

WMU6204



High performance 2x2 Dual-Band 802.11ac

Wi-Fi with MU-MIMO and Bluetooth 4.2

WMU6204 is a highly integrated single-chip that supports 2-stream 802.11ac solutions with Multi-user MIMO (Multiple-Input, Multiple-Output) and Wireless LAN (WLAN) with integrated Bluetooth 4.2 USB-multi interface controller. It combines a WLAN MAC, a 2T2R capable WLAN baseband, and RF in a single chip. The WMU6204 provides a complete solution for a high-performance integrated wireless and Bluetooth USB Module.

Features

- 802.11ac 2x2, Wave-2 compatible with MU-MIMO
- Data rates: 173.3Mbps using 20MHz bandwidth, 400Mbps using 40MHz bandwidth, and 866.7Mbps using 80MHz bandwidth.
- It supports Multiple drivers (Android/ Windows/ Linux) for various application.

System Information

Wireless : IEEE 802.11a/b/g/n/ac (2T2R)

Bluetooth: v2.1/v3.0/v4.1/v4.2

Chipset : Realtek RTL8822BU-CG

LED: WiFi Status

Data Rate

802.11b: 11Mbps

802.11a/g: 54Mbps

802.11n: 300Mbps

802.11ac: 867Mbps

Operating Frequency

IEEE802.11bgn: 2.412GHz~2.484GHz

IEEE802.11ac: 5.180GHz~5.850GHz

Application

TV and Set-top box, medical devices, PoS, digital signs, gaming machines, handheld devices, digital Scale, ect.

Specification

Standards	IEEE 802.11ac/a/b/g/n (2T2R) Bluetooth v4.2, v4.1, v4.0 LE, v3.0+HS, v2.1+EDR
Chipset	Realtek RTL8822BU-CG
Interface	USB for WiFi, USB for BT
Form Factor	USB Type A
Antenna	2x IPEX MHF1 connectors
Modulation	<p>Wi-Fi:</p> <p>802.11b: DSSS (DBPSK, DQPSK, CCK)</p> <p>802.11g: OFDM (BPSK, QPSK, 16-QAM, 64-QAM)</p> <p>802.11n: OFDM (BPSK, QPSK, 16-QAM, 64-QAM)</p> <p>802.11a: OFDM (BPSK, QPSK, 16-QAM, 64-QAM)</p> <p>802.11ac: OFDM (BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM)</p> <p>Bluetooth:</p> <p>Header: GFSK, Payload 2M: $\pi/4$-DQPSK, Payload 3M: 8-DPSK</p>
Power Consumption	2W
Operating Voltage	DC 5V \pm 10%
Operating Temperature Range	-20°C~70°C
Storage Temperature Range	-45°C~85°C
Operating Humidity (Non-Condensing)	5%~95%
Storage Humidity (Non-Condensing)	5%~90%
Power Consumption	2W (Max)
Dimension L x W x H (in mm)	54.7 x 20mm
Driver Support	Windows 7, Windows 8, Windows 10, Linux, Android
Security	64/128-bits WEP, WPA, WPA2
Certification	FCC/CE/IC

Output Power & Sensitivity

802.11b/g		
Data Rate	TX +/- 2dB	RX Sensitivity +/- 2dB
1~11Mbps	15 dBm	-80 dBm
24Mbps	15 dBm	-70 dBm
54Mbps	14 dBm	-70 dBm

802.11n / 2.4GHz				
Data Rate		TX +/- 2dB (1TX)	TX +/- 2dB (2TX)	RX Sensitivity +/- 2dB
VHT 20	MCS0	15 dBm	18 dBm	-70 dBm
	MCS4	14 dBm	17 dBm	-60dBm
	MCS7	13 dBm	16 dBm	-60 dBm
VHT 40	MCS0	15 dBm	18 dBm	-70dBm
	MCS4	14 dBm	17 dBm	-60 dBm
	MCS7	13 dBm	16 dBm	-60 dBm

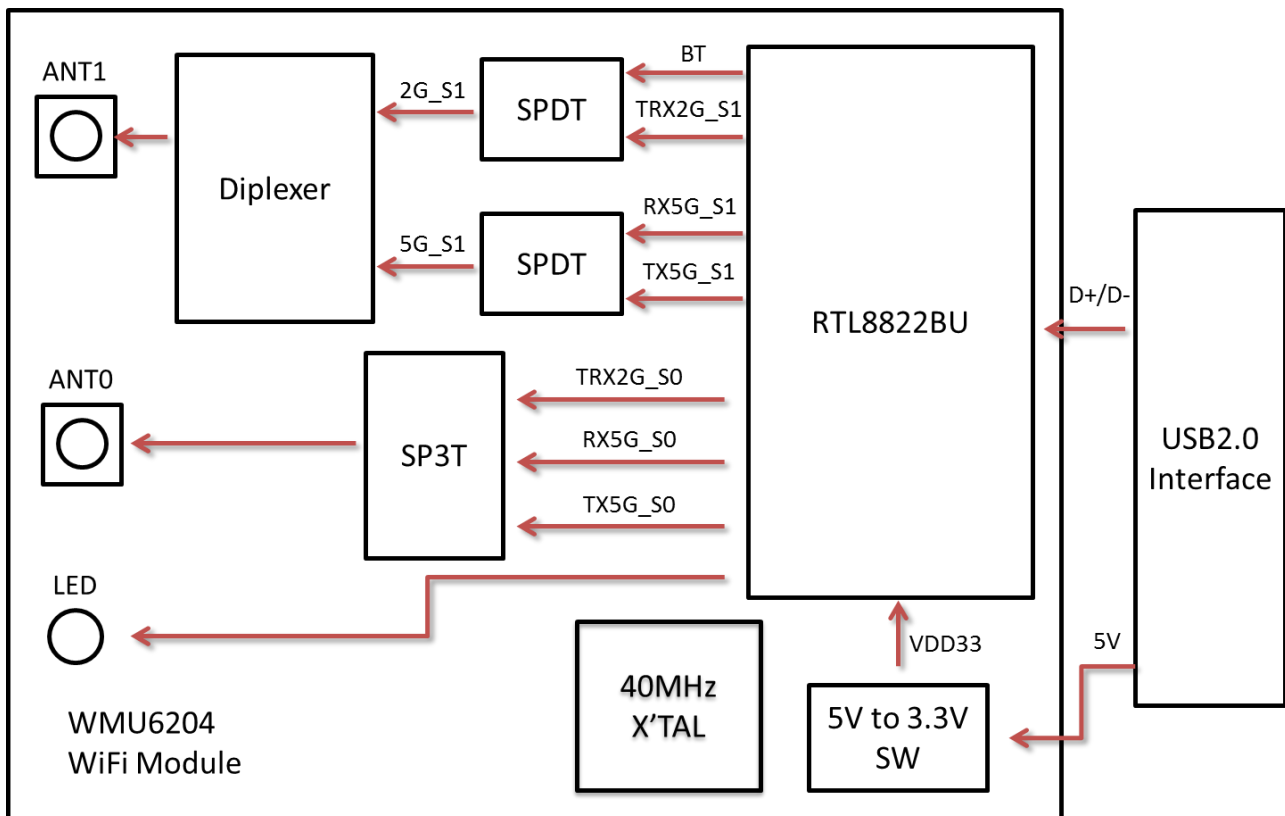
802.11a		
Data Rate	TX +/- 2dB	RX Sensitivity +/- 2dB
6Mbps	15 dBm	-70 dBm
24Mbps	15 dBm	-70 dBm
54Mbps	13 dBm	-70 dBm

802.11n / 5GHz				
Data Rate		TX +/- 2dB (1TX)	TX +/- 2dB (2TX)	RX Sensitivity +/- 2dB
VHT 20	MCS0	14 dBm	17 dBm	-70 dBm
	MCS4	13 dBm	16 dBm	-60 dBm
	MCS7	12 dBm	15 dBm	-60 dBm
VHT 40	MCS0	14 dBm	17 dBm	-70 dBm
	MCS4	13 dBm	16 dBm	-60 dBm
	MCS7	12 dBm	15 dBm	-60 dBm

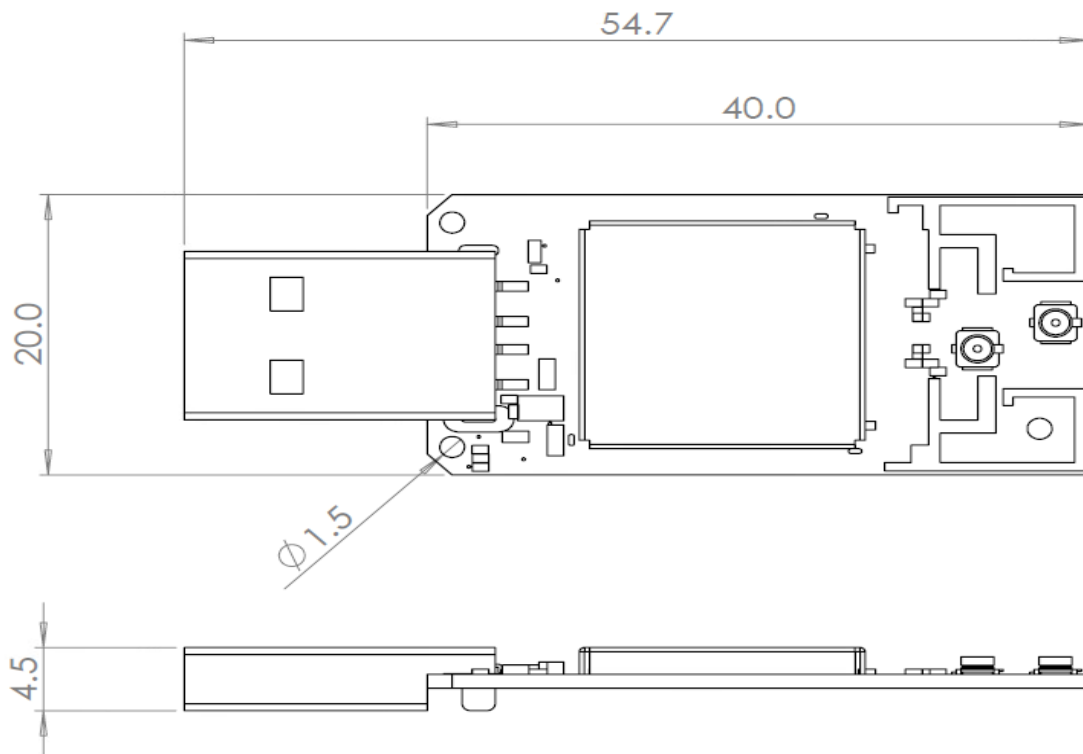
802.11ac				
Data Rate		Tx +/- 2dB (1TX)	Tx +/- 2dB (2TX)	RX Sensitivity +/- 2dB
VHT 20	MCS0	14 dBm	17 dBm	-70 dBm
	MCS4	13 dBm	16 dBm	-60 dBm
	MCS8	12 dBm	15 dBm	-60 dBm
VHT 40	MCS0	12 dBm	15 dBm	-60 dBm
	MCS4	10 dBm	13 dBm	-50 dBm
	MCS9	9 dBm	12 dBm	-50 dBm
VHT 80	MCS0	12 dBm	15 dBm	-60 dBm
	MCS4	10 dBm	13 dBm	-60 dBm
	MCS9	9 dBm	12 dBm	-50 dBm

Bluetooth		
Data Rate	Tx +/- 2dB (Class 2 device)	Rx Sensitivity +/- 2dB
3Mbps	$0 \leq \text{Output Power} \leq +4\text{dBm}$	<0.1% BER at -70dBm

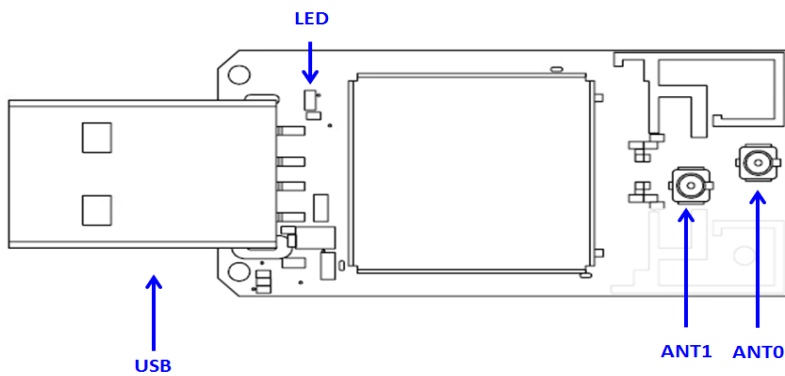
Block Diagram



Dimension



Pin Assignment



Pin Name	Description
USB	USB Type-A connector for USB2.0
LED	WiFi LED
Ant_0	RF Antenna for WiFi 2.4GHz/5GHz
Ant_1	RF Antenna for WiFi 2.4GHz/5GHz & Bluetooth

Order Information

Product Name	Description
WMU6204	802.11ac/a/b/g/n 2x2 & BT4.2 USB Module (USB Type A + IPEX)