Dual Band VHF & UHF

Setup and Instruction V3

Radio Setup with Android Phone

Option Extras

Bluetooth Speaker Micrphone For VR-N65Two Way R....

Bluetooth Ring PTT For VERO N Series Two Way Radio

Speaker Microphone Mounting For VERO,YAESU,QYT,...

Manufactures Wedsite http://www.vgc.net.cn/news/65-cn.html

UK Google Group forum https://groups.google.com/forum/#!forum/veron7500

UK Sellers **Moonraker** https://www.moonraker.eu/ **ML&S** https://www.hamradio.co.uk/

Product Overview

The Vero Telecom VGC VR-N7500 is a brand new 50 watt VHF/40 watt UHF Headless ham transceiver with a solid build quality. It is very different in design compared to any other ham radio you have used in your mobile or base.

The VR-N7500 can implement a smartphone as a control panel. The fuselage can be installed in the trunk, the mobile phone is connected to the body through Bluetooth, and the automatic horizontal screen state is fully intelligently connected. At this time, the car hands-free intercom can be realized through the Bluetooth PTT.

Multiple Bluetooth Connections
- Connect to bluetooth PTT
- Connect to bluetooth headset (e.g. Cardo, Schuberth, Viper, Sena, Interphone and Vimoto etc.) This is very useful for cycling enthusiasts, omitting the cumbersome wiring.
- Connect to cell phone to programming the radio
- Connect to bluetooth speaker microphone
- Connect to other bluetooth 2.0+ accessories

Global Walkie Talkie / Network Radio (Android Only)
Create a network channel in app and then invite friends to the same Channel, no matter where they are in the world, they use a mobile phone or a walkie-talkie with the VERO N series, you can contact in real time.   * Note it is NOT designed to Cross Band VHF to UHF*
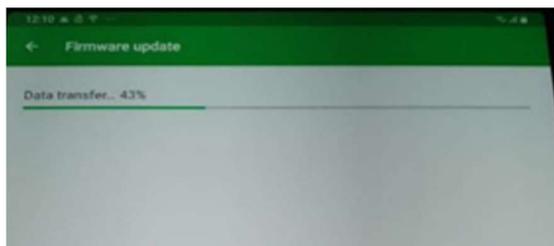
Software updates are simple and quick via the phone and may be offered the first time they are switched on.

Manufacturers Specification

Device mode: radio + network dual-segment dual-mode multi-network
Frequency range: UHF 400-470MHz & 136-174MHz
Number of channels: 16 XN groups (N greater than or equal to 1)
RF power: VHF 50W / UHF 40W
Channel spacing: 25KHz (wideband), 12.5KHz (narrowband)
Supported networks: 2G, 3G, 4G, 5G, WiFi, CDMA, GSM, etc
Power supply voltage: DC 12 V
Bluetooth: 2.0 or higher
Panel mode: wireless control center, smart phone, wireless microphone

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VR-N7500 platform features:

1. U / V dual-segment high-power car + network intercom (dual-segment dual-mode);

2.Can connect Bluetooth headset, Bluetooth speaker, Bluetooth ring wireless PTT, wireless hand microphone, vehicle central control system;

3. Dual frequency and dual standby;

4. Same frequency relay function;

5. Mobile APP writing frequency;

6. Global wireless location report;

7. (There are other functions not listed)

The main functions of VR-N7500 platform after pairing with Android mobile APP:

1. Global network intercom;

2. Network, team, group call, single call;

3. Multiple remote relays through the network link;

4. The radio and network are linked to each other;

5, communication records, voice playback, voice record export;

6. Realize SSTV image transmission function in FM mode;

7. Realize CW communication and learning function in FM mode;

8. Morse code analysis;

9. Position report and track playback;

10. (There are other functions not listed)

VR-N7500 dual-mode / two-stage platform

Winnow VR-N7500   is a U / V dual-segment + dual-mode (analog + network) car. It is an emergency communication vehicle-mounted station with its own system.

RF Tested to the design rating and it's 50W on VHF and 40W on UHF.

Display – Main

Main screen will show the present location on the map the frequency for Tx and what it connected to Frequency or Network.

The screen will change between Vertical/Landscape and Horizontal mode of phone and show frequency channels.

Note you may need to exit the screen your on for changes to be made by the radio.

The centre shows connection radio or network channel with one of the main setup screens with the message screen which shows contacts on and off line.

The search finds contact on the network and can indicate their location

When the phone is turned from portrait to landscape the frequency will show. Red the TX when set on one memory.

When set on 2 memories one will be Red (Tx) and the other Black, this will swap over when a signal is heard on the second channel.

The can be zoomed out to see if there are other network stations in the area or APRS stations. Different layers of the map can be done under the main menu button.

The audio for the phone can be isolated or turned on.

The PTT on the screen will put the radio into TX mode.

One's location can be centered on the map via the button above the star button highlights your station.

The clock gives time period for listing stations seen.

The station tracking button is below that with the zoom in and out of the map buttons
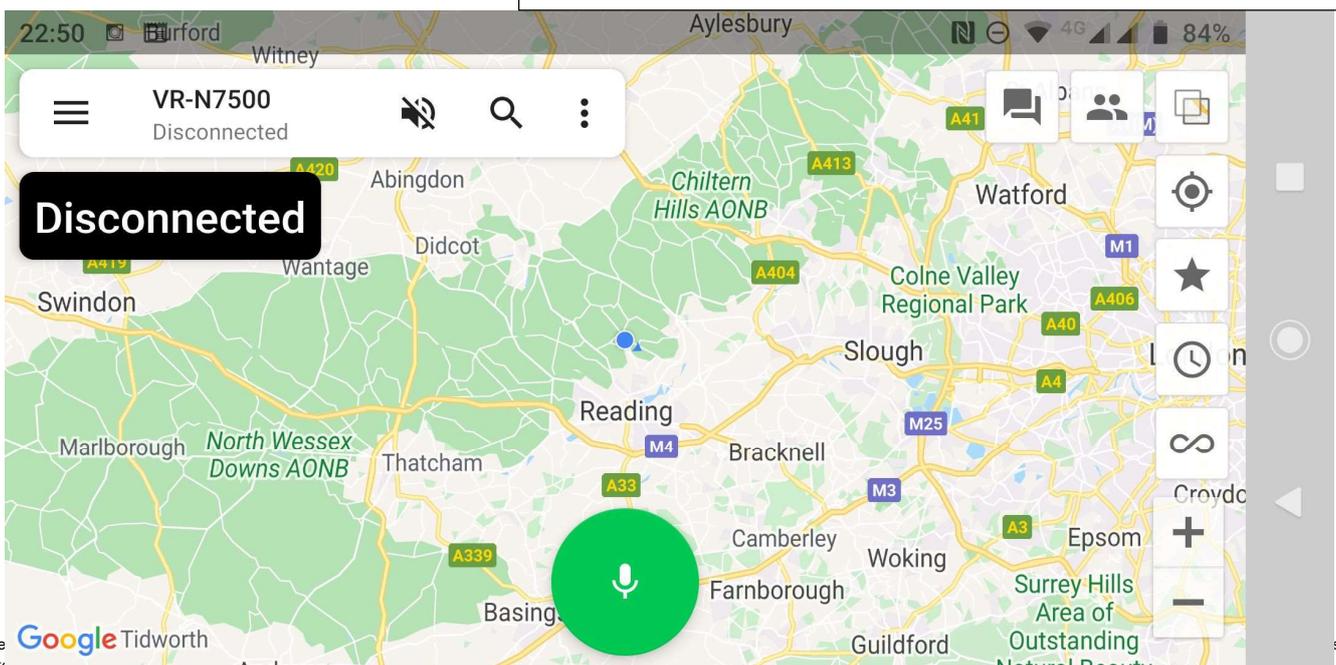
Horizontal Mode

Setup of APP - Android

VR-N7500
Disconnected
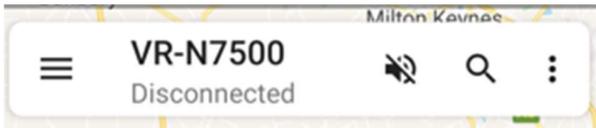
This gives you access to the main radio and channel settings turning the network & audio on and off as you wish editing and sharing networks.

NOTE – Long press on the picture top left takes you into the HT page details below.

Binding a new device – Walkie-Talkie and Wireless PTT

Joining a new channel or creating your own group.

The APRS page can be entered from here turning on and of the internet for APRS enabling the sending messages, with the ability to see the location on the map.

VR-N7500
Disconnected   Connection to radio or network – connected or disconnected.

Audio on Phone On or Off – pressing icon turns it on or off

Spy Glass – Search for people in group.

Settings

- Establish Voice Connection,
- Save Voice History
- Settings
- Exit from APP.

Settings

- Channel Manager – List of all frequency information in memories and CTCSS Tone settings
- Region Manager – List of Memory Banks
- APRS Settings – Main APRS Setup page (See APRS section)
- Keep Screen on (will drain phone battery quicker) turn off if not required.
- Save Voice History TX and Network communications stored.
- Morse code – Speed and pitch – When send a message in morse it can be seen in the data screen
- DTMF – Speed ???
- About – Version of Software (1.4.1.0) at time for writing.
- Open source of software details

HT Page settings

- Change image by pressing image square – Take image, Chose Image from Gallery or Remove Photo.
- Nick Name – Name and Call sign…..(suggestion)
- ID Signaling – This turns on a tail end data tone on TX audio (Suggest turn off)
- Location – Data Tone
- Allow Position Check – Shows location on the map which other can see your call sign.

Automatic Share Location (Beaconing)

- Internet Sharing -   Time Adjustable Off to 30 minutes intervals
- Radio Sharing –   Time Adjustable Off to 30 minutes intervals
- Send Power Voltage -   Status with Beacon
- Message   -   Beacon Message
- Use APRS Format

Button for APRS Format – Below
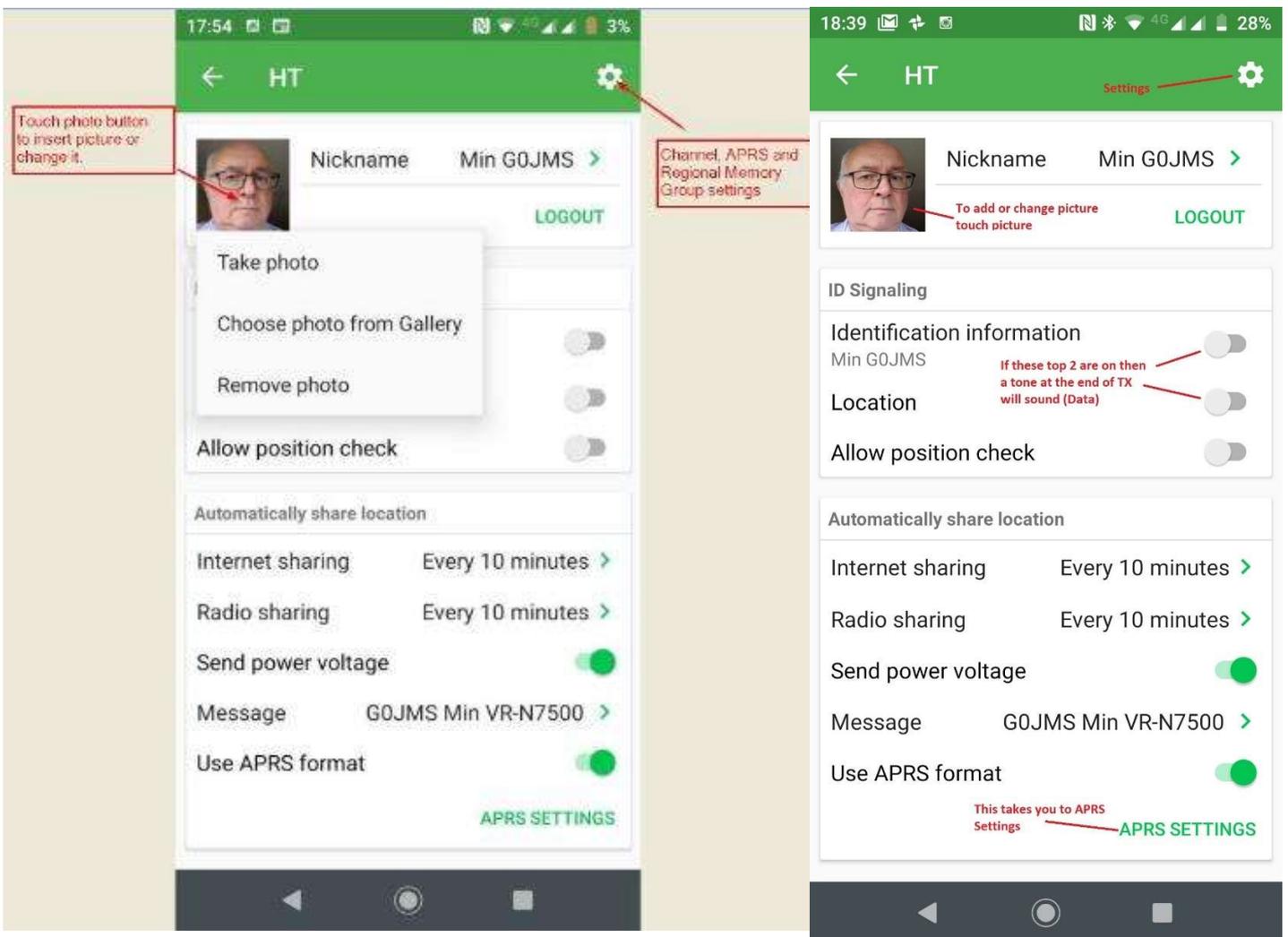
Bluetooth Connections

To bind or connect an item by BT press the power button twice when the radio is on and it will go into pairing mode.

Red and Green lights flashing.

You can pair it via the APP but that does not always put the radio into pairing mode.

Some phones may need authorization check phone menu and confirm via the APP what is paired.

BT (Button) PTT– put radio in pairing mode and press the button PTT long and then and again and pairing should take place. (It has a range of about 2m or 6ft with my testing)

BT Speaker Microphone – Radio in pairing mode and turn on the mic and double press to enter pairing mode.

Buttons on microphone – See end of document.

APRS settings

Login

- Call Sign and SSID - http://zlhams.wikidot.com/aprs-ssidguide
- Password (Passcode) – Obtained from the internet https://apps.magicbug.co.uk/passcode/

Get password button and Verify Password (Passcode)

- Igate Service – Connected to internet
- Server – for UK select Europe & Africa
- Radio to Internet
- Internet to Radio
- Receive messages via internet
- Receiving Range adjustable – suggest keep low or there will be heavy traffic from server.
-

Share Location

- Auto share location over internet on/off – suggestion use www.aprs.fi
- Internal – Adjustable (Beacon) period
- Icon – Select by touching the icon.
- Send power voltage – on/off detail sent in beacon
- Send Operation frequency – on/off - main frequency radio is set to.
- Preview – Beacon preview message.
- Message – You insert your message

Routing

- Time to live – adjustable – How many hops the radio beacon or timed ID will go.
- Maximum forwarding time – Number of hops (don't use a high setting)

Horizontal APRS View Primary & Secondary (RX on 2nd channel level and number of APRS stations heard in region of map.
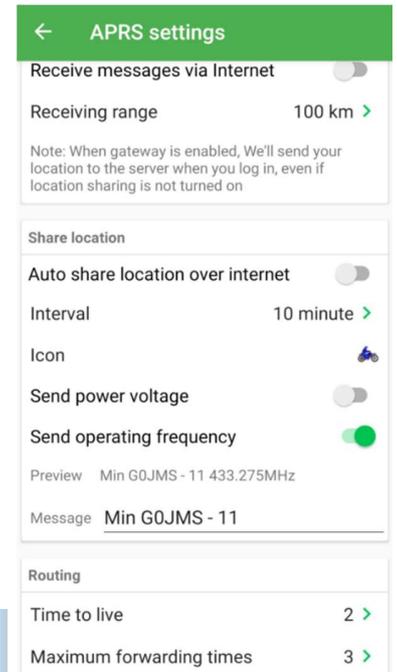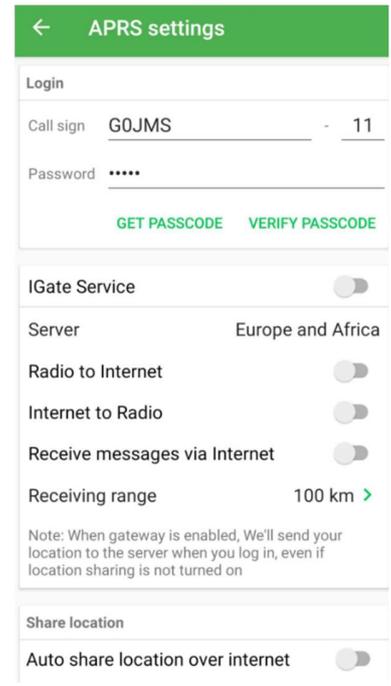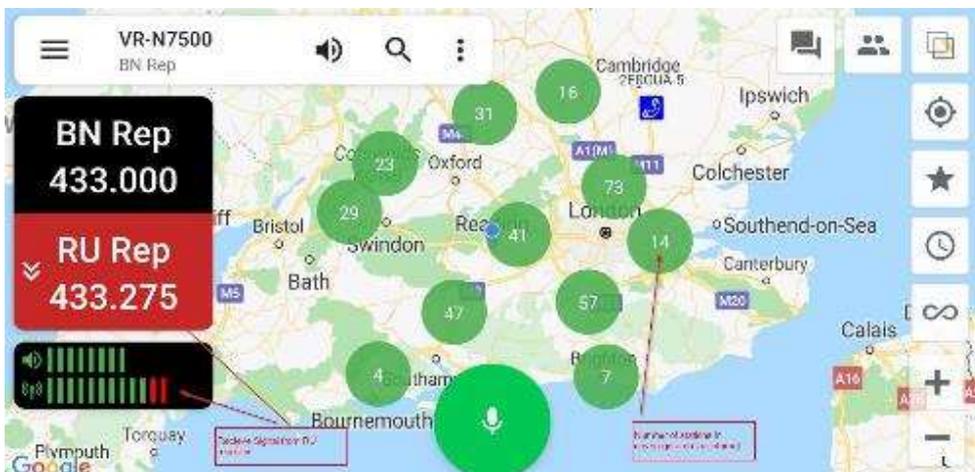
APRS -2 Settings

Map Screen and APRS show signals received

Turns on/off APRS internet IGate Service – yours and other station positions.

Search for a Station by call sign, list will appear if they have Beaconed.

APRS Settings Page
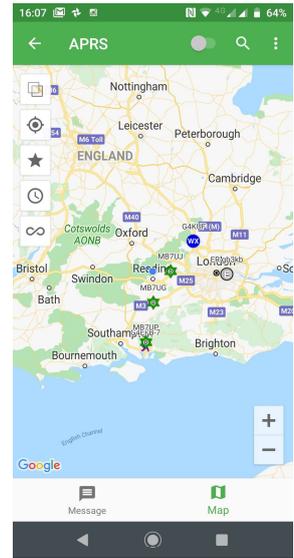
APRS Screen – Message Page

Signal received by IGate
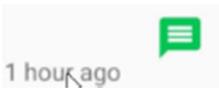
Green button gives access to message/chat page to that station.

Below is the station Beacon Data – His call sign and SSID

It shows the route of the APRS taken and his comment (Name)

G0VNP-9>UQRTYX,MB7UG,WIDE1,MB7UJ,WIDE2
``4q}name Bob_)   Yesterday
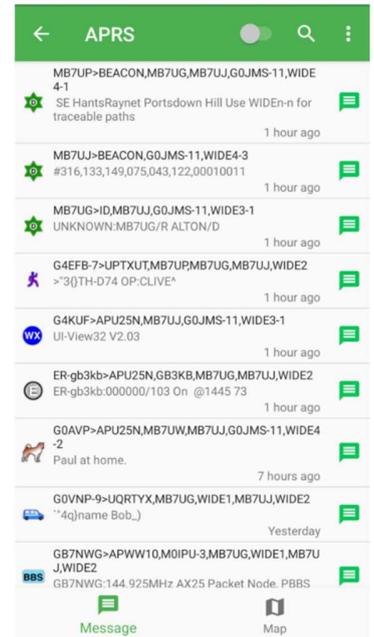
APRS 3 – Location and Direction Page
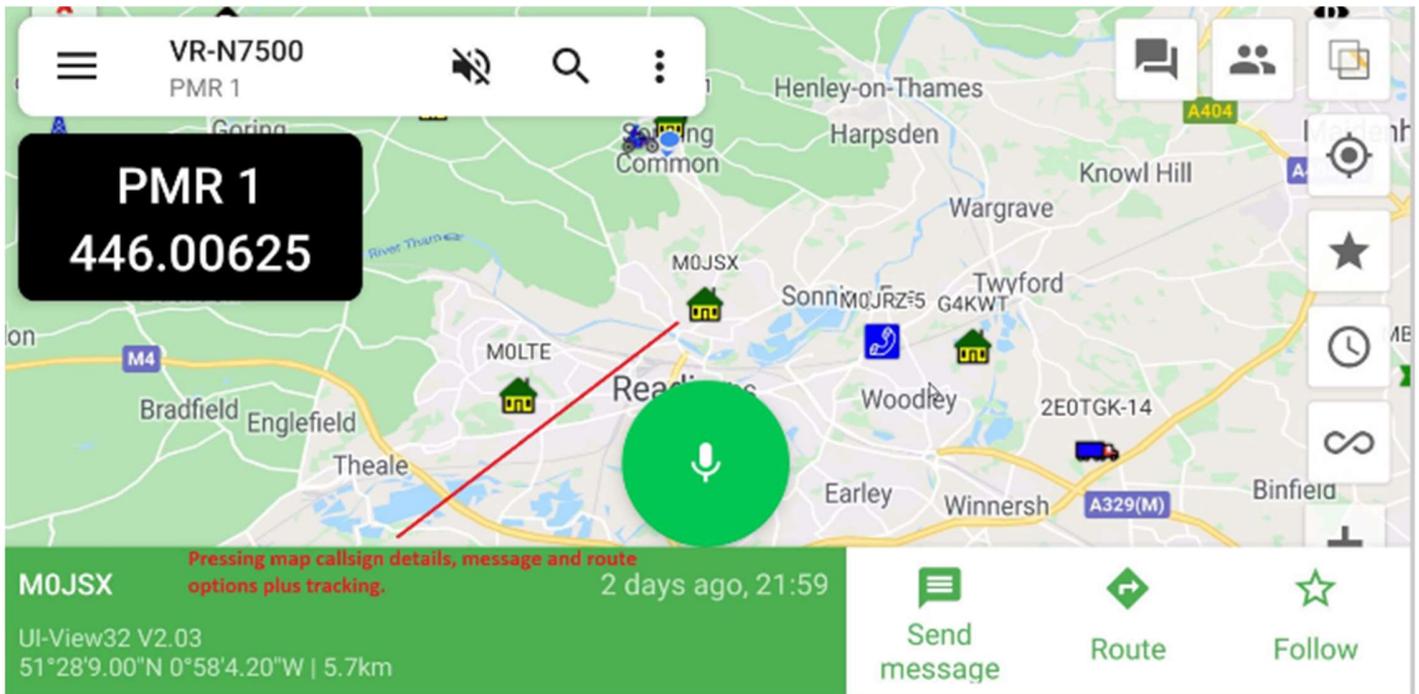
By finding by search or screen a station can be found, message, routing to that location plus the option to follow (if moving) that station.

In the top of the page you can see that the radio is set for 1 memory (S21) and in horizontal mode it also shows the frequency on the LHS of the screen.

You can change map layers (Square over Square)

Central and zoom into position with star button

By Turning off/on the star you will show only your station or you and others

Clock is the time of other stations beaconing last 15 min to all day.

Screen PTT for TX Network or Radio Frequency (Channel)

Microscope – Find call sign/station

Speaker to turn audio on phone on or off.
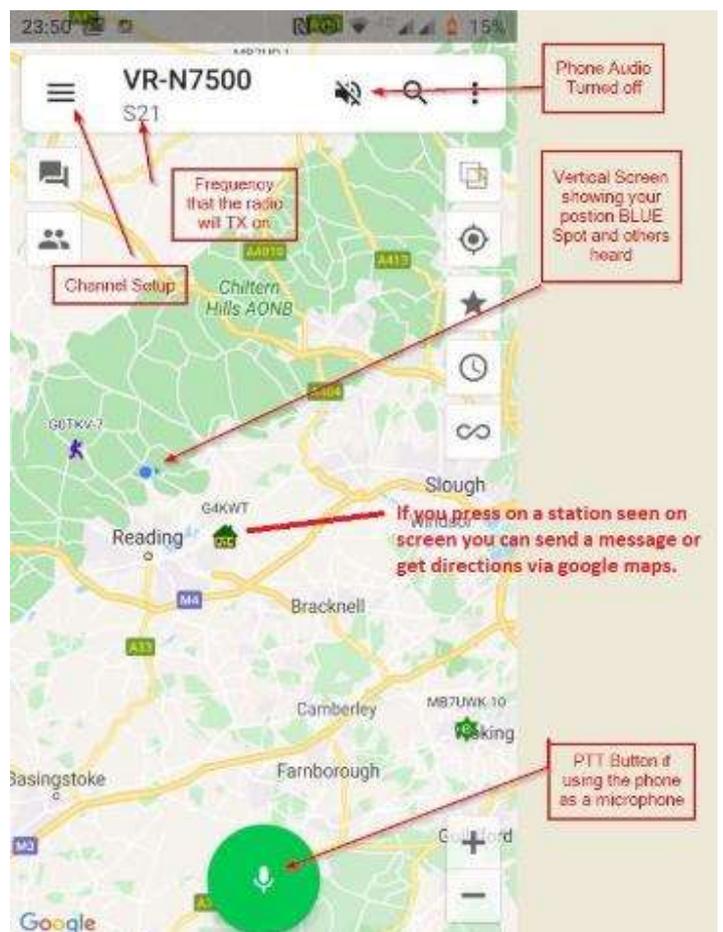
APRS 4 – Example Pages – Suggestion settings
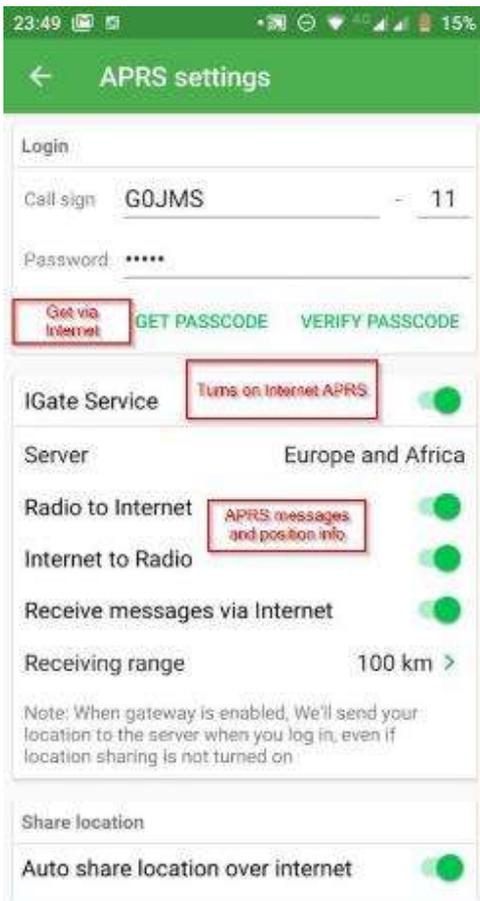
What the APRS settings do and how you may want to set them.
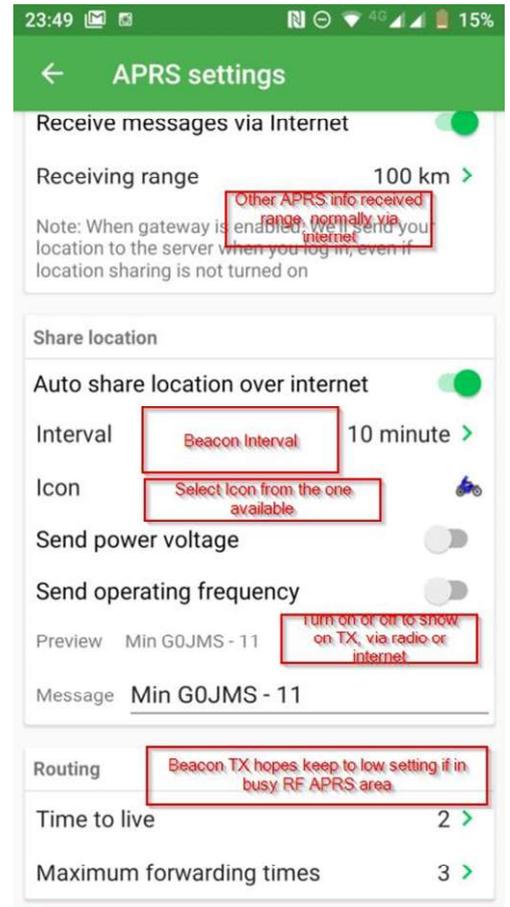
APRS Icons that can be used and will show up on APRS search engines.
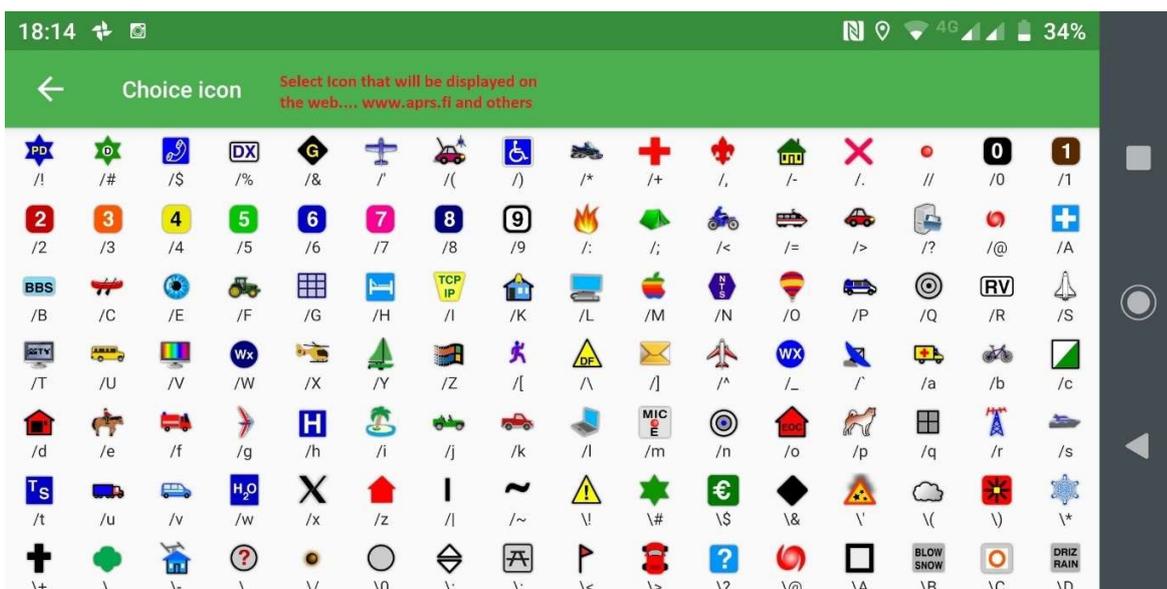
APRS Screen Shots

With Green Star Button Pressed it only shows you at the location as the Blue Dot.

With Green star turned off it shows other APRS Stations in the same location. You can see where phone is (blue dot) and my car (-9)

With M0TVA-5 in the same car park.

Satellite view by pressing Overlay.

Circled button centres your location on the map.
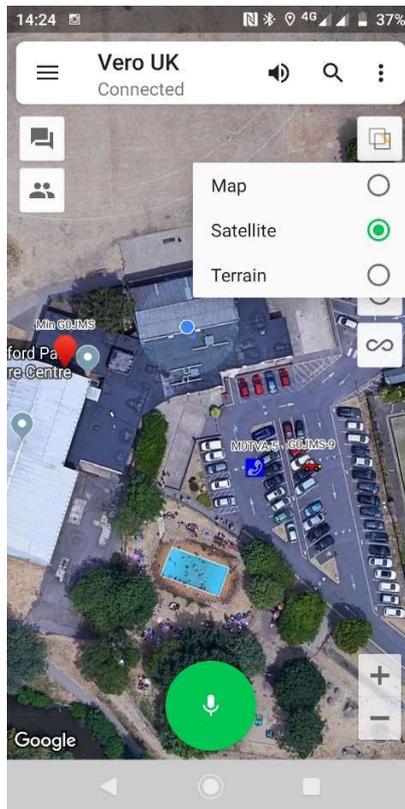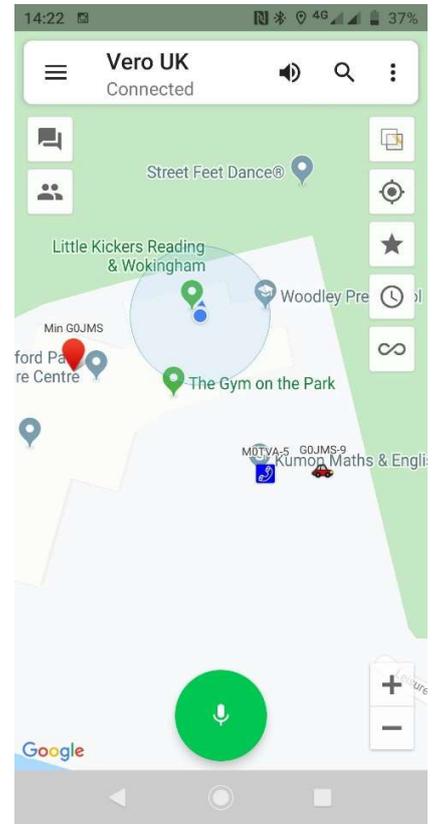
Memory Setup Page 1

Main Memory Page

Power status to radio

Memory Pages and Groups of memories 16 Memories per Group volume of Groups (A lot)   +

FM Radio

Settings – Device Settings (Volume and Squelch)

Disconnect your BT from Radio

Select Channel – Long press will offer edit, bind a Network Channel or delete.

TX Setting press to change
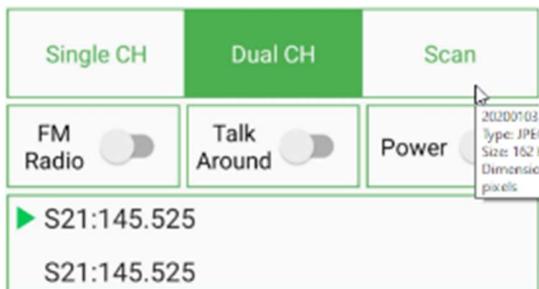
Single or Dual memories

Scan – will scan the memory channels of the bank

FM Radio – takes you to screen for FM radio frequencies

Talk Round – Repeater/frequency bypass (It will TX on the RX memory frequency) removing the repeater shift.

Power – Remoter power on/off of radio.

Panel above shows that is was set to TX and receive on S21 memory channel during testing.

You can bind a network channel and a frequency where you can TX into the network and RF.

You can turn off the TX RF on the frequency and transmit into the network (save each time change is made) If the TX is turned off the white becomes grey on the memory display. You will still receive on that frequency and you may want to add a CTSS tone to block out any signals being received.

The possibilities of configurations of RF + network radio the and uses in Emergency situations is massive, with network phones and radios able to link together anywhere.

Memory Setup Page 2

Regional Manager Page allows you to add groups of 16 channels to the radio.

- Note save to radio when asked to sync.
- Import and export
- Delete Group.
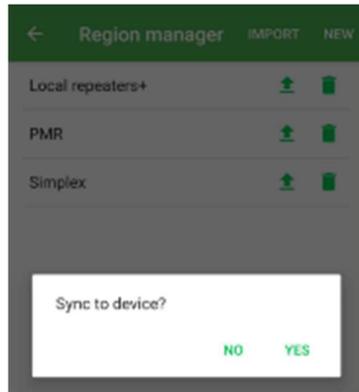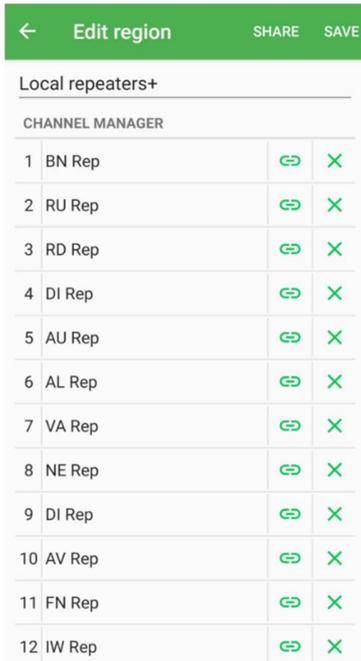
The Edit region page allows you to alter the memories or delete them.

You can share and save when any changes made.
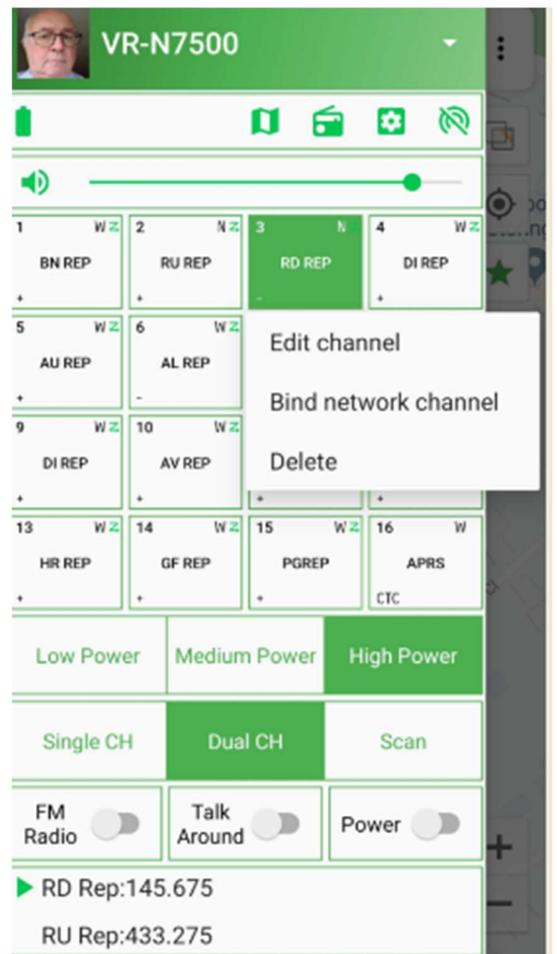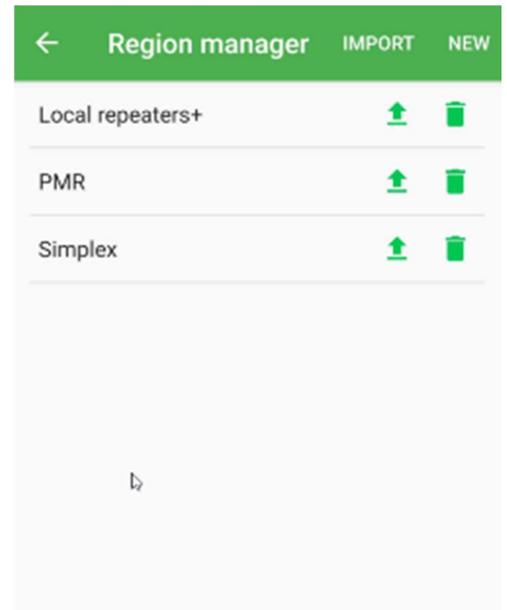
Memory Page allows you change which memory you want to use for the 1 channels plus bind a network channel to a frequency and this can receive and TX into and out of the radio and network. – Further details on that later.

(Do this with care – others may be using the frequency)

Edit Channel – Change memory settings frequency, tone, power and off set. Even turn off TX very hand for out of band listening.

On testing a frequency or Channel that has its TX turned off will still show the red TX led but no TX (thanks David KE6IPU) tested OK no RF output.

I found no limit to the number Groups of 16 channels that can be set up (If you find a max let us know)

Note – The pages within this document are to assist those starting out to use the Vero VR-N7500. The technical nature of the radio and features may be incorrect or updated since the document was written and the author accepts no responsibility for errors or mistakes. Setting used are ones used for testing and users except that they use them at their own risk. G0JMS

Network Setup Page 1

Setting up a Network

From Main screen, button top LHS gives a page like this, you can add Network channels by "Join Network Channel" button, this will give you a Join or Create a New Channel. (I would advise joining before advancing to create a channel that you may never use)

I have setup "Vero UK" and at the moment doesn't require a password.

Search for a channel via join existing channel and use the search spy glass, just put a letter in at a time and the search will take place with a list showing up.
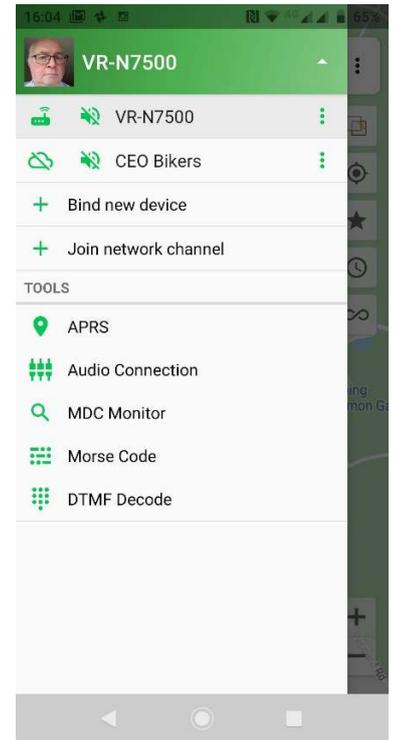
Select "Join" and it will be saved to the list.

If it's a closed group permission for access may be required (TBC)

You can turn on and off and on the Network channels listening to the one turned.

There is a small green spot that shows any activity and you can see who is on line at the time and who members are but not on line.

Selecting a Network Channel puts it at the top of the screen and on the main screen the group button will give you members, messages (If feature is turned on to save messages), members on and those in the group, plus location (if that's turned on by the member) (Managers of group can ban and make them Administrators. (Details later thanks David KE6IPU) plus Delete (sounds serious). Map will give you your position and others by expanding the map.

This button gives you direct screen of the Network voice recording from whom with picture and length of message **(remember there is a 1 minute time out on Network calls)**

The "Hold to Speak" button...... if you need to ask

When you have network coverage and connection it will show you "Please Speak" (1 minute timer starts)

Replies show the person calling and I would suggest use of call sign (Yours's at the end of TX or say over to you/back to you) otherwise has there been a break in the network signal.....

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Network Setup Page 2

You can network from the phone APP to another person or group simply (above)

Network from RF to Network and RF needs authorization/permission by the owner of the channel.

Below is the principle diagram for Network to Network. <u></u> (sceenshot from Moonraker website)

Binding Network Channel to Memory Channel with RF. (Help from David KE6UPI)

Step 1 – Memory frequency setup page (I setup and used memory 4 as a test)

Global Walkie Talkie / Network Radio (Android Only)

Create a network channel in app and then invite friends to the same Channel, no matter where they are, as long as they a mobile phone or a walkie-talkie with a VERO N series, you can contact in real time.

Possible modes of operation.

1. RF to RF
2. RF and Network channel
3. Phone into Network in all modes
4. Network to Network Channel
5. Network to Network Channel plus RF output and reverse (with permission for that frequency)
6. RF into Network through Network out to RF with channel owner's permission.

Cross Band Repeater From Network Channel To Analog (Android Only)

Using the dedicated Android app you can crossband repeat from Analog to Network and Network to Analog when the "Relay Function" has been enabled on the app.

2. Select the channel (no. 4 for me) by long press on button and you need to edit the channel
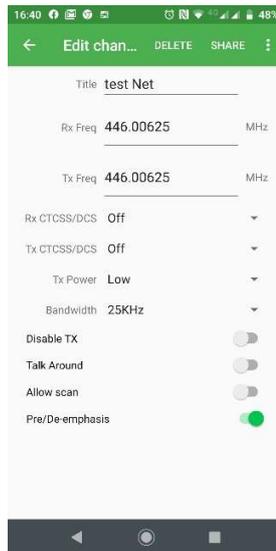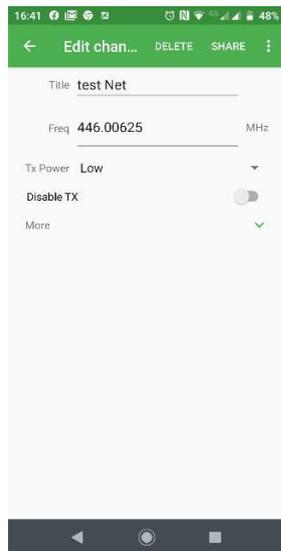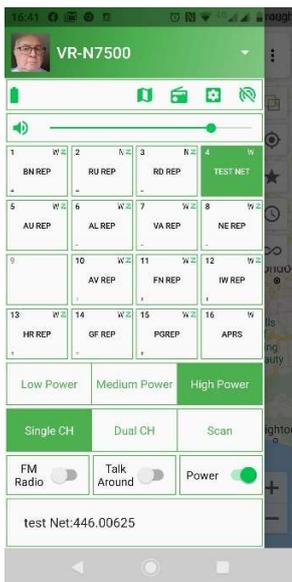
This will be your RX and TX frequency if "Relay Mode" is enabled.

This freq was selected to do some simple testing into a dummy load.

Caution on use of this is required and keep within your license agreement.

You worked for it don't lose it.

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Network Setup Page 3

When the memory is correctly setup you want to use save and press the button again then press "Bind Network Channel"

Your selected channels will show up on page Pick a Channel. Pick a channel.

This will be put into that memory screen and the name added to the memory view.
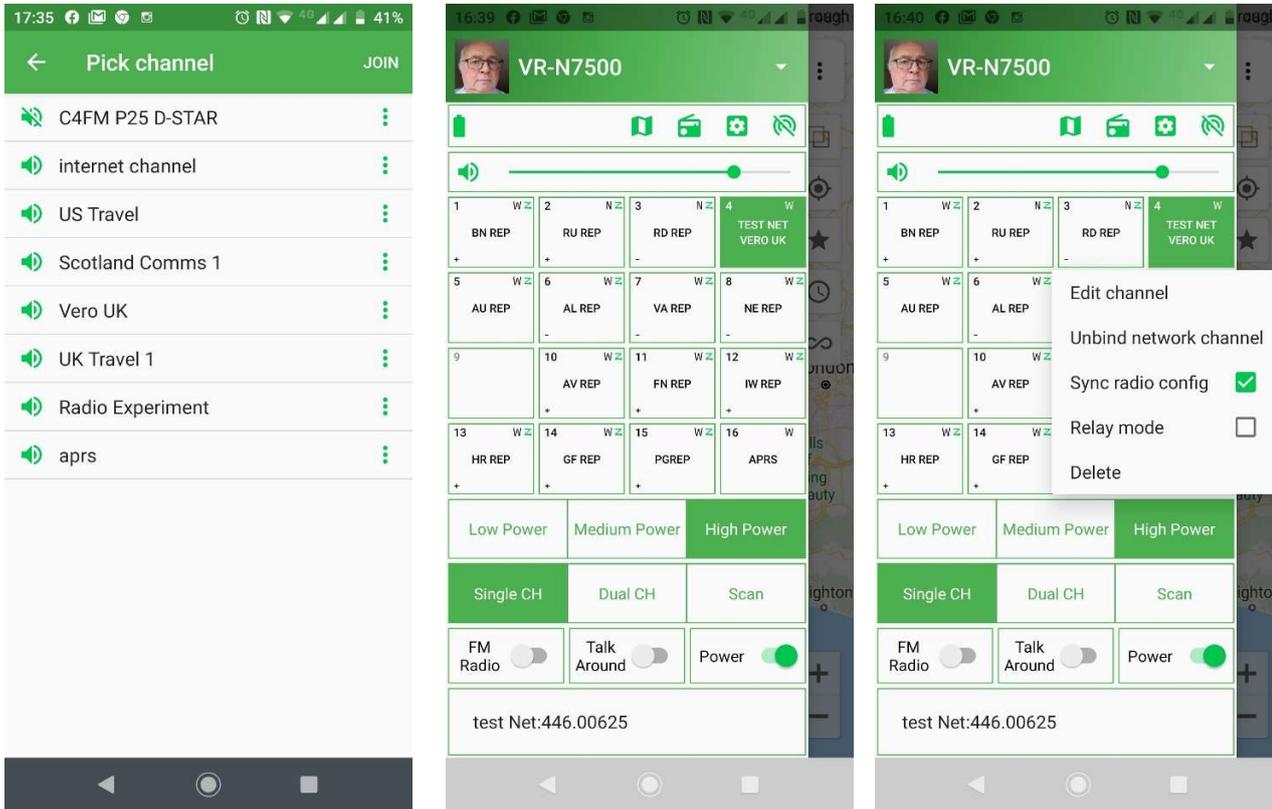
Press the memory button again and now this will show Edit, Unbind, Sync radio Config, Relay Mode and delete.

Press "Sync radio config" This will allow TX from RF frequency into Network.

If you have permission or you're the owner of the Channel then the "Relay Mode" will go green. This gives you RX and TX into the network from and too RF.

Use this feature with caution.

The Main screen here shows the APRS station and at the top the Memory Channel and the Network you have selected.

You can see who is on the Channel at that moment and who's off line, plus their locations if that's been set up.
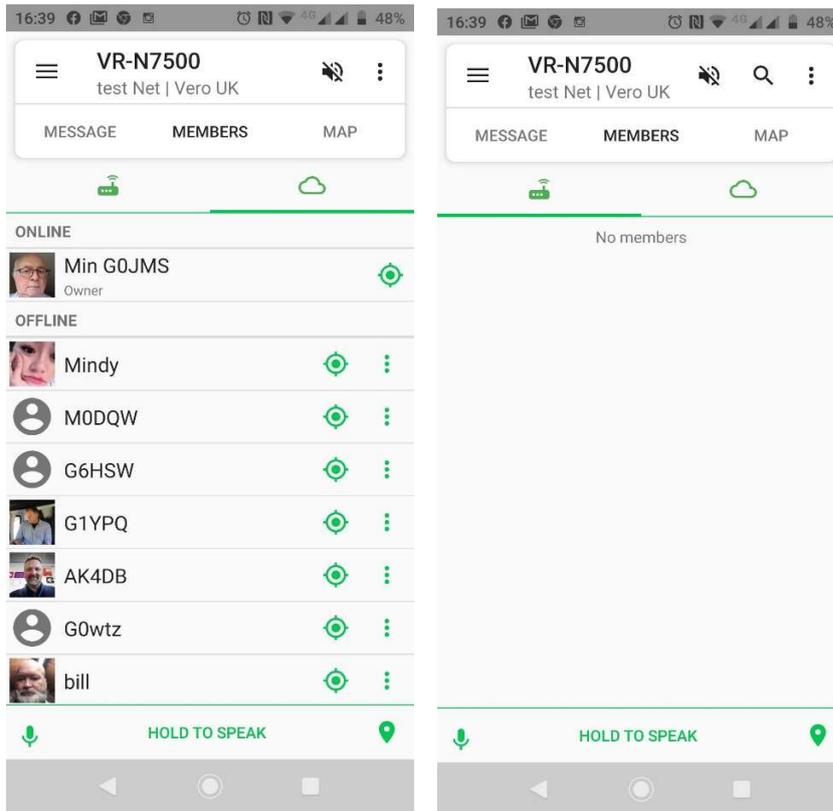
Operation – Caution and you will only have a 1 minute network period per over.

Network Manager linking ownership is held by the person who setup the Network Channel and they can allow other to use the Relay Mode.

To remove is the same as changing the memories by deletion or turning them off

Pressing the cloud turns on/off that channel from the internet.

Audio that channels audio is on/off.
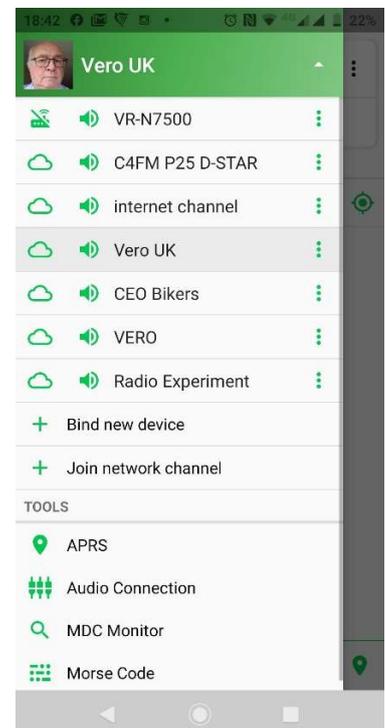
Features – Teams

You can have a group and network them via RF, send, slow scan TV, Morse, data or voice plus others with the features which you can find below.
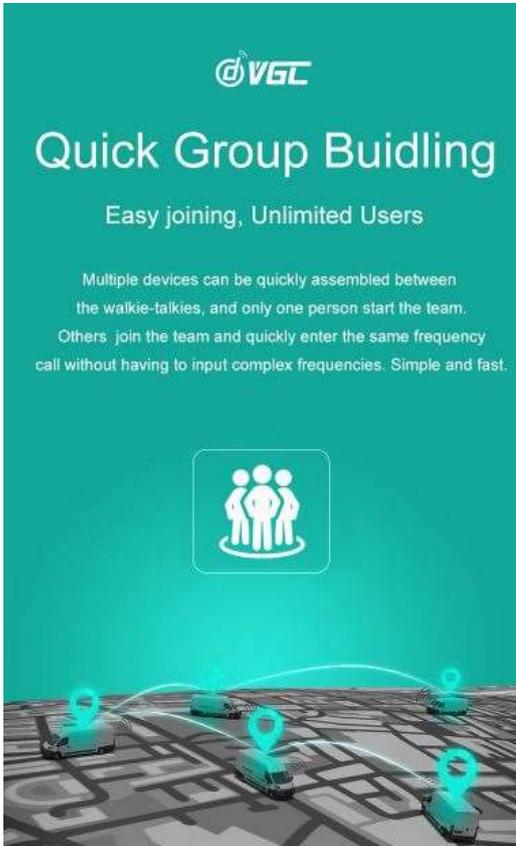
Groups will use the Identification information setting sending tones at the end of TX. (Yet to be tested)

Within the software you can ask a member their location with data going between each other… (Not tested yet)

You can tie a group to a frequency for the data plus sending it in different formats.

These groups don't have to be mobile but you do need an incoming contact to do some of the next steps of sending Morse, SSTV or Text.

This is how I found out what it the other features are.
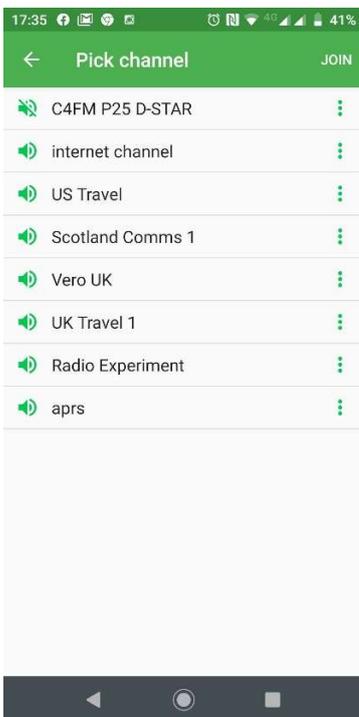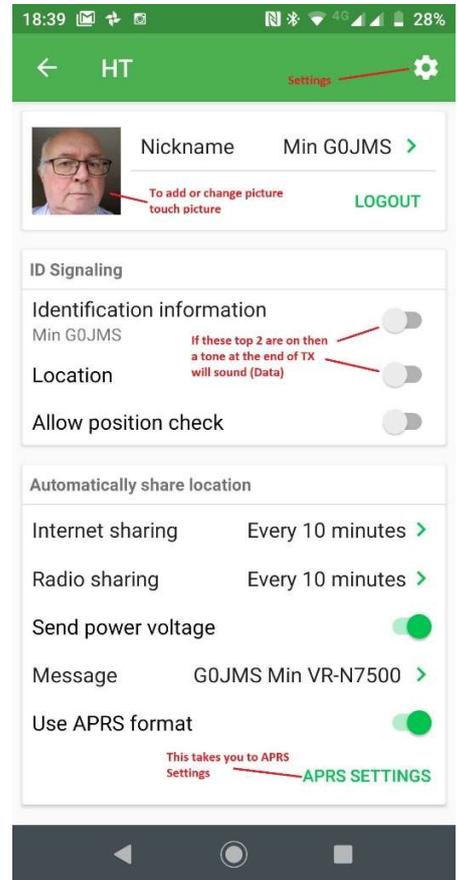
Selecting a channel for testing (APRS) and had my APRS showing on the message page

This will give a page showing the number of messages you have selected, message, copy text delete selected item or select all.
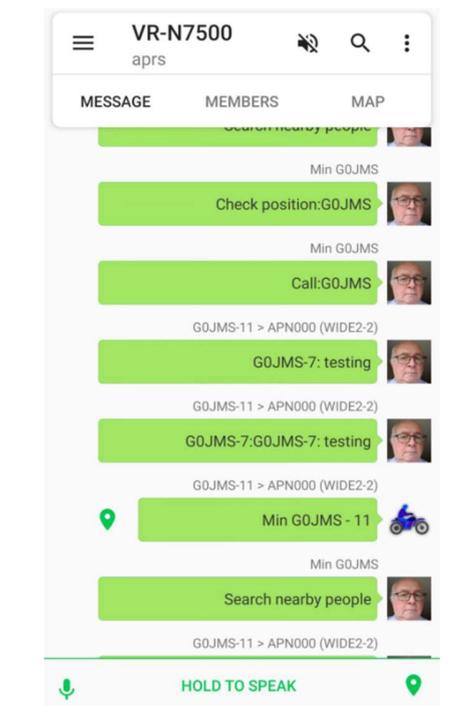
Group Networking
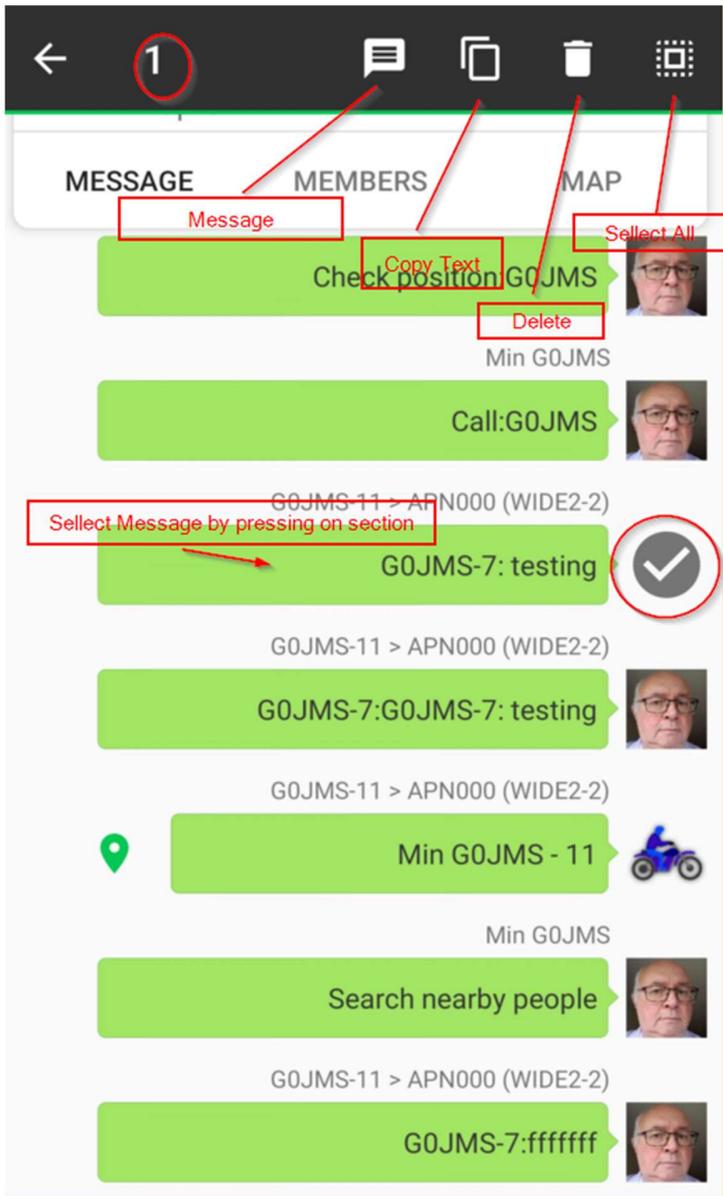
This shows that 1 has been selected and the Message, copy text, delete selected item or select all buttons in the top of the screen.

Touching Message gives this screen with the keyboard.

Press Keyboard icon and a menu with options for several different modes: Voice, Text, Morse, SSTV,
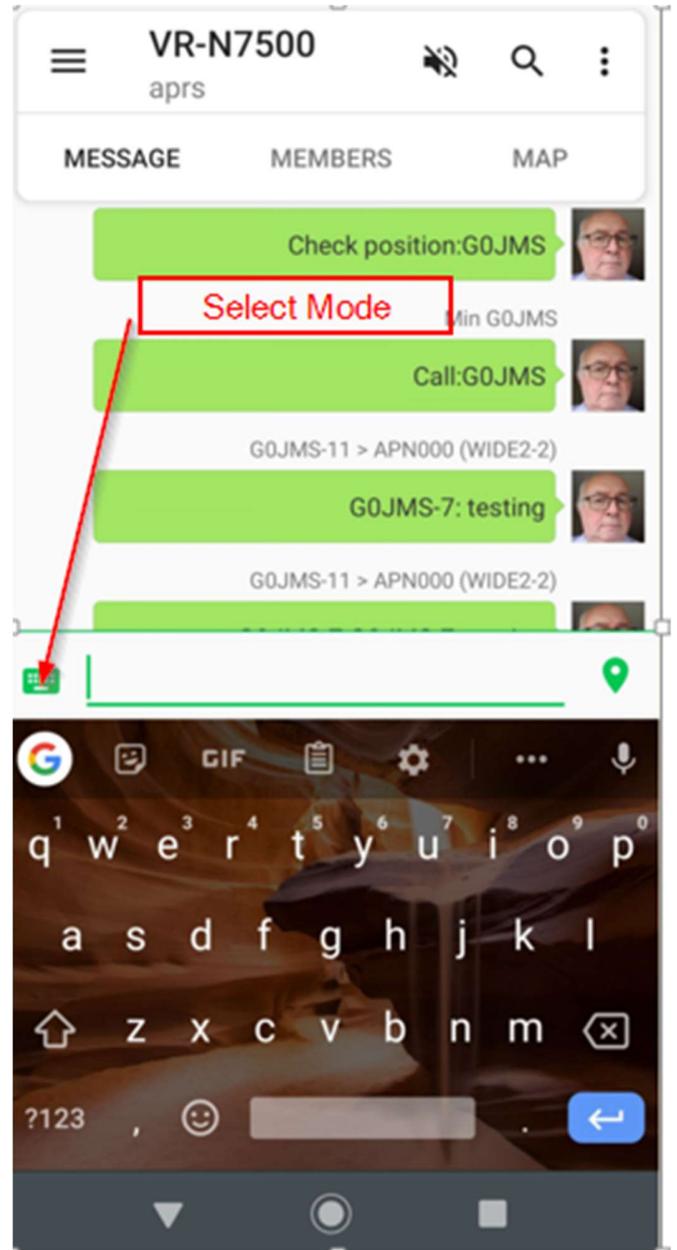
Group Mode Selection and available Modes

By pressing the keyboard the number of modes can be seen.

- Voice
- Morse Code
- Text
- DTMF
- Picture (SSTV)

These modes work via RF

- To be tested –If these modes TX over the data channel. Early indications show that it does send the file over the network.
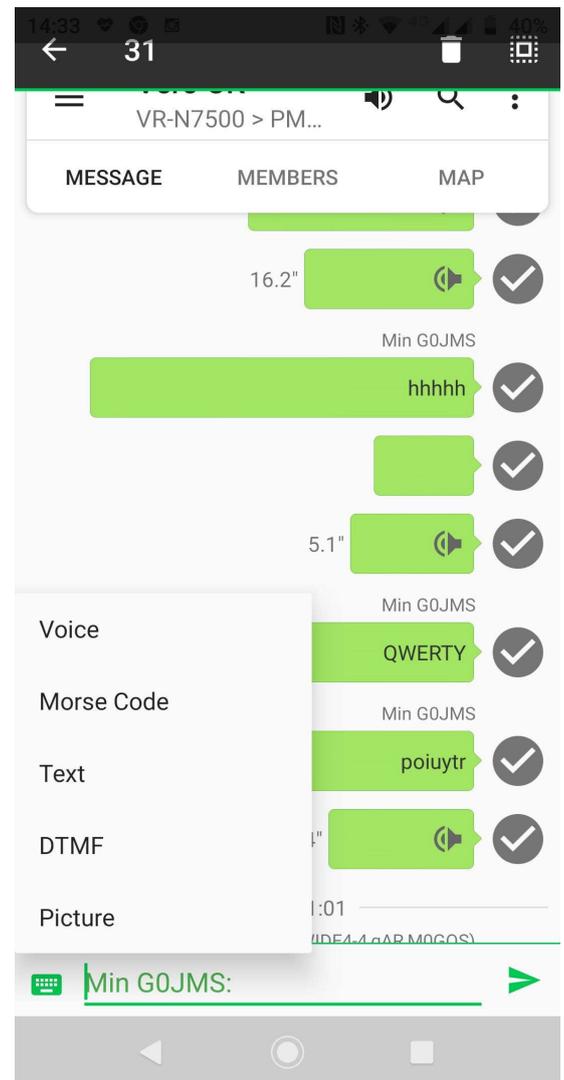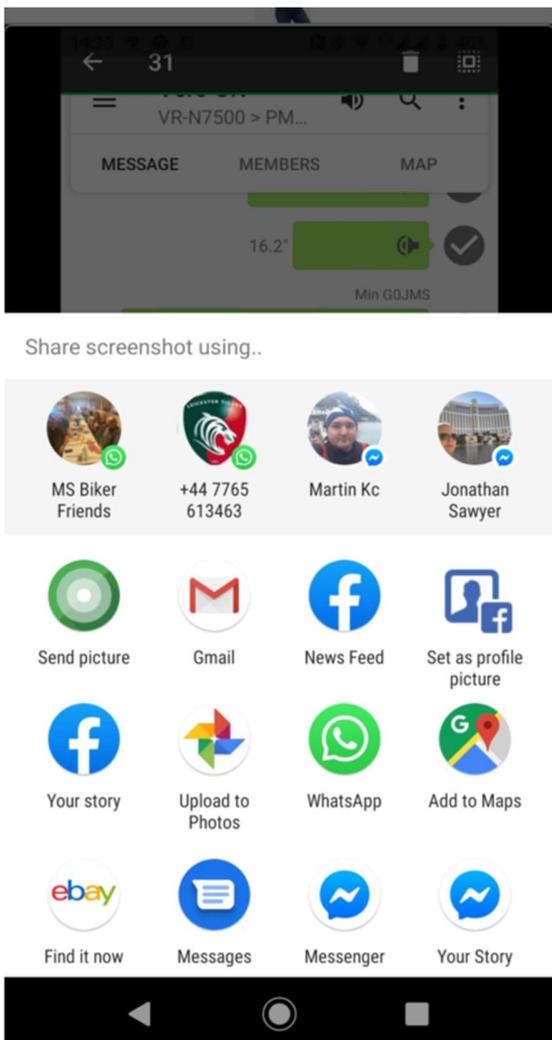
Your offer a screen like this if you take a picture

SSTV Operating

Present Mode   Select New Image   TX Image   Mode
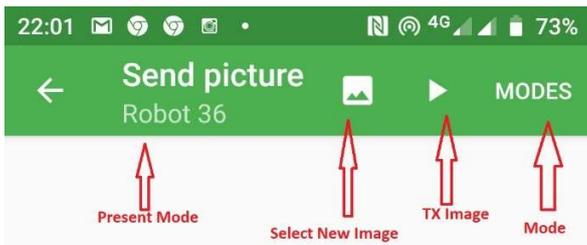
To send SSTV select and chose image, from phone memory, uses agreed mode (not sure if it's automatic change on receive).

Press play button and it will TX.

The back button will stop TX.

Martin 1
PD 50
PD 90
PD 120
PD 160
PD 180
PD 240
PD 290
Scottie 1
Scottie 2
Scottie DX
Robot 36
Robot 72
Wraase SC2 180
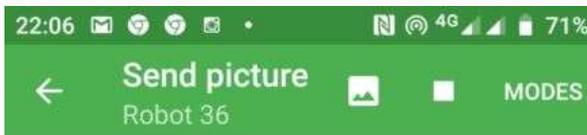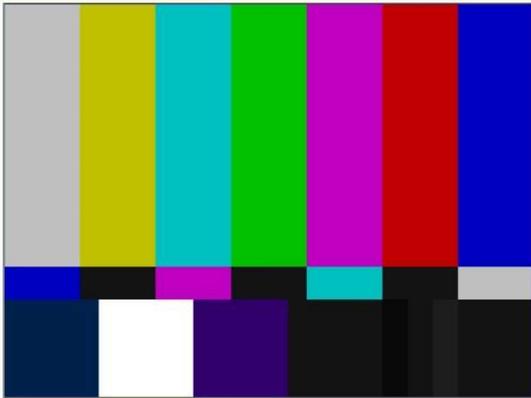
Picture Sending

Sending...

Picture being sent and showing the amount sent
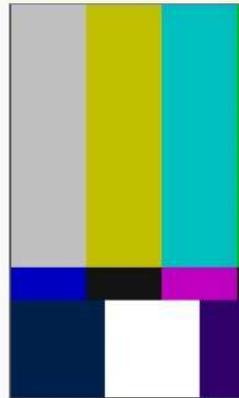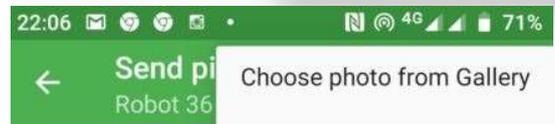
Choose photo from Gallery

Take photo

Selected a Top Band Direction Finding picture from 2019 hiding in the woods.

TEXT Operating

Morse Operation

Radio Configurations – Odds and Ends

1. RF to RF
2. RF and Network channel
3. Phone into Network in all modes
4. Network to Network Channel
5. Network to Network Channel plus RF output and reverse (with permission for that frequency)
6. RF into Network through Network out to RF with channel owner's permission.

APRS – Phone into Web network.

      Phone and Radio Web Network and RF from Radio

(Note APRS is taken from the phone GPS)

Info

The radio will BT from phone to radio without any microphone connected and Button PTT BT to radio.

The radio will work without the phone being connect but only channel changing would be via microphone buttons when connected. Plus BT Operation.

If corded microphone is connected and BT Headset or phone used via a PTT the audio could be picked up by that microphone unless the controls are set correctly set on the radio.

Suggest using any second radio to test the output and audio when not using the phone or microphone connected.

Operation with Garmin GPS via BT to Crash Helmet BT works if setup correctly. Audio reports have been good.

Use of the BT Button PTT is restricted to distance in my findings to 2m or 6ft so a wired PTT has resolved the issue.

The BT Button PTT has a black Velcro strap, so changed the strap to a coloured one due to losing it too many time in top box on bike.(Not a radio issue).

NOTE:- Caution when using the radio to TX on any frequency only use it on the bands that you have permission to use it on as the consequences could be expensive.

Reminder this manual is not from the manufacturers but from my findings and others, so if I have missed or incorrectly documented details, please let me know.

I will add anything that is positive and constructive and if it's not don't say anything please.

Suggest you join the Facebook Group and Google Groups Forum where you can get help from others and put any testing with your findings into the pool of information.

Versions of Android OK… &, 8 and 9

I have no experience with the Remote BT Microphone and any feedback could be interesting.

Auxiliary Items Page 1

Setup details from WWW. I have no ownership to this and used as a simple guide written by others.

VR-N7500 Fast Operate Manual

How To Connect VR-N7500 – RT99 With Cell-phone

1. **For Android user**

Download the HT APP or visit the website:

http://www.vgc.net.cn/download/22-en.html

For IOS user

Search 'BS HT' in APPLE store to download

2. Open the app, select-[BIND NEW DEVICE]. Turn-on the mobile radio, then press POWER key twice, a 'BEEP' will be heard and red-green light flashing means the radio is now in pairing status
3. Select the scanned device then bind it
4. Some mobile phone Bluetooth pairing requires authorization, so **MUST** check the phone menu, select to confirm Bluetooth pairing can be paired successfully.

Hand microphone status description:

[M buttons] [OK button]

- Short press : Channel/Volume switch

[OK button]

- Short press : Current channel prompts
- Long press: Talk around function
- Double press: Mute

[PTT button] Push to talk

[Up/Down button]

Short press :

- Channel mode :   Channel adjust
- Volume mode: Volume adjust

How To Connect to Bluetooth Accessories?

1. **Connect to Bluetooth PTT**

Turn-on the mobile radio, then press [POWER] key twice, a 'BEEP' will be heard. Long press the bluetooth PTT, red-green light flashing means the bluetooth PTT is now in pairing status

2. **Connect to Bluetooth speaker mic**

Turn-on the mobile radio, then press [POWER] key twice, a 'BEEP' will be heard. Turn on the bluetooth speaker mic, double press to enter pairing status.

How To Edit the frequency?

Turn on the APP, Long press the channel square, then seclect [Edit Channel] , When you edit the completion channel parameters ,click [save] to save the Channel Parameters.

Frequency display

When the frequency setting is completed, make the phone horizontally display, and the frequency will be displayed on the map interface (the arrow up means TX and the arrow down means RX)

Create internet channel (For Android only)

1. Turn on APP , select [join network channel]/[create a new chann el]
2. Create channel name and password. Free to join if no password
3. Click [SAVE]

Bind network channel (For Android only)

1. Long press ID image, select [Login] , select [Register] to Register the account.
2. Select [join network channel] /[join existing channel] , click [magnifier] icon , type the channel name to join in. Enter the password if need.
3. Long press on a channel square that you needed, select [Bind network channel] , then select the network channel you joined to bind

Turn on Network repeater function (For Android only)

1. Under the network channel you are bound to, press and hold [Relay Mode] to realize network and analog communucation. (Note: To achieve network-analog communication, you must have the administrator qualification of the network group. If not, then no allow to operate)
2. [Sync radio config] means 'synchronous radio configuration', this function can synchronize the analog frequency of the network channel bound to the network channel into the same parameters (with the consent of the members, please be cautious)

Turn off radio after pairing

Open the app, click on the [POWER] button and turn it to gray to turn off the radio. The next time you need to turn it on, open the app and click on [POWER] button again.

Low Power		High Power	
Single CH	Dual CH	Scan	Canal
Radio ⬤	Offline ⬤	Power ⬤	+
CH10:430.075			−
▶ CH09:430.075			

Turn on/off signal TONE

Long press the ID photo to enter the following interface: Click [Identification Information] to enable/disable signaling, if [Location] On, Signaling tone is coming with position Signal

← HT	⚙
👤 Nickname	>
	LOGIN
ID Signaling	
Identification information	⬤
Location	⬤
Allow position check	⬤
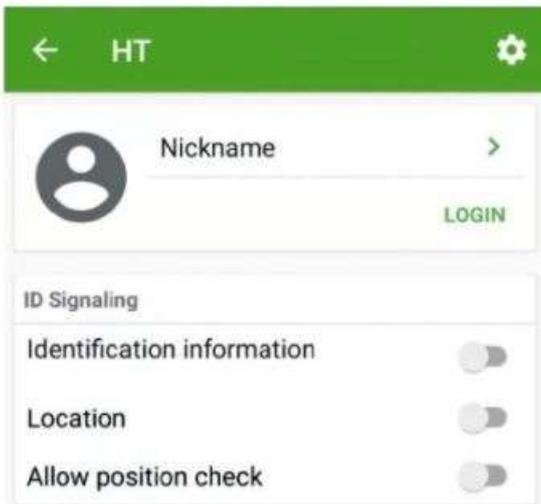
Turn on audio relay

Open theAPP, enter the frequency page, clicksetting icon .select [General Settings] , turn on [Audio relay] to implement the audio relay function (this function does not depend on the network)

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

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

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.

End of Document. V3

Remote PTT

I wanted to connect up the radio for motor cycling and have the Bluetooth setup without loads of wires, so I purchased the button BT unit.

This functioned very well before I fitted it to the bike and it slipped to the opposite side of the radio on the handle bars.

It lost connection to the radio and was intermittent by the way I had connected via BT. I tried several options with the microphone connected and without, on the test bench.

Finding that the button BT PTT has only about 2 m distance and permanent solution of a wired system has been tested.

By connecting terminals 3 & 5 to a PTT the system works well and the BT headset and GPS operate on the bench so far as designed.

```
8  7      6  5  4  3  2  1
MIC AFOUT SQL PTT +8V GND RXD TXD
```
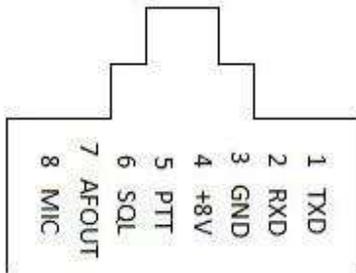
Plug 8 way towards the radio.

Connecting 3 & 5 put the radio into TX and the audio is via the BT headset, removing the risk of accidental turning on the cable microphone and also not picking up audio as it's disconnected.

Will complete report when fitted to bike and test is completed.

G0JMS Min

27th Jan 2020