-bit, WEP 128-bit and 64-bit; 802.1X: EAP-SIM, LEAP, PEAP, TKIP, EAP-FAST, EAP-TLS, EAP-TTLS, EAP-AKA	
Product Safety	UL, C-UL, CB (IEC/EN 60950-1)	

Intel® Centrino® Wireless-N 1030 and Intel® Centrino® Advanced-N 6230

Form Factor	PCI Express* Half-Mini Card
Dimensions	Half-Mini Card: Width 1.049 in x Length 1.18 in x Height 0.18 in (26.64 mm x 30 mm x 4.5 mm)
Antenna Interface Connector	Hirose U.FL-R-SMT mates with cable connector U.FL-LP-066

Specifications

Antenna Diversity	On-board diversity	
Network Standards	802.11a/b/g/n (varies by adapter) and Bluetooth 3.0 + HS	
Connector Interface	52-pin Mini Card edge connector	
Voltage	3.3 V	
Operating Temperature (Adapter Shield)	0 to +80 degrees Celsius	
Humidity	50% to 95% non-condensing (at temperatures of 25 °C to 35 °C)	
WiFi Network Standards	Intel® Centrino® Wireless-N 1030: 802.11b/g/n Intel® Centrino® Advanced-N 6230: 802.11a/g/n	
Frequency Modulation	5 GHz (802.11a/n)	2.4 GHz (802.11b/g/n)
Frequency band	5.15 GHz - 5.85 GHz (dependent on country)	2.400 - 2.4835 GHz (dependent on country)
Modulation	BPSK, QPSK, 16 QAM, 64 QAM	CCK, DQPSK, DBPSK
Wireless Medium	5 GHz UNII: Orthogonal Frequency Division Multiplexing (OFDM)	2.4 GHz ISM: Orthogonal Frequency Division Multiplexing (OFDM)
Channels	All channels as defined by the relevant specification and country rules.	
IEEE 802.11n Data Rates	Intel® Centrino® Advanced-N 6230: Tx/Rx (Mbps): 300, 270, 243, 240, 216.7, 195, 180, 173.3, 150, 144, 135, 130, 120, 117, 115.5, 90, 86.667, 72.2, 65, 60, 57.8, 45, 43.3, 30, 28.9, 21.7, 15, 14.4, 7.2 Intel® Centrino® Wireless-N 1030: Rx (Mbps): 300, 270, 243, 240, 180 Tx/Rx (Mbps): 150, 144, 135, 130, 120, 117, 115.5, 90, 86.667, 72.2, 65, 60, 57.8, 45, 43.3, 30, 28.9, 21.7, 15, 14.4, 7.2	
IEEE 802.11a Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps	
IEEE 802.11g Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps	
IEEE 802.11b Data Rates	11, 5.5, 2, 1 Mbps	
Bluetooth	Bluetooth Version 3.0 + HS	
General		
Operating Systems	<ul style="list-style-type: none"> • Microsoft Windows* XP (32-bit and 64-bit) • Windows Vista* (32-bit and 64-bit) • Windows* 7 (32-bit and 64-bit) • Windows* 8 (32-bit and 64-bit) • Windows* 8.1 (32-bit and 64-bit) 	
Wi-Fi Alliance* certification	Wi-Fi* certification for 802.11b, 802.11g, 802.11a, 802.11h, 802.11d, WPA-Personal, WPA-Enterprise, WPA2-Personal, WPA2-Enterprise, WPS, WMM, WMM Power Save, EAP-SIM, LEAP, PEAP, TKIP, EAP-FAST, EAP-TLS, EAP-TTLS, EAP-AKA, P2P	
Cisco Compatible Extensions certification	Cisco Compatible Extensions, v4.0	

WLAN Standard	IEEE 802.11g, 802.11b, 802.11a, 802.11n
Architecture	Infrastructure or ad hoc (peer-to-peer) operating modes
Security	WPA-Personal, WPA2-Personal, WPA-Enterprise, WPA2-Enterprise, AES-CCMP 128-bit, WEP 128-bit and 64-bit; 802.1X: EAP-SIM, LEAP, PEAP, TKIP, EAP-FAST, EAP-TLS, EAP-TTLS, EAP-AKA
Product Safety	UL, C-UL, CB (IEC/EN 60950-1)

Intel® Centrino® Advanced-N 6235

Form Factor	PCI Express* Half-Mini Card	
Dimensions	Half-Mini Card: Width 1.049 in x Length 1.18 in x Height 0.18 in (26.64 mm x 30 mm x 4.5 mm)	
Antenna Interface Connector	Hirose U.FL-R-SMT mates with cable connector U.FL-LP-066	
Antenna Diversity	On-board diversity	
Network Standards	802.11a/b/g/n and Bluetooth 4.0	
Connector Interface	52-pin Mini Card edge connector	
Voltage	3.3 V	
Operating Temperature (Adapter Shield)	0 to +80 degrees Celsius	
Humidity	50% to 95% non-condensing (at temperatures of 25 °C to 35 °C)	
Frequency Modulation	5 GHz (802.11a/n)	2.4 GHz (802.11b/g/n)
Frequency band	5.15 GHz - 5.85 GHz (dependent on country)	2.400 - 2.4835 GHz (dependent on country)
Modulation	BPSK, QPSK, 16 QAM, 64 QAM	CCK, DQPSK, DBPSK
Wireless Medium	5 GHz UNII: Orthogonal Frequency Division Multiplexing (OFDM)	2.4 GHz ISM: Orthogonal Frequency Division Multiplexing (OFDM)
Channels	All channels as defined by the relevant specification and country rules.	
IEEE 802.11n Data Rates	Tx/Rx (Mbps): 300, 270, 243, 240, 216.7, 195, 180, 173.3, 150, 144, 135, 130, 120, 117, 115.5, 90, 86.667, 72.2, 65, 60, 57.8, 45, 43.3, 30, 28.9, 21.7, 15, 14.4, 7.2	
IEEE 802.11a Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps	
IEEE 802.11g Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps	
IEEE 802.11b Data Rates	11, 5.5, 2, 1 Mbps	
Bluetooth	Bluetooth Version 4.0 (3.0 +HS)	
General		
Operating Systems	Windows* 7 (32-bit and 64-bit), Windows* 8 (32-bit and 64-bit), Windows* 8.1 (32-bit and 64-bit)	
Wi-Fi	Wi-Fi* certification for 802.11b, 802.11g, 802.11a, 802.11h, 802.11d, WPA-Personal, WPA-	

Alliance* certification	Enterprise, WPA2-Personal, WPA2-Enterprise, WPS, WMM, WMM Power Save, EAP-SIM, LEAP, PEAP, TKIP, EAP-FAST, EAP-TLS, EAP-TTLS, EAP-AKA, P2P
Cisco Compatible Extensions certification	Cisco Compatible Extensions, v4.0
WLAN Standard	IEEE 802.11g, 802.11b, 802.11a, 802.11n
Architecture	Infrastructure or ad hoc (peer-to-peer) operating modes
Security	WPA-Personal, WPA2-Personal, WPA-Enterprise, WPA2-Enterprise, AES-CCMP 128-bit, WEP 128-bit and 64-bit; 802.1X: EAP-SIM, LEAP, PEAP, TKIP, EAP-FAST, EAP-TLS, EAP-TTLS, EAP-AKA
Product Safety	UL, C-UL, CB (IEC/EN 60950-1)

Intel® Centrino® Advanced-N + WiMAX 6250 and Intel® Centrino® Wireless-N + WiMAX 6150

Form Factor	PCI Express* Half-Mini Card	
Dimensions	Half-Mini Card: Width 1.049 in x Length 1.18 in x Height 0.18 in (26.64 mm x 30 mm x 4.5 mm)	
Antenna Interface Connector	Hirose U.FL-R-SMT mates with cable connector U.FL-LP-066	
Antenna Diversity	On-board diversity	
Connector Interface	52-pin Mini Card edge connector	
Voltage	3.3 V	
Operating Temperature (Adapter Shield)	0 to +80 degrees Celsius	
Humidity	50% to 95% non-condensing (at temperatures of 25 °C to 35 °C)	
WiFi		
Frequency Modulation	Intel® Centrino® Advanced-N + WiMAX 6250 2.4 GHz (802.11b/g/n), 5 GHz (802.11a/n)	Intel® Centrino® Wireless-N + WiMAX 6150 2.4 GHz (802.11b/g/n)
Frequency band	5.15 GHz - 5.85 GHz (dependent on country)	2.400 - 2.4835 GHz (dependent on country)
Modulation	BPSK, QPSK, 16 QAM, 64 QAM	CCK, DQPSK, DBPSK
Wireless Medium	5 GHz UNII: Orthogonal Frequency Division Multiplexing (OFDM)	2.4 GHz ISM: Orthogonal Frequency Division Multiplexing (OFDM)
Channels	All channels as defined by the relevant specification and country rules.	
IEEE 802.11n Data Rates	Intel® Centrino® Wireless-N + WiMAX 6150 MIMO Configuration: 1X2 Rx: 300, 270, 243, 240, 180 Mbps Rx/Tx: 150, 144, 135, 130, 120, 117, 115.5, 90, 86.667, 72.2, 65, 60, 57.8, 45, 43.3, 30, 28.9, 21.7, 15, 14.4, 7.2 Mbps	

	<p>Intel® Centrino® Advanced-N + WiMAX 6250</p> <p>MIMO Configuration: 2X2</p> <p>Tx/Rx: 300, 270, 243, 240, 180, 150, 144, 135, 130, 120, 117, 115.5, 90, 86.667, 72.2, 65, 60, 57.8, 45, 43.3, 30, 28.9, 21.7, 15, 14.4, 7.2 Mbps</p>
IEEE 802.11a Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps
IEEE 802.11g Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps
IEEE 802.11b Data Rates	11, 5.5, 2, 1 Mbps
General	
Operating Systems	<ul style="list-style-type: none"> • Microsoft Windows* XP (32-bit and 64-bit) • Windows Vista* (32-bit and 64-bit) • Windows* 7 (32-bit and 64-bit) • Windows* 8 (32-bit and 64-bit) • Windows* 8.1 (32-bit and 64-bit)
Wi-Fi Alliance* certification	Wi-Fi* certification for 802.11b, 802.11g, 802.11a, 802.11h, 802.11d, WPA-Personal, WPA-Enterprise, WPA2-Personal, WPA2-Enterprise, WMM, WMM Power Save, EAP-SIM, LEAP, PEAP, TKIP, EAP-FAST, EAP-TLS, EAP-TTLS, EAP-AKA
Cisco Compatible Extensions certification	Cisco Compatible Extensions, v4.0
IEEE Feature Sets	<p>Intel® Centrino® Wireless-N + WiMAX 6150: IEEE 802.11b, 802.11g, 802.11n, 802.11e, 802.11i, 802.11h, 802.11d</p> <p>Intel® Centrino® Advanced-N + WiMAX 6250: 802.11a, IEEE 802.11b, 802.11g, 802.11n, 802.11e, 802.11i, 802.11h, 802.11d</p>
Architecture	Infrastructure or ad hoc (peer-to-peer) operating modes
Security	WPA-Personal, WPA2-Personal, WPA-Enterprise, WPA2-Enterprise, AES-CCMP 128-bit, WEP 128-bit and 64-bit; 802.1X: EAP-SIM, LEAP, PEAP, TKIP, EAP-FAST, EAP-TLS, EAP-TTLS, EAP-AKA
Product Safety	UL, C-UL, CB (IEC/EN 60950-1)
WiMAX General	
Operating Systems	<ul style="list-style-type: none"> • Microsoft Windows* XP (32-bit and 64-bit) • Windows Vista* (32-bit and 64-bit) • Windows* 7 (32-bit and 64-bit) • Windows* 8 (32-bit and 64-bit) • Windows* 8.1 (32-bit and 64-bit)
Standard Compliance	802.16e-2005 Corrigenda 2 (D4)
WiMAX System Profile Feature set	<p>Intel® Centrino® Wireless-N + WiMAX 6150: Mobile WiMAX release 1, Wave II. Supports 3A and 1A/B profiles</p> <p>Intel® Centrino® Advanced-N + WiMAX 6250: Mobile WiMAX release 1, Wave II. Supports 3A, 5A/C, 1A/B, and 5BL profiles</p>
Security	Key Management Protocol (PKMv2)
Encryption	128-bit CCMP (Counter-Mode/CBC-MAC) based on AES encryption
WiMAX	
Frequency	Intel® Centrino® Wireless-N + WiMAX 6150: 2.3-2.4 GHz / 2.496-2.690 GHz

Specifications

band	Intel® Centrino® Advanced-N + WiMAX 6250: 2.3-2.4 GHz / 2.496-2.690 GHz / 3.4-3.8 GHz	
Modulation	UL - QPSK, 16 QAM DL - QPSK, 16 QAM, 64 QAM	
Wireless Medium	Duplex mode: TDD operations	Scalable OFDMA (SOFDMA): 512 and 1024 FFT
	sub-carrier permutation: PUSC	Intel® Centrino® Wireless-N + WiMAX 6150: Channel bandwidths: 5 and 10 MHz Intel® Centrino® Advanced-N + WiMAX 6250: Channel bandwidths: 5, 7, 8.75 and 10 MHz
WiMAX Network Release Feature set	SPWG/NWG Release 1.5	
Rate Performance	Intel® Centrino® Wireless-N + WiMAX 6150: Up to 10 Mbps DL and 4 Mbps UL @ peak rate (OTA performance, 10MHz channel) Intel® Centrino® Advanced-N + WiMAX 6250: Up to 20 Mbps DL and 6 Mbps UL @ peak rate (OTA performance, 10MHz channel)	
RF Transmitter Output Power	Compliance with Power class 2	

Intel® Centrino® Advanced-N 6200, Intel® Centrino® Advanced-N 6205 and Intel® Centrino® Ultimate-N 6300

Form Factor	Intel® Centrino® Advanced-N 6200, Intel® Centrino® Ultimate-N 6300: PCI Express* Full-Mini Card and Half-Mini Card. Intel® Centrino® Advanced-N 6205: PCI Express* Half-Mini Card.	
Dimensions	Full-Mini Card: Width 2.00 in x Length 1.18 in x Height 0.18 in (50.95 mm x 30 mm x 4.5 mm) Half-Mini Card: Width 1.049 in x Length 1.18 in x Height 0.18 in (26.64 mm x 30 mm x 4.5 mm)	
Antenna Interface Connector	Hirose U.FL-R-SMT mates with cable connector U.FL-LP-066	
Antenna Diversity	On-board diversity	
Connector Interface	52-pin Mini Card edge connector	
Voltage	3.3 V	
Operating Temperature (Adapter Shield)	0 to +80 degrees Celsius	
Humidity	50% to 95% non-condensing (at temperatures of 25 °C to 35 °C)	
Frequency	5 GHz (802.11a/n)	2.4 GHz (802.11b/g/n)

Modulation		
Frequency band	5.15 GHz - 5.85 GHz (dependent on country)	2.400 - 2.4835 GHz (dependent on country)
Modulation	BPSK, QPSK, 16 QAM, 64 QAM	CCK, DQPSK, DBPSK
Wireless Medium	5 GHz UNII: Orthogonal Frequency Division Multiplexing (OFDM)	2.4 GHz ISM: Orthogonal Frequency Division Multiplexing (OFDM)
Channels	All channels as defined by the relevant specification and country rules.	
IEEE 802.11n Data Rates	Intel® Centrino® Ultimate-N 6300: Tx/Rx: 450, 405, 360, 300, 270, 243, 240, 216.7, 195, 180, 173.3, 150, 144, 135, 130, 120, 117, 115.5, 90, 86.667, 72.2, 65, 60, 57.8, 45, 43.3, 30, 28.9, 21.7, 15, 14.4, 7.2 Mbps	
	Intel® Centrino® Advanced-N 6200, Intel® Centrino® Advanced-N 6205: Tx/Rx: 300, 270, 243, 240, 180, 150, 144, 135, 130, 120, 117, 115.5, 90, 86.667, 72.2, 65, 60, 57.8, 45, 43.3, 30, 28.9, 21.7, 15, 14.4, 7.2 Mbps	
IEEE 802.11a Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps	
IEEE 802.11g Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps	
IEEE 802.11b Data Rates	11, 5.5, 2, 1 Mbps	
General		
Operating Systems	<ul style="list-style-type: none"> • Microsoft Windows* XP (32-bit and 64-bit) • Windows Vista* (32-bit and 64-bit) • Windows* 7 (32-bit and 64-bit) • Windows* 8 (32-bit and 64-bit) • Windows* 8.1 (32-bit and 64-bit) 	
Wi-Fi Alliance* certification	Wi-Fi* certification for 802.11b, 802.11g, 802.11a, 802.11h, 802.11d, WPA-Personal, WPA-Enterprise, WPA2-Personal, WPA2-Enterprise, WMM, WMM Power Save, EAP-SIM, LEAP, PEAP, TKIP, EAP-FAST, EAP-TLS, EAP-TTLS, EAP-AKA	
Cisco Compatible Extensions certification	Cisco Compatible Extensions, v4.0	
WLAN Standard	IEEE 802.11g, 802.11b, 802.11a, 802.11n	
Architecture	Infrastructure or ad hoc (peer-to-peer) operating modes	
Security	WPA-Personal, WPA2-Personal, WPA-Enterprise, WPA2-Enterprise, AES-CCMP 128-bit, WEP 128-bit and 64-bit; 802.1X: EAP-SIM, LEAP, PEAP, TKIP, EAP-FAST, EAP-TLS, EAP-TTLS, EAP-AKA	
Product Safety	UL, C-UL, CB (IEC/EN 60950-1)	

Intel® Dual Band Wireless-AC 7260

Form Factors	Half-Mini Card and M.2 (Next Generation Form Factor - NGFF)
Electrical interfaces	PCIe and USB 2.0 for both form factors
Antenna Interface Connector	Hirose U.FL-R-SMT mates with cable connector U.FL-LP-066
Antenna Diversity	On-board diversity
IEEE 802.11	Intel® Dual Band Wireless-AC 7260

Specifications

Networking Standards	<ul style="list-style-type: none"> Model 7260HMW - 802.11agn, ac, 2x2, Bluetooth 4.0, PCIe, USB, HMC Model 7260NGW - 802.11agn, ac, 2x2, Bluetooth 4.0, PCIe, USB, M.2 	
Operating Temperature (Adapter Shield)	0 to +80 degrees Celsius	
Humidity	50% to 95% non-condensing (at temperatures of 25 °C to 35 °C)	
Frequency Modulation	5GHz (802.11ac/n)	2.4GHz (802.11b/g/n)
Frequency band	5.15GHz - 5.85GHz (dependent on country)	2.400 - 2.4835GHz (dependent on country)
Modulation	BPSK, QPSK, 16 QAM, 64 QAM, 256 QAM	CCK, DQPSK, DBPSK
Wireless Medium	5GHz UNII: Orthogonal Frequency Division Multiplexing (OFDM)	2.4GHz ISM: Orthogonal Frequency Division Multiplexing (OFDM)
Channels	All channels as defined by the relevant specification and country rules.	
Spatial streams	Intel® Dual Band Wireless-AC 7260: 2 X 2	
Data Rates	All data rates are theoretical maximums.	
IEEE 802.11ac Data Rates	Intel® Dual Band Wireless-AC 7260: Up to 867 Mbps	
IEEE 802.11n Data Rates	Tx/Rx (Mbps): 300, 270, 243, 240, 216.7, 195, 180, 173.3, 150, 144, 135, 130, 120, 117, 115.5, 90, 86.667, 72.2, 65, 60, 57.8, 45, 43.3, 30, 28.9, 21.7, 15, 14.4, 7.2	
IEEE 802.11a Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps	
IEEE 802.11g Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps	
IEEE 802.11b Data Rates	11, 5.5, 2, 1 Mbps	
Bluetooth	Dual Mode Bluetooth* 2.1, 2.1+EDR, 3.0, 3.0+HS, 4.0 (BLE) supported by the following adapters <ul style="list-style-type: none"> Model 7260HMW Model 7260NGW 	
General		
Operating Systems	Windows* 7 (32-bit and 64-bit), Windows* 8 (32-bit and 64-bit), Windows* 8.1 (64-bit)	
Wi-Fi Alliance* certification	Wi-Fi CERTIFIED* for 802.11ac, a/b/g, n, WMM*, WPA*, WPA2*, and WPS, WPS 2.0, Protected Management Frames. Wi-Fi Direct* for peer-to-peer device connections.	
Architecture	Infrastructure and SoftAP; Supports simultaneous Client and SoftAP modes	
Cisco Compatible Extensions certification	Cisco Compatible Extensions, v4.0	
Security		
Authentication	WPA and WPA2, 802.1X (EAP-TLS, TTLS, PEAP, LEAP, EAP-FAST), EAP-SIM, EAP-AKA	
Authentication Protocols	PAP, CHAP, TLS, GTC, MS-CHAP*, MS-CHAPv2	
Encryption	64-bit and 128-bit WEP, AES-CCMP, TKIP	
Wi-Fi Direct* Encryption and	WPA2, AES-CCMP	

Authentication	
Product Safety	UL, C-UL, CB (IEC/EN 60950-1)

Intel® Dual Band Wireless-N 7260

Intel® Wireless-N 7260

Form Factors	Half-Mini Card, M.2 (Next Generation Form Factor - NGFF)	
Electrical interfaces	PCIe, USB 2.0 for both form factors	
Antenna Interface Connector	Hirose U.FL-R-SMT mates with cable connector U.FL-LP-066	
Antenna Diversity	On-board diversity	
IEEE 802.11 Networking Standards	<p>Intel® Dual Band Wireless-N 7260</p> <ul style="list-style-type: none"> Model 7260HMW AN - 802.11agn, 2x2, Bluetooth 4.0, PCIe, USB, HMC Model 7260NGW AN - 802.11agn, 2x2, Bluetooth 4.0, PCIe, USB, M.2 Model 7260HMW NB - 802.11agn, 2x2, PCIe, USB, HMC Model 7260NGW NB - 802.11agn, 2x2, PCIe, USB, M.2 <p>Intel® Wireless-N 7260</p> <ul style="list-style-type: none"> Model 7260HMW BN - 802.11agn, 2x2, Bluetooth 4.0, PCIe, USB, M.2 Model 7260NGW BN - 802.11bgn, 2x2, Bluetooth 4.0, PCIe, USB, M.2 	
Operating Temperature (Adapter Shield)	0 to +80 degrees Celsius	
Humidity	50% to 95% non-condensing (at temperatures of 25 °C to 35 °C)	
Frequency Modulation (See above, not all bands supported by all adapters)	5GHz (802.11a/n)	2.4GHz (802.11b/g/n)
Frequency band	5.15GHz - 5.85GHz (dependent on country)	2.400 - 2.4835GHz (dependent on country)
Modulation	BPSK, QPSK, 16 QAM, 64 QAM	CCK, DQPSK, DBPSK
Wireless Medium	5GHz UNII: Orthogonal Frequency Division Multiplexing (OFDM)	2.4GHz ISM: Orthogonal Frequency Division Multiplexing (OFDM)
Channels	All channels as defined by the relevant specification and country rules.	
802.11n spatial streams	All adapters: 2 X 2 spatial streams	
Data Rates	All data rates are theoretical maximums.	
IEEE 802.11n Data Rates	Tx/Rx (Mbps): 300, 270, 243, 240, 216.7, 195, 180, 173.3, 150, 144, 135, 130, 120, 117, 115.5, 90, 86.667, 72.2, 65, 60, 57.8, 45, 43.3, 30, 28.9, 21.7, 15, 14.4, 7.2	
IEEE 802.11a Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps	
IEEE 802.11g Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps	
IEEE 802.11b Data Rates	11, 5.5, 2, 1 Mbps	
Bluetooth	<p>Dual Mode Bluetooth* 2.1, 2.1+EDR, 3.0, 3.0+HS, 4.0 (BLE) supported by the following adapters</p> <ul style="list-style-type: none"> Model 7260HMW AN 	

	<p>Model 7260NGW AN</p> <ul style="list-style-type: none"> • Model 7260HMW BN • Model 7260NGW BN
General	
Operating Systems	Windows* 7 (32-bit and 64-bit), Windows 8 (32-bit and 64-bit), Windows* 8.1 (64-bit)
Wi-Fi Alliance* certification	Wi-Fi CERTIFIED* for 802.11ac, a/b/g, n, WMM*, WPA*, WPA2*, and WPS, WPS 2.0, Protected Management Frames. Wi-Fi Direct* for peer-to-peer device connections.
Architecture	Infrastructure and SoftAP; Supports simultaneous Client and SoftAP modes
Cisco Compatible Extensions certification	Cisco Compatible Extensions, v4.0
Security	
Authentication	WPA and WPA2, 802.1X (EAP-TLS, TTLS, PEAP, LEAP, EAP-FAST), EAP-SIM, EAP-AKA
Authentication Protocols	PAP, CHAP, TLS, GTC, MS-CHAP*, MS-CHAPv2
Encryption	64-bit and 128-bit WEP, AES-CCMP, TKIP
Wi-Fi Direct* Encryption and Authentication	WPA2, AES-CCMP
Product Safety	UL, C-UL, CB (IEC/EN 60950-1)

Intel® Dual Band Wireless-AC 3160

Form Factors	Half-Mini Card and M.2 (Next Generation Form Factor - NGFF)	
Electrical interfaces	PCIe and USB 2.0 for both form factors	
Antenna Interface Connector	Hirose U.FL-R-SMT mates with cable connector U.FL-LP-066	
Antenna Diversity	On-board diversity	
IEEE 802.11 Networking Standards	<p>Intel® Dual Band Wireless-AC 3160</p> <ul style="list-style-type: none"> • Model 3160HMW - 802.11agn, ac, 1x1, Bluetooth 4.0, PCIe, USB, HMC • Model 3160NGW - 802.11agn, ac, 1x1, Bluetooth 4.0, PCIe, USB, M.2 	
Operating Temperature (Adapter Shield)	0 to +80 degrees Celsius	
Humidity	50% to 90% non-condensing (at temperatures of 25 °C to 35 °C)	
Frequency Modulation	5GHz (802.11ac/n)	2.4GHz (802.11b/g/n)
Frequency band	5.15GHz - 5.85GHz (dependent on country)	2.400 - 2.4835GHz (dependent on country)
Modulation	BPSK, QPSK, 16 QAM, 64 QAM, 256 QAM	CCK, DQPSK, DBPSK
Wireless Medium	5GHz UNII: Orthogonal Frequency Division Multiplexing (OFDM)	2.4GHz ISM: Orthogonal Frequency Division Multiplexing (OFDM)
Channels	All channels as defined by the relevant specification and country rules.	
Spatial streams	Intel® Dual Band Wireless-AC 3160: 1 X 1	
Data Rates	All data rates are theoretical maximums.	

Specifications

IEEE 802.11ac Data Rates	Intel® Dual Band Wireless-AC 3160: Up to 433 Mbps
IEEE 802.11n Data Rates	Tx/Rx (Mbps): 150, 144, 135, 130, 120, 117, 115.5, 90, 86.667, 72.2, 65, 60, 57.8, 45, 43.3, 30, 28.9, 21.7, 15, 14.4, 7.2
IEEE 802.11a Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps
IEEE 802.11g Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps
IEEE 802.11b Data Rates	11, 5.5, 2, 1 Mbps
Bluetooth	Dual Mode Bluetooth* 2.1, 2.1+EDR, 3.0, 3.0+HS, 4.0 (BLE) supported by the following adapters <ul style="list-style-type: none"> • Model 3160HMW • Model 3160NGW
General	
Operating Systems	Windows* 7 (32-bit and 64-bit), Windows 8 (32-bit and 64-bit), Windows* 8.1 (64-bit)
Wi-Fi Alliance* certification	Wi-Fi CERTIFIED* for 802.11ac, a/b/g, n, WMM*, WPA*, WPA2*, and WPS, WPS 2.0, Protected Management Frames. Wi-Fi Direct* for peer-to-peer device connections.
Architecture	Infrastructure and SoftAP; Supports simultaneous Client and SoftAP modes
Cisco Compatible Extensions certification	Cisco Compatible Extensions, v4.0
Security	
Authentication	WPA and WPA2, 802.1X (EAP-TLS, TTLS, PEAP, LEAP, EAP-FAST), EAP-SIM, EAP-AKA
Authentication Protocols	PAP, CHAP, TLS, GTC, MS-CHAP*, MS-CHAPv2
Encryption	64-bit and 128-bit WEP, AES-CCMP, TKIP
Wi-Fi Direct* Encryption and Authentication	WPA2, AES-CCMP
Product Safety	UL, C-UL, CB (IEC/EN 60950-1)

Intel® Dual Band Wireless-AC 3165 (Model 3165NGW)

Form Factors	M.2 (Next Generation Form Factor - NGFF)	
Electrical interfaces	PCIe and USB 2.0	
Antenna Interface Connector	Hirose U.FL-R-SMT mates with cable connector U.FL-LP-066	
Antenna Diversity	On-board diversity	
IEEE 802.11 Networking Standards	802.11abgn, 802.11ac, 802.11d, 802.11e, 802.11i, 802.11h, 802.11w	
Operating Temperature (Adapter Shield)	0 to +80 degrees Celsius	
Humidity	50% to 90% RH non-condensing (at temperatures of 25 °C to 35 °C)	
Frequency Modulation	5GHz (802.11ac/n)	2.4GHz (802.11b/g/n)

Frequency band	5.15GHz - 5.85GHz (dependent on country)	2.400 - 2.4835GHz (dependent on country)
Modulation	BPSK, QPSK, 16 QAM, 64 QAM, 256 QAM	CCK, DQPSK, DBPSK
Wireless Medium	5GHz UNII: Orthogonal Frequency Division Multiplexing (OFDM)	2.4GHz ISM: Orthogonal Frequency Division Multiplexing (OFDM)
Channels	All channels as defined by the relevant specification and country rules.	
Spatial streams	Intel® Dual Band Wireless-AC 3165: 1 X 1	
Data Rates	All data rates are theoretical maximums.	
IEEE 802.11ac Data Rates	Intel® Dual Band Wireless-AC 3165: Up to 433 Mbps	
IEEE 802.11n Data Rates	Tx/Rx (Mbps): 150, 144, 135, 130, 120, 117, 115.5, 90, 86.667, 72.2, 65, 60, 57.8, 45, 43.3, 30, 28.9, 21.7, 15, 14.4, 7.2	
IEEE 802.11a Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps	
IEEE 802.11g Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps	
IEEE 802.11b Data Rates	11, 5.5, 2, 1 Mbps	
Bluetooth	Dual Mode Bluetooth* 2.1, 2.1+EDR, 3.0, 3.0+HS, 4.0 (BLE)	
General		
Operating Systems	Windows* 7 (32-bit and 64-bit), Windows* 8 (32-bit and 64-bit), Windows* 8.1 (64-bit)	
Wi-Fi Alliance* certification	Wi-Fi CERTIFIED* for 802.11ac, a/b/g, n, WMM*, WPA*, WPA2*, and WPS, WPS 2.0, Protected Management Frames. Wi-Fi Direct* for peer-to-peer device connections.	
Architecture	Infrastructure and SoftAP; Supports simultaneous Client and SoftAP modes	
Cisco Compatible Extensions certification	Cisco Compatible Extensions, v4.0	
Security		
Authentication	WPA and WPA2, 802.1X (EAP-TLS, TTLS, PEAP, LEAP, EAP-FAST), EAP-SIM, EAP-AKA	
Authentication Protocols	PAP, CHAP, TLS, GTC, MS-CHAP*, MS-CHAPv2	
Encryption	64-bit and 128-bit WEP, AES-CCMP, TKIP	
Wi-Fi Direct* Encryption and Authentication	WPA2, AES-CCMP	
Product Safety	UL, C-UL, CB (IEC/EN 60950-1)	

Intel® Dual Band Wireless-AC 3168

Form Factors	M.2 2230 (Next Generation Form Factor - NGFF)
Electrical interfaces	PCIe and USB 2.0
Antenna Interface Connector	Hirose U.FL-R-SMT mates with cable connector U.FL-LP-066
Antenna Diversity	On-board diversity
IEEE 802.11 Networking Standards	802.11abgn, 802.11ac, 802.11d, 802.11e, 802.11i, 802.11h, 802.11w
Operating	0 to +80 degrees Celsius

Temperature (Adapter Shield)	
Humidity	50% to 90% RH non-condensing (at temperatures of 25 °C to 35 °C)
Frequency Modulation	5GHz (802.11ac/n) 2.4GHz (802.11b/g/n)
Frequency band	5.15GHz - 5.85GHz (dependent on country) 2.400 - 2.4835GHz (dependent on country)
Modulation	BPSK, QPSK, 16 QAM, 64 QAM, 256 QAM CCK, DQPSK, DBPSK
Wireless Medium	5GHz UNII: Orthogonal Frequency Division Multiplexing (OFDM) 2.4GHz ISM: Orthogonal Frequency Division Multiplexing (OFDM)
Channels	All channels as defined by the relevant specification and country rules.
Spatial streams	Intel® Dual Band Wireless-AC 3168: 1 X 1
Data Rates	All data rates are theoretical maximums.
IEEE 802.11ac Data Rates	Intel® Dual Band Wireless-AC 3168: Up to 433 Mbps
IEEE 802.11n Data Rates	Tx/Rx (Mbps): 150, 144, 135, 130, 120, 117, 115.5, 90, 86.667, 72.2, 65, 60, 57.8, 45, 43.3, 30, 28.9, 21.7, 15, 14.4, 7.2
IEEE 802.11a Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps
IEEE 802.11g Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps
IEEE 802.11b Data Rates	11, 5.5, 2, 1 Mbps
Bluetooth	Dual Mode Bluetooth* 2.1, 2.1+EDR, 3.0, 3.0+HS, 4.2 (BLE)
General	
Operating Systems	Linux, Windows* 8.1 (64-bit), Windows* 10 (64-bit)
Wi-Fi Alliance* certification	Wi-Fi CERTIFIED* for 802.11ac, a/b/g, n, WMM*, WPA*, WPA2*, and WPS, WPS 2.0, Protected Management Frames. Wi-Fi Direct* for peer-to-peer device connections.
Architecture	Infrastructure and SoftAP; Supports simultaneous Client and SoftAP modes
Cisco Compatible Extensions certification	Cisco Compatible Extensions, v4.0
Security	
Authentication	WPA and WPA2, 802.1X (EAP-TLS, TTLS, PEAP, LEAP, EAP-FAST), EAP-SIM, EAP-AKA
Authentication Protocols	PAP, CHAP, TLS, GTC, MS-CHAP*, MS-CHAPv2
Encryption	64-bit and 128-bit WEP, AES-CCMP, TKIP
Wi-Fi Direct* Encryption and Authentication	WPA2, AES-CCMP
Product Safety	UL, C-UL, CB (IEC/EN 60950-1)

Intel® Dual Band Wireless-AC 7265 (Model 7265NGW)

Form Factors	M.2 (Next Generation Form Factor - NGFF)
Electrical interfaces	PCIe and USB 2.0
Antenna Interface Connector	Hirose U.FL-R-SMT mates with cable connector U.FL-LP-066

Antenna Diversity	On-board diversity	
IEEE 802.11 Networking Standards	Intel® Dual Band Wireless-AC 7265 <ul style="list-style-type: none"> Model 7265NGW - 802.11agn, ac, 2x2, Bluetooth 4.0, PCIe, USB, M.2 	
Operating Temperature (Adapter Shield)	0 to +80 degrees Celsius	
Humidity	50% to 90% RH non-condensing (at temperatures of 25 °C to 35 °C)	
Frequency Modulation	5GHz (802.11ac/n)	2.4GHz (802.11b/g/n)
Frequency band	5.15GHz - 5.85GHz (dependent on country)	2.400 - 2.4835GHz (dependent on country)
Modulation	BPSK, QPSK, 16 QAM, 64 QAM, 256 QAM	CCK, DQPSK, DBPSK
Wireless Medium	5GHz UNII: Orthogonal Frequency Division Multiplexing (OFDM)	2.4GHz ISM: Orthogonal Frequency Division Multiplexing (OFDM)
Channels	All channels as defined by the relevant specification and country rules.	
Spatial streams	Intel® Dual Band Wireless-AC 7265: 2 X 2	
Data Rates	All data rates are theoretical maximums.	
IEEE 802.11ac Data Rates	Intel® Dual Band Wireless-AC 7265: Up to 867 Mbps	
IEEE 802.11n Data Rates	Tx/Rx (Mbps): 300, 270, 243, 240, 216.7, 195, 180, 173.3, 150, 144, 135, 130, 120, 117, 115.5, 90, 86.667, 72.2, 65, 60, 57.8, 45, 43.3, 30, 28.9, 21.7, 15, 14.4, 7.2	
IEEE 802.11a Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps	
IEEE 802.11g Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps	
IEEE 802.11b Data Rates	11, 5.5, 2, 1 Mbps	
Bluetooth	Dual Mode Bluetooth* 2.1, 2.1+EDR, 3.0, 3.0+HS, 4.0 (BLE) supported by the following adapters <ul style="list-style-type: none"> Model 7265NGW 	
General		
Operating Systems	Windows* 7 (32-bit and 64-bit), Windows* 8 (32-bit and 64-bit), Windows* 8.1 (64-bit)	
Wi-Fi Alliance* certification	Wi-Fi CERTIFIED* for 802.11ac, a/b/g, n, WMM*, WPA*, WPA2*, and WPS, WPS 2.0, Protected Management Frames. Wi-Fi Direct* for peer-to-peer device connections.	
Architecture	Infrastructure and SoftAP; Supports simultaneous Client and SoftAP modes	
Cisco Compatible Extensions certification	Cisco Compatible Extensions, v4.0	
Security		
Authentication	WPA and WPA2, 802.1X (EAP-TLS, TTLS, PEAP, LEAP, EAP-FAST), EAP-SIM, EAP-AKA	
Authentication Protocols	PAP, CHAP, TLS, GTC, MS-CHAP*, MS-CHAPv2	
Encryption	64-bit and 128-bit WEP, AES-CCMP, TKIP	
Wi-Fi Direct* Encryption and Authentication	WPA2, AES-CCMP	

Product Safety	UL, C-UL, CB (IEC/EN 60950-1)
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Intel® Dual Band Wireless-N 7265 (Models 7265NGW AN and 7265NGW NB)

Intel® Wireless-N 7265 (Model 7265NGW BN)

Form Factors	M.2 (Next Generation Form Factor - NGFF)	
Electrical interfaces	PCIe, USB 2.0	
Antenna Interface Connector	Hirose U.FL-R-SMT mates with cable connector U.FL-LP-066	
Antenna Diversity	On-board diversity	
IEEE 802.11 Networking Standards	Intel® Dual Band Wireless-N 7265 <ul style="list-style-type: none"> • Model 7265NGW AN - 802.11agn, 2x2, Bluetooth 4.0, PCIe, USB, M.2 • Model 7265NGW NB - 802.11agn, 2x2, PCIe, USB, M.2 Intel® Wireless-N 7265 <ul style="list-style-type: none"> • Model 7265NGW BN - 802.11bgn, 2x2, Bluetooth 4.0, PCIe, USB, M.2 	
Operating Temperature (Adapter Shield)	0 to +80 degrees Celsius	
Humidity	50% to 90% non-condensing (at temperatures of 25 °C to 35 °C)	
Frequency Modulation (See above, not all bands supported by all adapters)	5GHz (802.11a/n)	2.4GHz (802.11b/g/n)
Frequency band	5.15GHz - 5.85GHz (dependent on country)	2.400 - 2.4835GHz (dependent on country)
Modulation	BPSK, QPSK, 16 QAM, 64 QAM	CCK, DQPSK, DBPSK
Wireless Medium	5GHz UNII: Orthogonal Frequency Division Multiplexing (OFDM)	2.4GHz ISM: Orthogonal Frequency Division Multiplexing (OFDM)
Channels	All channels as defined by the relevant specification and country rules.	
802.11n spatial streams	All adapters: 2 X 2 spatial streams	
Data Rates	All data rates are theoretical maximums.	
IEEE 802.11n Data Rates	Tx/Rx (Mbps): 300, 270, 243, 240, 216.7, 195, 180, 173.3, 150, 144, 135, 130, 120, 117, 115.5, 90, 86.667, 72.2, 65, 60, 57.8, 45, 43.3, 30, 28.9, 21.7, 15, 14.4, 7.2	
IEEE 802.11a Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps	
IEEE 802.11g Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps	
IEEE 802.11b Data Rates	11, 5.5, 2, 1 Mbps	
Bluetooth	Dual Mode Bluetooth* 2.1, 2.1+EDR, 3.0, 3.0+HS, 4.0 (BLE) supported by the following adapters <ul style="list-style-type: none"> • Model 7265NGW AN • Model 7265NGW NB • Model 7265NGW BN 	
General		

Operating Systems	Windows* 7 (32-bit and 64-bit), Windows 8 (32-bit and 64-bit), Windows* 8.1 (64-bit)
Wi-Fi Alliance* certification	Wi-Fi CERTIFIED* for 802.11ac, a/b/g, n, WMM*, WPA*, WPA2*, and WPS, WPS 2.0, Protected Management Frames. Wi-Fi Direct* for peer-to-peer device connections.
Architecture	Infrastructure and SoftAP; Supports simultaneous Client and SoftAP modes
Cisco Compatible Extensions certification	Cisco Compatible Extensions, v4.0
Security	
Authentication	WPA and WPA2, 802.1X (EAP-TLS, TTLS, PEAP, LEAP, EAP-FAST), EAP-SIM, EAP-AKA
Authentication Protocols	PAP, CHAP, TLS, GTC, MS-CHAP*, MS-CHAPv2
Encryption	64-bit and 128-bit WEP, AES-CCMP, TKIP
Wi-Fi Direct* Encryption and Authentication	WPA2, AES-CCMP
Product Safety	UL, C-UL, CB (IEC/EN 60950-1)

Intel® Dual Band Wireless-AC 8260

Form Factors	Half-Mini Card and M.2 (Next Generation Form Factor - NGFF)	
Electrical interfaces	PCIe and USB 2.0 for both form factors	
Antenna Interface Connector	Hirose U.FL-R-SMT mates with cable connector U.FL-LP-066	
Antenna Diversity	On-board diversity	
IEEE 802.11 Networking Standards	Intel® Dual Band Wireless-AC 8260 <ul style="list-style-type: none"> Model 8260NGW - 802.11agn, ac, 2x2, Bluetooth 4.0, PCIe, USB, M.2 	
Operating Temperature (Adapter Shield)	0 to +80 degrees Celsius	
Humidity	50% to 95% non-condensing (at temperatures of 25 °C to 35 °C)	
Frequency Modulation	5GHz (802.11ac/n)	2.4GHz (802.11b/g/n)
Frequency band	5.15GHz - 5.85GHz (dependent on country)	2.400 - 2.4835GHz (dependent on country)
Modulation	BPSK, QPSK, 16 QAM, 64 QAM, 256 QAM	CCK, DQPSK, DBPSK
Wireless Medium	5GHz UNII: Orthogonal Frequency Division Multiplexing (OFDM)	2.4GHz ISM: Orthogonal Frequency Division Multiplexing (OFDM)
Channels	All channels as defined by the relevant specification and country rules.	
Spatial streams	Intel® Dual Band Wireless-AC 8260: 2 X 2	
Data Rates	All data rates are theoretical maximums.	
IEEE 802.11ac Data Rates	Intel® Dual Band Wireless-AC 8260: Up to 867 Mbps	
IEEE 802.11n Data Rates	Tx/Rx (Mbps): 300, 270, 243, 240, 216.7, 195, 180, 173.3, 150, 144, 135, 130, 120, 117, 115.5, 90, 86.667, 72.2, 65, 60, 57.8, 45, 43.3, 30, 28.9, 21.7, 15, 14.4, 7.2	
IEEE 802.11a Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps	
IEEE 802.11g Data	54, 48, 36, 24, 18, 12, 9, 6 Mbps	

Rates	
IEEE 802.11b Data Rates	11, 5.5, 2, 1 Mbps
Bluetooth	Dual Mode Bluetooth* 2.1, 2.1+EDR, 3.0, 3.0+HS, 4.0 (BLE) supported by the following adapters <ul style="list-style-type: none"> Model 8260NGW
General	
Operating Systems	Windows* 7 (32-bit and 64-bit), Windows* 8 (32-bit and 64-bit), Windows* 8.1 (64-bit)
Wi-Fi Alliance* certification	Wi-Fi CERTIFIED* for 802.11ac, a/b/g, n, WMM*, WPA*, WPA2*, and WPS, WPS 2.0, Protected Management Frames. Wi-Fi Direct* for peer-to-peer device connections.
Architecture	Infrastructure and SoftAP; Supports simultaneous Client and SoftAP modes
Cisco Compatible Extensions certification	Cisco Compatible Extensions, v4.0
Security	
Authentication	WPA and WPA2, 802.1X (EAP-TLS, TTLS, PEAP, LEAP, EAP-FAST), EAP-SIM, EAP-AKA
Authentication Protocols	PAP, CHAP, TLS, GTC, MS-CHAP*, MS-CHAPv2
Encryption	64-bit and 128-bit WEP, AES-CCMP, TKIP
Wi-Fi Direct* Encryption and Authentication	WPA2, AES-CCMP
Product Safety	UL, C-UL, CB (IEC/EN 60950-1)

Intel® Dual Band Wireless-AC 8265 (Models 8265NGWH/8265NGW/8265D2W)

General	
Dimensions (H x W x D)	<ul style="list-style-type: none"> M.2 2230: 22 mm x 30 mm x 2.4 mm M.2 1216: 12 mm x 16 mm x 1.8 mm
Weight	<ul style="list-style-type: none"> M.2 2230: 2.6g M.2 1216: 0.6g
Antenna Diversity	Supported
Radio ON/OFF Control	Supported
Connector Interface	M.2: PCIe, USB, or UART (M.2 1216 only)
Operating Temperature (Adapter Shield)	0 to +80 degrees Celsius
Humidity	50% to 90% RH non-condensing (at temperatures of 25 °C to 35 °C)
Operating Systems	Microsoft Windows 7*, Microsoft Windows 8.1*, Microsoft Windows 10*, Linux* (limited feature support), Android
Wi-Fi Alliance* certification	Wi-Fi CERTIFIED* a/b/g/n/ac, WMM*, WMM-PS*, WPA*, WPA2*, WPS2*, Protected Management Frames, Wi-Fi Direct* for peer to peer device connections, Wi-Fi Miracast*

	as Source.	
IEEE WLAN Standard	IEEE 802.11a/b/g/n/ac, 802.11d, 802.11e, 802.11h, 802.11i, 802.11w; 802.11r, 802.11k, 802.11v pending OS support; Fine Timing Measurement based on 802.11REVmc	
Roaming	Supports seamless roaming between access points	
Bluetooth	Dual Mode Bluetooth* 4.2, BLE	
Security		
Authentication	WPA and WPA2, 802.1X (EAP-TLS, TTLS, PEAP, LEAP, EAP-FAST), EAP-SIM, EAP-AKA, EAP-AKA	
Authentication Protocols	PAP, CHAP, TLS, GTC, MS-CHAP*, MS-CHAPv2	
Encryption	64-bit and 128-bit WEP, 128-bit AES-CCMP	
Wi-Fi Direct* Encryption and Authentication	WPA2-PSK, AES-CCMP	
Compliance		
Product Safety	UL, C-UL, CB (IEC 60950-1)	
Model Numbers		
Models	Model 8265NGWH	802.11ac, 2x2, Bluetooth* 4.2, PCIe, USB, LTE Coexistence, eFEM, M.2 2230 HE
	Model 8265NGW	802.11ac, 2x2, Bluetooth* 4.2, PCIe, USB, M.2 2230 MS
	Model 8265D2W	802.11ac, 2x2, Bluetooth* 4.2, PCIe, LTE Coexistence, M.2 1216 SD
Frequency Modulation	5GHz (802.11ac/n)	2.4GHz (802.11b/g/n)
Frequency band	5.15GHz - 5.85GHz (dependent on country)	2.400 - 2.4835GHz (dependent on country)
Modulation	BPSK, QPSK, 16 QAM, 64 QAM, 256 QAM	CCK, DQPSK, DBPSK
Wireless Medium	5GHz UNII: Orthogonal Frequency Division Multiplexing (OFDM)	2.4GHz ISM: Orthogonal Frequency Division Multiplexing (OFDM)
Channels	All channels as defined by the relevant specification and country rules.	
Spatial streams	Intel® Dual Band Wireless-AC 8265: 2 X 2	
Data Rates	All data rates are theoretical maximums.	
IEEE 802.11ac Data Rates	Intel® Dual Band Wireless-AC 8265: Up to 867 Mbps	
IEEE 802.11n Data Rates	Tx/Rx (Mbps): 300, 270, 243, 240, 216.7, 195, 180, 173.3, 150, 144, 135, 130, 120, 117, 115.5, 90, 86.667, 72.2, 65, 60, 57.8, 45, 43.3, 30, 28.9, 21.7, 15, 14.4, 7.2	
IEEE 802.11a Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps	
IEEE 802.11g Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps	
IEEE 802.11b Data Rates	11, 5.5, 2, 1 Mbps	

Intel® Wireless-AC 9260 (Models 9260NGW and 9260D2WL)

General

Specifications

Dimensions (H x W x D)	<ul style="list-style-type: none"> M.2 2230: 22 mm x 30 mm x 2.4 mm [1.5 mm max (top side)/ 0.1 mm max (bottom side)] M.2 1216: 12 mm x 16 mm x 1.67 (± 0.08) mm 	
Weight	<ul style="list-style-type: none"> M.2 2230: 2.9 ± 0.3 g M.2 1216: 0.61 ± 0.1 g 	
Antenna Diversity	Supported	
Radio ON/OFF Control	Supported	
Connector Interface	M.2: PCIe, USB	
Operating Temperature (Adapter Shield)	0 to +80 degrees Celsius	
Humidity	50% to 90% RH non-condensing (at temperatures of 25 °C to 35 °C)	
Operating Systems	Microsoft Windows 10*, Linux* (limited feature support), Chrome*	
Wi-Fi Alliance* certification	Wi-Fi CERTIFIED* a/b/g/n/ac with wave 2 features, WMM*, WMM-PS*, WPA*, WPA2*, WPS2*, Protected Management Frames, Wi-Fi Miracast* as Source, and Wi-Fi Direct*.	
IEEE WLAN Standard	IEEE 802.11a/b/g/n/ac, 802.11d, 802.11e, 802.11h, 802.11i, 802.11w; 802.11r, 802.11k, 802.11v pending OS support; Fine Timing Measurement based on 802.11REVmc	
Roaming	Supports seamless roaming between access points	
Bluetooth	Bluetooth* 5	
Security		
Authentication	WPA* and WPA2*, 802.1X (EAP-TLS, TTLS, PEAP, EAP-SIM, EAP-AKA, EAP-AKA)	
Authentication Protocols	PAP, CHAP, TLS, MS-CHAP*, MS-CHAPv2*	
Encryption	64-bit and 128-bit WEP, 128-bit AES-CCMP	
Wi-Fi Direct* Encryption and Authentication	WPA2-PSK, AES-CCMP	
Compliance		
US Government	FIPS, FISMA	
Product Safety	UL, C-UL, CB (IEC 60950-1)	
Model Numbers		
Models	9260NGW	802.11ac wave 2, 2x2, Bluetooth* 5, PCIe, USB, M.2 2230
	9260D2WL	802.11ac wave 2, 2x2, Bluetooth* 5, PCIe, USB, M.2 1216 LTE Coex
Frequency Modulation	5GHz (802.11ac/n)	2.4GHz (802.11b/g/n)
Frequency band	5.15GHz - 5.85GHz (dependent on country)	2.400 - 2.4835GHz (dependent on country)
Modulation	BPSK, QPSK, 16 QAM, 64 QAM, 256 QAM	CCK, DQPSK, DBPSK
Wireless Medium	5GHz UNII: Orthogonal Frequency Division Multiplexing (OFDM)	2.4GHz ISM: Orthogonal Frequency Division Multiplexing (OFDM)
Channels	All channels as defined by the relevant specification and country rules.	
Spatial streams	Intel® Wireless-AC 9260: 2 X 2	

Data Rates	All data rates are theoretical maximums.
IEEE 802.11ac Data Rates	1.73 Gbps when using 160MHz channels
IEEE 802.11n Data Rates	Tx/Rx (Mbps): 300, 270, 243, 240, 216.7, 195, 180, 173.3, 150, 144, 135, 130, 120, 117, 115.5, 90, 86.667, 72.2, 65, 60, 57.8, 45, 43.3, 30, 28.9, 21.7, 15, 14.4, 7.2
IEEE 802.11a Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps
IEEE 802.11g Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps
IEEE 802.11b Data Rates	11, 5.5, 2, 1 Mbps

Intel® Wireless-AC 9461 (Models 9461NGW/9461D2W)

General	
Dimensions (H x W x D)	<ul style="list-style-type: none"> M.2 2230: 22 mm x 30 mm x 2.4 mm M.2 1216: 12 mm x 16 mm x 1.57 (+-0.08) mm
Weight	<ul style="list-style-type: none"> M.2 2230: 2.7g M.2 1216: 0.7g
Antenna Diversity	Supported
Radio ON/OFF Control	Supported
Connector Interface	M.2: CNVio
Operating Temperature (Adapter Shield)	0°C to +80°C
Humidity	50% to 90% RH non-condensing (at temperatures of 25 °C to 35 °C)
Operating Systems	Microsoft Windows 10*, Linux* (limited feature support), Chrome
Wi-Fi Alliance* certification	Wi-Fi CERTIFIED* a/b/g/n/ac with wave 2 features, WMM*, WMM-PS*, WPA*, WPA2*, WPS2*, Protected Management Frames, Wi-Fi Miracast* as Source, and Wi-Fi Direct
IEEE WLAN Standard	IEEE 802.11a/b/g/n/ac, 802.11d, 802.11e, 802.11h, 802.11i, 802.11w; 802.11r, 802.11k, 802.11v pending OS support; Fine Timing Measurement based on 802.11REVmc
Roaming	Supports seamless roaming between access points
Bluetooth	Bluetooth* 5
Security	
Authentication	WPA and WPA2, 802.1X (EAP-TLS, TTLS, PEAP, EAP-SIM, EAP-AKA)
Authentication Protocols	PAP, CHAP, TLS, MS-CHAP*, MS-CHAPv2
Encryption	64-bit and 128-bit WEP, 128-bit AES-CCMP
Wi-Fi Direct* Encryption and Authentication	WPA2-PSK, AES-CCMP
Compliance	
Regulatory	For a list of country approvals, please contact your local Intel representatives.
US Government	FIPS, FISMA

Product Safety	UL, C-UL, CB (IEC 60950-1)	
Model Numbers		
Models	9461NGW	802.11ac wave 2, 1x1, Bluetooth* 5, PCIe, USB, M.2 2230, Single Antenna
	9461D2W	802.11ac wave 2, 1x1, Bluetooth* 5, PCIe, USB, M.2 1216, Single Antenna
Frequency Modulation	5GHz (802.11ac/n)	2.4GHz (802.11b/g/n)
Frequency band	5.15GHz - 5.85GHz (dependent on country)	2.400 - 2.4835GHz (dependent on country)
Modulation	BPSK, QPSK, 16 QAM, 64 QAM, 256 QAM	CCK, DQPSK, DBPSK
Wireless Medium	5GHz UNII: Orthogonal Frequency Division Multiplexing (OFDM)	2.4GHz ISM: Orthogonal Frequency Division Multiplexing (OFDM)
Channels	All channels as defined by the relevant specification and country rules.	
Spatial streams	Intel® Wireless-AC 9461: 1 X 1	
Data Rates	All data rates are theoretical maximums.	
IEEE 802.11ac Data Rates	433 Mbps when using 80MHz channels	
IEEE 802.11n Data Rates	Tx/Rx (Mbps): 300, 270, 243, 240, 216.7, 195, 180, 173.3, 150, 144, 135, 130, 120, 117, 115.5, 90, 86.667, 72.2, 65, 60, 57.8, 45, 43.3, 30, 28.9, 21.7, 15, 14.4, 7.2	
IEEE 802.11a Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps	
IEEE 802.11g Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps	
IEEE 802.11b Data Rates	11, 5.5, 2, 1 Mbps	

Intel® Wireless-AC 9462 (Models 9462NGW/9462D2W)

General	
Dimensions (H x W x D)	<ul style="list-style-type: none"> M.2 2230: 22 mm x 30 mm x 2.4 mm M.2 1216: 12 mm x 16 mm x 1.57 (+-0.08) mm
Weight	<ul style="list-style-type: none"> M.2 2230: 2.7g M.2 1216: 0.7g
Antenna Diversity	Supported
Radio ON/OFF Control	Supported
Connector Interface	M.2: CNVio
Operating Temperature (Adapter Shield)	0°C to +80°C
Humidity	50% to 90% RH non-condensing (at temperatures of 25 °C to 35 °C)
Operating Systems	Microsoft Windows 10*, Linux* (limited feature support), Chrome
Wi-Fi Alliance* certification	Wi-Fi CERTIFIED* a/b/g/n/ac with wave 2 features, WMM*, WMM-PS*, WPA*, WPA2*, WPS2*, Protected Management Frames, Wi-Fi Miracast* as Source, and Wi-Fi Direct

IEEE WLAN Standard	IEEE 802.11a/b/g/n/ac, 802.11d, 802.11e, 802.11h, 802.11i, 802.11w; 802.11r, 802.11k, 802.11v pending OS support; Fine Timing Measurement based on 802.11REVmc	
Roaming	Supports seamless roaming between access points	
Bluetooth	Bluetooth* 5	
Security		
Authentication	WPA and WPA2, 802.1X (EAP-TLS, TTLS, PEAP, EAP-SIM, EAP-AKA)	
Authentication Protocols	PAP, CHAP, TLS, MS-CHAP*, MS-CHAPv2	
Encryption	64-bit and 128-bit WEP, 128-bit AES-CCMP	
Wi-Fi Direct* Encryption and Authentication	WPA2-PSK, AES-CCMP	
Compliance		
Regulatory	For a list of country approvals, please contact your local Intel representatives.	
US Government	FIPS, FISMA	
Product Safety	UL, C-UL, CB (IEC 60950-1)	
Model Numbers		
Models	9462NGW	802.11ac wave 2, 1x1, Bluetooth* 5, PCIe, USB, M.2 2230, Diversity Antenna
	9462D2W	802.11ac wave 2, 1x1, Bluetooth* 5, PCIe, USB, M.2 1216, Diversity Antenna
Frequency Modulation	5GHz (802.11ac/n)	2.4GHz (802.11b/g/n)
Frequency band	5.15GHz - 5.85GHz (dependent on country)	2.400 - 2.4835GHz (dependent on country)
Modulation	BPSK, QPSK, 16 QAM, 64 QAM, 256 QAM	CCK, DQPSK, DBPSK
Wireless Medium	5GHz UNII: Orthogonal Frequency Division Multiplexing (OFDM)	2.4GHz ISM: Orthogonal Frequency Division Multiplexing (OFDM)
Channels	All channels as defined by the relevant specification and country rules.	
Spatial streams	Intel® Wireless-AC 9462: 1 X 1	
Data Rates	All data rates are theoretical maximums.	
IEEE 802.11ac Data Rates	433 Mbps when using 80MHz channels	
IEEE 802.11n Data Rates	Tx/Rx (Mbps): 300, 270, 243, 240, 216.7, 195, 180, 173.3, 150, 144, 135, 130, 120, 117, 115.5, 90, 86.667, 72.2, 65, 60, 57.8, 45, 43.3, 30, 28.9, 21.7, 15, 14.4, 7.2	
IEEE 802.11a Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps	
IEEE 802.11g Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps	
IEEE 802.11b Data Rates	11, 5.5, 2, 1 Mbps	

Intel® Wireless-AC 9560 (Models 9560NGW/9560D2W)

General	
Dimensions (H x W x D)	<ul style="list-style-type: none"> M.2 2230: 22 mm x 30 mm x 2.4 mm

	<ul style="list-style-type: none"> • M.2 1216: 12 mm x 16 mm x 1.8 mm 	
Weight	<ul style="list-style-type: none"> • M.2 2230: 2.6g • M.2 1216: 0.6g 	
Antenna Diversity	Supported	
Radio ON/OFF Control	Supported	
Connector Interface	M.2: CNVio	
Operating Temperature (Adapter Shield)	0 to +80 degrees Celsius	
Humidity	50% to 90% RH non-condensing (at temperatures of 25 °C to 35 °C)	
Operating Systems	Microsoft Windows 10*, Linux* (limited feature support), Chrome*	
Wi-Fi Alliance* certification	Wi-Fi CERTIFIED* a/b/g/n/ac with wave 2 features, WMM*, WMM-PS*, WPA*, WPA2*, WPS2*, Protected Management Frames, Wi-Fi Miracast* as Source, and Wi-Fi Direct* (For Microsoft Windows* only).	
IEEE WLAN Standard	IEEE 802.11a/b/g/n/ac, 802.11d, 802.11e, 802.11h, 802.11i, 802.11w; 802.11r, 802.11k, 802.11v pending OS support; Fine Timing Measurement based on 802.11-2016	
Roaming	Supports seamless roaming between access points	
Bluetooth	Bluetooth* 5	
Security		
Authentication	WPA* and WPA2*, 802.1X (EAP-TLS, TTLS, PEAP, EAP-SIM, EAP-AKA, EAP-AKA)	
Authentication Protocols	PAP, CHAP, TLS, MS-CHAP*, MS-CHAPv2*	
Encryption	64-bit and 128-bit WEP, 128-bit AES-CCMP	
Wi-Fi Direct* Encryption and Authentication	WPA2-PSK, AES-CCMP	
Compliance		
US Government	FIPS, FISMA	
Product Safety	UL, C-UL, CB (IEC 60950-1)	
Model Numbers		
Models	9560NGW	802.11ac wave 2, 2x2, Bluetooth* 5, PCIe, USB, M.2 2230
	9560D2W	802.11ac wave 2, 2x2, Bluetooth* 5, PCIe, USB, M.2 1216
Frequency Modulation	5GHz (802.11ac/n)	2.4GHz (802.11b/g/n)
Frequency band	5.15GHz - 5.85GHz (dependent on country)	2.400 - 2.4835GHz (dependent on country)
Modulation	BPSK, QPSK, 16 QAM, 64 QAM, 256 QAM	CCK, DQPSK, DBPSK
Wireless Medium	5GHz UNII: Orthogonal Frequency Division Multiplexing (OFDM)	2.4GHz ISM: Orthogonal Frequency Division Multiplexing (OFDM)
Channels	All channels as defined by the relevant specification and country rules.	
Spatial streams	Intel® Wireless-AC 9560: 2 X 2	
Data Rates	All data rates are theoretical maximums.	

IEEE 802.11ac Data Rates	1.73 Gbps when using 160MHz channels
IEEE 802.11n Data Rates	Tx/Rx (Mbps): 300, 270, 243, 240, 216.7, 195, 180, 173.3, 150, 144, 135, 130, 120, 117, 115.5, 90, 86.667, 72.2, 65, 60, 57.8, 45, 43.3, 30, 28.9, 21.7, 15, 14.4, 7.2
IEEE 802.11a Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps
IEEE 802.11g Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps
IEEE 802.11b Data Rates	11, 5.5, 2, 1 Mbps

Intel® Tri-Band Wireless-AC 17265 (17265NGW/17265NGW LC)

Form Factors	M.2 Type 3030		
Electrical interfaces	M.2 Key 1-DP: 2xPCIe, USB, DP. Interface to Intel® Wireless Gigabit-Antenna M10041 Module using X-FL, and one dedicated for Bluetooth		
Antenna Interface Connector	X.FL; Hirose U.FL-R-SMT mates with cable connector U.FL-LP-066		
Antenna Diversity	On-board diversity		
IEEE 802.11 Networking Standards	802.11ac, 802.11ad, 802.11abgn, 802.11a, 802.11d, 802.11e, 802.11i, 802.11h, 802.11w		
Operating Temperature (Adapter Shield)	0 to +80 degrees Celsius		
Humidity	50% to 90% RH non-condensing (at temperatures of 25 °C to 35 °C)		
Frequency Modulation	60GHz (802.11ad)	5GHz (802.11ac/n)	2.4GHz (802.11b/g/n)
Frequency band	57GHz - 64GHz (dependent on country)	5.15GHz - 5.85GHz (dependent on country)	2.400 - 2.4835GHz (dependent on country)
Modulation	DPSK, BPSK, QPSK, 16 QAM,	BPSK, QPSK, 16 QAM, 64 QAM, 256 QAM	CCK, DQPSK, DBPSK
Wireless Medium	DMG control PHY, DMG SC PHY	5GHz UNII: Orthogonal Frequency Division Multiplexing (OFDM)	2.4GHz ISM: Orthogonal Frequency Division Multiplexing (OFDM)
Channels	1, 2 and 3, subject to country rules	All channels as defined by the relevant specification and country rules.	
Spatial streams	N/A	Intel® Tri-Band Wireless-AC 17265	
Data Rates	All data rates are theoretical maximums.		
IEEE 802.11ac Data Rates	Intel® Tri-Band Wireless-AC 17265: Up to 867 Mbps		
IEEE 802.11ad Data Rates	4620, 3850, 3080, 2503, 2310, 1925, 1540, 1251, 1155, 963, 770, 385 Mbps		
IEEE 802.11n Data Rates	Tx/Rx (Mbps): 300, 270, 243, 240, 216.7, 195, 180, 173.3, 150, 144, 135, 130, 120, 117, 115.5, 90, 86.667, 72.2, 65, 60, 57.8, 45, 43.3, 30, 28.9, 21.7, 15, 14.4, 7.2		
IEEE 802.11a Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps		
IEEE 802.11g Data	54, 48, 36, 24, 18, 12, 9, 6 Mbps		

Rates	
IEEE 802.11b Data Rates	11, 5.5, 2, 1 Mbps
Bluetooth	Dual Mode Bluetooth* 2.1, 2.1+EDR, 3.0, 3.0+HS, 4.0 (BLE)
General	
Operating Systems	Microsoft Windows 7*, Microsoft Windows 8.1* with connected standby
Wi-Fi Alliance* certification	Wi-Fi CERTIFIED* for 802.11ac, a/b/g, n, WMM*, WPA*, WPA2*, and WPS, WPS 2.0, Protected Management Frames. Wi-Fi Direct* for peer-to-peer device connections.
Architecture	Infrastructure and SoftAP; Supports simultaneous Client and SoftAP modes
Cisco Compatible Extensions certification	Cisco Compatible Extensions, v4.0
Security	
Authentication	WPA and WPA2, 802.1X (EAP-TLS, TTLS, PEAP, LEAP, EAP-FAST), EAP-SIM, EAP-AKA
Authentication Protocols	PAP, CHAP, TLS, GTC, MS-CHAP*, MS-CHAPv2
Encryption	64-bit and 128-bit WEP, AES-CCMP, AES-GCMP, TKIP
Wi-Fi Direct* Encryption and Authentication	WPA2, AES-CCMP
Product Safety	UL, C-UL, CB (IEC/EN 60950-1)

Intel® Tri-Band Wireless-AC 17265 (17265NGW/17265NGW LC)

Form Factors	M.2 Type 3030		
Electrical interfaces	M.2 Key 1-DP: 2xPCIe, USB, DP. Interface to Intel® Wireless Gigabit-Antenna M10041 Module using X-FL, and one dedicated for Bluetooth		
Antenna Interface Connector	X.FL; Hirose U.FL-R-SMT mates with cable connector U.FL-LP-066		
Antenna Diversity	On-board diversity		
IEEE 802.11 Networking Standards	802.11ac, 802.11ad, 802.11abgn, 802.11a, 802.11d, 802.11e, 802.11i, 802.11h, 802.11w		
Operating Temperature (Adapter Shield)	0 to +80 degrees Celsius		
Humidity	50% to 90% RH non-condensing (at temperatures of 25 °C to 35 °C)		
Frequency Modulation	60GHz (802.11ad)	5GHz (802.11ac/n)	2.4GHz (802.11b/g/n)
Frequency band	57GHz - 64GHz (dependent on country)	5.15GHz - 5.85GHz (dependent on country)	2.400 - 2.4835GHz (dependent on country)
Modulation	DPSK, BPSK, QPSK, 16 QAM,	BPSK, QPSK, 16 QAM, 64 QAM, 256 QAM	CCK, DQPSK, DBPSK
Wireless Medium	DMG control PHY, DMG SC PHY	5GHz UNII: Orthogonal Frequency Division Multiplexing (OFDM)	2.4GHz ISM: Orthogonal Frequency Division Multiplexing (OFDM)
Channels	1, 2 and 3, subject to country rules	All channels as defined by the relevant specification and country rules.	

Spatial streams	N/A	Intel® Tri-Band Wireless-AC 17265
Data Rates	All data rates are theoretical maximums.	
IEEE 802.11ac Data Rates	Intel® Tri-Band Wireless-AC 17265: Up to 867 Mbps	
IEEE 802.11ad Data Rates	4620, 3850, 3080, 2503, 2310, 1925, 1540, 1251, 1155, 963, 770, 385 Mbps	
IEEE 802.11n Data Rates	Tx/Rx (Mbps): 300, 270, 243, 240, 216.7, 195, 180, 173.3, 150, 144, 135, 130, 120, 117, 115.5, 90, 86.667, 72.2, 65, 60, 57.8, 45, 43.3, 30, 28.9, 21.7, 15, 14.4, 7.2	
IEEE 802.11a Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps	
IEEE 802.11g Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps	
IEEE 802.11b Data Rates	11, 5.5, 2, 1 Mbps	
Bluetooth	Dual Mode Bluetooth* 2.1, 2.1+EDR, 3.0, 3.0+HS, 4.0 (BLE)	
General		
Operating Systems	Microsoft Windows 7*, Microsoft Windows 8.1* with connected standby	
Wi-Fi Alliance* certification	Wi-Fi CERTIFIED* for 802.11ac, a/b/g, n, WMM*, WPA*, WPA2*, and WPS, WPS 2.0, Protected Management Frames. Wi-Fi Direct* for peer-to-peer device connections.	
Architecture	Infrastructure and SoftAP; Supports simultaneous Client and SoftAP modes	
Cisco Compatible Extensions certification	Cisco Compatible Extensions, v4.0	
Security		
Authentication	WPA and WPA2, 802.1X (EAP-TLS, TTLS, PEAP, LEAP, EAP-FAST), EAP-SIM, EAP-AKA	
Authentication Protocols	PAP, CHAP, TLS, GTC, MS-CHAP*, MS-CHAPv2	
Encryption	64-bit and 128-bit WEP, AES-CCMP, AES-GCMP, TKIP	
Wi-Fi Direct* Encryption and Authentication	WPA2, AES-CCMP	
Product Safety	UL, C-UL, CB (IEC/EN 60950-1)	

Intel® Tri-Band Wireless-AC 18260 (18260NGW)

Form Factors	M.2 Type 2230
Electrical interfaces	M.2 Key 1-DP: 2xPCIe, USB, DP. Interface to Intel® Wireless Gigabit-Antenna M10041 or M10042 Module using X-FL (single coax cable to carry power, IF and control)
Dimensions	22 mm x 30 mm x S3 [1.5mm Max (Top Side)/ 0.1mm max (bottom side)]
Antenna Interface Connector	X.FL; Hirose U.FL-R-SMT mates with cable connector U.FL-LP-066
Antenna Diversity	On-board diversity
IEEE 802.11 Networking Standards	IEEE 802.11abgn, 802.11ac, 802.11ad, 802.11d, 802.11e, 802.11i, 802.11h, 802.11w
Operating Temperature (Adapter Shield)	0 to +80 degrees Celsius
Humidity	50% to 90% RH non-condensing (at temperatures of 25 °C to 35 °C)

Frequency Modulation	60GHz (802.11ad)	5GHz (802.11ac/n)	2.4GHz (802.11b/g/n)
Frequency band	57GHz - 64GHz (dependent on country)	5.15GHz - 5.85GHz (dependent on country)	2.400 - 2.4835GHz (dependent on country)
Modulation	DPSK, BPSK, QPSK, 16 QAM,	BPSK, QPSK, 16 QAM, 64 QAM, 256 QAM	CCK, DQPSK, DBPSK
Wireless Medium	DMG control PHY, DMG SC PHY	5GHz UNII: Orthogonal Frequency Division Multiplexing (OFDM)	2.4GHz ISM: Orthogonal Frequency Division Multiplexing (OFDM)
Channels	1, 2 and 3, subject to country rules	All channels as defined by the relevant specification and country rules.	
Spatial streams	N/A	Intel® Tri-Band Wireless-AC 18260	
Data Rates	All data rates are theoretical maximums.		
IEEE 802.11ac Data Rates	Intel® Tri-Band Wireless-AC 18260: Up to 867 Mbps		
IEEE 802.11ad Data Rates	4620, 3850, 3080, 2503, 2310, 1925, 1540, 1251, 1155, 963, 770, 385 Mbps		
IEEE 802.11n Data Rates	Tx/Rx (Mbps): 300, 270, 243, 240, 216.7, 195, 180, 173.3, 150, 144, 135, 130, 120, 117, 115.5, 90, 86.667, 72.2, 65, 60, 57.8, 45, 43.3, 30, 28.9, 21.7, 15, 14.4, 7.2		
IEEE 802.11a Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps		
IEEE 802.11g Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps		
IEEE 802.11b Data Rates	11, 5.5, 2, 1 Mbps		
Bluetooth	Dual Mode Bluetooth* 2.1, 2.1+EDR, 3.0, 3.0+HS, 4.0 (BLE), 4.1		
General			
Operating Systems	Microsoft Windows 7*, Microsoft Windows 8.1* with connected standby		
Wi-Fi Alliance* certification	Wi-Fi CERTIFIED* for 802.11ac, a/b/g, n, WMM*, WPA*, WPA2*, and WPS, WPS 2.0, Protected Management Frames. Wi-Fi Direct* for peer-to-peer device connections.		
Architecture	Infrastructure and SoftAP; Supports simultaneous Client and SoftAP modes		
Cisco Compatible Extensions certification	Cisco Compatible Extensions, v4.0		
Security			
Authentication	WPA and WPA2, 802.1X (EAP-TLS, TTLS, PEAP, LEAP, EAP-FAST), EAP-SIM, EAP-AKA		
Authentication Protocols	PAP, CHAP, TLS, GTC, MS-CHAP*, MS-CHAPv2		
Encryption	64-bit and 128-bit WEP, AES-CCMP, AES-GCMP, TKIP		
Wi-Fi Direct* Encryption and Authentication	WPA2, AES-CCMP		
Product Safety	UL, C-UL, CB (IEC/EN 60950-1)		

Intel® Tri-Band Wireless-AC 18265 (18265NGW)

General	

Specifications

Dimensions (H x W x D)	M.2 2230: 22 mm x 30 mm x 2.4 mm [1.5mm Max (Top Side)/ 0.1mm Max (Bottom Side)]		
Weight	M.2 2230: 2.4g		
Antenna Diversity	Supported		
Radio ON/OFF Control	Supported		
Connector interface	M.2: PCIe, USB Interface to Intel® Wireless Gigabit-Antenna M10101 Module using X-FL (single coax cable to carry power, IF and control)		
Operating Temperature (Adapter Shield)	0 to +80 degrees Celsius		
Humidity Non-Operating	50% to 90% RH non-condensing (at temperatures of 25 °C to 35 °C)		
Operating Systems	Microsoft Windows 7*, Microsoft Windows 8.1*, Microsoft Windows 10, Linux* (limited feature support), Android		
Wi-Fi Alliance	Wi-Fi CERTIFIED* a/b/g/n/ac, WMM*, WMM-PS*, WPA*, WPA2*, WPS2, Protected Management Frames, Wi-Fi Direct* for peer to peer device connections, Wi-Fi Miracast as Source		
IEEE WLAN Standard	IEEE 802.11a/b/g/n/ac, 802.11d, 802.11e, 802.11h, 802.11i, 802.11w; 802.11r, 802.11k, 802.11v pending OS support; Fine Timing Measurement based on 802.11REVmc		
Roaming	Supports seamless roaming between respective access points		
Bluetooth	Dual Mode Bluetooth* 4.2, BLE		
Frequency Modulation	60GHz (802.11ad)	5GHz (802.11ac/n)	2.4GHz (802.11b/g/n)
Frequency band	57GHz - 64GHz (dependent on country)	5.15GHz - 5.85GHz (dependent on country)	2.400 - 2.4835GHz (dependent on country)
Modulation	DPSK, BPSK, QPSK, 16 QAM,	BPSK, QPSK, 16 QAM, 64 QAM, 256 QAM	CCK, DQPSK, DBPSK
Wireless Medium	DMG control PHY, DMG SC PHY	5GHz UNII: Orthogonal Frequency Division Multiplexing (OFDM)	2.4GHz ISM: Orthogonal Frequency Division Multiplexing (OFDM)
Channels	1, 2 and 3, subject to country rules	All channels as defined by the relevant specification and country rules.	
Spatial streams	N/A	Intel® Tri-Band Wireless-AC 18265	
Data Rates	All data rates are theoretical maximums.		
IEEE 802.11ac Data Rates	Up to 867 Mbps		
IEEE 802.11ad Data Rates	4620, 3850, 3080, 2503, 2310, 1925, 1540, 1251, 1155, 963, 770, 385 Mbps		
IEEE 802.11n Data Rates	Tx/Rx (Mbps): 300, 270, 243, 240, 216.7, 195, 180, 173.3, 150, 144, 135, 130, 120, 117, 115.5, 90, 86.667, 72.2, 65, 60, 57.8, 45, 43.3, 30, 28.9, 21.7, 15, 14.4, 7.2		
IEEE 802.11a Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps		
IEEE 802.11g Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps		
IEEE 802.11b Data Rates	11, 5.5, 2, 1 Mbps		
Security			

Authentication	WPA and WPA2, 802.1X (EAP-TLS, TTLS, PEAP), EAP-SIM, EAP-AKA
Authentication Protocols	PAP, CHAP, TLS, GTC, MS-CHAP*, MS-CHAPv2
Encryption	64-bit and 128-bit WEP, AES-CCMP
Wi-Fi Direct* Encryption and Authentication	WPA2-PSK, AES-CCMP
Compliance	
Product Safety	UL, C-UL, CB (IEC 60950-1)

Intel® Wireless Gigabit Sink W13100

Form Factors	M.2 Type 3030
Electrical interfaces	M.2 Key 1-DP: 2xPCIe, USB, DP. Interface to Intel® Wireless Gigabit-Antenna M10041 Module using X-FL, and one dedicated for Bluetooth
Antenna Interface Connector	X.FL
Antenna Diversity	On-board diversity
IEEE 802.11 Networking Standards	802.11ac, 802.11ad, 802.11abgn, 802.11a, 802.11d, 802.11e, 802.11i, 802.11h, 802.11w
Operating Temperature (Adapter Shield)	0 to +80 degrees Celsius
Humidity	50% to 90% RH non-condensing (at temperatures of 25 °C to 35 °C)
Frequency Modulation	60GHz (802.11ad)
Frequency band	57GHz - 64GHz (dependent on country)
Modulation	DPSK, BPSK, QPSK, 16 QAM,
Wireless Medium	DMG control PHY, DMG SC PHY
Channels	1, 2 and 3, subject to country rules
Spatial streams	Intel® Wireless Gigabit Sink W13100
Data Rates	All data rates are theoretical maximums.
IEEE 802.11ad Data Rates	4620, 3850, 3080, 2503, 2310, 1925, 1540, 1251, 1155, 963, 770, 385 Mbps
Over-the-Air Security	
Authentication	WPA2-Personal (WSC - WiFi Simple Configuration)
Encryption	128-bit AES-GCMP
Additional Crypto Functions	
Public Key Decrypt	RSA-2048
General	
Operating Systems	Microsoft Windows 7*, Microsoft Windows 8.1* with connected standby
Architecture	Infrastructure and SoftAP; Supports simultaneous Client and SoftAP modes
Cisco Compatible Extensions certification	Cisco Compatible Extensions, v4.0

Intel® Wireless Gigabit 11000

Dimensions	20.5 mm x 14.2 mm x 1.8 mm (shield included)
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Specifications

Weight	2 grams
Electrical interfaces	Soldered module has a proprietary land plan. Interface to Intel® Wireless Gigabit Antenna-M 10042R using X-FL (single coax cable to carry power, IF and control)
Antenna Interface Connector	X.FL
Antenna Diversity	On-board diversity
IEEE 802.11 Networking Standards	802.11ad
Operating Temperature (Adapter Shield)	0 to +80 degrees Celsius
Humidity	50% to 90% RH non-condensing (at temperatures of 25 °C to 35 °C)
Frequency Modulation	60GHz (802.11ad)
Frequency band	57GHz - 64GHz (dependent on country)
Modulation	DPSK, BPSK, QPSK, 16 QAM,
Channels	1, 2 and 3, subject to country rules
Data Rates	All data rates are theoretical maximums.
IEEE 802.11ad Data Rates	4620, 3850, 3080, 2503, 2310, 1925, 1540, 1251, 1155, 963, 770, 385 Mbps
Over-the-Air Security	
Authentication	WPA2-Personal (WSC - WiFi Simple Configuration)
Encryption	128-bit AES-GCMP
Additional Crypto Functions	
Public Key Decrypt	RSA-2048
General	
Operating Systems	Microsoft Windows 7*, Microsoft Windows 8.1* with connected standby, Microsoft Windows 10* with connected standby

Intel® Wireless Gigabit Sink W13110VR

Dimensions (H x W x D)	M.2 4230: 42 mm x 30 mm x 2.6 mm [1.5 mm Max (Top Side)/ 0.1 mm Max (Bottom Side)]
Weight	5.16 grams
Radio ON/OFF Control	Hardware Support
Electrical interfaces	M.2 Key G (User Defined). Interface to Intel® Wireless Gigabit Antenna-M 10101 Module using X-FL (single coax cable to carry power, IF and control), up to 2 modules
LEDs & GPIO Support	Driving 2 LEDs or Multicolor LED with 4 states, Recovery button, Activity button with configurable action
Antenna Diversity	On-board diversity
IEEE 802.11 Networking Standards	802.11ad
Operating Temperature (Adapter Shield)	0 to +80 degrees Celsius

Humidity Non-Operating	50% to 90% RH non-condensing (at temperatures of 25 °C to 35 °C)
Frequency Modulation	60GHz (802.11ad)
Frequency band	57GHz - 64GHz (dependent on country)
Modulation	DPSK, BPSK, QPSK, 16 QAM,
Channels	1, 2 and 3, subject to country rules
Data Rates	All data rates are theoretical maximums.
IEEE 802.11ad Data Rates	4620, 3850, 3080, 2503, 2310, 1925, 1540, 1251, 1155, 963, 770, 385 Mbps
Operating Systems	None
Wi-Fi Alliance* certification	N/A
Over-the-Air Security	
Authentication	WPA2-Personal (WSC - WiFi Simple Configuration)
Encryption	128-bit AES-GCMP
Additional Crypto Functions	
Public Key Decrypt	RSA-2048
Intel® Wireless Gigabit Antenna-M 10101R Module	
Dimensions (H x W x D)	7 mm x 19.3 mm x 1.8 mm
Weight	1 gram
Antenna Connector Interface	X.FL
Operating Temperature (Adapter Shield)	0 to +80 degrees Celsius
Humidity Non-Operating	50% to 90% RH non-condensing (at temperatures of 25 °C to 35 °C)

Intel® Wireless Gigabit 11100VR

Dimensions (H x W x D)	20.5 mm x 14.2 mm x 1.8 mm (shield included)
Weight	2 grams
Radio ON/OFF Control	Supported in both hardware and software
Electrical interfaces	Soldered module has a proprietary land plan. Interface to Intel® Wireless Gigabit Antenna-M 10042 Module using X-FL (single coax cable to carry power, IF and control)
LED Output	On/Off
IEEE 802.11 Networking Standards	802.11ad
Operating Temperature (Adapter Shield)	0 to +80 degrees Celsius
Humidity Non-Operating	50% to 90% RH non-condensing (at temperatures of 25 °C to 35 °C)
Frequency	60GHz (802.11ad)

Modulation	
Frequency band	57GHz - 64GHz (dependent on country)
Modulation	DPSK, BPSK, QPSK, 16 QAM,
Channels	1, 2 and 3, subject to country rules
Data Rates	
IEEE 802.11ad Data Rates	4620, 3850, 3080, 2503, 2310, 1925, 1540, 1251, 1155, 963, 770, 385 Mbps
Operating Systems	Microsoft Windows 10* with connected standby
Over-the-Air Security	
Authentication	WPA2-Personal (WSC - WiFi Simple Configuration)
Encryption	128-bit AES-GCMP
Additional Crypto Functions	
Public Key Decrypt	RSA-2048
Intel® Wireless Gigabit Antenna-M 10042R Module	
Dimensions (H x W x D)	7.5 mm x 24.5 mm x 1.8 mm
Weight	1 gram
Antenna Connector Interface	X.FL
Operating Temperature (Adapter Shield)	0 to +80 degrees Celsius
Humidity Non-Operating	50% to 90% RH non-condensing (at temperatures of 25 °C to 35 °C)

Intel® Wi-Fi 6 AX101 (AX101NGW/AX101D2W)

General	
Dimensions (H x W x D)	<ul style="list-style-type: none"> M.2 2230: 22 mm x 30 mm x 2.4 mm [1.5 mm max (top side)/ 0.1 mm max (bottom side)] M.2 1216: 12 mm x 16 mm x 1.65 (±0.05) mm
Weight	<ul style="list-style-type: none"> M.2 2230: 2.33 (±0.3) g M.2 1216: 0.61 (±0.1) g
Antenna Diversity	Supported
Radio ON/OFF Control	Supported
Connector Interface	M.2: CNVio2
Operating Temperature (Adapter Shield)	0 to +80 degrees Celsius
Humidity	50% to 90% RH non-condensing (at temperatures of 25 °C to 35 °C)
Operating Systems	Microsoft Windows 10*, Linux*, Chrome OS*

Wi-Fi Alliance* certification	Wi-Fi CERTIFIED* 6, Wi-Fi CERTIFIED* a/b/g/n/ac, WMM*, WMM-PS*, WPA*, WPA2*, WPA3*, WPS*, PMF*, Wi-Fi Direct*, Wi-Fi Agile Multiband*, Wi-Fi Optimized Connectivity*, Wi-Fi Location*, and Wi-Fi TimeSync*	
IEEE WLAN Standard	IEEE 802.11-2016 and select amendments (selected feature coverage) IEEE 802.11a,b,d,e,g,h,i,k,n,r,u,v,w,ac,ax; Fine Timing Measurement based on 802.11-2016	
Bluetooth	Bluetooth* 5.1	
Security		
Authentication	WPA* and WPA2* Personal and Enterprise; WPA3* (pending OS support)	
Authentication Protocols	802.1X EAP-TLS, EAP-TTLS/MSCHAPv2, PEAPv0/EAP-MSCHAPv2 (EAP-SIM, EAP-AKA, EAP-AKA')	
Encryption	64-bit and 128-bit WEP, TKIP, 128-bit AES-CCMP, 256-bit AES-GCMP	
Compliance		
Regulatory	For a list of country approvals, please contact your local Intel representatives.	
US Government	FIPS 140-2	
Product Safety	UL, C-UL, CB (IEC 60950-1)	
Model Numbers		
Models	AX101NGW	Wi-Fi 6 (802.11ax) 1x1 80MHz, Bluetooth* 5.1, M.2 2230, Antenna Diversity
	AX101D2W	Wi-Fi 6 (802.11ax) 1x1 80MHz, Bluetooth* 5.1, M.2 1216, Antenna Diversity

Intel® Wi-Fi 6 AX201 (AX201NGW/AX201D2W/AX201D2WL)

General		
Dimensions (H x W x D)	<ul style="list-style-type: none"> M.2 2230: 22 mm x 30 mm x 2.4 mm [1.5 mm max (top side)/ 0.1 mm max (bottom side)] M.2 1216: 12 mm x 16 mm x 1.65 (±0.05) mm 	
Weight	<ul style="list-style-type: none"> M.2 2230: 2.33 (±0.3) g M.2 1216: 0.61 (±0.1) g 	
Radio ON/OFF Control	Supported	
Connector Interface	M.2: CNVio2	
Operating Temperature (Adapter Shield)	0 to +80 degrees Celsius	
Humidity	50% to 90% RH non-condensing (at temperatures of 25 °C to 35 °C)	
Operating Systems	Microsoft Windows 10*, Linux*, Chrome OS*	
Wi-Fi Alliance* certification	Wi-Fi CERTIFIED* a/b/g/n/ac with wave 2 features, WMM*, WMM-PS*, WPA*, WPA2*, WPS*, PMF*, Wi-Fi Direct*, Wi-Fi Miracast*, Wi-Fi Agile Multiband*, Wi-Fi Optimized Connectivity*, Wi-Fi Location*, Passpoint*, Wi-Fi Aware*, and Wi-Fi TimeSync*	
IEEE WLAN Standard	IEEE 802.11-2016 and select amendments (selected feature coverage) IEEE 802.11a, b, g, n, ac, ax, d, e, h, i, k, r, u, v, w, ai; Fine Timing Measurement based on 802.11-2016	
Bluetooth	Bluetooth* 5	

Security		
Authentication	WPA* and WPA2* Personal and Enterprise; WPA3* (pending OS support)	
Authentication Protocols	802.1X EAP-TLS, EAP-TTLS/MSCHAPv2, PEAPv0/EAP-MSCHAPv2 (EAP-SIM, EAP-AKA, EAP-AKA')	
Encryption	64-bit and 128-bit WEP, TKIP, 128-bit AES-CCMP, 256-bit AES-GCMP	
Compliance		
Regulatory	For a list of country approvals, please contact your local Intel representatives.	
US Government	FIPS 140-2, FISMA	
Product Safety	UL, C-UL, CB (IEC 60950-1)	
Model Numbers		
Models	Model AX201NGW	802.11ax, 2x2, Bluetooth* 5, M.2 2230
	AX201D2W	802.11ax, 2x2, Bluetooth* 5, M.2 1216
	AX201D2WL	802.11ax, 2x2, Bluetooth* 5, M.2 1216; LTE Coexistence
Frequency Modulation	5GHz (802.11a/n/ac/ax)	2.4GHz (802.11b/g/n/ax)
Frequency band	5.15GHz - 5.85GHz (dependent on country)	2.400 - 2.4835GHz (dependent on country)
Modulation	BPSK, QPSK, 16 QAM, 64 QAM, 256 QAM, 1024 QAM	CCK, DQPSK, DBPSK, 16 QAM, 64 QAM, 256 QAM, 1024 QAM
Wireless Medium	5GHz UNII: Orthogonal Frequency Division Multiple Access (OFDMA)	2.4GHz ISM: Orthogonal Frequency Division Multiple Access (OFDMA)
Channels	All channels as defined by the relevant specification and country rules.	
Data Rates	All data rates are theoretical maximums.	
IEEE 802.11ax Data Rates	Up to 2.4 Gbps	
IEEE 802.11ac Data Rates	Up to 867 Mbps	
IEEE 802.11n Data Rates	Tx/Rx (Mbps): 300, 270, 243, 240, 216.7, 195, 180, 173.3, 150, 144, 135, 130, 120, 117, 115.5, 90, 86.667, 72.2, 65, 60, 57.8, 45, 43.3, 30, 28.9, 21.7, 15, 14.4, 7.2	
IEEE 802.11a Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps	
IEEE 802.11g Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps	
IEEE 802.11b Data Rates	11, 5.5, 2, 1 Mbps	

Intel® Wi-Fi 6 AX203 (AX203NGW/AX203D2W)

General	
Dimensions (H x W x D)	<ul style="list-style-type: none"> M.2 2230: 22 mm x 30 mm x 2.4 mm [1.5 mm max (top side)/ 0.1 mm max (bottom side)] M.2 1216: 12 mm x 16 mm x 1.65 (±0.05) mm
Weight	<ul style="list-style-type: none"> M.2 2230: 2.33 (±0.3) g

	<ul style="list-style-type: none"> M.2 1216: 0.61 (± 0.1) g 	
Radio ON/OFF Control	Supported	
Connector Interface	M.2: CNVio2	
Operating Temperature (Adapter Shield)	0 to +80 degrees Celsius	
Humidity	50% to 90% RH non-condensing (at temperatures of 25 °C to 35 °C)	
Operating Systems	Microsoft Windows 10*, Linux*, Chrome OS*	
Wi-Fi Alliance* certification	Wi-Fi CERTIFIED* 6, Wi-Fi CERTIFIED* a/b/g/n/ac, WMM*, WMM-PS*, WPA*, WPA2*, WPA3*, WPS*, PMF*, Wi-Fi Direct*, Wi-Fi Agile Multiband*, Wi-Fi Optimized Connectivity*, Wi-Fi Location*, and Wi-Fi TimeSync*	
IEEE WLAN Standard	IEEE 802.11-2016 and select amendments (selected feature coverage) IEEE 802.11a,b,d,e,g,h,i,k,n,r,u,v,w,ac,ax; Fine Timing Measurement based on 802.11-2016	
Bluetooth	Bluetooth* 5.1	
Security		
Authentication	WPA* and WPA2* Personal and Enterprise; WPA3* (pending OS support)	
Authentication Protocols	802.1X EAP-TLS, EAP-TTLS/MSCHAPv2, PEAPv0/EAP-MSCHAPv2 (EAP-SIM, EAP-AKA, EAP-AKA')	
Encryption	64-bit and 128-bit WEP, TKIP, 128-bit AES-CCMP, 256-bit AES-GCMP	
Compliance		
Regulatory	For a list of country approvals, please contact your local Intel representatives.	
US Government	FIPS 140-2	
Product Safety	UL, C-UL, CB (IEC 60950-1)	
Model Numbers		
Models	AX203NGW	Wi-Fi 6 (802.11ax) 2x2 80MHz, Bluetooth* 5.1, M.2 2230
	AX203D2W	Wi-Fi 6 (802.11ax) 2x2 80MHz, Bluetooth* 5.1, M.2 1216

Intel® Wi-Fi 6E AX210 (AX210NGW/AX210D2W)

General	
Dimensions (H x W x D)	<ul style="list-style-type: none"> M.2 2230: 22 mm x 30 mm x 2.4 mm [1.5 mm max (top side)/ 0.1 mm max (bottom side)] M.2 1216: 12 mm x 16 mm x 1.65 (± 0.08) mm
Weight	<ul style="list-style-type: none"> M.2 2230: 2.33 (± 0.3) g M.2 1216: 0.61 (± 0.1) g
Radio ON/OFF Control	Supported
Connector Interface	M.2: PCIe, USB
Operating	0 to +80 degrees Celsius

Temperature (Adapter Shield)			
Humidity	50% to 90% RH non-condensing (at temperatures of 25 °C to 35 °C)		
Operating Systems	Microsoft Windows 10*, Linux*		
Wi-Fi Alliance* certification	Wi-Fi CERTIFIED* a/b/g/n/ac, WMM*, WMM-PS*, WPA2*, WPA3*, WPS*, PMF*, Wi-Fi Direct*, Wi-Fi Agile Multiband* and Wi-Fi TimeSync*		
IEEE WLAN Standard	IEEE 802.11-2016 and select amendments (selected feature coverage) IEEE 802.11a, b, g, n, ac, ax, d, e, h, i, k, r, u, v, w; Fine Timing Measurement based on 802.11-2016 802.11-2016, Wi-Fi Location R2 (802.11az) HW readiness		
Bluetooth	Bluetooth* 5.2		
Security			
Authentication	WPA2* and WPA3*		
Authentication Protocols	802.1X EAP-TLS, EAP-TTLS/MSCHAPv2, PEAPv0/EAP-MSCHAPv2 (EAP-SIM, EAP-AKA, EAP-AKA')		
Encryption	128-bit AES-CCMP, 256-bit AES-GCMP		
Compliance			
Regulatory	For a list of country approvals, please contact your local Intel representatives.		
US Government	FIPS 140-2		
Product Safety	UL, C-UL, CB (IEC 60950-1)		
Model Numbers			
Models	AX210NGW	Wi-Fi 6E (6GHz), 2x2, Bluetooth* 5.2, M.2 2230	
	AX210D2W	Wi-Fi 6E (6GHz), 2x2, Bluetooth* 5.2, M.2 1216	
Frequency Modulation	6-7GHz (802.11ax R2)	5GHz (802.11a/n/ac/ax)	2.4GHz (802.11b/g/n/ax)
Frequency band	FCC: 5.925GHz-7.125GHz EU: 5925GHz- 6.425GHz (dependent on country)	5.15GHz - 5.85GHz (dependent on country)	2.400 - 2.4835GHz (dependent on country)
Modulation	BPSK, QPSK, 16 QAM, 64 QAM, 256 QAM, 1024 QAM	BPSK, QPSK, 16 QAM, 64 QAM, 256 QAM, 1024 QAM	CCK, DQPSK, DBPSK, 16 QAM, 64 QAM, 256 QAM, 1024 QAM
Wireless Medium	6-7GHz: Orthogonal Frequency Division Multiple Access (OFDMA)	5GHz UNII: Orthogonal Frequency Division Multiple Access (OFDMA)	2.4GHz ISM: Orthogonal Frequency Division Multiple Access (OFDMA)
Channels	All channels as defined by the relevant specification and country rules.		
Data Rates	All data rates are theoretical maximums.		
IEEE 802.11ax Data Rates	Up to 2.4 Gbps		
IEEE 802.11ac Data Rates	Up to 867 Mbps		
IEEE 802.11n Data Rates	Tx/Rx (Mbps): 300, 270, 243, 240, 216.7, 195, 180, 173.3, 150, 144, 135, 130, 120, 117, 115.5, 90, 86.667, 72.2, 65, 60, 57.8, 45, 43.3, 30, 28.9, 21.7, 15, 14.4, 7.2		
IEEE 802.11a Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps		
IEEE 802.11g	54, 48, 36, 24, 18, 12, 9, 6 Mbps		

Data Rates	
IEEE 802.11b Data Rates	11, 5.5, 2, 1 Mbps

Intel® Wi-Fi 6E AX211 (AX211NGW/AX211D2W/AX211D2WL)

General		
Dimensions (H x W x D)	<ul style="list-style-type: none"> M.2 2230: 22 mm x 30 mm x 2.4 mm [1.5 mm max (top side)/ 0.1 mm max (bottom side)] M.2 1216: 12 mm x 16 mm x 1.7 (±0.1) mm 	
Weight	<ul style="list-style-type: none"> M.2 2230: 2.83 (±0.3) g M.2 1216: 0.67 (±0.1) g 	
Radio ON/OFF Control	Supported	
Connector Interface	M.2: CNVio2	
Operating Temperature (Adapter Shield)	0 to +80 degrees Celsius	
Humidity	50% to 90% RH non-condensing (at temperatures of 25 °C to 35 °C)	
Operating Systems	Microsoft Windows 10*, Linux*	
Wi-Fi Alliance* certification	Wi-Fi CERTIFIED* a/b/g/n/ac, WMM*, WMM-PS*, WPA3*, PMF*, Wi-Fi Direct*, and Wi-Fi Agile Multiband*	
IEEE WLAN Standard	IEEE 802.11-2016 and select amendments (selected feature coverage) IEEE 802.11a, b, g, n, ac, ax, d, e, h, i, k, r, u, v, w; Fine Timing Measurement based on 802.11-2016 Wi-Fi Location R2 (802.11az) HW readiness	
Bluetooth	Bluetooth* 5.2	
Security		
Authentication	WPA2* and WPA3*	
Authentication Protocols	802.1X EAP-TLS, EAP-TTLS/MSCHAPv2, PEAPv0/EAP-MSCHAPv2 (EAP-SIM, EAP-AKA, EAP-AKA')	
Encryption	128-bit AES-CCMP, 256-bit AES-GCMP	
Compliance		
Regulatory	For a list of country approvals, please contact your local Intel representatives.	
US Government	FIPS 140-2	
Product Safety	UL, C-UL, CB (IEC 60950-1)	
Model Numbers		
Models	AX211NGW	Wi-Fi 6E (6GHz), 2x2, Bluetooth* 5.2, M.2 2230
	AX211D2W	Wi-Fi 6E (6GHz), 2x2, Bluetooth* 5.2, M.2 1216
	AX211D2WL	Wi-Fi 6E (6GHz), 2x2, Bluetooth* 5.2, M.2 1216, LTE Coex

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One-Year Limited Hardware Warranty

Limited Warranty

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Intel warrants to the purchaser of the Product that the Product, if properly used and installed, will be free from defects in material and workmanship and will substantially conform to Intel's publicly available specifications for the Product for a period of one (1) year beginning on the date the Product was purchased in its original sealed packaging.

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- **REPLACE** the Product with another product, OR, if Intel is unable to repair or replace the Product,
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