

# RN00174

## NXP Wireless SoC Features and Release Notes for FreeRTOS

Rev. 10.0 — 24 September 2024

Release notes

### Document information

Information	Content
Keywords	SD-Wi-Fi-UART-BT-FP91-88W8987, SD-Wi-Fi-UART-BT-FP91-IW416, SD-Wi-Fi-UART-BT-15.4-FP99-IW612, SD-Wi-Fi-UART-BT-FP99-IW611, SD-Wi-Fi-UART-BT-FP99-AW611, RW610, RW612, SD-Wi-Fi-FP91-88W8801
Abstract	FreeRTOS release notes for NXP wireless SoCs



## 1 About this document

---

This document provides information about the supported features, release versions, fixed and/or known issues, performance of the Wi-Fi, Bluetooth/802.15.4 radios, including the coexistence.

The SDK release version 2.16.100 has been tested for the wireless SoCs listed in [Section 1.1](#).

### 1.1 Supported products

- 88W8987
- IW416
- IW611<sup>1</sup>
- IW612<sup>2</sup>
- AW611<sup>3</sup>
- RW610
- RW612
- 88W8801

---

<sup>1</sup> The support of IW611 is enabled in i.MX RT1170 EVKB and i.MX RT1060 EVKC.

<sup>2</sup> The support of IW612 is enabled in i.MX RT1170 EVKB and i.MX RT1060 EVKC.

<sup>3</sup> AW611 module support is available only in i.MX RT1180 EVKA and SDK version 2.16.100.

## 2 Features

### 2.1 Wi-Fi radio

#### 2.1.1 Client mode

Table 1. Features for the Wi-Fi radio and client mode

Features	Sub features	SDIO-UART					SDIO
		88W898	IW416	IW611/ IW612	RW610/ RW612	AW611	88W8801
802.11n - High throughput	2.4 GHz band operation supported channel bandwidth: 20 MHz	Y	Y	Y	Y	Y	Y
	2.4 GHz band supported channel bandwidth: 40 MHz	Y	Y	Y	N	Y	N
	5 GHz band supported channel bandwidth: 20 MHz	Y	Y	Y	Y	Y	N
	5 GHz band supported channel bandwidth: 40 MHz	Y	Y	Y	N	Y	N
	Short/long guard interval (400 ns/800 ns)	Y	Y	Y	Y	Y	Y
	11n data rates – Up to 72 Mbit/s (MCS 0 to MCS 7)	Y	Y	Y	Y	Y	Y
	11n data rates – Up to 150 Mbit/s (MCS 0 to MCS 7)	Y	Y	Y	N	Y	N
	1 spatial stream (1x1)	Y	Y	Y	Y	Y	Y
	HT protection mechanisms	Y	Y	Y	Y	Y	Y
	Aggregated MAC protocol data unit (AMPDU) RX support	Y	Y	Y	Y	Y	Y
	Aggregated MAC service data unit (AMSDU) -4k RX support	Y	Y	Y	Y	Y	Y
	TX MCS rate adaptation (BGN)	Y	Y	Y	Y	Y	Y
	RX low density parity check (LDPC)	Y	N	Y	N	Y	N

Table 1. Features for the Wi-Fi radio and client mode...continued

Features	Sub features	SDIO-UART					SDIO
		88W898	IW416	IW611/ IW612	RW610/ RW612	AW611	
802.11 ac - Very high throughput	2.4 GHz band supported channel bandwidth: 20MHz	Y	N	Y	Y	Y	N
	5 GHz band supported channel bandwidth: 20 MHz	Y	N	Y	Y	Y	N
	5 GHz band supported channel bandwidth: 40 MHz	Y	N	Y	N	Y	N
	5 GHz band supported channel bandwidth: 80 MHz	Y	N	Y	N	Y	N
	11ac Data rates - Up to 86.7 Mbps (MCS0 to MCS 8)	Y	N	Y	Y	Y	N
	11ac data rates - Up to 433.3 Mbps (MCS 0 to MCS 9) - 1x1	Y	N	Y	N	Y	N
	MU-MIMO Beamformee (Explicit and Implicit)	Y	N	Y	Y	Y	N
	RTS/CTS with BW signaling	Y	N	N	N	N	N
	Operation mode notification	Y	N	Y	N	Y	N
	Backward compatibility with non-VHT devices	Y	N	Y	Y	Y	N
	TX VHT MCS rate adaptation	Y	N	Y	Y	Y	N
802.11ax - High efficiency	2.4 GHz band supported channel bandwidth: 20MHz	N	N	Y	Y	Y	N
	5 GHz band supported channel bandwidth: 20 MHz	N	N	Y	Y	Y	N
	5 GHz band supported channel bandwidth: 40 MHz	N	N	Y	N	Y	N
	5 GHz band supported channel bandwidths: 80 MHz	N	N	Y	N	Y	N
	OFDMA (UL/DL, 106 RU)	N	N	Y	Y	Y	N
	OFDMA (UL/DL, 484 RU)	N	N	Y	N	Y	N
	1024 QAM	N	N	Y	N	Y	N
	Target wake time (TWT)	N	N	Y	Y	Y	N
802.11ax - High efficiency	DCM	N	N	Y	Y	Y	N
	ER (extended range)	N	N	Y	Y	Y	N
	SU Beamforming	N	N	Y	Y	Y	N
	OMI (operating mode indication)	N	N	Y	Y	Y	N

Table 1. Features for the Wi-Fi radio and client mode...continued

Features	Sub features	SDIO-UART					SDIO
		88W8981	IW416	IW611/ IW612	RW610/ RW612	AW611	88W8801
802.11 a/b/g features	11 b/g data rates - Up to 54 Mbit/s	Y	Y	Y	Y	Y	Y
	11 a data rates - Up to 54 Mbit/s	Y	Y	Y	Y	Y	N
	Tx rate adaptation (BG)	Y	Y	Y	Y	Y	Y
	Fragmentation/defragmentation	Y	Y	Y	Y	Y	Y
	ERP protection, slot time, preamble	Y	Y	Y	Y	Y	Y
802.11d	802.11d - Regulatory domain/operating class/country info	Y	Y	Y	Y	Y	Y
802.11e QoS	EDCA [enhanced distributed channel access] / WMM (wireless multi-media)	Y	Y	Y	Y	Y	Y
802.11i security	Open security	Y	Y	Y	Y	Y	Y
	WPA-PSKsecurity (TKIP/AES-CCMP encryption)	Y	Y	Y	Y	Y	Y
	WPA-PSKsecurity (TKIP/AES-CCMP encryption) (host-based)	Y	Y	Y	Y	Y	Y
	WPA2-PSKsecurity (TKIP/AES-CCMP encryption)	Y	Y	Y	Y	Y	Y
	WPA2-PSKsecurity (TKIP/AES-CCMP encryption) (host-based)	Y	Y	Y	Y	Y	Y
	WPA + WPA2 mixed mode	Y	Y	Y	Y	Y	Y
	WPA + WPA2 mixed mode (host-based)	Y	Y	Y	Y	Y	Y
	WPA2+WPA3 PSK mixed mode (WPA3 transition mode) (host-based)	Y	N	Y	Y	Y	Y
	WPA3 SAE (R3)	Y	Y	Y	Y	Y	Y
	WPA3 SAE (R3) (host-based)	Y	Y	Y	Y	Y	Y
	WPA2 enterprise support (Host based - TLS, TTLS, PEAP v0, PEAP v1, SIM,AKA, AKA-Prime, and FAST) <sup>[4]</sup>	Y	Y	Y	Y <sup>[1]</sup>	Y	Y
	WPA3 enterprise support (Host based - TLS, TTLS, PEAP v0, PEAP v1, SIM,AKA, AKA-Prime, and FAST) with SUITE B and SUITE B 192 <sup>[4]</sup>	Y	Y	Y	Y <sup>[1]</sup>	Y	N
	WPS (host-based)	Y	Y	Y	Y	Y	N
	OWE (host-based)	Y	Y	Y	N	Y	N
Power save mode	Deep sleep	Y	Y	Y	Y	Y	Y
	IEEE power save	Y	Y	Y	Y	Y	Y
	Host sleep/WoWLAN	Y	Y	Y	Y	Y	N
	U-APSD	N	N	N	Y	N	N

Table 1. Features for the Wi-Fi radio and client mode...continued

Features	Sub features	SDIO-UART					SDIO
		88W8981	IW416	IW611/ IW612	RW610/ RW612	AW611	88W8801
802.11w - PMF (protected management frames)	PMF require and capable	Y	Y	Y	Y	Y	Y
	Unicast management frames - Encryption/decryption - using CCMP	Y	Y	Y	Y	Y	Y
	Broadcast management frames - Encryption/decryption - using BIP	Y	Y	Y	Y	Y	Y
	SA query request/response	Y	Y	Y	Y	Y	Y
	PMF support using embedded supplicant	Y	Y	Y	Y	Y	Y
DPP functionality	Wi-Fi easy connect <sup>[4]</sup>	N	N	Y	N	Y	N

Table 1. Features for the Wi-Fi radio and client mode...continued

Features	Sub features	SDIO-UART					SDIO
		88W8981	IW416	IW611/ IW612	RW610/ RW612	AW611	88W8801
General features	Embedded supplicant	Y	Y	Y	Y	Y	Y
	Host sleep packet filtering	N	N	Y	Y	Y	N
	Host-based supplicant	Y	Y	Y	Y	Y	Y
	Embedded MLME	Y	Y	Y	Y	Y	Y
	EDMAC - EU adaptivity support (ETSI certification)	Y	Y	Y	Y	Y	Y
	External coexistence	N	N	N	N	N	Y
	IPv6 NS offload	Y	Y	Y	Y	Y	Y
	FIPS	Y	Y	Y	N	Y	N
	TKIP <sup>[2]</sup>	Y	Y	Y	N	Y	Y
	RF test mode	Y	Y	Y	Y	Y	Y
	802.11k	Y	Y	Y	Y	Y	N
	802.11v	Y	Y	Y	Y	Y	N
	802.11r	Y	Y	Y <sup>[3]</sup>	Y	Y <sup>[3]</sup>	N
	DFS radar detection in slave mode (follow AP)	Y	Y	Y	Y	Y	N
	Embedded roaming based on RSSI threshold beacon loss	N	N	Y	Y	Y	N
	ARP offload	N	N	Y	Y	Y	N
	Cloud keep alive	Y	Y	Y	Y	Y	N
	UNII-4 channel support	N	N	Y	Y	Y	N
	ClockSync using TSF	N	N	Y	Y	Y	N
	Auto reconnect	Y	Y	N	N	N	N
	CSI (channel state information) <sup>[4]</sup>	Y	N	Y	Y	Y	N
	Independent reset (in-band) <sup>[4]</sup>	Y	Y	Y	Y	Y	N
	Independent reset (out-band) <sup>[4]</sup>	Y	Y	Y	N	Y	N
	Wi-Fi agile multiband	N	N	Y	Y	Y	N
	Network co-processor (NCP) mode	N	N	N	Y <sup>[5]</sup>	N	N
	802.11mc - WLS (Wi-Fi location service)	N	N	Y	Y	Y	N
	802.11az	N	N	Y	Y	Y	N

[1]

Supported enterprise security options: TLS, TTLS, PEAP v0, PEAP v1

[2]

As per Wi-Fi specification, connecting in TKIP security in non 802.11n mode is allowed.

[3]

Support available in host-base supplicant

[4]

Feature not enabled by default in the SDK. Refer to [Section 3](#) for the macro to enable the feature and the impact on the memory when enabling the feature.

[5]

Read more about NCP feature in [\[5\]](#).

2.1.2 AP mode

Table 2. Features for the Wi-Fi radio and AP mode

Features	Sub features	SDIO-UART			RW610/ RW612	AW611	SDIO
		88W898	IW416	IW611/ IW612			
802.11n - High throughput	2.4 GHz band operation supported channel bandwidth: 20 MHz	Y	Y	Y	Y	Y	Y
	2.4 GHz band supported channel bandwidth: 40 MHz	Y	Y	Y	N	Y	N
	5 GHz band supported channel bandwidth: 20 MHz	Y	Y	Y	Y	Y	N
	5 GHz band supported channel bandwidth: 40 MHz	Y	Y	Y	N	Y	N
	Short/long guard interval (400 ns/800 ns)	Y	Y	Y	Y	Y	Y
	11n data rates – Up to 72 Mbit/s (MCS 0 to MCS 7)	Y	Y	Y	Y	Y	Y
	11n data rates – Up to 150 Mbit/s (MCS 0 to MCS 7)	Y	Y	Y	N	Y	N
	1 spatial stream (1x1)	Y	Y	Y	Y	Y	Y
	HT protection mechanisms	Y	Y	Y	Y	Y	Y
	Aggregated MAC protocol data unit (AMPDU) Rx support	Y	Y	Y	Y	Y	Y
802.11n - High throughput	Aggregated MAC service data unit (AMSDU) -4k RX support	Y	Y	Y	N	Y	Y
	Max client support (up to 8 devices)	Y	Y	Y	Y	Y	Y
	TX MCS rate adaptation (BGN)	Y	Y	Y	Y	Y	Y
	RX low density parity check (LDPC)	Y	N	Y	N	Y	N



Table 2. Features for the Wi-Fi radio and AP mode...continued

Features	Sub features	SDIO-UART			RW610/ RW612	AW611	SDIO
		88W898	IW416	IW611/ IW612			
802.11ac – Very high throughput	5 GHz band supported channel bandwidth: 20 MHz	Y	N	Y	Y	Y	N
	5 GHz band supported channel bandwidth: 40 MHz	Y	N	Y	N	Y	N
	5 GHz band supported channel bandwidth: 80MHz	Y	N	Y	N	Y	N
	Short/long guard interval (400ns/800ns)	Y	N	Y	Y	Y	N
	802.11ac Data rates - Up to 86.7 Mbps (MCS0 to MCS 8)	Y	N	Y	Y	Y	N
	802.11ac Data rates – Up to 433.3 Mbps (MCS 0 to MCS 9)	Y	N	Y	N	Y	N
	802.11ac Data rates - Up to 866.7 Mbps (MCS 0 to MCS 9)	Y	N	Y	N	Y	N
	Single user- Aggregated MAC protocol data unit (SU-AMPDU) aggregation	Y	N	Y	Y	Y	N
	RTS/CTS with BW signaling	Y	N	N	Y	N	N
	Backward compatibility with non-VHT devices	Y	N	Y	Y	Y	N
	TX VHT MCS rate adaptation	Y	N	N	Y	N	N
	MU-MIMO Beamformee (explicit and implicit)	Y	N	Y	Y	Y	N
	Operation mode notification	Y	N	Y	N	Y	N
802.11ax – High efficiency	2.4 GHz band operation (20 MHz channel bandwidth)	N	N	Y	Y	Y	N
	2.4 GHz band operation (40 MHz channel bandwidth)	N	N	Y	N	Y	N
	5 GHz band operation (20MHz channel bandwidth)	N	N	Y	Y	Y	N
	5 GHz band operation (40MHz channel bandwidth)	N	N	Y	N	Y	N
	5 GHz band operation (80 MHz channel bandwidth)	N	N	Y	N	Y	N
802.11d	802.11d - Regulatory domain/operating class/country info	Y	Y	Y	Y	Y	Y
802.11e -QoS	EDCA [enhanced distributed channel access] / WMM (wireless multi-media)	Y	Y	Y	Y	Y	Y

Table 2. Features for the Wi-Fi radio and AP mode...continued

Features	Sub features	SDIO-UART					SDIO
		88W898	IW416	IW611/ IW612	RW610/ RW612	AW611	88W8801
802.11i - security	Open security	Y	Y	Y	Y	Y	Y
	WPA2-PSK security (AES-CCMP encryption)	Y	Y	Y	Y	Y	Y
	WPA2 + WPA3 (SAE) mixed mode	Y	Y	Y	Y	Y	Y
	WPA3 SAE (R1)	Y	Y	Y	Y	Y	Y
	WPA3 SAE (R3)	Y	Y	Y	Y	Y	N
	WPA3 SAE (R3) (host-based)	Y	Y	Y	Y	Y	Y
	WPA2+WPA3 PSK Mixed Mode (WPA3 Transition Mode) (host-based)	Y	Y	Y	Y	Y	Y
	WPA2 Enterprise support (Host based - TLS, TTLS, PEAP v0, PEAP v1) <sup>[1]</sup>	Y	Y	Y	Y <sup>[2]</sup>	Y	Y
	WPA3 enterprise support (Host based - TLS, TTLS, PEAP v0, PEAP v1 ) with SUITE B and SUITE B 192 <sup>[1]</sup>	Y	Y <sup>[3]</sup>	Y	Y	Y	N
	WPA3 suite B (host-based)	Y	Y	Y	Y	Y	N
	WPS (host-based)	Y	Y	Y	Y	Y	N
	OWE (host-based)	Y	Y	Y	N	Y	N
802.11y	Extended channel switch announcement (ECSA)	Y	Y	Y	Y	Y	Y
802.11w - protected management frames (PMF)	PMF require and capable	Y	Y	Y	Y	Y	Y
	Unicast management frames - Encryption/decryption - using CCMP	Y	Y	Y	Y	Y	Y
	Broadcast management frames - encryption/decryption - using BIP	Y	Y	Y	Y	Y	Y
	SA query request/response	Y	Y	Y	Y	Y	Y
General features	Embedded authenticator	Y	Y	Y	Y	Y	Y
	Embedded MLME	Y	Y	Y	Y	Y	Y
	EU adaptivity support	Y	Y	Y	Y	Y	Y
	Automatic channel selection (ACS)	Y	Y	Y	Y	Y	Y
	External coexistence (software interface)	N	N	N	N	N	Y
	STBC RX	Y	N	N	N	N	N
	Independent reset (in-band) <sup>[1]</sup>	Y	Y	Y	Y	Y	N
	Network co-processor (NCP) mode	N	N	N	Y	N	N

[1] Feature not enabled by default in the SDK. Refer to [Section 3](#) for the macro to enable the feature and the impact on the memory when enabling the feature.

[2] Supported enterprise security options: TLS, TTLS, PEAP v0, and PEAP v1.

[3] SUITE B and SUITE B 192 not supported

2.1.3 AP-STA mode

Table 3. Features for the Wi-Fi radio and STA-AP mode

Features	Sub features	SDIO-UART					SDIO
		88W8981	IW416	IW611/ IW612			
Simultaneous AP-STA operation (same channel)	AP-STA functionality	Y	Y	Y	Y	Y	Y
SAD	Software antenna diversity	Y	Y	Y	Y	Y	Y
Generic	Firmware download (parallel) <sup>[1]</sup>	Y	Y	Y	N	Y	N

[1] Feature not enabled by default in the SDK. Refer to [Section 3](#) for the macro to enable the feature and the impact on the memory when enabling the feature.

## 2.2 Bluetooth radio

### 2.2.1 Bluetooth classic

Table 4. Features for Bluetooth radio

Feature	Sub feature	SDIO-UART			RW610/ RW612	AW611
		88W8987	IW416	IW611/IW612		
General features	Bluetooth Class 1.5 and Class 2 support	Y	Y	Y	N	Y
	Scatternet support	Y	Y	Y	N	Y
	Maximum of seven simultaneous ACL connections	Y	Y	Y	N	Y
	Automatic packet type selection	Y	Y	Y	N	Y
	Bluetooth - 2.1 to 5.0 specification support	Y	Y	Y	N	Y
	Low power sniff	Y	Y	Y	N	Y
	Deep sleep using out-of-band	Y	Y	N	N	N
	Wake on Bluetooth (SoC to host)	Y	N	N	N	N
	Independent reset (in-band) <sup>[1]</sup>	Y	Y	Y	N	Y
	Independent reset (out-band) <sup>[1]</sup>	Y	Y	Y	N	Y
	Firmware download (parallel) <sup>[1]</sup>	Y	Y	Y	N	Y
	RF test mode	Y	Y	Y	N	Y
Bluetooth packet type supported	ACL (DM1, DH1, DM3, DH3, DM5, DH5, 2-DH1, 2-DH3, 2-DH5, 3-DH1, 3-DH3, 3-DH5)	Y	Y	Y	N	Y
	SCO (HV1, HV3)	Y	Y	Y	N	Y
	eSCO (EV3, EV4, EV5, 2EV3, 3EV3, 2EV5, 3EV5)	Y	Y	Y	N	Y
Bluetooth profiles supported	A2DP source/sink	Y	Y	Y	N	Y
	AVRCP target/controller	Y	Y	Y	N	Y
	HFP Dev/AG	Y	Y	Y	N	Y
	OPP server/client	Y	Y	Y	N	Y
	SPP server/client	Y	Y	Y	N	Y
	HID target/device	Y	Y	Y	N	Y
Bluetooth audio features	PCM NBS central/peripheral	Y	Y	Y	N	Y
	PCM WBS central/peripheral	Y	Y	Y	N	Y

[1] Experimental feature intended for evaluation/early development only and not production. Incomplete mandatory certification.

## 2.2.2 Bluetooth LE

Table 5. Features for Bluetooth LE radio

Features	Sub features	SDIO-UART			RW610/ RW612	AW611
		88W8987	IW416	IW611/IW612		
Generic features	Maximum 16 Bluetooth LE connections (central role)	Y	Y	Y	Y	Y
	Deep sleep using out-of-band	Y	Y	N	N	N
	Wake on Bluetooth LE (SoC to Host)	Y	Y	Y	N	Y
	RF Test mode	Y	Y	Y	Y	Y
Bluetooth profile support	Bluetooth LE GATT	Y	Y	Y	Y	Y
	Bluetooth LE HID over GATT	Y	Y	Y	Y	Y
	Bluetooth LE GAP	Y	Y	Y	Y	Y
Bluetooth LE 4.0 support	Low Energy physical layer	Y	Y	Y	Y	Y
	Low Energy link layer	Y	Y	Y	Y	Y
	Enhancements to HCI for Low Energy	Y	Y	Y	Y	Y
	Low energy direct test mode	Y	Y	Y	Y	Y
Bluetooth 4.1 support	Low duty cycle directed advertising	Y	Y	Y	Y	Y
	Bluetooth LE dual mode topology	Y	Y	Y	Y	Y
	Bluetooth LE privacy v1.1	Y	Y	Y	Y	Y
	Bluetooth LE link layer topology	Y	Y	Y	Y	Y
Bluetooth 4.2 support	Bluetooth LE secure connection	Y	Y	Y	Y	Y
	Bluetooth LE link layer privacy v1.2	Y	Y	Y	Y	Y
Bluetooth 4.2 support	Bluetooth LE data length extension	Y	Y	Y	Y	Y
	Link layer extended scanner filter policies	Y	Y	Y	Y	Y
Bluetooth 5.0 support	Bluetooth LE 2 Mbps support	Y	Y	Y	Y	Y
	High duty cycle directed advertising	Y	Y	Y	Y	Y
	Low Energy advertising extension	N	Y	Y	Y	Y
	Low Energy long range	N	Y	Y	Y	Y
	Low Energy periodic advertisement	N	Y	Y	Y	Y
Bluetooth 5.2 support	Low Energy power control	N	N	Y	Y	Y

Table 5. Features for Bluetooth LE radio...continued

Features	Sub features	SDIO-UART			RW610/ RW612	AW611
		88W8987	IW416	IW611/IW612		
Bluetooth LE audio support <sup>[1][2]</sup>	Isochronous channel	N	N	Y	Y	Y
	Broadcast LE Audio BIS source	N	N	Y	N	Y
	Broadcast LE Audio BIS sink	N	N	Y	N	Y
	Broadcast LE Audio BIG Validation	N	N	Y	N	Y
	Broadcast LE Audio Phy: 1M/2M/ coded	N	N	Y	N	Y
	Broadcast LE Audio framed mode	N	N	Y	N	Y
	Broadcast LE Audio unframed mode	N	N	Y	N	Y
	Broadcast LE Audio sequential packing	N	N	Y	N	Y
	Broadcast LE Audio: Mono and Stereo	N	N	Y	N	Y
	Broadcast LE Audio BIS encrypted audio	N	N	Y	N	Y
	Broadcast LE Audio BIS unencrypted audio	N	N	Y	N	Y
	Unicast LE Audio CIS source	N	N	Y	N	Y
	Unicast LE Audio CIS sink	N	N	Y	N	Y
	Unicast LE Audio CIG validation	N	N	Y	N	Y
	Unicast LE Audio CIS synchronization	N	N	Y	N	Y
	Unicast LE Audio Phy: 1M/2M/ coded	N	N	Y	N	Y
	Unicast LE Audio framed mode	N	N	Y	N	Y
	Unicast LE Audio unframed mode	N	N	Y	N	Y
	Unicast LE Audio sequential packing	N	N	Y	N	Y
	Unicast LE Audio: mono and stereo	N	N	Y	N	Y
	Unicast LE Audio CIS encrypted audio	N	N	Y	N	Y
	Unicast LE Audio CIS unencrypted audio	N	N	Y	N	Y
	Unicast LE Audio TX/RX and bidirectional traffic	N	N	Y	N	Y
	ISO interval for LE Audio: 7.5ms 10ms 20ms 30ms	N	N	Y	N	Y
	Sampling frequency for LE Audio: 8kHz 16kHz 24kHz, 32kHz, 44.1kHz, 48kHz	N	N	Y	N	Y
	LE Audio Auracast use cases: Auracast streaming 2 BISes	N	N	Y	N	Y
	LE Audio Unicast use cases: Unicast streaming 2 CISes	N	N	Y	N	Y
	LE Audio Unicast Use cases: Unicast streaming 4 CISes	N	N	Y	N	Y

Table 5. Features for Bluetooth LE radio...continued

Features	Sub features	SDIO-UART				
		88W8987	IW416	IW611/IW612	RW610/ RW612	AW611
BCA TDM Coexistence mode (shared antenna)	STA + Bluetooth coexistence	Y	Y	Y	N	Y
	STA + Bluetooth LE coexistence	Y	Y	Y	Y	Y
	STA + Bluetooth + Bluetooth LE coexistence	Y	Y	Y	N	Y
	AP + Bluetooth coexistence	Y	Y	Y	N	Y
	AP + Bluetooth LE coexistence	Y	Y	Y	Y	Y
	AP + Bluetooth + Bluetooth LE coexistence	Y	Y	Y	N	Y
BCA TDM coexistence mode (separate antenna)	STA + Bluetooth coexistence	Y	Y	Y	N	Y
	STA + Bluetooth LE coexistence	Y	Y	Y	Y	Y
	STA + Bluetooth + Bluetooth LE coexistence	Y	Y	Y	N	Y
	AP + Bluetooth coexistence	Y	Y	Y	N	Y
	AP + Bluetooth LE coexistence	Y	Y	Y	Y	Y
	AP + Bluetooth + Bluetooth LE coexistence	Y	Y	Y	N	Y

[1] Experimental feature intended for evaluation/early development only and not production. Incomplete mandatory certification.

[2] LE audio feature is supported for standalone scenarios only and not for BR/EDR and Wi-Fi coexistence scenarios such as LE audio + BR/EDR link or LE audio + Wi-Fi link.

From the perspective of NXP Edgefast Bluetooth host stack, LE audio feature can be disabled by the CONFIG\_BT\_AUDIO macro without impact on any other features. LE audio feature can be tested by the user, using their own supported host stack.

**Note:** Details of the tested Bluetooth LE Audio use cases:

- Number of streams:
  - 1-CIG | upto 4-CIS with 1 LE ACL (for 4-CIS: execute only mono UCs, SDU Int: 10ms)
  - 1-CIG | upto 4-CIS with 4 separate LE ACL (for 4-CIS: SDU Size= Max 100 Oct, PHY=2M, RTN=1, SDU Int: 10ms only) (execute only mono UCs for 4-CIS)
  - 1-BIG | upto 4-BIS (for 4-BIS: execute only mono UCs, SDU Int: 10ms only)
- PHY: 2M and 1M
- Audio mode: mono (for 1 to 4 streams) and stereo (for 1 stream)
- Packing: sequential and interleaved
- Bit rate: maximum 96kbps
  - For 1-CIG with upto 3-CIS: maximum bit rate 96kbps
  - For 1-CIG with 4-CIS: maximum bit rate 80kbps
  - For 1-BIG with 4-BIS: maximum bit rate 80kbps
  - For 2-CIG cases: maximum bit rate 80kbps
- Mode: unframed mode
- 48\_5 and 48\_6 mono and stereo configurations are not supported.

Details of the tested Bluetooth coexistence (Bluetooth + Bluetooth LE Audio) use cases:

- Bluetooth + Bluetooth LE Audio
- A2DP + Bluetooth LE Audio bridging support
- A2DP sink link (central) -> LEA 2-CIS (SDU Int: 10ms only | A2DP only with SBC Codec | PHY: 2M)



2.3 802.15.4 radio

Table 6. Features of 802.15.4 radio

Features	Sub features	SDIO-UART	
		IW612	RW612
General features	Spinel over SPI	Y	N
	OpenThread RCP Mode implementing Thread1.3	Y	N
	802.15.4-2015 MAC/PHY as required by Thread 1.3	Y	Y
	OpenThread Border Router (OTBR) v1.1	Y	Y
	Direct/indirect transmission with/without ACK	Y	Y
	15.4 CSL parent feature implementation	Y	Y
	Enhanced Frame Pending	Y	Y
	Enhanced keep alive	Y	Y
	Router	Y	Y
	Leader	Y	Y
	Router Eligible End Device (REED)	Y	Y
	End Device (FED, MED)	Y	Y
Zigbee features	Coordinator	N	Y
	Router	N	Y
	End Device (RX ON)	N	Y
	R23	N	Y
	OTA Client	N	Y
	OTA server	N	Y
Matter features	Matter over Wi-Fi	Y	N
	Matter over Thread	Y	Y

2.4 Coexistence

2.4.1 Wi-Fi and Bluetooth/802.15.4 coexistence

Table 7. Features of Wi-Fi and Bluetooth/802.15.4 coexistence

Features	Sub features	SDIO-UART	
		IW612	RW612
BCA_TDM separate antenna <sup>[1]</sup> (lower and higher isolation) 1x1 Wi-Fi, (Bluetooth and 802.15.4 shared)	STA + Bluetooth	Y	N
	Mobile AP + Bluetooth	Y	N
	Bluetooth LE + Wi-Fi	Y	Y
	Bluetooth + Bluetooth LE + Wi-Fi	Y	N
	OpenThread + Bluetooth	Y	N
	OpenThread + Bluetooth LE <sup>[2]</sup>	Y	Y
	OpenThread + Bluetooth + Bluetooth LE	Y	N
	OpenThread + Wi-Fi	Y	Y
	Bluetooth + OpenThread + Wi-Fi	Y	N
	Bluetooth LE + OpenThread + Wi-Fi	Y	Y
	Bluetooth + Bluetooth LE + OpenThread + Wi-Fi	Y	N
	Single antenna configuration	Y	Y
	External Coexistence PTA	N	Y

[1] Experimental feature intended for evaluation/early development only and not production. Incomplete mandatory certification.  
[2] The narrow-band radio can be configured to support Bluetooth LE, 802.15.4, and to time-slice between Bluetooth LE and 802.15.4.

### 3 Feature enablement and memory impact

Table 8. Feature enablement and memory impact

Features	Macros to enable the feature	Memory Impact
CSI	CONFIG_CSI	Flash - 60K, RAM - 4K
DPP	CONFIG_WPA_SUPP_DPP	Flash - 240K, RAM - 12K
Independent reset	CONFIG_WIFI_IND_DNLD, CONFIG_WIFI_IND_RESET	Minimal
Parallel firmware download Wi-Fi	CONFIG_WIFI_IND_DNLD	Minimal
Parallel firmware download Bluetooth	CONFIG_BT_IND_DNLD	Minimal
WPA3 enterprise	CONFIG_WPA_SUPP_CRYPTO_ENTERPRISE	Flash - 165K, RAM - 18K
WPA2 enterprise	[Macros specific to EAP-methods included] CONFIG_EAP_TLS CONFIG_EAP_PEAP CONFIG_EAP_TTLS CONFIG_EAP_FAST CONFIG_EAP_SIM CONFIG_EAP_AKA CONFIG_EAP_AKA_PRIME	
Host sleep	CONFIG_HOST_SLEEP	Minimal
WMM	CONFIG_WMM <sup>[1]</sup>	Flash - 10K, RAM - 57K
802.11mc	CONFIG_11MC CONFIG_CSI CONFIG_WLS_CSI_PROC <sup>[2]</sup> CONFIG_11AZ	Flash: 52.78KB, RAM : 121.1KB
802.11az	CONFIG_11MC CONFIG_CSI <sup>[2]</sup> CONFIG_WLS_CSI_PROC <sup>[2]</sup> CONFIG_11AZ	Flash: 52.78KB, RAM : 121.1KB

[1] The macro is not used for IW416.

[2] Prerequisite macros for 802.11mc and 802.11az features

#### Note:

- For Wi-Fi, the macros are set with the value "0" by default in the file `wifi_config_default.h` located in `<SDK_PATH>/middleware/wifi_nxp/incl/` directory.  
To enable the features, set the value of the macros to "1" in the file `wifi_config.h` located in `<SDK_Wi-Fi_Example_PATH>/` directory.
- Bluetooth  
To enable the features, set the value of the macros to "1" in the file `app_bluetooth_config.h` located in `<SDK_Bluetooth_Example_PATH>/` directory.

## 4 88W8987 release notes

### 4.1 Package information

- SDK version: 2.16.100

### 4.2 Version information

- Wireless SoC: 88W8987
- Wi-Fi and Bluetooth/Bluetooth LE firmware version: 16.91.21.p133
  - 16 - Major revision
  - 91 - Feature pack
  - 21 - Release version
  - p133- Patch number

### 4.3 Host platform

- All i.MX RT platforms running FreeRTOS.
- Host interfaces
  - Wi-Fi over SDIO (SDIO 2.0 support, SDIO clock frequency: 50 MHz)
  - Bluetooth/Bluetooth LE over UART
- Test tools
  - iPerf (version 2.1.9)

### 4.4 Wi-Fi and Bluetooth certification

The Wi-Fi and Bluetooth certification is obtained with the following combinations.

#### 4.4.1 WFA certifications

- STA | 802.11n
- STA | 802.11ac
- STA | PMF
- STA | FFD
- STA | SVD
- STA | WPA3 SAE (R3)
- STA | QTT

Refer to [\[6\]](#).

**Note:** This release supports STAUT only certifications.

#### 4.4.2 Bluetooth controller certification

QDID: refer to [\[4\]](#).

## 4.5 Wi-Fi throughput

### 4.5.1 Throughput test setup

- Environment: Shield Room - Over the Air
- External Access Point: ASUS AX88U
- DUT: W8987 Murata (Module: **1ZM M.2**) with EVK-MIMXRT1060 EVKC platform
- DUT Power Source: External power supply
- External Client: Apple MacBook Air
- Channel: 6 | 36
- Wi-Fi application: wifi\_wpa\_suplicant
- Compiler used to build application: armgcc
- Compiler Version: gcc-arm-none-eabi-13.2
- iPerf commands used in test:

#### TCP TX

```
iperf -c <remote_ip> -t 60
```

#### TCP RX

```
iperf -s
```

#### UDP TX

```
iperf -c <remote_ip> -t 60 -u -B <local_ip> -b 120
```

**Note:** The default rate is 100 Mbps.

#### UDP RX

```
iperf -s -u -B <local_ip>
```

**Note:** Read more about the throughput test setup and topology in [\[2\]](#).

4.5.2 STA throughput

External APs: ASUS AX88U

Table 9. STA mode throughput - BGN Mode | 2.4 GHz Band | 20 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
Open Security	46	51	60	63
WPA2-AES	46	50	60	62
WPA3-SAE	46	49	60	62

Table 10. STA mode throughput - BGN Mode | 2.4 GHz Band | 40 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
Open Security	66	77	122	116
WPA2-AES	66	74	121	116
WPA3-SAE	66	73	121	117

Table 11. STA mode throughput - AN Mode | 5 GHz Band | 20 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
Open Security	45	50	61	64
WPA2-AES	45	50	61	64
WPA3-SAE	45	50	61	63

Table 12. STA mode throughput - AN Mode | 5 GHz Band | 40 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
Open Security	68	78	124	134
WPA2-AES	66	80	123	133
WPA3-SAE	67	79	123	133

Table 13. STA mode throughput - AC Mode | 5 GHz Band | 20 MHz (VHT)

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
Open Security	51	58	74	76
WPA2-AES	51	57	74	75
WPA3-SAE	51	57	74	75

Table 14. STA mode throughput - AC Mode | 5 GHz Band | 40 MHz (VHT)

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
Open Security	73	87	125	175
WPA2-AES	74	87	125	173
WPA3-SAE	73	87	125	174

Table 15. STA mode throughput - AC Mode | 5 GHz Band | 80 MHz (VHT)

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
Open Security	74	95	125	198
WPA2-AES	72	93	125	194
WPA3-SAE	71	92	125	194

4.5.3 Mobile AP throughput

External client: Apple Macbook Air

Table 16. Mobile AP Mode Throughput - BGN Mode | 2.4 GHz Band | 20MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
Open Security	44	50	59	61
WPA2-AES	44	50	58	60
WPA3-SAE	41	49	58	60

Table 17. Mobile AP Mode Throughput - BGN Mode | 2.4 GHz Band | 40MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
Open Security	67	83	114	127
WPA2-AES	67	83	113	126
WPA3-SAE	67	83	114	126

Table 18. Mobile AP Mode Throughput - AN Mode | 5 GHz Band | 20 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
Open Security	46	51	61	63
WPA2-AES	46	51	61	63
WPA3-SAE	46	51	61	63

Table 19. Mobile AP Mode Throughput - AN Mode | 5 GHz Band | 40 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
Open Security	71	84	121	103
WPA2-AES	70	84	120	103
WPA3-SAE	70	83	120	103

Table 20. Mobile AP Mode Throughput - AC Mode | 5 GHz Band | 20 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
Open Security	51	59	74	77
WPA2-AES	51	58	74	77
WPA3-SAE	51	58	74	77



Table 21. Mobile AP Mode Throughput - AC Mode | 5 GHz Band | 40 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
Open Security	79	94	127	102
WPA2-AES	79	92	125	102
WPA3-SAE	78	93	125	102

Table 22. Mobile AP Mode Throughput - AC Mode | 5 GHz Band | 80 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
Open Security	93	110	126	197
WPA2-AES	92	105	125	191
WPA3-SAE	92	105	125	192

## 4.6 EU conformance tests

- EU Adaptivity test - EN 300 328 v2.1.1 (for 2.4 GHz)
- EU Adaptivity test - EN 301 893 v2.1.1 (for 5 GHz)

## 4.7 Bug fixes and/or feature enhancements

### 4.7.1 Firmware version: From 16.91.21.p64.1 to 16.91.21.p82

Table 23.

Component	Description
Wi-Fi	<ul style="list-style-type: none"><li>• WPA3-R3 enabled APUT beacons does not have RSNXE when configured in H2E mode</li><li>• Associated event is received even when connecting using wrong password</li><li>• WFA APUT Low iperf TCP/UDP Tx throughput with Realtek station</li></ul>

### 4.7.2 Firmware version: From 16.91.21.p82 to 16.91.21.p91.6

Table 24.

Component	Description
Wi-Fi	<ul style="list-style-type: none"><li>• In wrong password scenario, After updating new password the phone is not able to connect with DUTAP</li></ul>

### 4.7.3 Firmware version: From 16.91.21.p91.6 to 16.91.21.p124

Table 25.

Component	Description
Wi-Fi	<ul style="list-style-type: none"><li>• Cloud keep alive packets not seen after DUT enters host sleep. DUT is sending QOS null packets even in host sleep</li></ul>

### 4.7.4 Firmware version: From 16.91.21.p124 to 16.91.21.p133

Table 26.

Component	Description
Wi-Fi	<ul style="list-style-type: none"><li>• Samsung S24 Ultra and Google Pixel 7 mobiles having Android 14 are not able connect to the DUTAP with WPA3 SAE security.</li></ul>

## 4.8 Known issues

Table 27. SDIO-UART 88W8987 known issues

Component	Description
Wi-Fi	<ul style="list-style-type: none"><li>• DUT STA does not associate to hidden SSID beaconing in DFS channel</li><li>• Fails to encrypt and decrypt data with ccmp 128 and 256 using CLI crypto commands</li></ul>

## 5 IW416 release notes

### 5.1 Package information

- SDK version: 2.16.100

### 5.2 Version information

- Wireless SoC: IW416
- Wi-Fi and Bluetooth/Bluetooth LE firmware version: 16.91.21.p133.2
  - 16 - Major revision
  - 91 - Feature pack
  - 21 - Release version
  - p133.2 - Patch number

### 5.3 Host platform

- All i.MX RT platforms running FreeRTOS.
- Host interfaces
  - Wi-Fi over SDIO (SDIO 2.0 Support, SDIO clock frequency: 50 MHz)
  - Bluetooth/Bluetooth LE over UART
- Test tools
  - iPerf (version 2.1.9)

### 5.4 Wi-Fi and Bluetooth certification

The Wi-Fi and Bluetooth certification is obtained with the following combinations.

#### 5.4.1 WFA certifications

- STA | 802.11n
- STA | PMF
- STA | FFD
- STA | SVD
- STA | WPA3 SAE (R3)
- STA | QTT

Refer to [\[6\]](#).

**Note:** This release supports STAUT only certifications.

#### 5.4.2 Bluetooth controller certification

QDID: refer to [\[4\]](#).

**Note:** QDID upgrade to Bluetooth Core Specification Version 5.4 is in progress.

## 5.5 Wi-Fi throughput

### 5.5.1 Throughput test setup

- Environment: Shield Room - Over the Air
- Access Point: Asus AX88u
- DUT: IW416 Murata (Module: 1XK M.2) with EVK-MIMXRT1060 EVKC platform
- DUT Power Source: External power supply
- Client: Apple MacBook Air
- Channel: 6 | 36
- Wi-Fi application: wifi\_wpa\_suplicant
- Compiler used to build application: armgcc
- Compiler Version: gcc-arm-none-eabi-13.2
- iPerf commands used in test:

#### TCP TX

```
iperf -c <remote_ip> -t 60
```

#### TCP RX

```
iperf -s
```

#### UDP TX

```
iperf -c <remote_ip> -t 60 -u -B <local_ip> -b 120
```

**Note:** The default rate is 100 Mbps.

#### UDP RX

```
iperf -s -u -B <local_ip>
```

**Note:** Read more about the throughput test setup and topology in [\[2\]](#).

5.5.2 STA throughput

External AP: Asus AX88u

Table 28. STA mode throughput - BGN Mode | 2.4 GHz Band | 20 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	43	44	60	53
WPA2-AES	43	43	62	51
WPA3-SAE	40	41	58	51

Table 29. STA mode throughput - BGN Mode | 2.4 GHz Band | 40 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	64	79	115	119
WPA2-AES	59	72	114	99
WPA3-SAE	58	75	114	100

Table 30. STA mode throughput - AN Mode | 5 GHz Band | 20 MHz ( HT)

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	42	46	61	62
WPA2-AES	40	44	61	59
WPA3-SAE	40	46	61	59

Table 31. STA mode throughput - AN Mode | 5 GHz Band | 40 MHz (HT)

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
Open Security	61	72	116	111
WPA2-AES	58	64	116	112
WPA3-SAE	59	64	116	113

5.5.3 Mobile AP throughput

External client: Apple MacBook Air

Table 32. Mobile AP Mode Throughput - BGN Mode | 2.4 GHz Band | 20MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	43	41	58	55
WPA2-AES	40	43	59	54
WPA3-SAE	42	44	59	55

Table 33. Mobile AP Mode Throughput - BGN Mode | 2.4 GHz Band | 40MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	67	82	110	111
WPA2-AES	64	67	110	110
WPA3-SAE	63	68	109	109

Table 34. Mobile AP Mode Throughput - AN Mode | 5 GHz Band | 20 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	43	52	61	63
WPA2-AES	42	51	61	62
WPA3-SAE	42	51	61	63

Table 35. Mobile AP Mode Throughput - AN Mode | 5 GHz Band | 40 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	67	80	113	100
WPA2-AES	65	68	114	104
WPA3-SAE	65	68	114	102

5.6 EU conformance tests

- EU Adaptivity test - EN 300 328 v2.1.1 (for 2.4 GHz)
- EU Adaptivity test - EN 301 893 v2.1.1 (for 5 GHz)

5.7 Bug fixes and/or feature enhancements

5.7.1 Firmware version: From 16.91.21.p64.1 to 16.91.21.p82

Table 36.

Component	Description
Wi-Fi	<ul style="list-style-type: none"><li>• WPA3-R3 enabled APUT beacons does not have RSNXE when configured in H2E mode</li></ul>

5.7.2 Firmware version: From 16.91.21.p82 to 16.91.21.p91.6

Table 37.

Component	Description
Wi-Fi	NA

5.7.3 Firmware version: From 16.91.21.p91.6 to 16.91.21.p124

Table 38.

Component	Description
Wi-Fi	<ul style="list-style-type: none"><li>• Cloud keep alive packets not seen after DUT enters host sleep. DUT is sending QOS null packets even in host sleep</li></ul>

5.7.4 Firmware version: From 16.91.21.p124 to 16.91.21.p133

Component	Description
Wi-Fi	NA

5.7.5 Firmware version: From 16.91.21.p133 to 16.91.21.p133.2

Component	Description
Wi-Fi	<ul style="list-style-type: none"><li>• DUT STA getting rebooted after 15~20 iterations of 11R-Command based roaming</li><li>• 0xa4 command timeout after several hours of stress test</li></ul>

5.8 Known issues

Table 39. SDIO-UART IW416 known issues

Component	Description
Wi-Fi	<ul style="list-style-type: none"><li>• Samsung S24 Ultra and Google Pixel 7 mobiles having Android 14 are not able connect to the DUT AP with WPA3 SAE security.</li><li>• DUT fails to reconnect after the configured auto-reconnect time interval</li></ul>
Coex	<ul style="list-style-type: none"><li>• During HFP call, TX side noise is observed with coex CLI</li></ul>

## 6 IW611/IW612 release notes

**Note:** The IW611/IW612 support is enabled in i.MX RT1170 EVKB and i.MX RT1060 EVKC.

### 6.1 Package information

- SDK version: 2.16.100

### 6.2 Version information

- Wireless SoC: IW611/IW612
- Wi-Fi and Bluetooth/Bluetooth LE firmware version: 18.99.3.p17.9
  - 18 - Major revision
  - 99 - Feature pack
  - 3 - Release version
  - p17.9 - Patch number

### 6.3 Host platform

- i.MX RT1170 EVKB and i.MX RT1060 EVKC Platforms running FreeRTOS
- Host interfaces
  - Wi-Fi over SDIO (SDIO 2.0 support, SDIO clock frequency: 50 MHz)
  - Bluetooth/Bluetooth LE over UART
  - 802.15.4 over SPI (IW612 only)
- Test tools
  - iPerf (version 2.1.9)

### 6.4 Wi-Fi and Bluetooth certification

The Wi-Fi and Bluetooth certification is obtained with the following combinations.

#### 6.4.1 WFA certifications

- STA | 802.11n
- STA | PMF
- STA | FFD
- STA | SVD
- STA | WPA3 SAE (R3)
- STA | 802.11ac
- STA | 802.11ax
- STA | QTT

Refer to [\[6\]](#).

**Note:** This release supports STAUT only certifications.

#### 6.4.2 Bluetooth controller certification

QDID: refer to [\[4\]](#).

**Note:** QDID upgrade to Bluetooth Core Specification Version 5.4 is in progress.



## 6.5 Wi-Fi throughput

### 6.5.1 Throughput test setup

- Environment: Shield Room - Over the Air
- Access Point: Asus AX88u
- DUT: IW612 Murata (Module: 2EL M.2) with EVK-MIMXRT1060 EVKC platform
- DUT Power Source: External power supply
- Client: Apple MacBook Air
- Channel: 6 | 36
- Wi-Fi application: wifi\_wpa\_supplicant
- Compiler used to build application: armgcc
- Compiler Version gcc-arm-none-eabi-13.2
- iPerf commands used in test:

#### TCP TX

```
iperf -c <remote_ip> -t 60
```

#### TCP RX

```
iperf -s
```

#### UDP TX

```
iperf -c <remote_ip> -t 60 -u -B <local_ip> -b 120
```

**Note:** The default rate is 100 Mbps.

#### UDP RX

```
iperf -s -u -B <local_ip>
```

**Note:** Read more about the throughput test setup and topology in [\[2\]](#)

The throughput numbers are captured with default configurations using *wifi\_wpa\_supplicant* sample application.

6.5.2 iPerf host configuration and impact on throughput

To get the highest throughput, the throughput values shown in [Section 6.5.3](#) and [Section 6.5.4](#) are measured with the maximum values of the default host configuration macros. [Section 6.5.2.1](#) shows the throughput numbers obtained when using the minimum values of the host configuration macros. The macro values are defined in *lwipopts.h* file.

[Table 40](#) lists the minimum and maximum values of the host configuration macros.

Table 40. Values of the host configuration macros

Parameter	Maximum value	Minimum value
TCPIP_MBOX_SIZE	96	32
DEFAULT_RAW_RECVMBOX_SIZE	32	12
DEFAULT_UDP_RECVMBOX_SIZE	64	12
DEFAULT_TCP_RECVMBOX_SIZE	64	12
TCP_MSS	1460	536
TCP_SND_BUF	24 * TCP_MSS	2 * TCP_MSS
MEM_SIZE	319160	41,080
TCP_WND	15 * TCP_MSS	10 * TCP_MSS
MEMP_NUM_PBUF	20	10
MEMP_NUM_TCP_SEG	96	12
MEMP_NUM_TCPIP_MSG_INPKT	80	16
MEMP_NUM_TCPIP_MSG_API	80	8
MEMP_NUM_NETBUF	32	16

6.5.2.1 STA and AP throughput captured with the minimum values of the host configuration macros

Table 41. STA mode throughput - HE Mode | 5 GHz Band | 80 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
Open Security	7	18	111	124
WPA2-AES	7	18	110	124
WPA3-SAE	6	18	110	124

Table 42. Mobile AP Mode Throughput - HE Mode | 5 GHz Band | 80 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
Open Security	2	19	93	127
WPA2-AES	2	19	105	126
WPA3-SAE	2	19	104	132

6.5.3 STA throughput

External AP: Asus AX88u

Table 43. STA mode throughput - BGN Mode | 2.4 GHz Band | 20 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	41	49	63	64
WPA2-AES	41	48	63	63
WPA3-SAE	41	48	63	63

Table 44. STA mode throughput - BGN Mode | 2.4 GHz Band | 40 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	65	80	130	130
WPA2-AES	66	79	130	129
WPA3-SAE	66	79	130	129

Table 45. STA mode throughput - AN Mode | 5 GHz Band | 20 MHz ( HT)

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	41	50	64	65
WPA2-AES	44	50	64	65
WPA3-SAE	44	50	64	65

Table 46. STA mode throughput - AN Mode | 5 GHz Band | 40 MHz (HT)

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	64	81	129	134
WPA2-AES	63	81	129	133
WPA3-SAE	63	81	129	133

Table 47. STA mode throughput - VHT Mode | 2.4 GHz Band | 20 MHz (HT)

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	51	55	76	76
WPA2-AES	44	54	73	75
WPA3-SAE	51	54	74	75

Table 48. STA mode throughput - VHT Mode | 2.4 GHz Band | 40 MHz (HT)

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
Open Security	65	91	168	171
WPA2-AES	65	91	169	170
WPA3-SAE	67	91	169	171

Table 49. STA mode throughput - VHT Mode | 5 GHz Band | 20 MHz (HT)

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	45	56	77	78
WPA2-AES	44	56	74	77
WPA3-SAE	44	56	74	77

Table 50. STA mode throughput - VHT Mode | 5 GHz Band | 40 MHz (HT)

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	70	87	175	178
WPA2-AES	69	87	173	176
WPA3-SAE	69	85	173	175

Table 51. STA mode throughput - VHT Mode | 5 GHz Band | 80 MHz (HT)

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	81	94	216	193
WPA2-AES	84	96	214	194
WPA3-SAE	81	96	213	193

Table 52. STA mode throughput - HE Mode | 2.4 GHz Band | 20 MHz (HT)

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	63	66	124	124
WPA2-AES	62	67	121	123
WPA3-SAE	62	66	122	123

Table 53. STA mode throughput - HE Mode | 2.4 GHz Band | 40 MHz (HT)

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	70	92	206	187
WPA2-AES	67	89	206	189
WPA3-SAE	68	92	206	187

Table 54. STA mode throughput - HE Mode | 5 GHz Band | 20 MHz (HT)

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	55	61	97	129
WPA2-AES	55	61	95	128
WPA3-SAE	55	61	95	128

Table 55. STA mode throughput - HE Mode | 5 GHz Band | 40 MHz (HT)

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	76	95	189	198
WPA2-AES	74	94	185	197
WPA3-SAE	75	95	185	197

Table 56. STA mode throughput - HE Mode | 5 GHz Band | 80 MHz (HT)

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	82	93	216	194
WPA2-AES	81	95	215	192
WPA3-SAE	81	94	211	193

6.5.4 Mobile AP throughput

External client: Apple MacBook Air

Table 57. Mobile AP Mode Throughput - BGN Mode | 2.4 GHz Band | 20MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	40	51	61	62
WPA2-AES	40	51	62	61
WPA3-SAE	38	51	62	61

Table 58. Mobile AP Mode Throughput - BGN Mode | 2.4 GHz Band | 40MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	63	89	126	132
WPA2-AES	64	88	125	123
WPA3-SAE	64	88	126	130

Table 59. Mobile AP Mode Throughput - AN Mode | 5 GHz Band | 20 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	41	51	63	62
WPA2-AES	40	51	63	59
WPA3-SAE	40	51	63	62

Table 60. Mobile AP Mode Throughput - AN Mode | 5 GHz Band | 40 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	63	86	127	131
WPA2-AES	63	85	126	130
WPA3-SAE	63	85	125	130

Table 61. Mobile AP Mode Throughput - VHT Mode | 2.4 GHz Band | 20 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	44	59	72	73
WPA2-AES	42	59	67	75
WPA3-SAE	44	59	73	75

Table 62. Mobile AP Mode Throughput - VHT Mode | 2.4 GHz Band | 40 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	69	96	137	162
WPA2-AES	68	95	135	151
WPA3-SAE	68	94	134	162

Table 63. Mobile AP Mode Throughput - VHT Mode | 5 GHz Band | 20 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	41	61	75	71
WPA2-AES	42	58	73	72
WPA3-SAE	42	59	74	74

Table 64. Mobile AP Mode Throughput - VHT Mode | 5 GHz Band | 40 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	66	103	150	177
WPA2-AES	63	101	151	176
WPA3-SAE	61	101	156	169

Table 65. Mobile AP Mode Throughput - VHT Mode | 5 GHz Band | 80 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	78	120	201	189
WPA2-AES	72	118	205	190
WPA3-SAE	72	118	207	192

Table 66. Mobile AP Mode Throughput - HE Mode | 2.4 GHz Band | 20 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	54	66	86	124
WPA2-AES	52	66	80	120
WPA3-SAE	51	65	80	116

Table 67. Mobile AP Mode Throughput - HE Mode | 2.4 GHz Band | 40 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	69	101	139	181
WPA2-AES	69	100	137	181
WPA3-SAE	67	100	131	181

Table 68. Mobile AP Mode Throughput - HE Mode | 5 GHz Band | 20 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	55	67	86	126
WPA2-AES	54	66	84	126
WPA3-SAE	54	66	84	126

Table 69. Mobile AP Mode Throughput - HE Mode | 5 GHz Band | 40 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	77	107	155	195
WPA2-AES	76	109	152	193
WPA3-SAE	77	106	152	194

Table 70. Mobile AP Mode Throughput - HE Mode | 5 GHz Band | 80 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	85	120	205	188
WPA2-AES	85	119	214	187
WPA3-SAE	84	119	216	178



6.6 EU conformance tests

- EU Adaptivity test - EN 300 328 v2.1.1 (for 2.4 GHz)
- EU Adaptivity test - EN 301 893 v2.1.1 (for 5 GHz)

6.7 Bug fixes and/or feature enhancements

6.7.1 Firmware version: 18.99.2.p7.19

Table 71.

Component	Description
-	NA

6.7.2 Firmware version: 18.99.2.p7.19 to 18.99.2.p49.9

Table 72.

Component	Description
-	NA

6.7.3 Firmware version: 18.99.2.p49.9 to 18.99.2.p155

Table 73.

Component	Description
Bluetooth	<ul style="list-style-type: none"><li>• Audio lost occurs due to periodic adv sync lost, during 2 BIS 44.1kHz unencrypted streams with 1M PHY configuration.</li><li>• BIS sync loss may occur in long audio streaming sessions.</li></ul>

6.7.4 Firmware version: 18.99.2.p155 to 18.99.2.p66.30

Table 74.

Component	Description
Wi-Fi	<ul style="list-style-type: none"><li>• 802.11R Fast BSS roaming works only with hostapd and does not work with standard APs (supporting 11R)</li></ul>
Bluetooth	<ul style="list-style-type: none"><li>• DUT is not able to sustain a connection with the remote device that does extended advertisement with coded PHY configuration.</li><li>• When 2 CIS streams are active, after the first device disconnects followed by the second device disconnecting, the second peripheral device hangs.</li><li>• Audio Play/Pause does not work in BIS case.</li></ul>

### 6.7.5 Firmware version: 18.99.2.p66.30 to 18.99.3.p10.5

Table 75.

Component	Description
Wi-Fi	<ul style="list-style-type: none"><li>• STAUT not sending Neighbor Advertisement packet after receiving Neighbor Solicitation packet from Ex-AP.</li><li>• Antenna selection time exceeds configured evaluation time</li></ul>
Bluetooth	<ul style="list-style-type: none"><li>• When DUT works as CIS source and CIS Offset is 612us, high packet drops observed which affects the audio streaming.</li><li>• For BIS Source Use Cases, Periodic Interval &amp; ISO Interval should be multiple of each other value.</li><li>• In 1-CIS and 2-CIS, Continuous Audio Glitches are observed with 96 kbps bit rate.</li></ul>

### 6.7.6 Firmware version: 18.99.3.p10.5 to 18.99.3.p17.9

Table 76.

Component	Description
Wi-Fi	<ul style="list-style-type: none"><li>• After performing independent reset (out-of-band mode), the STAUT fails to connect to the external AP via <code>wlan-connect</code> command, observed command timeout <code>0x107</code> error.</li></ul>
Bluetooth	<ul style="list-style-type: none"><li>• Audio glitches observed with Google Pixel 7 Pro streaming audio after CIS is established with DUT.</li><li>• During Call Gateway (CG) / Call Terminal (CT) Use Case, the firmware periodically sends NULL PDU, which results in frequent Audio Glitch on both CG and CT sides.</li><li>• Heavy audio glitches observed with CIS SRC Google Pixel 7 Pro</li><li>• Continuous audio glitches observed in 1 CIS &amp; 2 CIS for 48_3 and 48_4 config.</li></ul>

## 6.8 Known issues

Table 77. SDIO-UART-SPI IW611/IW612 known issues

Component	Description
Bluetooth	<ul style="list-style-type: none"><li>• Packet lost observed in CIS case, which causes audio noise.</li><li>• CIS Sink frequently fails to acknowledge CIS Source Tx PDU.</li><li>• Sequential Removal of CIS Handles as per current Controller implementation i.e CIS Disconnection sequence should be in sequence =&gt; CIS - 4,3,2,1</li><li>• While 4-CIS streaming, audio glitches observed on all CIS SINK with Samsung Galaxy buds</li><li>• While 4-CIS streaming, disconnection with connection timeout observed on first CIS SINK with Samsung Galaxy buds</li><li>• Only two streams (CIS/BIS) with one channel is supported.</li></ul>

## 7 RW610/RW612 release notes

---

### 7.1 Package information

- SDK version: 2.16.100

### 7.2 Version information

- Wi-Fi firmware version: 18.99.6.p19
  - rw61x\_sb\_wifi\_a1.bin for A1
  - rw61x\_sb\_wifi\_a2.bin for A2
  - 18 - Major revision
  - 99 - Feature pack
  - 6 - Release version
  - p19 - Patch number
- Bluetooth LE firmware version: 18.25.6.p19
  - rw61x\_sb\_ble\_a1.bin for A1
  - rw61x\_sb\_ble\_a2.bin for A2
  - 18 - Major revision
  - 25 - Feature pack
  - 6 - Release version
  - p19 - Patch number
- 802.15.4 and Bluetooth LE (up to core 4.1) firmware version: 18.34.6.p19
  - rw61x\_sb\_ble\_15d4\_combo\_a1.bin for A1
  - rw61x\_sb\_ble\_15d4\_combo\_a2.bin for A2
  - 18 - Major revision
  - 34 - Feature pack
  - 6 - Release version
  - p19 - Patch number

### 7.3 Host platform

- RW610/RW612 platform running FreeRTOS
- Test tools
  - iPerf (version 2.1.9)

## 7.4 Wireless certification

The Wi-Fi and Bluetooth certification is obtained with the following combinations.

### 7.4.1 WFA certifications

- STA | 802.11n
- STA | PMF
- STA | FFD
- STA | SVD
- STA | WPA3 SAE (R3)
- STA | 802.11ac
- STA | 802.11ax
- STA | QTT

Refer to [\[1\]](#).

**Note:** This release supports STAUT only certifications.

### 7.4.2 Bluetooth LE controller certification

QDID: Refer to [\[4\]](#).

### 7.4.3 Thread

Thread group: refer to [\[7\]](#).

Product Name: NXP RW612 Wireless MCU with Integrated Tri-Radio

Thread version: V1.3.0

CID #: 13A109

### 7.4.4 Matter

RW612 certification: refer to [\[8\]](#).

Certificate ID: CSA23C36MAT41746-24

Device type: Root Node, Thermostat

Transport: Matter over Wi-Fi

RW610 certification: refer to [\[9\]](#).

Certificate ID: CSA23C43MAT41753-50

Device type: Root Node, Thermostat

Transport: Matter over Wi-Fi and Matter over Thread

## 7.5 Wi-Fi throughput

### 7.5.1 Throughput test setup

- Environment: Shield Room - Over the Air
- Access Point: Asus AX88u
- DUT: RW610/RW612
- External Client: Intel AX210
- Channel: 6 | 36
- Wi-Fi application: wifi\_cli
- Compiler used to build application: armgcc
- Compiler version gcc-arm-none-eabi-13.2
- iPerf commands used in test:

#### TCP TX

```
iperf -c <remote_ip> -t 60
```

#### TCP RX

```
iperf -s
```

#### UDP TX

```
iperf -c <remote_ip> -t 60 -u -B <local_ip> -b 120
```

**Note:** The default rate is 100 Mbps.

#### UDP RX

```
iperf -s -u -B <local_ip>
```

**Note:** Read more about the throughput test setup and topology in [\[3\]](#).

7.5.2 STA throughput

External AP: Asus AX88u

Table 78. STA mode throughput - BGN Mode | 2.4 GHz Band | 20 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
Open Security	36	35	62	64
WPA2-AES	35	35	61	63
WPA3-SAE	36	35	61	63

Table 79. STA mode throughput - AN Mode | 5 GHz Band | 20 MHz (HT)

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
Open Security	37	36	64	65
WPA2-AES	36	35	62	64
WPA3-SAE	36	35	62	64

Table 80. STA mode throughput - VHT Mode | 2.4 GHz Band | 20 MHz ( HT)

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
Open Security	39	38	75	75
WPA2-AES	38	38	73	74
WPA3-SAE	38	38	73	74

Table 81. STA mode throughput - VHT Mode | 5 GHz Band | 20 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
Open Security	40	39	77	77
WPA2-AES	40	39	75	76
WPA3-SAE	40	39	75	75

Table 82. STA mode throughput - HE Mode | 2.4 GHz Band | 20 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
Open Security	42	42	97	99
WPA2-AES	41	42	96	98
WPA3-SAE	41	42	96	98

Table 83. STA mode throughput - HE Mode | 5 GHz Band | 20 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
Open Security	43	43	98	102
WPA2-AES	43	43	98	102
WPA3-SAE	43	43	98	102

7.5.3 Mobile AP throughput

External client: Apple MacBook Air

Table 84. Mobile AP Mode Throughput - BGN Mode | 2.4 GHz Band | 20 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
Open Security	38	38	62	62
WPA2-AES	37	37	61	61
WPA3-SAE	37	37	61	61

Table 85. Mobile AP Mode Throughput - AN Mode | 5 GHz Band | 20 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
Open Security	38	38	63	63
WPA2-AES	38	38	62	62
WPA3-SAE	38	37	62	62

Table 86. Mobile AP Mode Throughput - VHT Mode | 2.4 GHz Band | 20 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
Open Security	41	41	70	73
WPA2-AES	40	40	71	71
WPA3-SAE	40	40	70	71

Table 87. Mobile AP Mode Throughput - VHT Mode | 5 GHz Band | 20 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
Open Security	41	41	74	74
WPA2-AES	41	41	74	72
WPA3-SAE	41	41	74	73

Table 88. Mobile AP Mode Throughput - HE Mode | 2.4 GHz Band | 20 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
Open Security	44	44	94	95
WPA2-AES	44	43	95	95
WPA3-SAE	44	44	95	95



Table 89. Mobile AP Mode Throughput - HE Mode | 5 GHz Band | 20 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
Open Security	45	45	96	97
WPA2-AES	44	44	97	96
WPA3-SAE	44	44	97	96

7.6 Known issues

Table 90. SDIO-UART-SPI RW610/RW612 known issues

Component	Description
Wi-Fi	—
Bluetooth LE	—

## 8 AW611 release notes

**Note:** The AW611 support is enabled in i.MX RT1180 EVKA.

### 8.1 Package information

- SDK version: 2.16.100

### 8.2 Version information

- Wireless SoC: AW611
- Wi-Fi and Bluetooth/Bluetooth LE firmware version: 18.99.3.p17.9
  - 18 - Major revision
  - 99 - Feature pack
  - 3 - Release version
  - p17.9 - Patch number

### 8.3 Host platform

- i.MX RT1180 EVKA Platform running FreeRTOS
- Host interfaces
  - Wi-Fi over SDIO (SDIO 2.0 Support, SDIO clock frequency: 50 MHz)
  - Bluetooth/Bluetooth LE over UART
- Test tools
  - iPerf (version 2.1.9)

### 8.4 Wi-Fi and Bluetooth certification

The Wi-Fi and Bluetooth certification is obtained with the following combinations.

#### 8.4.1 WFA certifications

- STA | 802.11n
- STA | PMF
- STA | FFD
- STA | SVD
- STA | WPA3 SAE (R3)
- STA | 802.11ac
- STA | 802.11ax
- STA | QTT

Refer to [\[6\]](#).

**Note:** This release supports STAUT only certifications.

#### 8.4.2 Bluetooth controller certification

QDID: Refer to [\[4\]](#).

**Note:** QDID upgrade to Bluetooth Core Specification Version 5.4 is in progress.

## 8.5 Wi-Fi throughput

### 8.5.1 Throughput test setup

- Environment: Shield Room - Over the Air
- Access Point: Asus AX88u
- DUT: AW611 uBlox (Module: U-BLOX\_Jody\_W5 M.2) with EVK-MIMXRT1180 EVKA platform
- DUT Power Source: External power supply
- Client: Apple MacBook Air
- Channel: 6 | 36
- Wi-Fi application: wifi\_wpa\_supPLICant
- Compiler used to build application: armgcc
- Compiler Version: gcc-arm-none-eabi-13.2
- iPerf commands used in test:

#### TCP TX

```
iperf -c <remote_ip> -t 60
```

#### TCP RX

```
iperf -s
```

#### UDP TX

```
iperf -c <remote_ip> -t 60 -u -B <local_ip> -b 120
```

**Note:** The default rate is 100 Mbps.

#### UDP RX

```
iperf -s -u -B <local_ip>
```

**Note:** Read more about the throughput test setup and topology in [\[2\]](#).

The throughput numbers are captured with default configurations using `wifi_wpa_supPLICant` sample application.

8.5.2 STA throughput

External AP: Asus AX88u

Table 91. STA mode throughput - BGN Mode | 2.4 GHz Band | 20 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	41	49	63	64
WPA2-AES	41	48	63	63
WPA3-SAE	41	48	63	63

Table 92. STA mode throughput - BGN Mode | 2.4 GHz Band | 40 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	65	80	130	130
WPA2-AES	66	79	130	129
WPA3-SAE	66	79	130	129

Table 93. STA mode throughput - AN Mode | 5 GHz Band | 20 MHz ( HT)

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	41	50	64	65
WPA2-AES	44	50	64	65
WPA3-SAE	44	50	64	65

Table 94. STA mode throughput - AN Mode | 5 GHz Band | 40 MHz (HT)

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	64	81	129	134
WPA2-AES	63	81	129	133
WPA3-SAE	63	81	129	133

Table 95. STA mode throughput - VHT Mode | 2.4 GHz Band | 20 MHz (HT)

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	51	55	76	76
WPA2-AES	44	54	73	75
WPA3-SAE	51	54	74	75

Table 96. STA mode throughput - VHT Mode | 2.4 GHz Band | 40 MHz (HT)

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	65	91	168	171
WPA2-AES	65	91	169	170
WPA3-SAE	67	91	169	171

Table 97. STA mode throughput - VHT Mode | 5 GHz Band | 20 MHz (HT)

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
Open Security	45	56	77	78
WPA2-AES	48	56	74	77
WPA3-SAE	44	56	74	77

Table 98. STA mode throughput - VHT Mode | 5 GHz Band | 40 MHz (HT)

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	70	87	175	178
WPA2-AES	69	87	173	176
WPA3-SAE	69	85	173	175

Table 99. STA mode throughput - VHT Mode | 5 GHz Band | 80 MHz (HT)

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	81	94	216	193
WPA2-AES	84	96	214	194
WPA3-SAE	81	96	213	193

Table 100. STA mode throughput - HE Mode | 2.4 GHz Band | 20 MHz (HT)

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	63	66	124	124
WPA2-AES	62	67	121	123
WPA3-SAE	62	66	122	123

Table 101. STA mode throughput - HE Mode | 2.4 GHz Band | 40 MHz (HT)

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	70	92	206	187
WPA2-AES	67	89	206	189
WPA3-SAE	68	92	206	187

Table 102. STA mode throughput - HE Mode | 5 GHz Band | 20 MHz (HT)

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	55	61	97	129
WPA2-AES	55	61	95	128
WPA3-SAE	55	61	95	128

Table 103. STA mode throughput - HE Mode | 5 GHz Band | 40 MHz (HT)

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	76	95	189	198
WPA2-AES	74	94	185	197
WPA3-SAE	75	95	185	197

Table 104. STA mode throughput - HE Mode | 5 GHz Band | 80 MHz (HT)

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	82	93	216	194
WPA2-AES	81	95	215	192
WPA3-SAE	81	94	211	193

8.5.3 Mobile AP throughput

External client: Apple MacBook Air

Table 105. Mobile AP Mode Throughput - BGN Mode | 2.4 GHz Band | 20 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	40	51	61	62
WPA2-AES	40	51	62	61
WPA3-SAE	38	51	62	61

Table 106. Mobile AP Mode Throughput - BGN Mode | 2.4 GHz Band | 40 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	63	89	126	132
WPA2-AES	64	88	125	123
WPA3-SAE	64	88	126	130

Table 107. Mobile AP Mode Throughput - AN Mode | 5 GHz Band | 20 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	41	51	63	62
WPA2-AES	40	51	63	59
WPA3-SAE	40	51	63	62

Table 108. Mobile AP Mode Throughput - AN Mode | 5 GHz Band | 40 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	63	86	127	131
WPA2-AES	63	85	126	130
WPA3-SAE	63	85	125	130

Table 109. Mobile AP Mode Throughput - VHT Mode | 2.4 GHz Band | 20 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	44	59	72	73
WPA2-AES	42	59	67	75
WPA3-SAE	44	59	73	75

Table 110. Mobile AP Mode Throughput - VHT Mode | 2.4 GHz Band | 40 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	69	96	137	162
WPA2-AES	68	95	135	151
WPA3-SAE	68	94	134	162

Table 111. Mobile AP Mode Throughput - VHT Mode | 5 GHz Band | 20 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	41	61	75	71
WPA2-AES	42	58	73	72
WPA3-SAE	42	59	74	74

Table 112. Mobile AP Mode Throughput - VHT Mode | 5 GHz Band | 40 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	66	103	150	177
WPA2-AES	63	101	151	176
WPA3-SAE	61	101	156	169

Table 113. Mobile AP Mode Throughput - VHT Mode | 5 GHz Band | 80 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	78	120	201	189
WPA2-AES	72	118	205	190
WPA3-SAE	72	118	207	192

Table 114. Mobile AP Mode Throughput - HE Mode | 2.4 GHz Band | 20 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	54	66	86	124
WPA2-AES	52	66	80	120
WPA3-SAE	51	65	80	116



Table 115. Mobile AP Mode Throughput - HE Mode | 2.4 GHz Band | 40 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	69	101	139	181
WPA2-AES	69	100	137	181
WPA3-SAE	67	100	131	181

Table 116. Mobile AP Mode Throughput - HE Mode | 5 GHz Band | 20 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	55	67	86	126
WPA2-AES	54	66	84	126
WPA3-SAE	54	66	84	126

Table 117. Mobile AP Mode Throughput - HE Mode | 5 GHz Band | 40 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	77	107	155	195
WPA2-AES	76	109	152	193
WPA3-SAE	77	106	152	194

Table 118. Mobile AP Mode Throughput - HE Mode | 5 GHz Band | 80 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
OpenSecurity	85	120	205	188
WPA2-AES	85	119	214	187
WPA3-SAE	84	119	216	178

## 8.6 EU conformance tests

- EU Adaptivity test - EN 300 328 v2.1.1 (for 2.4 GHz)
- EU Adaptivity test - EN 301 893 v2.1.1 (for 5 GHz)

## 8.7 Bug fixes and/or feature enhancements

### 8.7.1 Firmware version: 18.99.3.p10.5 to 18.99.3.p17.9

Table 119.

Component	Description
Wi-Fi	<ul style="list-style-type: none"><li>• After performing independent reset (out-of-band mode), the STAUT fails to connect to the external AP via <code>wlan-connect</code> command, observed command timeout <code>0x107</code> error.</li></ul>
Bluetooth	<ul style="list-style-type: none"><li>• Audio glitches observed with Google Pixel 7 Pro streaming audio after CIS is established with DUT.</li><li>• During Call Gateway (CG) / Call Terminal (CT) Use Case, the firmware periodically sends NULL PDU, which results in frequent Audio Glitch on both CG and CT sides.</li><li>• Heavy audio glitches observed with CIS SRC Google Pixel 7 Pro</li><li>• Continuous audio glitches observed in 1 CIS &amp; 2 CIS for 48_3 and 48_4 config.</li></ul>

## 8.8 Known issues

Table 120. SDIO-UART AW611 known issues

Component	Description
Bluetooth	<ul style="list-style-type: none"><li>• Packet lost would be observed in CIS case which causes audio noise.</li><li>• CIS Sink frequently fails to acknowledge CIS Source Tx PDU.</li><li>• Sequential Removal of CIS Handles as per current Controller implementation i.e CIS Disconnection sequence should be in sequence =&gt; CIS - 4,3,2,1</li><li>• While 4-CIS streaming, audio glitches observed on all CIS SINK with Samsung Galaxy buds</li><li>• While 4-CIS streaming, disconnection with connection timeout observed on first CIS SINK with Samsung Galaxy buds</li><li>• Only two streams (CIS/BIS) with one channel is supported.</li></ul>

## 9 88W8801 release notes

---

### 9.1 Package information

- SDK Version: 2.16.100

### 9.2 Version information

- Wireless SoC: 88W8801
- Wi-Fi firmware version: 14.91.36.p192
  - 14 - Major revision
  - 91 - Feature pack
  - 36 - Release version
  - p192 - Patch number

### 9.3 Host platform

- All i.MX RT platforms running FreeRTOS.
- Host interface
  - Wi-Fi over SDIO (SDIO 2.0 Support, SDIO clock frequency: 50 MHz)
- Test Tools
  - iPerf (version 2.1.9)

### 9.4 Wi-Fi certification

The Wi-Fi certification is obtained with the following combinations.

#### 9.4.1 WFA certifications

- STA | 802.11n
- STA | PMF
- STA | FFD
- STA | SVD
- STA | WPA3 SAE (R3)

Refer to [\[6\]](#).

**Note:** This release supports STAUT only certifications.

## 9.5 Wi-Fi throughput

### 9.5.1 Throughput test setup

- Environment: Shield Room - Over the Air
- External Access Point: Asus-AX88U
- DUT: W8801 Murata (Module: 2DS M.2) with EVK-MIMXRT1060 platform
- DUT Power Source: External power supply
- External Client: IW620-Kestrel
- Channel: 6
- Wi-Fi application: wifi\_cli
- Compiler used to build application: armgcc
- Compiler Version: gcc-arm-none-eabi-13.2
- iPerf commands used in test:

#### TCP TX

```
iperf -c <remote_ip> -t 60
```

#### TCP RX

```
iperf -s
```

#### UDP TX

```
iperf -c <remote_ip> -t 60 -u -B <local_ip> -b 120
```

**Note:** The default rate is 100 Mbps.

#### UDP RX

```
iperf -s -u -B <local_ip>
```

**Note:** Read more about the throughput test setup and topology in [\[2\]](#).

The throughput numbers are captured with the default configurations.

9.5.2 STA throughput

External AP: Asus-AX88U (Open/WPA2/WPA3-SAE)

Table 121. STA mode throughput - BGN Mode | 2.4 GHz Band | 20 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
Open Security	33	43	43	61
WPA2-AES	33	43	42	62
WPA3-SAE	32	43	43	62

9.5.3 Mobile AP throughput

External client: IW620-Kestrel

Table 122. Mobile AP Mode Throughput - BGN Mode | 2.4 GHz Band | 20 MHz

Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	TX	RX	TX	RX
Open Security	33	49	36	61
WPA2-AES	32	48	36	61
WPA3-SAE	32	48	35	61

## 9.6 EU conformance tests

- EU Adaptivity test - EN 300 328 v2.1.1 (for 2.4 GHz)

## 9.7 Bug fixes and/or feature enhancements

### 9.7.1 Firmware version: From 14.91.36.p178 to 14.91.36.p180

Table 123.

Component	Description
--	NA

### 9.7.2 Firmware version: From 14.91.36.p180 to 14.91.36.p185

Table 124.

Component	Description
--	NA

### 9.7.3 Firmware version: From 14.91.36.p185 to 14.91.36.p188

Table 125.

Component	Description
--	NA

### 9.7.4 Firmware version: From 14.91.36.p188 to 14.91.36.p192

Table 126.

Component	Description
--	NA

## 9.8 Known issues

Table 127. SDIO 88W8801 known issues

Component	Description
--	NA

## 10 Note about the source code in the document

---

The example code shown in this document has the following copyright and BSD-3-Clause license:

Copyright 2022-2024 NXP Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials must be provided with the distribution.
3. Neither the name of the copyright holder nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

## 11 Acronyms and abbreviations

Table 128. Acronyms and abbreviations

Acronyms	Definitions
A2DP	Advanced audio distribution profile
AMPDU	Aggregated MAC protocol data unit
AMSDU	Aggregated MAC service data unit
AP	Access point
BW	Bandwidth
CCMP	Counter mode CBC-MAC protocol
CSI	Channel state information
CTS	Clear To Send
DL	Down link
EDCA	Enhanced distributed channel access
ER	Extended range
ERP	Extended rate physical
GATT	Generic attribute profile
HFP	Hands free profile
HID	Human interface device
HT	High throughput
LDPC	Low density parity check
MCS	Modulation and coding scheme
MLME	Mac layer management entity
OMI	Operating mode indication
PMF	Protected management frames
RTS	Request to send
SAE	Simultaneous authentication of equals
STA	Station
TWT	Target wake time
UL	Up link
VHT	Very high throughput
WEP	Wired equivalent private
WFD	Wi-Fi direct
WMM	Wireless multi-media
WPA	Wi-Fi protected access
WPS	Wi-Fi protected setup
WSC	Wi-Fi Simple Configuration



## 12 References

---

- [1] Application note - AN13681 – Wi-Fi Alliance (WFA) Derivative Certification Process (available in the SDK package)
- [2] User manual – UM11442 - NXP Wi-Fi and Bluetooth Demo Applications User Guide for i.MX RT Platforms (available in the SDK package)
- [3] User manual – UM11799 - NXP Wi-Fi and Bluetooth Demo Applications User Guide for RW61x (available in the SDK package)
- [4] Certification – Bluetooth controller - QDID ([link](#))
- [5] User manual - UM12133 - NXP NCP Application Guide for RW612 with MCU Host
- [6] Technical note - TN00066 – Wi-Fi Alliance (WFA) Derivative Certification Process (available in the SDK package)
- [7] Web page – Thread certified products ([link](#))
- [8] Web page – Connectivity standard alliance (csa) – NXP RW612 Tri-Radio Wireless MCU Development Platform ([link](#))
- [9] Web page – Connectivity standard alliance (csa) – NXP RW610 Wireless MCU Development Platform ([link](#))

13 Revision history

Revision history		
Document ID	Date	Change details
RN00174 v.10.0	24 September 2024	<ul style="list-style-type: none"><li>• <a href="#">Section 1 "About this document"</a>: updated the SDK release version.</li></ul> <b>Features</b> <ul style="list-style-type: none"><li>• <a href="#">Section 2.1.1 "Client mode"</a>:<ul style="list-style-type: none"><li>– Updated 802.11i security.</li><li>– Updated the general features: added 802.11mc and 802.11az</li></ul></li><li>• <a href="#">Section 2.2.2 "Bluetooth LE"</a>: added a note about the testing of Bluetooth LE Audio feature.</li><li>• <a href="#">Section 2.3 "802.15.4 radio"</a>: added Zigbee features.</li></ul> <b>Feature enablement and memory impact</b> <ul style="list-style-type: none"><li>• <a href="#">Section 3 "Feature enablement and memory impact"</a>: added 802.11mc and 802.11az.</li></ul> <b>88W8987 release notes</b> <ul style="list-style-type: none"><li>• <a href="#">Section 4.1 "Package information"</a>: updated.</li><li>• <a href="#">Section 4.8 "Known issues"</a>: updated.</li></ul> <b>IW416 release notes</b> <ul style="list-style-type: none"><li>• <a href="#">Section 5.1 "Package information"</a>: updated.</li><li>• <a href="#">Section 5.2 "Version information"</a>: updated.</li><li>• <a href="#">Section 5.5 "Wi-Fi throughput"</a>: updated.</li><li>• <a href="#">Section 5.7.5 "Firmware version: From 16.91.21.p133 to 16.91.21.p133.2"</a>: added.</li><li>• <a href="#">Section 5.8 "Known issues"</a>: updated.</li></ul> <b>IW611/IW612 release notes</b> <ul style="list-style-type: none"><li>• <a href="#">Section 6.1 "Package information"</a>: updated.</li><li>• <a href="#">Section 6.2 "Version information"</a>: updated.</li><li>• <a href="#">Section 6.5 "Wi-Fi throughput"</a>: updated.</li><li>• <a href="#">Section 6.5.2 "iPerf host configuration and impact on throughput"</a>: added.</li><li>• <a href="#">Section 6.5.3 "STA throughput"</a>: updated.</li><li>• <a href="#">Section 6.5.4 "Mobile AP throughput"</a>: updated.</li><li>• <a href="#">Section 6.7.6 "Firmware version: 18.99.3.p10.5 to 18.99.3.p17.9"</a>: added.</li><li>• <a href="#">Section 6.8 "Known issues"</a>: updated.</li></ul> <b>RW610/RW612 release notes</b> <ul style="list-style-type: none"><li>• <a href="#">Section 7.1 "Package information"</a>: updated.</li><li>• <a href="#">Section 7.2 "Version information"</a>: updated.</li></ul> <b>AW611 release notes</b> <ul style="list-style-type: none"><li>• <a href="#">Section 8.1 "Package information"</a>: updated.</li><li>• <a href="#">Section 8.2 "Version information"</a>: updated.</li><li>• <a href="#">Section 8.5 "Wi-Fi throughput"</a>: updated.</li><li>• <a href="#">Section 8.7 "Bug fixes and/or feature enhancements"</a>: added.</li><li>• <a href="#">Section 8.8 "Known issues"</a>: updated.</li></ul> <b>88W8801 release notes</b> <ul style="list-style-type: none"><li>• <a href="#">Section 9.1 "Package information"</a>: updated.</li></ul>

Revision history...continued

Document ID	Date	Change details
RN00174 v.9.0	04 July 2024	<ul style="list-style-type: none"><li>• Features and Debug macros configurations restructured</li><li>• Updated SDK version to 2.16.100 and foot note for AW611</li><li>• Added AW611 and RW610/RW612</li><li>• <a href="#">Section 2 "Features"</a>:<ul style="list-style-type: none"><li>– Wi-Fi: General Features – Added CSI, Independent reset, and FW parallel download for IW611/612 and AW611.</li><li>– Bluetooth: General Features, LE Audio – Added independent reset, firmware parallel download, and Unicast_LE_Audio: mono and stereo for IW611/612 and AW611.</li></ul></li><li>• <a href="#">Section 4 "88W8987 release notes"</a>: updated the SDK and firmware versions, throughput numbers, fixes and known issues.</li><li>• <a href="#">Section 5 "IW416 release notes"</a>: updated the SDK and firmware versions, throughput numbers, fixes and known issues.</li><li>• <a href="#">Section 6 "IW611/IW612 release notes"</a>: updated the SDK and firmware versions, throughput numbers, fixes and known issues.</li><li>• <a href="#">Section 7 "RW610/RW612 release notes"</a>: added.</li><li>• <a href="#">Section 8 "AW611 release notes"</a>: added.</li><li>• <a href="#">Section 9 "88W8801 release notes"</a>: updated the SDK and firmware versions.</li></ul>
RN00174 v.8.0	15 April 2024	<ul style="list-style-type: none"><li>• Updated SDK version to 2.15.1</li><li>• <a href="#">Section 2 "Features"</a>:<ul style="list-style-type: none"><li>– Wi-Fi: updated 802.11i – Security. added antenna diversity.</li><li>– Bluetooth: added Bluetooth LE audio support.</li><li>– Coex: added BCA TDM Co-ex Mode (separate antenna).</li><li>– 802.15.4: added Open Thread Border Router (OTBR) v1.1.</li></ul></li><li>• <a href="#">Section 4 "88W8987 release notes"</a>: updated the SDK version and known issues.</li><li>• <a href="#">Section 5 "IW416 release notes"</a>: updated the SDK version and known issues.</li><li>• <a href="#">Section 6 "IW611/IW612 release notes"</a>: updated the SDK version, firmware version, throughput numbers, fixes and known issues.</li><li>• <a href="#">Section 6.8 "Known issues"</a>: updated the SDK version.</li></ul>

## Revision history...continued

Document ID	Date	Change details
RN00174 v.7.0	10 January 2024	<ul style="list-style-type: none"> <li>Updated the SDK version to 2.15.0 and the footnote for IW612.</li> <li><a href="#">Section 2 "Features"</a>: <ul style="list-style-type: none"> <li>Added the footnote for by-default disabled features.</li> <li>Wi-Fi: updated Enterprise security methods.</li> <li>Wi-Fi: added auto reconnect, CSI, independent reset, Wi-Fi agile multiband, and firmware download.</li> </ul> </li> <li><a href="#">Section 3 "Feature enablement and memory impact"</a>: added.</li> <li><a href="#">Section 4 "88W8987 release notes"</a>: updated the SDK version, firmware version, throughput numbers, fixes and known issues.</li> <li><a href="#">Section 4.4.1 "WFA certifications"</a>: added QTT.</li> <li><a href="#">Section 5 "IW416 release notes"</a>: updated the SDK version, firmware version, throughput numbers, fixes and known issues.</li> <li><a href="#">Section 5.4.1 "WFA certifications"</a>: added QTT.</li> <li><a href="#">Section 5.4.2 "Bluetooth controller certification"</a>: added a note about QDID.</li> <li><a href="#">Section 6 "IW611/IW612 release notes"</a>: updated the SDK version, firmware version, throughput numbers, fixes and known issues.</li> <li><a href="#">Section 6.4.1 "WFA certifications"</a>: added QTT.</li> <li><a href="#">Section 6.4.2 "Bluetooth controller certification"</a>: added a note about QDID.</li> <li><a href="#">Section 6.8 "Known issues"</a>: updated the SDK version, firmware version, and throughput numbers.</li> </ul>
RN00174 v.6.0	19 October 2023	<ul style="list-style-type: none"> <li>Updated SDK version to 2.13.3 and the footnote about IW612.</li> <li><a href="#">Section 2 "Features"</a>: <ul style="list-style-type: none"> <li>Added the footnote about experimental features.</li> <li>Wi-Fi: added SU beamforming, DPP, and embedded roaming for IW612.</li> <li>Wi-Fi: removed TPC.</li> <li>Bluetooth: added Bluetooth LE audio features.</li> <li>Matter: added Matter over Wi-Fi, and Matter over thread.</li> <li>Coex: added BCA_TDM separate antenna (lower and higher isolation) 1x1 Wi-Fi, (Bluetooth + 802.15.4 shared)</li> </ul> </li> <li><a href="#">Section 6 "IW611/IW612 release notes"</a>: <ul style="list-style-type: none"> <li>Updated the SDK version, firmware version, throughput numbers, and known issues.</li> <li>Added a note about Bluetooth LE audio.</li> <li>Updated the list of WFA certification cases.</li> </ul> </li> </ul>

## Revision history...continued

Document ID	Date	Change details
RN00174 v.5.0	01 August 2023	<ul style="list-style-type: none"><li>• Updated the SDK version to 2.14.0. Added IW612 with a footnote about IW612 support.</li><li>• <a href="#">Section 2 "Features"</a>:<ul style="list-style-type: none"><li>– Added IW612 with a footnote.</li><li>– Wi-Fi: Host-based supplicant features: Enterprise security, wpa3 R3, WPA3 Suite B, WPS, OWE for AP and STA</li><li>– Wi-Fi: added the general features: RF test mode, TPC, STBC RX.</li><li>– Bluetooth: RF test mode, Deep Sleep using Out of Band, Low Energy Periodic Advertisement, Low Energy Power Control, Low Energy Long Range.</li></ul></li><li>• <a href="#">Section 4 "88W8987 release notes"</a>: updated the SDK version, firmware version, iPerf version, throughput numbers, fixes and known issues.</li><li>• <a href="#">Section 5 "IW416 release notes"</a>: updated the SDK version, firmware version, iPerf version, throughput numbers, fixes and known issues.</li><li>• <a href="#">Section 6 "IW611/IW612 release notes"</a>: added.</li><li>• <a href="#">Section 6.8 "Known issues"</a>: updated the SDK version, firmware version, iPerf version, and throughput numbers.</li></ul>

## Revision history...continued

Document ID	Date	Change details
RN00174 v.4.0	21 March 2023	<ul style="list-style-type: none"> <li>• <a href="#">Section 2 "Features"</a>: <ul style="list-style-type: none"> <li>– Removed Shared Authentication from Wi-Fi Client</li> <li>– Added 802.11k, 802.11v, and 802.11r in Wi-Fi Client General feature</li> <li>– Added TKIP and a footnote about TKIP in Wi-Fi Client General feature</li> <li>– Removed FIPS from Wi-Fi AP general features</li> </ul> </li> <li>• <a href="#">Section 4.1 "Package information"</a>: updated the SDK version.</li> <li>• <a href="#">Section 4.2 "Version information"</a>: updated the firmware version.</li> <li>• <a href="#">Section 4.4.1 "WFA certifications"</a>: mentioned FFD, SVD and WPA3 SAE (R3) for STA.</li> <li>• <a href="#">Section 4.5.1 "Throughput test setup"</a>: updated External AP details.</li> <li>• <a href="#">Section 4.5.1 "Throughput test setup"</a>: updated the throughput numbers.</li> <li>• <a href="#">Section 4.5.2 "STA throughput"</a>: updated the throughput numbers.</li> <li>• <a href="#">Section 4.7 "Bug fixes and/or feature enhancements"</a>: updated the firmware version and added details about fixed issues.</li> <li>• <a href="#">Section 5.1 "Package information"</a>: updated the SDK version.</li> <li>• <a href="#">Section 5.2 "Version information"</a>: updated the firmware version.</li> <li>• <a href="#">Section 5.4.1 "WFA certifications"</a>: mentioned FFD, SVD and WPA3 SAE (R3) for STA.</li> <li>• <a href="#">Section 5.5.1 "Throughput test setup"</a>: : updated External AP details.</li> <li>• <a href="#">Section 5.5.2 "STA throughput"</a>: updated.</li> <li>• <a href="#">Section 5.5.3 "Mobile AP throughput"</a>: updated.</li> <li>• <a href="#">Section 5.7 "Bug fixes and/or feature enhancements"</a>: updated the firmware version and added details about the fixed issues.</li> <li>• <a href="#">Section 9.1 "Package information"</a>: updated the SDK version.</li> <li>• <a href="#">Section 9.2 "Version information"</a>: updated the firmware version.</li> <li>• <a href="#">Section 9.4.1 "WFA certifications"</a>: mentioned FFD, SVD and WPA3 SAE (R3) for STA.</li> <li>• <a href="#">Section 9.5.2 "STA throughput"</a>: updated.</li> <li>• <a href="#">Section 9.5.3 "Mobile AP throughput"</a>: updated.</li> <li>• <a href="#">Section 9.7 "Bug fixes and/or feature enhancements"</a>: updated the firmware version and added details about the fixed issues</li> </ul>

## Revision history...continued

Document ID	Date	Change details
RN00174 v.3.0	03 January 2023	<ul style="list-style-type: none"> <li>• <a href="#">Section 4.1 "Package information"</a>: updated the SDK version.</li> <li>• <a href="#">Section 4.2 "Version information"</a>: updated the firmware version.</li> <li>• <a href="#">Section 5.1 "Package information"</a>: updated the SDK version.</li> <li>• <a href="#">Section 5.2 "Version information"</a>: updated the firmware version.</li> <li>• <a href="#">Section 9.1 "Package information"</a>: updated the SDK version.</li> <li>• <a href="#">Section 9.2 "Version information"</a>: updated the firmware version.</li> <li>• <a href="#">Section 9.5.2 "STA throughput"</a>: updated.</li> <li>• <a href="#">Section 9.5.3 "Mobile AP throughput"</a>: updated.</li> </ul>
RN00174 v.2.0	15 September 2022	<ul style="list-style-type: none"> <li>• Removed all occurrences of 88W8977.</li> <li>• <a href="#">Section 2 "Features"</a>: <ul style="list-style-type: none"> <li>– Removed Shared Authentication from Wi-Fi Client</li> <li>– Added FIPS in Wi-Fi Client General feature</li> <li>– Removed TxPower Config V2 from Wi-Fi AP and Client General Features</li> </ul> </li> <li>• <a href="#">Section 4.1 "Package information"</a>: updated the SDK version.</li> <li>• <a href="#">Section 4.2 "Version information"</a>: updated the firmware version.</li> <li>• <a href="#">Section 4.4.1 "WFA certifications"</a>: mentioned 802.11ac and WPA3(SAE).</li> <li>• <a href="#">Section 4.5.1 "Throughput test setup"</a>: added Murata module details.</li> <li>• <a href="#">Section 4.5.1 "Throughput test setup"</a>: updated the throughput numbers.</li> <li>• <a href="#">Section 4.5.2 "STA throughput"</a>: updated the throughput numbers.</li> <li>• <a href="#">Section 4.7 "Bug fixes and/or feature enhancements"</a>: updated the firmware version and fixed issues.</li> <li>• <a href="#">Section 5.1 "Package information"</a>: updated the SDK version.</li> <li>• <a href="#">Section 5.2 "Version information"</a>: updated the firmware version.</li> <li>• <a href="#">Section 5.4.1 "WFA certifications"</a>: added WPA3(SAE).</li> <li>• <a href="#">Section 5.5.1 "Throughput test setup"</a>: added Murata module details.</li> <li>• <a href="#">Section 5.5.2 "STA throughput"</a>: updated.</li> <li>• <a href="#">Section 5.5.3 "Mobile AP throughput"</a>: updated.</li> <li>• <a href="#">Section 5.7 "Bug fixes and/or feature enhancements"</a>: updated the firmware version and fixed issues.</li> <li>• <a href="#">Section 9.1 "Package information"</a>: updated the SDK version.</li> <li>• <a href="#">Section 9.5.2 "STA throughput"</a>: updated the throughput numbers.</li> <li>• <a href="#">Section 9.5.3 "Mobile AP throughput"</a>: updated the throughput numbers.</li> </ul>
RN00174 v.1.0	24 June 2022	Initial release

## Legal information

### Definitions

**Draft** — A draft status on a document indicates that the content is still under internal review and subject to formal approval, which may result in modifications or additions. NXP Semiconductors does not give any representations or warranties as to the accuracy or completeness of information included in a draft version of a document and shall have no liability for the consequences of use of such information.

### Disclaimers

**Limited warranty and liability** — Information in this document is believed to be accurate and reliable. However, NXP Semiconductors does not give any representations or warranties, expressed or implied, as to the accuracy or completeness of such information and shall have no liability for the consequences of use of such information. NXP Semiconductors takes no responsibility for the content in this document if provided by an information source outside of NXP Semiconductors.

In no event shall NXP Semiconductors be liable for any indirect, incidental, punitive, special or consequential damages (including - without limitation - lost profits, lost savings, business interruption, costs related to the removal or replacement of any products or rework charges) whether or not such damages are based on tort (including negligence), warranty, breach of contract or any other legal theory.

Notwithstanding any damages that customer might incur for any reason whatsoever, NXP Semiconductors' aggregate and cumulative liability towards customer for the products described herein shall be limited in accordance with the Terms and conditions of commercial sale of NXP Semiconductors.

**Right to make changes** — NXP Semiconductors reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.

**Suitability for use** — NXP Semiconductors products are not designed, authorized or warranted to be suitable for use in life support, life-critical or safety-critical systems or equipment, nor in applications where failure or malfunction of an NXP Semiconductors product can reasonably be expected to result in personal injury, death or severe property or environmental damage. NXP Semiconductors and its suppliers accept no liability for inclusion and/or use of NXP Semiconductors products in such equipment or applications and therefore such inclusion and/or use is at the customer's own risk.

**Applications** — Applications that are described herein for any of these products are for illustrative purposes only. NXP Semiconductors makes no representation or warranty that such applications will be suitable for the specified use without further testing or modification.

Customers are responsible for the design and operation of their applications and products using NXP Semiconductors products, and NXP Semiconductors accepts no liability for any assistance with applications or customer product design. It is customer's sole responsibility to determine whether the NXP Semiconductors product is suitable and fit for the customer's applications and products planned, as well as for the planned application and use of customer's third party customer(s). Customers should provide appropriate design and operating safeguards to minimize the risks associated with their applications and products.

NXP Semiconductors does not accept any liability related to any default, damage, costs or problem which is based on any weakness or default in the customer's applications or products, or the application or use by customer's third party customer(s). Customer is responsible for doing all necessary testing for the customer's applications and products using NXP Semiconductors products in order to avoid a default of the applications and the products or of the application or use by customer's third party customer(s). NXP does not accept any liability in this respect.

**Terms and conditions of commercial sale** — NXP Semiconductors products are sold subject to the general terms and conditions of commercial sale, as published at <https://www.nxp.com/profile/terms>, unless otherwise agreed in a valid written individual agreement. In case an individual agreement is concluded only the terms and conditions of the respective agreement shall apply. NXP Semiconductors hereby expressly objects to applying the customer's general terms and conditions with regard to the purchase of NXP Semiconductors products by customer.

**Export control** — This document as well as the item(s) described herein may be subject to export control regulations. Export might require a prior authorization from competent authorities.

**Suitability for use in non-automotive qualified products** — Unless this document expressly states that this specific NXP Semiconductors product is automotive qualified, the product is not suitable for automotive use. It is neither qualified nor tested in accordance with automotive testing or application requirements. NXP Semiconductors accepts no liability for inclusion and/or use of non-automotive qualified products in automotive equipment or applications.

In the event that customer uses the product for design-in and use in automotive applications to automotive specifications and standards, customer (a) shall use the product without NXP Semiconductors' warranty of the product for such automotive applications, use and specifications, and (b) whenever customer uses the product for automotive applications beyond NXP Semiconductors' specifications such use shall be solely at customer's own risk, and (c) customer fully indemnifies NXP Semiconductors for any liability, damages or failed product claims resulting from customer design and use of the product for automotive applications beyond NXP Semiconductors' standard warranty and NXP Semiconductors' product specifications.

**HTML publications** — An HTML version, if available, of this document is provided as a courtesy. Definitive information is contained in the applicable document in PDF format. If there is a discrepancy between the HTML document and the PDF document, the PDF document has priority.

**Translations** — A non-English (translated) version of a document, including the legal information in that document, is for reference only. The English version shall prevail in case of any discrepancy between the translated and English versions.

**Security** — Customer understands that all NXP products may be subject to unidentified vulnerabilities or may support established security standards or specifications with known limitations. Customer is responsible for the design and operation of its applications and products throughout their lifecycles to reduce the effect of these vulnerabilities on customer's applications and products. Customer's responsibility also extends to other open and/or proprietary technologies supported by NXP products for use in customer's applications. NXP accepts no liability for any vulnerability. Customer should regularly check security updates from NXP and follow up appropriately. Customer shall select products with security features that best meet rules, regulations, and standards of the intended application and make the ultimate design decisions regarding its products and is solely responsible for compliance with all legal, regulatory, and security related requirements concerning its products, regardless of any information or support that may be provided by NXP.

NXP has a Product Security Incident Response Team (PSIRT) (reachable at [PSIRT@nxp.com](mailto:PSIRT@nxp.com)) that manages the investigation, reporting, and solution release to security vulnerabilities of NXP products.

**NXP B.V.** — NXP B.V. is not an operating company and it does not distribute or sell products.

### Trademarks

Notice: All referenced brands, product names, service names, and trademarks are the property of their respective owners.

**NXP** — wordmark and logo are trademarks of NXP B.V.



**Amazon Web Services, AWS, the Powered by AWS logo, and FreeRTOS** — are trademarks of Amazon.com, Inc. or its affiliates.

**Bluetooth** — the Bluetooth wordmark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by NXP Semiconductors is under license.

**Matter, Zigbee** — are developed by the Connectivity Standards Alliance. The Alliance's Brands and all goodwill associated therewith, are the exclusive property of the Alliance.

## Tables

Tab. 1.	Features for the Wi-Fi radio and client mode .....	3	Tab. 34.	Mobile AP Mode Throughput - AN Mode   5 GHz Band   20 MHz .....	30
Tab. 2.	Features for the Wi-Fi radio and AP mode .....	8	Tab. 35.	Mobile AP Mode Throughput - AN Mode   5 GHz Band   40 MHz .....	30
Tab. 3.	Features for the Wi-Fi radio and STA-AP mode .....	11	Tab. 36.	.....	31
Tab. 4.	Features for Bluetooth radio .....	12	Tab. 37.	.....	31
Tab. 5.	Features for Bluetooth LE radio .....	13	Tab. 38.	.....	31
Tab. 6.	Features of 802.15.4 radio .....	17	Tab. 39.	SDIO-UART IW416 known issues .....	31
Tab. 7.	Features of Wi-Fi and Bluetooth/802.15.4 coexistence .....	18	Tab. 40.	Values of the host configuration macros .....	34
Tab. 8.	Feature enablement and memory impact .....	19	Tab. 41.	STA mode throughput - HE Mode   5 GHz Band   80 MHz .....	34
Tab. 9.	STA mode throughput - BGN Mode   2.4 GHz Band   20 MHz .....	22	Tab. 42.	Mobile AP Mode Throughput - HE Mode   5 GHz Band   80 MHz .....	34
Tab. 10.	STA mode throughput - BGN Mode   2.4 GHz Band   40 MHz .....	22	Tab. 43.	STA mode throughput - BGN Mode   2.4 GHz Band   20 MHz .....	35
Tab. 11.	STA mode throughput - AN Mode   5 GHz Band   20 MHz .....	22	Tab. 44.	STA mode throughput - BGN Mode   2.4 GHz Band   40 MHz .....	35
Tab. 12.	STA mode throughput - AN Mode   5 GHz Band   40 MHz .....	22	Tab. 45.	STA mode throughput - AN Mode   5 GHz Band   20 MHz ( HT) .....	35
Tab. 13.	STA mode throughput - AC Mode   5 GHz Band   20 MHz (VHT) .....	22	Tab. 46.	STA mode throughput - AN Mode   5 GHz Band   40 MHz (HT) .....	35
Tab. 14.	STA mode throughput - AC Mode   5 GHz Band   40 MHz (VHT) .....	23	Tab. 47.	STA mode throughput - VHT Mode   2.4 GHz Band   20 MHz (HT) .....	35
Tab. 15.	STA mode throughput - AC Mode   5 GHz Band   80 MHz (VHT) .....	23	Tab. 48.	STA mode throughput - VHT Mode   2.4 GHz Band   40 MHz (HT) .....	36
Tab. 16.	Mobile AP Mode Throughput - BGN Mode   2.4 GHz Band   20MHz .....	24	Tab. 49.	STA mode throughput - VHT Mode   5 GHz Band   20 MHz (HT) .....	36
Tab. 17.	Mobile AP Mode Throughput - BGN Mode   2.4 GHz Band   40MHz .....	24	Tab. 50.	STA mode throughput - VHT Mode   5 GHz Band   40 MHz (HT) .....	36
Tab. 18.	Mobile AP Mode Throughput - AN Mode   5 GHz Band   20 MHz .....	24	Tab. 51.	STA mode throughput - VHT Mode   5 GHz Band   80 MHz (HT) .....	36
Tab. 19.	Mobile AP Mode Throughput - AN Mode   5 GHz Band   40 MHz .....	24	Tab. 52.	STA mode throughput - HE Mode   2.4 GHz Band   20 MHz (HT) .....	36
Tab. 20.	Mobile AP Mode Throughput - AC Mode   5 GHz Band   20 MHz .....	24	Tab. 53.	STA mode throughput - HE Mode   2.4 GHz Band   40 MHz (HT) .....	37
Tab. 21.	Mobile AP Mode Throughput - AC Mode   5 GHz Band   40 MHz .....	25	Tab. 54.	STA mode throughput - HE Mode   5 GHz Band   20 MHz (HT) .....	37
Tab. 22.	Mobile AP Mode Throughput - AC Mode   5 GHz Band   80 MHz .....	25	Tab. 55.	STA mode throughput - HE Mode   5 GHz Band   40 MHz (HT) .....	37
Tab. 23.	.....	26	Tab. 56.	STA mode throughput - HE Mode   5 GHz Band   80 MHz (HT) .....	37
Tab. 24.	.....	26	Tab. 57.	Mobile AP Mode Throughput - BGN Mode   2.4 GHz Band   20MHz .....	38
Tab. 25.	.....	26	Tab. 58.	Mobile AP Mode Throughput - BGN Mode   2.4 GHz Band   40MHz .....	38
Tab. 26.	.....	26	Tab. 59.	Mobile AP Mode Throughput - AN Mode   5 GHz Band   20 MHz .....	38
Tab. 27.	SDIO-UART 88W8987 known issues .....	26	Tab. 60.	Mobile AP Mode Throughput - AN Mode   5 GHz Band   40 MHz .....	38
Tab. 28.	STA mode throughput - BGN Mode   2.4 GHz Band   20 MHz .....	29	Tab. 61.	Mobile AP Mode Throughput - VHT Mode   2.4 GHz Band   20 MHz .....	38
Tab. 29.	STA mode throughput - BGN Mode   2.4 GHz Band   40 MHz .....	29	Tab. 62.	Mobile AP Mode Throughput - VHT Mode   2.4 GHz Band   40 MHz .....	39
Tab. 30.	STA mode throughput - AN Mode   5 GHz Band   20 MHz ( HT) .....	29	Tab. 63.	Mobile AP Mode Throughput - VHT Mode   5 GHz Band   20 MHz .....	39
Tab. 31.	STA mode throughput - AN Mode   5 GHz Band   40 MHz (HT) .....	29			
Tab. 32.	Mobile AP Mode Throughput - BGN Mode   2.4 GHz Band   20MHz .....	30			
Tab. 33.	Mobile AP Mode Throughput - BGN Mode   2.4 GHz Band   40MHz .....	30			

Tab. 64.	Mobile AP Mode Throughput - VHT Mode   5 GHz Band   40 MHz	39	Tab. 96.	STA mode throughput - VHT Mode   2.4 GHz Band   40 MHz (HT)	53
Tab. 65.	Mobile AP Mode Throughput - VHT Mode   5 GHz Band   80 MHz	39	Tab. 97.	STA mode throughput - VHT Mode   5 GHz Band   20 MHz (HT)	53
Tab. 66.	Mobile AP Mode Throughput - HE Mode   2.4 GHz Band   20 MHz	39	Tab. 98.	STA mode throughput - VHT Mode   5 GHz Band   40 MHz (HT)	53
Tab. 67.	Mobile AP Mode Throughput - HE Mode   2.4 GHz Band   40 MHz	40	Tab. 99.	STA mode throughput - VHT Mode   5 GHz Band   80 MHz (HT)	53
Tab. 68.	Mobile AP Mode Throughput - HE Mode   5 GHz Band   20 MHz	40	Tab. 100.	STA mode throughput - HE Mode   2.4 GHz Band   20 MHz (HT)	53
Tab. 69.	Mobile AP Mode Throughput - HE Mode   5 GHz Band   40 MHz	40	Tab. 101.	STA mode throughput - HE Mode   2.4 GHz Band   40 MHz (HT)	54
Tab. 70.	Mobile AP Mode Throughput - HE Mode   5 GHz Band   80 MHz	40	Tab. 102.	STA mode throughput - HE Mode   5 GHz Band   20 MHz (HT)	54
Tab. 71.		41	Tab. 103.	STA mode throughput - HE Mode   5 GHz Band   40 MHz (HT)	54
Tab. 72.		41	Tab. 104.	STA mode throughput - HE Mode   5 GHz Band   80 MHz (HT)	54
Tab. 73.		41	Tab. 105.	Mobile AP Mode Throughput - BGN Mode   2.4 GHz Band   20 MHz	55
Tab. 74.		41	Tab. 106.	Mobile AP Mode Throughput - BGN Mode   2.4 GHz Band   40 MHz	55
Tab. 75.		42	Tab. 107.	Mobile AP Mode Throughput - AN Mode   5 GHz Band   20 MHz	55
Tab. 76.		42	Tab. 108.	Mobile AP Mode Throughput - AN Mode   5 GHz Band   40 MHz	55
Tab. 77.	SDIO-UART-SPI IW611/IW612 known issues	42	Tab. 109.	Mobile AP Mode Throughput - VHT Mode   2.4 GHz Band   20 MHz	55
Tab. 78.	STA mode throughput - BGN Mode   2.4 GHz Band   20 MHz	46	Tab. 110.	Mobile AP Mode Throughput - VHT Mode   2.4 GHz Band   40 MHz	56
Tab. 79.	STA mode throughput - AN Mode   5 GHz Band   20 MHz (HT)	46	Tab. 111.	Mobile AP Mode Throughput - VHT Mode   5 GHz Band   20 MHz	56
Tab. 80.	STA mode throughput - VHT Mode   2.4 GHz Band   20 MHz (HT)	46	Tab. 112.	Mobile AP Mode Throughput - VHT Mode   5 GHz Band   40 MHz	56
Tab. 81.	STA mode throughput - VHT Mode   5 GHz Band   20 MHz	46	Tab. 113.	Mobile AP Mode Throughput - VHT Mode   5 GHz Band   80 MHz	56
Tab. 82.	STA mode throughput - HE Mode   2.4 GHz Band   20 MHz	46	Tab. 114.	Mobile AP Mode Throughput - HE Mode   2.4 GHz Band   20 MHz	56
Tab. 83.	STA mode throughput - HE Mode   5 GHz Band   20 MHz	47	Tab. 115.	Mobile AP Mode Throughput - HE Mode   2.4 GHz Band   40 MHz	57
Tab. 84.	Mobile AP Mode Throughput - BGN Mode   2.4 GHz Band   20 MHz	48	Tab. 116.	Mobile AP Mode Throughput - HE Mode   5 GHz Band   20 MHz	57
Tab. 85.	Mobile AP Mode Throughput - AN Mode   5 GHz Band   20 MHz	48	Tab. 117.	Mobile AP Mode Throughput - HE Mode   5 GHz Band   40 MHz	57
Tab. 86.	Mobile AP Mode Throughput - VHT Mode   2.4 GHz Band   20 MHz	48	Tab. 118.	Mobile AP Mode Throughput - HE Mode   5 GHz Band   80 MHz	57
Tab. 87.	Mobile AP Mode Throughput - VHT Mode   5 GHz Band   20 MHz	48	Tab. 119.		58
Tab. 88.	Mobile AP Mode Throughput - HE Mode   2.4 GHz Band   20 MHz	48	Tab. 120.	SDIO-UART AW611 known issues	58
Tab. 89.	Mobile AP Mode Throughput - HE Mode   5 GHz Band   20 MHz	49	Tab. 121.	STA mode throughput - BGN Mode   2.4 GHz Band   20 MHz	61
Tab. 90.	SDIO-UART-SPI RW610/RW612 known issues	49	Tab. 122.	Mobile AP Mode Throughput - BGN Mode   2.4 GHz Band   20 MHz	61
Tab. 91.	STA mode throughput - BGN Mode   2.4 GHz Band   20 MHz	52	Tab. 123.		62
Tab. 92.	STA mode throughput - BGN Mode   2.4 GHz Band   40 MHz	52	Tab. 124.		62
Tab. 93.	STA mode throughput - AN Mode   5 GHz Band   20 MHz (HT)	52	Tab. 125.		62
Tab. 94.	STA mode throughput - AN Mode   5 GHz Band   40 MHz (HT)	52	Tab. 126.		62
Tab. 95.	STA mode throughput - VHT Mode   2.4 GHz Band   20 MHz (HT)	52	Tab. 127.	SDIO 88W8801 known issues	62
			Tab. 128.	Acronyms and abbreviations	64

## Contents

<b>1</b>	<b>About this document</b> .....	<b>2</b>			
1.1	Supported products .....	2			
<b>2</b>	<b>Features</b> .....	<b>3</b>			
2.1	Wi-Fi radio .....	3			
2.1.1	Client mode .....	3			
2.1.2	AP mode .....	8			
2.1.3	AP-STA mode .....	11			
2.2	Bluetooth radio .....	12			
2.2.1	Bluetooth classic .....	12			
2.2.2	Bluetooth LE .....	13			
2.3	802.15.4 radio .....	17			
2.4	Coexistence .....	18			
2.4.1	Wi-Fi and Bluetooth/802.15.4 coexistence .....	18			
<b>3</b>	<b>Feature enablement and memory impact</b> ....	<b>19</b>			
<b>4</b>	<b>88W8987 release notes</b> .....	<b>20</b>			
4.1	Package information .....	20			
4.2	Version information .....	20			
4.3	Host platform .....	20			
4.4	Wi-Fi and Bluetooth certification .....	20			
4.4.1	WFA certifications .....	20			
4.4.2	Bluetooth controller certification .....	20			
4.5	Wi-Fi throughput .....	21			
4.5.1	Throughput test setup .....	21			
4.5.2	STA throughput .....	22			
4.5.3	Mobile AP throughput .....	24			
4.6	EU conformance tests .....	26			
4.7	Bug fixes and/or feature enhancements .....	26			
4.7.1	Firmware version: From 16.91.21.p64.1 to 16.91.21.p82 .....	26			
4.7.2	Firmware version: From 16.91.21.p82 to 16.91.21.p91.6 .....	26			
4.7.3	Firmware version: From 16.91.21.p91.6 to 16.91.21.p124 .....	26			
4.7.4	Firmware version: From 16.91.21.p124 to 16.91.21.p133 .....	26			
4.8	Known issues .....	26			
<b>5</b>	<b>IW416 release notes</b> .....	<b>27</b>			
5.1	Package information .....	27			
5.2	Version information .....	27			
5.3	Host platform .....	27			
5.4	Wi-Fi and Bluetooth certification .....	27			
5.4.1	WFA certifications .....	27			
5.4.2	Bluetooth controller certification .....	27			
5.5	Wi-Fi throughput .....	28			
5.5.1	Throughput test setup .....	28			
5.5.2	STA throughput .....	29			
5.5.3	Mobile AP throughput .....	30			
5.6	EU conformance tests .....	31			
5.7	Bug fixes and/or feature enhancements .....	31			
5.7.1	Firmware version: From 16.91.21.p64.1 to 16.91.21.p82 .....	31			
5.7.2	Firmware version: From 16.91.21.p82 to 16.91.21.p91.6 .....	31			
5.7.3	Firmware version: From 16.91.21.p91.6 to 16.91.21.p124 .....	31			
5.7.4	Firmware version: From 16.91.21.p124 to 16.91.21.p133 .....	31			
5.7.5	Firmware version: From 16.91.21.p133 to 16.91.21.p133.2 .....	31			
5.8	Known issues .....	31			
<b>6</b>	<b>IW611/IW612 release notes</b> .....	<b>32</b>			
6.1	Package information .....	32			
6.2	Version information .....	32			
6.3	Host platform .....	32			
6.4	Wi-Fi and Bluetooth certification .....	32			
6.4.1	WFA certifications .....	32			
6.4.2	Bluetooth controller certification .....	32			
6.5	Wi-Fi throughput .....	33			
6.5.1	Throughput test setup .....	33			
6.5.2	iPerf host configuration and impact on throughput .....	34			
6.5.2.1	STA and AP throughput captured with the minimum values of the host configuration macros .....	34			
6.5.3	STA throughput .....	35			
6.5.4	Mobile AP throughput .....	38			
6.6	EU conformance tests .....	41			
6.7	Bug fixes and/or feature enhancements .....	41			
6.7.1	Firmware version: 18.99.2.p7.19 .....	41			
6.7.2	Firmware version: 18.99.2.p7.19 to 18.99.2.p49.9 .....	41			
6.7.3	Firmware version: 18.99.2.p49.9 to 18.99.2.p155 .....	41			
6.7.4	Firmware version: 18.99.2.p155 to 18.99.2.p66.30 .....	41			
6.7.5	Firmware version: 18.99.2.p66.30 to 18.99.3.p10.5 .....	42			
6.7.6	Firmware version: 18.99.3.p10.5 to 18.99.3.p17.9 .....	42			
6.8	Known issues .....	42			
<b>7</b>	<b>RW610/RW612 release notes</b> .....	<b>43</b>			
7.1	Package information .....	43			
7.2	Version information .....	43			
7.3	Host platform .....	43			
7.4	Wireless certification .....	44			
7.4.1	WFA certifications .....	44			
7.4.2	Bluetooth LE controller certification .....	44			
7.4.3	Thread .....	44			
7.4.4	Matter .....	44			
7.5	Wi-Fi throughput .....	45			
7.5.1	Throughput test setup .....	45			
7.5.2	STA throughput .....	46			
7.5.3	Mobile AP throughput .....	48			
7.6	Known issues .....	49			
<b>8</b>	<b>AW611 release notes</b> .....	<b>50</b>			
8.1	Package information .....	50			
8.2	Version information .....	50			
8.3	Host platform .....	50			
8.4	Wi-Fi and Bluetooth certification .....	50			
8.4.1	WFA certifications .....	50			
8.4.2	Bluetooth controller certification .....	50			

8.5 Wi-Fi throughput ..... 51

8.5.1 Throughput test setup ..... 51

8.5.2 STA throughput ..... 52

8.5.3 Mobile AP throughput ..... 55

8.6 EU conformance tests ..... 58

8.7 Bug fixes and/or feature enhancements ..... 58

8.7.1 Firmware version: 18.99.3.p10.5 to  
18.99.3.p17.9 ..... 58

8.8 Known issues ..... 58

**9 88W8801 release notes ..... 59**

9.1 Package information ..... 59

9.2 Version information ..... 59

9.3 Host platform ..... 59

9.4 Wi-Fi certification ..... 59

9.4.1 WFA certifications ..... 59

9.5 Wi-Fi throughput ..... 60

9.5.1 Throughput test setup ..... 60

9.5.2 STA throughput ..... 61

9.5.3 Mobile AP throughput ..... 61

9.6 EU conformance tests ..... 62

9.7 Bug fixes and/or feature enhancements ..... 62

9.7.1 Firmware version: From 14.91.36.p178 to  
14.91.36.p180 ..... 62

9.7.2 Firmware version: From 14.91.36.p180 to  
14.91.36.p185 ..... 62

9.7.3 Firmware version: From 14.91.36.p185 to  
14.91.36.p188 ..... 62

9.7.4 Firmware version: From 14.91.36.p188 to  
14.91.36.p192 ..... 62

9.8 Known issues ..... 62

**10 Note about the source code in the  
document ..... 63**

**11 Acronyms and abbreviations ..... 64**

**12 References ..... 65**

**13 Revision history ..... 66**

**Legal information ..... 72**

Please be aware that important notices concerning this document and the product(s) described herein, have been included in section 'Legal information'.