
VHF/UHF – An Expanding World

David Smith VK3HZ

Weak Signal

David Smith - VK3HZ

Conditions are picking up a little from winter but there's still a way to go to the best time of year. The period from Christmas to New Year and beyond usually brings some excellent propagation – both Tropo and Sporadic E. So, after you've read this, go and check that your VHF/UHF equipment is operating correctly. Have a listen for beacons near and far and check there's RF coming out of the radios – there are still a few weeks to sort out any problems.

One area of the country that can provide good openings and is often overlooked (by me, at least) is the Queensland coast from Brisbane to Cairns and beyond. Perhaps that's because many of the contacts reported are intra-state – VK4 to VK4 – and so don't stand out as much.

The period from October 31st to November 1st was very good up the VK4 coast. The Hepburn Tropo Index was showing a band of yellow/orange enhancement hugging the coast from the eastern tip of Victoria up to New Guinea and beyond.

On the morning of the 31st at 2024Z, Adrian VK4OX in the Sunshine Coast hinterland worked Ian VK4AFC near Cairns on 2 m at 5x7 – a distance of just over 1300 km. They then switched to 70 cm and had another 5x7 contact. Adrian then worked Nick VK4FMAG near Townsville (1050 km) on 2 m with a 5x1 report – very creditable given the power limitation.

The following day (November 1st) at 2005Z, Adrian and Ian repeated their contacts of the previous day but this time with a 5x9 report of 70 cm – even stronger than the 2 m signal. Phil VK4CDI near Toowoomba then worked Ian on 70 cm also at 5x9 over a distance of 1330 km. Meanwhile, Adrian made contact with John VK4FNQ in Charters Towers (1000 km) on 70 cm with a report of 5x7. Finally, Adrian and Ian repeated their contact on 70 cm, but this time signals were dropping and the report was only 5x3.

Aircraft Enhancement Activity

Activity during the morning Aircraft Enhancement activity session seems to be picking up. On a recent morning, Gordon VK3EJ in Cobram reported that 21 stations were known to be active, with 19 heard by him and 15 worked.

The session, primarily on 144.2, runs nominally between 8 am and 9 am. The activity also takes place on 70 cm and 23 cm.

Stations in the Melbourne, Sydney and Brisbane areas (and beyond) take advantage of lift produced by the large number of aircraft flying at that time of morning. If everything is lined up, signals from a distant station can rise markedly as an aircraft moves across the path between you, from barely readable to 5x7. You do need to be fairly quick though – the enhancement doesn't last too long so there's usually not enough time for the local weather report.

If you're looking for activity on 2 m, try 144.2 MHz between 8am and 9am.

3.5 GHz Band

As reported a few months ago, the ACMA announced a review of the 3.5 GHz

spectrum and asked for submissions from interested parties. The WIA and eight individual Amateurs responded and recently received a response in turn from the ACMA. The response said that the ACMA have decided "... to retain the existing mix of apparatus and spectrum licensing arrangements in the 3.5 GHz band." However, they will be reviewing existing spectrum licences as they expire.

So, for the moment, the existing Amateur allocation remains as-is. However, the question of the NBN's requested for 50MHz of spectrum from 3400 MHz to 3450 MHz – the weak signal area of our band – remains up in the air.

Please send any Weak Signal reports to David VK3HZ

Digital DX Modes

Rex Moncur – VK7MO

Manfred Memorial Moon Mission (4M)

On 23 October a 144 MHz beacon - callsign LX0OHB - running JT65b, was launched on the last stage of a Chinese Long March rocket. The mission was aimed at a flyby of the Moon and return to Earth. The beacon was running 1.5 watts to a tape measure 1/4 wave monopole on a nominal frequency of 145.980 MHz. The mission was organised by a group of Luxembourg amateurs and staff working for the company Luxspace, a subsidiary of the OHB company founded by Manfred Fuchs, and was designed to celebrate his life as a pioneer in the construction of equipment for use in space.

The path favoured reception from Australia rather than the Northern Hemisphere and many VK operators were able to get decodes all the way to the Moon and part of the way back. Decodes were still being copied on 1 November although the tracking data was by this time too far out to be useful and alignment was hit and miss. There was considerable QSB which may have been due to polarization changes with spacecraft rotation or the null on the antenna pointing to the Earth. On the first pass the spacecraft was at around 70,000 km and gave good copy most of the time. As it passed around the Moon at about 390,000 km signals did drop off but still 4-yagi EME stations which could track in Azimuth and Elevation could get good copy on at least half of the periods. Single yagi stations without elevation also had success as the signal strength appeared to be stronger when the spacecraft was below about 30 degrees elevation.

Small station to Small station EME on 10 GHz

On 3 October Rex, VK7MO, worked Mirek, OK2AQ, on 10 GHz EME, using JT4f. OK2AQ was running only 20 watts to a 1.8 metre dish while VK7MO was running 50 watts to a 0.77 metre dish. VK7MO used automatic Doppler correction for both TX and RX using Glen VK1XX's program which meant that OK2AQ did not need to tune for Doppler. The timing of the attempt was designed to take advantage of very low spreading (15 Hz) and low degradation (0.5 dB). VK7MO operated portable from Mt Wellington to get a good take-off and gain the maximum moon window -- but this did mean operating outside at 2 to 3 am at close to zero degrees and with winds gusting to around 50 km/hr - so not at all pleasant. OK2AQ achieved single line copy while VK7MO had to use averaging to achieve a decode from the lower power at OK2AQ. This appears to be the first EME QSO with such small dishes at each end.

Please send any Digital DX Modes reports to Rex VK7MO

Meteor Scatter

Dr Kevin Johnston – VK4UH

Well we are not having a great season so far! The Orionid Meteor Shower, which was predicted to peak around the 22nd October, has come and gone with most operators agreeing it was an “underwhelming event” this year with the ZHR never achieving the peak values seen in previous showers. For the third consecutive year I was away in Sydney coordinating professional exams, whose date consistently clashes with this shower, and was unable to operate at the predicted peak. I was operational (QG62kp) on 2 m FSK441/JTMS MS and 6 m FSK441/ISCAT-B MS over the preceding weekend 17/18 UTC and thought conditions were better than background for late Spring. Successful 2 way QSOs were completed with VK3AMZ, VK3II, VK3HY and VK5PJ on 144MHz and VK2BLS on 50MHz. The predicted peak fell during the working week for many operators, which inevitably limits the number of stations on-air, but the level of MS activity over the weekend activity sessions, according to the VK-Logger at least, also appeared low.

Robert VK4LHD (QF63ng) forwarded the following report.

“With the arrival of the Orionids Meteor Shower and its expected peak in Meteor Scatter, a couple of us started monitoring a few days in advance looking for signs of an early arrival of the shower. The peak of the shower was expected to arrive on the Friday morning but we were disappointed as there were no signs of any early shower with conditions well below average. I worked FSK441 on the Monday and only managed the one completed contact with Jim VK3II with very weak pings and most of them very difficult to decode. Tuesday morning didn’t produce anything better with most of the pings being very short and weak but I did manage to complete with Gavin VK3HY after a very hard slog. I didn’t work FSK441 on the Wednesday as that was our Radio club opening day and I was the one opening the door that morning but I was on for the Thursday morning session and there was still no sign of any Orionids Shower with pings still very weak, few and far between. I did manage to complete with Jim VK3II and although Gavin VK3HY was on I didn’t see any sign of him at all although he did see 6 pings from me. At this point it was pretty clear that there was going to be no early start to the Orionids shower and our hopes for any real boost in conditions lay with the peak expected on the Friday morning. The Friday morning for me was a complete disaster. After a slightly late night Thursday working 23cm and 2.4Ghz with our monthly 23 on 23, the morning got even worse when I found my power supply would not fire up. After a quick change to a small power supply and battery backup I was finally calling CQ. The morning produced nothing for me with no completes at all. A good 90% of the pings I got were either too weak or just too short to decode and anything that was decoded didn’t contain my call sign so just went back to bed and caught up on the sleep I had lost. The weekend session didn’t fare any better with only the one complete on the Saturday and one on the Sunday morning. There was a small improvement to the strength of the pings but still a lot were weak and short still making decoding a nightmare. All in all I would say from my end that The Orionids Shower was a bit of a disappointment in not really bringing any boost in pings and completed QSO’s. Some others were doing ok and others having just as bad a time as I but Meteor Scatter is a bit like a box of chocolates - you never know what you’re going to get.”

From Arie VK3AMZ (QF22FE)

“Unfortunately I was just too busy to get on air this year. The ZHR never even looked like it was going to get above 10 little alone 30! It was as they say “Not worth getting outta bed for”. This is the flip side of the ETA (Eta Aquariids) shower in June which and was an excellent shower.”

So let's hope the Leonids Shower, expected to peak around the 18th November, will give us something to write about. Next month I intend to discuss some strategies for improving performance on digital MS when conditions are poor and very poor, including some suggestions on how to still get results when meteor pings are very short and weak.

Please send any reports, questions or enquiries about Meteor Scatter in general or the digital modes used to Kevin VK4UH