An Optimized 6-Meter Array | 32

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QST Reviews

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VA6AM Engineering Low-Power Triplexer and Band-Pass Filters for 20/15/10 Meters

DX Commander Classic 2 Vertical HF Antenna

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As 2025 draws to a close, all of us at *QST* and ARRL wish you a happy, hammy holiday season. Here's to more ham radio adventures in 2026! [Gregory Sulla, photo]

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NCJ, National Contest Journal, is ARRL's bimonthly magazine by and for the ham radio contesting community, presenting information and advice from top contesters, operator profiles, and scores for the North American QSO Party and North American Sprint. **www.arrl.org/ncj**



QEX, A Forum for Communications Experimenters, is ARRL's bimonthly forum for research, theory, and projects on the cutting edge of RF communications. **www.arrl.org/qex**



On the Air is ARRL's bimonthly magazine for beginner to intermediate ham radio licensees, presenting jargon-free, easy-to-understand explainers, practical information, and projects. **www.arrl.org/ota**

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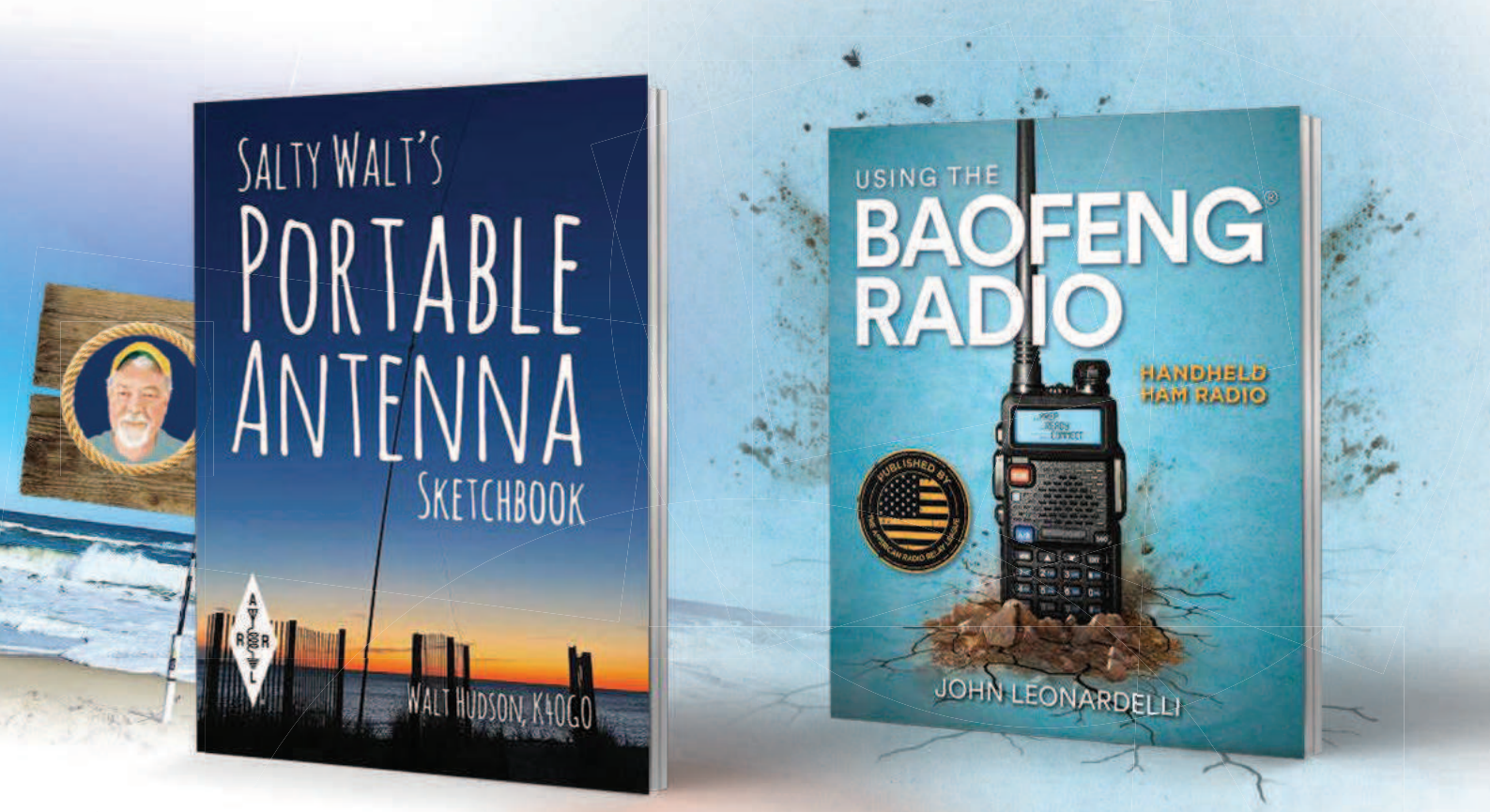
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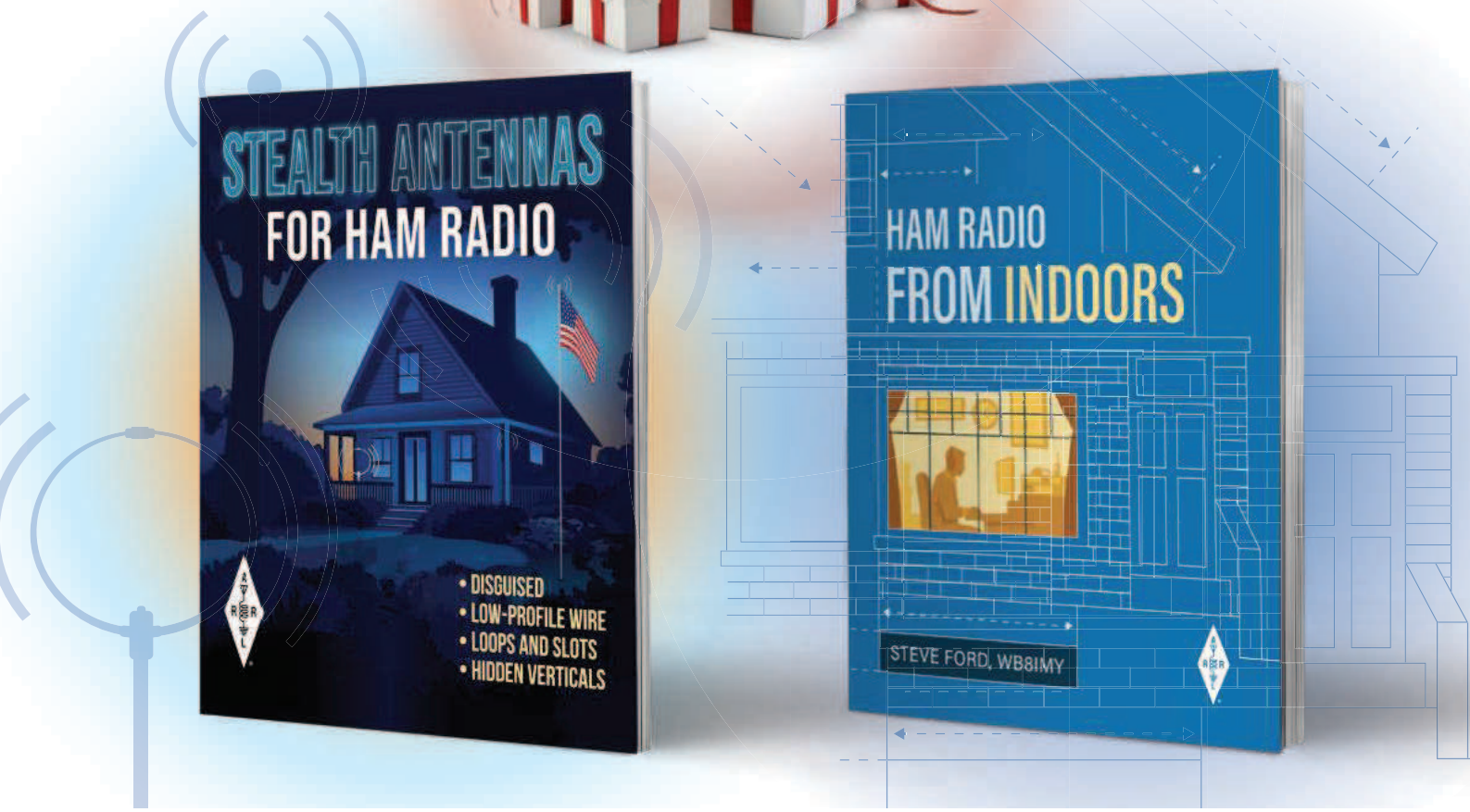
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SWR Measurement	1:1~1:∞	1:1~1:∞	1:1~1:∞	1:1~1:∞
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X200A (2 Section)	2m/70cm	8.3	200	UHF
X50A (1 Section)	2m/70cm	5.6	200	UHF or N
X30A (1 Section)	2m/70cm	4.5	150	UHF
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CP22E (Aluminum)	2m	8.9	200	UHF
F718A (Coax Element)	70cm	15	250	N
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SG7500A	2m/70cm	40.6 in.	150	UHF or NMO
NR770H Series	2m/70cm	38.2 in.	200	UHF or NMO
MR77 Series	2m/70cm	20 in.	70	Mag Combo
AZ504FXH	2m/70cm	15.5 in.	50	UHF
AZ504SP	2m/70cm	15.5 in.	50	UHF
NR7900A	2m/70cm	57 in.	300/250	UHF
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David A. Minster, NA2AA, ARRL Chief Executive Officer, na2aa@arrl.org

Second Century

5 Years — Better and Worse

I cannot believe that 5 years have gone by since becoming the CEO of ARRL. When I interviewed in the summer of 2020, President Rick Roderick, K5UR, asked how long I'd be "willing to serve" if elected. Elected? I thought I was being "hired"! I responded that I would be willing to serve at least 10 years, at the pleasure of the organization. Since then, I have told staff that we are going to be taking 10 steps together — each one representing a year. Each step forward is in pursuit of the broad strategic vision of digital transformation and the reintroduction of youth to amateur radio. So, with half the steps behind us, what has progress looked like?

Membership & Clubs

Membership, which has remained relatively flat since the early 1980s, is in a recent decline based largely on the restructuring of dues, including charging for print versions of our two member journals that were previously included as a free benefit. ARRL routinely sees a major drop in membership from any annual dues increase, even ones as small as $5, which is disappointing but is expected.

During the 2010s there were those in the community, including some ARRL leaders, who asserted that radio clubs were dying or dead. In fact, I attended a local club meeting in New Jersey before becoming CEO where the speaker was very pessimistic about clubs and, more broadly, amateur radio. How inspiring! I did not share this vision and have been working hard to give clubs the tools and support to grow and to be more resilient. I am very excited about our 2026 Year of the Club with opportunities to recognize and build up vibrant clubs.

Spectrum Defense & Legislative

Our spectrum defense continues to be remarkably strong, given how small we are. The role of amateur radio within government circles, including the FCC and international bodies like the ITU, is reasonably well understood. ARRL's resources in Washington, DC are outstanding, supporting our relationships with government agencies and lobbyists advancing our legislative agenda. I am concerned about the IARU and maintaining our role within the organization as it is critical to provide amateur radio with representation at the World Radiocommunication Conferences.

Financials & Development

ARRL's financial challenges persist. When I came on board, the organization was operating under a deficit-based annual plan, with the full picture obscured by a large, now-forgiven, COVID-era government loan. Given the nature of certain members to look for "value" from our nonprofit, or to react to organizational decisions by ceasing their membership, it is easy to understand how ARRL struggles financially to serve the needs of amateur radio — not just its members.

ARRL's future financial viability and strength come from our capacity to develop very generous radio amateurs who want to pay the hobby back for a lifetime of enjoyment, camaraderie, and even success in their careers. That generosity has been behind the growth of our Teachers Institute and Collegiate Amateur Radio Program, which are critical for the re-engagement of young people in ham radio.

Information Technology & Logbook of The World

I have never been a supporter of the notion of "technical debt" and that ARRL should be held to a standard where its systems are the latest, greatest, major IT productions that take significant time and money. Many times, simple solutions to simple problems are completely adequate. During 2024, ARRL was hit with a cyber attack, which was a first for me personally to have to manage. It was very difficult and was done through the din of nonsensical claims and conspiracy theories about what happened.

What did happen, as a direct result of the attack, is that there was a reset of ARRL's security protocols, a standardization of elements of our vast infrastructure of software components, and expanded use of expertise from non-Headquarters staff including third-party monitoring and administration as well as the creation of a Board oversight group called the Information Technology Advisory Committee (ITAC), at my request. Although the time required to make these changes was long, ARRL suffered nearly no downtime of its core member-facing systems.

One very important exception was Logbook of The World. Although LoTW could have been brought back sooner, I was not about to expose it to any risks until the network had been fully reconfigured and tested. LoTW has enjoyed some big updates over the past 5 years, principally in hardware. This past year saw a major replatforming of

Continues on page 30

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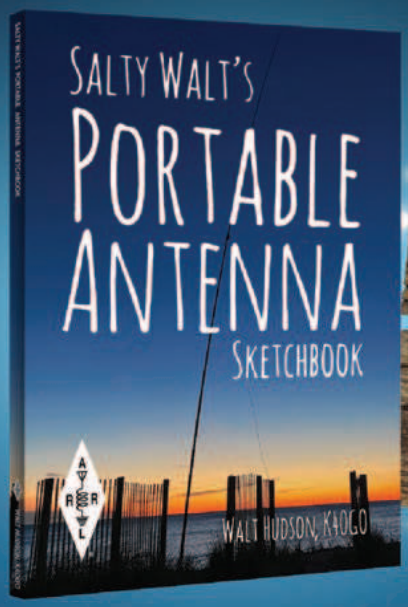
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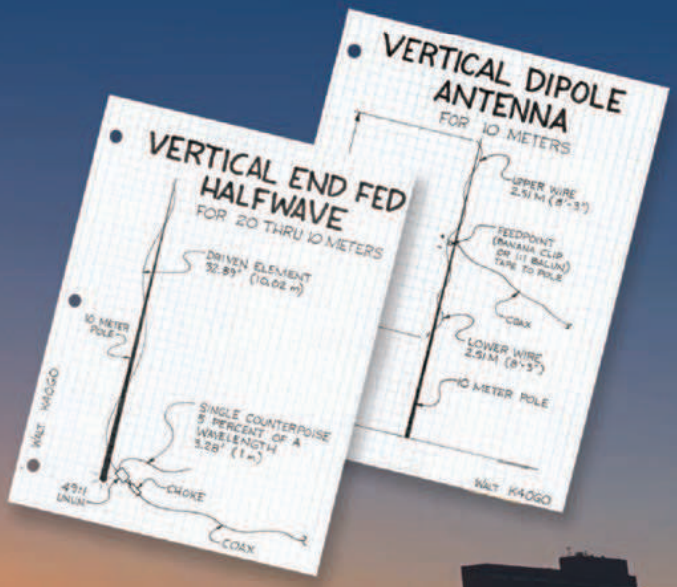
"This isn't the Mozart of antenna books, it's the Jimmy Buffett."
— Salty Walt, K4OGO



15 Portable Antennas, Beautifully Rendered!

Join Salty Walt, K4OGO, of the Coastal Waves & Wires YouTube channel, where all the action happens — right on the beach! Ham radio adventure awaits with these portable antenna designs. In addition to his sketches, Walt offers portable construction and operating tips, and just enough about counterpoise wires and ground to get you making contacts in no time.

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John McKenna, jmckenna@arrl.org

Member Spotlight

Lindy Williams, K6EB

Lindy found his way back to amateur radio in 2018 when he stepped into a Ham Radio Outlet on a whim. Sixty years had passed since his brief 4-year stint as a ham in his youth, and he was curious to see what had changed over the years. Striking up a conversation with the manager, he explained that he used to be licensed. The manager pointed at a table and told Lindy to sit down. "I'm going to give you the test, and we're going to get you licensed again," the manager told him.

Lindy obliged him, privately certain that he would fail; how could he possibly pass after so many years away from the amateur radio world? Instead, he passed on the first try. "That was a turning point," he said. "I guess the lightbulb went on."

A 60-Year Hiatus

Lindy's love for radio started when his father, Lee Williams, WA6SOV (SK), himself an avid radio listener, gave him a crystal radio set as a child. A few years later, at age 11, he received his Novice license, then his General. And, while his ham activity had tapered off by age 15, he never left radio behind — in his sophomore year of college, his roommate suggested they both drop out, move to San Francisco, and go to broadcast school to become disc jockeys. While his roommate never followed through on the idea, Lindy did. That choice launched what would prove to be a long career in commercial radio.

After earning his First Class Radiotelephone Operator License, Lindy was hired by KQCY, a daytime AM radio station, as a DJ — and as chief engineer, as he was surprised to learn when he arrived. The same year, he was tapped to build KOSO, one of the first directional FM radio stations in the country. On top of working as a DJ and broadcast engineer at several more stations over the years, Lindy spent time teaching college courses on television and radio writing and sound and music recording. In the 1970s, he was commissioned by Dick Clark to build syndication studios for "The Bill Ballance Feminine Forum." He eventually took a job as corporate engineer at Lotus Communications Corporation, where he rose to the title of Senior Vice President of Engineering before retiring at age 70.

Meanwhile, while Lindy stepped away from amateur radio, his father jumped in with both feet. Inspired by his son's license, he got a license of his own. He was an accomplished QRP DXer, working a confirmed 276 countries running only 3 W prior to his death in 1986. In fact, he was the seventh amateur operator to work QRP DXCC and the fourth to work QRP DXCC 200, certified by *CQ* magazine.

Lindy has his father's QRP DXCC and QRP DXCC 200 plaques in his own shack. "He was the real ham in the family," he said.

"Just for Me"

In his retirement, Lindy has taken up a number of outlets to explore his interests — he collects antique radios; he is an avid amateur astronomer and enjoys taking deep-sky photos; more recently, he's taken up painting, sharing many of his pieces on Instagram (**https://instagram.com/lindy.williams.art**). And, now that he is re-licensed, he's added



amateur radio back into the mix, fitting his shack with an FTDX101D, a Mercury III amplifier, and several antennas, including a KT36XA on a 70-foot crank-up tower. He's been an avid DXer, contacting more than 250 countries, and his three-article *QST* series on the quality of transmitted audio earned him the 2023 Bill Orr, W6SAI, Technical Writing Award.

But while he's back on the air, his ham radio interests span a limited spectrum. He doesn't operate on digital or on CW; he's not a contester; he isn't in any amateur radio clubs; he doesn't collect awards or certificates. "There are so many facets of ham radio," Lindy said. "You really have to pick your own set of parameters for what you want to do with it."

Take his latest project, for example. This year, inspired by his father's accomplishment 40 years ago, Lindy recently completed QRP DXCC with 5 W. But he hasn't made any efforts to formally confirm his accomplishment, and he doesn't plan to. "I only keep track for myself," he said. "It's just for me."

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West Texas: David Overton, W5JDO, 2812 W. Shandon Ave., Midland, TX 79705-6101 432-553-5597; **w5jdo@arrl.org**

A technical advertorial from FlexRadio, Inc.

THE NEW NOISE FLOOR: WHY 100W IS NO LONGER ENOUGH

AURORA™
A NEW DAY FOR THE UNEXPLORED

MODERN NOISE, MODERN POWER

For decades, a 100-Watt HF transceiver defined the standard for amateur radio. In quieter times, that was plenty—signals at the receiver could ride comfortably above the galactic and atmospheric noise that once dominated HF propagation.

But those times have changed. Across the world, a steady rise in **man-made noise** has reshaped the HF landscape. Modern homes hum with switch-mode power supplies, LED lighting, solar inverters, Ethernet over power-line, and countless unintentional radiators. An IEEE-published study from The Netherlands shows **6-10 dB increases** in ambient noise across most HF and VHF bands [1]. Two other studies, *Fockens & Leferink* and ITU-R, all confirm the same trend [2][3]: the electromagnetic noise floor has crept upward globally.

WHAT IT MEANS FOR TODAY'S OPERATOR

A signal that once arrived at S-9 may now be buried in the noise. A 10 dB rise in background noise is like losing nearly **two S-units of signal margin**. Many operators work to improve receive performance—but no matter how good your receiver or noise cancellation, **you still have to be heard**.

Each S-unit represents roughly 6 dB, or about a four-fold change in power:

100 W → 400 W ≈ +6 dB
(one S-unit)
100 W → 500 W ≈ +7 dB
(a bit more than a full S-unit)

That extra S-unit can mean the difference between "barely readable" and solid copy. In today's noisy environment, **500 W is no longer big-gun territory—it's simply the new baseline for reliable HF communication.**

RESPECT FOR LOW-POWER OPERATING

Of course, *not every contact requires high power*. QRP operators, CW enthusiasts, and users of weak-signal modes like WSPR or FT8 continue to make impressive contacts at milliwatt levels—proof that radio art and good technique still matter. But for the typical operator using SSB, AM, or data modes in noise-rich suburban conditions, higher power provides a clear and measurable improvement in reliability and readability.

The takeaway: QRP proves what's possible. 500 Watts proves what's practical.

EFFICIENCY, HEAT, AND POWER DENSITY

Traditional linear amplifiers waste as much as 60 % of input power as heat, which explains their bulk, cost, and inefficiency. Delivering 500 W typically requires 1.2–1.3 kW of DC input and a 30- to 40-pound amplifier with forced-air cooling. But what if the transmitter itself could be 80–90 % efficient, producing only a fraction of the waste heat—and doing it inside the radio chassis?

AURORA™ — THE 500 W REVOLUTION IN HF TRANSMISSION

FlexRadio's new Aurora Series represents the first major advance in HF transmitter technology since the 1970s. Instead of the classic linear chain of driver, PA, and tuner, Aurora integrates a high-efficiency envelope- and phase-modulated Class D architecture directly into the transceiver. This design, refined from years of R&D in high-efficiency RF systems, achieves 80 to 90% efficiency across HF bands while maintaining broadcast-grade linearity through adaptive pre-distortion (SmartSignal™).

The result:

- 500 W PEP on HF (200 W on 6 m)
- Less than half the input power required of conventional designs
- Dramatically reduced heat—roughly 125 W of dissipation instead of 800 W for the same RF output
- Full integration: AC power supply (80–264 VAC), automatic antenna tuner, and 500 W transmitter in one compact chassis weighing under 20 lbs

POWER YOU CAN CARRY

Because Aurora's transmitter is inherently efficient, the radio's total input power at 500 W output is around 675 W—easily supplied from a standard 120 V / 6 A outlet. This makes true high-power operation viable for DXpeditions, remote stations, and portable operators

who could never justify a 1.5 kW amplifier chain.

Aurora's heat-rejection design allows brick-on-key operation at 500 W while remaining cool to the touch. Less heat means smaller heatsinks, quieter fans, and far greater reliability—attributes that matter just as much on an island activation as they do in a contest station.

WHY AURORA MATTERS — FOR EVERY KIND OF OPERATOR

Home Station Operator — Quiet Power, Simplified Station

For the home operator, Aurora transforms what "high power" means. Instead of wrestling with a tangle of amplifiers, tuners, and 50-amp supplies, the entire 500 W system lives inside a single chassis that plugs into a normal wall outlet. The integrated power supply and ATU eliminate external cabling and heat sources, making the operating position cleaner and quieter—no relay chatter, no fan roar, and no cluttered desk. With modern neighborhood noise already pushing S-meters up two or three units, having 500 W of exceptionally clean, linear power ensures that every decibel counts. The result is a high-performance, low-maintenance station that simply works better in today's noisy world.

Portable Operator — Maximum Signal, Minimum Load

For operators who take radios into the field—Field Day teams, park activators, or emergency-comms groups—Aurora delivers something no previous transceiver could: true QRO power without the baggage. A 100-W class station often disappears into suburban RFI and QRM; Aurora's 500 W output buys more than an S-unit of advantage while drawing less than 7 A from a standard AC source. The high-efficiency Class-D transmitter means less heat, lower generator demand, and dramatically reduced fuel use. Everything fits in a single carry-on case, and setup time drops from an hour to minutes. Portable operators no longer have to choose between mobility and being heard.

DXpedition Operator — Less Weight, More QSOs

When every kilogram counts and generator power is precious, efficiency becomes the ultimate competitive edge. DXpedition operators typically ship multiple 100 watt transceivers and amplifiers, along with bulky power supplies and tuners. Aurora replaces that entire stack with one 18-lb radio that delivers a full 500 W and includes its own tuner and supply. Its 80–90% efficiency cuts generator load by half, reducing noise, fuel, and logistics costs. Less heat also means greater reliability in tropical or high-altitude environments where airflow is limited. For DXpeditions, that means longer runs, cleaner signals, and more contacts per watt-hour—the definition of success when you're the rare one on the band.

Remote Operator — Full Power, Zero Complexity

For hams who operate from afar—whether a cabin in the mountains or a remote contest station—Aurora turns "remote" into "transparent." Its integrated AC supply and low-SWaP architecture mean the only external connections are power, Ethernet, and antenna. With no external amplifier to key or overheat, remote sites can run unattended at 500 W all day. Built-in SmartLink™ and SmartSignal™ technology keep operation stable and clean, maintaining optimal linearity automatically as temperature and load vary. The operator at the other end simply experiences a full-power signal that sounds local, not remote. Aurora makes remote high-power operation as simple as turning on your PC.

CONCLUSION

For most of amateur radio's history, the 100 W standard worked because the world was quiet. Today's world isn't. The cumulative effect of millions of switching converters, LED drivers, and digital systems has raised the noise floor to levels once seen only in industrial zones.

FlexRadio's Aurora Series restores the link margin that modern noise has taken away—delivering clean, efficient, high-power transmission in a single, elegant package.When the band is crowded and the noise is high, being heard is everything.

TECHNICAL REFERENCES

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[3] ITU-R Report SM.2155 (2009): Man-Made Noise Measurements in the HF Range. https://www.itu.int/dms_pub/itu-r/opb/rep/r-rep-sm.2155-2009-pdf-e.pdf

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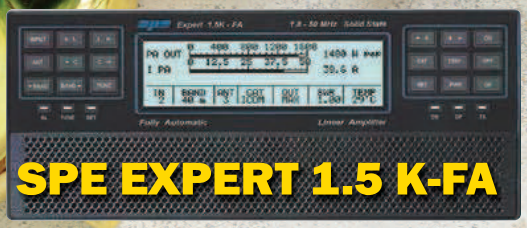
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Up Front

Field Day for All Ages

ARRL Field Day 2025 offered an opportunity for amateur radio operators of all ages to get on the air and participate in the fun. This year, the San Fernando Amateur Radio Club, W6SD, helped local Scouts get on the air to earn their Radio Merit Badges (left). Under the tutelage of Scout leaders Michael Hart, KC6MEH, and Bernard Falkin, KG6FBM, 14 Scouts from across California's San Fernando Valley earned their badges. Meanwhile, in South Carolina, Joey Ferguson, W4JF, snapped a picture of his operating partner, Willi Mannheim, K4VSV, as they prepared to activate their Field Day station (right). At 92 years old as of June, Willi may be among the oldest active hams in the Roanoke Division.



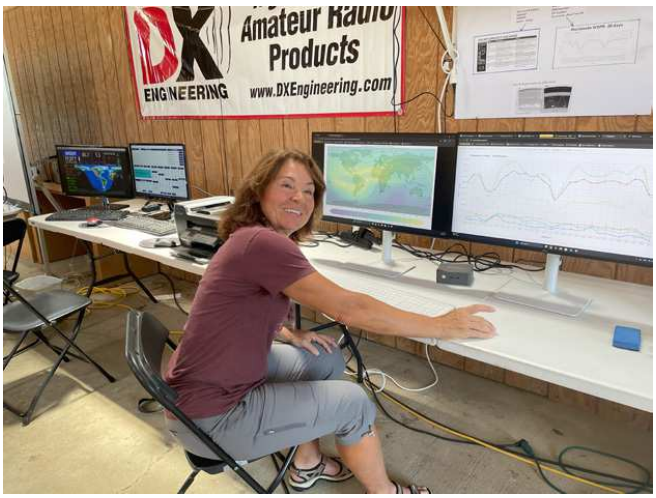
[Michael Hart, KC6MEH, photo]



[Joey Ferguson, W4JF, photo]

Propagation Forecasting for Field Day

The Cherokee Amateur Radio Society added a new twist to the club's operations for ARRL Field Day 2025: propagation forecasting. In these photos, Dee Martin, K4DLG, operates "Propagation Station," a dedicated computer the club used to track relevant solar activity and propagation conditions (left), while Ric Donato, KQ4TDF, records the data on their propagation scoreboard (right). This real-time propagation data helped the club adjust their operation plans on the fly, beat their 2024 contact totals, and offer real-world examples of how solar activity impacts operation. [Martin Buehring, KB4MG, photos]





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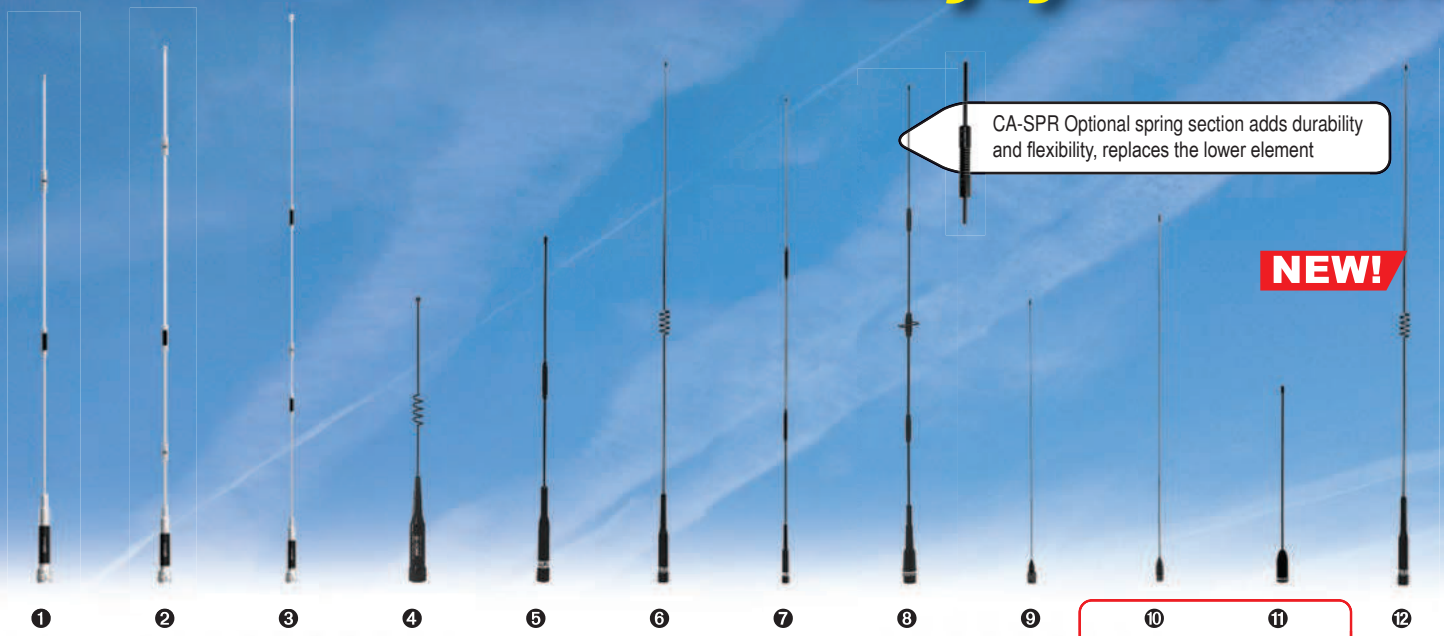
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❻ COMET **SBB-5/SBB-5NMO DUAL-BAND 2M/440MHz w/FOLD-OVER**
2M: 1/2 wave • 440MHz: 5/8 wave x 2 • Length: 39" • Conn: SBB-5 PL-259, SBB-5NMO - NMO style • Max Pwr: 120W

❼ COMET **SBB-7/SBB-7NMO DUAL-BAND 2M/440MHz w/FOLD-OVER**
2M: 6/8 wave • 440MHz: 5/8 wave x 3 • Length: 58" • Conn: SBB-7 PL-259, SBB-7NMO - NMO style • Max Pwr: 70W

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Correspondence

Letters from Our Members

A Concern for ARES

I read "Future-Proofing ARES®" by David Minster, NA2AA, in the October 2025 "Second Century" column with great interest. I've attended the ARRL Wisconsin Section/ARES/RACES conference twice, as well as many hamfests in my area. I've never been asked if I was a member or if I was interested in becoming one, nor have I ever seen an ARES/RACES booth at a hamfest seeking new members.

I truly think this can and needs to be fixed. The rural areas need the most help. We should embrace digital modes.

Paul Ramey, WGØG
Glenwood City, Wisconsin
Life Member

A Special Connection via DMR

After donating my equipment several years ago, a fellow ham suggested I purchase a digital mobile radio (DMR) to stay involved. At 102 years old, it's been a bit challenging connecting with others, but I recently experienced a special connection.

One time while I was on the air, a ham recognized my call sign, saying he had met me many years ago. Apparently, when he was in high school, he and his friend were both interested in amateur radio and would scour the neighborhood looking for towers. They noticed mine, rang the doorbell, and I welcomed them into my shack. He remembered seeing my Drake equipment and listening to my enthusiasm for becoming a ham operator.

It took me a few minutes, but I recalled the visit and was amazed that after more than 45 years he remembered this meeting! Although I've spoken to several very nice (and patient) contacts, this one was very special to me.

Andrew Bartilucci, W2NKC
Garden City, New York
Life Member

Suggestions for Advancing ARES

I read with interest "Future-Proofing ARES®" by David Minster, NA2AA, in the October 2025 "Second Century" column. The evidence does indeed suggest that rebuilding the Amateur Radio Emergency Service® to support the new generations' needs for emergencies is in order.

In musing on the topic, it occurred to me that to be useful to emergency organizations, amateur radio should consider the unique capabilities it offers and which ones are valuable to emergency responders.

For example, most emergency responders have VHF/UHF radios with repeaters. Amateur radio repeater capabilities are duplicative of those already present in emergency services and will probably be considered of low value.

We need to consider what amateur radio has to offer that isn't already available to emergency service organizations and focus our rebuilding on those unique capabilities.

Don Rolph, AB1PH
East Walpole, Massachusetts

Kind Sentiments of a Returning Member

Two recent experiences with ARRL have led me to rejoin the organization after a lapse in my membership.

After taking my General exam, I experienced an unusual delay in my license upgrade appearing in the FCC database. I contacted ARRL's VEC team at HQ, and the woman who helped me identified and resolved the issue, ensuring my upgraded license was reflected with the FCC within a few days.

As a new General licensee, I set up a Yaesu FT-710, an ARRL EFHW antenna kit, a TennTennas EFHW kit, a Samlex power supply, and RG-8X cable, but my AFCI circuit breakers kept tripping when transmitting on 20 meters. After being unsuccessful with chokes and ferrites, I found an ARRL article on AFCI breakers from Eaton that described my situation. I contacted the company using the information provided in the article, and, 3 days later, new breakers were shipped to me at no charge. This resolution was incredibly impactful!

My past skepticism about ARRL was, in hindsight, entirely misplaced. The dedication and effectiveness demonstrated by your team are commendable, and I regret allowing my membership to lapse. If the organization continues its current trajectory, my membership will remain active.

Jeff Reach, KN4YRQ
Pell City, Alabama

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CY0S: Sable Island DXpedition 2026 – Breaking the Silence from the Dunes

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Andy Mitchell, VA3CW / NA8F

From March 19–31, 2026, a team of seasoned amateur radio operators will activate CY0S, transmitting from the remote and windswept shores of Sable Island, Nova Scotia. Though Sable Island is officially part of Canada, it is recognized as a separate DXCC entity due to its geographic isolation and unique administrative status. This DXpedition is more than just a technical challenge—it's a rare opportunity for the global amateur radio community to connect with one of the more elusive entities on the DXCC list.

A Signal from the Sandbar

Sable Island is a crescent-shaped sandbar located approximately 300 kilometers southeast of Halifax, Nova Scotia, in the North Atlantic Ocean. Measuring just 42 kilometers long and barely 1.5 kilometers wide at its broadest point, the island is famous for its shifting dunes, wild horses, and over 350 recorded shipwrecks. It's also a designated Canadian National Park Reserve, protected for its fragile ecosystem and unique biodiversity.

Access to Sable Island is strictly controlled by Parks Canada, and only a handful of scientific and environmental missions are permitted each year. For amateur radio operators, this makes CY0 one of the most difficult and desirable DX entities to activate—and to work.

Why CY0 Matters

In the world of DXing, rarity drives demand. CY0 (Sable Island) currently ranks #59 on Club Log's most-wanted list overall, but its scarcity is even more pronounced in regions like Asia and Oceania, where propagation challenges and limited activations make it a top-tier target. In North America, CY0 is less rare but still highly sought after, especially on low bands like 160m and 80m. For European operators, CY0 typically appears in the top 30, and in Asia, it is estimated to be in the top 20 most-wanted.

With multi-band, multi-mode operations planned—including CW, SSB, FT8, RTTY, satellite, and EME—the CY0S team aims to maximize reach and provide opportunities for stations across all continents to log CY0S.

The Challenge of Getting There

Planning a DXpedition to Sable Island is not for the faint of heart. The island has no permanent residents, no commercial flights, and no harbors. Access is via chartered Britten-Norman Islander aircraft, which has a payload capacity of approximately 1,440 pounds—including the weight of the team members. This significantly restricts the amount of gear that can be brought. To manage this, the team has arranged two flights to the island.

Each operator is limited to just 35 pounds of personal baggage for the entire two-week stay. To save weight, team members will bring freeze-dried meals, a strategy that has proven essential in past activations. Every piece of equipment has been weighed and scrutinized for necessity and versatility. If the final load exceeds the aircraft's limits, some gear may have to be left behind.

View the rest of this article at FlexRadio.



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Second Century (continued from page 9)

LoTW to being cloud based, and migrating to a new operating system and a new database system. This required extensive testing and closing down LoTW for a few days to complete the migration. LoTW has been functioning spectacularly through all of these changes, and we have a development roadmap that includes a different form of user authentication and its support for administration of ARRL's DXCC program.

ARRL Management & Governance

The team that I met coming into ARRL was not well structured and departments were stove-piped, meaning they did not collaborate well. My goal was to change that. We needed managers who were not just hams, but subject-matter experts who could understand the needs of our members, while turning them into hams. I could gush about some of the outstanding upgrades we have had during my tenure, but I am gratified that the culture of our staff is far more collaborative and supportive — of members and of each other — starting with my very first column: "A Culture of Yes."

A small part of our community seems to be fixated on the Board, always seeking or even fictionalizing controversies where there are none. I will say that the Board 5 years ago when I started as CEO seemed tense — a tension that was borne out of the deterioration of the "Gang of Eight" that had been ruling the Board for a year or two. I told the Board I would rip the doors off my office. There would be no issues of transparency — and there have been none. Again, there are certain Board members that know transparency is like clickbait for our members, and when they want attention or an "attaboy," it rises from the ashes as a new problem for members to focus on.

I have been grateful for the support and the growth that the Board has shown. For the most part, you are lucky to be represented by a dedicated and experienced group of Directors who have been focused on ensuring ARRL has a trusted and high-functioning Board. At nearly every talk I give, I encourage members to read the Board meeting minutes. If you read carefully, and between the lines, you will see the best and the worst of the Board, which isn't nearly as controversial as you have heard or read!

Emergency Communications & Public Service

I have been very concerned about the role — the required role — amateur radio must play in emergency communications. While the communications world, including terrestrial and satellite systems, has become more resilient and capable, we seem to be stuck in the past. I caused a stir by writing in my July 2025 CEO report to the Board that ARES is broken. I suggested that it might be a good time to conduct a greenfield exercise to redesign the ARES program. The response from the membership was immediate and varied. We will devote space in 2026 issues of *QST* to how we can future-proof ARES.

Amateur Radio at Large

I believe that amateur radio is in a better place than it was 5 years ago. Innovation in radios and in software continues seemingly unbounded. Our modern-day pioneering includes the evolution of digital modes like those supported by *WSJT-X*, and digital voice and data transmission networks. And programs like Parks on the Air® continue to draw more of our community to the airwaves.

I made it my mission to expand ARRL's relationship with the YouTube community and am extremely happy with joint projects we have worked on, relationships we have built, and how amateur radio benefits from myriad topics covered.

I would be remiss not to point out, as I often do, the harm that persistent negativity can have on amateur radio and ARRL. Our community is small; our total membership wouldn't even fill two football stadiums. When divisive or hostile messages are posted to social media, they don't just stay within our circle — they're seen by regulators, lawmakers, and parents considering whether to introduce their children to our community.

In closing, ARRL is better than it was 5 years ago. And it is worse. We continue to focus on the positive aspects of amateur radio, and the joy and community that it brings into all of our lives. And we acknowledge what's worse, and work every day to make it better. I wish you, your friends, and your family a great 2026, and I hope you'll consider joining us at the ARRL National Convention at the Huntsville Hamfest in August 2026!



David A. Minster, NA2AA
Chief Executive Officer

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The Tomato Stake Antenna: An Optimized 6-Meter Array

This design won first place in the 6 meters and up category of the 2024 *QST* Antenna Design Competition.

Fred Lass, K2TR

FT8 has significantly changed the dynamics of operating on 6 meters. While I miss the excitement of SSB on the Magic Band, there is no denying the signal-to-noise (S/N) advantages of FT8. This antenna design was part of a plan to allow two stations on a mountaintop to operate SSB and FT8 without interfering with each other. Although many excellent 6-meter antennas exist, most prioritize gain over front-to-back (F/B) ratio. My attempts to enhance F/B ratio through stagger stacking proved ineffective. Instead, I turned to the data published in Dr. James Lawson's, W2PV, *Yagi Antenna Design*. The graphs included in Figure 2.9 of that book suggest specific boom lengths and element dimensions to attain an F/B ratio of as much as 40 dB (see Figure 1). While the gain of an antenna using those measurements is lower, the S/N advantages of FT8 easily make up for that slight difference.

This article outlines the design, testing, and field performance of a 6-meter array optimized for a high F/B ratio. After making, testing, and using this antenna with tomato stakes, I recently found that it may not be possible to source them due to import issues and the supplier changing the type offered. To be sure that prospective builders can still use the design, I ordered fiberglass tubes from Max-Gain Systems, a reliable US source. The differences in the dimensions and material of the tubes meant that I had to re-calculate the effects of the fiberglass on the lengths of the elements. Details of the version with the Max-Gain tubes can be found at **www.arrl.org/qst-in-depth**, along with photos of that version and a brief history of why I created this antenna.

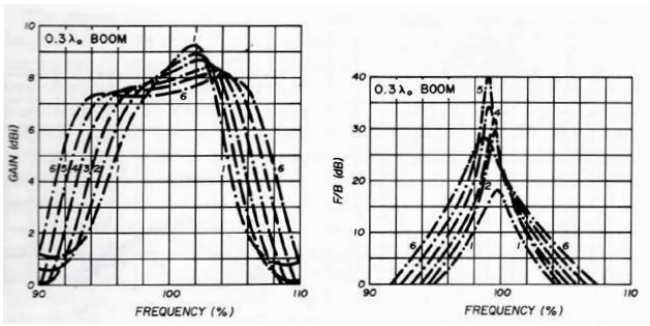


Figure 1 — Part of Figure 2.9 in the first edition of *Yagi Antenna Design* by Dr. James Lawson, W2PV.



The deployed tomato stake 6-meter array.

Dimensions, Materials, and F/B Considerations

Two sets of dimensions for this antenna are provided in Figure 2. The parts list is provided in Table 1. An *EZNEC* model of a high-F/B-ratio antenna design agreed with Lawson's predictions. While the bandwidth of this high-F/B improvement is narrow, field testing has proven that it includes the common 6-meter SSB and FT8 frequencies simultaneously.

I began verifying this design using a square aluminum tube boom and solid aluminum elements. The F/B ratio measured as predicted, but the antenna was heavy and expensive to implement in quantity. My solution to these problems was to use #14 AWG THHN electrical wire inserted into a fiberglass tube for the elements. I searched Amazon for appropriate hollow fiberglass and found a package of 30 tomato stakes for $56.99. This was sufficient to build a total of five three-element antennas. The fiberglass has a .340-inch outer diameter (OD), and it is light, stiff, and coated to withstand weathering and reduce fiberglass abrasion.

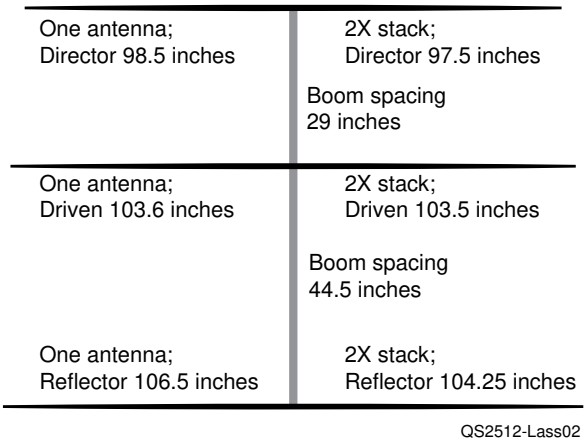


Figure 2 — Two sets of antenna dimensions. The element lengths on the left are for a single antenna, and the element lengths on the right are for a two-antenna array.

Each 6-meter element is made from two tomato stakes joined together in the center with a ½-inch OD and 7-inch-long insulating pipe via epoxy glue. The driven element uses an ABS plastic housing as the element-mounting bracket, and the element is epoxied through the housing and feed point connected inside the box (see Figure 3). The reflector and director are mounted to the boom using ½-inch vibration-dampening routing clamps (see Figure 4). These clamps are commonly used to hold fiberglass spreaders in some popular European HF antenna designs. I did not use the steel plates that come with the clamps, and I replaced the short metric bolts with longer #10 machine screws in addition to washers and nylon insert nuts.

For a boom, I opted for a wooden 2 × 2, but you can substitute any available material. Because the elements are separated and insulated from the boom, there is virtually no boom interaction with element lengths. During the ARRL June VHF Contest, I was surprised to see that the fiberglass-insulated elements totally eliminated precipitation static!

Adjusting for Dielectric Constant

The use of insulated wire inside fiberglass elements posed an interesting challenge because I had to correct for the dielectric constant of the insulation. To begin, I guessed the dielectric constant of the combined fiberglass, air, and THHN insulation. After that, I designed, built, and plotted the actual F/B ratio versus the frequency of the antenna. I went back to *EZNEC* and inserted various numbers into the dielectric constant box until the calculated F/B ratio maximum fell on the exact frequency, where I had measured the highest F/B. Once I knew that the dielectric constant was 3.45, I modified the antenna design for the highest F/B ratio on 50.220 MHz. However, when I tested the standing wave ratio (SWR) curve of the antenna, it did not fall on the same frequency as the optimum F/B ratio. I didn't know if that was due to the ABS plastic feed point or an offset in the design itself. In any event, when I used a dielectric constant of 3.33 for the driven element, the measured SWR and predicted SWR were a match. At that point, I had optimized and verified a single three-element 6-meter antenna design.

Table 1 — Parts List for Two Arrays (Four Three-Element Beams)

Qty	Description
24	Tomato stake for elements (sourced from Amazon seller Rykl; unavailable as of press time)
4	ABS plastic box driven-element center (sourced from Amazon seller Zulkit)
8	½-inch routing clamps (McMaster-Carr 3015T23)
2	½-inch Garolite tube or fiberglass tube; I used Garolite tube (McMaster-Carr 8527K134) but found it to be brittle, so I recommend fiberglass tube (McMaster-Carr 2197K22)
Misc.	2½-inch-long #10-32 screw (McMaster-Carr 91772A840)
Misc.	#10 stainless-steel washer (McMaster-Carr 92141A011)
Misc.	#10-32 nylon insert nut (McMaster-Carr 91831A411)
1	120 feet of #14 AWG THHN stranded wire
4	Wooden 2 × 2 boom
1	Epoxy glue
4	SO-239 connector with mounting screw (one for each driven element)
1	Approximately 34 feet of RG-8 or LMR-400 50 Ω coax (for phasing lines)
8	PL-259 connector
2	UHF tee connector
4	TV **U** bolt (eight optional; for boom-to-mast clamp)
Misc.	Boom-to-mast plate (optional on portable installations)
2	Push-up mast or four 10-foot lengths of chain-link fence top rail
Misc.	Guy rope

This antenna may be constructed with the element lengths and spacing exactly as listed in Figure 2. *EZNEC* and generic *NEC* files with these dimensions are provided at **www.arrl.org/qst-in-depth**. The antenna is completely optimized for maximum F/B ratio, but it's not yet matched to 50 Ω. If you are considering building a single antenna, you can match it by using a trifilar-wound 2.25:1 transmission line transformer.

Finishing Touches with *EZNEC*

The next step was to analyze a stacked pair of these antennas using *EZNEC*. However, that calculation uncovered two unexpected problems: the F/B maximum moved down almost 1 MHz, and the depth of the F/B null varied as much as 20 dB when the stacking distance was changed. By successive approximation, I found that the perfect stacking distance for the best F/B ratio at the heights that I



Figure 3 — The feed-point details.



Figure 4 — A boom-mounting clamp.

planned to install the antennas was 118 inches (this happens to be exactly ½ wavelength). I tweaked the element lengths again to get the maximum F/B ratio on 50.220 MHz.

The feed impedance of the antennas is close to 25 Ω. When using a ¾ wavelength of 50 Ω coax to feed each antenna and joining them in a tee connector, the match is below a 1.2:1 SWR from 50 to 50.4 MHz (see Figure 5). I opted to use only a ¼ wavelength on the lower antenna and mount the lower antenna upside down to get the phasing correct. This reduces the weight and cost of the coax. The F/B ratio of the array measures as predicted when constructed in this manner.

I selected the antenna heights to take advantage of an average downslope in the direction that the antenna is aimed (–8 degrees). While the gain maximum of the antenna over average ground is 14.6 dBi at +16 degrees, the actual on-air maximum with the 8-degree downslope becomes about +8 degrees. The antenna gain at the horizon is roughly 12 dBi (see Figure 6). This compromise between ground wave and an elevated takeoff angle for sporadic E is intentional.

This project has taken more than a year and has been a great learning experience. I hope that you enjoy building your own high-F/B antenna.

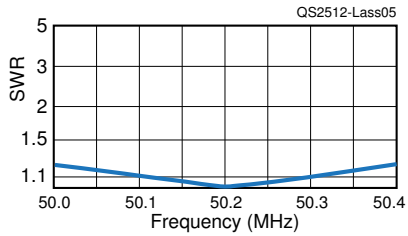


Figure 5 — The SWR for the stacked array.

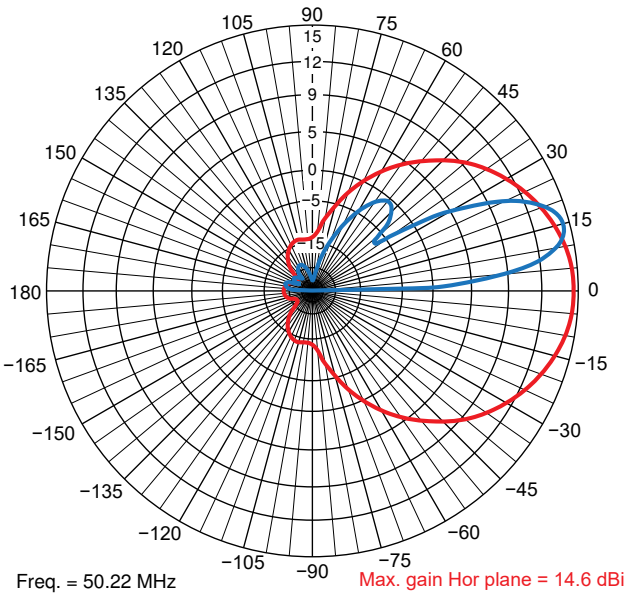


Figure 6 — The vertical and azimuthal patterns of the stacked Yagis above average ground.

See *QST* in Depth for More!

Visit www.arrl.org/qst-in-depth for the following supplementary materials and updates:

- ✓ The author's re-design of this antenna using fiberglass tubes instead of tomato stakes
- ✓ Photographs of the antenna
- ✓ Some history behind the author's design
- ✓ *EZNEC* and *NEC* files of the antenna with dimensions, per Figure 2

All photos provided by the author.

Fred Lass, K2TR, was first licensed in 1964. For many years, he has participated in multi-operator HF contests with W2PV, as well as his own station. He has also been involved in VHF contests with his alma mater, the RPI Amateur Radio Club, W2SZ. Fred's passion has always involved antennas and towers, which include his work with high-power TV transmitter projects in Albany, New York. Now retired, he lives in Delmar, New York. Fred can be reached at **k2tr@arrl.net**.

For updates to this article, see the *QST* Feedback page at www.arrl.org/feedback.

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The Adjust-a-J Antenna

This **J**-pole was an honorable mention in the 6 meters and up category of the 2024 *QST* Antenna Design Competition.

John Post, K7SKI

The Adjust-a-J (see the lead photo) came about because I wanted an antenna design that would be time-tested, safe, and reasonably well performing. I also wanted one that could be modified to have the lowest-possible standing wave ratio (SWR) at the desired operating frequency. At the time, I was active on packet radio and used 145.010 MHz. I additionally needed to use a local repeater that used 147.84 MHz as the input frequency. I had been using copper tubing for several **J**-poles and appreciated how inexpensive and readily available it was. These antennas were dc grounded, enhancing safety in my thunderstorm-prone area.

During a winter Yagi-building period, I thought of using 6063-T832 telescoping aluminum tubing for the main elements of a **J**-pole; merely adjusting the length of each element could move the antenna's resonant point to the desired frequency. Making a small slit in the top end of each tube and using a good hose clamp also allowed me to easily adjust the length of the element(s). I hit on the idea of using a flat plate of high-grade 6061-T6 aluminum to securely mount the elements and provide more mounting options. By drilling four holes in the base plate that match the span of stainless-steel muffler clamps, I could entertain the possibility of mounting on a vertical mast, a horizontal mast, or even the boom of my HF tribander (see Figure 1). By adjusting the length of each element, I've been able to build **J**-poles for the maritime and aircraft VHF frequencies.

One key feature of the Adjust-a-J is the feed point. I have my late uncle, Robert Moore, W6FIV (SK), to thank for suggesting this design. The center of the coax is insulated from the aluminum elements by the insulation on the wire, thus isolating the radio from dc current. RF is passed into the long element by the coil wound around it — approximately 6 inches above the RF connector. The feed-point wire starts out as a 19-inch length of #14 AWG wire and bends 90 degrees toward the long element (see Figure 2). Use shrink tubing or high-quality electrical tape to secure and moistureproof the coil. Feed-point construction does not change with the desired operating frequency.



The deployed Adjust-a-J antenna.



Figure 1 — Stainless-steel muffler clamps fit through the four holes shown in Figure 3.



Figure 2 — The tubing mounts to the plate with pop rivets. An SO-239/UHF connector mounts on the same plate and feeds the longer element through the matching wire.

Construction Notes

The parts list is provided in Table 1, and Figure 3 shows the dimensions. I found that DX Engineering and Texas Towers were reliable sources for the aluminum tubing. After cutting the ⅝-inch-outer-diameter tubes to length, cut a slit in one end of each to facilitate clamping the ⅝-inch section to the ½-inch section; these slotted ends will be pointed toward the top of the antenna. Next, drill the six holes that will attach the plate to the tubing, per the mounting plate details (see Figure 3). Mark a spot 3 inches up from the bottom of each vertical element, which will align with the top of the mounting plate. Place the tubing element under the plate, and mark the spots where the rivets or machine screws will attach the plate to the tubing. Mark and drill the uppermost holes in the tubing — matched up with the plate — and then drill the other holes in the tubing with the plate attached via the uppermost holes.

Mounting the vertical elements to the mounting plate requires patience and a steady hand or drill. Early on, I decided to build a wooden jig to hold all of the aluminum pieces in their proper location while drilling them. I also use a drill press to ensure properly aligned rivet or machine screw points. I prefer to use high-grade stainless-steel or aircraft-grade aluminum pop rivets to attach the elements together, but I've used stainless-steel machine screw bolts and nuts as well. Using bolts will require you to drill completely through the tubing, rather than on one side for the rivets at the points where the vertical elements meet the mounting plate. If you don't have a drill for the ⅝-inch hole for the

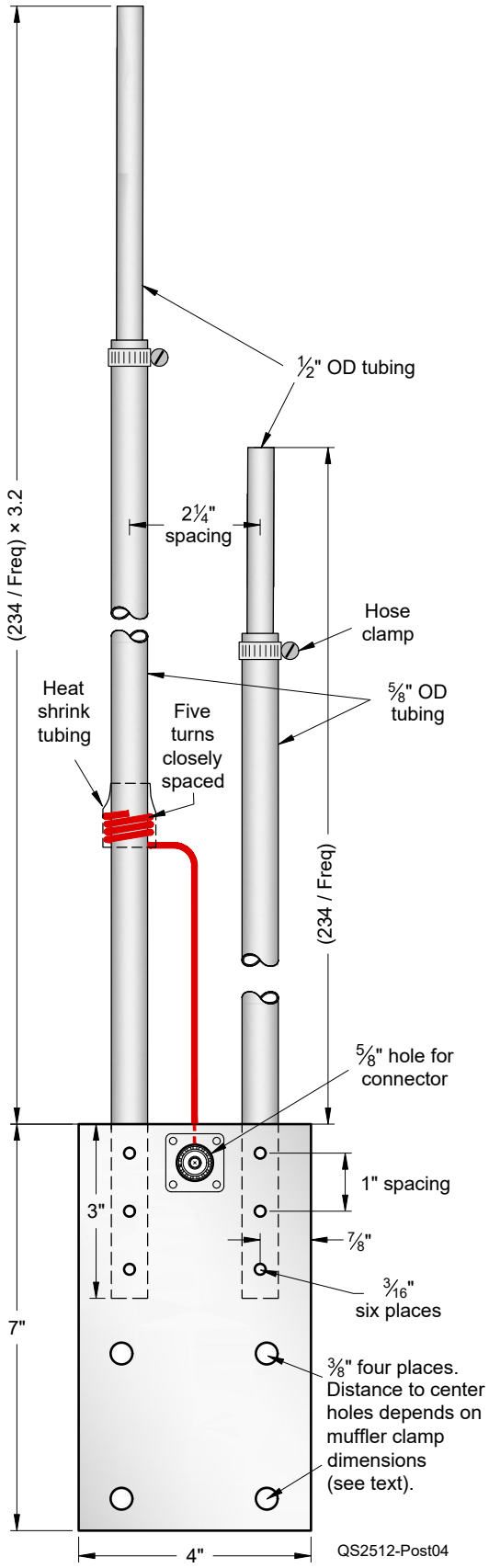


Figure 3 — Dimensions of the longer and shorter aluminum tubes.

coaxial connector, and if you're unable to purchase one, any machine shop will be able to help.

Fixing the RF connector to the mounting plate is best accomplished with ⅛-inch stainless-steel or aluminum pop rivets. You can top everything off by placing small plastic tubing caps on the vertical elements; these caps will keep moisture from running down inside and possibly corroding the rivets or bolts.

Mounting the Adjust-a-J

After purchasing the stainless-steel muffler clamps, measure the distance from center to center on the threaded ends. Drill the four-bolt pattern on the mounting plate based on that distance. Arrange the pattern in a square to give you the option to mount on a vertical or horizontal mast. You can also use large wood screws/lag bolts to fix the antenna to a fence or to the side of the house, but take care to provide a ground wire if you do. Add ferrite beads on the wire to prevent common-mode currents.

For 2-meter operation, the long element should extend 61.25 inches above the mounting plate, and the short element should extend 19.25 inches above the mounting plate. To change the resonant frequency, note the following formula: 234 divided by the desired frequency equals the length of the shorter element. Multiply the length of the shorter element by 3.2 to find the approximate length of the longer element. Use the hose clamps to secure the ½-inch sections to the desired lengths.

As measured with several brands of SWR meters, the SWR is well below 1.5 across the 2-meter band. I have measured similar results over 5 MHz spans in the aircraft and VHF marine bands.

Preventing Common-Mode Current

When many amateurs find that an antenna's SWR is acceptable, they tend to not worry about much else. A **J**-pole with common-mode current in the structure or feed line produces a fairly high angle of radiation. It is good for working airplanes or mountaintop repeaters from a nearby valley, but not so much for stations on the horizon.

I generally use high-quality RG-8 coaxial feed line, and I add three or four mix-31 ferrite beads from Palomar Engineers near the feed point. I've also used several turns of good-quality RG-8X coax in the same location to minimize RF on the coax. I think these methods — and this antenna — are easy for the average amateur to replicate while enjoying the benefits at a modest cost.

Table 1 — Parts List

Quantity	Part Description
1	⅝ OD × 54-inch aluminum 6063-T832 telescoping tubing
1	⅝ OD × 18-inch aluminum 6063-T832 telescoping tubing
1	½ OD × 12-inch aluminum 6063-T832 telescoping tubing
1	½ OD × 6-inch aluminum 6063-T832 telescoping tubing
1	4 × 7 × 0.1-inch-thick aluminum 6061-T6 plate
6	3/16-inch pop rivet (or 1-inch machine screw and nut)
4	⅛-inch pop rivet for attaching RF connector (or small machine screw and nut)
1	19-inch-long #14 AWG insulated solid wire
1	1-inch shrink tubing
1	SO-239 UHF chassis mount connector (or equivalent N-type connector)
2	Approximately 2-inch stainless-steel muffler clamp
2	Stainless-steel hose clamp that will go to minimum ⅝-inch-diameter tubing

All photos provided by the author.

John Post, K7SKI, was first licensed in 1984 after patient and persistent mentoring by Paul Alexander, K5LZT. Building antennas has been his favorite pastime since his Novice days. The Adjust-a-J antenna continues to evolve, and one of his designs has been in use for more than 20 years. John can be reached at **adjustajpole@gmail.com**.

For updates to this article, see the *QST* Feedback page at www.arrl.org/feedback.



Feedback

In the November 2025 issue, the "Section Manager Nomination Notice" sidebar in the "Happenings" column should look identical to the one that appeared in the October 2025 issue. This has since been updated in the digital edition. *QST* regrets this error.

Happy Holidays

and Peace on Earth from the ARRL Staff and *QST* Contributing Editors

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Product Review

Elecraft KH1 QRP Transceiver with the Edgewood Package

Reviewed by Phil Salas, AD5X
ad5x@arrl.net

The KH1 is Elecraft's latest entry into the ultra-portable, QRP CW transceiver market. It is a tiny HF rig designed for Summits on the Air (SOTA), Parks on the Air® (POTA®), backpacking, and minimalist field operations. Built for CW only, the KH1 is impressively small, rugged, and self-contained.

Overview

As you can see in the lead photo, the KH1 is about the size of a VHF/UHF handheld radio. It covers the 40-, 30-, 20-, 17-, and 15-meter ham bands, CW only for transmit, with a typical output power of up to 5 W. It has an internal loading coil for 20 and 17/15 meters that works with the screw-on telescoping whip antenna. For 40- and 30-meter operations, you do need the optional AXE1 40-meter extender coil. You can operate 30 meters without this coil (using the 20-meter antenna setting), but the SWR will be higher and power output will suffer. The KH1's superheterodyne receiver uses a 9.215 MHz IF and a varactor-tuned crystal filter. The receiver bandwidths are approximately 300 Hz, 500 Hz, and 2 kHz. There is no RF preamp, but there is a two-stage RF attenuator for strong-signal situations.

Setup in the field is truly plug and play: Attach the whip or connect an external antenna, deploy the radial (16 feet for 20 – 15 meters, 33 feet for 40/30 meters), select the operating band, enable the auto tuner, and you're on the air in under a minute. The built-in autokeyer is smooth, and the KHPD1 plug-in paddle works very well. The KH1 may be powered by an external 8 – 15 V dc power supply or battery, or the internal 11 V dc 2600 mAh lithium battery. A 5.5 × 2.1-millimeter dc power cable with bare wire ends is supplied for connecting external power. When an external power supply with voltage greater than 11 V dc is connected,

Bottom Line

With up to 5 W of output power, an impressive internal auto tuner for its size, and an internal lithium battery, the Elecraft KH1 is a self-contained transceiver in a compact package that will appeal to portable operators.



the KH1 automatically powers itself from that power supply, and the internal battery is charged if necessary. The internal KH1 charging circuit automatically stops charging upon charge completion. With an external power supply connected, the LED by the on/off switch is red when the radio is off and charging, orange when the radio is on and charging, green when the charge is complete and the radio is on, and unlit when the charge is complete and the radio is off. The published KH1 specifications, along with the ARRL Lab measurements, are shown in Table 1.

Interfaces and Controls

The KH1 has easily accessible and simplified controls and interfaces, yet provides easy access to any features you may want. On the top (see Figure 1) is the BNC antenna connector, a ground connector, the internal inductor switch used with the whip antenna, and the whip antenna interface. In the center "**X**" position, the transmitter is connected to the BNC connector.

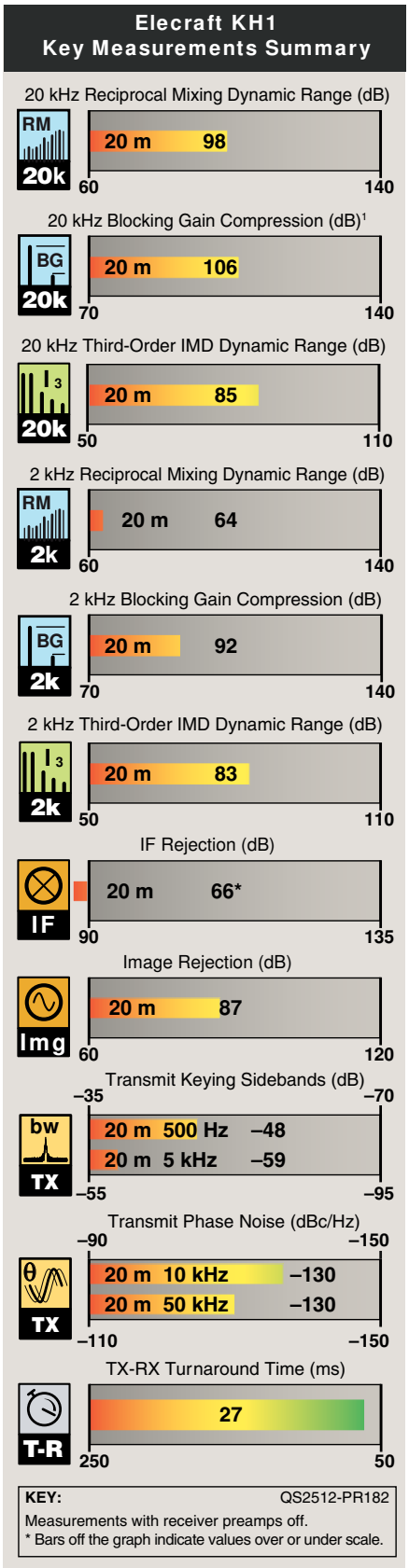


Table 1 — Elecraft KH1 HF Transceiver S/N 724, Main CPU Firmware 1.25

Manufacturer's Specifications	Measured in the ARRL Lab
Frequency coverage: Receive, 7.0 – 7.5 MHz, 10.0 – 10.5 MHz, 14.0 – 14.5 MHz, 18.0 – 18.5 MHz, 21.0 – 21.5 MHz, 6.7 – 22.0 MHz (general-coverage band); transmit, 40/30/20/17/15-meter amateur bands.	Receive and transmit as specified.
Power requirements: 8 – 15 V dc: Receive, 40 – 80 mA (typical); transmit, 0.5 – 1.0 A (typical); charger adds ~250 mA when charging battery.	At 13.8 V dc: Receive, as specified except 90 mA on 40 and 30 meters; transmit, as specified; battery charger adds 218 mA.
Modes of operation: CW and CW/SSB cross mode (CW TX, SSB RX).	As specified.

Receiver

Receiver Dynamic Testing

All measurements taken at 500 Hz bandwidth, unless otherwise specified.

SSB/CW sensitivity (MDS): –133 dBm (typical) at 14.0 MHz, 500 Hz bandwidth.

7 MHz	–131/0.07	dBm/µV
14 MHz	–136/0.04	dBm/µV
21 MHz	–131/0.07	dBm/µV

Blocking gain compression dynamic range: Not specified.

Offset	*20 kHz*	*5 kHz*	*2 kHz*	
7 MHz	108	109	82[1]	dB
14 MHz	106	105	92[1]	dB
21 MHz	103	103	86[1]	dB

Reciprocal mixing dynamic range: Not specified.

Offset	*20 kHz*	*5 kHz*	*2 kHz*	
14 MHz	98	98	64[1]	dB

Two-tone intermodulation distortion (IMD) testing:

Band	*Spacing*	*Measured IMD Level*	*Measured Input Level*	*IMD DR*
7 MHz	20 kHz	–131 dBm	–51 dBm	80 dB
14 MHz	20 kHz	–136 dBm	–51 dBm	85 dB
14 MHz	5 kHz	–136 dBm	–51 dBm	85 dB
14 MHz	2 kHz	–136 dBm	–53 dBm	83 dB
21 MHz	20 kHz	–131 dBm	–50 dBm	81 dB

On the bottom (see Figure 2), you will find the AF/spot control, the key/data 3.5-millimeter port, and the VFO control.

The 2.1 × 5.5-millimeter dc port and the on/off slide switch are found on the left side, and a headphone or externally amplified speaker jack is found on the right side.

The front panel shown in the lead photo has four multi-function keys. Tapping a button enables the top (white) function, and pressing and holding a button for ½ second enables the bottom (yellow) function.

When tapped, buttons **1** and **2** change the CW keying speed down and up. The display momentarily indicates the speed. When tapped, button **3** causes the internal automatic antenna tuner (ATU) to tune. Tapping button **4** provides access to up to six stored CW messages.

Holding button **1** for about ½ second gives you access to the three filter bandwidths that you select by tapping buttons **1**, **2**, or **3**. In this mode, holding buttons **1**, **2**, or **3** provides access to 0, 10, or 30 dB receiver attenuation. Holding button **4** turns on RIT.

Second-order intercept point: Not specified.	14 MHz, +41 dB.		
S-meter sensitivity: Not specified.	S9 indication:		
	7 MHz	–82/17.8	dBm/µV
	14 MHz	–75/39.8	dBm/µV
	21 MHz	–77/31.6	dBm/µV
Receive bandwidth: Three crystal filter bandwidths (~0.3, 0.5, 2.0 kHz), filter center pitch tracks sidetone pitch.	Range at –6 dB points (bandwidth), sidetone at default (500 Hz), CW mode: F1 (0.3 kHz BW): –141 to +135 Hz (276 Hz) F2 (0.5 kHz BW): –161 to +280 Hz (441 Hz) F3 (2.0 kHz BW): –151 to +245 Hz (396 Hz)[2]		
Receive processing delay time: Not specified.	3 ms.		
Audio output: ~0.5 W peak into internal speaker.	Internal speaker not tested. Headphone output: 1.6 V_{rms} (8.5 mW into 300 Ω) at 1% THD.		

Transmitter

Power output: ~5 W max.	**Transmitter Dynamic Testing** > 5 W on all bands; 6.3 W max output (40 meters); can be reduced to 2 W.
Spurious signal and harmonic suppression: > 50 dB below carrier typical at 5 W.	Typically, > 60 dB; worst case, 21 MHz, 48 dB; complies with FCC emissions standards.
CW keyer speed range: 8 – 50 WPM.	8 to 47 WPM; iambic mode A&B.
CW keying characteristics: Not specified.	See Figures A and B.
Transmit-receive turnaround time: Not specified.	Key up to 50% audio output, S-9 signal: 27 ms.
Transmit phase noise: Not specified.	See Figure C.

Size (height, width, depth, including protrusions): 1.3 × 2.75 × 5.75 inches.

Weight: 0.7 pound.

[1] Test stopped at this level due to spurious signal in audio.
[2] See Lab Notes.

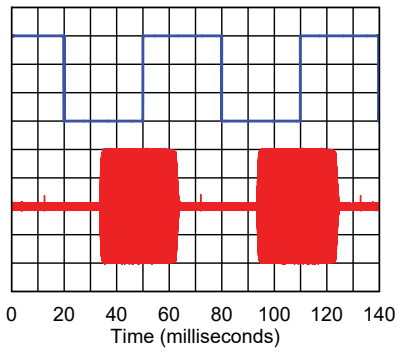


Figure A — CW keying waveform for the Elecraft KH1 showing the first two dits using external keying. Equivalent keying speed is 40 WPM. The upper trace is the key closure; the lower trace is the RF envelope. Horizontal divisions are 10 ms. The transceiver was being operated at 5 W output on the 14 MHz band. The first-dit rise time is 0.7 ms; the fall time is 1.0 ms. The second-dit rise time is 0.7 ms; the fall time is 1.0 ms. The first-dit on delay is 13.8 ms; the off delay is 13.1 ms. The second-dit on delay is 13.7 ms; the off delay is 14.0 ms.

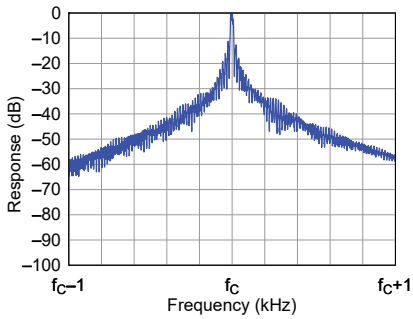


Figure B — The spectral display of the Elecraft KH1 transmitter during keying sideband testing. Equivalent keying speed is 40 WPM using external keying. Spectrum analyzer resolution bandwidth is 3 Hz, and the sweep time is 1.35 seconds. The plot is an average of 10 sweeps. The transmitter was being operated at 5 W PEP output on the 14 MHz band, and this plot shows the transmitter output ± 1 kHz from the carrier. The reference level is 0 dBc, and the vertical scale is in dB.

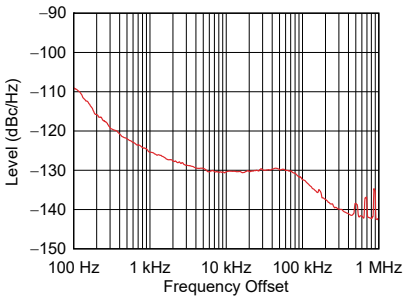


Figure C — The spectral display of the Elecraft KH1 transmitter output during phase noise testing. Power output is 5 W on the 14 MHz band. The carrier, off the left edge of the plot, is not shown. This plot shows phase noise 100 Hz to 1 MHz from the carrier. The reference level is –90 dBc/Hz, and the vertical scale is 10 dB per division.

Holding button **2** for about ½ second provides eight functions. In this mode, tapping buttons **1**, **2**, or **3** gives you access to programmable functions, such as quickly changing the standard display to show voltage, current, and temperature, or quickly selecting the **PANADAPTER** mode. In this mode, holding button **1** puts the transmitter into **TUNE** mode. Holding button **2** lets you select between low and high power (~2 W and ~5 W, settable). Holding button **3** puts the radio into a test mode, whereby there is a sidetone output without RF output. Finally, holding button **4** turns on XIT.

Holding button **3** provides for easily changing bands by tapping the **1** (down) or **2** (up) button. In this mode, tapping button **3** exchanges the present VFO frequency with the scratchpad memory. Holding button **3** copies the VFO to memory.

Finally, holding button **4** takes you to the menu, which provides access to advanced features. You will initially want to adjust the date and time, and maybe your high and low power levels (default 5 W / 2 W). Some of the other features are alignment levels, which you may want to stay away from. Many of the features are locked, so you won't accidentally change them. Probably the most used feature will be the **PANADAPTER** mode.



Figure 1 — The Elecraft KH1 top view, with BNC antenna connector, ground, inductor switch, and whip antenna connector.



Figure 2 — The Elecraft KH1 bottom view, with volume, key/data port, and VFO control.

Firmware Updates

Elecraft has one of the best and easiest firmware update features. First, you need to go into the KH1 menu and change the key jack from **PADDLE** to **RS232**. Then, download the KH1 app from the Elecraft support website, connect the supplied KXUSB cable to the **KEY/DATA** jack, and open the KH1 app. Now you can easily check for the latest firmware and install it if you have an older version. This process is trivial and will probably take you less than a minute. I did find one bug, whereby when operating cross mode (CW TX/LSB RX or CW TX/USB RX) with a straight key, the KH1 can lock into continuous transmit as soon as you key down. Elecraft said they would have a fix soon, so I'm sure it will be available by the time this review is published.

Additional Testing

The KH1 auto tuner is a pretty minimalistic tuner, and I wanted to see what values of resistive loads it could match. I also wanted to get a feel for how much loss there might be in the auto tuner. I used the SWR/loss setup described in my March 2021 *QEX* article, "Antenna Tuner Loss Measurements." The test results are given in Table 2. Except for some extreme cases, the auto tuner was able to achieve a very low SWR. The radio output at a 1:1 SWR is the reference power, as the auto tuner is bypassed in this case. The RF output after the auto tuner was calculated was based on the known loss of the SWR test box. So, the RF power shown in Table 2 is the power out of the auto tuner when the match is realized.

Comparing the calculated auto-tuner power outputs to the 50 Ω matched outputs, you can see that in most cases the auto-tuner loss is less than 1 dB. This is quite good, especially considering the small size of the auto tuner.

Of course, this is testing into a resistive load box. So next I tested into my 43-foot vertical. That antenna is fed through about 60 feet of low-loss ½-inch HELIAX®. I achieved the results as shown in Table 3.

Next, because the KH1 is specified to operate from 8 to 15 V dc, I wanted to see what the maximum power output was at two different voltage levels. I chose 11 V dc, as this is the nominal internal battery voltage, and 13.8 V dc, as this is a typical station power supply. The results are shown in Table 4.

As you can see in Table 4, the power output increases quite a bit as you increase voltage. Therefore, at power supply/battery volt-

Table 2 — Elecraft KH1 ATU Resistive Load and Loss Testing

Tested by the reviewer, Phil Salas, AD5X

SWR/Impedance		40 M	30 M	20 M	17 M	15 M
8:1/6.25 Ω	PWR/loss	3.3 W/1.9 dB	4.8 W/.43 dB	4.6 W/.27 dB	4.6 W/0.1 dB	4.9 W/.66 dB
	Tuned SWR	3.6:1	1.8:1	1.5:1	1.5:1	1.6:1
4:1/12.5 Ω	PWR/loss	4.5 W/.54 dB	5.0 W/.25 dB	4.0 W/.88 dB	4.4 W/.29 dB	4.9 W/.66 dB
	Tuned SWR	1.9:1	1.1:1	1.1:1	1:1	1.2:1
3:1/16.7 Ω	PWR/loss	5.0 W/.08 dB	4.7 W/.52 dB	4.8 W/0.1 dB	4.6 W/0.1 dB	5.3 W/.32 dB
	Tuned SWR	1.3:1	1.1:1	1.1:1	1:1	1:1
2:1/25 Ω	PWR/loss	5.1 W/0 dB	4.2 W/1 dB	4.5 W/.37 dB	4.5 W/.19 dB	5.1 W/.48 dB
	Tuned SWR	1:1	1.1:1	1:1	1:1	1:1
1:1/50 Ω	PWR/loss	5.1 W/0 dB	5.3 W/0 dB	4.9 W/0 dB	4.7 W/0 dB	5.7 W/0 dB
	Tuned SWR	1:1	1:1	1:1	1:1	1:1
2:1/100 Ω	PWR/loss	4.4 W/.64 dB	4.5 W/.7 dB	4.3 W/.67 dB	4.4 W/.39 dB	5.5 W/.16 dB
	Tuned SWR	1:1	1.1:1	1:1	1:1	1:1
3:1/150 Ω	PWR/loss	4.2 W/.84 dB	4.5 W/.7 dB	4.3 W/.67 dB	4.5 W/.19 dB	4.8 W/.75 dB
	Tuned SWR	1:1	1.1:1	1:1	1:1	1.1:1
4:1/200 Ω	PWR/loss	4.0 W/1.1 dB	4.4 W/.81 dB	4.4 W/.47 dB	4.0 W/0.7 dB	4.7 W/.85 dB
	Tuned SWR	1:1	1.2:1	1.1:1	1.3:1	1:1
8:1/400 Ω	PWR/loss	2.9 W/2.45 dB	4.6 W/.62 dB	4.4 W/.47 dB	4.1 W/.59 dB	4.2 W/1.3 dB
	Tuned SWR	1.2:1	1:1	1:1	1.3:1	1:1

Table 3 — KH1 Matched SWR with 43-Foot Vertical
Tested by the reviewer, Phil Salas, AD5X

Band	40 M	30 M	20 M	17 M	15 M
KH1 tuned SWR	1.2:1	1.4:1	1.1:1	1:1	1:1

Table 4 — Power Output vs Power Supply Voltage
Tested by the reviewer, Phil Salas, AD5X

Band	11 V dc	13.8 V dc
40 M	5.1 W	6.0 W
30 M	5.2 W	6.9 W
20 M	4.9 W	5.7 W
17 M	4.7 W	6.2 W
15 M	5.7 W	7.2 W

ages above 12 V dc, I'd probably want to run the radio at the low power setting.

Operating the KH1

Then it was time to have fun. I operated CW on all five bands (40 – 15 meters) using my 43-foot vertical. As expected with CW, I had no problem making contacts on the five bands. The CW reports were all excellent, with no reports of key clicks or chirps. And the KHPD1 plug-in keyer paddle worked perfectly. Operating with the supplied whip antenna was much different, though. I did spend some time walking along a hiking trail near my home using the supplied whip antenna and dragging the 13-foot counterpoise behind me. I could hear some stations, but they were very weak. Trying to make contacts this way would be difficult anyway, as holding the KH1 and trying to simultaneously operate the paddle is not something I could easily do.

I did better operating from a table in my backyard. I did not have the KHRA1 right-angle adapter, but I did have the AX3 tripod/whip antenna system for a separate review. The AX3 uses the same whip and takes the same AXE1 40-meter extender, as does the KH1. I did deploy the supplied radials (33 feet for 40/30 meters, and 13 feet for 20 – 15 meters). I could hear signals on the different bands, but again, they were all pretty weak. I made a few marginal contacts on 20 and 17 meters. I guess that's to be expected with a compromise antenna. Results might be better if I was situated on a high hill, instead of the flatlands here in the Dallas area. I did find the internal speaker to be harsh and often crackly. The audio was perfect when using headphones. Also, the KHPD1 keyer paddle is so close to the tuning knob that I often hit the paddle while tuning. This is not a problem, just something to be aware of.

Lab Notes

The Elecraft KH1 radio is a very compact, full-featured CW transceiver with AM and SSB receive capability, including an internal antenna tuner. With so much functionality packed into a small package, some design compromises will likely need to be made. In the case of the KH1, the only notable performance trade-off seemed to be around spurious signals caused by strong off-channel RF. The radio exhibited strong audible spurious responses (i.e., "birdies") during the receiver dynamic range testing at the 2 kHz and 5 kHz spacings on all bands. These responses affected our ability to accurately measure both reciprocal mixing and blocking gain compression dynamic ranges, so our published values in Table 1 are lower than expected and may not accurately reflect the true performance of the radio had the spurious signals not been present. The test method used in the Lab for the third-order IMD dynamic range allows us to "work around" spurious responses, so these test results are more in line with what we would expect for a radio in this class, though we could still hear the spurious tones during testing. Translating these numbers to on-the-air performance, the operator may experience audible effects from nearby strong signals in quiet band conditions.

The test results for the widest receive filter ("FL3") would indicate that the filter is narrower than stated in the product manual; this is a result of the shape of the filter response combined with our test method. The filter has a significant peak within the passband that exhibits a narrow –6 dB bandwidth response, and this –6 dB bandwidth is what we typically publish. That does not tell the whole story; when looking at the filter response more broadly (using a wideband RF noise source), the filter shape becomes more obvious and more closely resembles the manufacturer's intended filter width, albeit with significant amplitude variation in the passband most likely due to the analog nature of the KH1 filtering. The narrower filters ("FL1" and "FL2") typically used for CW operation don't exhibit this characteristic, so their measured values are very much in line with the product specification.

Last, the manufacturer states that the power output is around 500 mW into the internal speaker, which is surprising given the relatively low output volume. We are unable to verify this claim due to the construction of the unit; however, we measured about 8 mW at the headphone output using a 300 Ω headphone impedance, which should be plenty loud for most operators.

— Rick Ciervo, W1CIE, Senior Laboratory Engineer



Figure 3 — The Elecraft KH1 panadapter 17-meter display.

Additional Features

The KH1 has many of the features you expect to see in transceivers today. These include a receiver attenuator, RIT/XIT, multiple filter bandwidths, and CW memories. And while kind of crude, I did like the panadapter for helping to find signals. Figure 3 shows the panadapter display centered at 18.072 MHz and sweeping ± 5 kHz.

Conclusion and Final Thoughts

Operating the KH1 is not exactly intuitive, but once you've gone through the manual a time or two, you will find the KH1 easy to operate. The internal auto tuner works very well, as does the KHPD1 keyer paddle. I would like to see Elecraft come up with a better internal speaker. And while operating with the attached whip antenna may be convenient, don't expect great things from this compromise antenna.

Manufacturer: Elecraft, 125 Westridge Dr., Watsonville, CA 95076, **www.elecraft.com**. Price: KH1 only, $650; Edgewood package, $1,309.65. Other options are available on the manufacturer's website. The Edgewood Package includes the antenna tuner, built-in whip, keyer paddle, logbook tray with mini-ballpoint pen, internal battery charger, and custom zippered carrying case.

VA6AM Engineering Low-Power Triplexer and Band-Pass Filters for 20/15/10 Meters

Reviewed by Mark Wilson, K1RO
k1ro@arrl.net

Propagation on the upper HF bands has been terrific for the past few years, with all of the bands open during the day and well into the evening hours. My station has two transceivers that I've been using for single operator, two radio (SO2R) contest operating, as well as for hunting needed stations for various award programs and monitoring band openings at other times. During contests, the SO2R setup allows me to CQ and run stations with one radio while hunting for multipliers and contacts on a different band with the other radio. It's an effective way to increase scores, but I'm limited by my antennas — a single, small multiband Yagi and some inverted-**V** dipoles. When 10, 15, and 20 meters are all open at the same time, I could really use another beam for the second radio.

Rather than install another antenna support and beam, I decided to add a triplexer and band-pass filters for



Bottom Line

The VA6AM Engineering triplexer and band-pass filters allow use of a single multiband antenna on two or even three bands simultaneously. The excellent out-of-band rejection protects receivers from damage while minimizing inter-station interference.



Figure 4 — VA6AM Engineering 200 W triplexer for 14, 21, and 28 MHz.

20/15/10 meters inside my station to allow me to use my multiband antenna on several bands at the same time (see the sidebar, "Multiplexers"). This approach to sharing a single multiband antenna has been around for a while and is ideal for SO2R contesting, multioperator contest stations, Field Day setups, and club stations.

The triplexer alone does not provide enough isolation among the three bands, so additional band-pass filters are needed to prevent receiver damage and minimize inter-station interference. This review covers the VA6AM Engineering triplexer rated for 200 W maximum per band (see Figure 4) and band-pass filters rated for 150 W per band (see Figure 5). Note that you can use other band-pass filters with the triplexer if they provide sufficient rejection of the other bands. The VA6AM products make a nice system with excellent performance.

The hardware reviewed here is made by Pavel Perchine, VA6AM, and distributed by DX Engineering. According to Pavel's excellent website (**www.va6am.com**), he started developing triplexers and band-pass filters in 2013 for his own station. He published the designs with detailed construction information and offered printed circuit boards. Over time he expanded to offering kits and assembled multiplexers and band-pass filters for different band combinations and power levels.

Testing

QST Technical Editor Phil Salas, AD5X, tested the 20/15/10-meter triplexer and band-pass filters using an Array Solutions VNAuhf vector network analyzer. The calibration included the necessary N-to-UHF adapters, and a precision microwave 3 dB attenuator inserted in the thru-calibration procedure maximized the return loss of the through cable, connectors, adapters, and VNA input impedance.



Figure 5 — The VA6AM Engineering 14, 21, and 28 MHz band-pass filters are rated for 150 W.

Test results for the triplexer alone are shown in Table 5, and band-pass filter test results are shown in Table 6. Table 7 shows measurements of the triplexer and filters together. All tables show the worst-case insertion loss, rejection, and return loss measurements in the tabulated bands. Swept-frequency response plots for the triplexer and filters are available online at the *QST* in Depth web page (**www.arrl.org/qst-in-depth**).

The triplexer was tested with 50 Ω terminations on the unused input ports, as recommended by VA6AM. Some antenna switches do not provide 50 Ω loads for unused ports, so the tables show a second set of measurements without 50 Ω terminations on the unused input ports.

As shown in Table 5, each triplexer port passes the band of interest with minimal insertion loss and attenuates the other two bands. For example, with a 10-meter signal applied to the 28 MHz input, worst-case rejection is 38 dB in the 21 MHz band and 45 dB in the 14 MHz band. For the 21 MHz band input, rejection is at least 28 dB in the 14 MHz band and 31 dB in the 28 MHz band.

Test results for the band-pass filters are shown in Table 6. Again, the filters exhibit minimal in-band loss. Rejection of the other two bands is at least 41 dB and in some cases much higher.

Table 7 shows test results for the triplexer and filters connected together. Insertion loss for the triplexer/filter combination is 0.45 dB or less, and return loss is 15 dB or better (SWR of 1.4:1 or less) across all three bands.

Attenuation on the adjacent bands is at least 72 dB and typically 80 to 90 dB depending on the frequency combination. With 100 W (+50 dBm) transmitters, at most 10 µW (–20 dBm) reaches the receiver input, and typically it's 1 µW (–30 dBm). For comparison, the ARRL Lab tests receivers with signal levels up to 10 mW (+10 dBm), so the triplexer with filter combination offers a considerable safety margin.

Table 5 — VA6AM Engineering 14/21/28 MHz Low-Power Triplexer

Manufacturer's Specifications	Measured by Phil Salas, AD5X
Insertion loss: < 0.15 dB.	14 MHz, 0.12 dB; 21 MHz, 0.14 dB; 28 MHz, 0.1 dB with unused ports terminated in 50 Ω.
Adjacent band attenuation: 30 – 50 dB with unused ports terminated in 50 Ω.	See measurements below, which agree closely with VA6AM specification sheet.
Return loss: > 26 dB.	Worst case within each band, unused ports terminated in 50 Ω: 14 MHz, 19 dB; 21 MHz, 21 dB; 28 MHz, 23 dB.
Power handling: 200 W ICAS*, max. 2.5:1 SWR.	Tested at 100 W.

Size (height, width, depth): 3.5 × 8 × 6 inches.
Weight: 1.7 pounds.
*ICAS is Intermittent Commercial and Amateur Service.

Triplexer Alone with 50 Ω Terminations on Unused Ports

Input Band (MHz)	*Adjacent Band Attenuation*		
	28 MHz	*21 MHz*	*14 MHz*
28	—	38 dB	45 dB
21	31 dB	—	28 dB
14	53 dB	41 dB	—

Triplexer Alone with No Terminations on Unused Ports

Input Band (MHz)	*Adjacent Band Attenuation*		
	28 MHz	*21 MHz*	*14 MHz*
28	—	30 dB	40 dB
21	30 dB	—	27 dB
14	50 dB	36 dB	—

On the Air

The triplexer and filters are housed in clearly labeled aluminum cabinets. Connections are all SO-239 jacks. On one side, the triplexer has three inputs, one for each band, and a single connector on the opposite side for the antenna feed line. Filters have connectors at each end of the case.

I was able to connect the 10- and 20-meter filters to the triplexer using double-male UHF adapters. There wasn't enough room in the center for the 15-meter filter, so I used a short cable between the filter and triplexer input. Then I connected my multiband antenna feed line to the triplexer and ran short cables from each filter to my antenna switch. I also added VA6AM band-pass filters for 40 and 80 meters to minimize inter-station interference when using those bands. Figure 6 shows my setup.

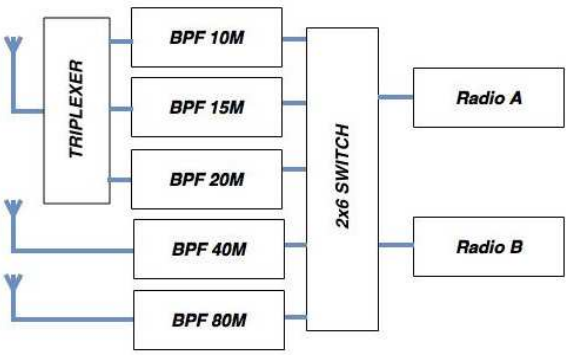


Figure 6 — My station configuration is similar to one shown on the VA6AM website. I'm using two Kenwood TS-590S transceivers, an Array Solutions 2×6 antenna switch (two radios, six antennas), the VA6AM Engineering triplexer, and VA6AM band-pass filters for 80 – 10 meters. The antenna switch also has room for a 160-meter antenna. [Image courtesy of **www.va6am.com**]

Using the triplexer and filters gave me the same capability as having separate antennas for each band on the same mast. For example, as the bands opened in the morning, I could call CQ on 15 meters and tune around and work stations on 10 or 20 meters. As signals on 10 meters improved and stations became easier to work, I could decide the best time to switch to CQing on 10 meters and hunting on the other bands. During the New England QSO Party in May, I spent quite a bit of time CQing on 20 meters. Conditions were not great, and it was nice being able to call stations that popped up on 15 meters or to try interleaving some CQs there without losing my place on 20 meters.

Using both radios with the triplexer/filter combination, I didn't experience any inter-station interference except

Table 6 — VA6AM Low-Power Band-Pass Filters

Manufacturer's Specifications	**Measured by Phil Salas, AD5X**
Insertion loss: 0.6 dB max.	14 MHz, < 0.35 dB; 21 MHz, < 0.39 dB; 28 MHz, < 0.42 dB.
Return loss: > 26 dB.	Worst case within each band: 14 MHz, 27 dB; 21 MHz, 29 dB; 28 MHz, 27 dB.
Adjacent band attenuation: Varies band to band.	See measurements below, which agree closely with VA6AM specification sheets.
Power handling: 150 W ICAS*; max. 2:1 SWR.	Tested at 100 W.

Size (height, width, depth): 3 × 7 × 3 inches.
Weight: < 1 pound.
*ICAS is Intermittent Commercial and Amateur Service

Band	*3 dB Bandwidth*	*Adjacent Band Attenuation*			
(MHz)	*(MHz)*	*28 MHz*	*21 MHz*	*14 MHz*	*7 MHz*
28	27 – 32	—	> 41 dB	> 76 dB	> 88 dB
21	18 – 23	> 55 dB	—	> 47 dB	> 33 dB
14	12.1 – 16.1	> 55 dB	> 62 dB	—	> 64 dB

when listening on or near harmonic frequencies. For example, when listening on 28.050 MHz and transmitting with my second radio on 14.025 MHz, I heard the second harmonic at about S-9 +10 dB. Tuning away from the harmonic signal, I could hear low-level noise for about 5 kHz on either side of the signal but could still copy most stations through the noise.

My antennas are in fairly close proximity, and without filters I experience some inter-station interference from 40-meter harmonics while listening on 20 and 15 meters. With VA6AM band-pass filters for each band, the second harmonic on 20 meters was reduced to about S-9 +20 dB with S-3 noise for about 5 kHz on each side of the signal. The third harmonic on 15 meters was about 10 dB stronger than that.

Although I used the triplexer and filters as a single operator with two radios, a setup like this would be ideal for Field Day to reduce the setup complexity. The team could operate on 10, 15, and 20 meters simultaneously using a single tribander or hexbeam or even a multiband vertical or dipole provided that the antenna SWR on each band is below the specified maximum. VA6AM's website recommends a maximum of 100 W continuous with up to 1.5:1 SWR, and the DX Engineering website indicates 50 W maximum with FT8 or other digital modes at the maximum 2.5:1 SWR.

Table 7 — VA6AM Engineering Triplexer and Band-Pass Filter Combination

Triplexer and Filters with 50 Ω Terminations on Unused Ports

Insertion loss: 28 MHz, 0.45 dB; 21 MHz, 0.45 dB; 14 MHz, 0.39 dB.
Return loss: 28 MHz, 15 dB; 21 MHz, 15 dB; 14 MHz, 25 dB.

Input Band	*Adjacent Band Attenuation*			
(MHz)	*28 MHz*	*21 MHz*	*14 MHz*	*7 MHz*
28	—	82 dB	83 dB	90 dB
21	87 dB	—	72 dB	53 dB
14	89 dB	89 dB	—	69 dB

Triplexer and Filters with No Terminations on Unused Ports

Insertion loss: 28 MHz, 0.5 dB; 21 MHz, 0.44 dB; 14 MHz, 0.4 dB.
Return loss: 28 MHz, 15 dB; 21 MHz, 15 dB; 14 MHz, 19 dB.

Input Band	*Adjacent Band Attenuation*			
(MHz)	*28 MHz*	*21 MHz*	*14 MHz*	*7 MHz*
28	—	70 dB	88 dB	85 dB
21	80 dB	—	60 dB	53 dB
14	84 dB	85 dB	—	59 dB

In Summary

I really enjoyed using the VA6AM Engineering triplexer and filters to make the most of my current station and antennas. Now that I have improved the hardware, I'll need to work on my operating techniques to catch up with the added capability.

Manufacturer: VA6AM Engineering, Edmonton, AB, **https://va6am.com**. Distributed in the US by DX Engineering. Price: LP-TR-101520 triplexer, $282.99; LP-BPF series band-pass filters, $165.99 each.

Multiplexers

A multiplexer uses filters and traps to separate and isolate signals to allow simultaneous operation on multiple bands with a single feed line and multiband antenna. A multiplexer can be built for any combination of two or more bands. The unit reviewed here is called a *triplexer* because it covers three bands — 20, 15, and 10 meters. The 10-meter signal path has traps for 15 and 20 meters, while the 15-meter signal path has traps for 20 and 10 meters, and the 20-meter signal path has traps for 10 and 15 meters. DX Engineering also offers VA6AM Engineering multiplexers for other band combinations such as 160/80/40 meters, 80/40 meters, and 80/40/20 meters. These are all rated at 200 W.

See *QST* in Depth for More!

Visit www.arrl.org/qst-in-depth for the following supplementary materials and updates:

✓ VA6AM Engineering 20/15/10 low-power triplexer and band-pass filter measurements

DX Commander Classic 2 Vertical HF Antenna

Reviewed by John Leonardelli, VE3IPS
jleonardelli@arrl.net

When it comes to multiband vertical antennas for portable field operators, options are limited. The same goes for Field Day setups or extended park activations. What if you're heading to a vacation rental property and want an easy-to-deploy antenna to enjoy some HF radio time? Or maybe you're looking for a second antenna during contest weekends to quickly hop bands, and add multipliers, without needing a tuner. Could this be a good choice for Parks on the Air® (POTA®)?

The DX Commander Classic 2, designed by Callum McCormick, MØMCX, is a multiband vertical antenna that fits the bill for both portable and home use. A vertical has a small footprint and is easy to mount in a semi-permanent fashion. It covers HF from 40 through 2 meters (with optional support for 60/80 meters), using a fan-style array of ¼-wave and ⅝-wave vertical wire elements with spreader plates around a non-conductive fiberglass mast and a shared radial field.

Known for its efficiency and solid design, this modular kit-based antenna is lightweight (about 8 pounds) and somewhat portable, thanks to its 4-foot fiberglass mast sections.

The antenna is resonant on all supported HF bands, offering broad SWR bandwidth and a low takeoff angle ideal for DX. It includes a 32-foot (10-meter) telescopic mast, aircraft- and marine-grade components, and two spools of rugged DX10 wire (19 AWG, MIL-SPEC, PVC insulated).

Be mindful during setup — this 32-foot mast can easily come into contact with overhead wires or power lines. Safety first. Always assume and maintain a 35-foot safe operating radius.

Build Quality

The fiberglass mast is robust, made of spiral-wound epoxy-coated fiberglass with reinforced joints and a durable base plug. The kit includes laser-cut aluminum 5251 alloy plates, stainless-steel hardware, UV-resistant marine-grade Dyneema shock cord, and polyethylene spreader plates. The "Stay-Up" kit uses PA66 nylon with 8-millimeter hex nuts for mast reinforcement.



The included DX10 wire is excellent — flexible, durable, and cold-weather rated down to –40°F. I liked it so much I picked up an extra spool at Dayton Hamvention for future projects and to expand my radial field.

While I don't plan on using this antenna permanently, it's perfect for my portable and temporary setups. If you're considering a permanent installation, the DX Commander Discord community is a great place to get tips from others who've done it.

Bottom Line

If you're serious about HF fieldwork or contesting, or just want an efficient, resonant multiband vertical with broad coverage, the DX Commander Classic 2 HF antenna represents a good choice.

Kit Components

The DX Commander Classic 2 Plus 80 Meters comes as a kit. All materials and components are included and have been chosen for their high quality and ability to be used outdoors. Included in the package are a radiator base and radial plate, spreader plates, Stay-Up kit nylon straps, shock cord, spade connectors, coaxial feed-

point and waterproofing tape, a 10-meter fiberglass mast, two 328-foot (100-meter) rolls of DX10 wire, glue-infused heat-shrink tubing, and paracord for guying.

Assembly

Assembly is straightforward, thanks to Callum's excellent documentation and videos. Read the manual a few times, as it contains key information scattered throughout.

Basic tools are required, such as wire cutters or strippers, a tape measure, an 8-millimeter nut driver, and a crimping tool.

The build should take 3 – 5 hours. You'll cut and label the five vertical elements (for 40, 30, 20, 17, 12, and 10 meters), attach them to the mast with shock cord and spreader plates, and then tune each band. Don't forget the heat shrink for weatherproofing. I used bracelet beads to identify each radiating element, and stored each one in its own reclosable bag. Line winders aren't needed — I just roll each wire set neatly and tie off with a BongoTie.

Remember, cut the wires according to the chart as the foldbacks have all been included in the cut chart length. There is no need to add any extra wire, as it will just make the tuning process more laborious.

The 40-meter element is described in the Signature 9 (DX Commander telescoping masts) antenna section. The element goes through the top ferrule and doubles back onto itself.

I also needed some technical support, as the new mast has a metal cap and the instructions were unclear. Here's what you need to do: Unscrew the bottom cap, place the radial plate over the threads, and then screw the cap back on. After that, position the Herbie Clip (hose clamp) just above the metal collar to insulate the driven plate. Slide the driven plate on, and use a PA66 nylon strap to hold the driven plate in place. Use a pair of chairs to support the mast while attaching the elements.

If you choose to replace the 30-meter radiating element with a 60- or 80-meter element, note that it will affect the tuning of the other bands. You will have to decide which band element you wish to use when tuning the antenna. I also suggest a lighter wire (I plan to use #26 silky wire) to avoid the mast bending.

Callum recommends deploying at least 16 to 32 radials, each approximately 10 to 15 feet in length, to achieve maximum efficiency. I chose four sets of four radial bundles that are 10 feet in length. A higher quantity of shorter radials on the ground has been proven to offer better performance than several long ones. I will add a second set of radials, providing me with the option to have 32 radials. There is enough wire for eight sets of radials using 10 feet in length for a total of 320 feet.

After several deployments, I found that marking the guying triangle and preparing the guy ropes make the mast raising easier. Use the nylon Stay-Up clamps above each section joint to prevent the mast collapsing within itself in place of electrical tape for longer-term deployments. I found the bottom three or four mast sections will tend to collapse into the next section, so it's important to always clamp those.

If you are deploying the mast by yourself, the antenna will be top-heavy until you install all three guys at the lowest insulator plate. If you install only two guys, the antenna could kick out on you (especially in 15 mph winds; see the lead photo) until you connect the third guy. For a close view of the guying setup, see Figure 7.

Some Notes

Read the manual several times, and watch the videos for an easier build-out. Cut the radiating elements first, then use the remaining wire for radials to ensure you don't run short. More radials means better performance. The stopper knot diagram was unclear, so I watched an animation of the double overhand knot. I would have appreciated a small 8-millimeter nut driver included in the kit. The teardown takes longer than the setup time and is best not done in the dark.

There is a link to an SWR chart in the manual that simplifies the antenna tuning with cut measurements. I ended up with the following results at the start: 40 meters at 1:1, 30 meters at 1:8, 20 meters at 1:5, 17 meters at 2:0, 15 meters at 1:2, 12 meters at 2:8, 10 meters at 3:3, and 6 meters at 1:8. Afterward, I just needed some tweaking on some of the bands.

On-Air Performance

Once the initial assembly is done, the antenna still takes time to deploy — expect at least 30 minutes the first time — but it's a one-person job. Once set up, performance is as expected from a vertical. I had no problems making contacts, starting at 10 meters and working my way down band by band. Hunting for parks without a worry about the SWR was liberating.

A well-laid radial field enhances performance. I chose many short radials over fewer long ones, which aligns with *The ARRL Antenna Book* recommendations. For best results, lay radials in a spoke-like pattern on the ground.



Figure 7 — The DX Commander Classic 2 HF antenna base guyed.

To reduce common-mode current and enhance RF performance, use a ferrite choke or common-mode choke balun at the feed point (not included).

Table 8 — DX Commander Classic 2 HF Vertical Antenna

Manufacturer's Specifications (not tested in the ARRL Lab)	
Vertical antenna type:	Resonant multiband
Vertical antenna height:	32.81 feet
Antenna power rating:	1500 W SSB/CW — 400 W FT8/digital
Antenna feed-line connection type:	UHF female, SO-239
Weight:	8 pounds

I did some basic signal report tests and found it at times to be a 1 – 2 S-unit improvement over a balun-based end-fed half-wave antenna. Other times the antenna was comparable to an inverted **V** on 40 and 20 meters, depending on the calling station's location. I am satisfied with its performance and usability for my use cases. The DX Commander performs better, as it uses resonant antenna lengths, not a high-impedance wire requiring a balun to bring the impedance down to something close to 50 Ω.

Conclusion

The DX Commander Classic 2 is a superb antenna for both home and portable use. With thoughtful planning and a bit of build time, it rivals commercial verticals that cost much more. You'll be rewarded with excellent performance across multiple bands — no tuner required. Its high-quality components designed for outdoor usage will provide years of enjoyment.

Manufacturer: DX Commander, **https://dxcommander.com**. Price: Classic 2, $422; Classic 2 Plus 80 Meters (reviewed unit), $502. Available in the US from DX Engineering.

Strays

A Young Ham Investigates New and Vintage Radio Technology

On August 15, 2025, the Vintage Radio and Communications Museum of Connecticut (**www.vrcmct.org**) entertained George Ferron, KC1UYC, a 13-year-old Extra-class operator from Plainfield, Vermont, and his grandfather, Robert Beach, of Connecticut (not yet licensed). The pair checked out the museum's amateur station, W1VCM, to learn more about amateur radio and its history. George operated a new 6-meter HF transceiver, and his first contact from W1VCM was W1AW! Then, after learning about warm-up frequency drift and how to load and tune a vacuum tube transmitter, he tried the Heathkit HW-101, making a solid contact with a station in Florida. Fun for all!



George Ferron, KC1UYC, operates W1VCM's HW-101 at the Vintage Radio and Communications Museum of Connecticut. [Bill Cook, W1FMX, photo]

Dave Casler, KEØOG, askdave@arrl.org

Ask Dave

Get more information from the "*QST:* Ask Dave" YouTube playlist at **https://bit.ly/3z2MBMI**.

Antennas and Feed Lines

When to Get an Amplifier

Q Brandon Godsell, KQ4ZUT, asks: I am a new General-class licensee running a Kenwood TS-120S. I've made several DX contacts, and I keep getting 5 × 5 reports. A ham friend gave me a homebrew RF amplifier and power supply. Do you think it would be worthwhile to try them?

A The general rule of thumb is, if you hear stations that cannot hear you, you may want to look at an amplifier. Otherwise, look at updates to your antenna, such as replacing a dipole with a hexbeam.

If the DX stations are hearing you and giving you a 5 × 5 report, that simply means they hear you fine but you're not as strong as the high-power stations with their legal-limit amplifiers, tall towers, and 10-element Yagis. So, a 5 × 5 report (the first 5 is the maximum for readability; the second 5 means medium signal strength) is a perfectly good report — your 100 W Kenwood got through just fine. The fact that you caught the DX station at all means that your DXing technique is great! I would say your next upgrade might be a higher-gain directional antenna.

If your friend gave you a homebrew amplifier, it is probably tube-based. Here are a few things to consider. First, be very careful with the high voltages — they can be lethal! Second, make sure that the input impedance is 50 Ω resistive; if not, you may need to put an antenna tuner between your transistor rig and the tube amplifier to match impedances and get the standing wave ratio (SWR) down to 1:1. Note that this may require different adjustments on different bands. Third, learn what the amplifier's push-to-talk circuit requires, as it might be more than your Kenwood can supply. Tube amplifiers with older designs can ask more of transistor rigs than they are designed to provide. You may have to put a keying relay in the circuit. Talk to your benefactor about these concerns. Good luck with your future DXing!

Stacking Antennas on Towers

Q Woody Morton, W5RMI, asks: What is the spacing distance for a hexbeam antenna and a 40-meter Yagi on a tower?

A There's no hard-and-fast rule. I'd put the hexbeam on top, maybe 5 feet above the beam. Note that the Yagi will act as a bit of a ground plane for the hexbeam, so there might be some subtle changes to the hexbeam's pattern. When you're rotating the hexbeam, you're also rotating the 40-meter Yagi. The Yagi is rather ponderous and requires a sturdy rotator, so keep this in mind as you rotate the hexbeam. I'd also feed the Yagi and the hexbeam with separate feed lines.

DC vs RF Shorts

Q Jim Kelley, N8YDM, asks: The coaxial cable to my end-fed half-wave (EFHW) antenna shows a direct current (dc) short between the center conductor and the shield. Is this normal?

A Yes, absolutely. EFHW antennas are just as described: fed at the end. The antenna impedance is the ratio of the voltage to the current (including the phase difference) at the feed point. It's low in the center of the dipole, on the order of 30 – 75 Ω; however, it's quite high at the ends. Many EFHW designers find that 2450 Ω provides a good match. An impedance transformer of 49:1 is most often used, which is actually a turns ratio of 7:1. The schematic is shown in Figure 1.

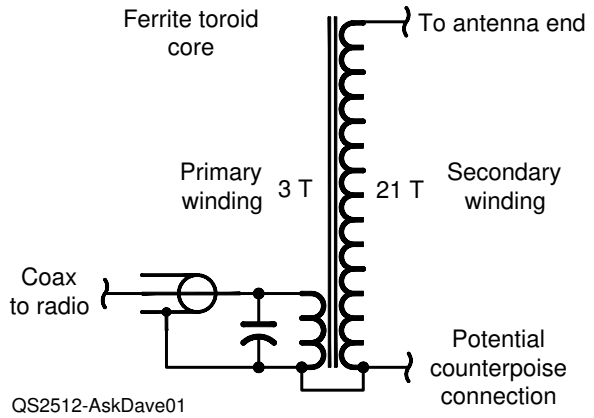


Figure 1 — A standard schematic for the unun transformer used for EFHW antennas. The grounded ends of each winding are attached together to use the outside of the coax shield as the counterpoise. You can attach an additional counterpoise if needed. The small capacitor is connected across the input to help reduce the inductive reactance.

You'll see that the input inductor is connected directly across the feed line. This serves to provide a dc short, which is what you're measuring. At RF, however, this will be an impedance that your rig's built-in antenna tuner can handle easily.

An EFHW Antenna Needs Space

Q Pete Langevin, K1PML, asks: Can I coil the end of an EFHW antenna if I don't have room to extend it fully? I will be using an MFJ-1982MP, which is 120 feet long and fed by a 49:1 balun, along with a Xiegu G90 transceiver with its built-in antenna tuner. I have limited space. My plan is to wrap the excess coil around a length of PVC pipe. Is this workable, or should I just cut the wire to fit the room I have available and let the antenna tuner do its thing?

A The short answer is "no." The antenna needs to be extended its entire length to work at all. Shortening it as you suggest will throw the impedance of the various bands so far out of whack that even a wide-range tuner will not be able to transfer much power to it.

However, there is a solution: The entire 120 feet does not need to run in a straight line. Build the antenna as a straight line for as far as you can, then make a bend (ideally 90 degrees or less) and extend the rest in a different direction. Yes, this makes for a compromise antenna, but not by much. The pattern will be slightly affected, but your gain will be about normal on all bands.

I modeled two cases in *EZNEC* — first, a straight wire at a height of 30 feet (good near vertical incidence skywave height); next, the wire stretched to 100 feet, with the remaining wire bent to the right by 90 degrees for the same total length. The elevation slices were nearly identical. The azimuth slice in the bent case rotated the pattern right by 8 degrees. At this height, the 80-meter portion of your EFHW has a nearly omnidirectional pattern with only a 3 dB loss (half an S-unit) broadside to the antenna, as shown in Figure 2. The bottom line is that you can create bends in the antenna to keep it within your backyard.

Unusual Antenna

Q YouTube user Rbh1151 commented on Ask Dave Video 808, "Counterpoise for Long Wire Antenna." He asks: I did much experimentation, as you suggest, to get an EFHW to work on 160 – 6 meters. 160 and 80 were my biggest problem, as my 107-foot wire is kind of short for those bands. A 9:1 unun with a 120+ feet counterpoise running off at a 90-degree angle and

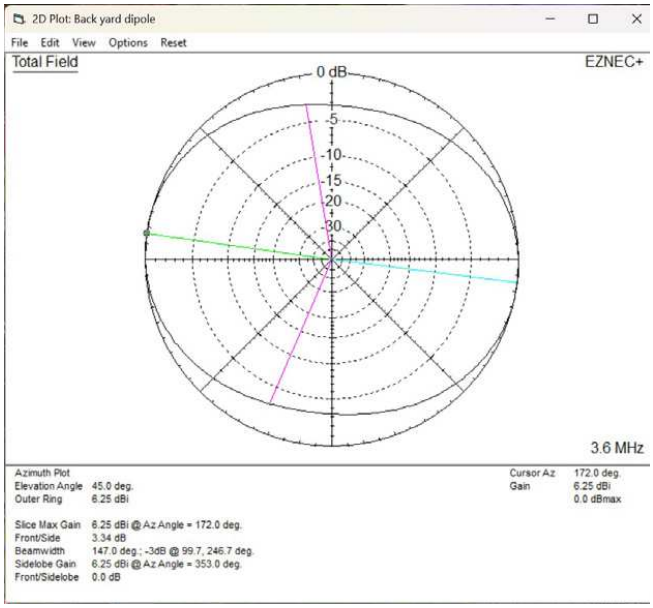


Figure 2 — An *EZNEC* azimuth plot of an 80-meter antenna at 30 feet elevation stretched out to 100 feet and then bent sideways at 90 degrees for a further 32 feet. The azimuth plot shows that the dipole's radiation pattern is shifted slightly in the same direction as the dipole's bend, but the antenna at this height is nearly omnidirectional anyway. The plot is taken over real ground.

downhill away from the antenna did the trick for me. I added a choke just before the coax entered the unun to help keep the coax out of the antenna system, and another choke right before the ground rod. Every band requires the rig's internal tuner, but all bands tune fine and make contacts well. Could you call this a random wire dipole?

A Random, yes; dipole, no. A "standard" EFHW 80 – 10 antenna is about 130 feet long, fed at the end with a 49:1 unun. The coax shield operates as the counterpoise. This requires the coax shield to be convincingly connected to ground prior to running into your station. That's the way I set them up — I have one set up that way for use as a ZachTek WSPR beacon that sends out beacon signals on 80, 40, 30, 20, 17, 15, 12, and 10 meters. The usual definition of a random (or long) wire antenna is one that is several wavelengths long.

You have an interesting assembly of radiating elements along with the 9:1 unun, and I'm pleased to hear it works!

Send your questions to **askdave@arrl.org**. I answer some questions here, and some via videos on my YouTube channel (**www.youtube.com/davecasler**), or during my weekly livestream on Thursdays at 6:45 to 8:15 PM Mountain Time on my channel.

My Quest for FT8 WAS and DXCC — QRP

A desire to see how effective *WSJT-X* might be with low power led to a fun way to chase these popular awards.



Frank Smith's, WS1MH, QRP awards from ARRL and QRP Amateur Radio Club International.

Frank Smith, WS1MH

In 2020, I began constructing a ham shack and antenna for my new home in Milford, New Hampshire. After 7 years as a ham, this was my first attempt at building an HF station. I did some research and decided on a 43-foot vertical antenna with a remote tuner. I had also just started using FT8 and found what thousands of other hams had found — it's a lot of fun!

With my new setup, I began working toward the ARRL Worked All States (WAS) and DX Century Club (DXCC) awards while operating digital; it took me about 6 months. I applied for and proudly hung my WAS and digital DXCC certificate #8127 on my shack wall. My paper log showed power levels between 35 and 80 W for most of those contacts.

After these achievements, I wondered how effective *WSJT-X* was on reduced power. I started calling "CQ QRP" using 5 W on FT8, and, to my surprise, I often received a mini-pileup. It wasn't long before I logged about 20 US states and 12 or so DX stations, mostly in Europe. So, in February 2022, I decided to try to achieve WAS and DXCC using 5 W.

Worked All States

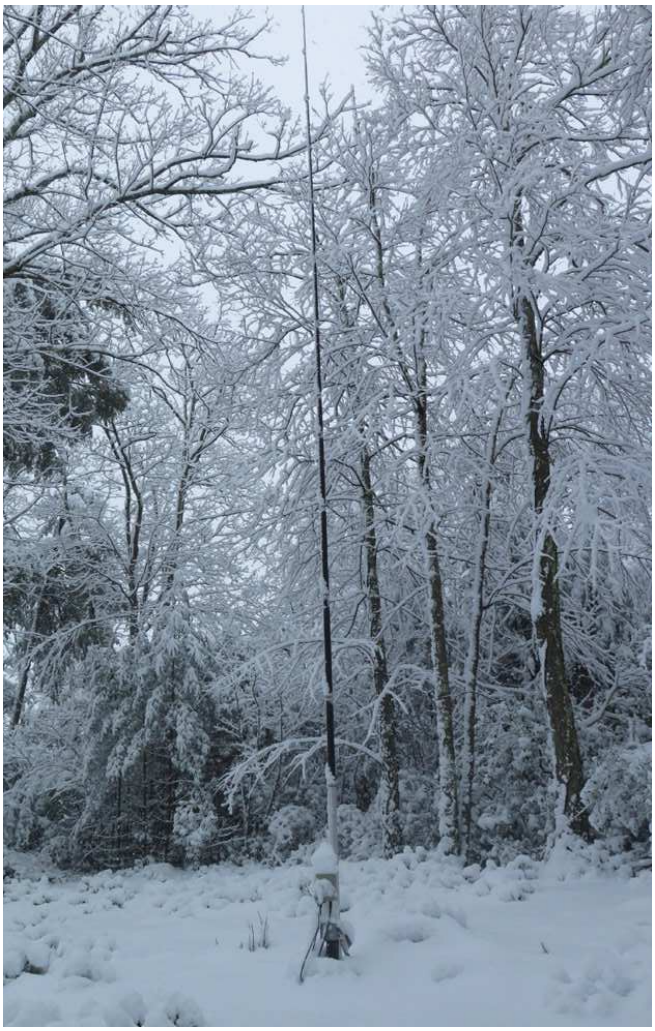
JTAlert, a *WSJT-X* add-on program that can run alongside FT8, was an invaluable tool, because it can be set to flag FT8 decodes for your needed states. It allowed me to spot a CQ from a state I hadn't contacted yet. However, one technique that didn't work well for me, for WAS or DXCC (with one notable exception), was calling a specific state or country such as "CQ VT" for Vermont, because nobody would call me back.

Overall, my progress earning WAS QRP went smoothly, but I had trouble getting Vermont and Maine stations to hear me. The last state I needed was Hawaii; it took a better part of a year before Mitchell Oishi, NH6JC, responded to my call.

I logged the states I earned on a yellow legal pad, then transferred them to a spreadsheet to apply for a certificate. Once everything was in my spreadsheet, I was surprised to see that Hawaii was #49 — I missed one! Montana turned out to be my missing state. Grumpily, I punched "CQ MT" on my computer, and Al Simons, WA1TYB, quickly answered my call, giving me my 50 states. That made the official length of my QRP WAS quest 398 days.

DX Century Club

WSJT-X worked surprisingly well when working toward DXCC QRP. Most stations responded with signal reports of –12 to –18 dB, which were well within *WSJT-X*'s capabilities. One problem I encountered when operating FT8 was congestion on the popular



Frank Smith's, WS1MH, 43-foot vertical, shown here in a light New Hampshire snow, helped him succeed with his operating challenge.

bands. On 20 and 40 meters, I usually had only a couple of transmit cycles before an orange blob landed on my transmit frequency, obliterating my signal; I had better luck on the less-crowded 30- and 17-meter bands. I responded to hams calling CQ from a needed country, and if they didn't respond after three tries, I moved on. Carlos Ribas-Meneclier, LU2NI, in Argentina gave me my 100th QRP country. It took 367 days to complete the quest.

Reflections

I had a lot of fun with this operating challenge. I was so excited when John McRae, VK5PO, in Australia responded to my call that I walked out to my antenna and touched it — 10,692 miles on 5 W with a non-directional antenna! I think this would be a praiseworthy project for amateurs with homeowners associations or other restrictions.

ARRL offers a QRP DXCC certificate (**www.arrl.org/qrp-dxcc**), and QRP Amateur Radio Club International (ARCI; **www.qrparci.org/awards**) offers QRP All States and QRP DX awards (both of which are available to non-members for a small fee). I applied for and received the ARRL and QRP ARCI WAS certificate #625 and QRP DXCC certificate #241. My IC-7300 provided 81 of the contacts, and my FLEX-6400 supplied 19. Any modern entry-level transceiver is fine for this type of operation. I didn't stop trying after achieving DXCC, and I currently have 188 QRP countries — closing in on 200!

Tips for Success

Here are some tips for hams who would like to try earning WAS and/or DXCC QRP:

- Get a feel for operating with reduced power by calling "CQ QRP" first, and be prepared for multiple responses.
- Check your antenna. It's easy to accumulate 3 dB or more of loss. Inspect connections and Earth grounds at your shack and antenna (if your antenna uses one). QRP'ers don't have watts to waste!
- Consider using a vertical, a small rotatable beam, or a small cobweb antenna.
- Operate on as many bands as your station allows. VOACAP (**www.voacap.com/hf**) and other band-status programs can help you find and identify open bands.
- Print out a 50-state list and ARRL's DXCC country list to keep track of your totals. This limits the opportunity for double-counting or missing contacts.
- Have fun! It's a blast when you call a ham on the other side of the world with 5 W and your call sign turns red on *WSJT-X*!

All photos provided by the author.

Frank Smith, WS1MH, is a retired federal employee. He was an electronics technician in the US Navy during the Vietnam War era. Frank has been a ham since 2013, and he enjoys operating digital modes and building his shack. His other hobby is powerlifting, and he holds several New Hampshire state records in his division. Frank's been married for 42 years to his wonderful wife, Luann, who tolerates him being lost in the ionosphere most of the time. He can be reached at **fhasmith@frankandluann.net**.

For updates to this article, see the *QST* Feedback page at www.arrl.org/feedback.



Anatomy of a POTA Rove

A seasoned portable operator explored the natural beauty and history of eastern North Carolina on a 2-day, nine-park radio adventure.

Marc P. Sullivan, W4MPS

At age 78, I still have a desire for adventure. Parks on the Air® (POTA®) fills that need by offering opportunities to visit beautiful locations, many of which I never knew existed. Exploring historic sites and wildlife refuges, coupled with the fun of portable operating, speaks volumes of the richness of our hobby.

I was anxious to hit the road. Several of my ham buddies recommended the Lake Mattamuskeet area in the eastern part of North Carolina. So, I began studying POTA maps in that area and decided on a 2-day, nine-park rove.

The most important part of a POTA activation is planning; there are many ways to set up for an activation, depending on the logistics at the target location. Thanks to the wide array of available online resources, you can easily determine the rig, power source, and antenna that offers the best combination of comfort and signal efficiency for each park.

For my trip, I used the POTA website (**https://pota.app**) to pick locations that I could reasonably activate over 2 days. The nine parks in my planned route varied greatly, from wide-open areas with few other people, to congested areas with limited deployment options.



Marc, W4MPS, operates from Gull Rock Game Land (POTA US-6908) using his elevated 20-meter quarter-wave vertical antenna.

Day 1: The Road to Mattamuskeet

Bonner House Historic Site (POTA US-10263), located in Bath, North Carolina, is just over 2 hours from home along the route to Mattamuskeet — the perfect place to start my rove. Originally owned by a prosperous naval-store merchant in the 1800s, Bonner House is a great choice for combining history with ham radio.

I left home around 8:00 AM and was on the air at Bonner House by 10:30. I operated from the back seat of my vehicle, as there was limited space to set up a freestanding antenna. The best option was hamsticks for 40 and 20 meters mounted on the roof of the car. I used an Elecraft KX3 situated on a lightweight piece of plywood and powered by a small 4.6 Ah LiFePO4 battery. The hamsticks and backseat shack accommodated a quick setup and takedown. I made 27 contacts here over 45 minutes. Several buddies tracked my progress during this trip, and they were ready for me when I called CQ. Chris, W7AMD, and Rich, N4EX, were the first two in my log. The biggest surprise was a call from Chris, F6EAZ, from Dijon, France.

The next stop was Swanquarter National Wildlife Refuge (POTA US-0419), in Swan Quarter, North Carolina. This 16,000-acre reserve borders the Pamlico Sound. My good friend Paul, AA4XX, had previously activated this location, so I was able to draw upon his experience to help with my plan. With his tips and some help from Google Earth, I found a dirt road leading to Bell Island Pier. The road went on for what seemed like forever. When I finally arrived at the pier, my clean car was covered in road dust.

There wasn't another person to be seen. I had plenty of room to erect an antenna, so I deployed my homebrew 40-meter doublet, with the center attached to a 30-foot extendable mast mounted on a drive-on base. I set it up as an inverted **V** with a 300 Ω twinlead feeder attached to a 4:1 balun. A run of RG-8X coaxial cable completed the setup. I was on the air at 12:15 PM as planned. Propagation conditions on this trip were up and down,

and several solar flares were predicted. Conditions were poor, but I still managed 17 contacts running only 10 W. I also logged six park-to-park contacts, including one to Tripp, N4NTO (now SK), who was also on a North Carolina POTA rove.

After 45 minutes, I packed up and made for Gull Rock Game Land (POTA US-6908), also in Swan Quarter, North Carolina. Consisting of almost 30,000 acres, Gull Rock is even more remote than the Swanquarter Refuge. There was not a soul to be seen here either, and it was truly beautiful and pristine.



Marc's "Shack on a Board," consisting of an Elecraft KX3 transceiver, portable key, UTC clock, and 4.6 Ah LiFePO4 battery, mounted to a lightweight piece of plywood.

I set up at the water's edge and tried my third antenna choice: an elevated 20-meter quarter-wave vertical, consisting of a 17-foot extendable whip mounted to a wooden mast on a sturdy tripod. This setup lets me raise the vertical about 5 feet. I attached two tuned radials to nylon fence posts. If you angle the radials slightly downward, the feedpoint impedence is relatively close to 50 Ω. I put a home-wound RF choke at the feed point to block any common-mode current that might run down the coax to the rig. Again, propagation conditions were spotty, but I managed 39 contacts in 30 minutes of operating time!

The afternoon was ending, so I completed my activation and headed to Carawan's Cabins and Campground in Swan Quarter. The accommodations were modest, but it was clean and fully equipped, with charming, helpful hosts — it was a perfect, centrally located base for my trip.

I had one more park targeted for that day: Mattamuskeet National Wildlife Refuge (POTA US-0414), not far from the cabin. This beautiful, RF-quiet site contains Lake Mattamuskeet, the largest freshwater lake in North Carolina. Because the sun was setting, I used my quick-deployment 20-meter elevated vertical and made 15 contacts. Propagation conditions were deteriorating rapidly — signals were fading, and interference was increasing. However, in addition to my trusty spotters W7AMD, N4EX, and W4MY, I logged stations ranging from the Dominican Republic to Nova Scotia, plus one park-to-park contact. That completed my targeted rove for day one, and I returned to my cabin.

When I got back, I noticed several people standing outside, gazing up at the sky. I immediately realized the cause of my atmospheric challenges — the aurora borealis! There is little light pollution in this part of North Carolina, so viewing the Northern Lights was not difficult. What a beautiful way to end a long but exciting day!

Day 2: Radio on Roanoke Island

I targeted five parks on day two. After a quick breakfast, I headed up Route 264 toward my ultimate destination, Roanoke Island. Travel time was about 1 hour to my first stop, and I don't think I saw one other car along the way.

My first stop was a "two-fer": Dare State Game Land (POTA US-6900) and Alligator River National Wildlife Refuge (POTA US-0410), both in Dare County. I found a great spot near a gazebo in a place called Stumpy Point on the Croatan Sound. I used my hamsticks and got on the air by 10:45 AM, making 35 contacts over 60 minutes. Conditions were much better that morning, but for the sake of time I packed up and continued my journey toward Roanoke Island.

My next stop was Roanoke Island Marshes State Game Land (POTA US-3865), in Wanchese. This park is situated along the Roanoke Sound. I found a parking lot near the water and set up my KX3 and hamsticks. Band conditions turned sour again, but I managed to log 13 contacts over a half-hour period. In addition to my usual spotters, I was excited to get a call from another old friend, Carl, W8WZ, who had recently relocated to Louisiana — Carl was a park-to-park contact from Jean Lafitte National Historic Park and Preserve (POTA US-0040), near New Orleans.



Marc, W4MPS, uses his hamstick antenna from Stumpy Point, on the Croatan Sound, to log 35 contacts at Dare State Game Land (POTA US-6900) and Alligator River National Wildlife Refuge (POTA US-0410). Visit **https://youtube.com/watch?v=k8Rk57XG32o** to watch a slideshow of additional photos from Marc's POTA rove.

After a quick lunch, I continued to Roanoke Island Festival Park State Historic Site (POTA US-6850), in Manteo. This park, a popular 27-acre tourist attraction, recreates what life was like for the first English settlers in 1585. This was another easy antenna choice — hamsticks on the car roof. Even with such a benign setup, I had several inquiring visitors wondering what I was doing in the back of my car with headphones on. I am always happy to take a break and explain ham radio, POTA, and the reasons I've been enjoying the hobby since 1964. Reactions are always the same: "That's so cool!" Band conditions turned against me again, but I was able to log 15 contacts, including two park-to-park contacts in Michigan and Pennsylvania.

I had one more park to go: Fort Raleigh National Historic Site (POTA US-0820), another popular tourist attraction in Manteo. After the Civil War Battle of Roanoke Island, a Freedmen's Colony was established here to assist formerly enslaved peoples. The park hosts the famous "Lost Colony" theatrical show. It also has a connection to radio history — Reginald Fessenden, "The Father of Voice Radio," conducted several of his radio experiments at this site from 1901 to 1902.

My KX3 and hamsticks resulted in 22 contacts, including a call from Vlado, N3CZ, from western North Carolina.

Lessons Learned

Over the course of my 2-day, nine-park POTA rove, I learned several lessons that might come in handy for any hams looking to plan a similar trip:

- Bring backups for every important element in your kit! I brought two rigs on my POTA rove — my KX3 and an FT-857D. When I connected the FT-857D to the battery, I discovered a fuse had blown, and I hadn't brought a spare. Without my second rig, the trip wouldn't have happened.
- Many POTA parks are also designated World Wide Flora and Fauna (WWFF) sites, allowing you to claim credit for both programs in a single trip. For example, Swanquarter National Wildlife Refuge is also a designated WWFF site (KFF-0419).
- In remote locations, you never know if there will be cellular and/or internet access. Share your operating plans with others so they can keep an ear out for you at your expected activation times.
- I rarely use my handheld transceiver, but as I traveled across the state for my POTA rove, it occurred to me that I should bring a 2-meter radio with me on trips like this. If I ran into a problem with no cell service, I could hit a local repeater to request assistance.
- Never let poor propagation predictions deter you from getting on the air. I've made many memorable contacts on days when conditions were supposed to be horrible!

I encourage everyone in our community to consider a rove of your own. You won't regret it!

All photos provided by the author.

Marc Sullivan, W4MPS, is an Extra-class operator, continuously licensed since 1964. He is a native of New Jersey and held the previous call signs WB2PRS and WA2S. After a long career in commercial real estate finance, he and his wife, Eileen, retired in 2009 and relocated to North Carolina. Marc is a member of the Raleigh Amateur Radio Society (RARS) and has served as Vice Chairman of the North Carolina QSO Party for the past 12 years. He can be reached at **w4mps@nc.rr.com**.

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Celebrating IOTA-60 in India

A DXpedition to Kanika and Sagar islands commemorates 60 years of Islands on the Air.

Cezar Trifu, VE3LYC

In March 2024, Frank Rosenkranz, DL4KQ, invited me to operate from Kanika Island in India for the first-time activation of Islands on the Air (IOTA) reference AS-179 with him and Sarath Rayaprollu, VU2RS — I thought it would be a great way to celebrate the 60th anniversary of the IOTA program.



The team set up five antennas at their AU2K camp.

We scheduled the DXpedition to occur between December 2 and 7, but Frank was unable to attend for personal reasons. Postponing the project raised questions about needing permits to be reissued, so the rest of the team stuck to the original schedule. Because Frank couldn't make the trip, the task of funding the project fell on me alone, so I tried to reduce costs. In doing so, this allowed us to carry out an operation from Sagar Island (AS-153), as well.

The Islands

Kanika is an uninhabited island created by silt deposits brought in by the Dhamra River in Odisha (on the east coast of India), under strong currents generated by 3.8-meter tides. Elliptically shaped (7 × 3 kilometers), the island is surrounded by a sandy beach.

Sagar Island is a large, inhabited island about 100 kilometers south of Kolkata, West Bengal, 200 kilometers north of Kanika.. It's 25 × 10 kilometers in size, 3 kilometers from the mainland, and home to 220,000 people.

Pre-DXpedition Recon

Before our DXpedition to Kanika, Sarath made a reconnaissance trip to the northwestern part of the island to assess the landing and campsite conditions. I was issued VU3LPL, and Frank received VU3DOB. Our team was completed with Adersh, VU3WEW, and Sarath's brother, Anil, VU3DXA. Satellite images of the island's coastline over a 5-year span showed how significantly monsoons changed the geography year after year. This meant that a second reconnaissance trip was necessary to better explore the northeastern part of the island.

The second trip to Kanika was done in September, but the boat we employed wasn't capable of going as far as intended, so it landed a little west of the earlier location. However, Sarath was accompanied by an employee from the Ministry of Environment, Forest and Climate Change (MoEFCC) who advised on safe camping, away from potential flooding and forested areas. Kanika is home to two endangered species — the 80-centimeter ridley sea turtle, and the 30-centimeter Asian horseshoe crab — so a permit is required to stay overnight in the area. In August, the special call sign AU2K was approved by the Wireless Planning and Coordination Wing of the Ministry of Communications and Department of Telecommunications. Subsequently, by October, the team was issued a permit from Odisha Wildlife Headquarters and MoEFCC.

Kanika Island

We met in Bhubaneswar, from which we traveled a little more than 4 hours by car to Dhamra, a fishermen's village located about 220 kilometers north. From there, it took less than 1.5 hours to reach the northwest corner of Kanika (12 kilometers away) by boat.






Cezar, VE3LYC (left); Sarath, VU2RS (middle left); Adersh, VU3WEW (middle right), and Anil, VU3DXA (right), on Kanika Island.

Kanika is less than 4 kilometers from Bhitarkanika National Park on the Dhamra River, which contains the second-largest mangrove ecosystem in India and is famous for its saltwater crocodiles. Given its proximity, one of the safety concerns was the potential presence of an isolated reptile, but a group of scientists who visited us during our stay explained that the two habitats were too different for this to be possible.

We hired a local service group to build a large hut on the island using bamboo poles with areas for radio operations, a bedroom, and a kitchen/storage space, as well as a separate shed for the generators. All external and internal tent walls were made of canvas, allowing for free air circulation to prevent mold formation under high humidity. However, this also enabled a lot of sand to be brought in by the continuous wind blowing from the northwest. We placed additional tarps around the base of the hut, but the fine-sand accumulation inside was still impressive.

The team used three Icom transceivers (one IC-7000 and two IC-7300s) and three amplifiers (an Elecraft KPA500, a Furuno PA-2500, and an RM Italy KL 300). We installed a total of five antennas: two multiband verticals for the 10- to 40-meter bands, an asymmetric dipole (Spiderbeam Aerial-51 404-UL), an inverted **V**, and a four-element Yagi for 6 meters (the latter was built by Adersh in Dhamra using wires taped to small-diameter PVC pipes and fixed onto an 8-meter-long bamboo pole). Only 1.5 kilometers away on the mainland, the recently built Dhamra Port occasionally generated very high electrical noise, which made HF reception difficult.

I purchased one UL30i generator that provided 12.5 A at 230 V, and we were able to power three transceivers, two amplifiers — one running 350 W CW and the other 150 W with two FT8 streams — and two laptops for operating FT8. However, the moment the operator running FT8 with 150 W moved from two streams to one, the output increased to 200 W, and we lost all power.

We immediately contacted the owner of the local service group, from whom we rented a second diesel generator. It had to be shut down every 20 to 24 hours, and, despite our countless tries, none of us were able to restart it — the owner and his staff had to come with a boat and driver every morning just to start it! Furthermore, because the generator didn't have an inverter, voltage fluctuations killed two power supplies for the IC-7300 transceivers. We had replacements, though, and kept going.

Sagar Island

Sagar lies where the Ganges River — through its 260-kilometer distributary, Hooghly River — flows into the Bay of Bengal. This confluence is called Gangasagar, and the namesake festival and pilgrimage are held annually on the island's southern tip. On January 14, hundreds of thousands of Hindus gather to take a holy dip near the Kapil Muni Temple. Despite frequent reactivations in conjunction with the festival, DXing remains a low priority during those events. Consequently, AS-153 continues to be in high demand, and is needed by 84% of IOTA members.

From Kanika, we traveled 350 kilometers to Kolkata, where Anil returned home, and the rest of us traveled to Sagar. The team rented a one-bedroom apartment in a villa at the Gangasagar Tourism Property near the iconic temple. This location offered ample space for our radio equipment. We operated here from December 9 to 13 using the call sign AU2S.

Preparations were underway on Sagar Island for the upcoming festival while we were there. Large tents were built on land areas crossed by a dense electrical grid. As parts of the grid became operational, significant electrical noise made HF reception very difficult after sunset on most days. We later identified Lighthouse Beach on the southwest shore as a suitable location for a future tent-based expedition, free from such interference.



AU2S antenna camp.

Operation Logs

The log for Kanika Island includes 10,371 contacts with 5,141 stations in 110 DXCC entities on seven continents. We tracked 6-meter openings and maximized our activity on this band, making 270 contacts, or 2.6%, operating FT8 with seven DXCC entities in Asia and Oceania. Overall, 25.9% of the contacts were made via CW, 10.8% via SSB, and 63.4% via FT8. The results matched Sarath's ambition to reach 10,000 contacts and claim a new India IOTA record, my drive to maximize the number of unique stations contacted, and the hard work of Adersh and Anil.

The log for Sagar Island includes 5,545 contacts with 2,965 stations in 84 DXCC entities on six continents. The percentage of contacts by mode was 26.0% via CW, 10.8% via SSB, and 63.3% via FT8 — similar to the activity from Kanika. More than two-thirds, or 67.5%, of the contacts were made on 10 and 15 meters, while the propagation on 6 meters was poor. The reduced number of bands open to North America (NA), compared to Asia (AS) and Europe (EU), for AU2K and AU2S led to a percentage of unique stations from NA of about 50% more than that of the contacts made, or 9.5% and 5.3%, respectively. In general, CW performed better than FT8 over the polar paths, but FT8 outperformed CW under heavy electrical noise.

The chasers from the top eight DXCC entities, by number of contacts logged, were 65% and 66% of all contacts, respectively. Despite being ranked #262 out of 340 on the DXCC entity list, and India not being ranked much higher on any of the bands and modes we operated on, 7.9% and 6.2% of all stations logged us five to 18 (15 for AU2S) times. This was most surprising for IOTA operations, given that only one contact is required for credit.

Table 1 — Distribution of Contacts by Band

Band (meters)	AU2K QSOs	%	AU2S QSOs	%
6	270	2.6	15	0.3
10	1,555	15.0	1,734	31.3
12	492	4.7	147	2.7
15	2,139	20.6	2,002	36.1
17	1,013	9.8	202	3.6
20	2,483	23.9	513	9.3
30	1,332	12.8	284	5.1
40	1,087	10.5	647	11.7

Table 2 — Distribution of Contacts by Continent

Continent	AU2K QSOs	%	AU2S QSOs	%
AF	36	0.3	14	0.3
AN	1	0.0	0.0	0.0
AS	2,838	27.4	1,814	32.7
EU	6,624	63.9	3,372	60.8
NA	633	6.1	207	3.7
OC	131	1.3	85	1.5
SA	108	1.0	52	0.9

The distributions of contacts per band and continent for both operations are shown in Tables 1 and 2.

Expressions of Gratitude

We wish to thank Onkar Nath Yadav, VU3OOO, for his help with obtaining the reciprocal licenses in a timely manner. Deepak Mohanty and Dr. Kota Tirupatayah are acknowledged for their invaluable assistance in securing the permit to set up camp on Kanika Island. We are grateful to IOTA, Swiss DX Foundation, Radio Society of Great Britain, Clipperton DX Club, CDXC: The UK DX Foundation, German DX Foundation, Southeastern DX Club, and Danish DX Group for their generous grants. Also, we remain indebted to Bob Emory, KD1CT, for his funding, and to the top donors: AB5EB, DL4KQ, DL8FL, DS5ACV, HB9DKZ, I2YDX, JF4VZT, K8CW, K9AJ, K9RR, KP4PK, N4II, N9EAJ, OE3SGA, OE3WWB, SM3EVR, SM3NXS, VE7DP, VE7QCR, W4DKS, W5GAI, and many others for their financial support.

All photos provided by the author.

Cezar Trifu, VE3LYC, was inducted into the CQ Hall of Fame on May 17, 2024. He is the IREF 2018 IOTA Expeditioner of the Year and the Russian Robinson Club 2017/2018 Expeditioner of the Year. Cezar can be reached at **ve3lyc@hotmail.com**.

For updates to this article, see the *QST* Feedback page at www.arrl.org/feedback.

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Future-Proofing ARES for the Next 90 Years

The first in a series of articles on learning to grow with the ever-changing technologies of emergency communications.

Josh Johnston, KE5MHV
ARRL Director of Emergency Management

In 2025, Amateur Radio Emergency Service® (ARES®) celebrated 90 years of providing communications during disasters. To honor this achievement, we'll be evaluating what has been done well and what areas need improvement to ensure ARES remains solid for the future. In 2026, each issue of QST *will include a feature article focusing on how various technologies and practices can future-proof this invaluable program for more years to come.*

ARES was founded by ARRL nearly a century ago, and it has remained a pillar of community resilience in times of disaster. However, with emergency communications growing more complex, ARES requires modernization to continue to provide valuable amateur radio communications during tornadoes, hurricanes, and other emergencies.

In the forthcoming articles in this series, we'll take a deep dive into some of the local ARES groups around the country and take note of what's working well. We'll also evaluate areas of struggle or failure to see what could have been done differently and how those areas can be revived.

Utilizing New Technology and Equipment

First and foremost, we need to focus on technology and begin to plan for use of equipment that may not even exist yet. As auxiliary communicators, we all must be willing to adapt to new technologies and skills. The days of simply passing traffic as needed are likely to be a thing of the past. We need to have the abilities, skills, and willingness to assist our partner agencies or organizations in ways we may not have thought possible. The best part of this challenge is that there are hams in our communities who are able to fill these roles.

Emergency communications would benefit from hams having the ability to build or develop applications for data transfer or information sharing, having the ability to launch networks with mesh capabilities that can tie into Starlink from an area devastated by a storm or other event, and having the technical skills needed to build and expand on the potential of these technologies beyond anything we've done historically with amateur radio. The ability to email messages over a combination of RF and internet that Winlink has given us is a prime example of this — hams went beyond what was considered to be normal at the time Winlink was developed, and now this tool is considered the standard in the EmComm community.

Looking Ahead

The ARES subcommittee of the Emergency Communications and Field Services Committee (EC-FSC) will be working with me through this process, as well as working with you in the field to get your input and to gain understanding of what we can do to better help you.

We look forward to hearing from you as the year goes on. Feel free to reach out to us with comments, ideas, or other ARES-related information via **https://ares.arrl.org**. Thank you for all you do for amateur radio and the community!

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Sierra Harrop, W5DX, sharrop@arrl.org

Happenings

ARRL Wants Every Ham to Help Us Pass this Bill

ARRL needs every radio amateur in the US to send letters to Washington as we continue our nationwide grassroots campaign to pass the Amateur Radio Emergency Preparedness Act. The process is simple: Click the **SEND YOUR LETTERS NOW** button at **www.arrl.org/hoa**, put in your call sign, and press the red **SEND MY LETTERS** button. It takes seconds!

The letters will be automatically sent to your elected officials to encourage them to support the bipartisan bills. This legislation is intended to prevent restrictive HOA rules that currently prohibit or severely limit the installation of amateur radio antennas. Passage would give amateur radio operators the same rights to install antennas on their property as those enjoyed by users of TV antennas, wireless internet, and flagpoles.

ARRL CEO David Minster, NA2AA, was a recent guest on the Ham Radio Crash Course YouTube channel (**www.youtube.com/live/xMLDannix2M**). Host Josh Nass, KI6NAZ, spoke with Minster for 45 minutes about this important letter-writing campaign.

ARRL West Gulf Division Director John Robert Stratton, N5AUS, shared insight into the importance of getting every ham to send a letter on the W5KUB Amateur Radio Roundtable podcast with Brett Glass, WY7BG, and Glen Popiel, KW5GP. See that discussion on YouTube (**www.youtube.com/watch?v=Ot2lGxRn87Q&t**).

"You don't have to be a member," said Stratton. "Any amateur radio operator in or out of an HOA should go to the website," he added. Go to **www.arrl.org/hoa**.

ARRL is also encouraging radio clubs to provide letters of support. We urge each club officer to sign the letters. There are instructions for clubs (**www.arrl.org/files/file/Clubs/Completing%20the%20Club%20Letters%20for%20Congress.pdf**) on how to complete the letter, and there is a sample letter for clubs (DOCX downloadable at **www.arrl.org/news/arrl-wants-every-ham-to-help-us-pass-the-bill**) that should be customized with their information.

NCVEC Question Pool Committee Removes Extra-Class Question E6D07 from Use

The National Conference of Volunteer Examiner Coordinators (NCVEC) Question Pool Committee (QPC) has announced the immediate removal of Amateur Extra-class question E6D07 from the Element 4 Extra-class question pool and from use on examinations. The decision was made after it was determined that the question contained more than one correct answer.

The current Element 4 Extra-class pool, effective July 1, 2024, remains valid through June 30, 2028. All Volunteer Examiner Coordinators (VECs) and examiners are instructed to remove E6D07 from examinations as soon as possible.

Updated files reflecting this change are now available for download at **www.ncvec.org/index.php/2024-2028-extra-class-question-pool-release**.

The ARRL VEC advises the community to regularly check the NCVEC website for updates to the question pools, which may include errata and withdrawn questions.

ARRL Year of the Club Newsletter Contest — Call for Submissions

As part of ARRL's 2026 Year of the Club, ARRL is hosting a Club Newsletter Contest. The Club Newsletter Contest is open to ARRL Affiliated Clubs that have published a newsletter for at least 1 year. The submission deadline is 4:00 PM Eastern Time on January 30, 2026.

A club newsletter can keep members informed of news and upcoming events. It can keep them interested between meetings and activities, teach them about ham radio skills and technology, encourage them to set an operating goal, or even make them laugh — the sky's the limit! ARRL wants to see what your club does with the mix of information that can go into a

newsletter. Enter the Club Newsletter Contest for the chance to have your newsletter honored in *QST*. Visit **www.arrl.org/news/arrl-year-of-the-club-newsletter-contest-call-for-submissions** for the rules and requirements. The submission form is provided at **www.arrl.org/club-newsletter-contest**.Winners will be notified in May 2026, with awards presented at the Huntsville Hamfest in August 2026.

Winners will also be announced in a 2026 issue of *QST* as part of ARRL's Year of the Club celebration. The *QST* article may present material from the 500-word statements supplied in the winners' Club Newsletter Contest Submission Form. Please note that winners may be asked to supply high-resolution files of specific newsletter pages.

Remembering Tad Cook, K7RA

Paul "Tad" Cook, K7RA, passed away on April 13, 2025.



Tad Cook, K7RA (SK; left), receives his ARRL President's Award from ARRL Northwestern Division Director Mark Tharp, KB7HDX (right).

In January 2025, Tad retired from writing the W1AW Propagation Forecast Bulletin, citing an ALS diagnosis preventing him from continuing his 36-year contribution to ARRL. During that time, he provided useful knowledge and propagation predictions for amateur radio licensees. On March 8, Tad was presented the ARRL President's Award by ARRL Northwestern Division Director Mark Tharp, KB7HDX. Tad modestly did not consider himself an autodidact, though he had soaked up enough knowledge about the sun and radio propagation to make it accessible for the general ham community.

Robin Amundson, WA7CPA, and Western Washington DX Club President Rob Fanfant, N7QT, sat down with Tad to talk about his life and amateur radio, and he shared several interesting stories.

The moment that inspired him to get into amateur radio was watching a pair of Boy Scout brothers work on their Morse code badge and contact someone several hundred miles away. Tad's first call sign was WN7CSK. He had his first antenna in 1965 — a three-wire leaning vertical almost parallel to the ground and strung in the canyon where his family lived. One of the happiest moments of Tad's ham life was getting on the air at age 11 and making his first contact on a Heathkit DX-20 with a non-working variable frequency oscillator. Another highlight was road-tripping the western US in a five-speed stick shift (with hamsticks on top of the car) while making CW contacts on his Drake TR-7 and logging on a legal pad.

In 1991, ARRL announced there would be no Propagation Bulletin published after former *QST* VHF Editor Ed Tilton, W1HDQ (SK), became ill. Tad called ARRL to say that with big solar events happening at the time, it was important to continue the Bulletin. He offered to write it, not realizing he was about to step into the job for the long term.

Luckily, Tad had known the previous owner of K7RA, Homer Spence, a professor at the University of Washington. When he became a Silent Key, no one reported it to the FCC. Twelve years later, in 2001, Tad wrote to the FCC, asking for the call sign to be vacated. The FCC did just that, and Tad immediately applied for K7RA. It was a fitting call sign for Tad, as Ra was the ancient Egyptian deity of the sun.

About 15 years ago, Tad discovered a dance subculture on Capitol Hill in Seattle, which got him hooked on traditional blues dancing. He danced at Capitol Hill's Dance Underground and Waves, a Haitian restaurant. He had danced with every woman featured on an NPR *All Things Considered* segment on blues dancing, including the host. Tad also played guitar in Danny Eskenazi's, K7SS, band, The Lamar Harrington Band. Their 1975 single, "Oom Cocka Mau-Mau," is still available for sale. In addition, Tad worked as a roadie for the iconic rock band Iron Butterfly.

Cook not only had a lifetime ham radio achievement of writing the W1AW Propagation Bulletin for 36 years, but he led a life of calculated risks fueled by deep personal conviction and a desire to make the world a better place.

Rick Palm, K1CE, k1ce@arrl.net

Public Service

Minnesota ARES Applies Business Models and Lessons Learned

Business analysis models have successfully contributed to improving relations between Minnesota Amateur Radio Emergency Services® (ARES®) and the state's emergency operations center (EOC) leadership and emergency managers. The relations had been stuck on pause for a few years. "ARES was not invited to a major communications exercise, and our attempts to get face time with the Minnesota Association of Emergency Managers organization were going poorly," said Erik Westgard, NY9D, a business school instructor and the Minnesota ARES Assistant Section Emergency Coordinator for events. Westgard has coordinated ham radio volunteers for numerous public service events, including serving as the Chair of Medical Communications for both the Medtronic Twin Cities Marathon and the Loppet Winter Festival. He is also a member of the Three Rivers Park Patrol and a Ramsey County Community Emergency Response Team volunteer.

In the last few years, Westgard has applied models from the business world, such as SWOT (Strengths, Weaknesses, Opportunities, and Threats) and *The Lean Startup*, a management book by Eric Ries. A SWOT analysis identifies an organization's or project's strengths, weaknesses, opportunities, and threats; strengths and weaknesses are internal factors, while opportunities and threats are external. This model involves conducting quick trials to see what is successful by assessing these four aspects.

The Lean Startup helps organizations create solutions under conditions of uncertainty. The mission here was to discover a successful path to a sustainable organization like ARES.

"On the strengths side, we had excellent relations with event managers and Volunteer Organizations Active in Disaster (VOAD), and hams were in top leadership roles in the [American] Red Cross and Salvation Army," said Westgard. "We have an outstanding team of technical and IT experts and are good in areas like cloud computing, web development, and IT security; we wrote an open-source application package to track and graph runner locations in real time based on radio reports." Hams had more than 25 years of experience delivering medical communications for the Medtronic Twin Cities Marathon. In terms of weaknesses, hams were overly set in their ways and insisted on applying only older modes, techniques, and doctrine to ARES.

The improvements to Minnesota ARES began with the adoption of these business analysis models, along with functional exercises conducted under the Homeland Security Exercise and Evaluation Program, which is popular with emergency managers. They partnered with local officials and agencies such as the American Red Cross and invited state officials to attend public service events.

"This year, five of us were invited to the 4-day annual State of Minnesota Communications Exercise, dubbed Northstar III," said Westgard. Held at the 53,000-acre Camp Ripley training facility, more than 100 participants from a range of local, county, state, and federal agencies provided training on the restoration of interoperable communications after a simulated natural disaster. ARES members were invited and attended the Federal Emergency Management Agency (FEMA)/National Incident Management System Auxiliary Communicator and Field Observer roles.

Beyond Business Models: Importance of Practical Lessons Learned

In addition to these business models, Westgard emphasizes learning from successes, as well as things that could work better in future incidents and events. For example, he's a proponent of using tower trailers to get 30-foot towers/antennas up and on the air quickly and reliably. The radio paths in the Northstar III exercise were between 3 and 30 miles of rough, wooded terrain that required VHF/UHF FM, 800 MHz, cellular service, and internet connections. "Our towers go up quickly, and we ha[ve] reliable simplex VHF coverage in minutes — a major plus for emergency managers," Westgard said.

It's important for radio amateurs to think (and act) out of the box, as ARRL CEO David Minster, NA2AA, advised in his October 2025 "Second Century" editorial, "Future-Proofing ARES®." Westgard agrees with



Erik Westgard, NY9D, volunteering as part of the Three Rivers Park Patrol.

Minster, saying that hams should train and be prepared to use non-amateur communication assets to support the job at hand. During the Northstar III exercise, hams and several agencies were using mesh gear, but Westgard doesn't recommend using fussy, complicated modes and equipment.

Mobile command and communications vehicles used in a variety of radio-related roles can also help make ARES more beneficial. "Command trucks provide valuable resources that enable radio operators to provide more robust response communications during large and small events," Westgard reports. Although traditionally used by incident commanders, volunteer amateur radio groups in Minneapolis have found various ways to collaborate during special events and use these resources in Minneapolis to support medical operations.

Medical Communication Links at Large Events

Westgard is a veteran communications manager for the 10,000-runner Medtronic Twin Cities Marathon and its associated 10-mile race. He said, "Incident commanders for the weekend have been St. Paul Fire [Department] deputy emergency medical services (EMS) chiefs, and we serve them."

Using the FEMA Medical Plan form (ICS 206) and incident/event action plans and databases, the medical system can respond without delay. By long-standing agreement, a 911 call is made for an injured runner. In this way, a rolling emergency room is on the way and prepared for life-threatening scenarios such as a heart attack. At the same time, the volunteer medical team takes immediate action: Amateur radio operators, stationed at regular intervals, call in the bib number and location of the injured runner, and net control stations enter the reports in the system. At medical race operations, an assigned incident dispatcher correlates the 911 and radio reports. If they match, a "thumbs up" is exchanged with EMS command.

Westgard says that command trucks should not sit and collect dust when they can do so much more to enhance local response efforts and public-private event communications. Serving as a connection between amateur, event, and government radio channels is one role for the command trucks. In the annual medical communications plan for the Medtronic Twin Cities Marathon, for example, there are four amateur radio repeaters and three event-rented radio medical channels (with 350 rented UHF radios). In the case of larger events, the communications mix can include up to 15 rented radio channels as well as many public safety radio talk groups. This is all documented on FEMA's Incident Radio Communications Plan form (ICS 205) and on the incident/event action plan.

Bottom Line

It's been a good 5 years of development and engagement of and with Minnesota ARES. In Minneapolis, public-private agreements between medical and law enforcement agencies and ham radio operators have proven to be mutually beneficial for special event planning and emergency response.

2025 ARRL Field Day Results

Nearly 32,000 participants made 1.2 million contacts during amateur radio's most popular on-air event.

Paul Bourque, N1SFE, ARRL Contest Program Manager

The airwaves came alive again during the fourth weekend in June as amateurs throughout the US, Canada, and the world participated in 2025 ARRL Field Day. We received a total of 4,373 entries from all 85 ARRL and Radio Amateurs of Canada (RAC) Sections, as well as 35 entries from 20 countries outside the US and Canada.

The number of entries increased by 54 over last year, which is an increase of about 1%. The reported number of participants rose by the same percentage — to 31,919. Class A and B field stations represented 44.2% of all entries, while Class D and E home stations represented 51% of the total entries. Class C (mobile) stations remained relatively unchanged from last year, while Class F (Emergency Operations Center, or EOC) saw a decrease of 20 entries from 2024.

The total number of reported QSOs decreased by 8% to 1.2 million. The number of phone and CW contacts were both lower than last year, with more than 451,000 (37%) phone contacts and more than 461,000 (38%) CW contacts reported. Almost 292,000 (24%) digital QSOs were reported this year, a 3% increase from last year. Many participants commented that conditions on the higher HF bands were less than optimal, which could have contributed to the reduced contacts made during the event.



Steve Gomez, KE5O, pedals the bicycle-powered generator that provided power for Natural Power bonus points for the Jefferson County Amateur Radio Club, W5SSV, in Texas. [William K. Mahaney, N5WKM, photo]

Entries by Class Summary

Class	Entries	% of Total
A	1,261	28.8%
B	671	15.3%
C	46	1.1%
D	1,585	36.2%
E	647	14.8%
F	163	3.7%
Total	4,373	

2025 Field Day Overall Statistics

		% Change
Number of Participants	31,919	1%
Total Entries	4,373	1%
Checklogs	163	25%
CW QSOs	461,289	–6%
Phone QSOs	451,662	–16%
Digital QSOs	291,801	3%
Total QSOs	1,204,752	–8%

Activity by Class

Class A — Club or non-club groups of three or more people who set up temporary/portable Field Day sites away from their usual station locations: 1,261 entries (28.8%).

Class B — Club or non-club groups with one or two people who set up temporary/portable Field Day sites away from their usual station locations: 671 entries (15.3%).

Class C — Mobile or rover operators from vehicles, bicycles, and boats: 46 entries (1.1%).

Class D/Class E — Stations operating from home, with either commercial power (Class D) or emergency power (Class E): 2,232 entries (51%).

Class F — Stations operating from or as EOCs: 163 entries (3.7%).

Transmitter Count by Class

Class	Class Definition
A	Three-person or more club/non-club portable using emergency power
AB	Per above, with battery or alternate non-generator power source
AC	Per above, but with commercial power
B1	One-person club/non-club portable using emergency power
B1B	One person per above, with battery or alternate non-generator power source
B1C	One person per above, but with commercial power
B2	Two-person club/non-club portable using emergency power
B2B	Two persons per above, with battery or alternate non-generator power source
B2C	Two persons per above, but with commercial power
C	Mobile stations
D	Home stations using commercial power
E	Home stations using emergency power
F	EOC stations

Count by Class Summary

Class	Entries	Class	Entries	Class	Entries	Class	Entries
A	1,055	B1B	208	B2C	7	F	162
AB	39	B1C	37	C	45	Checklog	163
AC	137	B2	76	D	1,480	Total	4,373
B1	307	B2B	21	E	636		

Transmitter Count by Class

1A	108	4AC	26	4D	4
2A	286	5AC	13	5D	4
3A	317	6AC	2	6D	3
4A	180	1B1	303	1E	573
5A	91	2B1	4	2E	39
6A	34	1B1B	202	3E	17
7A	19	2B1B	6	4E	3
8A	8	1B1C	33	5E	2
9A	4	2B1C	4	6E	2
10A	4	1B2	48	1F	27
12A	1	2B2	26	2F	57
13A	2	3B2	1	3F	41
23A	1	5B2	1	4F	20
1AB	16	1B2B	13	5F	8
2AB	10	2B2B	8	6F	4
3AB	3	1B2C	3	7F	2
4AB	2	2B2C	4	8F	1
5AB	6	1C	42	9E	1
7AB	2	2C	3	9F	1
1AC	13	1D	1,404	Checklog	163
2AC	42	2D	46	Total	4,373
3AC	41	3D	19		

Checklogs — 163 entries were classified as checklogs if they reported more than 50 QSOs and were missing the required list of calls sorted by band and mode (also known as a dupe sheet), showing that no duplicates were counted twice in their total QSO counts. Stations that exceeded the maximum allowable power output for their entry class are also classified as checklogs.

What Is Field Day to You?

Field Day can be something different for everyone. Many groups plan a large gathering in a public place and use Field Day as an opportunity to showcase amateur radio to the public and demonstrate hams' readiness to serve during emergencies. Some operators take a solo approach, loading their equipment and backpacking up to a local hilltop to operate portable. Chuck Nelson, NC7R, took the "field" part of Field Day to heart and headed up to Pine Mountain, located in Tunxis State Forest in Barkhamsted, Connecticut, where he completed 69 low-power contacts, all using solar power. Other participants use Field Day as an opportunity to test the emergency preparedness of their own home stations.

Many Field Day participants use the event as an opportunity to try different operating techniques. The group at W5SSV, operated by members of Jefferson County Amateur Radio Club in Texas, powered the station used to qualify for the Natural Power bonus points with a bicycle-powered generator.

Looking Ahead

Next year has been designated as ARRL's Year of the Club. What is your club planning for Field Day 2026? A special emphasis is going to be placed on clubs using their club call signs during the event. Share your plans on the ARRL Field Day Facebook page at **www.facebook.com/groups/arrlfd**. Field Day 2026 takes place on June 27 – 28.

Entries by ARRL RAC Section/Prefix/DX

Section	Entries	Section	Entries	Section	Entries	Section	Entries
AB	22	LA	31	NTX	154	SK	10
AK	15	LAX	74	NV	37	SNJ	30
AL	70	MB	12	OH	201	STX	116
AR	35	MDC	74	OK	39	SV	47
AZ	107	ME	26	ONE	32	TER	1
BC	43	MI	117	ONN	7	TN	111
CO	110	MN	75	ONS	30	UT	44
CT	56	MO	70	OR	75	VA	139
DE	13	MS	30	ORG	42	VI	2
EB	31	MT	27	PAC	12	VT	17
EMA	70	NB	5	PE	3	WCF	55
ENY	43	NC	147	PR	15	WI	102
EPA	100	ND	9	QC	35	WMA	24
EWA	31	NE	24	RI	18	WNY	82
GA	103	NFL	90	SB	27	WPA	96
GH	29	NH	38	SC	57	WTX	22
IA	54	NL	2	SCV	60	WV	41
ID	46	NLI	28	SD	14	WWA	100
IL	124	NM	29	SDG	36	WY	11
IN	93	NNJ	51	SF	26	US/VE Total	4,338
KS	48	NNY	16	SFL	37		
KY	65	NS	10	SJV	38		

Entries by DX Countries

Country	Entries
Argentina	1
Australia	1
Brazil	1
Chile	2
Colombia	1
Costa Rica	2
Cuba	1
England	4
France	1
Germany	2
Greece	1
Indonesia	1
Japan	6
Mexico	3
Netherlands	1
North Macedonia	1
Panama	1
Russia	2
Ukraine	1
Venezuela	2
DX Total	35

Number of Participants by Class

A	25,097
B	779
C	52
D	2,218
E	1,282
F	2,491
Total	31,919

Scores

Score listings are grouped according to the number of transmitters in simultaneous operation and their entry class. The listings show club or group name, call sign(s) used, total number of QSOs, number indicating power output used (5 is less than 5 W, 2 is from 6 W to 100 W, 1 is between 101 W and 500 W), number of participants, and total score including bonus points, and ARRL Section. Entries are listed from highest to lowest claimed score in each class: Class A stations are clubs or groups portable with three or more participants; Class B stations are portables with one or two participants (when there are two operators, the second operator's call sign is listed in parentheses, if it is known); Class C stations are mobiles; Class D stations are home stations using commercial power; Class E stations are home stations using emergency power, and Class F stations are EOC stations. Due to the high volume of entries, this listing contains only Class A, B, and C stations (these stations are often portable or mobile, representing operations done outside of home locations, and are most representative of the "field" in this communications exercise). Class D, E, and F stations and aggregate scores will be posted in the digital edition of *QST* and on the ARRL Field Day Page at **http://field-day.arrl.org**.



Three or More Person Club/ Non-Club Portable

1A

Blazing Paddles Field Day Team					
AB9YC	1,449	2	9	7,166	IL
Not Case ARC					
W3USA	1,434	2	3	6,886	OH
Bedlington Terrior ARC of Tucson					
WA7NB	1,722	2	3	5,696	AZ
Lafayette DX Assn.					
W9LDX	1,179	2	10	5,590	IN
Potomac Valley RC					
W4YY	1,218	2	6	5,322	VA
Brock Mountain Contest Grp.					
K5UZ	1,204	2	4	5,166	AR
Souris Valley ARC					
KØAJW (+KØMDF)	1,038	2	21	4,981	ND
Tampa ARC					
K4NQ	865	2	8	4,530	WCF
Benton ARS					
K5NE (+K5ALI)	831	2	27	3,958	AR
Jupiter Tequesta Repeater Grp.					
W4J	1,032	2	100	3,798	SFL
Dr. Loomis Memorial Junior Mechanics League					
W3KDR	1,040	2	5	3,718	MDC
Assoc. Radio Amateurs of So. New England					
W1AQ (+KB1VYI)	1,094	2	17	3,307	RI
Broken Arrow ARC					
K5PX	885	2	4	3,272	OK
Wildcat Creek Contesters					
W9PC	660	2	4	3,052	IN
Rochester DX and Contest Club					
WDØCT	721	2	9	2,992	MN
SCAN/Red Ant Annihilators					
KR6AL	1,171	2	3	2,896	LAX
Northeast WI ARC					
K9TIT	576	2	9	2,822	WI
Page Valley ARC					
K4PMH	415	2	11	2,810	VA
New England Radio Discussion Soc.					
K1VW (+KB1BSM)	444	2	10	2,588	ME
Motor City RC					
W8MRM	399	2	35	2,440	MI
South Georgian Bay ARC					
VE3SGB	593	2	11	2,390	ONS
Wahkiakum Co. ARC					
N7WAH (+K7SH)	351	2	20	2,334	WWA
Escondido ARS					
N6WB	440	2	14	2,260	SDG
Halifax ARC					
VE1FO	341	2	14	2,185	NS
Hawaii Field Day Expedition					
K6H	256	2	10	2,120	PAC
Southeast KS ARC					
WØF (+KBØPQP)	750	2	11	1,938	KS
Stanly Co. ARC					
K4OGB (+N4JAT)	180	2	14	1,635	NC
Motorola ARC					
K9MOT	247	2	9	1,620	WI
Thibodaux ARC					
KQ5I	500	2	13	1,470	LA
Sci-Tech ARS					
W1STR (+W1OG)	117	2	75	1,374	EMA
Los Alamos ARC					
W5PDO (+WD5JRO)	244	2	12	1,372	NM
Renfrew Co. ARC					
VA3NRR	243	2	12	1,358	ONE
Central Washington ARC					
W7TT	144	2	18	1,356	EWA
Parker Radio Assn.					
KØPRA	119	2	57	1,324	CO
Emergency Comm. Assn.					
WØECA	206	2	15	1,318	MO
Moosehorn ARC					
AL7LE	233	2	12	1,282	AK
Central Valley AR Enthusiasts					
N6OOA	438	2	3	1,226	SJV
Paul Bunyan ARC					
WØBJI (+KFØJYU)	145	2	17	1,140	MN
Cove Repeater Assn.					
WD5DW	118	2	10	1,136	NTX
Story Co. ARC					
WØYL	74	2	9	1,108	IA
Littleton Area Radio Klub					
K1EME	127	2	10	1,104	NH
Hardin Co. ARC					
W8KTN	175	2	6	1,100	OH
Juneau ARC					
KL7JRC	120	2	34	1,090	AK
Melfort Repeater Grp.					
VE5TV	355	2	8	1,060	SK
Wasteland Comm. Corp.					
K6WCC	220	2	15	1,052	SB
Florida Contest Grp.					
KG2MM	87	2	4	956	NFL
WD8U	386	2	3	922	WCF
Northern KY ARC					
K4CO (+KY6ET)	46	2	34	902	KY
Peace Country ARC					
VE6ARC	255	2	4	886	AB
Crawford Mountain Boys					
KS3F	257	2	5	854	VA
Lee Co. EOC					
KX4LEE (+KQ4WUH)	16	2	7	844	NC
Carolina ARC					
KT4NC	140	2	3	830	NC
Lanierland ARC					
W4B	233	2	16	816	GA
Yukon ARA					
VY1DX	68	2	12	814	TER
Verde Valley ARC					
W7EI	378	2	10	806	AZ
Maury River Rain Dogs ARC					
WD8MQN	123	2	6	762	VA
VA1JON	253	2	3	756	NS
O'Neil Pass					
NØDR	276	2	3	742	SD
Mayerthorpe Flying Tigers					
VE6FT	121	2	3	734	AB
Mountain Mavericks					
W7EFE	215	2	3	688	EWA
3730 Grp.					
VE3ORF	117	2	8	680	ONE
Lake Chelan ARC					
K7SMX	326	1	25	657	EWA
Neuse River Basin ARA					
K4NRB	151	2	3	654	NC
Redwood Empire DX Assn.					
W6KB	170	2	4	642	SF
Milky Way Wireless Club					
KC7KFF	90	2	3	612	MT
Delta ARC					
K6D	25	2	4	610	EB
Calumet Co. ARES					
KD9WAX	6	2	3	562	WI
Ocean State ARG					
K1OS	91	2	4	492	RI
Androscoggin ARC					
W1NPP	32	2	5	478	ME
Campo Alto Campers					
WR3K	11	2	4	472	SJV
DWF Legacy RC					
WB6NXJ	47	2	3	472	EWA
Sierra Blanca ARC					
KR5NM	57	2	10	464	NM
W6YUE	43	2	3	436	SJV
Cenois ARC					
K9HGX	24	2	7	420	IL
Milwaukee Repeater Club					
WI9MRC	29	2	3	408	WI
Saline Co. ARES					
AD5EO	15	2	4	400	AR
Jefferson Co. ARG					
K7BTB	24	2	3	398	OR
Lancaster Co. ARES					
WE4LC	160	2	6	394	VA
Windy City ARS					
W9CRS	12	2	10	388	IL
Metro North Railroad ARA					
W2MNR	18	2	7	386	CT
Lake Agassiz RC					
NØLAC	2	2	4	354	ND
Outdoor Adventure USA					
KE6VRL	50	2	3	350	SJV
W5MND	90	2	4	350	TN
Hi-Line ARC					
W7HAV	49	2	3	348	MT
Disaster Response Comm. and IT					
N2DRC	35	2	3	344	LAX
Ancient Modulators					
KØAMC	42	2	10	340	MO
KGØE	70	2	4	328	MN
New England Fusion Grp.					
N1EFG	17	2	3	318	EMA
Santa Fe ARES					
W5SAF	20	2	9	318	NM
W9ERT	22	2	3	294	OR
Great Basin ARC					
AD7OY	20	2	3	290	NV
Calumet Co. ARES					
W9NUE	19	2	3	288	WI
Soc. Of Radio Engineers					
W1CKD	69	2	3	288	NC
Jessie's Buddies ARC					
W2ACE	60	2	3	278	WWA
KF6KAT	48	2	3	272	KS
Sawgrass Breakfast Club					
NF1T	7	2	5	264	WCF
Quebec Ham Furries					
VA2LPQ	42	2	6	234	QC
Carroll Co. ARC					
K3PZN	39	2	4	228	MDC
Jim's Farm Grp.					
WØBJ	39	2	7	228	MO
Show Me Ham Radio Grp.					
KAØAIG	31	2	3	212	MO
Kamloops ARC					
VE7UT	80	2	4	210	BC
Elmira ARC					
VA3MZD	13	2	3	190	ONS
Western CO ARC					
KEØQED	18	2	3	186	CO
Santa Fe ARES					
NR5ON	2	2	9	158	NM
VE2SS	25	2	3	150	QC
Cape Ann ARA					
W1FSR	28	2	3	106	EMA
N7ULT	16	2	3	82	AZ
Pennington Co. Radio Auxilliary					
KBØEOC	13	2	3	76	SD

1A — Battery

South Texas Rovers					
KA5D	578	5	3	6,195	NTX
Signal Hill ARC					
WS6X	519	5	8	5,640	WV
Mountaintop Operators					
AA6FD	500	5	3	5,550	CO
Chew's Ridge Gang					
K6MI	430	5	6	4,925	SCV
Saguaro Nights ARC					
NS7F (+WI1H)	225	5	15	3,325	AZ
Hilltop Transmitting Assn.					
W3ZGD	215	5	12	2,765	EPA
New England QRP Grp.					
K1DFT	290	5	3	2,365	ME
Marconi ARC of Newfoundland					
VO1MRC	105	5	8	2,000	NL
Livermore AR Klub					
N6ACA	59	5	3	1,220	EB
N4T/47	72	5	3	1,070	NFL
Narwhal ARS					
NR7WL	36	5	19	910	WWA
St. Croix Valley Radio Amateurs					
K9SCV	15	5	11	600	WI
Boring ARC					
N6TR	15	5	3	595	IN
ARC of Augusta					
W4DV	13	5	3	415	MDC
Center Halifax Amateur Operated System					
N2JFS	6	5	3	280	VT
San Gorgonio Pass ARC					
KJ6NRR	9	5	3	240	ORG

1A — Commercial

Kreuter & Hitt Family					
WC8RK	612	2	5	1,374	WV
AB9PN	707	1	3	1,283	WI



David Balding, KG4UOY, enjoyed operating Field Day alongside his son Ollie, KQ4PSZ. He had promised his son that, if he studied hard and passed his Technician license exam, they would operate Field Day this year. [David Balding, KG4UOY, photo]

Fulton Co. (KY) ARC					
K4CAY (+KG4ZDN)	19	2	14	1,123	KY
Ray Roberts Radio Raiders					
KI5ZXD	420	2	3	1,046	NTX
Newton ARC					
WØWML	29	2	17	760	IA
Club Radio Amateur Sorel-Tracy					
VE2CBS	278	1	8	606	QC
Wood Co. ARA					
WC5TX	180	2	15	510	NTX
Morningside Mischief Makers					
KØOV	115	2	3	490	ORG
Caribbean AR Grp.					
WP4CRG	88	2	10	478	PR
Buffalo AR Repeater Assn.					
W2EUP	103	2	3	256	WNY
Tampa Hackerspace					
KI4SWY	23	2	3	242	WCF
Chipola ARC					
W4BKD	30	2	3	210	NFL
Northeastern Univ. ARC					
W1KBN	10	2	6	70	EMA

2A

Radio Amateurs of Northern VT					
W1NVT (+W1PU)	4,158	2	20	17,730	VT
Cape Fear ARS					
K4MN (+WA2COU)	3,157	2	49	15,440	NC
Newport Co. RC					
W1SYE (+NE1RI)	3,539	2	47	15,296	RI
Muskogee ARC					
K5CM (+KK5I)	2,788	2	12	13,878	OK
Greer ARC					
K4SV (+KE4EA)	3,180	2	38	11,945	SC
Albuquerque DX Assn.					
W5UR (+N2GG)	2,279	2	18	11,158	NM
McHenry Co. Wireless Assn.					
K9RN (+W9TD)	2,191	2	20	10,238	IL
Rochester (NY) DX Assn.					
W2RDX (+W2AN)	2,251	2	20	10,221	WNY
Mississippi Valley ARA					
W9MVA (+W9FCC)	2,464	2	14	9,477	WI
Hellgate ARC					
W7PX	2,880	2	8	9,128	MT
Falmouth ARA					
K1RK (+W1NOB)	2,278	2	25	9,059	EMA
Tom's Garage ARC					
N6MI	2,135	2	6	7,926	SB
Piglet Radio					
N9BCN (+KD9YPY)	1,899	2	17	7,581	IN
Devanooga					
W3DEV (+AB3I)	1,407	2	4	7,247	TN
Proske's Posse					
N2NC	1,722	2	4	7,010	WV
Canton ARC					
W8AL (+N8XY)	1,281	2	37	6,690	OH
Palos Verdes ARC					
K6PV	1,851	2	13	6,626	LAX
Monroe Co. Radio Comm. Assn.					
W8PI (+W8DWL)	1,093	2	28	6,347	MI
Schaumburg ARC					
N9RJV (+KD9FMN)	1,291	2	50	6,335	IL
Carbon Co. DX Club					
N7W (+N7GCR)	2,100	2	9	6,152	WY
Montrose ARC					
KØIIT (+AAØEL)	1,119	2	72	5,744	CO
Union Co. ARC					
W8UCO (+N8IG)	1,299	2	40	5,744	OH
Crawford ARS					
W3MIE (+N3QQH)	1,172	2	30	5,425	WPA
Morris RC/Hanover Township OEM					
W2YD	1,076	2	13	5,414	NNJ
Chaffee Lake ARA					
WØCLA	1,309	2	17	5,346	CO
Pinecone ARC					
N4BCJ	1,316	2	3	5,246	NC
NØHR (+KCØMKG)	1,080	2	6	5,148	IA
Mecklenburg ARS					
W4BFB (+NC4DP)	1,024	2	40	5,129	NC
Stamford ARA					
W1EE	1,326	2	30	5,050	CT
Union Metropolitaine des Sans-filistes de Montreal					
VE2UMS	1,113	2	30	5,022	QC
Berwick Contest Team					
WQ3N	1,475	2	3	5,020	WPA
Grand Rapids ARA					
W8DC (+N5RAD)	1,152	2	30	5,007	MI
W/K ARC of Greater Milwaukee					
W9I	1,338	2	12	5,000	WI
Nashoba Valley ARC					
N1NC (+K1JEB)	944	2	27	4,937	EMA
New Providence ARC					
N2XJ	1,239	2	48	4,898	NNJ
Bonner Co. ARC					
K7JEP (+K7SYS)	962	2	20	4,882	ID
Appalachia ARC					
WC4NC (+K4ISU)	645	2	15	4,779	NC
Explorer Post 599					
WA2DFI (+W7BSA)	958	2	15	4,775	AZ
Kent Co. ARC					
N3Y (+W3CZ)	1,022	2	32	4,639	DE
Blackstone Valley ARC					
W1DDD (+NA1Q)	1,001	2	32	4,604	RI
Pine Belt ARC					
K5PN	1,019	2	8	4,486	MS
Ottawa ARC					
VE3RC (+VE3SHQ)	750	2	30	4,470	ONE
CARE/Rogue Valley ARC					
W7D (+W6PO)	900	2	40	4,228	OR
Fidelity ARC					
W1MB (+K1NQG)	858	2	15	4,086	RI
Contra-Club					
K5N	1,037	2	3	4,040	STX
First State ARC					
K3QBD	792	2	15	3,928	DE
Baldwin Co. ARC					
N4MZ (+WB4EMA)	791	2	15	3,897	AL
National Electronics Museum ARC					
K3NEM	904	2	15	3,864	MDC
Mics & Beers					
WW7A (+AF7SC)	576	2	7	3,822	EWA
Charleston ARS					
WA4USN (+NT4HI)	782	2	35	3,786	SC
Steiner-Johnson Family Geekenders					
AD7N	931	2	5	3,778	ID
Anaconda ARC					
W7VNE	915	2	6	3,710	MT
Irvine Disaster EmComm					
N6IPD (+KN6BMO)	534	2	32	3,697	ORG
Mid-MO ARC					
NØSS (+KØETY)	768	2	24	3,634	MO
Iowa Wireless AR Network					
NØIWN	711	2	8	3,598	IA
Henry Co. ARC					
W9OB (+K9UOK)	696	2	14	3,570	IN
Big Bend ARC					
K5FD (+KI5ZVK)	704	2	17	3,525	WTX
Fair Lawn ARC					
W2NPT (+W2KAR)	676	2	26	3,490	NNJ
Westcoast ARA					
VE7VCC (+VE7RMT)	720	2	42	3,472	BC
Schuylkill Amateur Repeater Assn.					
W3SC	852	2	18	3,452	EPA
Davie/Cooper City ARC					
NA4DC	588	2	24	3,434	SFL
Tamiami ARC					
W4AC (+W2XYZ)	1,281	1	33	3,434	WCF
444 DX Grp.					
K2IN	812	2	8	3,380	NNJ
Candlewood ARA					
W1QI	593	2	18	3,342	CT
Puerto Rico Field Day Grp.					
KP4FD (+KP3LH)	638	2	15	3,295	PR
Paso Robles ARC					
W6R (+W6LKF)	936	1	16	3,286	SB
Loudoun ARG					
K4LRG (+WA4KBM)	741	2	30	3,275	VA
Pikes Peak Radio Amateur Assn.					
AFØS (+WAØVTU)	560	2	21	3,255	CO
Mohawk ARC					
N1WW	633	2	41	3,246	WMA
South East Metro ARC					
WØCGM (+KDØIRF)	559	2	20	3,238	MN
Mizpah Shrine Radio Unit					
W9FEZ	635	2	5	3,106	IN
PSRG/WSARC/Seattle ACS					
W7AW (+W7ACS)	491	2	35	3,033	WWA
SC4 ARC					
W6SCF (+KJ6VCP)	447	2	14	2,955	SCV
Massillon ARC					
W8NP (+WC8WVH)	769	2	46	2,917	OH
Brunswick Shores ARC					
N4GM (+K4IR)	431	2	22	2,895	NC
Spartanburg ARC					
K4II	789	2	10	2,838	SC
NØSFF	827	2	8	2,838	IA
Maui ARC					
KH6RS	1,414	1	13	2,823	PAC
Emporia ARS					
WØEMP (+KFØROJ)	355	2	8	2,742	KS
American Legion Post 33 ARC					
W9TAL (+KB9EZZ)	324	2	23	2,722	IL
Muscle Shoals ARC					
W4JNB (+WX4CC)	455	2	24	2,659	AL
Lake Conroe ARC					
AC5LC (+WA9JG)	308	2	23	2,610	STX
Laguna Mountain WFD					
WW6CC	752	2	9	2,592	SDG
Elko ARC					
W7N (+KM7SC)	546	2	12	2,589	NV
Case ARC of Case Western Reserve Univ.					
W8EDU	323	2	35	2,552	OH
Bloomington ARC/K9IU/SIARA					
K9IU (+KD9DIY)	441	2	11	2,545	IN
Lake Region ARC					
KØQIK	319	2	12	2,544	MN
Public Safety ARG					
KT4EMA	974	2	28	2,518	AL
Manatee ARC					
K4GG (+KQ4MTF)	407	2	63	2,510	WCF
Saskatoon and District ARA					
VE5AA	440	2	20	2,448	SK
Peekskill Cortlandt ARA					
W2NYW	599	2	21	2,434	ENY
Stillwater ARA					
WØJH	415	2	32	2,410	MN
Montreal ARC/West Island ARC					
VE2CWI (+VE2ARC)	446	2	40	2,395	QC
Orrville ARS					
KD8SQ	618	2	5	2,388	OH
Upshur Area ARC					
K5UAR	437	2	20	2,366	NTX
Northeast Wireless RC					
NW2C	387	2	8	2,364	NLI
Lenoir ARC					
N4LNR	484	2	41	2,340	NC
Half Moon Bay ARC					
K6M	371	2	15	2,312	SCV
Calgary ARA					
VE6NQ	476	2	14	2,300	AB
Southern VT ARC					
K1SV (+W1BVT)	307	2	10	2,232	VT
Owensboro ARC					
K4HY	289	2	28	2,194	KY
North East IA Radio Amateur Assn.					
WØMG (+WØAWW)	305	2	22	2,149	IA
M&M ARC					
W8PIF	684	2	25	2,144	MI
Bellflower ARA					
K6SB	528	2	5	2,140	SV
Ogden ARC					
W7SU (+WØKP)	352	2	57	2,127	UT
Turkey Heaven Mtn. Repeater Assn.					
N4THM (+W4PO)	312	2	17	2,108	AL
Olive Branch ARC					
W5OBM (+KF5TPT)	351	2	12	2,098	MS
Heart O' Texas ARC					
W5ZDN (+K5ZDN)	355	2	23	2,039	NTX
White Rock Lake ARC					
WA5WRL	177	2	22	2,008	NTX
Alamance ARC					
K4EG	226	2	20	1,986	NC
Yellowstone RC/Musselshell ARC					
K7EFA (+N7G)	292	2	19	1,986	MT
Moncton Area ARC					
VE9MSR	716	2	9	1,982	NB
Northwest OH VHF ARS					
NØVRS	376	2	7	1,968	OH
Eastern Shore ARC					
K4BW (+N2MAU)	219	2	11	1,961	VA
Matagorda Co. ARC					
W5WTM	371	2	17	1,960	STX
Pine State ARC					
N1ME	389	2	30	1,960	ME
Franklin Co. ARES					
W1FCA	320	2	26	1,940	ME
Bryan ARC					
W5BCS	237	2	65	1,902	STX
Trident ARC					
N4EE	411	2	20	1,900	SC
Kansas/Nebraska ARC					
NØGJ	231	2	20	1,896	KS
Addison Co. ARA					
N1FS	375	2	7	1,886	VT
Cabarrus ARS					
K4WC	598	2	20	1,882	NC
Gallatin Ham RC					
W7ED (+KE7NLU)	375	2	13	1,870	MT
West Palm Beach ARG					
W4HAW (+K4WPB)	291	2	27	1,847	SFL
Eastern MI ARC					
K8EPV	401	2	15	1,828	MI
Mt. Diablo ARC					
W6CX	265	2	42	1,828	EB
CRES ARC					
W8ZPF	484	2	20	1,826	OH
Reno Co. ARA					
WØWR (+KFØJNO)	282	2	6	1,822	KS

Ridge ARC					
W4RRC	311	2	30	1,796	SC
Antelope Valley ARC					
K6A (+K6OX)	179	2	17	1,758	LAX
Tri Co. ARC (WI)					
W9MQB (+KC9FYL)	270	2	9	1,756	WI
Southington ARA					
W1ECV	223	2	15	1,748	CT
Washington Area ARC					
WØARC (+ABØDX)	253	2	20	1,743	IA
Rockford ARA					
K9E (+W9AXD)	263	2	25	1,738	IL
Skyview Radio Soc.					
K3WM	400	2	8	1,694	WPA
Audrain EmComm					
AAØRC	339	2	19	1,692	MO
Hiawatha Valley ARC					
AAØRW	262	2	25	1,686	MN
Louisiana Delta RC					
KC5DR (+WA5WX)	209	2	32	1,685	LA
Tri-Co. Radio Assn					
W2LI	160	2	27	1,670	NNJ
Kings Co. RC					
KC2RC	355	2	24	1,618	NLI
Wiregrass ARC					
W4DHN	313	2	25	1,618	AL
Traveling AR Team					
AC7YT	1,096	1	4	1,546	UT
Northern Alberta RC					
VE6NC (+VE6AG)	139	2	80	1,537	AB
Plattsmouth ARC					
KBØSMX	182	2	22	1,534	NE
Eastern Fulmont ARC					
W2F	218	2	7	1,528	NNY
Northeast Tarrant ARC					
N5EOC	161	2	25	1,528	NTX
Wood Co. ARES/RACES					
W9WCA (+K9WCA)	154	2	10	1,524	WI
Sky Valley ARC					
W7SKY (+N7SRR)	68	2	10	1,522	WWA
Cabot Small Town ARS					
W5STR	345	2	15	1,514	AR
Independent Radio Crew					
K3ODX	397	2	4	1,512	EPA
Tri Co. ARC (GA)					
WX4TC	552	2	15	1,504	GA
River Hills ARC					
WØRHX	228	2	20	1,500	MO
Cascade RC					
W7EK	200	2	16	1,492	WWA
Weld ARS					
KØOJ	309	2	21	1,490	CO
Midwest ARC					
WØQJ	650	1	3	1,485	MO
Eastern Panhandle ARC					
K8EP	243	2	6	1,470	WV
Fresno ARC					
W6TO	354	2	12	1,428	SJV
Socorro ARA					
W5AQA	229	2	22	1,404	NM
Union Co. ARC					
K4N	200	2	12	1,402	NC
Sierra Intermountain Em. Radio Assn.					
NV7CV	161	2	13	1,400	NV
Pen Bay ARC					
W1PBR	100	2	20	1,370	ME
Billerica ARS					
W1HH	178	2	40	1,342	EMA
Southwest MS ARC					
W5WQ	177	2	6	1,340	MS
Sunnyvale ARES					
K6SNY	149	2	56	1,336	SCV
DeKalb Co. ARC					
W4DGH	244	2	32	1,330	AL
MAPOA					
N8M	324	2	14	1,324	WV
Ft. Madison ARC					
WFØRT	85	2	9	1,322	IA
Land of Lakes ARC					
K9HD	198	2	10	1,306	IN
San Jose ARES/RACES					
AF6ZF (+AJ6DU)	151	2	10	1,289	SCV
Ashe Co. ARC					
K4J	166	2	7	1,272	NC
Powhatan Area RC					
N4POW	250	2	45	1,270	VA
Shelby ARC					
W4NYR (+N4WH)	129	2	23	1,270	NC
Laurel ARC					
W3LRC	245	2	9	1,266	MDC
Waypoint ARC					
WAØRC	305	2	21	1,258	KS
Univ. of Michigan ARC					
W8UM	191	2	6	1,252	MI
Missouri S&T ARC					
WØEEE	208	2	3	1,250	MO
Raytown ARC					
KØGQ	152	2	34	1,250	MO
Central Coast ARG					
W6WJ	223	2	10	1,234	SB
Convair/220 ARC					
W6UUS (+WD6HFR)	141	2	44	1,229	SDG
Greater Kingston RC					
K7GKR	195	2	12	1,212	WWA
Kiley Hams					
W1BXI	239	2	3	1,206	WTX
Pamlico ARC					
K4BCH	172	2	15	1,194	NC
Niagara RC					
W2QYV	367	2	3	1,186	WNY
East Greenbush ARA					
W2EGB	107	2	14	1,184	ENY
Chattooga ARC					
W4E	201	2	10	1,172	GA
Sweetwater ARC					
WY7U	191	2	27	1,172	WY
Georgian Bay ARC					
VE3OSR	220	2	12	1,164	ONS
Larry, Curly, Mo and a Radio					
W7Z	152	2	3	1,158	NV
Southborough Rod & Gun ARC					
W1SRG	255	2	4	1,148	WMA
Phillips Co. ARC					
WØZXN	159	2	4	1,136	KS
Iroquois Co. ARC					
AD9L (+W9GRS)	39	2	11	1,123	IL
Matanuska ARA					
KL7JFU (+KL7SLM)	25	2	40	1,120	AK
Arlington ARC					
K5SLD	100	2	28	1,114	NTX
Metuchen RC					
K2YNT	264	2	7	1,114	NNJ
Tehachapi ARA					
AC6EE	169	2	18	1,099	SJV
Greenwood ARC					
VE1ARC (+VE1WN)	81	2	24	1,097	NS
SARA/DCARC					
WØR (+KØUX)	95	2	13	1,097	IA
Jackson Co. ARC					
K4SCO	130	2	10	1,082	AL
Palouse Hills ARC					
KD7PH (+KK7VO)	82	2	21	1,080	ID
Manotick ARG					
VE3AIR	101	2	4	1,072	ONE
Central Alberta ARC					
VE6QE	154	2	11	1,058	AB
Bedford ARC					
K5BED	114	2	13	1,044	NTX
Mid-Atlantic ARC					
W3NWA	121	2	16	1,032	EPA
KQ4PSZ	116	2	3	1,016	SC
Palestine Anderson Co. ARC					
K5PAL	127	2	12	1,004	NTX
South Bay ARC					
W6SBA	40	2	16	1,004	LAX
Zephyrhills Area ARC					
W1PB	68	2	4	1,002	WCF
Penn-Mar RC					
W3MUM	252	2	30	994	EPA
Teddy Roosevelt ARC					
KØND	200	2	29	990	ND
Albemarle ARS					
K4WO	246	2	23	984	NC
Central Dakota ARC					
WØZRT	207	2	24	980	ND
Juniata Valley ARC					
K3DNA	162	2	14	974	WPA
Aerospace Employees Assn. ARC					
W6AGO	56	2	21	972	LAX
Nanticoke Valley Radio Ops.					
NV2RO	227	2	3	966	WNY
Eaton Co. ARC					
K8CHR	107	2	5	960	MI
Vashon Maury Island RC					
W7VMI	128	2	12	954	WWA
Rural Iowa ARC					
WØOEL	51	2	10	952	IA
Boston Mountain RC					
K5JTB (+KE5LI)	77	2	4	949	AR
Northeast MO ARC					
WØCBL	132	2	3	942	MO
Beaver Valley ARC					
VE7BWI	138	2	3	924	BC
Victoria ARC					
W5DSC	86	2	21	922	STX
Enterprise ARS					
KC4FLT	113	2	8	916	AL
Pella ARC					
KØPEA	70	2	18	914	IA
Arkansas Radio Em. Srvc.					
N5AT	161	2	19	900	AR
Regina ARA					
VE5NN	119	2	10	898	SK
Chautauqua Co. Amateur FM Assn.					
K2HE	65	2	10	882	WNY
Coastside ARC					
WA6TOW	125	2	13	882	SCV
K6P	187	2	6	880	SDG
Highline ARC					
NC7G (+WA7ST)	62	2	27	874	WWA
VECTOR					
VE7VVC (+VE7BFY)	44	2	27	873	BC
Shuswap ARC					
VE7RLE	207	2	6	848	BC
Mesabi Wireless ARC					
NTØB	86	2	7	822	MN
Club Radio Amateur Laval-Laurentides					
VE2CRL (+VA2BHA)	85	2	9	800	QC
Rich and Ron's Field Day					
KJ6HRO	98	2	10	796	SV
Blackford ARC					
K9VND	176	2	20	794	IN
Pioneer Radio Operators Soc.					
K2PRO	150	2	6	792	WNY
Fox Cities ARC					
W9ZL	155	2	15	790	WI
Inverhuron Ham RC					
VE3IHR	101	2	3	790	ONS
HacDC ARC					
W3J (+N3M)	91	2	10	782	MDC
Williams Co. ARA					
W8SRD	31	2	4	772	OH
AHS ARC					
K6R	108	2	5	766	LAX
River Bend Wireless and Mechanical Soc.					
KØFBL	56	2	5	764	MN
Fulton Co. (IN) ARC					
K9RCR	28	2	11	736	IN
Cisco Systems ARC					
KC4SCO	51	2	15	734	NC
Kansas State Univ./Manhattan Area ARS					
WØQQQ	151	2	10	704	KS
Vinton Co. ARC					
W8VCO	74	2	3	702	OH
Etowah Valley ARC					
W4EVC (+KO4ESS)	75	2	4	693	GA
Fannin Co. ARC					
K5FRC	17	2	7	684	NTX
Sevier ARC					
AC7SC	44	2	8	678	UT
Auburn Area ECT					
WA7AUB	10	2	10	670	WWA
Culver City ARES					
K6CCR (+AJ7C)	142	2	13	666	LAX
NB FDL Field Ops.					
W9CET	106	2	3	662	WI
Mid-Del ARC					
W5MWC	97	2	26	660	OK
Winona ARC					
WØNE	86	2	6	646	MN
Cullman ARC					
N4TUN (+WJ4P)	97	2	5	644	AL
Bald Mountain Wireless					
AF8P	50	2	4	626	MI
Woodford Co. ARC					
KY4WC	38	2	8	626	KY
Brazoria Co. ARES					
K5BRZ	82	2	20	614	STX
NASA Glenn ARC					
NA8SA	57	2	7	594	OH
Mountain ARC (CO)					
NXØG	21	2	4	592	CO
Rumsey Lake Hams					
VE1SRH	20	2	4	590	NS
White Rock ARC					
VE7DB	70	2	6	588	BC
Live Free or Die					
W1BPM	117	2	4	584	NH
Sturdy Mem. Hospital ARC					
W1SMH	101	2	6	566	EMA
Club Radioamateur de Drummondville					
VE2NAO	2	2	5	558	QC
Island HF Radio Assn.					
VA7IHF	51	2	5	542	BC
Garden City ARC					
K8GC	24	2	7	498	MI
Lakewood ARC					
KK6NXT	24	2	3	498	LAX
Senator Wash Desert Ratt Pack ARG					
W9SJB	71	2	3	492	AZ
Univ. of Akron ARC					
W8UPD	10	2	5	488	OH
Tarboro RC					
K4TRC	14	2	7	478	NC
Monterey Bay ARA					
N6IJ	6	2	9	470	SCV
Prairie Dog ARC					
N5OX	57	2	4	464	WTX
Eastern AZ ARS					
K7EAR	44	2	4	438	AZ
Arizona Red Cross Comm. Club					
K7ARC	38	2	4	426	AZ
Johnson Co. ARC					
W4ABR	15	2	3	410	TN
Old Times Ham RC					
KM4OT	52	2	7	406	NC
Mesa East Stake Training Net					
AC7R	24	2	5	398	AZ
Manteca ARC					
K6MAN	104	2	20	396	SJV
Eagle Rock ARC					
W7JFC	17	2	6	384	ID
DCT ARC					
WA5DCT	35	2	3	360	NTX
Muhlenberg ARS					
KR4QD	30	2	10	360	KY
Paulding Co. ARC					
W4TIY	55	2	6	360	GA
Nellis ARC					
KC7TMC	17	2	18	334	NV
Fulton ARC					
W2CXV	18	2	3	322	WNY
St. Joseph Co. MI ARC					
K8SJC	8	2	5	266	MI

2A — Battery

510 Radio Grp.					
N1A (+NE1C)	1,183	5	8	14,020	WMA
QRP Pals					
K9A	822	5	5	8,870	WI
Reelfoot ARC					
K4RFT (+N4MJ)	659	5	11	8,665	TN
Wilsons Wonders					
WA7NCL	615	5	4	6,830	EWA
Ottawa Valley Mobile RC					
VE3JW	494	5	30	6,130	ONE
Lanark North Leeds ARES					
VE3LCA	261	5	15	3,130	ONE
Colorado QRP Club					
WØCQC	228	5	3	2,580	CO
Genesee Radio Amateurs					
W2RCX	212	5	4	2,580	WNY
Boschveldt QRP Club					
W3BQC	75	5	3	1,090	EPA
Univ. of Southern California ARC					
W6YV	52	5	3	870	LAX

2A — Commercial

Radio Central ARC and Order of Boiled Owls of NY					
W2RC (+KW2O)	2,742	2	25	11,160	NLI

Monte del Estado FD Crew
NP3X 2,236 2 4 7,522 PR
Not Quite Workable Contest Club
K8NQW 1,433 2 6 6,406 OH
Sumter ARA
W4GL 1,102 2 30 5,204 SC
Greater Bridgeport ARC
W1BPT
(+W1SVM) 786 2 9 4,431 CT
Club Radio Amateur de Quebec
VE2CQ
(+VE2CDX) 825 2 30 4,066 QC
Mountain State Transmitters
K8VNQ
(+AD8DA) 423 2 16 3,115 WV
Lake Whitney ARS
NZ5T 565 2 20 2,724 NTX
Bearcat DX Club
W8BXG 805 2 17 2,324 OH
Sterling Park ARC
K4NVA
(+NQ4K) 397 2 15 2,268 VA
Green Valley ARC
N7GV
(+WE7GV) 319 2 16 2,062 AZ
Drake ARC
K8UU 368 2 12 2,022 OH
Long Tail RC
NA3DX 484 2 3 1,924 OH
Voice of America ARC
W7VOI 414 2 3 1,806 ID
Moore Co. ARS
NC4ML 633 2 23 1,756 NC
Bayouland Em. ARS
W5BMC 201 2 8 1,614 LA
Sandy ARC
W7S 183 2 30 1,604 UT
Royal Gorge ARC
WØBET 454 2 6 1,558 CO
Mt. Tom Amateur Repeater Assn.
W1TOM
(+KC1VEP) 291 2 22 1,512 WMA
Magnolia DX Assn.
K5MDX 328 2 4 1,244 MS
Southwest Dallas Co. ARC
W5WB 282 2 13 1,218 NTX
Richmond Amateur Telecom. Soc.
W4RAT 442 2 40 1,194 VA
Henderson ARC
W7HEN 258 2 75 1,186 NV
North GA VHF Soc.
K4NGA 275 2 4 1,130 GA
Rains ARA
W5ENT
(+KG5NUX) 148 2 11 1,080 NTX
Eau Claire ARC
W9EAU 244 2 13 896 WI
Ft. Madison ARC
KC9PL 211 2 8 894 IL
Carbon ARC
W3HA 198 2 20 874 EPA
Hawkins Hancock AR Team
N2H 104 2 5 758 TN
Western PA FD Assn.
KS3N 311 2 3 748 WPA
Spring Hill ARC
K4S 130 2 26 714 NFL
Mississinewa Valley ARA
KD9VFA 70 2 5 698 IN
Indian River ARC
AJ4IR 247 1 9 654 SFL
Silver Creek QRP Club
WBØYDF 169 2 3 626 MN
Gaston Co. ARS
N4GAS 117 2 5 542 NC
Osage Co. ARC
NØOC 172 2 15 534 KS
Mackenzie Regional RC
VE6MRF 43 2 6 398 AB
3 Guys With Radios ARC
KM3GWR 14 2 4 378 AL
Pioneer ARA
WB8WV 87 2 4 316 WV
Coon Valley ARC
WAØGUD 60 2 6 295 IA
Texas A&M Univ. ARC
W5AC 60 2 3 270 STX
Eastern NM ARC
KA5B 44 2 10 146 NM

3A

North Fulton ARL
K4JJ (+NF4GA) 3,596 2 114 14,344 GA
Randallstown ARC
N3IC (+K3MZ) 2,854 2 19 12,088 MDC
North Shore RC
K9SS (+K9RE) 2,830 2 117 12,027 IL
Johnson Co. Radio Amateurs Club
WØERH
(+WØAR) 2,672 2 45 11,403 KS
Providence Radio Assn.
W1OP (+W1C) 2,564 2 40 10,932 RI
Lynchburg ARC
K4CQ
(+W3CQ) 2,559 2 74 10,513 VA
Fulton Co. (IL) ARC
K9ILS 2,493 2 15 10,406 IL
Signal Hill ARC
K4NN
(+KK4PH) 2,668 2 11 10,275 WV
Port City ARC
K1R
(+W1WQM) 2,897 2 25 10,228 NH
Prairie Dog ARC
WØOJY
(+WØEJ) 2,395 2 30 9,808 SD
North Shore Radio Assn.
NS1RA 2,726 2 25 9,802 EMA
Wireless Soc. of Southern ME
W1M
(+WS1SM) 2,567 2 23 9,788 ME
Mountaineer ARA
W8SP (+AE8K) 2,228 2 32 9,718 WV
ARES of Douglas and Elbert Co.
NØKV
(+NØIVN) 2,114 2 40 9,513 CO
St. Louis ARC
KØLIR 2,351 2 22 9,016 MO
Delaware ARA
K8ES (+W8JK) 1,882 2 25 8,825 OH
Sun Parlour ARC
VE3SPR 2,286 2 29 8,804 ONS
Utah Valley ARC
K7UVA
(+K7GSL) 2,193 2 37 8,789 UT
Tallahassee ARS
K4TLH
(+KZ4EA) 2,240 2 55 8,725 NFL
Central WV Wireless Assn.
K8DF
(+WV8HC) 1,337 2 23 8,629 WV
Ozaukee RC
W9CQO
(+AE9MY) 2,116 2 20 8,294 WI
Forx ARC
NØGF 2,272 2 19 7,776 ND
PART of Westford
K1IG
(+KB1OIQ) 1,725 2 85 7,763 EMA
United Radio Amateurs Club
K6AA 1,992 2 13 7,700 LAX
Oh-Ky-In ARS
K8SCH
(+N8YC) 1,736 2 30 7,533 OH
Oakland Co. ARS
W8TNO
(+W8KRS) 1,737 2 16 7,358 MI
Cedar Valley ARC/Collins
ARC Joint Operation
WØGQ
(+WØCXX) 2,086 2 60 7,212 IA
Susquehanna Valley ARC
W3VPJ
(+KA3IRJ) 1,853 2 44 7,086 EPA
Sun Country ARS
N4EK 1,682 2 16 7,036 NFL
Valley and Massanutten ARA
W4XD
(+K4MRA) 1,358 2 40 6,829 VA
Columbus ARC
W4CVY
(+W4FIZ) 1,768 2 30 6,622 GA
Tennessee Valley DX Assn.
N4LT 1,479 2 24 6,448 TN
Stanwood-Camano ARC
W7PIG
(+KJ7FGG) 1,329 2 48 6,415 WWA
Raleigh ARS
W4DW
(+N4RAL) 1,223 2 37 6,249 NC
Dial RC of Middletown
K8PI (+W8BLV) 1,097 2 24 6,248 OH



Edward Schuhlein, KC2HNP; Jay Geiger, WB2JTE, and Mark Adubato, KD2HAO, work late into the night searching for contacts at the Parsippany-Troy Hills RACES Field Day at Johnson Beach on Lake Parsippany, New Jersey. [Steven Weinerman, WA2IMS, photo]

Wolf Mountain BBQ and RC
K6T 1,759 2 4 6,170 SV
Williamsburg Area ARC
K4RC
(+AI4WU) 1,279 2 102 6,152 VA
Central OR DX Club
N7LE
(+W7SAG) 1,383 2 13 5,909 OR
Barnstable ARC
W1MA 1,263 2 28 5,834 EMA
Ellsworth Amateur Wireless Assn.
W1TU
(+KB1NEB) 1,178 2 17 5,781 ME
Boulder ARC
WØDK
(+WØLAD) 1,754 2 26 5,765 CO
The 415 ARC
N9WH
(+KD9PPX) 1,112 2 17 5,649 IL
Larkfield ARC
W2LRC
(+WA2PNU) 1,092 2 53 5,340 NLI
Grand Strand ARC
W4GS
(+KQ4DJQ) 1,179 2 25 5,293 SC
Monkey Lover's Radio Consortium
K6MMM
(+N6OTA) 1,252 2 61 5,170 SCV
Vienna Wireless Soc.
K4XY
(+K4HTA) 1,021 2 70 5,020 VA
CARESS-NWARC
VE7SCC
(+VA7CQT) 1,115 2 50 4,942 BC
Rochester Area Field Day
W2XRX
(+WB2EOC) 899 2 42 4,923 WNY
Ski Country ARC
KØRV 1,208 2 44 4,878 CO
Tippecanoe ARA
W9REG 979 2 10 4,864 IN
Old Barney ARC
N2OB
(+N2CW) 1,052 2 15 4,848 SNJ
Shelby Co. ARC
W4SHL 892 2 20 4,764 AL
San Mateo RC
W6UQ
(+AJ6VY) 862 2 50 4,743 SCV
Macoupin Co. ARC
K9M (+K9MCE) 1,265 2 24 4,657 IL
North Augusta Belvedere RC
K4NAB
(+N4SMS) 1,065 2 34 4,594 SC
Holland ARC
K8DAA 1,138 2 37 4,520 MI
Dallas ARC
W5FC 813 2 54 4,470 NTX
Athens RC
W4G (+W4H) 1,096 2 45 4,450 GA
Nassau ARC
K2VN
(+KE2EXL) 869 2 41 4,409 NLI
Mesilla Valley RC
N5BL (+AI5MI) 807 2 10 4,391 NM
ARC EmComm Srvc.
WB2QBP
(+K2ARC) 1,033 2 20 4,371 NLI

Albemarle ARC
W4DO
(+WA4TFZ) 847 2 52 4,337 VA
Palo Alto ARA
W6ARA
(+K6OTA) 1,076 1 115 4,290 SCV
Waldo Co. ARA
N1TN
(+W1EMA) 884 2 25 4,290 ME
721st Mechanized Contest Battalion
WC2FD 1,241 2 30 4,270 NNJ
Fayette Co. ARC
W4JB
(+KK4GQ) 913 2 30 4,256 GA
Blossomland ARA
W8MAI
(+W8KIT) 776 2 31 4,220 MI
Cumberland Plateau ARC
K4M
(+KR4ADJ) 876 2 13 4,204 TN
Paducah ARA
W4NJA
(+KR4EOT) 767 2 16 4,168 KY
Lehigh Valley ARC
W3OI 773 2 30 4,114 EPA
Hughes ARC
W6HA
(+N6VZF) 735 2 46 4,092 LAX
Heritage Hunt Hams
WA4HH 939 2 26 4,074 VA
ARTS of Louisville
W4CN
(+KY4DX) 1,213 2 12 4,047 KY
Nixa ARC
WØA (+KØNXA) 958 2 25 4,036 MO
QSY Soc./MBARC
K2QS
(+N2SKP) 784 2 40 3,984 ENY
High Appalachian Mountain ARS
KE4MH
(+WW4DUB) 546 2 6 3,967 NC
Martin Co. ARA/Martin Co. ARES/RACES
K4ZK
(+WX4MC) 785 2 19 3,942 SFL
Sonoma Co. Radio Amateurs
K6SON
(+W6SON) 736 2 50 3,891 SF
Blue Ridge ARC
W4YK 752 2 40 3,848 NC
Shenandoah Valley ARC
W4RKC 843 2 15 3,808 VA
Southern KY AR Transmitting Soc.
KY4AR
(+AA4JP) 657 2 16 3,749 KY
Santa Fe Trail ARC
KSØKS
(+W9BSP) 671 2 41 3,747 KS
Southern Peninsula AR Klub
W4QR 658 2 57 3,666 VA
Foothills ARS
K6YA
(+W6VYC) 645 2 18 3,631 SCV
Garden State ARA
W2GSA
(+KE2BRG) 587 2 30 3,492 NNJ
Whitley Co. ARC
WC9AR
(+KC9ANF) 544 2 18 3,414 IN

Cuyahoga Falls ARC
W8VPV 1,109 2 12 3,404 OH
Lincoln ARC
KØKKV (+KØSMM) 650 2 47 3,364 NE
West Virginia AR
WV8AR (+K8AAT) 619 2 15 3,344 WV
Ole Virginia Hams
W4OVH 585 2 15 3,304 VA
Hamfesters RC
W9AA (+W9JPR) 548 2 26 3,265 IL
Mining ARC/St. Paul RC
WØMR (+KØAGF) 476 2 62 3,253 MN
Central MI ARC
W8MAA (+KD8ONC) 570 2 73 3,228 MI
South Orange ARA
K6SOA (+K6WO) 737 2 103 3,139 ORG
Lapeer Co. ARA
W8LAP 731 2 7 3,102 MI
Faulkner Co. ARC
N5GK (+W5AUU) 874 2 31 3,064 AR
Coshocton Co. ARA
W8CCA 466 2 16 3,030 OH
Highlands Co. ARC
W4HCA (+KD4TVZ) 513 2 22 3,026 WCF
The Villages ARC
K4VRC 519 2 21 2,980 NFL
Virgin Valley ARC
KE7END 500 2 16 2,974 NV
Idaho Mountain ARS
KX7ID (+KK7ZMC) 389 2 19 2,973 ID
Tellico Lake ARC
KN4DUA 655 2 25 2,972 TN
Mountain ARC (MD)
W3YMW (+KB3CS) 671 2 10 2,950 MDC
Helena ARC
W5HAR (+W5JPC) 522 2 11 2,886 AR
Columbia (MD) ARA
K3CUJ 517 2 25 2,864 MDC
Toronto ARC
VE3TNC (+VE3WE) 603 2 22 2,802 GH
Valley of the Moon ARC
W6AJF 425 2 15 2,798 SF
Alford Memorial RC
W4BOC 533 2 9 2,774 GA
Jefferson Co. (WA) ARC
W7JCR (+N7LWM) 366 2 20 2,726 WWA
Arrowhead RAC
WØGKP 441 2 35 2,700 MN
Denver RC
WØTX 711 2 67 2,700 CO
Los Angeles ARC
W6PCH 405 2 28 2,680 LAX
Saratoga Co. ARA
K2DLL (+K2DAA) 470 2 13 2,680 ENY
Putnam Em. Amateur Repeater League
K2PUT (+K2PC) 391 2 25 2,664 ENY
Kitchener-Waterloo ARC
VE3IC (+VE3HEC) 778 2 15 2,642 ONS
Jefferson Co. (TX) ARC
W5SSV 516 2 29 2,608 STX
Gold Coast ARA
N4FL 328 2 70 2,594 SFL
Murray State Univ. ARC
K4MSU 476 2 50 2,570 KY
Tyler Co. ARA
WD5TYL 292 2 11 2,536 STX
The Kansas Antenna Club in Johnson Co.
KØANT 464 2 13 2,534 KS
Coastal ARS
W4LHS 703 2 27 2,530 GA
Utica ARC
K2IQ 476 2 8 2,522 WNY
Quinte ARC
VE3RL 654 2 31 2,516 ONE
Delaware Valley Radio Assn.
W2ZQ 538 2 11 2,500 SNJ
Lake Cumberland ARA
N4LCA 452 2 41 2,494 KY
Triple A ARA
WW3AAA 537 2 19 2,474 WPA
Baton Rouge ARC
W5GIX (+K5LSU) 440 2 160 2,473 LA
Central KS ARC
WØCY 543 2 9 2,462 KS
Burlington ARC
VE3CJ 524 2 7 2,456 GH
Adrian ARC
W8TQE 551 2 14 2,440 MI
Spokane DX Assn.
K7SDX 462 2 11 2,436 ID
Radio Amateur Soc. of Norfolk
W4NPS 467 2 25 2,410 VA
Mt. Vernon (OH) ARC
K8EEN 517 2 19 2,384 OH
Smithsonian ARG
NN3SI 644 2 8 2,384 MDC
NXP ARC
W7MRF 484 2 6 2,370 AZ
YARS/MVRC/SAC ARC/Yolo Co. ARES/BARC
W6YAR 311 2 21 2,358 SV
Hambuds
KE5RS 435 2 10 2,306 STX
Fallbrook ARC
N6FQ 464 2 45 2,298 SDG
Scranton-Pocono AR Klub
K3CSG (+W3W) 161 2 13 2,292 EPA
Alaska Ham Radio Adventures
KL7ADV 334 2 5 2,272 AK
West Allis RAC
W9FK 381 2 17 2,268 WI
Chicago Suburban Radio Assn.
W9SW (+K9ASM) 328 2 23 2,230 IL
Lake of the Ozarks ARC
NØZS 350 2 8 2,214 MO
Radio Operadores Del Este
KP3RE 303 2 16 2,196 PR
Microhams ARC
N7OS 353 2 34 2,186 WWA
Twin Cities ARC
K9CU (+KB9OFH) 470 2 14 2,174 IL
Blount Co. ARC
W4BLT 346 2 18 2,160 AL
St. Marys Co. ARA
K3HKI 359 2 27 2,160 MDC
Central Oregon Coast ARC
W7L (+W7FLO) 247 2 20 2,122 OR
Sudbury ARC
VE3AC 303 2 21 2,100 ONN
Cedar Creek ARC
K5CCL 313 2 32 2,094 NTX
St. Croix Valley ARC
WW1IE (+WA1DXO) 180 2 15 2,061 ME
Ellis Co. ARC
K5ECT (+N1XAC) 353 2 10 2,046 NTX
Oakland Radio Comm. Assn.
WW6OR 594 2 27 2,038 EB
Eastern Ozarks ARC
KØEOR (+KFØHOG) 242 2 6 2,034 MO
North Hills ARC of Pittsburgh
W3PGH 410 2 17 2,018 WPA
Greater Beloit ARC
K9BEL 436 2 10 2,008 WI
Sandia Vista ARC
WV5X 359 2 10 1,998 NM
3 Rivers ARC
W7W 433 2 20 1,978 ID
Quaboag Valley ARC
K1QVR (+N1S) 261 2 21 1,978 WMA
Oak Ridge ARC
K4PJ 308 2 9 1,976 TN
Santa Barbara ARC
K6TZ 362 2 15 1,974 SB
Central MO Radio Assn.
KØSI (+KEØSIY) 130 2 39 1,946 MO
Clark Co. (IN) ARC
W9WWI (+W9JBQ) 468 2 7 1,942 IN
Olympia ARS
NT7H (+N7POV) 271 2 28 1,918 WWA
Motorola ARC of Arizona
W7MOT (+K7BLT) 251 2 15 1,868 AZ
Easton ARS
K3EMD (+NN3G) 233 2 20 1,860 MDC
Kishwaukee ARC
K9C 274 2 6 1,844 IL
Milwaukee Radio Amateurs' Club
W9RH (+AB9C) 220 2 15 1,842 WI
Tennessee ARA
W4T (+K4T) 224 2 6 1,838 TN
Milwaukee School of Engineering ARC
W9HHX (+W9POG) 247 2 20 1,829 IL
Kingsport/Bays Mountain ARC
W4TRC 389 2 14 1,824 TN
Alliance ARC
W8LKY 304 2 40 1,798 OH
Arkansas River Valley ARF
K5PXP (+KI5SXJ) 251 2 20 1,790 AR
Lake Area AR Klub
K5LRK 343 2 7 1,790 NTX
Parkersburg AR Klub
W8PAR 327 2 25 1,784 WV
Westmoreland ARC
NN4VA 362 2 12 1,780 VA
Midland Trail RC
KR4ESP 215 2 10 1,778 KY
Northern AZ DX Assn.
W7YS 320 2 10 1,770 AZ
Grayson Co. ARC
K5GCC 240 2 33 1,752 NTX
Lee DeForest ARC
K6LDF (+KN6RBP) 256 2 7 1,750 ORG
Northeastern IN ARA
W9OU 200 2 14 1,734 IN
Iowa City ARC
WØJV 435 2 15 1,726 IA
Nanaimo ARA
VE7NA 498 2 20 1,720 BC
Gateway ARC
K4GAR 194 2 20 1,716 GA
South Point ARC
WH6FC 481 2 14 1,710 PAC
Green Mountain Wireless Soc.
N1VT (+W1GMW) 172 2 8 1,694 VT
SMARTS RC
WBØRMK (+KFØRFE) 364 2 8 1,690 MN
Lewis and Clark RC
K9HAM 73 2 30 1,686 IL
South AL RC
WC4M 325 2 25 1,686 AL
Indiana Co. ARC
W3BMD 375 2 15 1,682 WPA
Red Oaks Radio
KW4RO 252 2 4 1,666 NFL
Ruckerville Amateur Transmitting Soc.
N4CVG 311 2 12 1,652 KY
Central VT ARC
W1BD 265 2 17 1,648 VT
Wellesley ARS
W1TKZ (+W1HEB) 156 2 35 1,636 EMA
St. Cloud ARC
WØSV (+KU5MC) 177 2 45 1,624 MN
Maple Grove RC
KØLTC (+KØYTH) 151 2 35 1,622 MN
Red River Radio Amateurs
KØRQ 328 2 4 1,614 ND
Skyline ARC
K2IWR 304 2 9 1,614 WNY
Pilot Knob ARC
WØEBB (+KBØYME) 242 2 34 1,608 KS
Burnett Washburn RA
N9PHS 350 2 10 1,606 WI
Cambridge ARA
W8VP 170 2 19 1,606 OH
Lakes Region Repeater Assn.
W1BST (+W1ALA) 158 2 25 1,600 NH
Adams-Arapahoe Co. ARES
WAØRES 47 2 14 1,534 CO
West Point CERT/Calaveras ARES
W6WPT (+KI6UTW) 234 2 6 1,528 SJV
Hernando Co. ARA
K4BKV (+WBØYSX) 372 2 11 1,500 NFL
Sandusky Radio Experimental League
W8LBZ 373 2 7 1,498 OH
Farrell-Gray-Moody
KØW (+KAØSM) 121 2 3 1,491 CO
Morrow Co. ARS
W8NL 149 2 8 1,486 OH
Federal Way ARC
WA7FW (+WA7DR) 105 2 30 1,473 WWA
Salt Lake Youth ARC
KK7UZI 112 2 9 1,470 UT
High Sierra Field Day Grp.
K6VT (+W6CHP) 377 2 5 1,469 SV
Moreno Valley ARA
AB6MV 324 2 15 1,464 ORG
Elmore Co. ARC
K7ECI 352 2 4 1,446 ID
Snohomish Co. Hams Club
WA7LAW 295 2 63 1,444 WWA
Lambton Co. RC
VE3SAR (+VA3OIL) 85 2 5 1,436 ONS
Fluvanna ARES Grp.
W4XR 263 2 8 1,424 VA
Huron ARA
WØNOZ 281 2 6 1,412 SD
South Wake ARC
N4SWC 168 2 15 1,406 NC
Central Toronto ARC
VA3CTA 281 2 16 1,402 GH
ARC of El Cajon
WA6BGS 273 2 44 1,396 SDG
Cloud Peak Radio & Electronics Grp.
WY7SHR 188 2 18 1,394 WY
North East WY ARA
NE7WY 520 2 7 1,390 WY
Willits ARS
W6MMM 222 2 25 1,366 SF
RASC/SARECC
K7PAA (+W7ABF) 173 2 36 1,365 WWA
Cherryland ARC
W8TCM 239 2 19 1,364 MI
Davis Co. ARC
K7DAV 113 2 75 1,356 UT
Twin City FM Club
WØEF 131 2 16 1,340 MN
Poway ARS
N6PWY 246 2 30 1,334 SDG
The Road Show ARC
WA4TRS 252 2 3 1,308 NC
Western Division SATERN
KØTSA 325 2 5 1,308 NE
Montachusett ARA/Waltham ARA
W1GZ (+W1QED) 223 2 13 1,283 WMA
Kitsap Co. ARC
KC7Z 203 2 35 1,266 WWA
Jones Co. ARC
WØCWP 203 2 4 1,258 IA
Santa Clarita ARC
W6JW 353 2 20 1,256 LAX
Batesville Area RC
K5BRC 184 2 6 1,254 AR
Broken Arrow ARC
W5DRZ 138 2 20 1,226 OK
Warren ARS
WØIND 344 2 18 1,216 IA
San Bruno ARC
K6PVJ 31 2 17 1,212 SCV
Irving ARC
WA5CKF 94 2 12 1,210 NTX
Cascades ARS
W8JXN 332 2 12 1,194 MI
Roanoke Valley ARC
W4CA 159 2 18 1,166 VA
Burlington Co. RC
K2TD 53 2 13 1,158 SNJ
Huntington Beach RACES
W6HBR (+WB6OZD) 85 2 22 1,156 ORG

Red River Valley ARC					
W5W	114	2	20	1,142	NTX
Beaver Valley ARA					
W3SGJ	144	2	14	1,138	WPA
Bishop ARC					
N6OV	193	2	10	1,136	ORG
Skyline Tower ARC					
W7DTV	215	2	8	1,136	OR
Mt. Magazine ARC					
W5MAG	182	2	10	1,132	AR
Alcorn Co. ARC					
W5AWP	59	2	13	1,128	MS
Bloomfield ARC					
W1CWA	142	2	23	1,126	CT
Lincoln Co. ARC					
N7OY (+NJ7OK)	82	2	12	1,114	OR
America West ARC					
K7AWA	233	2	3	1,102	AZ
Downey ARC					
W6TOI	176	2	3	1,102	LAX
Tipton ARS					
W4TIP (+KZ4CR)	33	2	15	1,089	TN
Anderson Island ARC					
WA7AI	19	2	3	1,088	WWA
North Shores ARC					
K6HAI	17	2	4	1,088	SDG
Otoe Co. ARA					
KAØNC (+WØNEU)	131	2	3	1,082	IA
BROTA					
K6DXN	258	2	3	1,070	SV
Club Radioamateur de Drummondville					
VE2CRD	115	2	6	1,064	QC
Western CO ARC					
WØRRZ	109	2	5	1,056	CO
Northwest OH ARC					
W8EQ (+KE8NRP)	39	2	21	1,040	OH
San Jose State ARC					
W6YL	228	2	8	1,032	SCV
Central IN ARA					
N9EOC (+KB9FJV)	97	2	13	1,031	IN
Imperial ARG					
W6ICR	193	2	9	1,022	SDG
Bear Bait RC					
N2B	100	2	11	1,020	NNY
Glenn ARS					
AG6AR	83	2	6	1,016	SV
South Peninsula ARC					
KL7HOM	70	2	16	1,006	AK
Town of Porter Amateur FD					
N2F	239	2	3	1,006	WNY
FAR Friends of AR					
K3A	212	2	4	986	EPA
Rolla Regional ARS					
WØGS	132	2	9	958	MO
Radio Operators of Camden Co.					
K2AUD	92	2	5	956	SNJ
Middlesex ARS					
W1EDH	117	2	7	938	CT
Spring Hill ARC					
KQ4PHQ	124	2	3	938	TN
Island of Misfit Hams					
KC3SMA	121	2	3	926	WPA
Campbell River ARS					
VE7CRC	276	2	12	908	BC
Lodi ARC					
N6SJV	48	2	19	896	SJV
Northeast AR RC					
K5NEA	55	2	3	890	AR
AB8E	145	2	9	882	WV
HARC/Dallas Co. ARES					
KØDCI	38	2	5	870	IA
Chippewa Valley ARC					
W9CVA	122	2	15	856	WI
North Okaloosa ARC					
W4AAZ	35	2	9	830	NFL
Pontotoc Co. ARA					
AD5CL	30	2	6	818	OK
Kay Co. ARC					
N5PC	82	2	20	816	OK
Knox Co. ARC					
W9GFD	31	2	15	812	IL
Sunset Empire ARC					
W7BU	29	2	11	808	OR
Walton Co. Repeater Grp.					
WC4RG	60	2	13	802	GA
Mid Island Radio Assn.					
VE7MIR	103	2	20	778	BC
Springvale ARC					
KFØSYA	150	2	7	750	IA
Ozark ARS					
WØOAR	101	2	7	748	MO
Peoria Area ARC					
W9UVI	63	2	3	742	IL
Lake Co. ARS					
W6SBD	85	2	10	720	SF
Northern Lakes ARC					
KØGPZ	32	2	6	716	MN
Fox Island ARC					
WA7FI	20	2	12	710	WWA
Wisconsin Valley Radio Assn.					
W9NA	124	2	10	698	WI
Tonto ARA					
N7TAR (+N7TWL)	15	2	5	686	AZ
Metropolitan ARC					
K8NOW	101	2	4	678	MI
Brookings Radio Research Club					
WØBXO	37	2	9	666	SD
Southwest Columbus Ham RC					
WB8MMR	55	2	20	660	OH
Laughery Valley ARC					
KB9GYO	63	2	3	644	IN
Apple City ARC					
W7TD	87	2	14	634	EWA
Valdez ARES					
WL7CVV	7	2	7	614	AK
Cookeville Repeater Assn.					
WA1CST	44	2	6	606	TN
North Yellowstone ARC					
NY7AR	52	2	3	590	MT
The Albuquerque Bois					
KD2EOM	11	2	3	572	NM
Southern AR Experimenters Club					
W5AXC	156	2	3	558	MS
Ontonagon Co. ARA					
K8ONT	45	2	4	526	MI
Neosho Co. ARC					
AIØE	14	2	11	498	KS
Mayfield Graves Co. ARS					
W4TZX	172	2	10	494	KY
KØVIK	22	2	3	494	MN
Argonne RC					
W9ANL	58	2	4	466	IL
Twin Cities Repeater Club					
WØBU	29	2	8	466	MN
AEØYE	26	2	3	414	MN
Arab ARC					
K4AHC	57	2	8	410	AL
Cape May Co. ARC					
N2CMC	89	2	9	316	SNJ
Tinman Acres ARC					
W9TTD	9	2	3	88	IN
AEØUZ	5	2	3	60	MN

3A — Battery

NE TX QRP Contest Fed.					
KA5CJJ	559	5	3	5,365	NTX
Southeast LA ARC					
WM5T	432	5	3	5,085	LA
South Plainfield ARC					
NJ2SP (+KD2FSI)	295	5	11	4,040	NNJ

3A — Commercial

Sawnee ARA					
N4NE (+KW4WL)	2,254	2	94	9,320	GA
Bella Vista RC					
W5NX (+N5BVA)	2,107	2	82	8,793	AR
Clearwater ARS/St. Petersburg ARC/Upper Pinellas ARC					
W4TA	2,236	2	70	7,770	WCF
TwoHoots DX Club					
NA7SS (+W7YED)	1,142	2	10	4,824	WWA
West Valley ARC (AZ)					
W7V	1,295	2	21	3,688	AZ
Koomer Ridge Contesters					
K1CCN	898	2	5	3,592	WI
Summit Co. ARC					
W8ORC	1,012	2	10	3,548	OH
Azalea Coast ARC					
AC4RC	1,187	2	14	3,522	NC
Kingston Area Amateurs					
VA3DO (+VE3GND)	942	2	7	3,458	ONE
Mobile ARC					
W4IAX	719	2	30	3,120	AL
Cumberland ARC					
K3IEC	477	2	15	2,710	EPA
Ashtabula Co. ARC					
K8CY	834	2	4	2,444	OH
Metrocrest ARS					
KB5A (+KJ5KEU)	364	2	28	2,412	NTX
New River Valley ARC					
N4NRV	556	2	35	2,382	VA
Rockingham Co. ARC					
N4IV	497	2	6	2,054	NC
Macon Co. ARC					
NØPR (+NØPX)	341	2	11	1,824	MO
George Co. ARES					
KC5CWW	362	2	30	1,814	MS
Suffolk Co. RC					
W2DQ (+W2TFJ)	272	2	30	1,654	NLI
Ashland Area ARC					
W8T (+KE8YGW)	272	2	18	1,540	OH
Hendricks Co. ARS					
N9HC	234	2	30	1,482	IN
Thomasville ARC					
W4UCJ	152	2	14	1,454	GA
Splitrock ARA					
WS2R	172	2	20	1,378	NNJ
Venture Crew 520					
N5VDQ	327	2	18	1,364	NTX
Hocking Valley ARC					
K8LGN	227	2	15	1,254	OH
Mason Co. ARG					
KE8COT	135	2	6	1,250	WV
Red River Radio Amateurs					
WØILO	281	2	22	1,164	ND
Ewephoria RC					
K1EWE	231	2	4	966	NFL
Anderson RC					
AA4S (+KY4LAW)	167	2	6	930	KY
Pioneer Valley RA					
W1HDN (+AA1HD)	205	2	10	878	CT
Mel Mabry Memorial ARC					
W4MAI	162	2	3	804	VA
Aiken RC					
KE2HG	253	2	5	800	SC
Bartlesville ARC					
W5NS	135	2	7	782	OK
Langley ARA					
VE7LGY	177	2	4	778	BC
Clark Fork Valley ARC					
W7CFV	44	2	5	626	MT
Martin Co. ARC					
K9MRT	129	2	6	608	IN
Dayton ARA					
W8BI	39	2	6	560	OH
Southern IN Tri-Co. ARC					
KC9OLF	147	2	4	544	IN
California City ARC					
KE6RN	79	2	12	466	SJV
Wireless Soc. of Lorain Co.					
K8WSL	82	2	3	466	OH
ARC of the Ozarks					
WBØJJJ	28	2	6	336	MO
Radio Amateurs of Corry					
W3YXE	19	2	6	188	WPA

4A

Indy United ARC					
W9SU (+W9RCA)	4,726	2	32	20,272	IN
Huntsville ARC					
K4BFT (+KC4VEC)	4,746	2	70	17,289	AL
Rocky Mountain Ham Radio					
NØSZ (+WØKVA)	3,244	2	58	13,919	CO
Portage Co. ARS					
K8BF (+KP4VZ)	3,317	2	60	11,672	OH
Charlotte ARS					
WX4E (+K4IN)	2,409	2	43	10,805	WCF
Arrow Comm. Assn.					
W8RP (+W8PGW)	2,252	2	125	10,650	MI
Midessa Field Day Grp.					
K5RS (+W5QGG)	2,603	2	16	10,614	WTX
Livonia ARC/Ford ARL					
K8UNS	2,419	2	70	8,150	MI
Westchester EmComm Assn.					
N2SF	1,855	2	15	7,918	ENY
Sierra Foothills ARC					
W6EK (+KM6RGO)	1,545	2	26	7,539	SV
Platinum Coast ARS					
W4MLB (+K5LD)	1,556	2	52	7,404	SFL
Annapolis Valley ARC and Kings Co. ARC					
VE1LD (+VA1AVR)	1,871	2	41	7,385	NS
PRC/SPARC/JPLARC/CITARC					
N6P (+W6SPR)	1,809	2	30	7,049	LAX
Somerset Co. ARC					
K3SMT (+KR3L)	1,859	2	25	6,112	WPA
Radio Amateurs of Greater Syracuse					
W2AE (+KC2HO)	1,033	2	49	6,013	WNY
Superstition ARC					
K7K (+WB7TJD)	1,628	2	14	5,996	AZ



Olympia Amateur Radio Society (OARS) members Greg Perry, KK7VDK, and Bill Mackey, N3DPQ, got on the air during the OARS Field Day celebration at Depot Park in Lacey, Washington. The club assembled four operating stations for the event, including a dedicated "Get on the Air" station where unlicensed visitors could log their first HF contacts under the guidance of licensed hams. [Doug Grover, N7POV, photo]

Oregon Tualatin Valley ARC					
W7OTV	1,275	2	73	5,834	OR
Lakeland ARC					
K4LKL	1,398	2	28	5,736	WCF
Lewisville ARA					
W5LVC	1,148	2	65	5,590	NTX
Nashua Area Radio Soc.					
N1FD (+W1SMN)	1,264	2	17	5,538	NH
West Fork ARC					
W5T (+W5FKN)	1,638	2	25	5,528	NTX
Fauquier ARA					
W4VA (+N4HKZ)	982	2	32	5,436	VA
Panoramaland ARC					
K7JAR (+KG7VMV)	881	2	22	5,194	EWA
McKinney ARC					
W5MRC (+KI5QAX)	1,453	2	64	4,918	NTX
Wyandotte Co. RACES/CERT					
WØKCK (+WØLB)	861	2	10	4,833	KS
Washington Amateur Comm.					
WA3COM (+NY9H)	859	2	23	4,725	WPA
Boston ARC					
W1BOS	1,060	2	20	4,524	EMA
Valley RC/Emerald ARS					
W7PXL	968	2	75	4,404	OR
Smoky Mountain ARC					
W4OLB	1,137	2	101	4,296	TN
Baytown Area ARC					
K5BAY (+AA5RX)	673	2	15	4,288	STX
Steubenville-Weirton ARC					
W8CWO (+KF8AVX)	828	2	23	4,266	OH
Columbia-Montour ARC					
KT3A (+WE3U)	680	2	14	4,155	EPA
RC of Tacoma					
W7DK	1,073	2	50	4,152	WWA
Beaumont ARC					
W5RIN	949	2	7	4,138	STX
Uniontown ARC					
W3PIE	952	2	24	4,132	WPA
Titusville ARC					
K4KSC	734	2	14	3,994	SFL
Albany ARA					
K2CT (+K2ALB)	811	2	41	3,922	ENY
RF Hill ARC					
W3AI (+N3ANZ)	549	2	12	3,914	EPA
Edmond ARS					
K5EOK	914	2	46	3,816	OK
Kanawha ARC					
W8GK (+KB2HSV)	841	2	43	3,777	WV
St. Charles ARC					
KOØA	697	2	20	3,770	MO
Ocean Monmouth ARC					
N2MO	717	2	18	3,736	NNJ
KARO-ECHO/EBARC					
W6ECK (+W6CUS)	685	2	24	3,700	EB
Houston POTA					
KE5HP (+KG9BSA)	604	2	42	3,650	STX
Bowie Wireless Assn.					
K3BWA	1,022	2	25	3,642	MDC
Cochise ARA					
K7RDG (+W7WIL)	682	2	17	3,626	AZ
Decatur ARC					
W4A (+W4ATD)	812	2	19	3,588	AL
Chesapeake Bay Radio Assn.					
WD3E (+WA3SFJ)	529	2	15	3,587	MDC
Southeastern CT ARS					
W1QV	817	2	25	3,548	CT
SecKC ARC of Kansas City					
KØK (+KS3CKC)	637	2	12	3,533	KS
Peel ARC					
VE3XR (+VA3TIP)	494	2	14	3,478	GH
Tompkins Co. ARA					
AF2A (+AD2DD)	665	2	23	3,444	WNY
Yonkers ARC					
W2YRC (+KF2FK)	593	2	46	3,443	ENY
Delta and Neshoba ARC					
W4BS (+W4NRC)	481	2	78	3,424	TN
Alexandria RC					
W4HFH	629	2	26	3,314	VA
Peterborough ARC					
VE3RB (+VE3PBO)	904	2	22	3,250	ONE
Garrett Co. ARES					
K3LNZ	640	2	6	3,224	MDC
Wabash Valley ARA					
W9UUU	553	2	12	3,204	IN
Williamson Co. ARC					
N5TT	610	2	39	3,194	STX
Madison Co. (OH) ARC					
KE8RV	514	2	9	3,174	OH
Utah ARC					
W7SP (+N7MFQ)	852	2	35	3,114	UT
Indian Peaks RC					
WØNED	1,128	2	10	3,084	CO
Mesa Verde RA Grp.					
AI8Z	749	2	6	3,082	CO
Hazel Park ARC					
W8HP (+W8JXU)	570	2	57	3,054	MI
Hassayampa AR Klub					
W7HRK	731	2	5	2,996	AZ
Rome RC					
W2OFQ	450	2	7	2,978	WNY
Solivita RC					
N4SRC	581	2	6	2,956	WCF
Tusco ARC					
W8ZX	575	2	20	2,950	OH
Lincoln Hills ARG					
W6LHR (+KN6DRN)	496	2	4	2,944	SV
St. Clair ARC					
K9GXU	502	2	15	2,930	IL
Granite State ARA					
N1QC (+KC1TLY)	504	2	25	2,917	NH
South Lyon Area ARC					
N8SL	680	2	32	2,900	MI
Hoodview ARC					
W7Q	602	2	30	2,898	OR
Island Co. ARC					
W7AVM	381	2	40	2,882	WWA
Golden Spike ARC					
K7UB	590	2	31	2,858	UT
Northern Berkshire ARC					
N1WM	503	2	25	2,834	WMA
River City AR Comms Soc.					
N6NA	641	2	10	2,822	SV



The Blossomland Amateur Radio Association in St. Joseph, Michigan, used a repurposed fire truck as an antenna support for their Field Day operations. They completed a total of 1,360 contacts during the event. [Jeff Hopwood, N8CBA, photo]

St. Louis and Suburban RC					
WØSRC	493	2	50	2,814	MO
Joplin ARC					
WØIN	809	2	20	2,806	MO
Silver Springs RC					
K4GSO (+KC5CMX)	392	2	15	2,802	NFL
Orange Park ARC					
KA3EHL	329	2	37	2,794	NFL
Windmill ARG					
W3LTR (+N3AGG)	557	2	9	2,771	EPA
GOTAHAMS					
WG6OTA (+KC6WOK)	376	2	30	2,722	LAX
Middle TN ARS					
W4UOT (+AJ4QR)	462	2	33	2,672	TN
Medina Co. AR Corp.					
KD5DX	562	2	28	2,662	STX
Vero Beach ARC					
W4OT (+KK4CHL)	290	2	33	2,574	SFL
Stockton-Delta ARC					
W6SF	493	2	11	2,551	SJV
Meridian ARC/Chickasawhay Repeater Grp.					
W5FQ (+KE5AXT)	364	2	18	2,540	MS
Wichita ARC					
WØW (+WØSOE)	349	2	48	2,487	KS
Coos Co. RC					
K7CCH	472	2	20	2,482	OR
Bill Gremillion Memorial RC					
K4SEX	532	2	20	2,468	GA
Bay Area ARC					
K8BAY (+KE8EAJ)	316	2	20	2,428	MI
Bridgerland ARC					
W7IVM	312	2	40	2,404	UT
Black River ARC					
K8BRC (+KE8TVR)	450	2	12	2,340	MI
Cherokee Capital ARS					
K4WOC (+W4NWG)	188	2	12	2,340	GA
Grande Ronde Radio Amateurs Assn.					
W7GRA	371	2	18	2,340	OR
Barrie ARC					
VE3GCB (+VE3WEX)	378	2	16	2,323	ONS
Lincoln Co. ARA					
W4BV (+N4BCD)	170	2	30	2,320	TN
Orange Co. (IN) ARC					
KB9OHY	231	2	19	2,232	IN
Kendall ARS					
KB5TX	301	2	15	2,208	STX
Insurance City Repeater Club					
W1DHT	381	2	18	2,158	CT
Mississippi Coast ARA					
W5SGL	488	2	22	2,110	MS
Warminster ARC					
K3DN (+K3KH)	531	2	25	2,108	EPA
Coweta RC					
N4CRC	320	2	20	2,106	GA
Hillbilly Hams ARC					
NC4HH	459	2	8	2,086	NC
Cross Co. ARC/Crowley Ridge ARC/MidSouth Com.					
N5MSC	303	2	22	2,053	AR
Boerne ARC					
AB5UE	322	2	4	2,040	STX
Southern PA Comm. Grp.					
K3AE	395	2	15	2,012	EPA
Daytona Beach ARA					
K4BV (+AA5TD)	211	2	42	2,000	NFL
McMinnville ARC					
W7RXJ (+W7YAM)	165	2	42	1,988	OR
Fulton Co. (OH) ARC					
K8BXQ	358	2	5	1,942	OH
Green Bay Mike & Key Club					
K9EAM	335	2	39	1,934	WI
ARC of Columbia Co.					
K4KNS	273	2	34	1,902	GA
Rogers Co. Wireless Assn.					
N5XQK (+K5CFY)	141	2	12	1,876	OK
Heartland Hams ARC					
NØWKF	311	2	5	1,872	IA
Estero RC					
W6JU	294	2	62	1,846	SB
Cumberland Valley ARC					
W3ACH	311	2	8	1,844	WPA
Aero ARC					
W3PGA	190	2	23	1,836	MDC
Northern New England Field AR Ops.					
NE1FO	353	2	6	1,800	NH
Coffeyville ARC					
WRØMG	314	2	15	1,786	KS
Pueblo West ARC					
NAØPW	256	2	15	1,786	CO
South Halton ARES Grp.					
VE3OKV	209	2	14	1,778	GH
Southern OH Friends of AR					
W8PU	330	2	26	1,766	OH
Sangamon Valley RC					
W9DUA	358	2	10	1,746	IL
Plano AR Klub					
K5PRK	275	2	12	1,706	NTX
Sabin Field Day					
NØNRU	278	2	8	1,696	MN
Lowell ARC/Riverside Radio Amateurs					
K8LOW	283	2	28	1,674	MI
Twin State RC					
W1FN (+KC1LFU)	352	2	15	1,674	NH
Clinton Co. (OH) ARA					
W8GO	141	2	12	1,652	OH
Huber Heights ARC					
NO8I	221	2	8	1,634	OH
Elgin ARS					
VE3RSE	253	2	14	1,630	ONS
Frederick ARC					
K3ERM	231	2	41	1,618	MDC
Toledo Mobile Radio Assn.					
W8HHF	332	2	25	1,614	OH
Harrisburg Radio Amateurs Club					
W3UU (+KC3VPJ)	116	2	13	1,586	EPA
Calhoun Co. ARG					
W4CEM	163	2	10	1,560	SC
Active Amateurs Radio Grp.					
KK4ZBE	145	2	11	1,546	SC
Dalton ARC					
W4DRC (+N4JGW)	44	2	20	1,518	GA
Florence ARC					
W4ULH	185	2	27	1,454	SC
Sportsmans Paradise ARC					
K4WAK	270	2	4	1,452	NFL
Maryland Mobileers ARC					
W3CU	244	2	43	1,448	MDC
The 4 Hams					
NØOH (+W3JF)	273	2	19	1,441	MN
Lamorinda Area Radio Interest Grp.					
K6ORI	64	2	15	1,388	EB
London ARC					
VE3LON	219	2	30	1,378	ONS
Elk Co. ARA					
N3NIA	210	2	12	1,370	WPA
Pecos Co. ARC					
KG5OXR	116	2	10	1,364	WTX
ARC of Butts Co.					
WX4BCA (+KY4QG)	156	2	10	1,352	GA
Sun City Hilton Head ARC					
KE4HAM	165	2	17	1,350	SC
Johnston ARS					
K4SWR	312	2	60	1,334	NC
Perry Co. ARC					
K3SRZ	361	2	17	1,296	EPA
Detroit Lakes ARC					
WØEMZ (+KFØIBC)	28	2	15	1,295	MN
Monroe Co. ARS					
N4MCH	296	2	6	1,274	GA
Skamania Co. ARES					
W7SKA	78	2	12	1,272	WWA
Village 7 ARC					
KCØRVS (+KFØBOB)	134	2	20	1,219	CO
Anoka Co. RC					
WØYFZ	146	2	16	1,212	MN
Lockport ARA					
W2RUI	335	2	6	1,210	WNY
Hays/Caldwell ARC					
W5H	161	2	15	1,194	STX
The 220 MHz Guys					
WM9W	185	2	15	1,152	IL

Birmingham ARC					
W4CUE	49	2	15	1,148	AL
Playground ARC					
W4M	80	2	8	1,110	NFL
Milton ARC					
W4VIY	91	2	14	1,098	NFL
State Line RC					
N3SLC	214	2	18	1,098	MDC
Cy-Fair CERT					
W5CFC	11	2	4	1,066	STX
Goose River ARC					
NØGRC	62	2	8	992	ND
Emergency ARC of HI					
KH6CE	15	2	35	980	PAC
Bastrop Co. ARC					
K5OQ	155	2	17	974	STX
Lake Country ARS					
W4LCA	169	2	15	948	VA
Hop River RC					
K1HRR	106	2	6	930	CT
Elkhorn Valley ARC					
WØOFK	113	2	12	920	NE
South Side ARC					
NØET	220	2	16	910	MO
North Okanagan RAC					
VE7NOR	394	2	10	902	BC
Chickasaw ARA					
K5K (+K5VD)	153	2	30	886	MS
Centralia ARES					
K7CEM	114	2	16	878	WWA
Healing Springs Mtn. VHF Soc.					
W4PAR	53	2	14	852	NC
Rip Van Winkle ARS					
WD2K	203	2	4	788	ENY
Turlock ARC					
W6BXN (+KO6HFA)	35	2	35	731	SJV
Dallam Hartley AR					
KE5GRQ	35	2	9	720	WTX
Maple Ridge ARC					
VE7CMR	44	2	6	662	BC
Copper Country Radio Amateur Assn.					
W8CDZ	88	2	43	618	MI
Simpson Co. ARS					
KN4UTV	108	2	5	466	KY
Carteret Co. ARS					
W4YMI	13	2	5	76	NC

4A — Battery

St. Louis QRP Soc.					
NØA	445	5	18	5,420	MO
Portland ARC					
W7LT (+K7MAX)	421	5	38	5,205	OR

4A — Commercial

L'Anse Creuse ARC					
N8LC (+K8AJJ)	965	2	25	4,834	MI
Kaw Valley ARC					
WØCET	1,058	2	25	4,610	KS
Central LA ARC					
K5M	1,000	2	21	4,372	LA
West Georgia ARS					
W4FWD (+WX4BK)	672	2	45	4,024	GA
High Point ARC					
W4UA (+KR4DXF)	808	2	28	3,915	NC
Central IL RC					
W9EX	740	2	18	3,392	IL
Education Alliance for AR					
K3Q (+W3FRB)	548	2	8	3,070	EPA
Vicksburg ARC, Inc.					
K5ZRO	474	2	25	2,434	MS
Red Rose Repeater Assn.					
W3RRR	394	2	25	2,310	EPA
East Pasco ARS					
K4EX	438	2	22	2,244	WCF
Radio Assn. of Western NY					
W2PE	551	2	18	2,048	WNY
Jersey Shore ARS					
NJ2AR (+K2HVE)	255	2	21	1,707	SNJ
Wisconsin ARC					
W9CQ	296	2	9	1,622	WI
Pioneer ARC					
KØSW	433	2	14	1,556	NE
Tri-States ARC					
W4GTA (+W4LMS)	292	2	14	1,520	GA
Castle Rock Repeater Grp.					
KE0NVB	426	2	5	1,466	CO
Northwest GA ARC					
W4VO (+N4RMG)	221	2	20	1,382	GA
North Central MO ARC					
NCØMO (+WØPGH)	33	2	4	1,207	MO
Jacksonville ARS					
K9JX	268	2	10	1,178	IL
Scioto Valley ARC					
W8BAP	173	2	16	960	OH
St. Louis Metro ARES					
NØARS	24	2	4	946	MO
Ascension ARC					
K5ARC	180	2	30	926	LA
Moose Jaw ARC					
VE5MA	212	2	8	844	SK
Lakeshore ARC					
W9LRC	166	2	6	792	WI
KK4MAR	121	2	6	744	NC
Lake Martin ARC					
K5WYE	36	2	22	262	AL

5A

Orange Co. (CA) ARC					
W6ZE (+W6NGO)	3,328	2	30	12,119	ORG
Sussex Co. ARC					
W2LV	2,274	2	17	10,130	NNJ
Cuyahoga ARS					
W8BM	1,955	2	32	8,326	OH
Black River Radio Ops					
NW8S	2,013	2	8	8,016	OH
Colorado Party Hams					
WØCPH	1,600	2	7	7,874	CO
Cherokee ARS					
K4R (+WX4CAR)	1,551	2	53	6,951	GA
Lake Monroe ARS					
N4EH (+K4UBB)	1,440	2	101	6,831	NFL
N4N Field Day Grp.					
N4N	1,566	2	5	6,516	GA
Medina Co. ARC					
W8HN	1,431	2	35	6,282	OH
El Dorado Co. ARC					
AG6AU (+W6QA)	1,565	2	21	6,253	SV
KIN-WAY					
N4C (+W4HS)	1,714	2	37	6,232	NC
146.985 User Grp.					
W3R (+K3DTS)	973	2	34	5,934	EPA
Glynn ARA					
K4E (+KB4DSF)	1,174	2	20	5,704	GA
Delaware Repeater Assn.					
K3WJV	1,163	2	14	5,606	DE
Austin ARC					
W5KA	943	2	195	5,527	STX
LEFROG/MAARS					
W9FRG	1,392	2	14	5,406	WI
Two Rivers ARC of McKeesport					
W3OC (+N3JHB)	1,180	2	14	5,147	WPA
York Region ARC					
VE3YRA (+VE3YRK)	950	2	49	5,077	GH
Chesapeake ARS					
W4CAR (+K4AMG)	1,031	2	40	4,950	VA
Yellow Thunder ARC					
N9N (+W9ET)	819	2	10	4,333	WI
Western Reserve ARC					
W8WRC (+KE8YZL)	1,072	2	29	4,228	OH
Thunderbird ARC					
W7TBC (+KG7COA)	795	2	28	3,918	AZ
Cowtown ARC					
K5COW (+W5SJZ)	611	2	21	3,777	NTX
Livingston AR Klub					
W8LRK	724	2	29	3,718	MI
David Sarnoff ARC					
N2RE (+N2CTW)	448	2	30	3,604	NNJ
Lancaster ARC					
W2SO	641	2	10	3,554	WNY
Thousand Islands RC					
K2I	596	2	26	3,496	NNY
ARESLAX NW					
N6VI	695	2	9	3,450	LAX
Hampden Co. Radio Assn.					
W1NY	697	2	15	3,446	WMA
Wireless Assn. of South Hills					
W3A	740	2	25	3,412	WPA
Lake Co. ARA					
N8BC	807	2	12	3,374	OH
Magic Valley ARC					
K7MVA (+KK7SDQ)	516	2	35	3,299	ID
Vilas Co. ARC					
W9VRC	732	2	7	3,242	WI
Andrew Johnson ARC					
W4WC	804	2	34	3,164	TN
Rainbow Canyon ARC					
N7U	602	2	28	3,086	UT
Cherryville Repeater Assn. II					
W2CRA (+KR2C)	595	2	16	3,062	NNJ
Overlook Mountain ARC					
N2LL	569	2	26	2,948	ENY
Maury ARC					
W4GGM (+KQ4UAX)	442	2	18	2,909	TN
WVUARC/MWA/MCARC					
W8CUL (+KC8YUI)	791	2	18	2,888	WV
Mt. Vernon (VA) ARC					
K4US (+N2EC)	334	2	30	2,828	VA
HP Boise ARC					
AB7HP	631	2	25	2,786	ID
Crooked River ARC					
W8CRC	377	2	25	2,692	OH
Orange Co. (NY) ARC					
W2HO	350	2	34	2,638	ENY
Phil-Mont Mobile RC					
W3EM (+W3AA)	600	2	30	2,601	EPA
San Fernando Valley ARC					
W6SD	335	2	25	2,600	LAX
South Bay ARA					
KU6S	1,050	1	12	2,554	EB
Radio Amateur Club of Knoxville/ Middle East TN Em. Radio Srvc.					
W4BBB (+KD4AYU)	374	2	25	2,547	TN
N4Z Field Day					
N4Z	423	2	50	2,546	NC
Culpeper ARA					
W4CUL (+KE4WKX)	370	2	17	2,467	VA
Assoc. Radio Amateurs of Long Beach					
W6RO (+KE6LB)	400	2	42	2,448	LAX
Capital City ARC					
N7RB	321	2	30	2,328	MT
Bristol ARC					
W4UD	491	2	8	2,300	TN
Radio Soc. of Tucson					
K7RST (+WN7BSA)	381	2	47	2,140	AZ
Calvert ARA					
K3CAL	303	2	20	2,108	MDC
Columbia ARC					
W4CAE	141	2	25	2,090	SC
San Clemente Island RC					
KN6UWK	384	2	5	2,022	LAX
Brandon ARS					
K4TN (+AE4JB)	137	2	45	1,967	WCF
East River ARC					
W8MOP (+N8VFR)	222	2	15	1,928	WV
Seneca RC					
W8ID	66	2	26	1,928	OH
ARC of Parker Co.					
W5PC	304	2	16	1,926	NTX
Jay Co. ARC					
W9JCA	477	2	12	1,904	IN
Allegan Co. ARC					
AC8RC (+W8RMN)	208	2	24	1,822	MI
Marple Newtown ARC					
K3MN (+W3AWA)	246	2	37	1,822	EPA
NOARS/LCARA					
K8G (+K8KRG)	130	2	25	1,821	OH
Northern CO ARC					
WØUPS	339	2	22	1,817	CO
Western Carolina ARS					
W4MOE	251	2	8	1,790	NC
Hood Co. ARC					
W5HCT	399	2	7	1,760	NTX
Sabine Valley ARA					
W5M (+K5GVL)	126	2	20	1,670	NTX
McMinn Co. ARC					
K4RST	209	2	18	1,658	TN
Warrensburg Area ARC					
WØAU	346	2	5	1,652	MO
Stanislaus ARA					
W6ERE	234	2	15	1,642	SJV
Utica Shelby EmComm Assn.					
K8UO	320	2	17	1,640	MI
TCARES					
K6TUO (+K6NED)	146	2	5	1,518	SJV
San Luis Valley ARA					
KØSLV (+KF6VTJ)	61	2	15	1,445	CO
Cheshire Co. DX ARC					
AD1T	166	2	26	1,382	NH
Hancock AUXCOMM Team					
WV8HAT	354	2	8	1,358	WV
Comox Valley ARC					
VE7CVW	148	2	12	1,332	BC
Randolph ARC (IN)					
W9D	82	2	8	1,266	IN
Butler Co. AR Public Srvc. Grp.					
K3PSG	227	2	29	1,260	WPA
Humboldt ARC					
W6ZZK	85	2	24	1,220	SF
Misfits ARC					
W4MIS	380	2	12	1,210	NC
American Legion Hale-Combest Post 315 ARC					
KI5WIZ (+N7UQ)	50	2	7	1,132	NTX
Denver Radio League					
KEØNCQ	38	2	5	1,066	CO
Grundy Co. ARC					
W9G (+KB9SZK)	176	2	7	1,046	IL
Suburban Technical ARS					
W9SRC	39	2	5	1,036	IL
N9AGC	110	2	5	1,034	OH
Stillwater ARC					
K5SRC	13	2	10	988	OK
Kootenai ARS					
K7ID	198	2	30	966	ID
New Bern ARC					
W4EWN	33	2	5	716	NC
Ft. Venango Mike and Key Club					
W3ZIC	113	2	10	566	WPA
Villa Rica RC					
WR4VR	97	2	5	536	GA

5A — Battery

W6TRW ARC					
W6TRW (+K6ARK)	996	5	34	11,140	SJV
Wayne Co. ARC					
W3ARO	387	5	12	4,980	EPA
Golden Empire ARS					
W6RHC (+KO6ITP)	227	5	50	3,875	SV
Upper Canada QRP Club					
VE3UCC	311	5	7	2,780	ONE
Snake River ARC					
K7SI	175	5	10	2,485	ID
North Coast ARC					
N8NC	146	5	9	1,685	OH

5A — Commercial

Onslow ARC					
NC4OC (+KN4LHH)	938	2	27	3,435	NC
Miami Co. ARC					
W8FW (+WD8LOI)	778	2	20	2,804	OH
Rockwall ARC					
K5RKW	478	2	21	2,466	NTX
Warren Co. ARA					
WF8X	586	2	70	2,286	OH
Patoka Valley ARC					
KD9LLH	355	2	15	1,770	IN
Ft. Armstrong Wireless Assn.					
K3QY	476	2	20	1,616	WPA
Portsmouth RC					
N8QA	593	1	15	1,333	OH
York Co. ARC					
W1YCA	235	2	12	1,214	ME
Yadkin Valley ARC					
NC4TT	176	2	5	866	NC
Randolph ARC (NC)					
NC4ZO	116	2	5	810	NC
St. Augustine ARS					
N4AUG	127	2	12	534	NFL

Northeast TN District 7 SKYWARN
WX4TN
(+WX4DJ) 34 2 5 476 TN
Richmond Co. ARC
K4RNC 58 2 20 474 NC

6A

Mike & Key ARC
K7LED
(+AE7G) 4,202 2 50 17,865 WWA
Franklin Co. (NC) ARC
AA4RV
(+KQ4YUT) 3,162 2 69 12,964 NC
Central KY ARS
AJ4A 3,303 2 25 12,400 KY
MGRA/CGARC
W4R 2,769 2 45 9,228 GA
Broughton Memorial Field Day Grp.
K2AE (+W2IR) 1,619 2 75 7,608 ENY
Warren ARA
W8VTD 1,902 2 30 7,100 OH
Dupage ARC
K9K 983 2 65 5,372 IL
Gwinnett ARS
W4GR
(+AB4HF) 1,110 2 41 4,725 GA
Tri-Lakes ARC
WØTRI 778 2 35 4,484 MO
Ft. Myers ARC
W4LX
(+KO4QHN) 795 2 50 4,463 SFL
Riverland ARC
W9UP
(+AB9NE) 654 2 17 4,342 WI
Ft. Wayne RC
W9TE 941 2 34 3,622 IN
Sullivan ARC
NØN 532 2 26 3,416 MO
Klamath Basin ARA
W7VW
(+AI7WU) 513 2 15 3,317 OR
Four Lakes ARC
W9JZ 600 2 15 3,226 WI
Salem ARC
W7SAA
(+K7KVN) 621 2 31 3,132 OR
Barry ARA
K8BMI
(+KC8SFQ) 493 2 16 3,058 MI
Niagara Peninsula ARC
VE3VM 386 2 10 2,906 GH
Bledsoe Co. ARC
N4BCT
(+KC4AC) 389 2 12 2,839 TN
Wood Co. ARC
K8TIH
(+KG8FH) 562 2 12 2,827 OH
North Shore ARC
VE3NSR
(+VE3SCX) 380 2 22 2,735 GH
MARC/DECT
W3M 375 2 100 2,716 MDC
San Benito Co. ARA
N6SBC 303 2 14 2,626 SCV
King George AR Operators
K4VGA 419 2 12 2,436 VA
Owatonna Steele Co. ARC
KØHNY 547 2 32 2,106 MN
Shy-Wy ARC
WY7HR 220 2 20 1,976 WY
Queen Anne's ARC
K3QAC 257 2 9 1,946 MDC
Spirit Mountain ARC
K7A 186 2 8 1,944 AZ
Oak Hill ARC
N5OAK 295 2 6 1,916 STX
Iredell Co. ARS
W4SNC 209 2 10 1,670 NC
Southwest IA ARC
KØSWI 130 2 30 1,566 IA
LA CQ Club
AB6CQ 61 2 12 1,534 LAX
American Legion Post 104 ARC
AL4US
(+WA4SRS) 85 2 40 1,500 TN
Yuba-Sutter ARC
W6KJ 75 2 10 898 SV

6A — Commercial

Hamilton ARC
VE3DC 451 2 33 2,304 GH
NRH ARC
W5R 259 2 19 2,006 NTX

7A

South Jersey Radio Assn.
K2AA (+W2EA) 4,072 2 65 15,707 SNJ
Lake ARA
K4FC
(+KN4GJV) 3,542 2 45 13,501 NFL
Woodbridge Wireless
W4IY (+W4AD) 2,078 2 45 10,009 VA
Black Swamp ARC
K8BSR
(+KE8UTX) 2,453 2 15 8,010 OH
Mississauga ARC
VE3MIS 1,792 2 18 7,390 GH
Panhandle ARC
W5WX
(+KI5KGC) 1,141 2 22 4,656 WTX
Saginaw Valley ARA
K8DAC 708 2 8 4,448 MI
Keuka Lake ARA
N2AAR 710 2 12 3,880 WNY
Sierra Nevada ARS
W7TA
(+KB7QOD) 422 2 52 3,356 NV
Silvercreek ARA
W8WKY 704 2 50 3,284 OH
Kentucky Colonels ARC
KY4BG 572 2 21 3,130 KY
Calhoun Co. ARA
W4S
(+WB4GNA) 477 2 22 3,122 AL
Delta ARS
VE7SUN 388 2 32 3,122 BC
Tulsa ARC
W5IAS
(+K5AEB) 295 2 53 3,017 OK
Clarksville Amateur Transmitting Soc.
KF4L
(+W4TAY) 310 2 30 2,388 TN
North Bay ARA
K6LI 303 2 19 2,242 EB
Peak Radio Assn.
W7PRA 474 2 8 2,228 OR
Woodford Co. Repeater Assn.
K9WRA 117 2 20 1,706 IL
Kern Co. Central Valley ARC
W6LIE 128 2 20 1,416 SJV

7A — Battery

West Valley ARA
K6EI (+W6ZZZ) 1,909 5 16 19,710 SCV
Boone and Hamilton Co. ARES
NØISU
(+KBØTLM) 46 5 15 2,295 IA

8A

Fox River Radio League
W9NE
(+W9CEQ) 3,211 2 80 13,128 IL
Forsyth ARC
W4NC
(+W4WS) 2,533 2 65 11,539 NC
Mahoning Valley ARA
W8QLY 2,581 2 35 10,286 OH
Lake Area Radio Klub
WØWTN
(+NØSD) 1,356 2 56 7,205 SD
Penn Wireless Assn.
W3SK 1,123 2 19 6,160 EPA
Tyler ARC
K5TYR 1,856 2 30 6,018 NTX
San Antonio RC
W5SC 433 2 55 2,888 STX
Susquehanna Co. ARC
N3SRC 341 2 13 2,420 EPA

9A

Gloucester Co. ARC
W2MMD
(+W2KBF) 3,038 2 45 13,653 SNJ
North Ottawa ARC
W8CSO
(+AC8ZT) 926 2 28 5,114 MI
Rappahannock Valley ARC
K4TS
(+KJ4MHD) 1,014 2 29 4,800 VA
Benicia ARC
K6B (+K6E) 566 2 13 4,280 EB

10A

Potomac Valley RC
W3AO (+KE3Q) 10,360 2 42 36,854 MDC
Brazos Valley ARC
KK5W 5,922 2 108 20,296 STX
Ventura Co. ARS/Simi Settlers ARC
N6R 1,888 2 82 6,976 SB
Muskegon Area AR Council
W8ZHO
(+W8W) 338 2 14 2,966 MI

12A

Bluegrass ARS
K4KJQ 129 2 50 2,048 KY

13A

Vaca Valley RC
W6VVR 1,332 2 13 5,394 EB
Ventura Co. ARC
K6MEP
(+N6HV) 626 2 24 4,598 SB

23A

Conejo Valley ARC
AA6CV
(+N6PK) 1,418 2 40 7,838 SB

One or Two Person Club/Non-Club Portable

1B — One Operator

Mad River RC
KW8N 1,352 2 1 5,714 OH
NG7M 1,281 2 1 4,866 UT
Ted's Family Farm Grp.
WR4T 1,124 2 1 4,746 OH
Mad River RC
K1LT 1,074 2 1 4,546 OH
KØBH 974 2 1 4,146 CO
Potomac Valley RC
KB4CG 887 2 1 3,866 VA
Mad River RC
K8RYU 967 2 1 3,676 OH
K8BTU 765 2 1 3,208 OH
Smithchart ARS
K4OO
(N4XD, op) 756 2 1 3,144 NC
Rochester (NY) DX Assn.
W2FU 690 2 1 3,110 WCF
K3ONW 619 2 1 2,626 EPA
Mesilla Valley RC
AI5DE 593 2 1 2,422 NM
AFØE 534 2 1 2,286 CO
KQ1S 412 2 1 1,898 SC
KA2OUO 460 2 1 1,888 NC
N7RVD 323 2 1 1,880 WWA
W1ETI 378 2 1 1,662 ME
W5VS 372 2 1 1,638 VA
The Shedhead
K4QXX 430 2 1 1,632 WCF
Radio Soc. of Tucson
N7DZ 314 2 1 1,606 OR
WØDOS 327 2 1 1,522 MO
W2DEN 253 2 1 1,512 GA
Arizona Outlaws Contest Club
W7AWE 1,227 1 1 1,477 AZ
Bolingbrook ARS
KD9VPJ 301 2 1 1,454 IL
AD7DD 501 1 1 1,451 ID
Farifax ARS
N4FRS
(KI4BXU, op) 344 2 1 1,426 VA
Northern KY ARC
AI4BJ 293 2 1 1,322 KY
Mike & Key ARC
AG7T 202 2 1 1,308 WWA
N2YY 533 2 1 1,266 NLI
AA2BG 278 2 1 1,262 WNY
Livonia ARC/Ford ARL
N8MR 274 2 1 1,244 MI
NA4DA 416 2 1 1,200 NFL
W4KAZ 232 2 1 1,178 NC
W9DKB 247 2 1 1,174 WI
AG1T 226 2 1 1,154 UT
Piedmont ARC
W4AWD 198 2 1 1,142 GA
Four Lakes ARC
AC9BJ 281 2 1 1,108 WI
WØSGC 225 2 1 1,050 CO
W7HAD 212 2 1 1,042 NE
KM5TY 147 2 1 1,034 CO
Walla Walla ARC
W7HJL 220 2 1 1,030 EWA
W1LN 273 2 1 996 NH
W5PET 211 2 1 994 KY
AD7KG 181 2 1 956 UT
Cheshire Co. DX ARC
AE1P 316 2 1 950 AZ
N1CCC 124 2 1 932 MO
KU4UV 376 2 1 930 KY
KC1BDJ 210 2 1 926 VT
KU7K 163 2 1 902 OR
Utah DX Assn.
WR7Q 184 2 1 886 UT
K9WD 214 2 1 882 WI
SOTA LEOs
WA6LE
(WA9STI, op) 171 2 1 874 SB
Ether Busters
WØKU 155 2 1 868 CO
AG7TX 125 2 1 844 NV
N7DLV 114 2 1 828 WWA
KJ5IZS 234 2 1 818 NTX
W5NCO 284 2 1 818 OH
KK7PZE 184 2 1 806 AZ
K2KR 326 2 1 802 WY
K7MK 177 2 1 790 ID
Richardson Wireless Klub
WX7V 210 2 1 782 NTX
KF6IDK 158 2 1 782 SJV
WB8MIW 165 2 1 776 MI
Bear Mountain Grp.
K7YL 103 2 1 770 OR
N6GRM 108 2 1 770 EB
KC8RJS 106 2 1 762 OH
KNØP 130 2 1 752 SF
WE4RR 49 2 1 746 GA
W2ASX 101 2 1 740 SC
Radio Activity of Savannah
K7UWR 97 2 1 738 GA
Addison Co. ARA
N1TRK 169 2 1 730 VT
W6NJB 289 2 1 728 AR
KFØQS 114 2 1 706 CO
HP Alumni RC
W1HP
(NF1A, op) 89 2 1 702 EMA
K8DDV 226 2 1 702 MI
Sierra Foothills ARC
N6WYZ 241 2 1 700 SV
KAØCSW 137 2 1 698 MN
WR5X 38 2 1 694 OK
Katy ARS
W5TRI 19 2 1 688 STX
W9TCV 40 2 1 680 NFL
W8RZ 133 2 1 680 MI
Bear Mountain Grp.
KI7RNU 107 2 1 678 OR
MikeOscar Contesting Club
KCØNOX 45 2 1 662 MO
VE3UZ 128 2 1 662 ONS
Cabarrus ARS
K4CEB 220 2 1 660 NC
Albemarle ARC
KN4TBG 53 2 1 656 VA
KA4GFY 141 2 1 650 VA
Gator Radio Gamers
WO4O 123 2 1 642 NFL
NN4NT 21 2 1 632 AL
Radio Operators Assn. Of Dallas
K7G
(WA7SKG, op) 187 2 1 624 WPA
The 220 MHz Guys
WA9NNN 119 2 1 622 IL
Sun City Hilton Head ARC
AD5EN 116 2 1 614 SC
VA3KBI 180 2 1 610 ONN
NØLFK 122 2 1 594 KS
Smithchart ARS
NX9T 218 2 1 586 MI
W4IM 167 2 1 584 VA
W9RWB 33 2 1 582 IN
KN6MGK 183 2 1 578 SV
KI7FXL 104 2 1 566 NV
Bear Mountain Grp.
W7PL 73 2 1 562 OR
K1USN RC
K1TH 101 2 1 554 NH
KB9SDA 102 2 1 554 IN
KC7TGX 65 2 1 552 AZ
Tri-Town RAC
K9PMV 100 2 1 550 IL
W4LOO 122 2 1 538 UT
Potomac Valley RC
NC4SW 70 2 1 530 NC
N8BOA 63 2 1 502 MI



Rebecca Anton, W5TTA, operates the 40-meter station at the Hurst Amateur Radio Club 2025 Field Day. They operated from the Hurst, Texas, fire station Emergency Operations Center as Class 4F. [Eric Jacobsen, KJ5KSB, photo]

KB2BRD	173	2	1	496	CO
VE3MYE	172	2	1	494	ONE
AG7LR	84	2	1	486	EWA
KO4ZRX	113	2	1	484	MO
Allegheny Valley Radio Assn.					
W3RA (W3WC, op)	32	2	1	468	WPA
VE4JLG	59	2	1	468	MB
AJ6NM	100	2	1	468	SJV
AE6DB	57	2	1	464	ORG
KG4AFY	53	2	1	462	AL
K5TFL	105	2	1	460	NM
KJ7ZTH	36	2	1	452	WWA
ARES of Douglas and Elbert Co.					
WØAJO	75	2	1	450	CO
Bryan ARC					
AA5W	100	2	1	450	STX
K8WS	80	2	1	450	OH
KE9CSZ	49	2	1	448	IL
Northeastern IN ARA					
KD8YNG	40	2	1	446	IN
AI5NQ	47	2	1	444	NTX
AI7LH	73	2	1	442	OR
K9DCH	60	2	1	440	ENY
Tri-Town RAC					
K9SGB	12	2	1	438	IL
K6NKO	72	2	1	438	SDG
AC3LW	38	2	1	438	SNJ
CHIRP Field Day Team					
KK7DS	142	2	1	434	OR
KC8FOV	91	2	1	432	OH
Assoc. Radio Amateurs of Long Beach					
W6KSR	50	2	1	428	SB
K6BBQ	131	2	1	428	SF
NJ6Q	44	2	1	426	SDG
KB3LTT	85	2	1	420	EPA
KE8JW	32	2	1	414	OH
Virginia Beach ARC/Virginia DX Century Club					
K4VBX	55	2	1	412	VA
Boulder ARC					
W1ANT	65	2	1	410	CO
N1NUG	80	2	1	410	CT
AA7RM	77	2	1	404	WWA
KØPPE	76	2	1	402	SD
K4DUF	72	2	1	398	WV
Queen Anne's ARC					
KM4EP	11	2	1	394	MDC
Adams Co. ARC					
KE9AUX	70	2	1	394	WI
WAØVPJ	72	2	1	388	MN
Tri-Town RAC					
K9EGS	19	2	1	388	IL
NC7R	69	2	1	388	CT
KN4TLV	33	2	1	382	CT
KC7IMD	33	2	1	382	OR
KJ9B	66	2	1	382	AR
WM9E	31	2	1	374	STX
KK4ZUU	81	2	1	374	WV
Southwest Dallas Co. ARC					
K5ITO	62	2	1	370	NTX
KK7QIU	60	2	1	370	AZ
McKean Co. ARC					
KC3TSH	7	2	1	364	WPA
Panama City ARC					
KQ4TUS	53	2	1	362	NFL
WØVO	55	2	1	360	CO
KK6JON	54	2	1	358	SV
AEØVC	51	2	1	354	CO
N9HOX	50	2	1	350	IL
VA7MC	50	2	1	350	BC
N7SG	50	2	1	350	OR
KC9LFP	81	2	1	348	WI
YV5RAB	48	2	1	346	DX
AI7OL	38	2	1	342	OR
KA2OEE	94	2	1	338	AR
AJ4F	71	2	1	334	TN
Calgary ARA					
VE6FXL	41	2	1	332	AB
KT4EM	41	2	1	332	NC
K7IPT	30	2	1	330	SV
KE9CDJ	40	2	1	330	IL
KO6ISH	30	2	1	330	SV
KN6RDD	37	2	1	324	SV
KØSV	85	2	1	320	MN
WØWLA	76	2	1	320	CO
Highlands Hams					
KA4NDY	84	2	1	318	AL
W5EEZ	42	2	1	318	STX
KB1RS	23	2	1	316	MDC
KJ5CMM	11	2	1	314	STX
Athens RC					
KQ4PGV	30	2	1	310	SFL
W2KAC	30	2	1	310	NNJ
Hi-Line ARC					
AG7ZJ	28	2	1	306	MT
WA2ZE	28	2	1	306	NNJ
K4EDD	27	2	1	304	TN
W4AJJ	26	2	1	302	AR
N7CFO	76	2	1	302	EWA
W7DZ	66	2	1	302	WWA
VA2MO	76	2	1	302	QC
POTA Prep					
AC3V	40	2	1	300	WPA
Shreveport ARA					
KI5KOI	25	2	1	300	LA
K2PTC	25	2	1	300	NLI
WB6AAJ	37	2	1	298	SCV
KD3KP	72	2	1	294	EPA
K5WVF	71	2	1	292	MS
W9XAN	20	2	1	290	WI
KD9VAG	20	2	1	290	IN
KW7MJA	18	2	1	286	NV
KD2YLZ	18	2	1	286	NNY
Ventura Co. ARC					
KN6ZXP	17	2	1	284	SB
KC3RVZ	16	2	1	282	MDC
AD9FW	16	2	1	282	IN
NØPE	64	2	1	278	CO
KB1RZA	63	2	1	276	VT
WD5KED	61	2	1	272	NM
KO4JBD	51	2	1	272	VA
K2RAT	11	2	1	272	KY
K7KVH	61	2	1	272	SF
Potato Creek POTA					
KD9WXK	10	2	1	270	IN
WM4TT	10	2	1	270	LAX
KE8ZUD	10	2	1	270	WV
W7HAK	10	2	1	270	ID
KG7JGY	10	2	1	270	WWA
Minnesota Wireless Assn.					
KØAUG	36	2	1	266	WI
NØMMZ	8	2	1	266	CO
KFØEWV	8	2	1	266	CO
KO4SEA	29	2	1	266	GA
W3BRL	7	2	1	264	WPA
W3XG	57	2	1	264	MDC
AI5QC	7	2	1	264	NTX
KFØLRH	7	2	1	264	CO
KQ4NAL	5	2	1	260	KY
WD9EWK	5	2	1	260	AZ
W4KAM	4	2	1	258	STX
KO6JIT	3	2	1	256	SB
KE4EDD	1	2	1	252	NFL
AKØBC	26	2	1	252	CO
KA6BJR	51	2	1	252	SJV
Kalamazoo ARC					
KE8RRG	50	2	1	250	MI
Lake Area AR Klub					
KC5LL	100	2	1	250	NTX
Owensboro ARC					
W6LDB	50	2	1	250	KY
KC1FOZ	50	2	1	250	NH
W9TTY	25	2	1	250	MI
Cherryville Repeater Assn. II					
N2UP	45	2	1	240	NNJ
W6YXY	43	2	1	236	SDG
W5BCM	42	2	1	234	NTX
KC3EJC	38	2	1	226	WPA
KBØMQX	35	2	1	220	KS
Cross Roads Ham RC					
N5YIZ	84	2	1	218	STX
KC2MJB	34	2	1	218	WNY
NC5T	33	2	1	216	STX
KD9ZNA	33	2	1	216	IL
Pentagon ARC					
KR4AHM	82	2	1	214	VA
K7OZK	32	2	1	214	OR
KD2RPX	31	2	1	212	UT
K4DNS	31	2	1	212	VA
Woodbridge Wireless					
KM4TAY	29	2	1	208	NNY
MWA Team North					
KØLD (WAØMHJ, op)	14	2	1	206	MN
VE4KL	28	2	1	206	MB
KJ7UTC	27	2	1	204	OR
N7YMZ	27	2	1	204	SCV
N3ASK	26	2	1	202	EPA
K7FD	26	2	1	202	OR
W5JOC	50	1	1	200	NM
VE2ZDX	38	2	1	198	QC
VA3ONO	23	2	1	196	GH
BEARS of Manchester					
KD1JK	22	2	1	194	CT
KD3AGS	22	2	1	194	MDC
KB3SPH	22	2	1	194	MDC
VA7BF	11	2	1	194	BC
KD8UM	22	2	1	194	MI
KI5RIP	13	2	1	194	LA
N8VBL	21	2	1	192	MI
VA3OSO	14	2	1	192	ONS
AEØBO	10	2	1	190	MN
KI5EWG	46	2	1	188	NM
VA7KOC	19	2	1	188	BC
VA3KHH	10	2	1	182	ONS
KI5NJO	16	2	1	182	OK
K3CWP	12	2	1	182	WPA
KA7RON	15	2	1	180	OR
W4BTH	65	2	1	180	KY
K4CMX	12	2	1	180	NC
AB7YL	12	2	1	174	ID
W7TCT	12	2	1	174	EWA
VE6XAD	10	2	1	170	AB
KJ7URX	10	2	1	170	WWA
KM6TWI	10	2	1	170	OH
KK7LHY	5	2	1	162	WWA
North Shore ARC					
VE3VGJ	55	2	1	160	GH
K6YUQ	4	2	1	158	WWA
KFØRIG	4	2	1	158	CO
KFØTZX	2	2	1	158	KS
KM6MSS	3	2	1	156	EB
Patriot ARC					
KZ4IW	26	2	1	154	NC
VA3CMG	2	2	1	154	ONE
KG4KFF	51	2	1	152	SFL
KC2USA	47	2	1	144	WNY
KK7FIM	19	2	1	126	ID
Northern KY ARC					
KC1NE	30	2	1	110	KY
KL3JY	58	1	1	108	AK
N4VGE	27	2	1	104	VA
KI4AZX	27	2	1	104	SC
Livermore AR Klub					
NR7Z	13	2	1	102	EB
K7DRT	23	2	1	96	AZ
KE2BXZ	22	2	1	96	WNY
VA6AGR	16	2	1	82	AB
K5WXV	14	2	1	78	NTX
W6TSB	14	2	1	78	SCV
VE5DLC	10	2	1	70	SK
VE5YAK	8	2	1	66	SK
AL7ID	6	2	1	62	AK
KL3JZ	7	1	1	57	AK
KBØSNI	1	2	1	52	WWA

1B — One Operator Battery

K3WW	808	5	1	8,430	EPA
N4DD	603	5	1	6,180	VA
Gene and Dawn Field Day					
WB9COY	556	5	1	6,160	SDG
W3TS	541	5	1	5,960	EPA
K5SL	559	5	1	5,840	LA
KF7MD	504	5	1	5,190	CO
Kentucky Contest Grp.					
N4TY	461	5	1	4,760	KY
KEØTT	414	5	1	4,290	MN
W6AWG	358	5	1	3,800	LAX
W9EN	313	5	1	3,595	AZ
AF4CM	309	5	1	3,590	NC
WD2E	263	5	1	2,880	SFL
First Class CW Operators' Club					
WG4FOC (K3TW, op)	250	5	1	2,850	NFL
KI5WES	257	5	1	2,820	LA
KF9LI	262	5	1	2,770	NTX
W4XEN	258	5	1	2,725	ID
KN1H	255	5	1	2,700	NH
WA4NKL	212	5	1	2,670	GA
AC7A	236	5	1	2,510	AZ
Oxford Co. ARES					
KA1SG	201	5	1	2,365	ME
W3WT	195	5	1	2,300	EPA
WB8YYY	200	5	1	2,250	NC
West Baldwin City ARC					
WVØA (NRØP, op)	228	5	1	2,230	KS
VA3FN	206	5	1	2,210	ONS
Tie Siding WY ARRL FD					
W7C (KØFTC, op)	180	5	1	2,200	WY
N8WXQ	200	5	1	2,155	WPA
VE3KQN	174	5	1	2,090	ONE
Central WV Wireless Assn.					
WC8L	194	5	1	1,990	STX
AA5VE	178	5	1	1,930	NTX
K8EG	182	5	1	1,930	OH
WB9CYY	157	5	1	1,920	WI
W1PID	146	5	1	1,810	NH
Oro Valley ARC					
KC2J	138	5	1	1,780	AZ
KV8P	133	5	1	1,760	OH
Hudson Valley Contesters and DXers					
WB2FUV	150	5	1	1,750	ENY
WCARES-TN					
KO4DCO	120	5	1	1,750	TN
KO7I	170	5	1	1,750	WWA
Black Hills ARC					
AJØGM	149	5	1	1,740	SD
West Allis RAC					
WO9B	122	5	1	1,720	MI
KU4A	153	5	1	1,680	KY
Lake Area AR Klub					
KE5CW	121	5	1	1,660	NTX
Maritime Contest Club					
VE9AA	150	5	1	1,650	NB
K9JP	139	5	1	1,640	MI

KN4ZXG	147	5	1	1,620	VA
Panther ARC					
W3HRK (W3YJ, op)	128	5	1	1,530	WPA
WJ7S	128	5	1	1,530	UT
W3AW	134	5	1	1,465	IL
Michigan QRP Club					
AB8DF	131	5	1	1,460	MI
N5NAA	130	5	1	1,450	STX
VA2VT	117	5	1	1,425	QC
KE5ES	117	5	1	1,420	NTX
Fox River Radio League					
N5EP	125	5	1	1,400	WI
KØPC	115	5	1	1,400	MN
KF4VTT	114	5	1	1,390	MDC
NØLMQ	98	5	1	1,390	MO
Meriden ARC					
NR1B	120	5	1	1,350	CT
Palo Alto ARA					
K6NIA	107	5	1	1,320	SCV
WB5IUG	102	5	1	1,320	NTX
KU3J	106	5	1	1,310	WPA
Soc. of Midwest Contesters					
WD8DSB	102	5	1	1,270	IN
WD7Y	112	5	1	1,270	NV
Contest Club Ontario					
VE3NFN	106	5	1	1,210	GH
DeKalb Co. ARC					
W4CAJ	70	5	1	1,200	AL
Manatee ARC					
K3UWY	105	5	1	1,200	NTX
Rochester (NY) DX Assn.					
N2ZN	105	5	1	1,180	SC
K4AKC	97	5	1	1,170	AL
AKØM	101	5	1	1,160	IA
W9EEU	60	5	1	1,150	IL
KT3L	109	5	1	1,140	WPA
W5GCX	108	5	1	1,130	STX
Lakes Region Repeater Assn.					
K1VP	87	5	1	1,120	NH
KN6BAZ	85	5	1	1,100	SJV
AH6X	85	5	1	1,100	ID
NNØY	63	5	1	1,080	CO
WA2WMR	90	5	1	1,050	VA
KFØXV	88	5	1	1,030	KS
KF5ZAP	67	5	1	1,020	NTX
N9OHW	74	5	1	1,015	SCV
W6QPA	66	5	1	1,010	SB
WT8P	96	5	1	1,010	WWA
KG5GJT	62	5	1	990	LA
VE6FAR Cycle 25					
VE6LK	45	5	1	975	AB
Carolina DX Assn.					
W3SA	79	5	1	940	NC
WB5CTQ	49	5	1	940	WTX
WD5HNI	77	5	1	920	STX
WØAJK	95	5	1	895	CO
KB7LJP	54	5	1	890	WWA
KC8VJD	83	5	1	880	OH
Montgomery ARC					
W5NZ	51	5	1	860	AL
Western CO ARC					
K1TTW	71	5	1	860	CO
NN3I	37	5	1	815	MDC
WE3Q	46	5	1	810	MDC
VE4XTZ	73	5	1	790	MB
KB8RTB	44	5	1	790	OH
N7RGF	53	5	1	780	OR
N6VNO	32	5	1	770	SCV
WUØL	52	5	1	770	SD
KC9DK	101	5	1	755	IN
VE3GMZ	60	5	1	750	ONE
N3CZ	60	5	1	750	NC
K1YPP	57	5	1	720	EMA
N7XW	64	5	1	705	WWA
KD9KYL	55	5	1	690	WI
W9FHA	64	5	1	690	IN
AC9OT	32	5	1	670	SFL
N3OS	31	5	1	660	WPA
W8NNC	51	5	1	660	OH
Golden Empire ARS					
K6GAB	15	5	1	650	SV
KA2BEO	44	5	1	640	SNJ
KC3WIE	15	5	1	625	EPA
NØRVS	49	5	1	590	WY
WV3V	37	5	1	580	NV
Sarasota Em. RC					
KB4P	31	5	1	560	WCF
KI7TYU	31	5	1	560	WWA
KFØQGT	25	5	1	555	NE
W2ETZ	11	5	1	555	MN
WD8RIF	14	5	1	540	KY
American Legion Post 33 ARC					
AB9BZ	27	5	1	520	IL
N4VSD	37	5	1	520	TN
Northern CA Contest Club					
N6RZR	43	5	1	515	SF
W2EB	26	5	1	510	WNY
W7AMF	12	5	1	510	WCF
K7GZP	36	5	1	510	OR
KM4LIM	31	5	1	510	KY
Heartland DX Assn.					
NØGN	38	5	1	500	NE
WB4HXF	25	5	1	500	GA
N7RCS	25	5	1	500	WWA
WVØH	33	5	1	490	CO
N3ZP	34	5	1	490	EPA
WQ6P	27	5	1	485	ORG
KC4CR	21	5	1	460	OR
Conejo Valley ARC					
AI6YR	17	5	1	450	SB
WØBC	20	5	1	450	CO
PRC/SPARC/JPLARC/CITARC					
W6LOR	22	5	1	445	SJV
KC7RJK	38	5	1	440	OR
KC6ZBE	29	5	1	440	STX
K2TRR	14	5	1	440	NNY
N2JPR	29	5	1	440	NLI
KB7KDT	29	5	1	440	WWA
West Allis RAC					
W9JSP	8	5	1	430	WI
W6DOQ	27	5	1	425	LAX
Sierra Foothills ARC					
KO6TH	17	5	1	420	SV
K6PLI	17	5	1	420	SF
VE6CZT	27	5	1	420	AB
KE4RG	27	5	1	420	VA
KK4NUB	7	5	1	415	NC
KD4NLE	13	5	1	415	WCF
VA2EO	16	5	1	410	QC
N8XMS	16	5	1	410	MI
KD7ZYN	27	5	1	405	WWA
KC3PIB	15	5	1	380	WPA
VA7DXD	23	5	1	380	BC
K5DVY	12	5	1	370	OK
VE6ZC	10	5	1	350	AB
K1DCT	10	5	1	350	CT
KF9VV	20	5	1	350	WI
VE3OOZ	32	5	1	345	ONN
Delta ARS					
VE7CTN	9	5	1	340	BC
VA4ADM	30	5	1	340	MB
North American QRP CW Club					
KI4DEF	18	5	1	330	NC
WX2C	35	5	1	325	NNY
KM5VZ	15	5	1	325	NTX
N3AWS	35	5	1	325	MS
KJ5ABM	3	5	1	315	OK
KT6Y	17	5	1	315	SCV
Parker Radio Assn.					
NØAER	12	5	1	310	CO
Suburban Technical ARS					
KE9JQ	10	5	1	300	IL
K7MSO	5	5	1	300	MT
AI6ZV	13	5	1	280	ORG
K4NDU	25	5	1	275	GA
DeKalb Co. ARC					
KY4WW	2	5	1	270	AL
Northern KY ARC					
KQ4RVN	4	5	1	270	KY
KFØTJU	12	5	1	270	CO
Anderson Island ARC					
KF7VX	2	5	1	260	WWA
PRC/SPARC/JPLARC/CITARC					
W6KA (N6LL, op)	1	5	1	255	LAX
KJ8DM	21	5	1	255	MT
VE6FAR Cycle 25					
VE6VIC	20	5	1	250	AB
AK6IY	9	5	1	240	LAX
K2MTS	15	5	1	240	ENY
WWØWB	16	5	1	230	CO
K2ORC	36	5	1	230	CO
AL7JK	7	5	1	220	AK
KK6TV	7	5	1	220	WWA
Florida Contest Grp.					
NU4F	6	5	1	210	SFL
W8UFO	8	5	1	210	TN
AD5QU	20	5	1	200	NTX
K9BBV	10	5	1	200	WI
VA3KBY	15	5	1	200	ONS
KC3BUZ	30	5	1	200	EPA
KQ4UTX	5	5	1	200	AL
KC3FMI	4	5	1	190	NM
Rappahannock Valley ARC					
AC4SW	5	5	1	175	VA
Lake Area AR Klub					
K5PTB	2	5	1	170	GA
N8PN	1	5	1	160	MI
KI7YXM	2	5	1	160	AZ
North Shore RC					
WB9UVJ	21	5	1	155	IL
KN6ZEO	21	5	1	155	SCV
Central MO Radio Assn.					
KØCBV	20	5	1	150	MO
K1EM	6	5	1	130	WNY
KQ6MT	4	5	1	90	EB
KJ4ABY	3	5	1	80	KY
KØFNS	3	5	1	65	CO

1B — One Operator Commercial

Eastern OH Amateur Wireless Assn.					
K5ZD	569	2	1	2,126	OH
Oak Hill ARC					
N5YHF	316	2	1	1,738	WTX
Contest Club Ontario					
TI5/VA3RA (VE3IKV, op)	364	2	1	1,506	DX
KX7L	319	2	1	1,320	EWA
K7BWC	167	2	1	760	UT
Howell Em. Mgmt.					
KK7MHO	56	2	1	662	UT
W6BBD	158	2	1	638	OH
W4IO	144	2	1	626	TN
WB7UOF	132	2	1	578	IN
Potomac Valley RC					
K4XD	109	2	1	480	NC
N4LDB	82	2	1	478	SD
KQ4RKQ	105	2	1	470	VA
KQ4NPA	105	2	1	470	AL
VA6AN	136	2	1	452	AB
York Co. ARC					
AA3HD	200	2	1	450	ME
KD7GOM	68	2	1	414	AZ
Northern CO ARC					
KØNRA	87	2	1	398	SD
AD2L	77	2	1	358	EPA
K1PDY	57	2	1	278	NH
N4KHI	79	2	1	258	WNY
AFØBB	102	2	1	254	MO
N1XK	15	2	1	210	IA
Sun City ARC					
K9DHC	7	2	1	184	WTX
K8UHL	30	2	1	170	KY
AE9DR	59	2	1	168	OH
WD9EEK	53	2	1	156	IL
N1WEB	31	2	1	154	GA
KR6SS	32	2	1	114	SDG
Allegan Co. ARC					
KE8GOJ	28	2	1	106	TN
Radio Amateur Club of Knoxville/ Middle East TN Em. Radio Srvc.					
KO4JJU	24	2	1	98	NC
KJ5CIK	12	2	1	74	LA
KB9ELW	2	2	1	58	IN
WE8S	2	2	1	54	MI

1B — Two Operators

Queen Anne's ARC					
NW3L (+K3AJ)	578	2	2	2,446	MDC
Jones Co. ARC					
NRØDX (+NRØX)	402	2	2	2,058	IA
The World RC					
W3WRC (WE6Z, W6DLO, ops)	318	2	2	1,850	SV
KØGR (+WØYR)	818	2	2	1,786	MN
Wistaria Wireless Soc.					
K6TY (+WB6MLI)	281	2	2	1,724	SJV
KA8JIL (+W4ORH)	295	2	2	1,374	WCF
Gratiot Co. Old Timers					
W8AWE (+W8DCQ)	313	2	2	1,244	MI
The Purchia POTA Team					
K1PET (+N1XXU)	335	2	2	1,120	CT
Puerto Rico Contest Team					
KP4NZ (+KP4PUA)	372	2	2	1,094	PR
N7CN (+NA7RF)	237	2	2	1,074	UT
W9FD (WA4PGM, N4UPX, ops)	246	2	2	1,068	VA
SC4 ARC					
AF6IE (+W6VG)	64	2	2	1,056	SCV
Aiken Contest Club					
KE4SC (+K4NJN)	240	2	2	984	WV
AK4NF (+AK4NG)	119	2	2	976	AL
W7RET	405	2	2	880	ID
AC8QX	311	2	2	872	MI
Hanburger's Helpers ARC					
K3HH (K3YDX, KW4EE, ops)	124	2	2	846	NC
VE1LZ	222	2	2	774	NS
Club 390					
W2RA (+WB2MRB)	233	2	2	766	WNY
Bear Mountain Grp.					
KK7UQE (+KJ7VOR)	113	2	2	722	OR
WØAO (+K7TWM)	183	2	2	664	ID
N6MDV (+K6VHY)	77	2	2	588	LAX
Federación de Radio Aficionados de P.R.					
KP4FRA (+KP4PUA)	107	2	2	580	PR
N4RNJ	100	2	2	550	NFL
K5BRY (+WB5BEK)	100	2	2	550	STX
Sierra Foothills ARC					
KD6HOF (+K6REJ)	167	2	2	544	SV
Lhtako Dene					
VE7LFN (VE7ANY, VA7XU, ops)	18	2	2	486	BC
WA6SCR	31	2	2	462	ORG
VA3PCI	50	2	2	458	ONE
NØUEP	50	2	2	450	MI
KO4MEX	145	2	2	440	NC
Columbia (OR) ARA					
N7EI (+AG7FU)	190	2	2	430	OR
KD5SFK (+KJ5DGX)	79	2	2	408	STX
KN4A	38	2	2	402	AL
Middle Peninsula ARC					
K4TFJ (+KC1MHE)	12	2	2	374	VA
Quiet Corner ARC					
KB1NTA (KB1JDX, KC1UXW, ops)	100	2	2	370	CT
K7NWR (+KK7CEA)	38	2	2	326	WWA
Red Mountain Radio Amateurs					
KB7AWG (+KB7MLK)	80	2	2	310	NV
KF6HDD (+KO6GLN)	6	2	2	288	EB
RC Queretaro AC					
XE1RCQ (+XE1EC)	10	2	2	278	DX
Echelon ARC					
N5MDA (+N5USC)	50	2	2	272	CO
KK6RD (+KF6JS)	9	2	2	268	EB
WB6QAZ	37	2	2	224	SF
KD8ITX (+KC2TOO)	25	2	2	200	WNY
W7SUA	7	2	2	164	AZ
KI5TEB	46	2	2	142	STX
ARC of Parker Co.					
W7CHE	16	2	2	90	NTX
KD6DIF	18	2	2	86	SCV

1B — Two Operators Battery

Neighbor Kids					
KE3V (+WB3CEG)	361	5	2	3,760	WPA
KI4IO (+KC4GIA)	145	5	2	1,500	VA
Ottawa Valley QRP Soc.					
VA3RKM (+VA3RR)	74	5	2	1,390	ONE
NP2Q (+KP2T)	116	5	2	1,310	VI
N1IRO	39	5	2	750	VT
KK5RH (+N5DGK)	57	5	2	720	LA



John Logan, K6PHB, makes contacts on 2-meter sideband into the evening at the Laguna Mountain WFD, WW6CC, group's Field Day site located on Palomar Mountain, California. [Ron Johnson, KK6I, photo]

Whitman ARC
K1TWH (+WA1RIW) 54 5 2 690 EMA
N6IRD 11 5 2 575 AL
The Outstanding in Their Field AR FD Club
WØIS (+KCØOIA) 21 5 2 555 MN
N3OFR (+N3RLX) 38 5 2 540 EPA
KC7CCK (+KE7AUP) 31 5 2 505 EWA
KC3MWD (+KN4SGS) 11 5 2 505 MDC
VA7HSE 5 5 2 345 BC

1B — Two Operators Commercial

FOS Garage ARC
NØBAK (+KØBDF) 302 2 2 1,258 MN
The Beekers
AE6NN (+W6BCE) 75 2 2 500 LAX
WA7TPB 32 2 2 300 WWA

2B — One Operator

KØVU 55 2 1 780 MN
VA2NAO 7 2 1 564 QC
AL9D 7 2 1 364 AK
KW4DT 27 2 1 236 VA

2B — One Operator Battery

Cuyahoga Falls ARC
K8ZT 253 5 1 3,345 WV
Michiana ARC
W9RWG 270 5 1 3,280 IN
KAØOSN 66 5 1 1,110 KS
AJ6RX 32 5 1 685 ORG
NØSSC 11 5 1 435 NFL
NA4DL 10 5 1 350 TN

2B — One Operator Commercial

WB5N 1,070 2 1 2,964 WTX
K5TIT (+W5JCC) 319 2 1 1,426 NTX
KE8VZO 81 2 1 374 OH
KF8CVW 40 2 1 210 OH

2B — Two Operators

KP4 Expedition Grp.
KP4EG (+WP4TZ) 2,633 2 2 8,094 PR
Bergers Bandits Con test Club
K3II (K3CT, K3TEJ, ops) 1,813 2 2 7,502 EPA
Terrible Twos
N2A (+WK2G) 1,706 2 2 6,528 SNJ
KX1Q (KM1NDY, AA1F, ops) 520 2 2 2,592 ENY
N2RC (+KE2X) 374 2 2 1,844 EPA
N4HCN 360 2 2 1,760 NFL
W3SW (+KB2ZWZ) 472 2 2 1,620 WNY
Squirrelly Hams ARC
KD3M (+WW3G) 293 2 2 1,362 WV
Lost Snoring Beagle Ranchers
K4DKW 274 2 2 1,346 OH
KE7F (+N7EMT) 851 1 2 1,297 OR
WØOS 105 2 2 1,184 ND
Squirrelly Hams ARC
WW3G 153 2 2 1,128 WV
WA2ZOT (+K1PTF) 229 2 2 966 WNY
AK1X (+W1ASP) 350 2 2 950 VT
Ft. Worth CERT RC
W5FWC (AE5YP, W5RSG, ops) 100 2 2 946 NTX
Ham RChouse
W2HRC (+KG5AHJ) 214 2 2 916 NTX
Tamiami ARC
W9N (+K9GCC) 108 2 2 686 WI
VA2KB (+VA2VX) 186 2 2 622 QC
Friends Having FD Fun
W8ZZ (W8RU, KC8VGG, ops) 69 2 2 600 MI
VE3GE 68 2 2 512 ONS
NW7V (+WA7DGB) 71 2 2 446 WWA
Comstock Repeater Grp.
W6KRK 81 2 2 412 SCV
Assn. des Radioamateurs de l'Abitibi-Temiscamingue
VE2ATU (+VA2MVX) 36 2 2 374 QC
K1AWR 10 2 2 370 CT
KF7LIL 22 2 2 294 AZ
KK7UYV 21 2 2 92 AZ

2B — Two Operators Battery

Panama City ARC
N4KGL (+NZ2I) 357 5 2 4,215 AL
NØJDC (+W4LL) 368 5 2 4,130 CO
N8EFO (+N8MPF) 252 5 2 2,615 OH
KD7QJL (+KK6LSF) 198 5 2 2,250 OR
WØWH (+KG9OC) 166 5 2 1,810 NE
Getman AR Guild
KB2DSR (+KB2DSQ) 147 5 2 1,630 WNY
VMI Alumni ARA
K4VMI (K4AEN, W5FB, ops) 127 5 2 1,520 VA
KC7WDL (+KC3UNP) 19 5 2 535 WWA

2B — Two Operators Commercial

VE2QH (+VA2PM) 297 2 2 1,238 QC
KE9BCI (+KC9BWK) 389 2 2 848 WI
KK4DDF (+KD8QPQ) 50 2 2 292 VA
Bald Eagle Repeater Assn.
KB3HLL (N3RPB, KEØTTL, ops) 14 2 2 278 EPA

3B — Two Operators

CQ Octogenarians
W9AV (+W6RI) 1,570 2 2 6,930 WI

5B — Two Operators

Delta ARC
W6D (AHØU, N6SPP, ops) 6 2 2 962 EB

Mobile Stations

1C

N9EP 601 2 1 2,634 IL
KYØQ 353 2 1 1,562 IL
W6QX 405 2 1 1,504 SDG
Niagra Frontier Radiosport
K2NV/VE3 300 2 1 1,250 GH
Mike & Key ARC
AG7NR 212 2 1 998 WWA
Contest Club Ontario
VE3SSR 420 1 1 990 GH
West Valley ARC (AZ)
N7YO 830 1 2 880 MT
KCØRAM 58 5 1 540 IA
Richardson Wireless Klub
N4CD 93 2 1 522 NTX
KB8U 25 5 1 500 MI
W9YOY 110 2 1 446 MI
N5TIT 71 2 1 434 CO
KJ4EX 84 2 1 418 GA
NØJK 52 2 1 408 KS
Northern Lights Radio Soc.
NØSUW 25 5 1 400 MN
AD9CA 105 2 1 388 IL
N9WKW 80 2 1 370 IN
Western WA DX Club
W7TMT 50 2 1 350 WWA
Metro DX Club
K9KJ 44 2 1 326 IL
K5VV 168 1 1 318 LA
Yuba-Sutter ARC
W6PNH 49 2 2 296 WY
NØEVH 35 2 1 290 MO
N6MTS 35 2 1 220 SB
W7JZE 27 2 1 206 AZ
ND9G 27 2 1 204 NFL
KJ7BPN 24 2 1 198 EWA
WCØO 20 2 1 190 LAX
Golden Knights Contest Club
W2LC 9 2 1 186 WNY
N4DBR 61 2 1 172 MI
WB7TNE 11 2 1 172 CO
VA7HUM 11 2 1 172 BC
K9LV 6 2 1 162 IL
Shenandoah Valley ARC
W8BRY 4 2 1 158 AL
KB6ZA 2 2 1 158 EB
ND8D 4 2 1 158 OH
AA6H 3 2 1 156 GA
KF4NQN 2 2 1 154 SC
KA3KSP 35 2 1 120 WPA
KA1KNW 50 2 1 100 CT
WH6FAM/W3 21 2 1 92 MDC
WARA/GBARC
K1MJC 12 2 1 74 EMA
Aether Wireless
N2LO 2 2 1 54 SNJ

2C

Willamette Valley DX Club
KR7D 280 2 3 1,568 WWA
Flamingo Net
WA4TEJ 4 2 2 258 SFL
KC3TRT 20 2 2 90 EPA

Class D, E, and F home stations and club aggregate scores will be posted in the digital edition of *QST* and on the ARRL Field Day Page at **http://field-day.arrl.org**.

Contest Corral December 2025

Check for updates and a downloadable PDF version online at **www.arrl.org/contest-calendar**.
Refer to the contest websites for full rules, scoring information, operating periods or time limits, and log submission information.

Start - Finish				Bands	Contest Name	Mode	Exchange	Sponsor's Website
Date	Time	Date	Time					
2	0100	2	0300	3.5-28	ARS Spartan Sprint	CW	RST, SPC, pwr	**ars-qrp.com**
4	0000	4	0300	1.8	QRP ARCI Top Band Sprint	CW	RST, SPC, mbr or pwr	**qrparci.org**
4	0000	5	0300	7	Walk for the Bacon QRP Contest	CW	Max 13 WPM; RST, SPC, name, mbr or pwr	**qrpcontest.com/pigwalk40**
4	1800	4	2200	28	NRAU 10m Activity Contest	CW Ph Dig	RS(T), 6-char grid square	**nrau.net**
4	2000	4	2200	1.8-28,50	SKCC Sprint Europe	CW	RST, SPC, name, mbr or "none"	**www.skccgroup.com**
5	0100	5	0130	See rules	NCCC FT4 Sprint	Dig	4-char grid square	**www.ncccsprint.com**
5	0145	5	0215	3.5-28	Weekly RTTY Test	Dig	Name, SPC	**radiosport.world/wrt.html**
5	2200	7	1600	1.8	ARRL 160-Meter Contest	CW	W/VE: RST, ARRL/RAC Section; DX: RST	**www.arrl.org/160-meter**
5	0230	5	0300	See rules	NCCC Sprint	CW	Serial, name, QTH	**ncccsprint.com**
6	0000	7	2359	3.5-28	Kalbar Contest	Ph	RS, serial	**kalbarcontest.com**
6	0600	6	0800	7,14	Wake-Up! QRP Sprint	CW	RST, serial, suffix of previous QSO	**qrp.ru/contest/wakeup**
6	1200	7	1159	3.5-28	PRO CW Contest	CW	RST, serial, "/M" if mbr	**proradiocontestclub.com**
6	1400	7	1359	3.5-14,21	INORC Contest	CW	RST, club, mbr or serial	**www.inorc.it**
6	1800	7	2359	3.5-28	FT Challenge	Dig	Signal report, 4-char grid square	**www.rttycontesting.com**
9	1800	9	1859	3.5	DARC CW-Training Contest	CW	RST, DOK/"NM" or serial	**www.darc.de**
10	0130	10	0330	3.5-14	NAQCC CW Sprint	CW	RST, SPC, mbr or pwr	**naqcc.info**
12	0100	12	0130	See rules	NCCC FT4 Sprint	Dig	4-char grid square	**www.ncccsprint.com**
12	0145	12	0215	3.5-28	Weekly RTTY Test	Dig	Name, SPC	**radiosport.world/wrt.html**
12	0230	12	0300	See rules	NCCC Sprint	CW	Serial, name, QTH	**ncccsprint.com**
13	0000	14	2359	28	ARRL 10-Meter Contest	CW Ph	RST, state/province or serial	**www.arrl.org/10-meter**
13	0000	15	2359	1.8-7	PODXS 070 Club Triple Play Low Band Sprint	Dig	RST, SPC	**www.podxs070.com**
13	0600	14	1800	1.8-28	TRC Digi Contest	Dig	RST, serial, "TRC" if mbr	**trcdx.org/rules-trc-digi**
13	1200	14	2359	1.8-28,50	SKCC Weekend Sprintathon	CW	RST, SPC, name, mbr or "none"	**www.skccgroup.com**
13	1300	14	1359	3.5,7	ARI 40/80 Contest	CW Ph Dig	RS(T), 2-letter province code	**www.ari.it**
13	1600	14	1559	3.5-28	International Naval Contest	CW Ph	RS(T), club and mbr or serial	**www.marinefreunde.com**
14	2000	14	2300	1.8-28	QRP ARCI Holiday Spirits Sprint	CW	RST, SPC, mbr or pwr	**qrparci.org**
15	0100	15	0300	1.8-28	4 States QRP Group Second Sunday Sprint	CW Ph	RS(T), SPC, mbr or pwr	**www.4sqrp.com**
17	0130	17	0330	3.5-14	NAQCC CW Sprint	CW	RST, SPC, mbr or pwr	**naqcc.info**
18	0000	19	0300	14	Walk for the Bacon QRP Contest	CW	Max 13 WPM; RST, SPC, name, mbr or pwr	**qrpcontest.com/pigwalk20**
18	1900	18	2000	3.5-14	NTC QSO Party	CW	Max 25 WPM; RST, name, mbr or "NM"	**pi4ntc.nl**
19	0100	19	0130	See rules	NCCC FT4 Sprint	Dig	4-char grid square	**www.ncccsprint.com**
19	0145	19	0215	3.5-28	Weekly RTTY Test	Dig	Name, SPC	**radiosport.world/wrt.html**
19	0230	19	0300	See rules	NCCC Sprint	CW	Serial, name, QTH	**ncccsprint.com**
19	1600	19	1700	3.5,7	AGB-Party Contest	CW Ph Dig	Serial, name, QTH	**www.ev5agb.com**
20	0000	20	2359	1.8-28,50	Feld Hell Sprint	Dig	RST, mbr, SPC, grid	**sites.google.com/site/feldhellclub**
20	0000	20	2359	3.5-28	OK DX RTTY Contest	Dig	RST, CQ zone	**okrtty.crk.cz**
20	0000	20	2359	1.8-28,50,144	RAC Winter Contest	CW Ph	RS(T), province/territory, or serial	**www.rac.ca**
20	1400	21	1359	1.8-28	Croatian DX Contest	CW Ph	RS(T), 9A county or ITU zone	**www.hamradio.hr**
21	1800	21	2359	3.5-28	ARRL Rookie Roundup, CW	CW	Name, 2-digit year first licensed, SPC	**www.arrl.org/rookie-roundup**
21	2300	22	0100	1.8-28	Run for the Bacon QRP Contest	CW	RST, SPC, mbr or pwr	**qrpcontest.com**
24	0000	24	0200	1.8-28,50	SKCC Sprint	CW	RST, SPC, name, mbr or "none"	**www.skccgroup.com**
26	0100	26	0130	See rules	NCCC FT4 Sprint	Dig	4-char grid square	**www.ncccsprint.com**
26	0145	26	0215	3.5-28	Weekly RTTY Test	Dig	Name, SPC	**radiosport.world/wrt.html**
26	0230	26	0300	See rules	NCCC Sprint	CW	Serial, name, QTH	**ncccsprint.com**
26	0830	26	1059	3.5,7	DARC Christmas Contest	CW Ph	RS(T), DOK or "NM," serial	**www.darc.de**
27	1500	28	1500	1.8	Stew Perry Topband Challenge	CW	4-char grid square	**www.kkn.net/stew**
27	1500	28	1500	3.5-14	Original QRP Contest	CW Ph	RST, serial, pwr category	**www.qrpcc.de**
28	0000	28	1159	3.5-28	RAEM Contest	CW	See rules	**raem.srr.ru**
29	1000	29	2159	3.5-28	YOTA Contest	CW Ph	RS(T), age (avg age for multi-ops)	**yotacontest.mrasz.org**
29	1300	29	1400	1.8-28	QCX Challenge	CW	RST, name, SPC, rig	**www.qrp-labs.com**
29	1900	29	2000	1.8-28	QCX Challenge	CW	RST, name, SPC, rig	**www.qrp-labs.com**
30	0300	30	0400	1.8-28	QCX Challenge	CW	RST, name, SPC, rig	**www.qrp-labs.com**
31	0900	31	2359	3.5,7,28	Bogor Old and New Contest	Ph	RS, age	**contest.orari-bogor.org**

There are a number of weekly contests not included in the table above. For more info, visit: **www.qrpfoxhunt.org**, **www.ncccsprint.com**, and **www.cwops.org**. All dates and times refer to UTC and may be different from calendar dates in North America. Contests are not conducted on the 60-, 30-, 17-, or 12-meter bands. Mbr = Membership number. Serial = Sequential number of the contact. SPC = State, Province, DXCC Entity. XE = Mexican state. Listings in blue indicate contests sponsored by ARRL or *NCJ*. The latest time to make a valid contest QSO is the minute listed in the "Finish Time" column. *Data for Contest Corral is maintained on the WA7BNM Contest Calendar at* **www.contestcalendar.com** *and is extracted for publication in* QST *2 months prior to the month of the contest. ARRL gratefully acknowledges the support of Bruce Horn, WA7BNM, in providing this service.*

Jim Wilson, K5ND, jim@k5nd.net

2025 ARRL June VHF Contest Results

This year's ARRL June VHF Contest was held June 14 – 16, 2025.



Douglas Rehder, KD7DUG, combined his operation during the 2025 ARRL June VHF Contest with a Summits on the Air (SOTA) activation from grid square DM13 in Southern California. His efforts placed him in the Top Ten in the Single Operator, Analog Only, Portable category. [Douglas Rehder, KD7DUG, photo]

Sponsored Plaque Winners

Thanks to the generous support of numerous clubs and individuals, we are pleased to list the winners of the Sponsored ARRL June VHF Contest plaques below. For more information on plaque sponsorship or to order a duplicate plaque, contact the ARRL Contest Program at 860-594-0232 or **contests@arrl.org**. Plaques cost $95, which includes all shipping charges.

Plaque Category	Plaque Sponsor	Winner
Overall Single Operator, High Power	Charles Dietz, W5PR	K1TEO
Overall Single Operator, Analog Only, High Power	Andrea Slack, K2EZ	K5TR
Overall Single Operator, Analog Only, Low Power	Andrea Slack, K2EZ	AF1T
Overall Single Operator, Low Power, Rookie	W3ZZ First Log Award – Memorial by Tim, K3LR, and Dave, W9PA	KZ7Y
Overall Single Operator, QRP Portable	Rochester VHF Group	K5ND
Overall Single Operator, Analog Only, QRP Portable	Andrea Slack, K2EZ	W7JET
Overall Single Operator, Three-Band	Northern Lights Radio Society	KO9A
Overall Single Operator, Analog Only, Three-Band	Andrea Slack, K2EZ	N1JD
Overall Single Operator, FM Only	Andrea Slack, K2EZ	W7IMC
Overall Rover	Andrea Slack, K2EZ	N7GP/R
Overall Limited Rover	Andrea Slack, K2EZ	KA5D/R
Overall Unlimited Rover	Andrea Slack, K2EZ	K4CNY/R
Atlantic Division Single Operator, High Power	Potomac Valley Radio Club	N2JMH
Atlantic Division Single Operator, Low Power	Potomac Valley Radio Club	WN3A
Atlantic Division Rover	Rochester VHF Group	K2QO/R
Central Division Single Operator, High Power	Society of Midwest Contesters	K9MU
Central Division Single Operator, Low Power	Society of Midwest Contesters	W0UC
Central Division Single Operator, QRP Portable	Society of Midwest Contesters	KC9SEB
Central Division Single Operator, Three-Band	Society of Midwest Contesters	KO9A
Central Division Rover	Society of Midwest Contesters	KC9LFP/R
Dakota Division Single Operator, Low Power	Northern Lights Radio Society	N0UR
Delta Division Single Operator, Low Power	Northern Lights Radio Society	AJ6T
Hudson Division Single Operator, High Power	Ed Kucharski, K3DNE, in memory of Jud Snyder, K2CBA	WA2FZW
Roanoke Division Single Operator, High Power	Potomac Valley Radio Club	N3MK
Roanoke Division Single Operator, Low Power	Potomac Valley Radio Club	KA2G
Canada Single Operator, Low Power	Neil Macklem, VE3SST	VE3VHF
Canada Single Operator, Analog Only, Low Power	Neil Macklem, VE3SST	VE3KH
Canada Single Operator, Three-Band	Neil Macklem, VE3SST	VA2CY
Canada Limited Multioperator	Neil Macklem, VE3SST	VA7FBS
Canada Rover	Neil Macklem, VE3SST	VE3OIL/R
Canada Limited Rover	Rochester VHF Group	VA7OTC/R

Contacts by Band

Band	CW/SSB/FM	Digital	Total
50 MHz	29,534	92,442	121,976
144 MHz	6,653	10,561	17,214
222 MHz	2,642	874	3,516
432 MHz	4,038	1,699	5,737
902 MHz	818	19	837
1.2 GHz	1,421	108	1,529
2.3 GHz	546	2	548
3.4 GHz	225	1	226
5.7 GHz	223	1	224
10 GHz	326	3	329
24 GHz	40		40
47 GHz	11		11
75 GHz	2		2
123 GHz	20		20
Light	19		19
Total	**46,518**	**105,710**	**152,228**
% of Total	30.56%	69.44%	

Division Winners

Classic Rover

Atlantic	K2QO/R	38,250
Central	KC9LFP/R	1,540
Dakota	WØAUS/R	23,540
Delta	NV4B/R	190,180
New England	NT1D/R	2,838
Northwestern	K7MDL/R	3,612
Pacific	KE6QR/R	4,158
Rocky Mountain	WB5LJO/R	90
Southwestern	N7GP/R	299,431
West Gulf	W5OC/R	15,048
Canada	VE3OIL/R	109,343

Limited Rover

Atlantic	W3CMP/R	5,916
Central	KC9NJZ/R	18,648
Dakota	KAØRYT/R	7,590
Delta	N2IDK/R	986
Great Lakes	W8ISS/R	9,108
Midwest	KG9OV/R	113,050
New England	WA1PQY/R	3,876
Northwestern	WR7X/R	12,744
Pacific	N9VM/R	2
Roanoke	KE4WMF/R	6,435
Rocky Mountain	KK6MC/R	12,950
Southeastern	WD2E/R	11,375
Southwestern	N6GP/R	37,248
West Gulf	KA5D/R	135,754
Canada	VA7OTC/R	736

Unlimited Rover

Dakota	WBØLJC/R	330
Delta	K4CNY/R	73,537
Northwestern	KD1RX/R	6,608

Single Operator, High Power

Atlantic	N2JMH	264,696
Central	K9MU	131,376
Dakota	NØJPE	53,301
Delta	N4OGW	180,121
Great Lakes	N8LRG	138,240
Hudson	WA2FZW	65,960
Midwest	ABØS	76,908
New England	K1TEO	295,536
Northwestern	KA6BIM	51,072
Pacific	N5KO	36,294
Roanoke	N3MK	142,380
Rocky Mountain	KBØNAV	58,976
Southeastern	K1TO	257,698
Southwestern	NJ6D	64,876
West Gulf	N5RZ	151,526
Canada	VE5MX	32,535

Single Operator, Low Power

Atlantic	WN3A	255,490
Central	WØUC	90,016
Dakota	NØUR	29,754
Delta	AJ6T	42,075
Great Lakes	K8NWN	45,150
Hudson	WA2VNV	37,092
Midwest	KØPHP	53,790
New England	W2TT	23,377
Northwestern	AB9BH	24,910
Pacific	KE6GLA	15,990
Roanoke	KA2G	10,988
Rocky Mountain	NØPOH	14,155
Southeastern	K4QXX	29,970
Southwestern	AG6X	113,386
West Gulf	WB5TUF	67,158
Canada	VE3VHF	72,960

Single Operator, Analog Only, High Power

Atlantic	H2FU	152,218
Central	W9KXQ	972
Dakota	WØGHZ	4,704
Delta	N5BLY	3,640
Great Lakes	K8ZR	15,834
Hudson	W2KV	28,028
Midwest	WØZB	7,638
New England	WA1PBU	60,489
Northwestern	K7RAT (N6TR, op)	3,003
Pacific	K6MI	38,688
Roanoke	N4RA	4,488
Rocky Mountain	K5AM	8,025
Southeastern	WB4WXE	38,592
Southwestern	KØXP	735
West Gulf	K5TR	208,624
Canada	VE3KG	4,235

Single Operator, Analog Only, Low Power

Atlantic	KD2HZI	16,685
Central	KG9AP	25,752
Dakota	KNØV	5,841
Delta	AI4IC	600
Great Lakes	N4GO	3,174
Hudson	WB2JAY	31,262
Midwest	WAØI	8,418
New England	AF1T	174,034
Northwestern	KB7DQH	1,840
Pacific	K2GMY	6,909
Roanoke	N8II	3,124
Rocky Mountain	N7MZW	432
Southeastern	WU5E	2,310
Southwestern	N6VI	7,065
West Gulf	K5GN	2,310
Canada	VE3KH	61,798

Single Operator, Portable

Atlantic	W3MEO	30
Central	KC9SEB	8
Dakota	NØSUW	232
New England	KB1RJS	48
Northwestern	KK7OBE	56
Pacific	N6ACA	110
Roanoke	KF4VTT	1,260
Southeastern	W4RDM	120
Southwestern	K7MWD	1,750
West Gulf	K5ND	32,335

Single Operator, Analog Only, Portable

Atlantic	W9TCV	9
Delta	N3AWS	918
Hudson	WB2AMU	1,000
Northwestern	KL5MM	10
Pacific	N4DLA	2,349
Rocky Mountain	KN8U	48
Southwestern	W7JET	11,088
Canada	VA3CDD	270

Single Operator, Three-Band

Atlantic	W3FAY	29,736
Central	KO9A	139,728
Dakota	KØVG	38,940
Delta	WQ5L	76,196
Great Lakes	K8LG	23,871
Hudson	NA2NY	35,230
Midwest	NIØP	42,818
New England	K1HC	64,635
Northwestern	AA7EA	12,075
Pacific	NT6K	19,116
Roanoke	WA4LDU	23,920
Rocky Mountain	KØNR	53,760
Southeastern	K2PS	83,076
Southwestern	KD6GHX	29,875
West Gulf	W5TRL	134,946
Canada	VA2CY	42,900

Single Operator, Analog Only, Three-Band

Atlantic	N3QE	1,050
Central	WB9HFK	6,160
Delta	WA4JA	72
Great Lakes	K8MR	8,190
Hudson	NK2Y	400
Midwest	NØUI	3,888
New England	N1JD	13,202
Northwestern	N7QOZ	2,875
Pacific	K6YK	680
Roanoke	K4BSK	3,350
Rocky Mountain	KØXF	399
Southeastern	WB4HXF	621
Southwestern	K6QCB	624
West Gulf	WA5LFD	3,796
Canada	VE3TM	1,680

Single Operator, FM Only

Atlantic	KF2MR	126
Delta	K4NRT	30
Hudson	KE2CCG	15
New England	W1NIV	300
Northwestern	W7IMC	4,380
Pacific	W6IA	935
Southeastern	K3TW	4
Southwestern	AF6GM	1,712
Canada	VE3RWJ	805

Limited Multioperator

Atlantic	W3SO	89,464
Central	WB9Z	101,202
Dakota	NØEO	20,868
Great Lakes	KE8FD	154,644
Hudson	N2NT	302,304
Midwest	NØLNO	32,896
New England	W1FM	36,356
Pacific	KH2TJ	7,081
Roanoke	AA4ZZ	272,700
Southeastern	AD4ES	135,636
Southwestern	WO1S	1,775
West Gulf	K5N	198,090
Canada	VA7FBS	6,432

Unlimited Multioperator

Atlantic	W3CCX	368,480
Central	WD9EXD	111,141
Delta	N4QWZ	87,927
Great Lakes	N8GA	160,564
Hudson	WE1P	83,486
Midwest	WQØP	56,144
New England	W2SZ	666,864
Pacific	W6IWN	2,442
Roanoke	KC4SFE	9,768
Southeastern	W4NH	134,930
Southwestern	KN6UWK	81,082
West Gulf	KC5MVZ	14,784
Canada	VE3WCC	166,611

Affiliated Club Competition

Club	Score	Entries
Unlimited		
Ontario VHF Assn.	1,909,186	58
Potomac Valley Radio Club	813,478	60
Medium		
Mt. Airy VHF Radio Club	2,009,406	38
Society of Midwest Contesters	989,567	48
North East Weak Signal Group	731,511	18
Florida Contest Group	648,301	23
Arizona Outlaws Contest Club	634,159	26
Roadrunners Microwave Group	617,251	7
Southern California Contest Club	396,884	30
Northern Lights Radio Soc.	340,424	24
Texas DX Soc.	311,896	11
Alabama Contest Group	280,629	6
Carolina DX Assn.	274,698	4
Central Texas DX and Contest Club	266,991	6
Fourlanders Contest Team	257,568	5
Swamp Fox Contest Group	241,405	9
Pacific Northwest VHF Soc.	228,614	36
Northern California Contest Club	227,419	24
Yankee Clipper Contest Club	210,195	22
DFW Contest Group	189,276	16
Frankford Radio Club	173,628	15
Kentucky Contest Group	120,533	5
Grand Mesa Contesters of Colorado	116,542	15
Florida Weak Signal Soc.	92,952	3
Arizona VHF Soc.	89,162	4
Mad River Radio Club	86,872	6
South East Contest Club	85,115	8
New Mexico VHF Soc.	80,803	6
Willamette Valley DX Club	72,703	8
Tennessee Contest Group	63,984	10
Minnesota Wireless Assn.	58,264	12
Michigan VHF-UHF Soc.	54,716	5
North Coast Contesters	51,705	4
Contest Club Ontario	50,888	11
Mother Lode DX/Contest Club	41,870	3
Valley ARA	32,410	3
Badger Contesters	21,940	3
Kansas City Contest Club	21,603	3
South Jersey Radio Assn.	16,003	4
Hudson Valley Contesters and DXers	15,827	4
Western Washington DX Club	15,383	4
Granite State ARA	11,597	3
Big Sky Contesters	10,878	4
Arkansas DX Assn.	9,626	5
Niagara Frontier Radiosport	8,807	6
Convair/220 ARC	6,994	6
Oklahoma City Autopatch Assn.	744	3
W6TRW ARC	666	3
Alaska VHF-Up Group	78	3
Local		
Chippewa Valley VHF Contesters	183,116	4
Eastern Connecticut ARA	75,383	4
CTRI Contest Group	42,078	5
Bristol (TN) ARC	33,001	4
Stoned Monkey VHF ARC	21,108	3
Vienna Wireless Soc.	15,172	3
Providence Radio Assn.	4,834	3
Metro DX Club	3,827	3

Full Results Online

You can read the full results of the contest online at **https://contests.arrl.org**. You'll find detailed analysis and more play-by-play, along with the full line scores. Improve your results by studying your log-checking report, too.

The 2026 ARRL June VHF Contest will be held June 13 – 15, 2026.

The 2026 January VHF Contest

1900 UTC Saturday, January 17 – 0359 UTC Monday, January 19, 2026

January is the time to gear up for a new season of VHF contesting. Between meteor scatter, winter E-skip, aurora, EME, and tropospheric scatter or ducting, there are many opportunities for enhanced propagation.

Whether your mode of choice is CW, phone, or one of the newer digital modes such as FT4 and FT8, there are plenty of ways for hams of all experience levels to participate in the event. Single Operator participants can enter in either all-mode or analog-only (CW/phone) categories.

Assistance is available to all entry classes, so stations can coordinate making contacts whether they're at home, portable, or on the road. Coordinate with your local club or group and let them know when and where you'll be on the air for the event.

The contest exchange is your Maidenhead grid square. More information on grid squares can be found at **www.arrl.org/grid-squares**.

10-Day Log Deadline: Logs must be uploaded or postmarked no later than 0359 UTC January 29, 2026. Electronic Cabrillo-formatted logs must be uploaded to **https://contest-log-submission.arrl.org**; mail paper summary sheets and logs to ARRL — January VHF Contest, 225 Main St., Newington, CT 06111.



Mike Kennerknecht, N2MAK, combined his 2025 ARRL January VHF Contest activity with a Parks on the Air activation at the Erie Canalway National Heritage Corridor in Henrietta, New York. He operated on six bands from 50 MHz through 1.2 GHz, taking home second place overall in the Single Operator, Portable, Analog Only category. [Mike Kennerknecht, N2MAK, photo]

Complete rules can be found at www.arrl.org/january-vhf

January 2026 Kids Day

1800 UTC – 2359 UTC Saturday, January 3, 2026

The first Saturday in January is the time to encourage youngsters to get on the air and share the excitement and fun of amateur radio!

Sponsored by the Boring (Oregon) Amateur Radio Club, this event has a simple exchange suitable for younger operators: first name, age, location, and favorite color. After that, the contact can be as long or short as each participant likes.

Kids Day is the perfect opportunity for you or your club to open your shack doors and invite kids over to discover what amateur radio is all about!

Send your photos and stories of Kids Day to ARRL at **https://contests.arrl.org**.



Complete rules can be found at www.arrl.org/kids-day

The 2026 ARRL International DX Contest

CW: 0000 UTC Saturday, February 21 – 2359 UTC Sunday, February 22
SSB: 0000 UTC Saturday, March 7 – 2359 UTC Sunday, March 8

Join thousands of amateurs worldwide as they compete in one of the largest international amateur radio contests. Whether you're the casual operator looking for DX contacts, an awards chaser, or looking to complete your DXCC, this event has something for everyone.

♦ W/VE stations send signal report and state or province; DX stations send signal report and transmit power.

♦ Upload your Cabrillo-formatted log to the ARRL web app at **https://contest-log-submission.arrl.org**, or send paper logs to ARRL — DX Contest, 225 Main St., Newington, CT 06111.

♦ Log submission deadlines are 7 days after the event. For this event, the CW deadline is 2359 UTC on March 1 and the SSB deadline is 2359 UTC on March 15.



Ken Countess, KN2D, participated in the 2025 ARRL International DX Contest — CW. It was his first serious contest effort after many years of being away from contesting. He completed 291 contacts. [Ken Countess, KN2D, photo]

Complete rules can be found at www.arrl.org/arrl-dx

The 2026 ARRL Straight Key Night

0000 UTC – 2359 UTC Thursday, January 1, 2026

Start the year off right with the sounds of Morse code! Straight Key Night (SKN) is not a contest, so there's no need for quick exchanges. All you need is your favorite straight key or bug.

Many participants dust off their vintage rigs and keys, but all gear (regardless of its age) is welcome. The number of contacts you make is not important, and many new and longtime friends get together on the air for the event.

Send your list of stations worked, SKN stories, and photos, along with your votes for Best Fist and Most Interesting QSO, to **straightkey@arrl.org** before January 31, 2026. A paper summary of your activity can be mailed to ARRL — Straight Key Night, 225 Main St., Newington, CT 06111. Be sure to share your story and photos at **www.arrl.org/soapbox** or by email to **straightkey@arrl.org**.

More information can be found at www.arrl.org/straight-key-night





Some Straight Key Night operators get a little creative with the equipment they put on the air for the event. Igor Zdorov, WØIZ, used a homemade key fashioned from a wooden clothespin coupled with his vintage 1970 Yaesu FT-200 transceiver. [Igor Zdorov, WØIZ, photo]

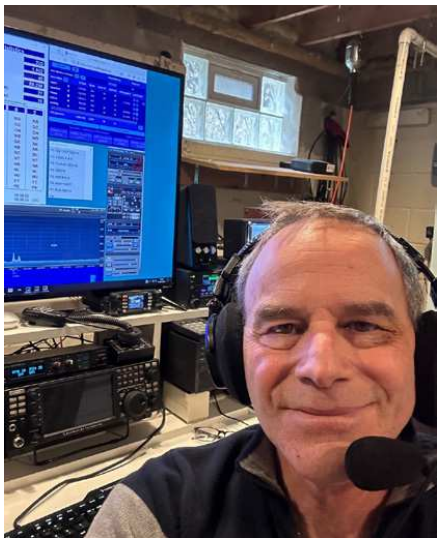
The 2026 ARRL RTTY Roundup

1800 UTC Saturday, January 3 – 2359 UTC Sunday, January 4

The 2026 ARRL RTTY Roundup begins Saturday, January 3. If you're new to the world of radioteletype (RTTY), this is your opportunity to explore the excitement of this fascinating mode. Getting started with RTTY is now easier than ever — all you need is a computer, a transceiver, and a sound card interface. Many newer HF rigs have built-in interfaces that allow your PC to connect directly to your transceiver. Visit **www.rttycontesting.com** for tips on how to start.

Bands and Modes: Use only the 3.5, 7, 14, 21, and 28 MHz bands, and only the RTTY mode. Automated operation is not permitted. Contacts made using other digital modes will not be allowed.

Contest Exchange: W/VE stations send signal report and state; DX stations send signal report and consecutive serial number starting with 001.



Cyril Stanway, K2CYS, participated in the 2025 ARRL RTTY Roundup from his station in northern New Jersey. He completed 522 contacts during the event and looks forward to operating in the 2026 contest. [Cyril Stanway, K2CYS, photo]

7-Day Log Deadline: All logs must be received via web app or postmarked no later than 2359 UTC on January 11, 2026. Upload your Cabrillo-formatted logs to **https://contest-log-submission.arrl.org**, or mail paper logs to ARRL — RTTY Roundup, 225 Main St., Newington, CT 06111.

Complete rules can be found at www.arrl.org/rtty-roundup

This Month in QEX

QEX magazine is a forum for the free exchange of ideas among communications experimenters. All ARRL members can access the digital edition of *QEX* as a member benefit (**www.arrl.org/magazines**). Print subscriptions are available and sold separately; see **www.arrl.org/qex**.

Coming up in the November/December 2025 issue of *QEX*:

- Hajime Nakajima, JR1OAO, presents his creative design for a compact desktop magnetic loop antenna offering full HF coverage, 100 W capability, and flexible loop configurations, bringing real performance to even the most antenna-restricted environment.
- José Luis Giordano, CE4TW, presents the second part of his series on inductance, explaining its origin, properties, and applications, and summarizing theoretical and practical formulas for designing and calculating solenoids and toroids.
- Stefan Scholl, DC9ST, explores the field of neural networks and how they are being applied to radio spectrum analysis to classify shortwave signal modes from just one second of data.
- Eric P. Nichols, KL7AJ, looks at the way logarithmic methods evolved from manual tools to circuit-level implementations and how they are relevant today.

Would you like to write for *QEX*? We pay $50 per published page for full articles and *QEX* Technical Notes. Get more information and an Author Guide at **www.arrl.org/qex-author-guide**.

Bill Hewitt, W3FRB, w3frb@comcast.net

Club Station

Hosting a Successful POTA Event

The Pottstown Area Amateur Radio Club (PAARC), K3ZMC, is in the Delaware Valley (also known as the Philadelphia metropolitan area) in Pennsylvania. This region offers an abundance of parks, affording radio enthusiasts many opportunities to activate a park for Parks on the Air® (POTA®).

PAARC has provided its members with several club presentations on POTA, but we wanted to take the training a bit further by hosting a live POTA demonstration, called PAARC in the Park.

Recruiting the Experts

POTA traces its roots to the National Parks on the Air (NPOTA) program, which ARRL ran in 2016 to help the National Park Service celebrate 100 years. PAARC is fortunate to have top performers from NPOTA — PAARC President Walt Skavinsky, KB3SBC, and Pete Kobak, KØBAK — as members. Joel Rubincam, NF3R; Greg Malone, WA3GM, and I are also POTA advocates. We were all eager and willing to be the event's instructors. An additional incentive was that we could activate the park that day.

Event Goals

PAARC in the Park stressed the importance of activators and hunters, and how many hunters transition into activators. The goal was to show how to activate a POTA station with minimal special equipment, using what's already available to most hams. POTA allows participants to pursue their interests in their own way, emphasizing the importance of skills and adaptability in dealing with various elements. This event not only showcased the excitement of POTA, but it also fostered learning and a sense of community among amateur radio enthusiasts in the region.

We promoted the event via the email list server, groups.io (**https://groups.io**), as well as PAARC's web page (**www.paarc.net**) and the ARRL Eastern Pennsylvania Section web page (**https://epa-arrl.org**). It cost $70 to rent a pavilion at the park, and we provided hot dogs and refreshments.

A Successful Turnout

We held PAARC in the Park on April 28, 2024, at Evansburg State Park, an area centrally located to several local radio clubs. The program was organized by Walt, KB3SBC, and PAARC Secretary Melody Bowers, KB3SJR.



Walt Skavinsky, KB3SBC, adjusts a Buddipole for 17-meter operation during the inaugural PAARC in the Park event at Evansburg State Park in Collegeville.

It was a wonderful event! We had 36 hams from five different local clubs as well as six guests visit, for a total of 42 people. Weather for the outdoor event was excellent, and, despite less-than-favorable band conditions, all operators were successful in providing a lot of contacts for eager POTA hunters. One of the most beneficial aspects of the event, other than chatting with fellow hams, was being able to see various equipment configurations. It's always educational to witness how different field antenna systems are deployed and how other operators stow and carry their gear.

We are incredibly grateful to our operators who shared their talents and were so generous with their time in answering guests' questions while activating the park. There was an impressive array of antennas and radios on display.

Given the success of the event, I emailed Mike Dahlhofer, K8MRD, of the YouTube channel Ham Radio Tube, about our recent PAARC in the Park POTA event. To my surprise, Mike featured our club and event in his video "My Definition Of A Great Ham Radio Club!" (**www.youtube.com/watch?v=zm9coLuFrSs**).



Joel Rubincam, NF3R, activates his POTA station on 6 meters from Pavilion A in Evansburg State Park during PAARC in the PARK.

In Summary

PAARC in the Park has now become an annual event. The second annual event occurred on May 4, 2025, with a Star Wars theme — "May the 4th Be with You." Despite the rain, about 30 amateur radio operators from three different clubs attended.



Bill Hewitt, W3FRB, demonstrates his setup for a guest.

At one of PAARC's weekly online roundtables after the inaugural event, Jeff Franklin, N3FMC, mentioned how PAARC in the Park inspired him:

> Being inactive on HF for 25 years until last fall, I was introduced to Parks on the Air at the PAARC POTA event. Since then, I haven't activated any parks, but I'm having fun hunting activators at parks near and far. I'm putting together a portable/mobile station to begin activating some of our parks!

Whether you're a seasoned activator or exploring portable operating for the first time, events like PAARC in the Park demonstrate that POTA is a great way to learn, connect, and grow as an amateur radio operator. Club-led demonstrations like these don't just get people on the air — they build lasting friendships and a stronger local ham community.

If your club is looking for an engaging way to bring members together, consider hosting a POTA day of your own. All you need is a park, a radio, and a willingness to share what you know!

All photos provided by the author.

ARRL Special Service Clubs

ARRL offers the Special Service Club (SSC) program for clubs that demonstrate that they're working to improve the amateur radio community by completing special projects, holding license classes, and working with local groups on events, among other activities. Visit **www.arrl.org/ssc-application** for more information about this program. Below is a list of new and renewing SSCs as of September 16, 2025.

Renewing SSCs

Central Ohio Radio Club, Inc., W8AIC	Sunbury, OH
Delta ARC, W4BS	Bartlett, TN
Great South Bay ARC, W2GSB	West Babylon, NY
North Augusta Belvedere ARC, Inc., K4NAB	Aiken, SC
South Orange ARA, K6SOA	Mission Viejo, CA

Sign Up for ARRL Club News

Read the monthly *ARRL Club News* e-newsletter to find out more about what clubs are doing to advance amateur radio in their communities and within the hobby. To opt in to monthly email delivery of *ARRL Club News*, log in to **www.arrl.org** and select "E-Newsletters and Notifications" on your account web page.

Steve Goodgame, K5ATA, sgoodgame@arrl.org

Ham Media Playlist

Earth-Moon-Earth

Amateur radio is full of various challenges. While it is relatively simple to get on the air and make a contact, some contacts are more difficult than others. This is when hams push through to make amazing things happen.

One facet of amateur radio that can prove to be challenging is Earth-moon-Earth (EME), an activity where hams point antennas at the moon and attempt to make contact with other hams on Earth by bouncing their signal off the moon. This is a mode that I have always been hesitant to attempt, as it can be overwhelming to get started. So, where does one start when learning about a new amateur radio mode? YouTube, of course!

HamRadioConcepts

HamRadioConcepts (**www.youtube.com/@HamRadioConcepts**), a channel run by Eric Hofer, KJ4YZI, contains videos about many facets of amateur radio. In the video titled "SUCCESS!!! EME Moonbouce W/50 WATTS In The Backyard With NC1I!!!" (**https://tinyurl.com/KJ4YZI-EME1**), the pure joy and excitement are evident on Eric's face as he makes a contact by bouncing signals off the moon. This video serves as a great motivator to get people started, as Eric accomplishes this with minimal equipment.

Building on his excitement from making that contact, Eric created another video to detail some of the equipment and methods used to make EME work for him. The video "Getting Started In EME Moonbounce On Ham Radio, Things I Have Learned Since I Got Started" (**https://tinyurl.com/KJ4YZI-EME2**) details what Eric used and what he suggests viewers do differently. I absolutely love this pair of videos, as Eric helps viewers understand that EME is doable for everyone. He discusses how he would change the antenna he used and why. He also points out that while he was successful, having a high-power station on the other end of the contact makes it much easier.

Eric explains what has worked for him, as well as what he doesn't quite understand yet. The fact that he is comfortable discussing both sides makes it more relatable to hams who are trying to get started in EME. This makes it feel like we are learning something new together.

Ham Radio Engineering: GM8JBJ

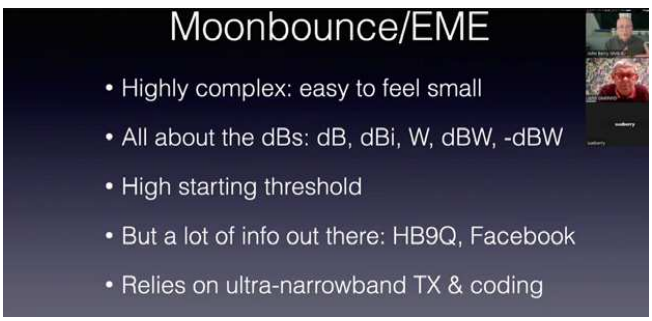
I came across a video on the small YouTube channel Ham Radio Engineering: GM8JBJ (**www.youtube.com/@hamradioengineeringgm8jbj**) titled "Introducing Moonbounce/EME: a technical, but exciting ham radio topic" (**https://tinyurl.com/GM8JBJ**). It is a recording of a *Zoom* presentation for the Mid-Sussex Amateur Radio Society club meeting. This presentation has a very different feel from Eric's in that the presenter discusses some of the technical aspects of EME and how some of the big EME stations are successful. The presenter, John Berry, GM8JBJ, finds a central theme with Eric's videos, explaining that hams can do this in the backyard with a handheld antenna. John also explains that while many newcomers may feel ignorant, the EME community is extremely welcoming and happy to help folks learn.

Jon Rines

After taking in several videos explaining EME and showing different stations, I found the YouTube channel



Eric Hofer, KJ4YZI, demonstrates using the "armstrong" method to point his antenna at the moon.



John Berry, GM8JBJ, gives an EME presentation to the Mid-Sussex Amateur Radio Society.

by Jon Rines, KA1TDQ (**www.youtube.com/@UtahBlender**). In Jon's video "Moonbounce EME Amateur Radio Station for 23cm!" (**https://tinyurl.com/KA1TDQ-EME**), he is in a public park with what he refers to as his portable EME station. Jon's setup is impressive. He has a full-size satellite dish, a water-cooling system, an inverter generator, and more. Jon goes through his setup, explaining how he is getting 1200 W at 1.296 GHz. He explains that his dish has a gain of 28 dB. Part of what drew me to this video was the fact that Jon shows yet another way you can do EME.



Hayden Honeywood, VK7HH, shows what a received signal looks like on the waterfall of an Icom IC-9700.

Ham Radio DX

One other channel with EME content is no stranger to this column. Ham Radio DX (**www.youtube.com/@HamRadioDX**) by Hayden Honeywood, VK7HH, has an older video from early in the life of his YouTube channel. The video titled "We Bounced Radio Signals off the MOON!!!" (**https://tinyurl.com/vk7hh-eme**) shows Hayden visiting a station owned by Richard Howlett, VK7ZBX. Hayden and Richard make contact via moonbounce with Miroslav Kasal, OK2AQ, in the Czech Republic. It is nice to see YouTube creators taking the time to learn from other hams and presenting the information for everyone to use.

Richard explains the process he uses, showing how he sets up the radio, the computer, etc. Using a much smaller dish than Jon used in his video, Hayden uses a very different setup. Viewers get to watch and witness some of the frustrations that may be experienced when trying EME. By communicating with OK2AQ via other means, they know that they are being received; however, it takes some time before they actually get a decode on *WSJT-X*. It is refreshing to see a YouTuber who is willing to show, as Hayden calls it, "some of the highs and some of the lows of 10 GHz EME." Learning through experience is critical to the process, and having someone affirm that the struggles are normal is reassuring.



Hayden Honeywood, VK7HH, and Richard Howlett, VK7ZBX, prepare the dish to attempt an EME contact with Miroslav Kasal, OK2AQ.

If you have ever been interested in what it takes to work EME, take time to watch videos. There are many more videos than the few I have shared here, made by hams everywhere who want to help others learn.

Bernie McClenny, W3UR, w3ur@arrl.org

How's DX?

Heightened DX Conditions and Activity Before December

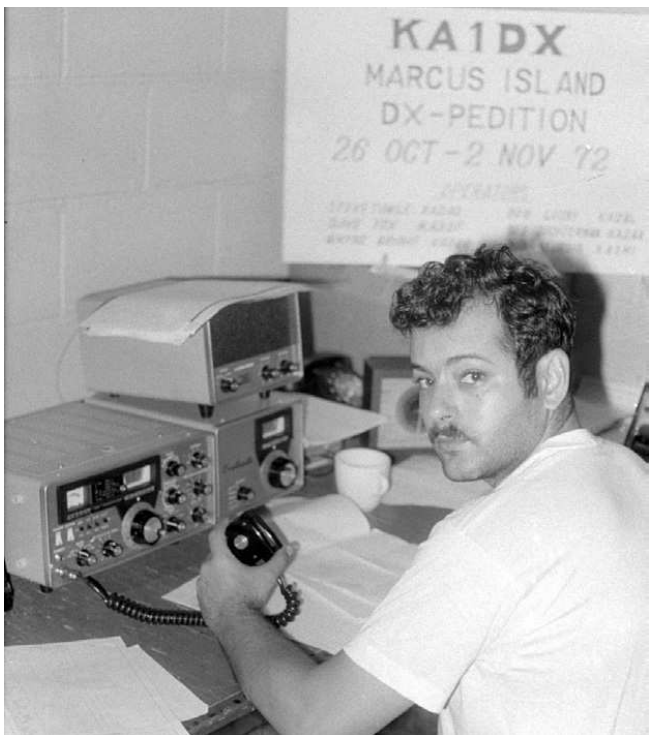
September 2025 started off the Northern Hemisphere's fall DX season with a flurry of DXpeditions and fantastic conditions on the higher bands. As I write this, October and November are looking to be great months for DXpeditions and Islands on the Air (IOTA) activations. Conversely, the band conditions and number of DXpeditions in December probably won't be as good as those in September, October, and November; both typically slow down during the holidays.



Take, JG8NQJ/JD1, operating from the Japan Meteorological Agency Ham Club Station, JD1YAA. [Sin Sanada, JA8CJY, photo]

JD1/M — Minami Torishima

Minami Torishima (aka Marcus Island) is Japan's easternmost isolated coral atoll. The island was occupied by the US during World War II and referred to as Marcus Island until it was returned to Japan in 1968. It has no permanent residents, but it functions as a key site for weather monitoring, maritime surveillance, and rare-earth mining research. The triangle-shaped atoll is about 1,848 kilometers (about 1,148 miles) southeast of mainland Tokyo and about 1,000 kilometers (about 620 miles) from Iwo Jima.



Dave Fox, W3FOX, who operated in the SSB portion of the 1972 CQ World Wide DX Contest as KA1DX from Minami Torishima. [Dave Fox, W3FOX, photo]

Minami Torishima was not on the original 1947 DX Century Club (DXCC) list. The September 1960 issue of *QST* announced that Marcus Island would be added to the DXCC list and that "Confirmations for contacts with Marcus Island stations must be dated November 15, 1945 or later."

During the early-to-mid 1960s, US personnel and Japanese operators would use either a KG6 call sign or their home call sign/KG6 when operating from the island. Later, in the 1970s, Japanese operators would use their home call signs/JD1, and US operators would use the KA prefix. The KA call signs were used until the late 1980s. The Japan Meteorological Agency Ham Club Station, JD1YAA, was established around 1980.

There has been some activity from Minami Torishima, JD1/M, every year since 2002. Despite this, it currently ranks number 33 on Club Log's DXCC Most Wanted List. As I mentioned in the June 2025 "How's DX?" column, Take, JG8NQJ, spends 2 – 3 months at a time there before leaving for breaks; this is a pattern he's maintained for decades. His last operation ended in

early June 2025, and as of September 18, he is back on Minami Torishima until the end of this year.

Take mostly operates CW and sometimes FT8. On CW, you can find him on 17, 15, or 12 meters, typically between 0400Z and 0900Z and occasionally between 2000 to 2200Z. He is more likely to show up for North America during that later time frame, during this region's Friday or Saturday night. You can also monitor his activities on a DX spotting network or use the app HamAlert (**www.hamalert.org**) with user-specific filters. Finally, keep an eye on your favorite DX outlet for updates. Sin, JA8CJY, manages QSLs for Take and keeps an updated log with entries up to 0917Z on June 4, 2025. He also shares updates on his QRZ page (**www.qrz.com/db/ja8cjy**).

S7 — The Seychelles

Vaclav, OK6RA, is organizing a low-power expedition to the Seychelles for the CW portion of the CQ World Wide (CQ WW) DX Contest, focusing on either the 10- or 15-meter band. He plans to use stacked two-element Moxon antennas aimed at Europe, North America, and potentially Japan. He'll adjust his setup based on propagation conditions. Before the contest, Vaclav will operate mainly CW on various bands, using vertical antennas and 100 W from a SunSDR2 DX. His trip includes a family stay on Mahé Island from November 17 to 24, followed by contest operations from a hilltop villa on Praslin Island, where he has clear signals to the US, Europe, and Japan from November 24 to December 2.

HKØ/A — San Andrés and Providencia

An all-Spanish team that includes EA7BF, EA7JW, EA7FPG, and EA7ATX will be active from San Andrés (IOTA NA-033) under the special call sign 5JØEA from November 21 to 30. Their activity will be on SSB, CW, and FT8.

T8 — Palau

Willamette Valley DX Club members Al, K7AR, and Bob, W7YAQ, are heading back to the Pacific for another DXpedition. This time, it will be from the M&A Beach Bungalows in Koror, Palau, from November 22 to December 1, and they will participate in the CW portion of the CQ WW DX Contest. They will be on 1.8 – 50 MHz — mainly on CW, with some FT8. On the Magic Band, the pair will be monitoring FT8 on 50.313 MHz. Their equipment will include two Elecraft K3 rigs, KPA500 amplifiers, a DX Commander Classic, a Signature 9, and an inverted **L** on top band. K7AR will handle the QSL duties, which can be sent via Logbook of The World® (LoTW®), via OQRS, directly, or via the W7 QSL bureau.

J3 — Grenada

Next Generation DX operator Jamie, MØSDV, is scheduled to operate from Grenada using the call sign J38W between November 23 and December 2. His objectives include maximizing the number of contacts during his stay and participating in the CW portion of the CQ WW DX Contest on November 29 and 30. Jamie will operate in the Single Operator, All Band, High Power category, while utilizing an Icom IC-7300 transceiver with an SPE Expert amplifier. His antennas will include a hexbeam for 20 – 6 meters and a vertical for the lower bands. QSL cards will be managed via MØOXO through OQRS.

FS — St. Martin

For the 6th year, John, K9EL, will be leading a team to the French side of St. Martin just after Thanksgiving. Besides him, this year's group will include Mike, W9MR; Bob, W9AP; Joel, N9LQ, and John, K9KE. They will once again use the special call sign TO9W. Once they arrive, they will need to set up the stations and antennas. These will include three Elecraft K3s, one Icom IC-7000, and three Elecraft KPA500 amplifiers. The antennas will include a 72-foot top-loaded vertical on 160 meters, quarter-wave verticals on 80 and 40 meters, dipoles on 30 – 10 meters, and a three-element Yagi on 6 meters. For receiving, they will have an end-fed half wave for 3.5 – 28 MHz and a Beverage on Ground for the low bands. They plan to be on all modes on 1.8 – 50 MHz, including the 60-meter band. All contacts will be uploaded daily to Club Log and LoTW. Those needing paper confirmations can get them using Club Log's OQRS. For more information about this DXpedition, visit **www.k9el.com/to9w/to9w.htm**.

Wrap-Up

That is all for this month, with special thanks to EA7BF, JA8CJY, K7AR, K9EL, MØSDV, OK6RA, and *The Daily DX* for helping to make this month's column possible. If you have any DX or IOTA news, photos, or club newsletters, please send them to **bernie@dailydx.com**. Until next month, see you in the pile-ups! — *Bernie, W3UR*

Jon Jones, NØJK, n0jk@arrl.org

The World Above 50 MHz

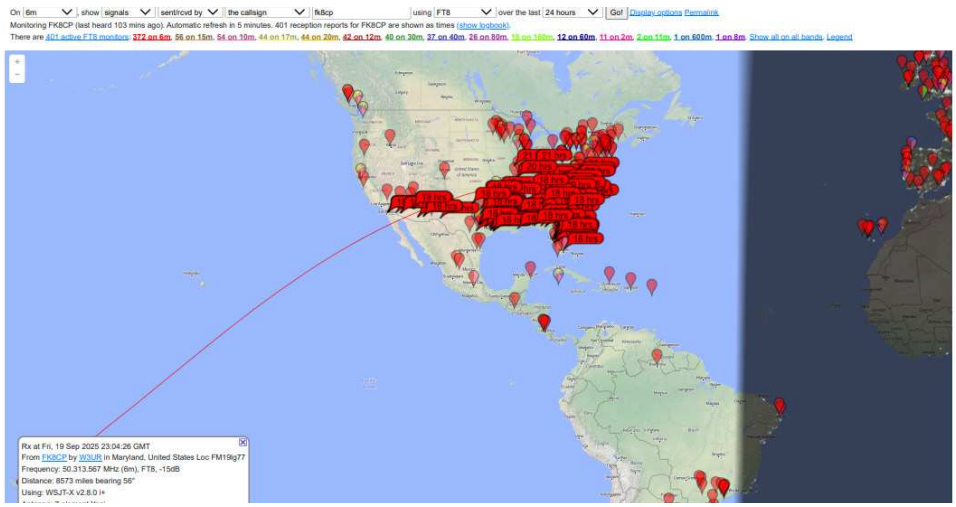
Fall Propagation Then and Now; South America Openings; Preamps for 6 Meters

In the October 2025 "The World Above 50 MHz" column, I mentioned that October 8, 2024, brought the start of the fall 6-meter F2 season for much of North America with widespread openings to South America and Europe. The solar flux was 164. I am writing this month's column almost exactly a year later, and the solar flux is 133. For KC4AAW (EM85), the season began with signals from Brazil at 0100 UTC. Larry, NØLL (EM09), copied Florida stations as well as FY/PY8WW calling CQ on 50.313 MHz FT8. Larry worked him at 0153 UTC. The French Guiana station had PSK flags in the southeast states followed by some in the Midwest. These were characteristics of sporadic E linking to transequatorial propagation (TEP). I didn't copy the FY station, but Mike, KCØY (EM17), and I worked N1FXP (EL86) at 0210 UTC via E_s. Mike also worked XE3N (EL60). FK8CP had PSK flags from California, Texas, and Virginia. Later that morning, there was TEP from North America to South America — mostly from call sign regions W1 and W4 to Argentina and Brazil.

It was a good opening, but it paled in comparison to 2024. Note that sporadic E played a role in NØLL's contact with FY/PY8WW. Sporadic E can let you connect to tropical openings, even with a lower solar flux. So, what will December bring? Frank Donovan, W3LPL, observed that the smoothed sunspot numbers for Solar Cycle 25 are trending downward despite high sunspot numbers in August. Carl, K9LA, said, "I am not sure the southern solar hemisphere is going to do anything." It may be too late in the cycle for a second peak. Despite this, there will still be some good days; watch for several days of high solar flux numbers and a quiet geomagnetic field, which may be a sign of a 6-meter opening to Europe or Japan. Geomagnetic storms enhance conditions to Africa, Central America, South America, and the South Pacific. Solar Cycle 25 is not over!

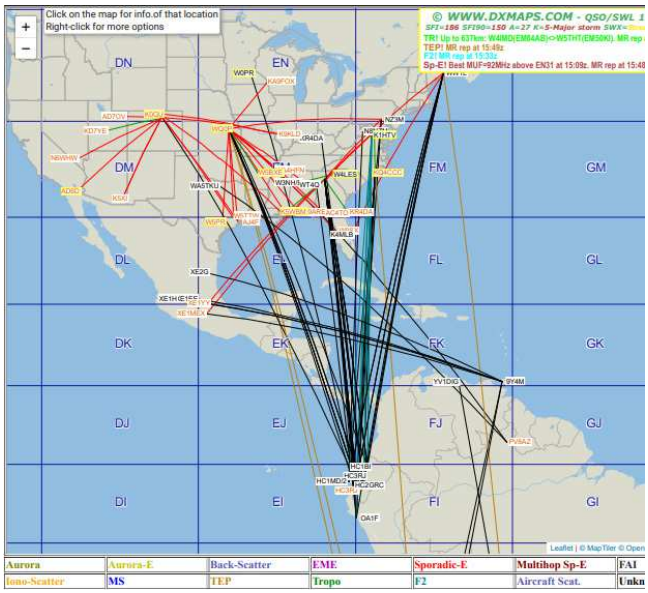
South America 6-Meter Openings

There were a couple of days with strong openings to South America in September. On September 19, sporadic E spread across the southeast states and the northern Caribbean. In turn, this set up E_s linking to TEP. Jim, AAØMZ (EM29), worked stations in Haiti via E_s, followed by Argentina and Brazil at around 2230 UTC before the opening drifted west to Chile. I was late to the opening. I worked CE6SAX at 2346 UTC, and then CA6SNT called me for two quick contacts. Mike, WØMU (DM79), was also late for the opening, but he logged 26 South American stations! Mike noted contacts with XE2N (EL60) and CO7MS (FL01), confirming sporadic-E links. Pete, K5CPR (EM13), worked 14 South American stations on FT8. He also copied FK8CP calling CQ. Randy Wing, NØLD (EM15), worked LW5EAD at 2247 UTC and CA6SNT at 2351 UTC. He copied FK8CP along with domestic E_s contacts. PSK flags for FK8CP covered a vast swath of North America, even reaching *QST* "How's DX?" columnist Bernie McClenny, W3UR, at 2304 UTC.



Rémi Touzard's, FK8CP, PSK flags covering much of North America on September 19, 2025. They even reached *QST* "How's DX?" columnist Bernie McClenny, W3UR. [**www.pskreporter.info/pskmap**]

There was another strong opening from North America to South America in the afternoon on September 21. CE3FFC (FF46)



A DX Maps screenshot taken by Benigno "Beni" Santos, HC1BI, on September 30, 2025. It shows the morning F2 from North America to Ecuador, Peru, and beyond. [**www.dxmaps.com**]

appeared in the Midwest as he called CQ at 2250 UTC. WAØQHJ (EN00) logged him at 2300 UTC, and then I logged him a few minutes later on FT8. I saw many unanswered CQs from CE3FFC. At 2308 UTC, I worked CE4MBH (FF46). I later noted N5BO (EM60) and other Florida stations in via sporadic E. There was likely an E_s link opening.

Preamplifiers on 6 Meters

Recently, there has been considerable discussion on the VHF reflectors about preamplifiers for 6 meters. Preamplifiers are often used on 144 MHz and up to improve receiving noise figures for weak signals. Atmospheric and ambient radio noise is stronger on 6 meters compared to the higher VHF and UHF bands. If you live in an urban or suburban area, you may not see any improvement when using a preamplifier. But in a quiet rural location, it may help.

On the Bands

50 MHz. Jeff, TZ4AM, logged YC9HJD on September 19 while beaming toward Europe. The signal from Indonesia disappeared when Jeff turned his Yagi to direct path, but it came back when he pointed it toward Europe again. The ARRL September VHF Contest was slow until Sunday evening. HC2FJ was into the southeast states that evening. On September 27, long path appeared. Juan, TG9AJR, worked JS6RRR (PL24) at 1541 UTC. He also worked D2UY, TR8CA on FT8, and ZS6NK on CW with strong signals. On September 28, NZ3M copied JN1JFC (QM06) and JG1TSG (QM05) calling CQ via long path at 1231 UTC. There were 5 consecutive days of geomagnetic storming at the end of September. On September 30, F2 appeared in the morning from North America to Ecuador, Peru, and farther south. WQØP (EM19) received HC1MD/2, HC1BI, HC3RJ, and others.

There was strong TEP to South America and the Pacific on October 2. Fred, NO5Z, worked Bob at YJØRS. Fred said Bob was in for more than 2 hours! He also noted signals from regions E51, FK8, FO, 3D2, and VK. Steve Sacco, NN4X, worked VP8LP, and then he worked YJØRS at 1912 UTC for a new DX Century Club entity. Additionally, he copied 3D2AG and E51BQ. EA8AQV (IL28) logged VK9QO on October 5. The next day, NN4X copied ZS6MSQ (KG33) at 1920 UTC. YJØRS reported making more than 700 6-meter contacts via the ionosphere and 45 contacts via Earth-moon-Earth (EME) as of October 6. The smallest station that he worked via EME was AA6KJ, who was using a single six-element loop-fed array Yagi.

144 MHz. Ron Klimas, WZ1V (FN31), found tropospheric propagation to Florida on September 22. He worked WB2FKO (EL89), WA4GPM, K4JMX (EM90), and VE1SKY (FN74) on FT8. Mike, K7ULS, said he "made the contact of a lifetime" when he worked DPØGVN at Neumayer Station, Antarctica, via EME at 0238 UTC on October 7.

222 MHz. WZ1V logged WA4GPM (EM90) on CW on September 22.

Here and There

The Geminid meteor shower is predicted to peak overnight on December 13 – 14. The Geminids are slower than the Perseids, so the maximum usable frequency of the meteor trails is lower. The Geminids are great on 10 and 6 meters, okay on 2 meters, and challenging on 222 MHz. The best path based on radiant location is north to south at 0500 – 0700 and 2200 – 2400 local time.

Watch an amazing YouTube video of Lance, W7GJ, contacting Bob, YJØRS, in Vanuatu via EME at **https://youtu.be/ecBj3GZ8PAk**.

At 2054 UTC on October 13, 2025, Fred Honnold, NO5Z (DM62), worked Abdulrahman, HZ1DG (LK18), on 50.313 MHz FT8. He said he "caught him calling CQ." Fred used an Elecraft K4D, 1500 W, and a seven-element M2 Antenna Systems Yagi elevated 25 meters. Fred added, "It was my best DX on 6 meters."

Special Event Stations

Working special event stations is an enjoyable way to help commemorate history. Many provide a special QSL card or certificate!

Nov. 18 – Nov. 22, 0000Z – 0000Z, K9UXZ, Effingham, IL. National Trail Amateur Radio Club. **K9L Club 66 Years Celebration**. 1.975 7.235 14.235. QSL. National Trail Amateur Radio Club, P.O. Box 903, Effingham, IL 62401. *Call may change*. **byroncordes@icloud.com**

Nov. 21 – Nov. 22, 0000Z – 2359Z, WØW, Hattiesburg, MS. Pine Belt Amateur Radio Association. **In Support of University of Southern Mississippi Annual Pow-Pow**. 7.033 14.033 14.260; digital any band. QSL. N5CW, P.O. Box 52, Petal, MS 39465. **www.qrz.com/db/w0w**

Dec. 1 – Dec. 7, 0000Z – 2359Z, W2MM, Sandpoint, ID. Quarter Century Wireless Association, Inc. **QCWA Anniversary Special Event Activity**. CW: 3.540 7.035 14.040 21.050 28.050; SSB: 3.810 7.244 14.262 21.365 28.325; FT8/FT4. Certificate. QCWA Activities Manager, 1613 Poplar St., Sandpoint, ID 83864-2081. **activitiesmanager@qcwa.org**

Dec. 1 – Dec. 11, 1300Z – 2200Z, W2W, Hunt Valley, MD. Amateur Radio Club of the National Electronics Museum. **W2W Pearl Harbor Day Commemoration**. 7.041 7.241 14.041 14.241. Certificate & QSL. ARCNEM, 338 Clubhouse Rd., Hunt Valley, MD 21031. Primary operation will be Dec. 1 – Dec. 7 with additional operation possible during the Dec. 8 – Dec. 11 period as operator availability permits. Operation on 80 meters (3.541, 3.841) and digital modes possible during event. **https://ww-2.us**

Dec. 6, 0000Z – 2359Z, W9WWI, Bethlehem, IN. Clark County Amateur Radio Club of Indiana. **Christmas in Bethlehem**. Local repeater (W9JBQ) 146.850 (no tones). 7.2. Certificate. Clark County Amateur Radio Club, P.O. Box 201, Sellersburg, IN 47172. **www.clarkcountyarc.org**

Dec. 11 – Dec. 14, 1400Z – 2200Z, WX3MAS, Nazareth, PA. Christmas City ARC. **Extending Christmas Greetings to the Amateur Radio Community Since 1969**. 3.850 7.270 14.265. QSL. WX3MAS c/o DLARC, 14 Gracedale Ave., Nazareth, PA 18064. **www.dlarc.club**

Dec. 13, 1700Z – 2359Z, NI6IW, San Diego, CA. USS *Midway* Museum Ship. **Pearl Harbor Remembrance Day**. 7.250 14.320; 14.070 PSK31; D-STAR on PAPA System Repeaters. QSL. USS *Midway* Museum Ship COMEDTRA, 910 N. Harbor Dr., San Diego, CA 92101. **www.qrz.com/db/ni6iw**

Dec. 13, 1430Z – 2200Z, K3S, Port of Baltimore, MD. Nuclear Ship *Savannah* Amateur Radio Club. **Ike's Atoms for Peace Anniversary**. 7, 14, 18, 21, 28. Certificate. Ulis Fleming, 980 Patuxent Rd., Odenton, MD 21113. *Check spotting networks for frequency*. **www.qrz.com/db/k3s**

Dec. 19 – Dec. 24, 1500Z – 2359Z, KC5OUR, Peralta, NM. Valencia County Amateur Radio Association. **Christmas in Bethlehem, New Mexico**. 7.183 14.283 21.283 28.383. QSL. VCARA, P.O. Box 268, Peralta, NM 87042. **www.kc5our.com**

Certificates and QSL cards: To obtain a certificate from any of the special event stations offering them, send your QSO information along with a 9 × 12-inch self-addressed, stamped envelope (3 units of postage) to the address listed in the announcement. To receive a special event QSL card (when offered), be sure to include a self-addressed, stamped business envelope along with your QSL card and QSO information.

Special Events Announcements: For items to be listed in this column, use the ARRL Special Events Listing Form at **www.arrl.org/special-events-application**, or email information to **events@arrl.org**.

Submissions must be received by ARRL HQ no later than the 1st of the second month preceding the publication date; a special event listing for **March** *QST* would have to be received by **January 1**. In addition to being listed in *QST*, your event will be listed on the ARRL Web Special Event page. Note: All received events are acknowledged. If you do not receive an acknowledgment within a few days, please contact us. ARRL reserves the right to exclude events of a commercial or political nature.

You can view all received Special Events at **www.arrl.org/special-event-stations**.

Strays

Improve Your Morse Code Skills with Morsle

Practice your Morse code with Morsle, a free game available at **https://morsle.fun**. Each day you will be provided with a word played out loud in Morse code. You have 21 tries to decode the word. Playback starts at 40 WPM and decreases by 5 WPM every three tries. The display will indicate if you guess a letter in the correct spot. You can adjust the tone frequency from 400 – 800 Hz. The game keeps track of your win rate, current streak, and best streak.

A practice mode is also available, where you can select the starting speed and practice words or call signs.

Morsle was developed by Rockwell Schrock, WW1X, on behalf of Remote Ham Radio. Morse code generation is provided by jscwlib, by Fabian Kurz, DJ5CW.

Convention and Hamfest Calendar

A = AUCTION
D = DEALERS / VENDORS
F = FLEA MARKET
H = HANDICAP ACCESS
Q = FIELD CHECKING OF QSL CARDS
R = REFRESHMENTS
S = SEMINARS / PRESENTATIONS
T = TAILGATING
V = VE SESSIONS

Abbreviations

Spr = Sponsor
Tl = Talk-in frequency
Adm = Admission

ARRL WEST CENTRAL FLORIDA SECTION CONVENTION

December 12 – 13, Plant City, Florida
D F H Q R S T V
Fri. 1 PM – 5 PM, Sat. 8 AM – 3 PM. *Spr:* Florida Gulf Coast Amateur Radio Council. Florida Strawberry Festival, 303 Berryfest Pl. *Tl:* 145.41 (131.8 Hz). *Adm:* $10 Advance, $13 door.
www.fgcarc.org

Louisiana (Minden) — Dec. 6 D F H R V

7 AM – 11:30 AM. *Spr:* Minden ARA. Minden Community Center, 711 Gladney St. *Tl:* 144.92 rcv/147.42 tx (123 Hz). *Adm:* $10.
Email: **no5g55@yahoo.com**

ARRL NEW YORK CITY-LONG ISLAND SECTION CONVENTION

January 10, Brookville, New York
H Q R S V
8 AM; forums start 9 AM. *Spr:* Ham Radio University ARC, Suffolk County Radio Club. LIU Post Hillwood Commons, 720 Northern Blvd. *Tl:* TBD. *Adm:* TBD.
www.hamradiouniversity.org

New York (Marathon) — Jan. 10 F H R V

7 AM – noon. *Spr:* Skyline ARC. Marathon Civic Center, 11 Brink St. *Tl:* 147.180 (71.9 Hz). *Adm:* $6.
https://skylinehamradioclub.org

To All Event Sponsors

Before making a final decision on a date for your event, you are encouraged to check the Hamfest and Convention Database (**www.arrl.org/hamfests-and-conventions-calendar**) for events that may already be scheduled in your area on that date. You are also encouraged to register your event with HQ as far in advance as your planning permits. See **www.arrl.org/hamfest-convention-application** for an online registration form. Dates may be recorded up to 2 years in advance.

Events that are sanctioned by ARRL receive special benefits, including an announcement in these listings and online. Sanctioned conventions are also listed in *The ARRL Letter*. In addition, events receive donated ARRL prize certificates. Once the form has been submitted, your ARRL Director will decide whether to approve the date and provide ARRL sanction.

The deadline for receipt of items for this column is the **1st of the second month preceding publication date**. For example, your information must arrive at HQ by **January 1** to be listed in the **March** issue. Information in this column is accurate as of our deadline; contact the sponsor or check the sponsor's website for possible late changes, driving directions, and other event details. Please note that postal regulations prohibit mention in *QST* of games of chance, such as raffles or bingo.

Promoting your event is guaranteed to increase attendance. As an approved event sponsor, you are entitled to special discounted rates on *QST* display advertising and ARRL web banner advertising. Call ARRL's toll-free number at 1-800-243-7768, or email **ads@arrl.org**.

Field Organization Reports — September 2025

Public Service Honor Roll

This listing recognizes radio amateurs whose public service performance during the month indicated 70 or more points in six categories. Details on the program can be found at: **www.arrl.org/public-service-honor-roll**.

380
N9VC

344
W9RY

320
W7EES
WØPZD

305
KB3YRU

275
WM5N

260
KDØHHN

250
W9FE

235
KT2D

233
KC8YVF

205
AG9G

195
NW3X

191
W7PAT

190
WM2C
K7OED

186
KD2NMG

185
ND8W

176
KC8T

175
K9SX
WA9SWW

165
KD2LPM

163
K5OB

159
KE8DON

155
W4DNA
KF5OMH

150
WO2H
W9ARG
KR4PI
KT5SR
KK3F
N1ILZ

147
KT5EM

145
WM2C
WA3QLW

144
W9EEU

142
KO4KUS
KA9IKK

140
W2PAX
W4CMH
WK4WC
ACØKQ
KB8PGW

138
W8ROY

137
KB5PGY
WD8USA

135
W9BGJ
KE5YTA
W3YVQ

133
KN4QJ

131
N3STP

130
N2JBA
KY2D
KM4WXX
AD3J
KW1U
N1UMJ

125
K9LGU
W5WMC
K3JL

122
KD2QAR

120
WB9WKO
WA4VGZ
WC4FSU
K5ANP

118
KC9FXE

115
K2MJR
NØJAR
AE5MI

113
N2DW

112
KE8CYC

110
W9GRG
N9GE
K3EAM
KO4OL
N1IQI
WB8TQZ
W2AH
WV5Q

108
KC9DSP
W8IM

107
W1RVY

105
K2VTT

104
NI2W

100
NX9K
AD4DO
KZ8Q
WB4RJW
W1KX
W4EDN
KA5AZK
AA3SB
K1YBO
W1TCD
KC1KVY
K2MTG
K3YAK
KA2HZP
KB2QO
WB2VUF
KD2PQP

98
N1HAN
KC1HHO

95
WB9EDL

93
WW3S
KB2YAA

91
K1STM

90
KB9GO
KC9UC
KM4WHO
WA3QPX
WX2DX
W4LX
W3STN
W2ITT
N1CVO
W1VEG
K8ED
W2QMI
KD2IWN

89
KT4WX

88
W1LEM

87
NØET
W5RFY
WB8RGE
N1LAH

86
W4TTP

82
W2OOD

81
W4PXE

80
NK2Y
KG5AOP
KB4OLY
KR4ST
K1CJV

79
KD2TDG

74
W3ZR
K8RDN
W2ZXN

72
N4NOA

71
AF9SC

The following stations qualified for PSHR in previous months, but have not been recognized in this column yet: (August) KD2LPM 145, N5RH 137, KAØDBK 73. (July) KD2LPM 105.

Section Traffic Manager Reports

The following Section Traffic Managers reported: AR, AZ, CO, CT, DE, EMA, ENY, GA, IA, IL, IN, KY, MDC, ME, MI, MO, MS, NC, NFL, NLI, NM, NNJ, NNY, NTX, OR, RI, SD, SFL, SNJ, STX, TN, WCF, WMA, WNY, WPA, WI, WY.

Section Emergency Coordinator Reports

The following Sections submitted ARES Activity Reports for August: CT, EB, ENY, EPA, EWA, GA, IL, IN, MDC, MI, MN, MO, NC, NFL, NNY, NV, OK, OR, ORG, PR, RI, SC, SNJ, STX, TN, VA, WCF, WMA, WTX, WY.

Brass Pounders League

The BPL is open to all amateurs in the US, Canada, and US possessions who report to their SMs a total of 500 or more points or a sum of 100 or more origination and delivery points for any calendar month. Messages must be handled on amateur radio frequencies within 48 hours of receipt in standard ARRL radiogram format. Call signs of qualifiers and their monthly BPL total points follow.
KY2D 1,113, W2AH 990, KW1U 889, NX9K 886, WB9WKO 505.

ARL VEC Volunteer Examiner Honor Roll

The ARRL VEC Honor Roll recognizes the top 10 Volunteer Examiners in each ARRL Division according to the total number of ARRL exam sessions in which they have participated since their accreditations. Considering each session requires an average time commitment of 2 to 4 hours or more, the thousands of hours these VEs have invested represent extraordinary dedication! Whether you are one of our VE Teams that tests once a week, once a month, or once a year, we want to express our warmest appreciation to all volunteers for your generous contribution to the ARRL VEC program.

If you are an ARRL VE, you can view your session stats online at **www.arrl.org/ve-session-counts**.
If you are not a VE, become one today! See **www.arrl.org/become-an-arrl-ve**.

Volunteer Examiner	*Sessions*	*Accreditation Date*
Atlantic		
Nelson Rotz, KC3PAP	909	30-Aug-22
Donald Rees, K3PCT	674	28-Apr-23
Howard Gillott, KC3VJQ	509	24-Jan-24
Arthur Clemons, N8BLK	428	01-Mar-01
James McCloskey, NS3K	365	14-Nov-94
George Brechmann, N3HBT	330	01-Apr-91
Jobst Vandrey, AC0LP	324	23-Jun-08
Kevin Marchetti, K3VNN	254	23-Oct-17
Cully Phillips, N3HTZ	244	01-Sep-91
Michael Harla, N2MHO	228	12-Apr-06
Central		
Dennis Keyfauver, K3DCK	637	29-Dec-22
Edward Wagner, AB9FN	442	01-Jul-02
Allan Bukowski, N9ZD	373	01-Jun-92
Eldon Boehm, NK9U	355	21-Nov-86
Donald Hlinsky, N9IZU	349	01-Mar-91
Brian Eder, WB9UGX	321	01-Jan-92
Timothy Pechtold, AA9BV	289	01-Nov-92
Frederick Baguhn, W9GOC	283	16-May-02
James Rinehart, K9RU	281	01-Aug-91
David Pritchard, W9QL	274	12-Apr-01
Dakota		
Jeffrey Goodnuff, W0KF	364	17-Jun-03
John Schwarz, AE0AL	337	26-Oct-94
Shep Shepardson, N0NMZ	337	12-Mar-01
Joel Dunham, NC1D	287	26-Jul-23
Douglas Nelson, AA0AW	264	01-May-90
Daniel Royer, KE0OR	262	01-Jul-91
James Rice, N0OA	246	04-Dec-00
Robert Tracy, N0TC	210	30-Jul-86
Karl Eriksen, WA2DEE	182	08-Jan-90
Edward Van Cleave, W0VC	169	01-Jun-92
Rodney Klug, KE0A	166	12-Aug-85
Delta		
*Elmer McKenzie, K5MCK	1,258	23-Dec-22
*Terry Partigianoni, W5TMP	1,066	27-Nov-07
Darrell Wiggins, W4AI	922	02-Jun-23
Loma Westmoreland, KU5J	838	31-Jan-21
Monvel Tandy Maskew, K9FQ	768	18-Jul-18
Rodney Webb, W4WRE	468	21-Mar-17
Bryan McCammon, KI5HAV	467	03-Sep-20
David Andrews, N1ESK	391	21-Aug-15
Joshua Johnson, KC5JMJ	380	03-Jun-20
William Crowden, W4ETA	376	10-Jun-20
Great Lakes		
*Charles Tyrrell, KE8PCB	1,706	03-Sep-20
*Bruce Osmon, KE8LT	1,648	16-Nov-18
*David Potter, KE8OHG	1,497	03-Jun-20
Earl Paazig, W8BR	812	16-Apr-02
Roger Weith, KE8QGV	323	28-Feb-22
William Bogle, KE8FZY	297	08-Jul-20
Charles Hall, W8HF	286	01-Jun-92
Lance Harvala, AB8Y	256	06-Nov-19
Archie Mack, AF4EB	253	19-Aug-97
Stanley Arnett, AC8W	239	06-Sep-84
Hudson		
Jeremy Griffel, K2GRI	596	03-Dec-20
Alan Crosswell, N2YGK	537	26-Oct-94
Fritz Boigris, KB2O	498	26-Oct-84
Sid Markowitz, K2GG	474	27-Sep-94
Michael Abbey, KC2NJ	421	06-Jul-23
Hudson (continued)		
Walter Lesnowich, W2EE	329	06-Mar-08
John Kiernan, KE2UN	328	01-Jul-91
Thomas Carrubba, KA2D	310	01-Sep-93
Robert Casino, N2GDY	302	03-Jun-08
Carlos Prior, KE2TT	287	01-Jun-90
Midwest		
Chris Hunt, N0YH	996	05-Aug-20
Ralph Waldren, N0OTS	906	03-Jan-20
David Bartholomew, AB0TO	826	22-Mar-02
Kevin Naumann, N0WDG	718	17-Nov-02
Harry Steger, W0HMS	695	26-Aug-08
Roland Kramer, W0RL	571	21-Jun-01
Nick Catrow, N0DAD	497	31-May-17
Kenneth Simila, KC0VMY	318	18-Feb-07
Edwin Berkel, AE0EB	290	06-Jan-15
Charles Wilmes, KW0K	259	28-Apr-09
New England		
**Paul Lux, K1PL	2,709	25-Jan-85
*Bob Phinney, K5TEC	1,729	20-Jan-14
Robert Latlippe, NC1RL	883	10-Mar-22
William Poulin, WZ1L	704	01-Sep-91
Gregory Paul, KC1MND	548	03-Jun-20
Phillip Temples, K9HI	520	12-May-89
Mark Carey, N1SK	457	05-Nov-24
Bruce Anderson, W1LUS	418	11-Feb-88
Robert Beaudet, W1YRC	413	01-Aug-90
Barbara Irby, KC1KGS	393	05-Aug-19
Northwestern		
David Braucht, KK7OJK	885	01-May-24
Stephen Hutchings, WM7X	852	13-Apr-15
Peter DeKeles, KJ7IEA	753	22-Dec-22
Mark Hunn, KI7SI	661	20-Sep-18
Nathan Zane, KH6IHB	492	01-Apr-93
Erin Henrickson, ND7B	475	06-Jan-23
Scott Robinson, AG7T	465	01-Aug-91
Richard Morgan, KD7GIE	448	11-Aug-00
Keith Regli, K7KAR	433	28-Jul-22
John Clarke, AC7WW	394	20-Jan-03
Pacific		
*Brian Torr, N6IIY	1,119	06-Sep-00
Morris Jones, AD6ZH	609	27-Nov-01
Neal Kernes, K3VG	531	07-May-24
Dieter Stussy, KD6LVW	479	27-Jan-94
Larry Loomer, KI6LNB	414	03-Dec-08
Robert Perlman, W6BP	397	26-Aug-08
Bill Nichols, NN7K	379	01-Sep-93
Gordon Fuller, WB6OVH	363	06-Sep-84
Jim Brunk, N6BHX	346	13-Jul-95
Dennis Simon, KB7UTV	327	10-Dec-13
Roanoke		
Richard Brannen, KA3JCA	388	25-Jan-89
Justin Freeman, KQ4DX	381	13-Feb-25
Judy Friel, AC4RG	327	01-Feb-91
Billy Stallings, NZ3C	294	09-Jan-25
William Smith, KQ1S	282	20-Jun-12
Terry Sanner, WV8V	271	06-Sep-84
David Snyder, W4SAR	263	01-May-93
Larry Withrow, AF4HX	239	17-Dec-98
David Poe, W8IW	232	13-Mar-07
Edwin Williams, KN4KL	227	01-Jan-92
Rocky Mountain		
*Robert Vosper, KZ1B	1,089	09-Jul-10
Thomas McCurdy, AJ7TM	570	26-Jun-18
Robert Hamilton, N0RN	444	19-May-87
Zacharey Gunyan, KE7WYG	380	06-May-24
Jeffrey Weinberg, W0QO	358	01-Apr-93
David Avery, N0HEQ	302	13-Jan-88
Gary Zabriskie, N7ARE	276	20-Nov-84
David Sharpe, KI0HG	259	02-Feb-98
Martin Soffran, NM5MS	240	21-Mar-94
David Bratcher, AK0MR	217	23-Sep-08
Southeastern		
****Gary Pike, KA4KBX	11,255	28-Jun-90
***Justin Pike, KJ4AXF	9,302	12-Nov-12
***Collin Pike, WE4RR	9,267	26-Apr-11
***Anna Pike, KD4PCU	7,581	18-Aug-09
***Patrick Pike, KJ4AXD	5,791	13-Oct-15
**Ryan Krenzischek, W4NTR	2,103	04-Jan-13
*John Reynolds, W4TXA	1,788	08-Jun-16
*Tonja Jesko, WV2P	1,538	23-Aug-23
*Robert Fauci, N1UVO	1,135	28-Mar-18
*Stanley Whitfield, K4SHW	1,114	26-Sep-19
Southwestern		
*Bill Martin, AI0D	1,075	01-Nov-84
David Morrill, N7TWT	525	20-Jul-00
William Peters, K1WMP	399	26-Jun-23
Pete Morrison, K6VVR	397	03-Apr-07
Heather Parker, KM6Z	387	14-Feb-20
Richard Buck, KC7OCT	380	21-May-97
Donald Kramer, WA6UVW	355	08-May-98
Bruce Ziemienski, WA6BZ	321	25-Mar-02
Robert Smith, WB6ODR	307	10-Mar-99
Frank Westphal, K6FW	292	06-Sep-84
West Gulf		
**Franz Laugermann, K3FL	2,890	01-Dec-91
*Tanner Jones, W9TWJ	1,381	31-Jul-07
Jonathan Diner, N5JLD	849	16-May-11
Daniel Quigley, N7HQ	793	24-Apr-20
John Paterson, KC5LAA	642	16-Mar-09
Gerald Grant, WB5R	547	04-Jan-85
Gerald Crenshaw, WD4BIS	542	27-Feb-98
Adolph Chris Koehler, K5VCR	539	29-Sep-95
David Fanelli, KB5PGY	521	01-Oct-91
Wilbert Cannonier, KK5JJ	475	03-Nov-95
International		
**Robert Girdo, AK2RG	2,152	27-Sep-17
Gregory Croad, NN3Z	488	03-Jan-20
Wayde Nie, AD2GX	431	13-Feb-24
Vince D'Eon, AI7LK	258	13-Jan-21
Wesley Printz, W3SE	137	24-Feb-89
Kazuo Suzuki, N1KS	117	20-Apr-01
Yuri Kuwana, N1ENV	114	24-May-10
Jay Oka, KH2J	112	01-Aug-91
Masatoshi Shimizu, AH6KY	111	07-Jul-09
Masanori Kawakami, AI9C	97	04-Dec-97

*Denotes participation in over 1,000 sessions.
**Denotes participation in over 2,000 sessions.
***Denotes participation in over 5,000 sessions.
****Denotes participation in over 10,000 sessions.

Congratulations to Terry Partigianoni, W5TMP, from Leesville, LA (Delta Division), Robert Vosper, KZ1B, from Saint George, UT (Rocky Mountain Division), Robert Fauci, N1UVO, from Sun City Center, FL (Southeastern Division), and Stanley Whitfield, K4SHW, from Hiram, GA (Southeastern Division), who are the latest VEs to reach 1,000 session participation!



Certificate of Code Proficiency Recipients

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This month, ARRL recognizes merit and progress in Morse code proficiency on the part of the following individuals, who have achieved proficiency at the following rates, in words per minute.

April 2025

Scott A. Fronius, N1HQZ	10
Simpson A. Huston, N8UZF	10
Steven M. Johnson, WB4WBO	10
Clifford R. Cantrell, N5GWU	15
Steven M. Johnson, WB4WBO	15
Joseph L. Kelly, N9SV	15
Michael A. Kramer, N5XTH	30
Michael A. Kramer, N5XTH	35

May 2025

Bruce A. Smith, W4DPI	10
Jeremy L. Wallace, NR9I	10
Vincent L. DeCaprio, KD2VLQ	15
Kenneth F. Robinson, K8SCA	15
Thomas P. Stelmach, NØQBX	15
Barry G. Fluxe, W4LSV	25

June 2025

Glenn M. Davies, KO4NTA	10
Michael A. Krahenbuhl, KØARA	25
Gary C. Tartanian, K3WK	25

July 2025

Thomas Duong, KR4DOT	10
William H. Rupert, KI5JWV	10
Mark A. Jessing, N4OJE	15
Daniel L. Schaible, KD8UZS	15

August 2025

James M. Joyce, VE3LTN	10
Gary D. Mentro, Sr., N3OS	10
Todd E. Foster, W2TEF	15
Margaret L. Bowen, KY4WH	20
Richard McCleaf, K3EYJ	20
Denis O'Brien, N2JJF	40

September 2025

Richard F. Bobrowicz, K2RFB	10
J. Andrew Hall, N5ASE	10
Thomas F. Corcoran, VE3NY	20
David R. Koberstein, N9DK	30

October 2025

Thomas F. Corcoran, VE3NY	25

Congratulations to all of the recipients.

December 2025 W1AW Qualifying Runs

W1AW, the Hiram Percy Maxim Memorial Station at ARRL Headquarters in Newington, Connecticut, transmits Morse code Qualifying Runs to assist ham radio operators in increasing and perfecting their proficiency in Morse code. Amateur radio operators can earn a Certificate of Code Proficiency or endorsements by listening to W1AW Qualifying Runs.

December Qualifying Runs will be transmitted by W1AW in Newington, Connecticut, at the times shown on 1.8025, 3.5815, 7.0475, 14.0475, 18.0775, 21.0675, 28.0675, 50.350, and 147.555 MHz. The West Coast Qualifying Runs will be transmitted by K6KPH on Saturday, December 20, at 2 PM PST (2200 UTC on December 20) on 3581.5, 7047.5, 14047.5, 18077.5, and 21067.5 kHz. Unless indicated otherwise, sending speeds are from 10 to 35 WPM.

Amateur radio operators who participate in Qualifying Runs may submit proof of 1 minute of the highest speed they have copied in the hope of qualifying for the Certificate of Code Proficiency, or an endorsement to their existing certificate.

Legibly copy at least 1 minute of text by hand, and mail the sheet to: W1AW Qualifying Runs, 225 Main St., Newington, CT USA 06111.

Include $10 (check or money order) if this is a submission for your initial Code Proficiency certificate; $7.50 if you are applying for an endorsement (available for speeds up to 40 WPM). Your text will be checked against the actual transmissions to determine if you have qualified.

Members of the North Fulton (Georgia) Amateur Radio League (**https://nfarl.org**) are offering to subsidize the total cost of a Code Proficiency certificate or endorsement submission for any individual age 21 years and younger, and who reside in either the US or Canada. Participants who wish to make use of this offer should indicate on their Qualifying Run submissions they are age 21 or younger, and certify as such via their signature. Eligible participants are not required to send any fee with their Code Proficiency submissions.

For more information about Qualifying Runs, please visit **www.arrl.org/qualifying-run-schedule**.

For information about how to qualify for the Certificate of Code Proficiency, please visit **www.arrl.org/code-proficiency-certificate**.

W1AW Qualifying Run Schedule – December 2025
(All times are in Eastern Standard Time.)

Monday	Tuesday	Wednesday	Thursday	Friday
	12/2 7 PM – 0000Z **(12/3 – UTC)** 35 – 10 WPM	**12/3** 10 PM – 0300Z **(12/4 – UTC)** 10 – 40 WPM	**12/4** 4 PM – 2100Z 10 – 35 WPM	
12/8 7 PM – 0000Z **(12/9 – UTC)** 10 – 40 WPM		**12/10** 4 PM – 2100Z 10 – 35 WPM	**12/11** 9 AM – 1400Z 10 – 40 WPM	
12/15 4 PM – 2100Z 10 – 40 WPM	**12/16** 9 AM – 1400Z 10 – 35 WPM	**12/17** 10 PM – 0300Z **(12/18 – UTC)** 35 – 10 WPM		
12/22 10 PM – 0300Z **(12/23 – UTC)** 10 – 35 WPM				

Volunteer Monitor Program Report

The Volunteer Monitor (VM) Program is a joint initiative between ARRL and the FCC to enhance compliance in the Amateur Radio Service. This is the September 2025 activity report of the VM Program.

♦ General-class operators in Texas, Colorado, and New Jersey were issued advisories for SSB operation on 14.220 MHz, which is not authorized for General-class operation.

♦ Technician operators in Utah, Pennsylvania, Georgia, California, and Colorado were issued advisories concerning 20-meter FT8 operation, a band on which Technicians have no privileges.

♦ Technician operators in California and Colorado received advisories concerning 40-meter FT8 operation; on 40 meters, Technicians have only CW privileges.

♦ A commendation was issued to an operator in St. Petersburg, Florida, for exceptional courtesy during communications on 20 meters. The operator was net control for a net due to begin but asked permission from ongoing POTA communications to start the net. The POTA group volunteered to move up the band and interference was avoided.

♦ There were two virtual club presentations about the VM Program — one with the Palo Alto Amateur Radio Association and one with the South Orange Amateur Radio Association, both in California.

♦ There was one FCC request for monitoring assistance in a southwestern state.

The totals for August 2025 monitoring were 1,778 hours on HF frequencies, and 2,190 hours on VHF frequencies and above, for a total of 3,968 hours.
— Thanks to Volunteer Monitor Program Administrator Riley Hollingsworth, K4ZDH

Congratulations

September 2025
QST Cover Plaque Award Winner

Greg C. Mihran KJ6ER

In his article, "The PERformer — A Portable, Elevated, and Resonant Quarter-Wave Antenna," Greg outlines the assembly, testing, and operation of his PERformer quarter-wave antenna, which earned him second place in the 80 through 10 meters category of the 2024 *QST* Antenna Design Competition.

QST Cover Plaque Awards are given to the author or authors of the most popular article in each issue. *You* choose the winners by casting your vote online at

www.arrl.org/cover-plaque-poll

Log in now and choose your favorite article in this issue!

The PERformer — A Portable, Elevated, and Resonant Quarter-Wave Antenna

This antenna won second place in the 80 through 10 meters category of the 2024 *QST* Antenna Design Competition; it covers 40 – 6 meters.

Greg Mihran, KJ6ER

I developed the PERformer quarter-wave antenna primarily for portable operations. Extensive computer modeling in *4NEC2* provided optimal whip and elevated tuned radial lengths for each of the bands. I typically measure a standing wave ratio (SWR) of 1.20:1 or better on each of the bands, so an external antenna tuner is not needed. Through extensive modeling, I have found that this elevated vertical is extremely effective, with high radiation efficiency of more than 90 percent on the 20 – 6-meter ham bands. Here, I will focus on the assembly, testing, and operation of the PERformer. The technical details can be found at **www.arrl.org/qst-in-depth**.

PERformer Description

The PERformer consists of a telescoping vertical element (radiator) and two elevated, tuned linked radials oriented 90 or 180 degrees apart. Within the radials' 90-degree span, it provides modest 0.3 – 0.5 dBi gain and a 3 – 4 dB front-to-back ratio at a 24-degree takeoff angle. For an omnidirectional radiation pattern, the two elevated radials are placed 180 degrees apart (opposite each other). Having elevated, tuned linked radials dramatically reduces near-field ground losses and increases radiation efficiency, versus a purely ground-mounted vertical with ground-coupled radials, window screen, or Faraday cloth. I modeled different numbers and spans of elevated radials, and I concluded that having more than two radials provided little benefit. Also, two elevated radials provide slightly more antenna gain, efficiency, and improved SWR than a single elevated radial. A good-quality RF choke must always be inserted directly at the feed point so that the coaxial feed line does not become part of the antenna system. A pictorial of the PERformer is shown in Figure 1, including the radial lengths for each band. Summarized notes on the radial system are in the sidebar, "PERformer Radial System," and these further illustrate Figure 1. Table 1 is my recommended list of parts; it includes links to where I sourced some products, but you can find several of them elsewhere.



The PERformer on a PVC mount.

PERformer Construction

This telescoping whip covers 20 – 6 meters. For 40 meters, install an inductor (such as the Wolf River Coils Sporty Forty or the Chameleon CHA M-COIL) at the base of the whip. Clip the two 20-meter, 16.5-foot radials end to end with the two fiberglass stakes (one in the center and one at the end) to make one elevated 33-foot, 40-meter radial. While it works well, the efficiency will be lower than on the higher bands due to loading inductor Q, the lower radiation resistance of the shortened vertical element, and the single elevated radial.

I prefer using a PVC spike mount for my deployments, but you can use a lightweight tripod instead. A 40-inch furniture-grade PVC tube and the Chameleon spike mount permit me to easily reach the telescoping whip to adjust it for the desired band. Furniture-grade PVC

Celebrating Our Legacy

Remembering My Mentors

My uncle, Frank Bender, K8NZM (SK), introduced me to amateur radio, and he was my first mentor. I listened to SSB contacts using his Drake 1-A receiver, and it wasn't long before I was deep into learning Morse code.

After I studied for several months, Uncle Frank administered the exam questions and Morse code test for me; I passed and received my Novice-class license in the summer of 1960. I gradually improved my code speed and took the General-class license exam at the FCC regional office in Louisville, Kentucky; I passed the theory exam on my second try.

The director of the US Army medical research laboratory at the Fort Knox, Kentucky, military post, Colonel Sven Bach, MD, W4RWU, was another one of my mentors. We had regular contacts in the evenings on 6 meters, and I used the Heathkit HW-29 Sixer transceiver that I built.

Fortunately, I've had many mentors who've all helped me with different areas of amateur radio, and I've developed treasured relationships with many hams, as well.

Frank Bender, K8FB
Prescott, Arizona

A Lifetime of CW

In 1939, I heard a one-tube regenerative receiver that fed a cacophony of CW signals to its earphones, and I was hooked. I built my own receiver and learned how to copy CW by listening to the 40-meter band (which was only CW in those days).

I received a 20 WPM certificate from using W1AW's code practice recordings, and this gave me the courage to look up a ham in a nearby town and arrange for a correspondence license exam. I took the code test in their ham shack and soon had everything notarized and in the mail. About a month later, I received my license; I was 16 years old.

While in the US Navy during World War II, I practiced CW with a friend, took CW classes that were part of the war effort, and kept reading *QST* to stay active. While aboard a naval ship to Guam, I listened to the ham bands but didn't operate radio — I communicated via Morse code with a signal lamp.

During the Korean War, I was sent to the Mine Warfare Training School in Yorktown, Virginia. I operated from school, and after finishing as a student, I got a job there as an assistant officer.

After the navy, I became an electrical engineer instructor at Michigan State University, as well as the advisor for Michigan State University Amateur Radio Club, W8SH. My career as an electrical engineer was highly influenced by ham radio. I didn't operate much while working as an electrical engineer, but I kept my license active so I could operate again in my retirement years.

Merton Nellis, WØUFO (SK)
Arden Hills, Minnesota

Homebrewing with a Children's Library Book

When I was in high school, I built a crystal radio from plans in *Using Electronics* by Harry Zarchy, which I found in the children's section of my local library. I bought a 1N34A germanium point-contact diode, #24 magnet wire, and Calrad high-impedance headphones. The book suggested winding a coil around a wooden dowel, but I used an old roll of toilet paper because it had about the same circumference. I took apart an electric clock, unwound one of the two coils inside, and taped the wire around the apartment (I did this when my parents weren't home, and they never discovered it). Then, I scraped some paint off the grill of the radiator near my bed to use as the ground. I put my headphones on and connected the antenna and ground wires to the grill with an alligator clip — it worked!

I was absolutely enthralled by the idea of talking with people all over the world with a homebrew radio station!

David Bern, W2LNX
Potomac, Maryland

It All Began with My Mentor

My journey began in 1951 as a shortwave listener. The following year, John Stanbery, W4DPI (SK), became my mentor, and, with his help, I earned my license at just 15 years old.

Friends, on and off the air, have always been my driving force; I can honestly say I never met a fellow ham I did not like.

Hamfest adventures, being part of antenna crews and helping others install their towers and beams, and being a member of ham clubs are meaningful parts of this hobby — I can't think of any other pastime I've enjoyed more. My mentor John made this all possible for me, starting more than 72 years ago. I hope others can experience the same enjoyment.

George Dominick, W4UW
Knoxville, Tennessee
Life Member

George J. Misic, KE8RN, ke8rn@comcast.net

Classic Radio

Affordable Transmitters and Kits for the Novice-Class Operator

In 1952, manufacturers of transmitters and transmitter kits reacted to the creation of the Novice-class license by offering low-cost already-assembled transmitters and transmitter kits suitable for Novice operation.

This article features 13 transmitters that were suitable for Novice-class license use; some products were created before the license class was, and some were created specifically for new Novice operators. The chosen entries are listed in alphabetical order. I excluded products made by companies that weren't well known for other amateur radio products. I chose $50 as the cutoff for low-cost transmitters; therefore, radios like the E. F. Johnson Viking Adventurer (which cost $59.95 in kit form) are excluded.

Ameco AC-1 80- and 40-Meter CW Transmitter

The Ameco AC-1 became available in 1957 as a kit or a wired and tested product. It covered 80 and 40 meters (not 15 meters) and ran 15 W input power to a 6V6 tube as a crystal oscillator; a 6X5 tube rectified the ac from the power transformer. It came on an open chassis with one plug-in coil and had two controls without a meter to assist with tuning. It was a very inexpensive way to get on 80- and 40-meter CW.

Conar 400 80-, 40-, and 15-Meter CW Transmitter

The Conar 400 became available in 1965. It ran 25 W input power and was a one-tube crystal oscillator that doubled or tripled the crystal frequency on 15 meters; it could also double on 40 meters depending on the available crystals. The Conar 400 operated on the 80-, 40-, and 15-meter bands, as permitted by the Novice-class license. It cost $46.50 fully assembled and ready to operate, or $32.50 as an easy-to-assemble kit that could be completely built in less than 10 hours using commonly available hand tools.

The Conar 400 used a single 6DQ6-B vacuum tube with a solid-state voltage-doubler ac power supply. A power transformer was used so the radio didn't create a hot chassis shock hazard. A Pi network output coupler was used to connect the transmitter to an antenna. It ran 25 W input power and included a meter to aid in tune-up and operation.

Eico 723 80- to 10-Meter 60 W CW, 50 W AM Transmitter

The Eico 723 was a nice-looking transmitter. It had a separate crystal oscillator and a 6DQ6-B final amplifier tube, and it ran 60 W input CW and 50 W screen-modulated AM. In 1960, it sold for $49.95 in kit form and $79.95 assembled and tested. The Eico



Ameco AC-1. [Photo courtesy of **www.rigpix.com**]



Eico 723. [Photo courtesy of **www.rigreference.com**]

723 included a panel meter to facilitate the tune-up process.

Heathkit AT-1 CW Transmitter

Heathkit's first serious effort in the amateur radio market was the AT-1 CW transmitter. It covered 80 to 10 meters and ran 35 W on CW to a 6L6 tube driven by a 6AG7 crystal-oscillator tube. A 5U4G served as the rectifier tube, and a vane panel meter was provided for tune-up monitoring. The AT-1 introduced Heathkit to the amateur radio market, where they did quite well for many years. The AT-1 sold for $29.50 in kit form.

Heathkit DX-20 CW Transmitter for 80 to 10 Meters

Heathkit's DX-20 became available in 1957, and it ran 60 W input power on only CW for 80, 40, 20, 15, and 10 meters. It had a separate crystal-oscillator tube but no provision for AM operation. Like the AT-1, the DX-20 used an iron vane meter to assist with tune-up. It used a 6DQ6-A final for a power input increase compared to the 6L6 used in the AT-1.

Heathkit HX-11 Transmitter

The DX-20 morphed into the HX-11 in 1961. It still covered 80 to 10 meters and was essentially a DX-20 in a new cabinet with a much better meter to aid in tune-up. It ran the same power as the DX-20.

International Crystal AOT-50 CW Transmitter

The AOT-50 transmitter operated on 80 and 40 meters and ran 50 W input power. At $35.50, it used the power supply for the OR-44 receiver, also sold by International Crystal for Novice use. The AOT-50 used a 6DQ6 tube, which was developed for black-and-white television use in the horizontal sweep circuit. It included a 40-meter Novice band segment crystal and had an edge view meter for tune-up use.

Lafayette Trutest Junior Transmitter

First available in 1935 — almost 20 years before the Novice-class license became available — the Trutest Junior ran about 40 W CW on 160, 80, 40, and 20 meters. It came with coils for only one band. It ran about 40 W input power to a pair of 46 vacuum tubes. It sold for $22.50 with the option to pay an extra $8.50 for the power supply. It did not claim to cover 15 meters, as 15 meters was not a ham band when this unit was sold.

Knight T-50 Transmitter

The Knight T-50 ran 50 W input power to an 807 vacuum tube. It used a 6AG7 crystal oscillator and a 5U4G as a rectifier tube. It ran on 80 to 10 meters for CW only. A meter was provided to simplify tune-up. This transmitter became available in 1955.



Heathkit DX-20. [Photo courtesy of **www.rigpix.com**]

Knight T-60 CW/AM 80- to 6-Meter Transmitter

The T-60 transmitter ran 60 W CW and about 50 W screen-modulated AM on 80 to 6 meters with a 6DQ6 black-and-white TV horizontal sweep tube in the final amplifier stage. It became available in 1961 and was quite popular. An edge view meter was also provided.

Philmore NT-200 Transmitter

Introduced in 1952 in response to the Novice-class license, the NT-200 covered only 80, 40, and 15 meters. The unit was on a bare chassis and had a second chassis for the included power supply. It cost only $29.40 in kit form with a plug-in coil for one band. It ran 25 W from a 6V6 tube, and AM operation was included.

World Radio Labs Model 15 Transmitter

The Model 15 came out in 1938, long before the Novice license, and covered 160 to 10 meters without a 15-meter switch position (15 meters was not an amateur radio band until the early 1950s). It used a 6L6 and ran 15 W. The unit cost $26.50 without a meter, tubes, or coils, and it sold for $21.50 as a kit. It cost an additional $3.66 for the meter, $4.88 for a set of tubes, and $0.99 for a coil for one band.

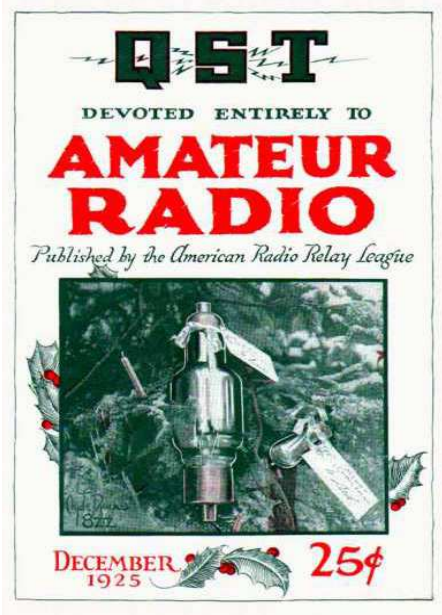
World Radio Labs Model 35 Transmitter

The World Radio Labs Model 35 also came out before the Novice license, in 1942; it ran 35 W input. The unit cost $49.50 without tubes, a meter, or plug-in coils. In kit form, the cost dropped to $41.50. Adding a meter cost $3.66, the coils cost $1.85 for each band, and adding a set of tubes cost $4.75.

100, 50, and 25 Years Ago

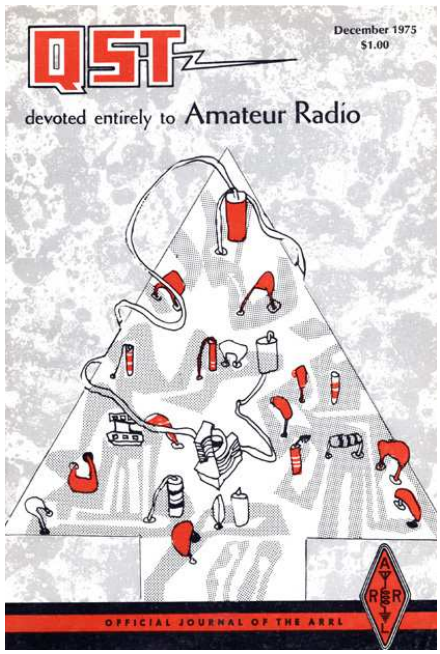
December 1925

- The cover, by Clyde Darr, 8ZZ, features a snow-covered Christmas tree decorated with radio tubes, each tube marked with a gift tag.
- In "Editorials: The Army A.R.R.L. Affiliation," Kenneth Bryant Warner, 1BHW, discusses the implementation of a recently approved plan of affiliation between amateur radio operators and the Signal Corps of the US Army.
- Consulting Radio Engineer Fred Marco explains the benefits of using toroids to clear up feedback problems on tuned RF amplifiers in "Toroids."
- Burton Synnott, 2BBX, grants readers a tour of his Bronx, New York-based low-power station, which he used to log contacts across North America, Europe, and Oceania, in "Low Power Station 2BBX."
- In "Speaking of Low Power Work," Assistant Technical Editor John M. Clayton, 1DQ, shares the story of how Colonel Clair Foster, U6HM, managed to contact hams as far away as Australia from station 9CK in Canada while running only 11 W.
- Shortwave listeners can skirt the high equipment costs and build an effective low-power transmitter using only receiving parts, Rufus P. Turner, 3LF, explains in "An Inexpensive Low Power Transmitter from Receiving Parts."



December 1975

- The seasonal cover displays a Christmas tree-shaped circuit board decked with capacitors, resistors, and more.
- Vic Clark, W4KFC, pushes back against the notion that hams have lost the technical interest and experimentation of the early days of amateur radio in "It Seems to Us...Appliance Operators?"
- Antenna expert John S. Belrose, VE2CV/VE3DRC, discusses the science behind the directional discontinuity ring radiator (DDRR) antenna — which he contends should instead be called the hula-hoop transmission line (HHTL) — in "Transmission-Line Low-Profile Antennas."
- Wilson E. Anderson, WB6RIV, walks readers through building a simple, low-cost transistor testing device in "A Universal Transistor Tester."
- In "The ARRL Foundation on the Move," Larry J. Shima, WØPAN, reviews what the Foundation has accomplished in its first 2 years, along with hopes for its future.
- The Amateur Radio Club of Albuquerque builds and operates a local VHF station for the National Oceanic and Atmospheric Administration (NOAA), as detailed in "Amateur Radio and the Weather Service — Strange Bedfellows" by Charles Harris, WB2CHO.



December 2000

- The cover features a photo of Santa Claus — ARRL Century Club Manager Bill Moore, NC1L — assembling a radio in his workshop to gift to some lucky ham.
- *QST* Editor Mark Wilson, K1RO, fills readers in on the magazine's shift from black and white to color and the fully revamped ARRL website in "It Seems to Us...What Have You Done to My *QST*?"
- Michael Tracy, KC1SX, foregoes the usual "Product Review" approach and goes straight to the source, asking amateurs to offer their own impressions on the most popular QRP transceiver kits on the market in "QRP Transceiver Kits: Six Reports from the Field."
- Kirk Kleinschmidt, NTØZ, relays the stories of five amateurs faced with the FCC's licensing overhaul — whittling six license classes down to three and tuning the CW proficiency requirement down to 5 WPM — in "License Restructuring: Up Close and Personal."
- Tired of fielding complaints that you're transmitting more noise than voice? Klaus Spies, WB9YBM, and Rolf Spies, N9BRL, offer a solution in "Noise Canceling with Electret Condenser Microphones."
- For Field Day 2000, a handful of Texas hams got on the air by getting on the water, operating their mobile rig from a 24-foot pontoon boat, the USS *Ham Shack*. Steve Cerwin, WA5FRF, details the fun in "Field Day Glory by Design."
- John Stewart, WØCID, contends that revitalizing interest in amateur radio will depend more on reconsidering how hams deal with newcomers than on recruiting children, in his op-ed "Kids Aren't the Cure."



Silent Keys

It is with deep regret that we record the passing of these radio amateurs:

KB1COZ **Farias**, Shirley A., Warwick, RI
W1ENO **Bicknell**, William E., Lexington, MA
vKB1EQD **Towne**, James M., Pittsfield, ME
•W1EWL **Ledder**, Wayne Howard, Vero Beach, FL
vKA1KAO **Shaw**, Ivan B., Caribou, ME
KW1KW **Hedquist**, Bruce E., Queensbury, NY
vK1LRB **Newton**, Russell F., Keene, NH
AE1O **Carr**, Jeffrey S., Cassatt, SC
W1POP **Liedke**, Fred J., Hamden, CT
v♦K1SIX **Mobile**, Robert T., Hillsboro, NH
WA1UHY **Howard**, Jacqueline E., Ansonia, CT
vW1UIM **Gordon**, George S., Concord, MA
KA1WA **Zigun**, Benjamin J., Woodbridge, CT
N1YAE **Andrews**, George S., Hebron, NH
KC2APP **Abraham**, George A., Fort Johnson, NY
W2AYH **Paddock**, Florence W., Franklin, PA
AD2CM **Schaper**, Arthur F., Cape May, NJ
•N2DKB **Daily**, Pat, Fishers, IN
KD2DYY **McHugh**, Michael T., Camillus, NY
vW2ESX **Bornholdt**, John W., Huntingdon, PA
W2JEK **Younger**, Donald C., River Edge, NJ
v•WB2SXN **Huckle**, Bing, Hannawa Falls, NY
N2TU **Dietrich**, Lou E., Mooresville, NC
vN2VLS **Storm**, Kenneth H., Clifton Park, NY
vKB2ZK **Lamb**, Gordon E., Palm City, FL
KB2ZZY **Nicosia**, Salvatore J., Rock Hill, SC
vKC3A **Brannan**, David A., Chesapeake City, MD
KD3BKQ **Beard**, Kenneth E., Harrisburg, PA
vWA3CKA **Smalley**, Joseph T., Pittston, PA
•KC3FMJ **Cohen**, Brandy H., Gettysburg, PA
♦WA3HDK **Bair**, Robert E., Union City, PA
•N3HPZ **Fay**, James S., Upper Marlboro, MD
KC3IEN **Frable**, Harold R., Bethlehem, PA
vW3JZN **Becker**, Arthur C., Darien, CT
vK3KGZ **Zabawski**, Keith G., Mount Pocono, NY
•WB3KJT **Gilbert**, Gerard B., Baltimore, MD
vKC3NQB **Lennon**, David J., East Greenville, PA
vN3OL **Poli**, Louis C., Macungie, PA
vN3PTR **Moore**, Dennis R., Lebanon, PA
KB3QFX **Bevan**, Richard A., Frankford, DE
WA3RMX **Hill**, Thomas C., Warren, OR
vK3RYR **Acton**, Benjamin A., Boyds, MD
KC3TDR **Kranyecz**, Frank E., Bethlehem, PA
v♦W3TNU **Marsh**, Rabe F., Cranberry Township, PA
W3ZT **Kosoff**, Joel L., Skaneateles, NY
vN4AAY **Printz**, Daniel G., Frisco, NC
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vNC4AT **Benson**, John O., Salvo, NC
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vWD4BLG **Christ**, Robert H., Lake Wylie, SC
WA4CUQ **Peterson**, Allan W., Fayetteville, TN
KB4DNZ **Hood**, Carol A., Seffner, FL
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vN4EJF **Davis**, Joe W., Selma, AL
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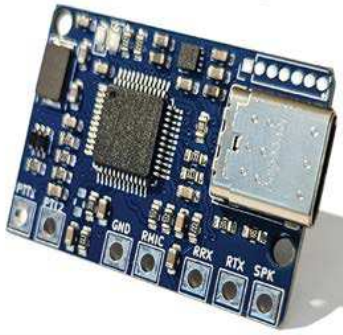
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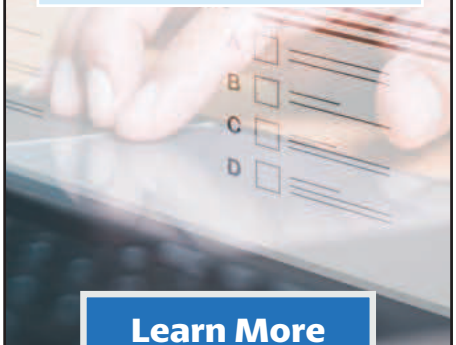
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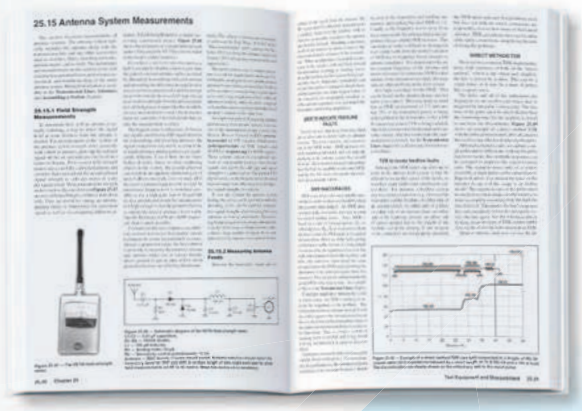
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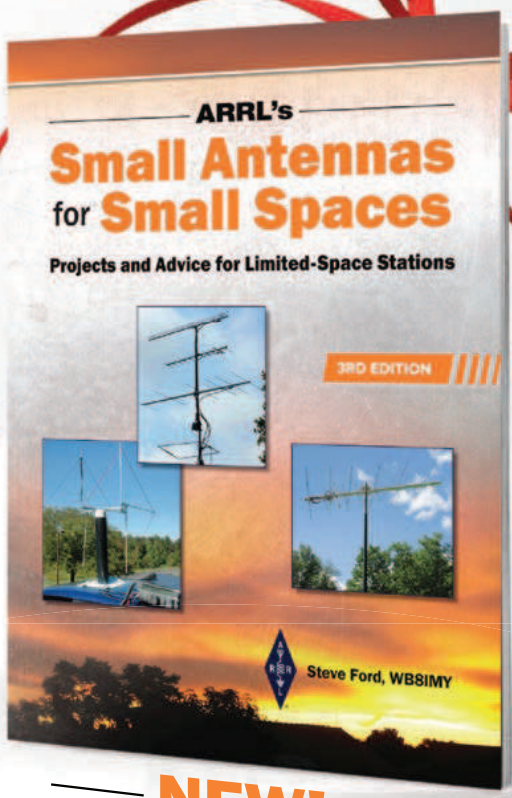
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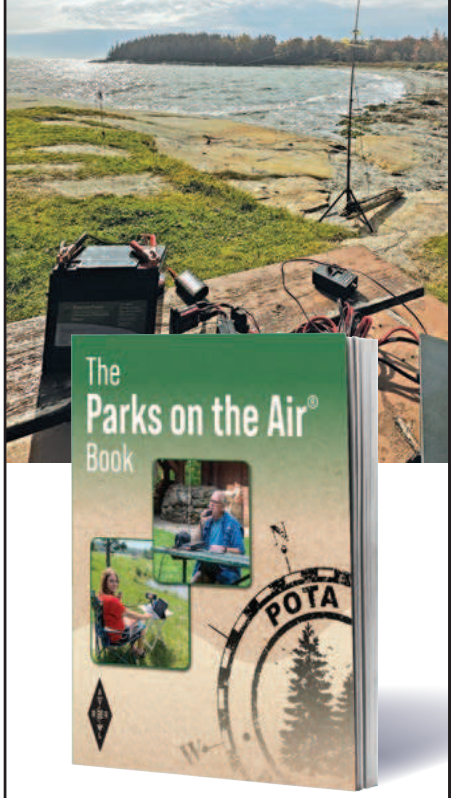
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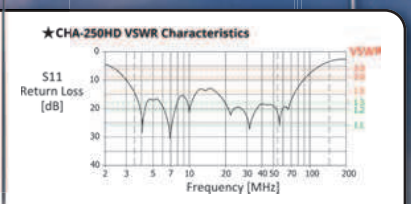
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Wavelength: 146MHz 6/8 wave • 446MHz 5/8 wave x 3 • Gain-146 MHz: 4.5dBi / 446 MHz: 7.2dBi • Max Pwr: 200W • Length: 5'11"• Weight: 2lbs. 9ozs. • Conn: Gold-plated SO-239 • Construction: Single-piece fiberglass

❸ COMET® GP-6 DUAL-BAND 146/446MHZ BASE REPEATER ANTENNA

Wavelength: 146MHz 5/8 wave x 2 • 446MHz 5/8 wave x 5 • Gain-146 MHz: 6.5dBi / 446 MHz: 9dBi • Max Pwr: 200W • Length: 10'2"• Weight: 3lbs. 8ozs. • Conn: Gold-plated SO-239 • Construction: Fiberglass, 2 Sections

❹ COMET® GP-9 / GP-9N DUAL-BAND 146/446MHZ BASE REPEATER ANTENNA

Wavelength: 146MHz 5/8 wave x 3 • 446MHz 5/8 wave x 8 • Gain-146 MHz: 8.5dBi / 446 MHz: 11.9dBi • Max Pwr: 200W • Length: 16' 9"" • Weight: 5lbs. 11ozs. • Conn: GP-9 Gold-plated SO-239 • GP-9N Gold-plated N-type female • Construction: Fiberglass, 3 Sections

❺ COMET® CX-333 TRI-BAND 146/220/446MHZ BASE REPEATER ANTENNA

Wavelength: 146MHz 5/8 wave x 2 • 220MHz 5/8 wave x 3• 446MHz 5/8 wave x 5 • Max Pwr: 120W • Length: 10'2" • Weight: 3lbs. 1oz.• Conn: Gold-plated SO-239 • Construction: Fiberglass, 2 Sections

❻ COMET® GP-15 TRI-BAND 52/146/446MHZ BASE REPEATER ANTENNA

Wavelength: 52MHz 5/8 wave • 146MHz 5/8 wave x 2 • 446MHz 5/8 wave x 4 • Max Pwr: 150W • Length: 7'11" • Weight: 3lbs. 1oz. • Conn: Gold-plated SO-239• 2MHz band-width after tuning (6M) • Construction: Single-piece fiberglass

❼ COMET® CTC-50M WINDOW GAP JUMPER

Avoid drilling holes or leaving windows open/unlocked. Flat coax easily forms to window frame. Low loss SO-239 on each end, 15 inch length.
• Max Pwr: **HF** 100W PEP / **VHF** 60W FM / **UHF** 40W FM / **900-1300 MHz** 10W FM





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1.8-500MHz Antenna analyzer

The CAA-500MarkII combines the simplicity and accuracy of an analog instrument, PLUS…a full color LCD graphic display • Resistive (R) and Reactive (X) components of impedance graphed and displayed numerically • SWR readings in both graphic and numerical results.

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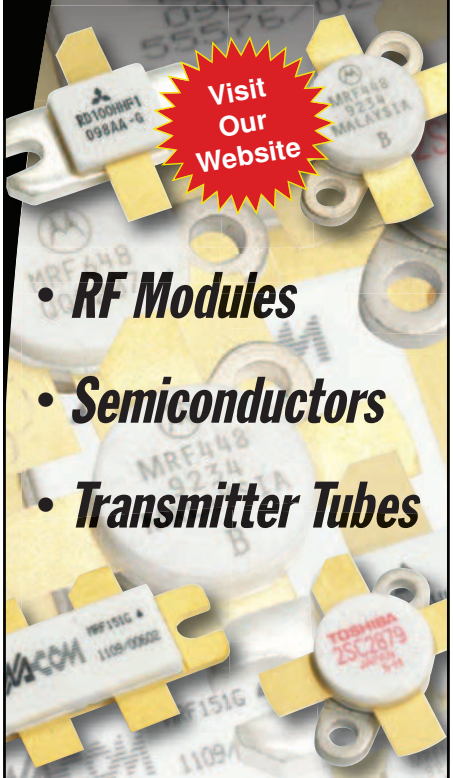
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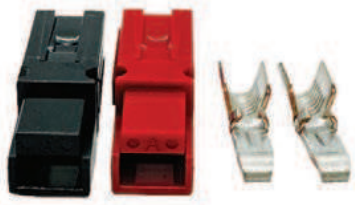
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ADS#31225



Scores (continued from page 79)

Score listings are grouped according to the number of transmitters in simultaneous operation and their entry class. The listings show club or group name, call sign(s) used, total number of QSOs, number indicating power output used (5 is less than 5 W, 2 is from 6 W to 100 W, 1 is between 101 W and 500 W), number of participants, total score including bonus points, and ARRL Section. Entries are listed from highest to lowest claimed score in each class: Class A stations are clubs or groups portable with three or more participants; Class B stations are portables with one or two participants (when there are two operators, the second operator's call sign is listed in parentheses, if it is known); Class C stations are mobiles; Class D stations are home stations using commercial power; Class E stations are home stations using emergency power, and Class F stations are EOC stations. This listing contains Class D, E, and F home stations and Club Aggregate Scores.

Home Stations — Commercial Power

1D

Brazos Valley ARC
AD5Q 1,867 2 1 7,518 NTX
Kansas City Contest Club
NSØR 1,715 2 1 6,910 KS
N2MF 1,430 2 1 5,770 WNY
N5TJ 1,196 2 1 4,834 STX
Broken Arrow ARC
W5TM 1,121 2 1 4,534 OK
Arizona Outlaws Contest Club
KC7V 1,079 2 1 4,366 AZ
KØAD 1,079 2 1 4,316 MN
AA2BJ 1,069 2 2 4,176 NNY
N8II 1,021 2 1 4,134 WV
AB5SE 1,005 2 1 4,070 AR
K2SG 1,001 2 1 4,054 NFL
W9XS 998 2 1 4,042 IL
K1OA 1,119 2 1 3,806 EMA
Radio Assn. of Western NY
KA2MGE 879 2 1 3,566 WNY
Conifer Contest Club
WØZA 840 2 1 3,410 NE
K5IMC 835 2 1 3,390 NTX
Kansas City Contest Club
NØTT 819 2 1 3,326 MO
Makani ARC
KH6KB 802 2 1 3,258 PAC
Rappahannock Valley ARC
K4IA 897 2 1 3,220 VA
Franklin Co. (VA) ARC
W4CB 765 2 1 3,210 VA
South East Contest Club
AA4GA 787 2 1 3,198 GA
Niagara Frontier Radiosport
W2PJ 1,525 2 1 3,150 WNY
Pioneer Valley RA
WN7S 751 2 1 3,054 VA
K1DJ 744 2 1 3,026 EMA
Bay Area DXers
W8ZDT 739 2 1 3,006 MI
WA2LMC 696 2 1 2,822 NC
K9SH 1,080 2 2 2,802 IN
K8AC 679 2 1 2,766 NC
Potomac Valley RC
WA3AER 624 2 1 2,546 MDC
Soc. of Midwest Contesters
N9TF 575 2 1 2,350 TN
Deep Dixie Contest Club
KVØI 572 2 1 2,338 NE
Yankee Clipper Contest Club
N1DC 565 2 1 2,282 EMA
KB4KC 543 2 1 2,222 KY
McMinnville ARC
N1SLO 526 2 1 2,154 OR
Buckhead Contest Club
W4KJ 1,052 2 1 2,110 ME
Greer ARC
N4IQ 510 2 1 2,090 SC
KV1I 510 2 1 2,090 NTX
Kansas City Contest Club
AI6O 552 2 1 2,076 MO
KEØWPA 1,000 2 2 2,070 MN
Contest Club Ontario
VE3TM 503 2 1 2,062 ONE
South Jersey Radio Assn.
WA2VYA 502 2 1 2,056 STX
Salkehatchie ARS
KY4GS 500 2 1 2,050 SC
NØNM 500 2 1 2,050 KS
NA2NY 491 2 1 2,014 ENY
KE3K 495 2 1 1,996 MI
N2DGQ 468 2 1 1,922 NNJ
Owensboro ARC
W4NHO 389 2 1 1,916 KY
Franklin Co. (VA) ARC
K4ORD 435 2 1 1,890 VA
KC8QVR 457 2 1 1,878 OH
Bay Area DXers
W8JJ 471 2 1 1,856 MI
K7NEW 451 2 1 1,854 WWA
KV8Q 423 2 1 1,842 OH
Mobile ARC
KN4AMX 444 2 1 1,826 AL
N1NQD 449 2 1 1,822 WNY
N2RI 410 2 1 1,790 NLI
W2TZ 432 2 1 1,778 WNY
Pathfinders ARC
VA4PAR 763 2 2 1,776 MB
Franklin Co. (VA) ARC
W4YE 421 2 1 1,734 VA
Central WV Wireless Assn.
NW8U 404 2 1 1,716 WV
VE3CWU 412 2 1 1,698 ONN
Radio Amateurs of Northern VT
K1VMT 411 2 1 1,694 VT
Richardson Wireless Klub
AE5FM 408 2 1 1,682 NTX
Monterey Bay ARA
WA6LIE 405 2 1 1,670 AZ
K4WOP 398 2 2 1,640 WPA
Forsyth ARC
AK4D 366 2 1 1,614 NC
K5KDE 366 2 1 1,614 NTX
Hudson Valley Contesters and DXers
NQ2W 365 2 1 1,610 ENY
Salkehatchie ARS
KY4E 400 2 1 1,610 SC
VBARC/VADXCC
WD4OBP 383 2 3 1,602 VA
N5CMH 387 2 1 1,598 OK
WA3WNT 385 2 1 1,588 WPA
AA4HV 375 2 1 1,550 TN
NE5A 373 2 1 1,542 OK
N1FST 534 2 1 1,538 NH
W1PD 410 2 1 1,536 OH
VA3GE 370 2 1 1,530 ONE
Potomac Valley RC
NZ4N 367 2 1 1,518 NC
Smith Chart ARS
K4HA 386 2 1 1,516 NC
WA4BPJ 425 2 2 1,512 NC
N2UU 361 2 1 1,494 SNJ
Cherryland ARC
NS8K 360 2 1 1,490 MI
Richardson Wireless Klub
K7IOL 335 2 1 1,490 NTX
VE3AQ 353 2 1 1,462 GH
Southern CA Contest Club
K6RO 352 2 1 1,458 SDG
Albemarle ARC
K4DND 323 2 1 1,442 VA
WW3A 346 2 1 1,434 NFL
Central MT ARC
KIØBJ 404 2 1 1,428 MT
Kansas City Contest Club
K5QQ 341 2 1 1,414 MO
W6EU 340 2 1 1,410 SV
KM9R 338 2 1 1,402 NV
Hampden Co. Radio Assn.
N1YL 319 2 2 1,398 WMA
Yankee Clipper Contest Club
AK1MD 329 2 1 1,366 EMA
WA2OTC 328 2 1 1,362 MDC
Baltimore Polytechnic Alumni RC
W3CDI 332 2 2 1,352 MDC
KC4GCK 323 2 1 1,342 GA
Peoria Area ARC
N9MSG 316 2 1 1,334 IL
WØUI 406 2 2 1,330 CO
KE4TP 300 2 1 1,328 WCF
Nittany ARC
K3QP 313 2 1 1,302 WPA
AE1MV 383 2 1 1,282 NNY
KC8VMG 307 2 1 1,278 WV
KI5GTR 314 2 1 1,272 AR
WW5G 305 2 1 1,270 LA
Heartland DX Assn.
KØIL 304 2 1 1,266 NE
K6LIE 304 2 1 1,266 NM
Frankford RC
KC3UII 346 2 1 1,260 EPA
Who Cares ARG
KE8VSI 275 2 1 1,260 MI
Grand Mesa Contesters of Colorado
KØXF 324 2 1 1,254 CO
Richardson Wireless Klub
NN5T 301 2 1 1,254 NTX
Boulder ARC
NØTA 300 2 1 1,250 CO
W4SK 300 2 1 1,250 TN
AI4TM 299 2 1 1,246 TN
Fair Lawn ARC
KR2H 298 2 1 1,242 NNJ
K7GS 298 2 1 1,242 EWA
Orange Co. (NY) ARC
N2BEF 270 2 1 1,230 ENY
NS9I 294 2 1 1,226 NC
AA4NO 293 2 1 1,222 NC
HP Alumni RC
K1KP 584 2 1 1,218 EMA
KK4VA 296 2 1 1,216 VA
The World RC
WE6Z 216 2 1 1,214 SV
K5MR 291 2 1 1,214 NTX
Florida Contest Grp.
W4EE 300 2 1 1,198 SFL
Northwest ARS
N5EN 261 2 1 1,194 STX
South Carroll ARG
WA3FAE 281 2 1 1,174 MDC
Conejo Valley ARC
K7SDW 278 2 1 1,158 SB
Richardson Wireless Klub
KI5PXG 251 2 1 1,154 NTX
Toledo Mobile Radio Assn.
KD8WBZ 276 2 1 1,154 OH
K3JT 276 2 1 1,154 WV
Ozaukee RC
W9DHI 275 2 1 1,150 WI
Saskatchewan Contest Club
VE5SF 275 2 1 1,150 SK
KO4RJE 272 2 1 1,138 NC
N7RBL 212 2 1 1,136 UT
VE2EZD 287 2 1 1,126 QC
WB5DXG 268 2 1 1,122 MS
KTØA 268 2 1 1,122 SD
W4MK 265 2 1 1,110 GA
Wireless Assn. of South Hills
N3RDV 239 2 1 1,106 WPA
KA5JTM 226 2 1 1,104 STX
WD4ERM 263 2 1 1,102 GA
Florida Contest Grp.
K8MV 262 2 1 1,098 SFL
Swamp Fox Contest Grp.
WB4HRL 262 2 1 1,098 SC
WB2NVR 267 2 1 1,096 ENY
WØPF 265 2 1 1,096 MO
Escondido ARS
K7YMG 246 2 1 1,084 SDG
KD2JC 255 2 1 1,070 NNJ
Boeing Employees ARS — St. Louis
WØTT 254 2 1 1,066 MO
W8AN 229 2 1 1,066 OH
Monroe Co. Radio Comm. Assn.
WA8YZB 252 2 1 1,058 MI
Gloucester Co. ARC
WA2IBZ 251 2 1 1,054 SNJ
Potomac Valley RC
K4HQK 251 2 1 1,054 VA
PRC/SPARC/JPLARC/CITARC
N6NO 226 2 1 1,052 LAX
KØMPH 251 2 1 1,052 MN
Providence Radio Assn.
KW1X 250 2 1 1,050 EMA
AB9M 200 2 1 1,050 IL
AJ6V 250 2 1 1,050 SCV
KØTER 224 2 1 1,046 CO
KC1DLN 249 2 1 1,046 ME
HP Alumni RC
W1DYJ 223 2 1 1,044 EMA
Northwest ARS
WA2TOP 222 2 1 1,038 STX
Half Moon Bay ARC
KN6IPE 246 2 1 1,034 SCV
Splinter Grp. ARC
KG8MR 221 2 1 1,034 OH
Richardson Wireless Klub
WB8QZM 220 2 1 1,030 NTX
Collins ARC
AD5XD 296 2 1 1,002 NTX
Turkey Heaven Mtn. Repeater Assn.
K4PI 238 2 1 1,002 GA
Tri Co. ARC (WI)
K9LGU 210 2 1 1,000 WI
KR1SMS 200 2 1 1,000 VA
K4MX 237 2 1 998 VA
Brandon ARS
KM7WDT 234 2 1 986 WCF
Bristol ARC
AA4DD 234 2 1 986 TN
Tortolita RC
KJ7ZHG 234 2 1 986 AZ
KB9SCT 185 2 1 986 WI
KE8ESJ 234 2 1 986 OH
Tennessee Contest Grp.
K4AMC 232 2 1 978 TN
KA2JAI 157 2 1 978 MDC
GOTAHAMS
K6EV 231 2 1 974 LAX
Maritime Contest Club
VE9KK 231 2 1 974 NB
KF6HDJ 231 2 1 974 NFL
W4UTZ 230 2 1 970 NC
Boulder ARC
KV5Y 227 2 1 958 CO
MGRA/CGARC
KN4DS 227 2 1 958 GA
Sudbury ARC
VE3WBT 227 2 1 958 ONN
Clark Co. (WA) ARC
WU8T 226 2 1 954 WWA
Cleveland ARC
AE4GS 200 2 1 950 TN
Meriden ARC
N1API 200 2 1 950 CT
Southern Counties ARA
KB2MN 200 2 1 950 SNJ
WT2J 225 2 1 950 NLI
VE2HEW 227 2 1 950 QC
Paducah ARA
KS4V 199 2 1 946 KY
ARTS of Louisville
N4UL 222 2 1 938 KY
KGØRD 222 2 1 938 NE
Minnesota Wireless Assn.
KØTC 220 2 1 930 MN
N1ET 220 2 1 930 RI
W1PQ 314 2 2 924 WMA
KA2ENE 236 2 1 924 WNY
Meriden ARC
W1EDX 224 2 1 922 CT
Gloucester Co. ARC
KD2TUS 224 2 1 918 SNJ
KØLAR 192 2 1 918 MN



A nighttime view of the digital and CW tents at the West Valley Amateur Radio Association's Field Day operation, located at Mora Hill in the Rancho San Antonio Open Space Preserve in California. [Vince Bafetti, KB6NTW, photo]

Sun Parlour Retirees ARC					
VA3UG	216	2	1	914	ONS
Mike & Key ARC					
WA7PVE	230	2	1	912	WWA
KC8ZKS	216	2	1	912	OH
Contest Club Ontario					
VA3SB	215	2	1	910	ONE
Splinter Grp. ARC					
K8ARY	190	2	1	908	SC
N5VF	226	2	1	906	VA
Oh-Ky-In ARS					
N8BV	427	2	1	904	OH
N2EIM	213	2	1	902	NNJ
Peekskill Cortlandt ARA					
N2SO	212	2	1	898	ENY
N2TNN	211	2	1	894	VA
Dial RC of Middletown					
K8DSS	210	2	1	890	MI
Woodbridge Wireless					
W4NF	210	2	1	890	VA
Pottstown ARC					
N3FMC	208	2	1	882	EPA
Gloucester Co. ARC					
KAØWS	207	2	1	878	AL
Valley and Massanutten ARA					
KN3Y	207	2	1	878	VA
KØRGI	181	2	1	874	TN
Livonia ARC/Ford ARL					
N8XI	215	2	1	872	MI
Silvercreek ARA					
AA3CS	205	2	1	868	OH
K2MN	217	2	1	868	SNJ
WIØS	204	2	1	866	MN
Bear Bait RC					
KD9LHE	205	2	2	864	IN
Parker Radio Assn.					
KY9X	203	2	1	862	CO
K9NW	203	2	1	862	OH
McKinney ARC					
KE5VXZ	202	2	1	858	NTX
Potomac Valley RC					
N4CF	202	2	1	858	VA
Tennessee Contest Grp.					
K4KYN	202	2	1	858	TN
N6IQY	202	2	1	858	SV
Adams Co. ARS					
K3DQB	201	2	1	854	EPA
N7MKY	201	2	1	854	ID
Brandon ARS					
K4PPK	175	2	1	850	WCF
Cabarrus ARS					
W4GHV	200	2	1	850	NC
Mike & Key ARC					
K9VD	200	2	1	850	IL
Potomac Valley RC					
K2YWE	202	2	1	850	MDC
N8CPA	200	2	1	850	OH
W6WU	200	2	1	850	MDC
W3FIZ	216	2	1	850	EPA
NDØMN	200	2	1	850	MI
W4IDX	314	2	1	848	AZ
KG7IEB	199	2	1	846	ID
VE1ZAC	201	2	1	840	NS
Thunderbird ARC					
NJ8G	197	2	1	838	AZ
KM5AT	197	2	1	838	NFL
Austin ARC					
WB5AOH	171	2	1	834	STX
K8SRR	382	2	2	834	VA
Coquitlam ARES					
VE7WJ	390	2	1	830	BC
Hazel Park ARC					
K8GT	195	2	1	830	MI
South Milwaukee Rockets					
AA9L	260	2	3	830	WI
Parkersburg AR Klub					
WA8KAN	200	2	1	828	WV
K7HIL	180	2	1	824	AZ
Western Placer ARC					
KG6FCT	386	2	1	822	SV
Desert RATS of Palm Springs					
W9JXT	167	2	1	818	ORG
VA2CST	319	2	1	816	QC
Silver Comet ARS					
K4SHW	191	2	1	814	GA
KI5F	191	2	1	814	MS
AI4IC	211	2	1	810	TN
KF7GRP	152	2	2	808	NV
Potomac Valley RC					
W4VIC	188	2	1	802	VA
Grand Mesa Contesters of Colorado					
KØUK	187	2	1	798	CO
N7SU	187	2	1	798	AZ
Big Island ARC					
KH6RDO	186	2	1	794	PAC
K9EEH	186	2	1	794	IL
Butler Co. AR Public Srvc. Grp.					
KC3RHQ	185	2	1	790	WPA
Kicked Back Contesters Club					
WV5Y	160	2	1	790	STX
Carolina DX Assn.					
KS4S	184	2	1	786	NC
Richardson Wireless Klub					
N5HD	184	2	1	786	NTX
Assoc. Radio Amateurs of Long Beach					
N6UTC	149	2	1	784	LAX
Gloucester Co. ARC					
NE2R	183	2	1	782	SNJ
West Valley ARC (AZ)					
NU7I	184	2	4	782	AZ
York Co. ARS					
KM4FLU	366	2	1	782	NC
KK7OIW	183	2	1	782	AZ
Frankford RC					
W3WHK	182	2	1	778	EPA
Ashtabula Co. ARC					
N8DPD	181	2	1	774	OH
Yankee Clipper Contest Club					
WK1O	181	2	1	774	EMA
Toledo Mobile Radio Assn.					
KD8EVN	180	2	1	770	OH
KQ6HW	180	2	1	770	EB
K7NWF	180	2	1	770	AZ
K3YLW	155	2	1	770	MDC
DFW Contest Grp.					
WA5RML	179	2	1	766	NTX
KX4UI	265	2	1	764	NFL
Frankford RC					
WA3AAN	178	2	1	762	EPA
Smoky Mountain ARC					
W6UB	185	2	1	762	TN
WB2RPW	152	2	1	758	OH
VA6RCN	202	2	1	758	AB
W4BD	352	2	1	754	VA
N3SW	100	2	1	750	VA
W3NCK	175	2	1	750	DE
Bryan ARC					
W5HVS	174	2	1	746	STX
AA5UN	191	2	1	746	NTX
K8NGW	166	2	1	744	MI
Kentucky Contest Grp.					
K8IJ	171	2	1	734	KY
WB7NAM	146	2	1	734	OR
NXØR	170	2	1	730	KS
Henderson ARC					
N4NJJ	164	2	1	726	NV
N1NN	169	2	1	726	EMA
K2IW	169	2	1	720	ENY
Sun City ARC					
K5WYS	222	2	1	718	NFL
The 570-V Connection					
K5AEM	170	2	1	710	NTX
W2DAN	178	2	1	710	RI
Patoka Valley ARC					
WB9LIB	163	2	1	702	IN
WCARES-TN					
KK4AIZ	163	2	1	702	TN
WV4AM	168	2	1	702	NC
KJ6SDF	140	2	1	700	VA
Lenoir ARC					
K4AEH	162	2	1	698	NC
Smith Chart ARS					
KU4S	161	2	1	694	NC
Tompkins Co. ARA					
NE2T	136	2	1	694	WNY
KF6I	160	2	1	690	ORG
Holmesburg ARC					
KA3TTT	115	2	1	688	EPA
KW4LU	178	2	1	688	TN
KØKDS	118	2	1	688	IA
N3LH	159	2	1	686	MDC
K2TAV	158	2	1	682	ENY
N5LOW	158	2	1	682	STX
AD7LL	159	2	1	682	NM
LU Contest Grp.					
LW6EQG	57	2	1	678	DX
Richardson Wireless Klub					
N5KIP	132	2	1	678	NTX
N1IBM	157	2	1	678	VT
WA1FMM	162	2	1	676	CO
WW7LW	156	2	1	672	ID
N7UFC	128	2	1	670	WWA
Southern CA Contest Club					
N6AV	157	2	1	668	LAX
Tennessee Contest Grp.					
AF4T	153	2	1	662	TN
Colorado QRP Club					
NO2D	152	2	1	658	CO
Morris RC/Hanover Township OEM					
KC2RDX	152	2	1	658	VA
Shy-Wy ARC					
N7WY	153	2	1	658	WY
WX2DX	101	2	1	654	WPA
Univ. of Alabama ARC					
W5LNX	300	2	7	650	AL
KG1V	150	2	1	650	NH
VY2DM	125	2	1	650	PE
N5VIS	149	2	1	646	NFL
High Point ARC					
KN4OCX	132	2	1	642	NC
KK4AK	148	2	1	642	SC
Highlands Hams					
WD5FCA	135	2	1	640	AL
WBØN	147	2	1	638	MN
N9AJD	167	2	1	636	IN
W1MI	147	2	1	636	WMA
W4TLR	146	2	1	634	NC
Cheshire Co. DX ARC					
WA1ZYX	212	2	1	632	NH
Dickson Co. ARC					
WM4Q	145	2	1	630	TN
Tortolita RC					
K7EAZ	145	2	1	630	AZ
Zephyrhills Area ARC					
W3LR	145	2	1	630	WCF
KU5G	145	2	1	630	OK
VE5GC	145	2	1	630	SK
South Orange ARA					
N6PM	143	2	1	622	ORG
Splinter Grp. ARC					
N8WUA	143	2	1	622	OH
N3NQP	143	2	1	622	WPA
Bristol ARC					
N4DW	142	2	1	618	TN
N4RS	142	2	1	618	MO
N2LEC	173	2	1	618	NNJ
W4ATL	142	2	1	618	GA
VE5DWR	117	2	1	618	SK
Richardson Wireless Klub					
KD4C	91	2	1	614	NTX
Salkehatchie ARS					
NX3H	141	2	1	614	SC
N7DB	134	2	1	612	OR
McKinney ARC					
K5LY	140	2	1	610	NTX
KK7GC	140	2	1	610	NV
NØOK	115	2	1	610	MN
VE4DL	154	2	1	610	MB
Estes Valley ARC					
NØFH	47	2	7	606	CO
North Shore ARC					
VA3TCN	140	2	1	606	GH
KN2D	114	2	1	606	NFL
Swamp Fox Contest Grp.					
NV4T	164	2	1	602	SC
KØYA	138	2	1	602	STX
KBØTUA	138	2	1	602	MO
KC1NBY	167	2	1	598	CT
W4PF	137	2	1	598	KY
Brazos Valley ARC					
AF5J	136	2	1	594	STX
Queen Anne's ARC					
N1AHO	136	2	1	594	MDC
Tennessee Contest Grp.					
KQ4E	136	2	1	594	TN
Butler Co. AR Public Srvc. Grp.					
N3OIK	135	2	1	590	WPA
Niagara Frontier Radiosport					
K2QB	135	2	1	590	WNY
VE3INE	110	2	1	590	GH
KI7ID	135	2	1	590	NTX
Richardson Wireless Klub					
KD5HUS	134	2	1	586	NTX
Seneca RC					
AC8NP	59	2	1	586	OH
KB3VAV	134	2	1	586	EPA
Broken Arrow ARC					
W5BM	133	2	1	582	OK
Silver Springs RC					
WA3LXD	134	2	1	582	NFL
WK5I	133	2	1	582	STX
KI6A	121	2	1	580	LAX
Williamson Co. ARC					
WB5GVY	132	2	1	578	STX
K1SEC	132	2	1	578	EMA
Central VA Contest Club					
KE4CR	131	2	1	574	VA
Mississauga ARC					
VE3SST	135	2	1	574	ONE
K6GB	131	2	1	574	ORG
WB7S	133	2	1	572	WY
W7DLR	130	2	1	570	WWA
Alexandria RC					
K2KT	129	2	1	566	VA
All Idaho Contest Club					
W7OSG	129	2	1	566	ID
KA9W	161	2	1	564	IL
VE3MVM	103	2	1	562	ONS
Marple Newtown ARC					
K2HA	119	2	1	558	EPA
KN6DR	127	2	1	558	EWA
KDØLHI	77	2	2	554	ID
W9KH	126	2	1	554	IL
AG4HG	251	2	1	552	TN
Alford Memorial RC					
N4UJ	145	2	2	550	GA
Columbia ARC					
KB4DE	125	2	1	550	SC
Yankee Clipper Contest Club					
NM1J	125	2	1	550	EMA
KØVW	100	2	1	550	WI
ARC EmComm Srvc.					
WB2BWU	98	2	1	542	NLI
Bristol ARC					
K4DR	131	2	1	542	TN

Radio Operadores Del Este					
WP4QWH	98	2	1	542	PR
Richardson Wireless Klub					
N4NZ	122	2	1	538	NTX
KD9LVX	122	2	1	538	IN
W1MJC	122	2	1	538	MI
Assn. Radio Amateurs of Long Beach					
NC6Q	96	2	1	534	LAX
KO6BFD	121	2	1	534	SV
KA3PMW	108	2	2	532	WPA
Saginaw Valley ARA					
N8ERL	95	2	1	530	MI
W6AJR	120	2	1	530	SCV
KK4PJ	238	2	1	530	NFL
Lehigh Valley ARC					
N3WGH	75	2	1	528	DE
MikeOscar Contesting Club					
KEØUNV	125	2	1	526	MO
Reno Co. ARA					
WØUY	119	2	1	526	KS
KE3VR	132	2	1	526	MDC
KIØMZ	119	2	1	526	CO
AG5PC	120	2	1	526	NTX
K6KQV	105	2	1	526	SCV
W4EVV	118	2	1	522	NFL
KN7A	117	2	1	518	OR
KM6GUO	69	2	1	516	SF
K4TEP	143	2	2	514	AL
KE3LA	118	2	1	512	WPA
KE5JTS	118	2	1	512	SJV
Club de radio amateur Outaouais Inc.					
VE2KZW	115	2	1	510	QC
CTRI Contest Grp.					
K1ECU	133	2	1	510	CT
K3LT	90	2	1	510	DE
KK2A	115	2	1	510	TN
WA4MAE	115	2	1	510	VA
W9LD	115	2	2	510	ID
KB8ZR	115	2	1	510	OH
K2TF	126	2	1	508	SNJ
KGØED	153	2	1	508	NE
West Essex ARC					
K2NNN	114	2	1	506	NNJ
KB6A	114	2	1	506	ORG
Chilean Pacific DX Grp.					
CE3PCG	88	2	1	502	DX
VE1FSM	156	2	1	502	NS
Aero ARC					
WA3SWA	112	2	1	498	MDC
Mining ARC/St. Paul RC					
KCØINP	137	2	1	498	MN
KP4PR	112	2	1	498	PR
W4BHJ	135	2	1	496	NC
Highland ARA					
WE8M	111	2	1	494	OH
Tortolita RC					
W7ES	111	2	1	494	AZ
K5XDD	211	2	1	492	LA
Lapeer Co. ARA					
W8YRC	110	2	1	490	MI
South East Contest Club					
W4QDV	110	2	1	490	GA
West Essex ARC					
KC2NJ	110	2	1	490	NNJ
W3AND	110	2	1	490	EPA
KO6JKK	111	2	1	490	SCV
Southern CA Contest Club					
W6MX	219	2	1	488	LAX
VA2KBR	109	2	1	486	QC
Brazos Valley ARC					
K5GZR	107	2	1	478	STX
Mountaineer ARA					
K8YYY	107	2	1	478	WV
Oro Valley ARC					
AK2L	82	2	1	478	AZ
ND4DX	107	2	1	478	NFL
KZ2T	107	2	1	478	OK
NO7G	107	2	1	478	MT
W4CRV	213	2	1	476	TN
K5EEE	213	2	1	476	SFL
South Carroll ARG					
N3DUE	165	2	1	474	MDC
Who Cares ARG					
KF8S	56	2	1	474	MI
K1RTO	112	2	1	474	NH
WDØANB	107	2	1	472	IA
Hood Co. ARC					
K7DWI	105	2	1	470	NTX
KH6LC	105	2	1	470	PAC
K9UQN	105	2	1	470	TN
KD8HE	124	2	1	468	WV
Billerica ARS					
AA1NK	104	2	1	466	EMA
Brazos Valley ARC					
AE5TG	104	2	1	466	STX
Hudson Valley Contesters and DXers					
WA2NYY	79	2	1	466	ENY
Richardson Wireless Klub					
AA5AH	113	2	1	466	NTX
K2RET	104	2	1	466	SNJ
VO1KGZ	104	2	1	466	NL
Falmouth ARA					
W1CN	103	2	1	462	EMA
K1UE	103	2	1	462	CT
VA3NFL	103	2	1	462	ONS
Tamiami ARC					
NT1AP	103	2	1	460	CT
Willamette Valley DX Club					
W7VC	143	2	1	460	OR
KC4KZR	65	2	1	460	NC
Brazos Valley ARC					
WB5TUF	102	2	1	458	STX
Heritage Hunt Hams					
K4FTO	102	2	1	458	VA
Northern CA Contest Club					
KA6W	102	2	1	458	SV
VA7JH	102	2	1	458	BC
KE8CEP	102	2	1	458	OH
WZ7X	105	2	1	458	STX
Butler Co. AR Public Srvc. Grp.					
KC3YVE	101	2	1	454	WPA
Niagara Frontier Radiosport					
W2VM	101	2	1	454	WNY
WP3EF	101	2	1	454	PR
WA4FL	101	2	1	454	NFL
N3JT	101	2	1	454	VA
BCARS					
KE3ZT	100	2	1	450	WPA
CTRI Contest Grp.					
K1NW	100	2	1	450	RI
Niagara Frontier Radiosport					
WA2QAU	100	2	1	450	WNY
Sky Valley ARC					
KB7GFL	75	2	1	450	WWA
WCARES-TN					
KM4PT	100	2	1	450	TN
K7HAM	100	2	1	450	AZ
N5VU	100	2	1	450	NTX
NW1L	100	2	1	450	NFL
W7II	102	2	1	450	IA
W2DX	100	2	1	450	ENY
WAØLPV	100	2	1	450	MN
WØARR	100	2	1	450	NE
Antietam Radio Assn.					
WA3PTV	99	2	1	446	WPA
WB6TIS	99	2	1	446	ID
McKinney ARC					
K5CBB	104	2	1	444	NTX
WD5BPC	100	2	1	444	STX
Putnam Em. Amateur Repeater League					
W2CX	171	2	1	440	ENY
Sierra Nevada ARS					
W7ONO	195	2	1	440	NV
Arizona Outlaws Contest Club					
K9SAT	97	2	1	438	AZ
Brazos Valley ARC					
NZ5TX	97	2	1	438	STX
South Pasadena RC/Pasadena RC/JPL RC/Caltech RC					
K6MAA	97	2	1	438	LAX
K7EDM	97	2	1	438	ID
Cuyahoga ARS					
WA8RR	96	2	1	434	OH
Framingham ARA					
W1NNZ	96	2	1	434	EMA
Garden State ARA					
KB2RTI	96	2	1	434	NNJ
Northern Berkshire ARC					
W1TO	96	2	1	434	WMA
Sierra Foothills ARC					
KN6UDK	96	2	1	434	SV
Valley RC of Oregon					
N6KHO	96	2	1	434	OR
KØSNG	96	2	1	434	NTX
WB7FBE	96	2	1	434	WWA
WO3T	142	2	2	434	WPA
KØWRY	96	2	1	434	KS
W6ALH	102	2	1	432	ORG
Hamfesters RC					
K9ACM	100	2	1	430	IL
Mound ARA					
KE8RS	95	2	1	430	OH
VE3EP	102	2	1	430	ONE
KO6DGV	95	2	1	430	SB
WB4RRD	98	2	2	428	GA
WT5X	94	2	1	426	WTX
XE3N	94	2	1	426	DX
WB5YYQ	138	2	1	426	STX
K9RZ	95	2	1	424	AZ
Leisure World ARC					
W3LWM	100	2	2	422	MDC
Univ. of Alabama ARC					
KI4GGJ	105	2	7	422	AL
North Augusta Belvedere RC					
WM4RT	92	2	1	418	SC
N7LD	184	2	1	418	NV
WNØG	184	2	1	418	IA
AC3HT	184	2	1	418	EPA
South West LA Amateur Repeater Club					
KI5EE	66	2	1	414	LA
N7WS	132	2	1	414	AZ
WB2LPC	91	2	1	414	EPA
KD5ILA	91	2	1	414	AR
K7MJF	182	2	1	414	UT
KC3UNI	91	2	1	414	WPA
KC9QXD	102	2	2	410	WI
Oh-Ky-In ARS					
N8MRS	67	2	1	408	OH
Richardson Wireless Klub					
NN5G	179	2	1	408	NTX
Kern Co. Central Valley ARC					
KB6JFL	93	2	1	406	SJV
KG4EXY	92	2	1	406	VA
Coshocton Co. ARA					
N8VV	88	2	1	402	OH
N5NEN	175	2	1	402	STX
WB9AYW	88	2	1	402	IL
W7GEZ	88	2	1	402	AZ
VA6DM	103	2	1	400	AB
Brazos Valley ARC					
N5MT	124	2	1	398	LA
KM4JHK	87	2	1	398	NC
NE4RD	87	2	1	398	MT
599 DX Assn.					
WB5SKM	90	2	1	396	MS
Kentwater ARC					
W6DMS	72	2	1	396	ORG
Albemarle ARC					
KN4LYF	86	2	1	394	VA
E. Tennessee DX Assn.					
AJ4HW	86	2	1	394	TN
Oh-Ky-In ARS					
KC8HQS	122	2	1	394	OH
KC9JVR	66	2	1	392	IL
ACØWL	171	2	1	392	MO
Dupage ARC					
WB9RCE	86	2	1	390	IL
KJ6UD	85	2	1	390	LAX
AA4FB	85	2	1	390	WCF
KM4PHI	169	2	1	388	NFL
WB9PRG	92	2	1	388	WI
KC4IR	84	2	1	386	AL
Brazos Valley ARC					
N6RAM	83	2	1	382	STX
Plano ARC					
NE5IL	83	2	1	382	NTX
AG6JA	103	2	1	382	EB
K2DAR	83	2	1	382	WNY
N6AKO	83	2	1	382	LAX
WI9WIS	82	2	1	378	WI
AJ4BB	64	2	1	378	NV
Cape Ann ARA					
AB1XK	70	2	1	376	EMA
Granite State ARA					
NI1E	81	2	1	374	NH
Groupe Radio VE2RMP					
VE2CUR	109	2	7	374	QC
Heritage Hunt Hams					
KC4ZA	81	2	1	374	VA
Nittany ARC					
N3IW	56	2	1	374	WPA
South Wake ARC					
KC2QVD	162	2	1	374	NC
K7GQ	81	2	1	374	NV
ARC EmComm Srvc.					
N2LDV	160	2	1	370	NLI
Los Alamos ARC					
KJ5CAS	80	2	1	370	NM
Mississippi Valley DX/Contest Club					
WØNFS	80	2	1	370	MO
AE1D	93	2	1	370	NH
KB9JMJ	80	2	1	370	WI
Lafayette DX Assn.					
K9ELF	72	2	1	368	IN
VE3FMK	109	2	1	368	ONE
Barnstable ARC					
KC1QEM	158	2	1	366	EMA
PRC/SPARC/JPLARC/CITARC					
WB6YJJ	158	2	1	366	LAX
Shreveport ARA					
AI5DQ	98	2	1	366	LA
NN7O	85	2	1	366	OR
NUØO	157	2	1	364	KS
N7HYV	127	2	1	364	NV
Des Moines Radio Amateurs Assn.					
KC3MAL	78	2	1	362	IA
AA8DN	78	2	1	362	OH
W9FL	78	2	1	362	WI
WB5DW	78	2	1	362	STX
W2DO	78	2	1	362	SFL
Beaumont ARC					
WA5GEO	77	2	1	358	STX
Stillwater ARA					
N5LB	77	2	1	358	MN
Univ. of Alabama ARC					
KS4YT	77	2	7	358	AL
WD9IGL	77	2	1	358	WI
WA9MTY	54	2	1	358	IN
Red River Valley ARC					
W5PTX	85	2	1	354	NTX
W1XH	76	2	1	354	EMA
WA3TMR	91	2	1	354	NC
W8NOR	76	2	1	354	AZ
NE7TE	76	2	1	354	AZ
K1LK	87	2	1	352	EMA
Framingham ARA					
W1VIV	75	2	1	350	EMA
Southwest IA ARC					
WBØGXD	150	2	1	350	IA
Splinter Grp. ARC					
N8BVD	50	2	1	350	OH
KK4TCE	75	2	1	350	VA
KB3NSH	75	2	1	350	WPA
K8MR	75	2	1	350	OH
AE1T	75	2	1	350	NH
WA1VKO	150	2	1	350	NH
Metrocrest ARS					
WA5LXS	74	2	1	346	NTX
Silver Comet ARS					
N4FWD	74	2	1	346	GA
Panoramaland ARC					
KC7H	147	2	1	344	EWA
KJ4CWQ	87	2	1	344	WV
Providence Radio Assn.					
W1GS	73	2	1	342	NH
Richardson Wireless Klub					
KE5GLZ	73	2	1	342	NTX
KN7I	73	2	1	342	OK
Inverhuron Ham RC					
VA3XXT	52	2	1	340	ONS
N8HWV	75	2	1	340	WI
Athens RC					
NN4EE	67	2	1	338	GA
Heritage Hunt Hams					
K4SKP	72	2	1	338	VA
KB9LHT	137	2	1	338	AZ
AE5JE	103	2	1	336	STX
VE2ZQ	78	2	1	336	QC
New Providence ARC					
KC2WUF	46	2	1	334	NNJ
W5KJW	71	2	1	334	NTX
KM4LRH	74	2	1	332	MS
Dallas ARC					
KG5EIU	70	2	1	330	NTX
Jackson Co. ARA					
WV5JW	70	2	1	330	MS
Mad River RC					
W8EWH	70	2	1	330	MI
Palos Verdes ARC					
W6KCV	70	2	1	330	LAX
Saratoga Co. ARA					
NJ1F	45	2	1	330	ENY
N7FVQ	70	2	1	330	AZ
NØWZ	70	2	1	330	MO
N4AU	70	2	1	330	AL
Dalton ARC					
WI4L	88	2	1	328	GA
EmComm Assn.					
WSØZ	121	2	2	328	MO

Valley and Massanutten ARA					
N5SMQ	69	2	1	326	VA
Barnstable ARC					
AA1UC	116	2	1	322	EMA
Ozaukee RC					
W9MXQ	43	2	1	322	WI
Tennessee Contest Grp.					
KR4EE	68	2	1	322	TN
Wabash Valley ARA					
K9DUR	50	2	1	322	IN
Woodbridge Wireless					
N4LJS	68	2	1	322	VA
VA6WWW	68	2	1	322	AB
K4GM	69	2	1	322	VA
N8KQ	68	2	1	322	OH
NØKJI	68	2	1	322	CO
KB7HDX	136	2	1	322	EWA
KD2PFH	68	2	1	322	WNY
Ozaukee RC					
AC9JV	85	2	1	320	WI
Univ. of Alabama ARC					
KQ4VPZ	135	2	7	320	AL
WZ7L	135	2	1	320	WWA
Kern Co. Central Valley ARC					
KO6DWP	134	2	1	318	SJV
Lake Monroe ARS					
WA3SXX	68	2	1	318	NFL
Sierra Nevada ARS					
W6DSG	67	2	1	318	NV
K5FNE	134	2	1	318	STX
K7HPN	67	2	1	318	AZ
Cape Ann ARA					
KC1TUF	41	2	1	314	EMA
W7AIT	132	2	1	314	SJV
W1WAB	16	2	1	314	WCF
N2VPI	88	2	1	314	VA
KQ4IKT	68	2	1	314	KY
N9AUP	66	2	1	314	IL
N8FYL	41	2	1	314	MI
Northern Lakes ARC					
KDØZYL	53	2	1	312	MN
KC5QNK	81	2	1	312	STX
WAØLIS	67	2	2	312	IL
Hudson Valley Contesters and DXers					
KE1IH	88	2	1	310	ENY
Raleigh ARS					
K4RGN	65	2	1	310	NC
Tri Co. ARC (PA)					
WU3Z	130	2	1	310	WPA
WV2P	40	2	1	310	GA
KØEKA	65	2	1	310	CO
KB3KOC	129	2	1	308	MDC
K5KB	129	2	1	308	STX
Minnesota Wireless Assn.					
WAØLIF	64	2	1	306	MN
AI4WW	64	2	1	306	SFL
N4CWZ	64	2	1	306	NC
WB7UM	64	2	1	306	AZ
K1DRH	64	2	1	306	EMA
Humboldt ARC					
KN6CEI	60	2	1	302	SF
Victor Valley ARC					
WY6R	63	2	1	302	ORG
VA3SRV	63	2	1	302	ONS
NY9P	63	2	1	302	NM
Binghamton ARA					
WM2R	100	2	1	300	WNY
Kentucky Contest Grp.					
K4TZ	62	2	1	298	KY
Owatonna Steele Co. ARC					
KØTA	62	2	1	298	MN
KØVM	124	2	1	298	IA
Baylor ARC					
WA5BU	47	2	3	296	NTX
KQ4PEF	88	2	1	296	GA
K5KLO	123	2	1	296	GA
Orange Co. Radio Amateurs and Durham FM Assn.					
KJ4VWG	36	2	1	294	NC
N6ZDH	62	2	1	294	SJV
AB7HA	121	2	1	292	GA
KØTJT	121	2	1	292	MN
Billerica ARS					
WO1N	60	2	1	290	EMA
KQ4CCC	60	2	1	290	NC
Bristol ARC					
KT4O	67	2	1	288	TN
West Essex ARC					
KD2SGM	63	2	1	288	NNJ
K1WOR	59	2	1	286	WMA
KD2WBX	59	2	1	286	WNY
NG2S	118	2	1	286	TN
Lynchburg ARC					
W4WWQ	67	2	1	284	VA
KE7FSD	66	2	3	282	AZ
N7ON	58	2	1	282	NV
Mid-MO ARC					
KØEMT	60	2	1	280	IN
South Jersey Radio Assn.					
AD3Y	59	2	1	280	SNJ
Soc. of Midwest Contesters					
NY1V	57	2	1	278	IN
Univ. of Alabama ARC					
KV4T	57	2	7	278	AL
KJ7RGW	57	2	1	278	OR
K7WLF	57	2	1	278	AZ
KU4PY	57	2	1	278	AL
KA2FHN	40	2	1	276	WNY
VBARC/VADXCC					
KW4GF	56	2	1	274	VA
Warminster ARC					
WA3SRU	112	2	1	274	EPA
AC5MG	56	2	1	274	NTX
KI7DAN	56	2	1	274	UT
W9ERE	56	2	1	274	CO
KK4TSS	32	2	1	274	KY
K6EEN	112	2	1	274	NM
NA7DO	56	2	1	274	WWA
San Fernando Valley ARC					
KM6LBW	53	2	1	272	LAX
AC7CJ	61	2	1	272	EWA
VE7KWA	71	2	1	272	BC
K3LEV	55	2	1	270	NTX
KJ5JDM	55	2	1	270	STX
N4CSV	55	2	1	270	OH
San Fernando Valley ARC					
K6ZGW	58	2	1	268	LAX
Anoka Co. RC					
KCØDWZ	65	2	1	266	MN
Dallas ARC					
AI5QK	29	2	1	266	NTX
Douglas Co. ARC					
WØE	75	2	4	266	KS
Lake Area AR Klub					
KR8X	54	2	1	266	NTX
Niagara Frontier Radiosport					
W2DXE	54	2	1	266	WNY
San Gorgonio Pass ARC					
KB6CA	29	2	1	266	ORG
ADØDA	55	2	1	266	UT
K1NKT	54	2	1	266	VT
Contest Club Ontario					
VE3KMQ	107	2	1	264	GH
K7YB	100	2	1	264	AZ
KD9YOO	61	2	1	264	IN
K4CC	54	2	1	264	WCF
Bolingbrook ARS					
N9TBD	53	2	1	262	IL
Rowan ARS					
W4JNG	53	2	1	262	NC
David Sarnoff ARC					
WJ3P	47	2	1	260	SNJ
Fair Lawn ARC					
K2GRI	52	2	1	258	ENY
Whitman ARC					
WA1RIW	52	2	1	258	EMA
KA7X	104	2	1	258	OR
KJ5GXR	52	2	1	258	AR
KK7UIL	57	2	1	256	OR
Oh-Ky-In ARS					
KB8MYC	51	2	1	254	OH
Richardson Wireless Klub					
KI5IIL	26	2	1	254	NTX
SS Jeremiah O'Brien ARC					
K6JOB	102	2	1	254	SF
KC9GIC	102	2	1	254	IN
W5ZA	51	2	1	254	LA
K1HG	102	2	1	254	NFL
KD8MSZ	102	2	1	254	OH
N7VGO	53	2	1	252	WWA
Bryan ARC					
K5DKB	50	2	1	250	STX
Grand Strand ARC					
K4CU	50	2	1	250	SC
Grand Strand ARC					
K4EKD	50	2	1	250	SC
Inner East Bay Contest Grp.					
K7GK	50	2	1	250	EB
Lake Area AR Klub					
KD2KW	50	2	1	250	NTX
Minnesota Wireless Assn.					
N5KB	100	2	2	250	IA
Steubenville-Weirton ARC					
AA8IA	58	2	1	250	OH
WUØM	100	2	1	250	KS
KC1GLB	50	2	1	250	NH
WØDET	50	2	1	250	CO
KE7EGO	50	2	1	250	NV
KM2L	50	2	1	250	WNY
K2DJF	100	2	1	250	WNY
KJ4NUY	25	2	1	250	SC
AJ7KW	50	2	1	250	WWA
KØGAH	50	2	1	250	IN
WA1INC	50	2	1	250	CT
W5WLG	50	2	1	250	NTX
Heritage Hunt Hams					
KM4IAJ	99	2	1	248	VA
Patoka Valley ARC					
KA9GDW	48	2	1	246	IN
Radio Central ARC/Order of Boiled Owls of NY					
N2YBB	98	2	1	246	NLI
VE3IDT	94	2	1	246	ONS
W4GKA	62	2	1	246	SFL
K2MK	49	2	1	246	WCF
WA4AH	97	2	1	244	NFL
Copper Country Radio Amateur Assn.					
K5CRA	92	2	1	242	NTX
Lake Conroe ARC					
KD4MCB	96	2	1	242	STX
Sierra Nevada ARS					
W7DBE	49	2	1	242	NV
Southeast LA ARC					
KE5GMN	48	2	1	242	LA
AB5WX	48	2	1	242	STX
KE9COV	48	2	1	242	IL
Bureau Co. ARES					
KD9AOK	45	2	1	240	IL
West Tennessee ARS					
N4GMF	47	2	1	238	TN
N2NBW	49	2	1	238	MN
K4PSE	94	2	1	238	IN
WR3G	57	2	1	238	VA
Brandon ARS					
N4NOA	46	2	1	234	WCF
Michigan State Univ. ARC					
NTØY	46	2	1	234	MI
KN6OYK	52	2	1	234	LAX
NXØP	46	2	1	234	MN
VE6LB	46	2	1	234	AB
KBØZOM	47	2	1	234	NE
KØEWS	46	2	1	234	IA
K2CVY	55	2	1	232	NLI
Old Barney ARC					
N2OO	20	2	1	230	SNJ
Radio Assn. of Western NY					
KA2IWK	20	2	1	230	WNY
KB6QPI	90	2	1	230	WCF
K5WW	45	2	1	230	STX
Montreal ARC/West Island ARC					
VE2FCR	44	2	1	226	QC
WB5NOE	88	2	1	226	UT
AD7NP	44	2	1	226	WWA
WA7YAZ	44	2	1	226	UT
West Valley ARA					
W6ESL	48	2	1	224	SCV
K3WHD	44	2	1	224	WNY
W4HAY	56	2	1	224	TN
WA1KPR	86	2	1	222	RI
N3UYI	43	2	1	222	WI
WU3U	86	2	1	222	WPA
Richardson Wireless Klub					
K2SAB	69	2	1	220	EPA
Anthracite Repeater Assn.					
WB3EGD	62	2	1	218	EPA
Larkfield ARC					
WB2CMF	42	2	1	218	NLI
Opequon Radio Soc.					
W8ORS	84	2	1	218	WV
K3CTN	42	2	1	218	OH
N6IC	42	2	1	218	LAX
KD9LTN	42	2	1	218	IL
Panhandle ARC					
WA5WFE	83	2	1	216	WTX
KK7OJK	42	2	1	216	EWA
NA6NA	83	2	1	216	SDG
Charlotte ARS					
NA9J	42	2	1	214	WCF
Mobile ARC					
W4SGP	41	2	1	214	AL
NI4ET	41	2	1	214	TN
N4QET	82	2	1	214	GA
W9CSM	7	2	4	214	WTX
W5VAN	82	2	1	214	AR
Albemarle ARC					
N4PED	41	2	2	212	VA
Arizona Outlaws Contest Club					
N6TNT	40	2	1	210	AZ
Sierra Foothills ARC					
KM7S	40	2	1	210	SV
Waupaca Co. ARES/RACES					
KD9OAZ	40	2	1	210	WI
N5XJ	40	2	1	210	STX
W8CO	40	2	1	210	MI
WJ4K	40	2	1	210	AL
K2PV	40	2	1	210	SCV
KG5TA	40	2	1	210	EPA
W1TF	40	2	1	210	NH
Black River ARC					
N8UC	39	2	1	206	MI
Gloucester Co. ARC					
WB2QEF	39	2	1	206	SC
VY2GF	78	2	1	206	PE
N9EDK	40	2	1	206	CO
KC2JYD	78	2	1	206	WCF
WA2KFV	39	2	1	206	WNY
VA7NRC	78	2	1	206	BC
VE2IAA	78	2	1	206	QC
W9DH	77	2	1	204	IL
N8VU	77	2	1	204	GA
Minnesota Wireless Assn.					
K8OS	38	2	1	202	MN
VE3GSW	76	2	2	202	ONS
N9JCA	38	2	1	202	IN
K7KIB	76	2	1	202	OR
N2QFD	13	2	1	202	WNY
VE6AGD	41	2	1	202	AB
KD6SPN	38	2	1	202	SCV
AE5T	76	2	1	202	LA
K4CV	38	2	1	202	TN



Members of the 415 Amateur Radio Club erecting a 40-foot tower with a tri-band beam and 6- and 2-meter antennas for their digital/phone Field Day station. Note the attention to safety — everyone is wearing a 415 hard hat. [Sam Haldiman, KC9GPY, photo]

Indy Midtown ARC					
NE9T	40	2	1	200	IN
St. Maximilian Kolbe ARC					
WTØN	48	2	3	200	CO
VE7AF	30	2	3	200	BC
N1ADX	75	2	1	200	WMA
K3KU	40	2	1	200	MDC
NØDIM	38	2	1	200	SC
Hualapai ARC					
WA7DHQ	37	2	1	198	AZ
KD5ZKI	74	2	1	198	NTX
WA7YNU	18	2	1	196	MT
KF4IOZ	73	2	1	196	NC
KD4ACG	73	2	1	196	WCF
K9ZIP	36	2	1	194	WI
KI5NVM	36	2	1	194	OK
KO4IDC	72	2	1	194	KY
AB2WZ	71	2	1	192	AL
Island HF Radio Assn.					
VA7RN	35	2	1	190	BC
Northern KY ARC					
K8WDA	35	2	1	190	KY
Patoka Valley ARC					
KE9APT	35	2	1	190	IN
KD7PCE	70	2	1	190	AZ
KBØLF	35	2	1	190	NE
WAØPFC	70	2	1	190	UT
West Valley ARC (OR)					
K6UGS	69	2	1	188	OR
W6AGZ	53	2	1	188	OR
Dalton ARC					
K4AZM	68	2	1	186	GA
Education Alliance for AR					
NF3R	34	2	1	186	EPA
Kachina ARC					
AG7AB	34	2	1	186	AZ
VE3BK	18	2	1	186	GH
KO6EBO	34	2	1	186	SJV
N9PQJ	58	2	2	186	SC
KZ4X	34	2	1	186	AL
N3EIG	67	2	1	184	WPA
WB7OND	9	2	1	184	NC
KA1GL	67	2	1	184	EMA
N2YG	67	2	1	184	NLI
Rochester ARC					
KØGMK	33	2	1	182	MN
Smith Chart ARS					
K4QL	33	2	1	182	NC
AG7RF	66	2	1	182	ID
N5GI	66	2	1	182	NFL
NZØP	33	2	1	182	KS
GOTAHAMS					
KN6UMV	64	2	1	180	LAX
KD8JQE	65	2	1	180	OH
W3VHF	15	2	1	180	WWA
Brandon ARC					
VE4MR	32	2	1	178	MB
Dallas ARC					
N5WJS	32	2	1	178	NTX
Mississauga ARC					
VA3IIF	32	2	1	178	GH
San Gorgonio Pass ARC					
WA6UIJ	7	2	1	178	ORG
KK7EHJ	34	2	1	178	AZ
W7DRK	27	2	2	178	OR
KK7HHN	32	2	1	178	WWA
Mound ARA					
N8JXJ	63	2	1	176	OH
WJ9E	63	2	1	176	IN
KQØJ	39	2	1	176	WCF
W6IA	13	2	1	176	SCV
Charleston ARS					
KM4QE	62	2	1	174	SC
CTRI Contest Grp.					
WB2VVV	40	2	1	174	RI
DFW Contest Grp.					
K5ENS	42	2	1	174	NTX
Raleigh ARS					
K3LOE	31	2	1	174	NC
Texas Em. Amateur Communicators					
KK5DO	12	2	1	174	STX
Univ. of Alabama ARC					
AE4AL	38	2	7	174	AL
Waterbury ARC					
W1LAS	62	2	1	174	CT
KT4OO	62	2	1	174	SC
K3JSJ	33	2	1	174	MDC
KØKPS	31	2	1	174	CO
YY4EBD	31	2	1	174	DX
KK7ZKW	31	2	1	172	UT
Badger Contesters					
WX9M	30	2	1	170	WI
Macon Area Ham Radio Soc.					
KC4KS	30	2	1	170	TN
Narwhal ARS					
N3VEM	60	2	1	170	EPA
San Fernando Valley ARC					
W6ELI	30	2	1	170	ORG
Southern Counties ARA					
W2JDT	60	2	1	170	SNJ
Thunderbird ARC					
N7PWZ	30	2	1	170	AZ
N5SMI	50	2	2	170	TN
WAØAW	30	2	1	170	MO
N4OAA	60	2	1	170	WCF
AD5DJ	60	2	1	170	NTX
KØRVB	60	2	1	170	STX
KC1WD	30	2	1	170	EMA
HP1IBF	30	2	1	170	DX
WA3INC	30	2	1	170	ENY
K1MAZ	33	2	1	170	VT
KJ4LEN	30	2	1	170	NFL
KK7FMU	50	2	1	170	SD
AC3MR	30	2	1	170	DE
AF5SW	60	2	1	170	OK
Chicago Suburban Radio Assn.					
WB9NLO	59	2	1	168	IL
K5VG	32	2	1	168	OR
N8MD	59	2	1	168	MN
Falmouth ARA					
K1ELB	58	2	1	166	EMA
Northwest IN DX Club					
KC9OYE	29	2	1	166	IN
PRC/SPARC/JPLARC/CITARC					
KF6FLJ	31	2	1	166	LAX
Quaboag Valley ARC					
KC1PRG	29	2	1	166	WMA
Tamiami ARC					
KD8HTS	29	2	1	166	WCF
KE8GJF	58	2	1	166	OH
KA7RRA	58	2	1	166	WWA
KT4NN	30	2	1	164	NFL
K9JPP	7	2	1	164	IL
K3MP	41	2	1	164	NFL
Middlesex ARS					
NM1Y	56	2	1	162	CT
Newton ARA					
NØNC	28	2	1	162	IA
W1LAG	28	2	1	162	CT
KD9PM	56	2	1	162	WI
AK2U	28	2	1	162	WV
KA5FDX	31	2	2	162	AR
AB8YZ	52	2	1	162	NTX
K6DF	28	2	1	162	SF
KD2YIN	31	2	1	162	EMA
Mercer Co. ARC					
NR3C	55	2	1	160	WPA
N3ATE	55	2	1	160	EPA
N8DRJ	28	2	1	160	OH
KG4CXW	55	2	1	160	EPA
KE2DOS	55	2	1	160	NNY
Birmingham ARC					
WB4FAY	27	2	1	158	AL
Great South Bay ARC					
W2YW	27	2	1	158	NLI
Phil-Mont Mobile RC					
WD8RYV	42	2	1	158	EPA
Southern Tarheel ARS					
W4CMW	54	2	1	158	NC
Straight Key Century Club					
WB8WUA	33	2	1	158	OH
Valley and Massanutten ARA					
WA2ONG	27	2	1	158	VA
N7VM	27	2	1	158	SDG
WØCAR	27	2	1	158	MT
KC9UJS	27	2	1	158	IL
WU1N	30	2	1	158	OH
W4ADS	27	2	1	158	GA
KE9ATR	54	2	1	158	IL
VE6PMK	27	2	1	158	AB
Barnstable ARC					
KA1CTL	53	2	1	156	EMA
Granite State ARA					
N1KWG	53	2	1	156	NH
Minnesota Wireless Assn.					
KØDJD	28	2	1	156	MN
West Tennessee ARS					
WN8Y	53	2	1	156	TN
Yellowstone RC/Musselshell ARC					
AI7FF	30	2	1	156	MT
AC2ZZ	2	2	1	156	NNJ
KØGOB	53	2	1	156	MO
VE1XT	26	2	1	154	NS
N3HR	26	2	1	154	EPA
ARC EmComm Srvc.					
N2LEB	1	2	1	152	NLI
North Hills ARC					
K6FMI	51	2	1	152	SV
KB8ZYE	34	2	1	152	OH
KØAIZ	51	2	1	152	NE
Manitoulin Island ARC					
VE3ETE	35	2	1	150	ONN
Mid-MO ARC					
ADØYM	25	2	1	150	IA
Phil-Mont Mobile RC					
K3DTC	50	2	1	150	EPA
Rochester ARC					
NØHCK	25	2	1	150	MN
South Bay ARC					
KK6BY	25	2	1	150	LAX
Tortolita RC					
AE9Q	25	2	1	150	AZ
N6BHX	25	2	1	150	EB
AF5CC	25	2	1	150	OK
NF8M	25	2	1	150	MI
W6FB	50	2	1	150	LA
KA9NNR	50	2	1	150	IL
KA9OZP	50	2	1	150	IA
KA1PPV	25	2	1	150	CT
WB9VGO	25	2	1	150	IL
KM4MJQ	25	2	1	150	GA
W7RX	25	2	1	150	OR
N9WNJ	25	2	1	150	IN
AI7D	50	2	1	150	MT
WD5CAW	25	2	1	150	NM
KQ4VYA	28	2	1	150	VA
K9CEW	25	2	1	150	IL
W4HEA	25	2	1	150	AL
Hudson Valley Contesters and DXers					
WA2GOT	49	2	1	148	ENY
N8UPC	33	2	1	148	OH
Orange Co. (NY) ARC					
KC2VTM	32	2	1	146	ENY
Watauga ARC					
KT4TC	24	2	1	146	NC
KC8JRS	24	2	1	146	OH
AI7QF	48	2	1	146	WWA
WP4SSB	24	2	1	146	PR
WB4PWZ	24	2	1	146	EPA
W8NFR	24	2	1	146	OH
KE8WXS	24	2	1	146	MI
White River Radio & Comm.					
KF5JJ	47	2	1	144	AR
KQ4YDI	37	2	1	144	SC
VE6MCL	47	2	1	144	AB
Wolf River ARC					
W9PIO	46	2	1	142	WI
VE3NCZ	23	2	1	142	ONS
KD2VRL	46	2	1	142	NNJ
K8YYF	46	2	1	142	MI
KB2TDT	46	2	1	142	WNY
K6LCN	23	2	1	142	LAX
Austin QRP Club					
W5ESE	24	2	1	140	STX
Sherlock ARA					
K6ESS	45	2	1	140	SV
West Valley ARC (OR)					
K7UGS	45	2	1	140	OR
AE6JG	24	2	1	140	SV
KK6P	31	2	1	140	ORG
KC9OJN	45	2	1	140	IL
Contest Club Ontario					
VA3EC	22	2	1	138	GH
McMinnville ARC					
WB6RVP	22	2	1	138	OR
KA1BMF	17	2	1	138	CT
K6SM	31	2	1	138	SV
N7MU	22	2	1	138	WWA
KCØJQO	22	2	1	138	MN
KB6DKK	44	2	1	138	LAX
KD9YPG	32	2	1	136	IN
K5KMS	43	2	1	136	NTX
KI7N	26	2	1	136	OR
N6VH	27	2	1	136	SDG
Lamorinda AR Interest Grp.					
KW6SA	42	2	1	134	EB
WW6C	42	2	1	134	SJV
KC1GGY	39	2	1	134	RI
W5RPS	21	2	1	134	NTX
N8YDM	42	2	1	134	OH
Brunswick Shores ARC					
K6RM	26	2	1	132	NC
Swamp Fox Contest Grp.					
W4ANT	23	2	1	132	SC
Butler Co. AR Public Srvc. Grp.					
KC3YVD	27	2	1	130	WPA
Northern Lakes ARC					
WWØTT	15	2	1	130	MN
Tamiami ARC					
VE3AWS	40	2	1	130	GH
K7ZYV	20	2	1	130	MS
N5DCH	20	2	1	130	NM
N7PVW	20	2	1	130	KY
KG5UMH	40	2	1	130	WTX
WK2P	20	2	1	130	EPA
N7WTG	20	2	1	130	EWA
KC8GW	40	2	1	130	OH
KS4K	40	2	1	130	GA
AB5AA	20	2	1	130	STX
KE3TK	39	2	1	128	WPA
KE9BCT	39	2	1	128	WI
K1AUS	35	2	1	128	MT
VA2CO	39	2	1	128	QC
Big Island ARC					
WH6EBS	19	2	1	126	PAC
W7FD	38	2	1	126	NV
W7YG	38	2	1	126	WCF
N6EWG	19	2	1	126	SJV
WD1H	19	2	1	126	EMA
KC1WOV	38	2	1	126	EMA
KO4JKV	25	2	1	126	NC
KC3KFW	19	2	1	126	WPA
Everglades ARC					
N6DME	37	2	1	124	SFL
Smith Chart ARS					
WB2VSJ	37	2	1	124	NC
W4AAP	37	2	1	124	TN
W9CTY	37	2	1	124	LAX
Richmond Co. ARC					
N4MQU	34	2	1	122	NC
Walton Co. Repeater Grp.					
WA4DYD	18	2	1	122	GA
KDØQG	18	2	1	122	CO
VY2ACC	36	2	1	122	PE
KM6MZ	18	2	1	122	SCV
WB9MII	18	2	1	122	IL
W1DKC	36	2	1	122	EPA
N6KM	23	2	1	122	SDG
Conejo Valley ARC					
K6HB	35	2	3	120	SB
KA4LTC	18	2	1	120	GA
AE4GW	35	2	1	120	TN
VE5KC	35	2	1	120	SK
AI5BE	20	2	1	120	MS
Frankford RC					
KD3RF	34	2	1	118	EPA
Hamfesters RC					
WA9VYT	34	2	1	118	IL
Mad River RC					
W8RU	17	2	1	118	MI
Wolf River ARC					
N9NAV	27	2	1	118	WI
CE3FJK	17	2	1	118	DX
WU9D	17	2	1	118	IL
Kicked Back Contesters Club					
KD5YPH	22	2	1	116	CO
London ARC					
VA3CBN	33	2	1	116	ONS
Pike Co. Ham RC					
KJ5IMI	33	2	4	116	AR
KD2JFU	32	2	1	116	WNY
AC7TY	18	2	1	116	AZ
K7XE	33	2	1	116	LAX
WA9TMU	33	2	1	116	IN
ARC of Parker Co.					
W5EBB	32	2	1	114	NTX
Arizona Outlaws Contest Club					
KN7Y	16	2	1	114	AZ
Port City ARC					
KN1WDS	32	2	1	114	EMA
Windy City ARS					
KE9BPC	16	2	1	114	IN
N6PRZ	16	2	1	114	EB
WB6PVU	16	2	1	114	SCV
W9VM	32	2	1	114	IN
KB8QGR	32	2	1	114	MI
AL7JX	21	2	1	114	AK
KB3BFM	16	2	1	114	WPA
N4YHC	11	2	3	114	KY
Sierra Nevada ARS					
N7VAZ	31	2	1	112	NV
KM4YC	31	2	1	112	VA
KE8HTV	17	2	1	112	OH

WP4JD	31	2	1	112	PR
Heart of America RC					
NØUYN	15	2	1	110	MO
Heartland Hams ARC					
W7MSL	15	2	1	110	NE
Meriden ARC					
W1DNS	15	2	1	110	CT
North Shore RC					
WA9LKZ	15	2	1	110	IL
SC4 ARC					
KN6REA	5	2	1	110	SCV
Smith Chart ARS					
N1UJ	30	2	1	110	NC
KO6AEE	15	2	1	110	LAX
KFØGYL	30	2	1	110	IA
K3WJW	30	2	1	110	WPA
W4NEM	30	2	1	110	SFL
WI7J	30	2	1	110	UT
WAØEJX	15	2	1	110	CO
K7BIK	30	2	1	110	OR
KC2GRN	15	2	1	110	NLI
K5MJD	30	2	1	110	NTX
KC5DCT	15	2	1	110	NTX
Chippewa Valley ARC					
KC9LZW	29	2	1	108	WI
KC8GZK	29	2	1	108	VA
Club Radio Amateur Sorel-Tracy					
VE2GT	14	2	1	106	QC
Monterey Bay ARA					
K6GRL	28	2	1	106	SCV
Tallahassee ARS					
AE4S	14	2	1	106	NFL
K1MT	28	2	1	106	EMA
N8LZI	28	2	1	106	OH
KM5GN	14	2	1	106	ME
WJ3B	14	2	1	106	NFL
Great South Bay ARC					
W2DIY	27	2	1	104	NLI
W4OPN	17	2	1	104	NC
KN6NSU	27	2	1	104	LAX
AD8MD	27	2	1	104	OH
K6LTT	22	2	1	104	SDG
Lake Conroe ARC					
W5GWM	13	2	1	102	STX
Ottawa Valley QRP Soc.					
VB2CAP	13	2	1	102	QC
SC4 ARC					
KN6REB	1	2	1	102	SCV
AI7EQ	26	2	1	102	OR
KG7JWN	24	2	1	102	UT
KO4AYC	13	2	1	102	VA
N1CSP	26	2	1	102	VA
Brazos Valley ARC					
K7SOF	25	2	1	100	MT
Delaware Lehigh ARC					
N3WR	25	2	1	100	EPA
Macon Co. ARC					
NØBEX	22	2	2	100	MO
SFVARC					
W6DPM	15	2	1	100	LAX
N1SPW	23	2	1	100	ORG
N5QNS	25	2	1	100	WTX
KQ4KKW	25	2	1	100	VA
KB1EWM	25	2	1	100	CT
Silver Springs RC					
N6PBJ	14	2	1	98	NFL
KJ4VIQ	12	2	1	98	NC
K6AGA	12	2	1	98	LAX
K6RFC	13	2	1	98	SCV
KE8ZGS	13	2	1	98	MI
AF8WX	24	2	1	98	OH
Sachse ARA					
KN5Y	23	2	1	96	NTX
K9CI	23	2	1	96	IL
KD3ATH	23	2	1	96	WPA
KG5FLM	23	2	1	96	OK
KO4MKD	23	2	1	96	TN
KE5MDP	23	2	1	96	MO
KE8VOP	23	2	1	96	OH
N8RQ	23	2	1	96	OH
CWops					
W1HRB	11	2	1	94	MI
Lynchburg ARC					
N2QT	11	2	1	94	VA
Sierra Nevada ARS					
N3OSI	22	2	1	94	NV
WA3FIR	11	2	1	94	EPA
KY4FG	22	2	1	94	NFL
KQ4RZS	22	2	1	94	WCF
N2SDB	22	2	1	94	NNJ
WD4ASW	22	2	1	94	GA
AA5OY	11	2	1	94	LA
AD4IV	20	2	1	94	MS
N2OIG	12	2	1	94	NLI
VE7IHL	22	2	1	94	BC
WA2OMT	22	2	1	94	VA
N8ALB	11	2	1	94	OH
K2TTA	11	2	1	94	NNJ
Montgomery ARC					
KO4GQS	21	2	1	92	AL
K2HT	12	2	1	92	MO
KC2VPE	21	2	1	92	NNJ
AB8PS	21	2	1	92	MI
W1TR	21	2	1	92	CT
W5IOH	21	2	3	92	STX
W2RWC	21	2	1	92	WNY
KC8OOM	21	2	2	92	OH
KG5IIS	17	2	1	92	MS
AR of Decatur Co.					
KD9ZNB	20	2	1	90	IN
Central MA ARA					
AI1G	20	2	1	90	WMA
Mecklenburg ARS					
KM4OWA	20	2	1	90	NC
Mining ARC/St. Paul RC					
NØIWQ	20	2	1	90	MN
Paducah ARA					
N4FZ	10	2	1	90	KY
Palos Verdes ARC					
KA6LJR	10	2	1	90	SFL
Pueblo West ARC					
KFØQLS	20	2	1	90	CO
Southeast LA ARC					
WI5ARD	10	2	1	90	LA
Villa Rica RC					
KZ4AN	11	2	1	90	GA
K7SXN	10	2	1	90	AZ
KN6ZHJ	20	2	1	90	SF
KC1NXT	10	2	1	90	VT
KB2DX	20	2	1	90	ENY
KF8CVS	20	2	1	90	MI
WD8BXP	20	2	1	90	MI
W6GLS	12	2	1	90	SDG
K8STU	20	2	1	90	OH
KQ4QCT	10	2	1	90	AL
AJ4EE	20	2	1	90	NFL
KD2UBX	14	2	1	90	NNY
KG7MVH	10	2	1	90	EWA
VA2KD	20	2	1	90	QC
N5MJ	20	2	1	90	NM
Beaumont ARC					
KI5TPF	19	2	1	88	STX
Comox Valley ARC					
VE7YAH	19	2	1	88	BC
GOTAHAMS					
KJ6RTA	13	2	1	88	ORG
Silver Comet ARS					
K4BBH	19	2	1	88	GA
South Bay ARC					
K6CSH	19	2	1	88	LAX
Tulsa ARC					
KD5NPC	19	2	1	88	OK
W8AIT	16	2	1	88	MI
W7MML	19	2	1	88	OR
NØJNM	19	2	1	88	MN
KO4RUL	19	2	1	88	SC
VE3QEE	11	2	1	88	ONE
Conejo Valley ARC					
WA6RIE	18	2	1	86	SB
Lake Monroe ARS					
KZ4JW	11	2	1	86	NFL
Metrocrest ARS					
KG5E	9	2	1	86	NTX
Nashua Area Radio Soc.					
WMØG	9	2	1	86	NH
Silver Comet ARS					
K4CGA	18	2	1	86	GA
West Georgia ARS					
W4MJA	9	2	1	86	GA
KQ4AJI	9	2	1	86	SC
N9NDB	18	2	1	86	IN
KF5MYS	9	2	1	86	AR
KQ4MDM	9	2	1	86	TN
KN4CED	18	2	1	86	VA
KB1UJS	17	2	1	84	ME
N7TPR	17	2	1	84	WWA
VA3BAH	17	2	1	84	ONE
K5NAR	17	2	1	84	STX
N2WLY	17	2	1	84	NNJ
KN4CY	17	2	1	84	VA
WA2MFU	17	2	1	84	GA
Albemarle ARC					
KN4LAU	16	2	1	82	VA
Carolina DX Assn.					
K8YC	16	2	1	82	NC
Des Moines Radio Amateurs Assn.					
KAØDOS	16	2	1	82	IA
Halifax ARC					
VE1DTR	16	2	1	82	NS
WA1KPD	8	2	1	82	ME
VE4RBB	16	2	1	82	MB
KD2ZHI	16	2	1	82	WNY
KR4CE	8	2	1	82	VA
WØBCQ	16	2	1	82	IA
KC2ZRA	8	2	1	82	NLI
AGA8M	16	2	1	82	OH
W2TI	16	2	1	82	ENY
Contest Club Ontario					
VE3RVZ	15	2	1	80	ONE
Quaboag Valley ARC					
AC1SE	15	2	1	80	WMA
St. Croix Valley ARC					
W1FWS	11	2	1	80	ME
KIØAR	14	2	1	80	CO
KR4CCT	15	2	1	80	VA
Orange Park ARC					
AA4G	14	2	1	78	NFL
W4ITT	14	2	1	78	NFL
K9QA	14	2	1	78	IL
WA2CLP	7	2	1	78	NNJ
N1TEN	14	2	1	78	SDG
KD9OOJ	7	2	1	78	WI
North Shore ARC					
VE3QJM	8	2	1	76	GH
WD4KTF	13	2	1	76	KY
W8UF	13	2	1	76	OH
KE8CSW	13	2	1	76	OH
Goshen ARC					
WB9UXN	6	2	1	74	IN
Northeastern IN ARA					
KA9RVJ	12	2	1	74	IN
Richardson Wireless Klub					
KI5PPO	12	2	1	74	NTX
W4BH	6	2	1	74	NFL
WØNTP	12	2	1	74	GA
K7BCQ	12	2	1	74	UT
W5KY	6	2	1	74	STX
K3CU	6	2	1	74	EPA
KK7HPM	12	2	1	74	UT
KFØTJE	6	2	1	74	IA
KK7TPH	12	2	1	74	EWA
K6ICS	12	2	1	74	LAX
KK7RFI	7	2	1	74	WWA
XE1AY	6	2	1	74	DX
Bolingbrook ARS					
KD9NHZ	11	2	1	72	IL
Northern KY ARC					
AB4WS	6	2	1	72	KY
Patoka Valley ARC					
KD9VDI	11	2	1	72	IN
Queen Anne's ARC					
KC3LUV	11	2	1	72	MDC
Silver Comet ARS					
KM4IKO	11	2	1	72	GA
KO6YG	11	2	1	72	SCV
VE3GRG	18	2	1	72	ONE
KC7DB	11	2	1	72	AZ
K7YJ	11	2	1	72	AZ
NM7A	11	2	3	72	WWA
KQ4SNY	11	2	1	72	NC
W1CHL	11	2	1	72	OH
WØJOP	7	2	1	72	MO
K2FZZ	11	2	1	72	NNJ
Antietam Radio Assn.					
KD3JK	10	2	1	70	MDC
Bella Vista RC					
W5AAJ	5	2	1	70	AR
Brandon ARC					
VE4WJM	5	2	1	70	MB
Goshen ARC					
K9WPV	5	2	1	70	IN
Heritage Hunt Hams					
KM4GWQ	10	2	1	70	VA
Montgomery ARC					
KR4AMA	10	2	1	70	AL
Sangamon Valley RC					
KC9TEP	10	2	1	70	IL
St. Croix Valley ARC					
VE9HX	10	2	1	70	NB
VA3MHB	10	2	1	70	ONE
K9CTS	5	2	1	70	WI
KB1SL	10	2	1	70	CT
N6OHI	10	2	1	70	SCV
KC2YXU	10	2	1	70	WNY
KK6VZE	10	2	1	70	SF
N4MPA	10	2	1	70	AZ
N3PKJ	10	2	1	70	WPA
N8BTR	5	2	1	70	WI
KB6YYH	10	2	1	70	EB
Lakeland ARC					
KK4VCN	9	2	1	68	WCF
No Name Radio Gang					
N1MUY	9	2	1	68	CT
KE6PO	9	2	1	68	WWA
WB3IJZ	9	2	1	68	MO
GOTAHAMS					
K6AHT	8	2	1	66	LAX
Lake Area AR Klub					
K5LOL	8	2	1	66	NTX
West Essex ARC					
WB2GZL	7	2	1	66	NNJ
Woodford Co. ARC					
KB4ENQ	8	2	1	66	KY
AD6AD	8	2	1	66	SV
KK7QQO	8	2	1	66	UT
W4CDO	8	2	1	66	TN
W1TK	5	2	1	66	CT
KW4QY	4	2	1	66	NC
KQ4SJP	8	2	1	66	NFL
W8NGT	8	2	1	66	MI
PRC/SPARC/JPLARC/CITARC					
KE6SRO	7	2	1	64	LAX
South Bay ARA					
K9PAP	7	2	1	64	EB
K7GLN	7	2	1	64	AZ
N5CLS	5	2	2	64	NTX
Carolina DX Assn.					
K1AJT	6	2	1	62	NC



Bob Paxton, N1PAX, coaches Rachel Brady, an unlicensed GOTA station operator, at the Williamsburg Area Amateur Radio Club, K4RC, Field Day in Virginia. [Dan Ewart, WG4F, photo]

Hazel Park ARC					
W8TGB	6	2	1	62	MI
Williamsburg Area ARC					
WR4TH	6	2	1	62	VA
WB6KDH	6	2	1	62	SB
KM4AF	3	2	1	62	SC
KC1BB	3	2	1	62	AZ
W9ASS	6	2	1	62	IL
KI5VPF	3	2	1	62	STX
Ascension ARC					
W5CPB	5	2	1	60	LA
Binghamton ARA					
KE2CAV	5	2	1	60	WNY
Convair/220 ARC					
N6DRE	5	2	1	60	SDG
KE2DYI	5	2	1	60	WNY
KC8RWR	5	2	1	60	OH
VE9WRS	5	2	1	60	NB
Explorer Post 599					
N7XQA	4	2	2	58	AZ
AF8C	2	2	1	58	OH
KC1WAF	4	2	1	58	SCV
WBØNPR	4	2	1	58	AK
N6DPL	4	2	1	58	ORG
San Francisco RC					
KR6A	3	2	1	56	SF
Verde Valley ARC					
KK7LGE	3	2	1	56	AZ
KK7JUM	3	2	1	56	WWA
KK7RUV	3	2	1	56	ID
VA3RFQ	3	2	1	56	GH
N1AMD	3	2	1	56	MI
Mt. Pleasant ARC					
WDØENR	2	2	1	54	IA
K1PRD	2	2	1	54	EMA
KI7YFP	2	2	1	54	WWA
WBØZJJ	1	2	1	54	SFL
Longmont ARC					
AFØXS	1	2	1	52	CO
Nashville ARC					
K4CPO	13	2	2	52	TN
KA3BZO	1	2	1	52	WV
WB9FJO	26	2	1	52	MI
HJ3KOS	1	2	1	52	DX
NR6T	1	2	1	52	TN
KC8MRC	1	2	1	52	OH
KO6HKT	1	2	1	52	SV
N4MM	20	2	1	40	VA
K3ESS	19	2	1	38	NFL
N3RUM	14	2	1	28	EPA

2D

Frankford RC					
N2SR	2,121	2	3	7,720	SNJ
K1C	1,780	2	3	6,712	WMA
WØEAS	1,780	2	3	6,712	WMA
KC3WX	1,626	2	3	5,740	EPA
K6SEA	1,113	2	4	5,014	OR
N2LBR Contest Team					
N2LBR	1,004	2	2	4,172	ENY
Yankee Clipper Contest Club					
W1FM	851	2	3	3,388	EMA
Spokane DX Assn.					
N7UVH	823	2	1	3,342	ID
Dog Hollow Contest Grp.					
AK9D	705	2	2	2,970	KS
W3YA	745	2	41	2,954	WPA
Willamette Valley DX Club					
KT7E	748	2	10	2,904	OR
Mound ARA					
W8DYY	560	2	12	2,298	OH
Lisbon Area ARA					
NN8B	407	2	1	1,978	OH
Mississippi State Univ. ARC					
W5YD	461	2	4	1,890	MS
South GA ARC					
W4TFM	435	2	2	1,790	GA
K1BZ	422	2	1	1,708	ME
Cord of 3 Strands Contest Team					
KTØV	504	2	4	1,674	WI
N2SEC	331	2	6	1,634	WNY
W4ORS	608	2	3	1,328	AL
Sierra Nevada ARS					
WB2AWQ	310	2	2	1,290	NV
ARC of Westminster Village					
AB4WV	159	2	19	1,126	AL
Navarro, Freestone, Limestone & Leon ARC					
W5NFL	255	2	18	908	NTX
KB6C	193	2	1	822	SB
NC9P	167	2	2	718	STX
Kankakee Area Radio Soc.					
W9AZ	158	2	6	514	IL
N2CJ	102	2	1	458	NNJ
Coyote ARC					
KN5S	100	2	1	450	STX
Lake Oswego ARC					
WA7LO	195	2	12	440	OR
Mike & Key ARC					
KK7VNR	93	2	1	412	WWA
W5CBX	174	2	2	398	OK
Brazos Valley ARC					
KD4HNS	101	2	1	352	STX
Mercer Co. ARC					
W3JTV	90	2	30	350	WPA
Gulf Coast ARC					
WA4GDN	129	2	15	334	WCF
Radio Amateurs of Manitoba/Winnipeg Senior Citizens RC					
VE4BB	38	2	14	328	MB
Sun City ARC					
K5SCT	117	2	7	284	STX
AK6ID	47	2	1	220	LAX
N9BDR	39	2	2	186	WI
Copperas Cove Repeater Assn.					
AA5GV	63	2	2	176	NTX
WY8K	31	2	1	174	OH
BCI Comm. ARC					
W4BCI	18	2	5	146	WCF
California Historical Radio Soc.					
W6CF	33	2	2	144	EB
Shelby Co. ARC					
WD4LDC	34	2	2	118	AL
Arizona Outlaws Contest Club					
KE6GFI	32	2	2	114	AZ
Shelby Co. ARC					
WD4JRC	32	2	2	114	AL
Hocking Valley ARC					
KD8ORN	28	2	2	106	OH
N8TLS	23	2	1	96	OH

3D

Westport Astro ARC/Fairfield ARA/ Housatonic ARC/Greater Norwalk ARC					
K1WAS	1,515	2	30	6,480	CT
McDowell ARA					
W4HOG	813	2	43	3,310	NC
Eastside ARS					
NE5TX	1,375	2	6	2,934	STX
Metro DX Club					
N2BJ	857	2	1	2,862	IL
Kendall ARS					
K4OCE	716	2	4	2,764	STX
N2OEF	1,008	2	3	2,596	DE
Southeastern MA ARA					
W1AEC	692	2	7	2,232	EMA
AB9UZ	411	2	3	1,688	WI
Charlestown ARC					
KB3CAN	276	2	4	1,412	MDC
Hall Co. ARES					
WE4EOC	339	2	5	1,392	GA
BB60 AR Grp.					
NE4MW	263	2	4	1,050	AL
Goddard ARC					
WA3NAN	248	2	10	956	MDC
Yankee Clipper Contest Club					
W1HS	229	2	2	868	NH
Mt. Shasta ARC					
W6BML	106	2	3	754	SV
N5VBP	142	2	6	434	OK
ARC of the Tonawandas					
W2VCI	154	2	3	358	WNY
Alphabet ARC					
K6GGL	72	2	6	294	SCV
Univ. of Arizona ARC					
K7UAZ	46	2	12	242	AZ
Howell Co. ARC					
WØHCA	25	2	2	200	MO

4D

Bellbrook ARC					
W8DGN	1,074	2	50	3,982	OH
Skyview Radio Soc.					
W3GH	475	2	4	2,050	WPA
145.21 Grp.					
N8OCN	696	2	4	1,866	OH
Wood Co. ARC					
K8LL	26	2	1	102	OH

5D

Steel City ARC					
N3LL	935	2	30	4,018	WPA
Morongo Basin ARC					
W6BA	835	2	17	2,878	ORG
Kent ARS					
K3ARS	93	2	11	636	MDC
Mid-State ARC					
W9MID	102	2	14	354	IN

6D

Orange Co. Radio Amateurs and Durham FM Assn.					
W4EZ	1,907	2	31	7,362	NC
Conejo Valley ARC					
KI6BTY	353	2	1	1,704	SB
Western KS ARC					
WØMI	311	2	4	1,124	KS

Home Stations — Emergency Power

1E

AA3B	2,289	2	1	9,406	EPA
Rochester (NY) DX Assn.					
NN2L	787	5	1	8,220	WNY
Florida Contest Grp.					
N4FCG	1,663	2	2	6,902	SFL
W6JTI	601	5	1	6,360	SF
Tortolita RC					
W8TK	1,415	2	6	6,210	AZ
Northeastern IN ARA					
KD9QDL	528	5	1	5,430	IN
Arizona Outlaws Contest Club					
K6LL	500	5	1	5,250	AZ
K9OM	1,272	2	1	5,238	WI
K9YC	503	5	1	5,180	SCV
N8A	445	5	2	5,070	OH
NC Contesters					
AA4NC	400	5	1	4,150	NC
KEØUI	975	2	1	4,134	CO
Bay Area Radio Kilowatts					
N6US	1,011	2	2	4,094	NM
KEØFOE	920	2	2	4,030	MO
Contest Club Ontario					
VE3CT	385	5	1	4,000	ONE
W7WA	904	2	1	3,866	WWA
Western WA DX Club					
K7RL	900	2	1	3,750	WWA
N6RK	894	2	1	3,726	SV
Florida Contest Grp.					
KQ4R	802	2	1	3,358	NFL
Tri-Town RAC					
WD9HSY	736	2	1	3,344	IL
W9TS	303	5	1	3,280	IL
W4JF	281	5	2	3,260	SC
K9MMS	285	5	1	3,200	IL
Splitrock ARA					
NE2V	677	2	5	3,118	NNJ
N2CI	281	5	1	2,960	NNJ
Southern CA Contest Club					
W6AFA	1,353	2	1	2,856	LAX
Tampa ARC					
N4TP	960	2	8	2,690	WCF
KE4Q	234	5	1	2,590	SFL
Brunswick Shores ARC					
N3CKI	570	2	1	2,584	NC
K4FHI	252	5	1	2,570	NC
Contest Club Ontario					
VA3SP	603	2	1	2,562	ONE
The 570-V Connection					
W3GQ	582	2	4	2,560	NC
K1IMI	604	2	2	2,494	ME
Fluvanna ARES Grp.					
N8OQ	219	5	1	2,440	VA
WB8SIG	565	2	1	2,410	OH
W9XU	540	2	1	2,410	WI
W8UE	226	5	1	2,410	MI
K6SP	224	5	1	2,390	SV
Western WA DX Club					
N7EPD	523	2	1	2,346	WWA
Ski Country ARC					
WA1ENO	1,040	2	2	2,330	EMA
6L6 Contest Club					
W5ACQ	537	2	3	2,298	WTX
W4YI	191	5	1	2,295	TN
Alabama Contest Grp.					
AA4U	203	5	1	2,180	AL
Central WV Wireless Assn.					
WJ8L	962	2	1	2,174	WV
Montgomery ARC					
K4TMR	182	5	1	2,170	AL
Frankford RC					
NY3B	500	2	1	2,150	EPA
N5UE	190	5	1	2,050	MS
KB1SO	471	2	1	2,034	NH
W3ADP	176	5	1	2,010	MDC
K4RCA	663	2	1	2,008	VA
KJ5T	173	5	3	1,975	STX
Uniontown ARC					
NR5N	181	5	1	1,960	WV
W6ZBA	181	5	1	1,930	ORG
Cambridge Area Maker Grp.					
KY8C	157	5	3	1,920	OH
Tortolita RC					
N7GHZ	436	2	1	1,894	AZ
AF4K	291	2	1	1,864	NC
WR2I	335	2	1	1,860	ENY
K1WAT	170	5	1	1,850	NC
Soc. of Midwest Contesters					
KU9R	397	2	11	1,808	IN
KR4AE	411	2	1	1,794	GA
VE7NI	135	5	1	1,700	BC
N4NTO	383	2	1	1,682	NC
Arkansas River Valley ARF					
K5CS	371	2	1	1,634	AR
W7GB	315	2	1	1,610	EWA
Eau Claire ARC					
KB9S	339	2	1	1,606	WI
N8PFK	361	2	1	1,594	MI
K3HW	300	2	3	1,590	EPA
N8NCR	522	2	1	1,586	WPA
AI3KS	255	2	1	1,570	EPA
Raytown ARC					
WØGMV	324	2	1	1,546	MO
WB9HFK	135	5	1	1,500	IL
Who Cares ARG					
AD8OD	104	5	1	1,490	MI
North Florida RC					
KK4INZ	346	2	1	1,476	NFL
WZ2T	110	5	1	1,450	NNY
Wiregrass ARC					
KB4XT	129	5	1	1,440	AL
W6COW	134	5	1	1,430	LAX
N3FJP	362	2	3	1,394	MDC
Atchison Co. ARS					
KØHK	104	5	1	1,390	KS
AE2T	114	5	1	1,390	WNY
Southern CA Contest Club					
W6KC	339	2	1	1,372	LAX
K3KEK	280	2	1	1,370	STX
Panoramaland ARC					
WB7WUQ	279	2	1	1,366	EWA
K4PQC	111	5	1	1,360	GA
CWops					
KA5M	302	2	1	1,358	LA
Western WA DX Club					
KD7LEE	303	2	1	1,358	WWA
N1JD	301	2	1	1,354	ME
KD2DLL	301	2	1	1,346	ENY
E. Tennessee DX Assoc.					
W4PV	323	2	1	1,342	TN
NOARS/LCARA					
W8KRF	295	2	1	1,330	OH
AE4WX	172	2	3	1,288	NC
Castle Shannon VFD ARC					
K3CSF	186	2	4	1,284	WPA
PRC/SPARC/JPLARC/CITARC					
N3BKV	258	2	1	1,276	SJV
AK7AT	277	2	1	1,258	ID
NO4D	107	5	1	1,220	SC
Who Cares ARG					
K8WU	217	2	1	1,218	MI
AC2XC	299	2	1	1,218	WNY
N8RAT	534	2	1	1,218	WV
Splinter Grp. ARC					
N8TCP	241	2	1	1,214	OH
W8MSC	237	2	1	1,194	MI
Paducah ARA					
ND4X	208	2	1	1,182	KY
AC6NT	113	5	1	1,180	TN
N6WT	311	2	1	1,174	SB
VE6FI	505	2	2	1,160	AB
KO2Q	336	2	1	1,160	NC
K3TN	252	2	1	1,158	MDC
North Shore ARC					
VE3VMP	249	2	1	1,146	GH
Potomac Valley RC					
K5OF	495	2	1	1,140	NC
W3KS	246	2	1	1,134	DE
Butler Co. AR Public Srvc. Grp.					
N3WH	436	2	1	1,122	WPA
Owensboro ARC					
W4TOY	243	2	2	1,122	KY
Ozaukee RC					
W9KHH	166	2	1	1,114	WI



Rem O'Donnelley, K6BBQ, operated 2025 Field Day POTA-style from the foot of the Golden Gate Bridge at Fort Point National Historic Site in California. He demonstrated a CW contact to some visitors and hopes that he may have inspired some to become amateur radio operators. [Rem O'Donnelley, K6BBQ, photo]

Orca DX and Contest Club					
NØIM/VE7	239	2	2	1,106	BC
KD7DPS	295	2	1	1,090	AZ
W1RO	99	5	1	1,085	NV
N3KCB	92	5	1	1,070	DE
W2JCT	236	2	1	1,062	WNY
Colorado QRP Club					
KRØU	91	5	1	1,060	CO
Splinter Grp. ARC					
KØBIE	202	2	1	1,058	OH
Mound ARA					
WE8R	201	2	1	1,054	NFL
K6AJA	290	2	1	1,052	SDG
N6PAZ	151	2	1	1,052	SJV
Lake Conroe ARC					
W5RIF	200	2	1	1,050	STX
KD4O	90	5	1	1,050	SC
N7NB	79	5	1	1,040	WWA
W7POE	66	5	1	1,010	WWA
NF4L	75	2	1	1,000	GA
Tortolita RC					
K7AZT	210	2	1	990	AZ
Parker Radio Assn.					
AB4BA	212	2	1	988	CO
AF7Z	269	2	1	964	UT
N7HCN	60	5	1	950	EWA
N3HXZ	80	5	1	950	WPA
KC4YRV	227	2	1	946	GA
K8GB	172	2	1	938	MI
N9PJM	58	5	1	930	IN
K6GOH	217	2	1	924	SJV
Samuel F. Morse ARC					
W6SFM	166	2	3	914	SV
N7SE	190	2	1	910	CO
W7VOA	169	2	1	900	VA
K1SN	74	5	1	890	VA
KØYQX	74	5	1	890	MN
Cuyahoga Falls ARC					
W8AJV	73	5	1	880	OH
KC1OT	303	2	1	876	CT
W6SIY	72	5	1	870	SJV
AK3Y	179	2	1	866	MDC
K3HOC	250	2	2	864	WPA
Tennessee Contest Grp.					
NS4X	177	2	1	858	TN
PRC/SPARC/JPLARC/CITARC					
KC7O	303	2	1	856	LAX
AEØDC	403	2	1	856	MO
K5HJA	175	2	1	850	NM
W4ZTH	152	2	1	850	NFL
Moreno Valley ARA					
N6BOX	79	2	1	832	ORG
Murgas ARC					
N3RN	103	2	1	824	EPA
W8UC	167	2	1	818	OH
Tennessee Contest Grp.					
K3FH	165	2	1	810	WPA
NWI DX Club					
W9KTP	115	2	1	804	IN
HP Alumni RC					
N1AU	163	2	1	802	EMA
AK8CZ	255	2	3	800	OH
NO5V	91	5	1	800	STX
Oregon Tualatin Valley ARC					
KI7VEM	161	2	1	794	OR
KG5SSB	135	2	1	790	MS
WB4JFS	177	2	1	786	NC
K7EA	156	2	1	774	UT
Frankford RC					
NS3L	165	2	2	770	EPA
KA4HHM	111	2	1	770	NFL
KE4UKX	130	2	7	770	VA
KØFJ	180	2	1	770	KS
WA6TPO	59	2	1	764	AZ
Ft. Madison ARC					
WBØB	160	2	1	760	IA
KI5WWT	45	5	1	760	NTX
K6WDE	304	2	1	758	UT
W7RL	152	2	1	758	ID
Salkehatchie ARS					
K4HR	150	2	1	750	SC
W6MZ	39	5	1	740	SDG
Des Moines Radio Amateurs Assn.					
W6GRE	121	2	1	738	IA
N1MT	121	2	1	734	WCF
N6NKO	70	2	1	730	WI
K7TD	151	2	1	730	CO
AE5MM	120	2	1	730	OK
KF5JXM	145	2	1	730	SDG
Bonner Co. ARC					
KA7EYX	179	2	4	728	ID
NX4T	107	2	1	728	SFL
WO8L	144	2	1	726	NC
K3GG	142	2	1	718	EPA
N4BFR	282	2	1	714	GA
Northwest IN DX Club					
N4SV	326	2	1	702	IN
Valley and Massanutten ARA					
N4RLI	25	5	1	700	VA
Ski Country ARC					
W6CKC	162	2	1	698	CO
W3CG	169	2	3	698	WPA
K7UIN	57	5	1	695	OR
W2EQ	166	2	1	692	SNJ
Florida Contest Grp.					
N4MUH	160	2	1	690	NFL
K1JAK	135	2	1	690	ME
PART of Westford					
N1CEO	59	2	1	686	EMA
W1LTC	159	2	1	686	TN
N9ZWY	82	2	1	678	WI
W7CGA	106	2	1	674	NM
K1ADW	32	5	1	670	EMA
WA7YIG	62	5	1	670	ID
WB4BIN	52	5	1	670	NTX
N4IU	105	2	1	670	EPA
W6WTS	259	2	1	668	ORG
Colorado QRP Club					
ABØCD	47	5	1	665	CO
K9BRS	105	2	1	662	IN
K4GSX	92	2	1	656	GA
KJ7HNA	101	2	1	654	EWA
Cove Repeater Assn.					
W9SCT	100	2	1	650	NTX
Victoria-Haliburton ARC					
VE3MCF	30	5	1	650	ONE
KC3WWC	50	5	1	650	EPA
N9CHA	148	2	2	646	WI
Brazos Valley ARC					
K4VMG	120	2	1	630	STX
KH6DC	118	2	1	622	PAC
K8SSN	83	2	1	616	TN
Yankee Clipper Contest Club					
KC1V	141	2	1	614	CT
SC4 ARC					
K6TPS	31	5	1	610	SCV
Sky Valley ARC					
KA7BVS	65	2	1	610	WWA
Lake Monroe ARS					
KF4YEY	115	2	1	608	NFL
Boulder ARC					
NCØB	226	2	1	602	CO
Parker Radio Assn.					
KØRJK	121	2	1	602	CO
KC4SM	171	2	1	602	VA
AK6RI	113	2	1	602	SCV
WA3TFS	70	5	1	600	WPA
AF9J	55	5	1	600	WI
VA4CQ	94	2	1	598	MB
N3MWQ	110	2	1	594	DE
NA9VY	111	2	1	594	IN
Redwood Empire DX Assn.					
N6TQ	136	2	1	592	SF
AI4WM	57	5	1	585	MI
KF2YS	43	5	1	580	WNY
N7KN	139	2	1	580	WWA
W8FWY	82	2	1	578	OH
KB1EHE	212	2	2	574	CT
North Hills ARC					
K6JGV	110	2	1	572	SV
K9CPO	107	2	1	570	WI
Valley of the Moon ARC					
N7PIB	117	2	1	568	SF
Orange Co. (IN) ARC					
AB9CA	103	2	1	562	IN
Brazos Valley ARC					
K5LJ	102	2	1	558	STX
WCARES-TN					
K8GNG	101	2	1	554	TN
WA4MLD	126	2	1	554	MI
Mahoning Valley ARA					
W4ZIP	59	2	1	550	OH
Northern CA Contest Club					
NA6O	100	2	1	550	EB
Potomac Valley RC					
N1EK	100	2	1	550	MDC
Swamp Fox Contest Grp.					
AA4SD	40	5	1	550	SC
WCARES-TN					
W4RG	100	2	1	550	TN
K4LU	100	2	1	550	TN
K3YDX	75	2	1	550	NC
Half Wave Soc.					
W4BXC	123	2	4	546	TN
Soc. of Midwest Contesters					
K9GA	99	2	1	546	IL
KB5WBH	98	2	1	542	AR
K4YYL	123	2	1	542	SC
Garland ARC					
K5DHY	120	2	1	536	NTX
AD8MP	68	2	1	536	MI
W6BIV	108	2	1	534	STX
NM3J	143	2	1	532	MDC
VA3CJO	72	2	1	532	ONE
Gloucester Co. ARC					
AC2PT	95	2	1	530	SNJ
AB9JT	120	2	1	530	IN
KN7U	95	2	1	530	CO
Ruckerville Amateur Transmitting Soc.					
N4LSJ	94	2	1	526	OH
Club Radio Amateur VE2CWQ					
VA2QR	110	2	1	522	QC
KJ4CTD	92	2	1	518	SC
K9KAW	102	2	1	518	WI
AG6UL	6	2	1	512	SDG
West Allis RAC					
AA9RK	65	2	1	510	WI
KEØGSZ	90	2	1	510	IA
NQ9N	165	2	1	502	WI
KJ6KCG	73	2	1	496	ORG
K7GPS	105	2	1	494	MT
N1ECC	77	2	1	492	EMA
WA7PTM	20	2	1	490	WWA
KO4RVE	120	2	1	490	NFL
Central WV Wireless Assn.					
N8SLT	116	2	1	482	WV
Comox Valley ARC					
VE7PEY	83	2	1	482	BC
VE3LTN	83	2	1	482	ONE
KD9EBS	33	5	1	480	IL
N3TTT	82	2	1	478	DE
WT4R	82	2	1	478	TN
NRH ARC					
K5BBF	83	2	2	476	NTX
Mike & Key ARC					
KK7ZPJ	80	2	1	470	WWA
VA3FLF	56	2	1	470	GH
N4DKN	80	2	1	470	GA
AA3SP	79	2	1	466	EPA
Tamiami ARC					
KN4BAR	53	2	1	462	WCF
KF7VY	78	2	1	462	OR
Henderson ARC					
KK7NYE	78	2	1	460	NV
KO4EVC	113	2	1	458	TN
WØEGR	58	2	4	458	NE
Ozone ARC					
KD5GFG	100	2	1	450	LA
WCARES-TN					
NM4N	30	5	1	450	TN
WD6DX	30	5	1	450	SCV
KD9JSQ	50	2	1	450	TN
KB7U	73	2	1	442	AZ
KI7BCL	91	2	1	432	ID
Des Moines Radio Amateurs Assn.					
NØAVK	70	2	1	430	IA
AD1L	78	2	1	430	WMA
KC8SQC	70	2	1	430	MI
Lisbon Area ARA					
KF8CYL	89	2	1	428	OH
Idaho Mountain ARS					
W7TF	73	2	1	426	ID
Framingham ARA					
AC1KY	27	5	1	420	EMA
AC1BB	17	5	1	420	IL
K4IDB	135	2	1	420	TN
Cascade RC					
WA7AXT	72	2	1	418	WWA
Silver Springs RC					
KQ3K	67	2	1	418	NFL
KG4UHM	41	2	1	414	SCV
RAC of Knoxville/Middle East TN Em. Radio Srvc.					
KO4WIL	65	2	1	410	TN
AD4IE	100	2	1	410	NC

KE8DNF	40	2	1	408	OH
KBØYH	67	2	1	406	CO
W1SFR	63	2	1	402	VT
AC4PQ	88	2	1	402	GA
Middle TN ARS					
K4TRH	25	5	1	400	TN
WB2TVB	15	5	1	400	LAX
Boca Raton ARA					
N2NYR	62	2	1	398	SFL
KE2DPK	121	2	1	392	NLI
Eastern Shore ARC					
WA2AIC	8	5	1	390	VA
NY State EOC					
W2MRD	20	2	1	390	ENY
KI4EZC	60	2	1	390	TN
Smoky Mountain ARC					
N9DPP	118	2	1	386	IN
KE9BWB	41	2	1	382	IL
Zephyrhills Area ARC					
KB3SRU	23	5	1	380	WCF
North Shore RC					
W9AT	57	2	1	378	GA
W9DXP	70	2	1	378	TN
CWOps					
NS8O	56	2	1	374	OH
NE7RD	61	2	1	374	OR
KI4ENS	12	2	1	374	KY
W3HDG	56	2	1	374	WPA
Copper Country Radio Amateur Assn.					
KB8W	22	5	1	370	MI
Fox River Radio League					
K9VQA	110	2	1	370	IL
Richardson Wireless Klub					
KC5JMD	55	2	1	370	NTX
West Tennessee ARS					
WD4PTJ	160	2	1	370	TN
AA3EE	55	2	1	370	WPA
St. Louis QRP Soc.					
AAØVE	12	5	1	365	MO
N2USM	43	5	1	365	ENY
VA3BHY	37	2	1	364	ONS
San Gorgonio Pass ARC					
W6GRH	53	2	1	362	ORG
WO3X	106	2	1	362	OH
K4BDX	71	2	2	362	NC
WA2PCN	53	2	1	362	CO
KF4LAJ	53	2	1	362	ID
ADØH	53	2	1	362	IA
Ft. Madison ARC					
NYØO	22	5	1	360	IA
Windy City ARS					
KD9BRW	51	2	1	354	IL
KF4VXJ	26	2	1	354	NC
AD4GG	101	2	1	352	TN
Falmouth ARA					
WM1N	50	2	1	350	EMA
Richardson Wireless Klub					
KI5UXC	50	2	1	350	NTX
West Tennessee ARS					
KO4DKI	50	2	1	350	TN
VE7CA	10	5	1	350	BC
K7YEM	20	5	1	350	WWA
KF7DX	69	2	5	348	EWA
Valley ARA					
W1VAR	56	2	10	346	CT
KD3MAD	28	2	3	346	EPA
Nashua Area Radio Soc.					
W1JBB	75	2	1	344	NH
VE2BUB	96	2	2	342	QC
Valley RC of Oregon					
W3ICH	19	5	1	340	OR
Binghamton ARA					
KE2AUS	94	2	1	338	WNY
W8HAX	81	2	2	332	MI
Hampden Co. Radio Assn.					
WA1QKT	40	2	1	330	WMA
Heartland Hams ARC					
NØMHK	20	2	1	330	IA
Nanaimo ARA					
VE7VE	18	5	1	330	BC
AG6FK	1	5	1	330	SCV
K9WBS	40	2	1	330	AZ
Binghamton ARA					
K1OW	89	2	1	328	WNY
KM4DWY	46	2	1	326	NC
KQ4MHE	20	2	1	322	NC
N6DGM	68	2	1	322	SB
WK7P	35	2	1	320	OR
KR4GT	34	5	1	320	KY
KE5LHC	35	2	1	320	OK
WGØD	42	2	1	318	MN
N3VMC	14	2	3	318	EPA
KB3AOL	84	2	1	318	WPA
AJ4EY	33	2	1	316	VA
NIØF	33	5	1	315	KS
K4CCT	41	2	1	314	AL
South Bay ARA					
AC6MM	30	2	1	310	EB
KM6QAQ	40	2	1	310	SJV
N3MNT	26	5	1	310	MDC
N3EQF	40	2	1	310	SFL
KQ4PMD	15	2	1	310	NC
KF6RQZ	26	2	1	306	ORG
VA2EN	27	2	1	304	QC
KB9FU	27	2	1	304	STX
Cove Repeater Assn.					
KD6UY	38	2	1	302	NTX
Juneau ARC					
WL7CSJ	38	2	1	302	AK
VE3HOR	75	2	2	300	ONS
VE7PAE	5	5	1	300	BC
KN4FTT	75	2	1	300	VA
KI5UTI	25	2	1	300	NTX
Mound ARA					
K8HEF	74	2	1	298	OH
KJ7GVL	37	2	1	298	OR
NØCVL	64	2	1	298	CO
Conejo Valley ARC					
AD6TW	5	5	1	295	SB
SPARGE					
K3ALE	9	5	2	295	WPA
Fox Cities ARC					
KD9YWG	65	2	1	294	WI
NI5B	61	2	1	294	STX
N7VR	36	2	1	294	MT
KJ5CRF	18	2	1	286	AR
AB1N	53	2	1	286	EMA
W5JJT	17	2	1	284	NM
W7LG	60	2	1	282	WPA
K4AZE	62	2	1	282	TN
David Sarnoff ARC					
KA2BXH	10	2	1	280	SNJ
West Chester ARA					
K3DC	33	2	1	280	OH
AD8Q	6	5	1	280	ID
Cheshire Co. DX ARC					
WA1YZN	32	2	1	278	NH
Windy City ARS					
N9HXR	32	2	1	278	IL
NØTXW	40	2	1	278	MN
K9ZXO	48	2	1	276	IL
KV4ZY	63	2	1	276	VA
K1CE	31	2	1	274	NFL
Paducah ARA					
KG4SRK	60	2	1	270	KY
KF4BEL	60	2	1	270	KY
N6KEN	54	2	1	270	SV
NO2C	24	5	1	270	NLI
KN6FKQ	8	2	1	266	SDG
KK7ER	29	2	1	266	WWA
Mike & Key ARC					
N7RLV	23	5	1	265	WWA
WAØELA	32	2	1	264	CO
N3BAS	57	2	1	264	WPA
Active Amateurs Radio Grp.					
KE4KMD	53	2	1	262	SC
KD2KYG	56	2	1	262	WNY
Irving ARC					
KF5PFP	55	2	1	260	NTX
AI9K	21	5	1	260	IL
San Jose ARES/RACES					
K6SW	3	2	1	256	SCV
TI8/AD2JK	3	2	1	256	DX
KG7OHV	53	2	1	256	UT
Gwinnett ARS					
KR4ECC	26	2	1	254	GA
AB8DE	37	2	1	254	OH
AC2N	52	2	1	254	NFL
N3PPH	26	2	1	254	MDC
N9CQQ	51	2	1	254	WI
KK4T	51	2	1	252	NC
KG4CQK	10	5	1	250	NFL
W1FYG	50	2	1	250	CT
KD9YAX	50	2	1	250	WI
New Providence ARC					
K1DK	24	2	1	246	NNJ
VA3FER	48	2	1	246	ONS
Classic Operators Contest Club					
W7ON	35	2	1	242	AZ
N8TP	46	2	1	242	GA
KE5DM	23	2	1	242	STX
KK7A	23	2	1	242	ID
WCARES-TN					
K4IRS	44	2	1	238	TN
KO6HJY	47	2	1	238	SF
N1EDF	22	2	1	238	EMA
Keuka Lake ARA					
KB2TDH	51	2	1	236	WNY
K3HM	43	2	1	236	WPA
N1DJF	42	2	1	234	NH
Cove Repeater Assn.					
K4IVE	41	2	1	232	NTX
W5GFI	41	2	1	232	OK
W5GTG	41	2	1	232	STX
Athens RC					
KC4RSL	30	2	2	230	GA
WA5AU	20	2	1	230	STX
K8CTR	20	2	1	230	MI
KO6JGN	40	2	1	230	ORG
KDØJHZ	22	2	1	228	IA
KB5ILY	14	2	1	228	AR
KFØOPL	37	2	1	226	CO
KK1J	38	2	1	226	NH
VA2SIB	19	2	1	226	QC
WB4GKB	37	2	1	224	SC
Henderson ARC					
KK7QEA	18	2	1	222	NV
Irving ARC					
KI5WRQ	61	2	1	222	NTX
Bolingbrook ARS					
K9NYO	22	2	1	220	IL
Tuscaloosa ARC					
AG4H	28	2	1	218	AL
ADØG	18	2	1	218	ORG
N1JLF	34	2	1	218	NNY
NU3Q	25	2	1	218	WPA
KB9ZYX	17	2	1	218	IL
K1JBP	34	2	1	218	KY
KM6SWS	17	2	1	218	SDG
K6UMO	33	2	1	216	NFL
WØDAN	28	2	1	216	NV
N4SJJ	13	5	1	215	WI
Bloomington ARA					
W1SRH	32	2	1	214	CT
Brandon ARS					
N1ARS	32	2	1	214	WCF
Paducah ARA					
WE4RC	16	2	1	214	KY
KE9VET	16	2	1	214	IL
Orange Co. (CA) ARC					
KK6TRC	31	2	1	212	ORG
AC8AZ	21	2	1	212	MI
PART of Westford					
KA1ULN	16	5	1	210	EMA
KC3WVZ	30	2	1	210	MDC
Bolingbrook ARS					
W9GPB	29	2	1	208	IL
Plano ARC					
NT5TT	14	2	1	206	NTX
W4MBM	28	2	1	206	VA
KN6PTQ	9	2	1	206	SCV
KQ4KGX	27	2	1	204	NC
W6ART	26	2	1	202	SDG
WG8H	25	2	1	200	OH
KF8DTF	19	2	1	200	MI
KD9WIF	25	2	1	200	IL
K8YJ	75	2	1	200	OH
N1BND	24	2	1	198	KS
K9BRM	23	2	1	196	WI
AC3MB	73	2	1	196	EPA
KFØBLI	11	2	1	194	NE
K6DWD	12	2	1	194	SCV
N9LPQ	11	2	1	194	WI
KI5GPI	22	2	1	194	NTX
KC9USB	22	2	1	194	IL
AI4EW	21	2	1	192	NC
W4RYQ	8	5	1	190	VA
KE3E	10	2	1	190	DE
KØMIS	19	2	1	188	CO
Richmond ARC					
VE7VBI	18	2	1	186	BC
AI5FK	18	2	1	186	AL
K8SCA	18	2	1	186	OH
WN8KDN	7	5	1	185	OH
W5DCF	13	2	1	184	NTX
N2VAM	16	2	1	182	WNY
N3ORX	16	2	1	182	TN
NØXMD	16	2	1	182	OH
K4ZSA	12	2	1	182	NFL
Granite State ARA					
WA1N	15	2	1	180	NH
Tamiami ARC					
KR4BDF	15	2	1	180	WCF
K6KTS	15	2	1	180	ORG
Quaboag Valley ARC					
KC1SAB	14	2	1	178	WMA
NR6TT	4	2	1	178	SV
N4KAA	35	2	1	178	VA
Athens RC					
KQ4TAB	13	2	1	176	GA
Lodi ARC					
N6NFB	12	2	1	174	SJV
WB6GJE	12	2	1	174	SF
K8DLD	12	2	1	174	MI
WZ1H	7	2	2	174	IL
KM7N	11	2	1	172	AZ
Delta and Neshoba ARC					
KC7ND	60	2	1	170	TN
K6THZ	5	2	1	170	SCV
NØLAF	10	2	1	170	NC
N4FA	10	2	1	170	SFL
KN6LJF	5	2	1	170	ORG
VE4NOL	10	2	1	170	MB
Irving ARC					
N5GSG	5	2	1	168	NTX
WØAEL	9	2	1	168	KS
KO6DTP	9	2	1	168	LAX
N2GOP	9	2	1	168	ENY
WA7YUL	4	2	1	166	AZ
W9IHW	7	2	1	164	WI
Tonto ARA					
W7MIN	6	2	1	162	AZ
Eastern CT ARA					
N1FQI	5	2	1	160	CT
North Hills RC					
W6PAP	2	5	1	160	SV
N3YD	5	2	1	160	PR
KB9JDP	5	2	2	160	OH
Lake Conroe ARC					
K5DLD	4	2	1	158	STX
KK7HXH	4	2	1	158	WWA
AF9FA	2	2	1	158	WI
WW5R	4	2	1	158	LA
N8LOV	3	2	1	156	OH
WB9BAT	3	2	1	156	IN
Conejo Valley ARC					
WB6ADC	1	5	1	155	SB
KG5PVP	52	2	1	154	MT
KE9ANT	1	2	1	152	IL
K8RTS	50	2	1	150	OH
NU6R	50	2	1	150	NTX
K7LU	23	2	1	142	VA
Western WA DX Club					
KK7GO	22	2	1	138	EWA
W4VL	18	2	1	136	WCF
KB8DDZ	43	2	1	136	OH
KB1YO	40	2	1	130	CT
KN4UDS	37	2	1	124	NFL
KB7QVG	36	2	1	122	SC
WBØICT	36	2	1	122	KS
K6YUL	17	2	1	118	LAX
KJ6MBW	15	2	1	110	SV
KG7MYX	13	2	1	102	WWA
K5CTW	11	2	1	94	NTX
AG7YM	20	2	1	90	WWA
K9WKJ	10	2	1	90	WI
K9TWW	14	2	1	78	MN
Half Moon Bay ARC					
N6ZEN	6	2	1	74	SCV
KJ7HYQ	6	2	1	74	WWA
N3RC	9	2	1	68	SF
WØWVJ	8	2	1	66	IN
K9CBI	3	2	1	62	IL
KK4CNM	4	2	1	58	GA

2E

Big Sky Contesters					
KM7W	3,075	2	15	10,320	MT
Metro DX Club					
W9TY	1,140	2	9	4,708	IL
Burlington Co. RC					
AK2S	321	5	3	3,980	SNJ
Collins ARC					
N5CXX	992	2	3	3,948	NTX
VA7MM	642	2	5	3,118	BC
Collington Community RC					
K3CCR	782	2	2	3,012	MDC
4SQRP					
WG5F	221	5	3	2,470	OK
ARRL Field Day — Friends in Lincoln Co.					
K4Y	215	5	3	2,300	NC
KB2BIT	189	5	1	2,260	NFL
Broward ARC					
W4AB	539	2	16	2,112	SFL

Worldwide ARC
WE1SPN 334 2 7 2,112 CT
Guadalupe Valley ARC
K5C 580 2 15 1,976 STX
NASA Marshall Space Flight Center ARC
NN4SA 325 2 7 1,966 AL
Oklahoma City Autopatch Assn.
N5PJ 282 2 4 1,604 OK
KC3VPB 330 2 1 1,580 WPA
Southwest OH DX Assn.
W8EX 301 2 6 1,520 OH
Piedmont ARC
KB4MOX 155 2 1 1,518 GA
Low Country Contest Club
NU4SC 400 2 4 1,442 SC
BC BBQ Club
W9B 236 2 6 1,370 WI
Naturist ARC
NU5DE 444 2 2 1,358 STX
K3VNN 290 2 2 1,310 EPA
West Valley Ham Shack
K7SD 298 2 7 1,132 AZ
Sierra ARC of the High Mojave
W6DQ 243 2 5 1,124 SJV
AA4LR 232 2 1 1,086 GA
WB8REI 105 2 3 1,030 OH
KB3GJE 168 2 3 992 MDC
Oklahoma DX Assn.
N5ZY 120 2 1 730 OK
Southern CA Contest Club
AI6DO 46 5 1 700 LAX
ARRL HQ Operator's Club
N1SFE 130 2 2 682 CT
Piedmont ARC
K6DPL 15 2 1 490 GA
WA2KAE 8 2 2 482 WNY
NP4EI 58 2 1 482 PR
WRØAD 52 2 3 474 CO
Crescenta Valley RC
AD6IZ 108 2 10 466 LAX
KB4YKC 40 2 20 464 NFL
Piedmont ARC
K4IO 19 2 1 438 GA
W5RIR 37 2 1 326 NTX
KD9NLP 12 2 2 298 IL
KZ4OR 16 2 1 282 GA

3E

NM4AA 1,440 2 3 5,500 NFL
Jefferson ARC
W5GAD 978 2 35 4,938 LA
Great Salt Lake Contest Club
K7KC 1,339 2 6 4,678 UT
Sun City ARC
K5WPH 1,207 2 25 4,288 WTX
Providence Radio Assn.
N1PRA 763 2 5 4,072 RI
Great Bend Radio Grp.
KZ8U 666 2 3 3,384 OH
Radio Assn. of Erie
W3GV 772 2 16 3,334 WPA
Southwick Radio Grp.
K1II 588 2 7 2,852 WMA
Potomac Valley RC
K3PAX 772 2 6 2,488 MDC
Southtown ARS
W2E 616 2 18 2,462 WNY
KT7AZ 456 2 4 2,374 AZ
Piedmont ARC
KM4LFT 307 2 3 2,328 GA
Waterton ARS
WØNT 571 2 7 1,952 CO
Masonic Village ARC
K3WEB 153 2 7 1,406 EPA
OK Rovers
NØLD 269 2 3 1,282 OK
Framingham ARA
W1FY 197 2 7 1,272 EMA
Sumner Co. ARA
W4Z 34 2 20 518 TN

4E

Skyview Radio Soc.
K3MJW 1,616 2 23 5,534 WPA
Niagara Frontier Radiosport
KB2URI 400 2 1 2,400 WNY
Indian Peaks RC
KDØPYK 32 2 1 578 CO

5E

Contoocook Valley RC
K1B 2,464 2 46 8,376 NH
Des Moines Radio Amateurs Assn.
WØAK 812 2 20 3,662 IA

6E

Cleveland ARC
KA4J 1,449 2 86 6,904 TN
Binghamton ARA
W2OW 495 2 52 2,958 WNY

9E

FM38 Repeater Grp.
N9GMT 1,884 2 10 6,574 WI

EOC Stations

1F

Cottonwood Heights ARC
W7RCH 221 2 9 2,374 UT
ARA of Nebraska
WØWWV 282 2 19 1,922 NE
Hillsborough Co. ARES RACES
N4HCA 374 2 2 1,892 WCF
Amargosa ARC
N7A 204 2 6 1,458 NV
GM Search and Rescue Team
VA3GMO 368 2 1 1,286 GH
Tri-Co. ARC (NC)
NC4AR 111 2 10 1,277 NC
Montvale OEM
K2TO 211 2 4 1,210 NNJ
Washington Co. AUXCOMM
WC5AR 503 2 3 1,156 AR
Parsippany-Troy Hills RACES
K2PTH 155 2 16 1,118 NNJ
Providence EMA RACES
KK1PMA 32 2 4 1,064 RI
Northeast MS Radio Amateurs
W5NEM 142 2 3 954 MS
NCTAMS PAC
KH6UL 281 2 1 912 PAC
Quesnel Em. Radio Comms. Srvc.
VE7YQZ 251 2 1 852 BC
Tucson Red Cross RC
W7TRC 9 2 4 724 AZ
San Diego Co. EOC ACS
K6JCC 33 2 6 666 SDG
St. Louis Co. Radio Amateurs
NØEOC 51 2 1 622 MN
McKean Co. ARC
AC3HO 15 5 1 600 WPA
McKean Co. ARC
W3VV 112 2 2 574 WPA
NEIA Red Cross AR Assn.
WØEQU 38 2 3 572 NE
Manalapan Township ARES
N2UUS 19 2 6 488 NNJ
KØAPR 81 2 1 474 MN
Kootenai ARES/RACES
KC7ODP 9 2 14 368 ID
NY State EOC
KC2FTD 104 2 2 358 ENY
Lomita Station Disaster Comm. Srvc.
W6LMT 77 2 3 304 LAX
Clatsop EOC
W7CLA 17 2 2 184 OR
Roanoke Chapter ARC
W4TKW 33 2 4 116 VA
ARC of Illinois
N9ARC 12 2 3 74 IL

2F

Point Loma Radio Ops. Grp.
W6A 1,630 2 15 6,766 SDG
Bullitt ARS
KY4KY (+W4KBR) 1,460 2 50 5,817 KY
Orleans Co. ARC
W2ORC (+WA2DQL) 992 2 20 5,159 WNY
McHenry Co. RACES/ARES
K9ESV 1,066 2 10 4,794 IL
Coventry (RI) EMA
KC1CUE (+W1KDA) 936 2 28 4,656 RI
Rappahannock Valley ARC
W4NNK 1,217 2 15 4,548 VA
York RC
W9Y (+W9YRC) 1,072 2 22 4,212 IL
Athens Co. ARA
K8V (+W8UKE) 704 2 11 4,184 OH
Dixie AR Klub
W4DAK (+NF4EC) 892 2 13 3,870 NFL
Tacos on the Air
N4B (+KM4EUG) 614 2 23 3,618 TN
RICOMU/RIEMA
WA1USA 528 2 9 3,150 RI
Kings Point ARC
W4KPR (+K4KPR) 556 2 46 3,093 WCF
Williamson Co. ARES
N4FR (+WC4EOC) 660 2 44 2,608 TN
West Essex ARC
W2EF 519 2 10 2,570 NNJ
Valencia Co. ARA
K5OUR (+KC5OUR) 470 2 29 2,472 NM
Meriden ARC
W1NRG (+W1FD) 488 2 21 2,398 CT
Club Radio Amateur de l'Estrie
VE2TA 738 2 2 2,224 QC
Cape Ann ARA
W1GLO (+NQ1W) 334 2 22 2,118 EMA
Rochester ARC
WØMXW 261 2 26 1,962 MN
Carteret Volunteers ARC
K2ZV 487 2 5 1,950 NNJ
Thermal Belt ARC
K4K (+KF4JVI) 190 2 6 1,918 NC
Franklin Lakes OEM RC
N2FLO 173 2 8 1,786 NNJ
Boonville ARC
KØFV (+WØBRC) 279 2 9 1,680 MO
Boeing Employees ARS
K7NWS 262 2 16 1,644 WWA
Cupertino ARES
K6KP (+AG6GX) 94 2 15 1,566 SCV
Western Tidewater Radio Assn.
WT4RA (+WB4KZI) 214 2 12 1,525 VA
Longview East Texas ARC
K5LET 533 2 25 1,308 NTX
Calhoun Co. SKYWARN Grp.
K8GG (+NONE) 286 2 13 1,252 MI
San Angelo ARC
W5SJT (+KJ5FWA) 144 2 34 1,173 WTX
Old Post ARS
W9EOC 516 2 31 1,132 IN
ARL of Lawrence Co.
K3ACS 186 2 17 1,110 WPA
Northville ARA
NA1RA 109 2 15 906 CT
Preble ARA
K8YR 162 2 10 894 OH
Yavapai ARC
W7YRC 187 2 3 846 AZ
Anne Arundel Co. ARES
W3AAC 59 2 9 840 MDC
Oro Valley ARC
K7T 52 2 35 838 AZ
The Algoma ARC
VE3SOO 193 2 6 822 ONN
Hardin Co. AR Comm.
WX4HC 64 2 10 810 KY
Charlestown EOC ARES Grp.
W1CRI 13 2 3 782 RI
Murgas ARC
K3YTL 110 2 4 726 EPA
Big Sandy ARC
KEØAE 89 2 4 706 CO
Great Falls ARC
W7ECA 39 2 5 650 MT
Smithfield Em. Mgmt.
WS1EMA 5 2 6 610 RI
Vigo Co. EmComm Team
KC9SJJ 100 2 7 602 IN
Big Bend ARC
KC9LMF 6 2 5 562 IL
West Tennessee ARS
WF4Q 29 2 14 558 TN
Tri-State ARG
W5AOK 53 2 4 556 OK
Portola Valley ARC
WD6WW 48 2 6 446 SCV
Madison Co. (IN) ARC
W9VCF 65 2 10 430 IN
Hockley Co. ARC
WB5EMR 18 2 8 406 WTX
Hamilton Co. ARC
WA2QNN 69 2 5 388 NNY
Johnson Co. ARES
WX5JC 22 2 3 358 AR
USCG ARC
W6NMC 69 2 2 300 EB
Adams Co. ARS
W3KGN 103 2 5 256 EPA
Eastern OH Amateur Wireless Assn.
W8GBH 50 2 12 250 OH
Osceola ARES
KG4EOC 30 2 11 110 SFL
AR of Decatur Co.
N9LQP 16 2 2 82 IN

3F

Great South Bay ARC
W2GSB (+W2TOB) 1,248 2 45 7,827 NLI
River Bend Wireless Operators Club
W9XG (+NA9Q) 1,404 2 28 6,316 IL
Central MS ARA
K5XU (+KJ5JZU) 1,322 2 30 5,842 MS
Northwest ARS
W5NC (+K5VFD) 1,116 2 57 5,262 STX
Lake Co. RACES/ARES
K9IQP (+W9QL) 1,501 2 10 5,218 IL
Wyandot Area Ham Ops Org.
WY8DT (+KD8GWK) 894 2 6 5,115 OH
Surrey AR Comms.
VE7SAR 1,055 2 23 5,014 BC
South Canadian ARS
W5NOR 817 2 100 4,004 OK
Xenia Weather AR Net
W8XRN (+W8GCA) 519 2 28 3,592 OH
Jackson ARC
KSØJA (+KDØJTR) 656 2 20 3,523 KS
Dickson Co. ARC
WC4DC 646 2 17 3,314 TN
Sioux Empire ARC
WØZWY 541 2 25 2,928 SD
Richardson Wireless Klub
K5RWK (+N5COR) 404 2 50 2,696 NTX
Flagler Co. Combined Field Day
W4FPC (+N2TDI) 433 2 37 2,651 NFL
Platte Co. ARG
NRØAD 426 2 25 2,354 MO
Harford Co. ARES/RACES
KC3FHC (+NE3MD) 302 2 17 2,093 MDC
BCARS
K3QNT 284 2 8 1,920 WPA
Virginia Mountain ARC
W4COV 259 2 6 1,682 VA
Corona Police CSV Team
W6CPD 313 2 7 1,604 ORG
Rowan ARS
N4UH 406 2 13 1,472 NC
Cass Co. ARC
W9VMW 360 2 12 1,470 IN
Houston ECHO Soc./Oak Forest ARC
N5WAJ 93 2 20 1,402 STX
Panama City ARC
W4RYZ 98 2 11 1,334 NFL
Hill Country ARC
W3XO 327 2 10 1,312 STX
Sedalia Pettis AR Klub
WAØSDO 46 2 23 1,292 MO
Silver Comet ARS
W4RSC (+W3BILX) 166 2 15 1,284 GA
Marshall ARC
KB5MAR 110 2 12 1,280 NTX

National Trail ARC					
K9UXZ	228	2	15	1,270	IL
Nacogdoches ARC					
W5NAC	173	2	16	1,232	NTX
Queen City Em. Net					
W8VVL	379	2	12	1,168	OH
Hannibal ARC					
WØKEM (+WØMTL)	56	2	3	1,072	MO
Macon Area Ham Radio Soc.					
K4MHR	238	2	8	992	TN
Oxford Co. ARES					
W1OCA	234	2	3	962	ME
Spout Springs Repeater Assn.					
WF7S	238	2	10	868	EWA
Worcester ECT					
WE1CT	241	2	19	832	WMA
El Segundo ARG					
WB6VMV	108	2	5	786	LAX
Sarasota Em. RC					
N4SER	84	2	10	722	WCF
Lincoln Co. Volunteer Comm.					
NC4LC	64	2	27	614	NC
Top of Michigan ARC					
NM8RC (+NK5J)	99	2	11	550	MI
Big Spring ARC					
W5AW	89	2	10	482	WTX
SSF Fire CERT					
N6SSF	54	2	6	408	SCV

4F

Alachua EOC RC					
NF4AC (+NF4RC)	1,658	2	34	9,093	NFL
Tri-State ARS					
W9OG (+K9SIR)	884	2	25	4,291	IN
Arkansas Valley RC					
NØAVH	715	2	12	3,606	CO
Van Wert ARC					
W8FY (+KA8ZGE)	1,190	2	15	3,602	OH
Pilgrim Amateur Wireless Assn.					
KA1GG	1,043	2	14	3,384	EMA
Gainesville ARS					
K4GNV	615	2	48	3,076	NFL
Washington Co. ARC					
W5AUM	617	2	25	2,714	STX
Woodmont ARA					
W1WDT (+WA1RJJ)	573	2	11	2,670	CT
Arctic ARC					
KL7KC (+KL7R)	477	2	8	2,488	AK
Broken Arrow Em. Mgmt. ARC					
WX5BA	339	2	7	2,184	OK
North Carolina Four Co. ARES					
NC4CA	409	2	4	1,908	NC
Endless Mountains ARC					
N3EP	282	2	6	1,844	EPA
San Francisco RC					
W6PW	331	2	16	1,842	SF
Tri-State ARA					
W8VA	183	2	25	1,818	WV
Hurst ARC					
W5HRC	247	2	27	1,704	NTX
Tri-Town RAC					
W9VT (+N9WDG)	130	2	8	1,624	IL
Mansfield-Johnson AR Srvc.					
WA5JRS	205	2	17	1,514	NTX
Morehead ARS					
KY4HS	254	2	6	1,478	KY
Desoto ARC					
W4MIN	115	2	6	1,250	WCF
Arkansas Diamond ARC					
KE5FSY	110	2	13	1,088	AR

5F

Eastern CT ARA					
KZ1M (+K1MUJ)	1,078	2	23	4,586	CT
Wayne ARC					
W8WOO	944	2	20	4,324	OH
Southern Counties ARA					
K2BR	785	2	21	3,950	SNJ
ARA of the Southern Tier					
W2ZJ	587	2	35	2,498	WNY
Issaquah ARC/SnoVARC/EFR-Fire Corps/ NBAT/Issaquah CERTS					
W7BI	275	2	30	2,042	WWA
Bergen Co. Em. Mgmt. RC					
NJ2BC	292	2	7	1,558	NNJ
South Mountain Radio Amateurs					
N3TWT (+W3JWK)	174	2	54	1,375	EPA
Texas Em. Amateur Communicators					
W5SI	125	2	26	882	STX

6F

Warren Co. RC					
W2C (+W2WCR)	897	2	60	4,795	ENY
ARRL HQ Operator's Club					
W1AW	1,351	2	11	4,038	CT
Lucas ARC/Allen Wylie Lucas ARC					
W5AWL	893	2	15	3,778	NTX
Citrus Co. ARC					
W4CQF	308	2	25	2,250	NFL

7F

Piedmont ARC					
K4PAR (+K4P)	833	2	25	6,366	GA
Jackson Co. ARA					
N5OS	302	2	11	2,672	MS

8F

BEARS of Manchester					
W1BRS	394	2	12	2,614	CT

9F

Johnson Space Center ARC/Clear Lake ARC					
W5RRR	612	2	15	4,092	STX

Club Aggregate Scores are listed below. Aggregate scores for clubs with three or more entries are listed alphabetically by club name and the number of individual entries, along with the total score of the individual entries attributing their score to a club.

Club Aggregate Scores

Club Name	Entries	Score
Albemarle ARC	6	7,123
ARC EmComm Srvc.	4	5,435
ARC of Parker Co.	3	2,130
Arizona Outlaws Contest Club	7	11,969
Assn. Radio Amateurs of Long Beach	4	4,194
Athens RC	5	5,504
Barnstable ARC	4	6,678
Bear Mountain Grp.	4	2,732
Beaumont ARC	3	4,584
Billerica ARS	3	2,098
Binghamton ARA	5	3,984
Bolingbrook ARS	5	2,216
Boulder ARC	5	8,985
Brandon ARS	5	4,251
Brazos Valley ARC	13	32,668
Bristol ARC	5	4,734
Broken Arrow ARC	4	9,614
Brunswick Shores ARC	3	5,611
Bryan ARC	4	3,348
Butler Co. AR Public Srvc. Grp.	6	4,346
Cabarrus ARS	3	3,392
Cape Ann ARA	4	2,914
Carolina DX Assn.	4	1,870
Central WV Wireless Assn.	5	14,991
Cheshire Co. DX ARC	4	3,242
Colorado QRP Club	4	4,963
Comox Valley ARC	3	1,902
Conejo Valley ARC	8	11,806
Contest Club Ontario	10	13,722
Copper Country Radio Amateur Assn.	3	1,230
Cove Repeater Assn.	4	2,320
CTRI Contest Grp.	3	1,134
Cuyahoga Falls ARC	3	7,629
CWops	3	1,826
Dallas ARC	4	5,244
Dalton ARC	3	2,032
David Sarnoff ARC	3	4,144
DeKalb Co. ARC	3	2,800
Des Moines Radio Amateurs Assn.	5	5,274
Fair Lawn ARC	3	4,990
Falmouth ARA	4	10,037
Florida Contest Grp.	7	14,412
Fox River Radio League	3	14,898
Framingham ARA	4	2,476
Frankford Radio Club	7	13,558
Franklin Co. (VA) ARC	3	6,834
Ft. Madison ARC	4	3,336
Gloucester Co. ARC	7	18,021
GOTAHAMS	5	4,030
Grand Strand ARC	3	5,793
Granite State ARA	4	3,627
Great South Bay ARC	3	8,089
Half Moon Bay ARC	3	3,420
Hamfesters Radio Club	3	3,813
Hampden Co. Radio Assn.	3	5,174
Hazel Park ARC	3	3,946
Heartland Hams ARC	3	2,312
Henderson ARC	4	2,594
Heritage Hunt Hams	6	5,562
HP Alumni RC	4	3,766
Hudson Valley Contesters and DXers	5	4,284
Irving ARC	4	1,860
Kansas City Contest Club	4	13,726
Kentucky Contest Grp.	3	5,792
Kern Co. Central Valley ARC	3	2,140
Lake Area AR Klub	7	4,452
Lake Conroe ARC	5	4,162
Lake Monroe ARS	4	7,843
Livonia ARC/Ford ARL	3	10,266
Lynchburg ARC	3	10,891
Mad River RC	5	14,384
McKean Co. ARC	3	1,538
McKinney ARC	4	6,830
McMinnville ARC	3	4,280
Meriden ARC	5	5,730
Metro DX Club	3	7,896
Metrocrest ARS	3	2,844
Mid-MO ARC	3	4,064
Mike & Key ARC	8	23,080
Mining ARC/St. Paul RC	3	3,841
Minnesota Wireless Assn.	6	2,110
Mississauga ARC	3	8,142
Mobile ARC	3	5,160
Monterey Bay ARA	3	2,246
Montgomery ARC	4	3,192
Mound ARA	5	4,256
Nashua Area Radio Soc.	3	5,968
New Providence ARC	3	5,478
Niagara Frontier Radiosport	7	8,560
North Shore ARC	5	4,723
North Shore RC	4	12,670
Northeastern IN ARA	4	7,684
Northern CA Contest Club	3	1,523
Northern KY ARC	6	2,866
Northern Lakes ARC	3	1,158
Northwest ARS	3	7,494
Oh-Ky-In ARS	5	9,493
Orange Co. (NY) ARC	3	4,014
Oro Valley ARC	3	3,096
Owensboro ARC	4	5,482
Ozaukee RC	5	11,200
Paducah ARA	6	6,870
Palos Verdes ARC	3	7,046
Panama City ARC	3	5,911
Panoramaland ARC	3	6,904
Parker Radio Assn.	5	4,086
PART of Westford	3	8,659
Patoka Valley ARC	5	2,980
Phil-Mont Mobile RC	3	2,909
Piedmont ARC	6	12,282
Potomac Valley RC	14	58,858
PRC/SPARC/JPLARC/ CITARC	9	11,529
Providence Radio Assn.	4	16,396
Quaboag Valley ARC	4	2,402
Queen Anne's ARC	5	5,452
RAC of Knoxville/Middle East TN Em. Radio Srvc.	3	3,055
Radio Assn. of Western NY	3	5,844
Raleigh ARS	3	6,733
Rappahannock Valley ARC	4	12,743
Richardson Wireless Klub	21	16,296
Rochester (NY) DX Assn.	4	22,731
Rochester ARC	3	2,294
Salkehatchie ARS	4	5,024
San Fernando Valley ARC	4	3,310
San Gorgonio Pass ARC	4	1,046
SC4 ARC	5	4,833
Shelby Co. ARC	3	4,996
Sierra Foothills ARC	6	9,847
Sierra Nevada ARS	7	5,852
Silver Comet ARS	6	2,690
Silver Springs RC	4	3,900
Ski Country ARC	3	7,906
Sky Valley ARC	3	2,582
Skyview Radio Soc.	3	9,278
Smithchart ARS	7	6,356
Smoky Mountain ARC	3	5,444
Soc. of Midwest Contesters	5	6,252
South Bay ARA	3	2,928
South Bay ARC	3	1,242
South Jersey Radio Assn.	3	18,043
Southeast LA ARC	3	5,417
Southern CA Contest Club	6	7,542
Southern Counties ARA	3	5,070
Splinter Grp. ARC	6	5,186
St. Croix Valley ARC	3	2,211
Sun City ARC	4	5,474
Swamp Fox Contest Grp.	4	2,382
Tamiami ARC	7	5,518
Tennessee Contest Grp.	7	5,082
Thunderbird ARC	3	4,926
Toledo Mobile Radio Assn.	3	3,538
Tortolita Radio Club	7	11,354
Tri-Town RAC	5	6,344
Univ. of Alabama ARC	6	2,202
Valley and Massanutten ARA	5	8,891
WCARES-TN	7	4,694
West Allis RAC	4	4,928
West Essex ARC	5	3,920
West Tennessee ARS	5	1,672
West Valley ARC (AZ)	3	5,350
Western CO ARC	3	2,102
Western WA DX Club	5	7,942
Who Cares ARG	4	4,442
Willamette Valley DX Club	3	4,932
Windy City ARS	4	1,134
Woodbridge Wireless	4	11,429
Yankee Clipper Contest Club	7	9,842
Zephyrhills Area ARC	3	2,012



Brian O'Neill, K6DWD, operates as part of the San Benito County Amateur Radio Association Field Day at the Cienega School in Hollister, California. [Timothy Takeuchi, W6TST, photo]