

Contesting

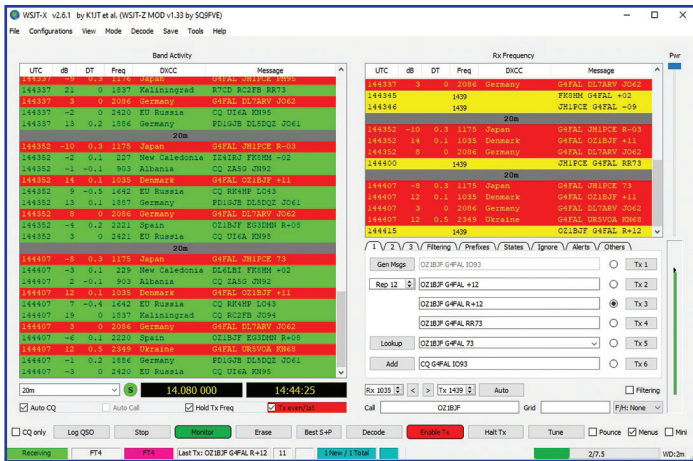


FIGURE 1: G4FAL running FT4 on the 20m band using WSJT-Z.

Why use the MGM modes at HF or VHF?

At HF, the RSGB MGM (Machine Generated Mode) contests use FT4 [1]. At VHF, the most popular events use FT8.

FT modes have become extremely popular. They are simple to implement with free software allowing QSOs to be made in an automatic cycle at low signal levels. FT mode exchanges don't easily accommodate discussion and QSOs are of the 'rubber stamp' variety.

In radio contests we normally have short, simple exchanges to complete each QSO, regardless of mode – which is how FT modes operate by default. This makes FT modes a good fit for competitions.

Many FT mode users, some whom are also contesters, have yet to exploit the opportunities for FT mode contesting, perhaps because the QSOs are not perceived as being very 'snappy'. However, using FT4, with the first message disabled, reasonably high rates are possible – with results showing a QSO each minute for 90 minutes achievable, using a single radio.

I like to think of FT mode contests as trials of what can be achieved with these modes in a short time frame. At HF, the RSGB is currently running FT4 contests for 90 minutes on one evening each month, for nine months of the year. These contests, or operating trials, are on the five contest bands from 80 to 10m and the scoring system includes points per QSO with multipliers based on the number of DXCC entities worked on each band.

On VHF, the RSGB FT8 contests are also monthly on the first and second Wednesday (2m and 70cm respectively) and can be entered on a four-hour or two-hour basis. The events are co-ordinated with the rest of Europe, so activity is high and scoring is calculated on total distance worked multiplied by number of squares (eg JOO2) worked.

Other contest sponsors run FT mode events, some of which use contest-specific exchanges, and there are some wider opportunities to use MGM modes at VHF, but that's beyond the scope of what we'll cover here. The RSGB and others are providing opportunities for FT mode enthusiasts to compare what they can achieve with other operators, and to apply strategy to FT mode operating.

Running FT modes for contesting

The popular FT mode software packages are suitable for the RSGB HF FT4 contests and the VHF FT8 contests. WSJT-X, WSJT-Z, MSHV and JTDX will

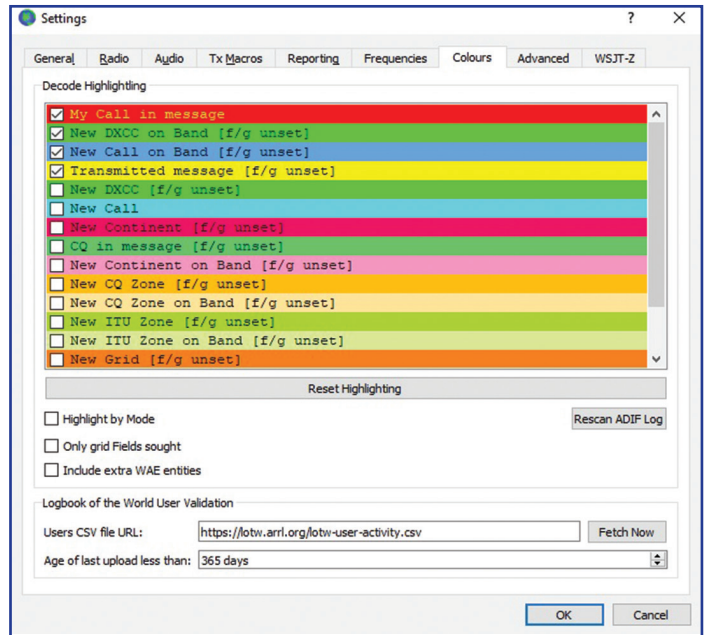


FIGURE 2: Colour settings in WSJT-Z for HF FT4.

all perform well (Figure 1). Some provide options for automation. In most cases, what you are currently able to use for everyday FT mode QSOs will be equally appropriate for a monthly contest. Do not use any of the special contest modes included in the software – all the contests covered here just require a standard FT4/8 exchange.

You can directly upload the ADIF file from your FT mode software or can choose to link to a conventional contest logging program and use that to generate a Cabrillo or ADIF (HF) or EDI (VHF) file for entry.

For contest enthusiasts who struggle to operate from home due to high noise levels, FT4 and FT8 contests may provide some more achievable competitive activity.

In contrast to the RSGB's 80m monthly club contests, the FT4 series events include some great DX QSOs, with all continents regularly appearing in the logs and international entrants enjoying participation. In the VHF FT8 events, you can certainly work medium range DX (out to about 700km) at lower signal levels than on SSB, or even CW, which helps people plagued by noise. This benefit is somewhat balanced out by the weekday events not normally attracting the big European stations on the mountain tops which generate the real long-range QSOs in traditional VHF contests. Also, QRM on 144.174 and 432.174MHz limit very long-range QSOs under flat conditions. But there are very high levels of activity from the UK, Netherlands and Germany (as there used to be on SSB in the past) which create many good QSOs and keep it busy.

Operating technique for MGM modes: HF FT4

The basic technique is the same as any other FT mode operating, with the choice of soliciting QSOs, mostly by CQ messages, or responding to CQs from others.

To optimise scoring in RSGB DXCC multiplier events, it is important to know which entities have not yet been worked on the band where you are operating. Checking for duplicates is also important, as in any radio contest.

15m									
201522	-1	-0.3	1051	France	CQ F5SJC JN05				
201522	14	0	1186	Brazil	<EG5CCHL> PY7VI +00				
201522	-3	0.1	1419	Slovenia	DO1KRT S56SD RR73				
201522	-8	0.1	1803	Poland	KF6A SP3JHZ JO71				
201522	-1	0.1	2081	Germany	LY5J DO4DXA -21				
201522	-7	0	2384	Sweden	CQ SMOHPL JO89				
201522	-7	0	1272	Germany	HB9IJW DO9BAU R-14				
201522	-12	0.4	2007	Hungary	<EG5CCHL> HA5KY JN97				
201522	-12	0	2136	U.S.A.	N7EZQ KOLIR RR73				
201522	-12	0.1	2442	Japan	YO4NF JK1HAK 73				

FIGURE 3: Band activity – in this case none of these DXCCs has yet been worked. The callsigns of QSO partners who are operating in the same time slot as you can also be seen.

With WSJT-X (or Z) you can see which DXCCs you have worked and can avoid working duplicates by using a colour code to differentiate callsigns that are not already in your wsjtx_log.adi file. This can be configured simply:

From **File, Settings, General**, check the box to select “Show DXCC, grid, and worked before status”

From **File, Settings, Colours**, select only the following:

- My Call in message
- New DXCC on Band
- New Call on Band
- Transmitted message

The ‘ticked’ boxes can be moved, and positioned in priority order, to the top of the list of boxes.

You can adjust the colours so that new DXCC and stations, who you have yet to work, appear in different colours. This method requires you to start a fresh wsjtx_log.adi file for each event (under the File... menu in WSJT-X – don’t forget to take a backup of the old one if you need it). **Figure 2** shows a recommended colour configuration, in this case using WSJT-Z.

With only a short operating period, it is important to change bands when you have worked all available multipliers.

You can also see callsigns of stations who are operating in the same time-slot as you, which helps you determine when swapping time-slots is likely to be effective for QSOs and multipliers.

To reduce QSO cycle time at HF, in WSJT-X (or Z), you can disable the first message by double-clicking on the Tx 1 button, so as not to send your grid.

The RSGB FT4 Contest Hints and Tips document has more ideas that you may find useful [2].

Operating technique for MGM modes: VHF FT8

At VHF, the techniques are very similar, but with Locator Squares (known as Grids in the US) as multipliers there are some subtle changes needed.

In the colour settings shown in Figure 2, click the tick-box for New Grid, so that stations in new squares are very obvious when they appear. Equally, at VHF the contest exchange must include the locator square – so don’t disable the Tx1 message – when you call someone you must do so with your square included (ie G4FAL G4PIQ JO02 rather than G4FAL G4PIQ +10).

Keep the beam moving around to maximise your multiplier score. You’ll find activity in both even and odd periods, so it’s worth switching your transmit period between even and odd periods from time to time. But be conscious and courteous to other local stations. Try to make sure you are transmitting in the same period as them, otherwise your and their very strong signals will de-sense each other’s receivers and you’ll both lose the ability to work the weak folks.

The strong signals present at VHF mean transmit signal cleanliness is very important, especially for anyone well sited or running high power. Make sure that speech processing is off, you don’t over-drive the transmitter, and that you have Split Operation enabled under Radio Settings to ensure that you are not transmitting in-band audio harmonics.

A full exchange of QSO details at VHF consists of both callsigns, locators, reports, and rogers. After you have sent RR73 in response to someone’s R

reports, and are confident that they have received the RR73, there is no need to send 73 and you can move onto calling someone else. However, some stations don’t consider a QSO complete without 73, or they may miss a single period of RR73 in QRM. So, if you see them continuing to send R reports, keep sending RR73 until it’s complete. Mutual QRM is a real challenge in these contests and .174 is very busy. We probably need to do some more work to encourage stations to move away from .174. This will be a topic for review for the 2025 rules.

FT mode automation – fair or foul?

What do we mean by automation...?

FT mode sequences are computer controlled by their nature, with minimal intervention required in order to achieve a string of QSOs. In a non-automated scenario, the operator might enable an initial CQ and then manually select to log a first QSO before enabling a further call. Arguably, the only parts of the QSO process that are not already automated are those that involve the least thought. So, when we describe FT mode automation, at its simplest, this is automatically logging a completed QSO followed by enabling transmission of the next CQ, or response to a caller. This minor additional level of automation makes it practical to have two instances of FT mode software running with their own radios, leaving decisions about who to call in the band activity windows to the operator.

Further automation, including changing bands and calling new DXCC entities, has been implemented in some software packages but has not yet been made sufficiently reliable to be of benefit in a short-duration event. Whether or not you believe such automation to be fair, it is within the terms of our licences and the RSGB has allocated a separate section in HF FT4 contests for ‘Two radios and/or any form of automation’. We are not advocating unattended operation, but automation to facilitate full concentration on optimising your score. The joy of a degree of automation is that it frees the operator to concentrate on strategy, rather than procedure.

For a reader who has a suitably-equipped station (for SO2R or similar), experimenting with two-radio operating in the RSGB HF FT4 contests can be very rewarding (**Figure 3**).

Contest of the Month: CQ World Wide DX CW

CQWW DX CW is the biggest CW amateur radio contest of the year with some 35,000 international participants. It runs for 48 hours starting at 0000UTC on Saturday 23 November.

The contest bands are 160, 80, 40, 20, 15 and 10m, using CW. Stations send a signal report and their CQ Zone number, which for UK amateurs is 14. There are lots of sections that you might enter ranging from Single Band QRP to All Band High Power, with separate sections for “assisted” entries.

Given the huge participation, you can pretty much guarantee that any propagation path will be accompanied by stations available at both ends [3].

References

- [1] RSGB FT4 Series: <https://www.rsgbcc.org/hf/>
- [2] FT4 Hint and Tips: https://www.rsgbcc.org/hf/information/ft4_tips_and_hints.pdf
- [3] CQWW rules: <https://cqww.com/>

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