

WF-R22C-USA1

IEEE 802.11 a/b/g/n/ac 2T2R USB WIFI Module
Integrated Bluetooth 2.1/3.0/4.2/5.0

特性 Features:

➤ 接收制式 Supported WLAN Standard

IEEE Std. 802.11b
IEEE Std. 802.11g
IEEE Std. 802.11n
IEEE Std. 802.11a
IEEE Std. 802.11ac
Bluetooth 2.1/3.0/4.2/5.0

➤ 芯片方案 Chip Solution

Realtek: RTL8822CU

➤ 结构大小 Size

19.0mmx 17.0mm x 2.6mm



型号	安装方式	支持标准	速率	频段	天线接口	备注
WF-R22C-USA1	SMD	IEEE802.11 a/b/g/n/ac	866.7Mbps	2.4G/5G	IPEX	3.3V 供电
		BT 2.1/3.0/4.2/5.0	3 Mbps	2.4G		

四川爱联科技有限公司

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技术热线:

客户确认反馈

Feedback of customer's Confirmation

经确认，我方承认该规格书

We accept the specification after Confirmed

客户名称 Customer name	客户签字 Customer signature	确认日期 Confirmation Date

请签字后将此页与首页按以下地址回传我公司，谢谢！

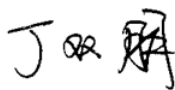
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地址：四川省绵阳市安州工业园区

ADD: Anzhou,Industrial park,Mianyang,Sichuan

公司：四川爱联科技有限公司

Factory: Sichuan AI-Link Technology Co.,Ltd.

批准 Approved	审核 Checked	拟制 Designed	产品 Product	无线模块 WiFi Module
			型号 Model	WF-R22C-USA1
			日期 Date	2019-03-14

更改记录 Record of Modification

[illegible]

1. Introduction

WF-R22C-USA1 module design is based on RTL8822CU-CG solution, The Realtek RTL8822CU-CG is a highly integrated single-chip that support 2-stream 802.11ac solutions with Multi-user MIMO (Multiple-Input, Multiple-Output) with integrated Bluetooth 2.1/3.0/4.2/5.0 controller,USB interfac. It combines a WLAN MAC, a 2T2R capable WLAN baseband, and RF in s single chip. The RTL8822CU-CG provides a complete solution for a high-performance integrated wireless and Bluetooth device.

1.1 RF module Overview

The general HW architecture for the module is shown in Figure 1.

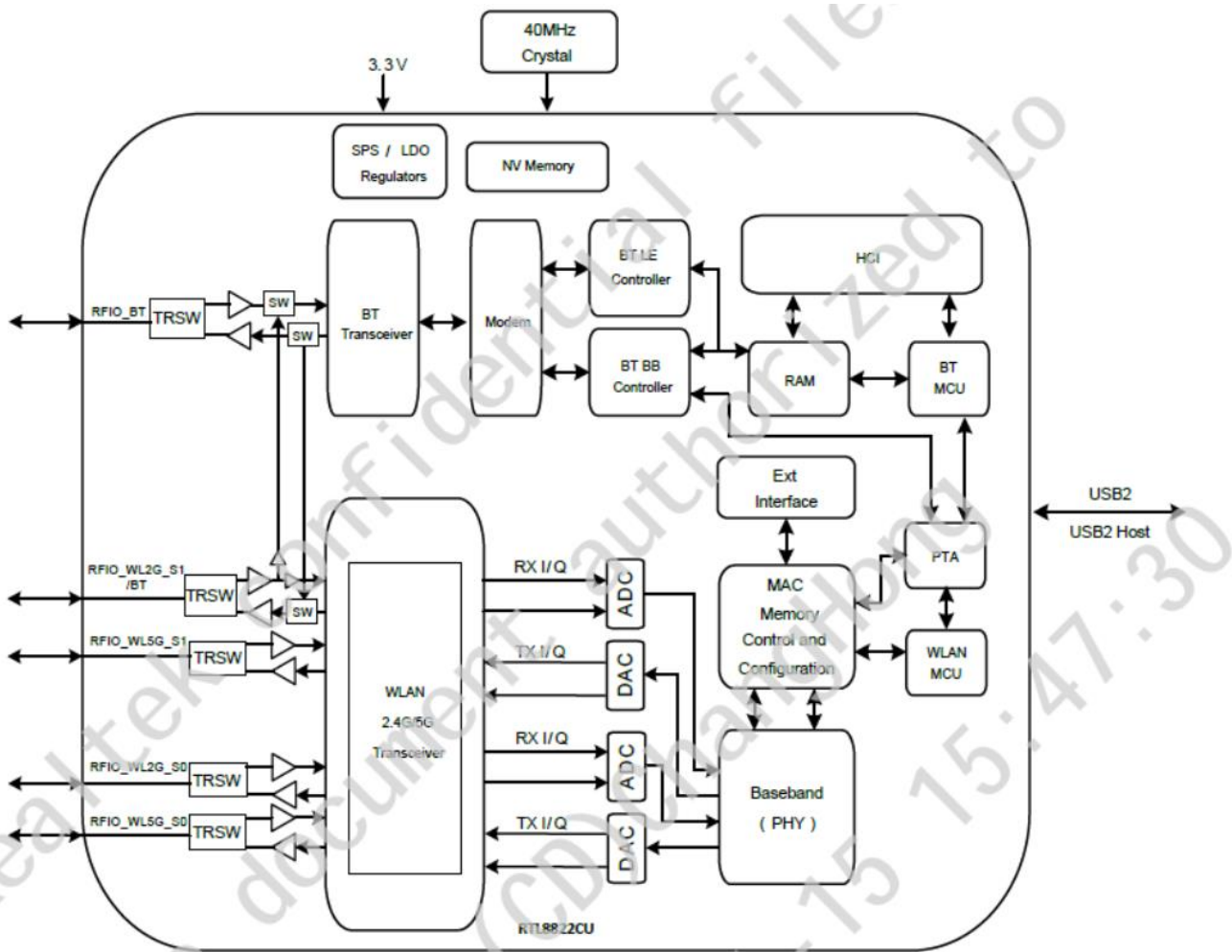


Figure 1

1.2 Specification reference

This specification is based on additional references listed below.

- _ IEEE Std. 802.11b
- _ IEEE Std. 802.11g
- _ IEEE Std. 802.11n
- _ IEEE Std. 802.11a
- _ IEEE Std. 802.11ac
- _ BT 2.1/3.0/4.2/5.0

1.3 System Functions

Table1: General Specification as below:

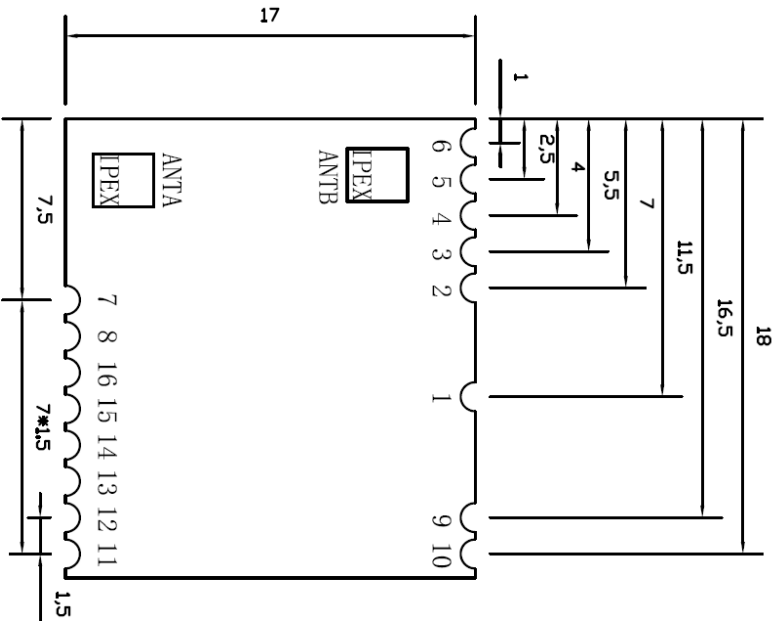
Main Chipset	RTL8822CU
Operating Frequency	2.4G/5G
WIFI Standard	802.11a/b/g/n/ac (2x2)
Bluetooth	2.1/3.0/4.2/5.0
Modulation	WIFI:11b: DBPSK, DQPSK and CCK and DSSS 11a/g: BPSK, QPSK, 16QAM, 64QAM and OFDM 11n: BPSK, QPSK, 16QAM, 64QAM and OFDM 11ac: BPSK, QPSK, 16QAM, 64QAM,256QAM and OFDM BT:FSHH,GFSK,DPSK,DQPSK
Data rates	11b: 1, 2, 5.5 and 11Mbps 11g: 6, 9, 12, 18, 24, 36, 48 and 54 Mbps 11n: MCS0~15, up to 300Mbps 11ac:MCS0~9,Nss=2,up to 866.7Mbps BT2.0:up to 3Mbps BT4.2: up to 1Mbps BT5.0: up to 2Mbps
Form factor	16pins
Host Interface	USB
PCB Stack	4-layers design
Dimension	Typical, 19.0mmx 17.0mm x 2.6mm
Antenna	External Antennas Design
Operation Temperature	0℃ to +60℃
Storage Temperature	-10℃ to +85℃
Operation Voltage	3.0V~3.6V

2. Mechanical Specification

2.1 Mechanical Outline Drawing

Typical Dimension (W x L): 19.0mmx 17.0mm x 2.6mm

General tolerance: ±0.2mm;



PIN	Type
1	GPIO8
2	AGND
3	NC(兼容 BT RF)
4	AGND
5	NC
6	AGND
7	NC
8	NC
9	VDD33
10	AGND
11	HSDM
12	HSDP
13	AGND
14	RESET
15	DEV_WAKE_HOST
16	HOST_WAKE_DEV
ANTA	WIFI ANTA
ANTB	WIFI ANTB+BT ANT

注意：本产品为双天线和三天线兼容设计；

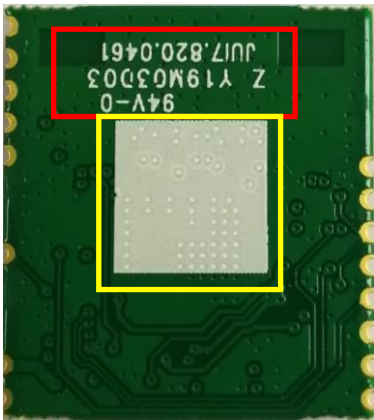
双天线设计：Pin3为NC，ANTA: WIFI ANTA; ANTB: WIFI ANTB+BT ANT

三天线设计：Pin3: BT RF ANTA: WIFI ANTA, ANTB: WIFI ANTB.

2.3 Product Picture



Top view



Bottom view

丝印说明：红色框内丝印为 PCB 厂家管控丝印，黄色框内为 SMT 厂家管控丝印。

3. Electrical Specification

This Specification is based-on conductive DVT testing result. The extreme condition include overall temperature (0°C,+25°C,+40°C) and overall voltage (3.0V,3.3V,3.6V).

3.1 IEEE 802.11g /a Section:

Items	Contents				
Specification	IEEE802.11g & IEEE802.11a				
Mode	BPSK, QPSK, 16QAM, 64QAM and OFDM				
Channel	CH1 to CH13 @ 11g CH36 to CH165 @ 11a				
Data rate	6, 9, 12, 18, 24, 36, 48, 54Mbps				
TX Characteristics	Min.	Typ.	Max.	Unit	Remark
1. Power Levels					
1) 15dBm Target (For Each antenna port) @ 11g	13	15	17	dBm	
2) 14dBm Target (For Each antenna port) @ 11a	13	15	17	dBm	
2. Spectrum Mask @ Target Power					
1) at fc +/-11MHz	-	-	-20	dBr	
2) at fc +/-20MHz	-	-	-28	dBr	
3) at fc > +/-30MHz	-	-	-40	dBr	
3. Constellation Error(EVM) @ Target Power					
1) 6Mbps	-	-	-5	dB	
2) 9Mbps	-	-	-8	dB	
3) 12Mbps	-	-	-10	dB	
4) 18Mbps	-	-	-13	dB	
5) 24Mbps	-	-	-16	dB	
6) 36Mbps	-	-	-19	dB	
7) 48Mbps	-	-	-22	dB	
8) 54Mbps	-	-	-25	dB	
4. Frequency Error					
1) IEEE802.11g	-10	-	10	ppm	
2) IEEE802.11a	-10		10	ppm	
RX Characteristics	Min.	Typ.	Max.	Unit	
5. Minimum Input Level Sensitivity(each chain)					
1) 6Mbps (PER ≤10%)	-	-	-87	dBm	
2) 9Mbps (PER ≤10%)	-	-	-86	dBm	
3) 12Mbps (PER ≤10%)	-	-	-84	dBm	
4) 18Mbps (PER ≤10%)	-	-	-82	dBm	
5) 24Mbps (PER ≤10%)	-	-	-79	dBm	
6) 36Mbps (PER ≤10%)	-	-	-75	dBm	
7) 48Mbps (PER ≤10%)	-	-	-71	dBm	
8) 54Mbps (PER ≤10%)	-	-	-70	dBm	
6. Maximum Input Level (PER ≤10%)					
1) IEEE802.11g	-20	-	-	dBm	
2) IEEE802.11a	-20			dBm	

3.2 IEEE 802.11b Section:

Items	Contents				
Specification	IEEE802.11b				
Mode	DBPSK, DQPSK and CCK and DSSS				
Channel	CH1 to CH13				
Data rate	1, 2, 5.5, 11Mbps				
TX Characteristics	Min.	Typ.	Max.	Unit	Remark
1. Power Levels(Calibrated)					
1) 17dBm Target (For Each antenna port) @1Mbps~11Mbps	15	17	19	dBm	
2. Spectrum Mask @ Target Power					
1) fc +/-11MHz to +/-22MHz	-	-	-30	dBr	
2) fc > +/-22MHz	-	-	-50	dBr	
3. Constellation Error(EVM) @ Target Power					
1) 1Mbps	-	-20	-10	dB	
2) 2Mbps	-	-20	-10	dB	
3) 5.5Mbps	-	-20	-10	dB	
4) 11Mbps	-	-20	-10	dB	
4. Frequency Error	-10	-	10	ppm	
RX Characteristics	Min.	Typ.	Max.	Unit	
5. Minimum Input Level Sensitivity(each chain)					
1) 1Mbps (FER $\leq$ 8%)	-		-82	dBm	
2) 2Mbps (FER $\leq$ 8%)	-		-80	dBm	
3) 5.5Mbps (FER $\leq$ 8%)	-		-77	dBm	
4) 11Mbps (FER $\leq$ 8%)	-		-78	dBm	
6. Maximum Input Level (FER $\leq$ 8%)	-10	5	-	dBm	

3.3 IEEE 802.11n HT20 Section:

Items	Contents				
Specification	IEEE802.11n HT20 @ 2.4G/5G				
Mode	BPSK, QPSK, 16QAM, 64QAM and OFDM				
Channel	CH1 to CH13 @ 2.4G CH36 to CH165 @ 5G				
Data rate (MCS index)	MCS0/1/2/3/4/5/6/7/8/9/10/11/12/13/14/15				
TX Characteristics	Min.	Typ.	Max.	Unit	Remark
1. Power Levels					
1) 14dBm Target (For Each antenna port) @ 2.4G/MCS0~MCS7	13	15	17	dBm	
2) 13dBm Target (For Each antenna port) @ 5G/ MCS0~MCS7	13	15	17	dBm	
2. Spectrum Mask @ Target Power					
1) at fc +/-11MHz	-	-	-20	dBr	
2) at fc +/-20MHz	-	-	-28	dBr	
3) at fc > +/-30MHz	-	-	-45	dBr	
3. Constellation Error(EVM) @ Target Power					
1) MCS0	-	-17	-5	dB	
2) MCS1	-	-	-10	dB	
3) MCS2	-	-	-13	dB	
4) MCS3	-	-	-16	dB	
5) MCS4	-	-19	-19	dB	
6) MCS5	-	-	-22	dB	
7) MCS6	-	-	-25	dB	
8) MCS7	-	-30	-28	dB	
4. Frequency Error					
1) IEEE802.11n HT20 @ 2.4G/5G	-10	-	10	ppm	
RX Characteristics	Min.	Typ.	Max.	Unit	
5. Minimum Input Level Sensitivity(each chain)					
1) MCS0 (PER ≤10%)	-		-83	dBm	
2) MCS1 (PER ≤10%)	-		-80	dBm	
3) MCS2 (PER ≤10%)	-		-78	dBm	
4) MCS3 (PER ≤10%)	-		-75	dBm	
5) MCS4 (PER ≤10%)	-		-71	dBm	
6) MCS5 (PER ≤10%)	-		-67	dBm	
7) MCS6 (PER ≤10%)	-		-66	dBm	
8) MCS7 (PER ≤10%)	-		-66	dBm	
6. Maximum Input Level (PER ≤10%)					
1) IEEE802.11n HT20 @ 2.4G/5G	-20	-6	-	dBm	

3.3 IEEE 802.11n HT40 Section:

Items	Contents				
Specification	IEEE802.11n HT40 @ 2.4G/5G				
Mode	BPSK, QPSK, 16QAM, 64QAM and OFDM				
Channel	CH3 to CH11 @ 2.4G CH38 to CH163 @ 5G				
Data rate (MCS index)	MCS0/1/2/3/4/5/6/7/8/9/10/11/12/13/14/15				
TX Characteristics	Min.	Typ.	Max.	Unit	Remark
1. Power Levels					
1) 14dBm Target (For Each antenna port) @ 2.4G/MCS0~MCS7	13	15	17	dBm	
2) 13dBm Target (For Each antenna port) @ 5G/MCS0~MCS7	13	15	17	dBm	
2. Spectrum Mask @ Target Power					
1) at fc +/-11MHz	-	-	-20	dBr	
2) at fc +/-20MHz	-	-	-28	dBr	
3) at fc > +/-30MHz	-	-	-45	dBr	
3. Constellation Error(EVM) @ Target Power					
1) MCS0	-	-17	-5	dB	
2) MCS1	-	-	-10	dB	
3) MCS2	-	-	-13	dB	
4) MCS3	-	-	-16	dB	
5) MCS4	-	-19	-19	dB	
6) MCS5	-	-	-22	dB	
7) MCS6	-	-	-25	dB	
8) MCS7	-	-30	-28	dB	
4. Frequency Error					
1) IEEE802.11n HT40 @ 2.4G	-10	-	10	ppm	
RX Characteristics	Min.	Typ.	Max.	Unit	
5. Minimum Input Level Sensitivity(each chain)					
1) MCS0 (PER ≤10%)	-		-83	dBm	
2) MCS1 (PER ≤10%)	-		-80	dBm	
3) MCS2 (PER ≤10%)	-		-78	dBm	
4) MCS3 (PER ≤10%)	-		-75	dBm	
5) MCS4 (PER ≤10%)	-		-71	dBm	
6) MCS5 (PER ≤10%)	-		-67	dBm	
7) MCS6 (PER ≤10%)	-		-66	dBm	
8) MCS7 (PER ≤10%)	-		-66	dBm	
6. Maximum Input Level (PER ≤10%)					
1) IEEE802.11n HT40 @ 2.4G/5G	-20	-6	-	dBm	

3.4 IEEE 802.11n ac Section:

Items	Contents				
Specification	IEEE802.11ac @ 5G				
Mode	BPSK, QPSK, 16QAM, 64QAM, 256QAM and OFDM				
Channel	CH36 to CH165 @ VHT-20 CH38 to CH163 @ VHT-40 CH42 to CH157 @ VHT-80				
Data rate (MCS index)	MCS0/1/2/3/4/5/6/7/8/9/10/11/12/13/14/15				
TX Characteristics	Min.	Typ.	Max.	Unit	Remark
1. Power Levels					
1) 13dBm Target (For Each antenna port) @MCS0~MCS9	12	14	16	dBm	
2. Spectrum Mask @ Target Power					
1) at fc +/-11MHz			-20	dB	
2) at fc +/-20MHz			-28	dB	
3) at fc > +/-30MHz			-45	dB	
3. Constellation Error(EVM) @ Target Power					
1) MCS0		-17	-5	dB	
2) MCS1			-10	dB	
3) MCS2			-13	dB	
4) MCS3			-16	dB	
5) MCS4		-19	-19	dB	
6) MCS5			-22	dB	
7) MCS6			-25	dB	
8) MCS7			-27	dB	
9) MCS8			-30		
10) MCS9		-32	-32		
4. Frequency Error					
1) IEEE802.11ac	-10		10	ppm	
RX Characteristics	Max.			Unit	
5. Minimum Input Level Sensitivity(each chain)	VHT20	VHT40	VHT80		
1) MCS0 (PER ≤ 10%)	-87	-84	-81	dBm	
2) MCS1 (PER ≤ 10%)	-84	-81	-78	dBm	
3) MCS2 (PER ≤ 10%)	-82	-79	-76	dBm	
4) MCS3 (PER ≤ 10%)	-79	-76	-73	dBm	
5) MCS4 (PER ≤ 10%)	-75	-72	-69	dBm	
6) MCS5 (PER ≤ 10%)	-71	-68	-65	dBm	
7) MCS6 (PER ≤ 10%)	-70	-67	-64	dBm	
8) MCS7 (PER ≤ 10%)	-69	-66	-63	dBm	
9) MCS8 (PER ≤ 10%)	-64	-61	-58		
10) MCS9 (PER ≤ 10%)	-62	-59	-56		
6. Maximum Input Level (PER ≤ 10%)					
1) IEEE802.11ac	-30		-	dBm	

3.5 Bluetooth Specification

3.5.1 BR Specification

Items	Contents				
Host Interface	UART				
Antenna Reference	Small antennas with 0~2 dBi peak gain				
Channel	CH0 to CH78				
Modulation	GFSK				
	Min.	Typ.	Max.	Unit	
TX Characteristics					
1.Output Average Power		4		dBm	
2.Modulation Characteristics					
1)Delta f1(Avg)		157		kHz	
2)Delta f2max(For at least 99.9% of all Delta f2max)		121		kHz	
3)Delta f2/ Delta f1		0.85		kHz	
3.Initial Carrier Frequency Tolerance		+/-20	-	kHz	
4. Carrier Frequency Drift					
1) One Slot packet drift (DH1)		+/-15		kHz	
2) Three Slot packet drift (DH3)		+/-15		kHz	
3) Five Slot packet drift (DH5)		+/-15		kHz	
4) Max Drift Rate		+/-15		kHz/50us	
RX Characteristics					
1. Receiver Sensitivity (BER<0.1%)		-92		dBm	
2. Maximum usable signal (BER<0.1%)		-5		dBm	

3.5.2 EDR Specification

Items	Contents				
Host Interface	UART				
Antenna Reference	Small antennas with 0~2 dBi peak gain				
Channel	CH0 to CH78				
Modulation	$\pi/4$ -DQPSK 、8PSK				
	Min.	Typ.	Max.	Unit	
TX Characteristics					
1.Relative Transmit Power					
1) $\pi/4$ -DQPSK		-1.5		dBm	
2) 8PSK		-1.5		dBm	
2. Frequency Stability				kHz	
1) Omega-i		+/-4		kHz	
2) Omega-0		+/-4	-	kHz	
3) Omega-0 + Omega-i		+/-4			
3. Modulation Accuracy					
1) RMS DEVM					
$\pi/4$ -DQPSK		+/-9		%	
8PSK		+/-9		%	
2) Peak DEVM					
$\pi/4$ -DQPSK		+/-28		%	
8PSK		+/-21		%	
3) 99% DEVM					
$\pi/4$ -DQPSK		+/-15		%	
8PSK		+/-12		%	
RX Characteristics					
1. Receiver Sensitivity (BER<0.01%)					
1) $\pi/4$ -DQPSK		-91		dBm	
2) 8PSK		-85		dBm	
2. Maximum usable signal (BER<0.1%)					
1) $\pi/4$ -DQPSK		-5		dBm	
2) 8PSK		-5		dBm	

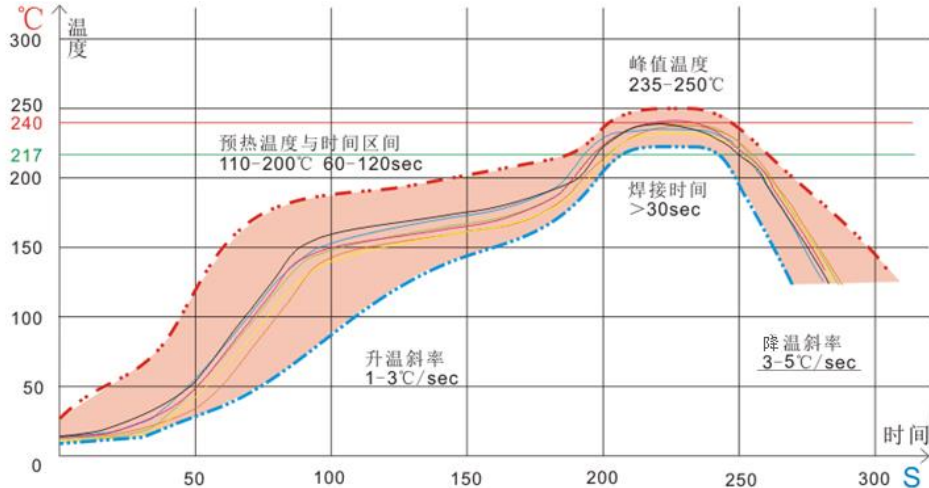
3.5.3 LE Specification

Items	Contents				
Host Interface	UART				
Antenna Reference	Small antennas with 0~2 dBi peak gain				
Channel	CH0 to CH39				
	Min.	Typ.	Max.	Unit	
TX Characteristics					
1. Output power at NOC		4		dBm	
2. Modulation Characteristics					
1)Delta f1(Avg)	225		275	kHz	
2)Delta f2max(For at least 99.9% of all Delta f2max)	185			kHz	
3)Delta f2/ Delta f1	0.8	0.94		Hz/Hz	
3. Carrier frequency offset and drift					
1) Frequency Offset	-150		150	kHz	
2) Frequency Drift	-50		50	kHz	
3) Max Drift Rate	-20		20	Hz/us	
4.In-band Spurious Emissions					
1)+/-2M offset			20	dBm	
2)>+/-3MHz offset			30	dBm	
RX Characteristics					
1. Receiver Sensitivity (BER<30.8%)		-95		dBm	
2. Maximum usable signal (BER<30.8%)		-5		dBm	

4. Software Requirements

The driver supports the following operating systems: Linux, Microsoft Windows XP, Vista and Win7.
Mfg. software tool. software tool version is XP_MP_Kit_RTL11ac_8822CU_USB_v0.21 or later.

5. Refelow Standard Condition



升 温 区：温度：<150℃，时间：60~90 秒之间，斜率控制在 1~3℃/S 之间。
预热恒温区：温度：150℃~200℃，时间：60-120 秒之间，斜率在 0.3-0.8 之间。
回流焊接区：峰值温度 235℃~250℃(建议峰值温度<245℃)，时间 30-70 秒。
冷 却 区：温度：217℃~170℃，斜率在 3~5℃/S 之间。
焊料为锡银铜合金无铅焊料/ Sn&Ag&Cu Lead-free solder(SAC305)。

6.Key component List

序号	关键件名称	型号	规格/材料	生产者	备注
1	集成电路	RTL8822CU		REALTEK	
2	PCB	JUI7.820.0461系列	FR-4,4LAY, 1mm	昌盛亿龙 顺 络 英创力 科翔 信利	
3	晶体振荡器		3225 40M	TXC Hosonic 加高 晶威特 泰晶	
4	双工器		1608	ACX 顺络 TDK 华新科 村田 佳利	

Technical drawing of the WF-R22C-USA1 module, showing top and side views with dimensions.

Top View Dimensions:

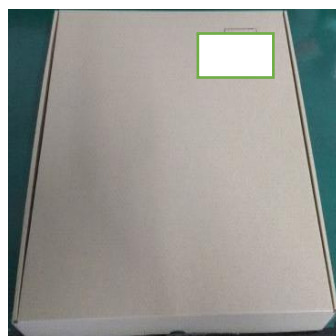
- Overall width: 32 ± 0.3
- Overall height: 14.2 ± 0.1
- Distance from top edge to component center: 1.75 ± 0.1
- Distance between component centers: 24 ± 0.1
- Distance from component center to right edge: 4 ± 0.1
- Distance from component center to right edge (alternative): 2 ± 0.1
- Component width: 0.5 ± 0.1
- Mounting hole diameter: $\phi 1.5 \begin{smallmatrix} +0.1 \\ 0 \end{smallmatrix}$
- Component label: Model:WF-R22C-USA1, CMIIT ID: 四川壹联科技有限公司

Side View Dimensions:

- Module thickness: 2.8 ± 0.1
- Mounting hole diameter: $\phi 1.5 \begin{smallmatrix} +0.1 \\ 0 \end{smallmatrix}$
- Distance from mounting hole to component center: 17.4 ± 0.1
- Distance from component center to right edge: 19.7 ± 0.1
- Distance from component center to right edge (alternative): 0.4 ± 0.03



箭头代表编带的走向



- 1、产品放置方向、标签粘贴位置、包装按示意图进行;
- 2、每卷放900只产品, 每小盒放1卷, 大箱共装5个小盒, 产品数量共4500只/箱;
- 3、外箱尺寸: 370mm*300mm*370mm, 小盒尺寸: 355mm*355mm*55mm;
- 4、真空包内放置2g干燥剂2袋, 6色湿度卡1张;
- 5、其它未尽事宜按客户的包装要求执行。

FCC Statement

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Reorient or relocate the receiving antenna.
- Reorient or relocate the receiving antenna.
- Consult the dealer or an experienced radio/TV technician for help important announcement

Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Country Code selection feature to be disabled for products marketed to the US/Canada.

This device is intended only for OEM integrators under the following conditions:

1. The antenna must be installed such that 20 cm is maintained between the antenna and users, and
2. The transmitter module may not be co-located with any other transmitter or antenna,

Important Note:

This modular transmitter is only FCC authorized for FCC Part 15.247&15.407 as listed on the grant, and the host product manufacturer is responsible for compliance to any other FCC rules that apply to the host not covered by the modular transmitter grant of certification. The final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed.

End Product Labeling

If the FCC identification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: Contains Transmitter Module FCC ID: 2AFG6-WF-R22C-USA1.

Table for Filed Antenna**For BT&BLE**

Antenna Type	Dipole Antenna
Antenna Gain	2400MHz-2500MHz: 3.18dBi

For WIFI 2.4G &5G

Antenna Type	Dipole Antenna
Antenna Gain	2400MHz-2500MHz: Chain 1: 3.18dBi ; Chain 2: 3.18dBi 5150MHz-5250MHz: Chain 1: 3.53dBi ; Chain 2: 3.53dBi 5250MHz-5350MHz: Chain 1: 3.53dBi ; Chain 2: 3.53dBi 5470MHz-5725MHz: Chain 1: 3.24dBi ; Chain 2: 3.24dBi 5725MHz-5850MHz: Chain 1: 4.36dBi ; Chain 2: 4.36dBi

ISED Statement

- English: This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) This device may not cause interference, and (2) This device must accept any interference, including interference that may cause undesired operation of the device. The digital apparatus complies with Canadian CAN ICES-3 (B)/NMB-3(B).

- French: Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This radio transmitter (ISED certification number: 22166-WFR22CUSA1) has been approved by Industry Canada to operate with the antenna types listed with the maximum permissible gain indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Le présent émetteur radio (ISED certification number: 22166-WFR22CUSA1) a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal. Les types d'antenne non inclus dans cette liste, et dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

Radiation Exposure Statement

This equipment complies with Canada radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Déclaration d'exposition aux radiations

Cet équipement est conforme Canada limites d'exposition aux radiations dans un environnement non contrôlé. Cet équipement doit être installé et utilisé à distance minimum de 20cm entre le radiateur et votre corps.

This device is intended only for OEM integrators under the following condition:

The transmitter module may not be co-located with any other transmitter or antenna.

As long as the condition above is met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed.

Cet appareil est conçu uniquement pour les intégrateurs OEM dans les conditions suivantes:

Le module émetteur peut ne pas être coïmplanté avec un autre émetteur ou antenne.

Tant que les 1 condition ci-dessus sont remplies, des essais supplémentaires sur l'émetteur ne seront pas nécessaires. Toutefois, l'intégrateur OEM est toujours responsable des essais sur son produit final pour toutes exigences de conformité supplémentaires requis pour ce module installé.

In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the Canada authorization is no longer considered valid and the ISED cannot be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate Canada authorization.

Note Importante:

Dans le cas où ces conditions ne peuvent être satisfaites (par exemple pour certaines configurations d'ordinateur portable ou de certaines co-localisation avec un autre émetteur), l'autorisation du Canada n'est plus considérée comme valide et l'ISED ne peut pas être utilisé sur le produit final. Dans ces circonstances, l'intégrateur OEM sera chargé de réévaluer le produit final (y compris l'émetteur) et l'obtention d'une autorisation distincte au Canada.

End Product Labeling

The final end product must be labeled in a visible area with the following: Contains IC: 22166-WFR22CUSA1.

Plaque signalétique du produit final

Le produit final doit être étiqueté dans un endroit visible avec l'inscription suivante: Contient des IC: 22166-WFR22CUSA1.

Manual Information to the End User

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module.

The end user manual shall include all required regulatory information/warning as shown in this manual.

Manuel d'information à l'utilisateur final

L'intégrateur OEM doit être conscient de ne pas fournir des informations à l'utilisateur final quant à la façon d'installer ou de supprimer ce module RF dans le manuel de l'utilisateur du produit final qui intègre ce module.

Le manuel de l'utilisateur final doit inclure toutes les informations réglementaires requises et avertissements comme indiqué dans ce manuel.

The device for the band 5150-5250 MHz is only for indoor usage to reduce potential for harmful interference to co-channel mobile satellite systems.

les dispositifs fonctionnant dans la bande 5150-5250 MHz sont réservés uniquement pour une utilisation

à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles

utilisant les mêmes canaux.