

Brisbane Test/Tune/Antenna Day

21st April 2013

See also the VKLogger topic about this event... (<http://www.vklogger.com/forum/viewtopic.php?f=31&t=11189>)

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This event was again hosted by the Redcliffe Radio Club, VK4RC, to help microwave enthusiasts test, align and evaluate their microwave equipment. It also brought together some newcomers to discuss their approaches and options to get operational on the microwave bands.

Test equipment was there to allow testing of antenna feeds to determine return loss, signal generators for sensitivity testing plus a couple of spectrum analysers to check spectrum purity and transmit power.

Adam VK4GHZ was intent on finding out how well his 3XDK-base 10GHz transverter sensitivity compared against others' units so a number of transverters underwent the signal conversion test back into a common FT817 as an IF. A few transverters don't have LNA's inbuilt so they tested worse but the basic units all seemed to fall within about 15dB. He considered his to be insensitive but with the LNA in-line, it seemed to do well (to me anyway).

I also took the opportunity to do some return loss tests on my dual-band 5.7/10GHz feeds, and while it was not particularly good on 10.368 on either feed, the adjusting screws were set to provide best achievable return loss figures. The 5.7 results were up near 20dB so that section of the feed works fine. I also did the same tests on a commercial dual-band feed for Kevin VK4UH and achieved results of 18dB and 22dB respectively for 10 and 5.7GHz after minor re-tuning.

Roy VK4ZQ brought along his full set of transverters for 23cms to 3cms and they provoked a lot of interest. Roy is using the Kuhne transverters, LNA's and PA's in his gear. He didn't bring along his lead sets or his antennas so didn't participate in the afternoon shoot-out. Wayne VK4WS also brought along a series of transverters for various microwave bands but these were based on different approaches so caused a lot of interest, particularly given the lower cost of his units versus the Kuhne models.

There were a lot of other tests done on various bits of gear but I really was concentrating on my results so didn't really take in what was occurring around me for at least part of the time. Others might like to forward some details by email so that they can be added in here.

Lunch was sausages, with optional onions, on bread, chief cook being Peter VK4EA. Of course, when one has one of these combinations with BBQ sauce on it, someone has to dribble it down their shirt. This time around it was me! Oh well, it had started out as a clean shirt.

The afternoon saw a number of 10GHz set-ups all pointing at a 10368.143 GHz signal source at the far end of the parkland. A partial list was VK4OE, VK4UH, VK4XV, (plus others), then mine. I don't have a full parabolic reflector in my stock of antenna bits so my tests were done using a 10GHz horn then the dual-band feed on a small-ish grid-pack reflector fitted with aluminium insect screening followed by the same feed moved across to a larger reflector. Interestingly, the horn only just outperformed the small grid-pack, but the larger grid-pack was vastly inferior. Maybe it is the overall shape but I did try to optimise the signal by re-positioning the feed with respect to the reflector in each case so it shouldn't be the feed position. Anyone around Brisbane got a prime focus parabolic reflector dish up to about 600mm diameter that needs a new home ??

The first 10GHz test configuration was with a small horn on the signal source, then with a 40dB attenuator in line and then with a small dummy load in place. The good news for me was that I could still hear the signal when it had the load attached, and I don't have an LNA in circuit. I suspect that Doug VK4OE had the best results by virtue of the largest dish and probably the best-optimised feed, not to mention a very good LNA and transverter.... It gives the rest of us something to aspire to. Another shoot-out at some later stage might produce different results now that there is a gauge of how good, or how bad, our 10GHz systems really are/were.

There are already rumours that there will be another test/tune day in the near future so it gives a nominal deadline to those who may attend to solve their issues and bring along their gear! The moral : fix/solve it now....

Those attending included VK4's KJJ, OE, ZRQ, AMC, KLC, CRC, EA, EKA, RF, ADC, AU, NA, AQF, BTQ, KZR, REX, XV, FABP, GHZ, JMC, UH, XDL, EDD, MJF, NE, FLR, NBL, BOO, ZQ, WS. Others present included VK2ELH, VK5KK, VK5NC. If I have missed out your callsign, it was because you didn't sign the attendance book!!

The following photos were taken late in the day, long after the groups doing equipment testing inside had finished plus a few from the 10GHz shoot-out outside.

Mouse-over for a larger view.....



Wayne VK4WS at left, Trevor VK5NC at right, watching the setup for the shoot-out...



John VK4JMC ..

The following images don't have much in the way of captions. Some of the photos have people in who I can't readily identify so it is best to omit rather than to err...



Part of the 10GHz shoot-out line-up... My setup has that bright orange battery as the power source. The horns for 5.7 and 10 aren't clearly visible but were fitted at the time of this photo.



My dual-band feed and the smallest of the grid-pack reflectors. The orange conduit used to mount the feed is a tight fit into the back aluminium sleeve but allows me to adjust the feed distance.



Part of the 10GHz shoot-out line-up... VK4OE's dish with Doug chatting to Ron VK4KLC. Bob VK4XV hiding in the bottom LHS with headphones on.



Part of the 10GHz shoot-out line-up... VK4XV's dish ?



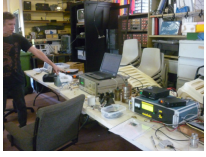
Part of the 10GHz shoot-out line-up...



Part of the 10GHz shoot-out line-up... Adam VK4GHZ's dish set up so that his multiband feed could be tested at 10GHz.



Quentin VK4AQF with some of his test gear.



Some of the other microwave test gear, QuentinVK4AQF just partially in shot.



VK4OE's test setup for measuring return loss etc..



One of VK4WS's transverters, this one is for 1296MHz.



Attendance list. If your name wasn't on it, you weren't there.