Contesting

PHOTO 1: USB to serial adapter with homebrew transistor switch circuit for CW keying.
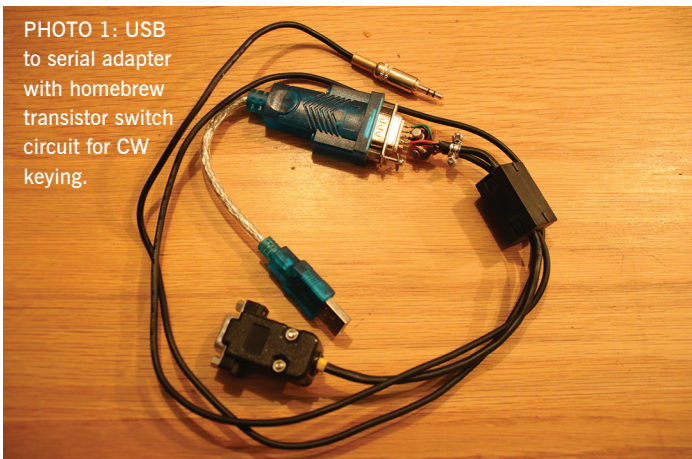

PHOTO 2: Microham MicroKeyer II interface used with Yaesu FTDX5000.

This month we consider the equipment required for you to take part in HF contests.

As mentioned last month, it is very likely that you already have everything that you need to take part in HF contests, but let's consider the minimum equipment that you might need to get started.

Antenna

I put this first as it is possibly the highest priority item for success. Initially, many of us have started with a multi-band doublet, be that a G5RV or an off-centre fed dipole, or whatever. In some RSGB contests, entrants are challenged to operate with a single-element wire antenna, which might be a 270ft (82.3m) doublet, centre-fed with balanced line.

If you can accommodate more than one antenna, then the highest and biggest antenna that you can achieve at your QTH, for each band, will likely be the most successful. For domestic contests on the 80m band, a full-sized dipole fed with coaxial cable will be splendid even if it isn't particularly high. 40m is probably the first band, moving up in frequency, where a vertical antenna is relatively easy to accommodate, but a dipole is also effective and is likely to be better for local propagation. For the 20, 15 and 10m bands a directional antenna is a huge asset but much success can be had with wire or multiband antennas. If you can install resonant antennas for the bands you are going to use, operating without a matching device will be more efficient and there will be less to go wrong.

Radio

There is a vast range of HF radios that are used by RSGB contesters. Scanning the columns of the results for RSGB HF contests we have… various models from Yaesu, Icom, Kenwood, Elecraft and Flex, plus a few examples of other manufacturers too. Some are currently available, others are older models [1].

For SSB, use a footswitch for PTT so your hands are free to type into your log and to turn the dial on your radio. For CW, the bulk of your sending should be from your logging computer, but you may resort to using a key or paddle on occasion – you are unlikely to be able to type into a computer and send CW manually at the same time. Most CW contesters will read Morse in their heads and type into their computers but we do encourage those who cannot read Morse (yet) to try with a software Morse reader. Data modes including RTTY, PSK and FT8 or 4, are pretty much entirely sent and received by computer.

Computer for logging

There are many solutions for this so it is inappropriate for me to be too specific. The key to success is to implement something that you are comfortable with and which works consistently for you.

Typically, but not exclusively, RSGB entrants are using Windows 10- or 11-based computers, which may be laptops or desktops, and are running either N1MM+ [2] or DXlog.net [3].

Connecting the computer to the radio is vital to success and is another area where there are many solutions. Depending on the mode(s) being used, the connections may include a CAT (computer-aided transceiver) serial interface which allows the computer to read the current frequency from the radio, a CW keying connection which may be a simple transistor switch using one of the hardware handshaking lines on a computer serial port, or through a USB to serial converter, to key the radio (**Figure 1**). For data modes, sound inputs and outputs have to be connected to the radio so that the computer can receive and transmit audio. These functions can be combined in a bespoke interface unit such as a Microham product (**Figure 2**) [4]. Current radios often include a USB port for direct connection to a computer, providing radio data, CW keying and sound through a single cable.

Computer logging – why is this essential?

Contests are adjudicated by software, based on comparison of computer-generated log files which are submitted by the contest entrants. This means that, in order to enter a contest, you must submit your log as a data file. Although it is possible to make a contest log on paper and then to transcribe it into a computer file after the event, this is a pretty horrendous process compared with assembling the log on a computer as the contest is progressing. Computer skills have become very important to radio contest success. To be able to touch-type is a huge advantage and is essential when QSO rates become high, as they do for high-scoring stations in the large international contests.

Ergonomics and operability

As well as the benefit of using a footswitch for SSB transmitting there are other suggestions that may help with station operability.

You are going to be turning the tuning knob on your radio a lot, so try to position the radio so that it is in a comfortable position for this. Have
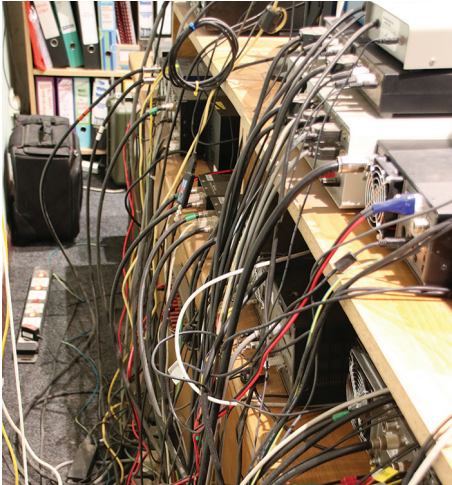
PHOTO 3: It might look smart from the front, but here is the rear view!

your computer keyboard either in front of the radio or just to the side so you can quickly move from tuning to typing.

Read the rules and ask: how do I optimise my score within the rules?

Read how the contest is scored and if there are any rules that you need to be careful of – for example, are there frequency limits outside which QSOs will be invalid? If the score includes multipliers, then consider how to optimise QSO points and multipliers. The question is, what do you need in your log to get a good score? Often there are more points for QSOs on the low bands so there is little point in labouring on the higher bands if QSOs are available on lower bands.

Read the band plans – how do you respect other band users?

Avoid operating close to frequencies where QSOs are already in progress at the start of a contest. Make it a priority to use contest-preferred parts of the band plans. In most cases, RSGB HF contests are short in duration so lack of availability for non-contesters is temporary. Particularly with SSB contests, bandwidth is at a premium and some entrants will come onto a band in advance of a contest to reserve an operating frequency. In the RSGB Autumn Series we have a 'Le Mans' rule where entrants must maintain radio silence for two minutes before the start [5].

Does your HF station work – how might you test it?

It is worth remembering that our hobby is 'amateur' radio – meaning that things don't always work as reliably as they might be expected to in a professional environment. So do allow sufficient time to get your station ready for the start. There is always something that will catch you out, particularly in the software setup required for data modes.

PHOTO 4: Mark Burrows, 2E0SBM operating in VHF Field Day.

As for testing, there are a few tools that are relatively recent additions to our hobby that can help us to check that we are 'getting out'.

CW and RTTY

The Reverse Beacon Network provides almost instant confirmation of where your signal is able to be heard. If you only use it to see where your own transmission is getting, this does not put you in the assisted section, as you are not using it to identify who and where other stations are [6]. If you are interested in comparing your signal with others, try the CW Club RBN Spotter, which lists all the stations that are being heard subject to filters that you configure – for example, who is being heard in North America on the 160m band? [7]

FT modes

PSK reporter has grown to be a powerful analysis tool, historically for FT modes but also for other modes too; it's certainly worth experimenting with [8].

SSB

It's not easy to test except by actually operating but, prior to a contest, others are likely to be testing too and this can be an opportunity to ask for a signal report.

Contest exchanges and efficient operating at HF

Again, read the rules which will explain exactly what you are expected to send and are likely to receive, in the contest exchange. It may seem rude, but your QSO partner for each contact will not be offended if you simply send the bare minimum that the contest rules ask for.

With CW you can send as fast as you can comfortably read, which is often quite a bit faster than you might be able to have a rag-chew QSO; this is because the exchange is predictable – often you only need to read, and type in, a callsign and a number for each QSO.

In RTTY or PSK, it is reasonable to repeat the key data (callsign and serial number), as reception is often unpredictable. In other modes, you shouldn't need to repeat

anything, unless you know the other station will definitely struggle to copy. They will ask you to repeat if they have any doubt.

Submitting your log

Again, read the rules, which will explain where, when and in what format your log should be submitted. Your logging software will be able to export your log as a Cabrillo file, which is most often the format in which the contest sponsors will want you to send them your log. Often you will quickly be able to see how your number of QSOs, or your 'raw score' compares with those of others. You will have to wait for some time for a fully-adjudicated result – more about that in a later article.

Featured UK Contester: Mark Burrows, 2E0SBM

I live in Earl Shilton, Leicestershire and started contesting in 2009 for my local club. My favourite contests are the UK Activity Contest on VHF/UHF where I try to find new ways to improve my score with different antenna configurations. My advice for new contesters is to get on the air and give it a go, even if you only make a few contacts (Photo 4).

Contest of the Month – RSGB IOTA Contest

The IOTA Contest is RSGB's flagship HF contest, attracting thousands of participants from all over the world. It runs for 24 hours starting at 1200UTC on Saturday 27 July.

The contest bands are 80, 40, 20, 15 and 10m, using both CW and SSB. Stations send a signal report and serial number. Stations on islands send their IOTA reference number. For UK amateurs who are resident in the British Isles, the contest is an attractive one to take part in as their IOTA reference will attract callers [9].

References

[1] Check RSGB results so see what equipment other entrants are using: https://www.rsgbcc.org/hf/
[2] N1MM+: https://n1mmwp.hamdocs.com/
[3] DXLog: https://dxlog.net/
[4] Microham: https://www.microham.com/
[5] RSGB Autumn Series – from September each year: https://www.rsgbcc.org/hf/
[6] Reverse Beacon Network: https://www.reversebeacon.net/
[7] CW Club RBN Spotter: https://rbn.telegraphy.de/
[8] PSK Reporter: https://pskreporter.info/
[9] IOTA Contest: https://www.rsgbcc.org/hf/rules/2024/riota.shtml

Nick Totterdell, G4FAL
ContestClub@rsgbcc.org