
VHF/UHF – An Expanding World

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Weak Signal

David Smith - VK3HZ

The first VK/ZL opening for the season occurred on 24/25 September. Nick ZL1IU on the northern tip of the North Island reports working VK4LC, VK2EI and VK2DVZ on 2m and VK4AFL and VK2DVZ on 70cm. Signals peaked to S7-8 on both bands. Hopefully this is an early sign of another good season.

There has also been some auroral activity, although there are no reports of contacts. Auroral propagation was heard on some aircraft net stations from this QTH on the morning of 19 September. At the time, an auroral alert was current on the IPS Space Weather site (www.ips.gov.au/Main.php?CatID=2).

Wally VK6KZ reports that the Mt Barker beacons are now operational on 3cm and 70cm. Mt Barker [OF85ti] is about 50km north of Albany. The WA VHF Group Inc. commissioned a 200 mW beacon on 10,368.564 MHz on 5 October. An exciter and keyer in the hut feeds an FSK signal at about 518MHz up the coax to a multiplier chain and PA mounted at the back of a 380mm dish. The dish has a bearing of 106 degrees (i.e. towards Melbourne - well we can dream, can't we?). The beacon has been heard at Albany by VK6KZ/p and VK6WG. It has also been heard in the Stirling Range (north east of Mt Barker) by VK6ZWZ. Additionally a beacon on 432.564MHz was commissioned on the same site and this has close to 50 Watts split into two 10 element yagis - one towards Melbourne and the other towards Perth. It is being heard quite consistently in Perth under present conditions (about 340km). The WA VHF Group hopes to replace the Southern Electronics Group 2 metre beacon at Albany - now withdrawn from service - with one at Mt Barker. Also, don't forget to look for VHF Group beacons on 144, 432 and 1296 (all nnn.562 MHz) at Augusta (Cape Leeuwin). Full details of WA VHF Group beacons may be found at vhf.worldsbest.com.au/beacons.htm.

Adam VK4CP has been adding some features to the VK/ZL VHF-UHF propagation logger (www.vk4cp.com/vklogger.php). There is now an operator information page on which amateurs can add details of their station, including grid locator, which can be quite handy. There is also a page for people to add their current gridsquare standings. This is not intended to replace Guy VK2KU's official tally on the NSW VHF DX Group site (<http://www.vhfdx.oz-hams.org>), but simply a means to keep track of gridsquare standings in the busy months between official updates.

And while satellites are not strictly within the scope of this column, this might be of interest. Those of you following the satellite scene will know that AO-7 recently burst back into life after 21 years of silence. The theory is that the batteries, which shorted from old age ending AO-7's earlier life, have now gone open circuit, allowing the satellite to run on solar power only. Now AO-7 was built in the days before the current band plans and has an uplink in the band 432.125 to 432.175, right in the middle of our 70cm weak signal segment. Phil VK4BVM reports that he has been listening to a regular morning contact between a VK1 and a VK2 on 432.15 MHz. The two stations are easily copied and are probably unaware that their transmissions are being relayed far and wide, at least as far as Queensland via AO-7.

Digital Modes

Rex Moncur – VK7MO

It's good to hear of some digital activity over in the west. Craig VK6JJJ in Karratha in the north west of Western Australia reports that for quite some time, he has been trying to raise some interest in Perth in activity on FSK441, to no avail. The path is about 1200km, which makes it about optimum for FSK441. Recently he set up a sked with Nigel VK6KHD and out of about six attempts, they have only managed to get one ping through (Karratha to Perth). They are now making some changes in the hope of establishing a regular contact. Anyone interested in joining them should listen at 7am local time on 144.230.

Recently, I undertook a 432/1296 MHz Digital DXpedition through southern central NSW. Commencing at Mildura, I travelled up through Broken Hill then across to Ivanhoe, West Wyalong, Grenfell and Young, finishing at Bathurst. 36 contacts were made with stations worked including VK3AXH, VK3CY, VK3KQB, VK3HZ, VK3BRZ, VK3FMD, VK3AFW, VK3XLD and VK3KAI.

One of the most interesting things to me was that the increased sensitivity of JT44 allows one to see aircraft reflection (equivalent to normal radar back or side scatter), which is typically around -15 to -25 dB compared to aircraft diffraction which is typically much stronger and allows SSB contacts. Diffraction is characterised by strong signals and durations of just a minute or so as the aircraft crosses the path where-as reflection is weaker but can run on for 10 or 20 minutes and has significant QSB. Reflection occurs much more frequently than diffraction and while aircraft reflection was apparent around 50% of the time diffraction was present for just a few percent.

The differences between the various types of propagation show up more clearly on 432 than 144 and this is to me expected as in relative terms tropo scatter losses increase with frequency, aircraft reflection is roughly constant and aircraft diffraction losses reduce with frequency (providing you are in close alignment in both the vertical and horizontal planes). Further tests on 1296 will be useful in differentiating the three modes.

Aside from the three types of propagation listed I did hear three meteor pings over the many hours of listening the best one being a 2.8 second burn.

I found that it is impossible to receive a JT44 signal if more than one station is TXing even if one is 10 dB stronger than the other. This means that successful JT44 Expeditions do require a lot of consideration by operators for others and I was pleased that people tried very hard to be fair - we will need to think a bit more about the best procedure but clearly if you see the DX station has started to work another station you should cease Txing until the DX station calls CQ. How to resolve the issue of two stations responding to a CQ call is more complex but my inclination is that stations who are getting good copy (better than -15 dB) should be prepared to respond on say only every second or third period to give a weaker station a chance of being identified. Note that once one sends a signal report one keeps to this even if a stronger signal is received later.

2 m & 70 cm FM DX

Leigh Rainbird - VK2KRR

Now approaching the warmer months, we should see much better Tropospheric DX conditions on 2 m and 70 cm. For those of you who have been waiting all winter to get your ducting fix, it's now time to dust off the microphone, plug in the antenna....

and wait. Yes, DX on 2 & 70 can be a bit of a waiting game, often many weeks are spent, just waiting and listening for any possible openings without any luck at all. But this is what makes the higher bands all the more interesting and exciting, you might have coverage of 100 Km for weeks, then all of a sudden something comes floating through from 400 Km then 600 Km, who knows where it might end up! You will find optimum times to catch summer DX activity are from around 5.30 am to 8.30 am local time. If you're keen, I have noted a good percentage of activity beginning around 2 am local time. This research is taken from inland N.S.W and may vary with location, especially coastal areas.

A mixed bag of DX to report on for the month of September. Big news of the month was an international duct opening reported from north VK4, and one major opening in the south eastern states, along with a number of smaller openings.

To start the month off, a major opening began in the evening of the 2nd, with east west ducting noted from here to the Adelaide area. This was rather weak and disappeared later in the evening, but re-appeared around 4 am the next morning (3rd) still weak and covering more northern areas of Adelaide such as Port Pirie, Port Augusta and Cowell (961 Km), also further north again to Broken Hill. That evening it was wide spread and much better signals were to be had, even on 70 cm.

VK3FIQ Geoff in Stawell was making it to Lobethal VK5RAH very well. Brian VK5ZMB in Gawler was reaching across to Ararat and Shepparton. Conditions were that good I was able to access the Port Lincoln repeater VK5RAC (1019 Km) where I spoke to VK5KFB Rod, located near Summertown. Rod was a decent distance from the repeater himself. A number of VK5 70 cm devices were also worked from here, Crafrers, Barossa Valley, Mt Terrible and Summertown (779 Km).

The following morning, the 4th, stations in the western areas were having more luck working across to the east. Again, Brian VK5ZMB was working well into Shepparton VK3RGV 146.650 and Yarrowonga VK2RWB 147.200. Shane VK5NRV at Woodside was making it quite easily into VK2RWG the Wagga repeater, a good 750 Km. I think Shane was also able to work a number of other repeaters in the eastern areas. Garry VK3KYF in Mildura was also working into Wagga.

On the 7th and 8th of September, I noted some good conditions with the furthest distance being to Mt Gambier VK5RMG on 146.900. Signal was up to S9+20 dB. Its always good to make it in to Mt Gambier because the operators there are always interested to hear from you as they are all very interested in VHF and UHF DX themselves. And living in probably one of the best locations to work across to VK6, it's no wonder they are keen.

On the 9th Mike VK4JOO in Gladstone reports, Wayne VK4ZRT was the first to notice the abnormal conditions on 2 meters and managed to talk through the Hervey Bay repeater around 9am on the 9th. He also noticed that the Blackdown tableland repeater was accessible. Soon after this Wayne was able to work into the Mackay repeater on 147.00. I was able to trigger the Mackay repeater at this stage but when I tried to make contact with VK4JWG, I was dropping in and out of the repeater.

On the morning of the 10th, Felix VK4FUQ in Ingham, Nth QLD, was able to work to VK4RHR, 146.925 Hodgson Range (491 Km), Felix spoke with Mark VK4KMR in Dysart and Harry VK3LE. Later, John VK4JKL in Cairns also called in on the same repeater (686 Km).

Mike VK4JOO reports, in the evening of the 11th about 8.30 pm, Wayne VK4ZRT in Gladstone was able to hear the Gympie repeater on 146.625. No sign at my QTH but I was keen to keep trying. About 9.00 pm I worked VK4HNL (Nev) in Hervey Bay via

the Gladstone Repeater. He thought initially that he was getting into Gympie, which is on the same frequency, and was quite surprised when I told him he had the local Gladstone repeater. Later Wayne managed to trigger the Hervey Bay repeater to complete the loop.

On the evening of the 13th and the following morning, Mike VK4MIK at Malanda, south of Cairns had conditions to the south as far as the Mackay repeater (550 Km) VK4RMK.

Some interesting conditions were noted on the 17th around the north Queensland coastal areas. Felix VK4FUQ reports, from about 1930 local, there was good access into the Mackay repeater on 147 MHz from here in Ingham. Mike VK4MIK on the tablelands also accessed this repeater with a collinear vertical. Interestingly enough, he was not able to access Townsville, which is closer. In fact, later in the evening, something rather strange was observed. When Townsville area stations tried to access the Mackay repeater on 147.000 they could not, but they found they could access one of the P29 (New Guinea) repeaters on the same frequency! My beam was looking south, but I could just hear "something in the noise", off the back of the beam. My rotator is of the "Armstrong variety", and too difficult to reposition at night. What a shame.

Again on the 18th Felix VK4FUQ gave another interesting report. Things got underway a little later last night, with some international DX, when at around 1200 hours (10 pm local), Jim P29JB in New Guinea worked into the Townsville 2 m repeater with good signals. He was using around 35 watts and a 4 element Quad. Jim advised that Australian FM broadcasters were very strong into his location last night, which was an excellent indicator of good VHF propagation. The estimated distance was around 1200 Km. No simplex contact was attempted. Stations who worked Jim P29JB were myself, VK4FUQ, John VK4JKL in Cairns, Tony VK4TJS in Townsville. Around the same time, there was once again some weak coastal dusting down to Mackay, but the best propagation was into P29.

Thanks to VK4MIK Mike, VK4JOO Mike and VK4FUQ Felix for the great reports.

If you happen to copy some good 2 & 70 FM DX over the coming months why not drop me a note at -----@bigpond.com be interesting to hear from you. Cheers for now and good luck with the DX.