RTTY Contesting
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The Art of RTTY Sprinting

This column is being written a couple days after the March 2014 NA RTTY Sprint. A number of experienced RTTY Sprinters remarked about the widely different operating practices across the participants during those four hours. The Sprint regulars have evolved an unofficial way of operating among themselves that they now perceive as the defacto standard. Deviations seem to increase confusion and detract from an otherwise enjoyable experience.

RTTY operators new to Sprint contesting have only the rules to go by. They will not know the commonly accepted practices used by the long-time Sprint operators. While there have been several excellent articles written over the years about "tips" and "secrets" of Sprinting, most newcomers will not have seen them. The goal of this month's column is to discuss the art of operating the RTTY Sprint and demystify this fun event.

Sprint QSY Rule

The Sprint QSY rule is at the core of the misunderstanding between crotchety old Sprinters and innocent, energetic operators venturing into this contesting niche. This unique QSY rule distinguishes Sprint from other contests. Specific practices that come into question include the order in which the required exchange elements are transmitted as well as how the QSO is acknowledged and completed. But, first, let's discuss different ways to satisfy the QSY rule itself.

To most readers of the Sprint rules, the QSY rule implies a specific way of operation that goes like this. K6UFO finds a clear frequency and calls CQ. N0TA, N4DW and K5NZ create a pileup, each trying to get Mork's attention. K6UFO works N4DW, then leaves the frequency and Dave works a station that calls him. After working that station Dave leaves the frequency. So, the initial belief is that the pattern of QSOs during Sprint is always series of these "couplets" where you find a CQing station, work them, then work one more station on that frequency before you QSY yourself.

This is certainly one way to work Sprint and it seems to be the most efficient at first glance. But the rules allow stations to only answer CQs (never CQing themselves) just as they would by searching and pouncing in any other contest. Alternatively, stations can exclusively CQ if they choose, as long as they QSY to another clear frequency at least 5 kHz away after each QSO. In fact, the CW Sprint was won one year by a station that only CQ'd for all four hours!

Any of these three operating practices, and any combinations of them, are completely valid in Sprint. The only constraint is that you must QSY after a QSO in which another

station called you. You must QSY at least 1 kHz before calling another station, or at least 5 kHz before calling CQ. (If you QSY 1 kHz to work a CQing station, you may stay on that frequency to work one more station, or call CQ there until you can work a second station.)

Experienced Sprinters will deploy all of these scenarios throughout the Sprint, depending on conditions and each particular QSO situation. For example, suppose a pileup descends on the completion of a Sprint QSO but the station that "should" have stayed for a second QSO on that frequency has QSY'd as well. In the silence following the pileup, one of the callers may simply switch gears and call another station that was also in the pileup. The station that broke the silence and called can stay on frequency for another QSO. The other station must QSY since he was the called station. Other variations are possible as long as the basic QSY rule is observed.

Sprint Exchange

As in other contests, there are several pieces of information that are required to be sent by each station in a Sprint QSO. And, RST, e.g., 599, is not one of them! Non-required information like this only slows down the contest for everyone. The Sprint rules explicitly state:

7. Exchange: To have a valid exchange, you must send all of the following information: The other station's call sign, your call sign, your serial number, your name and your location (state, province, or country). You may send this information in any order.

Yet, veteran Sprint operators are very precise about what order they send their exchange information. Moreover, they do it in exactly two very different ways at different times during each QSO:

K6LL: NA K6LL K6LL CQ
AA3B: AA3B AA3B
K6LL: AA3B K6LL 132 DAVE AZ
AA3B: K6LL 136 BUD PA AA3B
K6LL: TU
(K6LL must now QSY)
K0AD: K0AD K0AD
AA3B: K0AD AA3B 137 BUD PA
K0AD : AA3B 119 AL MN K0AD
AA3B: R
(AA3B must now QSY)
K0AD: NA K0AD K0AD CQ
N6RO: N6RO N6RO
etc…

Is there a reason these stations are so uniform in their QSO exchanges? And, why have they settled on precisely these practices when the rules allow the exchange information to be sent in any order? Specifically, why did K6LL send his callsign in the middle of his exchange transmission, while AA3B sent his callsign at the very end?

An early Sprinter recognized that if the station leaving the frequency (after the QSO) puts their callsign early in the exchange, that would alert anyone listening that they would be leaving the frequency when this QSO completes, i.e., don't call them! Symmetrically, the other station in the QSO is allowed to stay on the frequency for one more QSO and this is communicated by putting his callsign at the end of the exchange. This latter practice works well for a new station just tuning across the end of the QSO because they instantly know they can call that callsign as soon as they hear a 'TU' or 'R' from the first station in the QSO.

Radio contesting by its nature is a highly cooperative sport. Competitors all benefit greatly by working together closely to maximize QSO rate and minimize errors. The result is fast, reliable communication. It is fun to operate the amateur radio station at peak performance. The precise order of exchange elements, depending on whether the station is leaving or staying on the frequency, has evolved to a defacto standard as Sprinters cooperate to make Sprint QSOs as efficient as possible.

Why are the serial number, name and QTH always sent in that order? This accepted norm gives the receiving operator an advantage by knowing what kind of information to expect at each instant. This practice reduces the chance that an exchange element will be missed and a repeat required which will slow down and disadvantage both operators.

Ending the RTTY Sprint QSO

How one handles the completion of a RTTY Sprint QSO can effect a smooth transition into the next QSO or set off a spectacle of confused chaos. Secondly, how one interprets and responds to the QSO completion can similarly contribute to an effective transition or bedlam. Remember, this is not about the rules so much as it is about the long-standing conventions that have developed over the lifetime of Sprint contesting.

First, refer back to the QSO sequence earlier in this article. The last two transmissions in a given QSO are, by evolved convention:

AA3B: K6LL 136 BUD PA AA3B
K6LL: TU

Bud has sent his exchange with his callsign at the end, signaling that AA3B will be staying on the frequency for another QSO. K6LL signifies his acknowledgement of the QSO with a simple 'TU' and leaves the frequency.

Second, during these last two transmissions, other stations on frequency prepare to send their callsign once or twice as soon as they copy the final 'TU'. Thus, everyone knows

what to expect, what they can do and when they can do it. Simple, smooth, peaceful, yet a secret practice to the unknowing participant.

The final transmission in the QSO, the 'TU' or 'R' or 'QSL' or equivalent, is very critical. First, it is critical that it be sent so that the other station knows his exchange information was received and no repeats are needed. Second, it is critical that this acknowledgement message be exactly this short with no additional information. Any other information almost always triggers subsequent ineffective transmissions on the frequency rather than a smooth transition into the next QSO. And, if the unnecessary information is substantial enough, some stations will tune away to find a quicker QSO.

Tempting as it is, don't send your callsign or the other station's callsign as this may negate the callsign (AA3B in the example) that identifies the station standing by for the following QSO. Don't send 'QSY' as this just takes additional time and adds no useful information. As polite as it may seem to wish the other station good luck and 73, know that contesting politeness is conveying the minimal information needed to reliably accomplish the contest QSO. Contesters socialize outside the contest, such as regaling each other with excuses about why their score isn't higher!

Stored Messages

Here are the basic RTTY Sprint messages that allow one to operate within the secret conventions of Sprint contesting:

CQ:	NA N0NI N0NI CQ
Your Call:	N0NI
Run Exchange:	<his call> N0NI <serial number> TONI IA
S&P Exchange:	<his call> <serial number> TONI IA N0NI
Run QSL:	TU

Other message attributes are the same as for other RTTY contests. Depending on the specific logging software used, a control parameter may be needed at the beginning of each message to initiate PTT and transmission as well as at the end to drop PTT and cease transmission. Always start a message with a CR/LF so that your message appears on a new line on the screen of the receiving station. And, end each message with a space character to separate any follow-on noise-generated characters from your message. Optionally, you may include a message parameter for clearing RIT, e.g., in the CQ and Run QSL messages, or for logging the QSO, e.g, in the S&P Exchange message.

Note that the 'Your Call' message only has one instance of the callsign. This is an example of modular messaging where one message can be customized dynamically into 1, 2 or 3 instances of your callsign. In this particular message you may choose not to include the CR/LF so that multiple instances of your callsign all appear on the same line separated by space characters.

Additional messages are needed for efficiently repeating exchange information when something is missed:

Serial Number:	NR?
Name:	NAME?
QTH:	QTH?
My Serial Number:	<serial number>
My Name:	TONI
My QTH:	IA
General Repeat:	AGN

Again, each of these messages contains only one instance of the information so that the message key can be tapped more than once to create the number of instances appropriate to the given QSO situation.

While seldom used, these messages are extremely important when required. Without them, the operator must send the entire exchange again which is unnecessary, time-consuming and often results in the needed information being missed a second time. In conditions of QRM, QRN and QSB, communication is much more reliable if only the information requested is sent an appropriate number of repeats called for by conditions.

SO2R and SO2V

Experienced RTTY Sprint operators often use two radios to interleave QSOs on two different bands. When executed effectively, this can increase QSO rate by paralleling QSOs, just as in any other contest. As expected, though, SO2R in Sprint is a bit more challenging just as Sprint itself is more challenging than most other contests.

Similarly, SO2V can increase QSO rate though not as much as SO2R. With SO2V, the operator must have a second full receiver in their radio which they can use to monitor a second frequency on the same band. With efficient coordination between the logging program and radio, the operator can instantly move their transmit frequency between the two received frequencies to more quickly transition between QSOs. It is also possible, though very difficult, to interleave QSOs on the same band with this method. Most people should not try this!

A third variant on these advanced techniques, is the use of VFO-B to instantly QSY between two frequencies on the same band while satisfying the 1 or 5 kHz QSY rule. The key advantage of using both VFOs is an easier way to manage the QSY distance. Depending on the radio's features and station configuration, the two VFOs may even be on different bands.

More details about these more advanced practices will be saved for a future discussion.

Other Tips

How many times should one send their callsign in response to another station's CQ or completion of a prior QSO? Well, as W6SX discussed in the Nov/Dec 2013 NCJ RTTY Contesting column, "it depends". Just as in other contests and other modes, one needs to judge the chance that one instance of a callsign transmission will be clearly received by the other station. If there is QRM, a weak signal, other stations calling, the prior station off-frequency, etc., then a second or even third instance of one's callsign may be appropriate. Usually, though, RTTY contest participants send their callsign too many times.

A related tip is to always send your callsign only once and then listen briefly to determine if a repeat might be useful. This allows you to dynamically determine how many times to send your callsign, as well as to time your transmissions to coincide with quieter lulls on the frequency. In general, the RTTY mode will more often require multiple instances of your callsign than the CW or SSB modes. Machine decoding, especially when dealing with a non-zerobeat signal, is still not as good and quick as the human brain.

When a station operates outside these unofficial Sprint conventions, rejoice! A new participant may have wandered into the RTTY Sprint and this offers the opportunity to add another QSO or two to our logs. There may be a decrease in our QSO rate when working a station that is unfamiliar with conventional Sprint practices. But, this is a sound investment the RTTY Sprint's future. We can increase the probability that they will return when they feel welcome and have a good time. Complaining about these situations will only be "preaching to the choir" since most of these operators will not be subscribed to the forums where we complain! And, if they do hear our complaints, it will only be off-putting.

Are savvy RTTY Sprinters just born that way? Hardly! Every one of them was a newcomer, and then they practiced a lot! There are 6 Sprints each year, two for each mode, about 6 months apart. So, there are 6 opportunities to practice Sprinting and 2 opportunities to hone our RTTY Sprint skills. But, wait! Every Thursday evening, NCCC hosts 30-minute Sprint practices in both the CW and RTTY modes. (Prior to each of the two SSB Sprints, there is also a SSB Sprint practice.) Thus, for a 30-minute-per-week investment, one can build their RTTY Sprint skill while having a blast with the world's most unique and fun contest.

There you go. The art of RTTY Sprinting. I look forward to working a growing number of callsigns every Thursday in the NCCC Sprint practices and in the next official RTTY Sprint on 12 October 2014.