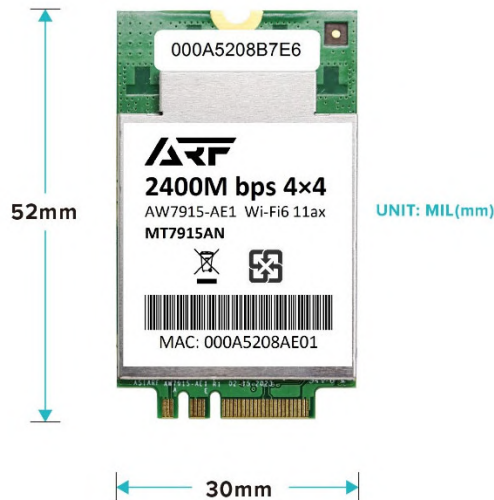


**DATASHEET****WiFi 6 11ax M.2 AE Key Module AW7915-AE1**

## Description

The AW7915-AE1 is a WiFi6 M.2 AE key Module based on the Mediatek MT7915AN chipset. It supports a PHY rate of 2401 Mbps and complies with IEEE 802.11ax/ac standards. It offers reliable wireless connectivity with optimized performance and low power consumption.

The module features an intelligent MAC design that offloads Wi-Fi tasks from the host processor. It supports standard-based features for security, quality of service, and international regulations.

Deep sleep mode is available with multiple power domains implemented on the chip. It includes two CPU systems with 32-bit RISC MCU subsystems for clock control, power management, and host interface configuration. PDMA engines enable efficient data buffer management.

The MT7915AN chipset combines the WiFi MAC and BBP subsystems, delivering excellent radio performance and low power consumption. It supports MU-MIMO with different configurations for enhanced multi-user connectivity.

The module utilizes PCIe for stable bandwidth between the host platform and the chipset. It provides high data throughput over WiFi and is designed for optimal performance with low power consumption.

In summary, the AW7915-AE1 M.2 AE key Module offers reliable WiFi6 connectivity with optimized performance and power efficiency.

Version: 1.0

Release date: 2023-08-17

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## Features

- Supports 4×4 4SS 11ax wave2 MU-MIMO
- MU-MIMO configurations of
  - 4 users: 4\*1ss
  - 3 users: 2\*1ss + 1\*2ss or 3\*1ss
  - 2 users: 2\*2ss or 1\*1ss + 1\*2ss or 2\*1ss
- Supports 5, 10, 20, 40, 80, 80+80 channels
- Support MU-OFDMA TX/RX
- Embedded ARM Cortex R4 processor for full host CPU offload
- Embedded 32-bit RISC microprocessor
- Support STBC, LDPC, TX Beamformer and RX Beamforming
- Greenfield, mixed mode, legacy modes support
- Highly integrated RF with 40nm low power process
- 4T4R with support of up to 2401Mbps PHY rate
- Configurable 4×4/3×3
- 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 4G/5G PAs
- Intelligent Calibration (iCal) reduces the production time
- WoWLAN via GPIO (client mode), supports Host Sleep (AP mode)

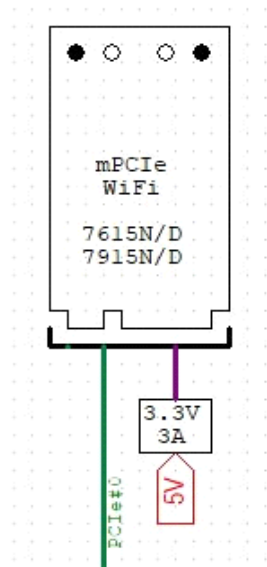


## Specifications

Standard	Wireless: IEEE 802.11ax/ac/b/g/n (4Tx4R)
BUS Interface	M.2 AE Key
Data Rate	IEEE802.11ax 2401Mbps @TX/RX IEEE802.11ac 1733Mbps @TX/RX IEEE802.11a/n 600Mbps @TX/RX IEEE802.11a/g 108Mbps IEEE802.11b 22Mbps
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
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 (IPEX) x4
Frequency Range	US, Canada 2.412 GHz ~ 2.462 GHz (CH1~CH11) EU, Japan: 2.412 GHz ~ 2.472 GHz (CH1~CH13) 5.15 GHz ~ 5.875 GHz
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	50.95(H) x 30(W)mm
Weight	0.0125 kg



Power consumption maximum is 9W, average is 4 – 8W. Main board Power Supply design please provide 3.3V 3A, minimum 3.3V 2.5A.



11ax related reading:

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

[IEEE 802.11ax - Wikipedia](#)



## AW7915-AE1 Block Diagram

