

Section Manager
East Bay Section Newsletter
July, 2023

ARRL East Bay Family,

Seems like it's feast or famine when it comes to topics for this newsletter. Last month I had to struggle a bit to find items to report. This month I was overrunning my preferred length limit before mid-month. So apologies if this one seems a little long.

Field Day is now behind us, and I trust a good time was had by all. Our Section Technical Specialist for Winlink, John Trinterud, K9ONR, joined me this year for my visits to as many of your sites as I could get to. John told everyone about developments in Winlink's capabilities, as well its ability to "mesh" well with the ARDEN network. He also showed off some cool toys to make all that work together (I've already placed my order). There was a lot of interest at every club.

We were very impressed with each site's efforts. Several clubs essentially took over entire parks; or at least large parts of them. Others were more compact, but no less capable. I received several messages from the clubs, for which I thank you. Unfortunately, unusually heavy traffic on the roads and other factors prevented me from getting to all the sites I wanted to, for which I apologize. In a few cases, it took us over an hour to get from one location to the next.

Nationally, some 2,548 Field Day entries have been received at HQ as of the end of June, with many more coming in daily. Remember that your entries must be submitted by July 25 at 20:59 UTC (1:59 PM Pacific).

Be sure to write up your club's Field Day story and submit it and some photos to HQ at (clubs@arrl.org) for possible inclusion in an upcoming edition of the Club Newsletter or in the Club column of QST. You can also post it on the Field Day Soapbox page at (<https://field-day.arrl.org/fdsoapbox.php>).

* Congratulations and Thank You to the Heritage High School Amateur Radio Club and the Contra Costa Repeater Association for becoming our newest ARRL East Bay Affiliated Clubs! Heritage became official on May 13 and Contra Costa on June 8. Welcome!!

* Congratulations and Thank You to the Mt. Diablo Amateur Radio Club and the California Amateur Radio Linking Association for becoming affiliated with the ARRL this month in 1948 and 2005, respectively.

* Congratulations and Thank You to the Vaca Valley Radio Club for renewing its Special Service Club status.

* And Congratulations to the Livermore Amateur Radio Klub (LARK), which was founded this month in 1959.

* Question:

Which of the following is good practice when choosing a transmitting frequency to answer a station calling CQ using FT8?

- A. Always call on the station's frequency
- B. Call on any frequency in the waterfall except the station's frequency
- C. Find a clear frequency during the same time slot as the calling station
- D. Find a clear frequency during the alternate time slot to the calling station

(See the last page for the answer.)

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Section & Division News:

* Section Manager Election

Nominations for the East Bay Section Manager are open. If you are or know someone in this section that's interested in being the Section Manager, you/they need to consult the information at (<http://www.arrl.org/section-terms-nomination-information>). Included on that page is a link to the Section Manager Nomination Form, which will need to have at least five valid signatures from ARRL members in the section. Other requirements apply. Submission deadline is 4:00 PM Eastern Time (1:00 PM Pacific), September 8, 2023. The elected manager will begin their term on January 1, 2024.

ARRL News:

* Board Meeting Agenda

The ARRL Board of Directors will meet on July 21-22, 2023. The agenda is available at (<http://www.arrl.org/files/file/Full%20Agenda%20July%202023%20-%20final.pdf>).

* Dues Survey Results are In

The League just released the results of the membership dues survey conducted during the month of May. The Board will discuss the results at its upcoming meeting. A few of the items in the results: About 12.5% of the Pacific Division membership participated in the survey, 12th out of the 16 division/regions (including foreign members). 53% agreed that ham radio might not exist today without the ARRL, with another 37% saying "maybe". A printed magazine, such as QST, is by far the most used benefit of membership. As for how printed magazines should be handled going forward, 43% said they wanted a printed magazine included in the membership, 39% would go digital only and 18% would pay more for a printed magazine in addition to membership. 83% said that some sort of dues increase would be reasonable, with \$58.79 being the average of the responses. See the full article (<http://www.arrl.org/dues-survey-results>). Note that you must be logged in to your ARRL account to see it.

* ARRL Joining SAFECOM

ARRL has been elected to SAFECOM, an organization managed by the Cybersecurity and Infrastructure Security Agency (CISA), a part of the US Department of Homeland Security, for the purpose of setting standards for emergency communications, interoperability procedures and response. ARRL's Director of Emergency Management, Josh Johnston, KE5MHV, will represent the League, and says, "This will give us the sounding board and resources we need to set standards and create training for our Amateur Radio Emergency Service (ARES) volunteers that will better suit AHJ's (Agencies Having Jurisdiction) and partner organizations." See the full ARRL announcement at (<http://www.arrl.org/news/arrl-elected-to-serve-on-safecom>).

* NTS 2.0 Update

A lot has been happening on the major update to the National Traffic System (NTS), called NTS 2.0. An article is in the July issue of QST about it, page 64. At the top of the list of improvements is the Net Directory; a major undertaking as the current directory hasn't been updated in eons and isn't very user friendly. A set of requirements has been prepared and passed to the IT department, and development of the product has begun. Also in progress is the ability for encapsulating the forms used by emergency service organizations, such as the ICS-213. These forms must be deliverable exactly as sent. This will be difficult, as while such traffic will likely be sent via digital means where available, it's important that voice and CW circuits be capable and practiced in the event they are needed. Nationwide standards and tools for reporting traffic are also being developed, along with a lot more. Get the details in the July QST and on the NTS 2.0 website at (<https://nts2.arrl.org/>).

* Installing Radios in Today's Autos

I saw an email thread in a club forum last month asking about installing a ham radio in a late-model car. With all the electronics and computers in today's cars; not to mention the non-metallic bodies of many of them and the growing popularity of fully electric vehicles; it's definitely not as easy as it used to be. But one ham on the forum pointed out a source of information on the ARRL website I wasn't aware of. If you're thinking about installing a radio in your car, check out the ARRL's Auto Manufacturer's Policies page at (<http://www.arrl.org/auto-manufacturer-s-policies>).
[Thankx to Jim, K6EFR, for the tip.]

* Estate Planning for Hams - Follow-up

Last month I told you about a document the ARRL has made available to help you let your family know what you wish to happen to your ham gear when you become a silent key. That document is at (<https://www.arrl.org/estate-planning-workbook>). One option you may wish to consider is a donation of your gear to the California Historical Radio Society (CHRS) in Alameda. Per Bart Lee, K6VK, Archivist & Fellow of CHRS, "We are the institutional memory of amateur radio in Northern California. We keep the best donated gear for the museum and make the rest available to members for sale and to the public (for funds) by Ebay. Tax write-offs are possible without documentation for anything valued under \$500 by the donor, and for anything over \$500 in value, the donor should get a written appraisal (one from a ham would likely work)." See their gear donation page at (<https://californiahistoricalradio.com/support/have-an-estate-with-radios-to-sell/>).

* SET Results

It's taken awhile, but the results of last October's Simulated Emergency Test are in, and the East Bay Section did well. The SET is a nationwide exercise giving the chance to test your group's emergency-operating skills and the readiness of your communications equipment and accessories in a simulated emergency-like deployment. Scoring is based on numerous factors, including, for example; the number of hams participating, served agency involvement; use of emergency power, and several others. The results of the 2022 SET are reported in the July issue of QST, page 66. In the Section/Local Nets category, the East Bay Section placed 10th in the nation. This was fully due to the Solano ACS, KM6BXZ. Congratulations, Solano ACS!

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Government News

* FCC ULS System Failure

The FCC's Universal Licensing System (ULS), Tower Construction Notification System (TCNS), E-106 System, and Antenna Structure Registration System (ASR) went down on June 9. Most of the systems came back online on June 21, but the batch filing system remained out of service until June 27. This prevented the ARRL and other Volunteer Examiner Coordinators from uploading applications. The Commission is extending deadlines for regulatory filings in ULS and ASR because parties have not been able to make electronic filings or view the contents of the affected systems while they were unavailable. If you took a license test in June, your results may have been delayed for this reason. The Commission Registration (CORES) System, used to pay fees, was unaffected and remained available to pay any regulatory or application fees during this period. See the FCC's public notices at (<https://www.fcc.gov/document/uls-tcns-e-106-and-asr-unavailable-filing-deadlines-extended-0>) and at (<https://www.fcc.gov/document/uls-tcns-e-106-and-asr-available>).

* FCC Hits California Ham with \$24,000 Fine

The FCC issued a Notice of Apparent Liability for Forfeiture (NALF) for \$24,000 against Phillip J. Beaudet, N6PJB, of Burney, California. According to the filing, the penalty is for Beaudet "willfully and repeatedly interfering with the radio communications of the Western Amateur Radio Friendship Association (WARFA) while it was attempting to hold a regularly scheduled net and for failing to provide station identification on amateur radio frequencies." FCC agents used direction finding techniques during November and December of 2022 to track the interfering signals to Beaudet's home station. Agents "heard him playing recordings on 3.908 MHz that caused interference to the ongoing WARFA net while failing to provide his assigned amateur call sign," the document stated. The full ARRL news item is at (<https://www.arrl.org/news/licensee-hit-with-24-000-fine-for-jamming-net-failure-to-id-fcc>). The NALF is available at (<https://www.fcc.gov/document/fcc-enforcement-bureau-proposes-24k-fine-against-philip-j-beaudet>).

* Bill to Remove Private Land Use Restrictions on Amateur Radio Reintroduced in Congress

Last month, I reported on a new bill in Congress to replace our current symbol rate limit with a bandwidth limit. This has been followed by Congressmen Bill Johnson (OH-06) and Joe Courtney (CT-02), who reintroduced a bill in the US House of Representatives to remove private land use restrictions that prohibit, restrict, or impair the ability of Amateur Radio operators from operating and installing reasonable antennas on property that they own or control (H.R. 4006). Similar legislation, H.R. 9670, was introduced by Congressman Johnson in 2022. See the full ARRL News item at (<http://arrl.org/news/legislation-to-remove-private-land-use-restrictions-on-amateur-radio-introduced-in-congress>). The Congressional web page for following this bill is at (<https://www.congress.gov/bill/118th-congress/house-bill/4006>). The full text of the bill is at (https://billjohnson.house.gov/uploadedfiles/amateur_radio_emergency_preparedness_act_signed_bill_text.pdf). [PDF, 14 pages]

* Hams, the IARU and RNSS

There have been some concerns on the world stage that ham radio transmissions may interfere with Radio Navigation Satellite Services (RNSS) in the 23-centimeter band (1240-1300 MHz). Examples of RNSS are the U.S. Global Positioning System (GPS), European Union's Galileo System, the Russian GLONASS, and the Chinese BeiDou Navigation Satellite System. This topic will be discussed as Agenda item 9.1b at the World Radiocommunication Conference (WRC-23) coming up in Dubai this November-December. The International Amateur Radio Union (IARU) (<https://www.iaru.org/>) conducted a study simulating various scenarios of a fixed and mobile population of RNSS receivers around an amateur radio station. As a result of the study, "the IARU maintains its position that the potential for widespread and persistent interference between amateur radio transmissions and RNSS receivers is minimal." Information about WRC-23 is at (<https://www.itu.int/wrc-23/>). The agenda can be downloaded at (<https://www.itu.int/wrc-23/booklet-wrc-23/>). An article about the IARU's study is in QST's July edition, page 73, and another one is at (<https://www.iaru.org/iaru-simulations-confirm-the-low-probability-of-interference-into-rnss-receivers-in-the-23cm-band/>). The paper itself is at (<https://www.iaru-r1.org/wp-content/uploads/2023/03/23cm-Monte-Carlo-Study-March23.pdf>) [PDF, 10 pages].

* What Does "ARES" Stand For?

According to FEMA's recently released "Acronyms, Abbreviations and Terms", it stands for "Anthrax Response Exercise Series". Oh, yeah. It's also short for "Amateur Radio Emergency Services". What about "ARC"? Of course, we've seen it represent "American Red Cross", but FEMA also has it as "Airborne Radio Communications" and two others. Sadly, neither of them is "Amateur Radio Club". Anyway, if you're interested in EmComm (Emergency Communications – not on FEMA's list), then you should download this document at (<https://www.fema.gov/about/glossary>).

* Plain Language FAQs

Having offered you in the above item some 477 pages of government-approved acronyms and more, I'll now contradict that with 19 pages of government-approved recommendations on the use of plain language, which includes avoiding acronyms. The Office of Emergency Communications (a part of the same federal Homeland Security Department that FEMA is in) has "Plain Language Frequently Asked Questions (FAQs)", that explain the importance of using plain language in multi-jurisdictional responses and gives suggestions on how to implement it. Isn't intra-government coordination great? Get the Plain Language FAQs at (https://www.cisa.gov/sites/default/files/publications/PlainLanguageFAQs_0.pdf#5). [Thankx to Steve, K4CJX, for the tip.]

* FEMA Webinar on Ham Radio Use

The Federal Emergency Management Agency (FEMA) has released a webinar on "Effective Use of Amateur Radio Volunteers in County Emergency Operations". It includes some discussion of ARRL and ARES. It's available at (<https://fema.connectsolutions.com/pskd8xpg6230/>) [Video, 01:00:53].

* FEMA Building Codes Toolkit

Not radio-related but good to have. FEMA has released the 3rd edition of its "Building Codes Toolkit for Homeowners and Occupants". The Toolkit is intended to help readers better understand building codes and how they work. Step-by-step guidance and background information are provided to help readers make informed decisions about building codes. Readers will also learn the importance of building codes and how to ensure they are incorporated into their building or project. You can download the entire Toolkit [PDF, 43 pages], or any of the 9 sections, at (https://www.fema.gov/emergency-managers/risk-management/building-science/publications/building-codes-toolkit-homeowners-occupants?utm_source=gd&utm_medium=toolkit).

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Other News:

* Reminder: New General Class License Exam Question Pool Now in Effect

The newly revised General Class question pool must be used for all license exams occurring on or after July 1, 2023. The ARRL VEC (Volunteer Examiner Coordinator) mailed the new General exam booklets to its officially appointed, field-stocked VE team leaders the week of June 19 to 23. The booklets were sent via USPS priority mail and should have reached the teams by now. If you're a field-stocked ARRL VE Team Lead and have not yet received your new booklets, contact the ARRL VEC staff right away at 800-927-7583 or VEC@arrl.org.

* New ARRL General Class License Manual Now Available

Following on the above item, the new 10th Edition of the ARRL General Class License Manual is now available at (<https://home.arrl.org/action/Store/Product-Details/productId/2009476073>) and other locations, such as a ham radio store and Amazon. It includes the entire question pool with an answer key and is for use July 1, 2023 through June 30, 2027.

* Reminder: IARU HF World Championship

The International Amateur Radio Union (IARU) HF World Championship is the weekend of July 8-9. Its objective is to support amateur self-training in radiocommunications including improving amateur operating skills, conducting technical investigations, and intercommunicating with other amateurs around the world, especially IARU member society headquarters stations. It's a 24-hour contest, running from 1200 UTC Saturday through 1159 UTC Sunday (5:00 AM Saturday – 4:59 AM Sunday Pacific). Get the rules and other information at (<http://www.arrl.org/iaru-hf-world-championship>).

* Reminder: 13 Colonies Special Event

The annual 13 Colonies Special Event celebrates our nation's Independence Day and will be held on July 1-7. There will be a special event station in each of the 13 colonies, along with bonus stations in Great Britain, France and Philadelphia. Very attractive certificates are available. Get details at (<http://www.13colonies.us/>).

* Hamvention Report

The organizers of Hamvention in Ohio report that, "The 2023 Hamvention attendance was 33,861, which is more than 2,000 greater than last year and even surpassed the previous pre-pandemic attendance record at the Greene County Fairgrounds and Expo Center of 32,472. General Manager Jim Storms said, "Things went very smoothly due to the dedication and hard work of close to 700 volunteers." (<https://hamvention.org/hamvention-2023-attendance/>)

* Cosmic Ray GPS

Japanese researchers from the University of Tokyo have published a paper in the journal iScience reporting on their development of an alternative wireless navigation system that relies on cosmic rays, or muons, instead of radio waves. Calling it a "wireless muometric navigation system (MuWNS)", the paper discusses a person successfully navigating in a building's basement floor where GPS can't reach. They say the accuracy is "comparable or better than the positioning accuracy attainable with single-point GNSS/GPS positioning in urban areas". One potential application could be robot navigation in homes, hospitals, factories and other buildings, as well as underground and underwater. Muon imaging has already been used for such things as finding hidden spaces inside archaeological structures, such as the Great Pyramid in Egypt, finding illegal nuclear materials in trucks at border crossings and monitoring volcanos. The paper is available at ([https://www.cell.com/iscience/pdf/S2589-0042\(23\)01077-5.pdf](https://www.cell.com/iscience/pdf/S2589-0042(23)01077-5.pdf)) [PDF, 17 pages]. A news article about the development is on the arsTechnica website at (<https://arstechnica.com/science/2023/06/scientists-conduct-first-test-of-a-wireless-cosmic-ray-navigation-system/>).

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Hamfests And Special Events:

07/15/2023

Crater Lake National Park Birthday. W7OTV, Beaverton, OR. Oregon Tualatin Valley Amateur Radio Club. 14, 15, 30 and 10 meters; 14.280 14.320 28.440 21.125. QSL.

* 09/09-10/2023

QSO Today Virtual Ham Expo. Sponsored by KEG Media, Inc. dba QSO Today. (<https://www.qsotodayhamexpo.com/>)

* 10/20-22/2023

Pacificon in San Ramon, CA. The ARRL Pacific Division Convention. (<https://www.pacificon.org/>)

Search for all hamfests at (<https://www.arrl.org/hamfests-and-conventions-calendar>)

Search for all Special Event Stations at (<https://www.arrl.org/special-event-stations>)

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Significant Events in Telecomm History – July

** Note: Send me the date and location your club was founded, so I can add it to this list. **

- 07/01/1881 The world's first international telephone call was made between St. Stephen, New Brunswick, Canada, and Calais, Maine, United States
- 07/01/1911 The Wireless Ship Act of 1910 became effective, the first federal legislation regulating radio communication in the U.S.
- 07/01/1951 The Novice and Technician Class licenses were created by the FCC. The Novice was good for 1-year, non-renewable, low power CW only.
- 07/01/1971 Federal frequency & time signal radio station WWVH began broadcasting from its current location near Kekaha on the Island of Kauai, Hawaii.
- 07/02/1928 W3XK went on the air in Wheaton, Maryland, becoming the first commercially licensed television station in the US.
- 07/02/1939 The Hewlett-Packard Company was founded in a garage in Palo Alto, California by Bill Hewlett and David Packard, producing a line of electronic test and measurement equipment. The "HP Garage" at 367 Addison Avenue is now designated an official California Historical Landmark, and is marked with a plaque calling it the "Birthplace of 'Silicon Valley'".
- 07/04/1838 Edward Davy received a patent for a telegraph system using his mercury dipping electrical relay.
- 07/05/1687 Isaac Newton published the first edition of his Principia Mathematica, widely regarded as one of the most important works in both physics and applied mathematics. The work underlies much of the technological and scientific advances from the Industrial Revolution.
- 07/05/1912 Forty-five Q-codes were formally adopted into international law by the Second International Radiotelegraph Convention in London. The concept of callsign prefixes was also established, giving the U.S. the prefixes KDA-KZZ, N (all), and W (all).
- 07/05/1963 Federal frequency & time signal radio station WWVB was launched near Fort Collins, Colorado, replacing the experimental callsign KK2XEI.
- 07/06/1854 Georg Simon Ohm died in Munich, Kingdom of Bavaria in the German Confederation (present-day Germany) at age 65.
- 07/09/1962 A major manmade geomagnetic storm struck Earth, following the detonation of a thermonuclear warhead 250 miles above the Pacific Ocean—a test called “Starfish Prime.” The event caused an artificial solar storm complete with auroras, geomagnetic activity, and blackouts, including radio and satellite failures.
- 07/10/1856 Nikola Tesla was born in Smiljan, Austrian Empire (modern-day Croatia).
- 07/10/1962 Telstar 1 was launched, the first satellite to relay through space television pictures, telephone calls, and telegraph images, and providing the first live transatlantic television feed.
- 07/12/1999 The final commercial Morse code transmission in the U.S. was sent, using Samuel Morse's original 1844 message, "what hath god wrought", and the prosign sk ("end of contact").
- 07/13/1866 The Great Eastern steamed westward toward Heart's Content, Newfoundland, Canada from Valentia, Ireland, laying the first transatlantic cable.
- 07/13/1948 The Mt. Diablo Amateur Radio Club became affiliated with the ARRL.
- 07/19/1977 The first satellite navigation positioning signal was received from NTS-2 (Navigation Technology Satellite), by Rockwell Collins engineer David Van Dusseldorp in Cedar Rapids, Iowa. This marked the beginning of the Global Positioning System (GPS) era.
- 07/20/1937 Guglielmo Marconi died in Rome, Kingdom of Italy at age 63.
- 07/25/2005 The California Amateur Radio Linking Association became affiliated with the ARRL.
- 07/27/1866 The first transatlantic cable was completed, with its landing in Heart's Content, Newfoundland, Canada from Valentia, Ireland.
- 07/29/1958 President Dwight Eisenhower signed the National Aeronautics and Space Act, establishing NASA.
- 07/29/1985 The Space Shuttle Challenger launched, carrying the first official Shuttle Amateur Radio Experiment (SAREX) payload.
- 07/30/1959 The Livermore Amateur Radio Klub (LARK) was founded.
- July, 1908 Modern Electrics magazine, published by Hugo Gernsback, printed the first “Wireless Registry” list of amateur stations, including self-designated call signs.
- July, 1948 The first of two parts of Claude Shannon's "A Mathematical Theory of Communication" was published in the Bell System Technical Journal, essentially inventing the field of information theory.

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New Hams:

KN6ZUK	Luke Moser	Alameda
KN6ZYH	James Piehnik	Benicia
KN6ZXX	Lloyd Christiansen	Benicia
KN6ZXY	Sue Christiansen	Benicia
KN6ZYY	Evan Roberts	Benicia
KN6ZZK	Travis Browne	Calistoga
KO6ABL	William Sonnenburg	Fairfield
KN6ZZF	Geoffrey Krueger	Castro Valley
KN6ZWF	Molly Maclaren	Livermore
KO6ABK	Kimberly Chen	Livermore
KN6ZZL	Gregory Barbone	Martinez
KN6ZXI	Thomas Freitas	Pacheco
KN6ZXT	Shana Bagley	Napa
KN6ZYJ	Roland Cavanagh	Napa
KN6ZXV	Kindle Lord	Napa
KN6ZXL	Ron Tamarisk	Napa
KN6ZQN	Robert Crabb	Napa
KN6ZSX	Chedric Gallevo	Newark
KN6ZYF	Curtis Branson	Oakley
KO6ABJ	Devi Talasila	San Ramon
KN6ZXX	Jiageng Li	San Ramon
KO6AAH	Matthew Plicner	San Ramon
KN6ZYG	Alan Brown	Walnut Creek
KN6ZYK	Amy Cole	Walnut Creek
KO6AAC	Geoffrey Bailey-Gates	Berkeley
KN6ZTH	Jedediah Parsons	Berkeley (General)
KO6ABU	Glen Severin	Dixon
KN6ZXH	Mitchell Dias	Vacaville
KN6ZXS	Andrea Atkins	Vacaville
KN6ZXG	Scott Hays	Vacaville

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New Upgrades:

KN6RER	Julio Vargas	Antioch (General)
KM6UXE	Dirk Bridgedale	Pleasant Hill (Extra)
KN6MBG	Rajendra Gole	Danville (General)
W6OGX	Ross Talarico	El Cerrito (General)
K6SVB	Robert Stinson	Fairfield (General)
KN6TKW	Mike Moore	Castro Valley (General)
KA6LER	Lowell Richards	Martinez (General)
KN6VUR	Case Larsen	Union City (General)
K6DJV	Derek Vincent	Vallejo (Extra)
KN6YWT	Alan Stokol	Walnut Creek (General)
KN6ZTH	Jedediah Parsons	Berkeley (General)
KN6ZDE	Terrance Robertson	Berkeley (Extra)

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Question & Answer:

Which of the following is good practice when choosing a transmitting frequency to answer a station calling CQ using FT8?

D. Find a clear frequency during the alternate time slot to the calling station

[General Class question pool (2023-2027) no. G2E04 (<http://www.ncvec.org/page.php?id=369>).]

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If you'd like a better-looking PDF version of this newsletter, or want to refer to previous editions, they're all available on the East Bay Section website at (https://arrleb.org/index.php/files/get_dir/Newsletter).

Until next time, remember that the East Bay Section team is here to serve you, the hams of the East Bay. If you have a question or a problem concerning ham radio, don't hesitate to contact us.

Mike Patterson, N6JGA
ARRL East Bay Section Manager

Email: N6JGA@ARRL.org

Website: <https://www.arrleb.org>

East Bay Section Discord: <https://discord.gg/DNAAfC7hax>

ARRL HQ Help Desk: 888-277-5289 or hq@arrl.org

Index of Contacts at ARRL HQ: <http://www.arrl.org/contact-arrl>

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