

PAARAgraphs



The Official Newsletter of the

Palo Alto Amateur Radio Association, Inc.
Celebrating 85 years as an *active* amateur radio club—*Since 1937*



Caldor Fire Animal Evacuations: Western El Dorado County

Cindy Bertsch, KG6IMU

Learn about animal evacuations as one part of a large wildfire response effort and what operating in a disaster environment looks like. Even if you never volunteer in a disaster area, the lessons learned are applicable for your personal preparedness. The talk will also highlight how amateur radio is a useful tool for people to help their community even if radio operators are not part of an emergency communication group.

Cindy works as a professional civil engineer designing water and wastewater infrastructure. In her free time she volunteers in all aspects of emergency preparedness and response with the American Red Cross, San Mateo Consolidated Fire Department Community Emergency Response Team, Peninsula Humane Society Emergency Response Team, San Mateo County Large Animal Evacuation Group, and South County ARES.

**This meeting will be a
Hybrid Meeting
Zoom and In Person**

Time: June 3, 2022 07:00 PM Pacific Time
Please check <https://www.paara.org> for
Zoom Details

Upcoming Events

June 3***	PAARA General Meeting, 7:00 PM
July 1	In-Person and Zoom Meeting
Aug 5	*** Zoom & IRL Meeting
June 15	Board Meeting, 7:00 PM.
July 20	Everyone welcome! Zoom Meeting,
Aug 17	eMail President for details!
Cancelled	Electronic Flea Market



President's Corner

June 2022

Welcome to Summer! Now that we've moved past Memorial Day most of us call it the start of "summer", even though not officially summer until June 21st at 5:14 A.M. EST. It's also the longest day of the year, at least as far as daylight is concerned. Do



you have any plans for the summer months? Are the high prices of gas going to alter those plans? Are you taking a radio with you on your travels?

As for myself, for those who don't know, I purchased a 2022 Ford Bronco last month. As part of the purchase, Ford hosts a one-day off-roading class, affectionately called "Bronco Off-Road". My son, KJ6LAY, and I will be attending the class offered in Las Vegas, NV toward the end of June; yes, it may end up conflicting

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A Shocking Experience

by Rich Stiebel, W6APZ

Having published my experiences at Knight-Kit Electronics in the April CQ Magazine, I received a number of emails relating to Knight. One in particular asked about the Knight-Kit T-400 Transmitter which appeared in the Allied catalog in 1960.

That brought back memories. RCA came to Knight with an "experimental" tube that would do all the things advertised; i.e. it would put out more power, was more stable, but cost less. It was the latest and greatest tube for

ham radio. Knight used that tube to design T-400 transmitter. The kit was almost ready when RCA announced that they were NOT going into production with this wonderful tube.

That's when I got added to the design team which involved using the tried-and-true 4X150A tube. I was using a Millen grid-dip meter to



Fig. 2 — Millen Grid Dip Meter

check for any undesired radiation from the tank circuit. The combination of plug-in coils and the built-in variable capacitor allowed me to check all frequencies from 1.7 MHz to 300 MHz.

This meter was being used as an absorption-wavemeter, meaning the needle would read up-scale when an RF signal was being detected. Being winter in Chicago, I was wearing a long-sleeved shirt. I had the meter in my left hand

with my arm resting on the thick front panel of the transmitter. The coil of the Millen was close to the transmitter's tank circuit. I did not realize that the plate ammeter (upper right in the T-400 picture) was close to the tank circuit. As I was



Years-ahead knight-kit amateur gear
T-400 AMATEUR 400-Watt Transmitter Kit

\$395.00 400-Watt CW Transmitter

Truly the "dream" transmitter — has what it takes to punch out a QRM-busing SSB, AM or CW signal, 600 watts P.E.P. input on SSB; 400 watts on AM and CW. Covers 80, 40, 20, 10 and 15 or 6 meter bands. Start with the basic CW kit — then add AM and SSB accessory units and other "add-ins" whenever you wish. Has heterodyne VFO to assure a signal which "stays put."

carefully tuning the bands looking for spurious or harmonics, the metal case of the grid-dip meter momentarily touched the back of the plate ammeter. The 4X150A tube used several thousand volts on the plate, which momentarily appeared on the case of this meter that I was holding.

Instantaneously, I remember seeing the Millen fly up in the air. The next thing I knew I was on the floor

across the room, about 6 feet from the workbench, with my back against the wall trying to figure out what happened. That was the shock of my life! I was lucky that the current went from the back of the plate ammeter to the Millen's metal case, through my arm to the grounded metal front transmitter panel. The shock, while great, did not go through my heart.

Someone picked me up and got me to Urgent Care, where they treated the burn on my arm and wrapped my arm with a thick layer of gauze. By that time, I was ambulatory so they sent me home.

My wife was a 4th-grade teacher at that time. Normally she would get home about 4 PM, have some time to do school work and then prepare dinner for when I would arrive home around 6 PM. Imagine her surprise when she opened the apartment door and saw me calmly sitting on the couch reading. Then she did a double-take when she saw my bandaged arm. After a few explanations, she calmed down and all was well.

The next morning I was feeling fine, so I went to work as usual.

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It was common to put the plate milliamp meter in series with the transmitter's high voltage so that when tuning up the transmitter, one would tune the plate circuit for a dip in the meter reading and then tune the output (antenna) for maximum plate current, repeating this process until maximum output power was reached.

I consulted with the head engineer on the T-400 project. I reasoned that the same current that flowed through the plate of the tube flowed out the cathode. If we were to move the plate ammeter to the cathode of this tube, there would be only a few volts on the meter's terminals. No kit builder would ever get a shock as I had.

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with Field Day. We're both looking forward to the class and doing some wheeling in the area. It will be a new experience for us both. At this point, I'm not sure what the rest of the summer has in store for our family.

If you didn't attend the last club meeting, I mentioned that on April 23rd, several antenna crew members converged on the Oakland home of Jim Tiemstra, K6JAT, to remove his antenna and tower. For those who don't know, Jim was the ARRL Pacific Division Director at the time he became an SK. Participants, in no particular order, included; Gary, K16HIG, Rebar, N6DB, Darryl, K16LDM, Mikko, AB6RF, Clark, KK6ISP, Christopher, A16KG, Doug, KG6LWE, and myself. I received the following note from Eliza, Jim's wife, that read:

"Please convey my sincerest gratitude to the tower take-down team. You and your team are/were awesome and I am so thankful and honored. Like the little bluebirds (that enjoyed resting on the antenna) I am sad to see it go, but go it must and this could not have helped without you, your Bronco, and the team. The memory of Saturday's workday will live with me for the rest of my days. I know Jim would be happy to know that I have been so well cared for by the HAM family. I hope our paths will cross again, maybe at Pacificon 2022. If you know anyone who knows how to install a mobile rig in a Nissan Leaf, please let me know. Eliza, KE6EHD"

Please join me in congratulating the crew's efforts and Doug for coordinating the effort! Please let Doug, KG6LWE know if you'd like to be part of the next effort. This is a wonderful service PAARA members provide to the Amateur Radio community and a wonderful opportunity to learn about antennas, towers, and the like. Additionally, if you can assist Eliza by installing a radio in her Leaf, either reach out to her or let me know and I'll get you in touch with her.

As you'll read in the Board Minutes, the Field Day response was rather thin. Less than 1/4 of the membership responded to the poll we sent out requesting input from the members on their desire to hold Field Day. Of those who responded, an even smaller number indicated a desire to participate in the event. The board felt that as the City of Menlo Park seems to be avoiding giving us a permit for use of Bidwell Bayfront Park, and the number of members wishing to participate wasn't large enough to put on an event even if we operated 2A, we will look at an alternative event.

The event being considered is more like a gathering with radio operations being of a portable nature and only lasting through the daylight hours of Saturday, June 25th. That means, no towers or big antennas, U-Haul trucks, or anything like what we've done in the past. For those that remember Amtech Day, it would be reminiscent of that type of event without a presenter. Stay tuned for information as we are still trying to put it together and get a permit, if needed, for using the space in a Palo Alto Park. Also remember, if you decide to work Field Day from anywhere please indicate that you're a member of the Palo Alto Amateur Radio Association so the club can gain points. You still get credit for your operation but the club also benefits.

During the May club meeting, I mentioned that we had several members step up to cover needed functions within the club. John Miller, K6MM, has been our webmaster for the last 12 years. He's done an admirable job of maintaining our site and keeping it current. Please join me in thanking him for his outstanding commit-

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ment to the PAARA.org site! Shri, KA6Q volunteered to take over as webmaster. Shri is in the process of understanding how the site is built so he can pick up where John left off. Please join me in thanking Shri for stepping up to the challenge!

As mentioned last month, Joel, KD6W, is moving to Arizona this summer. He has been the main person to bring the electronic part of the repeater online and maintain it over the last 6 years. He also took on providing the zoom interface during in-person club meetings for those who wish to attend via zoom. Please join me in congratulating him for all his efforts in these two important roles as well as all the other things he's done for the club over the years including being a past President and being a Director for several years.

The good news is Mikko, AB6RF, and Christopher, AI6KG, volunteered to take care of the

repeater! In the weeks ahead, they will be getting a download of the installation from Joel as well as a site visit to see the installation. Please join me in thanking both Mikko and Christopher for taking on this important role.

We've yet to find someone or more than one, who is interested in providing the zoom interface at every meeting. This includes setting up the video equipment and participating in its operation as well as packing it back up at the end of the meeting. The club has yet to procure the video equipment, as the equipment Joel was using is his own. We're in the process of getting the equipment. We think we have a volunteer to cover this position but we could use a 2nd to share the meeting coverage. Please contact Joel, KD6W, or myself if you have any questions or wish to volunteer.

73, Jim K6SV

Get on the air to keep the airwaves alive!

May 2022 Board Meeting Minutes

Present were President Jim Thielemann K6SV, Vice President Rob Fenn KC6TYD, Secretary Ric Hulett N6AJS, board members Darryl Presley K16LDM, Joel Wilhite KD6W, Doug Teter KG6LWE. A quorum was present. Also attending were Mikko Sannalen AB6RF and Shri Hariharasubrahmanian KA6Q.

The meeting was called to order at 7:12 pm

President's Report: Joel KD6W has been managing the Zoom portion of our club meetings. Joel is relocating to W7-land. At this time, we do not have a person to manage the Zoom links at the club meetings. The club needs one or more members to volunteer for this important job. In recent months, half of our attendance has been online.

Secretary's Report: We continue to gain new club members, and we see a few members rejoining: This month, we welcome Alexander Kreis N6WDY as a new member, and we welcome back Orval Chadsey N6OZI, and Rod Broyles KF6EDJ.

Treasurer's Report: Bob Korte, our treasurer, was not in attendance. No treasurers report for this meeting.

VP / Program Chair Report: Our June presenter is Cindy Bertsch, KG6IMU. Her subject will be "Caldor Fire Animal Evacuations: Western El Dorado County".

Old Business

Once again, our hopper of stories for PAARAgaphs is

nearly empty. Let's put some articles (even short ones!) in the editor's hands, to keep our newsletter special. If you have an interesting ham experience, write it down, and send to Jim K6SV.

Education Committee, Rob: We have a schedule and agenda, and templates for Powerpoint. We need to enlist some more presenters. Rob will pen an article for PAARAgaphs outlining our plans and needs to date.

PAARA Finances: Sheila Foley our accountant has the books up to date.

PAARA radio sales update: We have sold several items from the club inventory: The Flexradio and some boat anchors went as a lot, and we sold the FT-60 handheld, 4 mag-mount antennas, the flame-proof key, and the VNA analyzer. Check the "For Sale" tab in the PAARA website for items still available.

Joel KD6W has some gear surplus to his needs, and would like to list them on the PAARA website.

A motion was raised to allow PAARA members to post for-sale want ads on the website, through a members-only portal. The club will retain 5% of the sale price. The motion was seconded and approved. Shri, our new webmaster is investigating the exact process we'll use for members to post equipment for sale. Stay tuned for more information.

Field Day Interest Survey:

The board sent a Field Day interest survey to the membership: Out of 153 members, we had a total of

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32 responses.

- 17 (53%) respondents plan to operate FD in 2022
- 15 (47%) are not sure, or don't plan to operate.

We asked about interest in a Bedwell Park operation as in past years, but as class 2A. Again, 53% of the responses were "Yes" or "Maybe".

Only 8 members indicated a willingness to help out on one or more antenna work days. These work days are critical in prep for FD. 9 members would help to set up the Bedwell operating site, 7 would help with teardown and cleanup. (Folks who will help at both ends are counted double).

11 members are interested in "operator time", with 6 wanting four or more hours.

Field Day 2022 Plans:

The board discussed our FD plans at length. We have made no progress towards a permit for Bedwell Park. The consensus was that it is too late to plan and execute a full-weekend operation with towers, etc.

One proposal is to set up a one-day portable operation (with minimal or wire antennas) at Palo Alto Mitchell Park. We would operate from 8 am until sunset, then break down. Rob will check with the city on permits, and generator operation. This would include a barbecue.

June Meeting: The June PAARA meeting will be mixed mode In-person / Zoom combined. Mikko will provide coffee, and individually wrapped cookies, if he can find them. PAARA needs a volunteer to setup, run, and pack up the video equipment for the July meeting or we'll not be able to include zoom with the general meeting.

New Business

Raffles: We discussed some ideas for new raffle prizes: Bongo Ties and small parts boxes were suggestions. If you would like to see an item as a raffle prize, please let Rob KC6TYD know.

Website: Shri KA6Q has met with John Miller to complete handoff of the website.

PAARA 900 MHz Repeater Status: Joel is handing the repeaters over to Christopher AI6KG and Mikko AB6RF. They will meet in the next week to review the procedures. The board thanks Christopher and Mikko for taking on these jobs!

Note that we will need to replace the obsolete control computer soon.

The meeting was adjourned at 8:52 pm.


Respectfully submitted,
 Ric Hulett N6AJS




Winners, Left to Right
 1st Darryl KI6LDM — Yaesu FT-65
 2nd Mike K6WP — \$50 Gift Card
 4th Mike K6WP — DC Buck Converter Kit
 3rd Steve Wb6KIO — PD-8 Anderson Power Pole Distribution Block

June Raffle Prizes


1st Place **PackTenna 9:1 UNUN Random Wire Antenna**




2nd Place **RF Adaptor kit**



3rd Place **Compact First Aid Kit**



4th Place **Pocket Note Book**



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	
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	energyconserved@sbcglobal.net	
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	bob@rgktechsales.com	

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	kd6w@arrl.net	
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	walt@tradewindsaviation.com	
Director ('21).....	Doug Teter, KG6LWE	650-743-7892
	dteter@wci.com	
Director ('21).....	Darryl Presley, KI6LDM	650 255-2454
	ki6ldm@arrl.net	

Appointed Positions

Membership.....	Vic Black, AB6SO	650-366 0636
	ab6so@smrn.com	
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@wci.com	
Historian Position	<i>Position Vacant</i>	
Raffle Coordinators	Rob Fenn, kc6TYD,	rtyd@aol.com
	Shrikumar, KA6Q	
	shri.paara@enablery.org	
Field Day Coordinator ...	Doug Teter, kg6lwe	650-743-7892
ASVARO Rep.....	Clark Martin, KK6ISP	
	kk6isp@comcast.net	
Webmaster	John Miller K6MM	
	webaron@gmail.com	
Technical Coordinator ...	Joel Wilhite, KD6W	408-839-5948
	kd6w@arrl.net	
QSL Manager	Marty Wayne, W6NEV	408-234-8023
Speaker Coordinator	Rob Fenn, kc6tyd	650-888-9060

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Technical Tips	Vic Black, AB6SO	650-366 0636
	ab6so@smrn.com	
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, [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)

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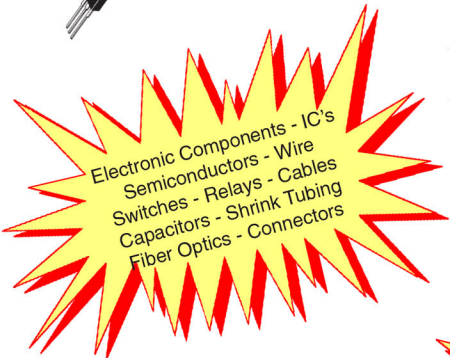
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This Ad space is available

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	Joel - KD6W
2 nd	Vacant
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.

Cubberley Community Center
 4000 Middlefield Road, Palo Alto, CA 94303
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 650/856.8756 fax
 www.cityofpaloalto.org

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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
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 Call in on the N6NFI Repeater, 145.230 MHz, PL® 100Hz

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PAARA Badges

In the absence of in person meetings, you can still order a badge from the Club's website, PAARA.org. Go to the bottom of the membership page to order. Badges will be mailed to purchasers, at an additional cost of \$4.95 until we can meet face to face again.

PAARAgaphs Ad Rates

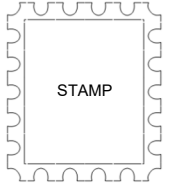
PAARAgaphs accepts paid advertisements from non-members. (short personal ads remain free for members in good standing). All ad rates listed are per issue.

- 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).
- 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 PAARAgaphs 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.

PAARAgaphs — June 2022

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 PAARAgaphs Newsletter
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FTDX101MP | 200W HF/50MHz Transceiver

- Hybrid SSB Configuration • Unparalleled 70 dB Max. Attenuation VC-Tune • New Generation Scope Display 30SSS • ABL (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 Filtering Filters Produce Excellent Shape Factor • 5-Full-Color Touch Panel w/30 Spectrum Stream • High Speed Auto Antenna Tuner • Microphone Amplifier w/2-Stage Parametric Equalizer • Remote Operation w/optional LAN Unit (SD-LAN10)



FT-9911A | 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 Tracking 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 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



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

- Rugged construction in an ultra compact body • Stable 100 Watt Output with Efficient Dual Internal Fans • 32-Bit IF DSP Provides Effective and Optimized QRM Rejection • 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 Ballistic Output Power • Real Dual Band Operation (V-X, U-H, V-L, U-H) • 2-inch High-Res Full Color TFT Display • Band Scope • Built-in Bluetooth • WIRES-X Portable Digital Noise Filter Mode with RH-200



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

- Massive heatsink guarantees 80 watts of solid RF power • Loud 3 watts of audio output for noisy environments • Large 6 digit backlit LCD display for excellent visibility • 200 memory channels for serious users



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 Keyp • Internal Battery Operation Capability • Two Antenna Connectors • Built-in High Stability Oscillator $\pm 0.5\text{ ppm}$



FTM-4000XD | 2M/440 Mobile

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



FT-70DR | C4FM/FM 144.430MHz Xcvr

- System Fusion Compatible • Large Front Speaker delivers 700 mW of loud audio output • Automatic Mode Select detects C4FM or Fm Audio and Switches Accordingly • Huge 1.05 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-Francis-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 Charge 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 • Mounted in Multiple Positions • Supports Optional Bluetooth® Wireless Operation Using the SSM-BT10 or a Commercially Available Bluetooth® Headset



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 • PHONE - Toll-free phone hours 9:30AM - 5:30PM
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 • FAX - All store locations
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