NXP-Wireless-Chipset-Release-Notes

PCIE-Wi-Fi-UART-BT-FP92-88W9098
PCIE-Wi-Fi-UART-BT-FP92-88W8997
SD-Wi-Fi-UART-BT-FP92-88W8997
SD-Wi-Fi-UART-BT-FP92-88W8987
SD-Wi-Fi-UART-BT-FP92-IW416
SD-Wi-Fi-FP92-88W8801

Release Notes

Contents

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Revision History

Table 1: Revision History of the document

Revision	Date	Change details
Rev. 1	14-Dec-2021	Initial release
Rev. 2	24-Jan-2022	• Added link for WPA3-R3 support • Section 3.6.1 and 3.6.2 changed

1 About this document

This document contains important information about the supported features, known issues and performance of the Wi-Fi, BT and co-ex with the mentioned release.

This release is a consolidated release for v5.10.72_2.2.0. Mentioned chipset have been fully tested in LF5.10.72_2.2.0. They have been through automated testing to verify patches that were added after last GA release.

2 Feature List

Table 2: Feature List for available SoCs

Wireless Type	Type	Features List	Sub Features List	PCIe-UART		SD-UART			SD
				9098	8997	8997	8987	IW416	8801
Wi-Fi	Client	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 bandwidths : 40 MHz	Y	Y	Y	Y	Y	N
			5 GHz band supported channel bandwidths : 20 MHz	Y	Y	Y	Y	Y	N
			5 GHz band supported channel bandwidths : 40 MHz	Y	Y	Y	Y	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	Y	Y	N
			11n data rates - Up to 300 Mbit/s (MCS 0 to MCS 15)	Y	Y	Y	N	N	N
			1 spatial stream (1x1)	Y	Y	Y	Y	Y	Y
			2 spatial stream (2x2)	Y	Y	Y	N	N	N
			HT protection mechanisms	Y	Y	Y	Y	Y	Y
			Explicit Beamformee	Y	Y	N	N	N	N
			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
			20/40 MHz Coexistence	Y	Y	Y	N	N	N
			Tx MCS rate adaptation (BGN)	Y	Y	Y	Y	Y	Y
			RX and TX Space time block coding (STBC)	Y	Y	Y	N	N	N
			Rx Low Density Parity Check (LDPC)	Y	Y	Y	Y	Y	N

Wireless Type	Type	Features List	Sub Features List	PCIe-UART		SD-UART			SD
				9098	8997	8997	8987	IW416	8801
Wi-Fi	Client	802.11 ac - Very High Throughput	2.4 GHz band supported channel bandwidths : 20MHz	Y	Y	Y	N	N	N
			5 GHz band supported channel bandwidths: 20 MHz	Y	Y	Y	Y	N	N
			5 GHz band supported channel bandwidths: 40 MHz	Y	Y	Y	Y	N	N
			5 GHz band supported channel bandwidths: 80 MHz	Y	Y	Y	Y	N	N
			11ac data rates - Up to 433.3 Mbps (MCS 0 to MCS 9) - 2x2	Y	Y	Y	Y	N	N
			11ac Data rates - Up to 866.7 Mbps (MCS 0 to MCS 9)	Y	Y	Y	N	N	N
			Short/Long Guard Interval (400ns/800ns)	Y	Y	Y	Y	N	N
			SU-AMPDU Aggregation	Y	Y	Y	Y	N	N
			MU-MIMO Beamformee (Explicit and Implicit)	Y	Y	Y	Y	N	N
			RTS/CTS with BW Signaling	Y	Y	Y	Y	N	N
			Operation Mode Notification	Y	Y	Y	Y	N	N
			Backward Compatibility with non-VHT devices	Y	Y	Y	Y	N	N
			Tx VHT MCS Rate Adaptation	Y	Y	Y	Y	N	N
		802.11 ax – High Efficiency	2.4 GHz band supported channel bandwidths : 20MHz	Y	N	N	N	N	N
			5 GHz band supported channel bandwidths : 20MHz	Y	N	N	N	N	N
			5 GHz band supported channel bandwidths: 40 MHz	Y	N	N	N	N	N
			5 GHz band supported channel bandwidths: 80MHz	Y	N	N	N	N	N
			11ax data rates - Up to 1.2 Gbps (MCS 0 to MCS 11) - 2x2	Y	N	N	N	N	N
			Operating Mode Indication(OMI) Control	Y	N	N	N	N	N
			2x/4x HE-Long Training Field(LTF)	Y	N	N	N	N	N
			UL (Tx) and DL (Rx) OFDMA	Y	N	N	N	N	N

Wireless Type	Type	Features List	Sub Features List	PCIe-UART		SD-UART			SD
				9098	8997	8997	8987	IW416	8801
Wi-Fi	Client	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	
			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 & 802.11h	802.11d - Regulatory Domain/Operating Class/Country Info	Y	Y	Y	Y	Y	Y
			802.11h – Dynamic Frequency Selection (DFS)	Y	Y	Y	Y	Y	N
			DFS Radar Detection in Slave Mode (Follow AP)	Y	Y	Y	Y	Y	N
		802.11e - QoS	EDCA [Enhanced Distributed Channel Access] / WMM (Wireless Multi-Media)	Y	Y	Y	Y	Y	Y
		802.11i - Security	Open and Shared Authentication	Y	Y	Y	Y	Y	Y
			WPA2-PSK Security (AES-CCMP Encryption)	Y	Y	Y	Y	Y	Y
			WPA + WPA2 mixed mode	Y	Y	Y	Y	Y	Y
			Opensource WPA supplicant	Y	Y	Y	Y	Y	Y
			WPA2 Enterprise Security	Y	Y	Y	Y	Y	Y
		WPA3 Security	Simultaneous Authentication of Equals (SAE)	Y	Y	Y	Y	Y	Y
			SAE Connectivity and PMK Caching	Y	Y	Y	Y	Y	Y
			WPA2 Personal Compatibility	Y	Y	Y	Y	Y	Y
			Anti-Clogging	Y	Y	Y	Y	Y	N
			SAE Finite Cyclic Group - Group-19, Group 20, Goup-21, Group-25, Group-26	N	N	N	Y	Y	N
			SAE Finite Cyclic Group - Group-19, Group 20, Goup-21	Y	Y	Y	N	N	N
			Reflection Attack	Y	Y	Y	Y	Y	N
			Commercial National Security Algorithm Suite (CSNA)	Y	Y	Y	Y	N	N

Wireless Type	Type	Features List	Sub Features List	PCIe-UART		SD-UART			SD
				9098	8997	8997	8987	IW416	8801
Wi-Fi	Client	WPA3 Security	Suite B - 192-bit Security ECC p384	Y	Y	Y	Y	N	N
			Suite B - 192-bit Security RSA 3K	Y	Y	Y	Y	N	N
		802.11r – Fast BSS Transition (FT)	FT over Air and over DS (Distribution System)	Y	Y	Y	Y	Y	Y
		WPS/WSC2.0 Functionality	PIN Config Method - 8 Digit/4 Digit	Y	Y	Y	Y	Y	Y
			PIN Config Method - Static/Dynamic PIN	Y	Y	Y	Y	Y	Y
			PBC - Virtual Push Button Config Method	Y	Y	Y	Y	Y	Y
			PBC Session Overlap Detection	Y	Y	Y	Y	Y	Y
			STA as Enrollee	Y	Y	Y	Y	Y	Y
			Backward Compatibility with WPS1.0 Devices	Y	Y	Y	Y	Y	Y
			Opensource WPA supplicant	Y	Y	Y	Y	Y	N
		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 Opensource WPA	Y	Y	Y	Y	Y	Y
		Power Save Mode	Deep sleep	Y	Y	Y	Y	Y	Y
			IEEE power save	Y	Y	Y	Y	Y	Y
		General Features	Embedded MLME	Y	Y	Y	Y	Y	Y
			EU adaptivity support	Y	Y	Y	Y	Y	Y
			Wake on Wireless (WoW)	Y	Y	Y	Y	Y	Y
			Auto Tx or Keep Alive	Y	Y	Y	Y	Y	Y
			MAC Address randomization(in Scan)	Y	Y	Y	Y	Y	Y
			Host based MLME	Y	Y	Y	Y	Y	N
			Driver load time parameters for Manufacturing mode	Y	N	N	N	N	N
			Extended channel switch announcement (ECSA)	Y	Y	Y	Y	Y	N

Wireless Type	Type	Features List	Sub Features List	PCIe-UART		SD-UART			SD
				9098	8997	8997	8987	IW416	8801
Wi-Fi	AP	802.11n - High Throughput	2.4 GHz band supported channel bandwidths: 20 MHz	Y	Y	Y	Y	Y	Y
			2.4 GHz band supported channel bandwidths: 40 MHz	N	Y	Y	Y	Y	N
			5 GHz band supported channel bandwidths: 20 MHz	Y	Y	Y	Y	Y	N
			5 GHz band supported channel bandwidths: 40 MHz	Y	Y	Y	Y	Y	N
			1 spatial stream (1x1)	Y	Y	Y	Y	Y	Y
			2 spatial stream (2x2)	Y	Y	Y	N	N	N
			Short/long guard interval (400 ns/800 ns)	Y	Y	Y	Y	Y	Y
			11n data rates – Up to 72 Mbit/s (MCS0 to MCS7)	Y	Y	Y	Y	Y	Y
			11n data rates – Up to 150 Mbit/s (MCS0 to MCS7)	Y	Y	Y	Y	Y	N
			11n data rates - Up to 300 Mbit/s (MCS0 to MCS15)	Y	Y	Y	N	N	N
			Tx MCS rate adaptation (BGN)	Y	Y	Y	Y	Y	Y
			Aggregated MAC Protocol Data Unit(AMPDU) Tx and Rx support	Y	Y	Y	Y	Y	Y
			Aggregated MAC Service Data Unit(AMSDU) - 4k Rx support	Y	Y	Y	Y	Y	Y
			HT protection mechanisms	Y	Y	Y	Y	Y	Y
			RX and TX Space time block coding (STBC)	Y	Y	Y	N	N	N
			20/40 MHz Coexistence	Y	Y	Y	N	N	N
			Explicit Beamformer	Y	Y	Y	N	N	N
			RX Low Density Parity Check(LDPC)	Y	Y	Y	Y	Y	N
		802.11 b/g Features	11 b/g data rates – Up to 54 Mbit/s	Y	Y	Y	Y	Y	Y
			Tx rate adaptation (BG)	Y	Y	Y	Y	Y	Y
			ERP protection, slot time, preamble	Y	Y	Y	Y	Y	Y
			Handling of associated STAs with IEEE PS - null data	Y	Y	Y	Y	Y	Y

Wireless Type	Type	Features List	Sub Features List	PCIe-UART		SD-UART			SD
				9098	8997	8997	8987	IW416	8801
Wi-Fi	AP	802.11 ac - Very High Throughput	2.4GHz band supported channel bandwidths: 20MHz	Y	Y	Y	N	N	N
			5 GHz band supported channel bandwidths: 20 MHz	Y	Y	Y	Y	N	N
			5 GHz band supported channel bandwidths: 40 MHz	Y	Y	Y	Y	N	N
			5 GHz band supported channel bandwidths: 80MHz	Y	Y	Y	Y	N	N
			Short/Long Guard Interval (400ns/800ns)	Y	Y	Y	Y	N	N
			11ac Data rates – Up to 433.3 Mbps (MCS 0 to MCS 9)	Y	Y	Y	Y	N	N
			11ac Data rates - Up to 866.7 Mbps (MCS 0 to MCS 9)	Y	Y	Y	N	N	N
			Single User- Aggregated MAC Protocol Data Unit (SU-AMPDU) Aggregation	Y	Y	Y	Y	N	N
			RTS/CTS with BW Signaling	Y	Y	Y	Y	N	N
			Backward Compatibility with non-VHT devices	Y	Y	Y	Y	N	N
			Tx VHT MCS Rate Adaptation	Y	Y	Y	Y	N	N
			Operation Mode Notification	Y	Y	Y	Y	N	N
			Explicit Beamformer	Y	Y	Y	N	N	N
		802.11 ax – High Efficiency	2.4 GHz band supported channel bandwidths: 20MHz	Y	N	N	N	N	N
			5 GHz band supported channel bandwidths: 20MHz	Y	N	N	N	N	N
			5 GHz band supported channel bandwidths: 40 MHz	Y	N	N	N	N	N
			5 GHz band supported channel bandwidths: 80 MHz	Y	N	N	N	N	N
			Operating Mode Indication(OMI) Control	Y	N	N	N	N	N
			2x/4x HE-Long Training Field(LTF)	Y	N	N	N	N	N

Wireless Type	Type	Features List	Sub Features List	PCIe-UART		SD-UART			SD
				9098	8997	8997	8987	IW416	8801
Wi-Fi	AP	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
			WPA2-PSK security (AES-CCMP encryption)	Y	Y	Y	Y	Y	Y
			WPA + WPA2 mixed mode	Y	Y	Y	Y	Y	Y
			Opensource Hostapd	Y	Y	Y	Y	Y	Y
		WPA3 Security	Simultaneous Authentication of Equals (SAE)	Y	Y	Y	Y	Y	Y
			SAE Connectivity and PMK Caching	Y	Y	Y	Y	Y	Y
			Anti-Clogging	Y	Y	Y	Y	Y	N
			SAE Finite Cyclic Group - Group-19, Group 20, Goup-21	Y	Y	Y	Y	Y	N
			Reflection Attack	Y	Y	Y	Y	Y	N
			WPA2 Personal Compatibility	Y	Y	Y	Y	Y	Y
			Commercial National Security Algorithm Suite (CSNA)	Y	Y	Y	Y	Y	N
		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
			Support using Hostapd	Y	Y	Y	Y	Y	Y

Wireless Type	Type	Features List	Sub Features List	PCIe-UART		SD-UART			SD
				9098	8997	8997	8987	IW416	8801
Wi-Fi	AP	WPS/WSC2.0 Functionality	PIN Config Method - 8 Digit/4 Digit	Y	Y	Y	Y	Y	Y
			PIN Config Method - Static/Dynamic PIN	Y	Y	Y	Y	Y	Y
			PBC - Virtual Push Button Config Method	Y	Y	Y	Y	Y	Y
			PBC Session Overlap Detection	Y	Y	Y	Y	Y	Y
			AP Setup Locked State - PIN Method	Y	Y	Y	Y	Y	Y
			MMH as Wireless Registrar	Y	Y	Y	Y	Y	Y
			MMH as Enrollee	Y	Y	Y	Y	Y	Y
			Opensource Hostapd	Y	Y	Y	Y	Y	Y
		General Features	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
			Host-based MLME	Y	Y	Y	Y	Y	N
			Extended channel switch announcement (ECSA)	Y	Y	Y	Y	Y	N
			Driver load time parameters for Manufacturing mode	Y	N	N	N	N	N
			Max supported stations (up to 8)	N	Y	Y	Y	Y	Y
			Max supported stations (up to 64)	Y	N	N	N	N	N
	Wi-Fi Direct/P2P	P2P Basic Functionality	Autonomous GO Mode	Y	Y	Y	Y	Y	Y
			WFD Client Mode	Y	Y	Y	Y	Y	Y
			P2P Device Mod	Y	Y	Y	Y	Y	Y
	AP-STA	Simultaneous AP-STA Operation (Same Channel)	AP-STA functionality	Y	Y	Y	Y	Y	Y

Wireless Type	Type	Features List	Sub Features List	PCIe-UART		SD-UART			SD
				9098	8997	8997	8987	IW416	8801
BT	Bluetooth Classic Features	General Features	BT Class 1.5 and Class 2 support	Y	Y	Y	Y	Y	N
			Scatternet support	Y	Y	Y	Y	Y	N
			Maximum of seven simultaneous ACL connections	Y	Y	Y	Y	Y	N
			Automatic Packet Type Selection	Y	Y	Y	Y	Y	N
			Bluetooth - 2.1 to 5.0 Specification Support	Y	Y	Y	Y	Y	N
			Low power sniff	Y	Y	Y	Y	Y	N
		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	Y	Y	N
			SCO (HV1, HV3)	Y	Y	Y	Y	Y	N
			eSCO (EV3, EV4, EV5, 2EV3, 3EV3, 2EV5, 3EV5)	Y	Y	Y	Y	Y	N
		Bluetooth Profiles Supported	A2DP Source/Sink	Y	Y	Y	Y	Y	N
			AVRCP Target/Controller	Y	Y	Y	Y	Y	N
			HFP Dev	Y	Y	Y	Y	Y	N
			OPP Server/Client	Y	Y	Y	Y	Y	N
			SPP	Y	Y	Y	Y	Y	N
			HID	Y	Y	Y	Y	Y	N
			GAP	Y	Y	Y	Y	Y	N
		Bluetooth Audio Features	PCM NBS Slave	Y	Y	Y	Y	Y	N
	Bluetooth LE Features	Generic Features	Maximum 16 Bluetooth LE connections(Master role)	Y	Y	Y	Y	Y	N
		Bluetooth Profile Support	Bluetooth LE GATT	Y	Y	Y	Y	Y	N
			Bluetooth LE HOGP	Y	Y	Y	Y	Y	N
			Bluetooth LE GAP	Y	Y	Y	Y	Y	N
		Bluetooth LE 4.0 Support	Low Energy Physical Layer	Y	Y	Y	Y	Y	N
			Low Energy Link Layer	Y	Y	Y	Y	Y	N
			Enhancements to HCI for Low Energy	Y	Y	Y	Y	Y	N
			Low Energy Direct Test Mode	Y	Y	Y	Y	Y	N
			Bluetooth LE - 1Mbit/s support	Y	Y	Y	Y	Y	N

Wireless Type	Type	Features List	Sub Features List	PCIe-UART		SD-UART			SD
				9098	8997	8997	8987	IW416	8801
BT	Bluetooth LE Features	Bluetooth 4.1 Support	Low duty Cycle Directed Advertising	Y	Y	Y	Y	Y	N
			Bluetooth LE Dual Mode Topology	Y	Y	Y	Y	Y	N
			Bluetooth LE Privacy v1.1	Y	Y	Y	Y	Y	N
			Bluetooth LE Link Layer Topology	Y	Y	Y	Y	Y	N
		Bluetooth 4.2 Support	Bluetooth LE secure connection	Y	Y	Y	Y	Y	N
			Bluetooth LE Link Layer Privacy v1.2	Y	Y	Y	Y	Y	N
			Bluetooth LE Data Length Extension	Y	Y	Y	Y	Y	N
			Link Layer Extended Scanner Filter Policies	Y	Y	Y	Y	Y	N
		Bluetooth 5.0 Support	Bluetooth LE 2 Mbps Support	Y	Y	Y	Y	Y	N
			High Duty Cycle Directed Advertising	Y	Y	Y	Y	Y	N
Coex	Bluetooth + Wi-Fi Coexistence	Timeshare Co-ex Mode	STA + Bluetooth Coex	Y	Y	Y	Y	Y	N
			STA + Bluetooth LE Coex	Y	Y	Y	Y	Y	N
			STA + Bluetooth + Bluetooth LE Coex	Y	Y	Y	Y	Y	N
			AP + Bluetooth Coex	Y	Y	Y	Y	Y	N
			AP + Bluetooth LE Coex	Y	Y	Y	Y	Y	N
			AP + Bluetooth + Bluetooth LE Coex	Y	Y	Y	Y	Y	N
			P2P + Bluetooth Coex	Y	Y	Y	Y	Y	N
			P2P + Bluetooth LE Coex	Y	Y	Y	Y	Y	N
			P2P + Bluetooth + Bluetooth LE Coex	Y	Y	Y	Y	Y	N
			AP(5GHz) + AP(5GHz) + Bluetooth Coex	Y	Y	Y	N	N	N
			AP(5GHz) + AP(5GHz) + Bluetooth LE Coex	Y	Y	Y	N	N	N
		Concurrent Dual Wi-Fi Co-ex Mode	uAP + uAP + Bluetooth Coex	Y	N	N	N	N	N
			uAP + uAP + Bluetooth LE Coex	Y	N	N	N	N	N
			uAP + uAP + Bluetooth + Bluetooth LE Coex	Y	N	N	N	N	N
			uAP + STA + Bluetooth Coex	Y	N	N	N	N	N
			uAP + STA + Bluetooth LE Coex	Y	N	N	N	N	N

Wireless Type	Type	Features List	Sub Features List	PCIe-UART		SD-UART			SD
				9098	8997	8997	8987	IW416	8801
Coex	Bluetooth + Wi-Fi Coexistence	Concurrent Dual Wi-Fi Co-ex Mode	uAP + STA + Bluetooth + Bluetooth LE Coex	Y	N	N	N	N	N
			STA + STA + Bluetooth Coex	Y	N	N	N	N	N
			STA + STA + Bluetooth LE Coex	Y	N	N	N	N	N
			STA + STA + Bluetooth + Bluetooth LE Coex	Y	N	N	N	N	N

3 Release Notes

3.1 PCIe-UART 9098

3.1.1 Package Information

- BSP version : Linux 5.10.72_2.2.0
- Wi-Fi and Bluetooth/Bluetooth LE Firmware version : 17.92.5.p11
- Driver version : MM5X17283.p2-GPL

3.1.2 Version Information

- Wireless SoC : 88W9098
- Wi-Fi and Bluetooth/Bluetooth LE Firmware Version : 17.92.5.p11
  - 17 - Major revision
  - 92 - Feature pack
  - 5 - Release version
  - p11 - Patch number
- Driver Version : MM5X17283.p2-GPL
  - 5X - Linux 5.x Kernel
  - 17283 - Release version
  - p2 - Patch Number
  - GPL - General Public License v2

3.1.3 Host Platform

- MCIMX8M-EVK platform running Linux
- Interface used
  - Wi-Fi over PCIe Interface
  - Bluetooth/Bluetooth LE over UART Interface
- Test Tools
  - iperf (version 2.0.5)

3.1.4 Wi-Fi and Bluetooth Certification

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

3.1.4.1 Wi-Fi Pre-Certification

- STA | 802.11n
- STA | 802.11ac
- STA | 802.11ax
- STA | PMF

3.1.4.2 Bluetooth Controller Certification

- Class II - https://launchstudio.bluetooth.com/ListingDetails/98383
- Class I - https://launchstudio.bluetooth.com/ListingDetails/97047

3.1.5 Wi-Fi Throughput

3.1.5.1 Throughput Test Setup

- Environment: Shield Room - Over the Air
- External Access Point: Linksys-WRT-1900-AC
- DUT: Murata 88Q9098 M.2 (Module : LBEE6ZZ1) with MCIMX8M-EVK platform
  - Driver Load Parameters: fw_name=nxp/pcieuart9098_combo_v1.bin, cal_data_cfg=none, cfg80211_wext=0xf, host_mlme=1
- External Client : Linksys-WRT-1900-AC
- Channel: 6 | 36

3.1.5.2 STA Throughput

External Access Point : Linksys-WRT-1900-AC

STA Mode Throughput - BGN Mode | MAC2 | 2.4 GHz Band | 20 MHz				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
Open Security	115	116	122	123
WPA2-AES	113	113	120	123
WPA3-SAE	108	105	121	124

STA Mode Throughput - AN Mode | MAC1 | 5 GHz Band | 20 MHz (HT)				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
Open Security	120	125	130	130
WPA2-AES	122	124	129	132
WPA3-SAE	122	123	129	128

STA Mode Throughput - AN Mode | MAC1 | 5 GHz Band | 40 MHz (HT)				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
Open Security	230	236	260	254
WPA2-AES	230	236	255	255
WPA3-SAE	219	247	254	257

STA Mode Throughput - AC Mode | MAC1 | 5 GHz Band | 20 MHz (VHT)				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
Open Security	139	149	157	155
WPA2-AES	130	148	157	155
WPA3-SAE	154	129	146	151

STA Mode Throughput - AC Mode | MAC1 | 5 GHz Band | 40 MHz (VHT)				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
Open Security	300	336	358	356
WPA2-AES	310	334	361	354
WPA3-SAE	305	336	336	356

STA Mode Throughput - AC Mode | MAC1 | 5 GHz Band | 80 MHz (VHT)				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
Open Security	678	642	747	744
WPA2-AES	670	644	742	740
WPA3-SAE	674	606	755	730

STA Mode Throughput - AX Mode | MAC2 | 2.4 GHz Band | 20 MHz (HE)				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
Open Security	167	156	179	167
WPA2-AES	199	155	175	171
WPA3-SAE	180	155	190	180

STA Mode Throughput - AX Mode | MAC1 | 5 GHz Band | 20 MHz (HE)				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
Open Security	200	225	234	254
WPA2-AES	225	223	244	253
WPA3-SAE	223	220	247	254

STA Mode Throughput - AX Mode | MAC1 | 5 GHz Band | 40 MHz (HE)				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
Open Security	470	439	502	500
WPA2-AES	413	440	499	498
WPA3-SAE	459	440	502	503

STA Mode Throughput - AX Mode | MAC1 | 5 GHz Band | 80 MHz (HE)				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
Open Security	865	735	957	918
WPA2-AES	866	721	957	922
WPA3-SAE	820	719	957	916

3.1.5.3 P2P-GO Throughput

P2P - GO Mode Throughput - BGN Mode | MAC2 | 2.4 GHz Band | 20MHz				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
WPA2-AES	118	119	127	127

P2P - GO Mode Throughput - AN Mode | MAC1 | 5 GHz Band | 40 MHz				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
WPA2-AES	240	244	250	250

P2P - GO Mode Throughput - AC Mode | MAC1 | 5 GHz Band | 80 MHz				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
WPA2-AES	653	635	738	726

3.1.5.4 P2P-GC Throughput

P2P - GC Mode Throughput - BGN Mode | MAC2 | 2.4 GHz Band | 20MHz				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
WPA2-AES	118	116	123	123

P2P - GC Mode Throughput - AN Mode | MAC1 | 5 GHz Band | 40 MHz				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
WPA2-AES	245	245	255	260

P2P - GC Mode Throughput - AC Mode | MAC1 | 5 GHz Band | 80 MHz				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
WPA2-AES	675	644	743	749

3.1.5.5 Mobile AP Throughput

External client: Linksys-WRT-1900-AC

Mobile AP Mode Throughput - BGN Mode| MAC2 | 2.4 GHz Band | 20 MHz				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
Open Security	113	114	115	121
WPA2-AES	116	107	118	115
WPA3-SAE	113	120	127	127

Mobile AP Mode Throughput - AN Mode | MAC1 | 5 GHz Band | 20 MHz (HT)				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
Open Security	119	119	130	101
WPA2-AES	124	107	130	102
WPA3-SAE	124	118	128	124

Mobile AP Mode Throughput - AN Mode | MAC1 | 5 GHz Band | 40 MHz (HT)				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
Open Security	245	230	257	250
WPA2-AES	241	229	257	240
WPA3-SAE	248	222	257	242

Mobile AP Mode Throughput - AC Mode | MAC1 | 5 GHz Band | 20 MHz (VHT)				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
Open Security	150	140	155	154
WPA2-AES	149	140	154	154
WPA3-SAE	152	132	154	155

Mobile AP Mode Throughput - AC Mode| MAC1 | 5 GHz Band | 40 MHz (VHT)				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
Open Security	349	323	361	357
WPA2-AES	343	320	355	341
WPA3-SAE	348	317	360	360

Mobile AP Mode Throughput - AC Mode | MAC1 | 5 GHz Band | 80 MHz (VHT)				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
Open Security	721	687	752	724
WPA2-AES	691	662	742	741
WPA3-SAE	697	664	745	751

Mobile AP Mode Throughput - AX Mode | MAC2 | 2.4 GHz Band | 20 MHz (HE)				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
Open Security	160	156	175	183
WPA2-AES	164	156	175	182
WPA3-SAE	110	111	117	116

Mobile AP Mode Throughput - AX Mode | MAC1 | 5 GHz Band | 20 MHz (HE)				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
Open Security	182	120	189	149
WPA2-AES	160	108	175	146
WPA3-SAE	156	116	187	150

Mobile AP Mode Throughput - AX Mode | MAC1 | 5 GHz Band | 40 MHz (HE)				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
Open Security	211	104	311	321
WPA2-AES	276	214	308	330
WPA3-SAE	335	298	376	446

Mobile AP Mode Throughput - AX Mode | MAC1 | 5 GHz Band | 80 MHz (HE)				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
Open Security	699	559	717	857
WPA2-AES	510	221	221	851
WPA3-SAE	553	424	689	824

3.1.6 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)

3.1.7 Bug Fixes/Feature Enhancements

3.1.7.1 FW Version : From 17.92.5.p3 to 17.92.5.p9

Component	Description
Wi-Fi	• Wake On Wireless Feature

3.1.7.2 FW Version : From 17.92.5.p9 to 17.92.5.p11

Component	Description
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3.1.8 Known Issues

Component	Description
Wi-Fi	• Low TCP/UDP Tx (by ~80%) and TCP/UDP Rx (by ~70%) throughput is observed for Internal STA mode on MAC2 interface in BGN20 mode with Netgear R6200 AP. • Low UDP Tx (20-25%) throughput observed on HE-80 MHzBand For All Securities • In RF Test Mode Tx tests, the device is unable to transmit Tx Frame and Tx Continuous Wave modes. Manufacturing software can be used for validation. • P2P GO on/off stress test fails and DUT stops responding after ~1 hour. • Internal-AP mode the data-rate drops to 0 Mbps and does not recover when TCP Bidirectional test is run in HE80/WPA2 mode after ~2 hours.
Bluetooth	• After disconnecting LE link, sometime disconnect complete event is delayed by 30 seconds, so next re-connection possible only after 30 second.

3.2 SD-UART 8997

3.2.1 Package Information

- BSP version : Linux 5.10.72_2.2.0
- Wi-Fi and Bluetooth/Bluetooth LE Firmware version : 16.92.10.p219.5
- Driver version : MM5X16283.p2-GPL

3.2.2 Version Information

- Wireless SoC : 88W8997
- Wi-Fi and Bluetooth/Bluetooth LE Firmware Version : 16.92.10.p219.5
  - 16 - Major revision
  - 92 - Feature pack
  - 10 - Release version
  - p219.5 - Patch number
- Driver Version : MM5X16283.p2-GPL
  - 5X - Linux 5.x Kernel
  - 16283 - Release version
  - p2 - Patch Number
  - GPL - General Public License v2

3.2.3 Host Platform

- MCIMX8M-EVK platform running Linux
- Interface used
  - Wi-Fi over SDIO 3.0
  - Bluetooth/Bluetooth LE over UART
- Test Tools
  - iperf (version 2.0.5)

3.2.4 Wi-Fi and Bluetooth Certification

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

3.2.4.1 Wi-Fi Pre-Certifications

- STA | 802.11n
- STA | 802.11ac
- STA | PMF

3.2.4.2 Bluetooth Controller Certification

- Class II - https://launchstudio.bluetooth.com/ListingDetails/55009
- Class I - https://launchstudio.bluetooth.com/ListingDetails/55011

3.2.5 Wi-Fi Throughput

3.2.5.1 Throughput Test Setup

- Environment: Shield Room - Over the Air
- DUT: 88W8997-Azurewave (Module : **AW-CM276MA-uSD**) with MCIMX8M-EVK platform
  - Driver Load Parameters: fw_name=nxp/sdiouart8997_combo_v4.bin, cal_data_cfg=none, cfg80211_wext=0xf, host_mlme=1
- External Access Point: Asus RT-AX88U
- External Client: NXP 88W8997 PCIe-UART
- Channel: 6 | 36

3.2.5.2 STA Throughput

External AP: Asus RT-AX88U

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	108	103	115	113
WPA2-AES	106	104	113	118
WPA3-SAE	111	106	119	112

STA Mode Throughput - BGN Mode | 5 GHz Band | 40 MHz				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
Open Security	219	222	220	238
WPA2-AES	205	223	221	235
WPA3-SAE	206	221	226	234

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	118	144	149	153
WPA2-AES	133	146	145	151
WPA3-SAE	114	120	126	124

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	143	148	151	155
WPA2-AES	143	147	152	155
WPA3-SAE	143	143	151	154

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	321	339	351	357
WPA2-AES	318	336	350	355
WPA3-SAE	317	337	350	355

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	338	440	480	492
WPA2-AES	341	460	482	501
WPA3-SAE	324	462	482	500

3.2.5.3 P2P-GO Throughput

P2P - GO Mode Throughput - BGN Mode | 2.4 GHz Band | 20MHz				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
WPA2-AES	114	116	123	127

P2P - GO Mode Throughput - AN Mode | 5 GHz Band | 40 MHz				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
WPA2-AES	242	217	250	253

P2P - GO Mode Throughput - AC Mode | 5 GHz Band | 80 MHz				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
WPA2-AES	316	441	471	501

3.2.5.4 P2P-GC Throughput

P2P - GC Mode Throughput - BGN Mode | 2.4 GHz Band | 20MHz				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
WPA2-AES	120	119	124	127

P2P - GC Mode Throughput - AN Mode | 5 GHz Band | 40 MHz				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
WPA2-AES	218	214	246	244

P2P - GC Mode Throughput - AC Mode | 5 GHz Band | 80 MHz				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
WPA2-AES	309	446	475	496

3.2.5.5 Mobile AP Throughput

External Client: NXP 88W8997 PCIe-UART

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	113	117	117	128
WPA2-AES	118	116	119	124
WPA3-SAE	112	118	121	126

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	191	228	208	244
WPA2-AES	196	224	207	238
WPA3-SAE	190	229	208	246

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	115	118	127	128
WPA2-AES	114	120	121	127
WPA3-SAE	114	120	122	128

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	216	233	239	256
WPA2-AES	217	240	239	254
WPA3-SAE	218	232	233	249

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	135	140	146	152
WPA2-AES	137	140	147	152
WPA3-SAE	135	134	144	152

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	309	312	340	356
WPA2-AES	306	313	331	336
WPA3-SAE	302	301	337	356

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	329	435	472	504
WPA2-AES	333	445	462	507
WPA3-SAE	338	428	472	501

3.2.6 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)

3.2.7 Bug Fixes/Feature Enhancements

3.2.7.1 FW Version: From 16.92.10.p218 to 16.92.10.p219.3

Component	Description
Wi-Fi	• Added support for 40 MHz band in 2.4 GHz BGN mode for AP and STA

3.2.7.2 FW Version: From 16.92.10.p219.3 to 16.92.10.p219.5

Component	Description
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3.2.8 Known Issues

Component	Description
Bluetooth	• After disconnecting LE link, sometime disconnect complete event is delayed by 30 seconds, so next re-connection possible only after 30 second

3.3 PCIe-UART 8997

3.3.1 Package Information

- BSP version : Linux 5.10.72_2.2.0
- Wi-Fi and Bluetooth/Bluetooth LE Firmware version : 16.92.10.p213.4
- Driver version : MM5X16283.p2-GPL

3.3.2 Version Information

- Wireless SoC : 88W8997
- Wi-Fi and Bluetooth/Bluetooth LE Firmware Version : 16.92.10.p213.4
  - 16 - Major revision
  - 92 - Feature pack
  - 10 - Release version
  - p213.4 - Patch number
- Driver Version : MM5X16283.p2-GPL
  - 5X - Linux 5.x Kernel
  - 16283 - Release version
  - p2 - Patch Number
  - GPL - General Public License v2

3.3.3 Host Platform

- MCIMX8M-EVK platform running Linux
- Interface used
  - Wi-Fi over PCIE
  - Bluetooth/Bluetooth LE over UART
- Test Tools
  - iperf (version 2.0.5)

3.3.4 Wi-Fi and Bluetooth Certification

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

3.3.4.1 Wi-Fi Pre-Certifications

- STA | 802.11n
- STA | 802.11ac
- STA | PMF

3.3.4.2 Bluetooth Controller Certification

- Class II - https://launchstudio.bluetooth.com/ListingDetails/55009
- Class I - https://launchstudio.bluetooth.com/ListingDetails/55011

3.3.5 Wi-Fi Throughput

3.3.5.1 Throughput Test Setup

- Environment: Shield Room - Over the Air
- Access Point: Asus RT-AX88U
- DUT: 88W8997-Azurewave (Module : **AW-CM276MA-PUR M.2 V6**) with MCIMX8M-EVK platform
  - Driver Load Parameters: fw_name=nxp/pcieuart8997_combo_v4.bin, cal_data_cfg=none, cfg80211_wext=0xf, host_mlme=1
- Client: Apple MacBook Air
- Channel: 6 | 36

3.3.5.2 STA Throughput

External AP: Asus RT-AX88U

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	117	122	125	122
WPA2-AES	110	118	124	119
WPA3-SAE	111	121	124	120

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	216	242	244	250
WPA2-AES	215	241	247	253
WPA3-SAE	210	242	249	253

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	112	109	126	116
WPA2-AES	99	103	127	114
WPA3-SAE	110	114	127	125

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	246	230	256	245
WPA2-AES	246	231	254	244
WPA3-SAE	246	229	251	243

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	137	137	142	141
WPA2-AES	139	137	142	141
WPA3-SAE	139	137	142	140

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	325	339	354	346
WPA2-AES	316	321	354	341
WPA3-SAE	315	329	354	344

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	679	652	741	734
WPA2-AES	651	673	741	729
WPA3-SAE	661	658	741	729

3.3.5.3 P2P-GO Throughput

P2P - GO Mode Throughput - BGN Mode | 2.4 GHz Band | 20MHz				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
WPA2-AES	114	109	125	125

P2P - GO Mode Throughput - AN Mode | 5 GHz Band | 40 MHz				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
WPA2-AES	238	238	250	254

P2P - GO Mode Throughput - AC Mode | 5 GHz Band | 80 MHz				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
WPA2-AES	631	605	710	734

3.3.5.4 P2P-GC Throughput

P2P - GC Mode Throughput - BGN Mode | 2.4 GHz Band | 20MHz				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
WPA2-AES	115	111	121	124

P2P - GC Mode Throughput - AN Mode | 5 GHz Band | 40 MHz				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
WPA2-AES	236	237	251	256

P2P - GC Mode Throughput - AC Mode | 5 GHz Band | 80 MHz				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
WPA2-AES	638	663	719	744

3.3.5.5 Mobile AP Throughput

External client: W8997 PCIe-UART

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	117	120	124	128
WPA2-AES	111	111	117	121
WPA3-SAE	117	115	114	121

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	235	235	246	252
WPA2-AES	237	234	247	254
WPA3-SAE	236	234	242	251

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	119	115	126	121
WPA2-AES	120	115	126	127
WPA3-SAE	120	116	126	125

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	244	240	256	254
WPA2-AES	245	241	256	255
WPA3-SAE	244	240	257	256

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	144	140	146	148
WPA2-AES	143	141	148	148
WPA3-SAE	144	135	148	149

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	328	308	343	331
WPA2-AES	324	308	343	331
WPA3-SAE	328	308	343	331

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	696	674	736	734
WPA2-AES	662	642	736	734
WPA3-SAE	654	641	736	734

3.3.6 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)

3.3.7 Bug Fixes/Feature Enhancements

3.3.7.1 FW Version : From 16.92.10.p208 to 16.92.10.p211

Component	Description
Wi-Fi	• Fixed Mobile AP start issue on switching bands
Bluetooth	• Fix for Sniff Subrate command processing which resulted in command queue that caused Bluetooth to restart. • Fix for ACL link disconnection due to DUT not responding to LMP_switch_req.
Wi-Fi and Bluetooth Coexistence	• Fix Wi-Fi Link loss during UDP Rx + Bluetooth Inquiry and Wi-Fi deauth during Bluetooth HFP coexistence scenarios

3.3.7.2 FW Version : From 16.92.10.p211 to 16.92.10.p213

Component	Description
Wi-Fi	• Fix for Wi-Fi Fragment and Forge Vulnerabilities (**EB - NXP Security Advisory - Wi-Fi Vulnerability - USIRP02-2020**)
Bluetooth	• Fix for ANSSI Vulnerabilities (**EB - NXP Security Advisory - Bluetooth Vulnerability - ANSSI**)

3.3.7.3 FW Version : From 16.92.10.p213 to 16.92.10.p213.2

Component	Description
Wi-Fi	• Added support for 40 MHz band in 2.4 GHz BGN mode for AP and STA

3.3.7.4 FW Version : From 16.92.10.p213.2 to 16.92.10.p213.4

Component	Description
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3.3.8 Known Issues

Component	Description
Bluetooth	• After disconnecting LE link, sometime disconnect complete event is delayed by 30 seconds, so next re-connection possible only after 30 second

3.4 SD-UART 8987

3.4.1 Package Information

- BSP version : Linux 5.10.72_2.2.0
- Wi-Fi and Bluetooth/Bluetooth LE Firmware version : 16.92.21.p11.1
- Driver version : MM5X16283.p2-GPL

3.4.2 Version Information

- Wireless SoC: 88W8987
- Wi-Fi and Bluetooth/Bluetooth LE Firmware Version : 16.92.21.p11.1
  - 16 - Major revision
  - 92 - Feature pack
  - 21 - Release version
  - p11.1 - Patch number
- Driver Version : MM5X16283.p2-GPL
  - 5X - Linux 5.x Kernel
  - 16283 - Release version
  - p2 - Patch Number
  - GPL - General Public License v2

3.4.3 Host Platform

- MCIMX8M-EVK platform running Linux
- Interface used
  - Wi-Fi over SDIO (SDIO 3.0 support, Clock speed : 200 MHz)
  - Bluetooth/Bluetooth LE over UART

Test Tools

- iperf (version 2.0.5)

3.4.4 Wi-Fi and Bluetooth Certification

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

3.4.4.1 WFA Certifications

- STA | 802.11n
- STA | 802.11ac
- STA | PMF

Refer to *AN12976 – Wi-Fi Alliance Derivative Certification* available on NXP website.

3.4.4.2 Bluetooth Controller Certification

- Class II - https://launchstudio.bluetooth.com/ListingDetails/11394
- Class -I - https://launchstudio.bluetooth.com/ListingDetails/24794

3.4.5 Wi-Fi Throughput

3.4.5.1 Throughput Test Setup

- Environment: Shield Room - Over the Air
- Access Point: Linksys WRT1900AC
- DUT: 88W8987-Azurewave (**Module : AW-CM358MA**) with MCIMX8M-EVK platform
  - Driver Load Parameters: fw_name=nxp/sdiouart8987_combo_v0.bin, cal_data_cfg=none, cfg80211_wext=0xf, host_mlme=1
- Client: Apple MacBook Air
- Channel: 6 | 36

3.4.5.2 STA Throughput

External AP: Linksys WRT1900AC

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	54	49	60	50
WPA2-AES	52	49	59	50
WPA3-SAE	52	46	59	48

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	53	49	61	51
WPA2-AES	54	49	61	51
WPA3-SAE	52	49	61	50

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	117	117	131	121
WPA2-AES	114	110	125	116
WPA3-SAE	114	111	123	118

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	68	64	74	66
WPA2-AES	68	64	73	66
WPA3-SAE	66	63	73	65

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	151	155	170	163
WPA2-AES	146	155	169	163
WPA3-SAE	150	140	170	150

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	230	313	296	349
WPA2-AES	220	318	267	323
WPA3-SAE	225	310	266	325

3.4.5.3 P2P-GO Throughput

P2P - GO Mode Throughput - BGN Mode | 2.4 GHz Band | 20MHz				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
WPA2-AES	48	49	52	52

P2P - GO Mode Throughput - AN Mode | 5 GHz Band | 40 MHz				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
WPA2-AES	111	107	118	115

P2P - GO Mode Throughput - AC Mode | 5 GHz Band | 80 MHz				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
WPA2-AES	217	238	265	337

3.4.5.4 P2P-GC Throughput

P2P - GC Mode Throughput - BGN Mode | 2.4 GHz Band | 20MHz				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
WPA2-AES	50	47	53	52

P2P - GC Mode Throughput - AN Mode | 5 GHz Band | 40 MHz				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
WPA2-AES	121	108	127	128

P2P - GC Mode Throughput - AC Mode | 5 GHz Band | 80 MHz				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
WPA2-AES	227	245	269	342

3.4.5.5 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	56	56	59	63
WPA2-AES	48	57	59	60
WPA3-SAE	51	57	58	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	57	59	61	65
WPA2-AES	52	56	61	61
WPA3-SAE	52	57	58	64

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	111	115	122	132
WPA2-AES	107	109	122	114
WPA3-SAE	106	110	123	121

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	65	61	73	63
WPA2-AES	68	55	70	61
WPA3-SAE	68	57	73	63

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	140	150	158	161
WPA2-AES	138	135	155	143
WPA3-SAE	138	141	156	149

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	216	288	267	321
WPA2-AES	205	288	260	321
WPA3-SAE	209	280	259	319

3.4.6 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)

3.4.7 Bug Fixes/Feature Enhancements

3.4.7.1 FW Version : From 16.92.10.p208 to 16.92.10.p210

Component	Description
Wi-Fi	• Fix for Wi-Fi Fragment and Forge Vulnerabilities (**EB - NXP Secuirty Advisory - Wi-Fi Vulnerability - USIRP02-2020**)
Bluetooth	• Fix for ANSSI Vulnerabilities (**EB - NXP Security Advisory - Bluetooth Vulnerability - ANSSI**)

3.4.7.2 FW Version : From 16.92.10.p210 to 16.92.10.p210.1

Component	Description
Wi-Fi	• Added support for 40 MHz band in 2.4 GHz BGN mode for AP and STA

3.4.7.3 FW Version : From 16.92.10.p210.1 to 16.92.21.p11.1

Component	Description
-	-

3.4.8 Known Issues

Component	Description
Bluetooth	• After disconnecting LE link, sometime disconnect complete event is delayed by 30 seconds, so next re-connection possible only after 30 second

3.5 SD-UART IW416

3.5.1 Package Information

- BSP version : Linux 5.10.72_2.2.0
- Wi-Fi and Bluetooth/Bluetooth LE Firmware version : 16.92.21.p11.2
- Driver version : MM5X16283.p2-GPL

3.5.2 Version Information

- Wireless SoC: IW416
- Wi-Fi and Bluetooth/Bluetooth LE Firmware Version : 16.92.21.p11.2
  - 16 - Major revision
  - 92 - Feature pack
  - 21 - Release version
  - p11.2 - Patch number
- Driver Version : MM5X16283.p2-GPL
  - 5X - Linux 5.x Kernel
  - 16283 - Release version
  - p2 - Patch Number
  - GPL - General Public License v2

3.5.3 Host Platform

- MCIMX8M-EVK platform running Linux
- Interface used
  - Wi-Fi over SDIO (SDIO 3.0 support, Clock speed : 200 MHz)
  - Bluetooth/Bluetooth LE over UART
- Test Tools
  - iperf (version 2.0.5)

3.5.4 Wi-Fi and Bluetooth Certification

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

3.5.4.1 WFA Certifications

- STA | 802.11n
- STA | PMF

Refer to *AN12976 – Wi-Fi Alliance Derivative Certification* available on NXP website.

3.5.4.2 Bluetooth Controller Certification

- Class II - https://launchstudio.bluetooth.com/ListingDetails/11394
- Class -I - https://launchstudio.bluetooth.com/ListingDetails/24794

3.5.5 Wi-Fi Throughput

3.5.5.1 Throughput Test Setup

- Environment: Shield Room - Over the Air
- Access Point: Linksys WRT1900AC
- DUT: IW416-Azurewave (**Module : AW-AM510MA**) with MCIMX8M-EVK platform
  - Driver Load Parameters: fw_name=nxp/sdiouartiw416_combo_v0.bin, cal_data_cfg=none, cfg80211_wext=0xf, host_mlme=1
- Client: W8997-PCIe-UART
- Channel: 6 | 36

3.5.5.2 STA Throughput

External AP: Linksys WRT1900AC

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	53	57	58	61
WPA2-AES	51	57	57	60
WPA3-SAE	54	57	58	61

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	96	113	98	118
WPA2-AES	95	114	100	121
WPA3-SAE	93	115	96	122

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	56	61	61	64
WPA2-AES	55	60	60	64
WPA3-SAE	57	61	61	64

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	122	124	128	131
WPA2-AES	121	122	127	130
WPA3-SAE	119	125	127	132

3.5.5.3 P2P-GO Throughput

P2P - GO Mode Throughput - BGN Mode | 2.4 GHz Band | 20MHz				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
WPA2-AES	57	49	62	61

P2P - GO Mode Throughput - AN Mode | 5 GHz Band | 40 MHz				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
WPA2-AES	118	117	124	124

3.5.5.4 P2P-GC Throughput

P2P - GC Mode Throughput - BGN Mode | 2.4 GHz Band | 20MHz				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
WPA2-AES	58	49	61	61

P2P - GC Mode Throughput - AN Mode | 5 GHz Band | 40 MHz				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
WPA2-AES	118	119	124	131

3.5.5.5 Mobile AP Throughput

External client: W8997 PCIe-UART

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	57	48	61	60
WPA2-AES	55	47	58	58
WPA3-SAE	54	47	57	58

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	97	106	105	127
WPA2-AES	98	111	103	125
WPA3-SAE	101	112	108	125

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	56	51	61	60
WPA2-AES	57	48	62	60
WPA3-SAE	57	49	62	60

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	123	117	131	125
WPA2-AES	121	120	128	134
WPA3-SAE	120	116	128	132

3.5.6 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)

3.5.7 Bug Fixes/Feature Enhancements

3.5.7.1 FW Version: From 16.92.10.p233.2 to 16.92.21.p11.2

Component	Description
--	--

3.5.8 Known Issues

Component	Description
Bluetooth	• The ACL link with iPhone is disconnected due to error code “REMOTE DEVICE TERMINATED CONNECTION DUE TO LOW RESOURCES” • After disconnecting LE link, sometime disconnect complete event is delayed by 30 seconds, so next re-connection possible only after 30 second • Random Bluetooth security link loss in concurrent Bluetooth classic and Bluetooth LE modes with AES

NOTE:

- Software support for WCI-2 interface is not available in this release

3.6 SD 8801

3.6.1 Package Information

- BSP version : Linux 5.10.72_2.2.0
- Wi-Fi Firmware version : 14.92.36.p171
- Driver version : MM5X14283.p2-GPL

3.6.2 Version Information

- Wireless SoC: SD8801
- Wi-Fi Firmware Version : 14.92.36.p171
  - 14 - Major revision
  - 92 - Feature pack
  - 36 - Release version
  - p171 - Patch number
- Driver Version : MM5X14283.p2-GPL
  - 5X - Linux 5.x Kernel
  - 14283 - Release version
  - p2 - Patch Number
  - GPL - General Public License v2

3.6.3 Host Platform

- MCIMX8M-EVK platform running Linux
- Interface used
  - Wi-Fi over SDIO (SDIO 2.0 support, Clock speed : 50 MHz)
- Test Tools
  - iperf (version 2.0.5)

3.6.4 Wi-Fi Certification

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

3.6.4.1 WFA Certifications

- STA | 802.11n
- STA | PMF

Refer to *AN12976 – Wi-Fi Alliance Derivative Certification* available on NXP website.

3.6.5 Wi-Fi Throughput

3.6.5.1 Throughput Test Setup

- Environment: Shield Room - Over the Air
- Access Point: Linksys WRT1900AC
- DUT: W8801-Murata M.2 module with MCIMX8M-EVK platform
  - Driver Load Parameters: fw_name=nxp/sd8801_uapsta.bin cal_data_cfg=none cfg80211_wext=0xf host_mlme=1
- Client: W8801-SD
- Channel: 6

3.6.5.2 STA Throughput

External AP: Linksys WRT1900AC

STA Mode Throughput - BGN Mode | 2.4 GHz Band | 20 MHz | 1SS				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
Open Security	37	51	50	55
WPA2-AES	36	52	48	56
WPA3-SAE	36	51	48	56

3.6.5.3 P2P-GO Throughput

P2P - GO Mode Throughput - BGN Mode | 2.4 GHz Band | 20MHz | 1SS				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
WPA2-AES	37	50	44	53

3.6.5.4 P2P-GC Throughput

P2P - GC Mode Throughput - BGN Mode | 2.4 GHz Band | 20MHz | 1SS				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
WPA2-AES	45	52	53	60

3.6.5.5 Mobile AP Throughput

External client: W8997 PCIe-UART

Mobile AP Mode Throughput - BGN Mode | 2.4 GHz Band | 20MHz | 1SS				
Protocol	**TCP (Mbit/s)**		**UDP (Mbit/s)**	
Direction	Tx	Rx	Tx	Rx
Open Security	41	52	49	54
WPA2-AES	39	51	48	54
WPA3-SAE	40	54	50	56

3.6.6 EU Conformance Tests

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

3.6.7 Bug Fixes/Feature Enhancements

Component	Description
--	--

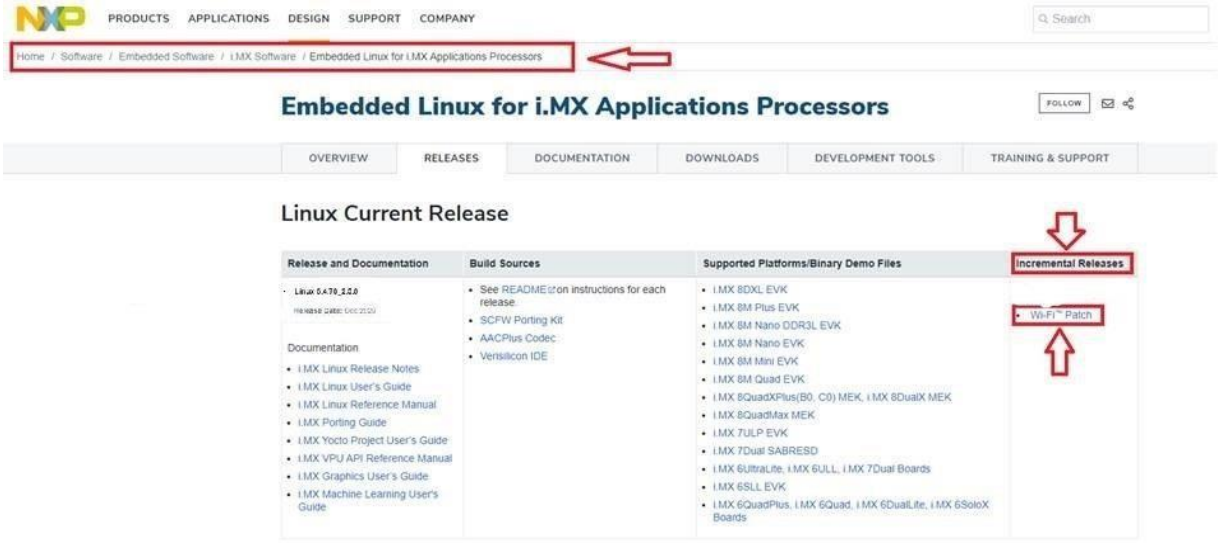
3.6.8 Known Issues

Component	Description
--	--

4 Getting Latest Wireless Driver and Firmware Fixes

For latest Wireless driver and firmware fixes, please refer Incremental Releases section of each release as shown in below figure.

https://www.nxp.com/design/software/embedded-software/i-mx-software/embedded-linux-for-i-mx-applications-processors:IMXLINUX



5 i.MX Platforms on-board chips and external wireless solutions

Below tables list the on-board chips for i.MX platforms and external wireless solutions available.

Table 3: On-board chips and external support for Bluetooth and Wi-Fi support

SoC	On-board Chip	PCIe M.2 card	uSD card or SDIO M.2 card
8 QM/QXP/DX/DXL	-	NXP 88W8997 (tested with AzureWave AW-CM276 SM/MA)	-
8 ULP	-	-	NXP IW416 (tested with Murata LBEE5CJ1XK)
8M Nano	NXP 88W8987 (tested with AzureWave AW-CM358 SM/MA)	-	-
8M Mini	NXP 88W8987 (tested with AzureWave AW-CM358 SM/MA)	-	-
8M Plus	-	NXP 88W8997 (tested with AzureWave AW-CM276 SM/MA) NXP 88Q9098 (tested with Murata LBEE6ZZ-1TA)	NXP 88W8997 (tested with AzureWave AW-CM276MA-SUR)
8M Quad	-	NXP 88W8997 (tested with AzureWave AW-CM276 SM/MA) NXP 88Q9098 (tested with Murata LBEE6ZZ-1TA)	NXP 88W8997 (tested with AzureWave AW-CM276MA-SUR) NXP IW416 (tested with Murata LBEE5CJ1XK) NXP 88W8801 (tested with MurataLBWA0ZZ2DS)
7ULP	-	-	NXP 88W8987(tested with Azurewave AW-CM358-SM/MA)(WLAN only)
7D	-	-	NXP 88W8987(tested with Azurewave AW-CM358-SM/MA)(WLAN only)

SoC	On-board Chip	PCIe M.2 card	uSD card or SDIO M.2 card
6Q/6DL/6QP/6SX/ 6SLL/6UL/6ULL/ 6ULZ	-	-	#NXP IW416 (tested with Murata LBEE5CJ1XK) #NXP 88W8801 (tested with Murata LBWA0ZZ2DS) NXP 88W8987(tested with Azurewave AW-CM358-SM/MA)

M.2 + M.2-to-usd adapter (only imx6ull support)

6 Acronyms & Abbreviations

Table 4: List of Acronyms & Abbreviations

Acronyms	Definitions
A2DP	Advanced audio distribution profile
AP	Access Point
BW	Bandwidth
CCMP	Counter Mode CBC-MAC Protocol
CTS	Clear To Send
ERP	Extended Rate Physical
GATT	Generic attribute profile
HFP	Hands free profile
HID	Human interface device
HT	High Throughput
MCS	Modulation and Coding Scheme
MLME	Mac Layer Management Entity
RTS	Request To Send
SAE	Simultaneous Authentication of Equals
STA	Station
VHT	Very High Throughput
WEP	Wired Equivalent Private
WFD	Wi-Fi Direct
WPA	Wi-Fi protected access
WPS	Wi-Fi Protected Setup
WSC	Wi-Fi Simple Configuration

7 Notes

For adding support of wpa3-r3 in the supplicant please follow this link.

8 Legal Information

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