

保密等级：机密

SPECIFICATION

产品规格书

SKI.WB821CU.2

IEEE 802.11a/b/g/n/ac 1T1R USB Wi-Fi Module

Integrated Bluetooth 2.1+BR/EDR/4.2

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REVISION HISTORY

| VERSION | DATE | BOARD ID | PAGE | DESCRIPTION | AUTHOR |
|---------|------------|-------------------------|------|---------------|--------|
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1. Introduction (简介)

SKI.WB821CU.2 module is based on Realtek RTL8821CU-CG solution.

RTL8821CU-CG is a highly integrated single chip which features a low power 1x1 11a/b/g/n/ac dual-band Wi-Fi subsystem and a Bluetooth subsystem. The Wi-Fi subsystem contains the 802.11a/b/g/n/ac radio, baseband, and MAC that are designed to meet both the low power and high throughput application. The Bluetooth subsystem contains the Bluetooth radio which complies with Bluetooth v2.1+BR/EDR and v4.2, baseband, link controller. This documentation describes the engineering requirements specification.

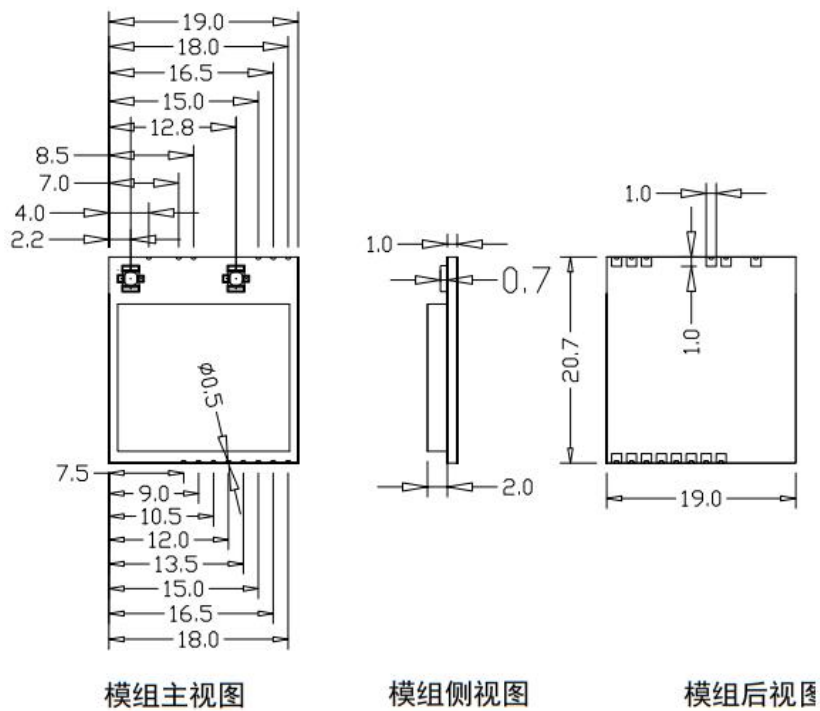
SKI.WB821CU.2 模组是基于 Realtek 的 RTL8821CU-CG 方案开发，RTL8821CU-CG 是一款高集成单芯片和低功耗的单发单收的双频 WIFI 芯片，支持 802.11a/b/g/n/ac，同时此 IC 支持蓝牙 v2.1+BR/EDR 和 v4.2，主要用于 TV 驱动领域。本文档描述了产品的设计要求规范。

2. FEATURES (特性)

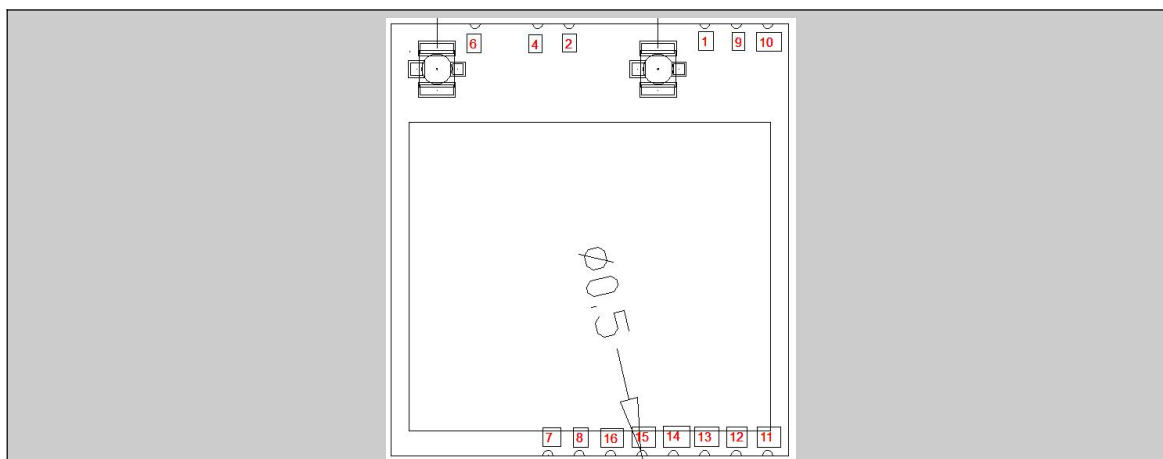
| | |
|---------------------------------|--------------------------|
| Reserving System 接收制式 | IEEE Std. 802.11a |
| | IEEE Std. 802.11b |
| | IEEE Std. 802.11g |
| | IEEE Std. 802.11n |
| | IEEE Std. 802.11ac |
| | Bluetooth 2.1+BR/EDR/4.2 |
| Chip Solution 芯片方案 | RTL8821CU-CG |
| Band 波段 | 2.4/5GHz |
| Dimensions 尺寸 | 19mm×20.7mm×3.0mm |

| 型号 | 安装方式 | 支持标准 | 频段 | 天线接口 | 备注 |
|---------------|------|--|----------|---------|-----------------------|
| SKI.WB821CU.2 | SMD | IEEE 802.11a/b/g/n/ac+ Bluetooth 2.1+BR/EDR/4.2 | 2.4/5GHz | 三代 IPEX | 19mm×20.7mm ×3.0mm |

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



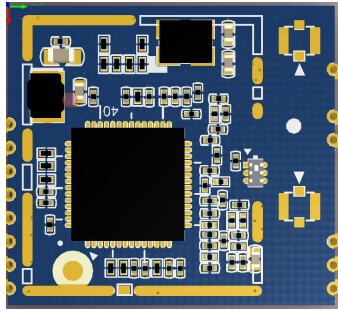
5. Pin Definition (引脚定义)



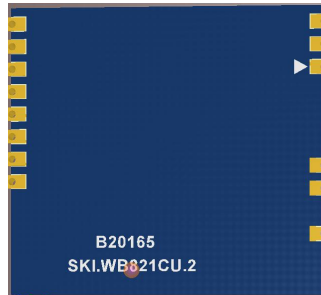
| PIN | SYMBOL | DESCRIPTION |
|-----|-----------|---|
| 1 | LED | LED0\ LED 灯控制 |
| 2 | AGND | Ground\ 接地 |
| 4 | AGND | Ground\接地 |
| 6 | AGND | Ground\接地 |
| 7 | BT_DIS | BT Disable, L Active\ 蓝牙使能控制, 高电平使能, 默认高电平 |
| 8 | WL_DIS | WIFI Disable, L Active\ WIFI 使能控制, 高电平使能, 默认高电平 |
| 9 | VDD33 | 3.3V input\ 3.3V 供电输入 |
| 10 | AGND | Ground\接地 |
| 11 | WL_USB_DM | WLAN USB2.0 DM Signal\ USB 差分负电压信号 |
| 12 | WL_USB_DP | WLAN USB2.0 DP Signal\ USB 差分正电压信号 |
| 13 | AGND | Ground\接地 |
| 14 | PDN | Power Down, L Active\ 供电使能, 高电平有效, 默认高电平 |
| 15 | D_WAKE_H | WIFI Device Wake Host, L Active\ WIFI 从机唤醒主机, 低电平有效 |
| 16 | H_WAKE_D | Host Wake WIFI DeviceL, Active\ 主机唤醒 WIFI 从机, 低电平有效 |

注：此模块没有 PIN3、PIN5

6. Product Pictures (实物图片)



正视图 (top view)



背视图 (bottom view)

产品铭牌内容如下 (高温贴纸):



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 | RTL8821CU-CG | QFN56 | |
| 2 | PCB | SKI.WB821CU.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 | 300mA |
| 8-3 | Ripple\ 波纹 | ≤70mV |
| 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 | -20°C to +85°C |

9. Electrical Characteristics (电气特性)

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 (±10%) input power at the Module.

除非另有说明，电气规范试验是在下列条件下进行的。环境条件温度：25°C±5°C；电源电压：模块输入电压 3.3V (±10%)。

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 | 14 | 16 | 18 | 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 ≤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 | 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 | - | - | -40 | dB | |
| 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 $\leq 10\%$) | - | - | -85 | dBm | |
| 2) 9Mbps (PER $\leq 10\%$) | - | - | -84 | dBm | |
| 3) 12Mbps (PER $\leq 10\%$) | - | - | -82 | dBm | |
| 4) 18Mbps (PER $\leq 10\%$) | - | - | -80 | dBm | |
| 5) 24Mbps (PER $\leq 10\%$) | - | - | -77 | dBm | |
| 6) 36Mbps (PER $\leq 10\%$) | - | - | -73 | dBm | |
| 7) 48Mbps (PER $\leq 10\%$) | - | - | -69 | dBm | |
| 8) 54Mbps (PER $\leq 10\%$) | - | - | -65 | dBm | |
| 6 Maximum Input Level (PER $\leq 10\%$) | -20 | - | - | dBm | |

9.3 IEEE 802.11n HT20 Section(2.4GHz)

| Items | Contents | | | | |
|---|--------------------------|------|------|------|--|
| Specification | EEE802.11n 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 | 11 | 13 | 15 | dBm | |
| 3. Spectrum Mask @ target power | | | | | |
| 1) at fc +/-11MHz | - | - | -20 | dB | |
| 2) at fc +/-20MHz | - | - | -28 | dB | |
| 3) at fc > +/-30MHz | - | - | -45 | dB | |
| 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 | 11 | 13 | 15 | 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 | 9 | 11 | 13 | dBm | |
| 2. Spectrum Mask @ target power | | | | | |
| 1) at fc +/-11MHz | - | - | -20 | dB | |
| 2) at fc +/-20MHz | - | - | -28 | dB | |
| 3) at fc > +/-30MHz | - | - | -40 | dB | |
| 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 ≤10%) | - | - | -82 | dBm | |
| 2) 9Mbps (PER ≤10%) | - | - | -81 | dBm | |
| 3) 12Mbps (PER ≤10%) | - | - | -79 | dBm | |
| 4) 18Mbps (PER ≤10%) | - | - | -77 | dBm | |
| 5) 24Mbps (PER ≤10%) | - | - | -74 | dBm | |
| 6) 36Mbps (PER ≤10%) | - | - | -70 | dBm | |
| 7) 48Mbps (PER ≤10%) | - | - | -66 | dBm | |
| 8) 54Mbps (PER ≤10%) | - | - | -65 | dBm | |
| 6 Maximum Input Level (PER ≤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 | 8 | 10 | 12 | 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 ≤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%) | -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 | 8 | 10 | 12 | dBm | |
| 2. Spectrum Mask @target power | | | | | |
| 1) at fc +/-21MHz | - | - | -20 | dB | |
| 2) at fc +/-40MHz | - | - | -28 | dB | |
| 3) at fc > +/-60MHz | - | - | -45 | dB | |
| 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 ≤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%) | -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 | 8 | 10 | 12 | | | 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 | | | VHT | VHT | VHT | | |
| (each chain) | | | 20 | 40 | 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). ± 2 MHz offset | - | -45 | -20 | dBm | |
| 2). ± 3 MHz offset | - | -48 | -40 | dBm | |
| 3). $> \pm 3$ MHz 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 be 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±3℃, 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±5℃ 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±5℃ 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±3℃@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±3℃@ 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±3℃@3H 40±3℃ @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±3℃@4H +60±3℃@4H, +25@2H@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 Positive10 times 1 time for each second | 3 | The products can recoverable smoothly after ESD test. |

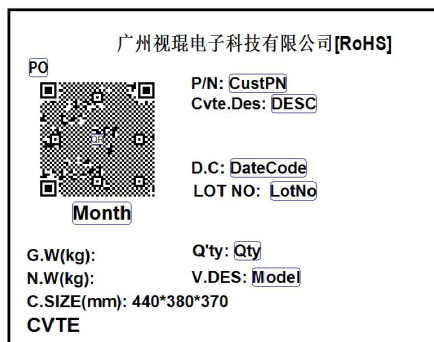
11. Package (包装)

(1) 编带尺寸:
暂无

(2) 编带方向: (箭头代表编带走向)
暂无

(3) 包装示意图:
暂无

(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。