

SPECIFICATION FOR APPROVAL

| | |
|---------------------------|---|
| 供应商名称: SUPPLIER: | Shenzhen Skyworth -RGB Electronics Co., LTD |
| 制造商名称名称: MANUFACTURER: | Shenzhen Skyworth -RGB Electronics Co., LTD |
| 客户名称: CUSTOMER: | Shenzhen Skyworth -RGB Electronics Co., LTD |
| 厂家型号: SPEC TYPE: | U8822C2 |
| 制表日期: DATE: | 2024.04.17 |

1、 Basic function

It is compatible with IEEE 802.11b standard and provides wireless 11Mbps data rate.

It is compatible with IEEE 802.11g standard and provides wireless 54Mbps data rate.

It is compatible with IEEE 802.11n standard and provides wireless 300Mbps data rate.

It is compatible with IEEE 802.11a standard and provides wireless 54Mbps data rate.

It is compatible with IEEE 802.11ac standard and provides wireless 866.7Mbps data rate.

Operating in 2400 ~ 2483.5MHz and 5150~5850MHz bands, meeting global regulatory requirements.

Support IEEE 802.11i (WPA and WPA2), WAPI, enhanced security.

Support IEEE 802.11d/e/h/w/k/v/r(Agile Multiband) protocol cluster.

User-friendly configuration and diagnostic utility.

Driver support Win10, Win8, Win7, XP, Linux.

RoHS compliant.

2、 Performance parameters:

| | |
|-------------------------|--|
| Master chip | RTL8822CU-VB-CG |
| Operating frequency | 2400 ~ 2483.5MHz 5150 ~ 5250MHz 5725 ~ 5850MHz |
| WiFi standard | 802.11a/b/g/n/ac (2T2R) |
| Modulation mode | CCK/DBPSK/DQPSK(DSSS) BPSK/QPSK/16QAM/64QAM/256QAM(OFDM) GFSK, π /4-DQPSK,8PSK |
| Data rate | 11a: 6, 9, 12, 18, 24, 36, 48 and 54 Mbps 11b: 1, 2, 5.5 and 11Mbps 11g: 6, 9, 12, 18, 24, 36, 48 and 54 Mbps 11n: MCS0~7, Up to 300Mbps 11ac: MCS0~9, Up to 866.7Mbps |
| Interface data standard | USB2.0 |
| Operating temperature | 0°C to +60°C |
| Storage temperature | -40°C to +85°C |

3、WiFi RF parameters

| Item | Content |
|-------------------------|---|
| WIFI standard | 802.11a/b/g/n/ac |
| Port | USB2.0 |
| Frequency range | 2400 ~ 2483.5MHz 5150 ~ 5250MHz 5725 ~ 5850MHz |
| Modulation mode | CCK/DBPSK/DQPSK(DSSS) BPSK/QPSK/16QAM/64QAM/256QAM(OFDM) |
| Frequency offset range | < ± 10 ppm |
| Minimum receiving level | <-98dBm |

4、BT RF parameters

| Item | Content |
|-------------------------|---------------------------|
| BTstandard | BT5.0 |
| Port | USB2.0 |
| Frequency range | 2400 ~ 2483.5MHz |
| Modulation mode | GFSK, $\pi/4$ -DQPSK,8PSK |
| Minimum receiving level | <-90dBm |

5、 ISED Warning:

“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.”

“CAN ICES-3 (B)/NMB-3(B)”

“In order to comply with ISED RF Exposure requirements, this device must be installed to provide at least 20 cm separation from the human body at all times.

“Afin de se conformer aux exigences d’exposition RF ISED, cet appareil doit être installé pour fournir au moins 20 cm de séparation du corps humain en tout temps.

“ (EN) This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

(FH) Lors de l’installation et du fonctionnement de cet équipement, la distance minimale entre le radiateur et le corps doit être de 20 cm

The U8822C2 module is labelled with its own IC Certification Number. If the IC 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. In that case, the final end product must be labelled in a visible area with the following: “Contains IC: 23165-U8822C2”

6、 FCC Warning:

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. For all Class B Digital Devices, a statement like the following is needed:

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 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.

FCC Part 15 Clause 15.21 [Do not Modify warning]:

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

FCC Part 15.19(a [interference compliance statement], unless the following statement is already provided on the device label: -

“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.”

Radiation Exposure Statement:

- 1.This equipment complies with FCC/IC 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.
- 2.The device has been evaluated to meet general RF exposure requirement

OEM integration instructions:

This device is intended only for OEM integrators under the following conditions: The transmitter module may not be co-located with any other transmitter or antenna. The module shall be only used with the external antenna(s) that has been originally tested and certified with this module. As long as the conditions above are 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 (for example, digital device emissions, PC peripheral requirements, etc.).

Validity of using the module certification:

In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization for this module in combination with the host equipment is no longer considered valid and the FCC ID of the module 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 FCC authorization.

Label and compliance information:

Host product manufacturers need to provide a physical or e-label stating "Contains FCC ID: 2ANM3U 8822C2" with their finished product.

Information that must be placed in the end user manual: 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.

List of applicable FCC rules:

FCC Part 15 Subpart C 15.247 & 15.209 & 15.407.

Specific operational use conditions:

The module is a WIFI&BT Module with 2.4G&5G function.

BT Operation Frequency: 2402~2480MHz.

WiFi Operation Frequency: 2412~2462MHz; 5180~5240MHz; 5745~5825MHz.

Type: FPC Antenna@BT; PIFA Antenna@WiFi

BT: maximum 3.56dBi

WiFi ANT1: maximum 2.19dBi@2.4GHz; 1.58dBi@5GHz antenna gain

WiFi ANT2: maximum 2.28dBi@2.4GHz; 1.82dBi@5GHz antenna gain

Limited module procedures:

Not applicable, The module is a Single module and complies with the requirement of FCC Part 15 212.

Trace antenna designs:

Not applicable, The module has its own antenna, and doesn't need a host's printed board micro strip trace antenna etc.

RF exposure considerations :

The module must be installed in the host equipment such that at least 20cm is maintained between the antenna and users' body. The device has been evaluated to meet general RF exposure requirements.

The device can be used in portable exposure conditions without restriction.

Antenna:

Type: FPC Antenna@BT; PIFA Antenna@WiFi

Impedance: 50 Ohm

Manufacturer: Shenzhen yishengbang Technology CO.,LTD

Directivity: BT: 6.56dBi;

WiFi ANT1: 5.44dBi@2.4GHz; 5.23dBi@5GHz

WiFi ANT2: 5.38dBi@2.4GHz; 5.33dBi@5GHz

Form Factor: FPC Antenna@BT; PIFA Antenna@WiFi

Bandwidth: 90MHz@BT; 100MHz@2.4GWiFi; 700MHz@2.4GWiFi;

Polarization: Linear Polarization

Gain: BT ANT: maximum 3.56dBi;

WiFi ANT1:maximum 2.19dBi@2.4GHz; 1.58dBi@5GHz antenna gain

WiFi ANT2:maximum 2.28dBi@2.4GHz; 1.82dBi@5GHz antenna gain

After certification, adding a different antenna type requires a C2/3 PC.

Information on test modes and additional testing requirements:

Host manufacturer must perform test of radiated & conducted emission and spurious emission, e.t.c according to the actual test modes for a stand-alone modular transmitter in a host, as well as for multiple simultaneously transmitting modules or other transmitters in a host product. Only when all the test results of test modes comply with FCC requirements, then the end product can be sold legally.

Additional testing, Part 15 Subpart B disclaimer:

The host product manufacturer is responsible for compliance with 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.

Note EMI Considerations:

D04 Module Integration Guide has been considered as "best practice" for RF design engineering testing and evaluation of non-linear interactions which can generate additional non-compliant limits due to module placement to host components or properties. For standalone mode, D04 Module Integration Guide was referenced, and simultaneous mode considered for the host product to confirm compliance.

How to make changes:

Only the Grantee is permitted to make permissive changes.