
VHF/UHF – An Expanding World

David Smith VK3HZ

Weak Signal

David Smith - VK3HZ

The middle of October produced some good conditions between many parts of VK and ZL, hosting several record-setting contacts in the process.

On the morning of October 12, conditions were good between Tasmania and central NZ. Rex VK7MO worked Nick ZL1IU on 2m (5/2). They also set two new digital-mode records on 2 m and 70 cm (see the Digital DX Modes report below).

That evening, Steve VK2ZT worked Nick ZL1IU (5/1) and Bob ZL3TY (5/1). John VK2TK also worked ZL3TY (5/3).

The following morning (October 13), the opening had moved up the coast. Ross VK2DVZ and VK2ZT reported hearing several ZL1 2 m beacons. ZL1IU worked VK2ZT (5/9+20), VK2DVZ (2m – 5/9, 70 cm – 5/3) and VK4JMC (5/3). ZL3TY worked VK2FZ (5/2). ZL1IU worked VK4JMC, VK4WS, VK4ZQ and VK4AFL in Brisbane, VK2AWD, VK2FZ (5/2), VK4LC, VK2DVZ (5/7), VK2TS (5/9) and VK2GKA (5/5). VK2DVZ worked ZL2TAL (5/1). ZL1BT worked VK2ZT (5/2), VK2DVZ, VK2IF (5/1), VK4LC (5/5), VK2FZ, VK4WS, VK2EI/p, VK4JMC, VK2APG, VK2BZE, VK2MAX, VK2MJS and VK4AFL.

On October 14, Ross VK2DVZ reports working Steve ZL1TPH/P on 2 m (5/8) and 23 cm (5/3). He also worked ZL1SWW (5/7) and ZL1BT (5/7). Steve ZL1TPH also reports working VK2ZT, VK2IF, VK2ARA, VK2EI, VK2MAX, VK2BA, VK2APG, VK2BZE, VK2FHN, VK2BHO, VK4JMC, VK4LC, VK4APG, VK4WSH and VK4TZL, all on 2 m.

Steve ZL1TPH makes the following interesting observations about the VK/ZL path:

Consistently in mid-October every year are the high shearing winds from VK to ZL supporting good 2 m conditions. The Hepburn Predictions seem to accurately show this. Unfortunately, these good conditions don't reach to the higher bands,

From the New Year, stable weather leads to steady openings and 2 m, 70 cm and 23 cm contacts will result. Hepburn once again is normally correct. Thereafter, bits and pieces through to March April are to be expected.

This runs in cycles every season. What I have noticed is that the Hepburn predictions at the early stages of the season are not accurate.

On the other side of the continent, Tony Mann in Perth reports the first Spring tropo opening to Indonesia. Between 0020-0050Z and 1100-1800Z on 10 October, some 18 UHF TV carriers on 12 channels were detectable, originating from central Java.

Peter VK5ZPG at Quorn in central SA reports that on October 15, he had some relatively good conditions. Quorn is well away from the coast, so most contacts are over purely land paths with no coastal tropo assistance. He worked Leigh VK2KRR at The Rock (893 km) on JT65B (has several times previously) - but also worked him on SSB (5/5). He also worked Brian VK5BC (5/8) and Peter VK5ZLX (5/4), both near Gawler - around 265km.

Beacons

The Albany (Mt Barker) 144.564 MHz beacon is back on air in time for the summer DX season, thanks to the hard work of Don VK6HK. Don has to make the 820 km round trip from Perth to Albany to effect any repairs.

Rod VK2SMC reports that there is a new beacon running from his QTH at Nimmitabel on 432.414 MHz, with callsign VK2TWR. The beacon is currently using 2 x 28 el yagis, but there are two Big Wheels from WIMO Germany ready to go up when the weather improves. Thanks to Joe VK7JG Joe for supplying the beacon, and Rex VK7MO for the crystal heater oven. Reports are requested to Rod at rcollman@bigpond.net.au

Please send any Weak Signal reports to David VK3HZ

Digital DX Modes

Rex Moncur – VK7MO

The high in the Tasman on 10/11/12 October produced excellent propagation to ZL with some operators taking advantage of the extra sensitivity of JT65 when conditions were not quite up to SSB. From Hobart, Rex VK7MO worked Nick ZL1IU for new VK digital records on 144 MHz and 432 MHz over a distance of 2431 km. Wayne VK4WS worked Dave ZL1BT on 144 MHz using JT65.

Welcome to Wayne VK5APN and John VK2GCN who have joined the meteor scatter group. The group operates, each weekend from around 0600 to 0800 NSW local time on 144.230 MHz using FSK441. VK3/5/7 TX first period to VK1/2/4, second period, on Saturdays and on Sundays VK1/2/3/5/7 TX first period to VK4, second period.

With the summer tropo-ducting season upon us it is worth looking for ducting extensions of meteor scatter using FSK441 on paths such as VK5 to ZL whenever there is a high on the eastern side of the Tasman.

Justin VK7TW and Rex VK7MO have been experimenting with JT65a for non-line-of-sight optical communication at 475 Tera Hz (red light). They are using equipment designed and constructed by Mike VK7MJ, interfaced to computers running WSJT. Modulation is direct Amplitude Modulation of Light Emitting Diodes (LEDs) which has the advantage of not only simplicity, but the Difference Frequency (DF) is always zero and you can more readily find a signal in the noise and birdies. The LEDs run at 300 milliwatts output to 20 x 18 cm Fresnel lenses. Justin is located in a valley and shielded by hills from Rex. The solution was for Justin to beam down the valley so his signal could be weakly scattered from a white-painted multi-storey building, which was in line-of-sight to Rex. While the direct distance between the stations was only 1.2 km, the light had to travel 8 km. Signal reports were exchanged at -25 and -28 dB, on the WSJT scale, with 90% decodes at one end and around 50% decodes at the other. One problem is that normal city lights (particularly Sodium Vapour lights) produce birdies at odd harmonics of 50 Hz across the frequency range used by JT65a (1270 to 1446 Hz). However, by using the Freeze and Tolerance facility of WSJT, it is possible to lock on to the JT65 reference tone on 1270 Hz even with a strong birdie on 1250 Hz. While the next odd harmonic at 1350 Hz is within the JT65a band the strong Forward Error Correcting coding, built into WSJT, is able to give perfect decodes despite such interference.

A repeat attempt a few days later failed, resulting in only 30% decodes one way and nil the other, so there are still some things to learn about this type of propagation. A possible explanation is that, as it rained shortly before the repeat attempt, perhaps a

wet building does not reflect as well. Another possibility is the difficulty of aiming with beamwidths of less than a degree.

These experiments open up the possibility of non-line-of-sight optical communications and have the advantage that one can experiment on these frequencies from the comfort of one's home rather than spending freezing nights on hilltops.

Please send any Digital DX Modes reports to Rex VK7MO

The Magic Band – 6 m DX

Brian Cleland – VK5UBC/BC

After a few quiet months on 6 m, the band finally came to life in mid-October with openings occurring on most days since then between VK4, 2 & 3 and VK5, 4 & 2. There have also been openings across the Tasman from VK2 & 3 to ZL, but the big highlight was an opening to Japan from VK2, 3, 4 & 5 on Sunday 22nd October. This was probably the best opening to Japan from the southern states for 2 or 3 years with reports of many contacts over very wide area of the country.

Here is a summary of the reports I received following the JA opening:-

From Leigh VK2KRR at The Rock near Wagga Wagga. Just this afternoon (Sunday) I was lucky enough to work 8 stations on 50 MHz from Japan. I'm only running a 1/2 wave dipole orientated east-west for best signal. Stations worked JA6JNF; JA6RJK; JE1OHL; JA5CMO; JA1RJU; JH4ADV; JR2HCB; JG3GNU. This appeared to be a TEP link into Queensland with a Sporadic E extension to southern states. I was working VK4FNQ right before it opened to JA.

Huge opening to JA this afternoon 22/10 1400 to 1500, worked 23 JA's from Tokyo to Kobe - regards Bruce VK2AYM, Albury.

From Phil VK2ZZY in Sydney. My observations from Sunday 22/10/06. I was in and out of the shack all day. At 0125z worked VK4ABW - 59+20, then at 0247z worked VK4FNQ - 59+15 then at around 0350z I started hearing JA's calling but very weak. At 0406z I had a brief contact with JA5CMO. The contact was long enough to exchange calls and signal reports - 5x7 both ways then nothing! For about the next 30 minutes, I was copying video line buzz at strength 6-7 on 50.110. My location is QF56mb - this might give some idea as to the extent of the opening as I saw on the logger that VK3SIX was also copying JA.

Norm VK3DUT near Bairnsdale SE reported that from 1608 to 1634z I worked JA's 1, 2, 3, 4, 5, 6, 7, 8, 9 & 0 for total of 38 stations, 95% of signals were S9+, not sure what transpired after that as I had to get back to the job! 49.750 was in during the opening as was the VK4RTL/b which may have indicated an E's extension as the JA's were gone when the VK4 beacon disappeared yet the 49 MHz stuff was still there. Anyway its' been a long time between drinks.

Peter VK5ZPG at Quorn PF97aq reported an opening to Quorn around 0330 UTC today Sunday 22/10. I worked Gary VK4ABW 5/8 from near Townsville - great copy. Heard VK4BKP but was unable to claim contact by exchange of signal report. Several other VK4 stations and at least 4 JA's heard but only weakly. Lot of band noise. Good opening considering I've only got a 6M vertical - and then that's cut for 54MHz!

Scott VK4CZ in Brisbane reported that at approx. 03:30z there were weak JA's calling CQ on 50110.0 CW, mainly RST 419. I responded to a JA7 (from memory), but signals quickly improved so the next call on SSB was responded to by JE1CUS

with 59 reports exchanged. A further dozen JA's were worked over a 20 minute period before I returned to the task at hand and continued to prepare for CQWW. I heard no other VK4's from QG62 during the opening. The most interesting aspect of the opening was the impact that an Es extension provided the southern VK stations. I had a direct TEP path, and had no signs of the southern stations, but the northern VK4's were reporting the southern VKs prior too and during the opening allowing many VK2, 3 & 5s the chance to work JA at a time when they typically would not have been provided with propagation. Although I had lost the direct path, the Es link still sustained the opening to the southern stations for a while.

Peter VK5ZLX in the Barossa Valley thought he was back in Alice Springs working 14 JA's with signals over S9. Peter even took time out to check the JA beacons and other indicators from the north and reprogram them into his radio.

Ivan VK5HS from Renmark reported that he and Larry VK5LA (also Riverland area) worked several JA's between 0400z to 0445z. Signals started @ 3/3 & increased up to 5/9. Stations worked included JE1CUS, JK1HCE, JA0JQS, JA1RJU, JH0HZO, JA6RJK, JF1KJC, JA1PVI, JO1ALS, and JH1KYA. Interestingly both Frank VK4FLR & John VK4FNQ were 5/9 at the same time but they could not hear the JA stations. Ivan is running a FT847, 100 watts & 8 element yagi @ 70feet. Larry is using a FT736 & 5 element yagi @ 70 feet.

As can be seen from the above reports the opening was very widespread with good strength signals.

Unfortunately I had another commitment and missed the JA opening but my log indicates several contacts to northern & southern Queensland on the 18th, 19th, 20th, 22nd, 24th, & 25th of October. Also worked Phil VK2ZZY on the 1st November and John VK4FNQ on the 6th November.

Meanwhile good openings on the 22nd October & 3 November were reported by John VK4FNQ in Charters Towers and Gary VK4ABW north of Townsville. John reports working the following:-

22nd October - VK3XQ, VK2BJ, VK3IDL, VK3FI, VK2BHO, VK2ZZY, VK5BC, VK5YX, VK2KRR, VK5HS, VK5LY;

3rd Nov - VK3DUT, VK5AKM, VK2FAD, VK2BZE, VK3JWZ, VK1AI, VK3KAY, VK3WN, VK2ARA, VK2BHO, VK2APG, VK2ZOM &

6th Nov - VK5BC.

There have been several reports of hearing the FK8 & VK8RAS (Alice Springs) beacons in VK2, 3, 4 & 5 during late October/early November but no reports of contacts to these areas.

Only report from the west was from Graham VK6RO reported that the Dampier VK6RSX beacon was S9 into Perth on the 24 October.

From New Zealand Rod ZL3NW and Bob ZL3NE report working into VK2, 3 & 4 on the 25th October.

I received a note from Richard VK4YRP to advise that the Sunshine Coast ARC has relocated its 6m repeater VK4RSN from their clubrooms to Dulong approx 350m above sea level. The repeater output is 53.7 MHz and the input is 52.7 MHz. The club hold a net on the repeater every Friday at 7.30pm AEST.

The summer DX season has got off to a good early start and hopefully this develops into big sporadic E season in December & January.

Please remember to send any 6 m information to Brian VK5UBC/BC