
VHF/UHF – An Expanding World

David Smith VK3HZ

Weak Signal

David Smith - VK3HZ

Propagation conditions for the last month have been relatively quiet, so there's not a lot to report.

There have been a few openings in the south-east of the country, between VK3, VK5 and VK7, but not a lot has been reported from further afield. This season, in general, there seems to have been more VK7 to VK5 activity than I can recall in the recent past. Whether this is due to unusual propagation conditions, perhaps enhanced by the general drought in the area, or whether this is simply because a number of very capable weak-signal stations have set up at each end of the path, is the question.

The VK6 Albany beacons on 2 m and 70 cm have been heard several times in Adelaide, but have not reached much past the VK3 border. On the evening of March 6, the Albany beacons were audible in Adelaide and Wally VK6WG had some success. He worked Phil VK5AKK on 2 m (5x9+), 70 cm (5x9) and 23 cm (5x2); Steve VK5RU on 2 m (5x9), 70 cm (5x7) and 23 cm (5x6); and Peter VK5ZLX to the east of Adelaide for the first time on 2 m (5x5) – a distance of 1935 km.

VK-VHF Reflector

Last month saw the 10th birthday of the VK-VHF Reflector, another very valuable resource for the VHF/UHF weak signal operator. To quote from the NSW VHF DX Group web site:

The original idea for this email reflector came from Rod VK4KZR.

Guy VK2KU, acting on behalf of the NSW VHF DX Group, set up the first reflector on 20 February 1997 at Macquarie University, where it remained for three years.

Early in 2000 the VK-VHF Reflector moved to its present home at the University of New England in Armidale, NSW, with Gordon VK2DJG as administrator.

The focus of the VK-VHF Reflector is on weak-signal work on VHF and above, using appropriate modes such as SSB and CW. The VK-VHF Reflector caters primarily for the bands 144MHz and up.

The membership of VK-VHF includes most of the active VHF, UHF and Microwave stations in Australia, as well as other VKs who are interested but not active in this area, and also a number of overseas stations. Anyone can join - there is no cost.

To become a subscriber to the VK-VHF Reflector, visit the following webpage:

<https://mail.une.edu.au/lists/cgi-bin/listinfo/vk-vhf>

and follow the instructions there.

As with most discussion reflectors, the SNR can, at times, fall to very low levels. Nevertheless, there is a wealth of valuable experience available. Thanks to Gordon VK2DJG for running it so smoothly and for so long.

EME

After much success on 5.7 GHz, Charlie VK3NX has successfully adapted his dish to 10 GHz and made his first EME contact on that band. Charlie writes:

After more optimising / tweaking of the system, today (27/02/2007) I heard my echoes for the first time and this evening I switched my feed to vertical polarisation and tried a receive test with Alex RW1AW on 10 GHz. This went well and soon after, at 1230Z, a very easy QSO took place between VK3NX and RW1AW. CW signals were 559 / 559 both ways on 10368 MHz.

Equipment is a 3.7 m Sat TV dish with 0.7 dB LNA and 26 W at the feed using linear polarisation (adjustable V or H).

Please send any Weak Signal reports to David VK3HZ

Digital DX Modes

Rex Moncur – VK7MO

WSJT, with the JT65 mode, is a useful tool for studying tropospheric scatter propagation as it averages the highly variable signals over 46 seconds for each reception period. Even so, tropospheric scatter can vary by 10 dB and more from one receive period to the next. To achieve a more representative figure, it is best to determine the median value over a number of receive periods. The median value has the benefit that it is not significantly affected by the occasional odd result due to meteors and is also consistent with the approach used internationally to measure tropospheric scatter propagation.

It has been found that a median value determined over 10 receive periods gives results that are consistent to within 2 dB. The median can be determined by listing 10 signal-to-noise readings measured by WSJT such as in the following example.

-19,-24,-12,-18,-14,-20,-18,-19,-18,-25

Then cross off the highest and lowest readings successively until there are only two readings left as follows:

-19,-24,-12,-18,-14,-20,-18,-19,-18,-25

In this case the final two readings are -18 and -19 dB, which should be split to give a median of -18.5 dB. If the final two readings are the same then this gives the median.

The normal reporting systems provided with WSJT can be expanded to allow the reporting of the Best, Worst and Median level using the following approach, which is based on the above example.

B12 W25 M18.5

The minus sign is deleted to allow the full report to be sent in the 13-character limit of text provided by WSJT. B is the best signal, W is the worst signal and M is the median signal. Once one has received the report from the other station change the report to:

B12 W25 R18.5

Where the R indicates that you have received the report from the other station.

It should be noted that as WSJT measures signal-to-noise ratio, it cannot be used to directly calculate the propagation loss unless one has a means of measuring the noise floor and knows all other system parameters. Still, at VHF and above, it provides a very useful relative measurement and one can learn a lot about the variability of tropospheric scatter from such measurements.

Please send any Digital DX Modes reports to Rex VK7MO

The Magic Band – 6 m DX

Brian Cleland – VK5BC

This month, I am away overseas. So, I have asked John VK4FNQ to write a few notes for the column:

This sporadic 'E' season is the best I've heard for a few years. The band started to open up around Oct 22 with short openings into VK2, 3 & 5. It seemed to have a small footprint at times with a few QSO's made into VK3 with no beacons or 46MHz TV heard.

One of the highlights was working the Jamboree Station at Elmore on Jan 3 and 10.

Following is a summary of my activity on six metres from Charters Towers from October 2006 to early March 2007.

QSO's with VK Stations.

	VK1	VK2	VK3	VK4	VK5	VK6	VK7	VK8
October	-	4	3	-	4	-	-	
November	2	23	13	3	5	-	-	
December	19	113	54	17	43	-	3	6
January	12	66	25	15	27	2	3	7
February	1	12	4	8	5	-	1	
Total	34	219	95	43	84	2	6	13

ZL Stations Worked / Heard

	ZL1	ZL2	ZL3	ZL4
November	-	-	1/0	1/0
December	2/0	4/0	8/10	1/5
January	3/1	0/1	4/4	2/3
Total	5/1	4/1	13/14	4/8

The following beacons were heard:

ZL2MHF - 19 times in December, 27 times in January and once in February

ZL3SIX - 24 times in December and 33 times in January

VK6RPH - Dec 6, Jan 1 and VK6RBU - Dec 3, Jan 4, and Feb 3.

VK7RAE - Dec 25, Jan 26, Feb 5, and VK7RST Beacon Dec 24, Jan 13, and Feb 4.

VK8RAS - Dec 25, Jan 31, Feb 4, Mar3 and VK8VF - Nov 1, Dec 8, and Jan 21.

Apart from the many ZL openings, the only other international activity was hearing the New Caledonia FK8SIX beacon on Nov 1, Dec 26, Jan 24, and Feb 9.

Please remember to send any 6 m information to Brian VK5BC