

SD-Wi-Fi-FP91-88W8977

Firmware Release Notes for FreeRTOS



Contents

1	Package Information	4
2	Firmware Version Information	5
3	Host Platform	6
4	Wi-Fi Certifications.....	7
	4.1 WFA Certifications.....	7
5	Wi-Fi Throughput	8
	5.1 Throughput Test Setup.....	8
	5.2 STA Throughput.....	8
	5.3 Mobile AP Throughput	9
6	EU Conformance tests.....	10
7	Bug Fixes/Feature Enhancements.....	11
8	Known Issues.....	12
9	Notes.....	13
10	Legal Information	14
	10.1 Disclaimers.....	14
	10.2 Trademarks	14

Revision History

Table 1: Document revision history

Revision	Date	Change details
Rev. 1	17-Jul-2020	Initial release
Rev. 2	30-Nov-2020	Updated Release Version. Added WLAN Certification section and EU Conformance tests
Rev. 3	05-Jan-2021	Updated Release Version and Bug Fixes/Enhancement section.
Rev.4	07-July-2021	Section 1 and Section 2 updated Section 7 updated
Rev. 5	27-Aug-2021	Section 1 updated Section 5 updated
Rev. 6	05-Jan-2022	Section 1 and Section 2 updated Section 7 updated
Rev. 7	19-Jan-2022	Section 1 and Section 2 updated
Rev.8	15-Mar-2022	Section 1 "Package Information" : updated sdk version Section 5.1 "Throughput Test Setup" : updated Section 7 "Bug Fixes/Feature Enhancements" : updated Section 8 "Known Issues" : added

1 Package Information

- SDK version: 2.11.1
- Wi-Fi firmware version: 16.91.10.p186.2

Please refer to the Software feature list in the document: *SD-Wi-Fi-FP91-88W8977-Wi-Fi-Software-Features-for-FreeRTOS*

2 Firmware Version Information

- Wireless SoC : 88W8977
- Wi-Fi Firmware version : 16.91.10.p186.2
 - 16 - Major revision
 - 91 - Feature pack
 - 10 - Release version
 - p186.2 - 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: up to 50 MHz)

Test Tools

- iperf (version 2.0.5)

4 Wi-Fi Certifications

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

4.1 WFA Certifications

- STA | 802.11n
- STA | PMF

Refer *TN00066-WFA Derivative Certification Process* document available in SDK Package.

5 Wi-Fi Throughput

5.1 Throughput Test Setup

- Environment: Shield Room - Over the Air
- Access Point: Netgear RAX120
- DUT: 88W8977-Panasonic (Module : **PAN9026-uSD**, SDIO Clock Frequency: 25 MHz) with EVK-MIMXRT1060 platform
- Client: OnePlus 6T
- Channel: 6 | 36
- Wi-Fi application: wifi_cli
- Compiler used to build application: armgcc
- Compiler Version: gcc-arm-none-eabi-9-2020-q2-update
- iPerf Commands used in test:

TCP TX	TCP RX	UDP TX	UDP RX
iperf -c <remote_ip> -t 60	iperf -s	iperf -c <remote_ip> -t 60 -u -B <local_ip> -b 120 NOTE: Defaults data rate is 100mbps	iperf -s -u -B <local_ip>

Refer to **Section-2.3** 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	18	19	38	46
WPA2-AES	17	18	38	45
WPA3-SAE	20	22	32	47

STA Mode Throughput - AN Mode 5 GHz Band 20 MHz				
Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	Tx	Rx	Tx	Rx
Open Security	23	25	37	51
WPA2-AES	22	25	35	50
WPA3-SAE	24	24	47	50

STA Mode Throughput - AN Mode 5 GHz Band 40 MHz				
Protocol	TCP (Mbit/s)		UDP (Mbit/s)	
Direction	Tx	Rx	Tx	Rx
Open Security	22	27	47	50
WPA2-AES	21	26	46	50
WPA3-SAE	28	26	46	49

5.3 Mobile AP Throughput

External client: OnePlus6T

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	25	37	45
WPA2-AES	19	22	35	44
WPA3-SAE	24	28	39	44

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	24	23	46	47
WPA2-AES	21	20	45	47
WPA3-SAE	25	27	46	48

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	24	22	46	47
WPA2-AES	23	21	46	46
WPA3-SAE	28	29	43	47

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">Added support for IPv6

8 Known Issues

Component	Description
Wi-Fi	<ul style="list-style-type: none">• 40MHz is not supported in 2.4GHz

9 Notes

- None

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