April 2022

County of Orange RACES
NetControl

Newsletter of the County of Orange Radio Amateur Civil Emergency Service

OCRACES Online Meeting on Microsoft Teams:

Monday, April 4, 2022 at 7:30 PM

Orange County Sheriff's Department Emergency Management Division

CRO's Nest
by Ken Bourne, W6HK, OCRACES Chief Radio Officer

1¼-Meter Band

OCRACES has an effective 1¼-meter repeater on Sierra Peak, with excellent coverage throughout central and northern Orange County, as well as into Los Angeles County and the western parts of Riverside and San Bernardino Counties.

In this article, I will discuss how the 1¼-meter band evolved and some of its characteristics. In a follow-up article, I'll discuss available equipment for this band.

The 1¼-meter band is also known as the 1.25-meter, 220-MHz, and 222-MHz band. It sits between the 2-meter band (144-148 MHz) and the 70-centimeter band (420-450 MHz). Propagation characteristics are similar to 2 meters. Mathematically, antennas are smaller than 2-meter antennas, allowing more elements per equal area for higher gain. Noise is typically lower on 1¼ meters. Therefore, even though path loss is slightly more than 2 meters, 1¼-meter signal strength is typically better. Because of even greater path loss on 70 centimeters, 1¼ meters appears to have a slight signal advantage over either 2 meters or 70 centimeters.

Radio amateurs began experimenting with the 1¼-meter band as early as 1933, just before the Federal Communications Commission (FCC) was formed. Hams achieved reliable communications in the fall of 1934. In 1938, the FCC allocated two VHF bands, 2½ meters (112 MHz) and 1¼ meters (224 MHz). Later, the FCC moved the 2½-meter band to 144-148 MHz (thus becoming the 2-meter band), while the 1¼-meter band was expanded to a 5-MHz bandwidth (220-225 MHz).

Early 1¼-meter operation was mostly on AM and CW. In the late 1960s, operating on FM repeaters on 2 meters and 70 centimeters became popular, with amateurs converting surplus Motorola and other land-mobile equipment. However, 1¼-meter FM activity remained stagnant, since there were no land-mobile allocations near that band, and thus no surplus radios to convert.

In 1987, the FCC modified Novice Class privileges to allow voice operation on the 1¼-meter and 23-centimeter bands. As a result, some amateur radio equipment manufacturers began producing radios for 1¼ meters, but sales were low. The FCC no longer issues Novice licenses.

In the late 1980s, United Parcel Service (UPS) lobbied the FCC to reallocate part of the 1¼-meter band to the Land Mobile Service. UPS planned to use the band for a narrow-bandwidth wireless voice and data network using amplitude-companded single sideband (ACSSB). In 1988, the FCC reallocated 220-222 MHz to private and federal government land-mobile use, while leaving 222-225 MHz exclusively for amateur use. UPS eventually pursued other means of communications. With 220-222 MHz left unused, the FCC allocated parts of the band for development of super-narrowband technologies. In the 1990s and early 2000s, paging companies used 220-222 MHz, which ended by the mid-2000s. In April 1995, the FCC established regulations for amateur point-to-point fixed digital message forwarding systems, including intercity packet backbone networks, providing the Amateur Radio Service use of the 219-220 MHz band on a secondary basis. 220-222 MHz remains non-amateur. 222-225 MHz remains for normal, mostly FM, use by radio amateurs.

800 MHz Talkgroups in Orange County (Part 2)
by Robert Stoffel, KD6DAQ

As RACES members, we are sometimes called upon to operate on public safety radio channels, either from the Orange County Emergency Operations Center (EOC) at Loma Ridge, in the field with the Control 7 communications response vehicle, or using a radio at the scene of an incident or special event. In this continuing series I am sharing information and providing our members with a better understanding about these channels and how they are used.

We continue our look at the 800 MHz Countywide Coordinated Communications System (CCCS), the trunked radio system shared between the County and its 34 cities. Last month we focused on talkgroups unique to the Orange County Sheriff's Department. This article will discuss talkgroups used by the other Law Enforcement agencies in Orange County.

Every city Police Department in Orange County uses the 800 MHz CCCS. Each agency is assigned several talkgroups that include the color "Green" in their name. Most cities have three Green talkgroups (Green-1, Green-2, and Green-3). Some of the larger cities have additional talkgroups, and are indicated with additional numbers (such as Green-4, Green-5, Green-6, etc.).

Green talkgroups are agency-specific. In other words, an Anaheim Police radio selected to Green-1 will not communicate with a Buena Park Police radio selected to Green-1. On a city radio, the display will simply show Green-1, Green-2, Green-3, etc., however , on radios with multiple Green talkgroups, such as the EOC or Control 7, the display will show a three-letter mnemonic to indicate the agency. For example, the display for Anaheim Police Green-1 in Control 7 or at the

Anaheim Police APX mobile radio selected to Green-1.

EOC will be displayed as GRN-1-ANA, Buena Park Police will be displayed as GRN-1-BPK, and so forth. All city Police Departments use Green-1 for day-to-day dispatching; the other Green talkgroups are used for tactical and special activity communications. The Green talkgroups are always located in Zone-1 of the city Police Department radio.

The Orange County District Attorney and Probation Departments are each assigned several agency-specific Green talkgroups, also located in Zone-1 of their radios.

Top view of an APX portable radio selected to Black-3.

Other talkgroups in a Law Enforcement radio are typically used when more than one agency is working together, or when a single agency requires the use of an additional talkgroup. The "Orange" talkgroups in Zone-2 of all Law Enforcement radios are typically used for the coordination of incidents normally handled by patrol units. The "Black" talkgroups in Zone-3 are typically used for detective, surveillance, and special event communications. The "Gray" talkgroups in Zone-4 are typically used for narcotics, surveillance, and special event communications. Each set of colors have two talkgroups that can be used at any time without restriction, known as "North" and "South." Examples are Orange North (shown as Orange-N on a radio display) or Gray South (shown as Gray-S on a radio display). Additionally, each set of colors has seven talkgroups that may only be used when assigned by Control One. Examples are Orange-2, Gray-3, Black-7, and so forth.

The Red talkgroup appears in several positions of all Law Enforcement radios. The Law Enforcement mobile radio has a unique design found only in Orange County. The mobile radio monitors Red at all times along with whatever talkgroup (such as Green-1) is selected, each having its own volume setting. Red is the countywide Law Enforcement emergency coordination talkgroup, used for the transmission of countywide broadcasts and when an officer or deputy needs emergency assistance when outside his/her jurisdictional boundaries. This allows for one transmission to be heard by every patrol car, motorcycle, helicopter, and dispatch center, regardless of department. While RACES members may monitor this talkgroup, it would be rare for RACES to ever transmit a message over Red.

Finally, a number of school-based departments use the 800 MHz CCCS for their day-to-day operations, and each has a set of agency-specific Green talkgroups. These agencies are California State University Fullerton Police, Coast Community College District Police, Irvine Valley College Police, Rancho Santiago Community College District Safety & Security, Saddleback College Police, and Santa Ana Unified School District Police.

This completes our review of the 800 MHz CCCS talkgroups that are unique to Law Enforcement. Next month we continue our journey by looking at 800 MHz CCCS talkgroups used by the Fire Service.

Next OCRACES Meeting: April 4th on Teams

Our next OCRACES meeting will be on Monday, April 4, 2022, at 7:30 p.m. Joe Selikov, KB6EID, will host this meeting on Microsoft Teams. A meeting link will be emailed to the ocsd-races Groups.io list. Members of city, county, and state RACES and EmComm units are invited. At this meeting, Laguna Niguel ACS Chief Radio Officer Russ Lange, KK6URR, will share LNACS's experience with mesh—how they got started, the obstacles, the successes, where they are now, and their plans forward.

Winlink in Orange County
by Scott MacGillivray, KM6RTE@gmail.com

Countywide Winlink Peer-to-Peer Practice Drill Results

This quarter's countywide Winlink Peer-to-Peer (P2P) drill was held on Saturday, March 12, 2022, from 9:00 a.m. until noon. This drill was similar to the one held last quarter, but had a couple more gateways available to use as relays. In addition, new for this drill was a couple of stations operating as "Winlink Message Centers" around the county that simulated a local EOC during an emergency event and represented stations available to send and receive messages to and from.

Drill Ops located at Loma Ridge communicated with over 15 different Winlink operators around Orange County, with well over 60 messages sent and received. The other "Winlink Message Centers" had good numbers of contacts and messages sent and received as well. Overall, there were an estimated 100 messages transferred around the county during the 3-hour-long exercise. In addition, several new graduates of my "Introduction to Winlink Express" class had the opportunity to test out their new radio and computer setups, as well as experiment with sending and receiving P2P messages.

With all of the different Winlink operators, Drill Ops, and the "Winlink Message Centers" sending and receiving messages on the same frequency (145.090 MHz), it was difficult for some operators to successfully make a connection. Unlike previous P2P drills (with less traffic), it appeared there was a higher number of incomplete message transmissions during this drill. With the expectation that the number of Winlink operators in Orange County will continue to grow, there is the need for additional frequencies to be organized for Winlink traffic in Orange County to support more traffic. Future "Winlink in Orange County" articles will outline my thoughts on what this plan could look like. If you have a suggestion, please don't hesitate to contact me.

The next countywide Winlink P2P drill is tentatively scheduled for Saturday, June 11th, from 9:00 a.m. until noon. Mark your calendar.

New Winlink Radio Message Servers (RMSs) Now Available in Orange County

The number of Winlink RMS "Gateways" continues to grow in Orange County, with the addition of two new ones—W6HBR-10 in Huntington Beach (System Operator is Huntington Beach RACES) and NJ6R-10 in Newport Beach (System Operator is Steve Livingston). A really BIG thanks to the operators of these new gateways!

Winlink in Upcoming Countywide ACS Drill on May 7th

The Winlink portion of the drill is open to all licensed amateur radio operators that have Winlink stations in Orange County, and are highly encouraged to participate. This includes city RACES units (e.g., IDEC, MESAC, COAR), other organizations that have an MOU with OC Sheriff's Department (OCSD) (e.g., OCHEART, American Red Cross [ARC]), as well as other EmComm organizations (e.g., Newport Beach Repeater Club). In addition, this drill is open to all individuals, whether or not they are members of the various city RACES organizations and are simply interested in supporting EmComm.

Telnet communications mode (i.e., direct internet connection) is acceptable and encouraged for those stations that are as yet unable to communicate with a Winlink RMS (Radio Message Server) gateway via RF.

COAR Holds Unannounced EmComm Drill

The City of Orange Amateur Radio (COAR) RACES members held an unannounced EmComm drill on Tuesday morning, March 15, 2022. The focus of the drill was on the initial first steps of responding to an emergency activation. After being notified of the emergency via COAR's text messaging system (in lieu of an actual 8.1 earthquake), members were to contact Net Control using their battery-powered radio to provide their location and status for activation. Members had no prior knowledge of the day and time of the notification; however, responses were received from over 65% of members. This was a great start to planned EmComm drills over the coming months.

Search & Rescue Reserve Unit Provides SAR
by Eric Bowen, W6RTR

When you picture Orange County, I'd be willing to bet that the first thing you think of is probably not the amount of wilderness parks we have here or even the national forest. And when you think of Search & Rescue, the first thing you might think about is that they usually only search for lost hikers in the wilderness or forests. I've been asked by numerous people, since I began my SAR journey, "How do people get lost in Orange County?" Well, it happens a lot more than you know.

The County of Orange includes 25 regional and wilderness parks, with an area of more than 39,000 acres. There is also an additional 39,000 acres in the San Mateo Wilderness section of the Cleveland National Forest that is part of Orange County. The Search & Rescue Reserve Unit (SRRU) provides SAR responses throughout the county as well as surrounding counties through the California mutual aid system.

It is not just that lost day hiker who goes out into one of these wilderness parks and gets lost. It can happen to even the most experienced hikers. They could become injured, they could underestimate the nature of their hike and are not prepared to be out there after dark, they could be hiking a new area and get turned around, etc. These types of searches are just a part of what the Search & Rescue Reserve Unit faces.

In addition to the "lost hiker" searches, a lot of the searches here in Orange County consist of finding missing children, missing adults (generally adults with a diminished mental capacity), adults with Alzheimer's, and evidence searches. In fact, in the last week and a half, I have been at two different locations where a family member has approached us and asked for our help where they had a missing child and an adult with Alzheimer's who walked off. Neither of these incidents resulted in a callout for the team, because we were able to find them both very quickly by doing an immediate area search. This was a "Right-place, Right-time" kind of thing. Unfortunately, finding somebody so quickly doesn't happen all of the time.

Here's a little bit of a history lesson before I get into explaining how to become a part of the SRRU. The Orange County Sheriff's Department SRRU, originally called the Mobile Reserve Unit, was started by Sheriff Jesse Elliot back during WWII and was originally created to provide homeland security duty by patrolling the rural parts of OC to keep watch for an invasion from Japan. During the 1960s, the unit's mission and name was officially changed to what it is today. The SRRU is an all-volunteer unit made up of Reserve Deputies, PSRs (Professional Services Responders), and Explorer scouts.

It is probably easier for me to quote the SRRU Mission Statement than try to paraphrase it:

"Ready to respond 24 hours a day, the Orange County Sheriff's Department Search & Rescue Reserve Unit is dedicated to saving lives, reuniting families, and apprehending fleeing suspects throughout the County of Orange, and wherever else we are required to serve."

Saving lives and reuniting families—that's an incredible thing to be a part of. It wasn't until I went on my first callout for a search that it really struck me how life-changing that can be. Not just for the families, but for me also. We found our missing subject, healthy and safe. While we were at the command post, a family member pulled in and I will never forget the look on his face as he thanked us. I'm sure everybody in the SRRU can remember their moment when they realized this.

And for those of you wondering, only the Reserve Deputies (levels I and II) are called upon to go after fleeing suspects. The CA Peace Officers Standards and Training guidelines do not let PSRs or Level III Reserve Deputies participate where an arrest is likely to be made.

Before you are eligible to be deployed for a search, you must complete the Search and Rescue Academy. In this SAR Academy, you will receive the required basic training that has been established by the National Association For Search and Rescue, or NASAR, and the SRRU. All members are trained to the SAR Technician Level 2.

In addition to the SAR Academy, the unit holds monthly training exercises, usually on a Saturday or Sunday, as well as having additional training at the monthly meetings. Not only do the monthly training exercises really hone your skills, but they also include additional skills that are not taught during the SAR Academy or they add to what was taught. Some of these skills include metal detecting for evidence searches, preventative SAR (PSAR), land navigation with only a paper map and compass, night operations, rappelling (to include rappelling from a tower and a waterfall), low angle rescue, urban SAR (USAR), and many more.

Over the coming months, I will be writing additional articles about the different squads within the SRRU. These will include the Land Search Operations, Command Post Support, K-9 Operations, Logistics, Medical / Triage, Technical Rescue, Technical Search, and PSAR.

If you are interested in joining the Search & Rescue Reserve Unit, you must be a Reserve Deputy with the Orange County Sheriff's Department, a Professional Services Responder (PSR), or an Explorer. Monthly meetings are held at the Sheriff's Academy. Please check the Reserve Tracker for the date and time and sign up.

City/County RACES & EmComm Drill: May 7th

The next City/County RACES & EmComm ACS Exercise will be on Saturday, May 7, 2022, from 0900 to 1130 hours. The exercise will include simplex voice on 2 meters FM and 60 meters upper sideband, Winlink, and AREDN mesh. Because of concerns that emergency communications might be degraded or fail due to poor repeater coverage in some areas of the county, or due to possible repeater failure, this exercise will be a field-deployment exercise and will focus on alternative means of communications in case of such repeater problems. These alternative means of 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 exercise. City and County RACES and EmComm members will operate portable stations, preferably at locations that need to be tested for local and countywide simplex radio coverage. We recommend that they use battery or generator power, portable antennas, and simplex only (simulating repeater failure). The AREDN mesh component will be in the drill plan.

OCRACES net control will operate from the Orange County EOC RACES Room on Loma Ridge, for more reliable simplex coverage on 2 meters and 60 meters. The simplex exercise will run from 0900 to 1130 hours. The first hour and a half will be on 2 meters and the last hour and a half will be on 60 meters, with both segments overlapping by one-half hour. From 0900 to 0930 hours, on 2 meters, each City and County RACES and MOU unit will conduct a roll call of its members on its primary simplex frequency. OCRACES will call its members on 146.595 MHz. If necessary, some city agencies may need to appoint a member to operate as a relay station. From 0930 to 1030 hours, on 2 meters, OCRACES net control (located at Loma Ridge) will call the roll of City RACES and MOU units on 146.595 MHz simplex. The Chief Radio Officer or Coordinator (or designated member) of each unit will respond, with a report of the number of stations that checked in on their agency's primary simplex frequency. Relay stations may need to assist OCRACES net control in some difficult-to-reach cities, such as in South and West Orange County. From 1000 to 1030 hours, on 60 meters, OCRACES net control will run a net on 60 meters channel 4 (5371.5 kHz dial frequency, upper sideband), using the same roll call of Orange County City and County RACES and EmComm stations as on the Saturday morning OCRACES ACS net. The first half hour will run concurrent with the last half hour of the 2-meter simplex net. From 1030 to 1130 hours, on 60 meters, net control will call for additional RACES and EmComm stations in Orange County that were not on the Saturday roll call. Relay stations inside and outside Orange County will assist OCRACES net control in covering various areas of Orange County. OCRACES net control will then call the roll of RACES/ACS stations outside Orange County, followed by a roll call of non-EmComm stations. Finally, OCRACES net control will stand by for visitors.
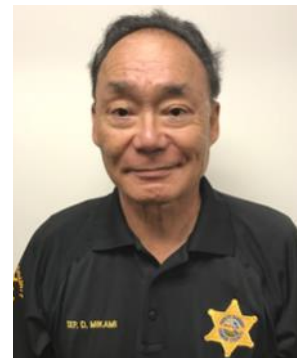
Don Mikami, N6ELD, Silent Key

With extreme sadness, we report that OCRACES member Don Mikami, N6ELD, passed away at age 74 on Tuesday, March 8, 2022, at home, after a valiant fight with cancer. Dr. Don Mikami was a dentist in Fountain Valley. He attended UC Berkeley (Genetics), UCLA (Dentistry), and USC (Education and Prosthodontics). After dental school, Don took flying lessons and became a private pilot, instrument pilot, commercial pilot, flight instructor, multiengine instructor, airline transport pilot, and seaplane pilot. He flew business jets and turboprops, in addition to his personal plane, a twin-engine Cessna 310R, based at John Wayne Airport. He retired as a dentist after 45 years and became deeply involved as a Reserve in the Orange County Sheriff's Department.

Don Mikami, N6ELD, SK.

Don was a retired OCSD Reserve Lieutenant and served as a fixed-wing pilot in the Aero Squadron Reserve Unit for 13 years. Don resigned as a Reserve after his cancer progressed, and eventually returned as a Professional Services Responder (PSR) in the Reserve Bureau and in OCRACES.

Don was initially licensed as a Novice, WN6UPK, in 1964, while in high school, and eventually became an Amateur Extra Class licensee. He lived in Costa Mesa and enjoyed amateur radio, running an Icom IC-7300 HF SDR transceiver with an MFJ Intellituner 993-B into 100 feet of 450-ohm window line to a dipole antenna. He worked the world and enjoyed the FT8 mode on 20 meters.

Don became an OCRACES member in February 2019, while still a Reserve Lieutenant. He enjoyed riding on OCRACES cooperative T-hunts, and became an expert with the fox-hunting loop. He had a very warm personality and quickly made friends in OCRACES and throughout the Sheriff's Department, where he served with dedication.

Countywide RACES/EmComm News

Costa Mesa MESAC Winlink Drill

By Chief Radio Officer Ashley Fisher, KM6UJD

A number of MESAC Members attended Scott MacGillivray's Winlink classes that he offered over a 5-6 week period. On behalf of MESAC, thank you to Scott for taking the time, and patience, to work with all involved in learning Winlink!

Scott then offered a Winlink drill on March 12, 2022, which was a non-sanctioned event. A number of MESAC members got together at Ashley Fisher's house (MESAC interim CRO) to participate in the drill, and troubleshoot some members' equipment set-ups.

We utilized three different radio systems.

System 1 was in the back of MESAC member Marcus MacKenzie, KM6ANN's, Jeep, using his new three-radial, 60-inch fiberglass antenna and his mobile radio.

System 2 was a "thrown together" system of a mobile radio with a power supply and a mag-mount mobile antenna on a pie tin, on top of a 7-foot ladder.

System 3 utilized one of the radios in Ashley Fisher's Sprinter Van that is set up for Winlink, but had yet to be tested.

Using these different setups allowed MESAC to test the ability to reach out to various gateways, and peer-to-peer to Loma Ridge, as requested for the drill using these various radio configurations. All three systems worked very well for the drill, and the systems were able to reach numerous gateways and Loma Ridge.

The next challenge was the various computer systems that MESAC members had configured to accomplish Winlink. On the day of the drill, MESAC was fortunate that one of their newest members showed up, who is a computer expert by trade. He was able to give a great bit of assistance to configuring a few of the systems that were showing setup issues.

After some troubleshooting and trial and error, all radio systems, all computer systems, and all MESAC members were able to participate in the drill, and not only reach Loma Ridge with messages, and receive confirmation replies, but also hit a number of gateways, and deliver numerous messages to numerous email addresses, including ICS

MESAC members George Berg, KN6MYV, Malachi Clark, KN6SUZ, Don Haddock, KN6QDV, and Marcus Mackenzie, KM6ANN (left to right), at March 12th Winlink drill.

forms. MESAC members practiced and understood how to use ICS forms in Winlink.

It was a great chance to get together, test some equipment, work out some equipment issues, work on problems and solutions as a team, and perform and achieve tasks as a team. The MESAC team did very well, especially when getting back together after such a long time

We look forward to more events and training in 2022 as a team. And at MESAC we have a really great team!

Laguna Niguel ACS

The City of Laguna Niguel sponsored an Emergency Preparedness Fair on Saturday, March 26, 2022, from 0900 to 1200 hours, at City Hall. Attendees learned about emergency preparedness from various public agencies and community partners, such as the Orange County Fire Authority and the Orange County Sheriff's Department. Interactive experiences and informational resources were provided to help the community learn about the steps they can take to be better prepared in case of an emergency. The event included:

- Preparedness demonstrations
- Emergency response vehicles— "Touch a Truck"
- Interactive and informational displays
- Raffle prizes and giveaways

The Laguna Niguel ACS team was there and demonstrated its mesh network, including the service cluster that resides on a Raspberry Pi. The services include text, VoIP, email, calendar/scheduler, document storage/ file sharing, and video capture.

April 2022

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2 Weekly 60 m ACS Net
3	4 Weekly 2 m ACS Net & OCRACES Teams Mtg	5	6	7	8	9 Weekly 60 m ACS Net
10	11 Weekly 2 m ACS Net	12	13	14	15 Good Friday	16 Weekly 60 m ACS Net
17 Easter	18 Weekly 2 m ACS Net	19	20	21	22 Orange County Amateur Radio Club Meeting	23 Weekly 60 m ACS Net
24	25 Mandatory PSR All-Hands Meeting (no net)	26	27	28	29	30 Weekly 60 m ACS Net

Upcoming Events:

- **April 4, 1930 hours:** OCRACES Meeting on Microsoft Teams
- **April 15, 1900 hours:** Orange County Amateur Radio Club Meeting on Zoom
- **April 17:** Happy Easter!
- **April 25, 1800-2000 hours:** Mandatory PSR All-Hands Meeting, OC Sheriff's Regional Training Academy (OCRACES ACS net canceled)
- **May 2, 1930-2130 hours:** OCRACES in-person meeting at the OC Sheriff's Regional Training Academy; Sgt. Kyle Sheek to speak about his experiences as a canine handler
- **May 4, 1830 hours:** Orientation for PSR Applicants, OC Sheriff's Regional Training Academy
- **May 7: 0900-1200 hours:** City/County RACES & EmComm ACS Exercise
- **May 14, 0900 hours:** Prescreen for PSR Applicants, OC Sheriff's Regional Training Academy

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
https://ocraces.org
It's Where It's @!

Questions or Comments?
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"W6ACS ...
Serving
Orange County"

Meet Your County of Orange RACES Members!

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W6HK

Scott Byington
KC6MMF

Jack Barth
AB6VC

OCSD
RACES →
Coordinator

Lee Kaser
KK6VIV

Heide Aguire
K3TOG

Randy Benicky
N6PRL

Eric Bowen
W6RTR

Ray Grimes
N8RG

Peter Jimenez
KI6UTE

Walter Kroy
KC6HAM

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N6NTH

Steve Livingston
NJ6R
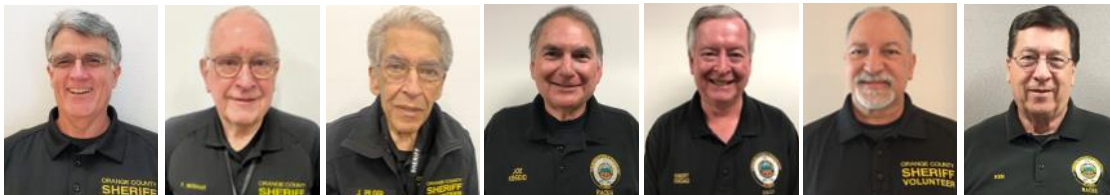
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