



# 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: WFA139377**

## Product Info

|                              |  |
|------------------------------|--|
| <b>Date of Certification</b> | March 23, 2026                         |
| <b>Company</b>               | Espressif Systems (Shanghai) Co., Ltd. |
| <b>Product Name</b>          | 2.4G&5G Wi-Fi 6 module                 |
| <b>Product Model Variant</b> | ESP32-C5-MINI-1 module                 |
| <b>Model Number</b>          | ESP32-C5-MINI-1                        |
| <b>Category</b>              | Other                                  |
| <b>Sub-category</b>          | Embedded Module                        |

## Summary of Certifications

| <b>CLASSIFICATION</b>     | <b>CERTIFICATION</b>   |
|---------------------------|--|
| <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  |
| <b>Wi-Fi (MAC/PHY)</b>    | 2.4 GHz Spectrum Capabilities<br>5 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

FreeRTOS

### Wi-Fi Component Firmware

V1.0

### RF Architecture

| Bands Supported | Transmit (Tx) | Receive (Rx) |
|-----------------|---------------|--------------|
| 2.4 GHz         | 1             | 1            |
| 5 GHz           | 1             | 1            |

## 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

### Protected Management Frames

### Spectrum & Regulatory

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

### Wi-Fi Agile Multiband™

### Wi-Fi CERTIFIED 6® Release 2

A-MPDU with A-MSDU  
Beamforming sounding  
BSRP Trigger frame  
DL MU-MIMO  
Individual Target Wake Time  
MCS 8-9 Rx  
MCS 8-9 Tx  
MU EDCA Parameter Set element  
MU-BAR Trigger frame  
MU-RTS Trigger frame

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

M-BSSID  
Operating mode control field  
Operating mode indication  
SU beamformee  
UL OFDMA  
Wi-Fi 6 Release 2 features  
    UL MU Control  
    Target Wake Time information frames  
    Broadcast Target Wake Time  
    M-BSSID control frames

## Wi-Fi CERTIFIED™ a

## Wi-Fi CERTIFIED™ ac

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

## Wi-Fi CERTIFIED™ b

## Wi-Fi CERTIFIED™ g

## Wi-Fi CERTIFIED™ n

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

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