

November 2020



Newsletter of the County of Orange Radio Amateur Civil Emergency Service

Captain's Corner

by RACES Captain Ken Bourne, W6HK, Chief Radio Officer

Bidirectional Amplifiers

A bidirectional amplifier (BDA) is a signal booster that supports commercial two-way radio communications (or other applications such as cellular, data links, radar, satellites, etc.) and amplifies both transmit and receive signals. It consists of a power amplifier (PA) at the transmit end and a low-noise amplifier (LNA) at the receive end. In receive mode, the BDA amplifies a weak signal and feeds it to the radio. In transmit mode, the BDA amplifies the radio's transmitted signal to extend its range.

BDAs are needed in various facilities, such as large buildings, stairwells, underground tunnels, and parking garages. They can be part of a Distributed Antenna System (DAS), which is a network of separate antenna nodes connected to a common transport medium. Collectively, BDA/DAS equipment is often referred to as wireless In-Building Solutions.

These BDA two-way radio signal boosters are used to bring facilities into compliance with Emergency Responder Radio Coverage (ERRC) code. ERRC code is the standards which apply to public-safety DAS and radio enhancement systems as mandated under International Fire Code IFC-510 and the National Fire Protection Association standards NFPA 72, Chapter 24. Newly constructed buildings with a minimum area of 50,000 square feet, or below-grade buildings with a minimum area of 10,000 square feet, must meet the requirements of a minimum signal strength of 95 dBm in areas designated as "critical,"

which include stairwells and elevators.

The installation of signal boosters, a DAS, or BDAs in a building must conform with local and state guidelines, including those set by the local AHJ (Authority Having Jurisdiction). The optimal coverage areas of the building then need to be worked out. Finally, the booster, DAS, or BDA must be compliant with FirstNet, which is fast becoming the regulatory body for all equipment and first responders.

To determine in-building BDA requirements, public-safety bands coverage strengths must be measured in all parts of the building, using instrumentation capable of testing the applicable frequency ranges, such as both 700-MHz LTE broadband and P25 LMR narrowband networks.

To enhance radio (or cellular) coverage within a building, a BDA amplifies and broadcasts the signal to and from a distant tower or nearby outside antenna, then to and from the in-building device (such as a handheld radio or cellphone). In receive mode, the BDA amplifies the incoming signal and broadcasts it throughout the building, using the system's indoor antenna (s) to enhance coverage. In transmit mode, the BDA amplifies and extends the range of the radio's or cellphone's outgoing signals from the building (regardless of the carrier in a cellphone application).

A full-duplex BDA amplifies transmit and receive signals simultaneously, either because of different transmit and receive frequencies or by frequency-division or time-division multiplexing. Duplex filters

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**OCRACES
Online Meeting
on Zoom:

Monday,
November 2,
2020, at 7:30 PM**

Captain's Corner *Continued from page 1*

prevent the transmit signal from interfering with the receive signal. A half-duplex BDA amplifies either the transmit signal or receive signal at one time. A switch at the input and output ports or intelligent biasing selects the transmit and receive functions.

Public-safety BDAs for two-way radio systems are different than cellular BDAs. However, most BDA systems have multi-directional and multiple-band capabilities to accommodate cellphone signals and public-safety signals equally.

FCC Part 90 Signal Boosters are a type of Industrial Signal Booster. A Class A signal booster is designed to retransmit signals on one or more specific channels. None of its passbands must exceed 75 kHz. A Class B signal booster is designed to retransmit any signals within a wide frequency band, exceeding 75 kHz.

Class B signal boosters must be registered with the FCC. The resulting permanent record of all Class B signal-booster installations in a searchable database enables licensees to search online for signal-booster installations if they experience interference or other degradations to their system. Licenses can then identify and shut down signal boosters causing harmful interference, as neces-

sary. Operation of an unregistered Class B signal booster is unauthorized and subject to enforcement action. Registration is required prior to operation and is free of cost to the operator and/or licensee.

BDA oscillations can be a source of interference, caused by insufficient path loss between a BDA's donor (outside) and serving (inside) antennas, if those antennas are too close to each other. In this situation, the amplified signals (uplink and/or downlink) from one antenna are fed into the other, creating a feedback loop that causes the BDA to oscillate. The attenuation (or path loss) between the two antennas should be 15 to 20 dB more than the gain of the amplifier. It may be necessary to lower the amplifier gain and/or change the configuration and placement of one or both antennas. BDAs can also cause interference in ways other than oscillation. BDAs in cellular networks, being wideband amplifiers, will pick up and repeat the desired cellular signals as well as undesired signals. For example, low-level spurious emissions within a building can be picked up by the serving antenna, amplified, and then transmitted back towards the base station. Also, BDAs can generate and repeat intermodulation products from other transmitters.

Yahoo Groups Shutting Down

We have been using Yahoo Groups for many years for our main mailing list that goes to OCRACES members and City RACES officers and coordinators and some members. Eventually, Yahoo removed some major features from the list, including message archives, files, photos, calendar, etc., and is now strictly a mailing list. The handwriting was on the wall that the list would eventually disappear entirely. Accordingly, we began moving list members last June to the new ocsd-races at Groups.io site, which includes all of the old Yahoo features and then some. Because of excessive fees, we were not able to move the entire list automatically, but had to send invitations to all on the old list. Only about half of the old list members have joined the new list (but the old list needed some purging anyway). We have also added some new members from City RACES and MOU units.

Yahoo announced on October 12, 2020, that it is shutting down Yahoo Groups on December 15, 2020. Members will no longer be able to send or receive emails from Yahoo Groups. Accordingly, members of the ocsd-races Yahoo Group will no longer receive the OCRACES newsletter and countywide RACES announcements unless they join or have already joined the ocsd-races Groups.io list. Invitations were sent at least a couple of times to the Yahoo Groups list to join the ocsd-races Groups.io list. Invitations will be sent again from the Groups.io list to those who have not yet responded. Simply click on "Reply" and then "Send." Otherwise, send a subscription request to main+subscribe@ocsd-races.groups.io. For security reasons, only members of a City, County, or State RACES/ACS unit are qualified to join the Groups.io list, so include your name, call sign, and RACES affiliation with your subscription request.

A subgroup also exists on the ocsd-races Groups.io site for OCRACES members only, mainly for secure messages pertaining to OCRACES-only issues.

Because Yahoo is shutting down all Yahoo Groups, the nationwide RACES Yahoo Group (which we created many years ago) is also disappearing on December 15th. As a result, a new RACES Groups.io list was created on October 17, 2020, and all RACES and other EmComm members are invited to join this new nationwide group. It does not include the polls, chats, subgroups, directory, calendar, photos, files, databases, and Wiki features of the ocsd-races Groups.io site (which falls under the Groups.io "Legacy" category for sites created before August 2020), but does provide a message archive and message topics. To join the nationwide group, send a subscription request to RACES+subscribe@groups.io.

Nov. 2nd OCRACES Meeting to Be on Zoom

Due to the COVID-19 pandemic and Sheriff's Department orders to stand down on all RACES activities outside the home, the next OCRACES meeting again will be online, using Zoom, on Monday, November 2, 2020, at 7:30 PM, with the meeting ID and password sent to the mailing lists for OCRACES members and applicants and city RACES and MOU officers, members, and coordinators. Joe Selikov, KB6EID, will once again be the meeting host. No Sheriff's Department business will be conducted during OCRACES Zoom meetings, due to security concerns. Zoom meetings are for socializing only, such as discussing amateur radio technical projects and on-the-air activities. We will not discuss activation policies and procedures, EOC RACES equipment, etc. For security reasons, please use the latest version of Zoom, which currently is 5.3.2. During this meeting, we will review the October 15th ShakeOut Drill and we will cover the latest Orange County statistics on the COVID-19 pandemic, including cumulative cases to date (including deaths), positive cases received that day, cumulative deaths to date and deaths reported that day, cumulative tests to date and tests reported that day, cases currently hospitalized and in ICU, and cumulative recovered to date.

Great ShakeOut Drill Held on October 15th

OCRACES conducted an earthquake drill during the Great California ShakeOut on Thursday, October 15, 2020, from 1000 to 1100 hours. The drill allowed participants to practice reporting observed earthquake intensity using the Modified Mercalli Earthquake Intensity Scale. Net control (OCRACES Chief Radio Officer Ken Bourne, W6HK) asked participants to give their "Mike-Mike" reports on the 146.895 MHz repeater and on 60 meters channel 4, which is 5371.5 kHz USB (dial frequency).

A total of 30 County and City RACES and MOU members participated in this ShakeOut drill on 2 meters and five on 60 meters, all with simulated "Mike-Mike" reports. OCRACES members on 2 meters included Randy Benicky, N6PRL (Rancho Santa Margarita), Ken Bourne, W6HK (net control in Orange), Tony Scalpi, N2VAJ (Orange), and Robert Stoffel, KD6DAQ (Fullerton). City RACES and MOU stations checking in and reporting on 2 meters included KJ6AOX (Laguna Niguel), KN6AVU (Placentia), KE6BNS (Huntington Beach), KF6BRC (Aliso Viejo), KG6CAV (Placentia), KB6CMO (Fullerton), KN6CVB (Laguna Woods), W6EDT (Mission Viejo), K6EEE (Laguna Woods), K6GAT (Huntington Beach), K6HIV (Rancho Santa Margarita), K6HMS (Huntington Beach), N6HVC (Westminster), AF6II (Garden Grove), KB6JOE (Huntington Beach), KE6KZR (Irvine), N6NQN (Fountain Valley), KK6OEX (Fountain Valley), KJ6PFW (Costa Mesa), KM6RSY (Rossmoor), WA6RUZ (Mission Viejo), KE6TM (Dana Point), KK6URR (Laguna Niguel), WB6VEM (Laguna Niguel), K6WHC (Mission Viejo), and KG6WTQ (Anaheim). The five stations on 60 meters included W6EDT (Mission Viejo), W6HK (net control in Orange), WB6NOA (Costa Mesa), K6PB (Irvine), and WA6DNT (Red Cross in San Diego).

Several City RACES units ran their own earthquake drills on October 15th, and so did Cal OES CRU, using the Cactus Radio Network. Gordon West, WB6NOA, reported that the California Rescue Communications 7250 kHz net commenced operations at 1030 hours, with 27 check-ins (Bay Area, local, Arizona, and Utah) with their MM reports. Gordo also reported that MESAC Chief Radio Officer Patrick Williams, KJ6PFW, had many check-ins during the drill. Patrick mentioned that all MESAC members were called, they checked in with Red Cross, and they handled quite a bit of traffic on 7250 kHz. He gave a good suggestion about time allotments to each of the three alphabetical suffix check-in segments during the OCRACES drill, which will be instituted during future drills.

The Laguna Woods RACES team participated in three different exercises on October 15th, according to Chief Radio Officer Bruce Bonbright, NH7WG. The *Disaster Task Force Radio Drill* used non-ham commercial radios, and was conducted by John Pilger, K6PIO. This involved 17 key people who would deploy to assigned locations to operate Care & Reception Centers for residents who are unable to shelter in place following a disaster. They are not Red Cross Shelters, just places of refuge for residents (no sleeping accommodations). Four RACES team members participated, using commercial radios provided by the Laguna Woods Security Department. Bruce began the *Laguna Woods RACES local drill* at 1020 hours, and members announced their availability for deployment (which was to six simulated locations). During the next phase of the exercise, each simulated location sent an emergency message to the Village EOC, and the Village EOC sent an emergency message to the City EOC. The EOC-to-EOC messages were sent via simplex at the same time as the Care & Reception Center messages were being sent to the Village EOC via the W6LY 2-meter repeater. During the *OCRACES Earthquake Net*, several LWRACES members contacted OCRACES net control and passed Mike-Mike Earthquake Intensity Scale messages.

City/County RACES & MOU Drill on October 3

On Saturday, October 3, 2020, from 0900 to 1100 hours, we conducted a successful and enjoyable portable simplex drill as our annual first-Saturday-in-October City/County RACES & MOU ACS Exercise. City and County RACES and MOU members set up portable stations on their home property, since the COVID-19 pandemic currently prevents us from having any RACES activities outside our home property. We simulated that all repeaters had failed and conducted this drill on simplex frequencies and on 60 meters. This drill went much more smoothly than our previous portable drill, primarily because, during the first 15 minutes (beginning at 1900 hours), City RACES units and MOUs called a roll of their members on their primary simplex frequencies, while OCRACES net control (Chief Radio Officer Ken Bourne, W6HK) called the roll of its members on the OCRACES primary simplex frequency of 146.595 MHz. We did not have all participants from all units trying to check in on one simplex frequency, like last time, which was chaotic. Beginning at 0915, the Chief Radio Officers or coordinators (or a designated member) of the City RACES units and MOUs moved over to 146.595 MHz and responded to a City/MOU roll call by OCRACES net control, with a report of how many of their members checked in on their primary simplex frequencies. Relay stations (especially Gordon West, WB6NOA, in Costa Mesa and others) assisted OCRACES net control in covering Cities in South County on 146.595 MHz.

Beginning at 1000 hours, Ken incorporated the Portable Drill into the normal Saturday morning 60-meter OCRACES ACS net on 5371.5 kHz USB (“channel 4” dial frequency). This net covers the 11 counties in the Cal OES Southern Region plus northern Arizona and southern Nevada. After calling the regular Saturday roll call of Orange County City and County RACES stations, net control stood by for additional RACES and MOU stations in Orange County. Relay stations such as WB6NOA in Costa Mesa and W6CAW in Campo (near the Mexican border), and N6WIX in Ventura assisted net control for covering various areas of Orange County. Net control then called the normal Saturday roll of RACES/ACS stations outside Orange County, followed by the non-EmComm stations.

On the 2-meter OCRACES roll call from 0900-0915 hours, OCRACES members checking in included KD6DAQ, WF6F (relayed by WB6NOA), W6HK (net control), N6PRL (relayed by WB6NOA), N2VAJ, and AB6VC. From 0915 to 0955 hours, City RACES and MOU units checking in included (by designated call sign and number of their check-ins on their primary simplex frequencies): Anaheim (KW6ACK—1), Brea (WB6DNX—6), Costa Mesa (KM6UJD—22), Cypress (KK6REB—5), Fountain Valley (WA6FV, relayed by WB6NOA—5), Fullerton (K6FUL—5), Huntington Beach (W6HBR and K6GAT—19), Irvine (KE6KYH—21), Laguna Niguel (WB6CKG—7), Laguna Woods (NH7WG—7), Los Alamitos (KM6RSY—16), Mission Viejo (W6EDT—9), Newport Beach (KB6FW and KM6JON—8), Orange (KG6MIG—13), Placentia (KG6CAV—6), Seal Beach (KM6RSY—16), Westminster (N6HVC, relayed by WB6NOA—5), American Red Cross (K6HMS and KK6YUP—5), OCHEART (KM6RSY—3), and Orange County SKYWARN (KK6YUP—4). Two OCRACES applicants also checked in—W6EIF and KK6HFS. Other 2-meter check-ins included WD6AJR (visitor), K6FTL (OCHEART), KB6KPK (visitor), K6BS (visitor), N6NQN (Fountain Valley RACES), and W6ONT (Cypress RACES).

One purpose of a drill like this is to detect faulty operation, such as stations transmitting intermittent signals, having poor audio, or being off frequency. Our relay station, Gordon West, WB6NOA, noticed several stations were off frequency by 5 kHz. One was even 10 kHz high. Gordo points out that this is a function of the “step” setting on their radios, especially noted if they were turning the knob and not using the mic keypad. Ideally, the operators should make a note of the planned frequencies well ahead of the drill and program those frequencies into their radios. That can be tricky, if the operator does not also program the frequency steps—5 kHz on 2 meters and 20 kHz on 440 MHz (referencing a common frequency such as 446.000 MHz). Gordo noted that several stations were not speaking up on their mic and could not be copied clearly. Gordo always tells the operator to close-talk the mic. Before the net, two stations had their Yaesu ARTS turned on. This sends a beep at PTT in place of voice audio, followed by dead carrier silence for the first three seconds. This is a common problem with operators unfamiliar with their Yaesu radios. Gordo was an effective 2-meter relay station for reaching South County. Mission Viejo RACES Radio Officer Charley Speelman, WA6RUZ, said most stations in his area could only receive net control about S1 to S3, but reported hearing Gordo loud and clear.

Drills that allow non-RACES members to participate are a good way to recruit new RACES members. Laguna Woods RACES Chief Radio Officer Bruce Bonbright, NH7WG, said they had two additional radio operators participate and they are possible prospects for their RACES team. Bruce was able to communicate with net control in Orange, using a portable X-3 vertical VHF/UHF antenna on a PVC pole

Newport Beach Chief Radio Officer Steve Livingston, KM6JON, said they seemed to have a dead spot around Balboa Island. They used a relay from Balboa to Dover Shores to solve the problem, caused by a low-power handheld radio. Steve was able to communicate with net control in Orange, using a handheld radio.

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October 3rd ACS Exercise *Continued from Page 4*

On the 60-meter roll call from 1000 to 1100 hours, OCRACES members checking included WF6F, W6HK (net control), N6PRL (relayed by WB6NOA), and N2VAJ. Stations checking in from City RACES units included Anaheim KW6ACK), Brea (AI6ZN), Costa Mesa (WB6NOA), Cypress (W6ONT), Fountain Valley (KD6JBL), Huntington Beach (KJ6CM and W6HBR), Irvine (K6PB), Laguna Woods (K6EEE and NH7WG), Mission Viejo (W6EDT and N6JCN), Newport Beach (NI6E, KB6FW, K6GSX, and KM6JON), and Orange (KG6MIG and N0VNJ). Other RACES/EmComm check-ins included Cal OES CRU (W6GMU in Cypress and W6CAW in Campo, near the Mexican border), Ventura County ACS (N6WIX in Ventura), and Nye County (Nevada) EmComm (KE7KHE in Pahrump). 60-meter band conditions were interesting, as usual. KE7KHE in Pahrump lost net control, and later net control came up to 20 dB over S9 for 90 seconds, and then faded down to below his S2 noise level. Some stations were on 60 meters for the first time and were challenged by non-resonant antennas and high noise levels. We hope they did not get discouraged, because 60 meters (and all of HF) is one of the most fascinating aspects of amateur radio. Gordon West, WB6NOA, was an effective relay station and found it very helpful when net control gave the name and call sign during the roll call. Non-RACES/EmComm check-ins on 60 meters included WD6AJR and KB6KPK in Orange, WA6NFE near Escondido, K6ORJ mobile in Fresno, and W6YLD in Santa Maria.

As a result of the 60-meter portion of the exercise, Laguna Woods RACES Chief Radio Officer Bruce Bonbright, NH7WG, ordered a Xiegu G90 20-watt radio from HRO so he can operate HF away from his home. He will be using it remotely with a Hamstick dipole and also with his 50-foot end-fed antenna for the Saturday 60-meter nets.

Ken operated net control from his home station on 2 meters and 60 meters for this drill, to increase reliability of county coverage, although all other stations were supposed to be battery-powered with portable antennas. On 2 meters, he used a chimney-mounted Hustler G7-144 vertical antenna with stacked 5/8-wave radiators, delivering a 7 dBd maximum effective omnidirectional gain. On 60 meters, he used a 102-foot G5RV antenna up about 35 feet. At the conclusion of the net, Ken moved his operation to a 20-watt portable station in his backyard, using a Hamstick dipole up about 9½ feet on a tripod mast. He worked W6YLD in Santa Maria and others with that setup, and was copied by WA6NFE near Escondido. The drill concluded at 1100 hours.

Total participants during the first hour in the City and MOU primary simplex and County simplex nets was 196. During the second hour, the total participants on 60 meters was 31.

OC Health Care Agency Issues Vaccine Survey

The OC Health Care Agency needs your help in conducting a survey of attitudes toward vaccination for COVID-19, which will be of great assistance to them in planning for distribution of the vaccine when it becomes available. Please fill out the simple questionnaire concerning how you feel about being vaccinated against COVID -19. Just click on https://www.research.net/r/covidvaccine_English to reach the survey, and it will automatically be submitted when you complete it. Please only complete the survey once. You are also encouraged to forward this survey to your family and friends and ask them to participate and share. To learn more about the Orange County COVID-19 Vaccine Task Force, please visit <https://occovid19.ocalthinfo.com/orange-county-covid-19-vaccine-taskforce>.

OCRACES Winlink System Remains Down

The OCRACES Winlink system went down on July 21, 2020. Until network issues are resolved, the three OCRACES UHF RMS sites are not operational. Meanwhile, we encourage City RACES units to set up their own RMS gateways, either on one of the 2-meter packet frequencies (such as 145.05 MHz) or on one of the OCRACES UHF RMS frequencies. All RMS (Radio Mail Server) programs require a full-time Internet connection. The speed of this connection is not critical. RMS programs are all designed to sense loss of connectivity and recover or reconfigure automatically. The computer should be a 500-MHz or greater processor running Windows 8, Windows Server 2003 or later, or Windows 10, with .NET 3.5 installed. The computer and TNCs should be powered from a smart uninterruptible power supply (UPS) that has a reserve battery and signals Windows to begin an orderly shutdown via an interface when battery power is low. A shortcut to the RMS program should be installed and the computer configured to auto-boot on power applied and start the program automatically when power is applied.

RACES/MOU News from Around the County

"RACES/MOU News" provides an opportunity to share information from all City & County RACES/ACS units and MOU organizations and supportive amateur radio clubs in Orange County.

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

kbourne.ocsd@earthlink.net

Anaheim RACES

NWS-San Diego issued a Fire Weather warning for Friday, 16 October. As a result, Anaheim RACES and CERT Personnel were activated for Fire Watch Patrol by Anaheim's Office of Emergency Management and Preparedness.

A significant area of eastern Anaheim (Anaheim Hills) lies in the wildland urban interface and has historically suffered from wildfires, the most recent being the Canyon 2 fire in October 2017. Recognizing the threat to Anaheim's residents and property, Anaheim Fire & Rescue (AF&R) tasked the RACES and CERT Program, which operates under the Office of Emergency Management and Preparedness, to develop a fire watch program.

Anaheim's Fire Watch Program relies on RACES and CERT volunteers to patrol areas in Anaheim Hills designated as severe fire hazards by AF&R. Specific patrol routes have been developed with step-by-step digital and pictorial guides that enable volunteers unfamiliar with Anaheim Hills to successfully navigate each route.

Anaheim Fire Watch volunteers receive annual training and generally patrol in pairs, although solo patrols are now the norm until the pandemic subsides. Communication is generally via ham radio with a designated net control operator when available.

Each Fire Watch patrol is equipped with a fire extinguisher and a digital anemometer. Utilizing this device, Fire Watch personnel take wind speed, humidity, and temperature readings at key locations. This data is immediately transmitted to the Office of Emergency Management and Preparedness to provide real-time situational awareness to Anaheim's fire fighters.

Fire Watch patrols act as the eyes and ears for AF&R. Volunteers confirm that gates to wildland access roads are properly locked and that Anaheim City parks are properly closed with keep-out warnings. Volunteers are trained in fire behavior and the specifics (location, terrain, wind speed and direction, properties threatened) of reporting a fire. Fires are reported immediately to 9-1-1 while suspicious activity, such as abandoned vehicles, are called into the Anaheim Police Department's non-emergency number.

Friday's Fire Watch was fairly routine as the forecasted winds did not develop. Fire Watch patrols reported sighting one deer, one turkey vulture, and a red-tailed hawk, and notified the Anaheim PD regarding suspicious activity in the patrol area.

Newport Beach RACES

The Newport Beach RACES Winlink stations, K6NBR-10 on 145.05 MHz and K6NBR-10 on 431.475 MHz, have been restored to full operation. The UHF station is on the same frequency as W6ACS-10 at Loma Ridge (which is currently down).

Seal Beach RACES

Seal Beach PD Sgt. Brian Gray has taken over the Emergency Management position for Seal Beach, and is now the Emergency Services Coordinator and RACES Program Coordinator.

Cal OES CRU

We are very sad to report that Cal OES CRU Member Jim Bogdan, WB6IMV, passed away in mid-October. Jim was born in 1938 and is survived by his wife Carolyn, N6YKU, who is also a Cal OES CRU member.



Anaheim RACES and CERT personnel were activated on Friday, October 16, 2020, for Fire Watch by Anaheim's Office of Emergency Management and Preparedness.

November 2020

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2 Weekly 2 m ACS Net & OCRACES Zoom Mtg	3	4	5	6	7 Weekly 60 m ACS Net
8	9 Weekly 2 m ACS Net	10	11	12	13	14 Weekly 60 m ACS Net
15	16 Weekly 2 m ACS Net	17	18	19	20 Orange County Amateur Radio Club Meeting	21 Weekly 60 m ACS Net
22	23 ACS Net on 4 Bands	24	25	26 Happy Thanksgiving	27	28 Weekly 60 m ACS Net
29	30 Weekly 2 m ACS Net					

Upcoming Events:

- **November 2:** OCRACES Meeting on Zoom, 1930 hours
- **November 20:** Orange County Amateur Radio Club (OCARC) Meeting, 1900 hours, on Zoom
- **November 26:** Thanksgiving



<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 (out of service)
 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)
 23 cm: 1287.650 MHz, 1287.675 MHz, 1287.700 MHz, 1287.725 MHz, 1287.750 MHz, and 1287.775 MHz outputs, -12 MHz inputs, 88.5 Hz PL
 *Primary Net—Mondays, 1900 hours

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County of Orange RACES

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**“W6ACS ...
 Serving
 Orange County”**

**Visit Our Web Site
<https://ocraces.org>
 It's Where It's @!**

Questions or Comments?
 Contact *NetControl* Editor Ken Bourne, W6HK
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Meet Your County of Orange RACES Members!

Officers →



Ken Bourne W6HK Scott Byington KC6MMF Jack Barth AB6VC Ernest Fierheller KG6LXT Bob McFadden KK6CUS Tom Tracey KC6FIC



Randy Benicky N6PRL Ray Grimes N8RG Lee Kaser KK6VIV Walter Kroy KC6HAM Martin La Rocque N6NTH Don Mikami N6ELD Fran Needham KJ6UJS



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