

# 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/>

## Bay Area Mesh Network for Emergency Communication

**Rachel Kinoshita, KK6DAC**

Come learn about the Bay Area Mesh (BAM), a volunteer-led project to build a resilient high-speed wireless network throughout the San Francisco Bay Area for use during disasters and emergencies. The talk will include a demonstration of the mesh network, and information about how you can get involved.

Rachel Kinoshita, KK6DAC, moved from Oregon to the San Francisco Bay Area in 1989 to work for a start-up email software company and has spent most of her career working in the messaging industry.

She now spends her time fighting spam, malware, and phishing attacks. Rachel considers herself still a newbie to ham radio, having only gotten her license in early 2013. Although like many things, Rachel jumped in with both feet and soon got her general license, an HF rig and starting exploring the world in the low bands. At the same time, she found herself working with her local Community Emergency Response Team (CERT) to help develop and shape their communications plans and policies. She also found her way to the South County ARES (SCARES) organization where she developed an interest in emergency communications.

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

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

## Upcoming Events

Nov 3*** Dec 1 Jan 5	PAARA General Meeting, 7:00 PM *** Zoom and In Person Meeting
Nov 15 Dec 20 Jan 17	Board Meeting, 7:00 PM. Everyone welcome! Zoom Meeting, eMail President for details!



## President's Corner

November 2023

PAARA in the Park, held on September 30th, goes into the books as a very successful event. With 29 PAARA members, 16 guests, and 4 members of other clubs totaling 49 who signed the log. All told, we had a lot of people enjoying the



nice weather. Amongst the attendees were several new hams along with a half dozen youth who learned about the hobby. Darryl, KI6LDM, had 14 eager 2M Yagi antenna builders of all ages making antennas that in turn were used by them to find the two foxes hidden in the park. Ahead of the event, Margaret, W6WEK, Doug, KG6LWE, and Ric, N6AJS, assisted by cutting all the tape measures and dipping the ends so we wouldn't have any accidents due to sharp edges. Doug did a masterful job of soldering the coax leads to everyone's antennas. Brian Tanner, AG6GX, from CARES, assisted Darryl in providing construction and FOX hunting over-

*(Pres — Continued on page 3)*

### Trip Report: Courage Classic Bike Ride Ric Hulett, N6AJS

Each year, the Children's Hospital Denver Foundation sponsors a two-day bike ride in the Colorado mountains. The start and finish are at the Copper Mountain resort. Over a thousand bicyclists ride one of three routes including Tennessee pass, Vail Pass, and Loveland pass.

This year, over \$3 million was pledged to support Children's Hospital in Denver.

The ride covers back country, well outside of cell phone coverage. Ham radio operators provide critical communications support for the riders and the tour organizers. (Colorado Highway Patrol requires the ride to have communications coverage over the entire ride.)

This year, for the fourth time, I traveled to Colorado in July to ride with a SAG wagon (Support And Gear) along the ride.

#### Ham support:

We had ham stations at each of the rest stops, and on each of seven SAG wagons. Skyler Fennell, W0SKY, placed internet-linked 440 MHz repeaters on the mountain tops, providing full coverage over the ride. (see his video at Summit Signals - Conquering a Rocky Mountain Bike Race with Ham Radio):



Summit Signals - Conquering a Rocky Mountain Bike Race with Ham Radio

<https://www.youtube.com/watch?v=NdsY-OlrMKA>

The SAG radios were all equipped with

APRS so that "Big Boss" Christian Norris W0DCN knew the status of the crews.

APRS is a digital communications protocol to provide GPS location and short messages using the 2-meter frequency 144.390 MHz. Transmissions from APRS stations are repeated by other stations in the local area, allowing good coverage.

APRS.fi is a web page that shows any stations received by an internet-linked node, so I was able to plot my travel route after the ride. One of the Colorado Highway Patrol motorcycles was also equipped with an APRS beacon.

My FTM-100DR doesn't have an easy way to edit text messages, so it wasn't perfect for the task. I am planning a gear upgrade for next year, using a Terminal Node Controller (TNC) to link an APRS transceiver to my cell phone via bluetooth.

#### The Ride:

On Friday night, we assembled the SAG drivers and hams in the parking lot to assemble and test the mobile radios. This all went well, except for the one Ford van that wouldn't start. It turns out that the newer models don't have the battery in an obvious location under the hood, which led to confusion about jumper cable placement. By Saturday morning, we had a replacement van, and working ham gear. (I am pleased to report that this did not happen to me.)

With that job done, we retired for dinner and a final briefing meeting.

**Saturday morning**, the first riders were on the course by 6:00 am. Before that, we ferried a group of runners up to the Colorado Trail for their cross-country run. For the rest of Saturday until mid-afternoon, we drove the Colorado mountain roads: Leadville, Vail, Dillon, and Copper Moun-

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(Pres — Continued from page 1)

sight along with the second FOX. The event would not be 100% fun without the masterful BBQ grilling of Rob, KC6TYD, who provided all the food and drinks along with cooking hamburgers & hot dogs!

Doug and Darryl also provided HF antennas along with HF radios which attendees used to make contacts, understand how to operate an HF radio, or just watch, ask questions, and learn. Three long-distance contacts were made, one to Africa and two to South America. For two new operators, these were the first DX contacts ever made. They both had big smiling faces as did the group of antenna-building fox hunters. As both PAARA in the Park outings proved successful and enjoyable for all who attended, we'll continue holding the event. The board is currently looking at the next event in April 2024.



By the time you read this, Pacificon and the PAARA special event station, W1AW/6, will be a memory. Please join me in congratulating Mikko, AB6RF, and his major assistant Christopher, AI6KG, for all their exemplary work orchestrating the special event station. Special thanks go to Doug, KG6LWE, who drug the trailer up from his home QTH, assisted in the setup of the antenna, then returned Sunday to help take it

down and return the trailer to his home QTH. Thanks also go to all the PAARA members who helped with the setup, operation/oversight, spending Friday and Saturday nights, and packing up of the equipment that made this station possible. Setting up and staffing the station is an essential addition to Pacificon and is greatly appreciated by MDARC, the sponsoring club of Pacificon, as well as attendees who took the time to operate or learn how to operate HF radios.



Roughly 1,100 contacts, including many DX contacts, were made by everyone who worked one of the 5 stations. As in past years, scouts descended on the station on Saturday. Christopher worked with them to make their first contacts on HF so they could earn a radio merit badge. I don't know how many scouts Christopher helped but there was a crowd around the 20M station for several hours!



Rob, KC6TYD, was also a participant in Pacificon along with quite a few PAARA members. He and his team made 3 jumps working Parachute Mobile. All three jumps attracted quite a bit of attention from attendees trying to make contact with a jumper or learn more about skydiving. Roughly 100 contacts were made be-

(Pres — Continued on page 4)

(Pres — Continued from page 3)

tween the 3 jumpers.



September was the start of board elections. Clark, KK6ISP, is accepting nominations from anyone who wishes to run for a position on the board. Feel free to talk with Clark or anyone on the board if you have any questions about being on the board. Nominations remain open until the end of the November 3rd club meeting. Elections will be held during the December 1st club meeting. You must be a current member of PAARA and be present in person at the meeting in order to vote. No online voting is being provided.

As we stand on the precipice of fall and the holiday season, one might start thinking of what the first activity of 2024 will be. For me, it's Quartzfest from January 21 to the 27th. For those who haven't attended, it's a wonderful time of camping, socializing, meeting new and old friends, and learning, with a bit of HF thrown in for good measure. I hope you'll consider joining those of us who make the trek to the desert about 8 miles south of Quartzsite, AZ. More information can be found here: <https://quartzfest.org/>. As I did last year, I plan on attending the King of the Hammers off-road race in Johnson Valley from January 18th to February 3rd. I will be volunteering as a Course Marshal thus have an opportunity to use my business band radio again. You can find more about the event at: <https://kingofthehammers.com/>.

As you can tell, this month's PAARAgaphs is a bit light in the story department. Thanks to Ric, N6AJS, for getting me a story at the last minute. Please consider submitting a story for next month's issue or we'll not have a story at all!

I look forward to seeing a room full of smiling faces at the November 3rd meeting. It will be an IRL and Zoom meeting.

73, Jim K6SV

Get on the air to keep the airwaves alive!

(Classic — Continued from page 2)

tain, just keeping an eye on the riders.

When the weather is fine, the job is pretty stress-free. This year we had sunny skies through both days.

In the afternoon, we started to pick up a few riders who were fatigued, or just wanted a lift to the top of Vail pass.

SAG and radio support become critical when the weather gets rough – afternoon thunderstorms are common in the mountains – or if there is a mishap. We hope for a boring day!

The radio traffic isn't all health and safety: Last year, the traffic went out over the repeaters, "Summit High School is out of pickles. Can Tennessee pass provide some?" This year, several of the ride volunteers were wearing dill pickle color t-shirts.

The Sunday ride was much the same, with good weather and no road incidents. Most riders are off the course in the early afternoon, and we start breaking down the radios and bike racks.

The tour organizers take great care of everyone, and we finished the afternoon with a barbecue lunch.

The Courage Classic ride raises a lot of money for the region's premier pediatric hospital, and covers some of the most beautiful mountain roads in the world. It's one of my favorite ham radio activities of the year: Mountains, bicycles and radio: It's a perfect weekend.

### October 2023 Board Meeting Minutes

The meeting was called to order at 7:05. In attendance were President Jim Thielemann K6SV, Vice President Rob Fenn KC6TYD, Secretary Ric Hulett N6AJS, Treasurer Margaret Cooper K6WEK, Directors Doug Teter KG6LWE, Joel Wilhite KD6W, Walt Gyger K6WGY, and Darryl Presley KI6LDM. Also present was Bob Ridenour, KN6YGN.

A quorum was present.

**President's Report** — I was really impressed by the attendance at the October PAARA meeting. Including online attendees, we had 52 people there. It was also nice to see that we had a lot of folks who stayed after the break. And, we had a very interesting guest speaker this month.

**Secretary's Report** — Members: Don't forget that PAARA memberships expire at the end of December! This is a great time to visit the PAARA website and renew with PayPal. Or, mail your check to PO Box 911, Menlo Park 90426. Even easier, bring your \$25.00 (what a bargain!) to the PAARA meeting.

We have gained several new members in the last month or so. A warm PAARA welcome, to Shiv W6CN, Joshua KO6ASM, Vikas KN6QLK, Vijay W6VIJ, Jeffrey AG6WX, and Sorin KN6YUH.

**Treasurer's Report** — Secretary is putting together an end-of-quarter report for our bookkeeper. We had deposits from the PAARA in the Park activity, and reimbursed Darryl for material costs.

The badge vendor needs to make some new custom laminate material for PAARA badges. We will find out what this may cost.

**VP / Program Chair Report** — We were looking for a speaker from one of the ham services on Maui regarding the recent fires, but have no leads yet. The November speaker (TBD) will give a talk about mesh networks.

### Old Business

**Pacificon** — It is this weekend October 20th ~22nd. As in past years, PAARA is running the W1AW/6 special event station. This is an excellent ham gathering, PAARA members should make a point to attend.

As in years past, we will be welcoming Scouts to our station for the Jamboree on the Air.

We'll set up 4 stations, with the same antennas as last year.: A triband beam for 10m to 20m, wire vertical for 40, and the dipole for 80m.

Look for a new "W1AW/6" banner this year.

**Members** — We really, really need your input to keep PAARAgaphs as a unique and high-quality club newsletter. If you have a ham-related story, write it down, (even a few sentences), and send to the editor, Jim Thielemann.

If a club member relates a good story to you, ask them to make it into an article: It doesn't have to be a big manuscript, any ham story is a good one. Member contributions are critical to our PAARAgaphs.

### Education Committee:

The tape-measure yagi project at PAARA in the Park was a big success, showing people they could build a directional antenna, and search a hidden transmitter in

*(Minutes — Continued from page 5)*

the field. The youngsters really enjoyed the fox hunt.

We had a discussion about ways to provide knowledge to newer hams, including an 'education corner' in the newsletter. This will be discussed further.

**PAARA equipment sales — KC6TYD.** No new sales. A member is willing to donate some inexpensive 2m handhelds to the club, which we could give to new hams.

**Radio Loaner program —** We have had no takers so far, will mention this at the club meeting.

**PAARA repeater —** Repeater is up and running, but we need to schedule a cleanup day at the repeater site.

**Field Trip —** Suggestions for the next Field Trip? A trip to the Computer History museum was suggested. No other proposals are to hand.

**Elections —** PAARA holds officers elections at the December meeting each year. Candidate nominations must be entered by the end of the November meeting. Contact Clark KK6ISP if you are interested in running for a board office.

**Field Day —** Do we continue using Write Log moving forward?? N1MM? Any update Mikko? We will change to N1MM for Field Day 2024. Mikko will run a check on N1MM. Note we may need to update to Win10 to interface with IC7300, 7610

### **New Business**

Our president will not be in attendance for the February or April club meetings. Rob Fenn will conduct these meetings.

**PAARA in the Park —** The board tentatively decided to hold the next event on April 20, 2024. April 27 is a possible alternate.

**Electronics Flea Market —** PAARA is scheduled to run this event on Sunday, April 14, 2024.

**Dream to Reality Raffle —** We have submitted additional documentation to the State to allow the raffle. We don't know at this time if we will be cleared in time for the December meeting.

We discussed some alternate ticket sales plans, including multiple months of raffle ticket sales. We will discuss again at the November board meeting.

Moved and seconded to purchase KX3 with filter, antenna tuner and microphone. The board approved this motion.

We have updated the club page at ARRL.org All information is current and correct.

**New business —** Ben will not be at the next meeting AK6AD will assist with the Zoom at the November meeting. Thanks, Alan!

**Darryl —** A club member wants to know if we can have an e-mail reflector on Groups.io? We can accomplish this, if we have volunteer moderators. Darryl and Rob will confer and present at the next board meeting.

The meeting was adjourned at 8:55 pm.

Respectfully submitted,  
 Ric Hulett N6AJS  
 PAARA Secretary

**Palo Alto Amateur Radio Association, Inc.**

PO Box 911 Menlo Park, CA 94026

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 kd6w@arrl.net  
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 walt@tradewindsaviation.com  
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 dteter@wcwi.com  
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 Technical Tips..... Ric Hulett, N6AJS  
 Photographer ..... *Position Vacant*

**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 (ESM)**

Sponsorship: Association of Silicon Valley Amateur Radio Organizations (ASVARO)  
 The Electronics Flea Market is seeking a new location. Until that is resolved, the EFM is on hold. Website: <http://www.electronicfleamarket.com/>

**PAARA — Palo Alto Amateur Radio Association**

Meets 1<sup>st</sup> 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](mailto:KD6W@ARRL.NET), 650-325-8239

**FARS — Foothills Amateur Radio Society**

Meets 4<sup>th</sup> Friday each month at 7:00pm at Covington School, Los Altos. Website: <http://www.fars.k6va.org>

**NCDXC — Northern California DX Club**

Meets 3<sup>rd</sup> Thursday 7:00pm each month, Repeater for member info 147.360. Contact [president@ncdxc.org](mailto:president@ncdxc.org). Website: <http://ncdxc.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, 3<sup>rd</sup> Friday, January through November.  
 Tuesdays & Thursdays, [Directed] Net, 7pm, N6ZX 145.370Hz, -600KHz, PL107.2Hz  
 Contact: [SanMateoRadioClub@gmail.com](mailto: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://specsnet.org/monday-night-net> for more info.  
 Contact: <https://www.specsnet.org/contact> or [board@specsnet.org](mailto:board@specsnet.org)

**SCARES**

**South County Amateur Radio Emergency Service**

Meets 3<sup>rd</sup> 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](mailto: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 2<sup>nd</sup> 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:                      441.35 (+5.0) 88.5 ctcss  
 147.39 (+600) 151.4 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](mailto:info@wvara.org)

(Please send changes to [PAARAgaphs editor](mailto: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 <sup>st</sup>	Doug - KG6LWE
2 <sup>nd</sup>	Doug - KG6LWE
3 <sup>rd</sup>	Ric - N6AJS
4 <sup>th</sup>	Rob - KC6TYD
5 <sup>th</sup>	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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**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  
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UHF DMR	444.475 MHz +5 MHz CC1	Slot 1: Dynamic Slot 2: NorCal BM (31068)
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## PAARA Badges

Badges can be ordered through our web- site <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 \$25.00.

### PAARAgaphs Ad Rates

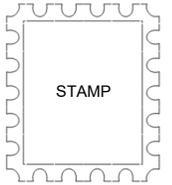
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- Not-for-profit ads by association members for ham-related items and wants. No cost for business card-size ads (additional space at \$2.50 per business card size per issue).
- For Profit organizations and/or individuals: \$5-business card size, \$14.00-quarter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

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 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 — November 2023

Accept no substitutes. Produced and printed in California USA



Palo Alto Amateur Radio Association, Inc.  
 PAARAgaphs Newsletter  
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# HAM RADIO OUTLET

WWW.HAMRADIO.COM

Family owned and operated since 1971



**FTDX101MP | 200W HF/50MHz Transceiver**

- Hybrid SDR Configuration • Unparalleled 70 dB Max. Attenuation VC-Tune • New Generation Scope Display 30SS • ABL (Active Band Indicator) & MPD (Multi-Purpose YFO Outer Dial) • PC Remote Control Software to Expand the Operating Range • Includes External Power With Matching Front Speaker



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

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



**FTM-500DR | C4FM/FTM 144/430MHz Dual Band Xcvr**

- Front Firing Acoustically Enhanced Speaker System • True Dual Band Operation, C4FM/C4FM Digital D-D Dual Receive • 2.4" High-Resolution Full-Color Touch Panel Display • Built-in High Precision GPS Receiver • Wireless Operation Capability with Optional Bluetooth® Headset



**FTDX101 | HF/50MHz 100 W SDR Transceiver**

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



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

- Stable 100 Watt Output • 32-Bit DSP • Large Dot Matrix LCD Display with Quick Spectrum Scope • USB Port Allows Connection to PC with a Single Cable • CAT Control, FT118TTY Control



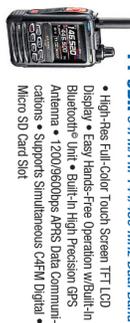
**FT-70DR C4FM/FTM 144/430MHz Xcvr**

- System Fusion Compatible • Large Front Speaker delivers 700 mW of Loud Audio Output • Automatic Mode Select detects C4FM or Fm Analog and Switches Accordingly • Huge 1.105 Channel Memory Capacity • External DC Jack for DC Supply and Battery Charging



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

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



**FT-5DR C4FM/FTM 144/430 MHz Dual Band**

- High-Res Full-Color Touch Screen TFT LCD Display • Easy Hands-Free Operation w/Built-in Bluetooth® Unit • Built-in High Precision GPS Antenna • 1200/600bps APRS Data Communications • Supports Simultaneous C4FM Digital & Micro SD Card Slot

**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 USB Capable • Internal Automatic Antenna Tuner • High Accuracy TCXO



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

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



**FT-65R | 144/430 MHz Transceiver**

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



**FDX101D | HF + GM Transceiver**

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



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

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



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

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



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

**YAESU**  
The Radio

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