

# WUBT-281AX

802.11ax/ac/b/g/n 2T2R

Wi-Fi USB Module



## High-Speed Wireless Internet Access

SparkLAN **WUBT-281AX** is a highly integrated single-chip Wireless LAN (WLAN) USB3.0 module which supports 2 streams 802.11ax solutions with multi-user MIMO (Multiple-Input, Multiple-Output) wireless LAN (WLAN). It is integrated 2Tx2R WLAN MAC, baseband, and dual band RF in a single chip USB3.0 module. **WUBT-281AX** provides a cost effective solution for M2M (machine to machine) connectivity product/device by one USB port.

**WUBT-281AX** 802.11ac/ax/b/g/n 2Tx2R USB WLAN module with various USB3.0 input format & internal printing or external RF antenna connector for high performance wireless LAN device. It is designed to provide completely M2M connection & excellent cost performance with low power consumption and enhance the advantages of robust system & applications.

### Embedded Application

Applications include portable handheld devices, thin client computer, medical devices, network security & monitoring, 3D printer, TV, STB, POS, digital signs, gaming machine, robotic machinery, industrial tablets, etc.

### Key Feature

- 802.11ax/ac/b/g/n Wi-Fi
- Support 802.11ax/ac 2x2, compliant with MU-MIMO. Operates in 2.4GHz and 5GHz frequency bands
- Maximum data rates: 54Mbps in 802.11g, 300Mbps in 802.11n, 866.7Mbps in 802.11ac, 573.5Mbps in 802.11ax(2.4GHz), 1201MGbps in 802.11ax(5GHz).
- Support Operation Systems (Android/Linux/Windows)

## Specification

<b>Standards</b>	IEEE 802.11ax/ac/b/g/n (2T2R)
<b>Chipset</b>	Realtek RTL8832BU
<b>Data Rate</b>	802.11b: 11Mbps 802.11a/g: 54Mbps 802.11n: MCS0~15 802.11ac: MCS0~9 8002.11ax:HE0~11
<b>Operating Frequency</b>	IEEE 802.11 ax/ac/a/b/g/n ISM Band: 2.412GHz~2.484GHz, 5.150GHz~5.850GHz *Subject to local regulations
<b>Interface</b>	WLAN: USB
<b>Form Factor</b>	USB 3.0 Type A / 9 Pin Wafer
<b>Antenna</b>	2 x IPEX MHF1 connectors or printed antenna for 2T2R
<b>Modulation</b>	WiFi : 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) 802.11ax: OFDM (BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM,1024-QAM)
<b>Power Consumption</b>	TX Mode: TBD mA (Max.) RX Mode: TBD mA (Max.)
<b>Operating Voltage</b>	DC 5V
<b>Operating Temperature Range</b>	0°C ~+70°C (TBD)
<b>Storage Temperature Range</b>	-55°C ~+125°C (TBD)
<b>Humidity (Non-Condensing)</b>	5%~90% (Operating) 5%~90% (Storing)
<b>Dimension (in mm)</b>	[PU][MU] : 58.2mm(±0.3mm) x 20.2mm(±0.3mm) x 4.5 mm(±0.3mm) (L x W x H)
<b>Weight (g)</b>	[PU][MU] : 4.6g
<b>Driver Support</b>	Windows XP~11, Linux, Android 8~13
<b>Security</b>	64/128-bits WEP, WPA, WPA2, 802.1x, WPA3-SAE R2(TBD)

### OUTPUT POWER & SENSITIVITY (TBD)

#### 802.11b

Data Rate	Tx $\pm$ 2dBm	Rx Sensitivity
11Mbps	18dBm	$\leq$ -86dBm

#### 802.11g

Data Rate	Tx $\pm$ 2dBm	Rx Sensitivity
54Mbps	17dBm	$\leq$ -72dBm

#### 802.11n / 2.4GHz

	Data Rate	Tx $\pm$ 2dBm(1TX)	Tx +/- 2dB (2TX)	Rx Sensitivity
HT20	MCS7	16dBm	17dBm	$\leq$ -72dBm
HT40	MCS7	16dBm	17dBm	$\leq$ -61dBm

#### 802.11a

Data Rate	Tx $\pm$ 2dBm	Rx Sensitivity
54Mbps	16dBm	$\leq$ -72dBm

#### 802.11n / 5GHz

	Data Rate	Tx $\pm$ 2dBm(1TX)	Tx +/- 2dB (2TX)	Rx Sensitivity
HT20	MCS7	16dBm	17dBm	$\leq$ -61dBm
HT40	MCS7	16dBm	17dBm	$\leq$ -61dBm

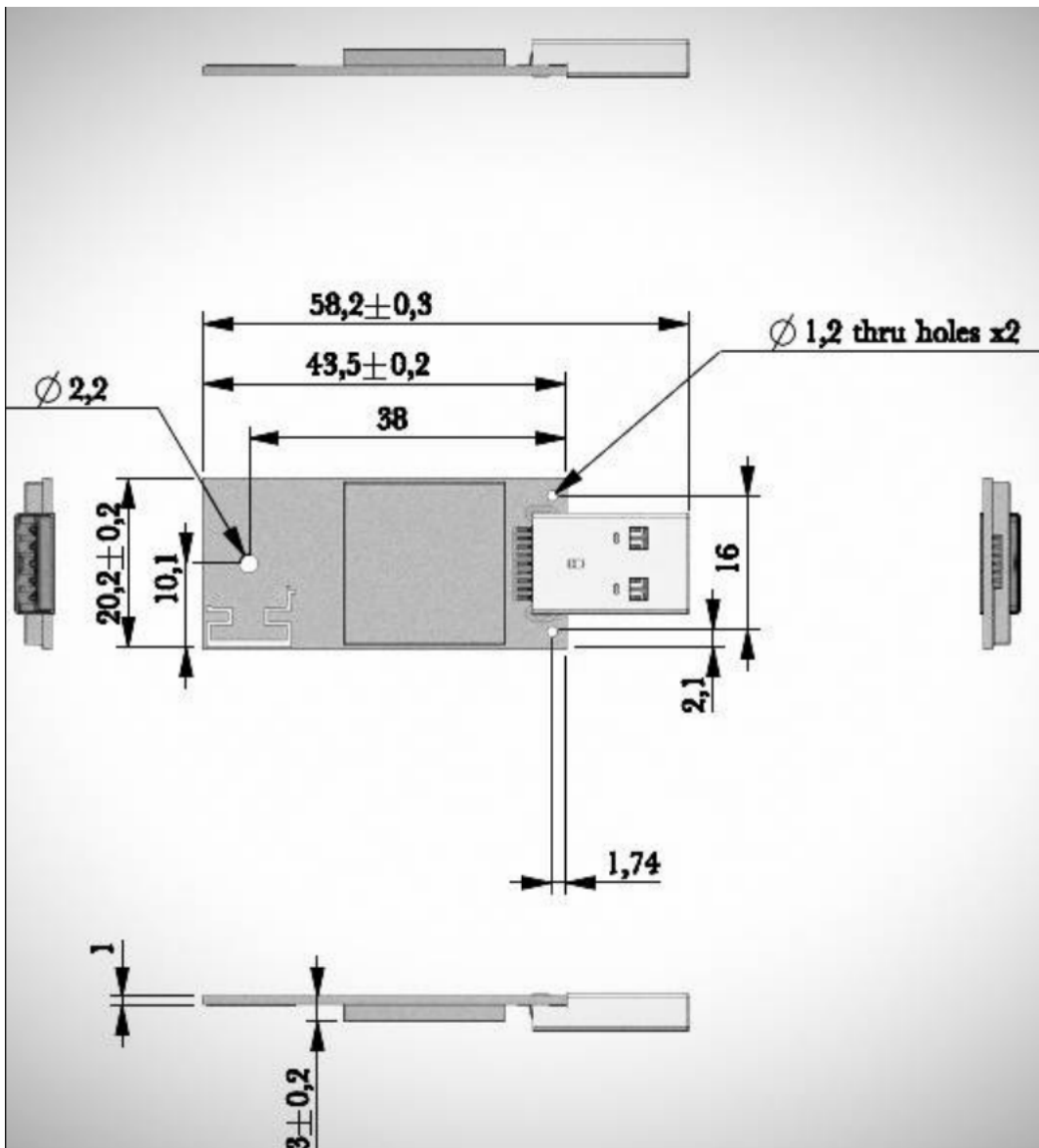
#### 802.11ac

	Data Rate	Tx $\pm$ 2dBm(1TX)	Tx +/- 2dB (2TX)	Rx Sensitivity
VHT80	MCS9	14dBm	15dBm	$\leq$ -58dBm

802.11ax				
HE40	Data Rate	Tx $\pm$ 2dBm(1TX)	Tx +/- 2dB (2TX)	Rx Sensitivity
	MCS11	13dBm	14dBm	TBD
HE80	MCS11	13dBm	14dBm	$\leq$ -56dBm

### Mechanical Dimension (mm)

USB3.0 Type A: WUBT-281AX [PU] /WUBT-281AX [MU]



**Certification (TBD)**
**Dipole Ant. (TBD)**

- |                              |   |
|------------------------------|---|
| <input type="checkbox"/> FCC | <input type="checkbox"/> CE (RED EN 300 328 V2.2.2 / EN 301 893 V2.1.1) |
| <input type="checkbox"/> IC  | <input type="checkbox"/> MIC  |
| <input type="checkbox"/> NCC | <input type="checkbox"/> ASNZS  |

**Ordering Information**

Product Name	Part Number	Description
WUBT-281AX [PU]	R9701A30001	802.11ax/ac/b/g/n 2T2R Wi-Fi USB Module (USB 3.0 Type A + Printed Ant.)
WUBT-281AX [P9W]	R9701A30002	802.11ax/ac/b/g/n 2T2R Wi-Fi USB Module (9-Pin Wafer + Printed Ant.)
WUBT-281AX [MU]	R9701A30003	802.11ax/ac/b/g/n 2T2R Wi-Fi USB Module (USB 3.0 Type A + IPEX)
WUBT-281AX [M9W]	R9701A30004	802.11ax/ac/b/g/n 2T2R Wi-Fi USB Module (9-Pin Wafer + IPEX)

**Optional Accessory – (TBD)**

Product Name	Part Number	Description
AD-103AG	R3410110203	Dipole Antenna, 2dBi 2.4GHz/5GHz, RP-SMA(M) connector
AD-302N	R3410110221	Dipole Antenna, 3dBi/2dBi 2.4G/5GHz, RP-SMA(M) connector
AD-303N	R3410110222	Dipole Antenna, 3dBi/3dBi 2.4G/5GHz, RP-SMA(M) connector
AD-305N	R3410110223	Dipole Antenna, 5dBi/5dBi 2.4G/5GHz, RP-SMA(M) connector
AD-315N	R3410110233	Dipole Antenna, 3dBi/5dBi 2.4G/5GHz, I-PEX / MHF1 connector
CBIRF-ME150	R3470300023	I-PEX/MHF1 to RP-SMA Female; L:150mm; Coaxial 1.37 Black
CBIRF-ME250	R3470300024	I-PEX/MHF1 to RP-SMA Female; L:250mm; Coaxial 1.37 Black
CBPP-C200	R3200700010	4-pin WTB to 4 pin WTB_L200mm
CBPW-C200	R3200700011	4-pin WTB to flying leads