

## WUBQ-159ACN(BT) Series

802.11ac/a/b/g/n Dual-Band

1T1R Wi-Fi USB Module



### Wireless USB Module for Embedded Solution

SparkLAN WUBQ-159ACN(BT) is an 802.11ac/a/b/g/n 2.4GHz+5GHz USB module based on Qualcomm QCA9377-7 chipset. It supports 1T1R with RX diversity (Support Wi-Fi/BT co-existence) technology, which runs up to 433Mbps and 1~3Mbps EDR for BT, provides higher throughput performance, reliability and range. The WUBQ-159ACN(BT) supports 20/40/80MHz and 256-QAM to maximize bandwidth efficiency.

Adopting the latest 802.11ac solution, WUBQ-159ACN(BT) is ideal for high throughput networking and multimedia applications that requires better Wi-Fi performance. WUBQ-159ACN(BT) is a single-die wireless local area network (WLAN) and Bluetooth combination solution to support 1x1 802.11ac/a/b/g/n WLAN standards, designed to deliver superior integration of WLAN.

#### Embedded Application

Applications include medical devices, security systems, 3D printer, video streaming, PoS, digital signs, gaming machine, Medical equipment, industrial tablet PC's, handheld devices, thin client devices, and many more.

#### Key Feature

- Qualcomm Atheros QCA9377-7
- Antenna: 1 x IPEX MHF1 connector or PCB Printed Ant., 1T1R
- Data Rates: allows link speeds up to 433Mbps
- Support Win7/8.1/10

**Specification**

<b>Standards</b>	IEEE 802.11ac/a/b/g/n (1T1R)
<b>Chipset</b>	Qualcomm Atheros QCA9377-7
<b>Data Rate</b>	802.11b: 11Mbps 802.11a/g: 54Mbps 802.11n: MCS0~7 802.11ac: MCS0~9
<b>Operating Frequency</b>	IEEE 802.11ac/a/b/g/n ISM Band: 2.400GHz~2.4835GHz, 5.150GHz~5.825GHz *Subject to local regulations
<b>Interface</b>	WLAN: USB
<b>Form Factor</b>	7 Pin Connector
<b>Antenna</b>	1 x IPEX MHF1 connector or PCB Printed Ant.
<b>Modulation</b>	Wi-Fi: 802.11b: DSSS (DBPSK, DQPSK, CCK) 802.11g: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 802.11n: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 802.11a: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 802.11ac: OFDM (BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM)
<b>Power Consumption</b>	TX mode: 220mA (Max.) RX mode: 150mA (Max.)
<b>Operating Voltage</b>	DC 5V
<b>Operating Temperature Range</b>	-40°C~70°C
<b>Storage Temperature Range</b>	-40°C~85°C
<b>Humidity (Non-Condensing)</b>	5%~90% (Operating) 5%~95% (Storing)
<b>Dimension L x W x H (in mm)</b>	[M7]/[P7]: 40mm(±0.3mm) x 20.2mm(±0.3mm) x 11.54mm(±0.3mm)
<b>Weight (g)</b>	[M7]/[P7]: 3.5g
<b>Driver Support</b>	Windows 7/8.1/10, Linux 4.4 (other version by project request)
<b>Security</b>	64/128-bits WEP, WPA, WPA2, 802.1x

## OUTPUT POWER & SENSITIVITY

### 802.11b

Data Rate	Tx $\pm$ 2dBm	Rx Sensitivity
11Mbps	19dBm	$\leq$ -76dBm

### 802.11g

Data Rate	Tx $\pm$ 2dBm	Rx Sensitivity
54Mbps	16dBm	$\leq$ -74dBm

### 802.11n / 2.4GHz

	Data Rate	Tx $\pm$ 2dBm	Rx Sensitivity
HT20	MCS7	16dBm	$\leq$ -70dBm
	MCS7	16dBm	$\leq$ -68dBm

### 802.11a

Data Rate	Tx $\pm$ 2dBm	Rx Sensitivity
54Mbps	13dBm	$\leq$ -73dBm

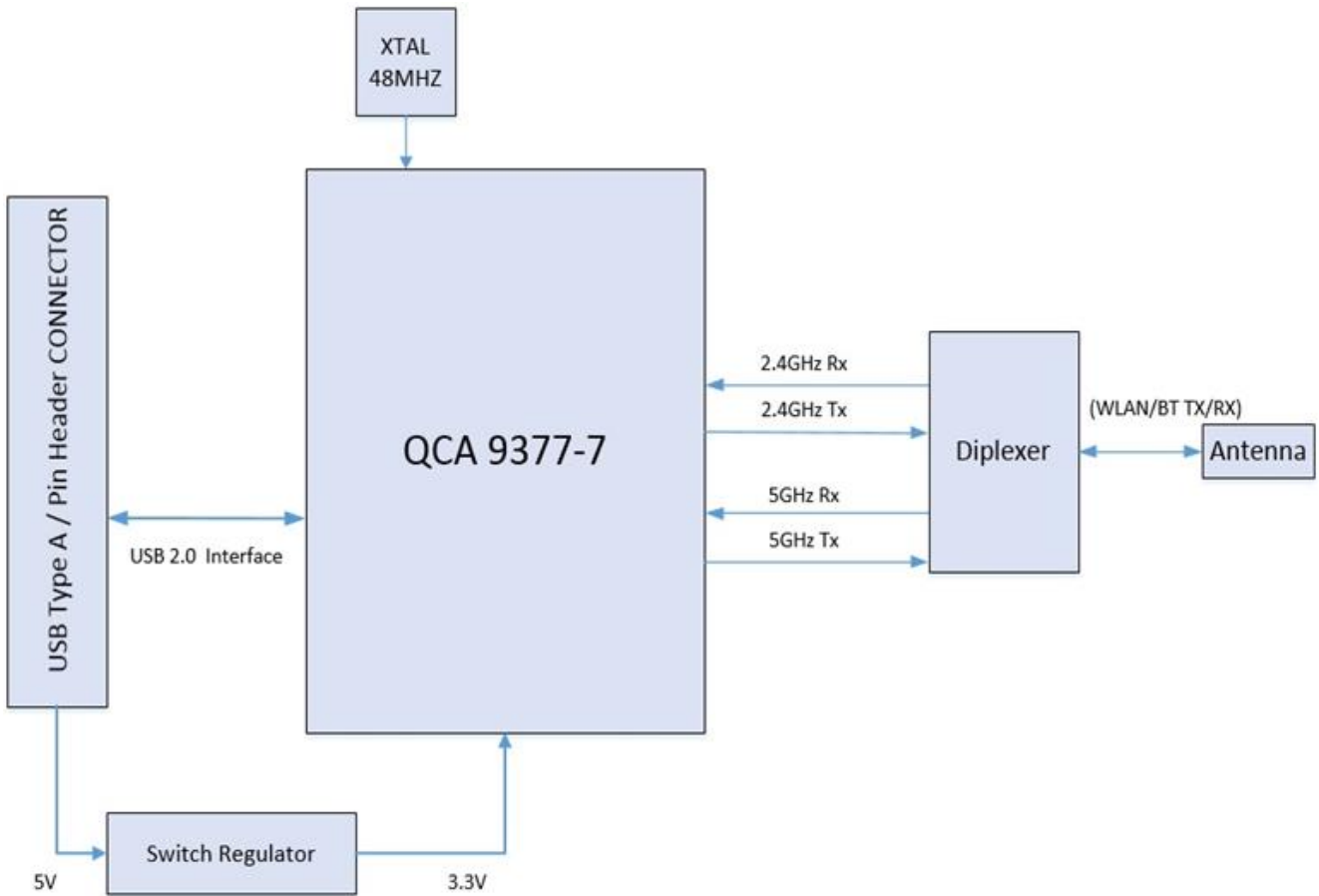
### 802.11n / 5GHz

	Data Rate	Tx $\pm$ 2dBm	Rx Sensitivity
HT20	MCS7	13dBm	$\leq$ -67dBm
	MCS7	13dBm	$\leq$ -63dBm

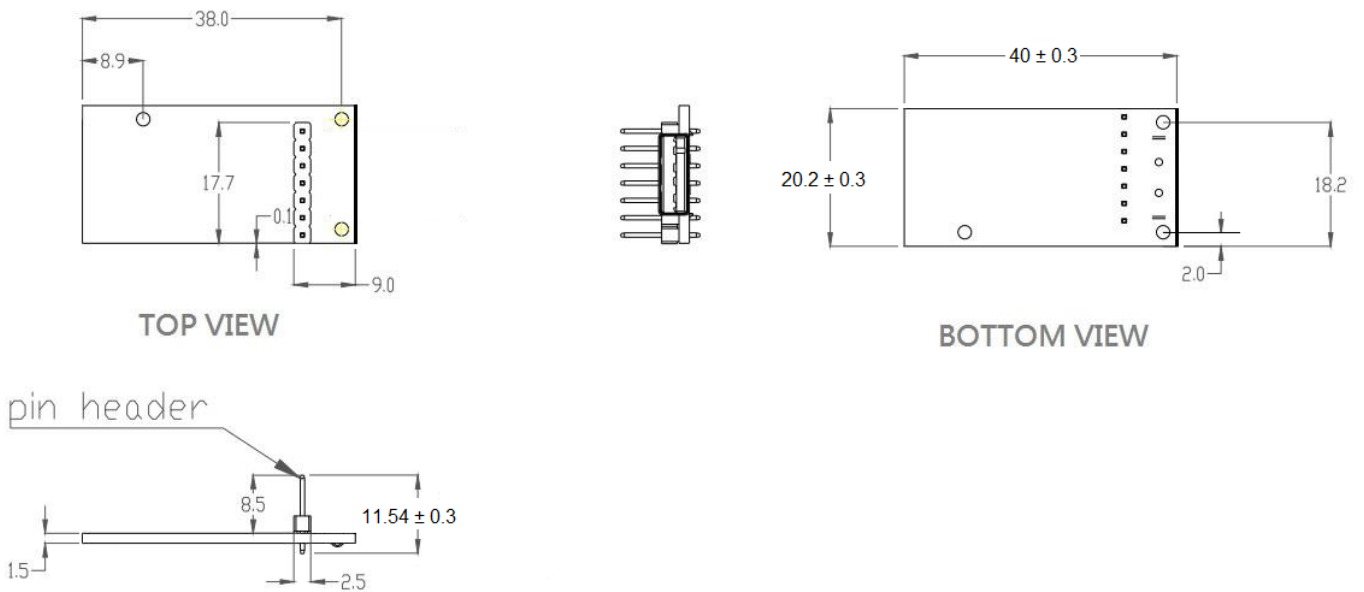
### 802.11ac

	Data Rate	Tx $\pm$ 2dBm	Rx Sensitivity
VHT80	MCS9	10dBm	$\leq$ -55dBm

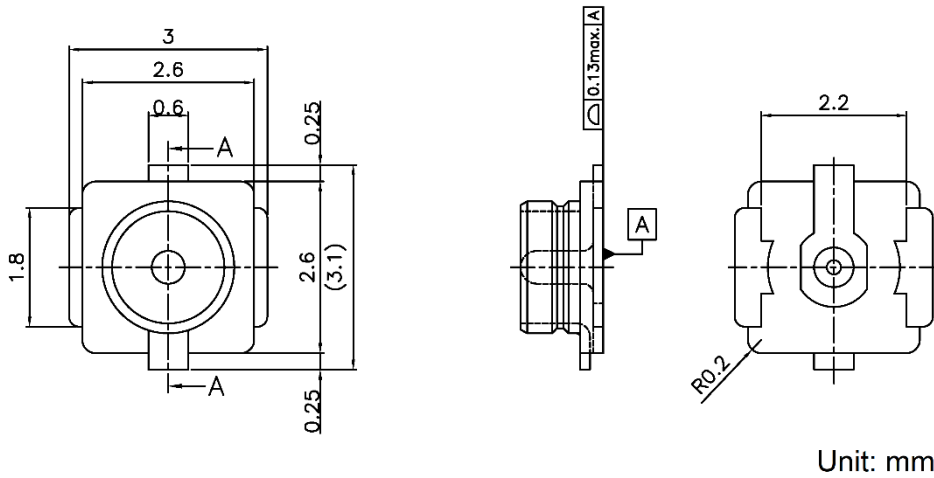
**Block Diagram**



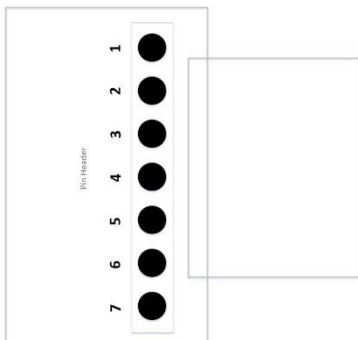
**Mechanical Dimension (mm)**



### MHF1 connector spec.



### Pin Connector Define



Pin#	Pin Name	Description
1	TBD	TBD
2	V+	Voltage input, 5V
3	D-	WLAN Data input(-)
4	D+	WLAN Data input(+)
5	GND	Voltage input, GND
6	D-	BT Data input(-)
7	D+	BT Data input(+)

## Certification

### Dipole Ant.

 FCC

 IC

 NCC

 CE (RED EN 300 328 V2.2.2 / EN 301 893 V2.1.1)

 MIC

 ASNZS

## Ordering Information

Product Name	Part Number	Description
WUBQ-159ACN(BT)(M7)	R9701830001	802.11ac/a/b/g/n Dual-Band 1T1R Wi-Fi USB Module 7Pin & IPEX MHF1 Connector
WUBQ-159ACN(BT)(P7)	R9701830004	802.11ac/a/b/g/n Dual-Band 1T1R Wi-Fi USB Module 7Pin & Printed Antenna

## Optional Accessory

Product Name	Part Number	Description
Ant. AD-103AG	R3410110203	2dBi Dipole RP-SMA 5G/2.4GHz
Ant. AD-301N	R3410110220	4.4dBi/5dBi 2.4G/5GHz Dipole RP-SMA
CBIRF-ME150	R3470300023	RF Cable, I-PEX/MHF1 to RP-SMA(F); L:150mm; Coaxial 1.37 Black
CBIRF-ME250	R3470300024	RF Cable, I-PEX/MHF1 to RP-SMA(F); L:250mm; Coaxial 1.37 Black