

W6OTX

W6ARA

PAARA NEWSLETTER
VOLUME 76, NUMBER 2, February 2025

K6OTA

K6YQT

PAARAGraphs



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

The Friendliest Club Around

Celebrating 88 years as an active amateur radio club—Since 1937

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

Ben Eadie, VE6SFX, aka Ham Radio Rookie on YouTube and host of vfcomms.com.

Ben Eadie, VE6SFX, is known as Ham Radio Rookie on YouTube and is also the host of vfcomms.com. He is the creator of the FARA-J Antenna and is currently working on other creative ham radio gear.

Ben will introduce the basics of slot antennas, discuss why they're so effective, and share his hands-on approach to designing and testing them. Historically, slot antennas were difficult to construct due to fabrication challenges and the high cost of materials. However, with today's materials and techniques, they've become surprisingly accessible and affordable. Ben will show how anyone can experiment, learn, and innovate with antennas, regardless of their level of experience. All it takes is curiosity, willingness to try, and a handful of tools and materials.

This meeting will be a Hybrid Meeting Zoom and In Person

Time: Feb 7, 2025 07:00 PM Pacific Time

Please check <https://www.paara.org/> for

Zoom Details

Upcoming Events

Feb 7	PAARA General Meeting, 7:00 PM
Mar 7	Zoom and In Person Meeting.
Apr 4	March is the Homebrew Night.
Feb 19	Board Meeting, 7:00 PM.
Mar 19	Everyone welcome! Zoom Meeting,
Apr 16	eMail President for details.

President's Corner

February 2025

I'd like to start this edition of the President's Corner by thanking everyone for making the January meeting a success. As many of you know, we had some issues with our sound system just before the January meeting and we had to scramble to try and put together an effective backup that would let us use microphones in the room as well as effectively connect audio to Zoom for our remote users. Jim Thielemann, K6SV, worked for a number of hours before the meeting and found a way to keep us up and running. Thanks, Jim! While our DSP unit is being repaired, we will continue to employ the same setup for the February

(President — Continued on page 3)



Questions of the Month

- What's the difference between a director and a reflector?
- What makes them different from a driven element?
- Does every antenna need to have one or both of them?

Columbia Space Initiative Ham Interest Balloons

Jacob Boxerman, KE2CZX

The Columbia Space Initiative's High-Altitude Balloons team has started a new project this year. We are building our own Pico Balloons, a common project that overlaps the High-Altitude Balloon community and the Ham Radio community. A Pico Balloon consists of an ultra-lightweight transmitter suspended from a small balloon, usually a mylar balloon (think a shaped party balloon). These balloons are filled with a lifting gas (hydrogen or helium) and will carry the transmitter to around 40,000ft. Once there they float for as long as they can, until they are taken down by an event such as a storm, ice, or rough winds, or the gas leaks from the balloon.

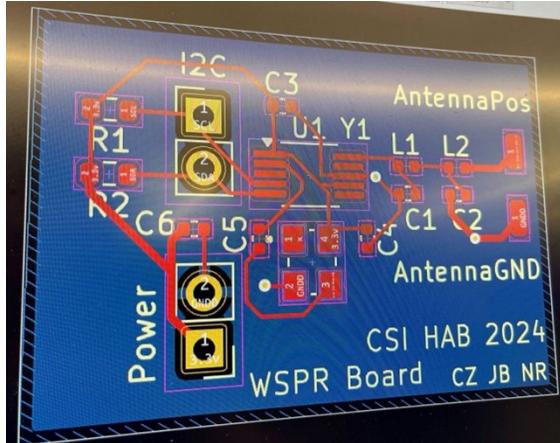
We are currently in the process of designing our own computer/transmitter board. We have selected and designed circuitry for a three-in-one temperature/pressure/humidity sensor, as well as an HF transmitter based on the Si5351a chip. Pico Balloons generally utilize the WSPR protocol (created by Joe Taylor, K1JT). Short for Weak Signal Propagation Reporter, WSPR is a communication protocol for very low power, long distance communication. Our transmitter will be around 5-10mW but should be able to be heard from our home base in New York City. The balloon will transmit a grid square for location as well as an encoded altitude and whatever other sensor data we can manage to pack into the tiny WSPR package.

Once our spring semester begins, we plan to add circuitry for power, allowing our payload to be powered by a solar panel array. We also will add in our microcontroller, which will be based on the RP2040 chip (used by the Raspberry Pi Pico). From there our boards will be sent off for manufacturing. We will then flash our firmware, test, and schedule a launch.

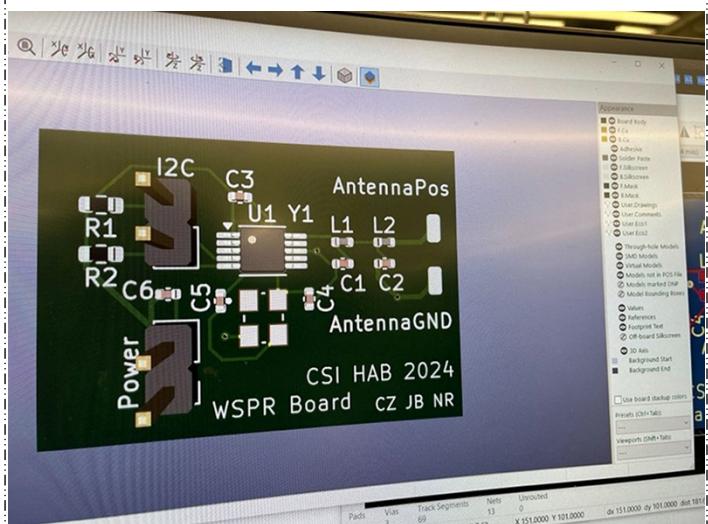
I hope to write a follow-up once we have a successful launch. There is much more to be said about Pico Balloons, but I will leave it here for the time being. High-Altitude Ballooning is a great way to utilize Amateur Radio for a practical and unique purpose. We built another transmitter last year using an HT and Arduino microcontroller to transmit APRS packets.

I got my Technician to build the APRS transmitter and had a great time studying and taking the exam, as well as making my first contacts from the university's Ham Radio shack, home of the Columbia University Amateur Radio Club, W2AEE, founded 1908.

The High-Altitude Balloons team looks forward to launching a fleet of Pico Balloons to better understand microelectronics, weather patterns, radio propagation, and more.



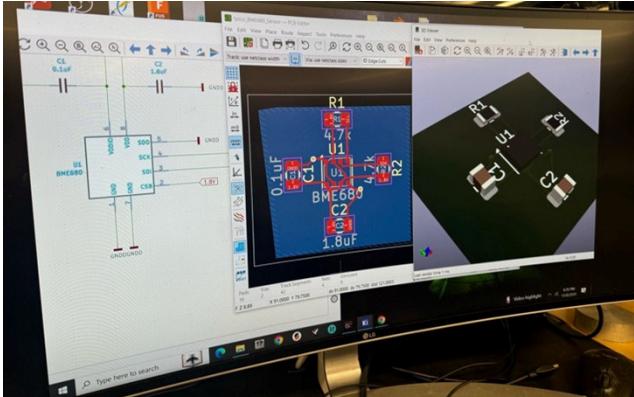
An early prototype of a PCB layout for an HF transmitter built around an Si5351a clock transmitter. Like any good ham we designed in a filter to eliminate any spurious emissions.



Eventually everything will be combined onto one PCB. We designed this as an introduction to transmitters and PCB design and layout. Each subsystem will create their schematic which we will then be able to integrate together.

(Balloons — Continued on page 3)

(Balloons — Continued from page 2)



Members of our team went from zero knowledge to designing a basic circuit for a Bosch environmental sensor.



Above is a picture of one of our larger launches. This balloon is much larger than a Pico Balloon and is designed to pop once reaching 80,000-100,000ft.

Relevant Links

<http://www.arrl.org/wspr>

<https://www.theastroimager.com/picoballoon/pico-balloon/>

<https://www.picoballoons.net/>

Author's Note:

Feel free to email (jacobboxerman@gmail.com) if you have any feedback or questions. If you or somebody you know works at an organization that might be interested in supporting us, whether with your experience on a Zoom call, or in-kind or monetary donations, please also get in touch. We are a small part of a larger organization and are always on the lookout for additional support.

(President — Continued from page 1)

meeting, although I'll be trying to run it solo since Jim will be out of town.

As mentioned at the January meeting, my election as President created an open Director seat with one year left on the term. I'd like to thank everyone who spoke to me about this position either to express interest, get more information, or make a suggestion. After much consideration, I have appointed Sorin Constantinescu, KN6YUH, to the open Director seat. Sorin is going to make a great Director for the club – he is already looking into ways that we can upgrade and modernize the club's web site, and I look forward to working with him and the other Directors over the next year. Please join me in congratulating Sorin at the February meeting!

This time of year seems to have quite a few Ham related events, despite being right in the middle of winter. By the time you read this, Winter Field Day (January 25th and 26th) and Quartzfest (January 19th to 25th) will be in the books, and we look forward to hearing stories from members who participated in either one. Yuma Hamfest is February 14th and 15th in Yuma Arizona – if your sweetheart would love to go to a Ham convention for Valentine's Day, you might still have time to register and plan a surprise!

A little closer to home, PAARA members have been invited to attend the FARS Winter Banquet on February 21st at the Blue Pheasant in Cupertino. Arrival and mixing starts at 6pm with dinner served at 7pm, a presentation at 8pm, and the evening ends with a Raffle around 9:15pm. This year's presenter is Robert Moffat, KG4UHM, discussing "The History of Wireless Power Transfer". The event is open to anyone who wants to attend, but reservations are required and must be received by 6pm on February 17th. Prices vary from \$44 to \$59 depending on choice of entrée. The top prize in the raffle is a Yaesu FT710 SDR HF Transceiver with a number of other nice prizes as well. Looking at the photos from last year, I see a number of PAARA members who attended the banquet and also took home raffle prizes!

Recently, some of the board members received a communication from a Ham in Brazil, Adenoir,

(President — Continued on page 4)

(President — Continued from page 3)

PY2SKY, who works with young scouts aged 14 and 15. They are learning about amateur radio and preparing to obtain their own licenses. One of their projects to understand the impact of amateur radio is to put together a large display with QSL cards from stations in Brazil and other countries. We are planning to send QSL cards from the club stations. If you have a QSL card that you'd like to send as well, please bring it to the February meeting, let me know that it's for the Brazil scouts, and we will include it in the package that we send from the club.

Note that Homebrew Night will be at the club meeting on March 7th. This is a really fun opportunity for show and tell to share a project you've completed or are working on, as well as to hear what others are up to. Presentations are meant to be a short overview lasting no longer than 7 minutes so that we can fit everyone into our meeting time. Start building now!

Lastly I hope to see you all at the February 7th meeting, which will be held IRL and on Zoom. We've got a great speaker lined up — Ben Eadie, VE6SFX, hosts a channel on YouTube called Ham Radio Rookie and runs the web site vfcomms.com where you can find some really neat ultra portable antennas. I can't wait to find out the answer(s) to the Question of the Month, and of course, we'll be holding a raffle at the end of the meeting! After the official meeting, I hope you can join me at Mountain Mike's for some heart shaped pizza to celebrate the season and socialize with some great Hams!

73, Bob KN6YGN

Get on the air to keep the airwaves alive!

Jan 2025 Board Meeting Minutes

In attendance were: President Bob Ridenour KN6YGN, Vice President Rob Fenn KC6TYD, Secretary Ric Hulett N6AJS, Treasurer Margaret Cooper K6WEK, Directors Darryl Presley KI6LDM, Walt Gyger K6WGY, and Doug Teter KG6LWE. Also attending were new Director Sorin Constantinescu KN6YUH, President Emeritus Jim Thielemann K6SV, Connie Stillinger W6EFI, and Clark Martin KK6ISP. A quorum was present.

The meeting was called to order at 7:08 p.m.

Officer Reports

- President's Report (Bob):

- ♦ I have appointed Sorin Constantinescu KN6YUH to the open director seat. Welcome Sorin!
- ♦ Jim has been working with me to transfer club information, documents, accounts, etc. It may take a few meetings before I'm fully up to speed. We will work with Margaret to transfer bank account information in February after Jim is back from Quartzfest.
- ♦ I now have the sound system and Jim showed me how to set it up without the DSP unit. We'll use the same setup for the February meeting as we did for January.
- ♦ Thanks to Jim and all the directors who helped make January's meeting successful, even with a rookie QB running the show!

- Secretary's Report (Ric) — Membership renewals have been rolling in at a steady rate. Our club membership is 183; all but 64 of our members have renewed. Thanks!

PAARA members hold Technician licenses (18%), General (25%), Advanced (2%), and Amateur Extra (52%).

The secretary will work on submission of state non-profit registration, and changes to our club callsign trustees.

- Treasurer's Report (Margaret):

We rolled over the Wells Fargo CD to a new 3-month term. The board discussed moving to QuickBooks for our accounting. This will be discussed at later meetings.

- VP / Program Chair Report (Rob) — Our guest speaker for February will be Ben Eadie, VE6SX, joining us over Zoom. Ben has the YouTube channel "Ham Radio Rookie". He has created the "Fara-J" antenna for VHF.

- The March meeting (3/7) will be Homebrew Night. We'll rearrange the meeting somewhat to ensure that all projects get a few minutes to present.
- We will continue the famous PAARA raffle at our future meetings.

(Minutes — Continued on page 5)

(Minutes — Continued from page 4)

Upcoming Meeting Schedule

Club Meetings	Board Meetings
Friday Feb 7 th 2025	Wednesday Feb 19 th 2025
Friday Mar 7 th 2025	Wednesday Mar 19 th 2025
Friday Apr 4 th 2025	Wednesday Marc16 th 2025

Standing Items

- A reminder: PAARAGraphs always needs your articles! Member-written content makes our newsletter special. Thanks to KI6LDM for encouraging member submissions at the last meeting. If you have a story in your pocket, even a brief anecdote, please send it to our editor, K6SV!
- Education Committee:

February's question of the month: What is the difference between a Director and a Reflector? Can either be a driven element?
- Status of Radio loaner program: We still have one radio out on loan, our new ham still has no transmitting antenna.
- Property Tracking [Ric]

Ric has the ID stickers. He will create a google spreadsheet to track PAARA equipment; and we'll arrange to tag our gear.
- PAARAGraphs advertising: Invoices will be sent out to current advertisers for 2025 in the next few weeks. We will approach Micro Center to take out an ad. We can also contact Central Computers.
- 900 MHz repeater status report from Christopher AI6KG:

Allstar (ASL3) is up and handling all control/audio/telemetry for the W6OTX 33cm machine. The Allstar node number is 45121. The Quantar will take over if the Allstar controller refuses to key.
 - ◆ Re-coordination with NARCC is complete.
 - ◆ PAARA web site and PAARAGraphs are either updated or an update is in progress for the new frequency pair and PL.
 - ◆ Change has been submitted to Repeater Book.
 - ◆ Tree trimming was completed on 12/22. The

\$2900 invoice was paid on 1/6/2025.

- Web updates:
 - ◆ Bob is in the process of updating content related to the results of the election. Should be completed within a few weeks.
 - ◆ We had a discussion about modernization of the Web site design. Sorin KN6YUH will research this topic.
 - ◆ Past meeting presentation videos: Meeting videos have been posted through July 2024. KC6TYD and KN6YUH are troubleshooting some minor format issues; more recent meetings should be up soon.
- PAARA Field Trip 2025: We will explore a visit to the USS Hornet, in Alameda. A proposed date is August 16. Rob KC6TYD will move this forward.
- Raffle: We've held raffles at the December and January meetings, and they were very successful! The plan is to continue raffles at monthly club meetings.
- ARRL Field Day (June 28-29)
 - ◆ Doug KG6LWE will work this month in reserving Bedwell Bayfront Park for our activity. We have had no further communication from MP Emergency Services regarding a possible collaboration.
 - ◆ Marty K6NEV has offered to captain a 20m digital station, so we will be class 3A (plus GOTA station) this year. We discussed having a tent for the GOTA station, it may be more welcoming than a truck.
- PAARA in the Park:
 - ◆ Our next event is scheduled for 5/3/25. Darryl has the park permits in hand. We discussed possible educational activities for the April PAARA in the Park. We decided to have people construct a "Foxhole Radio" kit – a power-free AM receiver.

In September, we may set up a soldering exercise with kit building.

Old Business

- Mention free membership for new hams on our website:
 - ◆ Definition of "new ham" – received first license within the last 12 months.
 - ◆ This will be included in the updated president's letter to new members.

(Minutes — Continued on page 6)

(Minutes — Continued from page 5)

- Trustee Status:
 - ◆ Bob and Ric need to prepare the required forms to be submitted. Will target doing this prior to the February board meeting.
- The Electronic Flea Market starts on March 9 this year. PAARA will sponsor the June 8 EFM.
 The EFM is the second Sunday of each month from March through September, at West Valley College in Saratoga. We need to make plans, and solicit volunteers.
- 1.2 GHz repeaters: Christopher AI6KG and Mikko AB6RF will explore setting up an ATV repeater with some equipment provided by Joel KD6W.
- Communication from ham in Brazil who works with young scouts:
 Bob and Christopher will confer on sending a QSL card package.

New Business

- The DSP unit in the PAARA sound system has failed. After investigation, we decided to send the unit back for repair at an estimated cost less than \$600. K6SV has sent it in, but it will not be back before the February meeting.
- Any other new business?
 The board approved an expenditure of \$112.50 for new coaxial cables at the repeater site.
- PAARA Members: We are in need of some volunteers! In particular, we need an individual to manage the coffee service at the club meetings. Please contact Bob KN6YGN if you can help out.
- The meeting was adjourned at 9:23 pm.

Respectfully submitted

Ric Hulett N6AJS
 PAARA Secretary



January Raffle Winners

Left to Right

Dave, K6NIA
 Mark, AD1M (winner of the FT-4X)
 Doug, KO6FJ
 Ric, N6AJS
 Steve, WB6KIO

Palo Alto Amateur Radio Association, Inc.

PO Box 911 Menlo Park, CA 94026

Officers

President	Bob Ridenour, KN6YGN 650-575-4528 bob_ridenour@yahoo.com
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)	Sorin Constantinescu, KN6YUH, consta@gmail.com
Director ('25-'26)	Walt Gyger, K6WGY 408-921-5901 wgyger@ix.netcom.com
Director ('25)	Doug Teter, KG6LWE 650-743-7892 dteter@wcwi.com
Director ('25)	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 408-348-0304 ch@murgatroid.com
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.

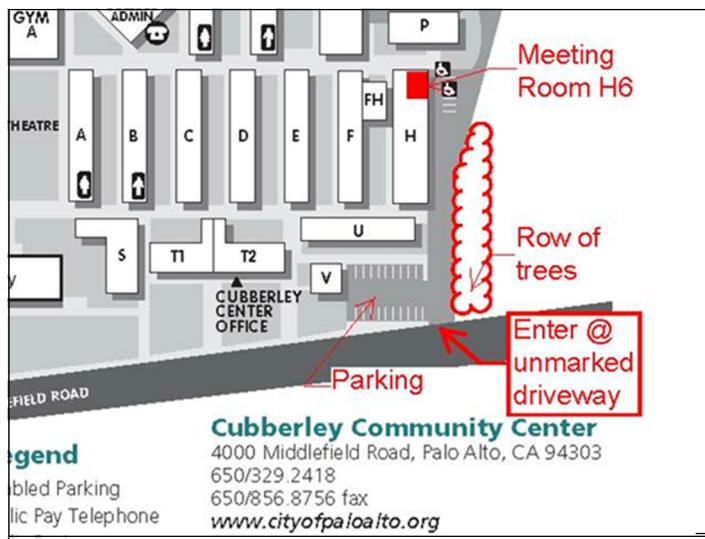
Website: <http://wvara.org>, Contact: info@wvara.org

(Please send changes to PAARAGraphs editor)

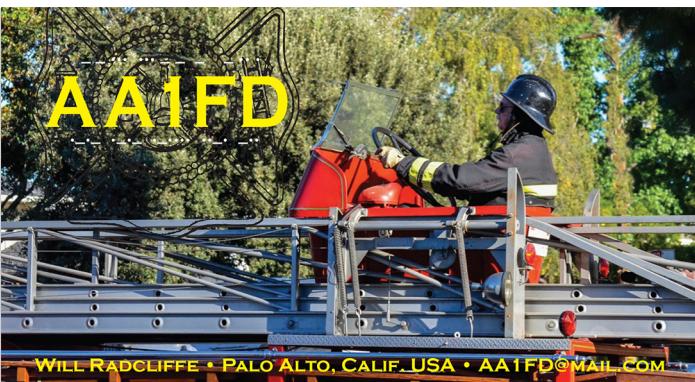
Discord Server

Do you want to talk to other PAARA members and friends about Homebrew, POTA, SOTA, digital modes, or any other ham radio topic? Download the App or use the Web version, then join our server by scanning the QR code, or visiting <https://discord.gg/qPyn5h8p6H>.

For any issues, please reach out to Sorin (KN6YUH) or Connie (W6EFI).



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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KJ6GUK General License, PAARA member

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

Email: KARLDRESDEN@juno.com

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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Many food choices available from the breakfast, lunch or dinner menus. Ample parking is available. Walk in & "bear" left for our location in the restaurant!

NOT A CLUB, CLOSED GROUP OR CLIQUE; AMATEUR RADIO OPERATORS AND FRIENDLY PEOPLE ARE ENCOURAGED TO ATTEND! Call in on the N6NFI Repeater, 145.230 MHz, PL® 100Hz

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Text: .doc, .rtf, or .txt
Photos: jpg, png or tiff
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PAARA W6OTX Repeaters
Located near Alum Rock Park, San Jose

VHF DMR	144.9625 MHz +2.5 MHz CC3	Slot 1: Dynamic Slot 2: NorCal BM (31068)
UHF DMR	444.475 MHz +5 MHz CC1	Slot 1: Dynamic Slot 2: NorCal BM (31068)
33cm FM AllstarLink Node 45121	927.075 MHz -25 MHz	PL 107.2 Hz

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PAARA Badges

Badges can be ordered through our website <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.**

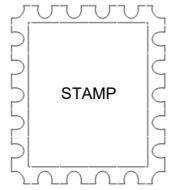
1. Not-for-profit ads by association members for ham-related items and wants. No cost for business card-size ads (additional space at \$2.50 per business card size per issue).
2. For Profit organizations and/or individuals: \$5-business card size, \$14.00-quarter page, \$25-half page, \$50 full page 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 — February 2025

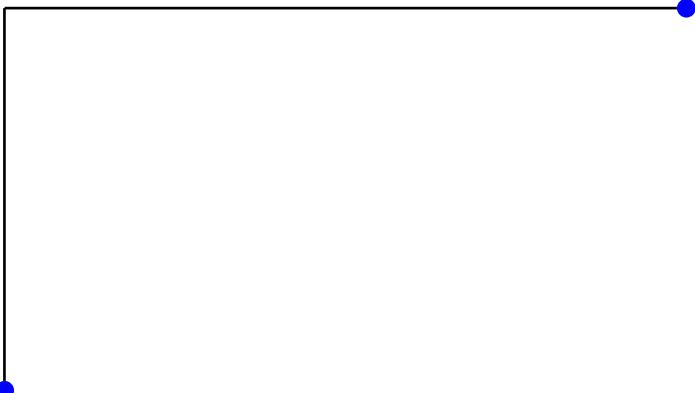
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Palo Alto Amateur Radio Association, Inc.
PAARGraphs Newsletter
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5
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- RETAIL LOCATIONS - Store hours 10:00AM - 5:30PM - Closed Sunday
- PHONE - Toll-free phone hours 8:30AM - 5:30PM
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- ONLINE - WWW.HAMRADIO.COM
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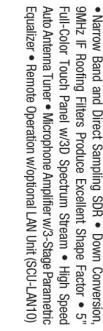
FTDX1010 | HF/VHF/UHF All Mode Transceiver

- 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)



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- 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 USA Capable • Internal Automatic Antenna Tuner • High Accuracy TX/RX



FTDX10 | HF/50MHz 100W SDR Transceiver

- Hybrid SDR Configuration • Incorporates 70 dB Max Attenuation VC-Tune • New Generation Scope Display 3DS • IBL (Active Band Indication) & MWD (Multi-Purpose VFO Outer Dial) • PC Remote Control Software to Expand the Operating Range • Includes External Power With Matching Front Speaker



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- Unmatched SDR Receiving Performance • Band-Pass Filterless Design • Located on the Amateur Bands • High Res 4.3-inch TFT Color Touch Display • AES3 Acoustic Enhanced Speaker System with SP-40 for High-Fidelity Audio • Built-in High-Speed Auto Antenna Tuner • Analog 1-105



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

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



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

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

