

Contesting

Last month, Nick, G4FAL wrote about the basic requirements for getting operational for contests at HF. This month I'm going to try and cover what you need to get involved with VHF contests.

For the majority of you who don't know me, I've been taking part in VHF contests quite seriously for over 40 years, with a long break recently while bringing up a family. However, I'm delighted to now be back on the 2m band, albeit in a relatively-small way at the moment, and am really enjoying contesting and DXing there. The VHF bands are just fascinating, especially when conditions are unusual.

What to expect

First off, it's worth beginning with what to expect of VHF contests from the UK. There is a huge variety of VHF contests stretching all the way from 50MHz to 248GHz, covering FM, SSB, CW and digital modes (including FT8), and from 55 minutes long to 24 hours. Activity levels and equipment requirements vary tremendously across that spectrum of contests, but – if you want to have the most fun – activity levels are highest in the 2.5-hour weekday evening UK Activity Contests (UKACs) which more or less all run from 8pm to 10.30 (UK local time). Of these, the busiest events are:

- The first Tuesday evening of the month on the 2m band
- The second Tuesday of the month on the 70cm band
- The second Thursday of the month on the 6m band

There are also well-supported monthly events on 4m, 23cm and the Microwave bands, but equipment for the bands is a little less common so, in this article, I'm going to focus on 2m because it is the busiest of the bands – but the same principles apply on all the other VHF bands.

Your position in the country, equipment and take-off will have a bigger impact on what you work in VHF contests than it does at HF. But – as an example – on the 2m band, if you have a small Yagi antenna, at least a few tens of watts, and a location in a populated part of the UK which isn't badly screened, you could expect to work a decent number of stations at distances out to about 500km under flat conditions. The other factor that varies so much more at VHF, compared to HF, is propagation. You never know very far in advance



PHOTO 1: Steve, GW1YBB's car-based portable station on the 70cm band.

if you are going to get great Tropo, Sporadic-E or an auroral opening but, when they do occur, it can make for an amazing contest.

Because being in a fantastic location can make such a difference at VHF, lots of people go out portable for VHF contests. They often do this from a car, parked up in a safe public place with a small portable mast, or backpacking lightweight equipment on foot to a true hilltop. See Steve, G1YBB's portable stations in **Photo 1** and **Photo 2**.

Scoring and tactics

There are lots of different scoring systems in use across different contests, so check the rules in the calendar [1]. However, most VHF contests are scored at one point per kilometre – often with an additional bonus or multiplier from either each new big locator square worked or each new postcode area. This means that there is a real incentive to

look around in all directions and to work the more distant stations in order to optimise your score. The exchange is normally signal report (often a real report – not always 59), serial number and six digit QTH locator (eg J0020D).

Antennas

Almost all the activity is on SSB where the norm is to use horizontal polarisation. If you already have a vertical antenna for the 2m or 70cm bands, you'll probably make a few QSOs, but having a horizontally-polarised antenna, such as a small Yagi, and rotator, will make an enormous difference. There is a huge performance penalty (up to around 20dB) for being cross-polarised. The Yagi doesn't need to be big (5 to 9 elements for the 2m band is a great start and mechanically quite manageable), or that high (clear of the rooftops in the directions of interest is a good thing to aim for), although, of course, bigger and higher is generally better. If you can't get a Yagi up outside, a Yagi, or even a horizontal dipole or a halo inside the loft can be remarkably effective. In general, you don't need to get hung up on needing a fancy modern Yagi. The extra gain delivered by similar-sized antennas of a modern design, or one even from the 1970s, is relatively small. But, the one place where a modern antenna may help you is that modern designs typically have cleaner radiation patterns than older antennas. So, if you are troubled by local electrical noise, modern antennas can be very helpful in reducing this when pointing away from the source. Tracing down local electrical noise and quietening it with ferrites, filters or a hammer can make a big difference to your ability to work weak stations.

This is VHF, so signal loss in the feeder can be high with thin cables, so use the best feeder that you can. RG213 coaxial cable really is a minimum standard for the 2m band, but ideally use one of the lower-loss options like Westflex 103, Ultraflex 10 or better.

My antenna for the 2m band is shown at **Photo 3**.



PHOTO 2: Steve, GW1YBB's backpacker portable station on the 2m band.

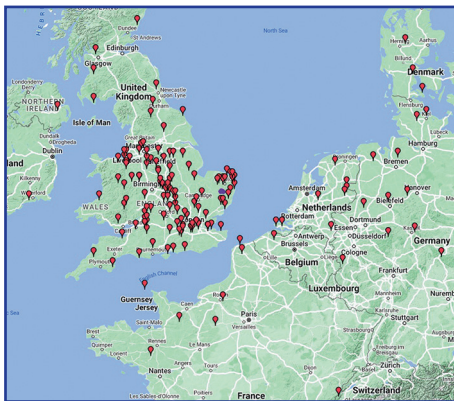


FIGURE 1: G4PIQ's QSOs from Suffolk with that simple 2m antenna and 1kW in a Tuesday UK Activity Contest.

PHOTO 3: G4PIQ's simple 2m antenna – 17 elements on a 11m mast made from bits to hand.

Equipment

There's no need to have the fanciest modern radio to take part in contests. In some ways, some older equipment performs better than the modern equivalents. You can make QSOs with very little power at VHF when conditions are good or you are in a great location but, when they are average, a little more power helps. I'd recommend 40 to 100W as a good starting point, but don't worry if you have less. Lots of radios run this sort of power out of the box, but add-on amplifiers are readily available. This sort of power level aligns nicely with the Restricted section in many RSGB VHF contests which is usually for up to 100W output to a single antenna. If you're using a transistor amplifier, I'd recommend that you don't run it flat-out – keeping it in the 50% to 75% region is a good starting point. The more modern Mosfet amps are generally a bit cleaner than the old bipolar amplifiers. The variation between the weakest and the strongest signals at VHF can be much larger than at HF, so having a clean transmit signal is extremely important – especially if you have a good site, high power or are near neighbours.

Similarly, all receivers can generate spurious signals and having one which can withstand big signals can be very important at VHF. The highest performance option is a good HF rig paired with a good transverter – but many people operate successfully with out-of-the-box VHF/UHF radios – new and older. Some of the older radios will benefit from a pre-amp on the 2m band. All radios will benefit from a masthead-mounted pre-amp on the 70cm band and above. For the 2m band there are many options but the IC-275, or an IC-271/FT-221/FT-225 with a MuTek front end, are

good older choices. The modern IC-9700, FT-897 and FT-991s are OK, but can be troublesome in environments where there are strong locals.

If you hear someone sounding like they have a wide signal it might be your receiver that is at fault. This is the topic of a much longer article all on its own. Alwyn Seeds, G8DOH wrote an excellent article in 2016 [2] and there is lots of excellent information available online in the VHF/UHF DX Book [3], even though it's not up to date.

Software

Like at HF, logging directly on to a computer is the best way to go. There are lots of operating advantages and you don't have to type up records afterwards. There are lots of good choices, including N1MM+ and DXLog, which are both commonly used and are free to use. Many UK operators also use Minos [4] written by Mike Goodey, GOGJV which is specifically aimed at RSGB and Region 1 VHF Contests. Don't forget to submit your log afterwards at the RSGB Contest Committee website [5].

Data contests

We all know that activity on data modes has grown enormously in the past few years. This situation is also very strongly represented at VHF (outside of contests and openings, the band can be silent apart from FT8) and there are a number of dedicated data mode contests which can be great fun. The most popular of these are the FT8 activity contests on Wednesday evenings from 1700 to 2100UTC on the 2m band (first Wednesday of the month) and 70cm (second Wednesday of the month). There is no need to engage any of the special contest modes to exchange serial numbers – just make standard FT8 QSOs.

Featured UK contesteer: Steve Clements, G1YBB

In the late 80s and early 90s I was very active as one of the operators of GW1VDF/P, mostly on

144MHz. I entered most RSGB, Worked All Britain and *Practical Wireless* QRP contests. I operated mostly from the Black Mountains, and later from Black Mixon.

As we were really only two main operators, myself and Kevin, G1VDF, it was pretty hard work. Eight-hour contests required a 4am start to drive out to the site and set up, and 24-hour contests were a sleep-deprived marathon. But nothing can compare to that moment when the rig noise and generator are turned off to reveal the peace and quiet (if not blowing a gale!) up the mountains.

After a long break, during which G1 licences were given access to HF, a friend got me back in to radio and I discovered there was a remarkable new transceiver, the FT-817. This tiny marvel meant I could finally realise our 90s dreams of operating from the summit of the mountains. I did one of the UK Activity Contests as a test run of the equipment and the spark was fully re-lit. All my antennas, from HF to 432MHz, are homebrewed and that adds a little extra sparkle when you do well with them. I always say never give up, and don't switch off until we have worked!

Contest of the month

I'm going to cheat and recommend a pair of contests for August. The 144MHz Low Power Contest 1400 to 1800UTC on Saturday 3 August with its 70cm sibling on the Sunday as well from 0800 to 1200UTC. These both have a 25W power limit with post codes, countries and locators as a multiplier. Rules are on the VHF Contest Committee website [6]. You also should try and make the first and second Tuesday evening UK Activity Contests [7], on the 2m and 70cm bands, for the highest activity of the month.

Figure 1 shows some of my contacts in a Tuesday 144MHz UK Activity Contest.

References

- [1] <https://www.rsgbcc.org/cgi-bin/readcal.pl>
- [2] High performance VHF/UHF contest stations, Alwyn Seeds, G8DOH, *RadCom* March 2016, p.22
- [3] The VHF/UHF DX Book – Chapters 5 & 6 - http://www.trpub.net/assets/applets/VHF-UHF_DX_Book.pdf
- [4] <https://minos.sourceforge.net/>
- [5] <https://www.rsgbcc.org/vhf/>
- [6] https://www.rsgbcc.org/cgi-bin/contest_rules.pl?year=2024&contest=lp144, https://www.rsgbcc.org/cgi-bin/contest_rules.pl?year=2024&contest=lp432
- [7] https://www.rsgbcc.org/cgi-bin/contest_rules.pl?year=2024&contest=2mukac, https://www.rsgbcc.org/cgi-bin/contest_rules.pl?year=2024&contest=70cmsukac

Andy Cook, G4PIQ
g4piq@btinternet.com