

W6OTX

W6ARA

PAARA NEWSLETTER
VOLUME 75, NUMBER 12, December 2024

K6OTA

K6YQT

PAARAGraphs



The Official Newsletter of the
Palo Alto Amateur Radio Association, Inc.

The Friendliest Club Around

Celebrating 87 years as an active amateur radio club—Since 1937

<http://www.paara.org/>

Four Feet and Five Watts from Six-Land A Search for Peak Experience

Wayne Burdick, N6KR

Wayne Burdick, N6KR, is Elecraft's Chief Technology Officer and a principal designer of the company's transceivers (K1, K2, K3, K4, KX1, KX2, KX3, KH1) and antennas (AX1, AX2, and accessories). Prior to founding Elecraft with Eric Swartz, WA6HHQ, Wayne created the Wilderness Radio line (NorCal 40A, Sierra, and SST), refinements of his Nor-Cal QRP Club designs. Wayne and Eric have both been inducted into the QRP Hall of Fame, and also jointly received the ARRL's Technical Excellence Award for their Elecraft designs. Wayne holds a degree in Cognitive Science from U.C. San Diego. He has worked for many years as a software/hardware engineer, specializing in RF design, firmware, user interface, and 3D modeling. In his spare time he goes on long hikes, writes fiction, and plays acoustic guitar.

This meeting will be a
Hybrid Meeting
Zoom and In Person

Time: Dec 6, 2024 07:00 PM Pacific Time
Please check <https://www.paara.org/> for
Zoom Details

Upcoming Events

Dec 6	PAARA General Meeting, 7:00 PM
Jan 3	Zoom and In Person Meeting
Feb 7	
Jan 15	Board Meeting, 7:00 PM.
Feb 19	Everyone welcome! Zoom Meeting, eMail President for details.

President's Corner

December 2024

Here we are at the start of another holiday season. As I draft this letter, Thanksgiving is around the corner. I hope everyone enjoyed Thanksgiving without stuffing themselves too much and survived Black Friday without denting their pocketbook excessively. The question is, what Ham Radio equipment do you have on your Christmas list? Is it a new antenna, radio, other electronics, book, or maybe just some seat time in the shack to operate? Whatever it might be I hope Santa will add your wish to his bag of gifts!



Right on the heels of Christmas is the New Year. What will your New Year's resolution be? Become more active in PAARA, upgrade your license, or get more active in the hobby? Maybe a combination of several things Ham-related.

(Pres — Continued on page 3)

Question of the Month

What is the purpose of a fuse?

Getting Back on HF

Eric Rawson KN6KC

I had been off-the-air on HF for several decades. First licensed around age 17 as a VE5, college and work had mostly pushed HF ham radio to one side. I had a 20 M SSB mobile in California for a while. Now retired and age 87 in San Jose, I still have a license and most of the electronics, but no antenna.

Then I got lucky. My friend Jim Johnson, W6SC, told me that the Palo Alto Amateur Radio Association, PAARA, had been known to help disabled hams like me put up antennas. Jim contacted PAARA, and soon Doug Teter, KG6LWE, and Jim Thielemann, K6SV, from PAARA came to my house and put up a G5RV, the 50 ft. "Jr." version, in my backyard. After decades of HF silence, I was back on the air.

That G5RV has been working very well. My log-book shows about 175 HF contacts using the



Doug Teter, KG6LWE, and Jim Thielemann, K6SV, install a G5RV Jr. antenna at the home of Eric Rawson, KN6KC

G5RV in the 10 months I've been back on HF. The best DX so far are contacts in Japan on CW (my first ever QSO off the continent); Chile, South America on SSB; and White Horse in the Yukon Territory of Canada on CW, a rare VY1 call sign.



Eric Rawson, KN6KC at his reactivated home

And I'm now a member of PAARA.
 It's good to be back on HF.

Beware the Fake Transistor

While working on an amplifier for one of my projects I recently discovered I'd been fooled by fake parts.

I had just finished the build so I powered up the board. Immediately it drew all the power my bench supply would give it and something started screeching. I immediately turned off my power supply and started poking around the board for short circuits.

Hours of frustration ensued. I checked every component and every solder joint. With no options left I pulled the final stage MOSFETs and powered up the board. That was it. No overload, no whine, everything checked out.

(Beware — Continued on page 3)

(Beware — Continued from page 2)

Whatever is in these TO-220 packages it's not an RD16HFF1. I suspect someone relabeled a cheap power MOSFET as a much more valuable RF amplifier.

To add insult to injury, I later learned that an authorized distributor stocks this exact part and ships from my home state... guess I should have looked harder.

So here's a few lessons learned and a few tips for you to avoid the scammers:

- Order from authorized distributors when you can. (Look more than once!)
- Call the manufacturer. Specialty distributors are often difficult to find.
- Compare the part to pictures of the genuine article. Fakes often have slightly different markings or packages.
- Always test with a current limiting power supply. It'll save you more often than not.

73, Al6YM



Election Information

It's election time at PAARA again.

The official PAARA Election slate for 2024 is:

President	Bob Ridenour	KN6YGN
VP	Rob Fenn	KC6TYD
Secretary	Ric Hulett	N6AJS
Treasurer	Margaret Cooper	K6WEK
Director B	Walt Gyger	K6WGY
Director C	Doug Teter	KG6LWE
Director D	Darryl Presley	KI6LDM

Voting is open to any PAARA member physically present at the meeting, no Zoom voting.

To vote, go to the back of the room. After verifying your membership, by way of your call sign, Clark will hand you a ballot. Fill out the ballot, fold it, and put it through the slot in the vote box. You may vote for as many or as few candi-

dates as you wish. There are no write-in candidates.

Voting will open shortly after the meeting starts and continue through the break. Voting will close at the end of the break. After voting closes, Clark and the election committee, Frank Fox and Mikko Sanala, will count the ballots. Voting results will be announced after the raffle.

(Pres — Continued from page 1)

Whatever you choose, I trust you'll mark your calendars for May 3, 2025, for the next PAARA in the Park. Darryl, KI6LDM, is looking at the next build activity. If you have any ideas, please reach out to him.

As in the past couple of years, I'll be attending Quartzfest followed by the King of the Hammers (KOH) off-road race in Johnson Valley, CA. I hope to see some of you at Quartzfest, located just south of Quartzsite, AZ. It is a free event with lots of ham-related and non-ham related activities. The event runs from 1/19~1/25. See <https://quartzfest.org/> for more information. You can find more information about KOH at; <https://kingofthehammers.com/>.

Remember elections will be held during the December 6th meeting. You must be a member in good standing and present to vote. The results of the elections will be announced at the end of the December 6th meeting. The election slate can be found elsewhere in this issue.

Please remember the DREAM TO REALITY RAFFLE will be held during the December meeting! Get the word out to anyone interested in possibly winning a KX3 radio! See the flyer elsewhere in this issue for the list of additional raffle prizes. Remember, you must be present to purchase tickets and to win.

In a bit of good news, I received confirmation from the State that they accepted our raffle filing thus we can hold raffles at every meeting in 2025!

Speaking of the raffle, a HUGE shout-out goes to Bioenno Power for donating eight 12Ah batteries and chargers to PAARA as raffle prizes! They have an ad toward the back of this issue. If you purchase a battery from them, please

(Pres — Continued on page 4)

(Pres — Continued from page 3)

I thank them for their generous donation.

As this is my last column as President, I wanted to take a minute to thank all PAARA members for their support over the last 5-years of my Presidency and my 6 years as secretary. Without your support serving as an officer of the club is much harder. I especially want to thank the various members of the board who served with me and assisted in making the club what it is today. Over my years as an officer of the club, we've enjoyed many interesting field trips to KPH, a couple of ships, museums, and taken a train ride, to name a few. We even went to the firing range a few times to exercise our 2nd amendment right at an event known as PAARApLink. We also supported the Electronics Flea Market (EFM) moving to various locations over the years. Let's not forget the many memorable Field Days the club participated in. Even with the large amount of work it takes to conduct an FD event, everyone always had lots of fun! With the help of a few dedicated members, we engineered and constructed a club repeater in the South Bay. We collectively survived COVID which caused us to rethink how to hold club meetings and gave birth to combined in-person and Zoom meetings. COVID also enabled us to open the presenter pool to anyone with access to Zoom bringing a couple of noted guest speakers, Rob Sherwood of Sherwood Engineering, and Bob Heil, K9EID (SK) of Heil Sound. We also celebrated our 85 anniversary with a picnic in a park and an operating event. That event led to the popular PAARA in the Park event which will hold its fourth event in early 2025.

I look forward to seeing all the smiling faces at the December 6th meeting. The meeting will be both an IRL and Zoom meeting.

73, Jim K6SV

Get on the air to keep the airwaves alive!

11/20/24 Board Meeting Minutes

Present were President Jim Thielemann K6SV, Vice President Rob Fenn KC6TYD, Secretary Ric Hulett N6AJS, Treasurer Margaret Cooper K6WEK, Directors Doug Teter KG6LWE, Bob Ridenour KN6YGN, Walt Gyger K6WGY and Darryl Presley KI6LDM. Also attending were

Mikko Sannala AB6RF, and Clark Martin KK6ISP. A quorum was present.

The meeting was called to order at 7:08 pm.

- President's Report — I want to thank all of the members of the board for their support during my five-year presidency. The job would have been much more challenging without their work.

Meeting attendance has bounced back to almost pre-Covid levels, including our Zoom members. Thanks to Rob and his equipment sales, we have more money in our coffers. Membership is strong, with more young members. PAARA in the Park has been a great success. Thanks to all of the current and past board members for their help.

- Secretary's Report — PAARA currently has 179 members, the most since I have been keeping track! Reminder: Club membership runs from January through December. If you haven't yet renewed for 2025, now is the time. You can renew at a club meeting, by mailing a check, or by PayPal on the PAARA website. Membership renewals are rolling in at a steady pace.

- Treasurer's Report — We filed a report to the IRS for 2023, registering our non-profit status. We will issue a check for electric use at our repeater site. The board approved sending a quarterly payment for estimated power use.

The board voted to roll our CD maturing in December to a 3-month regular cd maturing in March.

- VP / Program Chair Report —We received positive comments on the meeting topic for November, it's fun to have a non-radio speaker once in a while.

Our speaker for December will be Wayne Burdick, N6KR from Elecraft – this is always fascinating. His topic is: "Four Feet and Five Watts from Six-Land: A Search for Peak Experience"

Old Business

- Members: We NEED MORE ARTICLES! We have some short items for December, but

(Minutes — Continued on page 5)

(Minutes — Continued from page 4)

the bin is empty for the January PAARAGraphs. Please write up your interesting Ham experiences and send to our editor Jim K6SV.

- Raffle: We will have the “Dream to Reality” raffle in December, including some great prizes.

Raffle tickets are sold at the meeting, priced at \$1 or 6 for \$5. The drawing is at the end of the meeting, and you must be present to win.

- Education Committee:

December’s question of the month: What is the purpose of a fuse?

- Status of Radio loaner program: Still working with our young ham on antenna issues. N6AJS and KG6LWE will confer on possibilities for a simple vertical.
- PAARAGraphs advertising: Invoices to advertisers will go out to the advertisers in January.
- 900 MHz repeater status:

We have received a new frequency pair from NARCC (the coordinator): 902.075/927.075. Members’ radios will need to be reprogrammed; Christopher AI6KG will assist with this.

We have worked with the duplexer vendor to recalibrate the filters. This was quite complex, and they were very helpful. The board approved a ‘thank you’ letter, and a gift box of Ghirardelli candies to show our appreciation.

Mikko AB6RF purchased some cable and connectors. The board approved reimbursement of \$90.28 for this

The electric meter shows 1951 kWh consumption for 10 months. The board agreed to send a quarterly check for estimated usage.

Cleaning up the tree limbs at the repeater site will need an arborist. KG6LWE will coordinate to get a quote, and negotiate with the adjacent property owner.

- Dream to Reality raffle: We are a GO! For

December! Please let everyone know about the December raffle.

- Club Callsign trustees: We have received guidance on required changes for the club callsigns. We will obtain a second FRN number from FCC for our club. This will allow us to update the licenses with new trustees. The incoming President and the Secretary will handle the paperwork.
- PAARA Officer and Director elections: The election will be held at the December club meeting. We have a slate of candidates. You must vote in person at the meeting.
- We gave the 1.2GHz D-Star repeaters along with a data radio and the digital voice modules to Joel as Christopher felt it had no value. In exchange, Joel will provide 1.2Ghz ATV TV repeater and equipment at our site.
- PAARA in the Park: We have scheduled our next event for May 3, 2025. As a project we are considering a simple soldering project, or possibly a ‘foxhole radio’ kit.
- We mailed out 63 new-ham invitation postcards this week.

New Business

- Electronic Flea Market: The EFM schedule has been published, with markets starting March 9. PAARA is the sponsor on June 8. (This is the day after the June club meeting).
- Printer: PIP will be closed 11/28 and 29 for Thanksgiving, and also from 12/24 through 1/1/25 for Christmas and New Year. This will require early preparation of PAARAGraphs.
- We have received e-mail requests from PY2SKY, a ham in Brazil. He is requesting we send his scouts some QSL cards for their project, and to increase youth interest in ham radio. If you wish to participate, bring your QSL card to the December meeting. Jim K6SV will collect the cards and send them in one envelope.
- The board voted to cancel the board meeting for December.
- The meeting was adjourned at 9:20 pm

Respectfully submitted
Ric Hulett N6AJS



DECEMBER DREAM TO REALITY RAFFLE IS BACK

WHEN: DECEMBER 6, 2024

Where: During the PAARA general meeting



The Grand Prize is the Elecraft KX3!

2nd Prize: Bioenno LFP 12V, 12Ah Battery & charger

3rd Prize: LG (Goldstar) DM-311 Multimeter

4th Prize: 50'RG8X Coax Cable

5th Prize: Signal Stick Dual-Band Antena (Choose SMA m/f)

NO internet sales are allowed by the State, this is an in-person-only event.

See www.PAARA.org for more meeting info.

Palo Alto Amateur Radio Association, Inc.

PO Box 911 Menlo Park, CA 94026

Officers

President	Jim Thielemann, K6SV	408-839-6815
	thielem@pacbell.net	
Vice President.....	Rob Fenn, KC6TYD	650-888-9060
	kc6tyd@gmail.com	
Secretary.....	Ric Hulett, N6AJS	408-332-4593
	n6ajs@arrl.net	
Treasurer	Margaret Cooper, K6WEK	
	k6wek@arrl.net	

Directors

Director ('24-'25)	Bob Ridenour, KN6YGN	650-575-4528
	bob_ridenour@yahoo.com	
Director ('23-'24)	Walt Gyger, K6WGY	408-921-5901
	wgyger@ix.netcom.com	
Director ('24)	Doug Teter, KG6LWE	650-743-7892
	dteter@wcwi.com	
Director ('24)	Darryl Presley, KI6LDM	650 255-2454
	ki6ldm@arrl.net	

Appointed Positions

Membership	Ric Hulett, N6AJS	408-332-4593
	N6AJS@arrl.net	
Database.....	Ric Hulett, N6AJS	408-332-4593
	N6AJS@arrl.net	
Station Trustee.....	K6OTA Ron Chester, W6AZ	
Property Manager	Doug Teter, KG6LWE	
Badge Coordinator.....	Doug Teter, KG6LWE	650-743-7892
	dteter@wcwi.com	
Historian Position	<i>Position Vacant</i>	
Raffle Coordinators	Rob Fenn, KC6TYD, kc6tyd@gmail.com Shrikumar, KA6Q shri.paara@enablery.org	
Field Day Coordinator .	Doug Teter, KG6LWE	650-743-7892
ASVARO Rep	Clark Martin, KK6ISP kk6isp@sonic.net	
Webmaster.....	Shrikumar, KA6Q webaron@gmail.com	
Technical Coordinator.	Christopher, AI6KG ch@murgatroid.com	408-348-0304
QSL Manager.....	Ric Hulett, N6AJS	408-332-4593
Speaker Coordinator...	Rob Fenn, KC6TYD	650-888-9060

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Member Profiles	<i>Position Vacant</i>
Technical Tips.....	Ric Hulett, N6AJS
Photographer	<i>Position Vacant</i>

VE Exams

De Anza Park, Sunnyvale, 2nd Saturday 10:30 am each month except November and December. See website for details and exceptions: <http://amateur-radio.org>

Electronics Flea Market (EFM)

Sponsorship: Association of Silicon Valley Amateur Radio Organizations (ASVARO). The Electronics Flea Market is held at West Valley College, 14000 Fruitvale Ave, Saratoga. Website: <http://www.electronicsfleamarket.com/>

PAARA — Palo Alto Amateur Radio Association

Meets 1st Friday 7:00pm each month at Room H-6, Cubberley Community Center; Net 145.230 - PL 100Hz Mondays at 8:30. See website at <http://www.paara.org>. For more information, contact: Joel Wilhite KD6W, kd6w@arrl.net, 650-325-8239

FARS — Foothills Amateur Radio Society

Meets 4th Friday each month at 7:00pm at Covington School, Los Altos. Website: <http://www.fars.k6ya.org>

NCDXC — Northern California DX Club

Meets 3rd Thursday 7:00pm each month, Repeater for member info 147.360. Contact president@ncdx.org, Website: <http://ncdx.org>. YouTube content: "The Northern California DX Club Official Channel". Cohost of the International DX Convention.

The 50MHz & Up Group of Northern California

This organization specializes in vhf + wak signal and microwave activities. Meetings are held on the first Tuesday of each month. Time is usually 5pm for in person meetings, and 7pm for Zoom only meetings. In person meetings are held Sports Basement, 1177 Kern Ave, Sunnyvale. Always check the website, <http://50MhzandUp.org>, for correct information. Zoom information is also there.

San Mateo Radio Club W6UQ.ORG

Meets, 3rd Friday, January through November. Tuesdays & Thursdays, [Directed] Net, 7pm, N6ZX 145.370Hz, -600kHz, PL107.2Hz Contact: SanMateoRadioClub@gmail.com, Website: <http://W6UQ.org/calendar>

SPECS

Southern Peninsula Emergency Communication System users Group

Meets each Monday 7:30pm and 8:00pm. See: <https://specsnets.org/monday-night-net> for more info. Contact: <https://www.specsnets.org/contact> or board@specsnets.org

SCARES

South County Amateur Radio Emergency Service

Meets 3rd Thursday 7:30pm each month, Belmont EOC, Belmont City Hall, One Twin Pines Lane, Belmont CA 94002. Net is on 146.445 [PL 114.8] & 444.50 (PL-100) 7:30 Monday evenings. Contact: President Gary D. Aden, K6GDA 650-743-1265 (D), 650- 595-5590 (N) Web: <http://k6mpn.org> E-mail: pres@k6mpn.org

SCCARA

Santa Clara County Amateur Radio Association

Operates W6UU & W6UU/R, repeater 146.985-pl Nets: 2m, 7:30pm Mon; 70cm, 10M (28.385) 8PM Thur. Meets 2nd Mon each month @ 7:30 PM. ARRL/VEC license testing contact 408-507-4698

SVECS — Silicon Valley Emergency Communications

Operates AA6BT repeater (146.115 MHz+) Website: <http://www.svecs.net> or contact: Lou Stierer WA6QYS 408 241 7999

WVARA — West Valley Amateur Radio Association

W6PIY six-meter repeater on 52.58MHz. Normally, six-meters is linked with 147 and 223, while 441 and 1286 repeaters are linked.

VHF: 52.58 (-500) 151.4 ctcss UHF:

147.39 (+600) 151.4 ctcss 441.35 (+5.0) 88.5 ctcss

223.96 (+1.6) 156.7 ctcss 1286.20 (-12m) 100.0 ctcss

Meetings are 2nd Wednesday of every month except July, August and December.

Website: <http://wvara.org>, Contact: info@wvara.org

(Please send changes to PAARAgaphs editor)

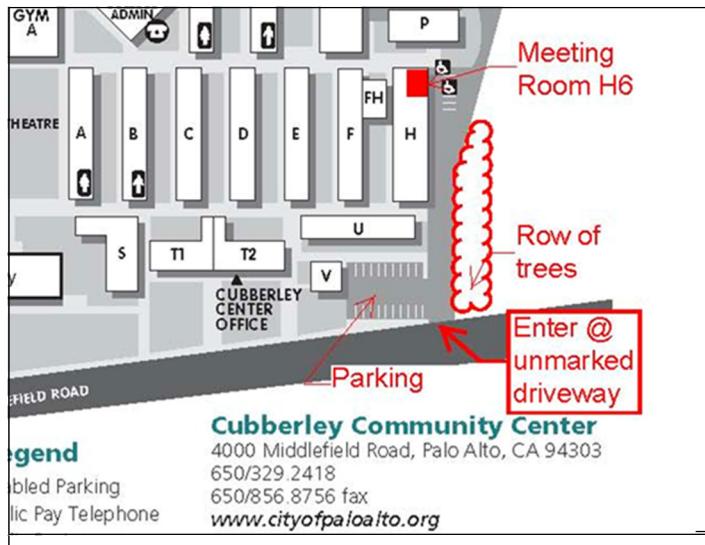
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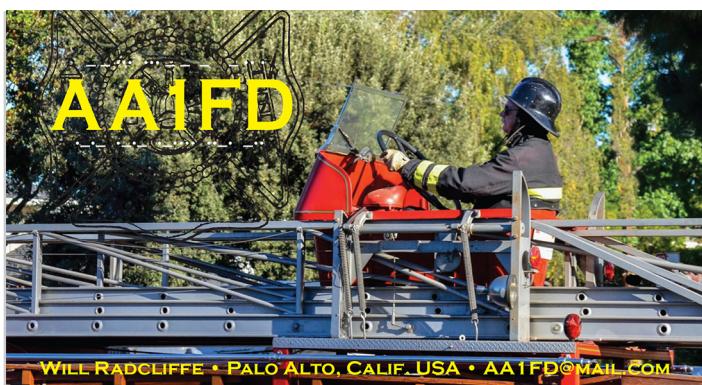
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Meeting Location — Middlefield Road between San Antonio and Charleston in Palo Alto. 4000 Middlefield Road



PAARA Weekly Radio Net

Info and Swap Session
every Monday evening at 8:30pm
on the N6NFI 145.230 MHz repeater

Week Control Operator

1 st	Doug - KG6LWE
2 nd	Doug - KG6LWE
3 rd	Ric - N6AJS
4 th	Rob - KC6TYD
5 th	Rob - KC6TYD

If you're interested in trying out at Net Control, Contact Doug, KG6LWE. It's good practice, and lots o' fun! Give it a try.

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777 Woodside Rd., Suite B, Redwood City, CA 94061

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Palo Alto Amateur Radio Association
P.O. Box 911, Menlo Park
California 94026-0911

Club meetings are on the first Friday of each month, 7:00pm at the Room H-6, Cubberley Community Center.

Radio NET & Swap Session every Monday evening, at 8:30pm, on the 145.230 –600 MHz repeater, PL 100Hz.

Membership in PAARA is \$25.00 per calendar year, which includes one subscription to PAARAGraphs \$6 for each additional family member (no newsletter).

Make payment to the
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Text: .doc, .rtf, or .txt
Photos: jpg, png or tiff
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UHF DMR	444.475 MHz +5 MHz CC1	Slot 1: Dynamic Slot 2: NorCal BM (31068)
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Badges can be ordered through
our website [https://www.paara.org/
pages/members-current.html](https://www.paara.org/pages/members-current.html).

Scroll to the bottom of the page
and fill out the info. All badges will
be mailed.

The cost for a badge is \$30.00.

PAARAGraphs Ad Rates

PAARAGraphs accepts paid advertisements from non-members. (short personal ads remain free for members in good standing). **All ad rates listed are per issue.**

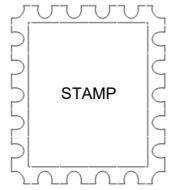
1. Not-for-profit ads by association members for ham-related items and wants. No cost for business card-size ads (additional space at \$2.50 per business card size per issue).
2. For Profit organizations and/or individuals: \$5-business card size, \$14.00-quarter page, \$25-half page, \$50 full page or back cover per issue.

These fees may be reduced or waived in exchange for a valuable consideration that is given to the Association or its general membership. Such consideration must be in addition to any existing arrangements with the association. The PAARAGraphs editors reserve the right to reject any ad deemed to be not in the best interest of the Association.

All fees payable in advance by the year with "scanner-ready" copy or text-only ads. **Give payment and copy to Walt Gyger, K6WGY.**

PAARGraphs — December 2024

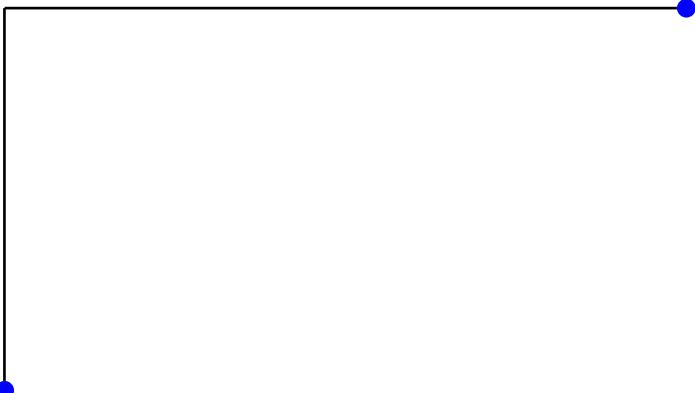
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PAARGraphs Newsletter
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5
Ways
to Shop!

- RETAIL LOCATIONS - Store hours 10:00AM - 5:30PM - Closed Sunday
- PHONE - Toll-free phone hours 8:30AM - 5:30PM
- FAX - All store locations
- ONLINE - WWW.HAMRADIO.COM
- MAIL - All store locations

YAESU
The radio



FTDX1010 | HF/VHF/UHF All Mode Transceiver

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



FT-991A | HF/VHF/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 LCD Capable • Internal Automatic Antenna Tuner • High Accuracy TX/RX



FTDX10 | HF + 6M Transceiver

- Narrow Band SDR & Direct Sampling SDR • Crystal Roofing Filters • Phenomenal Multi-Signal Receiving Characteristics • In-parallel, 7-TUBS Maximum Attenuation I_C-Time • 15 Separate Scope Displays 3-Dimensional Spectrum Stream



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

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



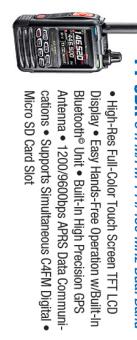
FT-500DR | C4FM/FM 144/430MHz Dual Band Xcvr

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



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

- 50W Output Power • Real Dual Band Operation • Full-Color TFT Display • Easy Hands-Free Operation w/Built-In Bluetooth • 1200/9600bps APRS Data Communications • Supports Simultaneous C4FM/Digital Micro SD Card Slot



FT-65R | 144/430 MHz Transceiver

- Compact Commercial Grade Design • Large Front Speaker Delivers 3W of Clear, Crisp Receive Audio • Robust Speaker Delivers 3W of Clear, Crisp Receive Audio • Detachable Front Panel Can Be Mounted in Multiple Positions • Supports Optional Bluetooth® Wireless Operation via the SSM-BT or a Commercially Available Bluetooth® Headset



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

- Unmatched SDR Receiving Performance • Band-Pass Filter Selection • VCO Tune • New Generation Scope Display • BL Active Band Indicator & MWD (Multi-Purpose VFO Outer Dial) • PC Remote Control Software to Expand the Operating Range • Includes External Power With Matching Front Speaker



FT-500DR | C4FM/FM 144/430MHz Dual Band Xcvr

- System Fusion Compatible • Large Front Speaker delivers 700 mW of Loud Audio Output • Automatic Mode Select detects C4FM or Fm Digital • Dual Band Operation, C4FM/C4FM Digital • D-UHF Dual Receiver • True Analog and Switches Accordingly • Huge 1.105" Color LCD Display • Built-in High-Speed Auto Antenna Tuner • 2.4" Touch Panel • Full-Color TFT Display • Built-in GPS Receiver • Wireless Operation Capability with Optional Bluetooth® Headset



FT-70DR | C4FM/FM 144/430MHz Xcvr

- Front Firing Acoustically Enhanced Speaker System • True Dual Band Operation, C4FM/C4FM Digital • D-UHF Dual Receiver • True Analog and Switches Accordingly • Huge 1.105" Color LCD Display • Built-in High-Speed Auto Antenna Tuner • 2.4" Touch Panel • Full-Color TFT Display • Built-in GPS Receiver • Wireless Operation Capability with Optional Bluetooth® Headset

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