



The Transponder



The monthly newsletter of the [Hughes Amateur Radio Club, W6HA](#)
- An ARRL affiliated club -

June 11, 2021 Repeater 445.620 – PL 127.3 Web Site: <http://W6HA.com> Vol. XLVIII, No. 6

***** CLUB MEETING O-T-A (MOTA)*****

Where: The club’s Repeater, and Zoom (See E-mail or Web Site for ID & PW)
Location: Repeater location – “High Above LAX”

Meeting Notice: Date: Tuesday, June 15, 2021
Time: Pre-Meeting: 11:30 Gather, Exchange Greetings
Meeting Call to Order: 12 to 1 PM (Zoom Audio on Repeater)
On-Air Roll Call (Sign-In), 11:30 (informal discussion / Greetings)

Featured Presentation:

Nonprofit – Shall the Club become a California Nonprofit Public Benefit Corporation?
Vote will be after the meeting via “Survey Monkey” - See details below

Field Day Info and suggestions

Near Vertical Incident (NVIS) Antennas by Michael, N6MHD

Up Coming Events:

June 15 Regular meeting Vote to accept Article of Incorporation & Bylaws
June 26, 27 – Field Day 2021

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Lunch: You are on your own, but my recommendation: Order some pizza, delivered, from the club’s supplier – Tower Pizza on Lincoln Blvd – 310-410-0986, say Hughes ARC or me, (Dale) sent you.

Nets on the Club’s Repeater: (See Last page for details)

Wednesday Evenings at 7:30 PM – Hughes ARC members net, (then Simplex @ 146.55)

Thursdays about Noon (12:05 PM) Raytheon & other Emergency Communication Teams (ECT)

Transponder Deadline for Submittal of Articles: Wednesday, before next meeting

This program is not sponsored by the El Segundo Public Library.

Club News:**Nonprofit – Status**

So, finally it is time to vote for “**SCORE**” to become (or not) an officially recognized nonprofit club. As you may have gathered by now, there are two ways for a club like ours to become a nonprofit. The gold standard is to form a “California Nonprofit, Public Benefit Corporation” with an IRS 501(c)(3) determination.

That is what we will vote on, here in June. And that is what the Articles of Incorporation and the By-laws support that were distributed 30 days ago, just before the May meeting.

Another way to become an officially recognized nonprofit is to just file the appropriate By-laws, stating that we are an “Association,” with the IRS, and asking for a 501(c)(3) determination.

If June’s vote fails to get the two-thirds majority required to accept the Articles and revised By-laws, to become a corporation, then we will rewrite the Articles and By-laws, scrubbing out the “Corporation” language and replacing it with language to be just an “Association.” Then we will distribute them 30 days before a future meeting (July, more likely August) and once again vote to accept those documents by a two-thirds vote.

If you are a little new to all this and would like some background, both the April and May Transponders have articles on the Pros and Cons of the Corporation vs. the Association vs. not doing it at all. Those ‘Transponders’ are available on the website (www.w6ha.com).

The VOTE: Speaking of voting, the Board opted to use “Survey Monkey” this time around, which will be sent, via Email, only to Full (Paid-Up) Members, during or immediately after the June meeting. It will remain active for several days, through the weekend and closed down on Sunday. At least 25 percent of the membership, a “quorum,” must respond on “Survey Monkey” for the results to be valid. For the “Articles,” “By-laws” and “Authority to Proceed to setup the nonprofit,” we will need a two-thirds majority of those responses to be: “ACCEPT.”

Can I vote?: Our year ends on June 30, so if you renewed around this time last year, you’re paid-up through June 30. If you are (or were) a new member, joining after January 1, 2020, you are also

paid-up through June 30, 2021. If you are concerned about your paid-up status you may check with Dale, WB6MMQ, Membership Chair, or Paul, KK6TAC, the Treasurer. See the last page of the ‘Transponder’ for Email addresses.

Dale, WB6MMQ

Nonprofit Committee Chair

Contests / Special Events : June - July

ARRL Field Day – Well of course for June it is Field Day. The first one was in 1933 and it is still going strong. When you submit your log, please indicate your club affiliation as:

‘Hughes ARC’ More below. [Rules](#)

**Annual 13 Colonies Special Event
July 1 though July 7th**

Bands and Modes All HF bands will be in play, including the WARC bands, *except of 60 meters*. The **exchange** for this event is: CALL SIGN RS / RST / RSQ, STATE / PROVINCE or COUNTRY 2021 Dates / July 1 to July 7 (July 1 -1300 UTC to July 8, 2021 - 0400 UTC) YOU DO NOT NEED ALL 13 COLONIES TO GET THE CERTIFICATE - YOU DO NOT NEED TO GET THE 2 BONUS STATIONS FOR A CLEAN SWEEP
[Rules: http://www.13colonies.us/](http://www.13colonies.us/)

ARRL Field Day (remember, "It's not a contest!") is June 26-27, 2021. With only 2 weekends left before the event, clubs across the US and Canada are making last-minute preparations to "take it outside." As an example, check out the [Portage County Amateur Radio Service \(PCARS\) Radiogram for June](#): It contains an overall summary of their Field Day plans, and details from each "station captain" about how the stations will be set up and operated. While you're reading the PCARS newsletter, scroll down a bit to see their coverage of the RAC Canada Day Contest [happening on July 1](#).

Lunch Kitty Financials – for Feb., 2020

Attendance: 21

Starting Lunch Kitty:	\$ 150.75
Expenses: Pizza(1) & Salads	\$102.00
Drinks: Soda: 8 @ 0.375 =	\$3.00
Water 2 @ 0.25 =	\$0.50
Food Total:	\$105.50
	\$ 45.25
Income: Lunch:	\$108.75
	\$154.00
Room Rent-To General Funds:	\$00.00
	\$154.00
Starting - Kitty for Mar 17, 2019 Mtg:	\$154.00

[Gain of \$3.25 - \$20.00 for room rent = Loss of 16.75]

ARRL Letter - Excerpts of Possible Interest**International Space Station to be in Cross-Band Repeater Mode for Field Day**

The Amateur Radio on the International Space Station (ARISS) cross-band repeater will be available for [ARRL Field Day](#), June 26 – 27. Contacts will count toward Field Day bonus points as satellite contacts and Field Day contacts.



Field Day rules limit stations to one contact on any single-channel FM satellite. Note that contacts made during Field Day by ISS crew would only count for contact credit, but not for satellite bonus points. ISS cross-band repeater contacts are also valid AMSAT Field Day satellite contacts.

The ARISS cross-band repeater uplink is 145.990 MHz (67 Hz tone), downlink of 437.800 MHz.

ARISS suggests that those unfamiliar with the ISS repeater may want to practice with it prior to Field Day. ARISS had planned to switch modes to the Automatic Packet Reporting System (APRS) during the second week of June, but this won't happen until after the first ARISS school contact following ARRL Field Day.

The ARISS ham station will be off-air during spacewalks on June 16 and 20. -- *Thanks to ARISS*

ARRL to Extend Field Day Rule Waivers from 2020, Add Class D and E Power Limit-

(1st published in March)

The COVID-19 pandemic-modified [ARRL Field Day](#) rules from 2020 will continue this June with the addition of a power limit imposed on Class D (Home Stations) and Class E (Home Stations-Emergency Power) participants. The news from the ARRL Board's Programs and Services Committee comes as many clubs and groups are starting preparations for Field Day in earnest. Field Day 2021 will take place June 26 - 27.



"This early decision should alleviate any hesitancy that radio clubs and individual Field Day participants may have with their planning for the

event," said ARRL Contest Program Manager Paul Bourque, N1SFE.

For Field Day 2021, Class D stations may work *all other* Field Day stations, including other Class D stations, for points. This year, however, Class D and Class E stations will be limited to 150 W PEP output.

For Field Day 2021, an *aggregate* club score will be published -- just as it was done last year. The aggregate score will be a sum of all individual entries that attributed their score to that of a specific club.

ARRL Field Day is one of the biggest events on the amateur radio calendar. Last summer, a record 10,213 entries were received.

"With the greater flexibility afforded by the rules waivers, individuals and groups will still be able to participate in Field Day, while still staying within any public health recommendations and/or requirements," Bourque said.

The [ARRL Field Day](#) web page contains complete rules and entry forms, as well as any updated information as it becomes available. Join the ARRL Field Day [Facebook group](#). Read [an expanded version](#).

Radio Amateurs of Canada Invites Participation in the RAC Canada Day Contest 05/27/2021

Here's a chance to enjoy an operating event that is *not* on a weekend. Help Canada celebrate its birthday on the air during the RAC Canada Day Contest on Thursday, July 1 — just a few days ahead of Independence Day in the US. Canada Day is the anniversary of Canada's confederation, when the three colonies of Canada, Nova Scotia, and New Brunswick united into the Dominion of Canada on July 1, 1867. The RAC Contest Committee is asking all participants in the 2021 Canada Day Contest to follow guidelines provided by the government and by health officials in their respective areas for any multi-operator categories.



The Canada Day Contest begins on July 1, 0000 UTC (the evening of Wednesday, June 30, in North American time zones) and continues through 2359 UTC. Bands include 160, 80, 40, 20, 15, 10, 6, and 2 meters, CW and phone (SSB, FM, AM, etc.).

Stations in Canada send signal report plus province or territory. VE0s and stations outside Canada send a signal report and a serial number. Contacts with stations in Canada or VE0s are worth 10 points. Contacts with stations outside Canada are worth 2 points. Contacts with RAC official stations — suffix of all is RAC — are worth 20 points. Stations may be worked once on each mode on each of the available bands. CW contacts in conventional phone sub-bands are not allowed, nor are phone contacts in the conventional CW sub-bands.

Canada's 10 provinces and three territories serve as multipliers for the event. [Rules](#)

WSJT-X version 2.4.0 Now Generally Available, Version 2.5.0 on the Horizon

06/10/2021

WSJT-X version 2.4.0 now is available in general release. According to co-developer Joe Taylor, K1JT, WSJT-X version 2.4.0 includes a new digital mode, Q65. This protocol is designed for two-way contacts over especially difficult propagation paths, including ionospheric scatter, troposcatter, rain scatter, TEP, EME, and other types of fast-fading signals.

"On paths with Doppler spread more than a few Hertz, the weak-signal performance of Q65 is the best among all WSJT-X modes," the [Quick Start Guide](#) asserts.

WSJT-X version 2.5.0-rc1 (beta) version has been released. According to the [Release Notes](#), in version 2.5.0 "the Q65 decoder has been enhanced to measure and compensate for linear frequency drift in Q65 signals."

Q65 uses 65-tone frequency-shift keying and builds on the demonstrated weak-signal strengths of QRA64, a mode introduced to WSJT-X in 2016. Q65 offers user message and sequencing identical to that in FST4, FT4, FT8, and MSK144. It includes a unique tone for time and frequency synchronization. As with JT65, this "sync tone" is readily visible on the waterfall spectral display. In addition, Q65 provides a sensitive "sync curve" near the bottom of the waterfall window.

Testing showed that Q65 will enable stations with a modest Yagi and 100 W or more and to work one

another on 6 meters at distances up to ~2000 kilometers on most days of the year, in dead band conditions.

"An excellent example of targeted uses of Q65 is ionospheric scatter on the 6-meter band," the documentation states. "Extensive tests on the 1,150-kilometer path between K1JT and K9AN have shown that with 300 W power output, nearly every Q65-30A transmission is copied correctly by the other station." The 30A refers to the transmit-receive period and spacing width.

For the complete announcement and to download the latest version, visit the [WSJT-X website](#).

ARDC Grant Will Support HAMNET Expansion in Europe



Amateur Radio Digital Communications ([ARDC](#)) has awarded a grant to support

European expansion of [HAMNET](#), a high-speed digital network that interconnects automated amateur radio stations using links in the 13-, 6-, and 3-centimeter bands, the Deutscher Amateur Radio Club ([DARC](#)) reports. This marks the first international grant from ARDC since it began awarding grants in 2019.

"Amateur radio is a global hobby, and ARDC wanted to enable international funding from day one," ARDC President Phil Karn, KA9Q, said.

"One way to do this is to work with international organizations that meet [IRS] 501(c)(3) requirements and are able to implement funding in their region. We are excited to see what the DARC will do and look forward to entering into similar partnerships with other organizations outside the US."

DARC Chair Christian Entsfellner, DL3MBG, said DARC is "very pleased that we can give the European HAMNET project a big boost with this grant." DARC will present this project in more detail at the virtual [HAM RADIO](#) World, June 25 - 27.

Archive of Marconi Papers and Correspondence Acquired by California Museum

The [Huntington Library, Art Museum, and Botanical Gardens](#) in San Marino, California, acquired an archive of papers and correspondence to, from, and about wireless



pioneer and Nobel Laureate Guglielmo Marconi. Among the more than 200 pages of correspondence are 31 letters from Marconi to his Chief Engineer, Richard Vyvyan, written between 1902 and 1909, regarding the construction and successful implementation of a transatlantic telegraph system. . . . Marconi was relentless . . . to try and find out what are the somewhat occult causes which make signals good one night and unobtainable the next," he wrote to Vyvyan in 1907. "I believe I have found, if not very clearly, the cause of the effects noticed." Read [an expanded version](#).

Intrepid-DX Group Adds Second Physician for Trip to "Cold and Inhospitable" Bouvet Island



"Bouvet is like the Mount Everest of DXCC entities," [3Y0J DXpedition](#) co-leader Paul Ewing, N6PSE, said. "It is among the most challenging entities to activate due to significant transportation costs and personal sacrifices required by the team to make the 42-day round trip. Fortunately, Bouvet is not our first mountain." The DXpedition's website describes Bouvet as, "a cold and inhospitable place." At 54° S, Bouvet Island, a sub-Antarctic island in the South Atlantic and a dependency of Norway, is the most remote place on Earth.

Ewing announced recently that Mike Crowover, AB5EB, a veteran emergency room physician, has joined the 3Y0J DXpedition team to pair with ER doctor Bill Straw, KO7SS. The DXpedition is set for January - February 2023, but the planning stage to activate the second-most-wanted DXCC entity is well under way, with the team researching polar-quality tents and equipment and discussing antenna specifications with various manufacturers.

"We will make careful choices to help us meet the demand for Bouvet contacts," Ewing said. The 3Y0J team has set a goal of making at least

100,000 contacts from Bouvet. "3Y0J will be a DXpedition with a focus on good, fast, and accurate operating. QSO rates will be very high," Ewing said. "We have assembled a team of strong operators who will strive to work everyone. We will focus on CW/SSB/digital for the 10 - 160 meter bands. Our goal is to match our VP8STI/VP8SGI achievement with 135,000 contacts made."

Ewing said that in the later stages of the DXpedition, operators will use "proven techniques" to work the weakest of callers. "We will also use techniques to work the youth in our audience," he added.

No real-time log search will be available, but 3Y0J will upload to Club Log and to M00XO Log Search each day, Ewing said.



The DXpedition has an estimated budget of \$764,000, with each team member contributing a minimum of \$20,000 each. In April, ARRL awarded a Colvin Grant of \$5,000 to the Intrepid-DX Group to help in funding the 3Y0J DXpedition. Ewing and ARRL member Ken Opskar, LA7GIA, will share DXpedition leadership duties .

Follow the DXpedition plans from the [DXpedition website](#) and [Facebook page](#).

ARRL Learning Network Webinars

Visit the [ARRL Learning Network](#) (a members-only benefit) to register, check on upcoming webinars, and view previously recorded sessions.

Improving Your Club's 2021 Field Day Score --

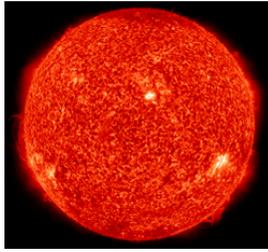
Paul Bourque, N1SFE, ARRL Contest Program Manager / Thursday, June 10, 8 PM EDT (0000 UTC on Friday, June 11).

Learn how your club or group can take advantage of the 2021 ARRL Field Day rules waivers for operating as Class D or E from home. We'll discuss how individuals or groups can boost their scores by earning bonus points, review how to use the Field Day web applet to submit your score, and go over how to attribute your score to your club's aggregate score. This presentation highlights all you need to know to operate as a group for ARRL Field Day 2021.

The K7RA Solar Update

06/11/2021

Tad Cook, K7RA, Seattle, reports: Sunspot activity has shown a modest increase over the past 3 weeks, with weekly average daily sunspot averages rising from 24.9 to 28 last week to 34.9 this week. Oddly, average daily solar flux, at 77.7, has remained remarkably unchanged over the same period.



Average daily planetary A index went from 6.1 last week to 5.9 this week. The middle latitude A index rose from 6.3 to 6.9.

Predicted solar flux over the next month is 78, 75, and 75 on June 10 - 12; 70 on June 13 - 17; 75 on June 18 - 20; 80, 82, and 77 on June 21 - 23; 76 on June 24 - July 5; 74, 74, and 75 on July 6 - 8, and 74 on July 9 - 14.

Predicted planetary A index is 5 on June 10 - 13; 8 on June 14 - 15; 20 and 18 on June 16 - 17; 5 on June 18 - 25; 7 on June 26; 5 on June 27 - July 4; 15, 10, and 8 on July 5 - 7; 5 on July 8 - 12; 20 and 8 on July 13 - 14, and 5 after mid - July.

Watching 6 meters on pskreporter.info at 0550 UTC on June 10, I noticed an odd late-night opening in western North America. It showed many long-distance FT8 contacts, but some had *positive* signal reports. One stood out. It was a 609-mile +5 dB report from K6VVP in San Francisco (CM87rs) to WA7DUH in Eastern Washington (DN06hg).

Sunspot numbers for June 3 - 9 were 28, 30, 30, 42, 53, 34, and 27, with a mean of 34.9. The 10.7-centimeter flux was 75.5, 77.1, 74.4, 77.4, 80.8, 79.9, and 78.6, with a mean of 77.7. Estimated planetary A indices were 6, 5, 4, 5, 12, 5, and 4, with a mean of 5.9. Middle latitude A index was 8, 4, 4, 6, 15, 7, and 4, with a mean of 6.9.

Checking the [STEREO mission](#) every day we see more activity in store over the sun's eastern horizon. You will recognize it as intense white splotches

Watching 6 meters on pskreporter.info on June 10 at 0550 UTC, I noticed an odd late-night opening in western North America, showing many long-

distance FT8 contacts. Some had positive signal reports, i.e., above the noise. This is notable because most reports on this website are negative (i.e., below the noise level), but one stood out. It was a 609-mile +5 dB report from K6VVP in San Francisco (CM87rs) to WA7DUH in Eastern Washington (DN06hg). Later I saw a 727-mile report from KA9UVY in Illinois (EM58mk) to N3OUC in Pennsylvania (FN20fm) at 0632 UTC with the signal at only -10 dB. Both reports showed the frequency as 50.314 MHz.

Of course, when FT8 signal reports are above zero, the same path should be viable for other modes, such as CW and SSB. [Read More](#)

A comprehensive K7RA Solar Update is posted Fridays on the ARRL website. For more information concerning radio propagation, [visit](#) the ARRL Technical Information Service, [read](#) "What the Numbers Mean..." and [check out](#) K9LA's Propagation Page.

A propagation bulletin [archive](#) is available. For customizable propagation charts, visit the [VOACAP Online for Ham Radio](#) website..

[Share](#) your reports and observations

Just Ahead in Radiosports (T = Contest)

- June 12 -- AGCW VHF/UHF T (CW)
- June 12 -- Asia-Pacific Sprint, SSB
- June 12 - 13 -- DRCG WW RTTY T
- June 12 -13 -- SMIRK T (CW)
- June 12 - 13 -- Portugal Day Contest (CW, phone)
- June 12 - 13 -- SKCC Weekend Sprintathon (CW)
- June 12 - 13 -- GACW WWSA CW DX T
- June 12 -13 -- REF DDFM 6-Meter T (CW, phone)
- June 12 -14 - [ARRL June VHF T](#) (CW, ph, dig)**
- June 14 -- 4 States QRP Grp 2nd Sunday Sprint (CW, ph)
- June 16 -- NAQCC CW Sprint
- June 16 -- SARL Youth Sprint (Ph)
- June 16 -- RSGB 80-M Club Championship (CW)
- June 26, 7 – [ARRL Field Day](#) - [Rules](#)**

See the [ARRL Contest Calendar](#) for more information. For in-depth reporting on Amateur Radio contesting, subscribe to [The ARRL Contest Update](#) via your ARRL member profile email preferences.

All dates & times are UTC.

ARRL Section, State and Division Conventions / Hamfest

in the West or near members everywhere:

Note: Check the [calendar of canceled events](#) on the ARRL website.

August 14, 5 -- [QSO Today Virtual Ham Expo \(online\)](#)

August 21, 2 -- ARRL [Southeastern Division Convention](#) (Huntsville Hamfest), Huntsville, Alabama
Find conventions and hamfests [in your area](#).

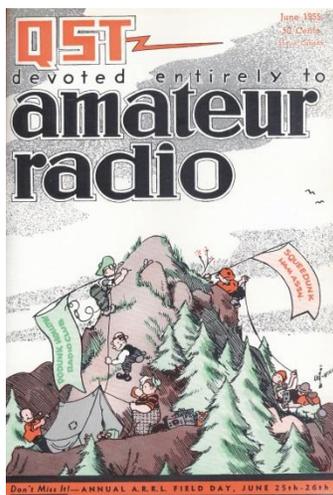
In Brief...

From ARRL Contest Update

Field Day - Regrouping (by Ward, N0AX)

Next month is ARRL Field Day, and after most groups didn't operate together in 2020, many will return to their usual ways in 2021. What's different in the [Field Day rules](#) this year?

Well, the rule waivers put in place last year remain in effect. New in 2021, however, home stations (Class D or E) are limited to 150 W PEP output. It is always a good idea to check the rules in advance! But even though some things have changed since 2019, the fundamentals of a successful group Field Day remain in place. Let's revisit a few.



Agree On A Plan

There are as many ways of approaching Field Day as there are groups participating: club picnic, emergency communications exercise, competitive scoring, public demonstration, "county fair," etc. No one style is the best, but the common factor for success is for everyone to be aware of the plan in advance. A competitive Field Day effort is not the place for someone to just show up and experiment. Likewise, a competitive operator will not be happy if the primary goal is socializing with a little operating on the side. Managing expectations is important to everyone. Make a plan and publish it so everyone knows what it is.

Play Well Together

Since Field Day in 2019, a lot of new gear has appeared, along with changes in modes and

software. The latest and greatest stuff may work just fine by itself, but what about with other extremely close stations? Unless your group is operating in a one-transmitter class, this is a good time to find out who is bringing what type of radio. It is not fun to discover radio shortcomings at 1800 UTC on Saturday!

Wideband transmitted noise presents real problems for Field Day efforts with multiple stations all located within the 1000-foot separation limit. So do harmonics and other spurious emissions. Every station should use a band-pass filter and have additional harmonic-suppression stubs available, if needed. One of the first setup tasks should be resolving inter-station interference. Make sure all of the radios are configured for clean modulation, with mic gain and compression carefully adjusted. This is great practice for SO2R (Single-Op, 2 Radios) or multi-op home stations!

With solar flux expected to stay below 100 and early summer conditions, only a couple of bands may be productive at a time. Trying to get a phone and CW or digital station on the same band requires careful attention to antenna location, very clean transmitters, and cooperative, patient operators. Planning operating time helps.

Manage Your RF

Recognize that the stations will be temporary and with antennas close by, there may be RF issues to deal with due to the strong local signals. A lot of RFI problems can be minimized if attention is paid to bonding all of the equipment together, including computers. Bonding can be as simple as laying down a sheet of aluminum foil and using short clip leads to attach equipment to it. Take a look at the bonding examples from W6GJB and K9NN for portable stations in the Contributed Examples section of <http://www.arrl.org/grounding-and-bonding-for-the-amateur>. The goal is to keep equipment at close to the same voltage, avoiding hot spots and RF current where it shouldn't be. Bring plenty of type 31 or type 43 ferrite cores for RF chokes on sensitive cables, too.

Generator and AC Safety

Finally, don't overlook basic electrical safety. Make sure your power generation and distribution system is sound and secure. While ground electrodes (usually ground rods) are not required for most modern generators, many groups like to use them. If you do, all of the electrodes must be

bonded together so that voltage differences between widely separated rods or short circuits don't create a shock hazard. Rain or dew are often encountered, so consider using GFCI-protected outlets at each station, too. *The ARRL Handbook's* "Assembling a Station" and "Safe Practices" chapters are good sources of ideas.

Ready, Set, CQ FD!

I'm coming up on 5 decades of ARRL Field Day, and each event has been unique. I've learned something -- technical or personal -- at every one, and this one will be no different. What's the secret to Field Day happiness? Plan, prepare, perform.

That's all for this time. Remember to send contesting related stories, book reviews, tips, techniques, press releases, errata, schematics, club information, pictures, stories, blog links, and predictions to contest-update@arrl.org

73, Brian N9ADG

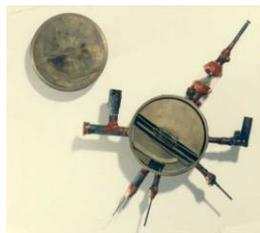
WORD TO THE WISE

Receiver Blocking Level - From the free-for-download book, "[Managing Interstation Interference](#)" by George, W2VJN: "When strong signals are applied to a receiver, there is a level, somewhat lower than the damage point, at which reception is blocked or disabled. This level is a function of the receiver design and varies depending upon the manufacturer and model. Reception is impossible, but no damage results."

OFF The Wall

"Faraday Wax" - recreating old school high-vacuum epoxy!

And envelope sealer I'm doing a lot of high vacuum stuff, and this gets expensive fast, if one were to do things by the book. The standard high vacuum epoxy, Torr Seal (by Varian) is very expensive, and the generic high vacuum epoxy, Hysol 1C is not available in EU.



Apparently, in the olden days, a red wax was used to seal vacuum systems, make glass-to-metal seals etc. well into the 20th century. A famous example is Lawrence's first 4-inch cyclotron in 1930: I found a recipe in a review from 1936 (L. Walden, J. sci. instrum. 13, 345) that describes "Faraday

wax" - as first described by Michael Faraday in "Chemical Manipulation" from 1827.

By weight:

1 pt. yellow beeswax

5 pt. colophony (Rosin)

1 pt. Venetian red

Melt beeswax, add rosin gradually, add Venetian red and stir until uniform, stir while cooling. I poured mine into strips on baking paper to be touched to the preheated surfaces to be joined. Can also be applied with brush if used directly from the melting pot. Mine melted nicely around 130-140°C

I sealed a KF25 flange with a 10mm hole with a small brass plate, by first waxing the sealing surfaces and then pressing together after reheating. Mounted on my turbo-pump vacuum system.

THIS 200 YEAR OLD NATURAL PRODUCT WENT DOWN TO 10⁻⁷ mbar!

-No increase in pump-down time, ultimate vacuum or turbo pump load. I was stunned!

So yeah, this is well worth having a stick of around! Only downside is, it can't be heated. duh.

It looks a lot like old fashioned sealing wax that was commonly used to seal documents over a century ago. It came in sticks that could be melted with a candle flame and dripped onto the closing flap of a document and a metal embossed unique seal form pressed onto the surface. It was somewhat pliable but friable enough to clearly show any tampering.

Announcements

- "[Legacy](#)" records of single-operator scores before the merging of Single Operator and Single Operator Assisted categories for the CQ WPX Contest are now available.
- **Stew Perry** - The dates have been posted for the four Stew Perry [Top Band Distance Challenge](#) events on 160 meters. This year's main Stew in December will occur 1 week earlier than usual -- on December 18 -- to avoid a conflict with Christmas. The schedule for this year is: March 13, June 19, Oct. 23, and Dec. 18.
- **Steve Johnston, WD8DAS**, has purchased [AF4K Crystals](#) and plans to reopen it soon. AF4K Crystals was a source for vintage and modern radio crystals for nearly 2 decades. The company will fill a gap for those seeking to buy quartz crystals for projects.

Select DX News (QRV = Ready! or Are you Ready?)**ARLD023 DX news**

This week's bulletin was made possible with information provided by The Daily DX, the OPDX Bulletin, 425 DX News, DXNL, Contest Corral from QST and the ARRL Contest Calendar and WA7BNM web sites. Thanks to all.

BAHRAIN, A9. Members of the Bahrain Amateur Radio Society are QRV with special call sign A91BFA **until June 15** for the Bahrain Football Association in support of the national football team in its progress in the 2022 FIFA World Cup Qualification process. QSL via EC6DX.

BALEARIC ISLANDS, EA6. Andreas, DK5ON will be QRV as EA6/DK5ON from Cala Ratjada on Mallorca, IOTA EU-004, **from June 12 to 20**. Activity will be on 40 to 6 meters using CW, SSB, FT8 and FT4. QSL to home call.

GUADELOUPE, FG. Michel, F6GWV and Gildas, F6HMQ is QRV as TO11A, **June 12 to July 5**. Activity is holiday style with a focus on 6 meters. This includes being an entry in the IARU Region 1 50 mHz Contest. QSL via F6HMQ.

DOMINICA, HI. Special event station HI95RCD is QRV from **June 12 to 23** to celebrate the Radio Club Dominicano's 95th anniversary. QSL#4

REPUBLIC OF KOREA, HL. Special event station D721LP is QRV **until June 30** to celebrate IARU HF QRP Day. QSL #4

ITALY, I. Operators IK5RUN and IK5MES will be QRV as IG9/home calls from Lampedusa Island, IOTA AF-019, **from June 12 to the 25**. Activity will be holiday style on the HF bands using mainly SSB. QSL to home calls.

OGASAWARA, JD1. Makoto, JI5RPT is QRV as JD1BLY from Chichijima IOTA AS-031, **until 6/13** on 40 to 6 M using CW, SSB & FT8. QSL#1

HAWAII, KH6. Special event station K6K is QRV **until June 12** to celebrate King Kamehameha Day. Activity is on 80 to 10 meters using CW, SSB, FT8 and other modes. QSL via LoTW.

PERU, OA. Members of the Asociacion de Radioaficionados del Peru are QRV with special calls OC4B, OC6B, and OC7B **until December 31** to celebrate the bicentennial of Peruvian independence. Activity is on 40, 20, 17 and 15

meters using SSB and FT8. QSL via LoTW.

MARKET REEF, OJ0. A group of operators will be QRV as OJ0C **from June 12 to 21**. Activity will focus on 6 meters using FT8. This may include activity on 10 meters and higher bands. QSL via OH3JR.

EUROPEAN RUSSIA, UA. Special event station R21EURO is QRV for the 2021 European Football Championship. **[listed 6/10/21-ed]** QSL via R1II.

BURKINA FASO, XT. Harald, DF2WO will be QRV as XT2AW from Ouagadougou until **July 3**. Activity will be on the HF bands using mostly CW, FT8 and on Satellite, and with SSB as conditions permit. QSL via M00XO.

INDONESIA, YB. **Beginning June 12**, look for Ram, YD9KNX to be QRV as YD9KNX/p from Bendungan Meninting on Lombok Island, IOTA OC-150. QSL to home call.

DODECANESE, SV5. Wolf, DL3DRN is QRV as SV5/DL3DRN from Rhodes, IOTA EU-001, **until June 21**. Activity is on the HF bands using CW, SSB and RTTY. QSL to home call.

VIET NAM, XV. Jun, JH4RHF, is QRV as XV9RH from Hanoi **until June 26** while on work assignment. Activity is in his spare time on 20 to 10 meters using CW and FT8. QSL via OE1JUN.

TURKEY, TA. Special event station TC568FA is QRV **until June 28** to commemorate the anniversary of the Fall of Constantinople on May 29, 1453. Activity is on all bands and modes. QSL#3

REPUBLIC OF KOREA, HL. Special event station D721LP is QRV **until June 30** for IARU QRP Day. QSL via LoTW.

ITALY, I. The United Nations Global Service Centre ARC in Brindisi are QRV as 4U29MAY **until June 30** to promote the Inter-national Day of UN Peacekeepers. QSL via 9A2AA.

MINAMI TORISHIMA, JD1. Take, JG8NQJ will be QRV as JG8NQJ/JD1 **until June '21**, while on work assignment at the weather station here. Activity is in his spare time on the HF bands using CW. QSL direct to JA8CJY.

BENIN, TY. Ian, ZS6JSI is QRV as ZS6JSI/TY from Parakou **until June**. Activity is on 80, 40 & 20 M using SSB & FT8. QSL via EC6DX.

NIGERIA, 5N. Jean-Louis, ZS6AAG is now QRV as 5N9JLH while working with Doctors Without Borders in Abuja **until September 15**. Activity is on 20 and 15M using SSB. QSL #2

TONGA, A3. Masa, JA0RQV is QRV as A35JP from Tongatapu Island, IOTA OC-049, **until October 30, 2021**. Activity is on 80 to 6 meters using CW, SSB and FT8. He also plans to visit other islands in IOTA groups OC-191, OC-123, OC-064 and OC-169 during this time. QSL #1

Long Term (more than 1 month)

CHATHAM ISLANDS, ZL7. Operators Chris, ZL2DX and Catherine, ZL2QT are QRV as ZL7DX and ZL7QT, respectively, from Waitangi, IOTA OC-038, (**until July 2021 – ed**), on the HF bands & 6M EME. QSL via M0OXO.

JAPAN, JA. Special event stations 8N1OLP, 8N2OLP, 8N3OLP, 8N4OLP, 8N5OLP, 8N6OLP, 8N7OLP, 8N8OLP, 8N9OLP and 8N0OLP are QRV **until September 5, '21** for the World Olympic and Paralympic Games. QSL #3

ANGOLA, D2. Paulo, CT1FJZ is QRV as D2FJZ from the Province of Cuando-Cubango until **September 2021** while on work assignment. Activity is on 80 to 10 meters using SSB. QSL direct to home call.

ANTARCTICA. Mark, W5MED is QRV as KC4USV from McMurdo Station on Ross Island, IOTA AN-011, **until Oct. 2021** He is active on 20M using SSB and FT8 at various times of the day. QSL direct to K7MT.

SERBIA, YT. Members of the Serbian CW Club are QRV with special event station YT165TESLA during **all of 2021** to commemorate the 165th anniversary of Nikola Tesla's birth. QSL via YU1MM.

ARGENTINA, LU. Splc event stn L21RCA is QRV **during all of 2021** to celebrate the 100th anniversary of IARU member society Radio Club Argentino. QSL via LU4AA.

FINLAND, OH. Members of the Finnish Amateur Radio League are QRV during **all of 2021** with special event call OH100SRAL to celebrate their 100th anniversary. QSL#3

VENEZUELA, YV. Special event station YW200BC is QRV **during 2021** to commemorate the Battle of Carabobo 200 years ago, which paved the way for Venezuela's independence. Activity is on 80 to 10 meters using CW, SSB and various digital modes. QSL via YV4KW.

AUSTRALIA, VK. Special event station VI50SG is QRV **until December 31, '21** to commemorate the 50 years of the St. George ARS. QSL #3.

ASCENSION ISLAND, ZD8. Tev, TA1HZ is QRV as ZD8HZ during **all of 2021**. He plans to be active in the CQ World Wide WPX SSB contest as well. #1

FEDERAL REPUBLIC OF GERMANY, DA. Special call sign DL65ESSEN is QRV **until Dec. 31, '21** to celebrate the 65th anniversary of the DARC's Ortsverband Essen. QSL #3

BELGIUM, ON. Members of the radio club Noord Oost Limburg are QRV with special call sign OR40NOL **until the end of 2021** to celebrate the club's 40th anniversary. QSL via ON6NL.

Until 2022

REPUBLIC OF KOREA, HL. Kang, DS4DRE is QRV as DS4DRE/4 from Komun Island, IOTA AS-060, until the **end of January, 2022**. Activity is on 80 to 10 meters using CW and SSB. QSL #1

JAPAN, JA. Special event station 8N1MORSE is QRV **until Feb. 28, 2022**, the 230th anniversary of the birth of Samuel F. B. Morse and the 120th anniversary of Guglielmo Marconi's successful transatlantic radio communication by Morse Code. QSL #3

UK SOVEREIGN BASE AREAS ON CYPRUS, ZC4. Garry, 2M1DHG is QRV as ZC4GR **for the next few years. [listed Jan. 2021 - ed]** Activity is mainly on 40 to 10 meters using SSB and FT8, and possibly SSTV, PSK31 and WSPR in his spare time. QSL via EB7DX.

GEORGIA, 4L. Peter, G4ENL plans to be QRV as 4L1PJ from Svaneti while on work assignment. He expects to be here for the **next few years. [listed Jan. 2021-ed]** Activity is on various HF bands using SSB. QSL via N4GNR.

ZAMBIA, 9J. Bodo, HB9EWU plans to be QRV as 9J2BG while spending one year on a humanitarian mission at the St. Paul's Mission General Hospital in Kashikishi. Activity will be on 20M. **[until Feb 2022 – ed]** QST#1

POLAND, SP. Special event stations SN0ZOSP and SN100ZOSP are QRV until **February 5, 2022** to celebrate the 100th anniversary of the Association of the Voluntary Fire Brigades of the Republic of Poland. QSL SN0ZOSP via SP9ODM and SN100ZOSP via SP9SPJ.

NICARAGUA, YN. Trevis, YN7ZTR is a missionary working in Gaunacastillo for the next two years. He is active in his spare time. **[Until 2022-June-ed]** QSL via LoTW.

Until 2025

LAOS, XW. Mike, XW2DX is QRV from Vientiane and is here for the next 5 years. **[Until August 2025-ed]** Activity is on 20, 15 and 10 meters. QSL via RM0L.

Notes:

1. QSL direct to home call.
2. QSL via operators' instructions.
3. QSL via bureau
4. QSL via LoTW
5. QSL via Instruction on QRZ.com
6. QSL via eQSL
7. QSL via QRZ.com
8. QSL via ClubLog

AMATEUR RADIO LICENSING EXAMS:

TRW Swap meet at the corner of Aviation Blvd and Marine Avenue in Redondo Beach. 10AM in the Northrop cafeteria. Always the last Saturday of the month – no reservation is required.

(www.W6TRW.com) [inactive - Covid-19-ed]

ARRL Announces Free Exam Review Website

The ARRL has launched a web site that allows users to take randomly generated practice exams using questions from the actual examination question pool. [ARRL Exam Review for Ham Radio™](#) is free, and users do *not* need to be ARRL members. The only requirement is that users must first set up a site login (this is a different and separate login from your ARRL website user registration).

Other Free Practice Exam Sites:

<http://aa9pw.com/radio/technician/>

<http://www.eham.net/exams/>

This Practice Exam site Requires Registration

<https://www.qrz.com/hamtest/>

ARRL LAX Section Officers:

Section Manager: Diana Feinberg, AI6DF

PO Box 4678

Palos Verdes Peninsula. Ca 90274-9618

AI6DF@arrl.org or 310-544-2917

Asst. Section Manager: Mark Chung, KK6SMD

mchung@prodigy.net

LAX Section Traffic Mngr: Kate Hutton, K6HTN

For Radiogram formatting instructions go to

www.ARRLAX.org .

RF Safety – Power Density Web site:

http://hintlink.com/power_density.htm

Links: TRW license test

<http://w6trw.com/index.php/amateur-radio-license-testing/>

International Space Station (ISS) -145.800 MHz.

PodCast – Amateur Radio News

(The above is a link to an MP3 audio feed)

On-Line Stores / suppliers:

<http://www.impulseelectronics.com/> PowerPole

<https://elkantennas.com> - LPA VHF/UHF Ant.

<http://hamcity.com> - Local – Conn, cables, ants.

<http://www.aesham.com/> - Ham Radio Outlet

<http://www.dxengineering.com>

<http://www.gigaparts.com/>

<http://www.AllElectronics.com> – Parts

<http://TheWireman.com> – Ant. Coax, UV Dacron

ARRL <http://arrl.org>

CQ Mag [http://store.cq-amateur-](http://store.cq-amateur-radio.com/product-category/books/)

[radio.com/product-category/books/](http://store.cq-amateur-radio.com/product-category/books/)

BGMicro <https://www.bgmicro.com/>

HARC Past & Current Presidents

1973 Doug Erny, AK7E (former W6NPD)

1974 Orson Just, K6JGV, sk

1975, 76 Tom Rothwell, K6ZT, sk

1977 Tom McInnis, WB6ZEB, sk

1978,79 Sam Weise, W6LXR

1980 Bob Poole, AJ6F, sk

1981 Russ Sanford, WA6NQO, sk

1982, 83 Chuck, KN6H

1984 John Bennett, WD6BAI

1985 Scott Fraser, KN6F

1986, 87 Ed, K6GQV

1988 John, WA6LOD

1989, 90 John, KJ6AW

1992 Bruce, WB6ARE

1993 Rick, KD6DYN

1994

1995,6,7,8,9 Brian, AB6UI

2000,1,2 Bruce, W6BLS

2004,5,6 Ed, N6EG

2007 - 2014 Barry, KG6NWJ

2015, 16, 17 – Dale Birmingham, WB6MMQ

2018-19 Mike, N6MDV (Past President)

2020 – Brian, AB6UI (President)

Southern California Band Plans:

Tasma – 2 Meters

<http://www.tasma.org/TASMA-2m-Band-Plan.pdf>

220 MHz Spectrum Mngmnt Assoc. of So. Ca

220SMA BAND PLAN

<http://www.220sma.org/index.htm>

SCRBA (Southern California Repeater and Remote Base Assoc.) – 440 mHz (70 cm) and up

<http://www.scrba.org/BandPlans/BandPlans.htm>

W1AW Operating Schedule (Edited - Note: Local time stays the same, UTC varies w/DST)

Morning Schedule:

Winter	Summer	Local	Mode	Days
1400 UTC	1300 UTC	(6 AM PDT)	CWs	Wed, Fri
1400 "	1300 UTC	(6 AM PDT)	CWf	Tue, Thu

Afternoon/Evening Schedule:

2100 UTC	2000 UTC	(1 PM PDT)	CWf	Mon, Wed, Fri
2100 "	2000 "	"	CWs	Tue, Thu
2200 "	2100 "	(2 PM PDT)	CWb	Daily, CW Bulletin, 18 WPM
2300 "	2200 "	(3 PM PDT)	DIGITAL	Daily, Digital Bulletin
0000 "	2300 "	(4 PM PDT)	CWs	Mon, Wed, Fri
0000 "	2300 "	"	CWf	Tue, Thu
0100 "	0000 "	(5 PM PDT)	CWb	Daily, CW Bulletin, 18 WPM
0200 "	0100 "	(6 PM PDT)	DIGITAL	Daily, Digital Bulletin
0245 "	0145 "	(6:45 PM PDT)	VOICE	Daily, Voice Bulletin
0300 "	0200 "	(7 PM PDT)	CWf	Mon, Wed, Fri
0300 "	0200 "	"	CWs	Tue, Thu
0400 "	0300 "	(8 PM PDT)	CWb	Daily, CW Bulletin, 18 WPM



	Frequencies (MHz)									
CW:	1.8025	3.5815	7.0475	14.0475	18.0975	21.0675	28.0675	50.350	147.555	
DIGITAL:	-	3.5975	7.095	14.095	18.1025	21.095	28.095	50.350	147.555	
VOICE:	1.855	3.990	7.290	14.290	18.160	21.390	28.590	50.350	147.555	

Notes:

- CWs = Morse Code practice (slow) = 5, 7.5, 10, 13 & 15 WPM
- CWf = Morse Code practice (fast) = 35, 30, 25, 20, 15, 13 & 10 WPM
- CWb = Morse Code Bulletins = 18 WPM

CW frequencies include code practices, Qualifying Runs and CW bulletins.
 DIGITAL = BAUDOT (45.45 baud) BPSK31 and MFSK16 in a revolving Schedule.
 Code practice texts are from QST, and the source of each practice is given at the beginning of each practice and alternate speeds.

W1AW Qualifying Runs: [for more info: www.arrl.org/qualifying-run-schedule]

Starting in Dec. W1AW will transmit Qualifying Runs up to 16 times per month.
 Time is PST: [10 – 35 wpm – **Bold 35 – 10 wpm**] – on CW Frequencies listed above.

Month	6 AM	1 PM	4 PM	7 PM	6 AM	1 PM	4 PM	7 PM	6 AM	1 PM	4 PM	7 PM	6 AM
June	6/15		6/17	6/16		6/18		6/21	6/23	6/24	6/25		
July		7/6	7/7	7/8	7/9	7/13	7/14		7/15			7/16	7/20
July	7/20			7/21		7/23	7/22	7/26	7/28	7/29	7/30		

West Coast Qualifying Runs:

Sat June 19 @ 2 PM PDT (2100 UTC) on 3581.5, 7047.5, 14047.5 & 18097.5 kHz; 10 – 35 WPM
 Wed July 28 @ 6 PM HST (0400 UTC on Thur. July 29) by KH6TU on 7047.5 & 14047.5 kHz **40 – 10 WPM**

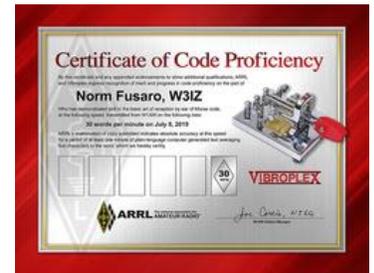
Earn your Code Proficiency certificate by legibly coping at least 1 minute of text by hand and mailing the sheet to: W1AW Qualifying Runs, 225 Main St., Newington, CT 06111. Include \$10 (check or money order) if this is a submission for your initial Code Proficiency certificate; \$7.50 if you are applying for an endorsement (available for speeds up to 40 wpm). Your test will be checked against the actual transmissions to determine if you have qualified.

Audio from W1AW's CW code practices, CW/digital bulletins and phone bulletin is available using EchoLink via the W1AW Conference Server named "W1AWBDCT." The monthly W1AW Qualifying Runs are presented here, also. The audio (real-time) runs concurrently with W1AW's regular transmission schedule.

K1USN Radio Club Announces Weekly Slow-Speed CW Contest

The K1USN Radio Club in Massachusetts is launching a new weekly, hour-long, slow-speed contest, the [K1USN SST](#). **Fridays 1:00-2:00 pm PDT** (2000z -2100z) and **Sundays, 5 to 6 PM PST** (Monday 0000-0100 UTC) Suggested frequencies: 3.532 - 3.539; 7.032 - 7.039 MHz, & 14.032 - 14.039 MHz. Exchange name & s/p/c. Read [more](#).

The Straight Key Century Club (SKCC): http://www.skccgroup.com/member_services/beginners_corner/
 SKCC Beginner's Corner - Monthly Straight Key Night (SKN) is on the 1st of each month. It is not a contest. No logs are submitted. The Elmer frequency is **7114 KHz**. It's a safe haven for CW newcomers. Elmers are encouraged to monitor the frequency and work the CW beginners, some of whom may have had a license for many years.



2020 – 2021 CLUB OFFICERS**Elected Officers:**

PRESIDENT:	Brian, AB6UI	President at W6HA.com
VICE PRESIDENT:	Howard, KE6MAK	W6HA_VicePresident at W6HA.com
SECRETARY:	James, W6JIC	W6HA at W6HA.com
TREASURER:	Paul, KK6TAC	Treasurer at W6HA.com
STATION MANAGER:	Mike, N6MHD	W6HAStationMgr at W6HA.com
Immediate PAST PRES.:	Mike, N6MDV	W6HA at W6HA.com

Committees:

NEWSLETTER EDITOR:	Dale, WB6MMQ	W6HA_Editor at W6HA.com
QUARTERMASTER:	Mike, N6MHD	W6HAStationMgr at W6HA.com
WEB MASTER:	Mike, N6MDV	W6HA at W6HA.com
MEMBERSHIP:	Dale, WB6MMQ	W6HA at W6HA.com
SCRRBA REP:	Ray, WA6NVL	WA6NVL at ARRL.net
MEETING HOST:	Dale, WB6MMQ	W6HA at W6HA
Asst. Host:		W6HA at W6HA
FoTL Conf. Rm. Coor:	Judi, KI6TKT	
FIELD DAY :		FieldDay at W6HA.com
MEMBERSHIP:	Dale, WB6MMQ	W6HA at W6HA.com
NET COORDINATOR:	Howard, KE6MAK	W6HA at W6HA.com
YAHOO GROUPS MOD:	Richard KM6FP	W6HA at W6HA.com (http://groups.yahoo.com/w6ha)
CLASS MODERATOR:	Mike, N6MDV	W6HAClass at W6HA.com

CLUB REPEATER: W6HA 445.620 MHz (-) PL 127.3 Hz Location: Bldg. R1 roof
Packet (node :hughes) 145.61s W6HA

HARC Repeater Nets: Wednesdays, 7:30 PM (0230 UTC Thursdays)

Thursdays, 12:05PM (1905 UTC) RTN ECT – All are welcome

South Bay ARC Net: Thursdays at 7:30 PM on W6SBA/R, 224.38, PL 192.8

LAFD CERT Net: 1st Tuesday of the month, 7:00 PM

HAC NET: Hughes ARC - 14.233 mHz +/- QRM, 2nd, 4th, 5th Tuesdays, 2000 UTC (13:00 PDT) – Tests in , 2020

Club Shack: The club shack is in E1, Lobby D. There is a Kenwood TS-520 HF radio connected to an 40 –10 meter antenna. This station is open to all club members. (I would be happy to give a tour of the HF station in "Lobby D" to club members. Brian, AB6UI, Station Manager)

Club Newsletter: If you have items that would be of interest to the club, any comments, letters, or items for sale or trade please email it to Dale, WB6MMQ W6HA_Editor (at) W6HA.com. If anyone needs a club application, please contact Dale, WB6MMQ and one will be sent to you.

Club Roster: Hardcopy available at meeting or contact the club membership chairman Dale, WB6MMQ

Web Site: <http://www.W6HA.com> or W6HA.com

The Hughes Amateur Radio Club is an ARRL affiliated club for FCC-licensed amateur radio operators and their family members. Membership is open to all Amateur Radio Operators and those who are aspiring Amateur Radio operators.
