

DATASHEET

Wi-Fi 6 11ax Mini PCIe Module AW7915-NPD-2X



Description

The AW7915-NPD-2X is a Wi-Fi 6 Mini PCIe Module based on the Mediatek MT7915DAN chipset which supports Wi-Fi PHY rate of 573+1201 Mbps and complies with IEEE 802.11ax standards. It offers feature-rich wireless connectivity in Dual Bands Dual Concurrent (DBDC) mode, supporting simultaneous operation in the 2.4GHz and 5GHz bands.

The module features optimized RF architecture and baseband algorithms, providing superb performance and low power consumption. Its intelligent MAC design offloads Wi-Fi tasks from the host processor.

Deep sleep mode is supported with multiple power domains implemented on the chip, enabling low power consumption. The module includes two CPU systems with 32-bit RISC MCU subsystems for clock control, power management, and host interface configuration. PDMA engine support on-the-fly data buffer management.

The MT7915DAN chipset combines the Wi-Fi MAC and BBP subsystems, working together with the MT7915DAN chipset, to deliver best-in-class radio performance and low power consumption. It also supports MU-MIMO with different configurations for enhanced multi-user connectivity. The module utilizes PCIe 2.1 for stable bandwidth between the host platform and the chipset. It provides high data throughput over WiFi and is designed for optimal performance and power efficiency. Additionally, it features anti-vibration External Antenna connectors (MMCX) x2 for enhanced signal stability.



Features

- **Wi-Fi PHY rate:** 2T2R in 2.4GHz+2T2R in 5GHz with support of up to 573+1201Mbps
- **Channels Bandwidth:** Supports 20/40MHz BW in 2.4G band and 20/40/80MHz BW in 5G band
- **Support Space-time block codes (STBC) and Low density Parity check (LDPC)**
- **Support digital pre-distortion** to enhance PA performance
- **Smoothing (channel estimation) extension** to MIMO case
- DFS radar detection
- Embedded ARM Cortex R4 processor for full host CPU offload
- **Microprocessor:** Embedded 32-bit RISC
- **Beamformer:** Decoded BW20/40/80 up to 2x2 BF matrix apply
- **Beamformee:** Decoded BW20/40/80 up to 4x2 MU matrix feedback
- **Modes:** Greenfield, mixed mode, legacy modes support
- **Highly integrated:** RF with 40nm low power process
- **Noise mitigation:**
 - Supports background scan function for fast channel switching
 - Supports spectrum analysis for non-Wi-Fi signals
- **Intelligent power saving:**
 - WFA WMM, WMM PS (QoS)
- **Integrate high efficiency:** internal 2.4G/5G PAs
- **Intelligent Calibration (iCal):** reduces the production time

For more detailed information, please contact our sales team: sales@asiarf.com / +886 2 2940 7880



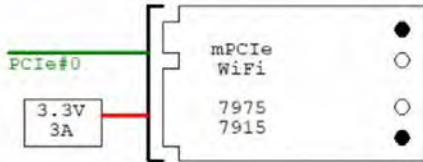
Specifications

Standard	Wireless: IEEE 802.11a/b/g/n/ac/ax (2Tx2R)
BUS Interface	Mini PCIe
Data Rate	IEEE802.11b 11Mbps IEEE802.11a/g 54Mbps IEEE802.11n 600Mbps IEEE802.11ac 1107Mbps IEEE802.11ax 1773Mbps
Output Power	11b: 23dbm+/- 1.5dbm @ 11Mbps 11g: 20dbm+/- 1.5dbm @ 54Mbps 11g/n: 20dBm +/- 1.5dbm @MCS7,HT20, 17dBm@MCS7,HT40 11a: 19.5dBm +/- 1.5dbm @ 54Mbps 11a/n: 19.5dBm+/- 1.5dbm @MCS7,HT20, 17dBm@MCS7,HT40 11ac HT20: 20+/-1.5dBm@MCS8 11ac HT40: 17+/-1.5dBm@MCS9 11ac HT80: 14.5+/-1.5dBm@MCS9 11ax HT20: 20+/-1.5dBm@MCS9 11ax HT40: 17+/-1.5dBm@MCS9 11ax HT80: 14.5+/-1.5dBm@MCS11
Certification	CE FCC ID: TKZAW7915-NPD IC ID: 9968A-AW7915NPD NCC: CCAF22Y10240T1
Receiver Sensitivity	11b: -99dBm@11Mbps 11g: -95dBm@54Mbps 11g/n: -90dBm@HT20,MCS7, -86dBm@HT40,MCS7 11a: -90Bm@54Mbps 11a/n: -85dBm@HT20,MCS7, -81dBm@HT40,MCS7 11ac: -90dBm+/-2dBm @VHT20 MCS8 11ac: -85dBm+/-2dBm @VHT40 MCS9 11ac: -68dBm+/-2dBm @VHT80 MCS9 11ax: -61dBm+/-2dBm @HE20 MCS11 11ax: -58dBm+/-2dBm @HE40 MCS11 11ax: -55dBm+/-2dBm @HE80 MCS11
Antenna	External Antenna connector (MMCX) x2
Frequency Range	US, Canada 2.412GHz~2.462 GHz (CH1~CH11) EU, Japan: 2.412GHz~2.472GHz (CH1~CH13) 5.15GHz ~5.875GHz
Software	Security: 64/128-bit WEP Encryption, WPA, WPA2 Driver: Linux
Operating Voltage	DC 3.3V ± 5%
Temperature	Operating: 0°C ~ +70°C Storage : -20°C ~ +90°C
Humidity	Operating Humidity: 10%~90% non-condensing Storage Humidity: 10%~90% non-condensing
Dimension	51(H) x 30(W)mm
Weight	0.0125 kg

* Power consumption maximum is 10W, average is 8W. Main board should provide 3.3V-3A minimum.



Wi-Fi 6 11ax Mini PCIe Module AW7915-NPD-2X

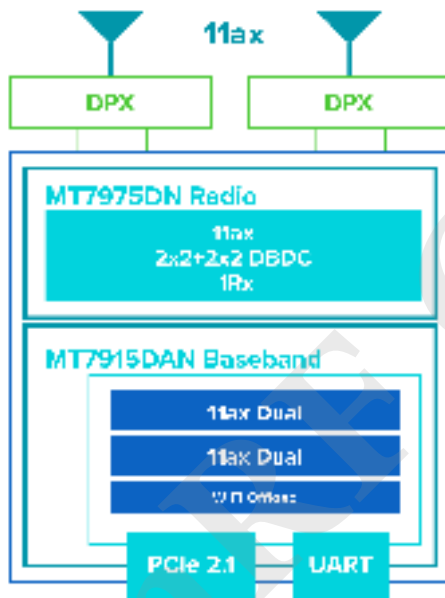


11ax related reading:

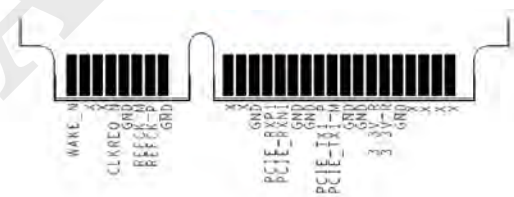
[Introduction to 802.11ax High-Efficiency Wireless - NI](#)

[IEEE 802.11ax - Wikipedi](#)

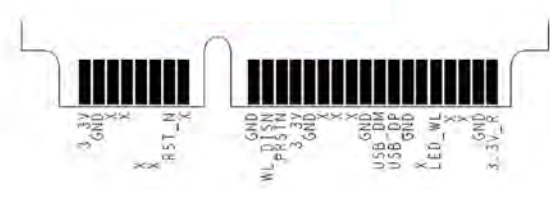
Block Diagram



Top Side



Bottom Side



* However, the "p" and "n" connections may be reversed





Wi-Fi 6 11ax Mini PCIe Module

AW7915-NPD-2X

Revision History

Version	Revision Date	Description	Author	HW Vetted	SW Vetted	Approved
Version 1.0	2024/3/19	Datasheet Release	Ian	Bill	N/A	Paul

