

- ARRL DX Contests—An East Coast Perspective
- *Results: August '98 NAQP CW and Phone*
- September 1998 Sprint Results
- *NCJ Profiles:*
K4MA
- SCVs:
Part 3



Mike, W9RE,
takes on a mega
antenna workover



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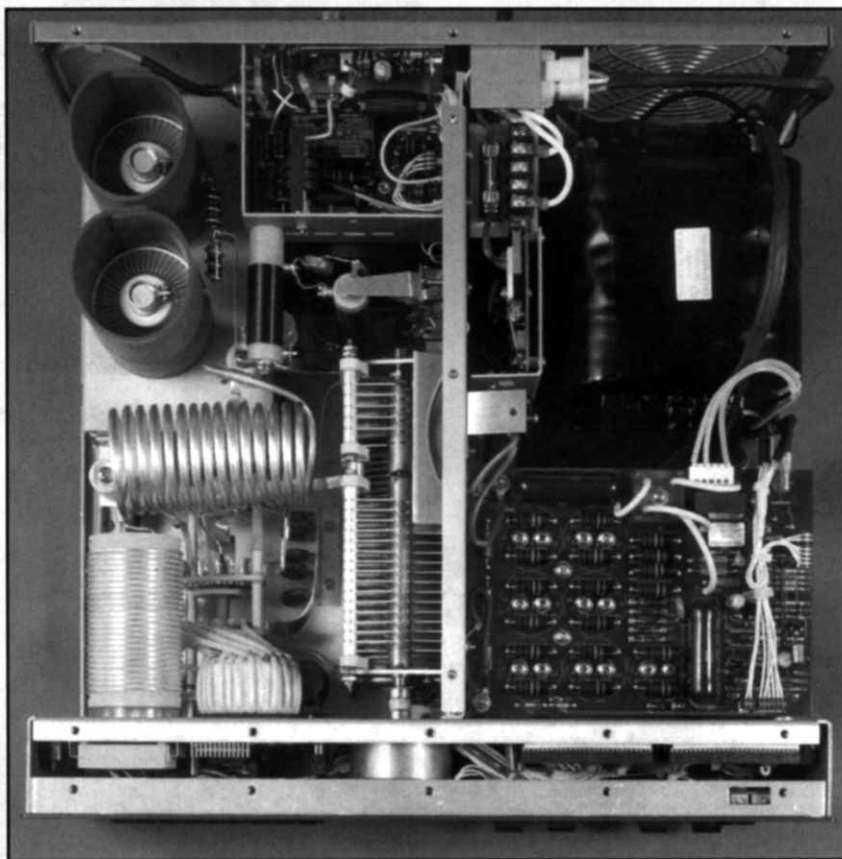
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I have the pleasure of welcoming two new “regulars” to the NCJ this issue.

Jay Townsend, WS7I, takes over the *RTTY Contesting* helm thereby allowing my friend Ron, K5DJ, to relax a bit after a terrific effort making RTTY contesting a regular feature of our magazine. Jay is a well-known figure in RTTY contesting and I am sure he will continue to help us CW/SSB types learn how to be competitive in this contest arena as well as be the voice for the hundreds of testers already enjoying this mode of operating.

Carl Luetzelschwab, K9LA, (*I do not want any of you to EVER whine about MY last name again—BV*) will be regularly supplying us with articles about propagation through the eyes of an accomplished tester. We all owe Bob, NM7M, a “Thank You” for all his enlightening articles on the subject. Bob immediately recommended I contact Carl to continue filling our desire to publish regular educational propagation articles relevant to contesting.

Guest Operator Good Manners (?)

Ray, ZP5XF, one of the NCJ Regional Contributing Editors, offers the following Guest Editorial regarding the not-so-wonderful behavior exhibited by some of our so-called Big Time Testers.

“When the months of October and November are approaching, it is as if the shack is gaining a brand new light... Serious contesting preparations usually begin 15 days prior to a major contest. Coax is checked, rotors are serviced, antennas are adjusted and new toys are added to the shack. This fine tuning of the station can easily add up to \$500 just to get ready for a Single Band DX contest operation.

Any effort, whether it is financial, physical or emotional, is definitely worth it—as long as a World title is the target.

Being a guest operator is a big responsibility. That responsibility starts months prior to the contest with the ‘asking permission to use the station’ e-mailing process. This responsibility does not end until about two weeks after the contest is over and one is home and *should* be writing mail saying, ‘Thanks for the wonderful opportunity... Best wishes to your XYL...’ When the opposite occurs, comments such as these force themselves through the computer keys.

I often read the different contest reflectors. I am amazed, time and time again, at the rough comments some testers make about their hosts’ stations and QTHs. Pitiful things are uttered in public like ‘Two major train stations made operating on the low bands impossible,’ ‘The SWR on the 160 dipole was unacceptable,’ ‘Power outages kept me from operating the whole 48 hours,’ ‘The 10-meter stack was not high enough.’

When you add these post-contest

‘candies’ to having taken the guest operator out to dinner, having fed him over and over through the contest and having had to deal with your XYL’s privacy complaints, it sure makes for NEVER AGAIN to come out of your guts. Then, one also has the ‘prima donna complex’ to deal with—contest operators who like to brag about their previous operations and successes and simply cannot find a word of compliment for your ‘cheap’ station. ‘If I had the 1000D I used last year...’ ‘You should see XXXX’s station!’ ‘I knew we had to operate 15 meters this year!’

Good God! What happened to modesty and good manners? If these super-guys are so super, why don’t they operate their own super stations? Bringing along a super rig or a super amp is not what it takes to be part of a great contest adventure—education and a good sense of humor are the real key ingredients.

One of the operators I had in my shack missed the All Time World Record by only a few points. He was fast to criticize every possible shortcoming of the station but never admitted that the reason he missed the target was the 8 hours off the air—which could have easily summed up to 12 if I hadn’t woken him up at 7 AM!

On the other hand, I have been lucky enough to have some real gentleman in my station. People who really left a ‘want more’ flavor in the house.

We’ll see what the coming contests will bring about—for the time being, I am afraid I might keep a real cool (in his eyes, anyway) operator from operating ZP5XF due to bitter past experiences...

73, Renato (Ray) Bellucci, ZP5XF”

I am personally saddened to read Ray’s comments. I have had the good fortune of operating from some great stations owned by testers both in and outside the USA. I find myself now reflecting back on the incredibly warm reception and hospitality I received from these gentlemen and their families. I wonder if I would have been as unselfish in a similar situation. I know that, at the very least, Ray’s words will make me even more grateful for the friendship one can find amongst fellow testers—no matter where they live on this Earth.

The friendship one can find by just being a tester is what it is all about for me. I get a great deal of joy seeing my tester friends reaching new rewarding levels of personal achievement. I can feel the same feelings given off by them, though with my operating skills being what they are, I rarely give them much to cheer about!

Nature-Challenged Testers

I was deeply touched as I sat home in front of the television and watched the summer and fall Caribbean storms swarm

over the homes of some of my dearest friends. One such person is Moises, KP3P. He sent me the following message on October 10 after “Huracan Georges” destroyed the awesome station he allowed me to operate to a 5th place World finish in the ‘98 ARRL DX Phone competition. That standing is more a statement of the quality of his station than of my operating ability, I assure you.

“Hope you are OK. Here we are in good health, but the station is another story. We were hit by winds of over 110 mph for several hours. I put down all the antennas, but not the 80-meter. The two towers did not withstand the strong winds. The smaller one came down first and hit one set of the guywires of the big one. The backlash of the hit bent the other at the 60-foot elevation. There is now 40 feet of tower hanging at the 60-foot elevation. There are no riggers available at this moment in the island because they are working on the commercial stations that need to put back their regular programs on the air.

Some members from the DX Club are planning to help me this next weekend. First, we are going to put down everything for safety reasons. Second, we are going to evaluate if we can rebuild the big tower and put back 40, 20, 15 and 10-meter antennas. For the 10-meter antenna, I have another small tower 45 feet. So Dennis, I do not know when the ‘Contest Station’ will be back due to the lot of work and money that is needed to put the same on the air. I visit other sites around the island and they are badly destroyed.—73, Moises, KP3P”

Without a question, our fellow testers in the Caribbean, Central American and elsewhere around the world have taken a tremendous beating recently. Including many of the gang in the southern USA.

I have heard of no deaths of known testers and I hope with all my heart that I will not get any such news. But, can I ask all of you to take a moment to reflect on how they must have felt as those catastrophic storms approached their homes; threatening the lives and well being of their families and friends, to say nothing of their own personal safety. Moments like that most certainly put things into perspective, reminding us this really is only a hobby and not to be taken too seriously.

I trust my “Contest Conscience” will allow me to keep that perspective forefront in my mind without having to live through what these people have.

On a lighter note, I just took another look at that NCJ November/December 10-meter article by Chuck, KZ5MM. For some reason, every time I see that call

What Contest Do You Want To Do This Weekend?

ALL ASIAN - ALL JA - ARCI - ARI - ARRL 10 - ARRL 160
ARRL DX - ARRL VHF QSO - ARRL VHF SS - CA QSO PARTY
COUNTY HUNTER - CQ 160 - CQ M - CQ VHF - CQ WPX
CQ WW - CROATIAN - EUROPEAN VHF - EUROPEAN HFC
FIELD DAY - HA DX - HELVETIA - IARU - INTERNET SPRINT
IOTA - JA INTERNATIONAL DX - KCJ - KVP - NA QSO
NRAU - NZ FIELD DAY - OK DX - PACC - QCWA
QCWA GOLDEN - RAC - REGION ONE FIELD DAY
RUSSIAN DX - SAC - SOUTH AMERICAN WW - SP DX
SPRINT (NCJ) - STEW PERRY - ARRL SWEEPSTAKES
TEN TEN - TEXAS QSO PARTY - TOEC - VK/ZL - WAE
WRTC - XMAS - YO DX - UK Rotating Postal Code

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sign in print, I start thinking about finding loopholes in contest rules; putting up more towers and Yagis because somebody always seems to have more than me; getting a couple divorces; drinking 3 or 4 shots of Tequila chased by a Scotch-on-the rocks followed by a 12-pack of Miller Lite settled solidly by a bottle of fine Cabernet Sauvignon (K5MA—an ex roommate—knows this is true!); giving all my money to the first woman that looks at me; filing bankruptcy and just generally going brain-dead stupid. Hmmm... go figure.

73, Dennis Motschenbacher, K7BV—
(ex-KZ5M)

Cover Photo

Mike Wetzel, W9RE.

After 17 years, Mother Nature and Father Time had taken their toll on the antenna arrays on Mike's 20/40-meter 140-foot tower. An element section on the ground provided the final impetus for a complete work-over. New antennas would be installed and some additional tower sections would be added.

Follow this epic tale of determination and perseverance as Mike and a small band of family and friends wage war with Murphy and his minions and the Zero Zulu Warriors as the clock relentlessly ticks down to the beginning of the 1997 CQWW SSB. Would the station be ready in time for the air war? Tune in to [page 13](#) and see!

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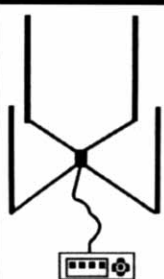
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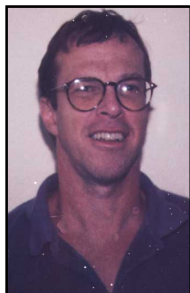
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ARRL DX Contests—An East Coast Perspective

Greg Cronin, W1KM
w1km@aol.com

February 27, 1965
—A nervous 14-year-old repeatedly pushes the Vibroplex bug, keying the DX-60 on 80 meters: “HI8XAL de K1YKT.” Finally, at 0137Z, with the pileup sufficiently thinned out, he logs his first-ever contact in the ARRL DX CW Contest.



W1KM

Today that log from my first DX contest looks prehistoric. Each logsheet is divided into 18 blocks with space for six QSOs per block. Under the quota rule, US stations were restricted to six contacts per country per band. The rule severely limited QSO totals—for example, we could only work 6 DLs on 20 meters!

I never called CQ DX or CQ TEST in that contest. Between the quota rule and my puny signal, it would have been a waste of time. More importantly, I had been hard-wired with the belief that calling CQ DX was a forbidden operating practice for Ws, a notion the ARRL operating guide emphasized in bold print.

The top US entry in that contest (the legendary W4KFC) recorded 752 QSOs in 77 hours (the contest occupied two weekends—the guys I admired most were the diehards who would go 80+ hrs). I racked up 269 Qs in 37 hours—the sizzling rate of seven QSOs per hour! Still, I was hooked. The contest combined my two favorite activities—DXing and contesting—and required CW operating skill and patience. Each contact was a victory.

Fast forward to 1998. The contest bears only a faint resemblance to its mid-60s ancestor.

In 1979, it was shortened to one 48-hour weekend, currently the third full weekend in February. One half of the exchange is still the same (the power for DX stations) but the honest 569 RSTs of 1965 have been replaced with the generic 5NN. Code speeds are much faster today, exchanges crisper and CQs shorter. Computer logging/keying and digital transceivers are nearly universal. The contest has evolved to the point where the top Northeast US single-ops regularly make over 3000 Qs. This article will summarize some thoughts about what’s involved in putting together a top single-op (unassisted) effort in the late ’90s version of the

ARRL CW DX Contest.

The seeds to the remarkable explosion in scores were sown in 1967 when the ARRL eliminated the quota rule, thus opening the door for a new mentality in which “running” DX by calling CQ became the path to previously unattainable QSO totals. This change opened up the contest to the 2nd and 3rd tier of DX stations whose signals were not loud enough to command a run frequency, but who could still be heard overseas and were eager for the opportunity to contact North Americans. So, instead of hunting for DX, W/VEs became the hunted. That’s the great attraction of this classic contest: During this contest, we (North Americans) are the DX.

The ARRL DX CW contest has been dubbed the European QSO Party. This certainly applies for those of us in the Northeast. Nearly 90% of my 3155 Qs in the ’98 contest were Europeans. The explosion of the skilled European contest population has meant a nearly inexhaustible supply of Europeans to work. From the Northeast US the strategy throughout the contest is simple: Run Europe! Treat all bands open to Europe as a single band and maintain as high a QSO rate as possible.

Any operator new to the CW DX Contest should consider spending some time listening to one of the “Pros”—N2LT or K5ZD, for example—running Europe, preferably on a Saturday

morning. While each operator has his own style, there will be several constants: the top ops sign their call after every QSO and always send the complete call of the station being worked, making corrections if needed. They adjust their speed depending on the situation. There is an efficiency and economy to their transmissions. They pause long enough between CQs to really listen, picking out stations calling slightly off frequency. While the majority of the DX stations today use equipment far superior to that of 30 years ago, the technique of calling right on frequency still eludes many.

While there is a seemingly inexhaustible supply of European CW testers, many of them have limited antenna systems and are at (or below) noise level on this side of the Atlantic.

The keys to running these weak stations, beyond having good ears and a quiet receiving location with effective receiving antennas, is a clear and relatively unmolested run frequency. While nothing punches out a clear frequency like a big signal, with vigilance and skill, it’s possible to maintain a clear frequency with an average signal—so long as it’s not too close to the bottom of the band! When potential intruder “K1LID” fires up his “QRL?”—(nanosecond pause)—CQ Test” on your run frequency there are several options:

- a) Prolonged CQing right in his face
- b) “QRL QRL QSY LID”
- c) “K1LID QRL pse QSY de W1KM”



W1KM's 80 and 40-meter phased vertical arrays.

The most effective approach is “c.” The trick is to get the intruder’s attention *immediately* and politely command him to QSY. It helps to call him by name and to identify. It is the rare contester who won’t QSY when it’s clear he’s the recognized transgressor. Of course, there will always be situations where the transgressor is in the skip zone, feigns deafness, thinks he owns the frequency or is otherwise impaired. If it becomes counter-productive to battle the intruder or if your run rate drops precipitously or your blood pressure begins to skyrocket, then it is probably best to find a new run frequency.

Finding a new run frequency on a crowded band has to be one of the most difficult parts of a DX contest as well as one of the most important. At times, I get overcome with a sense of urgency bordering on panic because if the band is jumping it means a couple of potential contacts lost every minute. Calling DX stations (S & P’ing) while searching for a new frequency can help minimize the damage, but the goal of finding a new frequency has to be kept foremost in mind. While it’s obviously not a wise idea to CQ right on K3LR’s frequency, sometimes the best frequencies are close to a Big Gun. I suggest trying any open frequency—sometimes even the coveted band edge will be there for the taking. A word of caution about going too high on 20 CW: territorial RTTY/Digital mode ops can be most vicious.

While running Europeans is undoubtedly the key to a high score from the Northeast, it is not always the most enjoyable part of the contest. Maximizing one’s score and having the most enjoyment during the contest, while not always mutually exclusive, often conflict with each other. I’d much rather chase the Far East on 80 at sunrise than slug it out on 20 running “garden variety” Europeans. But my score will seriously suffer if I spend the high-rate early morning hours anywhere other than on a high band open to Berlin. There is a lot to be said for contesting purely for enjoyment. But if I’m in a contest with the aim of achieving the highest score, I can have fun (certainly a reasonable goal). I do have to ask myself repeatedly one crucial question: **“Am I doing at this moment what is best for my score?”**

Little League coaches have a term for what happens when their teams self-destruct by trying to throw base runners out. “We were winning by six runs but then we started to throw the ball around.” The temptation to “throwing the ball around” is simply too great for 12-year olds to resist. Disaster invariably ensues from those errant throws and dropped balls. Similarly, experienced DX contesters know that when an operator



W1KM’s 20/160-m tower 3 × 4-el 20-m.

gets sidetracked by the temptations of chasing exotic DX or crashing monster pileups he has “started to DX.”—“I was ahead by 100 QSOs but then I started DXing.” The result is that the rate plummets and the multipliers that are worked, especially if they involved waiting in pileups, do not begin to compensate for the QSOs lost. Not to mention that new multipliers will usually call in during runs (very often in pairs, for some reason) and they will often be willing to QSY to another band. Ironically, it’s often a mistake to “DX” during a DX contest!

Fortunately, the innovation of computer logging has made it easier in two ways to avoid the trap of “DXing.” For one thing, all the logging programs have a rate indicator monitoring recent QSO rate. Keeping a watchful eye on this invaluable tool helps avoid rate collapse—something we are all especially vulnerable to during the second day when fatigue distorts our sense of time. Secondly, computer logging has greatly facilitated the use of a second radio, which can be used to hunt multipliers and contacts on a second band while a decent rate is maintained on the “run” radio.

The second radio provides a view of what is going on in the contest beyond the narrow window of the run frequency.

I use a modified version of a box described by K8CC in the September/October 1990 *NCJ* where I can listen on the second radio while transmitting. The guys who are most effective at two radios split their headphones (and brains) in two. I haven’t been able to do that effectively when I’m well rested—I’d hate to try it when I was sleep deprived! In the 1998 ARRL contest, I worked 86 QSOs and 72 multipliers on the second radio. This doesn’t sound like much, but it meant 750K in my score, which was the difference between 1st and 5th place in the Northeast.

While I’ve stressed QSO rate, I don’t mean to ignore the importance of multipliers. A strong correlation exists between multiplier total at the end of the contest and mults at the 12 and 24-hour stages. I post a large sign in the shack that says THINK MULTS and make it a point to do just that starting at 0001Z. I try to move potentially difficult mults the first night. For example, I know I can easily work ZS on 80 meters at their sunrise, but they can be impossible to find. If I work a ZS on Friday night on 40, I will ask him to QSY to 80. Sometime Saturday evening I’ll make a band-by-band list of missing common and active mults which become the object of a second radio search. Multiplier totals are also a major consideration in band selection. While QSO rate generally dictates band choice, it’s important to strike a balance so that no band is neglected to the point where multiplier totals suffer.

It becomes increasingly difficult to find multipliers as the contest progresses for one simple reason: Fatigue. The ARRL DX Contest is one of the two major contests that involve an extraordinary test of stamina. Obviously, you can only make contacts if you’re awake and in front of the radio.

Or, as Odin said:

“...the slumbering wolf does not get the ham, nor a sleeping man victory.”

However, if you’re so sleep deprived you can’t think—never mind think *straight*—you won’t make many contacts. Learning how to deal with those times when you’re so sleepy you can’t remember what it is you’re doing is one of the challenges that all DX contesters repeatedly face. The preferred wake-up technique is a quick cold shower (unfortunately, my shack doesn’t have running water, so I have to rely on catnaps and a cold face cloth.) I know from experience that I need no more than two 90-minute naps during a weekend—but I still have to fight those times when I fall asleep between QSOs, reminding myself that the overwhelming urge to fall asleep goes away in a few

minutes. I had better make up my mind *before the contest* that I'm going to see it through because if I start with the thought that I'll operate only as long as it's fun and I'm not tired, I'll end up sleeping through sunrise (the classic rookie mistake!). This is why motivation is often cited as the key ingredient to success in DX contesting. It is one's level of motivation that determines what happens when exhaustion strikes.

I mentioned previously that we should treat all bands open to Europe as one band. The general rule of thumb is to stay on the highest band open to Europe. Consideration should also be given to the DX to W/VE ratio. If 15 meters is open to the entire US, but 20 is marginal to everywhere but New England because of absorption, W1s may enjoy an advantage on 20 because there will be fewer of us to go around. Simple "Supply and Demand." Consideration should also be given to station strengths. My 80-meter signal is the big strength of my station and I can take advantage of that by going to 80 early in the evening when most US stations are still on 40. Even though 80 may be noisier and the signals weaker, my rate may be better because I'm more in demand.

The other general rule about band selection is to focus Saturday morning on the highest band open (15 or 10) because there's no guarantee it will open at all on Sunday. If the highest band is marginal, there's the opportunity to gamble—avoid it on Saturday and bet

that rates will be better on Sunday. Like all gambles, this won't always pay off, but it will keep things interesting!

I've written from the perspective of the (north) East Coast contester. In most years, the ARRL DX Contest offers us an enormous advantage over the rest of the country—a fact that's obvious from reviewing the results of the past two decades. Not only do we have a propagation advantage to Europe, but also our antennas are pointed away from the rest of the US. Most of the QRM we struggle with is from Europe. Fortunately, in the last two years QST has given recognition to more meaningful regional competition. As for competition, I've always liked the analogy to golf—the real competition is with oneself, and the other players are there to demonstrate what's possible.

I've also written from the perspective of the "Big Gun." With an outstanding location and high-performance antenna system, my station qualifies as a "Big Gun" station. But there is still a part of me that is the beginner expecting to wait 10 minutes for each QSO. And there is still a voice inside me that says "Calling CQ DX is wrong"—a voice I have to squelch if I expect to score well in the contest. While each QSO is no longer the victory it was in 1965, the ARRL DX 'test with the exhilaration of the frenetic runs, the camaraderie of working hams I've met over the years and the sense of accomplishment from putting together an all-out effort still has me "hooked." ■

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ARRL DX Contest Single Band Winners

Carl Luetzelschwab, K9LA
k9la@gte.net

I've been keeping track of the winners of the Single Band categories in the ARRL DX Contest (both Phone and CW) since these categories were created in 1980. The Single Band categories mean you only have to be competitive on one band—that makes the antenna farm much simpler and achievable.

The data is interesting to look at in terms of what areas of the country have the best chance of winning a Single Band category—don't assume the East Coast is always a sure bet. The data is also useful for setting Q and multiplier goals once you've selected a band to go after. Also note the correlation between the number of Qs and the sunspot cycle.

73 Carl, K9LA

ARRL CW

160 Meters					80 Meters					40 Meters				
Call	State	Qs	Mults		Call	State	Qs	Mults		Call	State	Qs	Mults	
1980	W8LRL	WV	41	21	N4AR	KY	205	60		W5UN	TX	527	77	
1981	N4IN	FL	31	23	W1ZM	CT	234	71		W5UN	TX	710	77	
1982	N4WW	FL	44	25	W1ZM	CT	254	64		W6XX	CA	655	63	
1983	W8LRL	WV	60	35	K1PT	MA	383	73		NA5R	TX	604	75	
1984	W1RR	NH	50	32	W1FV	MA	320	64		W2YV	NY	796	100	
1985	W1RR	NH	139	60	W1FV	MA	640	77		N4PN	GA	993	96	
1986	K5UR	AR	100	50	W1FV	MA	454	74		N6QR	CA	795	76	
1987	K1ZM	NY	115	48	W1FV	MA	728	69		K4XS	FL	810	80	
1988	K1ZM	NY	122	60	W6RJ	CA	346	68		K2EK	NY	1102	96	
1989	K1ZM	NY	88	35	W1FV	MA	551	70		KB0G	KS	910	84	
1990	W1NG	CT	60	34	W1FV	MA	521	81		WO0G	MO	790	97	
1991	W1NG	CT	107	46	W1FV	MA	729	78		K1ZM	NY	1312	102	
1992	K5UR	AR	64	43	WE3C	PA	307	68		K8PO	MA	1110	102	
1993	W1FJH	NH	97	47	W1FV	MA	746	77		W6XX	CA	994	103	
1994	K1ZM	NY	85	50	W1MK	MA	472	80		K8PO	MA	1075	100	
1995	W4MYA	VA	154	58	W1MK	MA	928	89		W3GH	PA	793	99	
1996	K1ZM	MA	303	63	W1MK	MA	905	79		N7DD	AZ	1014	92	
1997	K1ZM	NY	268	70	W1MK	MA	1021	90		N7DD	AZ	1182	110	
1998	W4ZV	NC	200	71	W1MK	MA	1018	90		AD6DO	CA	1006	94	
1999														
2000														

20 Meters					15 Meters					10 Meters				
Call	State	Qs	Mults		Call	State	Qs	Mults		Call	State	Qs	Mults	
1980	K3TW	MD	727	90	K6LL	AZ	901	78		N4WW	FL	741	93	
1981	K5IY	TX	1076	107	K1RM	CT	1200	85		W0ZV	CO	1067	83	
1982	K1KI	CT	864	111	K6LL	AZ	1002	84		N4ZZ	TN	732	77	
1983	K8NA	MI	498	80	W0ZV	CO	750	82		WB4TDH	FL	206	56	
1984	K3UA	PA	931	108	WB4TDH	FL	643	88		W1WEF	CT	359	76	
1985	N2AA	NJ	1199	94	K2EK	NY	635	87		WA7KLK	AZ	18	13	
1986	K2VV	NY	1813	115	K3RV	VA	439	82		KR1R	MA	17	8	
1987	K1RM	CT	1123	100	W5VX	TX	362	72		K9LA	TX	51	20	
1988	K2VV	NY	1564	103	K1RM	CT	961	92		N4BP	FL	179	45	
1989	N2AA	NJ	1944	103	K2VV	NY	1769	105		K1RM	CT	1530	98	
1990	K4VX	MO	1075	104	WN4KKN	TX	964	104		K1ZM	NY	631	108	
1991	W1RR	NH	1597	101	WO0G	MO	1548	103		KR0Y	TX	1410	100	
1992	K1TO	CT	1814	112	K2VV	NY	1529	115		W0UN	CO	1563	115	
1993	KT3Y	VA	1515	109	K0LUZ	FL	1413	111		K5MR	TX	421	98	
1994	W3USS	DC	568	92	N4CT	TN	565	87		WS1M	MA	118	48	
1995	K2SS	CT	1516	112	W5VX	TX	839	91		K9OM	IL	73	35	
1996	K1RM	CT	1450	103	K9BGL	IL	151	52		W6KFV	CA	31	8	
1997	N8II	WV	1674	110	N5LT	TX	301	68		W5AJ	TX	34	16	
1998	W0UN	CO	1573	105	K5TR	TX	1100	104		K4JYO	AL	97	41	
1999														
2000														

ARRL Phone

160 Meters					80 Meters					40 Meters				
	Call	State	Qs	Mults	Call	State	Qs	Mults		Call	State	Qs	Mults	
1980	W4PZV	FL	29	24	WA4SVO	FL	92	55		WA7ZLC	WA	354	508	
1981	W8LRL	WV	24	20	W1CF	MA	188	74		K7UR	WA	408	43	
1982	WA2SPL	NY	15	11	K1PT	MA	141	65		N5JJ	TX	293	68	
1983	VE1YX	NS	39	28	KR2N	NY	207	71		N6BV	CA	629	56	
1984	VE1YX	NS	92	46	W1FC	MA	272	80		K8NN	IL	178	76	
1985	K1ZM	NY	84	46	W00MJ	LA	299	87		KM6B	CA	541	53	
1986	K1ZM	NY	70	40	K2EK	NY	255	71		NZ5I	TX	191	43	
1987	K5UR	AR	90	53	W5WMU	LA	168	59		W6AQ	CA	525	45	
1988	WA4SVO	FL	109	54	N2NT	NJ	330	79		K6NA	CA	682	61	
1989	K1ZM	NY	50	30	K4HJJ	NC	151	60		KV0Q	CO	416	60	
1990	K1ZM	NY	54	34	KA1XN	MA	183	76		K4XS	FL	503	86	
1991	K1ZM	NY	70	39	K8UR	MA	310	72		WO0G	IL	476	82	
1992	K1ZM	NY	66	33	K1UO	ME	308	62		KC7EM	OR	702	69	
1993	WB9Z	IL	54	33	WE3C	PA	325	75		K1UO	ME	503	98	
1994	K5UR	AR	52	35	K1ZM	NY	483	90		KC7EM	OR	762	78	
1995	W0ZV	NC	132	54	KQ3V	PA	429	91		K6NA	CA	804	68	
1996	K1ZM	MA	191	60	KQ3V	PA	566	92		N7DD	AZ	763	86	
1997	W4ZV	NC	90	46	N1GLG	VT	392	77		N7DD	AZ	665	66	
1998	AA1BU	MA	51	38	K1FZ	ME	575	79		N7DD	AZ	748	94	
1999														
2000														

20 Meters					15 Meters					10 Meters				
	Call	State	Qs	Mults	Call	State	Qs	Mults		Call	State	Qs	Mults	
1981	K3KG	GA	918	123	K7RI	WA	2391	106		K1UO	ME	1711	118	
1982	K1KI	CT	1498	146	W7RM	WA	2255	103		W0ZV	CO	1910	118	
1983	N2PP	NY	771	118	W0ZV	CO	1343	102		WA6DBC	CA	1019	66	
1984	K1UO	ME	1569	134	W0ZV	CO	1342	115		WA6DBC	CA	864	75	
1985	KS8S	OH	745	105	W5XZ	LA	291	64		WA3EEE	MD	20	5	
1986	K2VV	NY	1813	115	K3RV	VA	944	115		K4JRB	GA	169	37	
1987	VO1SA	NFL	1730	124	K6SVL	CA	831	62		KE5FI	TX	189	40	
1988	KS1L	CT	1487	127	K4XS	FL	1600	117		K5UR	AR	343	75	
1989	AI7B	OR	731	108	W7EJ	OR	2052	114		K4XS	FL	2117	127	
1990	W0ZV	CO	1364	133	W7WA	WA	2123	117		K3ZJ/8	VA	1922	126	
1991	KS1L	CT	1334	124	W7WA	WA	2210	122		N1GLG	VT	1645	144	
1992	KK9A	IL	1649	133	K2SS	CT	2160	140		W0UN	CO	2323	125	
1993	K5MR	TX	930	129	W0UN	CO	2204	133		K4XS	FL	1437	144	
1994	KS1L	CT	1748	137	K1UO	ME	1273	134		KE5FI	TX	328	73	
1995	KS1L	CT	1346	121	K3ZJ	WV	793	112		K6SVL	CA	244	57	
1996	NI8L	OH	1416	122	K5XI	TX	432	97		KE5FI	TX	104	23	
1997	VA3MG	ON	1004	94	W4WA	GA	458	86		W5AJ	TX	100	23	
1998	VE6JY	AB	2004	119	N2IC	CO	1446	125		KZ5MM	TX	348	60	
1999														
2000														

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01/99

Solar Cycle 23 Update—Or How Good Will 10 Meters be for the 1999 ARRL DX Contests?

Carl Luetzelshwab, K9LA
k9la@gte.net

Solar Cycle 23 began in October 1996, and continues its rise to the next peak. Figure 1 shows the progress of Cycle 23, and compares its SSN (smoothed sunspot number) to that of the previous cycle (Cycle 22). As can be seen, Cycle 23 so far seems to be paralleling Cycle 22, except for the offset due to Cycle 23 starting at a lower SSN.

At the time this article was written (early November 1998), note that the latest data available for Cycle 23 is April of 1998. This is because the SSN is a 12-month running average, and uses monthly mean sunspot number data from October 1997 through October 1998 to calculate the SSN for April 1998. The SSN (or smoothed solar flux) of a given month has been found to correlate very well to monthly median ionospheric parameters (foE, foF2, hmF2, etc). This correlation is the basis for propagation prediction programs.

With some historical data, we can take a guess at how good 10 meters will be for the 1999 ARRL DX Contests. To do this, we'll use single-band 10-meter QSO data from previous years to tie the number of QSOs to the SSN. From that, and extrapolating the SSN for the February/March 1999 time frame, we'll see that 1999 ought to be a very good year for 10-meter contesters.

The vertical bars of Figure 2 show the number of QSOs achieved each year by the winning PHONE station on 10 meters from the inception of the single band category in 1980 (the CW results are very similar). Superimposed on this graph is the SSN for March for these years. This data encompasses the end of Cycle 21, all of Cycle 22, and the beginning of Cycle 23.

From Figure 1, we can extrapolate that the SSN for March 1999 is likely to be between 100 and 130. Going back to Figure 2 says this puts 10 meters at the beginning of the peak years. So barring any significant magnetic field storminess, it's time to get the 10-meter antennas in tip-top shape and have some serious DX fun. This also says 15 meters will be rocking-and-rolling, so dust off the 15-meter position on the bandswitch, too.

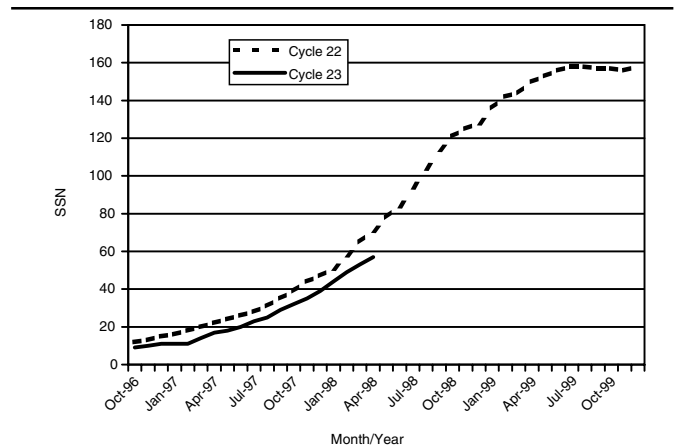


Figure 1—Cycle 23 Smoothed Sunspot Number.

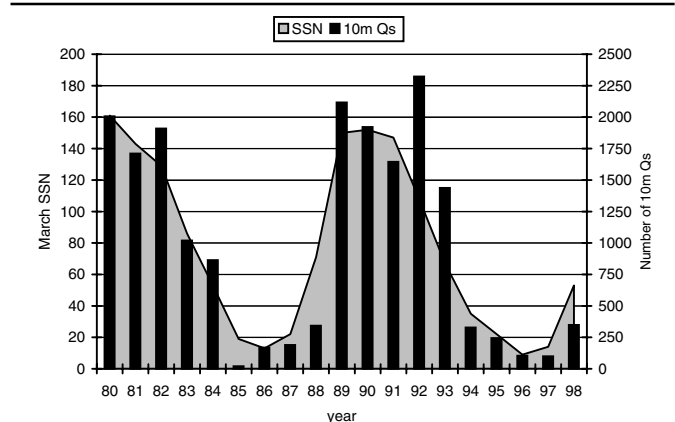


Figure 2—10-Meter QSOs versus SSN. ■

Shorts

Gus, VO1MP/VO2CQ, (gussam@newcomm.net) offers the following, "Please note that there has been a change in the call sign structure in Eastern Canada that must be addressed by contest sponsors. With the minor exceptions of a few VE1 stations who maintained their callsigns in spite of the re-allocation of prefixes, New Brunswick is VE9 and Prince Edward Island is VY2 so consequently should be part of the "Maritimes" multiplier group."

Tim, VE6SH, (TELLAM@mccarthy.ca) adds, "On January 1, 1999 the new territory of Nunuvut will be carved out of the existing NWT. Industry Canada has advised that the new territory will use the VY0 prefix with the remaining portion of the NWT continuing to use VE8. The postal code identifier is "NU." As the resident amateur population totals some 25 hams, RAC plans to make no changes to its present sections. For contest purposes, it will remain part of VY1/VE8."

The following might help clear things up:

VE2-VE3-VE4-VE5-VE6-VE7	Six (6) Provinces
VY0, VY1 & VE8	One (1) Nunuvut, Yukon & NWT
VE1-VE9-V01-V02-VY2	One (1) as Maritimes

Feedback

In Part 1 of the series on SCVs, I carelessly used the term "node" to simply indicate a position. However, thanks to a painstaking look through manuals from 1936 through 1980, Charlie Baker, W2KTF, has reminded me of the more rigorous distinction between loops (maxima) and nodes (minima). Therefore, to prevent confusion, everywhere the term "node" is used in Part 1, one should read "maximum." To the best of my knowledge, the term does not occur in the remaining parts of the series. I regret any problems my careless use may have occasioned.

L. B. Cebik, W4RNL

An Experiment with Success

Michael D. Ihry, N5KB
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The contest season has arrived. In the two weeks between CQWW SSB and SS CW, I have to adjust the lengths of many antennas.

I decided to do some experimenting to see if I could increase the bandwidths of my inverted-Vs so that they would cover both the CW and SSB portions of the bands.

I asked around for some suggestions. Information was slim and the general consensus was that nothing of great value could be done.

Then I talked to Lloyd, K5ZO. He told me about a monoband beam that he owns that has two driven elements. One driven element is set for CW and the other is set for phone, allowing the antenna to cover the entire 20-meter band.

At my QTH, the 40-meter antenna is the most difficult one to re-tune. I decided to try dual driven elements. I calculated the dimensions of the new element needed for resonance in the CW portion of the band and cut the wires. I climbed the 85 feet to the apex and added the two pieces, then tied off the ends, leaving about 15 feet of separation between the ends of the new element and the ends of the existing antenna.

The first test was a failure—the resonant frequency was below the 40-meter band. I used an Autek antenna analyzer and kept adjusting the new driven element until I got it where I wanted it. While doing this, I discovered that changing the spacing between the ends of the two driven elements also affects the resonant frequency. The SWR curve is now nearly flat across the entire 40-meter band (see [Figure 1](#)).

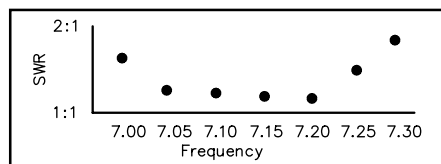


Figure 1

I am very happy with the results of this experiment, but I must warn the reader that it is difficult to get the resonant frequency where you want it.

My next project is the 80-meter V. I am anticipating that I may need three wires to get enough bandwidth to cover the entire 80/75-meter band.

CU in the next 'test,
 Mike, N5KB



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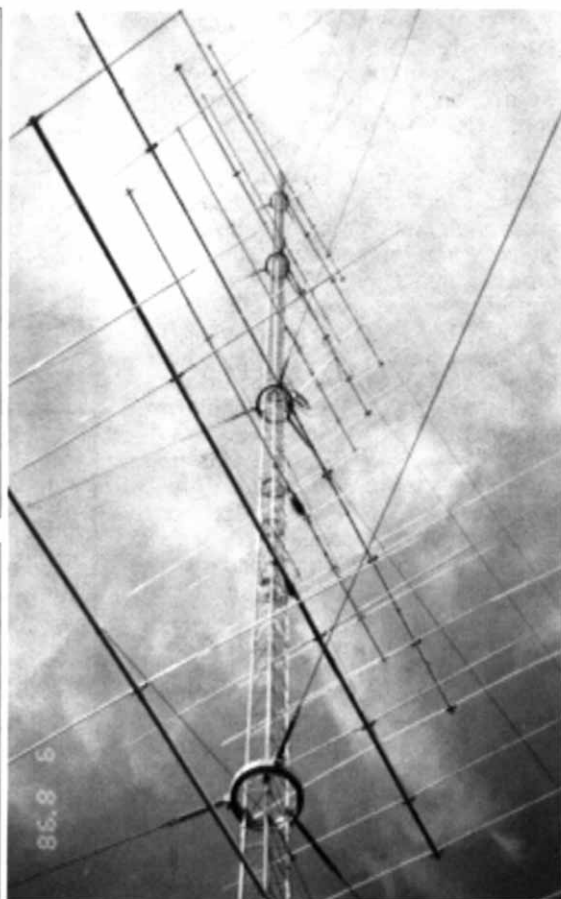
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Gear Up for the 13th Annual School Club Roundup!

Lew Malchick, N2RQ, and
Rosalie White, WA1STO

"Where are our future contest ops gonna' come from?"

We hear this question asked more and more at contest club meetings as each year goes by. We think the School Club Roundup (SCR) is just the right kind of activity to introduce ham radio and contesting to our youth.

Take a look at *The 1998 School Club Roundup* in the September 1998 *QST*, page 100—see those fresh new faces? (You can also see this on our website at <http://www.arrrl.org/contests/results/98/scr.pdf>)

From the "Soapbox" section:

"It was Vocational Ed Week and the club had many visitors, cutting down on operating time, but our instructor stayed after school so we could make more QSOs."—Tim Schrawta, op at KC2AXX.

Or how about this—Tim Ruzin, KI0IJ, from Palisade, Colorado writes:

"We signed up 17 youths for our 1998 School Club Roundup kid-contest team. Students argued over whose turn it was to operate the radio, and raced each other to my world map to circle the QTH of the stations we worked. These 13 and 14 year olds think the Internet chat rooms are ho hum, but they lit up with delight over contacts with Hawaii, Mexico or Puerto Rico."

Doesn't that sound like you, when you were a bright young ham wanting to contest, Big-Time?

You can help young people get excited about contesting by taking an active role with your local school. You'll vicariously enjoy their first time around the contest block. If you don't know a school ham group, contact the *ARRL Educational Activities Department (EAD)* at ead@arrrl.org for the name of a ham schoolteacher in your area. Or contact a progressive teacher you've heard about, or check with your local school PTA or principal.

First, offer them a one-day (or more) hands-on lesson in geography or technology. *ARRL EAD* can provide a small supply of brochures if you'd like material to hand out. Then while you're at the school, suggest setting up a radio station for the School Club Roundup in the school library, lunchroom, lobby or parking lot. The kids will need a little help with the basics of contesting, but you've got an entire week to show 'em how. If you don't have time for any of these options, at least get on during the SCR and give out points to the participating schools.

Contests, with their set exchange, help newcomers with their fear of what to say

to the stranger on the other end of the contact. The SCR's low-pressure format will also help. All participants are encouraged to be patient and take time to chat beyond the contest exchange.

In response to requests, the SCR rules limit operating times to 6 hours in any 24-hour period. Separate award certificates will be issued for elementary, middle school, high school and college/university levels and for US and DX entries.

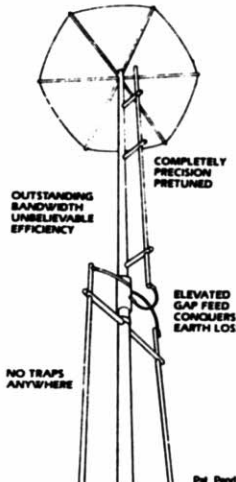
The School Club Roundup is sponsored by the Council for the Advancement of Amateur Radio in the New York City

Schools (CAAR/NYCS), the ARRL and its Hudson Division Education Task Force. Contest dates/times for the 1999 School Club Roundup are 1300 UTC on Monday, February 8, to 0100 UTC on Saturday, February 13. Operate no more than 24 of the 108 hours, with a maximum of 6 hours in any 24-hour period. Logs must clearly show dates and on and off times. Off periods must be at least 30 minutes. For a complete set of rules, see *January QST*, or view them on the Web at <http://www.arrrl.org/contests/announcements/99/scr.html>. ■

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20/40 Meter Tower Remodel at W9RE

Michael Wetzel, W9RE
w9re@worldnet.att.net

So, you think you want a big antenna installation, you say. Read Mike's story about just one antenna project before making the final decision, my friends. —K7BV

My 20/40-meter tower consisted of Rohn 45 (140 feet) with a 3-element full-size 40-meter Yagi (42-foot boom) at 140 feet, a 7-element 20-meter log-Yagi (52-foot boom) at 150 feet, and a second log-Yagi at 75 feet, side mounted with a prop pitch rotator. This configuration was originally installed about 1980.

In 1987, we had a major ice storm here that put a slight bend in the reflector of the top 20-meter antenna and destroyed the boom of the 40-meter beam below it. I decided not to bother to take down the 20-meter antenna to fix the element. N9RV and I repaired the 40-meter beam at that time.

In March 1997, I found half of a director from the top 20-meter antenna on the ground. That was the incentive needed to take on the project of redoing the tower and antennas. Just before Dayton 1997, Pat, N9RV, came over, and we took down the bottom three antennas on the tower (a 10-meter beam, a 204BA and the lower log-Yagi). Now I was committed. I was not going to be able to operate in the fall CQWW Contest unless I went ahead with the project! But I have my own consulting business and didn't have any time for antenna work until August.

My plan was to raise the tower to 170 feet and put a three-high stack of 20-meter Yagis on it, with the 40-meter 3-element beam on top of the tower. This meant adding another set of guys. In June, Pat, N9RV, Dave, W9ZRX, Paul, W9JA and I got together and bought several rolls of fiberglass guy rod.

Prepare, Prepare, Prepare

I talked to Pat a lot during the summer and expressed panic because I wasn't getting anything done on the new system. He suggested that I consider this the "material acquiring phase" and just get everything together so that part would be out of the way. I had the needed tower sections. Pat came up with a guy bracket. The list of required material was quite large—guy wire grips, aluminum tubing, Phillystran for the 40-meter elements, stainless-steel hardware, Stack Match, baluns, bearing (for second side mount), wire (control and power), and quite a bit of other stuff. It was a challenge to accumulate everything while the UPS strike was in full swing. This phase of the overall project proved to be more difficult and expensive than estimated.



The new tower after all is said and done.

In about mid August, W9ZRX came over and we successfully struggled to get the 40-meter beam down from the top of the tower. Pat came a week or so later, and the top 20-meter antenna came down with some effort and several trips up and down the tower after a cross strut hung up on the top section.

Around September 1, I commissioned Rick, N6ND, to do a 20-meter Yagi design. My guy anchors were about 120 feet away from the tower, and I tried to figure the maximum boom length I could accommodate and still rotate the antenna 270 degrees. I came up with 46 feet. Rick designed an antenna (in a three-high stack) on September 5. I proceeded to build it. After some discussion with Rick, he convinced me to try a hairpin match.

On Labor Day, Mike, W9KY, came over to help remove the top section and put some other sections up. After I had moved the top guys down and removed the top section, I thought we were in business. This proved to not be the case — the first new section just wouldn't seat. W9KY had his wife bring his belt over. With both of us on the tower, lots of WD-40 and a come-a-long we managed to get it seated. Then we worked on the fiberglass guys. We were able to mate up the other sections on the ground, which made the rest of the sections go together a lot easier.

I managed to move guy brackets and wires during the next few days of

September. This involved a lot of work because I was replacing three levels of guy wires with the fiberglass rod guys. I remember setting up work lights and rearranging guys after dark several times...

It was about this time that Sam, K9SD, mentioned that if I was going to be on for the contest I had better get going. He doubted I could do all the things necessary to complete the installation in time. Pat encouraged me by reminding me that in the past I had gotten a lot of projects completed in a short time frame. He recommended that I should just press on.

I remember thinking that maybe this should be the year that I go to the Caribbean and forget about operating from home! Unfortunately, I was so busy that I didn't have the time to plan a trip anyway. I further remember saying to both friends that I just couldn't complete everything unless things went perfectly, so I had to plan very carefully. To maximize the available time, I arranged workloads so I would do inside work (cut tubing, drill plates, make prop-pitch power-supply switch modules, put elements together, etc) if it rained.

I use an electric winch with $\frac{1}{8}$ -inch cable to raise and lower antennas. I had it rigged up with a pulley at the bottom of the tower and another at the top. A piece of 3-inch aluminum pipe at the top of the tower keeps the cable from chaffing against the top tower plate. With this setup, one or two people can raise and lower an antenna quite easily. Two ropes are attached to the boom and anchored 100 feet away to keep the antenna pulled away from the tower.

On September 10, I called to order baluns from Aztec (K6NA). Glenn had only one in stock but promised he was going to make more very soon. I got the first balun in about two days—so far so good!

Tuning the New 20-M Yagi

I completed building the first antenna. Thinking that it would be right on the money and could go up the tower, I had Pat come down on Saturday, September 20 to help put it up. After raising it to 40 feet, we discovered that the SWR was terrible! The next day W9KY brought over an Autek RF Analyst. We tried various changes in hairpin, driven element and first director length. Throughout this time, we were making changes as well as raising and lowering the antenna to check the results. Still the antenna's SWR was very bad!

I was in a panic situation with no antennas in the air and time closing in on me. I was thinking (erroneously) that I would just have to put the antenna up and forget about the SWR. Mike, W9KY, talked

some sense into me and said I better get it right or I would be very sorry.

We observed one curious phenomenon. When the driven element was shortened a lot, so that the antenna resonated at about 13.6 MHz, the SWR pattern was good although obviously it was centered about 13.6 MHz. As soon as I lengthened the driven element, the pattern deteriorated and flattened out with a high SWR. After lots of phone calls to Rick, N6ND, I decided to see if a gamma match would solve the problem. At this time, the antenna had been up and down about 30 times!

On September 24 and 25, John, K8LN (a friend of Scott, K8DX), who was in town for a conference showed up one evening to say "Hi" and see my station. As it turned out, John had helped Scott with some antennas and had some similar problems. After visiting with John, I mentioned that I could use some help the next evening. When I got home the next day (about dark — 7 PM), I was surprised to see John waiting for me in the driveway.

I have a floodlight and a spotlight for work after dark. We worked for about four hours, again making notes, trying different combinations of gamma cap and rod, driven element lengths, and so on. Again, we were able to get a match by shortening the driven element, but when the driven element was lengthened to resonate in the band, no match could be attained. This was getting frustrating.

Problem Solved!

On September 26, Rick sent me another file with the first director spaced out about 2 inches farther from the driven element. I went back to the hair-pin match with the new dimensions. This did the trick. The antenna's SWR was very close to the computer model with no adjustment of the hairpin. I guess that with the driven element close to the first director (which resonated about 14.320 MHz), it was too tightly coupled for proper operation. When the resonant frequencies of the two elements came close, the impedance just went "wacky" (a technical term). Finally, I had an antenna ready to go up to 175 feet!

In my notes, I have approximately 100 different SWR readings on the first antenna with different heights, lengths, etc. After putting up the first antenna, I discovered that the $\frac{1}{8}$ -inch winch cable had actually sawed a groove in the aluminum pipe halfway through its diameter! Here we go again...

I got Ron, W9YZ, to come over one afternoon. With help from my wife, Ann, we managed to get the antenna up. Over the next few days, I raised the mast and got the prop pitch in and was ready to put the 40-meter beam back up.

During the next week I accomplished this and with help from Dave, W9ZRX, one afternoon we got the 40-meter beam up at 170 feet. We had to disconnect the guys at the 168-foot level (guys at the 148-foot level still attached) to get the

antenna up the last 20 feet. I had to go up and walk the antenna the rest of the way up. Dave somehow managed to hook up the guy wires by himself! It normally takes two people.

Adding 20-Meter Yagis

I proceeded to build the second 20-meter beam but I didn't have the second balun yet. I called Glenn and cried about how I wasn't going to be able to operate unless I got a balun for this antenna. Glenn found a balun that a friend had and he sent it via overnight mail on Saturday. It arrived on Sunday morning at 10 AM! It went on the antenna at 1 PM. This antenna worked the first time we did our tests. (Thanks Glenn!)

I thought putting up this second antenna would be a snap. It was to be installed at 110 feet on a side arm. I thought I had enough rotating room for the antenna after jockeying guy levels around. Wrong!

My wife and I got the antenna up on the tower side arm and I began to check the clearances by manually rotating it. I swung it around one direction and it cleared. When I went the other way, it had slipped through a guy wire and I couldn't get it back. Ann tightened up the guy wire (to take slack out) with no luck. I finally had to take the guy wire off and pull it out around the antenna. I ended up moving the guy level up about three feet to solve this dilemma. This antenna work was finally complete about October 13. Since the first of September, I had been trying to maintain my business and do this entire antenna project. I worked 14 hours a day, not taking time out to even read my mail and only occasionally read the daily paper.

Finishing Touches

I still had to rebuild the prop-pitch power supply at the base of the tower to handle three rotators, as well as complete all the other associated odd jobs required to put this system together (build a second side mount, redo all the wiring, etc).

A lot of the wiring to and up the tower had been in use about 17 years. It had deteriorated and needed to be replaced. On the weekend of October 18, my son and I pulled in new control cables and reinstalled the cable assembly. It was now one week before the CQWW SSB Contest...

On Sunday October 19, my son helped me put up my northeast Beverage. I also managed to get my phased bobtails for 80 meters hooked up and put out a few radials for the 160-meter vertical. This was about all I could do, I thought. I was not 100%, but I could get on and have fun in the CQWW SSB, which had been my ultimate goal all along.

On Monday, October 20 (contest begins on October 24), I talked to Pat. He told me in no uncertain terms that I needed to get the lower 20-meter beam up and that he was willing to help me. I immediately started to build the third 20-meter beam. On Thursday morning October 23, Pat

came down and we finished building the antenna in about 45-degree weather. Pat had to get back to work in the afternoon, so I got Ann to help me put the antenna up.

I was in a hurry and didn't take the time to properly align my tractor/winch perpendicular to the pulley at the bottom of the tower. Ann was out in the field holding the ropes to pull the antenna away from the tower and operating the winch by means of a string that was attached to a switch. I was up the tower. The antenna began to come up, but at about the 40-foot level, Ann shouted that it wouldn't go up any more!

It turned out that the improperly aligned tractor had caused the cable to get into the gears and the cable was cut! Luckily, the cable was stuck, so the antenna didn't fall to the ground. I was able to chain the antenna to the tower, clear and cut the cable out of the winch and redo the cable. The rest of the installation went smoothly.

I was able to hook up the coax to the Stack Match to check it out that afternoon. I still couldn't rotate the newest antenna, but I figured on hooking up the power to the prop pitch and the indicator on Friday. After checking SWR that afternoon, everything looked fine.

I had a meeting on Thursday night. After getting home, I tried the antenna system again and discovered that the overall system SWR was very high! I couldn't imagine what had gone wrong. Had a coax connector failed? With just the top two antennas switched in, the SWR was higher now than it was when only two antennas were physically installed—very confusing. Friday morning found me outside looking for an explanation. I recalled pulling my 80-meter sloping dipole away from the tower when putting up the lower antenna, so I went over to check it out. I discovered that a rope had broken and the dipole had fallen on the driven element of the lower 20-meter antenna. This was what had thrown the system out of whack!

It was raining on Friday. I held off until about 2 PM but finally decided rain or no rain, I had to hook up the prop pitch and indicator on the lower antenna. All went well, and I was ready about 4 PM for the contest!

Was It Worth It?

Well, I did spend thousands of dollars and lots of hours, but the system seems to do much better on 20 meters. In fact, I worked several Asian multipliers that I normally do not get. I had almost 1000 QSOs in the 1997 CQWW SSB test — measurably more contacts than usual for me.

I thank—in no particular order—N9RV, W9KY, W9ZRX, W9YZ, N6ND, K8LN, my son, Jay, and my wife, Ann, for their very hard work and steadfast belief that this project could be completed in time for me to enjoy the contest. Special thanks to K9SD and K8DX for their helpful encouragement when my drive to complete the project seemed to fade. ■

NAQP CW & SSB Contest Administration Notes

Bob Selbrede, K6ZZ, and
Bruce Horn, WA7BNM

We would like to take a moment to discuss a few important topics related to the NAQP CW and SSB Contests.

First, the NAQP Awards Program. I want to thank the ARRL for purchasing the nice looking certificates we've been sending out. If you have recently earned a certificate, and haven't received it, please let me know so I can make sure you get one. NAQP Plaques are another story altogether. We award 10 plaques annually, 5 in January and 5 in August. We recently made a concerted effort to get plaques mailed out and are now completely caught up. I want to thank W5ASP, WE9V, K9PG and K4MA for sponsoring some of the plaques. Bruce, WA7BNM, and I also personally sponsored quite a few plaques in order to ensure that all winners received one. We should also be in good shape for the future.

The following organizations have offered to sponsor plaques on an ongoing basis and should be recognized for their very significant contribution:

Southern California Contest Club
Single Op Combined CW/SSB Score
Florida Contest Group
Single Op CW High Score
South East Contest Club
Single Op SSB High Score
Texas DX Society
Multi-Two CW High Score
Tennessee Contest Group
Multi-Two SSB High Score

Hats off to these fine organizations for their support. If you would also like to help—let me know. I'm sure we can use the help in other areas as well.

There was a lot of discussion on the CQ Contest Reflector after the August NAQP Contests regarding changing the power limit from 150 W to 100 W. This subject has come up numerous times in the last few years. We, the NAQP Contest Committee, discuss the possibility of a power limit change every time the subject comes up and we still feel there are no compelling reasons to change the rule. The primary reason given for changing the rule is that some radios will only put out 80-125 W and that some operators (a select few) have decided to use an amplifier to be able to run the "full 150 W" allowed in the contest. The concept of running an amplifier in a lower power contest creates a perception that cheating is taking place or that people who choose to run an amplifier in the contest are "at risk" of unintentionally running too much power.

The original intent of the NAQP contests was to create an "exciter only" contest. A power limit of 150 W was picked as a good average exciter power compatible with the majority of radios in use at the time.

The Low Power category in all the ARRL HF Contests is also 150 W so it seemed logical to do the same with the NAQP. Changing the power limit is not going to solve any real problems. Lowering the power limit may then cause folks to complain about the guys running FT-1000Ds, TS-950s, ICOM 775DSPs or other 200 W class radios on the assumption that they aren't turning their RF outputs down to 100 W. Where does it end? A limit of 150 W is still a good compromise between the 100 W and 200 W class radios. Running an amplifier in the NAQP isn't illegal—running more than 150 W is. I personally would rather not see amplifiers used, but you cannot assume someone is cheating just because they use one. I use a TS-940 that puts out 100-125 W and the thought of running an amplifier has never crossed my mind. You can discuss the technical merits of 150 W versus 100 W and debate the "true advantages" of having the extra power but nothing can compare to other factors such as a properly designed and built station, good operating skills and perhaps adding a second radio to your arsenal. So folks, it isn't that we aren't listening to you when you say "lower the limit." We just feel it isn't necessary.

I've noticed a trend in the NAQP that I'll call the Master Database Reliance Syndrome (MDRS). Certainly, MDRS isn't limited to the NAQP but it can be especially harmful in this contest if you aren't careful. Many of the leading logging programs have a Master Database function of some kind available to the operator if he/she so chooses. The problem is that some operators have a tendency to rely on the contents of the database verses coping and logging the information during the exchange. Not only is this not in the spirit of the rules, it can fill your log with bad info.

For example, you work N6TR on 10 m and he gives you his name as "Trey." MDRS kicks in and you use the database

value of "Tree" and log the QSO with the wrong name. An hour later you work him again on 15 m, the info from the previous QSO pops up, and you hit return, logging another bogus QSO. You work on 3 more bands and by the end of the contest, you have 5 QSOs (some are probably multipliers) in your log that I'm going to mark as bad and remove from your final score. This seems to be happening more and more and in the NAQP and can result in a big score reduction or disqualification. Please don't let MDRS get the best of you. Error rates for most stations in this past contest were pretty good, but several folks, most smitten with a severe case of MDRS, had a horrendous amount of errors in their logs and took a big hit in Final versus Claimed score!

Most of you with Internet capabilities have probably noticed that we have started a list of *NAQP Logs Received* after each contest. This list is kept on the NCJ Web site, <http://www.waterw.com/~ncj/>. Many thanks to Bob, K2UT, for providing this very useful function. A list of logs received will be posted on the Web Page as a reference for future contests. It's a good way to see if your fellow teammates have submitted their logs too!

Regarding submitting logs, please review the NAQP rules periodically to keep up with any changes. We're still getting many log submittals in the wrong format or missing important information. Also, a new rule was put into effect a few years ago requiring submittals with 200 or more QSOs to provide an electronic copy of their log (disk or e-mail) if computer logging of some kind was used. This is to aid us in our log checking process. If we make a mistake typing in logs someone may lose QSOs which we certainly don't want to see happen!

Good luck in the 1999 NAQP Contests!
73, Bob, K6ZZ, and Bruce, WA7BNM ■

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SCVs: A Family Album

Part 3: The Rectangular Division

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Knoxville, TN 37938-4443
e-mail: cebik@utk.edu

So far, we have looked at the delta loop SCVs. To review, the SCV antennas are the class of self-contained, vertically polarized, $1-\lambda$ wire antennas and include deltas, quad loops, and open-ended arrays such as the half-square and bobtail curtain. Basic designs require about one wavelength of wire, but doubled versions also work very well. These antennas only become SCVs when their feed points are located so as to maximize vertically polarized radiation and minimize horizontally polarized radiation. Under those conditions, they have less raw gain than when fed for horizontally polarized radiation, but they exhibit very low angle bi-directional patterns broadside to the array with very little response to high-angle radiation. Hence, they are favored by many DXers who will trade gain for a better signal-to-noise ratio for distant signals. Moreover, they require no ground plane.

For 160 meters, where everything is big, the SCV with the smallest vertical and horizontal dimensions is the side-fed rectangle. Squares are much taller with less gain, while half-squares are also taller with only a small margin of extra gain over the rectangle. Deltas are also taller, and longer corner-to-corner than the rectangle. Hence, for most installations requiring an SCV, the rectangle should be the antenna of choice.

The side-fed rectangle was popularized in recent times by K5RP, who called it a magnetic slot in his *Antenna Compendium*, Vol. 2 article.¹ One may get a grip on the side-fed rectangle more easily by deriving it from the side-fed square (or quad) loop. See Figure 1. When used for horizontally polarized radiation, the bottom fed loop has been long known to lower its feed point impedance and increase its gain if elongated vertically. K6STI reported some time back in *QST* on using the loop in this configuration to achieve a $50\ \Omega$ impedance.² Also, this configuration is the basis for the Hentenna, an elongated loop with good gain and an impedance matching system.

In free space, there is no up or down. Therefore, laying the square loop on its "side" gives us the same antenna with the field at 90 degrees to the bottom-fed version. Likewise, tilting the elongated loop over on its side produces the magnetic slot or single rectangle. When placed over the earth rather than in free space, the antenna produces mostly vertically polarized radiation. Like its brother, the square loop, it needs no ground plane.

Maximum free space gain from the rectangle occurs when the long unfed sides are about 3 times longer than the short fed side and the loop is brought to resonance. This shows clearly in Figure 2, which tracks free space models (using #12 copper wire). This 3:1 figure is normally not very critical, as the gradual slope of the curve demonstrates. The resonant feed point resistance for the 206-ft long by 68-ft high version is just above $30\ \Omega$, which is a bit low until we introduce proximity to the earth into the picture.

In fact, the ratio of long side to fed-side of the rectangle for maximum free space gain is frequency dependent. Based on free space models of rectangles resonated at frequencies from 1.8 to 146 MHz, the ratio (R) of the long side to the short side for maximum gain (where F is the frequency in MHz) is as follows:

$$R \approx \sqrt{2 \log(100F)}$$

Like the counterpart relationship between the baseline length and the height of deltas, this approximation holds fairly

well into the 2-meter region, which the #12 wire basis for the models becomes an appreciable part of a wavelength.³ However, the curve approaching maximum gain is shallow, and little is lost from being slightly off the ideal mark.

Although the ratio of long-to-short side increases for maximum gain in an elongated loop with increases in frequency, the feed point impedance follows normal rules: the more extreme the elongation, the lower the feed point impedance at resonance for the resulting loop. At 2 meters, where the ratio approaches 6:1, the feed point impedance is in the vicinity of $7\ \Omega$.

The Single Rectangle

Figure 3 sets the dimensions used in this study for the single rectangle. (We shall look at the K5RP double rectangle a bit farther on.) I shall leave it to builder ingenuity as to how

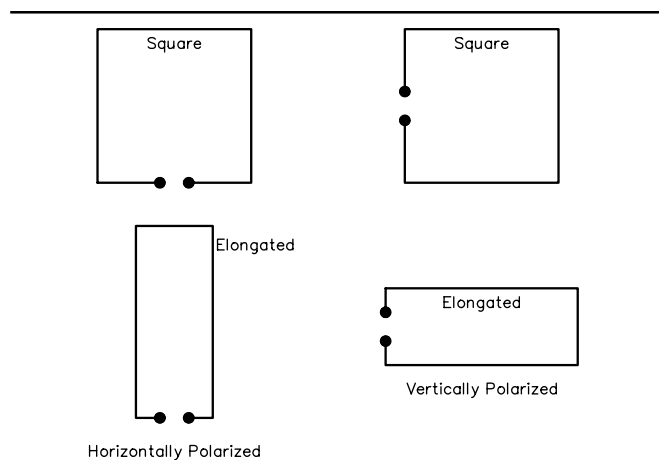


Figure 1—The basis of the rectangular SCV in the quad loop.

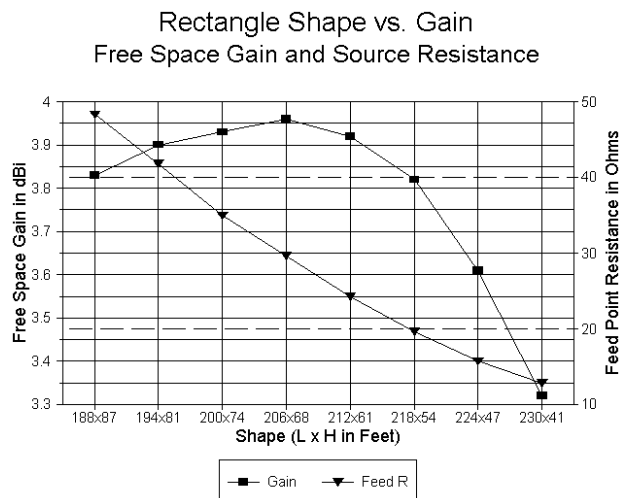


Figure 2—Gain and source resistance of the 160-meter single rectangle in free space.

¹Notes appear on [page 20](#).

one might hang up this antenna. But before we string a long length of wire, we should ask how high to string it.

Figure 4 provides modeling data on the single rectangle for bottom wire heights ranging from 20 ft to 140 ft up. The antenna top wire will be 68 ft higher. The left axis records gain over average soil for the various heights. Note that as the bottom wire reaches the 90 to 100-ft mark, the gain levels off and then decreases with further increases in antenna height.

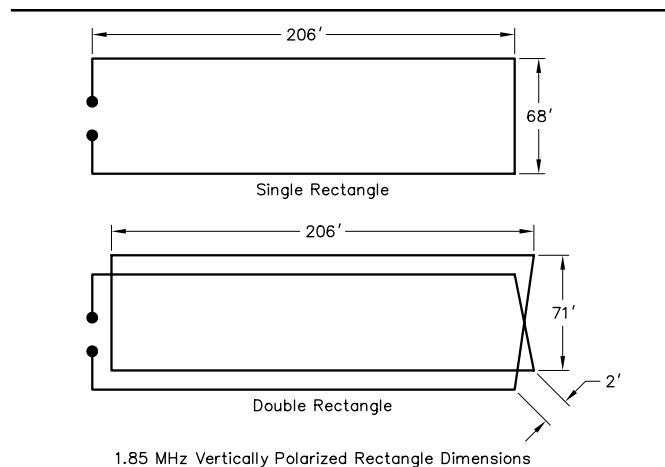


Figure 3—Dimensions for single and double 160-meter rectangles.

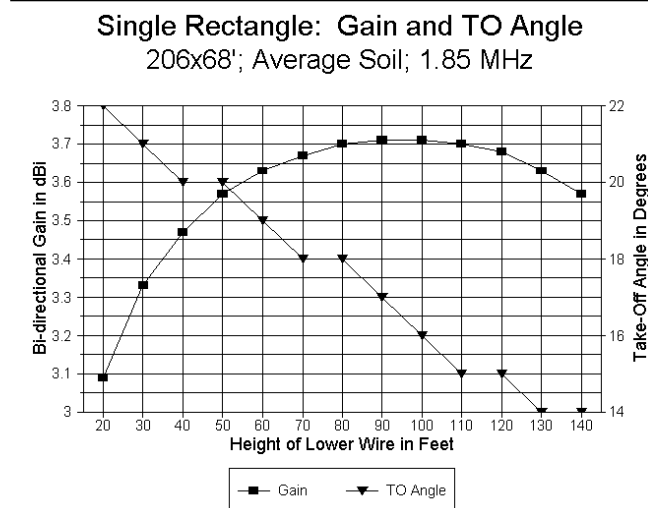


Figure 4—Single 160-meter rectangle gain and take-off angle at various heights.

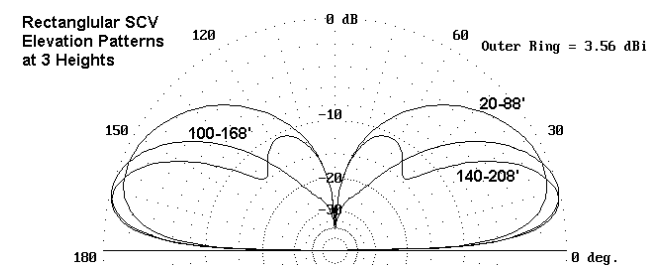


Figure 5—Three elevation patterns for the single rectangle at different heights.

The second curve referenced to the right axis records the continuous decrease in the elevation angle of maximum radiation, which runs from 23 degrees for the lowest height surveyed to 14 degrees for the highest.

On the very dubious assumption that we have some choice in how high to place the rectangle, we can also use elevation patterns of the antenna as a guide. **Figure 5** provides three patterns with the bottom wire at 20 ft, 100 ft and 140 ft. The decrease in gain with the 140 ft pattern is already evident, along with the reason for that decrease. Above the height for maximum gain, a secondary lobe begins to appear at a very high angle. With sufficient elevation (above $\frac{1}{2} \lambda$ or so), the secondary lobe becomes dominant and the overall low angle gain of the antenna begins to decrease dramatically. However, I doubt anyone will ever test this modeling result by placing the bottom wire of the rectangle above 270 ft.

We can see the span of expected feed point impedances in **Figure 6**. At 140 ft, the feed point impedance approaches that of free space models. The resistive component increases in a regular curve as the antenna is lowered to more usable

Single Rectangle: Feedpoint Impedance
206x68'; Average Soil; 1.85 MHz

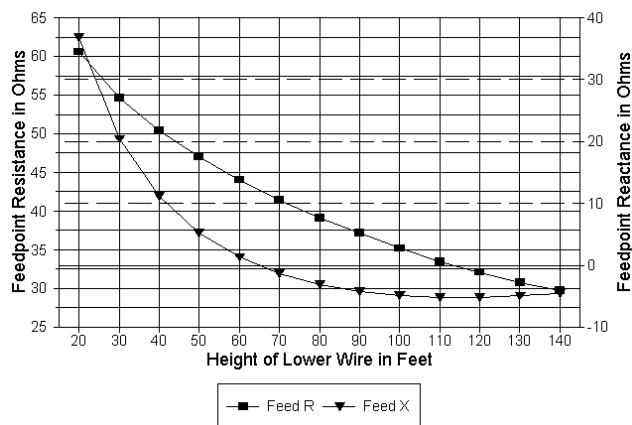


Figure 6—Single 160-meter rectangle feed-point impedance at various heights.

Single Rectangle: Z vs. Frequency
20' Lower Wire; Ave. Soil; 1.8-2.0 MHz

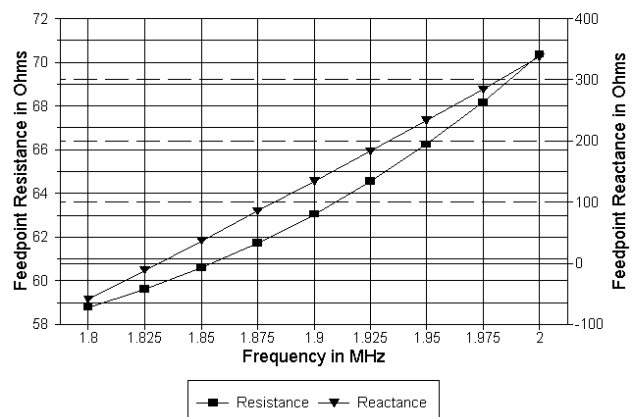


Figure 7—Single 160-meter rectangle feed-point impedance across the band.

heights, in accord with reductions in gain as the antenna passes the 90-ft level on its way down. Also notable as an earth-effect is the increase in inductive reactance with lower heights, a fact suggesting that builders of rectangles at low heights might wish to shrink them to bring them to resonance. (However, before adjusting the antenna size, see the notes on matching below.) Notice that the feed point resistance of the antenna at its target frequency (here, 1.85 MHz) is well within the range of direct coaxial cable feed.

As one might expect, the SWR bandwidth of this antenna, like most 160-meter antennas, is fairly narrow. More important is the information in [Figure 7](#), a track of the resistance and reactance across the band for the antenna when the lower wire is at 20 ft. Similar data accrue for higher antenna elevations, but with a shift in the resistance curve according to height.

The range of resistance is rather narrow—under $12\ \Omega$ across the band, as read from the left axis. Moreover, the reactance (as read from the right axis) changes in a very linear fashion. It would be simple enough to enlarge the antenna until it displays inductive reactance across the band. A remotely tuned series capacitor might then compensate for the reactance, leaving a resistive impedance suitable for coaxial cable.

The data developed so far has been over average earth, as it is called. Unfortunately, many of us live over earth significantly poorer than average, while a few lucky souls live on very good earth. [Table 1](#) provides some guidance as to expectations for various types of soil ranging from very poor (conductivity (C) = 0.001 S/m; dielectric constant (DC) = 5) to very good earth (C = 0.0303; DC = 20). The figures reflect single side-fed rectangles at base heights of 20, 60 and 100 ft. Similar tables might be drawn up for any vertically polarized antenna and show similar differences from one soil type to the next. However, unlike the delta loops, which showed some aberrant progressions with changes in soil conditions, the course of values shows relative smooth curves

from one soil type to the next for rectangles.

The tables are based on uniform soil in every direction from the antenna for distance great enough to fully affect the far field. Of great interest is the lack of significant change in the antenna feed point impedance with changes in soil type. It is dubious whether one can effect significant performance improvements in this or any other SCV by doctoring the soil in the immediate vicinity of the antenna. On the other hand, the soil at a distance of $2\ \lambda$ and more from the antenna is usually beyond control.

The better the distant soil, the better the low angle radiation from the antenna. [Figure 8](#) shows the contrast between very poor and very good soil. Equally important with the gain improvement is the lowered angle of maximum radiation. Were the curves graphically equalized, the higher-angle response would be very little different. However, the low-angle response from the antenna over very good soil is very much enhanced. Intermediate soil types provide intermediate curve shapes.

The Double Rectangle

For various reasons, some antenna builders prefer to feed their antennas with parallel transmission line and use an ATU to effect a match. One effective way to do this is to use the antenna as an impedance transformer by doubling it and making a mobius-strip crossing at the end opposite the feed point. This is the double rectangle shown in [Figure 3](#), and developed by K5RP.

The sketch shows two significant features. First, the loop must be slightly fatter vertically for maximum gain relative to the single loop. Second, the spacing between the loops has very little effect on antenna gain. In fact, models of the double loop with a space that ranges from 1-ft up to 12 ft showed only a 0.01 dB difference in gain.

What did change with changes in spacing was the required total loop size for resonance. The closer the wires, the larger the loop size. Part of this size increase stems from the fact that the crossing wires are longer for wider spacing, thus occasioning smaller outside dimensions. However, the other part is a function of minor interactions between the loops. With a constant length of 206 ft for the double rectangle array, the loop height was 70 ft with a 12-ft spacing and 71-ft for a 2-ft spacing.

The remainder of the data was generated on the basis of a 2-ft space between the wires, simply because that is most likely a more convenient construction distance. Spacers can be almost anything that insulates and is light weight. It is essential that the crossing wires at the far end of the array be well insulated from each other, although spacing appears not to be critical.

The double rectangle exhibits almost a half-dB of additional gain beyond that of the single rectangle. [Figure 9](#) shows the gain and take-off angle for lower-wire heights from 20 ft to

Table 1
160-Meter Single Rectangle Gain, TO Angle, and Feed-point Impedance Over Various Soils, with Different Antenna Heights Above Ground.

Antenna Height (in feet)	Gain (dBi)	Take-Off Angle (degrees)	Feed-point Impedance (R +/- jX Ω)
20-88			
Very Poor Soil	0.34	27	65.1 + j30.0
Poor Soil	1.86	25	62.4 + j34.1
Average	3.09	22	60.6 + j36.8
Very Good	5.24	16	55.7 + j37.4
60-128			
Very Poor Soil	1.09	23	42.5 - j1.7
Poor Soil	2.55	21	43.1 + j0.2
Average	3.63	19	44.0 + j1.3
Very Good	5.78	14	44.2 + j3.1
100-168			
Very Poor Soil	1.24	20	33.3 - j5.1
Poor Soil	2.67	18	34.3 - j4.8
Average	3.71	16	35.2 - j4.9
Very Good	6.16	13	36.1 - j4.4
Soil types			
Very Poor Soil	0.001		5
Poor Soil	0.002		13
Average	0.005		13
Very Good	0.0303		20

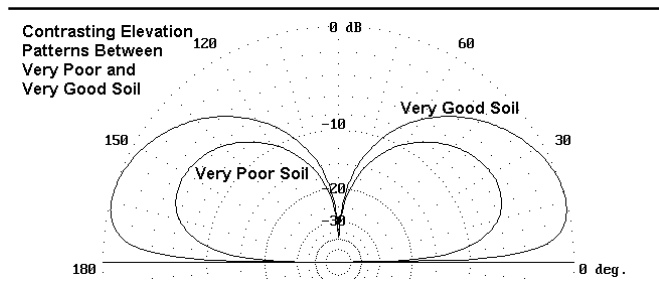


Figure 8—Contrasting elevation patterns of the rectangle over very poor and very good soil.

140 ft, which permits direct comparison with the corresponding chart for the single rectangle. The curves are highly congruent, with peak gain at about 100 ft (with the top wire at 171 ft). Since the resolution of take-off angles is one degree, the “stair-step” form of that curve should be no surprise, and 1-degree differences between the graphs for the single and double rectangles are meaningless.

The “transformer” action of the double rectangle configuration appears clearly in **Figure 10**. The forms of both the resistance and the reactance curves are almost identical to those of the single rectangle, but the double rectangle values are almost exactly 4 times those for the single rectangle. Both resistance and reactance are multiplied.

The curve suggests that almost any parallel feed line might be used to feed the double rectangle. A link-coupled tuner should be able to handle the range of resistance and reactance across 160 meters. In fact, the more typical network tuner with its 4:1 output balun should not be heavily challenged by the impedances presented by the double rectangle.

Like the single rectangle, soil quality affects the far field pattern fairly strongly without affecting the feed-point impedance very much. **Table 2** presents data for the double rectangle at the same baseline heights as for the single rectangle in **Table 1**. The increase in gain for the double rectangle is everywhere apparent in the table. However, the chief effect of the table is likely to be to make many folks wish they lived surrounded by very good earth. I did not have the heart to present the salt-water data.

The Result

Unlike the patterns for vertical mono-poles and dipoles, the SCV family of antennas display a highly bi-directional pattern. **Figure 11** presents the azimuth pattern for a double rectangle over average soil with a baseline height of 100 ft and a take-off angle of 16 degrees. The single rectangle presents a similar pattern. Note the clover-leaf in the center of the pattern: it represents remnant horizontally polarized radiation

Table 2

160-Meter Double Rectangle Gain, TO Angle, and Feedpoint Impedance Over Various Soils, with Different Antenna Heights Above Ground

Antenna Height (in feet)		Gain (dbi)	Take-Off Angle (degrees)	Feed-point Impedance (R +/- jXΩ)
Soil Type				
20-91				
Very Poor Soil	0.54	27		274 + j120
Poor Soil	2.07	24		264 + j139
Average	3.30	22		258 + j151
Very Good	5.46	16		237 + j156
60-131				
Very Poor Soil	1.38	23		171 – j 6
Poor Soil	2.83	21		174 + j 2
Average	3.90	19		178 + j 7
Very Good	6.06	14		179 + j14
100-171				
Very Poor Soil	1.60	20		131 – j18
Poor Soil	3.01	18		136 – j17
Average	4.05	16		139 – j17
Very Good	6.50	12		143 – j15
Soil types	Conductivity (S/m)		Dielectric Constant	
Very Poor Soil	0.001		5	
Poor Soil	0.002		13	
Average	0.005		13	
Very Good	0.0303		20	

Double Rectangle: Gain and TO Angle
206x71'; Average Soil; 1.85 MHz

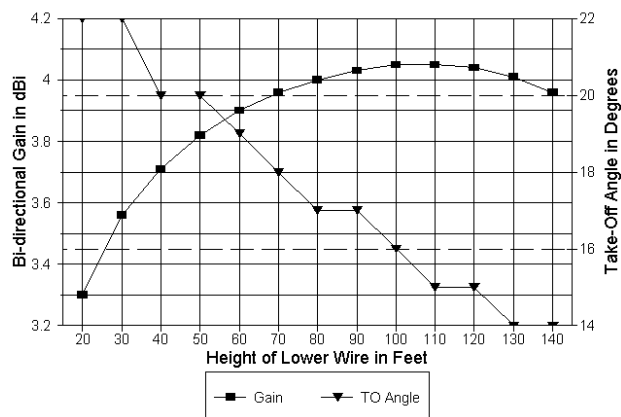


Figure 9—Double 160-meter rectangle gain and take-off angle at various heights.

Double Rectangle: Feedpoint Impedance
206x70.5'; Average Soil; 1.85 MHz

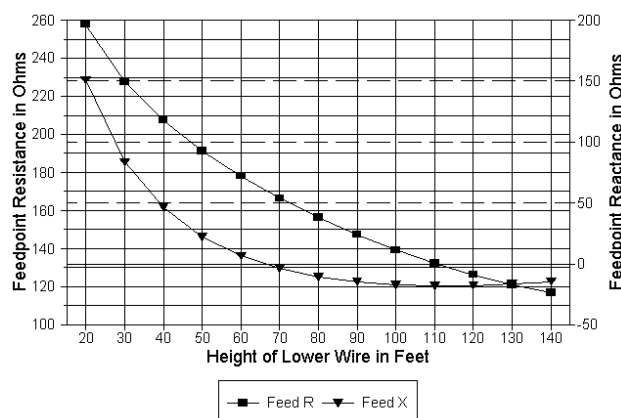


Figure 10—Double 160-meter rectangle feed-point impedance at various heights.

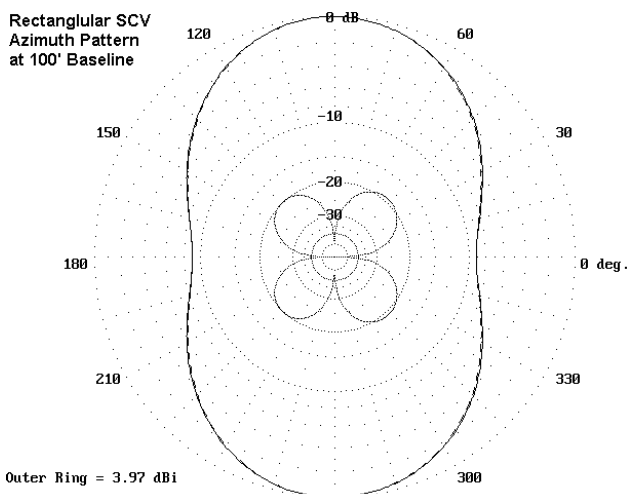


Figure 11—Azimuth pattern for the rectangle SCV, with horizontal and vertical components.

which is not eliminable from any of the SCV configurations.

In general, deltas and square loops have more broadly oval patterns with less front-to-side rejection than the rectangle. The half-square pattern is similar to that of the rectangle with a slightly greater front-to-side ratio.

To increase gain further—and in the process double the front-to-side ratio—requires no more altitude, but double the linear space for the antenna. K4VX's open double rectangle with a common center wire or the familiar bobtail curtain provide about 1.5 dB added gain and over 20 dB front-to-side ratio, with comparable take-off angles to the single and double rectangles shown here.⁴ They are certainly antennas worth investigation if one has a linear space well over 400 ft long.

These notes are based on computer models of the rectangle, which itself has already been proven in the field. Where computer modeling is at its best is in developing systematic guidance data, and that has been the aim of these notes. Computer models assume level terrain, but the individual contemplating an antenna such as these might well use terrain analysis software by N6BV or K6STI to adjust expectations for the particular antenna site and its environs. The more data we gather in advance, the more realistic will be our expectations for any antenna we might think about building. The 160-meter rectangle makes a good case-in-point.

But What About 80 Meters?

In our haste to review the rectangle at 160 meters, we have bypassed data for 80 meters, where the antenna is certainly a candidate for SCV use. The ideal ratio of length to feed-side for a 3.6 MHz rectangle is about 3.6:1. #12 AWG copper wire models in free space yielded maximum gain with dimensions of about 110 ft long by 31 ft high, at a figure about 0.25 dB higher than the 160-meter model. However, the feed-point impedance was about 8 Ω lower. These latter two properties result from the narrower shape of the 80-meter rectangle.

With these variations in mind, you can anticipate the values for the 80-meter rectangle that appear in [Table 3](#). Only the values for average soil are shown, since the values for other soils are proportional, using the 160-meter charts as a guide. The height of maximum gain is just about half that for 160 meters. However, over ground, the gain is not as high as the corresponding 160-meter rectangle at twice the height.

Only at low heights is it advisable to feed the 80-meter single rectangle directly with coax. Indeed, the single rectangle above 160 meters is probably a worse choice than its companion double rectangle. Like the 160-meter version of the double rectangle, the 80-meter antenna displays a slight gain over a single rectangle with relative insensitivity to the spacing of the two wires. The sample model placed the wires 1-ft apart, with the cross-over wires spaced about 0.5 ft apart. Also like the 160-meter version, the model maintained the same length, but increased the height over the single rectangle by a small amount, ending up with a total height of 32.3 ft for resonance in free space.

[Table 4](#) shows the modeled values over average soil at heights ranging from 10 to 90 ft (with resultant top-wire heights ranging from 42.3 to 122.3 ft). The added gain over the single rectangle is evident, as is the reduced gain relative to corresponding 160-meter double rectangles. Like the 160-meter models, the height of maximum gain for the double rectangle is slightly and perhaps insignificantly higher than for the single rectangle.

The feed-point impedance at low heights is likely to benefit from the use of parallel feeders and an antenna tuner. At higher levels, a $\frac{1}{4} \lambda$ matching section of 75 Ω cable will provide a 50 Ω coax match over a small portion of the band. However, the large scale changes in reactance suggest that

Table 3

3.6 MHz Single Rectangle: Properties Over Average Soil at Various Heights.

Soil Type	Baseline Height (ft)	Gain (dBi)	T-O Angle (degrees)	Feed Impedance $R \pm jX \Omega$
Average	10	2.21	25	50 + j38
(C=0.005, DC=13)	20	2.76	23	40 + j15
	30	2.98	21	34 + j7
	40	3.08	20	30 + j3
	50	3.11*	18	27 + j2
	60	3.08	17	25 + j2
	70	3.01	16	23 + j2
	80	2.88	15	22 + j3
	90	2.69	14	21 + j4

Note 1. * = Height of maximum gain

Note 2. Dimensions of single rectangle = 110 ft baseline length, 31 ft height.

Construction: #12 AWG copper wire.

Table 4

3.6 MHz Double Rectangle: Properties Over Average Soil at Various Heights.

Soil Type	Baseline Height (ft)	Gain (dBi)	T-O Angle degrees	Feed Impedance $R \pm jX \Omega$
Average	10	2.40	25	212 + j132
(C=0.005, DC=13)	20	2.98	23	164 + j39
	30	3.23	21	138 + j6
	40	3.36	19	120 - j8
	50	3.42	18	107 - j14
	60	3.43*	17	97 - j15
	70	3.37	15	90 - j13
	80	3.26	15	85 - j9
	90	3.08	14	82 - j5

Note 1. * = Height of maximum gain

Note 2. Dimensions of double rectangle = 110 ft baseline length, 32.3 ft height.

Construction: #12 AWG copper wire.

parallel feeders and a tuner may be best for operation over the entire band.

This basic data, when combined with sensible adjustments to the 160-meter data, should provide reasonable guidance for our expectations should we decide to build one of these antennas. Before we make such a decision, we shall want to compare these data with those in the last episode on deltas. But let's not be too hasty. Final decisions should await a fuller story on the open-ended cousin to these two loops: the half-square.

Notes

¹For the "magnetic slot" and "double magnetic slot," see Russell E. Prack, K5RP, "Magnetic Radiators—Low Profile Paired Verticals for HF," *The ARRL Antenna Compendium*, Vol. 2 (Newington: ARRL, 1989), pp 39-41. However, the elongated loop or "oblong" and its relationship to the square quad has been well-known for a long time. See, for example, the reference to this subject in Karl Rothammel, Y21BK, *Antennenbuch* (Berlin: Militarverlag der DDM, 1984), p 230, where a ratio of about 2.4:1 is recommended for the vertically polarized version. Reference is made therein to work by G6LX.

²Brian Beezley, K6STI, "A Gain Antenna for 28 MHz," *QST* (July, 1994), p 70.

³In the HF region, we can use a simpler approximation: $(2.8 + 1.4 \log F)$, where F = the frequency in MHz for #12 copper wire. When expressed in terms of natural logarithms, R approaches the Fibonacci constant times $\ln(100 F)$.

⁴For the open double magnetic slot, see Lew Gordon, K4VX, "The Double Magnetic Slot Antenna for 80 Meters," *The ARRL Antenna Compendium*, Vol. 4 (Newington: ARRL, 1995), pp 18-21. ■

“New Blood in the Carolinas—Jim Stevens, K4MA”

One of the great things about this hobby is that you just keep on finding out what a small world it is in which we live and play. In the case of Jim Stevens, K4MA, an off-hand remark on the contest reflector led to my re-acquaintance with a fellow University of Missouri at Rolla alumnus, a “Miner” to those in the know. Turns out we coincided just for a year, but, hey, with contesters, you only have to work a guy for five seconds once a year and you have a life-long blood brother!

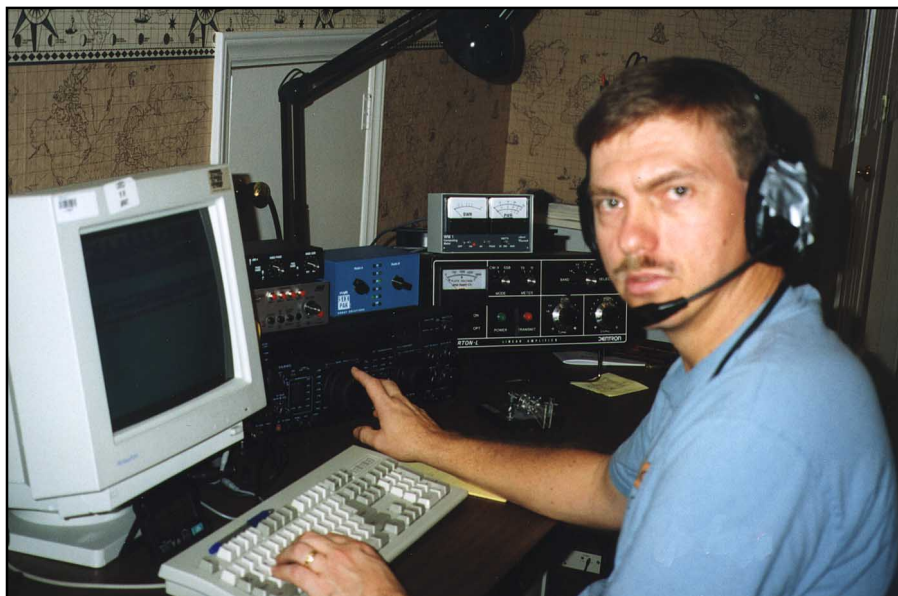
Until very recently, Jim sported the ham-band moniker KI4HN and wandered east from the Midwest. “I got my first call in 1977 as WD0FOT in Missouri and was 16 at the time. I came into Ham Radio via CB when a high school science teacher got me interested. When I upgraded to General and then Advanced a few months later I got N0ARN and probably should have never given up the call.”

“I went off to college at UMR in 1979, operating some at W0EEE. I remember doing a phone SS one year and some weird long-haired dude doing the CW version. (I resemble that remark.—N0AX.) After college, I moved east to North Carolina. My license was up for renewal, so I decided to get a 4-land call and got KI4HN. About this time, I became inactive and, in fact, KI4HN was never on the air from its issuance in 1984 until 1992. Two hams at work (George, KI4KK, and Paul, N4YYN) got me re-motivated and I upgraded to Extra in 1993, keeping KI4HN. When Gate 2 of the vanity calls opened up, I got K4MA on the first day.”

Based on Jim’s current activity level, K4MA isn’t going to suffer the same fate as KI4HN. He has been very active, including a lot of guest operating which means adapting quickly. “How fast I can get comfortable depends on the station layout and how much there is to get familiar with. AA4NC labels everything very well and makes sure detailed instructions are available concerning any unusual items, so it is easy there.”

“I would say in general that it takes at least a couple of hours for me to feel comfortable. I concentrate on the important stuff first: how to switch antennas, tune the amps, and do the major items on the transceivers. Later when the rate is slower you can figure out the answers to questions or problems that you have noticed earlier.”

Speaking of AA4NC, Will was instrumental in getting Jim off and running



K4MA at new home station. Equipment visible: Yaesu FT-1000MP, MFJ voice keyer, JPS ANC-4, WX0B Six Pack control box, Dentron Clipperton-L, Auttek SWR/Watt meter, Bencher paddles, running TR log on the computer.

as a competitive entrant. “In 1994 I remember being frustrated with my home station’s capabilities and putting out an appeal on the contest reflector to use someone’s station for phone SS (this was prior to K9PG’s station registry). I got an e-mail back from Will inviting me to his station.”

“He and his wonderful wife Beth showed me complete hospitality, and I piloted the station to a Roanoke Division Low Power SSB win and new record. A great friendship and partnership was born. For the last several years since that time, I have been the de facto guest op at AA4NC giving me the opportunity to learn how to drive a top tier station.”

“Will and I have teamed up on several DXpeditions to the Caribbean. From these trips I have learned from Will’s experience in Caribbean contesting. I have this dream of operating from most of the Caribbean countries and have done PJ7, VP2E, 8P, KP2 and VP5 thus far, returning to 8P for next year. Anyone want to provide a station in some other locale?”

Jim hit the top of The Box last year in the SS from WP2Z in the dog-eat-dog HP class. “Up to about two hours before the contest, I thought I would have to run low power because around 10 PM the night before the power went out. I had a

generator, but it would not start. The next morning was spent running around St Croix trying to fix it. Finally I got it working again three hours before the contest. But thanks to the diligence of my wonderful wife, Karen, the power company replaced the transformer that was causing the power outage. Do you know how hard it is to get anybody in the Caribbean to do unscheduled work on a weekend? The standard answer: ‘Don’t worry, Mon—we get to it next week.’”

It helps greatly to have a supportive spouse and Karen seems to have gone that extra mile. “Our first child, James, was born on the day after CQ WPX SSB in 1994. I was doing so well in my LP effort that my wife didn’t want to interrupt me to tell me that she was having contractions. The contest ended at 7 PM, we left the house at 3 AM, and our son was born at 11:30 AM.” Wow!

Life can take some interesting turns as most contesters know. Jim doesn’t seem to be greatly different in that regard. “I stumbled into contesting twice. Originally, I remember reading about WW in CQ Magazine and deciding to give it a try. I operated Single-Band 10 m in 1978 during a sunspot high. Man, I never had so much fun in my life. I operated a few more contests exclusively

SSB before becoming inactive, not being much of a CW op at the time (some would still say that)."

"When I got reactivated, once again I literally stumbled across the California QSO Party in 1992 not long after getting back on HF. I started making contacts and having fun and the contest bug had bit again. I decided this time that I wanted to operate CW contests too, so I started relearning—having totally forgotten it. From that point, I passed the Extra exam several months later and now operate reasonable contest-level CW but I still don't pass the K1AR test (ie, don't ask me what my antenna is at 35 WPM)."

"As I mentioned before, my high school science teacher got me interested originally, but I don't remember his call. Roger Burt, N4ZC, is another of my contesting Elmers. I was first invited to N4ZC for ARRL SSB in 1995. Since that time until this year when Roger cut back on his contesting, I have mostly either operated the four big contests in the Caribbean or as part of a N4ZC team effort. My experiences at N4ZC have taught me how to do multiops and a lot about DX contests. Roger is one of the most knowledgeable around concerning propagation, call signs and band openings so I try to soak up as much knowledge from him as I can."

"Don Daso, K4ZA, is another influence. Don operated 20 m at N4ZC and is a former 20-m op at W3LPL. From Don I learned intensity and drive—he is Mr. Intensity."

Jim is putting down some steel and aluminum roots, though. "I recently completed my first 'real' home station. I want to thank K4HA, N4CW, AA4NC, KS4XG, NT4D and others for their help. It is 100 feet of Rohn 25 with a TH-6 at the top and a 40-2CD 10 feet above that. It also has 80 and 160-m inverted-Vs. Future plans include a possible 80-m sloper array like K3LR's 160-m design and probably an inverted-L or T for 160-m with some kind of receiving antenna. I'll probably add a second tribander lower on the tower. I'm not aiming for any particular contest although given the location I will do better in DX contests than domestic."

Like most contesters, Jim is somewhat of an omnivore. "Favorite contest? Tough question. I love them all. Each has its own good points. I would like to encourage more NCJ readers to try the North American QSO Parties. They are great contests. In fact, I think we should consider adding two more—one in the fall and another in the spring." Is there a contest that needs change? "ARRL 160-m. Why is this contest two nights?" (*I suppose it beats two days.—NOAX*)

"My other hobby is golf (currently nine

handicap). Summer is for golf and winter is for contesting. In the summer, golf takes precedence over contesting and vice versa in the winter. It really helps me get motivated for both because by spring or fall I am sick of one and ready for the other."

Should we worry about our sport's demise? "I don't see contesting dying anytime soon. I consider myself new blood and hope to be doing contesting for another 25+ years. I think we *do* need to work to get younger people interested. We have an active chapter of the PVRC here in the Raleigh, NC area, and I would like to see us try to get more new

people involved. We have some connections into NC State and some students do come to the meetings. Still, we haven't seen any new AD6DOs."

"I think there are two real hooks for new people: rate and exotic locations. We need to figure out how to explain and exploit these two features of contesting. I love the ARRL DX contests from the Caribbean. Can you say RATE? And I love CQ WW, ARRL DX, and CQ WPX from the US—especially during the evening hours on 20 m. What kinds of rare DX will call in during that JA run? What a rush when that 3W or JT or... calls in. That really gets me excited about contesting and ham radio!" ■

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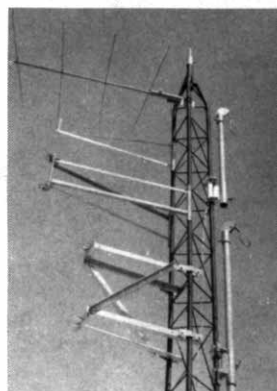
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RTTY Contesting

Jay Townsend, WS7I
PO Box 644, Spokane, WA 99210-0644
ws7i@ewarg.org

On the hot seat again! Dennis, K7BV, must have decided that I did not have enough to do. The sun spot cycle is just starting to get interesting up here in the Pacific Northwest and they want me to write instead of contesting or chasing DX. First, here are some contest experiences, people and places that have influenced my contesting.

People and Places

Spokane is not exactly the hot bed of contesting, but over the years, we have learned a bit. Randy, W7TJ, came to town a few years back and got several of the locals fired up in contesting. He had spent considerable time with W7RM, K7SS, W7WA, VE7NTT and other prominent West Coast testers before moving 285 miles east. Randy's call: W7TJ, with the SSB phonetics of Tokyo Japan worked so well that my club decided to get the call, K7TJ. All it takes is a strong contesting force to bring out the best in others.

Spending a couple of weeks on my third trip to the Galapagos with Rich, HC8A, helped increase my operating efficiency. Dave, now K9NX, was also an influence on low band antennas. Afternoons spent with Rush Drake, W7RM, will always be remembered.

Every time I think of contesting I think about trips and the great hospitality found around the globe. Ted, HC5K, an RTTY tester and a remarkable man, invited us to HC8 in 1987, 1989 and to his Cuenca home in 1990. Guido, HC8GR, also known as Senor Galapagos (a story to be related in a future column), was the host for HC8J in 1993. John, W7XR, has the finest station I have visited in the Northwest and that was my first multi-multi phone operation.

When conditions in the Northwest are lousy, and that is about half of the time, I go south to Texas. Brian, W5KFT, with station manager K5TR, has quite a station. W5KFT's ranch has been successful for Ron and me. In Louisiana, Pat, W5WMU, gives the word hospitality new meaning. Swapping contest stories with AA5AU, WU3V, K5DJ and W7WM out in front of those impressive W5WMU antennas was a lot of fun.

It's amazing to me that people from around the world will invite you to come and contest at their home or ranch. Every year in Dayton someone like Ari, 4X6UO, extends the hand of hospitality. Alex, CE8ABF, invited RTTY testers to visit



him on his lamb farm in Tierra del Fuego and do some contesting.

When Rates are Slow

Years ago when RTTY was very slow we were doing a M/S contest. On a Sunday afternoon, Hal, WA7EGA, came across this rather odd 20-meter net, K1MAN. Yes, he got his start on the green keys of RTTY. The net was having a hard time communicating from coast-to-coast. Hal egged me on. I broke in and asked if I could assist. Running some sizable aluminum and 1200 W, they could all hear us. I assumed NCS and told each station to log in with the UTC time and their state. It just happened to be the contest exchange. As NCS, each station was recognized with a similar report. After getting roughly 38 contacts NCS was turned back to a Midwest station.

RTTY Info

It is always intriguing to me that testers don't ask more questions and many times fail to seek out information that might save the day. For RTTY testers the hang out reflector has always been the WF1B reflector. There you can seek advice about nearly anything on RTTY. If you have questions, ask. RTTY contest scores are submitted to the 3830 reflector. If you are going to

run a M/S or a M/M then I highly recommend that you talk to several of the people who contest using these modes throughout the year. Here's three RTTY contest program reflectors that support RTTY contesting:

WF1B:

wf1b-rtty@wf1b.com

Writelog:

rttywrite@larry.wu3v.net

NA

na-user@contesting.com

Tip of the Month

This month's RTTY tip has to do with heat. Years ago in Portland I had a chat with Alpha. They had the famous 48-hour key-down Alpha. I inquired "if that was true" and was told "Sure it will." I told the guy that if it lasted the 48-hour CQWW I would buy it. Then I learned about the add-on cooling fan that is available for the 87A.

1997 CQ WW RTTY at W5KFT demonstrated how amps need extra cooling. They had a problem with the amp in a previous RTTY contest. Putting two muffin fans on the ranch amps cured the problem. The RF tuning section that is seldom cooled builds up heat during a RTTY Contest. A muffin fan blowing there will prevent the solder from melting off the band switch or the leads to the inductors. An extra muffin blowing in the power supply section also seems to pay big dividends. It's not the tubes that need extra cooling, but other sections that just do not get that warm during normal use. I use muffin fans on radios as well.

One of the things about RTTY contesting that inspires me is the appeal that it has to some of you that are doing CW and SSB Contests. I have asked a couple of prominent testers to report their RTTY contesting impressions. In upcoming issues, we will present their comments and reflections. 73, Jay, WS7I

Upcoming RTTY Contests

SARTG New Year	1 Jan	0800-1100z	3 hours
ARRL RTTY Roundup	2-3 Jan	1800Z	24 of 30 hours
RJ WW RTTY WPX	13-14 Feb	0000Z	30 of 48 hours (most classes)

No Tower Contesting

Smaller lot sizes and restrictions on antennas mean that fewer of us are able to put up the types of antenna systems we would like. Even putting up a small tower is impossible for a large number of hams. Can you contest under such restrictions? The answer is: *Yes!*

Natural Antenna Supports

Most of the readers are taking advantage of the natural antenna supports already on their property—trees! Trees make great supports for a variety of wire antennas. Probably nearly every ham has a dipole or two supported by trees, even those hams blessed with a number of towers.

Dipoles are not the only wire antennas in use. KG8GW uses a Carolina Windom 160 Special and a 40-m rectangular loop feed with 450 Ω ladder line. Ron also uses a 20-m delta loop fed with coax. The last two antennas are tuned for use on other bands as well.

Loop antennas are popular with the no-tower crowd. When N4ZR was in that situation, his best antenna was a full wave 80-m loop fed in the corner with 450 Ω line and a balun. Pete says the “covenant cops” never found it and it was good enough to give him 5BDXCC and a number of Low Power SS section wins.

K9WX's 80-m loop is at about 35 feet. Tim likes the fact that it is omnidirectional, so he does not have to worry about what direction to point it. KN7T's favorite antennas are his open wire fed loop and a double bazooka. N9IJ uses a full wave 80-m loop for SS even though he does have a tower.

My favorite FD antenna system for 40 m is a set of dipoles. One is horizontal and the other slopes towards a selected population center. They are fed with a coax phasing system. This allows them

to be fed individually or together and still present a 50 Ω load. The advantage is that it is inexpensive and you get instant switching and some gain. It also helps on receiving weak signals. Often one antenna will null out an interfering signal. I don't have this system at the home QTH, but I think it would be effective.

NJ2L spent several years in the no-tower class. Rus thinks that it is most important to use horizontal antennas, especially on the higher bands. Rus does not feel verticals work as well, especially trap verticals on these bands. If he were setting up a new no-tower station, Rus would start with dipoles on 80 and 40 as high up as he could put them up. Then he would add dipoles for 10, 15 and 20. Verticals for the low bands can be effective for DX. Rus would put up verticals for 40 and 80, and an inverted L for 160 m. These antennas would use elevated radials.

Rus goes on to say that wire antennas have several advantages including low cost and being fun to experiment with. In his no-tower station design he would add some wire beams for 20-10 fixed on Europe, and even 40 m if he had room. His main point is that wire is cheap and you should strive to have lots of antennas. If you are forced to use a single antenna, Rus recommends a 135-foot flat top, center fed with a tuner and open-wire feed line.

Lack of a tower has not kept K4OGG from putting up some nice beams. Jay lives in suburban Atlanta. He has a roof mounted tower but wanted something more. Fortunately, Jay has a number of large pine trees on his property. He uses them to support 3-element 15-m and 4-element 10-m beams, both made by Force 12.

First Jay spray painted them black. Then he added screw eyes to the brackets that support the end elements and built a

rope harness. A pulley system supported by branches on the pine trees brings the antennas up to about 45 feet. Tag lines allow the Yagis to be rotated from about 300 to 40 degrees. This allows Jay to point them at Europe and Japan.

K4OGG says that these Yagis outperform his tribander mounted just above his roof. The black paint makes them just about invisible. Jay has offered to answer any questions about his set up. E-mail him at jpryor@arches.uga.edu.

Jay is not the only one who likes tree mounted Yagis. K4TMC notes that you can suspend just about any type of antenna from a tree. His favorites are a stack of extended double Zepps and 6-element rope Yagis. You can check the rope Yagis out in Henry's article in the May-June 1998 issue of *NCJ*.

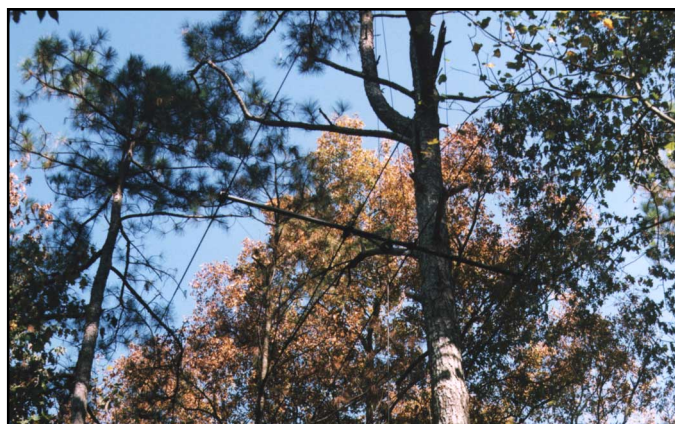
Unfortunately, trees are not a solution for everyone. New subdivisions usually only have a few small, immature trees. George, K5TR (ex WB5VZL), notes that even old trees in his part of Texas don't get tall enough for use other than Beverage supports.

G3WGN has perhaps the most restrictions on what he can do that I have ever heard of. David lives in a part of England designated as a conservation area. David claims he has to get special permission to cut out dead branches on the fruit trees in his orchard. He decided to set a goal for himself to make the Top Ten European box for a single band in CQWW. His favorite band is 80, so that is the one he picked.

David bought a pair of self supporting Force 12 verticals and placed them 30 feet apart near a line of trees. They are fed through a Lewallen phasing box. He did not have a lot of room for radials, so he installed 80 for each antenna. They are only 30 feet long.



K4OGG 3 el 15 m Yagi while still on the ground. Note dark paint. *K4OGG photo*



K4OGG 4 el 10 m Yagi supported by pine trees. *K4OGG photo*

This seems to work pretty well. David placed #4 European and #6 World in the 1997 SSB CQWW Contest on 80. Not too bad for something that fits into a 60-ft by 90-ft space and is nearly invisible from the road! David hopes his experiences encourage others to try something simple. He feels a 40-m version would also be effective and use even less space.

Best Contests and Strategies

Most of the respondents feel the contester without a tower can be most competitive in domestic contests. Low antennas and non-directive antennas are more effective there. In fact, some big gun stations put up low dipoles just for domestic contests.

PY2NY uses a Cushcraft R7 mounted about 15 feet above the ground. Vitor notes that improving solar conditions have improved his scores recently. That should help other limited antenna contesters as well.

K4TMC and G3WGN point to another strategy. They specialize in contests on a single band. G3WGN does 80 and K4TMC specializes in low power 10-m SSB. On 10 m, Henry operates the ARRL DX, CQWW contests, ARRL 10-M and CQ WPX.

I believe that specializing on a single band is a great strategy for those who can't be a Big Gun on all bands. 10 m offers some interesting possibilities as K4TMC points out. G3WGN proves that the same is possible on the low bands. One advantage of the low bands is that there are fewer big antennas there compared to the high bands. Even stations with large Yagis on the higher bands often do not have anything better than a dipole or inverted L on the low bands. Maybe you can be more effective than those stations by having a better radial system or a good receiving antenna.

Another advantage of specializing on a single band is that you become an expert on that band. You know the operating practices of the band, who shows up there, and perhaps most importantly, its propagation patterns. G3WGN's experience on 80 m got him invited to be the 80-m operator at M8T, the largest multiop effort in the UK. Even if you don't own a Big Gun station, becoming a band specialist can get you invited to operate from one.

It's a fact of life that a few wires in the trees are not going to compete with big stacks of Yagis. You have to keep things in perspective and set your own goals. NM5M notes that it is more fun to compete with someone nearby with a similar station.

KG8GW and KN7T hope that contest sponsors will recognize that no tower stations are becoming the standard for more and more contesters. They suggest no-tower entry classes or lower power restrictions.

Hopefully the experiences of these NCJ readers will encourage you in your no-tower contesting efforts. If a 2-m rubber ducky is the best antenna you can put up, you do what K9JY suggests, "Go guest op!"

Thanks to G3WGN, K4TMC, K5TR, K9JY, K9WX, KG8GW, KN7T, N4ZR, N9IJ, NJ2L, NM5M and PY2NY for sharing their thoughts and experiences on this topic. Thanks also to K9MA who suggested this topic.

Topic for March-April 1999 (Deadline Jan 10)

Contesting in the new solar cycle

The sunspots are finally returning! How will this affect your contesting activities? Will you start operating more contests? Will you start operating contests you have skipped the last few years? Are you making any station changes to take advantage of better conditions on the higher bands? If you made changes to

improve your low band effectiveness during the sunspot minimum, do you expect to still be active on the low bands?

Topic for May-June 1999 (Deadline March 10)

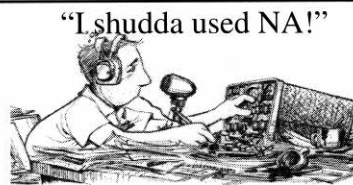
Tips for small pistols and new contesters

What suggestions do you have for the small pistols and beginning contesters? What contests should they concentrate on? What are the best strategies for them to use?

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. ■

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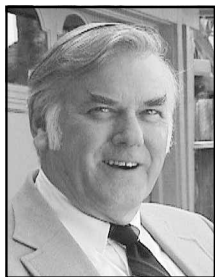
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International Contests

Joe Staples, W5ASP
10031 Meadow Lake Lane, Houston, TX 77042
w5asp@aol.com

Fred, K3ZO, needs no introduction to readers of the *NCJ*. His scores regularly appear in or at the top of the results of the major DX contests. What many may not realize, however, is that Fred is also very active in a lot of the lesser known internationally sponsored DX contests. A quick review of this column over the past years finds his call appearing again and again, occasionally the sole representative of the USA contest community. Fred was kind enough to put together the following comments. I know you'll find them as interesting as I did.



Joe Staples, W5ASP

Operating in One-Country DX Contests

Fred Laun, K3ZO

When I was a youngster, I used to get into every contest that came along. State QSO parties, CD parties, you name it—I entered it. Right along with the big contests, of course.

After operating for 46 years and in several overseas countries, I have become more discriminating. Now I do the major DX contests, the 10-meter contest, and the ARRL Sweepstakes, which I don't like all that much but it has become kind of a tradition for me. And I do enjoy getting into the one-country or regional DX contests, especially the JIDX contests, the AA DX contest, the YV, HK, YO, LZ, OK/OM, SAC, French, RSGB, etc. I don't do the WAE any more because I don't like the QTC feature.

I recall that some time ago a writer on the CQ-Contest Reflector, decrying the ease with which those of us on the East Coast seem to score high in the major DX contests, wrote that there is little technique to scoring well from this part of the country. He further added that all we have to do is find a clear spot and "press F1 all the time."

I have spent nine years of my life working overseas in a handful of countries—most of which I was fortunate enough to be able to get a license and set up a decent station or join a good M/S group. Frankly, I generated enough pileups to satisfy me for the rest of my life. In fact, I still do so each time I travel to my XYL Somporn's home country where I hold the call HS0ZAR. So, the

reflector poster's comments have no relevance to my continued enjoyment of contesting and where I finish in the standings.

Believe it or not, I am basically a Hunter who enjoys S&P more than anything else. In the major DX contests, I mostly run stations because there is no other way to run up a competitive score. That's where the one-country DX contests come in. In some ways, they are a greater challenge propagation-wise compared to the major DX contests. This is particularly true with the JIDX low-band contest, which I try to participate in every year. I have placed tops in Zone 5 several times in this contest and have several very handsome plaques to prove it. The idea of having to work only Japan on 160, 80 and 40 from the East Coast is a real challenge. When you're looking for only JAs at odd hours you run into some very unusual paths. At the sunspot minimum when I'm looking for JAs on the long path at about 2100 GMT on 40, I have found that many times some of the JAs are peaking short path at this time of day instead. After the long path goes out you can also briefly work the JAs who have big antenna arrays over Europe as they work Europeans.

As you may have guessed by now propagation is another of my passions. One-country or one-region contests give me a chance to work on unusual openings without feeling that I am falling behind the rest of the gang as they merrily run stations on a wide-open band. For example, during the recent SAC CW Contest, I worked about 30 Scandinavians on a skew path on 10

meters while beaming over Africa. Conditions in this year's contest were very poor on 80 but I hung in there at OH/SM sunrise and was rewarded with a number of QSOs with stations enjoying their sunrise peak who had not been audible earlier. The All-Asian CW Contest is another where interesting propagation can be encountered. There is so much daylight over the North Pole at that time of year that it is not really possible to work UA9s and UNs direct path on 40. But I always find a strong skew path over Africa late in the afternoon that allows me to work several of them anyway. This year's All-Asian Phone Contest gave me the chance to run a number of JAs on 40 SSB, which is something I don't manage to do very often. I would have run more if I hadn't overslept a bit the second morning. I also found an opening to Japan on 10 meters at 2200 GMT—the first opening to Japan of this sunspot cycle for me.

Since I speak Spanish, I also enjoy the HK and YV Contests. But rather than pick out a spot on 15 or 20 and run oodles of stations and getting hundreds of 001 and 002 serial numbers, I prefer to work as many of the stations in Colombia and Venezuela as I can. Basically, this means working 40-meter SSB. Since we cannot go below 7150 on SSB, there is some work to this. Fortunately, I find our fellow hams down there very cooperative and the first one to find me calling "CQ Concurso" up above 7150 always gladly moves back down the band and lets everyone know that I am "up above" waiting for their calls. For about an hour afterward, I am running HJs, HKs, YVs and YYs as fast as I can until the string

Upcoming International Contests

Japan International DX CW—Low Band	08-Jan-99
HA Hungarian DX Contest—CW	16-Jan-99
REF French Contest—CW	30-Jan-99
UBA Belgium Contest—Phone	30-Jan-99
Dutch PACC Contest	13-Feb-99
RSGB 1.8 MHz Contest	13-Feb-99
REF French Contest—Phone	27-Feb-99
RSGB 7 MHz CW Contest	27-Feb-99
UBA Belgium Contest—CW	27-Feb-99
RSGB Commonwealth Contest	13-Mar-99
Bermuda Amateur Radio Contest	20-Mar-99
Russian DX Contest	20-Mar-99

Notes

- 1) Check *QST* or *CQ* magazine for rules, or send request to: w5asp@aol.com.
- 2) With few exceptions, logs and summary sheets must be postmarked within 30 days of the contest.

finally runs out. The QSLs roll in later. About half of those asking for reply cards say I was the first USA station they had ever worked. Well, if you're a Colombian Novice stuck on 40-meter SSB with a low dipole and a used older model Yaesu and don't speak any English and don't work CW, maybe Ws and Ks are kinda rare after all.

Finally, I love to exchange QSLs with as many different DX stations as possible. Even though I am in my 46th year of hamming, I have never grown tired of QSLing. One-country contests give me a chance to work stations that are not normally in the major contests. The REF CW Contest is one example. Since I am an alligator on 160 meters, I have in recent years been doing the REF CW Contest full time while most other testers are doing the CQ 160-Meter Contest. The turnout for this contest on the part of the French stations is phenomenal. My participation in this contest is practically all S&P, particularly on the low bands. Since French stations are allowed to work each other in this contest as well as DX, it is a blast to occasionally beat out an F on another F on 80 meters. And how many times in a regular contest have you been accused of being a pirate by a fellow in Paris who is adamant that the USA simply doesn't come in on 40 meters at 11 AM local time?

In general, my technique in all one-country or one-region contests is to S&P first until I find no one else to work. Only then will I occasionally start trying to run stations. Even in contests like the LZ or ARI Contests, where you can get points for working anyone anywhere, I try to concentrate on S&P'ing stations who are really in the contest rather than running and receiving a bunch of 001 serial numbers. Only after it becomes hard to locate anyone new will I resort to running.

There are always a few others in there with me in most one-country contests. KA1DWX and K4RZ come to mind among others who share this passion with me. If you're looking for something a bit different to do, how about joining us? These days it's easy to find out about such contests on the LA9HW, SM3CER or WA7BNM Web sites. The complete rules for most contests can easily be downloaded there. ■

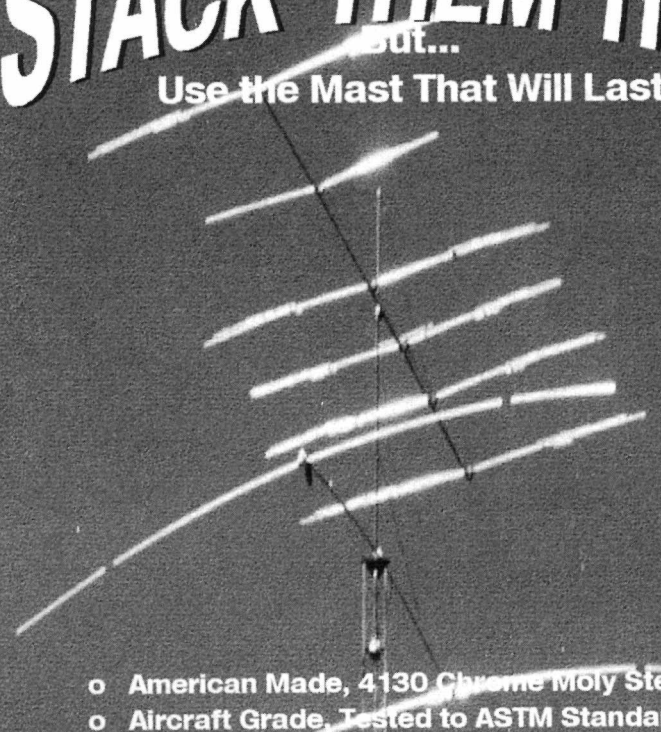
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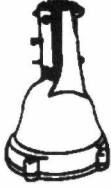
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Hi, Folks.

Happy New Year!

Let's hope the rising sunspot count will lead to better scores in this year's events. I've managed to cover a lot of places to operate from in this column, but I haven't gone west at all. This month, let's take a look at one of the prime spots in the Pacific Ocean—Radio Maui. Who better to tell us about it than Al, NH7A, himself.



KX9X

"Radio Maui has been on the air since early 1991 and has produced Oceania winners in various CQ and ARRL contests. Besides NH7A and AH6M, many other well-known contesters have operated from the station—NH6T, AI6V, K7SS, W0ZZ, N0AX, YT1AD, S50A and 5B4ADA to name a few. The location is what sets it apart from the usual Amateur Radio installation. The antenna farm is located on a 400-foot bluff with the Pacific Ocean just below it. The site juts out to create a 270-degree view over water to all areas except the south.

The antenna farm features seven towers with the following antennas:

160 m	Shunt fed tower
80 m	Four Square
40 m	3-element Yagi and two 2-element Yagis
20 m	Two 5-element Yagis and one 4-element Yagi
15 m	Two 5-element Yagis
10 m	6-element and 5-element Yagis

Cushcraft X9 tribander

What has always been a draw back is that, because of the remoteness of the location, generator power has been the sole source of electricity. It also meant the electrical noise level was usually zero. That is now changing. Maui Electric is installing lines to Radio Maui and commercial power should be available by January 1999.

Contesting from the Pacific can be a challenge when you consider that the path to Europe is directly over the Poles. The best spots to operate are islands on the equator, but even then, Europe is not easy to contact. The price tag to get to those islands and the accommodations

when you get there can be expensive or very primitive.

Maui, on the other hand is a much different story. The airfare is inexpensive (\$300 round trip from the West Coast of the United States). Accommodations vary from camping, condos starting from \$50 a night, to exclusive resorts.

Maui seems to have the greatest diversity and some of the best amenities available in the Hawaiian Islands. Maui is made up of regions that differ significantly from each other in population, climate and facilities. Maui has rain forests, great nature and hiking trails, swimming beaches, dry windswept areas, and also areas of tourist sites

where there are great restaurants and accommodations.

The Internet is an excellent source for information about Maui. To contact and get further details about Radio Maui, including places to stay, take a look at the station Web site www.radiomaui.com. Or feel free to contact me via e-mail at nh7a@radiomaui.com.

Although contesting is a competitive sport, life on Maui is far from that. The way of the islands get to a traveler very quickly and the Aloha spirit of friendliness and taking it slow and easy is very catchy.

Aloha, Al, NH7A

QTH Rental Page: <http://hobbes.ncsa.uiuc.edu/sean/qthlist.html>

Contest DXpedition List

Dennis Motschenbacher, K7BV
k7bv@aol.com

This is a listing of Contest DX-Ventures scheduled for upcoming contests. Visit the NCJ Web site <http://www.waterw.com/~ncj> to view the most current update of this list. 73 and let's have some fun and be safe out there! Please send corrections and additions to this list to me via e-mail or to my home address listed in the front of this magazine.

Contest 1999	Category	QTH/Call	Operator(s)	Status
CQ 160	SOHP	8P	VA3DX	Firm
ARRL RTTY	Multi	VP8TTY	K4QD+	Firm
ARRLDX CW	SOABHP	NH7A	KH6TO	Firm
ARRLDX CW	SOABHP	KH6X (?)	K5NA	Firm
ARRLDX CW	SOABHP	ZF2NT/ZF8	N6NT	Firm
ARRLDX CW	SOABLP	HR3	K7DBV	Firm
ARRLDX CW	SOABLP	VP2V	K1DW	Firm
ARRLDX CW	SOABLP	WP2Z	KE2VB	Firm
ARRLDX CW	SOAB/Q or L	NP2S	K3DI	Firm
ARRLDX CW	SO/ ?	ZF2NE	W5ASP	Firm
ARRLDX CW	M/S	8P9JA	K4MA, AA4NC	Firm
ARRLDX CW	M/2	C6	K3TEJ, WA3WSJ	Firm
ARRLDX CW	M/2	VP5M	N4TO, K1TO, K4BAI	Firm
ARRLDX SSB	SOABHP	8P	W5AJ	Firm
ARRLDX SSB	SOABHP	NH7A	NH7A	Firm
ARRLDX SSB	SOABHP	ZF2NT/ZF8	N6NT	Firm
ARRLDX SSB	SOABLP	VP2V	K1DW	Firm
ARRLDX SSB	SOLP or 20	VP5	KK9A	Plan
ARRLDX SSB	M/S	WH6H	AD6E	Firm
ARRLDX SSB	M/ ?	HK0	W4DC	Plan
ARRLDX SSB	M/S	PJ8A	W8EB, ND5S	Firm
CQ 160 SSB	SOLP	VP2V	K1DW	Firm
CQ WPX SSB	SOABHP	ZF2NT/ZF8	N6NT	Firm
CQ WPX SSB	SO/ ?	WP2Z	W6XK	Firm
CQ WPX CW	SOABHP	8P	YT6A	Firm
CQ WPX CW	SOABHP	OH0	K7BV	Firm
CQ WPX CW	SO/ ?	ZF2NE	W5ASP	Firm
IARU	SO/ ? /HP	WP2Z	AG8L	Firm
IARU	SOCWHP	8P0V	K7BV	Firm
CQWW SSB	SOABHP	8P	OH6RX	Firm
CQWW SSB	SOABHP	VO2GJ (zone2)	W0GJ	Plan
CQWW SSB	SOABLP	VP5Z	K5ZM	Firm
CQWW SSB	M/S	WP2Z	K0XQ, KT0R, UA9AR	Firm
CQWW SSB	M/M	PJ9B	N3ED+	Firm
CQWW SSB	M/M	VP5T	N2VW, W2OF, WA2VYA	Plan
CQWW CW	SOABHP	8P9Z	K4BAI	Firm
CQWW CW	SOABHP	WP2Z	WD5NR	Firm
CQWW CW	SOABHP	XU or 3W	K7BV	Firm
CQWW CW	SO/ ?	ZF2NE	W5ASP	Plan
CQWW CW	M/M	PJ9B	N3ED+	Firm
ARRL	10 M	8P	K4FJ, K3KG	Firm

Thanks to ARRL DX Bulletin, Ohio/Penn DX Bulletin, 425DXN, Bill Feidt/NG3K, DXNL

The ARRL Contest advisory committee has recently discussed possible changes affecting the ARRL VHF and microwave contests. The CAC voted on these November 1.

1. Should the CAC suggest to the ARRL MSC (Membership Services Committee) that the time period be increased (at the end) for the 10 GHz and Up Cumulative Contest?

2. Should the CAC suggest to the ARRL MSC that ARRL contests with single band categories allow multiple single operator (different operators) unassisted single band operations (separate log entries) from the same QTH with the same call sign?

3. Should the CAC recommend to the ARRL MSC that a Low Power category be added to the VHF/UHF contests?

I am sure we are all eager to hear the outcome of the voting. Stand by for more details.

6-meter F2 returns! How can it help your score?

The first widespread 6-meter F2 opening of the new Solar Cycle for the continental US occurred November 8. While the HF contest ops found disturbed conditions in the ARRL CW Sweepstakes Sunday morning November 8, 6-meter ops were treated to a surprise F2 opening to Central and South America. Mike Smith, VE9AA, in Nova Scotia took a lucky coffee break about this time.

"I finished putting the snow tires on my wife's car out in the driveway so I thought I'd come in for a coffee break before going back out to continue winterizing, when I heard music playing from the shack. Knowing that out of multiple radios stacked in the shack, none are for the regular AM/FM music bands, I was wondering what was up. Lo and behold, my scanner was locked up on 47.900 MHz FM ('CE' Muzak).

"I cranked the volume up on the '736. There was an LU peaking a cool 20/S9. I thought I was on 10 meters, until I did a double take at the display. Yep! 50 MHz. Omigosh!"

Here in Kansas, HP2CWB popped in at 1500 UTC and was 59+ 20 dB on 50.117 MHz with a 2-meter $\frac{5}{8}$ -wave whip for over an hour! VE9AA worked the following stations between 1541Z-1641Z: LU, CX, TI and HP. Dan, K9RQ, observed, "Yes, HP2CWB did have an absolutely TREMENDOUS signal, didn't he?" The propagation seemed to favor the East Coasters just a little bit more than us Midwesterners based on the

fact that he was working a lot more of them than us—but there is always next time. And maybe "next time" will be the January VHF Sweepstakes...

If 6-meter F2 returns in January, it can help your score in two ways—direct F2 contacts and backscatter. Direct F2 contacts for most of us stateside will

likely be into Central and South America at this early point in the Solar Cycle with the solar flux around 140. Openings will tend to occur during or following an aurora disturbance, as it did November 8. The number of direct F2 QSOs is limited by the number of DX stations active. 10 to 15 QSOs is probably an

K3GNC's "Fearless Predictions"—January 1999 VHF Contest Release 1.0 (Single Operator Category)

(The contest might be history by the time you read this but let's see how good these predictions turn out.—N0JK)

Prediction	Scouting Report
1 WA8WZG	The nicest and hardest working person in VHF+ business is back!
2 WA2TEO	The godfather has 50-432 MHz in his hip pocket.
3 AA2UK	A strong microwave turn-out could propel Bill to Number 2.
4 W3RJW	Ditto.
5 WA2FGK	Improved on microwaves, could contend for Number 2.
6 WZ1V	Limited single-op contesting recently. May be right for the taking.
7 KD1DU	Will Del have a kW on 6? Will TVI stop him? Will he beat WZ1V?
8 N1DPM	Awesome new station! Don't look back Ron. Del and Fred may be gaining.
9 KE8FD	One of the "Twin Towers" of EM89. More QSOs may prove deadly.
10 WA3NUF	Last Year—improved station, poorer score. Don't expect that to repeat.
11 WB3KRW	Modest station—superior contester. Beware.
12 N2BJ	He can reach many grids and high QSO areas—could score big.
13 K2TQK	One of the "Twin Towers" of EM89. Like Gary, needs to work more QSOs.
14 WB3JYO	Young family may put Paul's contest goals on hold.
15 N3NGE	Len doesn't like contesting, but his great station will put him on the list.
16 N3EXA	Improves every year.
17 W2UR	Mark has too many bands <i>not</i> to make the list.
18 K2TXB	If Russ gets 222 SSB, he may finish higher.
19 W0UC	Great station and operator, but so far away. Paul needs 6 to open.
20 K3DNE	Ed will always break 100K, needs 2.3 GHz for a dramatic move.

2-meter $\frac{5}{8}$ -wave mobile antennas that perform well on 6 meters (as a $\frac{1}{4}$ -wave)

Survey by Ev Tupis, W2EV

Ev received the following information:

Larsen $\frac{5}{8}$ -wave (part numbers: NLA-150 and NMO-150c)

Midland $\frac{5}{8}$ -wave Magnetic Mount

MFJ-1728B

Cushcraft AR2

Hustler $\frac{5}{8}$ -wave w/ $\frac{3}{8}$ -24 thread

RadioShack 19-210

For a more in-depth spin on which $\frac{5}{8}$ -wave antennas may or may not work, Chriss WB5ITT was kind enough to offer the following explanation.

"The coil has to be a series coil for the antenna to properly resonate $\frac{5}{8}$ -wave on 2 meters. A $\frac{5}{8}$ -wave is capacitively reactive. To make it electrically $\frac{3}{4}$ -wave, the coil must be used. This gives you a physical length of $\frac{5}{8}$ -wave for best gain, but $\frac{3}{4}$ -wave for 50 Ω matching. I have heard some antennas have a tapped coil that also provides grounding but I know that Larsen (in their catalogs) will tell you to buy the 2-meter version and use it on 6 as is! (It does radiate better than the 42-54 MHz version—the whip length is longer!) I would check the coil to ground with an ohmmeter and look for any high Z capacitive tap on it (a digital meter will show that as a fast rising ohm reading)."

upper limit, with most of these being new grid mults. For many East Coast contest ops, the additional QSOs on 6 meters may not make much of a difference, but the DX grids might decide a close race. On the downside, the pileups on the DX stations will be horrendous and one could spend literally hours trying to crack one. The January VHF Sweepstakes does not award more credit for "DX QSOs" so you will need to balance the value of a "new grid" versus time spent in the pileup. Later in the solar cycle as the flux rises, F2 may open between the East and West Coasts.

For DX stations, 6-meter F2 is VHF contest heaven! HP2CWB was running the eastern half of the United States and Canada as fast as he could log them. A Central/South American or Caribbean op could post the top 6-meter score in the contest. Our Editor, K7BV, reminds me that it may be time for us VHF-UHF contest operators to begin to think about lining up a reservation for one of those Caribbean rental QTH opportunities (see *NCJ DXpedition Destinations* column and the author's Web site for more details).

Backscatter from a 6-meter F2 opening may be more productive for contest scores than direct F2 for many stateside ops. Mike, VE9AA, observed "During that hour (the F2 opening), I heard (on 6 meters) all USA call areas except W6 as well as VE1, 2 and 3. N5JHV and K0FF were armchair copy on CW." The entire eastern US and Canada was workable on 6-meter backscatter. Now, we're talking some serious QSO and grid totals.

Minimum station requirements for 6-meter F2 backscatter are probably around 100 W and a 3-element Yagi, though it is workable with 10 W during optimum conditions. High power and stacked yagis will be more productive. SSB 6-meter backscatter QSOs are common with high power, but CW will be a big help if you are a little pistol. Remember to check 50.090 to 50.100 MHz for CW stations. One interesting thing about backscatter is that it can occur even if there is no "direct F2 DX" present. If the F2 hop is into the South Pacific, there may be no DX stations active but good backscatter conditions. Monitor the solar flux and A/K indices during the contest and if conditions look promising, point your 6-meter antenna south. Es to TE or F2 is also possible.

I hope this finds each of you satisfied with your respective contest and DX results as the New Year moves rapidly forward. May the sunspots be with you.

73, Jon, N0JK

Contest Calendar

Bruce Horn, WA7BNM

Here's the list of major contests to help you plan your contesting activity through April 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/>.

Please note that dates of the ARRL January VHF Sweepstakes contest published in this column in the Nov/Dec issue of the *NCJ* were in error. The correct dates are given below. If you would like to encourage budding young contesters, please find some time to operate during the ARRL School Club Roundup (February 8-13). It occurs during the week between contest weekends (see write-up [elsewhere in this issue of the NCJ](#)), so it doesn't interfere with any of your favorite contests.

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

January 1999

ARRL RTTY Roundup
Japan Int. DX Contest, 160-40 M
Midwinter Contest, CW
Hunting LIONS in the Air
North American QSO Party, CW
Midwinter Contest, Phone
North American QSO Party, Phone
ARRL January VHF Sweepstakes
CQ 160-Meter Contest, CW
REF Contest, CW
UBA Contest, Phone

1800Z, Jan 2 to 2400Z, Jan 3
2200Z, Jan 8 to 2200Z, Jan 10
0700Z-1900Z, Jan 9
0900Z, Jan 9 to 2100Z, Jan 10
1800Z, Jan 9 to 0600Z, Jan 10
0700Z-1900Z, Jan 10
1800Z, Jan 16 to 0600Z, Jan 17
1900Z, Jan 23 to 0400Z, Jan 25
2200Z, Jan 29 to 1600Z, Jan 31
0600Z, Jan 30 to 1800Z, Jan 31
1300Z, Jan 30 to 1300Z, Jan 31

February 1999

New Hampshire QSO Party
Delaware QSO Party

North American Sprint, Phone
ARRL School Club Roundup
HAL WW RTTY WPX Contest
Dutch PACC Contest
Asia-Pacific Sprint, CW
YL-OM Contest, Phone
RSGB 1.8 MHz Contest, CW
North American Sprint, CW
ARRL Inter. DX Contest, CW
YL-OM Contest, CW
CQ 160-Meter Contest, Phone
REF Contest, Phone
UBA Contest, CW
RSGB 7 MHz DX Contest, CW

0000Z, Feb 6 to 2400Z, Feb 7
1700Z, Feb 6 to 0500Z, Feb 7 and
1300Z, Feb 7 to 0100Z, Feb 8
0000Z-0400Z, Feb 7
1300Z, Feb 8 to 0100Z, Feb 13
0000Z, Feb 13 to 2400Z, Feb 14
1200Z, Feb 13 to 1200Z, Feb 14
1230Z-1430Z, Feb 13
1400Z, Feb 13 to 0200Z, Feb 15
2100Z, Feb 13 to 0100Z, Feb 14
0000Z-0400Z, Feb 14
0000Z, Feb 20 to 2400Z, Feb 21
1400Z, Feb 20 to 0200Z, Feb 22
2200Z, Feb 26 to 1600Z, Feb 28
0600Z, Feb 27 to 1800Z, Feb 28
1300Z, Feb 27 to 1300Z, Feb 28
1500Z, Feb 27 to 0900Z, Feb 28

March 1999

ARRL Inter. DX Contest, Phone
UBA Spring Contest, SSB
RSGB Commonwealth Contest, CW
Wisconsin QSO Party
Alaska QSO Party
Ohio QSO Party
Bermuda Contest
BARTG WW RTTY Contest
Russian DX Contest
Virginia QSO Party

CQWW WPX Contest, Phone

0000Z, Mar 6 to 2400Z, Mar 7
0700Z-1100Z, Mar 13
1200Z, Mar 13 to 1200Z, Mar 14
1800Z, Mar 14 to 0100Z, Mar 15
0000Z, Mar 20 to 2400Z, Mar 21
0000Z, Mar 20 to 2400Z, Mar 21
0001Z, Mar 20 to 2400Z, Mar 21
0200Z, Mar 20 to 0200Z, Mar 22
1200Z, Mar 20 to 1200Z, Mar 21
1800Z, Mar 20 to 0500Z, Mar 21 and
1100Z, Mar 21 to 0200Z, Mar 22
0000Z, Mar 27 to 2400Z, Mar 28

April 1999

SP DX Contest
EA RTTY Contest
Japan Int. DX Contest, 20-10 M
MARAC County Hunters, SSB
His Maj. King of Spain Contest
UBA Spring Contest, CW
Australian Post Code Contest
YU DX Contest
EU Spring Sprint, SSB
Holyland DX Contest
Michigan QSO Party

SP DX RTTY Contest
Helvetia Contest
Nebraska QSO Party
Ontario QSO Party
Florida QSO Party

1500Z, Apr 3 to 2300Z, Apr 4
1600Z, Apr 3 to 1600Z, Apr 4
2300Z, Apr 9 to 2300Z, Apr 11
0000Z, Apr 10 to 2400Z, Apr 11
1800Z, Apr 10 to 1800Z, Apr 11
0700Z-1100Z, Apr 11
0000Z-2359Z, Apr 17
1200Z, Apr 17 to 1200Z, Apr 18
1500Z-1859Z, Apr 17
1800Z, Apr 17 to 1800Z, Apr 18
1800Z, Apr 17 to 0300Z, Apr 18 and
1100Z, Apr 18 to 0200Z, Apr 19
1200Z, Apr 24 to 1200Z, Apr 25
1300Z, Apr 24 to 1300Z, Apr 25
1700Z, Apr 24 to 1700Z, Apr 25
1800Z, Apr 24 to 1800Z, Apr 25
1800Z, Apr 24 to 0359Z, Apr 25 and
1400Z-2359Z, Apr 25

I was in Idaho a couple of weeks ago hunting deer with our eldest son. And yes, I did ruin Bambi's day! While I was there, I stopped by to visit with an old friend, Jack, W7CNL. Jack is not only a true gentleman but one who has been on the Honor Roll for years. Jack is one of my heroes.



Ron Stark, KU7Y

Jack was telling me of his dilemma. His new goal is to work DXCC 2xQRP. But how can you tell who is QRP? Contests are a great time to pick up new countries but seldom does a contest station take the time to sign /QRP. If you don't think DXCC 2xQRP is hard, just be my guest! So how about it folks—what is a good fix for this situation? E-mail any suggestions to me, please.

Chuck Adams, K5FO, provides us with some QRP contesting tips this month. This is the fellow that started things like the QRP mail reflector, QRP-L and the Fox Hunts. Here he tells what it's like to go from doing SS with a simple rig and a wire in a tree to using a full-blown big time contest grade station running only 5 W.

Chuck and I annually have a dinner riding on the outcome of SS. So far we are one and one. The loser buys the winner dinner. But so far, the winner has always had the loser take his wife out to dinner instead! Phyllis and Carol get nice dinners while Chuck and I get to spend the next few days listening to the house walls and our pillow send CW. I wonder who really wins? (SS just ended and it looks like Chuck really cleaned my plow this time!)

QRP SS

Chuck Adams, K5FO

Ron has asked to me write a few words about working the ARRL November CW SS Contest as a QRP'er. I hope that I can do the topic some justice.

I am what I call an avid QRP'er but I am not by any stretch of the imagination a serious contesteer. A serious contesteer is one that I call a "pedal-to-the-metal, dyed-in-the-wool Type-A individual." He goes all out to win—and to win big, set new records, hang big plaques on the wall to go with the First Place trophies. I'm an individual who reads the articles and the journals and sees how to do it but previously (due to other commitments at work and at home) just did not have the time nor the energy to devote to going all

out. I did not realize until recently just how much time and energy can be spent on work and other commitments. I only do one contest a year. SS is it.

I had worked SS in 1988 with a dipole and found it to be a real struggle. I told myself that I would never do that again. Then in 1995 I did something even worse. I set out to get a SS CW pin for CW using only 0.95 W and long wires. I did manage to work 199 Qs and 66 sections and wound up with a score of 26,268 points. I did this on 20 and 40 m only with long wires up in pecan trees at 50 feet and homebrew equipment. This is nothing to brag about and probably not the smartest way in the world to do it, but I didn't have lofty goals at the time. I did also finish off a QRP WAS for 20 m with 0.95 W with the capture of a KL7 at sunset. It's these little moments in life that one remembers forever.

Then in 1996 the North Texas Contest Club (NTCC) found a station for me to use with a set of Yagis at 115 feet. Life just hasn't been the same since. In 22 hours of operating, I managed 439 Qs with 75 sections (78 max) and a total score of 65,850 points. I can tell you that those antennas make the difference. That is the reason why serious contesters put all their time and money in antenna systems. I am not a supporter of measuring ERP as a handicap. 5 W out to the antenna system and all the gain you can get is worth every dime spent in getting it. I learned a lot that wasn't in the books.

Now the NTCC began taking note of my achievements. Jeff Poll, K5JP (NA5S at the time), gave me an open invitation to come back. By the way, I was in the process of learning to use a laptop and CT during the contest. I do not recommend learning a program during a contest. It is better than nothing but it could go better for you if you do your homework BEFORE the contest starts. Been there done that. I was hooked. The next year, I still didn't do 24 hours due to work commitments requiring me to catch a plane before the contest was over. Unfortunately, I needed the six hours off period to rest. Being in shape would have helped.

Then in 1997 it was back to the same antenna setup with the Force 12s in the stratosphere. I told Tom that I'd advertise for him for free. You may see me on the street corner one of these days with a sign saying "Will Contest for Food and Antennas." So last year it was 534 Qs with 75 sections (79 max with the addition of a new section in Canada) and a total point score of 80,100. I still managed to do only 22 hours due to another trip to California for work. The bad part was that I missed two easy sections (PR and VI) by not staying on the high bands long enough. Jeff had also picked up a keyboard template for CT. That, along

with the previous year's experience, made the use of a computer a dream come true. The combination of some experience and familiarity with the station went a long way to make the contest more fun.

So, just let me give you a few pointers from what I personally learned from these experiences. (Like now, Duh, I am the world's expert... NOT!) Try to find other scores that improved by almost 22% in one year. I don't consider myself a seasoned contesteer—their improvements come in little jumps since they are already at the top of their form.

Do not sweat the multipliers. Go like a bat and go fast. Work the Qs and the sections will come. If you are using CT, watch the rate meter and pay attention to the little note that tells you how many minutes a mult is worth. Know your propagation and know your antennas. If you are contesting from your own QTH, listen to the bands every day for 14 days prior to the contest and see how they "play." I learned when to catch KL7s and KH6s on 20 m doing just that. In fact, my study days told me just when to swing the beam around and I did indeed work 6 KL7s and 3 KH6s in less than 20 minutes. I now know when to look for VI and PR and some of the rarer sections. You are reading this after the 1998 SS so I won't worry until 1999 about this little tidbit—but do remember the 14-day warm-up trick.

Speaking of rare sections, two years ago WY was the Most Wanted Section. Last year, due to the efforts of a QRP station, WY was significantly reduced from the Most Wanted List. Last year it was NE for the rare one. On Sunday a little after noon local, I saw that I needed NE. In the process of S&P'ing, I noted a pileup on 20 m. Sure enough it was NE and he had 'em deep—real deep, but he wasn't a speed demon (and don't take that as a criticism—we need new contesters badly and he was new). I just knew that I wasn't going to get him. So I slipped up the band and had the rare opportunity to hold down a frequency to call CQ SS with my own "run." This is the dream of every Q class station. During the first 30 minutes, I had four NE section stations work me. So, late on Sunday try to sit on a frequency (not mine, of course) and call CQ. Some of the rarer stations may be doing their own S&P to avoid a pileup and you will bag them like I did.

In the Q class you won't hold a frequency like you do with A or B power, so don't waste time trying until late Sunday. S&P is the only way to go efficiently that I have found.

So what does the future hold? Well this year I have lost 35 pounds and have been walking 7 to 17 miles per day. I left the workforce and the pressures thereof,

so no flight to catch on Sunday afternoon. This year it will be 24 hours solid and over 100k for the score. At least that is the goal which is slightly higher than those I had in 1996 and 1997 November CW Sweepstakes. But you as an individual have to set these goals for yourself. It is my wish that a lot more people start out like I did and just get on. Remember the old proverb that every journey starts with a single step. Every contest starts with one Q. May you have a lot of Qs and may you get a clean sweep.

See you during the contests.— K5FO.

Thanks Chuck. And may all of you Little Pistols out there have a great contest season.

73, Ron, KU7Y

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1999 North American QSO Party Rules

1. Eligibility: Any licensed radio amateur may enter.

2. Object: To work as many North American stations (and/or other stations if you are in North America) as possible during the contest period.

3. Entry Classification: 1) Single Operator and 2) Multi-Operator Two-Transmitter. Multi Operator stations shall keep a separate log for each transmitter. Multi Operator stations must have at least 10 minutes between band changes. Use of helpers or spotting nets by Single Operator entries is not permitted. Single Operator entrants may only have one transmitted signal at a time. Output power must be limited to 150 W for eligible entries.

4. Contest periods:

January Contests:

CW: 1800 UTC January 9 to 0600 UTC January 10, 1999

SSB: 1800 UTC January 16 to 0600 UTC January 17, 1999

August Contests:

CW: 1800 UTC August 7 to 0600 UTC August 8, 1999

SSB: 1800 UTC August 21 to 0600 UTC August 22, 1999

Multi Operator stations may operate for the entire 12-hour period. Single Operator stations may operate 10 out of 12 hours. Off times must be at least 30 minutes in length and must be clearly marked in the log.

5. Mode: CW only in CW parties. Phone only in Phone parties.

6. Bands: 160, 80, 40, 20, 15 and 10 meters only. You may work a station once per band. Suggested frequencies are 1815, 3535, 7035, 14035, 21035 and 28035 kHz (35 kHz up from band edge for Novice/Tech) on CW; and 1865, 3850, 7225, 14250, 21300 and 28500 kHz (28450 for Novice/Tech) on SSB. Try 10 m at 1900Z and 2000Z, 15 m at 1930Z and 2030Z and 160 m at 0430Z and 0530Z.

7. Exchange: Operator name and station location (State, Province or Country). If the name sent is changed during the contest, as sometimes happens with Multi-Operator stations, the changes must be clearly identified in the log.

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

9. North American Station: Defined by the rules of the CQWW DX Contests with the addition of KH6.

10. Scoring: Multiply total valid contacts by the sum of the number of multipliers worked on each band. Multipliers are US States (including KH6 and KL7), Canadian Provinces/Territories (British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, New Brunswick, Nova Scotia, PEI, Labrador, Yukon, and NWT) and other North American Countries (Note: do not also count USA, Canada, KH6, or KL7 as Countries. For Canada, count Nunavut (NU) as NWT and Newfoundland (NF) as Labrador). Non-North American Countries do not count as multipliers, but may be worked for QSO credit.

11. Standard Reporting: Send North American QSO Party CW logs to Bob Selbrede, K6ZZ, 6200 Natoma Ave, Mojave, CA. 93501. Send SSB logs to Bruce Horn, WA7BNM, 4225 Farmdale Ave, Studio City, CA. 91604. Entries

must be postmarked not later than 30 days after the contest to be eligible for awards. A proper entry consists of: (1) a Summary Sheet showing the number of valid contacts and multipliers by band, total contacts and multipliers, total score, team name (if any), power output, name, callsign, and address of the operator, station callsign and station location; (2) a complete legible log of all contacts (including dupes marked as such) with indication of all multipliers claimed; (3) a separate Dupe Sheet for each band; and (4) a list of all claimed multipliers worked on each band. Logs may be submitted on 3.5-inch disk in the form of files generated by a computer logging program as long as they are MS-DOS compatible ASCII files consisting of all information in (1)-(4) above. All entries should include a written, signed statement of "Fair and Ethical Operation." All logs containing over 200 QSOs, which were generated with a computer logging program, must also include a disk copy of the ASCII Text log as defined above. Complete rules, sample Log Sheets and a Summary Sheet may be obtained with an SASE to K6ZZ or WA7BNM.

12. Electronic Reporting: Logs submitted via E-Mail are also acceptable. E-Mail log submissions MUST BE in ASCII Text Format and include your Summary Sheet and complete Log. Name your files with your callsign (ie, yourcall.SUM and yourcall.LOG). Please do not send any Binary Format logs (ie, yourcall.BIN or yourcall.QDF). NAQP CW logs should be sent to k6zz@ccis.com and NAQP SSB logs to bhorn@hornucopia.com. E-Mail addresses can and do change so if these addresses fail to work, contact the NCJ for assistance.

13. Team Competition: You may wish to form a team with fellow NAQP participants. If so, your team shall consist of 2 to 5 Single Operator stations as a single entry unit. Clubs or other groups having more than 5 members may submit multiple team entries. PRE REGISTRATION REQUIREMENT: To qualify as a team entry, the team organizer should ensure that the name, callsign of each operator, and call sign of the station operated should be the operator be a guest at a station other than his own, (e.g. K6ZZ op by K6RO) must be registered with K6ZZ for CW and WA7BNM for SSB. The team registration information must be in written or telegraphic form and must be received before the start of the contest. There are neither distance nor meeting requirements for a team entry. The only requirement is pre-registration of the team.

14. Penalties and Disqualifications: For each unmarked duplicate QSO, you lose that contact plus an additional three contacts; for each QSO for which you are not in the other station's log, you lose that QSO plus an additional one contact; and for each QSO for which the log data is incorrectly copied in any respect, you lose that contact. Entries with score reductions greater than 5 % will be disqualified. Any entry may be disqualified for illegibility, illegal or non-ethical operation. Such qualification is at the discretion of the NCJ Contest Review Committee.

15. Awards: A total of five plaques will be awarded for the high score in each of the following categories:

Single Operator CW
Single Operator Phone
Multi Operator CW
Multi Operator Phone

Single Operator Combined High Score
Certificates of merit will be awarded to the highest scoring entrant with at least 200 QSOs from each State, Province, and North American Country.

Results, August 1998

NAQP CW Contest

Bob Selbrede, K6ZZ
k6zz@ccis.com

Although scores were down, as is normally the case with the Summer NAQPs, activity in general was high. The QSO database indicates that close to 600 stations were active in the contest with approximately 60,000 QSOs logged by the 170 stations that submitted logs. Over 60% of logs received were via e-mail submissions.

Bill, W4AN, chalked up another Single Op win followed closely by Tyler, K3MM, and Mike, W9RE. The point spread across the Top 10 was much closer than normal this time around. K0RF and AA0RS teamed up to win the Multi-Two competition over W5NN and K6AW. There were no "blow-out" scores in either the Single Op or Multi-Two categories for this running of the CW NAQP. The award for High Score in the Combined CW/SSB category goes to Mike, W9RE. He edged out four-time past winner Don, N4ZZ, by a mere 13 points! Good job guys.

The Team Competition was also quite close with the Texas Association of Contest Operators (TACO) edging out the Tennessee Contest Group (TCG). Speaking of the TCG, they submitted 5 FULL TEAMS for this contest. Can you believe it? Over 25% of the teams submitted came from one club. Hats off to the TCG for a very impressive showing. If you didn't work Tennessee in this contest, you weren't on the air! Looking over the scores makes one think we should change the name to the "4-Land QSO Party". Almost 1/3 of the entries came from 4 Land and almost all of them were on a team. Nice show guys.

Thanks for the participation and we look forward to a large turn out for the NAQP in a few weeks.

Soapbox

Operated mobile from Tanner's Ridge in Shenandoah National Park, VA, using an IC-706MKII, Hustler whip and a 486 notebook PC. It was easy to tell the insect bites from the RF burns. The bites were inflicted below the knees while hiking the trails in the park. The RF burns began just before sunset after QSYing to 40 m. The metal screws on the bottom of the notebook were radiating a strong field into my legs above the knees, but could be avoided by carefully shifting the computer on my lap. The

view from Tanner's Ridge at 3565-foot elevation was spectacular, particularly at sunset. The operating position proved to be quite uncomfortable in the passenger seat of my wife's Camry, and about 7.5 hours was all I could stand. Worked several of my fellow members in both the Florida Contest Group and Florida Contest Club including a "sweep" with K1TO on four bands (only had resonators for 10-40 m).—N4BP Conditions were fair with low QRN on the low bands. My numbers are down significantly from August 1997, but I don't think conditions were quite as good as they were last year. I'm still using only one radio—my trusty TS 940s, whose transmit frequency seems to have started jumping around when I'm running QSK.—AA3B Conditions were rather poor overall. As usual,

I sacrificed some rate in the first few hours to work more mults on 15 and 10. With the somewhat slower rates, running two radios was a larger advantage than usual. Some weak backscatter on the higher bands helped salvage the multiplier count. Lots of passing as usual, with a fairly good success rate except for 10 m. Even a bad NAQP is one of my favorite contests!—K3MM My first attempt at two-radio contesting. Big fun—I figure it only COST me 75 Qs. Now the long painful learning curve begins.—K7BV Conditions were not as good as last year. The low bands were very noisy, making it hard to pick up mults. There was a great opening on 10 m to 1-2-3-8-9 land a little bit after 00z but nobody was there and very few people would move. More than half the people that I asked to move said no. Oh

Multi-Two Scores

Call	QSOs	Mults	Score	Section
K0RF (+AA0RS)	831	222	184482	CO
W5NN (K1OJ, K5NZ)	749	204	152796	TX
K6AW @N6RO (+ N6RO)	748	189	141372	CA
K7ON (+NU7I)	485	126	61110	AZ

Team Scores

Texas Association of Contest Operators #1	Tennessee Contest Group #1	Tennessee Contest Group #2	Florida Contest Group #1
W4AN 177876	N4ZZ 128390	K0EJ 112266	K1TO 129752
NM5M 115607	W4PA 121806	K1KY 95200	WC4E 80688
K5RT 86264	K1AO 95030	K4LTA 74700	WD4AHZ 64232
K5OT 78568	K4RO 94830	NA4K 73458	N4KW 50820
WX0B 71906	WO4O 80360	N4IR 73200	N4BP 25143
Total 530221	Total 520416	Total 428824	Total 350635

5. Southern California Contest Club (AD6DO, KY7M, W6KY, W6TK, N6RT)	337463
6. Society of Midwest Contesters #1 (W9RE, WT9U, KJ9C, K9LU, K0RX)	311763
7. Florida Contest Club (W4OX, N4TO, AE4SW, W4SO, K4LQ)	276808
8. Palestine Ohio Liberation Organization (N9AG, K9MMS, N8BJQ, N5KB)	250852
9. South East Contest Club #1 (K4BAI, K4OGG, KU4OZ, AA4LR)	155212
10. Weekend Warriors (WA3HAE, KB3AFT, W3TWI)	153364
11. Texas DX Society (W5ASP, KG5U, K5DX)	150539
12. POCO (K7SV, N1MD)	147444
13. Texas Association of Contest Operators #2 (K5PN, N6ZZ, K5RA)	141261
14. Tennessee Contest Group #4 (AC4JI, W4HZD, W4TYU, N4PQV, N4ZI)	55686
15. Tennessee Contest Group #3 (NN4T, N4KN, K4AMC, KE4OAR, N9GG)	51397
16. Florida Contest Group #2 (KN4Y, W4ZW, AJ4Y, N4DL)	49681
17. South East Contest Club #2 (K4GU, AA4GA)	46591
18. Society of Midwest Contesters #2 (K9GY, K9AA)	46182
19. Tennessee Contest Group #5 (W4SQE, W4KH, KU4LL, KM7W, N5HV)	10749

Call	Score	QSOs	Mults	160 M	80 M	40 M	20 M	15 M	10 M	Team
Single Op Breakdowns										
W4AN	177876	729	244	52/27	129/36	194/48	196/50	98/47	60/36	TACO #1
K3MM	159280	724	220	50/24	103/33	189/48	188/46	127/42	67/27	
W9RE	132894	621	214	68/27	114/36	132/43	168/46	88/37	51/25	SMC #1
K1TO	129752	662	196	13/7	108/35	175/47	246/47	87/42	33/18	FCG #1
N4ZZ	128390	694	185	53/22	133/34	176/43	224/43	86/30	22/13	TCG #1
AA3B	123519	627	197	50/20	96/32	169/42	175/47	93/35	44/21	
W4PA	121806	606	201	51/22	111/38	163/42	156/47	97/36	28/16	TCG #1
K7SV	118400	592	200	42/21	97/33	172/46	161/46	92/38	28/16	POCO
N0AV	117151	607	193	36/19	83/33	154/45	183/43	103/31	48/22	
NM5M	115607	599	193	36/19	91/37	170/44	219/49	64/35	19/9	TACO #1
Multi-Two Breakdowns										
K0RF	184482	831	222	49/26	125/40	189/50	290/51	145/37	33/18	
W5NN	152796	749	204	26/11	119/40	219/47	255/49	102/39	28/18	
K6AW	141372	748	189	23/15	75/30	157/43	281/52	208/45	4/4	

Top 5 Combined CW/SSB Scores

Operator	CW Points	SSB Points	Total Points
W9RE	374	410	784
N4ZZ	361	410	771
AD6DO	292	351	643
N0AV	329	292	621
K4RO	267	275	542

well. On 10, I only worked CA, OH, FL, WA, MD and PA. I heard no 0 land stations on 15 other than WB0O so that's the reason for the low mult total on 15.—*AD6DO* Not many QSOs to be had. 10 and 15 were in reasonable condition, but everyone was reluctant to try them. My first try with two transmitters in any contest in more than a decade, so I didn't try to be too clever and left the TS830 on 40 m. Just after the contest the halyard holding the

80 and 160-m wires snapped and dropped the wires into the yard. Glad it waited. Thanks to Bob, N8NR, for letting me use his antenna farm.—*N9AG* First try at SQ2R. I need some practice! TCG had 5 teams active so if you missed TN, you weren't in the same contest!!—*K0EJ* A pleasure to break in the new QTH in New Mexico. Now to get some decent antennas in place!—*N6ZZ* My first summer NAQP CW from Music Mountain. Operated single radio

with W4KH running a separate effort on the Carolina Windom 160 at the same site. The ICE Model 419 band-pass filters worked extremely well with no station interference issues. Band condx not as good as before, but I did better than my last effort with indoor antennas! Heard 22 of our 25 TCG team members. If you missed Tennessee on any band, it wasn't because we weren't there!—*K1KY*.

August 1998 NAQP CW Single Operator Scores

Call	QSO's	Mults	Score	Section	Team	Call	QSO's	Mults	Score	Section	Team
K1VUT	598	178	106444	MA		N6ZZ	408	125	51000	NM	TACO #2
WA1LNP	562	170	95540	NH		KG5U	347	131	45457	NM	TDXS
W1NN	534	177	94518	CT		WA5JWU	334	133	44422	LA	
K1HT	401	125	50125	MA		K5RA	338	114	38532	TX	TACO #2
N1MT	274	106	29044	CT	POCO	AB5SE	316	110	34760	AR	
AA1SU	227	100	22700	VT		K5DX	288	119	34272	TX	TDXS
K5ZD	194	103	19982	MA		KJ5WX	204	105	21420	AR	
N1MD	195	97	18915	CT		N5KB	182	79	14378	TX	POLO
WR1P	178	91	16198	MA		W5NR	143	75	10725	TX	
AB1BX	151	56	8456	RI		WQ5W	95	36	3420	TX	
KK1L	57	42	2394	VT		KK5CA	30	21	630	TX	
W2HCA	370	133	49210	NJ		AD6DO	618	168	103824	CA	SCCC
WK2G	254	104	26416	NJ		W6KY	493	162	79866	CA	SCCC
KG2BI	125	70	8750	NY		W6TK	431	139	59909	CA	SCCC
WA2VQV	94	46	4324	NJ		KQ6ES	281	104	29224	CA	
K3MM	724	220	159280	MD		W6ZL	259	103	26677	CA	
AA3B	627	197	123519	PA		W6UE (W4EF)	160	79	12640	CA	
WA3HAE	487	148	72076	PA	Weekend Warriors	N6RT	152	77	11704	CA	SCCC
KB3AFT	428	146	62488	PA	Weekend Warriors	N6PLQ	162	66	10692	CA	
K3CT	386	140	54040	PA		K6A (K6DB)	117	59	6903	CA	
W3TWI	200	94	18800	PA	Weekend Warriors	KQ6CV	45	20	900	CA	
K3WWP*	150	60	9000	PA		K7BV @K5RC/7	506	166	83996	NV	
N2CQ*	44	15	660	MD		KY7M	520	158	82160	AZ	SCCC
N9GG*	31	20	620	DE	TCG #3	W7CT	477	143	68211	UT	
W4AN	729	244	177876	GA	TACO #1	AA7CP	328	103	33784	OR	
K1TO	662	196	129752	FL	FCG #1	KI7Y	268	100	26800	OR	
N4ZZ	694	185	128390	TN	TCG #1	AB7RW	160	70	11200	WA	
W4PA	606	201	121806	TN	TCG #1	KK7A	81	43	3483	ID	
K7SV	592	200	118400	VA	POCO	WA7ITZ	62	39	2418	UT	
K0EJ	594	189	112266	TN	TCG #2	N7VS	69	29	2001	OR	
K1KY	560	170	95200	TN	TCG #2	N9AG @N8NR	519	204	105876	OH	POLO
K1AO	559	170	95030	KY	TCG #1	N8BJQ	397	162	64314	OH	POLO
K4RO	545	174	94830	TN	TCG #1	K8MR	377	150	56550	MI	
WC4E	492	164	80688	FL	FCG #1	WA3SES	328	131	42968	WV	
WO4O	490	164	80360	TN	TCG #1	KT8X	332	116	38512	MI	
K4LTA	450	166	74700	TN	TCG #2	WT8P	271	108	29268	OH	
K4BAI	477	156	74412	GA	SECC #1	KU8E	234	108	25272	OH	
NA4K	477	154	73458	TN	TCG #2	K8DD	200	86	17200	MI	
N4IR	488	150	73200	TN	TCG #2	KG8GW	187	79	14773	WV	
N4CW	481	150	72150	NC		K8KFJ	174	72	12528	WV	
WD4AHZ	434	148	64232	FL	FCG #1	KE4OAR	36	24	864	OH	TCG #3
W4OX	442	139	61438	FL	FCC	W9RE	621	214	132894	IN	SMC #1
N4TO	386	153	59058	FL	FCC	K9OM	572	197	112684	IL	
AE4SW	421	137	57677	FL	FCC	K9MMS	454	146	66284	IL	POLO
K4OGG	390	147	57330	GA	SECC #1	WT9U	423	140	59220	IN	SMC #1
W4SO @N8PR	421	133	55993	FL	FCC	KJ9C	352	149	52448	IN	SMC #1
N4KW	363	140	50820	FL	FCG #1	K9LU	392	119	46648	WI	SMC #1
AA2GS	317	138	43746	KY		K9GY	287	93	26691	IL	SMC #2
K4LQ	309	138	42642	FL	FCC	K9NX	220	117	25740	WI	
NN4T	313	132	41316	TN	TCG #3	K9AA (K9PG)	219	89	19491	IL	SMC #2
K4FU	281	133	37373	KY		K9WX	203	92	18676	IN	
K4MA	299	122	36478	NC		K9UQN	135	66	8910	IL	
N4BP	289	87	25143	VA	FCG #1	N9THC	69	43	2967	IL	
K4GU	243	101	24543	AL	SECC #2	N9ZUT	37	22	814	IL	
AA4GA	208	106	22048	GA	SECC #2	AF9J	19	12	228	WI	
KU4OZ	220	91	20020	GA	SECC #1	K9DIY *	1	1	1	IN	
AC4JI	193	95	18335	TN	TCG #4	N0AV	607	193	117151	IA	
K4FXN	193	92	17756	KY		WB0O	569	175	99575	ND	
W4HZD	199	86	17114	TN	TCG #4	K0OB	530	169	89570	MN	
KN4Y	196	85	16660	FL	FCG #2	KM0L	508	171	86868	MO	
W4ZW	192	86	16512	FL	FCG #2	KT0R	473	176	83248	MN	
W4TYU	163	87	14181	TN	TCG #4	K9WIE	482	144	69408	MN	
AJ4Y	151	69	10419	FL	FCG #2	N4VI	370	133	49210	CO	
KR4YL	105	63	6615	FL		NF9K	287	128	36736	MN	
W4SQE	100	61	6100	TN	TCG #5	W0UY	314	110	34540	KS	
N4DL	105	58	6090	FL	FCG #2	NU0Q	257	117	30069	IA	
N4KN	101	49	4949	TN	TCG #3	K0RX	221	93	20553	IA	SMC #1
K4GEL*	93	51	4743	VA		N0QT *	150	66	9900	CO	
K4AMC	76	48	3648	TN	TCG #3	AA0NB	50	27	1350	MO	
N4POV	82	44	3608	TN	TCG #4	KC0COP	49	22	1078	CO	
AA4LR	75	46	3450	GA	SECC #1	W7YS	34	23	782	CO	
N4ZI	68	36	2448	TN	TCG #4	KK0DX	15	13	195	NE	
W4KH	59	35	2065	TN	TCG #5	VE3KP	452	159	71868	ON	
KU4LL	53	35	1855	TN	TCG #5	XK4VV	370	146	54020	MB	
KM7W	30	24	720	TN	TCG #5	VE3TDG	283	113	31979	ON	
N5HV	3	3	9	TN	TCG #5	VE3WZ	259	117	30303	ON	
NM5M	599	193	115607	NM	TACO #1	VE2AWR	177	117	20709	PQ	
K5RT	526	164	86264	TX	TACO #1	VA3RJ	226	86	19436	ON	
KM5G	516	165	85140	AR		VE7NF	150	61	9150	BC	
K5OT	488	161	78568	TX	TACO #1	VE5CMA	127	63	8001	SK	
WX0B	458	157	71906	TX	TACO #1	K4IQJ/KL7	31	19	589	AK	
W5ASP	485	146	70810	TX	TDXS						
K5PN	401	129	51729	TX	TACO #2						

* Denotes a QRP Score

Results, August 1998 NAQP SSB Contest

Bruce Horn, WA7BNM
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Although scores for the August running of the NAQP SSB contest were down from the January edition, everyone seemed to have a great time. Actually, this is typical of the August contest since it is also prime vacation season and many parts of the country experience noisy band conditions. As KG2AU stated in his soapbox comments, one of the enjoyable aspects of operating in the NAQP is that participants don't have to compete for frequencies with other contesters running high power. Even though activity on 10 meters continued to grow with increasing solar flux, 20 meters was the "money" band with 38% of the contest activity.

The place to be for this NAQP was the Southeastern US, preferably Florida. Bob, N4BP, took first place among Single Ops and was the only entrant to break 200,000 points. Fellow Floridan, Jeff, WC4E, took second place with a score some 30K behind. Don, N4ZZ, nipped Mike, W9RE, by a mere 200 points for third place. Bill, K4XS, returning from a contesting hiatus, took fifth to make three of the top five scores from Florida. From the band breakdowns for the Top 10 single ops, it's interesting to note that N4ZZ (3rd) and W7GG (9th) minimally used 10 meters, whereas many others took advantage of the 10-meter openings to add significant numbers of QSOs and multipliers to their totals.

In the Multi-Two category, the K5TM operators powered their way to a first place finish over their fellow Texans at N5XJ by a margin of over 60K points. NM6Q, the top January 1998 multi-team, took third.

Led by three Top 10 scores (N4BP, WC4E and K4XS), the Florida Contest Group #1 team took first-place team honors by almost 100K points. As they did during the January 1998 contest, the Tennessee Contest Group #1 team once again came in second. The Southern California Contest Club #1 team took third.

In addition to his fourth-place overall finish, W9RE broke his own record from 1996 by 15K points to set a new standard for Indiana. Likewise, AB5SE had another record-setting performance by beating his 7-month-old Arkansas record by 13K points.

The NAQP is successful because of participation by both hardcore contesters and casual operators looking to confirm new band-states. Many of the major contest clubs support this contest by

putting together teams, but I'd like to specifically recognize the efforts of the Tennessee Contest Group in encouraging participation in the NAQP. The TCG fielded three complete teams for this edition of the contest, and all of these team members submitted logs! This is the norm for the TCG, not an unusual occurrence. Thanks.

Have you wondered whether you've picked the right off times during the NAQP? The Relative Band Activity chart shows the relative activity for each band for each hour during the August contest. Obviously, activity varies from contest to contest as conditions vary. However, by examining the chart for this edition of the contest, you may gain some insight into when activity changes from band to band. For example, it is readily apparent that the best hour to have been on 160 meters was during the period from 0400Z to 0459Z.

As a reminder, the simplest way to increase your final score is to make sure you copy the entire exchange correctly: call sign, name and QTH. If you have any doubt, ask the other station to repeat their exchange.

The January 1999 NAQP SSB Contest should be another great one! See you then.

Soapbox

First time over 100,000 for me! Need to put

up a summertime 160 antenna. Spent the first hour on 10 which hasn't happened for a while.—KE2VB What a blast, best NAQP ever for me. My goal was 500 Qs, 120 mults and 60k points. Beat the mults and total points, so was only slightly disappointed to miss 500 Qs. I love the low power contest, I could actually hold a run frequency for more than 5 minutes without the high power stations everywhere. The inverted Vs at 40 feet really play well on 40 and 80 in domestic contests. Gotta get up a Yagi for the high bands.—KG2AU I missed the first hour and I never did get back in the groove.—N9VVV I've got to get the 40/80/160 antennas back up again. The vertical on the roof just doesn't cut it and the QSOs on those bands prove it. Thanks to everyone who worked me.—VE3FU Our first NAQP from WB4MSG's sprouting wire antenna farm. (Gene has a very patient wife!) WX good, but 80 sure stunk. Logging network died in first 5 minutes, lost a rig at the same time. (How do rigs know just when to go belly up?) Nice 10-m openings. Broke in two new contesters! See you next year for sure!—W4WS This contest is such a blast! 15 m was just great, acted like 20 m. 20 m was slow until very late in the contest. 40 m really let me down, but that was likely due to operator error in not reading the openings correctly. Who cares, let's do this again!—KB3A. 10 m open to upper Midwest, but nobody home.—N8VW Had a great time!—AE5T A lot of fun. Qs were down some for me but still had a great time. Can't wait until next time—NX9T Started several hours late. Fifteen was in pretty good shape. Had very high local QRN. Would like to have tried 10 m but station had



Laura, AD4PU, age 14 (foreground); Erin KE4RHU, age 12.

no antenna. Had to shut down early. Worked only the two bands. Lots of EU on 15 m.—*W5ASP* New antenna system worked beautifully. 34% increase in score over January 1998—*W6XK* 10 m a disappointment! Open on Friday but not on Saturday. 15 m pretty good even snagged a few EU stations there. 20 m the money band this time. Kept second radio busy on other bands. Should have gone to 40 m sooner. Early rate best of the test for me then it petered out. 80/160 m lacked activity for me. All in all fun and my first effort using two radios on phone!! It may be easier and more productive than on CW!!—*W7GG* When the last hour is the 2nd best rate of the contest on QRN-laden 40 and 80 m there's definitely room for improvement! Also, getting my neighbor to turn off his electric fence 2½ hours into the contest was quite helpful!—*N4VI* Another fun contest! I improved on my last year's score and met lots of interesting folks in the process—*VE3BUC* Lots of fun even with all the summer storms and local power line noises—*N4ZZ* Thought 20 would never kick in. Good thing 15 was hot from the start—*K5ZM* One has to have priorities set correctly, so I went to a barbecue/picnic before the contest started and played during the first few hours of the contest, and took the next hour or so to drive to the site, lay in supplies, and make sure everything was set and ready to run. I really enjoy the NAQP tests... the 10 operating hours in a 12 hour period is the best... not too short, and not the incredible endurance run of a 48 hour weekend... just right—*W4KH* Had fun as always.. Didn't work the low bands this time, too much QRN. Old age I guess!!—*N2LQQ* Overall very good band conditions for August.—*K4OGG* Had to climb 100-foot tower at 1830... 20-m beam stuck north. Much easier in August.—*K3MD* Conditions were much improved over the CW test two weeks earlier. Was great to hear EU on 10 m, even though it was a NA contest. Hoping this is a sign of things to come.—*K4RO* Interesting conditions and less activity (it seemed)...things started slowly but 10 m showed some life after a bit. January should

be fantastic!—*K5OT* This is the only phone contest that I will make an honest effort in. Had a ball once again.—*K7SV* Only part-time but sure was fun!!—*K0EJ* First time to operate full time in this one! Had fun and luck (mostly) moving mults but just needed some more Qs. When I can work short skip on 20 from here at least I have a chance in a domestic contest (such was the case in this one. Normally I can't do much on 20 from here!—*W9RE* Thanks for a wonderful contest!—*K3PP* Always fun but man the noise level !!!!!—*VE7NF* Another personal best in this game. Discovered 14.292 is the "Alaskan Calling Frequency" when I worked AK. Some wild 10-m openings to EU, PAC, etc. Checked my e-mail after the game to find several e-QSLs! Is this a new trend? Had FUN despite the 20-m and 75-m jammers.—*WO4O* That was a lot of fun. I thought I would just make a couple of contacts just to see what this contest was like. I liked it so much I spent the rest of the evening having fun. I'm sure I didn't break any records. Next year for sure I'll be on for the CW and Phone too.—*AA7TR* Should have

done a few things different. West 15-m antenna was not working. The main thing is that we had a good time. Thanks to Bob for doing some of the operating despite not feeling well and particularly for the use of his station.—*N5XJ* Was a good contest but didn't make my personal goal of 200 contacts. I learned a lot and will be pushing harder next time. Watch out for Nebraska in upcoming contests!—*KBOWHY* I am normally CW only, but thought I'd give this a try. It was nice to hear the voices of my CW friends—*KG0KR* Exactly the same number of Qs as I made on CW. 10 m sounded good to a few places at a time. Most of the stations I moved to 10 were actually loud there.—*KM0L* Late start due to a customer company picnic. Good opening on 10 m late, spent a lot of time alternating CQs and picking up new mults on 10 m kept the rate down, but the fun factor high!—*K1KY* Much harder to work from home, too few antennas and not enough power. I am a regular member of the VE6JY contest team. In any event I had fun in the contest. Looking forward for the January version in 1999.—*VE6LDX*

Single Op Breakdowns

Call	Score	QSOs	Mults	160	80	40	20	15	10	Team
N4BP	220,904	1042	212	7/5	66/27	167/44	429/58	239/50	109/28	FCG #1
WC4E	187,440	880	213	22/13	68/26	102/38	242/55	138/39	250/42	FCG #1
N4ZZ	181,356	889	204	55/24	131/42	163/42	325/51	181/37	13/8	TCG #1
W9RE	181,125	805	225	54/27	121/38	156/46	234/50	146/39	71/25	SMC #1
K4XS	170,170	910	187	11/6	36/17	107/40	400/54	154/44	169/26	FCG #1
K5NZ	168,800	800	211	14/10	52/27	105/40	227/52	185/49	203/33	TDXS
AD6DO	154,973	917	169	1/1	57/18	141/42	392/55	236/38	83/15	SCCC #1
AB5SE	140,140	770	182	38/19	46/21	103/38	295/51	158/33	111/20	
W7GG	134,136	828	162	5/5	20/10	118/43	443/57	213/43	5/4	
K5OT	133,127	697	191	23/12	69/30	158/47	183/48	67/30	192/24	

Multi-Two Breakdowns

Call	Score	QSOs	Mults	160	80	40	20	15	10
K5TM	398,028	1618	246	32/18	112/37	143/43	589/60	341/48	351/40
N5XJ	333,450	1482	225	22/13	74/33	181/46	612/63	351/47	194/23
NM6Q	213,380	1135	188	15/8	70/22	236/47	310/57	429/53	3/1

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 15 meters during the 18Z hour. As an example, 20 meters/22Z had 70% of the activity of 15 meters/18Z.

Hour/ Band	160	80	40	20	15	10
18Z	0.1	0.1	0.8	53	100	39
19Z	0.1	0.1	6	60	80	48
20Z	0.1	0.1	6	62	64	27
21Z	0	0	13	60	48	16
22Z	0	0	13	70	44	9
23Z	0.1	0.5	18	80	30	11
0Z	0.1	0.5	29	74	32	20
1Z	0.1	1	53	97	13	13
2Z	0.1	21	65	76	5	7
3Z	5	56	55	51	0.4	6
4Z	23	46	52	25	1	0.3
5Z	10	46	25	9	0.4	0.4

Team Scores

1. Florida Contest Group #1

N4BP	220,904
WC4E	187,440
K4XS	170,170
N4GI	72,048
AJ4Y	4,356
Total	654,918

2. Tennessee Contest Group #1

N4ZZ	181,356
K4RO	121,667
N5HV	112,875
WO4O	87,842
N4VI	55,626
Total	559,366

3. Southern California Contest Club #1

AD6DO	154,973
WA7BNM	104,650
N6ED	97,920
N6MU	97,149
KQ6ES	7,380
Total	462,072

4. Texas DX Society (K5NZ, K5DX, W5ASP, N5DU)	335,120
5. Society of Midwest Contesters #1 (W9RE, N9VVV, WT9U)	303,558
6. Weekend Warriors #1 (KB3AFT, WA3HAE, KB3A, W3TWI)	245,723
7. Tennessee Contest Group #3 (K0EJ, KE4OAR, N4PQV, NN4T, KU4LL)	200,409
8. Tennessee Contest Group #2 (NY4T, K1KY, W9WI, W4KH, W4PA)	176,188
9. Southeastern Contest Club #1 (AD4J, K4OGG, K4BAI)	161,760
10. Non Active QSO Participants (N8VW)	98,460
11. Hot North West (K5ZM, K17Y)	81,560
12. Southern California Contest Club #2 (WN6K, W6KY)	71,832
13. Florida Contest Group #2 (KR4YL, WD4AHZ)	60,661
14. Southeastern Contest Club #2 (AA4GA)	17,394
15. Weekend Warriors #2 (WA3SES, N3QVI)	16,472

Single Operator Scores

Call	Score	QSOs	Mults	Section	Team	Call	Score	QSOs	Mults	Section	Team
K1PLX	59,478	431	138	RI		KN6MK	20,402	202	101	CA	
AB1BX	24,472	266	92	RI		WA6R	17,595	207	85	CA	
KE1KD	24,153	249	97	NH		K6BZ	16,401	213	77	CA	
N4CW	16,154	197	82	ME		AD6E					
K1CN	7,424	116	64	VT		(W6CT)	12,600	180	70	CA	
WA1QVM	7,102	106	67	MA		W6KY	9,112	136	67	CA	SCCC #2
WR1P	54	9	6	MA		KQ6ES	7,380	123	60	CA	SCCC #1
						KO6IS	1,972	58	34	CA	
KE2VB	101,850	679	150	NY							
KG2AU	65,380	467	140	NY		W7GG	134,136	828	162	OR	
NI2P	21,600	216	100	NY		W7NN	122,589	771	159	WA	
KS2G	19,624	223	88	NY		K5ZM	58,295	445	131	OR	Hot North West
W5KI	6,042	106	57	NJ		N7LOX	45,625	365	125	WA	
N2LQQ	1,696	53	32	NY		KJ7TH	33,033	273	121	ID	
N2LDU	248	31	8	NJ		KK7A	30,284	268	113	ID	
						K5RC	28,980	315	92	NV	
K3PP	89,811	587	153	PA		KI7Y	23,265	235	99	OR	Hot North West
KB3AFT	79,254	518	153	PA	Weekend Warriors #1	KR7X	9,870	141	70	OR	
WA3HAE	78,498	534	147	PA	Weekend Warriors #1	WB2UFO	5,353	101	53	UT	
KB3A	73,606	494	149	PA	Weekend Warriors #1	K7MK	5,100	100	51	ID	
NY3Y	62,238	451	138	PA		W7YS	5,076	94	54	AZ	
K3MD	57,750	462	125	PA		K7BYU	3,723	73	51	UT	
NY3C	24,700	247	100	DE		WA7ITZ	2,376	66	36	UT	
W3TWI	14,365	169	85	PA	Weekend Warriors #1	AA7TR	1,920	60	32	UT	
WA3SES	8,584	148	58	PA	Weekend Warriors #2						
N3QVI	7,888	116	68	PA	Weekend Warriors #2	N8VW	98,460	547	180	OH	No Active QSO Participants
						KA8FCC	15,840	198	80	OH	
N4BP	220,904	1042	212	FL	FCG #1	KI8CS	15,834	182	87	OH	
WC4E	187,440	880	213	FL	FCG #1	K8CV	7,872	123	64	MI	
N4ZZ	181,356	889	204	TN	TCG #1	KT8X	2,112	64	33	MI	
K4XS	170,170	910	187	FL	FCG #1	N8NX	570	30	19	MI	
K4RO	121,667	637	191	TN	TCG #1						
N5HV	112,875	645	175	TN	TCG #1	W9RE	181,125	805	225	IN	SMC #1
KT4ZX	108,696	647	168	KY		N9PQU	80,008	548	146	WI	
K4MA	106,505	595	179	NC		N9VVV	74,817	489	153	IL	SMC #1
K7SV	104,500	550	190	VA		KI9A	57,565	397	145	IL	
WB4OSS	100,596	606	166	KY		WT9U	47,616	372	128	IN	SMC #1
WO4O	87,842	526	167	TN	TCG #1	K9WX	25,272	243	104	IN	
NX9T	80,640	504	160	NC		W9YS	16,965	195	87	IL	
N4GI	72,048	474	152	FL	FCG #1	N9ZUT	5,883	111	53	IL	
K0EJ	70,180	484	145	TN	TCG #3	AA9TQ	3,397	79	43	WI	
AD4J	61,490	430	143	GA	SECC #1	KB9RTM	24	6	4	IL	
K5OF	56,984	419	136	VA							
K4OGG	55,500	370	150	GA	SECC #1	N0AV	129,204	666	194	IA	
KD3GC	53,480	382	140	GA		W0ETC	87,584	544	161	IA	
KE4OAR	53,424	424	126	TN	TCG #3	KT0R	82,400	515	160	MN	
NY4T	52,256	368	142	TN	TCG #2	KM0L	75,245	505	149	MO	
K1KY	45,279	351	129	TN	TCG #2	N4VI	55,626	438	127	CO	TCG #1
K4BAI	44,770	370	121	GA	SECC #1	W0UY	18,810	198	95	KS	
N4PQV	40,832	319	128	TN	TCG #3	NU0Q	13,272	158	84	IA	
W9WI	36,296	349	104	TN	TCG #2	WB0VBW	11,792	268	44	SD	
NN4T	34,026	318	107	TN	TCG #3	KB0WHY	8,352	144	58	NE	
W4KH	33,517	277	121	TN	TCG #2	KG0KR	8,000	125	64	NE	
KR4YL	32,520	271	120	FL	FCG #2						
AA2GS	30,636	276	111	KY		VE4VV	74,314	509	146	MB	
WD4AHZ	28,141	263	107	FL	FCG #2	VE3FU	73,360	560	131	ON	
AA4GA	17,394	223	78	GA	SECC #2	VE3WIB	46,970	385	122	ON	
W4PA	8,840	130	68	TN	TCG #2	VE3BUC	26,250	250	105	ON	
AJ4Y	4,356	99	44	FL	FCG #1	VE5CMA	24,479	269	91	SK	
K4GU	3,901	83	47	AL		VE7NF	23,822	277	86	BC	
KT4FJ	3,360	80	42	VA		VA3SWG	17,220	210	82	ON	
KU4LL	1,947	59	33	TN	TCG #3	VE2AWR	14,442	174	83	QC	
KE4UKX	1,218	42	29	VA		VE6IM					
KC4URW	828	36	23	TN		(VE6LDX)	11,750	250	47	AB	
						VE5SF	7,680	160	48	SK	
K5NZ	168,800	800	211	TX	TDXS	VE3WZ	5,301	93	57	ON	
AB5SE	140,140	770	182	AR							
K5OT	133,127	697	191	TX		WP4LNY	6,032	104	58	KP4	
N5TY	92,897	577	161	TX		WP4KOE	351	27	13	KP4	
K5DX	79,650	531	150	TX	TDXS						
W5ASP	43,830	487	90	TX	TDXS						
N5DU	42,840	408	105	TX	TDXS						
AE5T	40,920	341	120	LA							
K4NR	29,172	286	102	TX							
KB5FET	18,802	238	79	MS							
N5CMI	9,720	135	72	TX							
KE4RHU	3,774	102	37	TX							
W5NR	2,940	70	42	TX							
K5RA	1,998	54	37	TX							
AD4PU	1,978	86	23	TX							
AD6DO	154,973	917	169	CA	SCCC #1						
WA7BNM	104,650	650	161	CA	SCCC #1						
N6ED	97,920	640	153	CA	SCCC #1						
N6MU	97,149	611	159	CA	SCCC #1						
W6TK	94,326	597	158	CA							
WN6K	62,720	490	128	CA	SCCC #2						
W6XK	60,032	469	128	CA							
K6RO	21,762	234	93	CA							

Multi-Two Scores

Call	Score	QSOs	Mults	State/Province
K5TM (+K5TR)	398,028	1618	246	TX
N5XJ (+KB5ZF0, NX5M)				
	333,450	1482	225	TX
NM6Q (KF6PCW, NO6X, W6UC)				
	213,380	1135	188	CA
W4WS (KC4WSK, KO4MM, KT4CD, N4VHK, WB4MSG)				
	118,524	714	166	NC
VE7ZZZ (VE7CV, VE7VX)				
	61,596	522	118	BC
W9UR (+K4AT)	40,003	367	109	IN
N5KB (+KD5ETC)	29,294	302	97	TX
W4ATC (KF4MOK, KF4USQ, N3NPQ, N3QYE)				
	10,800	150	72	NC

Results, September 1998 Phone Sprint

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The September 1998 Phone Sprint was blessed with some reasonably good conditions, for a change. Twenty stayed open for a very long while (K4XS had 224 QSOs from his southerly location), 40 was not too long and not too short (says Goldilocks), and 80 provided some nice propagation as well. All in all, quite a change from the last few years. Let's keep our fingers crossed for the future. For the record, we received 78 logs from 30 areas. The log checking database comprised 337 calls who were worked by at least three entrants. Those 337 calls were from 55 different multipliers.

A big, hearty welcome back to K4XS. Bill turned in some big numbers in the past, but then took a 5 or 6 year hiatus. Well, heeeeeeee's baaaaack ! After a 6-year gap, Bill hopped right to the top of the heap, so it is obvious that he still knows how to play this game. He only lost three Qs in the checking process so he didn't lose his copying ability either. It's nice to have you back, Bill. Conditions were much kinder to KW8N so he popped back into the Top Ten again. AD6DO had a personal best in third. W9RE, K3CR and K9ZO turned in nice scores from the middle-reaches of the country. N7TR, K6LA and K6NA kept the West Coast well represented and W1WEF put New England back in the Top Ten after a long absence. In Low Power, it appeared that Texas and Arkansas were the places to be with K5NZ, N5TU and AB5SE grabbing the first three spots. Note that K5NZ was not too far from being in the overall Top Ten (he was 15th). K1HT put in a nice showing from MA and K6ZH carried the flag for those on the left coast. Congrats to all.

The club competition was again taken by Southern California Contest Club who put ten nice scores together for a comfortable lead over Texas DX Society and the Society of Midwest Contesters. The Tennessee Contest Group dedicated their effort to the memory of Rod, N5HV, who passed away early in the week before the contest. They all used the name Rod as a memorial to him.

A special tip of the hat to WA3HAE, N7LOX, K4BAI and K8MR who had logs which received no score reductions in the checking process. A job well done.

This time when I processed the logs, it became even more obvious to me that at least some of us might be over-relying on the name and QTH databases available with the contest software we

use. Or we might not pay enough attention when we copy down the exchange. Let me explain what I see occurring more and more. Often, someone records a name or QTH that the other person used in a prior contest. For example, KN5H used to live in NM; W1WEF operated from FL in a few prior contests; and K6NA's name is Glen. All those things (and other instances) were not true this time. KN5H was in AZ, W1WEF was in CT again, and K6NA was sending "Dave" because K6LL was operating. Most of these errors can be attributed to over-reliance on a database, or over-reliance on our memory. In both cases, we are relying on some kind of memory-aid rather than on-the-air copying.

The second item that has become more obvious is that miscopied information on one band will quite often carry over to another band. If someone recorded KN5H as NM when they worked on 20, it will usually be wrong again when the 40 and 80-m QSOs are recorded. Again, we are not listening to what is being sent—we are letting the computer do more and more of what used to be OUR task.

If you believe it is necessary to use a database during the contest, use it as an aid, not as a crutch. In addition, listen to what the other person is sending you (the whole exchange, every time). Often things are different from what you might otherwise expect.

See you in February.

Soapbox

First Sprint in 6 years. Old faces with new calls and just plain new faces. The thrill is back.—K4XS Great to start getting some shorter propagation.—KW8N Went to 40 way too early and missed a bunch of mults.—K6LL (at K6NA). I had a small audience at the start (a few neighbors). After 15 minutes of witnessing an SSB Sprint, all they could say was "you guys are completely nuts." I think I might agree.—K4RO Didn't have time to set up my DVP before the start. Never again.—W1WEF My first SSB Sprint. I need courses in speed writing and fast-talking.—VE3WZ Power here is about 2 watts PEP.—WA1QVM My best effort by a wide margin.—K1HT First Sprint. Listened for 15 minutes to get the hang of it. Didn't help.—N4VI CW Rules!—N6RT Waited too long to go to 80. I keep forgetting that people can now hear me on that band.—N9JF Fun filled four hours.—WA3HAE Fifteen minutes before the start my wife told me we had an intruder—a small snake. I got it safely outside and started on

Team Scores

Southern California Contest Club #1

AD6DO	14852
N7TR	14355
K6LA	13584
K6NA	12857
K6RO	12015
N6ED	11592
N6KI	10166
W7WW	9135
K6ZH	8979
K6NR	6825
	114360

Texas DX Society

K5NZ	11421
N5TU	10620
N5LZ	10535
K5DX	9366
KG5U	9324
N5DU	9114
N5KC	7697
	68077

Society of Midwest Contesters

W9RE	14006
K9ZO	12831
K9BGL	11475
K9IG	8307
N9JF	8299
K0XQ	3432
	58350

Tennessee Contest Group

NN4T	9360
K0EJ	8778
W4PA	8360
WO4O	6960
W9WI	6760
NY4T	4420
AC4LS	3968
N4VI	2580
N4ZZ	1320
K4RO	180
	52686

5. Mad River Radio Club (KW8N, K8MR)	18291
6. North Coast Contesters (K3CR)	12936
7. Weekend Warriors (WA3HAE, WA3SES)	11472
8. SCCC #2 (K6ZZ, N6RT)	10841
9. Northern California Contest Club (N6IJ)	9064
10. NERDS (N9GG)	462

time.—*NN4T* Power line noise on 80 was a killer.—*WA3SES* My first semi-serious effort in the SSB Sprint.—*WO4O* My first Sprint. A lot of fun, but a debilitating exercise. Next time I'm using my middle name.—*K0XQ* Lots of QRN due to Gulf storms.—*W5NR* No 80-m antenna and a computer that refused to work properly.—*W5ASP* (at *N5KC*) My first Sprint and used an unfamiliar logging program.—*N6KI*. When I get my 80-m dipole up, I'll be dangerous.—*N9RV* First year at a new QTH with real antennas.—*W2LC* Equaled my personal best. I have to learn to change bands more often.—*W6TK* It's fun to give away a few points to those who might need the state.—*WA7ITZ*

Top 10 Scores			
Call	QSOs	Lost	Band
Changes			
K4XS	16050	3	3
KW8N	15141	3	55
AD6DO	14852	2	2
N7TR	14355	1	3
W9RE	14006	5	9
K6LA	13584	4	44
K3CR	12936	1	4
K6NA	12857	6	4
K9ZO	12831	4	6
W1WEF	12432	6	12

Top 5 Low Power			
Call	QSOs	Lost	Band
Changes			
K5NZ	11421	3	22
N5TU	10620	3	8
AB5SE	9288	3	12
K1HT	9108	3	4
K6ZH	8979	2	2

Top 10 QSOs	
K4XS	321
N7TR	319
AD6DO	316
KW8N	309
K6NA	299
W9RE	298
K3CR	294
WB0O	289
K6LA	283
K9ZO	273

TOP 10 Mults	
K4XS	50
KW8N	49
W1WEF	48
K6LA	48
K5NZ	47
AD6DO	47
W9RE	47
K9ZO	47
N6ED	46
W6TK	46
N6KI	46

Perfect Logs (over 50 QSOs) (no score reduction)	
WA3HAE	208 QSOs
N7LOX	164 QSOs
K4BAI	142 QSOs
K8MR	90 QSOs

Call	Name	QTH	20	40	80	QSO	Mul	Score	Team
W1WEF	Jack	CT	141	79	39	259	48	12432	
K1HT	*Dave	MA	88	85	34	207	44	9108	
KK1L	Ron	VT	65	71	61	197	39	7683	
K1PLX	Dennis	RI	48	44	34	126	37	4662	
KU4BP	*Ed	MA	39	34	30	103	31	3193	
WA1QVM	*Joel	MA	6	0	0	6	4	24	
W2LC	Scott	NY	77	97	68	242	42	10164	
K3CR	Jim	PA	110	99	85	294	44	12936	NCC
WA3HAE	*Keith	PA	73	83	52	208	39	8112	WkndWar
WA3SES	*Ed	PA	37	53	15	105	32	3360	WkndWar
N9GG	*Rod	DE	18	15	0	33	14	462	NERDS
K4XS	Bill	FL	224	63	34	321	50	16050	
K4MA	Jim	NC	93	89	75	257	44	11308	
NX9T	Jeff	NC	87	86	72	245	42	10290	
NN4T	Rod	TN	94	73	67	234	40	9360	TCG
K0EJ	*Rod	TN	75	80	54	209	42	8778	TCG
W4PA	Rod	TN	76	82	62	220	38	8360	TCG
WC4E	Jeff	FL	50	67	62	179	42	7518	
WU4G	Ron	VA	78	58	29	165	43	7095	
N4CW	Bert	NC	63	73	43	179	39	6981	
WO4O	*Rod	TN	74	50	50	174	40	6960	TCG
W9WI	Rod	TN	95	58	16	169	40	6760	TCG
K4BAI	John	GA	94	48	0	142	39	5538	
NY4T	*Rod	TN	46	56	28	130	34	4420	TCG
AC4LS	Rod	TN	34	51	39	124	32	3968	TCG
N4ZZ	Rod	TN	26	29	0	55	24	1320	TCG
K4RO	Rod	TN	0	0	18	18	10	180	TCG
K5NZ	*Mike	TX	104	93	46	243	47	11421	TDXS
N5TU	*Earl	TX	121	75	40	236	45	10620	TDXS
N5LZ	Don	TX	95	80	70	245	43	10535	TDXS
K5DX	Sharp	TX	104	80	39	223	42	9366	TDXS
KG5U	Dale	TX	92	74	56	222	42	9324	TDXS
AB5SE	*Jerry	AR	83	74	59	216	43	9288	
N5DU	Bob	TX	94	76	47	217	42	9114	TDXS
N5KC	Joe	TX	109	70	0	179	43	7697	TDXS
W5NR	Art	TX	16	11	0	27	12	324	
AD6DO	Dan	CA	128	113	75	316	47	14852	SCCC1
K6LA	Ken	CA	151	94	38	283	48	13584	SCCC1
K6NA	Dave	CA	135	89	75	299	43	12857	SCCC1
K6RO	Larry	CA	118	91	58	267	45	12015	SCCC1
N6ED	Ed	CA	104	98	50	252	46	11592	SCCC1
W6TK	Dick	CA	113	74	52	239	46	10994	
N6KI	Tom	CA	117	59	45	221	46	10166	SCCC1
N6IJ	Tony	CA	72	94	40	206	44	9064	NCCC
K6ZH	*Jim	CA	84	87	48	219	41	8979	SCCC1
K6NR	Dana	CA	75	63	37	175	39	6825	SCCC1
K6ZZ	Bob	CA	50	49	50	149	37	5513	SCCC2
N6RT	*Doug	CA	75	59	10	144	37	5328	SCCC2
ND6S	*Ray	CA	51	50	26	127	35	4445	
W6VH	*Loren	CA	43	42	0	85	34	2890	
AD6EZ	*Dennis	CA	27	10	0	37	24	888	
N7TR	Rich	NV	148	103	68	319	45	14355	SCCC1
W7WW	Dave	AZ	109	73	21	203	45	9135	SCCC1
N7LOX	*Brian	WA	70	61	33	164	38	6232	
KO7X	Alan	UT	12	48	48	108	31	3348	
KN5H	*Steve	AZ	47	29	0	76	31	2356	
KK7GW	*David	WA	39	2	8	49	22	1078	
WA7ITZ	Ray	UT	13	20	0	33	13	429	
KW8N	Bob	OH	128	99	82	309	49	15141	MRRC
K8MR	Jim	OH	23	27	40	90	35	3150	MRRC
W9RE	Mike	IN	115	90	93	298	47	14006	SoMWC
K9ZO	Ralph	IL	114	79	80	273	47	12831	SoMWC
K9BGL	Karl	IL	84	103	68	255	45	11475	SoMWC
K9IG	Lizard	IN	60	90	63	213	39	8307	SoMWC
N9JF	*Jim	IL	70	71	52	193	43	8299	SoMWC
N9RV	Pat	IN	82	85	0	167	37	6179	
KA9FOX	Scott	WI	27	55	76	158	35	5530	
K9WX	*Tim	IN	21	45	41	107	31	3317	
WB0O	Bill	ND	109	96	84	289	43	12427	
KM0L	Steve	MO	89	97	62	248	44	10912	
AC0W	Bill	MN	70	80	30	180	38	6840	
K0XQ	Sean	MN	41	46	17	104	33	3432	SoMWC
N4VI	*Rod	CO	25	39	22	86	30	2580	TCG
VE5MX	Todd	VE5	101	81	64	246	42	10332	
VE7IN	Earl	VE7	66	77	38	181	41	7421	
VE5SF	*Sam	VE5	58	68	35	161	40	6440	
VE3TDG	*Syl	VE3	14	26	17	57	24	1368	
VE3WZ	*Ron	VE3	22	10	0	32	12	384	

*Denotes a low power entrant

Guest Operators:
KB3AFT at K3CR, K6LL at K6NA, W5ASP at N5KC, VA3SYL at VE3TDG

Results, September 1998 CW Sprint

Mark Obermann, AG9A
cwsprint@contesting.com

"Great Contest!," "Super conditions!," "My highest total ever." These were some of the comments heard after last September's CW Sprint. The Sprint gods smiled upon us and gave many operators a Sprint worth remembering.

K1TO blasted his way to the top from Florida, beating the likes of K7RAT, K5ZD and K5GN. This is the first #1 finish from Dan and his first place QSO total of 367 came very close to the record of 375 held by KR0Y (now N5TJ). N5TJ finished #6 in the overall Top Ten using low power. Jeff must have his sights set upon capturing the overall number one spot again, this time without an amplifier. NM5M and N0NI (AG9A, op) made their first appearances in the Top Ten. The conditions slightly favored the country east of the Rockies with K7RAT the only West Coast station breaking into the Top Ten.

Other notable September efforts include AD6DO's win of the tough California section operating from N6ND. Dan is a young contender who has been producing many excellent scores lately. Dale, KG5U, turned in an incredible QRP score from Texas. He made 204 QSOs and 42 multipliers with only 5 W!

Those interested in maximizing their score always look for ways of improving their multiplier total. The highest number of mults this contest (48) was achieved by K7RAT who made 92 band changes. Most serious stations had a multiplier total in the low to mid 40s. Interestingly, K3UA operated 40 m only and worked 41 multipliers. CT1BOH operated from Portugal and still managed to snag 40 mults! Just when you thought you were beginning to figure it out...

K1TO set a new Florida record on the way to his First Place finish. N5RZ set a new NH record operating at K1DG, breaking K1AR's record set in 1980. Other new continental records were set by W4PA (TN), K4LT (KY), W4OC (SC), N4ZR (WV) and WB0O (ND). Portugal and Italy can be added to the record books with the excellent first time entries of CT1BOH and IK0HBN. OH1NOA set a new record for Finland.

Make No Mistake About It captured first place in the team competition and broke the team record in doing so. The team winner from last February, SCCC#1, finished second with the Willie Billie Fower team closely behind in third. Watt-Me-Worry!! was comprised of all low power entries and finished seventh.

Golden Logs with 100 or more QSOs were achieved by K4BAI, K4LT, K6NA, K17Y, N6ZZ, N9JF and NA0N. This makes four consecutive times for John,

K4BAI, a truly outstanding achievement.

A drastic improvement in QSO confirmation improved the quality of the contest AND still allowed tremendous scores to be achieved. Remember to continue this good practice in February.

As usual, now is the time to start organizing your team for the February CW Sprint. It would be great to see more participation from the VE contingent. An all-VE team representing many of the provinces would be welcomed by everyone. Please remember to register your team with cwsprint@contesting.com before the beginning of the contest.

See you February 14, 1999 0000-0400Z! Remember, that's Saturday evening (February 13) local time.

Soapbox

This was my first ever Sprint, inspired by Tree's presentation at a recent NCCC meeting and by watching a video of N6TV operating with paper logs in the 1994 Sprint, and by the incessant nagging of our Sprint coordinator Scott, W6CT. I spent the better part of a week modifying my logging software (CQPWIN ver. 6.0) to handle Sprint, then gave it a go. It was a wonderful adrenaline rush, after I got into the rhythm of the thing. Thanks to all the great operators out there! See you in February.—AE6Y Great conditions on 20 m this time, unfortunately I could not commit to spending a full four hours in the middle of the night, and when activity moved to 40 m things got a lot tougher. Decided to quit when I reached 100 QSOs, I slipped behind the clock and got there in 104 minutes.—G4BUO My first Sprint: in the first 15 minutes I was able to make only 3 QSOs, as how different was the scheme of the QSO from the other contests. To say the truth, I was on the point to turn off radio and going and sleeping. But, luckily I got myself hooked to that strange atmosphere so to remain 'til the end. By the way, I had a fun so great to plan since then

my participation on the next Sprint. As my name is difficult to copy for the most of USA peoples and to avoid the too many requests to repeat it, next time I'll choose an alias to make things simpler for all. Not a single fault reported here and Writelog did its job greatly. Hats off to all the Morse machines I heard and worked during the event. See ya'll.—IK0HBN 20 m was great! New high in QSOs for me but could have used more mults. Heard at least 3 mults that I lost to QSY. Frustrating but fun.—K0AD Only got on for an hour but condx seemed SUPER.—K0EJ I missed the first 40 minutes of the Sprint due to a friend's Eagle Court of Honor. I still had my best QSO and multiplier total so far. I wonder what might have been... This is a great contest!—K0RX Sure was interesting from New England, but my multiplier jinx must have snuck into my baggage!! Thanks to Doug for letting me abuse his call sign and station.—N5RZ (at K1DG) A substantial improvement over my previous best, thanks to good activity, good conditions on 20 and 40, and good luck with multipliers. Antenna work on 80 is high on my list for the fall.—K1HT Great Condx, Great Ops. Everything worked great. First time over 10K CW! Gotta work on the operator some more!—K1KY My first Sprint in a few years—activity is way up! Never thought I could get so many QSOs in this contest.—K12PS My personal best in a CW Sprint.—KB3AFT (K3CR). My first CW Sprint mobile! Thought it might be cool to be a rare multiplier. Used an IC-706 (75 watts) and a Screwdriver antenna on battery power. Parked on top of a West Virginia mountain where I could see Ohio and Pennsylvania. Had the laptop on my lap in the driver's seat for four hours. Great contest! CT1BOH worked on 3 bands!—K3LR Part time effort but still had fun.—K4FXN My best ever! Great conditions this year.—K4LT My best Sprint yet. A short time ago 200 QSOs seemed impossible. Now I've got my sights set on reaching 300 some day. What a great contest, thanks to the fine operators that turn out for it. Still the most humbling contest of them all for me. CU in the next one.—K4RO Terrific sprint!—K5GN I had to choose between running the amp or the air conditioner. It was 107 degrees when we started. This was an easy decision. Unfortunately, I did not work an OK station.—K5KA First hour was all on 20. Lots of two radio action after that. The contest was so wild that it almost felt like the second rig was slowing me down, but then I would look at the rate and it was higher than I thought. Worked every mult that I heard. Surprised to get 7J7YAA! Amazing how many DX stations were active in the contest. We should have never let K1TO move to Florida. I could beat him sometimes when he was up here. Now it will never happen again. My last 3 Sprints I have finished #3, #2, and now #2 (?) again... I'll be back.—K5ZD For the first time in many years, I lost some time in a sprint due to equipment failures. I had not bothered to set up backup gear in an efficient manner, so when I had an amp fail, I chose to operate barefoot for a while on 20 m while deciding what to do next. Youch... after a short while I decided to stop completely and change all the cabling and antennas over to the other amp on the table. So I lost some time but still enjoyed the contest as usual. Now, if only we could get EVERYBODY to confirm the end of a QSO before they leave



Judging by the logs, there are still too many contesters letting the computer automatically fill in the name and QTH in their logs. One example found in many logs was K1DG, Doug, NH. It's obvious that Gator, N5RZ, looks nothing like Doug, K1DG!

the frequency!—*K6NA* Good thing Scott (W6CT) put me on the #2 team! I'm very out of practice in Sprint. My logging program and Phil's (K6RJ's) new computer didn't want to talk to each other, so I couldn't keep track of dupes, except in my pea brain. This is my worst effort in some time, so now I'm back in the beginner category.—*K6GV* (at *K6RJ*) Where were the mults?—*K6XX* Got beat out a lot and found out I was oping split for a few minutes. OOPS! Guess I hit the wrong button!—*K7BG* Had a couple brain hemorrhages that were so comical that I almost just stopped operating because I looked so pathetic trying to get back in the groove. They made for some really good wet eye laughing with *K5RC* in background watching me do the meltdown and then try and recover. I love Sprint—I just don't have a clue on how to do it!—*K7BV* Great start during the first 30 minutes. Turned into a struggle after that. 80 m was really poor from here. The second radio really paid off this time. 50 second radio QSOs—including 5 multipliers not worked otherwise.—*K7RAT* As a result of always feeling that I've been beat about the head after operating the sprints with low power, I decided there wasn't much point in continuing to do so a few years ago. AG9A's comments about his low power efforts in the results from last years September CW event pretty much says it all. Steve, NJ4F, was gracious enough to allow me to use his station for this contest. With full power, this contest is fun! My goal was to break 300 Qs and I should have done so, but fell a little short. I hope I learned enough to do so in the next one if condx are as good as during this one. Mults that I heard but missed, were MT and VE3. Thanks to Steve and Caroline for their hospitality during various contests.—*K7SV* My first time over 300 QSOs!—*K8MR* What a great contest. My best score ever! Even beat out my high power best and even my best SSB score! Thanks to K9QVB for the use of his station!—*K9AA* Great contest, always fun!—*K9GY* Still nowhere what the big guns did, but a personal best. Should have left 20 m earlier! Should have left 40 m earlier as well.... next time! Let's have more of these say four times a year or even every other month!!! How about 10/15/20 Sprint earlier in the day especially now that 10 m is coming back. And maybe a 40/80/160 Sprint in November.—*K9NX* Geez... Why does it always take me the first hour to get into the pace of the Sprint? Then another 10 minutes reconfiguring software. After all the false starts the rate meter started to go up but then the contest was over! Good conditions, lots of DX on 20 and 40 to compete with, but a few were in the test and doing well. Jose, CT1BOH was having fun!—*KJ9C* My first CW Sprint, and I had a great time!—*KK7GW* S9+ noise from power lines at the start. But it soon went away and I had a ball! You should all give QRP a try!—*KU7Y* Condx were great !! Best score ever.—*KU8E* The usual disturbing lapses wherein the participant is reduced to a helpless, flailing bystander. On the other hand, conditions were great—a slightly higher personal best and some encouraging signs of improvement. Don't know how far I progressed towards a golden log—I worked hard on being sure of what I copied. The emphasis on QSLing an exchange seems to be taking hold, as well. A great way to start off the fall contest season. Hats off to the big guns! Dee-lighted to work CT1BOH, RW4WR, OH1NOA and IK0HBN on 20 m. Also received a welcome surprise to be called by VO1XX! We need more VEs on, though, missed VE2-3-4-7 which aren't usually that rare.—*NOAX*

TOP 10 SCORES		TOP 10 QSOS		TOP MULTS		TOP 10 LOW POWER SCORES	
K1TO	16882	K1TO	367	K7RAT	48	N5TJ	15272
K7RAT	16128	K5GN	356	W7GG	47	K1HT	12190
K5ZD	15930	K5ZD	354	K1HT	46	K9AA	11340
K5GN	15664	K4AAA	352	K1TO	46	N6ZZ	10718
K4AAA	15488	N2IC	351	N5TJ	46	N0AX	10127
N5TJ	15272	N0NI	342	N6ZZ	46	N8EA	10062
N2IC	15093	K7RAT	336	K5ZD	45	NA0N	9963
NM5M	15030	NM5M	334	K1KI	45	K0RX	9761
N2RM	14608	N2NT	333	NM5M	45	K4XU	9660
N0NI	14364	N2RM	332	N6IG	45	N0NI	9430
				W9RM	45		

TOP 10 SCORES

BAND	CHANGES	QSOS	LOST	00Z	01Z	02Z	03Z
K1TO	16882	36	2	105	85	96	83
K7RAT	16128	92	3	91	79	79	90
K5ZD	15930	78	2	95	90	80	91
K5GN	15664	64	4	99	82	84	95
K4AAA	15488	49	5	99	87	84	87
N5TJ	15272	33	1	93	86	70	84
N2IC	15093	8	1	101	86	68	97
NM5M	15030	7	4	96	80	76	86
N2RM	14608	4	1	93	71	83	86
N0NI	14364	140	4	86	88	75	98

GOLDEN LOGS

(No QSOs Removed)

CALL	QSOS
K4BAI	311
K6NA	305
K4LT	281
NA0N	243
N6ZZ	233
N9JF	169
KI7Y	159

GUEST OPS

Call	Station	Op	Call	Station	Op
K1DG	K1DG	N5RZ	K6RO	K6RO	N6RT
N2RM	N2RM	N2NC	W6CT	AK6L	W6CT
K3CR	K3CR	KB3AFT	W6UE	W6UE	W4EF
K7SV	NJ4F	K7SV	K7BV	K5RC/7	K7BV
AC6T	W6RFU	AC6T	N7FO	N7FO	KN5H
N6IJ	N6IJ	AE0M	K9AA	K9QVB	K9PG
N6KI	N6KI	K6LL	W9RM	W9RM	W9QA
N6ND	N6ND	AD6DO	N0NI	N0NI	AG9A
K6AW	N6RO	K6AW	VE4ZOO	VE4ZOO	VE4VV
K6RJ	K6RJ	K6GV	VK5GN	VK5GN	N6AA

Team Scores

MNMAI	SCCC#1	WBF	NCCC#1
K7RAT 16128	NM5M 15030	K1TO 16882	N6TV 13288
K5ZD 15930	N6ND 14233	K4AAA 15488	N6IG 12960
N5TJ 15272	K6NA 13115	N2IC 15093	K6AW 11382
N2RM 14608	K6LA 13115	K4BAI 13684	N6XI 10660
N0NI 14364	N6KI 13072	K4LT 12364	W6RGG 10619
N2NT 14319	KT3Y 12100	K7SV 11844	W6NL 10578
K1KI 13815	N6VR 11880	AA4GA 10209	K7BV 10520
W9RM 13590	AC6T 11676	W4OC 8760	K6XX 9799
K1DG 12402	K6RO 10960	W4AU 8268	W6CT 9440
K5KA 9200	W6MVW 8159	N4DU 6916	N6IJ 7067
139628	123340	119508	106313

5. TCG#1 (W4PA, W9WI, N4CW, K4RO, K1KY, K4AMC, WO4O, N4IR, K0EJ)	88147
6. MRRC (K8MR, KU8E, KW8N, K8CC, W6UE, KM0L, N8VW)	80240
7. WMW (K1HT, N0AX, K0RX, K7BG, N7WA, KI7Y, KK7GW, AA0CY)	57872
8. TDXS (K5GN, N5DU, N5LZ, N5TU, KG5U, K5DX)	55602
9. NCCC#2 (AE6Y, W6OAT, AD6E, K6RJ, N6PN)	43573
10. NCC (K3CR, N9RV, K3LR, K3UA, AD8J)	41145
11. SMC#1 (K9AA, WI9WI, KJ9C, K9GY, K9IG)	36423
12. BARC (N4ZR, K4XU, N9JF)	26189
13. FRCD (AA3B, K2PS)	23528
14. SCCC#2 (N6ZZ, W6TK, W6RU, VK5GN, KO7X)	23224
15. SMC#2 (K9ZO, N9IJ)	14560
16. FCG (WC4E, N4BP)	11730
17. PWBRA (K7SS, KU7Y)	10222
18. RA (VE6EX, VE6EPK)	9181
19. TCG#2 (N9GG)	1215

Team Key

Team Key

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"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!"

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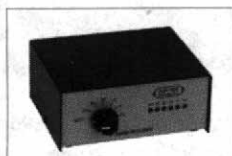
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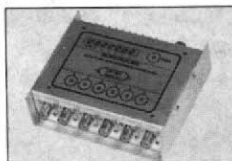


AUTOMATIC ANTENNA SWITCHING

Your ticket to higher contest scores and more fun DXing.
And **Top Ten Devices** has everything you need!



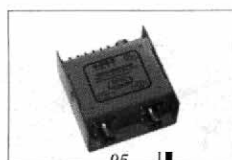
Band Decoders detect and follow your transceiver's frequency as you move through the bands. Models are available for Icom, Yaesu, and computer LPT port applications (used for Kenwood transceivers while running CT, NA, TR, DX4WIN, and LogEQF). **Price - \$115**



Our **Six Way Relay Box** attaches to and is controlled by the Band Decoder for automatic antenna selection of up to six antennas. It is rated for full power with excellent VSWR and isolation specifications. **Price - \$115**



The **Tower Mounted Six Way Relay** uses the same high quality circuit board as the indoor Six Way, but is mounted in a die cast aluminum box with a U bolt for mounting. Both Six Ways have terminal strips for convenient wiring. **Price - \$145**



Use our **A/B Station Selectors** to automatically transfer antennas between stations in a Multi-Single, Multi-Two or Single Op-Two Radio setup. Station B has automatic access to antennas not in use by Station A. Positive interlocking prevents "stealing" of antennas, and 70 dB or more isolation between ports minimizes station interaction. **Price - \$72 ea., six for \$360**

Band Reject Coaxial Stubs can reduce offending harmonics and allow two-radio setups to perform to their potential.

Coming Soon! The Wireless Four Way Relay. Fully compatible with our Band Decoders. Check the web site!

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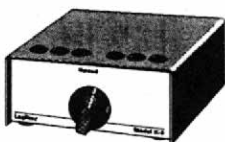
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 - On-line Order Form
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- <http://www.QTH.com/topten>

Dave N3RD: n3rd@ix.netcom.com
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Notice: All CW Ops



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CT 9 - The Ultimate Contest Software

CT™ has been the recognized leader in contest software since 1985. No other program is as easy to use or contains as many helpful features. With CT, you can operate entire contest without ever touching a pencil or paper. Key features include logging, duping, scoring, PacketCluster® interface, MS and MM networking, QSL labels, radio support for nearly all popular transceivers, Multiplier lists, rate information, log stats, and free unlimited access to the K1EA Software BBS.

CT 9 now supports Dxpedition mode and 13 contests:

- ♦ ARRL DX Competition (W/VE & DX)
- ♦ ARRL VHF QSO Parties
- ♦ ARRL Sweepstakes
- ♦ ARRL Field Day
- ♦ ARRL 10-Meter Contest
- ♦ ARRL 160-Meter Contest
- ♦ WAE European DX Contest (Europe & DX)
- ♦ CQ WW DX Contest
- ♦ CQ WPX Contests
- ♦ CQ 160-Meter Contests
- ♦ JARL All Asia Contest (Asia & DX)
- ♦ IARU HF Championship
- ♦ California QSO Party

CT Version 9 continues the tradition of cutting-edge, innovative leadership with a host of exciting new features that makes contesting (and winning) easier than ever: 50-line display mode, color coded band map, window position and color control, mouse support, sunrise/sunset tables, band switch support, Variable CW spacing, increased CW speed range, beam headings, rotor control for the Yaesu G-1000 SDX, and more!

Ordering Information:

⇒ CT Version 9 (for 386/486 computers only)	79.95	_____
⇒ Upgrade from CT 8 to CT 9	44.95	_____
⇒ CT Version 8 (for XT/AT/386/486 computers)	69.95	_____

Shipping:

⇒ \$5.00 US, \$6.00 Canada, \$10.00 DX	
	Total _____

Disk Size: CT 9 is available only in 3.5" HD format (1.44MB)
CT 8 is available only in 3.5" HD

MasterCard/Visa accepted; checks must be in US\$ and drawn on a US bank, payable to *K1EA Software*

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New Introducing WX0B StackMaster

Now you can stack and phase up to **FOUR** monoband antennas, and choose all combinations between them to steer your takeoff angle.

- Pushbutton Electronic Switch now incorporates the ability to lock out any hot switching by utilizing your PTT signal. Incorporates very high power relays for reliability and isolation.
- Grounds unused antennas.
- Controlled 50 ohm impedances throughout the product as in all our products.
- Dual feedline option.
- Utilizes four 1/4 wave stubs (supplied or you can build your own). Stubs we supply are professionally built, trimmed, and tested. Made of the finest coax we can find.

Look for complete details on our web site.

WX0B StackMatch

Phase and Stack 2 or 3 monoband or multi-band antennas on HF to 6 Meters

- Switch between all combinations of antennas.
- Dual feedline option works for both StackMatch and StackMaster.
- Control switch with LED stack indicators.

Mini StackMatch

The same wide band transformer without the relay switching

Sixpak

6 antenna to 1 or 2 radio controller

The SixPak is a high isolation relay matrix which can be configured in two ways.

- 6 X 2 matrix for 6 antennas and 2 radio operation. Includes safety lockouts.
 - 6 X 1 matrix for a remote antenna switch.
- It includes a water resistant box, and controller switch.

High Power Baluns

4:1 and 1:1 baluns for HF antennas

1.8-30MHz operation, 5KW CW, SO239 or N connectors. These make great replacements for those pesky tri-band beam baluns that fail.

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2 Meter and 440 Low Pass Filters

Reduce multi-multi harmonics and noise!

DCI now has high power, very low loss low-pass filters for 440 and 2 meters. These filters reduce your second harmonic by about 38 dB, and third and higher order harmonics by over 50 dB. They should go a long way toward reducing interference to 440 and 1296 from 2 meter and 440 transmitters in VHF/UHF multi-multi contest stations. They go between the linear and the antenna and reduce the broad band noise and harmonics generated in the linear. The estimated power handling capability is 2 KW, and the passband loss is about 0.15 dB.

If you are interested in these filters, they are priced at \$159 for the 440 model and \$259 for the 2 meter model. You are protected by DCI's unconditional return policy during the first year.

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Can you really predict how an antenna will work? You bet you can!

And EZNEC makes it easy!

EZNEC ("Easy-NEC") combines the power of NEC-2 with the same friendly, easy-to-use operation that made ELNEC famous. EZNEC lets you analyze nearly any kind of antenna - including quads, long Yagis, and antennas within inches of the ground - in its actual operating environment. Press a key and see its pattern. Another, its gain, beamwidth, and f/b ratio. See the SWR, feedpoint impedance, a 3-D view of the antenna, and much, much more. With 500 segment capability, you can model extremely complex antennas and their surroundings. Includes current source and transmission line models. Requires 80386 or higher with coprocessor, 2Mb available extended RAM, and EGA/VGA/SVGA graphics.

ELNEC is a MININEC-based program with nearly all the features of EZNEC except transmission lines and 127 segment limitation (6-8 total wavelengths of wire). Not recommended for quads, long Yagis, or antennas with horizontal wires lower than 0.2 wavelength; excellent results with other types. Runs on any PC-compatible with 640k RAM, C/E/VGA/Hercules graphics. Specify coprocessor or non-coproc. type.

Both programs support Epson-compatible dot-matrix, and HP-compatible laser and ink jet printers.

Prices - U.S. & Canada - EZNEC \$89, ELNEC \$49, postpaid. Other countries, add \$3. VISA and MASTERCARD ACCEPTED.

Roy Lewallen, W7EL

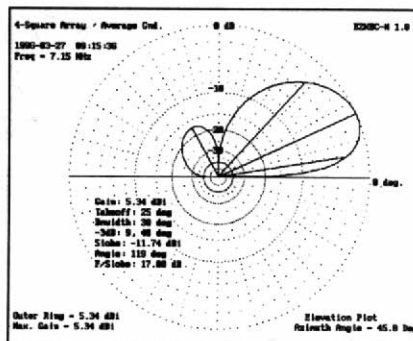
P.O. Box 6658

Beaverton, OR 97007

phone 503-646-2885

fax 503-671-9046

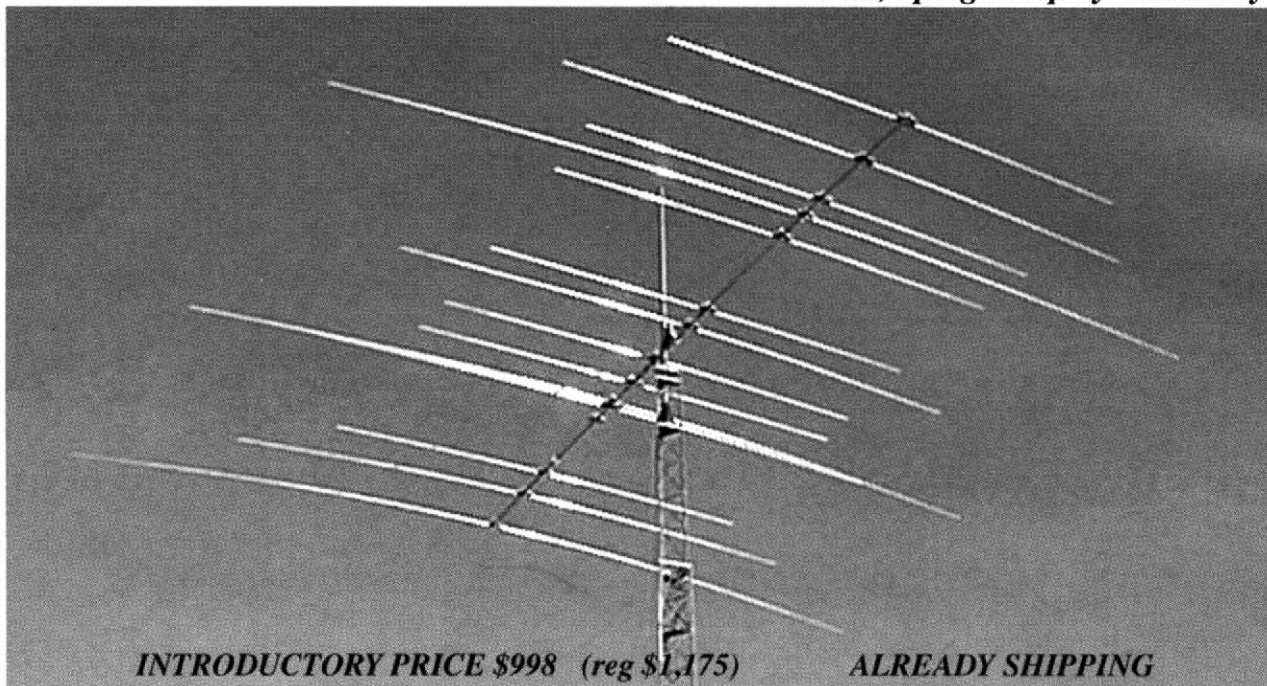
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C-31 XR

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



INTRODUCTORY PRICE \$998 (reg \$1,175)

ALREADY SHIPPING

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 NOAX. 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

Call or write for a comprehensive brochure on the **Force 12** product line. The brochure includes true specifications and explanations of terms. For the best \$10.00 you will ever spend (\$12.50 w/postage), ask for the book entitled, **ARRAY OF LIGHT (Straight talk about Antennas and Related Information)**. These 76 pages are a compilation of practical subjects, questions and answers, installation tips, operating helps and data on antenna design including a section on traps.

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W2IHY AUDIO MEMORY KEYER

Sounds so good people will think it is you live



Features and Functions

Records 75 Seconds of Audio

- Hard and soft memory partitioning.
- Stores messages for up to 10 years with no battery backup needed.
- Record what you are transmitting. (No time wasted in contests recording messages. Recorded and live messages sound identical.)
- Records and plays back audio from your transceiver

Adjustable Repeat

Mic Select

- Rear panel accessible 3 position switch selects ICOM, YAESU or KENWOOD mic.
- Low impedance 600 ohm input.

Mic Gain

- Accessible from the bottom of the case.
- LED indicator facilitates gain adjustment.

PTT Input (RCA jack)

- Rear panel accessible PTT input independent of the mic input. (use with a foot switch)

Dual Band Audio Equalizer Adds

Presence to Transmitted Audio

- Adjustable treble and bass.
- Treble boost 20 db at 2300 hz
- Bass boost 18 db at 240 hz
- Equalize mic transmitted audio.
- Equalize recorded audio.
- Equalizer bypass (on/off switch).

Mic Out Level

- Accessible from the bottom of the case.
- Adjusts audio output level.

Mic Output

- Rear Panel accessible 600 ohm balanced audio output.
- 5 Pin DIN connector.
- Cables to radio available for \$15.00 each.

SPEAKER OUT

- Monitor output. For 8 ohm speaker.

Power

- 7-14V (100ma) wall xfmr included.
- LED indicator and on/off Switch.

ONLY \$229.99, Cable to radio \$15.00 Plus \$8.00 S & H

W2IHY AUDIO EQUALIZER AND NOISE GATE

Say Good bye to Fan and Other Background Noise!

Make Your Rig Sound **Brand New !**

Features and Functions

Dual Band Graphic Equalizer

- Adjustable treble and bass.
- Equalizer bypass (on/off) switch.

Noise Gate

- Adjustable level (threshold) and delay.
- LED Noise Gate level indicator.
- Bypass (on/off) switch.

Mic Select

- Rear panel accessible 3 position switch selects ICOM, YAESU or KENWOOD mics.

Mic Input

- Rear panel accessible 8 Pin mic connector.
- Low impedance (600 ohms) input.

Mic Gain

- Accessible from bottom of the case.
- Adjusts internal mic amplifier gain.
- LED indicator facilitates gain adjustment.

Mic Input (RCA jack)

- Rear accessible independent mic input.
- Low impedance (600 ohm) input.

PTT Input (RCA Jack)

- Rear panel accessible PTT input independent of the MIC input. (can be used for a foot switch input)

Mic Jumper

- Accessible from the bottom of the case. For use with electret condenser mics (example HM12, SM6,...).
- Provides 5 Vdc to the mic cartridge.

Mic Out Level

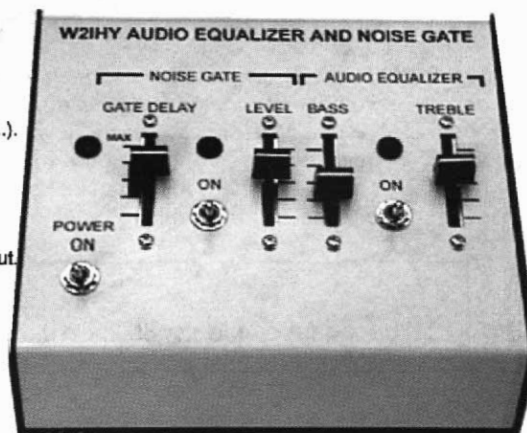
- Accessible from the bottom of the case. Adjusts the audio output level.

Mic Output

- Rear Panel accessible 600 ohm balanced audio output.
- PTT from PTT RCA jack and MIC IN.
- 5 pin DIN connector.

Power

- 7 - 14 Vdc (100ma) xfmr included
- LED indicator and on/off switch.



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Prices include power supply and /30 day money back guarantee

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ICOM IC-756 & IC-PW1: All Mode, HF / 6M, Desktop Size



Options required for PC operation:

CT-17 C-V level converter

Third party serial cable with pins 1-8 & 20
Third party software

"TRANSPARENT" OPERATION

Set the entire, compact 'PW1 right on a desktop, or remove 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



IC-756 AND IC-PW1: A FULL GALLON HF / 6M DESKTOP STATION THAT'LL REALLY TAKE YOU PLACES

You and ICOM create the competitive edge with this 100% duty cycle desktop station. The IC-756 is a contesters' dream, with IF-DSP, quad conversion Rx, dual watch, memory keyer, spectrum scope, and much more.

Control your contest frequency with the IC-PW1. This 1 kW powerhouse sports a remotable control head, auto antenna tuner, simultaneous multi-variable analog metering, 4 antenna connectors, and, of course, much more.



Get in on the fun. With Solar Cycle 23 warming up and the latest ICOM gear, now is the time. Visit your ICOM dealer or call for brochures: 425-450-6088

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BIG THUNDER SERIES

10, 15, 20 Meters
9 Elements on a 28 ft (8.6m) Boom
Optional 40 Meter Kit

X9



10, 15, 20 Meters
7 Elements on an 18 ft (5.5m) Boom
Optional 40 Meter Kit

X7

Boom to Mast Clamp



Element to Boom Mounting



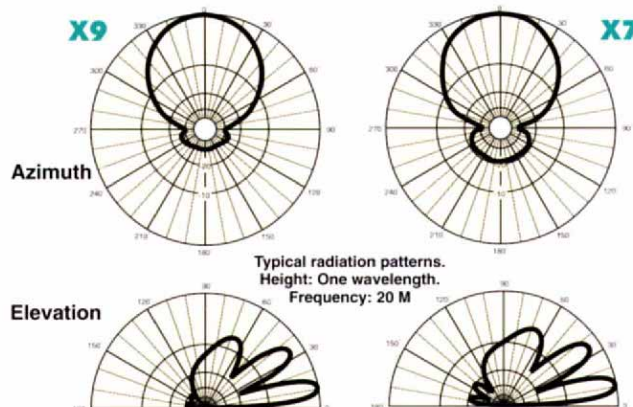
The Performance Tribander for the DX Years Just Ahead

- ▶ New High Efficiency Computer Optimized Design for Maximum Gain and Ultra Clean Radiating Pattern
- ▶ 100+ MPH Construction for Best Reliability and Long Life
- ▶ NEW 4L Log Cell Driven Elements for better VSWR Bandwidth
- ▶ Trapless Driven Elements and Reflectors for Reliable Power Handling
- ▶ Interleaved Element Design for Mono-Band Performance
- ▶ Add-on kits available for 40 Meters

The new X9 and X7 Triband Yagis are geared to set new standards in both radiating performance and mechanical reliability. Cushcraft's product development team has employed the latest computer modeling technology to achieve a superior electrical design as well as elegant new mechanical hardware and assembly techniques.

Each mechanical component was designed to 100+ MPH wind survival with a 1.25 safety factor. Traps were eliminated from the high current driven elements and reflectors using the new 4L Log Cell design, which yields virtual monoband performance and maximum power handling capability. Traps are employed only in the lower current directors for increased gain and sharper pattern. The result is a truly high performance antenna family which will easily handle the legal limit.

SPECIFICATIONS	X9	X7
Frequency Coverage (Meters)	10, 15, 20	10, 15, 20
Total number of Elements	9	7
Number of Elements per Band	4	3
VSWR Minimum	1.1:1	1.1:1
VSWR 1.5:1 Bandwidth (KHz)	20M 15M 10M	350 450 1500
Longest Element, ft (m)	36.5 (11.12)	37.2 (11.33)
Turning Radius, ft (m)	21.7 (6.61)	20.0 (6.09)
Boom Length, ft (m)	28 (8.53)	18 (5.49)
Boom Diameter, in (cm)	2-1/2 (6.35)	2-1/2 (6.35)
Maximum Mast Diameter OD, in (cm)	2-1/2 (6.35)	2-1/2 (6.35)
Maximum Wind Survival, mph (kph)	>100 (>161)	>100 (>161)
Maximum Wind Surface Area, ft ² (m ²)	9.9 (.92)	7.9 (.73)
Windload @ 80 mph, lb (kg)	255 (116)	202 (92)
Maximum Power Handling (KW)	2	2
Weight, lb. (kg)	85 (38.5)	60 (27.2)
List Price	\$995	\$675



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COMMUNICATIONS ANTENNAS