

APRS FORUM NOTES

At the Masterton NZART conference, on 1st June, an APRS forum was held, facilitated by Alan Wallace, ZL1AMW. There were around 40 people attending, mostly experienced APRS operators. These notes are based on the flip-charts from that meeting.

One week later the Waikato VHF Group hosted a repeat of the APRS forum, in Hamilton on 8th June, also facilitated by ZL1AMW. This meeting was attended by around 35 APRS operators. The same flip charts were worked though, with a small number of additional items included.

Operating Frequencies

It was agreed the principal operating frequency for APRS in New Zealand is 144.575MHz. Any new development shall be on that frequency, with the objective of allowing nation-wide roaming without having to change frequency. See an additional item below on linking)

Recommended Settings

There was some discussion on recommended settings for the New Zealand scene. The following aspects were established after discussion:

Beacons interval settings:

Home stations (where information is not changing) - 30 minutes

Weather Stations – 5 mins

It is a good idea to set your station plus/minus a few mins on this, to reduce the possibility of being “exactly in step” with another station, and colliding beacons every time.

Mobile - 1-2 minutes

- 30 secs on special events, especially when operating on independent network.

When operating smart trackers, or mobile APRS computers, adapt the distance and other related settings to give an on-air beacon rate of 1 -2 mins.

RELAY

The following was agreed:

1. Home stations should enable RELAY as an alias in their digipeater settings. This will then allow mobile stations to bounce their signals through the home station.

The exception to this is where two home stations are very close together, one may decide to not enable their digipeater.

Should traffic increase to a point where congestion is a problem, then consideration of reducing then number of RELAY enabled home stations should

be given, however this is unlikely to be a problem anywhere in New Zealand at present.

2. Home stations with RELAY enabled should always enable *alias substitution*, which will identify signals they have passed on, so network performance can be analysed
3. Mobile stations can set RELAY (once only) as the first digipeater in their unproto beacon path, eg:
APRS via RELAY,WIDE6-6
4. Home stations should not use RELAY in their outgoing beacons. If they need to digipeat through another home station, use that station's callsign, not RELAY.

WIDE

1. One home station in each area, with excellent coverage (or connection to a separate frequency link) should enable WIDE and WIDEn-n Digipeating.
2. Stations enabling WIDE should enable *alias substitution* to identify their station in signals they have passed on.
3. Home stations and mobiles should include a WIDE in front of the WIDEn-n in their beacons. This will, through alias substitution, mean their beacons when passed on, will have the callsign of the first WIDE station included in their signals. eg:
APRS via WIDE,WIDE6-6
Will be passed on as:
APRS via ZL1ABC,WIDE6-6
This will allow confirming of the first point a beacon entered the network.
4. The use of high numbers in the WIDEn-n is encouraged, to ensure the beacon is passed as far as possible in the New Zealand network. This may need to be re-visited if there is a significant increase in APRS activity, however at present there is no reason to limit the range of beacons with a low WIDEn-n number. It is desirable to spread traffic as widely as possible, to increase the interest in APRS operation.

Note that packet radio beacons will only be digipeated 7 times under the AX25 protocol, so numbers larger than 7 are of no use, and when a RELAY or WIDE is inserted, the maximum WIDEn-n will be 6

TRACEn-n

This is a similar function to WIDEn-n, that leaves an alias in the header every time it is digipeated. It is uncertain how many digipeaters or APRS software packages will respond to TRACEn-n, so usage is very low.

Satellite Operation

It is noted that PCSAT is currently not operational. Opinions varied on the likelihood of PCSAT recovery in the future.

Should PCSAT become operational, it digipeats on 145.825, use PCSAT,SGATE as digipeater settings in your beacon unproto path.

ISS is not currently operational on packet. When last heard it was on 145.8, with the tnc not set up, so responded to NOCALL,SGATE.

A new APRS satellite, PCSAT2 is being prepared for launch, and this could provide a number of alternatives for APRS operation. Detailed information on this satellite is not yet available.

Web APRS

There was discussion on usage of the internet for APRS operations. The following points were raised:

findu.com

This is very useful to check for your beacons on the web – it confirms your signals are being heard by the network to the nearest IGATE.

To check for your signals, go to www.findu.com and follow the instructions, or to get straight to the result, go to <http://map.findu.com/ZLxxxx> .

You can also view lists of stations with http://map.findu.com/ZL1* etc.

qrz.com

It is also useful to other APRS operators if you update your entry in www.qrz.com . This is a free callsign listing database, and findu.com, plus many APRS programmes, provide easy look-ups to www.qrz.com . Most ZL callsigns are entered now, but the information is several years old. It is helpful to others if your first name , and contact details are entered.

ZL APRS email group

All present were encouraged to join this email group – go to <http://www.nzart.org.nz/nzart/aprs/zlaprs.html>.

HF APRS

There is some activity on HF with 300bd modems. A request was made for any information on 300bd trackers. It was suggested one was published in QST some time back. There were several present interested in experimenting on HF with APRS.

AntiTracker

Darryl, VK2TDS showed a device he has made, called an “antitracker”. This is a receive-only device that listens for APRS beacons, and inserts icons onto the display of a GPS using waypoints. This allows mobile stations involved in an event to be aware where everyone else is.

Mobile APRS without GPS?

There was some discussion on the possible use of multiple APRS home stations to compare signals, and work out the location of a mobile station, that is not sending GPS positions, then send this as an icon for all to display.

Some thought that the original APRSdos had a function similar to this.

Widespread digis on 144.575 – a good idea or not?

In Masterton there was brief discussion on this point, then considerably deeper discussion in Hamilton.

It was pointed out to the meeting that to rush on and install numbers of high-level digipeaters on 144.575 will cause serious problem very soon. Each digipeater will hear a number of local stations, plus other high-level distant digipeaters. Home stations (and mobiles) will not hear the distant home stations, and their beacons will continually collide, so the digipeater will not decode them. After only a small number of high-level stations on the same frequency, the network would become seriously impaired.

It was agreed that it is much smarter to use a different frequency for linking between individual areas of activity. This will allow local traffic to be passed to other local coverage areas, without the colliding of beacons.

The use of existing packet radio digipeaters and duplex repeaters for this inter-area linking is a practical interim solution where available, but new sites will probably need additional linking equipment.

Where new digipeaters are to go in, they should include additional radios on a separate frequency for linking.

Mobile APRS station signals

It was pointed out that signals received from mobile data stations (eg: APRS trackers) are often badly affected by flutter etc. Signals that are usable on voice are often undecodable in data. This is often the cause of disappointment with mobile APRS coverage.

IRLP

It was noted that the latest functions in IRLP include sending the location of IRLP nodes as APRS locators, into the APRS internet server network, so icons will shortly start appearing on APRS maps showing the location of IRLP nodes.

Getting further information

For information on APRS in New Zealand, with specific UI-View flavour look at www.zl1amw.wallace.net.nz

For a large database of maps for APRS both in New Zealand and worldwide: www.zl2umf.wallace.net.nz