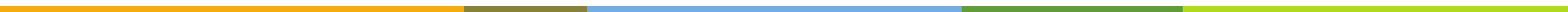




# **88W9064 Driver Release Notes**

**PR25.6.25.0-P1114.D2119**

Jul 31, 2022





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## 1. Package Information

- 88W906X-Release-PR25.6.25.0-P1114-D2119.00.zip

## 2. Software Release Version Info

- Device 88W9064
- Driver Package D2119
  - WLAN Driver
- Product/SMAC FW
  - W9064.bin 25.6.25.0-P1114
- Supported Linux Kernel versions Linux 4.4.120

### Driver/Firmware version:

Following is an explanation of each digit in the versioning scheme designed for the firmware:

- **Major Revision (first number from the left):** Tracks the main driver/FW version, usually chip family related.
- **Release Revision (second number from the left):** Tracks the incremental changes in the consequent driver/firmware releases given to QA or customers.
- **Minor Number (third number from the left):** Tracks software components and major features.
- **Patch Number (fourth number from the left):** Used when an interim firmware build is provided that is based on a previous release plus specific bug fixes/feature enhancement. Patch Number starts at zero (no patch) and increments if subsequent patches are provided.

## 3. Supported Host/SOC Platform

- CA7742-CG
- 88F3900
- CN9130

## 4. Tested HW

- RDWAP9064
- CN9130 Development platform + RDWMC9064



## 5. WLAN Features

### 5.1 Wireless AP Features

#### 5.1.1 802.11 a/b/g Features

- Data Rates (Up to 54 Mbps)
- Defragmentation
- ERP protection, Slot time, Preamble

#### 5.1.2 802.11d

- 802.11d - Regulatory Domain/Operating Class/Country Info

#### 5.1.3 802.11e – QoS

- EDCA[Enhanced Distributed Channel Access] / WMM (Wireless Multi-Media)
- U-APSD[Unscheduled Automatic Power save and Delivery]/ WMM-Power save

#### 5.1.4 802.11i - Security

- Open and Shared Authentication
- Auto Authentication
- WEP Security (64/128 bit)
- WPA-PSK, WPA2-PSK (TKIP and AES-CCMP Encryption)
- 802.1x EAP Authentication methods (TLS, TTLS, PEAPv0, PEAPv1, SIM, AKA, FAST), (using Hostapd only)
- WPA3-R3, SAE Security, PMF
- Open source Host based Authenticator Support (Hostapd)
- Group Key Refresh (Rekeying GTK)

#### 5.1.5 802.11n - High Throughput

- 2.4GHz Band Operation
- 5GHz Band Operation
- 20/40 MHz Channel Bandwidth
- 20/40 MHz Coexistence Support
- Short/Long Guard Interval (400ns/800ns)
- HT Duplicate mode (MCS32)
- AMPDU and AMSDU 4K/8K Aggregation
- AMSDU Over AMPDU
- HT Protection Mechanisms
- RX LDPC
- TX and RX STBC
- Explicit Beamforming



- Implicit Beamforming

#### **5.1.6 802.11ac - Very High Throughput**

- 2.4GHz Band Operation (20/40 MHz channel bandwidth)
- 5GHz Band Operation (20/40/80/160/80+80 MHz channel bandwidth)
- Short/Long Guard Interval (400ns/800ns)
- AMPDU and AMSDU 4K/8K/11k Aggregation
- 11ac Data rates (MCS 0 to MCS 9)
- 256 QAM Modulation
- RTS/CTS with BW Signaling
- CCA on Secondary Channel
- Downlink MU-MIMO (up to 4 users)
- Explicit Beamforming
- Implicit Beamforming

#### **5.1.7 802.11ax – High Efficient Throughput**

- 2.4GHz Band Operation (20/40 MHz channel bandwidth)
- 5GHz Band Operation (20/40/80/160/80+80 MHz channel bandwidth)
- AMPDU and AMSDU 4K/8K/11k Aggregation
- 1024 QAM Modulation – MCS10 and MCS11
- 11ax Data rates (MCS 0 to MCS 11)
- Backward Compatibility with 11a/b/g/n/ac devices
- CCA on Secondary Channel
- Explicit Beamforming
- Implicit Beamforming
- Aggressive Packet Extension
- DCM
- Super BA (128)
- Operation Mode Indication (OMI)
- Downlink OFDMA (up to 8 users)
- Uplink OFDMA (up to 8 users)
- AP TWT (Broadcast)
- Downlink MU-MIMO (up to 4 users)

#### **5.1.8 General Features**

- Automatic Channel Selection (ACS)
- Hidden SSID (Broadcast SSID Disabled)
- MAC Address Filter (Allowed/Denied List)
- Age out feature for Associated Stations
- 320 Stations Supported



- BSS Privacy Control or Packet forward Control or AP Isolation
- Restrict Client Associations based on PHY mode (a/b/g/n/ac/ax)
- WDS
- EasyMesh R2
- CSI API
- Support to store CalData in Host Flash
- Zero-wait DFS
- Multi-Band Operation (MBO)
- Optimized Connectivity (OCE)
- Air Time Fairness

#### **5.1.9 WPS/WSC2.0 Functionality**

- PIN Config Method - 8 Digit/4 Digit
- PBC - Virtual Push Button Config Method
- PBC Session Overlap Detection
- Backward Compatibility with WPS1.0 Devices
- Support using Hostapd

#### **5.1.10 802.11k – Radio Resource Measurement**

- Beacon Report
- Link Measurement
- Power Measurement
- Neighbor Report
- Traffic Stream/Category Measurement

#### **5.1.11 802.11v – Wireless Network Management**

- BSS Transition Management

#### **5.1.12 802.11r – Fast BSS Transition (FT)**

- FT over Air
- FT over DS (Distribution System)



## 6. WFA Pre-Certifications

Below WFA certs have passed

- AP 802.11n
- AP 802.11ac
- AP Wi-Fi 6
- AP WMM-PS
- AP WPS1.0-2.0
- PMF
- MBO
- Voice enterprise



## 7. Test Results

### 88W9064 - 2.4GHz

BW (MHz)	Mode	STA	Security	UDP Tx (Mbps)	UDP Rx (Mbps)	TCP Tx (Mbps)	TCP Rx (Mbps)
20	Cabled	88W9064	Open	506	491	474	442
			WPA2	505	497	471	440
	OTA	88W9064	Open	465	446	448	389
			WPA2	449	456	424	379
	OTA	MacBook Pro (3x3)	Open	172	188	154	170
			WPA2	176	185	148	169
40	Cabled	88W9064	Open	1017	1000	938	887
			WPA2	1013	997	931	882
	OTA	88W9064	Open	804	797	758	742
			WPA2	802	799	763	759

Note: Default auto GI used.





# 88W9064 - 5GHz

BW (MHz)	Mode	STA	Security	UDP Tx (Mbps)	UDP Rx (Mbps)	TCP Tx (Mbps)	TCP Rx (Mbps)
20	Cabled	88W9064	Open	507	518	465	469
			WPA2	517	517	466	467
	OTA	88W9064	Open	507	511	475	458
			WPA2	501	509	467	459
40	Cabled	88W9064	Open	1037	1039	940	941
			WPA2	1013	1037	931	941
	OTA	88W9064	Open	968	986	845	871
			WPA2	945	973	864	862
80	Cabled	88W9064	Open	2122	2130	1862	1845
			WPA2	2126	2128	1870	1860
	OTA	88W9064	Open	1841	1853	1665	1595
			WPA2	1850	1880	1628	1577
	OTA	MacBook Pro (3x3)	Open	1141	1101	1001	984
			WPA2	1098	1096	998	988

Note: Default Auto GI used



## 8. Issues Fixed & Enhancements

- In CVE-2020-26139 test, AP forwards EAP packet from an unauthenticated STA
- Driver slab out-of-bounds when processing beacon report
- Xbox 360 cannot connect to W9064 AP
- In multi-station connect/disconnect stress test, firmware exception may occur due to station databased overflow
- In a rare chance, FW stuck at off channel scan

## 9. Known Issues

- N/A

## 10. Notes

This release requires LSP version 18.09 with 88F3900 platform