



HF Contesting Hints

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Many newcomers to ham radio are unfamiliar with HF Contest operations. Based on years of successful contesting, Chris explains how to get started.

Why enter an HF contest?

Well, they are a test of your operating and technical skill, competitiveness, stamina, propagation knowledge, keyboard skills, equipment and antenna reliability etc. etc. and always they are great fun !

Here's some help to get started ...

Operating

1. **Whatever you do, do it quickly!** - in non-contest operating, about 80% of what we say into a microphone is un-necessary information - in a contest this is even more important. For example, it is particularly bad operating to give long CQ calls (except occasionally in VHF/UHF contests) - if your signal is strong, many stations will be standing by to call you, and will just be frustrated if you give lengthy calls, and may not wait. In major HF contests, you can simply say "Golf Mike Seven Victor" once (don't even bother to say 'CQ' except every 4th or 5th call) and stations will call you. The speed of operating has increased considerably in recent years, for a variety of reasons, and contest exchanges have been reduced to the minimum required. You can assume that the other station is glad to have worked you - never say "thanks for the QSO OM, good luck in the contest" - this is an utter waste of time (you probably don't mean it anyway!) - on most occasions a simple "thanks" is sufficient.
2. **Practice operating** - if you are new to contesting, or if you are not confident about working stations quickly, enter a few contests from home as a single operator - you will be the only person to judge how well you are doing, and you can set yourself some targets e.g. 500 QSOs on 15m or similar - not too ambitious at first. By listening to some of the world's top operators in action, you can learn a lot more than by listening to some pundit in the local club whose techniques date from the 1970s! (Listen to EA8BH (N5TJ) or ZD8Z (N6TJ) - Jeff N5TJ is arguably the top phone operator in the world at the moment, working over 10000 stations in 48 hours as a single-operator!) Know when to fight to keep a frequency and when to QSY quickly. Choose the phonetics for your callsign carefully. Practise listening to heavily-accented English.
3. **Know your equipment/software/antennas** - again time is wasted if you don't know how to operate your rig properly, how to minimise interference, how to 'grab' cluster spots, which antenna is best for a particular direction, etc. Operating conditions in a contest are very different to day-to-day operation, so practise using your rig in high-QRM situations. Practise keyboard skills - all contest stations should now use computer logging, and the quicker you can type and correct errors the better.

4. **Know the bands** - if you've decided to enter a 160m contest, for example, spend several weeks listening/working on 160m before the contest to learn about propagation, bandplan, etc. Also contact friends who use 160m regularly and ask their advice on what to expect at particular times of day, etc. Check propagation predictions. Be prepared for unexpected propagation paths - often the increased activity (especially with high-power contest stations) makes it possible to work unusual paths.
5. **Make an operating plan** - even if it's in your head, plan what to do for the whole 24/48 hours of the contest - on paper you can divide the day into hour-long 'slots', and write down (after studying old logs, etc) what you might expect to work in each hour. When you get tired, this plan will help optimise your results. Plan rest-breaks at low-activity times of day. Memorise prefixes to save time.
6. **Choose the correct contest or section to enter** - HF contests have many different sections, and with relatively few GM/MM stations entering contests, you should be able to win a certificate if you choose a particular contest or contest section e.g. 15m CW Low-power, 40m SSB High-power, etc.
7. **Get fit!** - contesting is tiring - sitting for hours on end is bad for you - some operators jump up and down and wave their arms periodically while operating (!) to keep their circulation going (and avoid DVT!) Make sure there is plenty of fresh air in the shack, bright lighting, and drink plenty (non-alcoholic before/during the contest, alcoholic after!) Make sure where you sleep is well away from bellowing operators or thundering generators!
8. **Watch the meters!** - ask the owner of the equipment how to tune the amplifier, what the anode/grid currents, power outputs, etc should be. Check the meter readings regularly, especially if you are changing bands regularly. Stop transmitting and investigate any unusual readings before something burns out.
9. **Team Player** - If you're going to be part of a team, leave your ego at home - each of us thinks that we are fairly efficient operators, but a team effort needs a team approach, not a bunch of self-styled "Scotland's no.1 DX ers" all vying for status - this is useless! We all have individual strengths and weaknesses - the team should exploit the strengths and minimise the weaknesses. Don't be afraid to say "I'm not sure what you expect me to do" or "what should I expect to work at this time of day?" or to make suggestions based on your experience.



Equipment and Software

1. **Good equipment** - use the best equipment you can afford - HF contesting can be as cheap or as expensive as you want to make it - a good operator will achieve good results with a modest station, but obviously for national/international success you will need to invest in equipment, computers, antennas, etc. and have a suitable site to install the station. For multi-transmitter set-ups, bandpass filters are essential, and other techniques may be needed to reduce any inter-station QRM.
2. **Use the station before the contest** - reliability is increased considerably if you set up the station well in advance, and use it regularly - faults/problems can be eliminated e.g. r.f. pick-up in computers etc. In 'field-day' contests, try to use someone's complete station which is used regularly at home rather than a hotch-potch of many different stations.
3. **Choice of transceiver** - many widely-advertised HF transceivers work well for day-to-day QSOs, but are nearly useless under HF contest conditions. You need really good RX front-end performance, and good I.F. filtering - in my experience DSP is almost useless for improving readability of SSB signals - if there is local inter-station QRM from a nearby transmitter on another band, DSP may try to 'interpret' the audio components, and actually makes readability worse! DSP only does one thing well - 'Tracking Auto-notch' removal of carriers is spectacularly effective! For SSB, buy a 1.8kHz or 2.0kHz filter (for the 1st 8.2MHz IF) and for CW buy a 250Hz filter (you will hear about 4 QSOs at once with the average 500Hz filter!) The major manufacturers cannot make these extra filters with good shape factors - buy them from some of the specialist American suppliers.
4. **Choice of amplifier** - most HF amplifiers are not designed for the stress of a 24 or 48-hour contest - generally they are not properly cooled. Ensure that your amplifier is positioned so that it gets a supply of cold air, not recycled heat. Fit an extra fan, especially to cool the transformer and other p.s.u. components. If the amplifier is slightly under-run it will be more reliable.
5. **Station accessories/set-up** - for SSB, you will need 'hands-free' operation - a headset and a footswitch - ideally the footswitch should switch the amplifier which in turns switches the transceiver, this is usually faster. A 'Voice-keyer' conserves your voice when the band is quiet, and allows you to keep up a high TX/RX ratio - there is however a school of thought that if you are using a voice keyer on some bands you are not working enough stations ! For CW, you should be using the computer keyboard to work stations, with a keyer/paddle in parallel for slower QSOs or for other exchanges. Get a (not-too) comfortable operating chair, and lay out the keyboard/transceiver etc at a distance/height which doesn't give you aches and pains after a few hours of operating. Make sure you can see the dials, monitor, meters etc without having to move much.
6. **Choice of software** - there are a wide variety of contest-logging programs, which all basically do the same job - they log the QSOs, allow you to check for 'dupes', keep track of your QSO rate, countries worked, etc. Before you buy software, make sure you try it - does it do what you need it to do? - for example one 'highly-recommended' logging program does not allow you to type on the keyboard while it is sending CW - this is a really annoying deficiency. Memorise common software commands, and have large wall-charts listing all commands/keystrokes. Make sure all operators know what to do if the software 'crashes'.

Antennas and Feeders

1. **Use the best antenna you can** - antennas are the key to success in all aspects of our hobby - for contesting they are the deciding factor. If possible, use computer-optimised monoband beams for 40m-10m and phased antennas like the 4-square for 80m, and seriously high antennas for 160m. For 160m in particular, antenna height is crucial. Install and test the antenna weeks before the contest. If possible, avoid using antennas that need matching in the shack with an a.t.u. - any antenna tuner introduces losses, and it is difficult to run high power with an a.t.u.
2. **Use the best feeder** - RG213U as a minimum and ideally LDF4-50 Heliax - never use RG58 for any antenna ! Use the minimum number of connectors in your feeder system. Open-wire feeders have very low losses, but are often not practical, and need an a.t.u. Test the feeders regularly - feed 10W of RF in one end and check how much reaches the other end - for about 100' of feeder at 28 MHz : LDF4-50 = more than 8W : RG213U = 6W approximately.
3. **Check the performance of antennas** - test the SWR and check (for a beam) the gain/ front-to-back if possible - keep a written/graphical note of the readings to allow you to compare the antenna performance later.

73 and good luck

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