

JUG

Publication of the Northern California Contest Club

April 2002

Issue 359

The NCCC 75 meter net
meets on Thursdays at
9PM,
3830 approximately

NCCC Meeting

*Guests are always welcome at the NCCC!
Please join us.*

Field Day With WVARA by Mike, K6PUD

This meeting is also our annual officer & BoD elections, which will take about 30 seconds out of the program!

Monday, 8 April 2002

Harry's Hofbrau Bakery

6:00pm socializing, 6:30pm dinner,

Get your dinner in the cafeteria line and bring into the Trophy Room where we'll be meeting
1909 El Camino Real, Redwood City, CA 94063-2112 (650)366-3733

NCCC OFFICERS

President Rick Tavan, N6XI n6xi@arrl.net
Vice President/CC Andy Faber, AE6Y ae6y@aol.com
Secretary/Treasurer and WEBmaster
Ed Muns, W0YK w0yk@arrl.net
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Contest Calendar

April Contest

SP DX Contest	Apr 6 - 7
EA RTTY Contest	Apr 6 - 7
Missouri QSO Party	Apr 6 - 7
JIDX HF CW Contest	Apr 12 - 14
YU DX Contest	Apr 20 - 21
Michigan QSO Party	Apr 20 - 21
Helvetia Contest	Apr 27 - 28
Florida QSO Party	Apr 27 - 28

May Contests

CQ WW WPX Contest, CW	May 25 - 26
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NCCC 2002-2003 Officer Nominations

The Nominating Committee is hard at work identifying and confirming a slate for the 2002-2003 club year Board of Directors. So far the following outstanding members have been nominated:

N6NZ Dave Curtis - President
N6ZFO Bill Haddon - VP/Contest Chair
K6RB Rob Brownstein - Secretary/Treasurer
WA6O Mike Shapiro - Director

In addition, I will be on the new BoD as Immediate Past President.

The Board thanks and congratulates Dave, Bill, Rob and Mike on their nominations. The committee has identified several strong candidates for the two remaining general director positions and is presently "in negotiations." Watch the reflector (nccc@contesting.com) for information on the full slate as soon as it is complete. For more information, or to volunteer to serve your club, contact Rick at n6xi@arrl.net. In addition to enjoying a neat regular program (FD by WVARA as told by video and K6PUD), we will hold elections and gavel transfer at the April 8 meeting. Be there!

73,...../Rick N6XI

XI-ting Times

Awards!

The March meeting was our annual Awards Banquet, once again hosted at the Tied House in Mountain View. Member Ron W6RN and his crew have improved the room, replacing benches with chairs, improving the heat and adding a huge projection screen. And the food remains outstanding. This is now one of our nicest meeting venues, a fitting place to say "thanks" to all the hard working NCCers who have earned accolades during the club year. 2001-2002 has been an active year for us and many, many members were recognized for their accomplishments.

(XI-ting Times cont.)

Sweepstakes

By my count, 24 of us earned KB-500 certificates for contributing at least 500 QSOs in the November Sweepstakes, both modes combined. 34 members earned the KB-1000 plaque and 20 made it to the coveted KB-2000 mark. You pretty much have to operate both modes to earn that one! Most impressive of all, however, are the five individuals who earned the rare and honored KB-3000 award. You have to go all-out from a darn good location to do that! Congratulations to Ken N6RO, Tom K5RC, Dennis K7BV, Jim N6IG and Dean N6BV for breaking the 3,000 QSO mark! Ken's total, by the way, was 3,860 from Radio Oakley ... amazing! We also recognize stations that were responsible for (get this!) 5,000 QSOs by supporting multiple entries from a single location. Joining this elite fraternity were Brad K6IDX and "Leland" W6YX (Stanford, that is).

The Sweepstakes **Big Gun Award** went to **Dennis K7BV** and the **Little Gun Award**, after careful review of the rules and on-site refresh of the MC's memory, went to **Peter AB6WM**.

Discretionary Awards

There are three very special awards granted each year by the Awards Committee. The criteria are subjective and therefore very difficult to evaluate.

The **Rookie-of-the-Year Award** went to **Jig AD6TF**. Jig joined the NCCC on in June 2001 and has been a regular at club meetings. The Awards Committee counted at least nine contests that he has entered since joining. He had the highest claimed score in San Francisco County in CQP, operated both weekends of SS, jumped into some pretty intimidating contests (CQWW CW and Sprint CW), shown a lot of initiative in trying to get on the air by driving from SF to N6IJ for several contests (and did well there), and shown determination by operating contests at his modest home QTH in San Francisco. He has even gone on two contest DXpeditions since joining NCCC: 4M1X for the IOTA contest, and VU in the recent ARRL DX CW contest. His group from 4M1X made about 6,000 QSOs in 2.5 days.

The **Most Improved Contester Award** went to **Dave NT6K**. Dave has been extremely active in contests in the past year, entering at least 10. Dave is definitely a contest junkie! Sometimes he operates in a M/S with KA6BIM, but he has also operated a good amount of S/O. In CQP last year, he made over 2,000 QSOs S/

O, placed in the Top 20, and shattered the 1992 San Joaquin County record by a large margin (over 60,000 points). He did a good job on both modes of SS. He is active on many modes of contesting: CW, SSB, and RTTY, submitting good scores on all modes. His station consists of a 5-el 10m monobander, random wires/slopers/Inv-Vees for the other bands, a TS-570, and no amplifier. Other notables include: over 1,500 QSOs in the 10m contest running LP, and over 2,500 QSOs in WPX SSB in a M/S with KA6BIM.

The **Contester of the Year Award** went to two members this year representing Team Vertical – **Kenny K2KW and Tom N6BT**. Kenny is the organizer of the team that has recently proved to the contesting community that vertical antennas placed on the beach in Jamaica can truly kick butt! Usually entering multi-multi but also racking up an impressive set of all-band records with individual QRP single-band efforts, the various 6Y expeditions have exemplified the training as well as the operating aspect of club membership. But Kenny and Tom are also excellent volunteers in general service to our club and our sport. Kenny maintains the DX Holiday Website, an outstanding resource for prospective expeditioners. He made a great meeting presentation this year on expeditioning and founded Contest U, an effort to help emerging contesters improve their skills. Tom has served as the MC and Santa of our annual Holiday Party for as long as anyone can remember and has served the club in a variety of official and unofficial capacities. His aluminum artwork is the clout behind Team Vertical. His antenna expertise is legendary, dating back well before the founding of Force 12. His willingness to share that expertise, and a lot of physical effort as well, is exemplary of a contester of the year. Both these outstanding contesters have contributed to the mission of NCCC: To win contests, to recruit and train contesters and to improve the state of the contesting art.

CQP

The California QSO Party was again ably organized by **Al AD6E** with N6TV, W6OSP and dozens of others. The results are written up elsewhere so suffice it to say that many of our own members earned prize certificates and sought-after bottles of NCCC special vintage wine for their efforts.

Special Awards

A new award this year was the "Station to the Max" citation for those stations that exemplified NCCC spirit by optimizing results from a single contest location. Winners were

W1AW/6	N6RO
W6ROD	W6OAT
W6YX	N6DE, W6LD, N7MH
K6ZM	W6AFI, WA6O, K6WG
K6IDX	W6OAT
N6IJ	AA6EG
N6RO	N6RO
HC8x	N5KO, N6KT, K6AW, W6NL
6Yx Team Vertical	K2KW, N6BT

The "Dynamic Duo" award went to K0BEE and W1SRD who not only live together and work together but also contest together, with most impressive results.

The Best Program of the Year award went to WA6HHQ for his presentation on High Performance Receiver Design.

A sort of long-delayed echo resulted in receipt and service of a 1934 "pink slip" from the defunct Federal Radio Commission, predecessor of the FCC, citing "Little Johnny Troster" for "Bootleg radio frequency emissions on 1852.367KHz without proper authorization of FRC license by a minor using a loop-modulated oscillator powered by B batteries located in the bedsprings in youngsters room during nighttime hours with total and blatant disregard for the respected rules and regulations of the honorable Federal Radio Commission created for the proper and orderly conduct of communication by way of those invisible radio frequencies that Marconi exploited for the good of mankind in an effort to raise the general world population from the depravity of moral degeneracy that will now surely return with the advent of Repeal that has once again legalized the sale and imbibing of the devil's juice that so often distracts the otherwise well-meaning parents of our nation's youth." Jack was impressed at the state of preservation of this citation but a tad miffed. Said Jack, "I don't remember a word of it ... and if I did, I wouldn't admit it!"

The President's Award went to volunteer extraordinaire Ed W0YK for his incredible service to the club including Secretary/Treasurer, Awards Chair, Webster, Reflector Manager and contesteer! Without Ed's dedication, we would be broke, without records, Web

site or email reflector and we would not have been able to hold an Awards Banquet! Thanks, Ed!

Sponsored Trophies

The Founder's Award, established by NCCC founder Jim N6TJ for the high score, both modes combined, SOAB in CQWW went to W6AX operated by Jim N6IG.

The Cam Pierce K6RU Memorial Award for top California Multi-Multi in CQWW went to non-members W6KK and N6AW operating W6KP.

5-Meg Award

One of our favorite operating award programs is the NCCC 5-Meg Award, presented to members who accumulate 5,000,000 points in any combination of contest entries from club territory and credited to the club. New recipients at the banquet were WA6O, KA6BIM, K7NV, N6BV, K6III, N6EM, K5RC, K6CTA, K6IF, K6RC, NT6K, WC6H, K6EP and K6XV. Record keeping for this one is tough, so if you believe you have qualified but not yet received your award, please notify Awards Chairman Ed W0YK. There was a rumor that this award could be earned by agreeing to relieve Ed of this position which he has held faithfully for many years, with or without the five megapoints, but your Prez has committed not to permit such shenanigans!

And Finally

Thanks to the anonymous gang of nefarious contesters for serving as this year's Awards Committee, chaired of course by Ed W0YK. Special thanks to Dean N6DE and Andy AE6Y for contributing to this writeup. Congratulations to all our award recipients. Thanks to your efforts, we are all winners!

Next month, April 8, is our Elections Meeting. At Harry's Hofbrau in Redwood City we will have our choice of hearty food and drink from their serving line and bar. A program is also planned to follow the election and transfer of responsibility to the incoming BoD. See the announcements elsewhere in this issue of the Jug.

Finally, this is my last column as your Prez. I want to thank you all for your confidence in me and for the outstanding job you have all done as contesters and club members. When I accepted the job, it was contingent on the previous NomComm coming up with a strong slate of officers and directors. They could not have done better than the outstanding team of Secretary/Treasurer Ed W0YK, Vice President/Contest

Chairman Andy AE6Y, Directors Dean N6DE, Ken N6RO and Dennis K7BV and Immediate Past Prez Bob K6XX. Thanks, guys – you made this a great year!

unteers to help me out. Then for CW I am honored to be heading for 6Y with Team Vertical for a smashing M/M. Hopefully this will be the contesting debut of the Elecraft K2/100! See you on the bands!

As for WPX, look for me at rare prefix NZ6Q on SSB during the slow times. The Filly Contest Group will be S/O, M/S or perhaps M/M depending on who vol-

73 & KB,.....Rick N6XI
Soon-to-be-former Prez

The Awards Banquet



**K6WG, K5MJE
AND N6SFO**

AE6Y and K7LXC



N6EM, K6III, WA6O AND AJ6V



Andy's Dandies

Valedictory

This is my swan song as a vice-presidential columnist. I've enjoyed sharing my thoughts with you each month, and I hope that my faithful reader, if he or she actually exists (it's not clear, because I never get any feedback on the column, and on one occasion when I offered prizes for a response to something published near the end, there was no taker. Nonetheless, it is a nice form of vanity press, hi), enjoyed the columns as much as I did writing them.

This has been a fun year for the officers, and I think for the membership as a whole. The club members have shown a lot of enthusiasm at meetings, made a terrific contest effort in SS, and seem about to do the same in WPX. It seems appropriate to mention some of the things that I think we accomplished together this year. Here are some of the highlights of this year, from my vantage point:

1. Our primary goal was to get greater attendance and enthusiasm for the club, particularly at our monthly meetings. To this end, we worked hard to make the programs interesting and to encourage lively exchanges among the membership. I think we succeeded. Attendance never dipped below 35 or so any meeting, and we had 50 plus at several. We managed to put together interesting programs each month, rarely having to go to "outside" speakers (and someone like WA6HHQ, winner of the "Outstanding Program" award, is barely "outside", anyway).
2. Another goal was to try to instill a greater sense of inclusiveness by moving the meetings around geographically. Thanks in part to a club president with a private pilot's license and an airplane, we held mini meetings all over the place, and managed to use this geographic diversity to recruit new members who otherwise wouldn't attend. Way to go, Rick.
3. A secondary goal to me (well, maybe in this listing a tertiary goal) was to put on a great CQP and try to take back our crown lost to SMC in SS. CQP was indeed once again the premier state QSO Party, with almost 500 logs received and everyone was happy with the outstanding contest camaraderie and high scores (well, I wasn't happy -- after reaching my personal high of second place in the state in 1994, I have steadily been pushed back by the steadily increasing spate of Southern California contesters and only managed 10th this year. Even with N6TV on all CW, I couldn't take my own county, thanks to the meddling of W6LD at W6YX!). Special thanks to Ed,

W0YK for awards, Bob, N6TV for getting the counties on as always, Al, AD6E for the log checking and putting together the results, and Bruce, W6OSP for the traditional CQP wine. Also a big thank you to all those who participated, particularly the county expeditioners who put on the rare counties.

In SS, we worked hard, encouraged by the tireless cheerleading of Ken, N6RO, and Bob, K6XX, and increased last year's score to a new national record. That was the good news; the bad news, of course is that in spite of this terrific showing, once again SMC managed to win the numbers game and retain their laurels from 2000. Even if we came in second, I'm proud of our effort.

4. Increased communications with members was another priority. George, K6GT, did a terrific job for the first few months of this year putting out a very readable (except maybe for the poetry) JUG, and it was on time each and every month! When he finally gave notice, the reins were taken up by Mary, NA6E, who has continued the tradition of a fine club newsletter. The web site has been ably maintained by Ed, W0YK, and the reflector has been more useful than ever, in this age of emails. Thanks to Trey, N5KO, for helping maintain the infrastructure that makes it all work.

New Officers

Under our by-laws, new officers are elected each year at the April meeting. Traditionally, the BOD proposes a slate of officers. We urge you to come out to the April meeting and give them your full support, as this year's crew rides off into the sunset. Here's a pome about that:

"Adios, Amigos"

I've loved being VP/CC
Of good ole N-triple-C.

It's been fun; you've been swell,
Now it's time for farewell,

From Prexy, and Sec'y, and me.

And, of course, I'd like to give special thanks to the aforementioned Prexy, Rick, N6XI and Sec'y (rhymes with Prexy, BTW), Ed, W0YK. Both have worked hard to make this year a success. With their enthusiasm and energy, it's been a great year to have been an officer. I'm sure next year's slate will have similar good fortune and push the Club to ever greater heights.

(continued next page)

Don't Forget WPX

Of course, don't forget WPX, as our main carryover activity. By the time you read this WPX SSB will be over. I've been very gratified by the enthusiasm shown by the members for participating in the contest this year. Let's win the sucker!!

As a result of an email solicitation and an announcement at the March meeting, we've had an outpouring of pledged scores. The amount can't be printed, but you can check it out on the member's only section of the web site (if you forget the password, drop an email to Ed or myself). And send me an email to pledge if you haven't already done so.

I'm in the midst of preparations to go to ZF2NT to operate from Bruce's fine station as a Single Op in SSB. Callsign, just issued by the lovely Janet at the Caymen Islands Telecommunications Office is ZF2AF. Hopefully, this will have turned out OK, and my little expedition will have been joined by many others in a torrent of high NCC WPX scores. (This column is being written on March 19 to accommodate our publisher's deadline for this month, so it's a bit anticipatory.)

As you all know, the club score is the total of SSB and CW, so there is still time to plan an all out effort for CW. Remember, you can do quite well from the West Coast, and have a lot of fun to boot, in this contest. I'll be in Aruba, myself (literally), operating from Carl's (AI6V's) super QTH at P49V.

See you in April.

73, Andy, AE6Y, Outgoing VP/CC

THE SECRET OF MY SUCCESS

By Ron, K6KYJ

Many people have sent email, cards, and letters asking me how I achieved recent noticeable contest scores using the **Three O Method**. They also want more information about the famous **Nothing But Wire** antenna farm that I maintain here in Chico. While much will be revealed at my presentation during the Dayton Hamvention, I believe it is only fair to share this story with my fellow NCCC contestants in this, the April newsletter.

In 1988, suddenly unemployed and with time on my hands, I decided to return to the HF bands after a hiatus of fourteen years. For \$25, I purchased a Heathkit SB-101 from the estate of a deceased ham. For an additional \$100, I replaced nearly all of the vacuum tubes. The next year, I entered the ARRL CW DX contest and finished first in the Sacramento Valley Section in the low power class. I used

a straight key and the PTT circuit to transmit contest CW. Thus began the legend of the **Three O's**: Old Man operator, Old Time radio, and Old Copper wire.

The Maypole

That year was the first year of operation with my now beloved 'Maypole' antenna for 10-15-20. These are three inverted dipoles with a single coax feed. Each dipole is about 120 degrees separated from another. Currently, only my ten meter dipole is aimed at Europe; however, this antenna system works very well in all directions on all three bands. The center-fed top, with a 1:1 balun, is currently about 45 feet high.

After about three years, the SB-101 began to fail and I took another break from HF. In 1995, I purchased a used Kenwood TS-820S for \$350 (another estate sale). Later, I added a 250 Hz. CW filter and an external VFO. This rig is the only transceiver I own and it is still running on the original final tubes even though it is at least 20 years old.

The following year, 1996, I again won my section in the ARRL CW DX test. By then, I had added separate 40 and 80 meter dipoles to my "farm"; both about 40 feet high. I acquired a used keyer but I was still logging by hand and transferring the entries to a spreadsheet during breaks for dupe checking. Interestingly, my first section win was at the peak of a sunspot cycle and the second was at the bottom between cycles.

The Secret

So, about the Secret of My Success. Easy: **no competition**. My scores were not all that great but there were very few submissions from my section and I prevailed almost by default.

I haven't won the section since 1996, but I still plug away at it. In 1999, I finished third in the section with Eric, KU6J, right behind. We started corresponding and the next year, 2000, Eric whomped me and began his reign as section CW LP champ. I would have been runner-up in 2001 but had an Old Man Moment and forgot to submit my log. This year, health kept me out of the running on CW and work sidetracked Eric. (We have an equally good rivalry in the CW LP Sweepstakes.) In addition to the antennas mentioned above, I also have another dipole for 75 meters and an end-fed quarterwave for 160. A multiband series of dipoles made from ribbon wire goes to my spotting receiver, an ancient Icon R-71 (inherited).

Snow White, too

Thus, the Land of the Seven Dipoles claim is really true (and Snow White is often present: my fat, white long-haired cat). My lot is 66 feet wide by 140 feet deep. In

other words, wide enough for a 40 meter dipole and deep enough for an eighty meter dipole. The end-fed quarter-wave on 160 slopes down from a high conifer for about two-thirds of its length and then bends 70 degrees to keep it from paralleling the other antennas.

With 100 watts and dinky antennas, getting into pileups makes me feel like a mouse among elephants. Then, I work a JA on 75 meters with only one call and realize that some mice can roar. The total cost of my antenna system: probably no more than \$150. Successful? I finally got on for 19 hours of the 2002 ARRL SSB DX test and picked up 139 multipliers on **Nothing But Wire!** Naturally, I have had to set up a new calendar just to handle all the requests for me to be a guest op at the Big Guns. But, success has its price.

[Author's note. I wrote this for the April 1 issue since April Fool's Day is a bit special. I married Jeanne on April 1, 1967.]

Interveiw with W6OAT

When I got home from the NCCC Awards Banquet I had waiting for me an e-mail from Randy Thompson, K5ZD, who is doing the Sweepstakes write-up for the ARRL. He was writing to ask why I elected to enter the "Assisted" category rather than going with the more traditional "Unassisted" category. Below are K5ZD's questions to me and my responses to him.

(K5ZD Questions)

- Why did you choose to operate assisted?
- Was there anything interesting or different that you noticed about assisted as compared to your efforts previous years in other categories?
- Would you do this category again full time? Why?

(My responses)

I've been operating in both CW and SSB Sweepstakes contests for over 40 years (mostly under the call signs of K4BVD, W6OAT and WA7NIN). I got really serious about the competition in the 1970's and managed a whole slew of top-ten finishes and even one national victory. Those top scores fulfilled my competitive, ego-driven desires and proved to me that under the right conditions I could actually win this contest.

Since the 70's, I've routinely entered the SS but for a different set of reasons. I now want to have fun; I love the camaraderie involved in the club competition efforts made by

the Northern California Contest Club; and (morbidly perhaps) I want to know which of my SS buddies still are alive and in turn let them know that I'm still here too.

The full-tilt, single-op unassisted category simply no longer satisfies my objectives. It's not particularly fun putting my old body through a grueling 24 hour marathon which (especially on CW) becomes excruciatingly boring on Sunday afternoon when new stations to work become hard to find.

Now comes the "Assisted" category. Right off the bat it permits me to compile a bigger score quicker than I could as an unassisted category op. This is because I can see from the packet screen where all my missing multipliers are and can quickly go get them. Yes, I know that with full power, big antennas and endless presses of the "CQ SS" function key all those multipliers eventually will call me, but it just happens faster in the assisted category.

While I'm looking for those missing mults, the assisted category provides me the opportunity to chat with other club members on packet. This helps strengthen the intra-club bond among members and is just more enjoyable to me than sitting there in isolation. It also lets me help contribute a bit more to our club aggregate score by being able to find and spot some of the elusive mults other club members are missing. Finally, I've found the assisted category to be a whole lot more fun on Sunday afternoon because it increases the QSO rate. Let me explain this last statement. Last year, several of us in the assisted category began spotting every station we worked on Sunday, which had a relatively low QSO number. This pumped a whole lot of data into our local packet system, but the logging software each of us was using simply ignored spots of stations we already had worked. Thus, all that appeared on our monitors were the call signs of stations we needed to work. In concept, this isn't so different from what is happening with the hot shots doing their Single-op, two-radio thing. One keystroke moves me to the frequency of the spotted station, and after I work it, another keystroke takes me back to my old frequency. With several club members all doing such spotting, I suggest that I'm finding new stations at a better rate than I could find them alone, and even at a better rate than I could find them on a second radio had I developed the skill set needed for SO2R (which I have not).

To your final question -- Would I do this category again full time? - the answer is a resounding "Yes." In fact, I'm not sure now I would even enter any other category. Why? Because for me this is just a whole lot more fun and that's what I want from my amateur radio experiences.

73 de Rusty, W6OAT

RTTY....AA5AU Style

be made in both the transmitting and receiving of RTTY transmissions. Both are equally important.

Having started my contesting career at the age of 16 on CW, it was just a matter of time until I would find myself doing RTTY contests. Back in the mid 80's I stumbled across the BARTG (British Amateur Radio Teleprinter Group) Spring RTTY Contest and had so much fun working new countries on RTTY that I couldn't wait until the next RTTY contest. Since that time, I've worked over a hundred RTTY contests. I plan my entire year around RTTY contests. I presently hold five world records and several other North American records. I did it with a modest station - mostly low power with standard transceivers and tri-banders. That is the beauty of RTTY contesting. You can do well without having a big "contest" station. If you already have a nice contest station geared toward CW or SSB, it will work just as well or better on RTTY.

RTTY contesting is a lot like CW or SSB contesting, but in many ways, it's much different. On CW and SSB, you have to use your brain to decode what comes from the radio. In RTTY contesting, a modem, TNC or sound card decodes what comes from the radio and your brain is left to decipher what shows up on your computer's monitor. This makes RTTY contest less stressing on your brain but does not take away from the competitiveness or enjoyment.

RTTY Radios

Just about any commercial Amateur transceiver, transmitter, or receiver will do RTTY. However, for RTTY contesting, it's best to have a radio that will stand up to the rigors of being keyed down for periods up to 8-10 seconds at a time. This is not a lot to ask of your transmitter, but remember this has to happen over the course of a full contest. Most modern transceivers are built to run RTTY at full output power. If you are unsure, check with the manufacturer or visit the RTTY page on my website at www.aa5au.com where several experienced RTTY contesters have made various comments regarding most of today's transceivers in use by Amateurs around the world.

As in CW or SSB contesting, the two functions of your radio are transmitting and receiving. However, unlike CW and SSB, special considerations have to

RTTY Transmission

RTTY is transmitted in one of two ways by an HF transmitter (or transceiver). The two modes are FSK (Frequency Shift Keying) and AFSK (Audio Frequency Shift Keying). The standard shift is 170 Hz and the normal tone frequencies are 2125 Hz for mark and 2295 Hz for space.

The difference between FSK and AFSK is quite simple. FSK is direct keying of an FSK input to the transmitter and the transmitter generates the shift. FSK is normally simple on/off keying. The FSK output from a terminal unit, a TNC (tone node controller) or the TXD line of an RS-232 I/O port of a computer (COM port) is connected directly to the FSK input of a transmitter that is equipped with an FSK keying circuit. An open to the input of this circuit could be either a mark or a space depending on the transmitter. A short to the input would be the opposite of what is generated by an open. This is the simplest kind of RTTY transmission and does not require any special adjustments to the transmitter other than turning up or down the power output.

RTTY transmission using AFSK is when audio is sent from a TNC or computer soundboard to the microphone or audio input to a transmitter. This audio would be the frequencies of 2125 Hz and 2295 Hz when using "standard" tones. However, this may not always be the case as will be discussed later. But in most cases, think of AFSK RTTY as audio tones being sent to an audio input of a transmitter. This seems very easy and it is, but here is where problems can most likely occur in RTTY transmissions. If the audio signal fed to the transmitter is too high in level or if the operator forgets to turn off the transmitter's speech processor, over-driven and distorted transmissions will result.

Another byproduct of over-driving a transmitter is multiple image signals being transmitted across a section of the band on several different frequencies. There is nothing more aggravating than having one or two stations wipe out part of the RTTY sub-band in contests because they are over-driving their transmitters. Another problem can occur if there is not proper

isolation between a computer soundboard and the audio input to a transmitter. The best advice is to use a simple audio isolation transformer between the computer and the radio. These transformers are readily available at Radio Shack. The part number is 273-1374.

With today's computer sound card and a good program such as MMTTY by JE3HHT, some advantages can be argued to using AFSK. As with PSK31 software, some RTTY programs offer AFC and NET. While AFC will track a receive signal automatically, NET will cause the same frequency tones to be transmitted as what is received. For example, if you tune across a RTTY signal, but do not have it exactly tuned in, some soundboard programs will automatically correct for the difference and copy the transmission as long as the signal is in the passband of the receiver. If a signal is tuned that is say, 100 Hz low in frequency, the mark tone would be 2025 Hz instead of 2125 Hz as seen by the sound card. This makes no difference at all to the sound card, as it will copy it anyway as long as the correct shift is used. This is an advantage to using a sound card over an external stand-alone TNC that has filters built-in specifically to receive 2125 Hz and 2295 Hz mark and space tones. Now, by using the NET function of soundboard programs, the audio tone frequencies generated by the soundboard will match those that are being received. Therefore, you could be off frequency and still be able to make a successful RTTY contact. To some, this is an advantage. To many, it is a problem.

Why is it a problem? It's because many newcomers and experienced RTTY contest operators forget to turn these special AFC and NET functions off, when they should be turned off. Generally speaking, using AFC is fine for CQ'ing but should be turned off for Search & Pounce operation. Conversely, NET should be turned off when CQ'ing and may be turned on for S&P. Forgetting to turn these functions off when required will cause the transmissions to be off frequency at the wrong times. The biggest complaint after every RTTY contest is that many observed stations calling them off frequency and out of the passband. This is a poor operating practice.

In the fast-paced world of Amateur Radio RTTY contesting, with all that is going on in trying to decode

RTTY signals jam packed into the RTTY sub-band, it can be easily determined that AFSK is at a disadvantage over FSK every time.

With all this said, the best piece of advice I can offer anyone starting out in RTTY contesting is to use direct FSK transmission if possible. If your transceiver has an FSK input – USE IT! It's better to not ever have to worry if you are over-driving your transmitter or being off frequency.

RTTY Reception

Receiving RTTY is extremely important. Since you don't use your brain to decode RTTY like you would CW or SSB, you have to make sure your hardware device spits out the right characters on your computer's screen.

RTTY contesting has become extremely popular since the soundboard has been developed into a worthy RTTY decoder. This means there are more and more signals on the bands during RTTY contests. With all these signals, one of the most important considerations for any receiver becomes it's IF filtering system. A good 250 Hz filter in the IF section of the receiver, although not absolutely necessary, is now extremely important. It used to be that a 500 Hz filter was good enough, but not anymore. The only time I ever change from a 250 to 500 Hz filter is when tuning on a band that is not crowded such as 80 meters. It can be frustrating trying to copy RTTY in crowded contest conditions with only a 500 Hz filter. Anything wider than 500 Hz is useless.

Important consideration must also be made as to where you obtain the audio from your receiver or transceiver because you must feed this audio to a TNC or sound card. Most modern radios have an audio output on an accessory plug. This audio may or may not be at a constant level and independent of the front audio gain control. Although this audio could work, throughout the years, I've elected not to use constant level audio from accessory plugs. Instead, I've always used the audio coming from the headphones jack. The reason for this is so I can vary the amount of signals going to my decoder (TNC or sound card). The problem with using the headphones jack is that you will have to split the audio in order to use your headphones and if you have to crank up the

audio to hit your TNC or sound card at a higher level, it may be too loud to listen to in your ears.

To overcome this problem, an external audio filter such as a JPS NIR-12 or similar device can become a very useful device for RTTY reception. Many hams have an external audio filter from the days before sound cards were brought in the shack as active audio filters. The NIR-12 is particularly good because it has both an audio output (at a constant level) and a headphones output with it's own volume control. This way you can turn the audio level down to an easy listening level to your ears and not affect the level going to your TNC and/or sound card.

When considering how you will route your audio to your TNC or sound card, you need to figure how you will listen to the RTTY signal. It is important to be able to hear what is coming from your receiver. It is too difficult to try to operate RTTY by looking at tuning indicators alone. Fortunately for most, RTTY is not that bad of a sound to listen to, even for long stretches of contest activity. Some operators prefer to listen to the audio from an external speaker, however, not all family members may agree to the sound of RTTY "music". I've tried using an external speaker but it drove me crazy. I've always listened to RTTY in my Heil headphones. Because I operate SO2R during RTTY contests, one radio's audio is sent to the Left side of the headphones, while the other radio's audio is sent to the Right side of the headphones using a Dunestar headphones switch.

It's up to you to experiment on how you derive the receive audio and transfer it to your TNC and/or sound card. If you are using a sound card as a RTTY decoder, it has been good advice to use an audio transformer as described in the transmit section above, between your radio or external filter and the input of your sound card. Although not absolutely necessary, it helps reduce the possibility of introducing AC hum, which may occur on the audio line. This is usually not a problem when directing audio to a TNC. Most TNC's will have some sort of filtering on the audio input built into the unit.

In your experimentation, it may be necessary to split an audio line to two or more devices. This is normally not a problem and does not require any type of

coupling. In most cases, you can simply split the audio and route it to where it needs to go whether it needs to be routed to a TNC, sound card or headphones. On one of my radios, I use an NIR-10 audio filter that does not have a separate fixed audio output. Because I run two RTTY screens on the same signal within my logging program and also use the Left side of my headphones, I must split the audio three ways coming out of the NIR-10 headphones jack. One leg goes to the sound card through a Radio Shack audio isolation transformer, one leg goes to a TNC and one leg goes to my headphones switch. Fortunately, the level setting I need to hit my TNC and sound card is nearly perfect for listening in my left ear without any attenuation required coming out the NIR-10. This may be something that you will have to find out through experimentation. Receive audio is not brain surgery. The only real requirements are that you hit your TNC and/or sound card with an appropriate level and that you can monitor the receive audio comfortably in your ears.

Contest Software

At present, there are four programs that fully support RTTY contesting. They are Ham System by OH2GI, RCKRtty by DL4RCK, RTTY by WF1B and WriteLog by W5XD. Ham System by OH2GI and RTTY by WF1B run on DOS while the other two are Windows programs. Only RTTY by WF1B is freeware, but it is no longer fully supported by Ray, WF1B.

I have used all the above programs except RCKRtty. I am presently using WriteLog and highly recommend this fully supported Windows-based contest software that supports CW and SSB contesting as well as RTTY. The ability to run dual receive with RTTY on a single radio or SO2R using single or dual PC's networked, is the most versatile program available for RTTY contesting. WriteLog also supports CW and SSB contesting. So if you are going to buy a contest program, buy the best - WriteLog.

If you want to start out with something simple, I'd recommend WF1B since it's free. However, you must have DOS on your computer in order to run WF1B. It will run nicely on PC's with Windows 95 and 98 but there are problems running it with ME. It will not run on NT, 2000 or XP (without a lot of trouble).

To find out more information on these contest programs and other RTTY software, the best place to go is www.rttyinfo.net.

One of the best RTTY decoders available today is a program called MMTTY by Mako, JH3HHT. This is a sound card program that has revolutionized the RTTY scene and has become a standard in RTTY contesting. The best part about it is it's free! There is a plug-in for MMTTY to work with WriteLog (available at www.writelog.com) and it is supposed to work with WF1B also. I presently use the MMTTY plug-in for WriteLog as my main RTTY engine on both of my radios and PC's for contesting and everyday RTTY operations. There is an MMTTY link on the rttyinfo site. I highly recommend you try it.

RTTY is for Everyone

If you are already an avid contester I am willing to guess that you will find RTTY contesting a fun activity. Some of the best CW and SSB contesters in the U.S. are also avid RTTY contesters such as W2UP, K3MM and K5ZD. Big Multi-Multi RTTY operations have taken place at W5WMU, W3LPL and HC8N contest stations. RTTY contests, once unpopular events, are now a large part of the contesting scene worldwide.

I started RTTY contesting to increase my RTTY DXCC total. Soon it became one of my favorite Amateur Radio activities. What made RTTY contesting attractive to me was the fact I was able to compete and do well without a big contest station. I still use low power and small antennas with excellent results. It doesn't take high power and big antennas to win a piece of wallpaper or have some fun.

Even with the popularity of PSK31 and other digital modes within the digital ranks, RTTY is still the king of the amateur digital modes for contesting and it's future is bright. Don't be afraid to be a newcomer. There are hundreds of new operators to RTTY each year. I maintain a large database of callsigns found in RTTY contests and it grows anywhere from 50 to 200 new callsigns after each RTTY contest. RTTY contesters are more patient with newcomers

because patience is a necessary commodity to the experienced RTTY contester.

You don't have to be a serious contester to get involved in RTTY contesting. It can be so much more casual than CW or SSB contesting. If you aren't serious, but want to join in the fun, it really doesn't take much effort. You can actually surf the Web, read your E-mail and watch TV all at the same time you are RTTY contesting. Or if you want to get serious, you can definitely do that.

SO2R RTTY contesting is much easier than running two radios on CW or SSB because your brain does not have to decode the signals. It only has to watch two RTTY screens and direct your hand to push keys on your keyboard. You can actually achieve rates as good or better than CW or SSB at times. If this doesn't sound like fun, then you are missing the point. Multi-operator efforts can turn into very fun get-togethers too. Give it a try, I promise you'll like it!

RTTY contesting is on the rise. Every day more and more operators are trying RTTY and liking it. If you don't try RTTY contesting, you don't know what you're missing. If you need help starting out or have any questions concerning RTTY contesting, I'd be more than happy to assist you. Write to me at aa5au@aa5au.com and I promise to write back. See you on the RTTY bands soon!

73, Don AA5AU



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