



#644 Mar 2026



Publication of the
Northern California
Contest Club



55 Years of Contesting
Excellence

Inside This Issue

- Inside this Issue
- President's Report
- Looming Contests
 - State/Province QSO Parties*
 - Larger Contests*
 - Weekly CW (1 hr) Events*
 - Thursday FT4 NCCC Sprint*
- A Peek At N6ZFO's Rap Sheet
- Tube of the Month
- Editor Notes
- NCCC Information
- Lands End Store
- Elecraft K4
- Ham Radio Outlet

NCCC MEETING

<https://nccc.cc/meetings.html>

There will be no March Meeting

*We will have awards and elections
in April*

President's Report

David West, KO6M

AI in contesting Part 2.



Hi everyone, I was planning to write the third part of my series on AI in Contesting, but I got so engrossed in using a new app for POTA hunting that was clearly AI-driven that I forgot to complete my other tasks.

Over the past month, I've noticed a surprising increase in AI usage for building apps in the hobby. It's much more than I anticipated. It seems to be a part of the "vibecoding" trend that the programming world has been experiencing over the last year. If you're not familiar with vibe coding, here's a definition from Wikipedia:

"In computer programming, vibe coding is a software development practice assisted by artificial intelligence and based on chatbots. The software developer describes a project or task in a prompt to a large language model, which generates source code automatically. Vibe coding typically involves accepting AI-generated code without closely reviewing its internal structure, instead relying on results and follow-up prompts to guide changes."

There have been far more apps than I expected to see. Some are for logging, some for noise cancellation, and I've even seen a new program for CW Skimming developed in less than a week. Each of these apps has had no formal publicity or vetting. "Is this a good idea?" I think it's been great! Now, these apps are being used by just a handful of people and



have a small following on Discord, but they're small cogs of change, and I love it! So, we have that going for us with this new AI frontier: disrupting the status quo.

Sadly, no meeting this month either. I'm happy to announce that we're planning our Awards Luncheon. Please save the date of April 18th at 11:30 for our start, and lunch will be served at noon. We'll be at our "favorite" location, Cattleman's in Livermore. Details will follow! I know there were some murmurs about this location, and we're going to try and cut the costs for the members a bit more this year, but the location really does fit us nicely, and it's central to so many of us. I look forward to seeing you there!

Upcoming State/Province QSO Parties

Thanks to WA7BNM

<https://contestcalendar.com/stateparties.php>

State/Province	Dates/Times
Oklahoma	14 Mar 1400Z to 15 Mar 0200Z 15 Mar 15 1400Z to 2200Z
Idaho	14 Mar 1600Z to 15 Mar 0400Z 15 Mar 1400Z to 2200Z
Wisconsin	15 Mar 1800Z to 16 Mar 0400Z
Virginia	21 Mar 1400Z to 22 Mar 0400Z 22 Mar 1200Z to 2400Z
Louisiana	4 Apr 1400 Z to 5 Apr 0200Z
Mississippi	4 Apr 1400Z to 5 Apr 0200Z

Larger Contests on the Horizon

NA Sprint – CW	8 Feb 0000Z to 0400Z
ARRL International DX	21 Feb 0000Z to 22 Feb 2400Z
CQ 160 – SSB	27 Feb 2200 to 1 Mar 2200Z
NAQP RTTY	28 Feb 1800Z to 1 Mar 0600Z
ARRL DX - SSB	7 Mar 0000Z to 8 Mar 2400Z



Weekly CW (1 hr) Events

ID	DAY	UTC	EXCH	WPM	SPONSOR
SST	Fri	2000 - 2100	Name+SPC	<20	K1USN
	Mon	0000 - 0100			
MST	Mon	1300 - 1400	Name+QSO#	20-25	ICWC
	Mon	1900 - 2000			
	Tue	0300 - 0400			
CWT	Wed	1300 - 1400	Name+CWO# or Name+SPC	20-> ∞	CWops
	Wed	1900 - 2000			
	Thu	0300 - 0400			
	Thu	0700 - 0800			

Thursday FT4 NCCC Sprint

The Northern California Club is again pleased to sponsor our weekly FT4 Sprint, aka FT4NS (NCCC Sprint). This contest is held every Friday UTC between 0100Z and 0130Z (Thursday evening in North America). Non-North American stations are welcome to participate. No logs are necessary; please submit your score to 3830scores.com using the "NCCC FT4 Sprint" template. FT4 NS Sprint Rules are posted at: <https://www.ncccsprint.com/ns.html> See you on the screen! Frequencies: 1839, 3575, 7047.5 (also 7080), 14080, 21140, 28180, 50318.



RFI, A US President, and the San Francisco Police

Bill Haddon, N6ZFO/4



In my former ham radio life as KN6OPI and, later, K6OPI, contesting and phone-patching were important activities in my continual effort to avoid or delay homework to the extent possible. My first contest achievement was a San Francisco win in the 1956 Novice Roundup, followed by a first-place finish and San Francisco CW Sweepstakes section award in 1959 during my senior year in high school.

The station equipment evolved over these years from a single-tube 6L6 crystal-controlled Novice rig, home constructed from a 1955 QST article using parts from Zack Electronics on Market St., to a Viking Adventurer, a Viking Ranger and finally a Hallicrafter HT-32. I used the HT-32 as late as 1964 in North Carolina prior to attending graduate school at Purdue University. All this station building was facilitated by the opening of the W6BYB radio store in the Richmond District of San Francisco in about 1956. With mentor, Leo Stapleton, K6PBX I would visit there every Saturday. The photo above shows the station, located at 48th Av. and Santiago St. as configured for phone patches with the Viking Adventurer.

There were adventures along the way. Another mentor, Dick Parks, W6UO, the Chief Engineer of KGO-TV, gifted me a small modulator for use with the Viking Adventurer, the black box shown in the top figure. Dick Parks taught me the basics of Yagi beam construction. His gift of a twenty-foot wood tower provided outstanding performance, particularly on Pacific Island signals. Stations in Okinawa, Wake Island and Hickham Air Force Base in Hawaii provided the opportunity to undertake phone-patch activities with overseas military personnel. The 20-foot wood tower had been used to support a KGO relay transmitter in Oakland. Signals from these Pacific stations had incredible signal strength, reaching 50-60 dB over S-9 on the SX-71, later on the SX-100, receiver. The photo at right shows the tower and Yagi mounted on our roof at 3640 Santiago St. in San Francisco's Sunset district.



Eventually the evening phone-patching activity caused serious trouble with one of my neighbors, a probable direct descendant of US President Calvin Coolidge. As a fiscal conservative, President Coolidge served as the 30th US President during the infamous Roaring 20's. Coolidge was elected once and served from 1923-1929 following the death of Pres. Herbert Hoover. When Calvin Coolidge passed away in 1961 a noted writer, Dorothy Parker, began her article with the words. "Calvin Coolidge has died. Calvin who???" On a positive note, Calvin Coolidge was the first president to have a speech





broadcast by radio and is known for signing a bill to establish what is now the FCC as the Radio Act of 1927. One of the charming stories about Pres. Coolidge is that a friend bet that he could get Mr. Coolidge to say three words during their dinner – Mr. Coolidge responded: “you lose.” That story is of course probably apocryphal, and he denied it in a 1924 speech.

Other neighbors on the Santiago Street block were supportive of my radio activities – Bill O’Reilly, our next-door neighbor was a bridge painter on the SF-Oakland Bay Bridge. He and another neighbor played the 49’er games out on the street on Sundays and were responsible for my life-long interest in that NFL team.-- We were close enough to Kezar Stadium to hear the crowd noise.



A 1951 Muntz TV model 17A3A

My neighbor, Mr. Coolidge, was probably a grandson of President Coolidge. In keeping with his predecessor’s fiscal conservatism, neighbor Coolidge chose to live in our modest San Francisco Sunset District neighborhood. The fiscal modesty carried over to his television set, a Muntz mid-1950’s model. Mr. Muntz, also known as “Madman Muntz” excelled as an inventor, electronic genius and, amazingly, as a first-rate marketer. His goal was to produce a television with just ten tubes, compared to the usual 18-20 tubes of the more popular Emerson, Philco, and RCA sets, the leading TV brands of the 1950’s. It is said that Mr. Muntz would go bench to bench asking his engineers to remove their last-installed components until the unit no longer worked. By adding that last component back in, a minimum-cost TV was produced. The goal was to market a TV set for under \$100. The photo at the left shows a

typical table-model Muntz TV. Our own TV, which had no TVI issues, was another low-budget brand, the Airline TV, marketed by the Montgomery Ward department store. The photo below shows a photo of Madman Muntz himself, taken shortly before the bankruptcy of his company. His beautifully designed sports car was called The Jet.

A perplexing and troublesome feature of the Muntz television was its 21 Mhz IF. While K6OPI was running 15m phone patches in the evening, Mr. Coolidge’s favorite TV show, “I Love Lucy” was unwatchable. He was, understandably, upset, and finally resorted to calling the San Francisco police. Unfortunately for Mr. Coolidge this action was of no benefit to him, as the responding officers were military veterans quite familiar with ham radio as a much-valued communication link to stateside families. The police officers asked to see my K6OPI license and then suggested I might possibly operate at different times. When I explained the phone-patching activity and noted that on a recent evening a serviceman at Hickham Air force Base was able to speak with his wife through my modest station and learn, for the first time, of the birth of his daughter in Iowa, any resistance they might have had immediately melted away. With discretion I did not mention Mr. Coolidge’s wife’s habit of nude sunbathing in their back yard directly in view of my radio room. I suppose upon my leaving for Harvey Mudd College in 1964 the problem finally went away.



There is good, but perhaps not conclusive evidence that our neighbor Mr. Coolidge was a grandson of President Coolidge and thus a direct descendant. Pres. Coolidge and his wife had two sons, one of whom died from a sepsis infection acquired during a tennis game. The surviving son, John Jr. and his wife had two daughters, so there were probably no further descendants named Coolidge.



Tube of the Month
Norm Wilson, N6JV
Visit the Tube Museum at n6jv.com

WE 220B



In the early 1920's, Western Electric was legally allowed to sell new tubes to the civilian market. They also had some applications that would benefit their own company's product line. One potential application was a very long-distance telephone system using 60 KHz. The tube that they were developing was a 10,000-watt dissipation, water cooled triode originally designated the 220A. When the tube was ready for sale it was named the 220B.

This was the first commercially available water-cooled tube. The Navy designated it the CW1887 or the 38120. The tube was first used in Western Electric's 5-B broadcast transmitter.

The [WE 220B](#) operated with up to 12,000 volts at 1.5 amps on the plate. The filament operated at 21.5 volts, AC at 41 amps. The amplification factor was 40 and could be operated at full power up to 3 MHz. The tube is 21.5 inches long including the strange grid connection that is on a stalk that is protruding from between the filament terminals. As a true believer in "Murphy's Law", especially the dropped part rule, I am amazed that any of these 100-year-old tubes have survived in one piece. That grid connection has a "hit me" sign on it. The 220B was quickly replaced by the WE 220C that had the grid rigidly out the side. This tube became the prototype for water cooled tube development for several decades.





Editor Notes

Time Flies If You're Having Fun



This issue of the JUG marks the 52nd for me since volunteering as Editor, and it has indeed been fun and still is. Beyond the fun-factor, it has also been one of the ways to stay connected with the club since adventures in my 20's followed by a boatload of birthdays have made hard-core BIC contesting orthopedic-ally difficult. I never thought that a huge amount of birthday cake over time would be detrimental to one's vision in later life, but apparently it has been. My detail vision is now declining as well and, despite Windows accessibility features, my days at the computer screen as an editor are clearly numbered. It is probably time to start rustling up a replacement. I'm likely good for a few more JUG issues, especially if they're as short as this one, but it definitely won't last and it's time we rustle up a younger editor.

I assemble the JUG in Apache Open Office because I know how to use it, it's compatible with MS Word and most of the other "Word-ish" applications, and it's well established and free. I also have a library of stock photos which comes with the job. The new editor will be free to choose her/his own publication tool of course.

It's a short issue this month. The JUG isn't really a "news" letter since by the time it's published, everyone has already seen the "news" in this 24-7 connected world. But everyone has stories that no one will get to enjoy since they don't appear in the connected world. They can have a home in the JUG if you just send them in. You can email me at k6dgwnv@gmail.com if you need or would like assistance.



About NCCC

Officers and Directors, 2023-2024 Contest Season

President: David West, [KO6M](#)
Vice-President/Contest Chairman: **VACANT**
Secretary: Victor Denisov, [N6DVS](#)
Treasurer: Nian Li, [WU6P](#)
Past President: David Jaffe, WD6T
Director: Jim Brown, [K9YC](#)
Director: Jeff Stai, [WK6I](#)
Director: Ed Radlo, [AJ6V](#)

Volunteers

Charter Member: Rusty Epps, [W6OAT](#)
Awards Chair: Gary Johnson, [NA6O](#)
California QSO Party Chair: Dean Wood, [N6DE](#)
QSL Mgr [[K6ZM](#)]: **VACANT**
QSL Mgr [[K6CQP/N6CQP/W6CQP](#)]: Dean Wood, N6DE
NAQP Teams: **VACANT**
NA CW Sprint Teams: Bob Vallio, [W6RGG](#)
NCCC Email Reflector Admin: Phil Verinsky, [W6PK](#)
Worked All CA Counties Award: Fred Jensen, [K6DGW](#)
Photographer: Bob Wilson, N6TV

NCCC Thur Night Contesting: [ncccsprint.com](#)

[radiosport.world/ladder](#)

NCCC Sprint: Bill Haddon N6ZFO/4 [n6zfo@arrl.net](#)

Vic Diccico [vicd@uwaterloo.ca](#)

NS CW Ladder: Bill Haddon, [N6ZFO/4.n6zfo@arrl.net](#)

Tim Shoppa [tshoppa@gmail.com](#)

FT4/8 Sprint: Dennis W1UE [egan.dennis88@gmail.com](#)

Communications

Webmaster: John Miller, [K6MM](#)

Webinars: Bill Fehring, [W9KKN](#)

Membership: Gary Johnson, [NA6O](#)/Ian Parker, [W6TCP](#)

JUG Editor

Fred Jensen, [K6DGW](#): [k6dgwnv@gmail.com](#)

Home: 775.501.5488

Cell: 530.210.0778

NCCC Membership Information

If you wish to join NCCC, please fill out an application for membership, which will be read and voted upon at our monthly meeting. To join, you must reside within club territory which is defined as everything in California north of the Tehachapi's up to the Oregon state line, and part of northwestern Nevada (anything within our ARRL 175-mile radius circle centered at 10 miles north of Auburn on Highway 49).

Life Memberships

Life memberships are \$250.00 Contact [secretary.nccc@gmail.com](#). Members who have reached 80 years of age have and been an NCCC member for 20 or more years are eligible for Honorary Life Membership ("80/20 Rule"). Contact [secretary.nccc@gmail.com](#)

[radiosport.world/ladder](#)

JUG Articles Wanted!

Please consider submitting an article! The preferred format is plain, unformatted ASCII text MS Word (.doc/.docx) are acceptable, Pictures should be as high a resolution as available. Please do not spend time formatting your submittal, the templates will re-format everything. Send your material to [k6dgwnv@gmail.com](#)

Northern California Contest Club Reflector—Guidelines

The NCCC email reflector is devoted to the discussion of contesting. Topics include contests, station building, dxpeditions, technical questions, contesting questions, amateur radio equipment wants/sales, score posting, amateur radio meetings/ conventions, and membership achievements. Postings may not include personal attacks, politics, or off-subject posts. Such postings will be considered a violation of the Guidelines

Find NCCC on Social Media

Facebook: "Northern California Contest Club"



Twitter: "NCCCKB"

[NCCC Lands' End Store](#)

We are pleased to announce that the new NCCC Land's End store is online! You can choose from an array of shirts, jackets, and hats and apply your choice of custom-embroidered NCCC logos: A plain one, or one that also says Fifty Years. And, you can personalize your item by adding your name and/or call sign. The store is open 24/7 and items are shipped directly to you. No more waiting for everyone else to make up their minds on a group purchase.

<https://business.landsend.com/store/nccc/> or from the NCCC website: <http://nccc.ccc/members/lestore.html>
Thanks to W6TCP for helping to set this up. Instructions for purchases from Lands' End NCCC Store

1. Go to <https://business.landsend.com/store/nccc/>
2. Click on Men's or Women's link, then choose item(s)
3. Pick color, inter quantity of each size you want to order.
4. Click Apply Logos and Personalizations. This will display the logo choices. Try them out. It will show you what they look like on your chosen fabric color.
5. Select a location for logo (left side, ride side, back, etc)
6. Click Apply Logo.
7. Optionally, click Add Personalization to add your name or call sign (\$8.00, 10 character limit)
8. Click Add to Bag and Continue Shopping or.

Start Secure Check out. Account creation and credit card required.



Northern California Contest Club
 Excellence In Amateur Radio Contesting

Elecraft K-Line

ENGINEERED FOR PERFORMANCE. DESIGNED FOR THE OPERATOR.



K4 Direct-Sampling SDR

- Crystal-clear, low-fatigue RX audio
- 160-6M all-mode operation with a rugged 100W PA
- Ultra-low RX/TX phase noise and TX CW bandwidth
- Color panadapter with touch and mouse tuning
- Built-in remote operation (server and client)
- Precision DSP filtering down to 50 Hz

K4/O Remote Panel

Full K4 Operating Experience.
 Compact by Design.



KPA1500 Amplifier

The K4 interfaces seamlessly
 with the KPA1500 and KPA500
 Amplifiers

**HANDS-ON HAM RADIO.
 BY DESIGN.**



ELECRAFT
 elecraft.com – 831-763-4211

Northern California Contest Club

Excellence In Amateur Radio Contesting

HAM RADIO OUTLET®

WWW.HAMRADIO.COM

***Free Shipping and Fast Delivery!**



IC-9700 | All Mode Tri-Band Transceiver

- VHF/UHF/1.2GHz • Direct Sampling Now Enters the VHF/UHF Arena • 4.3" Touch Screen Color TFT LCD • Real-Time, High-Speed Spectrum Scope & Waterfall Display • Smooth Satellite Operation



IC-718 | HF Transceiver

- 160-10M** • 100W • 12V operation • Simple to use • CW Keyer Built-in • One touch band switching • Direct frequency input • VOX Built-in • Band stacking register • IF shift • 101 memories



IC-V3500 | 144MHz FM Mobile

- 65W of Power for Long Range Communications • 4.5 Watts Loud & Clear Audio • Modern White Display & Simple Operation • Weather Channel Receive & Alert Function



IC-7851 | HF/50MHz Transceiver

- 1.2kHz "Optimum" roofing filter • New local oscillator design • Improved phase noise • Improved spectrum scope • Dual scope function • Enhanced mouse operation for spectrum scope



IC-705 | HF/50/144/430 MHz All Mode Transceiver

- RF Direct Sampling • Real-Time Spectrum Scope and Waterfall Display • Large Color Touch Screen • Supports QRP/QRPp • Bluetooth® and Wireless LAN Built-in



IC-2300H | VHF FM Transceiver

- 65W RF Output Power • 4.5W Audio Output • MIL-STD 810 G Specifications • 207 alphanumeric Memory Channels • Built-in CTCSS/DTCS Encode/Decode • DMS



IC-7300 | HF/50MHz Transceiver

- RF Direct Sampling System • New "IP+" Function • Class Leading RMDR and Phase Noise Characteristics • 15 Discrete Band-Pass Filters • Built-In Automatic Antenna Tuner



IC-7100 | All Mode Transceiver

- HF/50/144/430/440 MHz Multi-band, Multi-mode, IF DSP • D-STAR DV Mode (Digital Voice + Data) • Intuitive Touch Screen Interface • Built-in RTTY Functions

IC-V86 | VHF 7W HT

- 7W Output Power Plus New Antenna Provides 1.5 Times More Coverage • More Audio, 1500 mW Audio Output • IP54 & MIL-STD 810G-Rugged Design Against Dust & Water • 19 Hours of Long Lasting Battery Life • 200 Memory Channels, 1 Call Channel & 6 Scan Edges



IC-7610 | HF/50 MHz All Mode Transceiver

- Large 7-inch color display with high resolution real-time spectrum scope and waterfall • Independent direct sampling receivers capable of receiving two bands/two modes simultaneously



IC-2730A | VHF/UHF Dual Band Transceiver

- VHF/VHF, UHF/UHF simultaneous receive • 50 watts of output on VHF and UHF • Optional VS-3 Bluetooth® headset • Easy-to-See large white backlight LCD • Controller attachment to the main Unit

NEW

IC-T10 | Rugged 144/430 MHz Dual Band

- Disaster Ready - Excellent Fit for Your Emergency Bag • Loud Audio - New Speaker Design • Long Battery Life - Up to 11 Hours • FM Broadcast & Weather Channels



IC-R8600 | Wideband SDR Receiver

- 10 kHz to 3 GHz Super Wideband Coverage • Real-time Spectrum Scope w/Waterfall Function • Remote Control Function through IP Network or USB Cable • Decodes Digital Inct P25, NXDN™, D-STAR • SD Card Slot for Receiver Recorder



ID-5100A Deluxe VHF/UHF Dual Band Digital Transceiver

- Analog FM/D-Star DV Mode • SD Card Slot for Voice & Data Storage • 50W Output on VHF/UHF Bands • Integrated GPS Receiver • AM Airband Dualwatch

ID-52A | VHF/UHF D-STAR Portable

- Bluetooth® Communication • Simultaneous Reception in VV, UU, VU and DV/DV • Enriched D-STAR® Features Including the Terminal Mode/Access Point Mode • UHF (225-374.995MHz) Air Band Reception



- RETAIL LOCATIONS – Store hours 10:00AM - 5:30PM - Closed Sunday
- PHONE – Toll-free phone hours 9:30AM - 5:30PM
- ONLINE – WWW.HAMRADIO.COM
- FAX – All store locations
- MAIL – All store locations



FOLLOW HRO ON SOCIAL MEDIA



twitter.com/HamRadioOutlet
facebook.com/HROHamRadioOutlet
instagram.com/HamRadioOutlet
youtube.com/HamRadioOutlet

*On most orders over \$100 in the continental US. (Rural locations excluded.) **Except 60M Band. The Icom logo is a registered trademark of Icom Inc. Toll-free including Hawaii, Alaska and Canada. All HRO 800-lines can assist you if the first line you call is busy, you may call another. Prices, specifications and descriptions subject to change without notice.

Northern California Contest Club

Excellence In Amateur Radio Contesting

HAM RADIO OUTLET®

WWW.HAMRADIO.COM

See us at HAMCATION Booth 024-028!



FTDX101MP | 200W HF/50MHz Transceiver

- Hybrid SDR Configuration • Unparalleled 70 dB Max. Attenuation VC-Tune • New Generation Scope Display 3DSS • ABI (Active Band Indicator) & MPVD (Multi-Purpose VFO Outer Dial) • PC Remote Control Software to Expand the Operating Range • Includes External Power With Matching Front Speaker



FTDX10 | HF/50MHz 100 W SDR Transceiver

- Narrow Band and Direct Sampling SDR • Down Conversion, 9MHz IF Roofing Filters Produce Excellent Shape Factor • 5" Full-Color Touch Panel w/3D Spectrum Stream • High Speed Auto Antenna Tuner • Microphone Amplifier w/3-Stage Parametric Equalizer • Remote Operation w/optional LAN Unit (SCU-LAN10)



FT-991A | HF/HF/UHF All Mode Transceiver

- Real-time Spectrum Scope with Automatic Scope Control • Multi-color waterfall display • State of the art 32-bit Digital Signal Processing System • 3kHz Roofing Filter for enhanced performance • 3.5 inch Full Color TFT USB Capable • Internal Automatic Antenna Tuner • High Accuracy TCXO



FTDX101D | HF + 6M Transceiver

- Narrow Band SDR & Direct Sampling SDR • Crystal Roofing Filters Phenomenal Multi-Signal Receiving Characteristics • Unparalleled -70dB Maximum Attenuation VC-Tune • 15 Separate (HAM 10 + GEN 5) Powerful Band Pass Filters • New Generation Scope Displays 3-Dimensional Spectrum Stream



FT-710 Aess | HF/50MHz 100W SDR Transceiver

- Unmatched SDR Receiving Performance • Band Pass Filters Dedicated for the Amateur Bands • High Res 4.3-inch TFT Color Touch Display • AESS: Acoustic Enhanced Speaker System with SP-40 For High-Fidelity Audio • Built-in High Speed Auto Antenna Tuner



FT-891 | HF+50 MHz All Mode Mobile Transceiver

- Stable 100 Watt Output • 32-Bit IF DSP • Large Dot Matrix LCD Display with Quick Spectrum Scope • USB Port Allows Connection to a PC with a Single Cable • CAT Control, PTT/RTTY Control



FTM-300DR | C4FM/FM 144/430MHz Dual Band

- 50W Output Power • Real Dual Band Operation • Full Color TFT Display • Band Scope • Built-in Bluetooth • WIRES-X Portable Digital Node/Fixed Node with HRI-200



FT-2980R | Heavy-Duty 80W 2M FM Transceiver

- 80 watts of RF power • Large 6 digit backlit LCD display for excellent visibility • 200 memory channels for serious users



FTM-200DR | C4FM/FM 144/430MHz Dual Band

- 1200/9600bps APRS® Data Communications • 2" High-Res Full-Color TFT Display • High-Speed Band Scope • Advanced C4FM Digital Mode • Voice Recording Function for TX/RX



FTM-400XD | 2M/440 Mobile

- Color display-green, blue, orange, purple, gray • GPS/APRS • Packet 1200/9600 bd ready • Spectrum scope • Bluetooth • MicroSD slot • 500 memory per band

FT-70DR C4FM/FM 144/430MHz Xcvt

- System Fusion Compatible • Large Front Speaker delivers 700 mW of Loud Audio Output • Automatic Mode Select detects C4FM or Fm Analog and Switches Accordingly • Huge 1,105 Channel Memory Capacity • External DC Jack for DC Supply and Battery Charging



FT-5DR C4FM/FM 144/430 MHz Dual Band

- High-Res Full-Color Touch Screen TFT LCD Display • Easy Hands-Free Operation w/Built-In Bluetooth® Unit • Built-In High Precision GPS Antenna • 1200/9600bps APRS Data Communications • Supports Simultaneous C4FM Digital • Micro SD Card Slot



FT-65R | 144/430 MHz Transceiver

- Compact Commercial Grade Rugged Design • Large Front Speaker Delivers 1W of Powerful Clear Audio • 5 Watts of Reliable RF Power With-in a compact Body • 3.5-Hour Rapid Charger Included • Large White LED Flashlight, Alarm and Quick Home Channel Access



FTM-6000R | 50W VHF/UHF Mobile Transceiver

- All New User Operating Interface-E20-III (Easy to Operate-III) • Robust Speaker Delivers 3W of Clear, Crisp Receive Audio • Detachable Front Panel Can Be Mounted in Multiple Positions • Supports Optional Bluetooth® Wireless Operation Using the SSM-BT10 or a Commercially Available Bluetooth® Headset



- RETAIL LOCATIONS – Store hours 10:00AM - 5:30PM - Closed Sunday
- PHONE – Toll-free phone hours 9:30AM - 5:30PM
- ONLINE – WWW.HAMRADIO.COM
- FAX – All store locations
- MAIL – All store locations

YAESU
The radio

SACRAMENTO, CA (877) 892-1745	PORTLAND, OR (800) 765-4267	PHOENIX, AZ (800) 559-7388	MILWAUKEE, WI (800) 558-0411	WOODBRIIDGE, VA (800) 444-4799	WINTER SPRINGS, FL (800) 327-1917
SAN DIEGO, CA (877) 520-9623	DENVER, CO (800) 444-9476	ATLANTA, GA (800) 444-7927	NEW CASTLE, DE (800) 644-4476	SALEM, NH (800) 444-0047	WWW.HAMRADIO.COM

Contact HRO for promotional details. Toll-free including Hawaii, Alaska and Canada. All HRO 800-lines can assist you. If the first line you call is busy, you may call another. Prices, specifications and descriptions subject to change without notice.