

# WMU6207



## High performance 2x2 Dual-Band 802.11ac

### Wi-Fi with MU-MIMO and Bluetooth 4.2

WMU6207 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 WMU6207 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

|  |   |
|--|---|
| <b>Standards</b>                           | IEEE 802.11ac/a/b/g/n (2T2R)<br>Bluetooth v4.2, v4.1, v4.0 LE, v3.0+HS, v2.1+EDR  |
| <b>Chipset</b>                             | Realtek RTL8822BU-CG  |
| <b>Interface</b>                           | USB for WiFi, USB for BT  |
| <b>Form Factor</b>                         | 4 Pin Wafer   |
| <b>Antenna</b>                             | PCB Antenna   |
| <b>Modulation</b>                          | Wi-Fi:<br>802.11b: DSSS (DBPSK, DQPSK, CCK)<br>802.11g: OFDM (BPSK, QPSK, 16-QAM, 64-QAM)<br>802.11n: OFDM (BPSK, QPSK, 16-QAM, 64-QAM)<br>802.11a: OFDM (BPSK, QPSK, 16-QAM, 64-QAM)<br>802.11ac: OFDM (BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM)<br>Bluetooth:<br>Header: GFSK, Payload 2M: $\pi/4$ -DQPSK, Payload 3M: 8-DPSK |
| <b>Power Consumption</b>                   | 2W  |
| <b>Operating Voltage</b>                   | DC 5V $\pm$ 10%   |
| <b>Operating Temperature Range</b>         | -20°C~70°C  |
| <b>Storage Temperature Range</b>           | -45°C~85°C  |
| <b>Operating Humidity (Non-Condensing)</b> | 5%~95%  |
| <b>Storage Humidity (Non-Condensing)</b>   | 5%~90%  |
| <b>Power Consumption</b>                   | 2W (Max)  |
| <b>Dimension L x W x H (in mm)</b>         | 44.5 x 20mm   |
| <b>Driver Support</b>                      | Windows 7, Windows 8, Windows 10, Linux, Android  |
| <b>Security</b>                            | 64/128-bits WEP, WPA, WPA2  |
| <b>Certification</b>                       | 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                |

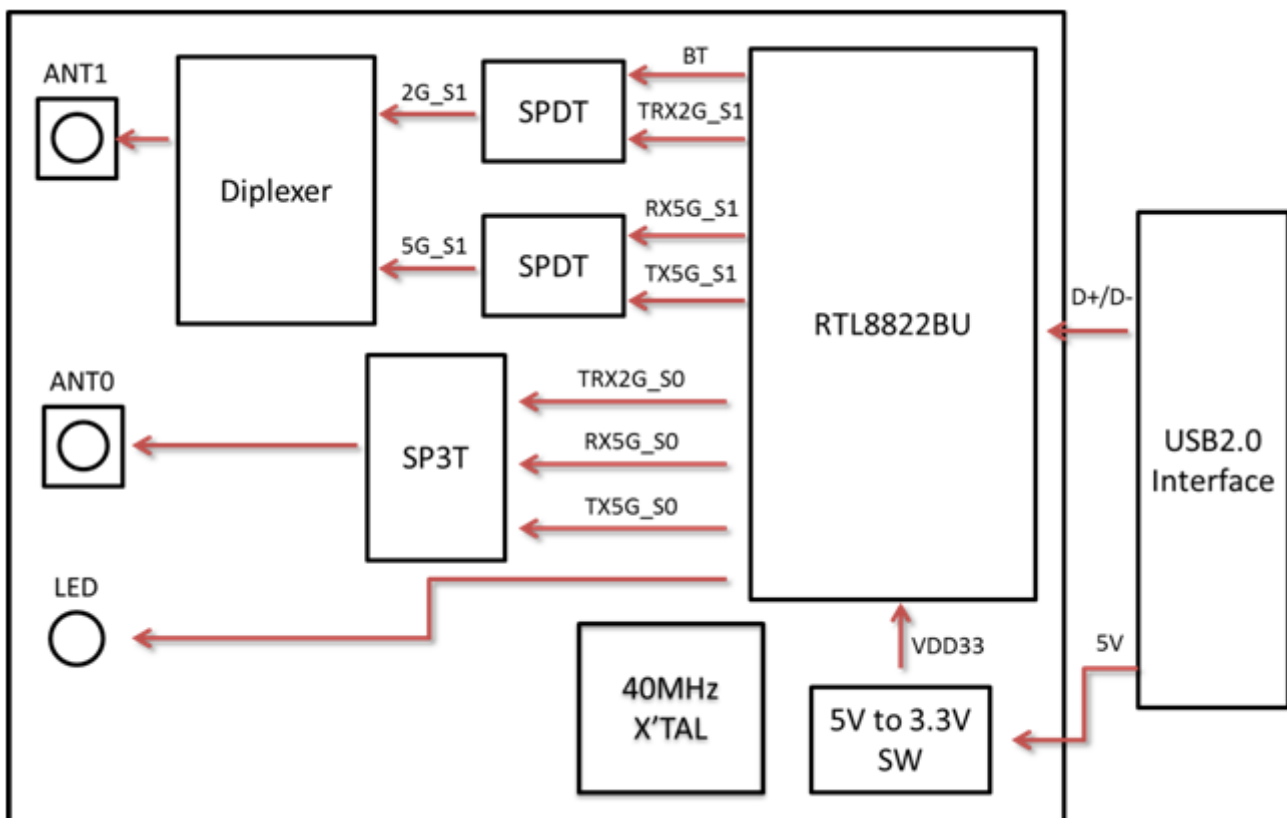
### 802.11ac

| 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                |

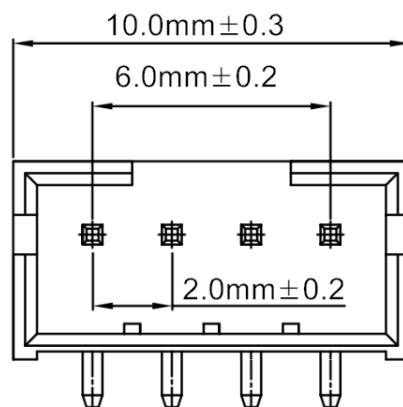
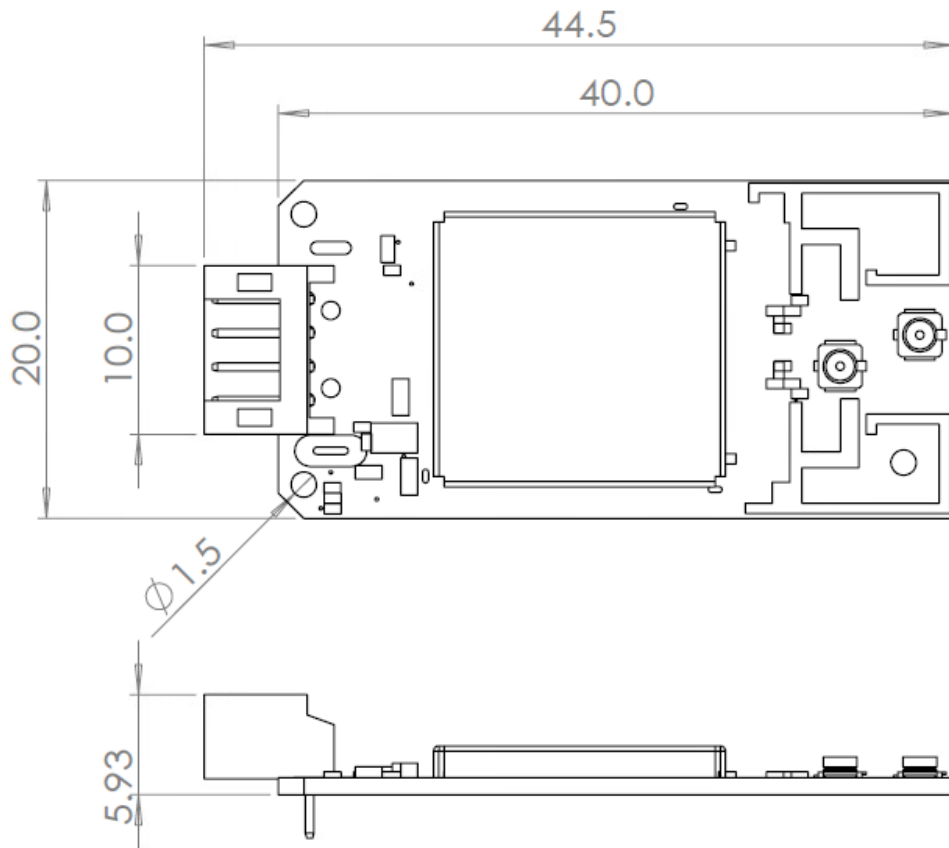
### Bluetooth

| 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    |

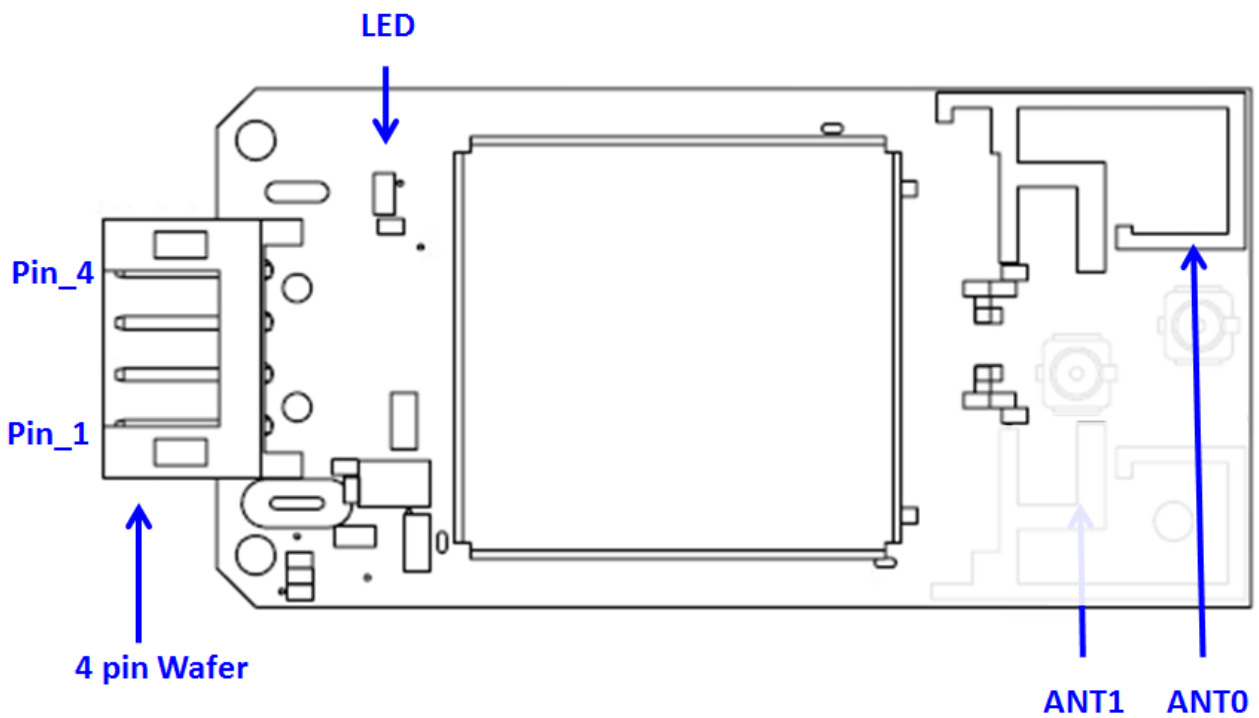
## Block Diagram



## Dimension



## Pin Assignment



| Pin Name    | Discription                                 |
|-------------|---|
| Wafer Pin_1 | USB 5V                                      |
| Wafer Pin_2 | USB D-                                      |
| Wafer Pin_3 | USB D+                                      |
| Wafer Pin_4 | USB GND                                     |
| 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   |
|--------------|---|
| WMU6207      | 802.11ac/a/b/g/n 2x2 & BT4.2 USB Module (4 pin wafer + PCB Antenna) |