NCJ

# NATIONAL CONTEST JOURNAL

$3

July/August 1999

Volume 27 Number 4

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- *NCJ* Reviews; The PIEXX TS-930SE Microprocessor Board
- *NCJ Profiles;* K7QQ
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- *Results*: January NAQP Contest, SSB and CW
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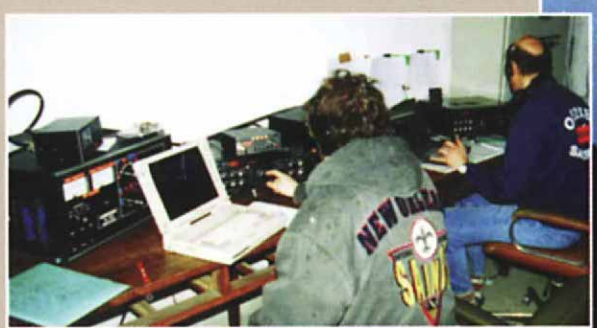

**Günther, OE2LCM, and Wolf, OE2VEL, operate OE9S "Field Day Style" in the 1998 ARRL DX Phone Contest.**

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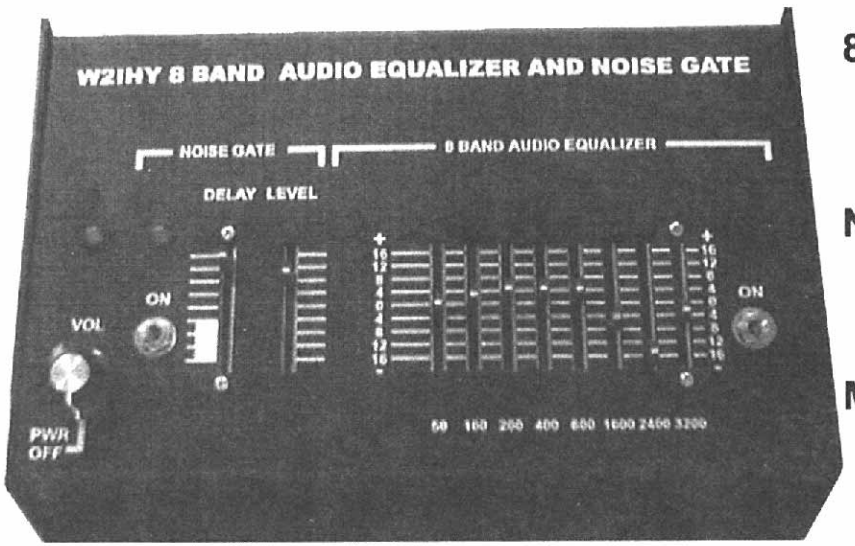


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# Editorial

**Dennis Motschenbacher, K7BV**
k7bv@aol.com

We have a results-packed issue for your enjoyment so we shall hold editorial comment to a minimum. (The crowd roars!)

I do wish to express my thanks to our publisher for working hard to improve the *NCJ* delivery time. We recently changed to Periodicals Class mail from bulk mail, which will improve delivery time for the non-1st-class subscribers. However, I know this change did negatively affect delivery of the May/June issue. I was warned that this was the one-time price for converting to the new mailing process. I am certain many of you will be enjoying your magazine days earlier now.

### State QSO Parties (read: Contests)

There has been a fair amount of talk around the bands and reflectors regarding the worth of the numerous state QSO parties. I think the following words offered by Randy, K5ZD, on the CQ-Contest reflector pretty much put the subject into a healthly perspective. I hope you do to.

"I was fortunate to participate as a mobile in the Texas Armadillo Run and as a fixed station the year they tried to activate all USA counties. I count both of these in my ham radio Top 20 all-time operating experiences!

Doing 1800 miles and making 2100 QSOs in a weekend was a thrill. Especially traveling a state as large and diverse as Texas. We saw forests, hills, flat prairie, bad lands —you name it. Red dirt, brown dirt, black dirt, rocks... and a new pile-up every 20 minutes. Thanks to K5TR for doing the driving.

I worked almost 2100 counties (of the 3076) in 2 weekends during the 'big' Armadillo Run in 1986. Again, it was a thrill to chase mobiles and counties just to see how many I could work. You read about guys taking years to work all US counties and I was trying to do it in 52 hours!

*Contesting fun is what you make it. And some of the best fun comes from the most unexpected places."*

Randy, K5ZD

### Dayton

I just got back from my first Dayton Hamvention since sobering up. What a wonderful gathering of contesters! I cannot let myself miss another Dayton now that most everyone has gotten over my behavior and "Open Bar" abuses of the past. I am always thrilled to see Top Ten competitors spending hours shoulder to shoulder sharing experiences and knowledge. Every one of us should make it to a gathering like Dayton so we can be reminded that these "Super Ops" put their pants on just like you and me. It is inspiring to find out they are just regular folks who work darned hard to be the Best of the Best.

### I'm Off!

One would be hard pressed to find anyone that would classify me as being even remotely close to being one of the Best of Best. I am leaving in a few hours for OH0. I am blatantly seeking unfair advantage in the WPX CW contest by dragging my wife on a pseudo vacation (?) to the Aland Islands where the new OH0Z super station awaits my arrival. While everyone else is hard at work during the week leading up to the contest, I shall sneak a helicopter ride over to OJ0 to limber the ol' fingers up in suitable pile-ups. No, this is not cheating, my friends, and certainly not a matter worthy of pouty behavior on your part. This is "priority setting"—meaning I don't drive a new vehicle and the landscaping around the house here in Reno is still left in the hands of the sagebrush gods…

—73, Dennis, K7BV ■

# Field Day OE9S-tyle Contesting

Klier Wolfgang, OE2VEL
Wolfgang.Klier@ascom.at

*This is an excellent article showing how dedicated contesters can use their imagination to overcome obstacles with terrific results. The OE2-DX Club's efforts may well stir a thought or two for you and your group for your next multi-operator operation.—K7BV*

The OE2-DX Group unfortunately had to abandon their permanent contest QTH, OE2S, in the spring of 1996. In the following years, our somewhat demoralized group did manage to do some minor contest efforts from a government location in Lower Austria, signing OE3S, but nothing as serious as those we regularly operated from the our previous QTH.

In the autumn of 1997, Carl, OE2MON, told us about a friend of his who owned a mobile crane company. He suggested we use a mobile crane as an antenna support during a contest. A test operation was made by Carl, signing OE9MON, (CQWW DX SSB 1997 Single op 80 M) with excellent results, so we decided to operate the 1998 ARRL DX Phone Contest from Vorarlberg (OE9-province).

The local hams did most of the preparations (special thanks to OE9BGI, 'HGV, 'KGJ, 'MCV and 'PTI). The operating crew, including OE2GEN, 'LCM, 'MBN and 'VEL, came from Salzburg on Thursday and Friday before the contest.

We got the authorization to use our traditional suffix. The contest call was OE9S.

### The Final Preparations

I had to work late on Thursday, so I arrived in OE9-land Friday noon. Carl led me to the factory plant of *Deurotex*, our contest location, which is located close to the mouth of the river Rhine near the lake Constance. The location looked excellent, but "*Where are the antennas?*"

In the backyard, several OMs were working on the 40-meter monobander (thanks to OE9BGI). The other monobanders for 20 through 10 meters were on the ground and the wire antennas for the lowbands were still in the trunk of my car—not a good starting position 12 hours before the contest!

At 1430Z, we heard the noise of a big engine and then we saw a 6-wheel truck with a big pneumatic crane on it. The vehicle, owned by *Mobilkran*, has a gross weight of 36 tons and is able to lift a maximum of 2 tons up to 60 meters high.


**Our suspended stack.**

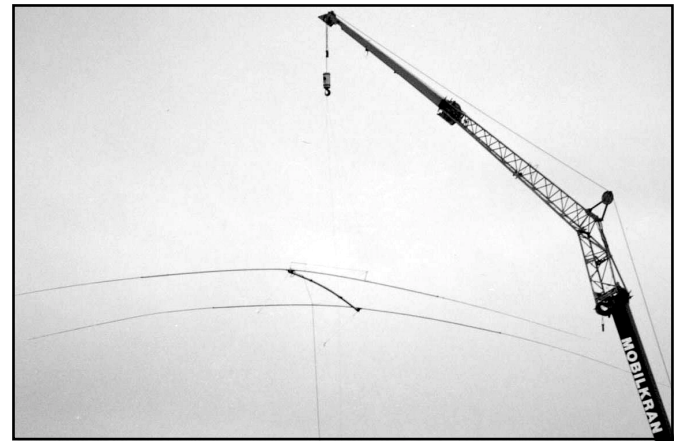
It took about an hour to properly position and fully prepare the crane. Then we started our antenna installation. The guys from OE9 had prepared an 8-mm thick steel cable with a total length of more than 100 meters. We fixed the center of it at the hook of the crane so two cables were hanging down. Two big concrete blocks were positioned on the ground in order to fix the ends of the cables in such a way that the antennas were pointing towards North America.

Big clamps had been prepared by OE9MCV. Two of them were mounted on the boom of each antenna. We fixed the steel cables to these clamps. The first antenna to go up was the 2-element full size Yagi for 40 meters. The crane lifted it about 8 meters high. We checked the SWR with an analyzer—all okay—so we were ready to lift the 5-element monobander for 20 meters. The same procedure was followed for the 15 and 10-meter antennas.

Everything looked good so part of the team started to lay out the coax cables from the tower to the shack, a small factory hall. After that, they configured two stations in the hall.

Meanwhile, the rest of the crew was outside lowering all the antennas again in order to attach some blocks at the top of the crane to pull up the wire antennas for 80 and 160 meters. Unfortunately, it was already dark so we could only place the 160-meter dipole and a 2-element wire beam for 80 meters before it was too dark to safely do any further antenna work. Sunrise the next day confirmed

**A view from below the antennas looking upward.**




**The fullsize 2-element 40-meter Yagi up at 45 meters.**

one our fears—the elements for the 80-meter beam were far from parallel. We worked the first night effectively with just a couple wires in the air...

The total weight of all of our antennas, cables, etc, was about 300 kg. The cables were kept straight with a tension of 600 kg. The whole installation can be seen in the cover photo. It included:

2-element full-size Yagi for 40 meters at 45 meters
5-element monoband Yagi for 20 meters at 38 meters
5-element monoband Yagi for 15 meters at 30 meters
5-element monoband Yagi for 10 meters at 25 meters
Wire antennas for 80 and 160 meters

### The Contest

Saturday March 7, 1998—0001Z: "*CQ Contest—Oscar Echo Nine Sierra!*" The pile-up began. Carl, OE2MON, and Günther, OE2LCM, operated the first shift and started on 40 meters. After one hour of operating, we had worked 105 USA stations in 30 states. After 3.5 hours, we were happy to have 411 QSOs in the log with 44 states and provinces. A short QSY to 80 and 160 helped us to get another 70 QSOs and a number of important multipliers before we returned to 40.

Our morning is always slow, but around 1100Z 20 meters opened. 15 followed shortly afterwards. Propagation was still not good enough for 10 meters. We tried several times but could not work a single North American station on 10. Nevertheless, when 20 closed around 2100Z, we had worked 1800 stations. We then QSYed to 40 and 80. Signals were weaker than the first night. 160 was very poor. But we still enjoyed quite good rates—particularly on 40 meters. The same operation schedule followed on Sunday.

During the contest, a strong wind with gusts up to 70 km/h had started to blow. The antennas on the steel cable looked like a big sail, but the crane remained stable. Even the local emergency helicopter paid us a visit in order to inspect this unusual setup.

After 48 hours, we were happy to discover that we had beaten the old Austrian record. The new one is now 3300 QSOs, 212 multipliers and about 2.1 million points. We were extremely proud to work all states on 15 and 20 meters. We only missed Idaho on 40. Table 1 shows some figures for those who are interested in details.

Early Monday, with the snow falling, the antennas were taken down by Carl and his crew. The team from OE2 was already back at work at that time. In retrospect, we seemed to have been extremely lucky with the weather on Friday.

**Table 1**

| Band | Hours of Operation | QSOs | QSOs/hour | Multipliers |
|---|---|---|---|---|
| 160 | 0.4 | 14 | 47 | 8 |
| 80 | 4.6 | 233 | 51 | 34 |
| 40 | 11.8 | 797 | 67 | 55 |
| 20 | 12.9 | 1101 | 67 | 58 |
| 15 | 10.5 | 1163 | 110 | 57 |
| **Total** | 40.2 | 3308 | 82 | 212 |

### The Results

After submitting our log, we waited anxiously for publication of the results in *QST*. We knew that the "mushroom" station at IR4T had a few more QSOs. We expected TM1C, who is more than 1000 km closer to the US, to do better than us, but who else was competing?

In November we received the official certificate from the ARRL stating "First Place Austria", nothing really new for us. Finally we got the *QST* and found the European Multi-Single results as follows:

1. TM1C
2. IR4T
3. OE9S
4. 9A7A
5. HG1S
6. GW8GT
7. IR9R
8. IQ4T
9. OM7M
10. HB9AUS

37 stations were competing in this category in Europe. TM1C, located on the Atlantic coast, is the perennial winner. IR4T had 200 QSOs and a few mults (on 10 meters?) more than we did. All the other Top Ten stations are permanently set-up and probably well equipped. We are satisfied by the fact we could beat those permanent stations with our FIELD DAY OE9S-tyle operation!

Special thanks to *Deurotex* and *Mobilkran* who made this operation possible.

CU in future contests from OE or...

—Wolf Klier, OE2VEL, for the OE2-DX Group ■

# The IARU HF Championship —A Summertime World-Wide Contest

**David McCarty, K5GN**
**mccarty@hal-pc.org**

I've enjoyed the IARU HF Championship since its inception in the late 70's. (It used to be called the IARU Radiosport Competition). I've even had some success at placing well, competing against the likes of K1KI, LU8DQ and N6TR. This article is an attempt to point out the unique features of the contest and to provide some suggestions on how to deal with them constructively.

**It's Fun!**

Why do I find the IARU HF Championship to be so much fun?

*It's a 24-hour DX contest*—only one chance at the low-band openings.

*Summertime propagation* is quite different from the "normal" contest season.

*Multipliers are scarce*, so hunting them is more valuable.

*Every QSO counts*—if propagation is good, run DX, otherwise run Ws.

*The playing field is fairly level* because the point structure (1 point for QSOs with stations in your ITU zone, 3 points for stations in other zones in your continent, and 5 points for trans-continental QSOs) allows stations in the West and Midwest to make up for a lack of European contacts with scads of North American contacts.

*Both modes are on at the same time*—similar to the ARRL 10M Contest, single-ops can go CW-only, SSB-only or mixed mode.

The 24-hour format is more family-friendly than the usual 48-hour setup for a DX test. That's important to me. The 1200Z starting time allows me to rest after a long workweek and start the contest with a full tank of gas. I prefer contests with no off-time requirements. There's no need to take time off to keep your commitment to go to church on Sunday, either!

Summertime propagation is significantly different than what is experienced during the fall, winter and spring main contest season. The summer sun suppresses 10-meter propagation. Thunderstorm QRN makes for a terrific struggle on 80 and 160 meters, especially here near the Gulf Coast. This means that 40, 20 and 15 meters are the primary bands for rate and worldwide multipliers. The outer bands are usually only good for multipliers as you catch them. I really enjoy digging out the multipliers on noisy low bands or weak scatter paths on 10 meters. This is one reason I almost always enter CW-only as a single operator. (The other one being that I love CW and don't really like phone.)

Hunting down multipliers while still keeping the rate high is a skill that all contest operators try to hone. This contest tests that skill to the utmost, as the multiplier-to-QSO ratio is very high. One multiplier is worth as many as 8 or 9 QSOs. This means that you don't want to miss any possibilities for an opening to somewhere new. The bulk of the multiplier is the number of ITU zones worked on each band. (Zones worked used to be the *only* multiplier.) No geographical area has a significant advantage over another since these zones are spread out all over the world.

The ITU zones are very different from the CQ Zones that most people are used to. Get a map! About a decade ago, the rules were changed to make "Headquarters Stations" count as separate multipliers. This gives a significant edge to the stations that are better able to work Europe on the marginal bands, due to the large number of HQ stations active from that continent.

The three-tiered point structure is a special feature of the IARU HF Championship. While it makes it a frightful job to tally a hand-written log, it does make for a balanced competition within the major geographical segments of the world. It also allows smaller guns to make significant scores. A small

***Things to Do:***

1. Aim at the equator to work the weak scatter-path Europeans on 10 meters.
2. Use all the bands. 10 may sound useless and the summertime static on 80 and 160 will be terrific, but they can provide a third of your multipliers. Throw some RF into what appear to be dead bands. There may be more propagation there than it first appears.
3. Change bands often. Conditions are stable on 15 meters, but change rapidly at the fringes. Don't dawdle and miss an opening.
4. Go for the highest rate of DX you can get on the highest band open, except when there is darkness between you and your target area and you need to be on 40 or 80. The explosion of contesting activity in Europe makes that continent your primary target.
5. During the day, point the beam northwest from time to time on 10 and 15 meters. JAs and other Asia-Pacific stations may surprise you.
6. At night, the balance of rate on 20 meters between Asia and Europe may shift at any time. Keep swinging the beam back and forth.

***Things to Avoid:***

1. 10-meter scatter can tantalize you into calling and calling and calling to try to get that weak and watery European multiplier. Use the three-try rule and come back later.
2. The 10-meter scatter path may give way to short path F-layer or E-layer. Don't give up on the short path.
3. Don't get stuck on15 meters—it will be good all day, but 10 meters changes minute by minute, and 20 meters gets better and better all afternoon.
4. Don't just run the 1-pointers. Sporadic-E on 10 meters and short skip on 20 meters during the day can give you lots of loud North Americans to work. Be careful that your rate is not made up of lots of short-hop 1- and 3-pointers.
5. With the midnight sun continuously lighting the Arctic ionosphere, 20 and 15 can produce Qs all night. 40 and 80 are not the only nighttime bands. Don't forget to check 20 and 15 to the northeast and northwest all night long.
6. 20 meters will be great at sunset, but don't get stuck there. This is your best chance at low band multipliers to the east. Don't forget to go to 40 (and 80, if your ears are good).

Strategy changes for Phone include operating more on 75 meters and less on 40 meters (surprised?) and recognizing the fact that you can work a lot more W/VE on 20, 15, and 10 meters than you will on CW, plus many more JAs on 15.

station in the West or Midwest can score nearly as well as a small station in New England. The trick is maximizing the QSO *points* per hour, not just the QSOs per hour.

With both modes going at the same time, the participation is spread over many more kilohertz than in the usual worldwide contest. This means there is more opportunity for the smaller-pistol stations to hold down a CQing frequency. For the mixed-mode entrant, there are LOTS more Qs to be had (everybody works everybody on each band and mode —whew!) but there are also lots of kilohertz to scan for multipliers! This contest is a true playground for the SO2R (single op 2 radio) gang.

**Station Preparation**

Preparing your station for the IARU test is not much different from the other contests. It's preferable not to have the station in major maintenance mode, though that often is the case in the summertime. First issue is having six bands available so you don't have to forgo any multipliers. Second is being able to run Europe on 40, 20 and 15. Third is having quiet receive antennas for 160 and 80. Two-radio operation is a plus in this contest.

Operator aids are a big help, starting with an ITU zone map. A sunrise-sunset program or DX Edge is really handy. I have an old map fragment that shows the Russian oblast boundaries with the ITU zone boundaries overlaid.

**Operating Strategies**

The following is an example of my typical IARU HF Championship hour-by-hour operating strategy. I usually enter CW-only so my strategic advice is strongly slanted that way.

Here's how I play it from Texas. This assumes high sunspot count while operating CW only:

1200Z Start on 40 meters for a chance at the Far East and the northeastern Russians. Then spend most of the hour on 20 meters working Japan and the Far East (with a little Europe and long-path Africa mixed in) and 15 meters to Europe (with a little Far East and short-path Africa mixed in); check 10 for possibilities to the east.

1300Z 15 meters to Europe is where the rate is (and will be for most of the daylight hours); 20 meters will be hopping to the northwest; check 10 for increasing possibilities to the east.

1400Z 15 meters to Europe is the best chance for rate; 20-meter Asians will augment it. 10 meters may open anywhere to the east.

1500Z 15 meters to Europe continues; 20-meter Asians are fading; 10 meters is most likely to open now.

1600Z Similar to 1500Z; 20 fades more; 10 will at least be open to South America.

1700Z More of the same, but Europeans will start to be audible on 20 meters.

1800Z More of the same, with a little more time on 20 meters; the Pacific becomes a possibility on 10 meters.

1900Z More solid on 15 meters, spotty on 10 meters, and some significant time on 20 meters.

2000Z 20 meters and 15 meters will compete for best rate band; 10 meters has possibilities in all directions.

2100Z Continue splitting time between 15 and 20 and testing the water on 10.

2200Z Similar to 2100. An opening to JA on 10 meters is most likely in this hour and the previous hour.

2300Z 20 and 15 meters will continue to vie for top billing. 10 meters gives its best shot at points northwest and southwest during the two hours before sunset.

0000Z 15 meters will be open around the compass. 20 meters will continue to improve toward the north and northeast. 10 meters could be open to anywhere, even Europe and Africa. 40 meters becomes useful to the east.

0100Z The sunset hour. Every band is alive. 10 meters has multipliers to the west; 15 meters is open to everywhere at once; 20 meters has terrific rate into eastern Europe; 40 meters is open as far to the east as it opens; 80-meter greyline enhances the chance of working into eastern Europe; something will be happening on 160 meters, though the QRN may make it hard to tell. Don't miss the low band openings!

0200Z The best rate will be on 40 or 20 meters, but all bands have something happening—use them all.

0300Z Similar to 0200, but the likelihood of openings on 10 and 15 are less. The sun is rising in Europe.

0400Z Last chance for Europeans on 80; 40 meters still very productive; 20 is the money band; 15 meters still has signs of life.

0500Z 40-meter Europeans grow dim as the Pacific opens, but 20 keeps going; 15 meters may still provide QSOs and multipliers. 160/80 may have surprises to the southeast.

0600Z 20 meters is open around the world and is likely to produce the best rate; 15 may still be open for long-haul QSOs; 40 through 160 may be open to the southeast or southwest.

0700Z Much like 0600.

0800Z Still much like 0600, except that 40-meter JAs become a significant rate possibility.

0900Z 40 and 20 meters compete for attention, but sunrise is moving across South America, presenting low band multiplier openings; 15 meters may still be open to somewhere over the North Pole.

1000Z 20 meters is likely to get better and better, along with 40; ZL and KL7 have been worked on 160 and 80, along with stations to the southeast, during this hour; 15 may still be open, including long-path openings to Africa.

1100Z Sunrise! The best chance for Asian multipliers on 80 and 40 occur at sunrise; 20 meters continues to open up; 15 may open for a last fling at European rate.

**Adjustments for your QTH**

This analysis assumes a south-central US location. The time of your local sunrise and sunset should be factored into your plans. If you live in the Northeast, your European conditions are likely to be better, earlier and longer. If conditions are disturbed or the solar flux is low, the openings on all bands will be poorer and shorter.

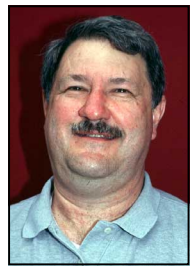
**In Conclusion**

The IARU HF Championship is a complex contest in the middle of the off-season. I trust you can now see that it affords many opportunities for excellent operating fun without one having to put forth a marathon effort to participate fully.

This contest is perfectly situated to help you beat the summertime blues. Take a shot at it! ■

# Using Less-Common Propagation Modes to Work Multipliers—*Part 3*

**Carl Luetzelschwab, K9LA**
k9la@gte.net



In the March/April issue (Part 1) I reviewed propagation via auroral-E, and explained how it could provide Scandinavian multipliers on the higher HF bands in the late afternoon/early evening hours. In response to my column, Scott, K9MA, commented to me via e-mail that in his experience this mode of propagation is somewhat more common than my column suggested. That's probably true for his southern Wisconsin QTH, since the k-index doesn't have to be as high to put the auroral oval over his path to Scandinavia. Likewise, I would expect those in the Deep South experience this mode of propagation even less than what I suggested. Scott also noted that he's observed this opening to Scandinavia on at least one band in nearly every DX contest over the past 10 years—even on 20 meters during low sunspot years. See—there is an advantage to living up north!

Let's continue with Part 3 of this series—a review of propagation via long path.

To start off, let's define long path. When I say long path, I mean the longer of the two great circle paths that connect two locations on Earth. What I'm not going to discuss are the many reports of skewed paths, which are predominantly seen on our lower HF bands—they are longer than the true short path but shorter than the true long path. I'll leave those interesting paths for a future column. I'm also going to restrict this discussion to those long paths that I believe will be most productive in our four major DX contests—ARRL DX CW, ARRL DX Phone, CQ WW DX Phone and CQ WW DX CW. On a large scale, there are many opportunities for long path, but the openings may be of a very short duration. Long path is more common in the spring through early fall.

With those formalities out of the way, we now can ask four major questions concerning the use of long path in a contest to work multipliers:

*What advantage does long path offer?*

*What headings should I use for long path if I have rotatable (or various fixed direction) antennas?*

*When should I look for long path?*

*What areas of the world should I expect to work?*

The answer to the first question (What advantage?) is two-fold. Many times the ionosphere can support a long path but not a short path QSO. A good example of this was the most memorable long path contest QSO I've ever had—VS6DO on 10 meters. (We'll look at that later.) The other possibility is tied to your local terrain—perhaps there's an obstacle (a big hill, mountains, etc) that significantly hinders your short path, but provides a nice clear shot via the long path. A good example of this is Bob, NM7M's, QTH. He lives on the south side of Guemes Island (a couple hours north of Seattle) and sees rising terrain on the short path to Europe and the Mideast, but enjoys a 75-foot drop off and salt water on the long path to those same areas.

The answer to the second question (What heading?) is relatively easy. The majority of the contesting population in the world is in the Northern Hemisphere, therefore, for most of us, the majority of our short path headings are in a northerly direction (northeast through north through northwest). Our long path headings will be opposite of this—mostly in southerly directions (southeast through south through southwest).

The answer to the third question (When?) depends on what band we're on. For the lower HF bands (7 MHz and below), the maximum usable frequency (MUF) is usually high enough to support propagation regardless of the smoothed sunspot number (SSN), season or time of day. These bands do best in darkness (regardless of short path or long path) because that's when D-region absorption is essentially nonexistent.

For the higher HF bands (21 MHz and above), the MUF is usually high enough to support propagation only when the SSN is high enough and when there's daylight along the path. These bands do best in daylight (again regardless of short path or long path). Absorption isn't as big a player on these higher HF bands because absorption decreases by a factor of four when the frequency is doubled.

The 14 MHz band is kind of caught in the middle. Near solar cycle minimum, this band does best in daylight. At moderate solar activity and above, this band tends toward doing best in darkness.

The answer to the fourth question (What areas?) is best addressed by looking at the long path QSO I referred to earlier and doing some mental gymnastics. **Figure 1** is a Mercator projection of the Earth with that 10-meter long path QSO on it—from my previous QTH in Texas to VS6DO during the CQ WW Phone contest in 1986. Since this was on 10 meters, I had to wait for daylight (as is shown by the position of the terminator) for propagation to occur. A note—it's okay that VS6DO's local condition is somewhat after darkness, as the Earth's magnetic field results in a much slower decrease in MUF after sunset than the rapid increase in MUF after sunrise. Another note—there was no short path propagation later in the

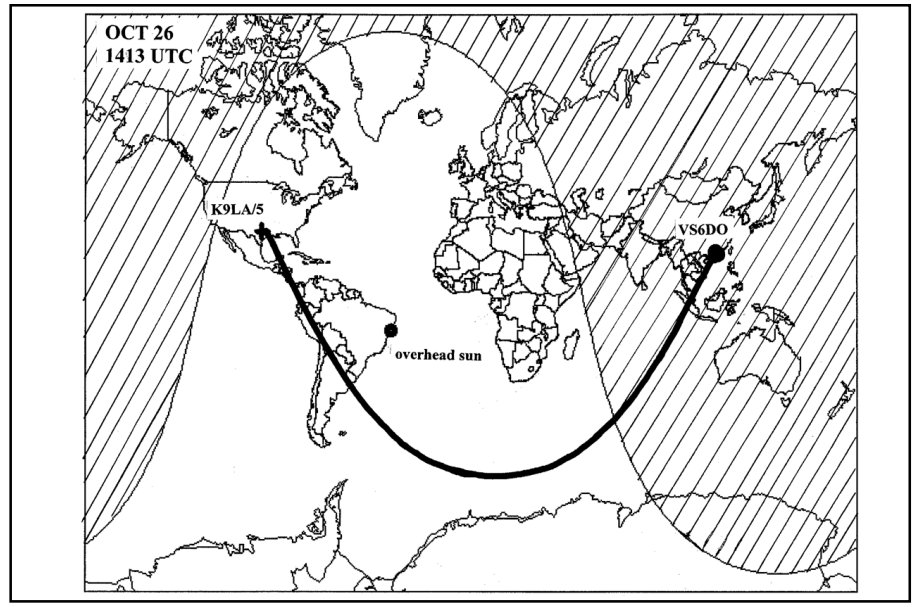



**Figure 1—10 meter long path from Texas to Hong Kong**

evening due to insufficient MUF along the short path to the northwest, so long path was the only way to pick up Zone 24 on 10 meters.

Now for some mental gymnastics to see what other areas of the world you might expect. Without moving the terminator, shift the entire long path to the left so that the sunrise end is on the West Coast. Then shift it so that the sunrise end is on the East Coast. This will give a very broad indication of what areas to expect on 10 and 15-meter long path in the mornings. The West Coast will favor Africa, Europe and the Mideast. The Midwest will favor the Mideast, Western Australia, Asia and the Far East. The East Coast will favor Western Australia, Asia and the Far East.

Why don't we expect these morning paths in October on 14 MHz and lower?—*Absorption*. Using the nomographs in *Ionospheric Radio Propagation* (Davies, 1965), the absorption on this path on 10 meters is only about 13 dB. But the absorption on 20 meters would be four times as much as on 10 meters—about 52 dB. That takes your 100 W down to about 1 mW (or 1 kW down to about 10 mW) real quick. So for 14 MHz and lower one would expect long path to areas that had a path in or near darkness—this means headings along or near the terminator (grayline paths). So for these lower bands, use Figure 1 again, but now shift the terminator to your location and see where the grayline path takes you.

Let's try to summarize all of this. I think the best opportunity to pick up some new multipliers in the ARRL DX and CQ WW DX contests is on 10 and 15 meters at and after sunrise by using southeasterly headings to the Mideast and Asia. Expect 10-meter openings when the SSN is above about 70, and expect 15-meter openings when the SSN is above about 40 (the present SSN is around 100, so long path should be there on both of these bands). Depending on the geomagnetic field activity (since these paths can go to high southern latitudes), the openings could be short (tens of minutes) with the k index at 3 to 4, or long (up to an hour or so) with the k index at less than 3. You may even want to try the long path during your evening hours, especially for the ARRL DX contests—this is the reverse of Figure 1, with the eastern end of the path at sunrise.

I think the next best opportunity on 20 meters to these areas is around sunrise and around sunset along the terminator. The SSN isn't an issue, but geomagnetic field activity concerns are similar to the higher bands—the quieter the better.

Finally, I don't see any long path to these areas on 40 meters and below because of the excessive absorption from the solar illumination in the southern latitudes during these four contest months.

Have fun in the contests, and I hope you pick up some new multipliers. ■

# VK9LX in CQWW CW 1998

**Bill Snider, K6KM**
k6km@cncnet.com

### Hey! Let's go on a Contest DXpedition!

In mid '97 a DX reflector message caught my attention and led to my joining an Oceania DX Group expedition to a Mid Willis Islet. The DXpedition was a thrill in itself, and I developed a special appreciation for some of the other operators. My XYL Ginny met me at Cairns afterward for a few days of touring. We enjoyed Australia very much and we made some fuzzy plans about returning for a more extended visit. You know—the kind of plans that never come to fruition without some sort of external stimulus. Well, in August '98, I learned that Nick, VK2ICV, had room for an operator on his CQWW CW team. After a few e-mail exchanges I was going to Lord Howe.

### How It All Started

Nick and Dan Flaig, K8RF, operated CQWW CW from Lord Howe in '97. They made almost 5 million points with a very simple setup, and Nick wanted to return in '98 with a bigger and better operation. Dan couldn't make it and none of Nick's VK friends showed any interest, so he posted a "help wanted" ad on the Internet DX reflectors. No one on the VK9LX team had ever met any of the others; we met each other for the first time in Sydney, on our way to Lord Howe.

Nick has been around contesting for some years. The other team members were Mary Lou Brown, NM7N, well known for her many DXpeditions, low-bander Charlie Hansen, N0TT, and Florida contester Ray Smolenski, N4RU. Charlie's wife Pat turned out to be an important team member as well.

### Logistics

We planned on a three radio setup with two tribanders and a vertical for 80 and 160 meters. Nick and Dan had left a bit of stuff on Lord Howe the previous year: a tribander, masts, rope guys, coax. Nick had already sent several crates of equipment to LH by boat, but we were left with a couple transceivers and a very significant lot of miscellanea to be hand carried. *Qantas* airlines isn't overly generous with their baggage allowance on this flight—ten kilos checked and five kilos carry-on; that's 33 pounds total per person.

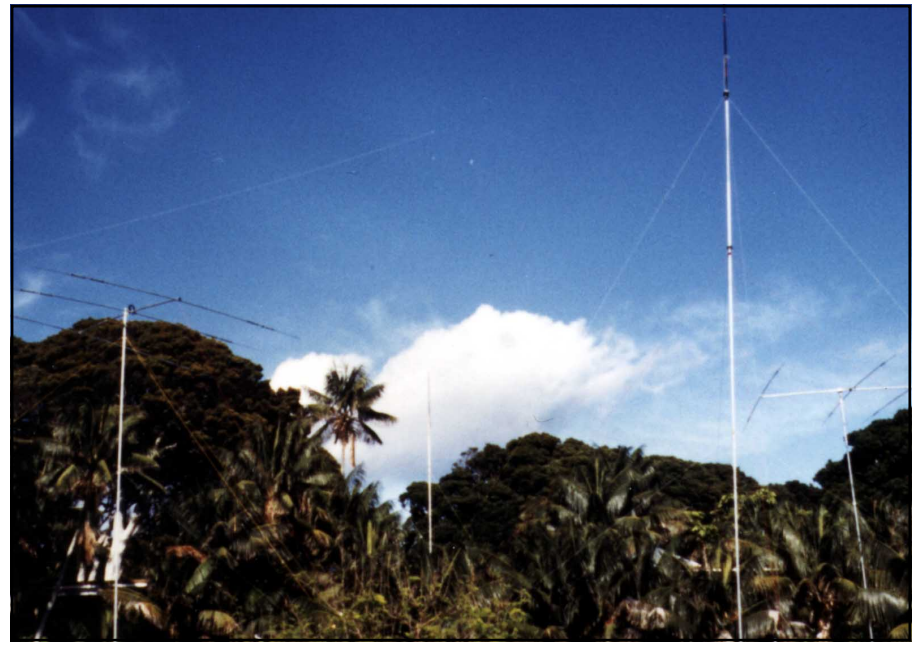
### Getting There

We met at Nick's apartment in Parramatta, a Sydney suburb, to introduce ourselves to each other and to sort out just what we could and couldn't carry with us on the airplane. After brief hellos, we prioritized our gear and discussed every way that we could get Qantas to accept as much as possible.

While we were shuffling equipment from pile to pile, a friend of Nick's called. This gent is a Qantas employee and just happened to be going to LH for a few days. He decided to check our reservations on their computer system and discovered that our long-standing reservations had just been cancelled! We thought we were going to leave in 12 hours, but a misguided travel agent had taken in upon herself to cancel our trip. Nick spent hours on the telephone that evening and the next morning; he eventually got all but one of us booked on a "full" 30-seat airplane. I agreed to be the stay-behind person but went to the airport prepared to travel anyway, which turned out to be prudent. The flight crew let me sit on a jump seat between the Captain and the First Officer! They handed me a fully functional headset; I listened to all the air traffic communications and learned that the flight deck is a very busy place, even on a two hour flight over nothing but water. It was a great experience.

We arrived at Lord Howe about mid day on Sunday, November 22. Max Shick, one of the proprietors of the Ebb Tide resort, met us at the airport and gave us a quick tour of Lord Howe Island on our way to the Ebb Tide. The island is noted for Kentia palm trees. They are everywhere; many are grown com–mercially for the export of seeds. The island has every appearance of a tropical paradise although high temperatures are in the 70s (F, of course). The Ebb Tide is on a large, flat hill and is very spacious. Our living quarters and radio station occupied one building with three two-room units; the rooms were large, clean and convenient. If you're thinking about visiting Lord Howe, the Ebb Tide is the place to stay.


**The team holding the VK9LX banner on the EBB Tide lawn: Nick, VK2ICV; Ray N4RU; Bill, K6KM; Mary Lou, NM7N; Charlie, N0TT and Pat Hansen (no call).**



**Our low band vertical and two tribanders on the Ebb Tide lawn. Another 40 meter vertical can be seen in front of the cloud; it didn't work well and was removed.**

### Setting Up

By mid day Monday we had a tribander up on one of Nick's homemade masts and began giving out VK9LX QSOs. The next day we had a 12/17-meter antenna up. This WARC band antenna was converted to a 10/15/20-meter antenna just before the contest. Mary Lou had an IC-706 set up for RTTY but she had little time to use it.

On Wednesday we put up Nick's 40/80/160-meter vertical. It was very tall and very flimsy. We needed all six of us plus Max and a couple other resort guests to get the thing up. In the process, we broke the 160-meter loading coil, but we didn't learn about that problem until after the contest started. The antenna worked great on 40 meters and pretty fair on 80 but 160 was a bust. Nick made a few Qs on 160 but the broken antenna pretty much prevented any meaningful 160 activity. Julie Bretnall, the other Ebb Tide proprietor, didn't care much for the radials strewn all over her lawn but she let us leave them in place.

After converting the WARC band antenna to a 10/15/20-meter tribander, our contest antenna system consisted of two tribanders at about 8 meters and the 40/80 vertical. We rotated the tribanders by pulling on ropes attached to the ends of their booms; the ropes were tied to whatever was handy: lawn chairs, palm trees, the fence, whatever. No antenna was more than about 25 meters from the others.

Nick had shipped ahead his two TS-930s and we had hand carried a FT-920, on loan from the Oceania DX Group. We had one switchable bandpass filter and a set of monoband filters. Even with the filters in place we had severe inter-station interference, and we didn't have any coax or connectors for making stubs. It turned out that almost any time that the MULT station transmitted; the RUN station receiver became useless. For all practical purposes we had a one-radio multi single entry with five operators.

### The Contest

After watching everybody operate prior to the contest, it was clear that Nick was our best run op. I had every expectation that he would start the contest in the number one chair. The contest was to start at 11:00 AM on Saturday. Just a few minutes before that time Nick advised us that he would not operate until sundown—Saturday is his Sabbath. I opened up on 10 meters while the others tuned around and fidgeted.

Nick told us that the run operators would have a 48-hour pileup and that turned out to be true. On 20 meters we sometimes had good signals from EU,

### A Few Words about Mary Lou Brown, NM7N, SK

*She started life at a disadvantage, born with a vision impairment. She lost her mother before she was 4 years old. But with surgery, a strong family and the unique environment found in Hawaii, she went on to enjoy swimming, sailing and all the outdoor sports that come so naturally in that part of the world.*

*Her family moved to the Mainland and she soon showed other fine qualities including a competitive spirit in sports and leadership in academic work. Mary Lou was the valedictorian of her class in high school. She went on to the University of California in Berkeley where she was one of the leaders in women's sports and graduated with an A.B. in the field of Physical Education. After a few years of teaching, she went on to Columbia University, earned a Ph.D. in Psychology and specialized in the field of kinesiology, the study of movement and its relationship to physiological processes and the anatomy.*

*After a brief career teaching at the University of Pittsburgh, she was called back to Berkeley and rose to Professor of Physical Education, Department Chairman and served as the Ombudsman on the Berkeley Campus. Mary Lou was always facing challenges and enjoyed meeting them all head-on, without flinching.*


**Mary Lou Brown, NM7N, SK.**

*She ventured into Amateur Radio when I decided to return to my childhood hobby. After a 40-year absence, I re-entered at the bottom, as a Novice. Mary Lou said she would "tag along." Now, 18 years later, I have to say that she gave real meaning to that phrase—rising from Novice to Extra Class, then serving in a number of leadership positions involving emergency services and eventually serving as Director of the Northwest Division of the ARRL.*

*In all this, a competitive twinkle was always in her eye. She tried the challenge of QRP, working DXCC at solar minimum with just 5 W as well as entering QRP contests. But she soon found DXpeditions were more to her liking—their organization, operation and even contesting. Later, the challenges became greater—she was losing her hearing. She found RTTY and I enjoyed watching her in RTTY contests, "running silent and running deep" as the submariners say. So whenever she joined a DXpedition, like Lord Howe Island, or was leading a group of YL friends on one, she'd have a laptop and TNC in her luggage.*

*Mary Lou was fortunate in that her family had resources and she used her share of them to endow a number of college scholarships. It was her feeling that it was important to "put money on people" and I'm sure her motivation was to make it possible for others to rise above disadvantages, whatever they might be, and become more competitive, as she had, to meet the challenges of life. She was a dear lady and I miss her terribly.*

—Bob, NM7M

**Tony Blasl, VK9LA, and his wife, with Nick, VK2ICV, in between.**

JA and US simultaneously. QRM kept my rate down although, later on, Nick got the rate meter above 200 a few times. The mult station didn't do a lot inasmuch as any transmitting brought forth loud shouts from the run operator. We did swap run and mult stations occasionally, though, so everybody got in on the action. When the dust cleared, our effort stacked up as follows:

| Band | QSO | Zones | Countries |
|---|---|---|---|
| 160 | 37 | 2 | 3 |
| 80 | 100 | 14 | 23 |
| 40 | 992 | 30 | 68 |
| 20 | 1131 | 32 | 107 |
| 15 | 1362 | 35 | 105 |
| 10 | 946 | 29 | 66 |
| Total | 4534 | 142 | 372 |

Score 6,862,414 points

Some say, "Nothing is ALL bad." Because we could have only one operator on line at a time, we didn't miss many meals. Typically we would walk a km or so to a restaurant for our evening meal; selecting the restaurant and making reservations was Pat's job. Nick usually volunteered to operate through mealtime as he sustained himself on crackers and the like. Another op stayed with Nick to keep a check on the other bands and to act as antenna rotator.

This was my first multi-single operation in many years. I can see how M/S could be a huge amount of fun if inter-station interference can be controlled and if all ops work together as a team. Our operation was fun and I'd do it again, but there was definitely room for improvement. Airline baggage limitations may prevent us from doing it much better, at least at Lord Howe Island.

### Other Matters

We thankfully acknowledge Tony Blasl, VK9LA, for his help in picking up and storing the equipment that Nick had shipped earlier. During our entire operation, Tony brought us produce from his garden and helped us with setup and tear down as his schedule permitted. Tony had been inactive for several years for lack of an antenna, so we left a tribander with him. A recent visitor informed me that Tony has the antenna up but his transceiver isn't working properly, so it may be a bit longer before we hear VK9LA on HF SSB.

We also thank the *Oceania DX Group* and its president Bill Horner, VK4FW, for the loan of the FT-920. The '920 became our primary radio as it was the only one with a computer interface.

Special thanks go to Max Shick and Julie Bretnall, the owners of the Ebb Tide resort. We imposed on them to a far greater extent than do most guests. I fear that Julie was a bit anxious about all the aluminum and copper that cluttered her lawn and garden. We did our best to return the Ebb Tide to its normal condition before we departed and hopefully we will be welcome again.

### A Sad Ending

Mary Lou Brown, NM7N, died in Los Angeles on her way home from Lord Howe. We learned of her passing several days afterward, from her husband Bob, NM7M. Mary Lou was the oldest and the most energetic member of the VK9LX team; I'm not writing this just to be nice. It's true. Just before her death, we talked about meeting at Dayton this year.

Rest in peace, Mary Lou. ■

# Organizational Committee Communiqué No. 2 Ljubljana, Slovenia. February 12, 1999

The Organizational Committee has checked all possible options for WRTC2000 team selection. Not too many contesters replied to our appeal for preliminary application from the Communiqué No.1, nor would different calculation methods give best solutions for team selection. What you will find below is the national team allocation based upon the number of logs beating respective continent average score in different categories. However, a certain number of wild-card teams are allocated to different continents. Since Africa and Oceania only get one team each, teams will be selected as wild-cards.

Please note that wild-card teams will be selected from the list of applicants, so do not forget to apply! A certain number of applications have already been received and they will be automatically assigned to the list. Send your e-mail applications to: **scc@bit.si** or mail them to the following address:

Slovenia Contest Club
Saveljska 50
1000 Ljubljana
SLOVENIA

### 1. Team selection for WRTC2000

#### 1.1 Europe - 25 Teams

According to Communiqué No.1 Europe gets 25 teams. Further, we have calculated, based on the number of logs that beat the average score for a particular category, the following spread of 20 teams among the European countries:

2 teams per country are assigned to: Germany, Spain (also EA6, EA8 and EA9) and Italy (also IS0, IT9, IG9 and IH9). 1 team per country is assigned to: Ukraine, Russia (also UA2), Poland, Czech Republic, France (also TK), United Kingdom (G, GD, GI, GJ, GM, GU, GW), Yugoslavia, Finland (also OH0 and OJ0), Lithuania, Hungary, Belgium, Croatia, Slovakia and Slovenia.

The remaining five (5) team leaders will be selected by the Organizer, as wild-card entries from the list of individual applicants.

#### 1.2 North America - 15 Teams

12 teams are assigned to the United States (also KL and KH6). Nine (9) teams will be selected by the largest and most successful clubs from the US. Requirements are that the second team member must come from a different club than the team leader and they both have to be US citizens. The remaining three (3) team leaders will be selected by the Organizer, as wild-card entries from the list of individual applicants (teammate must be a US citizen).

Two teams are assigned to Canada, where the national amateur league will select the teams.

The remaining team leader will be selected by the Organizer, as a wild-card entry from the list of individual applicants.

#### 1.3 Asia - 6 Teams

Three teams are assigned to Japan.

One team is assigned to Asiatic Russia and will be selected by the two largest clubs in the region (one team member from each club).

The remaining two (2) team leaders will be selected by the Organizer, as wild-card entries from the list of individual applicants.

#### 1.4 South America - 3 Teams

One team is assigned to Brazil and is selected by the largest and most successful contest club in the country.

One team is assigned to Argentina and is selected by the largest and most successful contest club in the country.

The remaining team leader will be selected by the Organizer, as a wild-card entry from the list of individual applicants.

#### 1.5 Africa - 1 Team

The team leader will be selected by the Organizer, as a wild-card entry from the list of individual applicants.

#### 1.6 Oceania - 1 Team

The team leader will be selected by the Organizer, as a wild-card entry from the list of individual applicants.

### 2. General Rules

#### 2.1 Wild-card Teams

Teams can be mixed in respect to the country of citizenship (except for US teams—see above), the only requirement is that the team leader selects his/her teammate from the same continent (country of citizenship applies).

#### 2.2 National Teams

National teams must be selected in a way that both competitors are from the particular country (country of citizenship applies).

#### 2.3 Special Teams

Apart from above mentioned teams, two special teams will compete in the WRTC2000. The Slovenia Contest Club is granted a special team as an Organizer of the event and the team of defending champions (KR0Y/N5TJ and K1TO) will also qualify outside of the common selection process.

The Organizational Committee will consider all received messages and respond accordingly. All contesters who have already applied for the WRTC2000 have received or will receive confirmation of the application.

Please spread the word among the contesters around the world!

—73, Tine Brajnik, S50A

President, Organizational Committee WRTC2000

# Organizational Committee Communiqué No. 3 & 3A–Ljubljana, Slovenia March 1, 1999

The Organization Committee and Contest Committee meet on a regular basis and work hard on different issues in regard to the organization and logistics of the event. Quite a few questions, remarks and ideas were received in response to our first communiqué. We're carefully studying received material and will try to consider it in our further decisions. Results will be announced each time a particular final decision has been accepted.

In this communiqué, we're announcing the time schedule for the WRTC2000, as has been accepted by the Organization Committee. A famous tourist location, the city of Bled, has been selected to host the event. Bled has ample accommodations and tourist facilities and is well known worldwide for its thousand-year-old castle overlooking a lake. This beautiful lake has a distinctive old church on a small island in the middle. Bled offers unequaled opportunities to a large numbers of visitors. We therefore expect that WRTC will be visited not only by competitors, but also by many other

Amateur Radio fans, especially contesters with their families and friends. Come and visit "Slovenia—the green peace of Europe."

**The time schedule for the WRTC2000**

**Day 1 - Wednesday, 5th July 2000**

0800 Official beginning—the contest/ liaison office is opened.
1600 Picnic (barbecue).
2100 Meeting (Judges, Referees and Organization Committee).

**Day 2 - Thursday, 6th July 2000**

0900 Meeting attended by competitors and members of the Contest Committee. For other participants an excursion will be organized.
1600 Competition—"Pile-up tapes."
2000 Opening ceremony.
2100 Hospitality suites (sponsored by different nations).

**Day 3 - Friday, 7th July 2000**

0900 Location draw attended by competitors, judges, referees and other officials. For other participants an excursion will be organized.
1400 Competitors and judges start moving to different locations around Slovenia. They will return to Bled after the contest.

**Day 4 - Saturday, 8th July 2000**

1200 GMT, WRTC2000 competition starts. For other participants an excursion will be organized.

**Day 5 - Sunday, 9th July 2000**

1200 GMT, WRTC2000 competition ends. For other participants an excursion will be organized.
2000 Hospitality suites.

**Day 6 - Monday, 10th July 2000**

0900 Excursion for competitors and other participants.
1900 Winners announcement and the closing ceremony.
2000 Gala dinner.

**Day 7 - Tuesday, 11th July 2000**

Departure.

Detailed information on hotel accommodations, prices, excursions and other organizational issues will be announced later.

Additional information will be frequently posted on our WWW page **http://wrtc2000.bit.si**. However, if you wish to learn more about Slovenia and the WRTC2000, you are kindly invited to visit the web page now. Other questions may be send to **scc@bit.si**

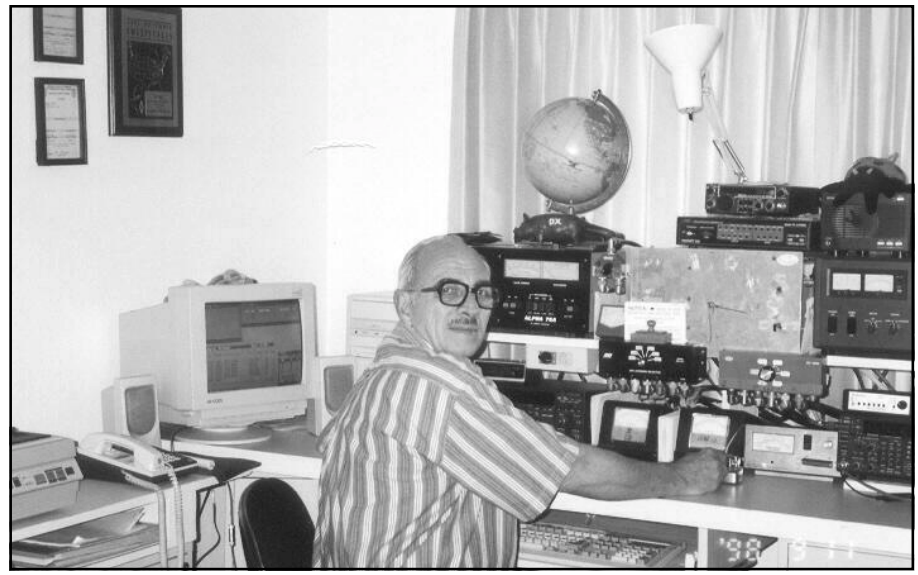
73, Tine Brajnik, S50A
President, Organization Committee
WRTC2000 ■

H. Ward Silver, N0AX
hwardsil@wolfenet.com

# "If It Walks Like a Duck—Rex Maner, K7QQ"

"Dad, there's some guy who says his name is Quack and that you better get on the phone!" Little doubt in any Northwestern contester's mind who it is on the line. Ladies and gentlemen, let me hear you give a nice, warm *NCJ* welcome to Uncle Quack, Rex Maner, better known on the air as K7QQ.

Rex is an experienced top contester with a long resume and a history across the country. Any time he gets in the fray, a winning finish is always a possibility. Veterans will remember Rex as W5QQQ. Today he's a little farther west and one Q lighter, but as tenacious and competitive as ever. "In the past the call has helped attract attention with the 'QUACK QUACK' and also helped keep the dupes down when I didn't have time to keep up with my dupe sheet. In fact, the year that I won Sweepstakes LP Phone I didn't keep a dupe sheet at all—just worked 'em and let *them* worry about dupes. Post-contest I worked up a dupe sheet and had only about two or three percent dupes. It must have been the call…"



**Rex Maner, K7QQ**

It's fun to listen to Rex on phone. Especially late in the contest when the voice boxes of most guys have turned to mush, Rex is still punching out crisp phonetics and "Qweebeck Qweebeck" like it was the first fifteen minutes. "In phone tests when things get slow I try to BS 'em into giving me a QSO—I'm just not sure what gets the rate to happen. Maybe it's the years of practice and learning to tune out the garbage alongside. Perhaps it's talking fast and accurately—hopefully accurately."

Rex learned his ham radio from the ground up. "My introduction to ham radio started when I tried to fix an old TV set and found it required a better knowledge of electronics. I picked up an old book on radio repair. There were some circuits for a regenerative receiver to listen to police and VHF, so I built one up and it worked really well."

"One day I heard this guy come on very strong. It was Gene Welcome, K7EEK. He gave his address—it was about one-half block away. When I told him that I was hearing him on my radio he was very unhappy—until he found out what my radio was. He wasn't quite as concerned after that. Ha, ha! He suggested that I should get into Amateur Radio."

It turned out that another one of K7EEK's neighbors was also interested in ham radio, so Rex and he got their licenses about the same time. "There wasn't really any one person in particular that served as my Elmer—even my mailman (W7UZE) was an avid DX chaser!" Things seemed to have worked out OK. Rex spent a career in the Air Force after getting his ham license.

"As for contesting—I was first licensed as KN7VCX in October 1962 and was told by someone about SS and the exchange. He suggested that I get on and give it a try. I don't remember how many Qs I had but did make a few."

One thing that sets Rex apart from the herd is his tenacity and ability to keep going and going and going. Rex can stand his ground longer than anyone I know on the West Coast. "The only way I know to hold a frequency is by being the biggest signal there and to keep going even when some other big signals get close. Sometimes you just have to move when it gets too tough. As for getting a frequency, find a spot with the lowest S-meter reading and CQ and work 'em, until the other guy decides that he has had enough."

"Busting pileups depends on timing, tail ending, and hoping you are louder than the other guys. If the band is in good condition and I have to call six or eight times without getting through, I'll QSY and hope to find another multiplier rather than missing the opening and an easy one. Many times thirty minutes later the guy can be worked with one call—in the meantime I have found four or five mults S&Ping."

Even though Rex goes just as hard whether it's the Podunk QSO Party or CQ World Wide, his favorites are the big domestic contests. "I guess that my favorite contest these days would be the ARRL 10M 'test. I prefer to do CW only because that way I can just keep F1 going and not have to BS with all the locals so much when the band dies. I am better equipped for that band and also that particular contest allows me to get plenty of sleep."

"I do like SS and usually do better on SSB than CW, but I still prefer CW as it seems to be less tiring. However, based on the error rate that I had in the last SS I may have to reevaluate my CW and/or typing skills."

K7QQ is a pretty potent signal out of Western Washington as well. Rex is often heard pulling stations out on the higher bands long after the rest of us have given it up for dead. "The current station is primarily built for single-op, single-radio. I have a TS-870 and an old Alpha 76 3-tube amp. I also have a TS-850 and a TL-922 alongside, however I haven't developed the skill to copy more than one CW signal at a time and still keep errors to a minimum. During a 'test the TS-850 isn't even turned on—although I could switch over quickly if the need arose."

"The antennas are all homebrew for the HF bands. Tower number one has a 40-meter 2-element full-sized Yagi at about 130 feet with a 3-element 20-meter monobander on the same tower at 125 feet. There is also a side-mounted 10-meter 6-element Yagi at 80 feet. The

whole tower is shunt fed for 160 meters." (*It works, too, just ask my receiver front-end—N0AX*)

"Tower number two has a 4-element 15-meter Yagi at 85 feet and a 4-element for 10 meters at 80 feet with an 80-meter inverted-V at about 75 feet at the center. Tower number three has a 4-element 10-meter Yagi at 45 feet. Currently I'm planning to add to tower number two a 4-element on 15 and a 4-element on 10 side-mounted at about 40 feet to tie together with the upper antennas."

When W7RM got going some time back, Rex was also one of the first to start cooking at the powerful "*Radio Macaroni*." "I was one of the first crew at W7RM in the CQ WW in 1970 or '71 with VE7SV, VE7ZZ, W7XR and K7CW. When the contest started, I was on a plane in KL7 with the 10-meter station at home. I did make it back in time to get 10 going Saturday morning."

"In 1971 I did SS from W7RM using W5QQQ. I'm not sure, but I believe that was the first time a CQ machine had been used in the SS. My logs ended up in Rush's desk and didn't get sent—my fault. So I missed out on a tie for number 1 in SS Phone. The winner that year was K7VPF (aka K7JA) who was operating from my home station. The reason for the tie was that with the 1-point QSOs at the time our scores were almost identical, so we kinda did away with a couple of them to make the scores exactly the same, but I forgot to send in my log. Chip went on to take top honors at W7RM the next few years."

What's different now? "Well, the ARRL DX 'test is now only one weekend and logging is much easier than in the pre-computer days. I'm not sure I would even bother to send in a hand-written log today with all the paper work that's involved. It always took at least as long to go through and re-do the dupe sheet after the contest as it did to work the contest in the first place."

"Trying to keep up with all the mults is also much easier today. It's MUCH EASIER to contest today—that increases the pleasure (fun) aspect. I am sure that rates are much better today because of better equipment. The receivers and transceivers are on frequency and have good audio. Some of the old stuff that wouldn't transceive sure slowed a guy down when doing S&P."

"I still enjoy the action and challenge of a contest, but after a full weekend of SS I'm fairly well worn out for Monday—good thing I'm retired. My full time 48-hour contest days are over. The Young Bucks can have that." You know what? I have no intention of slacking off, assuming that Rex might just be taking a nap. He'd reappear, a handful of QSOs in the lead, on my (ex) frequency, reminding me that there's more to becoming a winner than just being a Young Buck. ■

# *NCJ Reviews*: The PIEXX TS-930SE Microprocessor Board

**Pete Smith, N4ZR**
**n4zr@contesting.com**

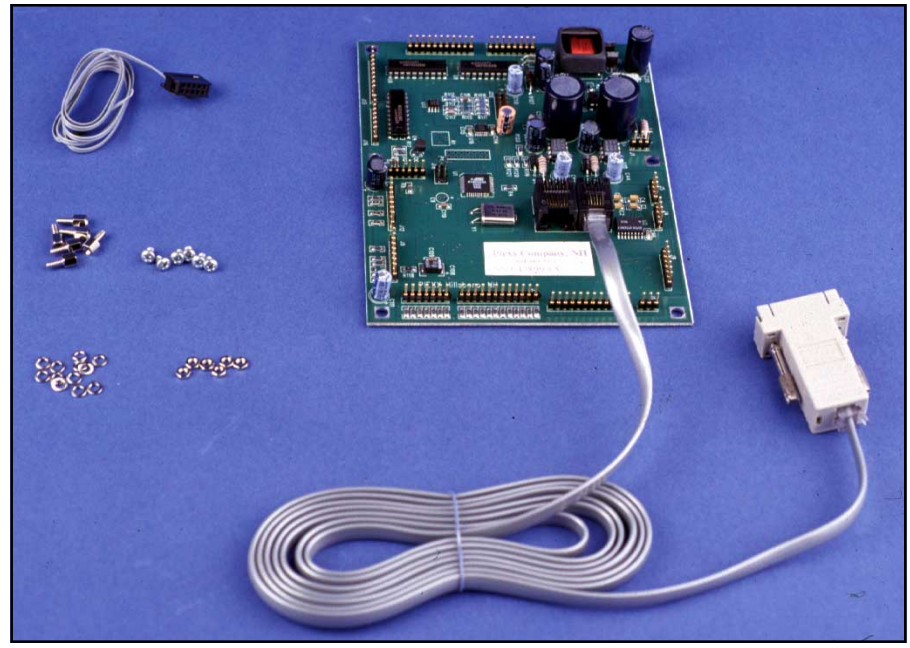
Why would anyone, with the millennium almost upon us, go to the trouble of reviewing an add-on piece of equipment for the Kenwood TS-930, a radio that belongs more in the 1980s? Aren't all the big dogs using FT-1000MPs? Or Omni 6+s? Or whatever?

Well, no, not really. For many of us, particularly contesters like me who much prefer CW, it's still arguable that there is no better radio out there than the TS-930. With the surge in SO2R (single operator, 2 radio) operation, budgets are being stressed to come up with two modern radios. Meanwhile, the used price of the TS-930 has dropped toward the neighborhood inhabited by much less capable radios.

The big problem with the 930 is that it has always seemed insoluble to add computer control, because the radio wasn't designed for it, and lacks any sort of computer port. For modern SO2R operation, the inability to control the second radio always seemed to disqualify the TS-930 as a serious candidate.

Now, all this has changed. It began a year or so ago when Chris Sieg, WA3LDI, was asked to repair a friend's TS-930. He discovered that the microprocessor board had been ruined by leaking memory batteries and that Kenwood no longer makes the necessary part. Now, most people would have given up, but Chris owns and operates an electronic prototyping company, so he has a unique combination of microprocessor design know-how and PC board production capability. Even then, most people would have hesitated to take on such a complex project, but Chris says he decided to do it "for grins."

The result is the PIEXX TS-930SE (enhanced) microprocessor board, which is a plug-compatible replacement for the original unit in the TS-930. The new board takes advantage of the advances in microprocessor design that have taken place since the TS-930 was designed, first and foremost to do away with the requirement for backup batteries. But that's only the beginning. Almost as an afterthought, he says, Chris decided to add a serial port to the microprocessor board and implement a subset of the Kenwood communications protocol. That one decision made him this contester's best friend, extending the life of my late-model TS-930, which was about to be retired in favor of a TS-850, or some other computer-controllable contest radio.



The TS-930SE's serial port connects directly to your computer, without the need for a level converter or added chips inside the radio; already, this threatens to severely impact the market for TS-940s and TS-850s, which need one or both. The communications work flawlessly with *TR Log* and *CT 9.39* or later, and Chris continues to evolve the firmware to make sure it works smoothly with other non-contest logging software.

Because the TS-930 uses direct mechanical switching for mode control, it cannot be commanded to switch modes from an external computer. This is a minor inconvenience in contest applications, compared to gaining the ability to command band and frequency changes, read frequency into the computer, and control and clear the RIT from the keyboard or with stored sequences. In all these respects, the TS-930SE makes the TS-930 work like a TS-850 and other next-generation rigs.

The modern microprocessor used gave him a lot of additional memory space to work with, so Chris didn't stop there. The TS-930SE microprocessor does a number of other tricks. For the contester, these include, in particular:

- 3-speed main tuning and selectable slow tuning rates—fast QSY, yet two slow tuning rates (2.5 and 10 kHz per revolution) for easy fine-tuning.
- Pre-settable initial frequencies on each band—no more lengthy retuning. During any operating session, the last operating frequency on each band is saved and returned to if you go back to that band.
- Band data outputs from the microprocessor board are provided to control the Top Ten/Yaesu LPT band decoders, enabling fully automatic antenna selection.
- The RIT can be cleared while in transmit mode. Old TS-930 users will particularly appreciate this one!
- RIT tuning by the main tuning knob when the **D. LOCK** key is pressed.
- The TS-930SE also provides massively expanded memory capabilities—up to 99 individual memories, while retaining the original switch-selected 8-memory scheme (one memory is committed, though, to the band-start frequency storage).
- An optional minor modification to the radio enables remote S-meter readout through the serial port, which is used by some software, such as *DX4WIN*, and by Kenwood's own *RCP* software.

### Installation

As mentioned above, the TS-930SE microprocessor board is plug-compatible with the original board, requiring no wiring changes unless you choose to

implement the S-meter option that requires a single connection on the underside of the radio. My TS-930 had never had the case off in over ten years, and I do not consider myself technically skilled, but I had no difficulty following the detailed installation instructions and clear photos provided in the manual, and the modified board worked immediately. Because some TS-930s (including mine) have a wiring modification that reverses the direction of main tuning, I had to reverse two wires on one of the plugs, but the manual anticipated this and provided step-by-step instructions. The microprocessor board itself is of top quality surface-mount construction, and should be trouble-free.

The serial port on the TS-930SE is unusual in that it is terminated in a modular plug, and the connection to the outside world is provided through a modular telephone cord with a DB-9 connector on the other end. Because of the way the TS-930 is constructed, there is no easy way to bring this cord out the back of the radio. However, it would be fairly simple to run it out through the hole left by one or more of the unused phono plugs on the back of the radio (such as the phone patch connections), by threading it down and across the underside, inside the bottom cover. Alternatively, you could do as I did and just bring the modular cord out through the original sliding cover that gives access to the original battery compartment. Because the modular cord is flat and thin, this solution is unobtrusive and will bother only the most fastidious.

If you desire to use the band decoder output, a second modular cord (Ethernet network type) is required. Again, you'll have to decide whether to bring it out through the top or out the back.

### Operation

I have used my TS-930SE for about 4 months now, for both routine operation and contests, including the ARRL Phone and CW DX contests, and the just-completed WPX phone. It worked flawlessly with the band-map in *TR Log*, providing effortless band changes and S&P QSY to beat the pileup to packet spots. Running QRO, I saw no difficulty whatever with RF interference, although I later wound a few turns of the modular cable near the radio through a RadioShack snap-on core, just to be safe. Other beta-testers have used the board, in conjunction with *CT*, in single and multi-op environments with similar, trouble-free results.

### Conclusion

I am delighted with the new lease on life the TS-930SE microprocessor board has given my TS-930. It would be worth it simply to be able to forget about changing bands in my contest logger, when I change bands on the radio. The new tuning rates have made me a better S&P contester and the ability to have *TR Log* clear the RIT after each CQ is worth its weight in gold. More casual DXers will find the additional memories a real pleasure, and those who are into computers will find using the modified radio fascinating.

The PIEXX TS-930SE microprocessor board is available for $259 plus $8 shipping (in the continental US) from PIEXX Inc, 13 Main Street, Hillsboro New Hampshire 03244, 603-464-5625. Photographs of the board and the complete text of the user's manual are available on PIEXX's web site, **http://www.conknet.com/PIEXX**. An optional programming board, which will permit changing the microprocessor's firmware for custom applications, is $40 plus $5 shipping in the continental US. ■

# Contesting for Fun

Ron Stark, KU7Y
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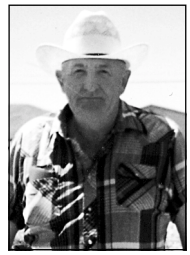
*Dale, KG5U, has been steadily moving up in the QRP results listings. We are happy to have him share some of his secrets with us–thanks Dale!–Ron, KU7Y*



KU7Y

## QRP Contesting

**Dale L. Martin, KG5U**
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When Ron asked me to write an article for his column about operating QRP in the ARRL Sweepstakes contest, I felt honored. I also felt that there must be someone better and more experienced for this job. On further consideration though, I thought this might be a great opportunity to provide some tips and techniques that I feel are important, effective, and have worked for me.

Much of what I relate below are tried-and-true activities that (1) have been discussed, used and/or distributed to others by better contesters than I, and (2) if followed and practiced, will increase your contest efficiency, operating pleasure and score, no matter what category you are operating in—QRP, QRO, CW, SSB or whatever.

Most of my recent contest operating has been QRP (5 W) and almost exclusively CW. I do operate QRO from time to time, but, usually when operating at someone else's station or in a multi-op situation. I enjoy the challenge and fun of QRP contesting.

Before we get started, one thing that should be done to improve contest performance is to set a goal. If we don't have a destination, we can't easily map how to get there. So, pick a goal. Make it a challenging, yet an achievable goal—maybe something like improving on your last year's score by 10 or 20 percent, or beating your buddy across town. Whatever. Set a goal.

There are three areas in which I believe attention should be paid in order to improve operating technique, efficiency and score: Station and Operator Preparation, Station Operability and Operating the Contest.

### Station and Operator Preparation: 1-2 Weeks Before the Contest

Prepare yourself and your station well before the contest. Don't wait until the day before or even the day of the contest to prepare; DO IT NOW! You don't want surprises to disrupt your performance.

1. Read and study the contest rules. What are the start/stop times? The exchange? The mults? The bands? The on/off times?

2. Check out the antennas and equipment you will be using in the contest.

3. Set up your station in the contest configuration and regularly practice operating.

4. Clear your operating position of everything NOT directly involved in the contest.

5. Set all clocks to WWV (wall, table, radio, computer, wristwatch, etc.)

6. Make up some inspirational, cheerleading, morale-building signs and operating reminders: "Keep the Rate UP!," "You are LOUD," "Send Call/Exchange only ONCE," "(your call sign)," "(your exchange)," "(your on/off schedule)," "(your band change schedule)," "Your closest competition is only a few QSOs behind you!," "(your hourly goals)," etc.

7. Make sure your family is aware of your contest operating schedule. You DID tell them about the upcoming contest, right?

8. Are you using a computer for logging? Make sure that the software is configured for the contest. Make up quick reference cards/templates for the keystrokes/commands, etc. If the software has a simulator mode, use it to practice.

### Station Operability

Make your station as ergonomically comfortable and efficient as possible. Make your movements (hands, arms, head, eyes, feet, etc.) as efficient as possible to increase your speed and reduce effort. Equipment placement can make or break you in a contest. Place those items that you will look at the most directly in front of you. I'm working on building up my two-radio single-operator (SO2R) station. My antenna/audio/keying control box, computer keyboard, remote Radio 1 VFO knob and paddles are on two drawer trays under the desktop. The computer monitor is mounted below the desktop under glass directly in front of me, the radio is above the monitor, and the wattmeters and other less-needed hardware are on a shelf above the radios. Radio 2 is to the left of Radio 1. The rotator control box is to the right of Radio 1. Everything I need to reach most often is on one of two levels and not more than 18 inches away from my hands at any time.

Equipment configuration and interconnection is important, too. If you aren't using a contest logging program, consider doing so. If you are, control your radio and antennas with the software, too. Replace/repair any worn, loose or broken cables. Tighten all connections.

How are your chair, keyboard tray and desk heights? Can you make any adjustments to further your comfort? Remember, you are going to be sitting there for up to 24 hours. Have you been thinking of a new chair? If so, do the replacement well before the contest; don't let the contest also be your break-in period with the chair.

What's the lighting situation? I either operate with no lights, except for the computer monitor and equipment illumination, or with a 25-W bulb in a long-necked desk lamp, generally pointing away from the desktop.

### Operating the Contest

1. Keep yourself focused. Minimize any and all distractions.

2. When Searching and Pouncing:

• Move through the band smoothly and efficiently, working new stations. At the beginning of the contest, you can just about work everyone you run across without even hearing his or her call. Remember, if you are a dupe, they will likely tell you so. If not, they will be sending the exchange to you.

• Move down through the bands from time to time. Most people move up through the bands. Being "out-of-sync" with the other S&Pers may increase your chances of avoiding 2 and 3 station pileups.

• Use your keyer or computer software memory to send your call sign. It will *always* send your call sign correctly, whereas you will not. Sending errors = wasted time = lost QSO opportunities = lower score.

• If the station you are calling answers someone else's call, wait for the QSO to end and try again. The time spent waiting will generally be less than the time spent looking for the next station to work. If you're SO2R, you can spend that time looking for the next QSO on Radio 2.

• Send your call sign *once* when calling a station. If asked for a repeat,

send it, but only once. Hint: If you are QSK, be listening for other stations competing with you. Timing your call properly can sometimes net you the QSO even though you were weaker.

• If you hear a needed and rare mult working a station, but, like you, he is S&Ping, when he has finished the QSO, move up a kHz or two and start calling him. It's very likely he is moving up the band. If no contact, then look around a bit for him. Is he working someone just below or above you? Adjust your "jump" accordingly. Check below his last QSO to see if he is moving down the band. I've found this kind of "intercept" S&P to work pretty well.

• If you find yourself spending a lot of time trying to work a station, use your computer program's Band Map function or your radio's memory features to earmark the station's call and/or frequency to come back to work him later.

3. Send the exchange exactly as the rules specify. That order of exchange elements is what other operators expect to hear. You add unnecessary confusion for the other operator and you increase the potential for having to give fills if you send the exchange elements out of order.

4. Send only the exchange. Remove the chaff: R, TU, GM, 73, QSL, Hi Bob, etc. Say you're in a 500-QSO contest at 25 WPM. By sending "R<space>" (roger) to acknowledge receipt of the other station's exchange, that little "R<space>" will eat up about 4.3 minutes of the contest. That's about 2 QSOs (500 QSOs/24 hours). Not much, but it adds up.

5. Send your exchange only once. If asked for a repeat, send it or only that portion requested once. If the station needs it again, he/she will ask for it. How many times have you sat listening to someone sending their exchange elements twice when once would have been sufficient? Think of that exchange transmission as eating up the time another QSO could have been made. Even at QRP levels, the number of times you will be asked for a repeat will be far less than the number of times you will be "rogered" the first time.

6. Call CQ when conditions sound right, you feel loud and you can find a hole. Move as soon as a Big Gun moves in—don't let a turf-war eat up your time.

7. Short CQs are productive: CQ KG5U KG5U TEST — that's about 5 seconds. Listen for a second or so, then CQ again. Short CQs give multiple opportunities for someone to call you; long CQs reduce those opportunities.

8. Keep your TU message short (eg, TU KG5U — I figure if someone is waiting to work me they don't need to hear me send TEST; they know I'm in the contest. If you feel like someone is waiting to work you after you TU the QSO, send only TU, pause a second to give him time to drop his call in. If nothing, then CQ.

9. Work through or around equipment problems. Don't give up the contest. I've done it and I've read and heard of others who have done it. The feelings are pretty consistent—they wished they had stayed at it in spite of the problems. Like Shakespeare wrote: "The play's the thing!" Get in there, compete, make points and have fun!

Finally, as this was being finished up and readied for sending to Ron, a very interesting thread developed on the Internet CQ-Contest reflector. The subject line is: Busted calls, Super Check Partial and Technology. If you are on the Internet, go to the CQ-Contest reflector archives and read through the thread. The thread dealt with accuracy in contesting on the part of the contesters and how computer checking of the logs affects us. Basically, accuracy is paramount. If you even THINK you have a question about someone's call or exchange or even whether THEY got YOUR info correct, ASK the question and press for an answer. Don't make assumptions that because you worked K6LL in AZ for the last umpteen years that this year he must again be in AZ. Don't depend on your software to provide information accurately for you. If you hear it and copy it and it seems reasonable, then, and only then, log it and move on. Otherwise, get fills until it's right.

I hope my suggestions are beneficial. Some, I'm sure, are obvious. But even the obvious sometimes gets lost in the noise of everything that's going on in a contest. The suggestions are also by no means the end-all, be-all for contesting. They are, however, some that have worked for me and, I think, made me a better operator or, at least, improved my score. Even if you only pick up on a couple of them, I'm sure they will result in an improvement to your score.

If you have other ideas for improving station operation, operator performance, and contest scores, with respect to QRP operating, write them up and send them to Ron. I know he would appreciate it and will do what he can to get them published. ■

# Contest DX-Ventures

## DXpedition Destinations

**Sean Kutzko, KX9X**
kx9x@uiuc.edu


**KX9X**

Hello, fellow travelers—both real and armchair. This issue, we'll take a look at a new rental that just opened for business down in Central America. The destination is HP, Panama.

William Hemingway, HP3XBH, is an American who has relocated to Panama for his retirement. His QTH is in Paso Ancho, near the town of Volcan, located in the province of Chiriqui (pronounced Cheer-REE-key), Panama's most western province. The QTH is at an elevation of about 5,000 feet, making the climate very moderate year-round.

Hemingway's Hideaway—as William calls it—is a 3-bedroom, 2-bath lodge with 1700 square feet and all the modern conveniences of home. The shack is a study located in the loft, and is wide open to the rest of the house.

The house does come with ham equipment, but, as William puts it, "You may opt to bring your own, as these radios—although working well—are considered 'classics.'" They include a Collins KWM-2A with 30-L1 amplifier; a Cubic Astro 150A with another 30-L1 and a complete Heathkit line (which is currently under repair).

Should you want to bring your own rig, William can provide a 12 V 20 A regulated power supply (bring the proper connector for your rig!). Antennas at this time include a 20-meter log-Yagi, a TH6 and an Alpha-Delta. Future antenna projects will include a 40-meter 2-element KLM Yagi, a 2-element beam for 12 and 17 meters, and a 30-meter rotary dipole. There are also plans for a 6-meter beam, slopers for the low bands and an R7 vertical for use as a spotting antenna. While the electrical mains supply to the house is quite reliable, there is a 2.5 kW generator on site… just in case.

Since Volcan is 250 miles west and south of Panama City, it will take some time to get to and from the airport. There is a bus service that runs from Panama City for $11 one way, a "commuter" flight that cost about $100 one way, or you can rent a car in Panama City and drive to the site on your own. William cautions that you should be prepared to spend the evening of your arrival and the evening before your departure in Panama City. "Most international flights arrive in Panama City early evening and depart mid-morning, so it would be necessary to spend the first and last nights in Panama City," he explains.

Licensing should be taken care of far in advance. A visitor can get a 30-day HP/homecall license, and special short-term calls for contesting are available, but those must be assigned to an existing HP station. "Due to red tape, it usually takes several months to get a license. Feel free to use the house call: HP3XBH," William says.

Should you find yourself with some free time from the pileups, you have several options to consider. Bird watching is very popular in this area, as are nature hikes and a trip to the area's dormant volcano, Volcano Baru. White-water rafting, horseback riding and fishing are also close by. If you want nightlife, there are two discos nearby where you can get caught up in the Latin beat.


**Hemingway's Hideaway, near the town of Volcan, in western Panama.**

If this sounds like a great place to operate your next contest from, you can contact William Hemingway, HP3XBH, via e-mail at **HP3XBH@hotmail.com** or write to him at: PSC 01 Box 3483, APO AA, 34001. Look for information on Hemingway's Hideaway on the web at: **http://www.qsl.net/pcara**.

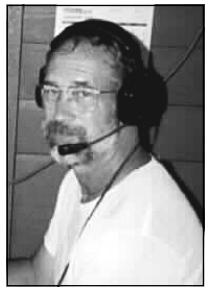
That's it for this issue's column! Please keep those comments and suggestions coming, as well as tips on other ham-friendly rental properties out there. I need all the help I can get to keep a steady stream of good information flowing to the Deserving—*you*.

Don't forget to stop by the QTH Rental Page on the web at: **http://hobbes.ncsa.uiuc.edu/sean/qthlist.html**

73 es see you from the Other Side.
Sean, KX9X ■

## The Contest Traveler

**Joseph L. Pontek, Sr., K8JP**
V31jp@logical123.net


**K8JP**

Another great trip to Belize has passed. Beverly and I were already planning for the next adventure as we were flying back to cold and snowy Indiana. We had one particularly interesting learning experience on this trip. All went well driving to and through Mexico (Beverly says we *ate* our way through Mexico). When we reached the Belize border, we knew we would have to deal with Belize Customs and pay import duties, but getting through turned out to be a little more difficult then expected.

Due to a new government, and the obvious presence of their newly appointed supervisors, the customs officers were particularly scrutinizing. In this case, they insisted that we have an import license for my 80 feet of tower and antenna. These were not on the list of items requiring an import license, but they insisted, nonetheless. We were not immediately aware of the cause of the hold up, as the discussion of this matter was going on between our customs broker and the customs officer. We were informed of the specifics a few minutes before 5:00 PM. After some direct negotiations, the customs officer agreed to a faxed import license from the Office of Telecommunications in Belize City. Unfortunately, a call to Belize City was met with many rings and no answer. This led to a long, hot, sticky and buggy night in the cab of a small S-15 pickup. The next morning, all was resolved. We were finally on our way

after spending 24 hours at the border.

Lesson learned—when traveling to a country that requires import licenses, list all items—even those that might not be specifically included in their documentation. Antennas and acces–sories were never included before and may still not be included. Be prepared, especially when the government changes hands.

We've just returned from the Dayton Hamvention. It was great seeing the faces of so many of those we have worked over the years. Thank you for all the nice comments (Beverly relayed quite a few). We are very glad that this column is helping so many. Your input is always appreciated.

If you would like to see a specific subject covered, please let us know and we will work hard to dig out the needed information from any and all we can locate that might have the required expertise.

## Contest DXpedition Planner —Part Two of Three

**Dennis Ashworth, K7FL**
**Ashworth@ashworth.org**

*In the last issue we presented the first installment of a three-part series on planning for contest DXpeditions—big or small—by Dennis, K7FL. Part one covered setting goals, choosing a location, site considerations and selection of team members. Dennis's Planner, in its entirety, will ultimately find its way onto the* NCJ *website Contest DXpedition pages to join the other planning data already residing there. Now, Part two... —'JP*

### General Planning

*Have you defined a clear set of responsibilities for planning? For example, using the VK0IR approach to appointing planning czars, responsible for each of the key operation success areas.*

*Have you established an effective internal communication method? Perhaps Internet e-mail? Consider a password protected web site for team planning, discussions and decisions, plus an open web site for public communication.*

*Have you communicated the operating category and high level goal(s) for the operation?*

*Have you completed a station description and developed a list of needed station supplies well in advance of departure?*

*Do you wish to plan for spare equipment in case of a failure?*

*Have you considered an additional computer on the network for results monitoring, so there would be no need to interrupt operators?*

*Have you discussed the relative merits and logistics of a dedicated mult station?*

*Have you assigned operators to stations based on their operating skills and overall team needs?*

*Have you defined a "drop-dead" date for operators to commit to the operation?*

*Have you arranged for the licensing of station and individual operators?*

*Have you secured housing for the operation?*

*Have you tested EVERYTHING as an integrated solution before departing for the contest?*

*Have you prepared propagation aids and secured band plans for each station?*

*Have you completed all logistics planning, such as travel tickets, licensing, transporting of heavy items?*

*Have you advertised your operation well in advance on DX and contest reflectors?*

*Have you contacted potential sponsors?*

*Does everyone know what he or she is responsible for transporting?*

*Have you planned for food and sleeping arrangements?*

Again, one could write a book on this subject, but let me focus on two items that contributed significantly to our M/M success in 1998:

### Responsibilities

As mentioned earlier, we borrowed the "Czar" concept from VK0IR. All czars reported to the Team Leader and formed the core team for overall planning and decision making. Specific czars were assigned to the following areas:

**Contest Czar:** Responsible for overseeing aspects of contest planning and deployment. These duties include definition of operation strategies, operator assignments, band change guidelines, logging program and station (including antennas) specifications.

**Logistics Czar:** Responsible for planning and physical deployment of the Contest Czar's specifications. Research and secure operating site and negotiate rent within budget; Arranges transportation for equipment, antennas and personnel from the defined meeting location; Defines sleeping arrangements for operators and ensure meals are provided. Works closely with the Contest Czar in "give and take" problem solving if the contest plan cannot be fully deployed within the budget.

**Licensing Czar:** Responsible for managing all group and individual licensing issues.

**Finance Czar:** Develops budgets and oversees allocation of team funds.

**QSL Czar:** Manages all aspects of QSLing within budget guidelines.

**Team Leader:** Oversee all aspects of the operation including work of the Czars; identifies and monitors key GO/NO GO checkpoints; serves as ultimate decision maker in the event of irreconcilable differences between czars and/or team members. The Team Leader has the final say in all team safety issues (as mentioned earlier, we eventually assigned one of our operators—a professional engineer—as Safety Czar primarily to oversee antenna raising safety issues).

Each Czar was responsible for documenting a plan, timeline and budget for Team Leader review and approval. Overall, the Czar concept worked exceedingly well for our 1998 operation and will be used again at IH9P in 1999.

### Team Communications

I cannot imagine M/M planning without active use of the Internet. There is so much information to be conveyed and time is often critical. I suppose this could be facilitated with fax and telephone calls, but the cost would be high, especially with an international team. Although Internet access was not a team requirement, all members had access and it formed the primary method of planning and communicating across the team. Most internal team communication in 1998 was via direct e-mail distribution lists. In 1999, we established two Web sites: one is secured, the other is not. The secured site is password protected and contains active discussions on current planning issues, introduces new team members and catalogues past team decisions. The open site provides general information on Pantelleria, team objectives, QSL information and team member biographies.

### Tools and Supplies

We adopted K8 Joe "Palooka"'s superb list on the *NCJ* web site and found it extremely helpful. I would only add that every operator installing antennas have a standard set of tools (minimum):

Wire cutters
Philips screwdriver
Pan head screwdriver
One roll of Scotch 33 electrical tape
One crescent type adjustable wrench

This would have saved many trips to and from the work sites looking for tools.

### Team Welfare

Have you planned for medical contingencies (allergies, medications, etc)?

We required all team members to inform Marco, IT9WPO (a great op and MD), of any pre-existing allergies or medical conditions. Armed with this information, Marco would be better able to work on the team member's behalf should a medical problem arise. His knowledge of my shellfish allergies saved me a couple of times when I was served unfamiliar dishes containing shellfish.

### Establish Rules and Conditions

Have you established rules and

conditions that are clearly formulated, well communicated and adhered to? These typically include:

Smoking indoors
Use of other's equipment and supplies
Payment of group expenses (when, how, etc)

I hate rules for this kind of project, but they are absolutely necessary to avoid conflict. Smoking was a major issue for us despite having *clearly* communicated a policy regarding smoking before the operation. Part of the issue was cultural, but it still defocused the team from the contest task at hand. People who are unwilling to follow the rules simply will not be invited next year.

**Motivation and Pre-Contest Site Time**

Have you developed a plan (pre-contest, and during the operation) to ensure the group is well motivated to give their utmost in the contest?

Have you ensured that all ops are on site well in advance so that station preparation, equipment learning, team bonding, strategy discussions and technical hitches can be completed before the contest?

Have you planned for a few hours of mental adjustment between the hectic pre-contest activities and the contest beginning?

During the first few days of station assembly, we focused the team almost entirely on the task of getting antennas, radios and networks operational. This was indeed hard work involving long hours of physical and mental exertion. We usually forced ourselves to leave the site for dinner, which provided a change of scenery and time for the team to unwind together. We followed this same strategy on Friday night, establishing a deadline for work, and then taking off for dinner and social activities. This effectively allowed us to make the mental transition between the preparation work and the actual contest.

I found the contest itself to be rather anti-climatic. We had spent 5-7 days traveling across oceans, working long hours on antennas, etc and now there is almost nothing to do. This was especially true for the second shift operators. Most operators were too pumped for sleep, but not sure what they could do to be productive. This was especially true for me as the team leader, since Joe (Logistics Czar) had gotten the stations together and now Jan (Contest Czar) was directing contest operations. The planning was over—it was now all execution and periodic problem solving.

The moral of the story is to plan to keep the excitement levels high as the contest begins. Make sure everyone has something they can do—no matter how small. It might be posting scores, providing drinks/snacks or checking antennas. Second shift operators should be strongly encouraged to listen on their band for the first hour, but then get some sleep so they are refreshed when their shift begins. We had operators who slept very little during the 48 hours, which must have a detrimental affect on performance.

*Next issue, Dennis will get into managing the actual contest operation, post contest activities and miscellaneous points.*—73, Joe, K8JP ■

# Contest Calendar

**Bruce Horn, WA7BNM**
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Here's the list of major contests to help you plan your contesting activity through October 1999. The web version of this calendar is updated frequently and lists contests for an extended period of time. It can be found at: **http://www.hornucopia.com/contestcal/.** Look for the revitalized Georgia QSO Party at the end of July. And of course, it's time once again for the North American QSO Parties in July and August. 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!

**July 1999**

| | |
|---|---|
| RAC Canada Day Contest | 0000Z-2400Z, Jul 1 |
| Venezuelan Ind. Day Contest, SSB | 0000Z, Jul 3 to 2400Z, Jul 4 |
| MI QRP Club July 4th CW Sprint | 2300Z, Jul 4 to 0300Z, Jul 5 |
| IARU HF World Championship | 1200Z, Jul 10 to 1200Z, Jul 11 |
| CQ Worldwide VHF Contest | 1800Z, Jul 10 to 2100Z, Jul 11 |
| SEANET WW DX Contest, CW | 0001Z, Jul 17 to 2359Z, Jul 18 |
| Pacific 160-Meter Contest | 0700Z-2330Z, Jul 17 |
| North American QSO Party, RTTY | 1800Z, Jul 17 to 0600Z, Jul 18 |
| Six Club 6m Sprint | 2300Z, Jul 17 to 0400Z, Jul 18 |
| Colombian Indep. Contest | 0000Z-2400Z, Jul 18 |
| Venezuelan Ind. Day Contest, CW | 0000Z, Jul 24 to 2400Z, Jul 25 |
| IOTA Contest | 1200Z, Jul 24 to 1200Z, Jul 25 |
| USI W/VE Islands Contest | 1600Z, Jul 31 to 2359Z, Aug 1 |
| Georgia QSO Party | 1800Z, Jul 31 to 0359Z, Aug 1 and 1400Z-2359Z, Aug 1 |

**August 1999**

| | |
|---|---|
| YO DX HF Contest | 0000Z-2000Z, Aug 1 |
| 10-10 Int. Summer Contest, SSB | 0001Z, Aug 7 to 2400Z, Aug 8 |
| European HF Championship | 1000Z-2200Z, Aug 7 |
| ARRL UHF Contest | 1800Z, Aug 7 to 1800Z, Aug 8 |
| North American QSO Party, CW | 1800Z, Aug 7 to 0600Z, Aug 8 |
| WAE DX Contest, CW | 0000Z, Aug 14 to 2400Z, Aug 15 |
| Maryland-DC QSO Party | 1600Z, Aug 14 to 0400Z, Aug 15 and 1600Z-2359Z, Aug 15 |
| SARTG WW RTTY Contest | 0000Z-0800Z and 1600Z-2400Z, Aug 21 and 0800Z-1600Z, Aug 22 |
| SEANET WW DX Contest, SSB | 0001Z, Aug 21 to 2359Z, Aug 22 |
| ARRL 10 GHz Cumulative Contest | 0800-2000 local, Aug 21 and 0800-2000 local, Aug 22 |
| Keyman's Club of Japan Contest | 1200Z, Aug 21 to 1200Z, Aug 22 |
| North American QSO Party, SSB | 1800Z, Aug 21 to 0600Z, Aug 22 |
| New Jersey QSO Party | 2000Z, Aug 21 to 0700Z, Aug 22 and 1300Z, Aug 22 to 0200Z, Aug 23 |
| TOEC WW Grid Contest, CW | 1200Z, Aug 28 to 1200Z, Aug 29 |
| SCC RTTY Championship | 1200Z, Aug 28 to 1200Z, Aug 29 |
| Hawaii QSO Party | 1600Z, Aug 28 to 2200Z, Aug 29 |

**September 1999**

| | |
|---|---|
| All Asian DX Contest, SSB | 0000Z, Sep 4 to 2400Z, Sep 5 |
| IARU Region 1 Field Day, SSB | 1500Z, Sep 4 to 1500Z, Sep 5 |
| Panama Anniversary Contest | 0001Z-2359Z, Sep 5 |
| MI QRP Club Labor Day CW Sprint | 2300Z, Sep 6 to 0300Z, Sep 7 |
| WAE DX Contest, SSB | 0000Z, Sep 11 to 2400Z, Sep 12 |
| North American Sprint, CW | 0000Z-0400Z, Sep 12 |
| IRCC Bison Stampede (Indiana QP) | 1800Z, Sep 11 to 0200Z, Sep 12 |
| ARRL September VHF QSO Party | 1800Z, Sep 11 to 0300Z, Sep 13 |
| North American Sprint, Phone | 0000Z-0400Z, Sep 19 |
| YLRL Howdy Days | 1400Z, Sep 17 to 0200Z, Sep 19 |
| Air Force Anniversary QSO Party | 0001Z, Sep 18 to 2359Z, Sep 19 |
| ARRL 10 GHz Cumulative Contest | 0800-2000 local, Sep 18 and 0800-2000 local, Sep 19 |
| Washington State Salmon Run | 1200Z, Sep 18 to 0700Z, Sep 19 and 1200Z-2400Z, Sep 19 |
| Scandinavian Activity Contest, CW | 1500Z, Sep 18 to 1800Z, Sep 19 |
| QCWA QSO Party | 1800Z, Sep 18 to 1800Z, Sep 19 |
| Tennessee QSO Party | 1800Z, Sep 19 to 0100Z, Sep 20 |
| CQ Worldwide DX Contest, RTTY | 0000Z, Sep 25 to 2400Z, Sep 26 |
| Scandinavian Activity Contest, SSB | 1500Z, Sep 25 to 1800Z, Sep 26 |

**October 1999**

| | |
|---|---|
| VK/ZL/Oceania Contest, Phone | 1000Z, Oct 2 to 1000Z, Oct 3 |
| EU Autumn Sprint, SSB | 1500Z-1859Z, Oct 2 |
| California QSO Party | 1600Z, Oct 2 to 2200Z, Oct 3 |
| RSGB 21/28 MHz Contest, SSB | 0700Z-1900Z, Oct 3 |
| VK/ZL/Oceania Contest, CW | 1000Z, Oct 9 to 1000Z, Oct 10 |
| BARTG RTTY Sprint | 1200Z, Oct 9 to 1200Z, Oct 10 |
| EU Autumn Sprint, CW | 1500Z-1859Z, Oct 9 |
| Pennsylvania QSO Party | 1600Z, Oct 9 to 0500Z, Oct 10 and 1300Z-2200Z, Oct 10 |
| Iberoamericano Contest | 2000Z, Oct 9 to 2000Z, Oct 10 |
| 10-10 Day Sprint | 0001Z-2400Z, Oct 10 |
| JARTS WW RTTY Contest | 0000Z, Oct 16 to 2400Z, Oct 17 |
| Worked All Germany Contest | 1500Z, Oct 16 to 1500Z, Oct 17 |
| Asia-Pacific Sprint, CW | 0000Z-0200Z, Oct 17 |
| RSGB 21/28 MHz Contest, CW | 0700Z-1900Z, Oct 17 |
| CQ Worldwide DX Contest, SSB | 0000Z, Oct 30 to 2400Z, Oct 31 |
| 10-10 Int. Fall Contest, CW | 0001Z, Oct 30 to 2400Z, Oct 31 ■ |

# RTTY Contesting

Jay Townsend, WS7I
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WS7I

Summer is my favorite time of the year: Field Day, RTTY NAQP, SARTG (Scandinavian Amateur Radio Teletype Group), fly-fishing, camping and BBQs. So before I head back to the grill I want to catch up on some items.

Thanks go to K8CC and Datom Engineering for the *NA* software that I was going to review. But, unfortunately K6STI's underlying RTTY software support has been withdrawn from the market. *NA* uses a sound card and K6STI's software to work RTTY. The *NA* program had been gaining popularity in RTTY Multi-Multi contesting.

Recently I finished putting together the AF4Z Multi-Modem RTTY kit. This was as much fun as I had building my first Heathkit DX-40. This nifty little kit was the *PCARS* (Florida) club project and I had to get one after seeing it in Dayton. I wanted to try both Amtor and Pactor modes with this little terminal unit. I decided to get in touch with Mike Kerry, G4BMK, and get my *BMKMULTY* program updated. G4BMK's *DOS*-based program is about the only one that decodes Amtor and Pactor, as well as RTTY and CW on old time Terminal Units.

### Galapagos RTTY Contesting—The history of HC8 RTTY contesting at El Junco

In October 1986 a group of Ecuadorians activated HC8 on RTTY. The group was led by Ted, HC5K, and included HC2FG, HC5ES, HC5AT, HC5AI, HC5JB, HC5T and HC5CG. This was the formation, I believe, of the *Association DX-EX*. HC5K had spent several years on the US East Coast and had extensive contact with two of the contest clubs. Ted had the idea and plan to create a place in the Galapagos where people could come and enjoy all the aspects of ham radio.

During the late spring and summer of 1987, Roy, KT1N (W1RY), Ted's QSL manager and the DX/contest editor at the time for the *RTTY Journal* got *CQ Magazine* and the *Journal* together to jointly sponsor the 1987 CQWW RTTY contest. That year Roy won the BARTG contest Single Operator and Hal, WA7EGA, and I won Multi-single. Hal had been running phone patches for Ted to his son who was attending Boise State University. Ted suggested that all of us join him for this RTTY contest first.

From the time I was 13 or so I had been reading about interesting DXpeditions. I wanted to operate from a rare location. So my wife Betsy, WV7Y; Hal and I decided to go. Ted kept us updated during that summer and we received a fax of the license in early September. Daily radio schedules assured us that the new antennas had arrived and all was set for the contest.

### 1987 HD8CQ CQWW RTTY

When we left Spokane we were pretty much rookies at all of this. We used real nice stout IBM boxes (not a good idea as computer boxes raise the attention of both custom agents and thieves) and had several suitcases full of everything from gifts to multi-meters. Having no idea what was to come we took enough stuff for two stations except for amplifiers which Ted assured us he'd supply. Arriving in Quito we were met by Peter, HC1OT, and Bennie, HC1BI, who were certainly a welcome sight to us tired travelers. They hosted us for a day and gave us a complete tour of the city and surroundings. We were then off to San Cristobal, Galapagos, about 600 miles off the coast of Ecuador. Here Ted and Guido, HC8GR, met us. Guido owned what apparently at that time was the only truck on the island. He was fully in charge of the airport freight and island delivery.

We filled this large truck full of hams and their equipment. After stopping and purchasing supplies we headed up the hill to El Junco. Lucho, HC2DZ; Gunter, HC2CG; and Gustavo, HC2FG; all rode up the hill with us. This was the first time I had ever seen anyone put chains on a vehicle to get through mud.

Surprise! No antennas were visible as we pulled up to the rustic farmhouse. (We had received word that they were all up.) There were two complete sets of antennas on hand: HyGain monobanders for 10, 15 and 20 and a set of Cushcrafts for 40 through 10 meters. The N6AA group who was to come in October for the phone contest had shipped in some of these.

Antenna Party! It was Field Day for the next five days. We built the Yagis. We sunk well casings in the red clay and erected 20-foot sections of water pipe inside the casings. Rope handles were installed for use as rotators—the rotators we brought were not put to use. Putting Yagis on top of these 20-foot lengths of pipe was a dangerous and challenging mission, primarily undertaken by HC5K. I have a picture of Ted standing on the boom of the 40-meter Cushcraft, 30 feet off the ground—four hours or more away from medical attention. This would have been Betsy's first opportunity to snap a *QST* or *NCJ* cover picture had the light been just a little better.

Ted's dream of a place to DX, contest and experiment had begun with the installation of OSCAR antennas and the HD8SIX 6-meter beacon. HF antennas were erected and the first RTTY contest contemplated.

The day of the contest the solar flux was 77, the A index jumped to 29 and the K was around 5. All this did was

### Upcoming RTTY Contests

| *Contest* | *Dates* | *Starting Time* | *Ending Time* | *Operating Period* |
|---|---|---|---|---|
| North American QSO Party | July 17-18 | 1800Z Saturday | 0600Z Sunday | |
| Russian RTTY WW Contest | July 24-25 | 0000Z Saturday | 2400Z Sunday | 36 of 48 hours |
| SARTG*(Scandinavian) | Aug 21-22 | 0000Z Saturday | 0800Z Saturday | No off times |
| | | 1600Z Saturday | 2400Z Saturday | |
| | | 0800Z Sunday | 1600Z Sunday | |
| SCC RTTY (Slovenia Contest Club) | Aug 28-29 | 1200Z Saturday | 1200Z Sunday | No off times |
| CQ/RJ WW RTTY | Sept 26-27 | 0000Z Saturday | 2400Z Sunday | No off times |

*There are three 8-hour operating times totaling 24 hours.

induce a slightly higher noise level on 20 meters. We had worldwide openings on 10 and 15 meters with equally good propagation to Japan and to Europe. Stateside was just booming into the Galapagos as well.

Prior to the contest we had a huge ceremony which was attended by military and church officials. During the contest, we had lots of logging problems with one rather amusing moment when Lucho pulled out WA7EGA's computer power cord. Ted's dream location worked—HD8CQ won the contest. The flight back to Ecuador was equally as memorable—Gunter, HC2CG, flew the 727 part of the way to the mainland.

**1988 HD8EX CQWW RTTY**

Not to be outdone, many of the same group of Ecuadorians returned for the 1988 CQWW RTTY contest. This was El Junco's and the group's second world RTTY title. This year there were 35-foot wooden poles put up as antenna supports at El Junco. A number of improvements were made to the farmhouse as well.

**1989 HD8S SARTG**

George, KB2VO/4, a good friend of Ted and I, traveled to El Junco in August and notched a World First Single Operator award. Power at that time on the Galapagos normally came on at 0600 local and went off at 2359. Ted arranged to have the power left on (by paying for it). But this didn't happen and it cost him quite a few QSOs. George's adventure started in Dayton over a cocktail and ended on a military transport out of the Galapagos due to unforeseen problems.

**1989 HD8EX CQWW RTTY**

Betsy, Hal and I again joined Ted; Jaime, HC5T; and Diego, HC8VB; for the September contest. They had a big surprise for us this time. Upon arrival, several 80 to 100-foot towers complete with the same monobanders greeted us and now our rotators had been put to use. There was also a shiny new 6 kW generator.

This trip we had a great time DXing and enjoying friends. It was much more relaxing with just some minor repairs and a small amount of additional equipment to set up for the contest.

The famous WA7EGA story about this trip was his CW "QRX RAT." One of the largest rats I have ever seen ran across the floor, baring his fangs menacingly at Hal! Betsy worked a great deal of 6-meter phone into the states and I practiced my low band CW skills, which needed improvement.

HD8EX won its third straight CQWW M/S title from what is one of the quietest locations on earth. The site had a radio horizon gently sloping in all the important directions. The El Junco site is near the islands volcanic crater up about 2,000 feet. September weather is very poor with mist, rain, chiggers, mosquitoes and mud. As we left I decided that the next time we would try a different time of year.

In 1990 I had planned another trip to the Galapagos, but I decided to try a single operator event. I went to HC5K's house and operated HC5J. That's when we first heard from Rich, N6KT, who phoned with questions about the El Junco site.

**1993 HC8J BARTG**

Betsy, who became the QSL manager for Rich, N6KT/HC8A, somehow decided we should meet Rich in the Galapagos for an event. We picked March because Rich was going to be there for the entire month and the BARTG contest is the weekend between the WPX and ARRL. Ted continued his support by supplying computers and obtaining the difficult licenses.

Guido, who is known to many as "Mr. Galapagos," was the perfect host and friend. HC8GR toiled endlessly in support of all of these operations. His wife Chelita is the only one who likes El Junco as much as we do. And you haven't lived until you have had Chelita's lobster.

This was the trip of a lifetime. March brings great weather to El Junco. We spent two weeks with Rich in the Galapagos. Touring the islands we got the opportunity to enjoy all the flora and fauna. We took two boat trips with Rich. The second trip turned into an adventure that none of us would ever forget.

We traveled in the open sea in a small boat that had no life jackets. We hiked into a volcanic crater and actually saw the Galapagos turtles in their natural state. On the return trip the motor failed and we watched the nicest sunset I have ever seen. We then limped around the island, avoiding an armed Zodiac patrol guarding a yacht and finally returned to port several hours late.

BARTG is the British RTTY contest and has long been a favorite of mine. I managed to win World Single operator and, since the sunspot cycle was just right, set both a RTTY QSO record and the BARTG record. Rich, HC8A, had similar success with his SSB operations. The station played exceptionally well—we had just reconfigured a number of the antennas.

I have to tell the story about the famous Galapagos Owl. As you probably know all the wildlife on the islands is very protected and also very tame. While operating the contest one night, a huge owl, three feet high, flew in the open window and appeared ready to attack me (actually it just landed but I didn't expect it). I went into a complete state of panic and started screaming. Up rushed Betsy from down below. She saw the Owl and got Guido who very calmly spoke soft Spanish to the fine owl and gently grasped it around the wings and walked it downstairs to release it. Remembering Hal's famous "QRX RAT" story from years before, I sent a rapid "QRX Owl in shack" report to the raging RTTY pileup.

What once was Ted, HC5K's, dream came to fruition upon this volcanic hill. Contests were won. Good times and fond memories were established. Then, like old operators, it faded into the noise.

This was to be my last effort from El Junco as events led to the station being moved down from the quiet hilltop with the near perfect horizon to the noisy town of San Cristobal. Contesting on CW and SSB would continue in town for a number of years with many records and many new faces. But the town always had terrible noise on all bands.

**El Junco Dos**

It's back! RTTY returned to El Junco in September 1998 for CQWW RTTY and again this February. Pictures of the new site were available not long ago on Trey, N5KO's, Web page. The quiet and the radio horizon have once again returned. Time to set new RTTY records. World Record Multi-Single RTTY operations have returned to a new site that is being built again. Different operators and more gear are being assembled. Watch out—I just sold my Ameritron AL-1200 and shipped it to the Galapagos.

**WS7I's RTTY Tip**

Summer brings static crashes to the bands and makes RTTY contesting on the low bands more challenging. To improve digital reception you might try the following. Set the RF gain to minimum and set the AF gain control to a maximum level. Increase the RF gain to just drive the Terminal Unit. You should always set your AGC (automatic gain control) to "fast" for RTTY with "old" terminal units. With sound cards or DSP, I recommend you try all the settings and see which work best. This seems to vary from program to program. On 80 and 40 meters, switch in the RF attenuator and—if you're like me—remember to turn off the pre-amp! If you have a beverage antenna, use it. If you don't have one, consider building a listening antenna. ■

# Contest Tips, Tricks & Techniques

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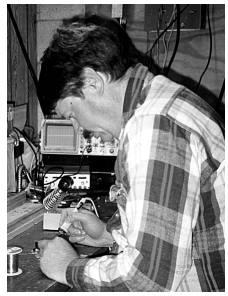
## Tips for Beginning Contesters—*Part 2*


W9XT

There is a lot to learn when you are just starting out in contesting. Where do you start? What suggestions do you have for starting contesters? We started this discussion in the last installment of CTT&T. Some of the sub-topics we covered included the importance of patience and practice, learning the fine art of listening effectively and how to learn from others. Finally we discussed which contests were best for beginners.

In this edition we'll have a look at the art of running stations, the mental aspects of contesting and a few random thoughts.

### Running

Calling CQ and getting a good run going can really help your score. One of the most important skills is knowing when and where to call CQ. K4OGG feels that the faster you become comfortable calling CQ, the faster you will see your scores increase. There are times in every contest that every station can make more contacts per hour CQing than S&Ping.

W2GD notes that it takes a while to learn the rhythm of efficiently running stations. Once you have had the experience of a great run, you'll always want more. John goes on to say that one of the most important skills is being able to pull out parts of calls in a pileup. (Unfortunately, there is no short cut to being able to get part of a call and immediately knowing whom it is!)

It is often difficult to get a good run going when you are a beginner with a modest station. G4BUO recommends getting on during the last few hours of domestic contests. You will be "fresh meat" and can often get some very high rates. I have had the 10 minute rate meter of my logging program break 250 QSOs/hour by getting on at Sunday sunrise of the 160-meter contests. The serious competitors are really digging for new QSOs at that time.

AA0CY recommends trying your CQing on a quiet frequency higher up in the band. N2MG suggests trying to have one daytime and one nighttime band where you are loud—try most of your CQs there. Mike also likes 10 and 15 meters because of their size. You can almost always move up to find a clear frequency. I have also noticed the increasing number of DX stations that are hanging higher in the bands recently. Especially interesting is the number of them operating above 21.100 and 28.100 MHz this last contest season.

You can practice your pileup skills without actually running one. G4BUO suggests finding a CQing station near you and trying to pick calls out of his pileup. Between contests you can practice with *PED*, *RUFZ* or other software simulator, but Dave feels it's more realistic to use a real live pileup, even if it is someone else's.

One point to consider when CQing is the mental involvement. Search and pouncing at 20 QSOs/hour can take a lot of mental involvement—tuning across the band to find the few new stations that have not been worked. Let's imagine this results in about one QSO every three minutes or so on an average. On the other hand, CQing for a minute or two between answers seems like an eternity. It is even more monotonous if you are using a voice keyer or a computer or CW memory keyer. It is easy to think that you are wasting your time. Yet, at two minutes per QSO CQing, you are making 50% more contacts per hour than S&Ping at the one QSO per three minutes rate. Keep an eye on the rate meter when deciding whether to S&P or CQ.

### The Mental Aspect

One of the most important parts of contesting is the mental aspect. Ward, N0AX, thinks one of the biggest steps is getting over the idea that you can't accomplish anything because you are a little pistol. You have to change "I know I can't" into "I think I can." Then the question changes to "How?" instead of "Why not?"

On a similar note, WC4E stresses the importance of thinking big. Operate like you are loud. You will never be a competitive contester until you start thinking like one.

Another key part of the mental aspect is setting proper goals, as noted by VK5GN, K0OU and others. KE4OAR suggests increasing your goals as your skills advance. Chuck suggests beating last year's score, making 100 QSOs or 100,000 points, earning an SS pin or Clean Sweep mug, or trying for a California QSO Party T-shirt.

Brian, K9QQ, makes some interesting comments about learning a good "work ethic." Originally operating from the Midwest Black Hole, he has learned that you have to work harder from there than from many other parts of the world. The openings that are good enough to produce runs don't last long, so the "propagationally challenged" have to learn to make the most of them. S&Ping is a major portion of every contest from these places.

Brian is currently stationed with the military in Hawaii, after completing a stint in Japan last year. Contesters he operated with in Japan frequently commented on how well he S&Ped and requested that he teach them. Last year as part of a KH7R multi-op effort, some of the local operators commented how the group of Black Hole operators that joined them were constantly tuning the second VFO on the FT1000MPs off their CQ frequencies looking for that extra contact to keep the rate up. Brian suggests learning on a modest station and learning the hungry, always digging, mentality.

### Wrap Up

Always send in your logs. This was the advice of W6TKV and K7BV; you might be surprised and win a certificate. There are few better motivators than your first contest certificates. Besides, you can't win if you don't send them in. KE4OAR notes that seeing your call in print is also an ego booster.

KE4OAR, N2MG and N8YYS suggest finding a logging program you like. N2MG also suggests setting up packet and using the band map features to run up the band and work everyone quickly.

N8YYS recommends taking another look at your shack layout. A layout that is fine for a DXer might not be optimal for a contester. Place things that need frequent adjustment in easy reach. Roy goes on to suggest looking for station improvements that give you a lot of value at little cost. Two he recommended were replacing old coax and optimizing the tuning of your antennas.

VK5GN advises that you record yourself operating. Martin suggests you observe how quickly you can complete QSOs. Look for things that unnecessarily slow down the exchange. Be careful with how fast you talk though. You still want to be intelligible to Australians, Martin advises!

Finally, another common suggestion was to read everything you can on the

subject. Sources include the *NCJ*, the Internet Contest Reflector and contesting Web sites. Read the contest write-ups. Don't skip the soapbox comments. Mind the post contest comments on the Internet from the top contesters. WC4E suggests printing them out and saving the best ones. They have a lot of hidden tips.

Thanks as always to CTT&T readers who passed along their ideas on tips for beginning contesters.

This topic's contributors were AA0CY, G4BUO, KA2AEV, KE4OAR, K4OGG, K5ZD, KU7Y, K7BV, K9NW, K9QQ, K0OU, NM5M, N2MG, N5KB, N8YYS, N0AX, PY2NY, VK5GN, W2GD, W4CE and W6TKV.

**Topic for September-October 1999 (Deadline July 10)**

*Domestic Contest Strategies*

What special strategies do you use for domestic contests such as Sweepstakes, NAQP and the Sprints? Which are your favorite domestic contests and why? What operating class do you prefer? What antennas do you find most effective for each band?

**Topic for November-December 1999 (Deadline September 10)**

*The Search for the Lost Decibel*

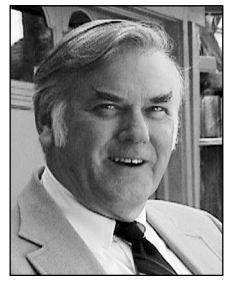
Now that you've been using the same radios and antennas for a while, where do you find the extra decibel to give you the edge over the competition? What surprising discoveries have you made in your quest for ultimate station efficiency? How much is an extra dB worth in extra QSOs or multipliers? How much would you be willing to pay for an extra dB in transmit signal strength? How much for an extra dB in S/N on receive? If you could improve your beam by a dB in either forward gain or F/B, where would you put it?

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. ■

# International Contests

Joe Staples, W5ASP
w5asp@aol.com

## Looking for Something Different?


W5ASP

In a way most contests are pretty much the same. Searching for QSOs, making the exchange, gathering the mults, and then... repeating the process. However, there is one contest that is uniquely different.

The European DX-Contest, more popularly known as the WAE, has as an added feature the passing of "traffic" between non-European stations and stations operating from Europe. This traffic, or QTCs, is simply a report of earlier QSOs made with European stations by a station outside Europe.

Here's how it works. The basic exchange is RST and serial number. As the contest progresses, a non-European station may choose to—or be asked to—send QTCs to a European station. The station then sends the time, call and serial number of one or more (ten maximum) of his previous contacts. The European station acknowledges each QTC as it is received. The QTC for a given contact may be sent only once, and only ten QTCs may be sent to any one European station. Both stations maintain a record of QTCs exchanged.

So why all the excitement over QTCs? Simply because each QTC sent (or received) counts as another QSO. Think of it... you work another DL, he asks for QTCs, you pass on a list of ten previous contacts and, presto, you've just logged the equivalent of 11 Qs.

Non-European stations regularly wind up with nearly equal QSO and QTC totals. In addition, the WAE county list is quite extensive and multipliers count per band. Totals of three to

### 1998 Croatian CW Contest Results

(The listings show callsign used, category participated, QSOs, multipliers and total score.)

| *Call* | *Category* | *QSOs* | *Mults* | *Score* |
|---|---|---|---|---|
| **USA** | | | | |
| W1CX | SOAB | 549 | 142 | 311122 |
| AA3B | SOAB | 389 | 115 | 221065 |
| K2SX | SOAB | 317 | 105 | 131985 |
| K4BAI | SOAB | 219 | 75 | 52350 |
| W2EZ | SOAB | 79 | 37 | 16206 |
| W3DAD | SOAB | 69 | 31 | 13609 |
| N7DR | SOAB | 29 | 14 | 1680 |
| N2CU | SOAB | 120 | 53 | 28196 |
| #1 NA, SO/LP | | | | |
| K1BV | SOAB | 71 | 28 | 7532 |
| VE7CPN/W4 | SOAB | 26 | 13 | 2288 |
| W6ISQ | SOAB | 15 | 10 | 870 |
| K3WWP | QRPp | 34 | 20 | 1680 |
| N4MM | SO10 | 34 | 16 | 2272 |
| W5FO | SO20 | 52 | 23 | 4025 |
| #5 DX, SO/20M | | | | |
| **Canada** | | | | |
| VE3QAA | SOAB | 568 | 149 | 365050 |
| #1 NA, SO/HP | | | | |
| VE1ZJ | SOAB | 533 | 145 | 315085 |
| VE5SF | SOAB | 81 | 37 | 11063 |
| CG2AWR | SOAB | 54 | 26 | 7384 |
| **Mexico** | | | | |
| XE1VV | SOAB | 72 | 29 | 11107 |

### 1998 All Asian DX Contest Phone Results

(The listings shows callsign used, category participated, QSO points, number of multipliers and total score.)

| **North America** *Call* | *Bands* | *QSOs* | *Mults* | *Score* |
|---|---|---|---|---|
| **Alaska** | | | | |
| KL5T | M | 614 | 172 | 105608 |
| **Canada** | | | | |
| VE7VF | 21 | 425 | 119 | 50575 |
| VA3IX | 21 | 18 | 16 | 288 |
| VE3HX | 28 | 8 | 7 | 56 |
| VE1JX | AB | 496 | 174 | 86304 |
| VE7XO | AB | 157 | 88 | 13816 |
| VE6IM | AB | 137 | 90 | 12330 |
| **Mexico** | | | | |
| XE3LMV | AB | 129 | 84 | 10836 |
| XE1AQY | AB | 121 | 72 | 8712 |
| **USA** | | | | |
| K7TG | 14 | 249 | 78 | 19422 |
| W6OK | 14 | 62 | 30 | 1860 |
| K5KNS/6 | 14 | 32 | 22 | 704 |
| W9GXR | 14 | 21 | 20 | 420 |
| N8II | 21 | 453 | 131 | 59343 |

| *Call* | *Bands* | *QSOs* | *Mults* | *Score* |
|---|---|---|---|---|
| WA6FGV | 21 | 391 | 107 | 41837 |
| K5YAA | 21 | 323 | 109 | 35207 |
| KK0SS | 21 | 99 | 48 | 4752 |
| KF2ZO | 21 | 43 | 34 | 1462 |
| KB7SCF | 21 | 48 | 30 | 1440 |
| AJ4Y | 21 | 25 | 18 | 450 |
| N7ZE | AB | 1995 | 358 | 714210 |
| WN6K | AB | 1139 | 262 | 298418 |
| K3ZO | AB | 913 | 254 | 231902 |
| W7OM | AB | 719 | 202 | 145238 |
| NB1B | AB | 501 | 170 | 85170 |
| W7CB | AB | 400 | 165 | 66000 |
| K3WW | AB | 387 | 153 | 59211 |
| N9RV | AB | 366 | 156 | 57006 |
| W6TJ | AB | 358 | 129 | 46182 |
| K1CN | AB | 96 | 64 | 6144 |
| W7YS | AB | 50 | 35 | 1750 |
| KE6GTR | AB | 38 | 32 | 1216 |
| K4BAI | AB | 33 | 26 | 858 |
| W2UL | AB | 29 | 23 | 667 |
| WA3RBK | AB | 18 | 4 | 72 |

four hundred plus mults (along with a 1000 or more Qs) are not uncommon.

But all of this does not come without its little problems. Sending QTCs takes time. If you've got a good run going, you may be tempted to delay passing QTCs in order to "keep-up-the-rate." Deciding when to break the run to dump the accumulated backlog of Qs is all part of the strategy. And during the slow periods it isn't always easy to find receptive stations to take your QTCs. Bit of a challenge isn't it?

So if you want to take a break from the ordinary in contesting, put the WAE contests on your to-do list. The CW affair is in mid-August and the Phone a month later. Oh yes, most of the major contest logging programs have provisions for handling the QTCs. (Only the Europeans have to struggle with the extra bookkeeping.) Try it, you'll like it.

### Upcoming International Contests

| | |
|---|---|
| RAC Canada Day Contest | 01-Jul-99 |
| Venezuela International Contest SSB | 03-Jul-99 |
| IARU HF World Championship | 10-Jul-99 |
| Colombian Independence Contest | 18-Jul-99 |
| SEANET DX Contest CW | 17-Jul-99 |
| RSGB Islands-on-the-Air (IOTA) | 24-Jul-99 |
| Venezuela International Contest CW | 24-Jul-99 |
| YO Romanian DX Contest | 01-Aug-99 |
| WAEDC European DX Contest CW | 14-Aug-99 |
| Keyman's Club of Japan CW Contest | 21-Aug-99 |
| SEANET DX Contest Phone | 21-Aug-99 |
| Top of Europe World Wide Grid Contest | 28-Aug-99 |
| All Asian DX | 04-Sep-99 |
| LZ Bulgarian DX Contest | 20 and 21-Nov-99 |
| WAEDC European DX Contest Phone | 11-Sep-99 |
| Scandinavian Activity Contest CW | 18-Sep-99 |
| Scandinavian Activity Contest Phone | 25-Sep-99 |

**Notes**
1) Check *QST* or *CQ* magazine for rules.
2) With few exceptions logs and summary sheets must be postmarked within 30 days of the contest.

### 1998 JIDX (Japan International DX) Phone Contest Result

(The listings shows callsign used, category participated, QSOs, QSO points, number of multipliers and total score.)

| *Call* | *Category* | *QSOs* | *QSO Points* | *Mults* | *Score* |
|---|---|---|---|---|---|
| **United States (Zone 3)** | | | | | |
| W6KP | AB | 730 | 983 | 148 | 145484 |
| K6III | AB | 64 | 110 | 42 | 4620 |
| W7OM | AB | 341 | 460 | 98 | 45080 |
| KM7TM | AB | 261 | 437 | 84 | 36708 |
| WB6NFO | AB | 242 | 407 | 89 | 36223 |
| WE6G | AB | 43 | 53 | 30 | 1590 |
| KI6PG | ABL | 59 | 78 | 43 | 3354 |
| KJ6GQ | 28 | 40 | 80 | 22 | 1760 |
| KF6JFG | 28L | 410 | 808 | 48 | 38784 |
| KA6PUW | 28L | 141 | 282 | 40 | 11280 |
| KF6NNX | 28L | 20 | 40 | 17 | 680 |
| WA6FGV | 21 | 170 | 170 | 42 | 7140 |
| KE6RD | 21 | 721 | 721 | 47 | 33887 |
| K6ILM | 3.5L | 1 | 2 | 1 | 2 |
| **United States (Zone 4)** | | | | | |
| N7DR | AB | 203 | 320 | 80 | 25600 |
| KM5TH | AB | 39 | 39 | 23 | 897 |
| K0BCN | 14L | 22 | 22 | 16 | 352 |
| **United States (Zone 5)** | | | | | |
| K3ZO | AB | 149 | 149 | 45 | 6705 |
| AJ3M | AB | 69 | 69 | 33 | 2277 |
| KD4GW | 28 | 383 | 764 | 45 | 34380 |
| **Alaska** | | | | | |
| KL7FAP | ABL | 34 | 36 | 27 | 972 |
| **Canada** | | | | | |
| VE7XO | AB | 116 | 169 | 66 | 11154 |
| VE6JO | 21 | 142 | 142 | 38 | 5396 |
| VE6JY | 14 | 13 | 13 | 11 | 143 |
| VE6FU | 14L | 7 | 7 | 7 | 49 |
| **Mexico** | | | | | |
| XE1FES | 28L | 91 | 182 | 37 | 6734 |

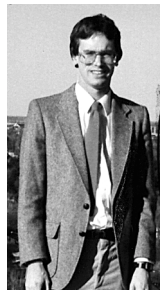
■

# VHF-UHF Contesting!

By Jon K. Jones, N0JK
jkjones@fn.net

## The Spring VHF/UHF Sprints

We had some good activity in many parts of North America in the 2-Meter Spring Sprint. Activity was highest—and so were the scores—in the northeast corridor. Wayne, N0POH reported that the three 2-Meter Sprint certificate winners are:



**N0JK**

K3MM Score: 10848
K1UHF Score: 5472
K2TXB Score: 5066

Wayne noted that for certificate winners, your mailing information has been forwarded to Tom, WA8WZG. "It was a fun night and we enjoyed our score checking duties."

The 6-Meter Sprint, which was held May 16 (UTC), had decent activity. Just before the Sprint, an Es to TE/F2 openings occurred between the Northeast US and Canada to South America.

Mike, VE9AA, was "nearly certain it was an Es linkup to F-layer. I heard a loud W4 just before the opening got rolling. Lasted 2 - 3 hours, but only worked 9 LUs and heard CX4AAJ."

After the South Americans faded, multi-hop Es to Central America appeared. HP2CWB was worked along the eastern seaboard west to Ohio. However, once the contest started, the DX faded out.

K0GU did well in the Sprint from Colorado.

**K0GU—6-Meter Sprint from DN70**

| | *QSOs* | *Mults* | |
|---|---|---|---|
| 23Z | 3 | 3 | |
| 00Z | 46 | 21 | W8, W9, VE3, northeast W0, western W2/W3 |
| 01Z | 76 | 21 | W8, W9,VE3, northeast W0, western W2/W3 |
| 02Z | 54 | 20 | northern W4, central W6 |
| | 179 | 65 | total: 11,635 |

"I planned to go out for the evening and almost quit after the first hour with only three QSOs. Local activity seemed way down. Then a great opening to the Midwest. Huge signals for about an hour then almost instantly gone. Around 0228Z I worked WD5K, KY5N (EM12) and KR5V (EM13) on what sounded like FAI or side scatter. They are around 140 degrees from here. I was pointing 100 degrees and they were pointing north. The signals sounded like they had very heavy HF type polar flutter. Decent signal strength—but so distorted they were hard to copy. The first half of the last hour there were scattered W4s with a few W6s mixed in as well. The last 30 minutes I had a big opening to central CA. Great to finally have propagation in the 6-Meter Sprint!"—*Jim, K0GU.*

The Es seemed to go over Kansas—I worked just a few stations. Oscar, CO2OJ, only found 4 contacts in the Sprint from Cuba.

"Lots of stations heard, but only got the attention of 4:

N3II FM19
N3VBG FM19
WD9EXD EM57 (with a FANTASTIC 59+++ signal)
W4RKR FM07

4 QSOs and 3 Grids for 12 points. I'm applying for the worst score but I had a lot of fun. Long live the Sprints! 73 and CU on the next... "—*Oscar, CO2OJ.* (Mine was worse than yours, Oscar!—*N0JK.*)

Dick, NY1E: "Just got back on 6-meters Saturday after 4 years off. I used a KT34XA for the Sprint and put a 6-element beam above it on Sunday—a day late—but met a lot of old friends. Nice to be back on. I worked 26 stations and 10 grids for 260 points. See you in June!"

The other Sprints had some decent activity as well—especially in the Northeast and on the West Coast. Don, WA6GYD, operated portable in the 1296 MHz Sprint and made one contact—and an "expensive one" at that.

"I got up on the mountain a little late and put up the antennas for 432 and 1296 and started to call CQ on 1296. Got a reply right away from Jim, N9JIM. He was pretty weak but said he was only running 1/2 W. So I thought all was ok and started calling 'CQ Sprint' on 1296. 1. Nooooo answers. I did hear some radar and that reinforced my feelings that all was well. Turned down toward DM06 and called and called. Again—nooooo answers. Turned toward the Sierra and called and called, still no answers. Finally got a hold of Len, WA6KLK, on 432. He was weak and up and down but we traded stories about who was on and then tried on 1296—nothing. I figured if he was weak on 432 there probably was no propagation on 1296. I finally quit about 1 PM. When I pulled down the 1296 antenna I noticed the outer part of the n-connector was pulled away from the coax. This put the center pin way down in the connector—it had NO contact with the center conductor. The whole darn exercise was for nothing. The contact with N9JIM was off the outside of the feed line and that is why he was weak. Also found out that I had turned the 432 preamp and amp off. That was why Len was also weak and I misled myself into thinking there was no propagation up to him in Willits. Total—1 contact in 1 grid. S_ _T.

Well, the contest was over so I packed it up and started down the hill. About 3/4 way down heard a big bump and the car started to jump up and down. MY GOD!—*now what?* After stopping and looking the car over I decided the new transmission I had installed only a week ago (cost me $850) had let go—the car would not move. I had to turn the motor off and coast down the Highway 9 grade 'til I got to a wide spot in the road and pulled over. I called AAA and got towed to the garage where I had the transmission put in. I'll find out Monday what happened. I don't know what will happen with the car, but until it goes I probably won't be up on Highway 35 again.

I'll tell you one thing—when I do get back up on Highway 35, I will have a new well-inspected piece of coax with well-installed connectors on it."—*Don, WA6GYD*

For many the Sprints were a good "warm up" for the June VHF QSO Party.

### More on "Distance Scoring for a VHF Contest"

Ed, K2DNE, had comments on Gene, W3ZZ's, article "Distance Scoring: Time to Change the Rules?" (March 1999 *CQ Contest*) in the May 1999 *Pack Rats* newsletter. One interesting observation was how Distance Scoring might change the winners in the June VHF QSO Party.

"The article concludes with a comparison of the top five multi-multi stations in the June 1998 VHF QSO Party. The order of finish under the present rules is: W2SZ, AA9D, K3MQH, W3CCX and K8GP. Using concentric circle distance scoring the order of finish would be: AA9D, K3MQH, K8GP, W3CCX and W2SZ. (Gene admits the scores he calculated are estimates because he only had access to the K8GP log—which he used to construct scores for the other logs.

The bottom line is that the distance scoring metric does even out the differences between living in a populous area vs living in an area with a low density of contesters. I like the concept of VHF DXing in contests and the

associated reward for working a station 500 miles away on 2 meters vs one ten miles away. The ARRL has even admitted in the write-up for the September 1998 VHF QSO Party (in March 1999 *QST)* the notable decline in entrants and activity. I know I've become somewhat bored with VHF contesting. Working the same stations in the same grids, on the same six bands, with the same scoring and exchange three times a year, year after year has become just a little dull. That's why I've explored the QRP Portable Category and an occasional stint at a multi-op. Rovers and club competition have added some excitement—would a change in scoring, even if only for one of the three major contests, add some needed fuel?"

Should scoring be changed in one of the ARRL VHF contests? If so, which one? If a Distance Scoring "metric" is to be used, should the formula be W3ZZ's "concentric circle distance scoring" or "an actual distance scoring system," like used in the Stew Perry 160M contest? (I personally feel the "Stew Perry" scoring system rewards DX contacts more fairly—and both types of scoring can be handled by modern contest logging software.) In any case, changes in the ARRL VHF Contest scoring probably won't happen in 1999. Let your ARRL CAC representative know if you have an opinion on this issue.

One final thought... for years when I operated multi-multi at WB0DRL one goal that we had was to beat W2SZ/1. In June 1987 we almost did it—had 'round the clock 6-meter Es, 2-meter Es and tropo all the way to New England—with some sharper operating we would have won. If the scoring system changes so that now almost any big multi-op station can top the Mt Greylock group—what challenge is there in beating W2SZ/1?

I realize they have dominated the VHF contests for many years, and some believe that under the current rules and with their great location they are unstoppable, but a few groups have taken it to them and beat them. Some stations located outside the northeast corridor have done it. Changing the scoring system so that W2SZ/1 is "handicapped" (I know that is not the reason given for adopting Distance Scoring but it would surely happen as shown in Gene's article) somehow just doesn't seem right.

### Single Op Low Power Entry Category in VHF Contests

The ARRL Sweepstakes, DX contest and CQ WW contests have added Single operator Low Power categories for entrants. In the ARRL VHF contests the choice has been either QRP (portable) or just plain Single Op. Radio and a brick (100—200 W) stations competed in the same category with the "big dogs running kilowatts" often with predictable results. Now, the ARRL Awards Committee had voted to accept a Contest Advisory Committee (CAC) recommendation for the addition of a Single Operator Low Power entry category for VHF Contests, beginning with the January 2000 VHF Sweepstakes. The maximum power limits for the new Single Operator Low Power Category will be:

| | |
|---|---|
| 50 and 144 MHz: | 200 W PEP maximum |
| 222 and 432 MHz: | 100 W PEP maximum |
| 902 MHz and above: | 10 W PEP maximum |

To qualify under the new category, a station must operate within the maximum power limitations on each band in which they participate. Certificates and awards will be developed for the new category according to the current awards structure. The rule will not affect the current Single Op QRP Portable Category (Whew!—*N0JK*). The goal of the new category is to encourage greater participation among the large number of VHF/UHF contest enthusiasts, many of whom can be competitive at lower power levels. Maybe this is some of "the needed fuel" mentioned by K2DNE to boost activity in the ARRL VHF Contests.

Until next issue, 73 and enjoy the hot summer conditions.

—73, Jon N0JK ■

# Results, February 1999 *NCJ* CW Sprint

**Mark Obermann, AG9A**
**HAMAG9A@aol.com**

K5GN had it right when he said the Top 5 was going to be close. This time, Tom, K1KI, beat all comers with a superb one-radio effort. N6TR, shed his alter ego "Bert" and used his own call sign enroute to a second place finish. His 374 QSO total fell just one short of the QSO record. K5GN landed in third place with K4AAA, N2IC and K5ZD all making the 350 QSO club. Is a 400 QSO Sprint a possibility someday? It's hard to say, but it is likely one of the gentlemen above could be the one to do it. Nice Black Hole scores were turned in by W4PA and K9XD (W9QA). W4PA and AD6DO achieved Top Ten finishes for the first time. As can be seen from a look at the Top Ten, there is a very even distribution among the top scores across the country — from W1 to W6, W5 to W9. The propagation gods decided to give everyone a fair chance at making big numbers this time.

What did Top Tenners K1KI, N6TR and AD6DO have in common? While many of us were busy alternating between bands in an effort to get a better score, these guys concentrated on one band at a time. They each had two band changes. AD6DO even managed to tie the multiplier record of 51 without trolling an "off" band. One of the analysis boxes shows how lock step K1KI and N6TR were in their band changes. It is interesting to note that both of them also broke the magic 100 QSO mark on all three bands.

In the low power battle, K2SQ edged out K9AA for the top spot. Competition among low power participants is getting tougher. It took a minimum of over 10K points to place among the Low Power Top Ten. The LP scores came in fairly evenly across the country.

Overall, an amazing number of records were shattered this past February. Twelve old records were broken, some dating as far back as 1982. New records were set in CA, CO, CT, GA, IL, IN, MA, NJ, NH, NC, SK and TN. C6 has been added to the North American record list and HC8 to the DX record list.

A total number of 57 multipliers could be found active during the contest. ZF, C6 and XE were among the North American countries active. It was great to hear HC8N (N5KO) on as loud as the locals while testing out a new station in the Galapagos. Unfortunately for some wishful entrants, HC8 is still considered South America and is not a multiplier.

SCCC#1 recaptured first place in the team category, handily beating out the competition. One of the secrets to SCCC's continued success in the team category is that their coordinator makes sure that everyone on the team sends in an entry. Further north up the coast, NCCC #1 gathered second place and the Dead Lizard crew from the Black Hole grabbed third. Mad River put together a strong team and rounded out the top four.

Golden Logs with 100 or more QSOs were achieved by N2RM (N2NC), AA3B, AD6DO, WO9S and NA0N. This is twice in a row for Pat, NA0N. K4BAI missed a fifth consecutive time by losing only one QSO.

The CW Sprint contest is doing very well indeed. Judging by the number of excellent scores and the comments that follow each contest, there is more interest and excitement in it now than ever before. It is important that we continue to increase participation by attracting others to join in the competition. As far as log quality is concerned, the trend has been towards cleaner and cleaner logs despite the higher QSO totals. This enhances the competition level of the contest. However, there is still room for improvement. Here are some hints:

**Sprint Hint #1** Don't count on your master database to accurately fill in information in your computer log. It is painfully obvious, when analyzing the data, who is not copying what is really being sent.

**Sprint Hint #2** Don't count on your first QSO with a station to accurately fill in information in your computer log for subsequent QSOs. The initial mistake often gets multiplied by two or three more QSOs.

**Sprint Hint #3** It is easy to get anxious and drop your call sign early on the heels of a just finished QSO — unless that QSO is not really finished (READ QSL). Wait until you hear the QSL to let your call loose. Sending your call any earlier may bust an unfinished QSO and create unnecessary confusion and hard feelings. I know of some Sprinters who purposely delay dropping in their call signs because they feel they have a better chance of being copied.

It is time to start organizing teams for the September CW Sprint. Take a look at the scores and contact those not on teams in the past. Encourage club members get on and hand out QSOs and follow up to make sure their logs are submitted as well. Please remember to register your team with **cwsprint@contesting.com** before the beginning of the contest.

Starting with the September, 1999 CW Sprint, all logs received will be listed at the ARRL Web site. The internet address is **http://www.arrl.org/contests/claimed/**. The page will be updated weekly as logs are received. Logs are due no later than 30 days after the contest.

September 12, 1999 at 00-04Z (Saturday evening local time) is the next time we test our Sprinting skills.

## Where Were K1KI and N6TR During the Sprint?

| *Band* | *K1KI* | *QSOs* | *N6TR* | *QSOs* |
|---|---|---|---|---|
| 20 | 0000-0133 Z | 138 | 0000-0126 Z | 137 |
| 40 | 0134-0252 Z | 123 | 0128-0256 Z | 138 |
| 80 | 0253-0359 Z | 104 | 0257-0359 Z | 102 |

## Guidelines for Log Submissions

Please submit both a log and summary sheet with your entry. Any format created by the popular logging programs is acceptable. E-mail your logs to **cwsprint@contesting.com** or send me your disk with the required information. An acknowledgement message will be sent to all e-mail submitters. Those sending disks can provide a SASE or stamped QSL for confirmation. Feedback on log accuracy is available via e-mail (request to **cwsprint@contesting.com**) or SASE once the results have been published.

Please remember the following when submitting your log:

- All log-related issues *must* be stated in the summary sheet. Comments included within the log will *not* be read.
- Clearly indicate your power level in the summary sheet. If you operated as a guest op from another station, please include this information in the summary.
- An electronic log is the preferred method of entry. If you logged by paper, please convert the log into an electronic format before sending it in. All logs are fully checked.
- All e-mail entries should be sent to **cwsprint@contesting.com** only.

## Soapbox

This was the second time using TR — much easier this time and it really helped me concentrate on the contest more than the pencil. No more paper logs! Also, first time to break 300 — a personal accomplishment that I have been seeking for about 5 years. Thanks to friends N6AA, N5KO, N6TV, N6VR for helpful suggestions on strategy for Sprint. — *AC6T*. Based on results and comments, I missed another good one! — *K0EJ*. I set a new personal best for QSOs; but I wasn't so lucky with multipliers, though I heard only three (AL, MS, AB) that I didn't work. My new sloper for 80 seems to be helping. — *K1HT*. Personal best. Slow start.... big finish for me. Good times, great ops! Viva TCG! — *K1KY*. Lots of fun as always. — *K3WU*. Was doing so well at the beginning, it was 30 minutes before I realized I had not turned the amplifier back on after eating dinner just before the contest started. — *K4BAI*. Another personal best. 300 Qs still seems like a long way off, but at least I'm still improving, and that's what it's all about. — *K4RO*. Wow again to TR and KI. Close top 5 this time.—*K5GN*. Great fun as usual. — *K5KA*. A personal best — I'd like to make it to 300 before the bar is raised to 400! — *K5OT*. The usual 220 or so. At least the mult count was up. My host's (Randy, W6UT) 80 antenna didn't like me again so minimal time there. Only one q from 10K... Darn — *K6GV*. Great conditions, great activity, personal best, what more can you ask for? — *K6LA*. 1st honest effort in Sprint, it was a good test of operating skill and it also showed what needs fixing station wise before the next event. Had a great time. — *K6RC*. Real happy with my results considering this is only my second CW Sprint. Nice to be in the "300 club." I had S8 noise on 40m and 80m, sorry if I CQed in your face. Thanks to Larry, K6RO for letting me guest op. — *N6RT (op of K6RO)*. The Elusive 300 is getting closer and closer... — *K6XX*. 80m, my Big Finish band produced a Puny Finish for some reason this year which is too bad since this was my best out-of-the-box start. — *K7BV*. First serious Sprint in a few years and what a blast! Put up a new inverted vee for 40 and 80 and it made a huge difference. Only got out of sync a few times. Looking forward to bigger antennas this spring! — *K7NT*. First time using *TRlog 4.05*, Sure got screwed up between CQ and S&P modes a bunch of times. Still better than the pencil. Have to get the real one and learn how to use it. — *K7NV*. I took off 45 minutes to keep my XYL cool, so 45 mults and 10K was a real surprise. — *K8MR*. Best score yet. Think I'll try High Power next time. WE9V's new station plays really well! Thanks Chad! — *K9AA*. 1900-2300z working on taxes in *TurboTax*, UGH! 2300Z Order pizza for the family (ordered too late!). 2325Z Pick up the pizza. (Maybe I should of had it delivered!) 2345Z Eat the pizza…fast! 2355Z Check in with SMC gang on 40m, set up *TR*. Missed first 16 minutes... oh well, advanced preparation next time, hi.… trying to get rid of the "band map" in *TR* but it's a default, DUH! 0100Z 30 Qs… encouraging given the slow start, hi. Burning up the ESC key… Ugh, taxes and contest in same day… headache, hi. I thought about using the name "IRS" to freak everyone out. 0135Z Worked PI4COM in some other contest on 40m. 0230Z Heard someone on 20m give out AK mult… um. Cat comes by for some petting… 0238Z Cat leaves and I work AK (tnx WL7KY). 0320-0325Z Catch TV news about hazing in the Marines. 0330Z Watching weather on TV news while CQing on 40m. Where's that 80m antenna when you need it? 0354Z Geez, a couple minutes left and I tuck in the XYL to bed. Hardest name to get, Steve, goes real fast! Nice to work some DX! C6AKP, HC8N, XE1/AA6RX… cool! — *K9GY*. I always have trouble getting into the Sprint mode. A little progress for me anyway in that I *finally* broke the 200 QSO barrier with low power. — *K9MMS*. My 1st attempt at the CW Sprint. A very humbling experience! You guys are good! — *KE0FT*. Started on 40 with a good rate, but 20 was a disaster. Less than half the stations called heard me, and RF in the computer forced a repair job. By the time I got back to 40 I was waaaay behind! That's what I love about contesting!!

**Top 10 Scores**

| | |
|---|---|
| K1KI | 17738 |
| N6TR | 17578 |
| K5GN | 17493 |
| N2IC | 17248 |
| K4AAA | 16992 |
| K5ZD | 16848 |
| N2NT | 16700 |
| W4PA | 16366 |
| AD6DO | 16167 |
| K9XD | 15950 |

**Top 10 QSOs**

| | |
|---|---|
| N6TR | 374 |
| K1KI | 362 |
| K5GN | 357 |
| K4AAA | 354 |
| N2IC | 352 |
| K5ZD | 351 |
| N2NT | 334 |
| W4PA | 334 |
| K6LL | 334 |
| N6TV | 332 |

**Top 10 Mults**

| | |
|---|---|
| AD6DO | 51 |
| N2NT | 50 |
| K9XD | 50 |
| K1KI | 49 |
| W1WEF | 49 |
| AA3B | 49 |
| W4PA | 49 |
| K5GN | 49 |
| KU8E | 49 |
| N2IC | 49 |

**Top 10 Low Power Scores**

| | |
|---|---|
| K2SQ | 12880 |
| K9AA | 12784 |
| N0AX | 11880 |
| W9RM | 11822 |
| K1HT | 11696 |
| K7NT | 11610 |
| N6ZZ | 11396 |
| W9WI | 10704 |
| K4XU | 10710 |
| N8AA | 10472 |

**Band Changes**

| | |
|---|---|
| W9RM | 97 |
| N2NT | 96 |
| K5GN | 71 |
| K9XD | 59 |
| K5ZD | 56 |
| W5WMU | 52 |
| N6IG | 48 |
| K4AAA | 44 |
| N2IC | 38 |
| W4PA | 35 |

**Golden Logs**

(No QSOs Removed for 100 QSOs min)

| *Call* | *QSOs* |
|---|---|
| N2RM | 320 |
| AD6DO | 317 |
| AA3B | 294 |
| NA0N | 242 |
| WO9S | 141 |

| Call | Station | Op |
|---|---|---|
| AC6T | K6DC | AC6T |
| K5GN | W5KU | K5GN |
| K6GV | W6UT | K6GV |
| K6RO | K6RO | N6RT |
| K7BV | K5RC/7 | K7BV |
| K9AA | WE9V | K9PG |
| K9XD | K9XD | W9QA |
| KY7M | KC7V | KY7M |
| N2RM | N2RM | N2NC |
| N5RZ | KD5SP | N5RZ |
| N6TV | K6KM | N6TV |
| W6RGG | W6OSP | W6RGG |
| W6UE | W6UE | W4EF |
| W9RM | W9RM | AG9A |
| W9YH | W9YH | N4OGW |
| VA3UZ | VA3RU | VA3UZ |
| VK5GN | VK5GN | N6AA |

**Team Scores**

**SCCC #1**

| | |
|---|---|
| AD6DO | 16167 |
| K6LL | 15030 |
| K6LA | 14444 |
| AC6T | 14122 |
| K6NA | 14040 |
| K6RO | 13770 |
| W6UE | 11954 |
| N6VR | 11704 |
| KY7M | 11466 |
| W6TK | 8040 |
| Total | 130737 |

**NCCC #1**

| | |
|---|---|
| N6TV | 15936 |
| N6IG | 15888 |
| N6RO | 14006 |
| W6OAT | 12690 |
| K7BV | 11528 |
| K6XX | 11481 |
| W6RGG | 11094 |
| AE6Y | 10660 |
| Total | 103283 |

**DLCSCW**

| | |
|---|---|
| K9XD | 15950 |
| W9RE | 13410 |
| K9AA | 12784 |
| K9ZO | 11924 |
| W9RM | 11822 |
| K9BGL | 10578 |
| K9IG | 9840 |
| KB9TSN | 5746 |
| Total | 92054 |

**MRRC**

| | |
|---|---|
| KW8N | 13296 |
| KU8E | 12985 |
| N8EA | 11309 |
| K8MR | 10440 |
| K0OU | 10127 |
| K9TM | 8988 |
| W8AV | 7020 |
| K8DD | 5945 |
| K4MA | 5852 |
| Total | 85962 |

5. TCG (W4PA, K1KY, K4WX, K4RO, W9WI, WO4O, K3WU, K0EJ, N3DEL) ..... 77647
6. RDO (N6TR, W7WA, N0AX, K7NT, KK7GW, WL7KY, AD7U, AA0CY) ..... 72807
7. FRCD (N2NT, AA3B, K3WW, N2RM, K2SQ) ..... 70262
8. NCC (K5ZD, N9RV, K3LR, N8AA, K3UA, K8NZ) ..... 66388
9. YCCC (K1KI, W1WEF, K1DG, K1HT) ..... 58500
10. SMC #2 (K9MMS, WI9WI, WT9U, KJ9C, WO9S, K9KM, W0UY, K9GY, K0RX) 56846
11. PROC (N5RZ, K5OT, VE5MX, VA3UZ, KU7Y) ..... 49925
12. TDXS (K5GN, K5NZ, W5ASP, KN5H) ..... 48799
13. SECC (K4AAA, K4BAI, K4OGG) ..... 36254
14. NCCC #2 (AJ6V, K6GV, N6PN, K6RC) ..... 35677
15. SCCC #2 (N6ZZ, K7NV, K6VNX, KQ6ES) ..... 31213
16. FCG (WC4E, WD4AHZ, K1TO) ..... 20001
17. SMC #3 (KA9FOX, KB3AFT, KE0FT) ..... 19077

Rates on 80 were very good, and bands were long, so it was fun to play catch up. Guess the high winds did more damage to my 20 meter dipole than I thought, huh? There are contests, and then there's the Sprint! It challenges us to not park our butts and call CQ. Even us S&P ops get a chance to learn how to sort out callers. — *KJ9C*. Great conditions, and great ops! — *KK7GW*. I had surgery on my right shoulder (sending and logging arm) roughly 50 hours before the CW Sprint. I managed to get the station ready before the surgery. The shoulder didn't bother me as much as I thought it might, but other side effects of the IV and general anesthetic still seemed present with me. First time I remember having to take potty breaks during a Sprint and even the mental stamina gave way too. It was still fun anyway. — *KW8N*. I never got close to my goal of 200 Qs but I did improve by about almost 20% so I'll just try again the next time. Thanks to all who had to dig me out of the noise. — *KU7Y*. Lots of personal bests reported on 3830 — add another to the list. On to and beyond! Probably the smoothest flow for me of any Sprint yet — none of those embarrassing 30 minute periods that look mighty bad in the log later on. Thanks to HC8N and ZF2NT for spicing things up — no Europeans this time. — *N0AX*. FB condx. — *N4AF*. Thanks to Tommy for use of his station. I kept my shirt on this time and the multiplier improved. Now to work on QSOs. Hours 2 & 3 were 68 & 69 respectively. Can't get back in the top ten operating like that! — *N5RZ*. It would be nice if stations who are about to pounce after completion of a QSO would wait a couple of beats so the confirmation from the station who just received the exchange can be heard. This is mostly a problem on 80 meters where the difference between a loud and weak signal is about 50 dB. New 3 element 80 worked well. — *N6TR*. Many thanks to Bill, K6KM, for lending me his fine station for the contest. — *N6TV*. As of two hours before the contest, I had no antennas. Dashed about like a crazy person (probably appropriate) to throw a couple of temporary wires in the trees. 20-meter dipole wouldn't resonate, so used the 80-meter dipole on 20 with an antenna tuner. Seemed to get beat out more than usual when calling people. — *N6ZZ*. First Sprint — boy I'm glad it's only 4 hours! — *N7VM*. Should have stayed longer on 20. The band was good and my 4-el Telrex is the best stateside antenna I've ever used there. — *N9RV*. Stayed on 20 too long. One VFO is not enough for the contest like this. Heard but missed VE2, VE6, WV. Next time! — *VA3UZ*. Off to a shaky start, the county fire department was still putting out a prairie fire across the road from the shack when the contest started. — *W0UY*. Condx just don't get better than this! Despite the worst cold I've had in years, I enjoyed my favorite contest more than ever. – *W1WEF*. Another Tennessee state record, this one makes two in a row. If I make it to the top 10 it'll be the first time I've ever made it in the Sprint. What a great contest — definitely my favorite. — *W4PA*. Started out neck-and-neck with the big boys. My elation was short lived though(about 20 minutes) as visions of 300 QSOs soon faded in the midst of the more familiar confusion and panic. Maybe next time! Thanks to everyone for the Qs. — *W4EF (op of W6UE)*. Sorry, illness made my participation minimal. CU in the fall. — *W5NR*. Early in the test, a VT station called me on 20. A noise burst took him out during the number and name, so I requested a fill. At the same time he began transmitting the fill, a S9+ W2 station began calling "CQ NA" *dead on top* of the VT operator. Between the W2 and the chain of QSOs his CQ generated, it was impossible to copy the VT guy to get his fills, and impossible for him to hear me ask for them. Had to give up and scratch the QSO. — *W9WI*. First Sprint! Lots of fun, can't work 'em all with 5 W but enough to stay busy. — *WO9S*

**Top 10**

| | Scores | Band Changes | QSOs Lost | 00Z | 01Z | 02Z | 03Z |
|---|---|---|---|---|---|---|---|
| K1KI | 17738 | 2 | 3 | 101 | 86 | 86 | 94 |
| N6TR | 17578 | 2 | 3 | 103 | 93 | 84 | 97 |
| K5GN | 17493 | 71 | 1 | 98 | 76 | 88 | 96 |
| N2IC | 17248 | 38 | 2 | 94 | 84 | 81 | 96 |
| K4AAA | 16992 | 44 | 2 | 93 | 89 | 84 | 90 |
| K5ZD | 16848 | 56 | 3 | 92 | 85 | 86 | 91 |
| N2NT | 16700 | 96 | 8 | 92 | 84 | 77 | 89 |
| W4PA | 16366 | 35 | 1 | 90 | 78 | 80 | 87 |
| AD6DO | 16167 | 2 | 0 | 88 | 60 | 86 | 83 |
| K9XD | 15950 | 59 | 3 | 83 | 72 | 82 | 85 |

**Team Key**

| | |
|---|---|
| DLCSCW | Dead Lizards Can't Send CW |
| FCG | Florida Contest Group |
| FRCD | Frankfurt Radio Club Domestic |
| MRRC | Mad River Radio Club |
| NCC | North Coast Contesters |
| NCCC#1 | Northern California Contest Club #1 |
| NCCC#2 | Northern California Contest Club #2 |
| PROC | Procrastinators |
| RDO | Rush Drake Orchestra |
| SCCC#1 | Southern California Contest Club #1 |
| SCCC#2 | Southern California Contest Club #2 |
| SECC | South East Contest Club |
| SMC#2 | Society of Midwest Contesters #2 |
| SMC#3 | Society of Midwest Contesters #3 |
| TCG | Tennessee Contest Group |
| TDXS | Texas DX Society |
| YCCC | Yankee Clipper Contest Club |

**Scores**

| *Call* | *Name* | *QTH* | *20* | *40* | *80* | *QSO* | *Mul* | *Score* | *Team* |
|---|---|---|---|---|---|---|---|---|---|
| K1KI | Tom | CT | 137 | 123 | 102 | 362 | 49 | 17738 | YCCC |
| K5ZD | Randy | MA | 124 | 137 | 90 | 351 | 48 | 16848 | NCC |
| W1WEF | Jack | CT | 121 | 113 | 80 | 314 | 49 | 15386 | YCCC |
| K1DG | Doug | NH | 107 | 121 | 76 | 304 | 45 | 13680 | YCCC |
| K1HT | *Dave | MA | 96 | 115 | 61 | 272 | 43 | 11696 | YCCC |
| WR1P | Nate | MA | 67 | 64 | 53 | 184 | 39 | 7176 | |
| N2NT | Andy | NJ | 126 | 132 | 76 | 334 | 50 | 16700 | FRCD |
| N2RM (N2NC) | John | NJ | 109 | 123 | 88 | 320 | 41 | 13120 | FRCD |
| K2SQ | *Ed | NJ | 94 | 101 | 85 | 280 | 46 | 12880 | FRCD |
| AA3B | Bud | PA | 103 | 102 | 89 | 294 | 49 | 14406 | FRCD |
| K3LR | Tim | PA | 119 | 110 | 75 | 304 | 45 | 13680 | NCC |
| K3WW | Chas | PA | 106 | 99 | 81 | 286 | 46 | 13156 | FRCD |
| WA3HAE | *Keith | PA | 88 | 82 | 56 | 226 | 40 | 9040 | |
| K3UA | Bob | PA | 35 | 99 | 63 | 197 | 38 | 7486 | NCC |
| KB3AFT | *Jim | PA | 56 | 73 | 45 | 174 | 40 | 6960 | SMC #3 |
| K3WU | *Jim | PA | 64 | 59 | 54 | 177 | 37 | 6549 | TCG |
| N3DEL (N9GG) | *Del | DE | 13 | 1 | 0 | 14 | 7 | 98 | TCG |
| K4AAA (W4AN) | Bill | GA | 136 | 119 | 99 | 354 | 48 | 16992 | SECC |
| W4PA | Scott | TN | 114 | 126 | 94 | 334 | 49 | 16366 | TCG |
| N4AF | Al | NC | 106 | 114 | 90 | 310 | 46 | 14260 | |
| K4BAI | John | GA | 99 | 107 | 92 | 298 | 45 | 13410 | SECC |
| K1KY | Tom | TN | 81 | 96 | 85 | 262 | 47 | 12314 | TCG |
| WC4E | Jeff | FL | 99 | 113 | 71 | 283 | 43 | 12169 | FCG |
| K4WX | Don | TN | 86 | 106 | 96 | 288 | 42 | 12096 | TCG |
| K4RO | Kirk | TN | 76 | 97 | 90 | 263 | 44 | 11572 | TCG |
| W9WI | *Doug | TN | 70 | 81 | 72 | 223 | 48 | 10704 | TCG |
| K4FXN | *Dan | KY | 59 | 85 | 63 | 207 | 39 | 8073 | |
| WO4O | *Ric | TN | 46 | 84 | 76 | 206 | 38 | 7828 | TCG |
| WD4AHZ | *Ron | FL | 87 | 68 | 47 | 202 | 38 | 7676 | FCG |
| K4MX | *Jeri | VA | 50 | 62 | 60 | 172 | 40 | 6880 | |
| N4RG | Ted | TN | 51 | 66 | 57 | 174 | 39 | 6786 | |
| K4OGG | Jay | GA | 46 | 85 | 23 | 154 | 38 | 5852 | SECC |
| K4MA | Jim | NC | 49 | 69 | 36 | 154 | 38 | 5852 | MRRC |
| K1TO | *Dan | FL | 0 | 0 | 13 | 13 | 12 | 156 | FCG |
| K0EJ | *Mark | TN | 11 | 1 | 0 | 12 | 10 | 120 | TCG |
| K5GN | Dave | TX | 134 | 139 | 84 | 357 | 49 | 17493 | TDXS |
| N5RZ | Gator | TX | 123 | 109 | 86 | 318 | 47 | 14946 | PROC |
| K5NZ | Mike | TX | 96 | 109 | 61 | 266 | 46 | 12236 | TDXS |
| K5KA | Ken | OK | 78 | 86 | 84 | 248 | 46 | 11408 | |
| N6ZZ | *Phil | NM | 99 | 116 | 44 | 259 | 44 | 11396 | SCCC #2 |
| K5OT | Larry | TX | 84 | 115 | 73 | 272 | 41 | 11152 | PROC |
| K5TQ | Gary | NM | 99 | 85 | 75 | 259 | 43 | 11137 | |
| W5WMU | Pat | LA | 89 | 82 | 66 | 237 | 43 | 10191 | |
| W5ASP | Joe | TX | 90 | 95 | 52 | 237 | 42 | 9954 | TDXS |
| AF5Z | *Bob | TX | 48 | 85 | 55 | 188 | 39 | 7332 | |
| N5OT | Mark | OK | 31 | 55 | 6 | 92 | 35 | 3220 | |
| W5NR | Art | TX | 3 | 0 | 0 | 3 | 3 | 9 | |
| AD6DO | Dan | CA | 138 | 100 | 79 | 317 | 51 | 16167 | SCCC #1 |
| N6TV | Bob | CA | 121 | 124 | 87 | 332 | 48 | 15936 | NCCC #1 |
| N6IG | Jim | CA | 131 | 132 | 68 | 331 | 48 | 15888 | NCCC #1 |
| K6LA | Ken | CA | 129 | 122 | 63 | 314 | 46 | 14444 | SCCC #1 |
| AC6T | Steve | CA | 122 | 116 | 69 | 307 | 46 | 14122 | SCCC #1 |
| K6NA | Glen | CA | 131 | 105 | 76 | 312 | 45 | 14040 | SCCC #1 |
| N6RO | Ken | CA | 118 | 106 | 74 | 298 | 47 | 14006 | NCCC #1 |
| K6RO (N6RT) | Larry | CA | 116 | 122 | 68 | 306 | 45 | 13770 | SCCC #1 |
| W6OAT | Rusty | CA | 104 | 113 | 53 | 270 | 47 | 12690 | NCCC #1 |
| W6UE (W4EF) | Mike | CA | 106 | 106 | 66 | 278 | 43 | 11954 | SCCC #1 |

| *Call* | *Name* | *QTH* | *20* | *40* | *80* | *QSO* | *Mul* | *Score* | *Team* |
|---|---|---|---|---|---|---|---|---|---|
| N6VR | Ray | CA | 107 | 115 | 44 | 266 | 44 | 11704 | SCCC #1 |
| K6XX | Bob | CA | 113 | 93 | 61 | 267 | 43 | 11481 | NCCC #1 |
| W6RGG | Bob | CA | 101 | 108 | 49 | 258 | 43 | 11094 | NCCC #1 |
| AE6Y | Andy | CA | 107 | 94 | 59 | 260 | 41 | 10660 | NCCC #1 |
| AJ6V | Ed | CA | 96 | 86 | 47 | 229 | 41 | 9389 | NCCC #2 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| K6GV | Bo | CA | 87 | 104 | 19 | 210 | 44 | 9240 | NCCC #2 |
| N6PN | *Matt | CA | 82 | 97 | 35 | 214 | 41 | 8774 | NCCC #2 |
| K6RC | Dave | CA | 68 | 88 | 41 | 197 | 42 | 8274 | NCCC #2 |
| W6TK | Dick | CA | 86 | 78 | 37 | 201 | 40 | 8040 | SCCC #1 |
| K6VNX | Arlen | CA | 87 | 61 | 23 | 171 | 43 | 7353 | SCCC #2 |
| KQ6ES | *John | CA | 39 | 59 | 18 | 116 | 35 | 4060 | SCCC #2 |
| W6MVW | Dick | CA | 98 | 0 | 0 | 98 | 37 | 3626 | |
| N6NF | *Tom | CA | 2 | 43 | 0 | 45 | 22 | 990 | |
| N6TR | Tree | OR | 136 | 137 | 101 | 374 | 47 | 17578 | RDO |
| K6LL | Dave | AZ | 129 | 129 | 76 | 334 | 45 | 15030 | SCCC #1 |
| W7WA | Dan | WA | 116 | 120 | 48 | 284 | 47 | 13348 | RDO |
| N0AX | *Ed | WA | 126 | 94 | 50 | 270 | 44 | 11880 | RDO |
| K7NT | *Mike | OR | 104 | 115 | 39 | 258 | 45 | 11610 | RDO |
| K7BV | Ncj | NV | 99 | 102 | 61 | 262 | 44 | 11528 | NCCC #1 |
| KY7M | Lee | AZ | 94 | 97 | 82 | 273 | 42 | 11466 | SCCC #1 |
| K4XU | *Dick | OR | 109 | 101 | 45 | 255 | 42 | 10710 | |
| W7ZRC | *Rod | ID | 74 | 114 | 55 | 243 | 41 | 9963 | |
| KN5H | *Steve | AZ | 84 | 93 | 35 | 212 | 43 | 9116 | TDXS |
| K7NV | Kurt | NV | 82 | 77 | 32 | 191 | 44 | 8404 | SCCC #2 |
| N7LOX | *Brian | WA | 104 | 88 | 29 | 221 | 37 | 8177 | |
| N7VM | *Bill | UT | 79 | 78 | 51 | 208 | 38 | 7904 | |
| KK7GW | *David | WA | 102 | 56 | 20 | 178 | 39 | 6942 | RDO |
| WL7KY | Chris | AK | 105 | 60 | 0 | 165 | 39 | 6435 | RDO |
| KU7Y | **Ron | NV | 59 | 69 | 20 | 148 | 40 | 5920 | PROC |
| AD7U | *Caleb | WA | 50 | 65 | 6 | 121 | 35 | 4235 | RDO |
| W7YAQ | *Bob | OR | 38 | 35 | 23 | 96 | 40 | 3840 | |
| AA0CY | *Bob | WA | 19 | 22 | 0 | 41 | 19 | 779 | RDO |
| KW8N | Bob | OH | 85 | 109 | 83 | 277 | 48 | 13296 | MRRC |
| KU8E | Jeff | OH | 65 | 109 | 91 | 265 | 49 | 12985 | MRRC |
| N8EA | Joe | MI | 80 | 104 | 79 | 263 | 43 | 11309 | MRRC |
| N8AA | *John | OH | 80 | 95 | 63 | 238 | 44 | 10472 | NCC |
| K8MR | Jim | OH | 68 | 96 | 68 | 232 | 45 | 10440 | MRRC |
| K9TM | Mitch | OH | 78 | 88 | 48 | 214 | 42 | 8988 | MRRC |
| W8AV | Goose | OH | 46 | 80 | 54 | 180 | 39 | 7020 | MRRC |
| K8DD | Duck | MI | 45 | 71 | 29 | 145 | 41 | 5945 | MRRC |
| K8JM | John | MI | 53 | 48 | 23 | 124 | 39 | 4836 | |
| K8NZ | *Ron | OH | 70 | 51 | 0 | 121 | 32 | 3872 | NCC |
| K8KFJ | Gary | WV | 36 | 34 | 41 | 111 | 34 | 3774 | |
| K9XD (W9QA) | Dave | IL | 99 | 126 | 94 | 319 | 50 | 15950 | DLCSCW |
| N9RV | Pat | IN | 96 | 121 | 88 | 305 | 46 | 14030 | NCC |
| W9RE | Mike | IN | 88 | 119 | 91 | 298 | 45 | 13410 | DLCSCW |
| W9YH (N4OGW) | Tor | IL | 88 | 94 | 93 | 275 | 47 | 12925 | |
| K9AA (K9PG) | *Paul | WI | 96 | 109 | 67 | 272 | 47 | 12784 | DLCSCW |
| K9ZO | Ralph | IL | 90 | 93 | 88 | 271 | 44 | 11924 | DLCSCW |
| W9RM (AG9A) | *Dave | IL | 66 | 116 | 74 | 257 | 46 | 11822 | DLCSCW |
| K9BGL | Karl | IL | 81 | 98 | 79 | 258 | 41 | 10578 | DLCSCW |
| K9IG | Liz | IN | 65 | 97 | 78 | 240 | 41 | 9840 | DLCSCW |
| KA9FOX | Scott | WI | 75 | 86 | 76 | 237 | 41 | 9717 | SMC #3 |
| K9MMS | *Gary | IL | 39 | 110 | 60 | 209 | 44 | 9196 | SMC #2 |
| WI9WI | Kenstarr | WI | 73 | 76 | 64 | 213 | 42 | 8946 | SMC #2 |
| K0SN | *Tom | WI | 52 | 100 | 50 | 202 | 43 | 8686 | |
| WT9U | *Jim | IN | 44 | 80 | 77 | 201 | 41 | 8241 | SMC #2 |
| KJ9C | *Mel | IN | 33 | 85 | 67 | 185 | 41 | 7585 | SMC #2 |
| WO9S | **Jon | IL | 43 | 66 | 32 | 141 | 41 | 5781 | SMC #2 |
| KB9TSN | Ed | IN | 41 | 70 | 58 | 169 | 34 | 5746 | DLCSCW |
| K9KM | *Howie | IL | 44 | 78 | 26 | 148 | 37 | 5476 | SMC #2 |
| K9GY | *Abe | IL | 39 | 84 | 0 | 123 | 36 | 4428 | SMC #2 |
| N2IC | Steve | CO | 141 | 123 | 88 | 352 | 49 | 17248 | |
| NA0N | *Pat | MN | 74 | 86 | 82 | 242 | 42 | 10164 | |
| K0OU | Steve | MO | 67 | 113 | 67 | 247 | 41 | 10127 | MRRC |
| W0UY | *Tom | KS | 47 | 62 | 36 | 145 | 34 | 4930 | SMC #2 |
| KE0FT | *John | IA | 29 | 28 | 23 | 80 | 30 | 2400 | SMC #3 |
| K0RX | *Dave | IA | 58 | 15 | 0 | 73 | 31 | 2263 | SMC #2 |
| VE5MX | Todd | VE5 | 88 | 84 | 44 | 216 | 43 | 9288 | PROC |
| VA3UZ | *Jerry | VE3 | 78 | 94 | 49 | 221 | 39 | 8619 | PROC |
| VE5SF | *Sam | VE5 | 83 | 88 | 42 | 213 | 39 | 8307 | |
| C6AKP | *Dick | C6 | 15 | 4 | 2 | 21 | 14 | 294 | |
| HC8N (N5KO) | Trey | DX | 113 | 13 | 0 | 126 | 38 | 4788 | |
| VK5GN (N6AA) | Dick | DX | 40 | 0 | 0 | 40 | 19 | 760 | |

*Denotes 150W or less **Denotes 5W or less

## *NCJ* CW Sprint Records - Through February 1999

| *QTH* | *Date* | *Call* | *QSOs* | *Mults* | *Score* |
|---|---|---|---|---|---|
| **CO** | **2/99** | **N2IC/0** | **352** | **49** | **17,248** |
| IA | 2/98 | N0NI (AG9A) | 321 | 46 | 14,766 |
| KS | 9/82 | K0VBU | 231 | 42 | 9,702 |
| MN | 9/79 | W0ZZ | 268 | 43 | 11,524 |
| MO | 9/96 | K4VX/0 (WX3N) | 332 | 46 | 15,272 |
| NE | 2/91 | KV0I | 204 | 34 | 6,936 |
| ND | 9/98 | WB0O | 320 | 42 | 13,440 |
| SD | 2/93 | WD0T | 319 | 39 | 12,441 |
| **CT** | **2/99** | **K1KI** | **362** | **49** | **17,738** |
| MA | 2/99 | K5ZD | 351 | 48 | 16,848 |
| ME | 9/88 | K1KI | 218 | 41 | 8,938 |
| NH | 2/99 | K1DG | 304 | 45 | 13,680 |
| RI | 2/90 | K1IU | 236 | 44 | 10,384 |
| VT | 9/93 | N4DW/1 | 235 | 42 | 9,870 |
| **NJ** | **2/99** | **N2NT** | **334** | **50** | **16,700** |
| NY | 9/80 | N2NT | 319 | 42 | 13,398 |
| DE | 9/89 | KN5H/3 | 272 | 46 | 12,512 |
| MD | 9/89 | W3LPL | 310 | 47 | 14,570 |
| **PA** | **2/92** | **K3LR** | **334** | **45** | **15,030** |
| AL | 9/89 | N4KG | 251 | 45 | 11,295 |
| FL | 9/98 | K1TO | 367 | 46 | 16,882 |
| **GA** | **2/99** | **K4AAA (W4AN)** | **354** | **48** | **16,992** |
| KY | 9/98 | K4LT | 281 | 44 | 12,364 |
| NC | 2/99 | N4AF | 310 | 46 | 14,260 |
| SC | 9/89 | K0EJ/4 | 188 | 44 | 8,272 |
| TN | 2/99 | W4PA | 334 | 49 | 16,366 |
| VA | 9/89 | KT3Y/4 | 296 | 48 | 14,208 |
| AR | 2/82 | K5GO | 302 | 40 | 12,040 |
| LA | 2/95 | W5WMU (K5GA opr) | 306 | 48 | 14,688 |
| MS | 2/98 | WQ5L | 230 | 40 | 9,200 |
| NM | 2/92 | K7UP (KN5H opr) | 310 | 47 | 14,570 |
| OK | 9/89 | KM5H | 289 | 49 | 14,161 |
| **TX** | **2/92** | **KR0Y/5** | **375** | **47** | **17,625** |
| **CA** | **2/99** | **AD6DO** | **317** | **51** | **16,167** |
| AK | 2/90 | NL7GP | 176 | 37 | 6,512 |
| AZ | 2/97 | K6LL/7 | 338 | 48 | 16,224 |
| ID | 9/82 | K7NHV | 281 | 38 | 10,678 |
| MT | 2/98 | K7BG | 273 | 43 | 11,739 |
| NV | 2/98 | K7BV | 272 | 43 | 11,696 |
| **OR** | **2/95** | **N6TR/7** | **358** | **51** | **18,258** |
| UT | 9/91 | K6XO/7 | 263 | 44 | 11,572 |
| WA | 2/92 | K7SS | 329 | 42 | 13,818 |
| WY | 9/89 | N7NG | 253 | 46 | 11,638 |
| MI | 9/96 | K8CC | 284 | 44 | 12,496 |
| **OH** | **9/91** | **K3UA/8** | **322** | **45** | **14,490** |
| WV | 9/82 | N8II | 250 | 42 | 10,500 |
| **IL** | **2/99** | **K9XD (W9QA)** | **319** | **50** | **15,950** |
| IN | 2/99 | N9RV | 305 | 46 | 14,030 |
| WI | 2/92 | N0BSH/9 | 283 | 46 | 13,018 |
| VE1 | 2/88 | VO1QU | 143 | 33 | 4,719 |
| VE2 | 9/88 | VE2ZP | 214 | 41 | 8,774 |
| VE3 | 2/98 | VE3EJ | 250 | 43 | 10,750 |
| VE4 | 9/93 | VE4VV | 237 | 40 | 9,480 |
| VE5 | 2/99 | VE5MX | 216 | 43 | 9,288 |
| VE6 | 2/98 | VE6EX | 194 | 41 | 7,954 |
| **VE7** | **9/92** | **VE7NTT** | **274** | **47** | **12,878** |
| VY1 | 9/94 | VY1JA | 6 | 3 | 18 |
| C6 | 2/99 | C6AKP | 21 | 14 | 294 |
| HH | 9/96 | HH2AW | 139 | 33 | 4,587 |
| HI8 | 2/91 | HI8DMX | 40 | 19 | 2,430 |
| VP2E | 2/96 | VP2E/KI4HN | 68 | 30 | 2,040 |
| VP9 | 2/85 | W6OAT/VP9 | 202 | 31 | 6,262 |
| V4 | 2/96 | V40Z (AA7VB) | 54 | 23 | 1,242 |
| XE | 9/90 | XE2XA (WN4KKN ) | 305 | 47 | 14,335 |
| ZF | 9/92 | ZF2KI (K1KI) | 251 | 49 | 12,299 |
| 4U1 | 2/85 | 4U1UN (W2TO) | 70 | 23 | 1,610 |
| 8P | 2/96 | 8P9EN | 10 | 8 | 80 |
| CT | 9/98 | CT1BOH | 225 | 40 | 9,000 |
| EA8 | 2/94 | EA1AK/EA8 | 36 | 21 | 756 |
| F | 9/90 | F/N6TR | 196 | 38 | 7,448 |
| G | 2/98 | G4BUO | 101 | 29 | 2,929 |
| HC8 | 2/99 | HC8N (N5KO) | 113 | 38 | 4,788 |
| I | 9/98 | IK0HBN | 100 | 35 | 3,500 |
| JA | 2/91 | 7J1AAI | 13 | 9 | 117 |
| KH6 | 9/81 | KH6NO | 121 | 30 | 3,630 |
| LY | 2/92 | LY2ZO | 37 | 20 | 740 |
| OH | 9/98 | OH1NOA | 56 | 22 | 1,232 |
| PY | 9/80 | PY8ZPJ | 29 | 14 | 406 |
| VK | 9/94 | VK5GN (N6AA) | 48 | 22 | 1,056 |
| ZD8 | 9/90 | ZD8Z (N6TJ ) | 228 | 43 | 9,804 |

| | | | |
|---|---|---|---|
| Highest Score: 2/95 | N6TR/7 | 18,258 | |
| Highest Multiplier: | 9/89,2/95,2/99 | KR0Y/5,N6TR/7,AD6DO | 51 |
| Highest QSO total: | 2/92 | KR0Y/5 | 375 |
| Most logs received: | 2/92 | 160 | |
| Number logs >= 300: | 2/99 | 24 | |
| Number Golden Logs: | 9/94 | 9 | |
| Highest Team Score: | 9/98 | Make No Mistake About It | 139,628 |

# Results, January 1999 NAQP SSB Contest

**Bruce Horn, WA7BNM**
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On January 16, 1999 the high temperature for the day in Yuma, Arizona was 75ºF. Not warm by Yuma standards. But 10 meters was red hot, and K6LL/7 used it for the first two and a half hours of the January 1999 edition of the NAQP SSB contest to set new all-time records of 322,788 points and 1454 QSOs, breaking the old marks set by KR6X operating N6UR in 1993. In the end, this was the créme de la créme of 27 record-breaking single op scores. If you missed this one, you missed one of the hottest NAQPs ever!

Following K6LL, N6RO overcame K6ZZ during the last hour of the contest to win California honors and take second place overall, with K6ZZ taking third. (See "K6ZZ vs N6RO: The Battle for California.") K4XS led the Southeastern corner of the US to finish fourth and set a new Florida record. W7WA managed fifth place from the Pacific Northwest without any QSOs on 160 or 80 meters, while breaking W7NN's year-old Washington record. N6NT operated from his Cayman Islands QTH as ZF2NT for sixth place and obliterated the old ZF record of 8800 points. W7NN, WC4E, K4WX and KW8N rounded out the top-ten single op scores with K4WX edging his old Tennessee record and KW8N breaking his two-year old Ohio record. As a result of all of these high scores, the first five scores moved onto the top-ten all time high scores list.

K4NO won the close multi-two competition, while having fewer QSOs but more multipliers, than either second-place finisher KT0R or third-place finisher KK1L. Fewer than 30k points separated first and third place.

In the team competition, the Southern California Contest Club No. 1 team, led by K6LL and K6ZZ, finally broke through the million-point barrier to set a new all-time team record of more than 1.2 million points. The Northern California Contest Club team, led by N6RO and ZF2NT, also broke the million-point barrier to finish only 90k points behind the SCCC. Could this be the beginning of a new California rivalry between the SCCC and the NCCC for top team score? Third place went to the Tennessee Contest Group No. 1 team with a score of almost 840k points.

In addition to these top finishers, there were many record-setting performances. In 1-land, K1VUT set a new Massachusetts record, while WA1LNP broke his own New Hampshire record. W4OC smashed the old South Carolina record; K1GG broke his own year-old Virginia record; and KT4ZX put himself in the record book for Kentucky. In 5-land, K5OY, broke the six-month old Arkansas record with 210k points. K5RC celebrated his return to the NAQP SSB contest with a new Nevada record, while WL7KY broke 100k points and set a new Alaska standard. In 9-land, WE9V set a new Wisconsin record, but was prevented from simultaneously holding two state records by W9RM's 224k points for a new Illinois record. N0AV upped his

## K6ZZ vs N6RO: The Battle for California

Although they probably didn't realize it during the contest, K6ZZ, representing the Southern California Contest Club, and N6RO, representing the Northern California Contest Club, waged a battle for first place in California. The table below shows the chronology of their band changes, off periods and hourly scores. Although N6RO jumped to an early lead, K6ZZ held a slight 494 point lead at the half-way mark. With one hour left in the contest, K6ZZ had overcome N6RO's lead of most of the second half of the contest to lead by almost 15k points. However, N6RO managed 68 QSOs and 25 multipliers in the last hour to pull out the California win: 290,408 to 284,874.

| Time | K6ZZ | N6RO |
|---|---|---|
| 1800Z | 10m | 10m |
| 1859Z | 143/27 = 3,861 | 162/31 = 5,022 |
| 1932Z | 15m | 15m |
| 1959Z | 281/63 = 17,703 | 318/70 = 22,260 |
| 2000Z | | 10m |
| 2018Z | | 15m |
| 2059Z | 445/76 = 33,820 | 431/81 = 34,911 |
| 2102Z | | 10m |
| 2104Z | | Start of first off period |
| 2110Z | 10m | |
| 2134Z | | End of first off period |
| 2140Z | 15m | |
| 2142Z | | 15m |
| 2159Z | 540/83 = 44,820 | 477/88 = 41,976 |
| 2200Z | Start of first off period | |
| 2204Z | | 10m |
| 2231Z | | 15m |
| 2250Z | | 20m |
| 2259Z | 540/83 = 44,820 | 591/105 = 62,055 |
| 2300Z | 20m, end of first off period | |
| 2302Z | | Start of second off period |
| 2333Z | | End of second off period |
| 2359Z | 656/127 = 83,312 | 642/129 = 82,818 |
| 0059Z | 773/133 = 102,809 | 773/143 = 110,539 |
| 0126Z | Start of second off period | 3/186 = 167,958 |
| 0209Z | | Start of third off period |
| 0215Z | 40m, end of second off period | |
| 0238Z | | End of third off period |
| 0259Z | 964/180 = 173,520 | 979/195 = 190,905 |
| 0339Z | | 160m |
| 0344Z | 80m | |
| 0346Z | | 80m |
| 0354Z | | 40m |
| 0355Z | | Start of fourth off period |
| 0359Z | 1090/198 = 215,820 | 1074/209 = 224,466 |
| 0425Z | | End of fourth off period |
| 0427Z | 160m | |
| 0430Z | | 160m |
| 0449Z | 80m | |
| 0458Z | | 80m |
| 0459Z | 1154/226 = 260,804 | 1103/223 = 245,969 |
| 0532Z | | 160m |
| 0534Z | 160m | |
| 0544Z | | 80m |
| 0550Z | End of 10 hours of operation | |
| 0558Z | | 160m |
| 0559Z | 1202/237 = 284,874 | 1171/248 = 290,408 |

own Iowa record; KI0MB edged the Missouri record upward; and WD0T broke his own South Dakota record. New Canadian records were also set from coast to coast. VE9AA established the first-time New Brunswick record with 233k points, and VE8JL's 13k points established a first time Northwest Territories record. VE3EJ and VE4VV broke their own Ontario and Manitoba records, respectively, while VE6FU almost doubled the old Alberta record of 1994. VE5SF broke 200k points for a new Saskatchewan mark, and VE7CFD upped the British Columbia record. Operating from the Caribbean, KN4UG established a first-time Bahamas record with 53k points.

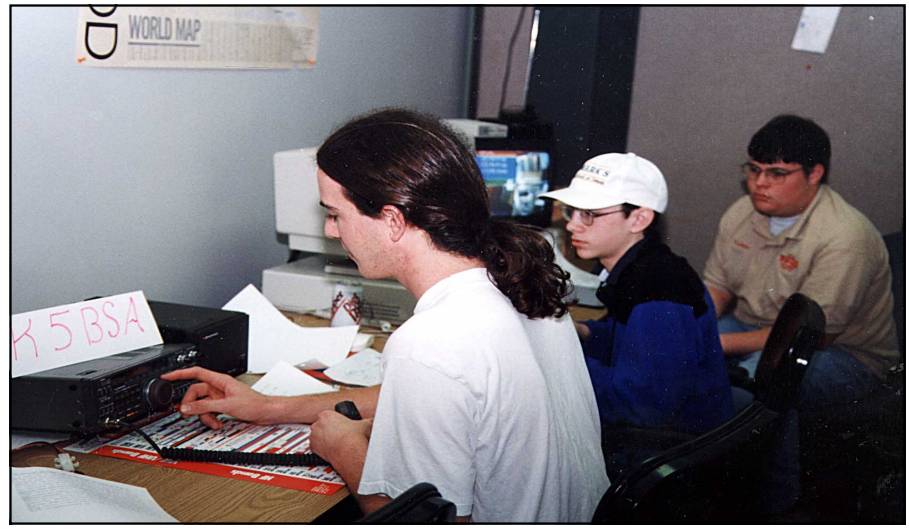
Not only were there many record-setting performances in this edition of the NAQP SSB, but there were also many first-time contesters. A number of the multi-two entries consisted of an experienced operator and one or more newbies to contesting. Although the NAQP can be extremely competitive, as demonstrated by the top-ten scores, it is also a great contest for those new to HF contesting. Even if you don't have time for a full-time effort, invite someone from your local club, who has expressed interest in contesting, to operate with you. This can be rewarding for both of you.

While checking logs, I'm always disappointed to see participants lose QSOs and multipliers as a result of simple mistakes. Be sure you know the standard abbreviations for states and provinces. Make sure your contest logging program's NAQP multiplier table is up to date and correctly identifies Canadian provinces if your program automatically establishes the QTH from the call sign.

See you in August for the next one.

### Soapbox

I had lots of fun with my friend in my first ever solo contest effort. I look forward to meeting all of you again in the next contest!—*KD7DQO*. A special thank you for all that moved to help with my mult total. I worked most all that I moved. Really enjoyed the 125/hr on 80!—*WA3HAE*. Good rate this year on the high bands, but 80 and 160 stunk from up here. Had to let the rain static determine the rest periods for me.—*W7NN*. All bands played well at this QTH. Total Qs doubled from August 1998!—*W6XK*. Atmospheric noise was lower than CW weekend, but 10-meter propagation was poor. Local line noise was very bad on 15 and 10. Personal best effort for this contest.—*W4OC*.




**The Venturer Crew 73 scout unit operated as K5BSA under advisor, KR1ZAN, during NAQP SSB. Shown here are Stan, KB5UOL, Tony, KC5YSL, and Jason, KD5CTT during the contest. The Crew's contest operation was "telecast" via ATV on the AB5IG repeater in the Dallas, Texas area.**

## Relative Band Activity

This table shows the relative activity, based on submitted logs, for each band during each hour of the contest. A score of 100 is assigned to the most active band-hour, in this case 10 meters during the 18Z hour. As an example, 20 meters/22Z had 86 percent of the activity of 15 meters/18Z.

| *Hour/Band* | *160 m* | *80 m* | *40 m* | *20 m* | *15 m* | *10 m* |
|---|---|---|---|---|---|---|
| 18Z | — | — | — | 22 | 56 | 100 |
| 19Z | — | — | — | 25 | 83 | 73 |
| 20Z | — | — | 1 | 43 | 89 | 51 |
| 21Z | — | — | 1 | 65 | 82 | 34 |
| 22Z | — | — | 17 | 86 | 41 | 23 |
| 23Z | — | — | 40 | 100 | 9 | 12 |
| 0Z | — | 2 | 72 | 98 | 1 | — |
| 1Z | — | 18 | 89 | 54 | — | — |
| 2Z | 2 | 57 | 96 | 8 | — | — |
| 3Z | 23 | 69 | 38 | — | — | — |
| 4Z | 33 | 69 | 8 | — | — | — |
| 5Z | 30 | 50 | 1 | — | — | — |

## Single Op Breakdowns

| Call | Score | QSOs | Mults | 160 m | 80 m | 40 m | 20 m | 15 m | 10 m | Team |
|---|---|---|---|---|---|---|---|---|---|---|
| K6LL | 322,788 | 1454 | 222 | 11/10 | 42/21 | 222/47 | 325/51 | 302/54 | 549/39 | SCCC #1 |
| N6RO | 290,408 | 1171 | 248 | 42/24 | 61/21 | 232/54 | 253/53 | 256/55 | 326/41 | NCCC |
| K6ZZ | 284,874 | 1202 | 237 | 39/17 | 100/32 | 231/52 | 291/53 | 289/48 | 251/35 | SCCC #1 |
| K4XS | 282,124 | 1124 | 251 | 48/21 | 118/37 | 185/46 | 428/62 | 233/55 | 106/30 | FCG |
| W7WA | 271,072 | 1376 | 197 | 0/0 | 0/0 | 232/47 | 422/54 | 219/47 | 499/49 | Rush Drake |
| ZF2NT (N6NT) | 263,579 | 1151 | 229 | 13/11 | 42/24 | 117/39 | 291/55 | 338/57 | 341/43 | NCCC |
| W7NN | 255,966 | 1153 | 222 | 20/11 | 58/26 | 245/47 | 265/55 | 308/48 | 257/35 | |
| WC4E | 255,360 | 1064 | 240 | 40/24 | 91/32 | 262/49 | 344/61 | 274/51 | 52/23 | FCG |
| K4WX | 247,690 | 1054 | 235 | 109/34 | 228/48 | 242/55 | 201/48 | 120/29 | 151/21 | TCG #1 |
| KW8N | 247,257 | 993 | 249 | 135/42 | 267/46 | 169/50 | 138/45 | 71/30 | 213/36 | Mad River |

## Multi-Two Breakdowns

| Call | Score | QSOs | Mults | 160 m | 80 m | 40 m | 20 m | 15 m | 10 m |
|---|---|---|---|---|---|---|---|---|---|
| K4NO | 390,034 | 1403 | 278 | 164/42 | 271/52 | 274/53 | 384/61 | 118/44 | 188/26 |
| KT0R | 378,741 | 1497 | 253 | 68/26 | 211/48 | 394/56 | 516/59 | 259/46 | 44/18 |
| KK1L | 361,537 | 1429 | 253 | 72/24 | 289/46 | 276/49 | 401/54 | 232/46 | 157/34 |

## Team Scores

**1. Southern California Contest Club #1**

| | |
|---|---|
| K6LL | 322,788 |
| K6ZZ | 284,874 |
| N6ED | 217,424 |
| N6KI | 216,621 |
| K6RO | 197,685 |
| Total | 1,239,392 |

**2. Northern California Contest Club**

| | |
|---|---|
| N6RO | 290,408 |
| ZF2NT (N6NT) | 263,579 |
| K5RC | 236,742 |
| K6BZ | 224,136 |
| N6EE | 133,004 |
| Total | 1,147,869 |

**3. Tennessee Contest Group #1**

| | |
|---|---|
| K4WX | 247,690 |
| VE4VV | 207,828 |
| W0ETC | 141,588 |
| K1VUT | 133,363 |
| WO4O | 108,852 |
| Total | 839,321 |

4. Society of Midwest Contesters #1 (WD0T, W9RM, KA9FOX, W9SMC) ..... 760,580
5. Florida Contest Group (K4XS, WC4E, AJ4Y) ..... 649,659
6. Southeastern Contest Club #1 (W4OC, K4OGG, K4AB, K4BAI, K9AY) ..... 646,174
7. Hanging Judge Contest Club (AB5SE, N5XM, AC5OC, K5OY, W5YM) ..... 606,242
8. Mad River Contest Club (KU8E, KW8N, W8MJ, KE8OC) ..... 580,632
9. Rush Drake Orchestra (K7ED, KI7Y, K5ZM, W7WA, K7NT) ..... 562,689
10. Southwest Virigina Contest Conspiracy (K1GG, K4IQ, KU4RG, K4EP, N4GU) .. 494,326
11. Texas DX Society #1 (K5DX, N5RP, W5ASP, K5NZ, KM5OT) ..... 417,097
12. Kentucky Contest Group (KT4ZX, WB4OSS, W4LC) ..... 391,112
13. Tennessee Contest Group #2 (N4VI, K4WW, NA4K) ..... 370,046
14. Southern California Contest Club #2 (N6RT, WN6K, W7WW) ..... 351,896
15. Weekend Warriors (WA3HAE, WA3SES, KB3A) ..... 268,038
16. Society of Midwest Contesters #4 (N9IJ, WE9V) ..... 259,620
17. Tennessee Contest Group #5 (KD4VWN, K0OU, KF4ZR) ..... 229,510
18. PVRC Part Timers (K3MM, KE3Q, K4MA) ..... 194,471
19. Society of Midwest Contesters #2 (K9YO, WT9U, KE9I, W9RE) ..... 178,731
20. Southeastern Contest Club #2 (N1CC, K4EA) ..... 178,464
21. Tennessee Contest Group #3 (W4PA, N4DW, KE4OAR, K4BEV) ..... 174,740
22. Yegua Valley Contest Club #1 (N5XJ, N5HC, N4GCA, NX5M) ..... 139,764
23. Southeastern Contest Club #3 (KD3GC) ..... 133,500
24. Tennessee Contest Club #4 (AC4ZD, K4RO) ..... 54,028
25. Texas DX Society #2 (W5HNS, KB5ZXO) ..... 47,793
26. Society of Midwest Contesters #3 (N9JF, K9PG) ..... 46,156
27. Tennessee Contest Group #6 (W9WI, KE4YBS, N3DEL, NU4JJ) ..... 26,974
28. Yegua Valley Contest Club #2 (KA5BKG, KB4NFZ) ..... 277

## Single Operator Scores

| *Call* | *Score* | *QSOs* | *Mults* | *Section* | *Team* |
|---|---|---|---|---|---|
| WA1LNP | 179,983 | 853 | 211 | NH | |
| K1VUT | 133,363 | 691 | 193 | MA | TCG #1 |
| KE1KD | 42,471 | 297 | 143 | NH | |
| KB1H | 40,033 | 301 | 133 | CT | |
| W1AW (N1ND) | 38,512 | 332 | 116 | CT | |
| KX1X | 33,062 | 271 | 122 | MA | |
| AA1SU | 32,480 | 290 | 112 | VT | |
| KT1O (N1ZPC) | 22,310 | 230 | 97 | ME | |
| W1CTN | 22,246 | 227 | 98 | CT | |
| K1HT | 21,522 | 211 | 102 | MA | |
| K1PLX | 5,510 | 95 | 58 | MA | |
| KZ1M | 598 | 26 | 23 | MA | |
| N2GA | 87,423 | 543 | 161 | NY | |
| KS2G | 57,105 | 423 | 135 | NY | |
| N2LH | 46,090 | 419 | 110 | NY | |
| W5KI | 43,615 | 305 | 143 | NJ | |
| NI2P | 36,168 | 274 | 132 | NY | |
| W2HCA | 31,080 | 259 | 120 | NJ | |
| N2ST | 15,219 | 171 | 89 | NJ | |
| WR2V | 11,139 | 141 | 79 | NY | |
| W2QU | 10,626 | 154 | 69 | NJ | |
| N2LQQ | 2,898 | 69 | 42 | NY | |
| N2LDU | 1,606 | 73 | 22 | NJ | |
| K2FR | 1,488 | 48 | 31 | NY | |
| WB2SXY | 480 | 32 | 15 | NY | |
| K3MM | 124,845 | 615 | 203 | MD | PVRC Part Timers |
| WA3HAE | 111,696 | 624 | 179 | PA | Weekend Warriors |
| KB3A | 96,660 | 537 | 180 | PA | Weekend Warriors |
| KC3TL | 71,442 | 486 | 147 | PA | |
| WA3SES | 59,682 | 406 | 147 | PA | Weekend Warriors |
| KE3Q | 48,050 | 310 | 155 | MD | PVRC Part Timers |
| N3RM | 44,608 | 328 | 136 | PA | |
| WF3M | 44,020 | 310 | 142 | PA | |
| N8NA | 35,768 | 263 | 136 | DE | |
| K3SV | 17,978 | 178 | 101 | PA | |
| W3KM | 11,929 | 151 | 79 | PA | |
| K3PP | 9,150 | 150 | 61 | PA | |
| W3/VE3GLO | 6,867 | 109 | 63 | MD | |
| K3LD | 5,200 | 104 | 50 | PA | |
| N3DEL (N9GG) | 3,430 | 70 | 49 | DE | TCG #6 |
| KF3BE | 2,379 | 61 | 39 | MD | |
| K4XS | 282,124 | 1124 | 251 | FL | FCG |
| WC4E | 255,360 | 1064 | 240 | FL | FCG |
| K4WX | 247,690 | 1054 | 235 | TN | TCG #1 |
| K4AB | 233,870 | 910 | 257 | AL | SECC #1 |
| K1GG | 198,850 | 970 | 205 | VA | SW Virginia CC |
| KT4ZX | 189,675 | 843 | 225 | KY | KCG |
| K4EA | 173,043 | 783 | 221 | GA | SECC #2 |
| W4OC | 164,724 | 777 | 212 | SC | SECC #1 |
| K4WW | 162,000 | 810 | 200 | KY | TCG #2 |
| KD3GC | 133,500 | 750 | 178 | GA | SECC #3 |
| KF4ZR | 115,320 | 620 | 186 | TN | TCG #5 |
| W4LC | 113,094 | 618 | 183 | KY | KCG |
| AJ4Y | 112,175 | 641 | 175 | FL | FCG |
| W4CAT (K1KY) | 109,792 | 584 | 188 | TN | |

| *Call* | *Score* | *QSOs* | *Mults* | *Section* | *Team* |
|---|---|---|---|---|---|
| WO4O | 108,852 | 579 | 188 | TN | TCG #1 |
| N4GU | 101,010 | 555 | 182 | VA | SW Virginia CC |
| K4IQ | 100,572 | 578 | 174 | VA | SW Virginia CC |
| NA4K | 99,575 | 569 | 175 | TN | TCG #2 |
| K4OGG | 94,512 | 537 | 176 | GA | SECC #1 |
| WB4OSS | 88,343 | 529 | 167 | KY | KCG |
| K4BAI | 84,906 | 477 | 178 | GA | SECC #1 |
| KE4OAR | 80,190 | 486 | 165 | TN | TCG #3 |
| K4HA | 71,073 | 447 | 159 | NC | |
| K9AY | 68,162 | 394 | 173 | GA | SECC #1 |
| K4EP | 67,650 | 451 | 150 | VA | SW Virginia CC |
| N4DW | 63,495 | 415 | 153 | TN | TCG #3 |
| N4CW | 30,894 | 271 | 114 | NC | |
| AC4ZD | 27,846 | 238 | 117 | TN | TCG #4 |
| K4BEV | 26,400 | 240 | 110 | TN | TCG #3 |
| KU4RG | 26,244 | 243 | 108 | VA | SW Virginia CC |
| K4RO | 26,182 | 247 | 106 | TN | TCG #4 |
| KE4YBS | 22,512 | 201 | 112 | TN | TCG #6 |
| K4MA | 21,576 | 248 | 87 | NC | PVRC Part Timers |
| KD4VWN | 17,010 | 189 | 90 | TN | TCG #5 |
| W4AUI | 16,490 | 170 | 97 | TN | |
| AC4PY | 16,168 | 172 | 94 | KY | |
| NX9T | 15,124 | 199 | 76 | NC | |
| N4TL | 10,707 | 129 | 83 | NC | |
| N1CC | 5,421 | 139 | 39 | SC | SECC #2 |
| KF4OAD | 5,304 | 104 | 51 | NC | |
| N4WYR | 5,022 | 93 | 54 | NC | |
| W4PA | 4,655 | 95 | 49 | TN | TCG #3 |
| K3TD | 2,356 | 62 | 38 | GA | |
| K4OOO | 2,166 | 57 | 38 | TN | |
| K1SO | 676 | 26 | 26 | VA | |
| W9WI | 660 | 33 | 20 | TN | TCG #6 |
| KS4YX | 611 | 47 | 13 | SC | |
| N4GN | 486 | 27 | 18 | KY | |
| W4OGG | 450 | 25 | 18 | TN | |
| NU4JJ | 372 | 31 | 12 | TN | TCG #6 |
| K7UP (W5FX) | 220,290 | 1049 | 210 | NM | |
| K5NZ | 217,371 | 941 | 231 | TX | TDXS #1 |
| K5OY | 210,588 | 966 | 218 | AR | Hanging Judge |
| W5YM (AC5RR) | 159,470 | 862 | 185 | AR | Hanging Judge |
| AB5SE | 157,600 | 788 | 200 | AR | Hanging Judge |
| W5ASP | 156,114 | 826 | 189 | TX | TDXS #1 |
| K5DX | 137,484 | 684 | 201 | TX | TDXS #1 |
| AE5T | 118,864 | 646 | 184 | LA | |
| NT5D | 115,581 | 653 | 177 | TX | |
| N5ZC | 68,497 | 479 | 143 | TX | |
| N5XJ | 60,590 | 415 | 146 | TX | Yegua Valley CC |
| AC5OC | 48,816 | 339 | 144 | AR | Hanging Judge |
| W5HNS | 44,070 | 390 | 113 | TX | TDXS #2 |
| W5RDX | 36,300 | 275 | 132 | TX | |
| N5HC (AC5GH) | 32,130 | 270 | 119 | TX | Yegua Valley CC |
| N5XM | 29,768 | 244 | 122 | AR | Hanging Judge |
| N4GCA | 27,680 | 346 | 80 | TX | Yegua Valley CC |
| KB5FET | 26,288 | 248 | 106 | MS | |
| WK5K | 23,632 | 211 | 112 | TX | |
| N5RP (K2MRZ) | 21,680 | 271 | 80 | TX | TDXS #1 |
| N5AF | 20,800 | 208 | 100 | TX | |

| Call | Score | QSOs | Mults | Section | Team |
|---|---|---|---|---|---|
| NX5M | 19,364 | 206 | 94 | TX | Yegua Valley CC |
| K5TQ | 12,696 | 138 | 92 | NM | |
| K5LG | 10,710 | 126 | 85 | AR | |
| KC5WJM | 8,850 | 150 | 59 | TX | |
| KM5OT | 8,448 | 128 | 66 | TX | TDXS #1 |
| KM5NQ | 7,992 | 108 | 74 | MS | |
| K5EM | 6,272 | 98 | 64 | TX | |
| KM5LO | 3,876 | 76 | 51 | TX | |
| KB5ZXO | 3,723 | 73 | 51 | TX | TDXS #2 |
| W5NR | 3,196 | 68 | 47 | TX | |
| KA5BKG | 270 | 30 | 9 | TX | Yegua Valley CC |
| KB5NFZ | 7 | 1 | 7 | TX | Yegua Valley CC |
| N6RO | 290,408 | 1171 | 248 | CA | NCCC |
| K6ZZ | 284,874 | 1202 | 237 | CA | SCCC #1 |
| K6BZ | 224,136 | 1132 | 198 | CA | NCCC |
| N6ED | 217,424 | 1016 | 214 | CA | SCCC #1 |
| N6KI | 216,621 | 1017 | 213 | CA | SCCC #1 |
| K6RO | 197,685 | 955 | 207 | CA | SCCC #1 |
| W6XK | 158,776 | 892 | 178 | CA | |
| WN6K | 155,367 | 849 | 183 | CA | SCCC #2 |
| N6EE | 133,004 | 811 | 164 | CA | NCCC |
| W6TKV | 82,446 | 546 | 151 | CA | |
| W6TK | 70,224 | 456 | 154 | CA | |
| KQ6QW | 55,744 | 416 | 134 | CA | |
| N6PL | 50,460 | 435 | 116 | CA | |
| N6RT | 23,598 | 207 | 114 | CA | SCCC #2 |
| W6ESJ | 17,922 | 174 | 103 | CA | |
| K6ZCL | 16,275 | 175 | 93 | CA | |
| KF6BIR | 15,642 | 158 | 99 | CA | |
| K6III | 15,387 | 223 | 69 | CA | |
| WB6NFO | 13,376 | 152 | 88 | CA | |
| KF6JFG | 12,470 | 290 | 43 | CA | |
| WA7BNM | 10,658 | 146 | 73 | CA | |
| K6KAY | 8,474 | 223 | 38 | CA | |
| N6WR | 7,728 | 112 | 69 | CA | |
| K6EP | 5,472 | 96 | 57 | CA | |
| KE6QR | 3,096 | 72 | 43 | CA | |
| KD6TRH | 280 | 20 | 14 | CA | |
| W6RKC | 55 | 11 | 5 | CA | |
| KF6NNX | 42 | 7 | 6 | CA | |
| K6LL | 322,788 | 1454 | 222 | AZ | SCCC #1 |
| W7WA | 271,072 | 1376 | 197 | WA | Rush Drake Orchestra |
| W7NN | 255,966 | 1153 | 222 | WA | |
| K5RC | 236,742 | 1122 | 211 | NV | NCCC |
| W7WW | 172,931 | 869 | 199 | AZ | SCCC #2 |
| N7LOX | 156,145 | 835 | 187 | WA | |
| K5ZM | 130,660 | 695 | 188 | OR | Rush Drake Orchestra |
| WL7KY | 104,754 | 663 | 158 | AK | |
| K7ED (KK7GW) | 101,270 | 779 | 130 | WA | Rush Drake Orchestra |
| AD7U | 67,466 | 427 | 158 | WA | |
| W7ZRC | 58,760 | 452 | 130 | ID | |
| K7ZO | 51,744 | 392 | 132 | ID | |
| K7NT | 46,002 | 374 | 123 | OR | Rush Drake Orchestra |
| KW7N | 38,862 | 306 | 127 | ID | |
| W7WHY | 34,716 | 263 | 132 | OR | |
| N3HXQ/KL7 | 31,719 | 291 | 109 | AK | |
| KC7ZRH | 26,433 | 267 | 99 | AZ | |
| KR7X | 20,298 | 199 | 102 | OR | |
| KI7Y | 13,685 | 161 | 85 | OR | Rush Drake Orchestra |
| KD7AEE | 11,270 | 161 | 70 | UT | |
| KC7WUE | 1,755 | 45 | 39 | WA | |
| W7HS | 1,504 | 47 | 32 | UT | |
| N7WA | 1,140 | 38 | 30 | WA | |
| KW8N | 247,257 | 993 | 249 | OH | Mad River CC |
| W8MJ | 214,110 | 915 | 234 | MI | Mad River CC |
| N6WLX | 99,072 | 576 | 172 | OH | |
| WA8WV | 96,432 | 574 | 168 | WV | |
| WA8YRS | 91,368 | 564 | 162 | OH | |
| KE8OC | 63,510 | 435 | 146 | MI | Mad River CC |
| KU8E | 55,755 | 413 | 135 | OH | Mad River CC |
| N8YYS | 41,748 | 294 | 142 | WV | |
| AA8VG | 29,750 | 250 | 119 | MI | |
| AA8SN | 24,973 | 221 | 113 | MI | |
| KI8CS | 20,273 | 209 | 97 | OH | |
| W8TTS | 18,335 | 193 | 95 | OH | |
| KC8HLD | 17,139 | 197 | 87 | MI | |
| WE8L | 12,936 | 154 | 84 | MI | |
| N8NX | 10,220 | 146 | 70 | MI | |
| W8QM | 6,324 | 102 | 62 | MI | |
| KC8HWV | 5,040 | 105 | 48 | OH | |
| N8WTH | 4,000 | 80 | 50 | MI | |
| KC8BTA | 2,240 | 56 | 40 | OH | |
| WE9V | 244,032 | 992 | 246 | WI | SMC #4 |
| W9RM | 224,576 | 968 | 232 | IL | SMC #1 |
| KA9FOX | 161,737 | 821 | 197 | WI | SMC #1 |
| W9SMC (KI9A) | 145,808 | 701 | 208 | IL | SMC #1 |
| K9PW | 120,912 | 687 | 176 | IL | |
| N9PQU | 113,280 | 590 | 192 | WI | |
| WT9U | 93,125 | 625 | 149 | IN | SMC #2 |
| W9RE | 40,826 | 298 | 137 | IN | SMC #2 |
| N9JF | 40,513 | 319 | 127 | IL | SMC #3 |
| N9TU | 34,710 | 267 | 130 | IN | |
| W9YS | 30,562 | 259 | 118 | IL | |
| KE9I | 30,184 | 308 | 98 | IN | SMC #2 |
| K9WX | 22,788 | 211 | 108 | IN | |
| K9JE | 21,420 | 210 | 102 | IL | |
| AA9QT | 15,136 | 172 | 88 | IL | |
| K9YO | 14,596 | 164 | 89 | IL | SMC #2 |
| N9IJ | 10,150 | 145 | 70 | IL | SMC #4 |
| AF9J | 6,060 | 101 | 60 | WI | |
| K9PG | 5,643 | 99 | 57 | IL | SMC #3 |
| N9ZUT | 3,504 | 73 | 48 | IL | |
| W9VHE | 1,118 | 43 | 26 | IN | |
| WO0DY (K9PG) | 735 | 35 | 21 | IL | |
| WD0T | 228,459 | 989 | 231 | SD | SMC #1 |
| N0AV | 220,896 | 944 | 234 | IA | |
| K0RI | 178,588 | 884 | 202 | CO | |
| W0ETC | 141,588 | 684 | 207 | IA | TCG #1 |
| KI0MB | 122,244 | 732 | 167 | MO | |
| N4VI | 108,471 | 627 | 173 | CO | TCG #2 |
| K0OU | 97,180 | 565 | 172 | MO | TCG #5 |
| W0UY | 75,600 | 450 | 168 | KS | |
| N0WE | 67,200 | 480 | 140 | MN | |
| KB0PPA | 39,556 | 341 | 116 | SD | |
| KR6NA | 32,445 | 309 | 105 | CO | |
| KE0FT | 31,886 | 298 | 107 | IA | |
| KI0ND | 22,578 | 213 | 106 | CO | |
| KI0E | 21,962 | 278 | 79 | ND | |
| KF0UK | 13,667 | 173 | 79 | MN | |
| AB0GO | 7,888 | 136 | 58 | CO | |
| WB0VBW | 6,580 | 188 | 35 | SD | |
| K0DMR | 6,048 | 96 | 63 | MN | |
| KC0COP | 1,428 | 51 | 28 | CO | |
| KA0BAT | 1,260 | 45 | 28 | KS | |
| KA0BHO | 999 | 37 | 27 | KS | |
| N0PFY | 560 | 56 | 10 | MN | |
| VE3EJ | 245,079 | 939 | 261 | ON | |
| VE9AA | 233,100 | 1050 | 222 | NB | |
| VE4VV | 207,828 | 1004 | 207 | MB | TCG #1 |
| VE5SF | 201,612 | 951 | 212 | SK | |
| VE3KZ | 165,165 | 715 | 231 | ON | |
| VE7CFD | 146,030 | 859 | 170 | BC | |
| VE6FU | 120,020 | 706 | 170 | AB | |
| VE5CPU | 117,208 | 728 | 161 | SK | |
| VE7NF | 96,084 | 628 | 153 | BC | |
| VE7TLK | 81,879 | 557 | 147 | BC | |
| VE6JY | 77,420 | 395 | 196 | AB | |
| VE5MX | 54,432 | 432 | 126 | SK | |
| VE3WIB | 51,830 | 355 | 146 | ON | |
| VE3ZT | 50,616 | 342 | 148 | ON | |
| VE3STT | 47,436 | 354 | 134 | ON | |
| VA3SWG | 33,660 | 330 | 102 | ON | |
| VE3BUC | 22,826 | 226 | 101 | ON | |
| VA3IX | 20,400 | 204 | 100 | ON | |
| VE8JL | 13,532 | 199 | 68 | NWT | |
| VE2AWR | 10,366 | 142 | 73 | PQ | |
| VE3WZ | 8,040 | 120 | 67 | ON | |
| VE2GWL | 4,361 | 89 | 49 | PQ | |
| VE5DWR | 1,333 | 43 | 31 | SK | |
| VA3EOJ | 72 | 9 | 8 | ON | |
| ZF2NT (N6NT) | 263,579 | 1151 | 229 | ZF | NCCC |
| KN4UG/C6A | 53,888 | 421 | 128 | C6 | |
| WP4LNY | 6,386 | 103 | 62 | PR | |
| PY2NY | 72 | 9 | 8 | DX | |
| PY5AWB | 36 | 6 | 6 | DX | |

Checklogs: K3SWZ, K5KA

**Multi-Two Scores**

| Call | Score | QSOs | Mults | State/Prov |
|---|---|---|---|---|
| K4NO (K4GU, KA9EKJ) | 390,034 | 1403 | 278 | AL |
| KT0R (+K0XQ) | 378,741 | 1497 | 253 | MN |
| KK1L (+N1MEZ) | 361,537 | 1429 | 253 | VT |
| N0NI (+N0AC, W0FLS, KD0ZV) | 326,960 | 1340 | 244 | IA |
| K9XD (+N9VVV) | 262,908 | 1206 | 218 | IL |
| W5SB (+KD5AIJ, KK5LD, WA5SAJ) | 255,664 | 1102 | 232 | TX |
| W4WS (KC4WSK, KO4MM, KT4CD, N0KTY, N4VHK, WB4MSG) | 252,603 | 1143 | 221 | NC |
| N5YA | 231,168 | 1032 | 224 | TX |
| NM7I (K7ON, NU7I) | 173,579 | 959 | 181 | AZ |
| K1ZO (+N1KWF, WA1ZYX) | 164,248 | 838 | 196 | NH |
| NY4T (+KE4KMG, KF4GKN, KF4GNV, W1ADE) | 143,379 | 801 | 179 | TN |
| K3PZN (KB3CAW, N3SB, N3YIM, WX3B) | 70,680 | 456 | 155 | MD |
| N4OKX | 66,834 | 474 | 141 | KY |
| N5KB (+KD5ETC) | 43,120 | 308 | 140 | TX |
| AC0W (+KB0VQX) | 36,582 | 273 | 134 | MN |
| K5BSA (AB5ZR, K5ZMJ, KB5UOL, KC5YAH, KC5YSL, KD5CTT, KR1ZAN, WA5TET) | 25,520 | 220 | 116 | TX |
| K7RFM (+K7MPM) | 19,620 | 180 | 109 | AZ |
| W4ATC (KF4ARS, N3NPQ, N3QYE) | 19,190 | 190 | 101 | NC |
| KD7DQO | 4,888 | 188 | 26 | WA |

# Results, February 1999 *NCJ* Phone Sprint

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Well, things are starting to look up, at least concerning conditions. For the first time in a long time, the Phone Sprint had some reasonably good conditions on each of the bands for most of the country. The sunspots have finally made a positive impact on a February Sprint.

For this, the 34th Phone Sprint, we received logs from 95 competitors in 35 different areas, the most logs since September 1993 and the most in a February running in seven years. The number of logs also represents the fourth-highest total ever received.

Prior to the February 1999 Sprint, either VE7NTT or K6LL had taken the number one spot in 6 out of the previous 8 Sprints. So, it's only reasonable that VE7NTT and K6LL should share in the number one position this time. That's right; these two guys ended up with identical 327x48 scores after all the smoke had cleared. Well done. AD6DO took third again, and K6LA and K4XS repeated from last September. With one exception, the rest of the Top Ten have seen their calls there at least once before (congratulations again).

The exception is VE5MX—who placed 9th from a very difficult location. It is interesting to note that VE5MX is only the second Canadian to break into the Top Ten in the history of the Phone Sprint (the other one being VE7NTT). Hope to see you there again in the future, Todd. One other piece of trivia. If you made a quick scan of the top ten spots and thought there were a lot a 6's there, you would have been right. This time there were five Top Ten scores from California, the most ever.

Low power entrants were led by W7WA, a consistent high power scorer a number of years back. Dan took the top spot without the aid of 75 meters (that's how you can have only one band change). The West also dominated the low power scores with three of the top five. KI9A and W0UY (who is about as middle-of-the-US as you can get) prevented a left coast sweep. The low power top five has always had a five-lander until this time. A couple of those fives normally competing in low power complained of severe thunderstorms with lightning which prevented them from putting in full efforts. Special recognition to N8EA who missed the top five by just 101 points from Michigan, a location not often seen accustomed to top scoring boxes.

In the club competition, we got sub–missions from 10 clubs. SCCC again took the brass ring, for the seventh time in a row! Seven times! Goodness gracious, no one else has strung together more than four. MRRC and SoMWC found themselves in a tight race for second and third, with the NCCC taking fourth. The score listings in four-land were plumped up nicely by a bunch of entrants from the TCC gang. Thanks for all the club submissions.

### And a few final items....

A tip of the hat to W9RE, VE5SF, N4CW and WA3HAE who all had logs of over 50 QSOs with no score reductions. Well done.

As evidence of better February conditions, the highest 20-meter QSO total was recorded by K6LL with 158. That represents the biggest February 20-meter number in five years. As you might think, with 20-meter numbers up, 40 and 75 were down slightly from prior February's.

Score reductions were a bit lower this time. Maybe you took my suggestion to

### Top 10 Scores

| *Call* | *Score* | *Band Changes* | *QSOs Lost* |
|---|---|---|---|
| K6LL | 15696 | 2 | 5 |
| VE7NTT | 15696 | 2 | 2 |
| AD6DO | 13950 | 2 | 8 |
| K6LA | 13800 | 36 | 5 |
| K4XS | 13410 | 7 | 5 |
| KW8N | 13207 | 53 | 3 |
| K6RO | 12831 | 2 | 2 |
| N6ED | 12599 | 2 | 7 |
| VE5MX | 12330 | 8 | 2 |
| N6RO | 12169 | 4 | 2 |

### Top Five Low Power

| *Call* | *Score* | *Band Changes* | *QSOs Lost* |
|---|---|---|---|
| W7WA | 8229 | 1 | 5 |
| N7LOX | 7840 | 4 | 1 |
| KI9A | 7708 | 5 | 2 |
| W0UY | 7200 | 5 | 4 |
| WA7BNM | 7020 | 1 | 4 |

### Top 10 QSOs

| | |
|---|---|
| K6LL | 327 |
| VE7NTT | 327 |
| AD6DO | 310 |
| K6LA | 300 |
| K4XS | 298 |
| N6ED | 293 |
| N6RO | 283 |
| KW8N | 281 |
| VE5MX | 274 |
| K6RO | 273 |

### Top 10 Mults

| | |
|---|---|
| K6LL | 48 |
| VE7NTT | 48 |
| K6RO | 47 |
| KW8N | 47 |
| K4MA | 46 |
| K6LA | 46 |
| W7WW | 46 |
| K4XS | 45 |
| W4PA | 45 |
| AD6DO | 45 |
| KO7X | 45 |
| VE5MX | 45 |

### Golden Logs

(Logs over 50 Qs with no score reduction)

| | |
|---|---|
| W9RE | 174 QSOs |
| VE5SF | 170 QSOs |
| N4CW | 140 QSOs |
| WA3HAE | 102 QSOs |

### Team Scores

*Southern California Contest Club #1*

| | |
|---|---|
| K6LL | 15696 |
| AD6DO | 13950 |
| K6LA | 13800 |
| K6RO | 12831 |
| N6ED | 12599 |
| W7WW | 11868 |
| KO7X | 11295 |
| KG6OK | 11130 |
| W6EEN | 10560 |
| Total | 113729 |

*Mad River Radio Club*

| | |
|---|---|
| KW8N | 13207 |
| K4MA | 11270 |
| K0OU | 9799 |
| KU8E | 9504 |
| K9TM | 9331 |
| K8MR | 1450 |
| Total | 54561 |

*Society of Midwest Contesters #1*

| | |
|---|---|
| K9XD | 11309 |
| KA9FOX | 11044 |
| K9ZO | 10363 |
| W0UY | 7200 |
| W9RE | 7134 |
| K9PW | 5499 |
| Total | 52549 |

*Northern California Contest Club*

| | |
|---|---|
| VE7NTT | 15696 |
| N6RO | 12169 |
| N6IJ | 7920 |
| AJ6V | 7760 |
| N6EE | 5720 |
| Total | 49265 |

5. Tennessee Contest Group #1 (W4PA, K4WX, K1KY, K0EJ, NY4T, K4RO, AC4LS, W9WI) ..... 46749
6. Society of Midwest Contesters #2 (K9VV, K9IG, K9PG) ..... 15814
7. Bay Area Wireless Association (N9PQU, K0SN, AA9PB) ..... 15007
8. SCCC #2 (WA7BNM, N6VR). ..... 10488
9. Minnesota Wireless Association (K0AD) ..... 4914
10. TCG #2 (K4OOO, N3DEL) ..... 576

heart to reduce your dependence on master databases for names and QTHs. After reading the September write-up, W5NR suggested that a possible solution would be that we all change names once a year. Hmmmmm…

Hope you had a wonderful summer. With any luck, I will have found a piece of land to rebuild the K7GM station. May your summer antenna projects turn out to be all you dreamed they would be. See you on September 19, 1999 at 00-04Z (Saturday evening local time).

### Soapbox

First try at Sprint. An interesting contest.—*KW7N.* It was fun, but a bit frustrating at times with low power.—*AA9PB.* Severe weather turned this into a 3.5-hour contest for me.—*AB5SE.* New logging program confused me and I was already confused.—*K0OU (ex-KM0L).* 80 seemed to be in good shape and my new sloper helped.—*K1HT.* Chased K4NO around 75 during the last 7 minutes for the elusive AL multiplier.—*K1KY.* My first full effort in many years. Much fun with the new quad, although the family doesn't think so after 4 hours of not being able to watch TV or use the phone.—*K7ZO.* 20 was great, 40 was tough, 80 was even tougher.—*KR4YL.* This was another one of those times when I don't think the Midwest or East fared very well. Unfortunately, that seems to happen more often than not.—*KW8N.* I had a BLAST as I always do.—*AE0M at N6IJ.* Not much time to participate due to dinner guests.—*N9RV.* The Sprint is one of my all time favorites. Nothing quite like a four-hour horse race (I need a few more horses though).—*NX9T.* First Sprint. It was a blur.—*K4OOO.* Actually felt like I was getting the hang of it for a while.—*K4RO.* Lost 50 minutes in the second hour due to lightning, 60-MPH winds and hail.—*K5OT.* This contest is not too long, so it doesn't kill the whole weekend.—*VE3WIB.* 100 W just doesn't quite cut the mustard.—*WA3HAE.* Lack of a working 80-meter antenna made this Sprint a two-band contest for me. In the end, it was just me and the SW broadcasters on 40.—*WA7BNM.* Great fun, I think.—*WU4G.*

**Scores**

| *Call* | *Name* | *QTH* | *20* | *40* | *80* | *QSOs* | *Mults* | *Score* | *Team* |
|---|---|---|---|---|---|---|---|---|---|
| KK1L | Ron | VT | 56 | 57 | 70 | 183 | 41 | 7503 | |
| K1HT | *Dave | MA | 34 | 68 | 53 | 155 | 41 | 6355 | |
| K5ZD | Randy | MA | 51 | 55 | 43 | 149 | 36 | 5364 | |
| WR1P | Nate | MA | 25 | 22 | 3 | 50 | 21 | 1050 | |
| W5KI | *Steve | NJ | 12 | 28 | 18 | 58 | 23 | 1334 | |
| WA3HAE | *Keith | PA | 44 | 36 | 22 | 102 | 29 | 2958 | |
| KF3BE | George | MD | 30 | 4 | 34 | 68 | 34 | 2312 | |
| N8NA | *Karl | DE | 12 | 13 | 50 | 75 | 28 | 2100 | |
| N3DEL | *Della | DE | 19 | 1 | 0 | 20 | 12 | 240 | TCG2 |
| K4XS | Bill | FL | 110 | 123 | 65 | 298 | 45 | 13410 | |
| K4MA | Jim | NC | 69 | 101 | 75 | 245 | 46 | 11270 | MRRC |
| W4PA | Scott | TN | 76 | 79 | 84 | 239 | 45 | 10755 | TCG1 |
| NX9T | Jeff | NC | 82 | 73 | 79 | 234 | 44 | 10296 | |
| K4WX | Don | TN | 53 | 97 | 76 | 226 | 44 | 9944 | TCG1 |
| K1KY | Tom | TN | 54 | 88 | 73 | 215 | 42 | 9030 | TCG1 |
| WU4G | Ron | VA | 64 | 57 | 56 | 177 | 37 | 6549 | |
| KR4YL | *Paul | FL | 60 | 58 | 31 | 149 | 37 | 5513 | |
| N4CW | Bert | NC | 52 | 57 | 31 | 140 | 36 | 5040 | |
| K0EJ | *Mark | TN | 40 | 27 | 49 | 116 | 38 | 4408 | TCG1 |
| NY4T | *Lee | TN | 19 | 50 | 50 | 119 | 33 | 3927 | TCG1 |
| K4RO | Kirk | TN | 42 | 76 | 0 | 118 | 33 | 3894 | TCG1 |
| AC4LS | Eric | TN | 36 | 50 | 28 | 114 | 33 | 3762 | TCG1 |
| KS4YX | Gil | SC | 13 | 15 | 32 | 60 | 28 | 1680 | |
| W9WI | *Doug | TN | 35 | 14 | 0 | 49 | 21 | 1029 | TCG1 |
| N3QYE | Jim | NC | 32 | 24 | 0 | 56 | 17 | 952 | |
| N3QYE | *Jim | NC | 28 | 25 | 0 | 53 | 17 | 901 | |
| K4OOO | *Larry | TN | 7 | 7 | 10 | 24 | 14 | 336 | TCG2 |
| WO4O | *Ric | TN | 0 | 0 | 1 | 1 | 1 | 1 | |
| W5ASP | Joe | TX | 96 | 95 | 42 | 233 | 43 | 10019 | |
| K5OT | Larry | TX | 67 | 85 | 64 | 216 | 39 | 8424 | |
| AB5SE | *Jerry | AR | 59 | 68 | 49 | 176 | 37 | 6512 | |
| K5AM | Mark | NM | 74 | 48 | 42 | 164 | 33 | 5412 | |
| KM5UB | *David | TX | 45 | 36 | 0 | 81 | 31 | 2511 | |
| N5YK | Randy | TX | 0 | 65 | 0 | 65 | 23 | 1495 | |
| W5NR | Art | TX | 28 | 22 | 0 | 50 | 22 | 1100 | |
| K5TQ | Gary | NM | 20 | 11 | 14 | 45 | 19 | 855 | |
| AD6DO | Dan | CA | 120 | 118 | 72 | 310 | 45 | 13950 | SCCC1 |
| K6LA | Ken | CA | 126 | 121 | 53 | 300 | 46 | 13800 | SCCC1 |
| K6RO | Larry | CA | 138 | 87 | 48 | 273 | 47 | 12831 | SCCC1 |
| N6ED | Ed | CA | 125 | 110 | 58 | 293 | 43 | 12599 | SCCC1 |
| N6RO | Ken | CA | 107 | 108 | 68 | 283 | 43 | 12169 | NCCC |
| KG6OK | Herb | CA | 94 | 102 | 69 | 265 | 42 | 11130 | SCCC1 |
| W6EEN | Mark | CA | 102 | 92 | 46 | 240 | 44 | 10560 | SCCC1 |
| K6ZH | Jim | CA | 91 | 94 | 44 | 229 | 43 | 9847 | |
| W6TK | Dick | CA | 76 | 95 | 56 | 227 | 40 | 9080 | |
| N6IJ | Tony | CA | 65 | 87 | 46 | 198 | 40 | 7920 | NCCC |
| AJ6V | Ed | CA | 71 | 66 | 57 | 194 | 40 | 7760 | NCCC |
| WA7BNM | *Bruce | CA | 99 | 81 | 0 | 180 | 39 | 7020 | SCCC2 |
| N6EE | Ron | CA | 74 | 38 | 31 | 143 | 40 | 5720 | NCCC |
| N6VR | Ray | CA | 31 | 42 | 29 | 102 | 34 | 3468 | SCCC2 |
| K6LL | Dave | AZ | 158 | 105 | 64 | 327 | 48 | 15696 | SCCC1 |
| W7WW | Dave | AZ | 131 | 82 | 45 | 258 | 46 | 11868 | SCCC1 |
| KO7X | Alan | UT | 75 | 103 | 73 | 251 | 45 | 11295 | SCCC1 |
| W7WA | *Dan | WA | 109 | 102 | 0 | 211 | 39 | 8229 | |
| N7LOX | *Brian | WA | 84 | 79 | 33 | 196 | 40 | 7840 | |
| W7MT | Russ | OR | 87 | 66 | 29 | 182 | 41 | 7462 | |
| K7ZO | Scott | ID | 58 | 66 | 42 | 166 | 36 | 5976 | |
| WL7KY | Chris | AK | 94 | 54 | 9 | 157 | 34 | 5338 | |
| K7NT | *Mike | OR | 99 | 31 | 0 | 130 | 36 | 4680 | |
| KW7N | *Steve | ID | 11 | 32 | 14 | 57 | 24 | 1368 | |
| KW8N | Bob | OH | 76 | 115 | 90 | 281 | 47 | 13207 | MRRC |
| KU8E | Jeff | OH | 44 | 84 | 88 | 216 | 44 | 9504 | MRRC |
| K9TM | Bob | OH | 63 | 76 | 78 | 217 | 43 | 9331 | MRRC |
| N8EA | *Joe | MI | 50 | 70 | 67 | 187 | 37 | 6919 | |
| W8WWV | Greg | OH | 68 | 55 | 45 | 168 | 38 | 6384 | |
| K8IR | *Jim | MI | 16 | 38 | 33 | 87 | 28 | 2436 | |
| N8NX | Doug | MI | 33 | 54 | 0 | 87 | 24 | 2088 | |
| K8MR | *Jim | OH | 4 | 19 | 35 | 58 | 25 | 1450 | MRRC |
| N8WTH | David | MI | 11 | 12 | 14 | 37 | 17 | 629 | |
| K9XD | Dave | IL | 76 | 89 | 98 | 263 | 43 | 11309 | SMC1 |
| KA9FOX | Scott | WI | 62 | 99 | 90 | 251 | 44 | 11044 | SMC1 |
| K9ZO | Ralph | IL | 70 | 81 | 90 | 241 | 43 | 10363 | SMC1 |
| K9BGL | Karl | IL | 60 | 87 | 83 | 230 | 42 | 9660 | |
| K9VV | Fubar | IN | 45 | 80 | 95 | 220 | 43 | 9460 | SMC2 |
| KI9A | *Chuck | IL | 38 | 73 | 77 | 188 | 41 | 7708 | |
| W9RE | Mike | IN | 52 | 47 | 75 | 174 | 41 | 7134 | SMC1 |
| N9PQU | *Jeff | WI | 43 | 66 | 47 | 156 | 40 | 6240 | BAWA |
| K0SN | *Tom | WI | 40 | 61 | 53 | 154 | 40 | 6160 | BAWA |
| K9PW | *Peter | IL | 23 | 62 | 56 | 141 | 39 | 5499 | SMC1 |
| N9RV | Pat | IN | 16 | 32 | 76 | 124 | 35 | 4340 | |
| K9IG | Lizard | IN | 40 | 41 | 45 | 126 | 34 | 4284 | SMC2 |
| AA9PB | *Jim | WI | 12 | 45 | 22 | 79 | 33 | 2607 | BAWA |
| K9PG | *Paul | IL | 0 | 11 | 58 | 69 | 30 | 2070 | SMC2 |
| K0OU | Steve | MO | 63 | 105 | 71 | 239 | 41 | 9799 | MRRC |
| W0UY | *Tom | KS | 59 | 80 | 61 | 200 | 36 | 7200 | SMC1 |
| K0AD | Al | MN | 57 | 60 | 0 | 117 | 42 | 4914 | MWA |
| NA0N | *Pat | MN | 45 | 79 | 10 | 134 | 36 | 4824 | |
| KE0FT | *John | IA | 1 | 17 | 22 | 40 | 22 | 880 | |
| VE7NTT | Gary | VE7 | 143 | 108 | 76 | 327 | 48 | 15696 | NCCC |
| VE5MX | Todd | VE5 | 117 | | 78 | 79 | 274 | 45 | 12330 |
| VE7IN | Earl | VE7 | 82 | | 69 | 38 | 189 | 38 | 7182 |
| VE5SF | *Sam | VE5 | 65 | | 68 | 37 | 170 | 38 | 6460 |
| VE3WIB | *Wade | VE3 | 28 | | 36 | 27 | 91 | 32 | 2912 |
| VE6FU | *Dave | VE6 | 30 | | 0 | 0 | 30 | 14 | 420 |
| ZD8A | Glen | DX | 86 | | 0 | 0 | 86 | 30 | 2580 |

*Denotes a Low Power entry

Guest Operators:
N9GG at N3DEL; KI7WX at W6EEN; AE0M at N6IJ; W9QA at K9XD; K6NA at ZD8A

# Results, January 1999 NAQP CW Contest

**Bob Selbrede, K6ZZ**
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Well, another FB contest has come and gone. Conditions were quite good with many stations breaking records and reporting personal best scores. The battle for the Top 10 was fierce with less than one QSO separating the winner, K5RC from second place K7RAT. I had to check, recheck and then recheck again to ensure that the scores were accurate. This was the closest finish I can recall in the five years that I've managed this contest. The entire Top 10 was tightly grouped as compared to the typical score spread. N2NC just barely edged out N6RO for third place as well. The award for highest Single Op Combined CW/SSB Score goes to Dave, K6LL adding to his already sizable collection. The highest score submitted by a QRP station was K3WWP, and VE4VV posted the top score out of Canada again. Nice job, everyone.

The Multi-Two category had some surprises this time with Single-Op stalwarts, N5TJ and W4AN jumping categories. In the end N5TJ teamed with NM5M to win it with K7UP and W4AN close behind in second and third place respectively. A total of ten Multi-Two entries were received indicating this category continues to gain popularity. I may have to give it a shot myself in August! Team contesting is also going strong with 35 teams registered for the event. The winner this time was "Team Handkey" (*yeah right!*) with the Tennessee Contest Group and Florida Crackers close behind. The Tennessee Contest Group and the South East Contest Group were notable in their ability to submit 11 teams! The result was a flurry of activity out of 4-Land and

## Team Scores

| *Team Handkey* | |
|---|---|
| K7RAT (N6TR) | 250,318 |
| N2NC | 244,062 |
| W1KM | 125,334 |
| N5RZ | 118,932 |
| N6ZZ | 88,312 |
| Total | 826,958 |

| *Florida Crackers #1* | |
|---|---|
| K1TO | 200,772 |
| K4OJ | 153,450 |
| N4BP | 145,470 |
| N4TO | 133,590 |
| WC4E | 126,000 |
| Total | 759,282 |

| *TCG #1* | |
|---|---|
| K4WX | 188,600 |
| W4PA | 182,596 |
| K4RO | 153,224 |
| K1KY | 137,550 |
| W9WI | 128,896 |
| Total | 790,866 |

| *TCG #2* | |
|---|---|
| K0EJ | 181,973 |
| K1AO | 144,746 |
| K4LTA | 138,112 |
| WO4O | 127,500 |
| N4IR | 112,117 |
| Total | 704,448 |

5. Northern California Contest Club (N6RO, K6AW, N6NF, W6CT, N6EE) ..... 698,202
6. Texas DX Society Gold (K5RC, K5NA, W5ASP, K5KG) ..... 652,284
7. Society Of Midwest Contesters #1 (K9MA, K9BG, N9CO, KA9FOX, W9RE) ..... 637,803
8. Southern California Contest Club #1 (K6LL, WN6K, KY7M, XE2L, KQ6ES) ..... 575,961
9. South East Contest Club #1 (W4OC, AA4GA, K4OGG, K9AY, K4EA) ..... 551,072
10. Taco Uno (K5OT, W5ER, K5PN, N5NJ) ..... 529,535
11. South East Contest Club #2 (K4AB, K4IQJ, K4NO, N4YO, WA4TT) ..... 494,777
12. Arkansas Contest Group (KM5G, N5DX, K5OY, K5LG, W5YM) ..... 489,751
13. Minnesota Wireless Association (K0SR, K0AD, NA0N, KT0R) ..... 489,321
14. Rush Drake Orchestra North (N0AX, K7ED, KK7GW, WL7KY) ..... 424,359
15. Society Of Midwest Contesters #2 (N9FH, KJ9C, WT9U, K9MMS) ..... 413,016
16. Weekend Warriors (AA3B, N3IXR, WA3HAE, WA3SES) ..... 412,600
17. PVRC Tarheels (N4AF, WJ9B, K4QPL, NT4D, K4HA). ..... 375,244
18. Rush Drake Orchestra South (N7OU, KI7Y, K5ZM). ..... 371,769
19. Texas DX Society #1 (KG5U, N5RP, N5DU, K5DX). ..... 370,618
20. Tennessee Contest Group #3 (N4DD, NA4K, N4VI, K4AMC) ..... 370,325
21. Team PVRC (K3MM, N4CW) ..... 335,664
22. Kentucky Contest Group (K4FXN, AA2GS, K4FU). ..... 259,673
23. Last Minute Team (K0OU, W8CAR) ..... 229,143
24. Society Of Midwest Contesters #3 (N9JF, KI9A, K9YO, K9GY) ..... 213,115
25. Taco Dos (AD5Q, K5WO). ..... 199,012
26. Team Mississippi (W5XX, KB5IXI, KC5TVI) ..... 168,367
27. South East Contest Club #3 (K2UFT, WA4ILO, K4NA, W4DD) ..... 27,320
28. Willamette ARC (K7EW, N7ATM) ..... 99,828
29. Tennessee Contest Group Interstate (K3WU, W4TYU, N9GG) ..... 96,343
30. South East Contest Club Bedsprings (N1CC, K4TW, AA4LR, KD3GC) ..... 83,100
31. Texas DX Society #2 (N5LZ, K5GQ/M) ..... 54,267
32. Tennessee Contest Group QRS #1 (NY4T, KE4OAR, K4BEV, AC4ZD) ..... 45,627
33. Tennessee Contest Group QRS #2 (N4KN, W4TDB) ..... 19,626
34. Southern California Contest Club #2 (K6ZZ/M, K6RO) ..... 10,640
35. Tennessee Contest Group QRS #3 (KF4GNV, AC4UU, KU4LL) ..... 5,061

## Top Score Breakdowns

| *Call* | *Score* | *QSOs* | *Mults* | *160M* | *80M* | *40M* | *20M* | *15M* | *10M* |
|---|---|---|---|---|---|---|---|---|---|
| **Single Op Breakdowns** | | | | | | | | | |
| K5RC | 250498 | 998 | 251 | 49/23 | 109/36 | 264/49 | 220/53 | 165/45 | 191/45 |
| K7RAT (N6TR) | 250318 | 974 | 257 | 41/15 | 111/39 | 212/50 | 207/53 | 233/50 | 170/50 |
| N2NC | 244062 | 894 | 273 | 68/32 | 179/49 | 211/54 | 241/51 | 122/50 | 73/37 |
| N6RO | 242064 | 984 | 246 | 60/28 | 68/34 | 223/48 | 239/47 | 236/48 | 158/41 |
| K6LL | 236844 | 918 | 258 | 20/14 | 62/35 | 193/49 | 241/55 | 200/53 | 202/52 |
| K3MM | 224280 | 840 | 267 | 93/34 | 136/38 | 241/50 | 161/50 | 121/48 | 88/47 |
| K0RF | 221496 | 839 | 264 | 94/44 | 132/49 | 189/52 | 166/45 | 163/43 | 95/31 |
| K1TO | 200772 | 858 | 234 | 0/0 | 160/38 | 240/51 | 237/55 | 156/50 | 65/40 |
| K5OT | 195294 | 807 | 242 | 67/30 | 161/45 | 199/53 | 215/48 | 116/44 | 49/22 |
| K4WX | 188600 | 820 | 230 | 64/30 | 189/37 | 208/49 | 206/52 | 105/39 | 48/23 |
| **Multi-Two Breakdowns** | | | | | | | | | |
| N5TJ (+NM5M) | 482142 | 1502 | 321 | 142/43 | 235/50 | 357/59 | 347/58 | 279/58 | 142/53 |
| K7UP (+AA5B, KN5H) | 418111 | 1427 | 293 | 89/34 | 216/49 | 346/54 | 359/57 | 264/52 | 153/47 |
| W4AN (+K4BAI) | 413595 | 1365 | 303 | 141/41 | 278/53 | 342/56 | 321/55 | 163/53 | 120/45 |

nobody should have missed those states for multipliers. Keep up the good work guys.

A total of 277 entries were received—although the log checking database indicates approximately 900 stations were somewhat active in the contest. Nearly half of the entries were from either 4 or 5-land. A total of 118,000 QSOs were logged by these entrants for an average of 426 QSOs per operator. Tennessee operators were the most prolific submitting 26 logs. There were also a number of "claimed scores" posted for folks who never bothered to submit a log. Some of those were decent scores indicating a fair amount of effort was put into the contest. Please remember to submit your logs. Your team members need your score. Error rates among top operators were good as expected and ranged between 0.5% and 3%. Many errors seem to stem from the use of callsign databases and also violations of the 10-minute rule for Multi-Two's. If you would like to know what QSOs were removed from your log and why, send me an e-mail. That's the wrap-up for this contest. Hope to CU in August for the last NAQP of the millenium!

**Top 5 Single Operator Combined Scores**

| *Call* | *CW Points* | *SSB Points* | *Total Points* |
|---|---|---|---|
| K6LL | 473 | 500 | 973 |
| N6RO | 483 | 450 | 933 |
| K5RC | 500 | 366 | 866 |
| K4WX | 377 | 384 | 761 |
| W8MJ | 353 | 332 | 685 |

### CW Soapbox

The 150 W limit gives little pistols a chance to run like the big guns, and run I did on 80 meters. Adding radials to my multi-band vertical made all the difference in the world for me on 80... —*AF8A*. I apologize for my miserable little 160-meter signal. There are 11 guys out there with great ears!—*K0SR*. After 4 power outages during the afternoon and having guests for dinner, I didn't have much time left. I pieced together a little over an hour of fun toward the end of the contest.—*K1HT*. Lots of QRN on low bands, but it's nice that 10 meters is back.—*K4OGG*. It's amazing what a difference there is between 5 and 25 W. I had some really nice CQ runs and rates. Fun!—*KG5U*. Conditions did not seem to be very good. Late in the contest, 80 CW was full of Russian stations in a different contest, thereby creating some confusion on the band. All in all, a good contest!—*K5KG*. OK, so sending the name SPEED probably wasn't a good idea. Most ops caught on after the first QSO, but I think it caused more trouble than fun. This was also my very first exposure to two radio contesting. It was really neat. Once I get a handle on it, I think it'll be even more fun.—*K5ZM*. January NAQP CW, the most fun contest of all!—*K6LL*. NAQP continues to grow every year as it becomes more and more popular. We sure picked the wrong time to try to set a new record, hats off to N5TJ crew. Special thanks to AA5B and KN5H for making very long drives for a 12-hour contest—*K7UP*. Just fooling around in this one...had a hard time sitting at a desk when I've got a desk job during the week... the lazy boy chair pulled me away a couple of times. Nice to see that 10 and 15 meters was productive. Met my goal of 225 Qs and 80 mults, so I was happy with that. Nice to know all the stuff still works after the boatload of snow we got last weekend, hi. Catch ya in the CW Sprint!—*K9GY*. This was a cool contest. I actually exceeded the goals I set for myself! I never imagined running 53 an hour on 80, nevertheless working more than 20 people on 80. Just in December, I could hardly work a guy in Indiana on 80 and I was just amazed at how well I did on 80. Look forward to the phone contest and also to this contest in 2000!—*K9YO*. My first serious effort from the new home station. No 160 antenna.—*KA9FOX*. My first NAQP, I had fun. Thanks!—*KE0FT*. Amazing activity. Beat my old NJ record from the contest when single operators were allowed to operate the entire 12 hour period.—*N2NC*. First time in NAQP, enjoyed it I think. Have a lot to learn and see that two radios is the way to go in this 'test. Now I have to learn how to use two radios. Not sure this guy isn't too old to learn new tricks.—*N4TO*. Everything that could go wrong during this test, went wrong, not the least of which was my stabbing myself in the foot about 10 minutes before the contest start while stripping coax with my knife.—*N5RP*. Great contest!—*N5TJ*. First NAQP. Tough going since I max out at about 20-25 WPM and these guys are all FAST! Loved it. Hope to be back in August.—*N6EE*. No shortage of Cheeseheads this time around—was only asked to QSY for the mult once or twice. Swapping in a new motherboard fixed my random CW lockups and bizarre speed changes. Any errors this time were just my sloppy fist! Real nice to hit enter and have the computer start sending without a 0.5 sec delay. My major tactical error in the last NAQP was neglecting 10 and 15. This time I tried to concentrate on those bands but couldn't seem to get much going. Would have been better off to move down before I did. I took my two hours during 40-meter prime time (family dinner, etc) which may also have been an error. Tried to catch up on 80 after 0100Z and had a couple of good hours there. Seemed like a whole lot of people are running two radios these days. As soon as I learn to work the one I've got I may try that. I didn't try to move any mults—but I probably should have. Great to work so many SMCers!—*N9FH*. Sorry to all of you who wondered what happened to me at times. Upgraded my computer and created a monster! Should have left my old 386/25 alone!—*WA3HAE*. My first time in NAQP. The SECC made me do it!—*W4DD*. Always fun—thanks for the Qs.—*W6TK*. Not having an antenna for 160 cost me a chance to beat my all-time best score. I found out a week later I could short out the windom and load it with an external tuner on "top" band. Live and learn—*WA3SES*. "Carlos" Murphy was on overtime for this Mexico mini-expedition. The antenna rotator failed but luckily it stuck NE. Antenna SWR had the rig down to 35 W at times. I drove 30 miles to XE2MX's QTH to borrow a tuner.—*XE2L*. Another fun filled contest! Biggest dumb thing of the year was when I was on 20 meters I started getting some line noise. I switched to 40 meters to see if the noise was as high there—it was. I went back to 20 meters. Oops, I forgot to switch antennas back! I worked about 30 stations on 20 using my 160-meter doublet with very high SWR!!! That is a good reason for me to install automatic antenna switching!!! Second biggest dumb thing of the year was when I worked W4AN on 40 meters. He asked me to move to 35070 or something like that. I thought "we don't have a frequency at 35 MHz"! I asked Bill to say again, then panic set in and I just tuned away! God, I felt like a rookie! Sorry Bill—it won't happen again. I'll at least say no thanks next time!—*WA8YRS*.

**Single Operator Scores**

| *Call* | *QSOs* | *Mults* | *Score* | *Section* | *Team* |
|---|---|---|---|---|---|
| K1VUT | 649 | 206 | 133,694 | MA | |
| W1KM | 594 | 211 | 125,334 | MA | TH |
| WA1LNP | 629 | 198 | 124,542 | NH | |
| AA1SU | 447 | 149 | 66,603 | VT | |
| W1FJ | 368 | 127 | 46,736 | MA | |
| KZ1M | 111 | 79 | 8,769 | MA | |
| K5ZD | 100 | 56 | 5,600 | MA | |
| K1HT | 85 | 51 | 4,335 | MA | |
| N2NC | 894 | 273 | 244,062 | NJ | TH |
| K5KG | 629 | 205 | 128,945 | NJ | TDXS Gold |
| W5KI | 403 | 159 | 64,077 | NJ | |
| K2UA | 228 | 113 | 25,764 | NY | |
| KG2BI | 230 | 104 | 23,920 | NY | |
| W2HCA | 175 | 92 | 16,100 | NJ | |
| W2KTF | 130 | 82 | 10,660 | NY | |
| WZ2T * | 130 | 70 | 9,100 | NY | |
| W2EZ | 100 | 49 | 4,900 | NY | |
| WB2ART | 33 | 26 | 858 | NY | |
| WA2VQV | 22 | 14 | 308 | NJ | |
| K3MM | 840 | 267 | 224,280 | MD | Team PVRC |
| AA3B | 730 | 210 | 153,300 | PA | WW |
| N3IXR | 549 | 174 | 95,526 | PA | WW |
| WA3HAE | 515 | 176 | 90,640 | PA | WW |
| K3WU | 531 | 149 | 79,119 | PA | TCG Interstate |
| WA3SES | 478 | 153 | 73,134 | PA | WW |
| N8NA | 366 | 164 | 60,024 | DE | |
| NY3M | 351 | 145 | 50,895 | MD | |
| WF3M | 356 | 132 | 46,992 | PA | |
| K3WWP * | 242 | 96 | 23,232 | PA | |
| N3RM | 200 | 98 | 19,600 | PA | |
| W3CP | 179 | 98 | 17,542 | MD | |
| K3SV | 208 | 81 | 16,848 | PA | |
| NA3V | 164 | 86 | 14,104 | PA | |
| W3LJ | 93 | 60 | 5,580 | MD | |
| K3VAR | 105 | 48 | 5,040 | PA | |
| W3MWY * | 84 | 28 | 2,352 | MD | |
| N9GG * | 56 | 31 | 1,736 | DE | TCG Interstate |
| W3KM | 31 | 22 | 682 | PA | |
| K3JHT | 7 | 5 | 35 | PA | |
| K1TO | 858 | 234 | 200,772 | FL | FC #1 |
| K4WX | 820 | 230 | 188,600 | TN | TCG #1 |
| W4PA | 764 | 239 | 182,596 | TN | TCG #1 |
| K0EJ | 781 | 233 | 181,973 | TN | TCG #2 |
| K4FXN | 701 | 236 | 165,436 | KY | KCG |
| N4AF | 706 | 233 | 164,498 | NC | PVRC Tarheels |
| K4OJ | 682 | 225 | 153,450 | FL | FC #1 |
| K4RO | 716 | 214 | 153,224 | TN | TCG #1 |
| W4OC | 690 | 221 | 152,490 | SC | SECC #1 |
| N4BP | 746 | 195 | 145,470 | FL | FC #1 |
| K1AO | 686 | 211 | 144,746 | KY | TCG #2 |
| K4AB | 683 | 205 | 140,015 | AL | SECC #2 |
| K4LTA | 664 | 208 | 138,112 | TN | TCG #2 |
| K1KY | 655 | 210 | 137,550 | TN | TCG #1 |
| N4TO | 610 | 219 | 133,590 | FL | FC #1 |
| W9WI | 608 | 212 | 128,896 | TN | TCG #1 |
| WO4O | 625 | 204 | 127,500 | TN | TCG #2 |
| WC4E | 630 | 200 | 126,000 | FL | FC #1 |
| K4IQJ | 570 | 214 | 121,980 | AL | SECC #2 |
| N4DD | 611 | 197 | 120,367 | TN | TCG #3 |
| AA4GA | 607 | 196 | 118,972 | GA | SECC #1 |
| K4OGG | 625 | 190 | 118,750 | GA | SECC #1 |
| N4IR | 587 | 191 | 112,117 | TN | TCG #2 |
| N4CW | 612 | 182 | 111,384 | NC | Team PVRC |
| NA4K | 569 | 188 | 106,972 | TN | TCG #3 |
| W4AU | 547 | 178 | 97,366 | VA | |
| K9AY | 504 | 180 | 90,720 | GA | SECC #1 |
| K4NO | 450 | 195 | 87,750 | AL | SECC #2 |
| N4YO | 529 | 162 | 85,698 | AL | SECC #2 |
| K4LQ | 424 | 194 | 82,256 | FL | |
| WJ9B | 454 | 163 | 74,002 | NC | PVRC Tarheels |
| K4QPL | 480 | 154 | 73,920 | NC | PVRC Tarheels |
| K2UFT | 426 | 168 | 71,568 | GA | SECC #3 |
| K4EA | 420 | 167 | 70,140 | GA | SECC #1 |
| WA4TT | 341 | 174 | 59,334 | GA | SECC #2 |
| AA2GS | 399 | 139 | 55,461 | KY | KCG |
| N4RG | 374 | 140 | 52,360 | TN | |
| N4DW | 310 | 149 | 46,190 | TN | |
| K4AMC | 334 | 119 | 39,746 | TN | TCG #3 |
| K4FU | 262 | 148 | 38,776 | KY | KCG |
| N1CC | 292 | 121 | 35,332 | SC | SECC |
| Bedsprings | | | | | |
| WA4ILO | 310 | 109 | 33,790 | GA | SECC #3 |
| NT4D | 275 | 122 | 33,550 | NC | PVRC |
| Tarheels | | | | | |
| N4ROA | 273 | 117 | 31,941 | VA | |
| K4HA | 246 | 119 | 29,274 | NC | PVRC |
| Tarheels | | | | | |
| AJ4Y | 252 | 108 | 27,216 | FL | |
| K4TW | 245 | 108 | 26,460 | GA | SECC |
| Bedsprings | | | | | |
| N4GN | 225 | 104 | 23,400 | KY | |
| KN4Y | 231 | 99 | 22,869 | FL | |
| K4BAM | 205 | 107 | 21,935 | VA | |
| AA4LR | 217 | 98 | 21,266 | GA | SECC |
| Bedsprings | | | | | |
| NY4T | 205 | 103 | 21,115 | TN | TCG QRS #1 |
| N4KN | 212 | 83 | 17,596 | TN | TCG QRS #2 |
| K4NA | 177 | 88 | 15,576 | AL | SECC #3 |
| W4TYU | 176 | 88 | 15,488 | TN | TCG |
| Interstate | | | | | |
| W4AUI | 135 | 78 | 10,530 | TN | |
| KE4OAR | 130 | 74 | 9,620 | TN | TCG QRS #1 |
| K4BEV | 122 | 66 | 8,052 | TN | TCG QRS #1 |
| AC4ZD | 114 | 60 | 6,840 | TN | TCG QRS #1 |
| W4DD | 103 | 62 | 6,386 | GA | SECC #3 |
| N4TL | 100 | 57 | 5,700 | NC | |
| W1WEF | 128 | 44 | 5,632 | FL | |
| K4GEL * | 143 | 38 | 5,434 | VA | |
| KF4GNV | 61 | 42 | 2,562 | TN | TCG QRS #3 |
| AC4UU | 81 | 29 | 2,349 | TN | TCG QRS #3 |
| W4TDB | 58 | 35 | 2,030 | TN | TCG QRS #2 |
| W4OGG | 40 | 29 | 1,160 | TN | |
| WB4HUX | 21 | 16 | 336 | AL | |
| KU4LL | 15 | 10 | 150 | TN | TCG QRS #3 |
| KD3GC | 7 | 6 | 42 | GA | SECC |
| Bedsprings | | | | | |
| K5OT | 807 | 242 | 195,294 | TX | TU |
| K5TQ | 831 | 215 | 178,665 | NM | |
| N5NU | 739 | 218 | 161,102 | TX | |
| NA5B (W5AO) | 720 | 212 | 152,640 | OK | |
| W5ER | 702 | 215 | 150,930 | TX | TU |
| KM5G | 669 | 215 | 143,835 | AR | ACG |
| N5DX | 601 | 237 | 142,437 | AR | ACG |
| N5UL | 655 | 214 | 140,170 | NM | |
| K5NA | 639 | 215 | 137,385 | TX | TDXS Gold |
| W5ASP | 664 | 204 | 135,456 | TX | TDXS Gold |
| W5XX | 599 | 215 | 128,785 | MS | TM |
| W0UO | 701 | 173 | 121,273 | TX | |
| KG5U | 602 | 200 | 120,400 | TX | TDXS #1 |
| N5RZ | 583 | 204 | 118,932 | TX | TH |
| K5PN | 608 | 187 | 113,696 | TX | TU |
| N5RP (K2MRZ) | 606 | 186 | 112,716 | TX | TDXS #1 |
| AD5Q | 658 | 166 | 109,228 | TX | TD |
| K5WO | 522 | 172 | 89,784 | TX | TD |
| N6ZZ | 532 | 166 | 88,312 | NM | TH |
| K5OY | 517 | 154 | 79,618 | AR | ACG |
| WA5JWU | 448 | 171 | 76,608 | LA | |
| K5LG | 446 | 161 | 71,806 | AR | ACG |
| N5DU | 501 | 141 | 70,641 | TX | TDXS #1 |
| N5NJ | 455 | 153 | 69,615 | TX | TU |
| K5DX | 391 | 171 | 66,861 | TX | TDXS #1 |
| N5LZ | 370 | 146 | 54,020 | TX | TDXS #2 |
| W5YM (AC5RR) | 359 | 145 | 52,055 | AR | ACG |
| K5KA | 302 | 157 | 47,414 | OK | |
| W5XD | 289 | 150 | 43,350 | TX | |
| KJ5WX | 267 | 118 | 31,506 | AR | |

| Call | QSOs | Mults | Score | Section | Team |
|---|---|---|---|---|---|
| K4NR | 243 | 121 | 29,403 | TX | |
| KB5IXI | 225 | 113 | 25,425 | MS | TM |
| NO5W * | 194 | 83 | 16,102 | TX | |
| AA5WE | 175 | 86 | 15,050 | TX | |
| KC5TVI | 143 | 99 | 14,157 | MS | TM |
| W5NR | 130 | 80 | 10,400 | TX | |
| N5KB | 83 | 61 | 5,063 | TX | |
| W5FBO | 113 | 41 | 4,633 | OK | |
| AA6VO | 76 | 53 | 4,028 | TX | |
| W3DYA | 73 | 55 | 4,015 | TX | |
| N5AF | 61 | 34 | 2,074 | TX | |
| K5EM | 51 | 33 | 1,683 | TX | |
| NX5M | 50 | 31 | 1,550 | TX | |
| | | | | | |
| N6RO | 984 | 246 | 242,064 | CA | NCCC |
| K6AW @W6NL | 793 | 234 | 185,562 | CA | NCCC |
| N6NF | 720 | 201 | 144,720 | CA | NCCC |
| WN6K | 587 | 171 | 100,377 | CA | SCCC #1 |
| W6CT | 497 | 152 | 75,544 | CA | NCCC |
| KQ6ES | 423 | 163 | 68,949 | CA | SCCC #1 |
| N6EE | 331 | 152 | 50,312 | CA | NCCC |
| W6TK | 346 | 144 | 49,824 | CA | |
| K6LA | 243 | 96 | 23,328 | CA | |
| WA7JHQ | 119 | 62 | 7,378 | CA | |
| W6UE (W4EF) | 76 | 52 | 3,952 | CA | |
| K6ZCL | 65 | 50 | 3,250 | CA | |
| WA7BNM | 67 | 45 | 3,015 | CA | |
| K6RO | 56 | 40 | 2,240 | CA | SCCC #2 |
| | | | | | |
| K5RC | 998 | 251 | 250,498 | NV | TDXS Gold |
| K7RAT (N6TR) | 974 | 257 | 250,318 | OR | TH |
| K6LL | 918 | 258 | 236,844 | AZ | SCCC #1 |
| N0AX | 774 | 232 | 179,568 | WA | RDN |
| W7ZRC | 822 | 218 | 179,196 | ID | |
| N7OU | 818 | 215 | 175,870 | OR | RDS |
| NG7M @W7CT | 750 | 224 | 168,000 | UT | |
| NC7W | 696 | 196 | 136,416 | UT | |
| K7ED (WA0RJY) | 685 | 190 | 130,150 | WA | RDN |
| N7LOX | 675 | 191 | 128,925 | WA | |
| N7WA | 653 | 194 | 126,682 | WA | |
| KU7Y | 699 | 177 | 123,723 | NV | |
| KI7Y | 554 | 201 | 111,354 | OR | RDS |
| KY7M | 509 | 174 | 88,566 | AZ | SCCC #1 |
| K5ZM | 457 | 185 | 84,545 | OR | RDS |
| KK7GW | 431 | 161 | 69,391 | WA | RDN |
| W7WHY | 362 | 162 | 58,644 | OR | |
| K7EW | 351 | 148 | 51,948 | OR | WARC |
| N7ATM | 360 | 133 | 47,880 | OR | WARC |
| WL7KY | 362 | 125 | 45,250 | AK | RDN |
| AB7RW | 338 | 107 | 36,166 | WA | |
| KL7RA | 284 | 116 | 32,944 | AK | |
| W2VJN | 150 | 107 | 16,050 | OR | |
| N7IF | 41 | 25 | 1,025 | NV | |
| KC3QU | 22 | 12 | 264 | AZ | |
| | | | | | |
| W8MJ | 775 | 228 | 176,700 | MI | |
| WA8WV | 635 | 190 | 120,650 | WV | |
| W8CAR | 576 | 193 | 111,168 | OH | LMT |
| WA8YRS | 536 | 192 | 102,912 | OH | |
| K9TM | 610 | 168 | 102,480 | OH | |
| K8JM | 491 | 155 | 76,105 | MI | |
| AF8A | 416 | 145 | 60,320 | OH | |
| KG8GW | 390 | 152 | 59,280 | WV | |
| K8KFJ | 345 | 123 | 42,435 | WV | |
| W8UPH | 254 | 121 | 30,734 | OH | |
| N8YYS | 232 | 111 | 25,752 | WV | |
| KB8PGW | 65 | 26 | 1,690 | MI | |
| | | | | | |
| K9MA | 694 | 222 | 154,068 | WI | SMC #1 |
| N9FH | 684 | 203 | 138,852 | WI | SMC #2 |
| K9BG | 600 | 221 | 132,600 | IL | SMC #1 |
| N9CO | 661 | 195 | 128,895 | IL | SMC #1 |
| KA9FOX | 640 | 191 | 122,240 | WI | SMC #1 |
| KJ9C | 559 | 199 | 111,241 | IN | SMC #2 |
| W9RE | 500 | 200 | 100,000 | IN | SMC #1 |

| Call | QSOs | Mults | Score | Section | Team |
|---|---|---|---|---|---|
| WT9U | 550 | 167 | 91,850 | IN | SMC #2 |
| N9JF | 403 | 187 | 75,361 | IL | SMC #3 |
| K9MMS | 447 | 159 | 71,073 | IL | SMC #2 |
| KI9A | 418 | 165 | 68,970 | IL | SMC #3 |
| K0SN | 433 | 139 | 60,187 | WI | |
| K9PG | 400 | 134 | 53,600 | IL | |
| K9YO | 355 | 129 | 45,795 | IL | SMC #3 |
| N9CK | 310 | 135 | 41,850 | WI | |
| KE9I | 303 | 132 | 39,996 | IN | |
| K9WX | 253 | 103 | 26,059 | IN | |
| WE9V | 236 | 109 | 25,724 | WI | |
| K9GY | 237 | 97 | 22,989 | IL | SMC #3 |
| W9YH (N4OGW) | 207 | 77 | 15,939 | IL | |
| N9TU | 150 | 80 | 12,000 | IN | |
| AF9J * | 127 | 83 | 10,541 | WI | |
| W9AX | 131 | 70 | 9,170 | IL | |
| W9DYG | 156 | 44 | 6,864 | WI | |
| W9SMC (K9PG) | 62 | 30 | 1,860 | IL | |
| KB9IUA | 43 | 31 | 1,333 | IL | |
| | | | | | |
| K0RF | 839 | 264 | 221,496 | CO | |
| N0AV | 691 | 229 | 158,239 | IA | |
| K0SR | 654 | 205 | 134,070 | MN | MWA |
| K0AD | 618 | 196 | 121,128 | MN | MWA |
| W0UY | 602 | 200 | 120,400 | KS | |
| NA0N | 667 | 177 | 118,059 | MN | MWA |
| K0OU | 605 | 195 | 117,975 | MO | LMT |
| K0CAT (K9WIE) | 568 | 207 | 117,576 | MN | |
| KT0R | 558 | 208 | 116,064 | MN | MWA |
| N4VI | 580 | 178 | 103,240 | CO | TCG #3 |
| K0RI | 470 | 185 | 86,950 | CO | |
| K0RX | 528 | 159 | 83,952 | IA | |
| KE0FT | 384 | 164 | 62,976 | IA | |
| K0OB | 353 | 151 | 53,303 | MN | |
| NS0B | 311 | 137 | 42,607 | MO | |
| AA0ZV | 299 | 88 | 26,312 | MN | |
| KG0KR | 215 | 108 | 23,220 | NE | |
| KI0E | 224 | 83 | 18,592 | ND | |
| K0NI * | 185 | 92 | 17,020 | MO | |
| KC0COP | 65 | 36 | 2,340 | CO | |
| | | | | | |
| VE4VV | 725 | 206 | 149,350 | MB | |
| VE6EX | 693 | 193 | 133,749 | AB | |
| XE2L (XE2/N6KI) | 475 | 171 | 81,225 | XE | SCCC #1 |
| VE5SF | 463 | 172 | 79,636 | SK | |
| VA3UZ | 454 | 168 | 76,272 | ON | |
| VE3IAY | 411 | 146 | 60,006 | ON | |
| VE7NF | 428 | 139 | 59,492 | BC | |
| VA3RJ | 315 | 124 | 39,060 | ON | |
| VE3WZ | 250 | 113 | 28,250 | ON | |
| VE3ZT | 231 | 112 | 25,872 | ON | |
| VE9AA | 204 | 99 | 20,196 | NB | |
| VE5MX | 219 | 89 | 19,491 | SK | |
| VA3IX | 145 | 83 | 12,035 | ON | |
| WP4LNY | 49 | 31 | 1,519 | PR | |
| PY2NY | 44 | 29 | 1,276 | PY | |
| VE3STT | 22 | 15 | 330 | ON | |
| | | | | | |
| K6ZZ/M | 120 | 70 | 8,400 | | SCCC #2 |
| K5GQ/M | 19 | 13 | 247 | | TDXS #2 |

* Denotes a QRP entry

**Multi-Two Scores**

| Call | QSO's | Mults | Score | Section |
|---|---|---|---|---|
| N5TJ (+ NM5M) | 1502 | 321 | 482,142 | TX |
| K7UP (+ AA5B, KN5H) | 1427 | 293 | 418,111 | NM |
| W4AN (+ K4BAI) | 1365 | 303 | 413,595 | GA |
| W5WMU (+ Pat) | 1191 | 274 | 326,334 | LA |
| W5NN (KK5LD, W5SB, K1OJ, K5NZ) | 1181 | 268 | 316,508 | TX |
| W4MR (AA4NC, K4MA) | 1052 | 267 | 280,884 | NC |
| N0NI (+ W0FLS, K0KD, N0AC) | 1037 | 260 | 269,620 | IA |
| NM7I (K7ON, NU7I) | 818 | 217 | 177,506 | AZ |
| K7GE (+ K7PN, K7NT) | 826 | 205 | 169,330 | WA |
| K8MAD (K8CC, K8MR, KU8E) | 125 | 73 | 9,125 | |

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Reputation. It builds every day with TEN-TEC. Thirty years of refining our craft delivers top-of-the-line amateur gear and unparalleled service after the sale. TEN-TEC owners made our reputation what it is today. Ask an Omni-VI *Plus* owner about the quality of our gear and the advice we offer, and they'll tell you - *No one does it better.*

Performance of the Omni-VI *Plus* is unmatched by anyone. We've taken the best qualities of the original Omni-VI and added even more Digital Signal Processing technology. You'll hear signals that no other receiver does, under the worst of band conditions.

*"With both of my rigs hooked up to a switch, I was able to switch between the (brand X) and Omni-VI Plus for comparison. Folks, this Omni-VI Plus is the hottest rig I've EVER owned."*
- Bill Sawders, K7ZM

*"Ten-Tec has really outdone itself with the receiver."*
- Howard Eskridge, K9GYI

*"We have consistently found it possible to copy weak signals on both SSB and CW with the Omni that gave us trouble with the ___."*
- Paul Helbert, WV3J


How do we achieve results like this? Every competitor uses synthesizers that add unwanted noise to the receiver's noise floor. This phase noise causes the noise floor to temporarily increase in the presence of nearby strong signals. Weak signals inside your passband become inaudible. With the Omni-VI *Plus*, you hear the weak ones under the worst of band conditions.

*"The Omni-VI Plus has given me new confidence in attacking pile-ups, and in responding to those weak calls I would have passed by before."* - Pete Inskeep, NO2D

*"I would not have bought it if I didn't think it was the best in the world. The receiver has to be heard to be believed!"*
- Alfred Lorona, W6WQC

Superior receive selectivity eliminates the strongest interference from even the closest signals. You select the optimum amount of filtering for differing band conditions. Up to 4 choices of bandwidth in the 6.3 MHz I-F and 3 choices in the 9 MHz I-F. Two of the 7 filters are standard; add only the options that fit your operating style.

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- Lewis Fischer, WY9X

*"I can't believe how well I heard in the 160 contest!"*
- Wayne Hudson, K5ZG

*"If I had to buy a new radio tomorrow with no money limit, I would buy the same radio again."* - Bob Miller, N9MU

Omni-VI *Plus* incorporates DSP technology to enhance your ability to pull out the weak ones. Single-button DSP NOISE REDUCTION provides up to 15 dB of in-passband random noise attenuation. Tailorable DSP LOW PASS filtering cuts fatiguing high-end audio hiss. DSP AUTO NOTCH instantly eliminates interfering carriers - work 40 meters day or night! DSP-generated CW transmit offset is front-panel adjustable 400 - 990 Hz with auto-tracking sidetone.

*"When I hit the NR (noise reduction) button, signals jumped out of the noise. I am convinced I have the best radio in the world."*
- Jay Ostrem, W7CW

*"The more I use it, the better it is."* - Lynn Lamb, W4NL

*"How is it? In a word...AMAZING!"* - David Hammond, N1LQ

Quality and reliability are synonymous with TEN-TEC. Rigorous computer-controlled tests exercise every Omni-VI *Plus*. Made possible by the rig's high-speed PC interface coupled to automatic test equipment. Our own custom software orchestrates the entire process. There's also an overnight burn-in. Each Omni transmits into a dummy load, cycling between TX and RX every few seconds, changing bands along the way. One final performance check finishes it up. Backed by a one-year warranty and TEN-TEC's legendary service.

*"The engineers at Ten-Tec have impressed me with their skill in designing a high-performance, state-of-the-art, no-nonsense radio."*
- Rob Komtes, WS7U

*"The rig is wonderful to use, the controls are in the right place, every control makes sense, and the rig truly does 'dig out the weak ones.' Congratulations on a great transceiver."*
- Terry Ussher, VE3AWE

*"Finally, a radio built like my Hewlett-Packard® test equipment. I absolutely love it. Sorry I didn't purchase Ten-Tec 10 years ago."*
- Dale Parfitt, W4QP

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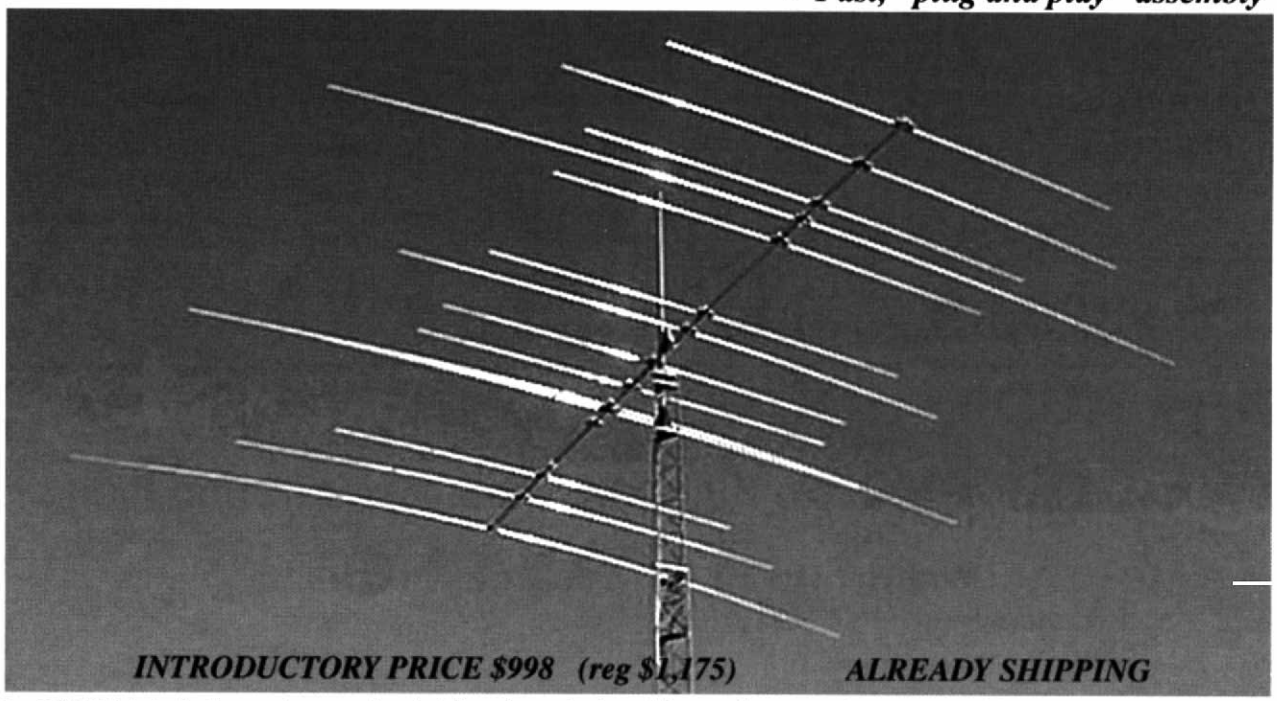
# C-31 XR

## The Magnum Tribander that has no equal

***> Based on our proven C-3, multi-monoband, no trap design***
***> Highest gain, superior patterns, stepped gain for stacking***
***> Wide-spaced 3el 20 & 4el 15, 7el on 10 mtrs, all full size***
***> Single feedline OR individual feedlines, your choice***
***> 5KW, 100 mph standard, 31' tapered boom***
***> Less than 100 in/lbs mast torque @ 70 mph***
***> 30" open space for side mounting***
***> Fast, "plug and play" assembly***




The **C-31XR** is truly the next generation in tribanders: designed for maximum performance on 20-15-10 mtrs, plus strength, ease of assembly, low mast torque, side mounting and stacking. The **C-31XR** is 3 monoband Yagis overlaid on the same boom. There is a wide spaced 3el 20, a wide spaced 4el 15 and 7 elements for 10 mtrs. The gain target to beat was our own **C-3**, which was shown to have the most gain across 20 & 15 mtrs according to independent testing by K7LXC and N0AX. We did it! The **C-31XR** exceeds the **C-3** on 20, 15 and 10 mtrs. F/B and side nulls are exactly what you would expect: excellent. There is nothing better than the **C-31XR.**

**C-31XR**

31' boom, 14 elements, 85 lbs, 10.5 sqft, 100mph, 5KW, single feedline, no traps, all elements full size

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### "TRANSPARENT" OPERATION

*Set the entire, compact 'PW1 right on a desktop, or remote the 'PW1 body to a nearby location. The best in solid state makes for powerful performance and low maintenance.*

13.8 (w) x 10.6 (h) x 14.9 (d) in
350 (w) x 269 (h) x 378 (d) mm
55 lb, 2 oz / 25 kg


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The superior electrical multiband antenna designs do not utilize traps in the high current driven elements and reflectors. The 4L log cell design technique yields maximum performance and power handling capability.

### Reliability and Long Service Life

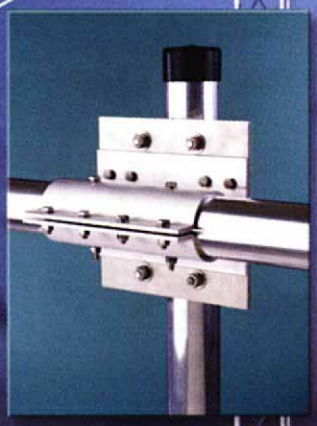
Each component has been chosen based on a threshold 1.25 times that needed to achieve a $100^{+}$ MPH wind survival rating.

## SPECIFICATIONS

| MODEL | XM240 | XM520 | XM515 | XM510 | X9 | X7 |
|---|---|---|---|---|---|---|
| Frequency, Meters | 40 | 20 | 15 | 10 | 10/15/20/+40 | 10/15/20/+40 |
| Number Elements | 2 | 5 | 5 | 5 | 9 | 7 |
| VSWR Typical Minimum | 1.1:1 | 1.1:1 | 1.1:1 | 1.1:1 | 1.1:1 | 1.1:1 |
| VSWR 1.5:1 Bandwidth, KHz | 150 | > 350 | > 450 | > 750 | * | ** |
| Power Rating, KW Output | 1.5 | 1.5 | 1.5 | 1.5 | 2.0 | 2.0 |
| 3dB Beamwidth, Degrees | 70 | 56 | 56 | 56 | 55/57/64 | 64 |
| Side Lobe Attenuation, dB | >35 | >40 | >40 | >40 | >40 | >40 |
| Boom Length, feet (m) | 22 (6.7) | 35 (10.7) | 24 (7.3) | 19 (5.8) | 28 (8.53) | 18 (5.49) |
| Boom Diameter, inches (cm) | 2.5 (6.35) | 2.5 (6.35) | 2.5 (6.35) | 2.5 (6.35) | 2.5 (6.35) | 2.5 (6.35) |
| Longest Element, feet (m) | 43 (13.1) | 36.3 (11.1) | 24 (7.3) | 18 (5.5) | 36.7 (11.2) | 36.7 (11.2) |
| Turning Radius, feet (m) | 24.3 (7.4) | 25.9 (7.9) | 16.3 (5.0) | 13.0 (4.0) | 21.7 (6.61) | 20.0 (6.09) |
| Max Mast Size, inches (cm) | 2.5 (6.35) | 2.5 (6.35) | 2.5 (6.35) | 2.5 (6.35) | 2.5 (6.35) | 2.5 (6.35) |
| Wind Surface Area, sq ft (sq m) | 5.5 (.51) | 9.2 (.85) | 4.5 (.41) | 3.4 (.32) | 9.9 (.92) | 7.9 (.73) |
| Wind Load @ 80 mph, lbs (kg) | 142 (64.4) | 250 (113.4) | 115 (52.3) | 85 (38.5) | 255 (116) | 202 (92) |
| Weight, lbs (kg) | 55 (25) | 92 (41.8) | 47 (21.1) | 38 (17.2) | 85 (38.5) | 60 (27.2) |

* X9 - (20M) 350, (15M) 450, (10M) 1500

** X7 - (20M) 600, (15M) 750, (10M) 1700



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### A Lifetime of DXing Fun

These antenna designs truly reflect the needs of the modern DXer. Their electrical performance will never leave you wanting. Their mechanical integrity and ease of installation and maintenance is unsurpassed. The modular components used throughout the series are available as replacement parts that can be purchased direct from the factory. As such, these antennas may truly provide you a lifetime of DX fun and excitement.

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