NCJ

NATIONAL CONTEST JOURNAL

$4

January/February 2003

Volume 31 Number 1

- OH2BH Rounds Up WRTC-2002
- KL7Y Remembered
- Results: January NAQP CW, September CW and SSB Sprints
- YT6A Station Profile
- *NCJ* Profiles: K5GA

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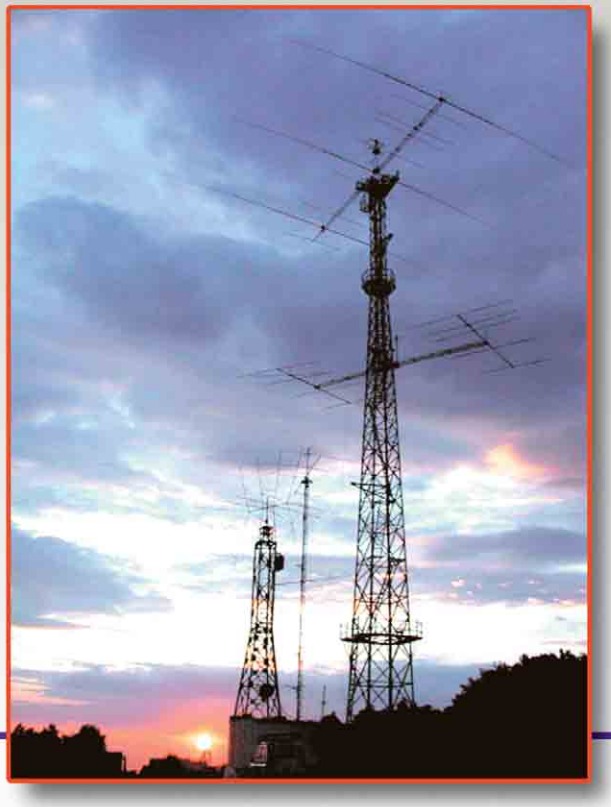

Above: Four WRTC-2002 teams pose prior to opening ceremonies. For a final wrap-up of WRTC-2002 from the organizer's perspective, see OH2BH's article in this issue.

Right: The vision of the YT6A antenna farm against a Montenegro sunset is impressive. The YT6A station is profiled inside.

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American Radio Relay League
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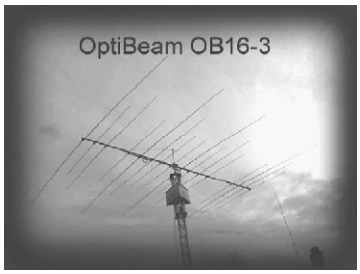

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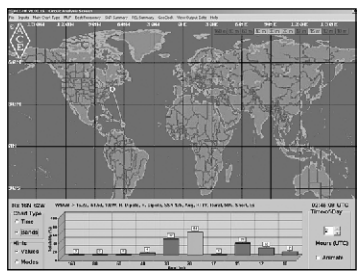

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Editorial

Carl Luetzelschwab, K9LA

31st Year

Would you believe that this issue begins the 31st year of *NCJ*? It all started with the January/February 1973 issue, and it was the brainchild of Tod, K0TO (then W0IYP) with lots of help from other members of the Minnesota Wireless Association. I am the 12th different editor for *NCJ* (several have held the Editor position twice). For the interesting story of how *NCJ* started, check out the January/February 1992 issue of *NCJ* (it's on the *NCJ* CD). Also check out the *NCJ* history quiz in the March/April 2002 *NCJ* by Ward, N0AX.

Contest Calendar and DX Contest Activity Announcements

In the September/October editorial, I asked for your thoughts on whether we should continue to print these in *NCJ*. After tallying the results (which wasn't tough since I only received four responses), we'll keep these two columns in. Although they are also available on the Internet, the respondents pointed out scenarios where *NCJ* may be the only venue. That was enough for me to keep them in.

KL7Y SK

Contesters worldwide were saddened to learn that Dan, KL7Y, became a Silent Key on October 31. In August Dan submitted a narrative of his 2000 CQ WW CW effort, and we are running this as a tribute to a fine, but now silent, contester.

CQ WW Contest Coverage

The 2002 CQ Worldwide contests are history, and *NCJ* tentatively has articles scheduled for two of the operations: the MU0C Phone effort and the C53M CW effort. Stay tuned for these narratives in future issues.

NCJ Contest Results

Included in this issue are the results of the January NAQP CW contest, the September CW Sprint results, and the September SSB Sprint results. Enjoy the write-ups, and *NCJ* hopes to see your call in the 2003 events.

RTTY Contesting Column

In this issue John, WA9ALS, joins us with his first RTTY Contesting column. Please drop him a note and welcome him aboard.

Our Cover

It's been a half year since the running of WRTC-2002 in Finland. This issue wraps up the bulk of NCJ's coverage of this event with a short summary of the WRTC-2002 activities by Martti, OH2BH. NCJ

2000 CQ WW CW—Lessons Learned (and Relearned)

Dan Robbins, KL7Y

As mentioned in the Editorial, Dan KL7Y became a Silent Key at the end of October. Dan submitted this article in August, and NCJ is running it as a memorial to a fellow contester.

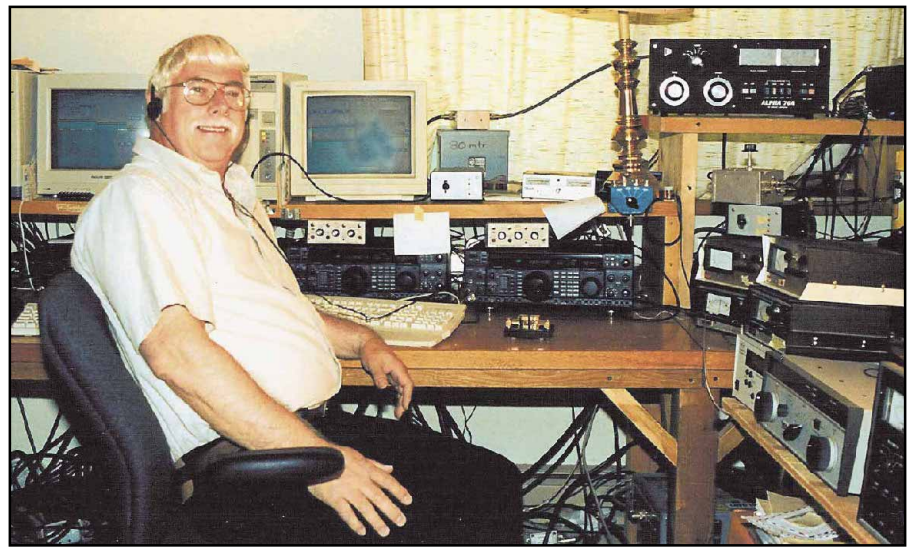
The 2000 CQ WW CW contest was a big change for me. After years and years of multi-op contesting, I decided to take a crack at a single-op all-band high-power entry. The Alaskan record in this class had crept up over the years, but with the sunspot cycle at its peak, this was the time to try for a new record. Converting from multi-op to single-op wasn't as easy as I had anticipated, so instead of strictly a blow-by-blow contest report, I offer some insight on what worked and what didn't work.

One thing that really should work is pre-contest planning. I had lots of old multi-op logs to look over and I was active outside of the contest, so I had a good idea of what to expect in terms of propagation, rates, and off times. Initially I broke the planned contest down into different segments and came up with the following:

1. 10 hours each day running at 100+
2. 10 hours each day at slow run or S&P
3. Possible rest periods (2 hours each) over the 48 hours (hopefully I wouldn't use all 3)
4. Remaining hours would be slow and marginal unless conditions were very good

Now, 10 hours per day at 100+ could mean just over a hundred or a lot over a hundred, so I guessed an average of 125. One point of this is that this would be run time, too busy for a second radio. The next category was the slow run or S&P. This would allow the use of a second radio and I pegged it for an average of 60 per hour. So, I wound up with an estimate of 20 hours at 125 per hour plus 20 hours of 60 per hour. This gave 2500 plus 1200 for 3700 Qs. Any extra Qs made during the planned rest periods or the few marginal hours would be frosting on the cake.

Since the Alaskan record was roughly 3000 QSOs, I was optimistic. The other part of the score equation was mults. The record was 125 Zones and 293 Countries. I figured I could do 135 and 330. Spurred on by these encouraging numbers and knowing that the first day is much better than the second, I came up with a more detailed hour by hour plan. Later on, we'll see how the plan stacked up against reality.



Dan, KL7Y, at the operating position.

Another part of pre-contest strategy is the station setup. Normally things at my QTH would be set up for M/M with one band per operating position. All of a sudden everything had to come into one position. Not having some of the mandatory SO2R battle gear such as switchable bandpass filters and radio switching devices, I had to compromise. The final setup consisted of one radio for 10/15, one radio for 20/40, and one for 80/160. Using the A/B switches on the radios I could do 2 bands on one radio without having to move bandpass filters. For amps, I had one amp on 80/160 and individual amps for the other bands. There were 2 computers networked together and two sets of paddles. With this setup I could listen to almost any other band without switching—the only band I could not listen to simultaneously was the other band on the radio I was using. For example, if I was on 80 m, I could not listen to 160 m simultaneously.

To transmit on another band required one switch at most and possibly moving the keyer from one jack to another. Thank heavens for front panel key jacks! The goal was to minimize band change time, and I had it down to a couple of seconds at most. That's a lesson I remember very well!

Still, there were some compromises. I like all the rotators on the left side so my right hand is free for the paddle. Some of the rotator cables would not reach and some bands wound up with rotator control boxes on the right side. The selection of the bands on the radios was not to my liking; there were considerations with cable lengths of antennas, rotators, and amps that made the choices for me. With more time I could have lengthened cables and moved stuff around for a better layout, but at some point the time spent becomes too great for just a small incremental improvement.

One thing I did well was to get a real good night's sleep prior to the contest. One thing I did badly was not to get enough sleep in the week before the contest. Maybe a 19-year-old can recover from a lot of missed sleep in just one night, but 19 was a long time ago.

Everything was ready to go a few hours before the contest—but at the last minute there was a sudden problem with 40. The T/R relay was sticking, so I just yanked out the amp and decided to use the AL-1500 on 40, 80, and 160. Another compromise.

I started the contest on 10 and immediately got a huge pileup. It was tough pulling out calls from the screaming mess and I could only maintain a rate of about 135/hour. Here I made a small mistake. I started at 30 WPM and moved up to 32 as soon as the pile started to build. In retrospect, I should have kept pushing the speed up to thin the pile out a little, but I got wrapped up in the pile and didn't think about it again.

I moved from 10 to 15 to 20 as the evening progressed and kept the average rate around 130/hr. Then, just be-

The 4-high stack of 105CAs on 10m at KL7Y. Yes, Dan has heard his echo off the Moon!

Table 1

Estimated vs. Actual QSOs per hour at KL7Y in the 2000 CQ WW CW contest

DAY 1			DAY 2	
HR	EST	ACT	EST	ACT
00	125	135	125	132
01	125	137	125	129
02	125	133	125	64
03	125	139	100	50
04	100	113	60	73
05	60	117	**	103
06	60	46	**	100
07	100	112	60	38
08	100	62	60	74
09	100	87	60	91
10	100	73	60	50
11	100	101	60	108
12	60	79	60	40
13	**	125	40	3/**
14	**	47	40	**
15	40	**	**	2/**
16	40	**	**	10
17	60	58	60	17
18	100	124	100	51
19	125	111	100	64
20	150	175	125	96
21	150	148	125	114
22	150	157	125	117
23	150	142	125	142
TOTAL	2120	2422	1610	1666

** denotes off times, planned or actual
Pre-contest Estimated score:3730 QSOs, 135 zones, 330 countries = 4.4 million
Post-contest Claimed score: 4088 QSOs, 146 zones, 316 countries = 4.7 million

fore 0600Z, the propagation took a dive. The next hour was only 46. Here I ran into trouble. Normally for KL7s, the big runs to Europe on 10, 15 and 20 occur at night. I know it sounds weird, but that's when the high bands open over the pole. The plan was to run mostly on 15 all night with a hope of some 10m to Europe. 20m would be in reserve and I'd use the second radio to hunt mults on the low bands. Only the first night, there just wasn't much open on the high bands.

Throughout the whole night, I got about one decent hour run on 15, a couple on 20 and nil on 10. The rest of the night I spent toughing it out on the low bands. I could have ran a lot more on 20, but the feeling was if conditions worsened, 20 would be the only band left, so I tried to stay off 20 and save it as the last resort. Unfortunately, because of the one downed amp and earlier compromises in the station setup, I couldn't SO2R two low bands simultaneously. I did nail a couple of mults on the high bands, but SO2R was pretty useless the entire first night. Most of the night there was only one band open!

The SO2R audio scheme was pretty simple. One radio played through a set of small Walkman-style headphones. Over the top of these, I placed another set of headphones, a large full muff style that connected to the second radio. The two headphones sounded different, so it was actually easy to tell which was which, especially if I set the radio with the small headphones at a higher note. The setup was quite comfortable, quite simple, and worked extremely well. John, WA2GO, showed up for one SS with a huge audio mixer board to run SO2R. It had more knobs than the bridge of the Starship Enterprise. That's not what I wanted. With three radios, two computers, seven rotators, two keyers and six antenna switches already in use, the simplicity of the double-headphone scheme was just great.

Around 10-11Z (01-02 local) the first night, the low band amp began arcing on 80 and 160. It seemed to work OK on 40, so I stayed there for the next few hours with occasional forays to the higher bands. I wasted a little time trying to diagnose the problem, but in the end decided to forego 80 and 160 that night. This cost me a short 80-m JA run and a bunch of mults to my west, but I thought I could pick those up the 2nd night. I finally crashed for 2 hours around 1500Z. In most of the M/M efforts I'm awake the whole first night, so the lack of sleep earlier in the week definitely impacted this contest.

I awoke at 1700Z, and it was time for a quick assessment. After spending so much of the night on the lower bands, it was the good news/bad news scenario. The mults were way down from expected and the nighttime conditions had not been that good. But, there had always been at least one band that was open and there had been no real unproductive times. I was actually a couple of hundred QSOs ahead of my planned QSO total.

I began to aggressively hunt mults during band changes and QSYs. As a result, I bagged a lot of quick mults. The cost was in QSOs, however. The next hour was slow, but then 20 popped open. Run time! Shortly thereafter 10 opened and things got real busy. I ran for the next 8 hours and got a best hour of the contest at 187. Nothing like 1200 straight QSOs to bolster the QSO total. At 00Z I turned number 2422, better than I had hoped. If only the mults were better.

As things slowed in the evening, I took several breaks at different times. First, I had some work-related business to take care of. It only took a few phone calls and maybe 15 or 20 minutes away from the contest, but it had to be done Saturday evening. In retrospect, I could have had someone else handle this.

Another break was to cook up a quick dinner and have an actual meal. In the ham shack I had pulled in two chairs next to the operating position. Over the arms of the chairs I put a piece of plywood and put an amp, rotators, and some antenna switches on top. This increased the operating area into a nice L-shaped position. Below the plywood, on the chair seats, I had a stash of fruit, fruit bars, sandwiches, caffeine-free diet Coke (early contest), and regu-

lar Coke (late contest). The all-important water bottle and M&M peanut dispenser were on the main desk, of course. This layout worked really well, but around the 30th hour I was ready for more than a soggy sandwich or blueberry fruit bar. I have to think that with a little better planning I could have cut out this break. For example, moving the microwave oven into the ham shack and popping in a frozen dinner could have kept the rate up.

A third break was to try to repair the low band amp. I got the cover off and could see nothing wrong. Not willing to troubleshoot live high voltage after only a couple of hours sleep, I put the cover back on. There was still room on the plywood for another amp, so I got the 76CA and started to hook it up for 80 and 160. The 220 VAC cord would not reach. Not even close. To move it closer would require re-arranging the entire station—not a good option. Another option would be to install a 240V extension cord. I have one outside in the shed, probably buried under everything else in there. Since it's dark and the shed has no light, I would have to take out a trouble light and a 120V extension cord—after I find them. Also, I would have to put on boots and a heavy coat—it's winter out there. Probably another 15 or 20 minutes to do all that even though 80 and 160 are now sounding terrible. But suddenly, 15 is open to Europe and 10 is finally starting to open that way, too. The high band lure is too much, so 80 and 160 don't get fixed.

On one hand, I just had three breaks that totaled well over an hour and probably cost 150 Qs. With a little luck and better planning, that could have been more than an extra hour's worth of operating. On the other hand, I didn't take a proposed 2 hour sleep break (those were two productive hours!), so by the original game plan, I'm still OK and doing well. Add to that consideration that I'm already past the old record in QSOs at 0700Z and 10 m is starting to produce a bunch of mults, and things are looking up.

Sweet 15 gives me some European pileups. They are unruly: why anybody who is 20-over has to send his call sign 5 times is beyond comprehension. I QSY to a new frequency, pop a quick CQ, and watch the last 10 rate meter start to climb: 100, 120, 140, 160, 180, 200. Then the packet spots hit, a whole bunch of ill-mannered long callers descend upon my frequency, and the rate starts down. When it hits 80, I QSY again and repeat the whole process. Most frustrating.

I pop up to 10 several times to try to run Europe, but it never happens. At least I get some mults up there even if I can't run. Once again the compromises made during the setup are hurting. I can't run on 15 and listen on 10 where I really need it. I try SO2R on the other bands when I get a chance, but 40 is poor and I can't find anything new on 20. I think this is the first time I miss packet!

The 1100Z hour (0200 local) is OK—over 100 per hour to Europe on 15, then the bottom falls out. None of the bands are very good, the aurora is raging overhead, and after an hour and a half of plodding I decide to sleep, even though it is a little earlier than I had planned.

Up in two hours—I should have stayed in bed. I make only 2 Qs in 30 min and then hit rates of 10 and 17 for the next two hours; things seem really bad. I consider taking time to try to find the amplifier extension cord, but 80 and 160 are dead, it's not worth the trouble. At least I have time for a good breakfast.

1800Z turns the corner, albeit oddly. This is 0900 local and I start hearing Europe on 40. Not over the pole on the true path, but out of the southwest on some skew path that often happens when the polar path shuts down. Usually it's tough to work them on the skew path, but I get a meager run going and gather a bunch of much-needed QSOs and mults. The path finally closes and there is another interval of poor propagation where the guy with an S1 signal stands above the rest of the signals that are S0. Bad, bad, bad.

Finally, during the 19Z hour, 10 m comes alive with strong auroral signals. Some of the W1s have no CW note at all, they are just a loud hiss. Copy is extremely rough, as the aurora multipathing causes all the dits and dahs to run together. Fortunately, a lot of the guys, especially the W1s, have enough sense to slow down to make things go faster. Others never figure it out and I have to have numerous repeats. By now I'm really tired, which isn't helping. Sometimes I hear a call perfectly well, but can't type it. The keyboard is a confusing mass of unordered letters. The paddles become two evil levers with a will of their own. The Morse I can still decipher—it's the motor skills that I'm having trouble with. All contest I've been drinking water, fruit juice, and caffeine-free soda. Now it's time to shift gears and gulp a can of real Coke. It helps, the kick is there, no longer do I have to spend 3 seconds trying to punch the Ins key. Later on I'll go for can number 2. Delaying the caffeine until the last possible moment seems to really amplify its effects.

The last few hours I run on 10 and then close things out with a nice 142 hour on 15 as the aurora fades. After dupes I have 4088 with 146 zones and 316 countries. By Caribbean standards not a noticeable effort, but by Zone 1 standards it's a winner!

The only expectation not fulfilled was in country total. To me it was totally amazing how few mults I worked considering how hard I tried to work mults. I know part of the problem was the station did not allow full SO2R, but even when it was available it was practically useless, e.g., tuning 20 on the second radio and hearing only the same big Europeans hour after hour. Another part of the problem is the location—we don't hear many Africans because Europe is in the way; we don't hear many deep Asians because Japan is in the way, and the Caribbean and South America are blocked by the huge USA contingent. In this contest, there was a decided lack of well-rounded propagation, too, as a lot of the time only one or two bands were workable. Using the second VFO snared a few, but in the WPX CW I made more second VFO QSOs in one hour than I did in the entire 48 hours of the WW CW.

It got so bad that I spent a tremendous amount of potential run time hunting mults. If the band was decent, I could log better than 100/hour running and still spend 5, 10, or even 15 minutes hunting mults on the same band. I had 23 hours with over 100 Qs, only 10 of those were pure run hours, the other 13 involved taking time out to hunt for mults. At one point the QSOs per mult ratio was greater than 11 to one. Now I could run for 15 minutes and make 30 to 40 Qs. Or I could go hunt mults on the same band for 15 minutes; just five mults is the equivalent of 55 or more Qs. I examined every hour in the contest to see how many QSOs I could have made had I concentrated only on Qs and avoided the mult hunting and the switching to less QSO-productive bands to flesh out the mults. I got a rough 5400 Qs with well under 200 countries! A max-QSO strategy would have hurt my score. I basically gave up 30% in QSOs to get 40% more multipliers. There is more to this contest than just making Qs, at least in Alaska.

Table 1 compares the pre-contest estimated QSOs per hour with the actual results.

So it was a good contest, even if it did take me several days to fully recuperate. The arcing in the low band amp was eventually traced to a defective antenna switch (arcing between switch contacts caused the amp to really flash) - there was nothing wrong with the amp.

Hindsight is wonderful, but preparation is better. Compromises always hurt. Reading about lessons learned (and relearned) by others is just another way to prepare.

NCJ

Applying the ACOM 2S1 Commutator at Multi-Multis

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In November 2000, I participated in the HC8N multi-multi team that entered the CQ WW CW contest. I shared 20-meter duties with Tom, K1KI. Apart from a short period early on Saturday when the bands were severely disturbed, it was "rock around the clock!" Tom and I were both on the air nearly all the time. One of us was running and the other tuning for multipliers or new stations, each with our own rig. This meant that we had to work together very closely to minimize disruption.

As anyone who has operated at a large multi-multi operation knows, things get complicated between a run and a mult operator both trying to use the same amplifier or antennas. The rules require that only one signal be present on the band at a time, so it should not be possible for both radios to transmit simultaneously. If it is required to use the main amplifier and transmitting antennas, some switching is required to allow the mult rig access. Furthermore, if the run station has any kind of rate, tight coordination is required between the two operators to minimize disruption of the run rate while jumping across the band to work a mult. All this fancy footwork can result in serious technical problems, including rig damage, if not well-controlled.

Tom and I planned to use a manual coax switch at the amplifier input (an Ameritron AL-1200) to connect either of our FT-1000MP outputs. The multiplier rig would use one of several receive antennas, independent of the transmit path (see Figure 1). As you can see, there was no interlocking and either rig could be keyed at anytime. No matter how good Tom and I were at hand signals, there was still a pretty good chance that one or the other of us would transmit at the wrong time. While the FT-1000M's are pretty well protected against high SWR and have robust receiver front ends, the nearest RadioShack was about a zillion miles away.

The Commutator

At this point, Chief Op Trey Garlough, N5KO, offered the use of ACOM 2S1 "Commutators". Would we be able to use one as a dual-rig transmit interlock? The 2S1 is an "automatic transceiver commutator" intended for the SO-2R station. It allows two FT-990 or FT-1000MPs to use a single amplifier and switch chain in full break-in, while providing high-speed lockout and receiver protection. The locked-out radio is inhibited from transmitting and its RF connection shorted for receiver protection.

The unit operates by detecting RF from one of the rigs and rapidly locking out the other. Whichever radio transmits first "seizes control" of the amplifier. Reed relays are used to switch the RF, so the unit is plenty fast enough for full QSK. The radios *must* have a transmit-inhibit input (+12 V to inhibit) for the Commutator system to work.

One advanced feature of the unit is that it sends a small amount of dc through the reed relays to be sure they have switched completely before allowing either radio to transmit. In this way, if either relay fails, both radios will be prevented from transmitting, which could damage either or both radios.

A second protective feature senses whether the entire amplifier and antenna switch chain is ready before allowing the rig to transmit. ACOM 2000 amplifier and switching products have a daisy-chainable switch closure that indicates they are completely tuned or switching is complete. By connecting all switch clo-

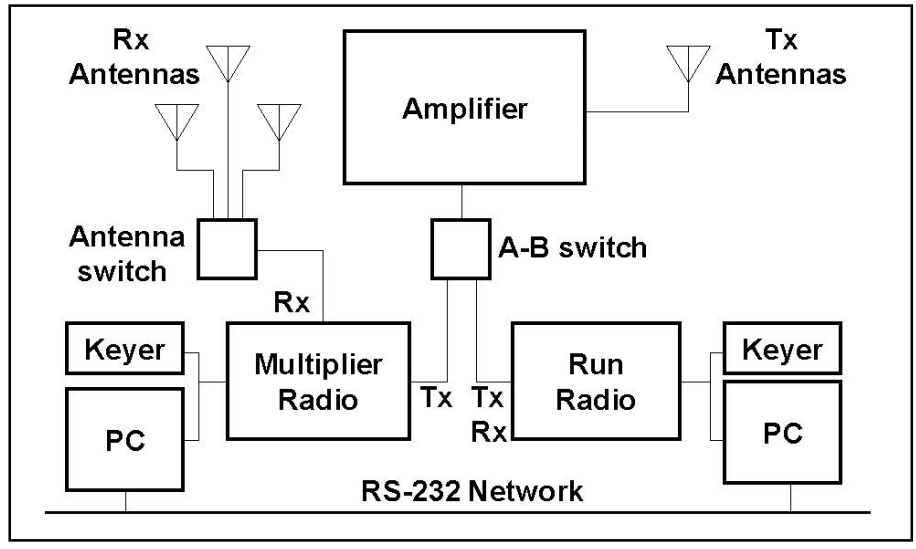

Figure 1—The usual multi-op, single-band setup. There is no protection against accidentally transmitting without the amplifier being connected.

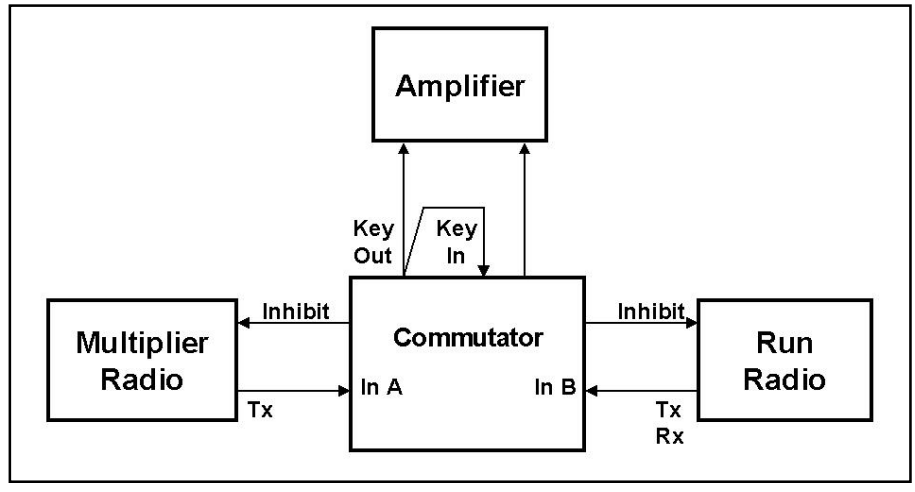

Figure 2—The Commutator can be used to control access to a non-ACOM amplifier by connecting Key Out to both Key In and the amplifier keying input. Inhibit signals to the radios prevent transmitting when the other rig has control.

sures together in series, a "system-ready loop" signal is created. This signal is used by the Commutator as a master control signal to allow or inhibit transmission. When operating on multiple bands, it is important to allow the entire transmit chain to complete ALL tuning or switching operations before transmitting.

Applying the Commutator

In the case of HC8N (and most other multi-multi stations), we were only transmitting on a single-band and antenna switching was relatively rare. In our case, the amplifier chain was always ready and the AL-1200 did not offer a switch-closure on ready. Could we use the Commutator with the system-ready signal bypassed in some way?

As it turned out, you can use the Commutator in a single-band situation with the system-ready sensing loop bypassed as shown in Figure 2. Cables are provided for the FT-990/1000MP DIN jacks, but it would be easy to separate the signals into individual connectors. We used a phono jack Y-splitter to route the Key Out signal to both the amplifier and the Key In jack.

While the reed relays should close within a few milliseconds, we wanted to be sure that the radios would delay long enough after starting the transmit cycle for the inhibit signal to be returned by the Commutator. The FT-1000MP generates the PTT signal and then delays for a controllable amount of time. This is menu item 7-5 and can be set to values from 0 to 30 ms. The default of 5 ms should be long enough for reed relays, but we set ours to 25 ms, with no noticeable effect on the output signal.

There are nice bright red LEDs to clearly indicate who has the amplifier, which is a very nice visual cue to both operators as to the status of the system. Multi-ops will be familiar with all the hand-waving and pointing that occurs when trying to coordinate pouncing on a mult. I can tell you that at HC8N on 20-meters there were times during low rate periods where the mult operator didn't even have to coordinate with the run operator. He just hit the key, made the QSO, and that was that. I can tell you that on Sunday, during the inevitable "duh" periods, the Commutator simplified our lives greatly and probably saved the receivers more than once.

Summarizing, because the Commutator uses RF-sensing and not radio control outputs, it can be adapted to many different types of radios, as long as they have a transmit-inhibit input. Multiop owners who want to be sure that their ops comply with the one-signal-per-band rule may be interested in the Commutator as a valuable control accessory that also protects receivers. NCJ

WRTC-2002 Round-Up

by Martti Laine, OH2BH

Here is Martti OH2BH's short summary of WRTC-2002, with the number in parenthesis referring to the picture number in the attached collage. This is a fitting wrap-up to contesting's premier event.

Pekka Lansman, OH2NCS (1) of the Finnish Telecommunications Regulatory Authority was part of the opening ceremony, greeting the crowd from Amateur Radio's official perspective and presenting the unique OJ callsigns to the teams. Obviously the Olympic Oath was taken by a Finnish Team Captain (2), Pasi, OH1MM on behalf of the competitors, and Toni, OH2JTE, Vice President of CCF, on behalf of the officials. The opening ceremony was moderated by two brothers—OH2BAD and OH2BR.

The large circus tent was full of emotion and tears (3) when the 52 teams and their associated referees and officials marched in. It was a truly magnificent sight. The Oulunkyla Music Conservatory Band traveled with the WRTC all along and provided inspiring music for the event. A special arrangement of *CQ Serenade* was a hit of the week.

And here was the turning point of the week. The teams were drawing their operating locations and callsigns. It was a happy gathering of 208 serious contesters when, armed with their personal equipment, they began to head to their individual host stations they had never visited before. Here (4) is one of the 52 WRTC2002 competing units; host OH2KI, Belgian team members ON6TT and ON4WW and referee K3NA.

Here the event found its two streams again when many of the non-competitors embarked on a wide range of leisure activities; the OI2HQ IARU contest station, and all the way from Lapland to St. Petersburg, from Tallinn to Aland Islands, or opted for the very popular Nature of Finland tour.

Another perspective of the WRTC spirit was experienced here since the young Team Argentina was sponsored to Helsinki by an international group of fellow contesters.

And a look at the heat of competition (5); a neatly organized K3LR and N9RV layout fully utilizing the allowed accessories at OH2HXT.

When the dust had settled, there were winners and medalists on the podium (6). For the first time, the station hosts were honored for their valuable participation in the team effort. In the middle are Gold Medalists N5TJ and K1TO with OH2HXP, flanked by Silver Medalists RA3AUU and RV1AW with OH3AXA and Bronze Medalists DL2CC and DL6FBL with OH1XX. Indeed Jeff, N5TJ, and Dan, K1TO, had won the WRTC in three consecutive events.

All good things come to an end, with Dave, K1ZZ, declaring the WRTC2002 closed! Farewell Finland! NCJ

Fun with State QSO Party Statistics

John Myers, KD8MQ

Here's an interesting article that may generate more interest in your state QSO party. Follow John with his development of a Web site that shows scores from each county from years past.

Do you enjoy competing in state QSO Parties? Would you like to mount a DXpedition on a shoestring budget? At this moment, you're probably wondering what one has to with the other. Well, activating a rare county during a state QSO Party is a great way to become "rare DX" on a budget. Since 1987, Allen, WI8T, and myself have done just that.

Usually, we would operate from the same rare county in Pennsylvania, but every year I'd wonder just how rare we would be. To answer that question, I started keeping track of the total points per year from each PA county. This was a great tool whenever I would wonder, "Is this the year to change counties?" About 5 years ago, I decided to post this info on the Web, for the benefit of all the PA QSO Party animals.

This site, at **www.qsl.net/kd8mq/PAqso/PAqso.htm**, allows you to access a separate Web page for each of the 67 counties in Pennsylvania. On each page, you'll find a map showing that county's location in PA (Figure 1), general info (such as ARRL section), scoring records (Figure 2), and total scores for the county going all the way back to 1987 (Figure 3). This info is invaluable in choosing your operating location for the second weekend in October. Best of all, the format is easily adaptable to other state QSO Parties.

The Web site offers a breakdown of yearly PA QSO Party scores not by station, but by county. It then lists the county scores as a percentage of the total score for that year. For instance, when picking my 2002 operating location, I chose Armstrong County since it had percentages of 0.11 and 0.16 in the last couple of years. The activity level is presented for each year, all the way back to 1987. Also, you can browse maps going back to 1997, which show the 15 rarest counties for a given year.

Scores on the individual county pages are grouped by year, and give such info as total score and number of stations categorized by type (how many are mobile, portable, rover), total points reported from that county during a given year and total points represented as a percentage of the total score reported from all counties.

The Web site is an extension of a project I started in 1988. After a few years, it became either an obsession or a labor of love. I still haven't figured out which it is!

In 1987, when Allen, WI8T, and I decided to operate portable for that year's party, we chose our county based on phone conversations with, Doug Maddox, W3HDH,[1] results of previous contests, and ultimately availability of lodging.

When the results were published, I totaled the per-county scores, and saved them to a database that I was experimenting with. This soon became a yearly ritual. Each year, I spent a weekend huddled in my office with a calculator, totaling the county results.[2] After a few years, I could see trends develop. Armed with this info, it became easier to choose locations for portable operations, and track rare counties.

Sometime in the late 1990s, I finally got off my duff and started a Web site.[3] I started with a modest home page. As time progressed, I added another page, then another, etc.[4] Eventually, I got the urge to create a Web site to display my PA QSO Party data.

I started by designing a front page for the site.[5] This included a Pennsylvania

Continued on page 11.

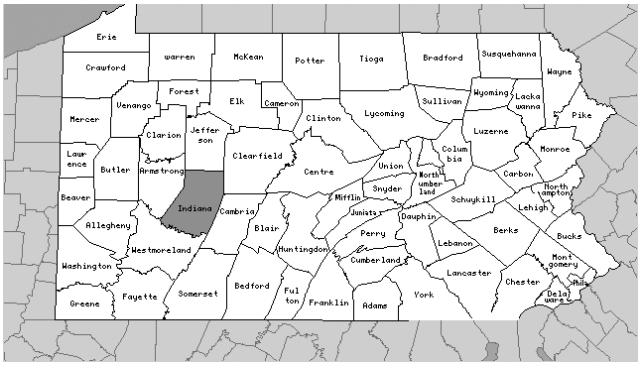

Figure 1—County selection map of Pennsylvania, with Indiana County highlighted.

General Info	
Abbreviation: ARM	ARRL Section: WPA
Average score (5 year): 91,656	Average score (10 year): 101,835
Please note that the average score is per county, not per station	

Records	
Single op: KA3NUM 186,630 (1995)	Multi-op: KA3WSW 57,193 (1992)

Figure 2—Information and records page for Armstrong County.

Year	Number of stations	Number of mobiles	Number of portables	Number of Rovers	%	Total Points
1987	1	1			.14	
1988	1	1			.42	
1989	1	1			.05	
1990	2	1			.10	
1991	3	1	1		.52	
1992	3	2			.55	
1993	2	1	1		.49	
1994	3	1	1		1.12	
1995	3	1	1		1.01	
1996	4	2			.53	
1997	3	1			1.05	
1998	1				.42	
1999	4	3		1	.75	
2000	4	4			.11	
2001	4	4			.16	
2002						

Figure 3—Total scores for all Armstrong County participants and number of Armstrong County entries, by year. In 2000 and 2001, respectively, operators in Armstrong County accounted for 0.11 and 0.16 percent of the total points scored by Pennsylvania stations.

Antenna Length Chart

George I. Wagner, K5KG
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Background

This article and chart are reworks of ones I wrote for *CQ* Magazine in 1985. Since then, I have received many requests for reprints of the chart, including one from Bill Orr, W6SAI (SK), who requested permission to use it in a new book he was writing. So it's now time for a new and improved 2002 chart; this one has been expanded to include all ham bands from 160 through 2 meters. A few calculation flaws have been corrected, and U.S Customary measures in feet and inches have been introduced—thanks to the programming talents of Gerry Smith, W6TER.

In 1985, spreadsheet programs were relatively new; however, they had rapidly become an everyday tool in the workplace to those fortunate enough to have "personal computers". VisiCalc was the spreadsheet program of its day, and was what I used on an Apple II+ to develop the 1985 chart. Today VisiCalc has all but disappeared, having been replaced by Microsoft *Excel* and IBM's *Lotus 1-2-3* as the spreadsheet programs of choice.

Why the Chart?

Having had many opportunities to operate from DX and Field Day locations, I have learned the importance of taking along the proper collection of tools, connectors, gadgets, and reference information to be able to make a quick repair or string up an antenna. I have also learned the torture of lugging too much along, only to find stuff unused at the end of the trip.

The antenna length chart arose out of the need to have a convenient, light-

Antenna Length Chart

Ham Band	Frequency (Mhz)	1/4 λ (Feet)	1/2 λ Dipole (Feet)	1λ Loop (Feet)	1/2 λ Inv Vee 90° angle (Feet)	Frequency (Mhz)	1/4 λ (Meters)	1/2 λ Dipole (Meters)	1λ Loop (Meters)	1/2 λ Inv Vee 90° angle (Meters)
160	1.800	130' 0"	260' 0"	558' 4"	257' 5"	1.800	39.6	79.3	170.2	78.5
	1.850	126' 6"	253' 0"	543' 3"	250' 5"	1.850	38.6	77.1	165.6	76.3
	1.900	123' 2"	246' 4"	528' 11"	243' 10"	1.900	37.5	75.1	161.2	74.3
	2.000	117' 0"	234' 0"	502' 6"	231' 8"	2.000	35.7	71.3	153.2	70.6
80	3.500	66' 10"	133' 9"	287' 2"	132' 5"	3.500	20.4	40.8	87.5	40.3
	3.750	62' 5"	124' 10"	268' 0"	123' 7"	3.750	19.0	38.0	81.7	37.7
	3.900	60' 0"	120' 0"	257' 8"	118' 10"	3.900	18.3	36.6	78.5	36.2
	4.000	58' 6"	117' 0"	251' 3"	115' 10"	4.000	17.8	35.7	76.6	35.3
40	7.000	33' 5"	66' 10"	143' 7"	66' 2"	7.000	10.2	20.4	43.8	20.2
	7.150	32' 9"	65' 5"	140' 7"	64' 10"	7.150	10.0	20.0	42.8	19.8
	7.300	32' 1"	64' 1"	137' 8"	63' 6"	7.300	9.8	19.5	42.0	19.3
30	10.100	23' 2"	46' 4"	99' 6"	45' 10"	10.100	7.1	14.1	30.3	14.0
	10.150	23' 1"	46' 1"	99' 0"	45' 8"	10.150	7.0	14.1	30.2	13.9
20	14.000	16' 9"	33' 5"	71' 9"	33' 1"	14.000	5.1	10.2	21.9	10.1
	14.150	16' 6"	33' 1"	71' 0"	32' 9"	14.150	5.0	10.1	21.6	10.0
	14.300	16' 4"	32' 9"	70' 3"	32' 5"	14.300	5.0	10.0	21.4	9.9
	14.350	16' 4"	32' 7"	70' 0"	32' 3"	14.350	5.0	9.9	21.3	9.8
17	18.068	12' 11"	25' 11"	55' 7"	25' 8"	18.068	3.9	7.9	17.0	7.8
	18.168	12' 11"	25' 9"	55' 4"	25' 6"	18.168	3.9	7.9	16.9	7.8
15	21.000	11' 2"	22' 3"	47' 10"	22' 1"	21.000	3.4	6.8	14.6	6.7
	21.200	11' 0"	22' 1"	47' 5"	21' 10"	21.200	3.4	6.7	14.4	6.7
	21.450	10' 11"	21' 10"	46' 10"	21' 7"	21.450	3.3	6.7	14.3	6.6
12	24.890	9' 5"	18' 10"	40' 5"	18' 7"	24.890	2.9	5.7	12.3	5.7
	24.990	9' 4"	18' 9"	40' 3"	18' 6"	24.990	2.9	5.7	12.3	5.7
10	28.000	8' 4"	16' 9"	35' 11"	16' 7"	28.000	2.5	5.1	10.9	5.0
	28.500	8' 3"	16' 5"	35' 3"	16' 3"	28.500	2.5	5.0	10.7	5.0
	29.700	7' 11"	15' 9"	33' 10"	15' 7"	29.700	2.4	4.8	10.3	4.8
6	50.000	4' 8"	9' 4"	20' 1"	9' 3"	50.000	1.4	2.9	6.1	2.8
	54.000	4' 4"	8' 8"	18' 7"	8' 7"	54.000	1.3	2.6	5.7	2.6
2	144.000	1' 8"	3' 3"	7' 0"	3' 3"	144.000	0.5	1.0	2.1	1.0
	148.000	1' 7"	3' 2"	6' 9"	3' 2"	148.000	0.5	1.0	2.1	1.0

Antenna length calculations are based on the following formulas:
1/2 λ dipole (feet) = 468/frequency in Mhz
1/2 λ dipole (meters) = 142.65/frequency in Mhz
Full wave loop (feet) = 1005/frequency in Mhz
Full wave loop (meters) = 306.32/frequency in Mhz
Inverted Vee with 90 degree included angle is 99% the length of 1/2 λ dipole

Note: Cut wire slightly longer to allow for connecting insulators and pruning.
Height above ground, nearby wires, trees, etc. will change tuning slightly.

weight reference for determining antenna lengths. This came from times of trying to find a calculator or a paper and pencil (typically in the dark), inevitable debates over which formulas to use and, one time, the need to convert from feet to meters when only a meter tape was available. On two separate occasions, I discovered 160-meter dipoles of very wrong lengths, and on an expedition to OJ0 in 1982, OH0RJ and I spent several hours calculating, cutting, and erecting 40 and 15-meter delta loops. This chart would have been invaluable in those situations.

After a review of various antenna handbooks in the shack and a quick refresher on band edge frequencies, the new chart was set up. The formulas used in the calculations are shown at the bottom of the chart, and are based upon standard assumptions for wire antennas supported by end insulators. Dean Straw, N6BV, Gerry Smith, W6TER, and Tom Taormina, K5RC, served as extra sets of eyes in verifying the calculations and in making helpful suggestions to improve the chart.

This new chart was developed using Microsoft *Excel 2000*. It is not necessary to go into the details of using *Excel*. I will, however, point out to those unfamiliar with spreadsheet programs that they provide a convenient way to manage rows and columns of numbers and perform rapid arithmetic calculations. In the chart, for example, once the formulas and frequencies were set up in the worksheet, the antenna lengths were quickly and automatically calculated for each of the eight columns.

For the benefit of those new to ham radio (doubtful among *NCJ*'s readers), the chart shows the proper wire lengths for antennas at each significant amateur frequency from 160 to 2 meters. The chart shows the height of ¼-wave verticals, the length of ½-wave dipoles, the circumference of full-wave loops, and the lengths of inverted vee antennas. The correct band edge frequencies are shown for each band, and representative mid-band frequencies are shown for 160, 80, 40, 20, 15 and 10 meters. Take special note of the suggestion at the bottom of the chart to cut antenna wires slightly longer than the measurement shown in the chart to allow for on-site pruning and attaching wires to insulators. Height above ground and nearby objects (other wires, trees, buildings, etc) will affect tuning. To be usable internationally, the chart is divided into two sections: U.S. Customary and Metric.

A laminated color version of the Antenna Length Chart is available for purchase at **www.hammaps.com** and the eHam Store at **www.eham.net/cart/**.

NCJ

Fun with State QSO Party Statistics

Continued from page 9.

map and links to individual pages for every county in Pennsylvania. Those pages would be built one by one, using a master template. I've tried to create the same look for each of the pages.

Let's break here for a note about graphics. When I went looking for maps, I did an Internet search on "Pennsylvania", and looked at a lot of Web pages before finding the map I wanted. I chose a map being used by the PA-GenWeb project.[6] It was clear and of sufficient size for my needs, but the feature that attracted me the most was that it had hotspots for every county. Hotspots are best described as hyperlinks that can be customized to any size and shape that you desire. The hotspots on this map enabled visitors to the PA-GenWeb site to link to genealogical sites in any of Pennsylvania's 67 counties. Using this map, it was an easy matter to direct the user to one of the PA QSO Party county pages. I'm not comfortable lifting graphics without permission, so a quick e-mail to the Webmaster at the PA-GenWeb project resulted in permission to use the map.

Once I had the hotspots changed to point at the individual pages I was to create, it was time to make individual graphics for each of the 67 county pages. That was time consuming, but well worth it. Using a graphics program such as Paint or Paint Shop Pro made the creation of graphics a snap (Figure 1 and Figure 2).

If graphics design is not your thing, or if you simply want to take advantage of a large library of clip art, there's plenty available either on the Web or on disk. I've used a little bit of both. For the current version of the Web site, I chose 321Clipart.[7] Their library is outstanding, and the only cost is the placement of a small banner on your page.

Once the graphics are ready, it's time to work on your design. I'd like to say that I designed a template, and used that design for each page. Truth be told, the 67 county pages were (are) a work in progress. When I start updating the pages, the design of the last page is never the same as the design of the first. I'm always changing things. While some changes (like backgrounds) are easy to make, most require working with each and every page. Speaking of backgrounds, one easy trick is to use one master background file. This same file is used for each page. A change of background requires only that you change one file.

I designed the original pages using *Front Page Express*, eventually moving up to *Front Page 2000*. There are several comparable and superior Web design programs on the market. In the next few years, I hope to try some of these.

At the top of the individual county pages, there's general information about the county, such as the county abbreviation, ARRL Section, and average county score. The next column holds the record score for the county.[8] Next comes the yearly data table, and it is populated with info from the spreadsheet, which is also available via the Web site.

A new addition starting in 2001, compliments of Bill, NG3K (in 2001) and Bud, AA3B (in 2002) is the plans page. In the last month before the Party, they would collect info pertaining to mobile, rover, and portable plans from the PA QSO Party reflector, and other sources. That data would be used to update the plans page, which is a handy reference tool for those working the contest.

This Web site has proven to be time-consuming and challenging, but also very rewarding. It has been very well received by the PA QSO Party faithful. This Web site format could be easily adapted to display results of other State QSO Parties. Give it a try. You just might get hooked!

Notes

[1] At that time, Doug was the coordinator of the QSO Party.

[2] Boy, was I glad when the PA QSO Party results were made available electronically.

[3] The Web site was started at qsl.net. Al, N3TKJ, is very accommodating. For more info, check out **www.qsl.net**.

[4] While I haven't counted them recently, I would guess that my total page count stands around 140.

[5] I used Microsoft Front Page in designing this site. I'm told there are better programs out there, but this is a good program, and works for me.

[6] **www.pa-roots.com**

[7] **www.321clipart.com**

[8] The records are a mirror of information already available on the Official PA QSO Party Web site.

NCJ

NCJ Profiles

Paul Gentry, K9PG
paul@k9pg.com

K9PG

Texas . . . home of a plethora of great operators and some of the biggest contest stations on the planet. Folks like K5GN, N5YA, K5NZ, NM5M, K5MR, K5NA, and a host of others have graced the airways through the years in every contest imaginable. From Sweepstakes to CQ WW, from WPX to NAQP, there has never been a shortage of active W5s! With so many great ops, it's somewhat surprising that only a handful have been profiled in NCJ hroughout the years, including K5LZO (SK), N5RZ, AA5BT, and most recently N5TJ.

You can add one more to that list. We're headed back to Texas to hear from someone that has been a ham for more years than I've been alive. When he operates Sweepstakes, he hands out a check of 57 and a section of STX—of course that's when he operates from home. A frequent guest op at K5NZ and WX0B, this guy has made about as many Qs in SS CW in the past dozen years than anyone!

Here's a look at the ham radio life of Bill McCarthy, K5GA, in his own words.

My dad was a ham in the late 30s and early 40s before World War Two. When the war started, he dropped the hobby and entered medical school. In the spring of 1957, when I was 8 years old, he got the urge to get back into radio. I remember him coming home with a new Hallicrafters SX-101 that he called a receiver. He later showed up with a box of strange looking things, screws, and metal panels. I noticed him every night putting these things together. Eventually, I noticed it was a Globe Chief, which he told me was a transmitter. The next thing that showed up at our house was a long skinny pole with funny looking cups up and down it. I later learned this was an antenna. Thus, my ham radio career began.

After a few weeks, I watched each night as he sat in front of this transmitter and receiver. I then noticed this weird looking thing that he kept pressing down in strange movements. He told me it was a key. I asked if I could do it, and he said sure. Well, within a month, I had learned the code and was actually sending CW for him. Within another month, I had passed my Novice exam. He told me that in about 6 weeks I would receive my license. Well, it finally arrived. I was now KN5LWL.

Each day after school until suppertime, I would get on 7.158 MHz looking for contacts. On most weekends, I was allowed to stay up all night Saturday to operate. I later got another crystal to allow me to operate on 21.120 MHz.

After 2 months, I passed my General exam. It took 3 times to pass it though. I couldn't understand a lot of the theory, and at age 8, the math was also hard. But what I remember thinking was that there is no meters like 20 meters.

In the December 1957 issue of *CQ* my picture can be found. My dad sent it to *CQ* stating that I was the youngest ham radio operator in the world.

While eating lunch one Saturday, my dad told me to stay home and not to go to the movies with my friends. When I politely asked why, he told me he wanted me to get on the radio starting at 5 PM because there would be a contest starting at that time. I remember saying, "Huh?" Well, the contest was Sweepstakes, it was 2 weekends long, and I made 32 contacts! I was hooked. I showed my dad the log and told him that one day I would win this contest. He looked at me and said, "Sure you will, son," and walked away.

As the years passed, I did almost everything within the hobby that one could do. Building projects, DXing, traffic handling, award chasing, VHFing, county hunting, and on and on. But my number one love was contesting. Each year for the next several years I improved my score in Sweepstakes, operated in state QSO parties, CD parties, and DX contests. The contest calendar in CQ was the first thing I would read each month. I filled up over 20 ARRL logbooks during these 10 years. Those days were truly fun, and I won't ever forget the times spent on the air talking about contesting with my friends throughout the country.

Then off to college I went, and ham radio came to a halt until my senior year at Lamar University when the school revamped the ham radio station. It merely wetted my appetite to get back to it.

Upon graduation, I went to work for Schlumberger, and later got transferred to Venezuela. I took my new Collins S/Line equipment, bought a 2-el quad when I got there, and started operating as YV6AW. I did a lot of operating for the next 3 years, but focused mainly on CQ WW phone contests. In 1975, I came in second behind Martti Lane, OH2BH. He beat me by a mere 100 QSOs, or 10 multipliers. I can save my pride by saying that he had 160 meters, and I did not. I remember fun times rag chewing and talking contests with Scotty, XE1IIJ, Jim VR1J/ZD8Z, Jim KZ5JY, and the "strange" guy at XU1DX/XV5AC. We would sit just below 14200 kHz and make the US stations furious with the DX that would call in to speak with us.

I was then transferred to Brazil for 2 years, received PY6ZAG, but I did not operate at all. I was burned out and took a break. During these 2 years, I traveled a lot throughout South America.

I came back to the US after 5 years in South America, received my new call K5GA, got hooked up with Tom K5RC, and we built a contest station with multiple towers and antennas. We did very well throughout the next 6 years, garnering various records in the multi-single categories, one of which was just broken by K5NZ in ARRL DX phone. However, the one thing that spurred me on was Tom winning Sweepstakes CW. I just had to do that, especially since I had told my dad so many years back that one day I would win this contest.

Hurricane Alicia hit the Houston area in 1983, and our contest station was history. So, I then began operating at various stations as a guest/team operator including NA5R, NR5M, W5WMU, K5LZO, and N5JJ.

In 1984, I began operating Sweepstakes CW each year from W5WMU with the dream of winning it. Well, it happened in 1987. It was no doubt the happiest moment in my ham radio career.

I continued to operate Sweepstakes from W5WMU each year through 1994 and always placed in the top 10. I operated N5RZ in 1995, from K5AAD in 1996 and 1997, and have been operating WX0B since 1998. From 1984 to 2001, I believe I have missed placing in the top 10 only three times and have had three 2nd place finishes.

Other than Sweepstakes, from 1990 to 1996, I traveled with a group from Houston to various islands in the Caribbean to operate CQ WW and CQ WPX. This group eventually built a contest station on the island of Montserrat, and in 1995, I won the WAE contest from this station. I'll never forget the massive pileups of Europeans on 40 CW, but what do you expect with a 2-el 40 on a 70-foot tower perched atop a 1200-foot cliff overlooking the Atlantic? Unfortunately, the volcano eruption on Montserrat in 1996 put an end to our station. It's still there but not accessible. What a beautiful spot it was.

I began operating NAQP CW when this contest began, and in 1995 was fortunate enough to win it. I continue to enjoy this contest helping K5NZ in his winning efforts in the multi-operator class.

Well, that's about it. Except for operating at K5NZ for this and that, and Sweepstakes from WX0B, I don't operate. But, it's still fun and the adrenaline begins to flow when I sit down in front of the radio at the beginning of a contest.

Bill operated SS CW from WX0B last November and just might squeeze into a very tightly packed top ten box once again! Making the top ten in SS one time isn't exactly an easy thing to do. Making it over a dozen times is quite the feat! I'm sure that he'll keep plugging away trying to make that top ten box for many years to come! Thanks Bill! NCJ

Contesting for Fun

Brian Kassel K7RE


K7RE

I first met Max Moon at the ARRL Division Convention held in June 2002. I was invited to do a QRP Forum on portable operating, which I really enjoyed. Funny how one can give a talk and see just how he is getting across to some, while putting others into some strange form of altered consciousness.

Max was definitely one of the former, as I could see him beaming as I related some tips and did a show and tell of some of my home brewed portable radio accessories. Of course contesting was included in my repertoire, as that is my usual reason for setting up in the boonies here in Western South Dakota or Wyoming.

After the talk, in which we all had a lot of fun, he approached me and we struck up a conversation. He mentioned that he was a new ham, thought QRP was pretty neat, but was quite nervous, perhaps even shy, about jumping into contesting. I tried mentally to put myself into Max's new ham radio shoes and quickly realized just how intimidating and unfriendly a typical contest must seem to a new ham. On one hand it would be thrilling to hear more states, countries and exotic locations than one could imagine. On the other hand, one could be totally convinced that one could never achieve the required level of operating technique to be able to participate.

I asked Max to join my wife and me for a bit of lunch, and I tried to ease his anxiety a bit. I gave him a few pointers, like how the slower operators tend to group at the top of the band, how to copy an exchange or two so as to have the information required from the station before calling, etc. You know, the stuff that we experienced contesters have known for so long that it is all second nature to us.

Well, we finished lunch, and Max seemed to be a bit more at ease about jumping in to the contest fray next time around. My wife (KD7GKY) and I really enjoyed the conversation and Max's forthright and honest approach to the ideas that I presented to him in an attempt to ease his anxiety.

Now time marches on to just a few weeks ago. I am a member of an Internet list called the QRP-L. It is dedicated to QRP, of course, and has around 3,000 members at last count. I see a message from Max concerning his first big toe-wetting into the world that we all know and love as contesting. As I read his message, Max's honesty and forthright approach that I had seen months before at the convention shone though. His piece was a breath of fresh air to the messages that are frequently posted on the many Amateur-Radio-oriented reflectors.

I immediately asked if I could possibly include his message, verbatim, in this column. He enthusiastically agreed. I was none too early in my request, as to my surprise, several other publications asked Max for the same permission. His message was that well done. Here is that message. He refers to the ARCI QSO Party, where the exchange includes either one's ARCI member number or power level. The Bull and Matador reference at the end of his message refers to a piggy back contest that the ARCI contest holds that works along with the ARRL CW SS. Please read, if you will, and remember your first taste of our contest world.

Guys,

I've read some of your postings about the 2002 QRP ARCI Fall QSO Party. It's always edifying to read reports from the experts' experiences. Well, what follows is a rank beginner's experience.

I wanted to try a contest someday. I'd never before entered any contest, party, or sweepstakes. I got my license in February & had my first QSO in April, so it's not like I've been ignoring Radio Sports forever. I even planned on helping out at Field Day with the Minnesota QRP Society and then got sick and couldn't make it. But for some reason, on Sunday, I decided to give it a try.

I figured I'd make it easy for myself: one band and (slightly less than) one watt. Logging with one pencil & one piece of paper. One straight key. No more than one cigar.

Alright! Let's roll. But—what do you do? I listened a while to try and get an idea. I found my QRP-ARCI member number and wrote it at the top of that piece of paper so I wouldn't forget it. I listened some more. Finally I heard Brian, K7RE, and remembering the dinner at this year's Hamvention when he happened to be seated next to me, I gave him a call. Boy, was I nervous! But he answered; phew! One toe wet.

OK! Let's get some points. I began to tune around 14.06 with an eye to playing search & pounce. I knew I needed to be right on frequency to get past everybody's narrow CW filter but I just bought a new (20 yr. old) TT Corsair and it has a "Spot" feature for zero-beating. I figured I was set.

Nope! Spot didn't like being in the contest. He likes to take his time but here there are only six quick letters—CQ TEST—and a call sign. Or just a QRZ? Darn, not quite on frequency & somebody snuck in ahead of me. OK, while I'm waiting I'll just check that zero-beat. Man, was that quick! OK, wait till THIS one ends. There it is—but before I can move my right hand from the offset knob to the key, he's calling CQ again: elapsed time, 0.87 seconds. Breath deep, relax the shoulders, finger tips on the key. Ready . . . GO! Darn. Maybe I'm not on frequency after all? Eventually, I'd get an answer. It was slow. It was hard. The only good thing I can say about my technique is that I had his SPC and member number memorized before the QSO even began.

Then came the little matter of "SRI QSO B4." Darn! How do you keep track of that? I guess that before I called someone, I need to check my earlier QSOs. How else can I be sure it isn't a duplicate? Not that there's that many of them, but even so, it got slower. Let's see, K0FX, I don't think I worked him, let me check, let's see. Oh, I'm wrong, here he is. Oh, no, that's not him after all, that's K5FX, K-FIVE-FX. Not. . . hey, who AM I looking for?

This wasn't S&P contesting. No! It was something like S & (check the call sign) & (tune) & (miss an opening) & (send my call) & (retune) & (get my cigar off the floor before I burn down the house) & (miss another opening) & P.

And my QSOs themselves weren't all that quick, either. Mostly I blamed it on my QRP-ARCI member number. It kept getting longer & harder to send. I'd never given it a thought before Sunday but suddenly I was confronted with the terrible truth. My member number stinks. Absolutely! Who picked out that number for me? It stinks! "11201." Think about it: 5 characters, 20 dashes. By hand! With only 999mW! ("SRI NR PSE"—20 dashes!) With QSB! ("NR AGN"—20 dashes!) And QRM. ("NR?"—20 dashes!).

There's got to be an easier way. Hey! I'll just grab a spot & call CQ! This way, everybody else will come to me. Cool!

Cool? Yes. But easy? No. Fatigue sets in at some point. The mind begins to wander. Then everything comes to a halt: is that my RST or his power level? Is that his state or his call? Is he calling me or the guy next to me with his alleged 250mW at 30 over S9?

I lasted six hours. Or two cigars. I had 35 QSOs, or 34,000 points. It's all a little fuzzy. One thing I'm sure of: afterwards, I slept 12 hours straight.

So when's this Bull & Matador thing?

Max, K0MAX

That almost makes your palms sweaty, doesn't it?

OK, maybe you are on the other end of the scale, an experienced contester. Maybe you are getting a bit jaded? Kind of developing a burnt out feeling? Here's a fun contest that is QRP oriented, but utilizes QRP for what it does best—portable operating. I guarantee that there is no other contest that comes close to just pure fun. Here is the deal: it's called FYBO. FYBO is an acronym that stands for Freeze Your (insert body part here) Off. This contest was begun by the Arizona ScQRPion QRP club several years ago. It is one of the more well-participated QRP events of the year. The scoring is based on how low the temperature is at your operating position. That's right, the LOWER the temperature, the more the multiplier. The temperature is also part of the exchange, so you know just how cold it is at the other end of the QSO.

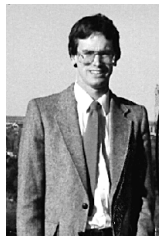
There are many different approaches that participants take. Some just stay at home, and just send 70F. Some of the more stalwart participants take it clear to the other extreme. Some build snow caves, set up on frozen lakes, cross-country ski to their location, etc. In case that you think these more ambitious souls are youngsters, check out the various web pages that they have created. Just do a GOOGLE search on FYBO, and you'll see a good number of stations set up by folks who have a silver tint beneath their ski caps. The event is held in February, but as I write this there is no firm date yet. You can see the rules at **www.extremezone.com/~nk7m/**.

Well, that's it for this time. In the meantime, I invite you to take a few minutes at your next ham gathering or meeting to help out a newbie. It's great fun to know that, at least in a small way, you've provided a bit of help to a future contest participant. Just remember how it was for you, long ago and far away - perhaps before you had a gray tint to the area under your ski cap. NCJ

VHF-UHF Contesting

Jon K. Jones, N0JK
n0jk@hotmail.com

Propagation Prediction for January 2003 VHF Sweepstakes



N0JK

Fall 2002 sure has been different compared to 2001 for 6-meter F2. This time a year ago the East Coast had daily openings to Europe and the West Coast had openings into Japan. Even the black hole of the Midwest had its share. So far this season the 6-meter openings have been to the Caribbean and South America, with occasional extensions on to Africa and the South Pacific.

The past year has had its moments. October 24 and 25, as well as November 3 and 5, were among the best days. On November 3, TI5KD, VP2MJD, and J3/K6MYC were barreling into the Midwest with 40 over S9 signals for hours. I worked 8R1RPN while mobile for a new one. K5CM worked 3XY7C. K0HA heard V51E, 3XY7C, and the 7Q7SIX/b. On November 5, Barrie, ZD7MY, worked many across the lower tier of states. With the solar flux averaging in the 160 range, most of the openings now occur during periods of geomagnetic storming. The early November openings were due to the influence of solar wind gusts from a large coronal hole.

The January 2002 VHF Sweepstakes had 6-meter F2 openings to Europe, Asia, Greenland and Newfoundland for many stateside ops. It is unlikely this will happen in 2003, as it takes sustained solar flux in the 200 range to support these types of openings. What can we expect?

If a geomagnetic storm occurs during the contest, 6 meters could open like the fall openings I described to the Caribbean and South America. These occur early during the day—often just after the sun has come up here in the states. While the number of DX stations that can be worked is limited, good backscatter conditions occur, too. It is possible to work coast to coast via backscatter during a strong F2 opening to the south. A well-equipped 6-meter contest station can potentially make hundreds of backscatter QSOs. Early afternoon, around 2100 UTC, is a good time to look for KH6 and VK.

You can operate the January VHF Sweepstakes from the DX side. Ham rentals are available on many Caribbean Islands and in Central America. With no HF contests that weekend, you have your pick. If an F2 opening shows up during the contest, one can have the VHF contest experience of a lifetime operating a 6-meter F2 opening from the DX side. A new ham rental in the Galapagos Islands is available—the HC8GR station (**www.donguido.com**). HC8 certainly seems to be a favored spot for the F2 openings occurring on the downside of Solar Cycle 23.

Auroras frequently occur during geomagnetic storms, supporting contacts on 50, 144, 222 and 432 MHz. A big aurora could set the stage for a memorable contest.

With propagation tools and web sites now available on the Internet, it is possible to get an advance warning of geomagnetic storms. The effects of coronal holes and coronal mass ejections (CMEs) on the solar wind can often be predicted several days in advance. Spaceweather.com (**www.spaceweather.com**) and DXLC's Solar Terrestrial Report (**www.dxlc.com/solar**) are two good sites. For information on what is going on in real time, I have found N1BUG's excellent "Aurora Sentry" to be helpful (**www.n1bug.net**).

Sporadic E is another propagation mode that can make an appearance in the January contest. The 2002 Es season was one of the worst on record. June and September were awful. Maybe we are due for a big January 2003 Es opening! Es did pick up in October and November. Es can link on to F2 propagation. D44TD was worked by St. Louis stations in October via an Es link. Evening Es can link to TEP propagation. Es tends to occur in a diurnal pattern, with peaks in mid morning and early evening local time. There have been some extensive Es openings in past January contests.

Meteor scatter can be worked during the contest. There are no major meteor showers, but random meteors can be used for 6-meter SSB/CW QSOs. For 2 meters, HSCW (high speed CW) or WSJT is probably necessary, as there are just not enough rocks. The JT44 mode can be used for 6-meter scatter and long haul tropo scatter on 2 meters and UHF/microwaves. JT44 is useful on EME as well. It is definitely not a rate mode, but it will let you make a few contacts (and new grid mults) when conditions are slow.

Tropo is rare in January, but has been reported. It usually favors the Gulf Coast this time of year. In any case, hope we have better conditions than June and September. NCJ

Contest Helper

The ARRL International DX Contests are right around the corner: CW is February 15 and 16, and Phone is March 1 and 2.

For those of you traveling to DX locations for the contest (or if you're a permanent DX station), here's the list of the 63 multipliers that you need to work.

AL	Alabama	MN	Minnesota	UT	Utah
AR	Arkansas	MO	Missouri	VA	Virginia
AZ	Arizona	MS	Mississippi	VT	Vermont
CA	California	MT	Montana	WA	Washington
CO	Colorado	NC	North Carolina	WI	Wisconsin
CT	Connecticut	ND	North Dakota	WV	West Virginia
DC	District of Columbia	NE	Nebraska	WY	Wyoming
DE	Delaware	NH	New Hampshire	NB	New Brunswick (VE1, VE9)
FL	Florida	NJ	New Jersey	NS	Nova Scotia (VE1)
GA	Georgia	NM	New Mexico	QC	Quebec (VE2)
IA	Iowa	NV	Nevada	ON	Ontario (VE3)
ID	Idaho	NY	New York	MB	Manitoba (VE4)
IL	Illinois	OH	Ohio	SK	Saskatchewan (VE5)
IN	Indiana	OK	Oklahoma	AB	Alberta (VE6)
KS	Kansas	OR	Oregon	BC	British Columbia (VE7)
KY	Kentucky	PA	Pennsylvania	NT	Northwest Territories (VE8)
LA	Louisiana	RI	Rhode Island	NF	Newfoundland (VO1)
MA	Massachusetts	SC	South Carolina	LB	Labrador (VO2)
MD	Maryland	SD	South Dakota	NU	Nunavut (VY0)
ME	Maine	TN	Tennessee	YT	Yukon Territory (VY1)
MI	Michigan	TX	Texas	PE	Prince Edward Island (VY2)

NCJ

Adventures in Contesting

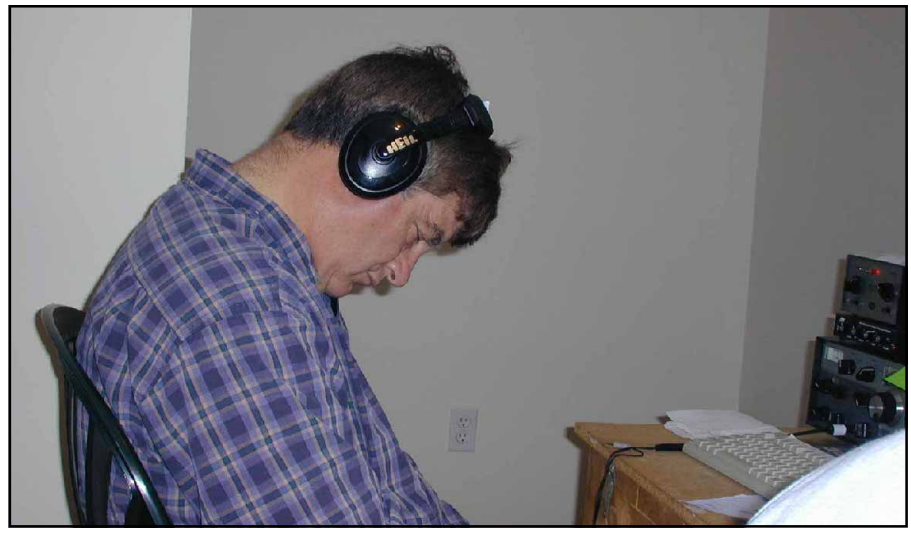
Last Column's Photo

The September/October 2002 issue had a photo of Paul, K9PG, wearing a "Dalmation" shirt—a white T-shirt with black spots all over it—at last year's Dayton Hamvention. This highlighted the ZF2MM "spot me" issue that was discussed at length on the contest reflector.

This Issue's photo

Sometimes contesters need periods of deep thought to try to figure out a way to work that rare and elusive multiplier.

NCJ



Station Profile—YT6A

Conducted by Mark Beckwith, N5OT
swca@swbell.net

Why is it that when you clear whole weekends on your calendar for a contest, sometimes that turns out to be the only time left to get serious antenna work done? Months ago I hoped to smoke-test my 40-meter antennas in the 2002 CQ WW CW. Naturally, Saturday, after a great night smoke-testing 80 meters, which didn't need smoke-testing, I got the last 40-meter Yagi built and in the air. Saturday night I finally got to play with my new toys.

In the big DX contests, there are some call signs that we all just take for granted. On any band in any year, when there's a decent opening to Europe from North America, working Yugoslavia is something we all take for granted. The reason? There are stations we know will deliver the goods. One such station is the product of over 20 years of hard work and dedication by a fellow named Ranko Boca—none other than YT6A.

Talk about a hardware fanatic's fantasy—the first time I saw photos of YT6A all I could think was "no wonder I always get Yugoslavia in the log." You know when you see photos of guys crawling their way out along the boom, away from the mast (kids, don't try this at home), that these must be some serious antennas (and some crazy guys). This was the first photo of YT6A I saw. Immediately I knew Ranko would make a great subject for the Hardware Addict's column. I checked with the Hardware Addict and we were of one mind about it.

YT6A antennas at sunset.

YT6A monster tower. You can also see the tower sections used as the horizontal support for the horizontally stacked 5-element Yagis.

The Man Behind the Call Sign

Ranko Boca is a Telecommunications Engineer. He is married with a son Dragisa, 15, and two daughters Milica and Bojana, 12 and 4. Ranko has been involved with telecommunications since grammar school. Today he is an owner of a well-known company: Sky Sat Communications. His company manufactures FM and TV transmitters as well as telecommunication equipment. Ranko's professional ventures can be found at **www.sky-sat.com**.

Since 1975, Ranko has been involved in ham radio. He joined the local ham radio club YU6KOP and earned YU6ZAX in 1980, and has been contest-active since. At that time in the former Yugoslavia, local contests were very popular. Ranko recalls, "In those days competition was fierce. In order to win first place you not only needed really good equipment, but you also had to have ham radio knowledge and be an excellent operator." Almost every ham radio operator in the country was involved in these domestic competitions. "These were the best contest schools for almost every ham radio operator from the former Yugoslavia."

During those years as a student, Ranko became a legend for building linear amplifiers carrying the names of national heroes: Njegos, Vladika Danilo. He also became a legend in the amateur community because of his hospitality, and his stations became synonymous with big signals and excellent results. It was during this time he won his most coveted victory—in 1985 he won "KUP SRJ" for his club YU6GBE. At that time he would enter international tournaments as YZ6G using a university station in Podgorica with modest equipment.

Attention Turns to International Contests

Ranko's first serious WW activity started in 1986 in Molunat, a peaceful fishing area of Croatia, about 20 km from Herceg Novi. On the edge of Molunat you will find a peninsula. On the peninsula is a 500 kHz marine radio beacon. The beacon used a wire antenna held by two towers about 25 meters tall … (need I say more?). In those lean college years, Ranko started with single-band entries on 15 meters. From this station, Ranko introduced his new call YT6AA for the first time in the '86 CW WPX. From Molunat, he entered mainly single-band 10 and 15-meter efforts.

The War Comes and Goes

Although Ranko began thinking about making a serious antenna investment at this excellent location, he changed his mind due to the war awaiting the former Yugoslavia, and in the period of 1989-1995 YT6AA was inactive. He and his family moved to Hungary to continue company operations.

In the YT6A Shack

Radios:
Yaesu FT-1000MP
Kenwood TS-850
Kenwood TS-870
Kenwood TS-940
ICOM IC-740

Amps:
Alpha 99
Dentron MLA-2500
Henry 5K
Kenwood TL-922
Miscellaneous Homebrew

Software:
WriteLog

Antennas:
160 meters:
Sloping dipole
Beverages on JA and NA

80 meters:
Homebrew 3-element Yagi (full-sized) at 48m high
Beverages on JA and NA

40 meters:
5-element wire Yagi bearing West at 29m high
2-element wire Yagi bearing East at 29m high

20 meters:
4/4 Yagis at 22m high (OWAs)

15 meters:
5/5/5 Yagis at 29m high (OWAs) – existing
5/5/5 Yagis at 30m high (OWAs) – under construction

10 meters:
6/6 Yagis at 17m high (OWAs)

In 1995, friends Hrane, YT1AD, and Rase, YU1RL, invited Ranko to go to Antigua, and from that moment Ranko became active again. After that trip, Ranko went to V2, FM5, 5B4 and VP5 and started to build a contest location in Montenegro. It was during this period that Ranko finished first in three ARRL CWs for DX-North America: TO5A, FM5DN, and V26AS. In the '97 CQ WW CW, he won first place Single-Op Assisted from FM5DN. In the '97 CW WPX he won world first place on 80 meters as 4O6A.

The YT6A Contest Station

Having established himself as an operator to watch, Ranko Boca would become known as a top station builder. His current station began construction in 1998. It is located 600 meters above sea level on the top of Lustica, at the entrance into the Bokokotorska Bay. Surrounded by the sea, his new location has a breathtaking view of one of the most beautiful lagoons in the Mediterranean. That year he built a small shack (50 square meters, 600 square feet), and the following year he erected his first tower.

Today YT6A boasts 5 antenna towers (see sidebar). Currently Ranko is working on a sixth tower that will hold a second 5/5/5 stack for 15 meters. The current 5/5/5 and the new 5/5/5 will give YT6A the capability to phase 6 Yagis (30 elements) on North America.

Murphy Must Not Be a Ham

"Of course, life wouldn't be interesting if everything went as planned," Ranko tells us, and we can hear a good story coming on. "In 2001, I erected a large system for 15 meters on the main tower. It was an impressive system of 5/5/5/5, and another 7 elements on the boom of a big 3 element 80. Interference from BC transmitters working from the same location was so strong that it was hard to receive the weaker W6/W7 signals in the large CQ WW pileups. It was very disappointing to get bad results with such a large system in comparison to the top stations on 15 meters, who were using single antennas."

After the CQ WW, the source of the problem was found. However, that season brought an unusually windy winter, and strong winds destroyed that first large system for 15 meters. Ranko modified the concept and will phase the two shorter stacks side-by-side, as described above, on two different towers.

Design

Ranko completed the entire antenna system planning with the help of AOP software. "Using AOP, I was able to model the complete location, with all the towers and objects." The antennas for 10, 15 and 20 are all custom-built OWA designs. The systems for phasing all antennas were designed for 5 kW power, and all were placed in waterproof enclosures mounted on the towers.

YT6A in front of the 3-element rotary 80-meter Yagi.

The YT6A radiators are fed with Andrew half-inch and ?-inch Heliax with N connectors throughout. "RG-213 type coax and UHF connectors are not used at YT6A."

Ranko's commercially-built professional-grade antenna switches have a curious model number: "YT6A." YT6A antenna switches are available to the public from two distribution centers, one in Montenegro (YT6A) and another in Chicago (KB9K). "Using YT6A switches is extremely easy. When the transceiver is turned off, all of the antennas are automatically grounded. This is very important, because lightning is often seen during relatively calm days on top of the mountain."

Inside the Shack

Inside YT6A, the equipment is set up on custom consoles. Computers are networked. Contest software is *Writelog*. In the shack you will find modern transceivers and modern commercial amps (see sidebar), plus a few homebrew ones.

In the shack is a separate room where you can find all the antenna connections, band pass and notch filters required for six bands to operate from the same room at full power.

The Crew

Many YU and foreign operators have visited Ranko. He is known for his hospitality and seemingly everyone has participated at his new station. Visitors include W6GZG, S53A, S53CM, S53MV, S56A, ON4UN, K1ZZ, WX0B, I7PHH, Z33AA, YU1EW, YU1AU, YU1NW, YU1LA, YU7YU, YU7FN, VK1AA, T95A, T94B, T91S, YZ7DX, YU1FW, YT1XX, YT1TA, YU1AO, YT1AD, YU6A, YU6AO and many others.

YT6A SO2R setup.

Today YT6A is still growing. At present, the station enters separate single-band categories, and also supports multi-single operations. Ranko has plans to build YT6A into a full multi-multi operation. "The same group of ham radio operators always get together at this location with a lot of enthusiasm. You can always see YT6T, Z32AF, YU1RE, YU7EU and YT6PSF. Visitor VK1AA says, "After what we've seen and lived through at YT6A, I know that it won't be any problem for Ranko to gather a good team for whichever future contest."

You can hear Ranko and the gang in almost every contest. The YT6A signal is reliably strong and it's always a pleasure to hear them on. Ranko closes: "contesters who want to operate from this fantastic location can contact me via email at **yt6a@cg.yu**. I will definitely welcome you to my home."

NCJ

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CMEs and Their Impact on Contesting

The September/October column showed the impact of X-ray flares on propagation during a contest effort. This column is about the cousin of the flare—a coronal mass ejection (CME), and its impact on propagation during a contest.

Back in the pre-satellite days, it was believed that flares and CMEs went hand-in-hand. In other words, if one occurred then the other one did, too. But as we entered the space age, that picture changed. Data from satellites specifically launched to study the Sun now give a better picture of what's going on.

Flares and CMEs can occur together, or they can occur separately. The number of flares during a solar cycle tracks the smoothed sunspot number very well. The number of CMEs during a solar cycle tends to maximize a couple years after solar cycle maximum.

CMEs eject large amounts of solar matter. Normally the solar wind speed is about 400 km/sec. But a CME can increase this dramatically, which essentially creates a shock wave. When the shock wave arrives in the vicinity of Earth, it can cause variations to and distortions in the Earth's magnetic field.

The result of this can be elevated A and k indices, auroral absorption, intense auroral ionization, and generally reduced MUFs (MUFs at low latitudes can sometimes be enhanced). Since the shock wave is traveling at a relatively slow speed (relative to the speed of light at 300,000km/sec), we have a day or two warning of an impending geomagnetic storm after seeing the explosion on the Sun.

The NASA ACE (Advanced Composition Explorer) spacecraft sits about 1 million miles from Earth on a direct line to the Sun. It measures the solar wind speed and orientation of the interplanetary magnetic field. This satellite gives us a 30 to 45-minute warning after it detects the shock wave.

Whether a CME causes a geomagnetic storm depends on how the CME will hit Earth (a direct blow or a glancing blow) and the orientation of the interplanetary magnetic field (abbreviated IMF, and another name for the Sun's magnetic field). A CME heading directly at us with the Bz component of the IMF turning south (negative) gives the best chance for a CME to impact the ionosphere.

Let's take a look at Bill, W4ZV's, log from the CQ WW CW 2001 contest (November 24 and 25), as it is a good example of what a CME can do to our contesting efforts. W4ZV did a single band effort on 10m. Figure 1 shows how many QSOs he made in the time periods indicated on both days. It's quite obvious from the data that the first day was not too good. The second day was much better, and was essentially back to normal.

The cause of this was a CME that occurred concurrently with an X-ray flare of magnitude M9.9 at 2330 UTC on November 22. The CME passed the ACE spacecraft around 0539 UTC on November 24 (the first day of the contest), and the Bz component of the IMF turned strongly southward following the passage. The shock wave had peak velocities of 1000km/sec, and arrived near Earth about 30 minutes later. Thus we would expect the planetary Kp index to show a dramatic increase in the 06-09Z time period on the 24th. Figure 2 indeed shows this.

These elevated k indices on the first day resulted in depressed MUFs and decreased run rates. On the second day, the Kp index was 3 and below for the entire period. With the geomagnetic field settled down on the second day, the second day run rates in Figure 1 show that the ionosphere recovered to near normal.

Thus a CME and its resultant geomagnetic storm generally can cause long duration disruptions to propagation through the loss of electrons to the magnetotail. The band recovers when the geomagnetic field returns to normal and the lost electrons are replenished via the ionization process.

For more information about an impending CME, check out **solar.spacew.com/cme/**. This Solar Terrestrial Dispatch web site estimates the arrival time of the shock wave from a CME and estimates the relative shock strength. It should give you a general idea of how bad the bands will be affected (if at all) from an impending CME.

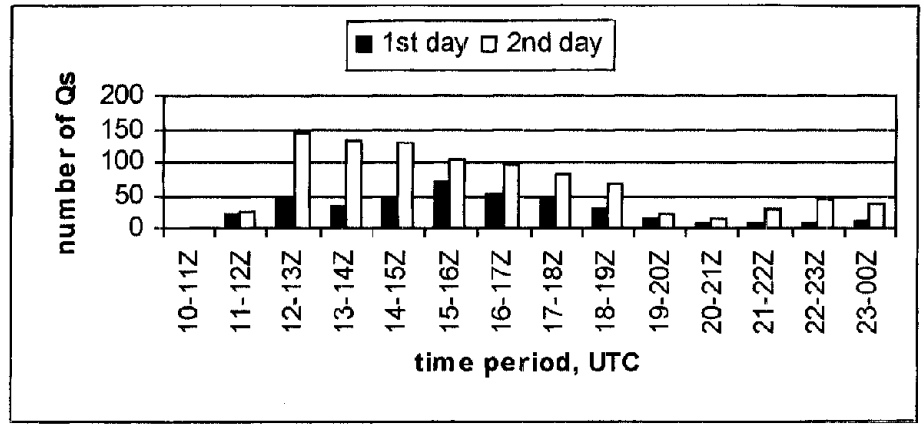


Figure 1—Number of Qs.

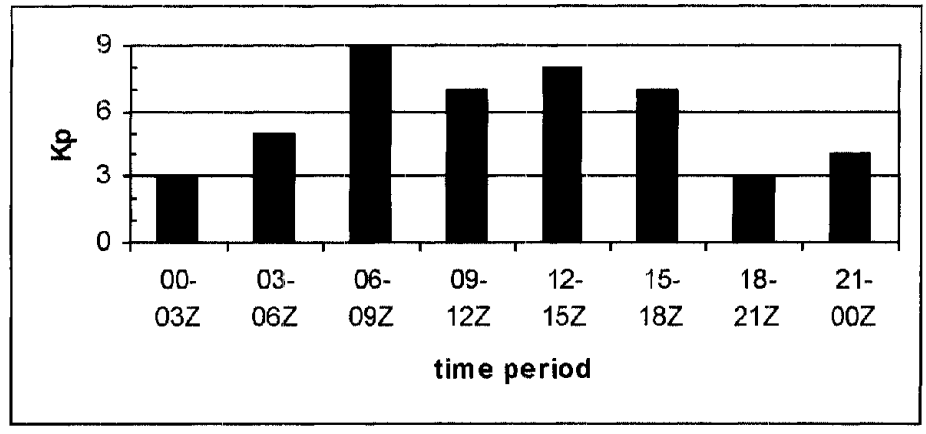
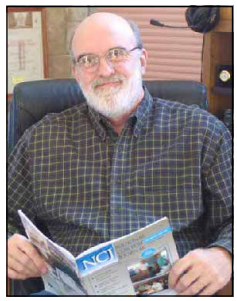


Figure 2—Kp Index on November 24.

RTTY Contesting

John Fleming, WA9ALS



WA9ALS

At size 14, I never expected to have trouble filling someone else's shoes. However, taking over the RTTY column from Wayne, K7WM, leaves me feeling like I'm in some pretty big Hush Puppies! Thanks again to Wayne, Jay, and others for the vote of confidence. I hope to be able to provide the content you Baudot types enjoy. I'll try to have a mix that will appeal to the accomplished as well as the soon-to-be-accomplished.

I used to think of the NCJ *as "for big guns only"—until I subscribed. I found it to be a storehouse of information for even the littlest pistol, and actually, my scores are still improving, in part due to the tips and techniques found in the* NCJ*. Soundcard modems and commercial interfaces have brought welcome new blood into RTTY contesting over the last year or so. Although these new RTTY contesters might be new to the mode, they are not necessarily new to contesting. This is also true in reverse, i.e., some are not new to the mode, but are new to contesting. One of my goals is to have something of interest to both of these groups as often as possible. Of course, I will continue Wayne's tradition of soliciting big guns, travelers, and others for interesting articles of technical and/or operating interest.*

—After JARTS, Jon Harder, K1US, sent me an e-mail to peruse prior to his plan of posting it to the RTTY reflector. After I read it, I though it was of significant interest for the NCJ *and asked him to be my first guest columnist. With the entry of many new-to-RTTY contesters, we thought an article on proper RTTY contest operating techniques was in order, particularly with Jon's humorous twist!*

Optimizers and Optimists—A Few Inevitable Observations

by Jon Harder, K1US

After turning off my rig at the end of a very satisfying JARTS 2002 effort, I looked at some notes I'd been making off and on during the contest. It seems there were several different styles and kinds of operators taking part, but I'd like to say a little about the two kinds who were most easily and frequently observed—the ***optimizers*** and the ***optimists***.

Optimizers are a real pleasure to hear and work, since they've obviously spent time learning how to accurately tune to the other op. They looked up the rules beforehand and set their buffers to match. They've practiced using their logging software and know which keys and mouse clicks do what. They have a sense of the rhythm of the contest and really listen to the swing of it before plunging in. They know how to handle the exchange smoothly, and keep it down to the essential elements. They hang around a second or two until the final "QSL TU QRZ". Finally, they'll gladly take a moment to respond if call corrections are still needed. I really do like working optimizers. I hope they think I'm one, too.

Optimists are nice folks, too. I work them without complaint (mostly). They make up a good chunk of my log, and they are easily identified. They are in fact so optimistic they must be convinced that the log checkers and I will be able to read their minds when looking over a busted entry. ***Optimists*** of the extreme variety have some interesting behavior patterns. They never visit the contest Web site or other source for info before spending most of 48 hours operating. They make up their own idea of what they *guess* the exchange probably is, rather than checking out the rules. They feel free to add something extra to the exchange, like serial numbers when none are required or a leading zero before age, as in "048 048 048". A few "minimalist ***optimists***" send the required contest exchange such as "age" once only - really fast. Bang! Like "XT1X 38" - Take it or leave it. Hey, I sometimes like to operate semi-QRQ with full QSK in CW tests too, but RTTY is rather a different mode. Our receivers are actually off while we transmit.

At the other very generous extreme, why not send your call four or five times, add "your report is RS /AGE," send the crucial exchange info just once, "38," then add your name and exact QTH right down to the locator grid and postal address for the QSL card? Also, the local weather report is a friendly touch! Fill up the screen—give us a big cushy haystack to search for the little needle.

Other characteristics of the ***optimizers*** include giving the other op plenty of time to get ready to copy his report by always starting with "THANKS FOR THE QSO YOUR FB FSK SIGNALS RST RST 599 599 RST 599 599 599". They make it a point to never send their call again after the first time, and are very careful to send the exchange anonymously "599 49". This is a terrific help in sorting out the expected double or triple mini–pileups. Even the very well-intended "K1US 599 48 K1US" gives no last chance to check if I got the S&Pers call right for the log. Please, please, add your own call somewhere in the last transmission you make. "Who was that masked man?" Inquiring minds, software, and log checkers need to know!

Optimists announce their presence loudly to the CQer several times while an exchange is already in progress, then leave the freq just before the CQer finishes with the first QSO and tries to call you next, getting zero response. This is an especially nice touch if you're running S&P from a semi-rare spot or prefix, say a seldom-activated island group.

When calling a CQing station, a newly-hatched RTTY ***optimist*** always sends the exchange right away, maybe several times along with both calls. This taking of the initiative (and later maybe the frequency, also) really gets attention. Ouch! I've tried objecting politely, but it takes less time just to respond in reverse order, QSL and QRZ.

Some "wide-track" ***optimists*** don't know their shift is set somewhere around 250-340Hz, giving me lots of practice in quick straddle-tuning. Or maybe just try to read his mark signal only? "Hey, you never know!" RTTY Roulette! "Fencer ***optimists***" have their ultra-thin sword-shift at 85 Hz and then wonder why others have a problem copying. These usually get ignored here, sorry to say (before starting a contest, why not listen to your signal on a second rig or receiver?). Another species of ***optimist*** coarse-tunes 120 to 250 Hz off the CQing frequency and keeps calling the CQer over and over and over—"Close enough for government work," as we used to say (yes, I occasionally do leave my IF filter open to 500Hz when I can stand it—otherwise I'd never know they were passing through the neighborhood).

The "S&P Jack-Rabbit ***optimist***" always moves on before the CQing station gets to correct his (busted) call for the caller's log. Everybody loses out on this one.

The Speedy ***optimist*** sends his call once or twice while the CQer is still transmitting a short CQ, drops the tail, then hangs in silence expecting a re-

sponse, which leads to a QRZ or another CQ, etc. etc. Timing is everything! Contesting has rhythm.

Finally, one kind of extreme ***optimist*** never uses software dupe checking, or never looks at what it says. I go ahead and work them and sometimes tell them politely it's a dupe. I have fouled things up myself this way too many times to send a growling "WK B4." Hmm, maybe I'll try enlarging the font in my own SuperCheck window?

I'm sure you get the idea. Some nice folks just have such a super-high level of expectation for the flexibility, skills and speed of the ops on the other end that they can confidently move right on and do the same nifty things at some other QRG, all day and all night long. I'm also sure nobody reading this has ever done these things, but maybe when we get the chance to help new contesters get started, we might think about discussing some of these problems, and how to avoid them. I look forward to seeing lots more "***optimizers***" and fewer "extreme ***optimists***" next time around. Help me fix my own bad habits. But I'll try and work you, whoever you are. Really! 73 DE K1US

Thanks, Jon! We could discuss the fine points of some variations, but the basic format is accepted by veterans, having stood the test of time. An example of a clean RTTY contest exchange for the ARRL RTTY Roundup might be:

CQ CQ RR DE K1US
K1US DE WA9ALS WA9ALS
WA9ALS 599-981-981 ME ME K1US
K1US QSL 599-235-235 IN IN WA9ALS
WA9ALS TU QRZ DE K1US

Welcome to all RTTY newcomers! We hope both new and old RTTY ops will be Optimists in the next contest!

The deadline for RTTY Sprint logs was such that the official results should appear next month. It was fun though, eh? CUL DE JOHN, WA9ALS NCJ

Contest Tips, Tricks & Techniques

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This month is an Open Microphone, with readers sending in their all-time favorite tip or two. They covered quite a range of topics, so let's dig right in.


W9XT

Randy, K5ZD, passes along a tip when you encounter a big pile up during a CW contest. Many stations call right on the same frequency, especially if the frequency was spotted on packet and the other callers just had their logging program send the frequency to the radio. Randy suggests trying to call a couple of hundred hertz above or below the masses. DX stations often use their RIT to help pick out stations. Randy also suggests listening closely to who is getting through. There may be a pattern to where the DX station is listening. "If you notice a pattern, use it!" notes Randy.

On the other hand, if there is no pile up, zero beating with the CQing station is important. This is especially true if you are running low power and the other guy has a narrow filter. Being off just a little bit cuts your signal down drastically. If you are zero beat and the other station does not come back to you or anyone else, try Randy's tip. The other guy may not have reset his RIT after working an off-frequency caller. Another possibility is that his offset between the transmitter and receiver sections may be off.

The suggestion given by AA4NU should not be a surprise to readers. Billy suggests reading the *NCJ*. Whenever he meets a beginning contester he loans him a stack of *NCJ*s from the last few years and tells them to read them all.

SO2R operators should take note of the suggestion sent by K5AF. "S&P low and run high," says Paul. This means you should be CQing on the higher of the two bands and search and pouncing on the lower one. The reason for this is that harmonics of the CQing transmitter will not fall into the band you are listening to. This is especially useful to those without elaborate filtering systems.

K9GS sends along something to consider when CQing. "Always strive to correctly copy the full call sign of the calling station the first time," says Gary. "This helps establish a rhythm which increases not only your rate but the total score."

W6EU sent in several of his favorite tips. One is to change your goals from something like "making 1000 QSOs" to "staying in the chair the full allowed time". It is easy to get bored during slow times or get hungry or tired and decide to take a break. You need to be operating to be increasing your score. One tip Jim gave to make the slow times a bit more bearable is to set up a TV set in the shack. Turn the sound down and watch a football game while you operate. I do this from time to time, but it can be bad for your morale if your favorite team is getting beaten badly.

Another suggestion from Jim is to test out your station and software several days before the contest. Have your club meet a few days before for an on-the-air pre-contest warm up. It might help prevent some nasty surprises at the start of the contest.

My contribution to favorite tricks involves using computer spreadsheets to plan strategies for contests. This is especially useful when you are operating a new contest or an unfamiliar class. Create a simple spreadsheet that lets you enter the number of contacts and multipliers on each band and calculates the final score. Make it as complex as necessary to include different types of multipliers, such as zones and countries for CQWW or states and counties for QSO parties. If CW contacts are worth more than phone contacts, include the ability to enter and score those contacts separately. From there you can play "what if" games to see what you can do to maximize your score.

One time this was especially useful to me was for the first WRTC about 12 years ago. The WRTC was not run concurrently with the IARU contest as it is now. The contest sponsors held a special short contest. They wanted to get a lot of non-team competitors to be active and sponsored prizes like tee shirts. I really wanted to win one of the T-shirts but I knew there was likely to be a lot of competition for them. I also knew this was a one-shot deal. If you made a mistake in strategy there would not be another chance next year.

So, I set up a spreadsheet that calculated the score. I don't remember the exact details of the scoring, but I remember that CW contacts counted more than phone contacts, and contacts to other continents counted more than contacts within your own continent. Working the WRTC stations also generated a pretty large number of bonus points. I decided the best strategy was to tune around looking for the WRTC competitors and concentrate on working DX stations on CW in between.

That strategy seemed to work well. Some of my local competition gave into the temptation to run lots of stateside QSOs on phone. They had some good runs and huge QSO totals, but my score was much higher despite having made less than half as many QSOs. Yes, I did win one of those pink and green T-shirts.

This column is being written on the eve of CQ WW CW. I am planning on trying something I have never done: a serious QRP effort. I have become interested in what can be worked with low power. Work obligations the last year kept me from doing much serious contesting, so I would get on for the major CW DX contests for a few hours running QRP to see what I could do. That has given me some idea of QSO rates, multiplier counts, etc., but not on all the bands and not at all hours of the day or night.

I put together a spreadsheet to see where I need to make my contacts and multipliers to reach my goal. I factored in what bands and antennas have been most successful in the past. As part of my detailed analysis I also considered the scores submitted by QRP entries from other stations in the region. It has been enlightening. I feel much better prepared than I would have been without the spreadsheet exercise.

Finally, two of the responses have to do with food. WM5R gives a plug for the new "Soup in Hand" being advertised by Campbell's. Kenneth especially likes the tomato. They are marketing it as food on the go for active people. WM5R remarks that it is really easy to consume between phone QSOs. Maybe after this we will see Campbell's ads in the *NCJ*.

The other food tip comes as a warning for foods to avoid. Jim, W6EU, recommends avoiding peanut butter during phone contests. I can imagine peanut butter does not lend itself well to snappy exchanges.

Thanks go out to AA4UR, K5AF, K5ZD, K9GS, W6EU and WM5R for their tips for this installment of CTT&T.

Topic for March-April 2003 (deadline January 10, 2003)

Station reconfiguration.

Do you operate contests in different classes that require station reconfiguration? For example do you do a multi-op for some contests and single op in another? Do you switch between conventional single op and SO2R? If so, how do you set things up to change configurations quickly and reliably? If guest ops bring their own radios, how do you ensure that everything connects together properly and plays well together?

Send in your ideas on these subjects or suggestions for future topics. You can use the following routes: Mail—3310 Bonnie Lane, Slinger, WI 53086. Internet—**w9xt@qth.com**. Be sure to get them to me by the deadline.

NCJ

Contest Calendar

Compiled by Bruce Horn, WA7BNM
bhorn@hornucopia.com

Here's the list of major contests to help you plan your contesting activity through April 2003. The web version of this calendar is updated more frequently and lists contests for the next 12 months. It can be found at **www.hornucopia.com/contestcal/**.

Changes of interest include: a second NAQP RTTY Contest has been added in February; a new European 160-meter contest has been added in January; the start and end times of the CQ 160-Meter SSB and CW contests have changed; and the Japan International DX Contest high band and low band CW segments have been combined into a single contest in April.

As usual, please notify me of any corrections or additions to this calendar. I can be contacted at my callbook address or via e-mail at **bhorn@hornucopia.com**. Good luck and have fun!

January 2003

AGB NYSB Contest	0000Z-0100Z, Jan 1
SARTG New Year RTTY Contest	0800Z-1100Z, Jan 1
AGCW Happy New Year Contest	0900Z-1200Z, Jan 1
AGCW QRP Winter Contest	1500Z, Jan 4 to 1500Z, Jan 5
ARRL RTTY Roundup	1800Z, Jan 4 to 2400Z, Jan 5
EUCW 160m Contest	2000Z-2300Z, Jan 4 and 0400Z-0700Z, Jan 5
Hunting Lions in the Air	0000Z, Jan 11 to 2400Z, Jan 12
Midwinter Contest, CW	1400Z-2000Z, Jan 11
North American QSO Party, CW	1800Z, Jan 11 to 0600Z, Jan 12
NRAU-Baltic Contest, CW	0530Z-0730Z, Jan 12
NRAU-Baltic Contest, SSB	0800Z-1000Z, Jan 12
Midwinter Contest, Phone	0800Z-1400Z, Jan 12
DARC 10-Meter Contest	0900Z-1059Z, Jan 12
LZ Open Contest, CW	1200Z-2000Z, Jan 18
MI QRP January CW Contest	1200Z, Jan 18 to 2359Z, Jan 19
North American QSO Party, SSB	1800Z, Jan 18 to 0600Z, Jan 19
ARRL January VHF Sweepstakes	1900Z, Jan 18 to 0400Z, Jan 20
Hungarian DX Contest	1200Z, Jan 18 to 1200Z, Jan 19
CQ 160-Meter Contest, CW	0000Z, Jan 25 to 2359Z, Jan 26
REF Contest, CW	0600Z, Jan 25 to 1800Z, Jan 26
BARTG RTTY Sprint	1200Z, Jan 25 to 1200Z, Jan 26
UBA DX Contest, SSB	1300Z, Jan 25 to 1300Z, Jan 26

February 2003

10-10 Int. Winter Contest, SSB	0001Z, Feb 1 to 2400Z, Feb 2
Minnesota QSO Party	1400Z-2359Z, Feb 1
FYBO Winter QRP Field Day	1400Z, Feb 1 to 0200Z, Feb 2
Delaware QSO Party	1700Z, Feb 1 to 0500Z, Feb 2 and 1300Z, Feb 2 to 0100Z, Feb 3
Mexico RTTY International Contest	1800Z, Feb 1 to 2400Z, Feb 2
North American Sprint, Phone	0000Z-0400Z, Feb 2
Six Club 2nd Winter Contest	2300Z, Feb 7 to 0300Z, Feb 10
CQ/RJ WW RTTY WPX Contest	0000Z, Feb 8 to 2400Z, Feb 9
Asia-Pacific Sprint, CW	1100Z-1300Z, Feb 8
Dutch PACC Contest	1200Z, Feb 8 to 1200Z, Feb 9
YL-OM Contest, CW	1400Z, Feb 8 to 0200Z, Feb 9
FISTS Winter Sprint	1700Z-2100Z, Feb 8
OMISS QSO Party	1700Z, Feb 8 to 0500Z, Feb 9
RSGB 1.8 MHz Contest, CW	2100Z, Feb 8 to 0100Z, Feb 9
North American Sprint, CW	0000Z-0400Z, Feb 9
QRP ARCI Winter Fireside SSB Sprint	2000Z-2400Z, Feb 9
ARRL School Club Roundup	1300Z, Feb 10 to 0100Z, Feb 15
ARRL Inter. DX Contest, CW	0000Z, Feb 15 to 2400Z, Feb 16
YL-OM Contest, SSB	1400Z, Feb 15 to 0200Z, Feb 17
CQ 160-Meter Contest, SSB	0000Z, Feb 22 to 2359Z, Feb 23
REF Contest, SSB	0600Z, Feb 22 to 1800Z, Feb 23
UBA DX Contest, CW	1300Z, Feb 22 to 1300Z, Feb 23
North American QSO Party, RTTY	1800Z, Feb 22 to 0600Z, Feb 23
High Speed Club CW Contest	0900Z-1100Z and 1500Z-1700Z, Feb 23
North Carolina QSO Party	1700Z, Feb 23 to 0300Z, Feb 24
CQC Winter QSO Party	2200Z, Feb 23 to 0359Z, Feb 24

March 2003

ARRL Inter. DX Contest, SSB	0000Z, Mar 1 to 2400Z, Mar 2
Open Ukraine RTTY Championship	2200Z, Mar 1 to 0159Z, Mar 2
DARC 10-Meter Digital Contest	1100Z-1700Z, Mar 2
SARL Field Day Contest	1000Z, Mar 8 to 1000Z, Mar 9
RSGB Commonwealth Contest, CW	1000Z, Mar 8 to 1000Z, Mar 9
Great Lakes QSO Party	1600Z, Mar 8 to 0400Z, Mar 9
North American Sprint, RTTY	0000Z-0400Z, Mar 9
UBA Spring Contest, CW	0700Z-1100Z, Mar 9
NSARA Contest	1200Z-1600Z and 1800Z-2200Z, Mar 9
Wisconsin QSO Party	1800Z, Mar 9 to 0100Z, Mar 10
YLISSB QSO Party, SSB	0000Z, Mar 15 to 2400Z, Mar 16
BARTG Spring RTTY Contest	0200Z, Mar 15 to 0200Z, Mar 17
SARL VHF/UHF Contest	1000Z, Mar 15 to 1000Z, Mar 16
Russian DX Contest	1200Z, Mar 15 to 1200Z, Mar 16
AGCW VHF/UHF Contest	1600Z-2100Z, Mar 15
Virginia QSO Party	1800Z, Mar 15 to 0200Z, Mar 17
Oklahoma QSO Party	2300Z, Mar 21 to 2300Z, Mar 23
Spring QRP Homebrewer Sprint	0000Z-0400Z, Mar 24
CQ WW WPX Contest, SSB	0000Z, Mar 29 to 2400Z, Mar 30

April 2003

SARL 80-Meter QSO Party	1700Z-2000Z, Apr 3
MARAC County Hunters Contest, SSB	0000Z, Apr 5 to 2400Z, Apr 6
SP DX Contest	1500Z, Apr 5 to 1500Z, Apr 6
EA RTTY Contest	1600Z, Apr 5 to 1600Z, Apr 6
Missouri QSO Party	1800Z, Apr 5 to 0500Z, Apr 6 and 1800Z-2400Z, Apr 6
QCWA QSO Party	1900Z, Apr 5 to 1900Z, Apr 6
YLRL DX to NA YL Contest, CW	1400Z, Apr 9 to 0200Z, Apr 11
JIDX CW Contest	0700Z, Apr 12 to 1300Z, Apr 13
QRP ARCI Spring QSO Party	1200Z, Apr 12 to 2400Z, Apr 13
EU Spring Sprint, SSB	1500Z-1859Z, Apr 12
UBA Spring Contest, SSB	0600Z-1000Z, Apr 13
YLRL DX to NA YL Contest, SSB	1400Z, Apr 16 to 0200Z, Apr 18
Holyland DX Contest	0000Z-2359Z, Apr 19
TARA Spring Wakeup PSK31 Rumble	0000Z-2400Z, Apr 19
ES Open HF Championship	0500Z-0859Z, Apr 19
YU DX Contest	1200Z, Apr 19 to 1200Z, Apr 20
GACW CW DX Contest	1200Z, Apr 19 to 1200Z, Apr 20
EU Spring Sprint, CW	1500Z-1859Z, Apr 19
Michigan QSO Party	1600Z, Apr 19 to 0400Z, Apr 20
Ontario QSO Party	1800Z, Apr 19 to 1800Z, Apr 20
Harry Angel Memorial Sprint	1100Z-1246Z, Apr 25
Six Club 1st Sprint	2300Z, Apr 25 to 0400Z, Apr 26
SP DX RTTY Contest	1200Z, Apr 26 to 1200Z, Apr 27
Helvetia Contest	1300Z, Apr 26 to 1300Z, Apr 27
QRP to the Field	1500Z-2400Z, Apr 26
Florida QSO Party	1600Z, Apr 26 to 0159Z, Apr 27 and 1200Z-2159Z, Apr 27
Nebraska QSO Party	1700Z, Apr 26 to 1700Z, Apr 27

NCJ

Contest Expeditions

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The Killing Fields

This story doesn't start off in Cambodia, but in the Caribbean. Indeed, the only killing we are going to talk about is killing the competition. Our killing fields are saltwater locations in the Caribbean where a group can install large vertical arrays for a multi-multi effort. One would think there are countless places to set up a vertical by the water in the Caribbean, but the requirements for a world-competitive M/M location leave very few locations to operate from. After running a number of M/M (or six-band single-op efforts) with vertical arrays, I have developed a number of criteria for picking a location that will be that "killer" vertical location.

1. We must be able to install the antennas right at the land-water boundary. Further clarified, the front element of the high band antennas should be in the water, or being splashed by water.
2. The seafront must be roughly East-West, such that the entire US, JA, EU, and northern Africa path must have salt water.
3. We need to have at least 400 feet of beachfront, preferably 700 feet.
4. The location must be in a non-populated area, such that we don't disturb tourists walking on the beach.
5. We must be able to have a good contest callsign. Signing K2KW/VP2V every 3rd QSO or less will hamper your rate.
6. The information for this operating location must be found via the Internet.
7. Airlines serving the location must be large enough to handle multiple 70-pound bags per person.

After the above criteria, everything else is secondary. What if the power isn't stable? Rent a (big) generator. High theft area? Hire a couple of guards. Feeding a group of 12? Hire a cook. Not enough beds? Rent or bring some cots. As you can see, everything else is absolutely secondary to the antenna location. Remember, we are not talking about any old M/M—we are talking about record-breaking M/M efforts using vertical arrays.

Finding the Site

For most of our efforts, the sites I have found were via the Internet. Without the Internet, the cost of finding the location that fits your needs will be extremely expensive. Even with the Internet, my last effort to find a location racked up $300 in telephone calls to talk directly to the owners or property managers to obtain local information. The only exception in my searches was some help by my Venezuelan friends to find a few locations on the north coast of Venezuela. Local knowledge is invaluable in your research, but is not always available. Even though there are hams on just about every Caribbean island or coastline, these hams may not be experienced enough to appreciate the kind of location we are talking about. How many hams can appreciate installing over 20 vertical elements over 700 feet of beachfront?

Let's take a diversion for a moment and scale the operation down. Most of you that are reading this probably won't undertake such a large M/M effort using vertical arrays. The majority of you will be looking for a place to accommodate a SO or small M/S operation, and these operations usually need only about 100-260 feet of beachfront (~260 feet is needed if installing full-size 160-meter radials). Installing a single trapped vertical and a couple of wires probably won't disturb too many neighbors or people walking on the beach. Villas tend to be the better option for DXpeditions, since you effectively "own" the beach, but you do have to be careful if it's a high-traffic beach where the villas are stacked up next to each other on 100-foot lots. As most beachfront villas are on 100-foot wide lots, you have much of the Caribbean to choose from if your antennas can fit in this small lot. A word of caution : while a villa or hotel may be on the beach, most beaches are public property, and are not truly a private beach.

For a M/M operation, villas are great options and tend to be much cheaper than nice hotels. Small "local" hotels are also great options, though since you want to take over the hotel beach, the hotel should probably have no more than 10 rooms (to minimize the impact to other guests). On the other hand, you may be able to find a hotel manager of a somewhat larger 10-20 room hotel who may be willing to put up with the antennas just to book up the hotel.

What Won't Work?

For any vertical operation in the Caribbean, we need to find an island that has at least some of the north side of the island with an East-West beachfront AND is sparsely developed so we can find a villa or small hotel. As a result, we can eliminate islands such as Margarita Island, Guadeloupe, and a few others. All of these islands have little or no north-facing East-West coastline, or have no development on the north coast.

Since we need access to beach, and we need relatively flat ground to work with, we can immediately eliminate a few islands that have steep north-facing terrain. For example, Nevis has very tall cliffs on the north face. Locations on small cliffs no more than 10-15 feet high can effectively be used for verticals on 20-160 meters. Elevated cliffs will hurt the high band elevation pattern by splitting the main lobe in two, resulting in a deep null at useful take off angles (the same effect is seen on horizontal antennas). One of the real keys of installing the verticals at sea level is that you get one very fat elevation lobe from the horizon to about 30 degrees, which covers just about all the useful take off angles you need.

We can also eliminate many popular islands where there is very high beach development on the north side such as Saint Martin and Grand Cayman (though Cayman Brac and Little Cayman are good options). All of these islands are too packed with 75-100 foot wide beach lots, resulting in heavy beach traffic.

What Works?

So what does that leave us for a large M/M vertical operation (based on all of my above criteria)? Not much. For the most part, the following countries will support a large M/M vertical operation: Jamaica, Bahamas, Cayman Brac, Little Cayman, Belize, Honduras, Nicaragua, Cuba, Colombia and Venezuela. Caution: some of these countries are quite dangerous to go to, even more so if you go to a remote part of the country in search of that perfect vertical location.

If you are willing to tolerate longer callsigns, the following places should be viable for a large M/M vertical operation: Trinidad (not Tobago), Puerto Rico and the US and British Virgin Islands.

As you can see, there are not a lot of countries in the Caribbean that will support large M/M vertical operations. In fact, there are probably less than a dozen individual vertical sites that can

be found in all the Caribbean islands only using the internet as your search tool, and this requires countless hours of web searching and writing e-mails. In reality, there are probably less than five truly "perfect" vertical locations in the Caribbean large enough to support a high power M/M operation (my idea of a perfect location is salt water in nearly every direction, yet is remote with few if any neighbors or beach traffic).

On any island discussed, you can probably find many reasonable vertical locations for a single-op effort, or may have some compromised aspect that is not too much of an issue for the casual operation. So don't be discouraged by the extremely strict criteria I use for assessing locations for large record-breaking M/M operations.

Why Bother?

I suspect that many of you are wondering why someone would go through so much trouble to locate a near-perfect location. Simple: a perfect marriage of location and antennas produces a signal allowing high rates and the possibility of a record effort. I have just come back from a QRP trip to Jamaica in the CQ WW CW contest. Our old "Team Vertical" location had been rented out, so we had to find another location. After literally a few hundred hours of surfing on the Internet (dial up) and a $300 phone bill, I found a few locations. I finally settled on going back to Jamaica since we already had a lot of equipment stored there, but the chosen location was on 12 foot cliffs, so it was not the best for 10 or 15-meter vertical performance.

The goal of this trip was to set the QRP single band world records on 20, 80 and 160 meters (we missed those records last year). The research paid off: we should come away with new world records on 20, 40, 80 and 160. Add those to the 10 and 15-meter QRP single band records we set in 2001, and we should come away with a clean sweep of the QRP single band records! And all this from 2-point land. More on what it took to accomplish six world records will be addressed in my next column.

If anyone knows of a great vertical location to house a M/M operation, I would be interested in hearing from you! For lots of ideas on where to operate, you can always go to **www.dxholiday.com**

73, Kenny K2KW NCJ

Results, September 2002 *NCJ* Phone Sprint

Jim Stevens, K4MA
ssbsprint@ncjweb.com

This was the fortieth running of the Phone Sprint and also the twentieth anniversary of the first Phone Sprint. In the first Phone Sprint, only 68 logs were received, but this time 114 logs were received from 36 different areas.

Coming out on top, just as he did in the first Phone Sprint, was K7SS operating at K7RI. Second place went to N6TR using his club call K7RAT. When Danny and Tree worked on 40 meters at 0144Z, Tree was actually ahead by 1 QSO with 154. When they worked on 75meters at 0319Z, K7SS had opened a 12-QSO lead with 294. Tree was able to cut that lead in half over the remaining 40 minutes, but ultimately he ran out of time.

Rounding out the high power Top Five were K6LA, WB0O and KW8N. Amazingly, KW8N has finished in the Top Ten in 31 of the 40 Phone Sprints. Kudos also goes out to NX9T, who cracked the Top Ten from North Carolina for the first time in Phone Sprint history.

Winning the low power category for the first time was Ken, W8MJ. Ken won by a mere 17 points over Larry, K7SV. Ken had 16 additional QSOs, but Larry almost overcame that with his 3 extra multipliers. KU8E came in third operating from his new QTH in Georgia, and AC0W and N7LOX completed the Top Five for low power.

The QRP winner is K5IID. In the second reporting of QRP entries, Tom set a new QRP record for Phone Sprint. This Sprint there were five brave souls that ran 5 W, up from three entries in the last Sprint. Positions two through five were NB1B, W8QZA, K1HJ and WB6BWZ.

Congratulations to K4BAI, AC0W and KU8E who recorded Golden Logs with more than 200 QSOs. It is worth mentioning here that a number of stations are blindly relying on the automatic fill of the computer. Several stations, including some in the Top Ten, lost a QSO with a station on all three bands when they copied the name or QTH incorrectly on the first QSO and then let the computer just copy the wrong info to the other two QSOs. If you want a copy of your log checking report, please send an e-mail to **ssbsprint@ncjweb.com**.

There were no new high power records set in this Phone Sprint. The following new low power area records were established: N4CW in Maine, W2EQ in New Jersey, KA1EZE in Rhode Island, KU8E in Georgia, NF4A in Florida, W8MJ in Michigan and AC0W in Minnesota. On the QRP side, NB1B in Massachusetts, WB6BWZ in Georgia and K5IID in West Virginia all established new high water marks.

In the team competition, Northern California Contest Club Team #1 broke the string of wins by either Society of Midwest Contesters or Southern California Contesting Club. The last time either SMC or SCCC didn't win the team competition was February 1995 when Texas DX Society won. Rounding out the top five teams this time were SMC and Friends, SCCC #1, NCCC #2 and Grand Mesa Contesting Club.

Table 1 shows some of the statistics

Table 1

NCJ Phone Sprint Records

Most Wins High Power		Most Wins Low Power:	
7	K6LL	3	K5NZ
6	VA7RR	No one else has more than 1 LP win	
5	K7SS		
3	N6TR, W7WA		
Most Top 10s High Power:		**Most Top 10s Low Power:**	
31	KW8N	11	VE5SF
28	K6LL	9	K1HT, N7LOX
22	VA7RR	8	WA7BNM
17	W7WA	7	WA3HAE
14	K4XS, K5LZO	6	K7SV
Most QSOs High Power:		**Most QSOs Low Power:**	
449	K7SS	296	K7SS
393	HC8N (N5KO)	288	K9PG
385	N6MJ	277	KO9A
375	K7SS	275	K0GU
372	N5TJ	269	K6AM
Most Mults High Power:		**Most Mults Low Power:**	
60	HC8N (N5KO)	54	K7SS
58	K9PG	53	WA7BNM
57	VA7RR, K7SS, K6LL, KW8N	52	K6ZH
56	VA7RR,N6TR, K4XS,N6MJ, K9PG,W7WA	51	K6ZH
55	Many	50	K0EJ, K9PG, NX9T
High Score High Power:		**High Score Low Power:**	
25,593	N7SS	15,984	K7SS

Table 2

Guest Ops

N6WIN	@ W2IJ
KI7WX	@ AI6V
KO7X	@ KI7WX
K9JLS	@ AI9U
N4HMC	(K5BAK)
NA4W	(K4WI)
WW4R	(K4WX)
K7RAT	(N6TR)
K7RI	(K7SS)
K8YM	(ND8L)
W9SMC	(K9PG)

Table 3

Top 10 finishers, September 2002 NCJ Sprint

Call	Score	Band Changes	QSOs lost	00Z	01Z	02Z	03Z
K7RI	16128	3	7	104	82	69	83
K7RAT	15510	78	7	93	81	78	78
K6LA	12926	57	6	88	64	62	67
WB0O	12915	11	1	91	85	69	70
KW8N	12599	62	7	86	75	53	80
K9ZO	12556	5	8	93	70	63	67
W9RE	11911	30	3	79	61	60	77
WC4E	11264	8	8	78	59	55	64
N6ED	11193	4	2	83	49	78	63
NX9T	10878	3	1	84	51	61	63

Table 4

Top 10 in Various Categories

Top 10 QSOs		Top 10 Mults		Top 10 Low Power	
K7RI	336	K7RI	48	W8MJ	9389
K7RAT	330	K7RAT	47	K7SV	9372
WB0O	315	K6LA	46	KU8E	8729
KW8N	293	WC4E	44	AC0W	8480
K9ZO	292	N4VI	44	N7LOX	8398
K6LA	281	K7SV	44	N5DO	7995
W9RE	277	KW8N	43	N4VI	7788
N6ED	273	K9ZO	43	W0ETT	7486
N6RO	267	W9RE	43	K1HT	7254
NX9T	259	W6TK	43	N6ZFO	6346
		KI7WX	43		
		AE6Y	43		
		NA4K	43		
		KU8E	43		

Top 10 QRP		Top 10 Golden Logs (QSOs)		Top 10 Band Changes	
K5IID	3450	K4BAI	215	K7RAT	78
NB1B	3364	AC0W	212	KW8N	62
W8QZA	1334	KU8E	203	K6LA	57
K1HJ	960	K8MR	117	W5WMU	40
WB6BWZ	476	N9KT	116	KT0R	31
		KQ6RL	112	W9RE	30
		W0BR	93	KU8E	29
		N2GC	43	K4MA	24
		W8UE	32	W8MJ	22
		N7WA	31	W0BR	22

Table 5

Team Scores

1. NCCC #1	
K7RI	16128
K7RAT	15510
K4MA	10496
N6RO	10413
W6EU	10374
KI7WX	10320
AE6Y	10019
K5RC	9512
	92772

2. SMC and Friends	
KW8N	12599
K9ZO	12556
NX9T	10878
KU8E	8729
WA9IRV	7254
KX9DX	6253
K5OT	5635
N9JF	4760
N9RV	3502
	72166

3. SCCC #1	
K6LA	12926
N6ED	11193
W6TK	10621
KY7M	7805
N6WIN	6318
WN6K	5402
AA6PW	4148
W6KY	3540
	61953

4. NCCC #2	
K6III	8526
W0YK	8050
KO7X	7776
K6LRN	7605
KI7Y	6845
N6ZFO	6346
NT6K	6336
AD6E	5550
ND2T	1121
	58155

5. GMCC (N0KE, N4VI, W0ETT, W0TM, W8QZA) 27191

6. NCCC #3 (NI6T, K6EP, W1SRD, KU6J, K0BEE, W6ZZZ) 25521

7. Florida Contest Group (WC4E, NF4A, W4EBA)17186

8. Team CCO (VE3CR) 860

Table 6

Scores, September 2002 *NCJ* Phone Sprint

Call	*Name*	*QTH*	*20*	*40*	*80*	*QSO*	*Mults*	*Score*	*Team*
KK1L	RON	VT	106	81	53	240	41	9840	
K1HT	*DAVE	MA	89	59	38	186	39	7254	
N4CW	*BERT	ME	88	25	18	131	35	4585	
K5ZD	*RANDY	MA	48	58	6	112	31	3472	
NB1B	**DENNIS	MA	108	8	0	116	29	3364	
W0BR	BOB	CT	39	20	34	93	32	2976	
WW3K	*DOMINIC	CT	25	9	16	50	25	1250	
K1HJ	**STEVE	MA	24	6	10	40	24	960	
KA1EZE	*RICK	RI	24	4	0	28	16	448	
W2EQ	*TOM	NJ	58	25	17	100	31	3100	
N2GC	MIKE	NY	0	15	28	43	26	1118	
K3MD	JOHN	PA	78	71	50	199	38	7562	
N8NA	*KARL	DE	70	36	34	140	37	5180	
WC4E	JEFF	FL	122	85	49	256	44	11264	FCG
NX9T	JEFF	NC	99	102	58	259	42	10878	SMC
K4MA	JIM	NC	106	99	51	256	41	10496	NCCC #1
NA4K	STEVE	TN	95	77	57	229	43	9847	
K7SV	*LARRY	VA	99	68	46	213	44	9372	
KU8E	*JEFF	GA	89	78	36	203	43	8729	SMC
K4BAI	JOHN	GA	112	73	30	215	39	8385	
KO7X	ALAN	NC	84	87	45	216	36	7776	NCCC #2
WW4LL	FRED	GA	84	54	34	172	37	6364	
W4AU	*JOHN	VA	49	65	44	158	37	5846	
NF4A	*CHARLIE	FL	113	49	0	162	36	5832	FCG
N4HMC	*JOE	TN	61	47	40	148	35	5180	
NA4W	*CORT	AL	73	45	32	150	34	5100	
WW4R	DON	TN	70	71	0	141	34	4794	
W4NZ	*TED	TN	37	33	25	95	30	2850	
K4BP	JEFF	TN	48	50	0	98	28	2744	
WB6BWZ	**MATT	GA	20	7	7	34	14	476	
W4EBA	*BOB	FL	10	0	0	10	9	90	FCG
W5WMU	PAT	LA	130	82	37	249	40	9960	
N5DO	*DAVE	TX	119	72	4	195	41	7995	
K5YAA	JERRY	OK	100	44	32	176	36	6336	
N6NF	TOM	TX	98	27	0	125	37	4625	
KE5OG	*BILL	TX	77	4	0	81	35	2835	
N5OT	OT	OK	3	21	6	30	17	510	
K6LA	KEN	CA	161	84	36	281	46	12926	SCCC #1
N6ED	ED	CA	142	89	42	273	41	11193	SCCC #1
W6TK	DICK	CA	127	82	38	247	43	10621	SCCC #1
N6RO	KEN	CA	133	82	52	267	39	10413	NCCC #1
W6EU	JIM	CA	111	94	42	247	42	10374	NCCC #1
KI7WX	MARK	CA	144	71	25	240	43	10320	NCCC #1
AE6Y	ANDY	CA	125	75	33	233	43	10019	NCCC #1
K6III	JERRY	CA	127	53	23	203	42	8526	NCCC #2
NI6T	GARRY	CA	125	66	39	230	37	8510	NCCC #3
W0YK	ED	CA	95	93	42	230	35	8050	NCCC #2
K6LRN	DICK	CA	111	52	32	195	39	7605	NCCC #2
N6ZFO	*BILL	CA	91	57	19	167	38	6346	NCCC #2
NT6K	DAVE	CA	75	64	37	176	36	6336	NCCC #2
N6WIN	*TIM	CA	91	71	0	162	39	6318	SCCC #1
K6EP	ERIC	CA	101	30	23	154	38	5852	NCCC #3
AD6E	AL	CA	117	2	31	150	37	5550	NCCC #2
WN6K	*PAUL	CA	95	32	19	146	37	5402	SCCC #1
K6UFO	*MORK	CA	83	36	21	140	37	5180	
W1SRD	STEVE	CA	95	18	0	113	40	4520	NCCC #3
KU6J	*ERIC	CA	57	47	34	138	31	4278	NCCC #3
AA6PW	*BOB	CA	64	38	20	122	34	4148	SCCC #1
W6KY	*ART	CA	72	41	5	118	30	3540	SCCC #1
KQ6RL	*DAVE	CA	54	26	32	112	30	3360	
KI6T	GARY	CA	73	16	19	108	30	3240	
KA6MAL	*KAMAL	CA	27	63	34	124	25	3100	
K6TA	KEN	CA	74	0	0	74	30	2220	
KE6QR	*GARY	CA	37	20	6	63	23	1449	
W8QZA	**BILL	CA	41	15	2	58	23	1334	GMCC

K0BEE	DORIS	CA	48	0	0	48	27	1296	NCCC #3
ND2T	*TOM	CA	19	19	21	59	19	1121	NCCC #2
W6ZZZ	*MARK	CA	20	33	18	71	15	1065	NCCC #3
K6OWL	*MARK	CA	23	25	0	48	18	864	
KB6VME	*STEVE	CA	25	9	1	35	15	525	
K7RI	DAN	WA	221	65	50	336	48	16128	NCCC #1
K7RAT	BERT	OR	177	97	56	330	47	15510	NCCC #1
K5RC	TOM	NV	124	68	40	232	41	9512	NCCC #1
N7LOX	*BRIAN	WA	131	60	30	221	38	8398	
KY7M	LEE	AZ	99	93	31	223	35	7805	SCCC #1
KI7Y	JIM	OR	117	49	19	185	37	6845	NCCC #2
N7WA	*DINK	WA	12	12	7	31	11	341	
KW8N	BOB	OH	105	127	61	293	43	12599	SMC
W8MJ	*KEN	MI	78	91	60	229	41	9389	
KW8W	BARRY	OH	66	57	52	175	37	6475	
K8YM	*RAY	OH	81	49	31	161	35	5635	
K8MR	JIM	OH	29	48	40	117	35	4095	
K5IID	**TOM	WV	43	42	30	115	30	3450	
W8UE	*TED	MI	0	0	32	32	20	640	
K9ZO	RALPH	IL	115	112	65	292	43	12556	SMC
W9RE	MIKE	IN	105	100	72	277	43	11911	
K9NW	MIKE	IN	101	82	21	204	39	7956	
WA9IRV	RON	WI	68	82	36	186	39	7254	SMC
KX9DX	RICK	IL	49	84	36	169	37	6253	SMC
K9BGL	*KARL	IL	64	72	29	165	37	6105	
K9JLS	JOHN	IL	63	71	37	171	35	5985	
K5OT	*LARRY	WI	71	64	26	161	35	5635	SMC
N9JF	*POGO	IL	75	65	0	140	34	4760	SMC
N9RV	PAT	IN	22	81	0	103	34	3502	SMC
N9KT	*DAVID	IN	43	47	26	116	28	3248	
WE9V	*CHAD	WI	48	17	3	68	25	1700	
W9SMC	*SMC	IL	7	23	0	30	17	510	
WB0O	BILL	ND	146	100	69	315	41	12915	
K0OU	STEVE	MO	98	100	56	254	38	9652	
N0AT	RON	MN	103	87	56	246	39	9594	
KT0R	DAVE	MN	93	90	47	230	40	9200	
N0KE	PHIL	CO	112	63	39	214	41	8774	GMCC
AC0W	*BILL	MN	96	85	31	212	40	8480	
N4VI	*CHRIS	CO	113	64	0	177	44	7788	GMCC
W0ETT	*KEN	CO	116	73	8	197	38	7486	GMCC
K0AD	AL	MN	95	58	24	177	38	6726	
K4IU	FRED	MN	86	41	45	172	39	6708	
KI0F	*ROGER	MN	69	47	28	144	34	4896	
K0MP	*ROGER	MN	53	29	7	89	33	2937	
W0TM	GARY	KS	28	39	0	67	27	1809	GMCC
VE3AGC	*BOB	ON	33	51	23	107	32	3424	
VA3NR	CHRIS	ON	42	55	0	97	27	2619	
VE7SR	TERRY	BC	51	0	0	51	28	1428	
VE3CR	*ERIC	ON	32	11	0	43	20	860	CCO

* indicates Low Power
** indicates QRP

from the first twenty years of Phone Sprint. The oldest area records are the Kentucky (11,438) and Kansas (10,880) records, which were set by K3LR and WA0TKJ in the first Phone Sprint. Second oldest is the Massachusetts (13,770) record set by K1AR in September 1983.

The February 2003 Phone Sprint is scheduled for 0000Z February 2 (February 1 local time). Come on out and wish Phone Sprint into its third decade.

Soapbox

Operated exactly 60 minutes. Just enough.—K5ZD … My best SSB sprint.—K3MD … Sublime insanity!—K6OWL … Fell into the twilight zone after running out of stations to work on 20 and before folks moved to 40.—K7SV … Didn't seem like the SMC guys were as active this time.—K9JLS … First sprint—lots of fun—I'll definitely be back!—KQ6RL … No 80-meter antenna, but new high for mults.—N4VI … Just playing with the voice keyer.—N7WA … Completed repair of 80/40 antenna at 2345Z! First Phone Sprint.—NI6T … Did not intend to operate the contest, nursing the flu and had not prepared—W9RE … Enjoyed setting up the NCCC teams with hopes of increasing CA activity (*it worked—Ed.*)—KI7WX … Conditions seemed OK for the most part.—KT0R … FUN FUN FUN!—N4HMC … Great job by Becky, K6EY!—K1HT … For me, four hours of intense sprint activity is about the best contesting experience you can have.—W4AU NCJ

Results, September 2002 *NCJ* CW Sprint

Boring Amateur Radio Club
15125 SE Bartell Rd
Boring, OR 97009
k7rat@kkn.net

It is Saturday afternoon, September 7, at 1700 UTC. The 51st CW Sprint will start in 7 hours, and it is time to make sure everything is working. You turn on the radio and take a spin around 20 meters and you hear … nothing.

You check the antennas—maybe they are still disconnected from the lightning storms you had in August. They are still connected. Next, you check to make sure you didn't borrow a coax from somewhere for Field Day. Still nothing.

Perhaps you turn on the computer and you see this:

ALERT: Geomagnetic K-index of 6
Threshold Reached: 2002 Sep 07 1700 UTC
Synoptic Period: 1500-1800 UTC
Active Warning: No

About 30 miles south of you, there is a sign on the Interstate that says you are half way between the equator and the North Pole. This means you are well aware of the impact of a K-index of 6. You turn off the radio and attend to the honey-dos that you promised would get done before the contest. Hopefully, things will improve when the contest comes along.

ALERT: Geomagnetic K-index of 6
Threshold Reached: 2002 Sep 07 1904 UTC
Synoptic Period: 1800-2100 UTC
Active Warning: Yes

Stations in the south are strong, but anyone else above the 45th parallel is S-zero. You decide to work a few stations on two meters—which comes alive when the K index soars.

The contest finally starts:

ALERT: Geomagnetic K-index of 6
Threshold Reached: 2002 Sep 08 0155 UTC
Synoptic Period: 0000-0300 UTC
Active Warning: No

The solar wind has done its damage. High voltages are being generated hundreds of miles above the earth's surface, and the resulting current flow has electrons crashing into oxygen molecules producing a yellow to green light over much of Canada. The solar wind also over-ionizes the E layer, making it absorb radio signals and preventing them from reaching the F layer. Many signals have severe rapid QSB. Dahs sometimes get turned into two dits, making it difficult to copy things like serial numbers, where there is no context to help with error detection or correction.

Figure 1—Auroral nightmare illustrated: a graphic representation of WB0O's signal as heard in Oregon.

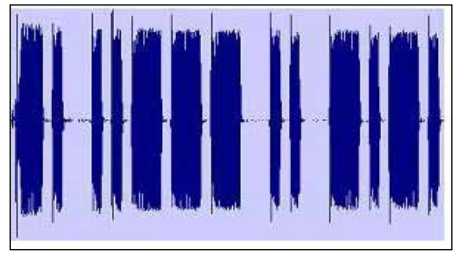

Figure 2—Compare the relative crispness of N2IC's signal as heard in Oregon.

How does this affect the contest? Well, you probably didn't work North Dakota. Figure 1 shows what WB0O's signal looked like in Oregon during the first 20 minutes of the contest. The modulation on the signal is that Arctic flutter at work. Only three stations in the upper half of the country ended up working North Dakota. As a comparison, Figure 2 shows what a signal from N2IC looked like near the same time.

QRP Category

The QRP activity in this contest continues to grow, and we were able to fill up the top ten box with scores! Congratulations to John Schneider, K7UP, who took top honors with 169 QSOs and 6422 points. Jerry, K6III, wasn't far behind with 6048 points. N9NE, N0UR, KC5R and NB1B were all packed in the middle of the top ten with K3ESE, K0UK, K9GY and WB6BWZ finishing up the list. Congratulations to these small fish who were willing to swim amongst the Sprint sharks.

Table 1

Top 10 Scores, September 2002 *NCJ* CW Sprint

Call	*Score*	*Band Changes*	*QSOs Lost*	*00Z*	*01Z*	*02Z*	*03Z*
K4AAA	17766	170	4	102	93	88	96
W4PA	17155	136	1	101	88	83	93
N5TJ	17066	134	4	98	92	87	95
N2NT	15916	115	1	101	73	83	89
K6RO	15886	4	5	95	78	79	86
W6EEN	15664	95	1	100	89	78	89
N2NL	15523	68	7	107	75	90	90
K5ZD	15226	47	2	94	75	80	82
N6TR	15075	68	6	91	75	83	87
K3LR	14940	10	6	98	76	69	90
N6TV	14940	8	1	93	73	83	83

Table 2

Top 10 in Various Categories

Top 10 QSOs		*Top 10 Mults*		*Top 10 Low Power*		*Top 10 QRP*		*Top 10 Golden Logs (QSOs)*		*Top 10 Band Changes*	
K4AAA	378	K4AAA	47	K0EJ	10458	K7UP	6422	K4BAI	311	K4AAA	170
N5TJ	371	W4PA	47	K5AF	10004	K6III	6048	WQ5L	245	N9RV	151
W4PA	365	K6RO	47	N0AX	9635	N9NE	3885	N9CK	227	W4PA	136
N2IC	363	K4NNN	47	K9BGL	9589	N0UR	3552	K9BGL	223	N5TJ	134
N2NL	361	N5TJ	46	N9CK	9080	KC5R	3201	N4BP	217	N2IC	121
W6EEN	356	N2NT	46	KU8E	8930	NB1B	2958	W6YL	183	N2NT	115
N2NT	346	K5ZD	46	N5DO	8720	K3ESE	918	KY7M	72	N6ZZ	108
N6ZZ	344	Many	45	W6YL	8235	K0UK	731	K8MR	40	N5RZ	97
N5RZ	343			N7LOX	8229	K9GY	340	NA0N	33	W6EEN	95
K1KI	339			K4MX	8040	WB6BWZ	117	WB6BWZ	13	K3WW	93

Low Power

The low power category had 61 entries this year and the competition in the top ten was fierce. There was less than a 20-percent score difference between the #1 and #10 scores. Taking the low power honors this year is Mark Speck, K0EJ/4. Mark combined his 249 QSOs with 42 multipliers to beat out Paul, K5AF who had just five less QSOs and one less multiplier. February's low power winner, N0AX, had a hard time with the aurora and finished third with Karl, K9BGL a close fourth. N9CK, KU8E, N5DO, W6YL, N7LOX and K4MX all had good scores over 8K points to round off the top ten.

High Power

Winning his third CW Sprint and making his 18th top ten appearance, Bill Fisher, W4AN/K4AAA, combined the highest QSO total for the contest (378) with the highest multiplier achieved by anyone (47) for a comfortable victory over Scott, W4PA and Jeff, N5TJ. W4PA ended up beating N5TJ by less than 2 QSOs, coming from behind during the log checking process where Jeff lost 4 QSOs to Scott's single deduction. The top three scores outdistanced the rest of pack by over 1000 points.

Fourth place went to Andy, N2NT, who used his excellent logging accuracy to move up a few spots with his 19th top ten showing. K6RO, piloted by Dan, N6MJ, finished fifth just ahead of N6RT, using W6EEN. After just breaking into the top ten for the first time last February, Dave, N2NL, moved up a few spots and finished seventh. Five time winner K5ZD edged out nine-time winner N6TR for 8th place and two stations sneaked into the tenth spot: K3LR and N6TV, who were tied and also have both made the top ten 14 times now. If you compare the final order to the claimed scores, most of the scores moved at least one position, with the exception of the top score.

Trey, N5KO continued his series of stealth DX operations. Everyone's favorite guessing game before the sprints is "Where's Trey?" He showed up in 8P for this contest and made an impressive score with 277 QSOs. Look for him to pop up somewhere else in February.

Team Competition

The Southern States Sprint Coalition fielded four teams, and their first string out-distanced the competition for first place. The NCCC came in second with a full team, beating out the SCCC, which only had 8 team members submit scores. The FRC made a good showing and appeared in the top four after a long absence. There were a total of 23 teams registered, only down one from February. Forming a team is still the best way to ensure plenty of activity in this contest.

Table 3

Team Scores

1. SSSC #1		2. NCCC #1		3. SCCC #1		4. FRC	
K4AAA	17766	N6TV	14940	K6RO	15886	N2NT	15916
W4PA	17155	N6RO	12138	W6EEN	5664	N2RM	13889
N2NL	15523	N6XI	11610	K6NA	14535	K3WW	13230
N4AF	14220	K6XX	11396	N6AA	13950	AA3B	12690
K4BAI	13995	K5RC	11298	K6LA	13860	W2GD	10640
W4OC	13112	K7NV	10480	N6AN	12348	W2RQ	10530
K4RO	12464	W6EU	10360	N6VR	12285	N8NA	7683
KT3Y	12276	AJ6V	9963	W6TK	8664	N2ED	7030
WQ5L	10535	W6RGG	9430			K3MD	6528
N4ZR	10250	NI6T	8697				
	137296		110312		107192		98136

5. SSSC #2 (K5KG, KO7X, NA4K, K0EJ, K4FXN, K9AY, W4NZ, KU8E, K4MX)	90939
6. SMC #1 (N9RV, K9NW, K9ZO, K0OU, KA9FOX, K9BGL, N9CK, KA0GGI)	86195
7. Austin (N5TJ, N5RZ, N3BB, W5KFT, K5NZ, K5AF, AB5EU)	82050
8. YCCC #1 (K5ZD, K1KI, W1WEF, KM3T, N2GC, K2SX, N1XS)	68271
9. Azenmokers (N6ZZ, N5OT, K5KA, K5YAA, K5CM, K0CIE)	58703
10. SSSC #3 (N4AO, K7SV, K3MM, N4BP, K4OGG, W4AA)	58273
11. NCCC #2 (N6ZFO, W6YL, N6PN, KU6J, K6CTA, K6LRN, AD6TF, NT6K)	44923
12. Corner (N6TR, N0AX, N7LOX, N7WA, KI7Y)	43457
13. SSSC #4 (K4IQJ, NJ4M, W4ZW, WA4TT, K4LQ, W4SAA, AA4LR)	42450
14. CCO (VE3EJ, VE3NE, VE3DZ, VE3KZ, VE3KP, VE3FWA, VE3FU, VE3IAY, VE3CR, VE3ZT)	37214
15. Grand Mesa (N2IC, W0ETT, N0KE, N0SXX, K0UK)	33022
16. NCC (K3LR, K2UA, K8NZ)	30178
17. Elecraft (N0SS, K7UP, K6III, NB1B, K7RE, K3ESE)	29904
18. YCCC #2 (K1DG, K2LE, KT1V, W1TO, NT1N, K1GU)	29528
19. MRRC (KW8N, N8EA, W8MJ, K8MR)	29083
20. MWA (K0SR, K0AD, KT0R, NA0N)	21942
21. SCCC #2 (K6NR, W6KY, NE6I, W3SE)	17354
22. SMC #2 (K5OT, KJ9C, K0RAY, K9GY)	16501
23. SSSC #5 (WW4R, ND4AA, K4GA)	9416

New Records

There were not too many records broken this time with the unstable conditions. Don, W4OC, continues to bless us with the SC multiplier and eclipsed his own record by about 1400 points. Tim, K3LR, posted a new score for Oklahoma, removing the 13-year-old KM5H record. Trey, N5KO, operating 8P9JG, demolished the old 8P record set in 1996 by 8P6EN. If there was a record for the number of VE3 stations on, that would have been set this time as well. A full team of ten of them sent in their logs. Nice work to John, VE3EJ. We had 187 logs submitted, pushing up the record from 182 set in February 2000.

Cabrillo Logs and Robots

Once again, almost all logs were received in Cabrillo format, and again, we thank you for your help. This is allowing us to spend less time working on the logs and doing more fun things like counting how many CQs we made during the contest. The robot did its job and quickly alerted you to any issues with your log, so they would be fixed before we started checking them. Thanks again to Trey, N5KO, for providing a place for the robot to live.

February CW Sprint Date

The next CW Sprint will be held on February 9 UTC. This is Saturday, February 8 local time in North America. The rules are unchanged and can be found elsewhere in this issue of the *NCJ*, or on the Web at **www.ncjweb.com**. Remember to check out the helpful Sprint web pages at **n6tr.jzap.com/Sprint.html** and **www.contesting.com/articles/198**. Both of these web pages have great information for both newcomers and Sprint veterans.

Soapbox

Only had an hour or so to give out some low power QSOs.—AE6Y … We had a severe thunderstorm that took me off the air for most of the contest. Ran QRP and besides feeling real humble due to CW, the QRN was the pits. —K0UK … Many thanks to my host KK1L.—K1EA … It took longer to transcribe (and check for new errors) the log from pen/paper to Cabrillo than to operate the contest.—K1KI … Doing this contest with just a stealth dipole means a new dimension in frustration.—K2LE … Wow, conditions were terrible! But I just couldn't quit a Sprint!—K2UA … First time: what a blast! Not as scary as I thought it would be. Hope to do

better next time!—K3ESE … My QSO numbers for first 90 minutes may be off one due to figuring out new program quirks. Not too bad QSO number for an old man.—K3MD … My first shot at high power. Didn't make a lot of difference since conditions were poor.—K4FXN … Next time 300 QSOs—I hope!—K4NNN … I can't seem to handle two radios very well in the Sprint. See you in February.—K4RO … Oh Aurora!—K5ZD … Lots of fun, but I fumbled around a lot the first hour getting used to the QSY dance. But it got better, I need more practice, and I need to set things up better. Antennas: A3 Tribander @ 33 ft, 40-m 4-square, 80-m 40-ft top loaded vertical with 66 ¼ wavelength radials.—K6NR. First time in this contest—tried to avoid QRM to the many fantastic CW ops. Started to get the hang of it at the end—amazed that some ops are trying SO2R.—K6OWL … This was my very first *NCJ* Sprint. As others have noted, band conditions were not great, but I still had a good time. The very different format of this event kept me on the edge the whole time.—K7RE … Interesting to try Sprint as QRP entry, hah!—K9GY … Tried to put a turbo-charger on that VW. Next time I'll probably just replace the engine.—KC5R … Three hours …—KJ9C … Condx very disturbed, but the Sprint is always a blast regardless!—KM3T … Just got on for 1 hour and half was fun.—KT0R … NCCC Team Two—KU6J … Too fast for these ears. Maybe hearing aids will help!—N0AC … Horrendous conditions aside, nothing gets the systolic and diastolic up there like a Sprint. Glad to hear a lot of new calls on the air—welcome to the most fun you can have with a radio! Nice to see K7BG, WO7Y and VE6EX show up in the closing minutes.—N0AX … Thanks to Dick, KB1H, for the use of the station.—N1XS … First real try at this contest in many years. Plagued with RF in the computer/radio link & finally disconnected the computer. Rate went up!—N4DW … This was my first Sprint and was lots of fun. I'm afraid I'm hooked. Condx were fair and there was a good deal of flutter on 40 making exchanges a little tough. It's time I started thinking through some strategy for score improvement.—N4GG … The Sprint must be an "acquired taste"—I'm not sure I'll ever get it.—N4GN … Operated SO2E this time: Single-op, two excuses. Had a software problem that prevented TR from working. ("But I didn't change anything...") Besides, I left the parallel port keying cable at the other QTH. So I reverted to paper logging which is more in the true spirit of curmudgeonly contesting anyway. Got off to a decent start on 20 but found 40 very tough. Put off going to 80 m too long, but it's always tough with my little dipole in Saratoga. Although VE3 was ubiquitous, the other Canadians must have been on strike!—N6XI … Glad to work a few other NM stations this time, but missed Arizona, despite chatting with W0ZZ a few minutes before the event.—N6ZZ … It took a few calls and e-mails to remind me to get on with the Delaware multiplier. I had to drag the feedlines out of the bushes and re-suspend them, after re-hoisting the beam into the tree. The station came together better than the operator. 20 m went through several periods where it was tough to generate any contacts, one with distinctive flutter. Overall propagation seemed to very much favor paths with some North/South in them. It was good to hear everyone, especially the close in stations on 80 m late, as I hate to give Delaware to the rest of the country and miss the locals.—N8NA … Rough conditions for QRP.—N9NE … Too many antenna projects going here to enable full concentration on this contest. At least I got a chance to learn a few things about how not to prepare for a contest.—N9RV … First time jitters with this contest. Hard to compete with the big boys. TR saved the day. WIll look forward to the next one.—NG7Z … I thought Tropical Storm Fay was going to put a damper on my sprint plans by causing a lot of QRN on 40 m. But 40 was surprisingly quiet and I was glad the rain held off long enough for me to sneak out between rain showers to put up the stealthy 40 dipole which played very well—much quieter than the attic dipole on 20 m. This contest is always great fun with some fine CW ops. Looking forward to the next one.—NO5W … An hour and a half into the contest, while we were driving home, my wife was pointing out the auroral display all around us. At least that meant I wasn't surprised at the lousy conditions.—VE3IAY … Conditions were not kind to Ves, but I'm glad I wasn't further Northwest!—VE3KZ … Lots of stations, lots of speedy CW. Still not enough antenna in the air here. First NA Sprint, but won't be my last—my operating can only improve. It's not so hot yet.—VE7ASK … Team YCCC#2—W1TO … First time ever to do a Sprint.—W4EBA … Took me a while to warm up at the start. Not used to this format yet and am still working at copying and typing behind as well as finding the best setting up for the computer. Taller antennas would help. Other excuses available, but am learning and enjoying more each event. Gives me goals to work toward. Looking forward to more great CW next Sprint.—W4SAA … There were bad thunderstorms in the area, but the new beverage took out almost a in the Sprint, but I've got a way to go yet.—W5KFT … First CW Sprint for the new San Jose State University club station.—W6YL … 80 m = 2, 40 m = 17, 20 m = 19, mults=15, total op Time 2 hr 15 min.—WA6PXU … This is the first time I've tried this contest. I found it more challenging than I expected. Conditions didn't help; signals were weak and watery.—WB2BXO … Submitted for check log only. Realized too late that you can't do a multi-op. Was also "registered" for Team Elecraft as N2JZ, but changed call before the contest started. We had a lot of fun nonetheless.—WK2G—Partial effort, but was good shakedown of new computer/*Writelog* and helped clear out some CW cobwebs.—WO1N … So many QSOs, so few multipliers.—N2IC … Once again, Bill, W4AN, organized teams, and I volunteered. Since my last outing netted 75 Qs, I signed up for a repeat, but my real goal was to break the 100 Q barrier. I simply needed to maintain a rate of 25 Q/hr for four hours. Easy, right? No. This is the sprint—the hardest doggone contest out there. And low power to boot. First hour was slow with 23 Qs, but picked up 30 Qs in the second hour, and 36 Q/hr the last two hours. I suppose I'm learning. W4AN's tips from last year are still effective. Glad to finally be in 3-digit range. Interesting on the mults. I got 36, but many of the top scorers only got 42-44. Seems like I missed some easy mults like AL, KY, MI.—AA4LR … Much slower contest this time; still glad to be in the LP top ten.—K5AF … Always a great competition—thank you to all for the QSOs.—N5RZ … Tnx to N5YA and N5KR for helping me get set-up at YA's station.—N5TJ … Operating QRP during the CW Sprint is like bringing a pillow to a gunfight! But it sure was fun anyway!—WW3K … FT-817, 5 watts, to 28 gauge insulated OCF stealth antenna up 40 feet in trees next to interstate in downtown Atlanta industrial area.—WB6BWZ … The CW Sprint: 4 concentrated hours of the best contesting has to offer. Just 2 QSOs shy of breaking 300 I froze up. My last 10 minutes were disappointingly slow. Next time! My most thrilling QSO was with VY1JA. When he called his signal seemed to seep out of my noise level like a ghost. He sounded so transparent I was sure I missed the rest of his name when he just sent "J." Thanks for the great multiplier, J!—N6AN … Started a little late and drank heavily for the last hour so I'd have an excuse for my score. A great time!—KT1V … Thanks to W0TM for help setting up *Writelog* and the use of the station.—N0KE … Mobile, hand logging, 65 mph and 22 WPM on route 20.—K0CO.

Table 4

Scores, September 2002 NCJ CW Sprint

Call	*Name*	*QTH*	*20*	*40*	*80*	*QSO*	*Mlt*	*Score*	*Team*
K5ZD	RANDY	MA	116	137	78	331	46	15226	YCCC #1
K1KI	TOM	CT	133	114	92	339	42	14238	YCCC #1
K1DG	DOUG	NH	106	99	70	275	40	11000	YCCC #2
W1WEF	JACK	CT	102	106	61	269	40	10760	YCCC #1
KM3T	BOB	NH	86	95	68	249	40	9960	YCCC #1
K1EA	KEN	VT	48	74	28	150	36	5400	
KT1V	TED	NH	31	71	38	140	31	4340	YCCC #2
W1TO	TOM	MA	29	58	40	127	32	4064	YCCC #2
N1XS	CHRIS	CT	70	0	41	111	34	3774	YCCC #1
NB1B	**DJ	MA	50	35	17	102	29	2958	Elecraft
NT1N	DAVE	CT	22	21	29	72	30	2160	YCCC #2
K1GU	*NED	MA	34	40	9	83	23	1909	YCCC #2
WO1N	*KEN	MA	16	1	3	20	10	200	
WW3K	DOM	CT	21	0	0	21	8	168	
KA1EZE	*RICK	RI	8	2	0	10	5	50	
N2NT	ANDY	NJ	125	137	84	346	46	15916	FRC
N2RM	JOHN	NJ	145	89	89	323	43	13889	FRC
K2UA	RUS	NY	87	98	83	268	41	10988	NCC
W2GD	JOHN	NJ	90	105	85	280	38	10640	FRC
W2RQ	BILL	NJ	82	109	79	270	39	10530	FRC
N2GC	MIKE	NY	61	90	67	218	39	8502	YCCC #1
N2ED	ED	NJ	67	81	37	185	38	7030	FRC
K2LE	ANDY	NY	56	59	58	173	35	6055	YCCC #2

Call	Name	QTH	20	40	80	QSO	Mlt	Score	Team
K2SX	DENNIS	NY	59	64	26	149	39	5811	YCCC #1
WB2BXO	*FRANK	NY	0	56	0	56	29	1624	
WK2G	JOE	NJ	45	16	7	68	22	1496	
W2LE	*PAUL	NJ	16	19	0	35	17	595	
K3WW	CHAS	PA	110	102	82	294	45	13230	FRC
AA3B	BUD	PA	92	118	72	282	45	12690	FRC
K3MM	TY	MD	95	95	71	261	40	10440	SSSC #3
N8NA	*KARL	DE	47	78	72	197	39	7683	FRC
N4GG	*HAL	MD	73	82	56	211	36	7596	
K3MD	JOHN	PA	71	67	54	192	34	6528	FRC
K3ESE	**ED	MD	19	35	0	54	17	918	Elecraft
K4AAA	BILL	GA	120	166	92	378	47	17766	SSSC #1
W4PA	SCOTT	TN	106	175	84	365	47	17155	SSSC #1
N2NL	DAVE	FL	156	133	72	361	43	15523	SSSC #1
N4AF	AL	NC	116	125	75	316	45	14220	SSSC #1
K4BAI	JOHN	GA	115	111	85	311	45	13995	SSSC #1
W4OC	DON	SC	104	113	81	298	44	13112	SSSC #1
K4NNN	OJ	FL	142	92	43	277	47	13019	
K5KG	GEO	FL	118	132	57	307	42	12894	SSSC #2
N4AO	JEFF	FL	120	105	66	291	43	12513	SSSC #3
K4RO	KIRK	TN	94	119	91	304	41	12464	SSSC #1
KT3Y	PHIL	VA	87	111	81	279	44	12276	SSSC #1
N4GN	TIM	KY	76	127	73	276	43	11868	
K7SV	LARRY	VA	92	91	86	269	41	11029	SSSC #3
KO7X	AL	NC	73	122	58	253	43	10879	SSSC #2
NA4K	STEVE	TN	79	116	63	258	41	10578	SSSC #2
K0EJ	*MARK	TN	59	120	70	249	42	10458	SSSC #2
K4FXN	DAN	KY	72	116	62	250	41	10250	SSSC #2
K9AY	GARY	GA	63	109	63	235	42	9870	SSSC #2
W4NZ	TED	TN	59	107	60	226	40	9040	SSSC #2
KU8E	*JEFF	GA	57	120	58	235	38	8930	SSSC #2
N4BP	BOB	FL	138	79	0	217	40	8680	SSSC #3
K4MX	*JERI	VA	50	89	62	201	40	8040	SSSC #2
K4OGG	*JAY	GA	54	103	45	202	39	7878	SSSC #3
W4AA	*ART	FL	84	91	34	209	37	7733	SSSC #3
K4IQJ	*DICK	AL	39	102	47	188	40	7520	SSSC #4
NJ4M	*RON	FL	115	67	21	203	37	7511	SSSC #4
N4DW	DAVE	TN	45	101	35	181	39	7059	
W4ZW	*JON	FL	84	73	18	175	39	6825	SSSC #4
WA4TT	JOHN	GA	53	61	45	159	38	6042	SSSC #4
K4LQ	FRED	FL	79	61	11	151	40	6040	SSSC #4
WW4R	DON	TN	59	108	0	167	36	6012	SSSC #5
W4SAA	JOE	FL	67	45	7	119	38	4522	SSSC #4
AA4LR	*BILL	GA	43	50	21	114	35	3990	SSSC #4
ND4AA	*NORM	FL	84	0	0	84	29	2436	SSSC #5
AK5E	*VAN	GA	10	49	10	69	25	1725	
W4EBA	*BOB	FL	23	22	0	45	23	1035	
K4GA	*MAC	GA	10	22	12	44	22	968	SSSC #5
AA4S	RON	SC	9	25	0	34	21	714	
WB6BWZ	**MATT	GA	5	8	0	13	9	117	
N5TJ	JEFF	TX	145	146	80	371	46	17066	Austin
K3LR	TIM	OK	120	117	95	332	45	14940	NCC
N6ZZ	PHIL	NM	156	112	76	344	43	14792	Azenmokers
N5RZ	GATOR	TX	151	128	64	343	42	14406	Austin
N3BB	JIM	TX	128	112	68	308	45	13860	Austin
W5KFT	ROB	TX	119	111	67	297	42	12474	Austin
K5NZ	MIKE	TX	99	116	80	295	42	12390	Austin
N5OT	OT	OK	86	138	64	288	42	12096	Azenmokers
K5WA	BOB	TX	112	106	60	278	42	11676	
K5KA	KEN	OK	91	112	80	283	41	11603	Azenmokers
K5YAA	JERRY	OK	72	122	82	276	41	11316	Azenmokers
W5WMU	PAT	LA	102	96	51	249	43	10707	
WQ5L	RAY	MS	80	150	15	245	43	10535	SSSC #1
K5AF	*PAUL	TX	93	98	53	244	41	10004	Austin
N5DO	*DAVE	TX	95	91	32	218	40	8720	
K5TR	GEO	TX	97	82	30	209	35	7315	
N1LN	*ED	TX	78	75	37	190	37	7030	
K7UP	**JOHN	NM	98	60	11	169	38	6422	Elecraft
K5CM	CONNIE	OK	63	68	29	160	38	6080	Azenmokers
N6NF	TOM	TX	86	44	19	149	39	5811	
NO5W	*CHUCK	TX	58	88	0	146	37	5402	
KC5R	**AL	LA	46	51	0	97	33	3201	
K0CIE	*KARL	OK	26	48	14	88	32	2816	Azenmokers
AB5EU	*EV	TX	29	30	15	74	25	1850	Austin
K6RO	DAN	CA	144	129	65	338	47	15886	SCCC #1
W6EEN	DOUG	CA	148	132	76	356	44	15664	SCCC #1
N6TV	BOB	CA	141	132	59	332	45	14940	NCCC #1
K6NA	GLEN	CA	133	128	62	323	45	14535	SCCC #1
N6AA	DICK	CA	148	128	34	310	45	13950	SCCC #1
K6LA	KEN	CA	142	113	53	308	45	13860	SCCC #1
N6AN	REX	CA	126	109	59	294	42	12348	SCCC #1
N6VR	RAY	CA	111	103	59	273	45	12285	SCCC #1
N6RO	KEN	CA	131	108	50	289	42	12138	NCCC #1
N6XI	RICK	CA	131	110	29	270	43	11610	NCCC #1
K6XX	BOB	CA	135	87	37	259	44	11396	NCCC #1
W6EU	JIM	CA	125	93	41	259	40	10360	NCCC #1
AJ6V	ED	CA	110	96	37	243	41	9963	NCCC #1
W6RGG	BOB	CA	107	86	37	230	41	9430	NCCC #1
N6ZFO	BILL	CA	101	93	15	209	43	8987	NCCC #2
K6NR	DANA	CA	95	74	39	208	43	8944	SCCC #2
NI6T	GARRY	CA	116	68	39	223	39	8697	NCCC #1
W6TK	DICK	CA	104	84	40	228	38	8664	SCCC #1
W6YL	*SCOTT	CA	103	74	6	183	45	8235	NCCC #2
N6PN	*MATT	CA	79	81	32	192	39	7488	NCCC #2
KU6J	*ERIC	CA	100	54	16	170	40	6800	NCCC #2
K6III	**JERRY	CA	107	26	11	144	42	6048	Elecraft
K6CTA	ED	CA	103	50	0	153	37	5661	NCCC #2
K6LRN	DICK	CA	62	70	15	147	34	4998	NCCC #2
W6MVW	*DICK	CA	109	0	0	109	35	3815	
W6KY	*ART	CA	67	45	11	123	29	3567	SCCC #2
NE6I	DENNIS	CA	96	0	0	96	33	3168	SCCC #2
AD6TF	*JIM	CA	55	18	8	81	29	2349	NCCC #2
W3SE	*WES	CA	39	20	8	67	25	1675	SCCC #2
AE6Y	*ANDY	CA	17	47	0	64	26	1664	
K6OWL	*MARK	CA	20	6	0	26	19	494	
NT6K	*DAVE	CA	13	14	0	27	15	405	NCCC #2
WA6PXU	*JIM	CA	16	13	1	30	13	390	
N6TR	TREE	OR	137	124	74	335	45	15075	Corner
K4XU	DICK	OR	103	115	56	274	42	11508	
K5RC	TOM	NV	133	83	53	269	42	11298	NCCC #1
K7NV	KURT	NV	118	105	39	262	40	10480	NCCC #1
N0AX	*ED	WA	116	86	33	235	41	9635	Corner
N7LOX	*BRIAN	WA	95	75	41	211	39	8229	Corner
N7WA	*DINK	WA	68	69	29	166	33	5478	Corner
KI7Y	JIM	OR	59	67	18	144	35	5040	Corner
KY7M	LEE	AZ	72	0	0	72	30	2160	
NG7Z	*PAUL	WA	51	27	5	83	23	1909	
K0CO	JACK	WY	7	0	0	7	4	28	
N4ZR	PETE	WV	76	112	62	250	41	10250	SSSC #1
KW8N	BOB	OH	87	97	72	256	40	10240	MRRC
N8EA	JOE	MI	75	116	52	243	41	9963	MRRC
W8MJ	*KEN	MI	60	99	38	197	40	7880	MRRC
K8NZ	*RON	OH	31	54	40	125	34	4250	NCC
K8MR	JIM	OH	7	33	0	40	25	1000	MRRC
N9RV	PAT	IN	103	147	86	336	42	14112	SMC #1
K9NW	MIKE	IN	98	131	86	315	42	13230	SMC #1
K9ZO	RALPH	IL	84	113	72	269	44	11836	SMC #1
KA9FOX	SCOTT	WI	81	112	65	258	41	10578	SMC #1
K9BGL	*KARL	IL	62	110	51	223	43	9589	SMC #1
N9CK	*STEVE	WI	64	90	73	227	40	9080	SMC #1
K5OT	*LARRY	WI	53	84	52	189	37	6993	SMC #2
KJ9C	*MEL	IN	42	84	48	174	37	6438	SMC #2
N9NE	**TODD	WI	33	63	15	111	35	3885	
K9GY	**MOJO	IL	32	2	0	34	10	340	SMC #2
N2IC	STEVE	CO	153	135	75	363	41	14883	Grand Mesa
K0OU	STEVE	MO	90	117	66	273	43	11739	SMC #1
N0SS	TOM	MO	64	120	94	278	41	11398	Elecraft
K0SR	STEVE	MN	76	112	86	274	36	9864	MWA
K0AD	AL	MN	81	88	52	221	43	9503	MWA
W0ETT	*KEN	CO	96	79	23	198	38	7524	Grand Mesa
N0KE	PHIL	CO	80	64	28	172	38	6536	Grand Mesa
KA0GGI	TOAD	MO	20	116	27	163	37	6031	SMC #1
KF0U	LEN	CO	64	36	35	135	31	4185	
N0UR	**JIM	MN	62	44	5	111	32	3552	
N0SXX	*GARY	CO	78	21	9	108	31	3348	Grand Mesa
K0RAY	RAY	MO	0	73	18	91	30	2730	SMC #2
K7RE	*BRIAN	SD	51	37	2	90	24	2160	Elecraft
KT0R	DAVE	MN	7	50	17	74	29	2146	MWA
K0UK	**BILL	CO	7	30	6	43	17	731	Grand Mesa
N0AC	*BILL	IA	10	16	3	29	19	551	
NA0N	*PAT	MN	30	3	0	33	13	429	MWA
VE3EJ	JOHN	VE3	83	89	68	240	40	9600	CCO
VE3NE	*LALI	VE3	82	80	36	198	38	7524	CCO
VE3DZ	*YURI	VE3	81	70	57	208	36	7488	CCO
VE3KZ	BOB	VE3	57	60	46	163	33	5379	CCO
VE3KP	*KEN	VE3	59	18	26	103	30	3090	CCO
VE3FWA	ED	VE3	28	27	0	55	19	1045	CCO
VE3FU	*CHRIS	VE3	9	25	12	46	22	1012	CCO
VE3IAY	*RICH	VE3	6	16	17	39	22	858	CCO
VE3CR	*ERIC	VE3	16	20	4	40	21	840	CCO
VE5SF	*SAM	VE5	37	0	0	37	11	407	
VE7ASK	*BUD	VE7	24	11	3	38	10	380	
VE3ZT	*PAUL	VE3	14	13	0	27	14	378	CCO
8P9JG	TREY	8P	164	105	8	277	42	11634	

* indicates Low Power ** indicates QRP

Table 5

Guest Ops

8P9JG	(N5KO)	WK2G	(N2JZ)
K4NNN	(K4OJ)	N4AO	(WC4E)
NJ4M	(WD4AHZ)	K6RO	(N6MJ)
W5KFT	(K5PI)	N2RM	(N2NC)
W6EEN	(N6RT)	WW4R	(K4WX, ex-N4ZZ)
W6YL	(W6CT)	N5TJ	@ N5YA

Statistical Study of W4AN, N6TR and N6ZZ's Sprint Experiences

One of the comments often heard after a CW Sprint on 3830 is something like, "I got beat out every time on 20 meters." Thanks to the hard work of several of the CW Sprinters this time around, we have some actual statistics that we can show you.

First off – some definitions:

Stations Called—this is when you find a station calling CQ or finishing up a QSO and call him. We did not include "blind calls" where you dumped your call without clearly having a specific station in your sights. It also doesn't count times that you called, but were out of sync with what was going on (i.e., when you send your call to someone who is actually trying to copy an exchange at that point in time).

Came Back—This is when a station comes back when called.

Tail End—A QSO that starts up after you have finished your first QSO on a frequency. You did nothing to start the QSO except send your exchange. If you send anything else to solicit the QSO, it is an answered CQ (see below).

CQs—any kind of solicitation (other than sending your exchange). This includes things like *QRZ?*, *NA K7RAT*, or the more typical *CQ NA K7RAT K7RAT NA*. It also counts CQs made on a second radio.

Answered CQ—the number of stations that responded to your CQs.

Table 6 shows the raw data for the three stations, with data shown for each hour of the contest.

Probably one of the biggest differences in these numbers is the number of CQs that were called. W4AN was using two radios for most of the contest period and this allowed him to be calling CQ while tuning with the other radio. Even though he called 476 CQs (an average of almost 2/minute), he still had a respectable answer percentage (33.8 percent). N6ZZ probably didn't call CQ enough with "only" 302 of them and a very high 41.4% answer percentage. N6TR was throwing lots of CQs out with the second radio—especially during the third hour—with a pretty low success rate. W4AN's ability to call more than 100 CQs/hour and have over a third of them answered is one of the reasons he was able to win this contest.

It is surprising how close some of the numbers are. While N6TR called the most stations (193), N6ZZ isn't that far behind at 177. The answer percentages for all three stations are very close – 80.3, 80.2 and 82.2 percent. This means 4 out of 5 times these stations called someone, a QSO took place. The percentage of these QSOs that had an immediate "tail end" QSO take place is also pretty consistent, with the average just over 50 percent.

Finally, Table 7 takes a look of the percentage of QSOs made using the three different techniques for initiating them.

Many thanks to N6ZZ, W4AN and N6TR for recording the contest and tabulating this data.

Table 7

Percentage of QSOs vs. Manner Earned

	CQ called	Station Called	Tail End
N6TR	30.1%	45.3%	24.6%
N6ZZ	36.2%	41.2%	22.6%
W4AN	42.1%	38.8%	19.1%

Table 6

Breakdown of N6TR, N6ZZ and W4AN's QSO Solicitations and Answers

	Stations Called	Came back	Tail end	CQs	Answered CQ	Called Success %	Tail End%	CQ Success%
N6TR								
Hour 1	66	49	21	67	24	74.2%	42.9%	35.8%
Hour 2	41	33	21	74	21	80.5%	63.6%	28.4%
Hour 3	36	32	16	146	36	88.9%	50.0%	24.7%
Hour 4	50	41	26	89	22	82.0%	63.4%	24.7%
Total	193	155	84	376	103	80.3%	54.2%	27.4%
N6ZZ								
Hour 1	53	41	23	52	31	77.4%	56.1%	59.6%
Hour 2	36	28	14	112	39	77.8%	50.0%	34.8%
Hour 3	34	29	14	100	37	85.3%	48.3%	37.0%
Hour 4	54	44	27	38	18	81.5%	61.4%	47.4%
Total	177	142	78	302	125	80.2%	54.9%	41.4%
W4AN								
Hour 1	55	41	18	102	45	74.5%	43.9%	44.1%
Hour 2	43	37	18	133	39	86.0%	48.6%	29.3%
Hour 3	39	33	21	137	33	84.6%	63.6%	24.1%
Hour 4	43	37	16	104	44	86.0%	43.2%	42.3%
Total	180	148	73	476	161	82.2%	49.3%	33.8%

Results, January 2002 NAQP CW Contest

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Wow, what a great contest this one turned out to be. Participation was at an all-time high, and scores were amazing as well. There were 370 logs submitted, of which all but 30 were submitted electronically. Taking the top spot for Single Ops was Steve, N2IC, who managed a rate of over 120 QSOs/hr for the 10 hours he operated. Not far behind were N2NL, N9RV and W4PA, all with excellent scores. The first ever 1000-QSO CW effort wasn't all that long ago. Now we have the top six operators all with more than 1000 QSOs. Amazing!

There were 134 operators who did both the CW and SSB contests and submitted logs. The top combined score goes again to Doug, N6RT, with 859 points. He was followed closely by K9PG, K5RC, and K6LL. I believe this is the first time in which none of the operators in the Top Ten Combined Scores actually won any of the modes.

Equally amazing were the Multi-Two scores. The crew at W4AN took top honors, with N5TJ, K5KA and W5NN close behind and all over 500,000 points. There were 12 M2 entries this time, indicating this category continues to gain popularity even among dyed-in-the-wool Single Ops.

Team competition was again very close, with the Tennessee Contest Group leading the pack. The Society of Midwest Contesters was very close behind, with the Southern California and Northern California Contest Clubs coming in third and fourth, respectively. There were nearly 50 teams competing this time, with five teams scoring over one million points.

I'll wrap things up by passing on my apologies for the delay in reporting these results. I switched jobs in February, and that, combined with other factors, re-

Table 2

Top 10 Combined CW/SSB Scores

Call	CW Points	SSB Points	Total Points
N6RT	446	413	859
K9PG	350	446	796
K5RC	375	385	760
K6LL	405	353	758
VE5MX	327	403	730
N4ZZ	335	361	696
W9RE	387	267	654
N6NF	257	380	637
K7SV	291	318	609
W8MJ	318	277	595

Table 1

Top Score Breakdowns

Call	Score	QSO's	Mults	160M	80M	40M	20M	15M	10M
Single Operator									
N2IC	353,220	1218	290	75/35	115/45	287/51	251/56	279/54	211/49
N2NL	340,170	1173	290	67/29	139/43	282/55	247/57	268/53	170/53
N9RV	321,610	1109	290	154/41	217/47	253/49	210/54	147/52	128/47
W4PA	321,488	1136	283	151/36	212/45	226/48	245/51	185/54	117/49
W6EEN	315,268	1076	293	40/27	138/48	260/54	206/57	226/56	206/51
K6LL	286,578	1098	261	25/17	53/32	203/50	241/53	279/55	297/54
K3MM	280,973	979	287	99/36	189/49	166/49	222/52	173/50	130/51
W9RE	274,050	945	290	120/38	191/48	207/50	165/52	147/52	115/50
K0EJ	267,650	1010	265	124/40	201/47	202/48	228/48	146/48	109/34
K5RC	265,608	1054	252	15/12	116/39	236/51	140/47	264/54	283/49
Multi-Two									
W4AN	588,744	1887	312	170/40	303/51	504/57	436/56	290/55	184/53
N5TJ	531,378	1671	318	150/41	216/51	382/58	382/57	286/55	255/56
K5KA	528,216	1693	312	183/44	318/54	380/57	349/54	301/50	162/53

Table 3

CW Team Scores

1. Tennessee Contest Group #1		2. Society of Midwest Contesters #1		3. Southern California Contest Club #1	
W4PA	321,488	N9RV	321,610	W6EEN	315,268
K0EJ	267,650	W9RE	274,050	K6LL	286,578
N4ZZ	236,925	WE9V	247,660	N6ZZ	238,170
K4RO	230,832	N9FH	194,684	K6AM	185,920
W5TM	209,560	WT9U	192,240	W6UE	169,840
Total	1,266,455	Total	1,230,244	Total	1,195,776

4. Northern California Contest Club #1 (K5RC, K6AW, K2KW, N7TR, K6CTA) ... 1,106,449
5. Potomac Valley Radio Club #1 (K3MM, N4AF, K4OJ, N4CW, K4MA) 1,044,350
6. Mad River Radio Club #1 (W8MJ, N8EA, K8MK, K8ND, K9TM) 982,665
7. Society of Midwest Contesters #2 (K9RS, N9CK, K9MA, N9CO, WA9IRV) 974,224
8. Minnesota Wireless Assn #1 (K0SR, NA0N, N0XB, K0AD, N0AT) 945,317
9. Tennessee Contest Group #2 (W9WI, K1KY, K4LTA, K3WU, N4IR) 938,062
10. Florida Contest Group #1 (N2NL, K7SV, K5KG, W4SAA) 764,008
11. Texas DX Society #1 (K5WA, AD5Q, N5XZ, K5XR) 759,194
12. North Texas Contest Club #1 (W0UO, N5RG, W5FO, N5QQ, W5GN) 757,086
13. Team EH (VE5DX, VX4VV, VE5SF, VX2AWR, VE9DX) 738,782
14. Grand Mesa #1 (N2IC, N4VI, N0HF, KD0OM, AE0Q) 685,173
15. Mad River Radio Club #2 (W8CAR, K8MR, K5IID, K8JM, AF8A) 657,676
16. PA QP'ers (W1NN, N3FR, WA3HAE, AD8J, WA3SES) 636,453
17. Society of Midwest Contesters #3 (K9MMS, W9IU, W9LO, K9MOT, WA1UJU) . 593,731
18. South East Contest Club #1 (K4NO, K9AY, AA4LR, K4WI, KA9EKJ) 581,282
19. Frankfurt Radio Club (AA3B, K3WW) 468,058
20. Southern California Contest Club #2 (K6LA, XE2MX, W6TK) 462,118
21. Society of Midwest Contesters #8 (N0AV, K9BG, N9IJ, K9IJ) 457,762
22. Society of Midwest Contesters West (K0OU, W0UY, AE9B, K0XM) 434,651
23. Austin Powers (N3BB, N5AW) 424,968
24. Tennessee Contest Group #3 (N4ZI, K3CQ, NY4T, WM4Q) 370,140
25. Team Mississippi (W5UE, WQ5L, KB5IXI) 364,327
26. Kentucky Contest Group (K4FXN, K4IU, N4GN) 355,714
27. Northern California Contest Club #2 (K6LRN, W6OAT, KI6T, AE6Y) 325,710
28. Ozark Contest Club KM5G (WM5K, KJ5WX) 306,660
29. South East Contest Club #3 (W4ATL, AE4Y, AA4GA, K4GA) 288,350
30. Tennessee Contest Group #5 (W4NZ, NA4K, W0ETC, N4YQ, N9GG) 278,943
31. Tennessee Contest Group #4 (K4BEV, NY4N, KE4OAR, W4TYU, W4AUI) 242,558
32. South East Contest Club #2 (W4WA, K2UFT, W4NTI) 227,954
33. Grand Mesa #2 (K0UK, W0ETT, W0RUN) 219,614
34. Minnesota Wireless Assn #2 (KT0R, AC0W, WB0TRA) 199,511
35. Mad River Radio Club #3 (ND8DX, K9NW, W8RU, K8AAX) 182,893
36. Society of Midwest Contesters #5 (W9WUU, N9BOR, KX9DX) 176,124
37. Northern California Contest Club #3 (AD6TF, K6EP, W6RGG) 175,591
38. Minnesota Wireless Assn #3 (WJ0M, KN0V) 158,208
39. NCC Weekend Warriors #1 (WW3S, K8NZ, W8GN, ND8L) 129,301
40. Green Valley ARC (KE0FT, K9WA, K9OT, NE0P) 119,877
41. Florida Contest Group #2 (W4ZW, KN4Y, N4AO, W4EBA) 118,406
42. Society of Midwest Contesters #4 (K9WX, K9MI, KC9FC, N9GUN) 115,184
43. Society of Midwest Contesters #6 (N9JF, AI9X) 94,718
44. Society of Midwest Contesters #7 (AA9KH, W9YS) 87,154
45. Tennessee Contest Group #6 (N4KN, K4OOO, N5NW) 1,920

sulted in little time for Ham Radio or my other hobbies. Hope to work you in future NAQPs!

73, Bob K6ZZ

CW Soap Box

Made it a game to see how many bands I could reach 100 QSOs on. Activity was great, even with the NFL playoff games going on. (K5ZD)… First NAQP in years. What a great contest! (N2IC)… First time in this contest. (K3GW)… First time in this contest!! Great fun. (VO1HP)… Fun to run this one with QRP. Much easier to get through without all the kilowatts. Long live operating skill! (N9CIQ)… Good activity and the best CW ops come out for this one. (W4NTI)… Good conditions, great activity! Thanks to all. (W8RU)… Good conditions. I discovered the #1 radio power set to about 70W instead of 100W. It did not seem to affect my rates! (KE4OAR)… Good time! (N1MD)… Great contest for improving my CW skills. Great ops! (N6EE)… Great contest! With all stations required to run low power, I felt like a big gun! (AE1T)… Had a computer problem that caused me to dupe a few stations. Determining when to take time off remains to be a major challenge! (N6ZZ)… I only had time for a 30-minute/1-band QRP effort and wish I had time to enjoy the good conditions here in CO. (K0CO)… I really enjoyed being a guest at AA4NU, a well-designed station with 2 MPs and 2 computers, one for each radio. I have seen many stations in my 55 years of ham radio. Never before have I seen one with so much capability and so many good antennas on a relatively small lot. (K3CQ)… I'm glad I discovered this contest through the South East Contest Club. It's becoming one of my favorites! (W4ATL)… Just on briefly to give out a few Qs. (KM3T)… My favorite contest. Conditions were great and I enjoy jumping from band to band giving out the AR mult. Thanks. (KJ5WX)… My first serious CW contest in over 20 years. A lot of fun, but most of the time. (W0RUN)… New personal best. (K5WA)… Only two hours due to work commitments, but what fun! (AE6Y)… Great contest this year. All the bands were in good shape. No "Chads" from FL. Many repeat contacts with same STN on separate bands. Even 160 had some activity. I love the short format, and being able to work a station on each band. Makes for lots of activity, like CQP, and unlike SS. (K6DGW)… Part-time effort but good fun when I was on. (N9GUN)… Power line interference made operation on 80 meters lousy. (AA3ML)… Ran the K1, the K2 and the Wilderness Sierra at 2 W with one set of ten NiMh batteries. (WD3P)… Thanks to Dick, KB1H, once again for the use of his fine station. We did better than last time. Murphy visited us at the beginning but we threw him out. He really is an annoying individual! But everything else went well. Thanks to those who called in, those who moved. Look for you next time. A special thanks to Zach for hanging in there for the 12 hours of the contest. (N1XS)… Thanks to VY1JA for the quick 4-band mult. Too much daylight left here to do 80 and 160 as well. (KH6ND)… Thanks to WX0B for the use of his station. Great to see all the M2 competition! (N5TJ)… This was a shakedown test for me. I used *TRLog* for the first time as well. My thumbs got in the way a few times, but think that I now have it mastered. (K7RE)… Using Elecraft K2 and HyGain DX-88 vertical. (VE3WZ)… Using my IC-735 back up rig and key was not a good idea for contesting. But I made an effort and had some fun. The DX people were not heard at my QTH. Looking forward to getting Paragon back from TenTec so I can do better in the next one. (KS0M)… Yesssss!! (K0EJ)

Table 4

CW Scores

Single Operator Scores

Call	*QSO's*	*Mults*	*Score*	*Section*	*Team*
K1BX	792	236	186,912	NH	
K1VUT	757	224	169,568	MA	
KM1X	742	215	159,530	RI	
K1HT	702	222	155,844	MA	
NY1S	599	210	125,790	ME	
K5ZD	523	191	99,893	MA	
K1PQS	461	167	76,987	ME	
AB1BX	347	77	26,719	RI	
N1HRA	147	93	13,671	RI	
AE1T	150	71	10,650	NH	
N1MD	75	52	3,900	CT	
WC1M	65	49	3,185	NH	
KM3T	33	23	759	MA	
KB1HJW	1	1	1	MA	
N2GA	825	212	174,900	NY	
W6XR	489	183	89,487	NY	
W2FCA	221	125	27,625	NY	
N2ED	208	108	22,464	NJ	
KA2D	170	81	13,770	NY	
*W2BVH	32	23	736	NJ	
WB2SXY	31	21	651	NY	
K3MM	979	287	280,973	MD	PVRC #1
AA3B	940	259	243,460	PA	FRC
K3WW	913	246	224,598	PA	FRC
W1NN	731	236	172,516	PA	PA QP'ers
N4GG	714	228	162,792	MD	
K3WU	681	226	153,906	PA	TCG #2
N3FR	700	214	149,800	PA	PA QP'ers
WA3HAE	702	200	140,400	PA	PA QP'ers
AD8J	587	211	123,857	PA	PA QP'ers
WW3S	561	197	110,517	PA	NCC Weekend Warriors #1
K3SV	544	184	100,096	PA	
WF3M	528	180	95,040	PA	
K3GW	431	168	72,408	PA	
N3SD	387	152	58,824	PA	
N8NA	357	162	57,834	DE	
NA3V	334	153	51,102	PA	
WA3SES	344	145	49,880	PA	PA QP'ers
N3SB	384	116	44,544	MD	
AA3ML	283	113	31,979	PA	
*WD3P	213	101	21,513	MD	
WA2FGK	188	96	18,048	PA	
N3NZ	177	94	16,638	PA	
WA3AAN	205	77	15,785	PA	
NS3T	124	88	10,912	MD	
W3CP	121	68	8,228	MD	
N9GG	104	65	6,760	DE	TCG #5
AI3M	19	16	304	MD	
*N3CZB	7	5	35	PA	
N2NL @K1PT	1173	290	340,170	FL	FCG #1
W4PA @K4JNY	1136	283	321,488	TN	TCG #1
K0EJ	1010	265	267,650	TN	TCG #1
N4BP	990	243	240,570	FL	
N4ZZ	975	243	236,925	TN	TCG #1
W9WI	925	256	236,800	TN	TCG #2
K4RO	916	252	230,832	TN	TCG #1
K1KY	865	256	221,440	TN	TCG #2
N4AF	877	250	219,250	NC	PVRC #1
K4OJ @W1CW	780	264	205,920	VA	PVRC #1
K7SV	801	257	205,857	FL	FCG #1
K4FXN	794	256	203,264	KY	KCG
K4NO	803	251	201,553	AL	SECC #1
N4ZI	809	242	195,778	TN	TCG #3
K4LTA	802	224	179,648	TN	TCG #2
NO4S (K9OM)	757	235	177,895	FL	
N4CW	730	237	173,010	NC	PVRC #1
K4MA	709	233	165,197	NC	PVRC #1
WJ9B	744	199	148,056	NC	
N4IR	717	204	146,268	TN	TCG #2
K9AY	627	225	141,075	GA	SECC #1
W4AU	681	200	136,200	VA	
K4IQJ	613	219	134,247	AL	
W4NZ	618	208	128,544	TN	TCG #5
K5KG	575	216	124,200	FL	FCG #1
K3CQ	552	203	112,056	TN	TCG #3
W4WA	483	207	99,981	GA	SECC #2
W4ATL	523	191	99,893	GA	SECC #3
AE4Y	575	173	99,475	GA	SECC #3
N4IG	510	187	95,370	FL	
AA4LR	495	191	94,545	GA	SECC #1
W4SAA	491	191	93,781	FL	FCG #1
K4WI	445	187	83,215	AL	SECC #1
NA4K	457	176	80,432	TN	TCG #5
K2UFT	429	179	76,791	GA	SECC #2
K4BEV	401	179	71,779	TN	TCG #4
NY4N	419	169	70,811	TN	TCG #4
AA4GA	426	146	62,196	GA	SECC #3
KA9EKJ	398	153	60,894	AL	SECC #1
NY4T	364	167	60,788	TN	TCG #3
N4GN	365	160	58,400	KY	KCG

Call	QSO's	Mults	Score	Section	Team
W4ZW	383	149	57,067	FL	FCG #2
W4NTI	314	163	51,182	AL	SECC #2
N4DU	305	155	47,275	GA	
KE4OAR	298	146	43,508	TN	TCG #4
W4TYU	285	136	38,760	TN	TCG #4
KC3QU	267	142	37,914	AL	
KN4Y	293	116	33,988	FL	FCG #2
W3BP	321	94	30,174	VA	
KM4FO	250	112	28,000	KY	
K4GA	227	118	26,786	GA	SECC #3
KT4Q	194	109	21,146	GA	
KW4DA	207	92	19,044	NC	
W4AUI	177	100	17,700	TN	TCG #4
K4TX	187	94	17,578	VA	
N4AO	171	101	17,271	FL	FCG #2
*N4MAP	142	85	12,070	GA	
N4YQ	150	79	11,850	AL	TCG #5
K4BAM	132	88	11,616	KY	
W4EBA	140	72	10,080	FL	FCG #2
K0COP	87	50	4,350	SC	
*WB6BWZ	75	46	3,450	GA	
N4KN	48	32	1,536	TN	TCG #6
WM4Q	46	33	1,518	TN	TCG #3
KO4E	30	41	1,230	FL	
K3MZ	28	23	644	VA	
K4OOO	16	15	240	TN	TCG #6
N6ZZ	934	255	238,170	NM	SCCC #1
K5WA	912	247	225,264	TX	TDXS #1
N3BB	843	256	215,808	TX	Austin Powers
AD5Q	874	240	209,760	TX	TDXS #1
W5TM	845	248	209,560	OK	TCG #1
N5AW	840	249	209,160	TX	Austin Powers
KM5G	794	261	207,234	AR	Ozark Contest Club
W0UO	780	234	182,520	TX	NTCC #1
W5WMU	744	242	180,048	LA	
N5XZ @K5AAD	775	224	173,600	TX	TDXS #1
N5UL	719	236	169,684	NM	
N5DO	736	229	168,544	TX	
N5RG	687	230	158,010	TX	NTCC #1
N5PO	703	220	154,660	TX	
K5XR (W5ASP)	717	210	150,570	TX	TDXS #1
W5UE	682	219	149,358	MS	Team Mississippi
WQ5L	657	225	147,825	MS	Team Mississippi
W5FO	660	222	146,520	TX	NTCC #1
N5QQ	692	206	142,552	TX	NTCC #1
N5UM	678	204	138,312	TX	
W5GN	628	203	127,484	TX	NTCC #1
*KG5U	575	192	110,400	TX	
NO5W	466	164	76,424	TX	
KR5F	438	169	74,022	TX	
K0CIE	435	164	71,340	OK	
KB5IXI	436	154	67,144	MS	Team Mississippi
W5MK	390	164	63,960	AR	Ozark Contest Club
WR5O	296	138	40,848	TX	
KJ5WX	257	138	35,466	AR	Ozark Contest Club
AD6G	258	120	30,960	TX	
W3DYA	232	110	25,520	TX	
*N0QT	185	102	18,870	NM	
K5AF	272	46	12,512	TX	
NE0P	121	64	7,744	OK	GRVARS
N8SM	85	29	2,465	TX	
W5NR	56	37	2,072	TX	
K5AM	52	37	1,924	NM	
AB5FS	13	10	130	OK	
W6EEN (N6RT)	1076	293	315,268	CA	SCCC #1
K6AW @N6RO	898	265	237,970	CA	NCCC #1
K2KW @K6KM	896	257	230,272	CA	NCCC #1
KH6ND @KH7R	940	216	203,040	HI	
K6AM	830	224	185,920	CA	SCCC #1
N6NF	838	217	181,846	CA	
K6CTA	843	205	172,815	CA	NCCC #1
W6UE (W4EF)	772	220	169,840	CA	SCCC #1
K6LA	708	234	165,672	CA	SCCC #2
W6TK	644	215	138,460	CA	SCCC #2
WN6K	708	190	134,520	CA	
K6LRN	641	206	132,046	CA	NCCC #2
W6OAT	694	179	124,226	CA	NCCC #2
AD6TF	535	174	93,090	CA	NCCC #3
N6EE	481	182	87,542	CA	
K6DGW	419	162	67,878	CA	
N6TW	346	165	57,090	CA	
KI6T	322	156	50,232	CA	NCCC #2
K6EP	289	149	43,061	CA	NCCC #3
W6RGG	340	116	39,440	CA	NCCC #3
KE6QR	196	121	23,716	CA	
K6ZJ	195	107	20,865	CA	
K6TA	221	92	20,332	CA	
AE6Y	198	97	19,206	CA	NCCC #2
*K6III	190	82	15,580	CA	

Call	QSO's	Mults	Score	Section	Team
K6OWL	172	90	15,480	CA	
W6MVW	137	73	10,001	CA	
K6NA	125	65	8,125	CA	
K6CSL	112	69	7,728	CA	
K6ZCL	70	32	2,240	CA	
KG6CMS	33	25	825	CA	
*N6WG	34	12	408	CA	
W6RKC	22	14	308	CA	
K6LL	1098	261	286,578	AZ	SCCC #1
K5RC	1054	252	265,608	NV	NCCC #1
W7CT	1020	246	250,920	UT	
N7FO (KN5H)	832	267	222,144	AZ	
N0AX	846	241	203,886	WA	
N7TR	904	221	199,784	NV	NCCC #1
W7UQ (KL9A)	866	226	195,716	ID	
K7MM	881	222	195,582	WA	
K7QQ	877	214	187,678	WA	
K7UAZ (N4OGW)	833	224	186,592	AZ	
N7OU	862	212	182,744	OR	
W7ZR	826	207	170,982	AZ	
WA7LNW	801	211	169,011	UT	
N7LOX	767	210	161,070	WA	
KI7Y	704	205	144,320	OR	
K7AW (K5ZM)	698	199	138,902	OR	
K7RE	639	190	121,410	AZ	
N7WA	615	182	111,930	WA	
K7JWD	590	162	95,580	AZ	
K4XU	468	183	85,644	OR	
KL7WV (W3YQ)	432	151	65,232	AK	
K1LKR	410	157	64,370	WA	
*WC7S	333	153	50,949	WY	
WA7YAZ	348	146	50,808	UT	
NG7Z	198	89	17,622	WA	
W7ZRC	239	40	9,560	ID	
KD7CTF	118	70	8,260	OR	
N4SL	1	1	1	WA	
W8MJ	941	239	224,899	MI	Mad River RC #1
N8EA	799	246	196,554	MI	Mad River RC #1
K8MK (KU8E)	738	266	196,308	OH	Mad River RC #1
K8ND	772	248	191,456	OH	Mad River RC #1
N8BJQ	701	249	174,549	OH	
K9TM	792	219	173,448	OH	Mad River RC #1
W8CAR	672	231	155,232	OH	Mad River RC #2
K8MR	659	225	148,275	OH	Mad River RC #2
WA8WV	708	208	147,264	WV	
K5IID	605	224	135,520	WV	Mad River RC #2
K8IR	607	220	133,540	MI	
K8JM	603	197	118,791	MI	Mad River RC #2
KV8Q	607	191	115,937	OH	
W8IVF	554	185	102,490	WV	
AF8A	561	178	99,858	OH	Mad River RC #2
KG8GW	540	175	94,500	WV	
ND8DX	432	171	73,872	OH	Mad River RC #3
K8DX	434	165	71,610	OH	NCC Weekend Warriors #2
WB8RTJ	417	149	62,133	OH	
K9NW	437	133	58,121	OH	Mad River RC #3
W8RU	225	124	27,900	MI	Mad River RC #3
*KB8UMD	223	116	25,868	MI	
K8KFJ	249	103	25,647	WV	
K8AAX	230	100	23,000	MI	Mad River RC #3
K8MIA	192	92	17,664	WV	
K8DD	150	95	14,250	MI	
N8CPA	150	90	13,500	OH	
WX3M	177	74	13,098	MI	
*K8CV	120	70	8,400	MI	
K8NZ	109	73	7,957	OH	NCC Weekend Warriors #1
W8GN	124	62	7,688	OH	NCC Weekend Warriors #1
W8IDM	123	41	5,043	OH	
ND8L	73	43	3,139	OH	NCC Weekend Warriors #1
KB8PGW	61	38	2,318	MI	
W8XY	42	13	546	OH	
*N5NW	12	12	144	OH	TCG #6
N9RV	1109	290	321,610	IN	SMC #1
W9RE	945	290	274,050	IN	SMC #1
WE9V (K9PG)	854	290	247,660	WI	SMC #1
K9RS (KO9A)	880	263	231,440	IL	SMC #2
N9CK	948	242	229,416	WI	SMC #2
N9FH	818	238	194,684	WI	SMC #1
WT9U	712	270	192,240	IN	SMC #1
K9MA	782	237	185,334	WI	SMC #2
N9CO	762	235	179,070	IL	SMC #2
WA9IRV	668	223	148,964	WI	SMC #2
K9MMS	671	205	137,555	IL	SMC #3
W9IU	628	200	125,600	IN	SMC #3
K9BG	599	209	125,191	IN	SMC #8
W9LO	601	186	111,786	WI	SMC #3
K9MOT	572	195	111,540	IL	SMC #3

Call	QSO's	Mults	Score	Section	Team
WA1UJU	550	195	107,250	WI	SMC #3
N9IJ	510	196	99,960	IL	SMC #8
K9WX	526	170	89,420	IN	SMC #4
K9JWI	515	173	89,095	IN	
N9JF	434	199	86,366	IL	SMC #6
W9WUU	370	171	63,270	WI	SMC #5
N9BOR	431	134	57,754	IL	SMC #5
KX9DX	380	145	55,100	IL	SMC #5
AA9KH	338	152	51,376	IL	SMC #7
K9WA	283	129	36,507	IL	GRVARS
W9YS	267	134	35,778	IL	SMC #7
K9OT	215	110	23,650	WI	GRVARS
K9OZ	251	87	21,837	IL	
N9CIQ	168	98	16,464	WI	
K9IJ	165	99	16,335	IL	SMC #8
K9MI	133	68	9,044	IN	SMC #4
KC9FC	97	88	8,536	IN	SMC #4
AI9X	116	72	8,352	WI	SMC #6
N9GUN	124	66	8,184	IL	SMC #4
K9YO @N9JLP	115	60	6,900	IL	
*N9NE	167	41	6,847	WI	
KB9UKE	86	36	3,096	WI	
W9CM	44	29	1,276	IN	
*WB9MII	21	15	315	IL	
N2IC	1218	290	353,220	CO	Grand Mesa #1
K0SR @W0ZT	929	256	237,824	MN	Minn Wireless Assn #1
WB0O	960	246	236,160	ND	
N0AV	807	268	216,276	IA	SMC #8
NA0N	847	233	197,351	MN	Minn Wireless Assn #1
N0XB	801	217	173,817	MN	Minn Wireless Assn #1
K0AD	740	233	172,420	MN	Minn Wireless Assn #1
KT0R	712	239	170,168	MN	Minn Wireless Assn #2
N0AT	735	223	163,905	MN	Minn Wireless Assn #1
K0OU	706	218	153,908	MO	SMC West
N4VI	724	210	152,040	CO	Grand Mesa #1
W0UY	623	217	135,191	KS	SMC West
KG0US	600	209	125,400	MO	
N0HF	619	175	108,325	CO	Grand Mesa #1
K4IU	495	190	94,050	MN	KCG
AE9B	469	176	82,544	MO	SMC West
WJ0M	434	184	79,856	MN	Minn Wireless Assn #3
KN0V	472	166	78,352	MN	Minn Wireless Assn #3
K0UK	515	150	77,250	CO	Grand Mesa #2
W0ETT	431	170	73,270	CO	Grand Mesa #2
W0RUN	386	179	69,094	CO	Grand Mesa #2
K0XM	358	176	63,008	KS	SMC West
KD0OM	358	146	52,268	CO	Grand Mesa #1
W0BR	353	148	52,244	KS	
KE0FT	356	146	51,976	IA	GRVARS
*W0ETC	323	159	51,357	IA	TCG #5
K0MPH	342	146	49,932	MN	
*K0WA	274	140	38,360	KS	
AC0W	215	121	26,015	MN	Minn Wireless Assn #2
AE0Q	230	84	19,320	CO	Grand Mesa #1
N0BUI	198	81	16,038	MN	
KS0M	116	72	8,352	MO	
WB0TRA	104	32	3,328	MN	Minn Wireless Assn #2
*K9IUA	63	27	1,701	IA	
*K0CO	37	20	740	CO	
KC0GXX	24	15	360	NE	
WA0OTV	17	13	221	MO	
VE5DX (VE5MX)	918	252	231,336	SK	Team EH
VA3RU	841	259	217,819	ON	
VX4VV (VE4VV)	854	226	193,004	MB	Team EH
VE5SF	809	206	166,654	SK	Team EH
VX5ZX (VE5ZX)	723	209	151,107	SK	
VE3KP	626	201	125,826	ON	
VX2AWR	633	198	125,334	QC	Team EH
VA3UA	596	203	120,988	ON	
VE1OP	652	184	119,968	NS	
VE3IAY	594	186	110,484	ON	
VE7NH	558	179	99,882	BC	
VE7F0	464	173	80,272	BC	
VE3BUC	264	117	30,888	ON	
VA7LC	278	109	30,302	BC	
VE1ASE	255	117	29,835	NB	
VE4YU	215	127	27,305	MB	
VE7IN	203	134	27,202	BC	
VE3EN	212	119	25,228	ON	
VE2EXR	231	105	24,255	QC	
VE9DX	206	109	22,454	NB	Team EH
VE2OWL	192	99	19,008	QC	
VE6YR	121	93	11,253	AB	
*VE3WZ	116	68	7,888	ON	
VE3UKR	105	40	4,200	ON	
VE3GKB	75	52	3,900	ON	
VE1VX	81	32	2,592	NS	
VO1HP	66	32	2,112	NF	
*VA3IX	45	28	1,260	ON	
VE3IGJ	13	9	117	ON	
XE2MX (N6KI)	786	201	157,986	XE	SCCC #2
OK1FCA	17	11	187	DX	

* Denotes a QRP Score

Multi-Two Scores

Call	QSO's	Mult's	Score	Section	Ops
W4AN	1887	312	588,744	GA	K4BAI, W4AN, K4OGG
N5TJ	1671	318	531,378	TX	N5TJ, NM5M
K5KA	1693	312	528,216	OK	K5KA, N5RZ
W5NN	1648	304	500,992	TX	N1LN, K1OJ, K5GA, K5NZ
N2NT	1567	308	482,636	FL	WW2Y, N2NC, N2NT
K0RF	1567	308	482,636	CO	W0UA, K0RF
N0NI	1428	292	416,976	IA	N0NI, N0AC, W0FLS, K0KD, WO0V
W4OC @N4UK	1427	283	403,841	SC	AA4S, N4UK, W4OC
K5TQ	1425	268	381,900	NM	K5TQ, AA5B
K6ZM	1370	271	371,270	CA	K6WG, WA6O
N1XS @KB1H	1170	265	310,050	CT	N1XS, K1EBY
W4GAC	158	70	11,060	FL	W4KEN, K4BNE, KU4BT

NCJ

DX Contest Activity Announcements

Compiled by
Bill Feidt, NG3K
bill@ng3k.com

Now is the time to submit your announcements for summer contests, including the IARU HF World Championships. If you want your listing to appear in the March/April 2003 issue, I'll need to receive it no later than January 20.

You can submit your data using the form that you'll find at **www.ng3k.com/Contest/consub.html**.

If you would prefer to e-mail me your information, please be sure to include:

- Callsign to be used
- DXCC entity
- CQ Zone (for the CQ WW contests)
- Entry class anticipated
- QSL route
- Your callsign and e-mail address
- Operators and other information of likely interest

Send your information to **bill@ng3k.com**.

You can review what has been received to date at **www.ng3k.com/Contest/conasc.html**. This page is continuously updated as new announcements are received.

73, Bill, NG3K

ARRL DX CW Contest (February 15-16, 2003)

Call	Entity	Class	Operators
6Y5/K3TEJ	Jamaica	SOAB	K3TEJ
E20HHK	Thailand	SOSB	E20HHK
E20NTS	Thailand	SOSB	E20NTS
HS4BPQ/9	Thailand	SOSB	HS4BPQ
N7OU/HI9	Dominican Rep	SOAB LP	N7OU
V26G	Antigua	SO	N2ED
V31JP	Belize	SOAB HP	K8JP
VP9I	Bermuda	SOAB LP	W6PH

Thanks to: E21EIC, K3TEJ, K8JP, N2ED, N7OU, W6PH

See **www.ng3k.com/Misc/adxc2003.html** for further details and updates.

ARRL DX SSB Contest (March 1-2, 2003)

Call	Entity	Class	Operators
VP9I	Bermuda	SOAB LP	W6PH

Thanks to: W6PH

See **www.ng3k.com/Misc/adxs2003.html** for further details and updates.

NCJ

North American QSO Parties (NAQP) CW/SSB/ RTTY Rules

1. Eligibility: Any licensed radio amateur may enter.

2. Object: To work as many North American stations as possible during the contest period.

3. North American Station: Defined by the ARRL's DXCC list with the addition of KH6.

Contest periods:

January/February 2003 Contests:

CW: 1800Z January 11 to 0600Z January 12, 2003 (Second full weekend in January)

SSB: 1800Z January 18 to 0600Z January 19, 2003 (Third full weekend in January)

RTTY: 1800Z February 22 to 0600Z February 23, 2003 (Last full weekend in February)

July/August

RTTY: 1800Z July 19 to 0600Z July 20, 2003 (Third full weekend in July)
CW: 1800Z August 2 to 0600Z August 3, 2003 (First full weekend in August)
SSB: 1800Z August 16 to 0600Z August 17, 2003 (Third full weekend in August)

5. Entry Classification:

a) Single Operator:

i) One person performs all transmitting, receiving, spotting, and logging functions as well as equipment and antenna adjustments.

ii) Use of helpers or spotting nets is not permitted.

iii) Only one transmitted signal allowed at a time.

iv) May operate 10 out of the 12 hours of the contest. Off times must be at least 30 minutes in length.

b) Multi-Operator Two-Transmitter.

i) More than one person performs transmitting, receiving and logging functions, etc.

ii) A maximum of two transmitted signals at any given time, each on a different band. Both transmitters may work any and all stations.

iii) Shall keep a separate log for each transmitter.

iv) Each transmitter must have at least 10 minutes between band changes.

v) May operate for the entire 12 hours of the contest.

6. Output power must be limited to 100 watts for eligible entries. Use of external amplifiers capable of more than 100 watts output is not allowed.

7. Mode: CW only in CW parties. SSB only in phone parties. RTTY only in RTTY parties.

8. Bands: 160, 80, 40, 20, 15, 10 meters only, except no 160 meters for the RTTY contest. You may work a station once per band. Suggested frequencies are 1815, 3535, 7035, 14035, 21035 and 28035 kHz (35 kHz up from band edge for Novice/Tech) on CW; and 1865, 3850, 7225, 14250, 21300, and 28500 kHz (28450 for Novice/Tech) on SSB. When operating on 160-meters, please respect the DX window of 1830-1840 kHz and keep SSB operations above 1840 kHz.

9. Exchange: Operator name and station location (state, province, or country) for North American stations; operator name only for non-North American stations. If the name sent is changed during the contest, as sometimes happens with multi-operator stations, the name used for each QSO must be clearly identified in the log.

10. Multipliers: Are U.S. states (including KH6 and KL7), 13 Canadian provinces/territories (British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, New Brunswick, Nova Scotia, PEI, Newfoundland/Labrador, Yukon, NWT, and Nunavut) and other North American countries. District of Columbia counts as Maryland. Non-North American countries, maritime mobiles and aeronautical mobiles do not count as multipliers, but may be worked for QSO credit.

11. Valid Contact: A valid contact consists of a complete, correctly copied and legibly logged two-way exchange between a North American station and any other station. Proper logging requires including the time in UTC and band for each contact. Regardless of the number of licensed call signs issued to a given operator, one and only one call sign shall be utilized during the contest by that operator.

12. Scoring: Multiply total valid contacts by the sum of the number of multipliers worked on each band.

13. Team Competition: You may wish to form a team with fellow NAQP participants. If so, your team must consist of 2 to 5 single operator stations whose individual scores are combined to produce a team score. Although clubs or other groups having more than 5 members may form multiple teams, there is no distance or meeting requirements for a team entry.

Teams must be registered with the appropriate contest manager prior to the start of the contest. Team registration information must be in written form (mail or e-mail) and must include the call sign of the operator, and the call sign to be used if different than the operator's call sign (e.g. K1NG (op WF1B)). Use the log submission addresses given below for team registration notification.

14. Log submission: Entries must be postmarked no later than 30 days after the contest to be eligible for awards. All logs containing more than 200 QSOs, which were generated with a computer program, must be submitted on 3.5-inch floppy disk or via e-mail. All computer-generated logs should be submitted in Cabrillo format. If paper logs are submitted, please submit originals. Sample log sheets and a summary sheet may be obtained with an SASE to the appropriate contest manager. These forms are also available on the NCJ web site.

For a Cabrillo-formatted log, submit only the log file. For a non-Cabrillo log or a paper log, a proper entry consists of: (1) a summary sheet showing the number of valid contacts and multipliers by band, total contacts and multipliers, total score, team name (if applicable), power output, name, call sign and address of the operator, station call sign and exchange (name and location) sent during the contest; and (2) a complete legible log of all contacts.

Logs and summary sheets submitted on floppy disk or via e-mail must be in ASCII text format. Name your files with your call sign (i.e. yourcall.SUM and yourcall.LOG). Please do not send binary files produced by a contest logging program (e.g. yourcall.BIN, etc.).

Send CW/SSB logs to:
Bruce Horn, WA7BNM
4225 Farmdale Avenue
Studio City, CA 91604
USA
CW email: **cwnaqp@ncjweb.com**
SSB email: **ssbnaqp@ncjweb .com**

Send RTTY logs to:
Wayne Matlock, K7WM
Rt 2 Box 102
Cibola, AZ 85328
USA
email: **rttynaqp@ncjweb.com**

15. Disqualifications. Entries with score reductions greater than 5 percent may be disqualified. Any entry may be disqualified for illegibility, illegal or unethical operation. Such disqualification is at the discretion of the contest manager.

16. Awards: Plaques will be awarded for the high score in each of the catego-

ries given below, provided there are a minimum of five entries in the category. If a plaque is not sponsored, the winner may purchase it. Certificates of merit will be awarded to the highest scoring entrant with at least 200 QSOs from each state, province, or North American country. Certificates of merit will also be awarded to the overall second and third place finishers in the multi-operator category for each mode.

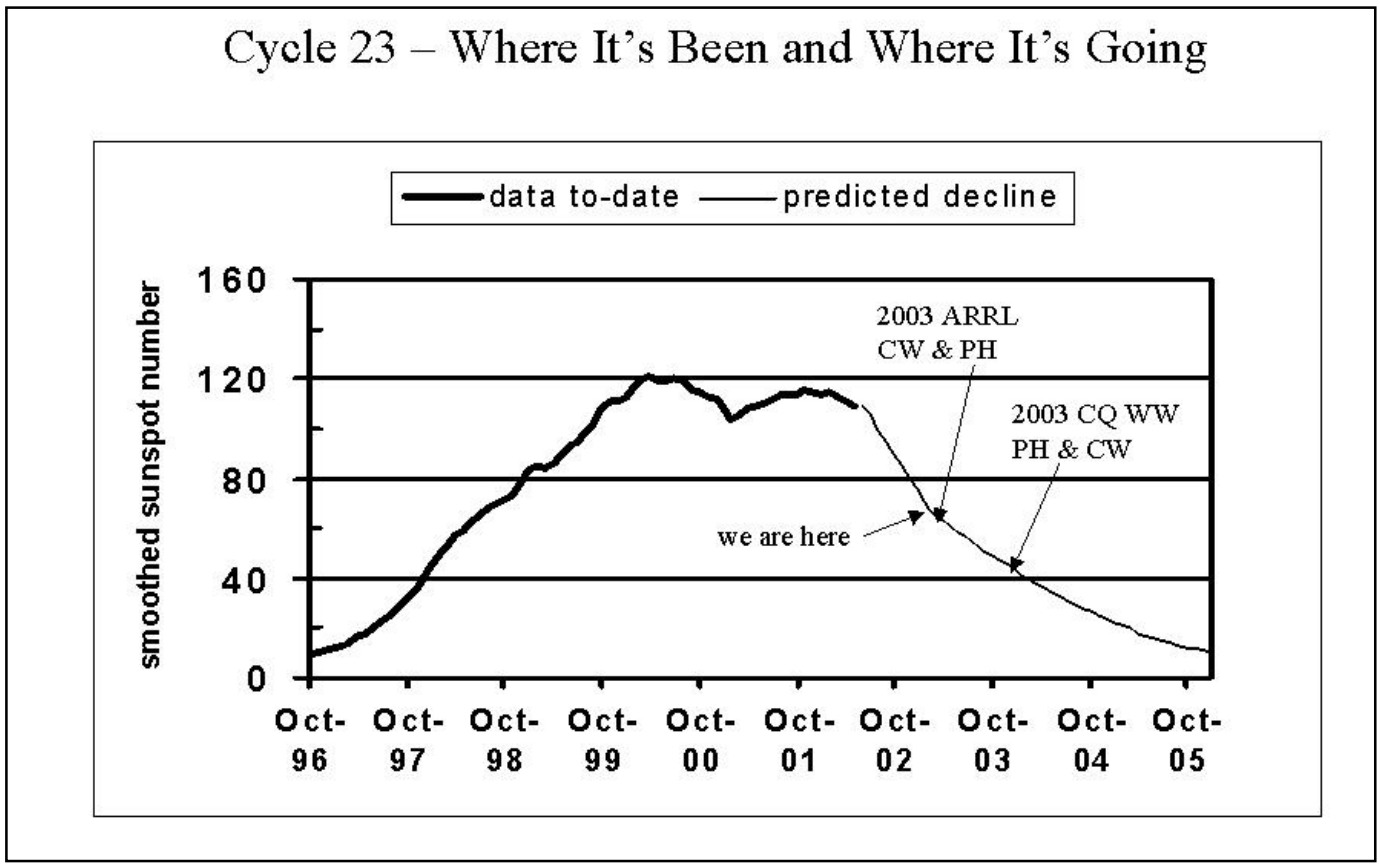
Plaques will be awarded as follows:

Mode	Category	Sponsor
CW	Single Op, North America	Florida Contest Group
CW	Multi-Op, North America	Texas DX Society
SSB	Single Op, North America	South East Contest Club
SSB	Multi-Op, North America	Tennessee Contest Group
Combined CW/SSB	Single Op, North America	Southern California Contest Club
RTTY	Single Op, North America	ICOM
RTTY	Single Op, DX	ICOM
RTTY	Multi-Op, North America	ICOM
RTTY	Multi-Op, DX	ICOM

NCJ

Sunspot Cycle 23 Prediction

This chart shows where we've been and where we are going on Cycle 23. As you can see, the cycle is nearing the end of a steed downward slope and beginning to decline at a less severe slope. The smoothed sunspot number for CQ WW DX in November of this year is around 40.



North American Sprint CW/SSB/RTTY Rules

1. Eligibility: Any licensed radio amateur may enter.

2. Object: For North American stations to contact as many licensed radio amateurs as possible. For non-North American stations to contact as many North American stations as possible.

3. Entry Classification: High power, low power (100W) and QRP (5W). Single operator only. Use of helpers, packet or spotting nets is not permitted.

4. Contest periods:

February/March 2002 Contests:
SSB: 0000Z – 0400Z February 3, 2002
CW: 0000Z – 0400Z February 10, 2002
RTTY: 0000Z – 0400Z March 10, 2002

September/October 2002 Contests:
CW: 0000Z – 0400Z September 8, 2002
SSB: 0000Z – 0400Z September 15, 2002
RTTY: 0000Z – 0400Z, October 13, 2002

These are entirely separate four-hour Sprints. Note that the CW Sprint comes before the SSB Sprint in September, but not in February.

5. Mode: CW only in CW Sprints, SSB only in SSB Sprints, RTTY only in RTTY Sprints.

6. Bands: 80, 40 and 20 meters only. Suggested frequencies are around 3540, 7040 and 14040 kHz on CW; 3850, 7225 and 14275 kHz on Phone; and 3580, 7080 and 14080 kHz on RTTY. You may work the same station once per band.

Note: For RTTY only, the same station can be worked multiple times provided 3 contacts separate the contact in both logs, regardless of band.

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

N6TR DE K7GM 154 RICK NC K
K7GM NR 122 TREE OR DE N6TR K

8. Valid Contact: A valid contact consists of a complete, correctly copied and logged two-way exchange between a North American station and another station. Proper logging requires including the time of each contact. Serial numbers must begin with serial number one and be sequential thereafter.

9. North American Station: Defined by the rules of the CQ WW DX Contests. Note that KH6 is not in North America.

10. Scoring: Multiply total valid contacts by the sum of the U.S. states, Canadian Provinces and other North American Countries to get final score (do not count USA and Canada as countries). KH6 is not counted as a State and is not a North American country (but counts for QSO credit). The eight Canadian multipliers are Maritime (VE1, VE9, VO1, VO2 and VY2), VE2 through VE7, and Yukon-NWT (VY0, VY1 and VE8). Non-North American countries do not count as multipliers, but do count for QSO credit for North American stations.

11. Special QSY Rule: If any station solicits a call (by sending CQ, QRZ?, "going up 5 kHz," or any other means of soliciting a response, including completion of a QSO where the frequency was inherited), they are permitted to work only one station in response to that solicitation. They must thereafter move at least 1 kHz before calling another station, or at least 5 kHz before soliciting other calls. Once a station is required to QSY, that station is not allowed to make another QSO on the vacated frequency until or unless at least one subsequent QSO is made on a new frequency.

12. Additional Rules: Simultaneous transmission on more than one frequency is prohibited. All contacts must be sent and received using means requiring real-time human intervention, detection and initiation. Each operator must use only one call sign during the contest.

13. Reporting:
Send CW logs to:
Boring Amateur Radio Club
15125 Bartell Road
Boring, OR 97009
USA
email: **cwsprint@ncjweb.com**

Send Phone logs to:
Jim Stevens, K4MA
6609 Vardon Ct.
Fuquay-Varina, NC 27526
USA
email: **ssbsprint@ncjweb.com**

Send RTTY logs to:
Wayne Matlock, K7WM
Rt 2, Box 102
Cibola, AZ 85328
USA
email: **rttysprint@ncjweb.com**

Entries must be received no later than 30 days after the Sprint. All competitive logs (more than 100 QSOs) must be submitted electronically (e-mail, 3.5-inch floppy disk, etc.). The file format for electronic logs for *NCJ*-sponsored contests is Cabrillo.

14. Team Competition: Team competition is limited to a maximum of 10 operators as a single entry unit. Groups having more than ten team members may submit more than one team entry. To qualify as a team entry, the team registration form on the NCJ web site must be completed before the contest starts. Use one of the following links:

CW Team Registration: **www.ncjweb.com/cwsprintteam.html**

SSB Team Registration: **www.ncjweb.com/ssbsprintteam.html**

RTTY Team Registration: **www.ncjweb.com/rttysprintteam.html**

15. Penalties and Disqualification: Contacts with incorrect received information will be removed. Contacts not found in the other station's log will be be removed with a one QSO penalty. Entries with score reductions in excess of 5 percent may be disqualified. Any entry also may be disqualified for illegibility, illegal or unethical operation.

NCJ

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HF9VX, 9 Band Vertical	$349
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CPK, Counterpoise Kit	$129
RMKII, Roof Mount Kit	$159
STRII, Roof Radial Kit	$125
TBR160S, 160m Kit	$119

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GP6, 2m/70cm Vertical	$139
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B20NMO, 2m/70cm Mobile	$49
SBB2NMO, 2m/70cm Mobile	$39
SBB5NMO, 2m/70cm Mobile	$49
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Z750, 2m/70cm Mobile	$55
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X500HNA/700HNA	$229/369
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SG7500NMO/SG7900A	$75/112

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Voyager DX	$409
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2M12/2M5WL	$149/189
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440-470-5W/420-450-11	$129/89
432-9WL/432-13WL	$169/219
440-18/440-21ATV	$119/139

Satellite Antennas

2MCP14/2MCP22	$169/219
436CP30/436CP42UG	$219/259

M2 ANTENNAS

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6M5X/6M7JHV	$199/239
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12M4DX, 4 Element 12m	$379
15M4DX, 4 Element 15m	$419
17M3DX, 3 Element 17m	$379
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949E, 300W Antenna Tuner	$139
969, 300W Antenna Tuner	$169
986, 3kW Antenna Tuner	$289
989C, 3 kW Antenna Tuner	$309
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G6-144B/G7-144B	$129/179

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C3	10/12/15/17/20m, 7 el	$599
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C3S	10/12/15/17/20m, 6 el	$539
C3SS	10/12/15/17/20m, 6 el	$559
C4	10/12/15/17/20/40m, 8 el	$759
C4S	10/12/15/17/20/40m, 7 el	$679
C4SXL	10/12/15/17/20/40m, 8 el	$979
C4XL	10/12/15/17/20/40m, 9 el	$1119
C19XR	10/15/20m, 11 el	$959
C31XR	10/15/20m, 14 el	$1299

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AS25G/AS455G	$39/89
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GAR30/GAS604	$35/24
SB25G/45/55	$39/89/109
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RT936, 9 Foot, 18 sq ft	$389
RT1832, 17 Foot, 12 sq ft	$499

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"ICOM supplied a 'PROII for a recent DXpedition. It worked so well, that I bought TWO as soon as I returned home. Others on the DXpedition bought them, too. I can't believe the performance of the receiver, particularly on the low bands! The pre-amp REALLY works without distortion. The adjustable filters and twin passband tuning are a dream and so easy to operate. The digital noise reduction is truly amazing. You can't get "lost" with the operation of the controls....it's simple to back out a level. I've operated literally every HF radio made in the last 30 years, contesting and DXing, and the 'PROII is in a class all by itself! We have a six ham family and we all love our new PROII's!!! The "fun" is back into ham radio more than ever now."

-Glenn Johnson WØGJ , A50A WW SSB Contest

The IC-756PROII's worked great - we ran them for 11 days, non-stop, ...5 radios, 80,000 QSO's... all bands 160 through six meters... SSB,CW, RTTY, and PSK31! The built-in antenna tuners nice... we could run antennas on other bands... the 40m vertical on 15m... the 30m vertical on 10m... . Temps always above 80...sometimes 110 deg in the operating tents. Humidity above 90% all the time! Radios performed flawlessly. Everything you could want for operating convenience in one box. When you are on the receiving end of the entire world calling you in a pileup, it helps to have a top-notch rig to work them all! I liked the radio so much, I bought one and brought it home!

-Bob Voss N4CD, TI9M DXpedition

I was very impressed with the reliability of the IC-756PROII transceivers and IC-PW1 linear amplifiers, given that our environment on the island was challenging in some respects. At the CW site, there was so much talcum-powder fine volcanic ash blowing around that the radios, amplifiers, and everything else in the tent was covered with a thick layer of dust. I was especially concerned about the 'PW1s given that the fans were running almost continuously, pulling in this dust. We also had a troublesome generator which caused large fluctuations in voltage and frequency (we eventually replaced it). Even with these conditions, the ICOM equipment ran perfectly for 10 days, 24 hours per day. I'd feel confident taking your equipment to any location on the planet.

-Michael Mraz N6MZ, XRØX DXpedition

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