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Super S&P

Here are some ideas on how to maximize your points per minute when searching and pouncing. But, first, some contesting math.

Contests are simple, really. The operator with the most points wins. There is no electoral college, no subjective judging, no overtimes, no shootouts. A contest always starts and stops on time, so everyone has the same number of hours to operate. The winner is always the operator with the highest average rate (points per hour) over the most hours, within that maximum number of hours.

I've focused on *points* as opposed to number of QSOs. There are three reasons for that:

1. Most contests have multipliers, so at different times during a contest, a station that's a new multiplier may be worth more points overall.

2. In many contests, the number of points per contact varies, sometimes depending on the band, in other contests on the distance between stations — and in a few contests, special bonus stations or host-country stations are worth extra points.

3. The actual number of points earned is not just based on the quantity of stations. There is also a quality aspect; the accuracy of the information copied determines how many points all those contacts will yield in the final results.

So, the winner will have maximized three key variables: Number of hours operated, number of points per hour, and logging accuracy.

Different Definitions of Winning

Winning a contest takes a lot of skill, a lot of time, and a lot of station. Many operators don't have those in abundance and realistically may never win a contest or even break the Top 10. That doesn't mean you can't still compete in every contest you enter.

You can compete with another operator in your area, contribute to a club score to beat another club, or just compete with yourself to top last year's score in the same event. The key is still to optimize the number of points you score per hour you operate. Maximizing the number of hours is known as "butt in chair" (BIC) time.

Here, we'll focus on increasing points per minute when you're doing the classic "search and pounce" from a single-radio station.

Okay, Just a Bit More Math

If you're an *NCJ* subscriber, you already know the two ways of making contacts in a contest — running and search and pounce. With the new ARRL membership benefit of free digital access to *NCJ*, some new contesters may be reading this. So, a very, very short refresher:

Running is when you call CQ, other stations call you, and you answer with the contest exchange. A skilled CW operator at a strong station at 30 WPM in good conditions can reach rates greater than 200 contacts per hour with a single radio. Rapid running involves many skills that we won't get into here.

Search and Pounce (S&P) is what stations do when they're not calling CQ (i.e., running). S&P is tuning around and answering those CQers. It is a very symbiotic relationship. Without S&Pers, those running would just be wasting electricity. Without anyone CQing, S&Pers would just be confused short-wave listeners.

While running typically results in more points per minute than S&P, even top-scoring stations will S&P during most contests. With the advent of DX spotting and automated skimmers on the Reverse Beacon Network (RBN), it is possible to S&P for periods of time at rates that aren't that far below the run rates of an average station.

By applying some advanced techniques, even Little Pistols can significantly increase their rates when in S&P mode to approach their running rates. Let's walk through those techniques from simplest to most complex. I'll be using examples from the *N1MM Logger+* contest logging software, but most modern contest logging software has similar features. I will also focus on CW contests, because that is where spotting comes into play in a big way. Many of the

A Word on Multipliers

It is always tempting to focus on multipliers to increase your score, but keep in mind that score is all about points per minute. A good way to think about this is determining how many contacts a multiplier is worth (*N1MM Logger+* can tell you this in the Score window).

In contest such as ARRL November Sweepstakes, multipliers are limited. If you made 800 contacts in SS, one additional multiplier will increase your score by about the same amount as if you had made 10 additional QSOs. If you are S&Ping at a 90/hour rate, waiting more than 40 seconds to work a new multiplier means you are losing points.

In other contests, like WPX and CQ WW, multipliers are almost unlimited. An 800-QSO effort in WPX CW can easily net you 400 multipliers. That means a new multiplier is worth only two contacts, or 8 seconds of wait time. The math is similar for the CQ WW CW, while in the NAQP a QSO is worth about four mults in an 800-QSO log.

All multipliers are created equal. If P5 is on the air, it is worth the same amount as HBØ if you haven't worked Lichtenstein yet.

The bottom line: Don't be a DXer. Be a contester. If you *really* need a new Clean Sweep coffee mug, we'll make an exception for Sweepstakes.

same concepts apply to RTTY and SSB contests, however.

POKS — Plain Old Knob Spinning

The *least* efficient way to S&P is to simply put on your headphones, grab the VFO knob, and turn it clockwise until you reach a CQer (or a band edge), then turn it the other way and repeat. If you are entering in a non-assisted category or are one of three ops on the planet not yet using computer logging, this will be your only choice. A few skills to work on:

♦ **Spin fast!** Get good at quickly finding the sweet spot to copy and respond to a station that's running. This doesn't mean zero beating on CW. Even if you are not using packet/skimmer spotting, most of the rest of the world *is*, and those ops will often be clicking on the identical frequency, resulting in a giant wall of noise. Tune 50 – 100 Hz higher or lower, and then respond. For SSB, that is less important, and, of course, for RTTY you want to be dead on those tones, quickly.

♦ **Don't try more than once!** Across the bottom 100 kHz of each band will be roughly 200 stations calling CQ in a CW contest. At any given instant, one of them is always just ending a CQ and will be immediately available to work. In POKS mode, if the station you find and call doesn't come back to you, start spinning again. You will find another CQ that is fresh out of the oven. Besides, if you have wandered onto a CQer who was just spotted, there will be 5 minutes of pileup that you are better off avoiding.

♦ **Especially not for the easy ones!** Early in the contest, the CQers will be dominated by big stations who will be there all weekend. If you tune across one already sending a responding station's call sign (or a domestic station's call sign in a DX contest), the running station is at the beginning of the exchange, so, spin that knob. You will still find the big ones on your next sweep or in the later stages of the contest.
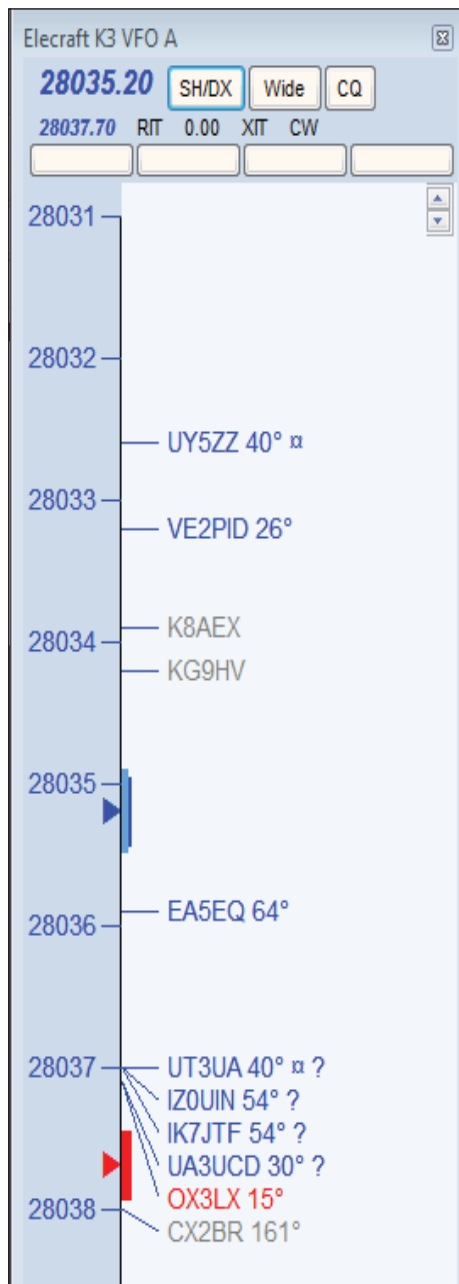
The *N1MM Logger+* band map, showing available, spotted stations.

♦ **Don't Only Stop for the Loud Ones!** Weaker CQers may not have been spotted or attracted any pileup at all and are often easy to work. Sometimes they are juicy multipliers, but many times they are just modest stations.

PASOKS – Panadapter Assisted Sort of Knob Spinning

Many modern rigs include spectral displays or you may have added an SDR or other form of spectrum monitor toy at your station. Panadapt-

er-assisted sort of knob spinning (PASOKS) involves jumping from spectral peak to spectral peak (or waterfall track to waterfall track) on the display. This may involve mouse pointing and clicking, or knob spinning and pushing in the knob, etc. All of the above POKS guidelines still apply to PASOKS.

Personally, I've only found this to be even semi-useful in RTTY contests, but YMMV. Also, some contests have rules that consider your SDR or pan-adapter display to be the equivalent of a local skimmer and put you in an assisted or multi-op class. Read the rules.

Spotting Assisted S&P

Moving beyond plain old knob spinning basically means you are going to take advantage of some form of assistance, most typically internet or packet spotting of active stations. Most, but not all, contests have rules that automatically place you in an assisted or multioperator category if you use spotting, and a few just flat out prohibit the use of spotting altogether. Read those rules.

In the simplest form of spotting assisted S&P, you would have a telnet window up on a screen and then jump to the frequency spotted either manually or by using some form of mouse clicking and/or cut and paste. Just to skew old: At the W3LPL multi-multi back in the late 1980s before computer logging was in use, ops that were not active on a band would sit at the packet spotting station and write spots down on slips of paper that they would hand over to the active operators.

Doing this form of S&P from a telnet window is not much more efficient than POKS, so I am going to assume everyone out there is using some form of contest logging software that has spotting integrated into one or more contest windows. My examples will come from *N1MM Logger+*, but most logging programs have similar capabilities.

One critical point: *Do not trust the*

spotted call sign! Many spotters make errors (ever *really* work BY5IC?), and even the RBN skimmers can make mistakes. When doing spot-assisted S&P, always hear and confirm the station's call sign for yourself.

The downside of spotting is that hundreds of other contesters and DXers will be clicking on those same spots. As I mentioned earlier, it is important to avoid the "wall of noise" by using a small frequency offset when calling. The *N1MM Logger+* telnet filters can do this for you, and I recommend turning on the Randomize Incoming Spot Frequencies feature in CW contests.

The logging software's band map will show all spotted stations, with different colors indicating whether a station is a new multiplier or just a new QSO (details <u>here</u>). You could simply point and click to work stations you see on the band map, but *N1MM Logger+* gives you some advanced alternatives:

Ctrl+Down Arrow — Jump to next spot higher in frequency.

Ctrl+Up Arrow — Jump to next spot lower in frequency.

Ctrl+Alt+Down Arrow — Jump to next spot higher in frequency that is a multiplier.

Ctrl+Alt+Up Arrow — Jump to next spot lower in frequency that is a multiplier.

Work your way up or down the band by hitting Ctrl Up/Down arrows. If a station is ready to be worked, work it. If not, hit the key combination again until you come across one ready to work. When you reach the band edge, reverse. I like to do this a few times for new QSOs, then do a few quick runs for new multipliers.

Available Mults and Qs Window

N1MM Logger+ has another very cool window — the Available Mults and Qs Window (details <u>here</u>). This window will show all spots sorted by time as a default, or by other parameters you can select, by signal strength, multiplier status, beam heading, etc. What is very cool about this window (i.e., when set to show the most recent spots at the top of the list) is that you will often be jumping to a station immediately after it it's been spotted, sometimes even as the station is still calling CQ. Spots on the band map can be old, but the ones at the top of this window are always fresh.

Once again, you can point and click in the window or use the handy keyboard shortcuts:

Alt+A — starting from the top of the window, transfer the call sign to the entry window and then move *down* to the next call sign in the window

Shift+Alt+A — starting from the current row of the window, transfer the call sign to the entry window and move *up* in the window.

Start with Alt+A and work your way down, and work them fast. When you get far down enough on the list to where you are finding CQers that really aren't there, start going back up the list, or click on the top item to jump back to the top.

A lot of the big single-operator, two radio (SO2R) ops use this strategy. If you find yourself constantly losing out to the Big Guns, try starting at the second or third call sign down in the window. In the larger contests, the rates you can reach doing this are phenomenal. Toward the end of the contest weekend, the Available Mult/Q window pickings may be kind of slim, so throw in some POKS when that happens.

Multiplier Window

The *N1MM Logger+* Multiplier window will display grids listing all possible multipliers for the contest, and each block will be red or green if a new multiplier is has been spotted (details <u>here</u>). From a points perspective, spending too much time chasing mults isn't a good idea, but if it keeps your butt in the chair on Sunday during Sweepstakes, go for it.

Left-clicking on a block that is colored to denote either a single (red) or double (green) multiplier will move

The Available Mults and Qs Window in *N1MM Logger+*.

The SO2V mode in *N1MM Logger+*.

your transceiver to the frequency where you can work that multiplier. This may cause you to change bands; the software chooses the new multiplier on your current band, but if the only new mult is on a *different* band, your radio will automatically change bands. Keep this in mind if your amplifier and/or antenna switching do not automatically follow your radio.

SO2V S&P

We won't wade too deeply into SO2R, but if your radio has a fully functional second receiver, most contest software supports a baby step toward SO2R: Single operator, two VFO operation (SO2V). (N1MM details for SO2V here.)

SO2V requires more screen real estate, as you will have two band maps and two entry windows up at one time. You also must use stereo headphones, as you will have audio from the main receiver (VFO A) in one

ear, and from the sub-receiver (VFO B) in the other.

For pure S&P with SO2V, you would use any of the above techniques to find two active CQers and listen to both simultaneously. When one is ready to work, jump to that entry window and work it, and then jump back to the other entry window. While listening to that station, use the above techniques to find another station to put in the other entry window. Repeat.

This is not for the faint of heart. It takes practice. Several keyboard shortcuts can help you do all of this. In *N1MM Logger+*, the backslash (\) key is the most commonly used to jump between active entry windows. There are many other tools. Read the SO2R/SO2V section of your contest software's manual for detailed instructions.

One easy way to get more comfortable with SO2R/SO2V is to try it out in a low-volume contest like a state QSO party or on Saturday or Sunday

morning in one of the 160-meter contests. Once you get the hang of S&Ping in SO2V mode, try running on the main VFO and using the second receiver to scan for mults.

Summary

In any contest, you are only earning points when running or searching and pouncing. Anything else is just SWLing. Calling CQ and running stations will always be key to racking up the highest possible score in a contest. But if you (or your station) just aren't comfortable running, you can still have a blast and maintain high rates using some advanced S&P techniques.

Once you've mastered some of the advanced S&P techniques, you'll hit a point in most contests where you've worked most of the CQers and your rate drops to a yawn-inducing trickle. It's time to find a clear frequency and try running.