

保密等级：机密

SPECIFICATION

产品规格书

SKI.WB822CU.2

IEEE 802.11a/ b/ g/ n/ ac 2T2R USB Wi-Fi Module

Integrated Bluetooth 2.1/ 3.0/ 4.2/ 5.0

Approved by Shikun		
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REVISION HISTORY

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1. Introduction（简介）

SKI.WB822CU.2 module is based on Realtek RTL8822CU-VB-CG solution. The Realtek RTL8822CU-VB-CG is a highly integrated single-chip that support 2-stream 802.11ac solutions with Multi-user MIMO (Multiple-Input, Multiple-Output) with Wireless LAN (WLAN) USB2.0 network interface controller. It combines a WLAN MAC, a 2T2R capable WLAN baseband, and RF in a single chip. The RTL8822CU provides a complete solution for a high-performance integrated wireless and Bluetooth device.

This documentation describes the engineering requirements specification.

SKI.WB822CU.2 模块基于 Realtek RTL8822CU-VB-CG 解决方案。Realtek RTL8822CU-VB-CG 是一款高度集成的芯片，支持双频 802.11ac 解决方案，拥有多用户 MIMO（多输入、多输出）和无线 WLAN（WLAN）USB2.0 网络接口控制器，此芯片集成 WLAN MAC、支持 2T2R 的 WLAN 基带和射频电路。RTL8822CU 为高性能集成无线和蓝牙设备提供了完整的解决方案。

本文档描述了产品的设计要求规范。

2. FEATURES（特性）

Reserving System 接收制式	IEEE Std. 802.11a
	IEEE Std. 802.11b
	IEEE Std. 802.11g
	IEEE Std. 802.11n
	IEEE Std. 802.11ac
	Bluetooth 2.1/3.0/4.2/5.0
Chip Solution 芯片方案	RTL8822CU-CG
Band 波段	2.4/5GHz
Dimensions 尺寸	27mm×18mm×3mm

型号	安装方式	支持标准	频段	天线接口	备注
SKI.WB822CU.2	SMD	IEEE 802.11a/b/g/n/ac+ Bluetooth 2.1/3.0/4.2/5.0	2.4/5GHz	Ipex 插座	19mm×17mm ×3mm

3. Block Diagram (结构框图)

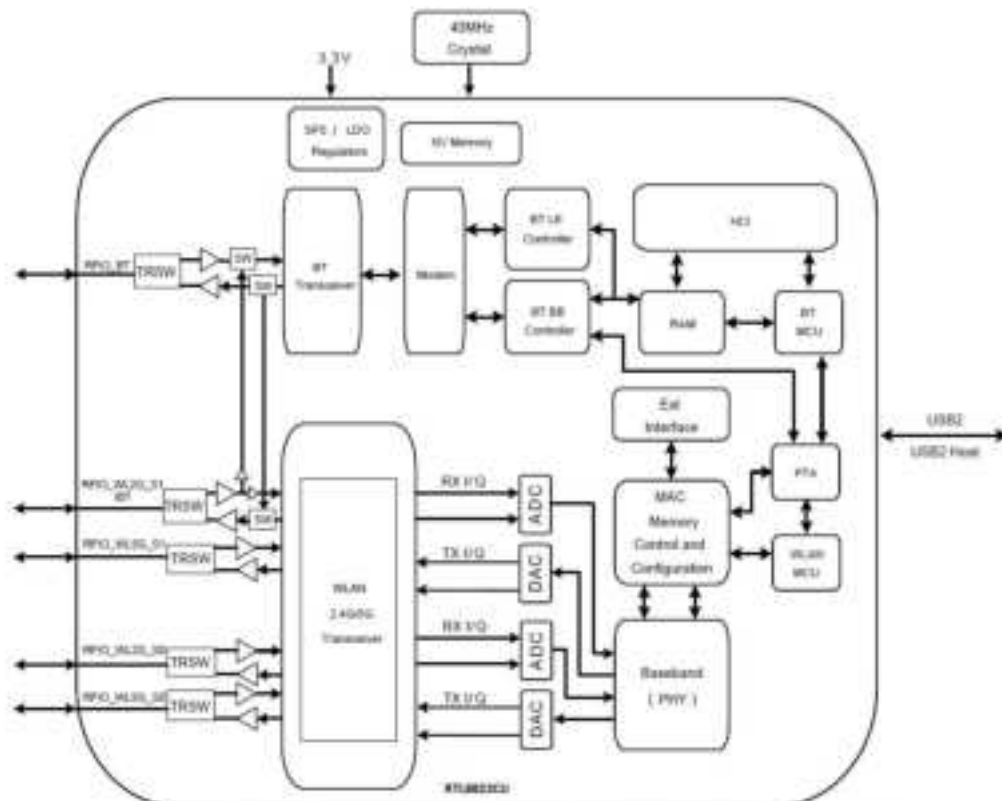


Figure 1. Dual-Band MIMO 2x2 Solution with Integrated Bluetooth Controller Solution

Figure 1 SKI.WB822CU.2 Block Diagram

4. Package Outline and Mounting（外形及安装尺寸）

5. Pin Definition（引脚定义）

PIN	SYMBOL	DESCRIPTION
1	NC	No connect
2	NC	No connect
3	NC	No connect
4	NC	No connect
5	GND	Ground\接地
6	WL_USB_DP	WLAN USB2.0 DP Signal\ USB 差分正电压信号
7	WL_USB_DM	WLAN USB2.0 DM Signal\ USB 差分负电压信号
8	GND	Ground\接地
9	NC	No connect
10	NC	No connect
11	GND	Ground\接地
12	NC	No connect
13	GND	Ground\接地
14	BT_WAKE_Host	BT Wake Host\ BT 从机唤醒主机，低电平有效
15	Host_WAKE_BT	Host Wake BT\ 主机唤醒 BT，低电平有效
16	NC	No connect
17	SUS_CLK	No connect\External 32K or RTC clock input
18	GND	Ground\接地
19	NC	No connect
20	GND	Ground\接地
21	GND	Ground\接地
22	NC	No connect
23	GND	Ground\接地
24	GND	Ground\接地
25	GND	Ground\接地
26	WL_WAKE_Host	WIFI Device Wake Host\ WIFI 唤醒主机，低电平有效
27	NC	No connect
28	RESET	Power Down\ 复位，低电平有效
29	GND	Ground\接地
30	VDD33	3.3V input\ 3.3V 供电输入

31	GPIOS	General I/O interface
32	GND	Ground\接地

备注：本产品为三天线和双天线兼容设计

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

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

6. Product Pictures（实物图片）

暂无

正视图（top view）

暂无

背视图（bottom view）

产品铭牌内容如下：



7. Key Materials（关键物料）

序号	关键件名称	型号	规格/ 材料	备注
1	集成电路	RTL8822CU-VB-CG	QFN56	
2	PCB	SKI.WB822CU.2	FR-4,4LAY	
3	晶体振荡器	PF4040M00012T2115138	40MHz	
4	双工器	SLFD18-2R450G-06T		

8. General Requirements (一般要求)

No.	Feature	Description
8-1	Operation Voltage\ 工作电压范围	3.3V+/-0.3
8-2	Current Consumption\ 最大电流	<1000mA
8-3	Ripple\ 波纹	≤120mV
8-4	Operation Temperature\ 工作温度范围	0°C to +40°C
8-5	Antenna Type\ 天线类型	External antenna\ 外置天线
8-6	USB	High Speed USB 2.0 Interface\ 高速 USB2.0 接口
8-7	Storage Temperature\ 存储温度	-40°C to +125°C

9. Electrical Characteristics (电气特性)

除非另有说明，电气规范试验都在下列条件下进行：

环境条件温度：25°C ± 5°C；

电源电压：模块输入电压 3.3V+/-0.3；

The Test for electrical specification was performed under the following condition unless otherwise specified.

Ambient condition Temperature :25°C ± 5°C；

Power supply voltages: 3.3V+/-0.3 input power at the Module;

9.1 IEEE 802.11b Section

Items	Contents				
Specification	IEEE802.11b				
Mode	CCK				
Channel	CH1 to CH13				
Data rate	1, 2, 5.5, 11Mbps				
TX Characteristics	Min.	Typ.	Max.	Unit	Remark
1. Power Levels(Calibrated)					
1) For Each antenna port	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	-	-	-10	dB	
2) 2Mbps	-	-	-10	dB	
3) 5.5Mbps	-	-	-10	dB	
4) 11Mbps	-	-	-10	dB	
4. Frequency Error	-25	-	25	ppm	
RX Characteristics	Min.	Typ.	Max.	Unit	
5 Minimum Input Level Sensitivity					

(each chain)					
1) 1Mbps (FER $\leq 8\%$)	-	-	-83	dBm	
2) 2Mbps (FER $\leq 8\%$)	-	-	-80	dBm	
3) 5.5Mbps (FER $\leq 8\%$)	-	-	-79	dBm	
4) 11Mbps (FER $\leq 8\%$)	-	-	-76	dBm	
6 Maximum Input Level (FER $\leq 8\%$)	-10	-	-	dBm	

9.2 IEEE 802.11g Section

Items	Contents				
Specification	IEEE802.11g				
Mode	OFDM				
Channel	CH1 to CH13				
Data rate	6, 9, 12, 18, 24, 36, 48, 54Mbps				
TX Characteristics	Min.	Typ.	Max.	Unit	Remark
1. Power Levels					
1) For Each antenna port	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	-25	-	25	ppm	
RX Characteristics	Min.	Typ.	Max.	Unit	
5 Minimum Input Level Sensitivity (each chain)					
1) 6Mbps (PER ≤10%)	-	-	-85	dBm	
2) 9Mbps (PER ≤10%)	-	-	-84	dBm	
3) 12Mbps (PER ≤10%)	-	-	-82	dBm	
4) 18Mbps (PER ≤10%)	-	-	-80	dBm	
5) 24Mbps (PER ≤10%)	-	-	-77	dBm	
6) 36Mbps (PER ≤10%)	-	-	-73	dBm	
7) 48Mbps (PER ≤10%)	-	-	-69	dBm	
8) 54Mbps (PER ≤10%)	-	-	-65	dBm	
6 Maximum Input Level (PER ≤10%)	-20	-	-	dBm	

9.3 IEEE 802.11n HT20 Section(2.4GHz)

Items	Contents
Specification	IEEE802.11n HT20 @ 2.4GHz
Mode	OFDM

Channel	CH1 to CH13				
Data rate (MCS index)	MCS0/1/2/3/4/5/6/7				
TX Characteristics	Min.	Typ.	Max.	Unit	
2. Power Levels					
1) For Each antenna port	12	14	16	dBm	
3. Spectrum Mask @ target power					
1) at fc +/-11MHz	-	-	-20	dBm	
2) at fc +/-20MHz	-	-	-28	dBm	
3) at fc > +/-30MHz	-	-	-45	dBm	
4. Constellation Error(EVM)@ target power					
1) MCS0	-	-	-5	dB	
2) MCS1	-	-	-10	dB	
3) MCS2	-	-	-13	dB	
4) MCS3	-	-	-16	dB	
5) MCS4	-	-	-19	dB	
6) MCS5	-	-	-22	dB	
7) MCS6	-	-	-25	dB	
8) MCS7	-	-	-28	dB	
5. Frequency Error	-25	-	25	ppm	
RX Characteristics	Min.	Typ.	Max.	Unit	
6. Minimum Input Level Sensitivity (each chain)					
1) MCS0 (PER ≤10%)	-	-	-82	dBm	
2) MCS1 (PER ≤10%)	-	-	-79	dBm	
3) MCS2 (PER ≤10%)	-	-	-77	dBm	
4) MCS3 (PER ≤10%)	-	-	-74	dBm	
5) MCS4 (PER ≤10%)	-	-	-70	dBm	
6) MCS5 (PER ≤10%)	-	-	-66	dBm	
7) MCS6 (PER ≤10%)	-	-	-65	dBm	
8) MCS7 (PER ≤10%)	-	-	-64	dBm	
7. Maximum Input Level (PER ≤10%)	-20	-	-	dBm	

9.4 IEEE 802.11n HT40 Section(2.4GHz)

Items	Contents				
Specification	IEEE802.11n HT40 @ 2.4GHz				
Mode	OFDM				
Channel	CH3 to CH11				
Data rate (MCS index)	MCS0/1/2/3/4/5/6/7				
	Min.	Typ.	Max.	Unit	Remark
TX Characteristics	Min.	Typ.	Max.	Unit	
1. Power Levels (Calibrated)					
1) For Each antenna port	12	14	16	dBm	

2. Spectrum Mask @target power					
1) at fc +/-22MHz	-	-	-20	dBr	
2) at fc +/-40MHz	-	-	-28	dBr	
3) at fc > +/-60MHz	-	-	-45	dBr	
3. Constellation Error(EVM)@ target power					
1) MCS0	-	-	-5	dB	
2) MCS1	-	-	-10	dB	
3) MCS2	-	-	-13	dB	
4) MCS3	-	-	-16	dB	
5) MCS4	-	-	-19	dB	
6) MCS5	-	-	-22	dB	
7) MCS6	-	-	-25	dB	
8) MCS7	-	-	-28	dB	
4. Frequency Error	-25	-	25	ppm	
RX Characteristics	Min.	Typ.	Max.	Unit	
5. Minimum Input Level Sensitivity (each chain)					
1) MCS0 (PER ≤10%)	-	-	-79	dBm	
2) MCS1 (PER ≤10%)	-	-	-76	dBm	
3) MCS2 (PER ≤10%)	-	-	-74	dBm	
4) MCS3 (PER ≤10%)	-	-	-71	dBm	
5) MCS4 (PER ≤10%)	-	-	-67	dBm	
6) MCS5 (PER ≤10%)	-	-	-63	dBm	
7) MCS6 (PER ≤10%)	-	-	-62	dBm	
8) MCS7 (PER ≤10%)	-	-	-61	dBm	
6. Maximum Input Level (PER ≤10%)	-20	-	-	dBm	

9.5 IEEE 802.11a Section

Items	Contents				
Specification	IEEE802.11a				
Mode	OFDM				
Channel	CH36 to CH165				
Data rate	6, 9, 12, 18, 24, 36, 48, 54Mbps				
TX Characteristics	Min.	Typ.	Max.	Unit	Remark
1. Power Levels					
1) For Each antenna port	12	14	16	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	-20	-	20	ppm	
RX Characteristics	Min.	Typ.	Max.	Unit	
5 Minimum Input Level Sensitivity (each chain)					
1) 6Mbps (PER $\leq 10\%$)	-	-	-82	dBm	
2) 9Mbps (PER $\leq 10\%$)	-	-	-81	dBm	
3) 12Mbps (PER $\leq 10\%$)	-	-	-79	dBm	
4) 18Mbps (PER $\leq 10\%$)	-	-	-77	dBm	
5) 24Mbps (PER $\leq 10\%$)	-	-	-74	dBm	
6) 36Mbps (PER $\leq 10\%$)	-	-	-70	dBm	
7) 48Mbps (PER $\leq 10\%$)	-	-	-66	dBm	
8) 54Mbps (PER $\leq 10\%$)	-	-	-65	dBm	
6 Maximum Input Level (PER $\leq 10\%$)	-30	-	-	dBm	

9.6 IEEE 802.11n HT20 Section(5GHz)

Items	Contents				
Specification	EEE802.11n HT20 @ 5GHz				
Mode	BPSK, QPSK, 16QAM, 64QAM and OFDM				
Channel	CH36 to CH165				
Data rate (MCS index)	MCS0/1/2/3/4/5/6/7				
TX Characteristics	Min.	Typ.	Max.	Unit	
2. Power Levels					
1) For Each antenna port	12	14	16	dBm	
3. Spectrum Mask @ target power					
1) at fc +/-11MHz	-	-	-20	dBr	
2) at fc +/-20MHz	-	-	-28	dBr	
3) at fc > +/-30MHz	-	-	-45	dBr	
4. Constellation Error(EVM)@ target power					
1) MCS0	-	-	-5	dB	
2) MCS1	-	-	-10	dB	
3) MCS2	-	-	-13	dB	
4) MCS3	-	-	-16	dB	
5) MCS4	-	-	-19	dB	
6) MCS5	-	-	-22	dB	
7) MCS6	-	-	-25	dB	

8) MCS7	-	-	-28	dB	
5. Frequency Error	-20	-	20	ppm	
RX Characteristics	Min.	Typ.	Max.	Unit	
7. Minimum Input Level Sensitivity (each chain)					
1) MCS0 (PER $\leq 10\%$)	-	-	-82	dBm	
2) MCS1 (PER $\leq 10\%$)	-	-	-79	dBm	
3) MCS2 (PER $\leq 10\%$)	-	-	-77	dBm	
4) MCS3 (PER $\leq 10\%$)	-	-	-74	dBm	
5) MCS4 (PER $\leq 10\%$)	-	-	-70	dBm	
6) MCS5 (PER $\leq 10\%$)	-	-	-66	dBm	
7) MCS6 (PER $\leq 10\%$)	-	-	-65	dBm	
8) MCS7 (PER $\leq 10\%$)	-	-	-64	dBm	
7. Maximum Input Level (PER $\leq 10\%$)	-30	-	-	dBm	

9.7 IEEE 802.11n HT40 Section(5GHz)

Items	Contents				
Specification	IEEE802.11n HT40 @ 5GHz				
Mode	BPSK, QPSK, 16QAM, 64QAM and OFDM				
Channel	CH38 to CH163				
Data rate (MCS index)	MCS0/1/2/3/4/5/6/7				
	Min.	Typ.	Max.	Unit	Remark
TX Characteristics	Min.	Typ.	Max.	Unit	
1. Power Levels (Calibrated)					
1) For Each antenna port	12	14	16	dBm	
2. Spectrum Mask @target power					
1) at fc +/-21MHz	-	-	-20	dBr	
2) at fc +/-40MHz	-	-	-28	dBr	
3) at fc > +/-60MHz	-	-	-45	dBr	
3. Constellation Error(EVM)@ target power					
1) MCS0	-	-	-5	dB	
2) MCS1	-	-	-10	dB	
3) MCS2	-	-	-13	dB	
4) MCS3	-	-	-16	dB	
5) MCS4	-	-	-19	dB	
6) MCS5	-	-	-22	dB	
7) MCS6	-	-	-25	dB	
8) MCS7	-	-	-28	dB	
4. Frequency Error	-20	-	20	ppm	
RX Characteristics	Min.	Typ.	Max.	Unit	
6. Minimum Input Level Sensitivity (each chain)					

1) MCS0 (PER $\leq 10\%$)	-	-	-79	dBm	
2) MCS1 (PER $\leq 10\%$)	-	-	-76	dBm	
3) MCS2 (PER $\leq 10\%$)	-	-	-74	dBm	
4) MCS3 (PER $\leq 10\%$)	-	-	-71	dBm	
5) MCS4 (PER $\leq 10\%$)	-	-	-67	dBm	
6) MCS5 (PER $\leq 10\%$)	-	-	-63	dBm	
7) MCS6 (PER $\leq 10\%$)	-	-	-62	dBm	
8) MCS7 (PER $\leq 10\%$)	-	-	-61	dBm	
6. Maximum Input Level (PER $\leq 10\%$)	-30	-	-	dBm	

9.8 IEEE 802.11ac Section

Items	Contents					
Specification	IEEE802.11ac					
Mode	BPSK, QPSK, 16QAM, 64QAM, 256QAM and OFDM					
Channel	CH36 to CH165 VHT20 CH38 to CH163 VHT40 CH42 to CH157 VHT80					
Data rate (MCS index)	MCS0/1/2/3/4/5/6/7/8/9					
	Min.	Typ.	Max.	Unit	Remark	
TX Characteristics	Min.	Typ.	Max.	Unit		
1. Power Levels (Calibrated)						
1) For Each antenna port	11	13	15	dBm		
2. Spectrum Mask @VHT20/VHT40/VHT80 target power						
1) at fc +/-11MHz/21MHz/41MHz	-	-	-20	dBr		
2) at fc +/-20MHz/40MHz/80MHz	-	-	-28	dBr		
3) at fc +/-30MHz/60MHz/120MHz	-	-	-40	dBr		
3. Constellation Error(EVM)@ target power						
1) MCS0	-	-	-5	dB		
2) MCS1	-	-	-10	dB		
3) MCS2	-	-	-13	dB		
4) MCS3	-	-	-16	dB		
5) MCS4	-	-	-19	dB		
6) MCS5	-	-	-22	dB		
7) MCS6	-	-	-25	dB		
8) MCS7	-	-	-27	dB		
9) MCS8			-30	dB		
10) MCS9			-32	dB		
4. Frequency Error	-20	-	20	ppm		
RX Characteristics	Min.	Typ.	Max.	Unit		
7. Minimum Input Level Sensitivity (each chain)			VHT 20	VHT 40	VHT 80	

1) MCS0 (PER $\leq 10\%$)	-	-	-82	-79	-76	dBm	
2) MCS1 (PER $\leq 10\%$)	-	-	-79	-76	-73	dBm	
3) MCS2 (PER $\leq 10\%$)	-	-	-77	-74	-71	dBm	
4) MCS3 (PER $\leq 10\%$)	-	-	-74	-71	-68	dBm	
5) MCS4 (PER $\leq 10\%$)	-	-	-70	-67	-64	dBm	
6) MCS5 (PER $\leq 10\%$)	-	-	-66	-63	-60	dBm	
7) MCS6 (PER $\leq 10\%$)	-	-	-65	-62	-59	dBm	
8) MCS7 (PER $\leq 10\%$)	-	-	-64	-61	-58	dBm	
9) MCS8 (PER $\leq 10\%$)			-59	-56	-53	dBm	
10) MCS9 (PER $\leq 10\%$)			-57	-54	-51	dBm	
6. Maximum Input Level (PER $\leq 10\%$)	-30	-	-			dBm	

9.9 Bluetooth Section

Items	Contents				
Specification	BT2.1+BR/EDR/4.2				
Mode	FHSS,GFSK,DPSK,DQPSK				
Number of Channel	79 Channels				
Frequency Band	2.402 GHz ~2.480GHz				
	Min.	Typ.	Max.	Unit	Remark
1. Output Power		4	-	dBm	
2. Gain step	2	4	8	dB	
3. Receiver sensitivity (BER $\leq 0.1\%$)	-	-93.5	-80	dBm	
4. Maximum usable signal (BER $\leq 0.1\%$)	-	-5	-		
5. C/I co-channel (BER $<0.1\%$)	-	4	11	dB	
6. C/I 1MHz (BER $<0.1\%$)	-	-14	0	dB	
7. C/I 2MHz (BER $<0.1\%$)	-	-42	-30	dB	
8. C/I ≥ 3 MHz (BER $<0.1\%$)	-	-49	-40	dB	
9. C/I Image channel (BER $<0.1\%$)	-	-25	-9	dB	
10. C/I Image 1MHz (BER $<0.1\%$)	-	-50	-20	dB	
11. Inter-modulation	-	-13	-	dB	
12. Out-of-band blocking					
1). 30MHz to 2000MHz	-10	-	-	dBm	
2). 2000MHz to 2399MHz	-27	-	-	dBm	
3). 2498MHz to 3000MHz	-27	-	-	dBm	
4). 3000MHz to 12.75GHz	-10	-	-	dBm	
13. Modulation characteristics					
1). Δf_{1avg}	140	157	175	KHz	
2). Δf_{2max} (For at least 99.9% of all Δf_{2max})	115	140	-	KHz	
3). $\Delta f_{1avg} / \Delta f_{2avg}$	0.8	0.98	-	KHz	
14. ICFT	-75	± 20	+75	KHz	
15. Carrier frequency drift					
1). One slot packet (DH1)	-25	± 15	+25	KHz	

2). Two slot packet (DH3)	-40	±15	+40	KHz	
3). Five slot packet (DH5)	-40	±15	+40	KHz	
4). Max drift rate	-	6	20	KHz/50us	
16. TX output spectrum(20dB bandwidth)	-	922	1000	KHz	
17. In-Band spurious emission					
1). ±2MHz offset	-	-45	-20	dBm	
2). ±3MHz offset	-	-48	-40	dBm	
3). >±3MHz offset	-	-48	-40	dBm	

10. Mechanical,Environmental and Reliability Tests

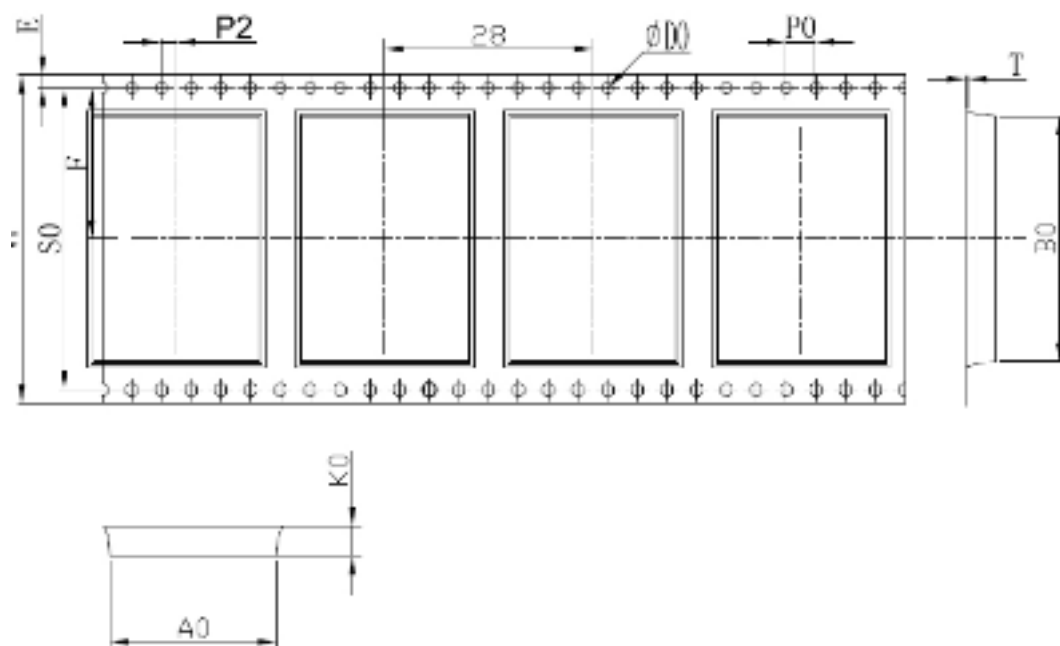
(机械、环境和可靠性测试)

Test Items		Test Conditions	Qty	Criteria Condition
10-1	Drop test	The packed samples within 100Kg can be tested Drop height: Face Side: 800/600/450mm Edge line: 600/450/350mm Drop time: 1 each Face and edge.	1xBox	After drop test, the outer box and inner box will not been broken by appearance visual inspection.
10-2	Vibration test	X-Y-Z direction, first Frequency changing from 10Hz to 30Hz to 10Hz,amplitude 0.75mm, 5 times vibrations, then frequency Changing from 30Hz to 55 Hz to 30 Hz, amplitude 0.15mm, 5 time vibration.	3	After test, the Appearance, Power EVM and Frequency error shall be satisfied with the specification.
10-3	Impact test	Impact acceleration: 50m/sec ² ; Impact duration: 16ms; Impact times: 1000.	3	After test, the Appearance, Power EVM and Frequency error shall be satisfied with the specification.
10-4	Soldering ability test	Soldering temperature: 235±5℃ Soldering duration: 2±0.5S	3	1.After soldering, the soldered area must be covered by a smooth bright solder layer, some deficiencies such as a small amount of the pinhole, not wetting are allowed, but the deficiencies can not be in the same place; 2.At least 90% of soldered area shall be covered continuously by the soldering

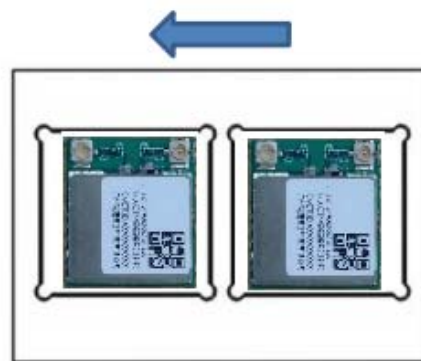
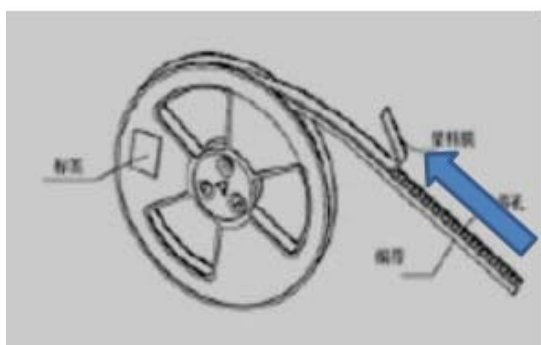
				material.
10-5	Humidity test	Leave samples in $40\pm3^{\circ}\text{C}$, 93% RH @ 96 hours	3	Leave samples in standard test condition for 2 hours then test, the Appearance, Power, EVM and Frequency error functional parameter shall be satisfied with the test specification.
10-6	High temperature load life test	Thermostat cabinet temperature: $55\pm5^{\circ}\text{C}$ Applied voltage: 110% rated voltage Working duration: 200 hour (Supply Voltage Cycle 23h power on, 1h power off)	60	After test, leave samples in standard condition for 1 hour and test, Power, EVM and Frequency error shall be satisfied with the test specification.
10-7	High temperature load test	Temperature: $55\pm5^{\circ}\text{C}$ Samples work for 16 hours	3	After test, the Appearance, Power, EVM and Frequency error shall be Satisfied with the test specification.
10-8	Low temperature storage test	Leave the samples in $-25\pm3^{\circ}\text{C}$ @24 hours	3	Leave samples in standard test condition for 2 hours then test, the Appearance, Power, EVM and Frequency error shall be satisfied with the test specification.
10-9	Low temperature load test	Leave samples in $-15\pm3^{\circ}\text{C}$ @ 2 hours, samples' function shall be normal, the let samples work for 1 hour	3	After test, leave the samples in standard condition and tested the Appearance, Power, EVM and Frequency error shall be satisfied with the test specification.
10-10	Temperature circle test	One cycle duration $-10\pm3^{\circ}\text{C}$ @3H $40\pm3^{\circ}\text{C}$ @3H Total cycle: 10x	3	After test, leave the samples in standard condition and tested Power EVM and Frequency error shall be qualified and all the characters shall be satisfied with the test specification.
10-11	Continuous TP test	Twice cycle duration $-10\pm3^{\circ}\text{C}$ @4H $+60\pm3^{\circ}\text{C}$ @4H, $+25\pm2^{\circ}\text{C}$ @2H	3	During test, There will not been appeared signal disconnection or interruption between DUT and AP.
10-12	ESD	Discharge voltage: 1kV C: 150pF Discharge resistance: 330Ω Positive 10 times 1 time for each second	3	The products can recoverable smoothly after ESD test.

11. Package (包装)

(1) 编带尺寸:



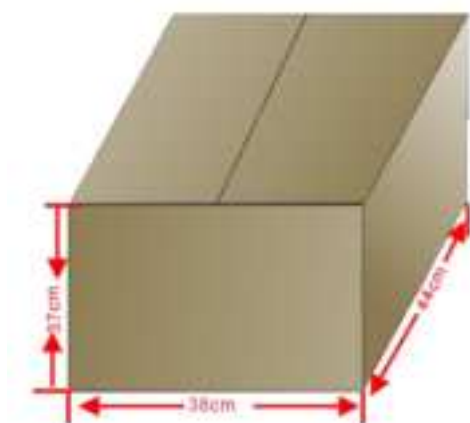
(2) 编带方向: (箭头代表编带走向)



(3) 包装示意图:



注:



(4) 标签样式:



内盒标签示例【具体内容根据系统打印为准】

12. Software Requirements (软件要求)

The driver supports the following operating systems: Microsoft Windows XP, Vista and Win7.

驱动程序支持以下操作系统：微软 Windows XP, Vista 和 win7。

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.

Caution: The user is cautioned that 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.

—Increase the separation between the equipment and receiver.

—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

—Consult the dealer or an experienced radio/TV technician for help.

If power exceeds the limit and the distance (Over 20cm distance in actual use between the device and user) is compliant with the requirement

FCC RF 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 a minimum distance of 20cm between the radiator and any part of your body.

The device must be professionally installed

The intended use is generally not for the general public. It is generally for industry/commercial use.

The connector is within the transmitter enclosure and can only be accessed by disassembly of the transmitter that is not normally required. the user has no access to the connector.

Installation must be controlled. Installation requires special training

Canada Statement

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference.
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux

CNR d'Innovation, Sciences et Développement économique 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;
- 2) L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Please notice that if the ISED certification 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 IC: **24728-SKIWB822CU2**" any similar wording that expresses the same meaning may be used.

l'appareil hôte doit porter une étiquette donnant le numéro de certification du module d'Industrie Canada, précédé des mots « Contient un module d'émission », du mot « IC: **24728-SKIWB822CU2** » ou d'une formulation similaire exprimant le même sens, comme suit

The device meets the exemption from the routine evaluation limits in section 2.5 of RSS 102 and

compliance with RSS-102 RF exposure, users can obtain Canadian information on RF exposure and compliance.

Le dispositif rencontre l'exemption des limites courantes d'évaluation dans la section 2.5 de RSS 102 et la conformité à l'exposition de RSS-102 rf, utilisateurs peut obtenir l'information canadienne sur l'exposition et la conformité de rf.

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

transmitter. This equipment should be installed and operated with a minimum distance of 20

centimeters between the radiator and your body.

Cet émetteur ne doit pas être Co-placé ou ne fonctionnant en même temps qu'aucune autre antenne ou émetteur. Cet équipement devrait être installé et actionné avec une distance minimum de 20 centimètres entre le radiateur et votre corps.

This radio transmitter **24728-SKIWB822CU2** has been approved by Innovation, Science and Economic

Development Canada to operate with the antenna types listed below, with the maximum permissible

gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain

indicated for any type listed are strictly prohibited for use with this device.

Le présent émetteur radio **24728-SKIWB822CU2** a été approuvé par Innovation, Sciences et Développement

économique 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 pour tout type figurant sur la liste, sont strictement interdits pour l'exploitation de

l'émetteur.

The concrete contents to check are the following three points.

1) Must use a external antenna such as PIFA Antenna with gain not exceeding 3dBi(2.4G), 3.5dBi(5G);

2) Should be installed so that the end user cannot modify the antenna;

3) Feed line should be designed in 50ohm

Fine tuning of return loss etc. can be performed using a matching network.

Le contenu concret à vérifier sont les trois points suivants.

1) doit utiliser une antenne comme WA-M-LB-02-164 avec pifa gain n'excédant pas 6.76 dbi

2) doivent être installés de façon que l'utilisateur final ne peut pas modifier l'antenne

3) La ligne d'alimentation doit être conçue en 50ohm

Le réglage précis de la perte de rendement, etc. peut être effectué en utilisant un réseau correspondant.

Frequency (MHz) fréquences	Antenna Gain (dBi) Gain maximal d'antenne
2402-2480	BT Antenna MAX: 3dBi WF1 Antenna MAX: 3dBi WF2 Antenna MAX: 3dBi
5150-5850	WF1 Antenna MAX: 3.5dBi WF2 Antenna MAX: 3.5dBi

Notice to OEM integrator

Must use the device only in host devices that meet the FCC/ISED RF exposure category of mobile, which means the device is installed and used at distances of at least 20cm from persons.

The end user manual shall include FCC Part 15 /ISED RSS GEN compliance statements related to the transmitter as show in this manual.

Host manufacturer is responsible for compliance of the host system with module installed with all other applicable requirements for the system such as Part 15 B, ICES 003.

Host manufacturer is strongly recommended to confirm compliance with FCC/ISED requirements for the transmitter when the module is installed in the host.

Must have on the host device a label showing Contains FCC ID: **2AR82-SKIWB822CU2** , IC:

24728-SKIWB822CU2

l'hôte doit utiliser l'instrument uniquement dans des dispositifs qui répondent à la fcc / (catégorie d'exposition rf mobile, ce qui signifie le dispositif est installé et utilisé à une distance d'au moins 20 cm de personnes.

le manuel de l'utilisateur final doit inclure la partie 15 / (fac rss gen déclarations de conformité relatives à l'émetteur que de montrer dans ce manuel.

le fabricant est responsable de la conformité de l'hôte, le système d'accueil avec le module installé avec toutes les autres exigences applicables du système comme la partie 15 b, ices - 003.

accueillir le fabricant est fortement recommandé de confirmer la conformité avec les exigences de la fcc / (émetteur lorsque le module est installé dans l'hôte.

le dispositif d'accueil doivent avoir une étiquette indiquant contient FCC

ID: **2AR82-SKIWB822CU2** , IC: **24728-SKIWB822CU2**