AVRT7 Plus User Manual

V1.8 (for reference only, updated)

*APRS **IGate**

*Support for **IGate** and **Digipeat** functions when connected to an external radio station.

APRS AVRTx LCD
BI7NOR-14
0009
南
<0.1
公里
BI7NOR-14>APAVTT,WIDE1-1,WIDE2-1:=2236.
81N/11406.33E>300/000/A=000217 144.640
MH^^^^^ 3.83V +19.3C X
WIFIOk
Vol:14.2V
BI7NOR & BG6QBV www.y827.com
BI7NOR BG6QBV
AVRT7-PLUS
Dual Decoder APRS IGate and Built-in VHF
Status LED
Slow flash: Standby
Fast flash: Decoder

list

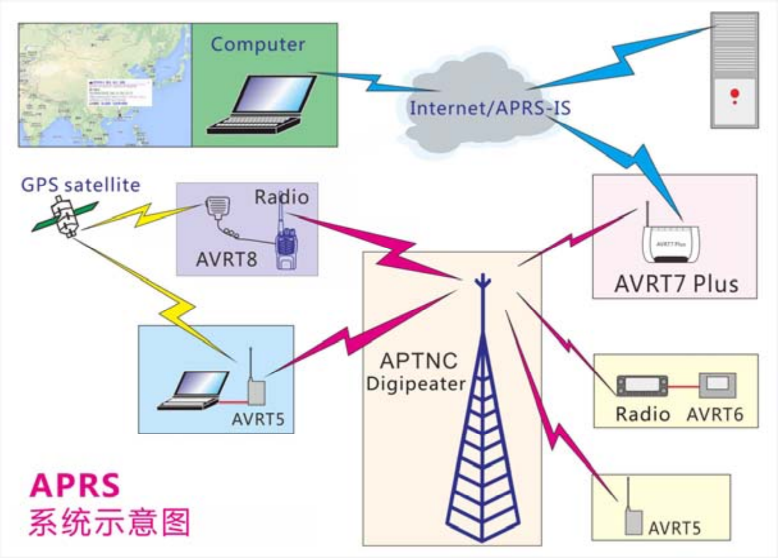
1. Introduction …………………………………………………………… 2
2. AVRTx Selection table ……………………………………………………… 3
3. AVRT7 Plus Mainboard illstration ………………………………………… 4
4. Setup & Usage: Single gateway mode ………………………………… 6
5. Setup & Usage: real-time 2-channels decoding ………………………… 14
6. AVRT7 Plus’ accessories & Usage ……………………………………… 16
7. Application of external radio…………………………………………….. 18
8. AVRT7 Plus’ Installation & Usage of its software ……………………… 20
9. AVRT7 Plus’ illustration of its firmware updating ……………………… 21
10. Cautions of Usage …………………………………………………….. 22
11. **AVRT7 PLUS Serial data printout help** ……………………………… 25

Introduction

The full name of APRS is Automatic Packet Reporting System. More than 10 years ago, there was the APRS in China’s domestic market, but it was expensive and hard to use because of its poor integration so that it was not popular at that time. BI7NOR & BG6QBV designed and produced the low price AVRTx serious special device, which help more HAM radio ameture to enjoy the fun of APRS by lower cost and simpler operation.

The modification and improvement has been done to AVRT7 Plus by combining old model’s advantage and users’ feedback. AVRT7 Plus can achieve the APRS iGate (rate : 1200bps). It compatible the regular amaturish and commercial APRS device and many kinds of APRS Digi repeater station and iGate， and it is the first network iGate multifunctional APRS device in China ‘s domestic market that with the internal radio module and individual 2-channel ’ s real-time decoder and it can upload the data to the network server in the meanwhile.

AVRT7


Computer
Internet/APRS-IS
GPS satellite
Radio
AVRT8
AVRT7 Plus
APTNC
Digipeater
AVRT5
Radio AVRT6
AVRT5
APRS
系统示意图

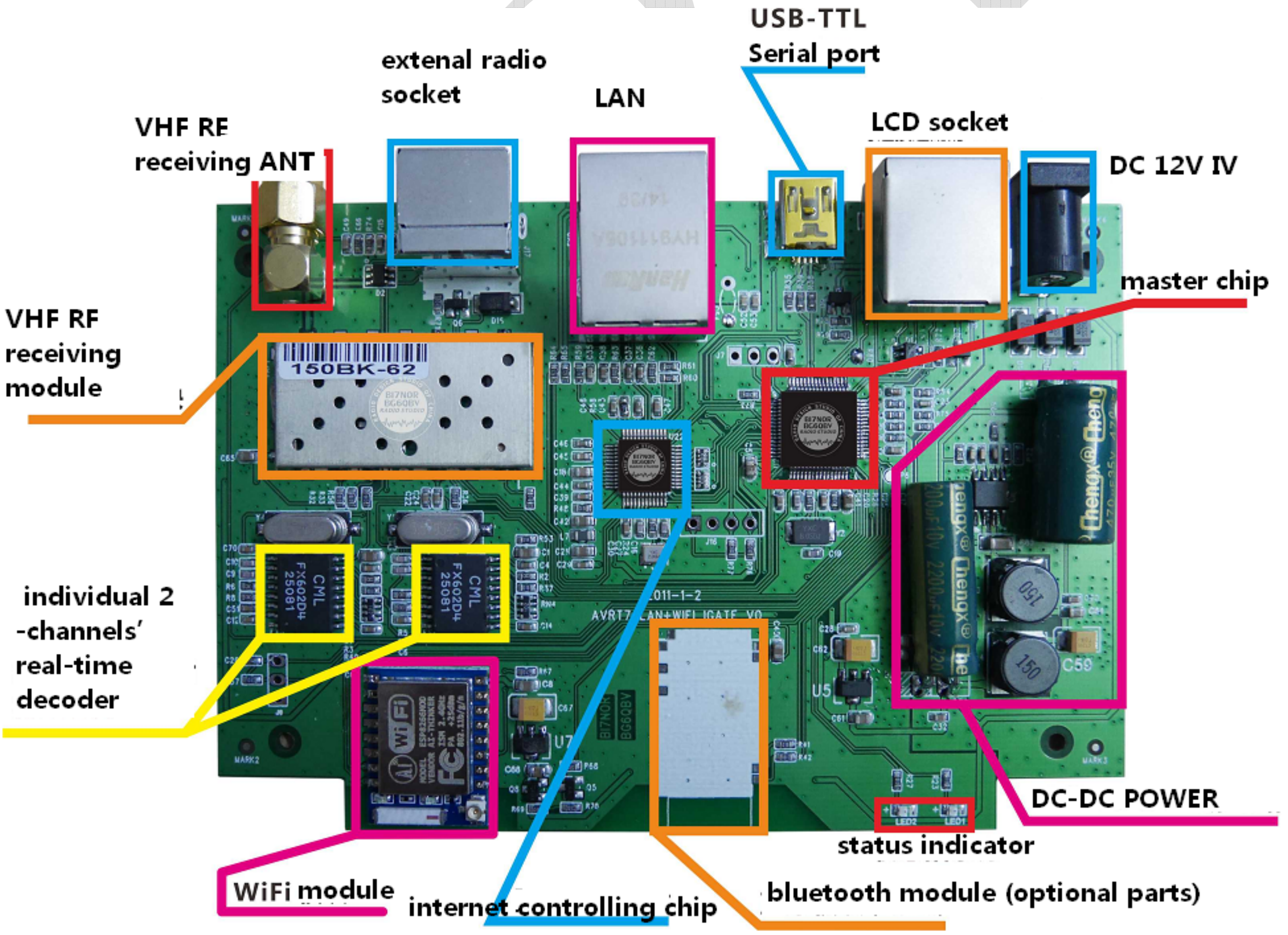
APRS system illustration

model	AVRTNC-Digi	AVRT5	AVRT11	AVRT7 Plus
Purpose	APRS repeater conecting board	Hand-held APRS TNC	CAR APRS TNC	APRS gateway
Features	It can provide the APRS repeter function through the motolora 16 pins socket after the radio frequency data is setup.	Hand-held APRS, Maximum RF power: 1 watt.	RF+GPRS 2 tracks uploading/APRS gateway	With internal RF receving module，extended socket decoding function， the APRS gateway could upload the data to a server after the real-time individual 2 way decoding.
GPS positioning function		Yes	Yes	
Map bluetooth connectivity	Optional function	Yes	Yes	Optional function
LCD display			Yes	Optional function
Extension socket for radio	Yes		Yes	Yes
Extension socket for other function	Reserved		Reserved	Yes
APRS gateway			Yes	Yes
APRS repeater		Yes	Yes	Yes
Internal transmitting module		Yes		
Internal receiving module		Yes		Yes
Ambient tempreture detection	Optional function	Yes	Yes	Reserved
Ambient pressure detection			Yes	Reserved
Buzzing alert		Yes	Yes	
Status indicator	Yes	Yes	Yes	Yes
TTL serial port	Yes	Yes	Yes	Yes

AVRT

upgrading/setup /map connecting function				
Internal battery		Yes		
External DC (12v) socket			Yes	Yes
GPRS tracks data uploading			Yes	
remarks				Internal WIFI module
Necessary condition for usage	Via a radio		GSM card / Radio	LAN or WIFI connection

AVRT7 Plus Motherboard function


USB-TTL
Serial port
extenal radio socket
LAN
VHF RF receiving ANT
LCD socket
DC 12V IV
master chip
VHF RF receiving module
individual 2 -channels' real-time decoder
DC-DC POWER
status indicator
WiFi module
internet controlling chip
bluetooth module (optional parts)

1. receiving antena base

2. extenal radio socket （the socket coul be connected via the 6 pins cable to FT8800R IC2720H，etc.）

3. LAN network socket （568A/568B self adaptable， DHCP IP address automatically obtaining）
4. USB-TTL socket
5. LCD screen socket (a LCD screen is available for it)
6. power supply input (DC IN :7-12V)
7. master chip
8. high efficiency DC-DC power supply circuit
9. status indicator
10. bluetooth module (optional parts)
11. internet controlling chip
12. wifi module
13. individual 2-channels’ real-time decoder
14. VHF RF receiving module

AVRT7

The major function of AVRT7 Plus is to achive the APRS iGate (rate 1200bps) with the full programme including VHF receiving module and 2 individual TNC Codec. It works (with the right data setting) when the network cable is plugged in and the WIFI account and password is set up. It compatible the regular amaturish and commercial APRS device and many kinds of APRS Digi repeater station and iGate.

1. With the internal RF + extension radio it can achive the 2 channel real-time decoding : with internal RF receiving module, and with the extension radio socket, the data could be uploaded to the server while decoding to achive the real-time APRS iGate network gateway function;

2. With the optional LCD screen : the user can see the real-time data received without cell phone, computer or Garmin navigator ;

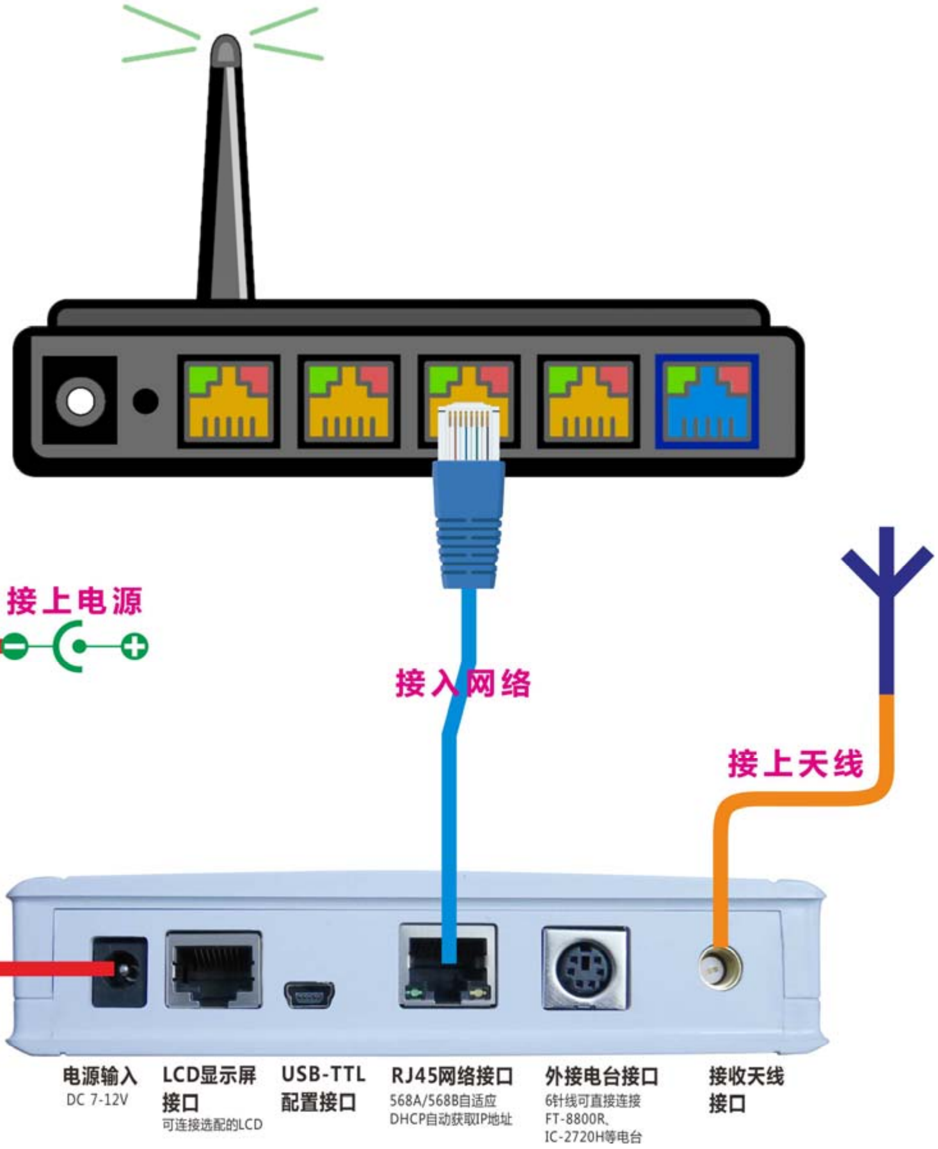
3. With the optional BPM180,18B20, the extension meteorological function could be activated : (the new function module could be ordered such as tempreture, humidity, wind direction or speed, etc.)

AVRT7 Plus’ setup and usage

With the user’ s feedback according to their previous genarations products, the AVRT7 Plus software could be installed and set up simply. User just need a network cable and set up few simple data.

Before it is switched on, all parts should be connected to AVRT7 Plus. Boot the AVRT7 Plus and it would work automatically to avoid users’ tedious operation.

Connecting illustration with single router (network cable connection):

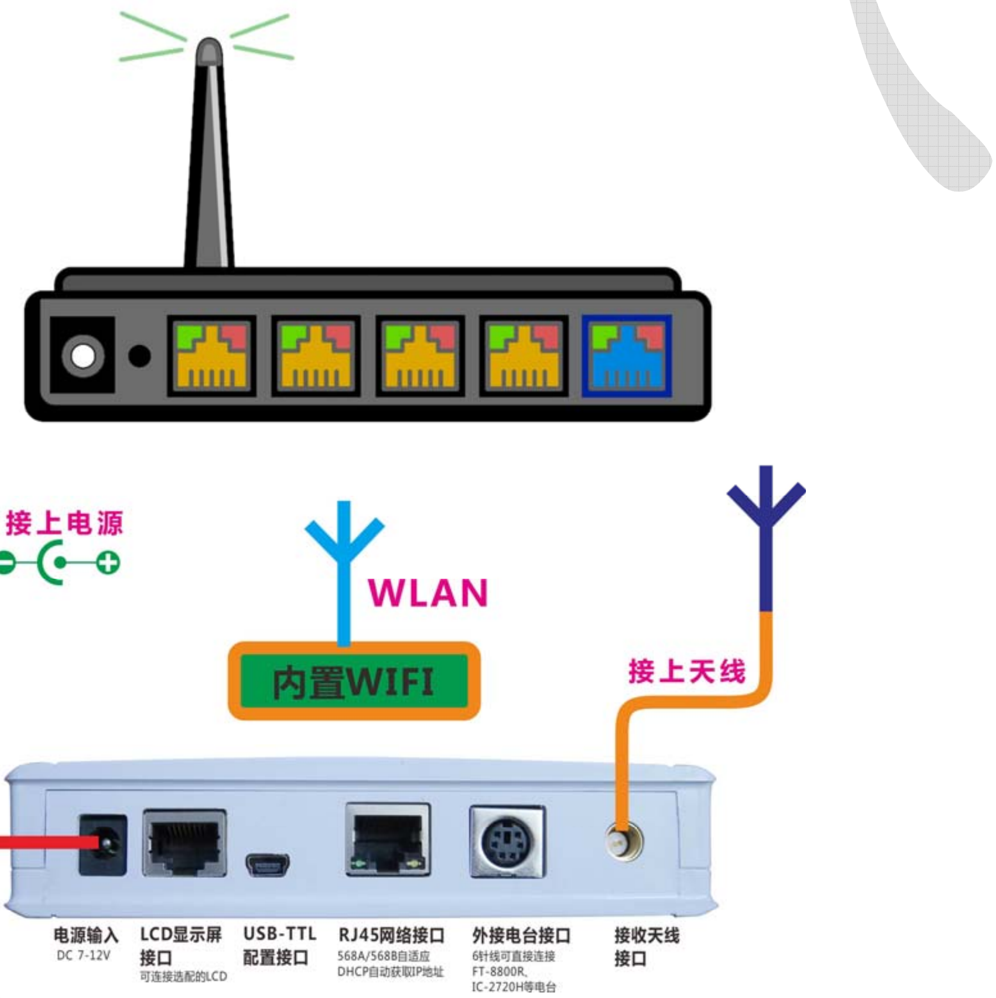

接上电源
接入网络
接上天线
电源输入
DC 7-12V
LCD显示屏接口
可连接选配的LCD
USB-TTL配置接口
RJ45网络接口
568A/568B自适应
DHCP自动获取IP地址
外接电台接口
6针线可直接连接
FT-8800R、
IC-2720H等电台
接收天线接口

connect the power supply
connect the AVRT7 plus to a router

connect the AVRT7 plus to a external antenna

DC IN (7~12V)
LCD screen socket (optional LCD screen)
USB-TTL socket
RJ45 network socket (568A/568B self-adaptable, DHCP IP address automatically obtaining.)
External radio socket (6 pins cable could be connected such as FT8800R, IC2720H,etc.)
External RF antenna base.

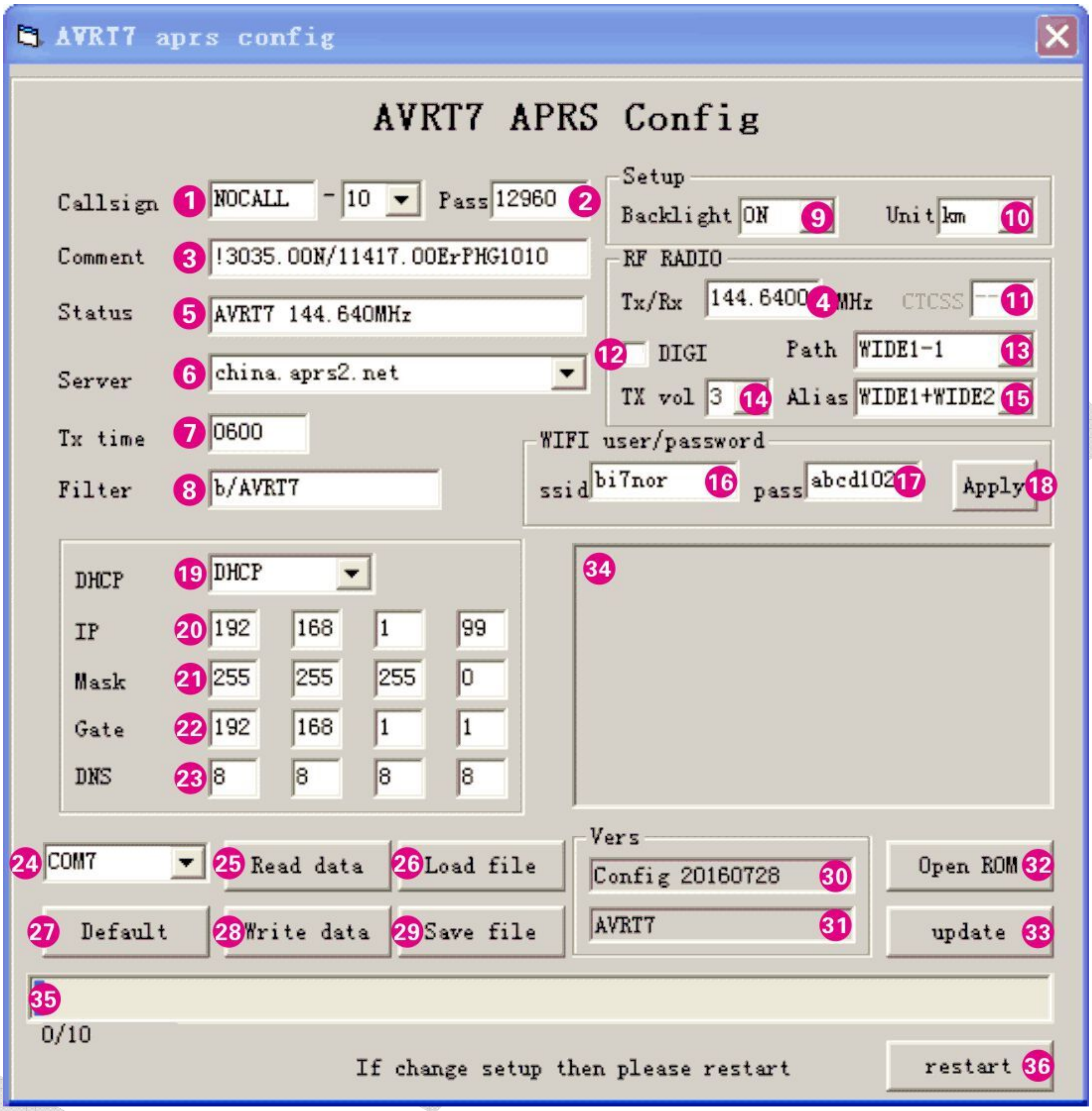
connecting illastration with single router (wifi connection)


接上电源
WLAN
内置WIFI
接上天线
电源输入
DC 7-12V
LCD显示屏接口
可连接选配的LCD
USB-TTL配置接口
RJ45网络接口
568A/568B自适应
DHCP自动获取IP地址
外接电台接口
6针线可直接连接
FT-8800R、
IC-2720H等电台
接收天线接口

connect the power supply
via wifi (WLAN)
connect the AVRT7 plus to a external antenna

DC IN (7~12V)
LCD screen socket (optional LCD screen)
USB-TTL socket
RJ45 network socket (568A/568B self-adaptable, DHCP IP address automatically obtaining.)
External radio socket (6 pins cable could be connected such as FT8800R, IC2720H,etc.)
External RF antenna base.

gateway setting :



AVRT7 APRS Config

① Callsign: NOCALL - 10
② Pass: 12960
③ Comment: !3035.00N/11417.00ErPHG1010
⑤ Status: AVRT7 144.640MHz
⑥ Server: china.aprs2.net
⑦ Tx time: 0600
⑧ Filter: b/AVRT7

Setup
⑨ Backlight: ON
⑩ Unit: km

RF RADIO
④ Tx/Rx: 144.6400 MHz
⑪ CTCSS: --
⑫ ☐ DIGI
⑬ Path: WIDE1-1
⑭ TX vol: 3
⑮ Alias: WIDE1+WIDE2

WIFI user/password
⑯ ssid: bi7nor
⑰ pass: abcd102

⑲ DHCP: DHCP
⑳ IP: 192 168 1 99
㉑ Mask: 255 255 255 0
㉒ Gate: 192 168 1 1
㉓ DNS: 8 8 8 8

㉔ COM7

Vers
㉚ Config 20160728
㉛ AVRT7

㉟ 0/10

If change setup then please restart

basic setting:

1. callsign : user’ s own callsign, SSID default : -10;

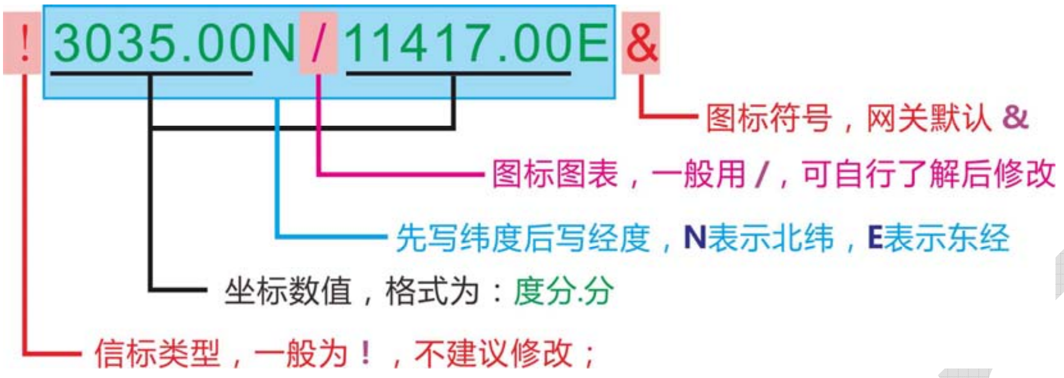
2. login password: please use Users’ APRS verify code,。

user could get the further guidance through the QQ group(30531489).

APRS Passcode Generator Website : http://apps.magicbug.co.uk/passcode/index.php

3. coodinate data: base on user’ s physical gateway position, the relevented definition refer to the following pictures:

*** coodinate format (please comply with the ARPS coodinate format otherwise the data could be denied by the server) :**


!
3035.00N
/
11417.00E
&
图标符号，网关默认 &
图标图表，一般用 /，可自行了解后修改
先写纬度后写经度，N表示北纬，E表示东经
坐标数值，格式为：度分.分
信标类型，一般为！，不建议修改；

icon , gateway default “&”

icon, default/, could be amended by user.

latitude first and then longitude, N: north latitude, E: east longitude

coodinate data , format: degree-minute.second

beacon type, default “!” , do not change it.

PHG1010

phgd Code: PHGD 代码	0	1	2	3	4	5	6	7	8	9	Units (单位)
Power （功率）	0	1	4	9	16	25	36	49	64	81	Watts 瓦
Height （高度）	10	20	40	80	160	320	640	1280	2560	5120	Feet 英尺
Gain （增益）	0	1	2	3	4	5	6	7	8	9	dB
Directivity （指向性）	omni (无方向性)	45	90	135	180	225	270	315	360		Degrees 度

4. VHF RF receiving module ‘s frequency should be base on user’ s local frequency , the format is : 144.6400 .

5. status text

6. APRS server selection

7. APRS gateway information upload interval time, unit: second, for example, "60 seconds", fill in "0060".

8. Beacon filtering

9. External display backlight on time selection. ON = long bright, the display continues to display; 30 seconds = beacon decoding is complete, the backlight is off after 30 seconds, restore the black screen waiting state.

10. External display shows the distance unit selection: KM/MI

11. ctcss feature is not enabled

12. External radio DIGI function, select DIGI = APRS relay function to use. The APRS DIGI function is used and the beacon received is uploaded to the APRS server. In addition, it will be re-encoded, using an external radio transmitter beacons, radio transmitter will not receive beacon decoding! ! !

Gateway use does not need to enable APRS relay function! ! !

Note : DIGI function : The AVRT7 plus could and olny could transfer data when there is a external radio and after the DIGI is selected.

13.DIGI PATH

14. DIGI Beacon transmit audio modulation selection,

15. DIGI alias

16. WIFI SSID

17. WIFI PASS

18. Write account and password to the WIFI module (see WIFI settings operation)

19. LAN Port IP Assignment Selection, Custom IP or Router Auto Assignment (DHCP)

20.21.22.23. Custom IP value

24. Serial port selection (install USB serial port driver, see hardware manager COM)

25. Connect the PC and AVRT7PLUS using a USB serial cable, select COM (24). AVRT7PLUS data value can be read out by activation

26. Load saved data

27. Restore the default data value

28. Write the current data value

29. Save the current data value

30. Display configuration software version

31. After reading the data value (25), the AVRT7PLUS firmware version is displayed

32. Select AVRT7PLUS firmware

33. Update AVRT7PLUS firmware

34. Operation status display

35. Firmware update blue band prompt completion percentage. The blue band reaches to the right and the firmware update is completed

36. AVRT7 reboots

2.4G-WIFI setting : (use the router’s WIFI login ID and password)

Note 1, WIFI would be disabled when the network cable is plugged in, and the WIFI setting only could be set up without the network cable.

Note 2, the power to stop, re-insert the power and USB serial cable boot. WIFI data SSID and PASS, directly activate the "APPLY" write, the operation is prohibited "read data (25)"

Note 3, the DC power supply must be plugged in when inputting the WIFI data.

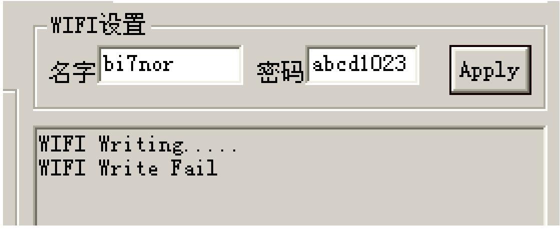
AVRT7

16. SSID : please use your WIFI login account; (default : bi7nor)

17. PASS : please use your WIFI login password; (default : abcd1023)

18. Please click “Apply” and input the WIFI setting data into the AVRT7 plus after the red LED (from wifi module) on the left side is on. And the AVRT7 plus would reboot after the wifi setting is finished and it would connect to the wifi automatically. (English alphabet and number could be only accepted.)

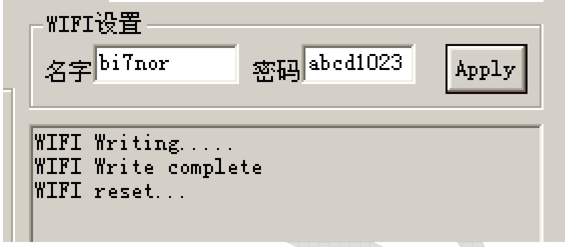
In case there is a system prompt as follow, that means the invalid WIFI setting and you need to apply again until success.


WIFI设置
名字 bi7nor
密码 abcd1023

```
WIFI Writing.....
WIFI Write Fail
```

WIFI Write Fail

In case there is a system prompt as follow, that menas WIFI account and password both are correct and the system would reboot and then work normally.


WIFI设置
名字 bi7nor
密码 abcd1023

```
WIFI Writing.....
WIFI Write complete
WIFI reset...
```

WIFI Write complete

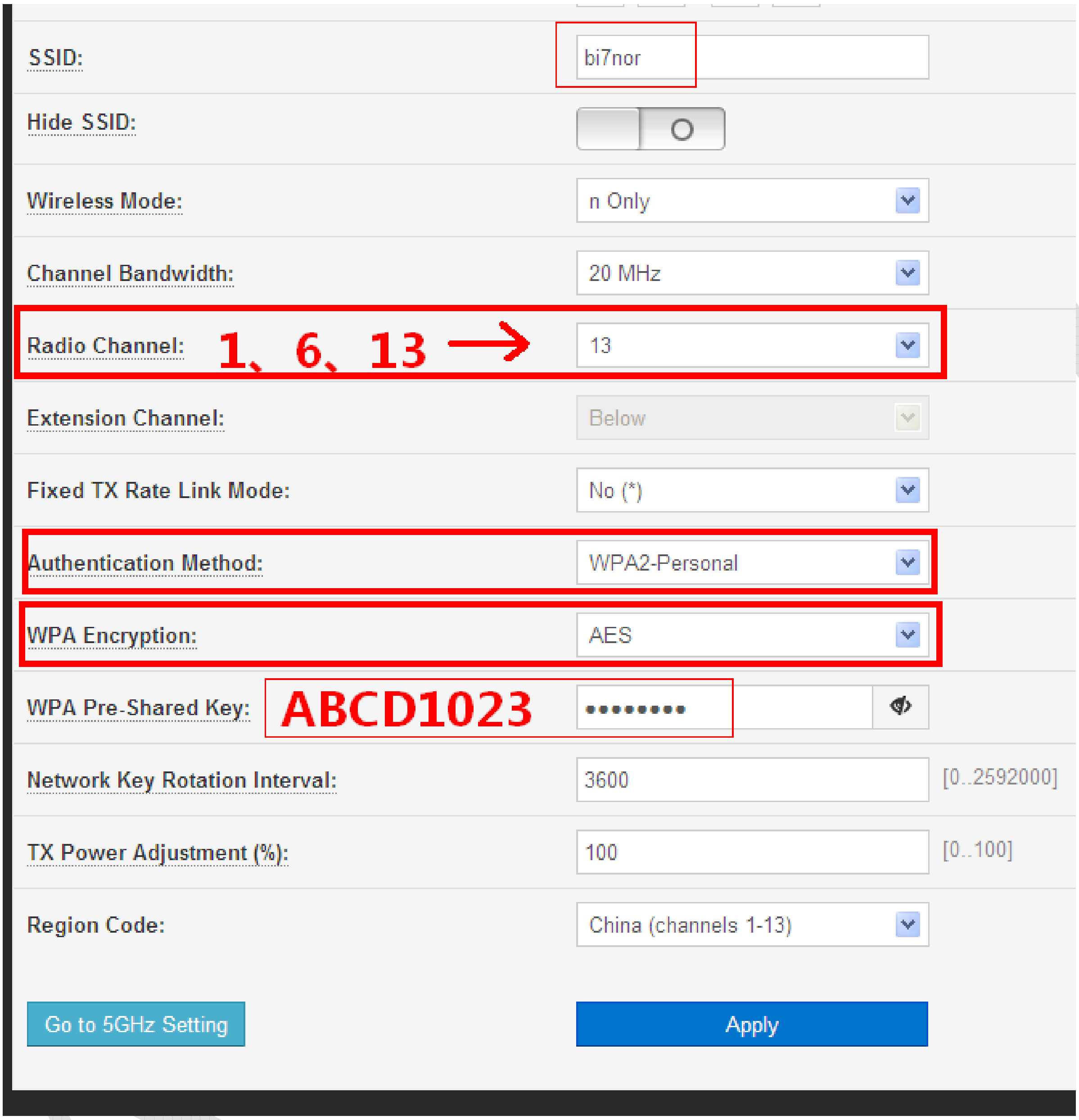
Note 4: The default wifi account is : bi7nor, the password is: abcd1023 in case fail to input the right wifi data, user could also amend their router’s wifi account and password.

Note 5: It could be the outer RF interference that lead to the router’s mulfunction so that AVRT7 plus fail to connect the router via wifi. Please make sure the router’s wifi channel is on one of the following channels : CH1, CH6, CH11, CH13.

AVRT7

Router WIFI settings reference (2.4GHz)

Wireless - General :



SSID: bi7nor

Hide SSID: ○

Wireless Mode: n Only

Channel Bandwidth: 20 MHz

Radio Channel: 13

Extension Channel: Below

Fixed TX Rate Link Mode: No (*)

Authentication Method: WPA2-Personal

WPA Encryption: AES

WPA Pre-Shared Key: •••••••••

Network Key Rotation Interval: 3600 [0..2592000]

TX Power Adjustment (%): 100 [0..100]

Region Code: China (channels 1-13)

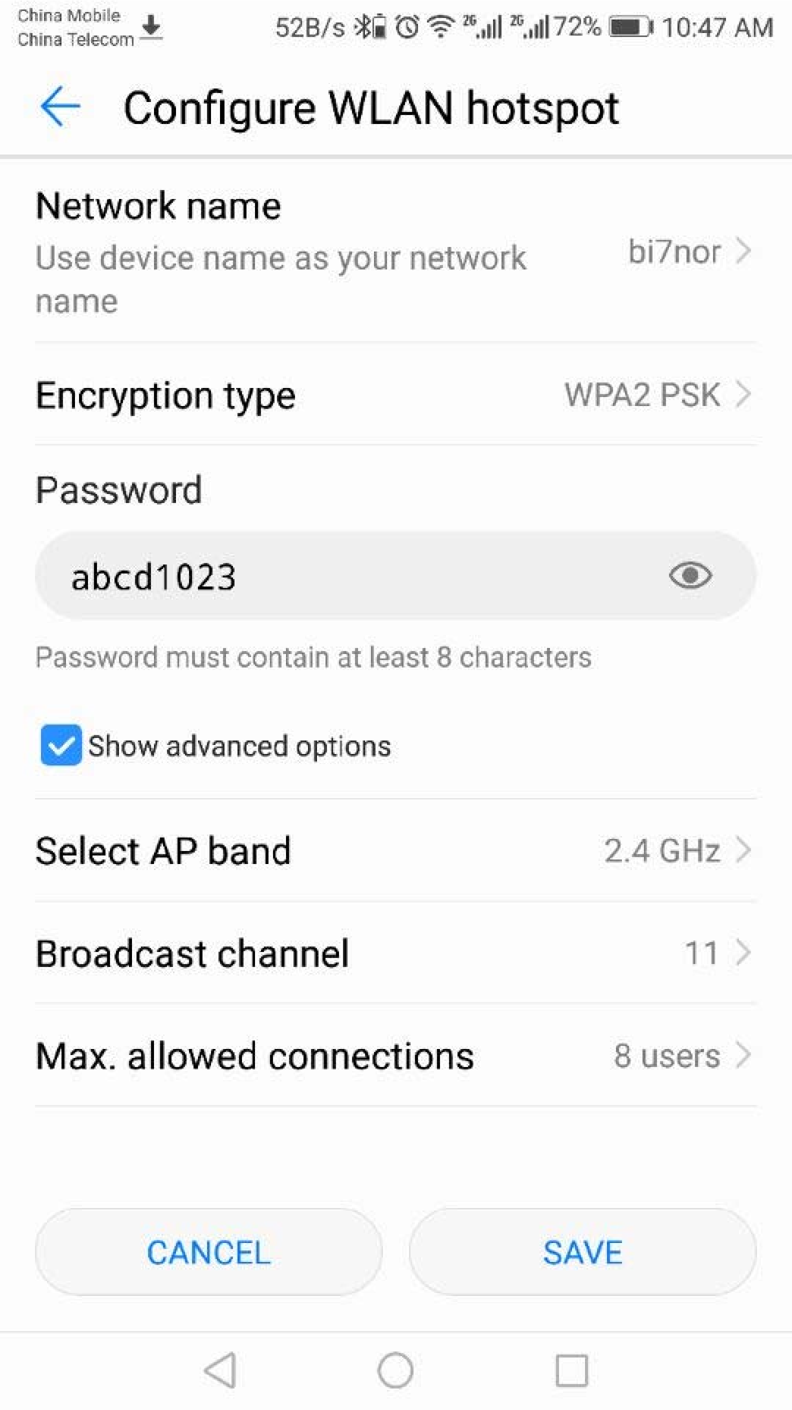
AVRT7 Plus –WIFI Only supports 2.4GHz !!!

Authentication Method: WPA2

WPA Encryption: AES

Radio channels：**CH1, CH6, CH11, CH13.** (china **Region**)

mobile phone WIFI sharing settings reference :


China Mobile
China Telecom
52B/s 72% 10:47 AM
CANCEL
SAVE

Configure WLAN hotspot

Network name
Use device name as your network name bi7nor

Encryption type WPA2 PSK

Password

abcd1023

Password must contain at least 8 characters

☑ Show advanced options

Select AP band 2.4 GHz

Broadcast channel 11

Max. allowed connections 8 users

Encryption type: **WPA2 PSK**

AP Band: **2.4G**

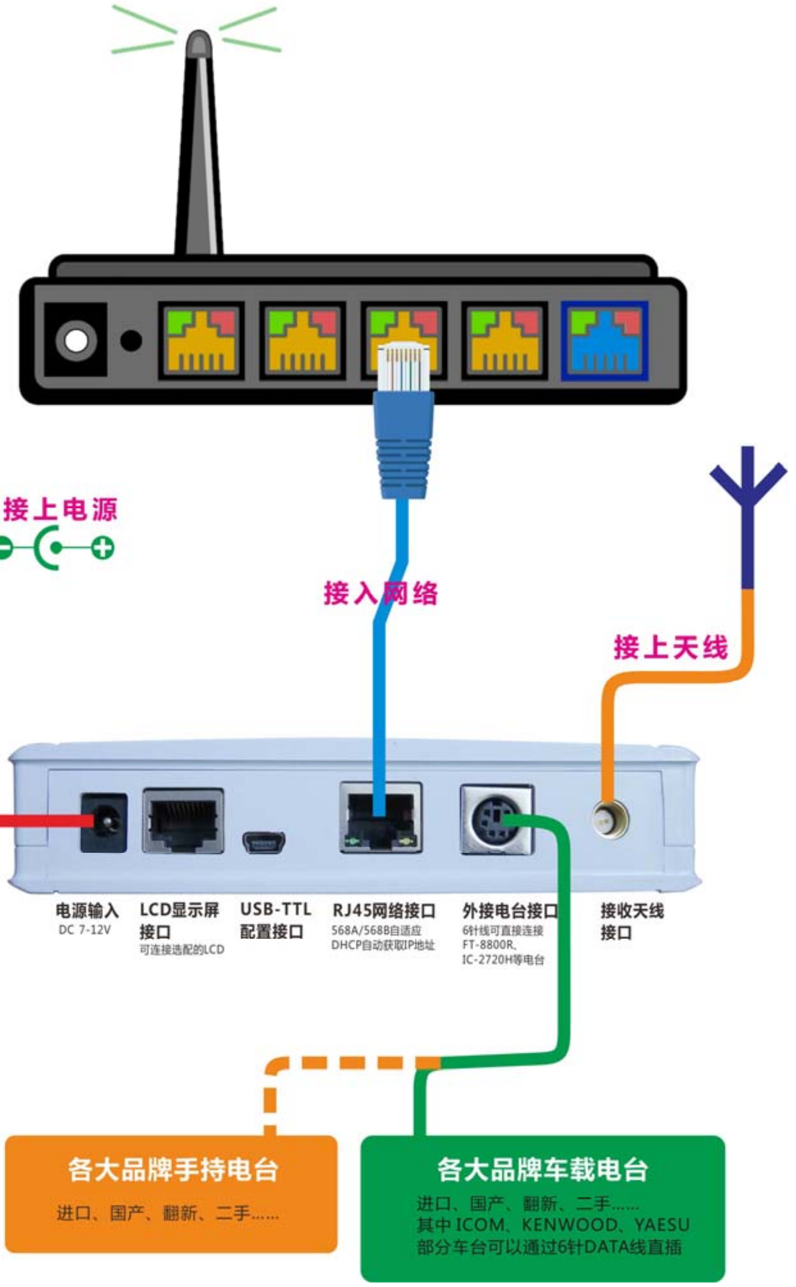
Broadcast channel: 11 (china **Region** 1、6、11、13)

※ two channels real-time dual decodding diagram:

Support for IGate and Digipeat functions when connected to an external radio station

In this mode : AVRT7 plus could decode the beacon from VHF module inside and from extension radio at the same time, and AVRT7 plus would upload the valid beacon to the APRS-IS server without mutual interference.

So the V+V and the V+U dual frequency gateway could be easily established to achieve the function of dual standing by and dual communication.


接上电源
接入网络
接上天线
电源输入
DC 7-12V
LCD显示屏接口
可连接选配的LCD
USB-TTL配置接口
RJ45网络接口
568A/568B自适应
DHCP自动获取IP地址
外接电台接口
6针线可直接连接
FT-8800R、
IC-2720H等电台
接收天线接口
各大品牌手持电台
进口、国产、翻新、二手……
各大品牌车载电台
进口、国产、翻新、二手……
其中 ICOM、KENWOOD、YAESU
部分车台可以通过6针DATA线直插

connect the power supply

connect the AVRT7 plus to a router

connect the AVRT7 plus to a external antenna

Support for IGate and Digipeat functions when connected to an external radio station

DC IN (7~12V)

LCD screen socket (optional LCD screen)

USB-TTL socket

RJ45 network socket (568A/568B self-adaptable, DHCP IP address automatically obtaining.)

External radio socket (6 pins cable could be connected such as FT8800R, IC2720H,etc.)

External RF antenna base.

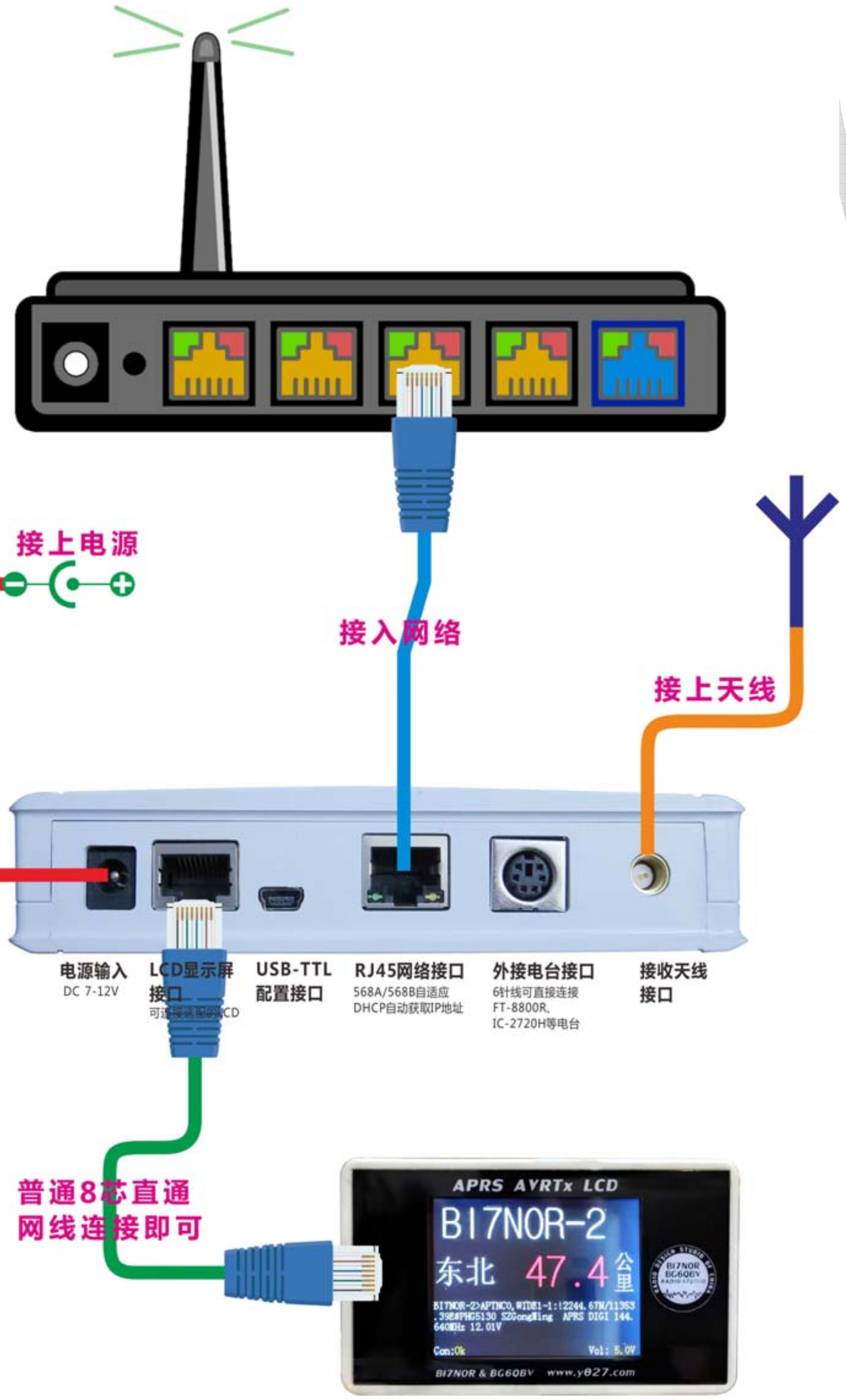
BLUE LED： handheld radio in

RED LED： External RF in

AVRT7

AVRT7 Plus’ accessories & Usage

the connection of the LCD display :


接上电源
接入网络
接上天线
电源输入
DC 7-12V
LCD显示屏
接口
USB-TTL
配置接口
RJ45网络接口
568A/568B自适应
DHCP自动获取IP地址
外接电台接口
6针线可直接连接
FT-8800R、
IC-2720H等电台
接收天线
接口
普通8芯直通
网线连接即可
APRS AVRTx LCD
BI7NOR-2
东北 47.4 公里
BI7NOR-2>APTNC0,WIDE1-1:!2244.67N/11353.39E#PHG5130 SZGongMing APRS DIGI 144.640MHz 12.01V
Con:Ok
Vol: 5.0V
BI7NOR & BG6QBV www.y827.com

connect the power supply

connect the AVRT7 plus to a router

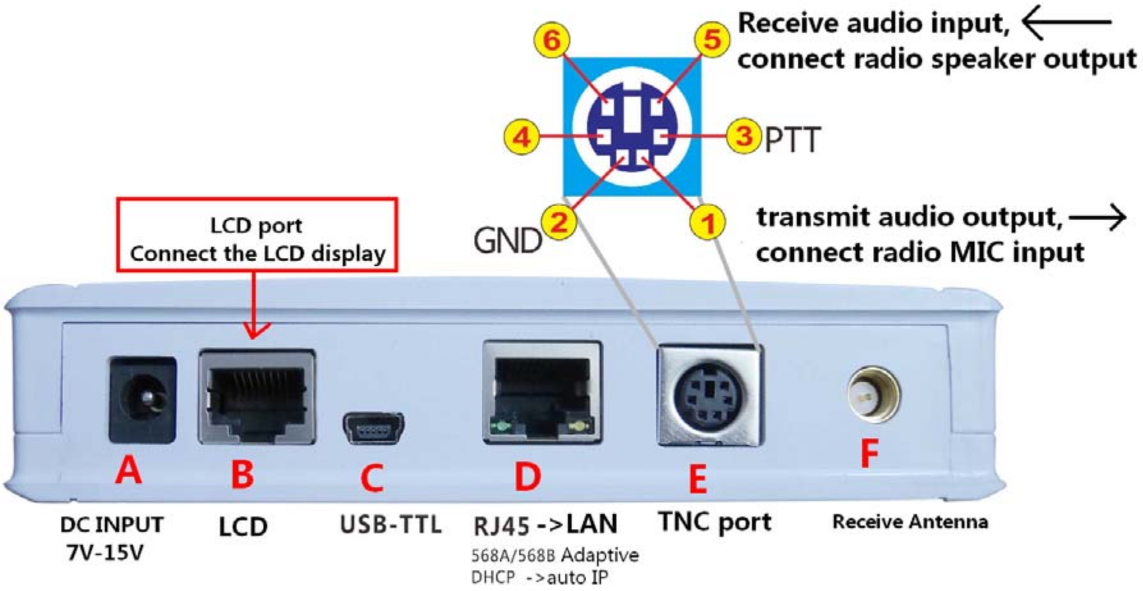
connect the AVRT7 plus to a external antenna

DC IN (7~12V)
LCD screen socket (optional LCD screen)
USB-TTL socket
RJ45 network socket (568A/568B self-adaptable, DHCP IP address automatically obtaining.)
External radio socket (6 pins cable could be connected such as FT8800R, IC2720H,etc.)
External RF antenna base.
(screen cable) : 8 pins newwork cable is available

1. The LCD must be connected to the system only before AVRT7 plus is turnned on, then reboot it.
2. The ordinary 1:1, 8 pins RJ45 network cable is available for the system screen. A shielded cable is recommended to avoid the outer interference.
3, LCD screen for the built-in and external radio beacon are displayed, such as receiving beacons at the same time the external radio priority display.

AVRT7

interface definition for external radio :


6
5
Receive audio input,
connect radio speaker output
4
3
PTT
GND
2
1
transmit audio output,
connect radio MIC input
LCD port
Connect the LCD display
A
B
C
D
E
F
DC INPUT
7V-15V
LCD
USB-TTL
RJ45 ->LAN
568A/568B Adaptive
DHCP ->auto IP
TNC port
Receive Antenna

An external radio could be connectted to AVRT7 plus via this socket.

Picture location "A" : DC IN (7~12V)

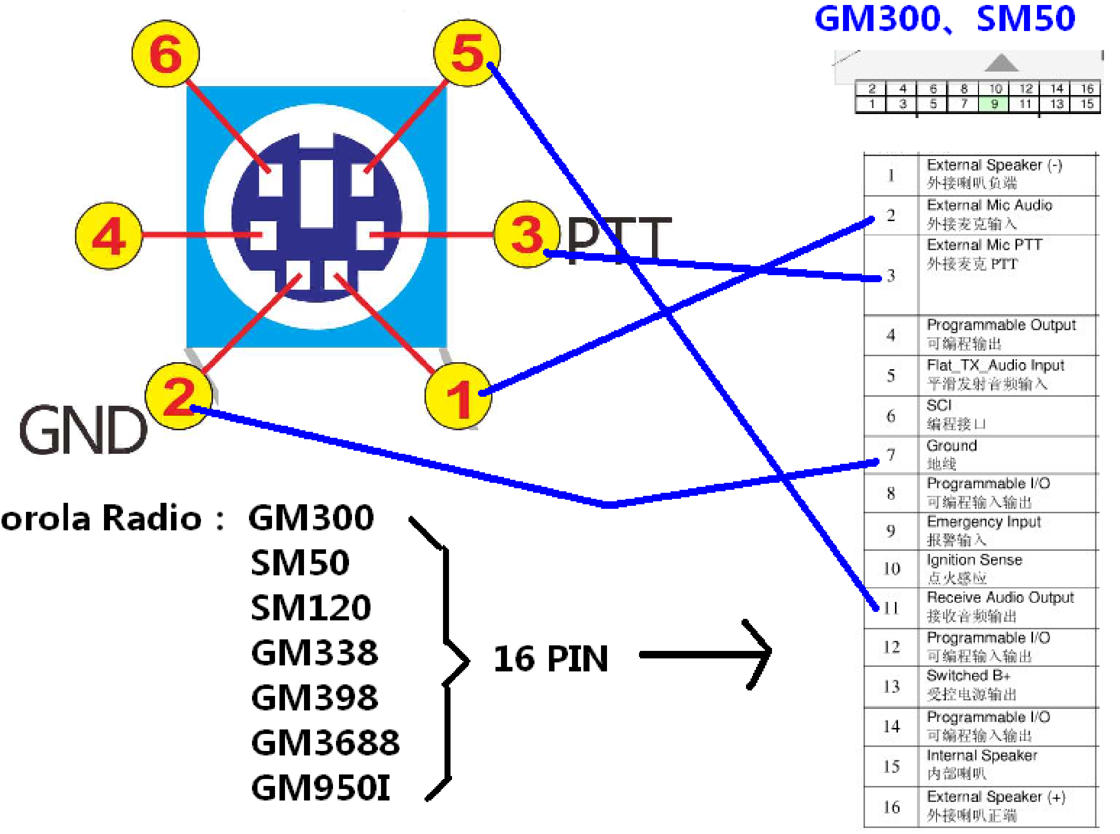
Picture location "B" : LCD screen socket (optional LCD screen)

Picture location "C" : USB-TTL socket

Picture location "D" : RJ45 network socket (568A/568B self-adaptable, DHCP IP address automatically obtaining.)

Picture location "E" : External radio TNC socket (6 pins cable could be connected such as FT7800R、FT8800、IC2720H、IC208H、D710、V71A , etc.)

DIY can also be connected to Motorola Radio, GM300, SM50, SM120, GM338, GM398, GM3688.950I、、、

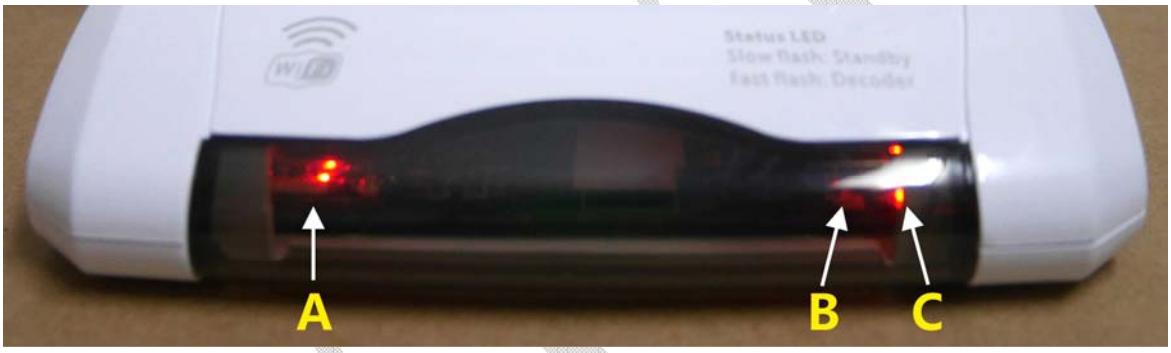

GM300、SM50
6
5
4
3
PTT
GND
2
1
Motorola Radio :
GM300
SM50
SM120
GM338
GM398
GM3688
GM950I
16 PIN
2
4
6
8
10
12
14
16
1
3
5
7
9
11
13
15

1	External Speaker (-) 外接喇叭负端
2	External Mic Audio 外接麦克输入
3	External Mic PTT 外接麦克 PTT
4	Programmable Output 可编程输出
5	Flat_TX_Audio Input 平滑发射音频输入
6	SCI 编程接口
7	Ground 地线
8	Programmable I/O 可编程输入输出
9	Emergency Input 报警输入
10	Ignition Sense 点火感应
11	Receive Audio Output 接收音频输出
12	Programmable I/O 可编程输入输出
13	Switched B+ 受控电源输出
14	Programmable I/O 可编程输入输出
15	Internal Speaker 内部喇叭
16	External Speaker (+) 外接喇叭正端

All any radio can be DIY connection…

Picture location "F" ：External RF antenna base.

diagram for LED status indicator :



Position of LED	**Power on**	**Network connectting**	**Server connected**	**Server(netwok) disconnected**	**Beacon decoded by external radio**	**Becon decoded by internnal radio**
B						Flashed fast
C	Flash in middle speed	Constant light	Flash slow	Constant light	Flashed fast	-

LED A : internal wifi LED, the internal wifi module is available when it remains lit.

LED C : connected to router via wifi

AVRT7 Plus Configuration program download and driver installation

1, All file **download** :

http://avrtx.cn/

2, software download

a, Download the manual and **software**

http://avrtx.cn/index.php?folder=QVZSVDcgUExVUw==

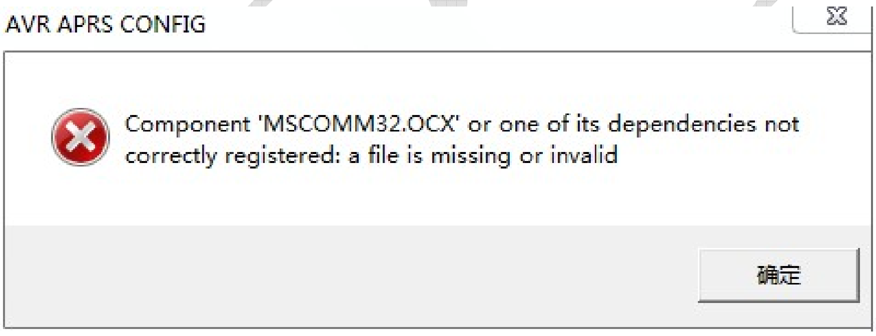
b, Download USB serial port driver

http://avrtx.cn/download/USB%20driver/CH340/CH340%20DRIVER.ZIP

c, Download the Microsoft VB/VC Runtime Library file

http://avrtx.cn/download/ocx%20libraries/all%20ocx%20libraries.zip

d、 solution for the “MSComm32.ocx”


AVR APRS CONFIG

Component 'MSCOMM32.OCX' or one of its dependencies not correctly registered: a file is missing or invalid

Install the Microsoft VB/VC Runtime Library file (right mouse button, select: install in administrator mode)

* * * * * * * * * * * *

3、AVRT7 Plus Configuration program value read and write ：

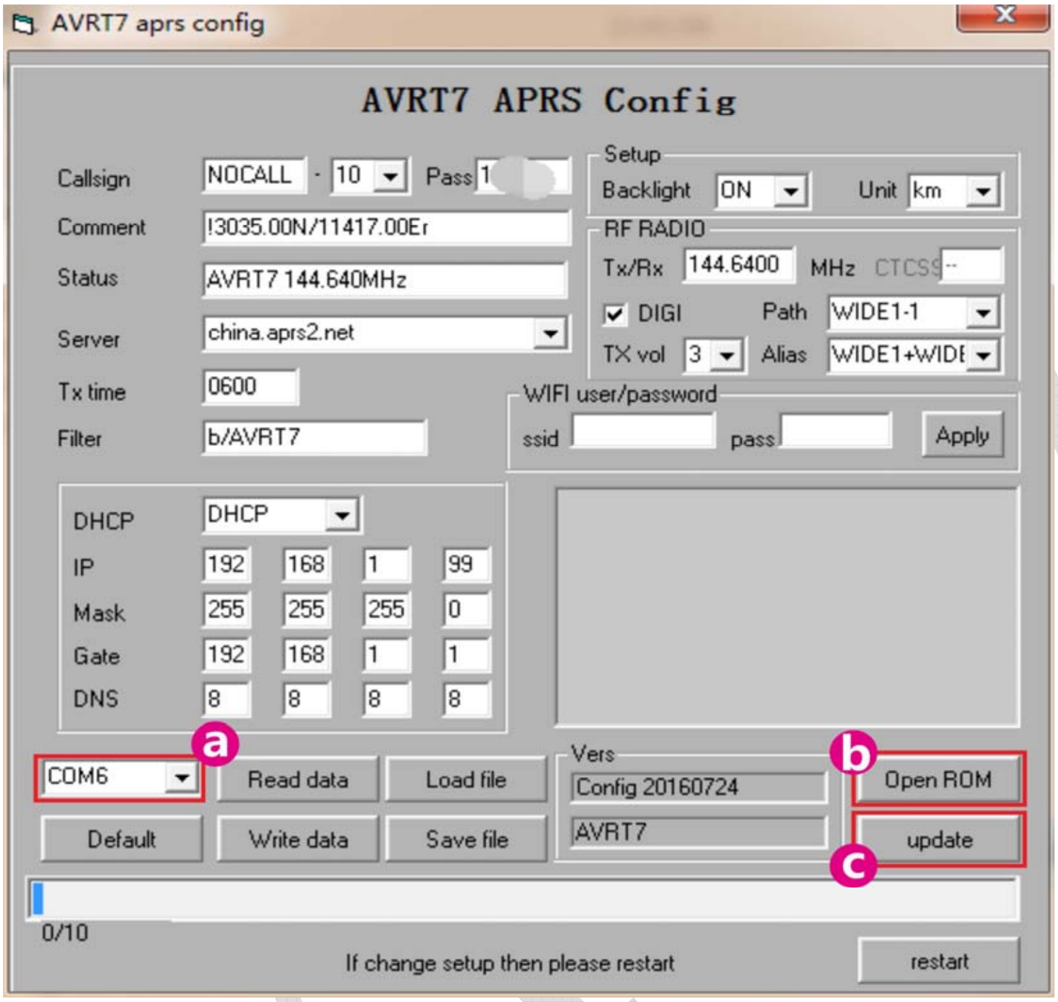
a. To install the CH340 driver first, connect the USB cable between your PC and AVRT7 Plus.

b. Start the software and choose the right COM port (you may find it in the computer device manager), and click the Read data button; there is a prompt would be shown in the lower right corner (if fail you may click Read data and then reboot the AVRT7 Plus)

c. click Default to achieve the default data setting, User could amend the data base on the dafault version.

d. After the amendment, click Write data **to save data and reboot AVRT7 Plus.**

4、Firmware upgrade :


AVRT7 aprs config
AVRT7 APRS Config
Setup
RF RADIO
WIFI user/password
Apply
a
b
c
Read data
Load file
Default
Write data
Save file
Open ROM
update
restart

Callsign NOCALL - 10 Pass 1

Comment !3035.00N/11417.00Er

Status AVRT7 144.640MHz

Server china.aprs2.net

Tx time 0600

Filter b/AVRT7

Backlight ON Unit km

Tx/Rx 144.6400 MHz CTCSS --

☑ DIGI Path WIDE1-1

TX vol 3 Alias WIDE1+WIDE

ssid pass

DHCP	DHCP			
IP	192	168	1	99
Mask	255	255	255	0
Gate	192	168	1	1
DNS	8	8	8	8

COM6

Vers Config 20160724

AVRT7

0/10

If change setup then please restart

Caution : please use the attached USB cable (wit USB-TTL circuit) but other ordinary USB cable .

AVRT7 Plus firmware upgrade : (to re-write the ROM)

a. To run the software and setup the COM port COM5 **;**

b. click Open ROM **to choose the new ROM file;**

c. Turn on AVRT7 Plus and connect it to your PC with the Mini-USB cable, and then click the update **button;**

d. Please wait for 100% of the blue progress bar (upgraded successful) when you see “the system now is rebooting for upgrading” .

e. In case of the upgrading failure, the AVRT7 Plus would not boot properly, please repect the above steps .

Cautions:

1. After the upgrading of ROM, all the system data would become dafault, please back up your system data.
2. You should restart AVRT7 Plus manually after firmware upgrading
3. The system need the new version of ROM setting file after the ROM upgrading, the old one is could not be accepted by the system.

Cautions of Usage：

1. The arrange of DC voltage is not only from 7V to 13.8V(which may from the cigar lighter), but also 5V (from USB socket). But DC 5V may cause the unstable of the system because the different quality of DC 5V adapter.
2. The VHF antenna attached with AVRT7 plus is only for user’ s testing, for higher profermance please use the high gain outdoor antenna which is more suitable for fixed gateway.
4. The LCD screen is only for the simple data monitoring.
5. The chip of the USB-TTL cable is CH340, compatible for WIN10. Due to there are lots of CH340 versions, user can download different driver for their PC. The ordinary USB cable is not suitable for this connection.

6. The network cable (connected to router LAN) and WIFI both could be supported by AVRT7 Plus. User should be awared that WIFI transmittion (2.4GHz transmittion) is also a kind of radiation. The WIFI connection would be prohibited automatically when the network cable is plugged in.

7. A linear transformer (DC 7V~12V, ＞200ma) is recommanded for the better receiving profermance due to there is radiation from the switch transformer. A DC regulator is built in the AVRT7 Plus.

8. User can hang the AVRT7 plus vertically on the glass , or on the wall of a bolcany near the outside position through the hole under AVRT7 plus. For the concerned of waterproof, the extension RF antenna base should be place down and away from the rain. A higher position or high gain antenna should be considered in case of the bad receiving condition.

AVRT7

Extension tempreture sensor and tempreture pressure module illustration.

* DS18B20 for tempreture only.

# BMP180 for both tempreture and pressure.

^ BME280 for both Relative Humidity、tempreture and pressure.

> SHT3x (ContainSHT30/SHT31/SHT32) for both Relative Humidity and tempreture.

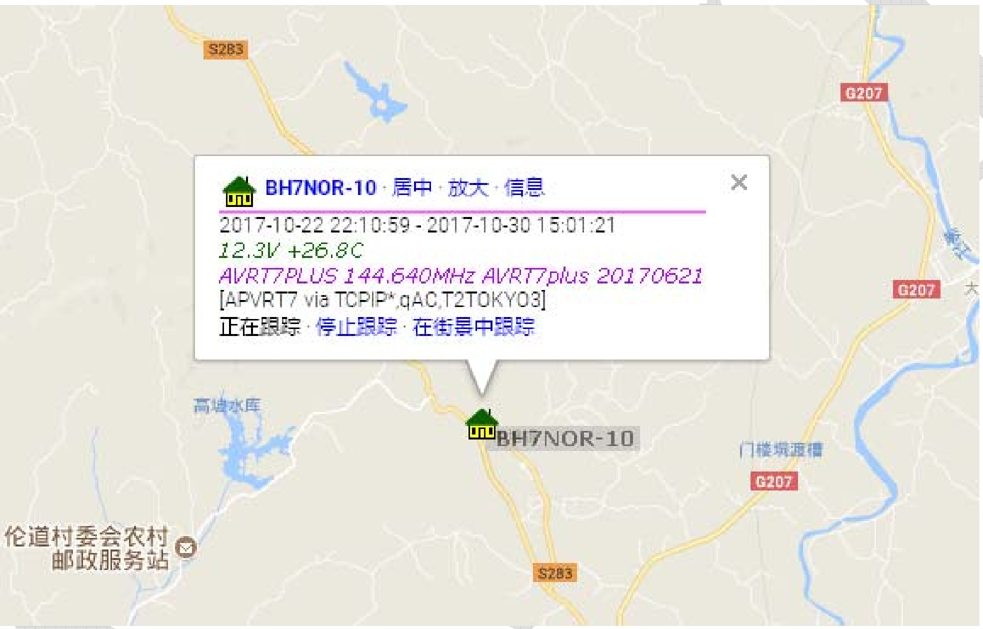
> DHT21 or AM2301 for both Relative Humidity and tempreture .

Sensor prioritization: BMP180、BME280、SHT3x ; Secondary: AM2301, DS18B20.

User can see the original data in the website of APRS.FI after the DS18B20 is plugged in.

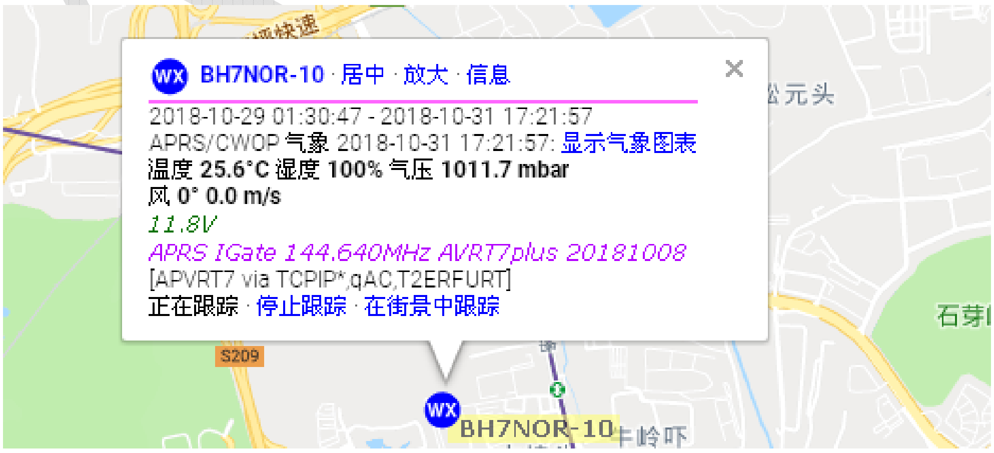
```
2017-10-30 14:01:21 CST: BH7NOR-10>APVRT7,TCPIP*,qAC,T2TOKYO3:!2203.65N/11047.16E- 12.3V +26.1C
2017-10-30 14:16:21 CST: BH7NOR-10>APVRT7,TCPIP*,qAC,T2TOKYO3:>AVRT7PLUS 144.640MHz AVRT7plus 20170621
2017-10-30 14:31:21 CST: BH7NOR-10>APVRT7,TCPIP*,qAC,T2TOKYO3:!2203.65N/11047.16E- 12.3V +26.2C
2017-10-30 14:46:21 CST: BH7NOR-10>APVRT7,TCPIP*,qAC,T2TOKYO3:!2203.65N/11047.16E- 12.3V +26.3C
2017-10-30 15:01:21 CST: BH7NOR-10>APVRT7,TCPIP*,qAC,T2TOKYO3:!2203.65N/11047.16E- 12.3V +26.8C
```

For example, the system shows +26.8C from DS18B20 sensor.

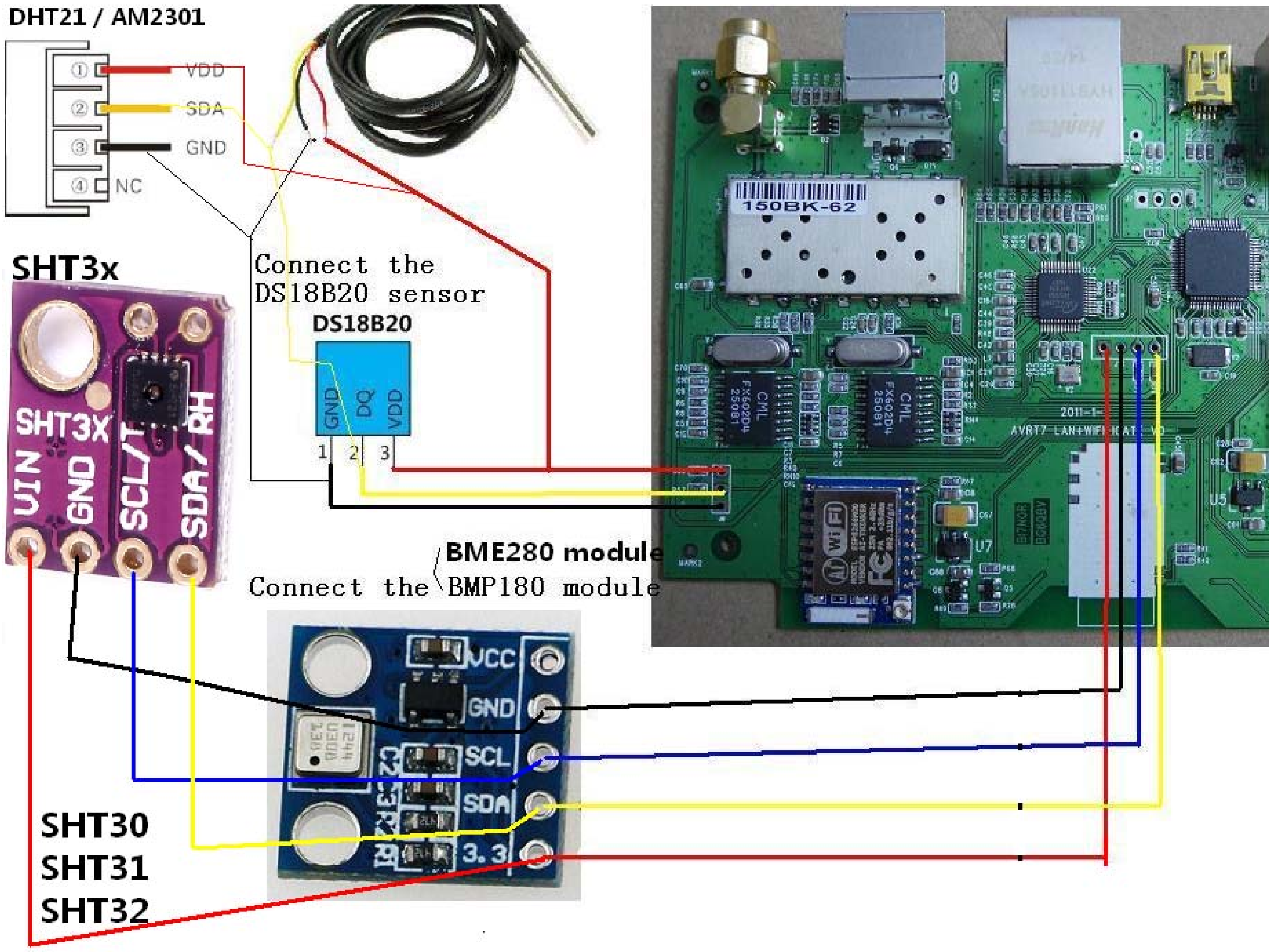


BH7NOR-10 · 居中 · 放大 · 信息
2017-10-22 22:10:59 - 2017-10-30 15:01:21
12.3V +26.8C
AVRT7PLUS 144.640MHz AVRT7plus 20170621
[APVRT7 via TCPIP*,qAC,T2TOKYO3]
正在跟踪 · 停止跟踪 · 在街景中跟踪

After using SHT3x、BME280、BMP180、DHT21/AM2301, AVRT7plus uploads the beacon to the APRS server and automatically converts to the weather station mode.　(firmware version 20181212)



BH7NOR-10 · 居中 · 放大 · 信息
2018-10-29 01:30:47 - 2018-10-31 17:21:57
APRS/CWOP 气象 2018-10-31 17:21:57: 显示气象图表
温度 25.6°C 湿度 100% 气压 1011.7 mbar
风 0° 0.0 m/s
11.8V
APRS IGate 144.640MHz AVRT7plus 20181008
[APVRT7 via TCPIP*,qAC,T2ERFURT]
正在跟踪 · 停止跟踪 · 在街景中跟踪


DHT21 / AM2301
① VDD
② SDA
③ GND
④ NC
SHT3x
SHT3X
VIN
GND
SCL/T
SDA/RH
Connect the DS18B20 sensor
DS18B20
GND
DQ
VDD
1
2
3
BME280 module
Connect the BMP180 module
VCC
GND
SCL
SDA
3.3
SHT30
SHT31
SHT32
150BK-62

Cautions :

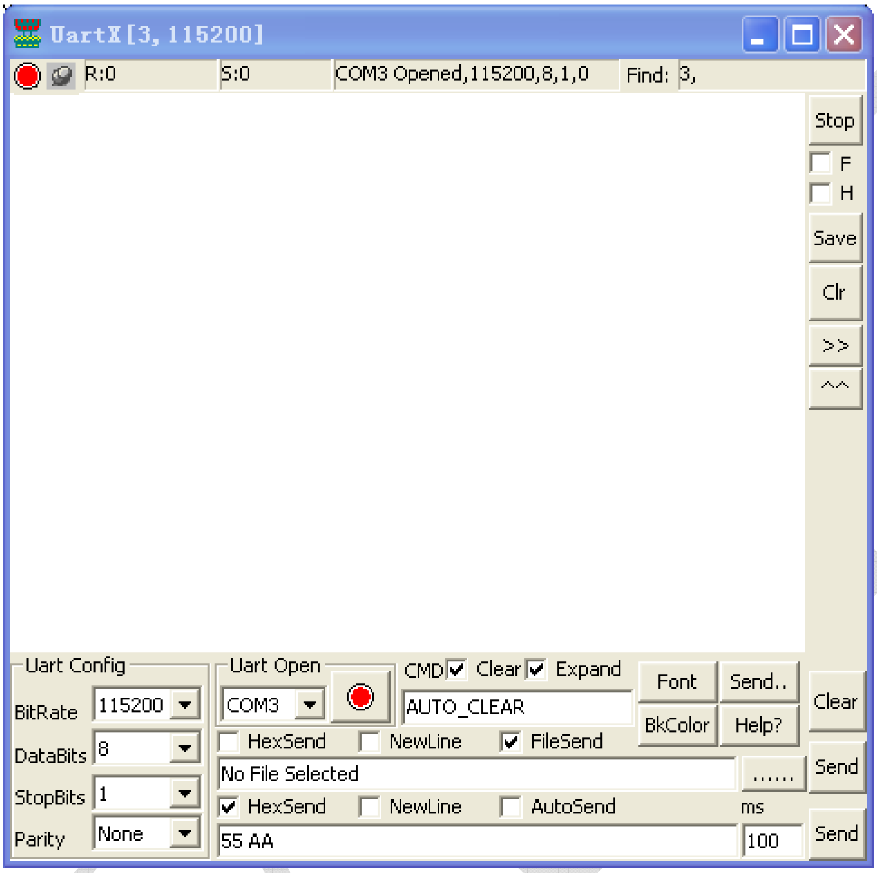
1. The user manual is base on the current hardware and software. And there would be no further notice in case of any amendment of AVRT7 Plus.

2. There could be a misunderstanding in the manual due to the different area or culture, please contect us by QQ group (30531489) or vicit our website (www.y027.com) for the further information; or google "APRS" for the opinion from other ameture.

AVRT7 PLUS Serial data printout help

AVRT7 PLUS is not connected to the server, or the network is disconnected to receive an APRS beacon. The LED will flash quickly.

Please check your network connection. You can connect the PC with the USB serial cable (CH340). Use the serial port software, the rate of 115200, print serial data, view the server connection



UartX[3, 115200]

R:0 S:0 COM3 Opened,115200,8,1,0 Find: 3,

Uart Config

BitRate 115200

DataBits 8

StopBits 1

Parity None

Uart Open

COM3

CMD☑ Clear☑ Expand

AUTO_CLEAR

☐ HexSend ☐ NewLine ☑ FileSend

No File Selected

☑ HexSend ☐ NewLine ☐ AutoSend ms

55 AA

100

Download serial software, run serial software, AVRT7PLUS serial print output, the output text data include:

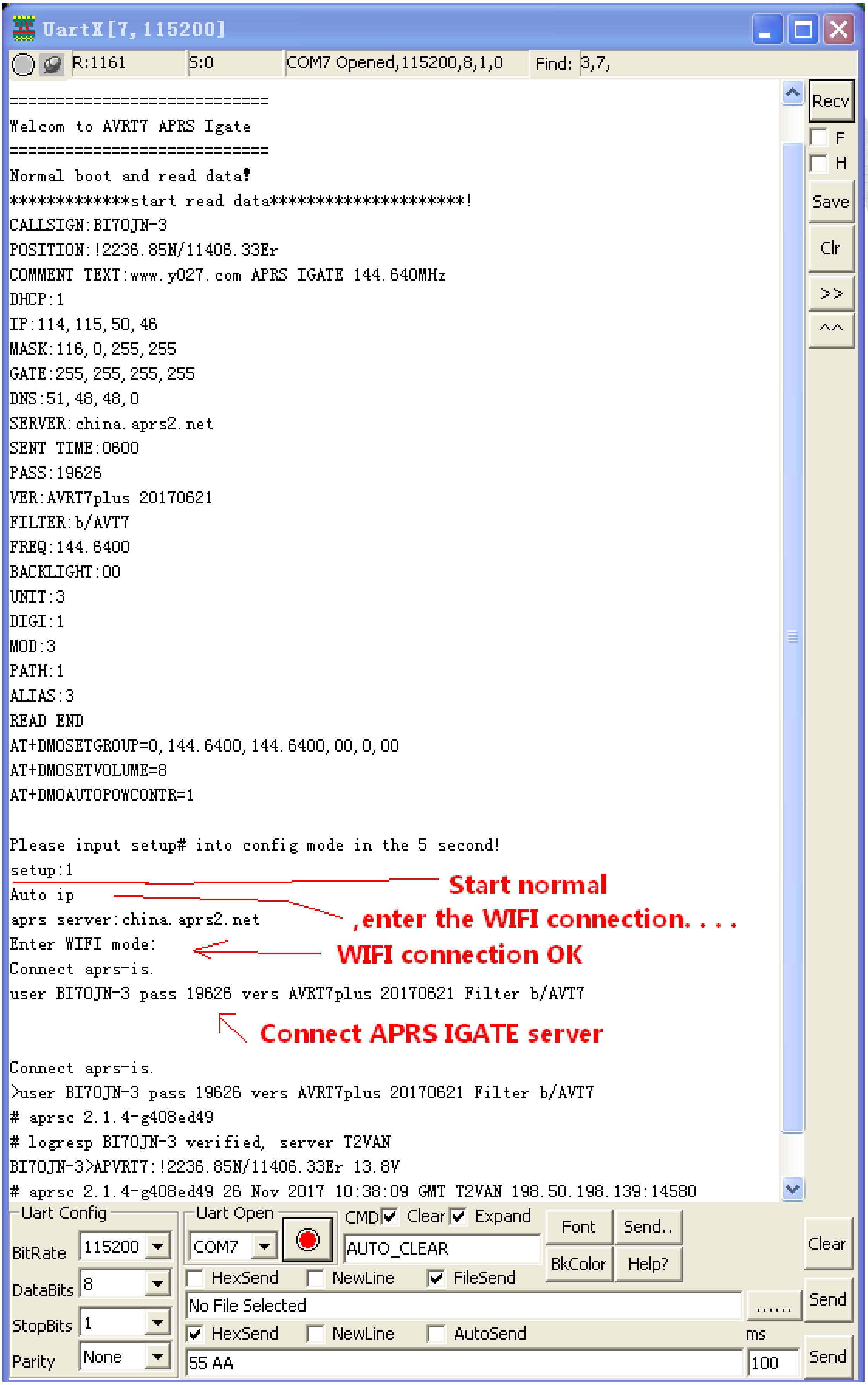
1, boot start process

2, the network server (aprs.fi) connection status (LAN or WIFI)

3, beacon decoding data output

Download APRS client program, serial port connection, run APRS client program, you can display the client program to decode the data and beacon position

1, AVRT7 Plus Serial printout (No LAN connection, WIFI only)


UartX[7,115200]
R:1161
S:0
COM7 Opened,115200,8,1,0
Find: 3,7,
Recv
☐ F
☐ H
Save
Clr
>>
^^
Uart Config
Uart Open
CMD ☑
Clear ☑
Expand
Font
Send..
BkColor
Help?
Clear
Send
......
ms
Send

```
============================
Welcom to AVRT7 APRS Igate
============================
Normal boot and read data!
*************start read data*********************!
CALLSIGN:BI7OJN-3
POSITION:!2236.85N/11406.33Er
COMMENT TEXT:www.y027.com APRS IGATE 144.640MHz
DHCP:1
IP:114,115,50,46
MASK:116,0,255,255
GATE:255,255,255,255
DNS:51,48,48,0
SERVER:china.aprs2.net
SENT TIME:0600
PASS:19626
VER:AVRT7plus 20170621
FILTER:b/AVT7
FREQ:144.6400
BACKLIGHT:00
UNIT:3
DIGI:1
MOD:3
PATH:1
ALIAS:3
READ END
AT+DMOSETGROUP=0,144.6400,144.6400,00,0,00
AT+DMOSETVOLUME=8
AT+DMOAUTOPOWCONTR=1

Please input setup# into config mode in the 5 second!
setup:1
Auto ip
aprs server:china.aprs2.net
Enter WIFI mode:
Connect aprs-is.
user BI7OJN-3 pass 19626 vers AVRT7plus 20170621 Filter b/AVT7


Connect aprs-is.
>user BI7OJN-3 pass 19626 vers AVRT7plus 20170621 Filter b/AVT7
# aprsc 2.1.4-g408ed49
# logresp BI7OJN-3 verified, server T2VAN
BI7OJN-3>APVRT7:!2236.85N/11406.33Er 13.8V
# aprsc 2.1.4-g408ed49 26 Nov 2017 10:38:09 GMT T2VAN 198.50.198.139:14580
```

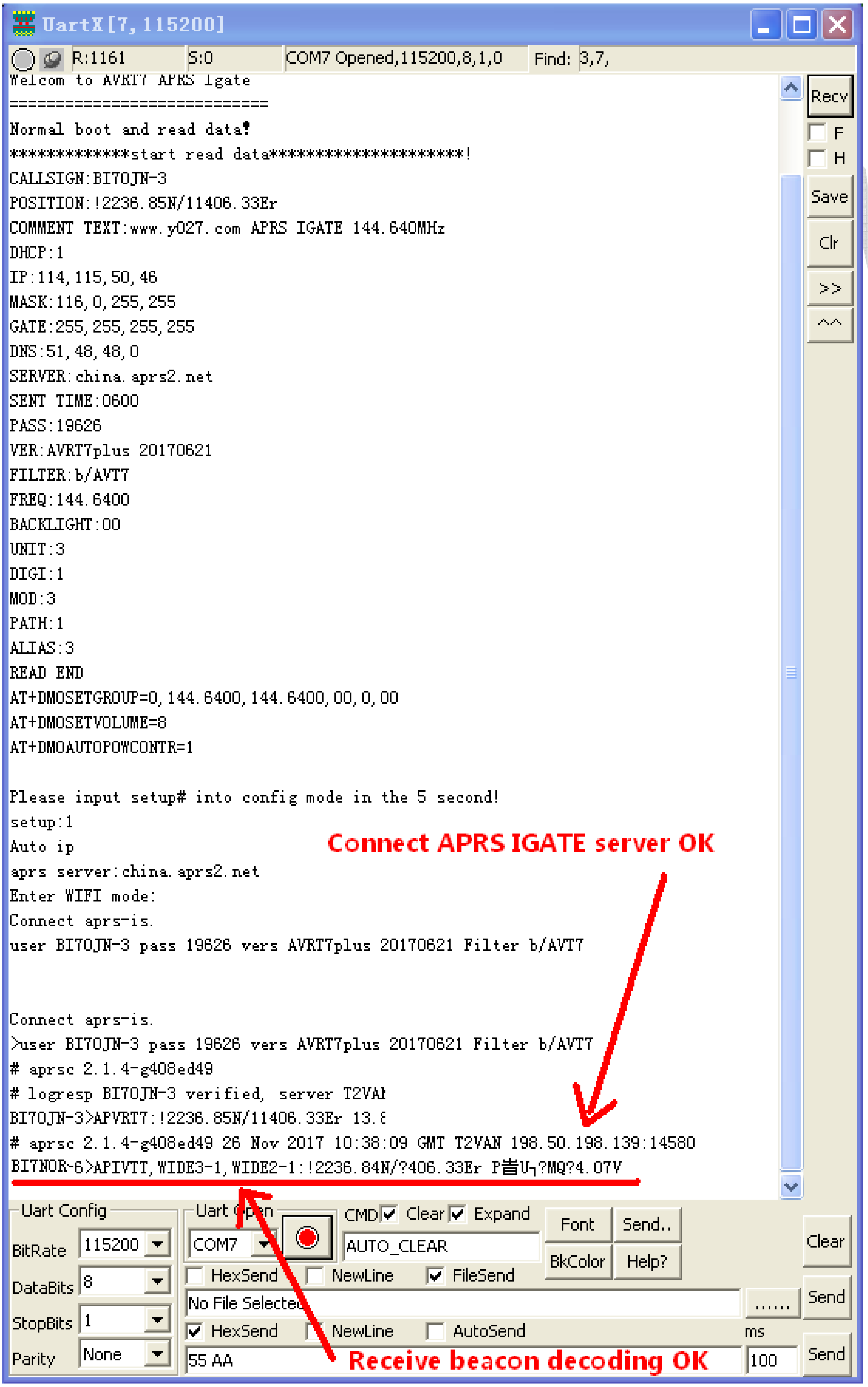
Start normal

,enter the WIFI connection. . . .

WIFI connection OK

Connect APRS IGATE server

BitRate 115200
DataBits 8
StopBits 1
Parity None
COM7
AUTO_CLEAR
☐ HexSend ☐ NewLine ☑ FileSend
No File Selected
☑ HexSend ☐ NewLine ☐ AutoSend
55 AA
100



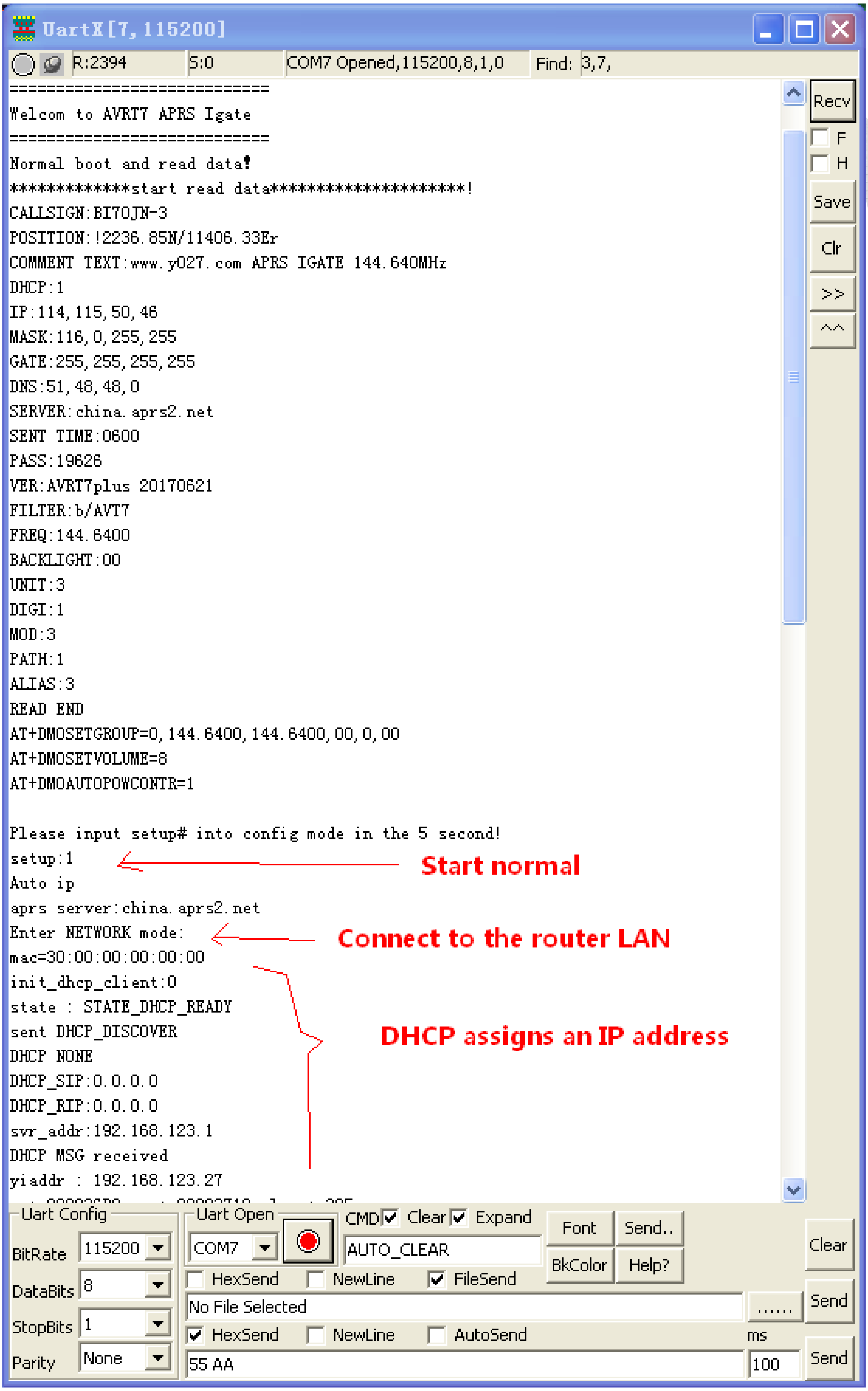
UartX[7,115200]
R:1161
S:0
COM7 Opened,115200,8,1,0
Find: 3,7,
Recv
☐ F
☐ H
Save
Clr
>>
^^
Uart Config
BitRate 115200
DataBits 8
StopBits 1
Parity None
Uart Open
COM7
CMD ☑ Clear ☑ Expand
AUTO_CLEAR
Font
Send..
BkColor
Help?
Clear
☐ HexSend ☐ NewLine ☑ FileSend
No File Selected
......
Send
☑ HexSend ☐ NewLine ☐ AutoSend
ms
55 AA
100
Send

```
Welcom to AVRT7 APRS Igate
============================
Normal boot and read data!
*************start read data*********************!
CALLSIGN:BI7OJN-3
POSITION:!2236.85N/11406.33Er
COMMENT TEXT:www.y027.com APRS IGATE 144.640MHz
DHCP:1
IP:114,115,50,46
MASK:116,0,255,255
GATE:255,255,255,255
DNS:51,48,48,0
SERVER:china.aprs2.net
SENT TIME:0600
PASS:19626
VER:AVRT7plus 20170621
FILTER:b/AVT7
FREQ:144.6400
BACKLIGHT:00
UNIT:3
DIGI:1
MOD:3
PATH:1
ALIAS:3
READ END
AT+DMOSETGROUP=0,144.6400,144.6400,00,0,00
AT+DMOSETVOLUME=8
AT+DMOAUTOPOWCONTR=1

Please input setup# into config mode in the 5 second!
setup:1
Auto ip
aprs server:china.aprs2.net
Enter WIFI mode:
Connect aprs-is.
user BI7OJN-3 pass 19626 vers AVRT7plus 20170621 Filter b/AVT7


Connect aprs-is.
>user BI7OJN-3 pass 19626 vers AVRT7plus 20170621 Filter b/AVT7
# aprsc 2.1.4-g408ed49
# logresp BI7OJN-3 verified, server T2VAN
BI7OJN-3>APVRT7:!2236.85N/11406.33Er 13.8
# aprsc 2.1.4-g408ed49 26 Nov 2017 10:38:09 GMT T2VAN 198.50.198.139:14580
BI7NOR-6>APIVTT,WIDE3-1,WIDE2-1:!2236.84N/?406.33Er P昔U┐?MQ?4.07V
```

Connect APRS IGATE server OK

Receive beacon decoding OK

2, AVRT7 Plus Serial printout (No WIFI connection, LAN only)



R:2394 S:0 COM7 Opened,115200,8,1,0 Find: 3,7,

```
============================
Welcom to AVRT7 APRS Igate
============================
Normal boot and read data!
*************start read data*********************!
CALLSIGN:BI7OJN-3
POSITION:!2236.85N/11406.33Er
COMMENT TEXT:www.y027.com APRS IGATE 144.640MHz
DHCP:1
IP:114,115,50,46
MASK:116,0,255,255
GATE:255,255,255,255
DNS:51,48,48,0
SERVER:china.aprs2.net
SENT TIME:0600
PASS:19626
VER:AVRT7plus 20170621
FILTER:b/AVT7
FREQ:144.6400
BACKLIGHT:00
UNIT:3
DIGI:1
MOD:3
PATH:1
ALIAS:3
READ END
AT+DMOSETGROUP=0,144.6400,144.6400,00,0,00
AT+DMOSETVOLUME=8
AT+DMOAUTOPOWCONTR=1

Please input setup# into config mode in the 5 second!
setup:1
Auto ip
aprs server:china.aprs2.net
Enter NETWORK mode:
mac=30:00:00:00:00:00
init_dhcp_client:0
state : STATE_DHCP_READY
sent DHCP_DISCOVER
DHCP NONE
DHCP_SIP:0.0.0.0
DHCP_RIP:0.0.0.0
svr_addr:192.168.123.1
DHCP MSG received
yiaddr : 192.168.123.27
```

Start normal

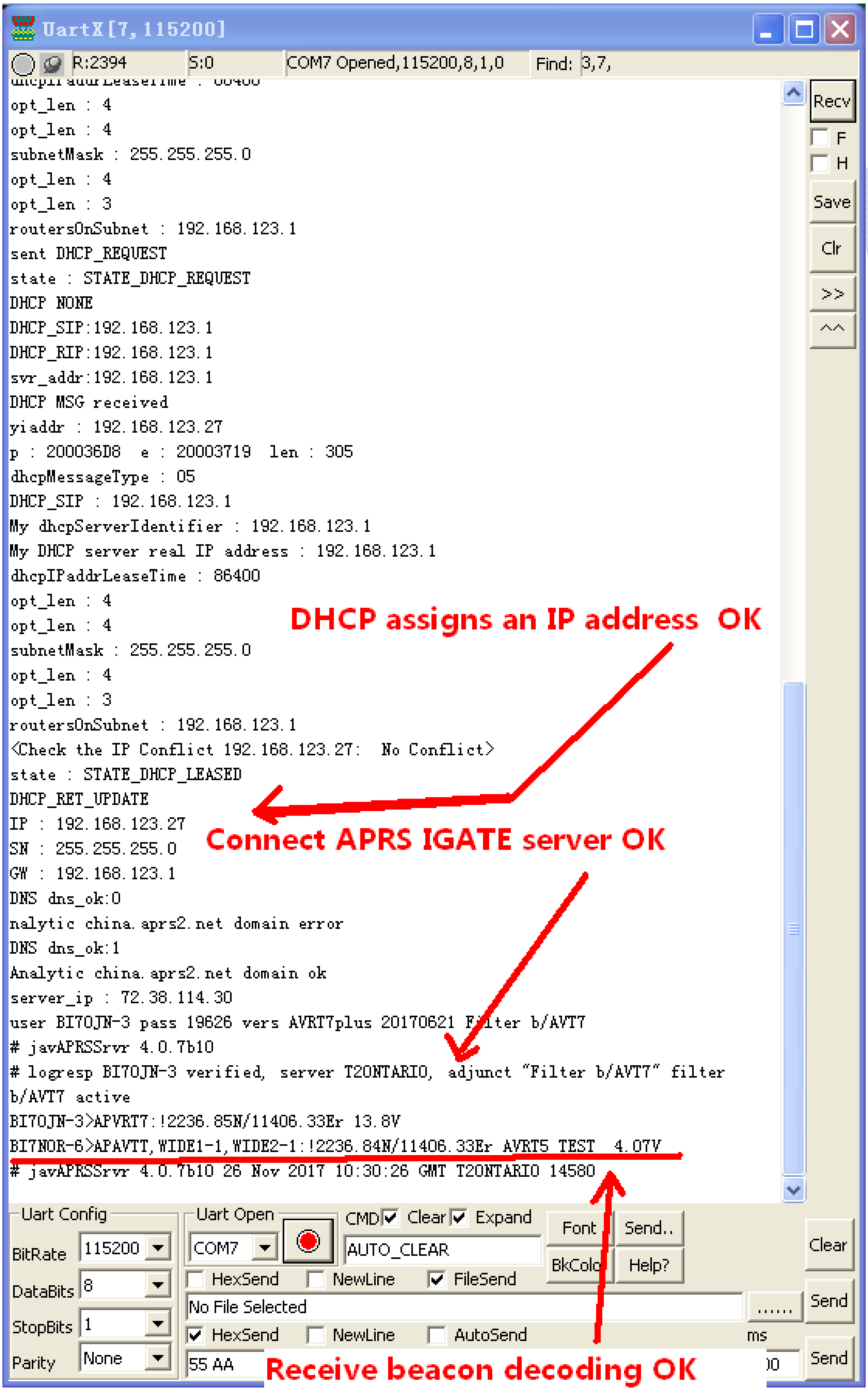
Connect to the router LAN

DHCP assigns an IP address

Uart Config
BitRate 115200
DataBits 8
StopBits 1
Parity None

Uart Open
COM7

CMD ☑ Clear ☑ Expand
AUTO_CLEAR
☐ HexSend ☐ NewLine ☑ FileSend
No File Selected
☑ HexSend ☐ NewLine ☐ AutoSend
55 AA
100 ms


UartX[7,115200]
R:2394
S:0
COM7 Opened,115200,8,1,0
Find: 3,7,
Recv
☐ F
☐ H
Save
Clr
>>
^^
Uart Config
BitRate 115200
DataBits 8
StopBits 1
Parity None
Uart Open
COM7
CMD ☑ Clear ☑ Expand
AUTO_CLEAR
Font
Send..
BkColo
Help?
Clear
☐ HexSend ☐ NewLine ☑ FileSend
No File Selected
......
Send
☑ HexSend ☐ NewLine ☐ AutoSend
ms
55 AA
Send

```
opt_len : 4
opt_len : 4
subnetMask : 255.255.255.0
opt_len : 4
opt_len : 3
routersOnSubnet : 192.168.123.1
sent DHCP_REQUEST
state : STATE_DHCP_REQUEST
DHCP NONE
DHCP_SIP:192.168.123.1
DHCP_RIP:192.168.123.1
svr_addr:192.168.123.1
DHCP MSG received
yiaddr : 192.168.123.27
p : 200036D8  e : 20003719  len : 305
dhcpMessageType : 05
DHCP_SIP : 192.168.123.1
My dhcpServerIdentifier : 192.168.123.1
My DHCP server real IP address : 192.168.123.1
dhcpIPaddrLeaseTime : 86400
opt_len : 4
opt_len : 4
subnetMask : 255.255.255.0
opt_len : 4
opt_len : 3
routersOnSubnet : 192.168.123.1
<Check the IP Conflict 192.168.123.27:  No Conflict>
state : STATE_DHCP_LEASED
DHCP_RET_UPDATE
IP : 192.168.123.27
SN : 255.255.255.0
GW : 192.168.123.1
DNS dns_ok:0
nalytic china.aprs2.net domain error
DNS dns_ok:1
Analytic china.aprs2.net domain ok
server_ip : 72.38.114.30
user BI7OJN-3 pass 19626 vers AVRT7plus 20170621 Filter b/AVT7
# javAPRSSrvr 4.0.7b10
# logresp BI7OJN-3 verified, server T2ONTARIO, adjunct "Filter b/AVT7" filter
b/AVT7 active
BI7OJN-3>APVRT7:!2236.85N/11406.33Er 13.8V
BI7NOR-6>APAVTT,WIDE1-1,WIDE2-1:!2236.84N/11406.33Er AVRT5 TEST  4.07V
# javAPRSSrvr 4.0.7b10 26 Nov 2017 10:30:26 GMT T2ONTARIO 14580
```

DHCP assigns an IP address OK

Connect APRS IGATE server OK

Receive beacon decoding OK

designed and produced by : BG6QBV & BH7NOR (Old BI7NOR)
Manual translation： BG7IKD
WEB：www.y027.com Email:34512886@qq.com、bi7nor@yahoo.com

2018-12-12

All AVRT series device firmware and software download web server ：http://avrtx.cn

AVRT7