



Cathay April 2017

www.cathayradio.org

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Mission: The Cathay Amateur Radio Club is basically an active social club of Ham Radio Operators and their spouses. We support local community requests for HAM emergency communications. Several of us are trained in CPR/ First Aid and are involved with community disaster preparedness.

Monday Night Net Time: 9 PM Local Time/PST, Frequencies: 146.67MHz -600KHz PL85.4 and 442.70 +5MHz PL 173.8. The repeaters are linked only during the CARC Monday night net.

Update: Link to repeater 442.70 is currently not active until further notice.

The CARC Monday night net is the best way to find out the latest club news.

All check-ins are welcome.

Message from the President: George Chong, W6BUR

Hello CARC Members and Friends;

It has been a very wet couple of months in Northern California and we are past the worst of it. Our CARC members were ready to be called upon to support emergency communications during the storms. So now we can stand down for the time being!

As a reminder: Ching Ming is now ongoing through April 4 -5 th of this year. The Ching Ming Festival is the Chinese tradition of visiting ones ancestral graves and to cleanup the site from weeds and debris.

On a personal note, I pleased to announce that our CARC member, Ron Quan – KI6AZB is among the honorees at the Galileo Hall of Merit (HOM) Induction Dinner in San Francisco that will be held Friday, April 7, 2017. Ron is being inducted for his many electronic inventions and for his contributions to the development of HDTV. Ron has authored two well respected electronic books that are selling well on Amazon and are used in engineering classrooms. I understand that the Galileo HOM induction dinner event it is completely full at this time, however it will be attended and covered our CARC editor; Rodney Yee – KJ6DZI.

Tech Article Introduction:

For this month Tech Article we are blessed to present to our members an article by distinguished CARC Member: Bart Lee – K6VK, the article is titled: "Experimenters On A New Amateur Radio Band".

CARC Final Wrap-up News

In the public service announcement section, please read "**2 M CW NET**" Mike Kelly's request for folks to join his CW net.

I wish to thank our CARC members that set aside their valuable time to participate in our Monday night's nets.

Chat sub s'em to all you CARC members! - George W6BUR.

Public Service Announcements

HAM CRAM / HAM Licensing

For upcoming HAM Licensing locations please refer to:

<http://www.arrl.org/find-an-amateur-radio-license-exam-session>

2 M CW NET

We are looking for new members to join our CW Net. If you enjoy CW and want to improve or maintain your skill level then we want you!

Our CW net runs daily except Sunday on 144.455 at 5 PM. We start on FM on voice to check in and then go to CW then come back to FM to finish up and sign off. The net runs for 15 minutes to a half hour depending on the radio traffic.

Originally, we had five members and subsequently three members have dropped out for various reasons. We would like to get back to 5 +/- members to join us. If this interest you or do you know someone that might be interested then please contact me at (aa6mk1@gmail.com) for further information or join us on the air.

73,

Mike Kelly AA6MK
Aa6mk1@gmail.com

Auxiliary Communications Service (ACS)

The Auxiliary Communications Service (ACS) was organized by the San Francisco Office of Emergency Services (OES) following the 1989 Loma Prieta Earthquake to support the communications needs of the City and County of San Francisco when responding to emergencies and special events.

The Auxiliary Communications Service holds General Meetings on the third Tuesday of each month at the San Francisco Emergency Operations Center, 1011 Turk Street (between Gough Street and Laguna Street), from 1900 hours to 2100 hours local time. All interested persons are welcome to attend.

The ACS Net begins at 1930 hours (7:30 p.m.) local time each Thursday evening, on

the WA6GG repeater at 442.050 MHz, positive offset, tone 127.3 Hz. The purpose of this net is to practice Net Control skills, practice checking in with deployment status in a formal net, and to share information regarding upcoming ACS events. Guests are welcome to check in. ACS Members should perform Net Control duty on a regular basis. On the second Thursday of each month, the net will be conducted on the output frequency of the WA6GG repeater, 442.050 MHz no offset, tone 127.3 Hz, simplex.

For more information, please attend an ACS meeting or check in on a net, or call 415-558-2717.

Upcoming meetings: Tuesday 7pm, Apr 18, 2017
 Tuesday 7pm, May 16, 2017
.....Tuesday 7pm, June 20, 2017

Gilbert Gin (KJ6HKD)

Free Disaster Preparedness Classes In Oakland:

<http://www.oaklandnet.com/fire/core/index2.html>

CORE is a free training program for individuals, neighborhood groups and community-based organizations in Oakland. The underlying premise is that a major disaster will overwhelm first responders, leaving many citizens on their own for the first 72 hours or longer after the emergency.

If you have questions about the recertification process, you may contact the CORE Coordinator at 510-238-6351 or core@oaklandnet.com.

Free Disaster Preparedness Classes In San Francisco – NERT Taught by San Francisco Fire Department (SFFD)

Upcoming events

April 2017

- 4 Staging area DRILL
 Registration open soon
- 22 NERT Citywide Drill, NERT graduates and victims needed
 SAVE THE DATE!

May 2017

- 4 NERT Quarterly Meeting

11 Medical Reserve Corps/NERT Responder Psychological First Aid Training

June 2017

6 Gas & Electric Safety for volunteer responders with PG&E

RSVP to sffdner@sf.gov or call 415-970-2024 to register.

Visit www.sfgov.org/sffdner to learn more about the training, other locations, and register on line. Upcoming Special NERT Events.

San Francisco Police Department: Auxiliary Law Enforcement Response Team (ALERT)

The Auxiliary Law Enforcement Response Team (ALERT) is a citizen disaster preparedness program designed. The ALERT program is for volunteers 16 years of age or older, who live, work, or attend high school in San Francisco.

Graduates of the San Francisco Police Activities League (P.A.L) Law Enforcement Cadet Academy are also eligible to join.

ALERT volunteers will first complete the Fire Department's Neighborhood Emergency Response Team (NERT) (www.sfgov.org/sfnert) training and then graduate into an 8 hour Police Department course specifically designed for ALERT team members.

ALERT members will work closely with full-time and/or Reserve Police Officers in the event they are deployed after a disaster. The Basic ALERT volunteer will have no law enforcement powers other than those available to all citizens.

SFPD ALERT Training

The next SFPD ALERT training class has been scheduled for Saturday, June 3rd 2017. The class will be held at the San Francisco Police Academy, in the parking lot bungalow, from 8am-5pm (one hour lunch break).

IMPORTANT- All participants must complete the background interview process in order to be eligible to attend the ALERT training class.

Eligible ALERT participants may register for a training class by contacting the ALERT Program Coordinator, Mark Hernandez, at sfpdalert@sfgov.org, or by telephone at 415-401-4615.

SFPD ALERT Practice/Training Drill

All active/trained ALERT members are asked to join us for our next training drill, scheduled for 8:30 am – 1:00 pm Saturday April 29, 2017. Details will be emailed to active ALERT members, prior to the date of the exercise. Participation is not required, but strongly encouraged.

For more information on the San Francisco Police Department ALERT Program, email us at sfpdalert@sfgov.org, or call Sergeant Mark Hernandez (SFPD, Ret.), SFPD ALERT Program Coordinator, at (415) 401-4615.

For additional information on the web please refer to:

<http://sf-police.org/index.aspx?page=4019>

Tech Article Section.

March 10, 2017

Experimenters On A New Amateur Radio Band

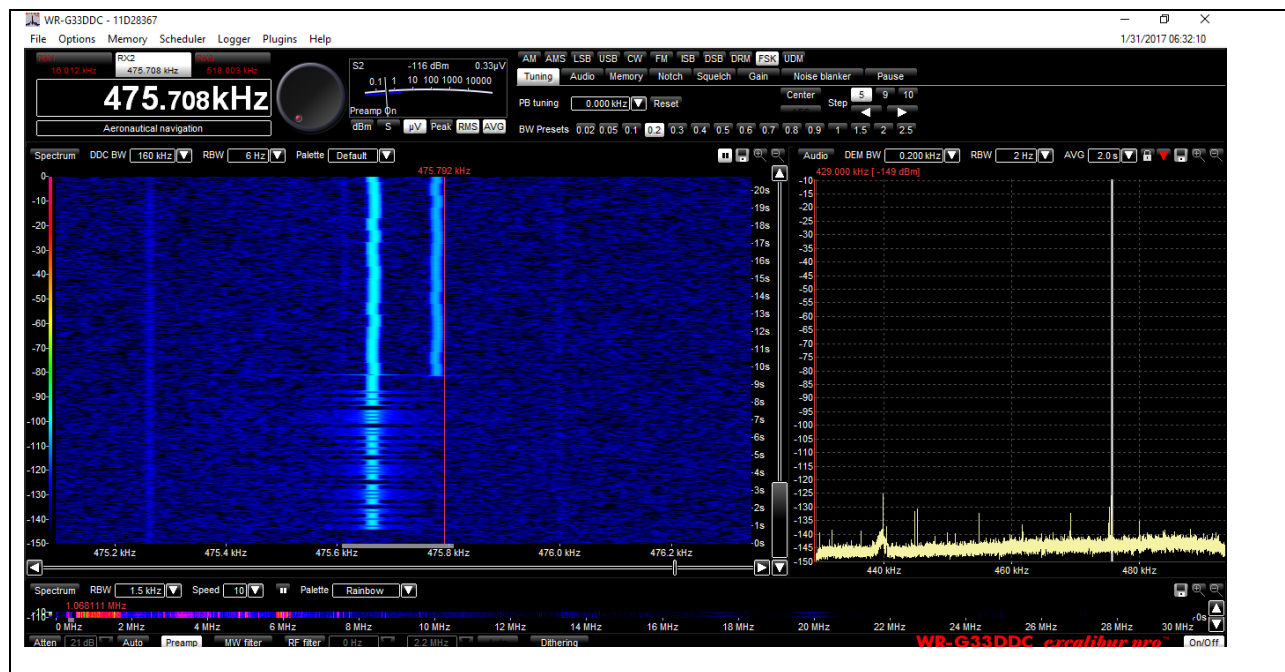
By Bart Lee, K6VK (CHRS*, AWA)

* Fellow of the California Historical Radio Society

Well, it was a lively night February 4th 2017 investigating the historical and legacy medium frequency (MF) band of 630 meters! For many decades the primary marine frequency was 500 KHz at 600 meters. As the sunspots go away, maybe forever, these lower frequencies become more interesting.

The new band at 630 meters, 472 KHz, attracts many experimenters. U.S. amateur radio operators do not yet have general permission to operate, although Canadians and Europeans do. Still, many U.S. experimental stations may be heard, and with a software-defined radio (SDR) they may be seen as well (I use a WinRadio G33).

630-Meter Amateur Activity




This first graphic is the SDR trace at K6VK of WH2XXP (Ward Wheaton, K7PO) from Arizona on 475.66 KHz at 0.33 microvolts.

Ward Wheaton writes:

Thanks for the report, and welcome to 630m! There are a bunch of us on, many much closer to you than I am. WH2XXP current configuration: 30m vertical with 16 sloping top loading wires, QRP Labs U3S driving a HB W1VD design class D amplifier (155W TPO) for ~39W ERP. The amp is just idling along at this power level. At "full throttle" the station is capable of ~250W ERP (my grant is for 100W ERP on 630m).

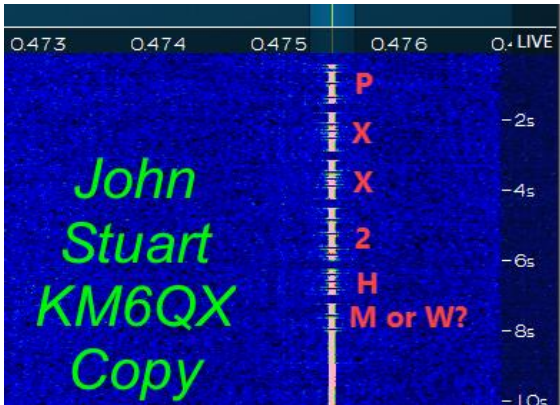
The squiggle is the WSPR beacon mode. This can be decoded with a soundcard. The tail is the station's Morse code callsign identification. Many stations simply use WSPR without further ID. The WSPR protocol is to transmit for two minutes and to stay silent for two minutes to listen.

Part 5 Experimental Grant
NOW OPERATING WH2XXP ON LF/MF



Normal station configuration: 475.66 khz WSPR 50W ERP
All Reports Appreciated!

K7PO/B 28.298 mhz 5W to a vertical antenna in central AZ DM33



WD2SXH is the general callsign of the experimental ARRL set of many 630-meter stations around the country. They have more than 200,000 hours logged so far. The strongest signal on the band on February 4th came from WD2SXH/20 at Eugene Oregon on 471 KHz. This is the station of Rudy Severns, N6LF, a noted antenna expert. His signal came in at 0.75 microvolts over the noise level of 0.33 microvolts. And he has quite an antenna set up as well. See: <http://rudys.typepad.com/files/new-600-meter-station-at-wd2xsh-1.pdf> . He says: "The fundamental rule for LF-MF antennas is: as much wire as possible, as high as possible!" Although transmit antennas run to the long and large, receive antennas can be as simple as vertical wires and small loops. John Stuart, KM6QX, CHRS uses a "Pixel Loop" and a Flex-6700 SDR receiver.

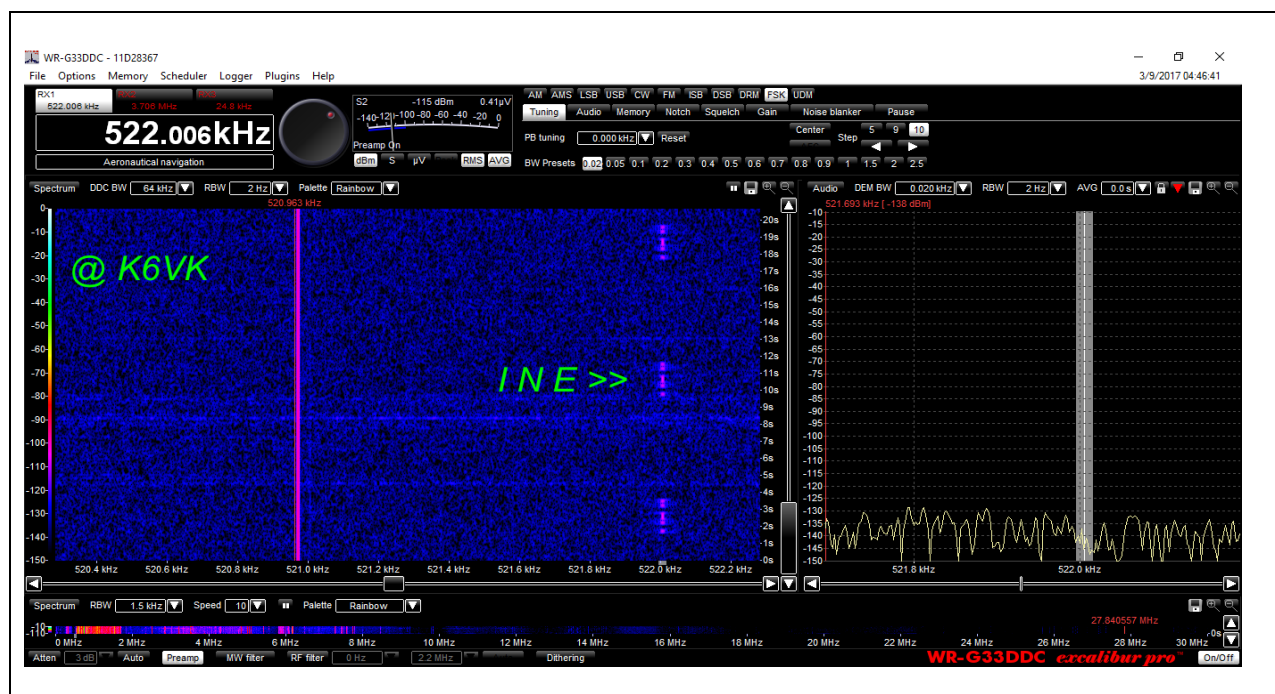
During the February tests, K6VK (Bart Lee) also copied four Canadian stations running WSPR followed by Morse code IDs:

<u>Callsign</u>	<u>Reception</u>	<u>Location</u>
CF7MM	2x2	British Columbia, Canada
VE7BDQ	2x2	British Columbia, Canada
CG7CNF	2x2	British Columbia, Canada
VE7SL	2x2	British Columbia, Canada

WH2XXP is running maybe 39 watts (ERP), he says, on his experimental license. The 2x2 Canadians run a lot less power. I did copy at least the call sign of each. (Although 2x2 is just about ESP level, these are repetitive beacons, after all). All in all, I could copy with some difficulty every west coast station on the band. There were several other WSPR stations I could see but without a CW ID.

LF/MF Nav Beacons as Indicators

I enjoy winter DXing of beacon (navigation) stations in the LF and MF ranges. A few nights prior in January I copied Ontario, Canada low power beacon YHD on MF on 413 KHz. The Montana low power beacons at 515 (SAK) and 521 KHz (INE) come in well every winter night. In the nearby graphic, INE's carrier is 521 KHz and the modulated (upper) sideband appears at 522 KHz. These beacon receptions bode well for MF amateur radio operation, at least in winter, because they are usually less than 50-watt stations, although the Canadians run somewhat more power.



The K6VK (Bart Lee) Receiving Station

My experience now copying stations from VLF at 11.9 KHz (Siberia) to MF at 521 KHz (Montana) is that vertical antennas, especially when paired, outperform my other antennas, including two big loops. They are less noisy by far, no 60 cycle harmonics, good sensitivity although way less than the loops. My long wire is just all noise.

Some antenna experimentation showed that the best (and quietest) signal-in as measured on the SDR came from paralleling a 43 foot vertical wire with the nearby 33 foot (+ 6' mount) Hustler 6BVT. (They are both just E-field probes at these frequencies). The "Very Kinky Loop" of old copper pipe, 8.5 square meters capture area, did well, but suffers from 60 cycle harmonics. And when it rains it picks up electrostatic discharge from the raindrops — who knew? It is also highly directional, which was OK for the 630-meter tests as most stations were to the North. The ground system here at K6VK features about 600 square feet of ground screen, multiple radials both elevated and ground level, and two 8' ground rods.

So, my conclusion is that for everything from ELF to MF, for receiving the best antenna is wires as high up as possible, as many as possible, paralleled, over a good ground ("Your mileage may vary."). What has surprised me is the relative immunity from local noise of the vertical wires at these frequencies (but not at HF). On MF, there were atmospheric "static" crashes in on all antennas; I understand the frustration of the old wireless men with static!

It was helpful to turn off everything that I had plugged into the 110 volt house power, and run the SDR from one heavy duty linear power supply (and the laptop battery). I have since set up long term battery power for the SDR and laptop.

As a test, I ran my Icom 7000 transceiver parallel to the SDR. It imposed weird spurious signals on the SDR at 630 meters. On the other hand, it seems equally sensitive and selective at 472 KHz. This test told me the Icom 7000 with the same good antenna and ground system sounded about as good as the G33 SDR. Whether that would translate into WSPR reception *and* decode I don't know. The SDR has no WSPR decode mode and I can't see any easy way to get one. That is, the G33 SDR does not have an automatic decode for WSPR as it does, for example, NAVTEX.

I don't (yet) know how to interface the SDR with the WSPR software. With the Icom 7000 and a sound card like Signalink® it would be straightforward. So for WSPR, the Icom 7000 will work fine with an external sound card. The G33 SDR demodulates many modes, including USB and will accept user-defined modes, so perhaps there's a WSPR mode available from users.

The WinRadio G33DDC “Excalibur Pro” is a wonderful radio, and I haven’t had so much radio fun since I built a regenerative three tube radio in 1957. But it is in a way its own ecosystem. Moreover the unhappy fact that I am not much of a computer guy makes for challenges. For transmitting (until some good commercial gear comes out) I’d be inclined to try military gear or even home-brew — alas, also not a skill of mine.

For hard to copy Morse CW I tried the old HAL “Telereader” but “No Joy” unless the signal was loud and clear. It did help with WD2SXH/20 and gave me a clue about “Eugene.” It does work really well with KPH / KSM on MF, but that’s ground wave.

So, can K6VK (and maybe CHR’s W6CF) get on the air on 630 meters? Maybe, at K6VK with both vertical antennas and a lot of inductance on the 43’ wire and maybe a capacity hat on the 6BVT.

Soon, VLF For Amateur Radio?

The FCC is looking into making a VLF band available to amateurs, at 137 KHz (2200 meters). Canadians and Europeans already have these privileges. WSPR-15 is designed for that frequency. It uses a 15-minute sequence. Noise is fierce at 137 KHz. But in World War One, the U.S. Army Signal Corps operated its field radios near this frequency throughout France. The Navy long operated on long wave until (and after) World War Two.

KM6QX (John Stuart), W6BM (John Staples) and K6VK (Bart Lee) of the VLF Interest Group of the California Historical Radio Society recently logged a Southern California experimental LoFer (Low Frequency) beacon at 183.5 KHz — WH2XVN run by David Curry. WD4PLI (David Curry) operates on an experimental license under Part 5 of the FCC rules and has maintained his interest since the LoFer heydays of the 1980s in Southern California.

The screenshot displays the FlexRadio System software interface, showing a wideband spectrum display. The top panel shows a narrowband view with a peak at 0.183500 MHz. The bottom panel shows a wideband view with a dense blue background and a vertical green line at 0.183500 MHz. The interface includes various controls and status indicators.

Dave Curry (WD4PLI) says: “The beacon is a Part 5 license that radiates just under a Watt with about 100 Watts input to my class E transmitter working at around 95% efficiency.” And “It is heard over the western half of the country. I live in Burbank.” The beacon transmits: “WH2XVN WH2XVN WH2XVN WH2XVN davecurry@charter.net. DM04. AR”

Amateur Radio started in what we call the VLF, LF and MF frequency ranges as early as 1903. The demands of marine safety, as of 1912, relegated the “hams” to above 1,500 KHz, *i.e.*, 200 meters and down. But now, marine radio having gone to satellites, the lower reaches of the radio frequency spectrum are again opening up to amateur operation and experimentation. Any radio that can hear under the broadcast band can receive 472 KHz transmissions. They can be decoded with a soundcard. A SDR makes it all visible as well. The new amateur radio frontier is the old frontier of wireless, the Navy and the old salts.

73 de Bart, K6VK

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