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: 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

CLASSIFICATION	CERTIFICATION
Security	WPA2™-Enterprise 2018-04
	WPA2™-Personal 2021-01
	WPA3™-Enterprise 2022-12
	WPA3™-Personal 2023-12
Spectrum & Regulatory Features	Spectrum & Regulatory

Wi-Fi CERTIFIED™ Certificate

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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

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

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
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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
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

802.11d

Spectrum & Regulatory (continued)

802.11h

Voice-Enterprise

WMM®

WMM®-Admission Control

WMM®-Power Save

Legacy Power Save
Unschedule auto PS

WPA2™-Enterprise 2018-04

EAP methods
    EAP AKA
    EAP AKA Prime
    EAP SIM
    EAP TLS
    EAP TTLS
    PEAPv0

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

DL MU PPDU multi-tone

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

Operating mode control field

Operating mode indication

SU beamformee

Wi-Fi CERTIFIED™ Certificate
Certification ID: WFA131513

Wi-Fi CERTIFIED 6® Release 2 (continued)

SU-MIMO
UL OFDMA
UL TB PPDU multi-tone
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

Wi-Fi CERTIFIED 7™ (continued)

UL MU-MIMO
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