



# Wi-Fi CERTIFIED® Certificate

This certificate lists the features that have successfully completed Wi-Fi Alliance interoperability testing. Learn more: [www.wi-fi.org](http://www.wi-fi.org)



## Certification ID: WFA139171

### Product Info

|                              |  |
|------------------------------|--|
| <b>Date of Certification</b> | June 9, 2026                           |
| <b>Company</b>               | Espressif Systems (Shanghai) Co., Ltd. |
| <b>Product Name</b>          | Wi-Fi 6E module                        |
| <b>Product Model Variant</b> | ESP32-E22                              |
| <b>Model Number</b>          | ESP32-E22                              |
| <b>Category</b>              | Other                                  |
| <b>Sub-category</b>          | Embedded Module                        |

### Summary of Certifications

| CLASSIFICATION            | CERTIFICATION   |
|---------------------------|---|
| <b>Network management</b> | WMM®<br>Wi-Fi Agile Multiband™  |
| <b>Security</b>           | Protected Management Frames<br>WPA2™-Enterprise 2018-04<br>WPA2™-Personal 2021-01<br>WPA3™-Enterprise 2022-12<br>WPA3™-Personal 2024-10<br>Wi-Fi Enhanced Open™ 2023-12   |
| <b>Wi-Fi (MAC/PHY)</b>    | 2.4 GHz Spectrum Capabilities<br>5 GHz Spectrum Capabilities<br>6 GHz Spectrum Capabilities<br>Spectrum & Regulatory<br>Wi-Fi CERTIFIED 6® Release 2<br>Wi-Fi CERTIFIED™ a<br>Wi-Fi CERTIFIED™ ac<br>Wi-Fi CERTIFIED™ b<br>Wi-Fi CERTIFIED™ g<br>Wi-Fi CERTIFIED™ n |

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Role: Station

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## Wi-Fi Components

### Wi-Fi Component Operating System

Linux

### Wi-Fi Component Firmware

core 55

### 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®

### WPA2™-Enterprise 2018-04

EAP methods  
EAP TLS  
EAP TTLS  
PEAPv0

### WPA2™-Personal 2021-01

### WPA3™-Enterprise 2022-12

EAP methods  
EAP TLS  
EAP TTLS  
PEAPv0  
Server Certificate Validation

### WPA3™-Personal 2024-10

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## Wi-Fi Agile Multiband™

Beacon Report Measurement Active Mode  
Beacon Report Measurement Passive Mode

## Wi-Fi CERTIFIED 6® Release 2

A-MPDU with A-MSDU  
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  
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  
UL OFDMA  
Wi-Fi 6E  
    Multiple M-BSSID  
Wi-Fi 6 Release 2 features  
    UL MU-MIMO  
    UL MU Control  
    UL Extended Range  
    Target Wake Time information frames  
    Broadcast Target Wake Time

## Wi-Fi CERTIFIED 6® Release 2 (continued)

Extended sleep time  
M-BSSID control frames  
Preamble Puncturing

## Wi-Fi CERTIFIED™ a

## Wi-Fi CERTIFIED™ ac

A-MPDU with A-MSDU  
DL MU-MIMO  
LDPC Rx  
MCS 8-9 Rx  
Short Guard Interval  
STBC  
LDPC Tx  
SU beamformee

## Wi-Fi CERTIFIED™ b

## Wi-Fi CERTIFIED™ g

## Wi-Fi CERTIFIED™ n

A-MPDU Tx  
HT Duplicate Mode  
Short Guard Interval  
STBC

## Wi-Fi Enhanced Open™ 2023-12

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