



The Transponder



The monthly newsletter of the Hughes Amateur Radio Club, W6HA
- An ARRL affiliated club -

December 13, 2019 Repeater 445.620 – PL 127.3 Web Site: <http://W6HA.com> Vol. XLVI, No. 12

***** CLUB MEETING *****

Where: El Segundo Library - Friends of the Library Conference Room
Location: 111 Mariposa Ave (near Main Street) , El Segundo, CA 90245

Meeting Notice: Date: Tuesday, December 17, 2019;
Time: Gather, 11:30; Meeting: 12 to 1 PM

Featured Presentation:

ARRIS - Amateur radio on the International Space Station (ISS)
By Brian, AB6UI
Storage container

Up Coming Events:

Dec 25 – Move or abandon Storage Container by this date.
Saturday, January 11th, 2020 – Sean O’Brien 30K / 50K / 26mi (can we do this ?)
Saturday, February 8th, 2020 – Sean O’Brien 100K/50mi <http://sob5050.com/>

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Lunch: Pizza: 1 Large Veggie; 1 Lrg Pepperoni; 1 Lrg Special; 1 Lrg Sausage, (\$3.50/slice)
Prices: 2 slices of Pizza w/salad, \$8.00; 1 slice of pizza w/salad \$5.00; Salad only \$4.00
Sodas: Coke, Coke Zero & Ginger Ale (\$1.00) - Water (50 cents)

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)

Other nets: Thursdays at 7:30 PM So Bay ARC Net
1st Mondays of the month (7:00 PM) – LAFD CERT

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

Club News:**Storage Container Status**

MB approval stalled at City Council level. Several other inquires and contacts have been made. If nothing comes of those inquires by December 25, the container will be abandoned in place.

Notes/Action Items from the W6HA Business Meeting November 19, 2019

Mark to check on condition of emergency power for the club repeater and report what may be needed to ensure it remains up when building power is interrupted.

Brian to send link about nano vector analyzer and link to his ARISS video.

Mike to put the ARISS video link on the club web site as a first step to getting more club participation support in future space station opportunities.

Brian to be the primary speaker at the December club meeting subject being the ARISS experiences. Two additional opportunities for supporting a school are on the horizon.

January meeting topic will be suggested antennas for new Hams HT and continuation of the selection guidance of HT for new hams. The nano vector network analyzer will be part of the discussion of antennas.

January the club will try for another technician class plus a skills day. Mike to arrange for a room.

Judi to confirm the date of the December club meeting and make reservations for the January meeting.

Dale will email the club membership – paid status spreadsheet to Mike and Alice. Mike will update with data provided today by Alice and mail back to Dale and Alice.

Dale will get a few quotes for moving the container from lot T to its new spot.

Club needs to create a MOU for use of the repeater during training and actual emergencies. Actionee is TBD

Mike to further update the HT selection document based on on-going feedback from members.

Mike, N6MDV

Ray Miller 50/50 – How did we Do?**Ray Miller 50/50 - Hughes & Santa Barbara ARCs Comm Team**

setup THANK YOU! Every volunteer showed up equipped to handle the weather and the communication challenge. The weather was damp, but a little warmer than I expected, which is good thing. I did not hear of any hypothermia cases, but at least one runner was observed with a very red face, which can be a sign of heat stress or hyperthermia.

As far as I know, there were no injuries beyond scraps and scratches for the EMTs to take care of, although, as usual, some runners did drop out of some races.

Probably most operators want to know what was up with the initial 'Did Not Start (DNS) list.' We requested a DNS list from the Start-Finish Timer, so when we got a list with Bib Nos. Highlighted with yellow marker, we thought those were the DNSs. But, of course, what the Timer was wanting to know was, "who is in the race," so that is what they highlighted. So the list was, in one sense, "100% correct," – our interpretation of it, 100% inverted. 'Lesson Learned.'

Net Control Station

The Net Control John, N6JLS, Bill, KM6HVK and myself, WB6MMQ arrived Friday afternoon with a Cruise America RV and parked it in the paved Day Use parking area next to the Start-Finish area. Net Control, John, N6JLS set up his J-pole antenna and configured his station in the RV. Power was provided via a Honda i2k inverter a 35 amp power supply to a 100 Ahr SLA, so that if the generator goes down, he stays on the air.

The RV allows for the NCS, Start-Finish, Repeater and a Hell-Hill Aid Station operator(s), to be on site in the AM, for sure. With this weather, who knows when a piece of the hillside on PCH is going to come down and shut down PCH. Since that crew is also tired from operating all day Saturday, we stay overnight in the RV until Sunday morning and drive home in a rested condition for driving.

Besides being a pretty fair NCS, John's not a bad chef. He prepared a better than fair Chicken Tortellini with Broccoli flowers and carrots, served with a glass of wine. We crashed at 10 PM, awoke early and packed up. I arrived home by 10:30 AM. I got unpacked and got after my 'Honey do projects for the season.' Monday morning we returned the RV (Cruise America is not open on Sunday). A few years ago we did it all in my Big Blue Tent (3 rooms). But especially in wet weather, the RV is a bit nicer. The cost is split between the seven of us that use it.

Start-Finish

Judi, KI6TKT handled Start-Finish for the entire time (5:45 AM to shut down-14 hours). This includes walking back to NCS, about a ¼ mi walk and locating Kiera, the race director, from time to time. Judi usually uses an HT with an extended ½ wave antenna. That gets her into the repeater, although line of sight is through rock and earth. There are a couple of reflection paths. She also, at times, will use simplex to the NCS which is about 100 yards (line of sight) away from the busy and noisy Start-Finish area. Thank You Judi!

Repeater

Getting to the desired location for the portable repeater was interesting – The first time I know of that the 4WD on my 1992 Yukon was absolutely required or I would not have made it by the route chosen. As it was, the rear end of the vehicle fishtailed back and forth in and out of various muddy ruts. However, the vehicle did manage to follow the pull of the front wheels and all was well. As you might imagine the road was bumpy, as well. I had the mast for the repeater antenna bungee corded to the roof rack with a six foot bungee cord. I've done this many times, over the years, starting with wooden poles for boy scouts to practice lashings and make structures. Never before has any item ever come loose. But with the bouncing on this muddy uphill road, the bungee did come loose. I was, however, able to get to a flat spot and tighten it all down before the mast and antenna fell off into the mud.

Once we got to the top of Overlook Road, we found the high spot (Lat: 34° 5'46.49"N; Long: 119° 1'53.46"W) Elevation (1133 ft.) with a flat spot to pull off the road. We assembled and erected the mast and antenna and got the machine on the air. A Big Thanks to Raul, KM6NRL, for following me up that muddy road and to Bill, KM6HVK and Kaitlyn, KN6FQN for help in setting up the antenna and mast. The repeater is set to run 20 watts via batteries and solar power. Some details on how that worked out with overcast and rain are in a table at the end. Bottom line, the batteries never dropped below 12.4 volts, even while running a 150 watt laptop via a small 300 watt inverter.

Hell Hill Aid Station

Mike, N6MDV and Karen K6VHY went to the Hell Hill Aid Station using their 4WD Jeep Wrangler. They drove in with the Ranger escort and the Aid Station personnel and their equipment. Raul KM6NRL transported Bill, KM6HVK and new operator, his niece Kaitlyn, KN6FQN, over to HH from the repeater site. Since all three races go through HH three times, four or five people capturing Bib nos. helps. A big thanks to both Mike, N6MDV and Raul, KM6NRL for their willingness to take their new Jeep Wranglers through the mud to HH.

Danielson Ranch Aid Station.

Danielson was covered by Kevin, KD6NCA (SBARC) and Ralph, AI6GP. The road into Danielson is paved, so they could get there in a conventional vehicle via escort by the ranger. Both are equipped with external antennas and mobile rigs if a little power is required, but in this case the repeater has a clear shot down Sycamore Valley to Danielson Ranch, so I expect an HT with rubber duck on Low power may have worked just fine. Very nice to know that there are a couple of well equipped hams available, should we need them in another location. Thanks to Kevin for a good suggestion for working around the DNS issue.

Yerba Buena Aid Station

Yerba Buena is the far out location and is the only aid station that does require a ranger escort. It is seven miles up Yerba Buena Road and behind Clark's Peak (2344 ft.) so hitting the repeater 7 miles away (as the crow flies) can be a bit of a challenge. However Sam, AF6LY and Howard KE6MAK were both up to the challenge. Both had external antennas and Howard ran 50 watt mobile rig. Behind them to the

south and west there is another peak and ridge which may have provided an RF path via reflection. Whatever the case, they were Full Quieting into the repeater.

From Howard, KE6MAK:

I must say that Yerba Buena road is one of the few paved mountain roads I have driven where the 15 MPH sign is for REAL especially so, in low light and rain; however, it was indeed doable. My Kenwood TH-F6 has a low audio problem which is solved by using the speaker mic. The base radio was a saver a few times during the event. When too wet to write on paper, I sat in my SUV and logged runners as Sam was outside and telling me Bib #'s to log via the simplex frequency.

Fire Line Aid Station

Fire Line, as I've usually referred to it, is at the intersection of Sycamore Canyon Road and Fire Lane Trail. The park rangers also called for 4WD vehicle to this location, although I observed that Sycamore Canyon Rd is wide, Flat, and firm, even when wet, at least to the Fire Lane trail intersection. Wayne, AF6GX (SBARC) volunteered his 4WD and may have assisted Edsel, K6DSE to this location. Although closer to the Repeater, this location also requires RF signals to pass through rock to hit the repeater. Wayne is equipped with an external antenna and a mobile rig. Also, the hill behind Fire Line may provide a reflection path to the repeater. Wayne was full quieting into the repeater, but there was some white noise on Edsel's signal, but he was generally readable. Fire Line is one of the last stations to close and closed a little earlier because I took the repeater down a bit early. After fishtailing up Overlook Trail in the dark with fog, I was a little spooked about seeing my way down, as it appeared fog was rolling in off the ocean. The side of Overlook trail is a steep cliff and needless to say, there are no guard rails on forest service roads. Therefore, I wanted to get down before it was completely dark and foggy. To my delight, I found going down the road very easy – no fishtailing or other control problems, because you do not need to apply power to descend. I put the transmission in low and used the breaks a little to control speed. A big plus was that the threatening fog never rolled in, and so I always had a very clear view of the road with head lights on. Sorry I left early and apologies to the Fire Line crew and any inconvenience to the aid station, NCS or the event director.

From Wayne, AG6GX:

Please forward link to anyone that would be interested. These are only from the 1st shift, it got too busy later in the day for photos.

<https://gswayne.smugmug.com/Misc/2019-Ray-Miller-50-50-Fireline-Aid-Station/i-6hJzXj7>

As usual it was a great group of people to be working with. It seems the longer the race the higher the quality of the participants and the volunteers.

Wayne Beckman AF6GX

So, bottom line, one of the best races (excepting the DNS fiasco), few if any injuries to runners and Radio comm. Good Readable to all locations. Weather was wet, but warmer than on many other occasions. Again, Thanks to all for

willingness to come out in the weather, showing up on time with effective equipment.

73 Dale, WB6MMQ

Contest for: December - January

ARRL 10 Meter Contest

In December, on the 2nd full weekend, is the ARRL 10 Meter Contest. It starts 0000 UTC Saturday (Friday 4 PM PST); runs through 2359 UTC (3:59 PST) Sunday (**December 14-15, 2019**). This is a great contest for our club members as 10 meters has a phone portion open to Technician Class Licensees. Also, good result can be obtained with a simple 100 inch vertical antenna up on the roof. Several local contacts are best made shortly after the start on Friday afternoon. DX contacts tend to occur as the gray line passes over the US and South America in the morning and afternoon. With the sunspots in a low ebb, expect to contact only a few of the more powerful DX stations. When submit-*ing* your log, be sure to indicate your club as: The Hughes ARC. More info at: <http://www.arrl.org/10-meter>

For CW enthusiasts Dec 31 Straight Key Night (SKN).

ARRL RTTY Roundup, Jan 4, 1800z to Jan 6,

0000z; RTTY, Digital; Bands: 80, 40, 20, 15, 10m; W/VE: RST + (state/province), non-W/VE: RST + Serial No.

HNLB-Hughes Net Lunch Bunch - 12/3/19

HNLBers,

We had 8 for lunch on Tuesday, including a new addition: Alice Franco, KK6MFL. Alice took the HARC Tech class awhile back and joined the club. Now she's joined our monthly lunch. Welcome. Most of the QRM that I heard had to do with getting to know Alice. Others present were: Deryl, N6AIN, Al, W6IVO, Dick, W1MIL, Dick, W6RFI, Inge, W6RFI-YL, Elliott, WA6TLA, and yours truly, Betty, N6VZF.

Merry Christmas and all the other holidays.

Betty, N6VZF

Sam, W6LXR, Replies to Betty and the group:

Hi All, Saul Yochelson, W6AS has become a SK as of last week.

73, Sam, W6LXR

Ed.Note: The Hughes Net Lunch Bunchers (HNLBers) meet in Westchester, at the Coffee Co. La Tijera Blvd & Sepulveda East way, at 11:30 am. They've meet on the 1st Tuesday of the Month - since the mid 70s - 40 years!

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ARRL Letter – Excerpts of possible interest

FCC Amending Amateur Radio RF Exposure Safety Rules

The FCC is amending its Part 97 Amateur Service rules relating to RF exposure safety. In a [lengthy document](#) in ET Docket 19-226 released on December 4 and addressing a broad range of RF safety issues, the FCC said current amateur radio RF exposure safety limits will remain unchanged, but that the amateur-specific exemption from having to conduct an RF exposure evaluation will be replaced by the FCC's general exemption criteria. Radio amateurs have always had to comply with RF exposure limits, but certain stations have been exempt from having to conduct evaluations based only upon power and frequency. The Commission indicated that, by and large, if an RF source was "categorically excluded" from routine evaluation under the old rules, it will most likely still be exempt under the new rules, which are expected to take effect in the next couple of months.



"For applicants and licensees in the Amateur Radio Service, we substitute our general exemption criteria for the specific exemption from routine evaluation based on power alone in Section 97.13(c)(1) and specify the use of occupational/controlled limits for amateurs where appropriate," the FCC said.

"The sky is not falling here," ARRL Lab Manager Ed Hare, W1RFI, commented. "The major aspects of the rules will not impose major new burdens on the Amateur Radio Service. As in all regulatory matters, though, the devil may be in the details, so the ARRL technical staff, legal staff, and the experts on the ARRL RF Safety Committee are carefully evaluating this FCC document."

Under the revised Section 97.13(c)(1), "In lieu of evaluation with the general population/ uncontrolled exposure limits, amateur licensees may evaluate their operation with respect to members of his or her immediate household using the occupational/ controlled exposure limits in Section 1.1310, provided appropriate training and information has been accessed by the amateur licensee and members of his/her household," the amended rule says.

"RF exposure of other nearby persons who are not members of the amateur licensee's household must be evaluated with respect to the general population/uncontrolled exposure limits. Appropriate

methodologies and guidance for evaluating Amateur Radio Service operation is described in the Office of Engineering and Technology (OET) [Bulletin 65, Supplement B](#)," the revised rule concludes.

The FCC said it was not persuaded by ARRL's argument in its comments that the routine evaluation exemption for amateur radio stations operating below a certain power threshold should be maintained. "Amateur radio licensees operate a variety of installations of different size, power, and frequency, which can be located in close proximity to people, giving rise to various RF exposure concerns," the FCC noted.

In a meeting with FCC OET Chief Julius Knapp and senior staff in early November, ARRL asked the FCC to make available on the internet a calculator to facilitate making the correct calculations the rules require. ARRL said that would be preferable to unofficial third-party calculators, the results from which might not be accorded the same degree of deference in local disputes. Several software programs were suggested as models.

The FCC did not single out amateur radio in drafting its latest RF exposure rules. The rules affect multiple services, and exemptions for many other services were also deleted as part of a broader policy driven by a proliferation of RF devices, some resulting in situations where gain antennas are sited much closer to people than was expected in 1996 when the rules were last revised.

ARRL Asks FCC to Dismiss Petition Seeking Declaratory Ruling on Encoded Message Rule

ARRL has asked the FCC to dismiss a *Petition for Declaratory Ruling* filed by New York University (NYU), that in ARRL's view proposes a new interpretation of the rule --

Section 97.113(a)(4) -- prohibiting "messages encoded for the purpose of obscuring their meaning." In its December 2 filing, ARRL said NYU's call to "clarify" the rule's meaning to prohibit "effectively encrypted or encoded messages, including messages that cannot be readily decoded over the air for true meaning," is not only vague but could weaken the prohibition against encryption.



ARRL pointed out that the FCC rule prohibiting "messages encoded for the purpose of obscuring their meaning," is essentially the same as what appears in the International Telecommunication Union (ITU) *Radio Regulations* applying to all countries. ARRL made clear that it continues to support rules prohibiting encrypted messages on the amateur bands, even for limited

emergency communication purposes, and the ARRL Board reiterated that opposition last July.

In its comments, ARRL said that NYU's request that the FCC adopt its suggested language would introduce ambiguity and confusion in the application of a rule that's clearly understood to prohibit encrypted messages. ARRL noted that Morse code is encoded and would fall within the prohibition as proposed by NYU. "The very fact that messages sent in CW are 'encoded' by any definition of the term starkly demonstrates the problem with this proposal," ARRL said.

ARRL said that adding the word "effectively" would make the definition even more vague by including all encoded messages plus an additional set of undefined messages, the extent of which is unknown. Similarly, ARRL maintained, it is "unclear and undetermined what the petitioner may mean by 'effectively encrypted.'" Encryption is a binary proposition, ARRL pointed out, and the meaning either is hidden from all but the intended recipient(s) or it is not; a message cannot be considered "encrypted" if the means to enable non-recipients to understand the message are generally available.

"The Commission has addressed amateur use of digital signals in multiple proceedings [and] there has been no showing that the current regulatory scheme is deficient in prohibiting encrypted messages," ARRL concluded.

"Adding the modifier 'effectively' to 'encrypted' converts clear meaning into vague uncertainty," ARRL asserted. FCC rules explicitly authorize radio amateurs to use new digital techniques on the condition that the techniques be described adequately and available publicly, ARRL said, pointing to multiple filings in the FCC record from individuals who have successfully used the public descriptions to decode the digital techniques with which NYU has expressed concern.

NYU has not presented any information to demonstrate that the FCC's current rule is not being complied with by digital innovators, ARRL said, and adoption of NYU's petition would create more questions for the FCC than it would be able to answer if called upon to apply the petition's vague language in specific cases.

"We are unaware of any enforcement case in which the Commission is experiencing difficulty in understanding and applying the prohibition against encrypted messages," ARRL maintained.

What the petitioner regards as violations "augurs against its proposal to interpret in some new fashion the international and domestic prohibition," ARRL said. "For example," ARRL continued, "the petitioner asserts,

without any basis in fact, that dynamic compression techniques effectively encrypt or encode communications." Such techniques are widely recognized ways to increase the efficiency of digital transmissions," ARRL noted that comments in the record clearly state that signals using dynamic compression are being decoded by third-party listeners.

"The Commission has addressed amateur use of digital signals in multiple proceedings [and] there has been no showing that the current regulatory scheme is deficient in prohibiting encrypted messages," ARRL concluded. "To the contrary, adoption of the petitioner's proposals would add confusion -- rather than clarity -- and diverge from the international consensus on prohibiting encrypted messages while fostering vibrant experimentation with digital techniques."

A 600 W Broadband HF Amplifier Using Economically Priced LDMOS Devices

Razvan Fatu, M0HZH/YO9IRF, has designed and built a [600 W broadband HF amateur radio amplifier](#) that uses a pair of low-cost MRF300 LDMOS (laterally diffused metal-oxide semiconductor) MOSFET devices. LDMOS devices are widely used in RF power amplifiers. Fatu's model A600, now at version 1.2, was designed to demonstrate the capabilities of MRF300s as linear broadband devices in the 2 - 50 MHz range.

"The announcement of the MRF300 and MRF101 transistors by NXP in 2018 has generated quite a spark of interest in the amateur radio community, and as soon as I learned about them, I wanted to get some on my workbench," Fatu said. He has entered his project in the NXP Homebrew RF Design Challenge 2019.



"To achieve the target of 600 W output while also minimizing the level of even-number harmonics, a push-pull configuration of two transistors is used," he explains. "Luckily, the manufacturer made it easy to design the PCB layout for such a thing by offering two versions -- the MRF300AN and MRF300BN -- that have mirrored pinouts." The individual transistors are specified at 330 W output and come in a TO-247 package, with the source connected to the tab. The recommended supply range is 30 - 50 V dc. "By studying the specifications, it looks like with correct broadband matching and some operational safety margin, we can get close to 600 W output at a voltage of around 45 V across a reasonably large bandwidth; the

aim is to cover 1.8 to 54 MHz," Fatu said. "Main challenges when designing this amplifier are related to achieving good input and output matching over the entire frequency range as well as maintaining high and flat gain. Good linearity and a low level of harmonic products are mandatory. As the TO-247 is not a package specifically designed for high-power RF, there are some challenges with thermal design and PCB layout as well."



"This is a homebrew project, so the test setup is pretty typical of a hobbyist's test bench," Fatu said. "Most of the equipment is not of lab-grade precision, but still accurate enough for amateur radio."

current. Traces also were sized for the right trace impedance where possible, he explained. Fatu installed an intermediary 3-millimeter-thick copper plate between the transistors and the aluminum heatsink. He used a liquid metal product called Galinstan which, he said, offers exceptional thermal and electrical conductivity and doesn't require much pressure to achieve best performance.

During testing, he found that the amplifier will put out about 580 W at 3.7 MHz and works most efficiently in the higher bands. "The highest output power I've measured was 840 W in the 10-meter band, but the wave was distorted and the harmonic levels were high," Fatu said.

He has posted a [video](#) in addition to an online [article](#).

NOAA/NASA Panel Concur that Solar Cycle 25 will Peak in July 2025

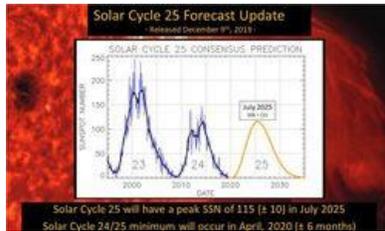
The NOAA/NASA-co-chaired international Solar Cycle Prediction Panel has released its [latest forecast](#) for the coming Solar Cycle 25. The panel's consensus calls for a peak in July 2025 (± 8 months), with a smoothed sunspot number of 115. The panel agreed that Cycle 25 will be of average intensity and similar to Cycle 24. The panel additionally concurred that the solar minimum between Cycles 24 and 25 will occur in April 2020 (± 6 months). If the solar minimum prediction is correct, this would make Solar Cycle 24 the seventh longest on record at 11.4 years. In its preliminary forecast released last April, the scientists on the panel forecast that Solar

The circuit uses a 4:1 transformer at the input.

He used surface-mount devices wherever possible, to minimize stray inductance, and designed the circuit board power traces to be thick enough to support the high

Cycle 25 would likely be weak, much like the current Cycle 24.

"Solar Cycle 25 may have a slow start, but is anticipated to peak with solar maximum occurring between 2023 and 2026, and a sunspot range of 95 to 130. This is well below the average number of sunspots," the panel said last spring, adding with "high confidence" that Cycle 25 "should break the trend of weakening solar activity seen over the past four cycles." The panel said the expectation that Cycle 25 would be comparable in size to Cycle 24 suggests that the steady decline in solar cycle amplitude seen from Cycle 21 through Cycle 24 has ended and that there is no indication of an approaching "Maunder-type" minimum. Cycle 24 peaked in April 2014 with an average sunspot number of 82.



The Solar Cycle Prediction Panel forecasts the number of sunspots expected for solar maximum, along with the timing of the peak and minimum solar activity levels for the cycle. It is comprised of scientists representing NOAA, NASA, the International Space Environment Services, and other US and international scientists.

More Than 1 Million Contacts Logged During 2019 ARRL Field Day

ARRL Contest Program Manager Paul Bourque, N1SFE, reports that nearly 1.1 million contacts were made during the 2019 ARRL Field Day -- the most popular operating event in North America.

Bourque reported the [2019 ARRL Field Day results](#), in ... the December 2019 issue of *QST*. Bourque says that more than 36,000 Hams took part in 2019 Field Day across all 83 ARRL/Radio Amateurs of Canada Sections, up slightly from the 35,250 reported last year.

"This year, 3,113 entries were received from local clubs and emergency operations centers (EOCs), as well as individual portable, mobile, and home stations," Most entries were in Class A -- club or non-club groups of three or more.

Of all the contacts, approximately 46% were made on phone, and 456,000 (42%) of contacts were made on CW. The remaining 138,000+ (12%) of the contacts were made on digital modes, such as FT8 and RTTY.

"This is a substantial increase compared to 2018, when total QSOs on the digital modes numbered just over 56,000," Bourque reported.

Top 10 scores ranged between W3AO's Class 14A entry from Maryland-DC, with 32,356 points, to W1NVT's 14,876-point Class 2A entry from Vermont.

"Not only is ARRL Field Day an opportunity to sharpen operating skills in temporary and portable locations, it's also an occasion to showcase amateur radio to the local community," Bourque wrote.

[Soapbox comments](#) for Field Day 2019 are available on the ARRL website. ARRL Field Day 2020 will take place June 27 - 28.

In Brief...

The theme for the 2020 [Dayton Hamvention](#)® will be "Amateur Radio, The Future."

Hamvention General Chair Jack Gerbs, WB8SCT, invited Hamvention attendees to celebrate amateur radio's



past, present, and future. "As amateur radio operators, we enjoy many modes of operating," Gerbs said. "We also enjoy challenges such as satellite communications, moonbounce, meteor scatter, and more. What truly excites me about our hobby is the diversity of these modes and the fact that, as we move to the future, we still enjoy the technologies of the past." Gerbs noted that Hamvention has long been a place to find vintage parts and gear and to see the latest technology. "The theme acknowledges the role that amateur radio has always played and will continue to play in future communication developments," Hamvention said, acknowledging the contributions of the many hams who actively work on new ideas, equipment designs, and software to improve electronic communication. Hamvention 2020 takes place May 15 - 17 at the Greene County Fairgrounds and Expo Center in Xenia, Ohio.

Massachusetts has settled on a one-hand-on-the-wheel rule for mobiles.

The Bay State's two ARRL Section Managers report they have received confirmation that the Commonwealth's distracted driving law does not apply to two-way mobile radio operation. The



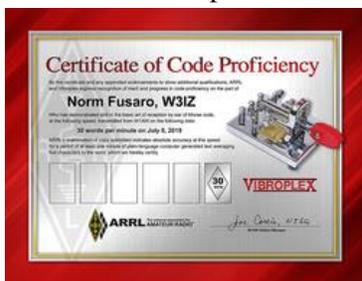
The new law "permits use of a federally licensed two-way radio, provided that one hand remains on the steering wheel at all times," except as provided in sections 8M, 12A, and 13B of the law. -- *Thanks to Western Massachusetts SM Ray Lajoie, KB1LRL, and ARRL Eastern Massachusetts SM Tom Walsh, KITW*

The Boy Scouts say JOTA station participation was up in 2019. The Scouts [report](#) that, although overall Jamboree On the Air (JOTA) 2019 participation was down slightly from 2018, "our calculations show that each station averaged an additional 13 people in attendance over 2019. This shows an aggregate increase of 24% attendance per station, even with our reported stations being down from 266 in 2018 to 201 in 2019." The Scouts reported that 13,783 individuals took part in JOTA 2019, down from 14,708 in 2018.



Starting with the August issue, QST will list the recipients of W1AW Code Proficiency certificates. (repeat from July)

Key manufacturer [Vibroplex](#) is now sponsoring the certificates, which have been redesigned. The Code Proficiency program has been an ARRL staple for decades. Participants who copy a [W1AW qualifying run](#) and submit 1 minute of legible solid copy and the \$10 certificate fee can qualify. Send submissions to W1AW Qualifying Run, 225



Main St., Newington, CT USA 06111. These are checked directly against the official W1AW text, and those demonstrating solid copy will receive an initial Code Proficiency certificate. Endorsement stickers, which cost \$7.50, are issued for speeds up to 40 WPM. Those seeking to attain a Code Proficiency certificate can listen to W1AW daily code practice sessions, in which the text is taken directly from QST, as announced before each practice run. **Starting in December, W1AW will transmit upto 16 Qualifing runs per month.**

The K7RA Solar Update

Tad Cook, K7RA, Seattle, reports: [Spaceweather.com](#) says that Wednesday, December 11, was the 28th consecutive day of no sunspots. To date in 2019, 77% of days had no sunspots. Compare this to the previous solar minimum: In 2008, 73% of days were spotless, and in 2009, 71% of days had no sunspots.



The average daily solar flux for the December 5 - 11 reporting week was 70.7, up marginally from the previous week's 70.2.

At the bottom of the solar cycle, hardly any geomagnetic activity occurs, with average daily planetary A index at 3.7 and average middle latitude A index at 1.9. This is very quiet and is favorable to propagation on 160 meters.

As was the case in last week's bulletin, the predicted solar flux is 70 on each of the next 45 days -- until January 25.

The predicted planetary A index is 5, 8, and 8 on December 12 - 14; 5 on December 15 - 17; 12 on December 18; 10 on December 19 - 21; 5 on December 22 - January 4; 8 on January 5; 5 on January 6 - 8; 8 on January 9 - 10; 5 on January 11 - 13; 12 on January 14; 10 on January 15 - 17, and 5 on January 18 - 25.

Sunspot numbers for December 5 - 11 were 0, 0, 0, 0, 0, 0, and 0, with a mean of 0. The 10.7-centimeter flux was 70.7, 70.3, 70.2, 71.6, 70.7, 70.6, and 70.7, with a mean of 70.7. Estimated planetary A indices were 3, 4, 2, 3, 4, 4, and 6, with a mean of 3.7. Middle latitude A index was 1, 2, 1, 2, 2, 2, and 3, with a mean of 1.9.

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. [Monthly charts](#) offer propagation projections between the US and a dozen DX locations.

[Share](#) your reports and observations.

ARRL Section, State and Division Conventions / Hamfest in the West or near members every where:

- December 13 - 14 -- [West Central Florida Section Convention](#), Plant City, Florida
- January 19 - 25 -- [Quartzfest](#), Quartzsite, Arizona

Find conventions and hamfests [in your area](#).

Just Ahead in Radiosports

December 14 - 15 -- ARRL 10-Meter Contest (CW, phone)

- December 14 - 15 -- TRC Digi Contest (Digital)
- December 14 - 16 -- PODXS 070 Club Triple Play Low Band Sprint (Digital)

December 15 -- CQC Great Colorado Snowshoe Run (CW)

December 16 -- Run for the Bacon QRP Contest (CW)

December 18 -- NAQCC CW Sprint

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.

The Canadian National Parks on the Air, CNPOTA, operating event runs for the entire year of 2019, with special stations active from Canada's parks and historic sites.

All dates & times are UTC.

Selected DX News (QRV = Ready! or Are you Ready?)

ARLD049 DX news

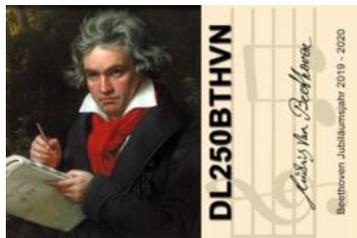
OPERATION APPROVED FOR DXCC

CREDIT. The following operation is approved for DXCC credit: Lakshadweep Island, VU7RI, 2019 operation.

This week's bulletin was made possible with information provided by W3UR, W9JJ, 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.

A year-long special event will honor Beethoven.

German special event station [DL250BTHVN](#) will be active between December 16, 2019, and December 17, 2020, to honor the 250th anniversary of the birth of famed



composer Ludwig van Beethoven. The Beethoven anniversary year will take place under the auspices of Germany's Federal President Frank-Walter Steinmeier. Beethoven was born in December 1770 in Bonn, Germany, and lived there for the first 22 years of his life. The anniversary event is aimed in part at highlighting Beethoven's extensive oeuvre as a composer and to boost Bonn's reputation as a "Beethoven city." QSL via direct or by the bureau.

ROTUMA ISLAND, 3D2. 3D2AG/p will be QRV beginning **December 17**. Activity will be on 160 to 10 meters. QSL via 3D2AG.

GEORGIA, 4L. Tev, TA1HZ will be QRV as 4L/TA1HZ from **December 13 to 20**. Activity will be mostly on the low bands using FT8 and FT4. QSL #1

SENEGAL, 6W. A group of operators are QRV as 6V1A from Goree Island, IOTA AF-045, until **December 15**. Activity is on the HF bands using CW and SSB. QSL via 6W1QL.

BHUTAN, A5. Zorro, JH1AJT, Franz, DJ9ZB, Adrian, KO8SCA, Max, ON5UR and Champ, E21EIC are QRV as A50BOC, A50BPC, and A5B until **Dec. 20** as part of a trip here in order to support Bhutan's Olympic and Paralympic Committees with regard to the 2020 Olympic Games in Tokyo. Activity is on 160 to 6 meters using CW, SSB and FT8 and FT4. QSL via JH1AJT.

CUBA, CO. Amed, CO2AME plans to be active in the **ARRL 10 M** contest from Havana. QSL#1

ANTARCTICA. Roman, HB9HCF will be QRV as DP0GVN from the Neumayer III station from **December 15 to February 29, 2020**. Activity will be on 160 to 10 meters. QSL via DL5EBE.

CANARY ISLANDS, EA8. Erich, HB9FIH is QRV as EA8/HB9FIH from El Hierro, IOTA AF-004, until the end of **March 2020**. Activity is on the HF bands using CW, SSB and various digital modes. This includes various SOTA and IOTA activations. QSL to home call.

ETHIOPIA, ET. Members of the Ethiopian Amateur Radio Society are QRV as ET3YOTA during **December**. QSL direct to N200.

NEW CALEDONIA, FK. Rudi, DB1RUL is QRV as FK/DB1RUL until **December 27** from various IOTAs. Activity is on the HF bands using mainly FT8. QSL to home call.

HONDURAS, HR. Tom, N9EAW is QRV as N9EAW/HR9 from Roatan Island, IOTA NA-057, **until December 22**. Activity is on HF. QSL#1

THAILAND, HS. Brad, VK2BY will be QRV as HS0ZNR from Nam Yuen from **December 14** to January 8, 2020. Activity will be on 80 to 10 meters using SSB and FT8. QSL via LoTW.

DENMARK, OZ. Volker, DJ8VW is QRV as 5P8VW from Romo, IOTA EU-125, **until Dec. 21**. Activity is on 160 to 6M using CW, SSB & FT8. QSL #1.

TURKS AND CAICOS ISLANDS, VP5. Mark, WQ7X is QRV as VP5/WQ7X from Providenciales Isld, IOTA NA-002, **until Dec. 21**. Activity is on 40 to 10M using CW & SSB. QSL #1

ANTARCTICA. Seba, SQ1SGB is QRV as VP8HAL from the Halley VI Research Station until **February 8, 2020**. Activity is in his spare time on 40 and 20 meters using JT65 and FT8. QSL via

EB7DX.

CAYMAN ISLANDS, ZF. Vicky, AE9YL and Carl, K9LA are QRV as ZF2YL and ZF2LA, respectively, from Grand Cayman, IOTA NA-016, **until December 16**. Activity is on the HF bands. This includes being active in the **ARRL 10 Meter contest**. QSL to home calls.

CYPRUS, 5B. Alex, 5B4ALX is QRV as C4XMAS during **December**. Activity is mainly on 20 meters. QSL via IZ4AMS.

UNITED ARAB EMIRATES, A6. Members of the Emirates Amateur Radio Society are QRV with spcl event station A60BHR **until Dec. 17** to celebrate the 48th Bahrain Ntnal Day. QSL via A62A.

NEW CALEDONIA, FK. Rudi, DB1RUL is QRV as FK/DB1RUL from Grand Terre, Poingam, Ile de Ouvea, and finally Ile de Pine **until the end of December**. Activity is on the HF bands using mostly FT8. QSL #1

FINLAND, OH. Members of the Santas Radio Club are QRV as spcl event station OH9SCL from Rovaniemi **during Dec**. QSL direct to OH9AB.

BELGIUM, ON. Members of the Radio Club des Ardennes will be QRV with special event station OP75USA **from Dec. 7 to Jan. 7, 2020** to commemorate the 75th anniversary of the Battle of the Bulge of World War II, as well as to commemorate the siege of Bastogne. QSL #2

SLOVENIA, S5. Members of the Radio Club Slovenj Gradec are QRV with special event call sign S589PMC **until January 5, 2020**. QSL#3

SOMALIA, T5. Ali, EP3CQ is QRV as 6O100 **until December 19**. QSL #1

ST. KITTS AND NEVIS, V4. John, W5JON will be QRV as V47JA from St. Kitts, IOTA NA-104, **from December 10 to 19**. Activity will be on 160 to 6 meters using SSB and FT8. QSL #1

INDIA, VU. Members of the Repeater Society of Calicut and the Malabar Amateur Radio Society will be QRV with special event call sign ATIRS from Kappad Beach **from December 8 to February 22, 2020** in celebration of the 250th session of Rajya Sabha, the Upper House of the Indian Parliament, and the 70th Constitution Day. QSL #2.

MYANMAR, XZ. Martti, OH2BH is QRV as XZ2D **until April 17, 2020**. Activity is generally on 15 and 10 meters. QSL #1

ROMANIA, YO. Special event station YR2019REV is QRV **during December** to celebrate the 30th anniversary of the Romanian revolution. Activity is on the HF bands. QSL #1

Long Term: (longer than 1 month)

NEW CALEDONIA, FK. Jan, F6EYB is QRV as FK8CJ from Noumea, IOTA OC-032, **until end of 2019**. Activity is on 30, 20 and 17M. QSL #1

NETHERLANDS, PA. Special event station PH100ADL is QRV **until the end of 2019** to commemorate the first commercial flight in the

Netherlands 100 years ago. Activity is on the HF bands using CW and SSB. QSL via bureau.

UKRAINE, UR. Special event station EN185UNIV will be **QRV from April 15 to Dec. 31, 2019** to celebrate the 185th year of the Taras Shevchenko National University of Kiev.

SWEDEN, SM. Members of Ntnl Assoc. of the Active Seeing Impaired club station SK5CG are QRV with special event station SF50CG during **all of 2019** in celebration of their **50th anniversary**. QSL via SM0BYD.

FEDERAL REPUBLIC OF GERMANY, DA. Special event station DM775FLD is QRV **during all of 2019** to celebrate the founding of the town of Friedland 775 years ago. QSL #3

Until 2020

GHANA, 9G. Emil, ZS6EGB is QRV as 9G5ZS **until February 2020**. Activity is on the HF bands using FT8. QSL #4.

NETHERLANDS, PA. Special event station PA75LIMBURG is QRV **until March 2020** to commemorate the liberation of the province Limburg 75 years ago. QSL via PC8DB.

ZAMBIA, 9J. Mario, IK1MYT is QRV as 9J2MYT from Lusaka **until June 2020**. Activity is on 40, 20, 15 and 10 meters. QSL #1

Until 2021

SOUTH SUDAN, Z8. James, Z81C is QRV from Juba while working for a non-governmental organization for the **next 18 months. [until March 2021-ed]** Activity is mostly on SSB. QSL #2

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

Lunch Financials – for October, 2019

Attendance:

Starting Lunch Kitty:	\$222.00
Expenses: Pizza(1) & Salads	\$102.00
Drinks: Soda: 10 @ 0.35 =	\$3.50
Water 2 @ 0.25 =	\$0.50
Food Total:	\$106.00
	\$116.00
Income: Lunch:	\$98.00
	\$214.00
Room Rent-To General Funds:	\$60.00
	\$154.00
Starting - Kitty for Nov. 19, 2019 Mtg:	\$154.00
[Loss of \$8.00 - \$20.00 for room rent = Loss of 28.00]	

Lunch Financials – for Nov. 19, 2019

Attendance: 19

Starting Lunch Kitty:	\$154.00
Expenses: Pizza(4) & Salads	\$102.00
Drinks: Soda: 10 @ 0.35 =	\$3.50
Water 1 @ 0.25 =	\$0.25
Food Total:	\$105.75
	\$48.25
Income: Lunch:	\$112.50
	\$160.75
Room Rent-To General Funds:	\$0.00
	\$160.75
Starting - Kitty for Dec 17, 2019 Mtg:	\$160.75
[Gain of \$6.75 - \$20.00 for room rent = Loss of \$13.25]	

* * *

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)

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 Exam Practice 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

LAX SEC : JIM STOKER AG6EF

4555 ENCINAS DR

LA CANADA FLINTRIDGE CA 9101

818 790 2832

LAX Section Traffic Mngr: Kate Hutton, K6HTN

For Radiogram formatting instructions go to

www.ARRLLAX.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/>

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

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 (Current 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/bandplan.htm>

SCRRBA (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 and 15 WPM

CWf = Morse Code practice (fast) = 35, 30, 25, 20, 15, 13 and 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. For December:

12/16 @ 1PM, 12/17 @ 6AM, 12/18 @ 7PM, 12/19 @ 4PM, 12/23 @ 7PM, 12/26 @ 1PM, 12/27 @ 4PM

For January- Time is PST: 1/6@1PM, 1/7@4PM, 1/9@7PM, 1/10@6AM, 1/14@1PM, 1/15@4PM, 1/16@6AM, 1/17@7PM, 1/21@6AM, 1/22@7PM, 1/23@4PM, 1/24@1PM, 1/27@7PM, 1/29@6AM, 1/30@1PM

West Coast Qualifying Runs: – on CW Frequencies listed above

Wed. Jan 29 @ 9 PM (0500 UTC Jan. 30) on 3590, 7047.5 kHz 40 -10 wpm

Earn your Code Proficiency certificate by legibly copying 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.

The Straight Key Century Club (SKCC):

http://www.skccgroup.com/member_services/beginners_corner/

SKCC Beginner's Corner (Headings from the above Web site)

Monthly Straight Key Night (SKN) is on the 1st of each month. It is not a contest. No logs are submitted.

The event, was inspired by the ARRL's annual SKN. The SKCC's founders wanted to have SKN monthly. The tradition continues!

The Elmer frequency is 7114 KHz. It's a safe haven for CW new- comers. Elmers are encouraged to monitor the frequency and work the CW beginners, some of whom may have had a license for many years.

2018 – 2019 CLUB OFFICERS**Elected Officers:**

PRESIDENT:	Mike, N6MDV	President at W6HA.com
VICE PRESIDENT:	Raul, KM6NRL	W6HA_VicePresident at W6HA.com
SECRETARY:	Judi, KI6TKT	W6HA at W6HA.com
TREASURER:	Alice, KK6MFL	Treasurer at W6HA.com
STATION MANAGER:	Brian, AB6UI	W6HASTationMgr at W6HA.com
Immediate PAST PRES.:	Dale, WB6MMQ	W6HA at W6HA.com

Committees:

NEWSLETTER EDITOR:	Dale, WB6MMQ	W6HA_Editor 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:	Howard, KE6MAK	W6HA at W6HA
FIELD DAY :	Mike, Dale, Raul, Richard	Fieldday at W6HA.com
MEMBERSHIP:	Dale, WB6MMQ	W6HA at W6HA.com
NET COORDINATOR:	Raul, WA6NVL	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
RAYTHEON SAS ECT:	Ken, KI6YDN,	KSIMP1022 at AOL.com
CLUB REPEATER: W6HA/R	445.620 MHz (-) PL 127.3 Hz	Location: Bldg. R1 roof
	Packet (node :hughes) 145.61s W6HA	

HARC Repeater Nets: Wednesdays, 7:30 PM (0200 UTC Thursdays) (Just Started Sept. 2018)
Thursdays, 12:05PM (1900 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 Monday of the month, 7:00 PM (0200 UTC Tuesday)

HAC HF NET: HARC & Retired 14.233 Mhz, Tuesdays, 13:00 PDT – Currently Inactive

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 at W6HA.com. If anyone needs a club application, please contact Paul, KK6TAC or 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://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.
