

PAARAgraphs



The Official Newsletter of the

Palo Alto Amateur Radio Association, Inc.

The Friendliest Club Around

Celebrating 86 years as an *active* amateur radio club—Since 1937<http://www.paara.org/>

All Bands From An HOA: The Broadband Butterfly Terminated Dipole

Corey Ruth, KD3CR

Most hams living under HOA restrictions struggle to put up decent antennas – especially for HF. Most options are complex, expensive, cover limited bands, have limited bandwidth, limited effectiveness, or some combination thereof. But there's another option that few people have heard of. It's simple, cheap to build, very flexible and extremely broadbanded, covering all the HF bands without a tuner: the Broadband Butterfly Terminated Dipole (BBTD).

From this presentation, you'll learn about two versions of the BBTD: one that fits stealthily in a small backyard and another that can be completely hidden in an attic. Discover how these antennas work, how to build one for yourself, how they perform on the air (spoiler: a lot better than you'd think!), and what perks and limitations you'll encounter. The BBTD can't defeat the laws of physics but might be just what you need to get on HF, making contacts!

Corey Ruth, KD3CR, is the president of the Queen Anne's Amateur Radio Club in Centreville, MD. His other affiliations include Queen Anne's County RACES, Potomac Valley Radio Club (which focuses on contesting) and the Los Alamos Amateur Radio Club. Corey got his tech license in 2016, upgraded to general in 2017 and to amateur extra in 2020. Living in an HOA-restricted townhouse, he has a keen interest in stealth antennas, believing that every ham – regardless of residence – should be able to experience the joy of working the HF bands.

This meeting will be a Hybrid Meeting Zoom and In Person

Time: February 3, 2023 07:00 PM Pacific Time
Please check <https://www.paara.org> for
Zoom Details

Upcoming Events

Feb 3***	PAARA General Meeting, 7:00 PM
Mar 3	*** Zoom & IRL Meeting
April 7	
Feb 15	Board Meeting, 7:00 PM.
Mar 15	Everyone welcome! Zoom Meeting,
April 19	eMail President for details!

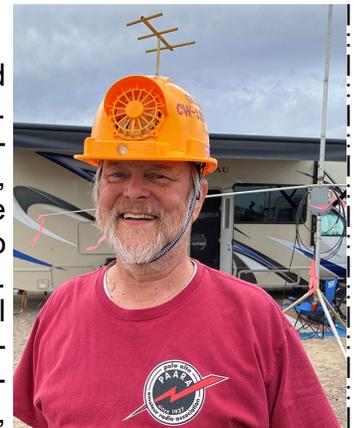
President's Corner

February 2023

By the time you read this, I'll be at Quartzfest. In fact, the event will almost be over. Hopefully, there will be a few more PAARA members who attended than I know of. Without a doubt, we'll have a great time camping in the desert, socializing, wheeling, learning, and using our portable HF stations.

As some know, I'll be heading to Johnson Valley for the King of the Hammers (KOH) off-road race. It's billed as the hardest off-road race in the world as it combines high-speed desert runs with off-road trails (think rock crawling) rated at 9 out of 10 for difficulty. The main event lasts a maximum of 14 hours with top finishers completing the course in about 8 hours. It will be my first time at the event. I've watched quite a few YouTube videos but I'm sure being there is a bit different.

I have been to lots of racing of various types over the years but decided to do something different

(President — Continued on page 5)

Remembering Vic

Vic Black, AB6SO was my friend for over 20 years. I had been living for the decade before that in Los Angeles and then I returned to the Bay Area to oversee the accounting and taxes for three brothers who had a successful business in Palo Alto. I rented a small apartment on the next street over from their office, on Grant Street. I had an Icom 751 and other ham gear, but no antenna at that location. My ham activity at that time mostly consisted of reading **QST** and going to a monthly flea market in the parking lot of a college, quite a long drive away in the East Bay.

One month there were some flyers handed out at that flea market about a QRP club that was now meeting in a restaurant a few miles west of the flea market. The flyer invited folks who were interested to drop by after the flea market, which is what I did. That club was the **Norcal QRP Club**, founded in May 1993, which became very successful, with a newsletter that was distributed all over the US and even beyond the US. They produced and sold very popular QRP kits designed by its members. The first few kits were designed by Wayne Burdick, N6KR, who later met Eric Swartz, WA6HHQ, and in 1998 they founded **Elecraft**, shipping their first 100 K2's in January 1999. A used K2 was my first QRP radio.

Getting connected with QRPers changed my life for the better. I got to know the founders of Norcal, as well as the many who were helping to design and produce their kits. It was a lot of fun to sit in on the discussion of these kits with other members at those meetings. One month I met Vic Black at a Norcal meeting. I told him I was living in Palo Alto, so he asked whether I

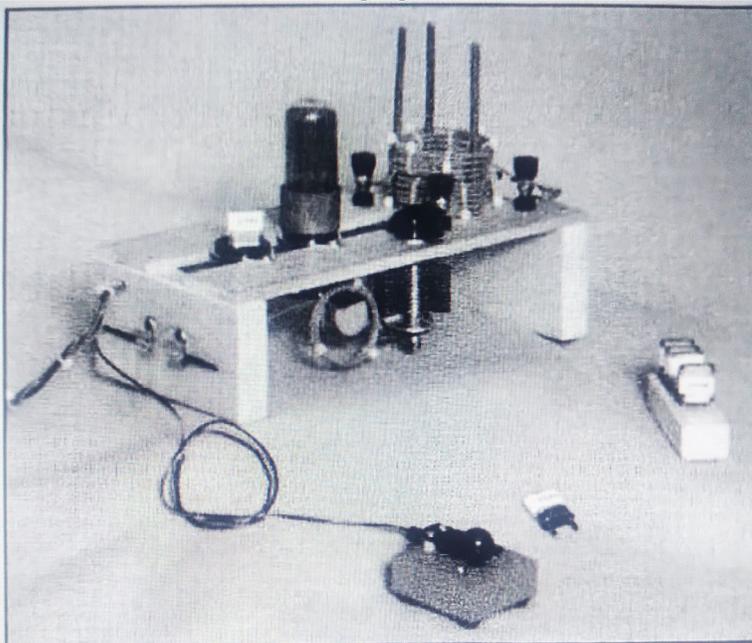
knew about PAARA. I did not, so he told me all about the club, about its monthly meetings and about their annual Field Day events. I had been a ham since 1960 in Decatur, IL but I had never attended a Field Day event in my life. Vic knew all about such things, as he had been a ham in the Bay Area since 1953.

During our discussion, Vic asked me whether I would like to join PAARA. I immediately

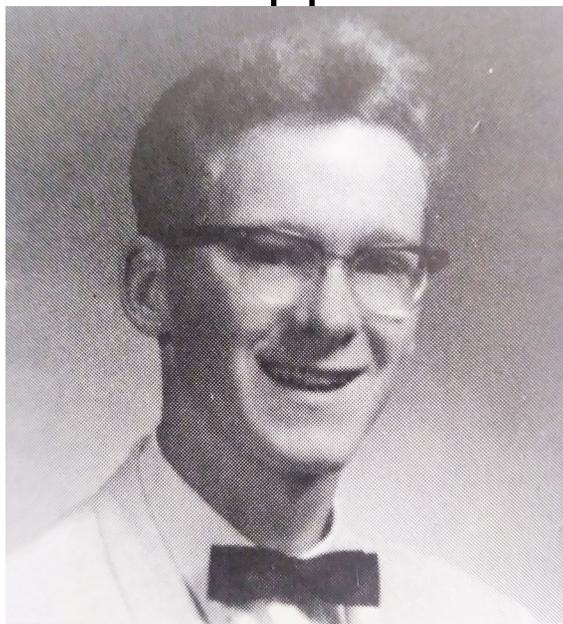
said, "Yes, I would!" Vic reached into his pocket and pulled out a receipt book. He told me how much the annual dues was, I gave him that much cash and he wrote me a receipt. "Okay, I'll see you at the next meeting!" This certainly came as a surprise to me! It blew my mind. He didn't suggest I show up at the next meeting with directions on where to go. No, he signed me up right then and there for the club and took my payment of annual dues. I drove home that afternoon as a member of PAARA, as happy as a clam and that certainly changed my life for the better too.

From 1995 to 1997, Vic held

(Vic — Continued on page 3)



Vic's First Radio that he built



50

Victor Black

Vic's Graduation Picture

(Vic — Continued from page 2)

the position of PAARA Secretary, Vice President and then President. He had started writing articles for the newsletter in 1995. In 1998 he did two regular columns, called **Web Wanderings** and **PAARA Ponderings**. In 1999 he was first listed in the newsletter as the Membership Officer. He held that appointed position every month from that time forward for the rest of his life. He would often man the information booth at Field Day. In 2002 Doug Teter first met Vic there, who told him about PAARA, gave him a newsletter and sometime later Doug made his first radio contact with Vic. There have likely been many others like that over the years.

Later when the **PAARA Editorial Board** was shown in the newsletter, Vic was always a member of that Board, as well as always shown

as the writer of **Technical Tips**. His contributions to PAARA were always considerable, ongoing and freely given. No one ever had to twist Vic's arm to get him to help.

I think he considered PAARA to be a worthwhile organization and he considered helping it to be a normal part of his life. Later I discovered that for years he would regularly search the FCC website to get a listing of people newly licensed in the Palo Alto area. He would then send these people a postcard and invite them to the next meeting. I was the PAARA Treasurer nearly two decades. For many of those years Vic would regularly pick up the PAARA mail at the post office and he would pay the annual fee for our post office box rental there.

He'd give me the receipt and I'd reimburse him for that expense. But he never once asked me to reimburse him for all those postcards that he sent out. They were just part of what he contributed to the growth of PAARA.



Vic Black

PAARA was simply a big part of his life. He loved PAARA and ham radio and considered it to be an important activity that he wanted to see continue. Getting new hams in the area to join was a good way to do that. He developed the whole idea of sending postcards entirely on his own. He didn't propose it at a Board meeting. He just started doing it and then kept it up on his own for years. No one ever had to ask him to do it. In fact, very few even knew he was doing it, except for those who received a postcard from him one day.

Someone (or several) in PAARA now will need to begin to wear

the hats that Vic so willingly wore. I find his life to be an inspiration to me. He was a very knowledgeable and well rounded ham, an Elmer to many, someone who always knew what was happening in ham radio in the Bay Area, and someone from my PAARA days who I will never forget.

Rest in peace, my friend! Don't worry, we'll take it from here.

Ron Chester
Now back in the Midwest, EM59mu

Special Event Instructions

W1AW/6

As a part of the [Year of the Volunteer celebration](#), the mystical callsign W1AW will be operating from all corners of land. ARRL members in each state/territory will be approved to operate their stations during two different weeks using the callsign W1AW/x where x is one of the local regions: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, KL, KH0, KH2, KH6, KH7, KH8, KP2, KP3, or KP4.

California's first week starts February 15, 2023, at 0000z and will run through February 21, 2023, at 2359z, using the callsign W1AW/6. Each state coordinator will approve time, band, and mode slots throughout the week and hams will be able to operate their stations using W1AW/x.

If you wish to be one of the official W1AW/6 authorized operators for California, you must first email the CA VOTA Coordinator: John Litz, NZ6Q at nz6q@arrl.org. You may also call John at 209-687-0774. Once approved, you may, subject to the following conditions, select any available one-hour operating time slot for the band and mode (SSB, CW, Digital) of your choice. Once selected, it's selected - NO CLAIM JUMPING !! Use an approved electronic logging program capable of creating an ADIF file. You will email your files to the coordinator.

All approved W1AW/6 operators are expected to observe all FCC regulations, including only operating on frequencies allocated to their license class and at permitted power levels. Violators, may, unless The Old Man is merciful, be Wouff-Honged!

By a toss of the 2023 Toys for Tots US Marine Corp coin, it was decided that **Northern CA would primarily sign-up to cover WEDNESDAY, FRIDAY, SUNDAY and Southern CA would primarily cover THURSDAY, SATURDAY, MONDAY.** Tuesday 2/21 is open for both North and South.

Minimum station requirements:

- 100W + yagi or hexbeam or better on 20-15-10M
- 100W (or more up to Legal Limit) + good vertical or dipole antenna on 80-40M

Be comfortable with the modes you select. If you work a lot of FT-8 or your station may be limited then sign-up on FT-8. If you like RTTY or digital do that. If you have a solid station on all bands then sign-up for bands/modes/times following the

guidelines below.

Portable W1AW Rules

- Each operator must follow the rules for their own license class. Stay in the sub-bands that you are legally allowed to operate.
- Operators can operate anywhere in the state. Please observe the above guidelines when choosing your time/mode slots.
- ARRL members that contact the Portable W1AW stations will receive 5 points in the VOTA event.
- Each band/mode combination can be activated simultaneously. For example, N6ACL could be working on 20M SSB, N5SML could be working on 20M FT8, NZ6Q could be working on 20 M CW, and K6WX could be on 40 M SSB, all at the same time.
- The state weekly assignments are shown in the W1AW/ Schedule area at <http://vota.arrl.org> State operations start at 0000z each Wednesday and stop at 2359z the following Tuesday.
- Operations are not allowed on the 12 M, 17 M, 30 M, 60 M, 630 M, or 2190 M bands.
- All logs for the week must be consolidated into one ADIF file and sent to the state coordinator to be uploaded to LoTW.
- When you sign up for a one-hour slot, you are also selecting a band and a mode. Signing up for CW on 20M is one slot, phone and digital modes are two other slots.
- One operator per band/mode at the same time. (i.e. two stations cannot be on 40CW or 20 SSB from CA at the same time)
- You may only use the band and mode you have selected, for the time period you requested. You may request multiple slots throughout the week. To allow for as many stations as possible to operate, please limit yourself to no more than 4 hours in a row on any band and mode. You are encouraged to select multiple modes (i.e... 2 hours on CW, 2 hours on SSB, 2 hours on RTTY on any band is a full day - and it gives others the chance to participate.
- Check back on the sign-up sheet often & during the event. If you're operating 20M

(W1AW/6 — Continued from page 4)

FT8 for two hours, but the next hour is open and you want to continue, then add your call into that 3rd hour and continue...

If you have any questions, please contact the California State Coordinator John Litz at nz6q@arrl.org or by phone 209-687-0774.

73,
John Litz, NZ6Q
ARRL San Joaquin Valley Section Manager

(President — Continued from page 1)

this time. I volunteered to work the race. The event relies heavily on volunteer radios to communicate around the course. One might ask how they “get away” with not having licensed hams provide that communication. Well, they use the business band (150~159 Mhz) so a license isn't required. What is required is a suitable radio as our VHF radios will listen but not transmit in that area. So, I now have an IC-F5021 radio. Not that I really wanted another radio, let alone one that I could only use on the business bands, but I did want to work the race. So..... you'll have to wait until next month to learn what the experience was like. On a side note, I want to thank Rob for running the February meeting as I'll be in Johnson Valley attending the KOH.

In case you've been hiding under a rock, I mentioned at the January meeting that a very good supporter of PAARA became an SK. Vic Black, AB6SO, passed away in December. He was instrumental in getting new hams to join PAARA for many years. He loved QRP, SOTA, and POTA. He will be sorely missed by those who knew him. I fondly remember listening to him play his recorder before PAARA meetings.

As I mentioned at the January meeting, the ARRL is sponsoring a new year-long contest this year, “Volunteers on the air”. Much like previous year-long contests, participants will make contact with as many W1AW/? Stations as possible throughout the year. More information can be found at <https://www.arrl.org/volunteers-on-the-air>.

A reminder, the April meeting will be our annual “Home Brew” night. I hope to see lots of interesting homebrew projects on display. There must be a wide array of interesting projects that have been created over the last couple of years that would be of interest to other members. Please plan on showing others your creations. Of note, it

will be an IN-PERSON-only meeting.

Speaking of in-person meetings, I know how convenient it is to join a general meeting via zoom. For some, it's the only way they can participate due to COVID concerns or geographical location. But, as occurred in January, we weren't able to have a raffle as there weren't enough people present in person to justify having a raffle. In order to have a raffle, we need enough people in the meeting room to at least come close to covering the cost of the items being raffled away. Please help support the club by attending meetings in person. Besides the raffle, you have the opportunity for an eyeball QSO with fellow members and refreshments you don't get by attending on zoom.

I look forward to seeing a room full of smiling faces at the January 6th meeting.

73, Jim K6SV

Get on the air to keep the airwaves alive!

Jan 2023 Board Meeting Minutes

This meeting was held online. Present were: President Jim Thielemann K6SV, Vice President Rob Fenn KC6TYD, Secretary Ric Hulett N6AJS, Directors Darryl Presley KI6LDM, Doug Teter KG6LWE, and Joel Wilhite KD6W. Also attending was Christopher Hoover AI6KG

The meeting was called to order at 7:10 pm. A quorum was present.

President's Report: — I hope that everybody had a great holiday. Thanks to Rob KC6TYD for agreeing to run the February PAARA meeting.

We want to maintain the excitement and interest for PAARA: Meeting in-person attendance has been down, partly due to the online option. We don't want to eliminate Zoom coverage, but would like to improve member engagement.

Some proposed goals for PAARA in 2023:

1. Have Field Day at Bedwell Park.
2. Energize the educational program.
3. Get the equipment loaner program off the ground.
4. Have another Ham Radio Day in the Park. Maybe even more than one.
5. Bring back field trips. We will check out the Hiller Aviation Museum for a field trip.

Secretary's Report: Membership renewals are

(Minutes — Continued on page 6)

(Minutes — Continued from page 5)

rolling in. There are about 65 members who have yet to renew for 2023. The February and March PAARAgaphs will have a note for those who have not renewed.

Treasurer's Report: —Our treasurer was not present, no report.

VP / Program Chair Report: — The speaker for the February club meeting is Corey Ruth, KD3CR. The topic is: "All Bands From An HOA: The Broadband Butterfly Terminated Dipole".

Thanks go to Connie KN2EFI for running the January Zoom interface.

Old Business:

Club members: Send your articles to the PAARAgaphs editor! We need more of your stories to keep PAARAgaphs interesting and unique. Write up your tales on any ham-related topic and send to K6SV.

Education Committee: Darryl will analyze for new licensees in the bay area, and we will e-mail invitations. We want to evaluate what new hams actually need.

Storage for N6NV: Gerry's stash has been handled for now, there are still some tower parts to be removed.

Our accountant has one form to fill out. We updated the raffle documentation with the state.

Radios for sale: The web page has been updated. Rob brought some items to the last club meeting and sold a couple.

900 MHz repeater status: Mikko and Christopher did not install a new computer at the repeater site, due to the weather.

The 900 MHz repeater is not being used very much. Christopher has some Kenwood 900MHz radios he can sell to club members who wish to access the repeater.

Los Altos antennas & towers takedown: We haven't visited the site due to weather. Doug will contact the owner and see if our help is still needed.

The International DX Convention IDXC is being held in Visalia April 21 to 23. This is an interesting meeting: Club members should consider attending.

We need to check all the references and links to other clubs on the contact page in PAARAgaphs. N6AJS will work on this.

Home Brew night is scheduled for April, and it

may be an in-person only meeting. Members should bring their projects to show off. The board voted to provide prizes for the best projects.

Field Day: Doug will reach out this week to work on obtaining permits for Bedwell Bayfront Park. We probably will not be class 4A in 2023. (If you are interested in being a station captain, contact KG6LWE).

New Business:

We were given a brand new Yaesu FT891 mobile transceiver and ATAS-120 tuner by Vic Black AB6SO (SK). The board agreed to set an attractive price and offer this package for sale, first to club members.

Members: Let's make sure we wear our PAARA badges on during meetings. It helps new people when they drop into meetings. Ric will generate some blank badge stickers for guests, etc.

Joel suggested that we check out HamClubOnline.com for membership administration.

The meeting was adjourned at 8:50 pm

Respectfully submitted

Ric Hulett N6AJS
 PAARA Secretary

PAARA



1st



Nano VNA-H4 with touch screen

2nd



Nitecore NB 10000 GEN 2 Power Bank

3rd



EDCFANS Utility Knife

4th



Dual Band Signal Stick Antenna

5th



RoadPro RPSP-15 5 Watt Speaker

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
	energyconserved@sbcglobal.net	
Treasurer	Bob Korte, kd6kyt	650-522-0110
	bob@rgktechsales.com	

Directors

Director ('21-'22)	Joel Wilhite, KD6W	408-839-5948
	kd6w@arrl.net	
Director ('22-'23)	Walt Gyger, k6WGY	408-921-5901
	walt@tradewindsaviation.com	
Director ('22).....	Doug Teter, KG6LWE	650-743-7892
	dteter@wawi.com	
Director ('22).....	Darryl Presley, K16LDM	650 255-2454
	k16ldm@arrl.net	

Appointed Positions

Membership.....	<i>Position Vacant</i>	
Database	Ric Hulett, N6AJS	408-332-4593
	energyconserved@sbcglobal.net	
Chaplain	Rick Melrose K6RDM	408-341-9070
	K6RDM@yahoo.com	
Public Affairs	<i>Position Vacant</i>	
Station Trustee W6OTX, W6ARA...Gerry Tucker, N6NV		
Station Trustee K6YQT.. Doug Teter, KG6LWE	650-743-7892	
Station Trustee K6OTA... Ron Chester, W6AZ		
Property Manager	Gerry Tucker, N6NV	
Badge Coordinator	Doug Teter, KG6LWE	650-743-7892
	dteter@wawi.com	
Historian Position	<i>Position Vacant</i>	
Raffle Coordinators	Rob Fenn, KC6TYD,	rtyd@aol.com
	Shrikumar, KA6Q	
	shri.paara@enablers.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, A16KG	408-348-0304
	ch@murgatroid.com	
QSL Manager	Marty Wayne, W6NEV	408-234-8023
Speaker Coordinator	Rob Fenn, kc6tyd	650-888-9060

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	walt@tradewindsaviation.com	
Member Profiles	<i>Position Vacant</i>	
Technical Tips	<i>Position Vacant</i>	
Photographer.....	<i>Position Vacant</i>	

VE Exams

Redwood City Main Library, Community Conference Room, 4th Saturday 10:30 am each month and 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> or Contact Al, WB6IMX@att.net

Electronics Flea Market

Sponsorship by **A.S.V.A.R.O.** — Association of Silicon Valley Amateur Radio Organizations
 Second Saturday of month, March-September, 6am-12 noon
 Contact: <http://www.electronicfleamarket.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 our website at <http://www.paara.org> for more information or contact: Joel Wilhite KD6W, KD6W@ARRL.NET, 650-325-8239

FARS — Foothills Amateur Radio Society

Meets 4th Friday each month at 7:30pm
 Contact: <http://www.fars.k6ya.org>

NCDXC — Northern California DX Club

Meets 3rd Thursday 7:30pm each month,
 Repeater for member info 147.360, Thursday 8:00PM
 Contact: <http://ncdxc.org> or Mike Gavin W6WZ, (650) 851 8699

50 MHz & Up Group

Meets 1st Thursday each month at 7pm in the Summit Room at the Sunnyvale Sports Basement, 1177 Kern Ave, Sunnyvale
 Contact: <http://50MhzandUp.org>

San Mateo Radio Club W6UQ.ORG

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

SPECS

Southern Peninsula Emergency Communication System

Meets each Monday 8:00pm on Net 145.27, 440.80 MHz
 Contact: <http://specsnet.org> or Tom Cascone, KF6LWZ, 650-688-0441

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+)
 contact: <http://www.svecs.net> or Lou Stierer WA6QYS 408 241 7999

TEARS — The Elmer Amateur Radio Society

Dedicated to operational training, knowledge building & FCC exam testing.
 KV6R repeater under construction.
 Contact: AA6T@ARRL.NET
 Most members are Extra Class or VE's. See QRZ dot com/kv6r for class info

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.
 Contact: <http://wvara.org>, Bill Ashby N6FFC, 408-267-3118, president@wvara.org

**American Red Cross,
 Santa Clara Valley Chapter**

Contact: <http://santaclaravalley.redcross.org> or Scott Hensley KB6UOO, (408) 967 7924 shensley@Novell.com

(Please send changes to PAARAgaphs editor)



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.

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

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KARL DRESDEN, R.E.# DRE 00525686

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 PAARAgaphs
 \$6 for each additional family member (no newsletter).

Make payment to the
 Palo Alto Amateur Radio Association,
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Information
 www.tradewindsaviation.com

Opening hours
 Monday-Friday: 8 AM – 7 PM; Saturday-Sunday: 8 AM – 6 PM



ARV'S, WA6UUT (SK)
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 - Since May 2, 2007 -
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 Avenue on El Camino Real)
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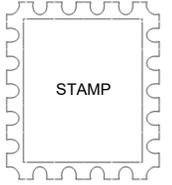
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PAARAgaphs — February 2023

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

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FTDX101D | HF + 6M Transceiver

- Narrow Band SDR & Direct Sampling SDR • Crystal Routing 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



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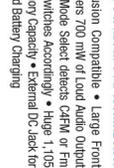
FT-818ND | HF/6M/2M/440 All Mode Portable Xcvr

- Ultra-Compact/Portable • Multi-Color Easy to See LCD • 208 Memory Channels/10 Memory Groups • Built-in Electronic Keyer • Internal Battery Operation Capability • Two Antenna Connectors • Built-in High Stability Oscillator $\pm 0.5\text{ ppm}$



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