

# HX-DU1021D Radio Modem Configuration Operation Instructions

## 一、 Instructions for setting up the test environment

1、 Connect the two radio modems to the computer using a USB-to-RS232 cable

2、 Open two serial port assistants (one for sending and one for receiving).

The serial port configuration for the radio modem is as follows:

Baud rate: 115200

Data bits: 8

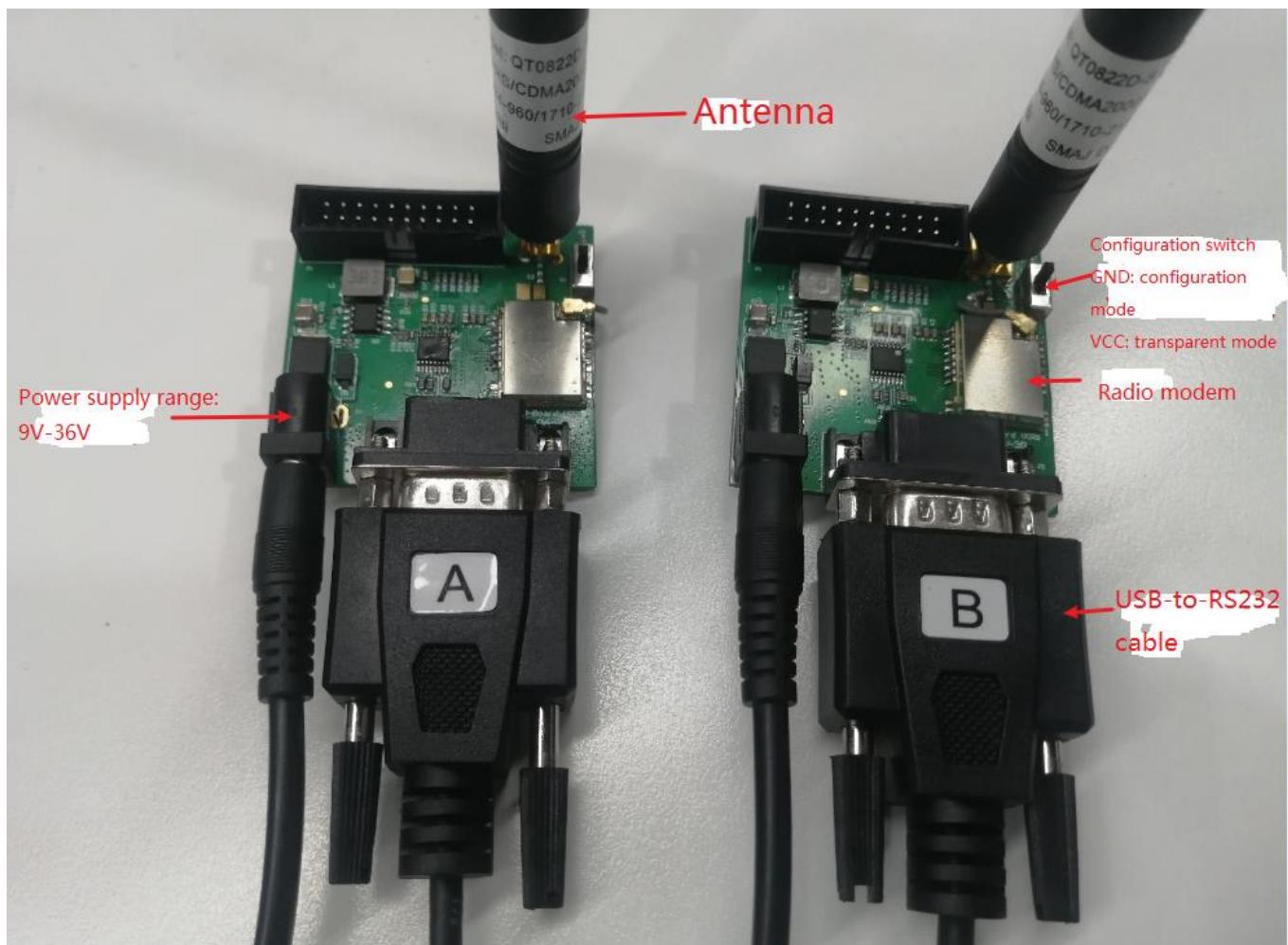
Parity: None

Stop bits: 1

3、 Turn on the power switch of the radio to enter the startup mode. At this time, connect the radio through a serial port and send a command to enter the boot mode. If the serial port assistant is configured correctly, it will display "into boot".

4、 Turn the configuration switch on the test board to the GND end, and the radio outputs 'configuration mode'. Use the command to set the transmitting and receiving frequency point, air baud rate, working mode and other parameters.

5、 Turn the configuration switch on the test board to the VCC end, and the radio will output "transparent mode". when sending data to the transmitting radio through the serial port, the serial port assistant connected to the receiving radio will display the same data.



Power supply range: 9V-36V

Configuration switch

GND: configuration mode

VCC: transparent mode

Radio modem

Antenna

USB-to-RS232 cable

Transmitter end

Receiver end

## 二、Radio Configuration Command Instructions

**All commands end with a line feed (0x0D 0x0A), and setting commands use a space (0x20) to separate the two parameters before and after.**

### 1、Command: TX parameter

Function: Set the current transmission frequency

Example: TX 868.125000 Echo "PROGRAMMED OK"

## 2、Command: TX

Function: Query the current transmission frequency

Example: TX Echo the current transmission frequency "TX XXX.XXXXX", such as "TX 868.125000"

## 3、Command: RX parameter

Function: Set the current receiving frequency

Example: RX 868.125000 Echo "PROGRAMMED OK"

## 4、Command: RX

Function: Query the current receiving frequency

Example: RX Echo the current receiving frequency "RX XXX.XXXXX", such as "RX 868.125000"

## 5、Command: BAUD parameter

Function: Set the air baud rate, which supports a consistent baud rate of 9600/19200bps for both the sending and receiving sides.

Example: BAUD 9600@1, response "PROGRAMMED OK"

## 6、Command: BAUD

Function: Query the air baud rate.

Example: BAUD, response "BAUD XXXX@X" where XXXX is the current baud rate, such as "BAUD 9600@1".

## 7、Command: PWR parameter

Function: Set the transmission power level, where parameter L, M, and H correspond to 15mW, 30mW, and 140mW, respectively.

Example: PWR H, response "PROGRAMMED OK"

## 8、Command: PWR

Function: Query the transmission power level.

Example: PWR, response the current transmission power level "X", such as "H".

## 9、Command: CHANNEL parameter

Function: Set the current channel number, where parameter ranges from 0 to 49.

Example: CHANNEL 10, response "PROGRAMMED OK".

## 10、Command: CHANNEL

Function: Query the current channel number.

Example: CHANNEL, response the current channel number "XX", such as "10".

## 11、Command: LIST=XX XXX.XXXXXX XXX.XXXXXX

Function: Set the transmission and reception frequency of a certain channel. When the channel number is a single digit, fill in 0 in front.

Example: LIST=00 864.125000 864.125000 Echo "PROGRAMMED OK"

## 12、Command: LIST

Function: Display the frequency of all channels.

Example: LIST

Channel Number	Tx Frequency (MHZ)	Rx Frequency (MHZ)
00	864.125000	864.125000
01	865.125000	865.125000
02	866.125000	866.125000
03	867.125000	867.125000
04	868.125000	868.125000
05	869.125000	869.125000
06	903.125000	903.125000
07	904.125000	904.125000
08	905.125000	905.125000
09	906.125000	906.125000
10	907.125000	907.125000
...		

## 13、Command: FAUTO parameter

Function: Turn on or off the frequency adaptive function. The parameter is "ON" or "OFF" .

Example: FAUTO ON Echo "PROGRAMMED OK"

#### **14、Command: FAUTO**

Function: Query whether the frequency adaptation is enabled.

Example: FAUTO Echo "FAUTO ON" or "FAUTO OFF"

#### **15、Command: FREECH parameter**

**Function: Turn on or off the transmission frequency search function. The parameter is "ON" or "OFF" .**

Example: FREECH ON Echo "PROGRAMMED OK"

#### **16、Command: FREECH**

Function: Query whether the transmission frequency search function is enabled.

Example: FREECH Echo "FREECH ON" or "FREECH OFF"

#### **17、Command: SCAN parameter**

Function: Set the number of channels for frequency adaptation. The parameter is greater than 0 and less than 50.

When the frequency adaptive function is turned on, if the parameter is N, the receiving station will select a channel to receive data from channel 0 to channel N-1.

In single transmission mode, and when the transmission frequency search function is turned on, if the parameter is N, the transmitting station will select a channel to transmit data from channel 0 to channel N-1.

Example: SCAN 2 Echo "PROGRAMMED OK"

#### **18、Command: SCAN**

Function: Query the number of channels for frequency adaptation.

Example: SCAN Echo "The number of channels for frequency adaptation is XX", such as "2"

#### **19、Command: SBAUD parameter**

Function: Set the serial port baud rate, supporting 9600bps/19200bps/38400bps/57600bps/115200bps. It takes effect immediately after setting.

Example: SBAUD 115200 Echo "PROGRAMMED OK"

#### **20、Command: SBAUD**

Function: Query the serial port baud rate

Example: SBAUD Echo "The current serial port baud rate is SBAUD 115200"

#### **21、Command: MODE parameter**

Function: Set the working mode. The parameter is DUPLEX, TXONLY, RXONLY and RPT, which correspond to integrated sending and receiving, single sending, single receiving and forwarding respectively.

Example: MODE DUPLEX Echo "PROGRAMMED OK"

#### **22、Command: MODE**

Function: Query the working mode

Example: MODE Echo "The current working mode is MODE DUPLEX"

#### **23、Command: LOCID parameter**

Function: Set the local address of the station. The parameter is from 0 to 65535.

Example: LOCID 0 Echo "PROGRAMMED OK"

#### **24、Command: LOCID**

Function: Query the local address of the station

Example: LOCID Echo "The address of the station is LOCID XX" , such as "LOCID 0"

## 25、Command: DESID parameter

Function: Set the local address of the station. The parameter is from 0 to 65535. The receiving station may output data only when the communication destination address in the data is the station address or broadcast address (65535).

Example: DESID 65535 Echo "PROGRAMMED OK"

## 26、Command: DESID

Function: Query the communication destination address

Example: DESID Echo "The address of the station is DESID XX" , such as "DESID 65535"

## 27、Command: MODNM parameter

Function: Query the model of the station.

Example: MODNM Echo "The model of the station is MODNM XXXXXXXXXXXX" , such as "MODNM HX-DU1021D"

## 28、Command: SER

Function: Query the serial number of the station

Example: SREV Echo "The current software version number is XXXX.XX.XX"

## 29、Command: SREV

Function: Query the current software version number

Example: SREV Echo "The current software version number is XXXX.XX.XX"

## 30、Command: BOOT

Function: Query the version number of boot

Example: BOOT Echo “The version number of boot is XXXX.XX.XX”

### **FCC regulatory compliance statement**

#### **§15.19 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.

#### **§15.21 Information to user**

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

- List of applicable FCC rules:**

47 CFR Part 15, Subpart C 15.203  
47 CFR Part 15, Subpart C 15.205  
47 CFR Part 15, Subpart C 15.207  
47 CFR Part 15, Subpart C 15.209  
47 CFR Part 15, Subpart C  
15.247 47 CFR Part 2.1091

- Summarize the specific operational use conditions**

This module can be used in IOT devices, the input voltage to the module is nominally 3.3 V.

- Limited module procedures**

This module is not a limited module.

- Trace antenna designs**

The antenna is not a trace antenna.

- RF exposure considerations**

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

- Antennas**

If you desire to increase antenna gain and either change antenna type or use same antenna type certified, a Class II permissive change application is required to be filed by us, or you (host manufacturer) can take responsibility through the change in FCC ID (new application) procedure followed by a Class II permissive change application.

- Label and compliance information**

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: 2BA39HX-DU1021D” any similar wording that expresses the same meaning may be used.

§ 15.19 Labelling requirements shall be complied on end user device.

Labelling rules for special device, please refer to §2.925, § 15.19 (a)(5) and relevant KDB publications. For E-label, please refer to §2.935.

- Information on test modes and additional testing requirements**

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 §2.1093 and difference antenna configurations.

Testing item, Frequencies, Transmit Power, Modulation Type can be selected on the test script instructions.

● **FCC other Parts, Part 15B Compliance Requirements for Host product manufacturer**

This modular transmitter is only FCC authorized for the specific rule parts listed on our grant, 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.

Host manufacturer in any case shall ensure host product which is installed and operating with the module is in compliant with Part 15B requirements.

Please note that For a Class B or Class A digital device or peripheral, the instructions furnished the user manual of the end-user product shall include statement set out in §15.105 *Information to the user* or such similar statement and place it in a prominent location in the text of host product manual. Original texts as following:

For Class B

*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.

For Class A

*Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.*