2013 Summer VHF/UHF Field Day

12th January 2013

In comparison to some of my relatively recent ventures into the field for these events, this even went fairly smoothly. I didn't physically break anything (how unusual !!) and most of the gear worked more-or-less as anticipated. The weather could have been kinder, overall – but at least it didn't rain.

I travelled off up into the Gold Coast Hinterland again, at yet another site on Beechmont Plateau, QG61OV, for the Saturday part of the event. I left home relatively early at about 8AM as I was going to a site that I hadn't actually been set up on before, and I was a little unsure as to how much time it would take – plus I had extra gear to set up this time too. My prior arrangements with the dairy farmer went like a dream, having called into the dairy on my way past to the small rise with a great north-westerly aspect, arriving there about 9.30AM. The best part was that there were only 2 trees around, to the south of me, the closest about 40-50 metres away, and the rest was basically just flat grass with a dirt track through it. Oh, did I mention that I had to avoid 'land mines' – in the form of cow pats all day – old ones, fresh ones… and at one stage, the herd of about 25 cows (plus their swarms of small flies) came to have a look at the 'setup' before taking refuge from the sun under that nearest tree. I found out late in the day that the local temp was about 34-35 degrees Celsius during the late morning and into the early afternoon before a north-easterly breeze came up and cooled things down – a bit.

Back to the radio gear, setup went pretty well with only a few wingnuts dropped into the long-ish grass (with more wingnuts available in the spares box), and it was made quicker and easier by having pre-positioned the u-bolts & locknuts on the two main masting pipes such that they lined up in a straight line. One less job to do during setup, aligning yagi booms, saves time ! I had also pre-set the mountings for the 2.4/3.4 GHz gridpack plus it's transverter box so all that was required there was to slide on these units over the protruding threads and add/tighten wingnuts. I was adding a quick-and-dirty setup for 5.7/10GHz too and it required only a single u-bolt to mount but it had to be aligned with the gridpack – and then the 23cm yagi aligned with both of these antennas. I have pre-formed the transverter coax and control harnesses do connecting these up is quite straightforward, BNC plugs on and DIN plugs in. The complete 2M and 70CM yagis now travel on the top of the FD trailer cage so no assembly is required for them, just the 4 element 6M yagi. Even so, it all went together as planned and the antennas went up in a fairly short time.

Most of the radio gear traveled pre-configured in the black wooden FD 'rack', right at the back of the car. It was simply carried into the trailer and set on the tabletop then the power leads connected (the right way around this time), the few coax and control leads connected and it was ready to go. The extra micropower transverters for 5.760 and 10.368 GHz (loaned by Doug VK4OE) wouldn't be required for a while so were initially left in the vehicle.

The little Asus EEEPC for logging was powered by an external supply consisting of the main battery bank plus 2 x 6V 7AH SLA batteries (in parallel) supplying around 18.xxxV to a nominal 19V charging socket, and it was quick to set up. It was running Win7, VKCL 3.6 plus my bearing lookup software. At one stage, the 'thing' crashed with a BSOD error quoting SER2PL.SYS as the fault – undoubtedly caused by the USB-Serial adapter used by OmniRig to talk with the Icom transceiver – since the EEEPC doesn't have serial ports inbuilt. This is something that needs to be fixed before the next event – find out why and fix it… new driver software for Win7 ??

In fact, the normal-use gear was all set up by 10.50AM local, 0050 UTC, earlier than expected so I started working other FD stations just after 0100Z.. I worked 'locals' on 6M, 2M, 70CM and 23CM during the first hour then chanced across VK5PO on 6M thus breaking outside of VK4. As things quietened down, I set up Doug's 5.7 and 10GHz boxes on the flat top of my trusty B&D Workmate, pointed them towards Brisbane, applied power so the local oscillators could stabilize, then covered the lot with a hand towel to stop them from baking in the hot sun.

The continuing list of stations after the first rework period kept me reasonably occupied until about 0520UTC, 3.20PM local, by which time Quentin VK4AQF/P, some 112KM away, was starting to get some of his gear for the higher frequencies up and running. We finally worked on 2403.150 (>1 watt each end) then only just on 3400.150 (1 watt+ my end, about 20mW his end) but failed to make the path on 5760.150 and 10368.150. The fact that we were only running fleapower at each end on these two would account for that though.

At around 0730UTC, 6M again opened up to the south with VK2, VK3 and VK7 worked. A surprise callsign at 0830UTC was UR2FA/MM in QH56, we worked, but he didn't seem to really grasp the exchange of serial numbers. Then it was back to trying to find other stations on 6M, 2M and 70CM to work again. Finally Doug VK4OE came up on air at about 0930UTC

from Springbrook and we worked on all bands from 6M to 3CM. As soon as we completed those, I asked Doug to transmit again on 5760.175 to see if I could work him on my homebrew 5.7 lash-up : I could hear him but not the other way. We tried 10368.175 also but nothing either way over the 16KM path from one mountain range to the next one parallel.

I turned off the DC power just after 1000UTC and started to pack up the portable station, in the dark, avoiding cowpats where I could. With everything stowed and tied down in either the car or the trailer, I started the return journey about 1100UTC/9PM local. All was uneventful until I was about 2/3rds of the way down the mountain when I was nearly involved in a head-on collision with a climbing car overtaking another one, around a bend, and when he came into my view, he was almost centre of the road. The car he was passing reacted by going half-off his side, I veered to half-off my side (complete with the trailer ..) and by sheer luck we all missed each other and I was still in control of my vehicle. Luck ?? Skill ?? It was a blind corner so he had no business trying to pass there. Fortunately I am still here and in one piece, having arrived home about 10:40PM local.

The last stage of my FD activities was on Sunday morning, taking off the trailer and emptying all of the gear out of the car. Then before handing the keys back to the XYL, a carwash to clean off the cow dung residue from the wheels and mudguards etc !!!! (I'm glad that I don't live on a dairy farm and have to deal with it every day. My congrats/condolences to those of you who do.) Then there is a look at the VKCL log file and export the relevant text file for submission. More about that later.

About the gear :

IC-706Mk2G on 6M SSB/FM, 2M SSB/FM and 70CM SSB/FM (nothing heard on 439.000 FM though I did listen there from time to time)

IC-706Mk1 as a transverter IF to..

Homebrew 23CM transverter, about 20WPEP, 25el yagi

Homebrew 2.4/3.4 transverters (W1GHZ based), common synthesizer, about 1w+ to a dual band coffee-can feed mounted on a 24dBi (@ 2.4GHz) grid-pack reflector.

Homebrew quickly-lashed-up simple transverters on 5.76 and 10.368, 145.000 IF to mini-transverter to 445.000 (+4.5dBm) to a separate microwave mixer (in each case) with LO at 5315 MHz and 9923 MHz at around +7dBm from the basic PCBs from my homebrew transverters. The RF port of the relevant mixer then went straight to either the 5.7 or 10GHz horn. This was created on the Wednesday/Thursday, just 2-3 days before the FD, as an interim measure to get 'my own' gear operating on these bands. The development work on the 'proper structure' transverters will continue now that this FD is out of the way!

Doug VK4OE's two boxes are similar concept to that above except he has included bandpass filters on the feeds to the horns, separate LO's , different low power IF radios etc..

At some stage about 3 hours into the event, I started to get reports of 'crook' quality transmissions on 23cm and noting low battery bank voltage, I got out the 2-stroke generator and started it up. The only problem was that I was still taking out more current than I was charging with so the battery volts stayed down. I turned off all but the main transceiver for 6M->70CM and the power to the notebook to give it a chance to recover. Given that the 706 takes up to about 20A peak on transmit, and with the high transmit cycle during the FD, it was a slow recovery process. I then added the DC lead to the charging process : the 240VAC output to the transformer-based 12V @ 12A charging power supply plus the one to the 8A 12VDC socket on the generator, then finally the battery voltage was starting to rise… I left the generator running until the 1000UTC end time for my 8/9 hour stint, and the voltage was still relatively low as against fully charged : 360AH of batteries takes a while to charge.. I realized that at least part of my problems was due to running Doug's two units and the DC power they were consuming. Note to self : evaluate the low-voltage characteristics of the 23CM transverter before the SE Q'ld Activity Day next month.

By the way, I had a visit from the farmer about 4PM, he was wanting to see what the setup was all about while he checked the level in the nearby water tank. We had a chat for a while during which time I enquired if I would be able to come back and set up there again. His response : YES!!! No HT noises, no electric fence noises, about 100M off the road up on the top of a rise with brilliant microwave path possibilities northwards. Wouldn't you be happy to be able to gain access to that again ??

The results for the 8 hour section of the event bettered all of my previous FD attempts, and I have no doubt that I could have done better still if the temperatures had been more reasonable and more stations had made it on-air. Temps of 38 degrees plus were reported from some Brisbane operators, with several pre-planned portable outings cancelled because of the forecast maximums.

Due to the fact that I actually operated portable for 9 hours, the VKCL software chose to ignore the first 29 contacts to give the best 8 hour section results :

Summer VHF-UHF Field Day Contest 2013 Callsign: VK4ADC/P

Section: B: Portable station, single operator, 8 hours

Scoring Table

Band	Locators Activated	Locators Worked	QSOs Made	Total	Band Mult	Band Total
50	10	130	34	174	1	174
144	10	30	24	64	3	192
420	10	30	19	59	5	295
1.2G	10	30	11	51	8	408
2.4G	10	20	2	32	10	320
3.3G	10	20	2	32	10	320
5.6G	10	10	1	21	10	210
10.G	10	10	1	21	10	210

Final Total: 2129

Of course, my FD report wouldn't be complete without some photos of the setup on the day :

Mouse-over to see in greater detail.

The 3 plastic carry boxes on the back seat contain hardware spares (screws, nuts, cables etc) plus the transverter harnesses, the coax harness to the 4 yagis plus an assortment of polytarps & securing ropes.

This view shows part of what is in the back of the car : the black timber radio "rack" & in behind it is the 2.4/3.4 transverter, VK4OE's 5.7GHz unit plus my 5.7/10 GHz unit - plus 2 chairs and a total weather cover for the trailer. The green basket at right contains tools and spare microwave parts... just in case !

The trailer ready to go. The table top is fixed in position, with the generator (LHS under), the 4 x orange non-spill 12V batteries in parallel (centre under) and the modified 12A DC power supply/charger (RHS under). The 2.4/3.4 gridpack is occy-strapped to the LHS side frame. The 6M yagi (in pieces) travels at the top RHS along with the yagi mounting/masting pipes. The 23CM yagi is at top LHS along with the front/microwave masting pipe.

The 2M and the two 70CM yagis are occy-strapped to the top of the cage for transit.

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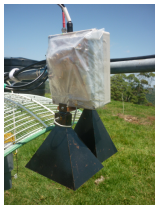
A closer view of the gridpack with the dual band "coffee-can" feed - once strapped in.

A better view under the operating 'table'. The 5 litres of 50:1 two-stroke fuel will keep the generator going for an estimated 10-15 hours under typical load.

Just after arrival at QG61OV, the trailer was detached from the car so that it could be set close to horizontal. The view behind is the path towards Brisbane.

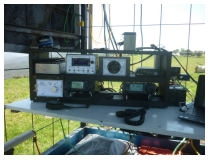
Assembling the yagis for 6M, 2M plus two for 70CM. The background view is fairly close to due South.



The homebrew (quickly-lashed-up) simple transverter assembly for 5.76 and 10.368 GHz. The box contains the mini-transverter, 145.000 to 445.000 (+4.5dBm), the dual port synthesiser/LO PCB , the 10GHz multiplier PCB (producing 9923 MHz at around +7dBm) and the 10GHz microwave mixer. Under the clear plastic is the 5.7GHz multiplier (producing 5315 MHz at around +7dBm) and then a Minikits EME171 PCB with a MCA1-12G mixer on it. The RF port of the relevant mixer is then coupled straight to either the 5.7 or 10GHz horn via 0.141 or 0.085 hardline..

As assembled on the microwave masting pipe, between the 2.4/3.4 gridpack and the 23CM yagi on the top.

The microwave antennas up in the air..



The equipment "rack" in place at the operating position. The silver/green polytarp provide the necessary shade given the high local temperatures.

Just one of the "visitors" saying hello. The problem was that they brought their own swarms of small flies with them - and some of the flies stayed even after the cows moved on.

This is the view towards Brisbane. Note that the camera was angled down a little to include the top of the 5.7GHz horn in the bottom of the picture. In reality, the horizon is probably about 15 degrees higher than the photo's perspective. The falling range on the RHS is the bottom of Tamborine Mtn, and the bottom of the "V" between it and the range at left is about 345 degrees - correct for most of Brisbane itself. The farmer advises that on a clear night, they can see the lights on Mt Coot-tha but today the view is obscured by smoke from one of the many bushfires in the region.

The VHF/UHF mast : 2 vertical whips on top, 70CM horizontal yagi under, 2M horizontal yagi (although this one is hinged and can be changed to vertical if a rope is added during the array assembly), the 70CM vertical yagi (439 MHz), and finally the 6M yagi.

The top of the microwave mast : 23CM yagi on top, the 5.7/10GHz transverter with horns, the 2.4/3.4 gridpack and just below it is the transverter itself.

My synthesised signal source with the 5.7GHz feed connected. This is very close to frequency eg 1152.000 creates harmonics at 5760.000 and 10368.000 and allowed me to "calibrate" 4OE's transverter boxes. Once I knew where that frequency point was, it was easy to tune the transceivers 150KHz higher for the calling frequency....

VK4OE's transverters on the old B&D Workmate - it makes a great folding table for this type of event. The bottom cardboard box is the 10GHz unit, the top one is 5.7 GHz

This is the TCXO (plus buffer amplifier) used as the 10.000MHz source for the transverters. It was checked the day before the FD and produced a stationary Lissajous trace on my CRO against the GPSDO. Obviously very close to frequency ! The unit is kept powered on even during transit through a diode OR-ed 12V power source from a separate 12V 7.2AH SLA battery.

The Asus EEEPC has a 10" screen but is adequate for a low power consumption computer for logging with VKCL. The two extra 6V 7AH batteries for the "buck" supply for it's power are just to the left of the EEEPC.

Postscript :

I have received an email from an anonymous 'party' (vhf.uhf.field.day@gmail.com (mailto:vhf.uhf.field.day@gmail.com)) that contains the following message :

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Please give some consideration to NOT submitting a Summer Field Day log.

Yes this is different!
In submitting a log, you support the way these events are managed; ie; in an autocratic and arbitrary style.

We all cherish living in a civilised country that allows free speech, and having a say on outcomes. All except WIA VHF/UHF contesting, it seems.

The results of the recent comprehensive and wide-reaching survey should not have been fobbed off, like they were. Any reasonable mature person knows this was disrespectful, and the wrong thing to do.

It seems your opinion wasn't worth anything, and this sets an ugly precedent for the future.

The Contest Manager's irrational response was removed off the WIA website, a clear indication that the WIA does not support the Contest Manager.

The WIA Directors must now step in, and restore some integrity back into VHF/UHF contesting, by respecting the wishes of an overwhelming majority, something the VHF/UHF Contest Manager was not willing to do.

You can help make a difference, and by NOT submitting a log, will help reinforce the need for a fair, unbiased, and proper review process be undertaken, and ideally, before the next event.

Apart from being selfish, submitting a log sabotages this need for a harmonious and positive outcome for all concerned.
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If the email had been signed with a name, callsign and or known email address, I might have considered it - however it was anonymous - and given the effort that I personally put into FD preparations, travel and operating time, my log **is** being submitted to the WIA Contest Manager. I think that the rules need some variations (grid squares versus distance etc..) but this request is taking it a little too far.