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# VHF/UHF – An Expanding World

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David Smith VK3HZ

## Weak Signal

David Smith - VK3HZ

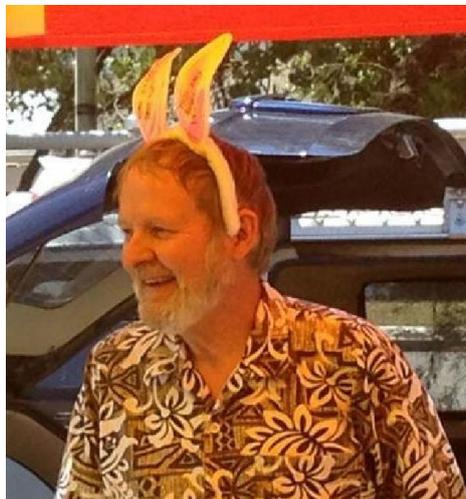
The afternoon of October 23<sup>rd</sup> brought another opening from mid-northern VK across to ZL. At 0410Z, Adrian VK4OX worked Nick ZL1IU on 2 m at 5x1. Signals then dropped away, but at 0645Z, they were able to again work, but on CW with a 519 report. At 0700Z, Ross VK2DVZ worked Nick at 5x6. Adrian again worked Nick, this time with 5x6 reports. They QSY'ed to 70 cm and succeeded with a CW contact with a 519 report. At 0740Z, Ross again worked Nick on 2 m (5x4) and then worked via SSB on 70 cm (4x1). Adrian then worked Harry ZL2ADU exchanging 5x3 and 5x5 reports over a distance of almost 2400 km. Conditions then dropped away and no further contacts were made.

## VK4 5.7 GHz Shootout

The Redcliffe & Districts Radio Club recently held a 5.7 GHz shootout day. The weather gods were shining down upon them on the day, and a number of hopefuls lined up their systems, hoping to receive the weak signal source planted on the other side of the field.



Doug VK4OE was the winner on the day and was spotted later proudly wearing his "Best 5.7 GHz Ears" Award.



## **VK3 144.150 Net**

The weather is warming up, and more people are visiting their shacks of an evening. As a result, the VK3 “150” net (144.150 MHz at 2030 local each Wednesday evening) was well attended recently. Run by Michael VK3KH (to the west) and Rob VK3MQ (east), 12 stations participated including David VK3NDG, Ian VK3AXH, Craig VK3KG, Ian VK3YCQ, John VK3ACA, David VK3HZ, Peter VK3ATC, Frank VK3UBU, Russ VK3ART and Mike VK3XL. Various interesting discussions were had. So, if you want to burn the cobwebs out of the radios prior to the busy season, come up on the “150” Net.

## **Yet Another Source Of Local Interference**

I’ve recently rebuilt my 24 GHz system with a larger dish and more power, and made some minor adjustments to the 10 GHz system. My normal test for receive performance is to set the systems up in the front yard (north) with the Boonton microwatt meter connected to the IF output and measure the level of sun noise received as I swing the dish past the sun. (I also use the opportunity to align the optical sight I use for pointing the dish – carefully).

This time, the 24 GHz system showed a very worthwhile improvement in sun noise – more than the increase in dish size would give - indicating that dish efficiency had also improved with the new feed. However, when I went to measure the 10 GHz system, I couldn’t get a stable noise reading. The background noise level was varying all over the place, by more than 10dB at times. Sun noise measurement was completely out of the question. All sorts of theories went through my mind – something taking off, a loose/bad connector ... Nothing I did seemed to settle it down until I put my hand right over the feed horn whereupon the noise dropped to a low, steady level. So, it seemed like a very unstable signal at 10 GHz was being received. I swung the dish around, and the level peaked in the direction of ... the recently installed “Smart” meter.

Searching on the web, I discovered that the “Smart” meters communicate via a mesh network in the 915 to 928 MHz ISM band, with a proposal to move higher up the 900 MHz spectrum at some stage. The meters not only transmit their own data, but also relay data from other nearby meters. 10368 MHz divided by 11 is 942.5 MHz – relatively close given that my sun noise measurement is fairly broadband.

Next step is to drag the Spectrum Analyser down into the front yard and measure the crud coming from the “Smart” meter. If there’s that much at 10 GHz, I’ll be interested to see what’s coming out at the lower harmonics.

I notice that I now also have a regular “tick” on 2 m – somewhat like the interference from an electric fence. However, there’d be no electric fences anywhere near this inner suburban location. I suspect this is another “benefit” of the “Smart” meter.

Please send any Weak Signal reports to David VK3HZ

## **Digital DX Modes**

Rex Moncur – VK7MO

### **Meteor Scatter by Kevin VK4UH**

I October brought the much anticipated Orionid Meteor Shower. This annual event usually marks the end of the winter doldrums of meteor activity. The Orionid shower,

which often produces some of the best Meteor Scatter propagation opportunities of the year, occurs as the Earth's orbit around the Sun takes it through streams of debris remaining from Halley's Comet.

As has been described before, unlike "random" meteor activity, Meteor Showers occur at exactly the same time each year i.e. at the same points in the Earth's orbit, and are therefore highly predictable. The Orionid shower was expected to peak around October 22nd however this particular shower is recognised as being very broad, reflecting the size of the Halley's debris cloud, typically producing meteors across many days. On 15th October Spaceweather.com reported "Two bright Orionid Fireballs being seen in the sky over the USA" indicating an early start this year.

It is worth remembering that the usual pre-dawn peak expected from "random" meteor activity may not apply for operation during Meteor Showers. The determinant is the presence of the star constellation (the radiant in the sky from where the shower "appears" to be coming from) being above the horizon at both ends of the path. The ideal timing for MS activity during this shower was when Orion was low over the horizon thus providing the best conditions for long paths. A catch for new players is that these ideal conditions will occur at different times from those advertised on the web for MS activity in USA and Northern Hemisphere.

In his posting on the VKLogger, Peter VK5PJ in Adelaide provided a link to the very useful "VIRGO – Meteor Sky View" application for predicting both the position and activity of meteor showers. I have reproduced the link here: <http://www.dl1dbc.net/Meteorscatter/>

The programme is JAVA based and does require a fairly recent version to run properly.

In Peter's words "Virgo shows the position of the shower relative to your location. Do not forget to put your call sign and grid locator into the boxes on the left hand side, and then press the GO button."

In the event unfortunately, from this location in VK4 at least, the results this year were disappointing. Although the number of observed meteor returns was certainly enhanced in both duration and frequency, compared to recent months, expectations were not realised. During the Saturday morning activity session on 18 October I observed several hyper-dense "burns" lasting the entire 30 second receive period from Arie VK3AMZ but nothing from ZL. Several factors may have contributed to the poor results this year. The optimum times for Orionid activity occurred outside of the regular activity sessions with few stations on-air particularly from the Southern states. I suspect that the Ballarat Convention that weekend also stole a few of the usual participants from VK3. The lack of daylight saving in VK4 made the optimum operating times "very early" up here. Better luck next year. The next significant showers expected include the Leonids 17/18 November and the Geminids 13/14 December.

Information has been requested about VK/ZL Meteor Scatter activity on 6m.

There are a number of stations regularly active on this band including Darrell VK2BLS (Wollongong), Wayne VK4WTN (Hervey Bay) and Phil VK4FIL (recently relocated to Adelaide). Activity is on 50.230 MHz FSK441 with 30 second periods and time wise coinciding with the 2m activity periods each weekend from 20:00 UTC. Period selection corresponds to 2m. Darrell operates concurrently on both 2m and 6m which is easy to do since transmit and receive periods coincide of course. In fact MS is much easier on 6m than 2m. Theoretically, since the wavelength on 6m is roughly 3 times that on 2m the duration of returns should be  $3^2$  (3 to power 2) = 9 times longer. The amplitude of the signals should be  $3^3$  (3 to power 3) = 27 times or

approximately 15dB louder. Consequently a meteor producing a good 3 second burn on 2m would last almost 30 seconds on 6m and an un-decodable 100ms ping on 2m would be expected to coincide with an easily decodable 1 second ping on 6m. There is additional information to be found on the VK Logger in the 6m section regarding MS activity on this band. My thanks to Darrel VK2BLS for his advice.

I am always happy to receive reports, questions or enquiries about meteor Scatter in general or the digital modes used.

Please send any Digital DX Modes reports to Rex VK7MO

## The Magic Band – 6 m DX

John McRae - VK5PO

October started out relatively quiet, with the SFI hovering around the 110 mark. On the 25th, several X-class flares were prevalent, being the first X-Class flares for quite some time. There have been three X-Class flares, and as of writing, there is an earth bound CME event, and the SFI has risen to 167. The CME event should add to the SFI in a few days. This hopefully brings with it, some good DX possibilities on the MAGIC band.

The band has been open into JA from mostly the northern tropics region again, but it became obvious that the south west region of WA got some great conditions. Western Australia's long time 6 metre "stalwart" Graham, VK6RO/VK6SIX writes:

*On October 21, We saw the longest and strongest 6 metre opening from Japan to Perth since April 1985. Signals started building at 04:32z with the last signal heard at 08:11z.*

*I actually used my 1/2 wave 50 MHz vertical at about 10 metres, and 100 watts for all of the contacts made. The Japanese stations were a genuine 59 plus 10db on the vertical at times!*

*This vertical is my "scanning " antenna and connected to the rig which scans memories non stop during normal days and nights. A grand total of 36 JA stations worked, and I heard one HL station.*

*The various BY-TV offsets around 49.750 MHz and the UA0 "warbler" were also up to S9.*

*It was fantastic to make contact again, with a few stations I have not worked for many years.*

*Steve, VK6IR, who is about 2 km from me worked many more than I did.*

*After 13 years Perth had another opening to the Middle East area on October 25th.*

*The last 2 openings to the Middle East occurred in April 1992 to 9K2 (Kuwait) and in November 2002 to JY (Jordan). At around 10:50z, Dave, A92IO heard "bits and pieces" of VK6IR, Steve's CW. But no contact was made at that time. At 11:50z a few Perth stations worked A92HK on SSB, he was 5x5 on my radio. Again at 12:56z some Perth stations worked A92IO on CW, Dave being 559 into my suburban QTH.*

*VK6IR made it finally with A92IO also. It was possibly open from around 1100 to 1300Z.*

*Country # 58 for me after 35 years of MAGIC BAND operating.*

Steve, VK6IR a "newcomer" to the Magic band adds his activity:

*I have a FT2000 with an Acom Amplifier and was running about 400 watts into my five element LFA yagi at 10 meters.*

*On 21 Oct...I called CQ on 50.110 at 04:44z, immediately answered by JA3EGE with a 59 +10db signal. What a surprise!*

*Six metres stayed open till 08:49z... just over 4 hours, but I think VK6AKT worked a few more after this time. The log book was well utilised, with a total of 141 JA stations (mostly SSB, 17 on CW, 2 on JT65) and 6 South Korean stations. The strongest signal received was a HUGE +40db.*

*I could have worked more, but had a look around a few times for BY or other stations but nothing was heard.*

*On the 19th, VK4MA Paul, along with VK4CZ Scott, also Brian, VK4DDC and George, VK4AMG made it into the west coast of the USA. Conditions at 1:34z saw the four VK4 stations make 2 way CW contacts with W6TOD, Todd has his QTH in the Mojave Desert in California. Lots of deep QSB noted with low 519 signals to contend with. Paul had a stronger signal, and made his contact around 1:50z.*

*Arno, VK4JAO, from Toowoomba, made some brisk contacts into Japan and writes:*

*My modest station consists of a "Vintage" Trio Kenwood TS-600, THP LINEAR HL-66, 50 Watts output, and a home brew five Element HB9CV.*

*On the 21st October around 03:00z, I heard some weak CW signals around 50.110Mhz.*

*Some other things to do, I returned at 04:00z to the shack.... six metres was open into JA !*

*JA8CAR, JH8LLE, JA1NAQ, JH1PIA, JH1WHS, JM1IGS were contacted, and signals around the 5x5 mark, Signals faded down, and the band closed about 04:30z.*

*And here is an interesting few paragraphs from Joe, VK7JG:*

*Just reading you 6 m notes in the latest AR magazine. Thanks for your work.*

*Unfortunately I did not obtain my Amateur license till 1965 so have a couple of years before obtaining the 50 Years on 6 metres. I was operational on 6 and 2 the day I obtained my callsign having built equipment prior to obtaining my license.*

*Living in VK7 has the problem of Bass Strait and the extra distance to the Northern Hemisphere but I have enjoyed my time on the air and at one time or another have held every VHF distance record for VK7 on 6, 2, 70 and 1296 Mhz .*

*I never mastered CW having the "ZED" call for the first 12 years of operation so nearly all of my contact have been on SSB and in the early days, AM .*

*From memory I have worked about 40 countries terrestrially - I still use a paper log so would take a little time to check. Since operating 6 m EME have clocked up 37 Initials - five in the USA, and the rest in Europe - so I have a few more countries here.*

*I must sit down one day and put them on a computer logging program .*

*Have been away for most of the past three months. Did another Simpson Desert crossing in August, then a month in VK4 babysitting granddaughter, just returned from three weeks in Cambodia / Laos / Vietnam, was home two days then went to Flinders Island for a week.*

*Looking forward to getting back into some 6m EME. Unfortunately I have severe power-line QRM on my moonrise so obtaining contacts is very difficult . My next*

*move is to install elevation once I get some work around the house finalised.*

*Another station in VK7 with 50 years on 50 would be VK7PD.*

Please submit reports, logs or other info you may consider useful to John VK5PO