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OCRACES Meeting

Monday, May 6, 2024
at 7:30 p.m.

Online on Zoom

Discuss May 4 Drill and Field Day



Newsletter of the County of Orange Radio Amateur Civil Emergency Service

CRO's Nest

by Ken Bourne, W6HK, OCRACES Chief Radio Officer

Double Bazooka Antenna

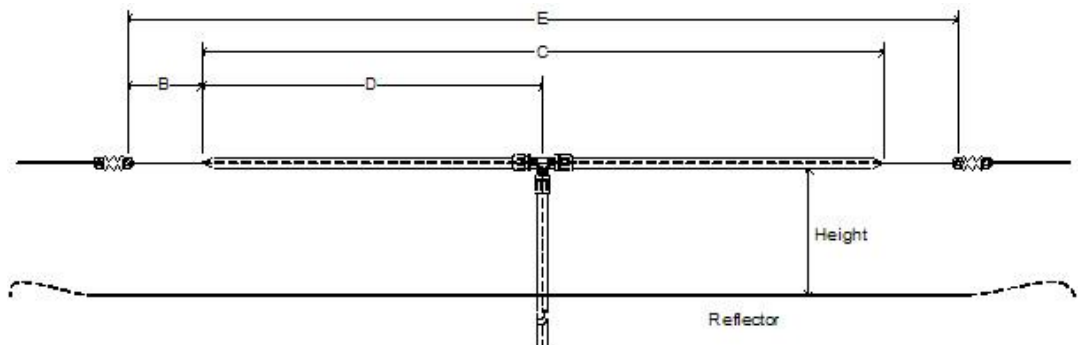
During the Saturday, April 27, 2024, OCRACES ACS net on 60 meters (5371.5 kHz upper sideband at 10:00 a.m.), we had an interesting discussion about double bazooka antennas. Wow! What a name! You would think, with a powerful name like that, a double bazooka antenna would have an incredible gain. I'm not an expert on double bazooka antennas, but I'm seriously thinking about putting up one of those. I searched the internet for information, and I'll share some of it with you, in case you would like to join me in a "double bazooka adventure."

Many of the 60-meter net participants are using multiband off-center-fed dipoles (sometimes referred to as Windom antennas), or G5RV antennas, which commonly have resonant points on 80, 40, 20, 15, and 10 meters, but not on 60 meters. Nevertheless, with an antenna tuner, they are producing good signals on the band. A resonant half-wave dipole cut for 60 meters (about 87 feet long), installed about an eighth wave above ground, seems to outperform everything else for near vertical incidence skywave (NVIS) propagation. So what about the double bazooka?

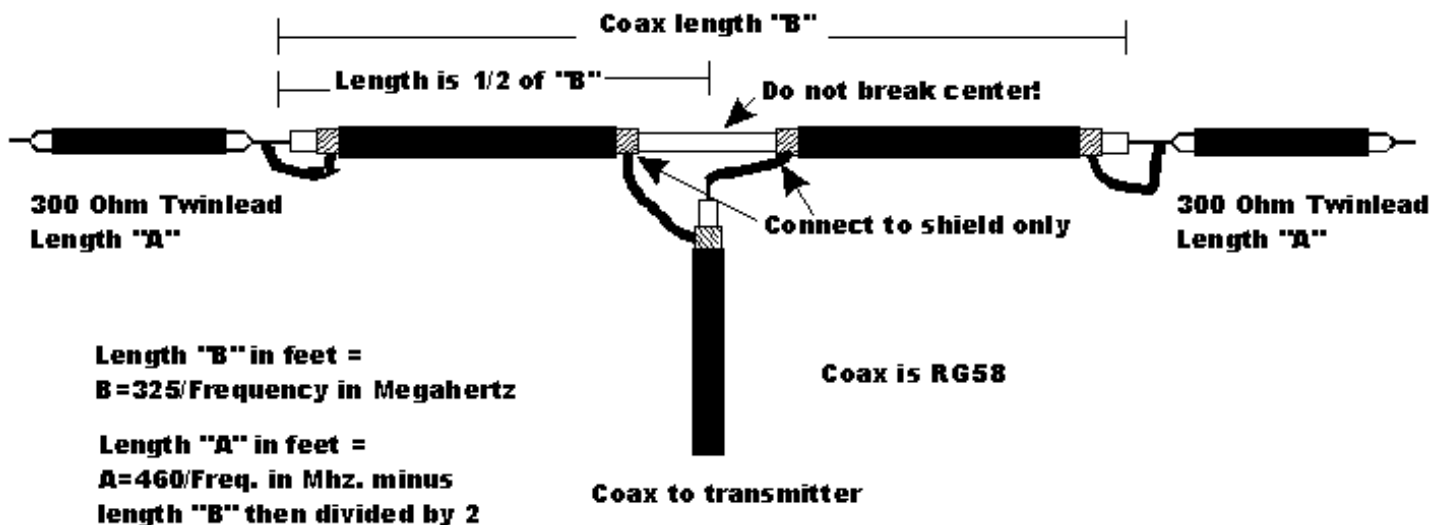
The double bazooka is a single-band antenna. Even with an antenna tuner, it will not perform well on other bands. Hams using Windoms or other multiband antennas (which don't work well on 60 meters) might consider putting up an additional antenna cut just for 60 meters—perhaps a half-wave dipole, or a quarter-wave end-fed antenna (see the article on page 6 of this issue), or a double bazooka. Made with coaxial cable, the double bazooka supposedly is shielded from picking up local noise.

A calculator for the lengths shown below is provided by West Mountain Radio at https://www.westmountainradio.com/antenna_calculator_bazooka.php. The end-wire ("B") size can range from 16 AWG to 12 AWG. The larger the wire, the wider the bandwidth. 300-ohm twin lead with the ends shorted is an option for even greater bandwidth.

As described on the above webpage, the antenna below is constructed from a single length of 50 or 75 ohm coax with a coaxial feed point in the center. The span is opened in the middle to expose the braid from each half. The center conductor and dielectric is not disturbed and the two separated braids



CRO's Nest *Continued from page 1*



are then fed with the coax feedline. Each end of the coaxial span has the braid and center conductor shorted and connected to the end wires.

The antenna as designed is a broad-band single-band antenna with the coaxial cable's capacitive reactance changing to compensate for changes in inductive reactance across the band of operation. This helps to provide acceptable matches on frequencies other than what the antenna was specifically designed for. The antenna as fed matches well into 50-ohm coax cable feedline and an antenna tuner.

A ground reflector can be added to enhance NVIS propagation at frequencies below 10 MHz where NVIS propagation is usable. The ground reflector can be a single conductor or several in parallel spaced a few feet apart. Hardware cloth or "poultry screening" is an option too. The calculator at the [West Mountain Radio website](#) shows NVIS antenna height options at 0.1 wavelength, 1/8 wavelength, and 1/20 wavelength. The calculations are approximate, so some final end-wire length adjustment may be necessary. Dimensions will change slightly due to antenna height and ground conductivity variations.

Since I am emphasizing the use of a double bazooka antenna on 60 meters, here are the dimensions for the antenna as diagramed on the previous

page for our 60-meter net frequency of 5371.5 kHz:

- End-wire length (B): 12.57 feet
- Coax element length (C): 60.50 feet
- Coaxial element center (D): 30.25 feet
- Total length (E): 85.64 feet
- NVIS 0.1 wave height: 17.43 feet
- NVIS 1/8 wave height: 21.78 feet
- NVIS 1/20 wave height: 8.71 feet
- Reflector length: 91.48 feet

In comparison, a half-wave dipole at 5371.5 kHz would be slightly longer: 87.13 feet.

At the top of this page is a diagram I found with formulas for calculating the lengths for any HF band. Again, a

double bazooka is a single-band antenna. By design, it does not radiate at harmonics of the design frequency.

If you are home-brewing a double bazooka antenna, you could enhance the ruggedness of the antenna by referring to the article at <https://www.wb5rdd.org/forums/topic/building-the-double-bazooka-aka-instructions-and-shopping-list/>. It's quite a project, but perhaps worth the effort.

If your mechanical skills are as poor as mine, you could purchase a nice 60-meter double bazooka from [Radio Wavz](#) for \$85.95. It's 98 feet wide (perhaps to allow some trimming). ★



Radio Wavz double bazooka antenna.

City/County RACES & EmComm Drill: May 4th

The next City/County RACES & EmComm ACS Drill will be on Saturday, May 4, 2024, from 0900 to 1130 hours. OCRACES PSRs operating net control at the Orange County EOC at Loma Ridge will show up in uniform at 0830 hours for orientation.

The scenario for this drill is civil unrest, disrupting public order to the extent that a countywide emergency has been declared, requiring auxiliary communications to be provided to county and city law-enforcement agencies. Street and highway traffic flow will have been disrupted by political protests, looting of stores will be rampant, and attacks will be waged against major infrastructures, including power substations, water facilities, telephone companies, hospitals, banks, law-enforcement and other government facilities, public transportation, and schools. Cyberattacks affecting major infrastructures, will be possible during this civil unrest. In addition, all repeaters will have failed, and all communications will be on simplex.

Focusing on this civil-unrest scenario, this will be a field-deployment drill. Three separate portions of the drill will utilize the following amateur radio services available to support countywide auxiliary emergency communication needs:

- Simplex voice on 2 meters FM and 60 meters upper sideband
- Winlink
- AREDN mesh (City RACES and EmComm members only, not OCRACES)

All drill messages must begin and end with the statement: "This is a drill."

OCRACES net control will operate from the Orange County EOC RACES Room on Loma Ridge to support more reliable simplex coverage on 2 meters and 60 meters throughout the county. Uniforms are required at the EOC and are optional elsewhere.

All participants not at Loma Ridge will be at field locations with portable or mobile radio equipment. County and city net controls may be at EOCs with backup power, but no operations will be from home stations.

Communications will consist of simplex communications on 2 meters FM, and HF NVIS (Near Vertical Incidence Skywave) on 60 meters. Relay stations may be assigned by the Orange County RACES net control during the drill.

The first part of the drill (0900 to 0930 hours) will be for city and county net controls to call their own members on their primary simplex frequencies and receive short simulated reports of civil unrest. During that time, OCRACES will perform a roll call of its own members on 146.595 MHz simplex. City RACES units may continue to receive member reports beyond 0930.

From 0930 to 1130, OCRACES net control will communicate with each city and EmComm unit on 146.595 MHz simplex and ask for a report on the number of members who checked in on their simplex frequency and for city requests for resources that are not locally available.

OCRACES net control will be active on 60 meters (5371.5 kHz upper sideband), starting at 1000 hours, to take requests for resources and to communicate with Cal OES and surrounding counties to request resources that are not available in Orange County. At first, net control will use the same roll call of Orange County City and County RACES and EmComm stations as on the Saturday morning OCRACES net. Net control will then call for additional RACES and EmComm stations in Orange County that were not on the Saturday roll call. Next, net control will call the roll of RACES/ACS stations outside Orange County, and then will call the roll of non-EmComm stations.

The Winlink portion of the drill will use RMS (Radio Message Server) gateways via radio (most are on 2 meters). Telnet communications mode (direct internet connection) is acceptable. Winlink messages will be accepted for the 24-hour period from 1500 hours Friday, May 3rd, to 1500 hours Saturday, May 4th. Messages must have the correct timestamp. Cities may report their check-in results using the Field Situation Report form, and may request resources from the county via Winlink rather than via voice simplex.

Using the Winlink Express software application, messages will be prepared with an attached Field Situation Report form (listed in Template Manager, Standard Templates, under GENERAL forms, as Field Situation Report.txt) and sent to OCRACES tactical and backup member addresses. Messages are to be sent to CAORCO; KM6RTE. In Section 3 of Winlink Express, send the GPS coordinates (latitude and longitude) of your location. In Section 12, provide information on your role in the drill and what is your affiliated organization. Provide your email address and information on the Winlink Band and the Session type.

Participants (only non-OCRACES) in the mesh portion of the drill will access AREDN, use voice communications using VoIP phone calls, and use the City-County Drill FTP server to transfer files over the AREDN network, using a FileZilla (or equivalent) FTP client. Each participant will access their local AREDN mesh node and go to the *Mesh Status* page of that node. On the *Mesh Status* page, locate the closest node (lowest ETX) that is running *MeshChat* with link text "MeshChat." Click on the *MeshChat* link and log in with your (as operator) call sign (not your organization's call sign). ★

OCRACES Meeting: May 6th Online on Zoom

The next OCRACES meeting will be in-person on Monday, May 6, 2024, at 7:30 p.m., on Zoom. During this online meeting we will review the May 4th City/

County RACES & EmComm ACS Exercise. We will also discuss tentative plans for Field Day on the weekend of June 22-23, 2024. ★

Annual Armed Forces Day Crossband Test

The U.S. Department of Defense (DoD) will host this year's Armed Forces Day (AFD) Crossband Test, scheduled for May 11, 2024 (according to the [DOD MARS—Armed Forces Day website](#), but ARRL reports, perhaps erroneously, that it will be on May 13th). The annual event is open to all licensed amateur radio operators and will not impact any public or private communications. For more than 50 years, military and amateur stations have taken part in this event, which is an interoperability exercise between hobbyist and government radio stations.

The AFD Crossband Test is a unique opportunity to test two-way communications between military communications and radio stations in the Amateur Radio Service (ARS), as authorized in 47 CFR 97.111. These tests provide opportunities and challenges for radio operators to demonstrate individual technical skills in a tightly controlled exercise scenario that does not impact any public or private communications.

Military stations will transmit on selected military frequencies and will announce the specific ARS frequencies monitored. All times on the [DOD MARS—Armed Forces Day website](#) are ZULU (Z), and all frequencies are Upper Side Band (USB) unless otherwise noted. The frequencies used for the test will not impact any public or private communications and will not stray outside the confines of the exercise.

An AFD message will be transmitted utilizing the Military Standard (MIL-STD) Serial PSK waveform (M110) followed by MIL-STD Wide Shift FSK (850 Hz RTTY) as described in MIL-STD 188-110A/B. Technical information regarding these waveforms is provided at <https://drive.google.com/drive/folders/1pYDj7kQbm-QAyY4RPtx0dOXXKohjaEjq9>.

The AFD Defense message will also be sent at 1400Z and 2000Z on the frequencies listed on the [DOD MARS—Armed Forces Day website](#).

For those who wish to document their contacts with QSL cards, go to <https://www.usarmymars.org/armed-forces-day-qsl-card-request> and complete the request form.

AFD is a time of honor. It will be celebrated on Saturday, May 20, 2023. The first AFD was celebrated with parades, open houses, receptions, and air shows. Today, many events and activities take place and may include multi-service military displays in areas open to the public, various educational activities that teach children about the armed forces, and large parades with local celebrations.

The longest running AFD parade in the United States is held in Chattanooga, Tennessee. Certain types of music will be played at AFD 2023 events to show respect to those in the armed forces who died for their country.

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MFJ Closing Manufacturing Facilities

On Wednesday, April 24, 2024, MFJ Enterprises announced that they would be closing down their manufacturing facilities in Starkville, Mississippi, effective May 17th, but would continue selling their wide selection of imported products including portable/mobile antennas, power supplies, clocks, and antenna switches. This closure impacts all of their sub-brands: Ameritron, Hy-Gain, Cushcraft, Mirage, and Vecronics. MFJ intends to continue to service and warranty these product lines for the foreseeable future.

After 52 years in business, MFJ has been an iconic part of the ham radio industry and brought several innovative products to market including antenna analyzers and a variety of unique antenna solutions. They are also a prima-

ry source for manual antenna tuners and tube-type amplifiers. Mark Lacy, W5TXR, reports that recently DX Engineering offered to purchase but it was declined by MFJ.

Martin F. Jue, K5FLU, the owner of MFJ, said that COVID changed everything in business, including MFJ's. "It was the hardest hit that we have ever had and we never fully recovered." Jue turned 80 this year and "never really considered retirement but life is so short and my time with my family is so precious."

MFJ's first commercial product was the CWF-2 CW filter. It helped hams isolate single CW signals from a cacophony of others. ★



Antennas in the Park: May 4th

by Joe Moell, K0OV

The next southern California on-foot transmitter hunt will be on Saturday, May 4, 2024, at Hillcrest Park in Fullerton. It is the annual "Antennas In The Park" (AITP) event, organized by the Fullerton Radio Club. All ages are welcome, so bring the family.

AITP transmitter hunts are simple and informal. They are suitable for beginners, but more advanced hunters can treat them as a "sprint." There will be no charge for participation in the hunts, which will begin around 10:30 a.m. and continue until 2 p.m. Be sure to bring your 2-meter handi-talkie and know how to program it to any frequency in the 2-meter band.

If you don't have the antenna/attenuator system for on-foot foxhunting on 2 meters with your ham radio handi-talkie or scanner, a limited amount of equipment will be available for loan. Better yet, you can easily make your own during this session. Beginning at 10 a.m., Marvin Johnston, KE6HTS, will conduct a clinic for building his kits for measuring-tape yagis and for 90 dB offset-type attenuators. An assembled/tested attenuator in a special housing that goes inside the boom of the yagi is also available. If you want one or more kits, please register in advance by sending email to marvin@west.net, so he will have the kits reserved in your name waiting for you.

It takes about an hour to put the antenna and attenuator kits together with tools and soldering iron that will be provided. If you're not an electronic technician, don't worry because there will be plenty of experts to help you.

In addition to the 2-meter band, international ARDF

championships also include an 80-meter band event. At least one optional 80-meter transmitter is expected to be on the air for you to try.

Besides the transmitter hunts, Fullerton Radio Club members will probably have at least one HF ham radio station on the air. A barbecue lunch is also being planned. The traditional Worldwide Foxhunting Weekend cake will be served to participants in the transmitter hunts. For eating and sitting around, please bring your own lawn chair.

Hillcrest Park in Fullerton is bounded on the west by Harbor Boulevard, on the north by Brea Boulevard, on the east by Lemon Street, and on the south by Valley View Drive. From the 91 Freeway, take the Harbor Boulevard exit and go north about 1.8 miles to Valley View Drive.

We will gather at the Izaak Walton Cabin in the southwest area of the park. You can park in the lot north of Valley View, midway between Harbor and Lemon. Walk north through the playground into the lower picnic area and then west up the hill to the cabin. You can also drive the one-way road through the park and park in the lot north of the cabin or along the road northeast of the cabin. A map is on the web at <http://www.homingin.com/>. Talk-in will be on K6QEH/R, 441.44 MHz (-), PL 114.8 Hz. ★

(This event conflicts with the May 4th City/County RACES & EmComm ACS Drill. Nevertheless, we are publishing this article for those who are unable to participate in the drill and to provide information for RACES members who wish to participate in future Antennas in the Park events.—Editor.)

ECB Shifts to New Division

ORACES members operate net control during drills and activations from the RACES Room at Loma Ridge, which is at an elevation of 1,320 feet in the area of Silverado. Down the hall is the Emergency Communications Bureau (ECB), consisting of Dispatch, Control One, and the Department Commander. ECB is no longer under the OCSO North Operations Division, which is under the OCSO Patrol Operations Command. ECB is now one of three bureaus in the newly created Operations Support and Intelligence Division. The other two bureaus are the Counter Terrorism Bureau and the Real Time Opera-

tions Center. The Division is headquartered at the Sheriff's Technology Center in Tustin.

With a team of 85 professional and sworn staff, ECB is among the largest dispatch centers in California and the only countywide interoperable radio communications center in the state.

Dispatch

Dispatch serves as the vital link between the community and OCSO deputies, quickly sending help to those who need it most. Fielding hundreds of calls every day, dispatchers stay committed to relaying critical

information to field personnel while helping residents navigate an emergency until help arrives.

Control One

When OCSO needs to connect with other emergency service partners, Control One is the lifeline. It is the central point for all law, fire, public works, and lifeguard agencies, including state and federal partners. When an incident crosses city or county lines, Control One helps OCSO to communicate so they can provide an effective, coordinated response.

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Countywide RACES/EmComm News

“RACES/EmComm News” provides an opportunity to share information from all City & County RACES/ACS units and EmComm organizations and supportive amateur radio clubs in and near Orange County, as well as from Cal OES and federal agencies.

Please send your news to NetControl Editor Ken Bourne, W6HK, at:

kbourne.ocsd@earthlink.net



Westminster RACES/ACS

Westminster RACES Chief Radio Officer Adam Valek, N6HVC, reports that they are seeking ham radio operators to assist with the 2024 annual Blessed Sacrament Church School Festival at 14072 Olive Street in Westminster. The dates and times for their involvement with the festival are:

- Friday, May 17, 1700-2300 hours
- Saturday, May 18, 1400-1830 hours and 1800-2300 hours
- Sunday, May 19, 1400-1830 hours and 1800-2300 hours

The ham radio operators will be acting as extra eyes and ears to keep not only the coordinators of this festival but also the local on-property police and security apprised of any incidents that require their immediate attention. If possible, their goal is to have two operators together during the hours of darkness.

Those interested in assisting should contact Adam by email at adam.n6hvc@gmail.com or by phone at (714) 305-9026.

San Bernardino Microwave Society (SBMS)

“Fundamentals of Vector Network Analysis” will be presented by Copper Mountain Technologies for the next SBMS meeting on Thursday, May 2, 2024, at 7:00 p.m., at the American Legion Hall, 1024 S. Main Street, in Corona. During this presentation you will find how new VNA technology meets amateur microwave needs.

Those who come to Corona early to beat the traffic often meet at the “newly remodeled” Sizzler, 1461 Rimpau Avenue for dinner at or before 4:00 p.m.

To join the meeting via Zoom, the meeting ID is 886 9217 9521 and the passcode 10368310, or link to

<https://us02web.zoom.us/j/88692179521?pwd=MWwwM3NPejV2U3EyZXp2WXhQZnhVQT09>.

To watch the meeting live on YouTube, go to [Amateur Television Network Live on YouTube](#) and click on the “Live Now” window.

To join the SBMS email reflector, visit SBMS@groups.io. To become a member of the SBMS, contact Brian Thorsen, AF6NA, at the meeting or via the SBMS website at <https://w6ife.com>.

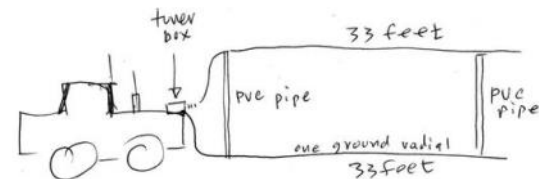
Orange County Amateur Radio Club (OCARC)

The next OCARC meeting will be on Friday, May 17, 2024, at 7:00 p.m., at the American Red Cross (George M. Chitty Building), 600

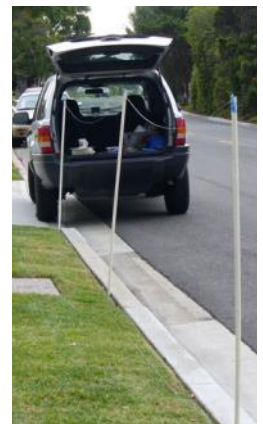
Parkcenter Drive, in Santa Ana. The guest speaker will be Ron Wilcox, KF7ZN. Ron will be giving a Zoom presentation from Utah where, after many years with Mountain Bell, Ron left and went back to school to get an RN. Active in ham radio since 1984, Ron gives a nontechnical presentation about how the sun and ionosphere affect ham radio, including explanation of the terms we hear bandied about in our hobby (like sunspots, K-index, solar flux, F layer), and the effects of CMEs (coronal mass ejections).

OCRACES ACS 60-Meter Net

Peter Putnam, NI6E, and Gary Standard, K6GSX, checked into the OCRACES 60-meter net on Saturday, April 20, 2024, with a quarter-wave end-fed antenna that was quite effective. The rough drawing below shows the dimensions of the antenna that Peter uses for 40 meters. For 60 meters, change the lengths from 33 feet to 44 feet.



The photo shows Peter’s 40-meter setup. The Icom AH-4 antenna tuner is under the coffee cup. It is grounded to the car frame at the left end and a green ground radial runs from there along the base of the PVC pipes. The HV insulator is on the right end. A 33-foot (44 feet for 60 meters) piece of number 22 wire runs from it along the top of the 5-foot poles.



During the April 20th 60-meter net, they operated this portable antenna in a church parking lot in Newport Beach, trying to escape the S9 noise at Peter’s house. They did accomplish that, and the noise was only S7 and net control (W6HK in Orange) was a solid S9. Other net participants were good copy for the first half hour. They discovered that using the vehicle alone as a ground is unsatisfactory. The quarter-wave counterpoise is essential.

May 2024

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4 City/ County/ EmComm ACS Drill
5	6 Weekly 2 m ACS Net & OCRACES Meeting	7	8 Orientation for PSR Applicants	9	10	11 Weekly 60 m ACS Net
12	13 Weekly 2 m ACS Net	14	15	16	17 Orange County Amateur Radio Club Meeting	18 Weekly 60 m ACS Net
19	20 Weekly 2 m ACS Net	21	22	23	24	25 Weekly 60 m ACS Net
26	27 ACS Nets on 4 Bands	28	29	30	31	

Upcoming Events:

- **May 4: 0900-1200 hours:** City/ County RACES & EmComm ACS Drill
- **May 6:** 1930-2130 hours: OCRA-CES Meeting on Zoom
- **May 8, 1830 hours:** Orientation for PSR Applicants, Sheriff's Regional Training Academy, Tustin
- **May 17, 1900 hours:** Orange County Amateur Radio Club meeting, American Red Cross (George M. Chitty Building), 600 Parkcenter Drive, Santa Ana
- **June 22-23:** Field Day



<https://ocraces.org>

Mission Statement

County of Orange RACES has made a commitment to provide all Public Safety departments in Orange County with the most efficient response possible to supplement emergency/disaster and routine Public Safety communications events and activities. We will provide the highest level of service using Amateur and Public Safety radio resources coupled with technology, teamwork, safety, and excellence. We will do so in an efficient, professional, and courteous manner, accepting accountability for all actions. We dedicate ourselves to working in partnership with the Public Safety community to professionally excel in the ability to provide emergency communications resources and services.

County of Orange RACES Frequencies

60 m: 5371.5 kHz USB (dial) (Channel 4) (OC ACS Net—Saturdays, 1000 hours)
 40 m: 7250 kHz LSB
 10 m: 29.640 MHz output, 29.540 MHz input, 107.2 Hz PL (down for repair)
 6 m: 52.620 MHz output, 52.120 MHz input, 103.5 Hz PL
 2 m: 146.895 MHz output, 146.295 MHz input, 136.5 Hz PL*
 2 m: 146.595 MHz simplex
 1.25 m: 223.760 MHz output, 222.160 MHz input, 110.9 Hz PL
 70 cm: 446.000 MHz simplex
 70 cm: 448.320 MHz output, 443.320 MHz input, 141.3 Hz PL (private)
 70 cm: 449.100 MHz output, 444.100 MHz input, 110.9 Hz PL (private)
 70 cm: 449.180 MHz output, 444.180 MHz input, 107.2 Hz PL (private)
 70 cm: 449.680 MHz output, 444.680 MHz input, 131.8 Hz PL (private)
 *Primary Net—Mondays, 1900 hours

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Visit Our Web Site
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It's Where It's @!

Questions or Comments?
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**“W6ACS ...
 Serving
 Orange County”**

Meet Your County of Orange RACES Members!

Officers →



Ken Bourne W6HK Scott Byington KC6MMF Randy Benicky N6PRL

**OCSD
 RACES
 Coordinator** →



Lee Kaser
 KK6VIV



Heide Aguire K3TOG Jack Barth AB6VC Joel Bishop AJ6ZP Eric Bowen W6RTR Ray Grimes N8RG Ted Lavino KG6LZP Steve Livingston NJ6R Scott MacGillivray KM6RTE



Robert Moore KW6B Ryan Moore KN6WSJ Ron Mosher K0PGE Fran Needham KJ6UJS Chi Nguyen KE6MVS Joe Selikov KB6EID Robert Stoffel KD6DAQ Chuck Streitz KK6HFS Ken Tucker WF6F