County of Orange RACES

NetControl

Newsletter of the County of Orange Radio Amateur Civil Emergency Service

OCRACES Meeting

In-Person at OC EOC, Loma Ridge

Monday, August 1, 2022, at 7:30 p.m.

Orange County Sheriff's Department Emergency Management Division

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

Exploring Microwaves

Most RACES activity in Orange County occurs on 2 meters (144-148 MHz) and 70 centimeters (420-450 MHz), especially using repeaters on those bands. OCRACES also conducts a net on 60 meters (5371.5 kHz) and checks into the Cal OES California Emergency Services Net on 40 meters (7192 kHz) and 75 meters (3992 kHz). We also have repeaters on 6 meters (52.62 MHz) and 1¼ meters (223.76 MHz). But what about the microwave spectrum, which many RACES members consider impractical for emergency communications, due to scarcity of equipment and propagation limitations?

You will often see references to the microwave spectrum as covering wavelengths from 1 meter to 1 millimeter, corresponding to frequencies from 300 MHz to 300 GHz. That puts the 70-centimeter band (with our four OCRACES UHF repeaters) in the microwave spectrum. However, RF engineers and probably most hams consider the microwave spectrum to cover 1 GHz to 100 GHz (30 centimeters to 3 millimeters), and anything above 100 GHz to be in the millimeter-wave spectrum (often lumped into the definition of the overall microwave spectrum). The 902-928 MHz band (33 centimeters), because it's just below 1 GHz, is often defined by hams to be at the bottom of the microwave spectrum.

The 902-928 MHz band is in the UHF (ultrahigh frequency) spectrum (300-3000 MHz), and is allocated to the Amateur Radio Service on a secondary basis. It is also used by industrial, scientific, and medical (ISM) equipment, as well as low-powered unlicensed devices. Very few radio amateurs operate on this band, due to a scarcity of equipment. Alinco used to offer their DJ-G29T dual-band handheld radio, covering 222/902 MHz. That radio is discontinued, and most hams use converted Motorola land-mobile equipment to access 33-cm FM repeaters or 33-cm all-mode transverters (such as Q5 Signal) for such applications as SSB and CW weak-signal activity.

The next higher microwave ham band is 23 centimeters, covering 1240 to 1300 MHz (1.2 to 1.3 GHz). Kenwood used to offer 1200-MHz modules for their TM-741A and TM-742A triband FM mobile transceivers, but that equipment was discontinued several years ago. Icom offered their ID-1 1200-MHz FM/D-STAR mobile transceiver, which is also discontinued. OCRACES has an operational ID-1 in the OC EOC RACES Room. OCRACES also has six 1.2-GHz FM repeaters at various locations, on 1287.650 MHz, 1287.675 MHz, 1287.700 MHz, 1287.725 MHz, 1287.750 MHz, and 1287.775 MHz, all with an input offset at –1200 MHz and 88.5 Hz CTCSS. The equipment is old and some sites are not guaranteed to be operational. Q5 Signal offers a 25-watt, 1296-MHz transverter with a 28-MHz or 144-MHz IF. Icom offers their popular triband, all-mode, direct-sampling, IC-9700 triband transceiver, covering 144, 430/440, and 1200 MHz, but it is currently out of stock at most or all dealers. Weak-signal activity on 1.2 GHz SSB and CW is quite popular.

CRO's Nest *Continued from page 1*

The 13-centimeter band is comprised of two segments, 2300-2310 MHz and 2390-2450 MHz. The segment 2310-2390 MHz was withdrawn from the amateur service and reallocated to direct satellite radio broadcasting (e.g., Sirius XM Radio). The segment 2390 to 2417 MHz is allocated to the amateur service on a primary basis, while the remainder of the band is shared, whereby amateurs may not cause interference to and must accept interference from radio-location, fixed, and mobile stations (except aeronautical). Amateur stations operating in the 2400-2417 MHz segment must accept harmful interference that may be caused by industrial, scientific, and medical (ISM) equipment. CW and SSB activity is at the low end, with 2304.1 MHz as the calling frequency. The 13-cm band is loaded with signals from cordless telephones, Bluetooth, Wi-Fi, ZigBee and IEEE 802.15.4 wireless data networks, RF peripherals, microwave ovens, audio-visual devices (such as baby monitors, wireless microphones, wireless speakers, and video senders), radio control (R/C models and garage doors), car alarms, radars, smart power meters, and wireless power transmission. This crowded 2.4-GHz band remains popular for mesh activities, using converted Wi-Fi routers and associated equipment.

Because of the many interfering signals from the various services occupying the 13-cm (2.4-GHz) band, some radio amateurs, especially those involved in mesh, have shifted their activities up to the 3.3 to 3.5 GHz secondary 9-centineter band. Weak-signal activity is in the lower portion and mesh networks are at the higher end. Unfortunately, on April 14, 2022, the upper 3.45-3.50 GHz segment was eliminated by the FCC for amateur use. Secondary operations are permitted to continue indefinitely in the remainder of the band, 3.30-3.45 GHz, pending future FCC proceedings. Because the 2.4-GHz band is so crowded with interfering signals, mesh enthusiasts have promoted using the 9-cm band, with equipment on 24 shared Wi-Fi channels from 3.38 to 3.5 MHz. The upper 10 channels, from 3.45 to 3.5 GHz, are now eliminated by the FCC, and 14 channels remain.

Weak-signal CW and SSB activity occurs at the bottom of the 5650-5925 MHz band (5 centimeters). You won't find equipment for this band at typical ham-radio stores, but that might change if Icom is successful with their SHF Project for developing a 2.4/5.8-GHz radio. This 5-cm band is also popular for mesh operations, since Wi-Fi equipment is available for conversion. This secondary band overlaps part of the Unlicensed National Information Infrastructure (U-NII) band that is used by wireless local-area network (WLAN) devices and many wireless internet service providers (ISPs) and all of the 5-GHz ISM band.

The 10.0-10.5 GHz band (3 centimeters) is popular for

Design sketch of SHF-P1 controller for the Icom SHF Project—Super High Frequency Band Challenge. The controller and antenna-mounted RF module will cover the 2.4-GHz and 5.6-GHz bands on all modes, including digital voice and digital data (DV/DD). A PoE power source will be available for the RF module. Frequency stability will be achieved with a GPS 1-PPS signal. Included will be a wide-span, real-time spectrum scope.

amateur microwave activity, often using Down East Microwave, Kuhne Electronic GMBH, and other available transverters, or fully homebrew equipment. It is used for many amateur terrestrial experiments and tests that have helped to develop the technical characteristics of the band. Several beacons are operational on 10 GHz in Southern California. Propagation can be surprising, under various conditions. Desert thunderstorms are currently enabling long and strong 10-GHz contacts between Southern California and central Arizona.

Going up in frequency, amateurs are experimenting with the 24.0-24.25 GHz band (1.25 centimeters), with primary allocation at 24.00-24.05 GHz and secondary in the rest of the band. Amateurs must accept ISM interference. Transverters are available from Kuhne and other sources.

Amateur activity becomes increasingly scarce (and challenging) as we look at even higher millimeter-wave bands, such as 47.0-47.2 GHz, 76.0-81.0 GHz, 122.25-123.0 GHz, 134-141 GHz, 241-250 GHz, and all above 275 GHz.

As amateurs become increasingly successful with experimenting at these upper reaches of the radio spectrum, commercial interests are also, and are coveting our frequencies. A group of innovative companies known as the mmWave Coalition is united in removing regulatory barriers to technologies and using frequencies ranging from 95 GHz to 450 GHz. Cellular telephone networks are now transitioning to the broadband 5G standard, which can be implemented in low-band (600-900 MHz, similar to 4G), more commonly in mid-band (1.7-4.7 GHz), and in high-band (24-47 GHz, especially 24.25-29.50 GHz). Somewhat mind-blowing is the FCC's recent grant of the first Spectrum Horizons Experimental license to Keysight Technologies for developing 6G technology in sub-terahertz bands, between 95 GHz and 3 THz. ✦

Next OCRACES Meeting: August 1st at EOC

The next OCRACES meeting will be on Monday, August 1, 2022, at 7:30 p.m., at the Orange County Emergency Operations Center, 2644 Santiago Canyon Road, near Silverado (at Loma Ridge).

At this meeting, OCSD Emergency Management Division Deputy Director (and OCRACES Coordinator) Lee Kaser, KK6VIV, will go over County EOC activation procedures, positions, and responders. He will also discuss ways in which members might increase their service to the Sheriff's Department and the Operational Area.

OCRACES members and other PSRs and sworn Reserves planning to attend this meeting need to register on the Reserve Tracker Calendar. City RACES and EmComm members are also invited to attend this meeting. ✦

Yaesu Announces FT-710 AESS Transceiver

Yaesu recently announced the FT-710 AESS 100-watt SDR transceiver, which covers 1.8 MHz to 50 MHz transmit and 30 kHz to 75 MHz receive. Formal release is pending FCC approval. The following information is preliminary, and is subject to change, but should be of interest to RACES members who plan to purchase a new HF transceiver later this year.

The new FT-710 AESS uses the same digital RF technology introduced in Yaesu's FTDX101 and FTDX10 series. It will include the following features:

- SDR technology emphasizing receive performance
- Band-pass filters dedicated for the amateur bands, to eliminate out-of-band unwanted signals
- RF front-end design with a 250-MHz HRDDS (High Resolution Direct Digital Synthesizer) for improved multisignal receiving characteristics
- QRM rejection by a dual-core, 32-bit, high-speed, floating-decimal-point DSP for shift/width/notch/contour/APF (Audio Peak Filter)/

DNR (Digital Noise Reduction)/NB (Noise Blanker) and three-stage parametric equalizer
- High-resolution 4.3-inch TFT color touch panel display
- 3DSS (3-Dimensional Spectrum Stream)
- VMI (VFO Mode Indicator) LED placed around the VFO dial to show the current operating mode (VFO-A, VFO-B, memory mode, and clarifier/split operation)
- "PRESET" mode function, most suitable for FT8 operation
- AESS (Acoustic Enhanced Speaker System) for high-fidelity audio output with the SP-40 accessory external speaker
- Connection terminal (DVI-D) for an optional third-party external display
- Built-in high-speed automatic antenna tuner with 100-channel memory
- Support for the Yaesu FC-40 automatic antenna tuner, which is a microprocessor impedance-matching network, mounted near the antenna feed point
- SD memory card, which can be

Yaesu FT-710 AESS HF/50-MHz transceiver, shown with SP-40 external speaker and optional third-party external display.

used to save the communications record, transceiver setting, transceiver memory contents, and screen-capture images, and to update the firmware
- Two USB ports (Type-A and Type-B)
- Other features such as CW ZIN and SPOT, IPO (Intercept Point Optimization), and remote operation with network remote control system, etc.

✦

Use NATO Phonetic Alphabet

OCSD and other agencies in Orange County use the NATO phonetic alphabet for radio communications. OCRACES follows the same procedures, and members are advised to memorize the following:

A ········ Alpha	**D** ········ Delta	**G** ······· Golf	**J** ········· Juliett	**M** ········ Mike		**T** ········· Tango	
B ········ Bravo	**E** ········ Echo	**H** ········· Hotel	**K** ········ Kilo	**N** ········· November		**U** ········ Uniform	
C ········ Charlie	**F** ········ Foxtrot	**I** ·········· India	**L** ········ Lima	**O** ········ Oscar		**V** ······· Victor	
				P ········· Papa		**W** ········ Whiskey	
				Q ········· Quebec		**X** ········ X-ray	
				R ········· Romeo		**Y** ········ Yankee	
				S ········· Sierra		**Z** ········· Zulu	

800 MHz Radio Display Abbreviations
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 public safety radio at the scene of an incident or special event. In this continuing series I am providing our members with a better understanding about these channels and how they are used. This month we continue our look at the 800 MHz Countywide Coordinated Communications System (CCCS), the trunked radio system shared between the County and it's 34 cities. This article will focus on radio display abbreviations. Knowing these abbreviations ensures OCRACES members are selected to the proper talkgroup or channel.

The 800 MHz CCCS uses standardized abbreviations because of the limited number of characters that can be shown on a radio or console display. OCRACES personnel should be familiar with these abbreviations when using specially programmed handheld radios, the radios inside Control 7, and the EOC radio console at Loma Ridge, to ensure you are selected to the proper talkgroup or channel. Any talkgroup or channel that belongs to a specific city or agency, including Law Enforcement, Fire, Lifeguard, Public Works, and Water Districts uses these abbreviations. Using Huntington Beach as an example, the Green-1 talkgroup is displayed as GREEN-1-HTB, Fire 3H is displayed as 3H HTB-TAC, Aqua-1 is AQUA-1-HTB, Silver-1 is SILVER-1-HTB, and Pink is PINK-HTB.

The list below shows the city name followed by the three-letter abbreviation.

City Name	CCCS Abbreviation	City Name	CCCS Abbreviation
Aliso Viejo	AVJ	Laguna Woods	LAW
Anaheim	ANA	Lake Forest	LKF
Brea	BRE	Los Alamitos	LOS
Buena Park	BPK	Mission Viejo	MVJ
Costa Mesa	COS	Newport Beach	NPB
Cypress	CYP	Orange	ORG
Dana Point	DAP	Placentia	PLA
Fountain Valley	FVY	Rancho Santa Margarita	RSM
Fullerton	FUL	San Clemente	SCL
Garden Grove	GGV	San Juan Capistrano	SJC
Huntington Beach	HTB	Santa Ana	STA
Irvine	IRV	Seal Beach	SLB
La Habra	LHB	Stanton	STN
La Palma	LAP	Tustin	TST
Laguna Beach	LAB	Villa Park	VPK
Laguna Hills	LAH	Westminster	WST
Laguna Niguel	LAN	Yorba Linda	YBL

This list shows the abbreviations used to identify a County agency and other CCCS users.

Department Name	CCCS Abbreviation
California State Parks	CSP
California State University Fullerton Police	CSF
Coast Community College District Police	CCC
Costa Mesa Sanitary District	CMW
East Orange County Water District	EOW
El Toro Water District	ETW
Golden State Water Company	GSW
Irvine Ranch Water District	IVW
Irvine Valley College Police	IVC
Laguna Beach County Water District	LBW
Mesa Water District	MWD
Midway City Sanitary District	MSW
Moulton Niguel Water District	MNW
Municipal Water District of Orange County	WRC
Orange County Animal Control	OCA
Orange County Correctional Medical Services	CMS
Orange County District Attorney	DA
Orange County Emergency Medical Services	EMS
Orange County Environmental Health	OCE
Orange County Fire Authority	ORC
Orange County Health Care Agency	HCA
Orange County John Wayne Airport	JWA
Orange County Lifeguards	OC
Orange County Parks	PRK
Orange County Probation	OCP
Orange County Public Works	OCPW
Orange County Public Works / Facilities Operations	FAC
Orange County Public Works / Transportation	TRP
Orange County Registrar of Voters	ROV
Orange County Sanitation District	OSW
Orange County Social Services Agency	SSA
Orange County Transportation Authority / OCTA	OTA
Orange County Waste & Recycling	W&R
Orange County Water District	OCW
Rancho Santiago Community College District Security	RCC
Saddleback College Police	SCP
Santa Ana Unified School District Police	SAU
Santa Margarita Water District	SMW
Serrano Water District	SWD
South Coast Water District	SCW
South Orange County Wastewater Authority	SOW
Trabuco Canyon Water District	TCW
Water Emergency Response Orange County	WEROC
West Cities Police Communications	WCM
Yorba Linda Water District	YLW

800 MHz Radio Displays

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The following abbreviations are used when referencing the location of a repeater. For example, the 8TAC91 repeater at Loma Ridge is shown on the radio display as 8TAC91-LOM.

Radio Site Location	CCCS Abbreviation
Bolero Peak	BOL
Carbon Canyon	CRB
Catalina	CAT
Loma Ridge	LOM
Moorhead	MOR
Municipal Water District	MWD
San Clemente	SCL
Santiago Peak	SAN
Sierra Peak	SIE
Signal Peak	SIG
Silverado Canyon	SIL
South Laguna	SLG

Abbreviations are used on conventional channel names to identify the type of channel. Simplex channels are identified with a D (i.e., 8TAC91D) or TA (i.e., YELLOW-TA). Repeated channels may be identified with RP (i.e., TAN-CAT-RP). Transportable repeater channels are identified with TR (i.e., WHITE-TR).

Type of Radio Channel	CCCS Abbreviation
Direct	D
Talkaround	TA
Repeater	RP
Transportable Repeater	TR

This concludes our review of abbreviations used on 800 MHz CCCS radio displays, I hope this information is helpful when using a CCCS radio and the EOC console. ✦

60-m Propagation Goes Poof

Propagation conditions were slightly below normal during the OCRACES 60-meter ACS net on Saturday, July 23, 2022, beginning at 1000 hours. Near Vertical Incidence Skywave (NVIS) propagation appeared reasonable, according to the worldwide ionospheric map posted on the Australian Government Bureau of Meteorology webpage ("Space Weather Services") at https://www.sws.bom.gov.au/HF_Systems/6/5.

Ken Bourne, W6HK, was net control in Orange, and checked in stations throughout Orange County, as well as from Campo (southern San Diego County), Lancaster, Ventura, and Pahrump, Nevada. Will Anderson, AA6DD, in Perris, and John Carroll, AA6RF, in Riverside, were exceptionally strong, due to good NVIS conditions between the Riverside area and Orange. Will and John offered to share their experiences after the net on 60-meter NVIS experiments.

After the net ended, several stations remained to hear Will and John describe their NVIS experiments. They emphasized the importance of using horizontal antennas (such as 88-foot half-wave dipoles) 30 feet high or less, to radiate almost straight up to penetrate through the heavily ionized D-layer up to the F-layers, where the signal is refracted back down within a couple hundred miles. They recommended orienting the antennas north and south in alignment with the earth's magnetic field. Vertical antennas do not radiate straight up, and are not effective for NVIS propagation. When the D-layer dissipates at night and NVIS propagation disappears, a vertical antenna's lower angle of radiation is effective for communicating over longer distances, such as to the eastern United States.

At about 1112 hours, Will's and John's previously strong signals virtually disappeared, which we surmised was due to a solar flare greatly affecting the ionosphere. It could have had something to do with the coronal mass ejection (CME), which hit the Earth's magnetic field on June 22nd at 7:59 p.m., according to https://spaceweather.com. By the way, you can sign up for "Space Weather Alerts" at that website, free by email or $49.95/year by text.

Another interesting website is the National Oceanic and Atmospheric Administration's (NOAA) Space Weather Prediction Center at https://www.swpc.noaa.gov.

Solar flares can erupt in minutes, with no warning, emitting huge energy. They also eject large amounts of protons. The resulting radiation covers the entire electromagnetic spectrum, increasing ionization levels in the ionosphere. Sometimes propagation improves after a solar flare, since the higher layers of the ionosphere are more heavily ionized. The improvement would typically be at 20 meters (14 MHz) and above. At lower frequencies, such as 60 and 40 meters, propagation would be worse, because the D-layer of the ionosphere would become so heavily ionized that signals would not penetrate up to the F-layers.

CMEs are huge bubbles of gas with embedded magnetic-field lines. The bubbles are ejected over a period of several hours. Therefore, the initial CME that occurred about 15 hours before Will's and John's signals went poof could be the cause. CMEs are often associated with solar-flare eruptions, but they can also occur separately.

Rohde & Schwarz offers an excellent educational note on NVIS, beginning with a brief overview of HF and its more common propagation modes, followed by a discussion of the technical principles underlying NVIS, different types of antennas, and technical and operational aspects. **CLICK HERE** to download the R&S PDF.

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

Upcoming Online Introduction to Winlink Express Classes

Another series of the ***Introduction to Winlink Express*** classes will be starting on September 8, 2022. Each week's session will be approximately an hour long, and the overall course will last 5 weeks. The online sessions will be offered on Thursday afternoons (at noon) and repeated the following Sunday afternoons (at 3:00 p.m.) to allow scheduling flexibility. It doesn't matter which day you participate in for a given session, since they are the same, and you can change days if you have a schedule conflict on a given week.

The level of instruction is focused toward individuals that don't know much about Winlink, as well as those who may have played a little with Winlink, but want a good foundation. The weekly course dates and associated topic descriptions are:

Prior signup is required for attendance. If you're interested in signing up and/or have any questions about the classes, please send me an email (KM6RTE@gmail.com). Please include your name, call sign, and what emergency communications organization you participate in (e.g., city RACES, ARES, OCHEART, or other). Space is limited, so if you are interested, please let me know as soon as possible. While open to everyone, participants in Orange County will have priority.

Prior to each week's session, registered participants will be sent the Zoom meeting information and handout material. Please note that recording of the class sessions is not currently planned. If you think you might miss a week's lesson, please go ahead and sign up, since the handout materials are my briefing charts, which provide a fairly complete overview of what is covered. ✦

Session & Dates	Topics Covered
#1: Sept 8th & 11th	Introduction, overview, and uses for Winlink, Winlink software installation and setup, compose and send a simple message
#2: Sept 15th & 18th	Additional setup and capabilities, overview of Forms and customization features
#3: Sept 22nd & 25th	Representative computer and radio hardware configurations, setting up Winlink with a radio (simple)
#4: Sept 29th & Oct 2nd	Additional hardware configurations, setting up Winlink with a radio (continued, more advanced)
#5: Oct 6th & 9th	Additional radio setup options and other Winlink operating modes

Radio Problems Occurring in Electric Vehicles

An article in the February 16, 2022, issue of *Radio World*, by Pooja Nair, a communications engineer with Xperi, covered pronounced electromagnetic interference (EMI) to AM radios in electric vehicles (EVs). This would be of concern to radio amateurs who plan to purchase an EV and then install an HF SSB transceiver. She said that some EV manufacturers have begun removing AM radios—but not FM—from their vehicles.

Nair recognized that EMI can be suppressed in EVs by shielding cables and electric motors, installing filters, and carefully locating electrical components within the vehicle. Within receivers, EMI can be limited by isolating and shielding antenna and RF sections, filtering connections, and carefully grounding and placing receiver components.

Signal coverage in internal-combustion-engine (ICE) vehicles is consistently better than in EVs, because an ICE emits lower levels of EMI.

Before purchasing an EV, a radio amateur who plans to install HF SSB equipment should first test drive the EV. If it does not have an AM radio, or if does and its radio picks up considerable EMI while driving, the ham should probably not purchase the vehicle. The test should be on an analog AM station, not on a digital AM HD station, since digital waveforms leverage bit regeneration to allow noiseless reproduction of the audio signal. For an even more effective test, the radio amateur could bring along a portable HF transceiver (such as an Icom IC-705) connected to a mag-mount antenna, and check for EMI on all HF bands. ✦

Attending Reserve Unit Meetings
by Eric Bowen, W6RTR

Over the last year or so since I have begun to write articles for this newsletter, I get a lot of questions about the different units and squads (I'll use "unit" to cover them both) within the PSR program. I really enjoy talking to everybody about them and answering their questions.

The question that I am most often asked is one that really surprised me. It wasn't that it is an unusual question, but it is something that I thought everybody knew the answer to. I won't put the question here, because there are many ways that I have been asked. However, I will put the answer here. Apologies if I bring up bad memories of all of your K-12 English teachers by including the question as part of my answer instead. And apologies to any "Jeopardy!" fans that hoped I had phrased my answer in the form of a question.

Here it is: "Yes, any unit that posts a monthly meeting in the Reserve Tracker, and has PSR spots in it, is open to all PSRs to attend that meeting if they are interested in joining that unit." To add to this—or would it be subtract?—this does not include any of the monthly unit training meetings. Those are usually only for that unit and you will have had to have gone to a regular meeting before attending training for that unit. Those training events will usually be posted "Unit members only" in the meeting description, but sometimes it is overlooked.

There are only a few units that have regularly scheduled monthly meetings. There is at least one unit that has meetings but are not scheduled on a monthly basis. And there are a couple of units that do not have meetings. The last units I mentioned are either currently not active or are not accepting any PSRs to their membership.

To add a little confusion to the mix, there are also some units that do not post anything on the Reserve Tracker, yet are open to new PSR members. These are the individual city units. They have their own schedules and times are logged manually in the Tracker.

While each unit is open, they also have individual requirements to become a full member. Some are as simple as attending a meeting and wanting to join, while others have structured training requirements before you can become a full member, as well as continued training after you are a member. All units have some form of training, but it might not be a requirement to become a member, but only to be able to do a specific assignment for that unit.

The best way to find out what those requirements are, are to attend a meeting. Every meeting that I have been to will ask who is visiting for the first time and will usually ask you to do a brief introduction telling them about yourself and why you are interested in that unit. If you happen to know another PSR or Reserve Deputy in that unit, you might want to talk them first before going or, if you see them at the same meeting, ask them to introduce you to the person responsible for new members. Generally, there will be somebody from that unit who will approach you afterwards and talk to you. Or they might tell all visitors to meet with a member after the meeting.

If, after speaking to that person, you think that that unit is not for you, then you are also under no obligation to join it. Sometimes, the time commitment for training and callouts might be too much for you. Or you might work on the weekends when they have all of their training or events or vise-versa where everything might happen only during the week. However, if after speaking to that person and if you have the time to fulfill their requirements, let them know that you are interested and want to join. They will then help you through the training process.

I have had so much fun being a PSR and being able to do as much as I do. I have met some incredible people and really enjoy spending my time with them at events and even outside of events. I really enjoy talking to other PSRs (who knew I am actually an introvert!) and being able to help when I can. I hope that my answer to that question has helped others who weren't sure if they could join a unit or not. I was surprised that I was asked this question so much. ✦

Keeping Your Computer Cyber Safe

Information on keeping your computer safe from hackers can be found on the Cybersecurity & Infrastructure Security Agency (CISA) website at https://www.cisa.gov.

CISA reminds that cyber scams are nothing new. Every day, con artists are looking for the best "marks." Don't think you are not worth being the target of online predators.

Hackers don't need to know how much is in your bank account to want to get into it. Your identity, your financial data, what's in your email—it's all valuable. And cyber criminals will cast as wide a net as possible to get to anyone they can. They're counting on you thinking you're not a target.

Using the basics of "cyber hygiene") will reduce the chances of you falling for the scams. Here are the four things you can do:

- Implement multifactor authentication on your accounts and make it 99% less likely you'll get hacked.
- Update your software. In fact, turn on automatic updates.
- Think before you click. More than 90% of successful cyberattacks start with a phishing email.
- Use strong passwords, and ideally a password manager, to generate and store unique passwords. ✦

FCC Retires Legacy CORES System

The Federal Communications Commission (FCC) retired the Legacy version of its Commission REgistration System (CORES) on July 15, 2022. CORES is the FCC's public-facing database that enables and tracks certain types of FCC and FCC-applicant actions, including amateur radio applications and licenses. Its implementation has enabled routine amateur applications and licenses to be issued overnight instead of over weeks, as was the case with earlier methods. ARRL advised the amateur radio community to transition to the updated version of CORES as soon as possible.

In essence, CORES is designed to identify those who hold certain types of FCC licenses and FCC authorizations, including amateur licenses, and organize them in an easily accessible manner under a common FCC Registration Number (FRN) regardless of whether one holds a single such authority or thousands. The new CORES, in addition to assigning individual FRNs, allows holders of multiple FRNs to aggregate them under a single account where the licenses and authorization, fees and payments, and related actions can be administered from within the same account.

In effect, new CORES can be conceptualized as an electronic interactive file folder. The updated version of CORES has been available since 2016, and now its use will be mandatory for all amateur licensees when submitting amateur-related applications.

Since July 15, 2022, the Legacy CORES website has been redirecting users to the Commission's updated CORES site. Although some functionalities in the old system will continue to work for a short time, the FCC has urged all users to transition to the updated CORES system to take advantage of its enhanced security and functionality.

Register with the FCC

Licensees that do not already have an FCC CORES Username Account must create one with a unique username (a valid email address) and password. After creating the account, when logged in, users should associate their existing FRN or FRNs with this account. Instructions for doing so are on the FCC Registration Help page. One's FRN is printed on all current amateur applications and licenses, and will not change. FRNs can also be found by looking up one's call sign in the Commission's ULS (https://wireless2.fcc.gov/UlsApp/UlsSearch/searchLicense.jsp) or by using the FCC's advanced search page.

The FCC has posted Tutorial Videos to assist with the transition. ARRL VEC Manager Maria Somma, AB1FM, recommends viewing the videos "Getting Started With the New CORES," which explains how to register for a CORES Username Account, and "Associating an FRN to a Username," which instructs Legacy CORES users on how to link one or more existing FRNs to a username. FCC CORES Registration Instructions can also be found on the ARRL website.

Additional information is available on the FCC website or by calling the FCC Licensing Support Center at (877) 480-3201, Option 4, and on the FCC's e-support page. ✦

Should OCRACES Reestablish T-Hunts?

Almost 40 years ago, OCRACES established T-hunts (foxhunts) on the input (146.295 MHz) of our 2-meter repeater (rather than on the common 146.565 MHz southern California T-hunt frequency). The purpose was to provide practice for locating interference to the OCRACES repeaters or to public-safety VHF communications. The fox would transmit a CTCSS tone to bring up the repeater, so that hunters who could not hear the fox at first would know that the fox was transmitting, by checking the repeater output. The fox was hidden somewhere in Orange County on publicly accessible property on or near hard pavement. Hunters could start from any location.

The hunts were held on a second or third Monday evening, immediately following the 2-meter OCRACES net.

The original hunts were very popular, sometimes attracting as many as 15 hunters, including OCRACES and city RACES members. Other radio amateurs participated and some eventually became OCRACES members as a result of the hunts. Several OCRACES members, who had recently graduated from UCI with high-tech degrees, developed computer-controlled equipment and software for direction finding (DF). Former Assistant Radio Officer Byon Garrabrant, N6BG, designed a controller for his fox box (hidden transmitter), and eventually formed Byonics to manufacture and market his DF and APRS products (see https://byonics.com).

The hunts were eventually discontinued, but after a few years they were reestablished as "cooperative" T-hunts, with the fox transmitting on the input of the 2-meter repeater and the hunters comparing bearings via an OCRACES UHF repeater. Sometimes this was reversed (thanks to David Corsiglia, WA6TWF), with the fox transmitting on UHF and the hunters comparing bearings via the 2-meter repeater. This provided practice in working together for quickly finding interference by triangulation. Cooperative hunts usually lasted an hour (an advantage on a weekday evening) and were very enjoyable.

The hunts were discontinued more than two years ago because of the COVID-19 pandemic. Joe Moell, K0OV, and others have asked recently if we are going to reestablish the cooperative T-hunts. If so, we are looking for an OCRACES member who is experienced at T-hunting and would like to coordinate this activity. ✦

COAR Holds July 9th Practice Drill
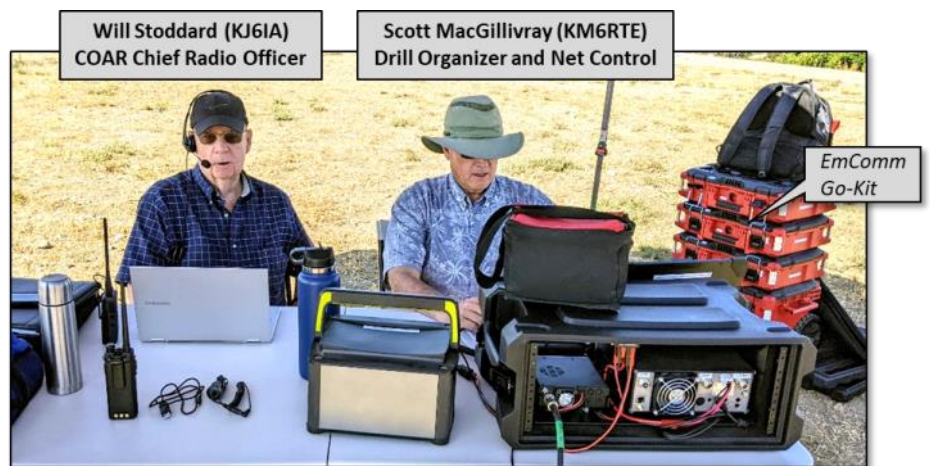## by Scott MacGillivray, KM6RTE

Members of City of Orange RACES (COAR), the city's RACES unit, participated in a recent drill by responding to an unannounced emergency activation and then reporting to assigned location with their EmComm Go-Kit. The emergency scenario used was a large-scale earthquake in which there is widespread damage throughout Orange County that includes power and internet outages, and most landlines and cell phones are either not working or are oversaturated with users. In lieu of an actual earthquake, COAR members were notified of the incident (for drill purposes only) by email and GroupMe text that were sent out at an unannounced time during the morning of July 9th.

Within 12 minutes of the activation, all available members had checked into Net Control. An assessment of available operators and their respective locations across the city was made by Net Control. From this assessment, operators were given an assignment to report for service to one of several locations within the city of Orange. Reporting assignments started within 19 minutes after activation, and, for this drill, everyone was directed to report to Grijalva park. Refer to photos for description of Net Control setup and equipment details. The member-provided equipment used for the Net Control station was set up within 25 minutes and could support operations for an extended duration by leveraging the high-capacity battery and solar panels.
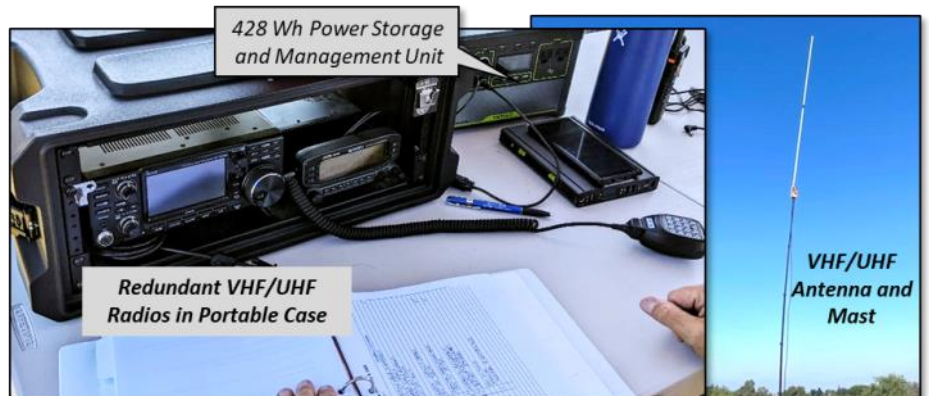
Of the active COAR membership, 45 percent checked into Net Control as available for activation and subsequently reported to their assigned location. Almost all of the remaining membership notified Net Control (mostly by GroupMe text) that they received the activation notification but weren't available; mostly due to being out of the area. This resulted in 90% of COAR members responding to the activation notification! All available members reported to their assigned location within 1 hour of initial activation. **Way to go COAR!**

Future COAR drills are planned that will utilize other deployment scenarios that might include a) working with other city of Orange organizations, b) using multiple reporting locations across the city, c) the use of drill "injects" (i.e., spontaneous events, last-minute drill changes), and/or d) sending message traffic among stations (including using Winlink).

Net Control for City of Orange Amateur Radio (COAR) July 9th Practice Drill

Details of Equipment Setup

Countywide RACES/EmComm News

Anaheim RACES

Ducky Breton, KW6ACK, officially stepped down on July 1, 2022, from the position of Chief Radio Officer for the Anaheim Fire & Rescue RACES team. Jonathan Ramos, W6TFK, has agreed to take on the position of Chief Radio Officer. Greg Gerovac, K6GYO, and Anton Hochschild, KM6OQY, are now the Assistant Chief Radio Officers. Ducky will continue to support the Anaheim RACES team.

Ham Radio Outlet

Congratulations to Janet Margelli, KL7MF, who retired on June 30, 2022, as Store Manager of Ham Radio Outlet in Anaheim. Janet had been with HRO for 38 years, providing exceptional service to the amateur radio community. She was a great friend to OCRACES, working closely with us in procuring radios,

Janet Margelli, KL7MF.

TNCs, and accessories for County and City RACES Winlink operations. Throughout the years, she paid careful attention to our members' requirements and treated us with respect and always a warm smile. We wish her well, as she and her husband Chip, K7JA, continue to enjoy amateur radio in their retirement years.

SoCal & AZ & NV 70 cm Net

There is more to VHF and UHF than just chatting on repeaters. How about enhancing your station with a multimode VHF/UHF transceiver, a small beam antenna, and low-loss coax, and enjoy the excitement of single sideband and even CW on 70 centimeters? Every Thursday night at 7:00 p.m. PST (8:00 p.m. PDT), a weak-signal net is held on 432.120 MHz upper sideband. An example of a typical net was July 21, 2022, when Mike

Domenico, KG6EXO, in Mira Loma (west of Riverside) was net control. He checked in John Kountz, WO1S (former Laguna Beach RACES Chief Radio Officer), from Wickenburg, Arizona, plus stations in Lake Havasu City, Arizona, Las Vegas, Nevada, Riverside County (Hemet, Menifee, Perris, San Jacinto, and Temecula), Los Angeles County (Azusa, Hacienda Heights, La Canada, La Crescenta, Lakewood, Los Angeles, Marina Del Rey, and Northridge), Madera County (Friant), Orange County (Anaheim, Garden Grove, and Newport Beach,), Santa Barbara, San Bernardino County (Calimesa, Loma Linda, and Yucaipa), and San Diego County (Carlsbad).

SoCal 1296 MHz Net

Transmission-line loss gets even higher at 1296 MHz, and participating in nets on this band can be a challenge. You might get away with LMR-400 coax if it's a short run, but LMR-600 is better, or Andrew Heliax hardline coax is better yet. Results can be surprising at this low end of the microwave spectrum. A 23-centimeter net is held every Friday night at 8:00 p.m. on 1296.100 MHz. For example, Ralph Bergman, K6TSK, in Anaheim, was net control on July 22, 2022, and checked in stations from Lake Havasu, Arizona, Santa Barbara, Ventura, and Lemon Grove in San Diego County. Other check-ins included La Crescenta, Marina Del Rey, Lakewood, Northridge, Yucaipa, Brea, Garden Grove, Irvine, and Newport Beach.

APCO International

APCO 2022, APCO International's Annual Conference & Expo, will occur on August 7-10, 2022, at the Anaheim Convention Center. It will be attended by public-safety communications officials, from frontline communicators to comm-center managers to vendors of public-safety communications equipment and services. Over the four days, APCO 2022 will offer educational seminars, committee meetings, and special events. Exhibits will be open on August 8-9 from 7:00 a.m. to 4:30 p.m., with more than 200 vendors. Full registration is $490 for APCO members and $690 for nonmembers. Exhibit-hall only is $85 for members and $115 for nonmembers. See https://www.apco2022.org for more information.

"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

August 2022

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

Upcoming Events:

- **August 1, 1930-2130 hours:** OC-RACES meeting in-person at OC EOC, Loma Ridge
- **August 7-10:** APCO 2022, Anaheim Convention Center; exhibits August 8-9, 0700-1630 hours
- **August 19, 1900 hours:** Orange County Amateur Radio Club Meeting, American Red Cross (George M. Chitty Building), 600 Parkcenter Drive, Santa Ana; also on Zoom
- **August 31, 1830 hours:** Orientation for PSR Applicants, OC Sheriff's Regional Training Academy
- **September 5:** Labor Day (no net, no meeting)
- **September 10, 0900 hours:** Pre-screen for PSR Applicants, OC Sheriff's Regional Training Academy
- **September 12, 1930-2130 hours:** OCRACES meeting online on Zoom

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

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

Radio Officer
Scott Byington, KC6MMF

Assistant Radio Officers
Jack Barth, AB6VC
Ernest Fierheller, KG6LXT

County of Orange RACES

County of Orange RACES

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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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