Instructions

1. Introduction

MK-QTWIFI-08(A)SoC module designed base on RTL8710BN-A0 chip solution, The SOC module is a highly intelligent platform for the Internet of Everything that contains a low-powerWi-Fi connectivity solution on one package. It includes a number of TCP/IP based connectivity protocols along with SSL, enabling a low-cost, low-complexity system to obtain full-featured internet connectivity and reliable information exchange.

RTL8710BN-A0 is a highly integrated single-chip low power 802.11n Wireless LAN (WLAN) network controller. It combines an ARM-CM3 MCU, WLAN MAC, a 1T1R capable WLAN baseband, and RF in a single chip. It also provides a bunch of configurable GPIOs which are configured as digital peripherals for different applications and control usage.RTL8710BN integrates internal memories for complete WIFI protocol functions. The embedded memory configuration also provides simple application developments. The module contains a Security Chip IC (optional)，it supports configuration, binding, communication and data encryption, security OTA

2. RF module Overview

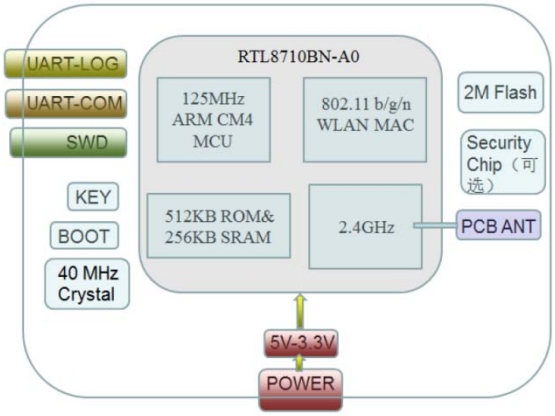


Figure 1 MK-QTWIFI-08(A) Block Diagram

2.1 RF Specification Reference

SoC RFspecification refer to belowlist.

Main Chipset	RTL8710BN-A0
SoC RF standard	IEEE 802.11 b/g/n
Operating Frequency	2.412~2.462 GHz
UART Interface	For testing and OTP programming (Calibration data)
Antenna Design Options	PCB printed
RF Modulation	WIFI: 11b: DBPSK, DQPSK and CCK and DSSS 11a/g: BPSK, QPSK, 16QAM, 64QAM and OFDM 11n: BPSK, QPSK, 16QAM, 64QAM and OFDM
Data rates	11b: 1, 2, 5.5 and 11Mbps 11a/g: 6, 9, 12, 18, 24, 36, 48 and 54 Mbps 11n: 6.5, 13, 19.5, 26, 39, 52, 58.5, 65 Mbps
Operation Voltage	5V +/-10% input

2.2 System Functions

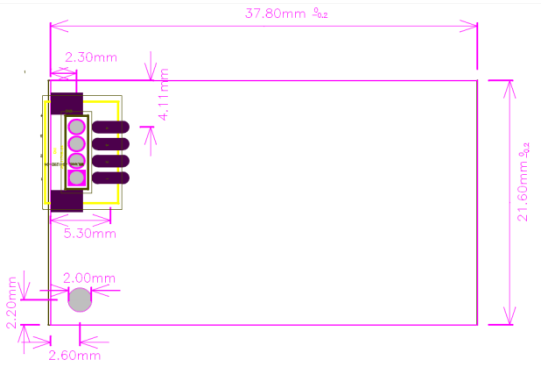
SoC S/W & system general specification refer to below list:

Main Chipset	RTL8710BN-A0
WLAN PHY Features	1T1R
Connective	WIFI Direct support
Package	QFN48 (6x6mm 2)
Bandwidth	20MHz and 40MHz bandwidth transmission
HW acceleration	WPA,WPA2, WPS2.0
Form factor	Maximum 21 GPIO pins
PCB Stack	2-layers design (1+/-0.15mm)
Module Dimension	Typical，37.8mm x21.6mm x 4.0mm

2.3 Mechanical Specification

PCBA Mechanical Outline Drawing

Typical Dimension (W x L x T): 37.8mm x21.6mm x 4.0mm(+/-0.15 mm), PCB Thickness: 1mm (+/-0.1mm)



(Unit：mm)

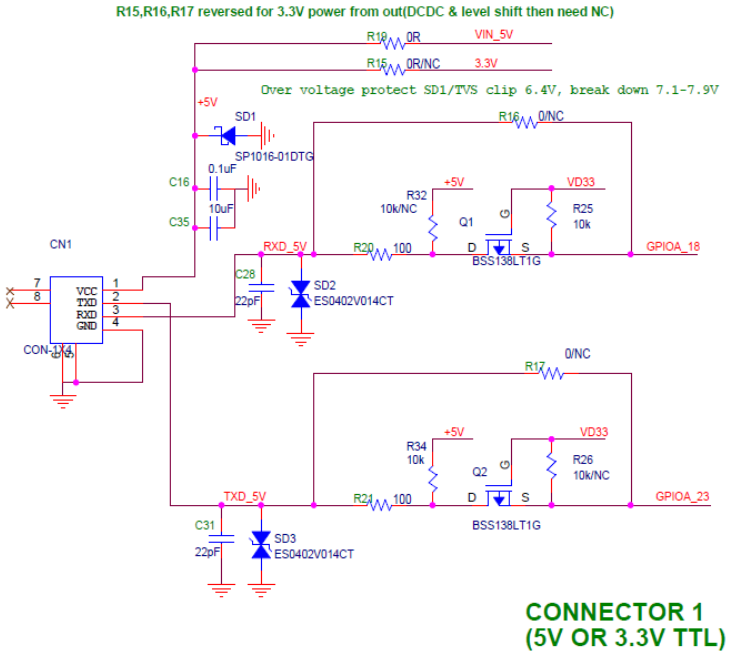
2.4、Pin Distribution Definition

Pins sequence and distribution list as follows

Pins	Explanation	
1	VCC	5V
2	GND	GND
3	UART	RXD
4	UART	TXD

The UART interface circuit diagram

Base on the RXD and TXD concatenated 51 Ω matching resistance respectively.



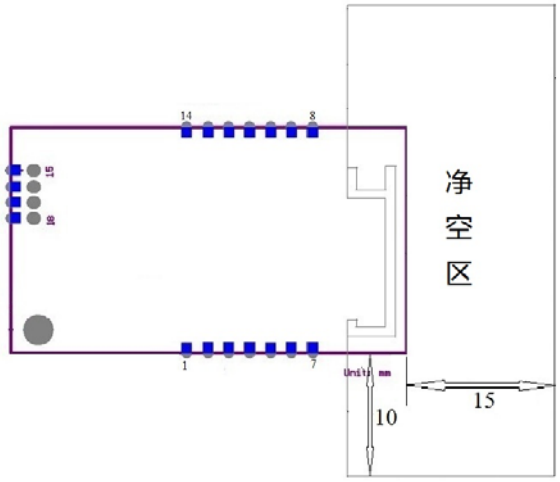
3、Antenna information

3.1 Type of antenna

MK-QTWIFI-08(A) uses the PCB antenna

3.2 PCBAntenna clearance area

The MK-QTWIFI-08(A) use the PCB antenna, you need to make sure that the distance between main board PCB and other metal components is at least more than 15 mm. The below shadow parts of the areasneed to be away from the metal devices, sensors, interference sources and other materials may cause interference.



PCBAntenna minimum clearance area

4、Application reference

Please read the following statement before using the WIFI module MK-QTWIFI-08(A).

FCC:

1. 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.
2. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Please notice that 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 FCC ID: 2ALD3-MKQTWIFI08A" any similar wording that expresses the same meaning may be used.

The module is limited to OEM installation ONLY.

The OEM integrator is responsible for ensuring that the end-user has no manual instruction to remove or install module.

The module is limited to installation in mobile application;

A separate approval is required for all other operating configurations, including portable configurations with respect to Part 2.1093 and difference antenna configurations.

The OEM integrator is responsible for ensuring that the host product which is installed and operating with the module is in compliant with Part 15B unintentional Radiator requirements, please note that For a Class B digital device or peripheral, the instructions furnished the user manual of the end-user product shall include the following or similar statement, placed in a prominent location in the text of the manual.

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.

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, Human proximity to the antenna shall not be less than 20cm(8 inches) during normal operation.

CE:

SIMPLIFIED EU DECLARATION OF CONFORMITY

Hereby, Qingdao HaierTechnology Co.,Ltd declaresthat the radio equipment type WiFi Module is incompliance with Directive 2014/53/EU. There are no restrictions of use.

Support Standards:	IEEE 802.11b, IEEE 802.11g, IEEE 802.11n
Frequency Range:	2412 MHz to 2462 MHz
Maximum EIRP:	IEEE 802.11b: Not more than 18.79dBm IEEE 802.11g: Not more than 16.14dBm IEEE 802.11n: Not more than 15.91dBm

IC：

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.

Le présentappareilestconforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitationestautorisée aux deux conditions suivantes : (1) l'appareildoit pas produire de brouillage, et (2) l'utilisateur de l'appareildoit accepter tout brouillageradioélectriquesubi, mêmesi le brouillageest susceptible d'encompromettre le fonctionnement. l'appareilhôtedoit porter uneétiquettedonnant le numéro de certification du module d'Industrie Canada, précédé des mots « Contient un module d'émission », du mot « Contient » oud'une formulation similaireexprimant le mêmesens, comme suit Please notice that if the IC identification number is not visible when themodule is installed inside another device, then the outside of the deviceinto which the module is installed must also display a label referring tothe enclosed module. This exterior label can use wording such as thefollowing: “Contains IC:22897-MKQTWIFI08” any similar wording that expresses the samemeaning may be used.

L’étiquette d’homologation d’un module d’Innovation, Sciences etDéveloppementéconomique Canada devraêtreposée sur le produithôteàunendroitbien en vue, en tout temps. En l’absence d’étiquette, le produithôtedoit porter uneétiquettesurlaquelle figure le numéro d’homologationdu module d’Innovation, Sciences et DéveloppementéconomiqueCanada,précédé du mot « contient », ou d’une formulation similaireallantdanslemême sens et qui vacomme suit : Contient IC : 22897-MKQTWIFI08est le numéro d’homologation du module.

Manual Information to the End User

The OEM integrator has to be aware not to provide information to the enduser regarding how to install or remove this RF module in the user’s manualof the end product which integrates this module. The end user manual shall include all required regulatoryinformation/warning as shown in this manual.