



# 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: WFA120585

### Product Info

<b>Date of Certification</b>	October 5, 2022
<b>Company</b>	Google, Inc.
<b>Product Name</b>	GWKK3, GH11X, G82U8
<b>Product Model Variant</b>	GWKK3
<b>Model Number</b>	GWKK3, GH11X, G82U8
<b>Category</b>	Phones
<b>Sub-category</b>	Smartphone

### Summary of Certifications

CLASSIFICATION	CERTIFICATION
<b>Applications &amp; Services</b>	Voice-Enterprise Wi-Fi Aware™
<b>Connectivity</b>	2.4 GHz Spectrum Capabilities 5 GHz Spectrum Capabilities 6 GHz Spectrum Capabilities Wi-Fi CERTIFIED 6® 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™ 2021-01
<b>Optimization</b>	WMM® WMM®-Admission Control WMM®-Power Save Wi-Fi Agile Multiband™
<b>Security</b>	Protected Management Frames WPA2™-Enterprise 2018-04 WPA2™-Personal 2021-01



# Wi-Fi CERTIFIED™ Certificate

Certification ID: WFA120585



## Summary of Certifications (continued)

Page 2 of 7

CLASSIFICATION	CERTIFICATION
Security	WPA3™-Enterprise 2020-02 WPA3™-Personal 2020-12
Spectrum & Regulatory Features	Spectrum & Regulatory



# Wi-Fi CERTIFIED™ Certificate

Certification ID: WFA120585



Role: Access Point

Page 3 of 7

## Wi-Fi Components

### Wi-Fi Component Operating System

Android

### Wi-Fi Component Firmware

lynx-userdebug 13 TD2A.220719.001  
8843759 dev-keys

### RF Architecture

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

### Protected Management Frames

### WMM®

### WPA2™-Personal 2021-01

### WPA3™-Personal 2020-12

### Wi-Fi CERTIFIED 6®

A-MPDU with A-MSDU  
Compressed Block Ack Rx (buffer size 256)  
Compressed Block Ack Tx (buffer size 256)  
LDPC Rx  
LDPC Tx

### Wi-Fi CERTIFIED 6® (continued)

MCS 8-9 Rx  
MCS 8-9 Tx  
MCS 10-11 Rx  
MCS 10-11 Tx  
SU-MIMO  
TXOP RTS Threshold

### Wi-Fi CERTIFIED™ a

### Wi-Fi CERTIFIED™ ac

RTS with BW Signaling  
A-MPDU with A-MSDU  
LDPC Rx  
LDPC Tx  
MCS 8-9 Rx  
Short Guard Interval  
STBC

### Wi-Fi CERTIFIED™ b

### Wi-Fi CERTIFIED™ g

### Wi-Fi CERTIFIED™ n



# Wi-Fi CERTIFIED™ Certificate

Certification ID: WFA120585



Role: Access Point

Page 4 of 7

## Wi-Fi CERTIFIED™ n (continued)

OBSS on Extension Channel

Short Guard Interval

STBC

A-MPDU Tx



# Wi-Fi CERTIFIED™ Certificate

Certification ID: WFA120585



Role: Station

Page 5 of 7

## Wi-Fi Components

### Wi-Fi Component Operating System

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8843759 dev-keys

### 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

802.11h

### 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  
PEAPv1

### WPA2™-Personal 2021-01

### WPA3™-Enterprise 2020-02



# Wi-Fi CERTIFIED™ Certificate

Certification ID: WFA120585



### WPA3™-Enterprise 2020-02 (continued)

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

Server Certificate Validation

### WPA3™-Personal 2020-12

Fast Transition OTA on WPA3-Personal

Fast Transition OTA on WPA3-Personal transition mode

### Wi-Fi Agile Multiband™

ANQP

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™

### Wi-Fi CERTIFIED 6®

### Wi-Fi CERTIFIED 6® (continued)

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 PPDU multi-tone

DL MU-MIMO

HE NDP

Individual Target Wake Time

LDPC Rx

LDPC Tx

MCS 8-9 Rx

MCS 8-9 Tx

MCS 10-11 Rx

MCS 10-11 Tx

MU EDCA Parameter Set element

MU-BAR Trigger frame

MU-RTS Trigger frame

Operating mode control field

Operating mode subfield in A-Control field

Operating mode indication

SU beamformee

SU-MIMO

UL OFDMA

UL TB PPDU multi-tone

Wi-Fi 6E

### Wi-Fi CERTIFIED™ a

### Wi-Fi CERTIFIED™ ac

Extended 5 GHz Channel Support

RTS with BW Signaling

A-MPDU with A-MSDU

DL MU-MIMO



# Wi-Fi CERTIFIED™ Certificate

Certification ID: WFA120585



Role: Station

Page 7 of 7

## Wi-Fi CERTIFIED™ ac (continued)

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

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

## Wi-Fi Direct®

## Wi-Fi Enhanced Open™ 2021-01