Contesting

Previously, we have touched on the two basic operating styles.

These are *running* (staying on one frequency, calling CQ and working stations that call you) and *search and pounce* (tuning around the band and calling stations you hear running). Before joining in, be prepared – know what contest is on and be familiar with the rules. Sometimes there is more than one contest concurrently running, so it is even more important to understand the differences between them. As a minimum, you should know your eligibility to be in the chosen contest, if there are any power or frequency limitations and the required information to exchange in the QSO (the exchange). If you are taking the contest seriously, you will also want to check how many points are awarded per QSO and which QSOs count as scoring multipliers.

Let's look at operating styles in more detail.

Running

You are ready to call CQ. First, choose a band and find a frequency that you know to be eligible in the contest – for instance, some contests avoid 'DX windows'. You will also want to avoid any DXpeditions in progress – they often work 'split frequency' with the DX and pile-up separated by one or more kHz. A pile-up can sometimes be quite large so they are best avoided. Next, try to avoid 'special' frequencies. On HF these would include the NCDXF beacons and allocations for activities like POTA, SOTA, /QRP, SSTV, or in the UK the GB2RS News service etc. Unfortunately, these frequencies often get buried under activity, particularly in the bigger contests. However, that's no excuse to be operating there and you will soon get reminded if you are upsetting someone. Furthermore, if you are intending to contact overseas stations, be mindful of any frequency constraints they may have, for example the USA band plan for their different licence classes.

In busy contests, finding a clear frequency between stations can be challenging; a panadapter is a useful tool for finding a gap but, if none can be found, consider if search and pounce (S&P) would be a more productive option.

Finally, before calling CQ, ask if the frequency is clear; move on if the frequency is occupied. Although it may appear to be a free frequency, there could be DX there which you can't hear, but other stations can and are waiting to call. Don't bother arguing if you are told the frequency is occupied but you can't hear anything – simply
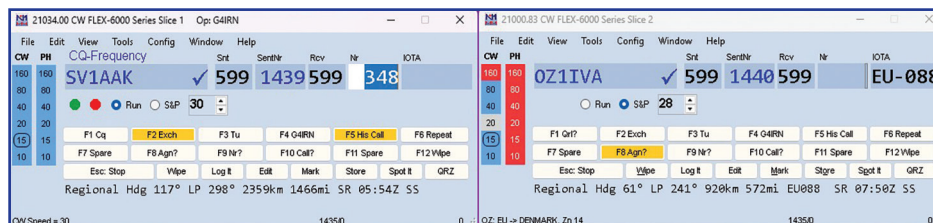

FIGURE 1: Two SO2V entry fields in the popular N1MM+ logging software.

move on. On CW or data modes, 'QRL?' is the Q code used to ask if the frequency is clear.

When you're ready, call 'CQ Contest' on SSB or 'CQ Test' on CW or data modes. If there are several concurrent contests in play, it is wise to state which contest you are participating in eg 'CQ All Asia'. It is better to keep the CQ messages short but frequent. If someone tuning around the band finds you near the start of your CQ call, they don't want to be hanging around too long for you to finish. Fading (QSB) can be fast and deep, especially on VHF, so that is another good reason for keeping CQs short and frequent.

One note of caution: sometimes you might find what appears to be a clear frequency, ask if the frequency is clear, start CQing and maybe even have a QSO before some alligator of a station comes on and says the frequency is in use. This is often the result of a station working SO2R (single operator, two radios), operating alternately between two bands and getting held up on the 'other band' before being able to return to 'your' frequency. It is up to you whether you try to fight them off or not but, if they are very strong, then it's probably a lost cause.

The DX Cluster and Reverse Beacon Network (RBN) are usually very busy during contests and the phenomenon of 'cluster-driven pile-ups' is a common event – either someone manually spots you on the cluster or RBN picks up your CW/data signal. A fresh callsign on the band can generate many callers and this is especially so if your station is a multiplier eg a UK station in the UK&EI DX Contest activating a needed postcode area, or similarly a rarer square in VHF contests. You may sometimes get more than one caller at a time; if you cannot clearly hear a callsign in full, try to get a partial callsign and send a report to solicit a response from that station only eg 'G4I? you are 59 14'.

Calling CQ and receiving a stream of callers can be a very fulfilling activity, an affirmation that your station and antennas are working well. However, when the calls run out then it's time to think of an alternative approach.

Search and pounce (S&P)

Tuning the dial and searching for stations calling CQ is known as 'search and pounce'. Sometimes it can be as productive – if not *more* productive than calling CQ. It is a particularly good approach for low-power stations since they can often be drowned out when calling CQ.

If the contest allows it, and you have chosen to enter the 'assisted' category, the DX Cluster will probably provide 'spots' for many of your S&P QSOs. However, it is still advisable to tune around, particularly in SSB contests because not every station will be put on the cluster. On CW and data modes, RBN automatically spots stations, so tuning is less productive. Either way, when you tune to a new station, listen for the callsign and make sure it isn't a 'dupe' (duplicate) and, if it's an eligible contact, send your callsign once. Only repeat your callsign if either there is silence or the run station requests it. If there are several callers and the run station has replied to another station, they could be halfway through their report by the time you've stopped sending your callsign a second time – you'll be causing interference and won't be popular.

In practice, a mix of the two styles (run and search and pounce) works best for most operators. However, if your callsign is a multiplier in the contest, focussing on running may be more productive. In the worldwide contests, some rare multiplier stations run continuously and rely on stations calling them but, of course, they may miss out on other rare multipliers doing the same. Ideally a balance of the two is used.

Single operator, two VFOs (SO2V)

Many modern radios have two receivers that can be monitored at the same time, one in the left ear and one in the right ear. This has given birth to the concept of SO2V – single operator, two VFOs.

In SO2V mode, both receivers are usually tuned to the same band and share the same antenna. The downside is that transmitting mutes both receivers, but it opens the possibility of the operator calling CQ and listening to replies on a run frequency in one ear, whilst searching
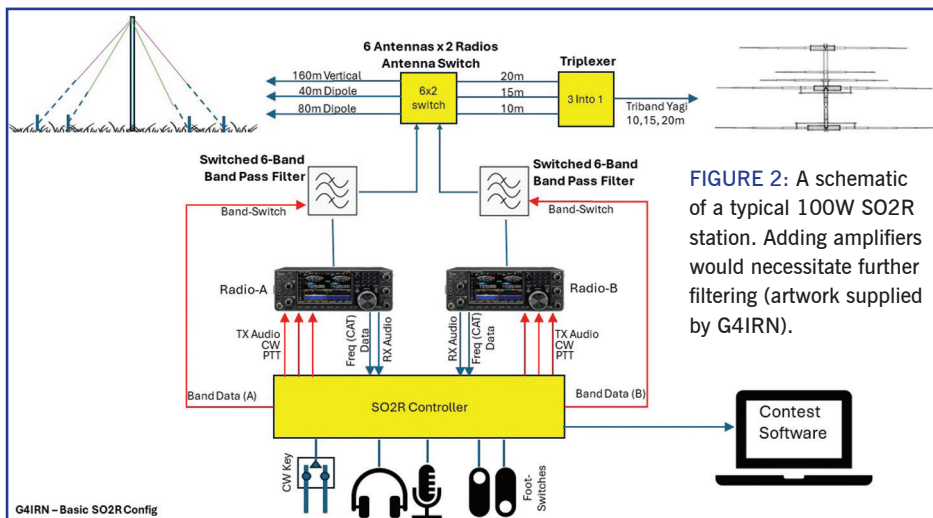
FIGURE 2: A schematic of a typical 100W SO2R station. Adding amplifiers would necessitate further filtering (artwork supplied by G4IRN).

FIGURE 3: QSO timing using the 2BSIQ method (artwork supplied by G4IRN).

Two band synchronised interleaved QSOs (2BSIQ)

Also known as 'Advanced SO2R', an SO2R station is needed for this – the operator calls CQ alternately on each radio, each on a different band. Great timing, a cool head, snappy operating and automated messages are essential since time waiting for an outgoing message on one radio is used to progress a run QSO on the other radio. The method requires callers to be minimalistic too. Familiarity, and predictability of station and software behaviour is essential – the operator will listen only to the active receiver, mute outgoing messages from the transmitting radio and concentrate on logging QSOs. Successfully used and with sufficient activity, this is the most productive single operator contesting style but takes experience and good station design to get there (**Figure 3**).

The popular logging software DXLog has an inbuilt contest simulator allowing the user to practice various contest techniques including 2BSIQ, albeit only on CW using the integrated MorseRunner software. Instructions can be found in the links below, along with other operating tips.
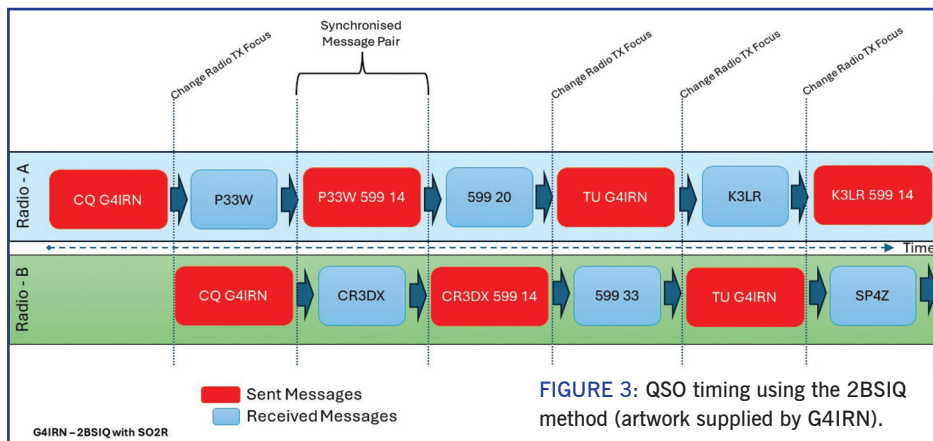
Summary

In this chapter I have detailed the 'run' and 'search and pounce' styles of operating and how they can be applied to the different single-operator methods: SO2V (dual Rx receiver); SO2R (two radios) and 2BSIQ (SO2R operation on steroids).

Useful resources

[1] Tips on being a better Single Operator by K5ZD: https://youtu.be/EFFGPeTvBj8?si=ilOMI-Q78PTEzvug
[2] CT1BOH describes 2BSIQ: https://youtu.be/Bf_yPKg_9iI?si=uMzcei8AmswB4lXB
[3] Single Operator contesting with N1MM: https://n1mmwp.hamdocs.com/manual-operating/single-operator-contesting/
[5] Single Operator contesting with DXLog: http://dxlog.net/docs/index.php/Getting_started
[6] DXLog contest simulator: https://dxlog.net/docs/index.php/Menu_Tools#Contest_simulation
[7] Getting started on SO2R: https://ncjweb.com/bonus-content/Nov-Dec-Dewey-SO2R-Part1.pdf and https://youtu.be/Bf_yPKg_9iI?si=uMzcei8AmswB4lXB
[8] YV1KK demonstrating 2BSIQ in the ARRL SSB Contest: https://youtu.be/Bf_yPKg_9iI?si=uMzcei8AmswB4lXB
[9] RadCom Contesting: rsgb.org/radcom-contesting
[10] Email ContestClub@rsgbcc.org

and pouncing in the other ear between gaps in transmission. Where the DX Cluster is permitted, searching and pouncing is often done using DX spots, allowing the operator to tune quickly to stations in the short reception gaps available and focus on needed multipliers to gain more points.

Another approach could be to search and pounce with both receivers, and while waiting for a station to complete a QSO in one ear, another QSO could be lined up on the other receiver.

This technique is supported in the most popular contest logging software but needs practice and some getting used to. However, it's a straightforward way of increasing your score if the radio supports it since it needs no extra hardware beyond the dual Rx transceiver (**Figure 1**).

Single operator, two radios (SO2R)

SO2R is a technique that many improving contesters aspire to. It requires two radios and sufficient antennas to allow reception on two different bands at the same time with transmission on either, but not at the same time. The premise of this technique is:

- Two radios
- Each radio tuned to a different band
- No inter-station interference

- Only one signal at a time – Tx lockout between the radios
- Automated outgoing messages (CW macros or digital voice keyer messages), to give extra time for listening on the other radio

Being able to listen on a second radio while transmitting on the first is the main advantage over the SO2V method and can boost productivity and fun. Since it gives simultaneous access to another band, the operator can search and pounce on the second radio while making run QSOs on the first. However, this brings more complex hardware requirements due to the potential for interference between the bands. Band-pass filters and associated switching are required and, if a single tri-band antenna is being shared between both radios, a triplexer is required too.

Contest software provides station control through an 'SO2R Controller'. This unit manages received audio and headphone balance, microphone output, PTT to the correct radio, CW keyer and CAT control – such units can be home-brewed or purchased.

Figure 2 shows a schematic of a typical 100W SO2R station. Adding amplifiers would necessitate further filtering (artwork supplied by G4IRN).

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