

WMU6202



High performance 2x2 Dual-Band 802.11ac

Wi-Fi with MU-MIMO and Bluetooth 4.2

WMU6202 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 WMU6202 provides a complete solution for a high-performance integrated wireless and Bluetooth Half Mini PCIe 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

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	Half Mini PCIe
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 3.3V \pm %
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)	26.8 x 30mm
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	18 dBm	-90 dBm
24Mbps	18 dBm	-80 dBm
54Mbps	16 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

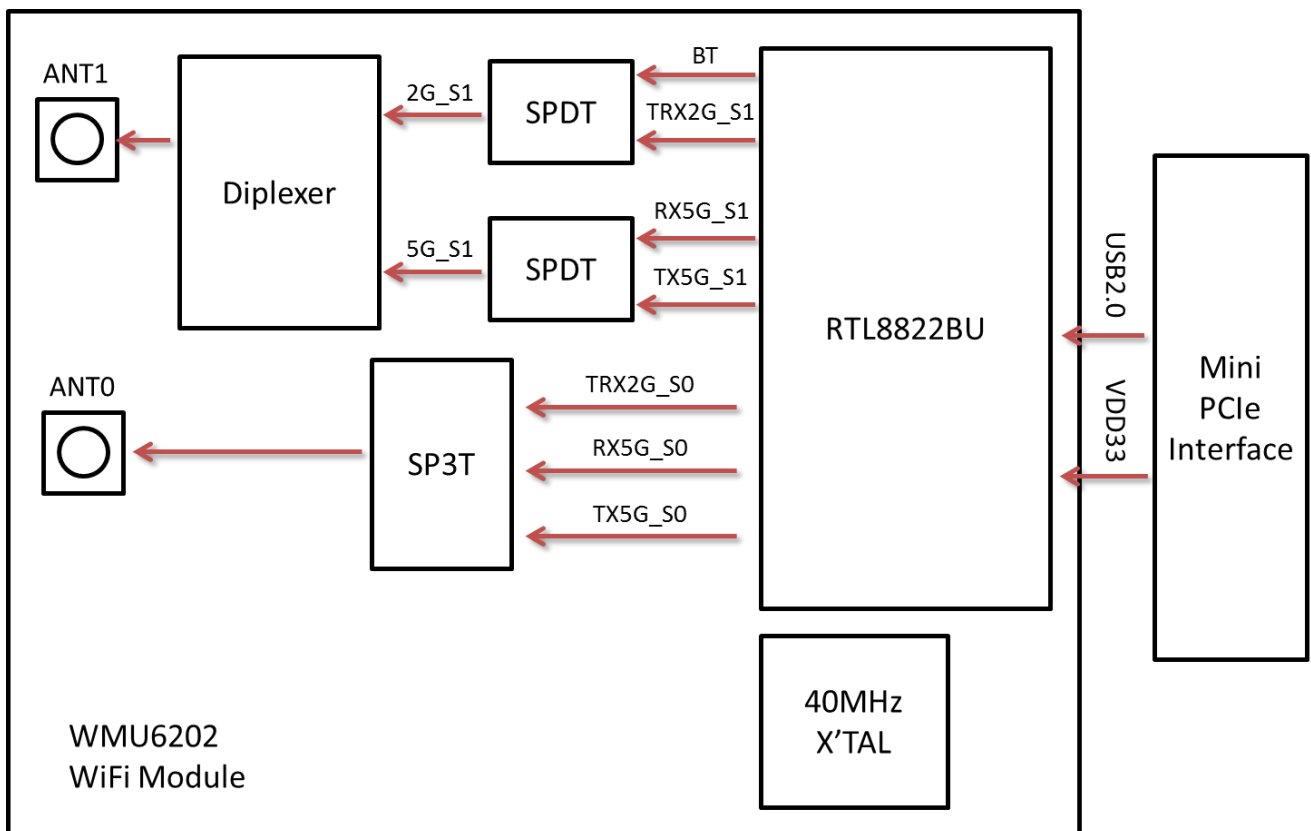
802.11ac

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

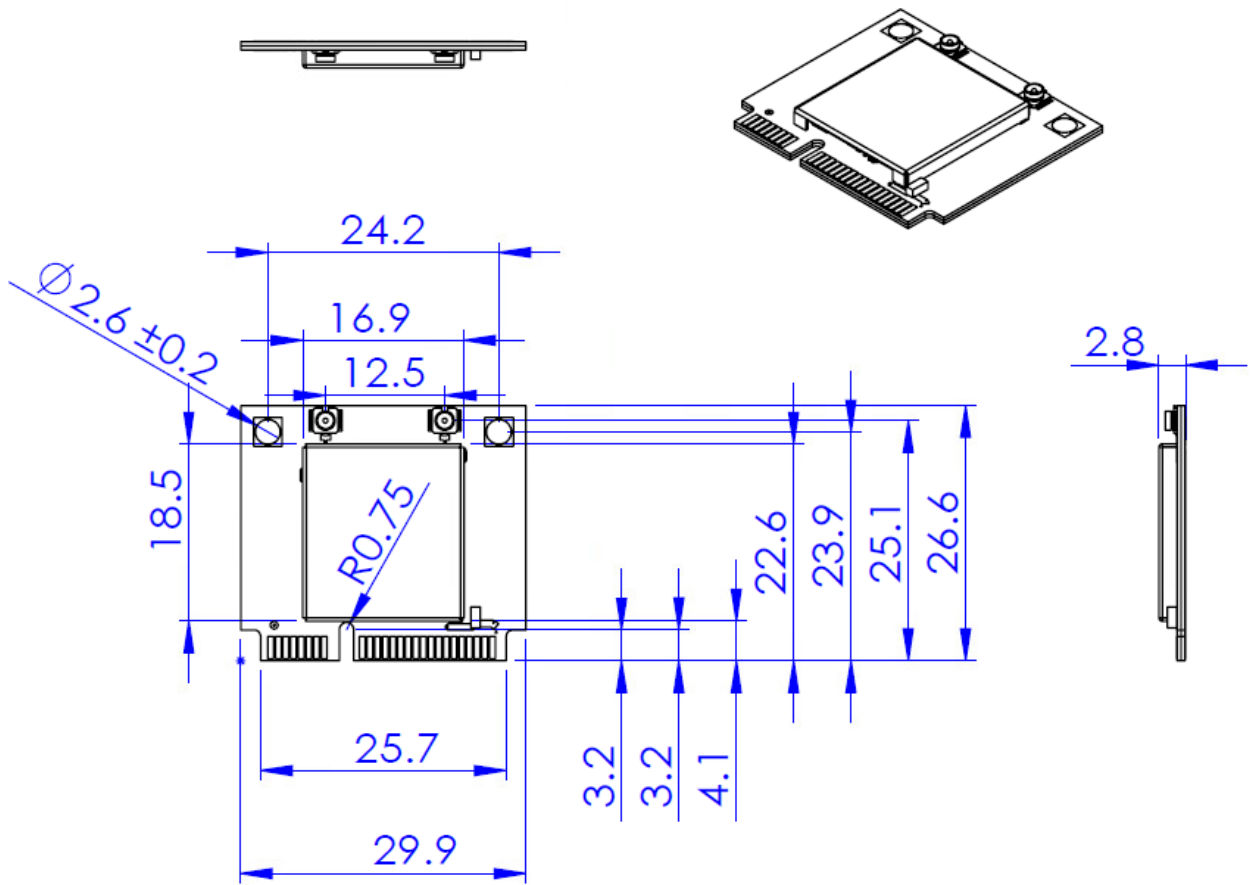
Bluetooth

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

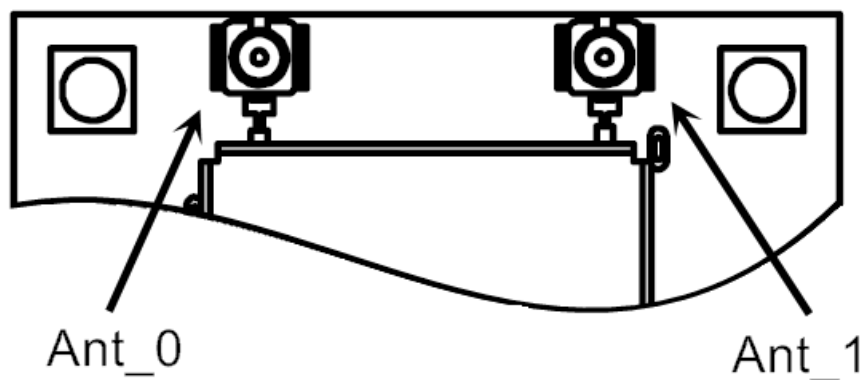
Block Diagram



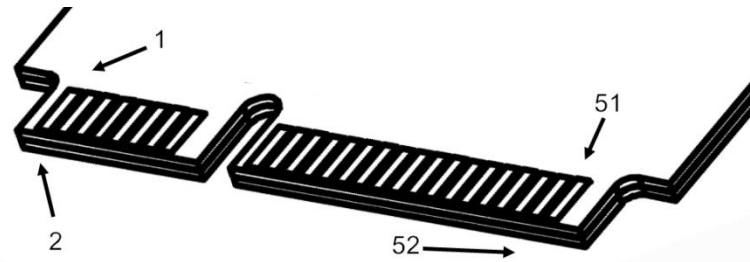
Dimension



Pin Assignment

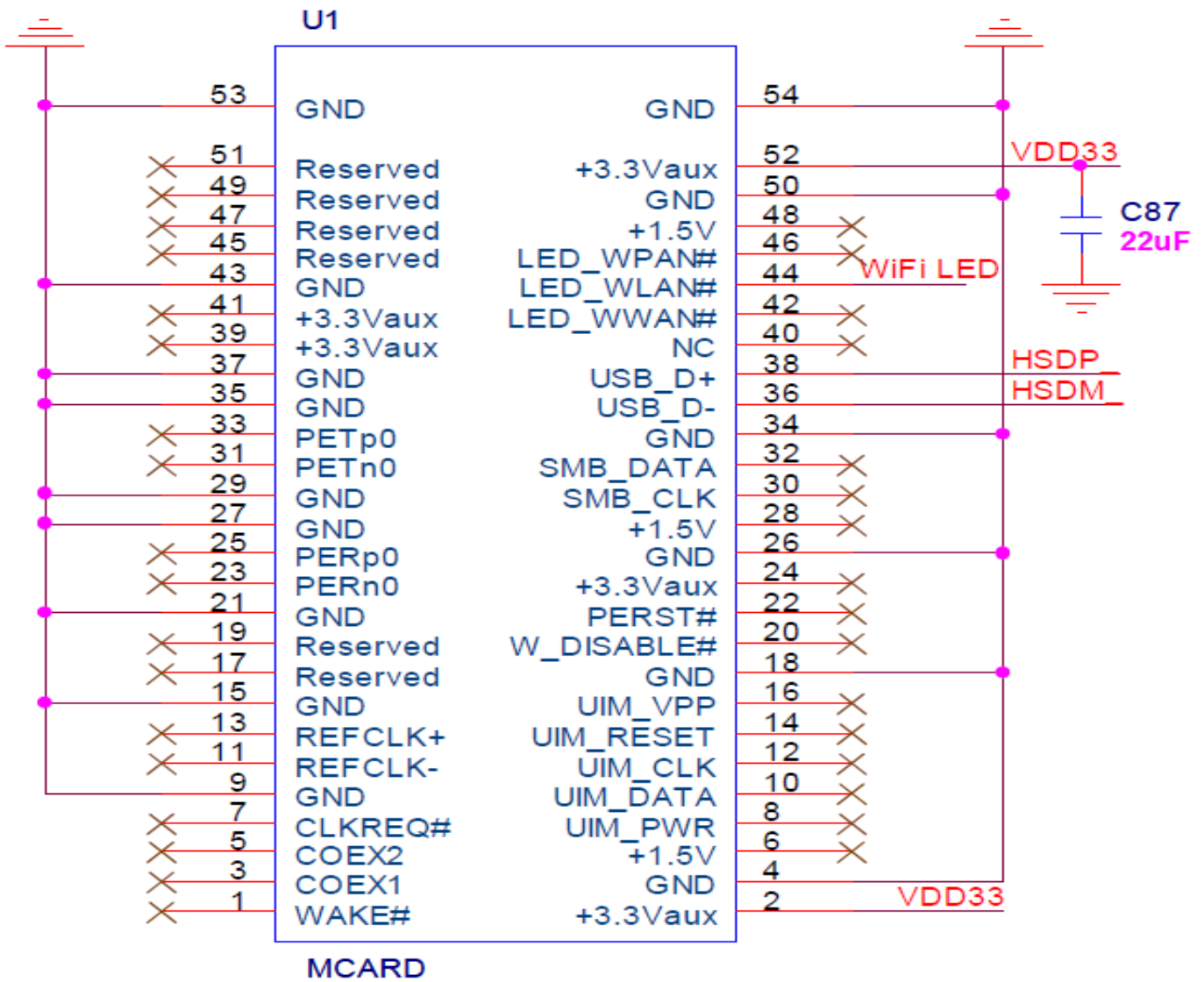


Pin Name	Description
Ant_0	RF Antenna for WiFi 2.4GHz/5GHz
Ant_1	RF Antenna for WiFi 2.4GHz/5GHz & Bluetooth



Pin Assignment

PIN#	Pin Name	Design Status	PIN#	Pin Name	Design Status
1	WAKE#	NC	2	+3.3Vaux	VDD33
3	COEX1	NC	4	GND	GND
5	COEX2	NC	6	+1.5V	NC
7	CLKREQ#	NC	8	UIM_PWR	NC
9	GND	GND	10	UIM_DATA	NC
11	REFCLK-	NC	12	UIM_CLK	NC
13	REFCLK+	NC	14	UIM_RESET	NC
15	GND	GND	16	UIM_VPP	NC
17	Reserved	NC	18	GND	GND
19	Reserved	NC	20	W_DISABLE#	NC
21	GND	GND	22	PERST#	NC
23	PERn0	NC	24	+3.3Vaux	NC
25	PERp0	NC	26	GND	GND
27	GND	GND	28	+1.5V	NC
29	GND	GND	30	SMB_CLK	NC
31	PETn0	NC	32	SMB_DATA	NC
33	PETp0	NC	34	GND	GND
35	GND	GND	36	USB_D-	HSDM
37	GND	GND	38	USB_D+	HSDP
39	+3.3Vaux	NC	40	GND	NC
41	+3.3Vaux	NC	42	LED_WWAN	NC
43	GND	GND	44	LED_WLAN	WLAN_LED
45	RESERVED	NC	46	LED_WPAN	NC
47	RESERVED	NC	48	+1.5V	NC
49	RESERVED	NC	50	GND	GND
51	RESERVED	NC	52	+3.3Vaux	VDD33



Order Information

Product Name	Description
WMU6202	802.11ac/a/b/g/n 2x2 & BT4.2 Half Mini PCIe Module