

NAQP SSB Results!

- Meet the Kansas City Contest Club
- ARRL VHF: One Proposal for Rules Changes to Deal with FT8's Impact
- K3LR Hosts Future Contesters from HamSCI
- Part 1 of "How to Be an Effective Urban Little Pistol"
- NCJ Profiles: Vic, VE3YT



Top: Attendees at KCCC's annual summer picnic. Pictured from left to right: KØTRL; AEØMO; AAØFO; NSØR; N9GB; KØAP; KEØEK; Carol Henderson, wife of KØVBU; K3PA; NØRC; KØVBU, and AI6O. [Photo courtesy of KØAP]

Bottom: Owen, KD3ALD, and Nina, KD3BJV, installing a ground magnetometer at K3LR. [Gary Mikitin, AF8A, photo]

TRAVELING
WITH
500 WATTS
OF POWER
IN ONE UNIT
HAS NEVER
BEEN EASIER.
ACTUALLY,
IT'S NEVER
BEEN
POSSIBLE.

Welcome to Aurora.

Experience **500 watts of HF performance** - without the clutter.

Aurora is the first of its kind: a compact, high-efficiency HF radio with everything built in. With an **integrated antenna tuner, and power supply** and **over 80% efficiency**, it's a complete HF station in a single 18lb. package. Whether you are simplifying your shack, activating parks, or setting up a remote station, **Aurora delivers powerful, quiet performance** - anywhere you go.

No amps. No extras. Just plug in and operate.

Welcome to **Aurora** - the all-in-one revolution for every HF operator.

Available Models:

AU-510 / AU-510M / AU-520 / AU-520M

FlexRadio.com/Aurora

AURORA™

A NEW DAY FOR THE UNEXPLORED



National Contest Journal (ISSN 0899-0131) is published bimonthly in January, March, May, July, September, and November by the American Radio Relay League, 225 Main St., Newington, CT 06111-1494, USA. Periodicals postage paid at Hartford, Connecticut, and at additional mailing offices.
POSTMASTER: Send address changes to: National Contest Journal, 225 Main St., Newington, CT 06111-1494, USA.

Publisher

David A. Minster, NA2AA
American Radio Relay League
225 Main St., Newington, CT 06111
Tel: 860-594-0200
Fax: 860-594-0259 (24-hour direct line)
Email: hq@arrl.org
Web: www.arrl.org

Editor

John Pescatore, K3TN
jpescatore@aol.com

Assistant Editor

John McKenna

NCJ Website

Matt Wilhelm, W1PY, Webmaster
www.ncjweb.com

ARRL Officers

President: Rick Roderick, K5UR

Contributing Editors

Mike Goldstein, VE3GFN—Little Pistol Pages
Jon Jones, NØJK—VHF-UHF Contesting!
John Miller, K6MM—NCJ Profiles
Don Daso, K4ZA—Workshop Chronicles
Neil Rapp, WB9VPG—Next-Gen Contesters
Dr. John W. Thompson, K3MD—Book Reviews

Matt Ali, Layout & Production Specialist

North American QSO Party, CW
Dave Mueller, N2NL
10206 Summerlake Dr., Mobile, AL 36608
cwnaqpmgr@ncjweb.com

North American QSO Party, SSB
Bill Lippert, ACØW
2013 6th Ave. SE, Austin, MN 55912-4321
ssbnaqpmgr@ncjweb.com

North American QSO Party, RTTY
Mark Aaker, K6UFO
300 Berry St., Unit 1009, San Francisco, CA 94158-1668
rtynaqpmgr@ncjweb.com

North American Sprint, CW
Ward Silver, NØAX
712 Jefferson St., St. Charles, MO 63301
cwsprintmgr@ncjweb.com

North American Sprint, RTTY
Ed Muns, WØYK
P.O. Box 1877, Los Gatos, CA 95031-1877
rtysprintmgr@ncjweb.com

Advertising Sales Manager:

Steve Bossert, K2GOG
sbossert@arrl.org

NCJ subscription orders, changes of address, and reports of missing or damaged copies should be addressed to ARRL, 225 Main St., Newington, CT 06111 and be marked **NCJ Circulation**. ARRL members are asked to include their membership control number or their QST mailing label.

Submit articles, correspondence, and club newsletters to NCJ, John Pescatore, K3TN, 1515 Lost Creek Dr., Ashton, MD 20861.

The NA Sprint and NA QSO Parties are not sponsored by ARRL.

Contents

- 2 From the Editor
John Pescatore, K3TN

Features

- 3 Meet the Kansas City Contest Club
Drew Vonada-Smith, K3PA

Columns

- 5 NCJ Profiles: Vic DiCiccio, VE3YT
John Miller, K6MM
- 7 The Little Pistol Pages *Mike Goldstein, VE3GFN*
- 8 Next-Gen Contesters *Neil Rapp, WB9VPG*
- 10 VHF/UHF Contesting! *Jon Jones, NØJK*

Contests

- 12 Rules: 2026 North American Sprint (CW/RTTY)
Mark Aaker, K6UFO
- 13 Newbie Notes: Cluster Caution
- 14 Results: North American QSO Party, SSB — August 2025
Bill Lippert, ACØW

Advertising Index

- DX Engineering: Cover 4
- Elecraft: Cover 3
- FlexRadio Systems: Cover 2
- Unified Microsystems: 9



Yearly Subscription rates: In the US \$25 | US by First Class Mail \$34 | International and Canada by airmail \$32

All original material not attributed to another source is copyright © 2025 by The American Radio Relay League, Inc. Materials may be excerpted from NCJ without prior permission provided that the original contributor is credited, and the NCJ is identified as the source.

In order to ensure prompt delivery, we ask that you periodically check the address information on your mailing label. If you find any inaccuracies, please contact the Circulation Department immediately. Thank you for your assistance.

From the Editor

As far as I am aware, this is the first issue of *NCJ* to span two different calendar years, though I think others have come out at the peak or between two peaks of a solar cycle. In any event, this seems like a good time for a look back and a look ahead, though the financial warning of “past performance is no guarantee of future results” certainly applies!

Another wise old saying is “a rising tide lifts all boats” — increasing sunspot numbers bring more entries and higher scores in most HF contests. Of course, on the downside slope from a solar maximum, the higher bands cease to float anyone’s boat. The ARRL 10 Meter Contest in December should still be exciting, while the 2026 edition may be more like a VHF contest. It won’t be too long before 15-meter openings get shorter in both length and distance.

But let’s look back at 2025 first, as there were several clear contesting trends that are worth noting:

- Remote operation of contest stations became mainstream.

- FT8/FT4 contesting began to mature, with separate contests for those modes becoming the norm (though NØJK’s column in this issue summarizes one proposal with a different approach).

- The groundwork was put in place for real-time contest log adjudication and scoring.

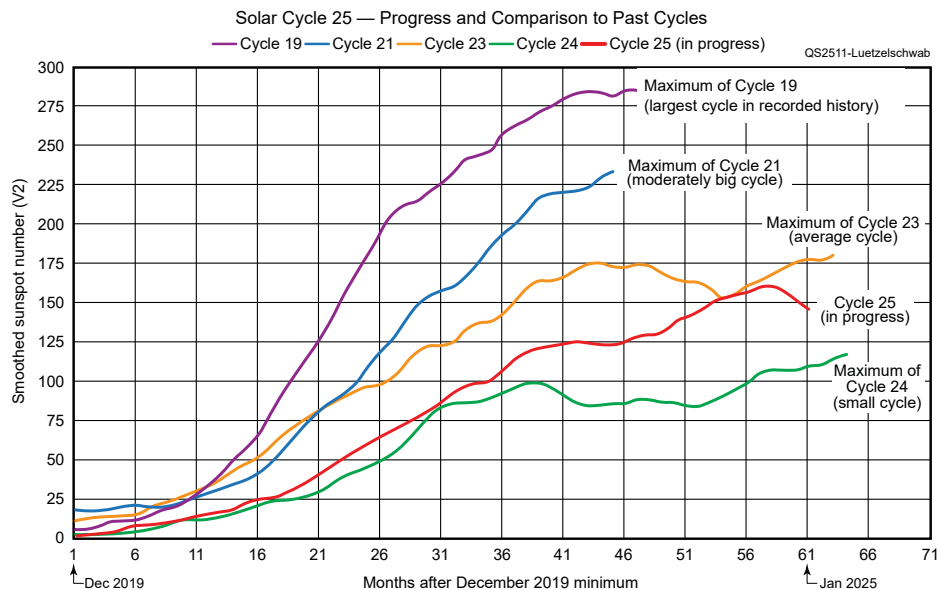
- AI-generated digital voice files began to go mainstream — no cables needed, but still more complex to make work than 40 years ago, when digital voice keying made multi/multi rooms much quieter.

These trends likely have a positive impact on attracting new ops to contesting and possibly bringing new ops to the amateur radio hobby. Anecdotally, membership in contest clubs was stable to increasing this year; clubs are key to stability and growth in amateur radio overall and to contest participation in particular.

Looking forward to 2026, the World Radiosport Team Championship (WRTC) 2026 in the UK will be a showcase for contesting and for many of the advances made in 2025. I’d like to see some youth-friendly social media feeds and real-time graphics for the event — shots of ops in tents typing will only go so far. Something like a real-time Reverse Beacon Network graphic showing the lines from the WRTC stations out to the locations of the QSOs they are making might be of interest. Another possibility is to highlight any WRTC calls with the numbers six or seven in them (search “Doot Doot (67)” if your kids or grandkids haven’t made you aware of this meme that has been sweeping youth social media)!

Many initiatives have been launched that should lead to measurable downward trends in the average age of the amateur radio population. It would be nice to see ARRL Sweepstakes 2026 have an increase in ops sending checks beginning with 2. Hopefully, we will also see some rule updates in SS come out for 2026 to reverse the years-long decline in participation.

Overall, despite many issues and challenges, progress is being made that will increase both the number of hams entering contests and the average number of QSOs made by each entrant. If you are a non-contester reading this, give one of the winter contests a try while we’re still enjoying near-peak conditions. Experienced contesters, give a talk at your local club or invite a few non-contesters to be part of a “Fresh Meat Sunday” Sweepstakes multi-single effort or DX contest.



Solar Cycle 25 monthly mean data, compared against a small cycle (Cycle 24), an average cycle (Cycle 23), a moderately big cycle (Cycle 21), and the largest cycle in recorded history (Cycle 19).

Meet the Kansas City Contest Club

Kansas City Contest Club was founded in 2008 by KØVXU, KØVBU, KU1CW, W7FB, and KØOU. They were all members of the Kansas City DX Club and wanted to form a club that was more directly focused on the common goal of competitive radiosport. Many KCCC members participate in most major contests in CW, SSB, and RTTY modes. Initially, KCCC was an ARRL “Local” club and was limited to members in the Kansas City Missouri and Kansas areas. Membership was by invitation only and was relatively stable at eight members, with just a few additions, such as NXØI and AAØFO. The group did well — particularly in the ARRL Sweepstakes — but kept a relatively low profile.

The Beginning of Growth

By about 2012, several younger contesters moved into the area and the club began to expand. KØAP moved to Kansas City from North Macedonia and brought European club station experience; ACØC and WØMB added RTTY skills; and your author, K3PA, moved from Pennsylvania to Kansas, bringing “big club” experience from



Figure 1. KØOU, founding member of the Kansas City Contest Club.

the Frankford Radio Club. KCCC was still classified at the local level, but it was more open to growth. The club’s scores grew in many major contests, with North American QSO Party, CW, SSB, and RTTY teams organized regularly. We even earned a coveted spot in the **3830scores.com** club pulldown list! KCCC had grown to twenty members. Field Day became a favorite club activity, and under the leadership of ACØC, club station KSØMO placed quite well in the 2A category for several years. In late 2018, the club sadly lost one of our most beloved and founding members, Steve Lufcy, KØOU, to a brain tumor. Steve’s friendly voice and fist were well known by those looking for the Missouri multiplier. The club wanted to memorialize Steve, and, with his wife Kathleen’s kind permission, the club’s call was changed to KØOU in 2019 (Figure 1).

Transitioning to Regional Status

By 2019, KCCC had become more of a presence in contesting and was actively seeking new members. The club was strong, and members felt it was time to progress from an ARRL “Local” club to a “Medium” club centered at EM28qk. This would expand the member circle to include eastern Kansas, most of Missouri, and small parts of Nebraska, Iowa, and Oklahoma (Figure 2).

The club now grew at a faster pace, scouring contest results for potential members and accepting inquiries from interested parties. Membership increased to the mid-thirties, club aggregate scores increased, and KCCC could legitimately rank well among regional clubs, despite the difficult WØ “RF black hole” DX contest location.

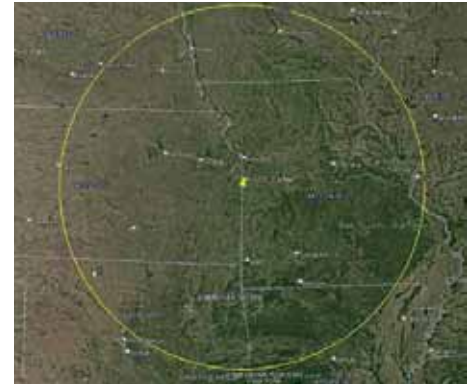


Figure 2. Illustration of KCCC’s expanded membership range.

KCCC Today

KCCC now consists of about 40 active members with ages ranging from teenage to “extra senior.” The club collects no dues and is funded only by donations. Monthly club meetings include programs to assist members in various aspects of contesting, including station design and automation, antenna design, N1MM logger use, mobile contest operation, and other topics. The club also hosts a popular twice-weekly lunch Zoom open to contesters outside the club. KCCC holds annual summer picnics and Christmas parties so the rather distantly spaced members can occasionally meet in person (Figure 3).

Most KCCC members operate stations that are modest in size and capability yet perform well. An exception is RTTY big gun ACØC, who built a station in 2017 with multiple large towers hosting stacked monoband Yagis on 40 through 10 meters (Figure 4). K3PA falls into the “medium gun” category with a triband Yagi and 2 elements on 40 at 90 feet, plus an 80-meter four square and a top band inverted-L. KCCC consistently makes a strong showing, with section and division level wins in many major contests, includ-



Figure 3. Attendees at KCCC’s annual summer picnic. Pictured from left to right: KØTRL; AEØMO; AAØFO; NSØR; N9GB; KØAP; KEØEK; Carol Henderson, wife of KØVBU, K3PA; NØRC; KØVBU; and AI6O. [Photo courtesy of KØAP]

ing ARRL Sweepstakes, NAQP, WPX, and the CQ and ARRL DX Contests. ACØC is a frequent national winner in RTTY events. Club members dominate the popular Kansas QSO Party with a streak of record setting wins for six years. Recently, KCCC has also placed well in the State QSO Party Club Challenge.

KCCC has also dominated qualification for WRTC in the WØ region for several years. KU1CW was a WRTC Team Leader in 2014 before moving out of the area. K3PA qualified in 2018, 2022, and 2026.

Club Programs

Some unique programs have contributed to the success of KCCC. The club statistician (K3PA) maintains an

extensive spreadsheet detailing QSOs, multiplier counts, and scores for every member in 30+ major contests. This data generates a summary of activity level for all members. In addition, another scoring metric is provided that focuses on competitiveness. A further section documents contest records held by members. This data is viewable across the club and supports healthy competition between members.

We have found that a key to good participation is the principle that every member should have a role in the club. One way this is done is with the use of “Contest Coordinators.” For each major contest, one member assumes this duty and serves as organizer, activity solicitor, mentor, cheerleader, and post-contest commentator. We have

found this to be very helpful for both contest success and keeping each member engaged with modest responsibilities. KCCC requires modest but regular contest activity to qualify as an active member.

KCCC also seeks to mentor younger contesters, and K3PA regularly holds an open house for guest operator or multioperator use. KCCC helps to support the Kansas QSO Party, and its members give back to the community by sponsoring plaques for various national contests.

Please feel free to contact the author if you are interested in KCCC programs or tools, or if you would like to know more about the club.



Figure 4. RTTY Maestro ACØC. [Photo courtesy of ACØC]

NCJ Profiles: Vic DiCiccio, VE3YT

From the time he shattered his first lightbulb and tripped his first circuit breaker, Vic, VE3YT, knew he had that engineering “knack,” an intuitive understanding of all things mechanical and electrical. Here is Vic’s fascinating amateur radio story.

Don’t Blow Yourself Up

My story is like a lot of yours: surreptitiously reading *Popular Electronics* at the drug store, learning Morse code in Boy Scouts, and getting bitten by the contest bug during ARRL Field Day. A 25-year hiatus focused on kids, career, and racing duathlons ended in 2011, when I built a K3 kit as a returning ham. My life continues to be enriched by ham friends who have delighted me, challenged me, and occasionally stopped me from doing something foolish.

It began with *The How and Why* books on electricity and magnetism, an early Christmas gift from my parents. I noticed the threads on a flashlight bulb matched those on the element socket of a 110 V wood burner, so I screwed the bulb into the handle and plugged it into the wall outlet, blowing bits of the bulb’s glass envelope across my bedroom. Two valuable lessons: voltage matters, and always experiment in the basement.

Mentors

My buddy dragged me to Boy Scouts where a young ham, Fred Robinson, VE3GCP, generously spent an hour on Friday nights teaching us Morse code. I got an oscillator kit with a plastic-base hand key from Crawford Radio, the ham store in downtown Hamilton. Soon, Fred invited me to see his shack, and I got some books on ham radio from the library. I borrowed a receiver and

found I could hear W1AW with a random length of wire tossed out the basement window, so I started daily CW practice. The Canadian Amateur Certificate (roughly equivalent to the US General license) started with a 10-wpm code test before they let you try the written exam, and it took me over a year to get ready.

Getting My Canadian Ticket

I took the bus down to the Department of Communications office and was overwhelmed by the seriousness of being examined by a representative of the federal government, a cigar-smoking older gent. I failed the first code test, but he told me to go to the café next door for a cup of hot chocolate and come back for another test. This time I passed, did some sending, and got through the written test. I was on Cloud Nine!

In Canada, you had to be 15 years old to get a station license and a call sign, and I was just barely 14. One of my most important mentors was my high school English teacher, Ken Warner, VE3DYO. He brought his retired Heathkit DX40 and a few crystals to pair with the school’s Hallicrafters receiver, and a few of us put a 20-meter dipole on the roof. For the first year, my contacts were all Novice-style, tuning up and down the band after calling CQ and looking for people answering with their own crystals. After I turned 15, it only took the Department of Communications about four months to issue me the call VE3AOD. By then I had an NC300, and after messing around with ARC 5s and some homebrew oscillators, I built a Heathkit DX60 and matching VFO. I made a 40-meter dipole from some #20 bell wire, reasoning I could work Europe at night on 40 meters and during the day on 15.



Vic, VE3YT, at his home station.

Intro to Contesting

The year before I received my call sign, VE3DYO suggested I come to the local Hamilton Amateur Radio Club Field Day, and that’s when I got hooked on contesting. I was sitting beside Rae Baker, VE3CZN, who was working 20 meters SSB on a transceiver in the back of his brother’s Ford Econoline. I marveled at what he could hear, how he timed his calls in S&P, and the rate he had running. Logging was fun, but I couldn’t keep up with the dupe sheet.

The next year, my buddy Al Ebert, VE3AXV, and I pestered the club executive into letting us take 40-meter CW for Field Day. They told us this was the best band, and they expected 500 contacts. We had a site on a hill with a tower holding the local Ontario Provincial Police antenna. I climbed about 50 feet up the tower, and Al shot an arrow over a high tree branch so we could pull up a 40-meter dipole. We managed more than 600 contacts using my NC300 and DX60 plus VFO. We kept that up for a couple of years until we both got busy with our electrical engineering degrees at the University of Waterloo. With the co-op program alternating school and work every four months, I was too busy for much radio.

After graduation I started doing contract research in computer networking with Eric Manning, now VA7DZ, and we teamed up for some contests from his cottage near Goderich, Ontario, on a 100-foot cliff above Lake Huron. We built a 2-element quad antenna for the high bands, using bamboo scrounged from a carpet store for spreaders, just like it said in the ARRL *Handbook*. I put up a quad at home and used my Yaesu transceiver to enjoy some single-op contesting.

Coming Back from Hiatus

We moved in 1982, and I took down the quad antenna. I was getting busier with work and part-time grad school, and I had started racing duathlons and marathons — by the mid-80s, I was inactive. While never fast enough for a 3-hour marathon, I qualified for Boston and did a bunch of half Ironman duathlons. Racing slowed down for me in my mid-50s, and by 2010 I began planning to get back into ham radio contesting in time for retirement. I put my quad back up and built a K3.

My code speed had really suffered, and Eric, VA7DZ, advised me to use N1MM for logging and Morse Runner to get back up to speed. Next, I added a P3 Panadapter to the shack, then a second receiver for the K3.

Around then, I met Fred, KE7X, at the International DX Convention in Visalia. Fred had written the K-Line

books that amplified the information in Elecraft's manuals. Eric, VA7DZ, had done some editing of the KE7X books, and I started doing that too. I also played a role in the Elecraft Macro Programming manual Fred wrote when the K-Pod came out.

Fred, Eric, and our friends Chet, VE3CFK, and Bill, VE3BXI, began doing some multi-op contests, including Sweepstakes CW. We won the multi-op category once in a Field Day-style operation from the Manitoba Amateur Radio Museum, and we rented the VY2TT station, where we enjoyed fresh lobster before and after Sweepstakes. For several years, Fred, Steve, VA7KH, and David, VA7VK, joined Eric and I at Eric's station for WPX CW and a week of vacation.

KE7X encouraged me to use SO2V in the ARRL 160-meter and 10-meter contests, which led me to set up an SO2R station a few years after my first K3. It was fun getting the station automation working, although I'm more of a QRP Labs kit builder than an equipment builder.

In 2023, I was fortunate to put up a new tower using seven 10-foot solid leg tower sections that John, VE3EJ, had collected, with a JK Antenna mid-tri with two 40-meter elements (separately fed from the tribander) at 65 feet. John was very helpful, offering advice, supplying parts, and being on-site to help put up the tower and antenna. This has improved both my domestic contest performance and my operating potential in DX contests. I've got an inverted-v for 80 meters hung on the tower and a short, inverted L for 160 meters in a tree.

My current station uses a pair of K4Ds and KPA1500 amplifiers, with a YCCC SO2R box, a six-pack antenna switch in the shack, and a high power 4O3A triplexer for the tribander.

In addition to contests, the NCCC Sprint CW (the "NS") has become a must every Thursday night. This is one of the most fun events in radiosport, combining the chaos of sprinting with the fast tour of 15 meters down to 160 meters and the vagaries of

propagation. I'm honored to be on the advisory committee for this event.

State QSO parties (QPs) interest me too, especially the larger ones and those with a lot of mobiles or expedition operators moving from county to county. QPs are a great way to start contesting because the CW speed and overall pace are both a little slower.

The State QSO Party Challenge has increased participation in individual QPs and gives frequent participants a goal to shoot for across the whole year. Entering is as easy as posting your QP score on <https://3830scores.com>.

Giving Back

In 2019, I started teaching a Morse code class at the local radio club, which moved to Zoom during Covid and now has a larger geographical reach. I am very pleased that four of the people involved with the course are now CWops members: Dave, VA3DKL; Tim, VA3TMV; John, VA3IJK, and Mary, VE3INE. Several people have done well in the State QSO Party Challenge, working all the QPs and getting Diamond status.

My wife Abby, VE3UXD, got her license in 2019 and wanted a study guide focused directly on the exam. During Covid, I wrote the "Successful Guide to the Basic Exam," for Canadians who want to do well on the material covered by the Amateur Certificate question bank.

The Friendships Are the Best Part

It's a bit cliché to marvel at how we become friends by sending 5NN OM every week, but it's true. My friendship with so many testers has brought joy to my life second only to family.

The long-term benefits of amateur radio and contesting include friendships made during days of enjoyment. We're all trying to share the fun with new hams. I feel so fortunate to have found this hobby, and I hope we have many decades of contesting fun ahead.



The antenna farm at VE3YT.

The Little Pistol Pages

Arnold, VE3NFN, is a relatively new contender in the Toronto area. Despite living in urban canyons surrounded by high buildings, he is producing impressive scores and good contact rates with minimal antennas. In this installment of the Little Pistol series, VE3NFN reveals his secrets.

Big Guns and Little Pistols

In popular slang, a Big Gun is someone with outstanding strength and power, especially those with impressive power or influence in their field. In amateur radio, Big Guns are often multi-multi (multiple-operator and multiple-transmitter) or other large stations that regularly attain top DX and contesting scores and records, and they display lots of certificates to prove it. To attain world records and become “the best of the best,” they employ extensive antenna farms and run maximum legal power.

Only a few amateurs are Big Guns. Most contesters are Little Pistols — single operators who run low power (100 watts) into rotary beam antennas on the high bands and either wire antennas or vertical arrays on the lower frequencies. They depend on contest strategy, operating efficiency, knowledge of propagation, and sheer

persistence (Bum in Chair, or BIC) to achieve high scores and earn awards.

Introducing the Urban Little Pistol

These are familiar distinctions, but what is an Urban Little Pistol? Contesting success in amateur radio can depend significantly on station location. We would all like the best QTH, but often our location is less than perfect, compromised, or difficult.

A dense urban setting is arguably the most challenging contesting location. The numerous constraints posed by dense city environments often discourage hams from contesting. This article series is intended for hams in urban environments who are eager to begin contesting but intimidated by the challenges.

According to a recent report, most US states are now building denser housing on smaller lots; even cities and towns in the Midwest and West are building more densely. The same is true for Canada.

The typical Urban Little Pistol usually has a lot of about 1/15 acre. If I was to install a tower in the middle of my backyard, for example, the elements of a 20-meter Yagi perched on top would hang over my neighbors' space about 5 feet on each side.

The Obstacles

Up until now, for me, operating ham radio was relegated to casual portable operation. My home was ringed by structures — there was a combination of high- and mid-rise buildings up to 50 meters tall standing only 100 meters away. These structures blocked the horizon from northwest (JA) through west (US, VK/ZL) to south (S. America). In recent years, infill construction created a phalanx of commercial and residential buildings near my home, most between 150 and 200 meters tall, and even some mixed-use buildings over 300 meters high.

While I am a relative newcomer to contesting, over the last few years I have made steady improvement in my scores, as well as in my understanding of successful contesting in a dense urban environment. I became an Urban Little Pistol very slowly. I was skeptical that my contesting station would be effective and that I could overcome the difficulties. As a result, I cautiously approached the challenges of building a small contest station.

Understanding the Urban Environment

The first hurdle in becoming an Urban Little Pistol is understanding how the urban environment impacts amateur radio operations. Densely populated areas, such as cities or large towns, restrict antenna size and placement due to space constraints, local laws, and building regulations. The following are additional factors that impact effective contesting by a station operating from a densely populated urban location.



Aerial view of VE3NFN's area, showing the huge urban “wall” in his neighborhood.

Continues on page 20

Next-Gen Contesters

This month's guest columnist is Gary Mikitin, AF8A, a Little Pistol CW contester and the Amateur Radio Community Coordinator for HamSCI, the Ham Radio Science Citizen Investigation (hamsci.org). HamSCI has incentivized dozens of budding scientists, engineers, and potential future contesters to become licensed. HamSCI sponsored the Solar Eclipse and Meteor Scatter QSO Parties for 2017 – 2025.

Next-Gen Scientists at K3LR Superstation

HamSCI, the citizen science/scientific research cooperative, completed four days of field work at the world-class contesting station K3LR in August 2025. The field work was performed primarily by undergraduate students in physics and engineering programs, all of whom hold ham licenses. Their primary task was the installation and configuration of a HamSCI Personal Space Weather Station (hamsci.org/psws); their secondary assignment was to absorb as



Owen, KD3ALD, and Nina, KD3BJV, installing a ground magnetometer. [Gary Mikitin, AF8A, photo]

much practical ham radio knowledge as possible from station owner Tim Duffy, K3LR. The group, numbering about 15, also included professors, research associates, and community volunteers from various colleges* across Ohio and Pennsylvania.

Timeline of Events

Much of the installation work and computer setup was done on Monday evening and Tuesday morning, including assembly of an active vertical receive antenna, insertion of an 8-foot ground rod/antenna mounting point, burying the ground magnetometer, and laying of cables between the equipment and the building housing the equipment.

It was “showtime” on Tuesday afternoon, when the RX888 spectrum display was fired up and connected to the web. That effort included a Zoom session with HamSCI spectrum consultant Rob Robinette, AI6VN. Rob declared the 1 – 30 MHz spectrum at K3LR, as displayed on the WSPR Daemon/RX888’s waterfall display, to be very clean with a good opportunity to be one of the top WSPR (Weak Signal Propagation Reporter) signal spotters worldwide. This came as little surprise to K3LR, as Tim has spent nearly 40 years perfecting his station, studying the surrounding topography

— which, he explained, can greatly influence HF signal paths — and doggedly pursuing and removing every RF noise source in the immediate area. More distant sources, impossible to disable (such as commercial AM broadcasters) are well known to Tim, and sure enough, they and their mixing products were observed on the HamSCI equipment. Some tuning and tweaking of the RX888 bandwidth, along with a judicious choice of input filters, left the RX888 happily receiving WSPR and FT8 spots numbering in the hundreds per hour.

Wednesday morning was a two-hour tour of the K3LR antenna farm, with detailed explanations of what, why, and how nearly every system functioned. It took two hours because K3LR has 14 towers and 50+ antenna systems (including band-dedicated receiving systems), all designed to eke out every 0.1 dB of signal when working stations in Europe, Asia, and the rest of the globe. The adjective “impressive” is inadequate to describe the acres of antennas — two of the towers, each over 200 feet tall, are on aviation maps, painted and lighted to comply with FAA regulations.



Dr. Nathaniel Frissell, W2NAF, Field Work Leader. [Gary Mikitin, AF8A, photo]



University of Scranton students and staff at K3LR. [Nathaniel Frissell, W2NAF, photo]



Katie, KE8LQR, and Nina, KD3BJV, operating on 20 meters. [Harry Bloomberg, W3YJ, photo]

Food and Friendship

The week wasn't all work and no play. Tim and a donor from Case Western Reserve University (CWRU) supplied all the afternoon and evening meals, which were set up under a large tent next to the "DX Barn." Tim's favorite caterer made multiple visits, cooking up piles of chicken, corn on the cob, hamburgers, salads, veggie dishes, and all the fixings. Tim and co-host Amy, N8AMY, topped that with servings of locally made apple pie on Thursday evening. Tim's friends from the local area, schools, and colleges joined the HamSCI crew to swap operating stories and discuss HamSCI's research efforts, mixed with the nerdy banter always heard at ham radio-centric events.

Tim's hospitality extended to his award-winning ham station, where he invited us for a tour and operating session. The most recently licensed hams in the group — some licensed only weeks before — were given seats on four different bands and paired up with experienced control ops. Over 400 contacts were made on 10, 15, 20, and 40 meters, including domestic and DX contacts with New Zealand, Australia, and England, to name a few. The stations we worked often told us, "You are the only signal on the band," and "Thanks for the past con-

test QSOs." Tim has millions of contacts in his log, going back to 1972, from one of the best-known call signs in the world. Tim credits the success of his station to uncompromising engineering, meticulous maintenance, and a crew of operators dedicated to being the best at what they do. One operating highlight was the brand-new ham who answered one of our CQs on 10 meters — it was his very first ham radio contact, and he emailed Tim right afterwards to thank him.

A Hearty Thank You

There were many other activities, all adding to the memories: A Monday evening dinner at the local country club, students and researchers giving evening presentations on HamSCI research topics, N8AMY's special hot dogs and onions, magnetometer calibration and alignment, and breakfasts at the local diner. Perhaps we can reconvene at Tim's again in the future,



Rebecca, KE2EBI, and Scott, N3RA, operating on 40 meters. [Harry Bloomberg, W3YJ, photo]


bringing along another generation of new hams ready for deep immersion into the wonders of amateur radio.

I'd like to offer a word of thanks to all who participated. We can't say enough about the support and enthusiasm from station designer/builder/operator Tim Duffy, K3LR, and the company he runs, DX Engineering.

DXE is a long-time supporter of HamSCI, and we thank them for providing equipment and expertise to help make the field work highly successful. We are looking forward to gigabytes of data being generated from West Middlesex, Pennsylvania!

**Participating institutions included the University of Scranton, W3USR; Case Western Reserve University, W8EDU; Penn State University, K3CR; University of Pittsburgh, W3YI, and many others represented by their alumni who attended.*

HamSCI wishes to acknowledge funding and support from the National Science Foundation (AGS-2432821), NASA, ARDC, and the FRC.



BevFlex-4X RX Ant System

It is the ultimate system for low band RX flexibility. Using inexpensive RG-6 coax as the antenna element, the BevFlex-4X can be constructed as a Beverage, BOG, Flag, or an EWE. Feed a Beverage/BOG at any point, not just at the ends! All configurations are reversible in direction. Cover all 4 quadrants with just two units.

BCD-14 Band Decoder

Build your custom automatic band decoder/antenna switch controller for selected Yaesu or K3 rigs. 160-2M, 432MHz bands. Optically isolated data inputs.

XT-4 CW Memory Keyer

The XT-4 battery powered portable CW memory keyer is great for FD, VHF Rover, SOTA, and other portable operations. Four programmable memories.

Other Products

Beverage antenna transformer, RX antenna terminators, VHF Beacon CW IDer, Rig-PC Sound card I/F, LED rotor control lamp replacement board, and more.

Unified Microsystems

www.unifiedmicro.com

VHF/UHF Contesting!

September 2025 ARRL VHF Contest

The September 2025 ARRL VHF Contest is history. Hopes were high for tropospheric enhancement on the upper VHF/UHF bands and ionospheric propagation on 6 meters. Unfortunately, flat conditions were reported in most areas, though there was some tropospheric propagation here in the Midwest early in the contest. I copied Randy, NØLD/R, on 144 MHz FT8 at the start of the contest, but I was unable to get his attention with 10 W. Randy made contacts from Kansas to Texas from grid square EM04. Larry, NØLL, meanwhile, managed to make some contacts on his portable 6-meter, 5-element Yagi from grid square DN90 in Nebraska (Figure 1). On Sunday morning there was again some limited tropospheric propagation from Kansas to Indiana. Near the end of the contest Sunday, some F2 propagation appeared on 6 meters, allowing HC2FJ to work stations along the Gulf Coast.

FT8 in VHF Contests

After the contest, there was considerable discussion on the VHF reflectors about FT8. Many commented that FT8 is killing CW and



Figure 1. Larry, NØLL, operates his portable 6-meter, five-element Yagi during the September 2025 ARRL VHF Contest. [Larry Lambert, NØLL, photo]

SSB activity and that it is boring. “Computers contacting other computers!” N2OA noted. “We go down the analog-versus-digital rabbit hole after every contest. I think everyone is overlooking the more important thing: how to get new blood into our part of the hobby. Everyone’s discussing modes when numbers have dropped for decades, at least around here in WNY.”

Some suggested splitting the ARRL VHF Contest into two parts, like the CQ VHF Contest. Peter, WW2Y, said: “For quite some time now, a number of serious contest stations — whether they’re Single Operator or Multioperator — have figured out a method to maximize their scores by having unmanned stations running on FT8 simultaneously in order to stay competitive. The operator at the manned station is either on analog or digital. This operating technique encourages FT8 activity and deters analog activity. Why? The FT8 mode is on a designated channel per band, and it doesn’t require operator skill to generate points.... I like W8ZN’s idea of splitting the contest into two parts, day one for analog and day two for digital. I don’t mind which one starts.”

There was concern that splitting the ARRL VHF Contest into two portions would decrease activity in each portion, however. Another suggestion to boost activity would be to use “distance scoring” in the ARRL VHF contests, as in the ARRL UHF Contest. This may encourage more rover activity. Modern software can handle distance scoring well, as contests like the Stew Perry Top Band Challenge have shown.

A Proposal

Bob, W3IDT, with the Wopsononock Mountaintop Operators, W3SO, drafted a thoughtful proposal for the ARRL September VHF Contest. Bob agreed to share it with *NCJ* — it has been edited for length. Contact Bob to see the full proposal.

Summary:

We don’t need to research detailed numbers of contest participants or number of contacts to know what has happened to VHF contests in the past year or so: CW and SSB participation is way down, and activity on 222 and 432 MHz has almost disappeared.

In short, Marshall, K5QE — who manages another major limited multi-operator class station — stated the essence of the problem in his **3830scores.com** post with his results from the January 2020 VHF contest: “Not a single SSB contact on 6 meters.”

The cause is, of course, the tremendous increase in the use of FT8.

We do *not* have anything against FT8 (or FT4). Its use for weak-signal contacts on HF and VHF has been a tremendous advance, especially for the increasing number of hams living in antenna-restricted communities. We also don’t object to appropriate use of FT8 in VHF contests, though we wish more stations would make use of the more contest-oriented FT4.

Proposal:

We are advocating a partial set of new rules for VHF contests:

1a: To permit up to *three* contacts per station, one each with CW, with voice (AM, SSB, or FM), and with digital (RTTY, any *WSJT*, or similar mode), in all VHF contest bands.

1b: That CW contacts be initiated and completed solely in the FCC-allocated exclusive CW band seg-

ments on 6 meters and 2 meters, and in contest rules' specified band segment on the higher bands.

2a: That *different* point values be assigned to the contacts in the various modes *only* if an equitable system of point-value assignment can be developed recognizing the distinction between "simple and fast" digital contacts and "complex and slow" digital contacts.

2b: For an initial discussion on point values, we would suggest 1) One point for "simple and fast" digital contacts, such as FT4/FT8; 2) two points for voice contacts, and 3) three or four points for CW, or "complex and slow" digital contacts, such as MS and EME.

This proposal does not address issues such as different multipliers for contacts on different bands (CQ's one for 6 meters, two for 2 meters; ARRL's one for 6 and 2 meters, two for 222/432 MHz; four for 902/1296 MHz; eight for 2.3 GHz or higher).

It also does *not* address Entry Categories, Assistance rules, or Rover-related rules.

Support:

This proposal has been discussed with several major VHF contest participants within the Potomac Valley Radio Club (PVRC), of which we are members (note that this proposal is *not* a formal position of the PVRC), and with other major VHF contest participants well outside the mid-Atlantic area.

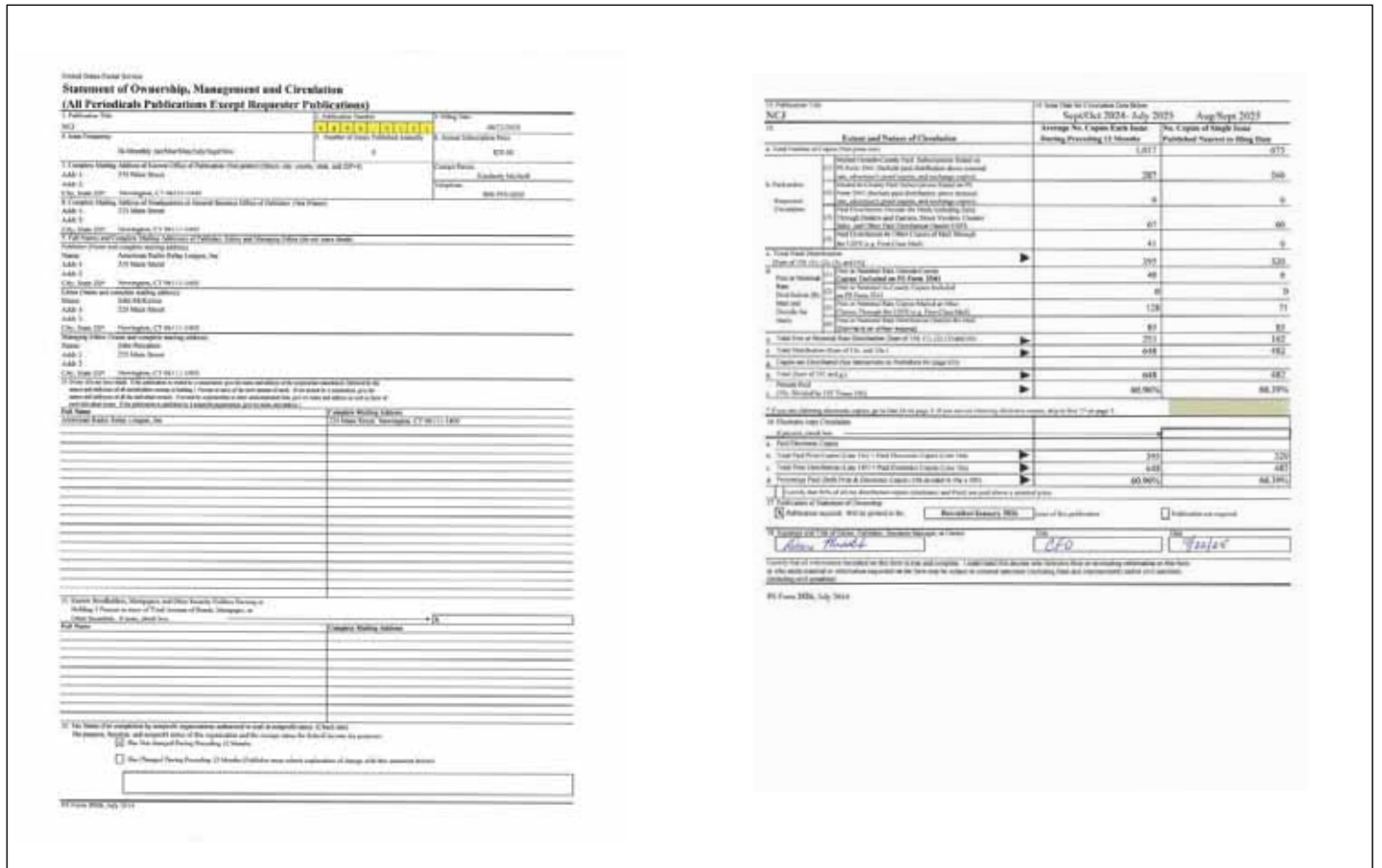
[If you have an opinion or suggestion regarding the ARRL VHF Contest, please contact your ARRL Contest Advisory Committee representative. — NØJK]

How to Operate FT8 with a "Legacy Radio"

Some people don't operate WSJT-X digital modes in VHF Contests because they use a "legacy radio." Most modern radios and SDR setups allow direct connection from your computer to the radio. But how can you connect to a radio that doesn't

have a USB port? Lance, W7GJ, came up with this scheme:

1. Download and install the free *WSJT-X* program onto your computer.
2. Connect an audio line from your radio's headphone jack to your computer sound card's line-in jack (or mic-in, if there is no line-in provided). *[Alternatively, I put a small PC microphone over the speaker, and it goes into the mic-in jack, as my MFJ-9406 does not have a headphone jack. — NØJK]*
3. Lay your radio microphone on the computer speaker (or taped up tightly against headphones connected to the computer sound output) and set the radio to transmit in VOX mode on USB. *[You can key the mic manually when WSJT-X starts the transmit sequence and let up when it finishes. — NØJK]* Be careful to keep ambient noise down as it will transmit when you key the mic.
4. Set your computer clock accurately to UTC.
5. Run *WSJT-X*.



Rules: 2026 North American Sprint (CW/RTTY)

The 2026 Sprint Calendar

Mode	Times/Dates	Logs Due
CW	0000-0359 UTC, Feb 1	Feb 8
	0000-0359 UTC, Sep 6	Sep 13
RTTY	0000-0359 UTC, Mar 15	Mar 22
	0000-0359 UTC, Sep 20	Sep 27

- 1. Eligibility:** Any amateur radio licensee may enter.
- 2. Object:** For North American stations to contact as many radio amateurs as possible. For non-North American stations to contact as many North American stations as possible.
- 3. Entry Classifications:** High Power (up to 1,500 W), Low Power (up to 100 W), and QRP (up to 5 W). Single Operator only. Use of spotting information obtained directly or indirectly from any source other than the station operator, such as from other stations or automated tools, is prohibited.
- 4. Contest Periods:**
 - February/March Contests**
CW: 0000 until 0359 UTC, February 1, 2026
RTTY: 0000 until 0359 UTC, March 15, 2026
 - September Contests (NOTE CW DATE SHIFT)**
CW: 0000 until 0359 UTC, September 6, 2025
RTTY: 0000 until 0359 UTC, September 20, 2026
- 5. Mode:** CW only in CW Sprints; RTTY only in RTTY Sprints.
- 6. Bands:** 80, 40, and 20 meters only. Suggested frequencies are above 3,525, 7,025, and 14,025 kHz on CW, and above 3,580, 7,080, and 14,080 kHz on RTTY. You may contact the same station once per band.
- 7. Exchange:** To have a valid exchange, you must send all of the following information: The other station's call sign; your call sign; a sequential serial number; your name, and your location (state, province, or country). Stations outside North America may send "DX" instead of a country abbreviation. You may send the exchange information in any order, but the most common format is for the station that will QSY after the contact (see Rule 11) to send both calls first. The station that will stay on frequency sends their call last. Here's an example: If K7GM calls CQ and N6TR answers:
N6TR K7GM 154 RICK NC
K7GM 122 TREE OR N6TR
Before leaving the frequency, it is good practice to acknowledge the contact is complete, usually by sending R or TU.
- 8. Valid Contact:** A valid contact consists of a complete, correctly copied, and logged two-way exchange between a North American station and another station. Proper logging requires including the time of each contact. Serial numbers must begin with 1 and be sequential thereafter.
- 9. North American Station:** Defined by the rules of the CQ World Wide DX contests (cqww.com), except that KH6 is considered as North America for this contest. FP, 4U1UN, VP9, and OX are also North American countries.
- 10. Scoring:** Multiply total valid contacts by the sum of the contacted US states, the District of Columbia, the 13 Canadian provinces/territories (British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, New Brunswick, Nova Scotia, Prince Edward Island, Newfoundland-Labrador, Yukon, Northwest Territories, and Nunavut), and other North American countries to get final score (do not count US and Canada as countries). Non-North American countries do not count as multipliers but do count for contact credit for North American stations (except for KH6, which counts as a state).
- 11. Special QSY Rule:** If any station solicits a call (e.g., by sending "CQ," "QRZ?," "Up 5," or any other means of soliciting a response, including completion of a contact where the frequency was inherited), that station is permitted to work only one station in response to that solicitation. The station must thereafter move at least 1 kHz before calling another station, or at least 5 kHz before soliciting other calls. Once a station is required to QSY, that station

is not allowed to make another contact on the vacated frequency until or unless at least one subsequent contact is made on a new frequency.

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

13. Log Formatting: The file format for electronic logs for *NCJ*-sponsored contests is Cabrillo. Contact the respective contest manager if you have difficulty submitting your log. Entrants who do not use computer logging are encouraged to use the manual Web-to-Cabrillo online forms available at the links below to enter their contact data from their paper logs:

CW: b4h.net/cabforms/nasprintcw_cab.php

RTTY: b4h.net/cabforms/nasprinrtty_cab.php

14. Log Submission: Entries must be received no later than 7 days after the Sprint. Emailed logs are no longer accepted. Upload Cabrillo-formatted log (all modes) via the web upload page at ncjweb.com/sprintlogssubmit.php.

15. Team Competition: Team competition is limited to a maximum of five operators per team. Groups having more than five team members may submit more than one team entry. To qualify as a team entry, the team registration form on the *NCJ* website must be completed before the contest starts:

CW team registration: ncjweb.com/cwsprintteamreg

RTTY team registration: ncjweb.com/rttysprintteamreg

16. Penalties and Disqualification: Contacts with incorrect received information will be removed. Contacts not found in the other station's log will be removed with a one-contact scoring penalty. Any entry may be disqualified for illegal or unethical operation.

17. Certificates: Downloadable certificates for the top scorers in each state, province, and North American country will be available at ncjweb.com/ncj-certificates after the contest results are published.

Newbie Notes

Newbie Notes: Cluster Caution

The Reverse Beacon Network or a local DX Cluster can be great tools for spotting needed stations or multipliers during a contest. Stations and skimmers post "spots" of DX stations that they've worked, including call sign, location, frequency, and other relevant info. Many contest-logging programs that control your transceiver and link to the Cluster will automatically tune your radio to the posted frequency when you click on a spot.

Even if you are not using contest-logging software, you can still look for spots online through a web browser.

Two popular Cluster sites are DX Summit (<http://www.dxsummit.fi>) and DX Watch (<https://dxwatch.com>).

New multipliers are fun to work and can give you a big increase in score; however, as great a tool as spotting can be, there are a few cautions to keep in mind when using it. First, it may put your contest entry into an "assisted" category. This is important to know when you're submitting your log. Second, when you see a spot, so will hundreds of other hams, so an immediate zero-beat pileup may ensue. Logging software such as

N1MM will let you randomly include a small offset to get through faster.

Third, and perhaps most importantly, posting stations often make errors in typing the spotted station's call sign. Contest managers report that incorrect Cluster posts are the largest source of logging errors. Never trust a posted call sign to be correct — always confirm it with the station on the air, either by hearing it transmitted by the operator or by asking the operator to confirm the station's call. The operator won't mind. Accuracy is vital to both stations in a QSO!

Results: North American QSO Party, SSB — August 2025

Last year a geomagnetic storm made for challenging conditions during the August North American QSO Party, Single-Sideband (SSB) event. This year Hurricane Erin and thunderstorms all over the country were the challenge. Several stations reported nearby lightning caused them to go off the air. Some had to deal with afternoon and evening storms and lost several hours of operating time as a result. The comments on <https://3830scores.com> can be summarized as follows: lightning, thunderstorms, hurricane, static, QRN, noise, and QSB, but we still had fun.

The Single-Op category had a three-way race for the top spot for much of the contest. Taking first with 235,614 points was Levi, K6JO. He managed to pull ahead with a 10-meter opening his competitors didn't have, netting him some valuable multipliers. Finishing second with 184,434 points was Mitch, K7RL, who managed to pull ahead of Jeff, N8II, near the end, leaving N8II in third place with 176,823 points. K6JO was also the top entry in the Single-Op Youth category.

The Single-Op QRP category had scores reasonably close compared to past years with one or two dominant scores. First place went to Mike, W7LG, with 3,612 points; Josh, W9HT, followed in second with 3,285 points.

In the Single-Op Assisted category, Fred, K9VV, operated KP2RUM to the top position, scoring 213,094 points. This is remarkable, since Fred had to deal with interference from Hurricane Erin — which was only about 150 miles away — for the entire contest.

Taking second was Manu, AC1NU, operating remotely in Maine with 195,286 points. Third in the category was Ty, K3MM, from Maryland, with 183,134 points. Ken, KØEU, who typically finishes near the top, took fourth place with 173,538 points, noting that this was one of his poorest finishes in a long time.

In the Youth Single-Op Assisted overlay group, Ian, K18AN, took the top spot with 29,565 points. Following in second was NP2R, operated by Mike, W3MLJ, with 22,494 points.

Taking the Single-Op Assisted QRP category was Ron, WQ6X, who earned 4,080 points while balancing his operating time with the Scandinavian Amateur Radio Teleprinter Group RTTY contest at the same time.

The weekend weather impacted the Multi-Two category, affecting which bands were open and even leading stations to shut down due to safety concerns or lack of power. Chris, N6WM, and Dave, WD6T, operated N6RO to a first-place finish with a score of 271,545. They noted that 10 meters barely opened for them, and that 80 and 160 meters were extremely difficult with the QRN and noise. Most of their work was on 15, 20, and 40 meters. Second place went to the team at KA4RRU, earning 240,200 points. Team members included KA4RRU, WA4PGM, WØCN, N2FT, K4GM, WC4J, and KD6AKC. With Hurricane Erin hitting Puerto Rico, the group at WP3C had many challenges to deal with, eventually forcing them off the air. Despite all that, they finished in third place, scoring 226,625 points. The operators

were AI, WP3C; Rafael, KP4WW, and Andy, KC2GOW.

The Team Competition had 45 teams consisting of two to five single operators per team. The AOCC Rough Riders finished first with 421,218 points. Following in second place was SFCG Sultans of Vox, scoring 389,855 points; SCC took third place with 235,614 points.

In the Combined Score competition, Mitch, K7RL, kept the top spot with 836 points, improving on his score from August 2024. Mitch finished 5th in CW and 2nd in the SSB event. In second place was Lar, K7SV, with 537 points. Lar took 19th in CW and 9th in phone.

Despite the conditions caused by the storms, it seems most participants had a good time and will be back for more. If you are looking for areas to improve, request your log-checking report from ssbnaqpmgr@ncjweb.com, and be sure to include the call sign you used during the contest. The next NAQP SSB event is on Saturday, January 17, 2026. Thanks to everyone who participated in the August NAQP, and we hope you will join us next January!

Combined CW/SSB NAQP Unassisted Operator Scores

Call Sign	Total Pts	CW Pts	SSB Pts
K7RL	836	445	391
K7SV	537	293	244
NA8V	503	355	150
KT3Y	500	500	0
K6JO	500	0	500
W2RQ	489	276	213
K5GN	478	478	0
N8II	471	96	375
N4OGW	451	451	0
VE3DZ	449	449	0

Single Op Top Ten Breakdowns

Call	Score	QSOs	Mults	160	80	40	20	15	10	Team
K6JO	235,614	1101	214	9/4	22/11	214/48	407/57	352/54	97/40	SCCC
K7RL	184,434	1042	177	5/5	43/16	180/48	432/57	379/48	3/3	Deep Dixie CC Team Elvis
N8II	176,823	999	177	19/12	150/35	311/48	326/43	174/32	19/7	
W7CXX (WA7LNU)	137,550	917	150	2/1	27/7	114/37	499/60	275/45	0/0	AOCC ROUGH RIDERS
W6AFA	127,840	799	160	0/0	43/11	215/48	346/54	192/45	3/2	
N4OO	125,615	679	185	14/11	104/30	254/46	184/47	102/34	21/17	SFCG Sultans of Vox
N7GP	120,000	800	150	0/0	23/15	167/44	420/55	189/35	1/1	AOCC ROUGH RIDERS
ACØW	118,570	835	142	1/1	41/25	397/56	368/49	28/11	0/0	MWA Lakers
K7SV	115,068	669	172	12/10	84/23	263/47	198/45	93/32	19/15	KCCC Chickens
W2RQ	100,492	679	148	0/0	100/27	255/46	176/37	144/35	4/3	

Single Op QRP Top Five Breakdowns

Call	Score	QSOs	Mults	160	80	40	20	15	10	Team
W7LG	3,612	86	42	0/0	6/5	47/17	30/17	3/3	0/0	
W9HT	3,285	73	45	0/0	5/4	34/23	21/13	13/5	0/0	
VE3GMZ	2,356	62	38	0/0	0/0	28/14	27/20	7/4	0/0	
K7DLX	2,337	57	41	0/0	0/0	16/9	21/14	20/18	0/0	
N3WS	1,855	53	35	0/0	0/0	15/10	29/20	8/4	1/1	

Single Op Youth (25 years old or younger) Breakdowns

Call	Score	QSOs	Mults	160	80	40	20	15	10	Team
K6JO	235,614	1101	214	9/4	22/11	214/48	407/57	352/54	97/40	SCCC
KQ4RCC (N1GNF)	2,555	73	35	0/0	1/1	58/20	8/9	5/4	1/1	CFARS Contest Group
W3MOH	640	32	20	0/0	0/0	15/11	8/4	9/5	0/0	
KR4EDR	195	15	13	0/0	0/0	5/4	10/9	0/0	0/0	
K8LG	42	6	7	0/0	0/0	0/0	6/7	0/0	0/0	
KO4FFA	16	4	4	0/0	0/0	2/2	2/2	0/0	0/0	

Single Op Assisted Top Ten Breakdowns

Call	Score	QSOs	Mults	160	80	40	20	15	10	Team
KP2RUM (K9VV)	213,094	982	217	0/0	39/22	127/45	381/61	278/53	157/36	FCG HYDROS
AC1NU (LU9ESD)	195,286	1073	182	13/10	87/26	339/55	491/50	137/37	6/4	
K3MM	183,134	889	206	22/10	112/34	436/55	174/53	121/42	24/12	
KØEU	173,538	933	186	3/2	52/28	263/50	503/60	107/41	5/5	GMCC Pikes Peak
NU4E	135,946	673	202	20/14	110/34	235/53	211/56	87/38	10/7	SFCG Sultans of Vox
NSØR	122,796	758	162	0/0	46/30	309/48	324/56	77/26	2/2	KCCC Eggs
WT9U	119,884	731	164	16/12	154/30	300/45	150/48	106/25	5/4	SMC_Hartley
WØSD (KTØW)	110,050	710	155	0/0	50/24	233/46	330/53	97/32	0/0	Flying Iguanas
K3DNE	105,410	635	166	14/11	115/27	221/44	197/48	77/29	11/7	SFCG Sultans of Vox
KJ4YLR	92,130	555	166	9/7	120/30	184/44	159/52	81/31	2/2	KCG Team A

Single Op Assisted QRP Top Five Breakdowns

Call	Score	QSOs	Mults	160	80	40	20	15	10	Team
WQ6X	4,080	85	48	0/0	9/3	33/12	24/18	18/14	1/1	SCCC
K4PPK	572	26	22	0/0	1/2	9/6	16/14	0/0	0/0	

Single Op Assisted Youth (25 years old or younger) Breakdowns

Call	Score	QSOs	Mults	160	80	40	20	15	10	Team
K18AN	29,565	365	81	0/0	1/1	271/41	60/26	31/11	2/2	TCG TEAM TWITTY
NP2R/4 (W3MLJ)	22,494	326	69	0/0	0/0	0/0	91/25	235/44	0/0	
NU1D	14,697	213	69	0/0	8/8	119/29	79/27	7/5	0/0	
KFØQFD	616	28	22	0/0	0/0	0/0	12/11	16/11	0/0	
KJ7AGQ	456	24	19	0/0	0/0	0/0	20/15	4/4	0/0	
NC8R	432	27	16	0/0	0/0	0/0	27/16	0/0	0/0	
W8LBR	198	18	11	0/0	0/0	4/4	14/7	0/0	0/0	

Multi-Two Breakdowns

Call	Score	QSOs	Mults	160	80	40	20	15	10	Team
N6RO	271,545	1263	215	14/9	52/20	282/52	483/61	403/59	29/14	
KA4RRU	240,200	1201	200	17/13	185/40	450/57	455/50	86/34	8/6	
WP3C	226,625	1225	185	0/0	0/0	132/35	540/56	404/55	149/39	

Team Scores

1. AOCC ROUGH RIDERS		2. SFCG Sultans of Vox		3. SCCC	
W7CXX	137,550	NU4E	135,946	K6JO	235,614
N7GP	120,000	N4OO	125,615	N6HD	69,426
KC7V	84,018	K3DNE	105,410	K6NR	37,774
N4ZZ	79,650	WN4AFP	15,015	N6VOH	5,194
Total	421,218	N4IQ	7,869	WQ6X	4,080
		Total	389,855	Total	352,088

Team	Operators	Total
4. GMCC Pikes Peak	KØEU, KØUK, N4VI, KI6QDH, N7WY	339,942
5. FCG HYDROS	KP2RUM, K4BAI, NE8P, J8AA, NF6P	334,530
6. Deep Dixie CC Team Elvis	K7RL, KVØI, N5EE, KA4HIM, K5KU	326,974
7. SMC_Hartley	WT9U, KC9K, N7US, N9OK, N9EP	307,574
8. KCCC Eggs	NSØR, NA8V, KØVBU, AEØMO	297,139
9. MWA Lakers	ACØW, KØAD, NØXT, KAØPQW, NØAT	254,301
10. NCCC #1	K6KM, K6GHA, AJ6V, WN6A	211,899
11. KCCC Chickens	K7SV, AI6O, K5QQ, NWØM, KØAP	204,904
12. PVRC K4 SSB SLUGGERS	N1RM, N3AM, KB3Z, N6DW, K3TN	187,265
13. KCG Team A	KJ4YLR, ND4Y, KC4WQ, KE4KY, KD4ULD	164,201
14. Team Win CFARS	KR4I, KB4D, WD4NC, NC4PB, KC4ABE	159,095
15. DFW Contest Group	AD5XD, NT5V, WA5LFD, K5ENS, K5LOL	150,135

16. FRC Team Alpha	AA3B, AA3R, AB2E	120,508
17. Flying Iguanas	W0SD, W9IZ, K9NW	116,230
18. SMC Colpitts	W9YK, W9QL, W9RE, K9WO, K9WX	107,402
19. FRC Team Kilo	K3TS, K3MD, K2RET	106,584
20. FRC Team November	N3AAA, N2NC, N2RC, N2HMM, N3DRV	98,554
21. GMCC Princeton Peak	N7MZV, W0ETT, W0PSY, KC0VDY, WC7S	95,929
22. PVRC Central VA #1	N3AC, K4XL, NN4RB, N4IW, NJ4Q	94,820
23. NCCC #2	N3RC, W6FB, N6XI, K7GK, K6ST	94,264
24. GROWLERS	N2BJ, W9ILY	78,340
25. WR5O and His Pack of Losers!	WR5O, K5NZ, K5BG	60,506
26. TCG USB	K3IE, N4MCC, W4NZ	48,277
27. Boiled Owls	KS2G, K08SCA, N2YBB	45,792
28. Braille Team	KW3A, KB8TYJ	42,760
29. FCG JETSTREAMS	WS4AM, KG2MM, WN3DX, WB4UBK, KQ4Y	41,515
30. SFCG Birds of Prey	KZ3P, W4ANT, K4QQG	37,368
31. TCG LSB	K0EJ, W0AG, K4DXV, K3FH	34,538
32. KCG Team B	KM4CH, KM4FO	33,360
33. Lake Area Radio Klub (SD)	N0SD, N0DL, KE0EPY, K0ATY	32,200
34. PVRC Central VA #2	N3MN, N4QWF, KE4CR, N3CW	29,382
35. Deep Dixie CC Team Magnolia	K5TS, KT4Q/KL7	28,932
36. FRC Team Whiskey	W3FIZ, W3JZ	26,387
37. YELLERS	WA9LEY, K9GA	23,580
38. NCCC #3	AE6Y, W6SX, K6ELE	22,094
39. AOCC DESERT RANGERS	K7JQ, KM7N, KE6K, K9SAT	17,171
40. CFARS Contest Group	KB4LOA, KQ4RCC, KQ4FNO	12,227
41. SMC Pierce	KC9EOQ, K9LA	10,583
42. NPARC Talkers	K2AL, K2YG	8,887
43. GMCC Longs Peak	N3ZZ, W0ZA	7,610
44. TDXS	AJ4F, N5DTT	6,841
45. Big Sky Contesters	KJ9C, WN7Y	6,522

Line Scores

* QRP

Single Operators

Call	Score	QSOs	Mults	QTH	Team	Call	Score	QSOs	Mults	QTH	Team
K1TR	17,440	218	80	NH		K1EFI	3,354	78	43	MD	
N1SFE	17,301	219	79	CT		W3WC	2,664	72	37	PA	
W1GRLL	7,320	122	60	ME		*N3WS	1,855	53	35	PA	
KC1QEM	3,645	81	45	MA		K3MVT	1,716	52	33	PA	
W1FJ	3,276	78	42	MA		KC3WRP	1,518	46	33	PA	
AC1UW	1,632	51	32	NH		K3GW	972	36	27	PA	
N1ADX	1,518	46	33	MA		KC1FWU	836	38	22	PA	
K1AV	1,320	44	30	RI		W3MOH	640	32	20	PA	
N1DC	1,288	46	28	MA		K2EJ	176	16	11	MD	
K1BIF	357	21	17	VT		N3UP	77	11	7	DE	
K1SM	242	22	11	MA		WA3ENQ	77	11	7	PA	
W1MJ	234	18	13	MA		KD3CR	9	3	3	MD	
KC1FOZ	176	16	11	NH		N4OO	125,615	679	185	GA	SFCG Sultans of Vox
K6RO	144	16	9	ME		K7SV	115,068	669	172	VA	KCCC Chickens
AB0YT	84	12	7	MA		KR4I	80,884	554	146	NC	Team Win CFARS
KC1UA	54	9	6	MA		K4BAI	49,278	382	129	GA	FCG HYDROS
K1RTO	0	-2	0	NH		KB4D	48,150	450	107	NC	Team Win CFARS
W2RQ	100,492	679	148	NJ		WS7X	46,729	563	83	FL	
N2MF	64,887	503	129	NY		K3PI	31,195	367	85	NC	
N2PP	48,312	396	122	NY		K0EJ	30,528	318	96	TN	TCG LSB
KS2G	31,584	329	96	NY	Boiled Owls	KZ3P	22,848	224	102	SC	SFCG Birds of Prey
WA2JQK	25,461	207	123	NY		NF6P	20,680	220	94	FL	FCG HYDROS
N2NC	20,737	233	89	NJ	FRC Team November	K4EJ	17,472	273	64	FL	
KA2FIR	8,364	123	68	NJ		KG3V	10,074	138	73	VA	
WA2GOT	5,936	106	56	NY		K4TG	9,520	140	68	KY	
KD2REH	1,392	48	29	NY		KB4LOA	9,384	136	69	NC	CFARS Contest Group
KD2TNE	1,344	56	24	NY		NC4PB	9,089	149	61	NC	Team Win CFARS
AC4FD	1,102	38	29	NJ		W3DQS	8,760	120	73	NC	
KQ4Y	1,000	40	25	NY	FCG JETSTREAMS	W4ETA	8,591	121	71	TN	
K2DJF	779	41	19	NY		KX4UI	6,976	109	64	FL	
KD2EFR	638	29	22	NY		KK4PJ	6,076	124	49	FL	
N2OIG	550	25	22	NY		W9TCV	5,700	95	60	FL	
N2LDV	525	25	21	NY		N8TP	5,096	91	56	GA	
WY1H	456	24	19	NY		W4YE	5,005	91	55	VA	
AC2ZZ	414	23	18	NJ		K3YDX	4,984	89	56	NC	
W2DXE	330	22	15	NY		K2WK	4,947	97	51	VA	
N2NRV	252	18	14	NY		KQ4FFP	3,672	102	36	TN	
*K2YG	225	15	15	NJ	NPARC Talkers.	N3GB	3,220	70	46	FL	
A12U	180	18	10	NY		K4TMC	2,982	71	42	NC	
AD2KC	49	7	7	NY		W0AG	2,970	66	45	TN	TCG LSB
AC3LW	24	6	4	NJ		KY4UD	2,806	61	46	AL	
WB2ZAB	51,129	437	117	MD		KQ4RCC (N1GNF)	2,555	73	35	NC	CFARS Contest Group
KW3A	28,785	285	101	PA	Braille Team	W2ZDP	2,318	61	38	NC	
K3AU (K2YWE)	20,224	256	79	MD		AC2N	2,000	50	40	FL	
KA3JNN	17,014	181	94	MD		K4QQG	1,980	55	36	SC	SFCG Birds of Prey
K3CT	16,017	281	57	PA		KD4ULD	1,617	49	33	KY	KCG Team A
K3UA	14,762	242	61	PA		NA4X	1,512	56	27	NC	
KE3LA	9,750	130	75	PA		KB6QPI	1,504	47	32	FL	
W3JZ	9,617	163	59	PA	FRC Team Whiskey	WB4UBK	1,260	45	28	FL	FCG JETSTREAMS
K3KU	8,236	142	58	MD		KM4SK	1,170	39	30	VA	
K3SNO	6,060	101	60	PA		N4MMR	988	38	26	FL	
WA3SRU	4,747	101	47	PA		AA4DD	825	33	25	TN	
*W7LG	3,612	86	42	PA		*WR4I	630	35	18	VA	
						K4DR	494	26	19	TN	
						W4DUK	345	23	15	VA	
						KW4GF	320	20	16	VA	

Call	Score	QSOs	Mults	QTH	Team	Call	Score	QSOs	Mults	QTH	Team	
K1HG	308	22	14	FL		K7RL	184,434	1042	177	WA	Deep Dixie CC Team	
WA2OMT	288	18	16	VA	CFARS Contest Group	W7CXX (WA7LWN)	137,550	917	150	UT	Elvis	
KQ4FNO	288	18	16	NC		AOCC ROUGH						
KN4ADM	266	19	14	GA		RIDERS						
AD4IE	252	18	14	NC		AOCC ROUGH						
KR4EDR	195	15	13	SC		RIDERS						
KM4BMA	144	12	12	KY		GMCC Pikes Peak						
WA4JA	120	12	10	TN								
KR4CEL	96	12	8	VA								
AI4IC	70	10	7	TN								
K8RAR	16	4	4	FL								
KO4FFA	16	4	4	AL								
KK4CS	1	1	1	GA								
WA5JMZ	99,225	735	135	TX		DFW Contest Group	K7JQ	7,068	124	57	AZ	AOCC DESERT
AD5XD	98,640	720	137	TX			RANGERS					
NT5F	84,252	708	119	TX								
WA5SOG	45,820	395	116	AR								
WR5O	44,625	357	125	TX		WR5O and His Pack	KM7N	4,984	89	56	AZ	Big Sky Contesters
NT5V	38,064	366	104	TX		of Losers!	KE6K	4,235	77	55	AZ	AOCC DESERT
W5TMC	28,952	308	94	OK	DFW Contest Group	NG7X	3,652	83	44	AZ	RANGERS	
K5TS	28,830	310	93	LA		KB9LHT	3,510	90	39	AZ	AOCC DESERT	
KD2KW	27,048	322	84	TX	Deep Dixie CC Team	N7WY	2,720	68	40	WY	RANGERS	
K5KU	15,057	239	63	LA	Magnolia	KC7TY	2,646	63	42	WY	GMCC Pikes Peak	
K5NZ	15,045	177	85	TX		NX7W (N7FLT)	2,646	63	42	MT		
WA5LFD	11,680	146	80	TX	Deep Dixie CC Team	*K7DLX	2,337	57	41	UT		
AA5UN	9,765	217	45	TX	Elvis	N7LR	2,100	60	35	AZ		
AE5T	9,396	116	81	LA	WR5O and His Pack	WB6JJJ	1,537	53	29	OR		
K5DHY	5,390	98	55	TX	of Losers!	N7AME	1,395	45	31	WA		
AJ4F	5,304	136	39	TX	DFW Contest Group	WN7Y	912	48	19	MT	Big Sky Contesters	
AF5CC	2,516	68	37	OK		K9SAT	884	34	26	AZ	AOCC DESERT	
K5CBB	2,006	59	34	TX		KJ7H	660	30	22	WA	RANGERS	
W5JMW	1,815	55	33	TX	TDXS	W6AGZ	567	27	21	OR		
KC5DCT	1,617	49	33	TX		K6ST	476	28	17	NV	NCCC #2	
N5DTT	1,537	53	29	TX	TDXS	W7MTL	468	26	18	OR		
*WE9N	1,134	42	27	TX		WB7QMR	270	18	15	AZ		
K5WRN	1,058	46	23	TX		W7RSR	204	17	12	NV		
NS5H	1,032	43	24	OK		W7TX	195	15	13	ID		
K5LOL	851	37	23	TX	DFW Contest Group	K7FWP	182	14	13	AZ		
K5BG	836	38	22	TX	WR5O and His Pack	KC2ELS	154	14	11	WA		
W5JCC	748	34	22	TX	of Losers!	*WC7S	96	12	8	WY	GMCC Princeton Peak	
K5OY	580	29	20	AR		KK7NEV	64	8	8	NV		
NØKTB	558	31	18	TX		KK7HPM	63	9	7	UT		
NU5DE (N5KF)	480	30	16	TX		W7OM	24	6	4	UT		
N5WMQ	456	24	19	NM		K7RNJ	20	5	4	OR		
AI5OL	432	24	18	TX		KG7WFG	1	1	1	WA		
AI5YA	323	19	17	TX		N8II	176,823	999	177	WV		
W9ML	300	20	15	AR		NA8V	70,923	503	141	MI	KCCC Eggs	
K7ZYV	120	12	10	MS		N8BV	38,985	345	113	OH		
N5MUN	80	10	8	LA		KB8TYJ	13,975	215	65	MI	Braille team	
KJ5KYB	36	6	6	TX		N8WCP	4,550	91	50	OH		
KI5EWG	6	3	2	NM		W8PEN	3,600	100	36	OH		
K6JO	235,614	1101	214	CA	SCCC	WB8JUI	2,730	65	42	OH		
W6AFA	127,840	799	160	CA		KI8N	2,400	60	40	OH		
N6HD	69,426	551	126	CA	SCCC	K8LL	572	26	22	OH		
AJ6V	52,029	423	123	CA	NCCC #1	W8LOW	416	26	16	OH		
N6OKU	37,845	435	87	CA		KD8NZF	374	22	17	OH		
K6NR	37,774	374	101	CA	SCCC	W8KNO	204	17	12	OH		
N6PGQ	24,304	248	98	CA		AD8Y	170	17	10	OH		
AE6Y	19,968	256	78	CA	NCCC #3	N8PMP	128	16	8	MI		
KH6LC (KH7BB)	12,550	251	50	KH6		KB8YGA	108	12	9	MI		
W6IA	11,808	164	72	CA		K8LG	42	6	7	OH		
KD6HOF	8,904	159	56	CA		K9BGL	89,640	664	135	IL		
K7GK	6,250	125	50	CA	NCCC #2	KD9VGV	24,108	294	82	WI		
N6EF	5,700	100	57	CA		W9RE	21,728	224	97	IN	SMC_Colpitts	
N6VOH	5,194	98	53	CA	SCCC	N9SJ	21,600	240	90	IL		
W6AAE	4,760	85	56	CA		KB9OWD	15,756	202	78	WI		
K6KTS	4,171	97	43	CA		NC9F (KØPG)	13,746	174	79	IL		
W6LP (NC6R)	4,116	98	42	CA		K9LV	12,464	152	82	IN		
WA7BNM	3,978	78	51	CA		KD9GY	9,072	189	48	IL		
K6FMI	2,709	63	43	CA		KA9W	6,222	102	61	IL		
N6NFB	2,700	90	30	CA		KB9YYM	5,992	107	56	IN		
W6JBR	2,280	57	40	CA		W9ILY	5,715	127	45	IL	GROWLERS	
N6GRM	1,323	49	27	CA		W9IZ	5,610	102	55	IN	Flying Iguanas	
KM6HB	1,144	44	26	CA		N9DJ	5,044	97	52	IL		
KA6W	897	39	23	CA		K9GA	4,092	93	44	IL	YELLERS	
K6EI	891	33	27	CA		*W9HT	3,285	73	45	IN		
N6REK	616	28	22	CA		K8VGL	2,964	78	38	IN		
N6CK	551	29	19	CA		W9DH	2,924	68	43	IL		
WB6KDH	475	25	19	CA		WB9RCE	2,052	54	38	IL		
KA6KEN	390	26	15	CA		KB9LGS	2,006	59	34	IN		
KB6JFL	336	21	16	CA		K9LA	1,815	55	33	IN	SMC_Pierce	
AE6YB	180	18	10	CA		KC9JML	1,768	52	34	IN		
K6MUG	96	12	8	CA		WA9TMU	1,320	44	30	IN		
KN6DRN	90	10	9	CA		KC9GLR	1,260	45	28	IN		
W6CPR	4	2	2	CA		AC9QM	1,232	44	28	IN		
						KD9WIF	986	34	29	IL		
						K9BN	910	35	26	IL		
						WB9PRG	345	23	15	WI		
						KD9VAG	304	19	16	IN		

Call	Score	QSOs	Mults	QTH	Team	Call	Score	QSOs	Mults	QTH	Team
WD9DAN	288	18	16	IN		KFØRQF	735	35	21	MO	
KW9A	150	15	10	IL		KCØVDY	722	38	19	CO	GMCC Princeton Peak
KE9BNN	143	13	11	IN		KBØTDW	513	27	19	IA	
K9MCM	110	11	10	IN		NØWLX	476	28	17	NE	
K9ELF	32	8	4	IN							Lake Area Radio Klub (SD)
*AF9J	6	3	2	WI		KEØEPY	396	18	22	SD	
						KØVH	304	19	16	MN	
ACØW	118,570	835	142	MN	MWA Lakers	ADØYL	252	18	14	MO	
KØUK	97,595	655	149	CO	GMCC Pikes Peak	NØVRM	247	19	13	MN	
WNØG	69,360	510	136	IA		K6ACV	238	17	14	MO	
KØAD	60,957	521	117	MN	MWA Lakers	KGØE	204	17	12	MN	
NØXT	52,767	451	117	MN	MWA Lakers	KØVO	198	18	11	MN	
KØEA	43,260	412	105	MN		KFØUJP	150	15	10	MN	
WDØT	43,152	372	116	SD		KJØP	132	12	11	MN	
N4VI	36,424	314	116	CO	GMCC Pikes Peak	NØJNM	110	11	10	MN	
WØIZ	32,032	416	77	CO		KEØCFR	104	13	8	CO	
K5QQ	31,188	339	92	MO	KCCC Chickens	WBØICT	99	11	9	KS	
WØETT	30,996	287	108	CO	GMCC Princeton Peak						Lake Area Radio Klub (SD)
NWØM	26,016	271	96	MO	KCCC Chickens	KØATY	0	0	3	SD	
					Lake Area Radio Klub (SD)	VE3NNT	8,710	130	67	ON	
NØSD	24,940	290	86	SD		VA4ADM	8,580	195	44	MB	
AIØY	18,480	264	70	ND		VA6RCN	7,847	133	59	AB	
KAØPQW	13,575	181	75	MN	MWA Lakers	VE1RM	5,985	133	45	NS	
AFØF	9,216	144	64	KS		VE7MHI	5,544	99	56	BC	
NØAT	8,432	136	62	MN	MWA Lakers	VE3TM	4,717	89	53	ON	
					Lake Area Radio Klub (SD)	VA2KD	3,952	76	52	QC	
NØDL	6,864	143	48	SD		VE3RVZ	3,542	77	46	ON	
KCØIUY	5,459	103	53	KS		VA3CBU	3,403	83	41	ON	
NØUY	4,698	87	54	MN		*VE3GMZ	2,356	62	38	ON	
WØBR	4,368	84	52	KS		VA7LEC	2,030	58	35	BC	
N3ZZ	3,960	88	45	CO	GMCC Longs Peak	VE9RLW	1,904	56	34	NB	
N9ARX	2,232	62	36	NE		VE2IAA	1,740	60	29	QC	
K6HU	2,160	60	36	MO		VE7BGP	644	28	23	BC	
KCØINP	1,972	58	34	MN		VA3PNL	108	12	9	ON	
KØJJM	1,860	60	31	KS		VA6MA	30	6	5	AB	
KFØUR	1,798	58	31	CO		VE7PAE	30	6	5	BC	
WØYJT	1,470	42	35	KS							
WØDCN	1,350	45	30	IA		ZF2VE	68,198	559	122	ZF	
KØLTL	1,012	44	23	MN		XE2S	240	20	12	XE	
KIØMZ	1,012	46	22	CO							
AEØVC	989	43	23	CO		TAØC	35	7	5	DX	
KØEWS	945	45	21	IA							
WDØFHK	888	37	24	KS							

Single Operator Assisted

* QRP

Call	Score	QSOs	Mults	QTH	Team	Call	Score	QSOs	Mults	QTH	Team
AC1NU (LU9ESD)	195,286	1073	182	ME		N3AM	49,209	349	141	MD	PVRC K4 SSB
WJ1U	72,884	532	137	NH		N3AAA	44,460	342	130	PA	SLUGGERS
K1JB	33,396	276	121	ME		WA3AER	35,640	324	110	MD	FRC Team November
NU1D	14,697	213	69	ME							PVRC K4 SSB
K1BZ	8,856	123	72	ME		KB3Z	30,740	265	116	PA	SLUGGERS
K1MT	5,280	110	48	MA		N1EK	20,448	213	96	MD	
K1TTW	4,888	104	47	VT		W3UL	17,835	205	87	PA	
AA1N	3,626	74	49	MA		K3ANI	17,073	271	63	MD	
KB1RVU	3,080	110	28	CT		W3FIZ	16,770	215	78	PA	FRC Team Whiskey
W1EYZ	1,836	54	34	MA		K3MD	15,004	242	62	PA	FRC Team Kilo
KA2KON	1,428	51	28	NH		WA3KCP	10,164	132	77	PA	
W1SFS	342	18	19	ME		AC5XK	8,614	146	59	DC	
						N3TCR	6,903	117	59	MD	
AA3R	46,434	426	109	NJ	FRC Team Alpha	WN3DX	6,018	102	59	PA	FCG JETSTREAMS
WA2QAU	43,290	390	111	NY		NC3Y	5,300	100	53	MD	
WA2DNI	36,630	333	110	NY							PVRC K4 SSB
AB2E	20,488	197	104	NJ	FRC Team Alpha	K3TN	4,992	96	52	MD	SLUGGERS
KD2DLL	17,507	287	61	NY		N3DRV	2,944	64	46	DE	FRC Team November
N2RC	15,372	183	84	NY	FRC Team November	NW3L	2,109	57	37	MD	
N2HMM	15,041	169	89	NJ	FRC Team November	N3DUE	1,813	49	37	MD	
WØ2T	11,232	144	78	NJ		N8IVN	1,170	45	26	MD	
K2RET	9,928	136	73	NJ	FRC Team Kilo	W3RGA	792	33	24	PA	
KØ8SCA	8,904	159	56	NY	Boiled Owls	K3FH	286	22	13	PA	TCG LSB
K2AL	8,662	122	71	NJ	NPARC Talkers	KD2LNQ	64	8	8	DE	
W2NO	7,448	98	76	NJ							
N2YBB	5,304	102	52	NY	Boiled Owls	NU4E	135,946	673	202	SC	SFCG Sultans of Vox
K2ZR	5,240	131	40	NY		K3DNE	105,410	635	166	SC	SFCG Sultans of Vox
KA2WIK	3,640	91	40	NY		KJ4YLR	92,130	555	166	KY	KCG Team A
KB2URI	1,764	49	36	NY							PVRC K4 SSB
WB2PJH	1,696	53	32	NJ		N1RM	83,324	563	148	VA	SLUGGERS
K2PTC	1,683	51	33	NY							AOCC ROUGH
W2MSA	1,488	48	31	NJ		N4ZZ	79,650	590	135	TN	RIDERS
AC2FA	1,147	37	31	NY		K4OV	66,792	484	138	NC	
KB2TDH	440	22	20	NY		ND4Y	53,700	358	150	KY	KCG Team A
KE2D	225	15	15	NJ		NR4O	52,440	437	120	NC	
K3WWV	165	15	11	NJ		KU8E	43,056	368	117	GA	
K2QO	20	5	4	NY		N3AC	39,169	299	131	VA	PVRC Central VA #1
						K5VIP	33,759	279	121	VA	
K3MM	183,134	889	206	MD		K4MI	32,262	283	114	VA	
K3TS	81,652	596	137	PA	FRC Team Kilo	W4RN	29,094	373	78	VA	
WX3B	54,270	402	135	MD		KM4CH	28,245	269	105	KY	KCG Team B
AA3B	53,586	458	117	PA	FRC Team Alpha	K3IE	27,328	244	112	TN	TCG USB

Call	Score	QSOs	Mults	QTH	Team	Call	Score	QSOs	Mults	QTH	Team
K4XL	26,862	242	111	VA	PVRC Central VA #1	K6ELE	494	26	19	CA	NCCC #3
WS4AM	26,208	252	104	FL	FCG JETSTREAMS	WA6HGA	36	6	6	CA	
KR4AE	25,536	304	84	GA		N6ACA	30	6	5	CA	
N4CF	23,108	218	106	VA							
WQØRVO (KQ4FPM)	22,748	242	94	FL							AOCC ROUGH
N3MN	20,370	210	97	VA	PVRC Central VA #2	KC7V	84,018	627	134	AZ	RIDERS
					PVRC K4 SSB	N7MZW	38,880	480	81	UT	GMCC Princeton Peak
N6DW	19,000	190	100	VA	SLUGGERS	AC7RX	14,025	165	85	WA	
					Deep Dixie CC Team	K7WXB	8,757	139	63	UT	
KA4HIM	16,849	203	83	NC	Elvis	W7CO	5,850	117	50	OR	
NØYY	16,517	199	83	VA		WU8T	4,914	117	42	WA	
K1GG	16,206	146	111	VA		KA7RRA	1,472	46	32	WA	
NN4RB	15,308	172	89	VA	PVRC Central VA #1	KJ7AGQ	456	24	19	WA	
WN4AFP	15,015	165	91	SC	SFCG Sultans of Vox	K7FYI	238	17	14	NV	
N4MCC	14,964	174	86	TN	TCG USB	KC7H	135	15	9	WA	
WD4NC	13,724	188	73	NC	Team Win CFARS						Deep Dixie CC Team
K4SBZ	13,338	171	78	FL		KT4Q/KL7	102	17	6	KL7	Magnolia
WB3X	13,040	163	80	SC							
W4ANT	12,540	209	60	SC	SFCG Birds of Prey	KV8O (K8PGJ)	72,263	569	127	MI	
KC4WQ	12,367	149	83	KY	KCG Team A	NE8P	30,070	310	97	MI	FCG HYDROS
NK4O	9,900	132	75	FL		KI8AN	29,565	365	81	MI	
W4VIC	9,694	131	74	VA		W8TB	14,060	185	76	OH	
N4IW	8,777	131	67	VA	PVRC Central VA #1	W8PI	5,841	99	59	MI	
W4LT	8,410	145	58	FL		N8RGA	5,280	96	55	MI	
N4YDU	8,284	109	76	NC		WA8LRW	4,770	90	53	OH	
N4IQ	7,869	129	61	SC	SFCG Sultans of Vox	KB8PAI	1,802	53	34	OH	
NA4DA	7,600	95	80	FL		K9NW	570	30	19	OH	Flying Iguanas
AJ4LN	7,320	122	60	VA		N88R	432	27	16	MI	
KC4ABE	7,248	151	48	NC	Team Win CFARS						
KG2MM	7,029	99	71	FL	FCG JETSTREAMS	WT9U	119,884	731	164	IN	SMC_Hartley
N1WR	6,552	104	63	VA		KC9K	91,808	604	152	IL	SMC_Hartley
WA8AHZ	6,138	99	62	VA		AC9S	75,518	619	122	IL	
N3KN	5,992	107	56	VA		N2BJ	72,625	581	125	IL	GROWLERS
W4NZ	5,985	105	57	TN	TCG USB	N7US	51,972	366	142	IL	SMC_Hartley
W9ARO	5,580	93	60	FL		W9AV	40,740	388	105	WI	
N4QWF	5,340	89	60	VA	PVRC Central VA #2	K9MU	31,506	354	89	WI	
KM4HI	5,293	79	67	FL		W9YK	25,088	256	98	IL	SMC_Colpitts
KM4FO	5,115	93	55	KY	KCG Team B	W9QL	24,560	307	80	IL	SMC_Colpitts
WB4HRL	4,949	101	49	SC		N9OK	22,550	205	110	IL	SMC_Hartley
NJ4Q	4,704	98	48	VA	PVRC Central VA #1	N9EP	21,360	240	89	IL	SMC_Hartley
KM4IAJ	4,640	80	58	VA		WA9LEY	19,488	224	87	IL	YELLERS
AA4VT	4,557	93	49	SC		K9WO	18,746	206	91	WI	SMC_Colpitts
KE4KY	4,387	107	41	KY	KCG Team A	K9WX	17,280	216	80	IN	SMC_Colpitts
K4FTO	4,284	84	51	VA		K9ABR	16,560	207	80	IL	
W4UT	4,250	85	50	TN		WB8BZK	12,354	142	87	IL	
N3CKI	3,243	69	47	NC		KC9EOQ	8,768	137	64	IL	SMC_Pierce
K3WA	3,024	63	48	NC		W9TD	3,290	70	47	IL	
AJ4HP	2,340	65	36	FL							
AG4TT (N4GU)	2,340	65	36	NC		KØEU	173,538	933	186	CO	GMCC Pikes Peak
KE4CR	2,006	59	34	VA	PVRC Central VA #2	NSØR	122,796	758	162	KS	KCCC Eggs
KY4RQ	1,836	51	36	VA		WØSD (KTØW)	110,050	710	155	SD	Flying Iguanas
W4YVA	1,824	57	32	VA							Deep Dixie CC Team
N3CW	1,666	49	34	VA	PVRC Central VA #2	KVØI	58,308	516	113	NE	Elvis
W7IY	1,612	52	31	VA		KØVBU	52,250	418	125	KS	KCCC Eggs
KN4UOW	1,440	48	30	VA		AEØMO	51,170	430	119	KS	KCCC Eggs
K4PZZ	1,326	39	34	VA		AI6O	31,850	325	98	MO	KCCC Chickens
NN7CW	1,029	49	21	FL		KTØR (KEØL)	26,574	309	86	MN	
N4TL	936	36	26	NC		WØPSY	25,235	245	103	CO	GMCC Princeton Peak
N8VU	910	35	26	GA		K2KR	20,416	232	88	CO	
W1RPG	756	36	21	SC		AAØFO	19,440	180	108	KS	
K4DXV	754	29	26	TN	TCG LSB	K4IU	16,968	202	84	MN	
KO4QEX	735	35	21	GA		NØAX	15,438	186	83	MO	
AF4T	609	29	21	TN		WØPMO	4,648	83	56	MN	
*K4PPK	572	26	22	FL		NØTXW	4,272	89	48	MN	
W4MBM	520	26	20	VA		AEØDX	3,666	78	47	IA	
WA4IPU	352	22	16	FL		WØZA	3,650	73	50	NE	GMCC Longs Peak
K1AJT	315	21	15	NC		NØRC	2,701	73	37	KS	
KN4CED	240	16	15	VA		KEØKOT	1,457	47	31	MN	
WB4KFO	154	14	11	VA		KØMPH	1,144	44	26	MN	
AJ4D	81	9	9	FL		KØAP	782	34	23	KS	KCCC Chickens
K6ES	49	7	7	NC		KFØQFD	616	28	22	KS	
						NNØJS	280	14	20	MO	
KI5GTR	77,250	618	125	AR	Deep Dixie CC Team	W8LBR	198	18	11	CO	
					Elvis						
N5EE	52,326	459	114	AR		VE3PJ	86,122	578	149	ON	
AB5SE	34,254	346	99	AR		VE7BC	59,768	482	124	BC	
W6FB	24,990	238	105	LA	NCCC #2	VE6RST	57,921	449	129	AB	
KI5MM	3,036	66	46	TX		VA3IDD	32,742	306	107	ON	
W5RAW	2,880	72	40	TX		VE9XX	18,576	216	86	NB	
K5ENS	900	36	25	TX	DFW Contest Group	VE7ZO	14,268	164	87	BC	
WX9AER	56	8	7	OK		VE7CV	11,270	161	70	BC	
						VE3UIQ	7,119	113	63	ON	
K6KM (@W6SRR)	74,646	522	143	CA	NCCC #1	VE1RGO	5,202	102	51	NS	
K6GHA	56,301	383	147	CA	NCCC #1	VE9CZ	3,864	92	42	NB	
N3RC	50,740	430	118	CA	NCCC #2	VA3PMH	3,465	77	45	ON	
W6MX	29,274	287	102	CA							
WN6A	28,923	311	93	CA	NCCC #1	KP2RUM (K9VV)	213,094	982	217	KP2	FCG HYDROS
N6XI	11,808	164	72	CA	NCCC #2	TI5CDA	49,714	371	134	TI	
N5ZO	11,544	148	78	CA		NP2R/4 (W3MLJ)	22,494	326	69	KP4	
W6SC	4,928	88	56	CA		J8AA	21,408	223	96	J8	FCG HYDROS
*WQ6X	4,080	85	48	CA	SCCC	6Y5PW	9,295	169	55	6Y	
KA5WSS	2,052	57	36	CA		CO3JAC	1	1	1	CM	
W6SX	1,632	51	32	CA	NCCC #3						

Multi-Two Scores

* QRP

Call Sign	Score	QSOs	Mults	QTH	Operators
N6RO	271,545	1263	215	CA	N6WM, WD6T
KA4RRU	240,200	1201	200	VA	K4GM, KA4RRU, KD6AKC, N2FT, W0CN, WA4PGM, WC4J
WP3C	226,625	1225	185	KP4	KC2GOW, KP4WW, WP3C
N4ML	206,832	1112	186	CT	N4ML, W4IPC
N3QE	195,840	1020	192	MD	N3QE, N3RTW, W2CDO
ND8DX	192,222	1062	181	OH	K8TCP, KC1KBF, KE8YJX, KE8YMU, ND8DX
W4MLB	156,772	1018	154	FL	AC4JU, K1ALC, K5LD, KO4JVE, KX4NM, N4KES, W4GPL, WJ4DX
K3CCR	88,033	583	151	MD	N3UM, W5MPB
WA3EKL	75,012	533	141	MD	K000, KB3VQC, N3DPB, W3URL, WA3EKL
VY2TT	37,183	361	103	PE	K6LA
N2QV	26,000	260	100	NY	N2BW, N2QV
WX8S	22,188	258	86	OH	KF8CEB, KL8X
AH7RF	21,141	261	81	KH6	AH7RF, NH6V
NW6P	19,285	203	95	CA	W9KKK, WX5S
K7VAP	17,143	217	79	WA	K7ANA, K7IPT, K7VAP
W8HCG	15,170	185	82	OH	K2KAR, N4HAI
K5LET	12,173	329	37	TX	KE4CPC, KG5CMS, KJ5HOY
VE7LFN	11,502	162	71	BC	VA7XU, VE7ANY, VE7CSI
W4TA	8,614	146	59	FL	K2BHS, KB8ESY, KN4YQC, N2SKH, N4GD, N4GRC
KX4AV	3,990	95	42	KY	KX4AV
W4CDA	1,650	50	33	KY	KJ4FMQ, KJ4ND
W2NPT	437	23	19	NJ	KR2H, W2DLT
K6JOB	391	23	17	CA	N6CIC, NN6U
K8YR	192	16	12	OH	KA8SBI, KE8WYV, KI0CT
N1SOH	143	13	11	MA	N1SOH, W1FM

Check Logs

AK0BC, K4NMR, K6ACW, KC2MBV, KC3KRZ, KE2EEQ, N0LFLK, N2YG, N6TQ, VE7NW, W0XM, W2VTB, WA9LJK, WC8VOA, WN8Y

Continued from page 7

- Urban environments are packed with buildings and structures that can absorb RF, distort antenna radiation and reception patterns, and reduce low-angle gain needed to work DX.
 - High noise levels and interference from nearby electronics and power lines can plague urban environments. This makes it harder to receive weak signals, especially on the lower bands.
 - Proximity to neighbors often requires special efforts to identify and eliminate your RFI sources and/or limit transmitter power levels.
 - Propagation is affected by the urban environment and may demand greater band and mode diversity.
 - Urban soil often has extremely poor conductivity, similar to an industrial area or desert.
 - Performance of vertical antennas is hampered by ground loss, surrounding ground clutter, and variable terrain.
 - Space limitations posed by your home and property may require creativity and compromise in finding a suitable station location that meets safety requirements.
- Although radio amateurs know a great deal about how short waves reflect off the ionosphere, there appears to be much less information about how they behave when meeting concrete and other physical obstacles in a dense urban environment. In his

book, *HF Antennas for All Locations*, Les Moxon, G5XN, provides one of the few thorough discussions of the antenna and its environment.

Moxon notes that there are large areas of ignorance, as well as grey areas that invite speculation. He encourages amateurs to obtain better performance from their antennas by experimentation. I will return to this point later in this series.

Check out the February/March 2026 "Little Pistols" column as we walk through assessing your options and optimizing your choices to develop an effective Urban Little Pistol station.

ELECRAFT® KH1

HAND-HELD, 5-BAND TRANSCEIVER

KH1 Features:

- 40-15 m bands; 6.7-22 MHz SWL
- CW mode; 5 watts, all bands
- ATU includes whip & high-Q inductor for 20/17/15 m*
- 2.5 AH Li-Ion battery & internal charger*
- CW decode & 32K TX log
- Scan/mini-pan feature
- Real-Time Clock
- Full remote control
- Speaker
- RIT, XIT, & VFO lock



KX LINE: KX3/KX2

Elec Craft® Full-Featured Ultra-portables 100W with Matching Amp



KX2 Ultralight Grab-and-Go Station Perfect for SOTA & Field Operations

- 5.8" x 2.8" x 1.5" (weight: 13 oz.)
- 80-10 meters (9 bands)
- SSB / CW / Data / AM / FM
- Up to 12 W TX
- Internal 2.6 Ah Li-ion battery*
- Built-in mic for HT-style operation
- Wide-range internal ATU*



KX3 Compact 160-6 Meter, All-Mode Transceiver

- Best-in-class performance
- 7.4" x 3.5" x 1.7" (weight: 1.5 lbs.)
- Matching PX3 panadapter*
- 160-6 meters plus 2 or 4 m*
- SSB, CW, AM, FM, Data
- Up to 15 W TX
- Wide-range internal ATU*

POWER, REDEFINED WITH THE ELECRAFT K-LINE

K4 Direct-Sampling SDR and KPA1500 Legal-Limit Amp



K4 Features:

- Direct sampling SDR • Modular, hybrid architecture
- Single or dual panadapter • High resolution tuning aid
- Comprehensive I/O • Full remote control via Ethernet
- 7" color screen with touch and mouse control
- ATU with 10:1+ range • 3 antenna jacks
- Up to 5 receive antenna sources

KPA1500 Features:

- 1500 W • Very compact design • Fast, silent PIN diode T/R switching
- Built-in ATU with dual antenna jacks • Compatible with nearly any transceiver – custom cables available
- 160-6 meters • CE for Europe

*OPTIONS



For complete features and specifications, go to elecraft.com | sales@elecraft.com | 831-763-4211



DX Engineering Makes **Contest Season**

Fun!

We make it easy to get what you need for higher scores: DX Engineering's RF-PRO-1B® Active Magnetic Loop Antenna and other receiving devices; HamPlus Antenna Switches; RigSelect's Pro Transceiver Switch and SO2R Controller; VA6AM, RF Meca, and 403A band pass filters; rigs like the Icom IC-7610; and more.

Contact us for the best products, fastest shipping, and most responsive service from experienced operators—a winning combination every time!

Make the Change to a More Satisfying Ham Radio Purchasing Experience

- Easy ordering by phone or web
- Products from over 180 leading manufacturers
- Friendly customer service from hams with a combined 1,000+ years in amateur radio
- Fastest shipping in the industry
- Responsive and ongoing technical support
- Not 100% happy? We make it right!



Order by Phone

800-777-0703 Country Code: +1
9 am to midnight ET, Monday-Friday
9 am to 5 pm ET, Weekends



Order Online

www.DXEngineering.com
Most orders over \$99 ship free
Request a Free Catalog



Tech Support

330-572-3200
DXEngineering@DXEngineering.com
9 am to 7 pm ET, Monday-Friday
9 am to 5 pm ET, Saturday



OnAllBands.com is dedicated to educating and informing the Amateur Radio community.