County of Orange RACES

NetControl

Newsletter of the County of Orange Radio Amateur Civil Emergency Service

OCRACES Online Meeting on Microsoft Teams:

Monday, February 7, 2022 at 7:30 PM

Orange County Sheriff's Department Emergency Management Division

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

Cyberwar

We have been covering cybersecurity in our articles and meetings, and will continue to do so as new information comes along that we need to be aware of in RACES.

Cyberattacks are increasing, as we see in newspaper articles, alerts from the FBI, the Cybersecurity & Infrastructure Security Agency (CISA), Infragard, *SecurityWeek* newsletter, and other sources.

But it could get much worse. On January 24, 2022, CNN said it obtained a Department of Homeland Security intelligence bulletin stating that Russia would consider conducting a cyberattack on the U.S. homeland if Moscow perceived that a U.S. or NATO response to a potential Russian invasion of Ukraine "threatened" Russia's long-term national security. "Russia maintains a range of offensive cyber tools that it could employ against U.S. networks—from low-level denials of service to destructive attacks targeting critical infrastructure," says the DHS memo.

The Pentagon announced on January 24th that 8,500 American troops have been put on "high alert" for possible deployment to Eastern Europe. President Joe Biden is also considering the deployment of warships and aircraft to NATO allies in the Baltics and Eastern Europe. Although Ukraine is not in NATO, the alliance could still respond if Russia invades Ukraine with the more than 100,000 troops it has massed on the border. This has raised the specter of war that could escalate and widen.

With our 8,500 troops involved, could this escalate even further to a U.S. war with Russia? Rather than a devastating nuclear war, it could be a cyberwar instead, which would still be a calamity.

Russia has already cyberattacked Ukraine. In January, hackers defaced and disabled more than 70 government websites, and Microsoft discovered malware planted in Ukrainian government systems that could be triggered at any moment, according to *POLITICO* Magazine. This is only a hint of what Russia could do. In a full-scale cyberattack, Russia could take down the power grid, turn off the heat in the middle of winter, and shut down Ukraine's military command centers and cellular communications systems. Russia could do the same thing to the U.S., as it retaliates against sanctions that President Biden is threatening. It could destroy our economy and all infrastructures, and we could do the same to Russia. During the Cold War we were horrified with the thought of nuclear war. Now we are faced with the possibility of an unimaginable cyberwar.

If we go to war with Russia, the President's War Emergency Powers could be invoked, resulting in amateur radio operations to cease (as in World War II). RACES rules were created by the FCC in 1952 to allow radio amateurs registered with a Civil Defense agency to provide auxiliary communications during such a shutdown. The modern equivalent of Civil Defense is Emergency Management, which is within a law-enforcement or fire department, or is a separate local-government or state agency. A government auxiliary communications unit (often called "RACES") may operate under normal FCC Amateur Radio Service rules, but if the federal government shuts down amateur radio during war, the AUXCOMM unit could continue operations under Part 97.407 of the FCC rules.

800 MHz Channels in Orange County (Part 3)
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) on Loma Ridge, or in the field with the Control 7 communications response vehicle. In this continuing series, I am sharing information about these radio systems and channels, providing our members with a better understanding on what they are and how they are used here in Orange County.

We continue our look at the 800 MHz Countywide Coordinated Communications System (CCCS), the trunked radio system shared between the 34 cities and County Law, Fire, Lifeguard, and Public Works agencies. This month we take a look at repeated conventional radio channels found in 800 MHz CCCS radios. The channels discussed in this article are only available in 800 MHz CCCS radios, so, they won't typically be found in other local, State, or Federal agency radios. Many of these channels are also found on the radio consoles at the EOC and Control One.

The 800 MHz CCCS has several repeated channels that provide coverage in a specific area, and the designator RP is always a part of the 800 MHz CCCS repeated channel name (RP stands for Repeater). The 800 MHz CCCS also has several channels that are designated for use with a transportable repeater, and the designator TR is always a part of the 800 MHz CCCS transportable repeater channel name (TR stands for Transportable Repeater).

The 800 MHz CCCS has two discipline-specific transportable repeater channels. Law Enforcement shares one transportable repeater channel known as WHITE-TR (pronounced "White-T-R") and it may be found in Zone-5 of all Law Enforcement mobile and portable radios. The Fire Service shares one transportable repeater channel known as FIRE-TR (pronounced "Thirteen Foxtrot") and it is found in Zone-13 of all Fire Service radios. WHITE-TR and FIRE-TR does not appear on the EOC or Control One radio consoles at Loma Ridge, but are available using radios inside Control 7.

All Orange County 800 MHz CCCS mobile and portable radios have eight repeated channels for tactical use located in Zone-10. Channels available for all disciplines are called "Tan" channels, and use the "TAN" designator as a part of the channel name. These channels also have a number/letter channel name and some agencies refer to the channel using that name. TAN-TR (pronounced "Tan-T-R" or "Ten-Bravo") is a trans-

Top view of an APX portable selected to the Tan-TR channel.

portable repeater channel available for use anywhere in the County. TAN-US-RP (pronounced "Tan-U-S-R-P" or "10-Delta") is a transportable repeater channel available for use anywhere in the United States. TAN-CAT-RP (pronounced "Tan-Cat-R-P" or "Ten-Foxtrot") is a repeater channel located on Catalina Island, providing enhanced radio coverage along the Orange County coastline. TAN-SIL-RP (pronounced "Tan-Sil-R-P" or "Ten-Hotel") is a repeater channel in Silverado Canyon, providing enhanced radio coverage in the Silverado Canyon area. Tan-TR does not appear on the EOC or Control One radio consoles at Loma Ridge, but is available using radios inside Control 7.

Front view of an APX portable selected to State Parks channel 10-India.

While not a part of the 800 MHz CCCS, California State Parks operate their own 800 MHz repeater channels, and these channels have been programmed into various Orange County and City Law, Fire, and Lifeguard radios for interoperability. Located in Zone 10 of authorized 800 MHz CCCS mobile and portable radios, they include channels used at State Park locations in and around Orange County. Bolsa Chica State Beach, Crystal Cove State Park, and Huntington State Beach use three channels, called Ten-India (dispatch), Ten-Juliet (dispatch), and 10-Kilo (tactical). Three channels used at Doheny State Beach, San Clemente State Park, and San Onofre State Beach are Ten-Lima (dispatch), Ten-Mike (dispatch), and Ten-November (tactical). Two channels used at Chino Hills State Park are Ten-Oscar and Ten-Papa. These State Parks channels do not appear on the EOC or Control One radio consoles at Loma Ridge, but are available using radios inside Control 7.

This completes our review of the repeated channels that are unique to the 800 MHz CCCS. Next month we will continue our journey by taking a look at the 800 MHz CCCS talkgroups used by the Sheriff's Department.

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

Need for Additional Winlink RMS Gateways

With the OCRACES Winlink RMSs (Radio Message Servers) [aka, gateways] being down since July of 2020 and only a few others currently available, it is very difficult for Winlink operators in Orange County (OC) to have access to these critical Emergency Communications (EmComm) resources. Many locations throughout the county have no access to a gateway, and most locations don't have the needed access to more than one gateway in order to provide redundant communications paths. Winlink gateways act as a bridge between radio communications and the internet. They provide the much-needed Auxiliary Communication (AUXCOMM) access to exchange messages between operators and agencies within OC, as well as with operators and agencies throughout California and across the country.

Additionally, these gateways provide the ability to operate as a relay utilizing Winlink's Peer-to-Peer (P2P) communication mode if/when the internet is not available. During a widespread local or regional emergency, it should be expected that internet access may not be available, so P2P represents a much-needed EmComm resource during these disasters. In order for the gateways to operate as coordinated relays across OC, I'm personally recommending that Winlink VHF gateways in Orange County use the frequency of 145.090 MHz and select the Enable Digipeat option within the RMS Packet software that runs the gateways. By utilizing this common frequency, these relays can communicate between themselves and extend the range that messages can be sent. Unlike using voice on the same frequency, Winlink is digital communication and by using the built-in Packet encoding it can coordinate up to 6 messages simultaneously on a given frequency. This is one of the big advantages of using digital communication. When the day comes that there are so many gateways in OC (yeah) that interference starts to become an issue (12 -15 gateways?), we can then coordinate to have some of them move to another frequency (144.420 MHz?) to create another network of relays. During the latest countywide Winlink P2P practice drill held on December 11, 2021, the participating operators extensively utilized four OC gateways operating on 145.090 MHz by sending dozens of messages to/from all corners of the county.

It has come to my attention that several organizations (e.g., Huntington Beach, Seal Beach, OCHEART) are currently working to set up new Winlink Gateways. This is AWESOME, and will go a long way to helping our current gateway scarcity. South OC still has spotted coverage, which is mostly due to the local hilly terrain. Since it will probably be many months if/when the OCRACES gateways are back up and running, these new gateways can provide a much-needed EmComm resource in the short term and will provide countywide coverage robustness in the long run. I highly recommend that you consider establishing a new gateway in your community, either as an individual operator (as several of us have; e.g., WA6RUZ, KF6BRC), or as a project for your city EmComm organization.

Setting Up a Gateway

Luckily it doesn't take much to set up a Winlink RMS. The equipment isn't anything special and is very similar to what it takes to set up a Winlink Express client station. You will need to have the equipment dedicated to operating 24 hours a day, 7 days a week (24/7). The following table describes the key items and infrastructure needed:

Item	Description
Computer	Dedicated computer to support 24/7 operation. Microsoft (MS) Windows operating system. Minimal computing "horsepower" (e.g., I3 processor, 2.6 GHz or better) and memory (e.g., 8 GB RAM, 256 GB disk storage or better) needed. Since it is infrequently accessed for system maintenance, it can be set up "headless" (without keyboard, monitor, and mouse) to save money, and operated using remote operation software.
Software	Winlink RMS Packet software can be downloaded for free from Winlink.org: https://downloads.winlink.org/Sysop%20Programs/. Remote operation software, if needed.
Radio	VHF channel recommended for 1200 baud Packet comm mode. Additional UHF channel recommended to make available an additional channel. It is recommended that the radio have built-in data connector jacks to support digital communications, though most any radio can be made to operate digitally. It is mostly a tradeoff of what radio you have in hand, cost, and how much effort you want to spend to get things working properly.
TNC	A gateway has similar digital to analog adapter needs to what Winlink Express needs. For example, Kantronics TNC KPC 3+, SoundModem software (free) coupled with Masters Communications DRA-50, or similar.
A/C Power	The equipment should either be connected to a) facility backed-up power outlets, b) an Uninterruptable Power Supply (UPS) sized to support operation for several hours, or c) both.
Internet	Continuous internet access is required. Bandwidth of 1-2 Mbps, or greater recommended. Requires minimal/no firewall restrictions. Internet router/switch should be on backed-up power as well (e.g., UPS).
Location	Best to choose a location that provides the greatest coverage of the local area. Using a higher gain antenna is a good idea as well. These are just standard good radio station guidelines.

Winlink in Orange County *Continued from page 3*

In order to be a System Operator for a Winlink Gateway, there are several simple guidelines that the Winlink organization recommends you follow. You can find them listed at: https://www.winlink.org/content/join_gateway_sysop_team_sysop_guidelines. This link also provides the email address you need to send your request to have your callsign acknowledged as a Winlink System Operator.

My personal recommendation is to initially focus on setting up a VHF channel first (on 145.090 MHz), since it can provide the greatest coverage and can be utilized by the greatest number of operators. If there is additional interest, I highly recommend adding a second radio for a UHF channel in order to provide additional channels throughout the county. Adding the additional channel typically doesn't involve much, since the gateway computer can support multiple channels simultaneously, dual band antennas easily support VHF and UHF by utilizing a diplexer, and there is minimal impact for the electrical power & internet connections. I personally recommend that it be set up on one of the less used UHF digital frequencies (e.g., 431.070, 431.175, 431.475 MHz). In order to support the largest number of users, it is probably best not to operate at 9600 baud, since this requires higher performing radios and TNCs to support this speed, which may not be available to many users. However, in order to support a higher throughput, I recommend the UHF channel support the VARA FM encoding (in addition to Packet). By utilizing the VARA FM encoding option, throughputs can be equal or better than what 9600 baud can provide. The VARA FM encoding software is available from https://rosmodem.wordpress.com. The free version is called narrow, and the purchased ($60) version is called wide. The wide version supports speeds up to 4 times faster than the narrow version, and your one-time payment covers up to 15 installations (with your callsign). A wide installation can also support narrow communications. However, a drawback of using VARA FM is that it is my understanding that, unlike Packet encoding, it can only handle one message traffic at a time, hence the recommendation of setting up gateways on separate frequencies.

Since I personally live at a location that is definitely not optimal for good coverage, my gateways (KM6RTE-10, and -12) are located somewhere else more ideal for supporting wider coverage. I access the computer using Real VNC software (https://www.realvnc.com/en/) to remotely log in for monitoring status and occasionally doing software updates and maintenance. This remote operation software is also used successfully by other Winlink System Operators and doesn't interfere with the gateway software (as I found MS Remote Desktop Connection software does). I initially assembled my gateways in my garage and did 99% of the configuration and double-checked operations before moving the equipment to its final location.

Upcoming Winlink Peer-to-Peer Practice Drill

This quarter's countywide P2P drill is scheduled for Saturday, March 12,2022. Mark your calendars. This drill is planned to be similar to the one held on December 11th last year but should have a couple more gateways to use as relays. More details will be distributed through the OCRACES Groups.io mailing list several weeks prior to the drill.

Next OCRACES Meeting: Feb. 7th on Teams

Our next OCRACES meeting will be on Monday, February 7, 2022, at 7:30 PM. Joe Selikov, KB6EID, will host this online meeting on Microsoft Teams. You can download Teams here for your desktop and for your mobile. A meeting link will be emailed to the ocsd-races Groups.io list and to OCRACES applicants. Members of city, county, and state RACES and EmComm units are invited to attend this meeting.

At this meeting we will have an open discussion about APRS (Automatic Packet Reporting System), commonly used for tracking radio amateurs, but also for other applications. We might incorporate APRS into our next City/County RACES & EmComm ACS Exercise on May 7th, so getting acquainted at this meeting with how to install and use APRS is important. We emphasize the importance of tracking members who are deployed during activations, such as Severe Fire Weather Patrols. Members can beacon with APRS-equipped radios or with APRS cell-phone apps. APRS is not just a tracking system. It is a system for real-time digital communications of information of immediate value in the local area. Data can include object Global Positioning System (GPS) coordinates, weather station telemetry, text messages, announcements, queries, and other telemetry.

Ops at 3.45-3.5 GHz Must Cease by April 14th

The FCC has established April 14, 2022, as the date by which amateur radio transmissions must stop in the upper 3.45-3.5 GHz segment of the amateur secondary 9-centimeter band. Secondary operations are permitted to continue indefinitely in the remainder of the band, 3.3-3.45 GHz, pending future FCC proceedings.

On January 14, the FCC released DA 22-39, which announces the results of Auction 110 for the 3.45-3.55 GHz band. Release of this notice triggered FCC rules adopted last year, requiring that amateur radio operations between 3.45 GHz and 3.5 GHz cease within 90 days of the public notice.

Serving in the Aero Squadron Reserve Unit
by Eric Bowen, W6RTR

For 75 years, members of the OCSD Aero Squadron Reserve Unit have assisted the Orange County Sheriff's Department by providing air support to the OCSD and other law-enforcement and local government agencies when needed. Whether it's picking up murder suspects from out of state that are being extradited back to California, flying OCSD Investigators to retrieve a kidnapped boy and bring him back to California, interviewing a cold-case witness out of state, or providing communications support by

OCSD Aero Squadron Reserve Unit Captain Ray Grimes, N8RG (left), and ASRU Observer Eric Bowen, W6RTR.

circling an incident with an 800-MHz repeater aboard, you can expect the mission to be exciting. If you do a quick search online, you will find many articles discussing some of the ASRU accomplishments.

This month, the ASRU will be celebrating that 75th anniversary (it was formed the same year that the United States Air Force was formed, in 1947). The Aero Squadron was formed by former Sheriff James A. Musick, who was a private pilot. Prior to that, going back to 1926, Orange County law enforcement cooperatively operated an air support unit in the form of the Flying Police of Santa Ana with a small team of civilian pilot volunteers. From the ASRU's first Captain, Johnny Martin, to its seventh and current Captain, our very own OCRACES member Ray Grimes, N8RG, the Aero Squadron started with 12 members and has a current membership of over 30 PSRs and Reserve Deputies. The combined experience of all the members is well over 100,000 flying hours. Some ASRU members have more hours in their plane than most retired fighter pilots get in their career.

The ASRU is open to all pilots who are PSRs or Reserve Deputies, with at least an FAA Private Pilot License, Instrument Rating, and significant recent flight experience. You should also have access to a plane and be willing to donate your time and out-of-pocket expenses for the benefit of the County of Orange and the State of California.

You are probably asking yourself, "What can I do in the ASRU if I am not a pilot?" You can also serve as a Flight Observer, or administrative staff member. An Observer assists the pilot throughout the entire mission. This would mean sitting in the right front seat of the airplane and looking for other nearby aircraft, watching the GPS for nearby traffic, operating or watching the airplane's other instruments, handling radio communications, and assisting the pilot with whatever is needed.

When I first joined the ASRU, I was surprised at the number of amateur radio operators that were also members. After having flown with some members of this unit and becoming an Observer, I can see why there is a lot of crossover. Using the radio in an airplane is the true definition of keeping your message clear, concise, and short.

There is an aging technology that is used to help navigate airplanes that is based on radio technology, called VOR, or VHF Omnidirectional Radio (108 MHz to 118 MHz, housed in the ground-mounted white antenna cones seen near airports.) It was developed in 1937 and deployed in 1947. It became the worldwide standard for air navigation and is still used today, although the Global Positioning System (GPS) is rapidly taking its place. It's sort of an airborne radio direction finder. You tune your VOR instrument to a specific VHF VOR frequency and it will tell you how far away you are and the speed you are traveling (if combined with VOR collocated Distance Measuring Equipment-DME transponder), your heading in relation to the VOR, and, if you are on that VOR heading, also indicating if you are on or off course. If you tune a radio to the VHF Airband and to a nearby VOR, you can hear the Morse Code identifier beacon. So as to not confuse (more), the identifier of an airport begins with "K," so KSNA would be the airport but SNA would be the nearby VOR beacon.

Offering another aviation trivia gem, airport airway chart fixes and intersections have a maximum of five letter identifiers that don't appear to make sense. When the FAA first obtained computers, they were limited to supporting intersection names of only five characters maximum, thus AHEIM (Anaheim), ALBA (Albacore), and my favorite BORED (Boring, near Coalinga).

Each member is issued a Nomex flight suit (green if you are a Reserve Deputy or tan if you are a PSR). We are also issued an OCSD ASRU leather name patch for the flight suit. Once you complete your Observer training, you receive your gold wings to place on your name patch. The unit holds training flights, training exercises, and monthly meetings, and supports missions as requested.

I have had an amazing time being a member of the Aero Squadron. Unless you are a pilot or know a pilot, you may never get the chance to fly in a small airplane or private jet. My last flight took us down to San Diego, near Miramar. It was incredible to see the F/A-18s flying around in the same airspace as us. If you are looking for something different to do, something that most people will never experience, think about joining the Aero Squadron.

Countywide RACES/EmComm News

Cypress RACES

The URL for the Cypress RACES website is now https://www.cypressca.org/departments/police/community-relations/r-a-c-e-s.

Huntington Beach RACES

While still remaining as part of the RACES Management Team, Jim Hansen, KG6ZDP, has stepped back as the Huntington Beach RACES Chief Radio Officer. Emergency Services Manager Brevyn Mettler, KI6FRG, the city's RACES Coordinator, has appointed Jon Welfringer, WB6OZD, as Jim's replacement.

Huntington Beach RACES Assistant Chief Radio Officer Greg Turlis, K6GAT, reported that they have been updating their Winlink capabilities to the county. They have built and put online two Winlink gateways (W6HBR-10 on 145.030 MHz at 1200 bps and 431.125 MHz at 9600 bps). The gateways are located at Huntington Beach City Hall. They will be online 24 hours/365 days a year. With their current setup for repeater linking, HBRACES has a dedicated internet connection that is not on the city network, so they are able to keep the gateways online without dealing with city internet protocols and firewall restrictions. Hopefully, these gateways online will give better coverage to the northern parts of the county. The 2-meter gateway is working flawlessly. The 70-centimeter gateway is online and configurations to the data cable are being made. The gateways are open for all public use and will remain that way for a while. HBRACES is planning to add VARA FM to their system (still in the testing phase).

Placentia RACES

Radio Officer Mark Garrett, KG6CAV, retired from Placentia RACES, effective January 1, 2022. Emergency and Health Services Manager Patrick Powers is the liaison for the City of Placentia.

Orange County SKYWARN

OC SKYWARN was activated at noon on December 29, 2021, for reports of rain, snow, and flooding. Showers were predicted to become more numerous in the afternoon along with a chance of thunderstorms, More widespread showers would continue into the evening. The National Weather Service in San Diego requested OC SKYWARN Coordinator Scott O'Donnell, WX6STO, to activate SKYWARN for critical weather reports. NWS needed reports from members' homes, rather than from the field. Flooding and heavy rainfall measurements in a short amount of time were requested. Scott deactivated OC SKYWARN at 7:42 PM on December 30th.

Orange County Sheriff's Department Mutual Aid Bureau/Reserves

RACES PSRs who missed the Patrol/Radio/Situational Awareness PSR Training on January 6, 2022, may attend a repeat of this training on Wednesday, February 2nd, from 1800 to 2000 hours at the Orange County Sheriff's Regional Training Academy in Tustin. Another PSR Training (Human Trafficking/Drugs/Gangs) will occur on Tuesday, March 15th, from 1800 to 2000 hours, at the Academy. Please register for these events on the Reserve Tracker Calendar.

Captain Richard Nelson, who commands the OCSD Mutual Aid Bureau in the Special Operations Division, is retiring in March 2022. Sergeant Jason Doherty has been promoted to Lieutenant and has transferred from the Special Operations Division, Mutual Aid Bureau/Reserves/SAR/SRT to the Intake Release Center, effective January 14th. Sergeant Jason McLennan has moved into the Mutual Aid/Reserves/SAR/SRT position and Sergeant Kyle Sheek has taken the PSRs/Explorers/Chaplains position.

The OCSD Emergency Management Division is accepting applications for membership in its RACES unit. To become a member, an applicant must first be an OCSD Professional Services Responder (PSR) or sworn Reserve Deputy. Reserve information may be found on the Reserves page of the OCSD website. After reading information on Sworn Reserve Deputies and PSRs, click "Reserve Testing & Orientation Dates." If you wish to pursue PSR orientation or sworn Reserve testing, click "Reserve Interest Form" and fill in the requested information.

February 2022

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

Upcoming Events:

- **February 2:** PSR Patrol/Radio/Situational Awareness Training, OC Sheriff's Regional Training Academy, 1800-2000 hours (repeat of January 6 training)

- **February 7** OCRACES Meeting on Microsoft Teams, 1930 hours

- **February 17:** Orange County Amateur Radio Club Meeting on Zoom, 1900 hours

- **March 2:** Orientation for PSR Applicants, OC Sheriff's Regional Training Academy, 1830 hours

- **March 12:** Prescreen for PSR Applicants, OC Sheriff's Regional Training Academy, 0900 hours

- **March 15:** PSR Training, Human Trafficking/Drugs/Gangs, OC Sheriff's Regional Training Academy, 1800-2000 hours

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

OCSD RACES Coordinator
Lee Kaser, KK6VIV, (714) 628-7081

Radio Officer
Scott Byington, KC6MMF

Chief Radio Officer
Ken Bourne, W6HK, (714) 997-0073

Assistant Radio Officers
Jack Barth, AB6VC
Ernest Fierheller, KG6LXT

OCSD Emergency Management Division
2644 Santiago Canyon Road
Silverado, CA 92676

Telephone – (714) 628-7081
Fax – (714) 628-7154
E-mail: LKaser@OCSheriff.gov

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

Questions or Comments?
Contact *NetControl* Editor Ken Bourne, W6HK
kbourne.ocsd@earthlink.net

*"W6ACS ...
Serving
Orange County"*

Meet Your County of Orange RACES Members!

Officers ➡

Ken Bourne W6HK	Scott Byington KC6MMF	Jack Barth AB6VC	Ernest Fierheller KG6LXT

Heide Aguire K3TOG	Randy Benicky N6PRL	Eric Bowen W6RTR	Ray Grimes N8RG	Peter Jimenez KI6UTE	Walter Kroy KC6HAM	Martin La Rocque N6NTH	Steve Livingston NJ6R

Scott MacGillivray KM6RTE	Don Mikami N6ELD	Fran Needham KJ6UJS	Harvey Packard KM6BV	John Pilger K6PIO	Joe Selikov KB6EID	Robert Stoffel KD6DAQ	Chuck Streitz KK6HFS	Ken Tucker WF6F

*OCSD
RACES
Coordinator* ➡

Lee Kaser
KK6VIV