



## 2009 Spring VHF/UHF Field Day

VK4ADC/P

Beechmont Plateau

28 November 2009

The weather forecast for SE Queensland was for a "34 degree centigrade day" with rain and thunderstorms but I guess I was lucky - the rain/storms didn't actually eventuate at my field day location - well, this time anyway. The main storm cells went south and north of me according to what I could see on the weather radar yet the storm "crashes" were plainly evident on all bands. That is the towards the end of the field day outing story so let's go back to the main details :

### Location :

Beechmont Plateau, Gold Coast hinterland, south east Queensland, Australia

534 metres above sea level (ASL) according to Google Earth [ GPS receiver actually showed 548m ASL ]

Lat -28.126, Long 153.193

### Grid Locator :

QG61OU

### Radios / antennas:

Icom IC-7400 for 50.150 MHz SSB at 100w PEP - 4 el horizontal yagi, 525.525 FM at 80W - 1/4 wave whip at the top of the mast tube, 144.150 MHz SSB at 100W PEP and 146.500 MHz FM at 80W - 8 el yagi "flippable" from horiz to vertical polarisation

Icom IC-718 to a Microwave Modules MM432-28 transverter for 432.150 SSB - about 10w PEP - 12 el horizontal yagi

Yaesu VX7R handheld for 439.000 FM - 5 watts - 12 el vertical yagi

{ All above antennas fed via RFI Cellfoil 9006 low loss 6mm foam coax using N males for the "top" end and BNC males on the "bottom", all cables nylon-tied to create a harness with the "top" connectors exiting the harness in the order to match the antenna mounting order, all plugs colour coded with heatshrink to match up with the antennas }

Kenwood TR751A to a H/B 23cm transverter based on Minikits modules - about 20W PEP - 26 el horizontal yagi via 10m of LMR400 coax. Used on 1296.150 & 1296.160 SSB and 1296.200 FM !

### Bands & modes available :

50.15 SSB, 52.525 FM, 144.15 SSB, 146.5 FM, 432.15 SSB, 439.0 FM, 1296.150 SSB and 1296.200 FM

As it turned out, I didn't get around to checking either 52.525 FM or 146.500 FM at all and only had 2 contacts on 439.000 FM right at the beginning of the FD operation. The main operation focussed on SSB operation and even there activity was sparse at times.

Computer support :

Compaq Armada 1750 for the VKCL logging software, with cellular-based internet access at 3.6MBPs and access to the VKLogger and the Bureau of Meteorology radar web sites. Due to some issue relating to the CIV interfacing, I was not able to get the OmniRig/VKCL software to talk to the Icom IC-7400 and given the use of different transceivers for the 432 and 1296 bands, it almost seemed easier to just manually select bands and modes. I guess that will be the case until VKCL supports multiple transverter configurations ( & L.O. offsets) - something that has been suggested to Mike Subocz, VKCL's author. [ *Post FD Note : The CIV non-communications error was because I failed to take the stereo to mono 3.5mm adapter and leave it on the OPC478's plug - i.e. between the stereo plug and the mono socket on the rear of the IC-7400* ]

I spent a half a day during the week preceding this FD building up a PWM-based power adapter/charger for the notebook battery (using the same basic ideas from the supply for the GPSDO , this one with +12V input and +16V output) and that held the battery indicator on the notebook screen at 70% for the whole 8 hours of the field day operation from the +12V power source - the same batteries that were running the radios. Care was taken to include input and output lead/connection RF/EMI filtering and the veroboard it was constructed on was screwed into a diecast box to minimise radiated noise. In fact I checked the noises into the various receivers with the power on the charger, and then with it off, and there was nothing really noticeable on any band so maybe that was a job well done. [ Photo below ]

Site comments :

I actually ended up at *yet another* Beechmont Plateau site this time around, probably towards the mid-point of my previous two outings. This time around I was using 23cm so I needed a reasonable path back to Brisbane if I intended to make any use of it and this new site was certainly going to be better than either previous one. It was on a flat section of ground with good take-offs all around and while Brisbane was certainly not line-of-sight, the path did provide workable signals.

One thing I am beginning to "note" about Beechmont though and that is when the wind comes up so does the high tension (HT) power line noise. Adam VK4CP set up a few kilometres north of me and complained that the HT noise there was severe at times also. Late in the day the wind dropped and the temperature rose and I don't really know which was worse - the HT or the heat.

This was the 4th outing for 2009 for a field day operation so by now I was starting to get the hang of doing it all by myself and trying to make the process/methodology relatively efficient. The plastic crates were packed in the car last-in first-out in the order that I would require items to put the station together. The car was completely packed by 4PM on the Friday afternoon with the exception of food, drink and spare clothes (in case the predicted storms arrived). On Saturday morning there was time for breakfast and to prepare the "food goodies" for the day before a 7.30AM departure south-ward.

Initially I went to the more-southerly '09 Summer Field Day site and when I took in the aspect of the rise immediately to the north of it, I decided that I had a little time up my sleeve and could search for an alternative site with a better northerly aspect. The site I then selected was better in all respects and I even ended up with permission to re-visit it for future field day outings - which was great seeing as how it was on private property ! By now it was about 9AM so it was time to get unpacking. The photos tell the rest of the story.... { any times are from the original image time stamp }

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As usual, all photos are available in larger views by rolling your mouse over the relevant graphic images...

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4PM Friday : car all packed  
semi-clear plastic box on RHS contains the 2 x 12v car batteries  
Centre green box has the shelter parts  
LHS blue box has the antenna rigging parts  
Tilting mast base under the LHS box has a Yaesu cap on top  
ready to shove on the head on arrival on-site (yes, a reminder..)



4PM Friday : 2 x 70cm yagis plus the 23cm yagi on the passenger side roof bar



4PM Friday : the telescoping mast tube plus the 6m and 2m yagi antenna pieces on the driver's side roof bar



4PM Friday : the plastic crates in place and labelled. The blue plastic work stool's use will be evident shortly...



9.10AM Sat : on site Beechmont.  
Note the wide open spaces. Aspect : north



9.10AM : on site Beechmont.

Note again the wide open space up to the easterly dropoff.

Aspect : north-east



9.10AM : on site Beechmont.

Aspect : south-east



9.20AM : Set-up step one - place the tilt base under the rear wheel

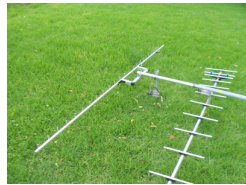


9.20AM : step two - attach the top arm and use the plumb bob to get the mast tube mounting vertical

{ more details as to how this arm mounts on the vehicle can be found on other field day pages on this web site - see the menu at the top of the page }



9.43AM : assemble the various yagis and position them on the mast tube. Note the blue stool is used to support the mast tube above ground to make assembly easier. The 70cm, 2m & 6m yagis are all hinged so they they are assembled onto the mast "horizontally" and then they stay horizontal as the mast is raised to the vertical position.



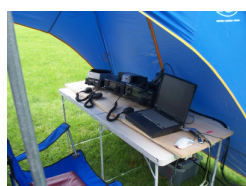
9.43AM - detail of the 23cm yagi mounting to the extended top of the mast tube. The 430MHz yagi in this photo seems to be vertically polarised but actually moves to horizontal as the mast pipe is pushed up to vertical - courtesy of the mounting hinge. Just below the 23cm yagi is a short arm that has the 5/8 whip antenna base attached to it



9.57AM - the antenna mast is vertical !  
Top to bottom - 6m/2m vertical whip, 23cm horiz yagi, 70cm SSB horiz yagi, 2m SSB/FM H/V yagi, 70cm FM vert yagi, 6m horizontal yagi



10.21AM - the nylon RV shelter is in place on the eastern side of the vehicle



10:49AM - the notebook & radio gear is all connected & powered up. Battery box under the table.



10.49AM - more details :

LHS - TR751A & 23cm transverter

Middle left - IC718 & 70cm transverter

(plus analogue quartz clock)

Middle right - IC-7400 with VX7R in a stand on top & LED

battery voltage monitor

RHS - Compaq notebook



A closer view of the final 23cm transverter / TR751A I.F. assembly.

The transverter is actually attached to the top of the TR751A with small right angle brackets so is handled manually as "one unit".

Just connect one 12V DC lead & one LMR400 coax feeder and it's done..



Computer details : my old Compaq Armada 1750 plus MS optical intellimouse, USB2 hub with cellular modem, USB GPS receiver & USB flash stick for data backup. Plugged into the serial port at rear : Icom OPC478 CIV adapter.

This Compaq is "radio-quiet-er" than my faster IBM notebook !



LHS view of operating position.

Note the extra padding on the chair !



FD facility as viewed from the north-east - the closest public access view.



The 850 watt petrol generator was initially placed more to the RHS (south) but was moved further north (to LHS) as the wind was then from the south-west and the noise and fumes were being directed towards the vehicle & operating position.

Only 12V was taken from the generator this time around - no 240VAC was required.



4PM - the cows on the neighbouring farm turned up alongside the fence. They stayed and watched for a while but I doubt my setup made any sense to them !

I discovered that the top wire on the fence was in fact electrified but didn't produce any pulsing noise into the receiver - evidently the fence insulators were all relatively clean.

*(If I go back, I might go prepared with a long clip lead so I can attach a "short-circuit" to the active wire for the duration of my stay !)*

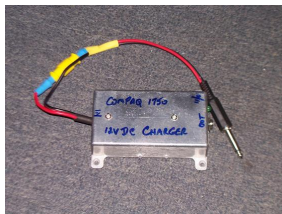


View from the north east shows how flat this site really was



View from the north looking southwards across the open field....





PWM-based notebook power adapter/charger with in-line fuse  
{yellow cylinder}.

Mono 6.3mm plug provides +12V power in connection, mono  
6.3mm socket on RHS of box is +16V power out.

The green indicator LED only lights when the output voltage is  
greater than the input (i.e. the PWM is actually running &  
'bucking up' the input voltage)

The set-up time was about 1 1/2 hours from arrival on site until ready to operate - as a one-man task. In comparison it took just 45 minutes to pull down to a fully-packed load ready to drive off. I shut down the station at 6.55PM and left the site at 7.40PM after an enjoyable visit with the wind, sun, flies and cows...

The highlights included 50 MHz Es openings to northern VK4, VK5 and ZL1, although only a couple of northern VK4's and VK5's were worked and just one ZL - Bob ZL1RS up in the very north of the North Island. The operation on 23cm was valuable for points but there seemed to be fewer stations on this band than reported in previous FD's and no tropo ducting on 2m / 70cm / 23cm was noted.

Hopefully more stations will be operating during the '10 Summer Field Day on 16/17 January as there seemed to be very few people actually on air for this event. It was good to hear/work the club stations VK4WIS/P and VK4WIE/P participating - but where were the other clubs ???

The day wasn't without it's problems..

- The SWR on the 2 metre yagi was high ( >>> 3:1) so initially I used the 5/8 wave whip (doubles as a 1/4 wave on 6m) on 2m SSB. When things quietened down early in the afternoon I set about finding the cause - which turned out to be an intermittent short circuit in the N female connector on the coaxial balun flylead (up on the yagi). Fortunately I had another unused coax lead with an N female on it so I cut both and did a quick "twist-and-insulate join" in the cable to get the yagi use-able for the balance of the FD. Just doing that made it possible to work VK2MAX/p Kempsey on 2m at a distance of some 405KM to add valuable points to my score { and followed that up with a contact on 70cm ! } .  
{ The mast actually was lowered a few times while coaxes were swapped before the determination that the fault really was in the 2m balun assembly }
- The high tension power line noise varied with wind gusts from nothing to S3-6 at various times. It affected 6m so much that ZL2TPY could hear me but I couldn't hear him (info/comment from a VKLogger post).
- The notebook seemed to be shutting down right at the start of the contest to the point that I started to do a paper log in parallel (and hence the analogue clock on the top of the IC-7400). It actually turned out that the LCD screen was going into a power-down mode that a finger on the touch-pad would restore yet a mouse "wiggle" would not ! I checked the power management settings and could not find anything awry so every time it blanked, finger to the touch-pad again and again... Something to follow up on before the '10 Summer FD outing.
- The ".150" calling frequencies became a shambles at times - and it didn't matter if it was "6", "2" or "70". I started using .160 as my primary calling frequency on each band to help avoid some of the conflicts...
- Not all stations have checked their transceiver's frequency accuracy lately.. It seems that there are "multiple definitions" for ".150" on any band you like to choose. On 1296, stations were found to be up to about 3-4KHz off frequency. Which ones were 'correct' is anyone's guess ! If someone suggested going to 1296.160 on 23cm, you always had to tune around to find them...
- The CIV connection between the notebook and the IC-7400 didn't work. { This was later found ( after the FD ) to be that the required 3.5mm stereo to mono adapter had not been included on the OPC478 lead's 3.5mm plug ! }

The log shows the following contacts breakdown :

Band	Contacts	Locators	Points
50 MHz	37	9	137
144 MHz	26	5	258
430 MHz	18	4	340
1296 MHz	9	3	392
Totals	90	21	1127

Field Day entry category - 8 hour, single operator, all bands

Did I enjoy the outing - a most definitive YES !

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