



# 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](http://www.wi-fi.org/certification/programs)

**Certification ID: WFA131513**

## Product Info

Date of Certification	June 13, 2024
Company	Google, Inc.
Product Name	GGX8B, GZC4K, GQ57S
Product Model Variant	GGX8B
Model Number	GGX8B, GZC4K, GQ57S
Category	Phones
Sub-category	Smartphone

## Summary of Certifications

CLASSIFICATION	CERTIFICATION
Applications & Services	Voice-Enterprise Wi-Fi Aware™
Connectivity	2.4 GHz Spectrum Capabilities 5 GHz Spectrum Capabilities 6 GHz Spectrum Capabilities Wi-Fi CERTIFIED 6® Wi-Fi CERTIFIED 6® Release 2 Wi-Fi CERTIFIED 7™ Wi-Fi CERTIFIED™ a Wi-Fi CERTIFIED™ ac Wi-Fi CERTIFIED™ b Wi-Fi CERTIFIED™ g Wi-Fi CERTIFIED™ n Wi-Fi Direct® Wi-Fi Enhanced Open™ 2023-12
Optimization	WMM® WMM®-Admission Control WMM®-Power Save Wi-Fi Agile Multiband™
Security	Protected Management Frames

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# Wi-Fi CERTIFIED™ Certificate

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## Summary of Certifications (continued)

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### CLASSIFICATION

### CERTIFICATION

#### Security

WPA2™-Enterprise 2018-04  
WPA2™-Personal 2021-01  
WPA3™-Enterprise 2022-12  
WPA3™-Personal 2023-12

#### Spectrum & Regulatory Features

Spectrum & Regulatory

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# Wi-Fi CERTIFIED™ Certificate

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Role: Access Point

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## Wi-Fi Components

### Wi-Fi Component Operating System

Android

### Wi-Fi Component Firmware

27.10.830

### 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

### 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

### 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

### Protected Management Frames

### Spectrum & Regulatory

802.11d

### WMM®

### WPA2™-Personal 2021-01

### WPA3™-Personal 2023-12

### Wi-Fi CERTIFIED 6®

A-MPDU with A-MSDU  
LDPC Rx  
LDPC Tx  
MCS 8-9 Rx  
MCS 8-9 Tx  
MCS 10-11 Rx  
MCS 10-11 Tx  
SU-MIMO  
Wi-Fi 6E

### Wi-Fi CERTIFIED™ a

### Wi-Fi CERTIFIED™ ac

A-MPDU with A-MSDU  
LDPC Rx  
LDPC Tx  
MCS 8-9 Rx

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# Wi-Fi CERTIFIED™ Certificate

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Role: Access Point

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## Wi-Fi CERTIFIED™ ac (continued)

Short Guard Interval

## Wi-Fi CERTIFIED™ b

## Wi-Fi CERTIFIED™ g

## Wi-Fi CERTIFIED™ n

OBSS on Extension Channel

Short Guard Interval

A-MPDU Tx

## Wi-Fi Enhanced Open™ 2023-12

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# Wi-Fi CERTIFIED™ Certificate

Certification ID: WFA131513



Role: Station

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## Wi-Fi Components

### Wi-Fi Component Operating System

Android

### Wi-Fi Component Firmware

27.10.830

### 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

### Spectrum & Regulatory (continued)

802.11h

### 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

### Voice-Enterprise

#### WMM®

#### WMM®-Admission Control

#### WMM®-Power Save

Legacy Power Save

Unschedule auto PS

### 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

#### WPA2™-Enterprise 2018-04

EAP methods

EAP AKA

EAP AKA Prime

EAP SIM

EAP TLS

EAP TTLS

PEAPv0

### Protected Management Frames

### Spectrum & Regulatory

802.11d

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Role: Station

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## WPA2™-Enterprise 2018-04 (continued)

PEAPv1

## WPA2™-Personal 2021-01

## WPA3™-Enterprise 2022-12

EAP methods

EAP AKA

EAP AKA Prime

EAP SIM

EAP TLS

EAP TTLS

PEAPv0

PEAPv1

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

Fast Transition OTDS on WPA3-Enterprise

Server Certificate Validation

## WPA3™-Personal 2023-12

AKM 24

AKM 25

Fast Transition OTA on WPA3-Personal

Fast Transition OTA on WPA3-Personal transition mode

Fast Transition OTDS on WPA3-Personal

Beacon Protection

## Wi-Fi Agile Multiband™

ANQP

## Wi-Fi Agile Multiband™ (continued)

ANQP-based Neighbor report

Beacon Report Measurement Active Mode

Beacon Report Measurement Passive Mode

BTM Query

Cellular Data capable

Fast Transition OTA on WPA2-Personal

Fast Transition OTA on WPA2-Enterprise

## Wi-Fi Aware™

TCP/UDP NDP Initiator

TCP/UDP NDP Responder

Device Ranging

## Wi-Fi CERTIFIED 6® Release 2

A-MPDU with A-MSDU

Beamforming sounding

BSRP Trigger frame

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 indication

SU beamformee

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Role: Station

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

SU-MIMO  
UL OFDMA  
Wi-Fi 6E  
Multiple M-BSSID  
Wi-Fi 6 Release 2 features  
UL MU-MIMO  
UL MU Control  
M-BSSID control frames  
Preamble Puncturing

## Wi-Fi CERTIFIED 7™

Advertised TID-to-link mapping  
A-MPDU with A-MSDU  
Beamforming sounding  
BSS critical update  
DL MU-MIMO  
EMLSR (Enhanced Multilink Single-Radio)  
LDPC Rx  
LDPC Tx  
Load Balancing in MLO  
MCS 8-9 Rx  
MCS 8-9 Tx  
MCS 10-11 Rx  
MCS 10-11 Tx  
MCS 12-13 Rx  
MCS 12-13 Tx  
Multi-link reconfiguration – AP removal  
Multi-RU  
Operating mode indication  
Static puncturing  
STR (Simultaneous Transmit and Receive)  
SU-MIMO  
Triggered uplink access optimization  
UL MU-MIMO

## Wi-Fi CERTIFIED 7™ (continued)

UL OFDMA

## 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  
LDPC Tx  
SU beamformee

## Wi-Fi CERTIFIED™ b

## Wi-Fi CERTIFIED™ g

## Wi-Fi CERTIFIED™ n

A-MPDU Tx  
OBSS on Extension Channel  
Short Guard Interval

## Wi-Fi Direct®

Wi-Fi Direct with WPA2

## Wi-Fi Enhanced Open™ 2023-12

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