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# VHF/UHF – An Expanding World

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David Smith VK3HZ

## Weak Signal

David Smith - VK3HZ

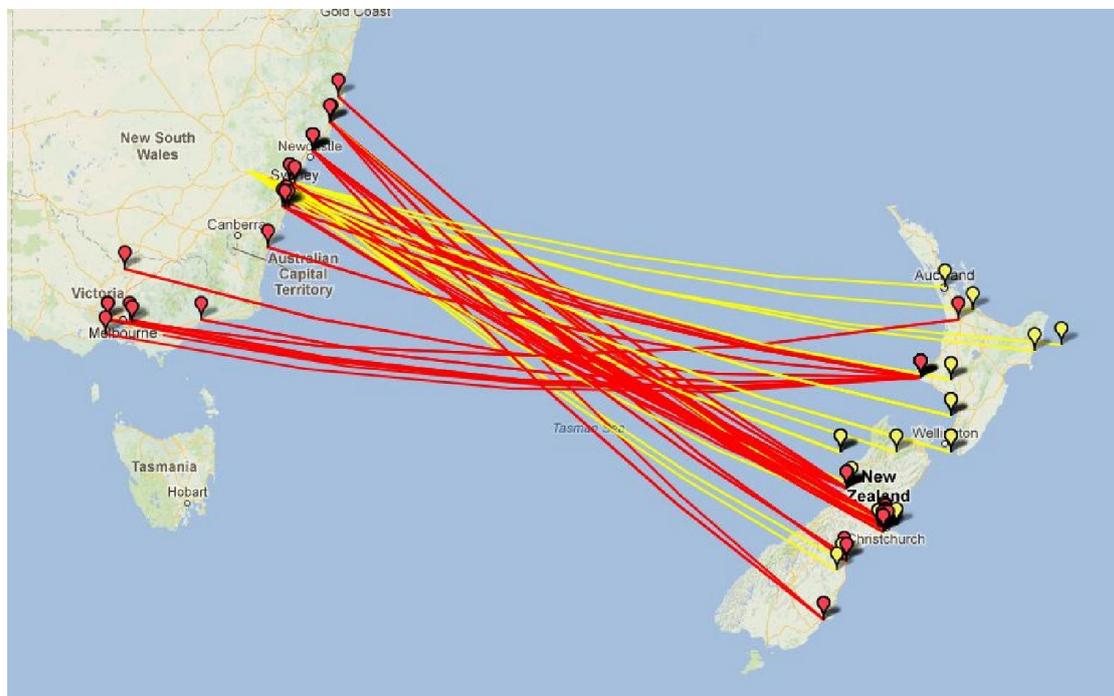
Welcome back after 2 months away. As I write this, the bands are jumping with contacts, literally, to the left and right (VK6 and ZL). However, that's for next month.

Back to November, which was fairly quiet. On the morning of the 17<sup>th</sup>, the Leonids meteor shower produced some good burns. Rod VK4ARN managed to make SSB contacts with Rob VK1KW, Brian VK3BB and David VK3AUU among others.

On November 25<sup>th</sup>, a high-pressure cell produced good tropo conditions. Phil VK5AKK in the Adelaide Hills worked across to John VK7XX near Launceston on 2 m. On 70 cm, Colin VK5DK in Mt Gambier worked Joe VK7JG near Launceston. Andy VK3ES, portable near Mt Macedon, worked across to Brian VK5BC and Phil VK5AKK on 23 cm.

On to December, which started promisingly, fell into a hole, but ended with a bang. On the 1<sup>st</sup>, the bands opened from the east coast across to northern ZL. Many contacts were had between VK2 and VK4 to ZL1 and ZL2. Of note, Ross VK2DVZ worked Steve ZL2AVS – 2087 km – on 23 cm peaking to 5x7. Adrian VK4OX worked Brian ZL2AVZ – 2318 km - on 70 cm with 5x2 reports.

On December 29<sup>th</sup>, a giant Es opening occurred across the Tasman from ZL into VK2, VK3 and VK4. Between 0600Z and 0900Z, many contacts were had. The map below - courtesy of the VK Logger - best shows this, and also gives a good indication of the Es cloud location over the central Tasman sea.

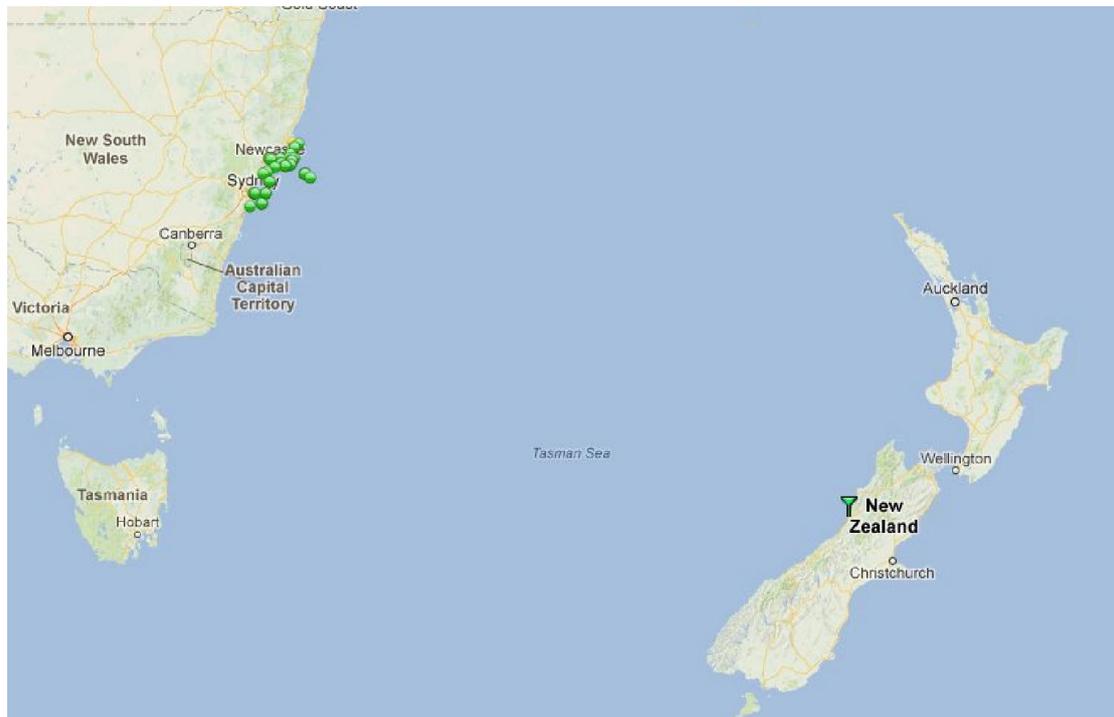


**VK-ZL Es Opening – 29 December 2012**

ZL2ADU had a beeline into VK3 working VK3's DUT, VG, AMZ, OE, YFL and AKK.

Interestingly, Bob ZL3TY had his AIS ship receiver running and logged ships along

the NSW coast as shown below.



### **ZL3TY AIS Reception – 29 December 2012**

This is a good demonstration that AIS is proving a worthwhile substitute for the TV stations as a beacon, at least where the endpoint of the path is near busy shipping routes.

To finish up 2012, December 31<sup>st</sup> / January 1<sup>st</sup> saw the bands opening east and west across the south of the country. At 20 minutes to midnight, Mike VK3KH worked Ron VK6VOX on 2 m at 5x5. Two hours later, Ian VK3AXH worked Bob VK6BE in Albany with a 5x9+30 report on 2 m and 5x5 on 70 cm. The following morning was to prove very busy for 90-year-young Bob. The band opening spread from VK6 across to east Gippsland producing a dogpile of stations on 144.1 trying to work him. In total, he had more than 40 contacts. On 2 m, he worked as far as Norm VK3DUT (2692 km), Robbie VK3EK (2676 km), Rhett VK3GHZ (2668 km) and Leigh VK2KRR (2650 km). On 70 cm, Ian VK3AXH was his furthest contact at 2334 km.

Meanwhile, in the other direction, things were very active between VK2/4 and ZL. Once again, a picture is worth a thousand (well, 100) contacts:



### East-West Opening - New Years Day

Contacts of note included VK2's ZT, AMS and DVZ working Steve ZL1TPH/P on 23 cm over a maximum distance of 1947 km. Ross VK2DVZ (and many others) also worked Dave ZL1AKW on 70 cm for a distance of 2253 km.

### 10GHz GPS-locked beacon

Alan VK3XPD is working on a 10 GHz GPS-locked beacon for the Melbourne region, which will be operational shortly. Alan writes:

*This to advise there is a new 10 GHz Beacon operational at my QTH in Camberwell. It is on 10368.530 MHz, GPS-locked with 6 watts into an Omni WR-90 Slotted Waveguide antenna. It identifies once per minute with "DE VK3RXX QF22".*

*It's still very breadboard at present while I see how the PA goes/survives our Summer heat. The Beacon Exciter was built entirely from VK3XDK Hardware. The PA is a high gain 8 Watt unit that I found on ePray several years ago. It's not the most efficient PA with a power consumption of some 45 Watts.*

*My thanks to Graham - VK3XDK for his Hardware/modules and to David - VK3HZ for developing the software to perform the Ident functions.*

*Don't forget... since it is GPS Locked, even if you are a long way away, you can look for it's weak trace (direct or via Aircraft) in WJST knowing it will be on frequency.*

*After the test period, if it survives OK I will complete the build and relocate it up a Tower at about 6 Metres.*

### Spring FD – Optical

During the Spring VHF/UHF Field Day, Dan VK2GG and Steve VK2XDE decided to extend the boundaries somewhat. Dan writes:

*We were at Gloucester NSW on that hot Saturday morning for the Spring F/D.*

*We were very surprised to find out that optical comms worked during a hot, bright day! Our maximum distance was 1.1km, not too bad, considering my gear had been tested briefly over a 6km night-time path, and Steve VK2XDE's gear had only been completed a week prior to the contest.*

*As far as using 474 THz for field days goes, it was very difficult, slow and painful to align the lenses – but worth it in the end.*



**Optical DX - Peter VK2YGM (left) and Dan VK2GG**

Initially, the optical contacts were included in Dan and Steve's Field Day results. However, when the results were published, a number of objections were raised on the grounds that optical frequencies are not within the definition of radio, and our licence conditions do not mention an optical band.

From the WIA:

*This matter has been considered by the WIA contest director Trent Sampson VK4TS and the contest committee. They have decided that while the WIA does not want to discourage experimentation, optical contacts should not be counted towards the final score of any station.*

*This does not prevent anyone from making optical contacts. They will still be accepted in future Field Day logs. But they will go into a separate results table and their scores will not contribute to the final all-band score.*

So much for innovation and experimentation!

Please send any Weak Signal reports to David VK3HZ

# Digital DX Modes

Rex Moncur – VK7MO

## 10 GHz Aircraft Scatter with JT65c

On 6 November Rex, VK7MO, operated from Boat harbour North of Newcastle and worked Dave VK3HZ at Mt Macedon to extend the National 10 GHz Digital record to 850.7 km. While this path is close to the Melbourne-Sydney flight path it does not cross it when the aircraft are visible at both ends and thus the QSO had to be done on side scatter of around 3 degrees which does significantly reduce signal levels.

## 10 GHz EME Grid Square Tour with JT65c

From mid November to mid December Rex VK7MO undertook a grid square tour across the mainland activating some 25 grid squares with his 77 cm dish and 45 watt portable station from Brisbane to Carnamah in WA. OK1KIR, W5LUA, VK3XPD and VK3NX participated with OK1KIR working 22 grid squares. At three grid squares operations were conducted from the home QTH's of Kevin, VK4UH, Neil, VK2EI, and Matt, VK2DAG, who all made 10 GHz EME contacts. The 10 GHz JT65c EME contacts were only possible by using Glen VK1XX's automatic Doppler correct program. Surprisingly even though JT65c works with 10.8 Hz tone spacing, it was possible to get reliable decoding with up to 170 Hz of spreading. The prime reason for the visit to WA was to try tropo across the Great Australian Bight, but while waiting for tropo that did not eventuate; the time was taken up working 10 GHz EME. The 10 GHz EME digital record was extended 5 times with W5LUA to 17,100.7 km at Prevelly WA which is as far as one can go before the Indian Ocean. More details are at:

<http://www.vk3hz.net/microwave/10GHz-EME-Grid-Square-Tour.pdf>

At Albany Rex contacted Derek, VK6DZ, who took part in one 10 GHz EME contact and provided his workshop for running repairs. While Derek's home location has a relatively poor take-off, he is setting up to go portable at Torbay Hill where Wally VK6KZ operated for his World record 10 GHz QSO. At this stage his portable operations will be limited to 432 MHz digital but we are looking at setting him up for 10 GHz digital in the future.

Please send any Digital DX Modes reports to Rex VK7MO

# The Magic Band – 6 m DX

Brian Cleland – VK5BC

The summer E's season has been disappointing with many days with no or little propagation. Some of the highlights as follows.

Although Bob ZL1RS worked into the Pacific and USA several times during December the first action from VK was on the 3<sup>rd</sup> December when John VK5PO started to hear W's working Bob and eventually working Larry K5RK in CW at 559 over a distance of 14,989 km. More followed next day with New Year's Day producing the first opening into E51 for the season. Norman E51E who was holidaying on Aitutaki Island in the South Cook Islands was worked by about 20 VK's from VK2, 3, 5 and 7. A little later Victor E51CG made his first appearance for the season working many VK's with signals averaging around 5/7 SSB.

The big highlight also happened on the morning New Year day with John VK5PO this time working Bob N3LL in Englewood Florida with a 559 cw both ways over a distance of 16,054 km. This was the longest contact completed from VK this sunspot

cycle. Well done John. Below is copy of the QSL card from Bob.

<b>N3LL</b>							
<b>ENGLEWOOD, FLORIDA USA</b>							
Sarasota County ~ EL86tx							
● ● ● ● ● ● ● ●							
<b>Bob Carnahan</b>							
1049 Old Englewood Rd.							
Englewood, FL 34223							
Confirming QSO with	Day	Month	Year	UTC	MHz	RST	MODE
VK5PO	1	1	2013	0118	50.099	559	CW
<input type="checkbox"/> Pse QSL Trx <input type="checkbox"/> 16,054 KM SUPER!! 73's Bob							

After very quiet morning on 2first Dec the band opened to Japan mid afternoon with Hiyo JR2HCB being worked by several vk2, 3 5, and 7's. Then at around 0530UTC Willem DU7/PA0HIP was making the trip to southern VK in CW and a little later Willem worked many VK's on SSB finishing at 0730 UTC with a bag of 4 x VK2, 13 x VK3, 1 x VK4, 5 x VK5 and 2 x VK7.

22nd Dec the E51WL beacon from nth Cook Is was heard for the first time this season in VK. Garry VK5ZK reported that was easily decoded with CWSkimmer, Also reported by VK3OER and Frank VK7DX. Later in the day Bob ZL1RS worked Norman E51E on Atiktuki Island SSB.

From VK6 the highlight was working V84SMD, the DXP to Brunei on 16th November by Andy VK6OX, Graham VK6RO and Peter VK6KXW. Andy VK6OX also reports a scratchy CW contact with Warwick E51WL on the 13th November. In December regular openings to the eastern states occurred with multi hop contacts to Bob ZL1RS being completed on several occasions.

26th November Scott VK4CZ worked Andy YS1AG in El Salvador on 50.1000 CW 519 a distance of 13440.6 KMs.

A note from Greg VK8GM who reports;

*Sorry we haven't been active on 6m for the last copy of months (something about the sun) but today (09/12/12) 10m opening up strongly and I went up to try 6m at 04:15, after a few calls on 50,110 George vk4amg answered at 04:20 with a 59 contact into S/E Queensland, he informed Dennis vk4ace the band was open and we made contact at 04:23. These calls where then followed by 10 more good contacts to - vk4hu, vk4bl, vk2fad, vk2nl, vk2zt, vk4tj, vk7rr/p4, vk4xe, vk2ma and the final contact was with Trevor vk4yh at 05:58 with a solid 58. All in all I tried to answer all we could hear with 100 watts on our 6 element yagi at 17m but I'm sure there where a few we couldn't dig out of the mud.*

*Hope this is a sign of things to come and if needed anyone could call me on my mobile 0458814109 if they think the band is open to Alice Springs and we try to race home for a quick contact.*

Good to hear Brad VK2QO operation from his new QTH of Toronto near Newcastle. At present Brad is mainly operating from his car and reports;

*On the 14/12/12 at 0450z I hard JA CW on 110 on the way home from work (in Newcastle) I then looked up and down the band hearing many JA's from S5 to S9 but*

*after putting calls on 110... nothing... I had a listen up a bit and heard JA1OJJ Yoshi talking, he was S9. So with nothing to lose I gave him a call and to my surprise he answered me with a 5/5 report I gave him a 5/9 on 50.139 at 0452z... First JA on 6m from the car... Next was the contact with Remi FK8CP in CW from the 67 foot end fed wire antenna that is up through the palm trees here, he was 579 but gave me the usual "73" in reply. Have had four more contacts from the car since then, VK5PO John 59, VK5ADO David 59, VK5BC Brian 59 and VK5RM Phil (ex 4FIL) 59. All these on the way home from work.*

The Adelaide VK5VF beacon is back on air on the new frequency of 50.320MHz. Received the following note from Mark VK5AVQ,

*The Adelaide 6m beacon is again operation. The beacon has been off air for a while (it died). A decision was then made to build a new beacon, which Col VK5ACE kindly undertook.*

*At the same time we succumbed to pressure to shift the frequency from 52.450 MHz to 50.320 MHz to align with the WIA band plan. A new feature is that the unit is now frequency locked to the GPS site standard, also a recent addition. Other details remain unchanged such as power, location and antenna.*

Please send any 6 m information to Brian VK5BC