

2011 Spring VHF/UHF Field Day

26/27 November 2011

Maybe that should be field “days” for me this time around. As you read on, you will understand why.

The pre-planned Saturday visit to QG61 went awry a bit for me and I ended up at QG61OX instead of QG61OU, still at Beechmont but towards the northern end rather than around the planned mid-point. The major reason was the weather forecast – rain periods and a possible thunderstorm. I didn’t want to be out in the middle of no-where-ville during a storm. The new “spot” was at the scenic lookout over the Hinze Dam, a large park area complete with toilets nearby, a couple of shelters, and as I found out, a lot of visitors. Actually the original plan had been to venture to Mt French but it is highly tree-lined and I didn’t think that the upper microwave frequencies would pierce the foliage too well, particularly if the rain materialized.

Initially all seemed well, the location was pretty quiet on 6m – a far cry from the alternate at QG61OU. A few houses were nearby but the closest HV power line was probably 200m away and it was a pin-style insulator construction. All good so far.

The station was set up – woops, forgot the RS232/CIV interface cable meaning manual logging was going to be necessary using VKCL3 !! Everything else seemed to go together fairly well physically, the antennas went up without any hitches, even the gridpack arrangement for 2.4 & 3.4 GHz. The first sign of trouble loomed up when I changed over the Dell notebook battery pack to the “old” set that had been modified to accept an external 12VDC feed, the same way that I did for the last FD outing. No, it says the battery is U/S and needs to be replaced. Ok, I put back the original battery pack and connected the external switch mode charger (PWM) and now it says that it is not a Dell 65W charger so it won’t charge the internal battery as well as dropping the performance level. Not happy Jan. To add insult to injury, the PWM charger creates S7 noises across 6m SSB... though not noticeable on 2m or 70cm, as well as consuming considerably more power from the 12v battery bank.

Everything seemed to work ok for a while and I worked stations on 6m, 2m and 70cm. When I tried 23cm, no go. I couldn’t hear stations and they couldn’t hear me. I couldn’t hear the 23cm beacon so something was wrong at my end. I suspected a N-male connector on the end of the LMR400 feeder – it seemed a bit bent at the cable entry. No matter, I will just have to work more on the higher bands, 13cm and 9cm, and investigate the 23cm gear later.

As for 13cm (2403 MHz) and 9cm (3400 MHz), I achieved nil, zip, zero, no contacts on them even though I was pretty sure that all was in order. I couldn’t hear the VK4RBB beacon on either band so maybe it was my end. I would have to re-check my gear before I did anything else. Note that up until now, I have never worked anybody on either band since building up the transverters ! This was still new territory being explored here.

The one ingredient missing from the afternoon’s operating was the absence of sporadic E propagation. No southern states, no ZLs, no northern VK4s, were either heard or worked. Given the date in the spring/summer cycle, this seemed unusual.

The final straws that broke my determination to continue at this location were (1) the spasmodic rain showers; (2) the notebook battery finally ‘died’, finally (3) there didn’t seem to be too many stations I could re-work for a while. With that, I changed the outing into an “evaluation session”. I measured the SWR on all VHF and UHF (70cm) antennas and noted them for later revision and testing at home. After that, a quick pack-up at about 3.30PM and I traveled the 80-odd kilometres home. A shower and some dinner revived me a little and I was feeling like finding out some answers to my various dilemmas.

I started by searching about Dell battery problems on Google, and discovered some info about their unique battery monitoring. For info, the battery is actually fully charged but it seems that Dell have placed an I2C eeprom device in the battery packs that counts the number of charge/discharge cycles and when it gets to 500, the battery monitoring just recognizes that the battery has “expired” – regardless of the state of the cells inside – and this is (apparently) fairly unique to Dell notebook batteries. Could it be reset ? Maybe, and maybe not, but I didn’t actually find an answer that told me how I could do it. My response was to plug in the Dell charger and leave it re-charge overnight.

Next to receive attention was the 23cm gear. I did a resistance measurement on the LMR400 feeder used for this band and while it measured ok for shorts and opens, I didn’t like the ‘kink’ at the cable entry point on the bottom-end connector. I cut it off and re-terminated with a new N-male. The fact that the original was ok then pointed me to the transverter itself. I connected up the sig gen and it was really deaf – and I mean extremely. I connected it to the RF power meter – no power out yet the current was going up to about 8 amps under drive conditions. It didn’t take long to ‘twig’ to the fact that I had failed to

re-include the standoffs under the Minikits RF relay board and the ridge in the side of the diecast box was actually 'grounding the output pin'. I removed one screw so there was clearance there and up came the receiver sensitivity as well as the transmit power. {That change was done after the last field day and it has all remained unused since then so the problem was not discovered earlier.}

Next was the 2.4/3.4 transverter box. I couldn't find anything specifically wrong with it other than it 'likes' one of my TCXO's – the one with the sine wave output at 10 MHz – rather than the one I normally take on field days. I worked Doug VK4OE up on Mt Gravatt using my 25-1300MHz discone as an antenna thus proving that the 2403 section worked. Doug couldn't go to 3400 MHz at the time so I was unable to prove that one worked. The effective sensitivities of both the 2400 and 3400 transverters seemed about the same on receive, the transmit side measured around +30dBm at 2403 (ie 1 watt) and +20dBm at 3400 (100mw).

Given the above results I decided I would undertake my second field day outing the next morning. Doug VK4OE was going to be up at the back of the Sunshine Coast thus leaving Mt Gravatt "vacant". My plan was to work 6m, 2m and 70cm using mobile whips on the car and the gridpack for 2.4 and 3.4 – and I was also going to be taking along the 23cm yagi and LMR400 feeder, though no mounting pipe.

Sunday morning rolled around and I loaded up the car again but without a generator, fuel can and most of the other paraphernalia that goes along. Only the minimum was going this time around. I arrived on site at QG62MK at about 8.00AM, set up the masting pipe and had the transverter box and gridpack in place by about 8.30AM. My first contact of the day was at 8.35AM on 2m SSB. I successively worked all I could on 6m, 2m and 70cm then finally came the 23cm test about 9.30AM – would it work today given what I found last night ? Yes, and I had a number of contacts on this band over the next few hours giving some good points.

The next test was 2.4 GHz. By liasing with Doug VK4OE on 2m SSB, we both went looking on 2403.150 and made the grade – and subsequently I discovered how sharp the directivity of the gridpack is at 2403 MHz ! Adrian VK4OX was next and we made it there too. With 2403 out of the way, what about 3400.150 ? Doug and I shifted there and easily made the contact, Adrian had a few issues but we finally made it. The interesting side to this is the difference in direction which applied to an east-west move of 12km at a distance of 100Kms is quite astounding. Doug's signal peaked at one place and Adrian's was considerably different. *The things you learn about at microwave !*

Later on, I also worked John VK4TJ at a distance of 100Km+ on both 2403.150 and 1296.150 thus proving there wasn't anything fundamentally wrong with my gear. I never did get around to listening for those 1296, 2403 or 3400 beacon signals from VK4RBB again though, maybe another time !

By about 10.30, I had worked most of what I could hear so I packed up (amazingly quickly in comparison to yesterday) and headed off home.

On a side note, I handed out a number of the WIA's "Calling CQ" brochures, some at Beechmont and some more at Mt Gravatt. Some 'visitors' asked if I was controlling the weather or asking if I was in communication with aliens. I spent a few minutes each time setting the record straight, who I was, what we did etc. The outcome of each venue was a good day for PR for amateur radio.

The all-important results / summary :

Band	Locators Activated	Locators Worked	QSOs Made	Total	Band Mult	Band Total
50	20	30	13	63	1	63
144	20	50	27	97	3	291
420	20	40	13	73	5	365
1.2G	10	30	4	44	8	352
2.4G	10	20	3	33	10	330
3.3G	10	10	2	22	10	220
5.6G	0	0	0	0	10	0
10.G	0	0	0	0	10	0

24.G	0	0	0	0	10	0
47.G	0	0	0	0	10	0
Higher	0	0	0	0	10	0

Final Total: 1621

That's the first time I managed to have entries in the 2.4 and 3.4 GHz segments..

Maybe we will have more operators/contacts on these bands by the time the Summer Field Day comes around on the 14th/15th January 2012.

Mouse-over for a larger image view :



The 4WD just after arriving on site at Beechmont, QG61OX.

This site is the lookout over the Hinze Dam and, as I found out, a popular destination for people out and about at weekends - not to mention locals taking their dogs out for a walk.



The inside view shows how the gridpack was included for the trip.



Antennas up. Note the grey clouds now in the background. They became the source of rain later.



I didn't set up the 4WD shelter or the table this time, although both came along for the ride. I wasn't sure about the weather so I operated out of the back of the 4WD on this occasion.

The table was pulled out 'a bit 'so the door didn't get closed by the wind...



The "far" view of the station, clouds getting more menacing as the afternoon advanced.



My temporary hideaway from the rain. It didn't have much wind behind it (fortunately) so this was enough to more-or-less keep me dry.



The equipment back in the 4WD for my Sunday adventure to Mt Gravatt, QG62MK. The equipment in the grey wooden frame was :

Bottom : IC-706Mk2G for 6m, 2m & 70cm SSB and FM.

Centre : The old TR-751A transceiver with the homebrew 23cm transverter.

On top : IC-706Mk1 used with the pole-mounted transverters for 13cm and 9cm.

The red carry box contains 2 x 12V 500CCA car batteries.



The two whips on the front of the car used for 6m, 2m and 70cm. And, yes, that is a "2m 5/8" fibreglass whip on the far guard but if you measure its's SWR at 50.150, it is around the 1.2:1 value. The whip on the right hand guard is of the Diamond SG-7400 dual band 2m/70cm variety.

Official Results Update : Dec 2011 : (Full results PDF link
(<http://www.wia.org.au/members/contests/vhfuhf/documents/Spring%20VHF-UHF%20Field%20Day%202011%20Results.pdf>)

Call Name Location 50 144 432 1296 2.4 3.4 5.7 10 24 47 TOTAL
 MHz MHz MHz MHz GHz GHz GHz GHz GHz GHz

Section A: Single Operator, 24 Hours

VK2DAG Matt Hetherington QF56, QF57 77 276 455 616 770 770 760 760 660 - 5144

VK4OE Doug Friend QG62, QG63 69 468 460 576 570 440 220 440 - - 3243

VK3ES Andy Sayers QF22 - 444 620 720 390 - - 400 - - 2574

VK5TE Simon Brandenburg PF94 24 267 440 512 210 440 - - - - 1893

VK5LA Andy Williss PF85 32 411 565 616 - 210 - - - - 1834

VK4ADC Doug Hunter QG61, QG62 63 291 365 352 330 320 - - - - 1721

VK2MER Kirk Mercer QF55 93 588 645 304 - - - - - 1630