



Wi-Fi CERTIFIED™ Certificate



This certificate lists the features that have successfully completed Wi-Fi Alliance interoperability testing. Learn more: www.wi-fi.org/certification/programs

Certification ID: WFA113735

Product Info

| | |
|-----------------------|------------------------------|
| Date of Certification | July 12, 2023 |
| Company | Intel |
| Product Name | Intel® Wi-Fi 6E AX411 (Gig+) |
| Product Model Variant | Win 11 - 22.90 - 7-2023 |
| Model Number | AX411 |
| Category | Computers & Accessories |
| Sub-category | Internal Adapter |

Summary of Certifications

| CLASSIFICATION | CERTIFICATION |
|------------------------|---|
| Access | Wi-Fi Protected Setup™ |
| Alternative topologies | Wi-Fi Direct® |
| Network management | WMM® WMM®-Power Save Wi-Fi Agile Multiband™ |
| Security | Protected Management Frames WPA2™-Enterprise 2018-04 WPA2™-Personal 2021-01 WPA3™-Enterprise 2020-02 WPA3™-Personal 2020-12 Wi-Fi Enhanced Open™ 2021-01 |
| Wi-Fi (MAC/PHY) | 2.4 GHz Spectrum Capabilities 5 GHz Spectrum Capabilities 6 GHz Spectrum Capabilities Spectrum & Regulatory Wi-Fi CERTIFIED 6® Release 2 Wi-Fi CERTIFIED™ a Wi-Fi CERTIFIED™ ac Wi-Fi CERTIFIED™ b |

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| Summary of Certifications (continued) | | Page 2 of 5 |
|---------------------------------------|--|-------------|
| CLASSIFICATION | CERTIFICATION | |
| Wi-Fi (MAC/PHY) | Wi-Fi CERTIFIED™ g Wi-Fi CERTIFIED™ n | |



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Wi-Fi Components

Wi-Fi Component Operating System

Windows 11

Wi-Fi Component Firmware

22.90

RF Architecture

| Bands Supported | Transmit (Tx) | Receive (Rx) |
|-----------------|---------------|--------------|
| 2.4 GHz | 2 | 2 |
| 5 GHz | 2 | 2 |
| 6 GHz | 2 | 2 |

Certifications

2.4 GHz Spectrum Capabilities

20 MHz Channel Width in 2.4 GHz
40 MHz Channel Width in 2.4 GHz

5 GHz Spectrum Capabilities

20 MHz Channel Width in 5 GHz
40 MHz Channel Width in 5 GHz
80 MHz Channel Width in 5 GHz
160 MHz Channel Width in 5 GHz

6 GHz Spectrum Capabilities

20 MHz Channel Width in 6 GHz
40 MHz Channel Width in 6 GHz
80 MHz Channel Width in 6 GHz
160 MHz Channel Width in 6 GHz

Protected Management Frames

Spectrum & Regulatory

Spectrum & Regulatory (continued)

802.11h

WMM®

WMM®-Power Save

Legacy Power Save
Unschedule auto PS

WPA2™-Enterprise 2018-04

EAP methods
EAP TLS
EAP TTLS
PEAPv0

WPA2™-Personal 2021-01

WPA3™-Enterprise 2020-02

EAP methods

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WPA3™-Enterprise 2020-02 (continued)

EAP TLS
EAP TTLS
PEAPv0
192-bit security
192-bit security RSA 3K with the
TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384
cipher suite
Fast Transition OTA on WPA3-Enterprise
Fast Transition OTA on WPA3-Enterprise transition mode
Server Certificate Validation

WPA3™-Personal 2020-12

Beacon Protection

Wi-Fi Agile Multiband™

Beacon Report Measurement Active Mode
Beacon Report Measurement Passive Mode
Fast Transition OTA on WPA2-Enterprise

Wi-Fi CERTIFIED 6® Release 2

A-MPDU with A-MSDU
Beamforming sounding
BSRP Trigger frame
Compressed Block Ack Rx (buffer size 256)
Compressed Block Ack Tx (buffer size 256)
DL MU-MIMO
HE NDP
LDPC Tx
LDPC Rx
Individual Target Wake Time
MCS 10-11 Rx
MCS 10-11 Tx

Wi-Fi CERTIFIED 6® Release 2 (continued)

MCS 8-9 Rx
MCS 8-9 Tx
MU EDCA Parameter Set element
MU-BAR Trigger frame
MU-RTS Trigger frame
M-BSSID
Operating mode control field
Operating mode subfield in A-Control field
Operating mode indication
SU beamformee
SU-MIMO
UL OFDMA
Wi-Fi 6E
Wi-Fi 6 Release 2 features
UL MU-MIMO
UL MU Control
UL Extended Range
Target Wake Time information frames
Broadcast Target Wake Time
Dynamic MU SMPS
M-BSSID control frames
Preamble Puncturing

Wi-Fi CERTIFIED™ a

Wi-Fi CERTIFIED™ ac

Extended 5 GHz Channel Support
A-MPDU with A-MSDU
DL MU-MIMO
LDPC Rx
MCS 8-9 Rx
Short Guard Interval
STBC
LDPC Tx

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Wi-Fi CERTIFIED™ ac (continued)

SU beamformee

Wi-Fi CERTIFIED™ b

Wi-Fi CERTIFIED™ g

Wi-Fi CERTIFIED™ n

A-MPDU Tx
OBSS on Extension Channel
Power Management
Short Guard Interval
STBC

Wi-Fi Direct®

Wi-Fi Enhanced Open™ 2021-01

Wi-Fi Protected Setup™

PIN
Pushbutton

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