

SD-Wi-Fi-UART-BT-FP91-IW416

Firmware Release Notes for FreeRTOS



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Revision History

Table 1: Document revision history

Revision	Date	Change details
Rev.1	05-Jan-2021	Initial release
Rev.2	19-Mar-2021	<ul style="list-style-type: none">• Section 1 and Section 2 Updated
Rev.3	27-Aug-2021	<ul style="list-style-type: none">• Section 1 Updated• Section 5 Updated
Rev.4	05-Jan-2022	<ul style="list-style-type: none">• Section 1 and Section 2 Updated• Section 5 and Section 7 Updated• Section 8 Updated

1 Package Information

- SDK version: 2.11.0
- Wi-Fi and Bluetooth/Bluetooth LE Firmware version: 16.91.21.p11.3

Please refer to the Software feature list in the document *SD-Wi-Fi-UART-BT-IW416-Wi-Fi-and-Bluetooth-Software-Features-for-FreeRTOS*.

2 Firmware Version Information

- Wireless SoC : IW416
- Wi-Fi and Bluetooth/Bluetooth LE Firmware version : 16.91.21.p11.3
 - 16 - Major revision
 - 91 - Feature pack
 - 21 - Release version
 - p11.3 - Patch number

3 Host Platform

- All i.MX RT Platform running FreeRTOS
- Interface used
 - Wi-Fi over SDIO (SDIO 2.0 support, SDIO clock frequency: 50 MHz)
 - Bluetooth/Bluetooth LE over UART

Test Tools

- iperf (version 2.0.5)

4 Wi-Fi Pre-Certification and Bluetooth Qualification

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

4.1 Wi-Fi Pre-Certification

- STA | 802.11n
- STA | PMF

4.2 Bluetooth Controller Qualification

- QDID : <https://launchstudio.bluetooth.com/ListingDetails/108035>

5 Wi-Fi Throughput

5.1 Throughput Test Setup

- Environment: Shield Room - Over the Air
- Access Point: linksys WRT1100AC and TP-Link Archer 6000
- DUT: IW416 Azurewave (Module : **AW-AM457MA-uSD**) with RT1060 platform
- Client: OnePlus 6T
- Channel: 6 | 36

Refer to **Section-3.1.1** in *UM11442-NXP Wi-Fi and Bluetooth Demo Applications User Guide for i.MX RT Platforms* to read more about the throughput test setup and topology.

5.2 STA Throughput

External AP: Netgear RAX120

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	30	31	40	55
WPA2-AES	25	32	44	50
WPA3-SAE	32	37	43	55

STA Mode Throughput - AN Mode 5 GHz Band 20 MHz				
Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	Tx	Rx	Tx	Rx
Open Security	33	35	50	59
WPA2-AES	33	35	45	53
WPA3-SAE	33	38	44	55

STA Mode Throughput - AN Mode 5 GHz Band 40 MHz				
Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	Tx	Rx	Tx	Rx
Open Security	45	50	85	110
WPA2-AES	45	47	94	107
WPA3-SAE	34	48	94	104

5.3 Mobile AP Throughput

External client: Apple Macbook Air

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	22	29	42	60
WPA2-AES	30	41	44	59
WPA3-SAE	25	41	44	60

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	26	35	43	64
WPA2-AES	35	46	45	64
WPA3-SAE	28	46	45	63

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	25	43	80	99
WPA2-AES	30	59	83	98
WPA3-SAE	31	59	81	99

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)

7 Bug Fixes/Feature Enhancements

Component	Description
Wi-Fi	<ul style="list-style-type: none">• STAUT's PMF configuration is getting reset when connection is initiated• Low RSSI values observed in uAP BGN-20 in all securities, in shielded/noisy environment, connectivity issue observed• Added support for WPA3 R3 security

8 Known Issues

Component	Description
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9 Notes

- None

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